

Summary of Changes

095871 Contract Deliverable Requirements (CDR)

Rev 17

This serves as notification that our BAE Systems Contract Deliverable Requirements (CDR) has been updated. Please note that the changes below are listed with the older version first, then the new revision is below it, unless otherwise noted. Please see the following changes/additions/deletions:

Legend:

- Addition
- Change
- Deletion

001 Inspection/Test Data Reports

The Supplier to BAE Systems shall submit for each piece all of the Supplier's actual inspection/test data for the specified characteristics identified and specified in the purchasing agreement on a suitable form. If your purchasing agreement does not clarify specific inspection or test data requirements, contact your Purchasing Representative for direction or complete a full FAI for each piece is required. The data shall be submitted and approved prior to shipment of the item in accordance with the Data Submission Instructions located in the Supplier Quality Assurance Manual (SQAM) paragraph 8.12 for this item. As applicable, the data shall include the following information:

- Part Number
- Serial Number
- Quantity of parts
- Identification of each characteristic inspected/tested.
- A ballooned drawing shall accompany the report to identify the notes/characteristics inspected/tested.
- Actual Inspection/test results
- Date of inspection/test
- Inspector's signature, stamp or initials (electronic or digital signatures are acceptable)
- Indication of First Piece (when applicable)

001 Inspection/Test Data Reports

The Supplier to BAE Systems shall submit for each piece all of the Supplier's actual inspection/test data for the specified characteristics identified and specified in the purchasing agreement. **These specified characteristics will be recorded on a suitable form.** If your purchasing agreement does not clarify specific inspection or test data requirements, contact your Purchasing Representative for direction or a full FAI for each piece is required. The data shall be submitted and approved prior to shipment of the item in accordance with the Data Submission Instructions located in the Supplier Quality Assurance Manual (SQAM) paragraph 8.12 for this item. As applicable, the data shall include the following information:

- Part Number/**Revision**
 - Serial Number/**Lot Number/Identifier as applicable**
 - Quantity of parts
 - Identification of each characteristic inspected/tested.
 - A ballooned drawing shall accompany the report to identify the notes/characteristics inspected/tested.
 - Actual Inspection/test results
 - Date of inspection/test
 - Inspector's signature, stamp or initials (electronic or digital signatures are acceptable)
 - Indication of First Piece (when applicable)
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004 First Article Test (FAT)

First Article Testing is required to validate that the production processes are producing results within specification. In the event that First Article Testing is required, BAE Systems may adjust order quantities accordingly in order to define additional parts for the testing. The FAT Report shall be submitted and approved prior to shipment of the item in accordance with the Data Submission Instructions located in the Supplier Quality Assurance Manual (SQAM) paragraph 8.12 for this item. Suppliers are required to inform the BAE Systems Quality Department in writing using VIR 089725 when any of the following occur for any operation or step in the supply chain/manufacturing process, prior to shipment of any affected product to determine what additional testing is required:

- 1.) Change in manufacturing process at tier 1 or any sub-tier suppliers (BAE Systems 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 to be notified prior to the change (s) being made)
- 4.) Break in production of 24 months or more at any sub-tier suppliers.

The Supplier shall update/**resubmit** the FAT plan within 30 days following contract award and cover any changes to the schedule prior to start of the test. 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 testing at any point in the schedule.

004 First Article Test (FAT)

First Article Testing is required to validate that the production processes are producing results within specification. In the event that First Article Testing is required, BAE Systems may adjust order quantities accordingly in order to define **if any** additional parts for the testing, **is required**. The FAT Report shall be submitted and approved by BAE Systems prior to shipment of the item in accordance with the Data Submission Instructions located in the Supplier Quality Assurance Manual (SQAM) paragraph 8.12 for this item. *Suppliers are required to inform the BAE Systems Quality Department in writing using VIR 089725 when any of the following occur for any operation or step in the supply chain/manufacturing process, prior to shipment of any affected product to determine what additional testing is required:*

- 1.) Change in manufacturing process at tier 1 or any sub-tier suppliers (BAE Systems 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 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 Supplier shall update **and submit** the FAT plan within 30 days following contract award **covering all** changes to the schedule prior to start of the test. 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 testing at any point in the schedule.

005 Customer Source Surveillance (CSS)

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

The Supplier shall provide five (5) working days advance notification of requests for source inspection through submission of Form 092245. Requests shall be submitted in accordance with the Data Submission Instructions (located in the SQAM, paragraph 8.12) specified for this item. Unauthorized/unapproved shipment of product without BAE Systems source inspection may result in the shipment being rejected, a supplier corrective action request may be issued and product may be returned to the Supplier at the Supplier's expense.

