

GDLs QUALITY CLAUSES and GDRS QUALITY PURCHASE REQUIREMENTS

**MATERIAL SUPPLIED TO PURCHASE ORDERS MUST BE IN ACCORDANCE WITH THE QUALITY
CLAUSE REQUIREMENTS OUTLINED ON THE PURCHASE ORDER AS FOLLOWS:**

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REVISION HISTORY			
Revision	Description of Change	Author	Effective Date
5/13/10	Initial Release – conversion from web to PDF format	Shellnut	05/13/2010
5/17/10	Added QL86.0 clause and table of contents	Caullay	05/17/2010
5/27/10	Revised QL 86, re-instate QY-10	Caullay	5/27/2010
7/19/10	Various changes in red. Deleted old revisions: QJ7.1, QL22.4, QL512.1, QP2.0, QP2.1, QP41.5, QP43.0, QP5.0, QY2.7, QY2.8, QY2H.IR. Deleted Muskegon clauses: QG5.1, QW7.0 and QW6.0. Added London clauses. Added appendix and removed links in body of document and put in appendix, removed engineering revision date. Change weld submission from 10/6 or 4 weeks to 2 weeks	Gramlich/Shellnut	07/19/2010
9/30/10	Added QP96.0 and QP97.0, updated QX23.2, QX26.0 and QX118.3 with Canada contact information	Scheffler/Shellnut	09/30/2010
11/10/10	Update TOC, completely revised GDRS requirements, QL-87 cancelled and removed	Shellnut/GDRS	11/15/2010
12/09/10	Add QW8 clause. added date on footer	Caullay/Shellnut	12/10/2010
1/5/11	Add QY14	Caullay/Shellnut	1/05/2011
3/7/11	Revise ROB20 to add 80% life requirement and add ROB36	GDRS	3/7/11
4/4/11	Update QW8 and add new QK17	Caullay/Shellnut	4/4/11
4/7/11	Update Table of contents	Shellnut	4/7/11
4/20/11	Added QX47	Shellnut	4/20/11
8/4/11	Updates requested per Canada: Clause QG7 has been updated to be consistent within GDLS and reflect the Quality System Certifications for ISO and SAE. The Ballistic Steel clause has been updated to align with revision J of Quality Assurance Directive 25 involving Ballistic Steel Control	Scheffler	08/01/11
8/18/11	Remove *requalify comment from table of comments	Shellnut	8/17/11
8/30/11	Updates per Engineering to revision levels of individual clauses	Bulas/Shellnut	8/30/11
11/1/11	Add clause for Merkava: QJ8M & update QY14.0	Gramlich/Caullay	11/11/11
12/15/11	Added QP98, update welding clauses	Loeffler/Caullay	12/15/11
2/3/12	Removed QP98, added QX27, updated QX26 and QX118 per Canada's request	Scheffler	2/2/12
2/8/12	Updated QY-10 (removed QY-11 reference and replaced with FPI)	Gramlich	2/8/12
2/14/12	Added PQA3000 to QY-10	Shellnut	2/14/12
3/26/12	Added QP-98 and delete EFV clauses	Caulley	3/26/12
6/4/12	update QL-88	Caulley	1/20/2011
7/17/12	Added, QK48.0 and QX57.0, updated QX23.3, QX27.1 and QX118. Update to match GDLS-C Quality Clauses at rev N	Shellffler	7/03/12
7/23/12	Update QW8.2 AND QY-10	Shellnut	7/23/12
11/12/12	Updated QK48, QX22, QX23 & QX57 for Canada	Sheffler	11/12/12
5/30/13	Update per Robotics- ROB 05A. GDLS changed the website address	Jacobs	5/30/13
11/18/13	Updated QP43.2 to include metric and added additional wording for specifications that apply	Caulley	11/18/13
1/10/14	Addition of QJ23, update to QJ21, QX27, QX23, QX57 and QX118 (updates include documentation requirements, welding machines requirements and weld inspector qualifications)	Scheffler	1/10/14
3/10/14	Update clause: EQC1, EQC1ND, EQC7, EQC4ND, QP94 and added new EQF3 and QJ7M.0	Various	3/10/14
6/24/14	Update of Eng. Clauses EQC1, EQC1ND, EQC4, EQC4ND, EQA4, EQC2, EQC2ND, EQC5, EQC5ND	Bulas	7/14/14
3/9/15	Added QY15 at request of London	Scheffler	3/9/15
3/25/15	Update to QP95	Caullay	3/24/15
10/19/15	Added QK49 at request of London	Scheffler	10/19/15
3/22/16	Updated Table of Contents to include QP44 and changes QL22 remove ROB quality clauses	Shellnut/Caullay	4/1/2016

REVISION HISTORY			
Revision	Description of Change	Author	Effective Date
6/21/16	Update to QY11 and EQD2A, QP42 and QK 18	Fadoir/Caullay	6/21/16
2/15/17	Update QP98 and update typo's	Kuhlhoff	2/15/17

QUALITY CLAUSES

Production Quality Requirements

EQD2A.1 (06/01/16) GD Source Inspection

General Dynamics Land Systems source inspection/acceptance is required on this order. Supplier shall notify the buyer five (5) working days prior to start of acceptance test or inspection to allow for scheduling of a GDLS quality representative to be in attendance. The supplier shall have technical data (e.g. drawing, QAR, specification, certification, etc.) available for use in support of source inspection.

If supplier-developed automated test software is used as a means of functional product acceptance, the test software (not the firmware) must be approved by GDLS Quality Engineering & Test. Supplier instructions and requirements for test software review and validation are defined in GDLS document QCS-5. The test software shall be submitted to GDLS Quality Engineering & Test for review a minimum of 2 weeks prior to the scheduling GDLS source inspection.

QG1A.4 (11/21/96) MIL-Q-9858 and ANSI/ISO 9000

Supplier must maintain a quality program that meets the requirements of Mil-Q-9858 dated 16 December 1963 with amendment 1, dated 7 August 1981 and Milstd-45662A dated 1 August 1988. Supplier, at their option, may implement the equivalent or better ANSI/ISO series standards (9001, etc) in lieu of the above listed mil spec/std if such implementation is at no additional charge. These programs are subject to approval and/or periodic review by GDLS/government. GDLS contracted suppliers are responsible to document and control any portion of this contract that is performed by them and extend applicable portions of this contract to any tertiary suppliers.

QG2A.4 (11/21/96) MIL-I-45208 and ANSI/ISO 9000

Supplier must maintain a quality control system that meets the requirements of Mil-I-45208, dated 16 December 1963 with amendment 1, dated 24 July 1981 and Mil-STD-45662A dated 1 August 1988. Supplier, at their option, may implement the equivalent or better ANSI/ISO series standard (9001, 9002, etc) in lieu of the above listed Mil Spec/Std if such implementation is at no additional charge. These systems are subject to approval and/or periodical review by GDLS/government. GDLS contracted suppliers are responsible to document and control any portion of this contract that is to be performed by them and extend applicable portions of this contract to any tertiary suppliers.

QG3.3 (7/20/09) GDLS MINIMUM SYSTEM REQUIREMENTS

Supplier must provide and maintain a Quality System that is acceptable to General Dynamics Land Systems and government. In addition, all measuring and test equipment used to inspect the items delivered against this contract shall be calibrated by the supplier utilizing standards whose calibration is certified as being traceable to the National Institute of Standards and Technology. These systems are subject to approval and periodic reviews by GDLS to determine acceptability. GDLS contracted suppliers are responsible to document and control any portion of this contract that is performed by either the contracted supplier or any tertiary supplier. In view of the above contracted suppliers are responsible for extending GDLS contract requirements to any tertiary supplier.

QG4.3 (12/21/98) Commercial Requirements

The products provided shall meet the characteristics of this commercial catalog item, conform to the producer's own drawings, specifications, standards and quality assurance practices and be the same as offered for sale in the commercial market. General Dynamics reserves the right to require proof of such conformance.

QG5.2 (04/18/00) C = O Sampling Plan

Product inspected by a sampling plan for delivery on this purchase order must use an acceptance number zero; i.e. accept on zero defects and reject the lot on one or more defects. AQL's may be used to establish the proper sample size, however, the acceptance number is zero.

QG6.0 (12/21/98) Material Review Board

Limited material review board (MRB) approval is granted on this purchase order. This authority is limited to minor non-conformances that only impact internal supplier drawings. MRB is not allowed for any characteristic or performance requirement which impacts/violates the GDLS drawing package. A quarterly report will be provided to GDLS-SQA summarizing MRB activities and the associated corrective action. Government participation is not required for MRB.

QG7.1 (7/22/11) Quality System Certification Requirement

The supplier must maintain a Quality Management System that is certified to AS9100 or an ISO Quality System Standard such as ISO 9001 or TS16949. The system is subject to approval and/or periodic review by GDLS/Government. GDLS contracted suppliers are responsible to document and control any portion of this contract that is to be performed by them and extend applicable portions of this contract to any tertiary suppliers.

QG8.0 (1/4/06) Supplemented Material Review Board

Limited material review board (MRB) approval is granted on this purchase order. This authority is limited to Class II nonconformance(s) that impact both internal Supplier and GDLS drawings. MRB is only allowed for minor dimensional characteristics which do not impact/violate the fit, form or function of the next higher level assembly or create a deviation to an approved ATP. This MRB authority does not encompass any changes to electronic components or circuitry control devices. A quarterly report will be provided to GDLS-SQA summarizing Class II MRB activities and the associated corrective actions. Government participation is not required for MRB.

QJ21.2 (01/10/14) Inspection Delegation

The supplier shall conduct all required inspections as agreed upon in accordance with supplier instruction contained in GDLS SQA/SCM Procurement Quality Assurance Handbook PQA 3000. The above shall be accomplished through the use of the GDLS approved delegate only who is responsible for the adequacy and accuracy of said inspection. Failure of GDLS to inspect the goods shall not limit any of GDLS's rights as included under the terms and conditions of this contract to recover damages from seller for supply of defective goods. This program is subject to termination with minimum notice for reasons defined in PQA 3000. All specified documents referenced in the purchase order (i.e. certifications, test reports, etc.) are not to be shipped with the product unless required by a quality clause. These records are to be maintained at the supplier's facility, under delegate control, and are subject to GDLS verification upon request. The records must be retained for a minimum of five (5) years after completion of deliveries and payment thereof under this purchase order unless the GDLS PO directs differently. This paragraph takes precedence over remaining quality requirement clauses for data submittals.

QJ22.0 (12/21/98) Commercial Packing List

This is a commercial item procured from a catalog source. The packing list shall state "commercially procured item" boldly in upper case characters on the face of the packing list/shipping document to preclude further inspection by the receiving facility. Failure to mark the packing list as instructed may result in the shipment being inspected and/or rejected at the supplier's expense.

QJ23.0 (01/10/14) Pre-approved Supplier Shipments

The supplier shall conduct all required inspections as agreed upon in accordance with supplier instruction contained in GDLS SQA/SCM Procurement Quality Assurance Handbook PQA 3000. Failure of GDLS to inspect the goods shall not limit any of GDLS's rights as included under the terms and conditions of this contract to recover damages from seller for supply of defective goods. All specified documents referenced in the purchase order (i.e. certifications, test

reports, etc.) are not to be shipped with the product. These records are to be maintained at the supplier's facility and are subject to GDLS verification upon request. The records must be retained for a minimum of five (5) years after completion of deliveries and payment thereof under this purchase order unless the GDLS PO directs differently.

Suppliers will not be required to apply delegation stamp impression on shipper/packing slips for these part numbers, but must maintain GDLS First Piece Inspection approval (SQA Form SQ01a) for all product delivered to GDLS in accordance with Quality Clause QY11.

