

1 This action constitutes an undefinitized contract action (UCA), W56HZV-13-C-0358 and signifies the intent of the U.S. Army Contracting Command-Warren to execute a definitive firm-fixed-price Letter Contract for delivery of supplies and/or performance of services as set forth in this UCA, upon the terms and conditions stated therein, which are incorporated into and made a part of this UCA.

2. BAE Systems Land & Armaments is directed to commence performance in accordance with the Section I clause FAR 52.216-23, "Execution and Commencement of Work".

3. In accordance with the Section I clause DFARS 252.217-7027, "Contract Definitization", BAE Systems Land & Armaments shall submit a proposal for the supplies and/or services covered in this UCA. Your company shall support its proposal with certified cost or pricing data, and submit a Certificate of Current Cost or Pricing Data upon agreement of the contract price. A Subcontracting Plan is also required. For purposes of the Order of Precedence, in resolving any inconsistencies in this document, the information within this narrative of Section A shall be incorporated into and become a part of the UCA Schedule.

4. This UCA authorizes your company to spend up to \$62,841,050 for the production of:

49 each M88A2 Hercules and 3 sets of ASL spares

5. The ceiling price for this effort is \$149,882,446, and is broken down as follows:

M88A2 Hercules, \$2,987,763.97 per vehicle * 49 = \$146,400,434.65

ASL Spares, \$1,160,670.78 per set * 3 = \$3,482,012.33

6. In performing this contract, BAE Systems Land & Armaments is not authorized to make expenditures or incur obligations exceeding \$62,841,050. The maximum amount for which the Government shall be liable if this contract is terminated is \$62,841,050.

The negotiation schedule for definitizing this contract is as follows:

Award Date of UCA: 21 August 2013

Date to Receive Qualifying Proposal, including required Cost
or Pricing Data: 18 September 2013

Date to Subcontracting Plan submittal: 18 September 2013

Date to Start Negotiations: 1 November 2013

Date of Completion of Negotiations and Receipt of Certificate
of Current Cost or Pricing Data: 29 November 2013

Date of Make-or-Buy Plans: Not Applicable

Date of Contract Definitization: 20 December 2013

7. If agreement on a definitive contract to supersede this UCA is not reached by the target date above, or within any extension of it granted by the Contracting Officer, the Contracting Officer may, with the approval of the head of the contracting activity, determine a reasonable price or fee in accordance with Subpart 15.4 and Part 31 of the FAR, subject to Contractor appeal as provided in the Disputes clause. In any event, BAE Systems Land & Armaments shall proceed with completion of the contract, subject only to the Section I clause FAR 52.216-24, "Limitation of Government Liability".

8. BAE Systems Land & Armaments shall indicate acceptance of this UCA by an authorized signature on the line below, and return it to the Contracting Officer no later than 20 August 2013. Upon acceptance by both parties, BAE Systems Land & Armaments shall begin performing the work, including purchase of necessary materials.

9. If you have any questions regarding this matter, please contact the contract specialist, Ms. Shelly M. Masakowski, CCTA-AHP-A, at (586)282-4862, email shelly.m.masakowski.civ@mail.mil or the undersigned at (586)282-6973, email lisa.m.jones.civ@mail.mil.

SIGNED:

Lisa M. Jones
Contracting Officer
DATE:

ACCEPTANCE OF UCA:

Name of Authorized Representative: _____

Title: _____

Signature: _____

Date: _____

CONTRACT W56HZV-13-C-0358

For administrative purposes, the codes are as follows:

DCMA Code: _S3915A_____

DCMA Address: 700 Robbins, Ave Bldg 4-A, Philadelphia PA 1911-0427

DFAS Code: HQ0337_____

DFAS Address: DFAS -Columbus Center North Entitlement Operations, PO Box 182266, Columbus, OH 43218-2266

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SECTION A - SUPPLEMENTAL INFORMATION

Buyer Name: SHELLY MASAKOWSKI
 Buyer Office Symbol/Telephone Number: CCTA-AHP-A/(586)282-4862
 Type of Contract: Firm Fixed Price
 Kind of Contract: Undefined Letter Contracts
 Type of Business: Large Business Performing in U.S.
 Surveillance Criticality Designator: C

*** End of Narrative A0000 ***

<u>Regulatory Cite</u>	<u>Title</u>	<u>Date</u>
A-1	52.204-4016 WARREN ELECTRONIC CONTRACTING	MAR/2013

(a) All Army Contracting Command - Warren (DTA) solicitations and awards are distributed on the Army Contracting Command - Warren Procurement Network (ProcNet) Business Opportunities website (<http://contracting.tacom.army.mil/opportunity.htm>) and are no longer available in hard copy. The Technical Data Packages (TDPs) and other documents, when available electronically, will be attachments or links to the solicitation package on ProcNet.

(b) You may need to use special software to view documents that we post on ProcNet. This viewing software is freeware, available for download at no cost from commercial websites like Microsoft and Adobe. In cases where such software is required, we provide a link from ProcNet to the commercial site where the software is available. Once you arrive at the software developer's site, follow its instructions to download the free viewer. You can then return to the ProcNet.

(c) Unless directed to do otherwise in Section L of this solicitation, you are required to submit your offer, bid, or quote electronically, via the Army Single Face to Industry (ASFI) Online Bid Response System (BRS). For detailed information about submitting your offer electronically, please see <http://contracting.tacom.army.mil/acqinfo/ebidnotice.htm>.

(d) Requirements for the online ASFI bid submission:

(1) You must be registered in the System for Award Management (SAM) at www.sam.gov (a Federal Government owned and operated free web site) and have a CAGE Code and CCR Marketing Partner Identification Number (MPIN).

(2) If you found the solicitation on ProcNet, use the following link to the Start Bid Page on the ASFI BRS website for this solicitation:

https://acquisition.army.mil/asfi/solicitation_view.cfm?psolicitationnbr= W56HZV13R0249

(3) If you found the solicitation by searching on ASFI, you can start the online bidding process by using the Start Bid button on the ASFI Solicitation View page. You may also access the ASFI BRS by going to <https://acquisition.army.mil/asfi/> and clicking on the Contracting Opportunities Search to find the solicitation.

(4) Once in the ASFI BRS, you will be asked to enter basic information and will then be directed to upload one or more files containing your offer and information required by the solicitation.

(5) You will receive a confirmation of your bid upon completion of the bid submission process.

(6) You can find detailed BRS user instructions on the ASFI website at https://acquisition.army.mil/asfi/BRS_guide.doc.

(e) Note to offerors:

Your attention is called to the solicitation closing date and time as stated on the cover page of this solicitation, local time for the Army Contracting Command - Warren (DTA), Michigan. In accordance with FAR 15.208(a), offerors are responsible for submitting proposals, and any revisions, and modifications, so as to be received by the Government office designated in the solicitation by the time specified.

It is the offeror's responsibility to assure their proposal is received by the date and time specified on the cover page of this solicitation. In accordance with FAR 15.208, if your proposal was not received at the initial point of entry to the Government infrastructure (in this case, received through ASFI) by the exact date and time specified on the cover page of this solicitation, it will be determined late. Proposal, as the term is used here, means ALL volumes and/or parts of the proposal.

Note: There is no "expected" or "target" length of time for proposal submission; size and content may be factors, therefore offerors are

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strongly cautioned to submit their proposals allowing adequate time for submission.

Solicitations may remain posted on the AFSI Open Solicitation Web page after the solicitation closes. Even though the system will allow you to submit a proposal after the closing date/time, your proposal will be considered late and may not be considered for award. If you are responding to a Request for Proposal, your offer will not be considered if it is submitted after the closing date and time unless one of the exceptions is met at FAR 15.208(b). If you are responding to a Request for Quotation, your quote may be considered if it is received after the closing date, and it will not unduly delay award.

(f) Any award issued as a result of this solicitation will be distributed electronically. Awards posted on ProcNet represent complete OFFICIAL copies of contract awards and will include the awarded unit price. This is the notice required by Executive Order 12600 (June 23, 1987) of our intention to release unit prices in response to any request under the Freedom of Information Act (FOIA), 5 USC 552. Unit price is defined as the contract price per unit or item purchased as it appears in Section B of the contract and is NOT referring to nor does it include Cost or Pricing data/information. If you object to such release, and you intend to submit an offer, notify the contracting officer in writing prior to the closing date identified in this solicitation and include the rationale for your objection consistent with the provisions of FOIA. A release determination will be made based on rationale given.

(g) If you have questions or need help using ProcNet, call our E-commerce Contracting Help Desk at (586) 282-7059, or send an email to usarmy.detroit.acc.mbx.wrn-web-page-request@mail.mil. If you have questions about the content of any specific item posted on the ProcNet, please call the contract specialist or point of contact listed for the item. For technical assistance in doing business with the Government, and doing business electronically, please visit the Procurement Technical Assistance Center website at <http://www.dla.mil/SmallBusiness/Pages/ProcurementTechnicalAssistanceCenters.aspx> to find a location near you.

End of Provision

A-2 52.204-4850 ACCEPTANCE APPENDIX SEP/2008

(a) Contract Number W56HZV-13-C-0358 is awarded to BAE Systems Land and Armaments, L.P..

(b) The contractor, in its proposal, provided data for various solicitation clauses, and that data has been added in this contract.

(c) Any attachments not included within this document will be provided by Army Contracting Command - Warren directly to the administrative contracting officer (ACO) via e-mail, as required. Technical data packages that are only available on CD-ROM will be mailed by Army Contracting Command - Warren to the ACO. Within one week of this award, any office not able to obtain attachments from the Army Contracting Command - Warren website (<https://contracting.tacom.army.mil/>) and still requiring a copy, can send an email request to the buyer listed on the front page of this contract.

(c)(1) The contractor's subcontracting plan dated XXXXX is incorporated into the contract by reference.

(d) The following Amendment(s) to the solicitation are incorporated into this contract: N/A

[End of Clause]

A-3 52.201-4000 ARMY CONTRACTING COMMAND-WARREN (DTA) OMBUDSPERSON APR/2011

Information regarding the Ombudsperson for this contract is located at the following website:
<http://contracting.tacom.army.mil/acqinfo/ombudsperson.htm>

[End of Provision]

A-4 52.215-5000 PROPOSAL ADEQUACY CHECKLIST REQUIRED MAY/2013
(ACC)

a. Certified Cost and Pricing Data must be submitted by the offeror IAW FARS 15.403-5, including Table 15-2. You must also complete, and provide with your proposal, the "Proposal Adequacy Checklist" found in Section L (252.215-7009) of this solicitation or a Word version is available on the Contractor Forms Web Page on ProcNet at:

<http://contracting.tacom.army.mil/acqinfo/contractorforms.htm>

b. If you fail to fully complete the checklist, it may result in the return of your proposal and/or you will be allowed five

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(5) business days from the date of your notification to fully complete and submit the checklist.

[End of provision]

A-5 52.232-4087 PAYMENT UNDER WIDE AREA WORKFLOW (ACC WARREN) JAN/2012

TACOM-Warren uses Wide Area Workflow, Receipt and Acceptance (WAWF-RA) to electronically process vendor requests for payment. (See DFARS clause 252.232-7003, entitled Electronic Submission of Payment Requests and Receiving Reports). Under WAWF-RA, vendors electronically submit (and track) invoices, and receipt/acceptance documents/reports. Submission of hard copy DD250/invoices is no longer acceptable for payment purposes.

The contractor shall register to use WAWF-RA at <https://wawf.eb.mil> There is no charge to use WAWF. Direct any questions relating to system setup and vendor training to the Help Desk at Ogden, UT at 1-866-618-5988. Web-based training for WAWF is also available at <https://wawftraining.eb.mil>

To obtain payment, WAWF requires the contractor to input/indicate the various DoDAAC (Department of Defense Activity Address Code) codes that apply to the acquisition. These codes can be found on the cover page of contracts/orders as described below.

USE THE FOLLOWING CODES TO ROUTE YOUR INVOICES THROUGH WAWF:

- Your firms CAGE code (found in Block 15A of SF 33; Block 17a of SF 1449; Block 14 of SF 1442; Block 7 of SF 26)
- Issue and Admin DoDAAC Code (found in Block 7 of SF 33; Block 9 of SF 1449; Block 7 of SF 1442; Block 5 of SF 26)
- Ship-To DoDAAC Code (if deliverables are involved) (found in Section B of the contract where SF 33, SF 1442, or SF 26 is the cover page; Block 15 of SF 1449)
- Accept-By DoDAAC Code: If Inspection/Acceptance is Origin, use the Admin (DCMA)DoDAAC or the DoDAAC of the inspection/acceptance office if different than the Admin DoDAAC; if Destination, use the Ship-To DODAAC Code. If Accepted-By Other: enter the DoDAAC of the activity designated to perform acceptance.
- Payment DoDAAC Code. (found in Block 25 of SF 33; Block 18a of SF 1449; Block 27 of SF 1442; Block 12 of SF 26)

The paying office DoDAAC and mailing address is located on the first page of the award. To track the status of your invoice, click on the link, Pay status (myInvoice-External link) at the bottom of the left-hand menu.

If your paying office is Columbus, direct any payment-related questions to the Defense Finance Accounting Services (DFAS) Columbus at 1-888-756-4571. Please have your order number and invoice ready when calling about payment status. If your paying office is other than Columbus, contact your contract administrator for the customer service phone/fax numbers.

[End of Clause]

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ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
004	3 30-SEP-2014				
005	3 31-OCT-2014				
006	3 30-NOV-2014				
007	3 31-DEC-2014				
008	3 31-JAN-2015				
009	3 28-FEB-2015				
010	3 31-MAR-2015				
011	3 30-APR-2015				
012	3 31-MAY-2015				
013	3 30-JUN-2015				
014	3 31-JUL-2015				
015	3 31-AUG-2015				
016	3 30-SEP-2015				
017	1 31-OCT-2015				
FOB POINT: Origin					
SHIP TO: (CKOPYB) XR TBD - Planning Only Default Street, see derivative Default City, see derivative,,					

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Name of Offeror or Contractor: BAE SYSTEMS LAND & ARMAMENTS L.P.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT																																										
0002	M88A2 VEHICLES & ASL NSN: 9999-99-999-9999																																														
0002AA	<p><u>ASL SPARES</u></p> <p> GENERIC NAME DESCRIPTION: M88A2 VEHICLES & ASL CLIN CONTRACT TYPE: Firm Fixed Price PRON: JM3A3004JM PRON AMD: 01 ACRN: AA PSC: 9999 </p> <p> The amount obligated under 0002AA is \$1,407,656.31 and represents the limit on Contractor expenditures and obligations and the limit on the Government's liability for work performed under this 0002AA. The obligated amount also represents this 0002AA portion or liability relative the entire contract's limitation under Section I FAR clause "Limitation of Government Liability" (FAR 52.216-24). </p> <p> The not-to-exceed (NTE)/ceiling amount for the 0002AA is \$3,482,012.33 represents this 0002AA portion of the total NTE/ceiling price established under Section I DFARS clause "Contract Definitization (DFARS 252.217.7027). </p> <p style="text-align: center;">(End of narrative B001)</p> <p><u>Packaging and Marking</u></p> <p><u>Inspection and Acceptance</u> INSPECTION: Origin ACCEPTANCE: Origin</p> <p><u>Deliveries or Performance</u></p> <table border="0"> <tr> <td>DOC</td> <td colspan="5">SUPPL</td> </tr> <tr> <td><u>REL CD</u></td> <td><u>MILSTRIP</u></td> <td><u>ADDR</u></td> <td><u>SIG CD</u></td> <td><u>MARK FOR</u></td> <td><u>TP CD</u></td> </tr> <tr> <td>001</td> <td>W56HZV03227D075</td> <td>CK0PYB</td> <td>J</td> <td></td> <td>3</td> </tr> <tr> <td><u>DEL REL CD</u></td> <td><u>QUANTITY</u></td> <td colspan="3"></td> <td><u>DEL DATE</u></td> </tr> <tr> <td>001</td> <td>1</td> <td colspan="3"></td> <td>31-OCT-2014</td> </tr> <tr> <td>002</td> <td>1</td> <td colspan="3"></td> <td>30-APR-2015</td> </tr> <tr> <td>003</td> <td>1</td> <td colspan="3"></td> <td>30-SEP-2015</td> </tr> </table> <p>FOB POINT: Origin</p> <p>SHIP TO:</p>	DOC	SUPPL					<u>REL CD</u>	<u>MILSTRIP</u>	<u>ADDR</u>	<u>SIG CD</u>	<u>MARK FOR</u>	<u>TP CD</u>	001	W56HZV03227D075	CK0PYB	J		3	<u>DEL REL CD</u>	<u>QUANTITY</u>				<u>DEL DATE</u>	001	1				31-OCT-2014	002	1				30-APR-2015	003	1				30-SEP-2015	3	LO	\$ UNDEFINITIZED NOT TO EXCEED	\$ 1,407,656.31 \$ 3,482,012.33
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Name of Offeror or Contractor: BAE SYSTEMS LAND & ARMAMENTS L.P.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	(CKOPYB) XR TBD - Planning Only Default Street, see derivative Default City, see derivative,,				
0003	<u>CONTRACT DATA REQUIREMENTS LIST (CDRL)</u>				
A001	<u>MEETINGS AND MEETING MINUTES</u> GENERIC NAME DESCRIPTION: DATA <u>Packaging and Marking</u> <u>Inspection and Acceptance</u> INSPECTION: Origin ACCEPTANCE: Origin <u>Deliveries or Performance</u> DOC SUPPL REL CD MILSTRIP ADDR SIG CD MARK FOR TP CD 001 3 DEL REL CD QUANTITY DEL DATE 001 1 UNDEFINITIZED FOB POINT: Origin SHIP TO: (Y00003) SEE NARRATIVE ON DD 1423	1	EA	\$ ** NSP **	\$ ** NSP **
A002	<u>REPORT OF SHIPPING ITEM & PACKAGING DISCREPANCY</u> GENERIC NAME DESCRIPTION: DATA <u>Packaging and Marking</u> <u>Inspection and Acceptance</u> INSPECTION: Origin ACCEPTANCE: Origin <u>Deliveries or Performance</u> DOC SUPPL	1	EA	\$ ** NSP **	\$ ** NSP **

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Name of Offeror or Contractor: BAE SYSTEMS LAND & ARMAMENTS L.P.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
A003	<p>REL CD MILSTRIP ADDR SIG CD MARK FOR TP CD 001 3</p> <p>DEL REL CD QUANTITY DEL DATE 001 1 SEE DD FORM 1423</p> <p>FOB POINT: Origin</p> <p>SHIP TO: (Y00003)</p> <p>SEE NARRATIVE ON DD 1423</p> <p><u>GFM CONSUMPTION REPORT</u></p> <p>GENERIC NAME DESCRIPTION: DATA</p> <p><u>Packaging and Marking</u></p> <p><u>Inspection and Acceptance</u> INSPECTION: Origin ACCEPTANCE: Origin</p> <p><u>Deliveries or Performance</u> DOC SUPPL REL CD MILSTRIP ADDR SIG CD MARK FOR TP CD 001 3</p> <p>DEL REL CD QUANTITY DEL DATE 001 1 SEE DD FORM 1423</p> <p>FOB POINT: Origin</p> <p>SHIP TO: (Y00003)</p> <p>SEE NARRATIVE ON DD 1423</p>	1	EA	\$ ** NSP **	\$ ** NSP **
A004	<p><u>RECEIPT OF GOVERNMENT MATERIAL REPORT</u></p> <p>GENERIC NAME DESCRIPTION: DATA</p> <p><u>Packaging and Marking</u></p> <p><u>Inspection and Acceptance</u> INSPECTION: Origin ACCEPTANCE: Origin</p> <p><u>Deliveries or Performance</u></p>	1	EA	\$ ** NSP **	\$ ** NSP **

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ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	<p>DOC SUPPL REL CD MILSTRIP ADDR SIG CD MARK FOR TP CD 001 3 DEL REL CD QUANTITY DEL DATE 001 1 SEE DD FORM 1423</p> <p>FOB POINT: Origin</p> <p>SHIP TO: (Y00003)</p> <p>SEE NARRATIVE ON DD 1423</p>				
A005	<p><u>CONFIGURATION MANAGEMENT (CM)</u></p> <p>GENERIC NAME DESCRIPTION: DATA</p> <p><u>Packaging and Marking</u></p> <p><u>Inspection and Acceptance</u> INSPECTION: Origin ACCEPTANCE: Origin</p> <p><u>Deliveries or Performance</u> DOC SUPPL REL CD MILSTRIP ADDR SIG CD MARK FOR TP CD 001 3 DEL REL CD QUANTITY DEL DATE 001 1 SEE DD FORM 1423</p> <p>FOB POINT: Origin</p> <p>SHIP TO: (Y00003)</p> <p>SEE NARRATIVE ON DD 1423</p>	1	EA	\$ ** NSP **	\$ ** NSP **
A006	<p><u>HAZARDOUS SUBSTANCE WAIVER REQUEST</u></p> <p>GENERIC NAME DESCRIPTION: DATA</p> <p><u>Packaging and Marking</u></p> <p><u>Inspection and Acceptance</u> INSPECTION: Origin ACCEPTANCE: Origin</p>	1	EA	\$ ** NSP **	\$ ** NSP **

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Name of Offeror or Contractor: BAE SYSTEMS LAND & ARMAMENTS L.P.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
A007	<p><u>Deliveries or Performance</u> DOC SUPPL REL CD MILSTRIP ADDR SIG CD MARK FOR TP CD 001 3 DEL REL CD QUANTITY DEL DATE 001 1 SEE DD FORM 1423</p> <p>FOB POINT: Origin</p> <p>SHIP TO: (Y00003)</p> <p>SEE NARRATIVE ON DD 1423</p> <p><u>HAZARD TRACKING SYSTEM</u></p> <p>GENERIC NAME DESCRIPTION: DATA</p> <p><u>Packaging and Marking</u></p> <p><u>Inspection and Acceptance</u> INSPECTION: Origin ACCEPTANCE: Origin</p>	1	EA	\$ ** NSP **	\$ ** NSP **
A008	<p><u>Deliveries or Performance</u> DOC SUPPL REL CD MILSTRIP ADDR SIG CD MARK FOR TP CD 001 3 DEL REL CD QUANTITY DEL DATE 001 1 SEE DD FORM 1423</p> <p>FOB POINT: Origin</p> <p>SHIP TO: (Y00003)</p> <p>SEE NARRATIVE ON DD 1423</p> <p><u>SAFETY ASSESSMENT REPORT</u></p> <p>GENERIC NAME DESCRIPTION: DATA</p> <p><u>Packaging and Marking</u></p> <p><u>Inspection and Acceptance</u> INSPECTION: Origin ACCEPTANCE: Origin</p>	1	EA	\$ ** NSP **	\$ ** NSP **

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Name of Offeror or Contractor: BAE SYSTEMS LAND & ARMAMENTS L.P.

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	<p><u>Deliveries or Performance</u> DOC SUPPL REL CD MILSTRIP ADDR SIG CD MARK FOR TP CD 001 3 DEL REL CD QUANTITY DEL DATE 001 1 SEE DD FORM 1423</p> <p>FOB POINT: Origin</p> <p>SHIP TO: (Y00003)</p> <p>SEE NARRATIVE ON DD 1423</p>				
A009	<p><u>SYSTEM SAFETY PROGRAM PLAN</u></p> <p>GENERIC NAME DESCRIPTION: DATA</p> <p><u>Packaging and Marking</u></p> <p><u>Inspection and Acceptance</u> INSPECTION: Origin ACCEPTANCE: Origin</p> <p><u>Deliveries or Performance</u> DOC SUPPL REL CD MILSTRIP ADDR SIG CD MARK FOR TP CD 001 3 DEL REL CD QUANTITY DEL DATE 001 1 SEE DD FORM 1423</p> <p>FOB POINT: Origin</p> <p>SHIP TO: (Y00003) SEE NARRATIVE ON DD 1423</p>	1	EA	\$ ** NSP **	\$ ** NSP **
A010	<p><u>HEALTH HAZARD ANALYSIS</u></p> <p>GENERIC NAME DESCRIPTION: DATA</p> <p><u>Packaging and Marking</u></p> <p><u>Inspection and Acceptance</u> INSPECTION: Origin ACCEPTANCE: Origin</p>	1	EA	\$ ** NSP **	\$ ** NSP **

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Name of Offeror or Contractor: BAE SYSTEMS LAND & ARMAMENTS L.P.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
A011	<p><u>Deliveries or Performance</u> DOC SUPPL REL CD MILSTRIP ADDR SIG CD MARK FOR TP CD 001 3 DEL REL CD QUANTITY DEL DATE 001 1 SEE DD FORM 1423</p> <p>FOB POINT: Origin</p> <p>SHIP TO: (Y00003) SEE NARRATIVE ON DD 1423</p> <p>HAZARDOUS MATERIALS MGT REPORT (HMMR)</p> <p>GENERIC NAME DESCRIPTION: DATA</p> <p><u>Packaging and Marking</u></p> <p><u>Inspection and Acceptance</u> INSPECTION: Origin ACCEPTANCE: Origin</p> <p><u>Deliveries or Performance</u> DOC SUPPL REL CD MILSTRIP ADDR SIG CD MARK FOR TP CD 001 3 DEL REL CD QUANTITY DEL DATE 001 1 SEE DD FORM 1423</p> <p>FOB POINT: Origin</p> <p>SHIP TO: (Y00003) SEE NARRATIVE ON DD 1423</p>	1	EA	\$ ** NSP **	\$ ** NSP **
A012	<p>CRITICAL SAFETY ITEM, CHAR AND CRITICAL DEF REPORT</p> <p>GENERIC NAME DESCRIPTION: DATA</p> <p><u>Packaging and Marking</u></p> <p><u>Inspection and Acceptance</u> INSPECTION: Origin ACCEPTANCE: Origin</p> <p><u>Deliveries or Performance</u> DOC SUPPL REL CD MILSTRIP ADDR SIG CD MARK FOR TP CD</p>	1	EA	\$ ** NSP **	\$ ** NSP **

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Name of Offeror or Contractor: BAE SYSTEMS LAND & ARMAMENTS L.P.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
A013	<p>001 3 DEL REL CD QUANTITY DEL DATE 001 1 SEE DD FORM 1423</p> <p>FOB POINT: Origin</p> <p>SHIP TO: (Y00003) SEE NARRATIVE ON DD 1423</p> <p><u>CORROSION PREVENTION & CONTROL PLAN (CPCP)</u></p> <p>GENERIC NAME DESCRIPTION: DATA</p> <p><u>Packaging and Marking</u></p> <p><u>Inspection and Acceptance</u> INSPECTION: Origin ACCEPTANCE: Origin</p> <p><u>Deliveries or Performance</u> DOC SUPPL REL CD MILSTRIP ADDR SIG CD MARK FOR TP_CD 001 3 DEL REL CD QUANTITY DEL DATE 001 1 SEE DD FORM 1423</p> <p>FOB POINT: Origin</p> <p>SHIP TO: (Y00003) SEE NARRATIVE ON DD 1423</p>	1	EA	\$ ** NSP **	\$ ** NSP **
A014	<p><u>FAILURE ANALYSIS & CORRECTIVE ACTION REPORT (CAR)</u></p> <p>GENERIC NAME DESCRIPTION: DATA</p> <p><u>Packaging and Marking</u></p> <p><u>Inspection and Acceptance</u> INSPECTION: Origin ACCEPTANCE: Origin</p> <p><u>Deliveries or Performance</u> DOC SUPPL REL CD MILSTRIP ADDR SIG CD MARK FOR TP_CD 001 3 DEL REL CD QUANTITY DEL DATE 001 1 SEE DD FORM 1423</p>	1	EA	\$ ** NSP **	\$ ** NSP **

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Name of Offeror or Contractor: BAE SYSTEMS LAND & ARMAMENTS L.P.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
A015	<p>FOB POINT: Origin</p> <p>SHIP TO: (Y00003) SEE NARRATIVE ON DD 1423</p> <p><u>FINAL INSPECTION REPORT (FIR)</u></p> <p>GENERIC NAME DESCRIPTION: DATA</p> <p><u>Packaging and Marking</u></p> <p><u>Inspection and Acceptance</u> INSPECTION: Origin ACCEPTANCE: Origin</p> <p><u>Deliveries or Performance</u> DOC SUPPL REL CD MILSTRIP ADDR SIG CD MARK FOR TP CD 001 3 DEL REL CD QUANTITY DEL DATE 001 1 SEE DD FORM 1423</p>	1	EA	\$ ** NSP **	\$ ** NSP **
A016	<p>FOB POINT: Origin</p> <p>SHIP TO: (Y00003) SEE NARRATIVE ON DD 1423</p> <p><u>TECHNICAL INSPECTION REPORT</u></p> <p>GENERIC NAME DESCRIPTION: DATA</p> <p><u>Packaging and Marking</u></p> <p><u>Inspection and Acceptance</u> INSPECTION: Origin ACCEPTANCE: Origin</p> <p><u>Deliveries or Performance</u> DOC SUPPL REL CD MILSTRIP ADDR SIG CD MARK FOR TP CD 001 3 DEL REL CD QUANTITY DEL DATE 001 1 SEE DD FORM 1423</p> <p>FOB POINT: Origin</p>	1	EA	\$ ** NSP **	\$ ** NSP **

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Name of Offeror or Contractor: BAE SYSTEMS LAND & ARMAMENTS L.P.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
A017	<p>SHIP TO: (Y00003) SEE NARRATIVE ON DD 1423</p> <p><u>FAT REPORT</u></p> <p>GENERIC NAME DESCRIPTION: DATA</p> <p>If a FAT is required in accordance with E.1 and 52.209-3. (End of narrative B001)</p> <p><u>Packaging and Marking</u></p> <p><u>Inspection and Acceptance</u> INSPECTION: Origin ACCEPTANCE: Origin</p> <p><u>Deliveries or Performance</u> DOC SUPPL <u>REL CD MILSTRIP ADDR SIG CD MARK FOR TP_CD</u> 001 3 <u>DEL REL CD QUANTITY DEL DATE</u> 001 1 SEE DD FORM 1423</p> <p>FOB POINT: Origin</p> <p>SHIP TO: (Y00003) SEE NARRATIVE ON DD 1423</p>	1	EA	\$ ** NSP **	\$ ** NSP **

Name of Offeror or Contractor: BAE SYSTEMS LAND & ARMAMENTS L.P.

SECTION C - DESCRIPTION/SPECIFICATIONS/WORK STATEMENT

SECTION C - DESCRIPTION/SPECIFICATIONS/WORK STATEMENT

Revision 6, 25 July 2013

C.1 GENERAL REQUIREMENT

C.1.1 The Contractor shall furnish all supplies and services that are necessary to accomplish this contract for the Heavy Recovery Vehicle Full Tracked: M88A2 Heavy Equipment Recovery Combat Utility Evacuation System (HERCULES). The Contractor shall provide all technical support regarding engineering drawings, technical data, manufacturing processes, Material Review Board actions for discrepant materials, act as a liaison with System Technical Support (STS) Contractor design personnel, and maintain Technical Data required to manufacture the vehicle systems and equipment under this contract. The Government will provide the materials listed in Attachment 0003 - Government Furnished Items, to assist in the build of M88A2 HERCULES vehicles required under this contract.

C.1.2 Government Furnished Material (GFM) will be provided to the Contractor on or before the dates specified in Attachment 0004 GFM Delivery Schedule.

C.1.3 After acceptance of vehicles to the Final Inspection Record (FIR), the Contractor shall provide vehicles free of failures and defects, through handoff to the gaining unit. The Government will be responsible for repair/replacement of any GFM provided in accordance with Attachment 0003 that fails.

C.1.4 The Contractor shall provide M88A2 systems in accordance with the HERCULES Purchase Description (PD), ATPD 2150, Rev J, Attachment 0001 to this contract. M88A1 chassis and other components will be supplied as Government Furnished Material (GFM), as specified in Attachment 0003. Upon receipt, the Contractor shall convert this GFM and any other required material into the M88A2 HERCULES as described in the PD and Revision 02 dated 21 May 2012 of M88A2 HERCULES Technical Data Package(TDP) 06085-12364500 maintained in Contracts W56HZV-07-C-0256 and W56HZV-09-C-0408, plus all Engineering Change Proposals (ECPs) approved as of 1 April 2013 (see Attachment 0006).

C.1.5 If there are any discrepancies between the PD and the TDP, the PD shall have precedence. The Contractor shall deliver vehicles in the quantity and for the price set forth in Section B of the contract. Vehicle delivery shall be in accordance with the schedule in Section F of the contract.

C.1.6 Painting. All vehicles shall be delivered painted per the Technical Data Package, except the exterior of the vehicle shall be painted TAN (CARC 686A, 33446) in lieu of Green (CARC 383, 34094).

C.1.6.1 Inspection Of Painting.

C.1.6.1.1 All rubber components shall be masked during the painting process. Incidental over spray is acceptable.

C.1.6.1.2 Paint applied over all externally mounted chains and hard rubber parts, such as road wheels, stops, and track, shall be permitted to have splits, peeling, cracking, or other imperfections caused by the application of CARC paint on rubber.

C.1.6.1.3 All accessible areas shall be painted the same color as the applicable interior and exterior paint color requirements. Accessible areas are areas that do not require removal or disassembly to be painted. However, accessible areas do include the backside or behind parts that move or open (i.e., hatches, doors, boom, and spade backside). Exterior brackets shall be painted the same color as the applicable exterior paint color requirements. The inside of road wheels and the vehicle bottom shall be painted the same color as the applicable interior and exterior paint color requirements. The contractor shall perform all inspections and tests required of a CARC paint system IAW MIL-DTL-53072D, to specifically include the corrosion control tests (salt spray), at a frequency of once every six (6) months for steel and once every 12 months for aluminum, for those items utilizing the Direct to Metal (DTM) paint process.

C.1.7 Vehicles shall be delivered with the following, unless otherwise noted:

Basic Issue Items (BII)- See Attachment 0007

Components of the End Item (COEI) See Attachment 0007

C.2 DATA REQUIREMENTS

C.2.1 Data shall be delivered in accordance with the DD1423 CDRLs and associated tailored Data Item Descriptions (DIDs) as set forth in Exhibits A and B.

C.3 MEETINGS

C.3.1 When requested by the Government, the Contractor shall be responsible for providing agendas and meeting minutes for joint Government-Contractor meetings, and to provide reports for ongoing issues related to the production of vehicles under this Contract. The agenda and meeting minutes may be submitted in Contractor format IAW CDRL A001.

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C.3.1.1 Program Management Review (PMR): Two PMRs shall be held per calendar year. The dates shall be established by the Government, and the Contractor will be notified not less than four weeks in advance to prepare an agenda. The Contractor shall prepare an agenda and submit to the Government for review in accordance with CDRL A001. The PMR shall either be held at the Contractors Sterling Heights, MI facility or via teleconference/video conference, as determined by the Government.

C.4 PRODUCT MANAGEMENT

C.4.1 Review And Access: During performance of the contract, the contractor shall maintain close coordination with the Government. The Contracting Officer or duly authorized representatives shall have the right to review, both in-process and upon completion, all project efforts and documentation consisting of fabrication, assembly, test, calibration, inspection and Integrated Logistic Support (ILS) associated with this contract and review all pertinent Contractor records and data including those associated with schedules for the purpose of Government surveillance.

C.4.2 Security Guidelines: The security classification guidelines for this contract are contained at Attachment 0002; Security Classification Guide dated 17 December 2012.

C.5 ELECTRONIC DELIVERY OF DATA

C.5.1 Unless specifically prohibited by the CDRL, electronic delivery of data is the required method of delivery.

C.6 ENGINEERING SUPPORT IN PRODUCTION (ESIP)

C.6.1 The Contractor shall perform Engineering Support in Production (ESIP) activities required for the vehicle build and delivery. These activities consist of technical support to Manufacturing and Operations, program management, conduct of program meetings, resolution of vendor problems, engineering and manufacturing effort to update the M88A2 technical data package, for producibility changes, program management or Contractor generated Engineering Change Proposals.

C.6.2 The Contractor shall have sole responsibility for the screening and subsequent replacement or redesign of a substitute part or system, required due to parts becoming unavailable or obsolete, to deliver vehicles under this contract. This shall consist of components and parts that are common with other systems. Throughout the period of performance of this Contract, the Contractor shall notify the Government of any obsolescence shortages within 30 days of discovery.

C.6.3 The Contractor shall notify the Government (M88 Program Office), and obtain concurrence with regard to appropriate classification of all ECPs and Requests for Deviation (RFDs)/Requests for Variance (RFVs), prior to initiating all Class I/II engineering changes and RFDs/RFVs affecting this contract. No ECPs or RFDs/RFVs shall be executed or implemented without written Government concurrence of classification. Written concurrence or non-concurrence will be provided by the M88 Program Office within two (2) business days of receipt. If no notification has been provided by the PMO after two (2) business days, the classification will be considered to be appropriate as presented. For classification guidance, refer to ANSI/EIA 649-B-2011 and MIL-HDBK-61A (SE).

C.6.4 All Class I and Class II ECPs will be approved by the M88 Program Office, prior to implementation.

C.6.4.1 M88A2 Unique Class II ECPs. The Government will respond to the contractors ECP submission within two (2) business days of receipt, with either approval, disapproval, or a request for additional information.