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

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 in the "as defined condition" with all required contract or TDP requirements met prior to presentation.** In order to accommodate BAE Systems source inspection representatives, the Supplier shall make all facilities, equipment, inspection records, and assistance readily available.

The Supplier shall provide five (5) business working days advance notification of requests for source inspection through submission of Form 092245. Requests shall be submitted in accordance with the Data Submission Instructions (located in the SQAM, paragraph 8.12) specified for this item. Unauthorized/unapproved shipment of product without 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 as applicable.

006 Government Source Surveillance/Inspection (GSS/GSI)

Government surveillance/inspection is required prior to shipment from your plant and **cannot be waived** by BAE Systems. The surveillance/inspection approval evidence shall be submitted prior to shipment of the item in accordance with the Data Submission Instructions located in the Supplier Quality Assurance Manual (SQAM) paragraph 8.12.

Upon receipt of the Purchasing Agreement, promptly notify the Government representative who normally services your facility so that appropriate planning for Government inspection can be accomplished. If the local Government Representative directs that 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 surveillance/inspection requirements to their sub tier suppliers without the direction of their local Government Representative.

Unauthorized shipment of product without Government Source Surveillance may result in 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.

Supplier shall notify the local Government DCMA Representative of pending inspections in accordance with FAR 52.246-2(i) (2), at: https://www.acquisition.gov/far/current/html/52_246.html.

The Supplier shall submit the GSS approval document with each shipment.

006 Government Source Surveillance/Inspection (GSS/GSI)

Government source surveillance/inspection is required prior to shipment from your plant and **cannot be waived** by BAE Systems. The **source** surveillance/inspection approval evidence shall be submitted prior to shipment of the item in accordance with the Data Submission Instructions located in the Supplier Quality Assurance Manual (SQAM) paragraph 8.12.

Upon receipt of the Purchasing Agreement, promptly notify the Government representative who normally services your facility so that appropriate planning for Government inspection can be accomplished. If the local Government Representative directs that **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.

Supplier shall notify the local Government DCMA Representative of pending inspections in accordance with FAR 52.246-2(i) (2), at: https://www.acquisition.gov/far/current/html/52_246.html.

The Supplier shall submit the GSS approval document with each shipment.

007 Welding-Combat Vehicles

- Suppliers **SHALL** be up-to-date with the required Weld Process Audit **PRIOR** to submitting Weld Procedure(s) to BAE Systems Weld Engineering for review. Suppliers **SHALL** provide supporting documentation and evidence for a Weld Process Audit in accordance with the requirements listed in the SQAM. All supporting documentation **SHALL** be made available to BAE Systems upon request.
- **PRIOR** to the start of fabrication, the Supplier **SHALL** review WE-005, submit and gain approval for all procedure(s) per the Purchase Order Part Number. The Supplier **MAY** utilize BAE Systems Weld Procedure Specification(s) (WPS) in the event that the Supplier has completed the BAE Systems required Weld Procedure Training and Weld Process Audit.
- In the event that the Supplier is **NOT** approved to utilize BAE Systems Weld Procedures and/or BAE Systems **DOES NOT** have applicable Weld Procedure(s) to fabricate the Weldment to fulfill the purchase order, the Supplier **SHALL** be responsible for providing and/or qualifying Weld Procedure(s) **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(s) intended for part fabrication to BAE Systems Weld Engineering for review and approval via the Supplier Welding Procedure Submission Form 089136 **PRIOR** to the start of welding and fabrication. The latest version of the form **SHALL** be utilized and is

accessible via the BAE Systems Purchasing Website. Each Weldment Part Number and the applicable WPS(s) **SHALL** be submitted individually.

- In the event that the Supplier provides a non-BAE Systems qualified Weld Procedure, the Procedure Qualification Record(s) and Mechanical Testing Results **SHALL** be submitted along with the respective WPS(s) for review and approval.
- Supplying product to BAE Systems with an unapproved, rejected, and/or incorrect Welding Procedure Specification (WPS) is a violation of the BAE Systems Purchasing Agreement and is considered non-conforming and parts are subject to rejection and **MAY** be returned to the Vendor (RTV) at the Supplier’s expense.
- The Supplier **SHALL** resubmit the Supplier Welding Procedure Form to BAE Systems Weld Engineering in the event that the Base Material, Weld Procedure(s), and/or the Part Number Configuration changes from the previously approved form. The form **SHALL** also be resubmitted if the BAE Systems Purchasing Agreement Part Number changes throughout configuration, regardless if all other variables have remained consistent from the previously approved form.
- The Supplier **SHALL** be responsible for maintaining all supporting documentation including, but **NOT** limited, to the following; 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 BAE Systems at all times.
- Supplier **SHALL** submit Standard and Non-Standard Repair Procedure(s) via the Vendor Information Request (VIR) Form 097908 for review and approval **PRIOR** to use.

