

Engineering Quality Requirements

Revision: 10/27/2009

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EQA3 – Quality System

The suppliers own Quality System is acceptable for this purchase order item. The supplier is not required to have prior approval of their Quality System by GDLS.

EQA4B – Quality System Approved

The supplier's Quality and/or Inspection System requires approval by GDLS Quality Assurance. The supplier must use the system approved by GDLS Quality Assurance for the services/goods to be provided on this purchase order. Any deviation from this approved system must be approved by GDLS Engineering Quality Assurance prior to start of work.

EQB3B – Final Acceptance by the Requester

Final acceptance of the material on this line item will be made by the requester upon satisfactory use.

EQB10 – Supplier Certification

The supplier, by acceptance of and subsequent delivery on this order, certifies that the material meets the minimum requirements of all referenced specification(s).

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EQB9D – Certificate of Conformance

The supplier shall furnish a Certificate of Conformance (COC) with each shipment attesting that the goods/services meet all of the technical data package requirements. Exceptions to conformance shall be delineated on the COC and shall be approved by GDLS Engineering and/or Engineering Quality Assurance prior to shipment. Data supporting this COC shall be kept on file and made available to GDLS upon request. The COC must include signature, date and title of a responsible Quality Representative.

EQB9ND – Non-Deliverable Certificate of Conformance

The supplier shall generate a Certificate of Conformance (COC) for each shipment attesting that the services/goods meet all of the technical data package requirements. Exceptions to conformance shall be delineated on the COC and shall be approved by GDLS Engineering and/or Engineering Quality Assurance prior to shipment. This COC and supporting data shall be kept on file at the supplier's facility and made available to GDLS upon request. The COC must include signature, date and title of a responsible Quality Representative.

EQC1G – Inspection Data/Report

General Dynamics requires the supplier of this item to furnish a copy of the actual inspection/test values/data recorded. As a minimum, the supplier shall use an inspection sampling plan in accordance with the following table:

(Ref: Table I, Special Inspection Level S4 of MILSTD105D)

Sample Size	Lot Size
2	2-15
3	16-25
5	26-90
8	91-150

The inspection report must address all of the dimensional characteristics, including details and subassemblies as required by the GDLS Technical Data Package. Exceptions to conformance shall be delineated and approved by GDLS Engineering and Engineering Quality Assurance (EQA) prior to shipment. Recorded dimensional data is not required for fastener type items used in assembly unless otherwise specified in this order.

Inspected items shall be identifiable to the inspection report in a non-degrading manner. All inspection reports must include signature date and title of the responsible Quality Representative and shall accompany each shipment, unless otherwise authorized by GDLS EQA.

EQC1ND – Non-Deliverable Inspection Data/Report

General Dynamics requires the supplier to inspect this item and document the actual inspection/test values/data recorded in an inspection report. As a minimum, the supplier shall use an inspection sampling plan in accordance with the following table:

(Ref: Table I, Special Inspection Level S4 of MILSTD105D)

Sample Size	Lot Size
2	2-15
3	16-25
5	26-90
8	91-150

The inspection report must address all of the dimensional characteristics, including drawing notes, special processes, details and subassemblies as required by the GDLS Technical Data Package. Exceptions to conformance shall be delineated and approved by GDLS Engineering and Engineering Quality Assurance (EQA) prior to shipment. Recorded dimensional data is not required for fastener type items used in assembly unless otherwise specified in this order. Inspected items shall be identifiable to the inspection report in a non-degrading manner. All inspection reports must include signature, date and title of the responsible Quality Representative. This inspection report/data shall be kept on file at the supplier's facility and made available to GDLS upon request.

EQC2B – First Piece Inspection Report for Casting or Forging

For each run produced, the supplier shall perform a complete First Piece Inspection (FPI) for casting/forging dimensions. All data from this inspection shall be included on a separate report (supplier's format) and submitted with the parts when shipped. Exceptions to conformance shall be delineated and approved by GDLS Engineering and Engineering Quality Assurance prior to shipment. FPI by supplier shall consist of:

1. Dimensional inspection (mandatory)
2. Material content verification (mandatory)
3. Special process capability (if applicable)
4. Test results (if applicable)
5. Configuration (mandatory)

General Dynamics internal specifications, military specifications, drawings and/or other documents which are part of the purchase order and/or technical data package shall be utilized to establish first piece acceptability. Inspected items shall be identifiable to the inspection report in a non-degrading manner. All inspection reports must include signature date and title of the responsible Quality Representative. A copy of the FPI data shall accompany first shipment from each run produced.