C.7 CONFIGURATION MANAGEMENT

C.7.1 Configuration Management System. The Contractor shall operate and maintain the current Configuration Management (CM) and control system throughout the period of performance of this Contract. The Contractor shall update its current CM plan and deliver it in accordance with CDRL A005. The Contractor shall provide copies of all changes to the PCO in the form of a revised CM Plan. If there are discrepancies between this CM Plan and the requirements of this Contract, the Contract requirements shall prevail. As part of the CM plan, the Contractor shall maintain and deliver a detailed ECP flowchart which lays out its ECP process from problem identification through Engineering Release Record (ERR) delivery. The ECP process shall include a review of technical manuals and the technical data package to determine the impact the change has on production and fielded systems.

C.7.1.1 The Government reserves the right to review contents and verify the accuracy of the Contractors configuration control system at any time during the contract.

C.7.2 Rights to Technical Data and Software. Any restrictions asserted by the Contractor to any data or software delivered under this Contract, shall be supported by the documentation substantiating such restrictions required by DFARS 252.227-7013, 252.227-7014, or 252.227-7017.

C.7.2.1 The Contractor shall not prepare data for components or items for which Government released data exist.

C.8 ENVIRONMENTAL, SAFETY, AND OCCUPATIONAL HEALTH (ESOH)

Name of Offeror or Contractor: BAE SYSTEMS LAND & ARMAMENTS L.P.

C.8.1 ESOH Program. The Contractor shall develop, implement, and maintain an ESOH program in accordance with MIL-STD-882E. The ESOH program shall include the following: system safety, occupational health, environmental impact, and hazardous materials management.

C.8.2 ESOH IPTs.

C.8.2.1 ESOH Working Group (WG): The Contractor shall participate in the Governments M88 ESOH WG, which is comprised of subject matter experts from the Contractor and Government communities whose primary focus is to ensure all ESOH issues and hazards are identified and addressed. The Contractor shall provide support to the ESOH WG, to include attending meetings, completing assigned action items, and providing information related to the development of ESOH documentation. During ESOH WG meetings, the Contractor shall present ESOH program status and updates, Hazard Tracking System (HTS) status and updates, Hazardous Materials usage status and updates, and other relevant ESOH data. ESOH WG meetings will be held on an annual basis (CONUS travel required).

C.8.2.2 ESOH Hazard Review Board: The Contractor shall participate in the Governments M88 ESOH Hazard Review Board, in an advisory capacity. The Contractor shall present and discuss issues affecting ESOH program implementation. The Contractor shall pursue the issues through completion and close out any in-scope action items assigned. The ESOH Hazard Review Board meetings will be held on a monthly basis (no travel required).

C.8.2.3 Environmental Management Team (EMT): The Contractor shall participate in the Governments EMT, which is a multi-disciplinary group chartered by PM ABCT dedicated to addressing environmental issues and supporting the PM ABCT environmental program. This team will include subject matter experts from Government and Industry. The Contractor shall provide support to the EMT, to include attending meetings, completing assigned actions items, and providing information related to environmental impact reduction efforts. EMT meetings will be held on an annual basis (CONUS travel required).

C.8.3 Environmental Compliance. The Contractor shall comply with all Federal, State, and local environmental laws, regulations, and policies. The Contractor shall immediately notify the PCO if the Government gives any direction that may result in violation of law or regulation.

NOTE: Paragraphs C.8.4 through C.8.6.4 are applicable when a new (non-legacy) component, including new designs, redesigns, upgrades, modifications, and additional hardware added to the system is utilized in the performance of this contract.

C.8.4 Hazardous Substances.

C.8.4.1 Asbestos, beryllium, beryllium alloys, cadmium, cadmium alloys, Class I and Class II Ozone Depleting Substances, hexavalent chromium, lead, leaded alloys, mercury, radioactive materials and other Group 1 Agents classified as carcinogenic to humans by the International Agency for Research on Cancer (IARC) Monographs, shall not be present in or on any new (non-legacy) components without Governmental approval. New (non-legacy) components include new designs, redesigns, upgrades, modifications, and additional hardware added to the system. A Radioactive material is defined as any source material, as defined by Title 10, Code of Federal Regulations, Part 40, Domestic Licensing of Source Material, in excess of 0.05 percent by weight.

C.8.4.2 Exceptions to the Hazardous Materials Requirements.

Waivers from the hazardous materials requirements shall not be permissible except where the ESOH Hazard Review Board assesses that a suitable alternative does not exist. When adequate non-hazardous substitutes are not available, the Contractor shall notify the Government, by delivery of a Hazardous Substance Waiver Request (CDRL A006). The Contractor shall obtain Government approval via a waiver request prior to delivering any M88 item. Waiver requests shall include detailed technical justification for the use of the prohibited hazardous material. The Government will make the final determination on whether sufficient justification has been provided to support approval of any waiver requests. The Government will consider waivers in these situations on a case by case basis. If a waiver is requested for radioactive material, the Nuclear Regulatory License shall be submitted (if required) with the waiver request.

No waiver request is required for the following:

- a. Cadmium on electrical connectors and back shells used to mate with cadmium electrical connectors on Government Furnished Equipment (GFE)
- b. Chemical Agent Resistant Coating (CARC) primers and topcoats
- c. Lead-acid batteries
- d. Lead solder
- e. Steel containing up to 0.35 % lead by weight
- f. Aluminum containing up to 0.4 % lead by weight
- g. Copper and Brass alloys containing up to 4 % lead by weight
- h. Beryllium and Beryllium alloys used in electrical components
- i. Nickel and Nickel alloys used in electrical components
- j. Mercury containing components compliant with European Union (EU) Directive 2002/95/EC (RoHS)
- k. GFE
- l. Lead in engine bearings

C.8.4.3 Environmental Protection Agency (EPA) Emissions Requirements. The M88 vehicles are not subject to EPA Motor Vehicle Heavy Duty

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Diesel Exhaust emission standards or the EPA Non-road exhaust emission standards since the vehicles contain permanent armor protection. This determination is in accordance with 40 CFR, Sections 85.1703, 89.908, and 1068.225.

C.8.4.3.1 EPA Engine Labeling Requirements. The Contractor shall comply with the national security exemptions for engine labeling requirements in EPA regulations.

C.8.5 ESOH Program Documentation.

C.8.5.1 Hazard Tracking System (HTS): The Contractor shall prepare and maintain a HTS in accordance with MIL-STD-882E, Task 106 (Hazard Tracking System). The HTS shall include the findings from MIL-STD-882E Task 205 (System Hazard Analysis), and Task 210 (Environmental Hazard Analysis). The Contractor shall document and track all hazards from identification until the hazard is eliminated or the associated risk is reduced to a level acceptable to the PM-ABCT. The HTS shall include all hazards identified through testing and other analyses in accordance with Severity Categories and Probability Levels provided in Section 4.3 of MIL-STD-882E. The HTS shall be delivered to the Government in accordance with CDRL A007.

C.8.5.2 Safety Assessment Report (SAR). The Contractor shall update, maintain, and deliver a SAR in accordance with MIL-STD-882E Task 301. The SAR shall be delivered to the Government in accordance with CDRL A008.

C.8.5.3 System Safety Program Plan (SSPP). The Contractor shall update, maintain, and deliver a SSPP in accordance with MIL-STD-882E Task 102. The SSPP shall be delivered to the Government in accordance with CDRL A009.

C.8.5.4 Health Hazard Analysis (HHA). The Contractor shall update, maintain, and deliver a HHA in accordance with MIL-STD-882E Task 207. The HHA shall be delivered to the Government in accordance with CDRL A010.

C.8.5.5 Hazardous Materials Management Report (HMMR). The Contractor shall prepare a HMMR in accordance with National Aerospace Standard (NAS) 411, section 4.4. In addition to the hazardous materials delivered and required for operation and support (NAS 411, section 4.4.1), the HMMR shall include hazardous materials used in the system manufacture and assembly. The Contractor shall discuss status, changes, or issues with the HMMR as part of the ESOH WG meetings. The HMMR shall be delivered to the Government in accordance with CDRL A011.

C.8.6 Critical Safety Program.

C.8.6.1 Critical Safety Program Definitions.

C.8.6.1.1 Critical Safety Items (CSI): A part, assembly, installation, or production system with one or more critical characteristics that, if not conforming to the design data or quality requirements, would result in a probable occurrence of an unsafe condition. Unsafe conditions include conditions which would cause loss or damage to the end item or major component or loss of control or serious injury to personnel. Unsafe conditions relate to hazard severity categories I A-D, II A-C and III A-B of the risk acceptance level definitions in accordance with MIL-STD-882E.

C.8.6.1.2 Critical Safety Characteristics (CSC): Features (i.e., tolerance, finish, material composition, manufacturing, assembly, or inspection process) of product, material, or process, which, if nonconforming or missing, would cause the failure or malfunction of the critical safety item.

C.8.6.2 Identification of Critical Safety Items. The Contractor shall clearly identify each CSI and assembly process as such on the engineering top drawing, part drawing, or assembly drawing. The Contractor shall also clearly identify the CSC(s) for each CSI as such on the engineering parts, engineering top drawings, part drawings, assembly drawings, or process documentation. The Contractor shall ensure that all designated or identified CSCs have an associated control method. The control method shall be either a Statistical Process Control (SPC) with a Process Capability Index (Cpk) greater than or equal to 1.66, or 100% inspection. The Contractor shall annotate the control method in the notes for all designated or identified CSCs. The specific method for marking drawings shall be as delineated in MIL-STD-31000 (Attachment 028) and ASME Y14.100.

C.8.6.3 Critical Safety Items Data Sources: Identification of CSIs shall be based on the following data sources:

- a. Use of engineering analysis and judgment
- b. Failure Modes and Effects, Criticality Analysis (FMECA) (MIL-STD-1629A)
- c. Safety Assessment and Safety Hazard Analysis (MIL-STD-882E)
- d. Development Testing and Operational Testing results
- e. RAM engineering assessments
- f. Previous experience using like items or designs
- g. Logistics support analysis (LSA) data
- h. Component qualification test results

The Contractor shall validate the CSI requirements expressed herein to ensure that all critical safety aspects of the design are accurately depicted on deliverable drawings, and parts or materials operate well below fatigue limits or stress levels. The Contractors

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validation shall be based on engineering analysis of the CSI characteristics and shall consider design changes, and deterioration through time from use, fatigue life, and operating conditions.

C.8.6.4 Critical Safety Item, Characteristic and Critical Defect Report: The contractor shall update, maintain, and deliver the current Critical Safety Item, Characteristic and Critical Defect Report in accordance with CDRL A012. The Contractor shall maintain and update the Critical Safety Item, Characteristic and Critical Defect Report throughout the life of the contract. The Contractor shall also reference the CSIs on the vehicle class and division drawing. This list shall be dynamic in nature with changes taking place as experience and knowledge are obtained and design changes are incorporated into the system.

C.9 CORROSION PREVENTION AND CONTROL

This section is applicable when a technical or design change to any component or system on the M88A2 HERCULES is required in order to resolve problems which may occur during vehicle production activities.

C.9.1 Corrosion Prevention Advisory Team (CPAT). The Contractor shall provide support to the Corrosion Prevention Advisory Team (CPAT), by attending meetings, completing Government assigned action items, informing the CPAT of new corrosion issues, and reviewing Engineering Change Proposals (ECPs) and their impact on the corrosion prevention and control of the system. CPAT meetings will be held by the Government on an annual basis in conjunction with the EMT meetings.

C.9.2 Contractor Corrosion Team. The Contractor shall establish a Corrosion Control Team (CCT) to manage and integrate corrosion prevention and control throughout the M88A2 program. The CCT shall be responsible for the following: ensure implementation of Corrosion Prevention and Control (CPAC) requirements in accordance with the project contract, plans, and specifications; ensure implementation of CPAC documentation and submission of documents in accordance with the required CDRL schedule; establish periodic meetings and convene impromptu meetings when a critical or major problem arises which requires action by the CCT or Government Corrosion Prevention Advisory Team (CPAT); and maintain a continuing record of all action items and their resolutions.

C.9.3 Corrosion Prevention and Control Plan (CPCP). The Contractor shall develop and maintain an M88 CPCP in accordance with CDRL A013.

C.10 RESERVED**C.11 MISMARKED GRADE 8.0 FASTENERS**

C.11.1 This clause is applicable only when the use of Grade 8.0 Fasteners is specified in the Technical Data Package.

C.11.2 There have been instances of Grade 8.2 fasteners having been erroneously marked by producers as Grade 8.0. For the purpose of this acquisition, Grade 8.2 fasteners are not an acceptable substitute for Grade 8.0 fasteners. The Contractor shall insure that all hardware meets the specifications of the Technical Data Package. Mismarking of fasteners by subcontractors does not relieve the Contractor of this responsibility.

C.12 GOVERNMENT MATERIAL REPORTING

C.12.1 The Contractor, upon receipt of GFM/GFE, shall perform an inventory and inspection, consisting of kind, count, and condition, within ten business days. The Contractor shall provide notification of receipt to the Government as described in DI-MGMT-80389B, CDRL A004.

C.12.2 If the contractor discovers a discrepancy during inspection of GFM/GFE, the Contractor shall immediately notify the Government GFM Manager and either request a replacement or recommend a repair.

C.12.2.1 RESERVED

C.12.3 A GFM Consumption Report shall be provided in accordance with DID DI-MGMT-80438B and CDRL A003.

C.12.4 Report of Shipping (Item) and Packaging Discrepancy. This report shall be provided to the Government by the Contractor when GFM is received which does not agree with information on the shipping documents and when GFM is found to have transportation damage. This report shall be in the format described in DID DI-MGMT-80503 and CDRL A002.

C.12.5 RESERVED**C.12.6 RESERVED**

C.12.7 Scrapping of Government Furnished Material: Any GFM items listed in Attachment 0003 which are determined to be scrap, must be segregated from other Contractor scrap and shall be dispositioned via Plant Clearance Automated Reutilization Screening System (PCARSS), and coordinated through the DCMA Plant Clearance Officer (PLCO).

C.13 RESERVED

Name of Offeror or Contractor: BAE SYSTEMS LAND & ARMAMENTS L.P.C.14 GOVERNMENT FURNISHED HULLS

C.14.1 The contractor shall inspect M88A1 vehicles located at Anniston Army Depot (ANAD) in accordance with the below documents to determine vehicle induction suitability for ANAD's M88A1 teardown program. The contractor shall provide a technical inspection report electronically (contractor format) for the inspected vehicles. The inspection report shall include inspected M88A1 hull fabrication number, M88A1 vehicle serial number, the M88 IRV Teardown Hull Inspection Methods M88A1 checklist, and the M88A1 Field inspection plan. The contractor shall fill out and sign all of the documents for each vehicle inspected. The contractor shall inspect vehicles until 60 conforming vehicles are found and shall provide the above information for ALL vehicles inspected (pass and fail). The contractor shall conduct the vehicle inspection at ANAD within 30 days of contract award and shall provide the inspection report no later than 30 days after completing the vehicle inspection. The Government will provide comments to the inspection report to the contractor within 10 days of receipt. The contractor shall submit the final inspection report within 5 days of receipt of government comments.

Documents:

RVX 11000 - Hull Requirements
RVX11005 - Housing Suspension
RVX 11006 - Crew Door and Housing Support (Drivers Door)
RVX 11007 - Crew Door and Housing Support (Mechanics Door)
RVX 11009 - Plate Cupola
RVX 11011 - Engine Deck
RVX11017 - Hull Weldment
RVX11010 - Spade Assembly
11671877 - Spacer Bar

C.14.2 The Government and BAE will coordinate shipment of hulls from Anniston Army Depot (ANAD) to minimize storage requirements prior to induction into production. See GFM Hull delivery schedule in Attachment 0004.

C.15 VEHICLE SERIAL NUMBERS

C.15.1 The Contractor shall serialize the vehicles sequentially, beginning with the number H0752. The end item vehicle identification plate shall also use the same sequential serial number. The "0" in the serial numbers are zeros.

C.16 VEHICLE REGISTRATION NUMBERS

C.16.1 The following vehicle registration numbers are assigned to vehicles delivered for the U.S. Government. Registration numbers will not be assigned to the FMS vehicles. The numbers are to be assigned sequentially as the vehicles are produced. The digits "0" and "1" in the registration numbers are the numbers "zero" and "one". The letters O and I are not to be used in the registration numbers. Listed below are the vehicle registration numbers to be assigned to vehicles produced under the following:

CLIN 0001AA

TBD

C.17 DEPARTMENT OF DEFENSE ACTIVITY ADDRESS CODE (DODAAC)

C.17.1 The DODAAC for delivery of Government property is TBD.

C.18 RESERVEDC.19 MANPRINT

This section is applicable when a technical or design change to any component or system is required in order to resolve problems which may occur during production activities.

C.19.1 The Contractor shall continue to address any new issues/concerns resulting from any production design changes that affect MANPRINT (Safety, Health Hazards, Soldier Survivability, Human Factors, Personnel, Manpower, Training).

C.20 RELIABILITY, AVAILABILITY, MAINTAINABILITY (RAM) PROGRAM

This section is applicable when a technical or design change to any component or system is required in order to resolve problems which may occur during production activities.

C.20.1 The Contractor shall maintain a RAM Program to assure required vehicle Reliability and Maintainability performance is being monitored, evaluated and achieved throughout the engineering and manufacturing development, production, and fielding of the vehicle's life cycle. The Contractor shall apply the following guidelines to each RAM task:

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C.20.1.1 Mission profile parameters and operational constraints are specified in the purchase description and ILS sections of this contract.

C.20.1.2 Tasks that provide information to the Logistics Support Analysis (LSA) Record (LSAR) shall be coordinated with Contractor ILS personnel to assure the record is useable in the LSAR.

C.20.2 The Contractors Reliability, Availability, and Maintainability Program shall include the monitoring and controlling of subcontractors and suppliers.

C.21 INTEGRATED LOGISTIC SUPPORT (ILS) MANAGEMENT

This section is applicable when a technical or design change to any component or system on the M88A2 HERCULES is required in order to resolve problems which may occur during production activities.

C.21.1 ILS Program Requirements. The Contractor shall continue to manage and execute the ILS program.

C.21.2 The Contractor shall identify and accomplish all actions necessary to ensure that the Integrated Product Support Elements listed below are developed so as to be compatible and consistent with one another and with all other requirements under this contract.

1. Product Support Management
2. Design Interface
3. Sustaining Engineering
4. Supply Support
5. Maintenance Planning & Management
6. Packaging, Handling, Storage, and Transportation (PHS&T)
7. Technical Data
8. Support Equipment
9. Training and Training Support
10. Manpower & Personnel
11. Facilities and Infrastructure
12. Computer Resources

Additional information on the above Integrated Product Support Elements can be accessed from PSM Guidebook at <https://acc.dau.mil/psm-guidebook>.

C.21.3 Logistic Support Analysis (LSA).

C.21.3.1 When changes to the system occur due to a technical or design change, the Contractor shall input these changes into the M88A2 HERCULES LSA/LSAR database.

C.21.4 Maintenance Requirements.

C.21.4.1 All Government-approved design, modification and engineering change activity performed under other sections of this Contract shall require the Contractor to review all maintenance impacts. In performance of this maintenance review, the Contractor shall:

a. Disassemble and reassemble the item under analysis to the extent required for review of the design for training or maintenance facilities.

b. Provide sequential narrative instructions or procedures (maintenance source data) for the application, installation, or maintainability.

c. As a result of the maintenance review, the Contractor shall recommend revisions to the repair parts and special tools list and maintenance technical manuals,

d. Use maintainability Design Criteria information in MIL-HDBK-470 for guidance in making design decisions.

C.22 RESERVED

C.23 RESERVED

C.24 WELDING

C.24.1 Welding Requirements. The Contractor shall ensure that all weldments meet the fabrication and inspection requirements of the Ground Combat Vehicle Welding Code- Aluminum, TACOM Drawing #12472301-Aluminum and/or the Ground Combat Vehicle Welding Code- Steel,

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TACOM Drawing #12479550 as applicable.

C.24.2 Welding Procedures. Prior to manufacturing or production, the Contractor is responsible for providing welding procedures and standard repair procedures IAW the Ground Combat Vehicle Welding Code to the procuring activity for approval. Non-standard welding repair of defective parts shall require material review board approval and a written procedure identifying proper technique and approach to correct defective product. Any changes to, or development of ballistic welding procedures after contract award and subsequent testing shall require Government approval per the applicable weld standard.

C.24.3 Previously Qualified Procedures. If the Contractor previously qualified welding procedures under another DoD contract, the PCO may waive the requirements of this clause if the Contractor presents sufficient evidence:

- a. The welding procedures were previously used on a DoD contract and the essential variables are within the tolerance as specified in the applicable welding standard(s) for the current contract
- b. the Contractor has certified welders and weld equipment to the qualified procedures in accordance with the applicable welding standard(s)
- c. there was no break in production greater than 3 months
- d. the procedures produced products with a favorable quality history on previous contracts

C.24.4 Welder and Welding Operator Certification. As a minimum for determining welder qualification, any welder, welding operator, or tack welders assigned to manual or automated welding work covered by this contract shall be qualified per the requirements of the Ground Combat Vehicle Welding Code- Steel, Dwg# 12479550 and/or the Ground Combat Vehicle Welding Code- Aluminum, Dwg. # 12472301 as applicable.

C.24.5 Weld Standards.

C.24.5.1 All welding shall be in accordance with the Ground Combat Vehicle Welding Code-Steel, TACOM Dwg No. 12479550 and the Ground Combat Vehicle Welding Code- Aluminum TACOM Dwg. No. 12472301, as applicable. The codes, guides, and specifications listed in Table 1 may be used as reference documents in the exercise of this contract the edition (year) to be used shall be the year in effect at time of solicitation release date. If new materials are to be used that do not follow the guidelines in the applicable standard, the Contractor is responsible to demonstrate the correct standard to the Procuring Contract Office (PCO) for engineering approval.

TABLE 1

-Structural Steel	American Welding Society (AWS) D1.1
-Structural Aluminum	American Welding Society (AWS) D1.2
-Structural Sheet Metal	American Welding Society (AWS) D1.3
-Specification for Robotic	American Welding Society (AWS)
Arc Welding Safety	D16.1
-Guide for Components of	American Welding Society (AWS)
Robotic Arc Welding Installations	D16.2
-Risk Assessment Guide for	American Welding Society (AWS)
Robotic Arc Welding	D16.3
-Specification for the	American Welding Society (AWS)
Qualification of Robotic Arc Welding Personnel	D16.4
-Armor Steel	Ground Combat Vehicle Welding Code Steel TACOM Drawing Number 12479550 http://contracting.tacom.army.mil/engr/gcv_weldingcodes.htm
-Armor Aluminum	Ground Combat Vehicle Welding Code Steel TACOM Drawing Number 12472301 http://contracting.tacom.army.mil/engr/gcv_weldingcodes.htm

C.24.5.2 Alternate Welding Standards.

C.24.5.2.1 Subject to PCO written engineering approval, the Contractor may utilize alternate standards or codes once the Contractor or Contractor's suppliers have demonstrated that equivalent or better quality and performance can be obtained by their use. It is the Contractor's responsibility to demonstrate such equivalence to the Government. If the Contractor's component supplier shall not release specific proprietary information, the Government reserves the right to conduct an on-site review of the Contractor's supplier(s) quality system and weld processes to verify the capability of producing acceptable welds. The Government reserves the right to approve/disapprove the use of any and all such alternative weld standards and specifications. The demonstrated equivalent shall be verified prior to fabrication of any weldment under Governmental guidance.

C.24.5.3 Armor Steel Heat Effect Zone (Haz) Hardness Test.

C.24.5.3.1 Armor steels are required to subscribe to the hardness range as specified in the applicable material specifications MIL-DTL-

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46100 or MIL-DTL-12560. If the material has a questionable hardness concern, it shall be verified to confirm conformance.

C.25 WELD SPATTER/SLAG

C.26.1 The Contractor shall verify that all loose weld spatter and slag is removed prior to painting. The use of manual slag hammers, chisels, and lightweight vibrating tools for the removal of slag and spatter is allowed and shall not be considered peening.

C.26 RESERVED**C.27 DEMILITARIZATION**

C.27.1 Items called out under this contract are classified as military items. Therefore, the following instructions for the disposal of completed or partially completed parts, assemblies, subassemblies, and end items apply. Property (including parts, components, subassemblies and assemblies, whether title is with the Government or not) covered by this contract for which the Contractor does not claim or is refused payment (including rejects or overruns) under the provisions of the contract, but which is manufactured, fabricated, assembled or produced in connection with items covered by this contract shall be completely destroyed or mutilated (whichever is prescribed) so as to be non-reclaimable for its original purpose and to preclude the possibility of reconditioning to make it saleable as an implement of war.

C.27.2 Demilitarization is required in accordance with current demilitarization requirements, DODI 4160.28, FAR 45.602, 45.603 and DFARS 252.245-7004(d).

C.27.3 Demilitarized items shall be destroyed by the Contractor. No item demilitarized shall be disposed of by the Contractor other than as scrap.

C.27.4 This clause shall be included in all applicable subcontracts.

C.28 STORAGE AND CYCLIC MAINTENANCE OF VEHICLES

C.28.1 In the event the Government does not elect to ship vehicles, the Contractor shall be responsible for the storage of the vehicles for up to 60 days following full DD250 acceptance of the vehicle.

C.28.2 If vehicles are conditionally accepted, the Contractor shall, beginning on the 121st day after conditional acceptance, conduct all required cyclic maintenance. Cyclic maintenance shall be performed in accordance with the M88A2 HERCULES Storage and Maintenance Plan, which is a part of the Final Inspection Record (FIR). Cyclic maintenance shall be performed until such time as all deficiencies necessitating the conditional acceptance are corrected, and vehicles are ready to ship, at no additional cost to the Government.

C.29 SECURITY**C.29.1 Security Requirements**

The contractor shall provide for the security of classified and unclassified information, data, hardware, and software generated for the program or provided to the program. The contractor shall comply with and provide security procedures and processes to satisfy the security requirements identified in the PM ABCT DD Form 254 (Contract Security Classification Specification, Section J, Attachment 0002). To preserve national security interest, the contractor shall ensure all aspects of the contract and work performed are evaluated for conformance with security procedures and standards. The contractor shall ensure the security requirements and guidelines contained in this section C.29 is flowed down to U.S. subcontractors, teammates and consultants.

C.29.2 Controlled Unclassified Information (CUI) Requirements

CUI provided to or generated pursuant to this contract shall be protected. The procedures for the protection of CUI are outlined in the CUI attachment (Section J, Attachment A of the DD254 which is Attachment 0002 of this contract).

C.29.3 RESERVED**C.29.4 Protection and Disclosure of Information - Public Release Requests**

(1) Except for M88A2 HERCULES Program information previously approved for public release by the Government under the PM ABCT, the Contractor shall not release any M88A2 HERCULES Program information regarding the work performed under this contract outside of (i) the United States Government, (ii) its own facility, (iii) its subcontractors performing M88A2 HERCULES work at any tier, (iv) Associate Contractors, at any tier, and (v) any other individual or entity that is contractually bound to protect M88A2 HERCULES Program Information from public release without first obtaining approval for Public Release. M88A2 HERCULES information is any Program information on the M88A2 HERCULES effort. Refer to the M88A2 HERCULES Security Classification Guide, provided under separate cover, on public release of information for additional information.

(2) The Contractor shall send all such requests for public-release approval to the PCO in accordance with Clause 252.204-7000 for a review by M88A2 HERCULES technical and Security Office personnel, culminating in a determination by the PCO, or authorized representative. The PCO, or authorized representative, will, after appropriate review, either authorize or reject the request to disseminate M88A2 HERCULES Program information publicly. Note that authorization may be given contingent on specified changes being made to the material for which public release has been requested. Subcontractors and Associate Contractors shall submit such public release requests through the prime contractor.

C.29.5 Operations Security (OPSEC) Requirements

The contractor is not required to produce an OPSEC Plan. All U.S. contractors with access to CUI or classified information shall be required to follow the ABCT OPSEC Plan, provided under separate cover. To ensure awareness of the ABCT OPSEC Plan, the contractor shall ensure its M88A2 HERCULES personnel are briefed on the contents of the OPSEC Plan.

*** END OF NARRATIVE C0001 ***

Regulatory Cite	Title	Date
C-1 (TACOM)	52.211-4011 ACQUISITION OF MANUFACTURER'S PART NUMBER: COMPONENTS	FEB/1998

One or more of the drawings for part of the contract item set forth in the Schedule and in the Technical Data Package specify manufacturer's part numbers. Since complete Government technical data for such part or parts are not available, it is understood that the Contractor, by accepting this contract, agrees to furnish only the listed manufacturer's part number(s) for those components of the contract item, except as provided in the provision entitled NOTICE REGARDING "SOURCE-CONTROLLED" COMPONENTS. (In Section L or near the end of this solicitation.) It is further understood and agreed that references to manufacturer's part numbers herein shall be deemed to include all changes or revisions thereto which the approved manufacturer has made effective as of the first date of delivery of any of the items under this contract; provided, that no change or revision that affects the interchangeability (ability to be interchanged with previous parts and to match with all mating parts when assembled) of the listed manufacturer's part shall be incorporated into the contract item without the prior written approval of the Procuring Contracting Officer.

[End of Clause]

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SECTION D - PACKAGING AND MARKING

	<u>Regulatory Cite</u>	<u>Title</u>	<u>Date</u>
D-1	52.247-4016 (TACOM)	HEAT TREATMENT AND MARKING OF WOOD PACKAGING MATERIALS	AUG/2005

Boxes/pallets and any wood used as inner packaging made of non-manufactured wood shall be heat-treated. All non-manufactured wood used in packaging shall be heat treated to a core temperature of 56 degrees Celsius for a minimum of 30 minutes. The box/pallet manufacturer and the manufacturer of wood used as inner packaging shall be affiliated with an inspection agency accredited by the board of review of the American Lumber Standard Committee. The box/pallet manufacturer and the manufacturer of wood used as inner packaging shall ensure traceability to the original source of heat treatment.

Marking. Each box/pallet shall be marked to show the conformance to the International Plant Protection Convention Standard. The quality mark shall be placed on both ends of the outer packaging, between the end cleats or end battens; on two sides of the pallet. Foreign manufacturers shall have the heat treatment of non-manufactured wood products verified in accordance with their National Plant Protection Organization's compliance program. In addition, wood used as dunnage for blocking and bracing shall be ordered with ALSC certified marking for dunnage or the markings may be applied locally at two foot intervals.

[End of Clause]

SECTION D - PACKAGING AND MARKING

D.1 PRESERVATION, PACKAGING, AND MARKING DATA

D.1.1 All data required for delivery under this contract shall be packaged in accordance with standard commercial practice to assure arrival at destination without damage or loss.

D.2 PRESERVATION, PACKAGING, AND MARKING VEHICLES

D.2.1 Vehicle marking, preservation and packaging of the end item hardware shall be in accordance with the Contractors developed, and Government approved shipment and storage instructions.

D.3 PRESERVATION AND PACKAGING SPARE PARTS (ASL)

D.3.1 Preservation, packaging and unitization for the spare parts shall be in accordance with the Contractors commercial practice, quantity per pack: 001 unless otherwise cited. The only exceptions are for components, which shall be Military Level A in accordance with specific Special Packaging Instructions (SPIs) for each item as listed:

Engine with Container, SPI AK14146821
Transmission with Container, SPI AK14174144
RH Final Drive with Container, SPI AK14322685
LH Final Drive with Container, SPI AK14322681
Main Winch, SPI AK14343231

D.4 MARKING

D.4.1 All unit packages, intermediate packs, exterior shipping containers, and, as applicable, unitized loads shall be marked in accordance with MIL-STD-129, Revision P, Change Notice 4, dated 19 Sep 2007, including bar coding and Military Shipment Label (MSL). The contractor is responsible for application of special markings as discussed in the Military Standard regardless of whether specified in the contract/order or not. Special markings include, but are not limited to, shelf-life markings, structural markings, and transportation special handling markings. The marking of pilferable and sensitive materiel will not identify the nature of the materiel. Passive RFID tagging is required in all contracts that contain DFARS clause 252.211-7006. Contractors must check the solicitation and/or contract for this clause. For details and most recent information, see <http://www.acq.osd.mil/log/rfid/index.htm> for the current DoD Suppliers Passive RFID Information Guide and Supplier Implementation Plan. If the item has Unique Item Identifier (UII) markings then the concatenated UII needs to be 2D bar coded and applied on the unit package, intermediate and exterior containers, and the palletized unit load.

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D.5 WOOD PACKAGING MATERIALS

D.5.1 In accordance with the requirements of the International Standards for Phytosanitary Measures (ISPM) 15, the following commercial heat treatment process has been approved by the American Lumber Standards Committee (ALSC) and is required for all Wood Packaging Material (WPM). Boxes/pallets and any wood used as inner packaging made of non-manufactured wood shall be heat-treated. All WPM shall be constructed from heat treated (treated to 56 degrees Celsius -core temperature- for 30 minutes) lumber, or constructed from untreated lumber and then heat treated to 56 degrees C or 132.8 F (core temperature) for 30 minutes, and certified by an agency accredited by the ALSC in accordance with Wood Packaging Material Policy and Wood Packaging Material Enforcement Regulations (see URL:

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<http://www.alsc.org>). The box/pallet manufacturer and the manufacturer of wood used as inner packaging shall ensure traceability to the original source of heat treatment.

D.5.2 Marking of Wood Packaging Materials: Each box/pallet shall be marked to show the conformance to the International Plant Protection Convention Standard. The quality mark shall be placed on both ends of the outer packaging, between the end cleats or end battens. Pallet markings shall be applied to the stringer or block on diagonally opposite sides and ends of the pallet and be contrasting and clearly visible. All dunnage used in configuring and/or securing the load shall also comply with ISPM 15 and be marked with an ALSC approved DUNNAGE stamp. Foreign manufacturers shall have the heat treatment and marking of non-manufactured wood products verified in accordance with the ISPM-15 compliance program.

*** END OF NARRATIVE D0001 ***

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SECTION E - INSPECTION AND ACCEPTANCE

	<u>Regulatory Cite</u>	<u>Title</u>	<u>Date</u>
E-1	52.246-2	INSPECTION OF SUPPLIES--FIXED-PRICE	AUG/1996
E-2	52.246-16	RESPONSIBILITY FOR SUPPLIES	APR/1984
E-3	52.246-4000 (TACOM)	INSPECTION/ACCEPTANCE CRITERIA AND MARKING REQUIREMENTS FOR OTHER THAN NEW MATERIAL	APR/2000

(a) This clause applies only when recovered, reconditioned, remanufactured material or residual inventory is being offered for sale to the Government.

(b) Marking requirements. In addition to the packaging and marking requirements specified elsewhere in the contract, the supplier shall tag the following information on each item:

- (1) The supplier's name, address, city and state.
- (2) The supplier's Federal Supply Code for Manufacturers (FSCM).
- (3) This contract or purchase order number.
- (4) The National Stock Number (NSN) and nomenclature.
- (5) The category the item falls into, either:

(i) "Recovered Material" means waste materials and by-products that have been recovered or diverted from solid waste including postconsumer material, but such term does not include those materials and by-products generated from, and commonly reused within, an original manufacturing process.

(ii) "Reconditioned" means restored to the original normal operating condition by readjustments and material replacement.

(iii) "Remanufactured" means factory rebuilt to original specifications.

(iv) "Residual Inventory" means inventory from a transferred or terminated Government or Commercial contract.

(v) "New, Unused United States Government Surplus Property" means material that was produced under a United States Government contract and sold through the Defense Property Disposal Service (DPDS) as new surplus property.

(c) Other than new material shall not be offered to the Government for inspection, acceptance or tests if it requires any work beyond that specified in paragraphs d.(2)(i) through d.(2)(v) and paragraph (f) of this clause in order to conform to the TDP, unless performance of such work is approved in advance in writing by the PCO.

(d) Inspection requirements.

(1) The Contractor shall conduct the tests described in paragraph (f). of this clause on all the items selected by the Government Quality Assurance Representative (QAR), in accordance with the procedures established in paragraph (e) below.

(2) The Contractor shall perform sufficient examinations and tests on the material to ensure that the item(s) will comply with fit, form and functional characteristics. At a minimum, the contractor shall perform 100% inspection on all the items, to ensure:

- (i) Completeness of assembly.
- (ii) Freedom from rust, contamination or deterioration.
- (iii) Proper identification.
- (iv) Freedom from any obvious or suspected damage which may render the item or equipment unfit for issue, shipment or continued storage.
- (v) The material meets the latest requirements of the TDPL listed in this solicitation/contract.

(3) The Contractor shall prepare a CERTIFICATE OF CONFORMING MATERIAL to certify that supplies comply with the requirements of paragraph d(2)(i) through d(2)(v) and paragraph f of this clause. At the time of inspection/acceptance, one copy of the Certificate shall be provided to the QAR and a copy shall also be attached to each copy of the DD Form 250. The certificate(s) may be for the entire or partial quantities, and shall be executed and furnished by the Contractor or by subcontractors (provided subcontractors' certificates are countersigned by a responsible official of the Contractor). Certificates of conforming material shall include the information below:

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(i) This contract's (or purchase order's) number, which is: W56HZV-13-C-0358

(ii) The complete nomenclature of supplies, together with lot numbers or other identification, and the quantity in each lot or shipment;

(iii) An inspection report of the results of the inspection and any tests performed, including the name of the company conducting the inspection and the date thereof;

(iv) The following certification, with the signature and title of the certifying official: The undersigned, individually and as the authorized representative of the Contractor, warrants and represents that:

(A) All of the information supplied above is true and accurate.