QJ7H.0 (10/5/98) Government 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.

QJ7M.0 (10/5/98) Merkava Customer Source Inspection

Israeli Ministry of Defense (IMOD) inspection and acceptance is required prior to shipment from your plant. Your GDLS Buyer must be notified 14 calendar days in advance of your availability to present material for IMOD inspection. All references to calendar days will take into account both parties' national and religious holidays. IMOD will schedule a visit within 7 calendar days following the end of the 14 day notification period of the supplier's availability to conduct the inspection or sooner if mutually agreed. Material presented for inspection must be in batches (defined as quantity of no fewer than 3 sets of the kit) ready for delivery. The scope of the inspection will include review of inspection documentation, verification that configuration changes, if required, have been incorporated, and minimal physical inspection of hardware. For each Part Number defined on this purchase order, records documenting the results of the Control Plan inspections must be provided to IMOD and/or GDLS at acceptance.

No material may be shipped without IMOD acceptance and/or GDLS authorization.

QJ8M (9/20/2011) Merkava Government Selective Evaluation (Merkava Only)

During performance on this order, your quality control or inspection system, manufacturing processes, and the acceptance plan unique to the Merkava product(s) may be subject to review, verification and analysis by authorized Israel Ministry of Defense representatives-Israel Ministry of Defense visits must be coordinated through a GDLS representative. Israel Ministry of Defense release of product prior to shipment is not required unless you are otherwise notified by General Dynamics.

QJ8.1 (1/18/88) 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.

QK9.1 (1/19/99) QAP-Cert (Fill In)

Special quality assurance requirements (QAR, QAP, SQAP, SPEC, etc) apply to the item(s) being procured under this contract. The supplier shall have documented objective evidence on file verifying conformance to specific characteristics referenced in the requirement. The objective evidence shall be made available to GDLS on request within a reasonable amount of time.

QK10.2 (7/22/11) Ballistic Steel Identification

This item contains ballistic steel material. Ballistic steel material used in this item, must be sourced from a supplier that maintains ballistic steel plate cutting records. These records must identify the ballistic plate and associated mill certification (heat/melt and slab/plate codes), the part numbers and quantities that were cut from the plate, and the date on which the parts were cut.

Suppliers procuring cut ballistic parts for assemblies, must maintain procurement records indicating the part number, quantities, source and date. Sources used and records kept will be reviewed at First Piece Inspection.

QK11.2 (7/20/09) Test Data

Test Data Submittal Requirement

Supplier shall have on file for each shipment a copy of the actual chemical test results, physical test results and/or test data as required. These results shall be made available to GDLS on request within a reasonable amount of time.

QK12.0 (7/10/09) Engineering Prototype Sample Approval

Supplier shall confirm TDP compliance according to item specific PS-FRM-3.2.55 form provided by buyer. Supporting compliance data shall be submitted prior to material shipment, to the GDLS-C ED&D PA contact identified on the form. Any deviations to the TDP require ED&D PA approval prior to shipment.

QK14.0 (6/30/10) Engineering Prototype Commercial

Items under this Purchase Order do not require GDLS specified quality inspections or documentation submittal. Product shall meet the Technical Data

Package (TDP) requirements, and shall be verified according to the supplier's standard quality system requirements. GDLS reserves the right to require proof of such conformance. Any deviations to the TDP require ED&D PA approval prior to shipment.

QK16 (11/17/04) Key Characteristics

Attributes identified as Key Characteristics shall demonstrate a process capability of 1.33 Cpk or be inspected 100%. The supplier shall have documented objective evidence on file which supports the process capability of 1.33 or greater, or the actual inspection and/or test data as verification of conformance to the drawing key characteristics. The objective evidence shall be made available to GDLS on request within a reasonable amount of time.

QK17.0 (4/4/2011) Ballistic Testing, Merkava Armor Castings

Ballistic testing shall be conducted in accordance with Standard 2030. The supplier shall provide the GDLS buyer with a schedule for preparation of ballistic test samples in accordance with Standard 2030, including supplier-internal qualifications required prior to ballistic testing. Details on sample submittal (location, dates, etc.), will be provided by the GDLS buyer. GDLS and the Israeli Ministry of Defense (MOD) reserve the right to witness/verify all aspects of the armor qualification process. The supplier will be notified by the GDLS Buyer if this option is exercised.

QK18.0 (5/2/2016) Inspection/Test Data Deliverable

Supplier shall deliver with each shipment a copy of all inspection/test data required by item drawings and/or specifications.

QK48.1 (10/16/12) Critical/Complex Components

GDLS has designated this component as a Critical performance item or complex to manufacture. Supplier may be subject to and must demonstrate compliance with a specific process audit associated with this component.

GDLS will issue a clause approval letter, which is required for First Piece Inspection completion and approval. First Piece Inspection must be completed at the supplier's facility, prior to the acceptance of production material.

QK49.0 (23/10/15) Supplier Procurement

This Item contains components to be sourced by the supplier, to which GDLS quality requirements apply. The First Piece Inspection (FPI) submission for this item must include compliance evidence for all supplier sourced components that have GDLS quality requirements.

QL22.6 (11/23/2015) Fasteners

Use of English series Grade 5, Grade 8 hex, socket head or Metric Series Class 8.8, 10.9 hex head or Class 12.9 socket head fasteners, within products supplied to General Dynamics, must be from a manufacturer approved by GDLS. Socket and hex head fasteners will be plated as specified. Results of required tests shall be maintained on file and available.

Additionally, your receiving inspection criteria, provided by a supplier on the above stated list, shall include a verification of approved logo head markings to a 0.04% AQL sample as outlined in Mil-Std-105, however, acceptance is C=0. Each identifiable lot will then be subjected to laboratory testing as specified in two (2) succeeding paragraphs. Documented evidence shall be made available upon request.

Supplier shall furnish a certification with each shipment including the following:

- Material Chemistry and Core Hardness per Tables 1 and 2 of SAE J-429 (English); or Tables 1A, 1B, and 2 of SAE J1199 (Metric)
- Plating as specified in the purchase order

The laboratory test sampling size shall be performed in accordance with ASTM F1470. When multiple usage of fastener dash numbers and/or manufacturer's head logo markings are utilized, the certification shall reference each type. Laboratory sample testing may be waived (with GDLS prior approval) on assemblies specified on this purchase order if the fasteners used originate from an approved GDLS supplier.

Cap fastener must be identified with proper grade symbol markings and shall be marked with the manufacturer's identification head logo. Subsequent lot shipments covered under this purchase order will be accepted with a copy of the original laboratory test sampling date, providing the fastener manufacturer's logo markings are traceable to the initial certification.

QL31.1(7/20/09) Functional Test

Supplier shall furnish a certification with each shipment to indicate that the test requirements have been complied with and actual test results are on file and available upon request. Certification must include signature, date and title of responsible supplier representative and specifically identify the shipment it relates to including serial number if applicable, for instance, by reference to the shipper number.

QL41.0 (1/1/86) Inspection Cert - Jan Devices

Supplier shall comply with mil-s-19500 documentation requirements for traceability. Copy of certification of Jan Devices must be maintained on file and

be available upon request.

QL42.0 (1/1/86) Inspection Cert - Nuclear Hardness

Supplier shall comply with nuclear hardness requirements specified in the technical data package. All required certification documentation must be maintained on file and be available upon request.

QL46.0 (7/10/09) CARC Paint Process Certification

The CARC process applied to this item requires certification to demonstrate compliance to the TDP requirements. Paint certification requirements as outlined in GDLS-C Form 4707, shall be submitted with FPI/PPAP for GDLS approval.

QL512.2 (7/26/00) 11655194 (or) Mil-Std 2000A

Soldering shall be in accordance with either Mil-Std-2000A, TACOM soldering process specification 11655194, ANSI/J-STD-001B or other commercial soldering standards with the contractor's approval.

QL52.0 (1/1/86) TT-C-490/MIL-P-16232

Supplier shall maintain inspection records indicating quantity accepted/rejected in accordance with MIL-P-16232, DoD-P-16232 and/or TT-C-490. These inspection records shall be traceable to each lot of material so processed and shall be available for GDLS or government review upon request. The pre-production approvals cited are not required to be submitted to GDLS, however, the procedure approval must be documented and maintained at your facility.

QL6.1 (4/24/88) Consigned Material

The supplier shall be required to furnish a certification with each shipment whenever the material furnished by the buyer has been replaced or substituted during the manufacturing operations.

The certification, when required, shall state the material and/or chemical composition of the material substituted and shall include signature, date, and title of supplier representative and specifically identify the shipment it relates to; for instance, by reference to the shipper number.

QL81.0 (1/1/86) Radiographic

Supplier shall control radiographic inspection equipment and personnel, including the certification and qualification to the specification. Records shall be maintained

for all personnel certified, indicating the date of certification and objective evidence of examination. Records shall be made available upon request.

QL82.0 (1/1/86) Magnetic Particle

Supplier shall control magnetic particle inspection equipment and personnel, including the certification and qualification to the specification. Records shall be maintained for all personnel certified, indicating the date of certification and objective evidence of examination. Records shall be made available upon request.

QL83.0 (1/1/86) Eddy Current

Supplier shall control eddy-current inspection equipment and personnel, including the certification and qualification to the specification. Records shall be maintained for all personnel certified, indicating the date of certification and objective evidence of examination. Records shall be available upon request.

QL84.0 (1/1/86) Ultrasonic

Supplier shall control ultrasonic inspection equipment and personnel, including the certification and qualification to the specification. Records shall be maintained for all personnel certified, indicating the date of certification and objective evidence of examination. Records shall be made available upon request.

QL85.0 (1/1/86) Dye-Penetrant

Supplier shall control dye-penetrant inspection operations including the certification and qualification to the specification. Records shall be maintained for all personnel certified, indicating the date of certification and objective evidence of examination. Records shall be made available upon request.

QL86.0 (5/13/10) Non Destructive Testing (NDT), Double-V Hull Plates

Supplier shall conduct either dye penetrant inspection (per ASTM E165), or magnetic particle inspection (per ASTM E1444) on the tension side of all formed radii for each item produced. Any indication of a crack shall be cause for rejection. The GDLS buyer shall be notified immediately.

Supplier shall control NDT operations including certification and qualification, as required, to ASTM E165 and/or ASTM E1444. Records shall be maintained for all personnel certified, indicating the date of certification and objective evidence of examination. Records shall be made available upon request.

QL88.0 (1/19/11) Non Destructive Testing (NDT), Formed Armor

If forming is performed following final quenching and tempering operations, the supplier shall conduct either dye penetrant inspection (per ASTM E165), or magnetic particle inspection (per ASTM E1444) of the formed area for each item produced. Any linear indication shall be cause for rejection. The GDLS buyer shall be notified immediately. Supplier shall control NDT operations including certification and qualification, as required, to ASTM E165 and/or ASTM E1444. Records shall be maintained for all personnel certified, indicating the date of certification and objective evidence of examination. Records shall be made available upon request.

QP2.2 (1/29/02) Shelf Life Requirement

The seller shall identify those items and/or assemblies which have a specific shelf life requirement. At a minimal the GDLS part number, date manufactured, shelf life, and HSDS as applicable will be marked on each individual container. Seventy-five percent of the Product(s) shelf life is required upon receipt at GDLS

QP41.6 (05/09/2007) Traceability - MS Fasteners (CAD)

Grade 5/Grade 8 hex head and socket head fasteners, with equivalent Grade 5 and Grade 8 chemistry, shall be purchased directly from only those manufacturers approved by GDLS. Approved manufacturers must supply fasteners of their own manufacture only and are not allowed to procure or supply fastener from any other approved North American manufacturer for subsequent sale to general dynamics.