Aluminum and Steel Arc Welding; Resistance Welding and Brazing

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

Number/ Procedure

Document Title

090451	Visual Testing Inspection In Accordance With Ground Combat Vehicle Welding Code – Aluminum (12472301)
090504	Visual Testing Inspection In Accordance With Ground Combat Vehicle Welding Code – Steel (12479550)
091866	Brazing or Braze Welding Procedure - Cover Sheet (LAA-5130)
091868	Recorded Joint Welding Procedure for Resistance Welding Cover Sheet (LAA-5131)
092587	Weld Supplier Approval and Weld Procedure Submission Process Guideline (WE-005)
092579	SRP Repair of Steel Base Metal (WE-SRP02)
092580	SRP Repair of Aluminum Base Metal (WE-SRP01)
092585	BAE Systems Weld Procedure Book - Steel

092586	BAE Systems Weld Procedure Book - Aluminum
089136	Supplier Welding Procedure Submission Form
089725	Vendor Information Request

Forms are available via the BAE Systems Purchasing Website and/or a BAE Systems Authorized Purchasing Representative.

Ground Combat Vehicle Welding Code – Aluminum (12472301) replaced the following specifications (reference page 4, Table P.1):

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

Ground Combat Vehicle Welding Code - Steel (12479550) replaced the following specifications (reference page 4, Table P.1):

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

007 Welding-Combat Vehicles

PRIOR to the start of fabrication (or repair to raw material, casting, forgings, etc.), the Supplier **SHALL** review WE-005 Weld Supplier Approval and Weld Procedure Submittal Process, submit, and gain approval for all procedure(s) per the Purchase Order Part Number. The Supplier **MAY** utilize BAE Systems Weld Procedure Specification(s) (WPS) in the event that the Supplier has completed the BAE Systems required Weld Procedure Training and Weld Process Audit.

In the event that the Supplier is **NOT** approved 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 Purchase Order, the Supplier **SHALL** be responsible for providing and/or qualifying Weld/Braze Procedure(s) **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 CDR007 Supplier Welding 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 P&S Supplier Website. Each Weldment/Brazement Part Number and the applicable WPS/BPS(s) **SHALL** be submitted individually.

In the event that the Supplier provides a non-BAE Systems qualified Weld Procedure, The Supplier **SHALL** submit the following documentation to BAE Systems for review and approval:

- **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 Welding Procedures to be utilized **SHALL** be approved **PRIOR** to use; which **SHALL** include tack welding and weld 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 **SHALL** be considered non-conforming and parts are subject to rejection and **MAY** be returned to the Vendor (RTV) at the Supplier's expense.

The Supplier **SHALL** resubmit the CDR007 Supplier Welding Procedure Form to BAE Systems Weld Engineering in the event that the Base Material, Weld/Braze Procedure(s), and/or the Part Number Configuration changes from the previously approved form. The form **SHALL** also be resubmitted if the BAE Systems Purchasing Agreement 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; 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 Base Metal Repairs, the Supplier **SHALL** submit all Standard and Non-Standard Repair Procedure(s) via the Vendor Information Request (VIR) Form 097908 for review and approval **PRIOR** to use.

007A Welding Combat Vehicles Inspection Criteria

- Form 090475 shall be submitted and approved prior to shipment of the item in accordance with the Data Submission Instructions located in the Supplier Quality Assurance Manual (SQAM) paragraph 8.12 for this item.
- All visual weld inspection must be conducted by either of the following 3 inspector certification platforms, and completed and documented on 100% of all welds.
 - o An American Welding Society certified CWI, SCWI
 - o A qualified CWB level 2 or 3 through the Canadian Welding Bureau as determined through the Canadian Standards Association.
 - o A Government CWI or TARDEC Quality Assurance CWI approved welding inspector certification program.
- All visual weld inspection on armor steel and quenched and tempered steel must be held for 48 hours prior to final inspection.
- Where NDT is required per print, all welded armor steel and low allow steels 100 KSI tensile strength or greater shall be held a minimum of 48 hours prior to NDT inspection, this is for welded material.
- Welding fixtures to be designed per ASME Y14.43

007A Welding Combat Vehicles Inspection Criteria

- Form 090475 shall be submitted and approved with accompanying 091460 First Submission Weld Roadmap as applicable prior to shipment of the item in accordance with the Data Submission Instructions located in the Supplier Quality Assurance Manual (SQAM) paragraph 8.12 for this item.
- All visual weld inspection must be conducted by either of the following 3 inspector certification platforms, and completed and documented on 100% of all welds.
 - o An American Welding Society certified CWI, SCWI