(B) The material covered by this certificate conforms to all contract requirements (including, but not limited to, the drawing and specifications).

(C) The analysis appearing herein is a true and accurate analysis, and

(D) This certificate is made with knowledge that the information within this certification may be used as a basis for contract payment.

(v) Where supplies, which were accepted on the basis of a COC, are found not to conform to all contractual requirements, the Contractor agrees, if notice of the nonconformance is received from the Government within a reasonable time after discovery, to replace or correct supplies, at the Government's option, at no additional cost to the Government.

(e) Inspection/acceptance procedures.

(1) The Contractor shall notify the Administrative Contracting Officer (ACO) at least 20 days before the conduct of the inspections and tests prescribed in paragraph (f), so that the Government representatives will be present to witness such tests.

(2) At the time of Government inspection, the Contractor shall cooperate with the Government Quality Assurance Representative (QAR) in the following inspection procedures:

(i) The entire quantity called for under this contract must be available at the place specified in the contract for inspection. The QAR will make his sample selection from the entire quantity, selecting at his discretion items for inspection.

(ii) The Contractor shall perform the tests described in paragraph (f) of this clause in the presence of the QAR, unless a waiver has been received in writing from the PCO.

(iii) The Government QAR will visually verify that the remaining material is in accordance with paragraph d(2)(i) through d(2)(v) above and review the Certificate of Conforming Material prepared per paragraph d(3) of this clause.

(iv) Any defective material found during inspection will be rejected by the QAR, who will notify the ACO and PCO of the rejection and the reasons thereof. Defective material will be isolated from the contract amount and the balance of the contract quantity shall be inspected for the defect.

(v) The QAR will also verify Contractor's records such as: year material was purchased, the agency from whom the material was purchased, and sale number. If there is any discrepancy between the Contractor records and the Contractor representation in its bid or proposal prior to award, the PCO will be notified of the discrepancy.

(3) If the supplies furnished under this contract are found not to conform to the contract requirements, the Government may, upon notice furnished within a reasonable time after discovery of such nonconformity, reject the supplies and require replacement thereof. The Contractor has the right to request that a reinspection or retest be performed at the Contractor's expense.

(4) The Contractor shall retain inspection records for each lot or shipment, listing results for each test or inspection specified by the contract, for a period of four years following issuance of final payment under the contract.

(5) In the event that this contract is terminated for default, the Government reserves the right to repro cure new material if acceptable used, reconditioned or surplus material is not available. The Contractor shall be liable for the excess cost of such repro curement of new material in accordance with the terms of the DEFAULT clause of this contract.

(f) Inspection/acceptance criteria.

(1) NOTE: The inspection criteria specified below constitute acceptable tests for new, unused United States Government surplus sold through the Defense Property Disposal Service. If offered material is for used, reconditioned, recovered, remanufactured or

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surplus material, from terminated government contracts, additional test and inspection requirements may be directed by the PCO/QAR, as specified.

(2) The inspection/acceptance criteria, which apply under this paragraph, are attached as Special Inspection/Acceptance Criteria: N/A.

(g) Inspection report. The contractor shall prepare an inspection report of the results of the inspections, examinations, and tests specified in paragraphs d(2)(i) through d(2)(v) and paragraph (f) of this clause, including the date performed and the name of the contractor's inspector. One copy of the report shall be forwarded to the PCO.

[End of Clause]

E-4 52.246-4025 HIGHER-LEVEL CONTRACT QUALITY REQUIREMENT--TACOM QUALITY SYSTEM JAN/2009
(TACOM) REQUIREMENT

(a) As the contractor, you shall implement and maintain a quality system that ensures the functional and physical conformity of all products or services you furnish under this contract. Your quality system shall achieve (i) defect prevention and (ii) process control, providing adequate quality controls throughout all areas of contract performance.

(b) Your quality system under this contract shall be in accordance with the quality system indicated by an X below:

- [] ISO 9001:2008 (tailored: delete paragraph 7.3) or comparable quality system
- [X] ISO 9001:2008 (untailored) or comparable quality system
- [] ISO 9001:2008 (tailored: delete paragraphs -1-) or comparable quality system

If you intend to use a system comparable to ISO 9001:2008, please identify your quality system below. You may use an in-house quality system, or one based on a commercial, military, national, or international system.

In addition to identifying your proposed system in the space above, you must attach a description of this system to your offer in response to the solicitation, so that we can assess its suitability. If you receive a contract award, your proposed system will be required by the contract.)

(c) Certification of compliance or registration of the quality system you identify above, by an independent standards organization or auditor does not need to be furnished to us under this contract. However, you may attach a copy of such certification with your offer in response to the solicitation, as proof of system compliance.

(d) At any point during contract performance, we have the right to review your quality system to assess its effectiveness in meeting contractual requirements.

[End of Clause]

E-5 52.211-4029 INTERCHANGEABILITY OF COMPONENTS MAY/1994
(TACOM)

(a) DESIGN CHANGES TO ITEMS NOT UNDER GOV'T DESIGN CONTROL. Once the Government accepts the first production test item, or accepts the first end item you deliver, (whichever comes first) you must not make design changes to any item or part that is not under Government design control.

(b) WHEN THE POLICY CAN BE WAIVED. The Procuring Contracting Officer (PCO) will consider waiving this policy at your request. If your request reaches the CO after the first production item test has been performed, then we may conduct another first production test at your expense.

(c) PRODUCTION OR DELIVERY DELAYS. Any production or delivery delays caused by this retesting will not be the basis for:

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(1) an "excusable delay" as defined in the DEFAULT clause of this contract.

(2) be the basis for an increase in contract price or delivery schedule extension.

[End of clause]

E-6 52.246-4028 INSPECTION AND ACCEPTANCE POINTS: ORIGIN
(TACOM)

NOV/2005

The Government's inspection and acceptance of the supplies offered under this contract/purchase order shall take place at ORIGIN. Offeror must specify below the exact name, address, and CAGE of the facility where supplies to be furnished under this contract/purchase order will be available for inspection/acceptance.

INSPECTION POINT:

(Name) (CAGE)_____
(Address) (City) (State) (Zip)

ACCEPTANCE POINT:

(Name) (CAGE)_____
(Address) (City) (State) (Zip)

[End of Clause]

SECTION E - INSPECTION AND ACCEPTANCE

E.1 FIRST ARTICLE TEST (FAT)

E.1.1 First Article Testing

First article testing is required when specified in the Technical data package and when the following circumstances apply: i) change in source of supply ii) a significant change in manufacturing process or a change in materials; iii) change in any drawing configuration, component or sub-components; iv) change in manufacturing locations; v) a break in production or process in excess of twelve (12) months. When conditions (i), (ii), (iii), (iv) or (v) above occurs, the Contractor shall notify the Contracting Officer so that a determination can be made concerning the need for the additional first article sample or portion thereof, and instructions provided concerning the submission, inspection, and notification of results. Costs of the additional first article testing resulting from any of the causes listed herein that were instituted by the contractor and not due to changes directed by the Government shall be borne by the Contractor.

E.2 Ballistics Testing

Unless prior approval has been granted by the Government for ballistic first article testing of base materials, joint configurations (H-plates) or welding procedures employed in the manufacture of the HERCULES, all newly developed or changed ballistic armor concepts employed on the M88A2 HERCULES will require full first article ballistic testing. Prior to production any conditions not meeting prior qualification requirements or ballistic testing of base material and joint configuration must be identified and qualified by the Contractors.

a. In addition to inspection requirements set forth in applicable drawings and specifications, the specification(s) indicated below shall apply to this contract:

(X) MIL-DLT-46100 Armor Plate Steel Wrought High Hardness

(X) TACOM Drawing 12479550, Ground Combat Vehicle Welding Code Steel, dated 01/12/06

(X) MIL-DLT-12560 Armor Plate, Steel, Wrought Homogenous (Class I only)

(X) MIL-DTL-11352 Block, Vision, Bullet-Resistant

(X) MIL-A-11356 Armor Steel Cast Homogenous Combat Vehicle Type (Class I)

b. Unless specifically waived by the Government, the Contractor shall perform ballistic testing on any ballistic testing requirement set forth above and contained in applicable Technical Data Package drawings or specifications. Prior to production and during production,

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if required by specification, the Contractor shall ensure that the quantity of test samples required by any of the above specifications are accomplished by test data required by individual specification. The test data shall consist of:

1. Declared chemical analysis and chemical analysis results representing material for test (when required by specification).
 2. Mechanical Properties Test Results (if required by specification).
 3. Charpy Impact Test results representing material for test (if required by specification).
 4. Brinell or Rockwell hardness test results representing material for test (if hardness values are required by specification).
 5. Radiographic Inspection Record consisting of data required by ASTM-E1742, including marking and acceptance requirement, (if Radiographic Inspection is required by the specification).
- c. Test Plates related to qualification of weld procedure or weld repair procedure shall be accompanied by data consisting of Information required by format of specification and shall also identify position of welding (If Ballistic Qualification of Weld Procedure is required by specification).
- d. Items to be tested shall be marked to include all marking requirements of the individual specification. The test item(s) must be identified by part number.
- e. The part number or part numbers represented by the test item(s) must be identified. The test data for wrought material can be annotated on STA form 3983 (which can be obtained from TACOM, ATTN: AMSTA-QT), or the Contractor may use its own form to supply required data. The required annotated data shall accompany test samples and shall be forwarded to:

Transportation Officer
APG Bldg. 691
ATTN: CSTE-DTC-AT-SL-V
Aberdeen Proving Ground, MD 21005-5059

- f. One copy of annotated data described in paragraph e. above, not to include test samples, shall be forwarded to:

Commander U.S. Army Tank-automotive and Armaments Command
ATTN: PM HERCULES Quality Assurance Warren, MI 48397-5000

This copy of the annotated data shall bear signature of the Government Quality Assurance Representative (QAR) at the Contractor's facility, verifying the accuracy of the data.

g. At least 60 days prior to shipment of ballistic test samples, the Contractor shall forward written notification, advising of the approximate shipment date and providing the information outlined below, to the PCO, ACO and AMSTA-QLP TACOM). Information furnished by the Contractor in its written notification shall consist of:

1. Name of the Contractor, and the applicable Contract number,
2. Specification number and revision,
3. Heat number or lot number (if applicable),
4. The unit weight and dimensions of the sample(s) being furnished,
5. The manufacturer of the basic material (i.e., steel, aluminum,)
6. The number of test samples being furnished, and their aggregate weight, and
7. Part number.
8. Purpose for vehicle material to be tested, such as first article preproduction qualification or preproduction lot Qualification.

h. Unless otherwise provided by the applicable drawing, specification, or contractual clause, a minimum of one ballistic test specimen shall be prepared for each material thickness, joint design, configuration, and weld procedure.

i. The Government shall be responsible for the testing. The Contractor shall be responsible for the transportation costs for shipping test samples to and from the test site.

E.2.1 TAILORING OF BALLISTIC TESTING REQUIREMENTS FOR MIL-A-11356

The following is applicable to MIL-A-11356 as referenced in paragraph E-3.

E.2.1.1 The front cover (nose piece) shall be casted from armor steel casing in accordance with the requirements of MIL-A-11356, Class I with the following exceptions:

(a) Chemical Composition: The chemical composition of the heat shall be:

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ELEMENT RANGE Weight Percentage (wt%)

Carbon .30 Max
Manganese .80-1.30
Phosphorous .02 Max +
Sulfur .02 Max +
Silicon .20-.70
Nickel .80-1.30
Chromium .70-1.00
Molybdenum .30-.50
All others .10 Max
+ .035 Max combined

(b) Heat Treating: The casting shall be heat treated by normalizing, quenching and tempering. Minimum tempering temperature shall be 800 degrees Fahrenheit (8000F). Maximum decarburization after heat treating shall be .06 inches (in). The depth of decarburization shall be determined by making a micro-hardness traverse using at least 250 times (250X) magnification and recording hardness versus depth below the surface. The boundary of the decarburization shall be at the depth of which the hardness rises to the equivalent of 20 points Knoop below the core hardness. In addition, the micro-hardness and microstructure shall show no evidence of carburization or nitriding. The traverse shall show no evidence of increased hardness at the surface as indicated by 20 points Knoop or equivalent above the core hardness.

(c) Testing:

1. Ballistic Testing: A 12 inch by 36 inch test plate of the same thickness, material, and heat treatment will be used for ballistic testing in lieu of the first production casting. Ballistic acceptance of first article is not required. Foundry qualification for thicknesses up to 1.25 inches is required.

2. Brinell Hardness (BHN) and Charpy-V-Notch (CVN) Testing: BHN and CVN shall be determined for a 9 inch by 9 inch by 2.5 inch block cast from the same heat and tack welded to a casting during heat treatment. BHN shall be a 285-331. CVN shall be per Table III of MIL-A-11356 Rev F.

(d) Radiographic Inspection: Radiographic inspection shall be in accordance with ASTM-E1742 and to MIL-HDBK-1265, Class 3, Grade E and Radiographic position chart drawing 8764591. Frequency of inspection shall be 1 in 30. In lieu of MIL-A-11356 Rev F, Paragraph 4.6.2.6.2, substitute Paragraph 4.6.2.6 and 6.6 of MIL-STD-11356 Rev E. Radiographs to be compared to reference radiographs in ASTM E186.

(e) Magnetic Particle Inspection: All castings shall be magnetic particle inspected over 100% of their surface in accordance with ASTM E1444. Accept/reject criteria shall be used per Table 1-Types of Discontinuities in ASTM E125:

- a. Linear discontinuities I-1a, I-1b, and I-1c
- b. Shrinkage II-1, II-2, II-3
- c. Inclusions III-1, III-2
- d. Unfused Chaplets IV-1
- e. Porosity V-1

The appearance of more than one type of discontinuity at the maximum acceptable severity level in any 6 inch by 6 inch area shall be cause for rejection.

E.2.2 The following exceptions shall apply to the front cover (nose piece), hull, APU cover and engine deck castings:

(a) Discontinuities in machined surfaces: Discontinuities uncovered during machining shall be evaluated to the same acceptance radiographic criteria as the casting with the following exceptions:

1. Indications of 1/8 inch or less shall be considered non-relevant, regardless of location or number.
2. Discontinuities which are less than or equal to Table I below will not be repaired.
3. Discontinuities which exceed the requirements of Table I below but are less than or equal to the requirements of MIL-HDBK-1265, Class 3, Grade E will be evaluated by the Contractor (Quality Engineer, Production Engineer, or NDT level III Inspector) for disposition, with concurrence of the designated Government representative.
4. Discontinuities which exceed the requirements of MIL-HDBK-1265, Class 3, Grade E shall be repaired by the contractor in accordance with approved weld procedures.
5. If the distance between two or more individual discontinuities is less than two times the dimension of the largest discontinuity,

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they shall be grouped together and evaluated as one discontinuity. This distance shall be measured between contiguous approaches of contiguous discontinuities. The total area encompassing the grouped discontinuities shall not exceed the acceptance criteria of Table I below.

6. Any crack that is discovered after machining is caused for rejection. The contractor shall exercise caution when evaluating surfaces for cracks because other indications such as shrinkage may at first appear to be cracks.

7. Where there is difficulty interpreting the type of discontinuity the area in question shall be repaired by the contractor in accordance with approved welding procedures.

TABLE I - Acceptance Criteria for Machined Surfaces Of Castings

DISCONTINUITY TYPE MAXIMUM ALLOWABLE SIZE

Round T/5 not to exceed 1/2 inch

Linear T/2 not to exceed 1 inch

(T is the thickness of the casting at that location)

(b) Surface Texture and Surface Discontinuities: The degree of acceptable surface roughness shall be by comparison to Steel Castings Research and Trade Association (SCRATA) comparator blocks in accordance with ASTM A802. Surface quality levels shall be carried out on the finished casting after shot blasting. Acceptance levels shall be as follows:

NOMENCLATURE

ACCEPTANCE LEVEL

1. Surface Texture	A3
2. Nonmetallic Inclusions	B4
3. Gas Porosity	C3
4. Fusion Discontinuities	D2
5. Expansion Discontinuities	E3
6. Inserts	F1
7. Metal Removal Marks (Thermal Dressing)	G2
8. Metal Removal Marks (Mechanical Dressing)	H4
9. Metal Removal Marks (Weld Indications)	J2

(c) Marking: Cast or metal stamp shall be in accordance with MIL-STD-130. All castings shall be sequentially serialized.

(d) Weld Repair: Weld repairs for the front cover (nose piece) shall comply with TACOM Drawing 12479550, Ground Combat Vehicle Welding Code Steel, dated 01/12/06. Weld repairs for the hull, Auxiliary Power Unit (APU) cover and engine deck shall comply with TACOM Drawing 12479550, Ground Combat Vehicle Welding Code Steel, dated 01/12/06. Radiographic frequency of inspection shall be 1 in 30. Radiographs shall be accepted by comparison to ASTM E390, vol. II Reference Radiographs. Severity shall be graded for 2 inch thickness.

(e) 6.0 Lot Definition: Add to Paragraph 4.3 of MIL-A-11356 Rev F, "When two or more melts are combined in a single ladle, the ladle charge shall be considered a single melt.

E.3 RADIOGRAPHIC INSPECTION

E.3.1 The contractor shall perform radiographic inspection of steel armor welds as required by applicable drawings or by the contract, in accordance with TACOM Drawing 12479550 and TACOM Drawing 12472301 for aluminum armor radiographs.

E.3.2 The contractor shall accomplish radiographic inspection of production steel castings as required by applicable drawings, Standards and specifications, as follows:

a. Operators and radiographic equipment shall be qualified in accordance with section 5.1 of Specification ASTM-E1742, prior to radiography of production casting.

b. The first casting shall be radiographed in all routine and random positions described on the position chart.

c. Subsequent castings shall be radiographed in those areas that were defective in the immediately preceding castings, until compliance with the required standard has been obtained. Objective evidence shall be provided by the contractor that corrective action has been taken to eliminate the deficiency.

d. All rejectable areas shall repaired in accordance with an approved and qualified repair procedure (when required by applicable specification), and must meet the standard specified on applicable position chart. The contractor retains the prerogative of repairing or scrapping defective material.

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- e. After the above requirements have been accomplished, normal sampling shall be applied by the contractor.
- f. The Government Quality Assurance Representative (QAR) will conduct normal sampling by selecting one control casting out of each thirty produced, which shall then be radiograph by the Contractor.
- g. The contractor shall radiograph all routine and random positions on each control casting except when total exceeds the established number of radiographs that can be taken in a normal eight hour day. When the total number of positions to be radiograph on a control casting exceeds the maximum capability of facilities, random position shall be selected for radiography by the Government Quality Assurance Representative and rotated in such a manner that complete coverage is achieved within a cycle of five castings radiograph.
- h. The occurrence of a rejected defect in any area on a casting will require the Government radiographic inspection of each subsequently poured casting in that area until the defective condition is corrected.
- i. If the results of radiographic inspection on ten consecutive lots of material indicate that a satisfactory uniform product meeting the soundness requirements is being produced, the amount of radiographic testing may be reduced in accordance with a system established by the Contractor and approved by the contracting officer.
- j. The occurrence of a rejectable defect in any area on a casting shall require return to normal sampling and the radiographic inspection of each subsequently poured casting in that area until the defective condition is corrected.
- k. This requirement is NOT applicable for items provided as Government Furnished Material under this contract.
- l. In those instances where non-destructive testing and inspection is required by drawing or specification requirements, the execution of non-destructive testing inspection shall be performed by Contractor personnel trained and certified in accordance with TACOM Drawing 12479550, Ground Combat Vehicle Welding Code - Steel.

E.3.4 Visual Inspection. The contractor shall verify weld quality and workmanship to Ground Combat Vehicle Welding Code- Steel, Dwg#12479550 and/or the Ground Combat Vehicle Welding Code- Aluminum, Dwg.#12472301 as applicable.

E.3.4.1 Weld inspection will be performed in accordance with the requirements specified in the applicable specified weld code using qualified inspectors trained to perform these inspection functions. Acceptable qualification of the Contractors inspectors may be based on one or more of the following conditions a)current certification in accordance with the American Welding Society (AWS), Certified Welding Inspector (CWI/SCWI) qualified and certified in accordance with provisions of AWS QC1, Standard for AWS Certified Welding Inspector b) Current certified welding inspectors qualified by the Canadian Welding Bureau (CWB) to Level II or the Level III requirements of the Canadian Standards Association Standard W 178.2 Certification of Welding Inspectors c) An individual who, by experience, and/or education, in metals, fabrication and testing, is competent to perform inspection per the Contractors Quality Control System (QCS).

E.3.4.2 The Government, at its discretion, reserves the right to review the procedures utilized by the Contractor to qualify and certify its nondestructive testing and visual inspection personnel.

E.3.4.3 In addition to the materials specified in the TACOM Drawing 12479550, Ground Combat Vehicle Welding Code - Steel that require a waiting period for inspection, MIL-DTL-46100 armor shall not be inspected until 48 hours after completion of welding.

E.4 INSPECTION AND ACCEPTANCE NOTIFICATION

E.4.1 The Contractor shall provide advance notification to the cognizant DCMA office prior to submitting a vehicle for inspection and acceptance.

E.5 RESERVED

E.6 INSPECTION/ACCEPTANCE POINT FOR DATA DELIVERABLES

E.6.1 Inspection and acceptance of the data deliverables shall be made at the destination(s) set forth in the CDRLs in Exhibit A of this contract.

E.7 ACCEPTANCE OF VEHICLES AND PREPARATION FOR SHIPMENT

E.7.1 The Contractor may present vehicles for acceptance with the list of components in Attachment 0009 not installed or stowed in the vehicle.

E.7.2 The components listed in Attachment 0009 shall be installed or stowed in the vehicle prior to shipment.

E.8 SINGLE PROCESS INITIATIVES (SPI)

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E.8.1 The following SPIs are incorporated by reference:

<u>SPI</u>	<u>Effective Date</u>	<u>Title</u>
ARZ003	9/27/96	<u>Paint - Reduced Lot Testing/R Panels use of Test</u>
<u>Description:</u> Coating weight test specimens required by DoD-P-16232 and TT-C-490 may be reused provided that they are abrasive blasted and the corresponding production parts are also blasted. Lot size for salt spray testing per MIL-C-53072 is to be defined within the Contractor's procedures based on historical performance.		
ARZ004	10/3/96	<u>MIL-STD-130 Part Marking</u>
<u>Description:</u> The application of MIL-STD-130 Part Marking as required by the technical data has been waived with the following exceptions: a) spare parts, b) serialized items, c) hydraulic hoses, tubes, and wiring harnesses.		
ARZ005	10/4/96	<u>Paint Acceptance Criteria</u>
<u>Description:</u> Workmanship standards and/or contract language to standardize paint requirements and acceptance criteria across contracts (standardize non-skid VOC free paint and increase camouflage transition zones to +/-2").		
ARZ009	10/31/96	<u>Eliminating Detailed Packaging Development</u>
<u>Description:</u> Eliminate packaging development for depot-level expendable parts. Only weight and cube data for Depot-Level Expendable Items will be completed for these items to facilitate just-in-time shipment planning. This change covers items with SMR codes P_DZZ.		
ARZ013	1/8/98	<u>Replacement of Environmentally Unfriendly</u>
<u>Description:</u> Where casting drawings specify Red Oxide Primer TT-P-664, replace with Devran #720. Prior to Paint Requirements finishing or welding, the Devran #720 shall be removed. Replace Carbomastic #15 with 5-7 mils of Devron #122UD (high solids paint) on Bradley vehicles.		
ARZ015	6/16/98	<u>Aluminum Welding Repair Procedures</u>
<u>Description:</u> Eliminate the 51 existing standard aluminum welding repair procedures and replace with one document which incorporates best practices and guidance from the BAE/TACOM Aluminum Welding Code.		
ARZ016	7/14/98	<u>Correction to Mod ARZ015</u>
<u>Description:</u> Incorporate missing language and corrects incorrect language to SPI MOD ARZ015, Aluminum Weld Repair Procedures.		
ARZ022	9/18/03	<u>Direct Metal to Paint</u>
<u>Description:</u> Eliminates the application of chromate chemical conversion coatings and chromate wash primers to both aluminum and steel vehicle structures and apply CARC paint directly to metal substrate.		

E.10 QUALITY ASSURANCE

E.10.1 Quality Management System (QMS). The Contractor shall develop, implement, and maintain a quality system for all supplies and services to be provided under this contract. The quality system shall, as a minimum, meet the requirements of ANSI/ISO/ASQ 9001-2008 or an equivalent standard. Government approval of the Quality System is not required, if at the time of contract award, the Contractor is a Registrar Accreditation Board (RAB) certified/registered ANSI/ISO/ASQ 9001-2008, TS16949 or AS9100 supplier. The Contractors Quality System requirements shall apply at the place of vehicle in-process and final assembly. The quality system shall address all software and hardware contractual requirements.

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E.10.1.1 The Contractor shall have a Supplier quality assurance program that defines the appropriate ANSI/ISO/ASQ 9001-2008 or equivalent quality system requirements for each Supplier. The Contractors supplier quality assurance program shall assure each Supplier has a documented quality system which consists of development, implementation, and maintenance of control plans for all Supplied products. The Contractors supplier quality assurance program shall be documented as part of the quality manual or referenced within.

E.10.1.2 Contractor's documentation verifying the review and acceptance of their Suppliers quality assurance system and control plans (as applicable) shall be made available for review upon Government request. The Government reserves the right to perform quality audits or reviews at the Contractors and Suppliers facilities as deemed necessary.

E.10.1.3 Quality Planning. The Contractor shall establish Product Quality Plans and Control Plans that define the steps necessary to assure that products meet customer requirements.

E.10.1.4 Production Part Approval. For all new or changed: Suppliers, systems, subsystems, components, parts, and key processes for this contract as compared to the most recent contract, the Contractor shall validate that their Suppliers processes have the capability of meeting design and specification requirements prior to the first shipment of product to the Contractor. The Contractors validation process for new design components or parts shall, at a minimum, utilize the products applicable control plan developed by the Supplier and approved by the Contractor. The Government reserves the right to review all associated production part approval documents and records at its discretion.

E.10.2 Quality Conformance Inspection (QCI). The Contractor shall conduct a complete final inspection of each unit produced to assure a defect-free product and conformance to all contractual requirements. The QCI shall be conducted and documented using a Contractor-prepared and Government-approved Final Inspection Record (FIR).

E.10.2.1 Final Inspection Record (FIR). The Contractor shall submit a validated FIR for Government approval, IAW DI-QCIC-81068 (See CDRL A015), 90 days prior to first submission of vehicles for Government acceptance. The contractor shall utilize the current M88A2 FIR (QF12364500), but shall update it to reflect this contracts requirements, perform validation, and publish as a new revision prior to submittal for Government approval. Upon Government approval, the Contractor shall utilize the FIR for each vehicle produced under the contract.

E.10.2.2 The Contractor shall describe, in writing, deficiencies discovered during inspection and include the deficiencies as part of the FIR.

E.10.2.3 If the Contractor determines that the FIR is not appropriate for final inspection of the end item, for any reason, the Contractor must obtain written approval from the contracting officer prior to employing any other form for this purpose.

E.10.3 Product Quality Deficiency Reports (PQDR) Customer/User Generated. During the period of performance of this contract, the Contractor shall investigate and provide failure analysis, root cause and corrective action to all Product Quality Deficiency Reports (PQDR's), Standard Form 368, generated by a field user against supplies produced under this contract. The Contractor shall provide a report which contains the nature of the investigation, root cause, action taken to correct the deficiency, action taken to prevent recurrence, remedial action, identification of affected material, date of full implementation of corrective action or interim action. The proposed effectivity point shall be identified by vehicle serial number. All costs related to PQDR investigations are the Contractors responsibility.. For PQDR investigations that identify deficiencies attributable to Contractor workmanship or product nonconformance, the Contractor shall provide replacement components as deemed appropriate by the Government PQDR Action Officer at no cost to the Government. Corrective actions requiring configuration changes shall follow the Configuration Management requirements as specified in C.7 of the contract.

E.10.3.1 Failure Analysis and Corrective Action Report (FACAR).

The Contractor shall submit a final written response, in contractor format, in accordance with DI-SESS-81315B (CDRL A014) for each PQDR received. If a final response is not ready for submittal by the due date, the Contractor shall submit an interim response detailing the status of the investigation. The response shall report on the nature of the investigation, root cause, action taken to correct the deficiency, action taken to prevent recurrence, remedial action, identification of affected material, date of full implementation of corrective action, interim action and Contractor's position with respect to repair or replacement parts.

E.10.3.2 Should the Contractor want the deficient exhibit for analysis, the Contractor shall request the exhibit from the Action Point listed in the PQDR within five days of receipt of PQDR. Extension of response due dates may be granted by the Government based on transit time of exhibits.

E.10.3.3 The Contractor shall respond to PQDRs according to the following time frame:

- Category I - Interim due within 72 hrs. of receipt of PQDR. Final due within 15 days of receipt of PQDR.
- Category II Final due within 20 days of receipt of PQDR.

E.10.4 Product Quality Deficiency Reports (PQDR)- Government Furnished Materiel (GFM). Upon discovery of defective or deficient GFM, the Contractor shall generate a Non-Conformance Report (NCR) as per their established internal procedures. The NCR shall contain sufficient information (i.e., Discovery Date, Part Number (P/N), National Stock Number (NSN), Nomenclature, Mfg. Cage Code, Contract

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No., Qty., Detailed Description of Deficiency/Non-Conformance) to generate a PQDR. The contractor shall generate a PQDR for all deficient/defective GFM and follow the current process established between themselves and DCMA.

E.10.5 Control Test (CT). In addition to the inspection/tests conducted during QCI utilizing the FIR, Control tests for maintaining and evaluating process control of production items shall be conducted by the Contractor and witnessed by the designated Government representative, in accordance with the PD and FIR. The Contractor shall perform the test on one production unit, randomly selected by the Government, every 6 months or every 15 units, whichever comes first.

E.10.5.1 Control Test Lot. The unit selected for CT shall be used as the control test sample representing the control test lot. The control test lot is defined as those units produced since the last CT unit (or first unit produced) through the selected CT unit. The CT unit itself will not be accepted by the Government on a DD-250, nor will the Contractor be eligible for payment, until that unit has successfully passed all testing. The final DD-250 can be completed and the Contractor eligible for payment when the control test unit has had all deficiencies corrected and when all lot screening and corrections are complete.

E.10.5.2 Control Test Deficiencies. Control test deficiencies found during or as a result of the test shall be prima facie evidence that all units within the CT lot are suspect of being similarly defective. The Contractor shall provide objective quality evidence to the on-site QAR that units representing the control test lot are not similarly defective. In the event that the defect(s) exists beyond the control test vehicle, the Contractor shall correct the defect(s) on all units within the CT lot at no additional cost to the Government. The Contractor is allowed to perform control tests at a lesser interval, but at no additional cost to the Government.

E.10.5.3 Control Test Documentation. The Contractor shall prepare a test report for each control test performed. The report may be in Contractor format and shall contain Control test results and corrective actions as applicable. Test reports shall be made available to the Government upon request. Each test report shall be completed and in its final form within seven (7) days of test completion.

E.10.6 Inspection Equipment. Except as otherwise expressly provided for under this contract, the Contractor shall supply and maintain all inspection and test equipment necessary to insure that the end item/components conform to contract requirements. All Contractor inspection equipment shall be available for use on or before the start of production. The Contractor shall make inspection equipment available to the Government Inspector, upon request, for end item or component inspection. Upon completion of the inspection by the Government Inspector, all inspection equipment will be returned to the Contractor. All inspection and test equipment used by the Contractor shall be included in a Calibration System as part of the Contractors QMS.

E.10.7 Drawings For Inspection. When requested, the Contractor shall make available to the Government Representative, legible drawings and printed specifications to which the product was manufactured. These drawings and specifications shall be annotated to the latest revision as of the date specified in paragraph C.1.4. Upon completion of their use, they will be returned to the Contractor.

E.10.8 Non-Conforming Material Material Review Board (MRB). The Contractor shall establish a process to determine disposition of non-conforming material. As a minimum, non-conformances proposed by the Contractor for disposition as Use-As-Is or Repair shall be processed by a MRB. MRB membership (and Preliminary Review Board/Team (PRB/T) if utilized) shall include Contractor personnel and a Government representative from the cognizant DCMA activity. Should the Contractor utilize a PRB/T process, that board/teams authority shall be limited to only minor non-conformances (as defined in C.10.8.3.3) and dispositions other than Use-As-Is and Repair. The Government reserves the right to review any or all MRB and PRB/T processes, procedures and documentation at its discretion.

E.10.8.1 Request for Deviation/Variance (RFD/RFV). All non-conformances processed by a MRB with resulting dispositions of Use-As-Is or Repair shall require the generation of a RFD/RFV. A RFD/RFV classified as Minor shall require approval from a designated government representative of the cognizant DCMA activity prior to use of the non-conforming material. A RFD/RFV classified as Major or Critical shall require PM-ABCT Configuration Control Board (CCB) review/concurrence and subsequent PCO approval prior to use of the non-conforming material. RFD/RFV classifications shall be based on the definition of the associated non-conformance (Reference E.10.8.3.)

E.10.8.2 Repairs, Standard and Non-Standard. Should the Contractors Quality Management System (QMS) procedures allow the use of both standard and non-standard repairs for non-conforming material, both shall be processed by a MRB.

E.10.8.2.1 Standard Repairs. Standard repairs shall require the use of a documented, Government approved, Standard Repair Procedure (SRP). After processing by a MRB, the SRP does not require Government approval prior to use. Repairs which take place as part of, or embedded within a special process (ex., weld procedures and codes), are not considered a SRP relative to this clause.

E.10.8.2.2 Non-Standard Repairs. After processing by a MRB, Non-Standard repairs shall require the submittal of a RFD/RFV as per E.10.8.1 (Request for Deviation/Variance).

E.10.8.2.3 For all repairs executed, both Standard or Non-Standard, the Contractors documented procedures shall specify all inspections and tests required upon completion of the repair. Development and use of repair procedures does not relieve the Contractor from the requirement to perform effective preventive action, corrective action and continuous process improvement. The government reserves the right to reject the material after repair. Use of any repair procedure is solely at the Contractors risk.

E.10.8.3 Definition of Non-conformances. Unless otherwise defined/specified in the systems/sub-systems/components/parts associated technical data, specifications, or other requirements, the following definitions apply:

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SECTION F - DELIVERIES OR PERFORMANCE

	<u>Regulatory Cite</u>	<u>Title</u>	<u>Date</u>
F-1	52.211-17	DELIVERY OF EXCESS QUANTITIES	SEP/1989
F-2	52.242-15	STOP-WORK ORDER	AUG/1989
F-3	52.242-17	GOVERNMENT DELAY OF WORK	APR/1984
F-4	52.247-29	F.O.B. ORIGIN	FEB/2006
F-5	52.247-30	F.O.B. ORIGIN, CONTRACTOR'S FACILITY	FEB/2006
F-6	52.247-55	F.O.B. POINT FOR DELIVERY OF GOVERNMENT-FURNISHED PROPERTY	JUN/2003
F-7	52.247-58	LOADING, BLOCKING, AND BRACING OF FREIGHT CAR SHIPMENTS	APR/1984
F-8	52.247-59	F.O.B. ORIGIN--CARLOAD AND TRUCKLOAD SHIPMENTS	APR/1984
F-9	52.247-65	F.O.B. ORIGIN, PREPAID FREIGHT--SMALL PACKAGE SHIPMENTS	JAN/1991
F-10	252.211-7003	ITEM IDENTIFICATION AND VALUATION (JUN 2013) -- ALTERNATE I (DEC 2011)	DEC/2011
F-11	252.211-7007	REPORTING OF GOVERNMENT-FURNISHED PROPERTY	AUG/2012
F-12	252.211-7003	ITEM IDENTIFICATION AND VALUATION	JUN/2013

(a) Definitions. As used in this clause

"Automatic identification device" means a device, such as a reader or interrogator, used to retrieve data encoded on machine-readable media.

"Concatenated unique item identifier" means

(1) For items that are serialized within the enterprise identifier, the linking together of the unique identifier data elements in order of the issuing agency code, enterprise identifier, and unique serial number within the enterprise identifier; or

(2) For items that are serialized within the original part, lot, or batch number, the linking together of the unique identifier data elements in order of the issuing agency code; enterprise identifier; original part, lot, or batch number; and serial number within the original part, lot, or batch number.

"Data qualifier" means a specified character (or string of characters) that immediately precedes a data field that defines the general category or intended use of the data that follows.

"DoD recognized unique identification equivalent" means a unique identification method that is in commercial use and has been recognized by DoD. All DoD recognized unique identification equivalents are listed at http://www.acq.osd.mil/dpap/pdi/uid/iuid_equivalents.html.

"DoD unique item identification" means a system of marking items delivered to DoD with unique item identifiers that have machine-readable data elements to distinguish an item from all other like and unlike items. For items that are serialized within the enterprise identifier, the unique item identifier shall include the data elements of the enterprise identifier and a unique serial number. For items that are serialized within the part, lot, or batch number within the enterprise identifier, the unique item identifier shall include the data elements of the enterprise identifier; the original part, lot, or batch number; and the serial number.

"Enterprise" means the entity (e.g., a manufacturer or vendor) responsible for assigning unique item identifiers to items.

"Enterprise identifier" means a code that is uniquely assigned to an enterprise by an issuing agency.