Fastener supplier shall furnish a certification with each shipment that documents the actual material chemistry, core hardness, or tensile strength (per I or SAE J-429 for hex head or section 3 of FF-S-86E for socket head fasteners) and plating requirements specified in Purchase Order. The laboratory test sampling size shall be performed in accordance with section 7.3 of SAE J-429.

Subsequent lot shipments covered under this purchase order will be accepted with a copy of the original laboratory results provided the fasteners originated from the initial raw material production run.

QP42.1 (4/7/16) Compression Set Test Results

The supplier shall maintain actual compression set test data for each purchase order shipment to General Dynamics Land Systems per the requirement of the applicable material specification. In addition, the specific compression set test results shall be subject to random audits by GDLS at supplier's facility and shall be presented to GDLS representatives upon request.

QP43.2 (11-18-13) Traceability – High Strength Screws

Grade 5 and Grade 8 English series and Metric series Classes 8.8, 10.9, and 12.9 hex head and socket head fasteners shall have documentation confirming

the chemical and mechanical properties meet the requirements for heat treated alloy steel as specified in the applicable procurement specification.

Fasteners shall be purchased directly by GDLS or from distributors that purchase directly from manufacturers approved by GDLS. Approved manufacturers must supply fasteners of their own manufacture and are not allowed to procure or supply fasteners from any other manufacturer for subsequent sale to General Dynamics.

Fastener suppliers shall furnish a certification with each shipment that documents the actual material chemistry, core hardness, or tensile strength (per applicable specifications SAE J429, ASTM A354, SAE J1199, ASTM F568M, ASTM A574, ASTM A574M, FF-S-85, or FF-S-86), and finish requirements as specified on the applicable drawing or Purchase Order.

Subsequent lot shipments covered under this purchase order will be accepted with a copy of the original laboratory results provided the fasteners originated from the initial raw material production run.

QP44.0 (7/10/09) North American High Strength Fasteners

All high strength fasteners offered for sale to GDLS-C shall conform to the requirements of Form 4496. Bulk fasteners shall include the Declaration (Form 4496, Appendix A) or Certification (Form 4496, Appendix B) in the FPI/PPAP submission.

Fasteners offered for sale to GDLS-C within assemblies shall conform to the following sections of Form 4496:

- A) No high strength fasteners are contained within the assembly. The FPI/PPAP submission shall include a declaration (Form 4496, Appendix A), or
- B) High strength fasteners are contained within the commercial item assembly. The FPI/PPAP submission shall include a certification (Form 4496, Appendix C) stating that the supplier's quality control system for fasteners meets the intent of Form 4496, section 2.0, or
- C) High strength fasteners are contained within the non-commercial item assembly. The FPI/PPAP submission shall include a certification (Form 4496, Appendix D) stating that the supplier's quality control system for fasteners meets all the requirements of Form 4496, section 2.0.

QP5.1 (12/7/06) Serialization Requirements

Each unit supplied on this purchase order must be permanently marked with a

unique serial number which consists of any combination of numbers and letters. Alpha and numeric letters must be clearly distinguishable (ex. 2 and Z, 1 and I, 0 and O, etc.) The supplier must insure that serial numbers are not duplicated for previous or future shipments of the same part number. The supplier must submit their planned serial numbering sequence to the buyer for approval prior to serial numbers being applied. The numbering sequence must be approved by the buyer on the initial purchase order and for any subsequent purchase order where the supplier intends to change the sequence of serial numbers.

QP6.0 (1/1/86) Ordering Data Sheets

Supplier shall comply with specific ordering data sheet requirements specified in this technical data package.

QP71.0 (1/1/86) Cleaning (SC-X14510)

1. Per paragraph 4.2.2.3 of SC-X-14510 each unit shall be cleaned for compliance to requirements of paragraph 3.2.2.3.

QP8.0 (7/10/09) Sub-contract Requirements

All Quality Requirements of the Statement of Work (SOW) apply to this purchase order.

QP9.0 (7/10/09) Re-work Requirements

Rework product to new condition and upgrade to the specified revision. Any deviations from the specified design configuration will require prior authorization.

QP92.1 (2/24/99) Military Standard Hardware ID

Supplier shall furnish standard hardware to the drawing revision level as indicated in the purchase order and/or technical data/drawing package. If no revision level is specified for technical data/drawing package provided, parts must be supplied to the latest revision level established by design agencies as of the date of this purchase order.

QP93.0 (5/1/90) Packing Slip Requirement

Packing slips must be numbered and depict the following information: Purchase order number, line item number, quantity, part number, drawing number, revision letter and date, ECP number(s), and waiver number(s) if applicable.

QP94.1 (3/10/14) Foundry Control

Foundry control and production x-ray technique approval is required by GDLS Materials Engineering & Survivability in accordance with paragraph 3.1.8 of specification 12292537. Approval must be obtained prior to initial shipment of castings on this purchase order. Foundry control/production x-ray technique documentation shall be submitted to the GDLS buyer for internal distribution to GDLS Materials Engineering & Survivability.

QP95.0 (3/24/15) Item Unique Identification (IUID) per MIL-STD-130

The supplier shall apply Machine Readable Information (MRI) marking per MILSTD-130 to each item produced. Marking shall include, but not be limited to, manufacturer CAGE code, original part number and serial number (if serialization is required by drawing or specification). The supplier shall demonstrate 2D Data Matrix Symbol readability via a verifiable automatic identification device.

QP96.0 (9/27/10) Intra-company Sourcing

This is a GDLS intra-company purchase order. GDLS manufacturing plant Quality System Requirements apply to the material sourced under this purchase order.

QP97.0 (9/27/10) Incomplete Technical Data – long lead sourcing

Material cannot be delivered under this purchase order. The technical data package is incomplete. Quality Clause requirements will not be assigned until the technical requirements are fully defined, after which the purchase order will be revised.

QP98 (02/15/2017) Electronic Component Packaging

All circuit card components (through-hole and surface mount), including printed wiring boards, shall be packaged per the following specifications:

Surface Mount: All surface mount components shall be packaged in accordance with EIA-481. Parts shall not be supplied in tubes. Any parts supplied on cut tape shall have leader and trailer lengths as specified in EIA-481. Plastic tape is preferred over paper tape. Embossed tape is preferred over punched tape.

Any components requiring larger than **104** mm tape, shall be supplied in a carrier waffle tray per the applicable EIA and JEDEC specifications. **All components shall have vacuum pick-up features (either integral or installed) to support machine placement.**

Through-hole Components: Through-hole components shall **NOT** be provided in bulk packaging. Components are to be supplied tape and reel, tube or tray.

Printed Wiring Boards: All PWBs shall be dry-packaged in accordance with J-STD-033 and not exceed 3 inches in height per package. Panelized boards shall not be broken out.

NOTE: In addition to these requirements, any subordinate requirements (e.g., ESD, Moisture Sensitive) shall also apply as required by the component.

QW5.3 (12/7/11) Weld Specimens (MIL)

Weld specimens shall be furnished to the address listed below at least two (2) weeks in advance of production welding. The specimens are to be fabricated using the submitted welding procedure specification (WPS). Following (WPS) approval, the "weld specimen" and the "approved procedure" will be returned and is to be maintained by the supplier during the terms of the contract. Supplier shall have an approval letter for each specific part number, and shall be presented at the time of first piece inspection. Approval letter(s) are required for first piece inspection acceptance and approval(s). For all parts that have been in continuous production and have not been affected by design changes, resubmission of weld specimens shall not be required unless the previously approved procedure is rejected.

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QW51.2 (12/7/11) Weld Specimens (SD-X SPECS)

Weld specimens shall be furnished for new welding procedure specifications (WPS) or when procedure parameters are outside previously approved limits. Weld specimens, as applicable, shall be furnished to the address listed below at least two (2) weeks in advance of production welding. Following (WPS) approval, the "weld specimens and "approved procedure" will be returned is to be maintained by the supplier during the terms of the contract. Supplier shall have an approval letter for each specific part number, and shall be presented at the time of first piece inspection. Approval letter(s) are required for first piece inspection acceptance and approval(s). For all parts that have been in continuous production and have not been affected by design changes, resubmission of weld specimens shall not be required unless the previously approved procedure is rejected.

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QW52.2 (12/7/11) MIL-STD-1261 OR SD-X12142 MIL-STD-1261:

Weld specimens shall be furnished to the address listed below at least two (2) weeks in advance of production welding. The specimens are to be fabricated

using the submitted welding procedure specification (WPS). Following (WPS) approval, the "weld specimen" and "approved procedure" will be returned and is to be maintained by the supplier during the terms of the contract. Supplier shall have an approval letter for each specific part number, and shall be presented at the time of first piece inspection. Approval letter(s) are required for first piece inspection acceptance and approval(s). For all parts that have been in continuous production and have not been affected by design changes, resubmission of weld specimens shall not be required unless the previously approved procedure is rejected.

- or -

If SD-X12142 is used for welding:

Weld specimens shall be furnished for new welding procedure specifications (WPS) or when procedure parameters are outside previously approved limits. Weld specimens, as applicable, shall be furnished to the address listed below at least two (2) weeks in advance of production welding. Following (WPS) approval, the "weld specimens" and "approved procedure" will be returned and is to be maintained by the supplier during the terms of the contract. Supplier shall have an approval letter for each specific part number, and shall be presented at the time of first piece inspection. Approval letter(s) are required for first piece inspection acceptance and approval(s). For all parts that have been in continuous production and have not been affected by design changes, resubmission of weld specimens shall not be required unless the previously approved procedure is rejected.

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QW53.2 (12/7/11) MIL-W-45205 OR SD-X12143 MIL-W-45205:

Weld specimens,(except class b) shall be furnished to the address listed below at least two (2) weeks in advance of Production welding. No specimens shall be required for "class b". The specimens are to be fabricated using the submitted welding procedure specification (WPS). Following (WPS) approval, the "weld specimens" and "approved procedure" will be maintained by the supplier during the terms of the contract. Supplier shall have an approval letter for each specific part number, and shall be presented at the time of first piece inspection. Approval letter(s) are required for first piece inspection acceptance and approval(s). For all parts that have been in continuous production and have not been affected by design changes, resubmission of weld specimens shall not be required unless the previously approved procedure is rejected.

- or -

SD-X12143:

Weld specimens shall be furnished for new welding procedure specifications (WPS) or when procedure parameters are outside previously approved limits.

Weld specimens, as applicable, shall be furnished to the address listed below at least two (2) weeks in advance of production welding. Following (WPS) approval, the "weld specimens" and "approved procedure" will be returned and is to be maintained by the supplier during the terms of the contract. Supplier shall have an approval letter for each specific part number, and shall be presented at the time of first piece inspection. Approval letter(s) are required for first piece inspection acceptance and approval(s). For all parts that have been in continuous production and have not been affected by design changes, resubmission of weld specimens shall not be required unless the previously approved procedure is rejected.

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QW54.2 (12/7/11) MIL-STD-248 OR SD-X12142 MIL-STD-248:

All certification tests shall be performed in accordance with Mil-Std-248 and the certified tests results shall be submitted with the applicable welding procedure specification (WPS) to the address listed below at least two (2) weeks in advance of production welding. Approval requirements and visual criteria shall apply to parts utilizing this specification. Supplier shall have an approval letter for each specific part number, and shall be presented at the time of first piece inspection. Approval letter(s) are required for first piece inspection acceptance and approval(s).