- A qualified CWB level 2 or 3 through the Canadian Welding Bureau as determined through the Canadian Standards Association.
 - A Government CWI or TARDEC Quality Assurance CWI approved welding inspector certification program.
 - All visual weld inspection on armor steel and quenched and tempered steel must be held for 48 hours prior to final inspection.
 - Where NDT is required per print, all welded armor steel and low alloy steels 100 KSI tensile strength or greater shall be held a minimum of 48 hours prior to NDT inspection, this is for welded material.
 - Welding fixtures to be designed per ASME Y14.43
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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. The Supplier shall notify the BAE Systems Authorized Purchasing Representative of the projected test schedule and any changes as they occur. If any failures occur, either through defect of the test equipment or of the test sample itself, the Supplier shall immediately notify the BAE Systems Authorized Purchasing Representative for further instructions prior to continuance of testing.

Following the completion of testing, a test report shall be submitted in accordance with the Data Submission Instructions (located in the SQAM, paragraph 8.12) for this item prior to or with the shipment of product for approval.

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

- BAE Systems part number
- All applicable BAE Systems Purchasing Agreement Number(s)
- 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 number(s) 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

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. The Supplier shall notify the BAE Systems Authorized Purchasing Representative of the projected test schedule and any changes as they occur. If any failures occur, either through defect of the test equipment or of the test sample itself, the Supplier shall immediately notify the BAE Systems Authorized Purchasing Representative for further instructions prior to continuance of testing.

Following the completion of testing, a test report shall be submitted with form "092245 Source Inspection Request / CDR Paperwork Submission" in accordance with the Data Submission Instructions (located in the SQAM, paragraph 8.12) for this item prior to shipment of product for approval.

BAE Systems requests that the supplier clarify any details or guidance applicable to the control test submission. The following are details that may be included but are not limited to:

- Number of units the control test documentation covers
- Timing of the next control test plan to be submitted
- Serial numbers the control test covers

Note: Details clarifying the control test submission may be included in email or as convenient to the supplier. This is only to aid clarity with the control test approval and documentation at BAE Systems.

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 Number(s)
 - 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 number(s) 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 written certification that the plating was performed in accordance with all Purchasing Agreement, drawing, and **Purchasing Agreement** specification requirements prior to shipment of the product. The facility actually performing the plating shall prepare the certification.

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

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

The certification/data shall be submitted and approved prior to shipment of the item in accordance with the Data Submission Instructions located in the Supplier Quality Assurance Manual (SQAM) paragraph 8.12 for this item.

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

When embrittlement relief pretreatments and/or post treatments are required and unless otherwise specified on the component, drawing the following requirements shall apply:

A) Pretreatment on steel parts with a tensile strength 1000 MPa (31 HRC) or greater that have been machined, ground, cold-formed, or cold-straightened subsequent to heat treatment. Bake times and temperatures shall be in accordance with Table 1 of ASTM B849.

B) Post coating treatments for the purpose of reducing the risk of hydrogen embrittlement in accordance with ASTM B850 on iron or steel parts having a tensile strength ≥ 1000 MPa (with corresponding hardness values 303 HB, or 31 HRC) and surface-hardened parts unless otherwise specified. Bake times and temperatures shall be in accordance with Table 1 of ASTM B850.

C) The certification shall also include:

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

016 Plating

The supplier shall provide 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 actually performing the plating shall prepare the certification.

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

- Part number **and revision**
- 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 Supplier's representative
- Report date

The certification/data shall be submitted and approved prior to shipment of the item in accordance with the Data Submission Instructions located in the Supplier Quality Assurance Manual (SQAM) paragraph 8.12 for this item.

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 clean and electroplate 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 Actual
- A statement that the baking operation for hydrogen embrittlement relief was started within 3 hours of plating completion or as required per specification

017 Paint Certification

The Supplier shall provide a copy of the written certification documenting that painting was performed in accordance with all Purchasing Agreement, drawing, and specification **Purchasing Agreement** requirements prior to or with the product shipment. Certification shall be submitted in accordance with the Data Submission Instructions (located in the SQAM, paragraph 8.12) for this item. The facility actually performing the painting shall prepare the certification, which shall include:

- Name and address of the finisher
- Part number
- BAE Systems Purchasing Agreement number
- List of specifications used in the processing of the paint
- Paint thickness of a sample of actual parts for the primer
- Paint thickness of a sample of actual parts for the top coat
- Material lot/batch number(s)
- Material expiration date(s)
- 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.

BAE Systems Combat Vehicle approved CARC painters are not required to submit any documentation with the parts but are required to maintain all required documentation validating compliance to all requirements and make this documentation available for BAE Systems review upon request.