"Government's unit acquisition cost" means

(1) For fixed-price type line, subtitle, or exhibit line items, the unit price identified in the contract at the time of delivery;

(2) For cost-type or undefinitized line, subtitle, or exhibit line items, the Contractors estimated fully burdened unit cost to the Government at the time of delivery; and

(3) For items produced under a time-and-materials contract, the Contractors estimated fully burdened unit cost to the Government at the time of delivery.

"Issuing agency" means an organization responsible for assigning a globally unique identifier to an enterprise (e.g., Dun & Bradstreet's Data Universal Numbering System (DUNS) Number, GS1 Company Prefix, Allied Committee 135 NATO Commercial and Government Entity (NCAGE)/Commercial and Government Entity (CAGE) Code, or the Coded Representation of the North American Telecommunications Industry Manufacturers, Suppliers, and Related Service Companies (ATIS-0322000) Number), European Health Industry Business Communication Council (EHIBCC) and Health Industry Business Communication Council (HIBCC)), as indicated in the Register of Issuing Agency Codes for ISO/IEC 15459, located at <http://www.nen.nl/web/Normen-ontwikkelen/ISOIEC-15459-Issuing-Agency-Codes.htm>.

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"Issuing agency code" means a code that designates the registration (or controlling) authority for the enterprise identifier.

"Item" means a single hardware article or a single unit formed by a grouping of subassemblies, components, or constituent parts.

"Lot or batch number" means an identifying number assigned by the enterprise to a designated group of items, usually referred to as either a lot or a batch, all of which were manufactured under identical conditions.

"Machine-readable" means an automatic identification technology media, such as bar codes, contact memory buttons, radio frequency identification, or optical memory cards.

"Original part number" means a combination of numbers or letters assigned by the enterprise at item creation to a class of items with the same form, fit, function, and interface.

"Parent item" means the item assembly, intermediate component, or subassembly that has an embedded item with a unique item identifier or DoD recognized unique identification equivalent.

"Serial number within the enterprise identifier" means a combination of numbers, letters, or symbols assigned by the enterprise to an item that provides for the differentiation of that item from any other like and unlike item and is never used again within the enterprise.

"Serial number within the part, lot, or batch number" means a combination of numbers or letters assigned by the enterprise to an item that provides for the differentiation of that item from any other like item within a part, lot, or batch number assignment.

"Serialization within the enterprise identifier" means each item produced is assigned a serial number that is unique among all the tangible items produced by the enterprise and is never used again. The enterprise is responsible for ensuring unique serialization within the enterprise identifier.

"Serialization within the part, lot, or batch number" means each item of a particular part, lot, or batch number is assigned a unique serial number within that part, lot, or batch number assignment. The enterprise is responsible for ensuring unique serialization within the part, lot, or batch number within the enterprise identifier.

"Unique item identifier" means a set of data elements marked on items that is globally unique and unambiguous. The term includes a concatenated unique item identifier or a DoD recognized unique identification equivalent.

"Unique item identifier type" means a designator to indicate which method of uniquely identifying a part has been used. The current list of accepted unique item identifier types is maintained at http://www.acq.osd.mil/dpap/pdi/uid/uii_types.html.

(b) The Contractor shall deliver all items under a contract line, subline, or exhibit line item.

(c) Unique item identifier.

(1) The Contractor shall provide a unique item identifier for the following:

(i) All delivered items for which the Governments unit acquisition cost is \$5,000 or more.

(ii) The following items for which the Governments unit acquisition cost is less than \$5,000:

Contract Line, Subline, or Exhibit Line Item Number	Item Description
___N/A_____	N/A_____
_____	_____
_____	_____

(iii) Subassemblies, components, and parts embedded within delivered items as specified in Attachment Number 0001.

(2) The unique item identifier and the component data elements of the DoD unique item identification shall not change over the life of the item.

(3) Data syntax and semantics of unique item identifiers. The Contractor shall ensure that

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(i) The encoded data elements (except issuing agency code) of the unique item identifier are marked on the item using one of the following three types of data qualifiers, as determined by the Contractor:

(A) Application Identifiers (AIs) (Format Indicator 05 of ISO/IEC International Standard 15434), in accordance with ISO/IEC International Standard 15418, Information Technology EAN/UCC Application Identifiers and Fact Data Identifiers and Maintenance and ANSI MH 10.8.2 Data Identifier and Application Identifier Standard.

(B) Data Identifiers (DIs) (Format Indicator 06 of ISO/IEC International Standard 15434), in accordance with ISO/IEC International Standard 15418, Information Technology EAN/UCC Application Identifiers and Fact Data Identifiers and Maintenance and ANSI MH 10.8.2 Data Identifier and Application Identifier Standard.

(C) Text Element Identifiers (TEIs) (Format Indicator 12 of ISO/IEC International Standard 15434), in accordance with the Air Transport Association Common Support Data Dictionary; and

(ii) The encoded data elements of the unique item identifier conform to the transfer structure, syntax, and coding of messages and data formats specified for Format Indicators 05, 06, and 12 in ISO/IEC International Standard 15434, Information Technology Transfer Syntax for High Capacity Automatic Data Capture Media.

(4) Unique item identifier.

(i) The Contractor shall

(A) Determine whether to

(1) Serialize within the enterprise identifier;

(2) Serialize within the part, lot, or batch number; or

(3) Use a DoD recognized unique identification equivalent; and

(B) Place the data elements of the unique item identifier (enterprise identifier; serial number; DoD recognized unique identification equivalent; and for serialization within the part, lot, or batch number only: original part, lot, or batch number) on items requiring marking by paragraph (c)(1) of this clause, based on the criteria provided in the version of MIL-STD-130, Identification Marking of U.S. Military Property, cited in the contract Schedule.

(ii) The issuing agency code

(A) Shall not be placed on the item; and

(B) Shall be derived from the data qualifier for the enterprise identifier.

(d) For each item that requires unique item identification under paragraph (c)(1)(i) or (ii) of this clause, in addition to the information provided as part of the Material Inspection and Receiving Report specified elsewhere in this contract, the Contractor shall report at the time of delivery, either as part of, or associated with, the Material Inspection and Receiving Report, the following information:

(1) Unique item identifier.

(2) Unique item identifier type.

(3) Issuing agency code (if concatenated unique item identifier is used).

(4) Enterprise identifier (if concatenated unique item identifier is used).

(5) Original part number (if there is serialization within the original part number).

(6) Lot or batch number (if there is serialization within the lot or batch number).

(7) Current part number (optional and only if not the same as the original part number).

(8) Current part number effective date (optional and only if current part number is used).

(9) Serial number (if concatenated unique item identifier is used).

(10) Government's unit acquisition cost.

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(11) Unit of measure.

(e) For embedded subassemblies, components, and parts that require DoD unique item identification under paragraph (c)(1)(iii) of this clause, the Contractor shall report as part of, or associated with, the Material Inspection and Receiving Report specified elsewhere in this contract, the following information:

(1) Unique item identifier of the parent item under paragraph (c)(1) of this clause that contains the embedded subassembly, component, or part.

(2) Unique item identifier of the embedded subassembly, component, or part.

(3) Unique item identifier type.**

(4) Issuing agency code (if concatenated unique item identifier is used).**

(5) Enterprise identifier (if concatenated unique item identifier is used).**

(6) Original part number (if there is serialization within the original part number).**

(7) Lot or batch number (if there is serialization within the lot or batch number).**

(8) Current part number (optional and only if not the same as the original part number).**

(9) Current part number effective date (optional and only if current part number is used).**

(10) Serial number (if concatenated unique item identifier is used).**

(11) Description.

** Once per item.

(f) The Contractor shall submit the information required by paragraphs (d) and (e) of this clause in accordance with the data submission procedures at

http://www.acq.osd.mil/dpap/pdi/uid/data_submission_information.html.

(g) Subcontracts. If the Contractor acquires by subcontract, any item(s) for which unique item identification is required in accordance with paragraph (c)(1) of this clause, the Contractor shall include this clause, including this paragraph (g), in the applicable subcontract(s), including subcontracts for commercial items.

(End of clause)

F-13

52.247-60

GUARANTEED SHIPPING CHARACTERISTICS

APR/2012

(WARREN)

(a) The offeror is requested to complete subparagraph (a)(1) of this clause, for each part or component which is packed or packaged separately. This information will be used to determine transportation costs for evaluation purposes. If the offeror does not furnish sufficient data in subparagraph (a)(1) of this clause, to permit determination by the Government of the item shipping costs, evaluation will be based on the shipping characteristics submitted by the offeror whose offer produces the highest transportation costs or in the absence thereof, by the Contracting Officers best estimate of the actual transportation costs. If the item shipping costs, based on the actual shipping characteristics, exceed the item shipping costs used for evaluation purposes, the Contractor agrees that the contract price shall be reduced by an amount equal to the difference between the transportation costs actually incurred, and the costs which would have been incurred if the evaluated shipping characteristics had been accurate.

(1) To be completed by the offeror:

(i) Type of container: Wood Box ____, Fiber Box ____, Barrel ____, Reel ____, Drum ____, Other (Specify) _____;

(ii) Shipping configuration: Knocked-down ____, Set-up ____, Nested ____, Other (specify) _____;

(iii) Size of container: ____ (Length), x ____ (Width), x ____ (Height) = ____ Cubic Ft;

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- (iv) Number of items per container _____ each;
- (v) Gross weight of container and contents ____ Lbs;
- (vi) Palletized/skidded ___Yes ___ No;
- (vii) Number of containers per pallet/skid _____;
- (viii) Weight of empty pallet bottom/skid and sides _____ Lbs;
- (ix) Size of pallet/skid and contents _____ Lbs* Cube _____;

(2) To be completed by the Government after evaluation but before contract award:

- (i) Rate used in evaluation _____;
- (ii) Tender/Tariff _____;
- (iii) Item _____.

(b) The guaranteed shipping characteristics requested in subparagraph (a)(1) of this clause do not establish actual transportation requirements, which are specified elsewhere in this solicitation. The guaranteed shipping characteristics will be used only for the purpose of evaluating offers and establishing any liability of the successful offeror for increased transportation costs resulting from actual shipping characteristics which differ from those used for evaluation in accordance with paragraph (a) of this clause.

(End of Clause)

*52.247-4060, TACOM Clarification for Guaranteed Shipping Characteristics

While the Guaranteed Shipping Characteristics clause at 52.247-60 requires at item (ix) the size of pallet/skid and contents, TACOM requests that contractors use the following to calculate the data:

- a. To calculate Lbs in item (ix) above: [(v) x (vii)] + (viii)
- b. To calculate Cube in item (ix) above: provide length, width and height of loaded pallet in inches. This should be greater than item (iii).

(End of TACOM clause clarifying language)

F-14 52.247-4005 SHIPMENT OF SUPPLIES AND DETENTION OF CARRIERS EQUIPMENT AUG/2003
(TACOM)

(a) Unless otherwise directed, shipment items under this contract in following order of priority:

- (1) Government/Commercial Bill(s) of Lading or US Postal Services;
- (2) Prepaid Commercial Bill(s) of Lading with transportation charges entered as a separate item on the invoice; or
- (3) As otherwise instructed when the contract prohibits use of Government funds for transportation costs.

(b) The Contractor will request:

- (1) Government Bills of Lading and
- (2) Routing and other instructions, including Defense Transportation Regulation (DTR), DOD Regulation 4500.9-R-Part 2 Cargo Movement, as to the methods of shipment to be followed by the Contractor, or

(c) The Contractor and subcontractor(s) must allow prompt and convenient access of carrier's equipment to loading docks or platforms where the contract items supplies will be loaded. Any charges for detention of carrier's equipment shall be for the account of the Contractor, except when the detention is required or caused by the Government.

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near:

(1) Contractor's Plant: _____
 (City) (State) (ZIP) (County)

(2) Subcontractor's Plant: _____
 (City) (State) (ZIP) (County)

[End of Clause]

F-17 52.247-4017 DEPOT ADDRESS FOR THE APPLICABLE MODE OF SHIPMENTS: IN-THE-CLEAR NOV/2009
 (TACOM) ADDRESSES

Rail/ Motor _SPLC*	MILSTRIP Address Code	Rail Ship To:	Motor Ship To:	Parcel Post Mail To:
206721/ 209405	W25G1U	Transportation Officer Defense Dist Depot Susquehanna New Cumberland, PA	Transportation Officer Defense Dist Depot Susquehanna New Cumberland, PA	Transportation Officer Defense Dist Depot Susquehanna New Cumberland, PA 17070-5001

NOTE: All deliveries to New Cumberland MUST be scheduled at least 10 days prior to the delivery date. The carrier or contractor must call the New Cumberland DDSP customer service number, 800-307-8496 and provide the following information: contract number, item name, National Stock Number, total weight and cube, and vendor. All shipments to this MILSTRIP address code (W25G1U) are for mission stock and they will need to know that as well, but if you have instructions from the Contracting Officer to use MILSTRIP address code W25N14 instead, you must inform the appointment-taker that the delivery is for Consolidation and Containerization Point (CCP) stock. Appointments for FOB Origin shipments should be coordinated with DCMA Transportation.

875670/ 875675	W62G2T	Transportation Officer XU Def Dist Depot San Joaquin 25600 S Chrisman Rd Rec Whse 10 Tracy, Ca 95376-5000	Transportation Officer XU Def Dist Depot San Joaquin 25600 S Chrisman Rd Rec Whse 10 Tracy, Ca 95376-5000	Transportation Officer Dist Depot San Joaquin P O Box 96001 Stockton, CA 95296-0130
471995/ 471996	W31G1Z	Transportation Officer Anniston Army Depot, Bynum, AL	Transportation Officer Anniston Army Depot, Bynum, AL	Transportation Officer Anniston Army Depot, Anniston, AL 36201-5021
209741/ 209770	W25G1R	Transportation Officer Letterkenny Army Depot, Culbertson, PA	Transportation Officer Letterkenny Army Depot, Chambersburg, PA	Transportation Officer Letterkenny Army Depot, Chambersburg, PA 17201-4150
661136/ 661157	W45G19	Transportation Officer Red River Army Depot, Defense, TX	Transportation Officer Red River Army Depot, Texarkana, TX	Transportation Officer Red River Army Depot, Texarkana, TX 75507-5000
764538/ 764535	W67G23	Transportation Officer Tooele Army Depot, Warner, UT	Transportation Officer Tooele Army Depot, Tooele, UT	Transportation Officer Tooele Army Depot, Tooele, UT 84074-5003

***SPLC indicates Standard Point Locator Code.

NOTE: The following is applicable only when so specified in an individual order or delivery increment:

This requirement is a depot replenishment buy, a portion of which is or may be required to fill Direct Support System (DSS) requisitions. Shipment shall be made, as specified, to one or more of:

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New Cumberland Army Depot
 Red River Army Depot
 Sharpe Army Depot

prior to shipments to any other depots as may be designated. When more than one depot is designated for DSS shipments, priority shipments will be made equally to each of the designated destinations.

[End of Clause]

SECTION F - DELIVERIES OR PERFORMANCE

F.1 ACCELERATION OF VEHICLE DELIVERY

F.1.1 Acceleration of vehicle deliveries is authorized at no additional cost to the Government; however, any additional storage and cyclic maintenance of vehicles necessitated by such accelerated delivery shall be at no additional cost to the Government.

F.2 HARDWARE BUILD/DELIVERY SCHEDULE

F.2.1 Vehicles and ASL spares shall be built and made ready for Government inspection based on the schedules below.

F.2.2 All vehicles and ASL spares shall be presented for inspection no later than the last business day of the month.

F.3 DELIVERY SCHEDULE FOR VEHICLES AND ASL SPARES UNDER CLINS 0001AA AND 0002AA

F.3.1 The quantity of 49 each M88A2 HERCULES vehicles accountable under CLIN 0001AA shall be delivered in accordance with the following schedule:

<u>Vehicle Quantity</u>	<u>Delivery Date</u>
3	30 June 2014
3	31 July 2014
3	31 August 2014
3	30 September 2014
3	31 October 2014
3	30 November 2014
3	31 December 2014
3	31 January 2015
3	28 February 2015
3	31 March 2015
3	30 April 2015
3	31 May 2015
3	30 June 2015
3	31 July 2015
3	31 August 2015
3	30 September 2015
1	31 October 2015

F.3.2 The quantity of three (3) sets of M88A2 HERCULES Authorized Stockage List (ASL) Spares under CLIN 0002AA, as defined below, shall be delivered in accordance with the following schedule:

F.3.2.1 Associated Stockage List (ASL) Spares. Each set of ASL spares consists of the following items:

- a. 1 M88A2 1790 Engine with Container, P/N 12366412-Spares*05
- b. 1 M88A2 Transmission with Container, P/N 12365775-UID
- c. 1 M88A2 Main Winch Assembly, P/N 12364530*04
- d. 1 M88A2 Right Hand Final Drive with Container, P/N 12365778-UID
- e. 1 M88A2 Left Hand Final Drive with Container, P/N 1236577

7-UID

<u>ASL Quantity</u>	<u>Delivery Date</u>
1 set	31 October 2014
1 set	30 April 2015
1 set	30 September 2015

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F.4 FOB POINT

F.4.1 The FOB POINT for all vehicles to be delivered under this Contract is ORIGIN.

*** END OF NARRATIVE F0001 ***

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SECTION G - CONTRACT ADMINISTRATION DATA

LINE	PRON/ AMS CD/ <u>ITEM</u> <u>MIPR</u>	OBLG <u>STAT</u>	JO NO/ <u>ACCT ASSIGN</u>	<u>ACRN</u>	OBLIGATED <u>AMOUNT</u>
0001AA	JM3A3004JM	1	A.0009330.1.3.2	AA	\$ 61,433,393.69
0002AA	JM3A3004JM	1	A.0009330.1.3.2	AA	\$ 1,407,656.31
TOTAL					\$ 62,841,050.00

<u>ACRN</u>	<u>ACCOUNTING CLASSIFICATION</u>	OBLIGATED <u>AMOUNT</u>
AA	021 201320152033 A5XGJ GA0570ARU05 3109 L034342101 A.0009330.1.3.2	021001 \$ 62,841,050.00
TOTAL		\$ 62,841,050.00

LINE	<u>ACRN</u>	<u>EDI/SFIS ACCOUNTING CLASSIFICATION</u>	OBLIGATED <u>AMOUNT</u>
0001AA	AA	021 201320152033 A5XGJ GA0570ARU05 3109 L034342101 A.0009330.1.3.2	021001
0002AA	AA	021 201320152033 A5XGJ GA0570ARU05 3109 L034342101 A.0009330.1.3.2	021001

<u>Regulatory Cite</u>	<u>Title</u>	<u>Date</u>
G-1 252.232-7006	WIDE AREA WORKFLOW PAYMENT INSTRUCTIONS	MAY/2013

(a) Definitions. As used in this clause--

"Department of Defense Activity Address Code (DoDAAC)" is a six position code that uniquely identifies a unit, activity, or organization.

"Document type" means the type of payment request or receiving report available for creation in Wide Area WorkFlow (WAWF).

"Local processing office (LPO)" is the office responsible for payment certification when payment certification is done external to the entitlement system.

(b) Electronic invoicing. The WAWF system is the method to electronically process vendor payment requests and receiving reports, as authorized by DFARS 252.232-7003, Electronic Submission of Payment Requests and Receiving Reports.

(c) WAWF access. To access WAWF, the Contractor shall--

(1) Have a designated electronic business point of contact in the System for Award Management at <https://www.acquisition.gov>; and

(2) Be registered to use WAWF at <https://wawf.eb.mil/> following the step-by-step procedures for self-registration available at this Web site.

(d) WAWF training. The Contractor should follow the training instructions of the WAWF Web-Based Training Course and use the Practice Training Site before submitting payment requests through WAWF. Both can be accessed by selecting the "Web Based Training" link on the WAWF home page at <https://wawf.eb.mil/>.

(e) WAWF methods of document submission. Document submissions may be via Web entry, Electronic Data Interchange, or File Transfer Protocol.

(f) WAWF payment instructions. The Contractor must use the following information when submitting payment requests and receiving reports in WAWF for this contract/order:

(1) Document type. The Contractor shall use the following document type(s).

COMBO

(2) Inspection/acceptance location. The Contractor shall select the following inspection/acceptance location(s) in WAWF, as specified by the contracting officer.

Origin

(3) Document routing. The Contractor shall use the information in the Routing Data Table below only to fill in applicable fields in WAWF when creating payment requests and receiving reports in the system.

Routing Data Table*

Field Name in WAWF	Data to be entered in WAWF
Pay Official DoDAAC	N/A
Issue By DoDAAC	N/A
Admin DoDAAC	N/A
Inspect By DoDAAC	N/A
Ship To Code	N/A
Ship From Code	N/A
Mark For Code	N/A
Service Approver (DoDAAC)	N/A
Service Acceptor (DoDAAC)	N/A
Accept at Other DoDAAC	N/A
LPO DoDAAC	N/A
DCAA Auditor DoDAAC	N/A
Other DoDAAC(s)	N/A

(4) Payment request and supporting documentation. The Contractor shall ensure a payment request includes appropriate contract line item and subline item descriptions of the work performed or supplies delivered, unit price/cost per unit, fee (if applicable), and all relevant back-up documentation, as defined in DFARS Appendix F, (e.g. timesheets) in support of each payment request.

(5) WAWF email notifications. The Contractor shall enter the email address identified below in the "Send Additional Email Notifications" field of WAWF once a document is submitted in the system.

N/A

(g) WAWF point of contact. (1) The Contractor may obtain clarification regarding invoicing in WAWF from the following contracting activity's WAWF point of contact.

N/A

(2) For technical WAWF help, contact the WAWF helpdesk at 866-618-5988.

(End of clause)

G-2	252.204-0005	PAYMENT INSTRUCTIONS FOR THE DEFENSE FINANCE AND ACCOUNTING SERVICE	SEP/2009
	(DFARS PGI)	(DFAS) - Line Item Specific: by Cancellation Date	

The payment office shall make payment using the ACRN with the earliest cancellation date first, exhausting all funds in that ACRN before disbursing funds from the next. In the event there is more than one ACRN associated with the same cancellation date, the payment amount shall be disbursed from each ACRN with the same cancellation date in the same proportion as the amount of funding obligated for each ACRN with the same cancellation date.

[End of Clause]

G-3	52.232-4087	PAYMENT UNDER WIDE AREA WORKFLOW (ACC WARREN)	AUG/2012
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To obtain payment, WAWF requires the contractor to input/indicate the various DoDAAC (Department of Defense Activity Address Code) codes that apply to the acquisition. These codes can be found on the cover page of contracts/orders as described below.

The document type the contractor shall use is as follows:

- "Combo" is entered if the award is for supplies or supplies and services are being delivered.
- "2in1" is entered if the award is strictly for services being provided/delivered.

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USE THE FOLLOWING CODES TO ROUTE YOUR INVOICES THROUGH WAWF:

- Your firms CAGE code (found in Block 15A of SF 33; Block 17a of SF 1449; Block 14 of SF 1442; Block 7 of SF 26)
- Issue and Admin DoDAAC Code (found in Block 7 of SF 33; Block 9 of SF 1449; Block 7 of SF 1442; Block 5 of SF 26)
- Ship-To DoDAAC Code (if deliverables are involved) (found in Section B of the contract where SF 33, SF 1442, or SF 26 is the cover page; Block 15 of SF 1449)
- Accept-By DoDAAC Code: If Inspection/Acceptance is Origin, use the Admin (DCMA)DoDAAC or the DoDAAC of the inspection/acceptance office if different than the Admin DoDAAC; if Destination, use the Ship-To DODAAC Code. If Accepted-By Other: enter the DoDAAC of the activity designated to perform acceptance.
- Payment DoDAAC Code. (found in Block 25 of SF 33; Block 18a of SF 1449; Block 27 of SF 1442; Block 12 of SF 26)

The paying office DoDAAC and mailing address is located on the first page of the award. To track the status of your invoice, click on the link, Pay status (myInvoice-External link) at the bottom of the left-hand menu.

If your paying office is Columbus, direct any payment-related questions to the Defense Finance Accounting Services (DFAS) Columbus at 1-888-756-4571. Please have your order number and invoice ready when calling about payment status. If your paying office is other than Columbus, contact your contract administrator for the customer service phone/fax numbers.

[End of Clause]

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Name of Offeror or Contractor: BAE SYSTEMS LAND & ARMAMENTS L.P.		

SECTION H - SPECIAL CONTRACT REQUIREMENTS

	<u>Regulatory Cite</u>	<u>Title</u>	<u>Date</u>
H-1	252.222-7006	RESTRICTIONS ON THE USE OF MANDATORY ARBITRATION AGREEMENTS	DEC/2010
H-2	52.204-4005	REQUIRED USE OF ELECTRONIC CONTRACTING	AUG/2012

(a) All contract awards, modifications and delivery orders issued by Army Contracting Command - Warren (DTA) will be issued electronically. The contractor has the option to receive these actions either via the Worldwide Web (WWW) or Electronic Data Interchange (EDI). Many provisions/clauses that appear "by reference," meaning only clause titles and regulation site are listed; their full texts can be found at the website <http://farsite.hill.af.mil/>

(b) In order to be eligible to receive an award under this solicitation, the successful offeror must be registered with the Department of Defense (DOD) System for Award Management (SAM). The SAM registration process may be done electronically at the World Wide Web (WWW) site: <https://www.sam.gov/portal/public/SAM>. (In order to be registered to use EDI, you must use the long form for registration. Certification information, including information on the EDI 838 TPP, must be furnished to the Contracting Officer within 60 calendar days after contract award to complete networking requirements within the Government.)

(c) Worldwide Web Distribution. The contractor will receive an electronic Notice of the Award, Modification, or Delivery Order via e-mail. If you choose the WWW option, you must download the file from the appropriate Army Contracting Command - Warren webpage:

Warren: http://contracting.tacom.army.mil/CFDATA/AWARDS/AWARD_RPT01.cfm
 Rock Island - JMTC: <https://acquisition.army.mil/asfi/>
 Red River Army Depot: <https://acquisition.army.mil/asfi/>
 Anniston Army Depot: <https://acquisition.army.mil/asfi/>

(d) Electronic Data Interchange. If you choose to receive contract awards, modifications and delivery orders through EDI, they will be delivered electronically via the Federal Acquisition Network (FACNET). Federal Standard Version 3050 of Standard X12 from the American National Standards Institute (ANSI) will be used as the format for these electronic transactions.

(1) You must complete the EDI 838 Trading Partner Profile, and must agree (i) to subcontract with a DoD certified VAN or Value Added Service (VAS) provider, or (ii) to become DoD certified as a Value Added Network (VAN). The EDI 838 Training Partner Profile is contained in the basic SAM registration form and includes portions of the registration form which are titled "Optional".

(2) You must select a VAN from the official DoD approved list. DoD Certified VANs are listed at <http://www.acq.osd.mil/dpap/ebiz/VANs.htm>. If your VAN is later removed from the official list, or if you voluntarily drop your initially selected VAN, then you must switch to a VAN that remains on the official DoD approved list. You must maintain an active account on a DoD approved VAN for the entire duration of the contract, beginning no later than the 60th day after award.

(e) Unless otherwise specified elsewhere in the contract, all data items you are required to provide under this contract must be submitted electronically. Please go to the following webpage for detailed information about submitting your offer electronically: <http://contracting.tacom.army.mil/acqinfo/ebidnotice.htm>

(f) Additional information can be obtained by sending a message to: usarmy.detroit.acc.mbx.wrn-web-page@mail.mil or by calling (586) 282-7059.

SECTION H - SPECIAL CONTRACT REQUIREMENTS

H.1 VARIATION IN CONFIGURATION OF ANAD HULLS

H.1.1 Due to the variation in the configuration of hulls provided as GFM from the ANAD overhaul/teardown of M88A1s, the hull structure of vehicles tendered for acceptance may deviate from the approved M88A2 HERCULES configuration as long as these configuration differences, relative to the M88A2 HERCULES manufacturing TDP, meet the following criteria:

- a. The configuration differences do not adversely affect the vehicle performance requirements as defined by the FIR.
- b. The configuration differences are transparent to the soldier in terms of operation, maintenance, and repair, i.e., no TM changes or special notifications/instructions to the field would be required to operate, maintain and repair the system.
- c. All configuration differences or modifications shall be annotated by the contractor on the BAE turnover traveler sheets, which are part of the final FIR. All such items require the review and approval of a BAE and DCMA designated

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representative.

H.1.2 If the Contractor elects to modify the hulls for those variations covered by H.1a through H.1c above in order to conform to the HERCULES TDP, such modification shall be at the Contractors expense and shall not be charged to the Government under a Defective Government Material (DGM) claim.

H.2 DEFECTIVE GOVERNMENT MATERIAL

H.2.1 The price of the vehicles includes the cost for typical rework or repairs (e.g., installation, replacement, removal or relocation of attachments and other minor weld defects) by the Contractor due to defective GFM items in Attachment 0003. The Contractor agrees not to submit defective GFM claims for such typical rework or repair. This typical rework or repair is the Contractors internal responsibility and requires no documentation for tracking purposes.

H.2.2 However, the fixed price of the vehicles does not include the costs associated with defective GFM that (1) requires unusual or extreme repair (e.g., fit up of major components, re-machining, structural damage); (2) are non-reparable; or (3) are the following:

- Installation Kit, (p/n: 5895-01-225-3333)
- Heater, Vehicle Compartment, (p/n: 2540-01-396-2826)
- Vehicle Intercom System (VIS), (p/n: A3210704)
- Basic Issue Items (BII)
- Components of the End Item (COEI)
- On Board Spares (OBS)

H.3 ENVIRONMENTAL, HEALTH AND SAFETY (EHS) REQUIREMENTS

H.3.1 For purposes of this clause, the term EHS Requirement shall mean any federal, state and local environmental, health and safety law, rule, regulation, guideline, standard, limitation, condition, order, control, prohibition or other requirement that affects the manufacture of the supplies to be delivered under this contract.

H.3.2 The firm fixed price established under this contract includes the cost of compliance by the Contractor with all EHS Requirements and any modifications to EHS Requirements that are in effect at the time of contract award or scheduled at the time of contract award to become effective during the performance period of this contract.

H.3.3 If a federal, state or local government imposes a new EHS requirement or modifies an existing EHS requirement after contract award and during performance of the contract, the following steps shall be taken:

H.3.3.1 The Contractor shall promptly notify the contracting officer in writing of any proposed or actual modification to an existing EHS requirement or any proposed or actual imposition of a new EHS requirement. The notice shall include a copy of the new or modified EHS requirement, a copy of any previously effective version of the EHS requirement, the date the new or modified EHS requirement becomes effective, a statement as to whether and why the Contractor deems the new or modified EHS requirement to be mandatory, and the technical impact of the new or modified EHS requirement. If the Contractor deems compliance with the new or modified EHS requirement to be mandatory or if the compliance with new or modified EHS requirements will change the cost of performance, the notice shall include a cost proposal for an equitable adjustment pursuant to the Changes clause of the contract.

H.3.3.2 The firm fixed price established under this contract shall be equitably adjusted upward or downward to cover (i) the cost of mandatory compliance with any new EHS requirement imposed after contract award or any modification to an existing EHS requirement imposed after contract award; and (ii) the cost of non-mandatory compliance with any new EHS requirement imposed after contract award or any modification to an existing EHS requirement imposed after contract award only if the contracting officer has ordered such non-mandatory compliance in writing. The Contractors right to an equitable adjustment under this provision shall exclude any costs of compliance incurred by the Contractor prior to the thirtieth (30th) calendar day following the contracting officers receipt of the notice described above.

H.3.4 The Contractor shall not be entitled to recovery of any cost incurred by or liability imposed upon the Contractor as a result of any violation of an existing or future EHS requirement, unless the violation is the result of a written notice from the contracting officer directing the Contractor to not comply with the EHS requirement that has been violated.

H.4 ISSUE OF DOCUMENTS

H.4.1 Unless specifically stated otherwise, all documents listed in this contract or otherwise incorporated into the contract by reference shall be the version of the document identified in the ASSIST database as of 30 April 2013. The ASSIST web address is: <https://assist.dla.mil/quicksearch/>.