- or -

SD-X12142:

Weld specimens shall be furnished for new welding procedure specifications (WPS) or when procedure parameters are outside previously approved limits. Weld specimens, as applicable, shall be furnished to the address listed below at least two (2) weeks in advance of production welding. Following (WPS) approval, the "weld specimens" and "approved procedure" will be returned and is to be maintained by the supplier during the terms of the contract. Supplier shall have an approval letter for each specific part number, and shall be presented at the time of first piece inspection. Approval letter(s) are required for first piece inspection acceptance and approval(s). For all parts that have been in continuous production and have not been affected by design changes, resubmission of weld specimens shall not be required unless the previously approved procedure is rejected.

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QW55.1 (12/7/11) MIL-STD-1261 OR SD-X12140 MIL-STD-1261:

Weld specimens shall be furnished to the address listed below at least two (2) weeks in advance of production welding. These specimens are to be fabricated using the submitted welding procedure specification (WPS). Following (WPS) approval, the "weld specimen" and "approved procedure" will be returned and is to be maintained by the supplier during the terms of the contract. Supplier shall have an approval letter for each specific part number, and shall be presented at the time of first piece inspection. Approval letter(s) are required for first piece inspection acceptance and approval(s). For all parts that have been in continuous production and have not been affected by design changes, resubmission of weld specimens shall not be required unless the previously approved procedure is rejected.

or

SD-X12140:

Weld specimens shall be furnished for new welding procedure specifications (WPS) or when procedure parameters are outside previously approved limits. Weld specimens, as applicable, shall be furnished to the address listed below at least two (2) weeks in advance of production welding. Following (WPS) approval, the "weld specimens" and "approved procedure" will be returned and is to be maintained by the supplier during the terms of the contract. Supplier shall have an approval letter for each specific part number, and shall be presented at the time of first piece inspection. Approval letter(s) are required for first piece inspection acceptance and approval(s). For all parts that have been in continuous production and have not been affected by design changes. Resubmission of weld specimens shall not be required unless the previously approved procedure is rejected.

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QW8.2 (7/18/2012) Merkava Weld Standard 3030

All welding shall be performed in accordance with Standard 3030 to the specific Grade specified. If no specification or Grade is specified, welding shall be performed to Standard 3030, Grade 4. All weld symbology shall be interpreted to ISO2553. Unless otherwise specified, fillet weld size shall be interpreted as "a" (throat). Certification tests referenced in Standard 3030 and the welding

procedure specification, weld specimens and test report shall be submitted to the address listed below per the 3-stage process outlined in Standard 3030, prior to initiation of production welding. Welders shall be qualified in accordance with Standard 3030, and all applicable welder certification/recertification shall be maintained throughout the production build. Welders' certifications shall be attached to the welding procedure specification. GDLS and the Israeli Ministry of Defense (MOD) reserve the right to witness/verify all aspects of the weld qualification process. The supplier will be notified by the GDLS Buyer if this option is exercised.

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Lima, Oh 45804

Attn: Material Control Laboratories

QX22.1 (10/16/12) Weldable Appurtenances

Item shall be free of mill scale, rust and oil free.

Only water-soluble coolants, tapping fluids, etc. should be used during processing. It is required that these process fluids leave a rust-inhibiting residue when the fluid dries. If hydrocarbon coolants, tapping fluids, etc. are used, they must be followed by a post-cleaning step. The post cleaning step must consist of a hot alkaline cleaner that is based on fatty acids or amines.

Packaging must be accomplished in such a way that rusting will be minimized. Examples are sealed plastic bags in boxes, or wax-lined boxes.

QX23.5 (01/10/14) Ballistic Steel Welding – GDLS-C Weld Standard

Only suppliers approved to perform ballistic welding by GDLS-C are permitted to weld ballistic assemblies in accordance with this clause. Approved suppliers must undergo an annual audit, performed by GDLS-C Quality Engineering, to maintain certification status. Weld joints within this assembly are to be qualified, implemented, and inspected in accordance with the current version of the GDLS-C weld manual 10703626.

Drawings which do not reference 10703626 must be reviewed/approved by GDLS-C weld engineering prior to welding armour steel. For weld joints which do not contain armour steel, refer to Quality Clause QX118 or consult the GDLS-C contact at ppap.fpi@gdls.com.

Only welders with a current GDLS-C D-0040 weld certification may weld this part.

Weld inspectors responsible for acceptance or rejection of material and workmanship must be trained and certified in accordance with the GDLS-C Weld Inspection Training Program. Each GDLS-C weld inspector certificate is valid for a 5 year period.

These weld inspectors shall also hold current certification to one of the following options:

- (1) Certification as an AWS Certified Welding Inspector (CWI) in conformance with the provisions of AWS QC1, *Standard for AWS Certification of Welding Inspectors*, or
- (2) Qualification by the Canadian Welding Breau (CWB) in conformance with the requirements of the Canadian Standard Association (CSA) Standard W178.2, *Certification of Welding Inspectors*, with the exception that a Level I weld inspector must work under the supervision of a Level II or III weld inspector whom is also certified in accordance with the GDLS-C Weld Inspection Training Program.

GDLS-C approval letter(s) are required for first piece inspection acceptance and approval(s). Supplier shall have an approval letter for each specific part number or applicable down component, at the time of first piece inspection in accordance with Quality Clause QY11. The supplier shall submit a weld Certification/Warrant for each first new part produced to the address listed below. GDLS-C will respond with a weld approval letter for inclusion in the FPI.

Heat Affected Zone Criteria (HAZ): The rework or addition of any ballistic weld joint outside of the print specified location is not permitted; the supplier shall consult GDLS for MRB approval prior to any such rework. Rework examples include but are not limited to: mislocated / translated appurtenances or welds, stray welds, arc strikes, and additional welds not mandated by the TDP.

GDLS-C Originating Contracts
Email: ppap.fpi@gdls.com
Subject: QX23, Part Number, Part Revision, PO number

QX24.0 (7/10/09) Weld Inspection

- 1) All welds on items in this contract shall be visually inspected by Certified AWS or CWB Welding Inspectors. Weld inspectors shall:
 - i. Hold current or previous certification as an AWS Certified Welding Inspector (CWI) in conformance with the provisions of AWS QC1 (Standard and Guide for Qualification of Welding Inspectors).
 - or
 - ii. Hold current or previous certification by the Canadian Welding Bureau (CWB) in conformance with the requirements of the Canadian Standard Association (CSA) Standard W178.2 (Certification of Welding Inspectors).

Inspection shall be conducted in accordance with the governing weld specification identified in the TDP. When no weld specification is identified

the requirements shall be governed by AWS D1.1 for steel, AWS D1.2 for aluminum, or AWS D1.6 for stainless steel. Copies of inspector certifications shall be provided for FPI review; verification inspection reports shall be retained by the contractor and made available upon request.

2) Weld Inspection NDT Quality Control Plan:

Supplier shall develop an NDT Quality Control Plan to be submitted with FPI. Welds on items shall be verified by Liquid Penetrant Testing. Penetrant testing shall be conducted in accordance with ASTM E 165 (Standard Test Method for Liquid Penetrant Examination) and ASTM E 1417 (Standard Practice for Liquid Penetrant Testing). Personnel performing penetrant testing shall be qualified in conformance to SNT-TC-1A, Mil-Std-410, NAS410, or ANSI/ASNT CP-189, and be certified to NDT Level II. Personnel performing penetrant inspection need not be certified under AWS QC1 or CSA W178.2. Copies of personnel certifications shall be provided for FPI review; penetrant testing reports shall be retained by the contractor and made available upon request.

Magnetic Particle Testing may be conducted in lieu of penetrant testing, subject to GDLS approval. Magnetic particle inspection shall be conducted in accordance with ASTM E 1444 (Standard Practice for Magnetic Particle Examination).

QX25.0 (7/10/09) Repair and Overhaul

This clause applies to customer owned material for Repair Only. Upon completion of repair, the supplier shall return the item, together with:

- A) a report indicating work performed to bring material to usable condition.
- B) a Certificate Of Conformance indicating compliance to specification(s) and completion of repaired item functional testing to original test procedure(s).
- C) appropriate test results and/or measurements supporting requirement (b) above shall be submitted with the shipment, unless otherwise specified.

Shipments must include the documentation required by this clause.

QX26.1 (01/16/12) Ballistic/Non-Ballistic Steel Welding

Weld joints within this assembly are to be qualified, implemented, and inspected in accordance with the governing weld specification indicated in the Technical Data Package (TDP). Cancelled, replaced or inactive welding specifications, (eg. MIL-STD-1261, MIL-STD-1941) shall refer to the latest released specification

indicated on the cancellation notice (eg. TACOM Ground Combat Vehicle Welding Code 12479550), unless otherwise specified by GDLS-C.

A weld qualification data package consisting of the following elements shall be maintained by the supplier. Minimum data package requirements shall be furnished to the appropriate client address listed below, at least two (2) weeks in advance of production welding. Welder qualification records must include a current TACOM 12479550 or GDLS-C weld lab certification.

If GDLS-C weld manuals are utilized, a Weld Verification Record (form GDLS-C 4426) must be submitted for the applicable joint types. These weld joints shall be verified in accordance with the GDLS-C weld manual requirements. The form must indicate the welder who performed the weld and the date the samples were tested. The weld verification record is valid for one year from the test date.

GDLS-C approval letter(s) are required for first piece inspection acceptance and approval(s). Supplier shall have an approval letter for each specific part number or applicable down component, at the time of first piece inspection in accordance with Quality Clause QY11.

The weld qualification data package shall contain at a minimum:

1. Weld Procedure Specification (WPS).
2. Procedure Qualification Record (PQR) with accompanying test results or Weld Verification Record form GDLS-C 4426
3. Welder Qualification Records.
4. Weld map, detailing which WPS(s) apply to which weld joints.

The following elements shall be provided upon request:

5. Visual inspection criteria/instructions in place.
6. Weld re-work instructions in place.
7. First off weld specimens representative of production welding.

Heat Affected Zone Criteria (HAZ): The rework or addition of any ballistic weld joint outside of the print specified location is not permitted; the supplier shall consult GDLS for MRB approval prior to any such rework. Rework examples include but are not limited to: mislocated / translated appurtenances or welds, stray welds, arc strikes, and additional welds not mandated by the TDP.

GDLS-C Originating Contracts
Email: ppap.fpi@gdls.com
Subject: <i>Part Number, Part Revision, PO number</i>

QX27.2 (01/10/14) Resistance Spot Welding

Resistance spot weld joints within this assembly are to be qualified, implemented, and inspected in accordance with the Technical Data Package (TDP). When there is no weld specification identified the supplier shall contact the buyer for direction.

When AWS C1.1 applies, the procedure certification test report for each machine used in production shall contain at least two Metallographic tests per AWS C1.1, Clause 4.9. Weld quality evaluation criteria shall be per AWS D8.7, Clause 5. Results shall be recorded within the resistance welding data sheet (Figure 34 of AWS C1.1) and signed/dated by the manufacturer.

A weld qualification data package consisting of the following elements shall be maintained by the supplier. Minimum data package requirements shall be furnished to the appropriate client address listed below, at least two (2) weeks in advance of production welding. Any changes to resistance welding data sheet(s) parameters require resubmission.

Supplier shall have an approval letter for each specific part number, and shall be presented at the time of first piece inspection. Approval letter(s) are required for first piece inspection acceptance and approval(s).

The resistance spot weld data package shall contain at a minimum:

1. Weld Map, detailing which data sheet(s) apply to each weld joint.
2. Resistance Welding Data Sheet(s).
3. Procedure Certification Test Report(s).
4. Machine Qualification Test Report(s), as applicable to TDP.