EQC2ND – Non-Deliverable First Piece Inspection Report for Casting or Forging

For each run produced, the supplier shall perform a complete First Piece Inspection (FPI) on one piece for casting/forging dimensions. All data from this inspection shall be recorded on a separate report (supplier's format). Exceptions to conformance shall be delineated and approved by GDLS Engineering and Engineering Quality Assurance prior to shipment. First Piece Inspection by the supplier shall consist of:

1. Dimensional inspection (mandatory)
2. Material content verification (mandatory)
3. Special process capability (if applicable)
4. Configuration (mandatory)

General Dynamics internal specifications, military specifications, drawings and/or other documents which are part of the purchase order and/or Technical Data Package shall be utilized to establish first piece acceptability. Inspected items shall be identifiable to the inspection report in a non-degrading manner. All inspection reports must include signature, date and title of the responsible Quality Representative. This inspection report/data shall be kept on file at the supplier's facility and made available to GDLS upon request.

EQC4A – First Piece Inspection Report for End Item Assembly

The supplier shall perform a first piece/first assembly inspection (FPI), randomly selected from first shipment lot. First piece verification, by the supplier, shall consist of:

1. Dimensional accuracy inspection (mandatory)
2. Material content verification (if applicable)
3. Special process capability (if applicable)
4. Performance test (if applicable)
5. Configuration (mandatory)
6. Proper calibration/gauging (mandatory)

General Dynamics internal specifications, military specifications, drawings and/or other documents which are part of the purchase order and/or Technical Data Package shall be utilized to establish first piece acceptability. Inspected items shall be identifiable to the inspection report in a non-degrading manner. All inspection reports must include signature date and title of the responsible Quality Representative. A copy of the FPI data shall accompany the shipment.

EQC4NDA – Non-Deliverable First Piece Inspection Report for End Item Assembly

The supplier shall perform an inspection of a first piece/first assembly (FPI) randomly selected from the first shipment lot. First piece verification by the supplier shall consist of:

1. Dimensional accuracy inspection (mandatory)
2. Material content verification (if applicable)
3. Special process capability (if applicable)
4. Performance test (if applicable)
5. Configuration (mandatory)
6. Proper calibration/gauging (mandatory)

General Dynamics internal specifications, military specifications, drawings and/or other documents which are part of the purchase order and/or technical data package shall be utilized to establish first piece acceptability. Exceptions to conformance shall be delineated and approved by GDLS Engineering and Engineering Quality Assurance prior to shipment. Inspected items shall be identifiable to the inspection report in a non-degrading manner. All inspection reports must include signature, date and title of the responsible Quality Representative. This inspection report/data shall be kept on file at the supplier's facility and made available to GDLS upon request.

EQC5B – Inspection Report

General Dynamics requires the supplier of this item(s) to furnish a copy of the inspection report. The report(s) shall include dimensional data, test data and certified items which demonstrate compliance. Actual values vs. "pass/fail" data is preferred except for those characteristics typically inspected with pass/fail equipment (i.e., fasteners, threaded holes, etc.) Dimensional inspection reports must address all of the dimensional characteristics, including details and subassemblies as required by the GDLS Technical Data Package. Exceptions to conformance shall be delineated and approved by GDLS Engineering and Engineering Quality Assurance prior to shipment. Inspected items shall be identifiable to the inspection report in a non-degrading manner. All inspection reports must include signature date and title of the responsible Quality Representative. A copy of the inspection data shall accompany the shipment.

EQC5ND – Non-Deliverable Inspection Report

General Dynamics requires the supplier to inspect this item and document the actual inspection/test values/data recorded in an inspection report. The report shall include dimensional data, test data, and certified items which demonstrate compliance. Actual values vs. "pass/fail" data are preferred except for those characteristics typically inspected with pass/fail equipment (i.e., fasteners, threaded holes, etc.). Dimensional inspection reports must address all of the dimensional characteristics, including details and subassemblies as required by the GDLS Technical Data Package. Exceptions to conformance shall be delineated and approved by GDLS Engineering and/or Engineering Quality Assurance prior to shipment. Inspected items shall be identifiable to the inspection report in a non-degrading manner. All inspection reports must include signature, date and title of the responsible quality representative. The inspection report(s) shall be kept on file at the supplier's facility and made available to GDLS upon request.