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*** END OF NARRATIVE H0001 ***

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SECTION I - CONTRACT CLAUSES

	<u>Regulatory Cite</u>	<u>Title</u>	<u>Date</u>
I-1	52.202-1	DEFINITIONS	JAN/2012
I-2	52.203-3	GRATUITIES	APR/1984
I-3	52.203-5	COVENANT AGAINST CONTINGENT FEES	APR/1984
I-4	52.203-6	RESTRICTIONS ON SUBCONTRACTOR SALES TO THE GOVERNMENT	SEP/2006
I-5	52.203-7	ANTI-KICKBACK PROCEDURES	OCT/2010
I-6	52.203-8	CANCELLATION, RESCISSION, AND RECOVERY OF FUNDS FOR ILLEGAL OR IMPROPER ACTIVITY	JAN/1997
I-7	52.203-10	PRICE OR FEE ADJUSTMENT FOR ILLEGAL OR IMPROPER ACTIVITY	JAN/1997
I-8	52.203-12	LIMITATION ON PAYMENTS TO INFLUENCE CERTAIN FEDERAL TRANSACTIONS	OCT/2010
I-9	52.203-13	CONTRACTOR CODE OF BUSINESS ETHICS AND CONDUCT	APR/2010
I-10	52.204-2	SECURITY REQUIREMENTS	AUG/1996
I-11	52.204-4	PRINTED OR COPIED DOUBLE-SIDED ON POSTCONSUMER FIBER CONTENT PAPER	MAY/2011
I-12	52.204-9	PERSONAL IDENTITY VERIFICATION OF CONTRACTOR PERSONNEL	JAN/2011
I-13	52.204-10	REPORTING EXECUTIVE COMPENSATION AND FIRST-TIER SUBCONTRACT AWARDS	JUL/2013
I-14	52.204-13	SYSTEM FOR AWARD MANAGEMENT MAINTENANCE	JUL/2013
I-15	52.209-6	PROTECTING THE GOVERNMENT'S INTEREST WHEN SUBCONTRACTING WITH CONTRACTORS DEBARRED, SUSPENDED, OR PROPOSED FOR DEBARMENT	AUG/2013
I-16	52.209-9	UPDATES OF PUBLICLY AVAILABLE INFORMATION REGARDING RESPONSIBILITY MATTERS	JUL/2013
I-17	52.210-1	MARKET RESEARCH	APR/2011
I-18	52.211-5	MATERIAL REQUIREMENTS	AUG/2000
I-19	52.211-15	DEFENSE PRIORITY AND ALLOCATION REQUIREMENTS	APR/2008
I-20	52.215-2	AUDIT AND RECORDS--NEGOTIATIONS	OCT/2010
I-21	52.215-8	ORDER OF PRECEDENCE--UNIFORM CONTRACT FORMAT	OCT/1997
I-22	52.215-10	PRICE REDUCTION FOR DEFECTIVE CERTIFIED COST OR PRICING DATA	AUG/2011
I-23	52.215-12	SUBCONTRACTOR CERTIFIED COST OR PRICING DATA	OCT/2010
I-24	52.215-14	INTEGRITY OF UNIT PRICES (OCT 2010) -- ALTERNATE I (OCT 1997)	OCT/1997
I-25	52.215-15	PENSION ADJUSTMENTS AND ASSET REVERSIONS	OCT/2010
I-26	52.215-18	REVERSION OR ADJUSTMENT OF PLANS FOR POSTRETIREMENT BENEFITS (PRB) OTHER THAN PENSIONS	JUL/2005
I-27	52.215-23	LIMITATIONS ON PASS-THROUGH CHARGES	OCT/2009
I-28	52.219-8	UTILIZATION OF SMALL BUSINESS CONCERNS	JUL/2013
I-29	52.219-9	SMALL BUSINESS SUBCONTRACTING PLAN (JUL 2013) -- ALTERNATE II (OCT 2001)	OCT/2001
I-30	52.219-16	LIQUIDATED DAMAGES--SUBCONTRACTING PLAN	JAN/1999
I-31	52.222-1	NOTICE TO THE GOVERNMENT OF LABOR DISPUTES	FEB/1997
I-32	52.222-19	CHILD LABOR--COOPERATION WITH AUTHORITIES AND REMEDIES	MAR/2012
I-33	52.222-21	PROHIBITION OF SEGREGATED FACILITIES	FEB/1999
I-34	52.222-26	EQUAL OPPORTUNITY	MAR/2007
I-35	52.222-35	EQUAL OPPORTUNITY FOR VETERANS	SEP/2010
I-36	52.222-36	AFFIRMATIVE ACTION FOR WORKERS WITH DISABILITIES	OCT/2010
I-37	52.222-37	EMPLOYMENT REPORTS ON VETERANS	SEP/2010
I-38	52.222-40	NOTIFICATION OF EMPLOYEE RIGHTS UNDER THE NATIONAL LABOR RELATIONS ACT	DEC/2010
I-39	52.222-50	COMBATING TRAFFICKING IN PERSONS	FEB/2009
I-40	52.222-54	EMPLOYMENT ELIGIBILITY VERIFICATION	AUG/2013
I-41	52.223-6	DRUG-FREE WORKPLACE	MAY/2001
I-42	52.223-18	ENCOURAGING CONTRACTOR POLICIES TO BAN TEXT MESSAGING WHILE DRIVING	AUG/2011
I-43	52.227-1	AUTHORIZATION AND CONSENT	DEC/2007
I-44	52.227-2	NOTICE AND ASSISTANCE REGARDING PATENT AND COPYRIGHT INFRINGEMENT	DEC/2007
I-45	52.229-4	FEDERAL, STATE, AND LOCAL TAXES (STATE AND LOCAL ADJUSTMENTS)	FEB/2013
I-46	52.230-6	ADMINISTRATION OF COST ACCOUNTING STANDARDS	JUN/2010
I-47	52.232-1	PAYMENTS	APR/1984
I-48	52.232-8	DISCOUNTS FOR PROMPT PAYMENT	FEB/2002
I-49	52.232-11	EXTRAS	APR/1984
I-50	52.232-17	INTEREST	OCT/2010
I-51	52.232-23	ASSIGNMENT OF CLAIMS (JAN 1986) -- ALTERNATE I (APR 1984)	APR/1984
I-52	52.232-25	PROMPT PAYMENT	JUL/2013
I-53	52.232-33	PAYMENT BY ELECTRONIC FUNDS TRANSFER--SYSTEM FOR AWARD MANAGEMENT	JUL/2013
I-54	52.232-39	UNENFORCEABILITY OF UNAUTHORIZED OBLIGATIONS	JUN/2013
I-55	52.233-1	DISPUTES (JUL 2002) -- ALTERNATE I (DEC 1991)	DEC/1991
I-56	52.233-3	PROTEST AFTER AWARD	AUG/1996

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	<u>Regulatory Cite</u>	<u>Title</u>	<u>Date</u>
I-57	52.233-4	APPLICABLE LAW FOR BREACH OF CONTRACT CLAIM	OCT/2004
I-58	52.242-13	BANKRUPTCY	JUL/1995
I-59	52.243-1	CHANGES--FIXED PRICE	AUG/1987
I-60	52.244-5	COMPETITION IN SUBCONTRACTING	DEC/1996
I-61	52.244-6	SUBCONTRACTS FOR COMMERCIAL ITEMS	JUL/2013
I-62	52.245-1	GOVERNMENT PROPERTY	APR/2012
I-63	52.245-9	USE AND CHARGES	APR/2012
I-64	52.246-24	LIMITATION OF LIABILITY--HIGH-VALUE ITEMS	FEB/1997
I-65	52.247-63	PREFERENCE FOR U.S.-FLAG AIR CARRIERS	JUN/2003
I-66	52.247-68	REPORT OF SHIPMENT (REPSHIP)	FEB/2006
I-67	52.248-1	VALUE ENGINEERING	OCT/2010
I-68	52.249-2	TERMINATION FOR CONVENIENCE OF THE GOVERNMENT (FIXED-PRICE)	APR/2012
I-69	52.249-8	DEFAULT (FIXED-PRICE SUPPLY AND SERVICE)	APR/1984
I-70	52.253-1	COMPUTER GENERATED FORMS	JAN/1991
I-71	252.203-7000	REQUIREMENTS RELATING TO COMPENSATION OF FORMER DOD OFFICIALS	SEP/2011
I-72	252.203-7001	PROHIBITION ON PERSONS CONVICTED OF FRAUD OR OTHER DEFENSE-CONTRACT-RELATED FELONIES	DEC/2008
I-73	252.203-7002	REQUIREMENT TO INFORM EMPLOYEES OF WHISTLEBLOWER RIGHTS	JAN/2009
I-74	252.203-7003	AGENCY OFFICE OF THE INSPECTOR GENERAL	DEC/2012
I-75	252.204-7000	DISCLOSURE OF INFORMATION	AUG/2013
I-76	252.204-7002	PAYMENT FOR SUBLINE ITEMS NOT SEPARATELY PRICED	DEC/1991
I-77	252.204-7003	CONTROL OF GOVERNMENT PERSONNEL WORK PRODUCT	APR/1992
I-78	252.204-7004	ALTERNATE A, SYSTEM FOR AWARD MANAGEMENT	MAY/2013
I-79	252.204-7006	BILLING INSTRUCTIONS	OCT/2005
I-80	252.205-7000	PROVISION OF INFORMATION TO COOPERATIVE AGREEMENT HOLDERS	DEC/1991
I-81	252.209-7004	SUBCONTRACTING WITH FIRMS THAT ARE OWNED OR CONTROLLED BY THE GOVERNMENT OF A TERRORIST COUNTRY	DEC/2006
I-82	252.215-7000	PRICING ADJUSTMENTS	DEC/2012
I-83	252.215-7002	COST ESTIMATING SYSTEM REQUIREMENTS	DEC/2012
I-84	252.219-7003	SMALL BUSINESS SUBCONTRACTING PLAN (DoD CONTRACTS)	AUG/2012
I-85	252.223-7004	DRUG-FREE WORK FORCE	SEP/1988
I-86	252.223-7006	PROHIBITION ON STORAGE AND DISPOSAL OF TOXIC AND HAZARDOUS MATERIALS	APR/2012
I-87	252.225-7001	BUY AMERICAN AND BALANCE OF PAYMENTS PROGRAM	DEC/2012
I-88	252.225-7002	QUALIFYING COUNTRY SOURCES AS SUBCONTRACTORS	DEC/2012
I-89	252.225-7004	REPORT OF INTENDED PERFORMANCE OUTSIDE THE UNITED STATES AND CANADA--SUBMISSION AFTER AWARD	OCT/2010
I-90	252.225-7005	IDENTIFICATION OF EXPENDITURES IN THE UNITED STATES	JUN/2005
I-91	252.225-7006	QUARTERLY REPORTING OF ACTUAL CONTRACT PERFORMANCE OUTSIDE THE UNITED STATES	OCT/2010
I-92	252.225-7009	RESTRICTION ON ACQUISITION OF CERTAIN ARTICLES CONTAINING SPECIALTY METALS	JUN/2013
I-93	252.225-7012	PREFERENCE FOR CERTAIN DOMESTIC COMMODITIES	FEB/2013
I-94	252.225-7013	DUTY-FREE ENTRY	JUN/2012
I-95	252.225-7015	RESTRICTION ON ACQUISITION OF HAND OR MEASURING TOOLS	JUN/2005
I-96	252.225-7016	RESTRICTION ON ACQUISITION OF BALL AND ROLLER BEARINGS	JUN/2011
I-97	252.225-7030	RESTRICTION ON ACQUISITION OF CARBON, ALLOY, AND ARMOR STEEL PLATE	DEC/2006
I-98	252.225-7033	WAIVER OF UNITED KINGDOM LEVIES	APR/2003
I-99	252.225-7048	EXPORT-CONTROLLED ITEMS	JUN/2013
I-100	252.226-7001	UTILIZATION OF INDIAN ORGANIZATIONS, INDIAN-OWNED ECONOMIC ENTERPRISES, AND NATIVE HAWAIIAN SMALL BUSINESS CONCERNS	SEP/2004
I-101	252.227-7013	RIGHTS IN TECHNICAL DATA--NONCOMMERCIAL ITEMS	JUN/2013
I-102	252.227-7016	RIGHTS IN BID OR PROPOSAL INFORMATION	JAN/2011
I-103	252.231-7000	SUPPLEMENTAL COST PRINCIPLES	DEC/1991
I-104	252.232-7003	ELECTRONIC SUBMISSION OF PAYMENT REQUESTS AND RECEIVING REPORTS	JUN/2012
I-105	252.232-7010	LEVIES ON CONTRACT PAYMENTS	DEC/2006
I-106	252.243-7001	PRICING OF CONTRACT MODIFICATIONS	DEC/1991
I-107	252.243-7002	REQUESTS FOR EQUITABLE ADJUSTMENT	DEC/2012
I-108	252.244-7000	SUBCONTRACTS FOR COMMERCIAL ITEMS	JUN/2013
I-109	252.245-7001	TAGGING, LABELING, AND MARKING OF GOVERNMENT-FURNISHED PROPERTY	APR/2012
I-110	252.245-7002	REPORTING LOSS OF GOVERNMENT PROPERTY	APR/2012
I-111	252.245-7003	CONTRACTOR PROPERTY MANAGEMENT SYSTEM ADMINISTRATION	APR/2012
I-112	252.245-7004	REPORTING, REUTILIZATION, AND DISPOSAL	MAY/2013
I-113	252.246-7000	MATERIAL INSPECTION AND RECEIVING REPORT	MAR/2008

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I-114	252.246-7003	NOTIFICATION OF POTENTIAL SAFETY ISSUES	JUN/2013
I-115	252.247-7023	TRANSPORTATION OF SUPPLIES BY SEA	JUN/2013
I-116	252.247-7028	APPLICATION FOR U.S. GOVERNMENT SHIPPING DOCUMENTATION/INSTRUCTIONS	JUN/2012
I-117	252.249-7002	NOTIFICATION OF ANTICIPATED CONTRACT TERMINATION OR REDUCTION	OCT/2010
I-118	52.209-1	QUALIFICATION REQUIREMENTS	FEB/1995

(a) Definition. Qualification requirement, as used in this clause, means a Government requirement for testing or other quality assurance demonstration that must be completed before award.

(b) One or more qualification requirements apply to the supplies or services covered by this contract. For those supplies or services requiring qualification, whether the covered product or service is an end item under this contract or simply a component of an end item, the product, manufacturer, or source must have demonstrated that it meets the standards prescribed for qualification before award of this contract. The product, manufacturer, or source must be qualified at the time of award whether or not the name of the product, manufacturer, or source is actually included on a qualified products list, qualified manufacturers list, or qualified bidders list. Offerors should contact the agency activity designated below to obtain all requirements that they or their products or services, or their subcontractors or their products or services, must satisfy to become qualified and to arrange for an opportunity to demonstrate their abilities to meet the standards specified for qualification.

(Name) -1-

(Address) -2-

(c) If an offeror, manufacturer, source, product or service covered by a qualification requirement has already met the standards specified, the relevant information noted below should be provided.

Offerors Name _____

Manufacturers Name _____

Sources Name _____

Item Name _____

Service Identification _____

Test Number _____ (to the extent known)

(d) Even though a product or service subject to a qualification requirement is not itself an end item under this contract, the product, manufacturer, or source must nevertheless be qualified at the time of award of this contract. This is necessary whether the Contractor or a subcontractor will ultimately provide the product or service in question. If, after award, the Contracting Officer discovers that an applicable qualification requirement was not in fact met at the time of award, the Contracting Officer may either terminate this contract for default or allow performance to continue if adequate consideration is offered and the action is determined to be otherwise in the Governments best interests.

(e) If an offeror, manufacturer, source, product or service has met the qualification requirement but is not yet on a qualified products list, qualified manufacturers list, or qualified bidders list, the offeror must submit evidence of qualification prior to award of this contract. Unless determined to be in the Governments interest, award of this contract shall not be delayed to permit an offeror to submit evidence of qualification.

(f) Any change in location or ownership of the plant where a previously qualified product or service was manufactured or performed requires reevaluation of the qualification. Similarly, any change in location or ownership of a previously qualified manufacturer or source requires reevaluation of the qualification. The reevaluation must be accomplished before the date of award.

(End of Clause)

I-119	52.209-3	FIRST ARTICLE APPROVAL -- CONTRACTOR TESTING (SEP 1989) -- ALTERNATE I (JAN 1997) AND ALTERNATE II (SEP 1989)	SEP/1989
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(a) The Contractor shall test 1 unit(s) of Lot/Item 0001 as specified in this contract. At least 30 calendar days before the beginning of first article tests, the Contractor shall notify the Contracting Officer, in writing, of the time and location of the testing so that the Government may witness the tests.

(b) The Contractor shall submit the first article test report within 120 calendar days of start of test (see CRDL A017) to the Contracting Officer marked First Article Test Report: Contract No. W56HZV-13-C-0358, Lot/Item No. 0001. Within 30 calendar days after the Government receives the test report, the Contracting Officer shall notify the Contractor, in writing, of the conditional approval, approval, or disapproval of the first article. The notice of conditional approval or approval shall not relieve the Contractor from complying with all requirements of the specifications and all other terms and conditions of this contract. A notice of conditional approval shall state any further action required of the Contractor. A notice of disapproval shall cite reasons for the disapproval.

(c) If the first article is disapproved, the Contractor, upon Government request, shall repeat any or all first article tests. After each request for additional tests, the Contractor shall make any necessary changes, modifications, or repairs to the first article or select another first article for testing. All costs related to these tests are to be borne by the Contractor, including any and all costs for additional tests following a disapproval. The Contractor shall then conduct the tests and deliver another report to the Government under the terms and conditions and within the time specified by the Government. The Government shall take action on this report within the time specified in paragraph (b) above. The Government reserves the right to require an equitable adjustment of the contract price for any extension of the delivery schedule, or for any additional costs to the Government related to these tests.

(d) If the Contractor fails to deliver any first article report on time, or the Contracting Officer disapproves any first article, the Contractor shall be deemed to have failed to make delivery within the meaning of the Default clause of this contract.

(e) Unless otherwise provided in the contract, and if the approved first article is not consumed or destroyed in testing, the Contractor may deliver the approved first article as part of the contract quantity if it meets all contract requirements for acceptance.

(f) If the Government does not act within the time specified in paragraph (b) or (c) above, the Contracting Officer shall, upon timely written request from the Contractor, equitably adjust under the changes clause of this contract the delivery or performance dates and/or the contract price, and any other contractual term affected by the delay.

(g) Before first article approval, the Contracting Officer may, by written authorization, authorize the Contractor to acquire specific materials or components or to commence production to the extent essential to meet the delivery schedules. Until first article approval is granted, only costs for the first article and costs incurred under this authorization are allocable to this contract for

(1) progress payments, or

(2) termination settlements if the contract is terminated for the convenience of the Government. If first article tests reveal deviations from contract requirements, the Contractor shall, at the location designated by the Government, make the required changes or replace all items produced under this contract at no change in the contract price.

(h) The Government may waive the requirement for first article approval test where supplies identical or similar to those called for in the schedule have been previously furnished by the offeror/contractor and have been accepted by the Government. The offeror/contractor may request a waiver.

(i) The Contractor shall produce both the first article and the production quantity at the same facility.

(End of Clause)

I-120 52.216-23 EXECUTION AND COMMENCEMENT OF WORK APR/1984

The Contractor shall indicate acceptance of this letter contract by signing three copies of the contract and returning them to the Contracting Officer not later than 21 Aug 13. Upon acceptance by both parties, the Contractor shall proceed with performance of the work, including purchase of necessary materials.

(End of Clause)

I-121 52.216-24 LIMITATION OF GOVERNMENT LIABILITY APR/1984

(a) In performing this contract, the Contractor is not authorized to make expenditures or incur obligations exceeding \$62,841,050.

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(b) The maximum amount for which the Government shall be liable if this contract is terminated is \$62,841,050.

(End of Clause)

I-122

52.243-7

NOTIFICATION OF CHANGES

APR/1984

(a) Definitions. Contracting Officer, as used in this clause, does not include any representative of the Contracting Officer.

Specifically Authorized Representative (SAR), as used in this clause, means any person the Contracting Officer has so designated by written notice (a copy of which shall be provided to the Contractor) which shall refer to this subparagraph and shall be issued to the designated representative before the SAR exercises such authority.

(b) Notice. The primary purpose of this clause is to obtain prompt reporting of Government conduct that the Contractor considers to constitute a change to this contract. Except for changes identified as such in writing and signed by the Contracting Officer, the Contractor shall notify the Administrative Contracting Officer in writing promptly, within 10 calendar days from the date that the Contractor identifies any Government conduct (including actions, inactions, and written or oral communications) that the Contractor regards as a change to the contract terms and conditions. On the basis of the most accurate information available to the Contractor, the notice shall state --

(1) The date, nature, and circumstances of the conduct regarded as a change;

(2) The name, function, and activity of each Government individual and Contractor official or employee involved in or knowledgeable about such conduct;

(3) The identification of any documents and the substance of any oral communication involved in such conduct;

(4) In the instance of alleged acceleration of scheduled performance or delivery, the basis upon which it arose;

(5) The particular elements of contract performance for which the Contractor may seek an equitable adjustment under this clause, including --

(i) What contract line items have been or may be affected by the alleged change;

(ii) What labor or materials or both have been or may be added, deleted, or wasted by the alleged change;

(iii) To the extent practicable, what delay and disruption in the manner and sequence of performance and effect on continued performance have been or may be caused by the alleged change;

(iv) What adjustments to contract price, delivery schedule, and other provisions affected by the alleged change are estimated; and

(6) The Contractors estimate of the time by which the Government must respond to the Contractors notice to minimize cost, delay or disruption of performance.

(c) Continued performance. Following submission of the notice required by paragraph (b) of this clause, the Contractor shall diligently continue performance of this contract to the maximum extent possible in accordance with its terms and conditions as construed by the Contractor, unless the notice reports a direction of the Contracting Officer or a communication from a SAR of the Contracting Officer, in either of which events the Contractor shall continue performance; provided, however, that if the Contractor regards the direction or communication as a change as described in paragraph (b) of this clause, notice shall be given in the manner provided. All directions, communications, interpretations, orders and similar actions of the SAR shall be reduced to writing promptly and copies furnished to the Contractor and to the Contracting Officer. The Contracting Officer shall promptly countermand any action which exceeds the authority of the SAR.

(d) Government response. The Contracting Officer shall promptly, within 30 calendar days after receipt of notice, respond to the notice in writing. In responding, the Contracting Officer shall either --

(1) Confirm that the conduct of which the Contractor gave notice constitutes a change and when necessary direct the mode of further performance;

(2) Countermand any communication regarded as a change;

(3) Deny that the conduct of which the Contractor gave notice constitutes a change and when necessary direct the mode of further performance; or

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(4) In the event the Contractors notice information is inadequate to make a decision under subparagraphs (d)(1), (2), or (3) of this clause, advise the Contractor what additional information is required, and establish the date by which it should be furnished and the date thereafter by which the Government will respond.

(e) Equitable adjustments.

(1) If the Contracting Officer confirms that Government conduct effected a change as alleged by the Contractor, and the conduct causes an increase or decrease in the Contractors cost of, or the time required for, performance of any part of the work under this contract, whether changed or not changed by such conduct, an equitable adjustment shall be made --

(i) In the contract price or delivery schedule or both; and

(ii) In such other provisions of the contract as may be affected.

(2) The contract shall be modified in writing accordingly. In the case of drawings, designs or specifications which are defective and for which the Government is responsible, the equitable adjustment shall include the cost and time extension for delay reasonably incurred by the Contractor in attempting to comply with the defective drawings, designs or specifications before the Contractor identified, or reasonably should have identified, such defect. When the cost of property made obsolete or excess as a result of a change confirmed by the Contracting Officer under this clause is included in the equitable adjustment, the Contracting Officer shall have the right to prescribe the manner of disposition of the property. The equitable adjustment shall not include increased costs or time extensions for delay resulting from the Contractors failure to provide notice or to continue performance as provided, respectively, in paragraphs (b) and (c) of this clause.

NOTE: The phrases contract price and cost wherever they appear in the clause, may be appropriately modified to apply to cost-reimbursement or incentive contracts, or to combinations thereof.

(End of Clause)

I-123 52.244-2 SUBCONTRACTS OCT/2010

(a) Definitions. As used in this clause

Approved purchasing system means a Contractors purchasing system that has been reviewed and approved in accordance with Part 44 of the Federal Acquisition Regulation (FAR)

Consent to subcontract means the Contracting Officers written consent for the Contractor to enter into a particular subcontract.

Subcontract means any contract, as defined in FAR Subpart 2.1, entered into by a subcontractor to furnish supplies or services for performance of the prime contract or a subcontract. It includes, but is not limited to, purchase orders, and changes and modifications to purchase orders.

(b) When this clause is included in a fixed-price type contract, consent to subcontract is required only on unpriced contract actions (including unpriced modifications or unpriced delivery orders), and only if required in accordance with paragraph (c) or (d) or this clause.

(c) If the contractor does not have an approved purchasing system, consent to subcontract is required for any subcontract that--

(1) Is of the cost-reimbursement, time-and-materials, or labor-hour type; or

(2) Is fixed-price and exceeds

(i) For a contract awarded by the Department of Defense, the Coast Guard, or the national Aeronautics and Space Administration, the greater of the simplified acquisition threshold or 5 percent of the total estimated cost of the contract; or

(ii) For contracts awarded by a civilian agency other than the Coast Guard and the National Aeronautics and Space Administration, either the simplified acquisition threshold or 5 percent of the total estimated cost of the contract.

(d) If the Contractor has an approved purchasing system, the Contractor nevertheless shall obtain the Contracting Officers written consent before placing the following subcontracts: TBD

(e)(1) The Contractor shall notify the Contracting Officer reasonably in advance of placing any subcontract or modification thereof for which consent is required under paragraph (b), (c), or (d) of this clause, including the following information:

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- (i) A description of the supplies or services to be subcontracted.
- (ii) Identification of the type of subcontract to be used.
- (iii) Identification of the proposed subcontractor.
- (iv) The proposed subcontract price.
- (v) The subcontractors current, complete, and accurate certified cost or pricing data and Certificate of Current Cost or Pricing Data, if required by other contract provisions.
- (vi) The subcontractors Disclosure Statement or Certificate relating to Cost Accounting Standards when such data are required by other provisions of this contract.
- (vii) A negotiation memorandum reflecting --
- (A) The principal elements of the subcontract price negotiations;
- (B) The most significant considerations controlling establishment of initial or revised prices;
- (C) The reason certified cost or pricing data were or were not required;
- (D) The extent, if any, to which the Contractor did not rely on the subcontractors certified cost or pricing data in determining the price objective and in negotiating the final price;
- (E) The extent to which it was recognized in the negotiation that the subcontractors certified cost or pricing data were not accurate, complete, or current; the action taken by the Contractor and the subcontractor; and the effect of any such defective data on the total price negotiated;
- (F) The reasons for any significant difference between the Contractors price objective and the price negotiated; and
- (G) A complete explanation of the incentive fee or profit plan when incentives are used. The explanation shall identify each critical performance element, management decisions used to quantify each incentive element, reasons for the incentives, and a summary of all trade-off possibilities considered.
- (2) The Contractor is not required to notify the Contracting Officer in advance of entering into any subcontract for which consent is not required under paragraph (c), (d), or (e) or this clause.
- (f) Unless the consent or approval specifically provides otherwise, neither consent by the Contracting Officer to any subcontract nor approval of the Contractors purchasing system shall constitute a determination --
- (1) Of the acceptability of any subcontract terms or conditions;
- (2) Of the allowability of any cost under this contract; or
- (3) To relieve the Contractor of any responsibility for performing this contract.
- (g) No subcontract or modification thereof placed under this contract shall provide for payment on a cost-plus-a-percentage-of-cost basis, and any fee payable under cost-reimbursement type subcontracts shall not exceed the fee limitations in FAR 15.404-4(c)(4)(i).
- (h) The Contractor shall give the Contracting Officer immediate written notice of any action or suit filed and prompt notice of any claim made against the Contractor by any subcontractor or vendor that, in the opinion of the Contractor, may result in litigation related in any way to this contract, with respect to which the Contractor may be entitled to reimbursement from the Government.
- (i) The Government reserves the right to review the Contractors purchasing system as set forth in FAR Subpart 44.3.i
- (j) Paragraphs (c) and (e) of this clause do not apply to the following subcontracts, which were evaluated during negotiations: TDB

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these transportation costs as direct allowable costs, the Contractor shall ensure before shipment is made that the commercial shipping documents are annotated with either of the following notations, as appropriate:

(a) If the Government is shown as the consignor or the consignee, the annotation shall be:

Transportation is for the Department of Defense and the actual total transportation charges paid to the carrier(s) by the consignor or consignee are assignable to, and shall be reimbursed by, the Government.

(b) If the Government is not shown as the consignor or the consignee, the annotation shall be:

Transportation is for the Department of Defense and the actual total transportation charges paid to the carrier(s) by the consignor or consignee shall be reimbursed by the Government, pursuant to cost-reimbursement contract No. N/A. This may be confirmed by contacting The DCMA Office on page one of this document.

(End of Clause)

I-125 252.203-7004 DISPLAY OF FRAUD HOTLINE POSTER(S) DEC/2012

(a) Definition. United States, as used in this clause, means the 50 States, the District of Columbia, and outlying areas.

(b) Display of fraud hotline poster(s).

(1) The Contractor shall display prominently in common work areas within business segments performing work in the United States under Department of Defense (DoD) contracts DoD hotline posters prepared by the DoD Office of the Inspector General. DoD hotline posters may be obtained via the Internet at http://www.dodig.mil/HOTLINE/hotline_posters.htm.

(2) If the contract is funded, in whole or in part, by Department of Homeland Security (DHS) disaster relief funds, the DHS fraud hotline poster shall be displayed in addition to the DoD fraud hotline poster. If a display of a DHS fraud hotline poster is required, the Contractor may obtain such poster from:

N/A

(3) Additionally, if the Contractor maintains a company website as a method of providing information to employees, the Contractor shall display an electronic version of the poster(s) at the website.

(c) Subcontracts. The Contractor shall include the substance of this clause, including this paragraph (c), in all subcontracts that exceed \$5 million except when the subcontract--

(1) Is for the acquisition of a commercial item; or

(2) Is performed entirely outside the United States.

(End of clause)

I-126 252.217-7027 CONTRACT DEFINITIZATION DEC/2012

(a) A Firm Fixed Price is contemplated. The Contractor agrees to begin promptly negotiating with the Contracting Officer the terms of a definitive contract that will include (1) all clauses required by the Federal Acquisition Regulation (FAR) on the date of execution of the undefinitized contract action, (2) all clauses required by law on the date of execution of the definitive contract action, and (3) any other mutually agreeable clauses, terms, and conditions. The Contractor agrees to submit a fixed price proposal and certified cost or pricing data supporting its proposal.

(b) The schedule for definitizing this contract action is as follows:

Award Date of UCA: 21 August 2013
Date to Receive Qualifying Proposal, including required Cost
or Pricing Data: 18 September 2013
Date to Subcontracting Plan submittal: 18 September 2013
Date to Start Negotiations: 1 November 2013
Date of Completion of Negotiations and Receipt of Certificate
of Current Cost or Pricing Data: 29 November 2013

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Date of Make-or-Buy Plans: Not Applicable
Date of Contract Definitization: 20 December 2013

(c) If agreement on a definitive contract action to supersede this undefinitized contract action is not reached by the target date in paragraph (b) of this clause, or within any extension of it granted by the Contracting Officer, the Contracting Officer may, with the approval of the head of the contracting activity, determine a reasonable price or fee in accordance with Subpart 15.4 and Part 31 of the FAR, subject to Contractor appeal as provided in the Disputes clause. In any event, the Contractor shall proceed with completion of the contract, subject only to the Limitation of Government Liability clause.

(1) After the Contracting Officers determination of price or fee, the contract shall be governed by

(i) All clauses required by the FAR on the date of execution of this undefinitized contract action for either fixed-price or cost-reimbursement contracts, as determined by the Contracting Officer under this paragraph (c);

(ii) All clauses required by law as of the date of the Contracting Officers determination; and

(iii) Any other clauses, terms, and conditions mutually agreed upon.

(2) To the extent consistent with paragraph (c)(1) of this clause, all clauses, terms, and conditions included in this undefinitized contract action shall continue in effect, except those that by their nature apply only to an undefinitized contract action.

(d) The definitive contract resulting from this undefinitized contract action will include a negotiated firm fixed price in no event to exceed \$149,882,446.

(End of clause)

I-127 52.215-19 NOTIFICATION OF OWNERSHIP CHANGES OCT/1997

(a) The Contractor shall make the following notifications in writing:

(1) When the Contractor becomes aware that a change in its ownership has occurred, or is certain to occur, that could result in changes in the valuation of its capitalized assets in the accounting records, the Contractor shall notify the Administrative Contracting Officer (ACO) within 30 days.

(2) The Contractor shall also notify the ACO within 30 days whenever changes to asset valuations or any other cost changes have occurred or are certain to occur as a result of a change in ownership.

(b) The Contractor shall --

(1) Maintain current, accurate, and complete inventory records of assets and their costs;

(2) Provide the ACO or designated representative ready access to the records upon request;

(3) Ensure that all individual and grouped assets, their capitalized values, accumulated depreciation or amortization, and remaining useful lives are identified accurately before and after each of the Contractors ownership changes; and

(4) Retain and continue to maintain depreciation and amortization schedules based on the asset records maintained before each Contractor ownership change.

(c) The Contractor shall include the substance of this clause in all subcontracts under this contract that meet the applicability requirement of FAR 15.408(k).

(End of Clause)

I-128 52.219-28 POST-AWARD SMALL BUSINESS PROGRAM REREPRESENTATION JUL/2013

(a) Definitions. As used in this clause--

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"Long-term contract" means a contract of more than five years in duration, including options. However, the term does not include contracts that exceed five years in duration because the period of performance has been extended for a cumulative period not to exceed six months under the clause at 52.217-8, Option to Extend Services, or other appropriate authority.

"Small business concern" means a concern, including its affiliates, that is independently owned and operated, not dominant in the field of operation in which it is bidding on Government contracts, and qualified as a small business under the criteria in 13 CFR part 121 and the size standard in paragraph (c) of this clause. Such a concern is "not dominant in its field of operation" when it does not exercise a controlling or major influence on a national basis in a kind of business activity in which a number of business concerns are primarily engaged. In determining whether dominance exists, consideration shall be given to all appropriate factors, including volume of business, number of employees, financial resources, competitive status or position, ownership or control of materials, processes, patents, license agreements, facilities, sales territory, and nature of business activity.

(b) If the Contractor represented that it was a small business concern prior to award of this contract, the Contractor shall rerepresent its size status according to paragraph (e) of this clause or, if applicable, paragraph (g) of this clause, upon the occurrence of any of the following:

(1) Within 30 days after execution of a novation agreement or within 30 days after modification of the contract to include this clause, if the novation agreement was executed prior to inclusion of this clause in the contract.

(2) Within 30 days after a merger or acquisition that does not require a novation or within 30 days after modification of the contract to include this clause, if the merger or acquisition occurred prior to inclusion of this clause in the contract.

(3) For long-term contracts

(i) Within 60 to 120 days prior to the end of the fifth year of the contract; and

(ii) Within 60 to 120 days prior to the date specified in the contract for exercising any option thereafter.

(c) The Contractor shall rerepresent its size status in accordance with the size standard in effect at the time of this rerepresentation that corresponds to the North American Industry Classification System (NAICS) code assigned to this contract. The small business size standard corresponding to this NAICS code can be found at <http://www.sba.gov/content/table-small-business-size-standards>

(d) The small business size standard for a Contractor providing a product which it does not manufacture itself, for a contract other than a construction or service contract, is 500 employees.

(e) Except as provided in paragraph (g) of this clause, the Contractor shall make the representation required by paragraph (b) of this clause by validating or updating all its representations in the Representations and Certifications section of the System for Award Management (SAM) and its other data in SAM, as necessary, to ensure that they reflect the Contractor's current status. The Contractor shall notify the contracting office in writing within the timeframes specified in paragraph (b) of this clause that the data have been validated or updated, and provide the date of the validation or update.

(f) If the Contractor represented that it was other than a small business concern prior to award of this contract, the Contractor may, but is not required to, take the actions required by paragraphs (e) or (g) of this clause.

(g) If the Contractor does not have representations and certifications in SAM, or does not have a representation in SAM for the NAICS code applicable to this contract, the Contractor is required to complete the following rerepresentation and submit it to the contracting office, along with the contract number and the date on which the rerepresentation was completed:

The Contractor represents that it [] is, [] is not a small business concern under NAICS Code _____ assigned to contract number _____. [Contractor to sign and date and insert authorized signer's name and title].

(End of clause)

(a) Hazardous material, as used in this clause, includes any material defined as hazardous under the latest version of Federal Standard No. 313 (including revisions adopted during the term of the contract).

(b) The offeror must list any hazardous material, as defined in paragraph (a) of this clause, to be delivered under this contract. The hazardous material shall be properly identified and include any applicable identification number, such as National Stock Number or

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Special Item Number. This information shall also be included on the Material Safety Data Sheet submitted under this contract.

Material (If none, insert None)	Identification No.
None	

(c) This list must be updated during performance of the contract whenever the Contractor determines that any other material to be delivered under this contract is hazardous.

(d) The apparently successful offeror agrees to submit, for each item as required prior to award, a Material Safety Data Sheet, meeting the requirements of 29 CFR 1910.1200(g) and the latest version of Federal Standard No. 313, for all hazardous material identified in paragraph (b) of this clause. Data shall be submitted in accordance with Federal Standard No. 313, whether or not the apparently successful offeror is the actual manufacturer of these items. Failure to submit the Material Safety Data Sheet prior to award may result in the apparently successful offeror being considered nonresponsible and ineligible for award.

(e) If, after award, there is a change in the composition of the item(s) or a revision to Federal Standard No. 313, which renders incomplete or inaccurate the data submitted under paragraph (d) of this clause, the Contractor shall promptly notify the Contracting Officer and resubmit the data.

(f) Neither the requirements of this clause nor any act or failure to act by the Government shall relieve the Contractor of any responsibility or liability for the safety of Government, Contractor, or subcontractor personnel or property.

(g) Nothing contained in this clause shall relieve the Contractor from complying with applicable Federal, State, and local laws, codes, ordinances, and regulations (including the obtaining of licenses and permits) in connection with hazardous material.

(h) The Governments rights in data furnished under this contract with respect to hazardous material are as follows:

(1) To use, duplicate and disclose any data to which this clause is applicable. The purposes of this right are to --

(i) Apprise personnel of the hazards to which they may be exposed in using, handling, packaging, transporting, or disposing of hazardous materials;

(ii) Obtain medical treatment for those affected by the material; and

(iii) Have others use, duplicate, and disclose the data for the Government for these purposes.

(2) To use, duplicate, and disclose data furnished under this clause, in accordance with subparagraph (h)(1) of this clause, in precedence over any other clause of this contract providing for rights in data.

(3) The Government is not precluded from using similar or identical data acquired from other sources.

(End of Clause)

I-130 52.223-11 OZONE-DEPLETING SUBSTANCES MAY/2001

(a) Definition. Ozone-depleting substance, as used in this clause, means any substance the Environmental Protection Agency designates in 40 CFR Part 82 as--

(1) Class I, including, but not limited to, chlorofluorocarbons, halons, carbon tetrachloride, and methyl chloroform; or

(2) Class II, including, but not limited to hydrochlorofluorocarbons.

(b) The Contractor shall label products which contain or are manufactured with ozone-depleting substances in the manner and to the extent required by 42 U.S.C. 7671j (b), (c), and (d) and 40 CFR Part 82, Subpart E, as follows:

Warning

Contains (or manufactured with, if applicable) *____N/A_____, a substance(s) which harm(s) public health and environment by destroying ozone in the upper atmosphere.

* The Contractor shall insert the name of the substance(s).

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(End of Clause)

I-131

52.230-2

COST ACCOUNTING STANDARDS

MAY/2012

(a) Unless the contract is exempt under 48 CFR 9903.201-1 and 9903.201-2, the provisions of 48 CFR Part 9903 are incorporated herein by reference and the Contractor, in connection with this contract, shall

(1) (CAS-covered Contracts Only) By submission of a Disclosure Statement, disclose in writing the Contractors cost accounting practices as required by 48 CFR 9903.202-1 through 9903.202-5, including methods of distinguishing direct costs from indirect costs and the basis used for allocating indirect costs. The practices disclosed for this contract shall be the same as the practices currently disclosed and applied on all other contracts and subcontracts being performed by the Contractor and which contain a Cost Accounting Standards (CAS) clause. If the Contractor has notified the Contracting Officer that the Disclosure Statement contains trade secrets and commercial or financial information which is privileged and confidential, the Disclosure Statement shall be protected and shall not be released outside of the Government.

(2) Follow consistently the Contractors cost accounting practices in accumulating and reporting contract performance cost data concerning this contract. If any change in cost accounting practices is made for the purposes of any contract or subcontract subject to CAS requirements, the change must be applied prospectively to this contract and the Disclosure Statement must be amended accordingly. If the contract price or cost allowance of this contract is affected by such changes, adjustment shall be made in accordance with paragraph (a)(4) or (a)(5) of this clause, as appropriate.

(3) Comply with all CAS, including any modifications and interpretations indicated thereto contained in 48 CFR Part 9904, in effect on the date of award of this contract or, if the Contractor has submitted certified cost or pricing data, on the date of final agreement on price as shown on the Contractors signed certificate of current cost or pricing data. The Contractor shall also comply with any CAS (or modifications to CAS) which hereafter become applicable to a contract or subcontract of the Contractor. Such compliance shall be required prospectively from the date of applicability to such contract or subcontract.

(4)(i) (Agree to an equitable adjustment as provided in the Changes clause of this contract if the contract cost is affected by a change which, pursuant to paragraph (a)(3) of this clause, the Contractor is required to make to the Contractors established cost accounting practices.

(ii) Negotiate with the Contracting Officer to determine the terms and conditions under which a change may be made to a cost accounting practice, other than a change made under other provisions of paragraph (a)(4) of this clause; provided that no agreement may be made under this provision that will increase costs paid by the United States.

(iii) When the parties agree to a change to a cost accounting practice, other than a change under subdivision (a)(4)(i) of this clause, negotiate an equitable adjustment as provided in the Changes clause of this contract.