The following elements shall be provided upon request:

5. Visual inspection criteria/instructions in place.
6. Weld re-work instructions in place.

The weld qualification data package shall be submitted to the appropriate client:

GDLS-C Originating Contracts
Email: ppap.fpi@gdls.com
Subject: QX27, Part Number, Part Revision, PO Number

QX105.0 (12/7/11) Welding - Independent Test Lab

Welding qualified at independent lab: hardware shall be welded using a welding process qualified by General Dynamics as defined in the supplier instructions QCS 83-9 and fabricated in accordance with specification _____ . Weld samples shall be submitted to an independent lab for required testing. Supplier shall have an approval letter for each specific part number, and shall be presented at the time of first piece inspection. Approval letter(s) are required for first piece inspection acceptance and approval(s). When the blueprint allows for use of optional specifications only the quality clause for the selected specification shall apply.

QX106.0 (12/7/11) Welding - JSMC Test Lab

Welding qualified at JSMC lab: hardware shall be welded using a welding process qualified by General Dynamics as defined in the supplier instructions QCS 83-9 and fabricated in accordance with specification _____ . Weld samples and procedures shall be submitted to GDLS for prior approval. Supplier shall have an approval letter for each specific part number, and shall be presented at the time of first piece inspection. Approval letter(s) are required for first piece inspection acceptance and approval(s). When the blueprint allows for use of optional specifications only the quality clause for the selected specification shall apply.

QX107.0 (12/7/11) Fusion Weld - MIL-STD-2219

Welding procedure specifications (WPS) to be used for production parts against this contract per standard Mil-Std-2219 shall be furnished to the address below for approval at least two (2) weeks in advance of production welding. Supplier shall have an approval letter for each specific part number, and shall be presented at the time of first piece inspection. Approval letter(s) are required for first piece inspection acceptance and approval(s).

General Dynamics Land Systems Lima Assembly Tank Plant 1161 Buckeye Road Lima, Oh 45804 Attn: Material Control Laboratories

QX111.3 (12/7/11) Weld Procedure - SD-X12141

Welding procedure specification (WPS) to be used for production parts against this contract per specification SD-X12141 shall be furnished to the address listed below for approval at least two (2) weeks in advance of production welding. Supplier shall have an approval letter for each specific part number, and shall be presented at the time of first piece inspection. Approval letter(s) are required for first piece inspection acceptance and approval(s).

General Dynamics Land Systems Lima Assembly Tank Plant 1161 Buckeye Road Lima, Oh 45804 Attn: Material Control Laboratories

QX112.6 (12/7/11) Weld Procedure - MIL-W-6858

Welding procedure specifications (WPS) to be used for production parts against this contract per specification mil-w-6858 shall be furnished to the address listed below for approval at least two (2) weeks in advance of production welding. Supplier shall have an approval letter for each specific part number, and shall be presented at the time of first piece inspection. Approval letter(s) are required for first piece inspection acceptance and approval(s).

General Dynamics Land Systems
Lima Assembly Tank Plant
1161 Buckeye Road
Lima, Oh 45804
Attn: Material Control Laboratories

QX113.4 (12/7/11) Weld Procedure - MIL-W-6873

Welding procedure specifications (WPS) to be used for production parts against this contract per specification MIL-W-6873 shall be furnished to the address listed below for approval at least two (2) weeks in advance of production welding. Supplier shall have an approval letter for each specific part number, and shall be presented at the time of first piece inspection. Approval letter(s) are required for first piece inspection acceptance and approval(s).

General Dynamics Land Systems
Lima Assembly Tank Plant
1161 Buckeye Road
Lima, Oh 45804
Attn: Material Control Laboratories

QX116.2 (12/7/11) Weld Procedure - MIL-B-12672

Welding procedure specifications (WPS) to be used for production parts against this contract per specification mil-b-12672 shall be furnished to the address listed below for approval at least two (2) weeks in advance of production welding. Supplier shall have an approval letter for each specific part number, and shall be presented at the time of first piece inspection. Approval letter(s) are required for first piece inspection acceptance and approval(s).

General Dynamics Land Systems
Lima Assembly Tank Plant
1161 Buckeye Road
Lima, Oh 45804
Attn: Material Control Laboratories

QX117.3 (12/7/11) Weld Procedure - MIL-STD-1941

Welding procedure specifications (WPS) to be used for production parts against this contract per specification mil-std-1941 shall be furnished to the address listed below for approval at least two (2) weeks in advance of production welding. Supplier shall have an approval letter for each specific part number, and shall be presented at the time of first piece inspection. Approval letter(s) are required for first piece inspection acceptance and approval(s).

General Dynamics Land Systems Lima Assembly Tank Plant 1161 Buckeye Road Lima, Oh 45804 Attn: Material Control Laboratories

QX118.6 (01/10/14) Commercial Welding

Weld joints within this assembly are to be qualified, implemented, and inspected in accordance with the Technical Data Package (TDP) (Eg., AWS, CSA). When there is no weld specification identified in the TDP, the requirements shall be governed by AWS D1.1/D1.3 for steel, AWS D1.2 for aluminum, or AWS D1.6 for stainless steel as applicable.

If a weld joint contains Armour Steel and the drawing is approved by GDLS-C weld engineering, refer to Quality Clause QX23 or consult the GDLS-C contact at ppap.fpi@qdl.com.

The supplier shall develop and maintain a weld qualification data package in accordance with the relevant weld specification. The data package shall be provided to the client address listed below at least two (2) weeks in advance of production welding. The weld qualification data package submitted shall contain at a minimum:

1. Weld Procedure Specification (WPS).
2. Procedure Qualification Record (PQR) with accompanying test results.
3. Welder Qualification Records.
4. Weld map, detailing which WPS(s) apply to each weld joint.

The following elements shall be provided upon request:

5. Visual inspection criteria/instructions in place.
6. Weld rework instructions in place.

GDLS approval letter(s) are required for first piece inspection acceptance and approval(s). Supplier shall have an approval letter for each specific part number

or applicable down component, at the time of first piece inspection in accordance with Quality Clause QY11.

The weld qualification data package shall be submitted to the appropriate client:

<u>GDLS-SHC Originating Contracts</u>	<u>GDLS-C Originating Contracts</u>
General Dynamics Land Systems Lima Assembly Tank Plant 1161 Buckeye Road Lima, Oh 45804 Attn: Material Control Laboratories	Email: ppap.fpi@gdls.com Subject: QX118, Part Number, Part Revision, PO Number

QX119.2 (12/7/11) MIL-W-46132 Electron Beam Welding

A minimum of two (2) weld specimens for each machine using the welding procedure specifications (WPS) as established by the procuring activity per specification MIL-W-46132. The weld specimen and (WPS) shall be forwarded to the address listed below at least two (2) weeks in advance of production welding. Supplier shall have an approval letter for each specific part number, and shall be presented at the time of first piece inspection. Approval letter(s) are required for first piece inspection acceptance and approval(s). A certification shall be supplied with the initial production shipment indicating compliance to specification MIL-W-46132 and that all data is on file and available upon request. The certification shall include signature, date, and the title of responsible supplier representative, and specifically identify the shipment it relates to, for instance, by reference to the shipper number.

General Dynamics Land Systems Lima Assembly Tank Plant 1161 Buckeye Road Lima, Oh 45804 Attn: Material Control Laboratories

QX1191.0 (12/7/11) AMS 2681 Electron Beam Welding

A minimum of two (2) weld specimens for each machine using the welding procedure specifications (WPS) as established by the procuring activity per specification AMS 2681. The weld specimen and (WPS) shall be forwarded to the address listed below at least two (2) weeks in advance of production welding. Supplier shall have an approval letter for each specific part number, and shall be presented at the time of first piece inspection. Approval letter(s) are required for first piece inspection acceptance and approval(s). A certification shall be supplied with the initial production shipment indicating compliance to specification AMS 2681 and that all data is on file and available upon request. The certification shall include signature, date, and the title of responsible supplier

representative, and specifically identify the shipment it relates to, for instance, by reference to the shipper number.

General Dynamics Land Systems
Lima Assembly Tank Plant
1161 Buckeye Road
Lima, Oh 45804
Attn: Material Control Laboratories

QX12.0 (12/7/11) Weld Procedure - MIL-W-8604

Welding procedure specification (WPS) to be used for production parts against this contract per specification MIL-W-8604 shall be forwarded to the address listed below at least two (2) weeks in advance of production welding. The (WPS) shall include the approval signature of the authorized government representative and objective evidence that the tests specified in "section 4" of MIL-W-8604 were satisfactorily completed. Supplier shall have an approval letter for each specific part number, and shall be presented at the time of first piece inspection. Approval letter(s) are required for first piece inspection acceptance and approval(s).

General Dynamics Land Systems
Lima Assembly Tank Plant
1161 Buckeye Road
Lima, Oh 45804
Attn: Material Control Laboratories

QX1201.1 (12/7/11) MIL-W-8604AER Requirements

Welding procedure specification (WPS) to be used for production parts against this contract per specification MIL-W-8604AER shall be forwarded to the address listed below at least two (2) weeks in advance of production welding. The (WPS) shall include the approval signature of the authorized government representative and objective evidence that the tests specified in "section 4" of MIL-W-8604AER were satisfactorily completed. Supplier shall have an approval letter for each specific part number, and shall be presented at the time of first piece inspection. Approval letter(s) are required for first piece inspection acceptance and approval(s).

General Dynamics Land Systems
Lima Assembly Tank Plant
1161 Buckeye Road
Lima, Oh 45804
Attn: Material Control Laboratories

QX13.4 (12/7/11) Weld Procedure - MIL-W-8611

Welding procedure specifications (WPS) to be used for production parts against this contract per specification MIL-W-8611 shall be furnished to the address listed below for approval at least two (2) weeks in advance of production welding. Supplier shall have an approval letter for each specific part number, and shall be presented at the time of first piece inspection. Approval letter(s) are required for first piece inspection acceptance and approval(s).

General Dynamics Land Systems
Lima Assembly Tank Plant
1161 Buckeye Road
Lima, Oh 45804
Attn: Material Control Laboratories

QX14.4 (12/7/11) Weld Procedure - MIL-W-12332

Welding procedure specifications (WPS) to be used for production parts against this contract per specification MIL-W-12332 shall be furnished to the address listed below for approval at least two (2) weeks in advance of production welding. Supplier shall have an approval letter for each specific part number, and shall be presented at the time of first piece inspection. Approval letter(s) are required for first piece inspection acceptance and approval(s).

General Dynamics Land Systems
Lima Assembly Tank Plant
1161 Buckeye Road
Lima, Oh 45804
Attn: Material Control Laboratories

QX16.4 (12/7/11) Weld Procedure - MIL-W-45206

Welding procedure specifications (WPS) to be used for production parts against

this contract per specification MIL-W-45206 shall be furnished to the address listed below for approval at least two (2) weeks in advance of production welding. Supplier shall have an approval letter for each specific part number, and shall be presented at the time of first piece inspection. Approval letter(s) are required for first piece inspection acceptance and approval(s).

General Dynamics Land Systems
Lima Assembly Tank Plant
1161 Buckeye Road
Lima, Oh 45804
Attn: Material Control Laboratories

QX17.4 (12/7/11) Weld Procedure - MIL-W-45210

Welding procedure specifications (WPS) to be used for production parts against this contract per specification MIL-W-45210 shall be furnished to the address listed below for approval at least two (2) weeks in advance of production welding. Supplier shall have an approval letter for each specific part number, and shall be presented at the time of first piece inspection. Approval letter(s) are required for first piece inspection acceptance and approval(s).