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

017 Paint Certification

The Supplier shall provide a copy of the written certification documenting that painting was performed in accordance with all Purchasing Agreement, drawing, prior and specification requirements to or with the product shipment. Certification shall be submitted in accordance with the Data Submission Instructions (located in the SQAM, paragraph 8.12) for this item. The facility actually 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.

BAE Systems Combat Vehicle approved CARC painters are not required to submit any documentation with the parts but are required to maintain all required documentation validating compliance to all requirements and make this documentation available for BAE Systems review upon request.

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

018 Physical and Chemical Test Reports

The Supplier shall provide a material certification including all actual chemical, mechanical, and/or physical test results pertaining to the material shipped under this Purchasing Agreement with traceability to the original mill/manufacturer, heat lot, and country of origin, as applicable prior to the product shipment. The data shall be submitted and approved prior to shipment of the item in accordance with the Data Submission Instructions located in the Supplier Quality Assurance Manual (SQAM) paragraph 8.12 for this item.

018 Physical and Chemical Test Reports

The Supplier shall provide a material certification including all actual chemical, mechanical, and/or physical test results pertaining to the material shipped under this Purchasing Agreement with traceability to the original mill/manufacturer, heat lot, and country of origin, as applicable prior to the product shipment. **For material subject to the SQAM paragraph 6.6 Traceability of Specialty Metals, evidence of compliance shall be included.** The data shall be submitted and approved prior to shipment of the item in accordance with the Data Submission Instructions located in the Supplier Quality Assurance Manual (SQAM) paragraph 8.12 for this item.

020 Heat Treating

The certification shall be submitted and approved prior to shipment of the item in accordance with the Data Submission Instructions located in the Supplier Quality Assurance Manual (SQAM) paragraph 8.12 for this item.

Supplier shall conduct a visual inspection for cracks or other injurious defects.

When the drawing specifies a hardness range for materials due to quench and temper or other practices, actual results shall be recorded on the certification.

When heat-treating is performed by a facility other than the Supplier shown on Purchasing Agreement, the name of that subcontractor and a copy of the certificate furnished by the subcontractor for the heat treatment shall be furnished to BAE Systems.

When specified on the drawing and/or the Purchasing Agreement, test samples shall be provided to BAE Systems for evaluation.

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.

The data shall be submitted and approved prior to shipment of the item in accordance with the Data Submission Instructions located in the Supplier Quality Assurance Manual (SQAM) paragraph 8.12 for this item.

A. Visual Metallographic Inspection

Visual inspection at a magnification of 5X shall be performed on heat treated items. Cracks, seams, laps or other injurious defects shall not be allowed. For steel carburized parts, the heat treat condition prior to carburizing shall be either quench and tempered or normalized and tempered. Heat treat process and atmosphere control shall be such that no decarburization occurs on the surface as detectable by metallographic sectioning under magnification at 100X, method specified on drawing or appropriate specification. Exceptions are stress-proof, fatigue-proof, precipitation hardening grades of steel, margining

steels and structural steel such as HY-, HY-100, Cor-ten, etc. This will minimize distortion and assure that proper hardness is achieved.

B. Quench and Temper (Core Hardness Specified)

A test specimen (or additional part) of the same alloy and same size, within 20% of the largest cross section thickness, shall be heat treated with each heat treat lot. The test sample shall have a length at least one inch longer than the section thickness or two times the diameter. The specimen or sample part shall be cross-sectioned at mid-length of the largest cross section thickness plus or minus 3/8 inch. The Supplier shall submit a report including the actual surface hardness and core hardness at ½ radius (core hardness measured on cut surface) the data shall be submitted and approved prior to shipment of the item in accordance with the Data Submission Instructions located in the Supplier Quality Assurance Manual (SQAM) paragraph 8.12 for this item.

C. 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). The data shall be submitted and approved prior to shipment of the item in accordance with the Data Submission Instructions located in the Supplier Quality Assurance Manual (SQAM) paragraph 8.12 for this item.

D. Case Hardening - Carburizing

A test specimen of the same alloy and similar configuration as the part shall be processed with each heat treat lot to verify case depth, surface and core hardness requirements, and microstructure. The Supplier shall submit a report with the required case depth hardness actual results obtained and microstructure per specified standard. Certification shall be submitted with each heat treat lot. The data shall be submitted and approved prior to shipment of the item in accordance with the Data Submission Instructions located in the Supplier Quality Assurance Manual (SQAM) paragraph 8.12 for this item.