(5) Agree to an adjustment of the contract price or cost allowance, as appropriate, if the Contractor or a subcontractor fails to comply with an applicable Cost Accounting Standard, or to follow any cost accounting practice consistently and such failure results in any increased costs paid by the United States. Such adjustment shall provide for recovery of the increased costs to the United States, together with interest thereon computed at the annual rate established under section 6621(a)(2) of the Internal Revenue Code of 1986 (26 U.S.C. 6621(a)(2)) for such period, from the time the payment by the United States was made to the time the adjustment is effected. In no case shall the Government recover costs greater than the increased cost to the Government, in the aggregate, on the relevant contracts subject to the price adjustment, unless the Contractor made a change in its cost accounting practices of which it was aware or should have been aware at the time of price negotiations and which it failed to disclose to the Government.

(b) If the parties fail to agree whether the Contractor or a subcontractor has complied with an applicable CAS in 48 CFR 9904 or a CAS rule or regulation in 48 CFR 9903 and as to any cost adjustment demanded by the United States, such failure to agree will constitute a dispute under the Contract Disputes Act (41 U.S.C. 601).

(c) The Contractor shall permit any authorized representatives of the Government to examine and make copies of any documents, papers, or records relating to compliance with the requirements of this clause.

(d) The Contractor shall include in all negotiated subcontracts which the Contractor enters into, the substance of this clause, except paragraph (b), and shall require such inclusion in all other subcontracts, of any tier, including the obligation to comply with all CAS in effect on the subcontractors award date or if the subcontractor has submitted certified cost or pricing data, on the date of final agreement on price as shown on the subcontractors signed Certificate of Current Cost or Pricing Data. If the subcontract is awarded to a business unit which pursuant to 48 CFR 9903.201-2 is subject to other types of CAS coverage, the substance of the applicable clause set forth in subsection 30.201-4 of the Federal Acquisition Regulation shall be inserted. This requirement shall apply only to negotiated subcontracts in excess of \$700,000, except that the requirement shall not apply to negotiated subcontracts otherwise exempt from the requirement to include a CAS clause as specified in 48 CFR 9903.201-1.

(End of clause)

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I-132 52.252-2 CLAUSES INCORPORATED BY REFERENCE FEB/1998

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this/these address:

<http://www.acq.osd.mil/dpap/dars/far.html> or <http://www.acq.osd.mil/dpap/dars/index.htm> or <http://farsite.hill.af.mil/VFAFARA.HTM>

(End of Clause)

I-133 52.252-6 AUTHORIZED DEVIATIONS IN CLAUSES APR/1984

(a) The use in this solicitation or contract of any Federal Acquisition Regulation (48 CFR Chapter 1) clause with an authorized deviation is indicated by the addition of (DEVIATION) after the date of the clause.

(b) The use in this solicitation or contract of any DoD FAR SUPPLEMENT (48 CFR 2) clause with an authorized deviation is indicated by the addition of (DEVIATION) after the name of the regulation.

(End of Clause)

I-134 252.223-7001 HAZARD WARNING LABELS DEC/1991

(a) Hazardous material, as used in this clause, is defined in the Hazardous Material Identification and Material Safety Data clause of this contract.

(b) The Contractor shall label the item package (unit container) of any hazardous material to be delivered under this contract in accordance with the Hazard Communication Standard (29 CFR 1910.1200 et seq). The Standard requires that the hazard warning label conform to the requirements of the standard unless the material is otherwise subject to the labeling requirements of one of the following statutes:

- (1) Federal Insecticide, Fungicide and Rodenticide Act;
- (2) Federal Food, Drug and Cosmetics Act;
- (3) Consumer Product Safety Act;
- (4) Federal Hazardous Substances Act; or
- (5) Federal Alcohol Administration Act.

(c) The Offeror shall list which hazardous material listed in the Hazardous Material Identification and Material Safety Data clause of this contract will be labeled in accordance with one of the Acts in paragraphs (b)(1) through (5) of this clause instead of the Hazard Communication Standard. Any hazardous material not listed will be interpreted to mean that a label is required in accordance with the Hazard Communication Standard.

MATERIAL (If None, Insert None.) ACT

_____ N/A _____

(d) The apparently successful Offeror agrees to submit, before award, a copy of the hazard warning label for all hazardous materials not listed in paragraph (c) of this clause. The Offeror shall submit the label with the Material Safety Data Sheet being furnished under the Hazardous Material Identification and Material Safety Data clause of this contract.

CONTINUATION SHEET	Reference No. of Document Being Continued PIIN/SIIN W56HZV-13-C-0358 MOD/AMD	Page 70 of 71
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Name of Offeror or Contractor: BAE SYSTEMS LAND & ARMAMENTS L.P.

(e) The Contractor shall also comply with MIL-STD-129, Marking for Shipment and Storage (including revisions adopted during the term of this contract).

(End of clause)

I-135 52.204-4009 MANDATORY USE OF CONTRACTOR TO GOVERNMENT ELECTRONIC COMMUNICATION MAR/2005

(a) All references in the contract to the submission of written documentation shall mean electronic submission. All electronic submissions shall be in the formats and media described in the website:

<http://contracting.tacom.army.mil/acqinfo/ebidnotice.htm>

(b) This shall include all written unclassified communications between the Government and the Contractor except contract awards and contract modifications which shall be posted on the internet. Return receipt shall be used if a commercial application is available. Classified information shall be handled in full accordance with the appropriate security requirements.

(c) In order to be contractually binding, all Government communications requiring a Contracting Officer signature must be sent from the Contracting Officer's e-mail address. The Contractor shall designate the personnel with signature authority who can contractually bind the contractor. All binding contractor communication shall be sent from this contractor e-mail address(es).

(d) Upon award, the Contractor shall provide the Contracting Officer with a list of e-mail addresses for all administrative and technical personnel assigned to this contract.

(e) Unless exempted by the Procuring Contracting Officer in writing, all unclassified written communication after contract award shall be transmitted electronically.

[End of Clause]

I-136 52.219-4070 PILOT MENTOR-PROTEGE PROGRAM APR/2006

(a) The Pilot Mentor-Protege Program does not apply to small business concerns.

(b) Utilization of the Pilot Mentor-Protege Program (hereafter referred to as the Program) is encouraged. Under the Program, eligible companies approved as mentor firms enter into a mentor-protege agreement with eligible protege firms. The goal of the program is to provide appropriate developmental assistance to enhance the capabilities of the protege firm. The Mentor firm may be eligible for cost reimbursement or credit against their applicable subcontracting goals.

(c) Mentor firms are encouraged to identify and select concerns that are defined as emerging small business concerns, small disadvantaged business, women-owned small business, HUBZone small business, service-disabled veteran-owned small business, veteran-owned small business or an eligible entity employing the severely disabled.

(d) Full details of the program are located at http://www.acq.osd.mil/sadbu/mentor_protege/

or

<http://sellingtoarmy.info/User/ShowPage.aspx?SectionID=12>

(e) For additional questions after reviewing the information provided, contact the Office of Small Business Programs serving your area.

[End of Clause]

CONTINUATION SHEET**Reference No. of Document Being Continued**

Page 71 of 71

PIIN/SIIN W56HZV-13-C-0358

MOD/AMD

Name of Offeror or Contractor: BAE SYSTEMS LAND & ARMAMENTS L.P.

SECTION J - LIST OF ATTACHMENTS

<u>List of Addenda</u>	<u>Title</u>	<u>Date</u>	<u>Number of Pages</u>	<u>Transmitted By</u>
Exhibit A	CONTRACT DATA REQUIREMENTS LIST (CDRL)			
Attachment 0001	PURCHASE DESCRIPTION ATPD 2150J 28-SEP-2007			
Attachment 0002	SECURITY CLASSIFICATION GUIDE AND DD FORM 254			EMAIL
Attachment 0003	GOVERNMENT FURNISHED MATERIAL, PROPERTY AND INFORMATION			
Attachment 0004	GFM DELIVERY SCHEDULE			
Attachment 0005	RESERVED			
Attachment 0006	APPROVED ENGINEERING CHANGE PROPOSALS			
Attachment 0007	COMPONENTS WHICH REQUIRE UID APPLICATION			
Attachment 0008	BASIC ISSUE ITEM/COMPONENTS OF THE END ITEM			
Attachment 0009	US ARMY PARTS INSTALLED OR STOWED POST- DD250			

Exhibit A
Revision 4, 24 July 2013

CONTRACT DATA REQUIREMENTS LIST Form Approval OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 440 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503. Please DO NOT RETURN your form to either these addresses. Send completed form to the Government Issuing Contracting Officer for the Contract/PR No. listed in Block E.

- A. CLIN: 0001
- B. EXHIBIT: A
- C. CATEGORY:
- D. SYSTEM/ITEM: M88A2
- E. CONTRACT/PR NO.: W56HZV-13-R-0249
- F. CONTRACTOR: BAE SYSTEMS

- 1. DATA ITEM NO. A001
- 2. TITLE OF DATA ITEM: MEETINGS AND MEETING MINUTES
- 3. SUBTITLE:
- 4. AUTHORITY (Date of Acq Document No.): N/A
- 5. CONTRACT REFERENCE: C. 3.1
- 6. REQUIRING OFFICE: SFAE-GSC-AAD
- 7. DD250 REQ: NO
- 8. APP CODE: N/A
- 9. DIST. STATEMENT REQUIRED: D
- 10. FREQUENCY: ASREQ
- 11. AS OF DATE: SEE BLK 16
- 12. DATE OF FIRST SUB:
- 13. DATE OF SUBS.SUB: SEE BLK 16
- 14. DISTRIBUTION A. ADDRESSEES: SFAE-GCS-AAD (LESLIE.O.LEWIS.CIV@MAIL.MIL), CCTA-AHP-A (LISA.M.JONES.CIV@MAIL.MIL), DCMA YORK (IRENE.JOHNSON@DCMA.MIL)

- B. COPIES DRAFT FINAL

1

- 15. TOTAL: 1
- 16. REMARKS: CONTRACTOR SHALL PROVIDE AGENDAS/MEETING MINUTES FOR JOINT GOVERNMENT-CONTRACTOR MEETINGS. CONTRACTOR SHALL SUBMIT ELECTRONICALLY, NO LATER THAN 10 WORKING DAYS AFTER EVENT OCCURS. CONTRACTOR FORMAT IS ACCEPTABLE. SEND ELECTRONIC COPY OF MEETING MINUTES TO ALL MEETING ATTENDEES.

-
- 1. DATA ITEM NO. A002
 - 2. TITLE OF DATA ITEM: REPORT OF SHIPPING ITEM AND PACKAGING DISCREPANCY
 - 3. SUBTITLE:
 - 4. AUTHORITY (Date of Acq Document No.) DI-MGMT-80503
 - 5. CONTRACT REFERENCE: C.12.4
 - 6. REQUIRING OFFICE: SFAE-GSC-AAD
 - 7. DD250 REQ: LT
 - 8. APP CODE: N/A
 - 9. DIST. STATEMENT REQUIRED: D
 - 10. FREQUENCY: ASREQ
 - 11. AS OF DATE: SEE BLK 16
 - 12. DATE OF FIRST SUB:
 - 13. DATE OF SUBS.SUB: SEE BLK 16
 - 14. DISTRIBUTION A. ADDRESSEES: SFAE-GCS-AAD (SHEREE.D.DEAN.CIV@MAIL.MIL), CCTA-AHP-A (LISA.M.JONES.CIV@MAIL.MIL)

14. DISTRIBUTION A. ADDRESSEES:
 B. COPIES DRAFT FINAL

MOD/AMD

ATT/EXH ID

PAGE 3

1

15. TOTAL: 1

16. REMARKS: FIRST SUBMISSION WITHIN 60 CALENDAR DAYS AFTER AWARD OF CONTRACT, AND MONTHLY THEREAFTER. REPORTS SHALL BE EMAILED TO THE FOLLOWING PERSONNEL: SHEREE.D.DEAN.CIV@MAIL.MIL, LISA.M.JONES.CIV@MAIL.MIL, AND LESLIE.O.LEWIS.CIV@MAIL.MIL.

1. DATA ITEM NO. A005
 2. TITLE OF DATA ITEM: CONFIGURATION MANAGEMENT (CM)
 3. SUBTITLE:
 4. AUTHORITY (Date of Acq Document No.) N/A
 5. CONTRACT REFERENCE: C.7.1
 6. REQUIRING OFFICE: SFAE-GCS-AAD
 7. DD250 REQ: LT
 8. APP CODE: A
 9. DIST. STATEMENT REQUIRED: D
 10. FREQUENCY: SEE BLK 16
 11. AS OF DATE: SEE BLK 16
 12. DATE OF FIRST SUB: See Blk 16
 13. DATE OF SUBS.SUB: See Blk 16
 14. DISTRIBUTION A. ADDRESSEES: SFAE-GCS-AAD (Matthew.M.Safron.civ@mail.mil)
 B. COPIES DRAFT FINAL

1

15. TOTAL: 1

16. REMARKS: The contractor shall update and deliver its CM plan to the Government. Any changes to the CM plan shall be submitted to the Government for comment, in the form of a revised CM plan. The contractor shall maintain and deliver a detailed flowchart that lays out the ECP process from problem investigation through Engineering Release Record (ERR) delivery. This is a one-time submittal, unless the ECP process is revised by the contractor, in which case a revised flowchart shall be delivered.

1. DATA ITEM NO. A006
 2. TITLE OF DATA ITEM: Hazardous Substance Waiver Request
 3. SUBTITLE:
 4. AUTHORITY (Date of Acq Document No.) DI-SAFT-81626
 5. CONTRACT REFERENCE: C.8.4.2
 6. REQUIRING OFFICE: SFAE-GSC-AAD
 7. DD250 REQ: NO
 8. APP CODE: A
 9. DIST. STATEMENT REQUIRED: D
 10. FREQUENCY: ASREQ
 11. AS OF DATE: SEE BLK 16
 12. DATE OF FIRST SUB: ASREQ
 13. DATE OF SUBS.SUB: ASREQ
 14. DISTRIBUTION A. ADDRESSEES: SFAE-GCS-AAD (CHRISTINA.L.BURROWS.CIV@MAIL.MIL)
 B. COPIES DRAFT FINAL

1

15. TOTAL: 1

16. REMARKS: Request for Waivers shall be submitted, as required, by the Contractor when Government approval is being requested to waive a contract requirement. The Government will review submitted waiver requests and provide approval or disapproval within 21 calendar days of receipt of the request.

The following information shall be included in the waiver request submission:

- a. Identification of the hazardous material being used.
- b. Location and quantity of parts/components that the hazardous material is used on.
- c. Detailed technical justification for use of the hazardous material and a summary of the alternatives that were considered.
- d. Program risk assessment
- e. Replacement plan

f. Health Hazard Assessment

BLK14: The Contractor shall prepare and submit CDRL in contractor's format in an editable Microsoft Office Suite.

1. DATA ITEM NO. A007
2. TITLE OF DATA ITEM: Hazard Tracking System
3. SUBTITLE:
4. AUTHORITY (Date of Acq Document No.) N/A
5. CONTRACT REFERENCE: C.8.5.1
6. REQUIRING OFFICE: SFAE-GSC-AAD
7. DD250 REQ: NO
8. APP CODE: A
9. DIST. STATEMENT REQUIRED: D
10. FREQUENCY: ASREQ
11. AS OF DATE: SEE BLK 16
12. DATE OF FIRST SUB: AS REQUIRED
13. DATE OF SUBS.SUB: AS REQUIRED
14. DISTRIBUTION A. ADDRESSEES: SFAE-GCS-AAD, CHRISTINA.L.BURROWS.CIV@MAIL.MIL
- B. COPIES DRAFT FINAL

1

15. TOTAL: 1

16. REMARKS:

BLK 4:

The contractor shall prepare a Hazard Tracking System (HTS) in accordance with MIL-STD-882E, Task 106 (Hazard Tracking System). The HTS shall include the findings from MIL-STD-882E Task 205 (System Hazard Analysis) and Task 210 (Environmental Hazard Analysis).

BLKS 10, 12, and 13:

The initial HTS shall be delivered by the contractor NLT 180 days after contract award.

The contractor shall update and submit the HTS annually in conjunction with the Environmental, Safety, and Occupational Health (ESOH) Working Group (WG) meetings.

The Government will provide comments within 30 calendar days after receipt of submission. Comments from the Government shall be addressed in an updated resubmission by the contractor within 14 calendar days of receipt of Government comments.

BLK 14: The contractor shall prepare and submit CDRL in contractor's format in an editable Microsoft Office Suite.

1. DATA ITEM NO. A008
2. TITLE OF DATA ITEM: Safety Assessment Report
3. SUBTITLE:
4. AUTHORITY (Date of Acq Document No.): DI-SAFT-80102B
5. CONTRACT REFERENCE: C.8.5.2
6. REQUIRING OFFICE: SFAE-GSC-AAD
7. DD250 REQ: NO
8. APP CODE: A
9. DIST. STATEMENT REQUIRED: D
10. FREQUENCY: ASREQ
11. AS OF DATE: N/A
12. DATE OF FIRST SUB: ASREQ
13. DATE OF SUBS.SUB: ASREQ
14. DISTRIBUTION A. ADDRESSEES: SFAE-GCS-AAD (TERRY.D.SMART.CIV@MAIL.MIL)
- B. COPIES DRAFT FINAL

1

15. TOTAL: 1

16. REMARKS:

BLKS 10, 12, 13:

The initial updated Safety Assessment Report(s) (SAR) shall be delivered NLT 90 days after contract award.

The SAR shall be updated and delivered annually.

The Government will provide comments within 30 calendar days after receipt of submission. Comments from the Government shall be addressed in an updated resubmission by the Contractor within 14 calendar days of receipt of government comments.

BLK 14: The Contractor shall prepare and submit CDRL in contractor's format in an editable Microsoft Office Suite.

-
1. DATA ITEM NO. A009
 2. TITLE OF DATA ITEM: SYSTEM SAFETY PROGRAM PLAN
 3. SUBTITLE:
 4. AUTHORITY (Date of Acq Document No.) DI-SAFT-81626
 5. CONTRACT REFERENCE: C.8.5.3
 6. REQUIRING OFFICE: SFAE-GSC-AAD
 7. DD250 REQ:: LT
 8. APP CODE: A
 9. DIST. STATEMENT REQUIRED: D
 10. FREQUENCY: ASREQ
 11. AS OF DATE: N/A
 12. DATE OF FIRST SUB: ASREQ
 13. DATE OF SUBS.SUB: ASREQ
 14. DISTRIBUTION A. ADDRESSEES: SFAE-GCS-AAD (TERRY.D.SMART.CIV@MAIL.MIL)
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1

15. TOTAL: 1

16. REMARKS:

BLKS 10, 12, 13: The initial updated System Safety Program Plan (SSPP) shall be delivered NLT 30 calendar days after contract award.

The SSPP shall be updated and delivered annually.

The Government will provide comments within 30 calendar days after receipt of submission. Comments from the Government shall be addressed in an updated resubmission by the Contractor within 14 calendar days of receipt of government comments.

BLK 14: The Contractor shall prepare and submit CDRL in contractor's format in an editable Microsoft Office Suite.

-
1. DATA ITEM NO. A010
 2. TITLE OF DATA ITEM: HEALTH HAZARD ANALYSIS (HHA)
 3. SUBTITLE:
 4. AUTHORITY (Date of Acq Document No.) DI-SAFT-81626
 5. CONTRACT REFERENCE: C.8.5.4
 6. REQUIRING OFFICE: SFAE-GSC-AAD
 7. DD250 REQ: LT
 8. APP CODE: A
 9. DIST. STATEMENT REQUIRED: D
 10. FREQUENCY: ASREQ
 11. AS OF DATE: N/A
 12. DATE OF FIRST SUB: ASREQ
 13. DATE OF SUBS.SUB: ASREQ
 14. DISTRIBUTION A. ADDRESSEES: SFAE-GCS-AAD, (TERRY.D.SMART.CIV@MAIL.MIL)

5. CONTRACT REFERENCE: C.8.6.4
6. REQUIRING OFFICE: SFAE-GSC-AAD
7. DD250 REQ:LT
8. APP CODE: A
9. DIST. STATEMENT REQUIRED: D
10. FREQUENCY: ASREQ
11. AS OF DATE: N/A
12. DATE OF FIRST SUB: ASREQ
13. DATE OF SUBS.SUB: ASREQ
14. DISTRIBUTION A. ADDRESSEES: SFAE-GCS-AAD, (TERRY.D.SMART.CIV@MAIL.MIL)
B. COPIES DRAFT FINAL

1

15. TOTAL: 1
16. REMARKS:

BLK 4:

The Report shall contain the following information:

1. List of Critical Safety Items (CSIs) identified, along with critical characteristics of the items
2. Item nomenclature and part numbers

BLKS 10, 12, and 13:

The updated Critical Safety Item, Characteristic and Critical Defect Report shall be delivered NLT 30 days after contract award.

The Critical Safety Item, Characteristic and Critical Defect Report shall be updated and delivered annually.

The Government will provide comments within 30 calendar days after receipt of submission. Comments from the Government shall be addressed in an updated resubmission by the Contractor within 14 calendar days of receipt of government comments.

BLK 14: The Contractor shall prepare and submit CDRL in contractor's format in an editable Microsoft Office Suite.

1. DATA ITEM NO. A013
2. TITLE OF DATA ITEM: CORROSION PREVENTION AND CONTROL PLAN (CPCP)
3. SUBTITLE:
4. AUTHORITY (Date of Acq Document No.) N/A
5. CONTRACT REFERENCE: C.9.3
6. REQUIRING OFFICE: SFAE-GSC-AAD
7. DD250 REQ: LT
8. APP CODE: A
9. DIST. STATEMENT REQUIRED: D
10. FREQUENCY: ASREQ
11. AS OF DATE: N/A
12. DATE OF FIRST SUB: ASREQ
13. DATE OF SUBS.SUB: ASREQ
14. DISTRIBUTION A. ADDRESSEES: SFAE-GCS-AAD (Christina.L.Burrows.civ@mail.mil)
B. COPIES DRAFT FINAL

1

15. TOTAL: 1
16. REMARKS:

BLK 4: The Contractor CPCP shall consist of the following:

1. Specify the design and maintenance corrosion control methods that shall be employed on the system.
2. Materials, designs, and other engineering considerations which minimize the impact of the environmental conditions on the system.
3. Identify all methods of packaging, preservation, and storage to be used for the system. This shall include materials and methods used, as well as the need for any specialized equipment or facilities for application or storage.
4. Identify procedures for inspection and prevention of corrosion during system service life.
5. Identify maintenance procedures, materials, facilities/equipment, manpower, and other associated life-cycle costs. This shall include the costs needed to construct any specialized facilities or equipment required by the contractor to repair/rebuild the weapon

systems.

6. Guidelines of procedures and materials that are available for corrosion correction. The following elements shall be considered in the guidelines:

- a. Painted surfaces Procedures shall be included to minimize corrosion either with a temporary treatment or complete repair or replacement of coatings and finishes.
- b. Moving Metal Surfaces (Sliding, Hinged, or Pivoting) Procedures shall be included to clean and lubricate moving surfaces.
- c. Electrical Connectors Procedures shall be included to protect electrical connectors from corrosive environments such as airborne salts or excessive humidity.
- d. Crevices, Joints and Seams Procedures shall be included to protect crevice areas (e.g., intermittently welded joints, the interface edge of access panels, and gaskets) from corrosion due to trapped moisture and poultice.
- e. Damaged Sealants Procedures shall be included to repair damaged sealant to prevent crevice corrosion and potential water leaks.
- f. Damaged Seals or Gaskets Procedures shall be included to identify and replace damaged seals and gaskets to prevent crevice and bearing corrosion and potential water leaks.
- g. Hydraulic, Brake and Fuel Line Fittings Procedures shall be included to ensure that fittings do not leak fluid and that outside water does not migrate into the threads of the fittings, causing corrosion
- h. Threaded Fasteners and Holes Procedures shall be included to properly seal fastener threads to prevent thread corrosion when fasteners are replaced.

7. Address location-specific deterioration on the system. This can include loss of coating or damage to the corrosion protection system in areas prone to impact, abrasion, and wear. The corrosion protection of these areas shall be addressed with requirements for specific materials or methods.

8. List, by area, component, subassembly, the substrate materials used on the system. (Optional if included in the Indentured Bill of Materials (IBOM)/ABCL)

9. Identify and match to the service life of the system or component inherently corrosion resistant materials, such as aluminum and composites, or identify the application or corrosion protection technologies, such as galvanizing. The used of non-standard or less corrosion resistant materials shall be identified with supporting rationale.

10. List all proposed sealant materials, methods of application, and quality assurance test procedures.

11. Document procedures for cleaning and surface preparation necessary to meet the corrosion control requirements.

12. Document the frequency and location of Dry Film Thickness (DFT) readings.

13. Document the paint adhesion test results.

14. Document the lessons learned from development of the CPCP by:

- a. Providing detailed information on all lessons learned regarding the CPCP development, implementation, and results
- b. Providing a summary of the item corrosion reports

15. Document the process and test results for the coating systems

BLKS 10, 12 and 13: The CPCP shall be submitted NLT 90 days after contract award.

BLKS 10 and 13: The Government will provide comments within 30 calendar days after receipt of submission. Comments from the Government shall be addressed in an updated resubmission by the Contractor within 14 calendar days of receipt of government comments.

BLK 14: The Contractor shall prepare and submit CDRL in contractor's format in an editable Microsoft Office Suite.

-
1. DATA ITEM NO. A014
 2. TITLE OF DATA ITEM: FAILURE ANALYSIS AND CORRECTIVE ACTION
REPORT (FACAR)
 3. SUBTITLE: Product Quality Deficiency Reports Customer/User Generated
 4. AUTHORITY (Date of Acq Document No.) DI-SESS-81315B
 5. CONTRACT REFERENCE: C.10.3.1
 6. REQUIRING OFFICE: SFAE-GCS-AAD
 7. DD250 REQ: LT
 8. APP CODE: N/A
 9. DIST. STATEMENT REQUIRED: D
 10. FREQUENCY: ASREQ
 11. AS OF DATE: ASREQ
 12. DATE OF FIRST SUB: SEE BLK 16
 13. DATE OF SUBS.SUB: SEE BLK 16
 14. DISTRIBUTION A. ADDRESSEES: SFAE-GCS-AAD (RICKEY.D.WEBB.CIV@MAIL.MIL)
 - B. COPIES DRAFT FINAL

15. TOTAL:

16. REMARKS: Final response is due within 30 calendar days after receipt of Product Quality Deficiency Reports (PQDRs). For category 1 PQDRs, an interim response is due within 72 hours after receipt. See PQDR, SF 368, for definition of categories. Submit responses to delegated DCMA office and PM ABCT Quality Assurance Team.

1. DATA ITEM NO. A015
2. TITLE OF DATA ITEM: FINAL INSPECTION RECORD (FIR)
3. SUBTITLE:
4. AUTHORITY (Date of Acq Document No.) DI-QCIC-81068
5. CONTRACT REFERENCE: C.10.2.1
6. REQUIRING OFFICE: SFAE-GCS-AAD
7. DD250 REQ: LT
8. APP CODE: A
9. DIST. STATEMENT REQUIRED: D
10. FREQUENCY: ASREQ
11. AS OF DATE: ASREQ
12. DATE OF FIRST SUB: SEE BLK 16
13. DATE OF SUBS.SUB: SEE BLK 16
14. DISTRIBUTION A. ADDRESSEES: SFAE-GCS-AAD (mailto:RICKEY.D.WEBB.CIV@MAIL.MIL), DCMA
- B. COPIES DRAFT FINAL

2

15. TOTAL:

16. REMARKS: A contractor validated Final Inspection Record (FIR) shall be submitted for Government (DCMA QAR) approval 60 days after contract award. The use of a joint Contractor-Government team is recommended throughout the validation effort.

An updated/revised current M88A2 FIR shall be used for validation and approval under this contract.

The contractor shall update the FIR throughout the contract period as requirements or vehicle configuration changes occur. All revisions/updates require Government approval.

The FIR shall be organized so as to be compatible with assemblies, installation, and end item performance and acceptance. The FIR shall contain all examinations and tests that are performed on a single unit during its manufacture and final inspection. The FIR shall list each vehicle characteristic or function to be inspected from the vehicles PD/PS. At a minimum, the FIR shall have blocks for the Contractor's inspector initials indicating that each characteristic or function was inspected and either accepted or rejected, and another block for re-inspection and acceptance of any rejected characteristic or function. Final review and acceptability shall be indicated by a signature block containing the full name and title of the company official rendering approval. The FIR shall be updated to reflect all engineering and manufacturing changes that impact the FIR, during the entire contract period. The Contractor shall submit the completed and certified copy of the FIR to the Government Inspector with each item inspected and offered for acceptance by the Government.

1. DATA ITEM NO. A016
 2. TITLE OF DATA ITEM: TECHNICAL INSPECTION REPORT
 3. SUBTITLE: M88A1 Hull Inspection
 4. AUTHORITY (Date of Acq Document No.) DI-MISC-80711A
 5. CONTRACT REFERENCE: C.14
 6. REQUIRING OFFICE: ABCT-M88
 7. DD250 REQ: N/A
 8. APP CODE: A
 9. DIST. STATEMENT REQUIRED: A
 10. FREQUENCY: ONE/R
 11. AS OF DATE: ASREQ
 12. DATE OF FIRST SUB: SEE BLK 16
 13. DATE OF SUBS.SUB: SEE BLK 16
 14. DISTRIBUTION: DRAFT FINAL A. ADDRESSEES: SFAE-GCS-ABCT-
- | | | | | | | | | | |
|----|---|--------------|---|---|---|--|--|--|--|
| LD | 1 | | 1 | | | | | | |
| | | SFAE-GCS-AMM | 1 | 1 | | | | | |
| | | AMSTA-LCG-AR | | | 1 | | | | |

15. TOTAL: 3

16. REMARKS:

Contractor shall provide the inspection report no later than 30 days after completing the vehicle inspection. The Government will provide comments to the inspection report to the contractor within 10 days of receipt. The contractor shall submit the final inspection report within 5 days of receipt of government comments

1. DATA ITEM NO. A017
2. TITLE OF DATA ITEM: FAT REPORT
3. SUBTITLE:
4. AUTHORITY (Date of Acq Document No.) DI-MISC-80711A
5. CONTRACT REFERENCE: FAR 52.209-3
6. REQUIRING OFFICE: ABCT-M88
7. DD250 REQ: A
8. APP CODE: N/A
9. DIST. STATEMENT REQUIRED: A
10. FREQUENCY: ONE/R
11. AS OF DATE: ASREQ
12. DATE OF FIRST SUB: 120 days
13. DATE OF SUBS.SUB: N/A
14. DISTRIBUTION:

			DRAFT	FINAL	A. ADDRESSEES: SFAE-GCS-ABCT-
LD	1	1			
		SFAE-GCS-AMM	1	1	
		AMSTA-LCG-AR		1	

15. TOTAL: 3

16. REMARKS:

If First article test is required in accordance with E.1 "Ballistics Testing", then a FAT report shall be submitted as described in FAR 52.209-3. Submittal is 120 days after FAT begins

ATTACHMENT 0001

ATPD 2150J- REVISION J - 28 September 2007
Superseding ATPD 2150H - REVISION H - 28 November 2001

PURCHASE DESCRIPTION

IMPROVED RECOVERY VEHICLE, FULL-TRACKED

This purchase description is approved for use by U.S. Army Tank-Automotive Command, and Program Executive Office, Armored Systems Modernization, and is available for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This purchase description covers the requirements for the M88A2 Improved Recovery Vehicle (HERCULES). The HERCULES, an enhanced version of the M88A1, is an armored, full tracked recovery vehicle capable of safely towing, recovering (winching and lifting), and evacuating the Main Battle Tank (MBT) and other heavy combat systems.

2. APPLICABLE DOCUMENTS

2.1 Government documents

2.1.1 Specifications, Standards, and Handbooks. The following specifications, standards and handbooks form a part of this purchase description to the extent specified herein. Unless otherwise specified, the issue of these documents shall be those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation.

BENEFICIAL COMMENTS (RECOMMENDATIONS, ADDITIONS, DELETIONS) AND ANY PERTINENT DATA WHICH MAY BE OF USE IN IMPROVING THIS DOCUMENT SHOULD BE ADDRESSED TO: U.S. ARMY TANK-AUTOMOTIVE COMMAND, ATTN: AMSTA-TR, WARREN, MI 48397-5000, BY USING A LETTER.

AMSC N/A

FSC 2350

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

SPECIFICATIONS

ATPD 2150J

The following are Commercial Item Descriptions (CID) and Commercial Specifications which the contractor shall comply with as specified in this Purchase Description.

A-A-52557	Fuel Oil, Diesel
A-A-50271	Plates, Identification, Instructions and Marking, Blank
A-A-52495	Sealing Compound, Non-Curing, Polybutene
ISO 8402 or ASQC A8402	Quality Assurance Terms and Definitions
ISO 10012 or ANSI/NCSL Z540-1	Calibration Systems Requirements
ASTM D2000	Ozone Resistance

The following specifications are Performance Specifications, and standards which do not require waivers, which the contractor shall comply with as specified in this Purchase Description.

MIL-PRF-62048C Air Cleaners, Automotive: Heavy Duty, Dry Type (for Internal Combustion Engines)

MIL-PRF-62195 Recovery Vehicle, Full-Tracked: Medium, M88A1 New and Overhaul

MIL-PRF-83282 Hydraulic Fluid, Fire Resistant, Synthetic Hydrocarbon Base,
Aircraft, Metric, NATO Code Number H-537

MIL-PRF-2104 Lubrication Oil, Internal Combustion Engines, Synthetic Base

RR-W-410 Wire Rope and Strand

MIL-STD-130 Identification Marking of U.S. Military Property

MIL-STD-209 Slings and Tie-down Provisions for Lifting and Tying Down
Military Equipment

MIL-STD-882 System Safety Program Requirements

MIL-STD-1179 Lamps, Reflectors and Associated Signaling Equipment for
Military Vehicle

MIL-STD-1180 Safety Standards for Military Ground Vehicles

MIL-STD-1366 Transportability Criteria

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MIL-STD-642 Identification Marking of Combat and Tactical Transport Vehicles

The following Federal and Military Specifications are provided for reference
/guidance only. Commercial equivalents are acceptable and should be indicated in the contractors proposal when used.

MIL-DTL-83133 Turbine Fuels, Aviation, Kerosine Types, Grade JP-8

MIL-STD-810 Environmental Test Methods and Engineering Guidelines

MIL-STD-889 Dissimilar Metals

MIL-STD-1472 Human Engineering Design Criteria for Military Systems,
Equipment and Facilities

MIL-STD-1474 Noise Limits for Army Material

MIL-HDBK-1791 Designing for Internal Aerial Delivery in Fixed Wing
Aircraft

MIL-STD-461 Electromagnetic Emission and Susceptibility Requirements
for the Control of Electromagnetic Interference

The following Military Specifications are mandatory because they have been requested by the contractor.

MIL-A-46100 Armor Plate, Steel, Wrought, High-Hardness

MIL-A-12560 Armor Plate, Steel Wrought Homogeneous

MIL-A-11356 Armor Steel, Cast Homogenous Combat Vehicle

(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the

Standardization Documents Order Desk, Bldg 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094).

2.1.2 Other Government Documents, Drawings, and Publications. The following government documents, drawings, and publications form a part of this specification to the extent specified herein.

Unless otherwise specified, the issues shall be those in effect on the date of the solicitation.

- DH 1-11 - AFSC Design Handbook 1-11 General
Air Transportability
- CR-82-588-003 - STE/ICE-R Design Guide for Vehicle
Revision/Assembly
- 29 Code of Federal - Occupational Safety and Health Act
Regulations (CFR)

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DRAWINGS ARMY

- 12258941 - Connector, Receptacle, Electrical (54 Pin)
- 12296626 - Decal
- 12369001 - Paint Systems for Aluminum, Exterior Surfaces,
Green 383
- 12369002 - Paint Systems for Aluminum, Interior Surfaces,
White
- 12369003 - Paint Systems for Steel, Exterior Surfaces,
Green 383
- 12369004 - Paint Systems for Steel, Interior Surfaces,
White

PURCHASE DESCRIPTIONS

- ARMY ATPD 2132 - 70 Ton Heavy Equipment Transporter
Systems

ARMY REGULATIONS (AR)

- AR 70-38 - Research, Development, Test and Evaluation
Materiel for Extreme Climatic Conditions
- AR 611-201 - Enlisted Career Management Field and Military
Occupational Specialists

DEPARTMENT OF TRANSPORTATION

Federal Motor Vehicle Safety Standards (FMVSS)102

(Application for copies shall be addressed to the Superintendent of Documents, Government Printing Office, Washington D.C. 20402).

(Copies of specifications, standards, handbooks, drawings, publications, and other Government documents required by the contractors in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting activity).

2.2 Non-Government Publications. The following document(s) form a part of this purchase description to the extent specified herein.

Unless otherwise specified, the issues of the documents which are DoD adopted shall be those listed in the issue of the DODISS specified in the solicitation.

Unless otherwise specified, the issue of documents not listed in the DODISS shall be the nongovernment documents which are current on the date of the solicitation.

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AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D2000 Standard Classification System for Rubber Products in

Automotive Applications

(Applications for copies should be addressed to American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103).

AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS
(ACGIH)

Threshold Limit Values and Biological Exposure Indices for 1989-1990

(Application for copies should be addressed to ACGIH, 1014 Broadway, Cincinnati, OH 45202).