General Dynamics Land Systems
Lima Assembly Tank Plant
1161 Buckeye Road
Lima, Oh 45804
Attn: Material Control Laboratories

QX18.4 (12/7/11) Weld Procedure - MIL-W-46086

Welding procedure specifications (WPS) to be used for production parts against this contract per specification MIL-W-46086 shall be furnished to the address listed below for approval at least two (2) weeks in advance of production welding. Supplier shall have an approval letter for each specific part number, and shall be presented at the time of first piece inspection. Approval letter(s) are required for first piece inspection acceptance and approval(s).

General Dynamics Land Systems
Lima Assembly Tank Plant
1161 Buckeye Road
Lima, Oh 45804
Attn: Material Control Laboratories

QX47.0 (4/14/2011) Merkava Paint Application/Painter Qualification

Paint shall be applied per Technical Instruction H-103 and/or H-107, as applicable per product drawing. If anti-skid paint is required (H-107), painter qualification shall be in accordance with Standard ORD-BM-9-0004.

QX57.2 (01/10/14) Brazing and Soldering

Brazed and soldered joints within this assembly are to be qualified, implemented and inspected in accordance with the Technical Data Package (TDP) brazing/soldering specification (Eg. AWS C3.4, C3.5, C3.11). When conforming to an AWS specification, qualification shall be in accordance with AWS B2.2/B2.3. When there is no brazing/soldering specification defined in the TDP, the manufacturer or contractor shall contact the buyer for direction.

The manufacturer or contractor shall develop and maintain a qualification data package in accordance with the relevant brazing/soldering specification. The data package shall be provided to the client address listed below at least two (2) weeks in advance of production brazing/soldering. The qualification data package submitted shall contain at a minimum:

1. Brazing/Soldering Procedure Specification(s) (BPS, SPS).
2. Brazing/Soldering Procedure Qualification Record(s) (BPQR, SPQR).
3. Brazing/Soldering Performance Qualification Record(s).
4. Braze/Solder map, detailing which BPS/SPS is applied to each joint.

GDLS-C approval letter(s) are required for first piece inspection acceptance and approval(s). Manufacturer or contractor shall have an approval letter for each specific part number or applicable down component, at the time of first piece inspection in accordance with Quality Clause QY11.

The brazing/soldering qualification data package shall be submitted to the appropriate client:

GDLS-C Originating Contracts
Email: ppap.fpi@gdls.com
<i>Subject: QX57, Part Number, Part Revision, PO number</i>

QY11.10 (06/01/16) First Piece Inspection

A First Piece Inspection (FPI) is required as part of this purchase order. It is the supplier's responsibility to conduct a FPI on one of the first five pieces delivered under this order to verify conformance of all physical, chemical, and test requirements specified as part of this order. Upon completion of the inspection, the supplier shall notify the buyer and/or cognizant GD SQA representative. Objective evidence of this requirement shall be available and verified by GD prior

to commencing shipments on this order. Five working (5) days notice shall be required for scheduling verification via www.gdls.com (reference PQA3000 for instructions). If supplier-developed automated test software is used as a means of functional product acceptance, the test software (not the firmware) must be approved by GDLS Quality Engineering & Test. Supplier instructions and requirements for test software review and validation are defined in GDLS document QCS-5. The test software shall be submitted to GDLS Quality Engineering & Test for review a minimum of 2 weeks prior to the scheduled FPI. In the case of distributors, the requirement can be considered satisfied by presenting the GD SQA representative with a certificate of conformation from the manufacturer as long as it states objective evidence is on file and available. Manufacturers of QPL parts are only required to produce evidence of current qualifications for QPL parts. FPI is considered satisfied if the purchase order has an active line item for a first article inspection or it has been completed as part of the first article test requirements.

FPI approval is considered extended by GD from one purchase order to the next provided that:

1. No configuration changes have occurred.
2. The part is manufactured at the same facility.
3. The manufacturing process has remained the same.
4. There has been no more than a one (1) year break in production.
5. No formal corrective action has been required.
6. The sub-tier suppliers and special process(es) have not changed.

SQA must be notified if any of the above conditions cannot be met. Objective evidence must be maintained demonstrating the above.

QY2.9 (9/26/01) FAT-QCS-4

The supplier shall obtain First Article Approval (FAA) for this assembly or its subcomponents when a line item is included on this Purchase Order that requires the delivery of the final test report. The absence of this line item indicates that no FAA has been contracted or is required for this Purchase Order and a previous approval satisfies the Technical Data Package (TDP) requirements for FAA. First Article Approval will be granted upon successful completion of a First Article Inspection (FAI) and a First Article Test (FAT). Shipments under this Purchase Order prior to FAA are not allowed. FAI and FAT shall be conducted in accordance with the requirements of the TDP drawing, QAR/QAP, production function/fabrication specification and/or military specification and this Purchase Order. Additional supplier instructions for FAI are contained within GDLS Supplier Instruction QCS 83-4 revision "F" dated July 2000 and for FAT within QCS-4 dated August 2001. Test sample selection shall be accomplished under the supervision of the Government. Government notification is required to allow test monitoring prior to test start (reference QCS-4, Section 4.2.1). Within 30 days of receiving the FAA requirement notification by activation of the FAA

Purchase Order line item you must notify the GDLS Buyer of the test facility name, location, contact, phone number and purchase order/work authorization number.

QY2H.2 (9/26/01) First Article Test (HAB)

(This quality clause is unique to the components supporting the heavy assault bridge (HAB) low rate initial production (LRIP) contract only).

The supplier shall obtain first article approval (FAA) for this assembly or subcomponents,

when a line item is included on this purchase order that requires the delivery of the final test report. The absence of this line item indicates that no FAA has been contracted or is required for this purchase order and a previous approval satisfies the TDP requirements for FAA.

First article approval will be granted upon successful completion of a first article inspection (FAI) and a first article test (FAT). Shipments under this purchase order prior to first article approval are not allowed unless otherwise authorized by the procuring activity.

FAI and FAT shall be conducted in accordance with the requirements of the technical data package (TDP) (drawing, QAR, production specification and or military specification) and this purchase order. Additional supplier instructions for FAI are contained within GDLS supplier instructions QCS 83-4 revision "F", dated July 2000, except section v, paragraph A. Instead, the first two (2) production pieces produced will be the FAI samples. Likewise for FAT within QCS-4, dated August 2001, except paragraphs 6.1 and 6.3. Instead the first two (2) production pieces produced will be new FAT samples, no destructive testing will be performed, and the FAT samples will be used in production upon successful completion of testing.

Within thirty (30) days of receiving the FAA requirement notification, by activation of the FAA purchase order line item, supplier must notify the GDLS buyer of the test facility name, location, contact, phone number and purchase order/work authorization number.

QY3.6 (1/10/08) C.T. - QCS-4A (TDP)

Supplier shall conduct control test examinations on this item or its subcomponents

in accordance with the requirements of the technical data package when a control test line item is included on this Purchase Order that requires the delivery of the final test certification. The absence of this line item indicates that no control test has been contracted or is required for this Purchase Order.

Specific supplier instructions and requirements for control test (s) and reports are contained within the attached QCS-4A. Hardware shipment prior to control test approval is not allowed.

QY4.2 (12/15/88) Control Inspection

Control inspection required on a lot-by-lot basis for dimension and/or

performance characteristics imposed per specific requirements of (_____). Frequency of inspection or test, inspection method and inspection results shall be documented and supplied with each hardware shipment to GDLS receiving plant.

QY-10.1 (7/18/2012) FLOWCHART/CONTROL PLAN (FC/CP)

Prior to First Piece Inspection (FPI) a Process Flow Chart/Control Plan (FC/CP) is to be developed. A suggested sample format can be found in the PQA3000 or the supplier may use an existing format. This document is to be attached and submitted with the FPI request form (please refer to PQA3000). The request for FPI will not be processed without this document being completed. The FC/CP must provide a logical representation of the manufacturing process flow and process control points. This document can be used as an aid for work station development, identifying process control points, defining the methods being used at these control points, and must include all key product characteristics such as KPC/QARs/QAPs and all out sourcing identification.

A walk through of the manufacturing process to include a review of the FC/CP and work instructions should be anticipated as a means to validate process requirements. The FC/CP will be used as part of the Process/Product Validation at FPI and on future GDLS audits.

QY14.0 (10/10/11) Merkava First Piece Inspection

A first piece inspection (FPI) is required as part of this purchase order. It is the supplier's responsibility to conduct a FPI on the first five pieces delivered on this order to verify conformance of all physical, chemical, and test requirements specified as part of this order. Upon completion of the inspection, the supplier shall notify the buyer and/or cognizant GD SQA representative. Objective evidence of this requirement shall be available and verified by GD prior to any shipments on this order. A thirty (30) day notice shall be required for scheduling verification.

In the case of distributors, the requirement can be considered satisfied by presenting the GD SQA representative with a certificate of conformation from the manufacturer as long as it states objective evidence is on file and available. Manufacturers of QPL parts are only required to produce evidence of current qualifications for QPL parts.

First piece inspection approval is considered extended by GD from one purchase order to the next provided that:

1. No configuration changes have occurred.
2. The part is manufactured at the same facility.
3. The manufacturing process has remained the same.
4. There has been no more than a one (1) year break in production.
5. No formal corrective action has been required.
6. The sub-tier suppliers and special processors have not changed.

SQA must be notified if any of the above conditions cannot be met. A new or delta FPI may be required if these conditions cannot be met. FPI verification due to a change will be required on one (1) piece in lieu of the five referenced above. Objective evidence must be maintained documenting the above.

QY15.0 (13/03/15) Material Compliance

The Supplier's Part Number **must** be the same as the suggested source on a GDLS vendor item controlled drawing or reflect the part number on the GDLS purchase order. FPI submission only requires a Certificate of Conformance from the supplier that validates the supplier's part number complies with the supplier's own technical data package. Any substituted material will be in violation of the Purchase Order.

QY32.0 (7/25/00) Process Certification

Process and operator certification of the coating system by the procuring activity is required in accordance with specification 12292894, paragraph 3.9. Certification is required prior to processing material on this purchase order. In addition, certification shall be performed prior to the processing of each purchased lot of materials.

Engineering Quality Requirements

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.

EQA4 (REV C) – Quality System Approved (06/17/14)

The supplier's Quality and/or Inspection System must be approved by General Dynamics Land Systems (GDLS) Quality Assurance prior to the start of work. The supplier must use the system approved by GDLS Quality Assurance for the services/goods to be provided on this purchase order. If the supplier is third party registered to ISO 9001:2008, the supplier shall provide their current registration certificate to GDLS Engineering Quality Assurance (EQA) through GDLS Supply Chain Management. If the supplier is not currently third party registered to ISO 9001:2008, GDLS EQA will perform a pre/post award assessment or survey to evaluate the Quality Management and/or Inspection System that will be applied to the services/goods provided to GDLS.

EQA5 – Quality Management System / Quality Program Plan

General Dynamics Land Systems (GDLS) requires that the supplier shall have an active Quality Management System (QMS) that satisfies the requirements of ISO 9001:2000. The supplier shall submit a copy of their Quality Program Plan (QPP) to:

GDLS Engineering Quality Assurance

Supplier Quality Assurance, Dept. 9685

C/O GDLS Buyer or Subcontract Administrator Identified On This Purchase Order

GDLS Engineering Quality Assurance (EQA) will review the QPP for adequacy and retain it on file for the duration of the subcontract or purchase order. This QPP will be utilized as a record of the supplier's quality system and processes to develop and produce the products (and related services) provided to GDLS. The QPP will also be utilized by GDLS EQA to determine the scope of quality system pre/post-award survey(s), reviews/audits and oversight required. Any revisions made to the QPP by the supplier during the subcontract or purchase order period of performance shall be forwarded to GDLS EQA.