E. Case Hardening - Nitriding

A test specimen of the same alloy, same hardness, and similar configuration as the part shall be processed with each heat treat lot to verify case depth, hardness requirements, and to monitor thickness of white layer. The Supplier shall submit a report with required case depth, hardness, process temperature, and actual results obtained. Certification shall be submitted with each heat treat lot. The data shall be submitted and approved prior to shipment of the item in accordance with the Data Submission Instructions located in the Supplier Quality Assurance Manual (SQAM) paragraph 8.12 for this item.

F. Surface Hardening - Flame or Induction

The Supplier shall provide certification with each lot reporting the actual case depth, surface and core hardness values obtained. First Article proof tests with pattern, equipment power setting, quench media, and other critical process parameters shall be maintained by vendor. The data shall be submitted and approved prior to shipment of the item in accordance with the Data Submission Instructions located in the Supplier Quality Assurance Manual (SQAM) paragraph 8.12 for this item.

G. 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. The data shall be submitted and approved prior to

shipment of the item in accordance with the Data Submission Instructions located in the Supplier Quality Assurance Manual (SQAM) paragraph 8.12 for this item.

020 Heat Treating

The certification shall be submitted and approved prior to shipment of the item in accordance with the Data Submission Instructions located in the Supplier Quality Assurance Manual (SQAM) paragraph 8.12 for this item.

Supplier shall conduct a visual inspection for cracks or other injurious defects.

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.

The data shall be submitted and approved prior to shipment of the item in accordance with the Data Submission Instructions located in the Supplier Quality Assurance Manual (SQAM) paragraph 8.12 for this item.

A. Visual Metallographic Inspection

Visual inspection at a magnification of 5X shall be performed on heat treated items. Cracks, seams, laps or other injurious defects shall not be allowed. For steel carburized parts, the heat treat condition prior to carburizing shall be either quench and tempered or normalized and tempered. Heat treat process and atmosphere control shall be such that no decarburization occurs on the surface as detectable by metallographic sectioning under magnification at 100X, method specified on drawing or appropriate specification. Exceptions are stress-proof, fatigue-proof, precipitation hardening grades of steel, margining steels and structural steel such as HY-, HY-100, Cor-ten, etc. This will minimize distortion and assure that proper hardness is achieved.

B. Quench and Temper (Core Hardness Specified)

A test specimen (or additional part) of the same alloy and same size, within 20% of the largest cross section thickness, shall be heat treated with each heat treat lot. The test sample shall have a length at least one inch longer than the section thickness or two times the diameter. The specimen or sample part shall be cross-sectioned at mid-length of the largest cross section thickness plus or minus 3/8 inch. The Supplier shall submit a report including the actual surface hardness and core hardness at 1/2 radius (core hardness measured on cut surface) the data shall be submitted and approved prior to shipment of the item in accordance with the Data Submission Instructions located in the Supplier Quality Assurance Manual (SQAM) paragraph 8.12 for this item.

C. 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). The data shall be submitted and approved prior to shipment of the item in accordance with the Data Submission Instructions located in the Supplier Quality Assurance Manual (SQAM) paragraph 8.12 for this item.

D. Case Hardening - Carburizing

A test specimen of the same alloy and similar configuration as the part shall be processed with each heat treat lot to verify case depth, surface and core hardness requirements, and microstructure. The Supplier shall submit a report with the required case depth hardness actual results obtained and microstructure per specified standard. Certification shall be submitted with each heat treat lot. The data shall be submitted and approved prior to shipment of the item in accordance with the Data Submission Instructions located in the Supplier Quality Assurance Manual (SQAM) paragraph 8.12 for this item.

E. Case Hardening - Nitriding

A test specimen of the same alloy, same hardness, and similar configuration as the part shall be processed with each heat treat lot to verify case depth, hardness requirements, and to monitor thickness of white layer. The Supplier shall submit a report with required case depth, hardness, process temperature, and actual results obtained. Certification shall be submitted with each heat treat lot. The data shall be submitted and approved prior to shipment of the item in accordance with the Data Submission Instructions located in the Supplier Quality Assurance Manual (SQAM) paragraph 8.12 for this item.

F. Surface Hardening - Flame or Induction

The Supplier shall provide certification with each lot reporting the actual case depth, surface and core hardness values obtained. First Article proof tests with pattern, equipment power setting, quench media, and other critical process parameters shall be maintained by vendor. The data shall be submitted and approved prior to shipment of the item in accordance with the Data Submission Instructions located in the Supplier Quality Assurance Manual (SQAM) paragraph 8.12 for this item.

G. 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. The data shall be submitted and approved prior to shipment of the item in accordance with the Data Submission Instructions located in the Supplier Quality Assurance Manual (SQAM) paragraph 8.12 for this item.