NATO INTERNATIONAL STAFF-DEFENSE SUPPORT DIVISION

4195 NATO Standard Engine Laboratory Test (Diesel and
Gasoline Engines and Gas Turbine Engines) -AEP-5

4101 Towing Attachments

(Applications for copies of NATO publications should be addressed to NATO, MIL Agency for Standardization (MAS), 35 Chesam Place, London SW1, England).

CATERPILLAR

TO-4 Transmission & Drive Train Fluid Requirements

Applications for copies of Caterpillar publications should be addressed to
PEO GCSS, ATTN: SFAE-GCSS-W-CMS-H, Warren, MI 48397-5000.

2.3 Order of Precedence. All references to the fielded M88A1 in this purchase description refer to MIL-PRF-62195. In the event of a conflict between the text of this purchase description and the references cited herein, the text of this purchase description shall take precedence. Nothing in this purchase description, however, shall supersede applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 Materials. Materials shall be as specified herein, in the standards or approved specifications, and drawings listed or referred to in the currently available Technical Data Package(s) as appropriate.
(see 4.1.8).

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3.1.1 Material Deterioration Prevention and Control. The vehicle shall be fabricated from compatible materials, inherently corrosion resistant or treated to provide protection for the useful life of the vehicle against the various forms of corrosion and deterioration that may be encountered in any of the applicable operating and storage environments to which the vehicle may be exposed.

3.1.2 Dissimilar Metals. Dissimilar metals shall not be used in intimate contact with each other unless protected against galvanic corrosion. MIL-STD-889 can be used as reference/guidance in identifying dissimilar metals and methods of protection.

3.1.3 Identification of Materials and Finishes. The contractor shall identify the specific material, material finish or treatment for use with component and subcomponent, and shall make information available upon request to the contracting officer or designated representative.

3.1.4 Qualified Products. With respect to all assemblies and component parts requiring product qualification in accordance with the pertinent specifications or drawings listed herein, the contractor shall be responsible for using only those products which are listed by part or drawing number as Qualified Products List(s) (QPL) items on the QPL in the referenced specification or which have been approved for inclusion on such lists.

3.1.5 Intentionally not used.

3.1.6 Wire Ropes. All wire rope shall conform to applicable drawings and meet or exceed the performance requirements of RR-W-410. Only improved or extra improved plow steel with wire strand or independent wire rope center (IWRC) wire ropes shall be used.

3.1.7 Ozone Resistance. All new rubber components which are under tension or which may be flexed shall be ozone resistant as specified in ASTM D2000.

3.1.8 Sealer. Sealer conforming to A-A-52495 or other approved specifications shall be used for sealing of vehicle.

3.2 MANPRINT. The refurbishment process shall include the following MANPRINT considerations:

3.2.1 Human Factors Engineering (HFE). The contractor shall incorporate human factors engineering into the design of the vehicle. MIL-STD-1472 and MIL-STD-1474 are provided as reference/guidance.

3.2.1.1 Soldier-Machine Interface. The resulting soldier-machine interface shall facilitate safe and effective operation/maintenance for the full range of user personnel (5th percentile soldier through 95th percentile soldier) while wearing the full range of Army protective garments.

3.2.1.2 Military Occupational Specialty (MOS). Special emphasis shall be given to the strength capabilities of the user, as described under their
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specific MOS in AR 611-201. Proper consideration shall be given to reduced strength capabilities due to fatigue, wounds, etc.

3.2.1.3 Crew Environmental Factors. Crew environmental factors such as heating, ventilation, lighting, noise, vibration and shock, shall not degrade mission or personnel performance.

3.2.2 Safety. The vehicle subsystems and components shall have no hazards with a risk level greater than "Serious" as specified in TABLES III, I and II of MIL-STD-882E; including heat deflection during rigging/towing operations; and be IAW applicable health, safety and environmental provisions of MIL-STD-882 and MILSTD1180 (see 4.2.2).

3.2.3 Health Hazard. The system shall not present any health problems with a risk level greater than "Serious" as specified in TABLES III, I and II of MIL-STD-882E.

3.2.4 Manpower. The system shall not present any problems pertaining to the capability of operation, maintenance and training by current and projected Army personnel resources.

3.2.5 Personnel. The system shall provide for efficient and effective operation and maintenance by properly designated Military Occupational Specialties (MOS) personnel.

3.3 Design and Construction.

3.3.1 Special Kits. When specified, kits shall be furnished as follows:

3.3.1.1 Smoke Grenade Launcher. An adaptor kit shall be provided to permit the M239 Grenade Launcher system to be mounted on the vehicle. Mounting brackets for the launchers shall result in the following launcher tube alignments:

a. Vertical: Tubes shall be aligned 25 degrees above horizontal.

b. Horizontal: The inside tubes of each launcher shall be aligned such that their center lines shall be separated by 16.5 feet at a distance of 99 feet from the front of the vehicle and centered about the center line of the vehicle.

3.3.1.2 Intentionally not used.

3.3.1.3 Nuclear, Biological, Chemical (NBC). The vehicle shall have an NBC defensive protection system that provides each crew member and passenger station with a primary source of clean, contaminant-free air to aid in crew survivability on the battlefield. There shall be three crew member and four passenger (crew from disabled vehicle) stations. The required airflow at each of the seven stations shall be 3.0 to 4.5 standard cubic feet per minute (scfm) at a pressure of 2.1 to 4.5 inches water gauge (iwg) for protective masks used by personnel in the vehicle. For operation in ambient temperatures between -25 F (2 F) to 40 F, warm up the vehicle interior with the personnel heater in the high mode for 45 minutes. After an

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additional 15 minutes, the air supply to each of the three crew stations (i.e., commander, mechanic, driver) shall be a minimum of 60 F at a minimum airflow of 3.0 scfm.

3.3.1.3.1 NBC Decontamination. Provisions for safe and proper stowage of one (1) Army standard M13 Decontamination Apparatus, Portable (DAP) shall be required.

3.3.1.4 Smoke Generation. The vehicle shall generate smoke in volume through the vehicle's engine exhaust outlet on demand, while using DF2 fuel. Smoke generation shall not be required when the vehicle is fueled with JP8.

3.3.1.5 Deep Water Fording Kit. When installed on the vehicle, the deep water fording kit shall assure vehicle performance as specified in 3.4.11.4.

3.3.2 Propulsion System.

3.3.2.1 Engine. A diesel engine with integral cooling system shall be provided. Engine power and speed shall be sufficient to meet the requirements specified herein.

a. The engine shall be in accordance with NATO STANAG 4195.

b. The engine shall operate on all fuels in A-A-52557 in the indicated temperature ranges and with JP-8 over the entire operating range of the vehicle. The MIL-DTL-83133 specification for JP-8 is provided for reference/guidance only. Commercial grade Jet A or Jet A-1 fuels per ASTM D 1655 are acceptable substitutes for JP-8 fuel required for component qualification testing. However JP-8+100 is prohibited from use because it will cause degradation of injection pump head plunger and nozzles, unacceptable pressure differential increases across fuel filter system, and prevent fuel separator coalescer from removing water from fuel. The engine shall be equipped with a fuel-water separator and a fuel filtration system employing existing U.S. Army approved service parts to the maximum extent practical.

c. All initial fills and manufacturer's recommended refills of engine and transmission lubricants shall conform to Annex I.

d. The engine shall be fully capable of cold starting down to minus 25 degrees Fahrenheit.

e. Engine and accessory controls shall be mechanical or electrical (solid state) and have the capability to withstand vibration shock and electromagnetic effects. Paragraph 5-Detailed Requirements of MIL-STD-461 for tests RE102 (Radiated Emissions, Electric Field, when subjected to a frequency range of 0.15 MHz to 1,000 MHz) and RS103 (Radiated Susceptibility, Electric Field, frequency range of 2 MHz to 10 GHz) of Table IV-Emission and Susceptibility Requirements and Table V-Requirements Matrix are provided as reference. MIL-STD-810 is also provided as reference/guidance.

f. The engine shall have an integrally mounted cooling system that provides complete engine/transmission cooling. It shall permit engine only ground hop

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operation without damage to the engine. Engine and transmission oil temperatures shall be controlled to prevent overcooling at temperatures down to minus 25 degrees Fahrenheit and during engine warm up.

g. The engine shall have an integrally mounted smoke generating system which is activated in the engine exhaust system and provides white smoke. This system shall be activated by the driver and controlled to provide white smoke at a minimum of fast idle conditions (see 3.3.1.4).

h. The diesel engine with the intake and exhaust ducted to atmosphere shall operate for a period of 30 minutes while submerged in water to a depth of 56 inches, and after said operation and while submerged shall restart after being stopped for 3 minutes and shall then operate satisfactorily for an additional 15 minutes. The basic engine shall operate with field excitation only to the alternator. The alternator shall operate at no load. A maximum of 2% water contamination by volume in the lubricating oil is permissible after being subjected to the above.

3.3.2.2 Transmission and Final Drives. The transmission shall be compatible and matched to the engine. The transmission and final drives shall be sufficient to meet the requirements specified in 3.3, 3.4, and Federal Motor Vehicle Safety Standards (FMVSS)102.

3.3.2.3 Air Cleaner. The air flow restriction across a dirty air cleaner shall not exceed 20 in. of water. The total airflow restriction of the air intake system (dirty air cleaner plus all ducting) shall be limited to a maximum of 36 in. of water when measured at the engine turbo charger intake. Element replacement time shall not exceed 30 minutes.

3.3.3 Mechanical Transmission (Power Takeoff [PTO]). The PTO provided for the hydraulic pump shall be declutched from the main engine when not in use. This PTO shall provide the necessary power and speed to operate the vehicle hydraulic system in such a manner as to meet the specified requirements in 3.4.14 through 3.4.19.

3.3.4 Fuel System. During vehicle operation, the fuel system shall maintain fuel supply to the engine in all operations with fuel tanks both full and 1/4 full when ascending and descending a 60 percent grade in forward and reverse gear, and when the vehicle is being operated on a 30 percent side slope, with each side of the vehicle up slope.

3.3.4.1 Fuel Tanks. The fuel tanks shall be clean, and free of rust, moisture, scale, welding spatter and slag. Fuel tanks shall be constructed to allow filling at minimum rate of 50 gallons of fuel per minute (gpm).

3.3.4.2 Emergency Fuel Shut-Off. The engine shall have an emergency fuel shut-off. When the engine is operating at 1000 revolutions per minute (rpm) and the transmission is in neutral position, the engine shall stop within 10 seconds from the time the manual shut-off handle/switch is actuated.

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3.3.4.3 Fuel Transfer System. A fuel transfer system shall be provided. The fuel transfer system shall transfer fuel from the vehicle fuel tank(s) to a remote receptacle at a rate of not less than 25 gpm. Also, the system shall transfer fuel from a remote supply to the vehicle's fuel tanks at a rate of not less than 15 gpm. The system shall be operable by one person.

3.3.4.4 Fuel Lines. Provisions shall be made to ensure the internal cleanliness of fuel lines and connections prior to initial fueling of the vehicle. There shall be no evidence of fuel leakage from fuel lines and connections throughout the entire fuel system before and after all operating conditions.

3.3.4.5 In-Tank Fuel Pump. The pump shall produce a minimum pressure of 5 psi at the engine end of the fuel lines disconnect, under no-flow conditions.

3.3.4.6 Heater, Fuel Feed. With the fuel pump and the heater pump operating, the vehicle fuel system shall produce a minimum pressure of 7 psi at the outlet of the heater pump line.

3.3.4.7 Throttle Linkage. With throttle linkage attached to engine and throttle pedal depressed to within 3/16 inch of the pedal stop, the throttle shall be at full throttle position.

3.3.5 Hydraulic Reservoir and Lines. The reservoir, lines and connections shall be free from leakage under all vehicle operating conditions.

3.3.6 Exhaust Gases/Toxic Fumes. Concentration of toxic fumes in the crew compartment shall be minimized. Under no circumstances shall personnel be exposed to concentrations of Carbon Monoxide (CO) in excess of values as specified in MIL-STD- 1472 which shall result in Carboxyhemoglobin (COHB) levels in their blood greater than the 10 percent system performance limit. The more stringent of Occupational Safety and Health Act (29 CFR part 1910.1000) or American Conference of Governmental Industrial Hygienists (Threshold Limit Values and Biological Exposure Indices for 1989/1990) exposure limits shall be employed to reduce personnel exposure to other engine exhaust gases such as aldehydes (acrolein and formaldehyde), sulfur compounds and oxides of nitrogen (NOX). NOX is a term used to describe all compounds containing the oxides of nitrogen. These values shall not be exceeded under any condition of vehicle operation.

3.3.7 Night Vision Capability. The vehicle shall possess, as a minimum, a driver night vision device (AN-VVS-2) mounting and interface capability equivalent to the fielded M88A1. The bottom edge of the commander's field of view shall encompass the edge of the roof line while looking over the front of the vehicle.

3.3.8 Parts Interchangeability. Vehicle design and construction shall be such that any given item of one vehicle is functionally and physically identical

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and replaceable with the same item of another vehicle, except for normally serialized, remanufactured GFM. No modification of interchangeable items or mating parts shall be required. The resulting assembly shall meet all performance requirements.

3.3.9 Fire Suppression System.

3.3.9.1 Fixed. The fixed fire extinguisher system, when installed, shall be readily accessible for servicing and operation internally and externally. In ambient air temperature of 78 degree F, the maximum effort required to discharge the system, either internally or externally, shall be not more than 35 pounds.

3.3.9.2 Portable. The portable fire extinguisher, when installed in accordance with applicable drawings, shall be readily accessible for servicing and use.

3.3.9.3 Reserved.

3.3.10 Electrical System.

3.3.10.1 Main Engine Generator Voltage. With the main engine operating at 1000 rpm, the solid state voltage regulator shall control the generator output voltage between 27.3 and 28.7 V DC under all conditions of vehicle operation.

3.3.10.2 Intentionally Not Used.

3.3.10.3 Night Vision Device Voltage Supply. The voltage output at the night viewer (AN-VVS-2) connector shall be essentially equivalent to the battery output voltage.

3.3.10.4 Diagnostic Connector Assembly (DCA). The vehicle shall contain a Diagnostic Connector Assembly (DCA), an associated wiring harness, and hardware for troubleshooting and maintenance of the main engine. The DCA shall conform with the requirements of Report Number CR-82-588-003, Revision 1, the design guide for vehicle diagnostic connectors assemblies, and the DCA shall conform with the requirements of drawing 12258941. The DCA shall be located in the crew compartment near the operators station and shall provide convenient interface with diagnostic/test equipment. The DCA, its associated wiring harness, connectors, transducers and hardware shall provide the following:

- 1) separate wire runs for the vehicle test meter (VTM) power,
- 2) engine/starter electrical ground,
- 3) alternator (generator) electrical ground and appropriate resistors,
- 4) DCA indicator
- 5) no sensor resistors,
- 6) all wiring and hardware to perform the measurements/tests designated in Annex C of this document
- 7) the associated hardware shall conform with the standard DCA components listing in Annex B of this document

Additionally, the vehicle shall provide the capability to inhibit main engine starting while cranking (such as fuel shut-off method).

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3.3.10.5 Lighting System. The vehicle exterior shall be equipped with light sources and associated equipment IAW MIL-STD-1179. The emission of any vehicle interior or exterior light source, which may be illuminated (including warning lights) in the blackout mode, shall be limited to the visible spectrum (380 to 700 nanometers). No energy shall be emitted in the 700 to 1200 nanometer portion of the Electromagnetic (EM) spectrum and emission peaks shall not exceed 1% of the peak emission in the visible spectrum. The use of light emitting diodes which meet the emission parameters of MILSTD- 1179 and this purchase description is acceptable.

3.3.11 Stowed Equipment. All components, Support Items, Troop Installed and/or Authorized Items (to include M13 Decontamination Apparatus, Portable (DAP)) shall be stowed (combat loaded) on the vehicle. The contractor shall assure that stowage shall not interfere with the operation of vehicle or components in any manner. In addition to the foregoing, space shall be provided within the crew compartment to transport the crew (4) of the disabled vehicle and their personal equipment (i.e., protective mask, NBC suit and weapon).

3.3.12 Seating. Three permanent seats shall be provided. All sliding parts and operating contact surfaces shall be free of paint and operate as specified. Restraint systems (lap and shoulder) are required in all crew positions. The restraint systems and seats shall be able to provide safety protection for the crew during cross-country operation. The restraint system anchorage shall be designed to prevent attachment bolts and other parts from disengaging from the vehicle, crew member and/or seat while in service. The restraint system shall consist of lap belts (MS22033) anchored with Grade 8, .312-24 UNF-2A bolts and shoulder harnesses (MS16069 and MS16068), anchored with Grade 8, .250-28 UNF-2A bolts. M88A1 seat assemblies shall be used and modified to accept restraint system anchorages.

3.3.12.1 Driver's & Mechanic's Seats. With the crew member in seated position, the force required to actuate the fore and aft seat adjustment lever shall not be more than 12 lb at the end of the lever. With the seat vacated, the force required to actuate the seat vertical adjustment lever shall not be more than 14 lb at the end of the lever. The force required to trip the seat dumping lever shall not be more than 14 lb at the end of the lever. The seat shall move forward, backward and vertically when the appropriate levers are actuated.

3.3.12.2 Commander's Seat. With commander in seated position, the seat shall move fore and aft, tilt and rotate 360 degrees without

binding or interference when appropriate levers are actuated. With commander in seated position and height lever actuated, the seat shall raise not less than 9 inches with spring force as commander removes his weight from the seat. Commander's seat shall lock securely in the raised vertical position and when lever is actuated be capable of lowering to a compressed vertical position and locking securely.

3.3.13 Transportability. The HERCULES shall be transportable by rail, marine, and air modes worldwide, in accordance with MIL-STD-1366 while being optimally designed to maximize the extent to which the HERCULES/70 Ton Heavy Equipment Transporter system meets the highway transportability criteria. MIL-HDBK-1791 is provided for reference/guidance.

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3.3.13.1 Highway. The HERCULES shall be transportable on the 70 Ton Heavy Equipment Transporter system (HETS) ATPD 2132, with regard to the 70 Ton HETS payload capacity and deck dimensions.

3.3.13.2 Marine. The HERCULES shall be transportable on landing craft air cushioned (LCAC) and landing craft unit (LCU) 1466 and larger vessels/ships.

3.3.13.3 Air. The HERCULES shall be transportable on C-5 and C-17 aircraft, and shall be equipped with tiedown provisions suitable for that purpose. DH 1-11 and MIL-HDBK-1791 are provided for reference/guidance.

3.3.13.4 Rail. The HERCULES shall be rail transportable and be able to withstand rail impact testing without damage or degradation in performance. MIL-STD-810, method 516.4, procedure VIII is provided for reference/guidance.

3.3.13.5 Lifting and Tiedown Provisions. The lifting and tiedown provisions, including the connecting structural members, on the HERCULES, at GVW, shall be in accordance with MIL-STD-209 (type I vehicle). MIL-HDBK-1791 is provide for reference/guidance only. Stencil or decal markings shall be applied to the vehicle at each lifting and tiedown point. The tiedown procedures shall permit tiedown of the vehicles to the floor (or deck) of the transport medium in such a manner as to prevent shifting or movement in any direction.

3.3.14 Armor Protection. The crew compartment shall provide ballistic protection against direct fire weapons up to and including 30mm, indirect 152mm and 122mm artillery, and antipersonnel mines.

3.3.15 Vision Blocks/Unity Periscopes. The vehicle shall utilize existing Army vision blocks and unity periscopes.

3.3.16 Auxiliary Power Unit (APU). The vehicle shall contain an APU that is operated from the drivers station. The APU assembly shall consist of an engine, a hydraulic pump and direct current generator system. The APU assembly shall operate using the same lubricant fluids as the vehicles main engine. The APU assembly shall be capable of starting and operating in environmental conditions specified in 3.4.3, on any slope of up to 30 percent, and any other vehicle operating condition with the exception of 3.4.11 Fording.

3.3.16.1 APU Engine. The APU engine shall operate using all fuels that the vehicles main engine is required to operate with in this vehicle.

3.3.16.2 APU Hydraulic Pump. The APU hydraulic pump shall interface with the vehicles hydraulic system through a hydraulic manifold.

3.3.16.3 APU Generator. The APU generator shall interface with the vehicle electrical system through a current limiting voltage regulator.

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3.3.17 Standardization and Interoperability. The vehicle shall meet the towing standardization requirements of STANAG 4101.

3.3.18 Sealing.

3.3.18.1 Seals. All seals shall restrict the leaking of lubricants from the bearings.

3.3.18.2 Door, Hatch and Vision Device Seals. Door, hatch and vision block seals shall prevent the entrance of a continuous flow of water into the crew compartment.

3.3.18.3 Air Cleaner Outlet Hose System. The air cleaner outlet hose system, shall be air tight to the extent that when a vacuum of 25 to 30 inches of water is applied, the loss of vacuum shall not be more than 5 inches of water during a 3 minute period.

3.3.19 Hatches. Hatches shall have a positive means of preventing accidental opening or closing to include the failure caused by dirt, mud, and debris accumulation in the locking or latching mechanism as well as failure caused by vibration during vehicle operation. The positive means of preventing accidental closing shall be applied in an automatic manner.

3.4 Performance. The minimum required Mean Miles Between Hardware Mission Failure (MMBHMf) for the HERCULES is 375 miles. The required Maintenance Ratio (MR) shall be 0.14 Maintenance Man Hours/Mile (MMH/MI); the desired MR shall be 0.11 MMH/MI.

3.4.1 Vehicle Reliability. When operating according to the approved Operational Mode Summary/Mission Profile (OMS/MP) during the first 4000 miles of vehicle operation, a chargeable mission failure shall be as defined in the HERCULES Failure Definition/Scoring Criteria (FD/SC). The FD/SC defines a mission failure and indicates the chargeable elements.

3.4.1.1 Main Winch Usage. To demonstrate main winch reliability the main winch shall accrue a total of 74 pulls at full cable extension utilizing loads varying from 35 to 70 tons uniformly distributed during the first 4000 miles of vehicle operation.

3.4.1.2 Hoist Winch Usage. To demonstrate hoist winch reliability, the hoist shall accrue 58 total hours of operation utilizing loads varying from 6 to 35 tons uniformly distributed during the first 4000 miles of vehicle operation. During lifts, the load shall be suspended for one minute at 2 ft intervals.

3.4.1.3 Auxiliary Winch Usage. To demonstrate auxiliary winch reliability, the auxiliary winch shall be utilized to pay out the main winch cable in less than 30 minutes for each main winch recovery operation stated in 3.4.1.1.

3.4.1.4 Spade Usage. To demonstrate vehicle spade reliability, the spade shall be used to anchor the vehicle during winching operations, where applicable.

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3.4.1.5 Auxiliary Power Unit (APU) Reliability. To demonstrate APU reliability, the APU shall be operated for 100 hours, in 1 hour cycles, uniformly distributed during the first 4000 miles of vehicle operation. Each cycle shall consist of 0.5 hours under load and 0.5 hours at idle. All idle time is considered to be operating time. Time under load shall consist of 15 minutes for each of the following:

a. Electrical load With fully charged vehicle batteries (battery charging current of less than 50 amperes), with an adjustable electrical load bank connected to the vehicle through the slave receptacle, the voltage regulator output current to the vehicle electrical system shall be between 134 amperes and 180 amperes.

b. Hydraulic load With a pressure gauge installed in the APU test port of the operator's control valve manifold and with the hydraulic oil temperature gauge indicating 60 degrees F minimum, the minimum oil pressure shall be 1650 psi for a Hatz powered APU or 1500 psi for an Onan powered APU.

3.4.2 Maintainability. The vehicle Maintenance Ratio (MR) for the HERCULES system shall not exceed the specified ratio for the first 4,000 miles of vehicle operation:

Maintenance Ratio = 0.14 MMH/MI (required)
= 0.11 MMH/MI (desired)

Note: The MR requirement applies for system level.

3.4.3 Environmental. The vehicle shall start, operate, be transported, and be stored in climatic design types hot and basic per AR 70-38 (See Annex G).

3.4.3.1 Cooling System. Engine, transmission, and hydraulic lubricant temperatures shall not exceed those shown in Table I when the vehicle is operated under any one or any combination of the following conditions.

a. Ambient temperature of 115 degrees Fahrenheit.

b. Under full load.

c. Under full load engine power with the vehicle operating at 0.70 tractive effort to gross vehicle weight ratio (TE/GVW).

TABLE I. Operation Temperatures.

Maximum diesel engine oil temperature from cooler	Maximum transmission oil temperature from cooler
250 degrees Fahrenheit	315 degrees Fahrenheit
Maximum hydraulic fluid temperature in reservoir	170 degrees Fahrenheit

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3.4.3.2 Hydraulic Cooling. The hydraulic system temperatures shall not exceed those in Table I and shall be controlled to assure all winching/lifting operations, as specified, can be performed without being constrained in any manner while subjected to the climatic conditions of 3.4.3.

3.4.4 Speed.

3.4.4.1 Speed Without Towed Load. The vehicle when combat loaded shall operate at 3 m.p.h. for not less than 1 hour without damage to the engine, transmission and components. The vehicle shall maintain a convoy speed of 25 mph on dry, paved, level roads without towed load for not less than 1 hour.

3.4.4.2 Cruising Range. The vehicle when combat loaded on dry, paved, level roads, without towed load, and at speeds not less than 25 mph, shall have a minimum cruising range of 200 miles on a single fill of internal fuel.

3.4.4.3 Tractive Effort. The vehicle when combat loaded shall tow the 70 ton Main Battle Tank on a level prepared surface with an Rating Cone Index (RCI) of 100-150.

3.4.4.4 Speed With Towed Load. The vehicle when combat loaded shall tow the 70 ton Main Battle Tank at a speed of not less than 17 m.p.h. for not less than 10 minutes and shall sustain a towing speed of 13 m.p.h. for 1 hour. Performance requirements shall be demonstrated on dry, paved, level roads.

3.4.4.5 Speed On Grade. The vehicle, when combat loaded, shall be able to safely and adequately tow the 70 ton Main Battle Tank up and down grades, on trails/cross country terrain, minimally, as outlined below:

Secondary, Trails/Cross Country

GRADE	MINIMUM SPEED
Tow 70 tons up a 10% grade -----	5 m.p.h.
Tow 70 tons up a 20% grade -----	3 m.p.h.
Tow 70 tons up a 30% grade -----	1 feet per sec (fps)
SPEED	NOT TO EXCEED
Tow 70 tons down a 10% grade -----	10 mph for 10 miles
Tow 70 tons down a 20% grade -----	5 mph for 5 miles
Tow 70 tons down a 30% grade -----	1 mph for 1 mile

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3.4.5 Acceleration. The vehicle, when combat loaded (maximum design GVW), shall accelerate from a standing start on dry, paved, level roads and travel a distance of 200 feet in not more than 14 seconds.

3.4.6 Engine Starting on Grades and Slopes. When positioned on a 60 percent longitudinal grade not less than 2 minutes, and with engine operating under no load at basic idle, the engine shall be stopped for not less than 2 minutes. The engine shall restart in not more than 1 minute when headed up and down grade. Similar engine stopping and starting shall be accomplished on 30 percent side slopes with

each side vehicle up slope.

3.4.7 Auxiliary Power Unit (APU) Performance.

3.4.7.1 APU Hydraulic Performance. The APU shall provide sufficient hydraulic output to independently: raise the spade, raise and lower the boom/A-frame; retrieve the wire rope of the auxiliary winch under no-load conditions; and operate the impact wrench and fuel transfer systems.

3.4.7.2 APU Retrieving Main Winch Wire Rope. The APU shall provide sufficient hydraulic output to retrieve the main winch wire rope, without load, with all usable wire rope payed-out, at an average speed of not less than five feet per minute (fpm).

3.4.7.3 Retrieving Hoist Winch Wire Rope. The APU shall provide sufficient hydraulic output to retrieve the hoist winch wire rope, without load, with all usable wire rope payed-out, at an average speed of not less than 18 fpm.

3.4.7.4 APU Electrical Performance. The APU electrical output, when regulated and limited by the voltage regulator, shall be sufficient to deliver between 134 amperes and 180 amperes of current from the voltage regulator to the vehicle electrical system under fully charged battery conditions (battery charging current of less than 50 amperes). The voltage regulator output voltage shall be between 27.3 and 28.7 volts for all APU electrical loads from zero to 100 amperes.

3.4.8 Climbing. The vehicle, from a standing start on a prepared paved grade when combat loaded, shall ascend longitudinal grades of 60 percent in forward and reverse gear without stalling or damage to power plant and power train.

3.4.9 Braking.

3.4.9.1 Stopping Without Towed Load. The vehicle, combat loaded, while traveling on a smooth, hard surfaced, paved, level, dry road at 20 m.p.h., shall stop within 35 feet from point of brake application and drift shall not exceed 3 feet when averaged over three consecutive stops. The brakes shall perform 25 full-effort stops of 16 ft./sec squared deceleration from 25 m.p.h. at 5 minute intervals and three consecutive full-effort stops of 12 ft./sec squared deceleration from maximum attainable speed without overheating, brake fade or requiring maintenance actions.

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3.4.9.2 Holding Without Towed Load. With vehicle combat loaded, while standing on a 60 percent longitudinal grade with service brakes applied, the vehicle shall be held stationary when headed up and down grade. With parking brake engaged and all other holding devices inoperative, the vehicle shall be held stationary when headed up and down a 60 percent longitudinal grade on a paved, dry surface.

3.4.9.3 Stopping With Towed Load. The vehicle, combat loaded, towing the 70 ton Main Battle Tank shall stop within distances specified below while operating down grades on smooth, hard surface, paved, dry roads and without jackknifing or loss of control. In addition to the requirements tabled below, the above specified vehicles shall stop at a minimum rate of 4.77 ft/sec/sec from maximum attainable speed, on a 0% grade.

GRADE	Stopping Distance	MPH
Tow 70 tons on a 0% grade50 ft	15
Tow 70 tons down a 10% grade40 ft	10
Tow 70 tons down a 20% grade40 ft	5
Tow 70 tons down a 30% grade 40 ft	1

3.4.9.4 Holding With Towed Load. The vehicle, combat loaded, towing the 70 ton Main Battle Tank while positioned on a 30 percent longitudinal grade with service brakes applied, shall be held stationary when headed up and down grade. With parking brake engaged and all other holding devices disengaged, the vehicle shall be held stationary when headed up or down a 30 percent longitudinal grade.

3.4.10 Steering. The vehicle steering system control shall permit precise and safe control of the vehicle under all operating conditions. Fully regenerative steering shall be provided with a maximum vehicle curb-to-curb turn radius on a dry, level, paved surface as specified below:

<u>Speed (mph)</u>	<u>Radius (ft) Maximum</u>
0	Pivot
5	28
10	44
15	82

3.4.11 Fording.

3.4.11.1 Fording Without Towed Load. The HERCULES, when combat loaded, shall ford hard-bottom salt or fresh water crossings 56 inches in depth, including wave height, without special preparation or equipment. With the HERCULES operated in water up to 56 inches in depth, for 15 minutes, the accumulation of water shall not be more than 2 inches in bottom of the hull beneath crew compartment.

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3.4.11.2 Engine Operation and Bulkhead Water Leakage. With the engine compartment flooded with water to a depth of 48 inches (from ground level), the following steps shall be taken: The diesel engine shall be operated at idle for 15 minutes, then stopped, and shall restart within 3 minutes.

Engine and all accessories shall function satisfactorily during and after flooding operation. Water leakage through the bulkhead from the engine compartment into the crew compartment shall not be more than 2 inches in the bottom of the hull beneath the crew compartment.

3.4.11.3 Lubrication Contamination. After all fording operations, the water contamination content of the transmission, final drives, and suspension system lubricants shall not be more than 2 percent by volume.

3.4.11.4 Fording Deep Water. The vehicle shall ford up to 90 inches, including wave height with special equipment (see 3.3.1.5). When operated in water of 90 inches in depth including wave height for 15 minutes, the accumulation of water shall be not more than 2 inches in bottom of the hull beneath crew compartment.

3.4.12 Trench Crossing. The vehicle, when combat loaded, shall cross trenches in a forward direction, 36 inches or more in depth and 103 inches in width without stalling or damage to fenders, suspension, skirts, boom, or hull floor.

3.4.13 Vertical Obstacles. The vehicle, when combat loaded, shall cross over vertical obstacles 42 inches in height in a forward direction without stalling or damage to fenders, suspension, skirts, boom, or hull floor.

3.4.14 Spade. A spade shall be provided to stabilize the vehicle during winching operations utilizing a two to one mechanical advantage (140,000 lbs. \b1 10% single line pull), and when hoisting loads of 70,000 lbs. With spade set at any position within operating range, the spade hydraulic system shall limit settling of the spade to not more than 1 inch per minute. The spade hoisting system shall raise the spade to lock position under normal operating conditions in less than two minutes.

3.4.15 Primary Hydraulic Pump. A hydraulic pump shall be provided which is capable of supplying all required hydraulic oil pressure and flow for operation of the winches, cylinders, and hydraulic motors in accordance with 3.4.16 through 3.4.19. The main and hoist winches shall conduct simultaneous operations as specified in 3.4.16.1 and 3.4.17.1. When the primary pump is powered by the main engine, full pressures and flow capacities are required at an "operational idle" (1800 RPM maximum) under normal operating conditions; and 2000 RPM max under hot weather or continuous operating conditions.

3.4.16 Hoist Winch, Boom/A-Frame and Hook.

3.4.16.1 Hoist Winch. The hoist winch shall lift 70,000 lbs to a hook height of not less than 22.5 ft. at a nominal 8-foot reach in front of the hull for not less than 30 minutes on level, hard surface (gravel) terrain. The hoist winch shall be supplied with sufficient cable to allow the hook to be payed out a minimum of 41 feet. The hoist winch shall reel in cable at a rate of not less than 30 ft. per minute under all load conditions sufficient for proper spooling.

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3.4.16.2 Boom/A-Frame and Hook. The boom/A-frame and hook shall be hydraulically raised from the travel lock position to the fully forward position (center line of hook at a nominal-8 foot reach in front of the hull) in not more than 100 seconds at a main engine speed of 1800 +/- 50 RPM. From the fully forward position, the boom/A-frame shall be hydraulically returned to travel lock position in not more than 100 seconds at a main engine speed of 1800 +/- 50 RPM. On level, hard surface (gravel) terrain, in a raised position and providing a nominal 4-ft live boom/A-frame flexibility, the boom/A-frame and hook, shall:

- a. Lift 70,000 lbs at a nominal 8-foot reach in front of the hull on level ground and the spade emplaced. During lift, the load shall be suspended for one minute at 2 ft intervals during lift.

b. With spade emplaced, shall move a 60,000 lb vertical hanging load through a fore and aft distance of 4 ft. The hydraulic relief valve RV2 shall be set such that with the boom fully extended, the boom shall stall with vertical hanging loads of 75,000 lbs or more. At stall, boom lever movement shall not exceed 3.5 inches when horizontally measured between the boom lever stop plate and the boom lever.

3.4.16.3 Lift and Carry. The boom/A-frame and hook, when fully extended to a nominal 8-foot reach in front of the hull shall lift and carry 6 tons a distance of 50 ft on level, hard surface (gravel) terrain at a speed not greater than 2 mph. With suspension lockout installed/activated, boom/A-frame and hook in the fore/aft location shall lift and carry 25 tons a minimum of 50 ft over level, hard surface gravel) terrain, at a speed not greater than 1 mph to prevent the lifted load from swinging fore and aft, and without damage to the lifted load or the vehicle.

3.4.16.3 Live Range Boom Drift. Live Range Boom Drift is a measurement of the combined vertical distances that the left and right boom levers move away from the rear stops over a five-minute hold period. The measurement is taken with the boom control handle in the HOLD position, a 60,000 lb vertical hanging load on the boom, the hydraulic and engine power systems shutdown, and the boom levers at the fully retracted position (against the rear stops). Live Range Boom Drift shall meet the requirements specified in the Allowable Combined Boom Lever Drift Chart.

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ALLOWABLE COMBINED BOOM LEVER DRIFT CHART

<u>HYDRAULIC RESERVOIR OIL TEMP (F)</u>	<u>MAXIMUM ALLOWABLE VERTICAL DISTANCE (INCHES PER 5 MINUTES) MEASURED FROM FULLY RETRACTED POSITION</u>
60	0.25
60-90	0.50
91-110	0.75
111-125	1.00
126-140	1.25
141-150	1.50
151-160	1.75
161-170	2.00

3.4.17 Main and Auxiliary Winches.

3.4.17.1 Main Winch. The main winch shall generate a 140,000 lbs. \ 'b1 10% single line pull at "stall" at any point along the entire operational length of the cable (16.5 feet to not less than 280 feet with four dead wraps on the drum) during the first 4000 miles of vehicle operation. A main winch pull is fully defined in paragraph 4.4.1.1. "Stall" is defined in paragraph 4.4.17.1.

3.4.17.2 Auxiliary Winch. The auxiliary winch shall be designed to enable deployment of its cable by one soldier to the vehicle being recovered and back to the recovery vehicle. The auxiliary winch and cable shall provide sufficient pull and sufficient length to deploy the full length of the main winch cable as required to out-haul the main winch cable for a recovery operation or for vehicle maintenance. The auxiliary winch in-haul speed shall be controllable to match the payout speed of the main winch cable to prevent excessive force and cable breakage. The auxiliary winch shall be operable from both the main and the auxiliary hydraulic systems.