EQD1E – Acceptance Test Procedure/Acceptance Test Report

The supplier shall submit an Acceptance Test Procedure (ATP). This procedure shall, as a minimum, address the following:

1. Detailed test method for each performance characteristic of the hardware being supplied.
2. List of test equipment to be used with a diagram of the test setup.
3. Each test method shall be clearly cross referenced to the performance characteristic on the technical data.
4. The procedure shall be signed and dated by the supplier's Quality Representative.
5. Test procedure shall be submitted for approval 30 days prior to scheduled acceptance testing.

Mail test procedure to:

Engineering Quality Assurance

Supplier Quality Assurance, Dept. 9685

C/O GDLS Buyer Identified On This Purchase Order

General Dynamics approval of suppliers test procedure does not relieve the supplier from meeting all requirements of the specifications, drawing and other technical data.

The subcontractor shall submit an Acceptance Test Report (ATR) when functional/performance testing is completed on the end item deliverable hardware (see the deliverable data description contained on the subcontract data requirements list).

1. The ATR shall include a table where calibration dates for test equipment used during ATP will be recorded.
2. Each section of the ATR shall be clearly cross referenced to both the ATP and the performance characteristics in the technical data package (TDP).

EQD2C – GDLS Source Inspection Required (Revised 10/27/2009)

General Dynamics Land Systems (GDLS) source inspection/acceptance is required on this order. The supplier's responsible Quality Assurance Representative shall notify GDLS five (5) working days prior to start of final acceptance test or inspection to allow for scheduling of a GDLS Quality Representative to be in attendance. The method of notification shall be the GDLS Source Inspection Request Form located via the internet at:

http://procurement.gdls.com/forms/QY11_EQD2A%20Form.pdf

(Copy and paste the above address into your web browser.)

The supplier shall have technical data (e.g. drawings, specifications, certifications, procedures, etc.) available for use in support of source acceptance. Unless otherwise arranged with GDLS Engineering Quality Assurance (EQA), acceptance testing shall be performed/validated by the supplier prior to GDLS notification.

Exceptions to conformance identified prior to source inspection/acceptance shall be delineated on the GDLS Supply Chain Management Supplier Quality Material Report (SQMR). The SQMR form, with completion and submittal instructions, is located via the internet at:

<http://procurement.gdls.com/forms/SQMR%20Form%20.pdf>

(Copy and paste the above address into your web browser.)

Exceptions to conformance require GDLS EQA approval prior to shipment.

EQD4B – GDLS In-Process Source Inspection Required

General Dynamics Land Systems (GDLS) Engineering Quality Assurance (EQA) elects to provide a representative to witness an in-process inspection at the supplier's facility for this item. Upon receipt of this purchase order, contact the buyer and/or EQA to establish points of in-process inspection. The supplier shall notify the buyer and/or EQA no later than five (5) working days prior to the established points of inspection.

EQE2B – Automated Test Equipment Software Evaluation/Approval by GDLS

All software used in the automated testing of supplied products shall be evaluated and approved by General Dynamics Land Systems. This evaluation may consist of:

1. Line by line review of the source code (or equivalent).
2. Demonstration of the software operation by the supplier.
3. Both methods of evaluation shall be solely at the discretion of GDLS.

All software approved by GDLS will be version controlled by the supplier. The plans/procedures for control are subject to approval and subsequent audit by GDLS. All subsequent changes to the software are subject to approval by GDLS. Supplier shall notify GDLS two (2) weeks prior to product delivery for evaluation of new or revised software. Notification point of contact is the GDLS buyer identified on this purchase order.

EQE3B – Embedded Software Evaluation/Approval by GDLS

Embedded software required for the operation of supplied products shall be evaluated and approved by General Dynamics Land Systems. This evaluation may consist of:

1. Line by line review of the source code (or equivalent).
2. Demonstration of the software operation by the supplier.
3. Both methods of evaluation shall be solely at the discretion of GDLS.