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.
 - a) With a minimum of 50% of the shelf life remaining
 - b) With a minimum of 75% of the shelf life remaining.
 - c) With a minimum of 85% of the shelf life remaining.
 - d) 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 Certificate of Conformance 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

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 Certificate of Conformance 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

028 Unique Identification (UID)

This item requires UID marking in accordance with the Mil-Std-130/TDP requirements.

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

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.**

030A 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 cognizant BAE Systems Buyer. This requirement is only applicable to Phoenix parts.

030A Phoenix 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.

030B Approved Special Processors (Customer)

The supplier is to 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 cognizant BAE Systems Buyer. This requirement is only applicable to Phoenix parts.

030B Phoenix Approved Special Processors (Customer)

The supplier is to 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.

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.

032 Ballistic Requirements-Transparent Armor

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

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

- Supplier shall request BAE Systems source inspection prior to shipping the samples for ballistic testing.

Supplier shall submit Form 092245 Source Inspection Request/Approval Form as required by CDR005 with Form 089689 Supplier CDR or Source Submission Cover Sheet Form 089689 per the Data Submission Instructions on Form 092245.

o **Both** forms are available on the Purchasing website listed in the PO text.

• During source inspection, the supplier and BAE Systems P&S source inspector shall complete Form 091889 Ballistic Test Submittal Form. o Source inspector shall determine if contract requires DCMA witness of the ballistic test.

o 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 in accordance with the Data Submission Instructions located in the SQAM paragraph 8.12 for this part.

- 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 in accordance with the Data Submission Instructions (located in the SQAM, paragraph 8.12) for this item prior to or with the product shipment.
- 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 P&S.

032 Ballistic Requirements-Transparent Armor

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

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

- Supplier shall request BAE Systems source inspection prior to shipping the samples for ballistic testing.
 - 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.
 - Source inspector shall determine if contract requires DCMA witness of the ballistic test.
 - 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 in accordance with the Data Submission Instructions located in the SQAM paragraph 8.12 for this part.
- 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 in accordance with the Data Submission Instructions (located in the SQAM, paragraph 8.12) for this item prior to or with the product shipment.
- 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:

- 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.

Government Ballistic Test Certification, including firing number for each heat/lot of ballistic material. Results shall be submitted and approved prior to shipment of the item in accordance with the Data Submission Instructions located in the Supplier Quality Assurance Manual (SQAM) paragraph 8.12 for this item.

- 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. Results shall be submitted and approved prior to shipment of the item in accordance with the Data Submission Instructions located in the Supplier Quality Assurance Manual (SQAM) paragraph 8.12 for this item.

- FIRING RECORDS (FORGINGS):

a. Aluminum Armor Forgings require 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 ballistic test for each lot, including results for all testing specified in the ballistic test specification and the material certificate of analysis.

Results shall be submitted and approved prior to shipment of the item in accordance with the Data Submission Instructions located in the Supplier Quality Assurance Manual (SQAM) paragraph 8.12 for this item.

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, 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.
 - o MIL-DTL-46027 – allowable to machine 25% from the original thickness to meet requirement.
 - o MIL-DTL-32375 (Class 1, All Grades) – allowable to machine 10% from the original thickness to meet requirement.
 - o MIL-DTL-12560 (Class 1) – allowable to machine within the applicable hardness ranges specified in Table 1 in this section.
 - o MIL-DTL-12560 (Class 2 & 4) – allowable to machine 25% from original thickness to meet requirement.
 - o 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.

Per previous, these allowances for machining of armor product from thicker procured plates is only applicable when a material thickness is not designated in the material note. 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.
 - o 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.
 - o 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.
 - o 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.

TABLES 2 THROUGH 5 NO CHANGES

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:

- Supplier shall have a written and controlled Procedure for cutting steel armor. Documentation of the Procedure shall be made available to BAE Systems on 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 production parts. The required tests for initial procedure qualification are as follows:
 - o Sample coupons shall be cut with process to be qualified. Coupons may be on a production part, a sample attached to a production lot, or an independent sample.
 - o Visual inspection, no indications of cracking along cut plate edges is acceptable.
 - o Non-destructive testing (NDT) per ASTM E1417 or ASTM E1444 or equivalent. Acceptance criteria in accordance with the applicable material standard.
 - o Heat affected zone hardness (HAZ) to be determined by hardness indentation at the mid-length of the cut edge. 5 measurements shall be taken, 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 minimum:

- o Material documentation: Includes material standard, temper, heat or lot number, and material thickness tested.
- o 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).
- o 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).
- o 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.
- o 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.

- o 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 that secondary shop.