EQB3 (REV C) – Final Acceptance by the Requester

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

EQB9 (REV E) – Certificate of Conformance (COC)

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. Data supporting this COC shall be kept on file and made available to General Dynamics Land Systems (GDLS) upon request. The COC must include signature, date and title of a responsible Quality Representative.

Prior to delivery of any hardware which contains nonconformance(s) to the referenced specification(s) or GDLS Technical Data Package, the exceptions to conformance shall be delineated on the GDLS Supplier Quality Material Report (SQMR). The SQMR form, with completion and submittal instructions, is located at the end of this form in the appendix.

Exceptions to conformance require GDLS Engineering Quality Assurance (EQA) approval prior to shipment. Upon disposition and approval by GDLS EQA, the supplier will be notified and provided a unique disposition number. This number shall be noted on the supplier's COC.

EQB9ND (REV A) –Certificate of Conformance (NON-DELIVERABLE)

The supplier shall generate a Certificate of Conformance (COC) with each shipment attesting that the goods/services meet all of the technical data package requirements. The COC must include signature, date and title of a responsible Quality Representative. This COC and supporting data shall be kept on file at the supplier's facility and made available to General Dynamics Land Systems (GDLS) upon request.

Prior to delivery of any hardware which contains nonconformance(s) to the referenced specification(s) or GDLS Technical Data Package, the exceptions to conformance shall be delineated on the GDLS Supplier Quality Material Report (SQMR). The SQMR form, with completion and submittal instructions, is located at the end of this form in the appendix.

Exceptions to conformance require GDLS Engineering Quality Assurance (EQA) approval prior to shipment. Upon disposition and approval by GDLS EQA, the supplier will be notified and provided a unique disposition number. This number shall be noted on the supplier's COC.

EQB10 – Supplier Certification

The supplier, by acceptance of and subsequent delivery on this order, certifies that the item meets the minimum requirements of the technical data package. General Dynamics Land Systems (GDLS) reserves the right to require proof of such conformance.

Exceptions to conformance identified shall be delineated on the GDLS Supplier Quality Material Report (SQMR). The SQMR form, with completion and submittal instructions, is located at the end of this form in the appendix.

Exceptions to conformance require GDLS EQA approval prior to shipment.

EQC1 (REV K) – Inspection Report(s) for End Item Assembly (06/17/14)

General Dynamics Land Systems (GDLS) requires the supplier of this item to inspect the item, as well as to document and deliver the inspection results. A complete verification is required to confirm the article being inspected complies with the requirements identified in engineering drawing(s), computer model(s), specification(s), and purchase order as well as any other applicable design requirement(s).

The supplier shall perform the inspection in accordance with SAE Aerospace Standard AS9102 Form 3 and Instructions or equivalent. At a minimum, the supplier shall use an inspection sampling plan in accordance with the following table:

Lot Size	Sample Size
1	1
2-15	2
16-25	3
26-90	5
91-150	8

Product inspected by a sampling plan for delivery on this purchase order must use an acceptance number zero; i.e., accept on zero defects and reject the lot on one or more defects.

The inspection report(s) must address and include the following:

- 100% of the characteristics
- 100% of the drawing notes
- All data for GD&T calculations (i.e., X, Y coordinates for true position etc)
- Inspection reports for sub-assemblies, parts, details when included in the end item drawing or computer model
- All welding symbols
- Inspection report form(s), annotated/ballooned drawing and all supporting documentation (i.e., certifications, test reports, etc).
- Signature, date, and title of the responsible inspection or quality assurance representative

The inspection report is not complete until all nonconformances to the referenced specification(s) or GDLS Technical Data Package (TDP) affecting the part have been dispositioned by GDLS prior to delivery of any hardware. All exceptions to conformance shall be delineated on the GDLS Supplier Quality Material Report (SQMR). The SQMR form, with completion and submittal instructions can be found at the end of this form in the appendix.

The completed Inspection report package shall be delivered with each shipment to GDLS for acceptance.

Exceptions to conformance require GDLS Engineering Quality Assurance (EQA) approval prior to shipment. Upon disposition and approval by GDLS EQA, the supplier will be notified. The SQMR shall be noted on the supplier's inspection report and/or Certification of Conformance.

Additional information to generate the inspection report:

- Recorded dimensional data is not required for fastener type items used in assembly unless otherwise specified in the order.
- Data from coordinate measuring equipment is intended for internal use at the supplier and shall not supplant the inspection report. All data will be transferred and organized on the inspection form.

EQC1ND (REV C) – Inspection Report(s) for End Item Assembly (NON-DELIVERABLE) (06/17/14)

General Dynamics Land Systems (GDLS) requires the supplier of this item to inspect the item and maintain the inspection results on file at the suppliers facility. A complete verification is required to confirm the article being inspected complies with the requirements identified in engineering drawing(s), computer model(s), specification(s), and purchase order as well as any other applicable design requirement(s).

The supplier shall perform the inspection in accordance with SAE Aerospace Standard AS9102 Form 3 and Instructions or equivalent. At a minimum, the supplier shall use an inspection sampling plan in accordance with the following table:

Lot Size	Sample Size
1	1
2-15	2
16-25	3
26-90	5
91-150	8

Product inspected by a sampling plan for delivery on this purchase order must use an acceptance number zero; i.e., accept on zero defects and reject the lot on one or more defects.

The inspection report(s) must address and include the following:

- 100% of the characteristics
- 100% of the drawing notes
- All data for GD&T calculations (i.e., X, Y coordinates for true position etc)
- Inspection reports for sub-assemblies, parts, details when included in the end item drawing or computer model
- All welding symbols

- Inspection report form(s), annotated/ballooned drawing and all supporting documentation (i.e., certifications, test reports, etc).
- Signature, date, and title of the responsible inspection or quality assurance representative

The inspection report is not complete until all nonconformances to the referenced specification(s) or GDLS Technical Data Package (TDP) affecting the part have been dispositioned by GDLS prior to delivery of any hardware. All exceptions to conformance shall be delineated on the GDLS Supplier Quality Material Report (SQMR). The SQMR form, with completion and submittal instructions can be found at the end of this form in the appendix.

The completed Inspection report package shall be maintained at the supplier facility and shall be made available to GDLS upon request.

Exceptions to conformance require GDLS Engineering Quality Assurance (EQA) approval prior to shipment. Upon disposition and approval by GDLS EQA, the supplier will be notified. The SQMR shall be noted on the supplier's inspection report and/or Certification of Conformance.

Additional information to generate the inspection report:

- Recorded dimensional data is not required for fastener type items used in assembly unless otherwise specified in the order.
- Data from coordinate measuring equipment is intended for internal use at the supplier and shall not supplant the inspection report. All data will be transferred and organized on the inspection form.

EQC2 (REV D) – First Piece Inspection (FPI) Report for Casting or Forging (06/17/14)

General Dynamics Land Systems (GDLS) requires the supplier of this item to perform a complete First Piece Inspection (FPI) for casting/forging dimensions for each lot produced, as well as to document and deliver the inspection results. A complete verification is required to confirm that the article being inspected complies with the requirements identified in engineering drawings, computer models, specifications, and purchase order as well as any other applicable design requirement(s).

The supplier shall perform FPI in accordance with SAE Aerospace Standard AS9102 Form 3 and Instructions or equivalent. The inspection report(s) must address and include the following:

- 100% of the characteristics
- 100% of the drawing notes
- All data for GD&T calculations (i.e., X, Y coordinates for true position etc.)
- Signature, date, and title of the responsible inspection or quality assurance representative

The FPI report package shall include the FPI form, annotated / ballooned drawing, and all supporting documentation (i.e., certifications, test reports, etc). All Inspection reports shall accompany each shipment for acceptance at GDLS.

The inspection report is not complete until all nonconformances to the referenced specification(s) or GDLS Technical Data Package (TDP) affecting the part have been dispositioned by GDLS prior to delivery of any hardware. All exceptions to conformance shall be delineated on the GDLS Supplier Quality Material Report (SQMR). The SQMR form, with completion and submittal instructions, is located at the end of this form in the appendix.

The completed Inspection report package shall be delivered with each shipment to GDLS for acceptance.

Exceptions to conformance require GDLS Engineering Quality Assurance (EQA) approval prior to shipment. Upon disposition and approval by GDLS EQA, the supplier will be notified. The SQMR shall be noted on the supplier's Inspection/Test report and/or Certification of Conformance.

Additional information to generate the FPI report:

- Data supporting the inspection (i.e.; nondestructive inspection/testing results, material certifications, etc.) shall be included in the FPI package, except that any required x-rays shall be kept on file and made available upon request.
- Data from coordinate measuring equipment is intended for internal use at the supplier and shall not be submitted as a FPI report. All data will be transferred and organized on the required inspection form.

EQC2ND (REV B) – First Piece Inspection Report for Casting or Forging (NON-DELIVERABLE) (06/17/14)

General Dynamics Land Systems (GDLS) requires the supplier of this item to perform a complete First Piece Inspection (FPI) for casting/forging dimensions for each lot produced, and maintain the inspection results on file at the suppliers facility. A complete verification is required to confirm that the article being inspected complies with the requirements identified in engineering drawings, computer models, specifications, and purchase order as well as any other applicable design requirement(s).

The supplier shall perform FPI in accordance with SAE Aerospace Standard AS9102 Form 3 and Instructions or equivalent. The inspection report(s) must address and include the following:

- 100% of the characteristics
- 100% of the drawing notes
- All data for GD&T calculations (i.e., X, Y coordinates for true position etc.)
- Signature, date, and title of the responsible inspection or quality assurance representative

The FPI report package shall include the FPI form, annotated / ballooned drawing, and all supporting documentation (i.e., certifications, test reports, etc).

The inspection report is not complete until all nonconformances to the referenced specification(s) or GDLS Technical Data Package (TDP) affecting the part have been dispositioned by GDLS prior to delivery of any hardware. All exceptions to conformance shall be delineated on the GDLS Supplier Quality Material Report (SQMR). The SQMR form, with completion and submittal instructions, is located at the end of this form in the appendix.

The completed Inspection report package shall be maintained at the supplier facility and shall be made available to GDLS upon request.

Exceptions to conformance require GDLS Engineering Quality Assurance (EQA) approval prior to shipment. Upon disposition and approval by GDLS EQA, the supplier will be notified. The SQMR shall be noted on the supplier's Inspection/Test report and/or Certification of Conformance.

Additional information to generate the FPI report:

- Data supporting the inspection (i.e.; nondestructive inspection/testing results, material certifications, etc.) shall be included in the FPI package, except that any required x-rays shall be kept on file and made available upon request.
- Data from coordinate measuring equipment is intended for internal use at the supplier and shall not be submitted as a FPI report. All data will be transferred and organized on the required inspection form.

EQC4 (REV D) – First Piece Inspection Report for End Item Assembly (06/1714)

General Dynamics Land Systems (GDLS) requires the supplier of this item to perform a complete First Piece Inspection (FPI) and deliver the results to GDLS as further described below. A complete verification is required to confirm the article being inspected complies with the requirements identified in engineering drawings, computer models, specifications, and purchase order as well as any other applicable design requirement(s). The supplier shall perform FPI in accordance with SAE Aerospace Standard AS9102 Form 3 and Instructions or equivalent.