All software approved by GDLS will be version controlled by the supplier. The plans/procedures for control are subject to approval and subsequent audit by GDLS. All subsequent changes to the software are subject to approval by GDLS. Supplier shall notify GDLS two (2) weeks prior to product delivery for evaluation of new or revised software. Notification point of contact is the GDLS buyer identified on this purchase order.

EQF1B – Weld Procedures & Welder Certification Approval by GDLS

Weld procedures and welder certification(s) must be submitted to General Dynamics Land Systems for approval prior to start of welding for items on this purchase order. Previously approved procedures for the same weld joints may be submitted for evaluation. Please provide the buyer listed on this order the previously supplied weld procedure cover letter along with the GDLS approval letter for evaluation.

Weld procedures and welder certifications shall be furnished to the GDLS division at the address listed below a least (6) weeks in advance of welding. Following approval the welding procedure and welder certification(s) will be returned and are to be retained by the supplier for a period of no less than seven years. Include a copy of the approval letter with each shipment of material for acceptance.

When nondestructive testing (NDT) is specified on the drawing or model, all inspection and/or testing shall be performed by an inspector certified to the applicable NDT specification(s).

Joint Systems Manufacturing Center (JSMC) (formerly Lima Tank Plant)
1161 Buckeye Road
Lima, OH 45804
Attn: Material Control Laboratories
(419) 221-8004

EQF2B – Weld Procedure, Welder Certification and Sample Approval by GDLS

Weld procedures, welder certification(s), and weld sample(s) must be submitted to General Dynamics Land Systems for approval prior to start of welding for items on this purchase order. Previously approved procedures for the same weld joints may be submitted for evaluation. Please provide the buyer listed on this order the previously supplied weld procedure cover letter along with the GDLS approval letter for evaluation.

Weld procedures, welder certification(s), and weld sample(s) shall be furnished to the GDLS division at the address listed below at least six (6) weeks in advance of welding. Following approval the welding procedure, weld sample(s), and welder certification(s) will be returned and are to be retained by the supplier for a period of no less than seven years. Include a copy of the approval letter with each shipment of material for acceptance.

When nondestructive testing (NDT) is specified on the drawing or model, all inspection and/or testing shall be performed by an inspector certified to the applicable NDT specification(s).

Joint Systems Manufacturing Center (JSMC) (formerly Lima Tank Plant)
1161 Buckeye Road
Lima, OH 45804
Attn: Material Control Laboratories
(419) 221-8004

EQJ1C – Calibration Certification

The supplier shall furnish a certificate attesting that the calibration of each item of measuring and/or test equipment being delivered on this order is traceable to the National Institute for Standards and Technology (NIST).

The certification shall include the date of calibration and the signature of a legally responsible officer of your company.

In the event the equipment requiring calibration is out of tolerance, the actual measured out of tolerance values must be delivered with the equipment.

If requested on the purchase order, the supplier shall furnish service and calibration manuals for each model of the measuring and/or test equipment being delivered.

EQJ7H.0A – Government Source Inspection (GSI)

Government inspection is required prior to shipment from your plant. Upon receipt of this order, promptly notify the Government Representative who normally services your plant so that appropriate planning for government inspection can be accomplished. In the event the representative or office cannot be located, our purchasing agent should be notified immediately.

EQJ8.1A – Government Selective Evaluation

During performance on this order, your Quality Control or Inspection System and manufacturing processes may be subject to review, verification and analysis by authorized government representatives. Government release of product prior to shipment is not required unless you are otherwise notified by General Dynamics Land Systems Purchase Order supplement.

EQK3D – High Strength Fastener Certification

You are directed to supply high strength American grades 5, 8, or "BD", or metric classes 8.8, 10.9 or 12.9 bolts or screws. These fasteners must be traceable to a recognized manufacturing source (as identified by the bolt head logo) that is approved by GDLS Quality Assurance. To obtain the latest copy of the approved supplier/manufacturer listing, contact GDLS Engineering Quality Assurance or the GDLS buyer identified on the purchase order.

The fastener supplier shall furnish a certification with the shipment which documents the actual material chemistry, core hardness or tensile strength per Table I of SAE J429 (or Section 3 of FFS86E for socket head cap screws) and plating requirements per SAEAMSQQP416 (cadmium) or ASTM B633 (zinc) as applicable. The laboratory test sampling size shall be in accordance with Section 7.3 of SAE J429.