PROCEDURE APPROVAL & PERIOD OF QUALIFICATION:

- 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.
- The form shall be submitted per Data Submission instructions (located in the SQAM, paragraph 8.12) for this part.
- 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, that process qualification shall be sufficient for the same process used on materials applicable to the qualification test.
 - o $.380 < T$
 - o $.380 \leq T < .625$
 - o $.625 \leq T < 1.000$
 - o $T \geq 1.000$

o Example: Vendor A qualifies a laser cutting process, using a CO2 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 inspection personnel's qualification shall be kept and provided to BAE Systems on request.
 - o Inspection personnel shall be certified per a written practice in accordance with ASTN SNT-TC-1A, AWS QC1, CSA W178.2, or comparable.
 - o Alternatively, an engineer or technician who by training and experience in metals fabrication, inspection, and testing, is competent to perform the inspection of thermally processed material (welding, cutting, and/or heat treating) may be considered qualified inspection personnel for the purposes of this process inspection.
- Process inspection shall consist of the following:
 - o Visual inspection to be performed by qualified personnel, conducted in accordance with the supplier's procedure. Inspection frequency shall be 100%.
 - o Non-destructive testing (NDT) 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.

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.

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 \[INSERT BMS NO\]](#).
 - 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-DTL45225](#)
 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 who do not make use of these listed specifications are not required to complete the submission form [INSERT BMS NUMBER].
 - c. Completion of this form does not exempt 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.

Government Ballistic Test Certification, including firing number for each heat/lot of ballistic material. Results shall be submitted and approved prior to shipment of the item in accordance with the Data Submission Instructions located in the Supplier Quality Assurance Manual (SQAM) paragraph 8.12 for this item. 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. Results shall be submitted and approved prior to shipment of the item in accordance with the Data Submission Instructions located in the Supplier Quality Assurance Manual (SQAM) paragraph 8.12 for this item.
- FIRING RECORDS (FORGINGS):
 - a. Aluminum Armor Forgings require 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 ballistic test for each lot, including results for all testing specified in the ballistic test specification and the material certificate of analysis.

Results shall be submitted and approved prior to shipment of the item in accordance with the Data Submission Instructions located in the Supplier Quality Assurance Manual (SQAM) paragraph 8.12 for this item.

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, 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.

Per previous, these allowances for machining of armor product from thicker procured plates is only applicable when a material thickness is not designated in the material note. 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.

TABLES 2 THROUGH 5 NO CHANGES

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:

- Supplier shall have a written and controlled Procedure for cutting steel armor. Documentation of the Procedure shall be made available to BAE Systems on 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 production parts. The required tests for initial procedure qualification are as follows:
 - Sample coupons shall be cut with 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) to be determined by hardness indentation at the mid-length of the cut edge. 5 measurements shall be taken, 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 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 that secondary shop.

PROCEDURE APPROVAL & PERIOD OF QUALIFICATION:

- 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.
- The form shall be submitted per Data Submission instructions (located in the SQAM, paragraph 8.12) for this part.
- 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, that 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 CO₂ 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 inspection personnel's qualification shall be kept and provided to BAE Systems on request.

- Inspection personnel shall be certified per a written practice in accordance with ASTN SNT-TC-1A, AWS QC1, CSA W178.2, or comparable.
- Alternatively, an engineer or technician who by training and experience in metals fabrication, inspection, and testing, is competent to perform the inspection of thermally processed material (welding, cutting, and/or heat treating) may be considered qualified inspection personnel for the purposes of this process inspection.
- 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%.
 - Non-destructive testing (NDT) 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.

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.

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.

085 First Article Inspection - Removed

060 PPAP-Level 4-Unique Requirements

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

The data shall be submitted and approved prior to shipment of the item in accordance with the Data Submission Instructions located in the Supplier Quality Assurance Manual (SQAM) paragraph 8.12 for this item.

060 PPAP-Level 4-Unique Requirements

The Supplier shall complete a PPAP in accordance with Level 4 of the Production Part Approval Process (PPAP) manual and shall submit requirements as specified in the PPAP Requirements Checklist included as part of the Purchasing Agreement. All other requirements of the PPAP shall be completed, retained on file, and made available to BAE Systems upon request. Inspection data shall be accompanied by a ballooned drawing (all characteristics, including drawing notes, numbered) and a photograph of the part marking.

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- 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.

The data shall be submitted and approved prior to shipment of the item in accordance with the Data Submission Instructions located in the Supplier Quality Assurance Manual (SQAM) paragraph 8.12 for this item.

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 to be delivered were 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 Certificates of Conformance, 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 BAE Systems pre-approved supplier.

086 Counterfeit Material Program

This requirement is applicable for hardware and electronic purchases.

Prior to first product delivery, the supplier is required to submit and gain approval by BAE Systems Procurement, documentation confirming the traceability of parts to be delivered were 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 Certificates of Conformance, 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 BAE Systems pre-approved supplier.

End