This inspection report must address and include the following:

- 100% of the characteristics
- 100% of the drawing notes
- All data for GD&T calculations (i.e., X, Y coordinates for true position, etc.)
- First Piece Inspection reports for sub-assemblies, parts, details when included on the end item drawing or computer model
- All welding symbols
- First Piece Inspection form, annotated / ballooned drawing, and all supporting documentation (i.e., certifications, test reports, etc).
- Signature, date, and title of the responsible inspection or quality assurance representative

The First Piece Inspection is not complete until all nonconformances to the referenced specification(s) or GDLS Technical Data Package (TDP) affecting the part have been dispositioned by GDLS prior to delivery of any hardware. All exceptions to conformance shall be delineated on the GDLS Supplier Quality Material Report (SQMR). The SQMR form, with completion and submittal instructions can be found at the end of this form in the appendix.

The FPI report package shall be delivered to GDLS, and shall accompany each shipment for acceptance at GDLS.

Exceptions to conformance require GDLS Engineering Quality Assurance (EQA) approval prior to shipment. Upon disposition and approval by GDLS EQA, the supplier will be notified. The SQMR shall be noted on the supplier's First Piece Inspection report and/or Certification of Conformance.

Additional information to generate the FPI report:

- Recorded dimensional data is not required for fastener type items used in assembly unless otherwise specified in the order.
- Data from coordinate measuring equipment is intended for internal use at the supplier and shall not be submitted as a FPI. All data will be transferred and organized on the required inspection form.

EQC4ND (REV D) First Piece Inspection Report for End Item Assembly (NON-DELIVERABLE) (06/17/14)

General Dynamics Land Systems (GDLS) requires the supplier of this item to perform a complete First Piece Inspection (FPI) and maintain these results on file at the supplier's facility. A complete verification is required to confirm the article being inspected complies with the requirements identified in engineering drawings, computer models, specifications, and purchase order as well as any other applicable design requirement(s). The supplier shall perform FPI in accordance with SAE Aerospace Standard AS9102 Form 3 and Instructions or equivalent.

This inspection report must address and include the following:

- 100% of the characteristics
- 100% of the drawing notes
- All data for GD&T calculations (i.e., X, Y coordinates for true position, etc.)
- First Piece Inspection reports for sub-assemblies, parts, details when included on the end item drawing or computer model
- All welding symbols
- First Piece Inspection form, annotated / ballooned drawing, and all supporting documentation (i.e., certifications, test reports, etc).
- Signature, date, and title of the responsible inspection or quality assurance representative

The First Piece Inspection is not complete until all nonconformances to the referenced specification(s) or GDLS Technical Data Package (TDP) affecting the

part have been dispositioned by GDLS prior to delivery of any hardware. All exceptions to conformance shall be delineated on the GDLS Supplier Quality Material Report (SQMR). The SQMR form, with completion and submittal instructions can be found at the end of this form in the appendix.

The FPI report package shall be maintained on file at the supplier facility and shall be made available to GDLS upon request.

Exceptions to conformance require GDLS Engineering Quality Assurance (EQA) approval prior to shipment. Upon disposition and approval by GDLS EQA, the supplier will be notified. The SQMR shall be noted on the supplier's First Piece Inspection report and/or Certification of Conformance.

Additional information to generate the FPI report:

- Recorded dimensional data is not required for fastener type items used in assembly unless otherwise specified in the order.
- Data from coordinate measuring equipment is intended for internal use at the supplier and shall not be submitted as a FPI. All data will be transferred and organized on the required inspection form.

EQC5 (REV D) – Functional/Electrical Test (06/17/14)

General Dynamics Land Systems (GDLS) requires the supplier to perform functional or electrical testing for each end item delivered to GDLS and requires the supplier to furnish a copy of the functional or electrical test data for each end item delivered to GDLS.

The test data/report shall address all functional characteristics required by the GDLS technical data package. Actual values (versus "pass/fail" data) are required, except for those characteristics typically inspected with pass/fail equipment. All data/reports must include signature, date, and title of the supplier's responsible Quality Representative.

All Inspection reports shall accompany each shipment for acceptance at GDLS unless otherwise authorized by GDLS Engineering Quality Assurance.

Prior to delivery of any hardware which contains nonconformance(s) to the referenced specification(s) or GDLS Technical Data Package, the exceptions to conformance shall be delineated on the GDLS Supplier Quality Material Report (SQMR). The SQMR form, with completion and submittal instructions, is located at the end of this form in the appendix.

Exceptions to conformance require GDLS Engineering Quality Assurance (EQA) approval prior to shipment. Upon disposition and approval by GDLS EQA, the supplier will be notified. The SQMR shall be noted on the supplier's Inspection/Test report and/or Certification of Conformance.

EQC5ND (REV B) – Functional/Electrical Test (NON-DELIVERABLE) (06/17/14)

General Dynamics Land Systems (GDLS) requires the supplier to perform functional or electrical testing for each end item delivered to GDLS and requires the supplier to maintain the inspection results on file at the suppliers facility.

The test data/report shall address all functional characteristics required by the GDLS technical data package. Actual values (versus "pass/fail" data) are required, except for those characteristics typically inspected with pass/fail equipment. All data/reports must include signature, date, and title of the supplier's responsible Quality Representative.

All Inspection reports shall be maintained at the supplier facility and shall be made available to GDLS upon request.

Prior to delivery of any hardware which contains nonconformance(s) to the referenced specification(s) or GDLS Technical Data Package, the exceptions to conformance shall be delineated on the GDLS Supplier Quality Material Report (SQMR). The SQMR form, with completion and submittal instructions, is located at the end of this form in the appendix.

Exceptions to conformance require GDLS Engineering Quality Assurance (EQA) approval prior to shipment. Upon disposition and approval by GDLS EQA, the supplier will be notified. The SQMR shall be noted on the supplier's Inspection/Test report and/or Certification of Conformance.

EQD1 (REV F) – Acceptance Test Procedure/Acceptance Test Report

General Dynamics Land Systems (GDLS) requires the supplier to submit an Acceptance Test Procedure (ATP) for the end item deliverable hardware. This procedure shall, as a minimum, address/include the following:

1. A detailed test method for each performance characteristic of the hardware being supplied.
2. A 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 in the technical data package.
4. The ATP shall identify the test data recording format (test data sheets are preferred). Actual values/data vs. "pass/fail" criteria is preferred except for those characteristics typically inspected with pass/fail equipment.
5. The ATP shall have a unique document number and date, shall be revision controlled, and changes noted on a revision page in the document.
6. The ATP shall be signed and dated by the supplier's Quality Assurance organization representative.

The ATP shall be submitted for approval 30 days prior to the first scheduled acceptance test. For approval, submit the test procedure to:

GDLS Engineering Quality Assurance

Supplier Quality Assurance, Dept. 9685

C/O GDLS Buyer or Subcontract Administrator Identified On This Purchase Order

GDLS will provide ATP approval in writing. GDLS approval of supplier's test procedure does not relieve the supplier from meeting all requirements of the specifications, drawing and other technical data. GDLS written ATP approval shall be kept on file by the supplier.

GDLS requires the supplier to submit an Acceptance Test Report (ATR)/Data

Sheet(s) when functional/performance acceptance testing is completed on the end item deliverable hardware. Calibration dates for test equipment used during ATP shall also be provided with the submittal.

EQD2 (REV C) – GDLS Source Inspection Required

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 in the appendix at the end of this form.

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 Supplier Quality Material Report (SQMR). The SQMR form, with completion and submittal instructions, is located at the end of this form in the appendix.

Exceptions to conformance require GDLS EQA approval prior to shipment.

EQE2 (REV C) – 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 (GDLS). 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.

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 end item testing (e.g., acceptance testing, drawing requirements, etc.) for evaluation of new or revised software. Notification point of contact is the GDLS buyer identified on this purchase order.

EQE3 (REV C) – 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 (GDLS). 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.

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.

EQF2 (REV C) – Weld Procedures, Weld Samples and Welder Certifications

General Dynamics Land Systems (GDLS) requires Weld Procedure Specifications (WPS) and weld sample(s) shall be furnished to the GDLS Division at the address listed below, at least two (2) weeks in advance of welding. WPS and weld samples are to be used for producing parts against this purchase order and shall be prepared using the guidelines contained in specifications AWS D1.1/D1.1M, AWS D1.2/D1.2M, AWS D1.3/D1.3M, AWS D1.6/D1.6M or the applicable specification. GDLS WPS approval shall be for a period of three years, provided the parts that have not been affected by design changes or drawing revisions during this period. Following approval of the WPS, the weld sample(s) will be returned to the supplier and shall be retained for a period of no less than seven years. Welder Certifications shall be in accordance with the guidelines contained in specifications AWS D1.1/D1.1M, AWS D1.2/D1.2M, AWS D1.3/D1.3M or AWS D1.6/D1.6M or applicable specification. All welding shall be traceable to the certified individual, with records maintained for no less than seven years and made available upon request. When non-destructive testing (NDT) of welds 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 Army Tank Plant)
1161 Buckeye Road
Lima, OH 45804
Attn: Material Control Laboratories
(419) 221-8004

EQF3 (REV A) – WELD INSPECTION & WELDER CERTIFICATIONS (03/10/14)

Mandatory - All items require visual inspection of all welds and shall conform to AWS D1.1/D1.1M section 6.9 (visual inspection), AWS D1.2/D1.2M section 5.14 (visual inspection), D1.6/D1.6M section 6.28 (visual inspection) or applicable specification in the General Dynamics Land Systems (GDLS) Technical Data Package (TDP), and shall be documented in the supplier's inspection records. Final visual inspection should be performed after all required cleaning and preparation. All welds should be visually acceptable prior to performing any other subsequent Non-Destructive Testing (NDT) inspection. Size and contour of welds

shall be measured with suitable gages and documented in the inspection records. Visual inspection for cracks in welds and base metal and other discontinuities should be aided by a strong light, magnifiers, or such other devices as may be found helpful. No cracks are permissible.

Welder Certifications shall be in accordance with the guidelines contained in specifications AWS D1.1/D1.1M, AWS D1.2/D1.2M, AWS D1.3/D1.3M or AWS D1.6/D1.6M or applicable specification. All welding shall be traceable to the certified individual, with records maintained and made available upon request.

Additional NDT inspection is mandatory when required by the GDLS TDP, drawing or model.

Optional - NDT inspection utilizing liquid penetrant inspection of all welds per ASTM E1417/E1417M with no cracks permissible, or magnetic particle testing per ASTM E1444/E1444M with no cracks permissible, may be conducted at the manufacturer's discretion, unless otherwise mandated by the GDLS TDP or purchase order. This inspection may be used for weld approval/ acceptance.

EQJ1 (REV C) – 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.

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.

EQK3 (REV E) – High Strength Fastener Certification

The supplier is hereby directed by General Dynamics Land Systems (GDLS) to supply high strength bolts or screws, American grades 5, 8, or "BD", or metric classes 8.8, 10.9 or 12.9. These fasteners must be traceable to a recognized manufacturing source (as identified by the bolt head logo) that is approved by GDLS Quality Assurance. GDLS Engineering Quality Assurance or the GDLS buyer identified on the purchase order can be contacted to obtain the list of approved manufacturers.

The fastener supplier shall furnish certifications with the shipment which documents the actual material chemistry, core hardness or tensile strength and plating requirements as specified and as applicable.

APPENDIX

Link to SQMR: <http://www.gdls.com/images/pdf/Suppliers/SQMR-Form.pdf>

Link to Source Request/FPI Request form:
[GDLS | First Piece / Source Inspection Request](#)