3.4.18 Main and Hoist Winch Brakes. Winch brakes on the main winch and the hoist winch shall be a type having automatic mechanical application and hydraulic release. The brake shall automatically apply and hold the load and prevent unwinding after hydraulic power has been removed. The winch brake shall control the descent of a load so as not to exceed the rate of ascent and shall stop a descending load within 1 inch from point of brake application. The brakes shall hold within one inch from point of brake application. The brakes shall perform without causing winch or hydraulic system chatter during winch operations, throughout the entire operating range and under all operating conditions specified herein.

3.4.19 Main Hydraulic System. The main hydraulic system shall provide smooth operation and positive control of the boom, spade, main winch, auxiliary winch, hoist winch, and winch brakes throughout the entire operating range and under all operational conditions specified herein. Winch operations shall typify normal operations and the system shall perform without overheating (170 degree F in reservoir), malfunctioning or failure. The main relief and unloading valve pressure shall allow for efficient operation of the hydraulic equipment within safe operating limits. The system shall incorporate filtration to maintain the hydraulic fluid at an ISO 16/13 rating level of cleanliness between scheduled maintenance periods.

3.4.20 Steering Degradation. The HERCULES will provide smooth and concise steering when negotiating a 50 ft. radius turn. During this maneuver the steering pressure at the right and left transmission steering ports shall not exceed a mean value of 62 pounds per square inch gauge (psig).

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3.4.21 Radio Suppression. The complete HERCULES shall be radio interference suppressed. Paragraph 5-Detailed Requirements of MIL-STD-461 for tests RE102 (Radiated Emissions, Electric Field, when subjected to a frequency range of 0.15 MHz to 1,000 MHz) and RS103 (Radiated Susceptibility, Electric Field, frequency range of 2 MHz to 10 GHz) of Table IVEmission and Susceptibility Requirements and Table V-Requirements Matrix are provided as reference.

3.5 Painting, Marking, and Data Plates.

3.5.1 Chemical Agent Resistant Coating (CARC) Painting.

- a. Vehicle exterior and interior surfaces are to be painted per the following drawings:

Aluminum exterior	12369001
Aluminum interior	12369002
Steel exterior	12369003
Steel interior	12369004

- b. Nonskid or non-slip surfaces shall be applied over the coatings specified by 3.5.1a and then over-sprayed with the topcoat of the applicable drawing in 3.5.1a.

- c. A stenciled notice is to be added in the driver's compartment near the vehicle data plate. The notice shall say "CARC PAINTED" in one half inch high letters and shall be painted using a chemical agent resistant paint.

3.5.2 Marking. All parts shall be identified in accordance with MIL-STD-130. Marking of the vehicle shall be in accordance with MIL-STD-642.

3.5.3 Data Plates. All data plates shall be in accordance with A-A-50271.

3.5.4 NBC Warning Decal. An NBC warning decal, in accordance with Drawing no. 12296626, shall be affixed to the vehicle air filter canisters.

3.6 Workmanship. Workmanship shall be of quality to assure a vehicle free of defects resulting from improper manufacturing or assembly practices, and conforming to requirements specified herein.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for Inspection. Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all the Quality Assurance Provisions specified herein (Section 4) to determine conformance with the requirements of Sections 3 and 5. Except as otherwise specified, the supplier may utilize his own facilities or any commercial laboratory acceptable to the procuring activity. The procuring activity reserves the right to perform or witness any of the inspections set forth in this document where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

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4.1.1 Responsibility for Compliance. All items must meet all requirements of Sections 3 and 4. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of assuring that all products or supplies submitted to the government for acceptance comply with all requirements of the contract. Sampling in quality conformance does not authorize submission of known defective material, either indicated or actual, nor does it commit the government to acceptance of defective material.

4.1.2 Inspection Equipment. Unless otherwise specified in the contract, the supplier is responsible for the provision and maintenance of all inspection and test equipment necessary to assure that supplies and services conform to contract requirements. Calibration of inspection and test equipment shall be in accordance with ISO 10012, ANSI/NCSL Z540-1, or the equivalent.

4.1.3 Intentionally not used.

4.1.4 Intentionally not used.

4.1.5 Test Conditions. Unless otherwise specified, all tests shall be conducted under the prevailing conditions of temperature, barometric pressure and humidity at the test site and/or place of manufacture, not to exceed those environmental conditions established in Annex G.

4.1.6 Government Verification. All quality assurance operations performed by the contractor shall be subject to government verification at unscheduled intervals. Verification shall consist of (a) surveillance of the operation to determine that practices, methods, and procedures of the written quality assurance system plan are being properly applied, (b) government product inspection to measure the quality of the product offered for acceptance, and (c) the Government performed testing. Deviation from the prescribed or agreed upon procedure, or instances of poor practices which might have an adverse effect upon quality of the product, shall immediately be called to the attention of the contractor. Failure of the contractor to promptly correct deficiencies shall be cause for suspension of acceptance until corrective action has been made, or until the conformance of the product to prescribed criteria has been demonstrated.

4.1.7 Qualified Products. In accordance with 3.1.4., when a part or component is specified to conform to a specification having a qualified products list (QPL), the contractor shall make available to the government documentation of item acquisition from such QPL. The documentation shall include the QPL date and identification of the supplier, purchase order, and quantity.

4.1.8 Materials. Conformance to 3.1 shall be determined by inspection of contractor records providing proof or certification that design, construction, processing, and materials conform to requirements. Applicable records shall include drawings, specifications, design data, receiving inspection records, processing and quality control standard, vendor catalogs and certification, industry standards test reports and rating data.

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4.1.8.1 Material Deterioration Prevention and Control. To determine conformance to 3.1.1, the contractor shall insure that the vehicle is fabricated from inherently corrosion resistant, compatible materials or treated to protect the vehicle against the various forms of corrosion and deterioration encountered in any operating or storage environment.

4.1.8.2 Dissimilar Metals. In accordance with 3.1.2, the contractor shall insure that dissimilar metals are not used in intimate contact of each other unless protected against galvanic corrosion. MIL-STD-889 can be used as reference/guidance in identifying dissimilar metals and methods of protection.

4.1.8.3 Identification Of Materials And Finishes. The contractor shall furnish materials and finish identification material in conformance with 3.1.3.

4.1.8.4 Wire Ropes. To conform to 3.1.6, the contractor shall insure that all wire ropes are either improved or extra-improved plow steel with wire strand or independent wire rope center.

4.1.8.5 Ozone Resistance. The contractor shall insure that all new rubber components under tension or flexed conform to the ozone resistance requirements of ASTM D2000.

4.1.8.6. Sealer. The contractor shall insure that sealer user for sealing the vehicle conforms to A-A-52495 to meet the requirements of 3.1.8.

4.1.9 Examinations. A visual and primary functional examination shall consist of inspection of the vehicle for conformance with the requirements herein. Fluid leakage (fuel and hydraulic) deficiencies shall be classified as defined in 6.3.11.

4.2 MANPRINT.

4.2.1 Human Factors Engineering (HFE). To determine conformance to 3.2.1, all elements of human engineering will be evaluated during all phases of vehicle operation. Special emphasis to be directed toward the evaluation of refurbished areas to insure that the soldier-machine interface has not been degraded during the process. Attention shall also be specifically directed toward those tasks which require excessive human strength to insure that they do not exceed the capability of the designated user.

4.2.1.1 Soldier-Machine Interface. To determine conformance to 3.2.1.1, all vehicle operations and maintenance shall be evaluated for safe and effective operation by the full range of military personnel (5th percentile soldier through 95th percentile soldier). Operations and maintenance shall be verified while the full range of military personnel are wearing the full range of army protective garments.

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4.2.1.2 Military Occupational Specialty. In accordance with 3.2.1.2, the contractor shall insure that during vehicle design, fabrication and maintenance, that special emphasis was given to user strength capabilities and reduced strength capabilities.

4.2.1.3. Crew Environmental Factors. To determine conformance to 3.2.1.3, the vehicle interior shall be tested to make certain that environmental factors do not degrade mission or personnel performance.

4.2.2 Safety/Health Hazard. To determine conformance to 3.2.2 and 3.2.3, an evaluation shall be made to determine the possible existence of any CAT I or II hazards. There shall be no CAT I or II unacceptable safety and health hazard risks per MIL-STD-882 and MIL-STD-1180 and the definitions of CAT I and II hazards can be found there.

4.2.3 Manpower. To determine conformance to 3.2.4 the system shall be operated by user personnel during technical testing/user testing (TT/UT) and RAM testing to assess the system's adequacy for operation, maintenance and training of Army personnel.

4.2.4 Personnel. To determine conformance to 3.2.5 the system shall be operated by user personnel during TT/UT and RAM testing to determine the effectiveness of system operation and maintenance.

4.3 Design and Construction.

4.3.1 Special Kits.

4.3.1.1 Smoke Grenade Launcher. To determine conformance to 3.3.1.1, a M239 Grenade Launcher shall be mounted to the grenade launcher adaptor kit furnished with the vehicle. With the grenade launcher system power activated, verify right and left side firing circuits voltage for smoke grenade launcher system firing. With grenade launcher system power deactivated, verify launcher system firing circuits are inert. Alignment of the launchers shall be verified to the requirements of 3.3.1.1.

4.3.1.2 Intentionally not used.

4.3.1.3 Nuclear, Biological, Chemical (NBC). To determine conformance to 3.3.1.3, the airflow and temperature at each outlet shall be simultaneously measured with airflow and temperature gauges and shall be as specified.

4.3.1.3.1 Nuclear, Biological, Chemical (NBC) Decontamination. To determine conformance to 3.3.1.3.1, the vehicle shall be inspected to verify the ability to stow the M13 kit as required.

4.3.1.4 Smoke Generating Kit. To determine conformance to 3.3.1.4 and 3.3.2.1.g, activate the smoke generating switch when the engine is warm and operating at sufficient rpm to generate smoke. Verify that both the right and left exhaust outlets emit white smoke while using DF2 fuel. Smoke generation shall not be required when vehicle is fueled with JP8.

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4.3.1.5 Deep Water Fording Kit. To determine conformance to 3.3.1.5 and 3.4.11.4, vehicle shall operate in water of specified depth and time, then checked for accumulation of water and engine operation.

4.3.2 Propulsion System.

4.3.2.1 Engine. To determine conformance to 3.3.2.1 the vehicle shall be operated throughout all specified functions.

- a. The contractor shall insure that the engine is in accordance with NATO STANAG 4195.
- b. The contractor shall insure that the engine shall operate with the fuels and at the ranges specified for A-A-52557 and JP-8. The MIL-DTL-83133 specification for JP-8 is provided for reference/guidance only. Use of JP-8+100 is prohibited. The engine shall be inspected for a fuel water separator system

within the primary engine fuel system supply.

- c. The engine shall be tested to a cold start capability at minus 25 degrees Fahrenheit.

3.4.22d. The engine and accessory controls shall be tested to withstand vibration shock and electromagnetic effects. Paragraph 5-Detailed Requirements of MIL-STD-461 for tests RE102 (Radiated Emissions, Electric Field, when subjected to a frequency range of 0.15 MHz to 1,000 MHz) and RS103 (Radiated Susceptibility, Electric Field, frequency range of 2 MHz to 10 GHz) of Table IV-Emission and Susceptibility Requirements and Table V-Requirements Matrix are provided as reference. MIL-STD-810 is also provided as reference/guidance.

- e. The engine shall be tested to have an integrally mounted cooling system that provides complete engine/transmission cooling. The vehicle shall be tested for ground hop engine starting only, without any engine damage. The vehicle cooling system shall be tested to prevent over-cooling down to minus 25 degrees Fahrenheit and during engine warm-up.

- f. The vehicle shall be tested for an integrally mounted smoke generating system that is activated by the driver and produces white smoke at the minimum fast idle condition using DF2 fuel.

- g. The vehicle shall be forded to a depth of 56 inches of water with the engine exhaust duct vented to atmosphere. The vehicle engine shall remain operating for 30 minutes, then deactivated for 3 minutes. After 3 minutes, the engine shall be restarted and operated for an additional 15 minutes without degradation. Lubricating oil shall be sampled and tested after fording for a maximum of 2% of water by volume.

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4.3.2.2 Transmission and Final Drives. To determine conformance to 3.3.2.2 the vehicle shall be operated throughout all specified operational functions. The transmission and final drives shall meet all applicable requirements as specified in 3.3 and 3.4, and FMVSS 102.

4.3.2.3 Air Cleaner. To determine conformance to 3.3.2.3, the air cleaner shall be tested for compliance to MIL-PRF-62048C, air flow restriction and element replacement time. The air cleaner shall meet all requirements as specified.

4.3.3 Mechanical Transmission (Power Takeoff (PTO)). To determine conformance to 3.3.3 the PTO shall be functionally tested. The PTO shall provide the necessary power and speed to operate the hydraulic system.

4.3.4 Fuel System. To determine conformance to 3.3.4, the vehicle shall be operated on slopes as specified. The fuel system shall supply and maintain adequate fuel for engine operation, over the range of fuel tank levels from both 1/4 full to the full level. There shall be no fuel spillage or leakage.

4.3.4.1 Fuel Tanks. To determine conformance to 3.3.4.1, the vehicle fuel tanks shall be inspected for cleanliness, no rust or moisture or scale or welding splatter and slag. The fueled tanks shall be tested to accept a fuel filling rate of 50 gpm. There shall be no fuel leaks.

4.3.4.2 Emergency Fuel Shut-Off. To determine conformance to 3.3.4.2, with the engine operating at 1000 rpm, the fuel shut-off handle shall be actuated. The time for the engine to stop operation shall be as specified.

4.3.4.3 Fuel Transfer System. To determine conformance to 3.3.4.3, the fuel transfer system shall be operated by one person in transferring fuel from the vehicle to a remote container and or from a remote container to the vehicle. Fuel flow rates shall be as specified.

4.3.4.4 Fuel Lines. To determine conformance to 3.3.4.4, all vehicle fuel lines and connections shall be inspected for leakage before and after vehicle operation. There shall be no evidence of fuel leakage as defined in 6.3.11. The contractor shall provide inspections to assure the cleanliness of the fuel lines.

4.3.4.5 In-Tank Fuel Pump. To determine conformance to 3.3.4.5, prior to engine installation, the pump output pressure shall be checked for the pressure specified at the engine end of the fuel line quick disconnect.

4.3.4.6 Heater, Fuel Feed. To determine conformance to 3.3.4.6, with the heater pump operating as specified, the heater shall be checked for functional requirements.

4.3.4.7 Throttle Linkage. To determine conformance to 3.3.4.7, the throttle pedal shall be operated to full throttle. The engine throttle rod shall be checked to ensure that full throttle position has been reached.

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4.3.5 Hydraulic Reservoir and Lines. To determine conformance to 3.3.5, the reservoir and lines shall be inspected for leaks before and after operation. The hydraulic reservoir and lines shall be inspected per the criteria of 6.3.11.

4.3.6 Exhaust System. To determine conformance to 3.3.6, the vehicle shall be buttoned up with heater on, non-automotive power source operating, and the main engine operating at idle for a period of not less than 30 minutes, whereupon the crew compartments content of carbon monoxide (CO), oxides of nitrogen (NOX), aldehydes and sulfur compounds will be analyzed. The concentrations of these gases shall not exceed the values as specified.

4.3.7 Night Vision Capability. To determine conformance to 3.3.7 the driver's and commander's (if provided) night vision device will be functionally operated.

4.3.8 Parts Interchangeability. The vehicle shall demonstrate the ability to comply with the interchangeability requirements of 3.3.8.

4.3.9 Reserved.

4.3.10 Electrical System.

4.3.10.1 Electrical System. To determine conformance to 3.3.10.1 through 3.3.10.3, the electrical system shall be tested as specified.

4.3.10.2 Diagnostic Connector Assembly (DCA). To determine conformance to 3.3.10.4 the performance of the DCA shall be tested and inspected for compliance to the requirements specified in 3.3.10.4.

4.3.10.3 Lighting System. To determine conformance to 3.3.10.5, the vehicle lighting system shall be functionally operated and spectrum/emission peaks measured. Operation, spectrum and emissions shall be as specified.

4.3.11 Stowed Equipment. To determine conformance to 3.3.11, all BII and COEI shall be stowed on the vehicle. All items shall fit in the spaces provided. Space allocation for the crew of the disabled vehicle shall be verified.

4.3.12 Seating. To determine conformance to 3.3.12 through 3.3.12.2, restraint systems at each crew position will be used during vehicle operations under all terrain modes. All vehicle seating shall be tested and functionally operated through their entire functional range.

4.3.13 Transportability. To determine compliance to 3.3.13, the HERCULES shall be checked with regard to the specified transportability requirements set forth in MIL-STD-1366. The vehicle shall be checked for adequacy of tiedown, lifting eyes, instructions for component removal when required for transport, marking on the HERCULES at each tiedown and lifting point, and tiedown procedures. The tiedowns and lifting eyes shall be inspected for proper installation.

4.3.13.1 Highway. To determine conformance to 3.3.13.1, dimensions and weight the HERCULES shall be checked for adequacy with respect to transporting on the 70 Ton Heavy Equipment Transportation System.

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4.3.13.2 Marine. To determine conformance to 3.3.13.2, dimensions and weights of the HERCULES shall be compared to and shall not exceed the limits for marine vessel transport as specified.

4.3.13.3 Air. To determine conformance to 3.3.13.3, a vehicle shall demonstrate the ability to be transported in C-5 and C-17 aircraft. MIL-HDBK-1791 is provided for reference/guidance. In lieu of actual testing, if not required by the Air Force, the HERCULES dimensions and weight (track load) may be compared to DH-1-11 and the referenced specification of MIL-HDBK-1791.

4.3.13.4 Rail. To determine conformance to 3.3.13.4, a vehicle shall be subjected to a rail impact test. Prior to the rail impact test, the HERCULES shall have been performance tested. The test data generated shall consist of the pretest record for comparison with performance tests conducted after the rail impact test. The HERCULES shall be inspected for lubricant and fuel leaks, structural damage and electrical shorts. Performance degradation is considered a deficiency. MIL-STD-810, method 516.4, procedure VIII is provided for reference/guidance.

4.3.13.5 Lifting and Tiedown Provisions. Functional tests shall be performed to verify the adequacy of the interface, markings, and structural integrity of the tiedown provisions and connecting structural members in accordance with MIL-STD-209. MIL-HDBK-1791 is provided for reference/guidance.

4.3.14 Armor Protection. To determine conformance with 3.3.14 and classified Annex A ballistic protection requirements as specified, a representative hull (ballistic envelope) shall be subjected to ballistic testing. Vehicle fabrication materials requiring ballistic testing shall be qualified as specified in applicable materials specifications (see 6.4).

4.3.15 Vision Blocks/Unity Periscopes. To determine conformance to 3.3.15, the vehicle will be inspected to verify incorporation of vision blocks and unity periscopes as specified.

4.3.16 Auxiliary Power Unit (APU). To determine conformance to 3.3.16, the APU shall demonstrate the capability to start and operate in environmental conditions as specified in 3.4.3, on any slope of up to 30 percent, and any other vehicle operating condition with the exception of 3.4.11 Forging.

4.3.17 Standardization and Interoperability. The vehicle shall demonstrate the ability to conform with the requirements of 3.3.17.

4.3.18 Sealing.

4.3.18.1 Seals. To determine conformance to 3.3.18.1, prior to and after fording operations, the vehicle shall be checked for the amount of water on the hull floor, beneath the crew compartment, and the leaking of lubricants.

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4.3.18.2 Door, Hatch and Vision Device Seals. To determine conformance to 3.3.18.2, the doors and hatches shall be closed and locked, and a spray of water at a rate of 10 gallons per minute shall be directed on and around each door, hatch, and vision device for a period of 3 minutes each. All doors, hatches, and vision devices shall be checked for leakage.

4.3.18.3 Air Cleaner Outlet Hose System. To determine conformance to 3.3.18.3, the duct assembly shall be sealed off. With the system pressurized at specified vacuum pressure, any pressure drop shall not exceed pressure drop specified.

4.3.19 Hatches. To determine conformance to 3.3.19, the vehicle shall be operated on all grades and slopes as specified herein and operated through all speed and gear ranges over cross country, hilly terrain, and on smooth, level hard surface roads. During this time, hatches shall be observed for functional requirements. There shall be no failure of the locking or latching mechanism.

4.4 Performance.

4.4.1 Vehicle Reliability. To determine conformance to 3.4 and 3.4.1, the reliability requirement shall be verified as a point estimate during vehicle operation while the vehicles are subjected to testing. The Mean Miles Between Hardware Mission Failure (MMBHMf) should not be less than specified.

4.4.1.1 Main Winch. To determine conformance to 3.4.1.1, a pull shall consist of winching in the first 25 feet of cable at the load specified below; thereafter winching in the remainder of the cable at a reduced load of 45,000 - 50,000 pounds:

<u>No. of Pulls</u>	<u>Load</u>
4	90% stall*
15	80% stall*
11	70% stall*
44	50% stall*

*stall is defined as not less than 140,000 lbs \b1 10% single line pull

4.4.1.2 Hoist Winch. To determine conformance to 3.4.1.2, the hoist winch lifting operations shall consist of lifting the specified load, suspending the load for one minute, and then alternately lifting the load in 2 ft increments and holding the load one minute until a maximum hook height is achieved. At maximum hook height, the load shall be suspended for the specified time period, moving the vehicle with load suspensions when applicable, and lowering the load to the ground. All winch creep/chatter experienced shall be noted.

TIME LOAD

<u>NO OF LIFTS</u>	<u>LOAD (TONS)</u>	<u>SUSPENDEED</u>	<u>OTHER</u>
8	35	1 HR	Stationary, at a nominal 8-foot

5	25	2 HR	reach in front of the hull. Move 50-feet with load suspended, and suspension lockout installed.
40	6	1 HR	Move 50-feet with load suspended, at a nominal 8-foot reach in front of the hull.

4.4.1.3 Auxiliary Winch. To determine conformance to 3.4.1.3, the auxiliary winch shall be used to pay out the main winch cable in less than 30 minutes during all testing described in 4.4.1.1.

4.4.1.4 Spade. To determine conformance to 3.4.1.4, the spade shall be used to anchor the vehicle during all recovery operations.

4.4.1.5 Auxiliary Power Unit (APU) Reliability. To determine conformance to 3.4.1.5, the APU shall be operated for 100 hours, in 1 hour cycles, uniformly distributed during the first 4000 miles of vehicle operation. Each cycle shall consist of 0.5 hours under load and 0.5 hours at idle. All idle time is considered to be operating time. Time under load shall consist of 15 minutes for each of the following:

- a. Electrical load With fully charged vehicle batteries (battery charging current of less than 50 amperes), with an adjustable electrical load bank connected to the vehicle through the slave receptacle, the voltage regulator output current to the vehicle electrical system shall be between 134 amperes and 180 amperes.
- b. Hydraulic load With a pressure gauge installed in the APU test port of the operator's control valve manifold and with the hydraulic oil temperature gauge indicating 60 degrees F minimum, the minimum oil pressure shall be 1650 psi for a Hatz powered APU or 1500 psi for an Onan powered APU.

4.4.1.5.1 Intentionally Not Used.

4.4.1.5.2 Intentionally Not Used.

4.4.1.6 Subsystem Test Cycle. The testing as described in 4.4.1.1 through 4.4.1.5 will be evenly distributed during the endurance and reliability test.

4.4.2 Maintainability Verification. To determine conformance to 3.4.2, the maintainability requirements shall be verified during development testing. The maintainability requirements shall not be greater than specified.

4.4.3 Environmental. To determine conformance to 3.4.3, the vehicle, properly serviced shall be tested to demonstrate its capability to start, operate, be transported and stored in climate design types as specified.

4.4.3.1 Cooling System. To determine conformance to 3.4.3.1, with the vehicle operating under specified conditions and operating temperatures, verify the cooling system meets functional requirements and engine and transmission lubricant temperatures do not exceed those shown in Table I, Operating Temperatures.

4.4.3.2 Hydraulic Cooling. To determine conformance to 3.4.3.2, the vehicle shall demonstrate the ability to perform the specified winch/lifting operations under all specified temperature conditions. The hydraulic system shall perform three consecutive maximum load hoist/winch operations followed by one maximum load main winching operation per hour for four consecutive hours.

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4.4.4 Speed.

4.4.4.1 Speed without Towed Load. To determine conformance to 3.4.4.1, the vehicle, combat loaded, shall be operated on dry, paved, level roads at 3 m.p.h. low range speed in low gear for not less than one hour and checked for functional operation of components. The vehicle shall demonstrate the ability to attain/maintain convoy speed as specified.

4.4.4.2 Cruising Range. To determine conformance to 3.4.4.2, the vehicle, combat loaded on dry, paved level roads without towed load, shall demonstrate the ability to meet not less than the specified cruising range requirements with a single fill of internal fuel.

4.4.4.3 Tractive Effort. To determine conformance to 3.4.4.3, the vehicle shall demonstrate the ability to tow the 70 ton Main Battle Tank on a level prepared surface with an RCI of 100-150.

4.4.4.4 Speed with Towed Load. To determine conformance to 3.4.4.4, the vehicle combat loaded on dry, paved, level roads shall demonstrate the ability to tow the 70 ton Main Battle Tank at a speed not less than 17 m.p.h. for not less than 10 minutes and a sustained speed of 13 m.p.h. for not less than 1 hour.

4.4.4.5 Speed on Grade. To determine conformance to 3.4.4.5, the vehicle from a standing start on grade shall demonstrate the ability to tow the 70 ton Main Battle Tank up and down grades on trails/cross-country terrain at the specified speeds.

4.4.5 Acceleration. To determine conformance to 3.4.5, the vehicle shall demonstrate the ability to accelerate from a standing start, on dry, paved, level roads through a distance of 200 ft and time checked for performance.

4.4.6 Engine Start on Grades and Slopes. To determine conformance to 3.4.6, the engine shall demonstrate the ability to start on grades as specified.

4.4.7 Auxiliary Power Unit (APU) Performance.

4.4.7.1 APU Hydraulic Performance. To determine conformance to 3.4.7.1, the APU shall be operated to demonstrate its ability to perform each of the specified functions.

4.4.7.2 APU Retrieving Main Winch Wire Rope. To determine conformance to 3.4.7.2, the APU shall be tested. With the wire rope payed-out to the point that only 4 wraps remain on the main winch drum, and with no load applied to the wire rope, the APU shall demonstrate its ability to retrieve the wire rope at an average speed of not less than five feet per minute.

4.4.7.3 APU Retrieving Hoist Winch Wire Rope. To determine conformance to 3.4.7.3, the APU shall be tested. With the wire rope payed-out to the point that only 4 wraps remain on the hoist winch drum, and with no load applied to the wire rope, the APU shall demonstrate its ability to retrieve the wire rope at an average speed of not less than 18 feet per minute.

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4.4.7.4 APU Electrical Performance. To determine conformance to 3.4.7.4, the APU shall be tested. With fully charged vehicle batteries (battery charging current of less than 50 amperes) and with an adjustable electrical load bank connected to the vehicle through the slave receptacle, operate the APU with the generator switch turned on. Measure the voltage and current at the APU voltage regulator output to the vehicle electrical system, under the following conditions:

(A) With the load bank set to zero load and after 5 minutes of operation, measure and record the voltage and current. The voltage regulator output current shall be between zero and 50 amperes (the maximum load with fully charged batteries) with the voltage maintained between 27.3 and 28.7 volts D.C.

(B) Increase the load bank setting until the current flow from the voltage regulator is 100 +5, -10 amperes. After five minutes of operation measure and record the voltage and current. The voltage at the regulator output shall be between 27.3 and 28.7 volts D.C.

(C) Increase the load bank setting until the current flow from the voltage regulator no longer increases (voltage regulator at current output limit). After five minutes of operation, measure and record the current. The voltage regulator output current shall be between 134 and 180 amperes.

4.4.8 Climbing. To determine conformance to 3.4.8, the vehicle shall demonstrate the ability to be operated as specified. There shall be no resultant damage to the power train and the engine shall not stall.

4.4.9 Braking.

4.4.9.1 Stopping without Towed Load. To determine conformance to 3.4.9.1, the vehicle shall demonstrate the ability to be operated on dry, level, hard surfaced road without loose material. The vehicle shall stop under the conditions specified without brakes overheating, fading or requiring maintenance actions.

4.4.9.2 Holding without Towed Load. To determine conformance to 3.4.9.2, a simulated combat load shall be operated on the vehicle in a position that will not restrict the flow of engine air (intake or exhaust). The vehicle shall demonstrate the ability to be driven head up and down grade and the parking brakes applied and held for not less than two minutes without vehicle movement.

4.4.9.3 Stopping with Towed Load. To determine conformance to 3.4.9.3, the vehicle shall be operated on specified slopes while towing the 70 ton Main Battle Tank and shall demonstrate the ability to stop utilizing service brakes without jackknifing in the distance

specified.

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4.4.9.4 Holding with Towed Load. To determine conformance to 3.4.9.4, the vehicle while towing the 70 ton Main Battle Tank shall demonstrate the ability to be driven up and down a 30% grade and the parking brakes applied and held for not less than one minute. The vehicle shall not exhibit any movement.

4.4.10 Steering. To determine conformance to 3.4.10, the vehicle shall be operated and turned to right and to left through full 360 degrees pivot turns in neutral steer and when operating at the specified speeds the vehicle shall be turned through 180 degree turns. The vehicle shall meet the steering requirements.

4.4.11 Fording.

4.4.11.1 Fording Without Towed Load. To determine conformance to 3.4.11.1, the vehicle shall be driven into water of specified depths without the Main Battle Tank. Water accumulation on the hull floor beneath the crew compartment shall not exceed the specified depths when measured on a level road surface.

4.4.11.2 Engine Operation and Bulkhead Leakage. To determine conformance to 3.4.11.2, the vehicle shall be tested while fording 48 inches of water with the engine compartment flooded by removing engine compartment drain cover. Water accumulation beneath crew compartment and components shall not exceed two inches in depth when measured on a level road surface.

4.4.11.3 Lubrication Contamination. To determine conformance to 3.4.11.3, after all fording operations, water contamination content of the transmission, final drives and suspension system lubricants shall be measured and shall not exceed 2% by volume.

4.4.12 Trench Crossing. To determine conformance to 3.4.12, the vehicle shall be driven in a forward direction over trenches as specified. The vehicle shall not stall or exhibit any resultant damage.

4.4.13 Vertical Obstacles. To determine conformance to 3.4.13, the vehicle shall be operated over vertical obstacles as specified. The vehicle shall not stall or exhibit any resultant damage.

4.4.14 Spade. To determine conformance to 3.4.14, the spade shall demonstrate the ability to stabilize the vehicle when winching and hoisting loads as specified.

4.4.15 Primary Hydraulic Pump. To determine conformance to 3.4.15, the hydraulic pump shall be tested for the capability to provide adequate pressure and flow rates to operate the winches, cylinders and hydraulic motors as specified.

4.4.16 Hoist Winch, Boom and Hook.

4.4.16.1 Hoist Winch. To determine conformance to 3.4.16.1, the hoist winch shall demonstrate the ability to vertically lift over the boom 70,000 lbs from ground level to a hook height of not less than 22.5 ft. at a nominal 8-foot reach in front of the hull for not less than 30 minutes on level, hard surface (gravel) terrain when 200 feet of cable is installed on the winch. The winch shall reel in cable as specified at a rate of not less than 30 ft. per minute.

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4.4.16.2 Boom/A-Frame and Hook. To determine conformance to 3.4.16.2, the boom/A-frame and hook shall be operated through the fully extended and retracted positions. The time to raise and stow the boom/A-frame and hook shall not exceed the time specified. The boom/A-frame and hook shall pick up a load of 70,000 lbs, at a nominal 8-foot reach in front of the hull, suspend the load for 1 minute, and then alternately lift the load in 2 ft increments and holding the load 1 minute until a hook height of not less than 22.5 ft is achieved. While lifting 60,000 lbs a live boom/A-frame movement of not less than 4 ft fore and aft shall be demonstrated.

4.4.16.3 Lift and Carry. To determine conformance to 3.4.16.3, the boom/A-frame and hook shall be operated in the fully extended position while lifting and carrying not less than the loads/distances/speeds as specified.

4.4.16.4 Live Range Boom Drift. To determine conformance to 3.4.16.4, Live Range Boom Drift shall be measured and compared to the requirements specified in the Allowable Combined Boom Lever Drift Chart. The vertical distance between the top of the rear stop and the bottom of the boom lever is measured for the right and left boom levers. Two measurements are taken per boom lever: one at the start (initial) and one at the end (final) of a five-minute hold period. The combined vertical distance is: left boom lever final measurement minus initial measurement added to right boom lever final measurement minus initial measurement.

4.4.17 Main Winch and Auxiliary Winches.

4.4.17.1 Main Winch. To determine conformance to 3.4.17.1, the main winch shall demonstrate the capacity for a 140,000 lbs. \b1 10% single line pull and shall have a minimum useable length of 280 feet of cable as specified. Stall shall be achieved by in-hauling an initially slack rope anchored to a dead man until tight and approximately 75% of maximum pull (105,000 lbs.) is achieved. The winch control will then be placed in neutral for a minimum of one second with this load imposed. The winch shall then be in-hauled again, and the load recorded when the winch stalls.

4.4.17.2 Auxiliary Winch. To demonstrate conformance to 3.4.17.2, the auxiliary winch shall demonstrate the ability to be deployed as specified. Verify that the auxiliary winch and cable provide pull to deploy the main winch cable as required to out-haul the main winch for recovery operation. The auxiliary winch in-haul speed shall be controllable to match the pay out speed of the main winch cable.

4.4.18 Main and Hoist Winch Brakes. To determine conformance to 3.4.18, the main winch and hoist winch brakes shall be operated to demonstrate the ability for holding, controlling the rate of descent and stopping capability as specified under specified loads. The brakes shall not induce winch or hydraulic system chatter.

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4.4.19 Main Hydraulic System. To determine conformance to 3.4.19, the main hydraulic system shall be operated throughout all stages of operation, under all operating conditions. All hydraulically operated systems shall function as specified. The hydraulic pump operation shall be checked for main system relief pressure, RPM and overheating. Verify system hydraulic fluid maximum contaminant particle counts are within the maximum allowed under the ISO 16/13 standard.

4.4.19.1 Intentionally Not Used.

4.4.20 Steering Degradation. To determine conformance to 3.4.20, the vehicle shall be operated about a 50 ft. radius turn in the clockwise and counter-clockwise direction. The vehicle, in second gear, and travelling approximately 5 mph shall negotiate three consecutive 360 degree rotations, the mean steer pressure shall not exceed 62 psig in each direction, tracking on the outside of the turn.

4.4.21 Radio Suppression. To determine conformance to 3.4.21, the vehicle shall be subjected to a radio interference suppression test. Paragraph 5-Detailed Requirements of MIL-STD-461 for test RE102 (Radiated Emissions, Electric Field, when subjected to a frequency range of 2 MHz to 10 GHz) of Table IV-Emissions and Susceptibility Requirements and Table V-Requirement Matrix are provided as reference.

4.5 Painting, Marking and Data Plates.

4.5.1 Painting. To determine conformance to 3.5.1 all vehicle paint shall be inspected in accordance with and shall comply with the specified military specifications and standards.

4.5.2 Marking. To determine conformance to 3.5.2 all parts identification and vehicle marking shall be inspected in accordance with and shall comply with the specified military standards.

4.5.3 Data Plates. To determine conformance to 3.5.3 all data plates shall be inspected in accordance with and shall comply with the specified military publications.

4.5.4 NBC Warning Decal. To determine conformance to 3.5.4, the vehicle shall be inspected for proper location and drawing conformance of the NBC warning decal.

4.6 Preparation for Delivery. Inspect vehicles to determine conformance to 5.1.

5. PREPARATION FOR DELIVERY

5.1 Vehicle Processing. The vehicle shall be processed to the specified level of protection (see 6.2) in accordance with the vehicle processing specification developed by the contractor and approved by the Government prior to delivery of the first vehicle.

6. NOTES

This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.

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6.1 Intended Use. This system is intended to recover 70 ton MBTs from the battlefield. The system will operate in the same environments and geographical areas as the system it supports.

6.2 Ordering Data. Procurement documents should specify the following:

- a. Title, number and date of specification.
- b. Quantity of vehicles.
- c. If wire rope is required (see 3.1).
- d. If special kits are required (see 3.3.1).
- e. If painting shall be other than specified (see 3.5).
- f. If responsibility for inspection shall be other than specified (see 4.1).
- g. The desired level of protection for vehicle processing (see 5.1).

6.3 Definitions. For the purpose of this specification the following definitions shall apply.

6.3.1 Gross Vehicle Weight (GVW). The GVW shall include the weight of the recovery vehicle with all kits, attachments, accessories, equipment, BII, COEI, and full complement of fuel, lubricants, coolants, hydraulic fluid and crew.

6.3.2 Maximum Towed Load. The maximum towed load shall be defined as the Main Battle tank (MBT) with a maximum gross vehicle weight of 70 US tons.

6.3.3 Gross Combination Weight (GCW). The GCW shall be defined as the sum of the GVW and the maximum towed load.

6.3.4 Vehicle Cone Index (VCI). The minimum soil strength in the critical soil layer in terms of RCI for fine grained soils, and CI for coarse grained soils, required for a specific number of passes of a vehicle. VCI indicates only one pass.

6.3.5 Rated Cone Index (RCI). An index of the shearing resistance of a medium at any depth by a penetrometer. The resistance to penetration by a 30 degree cone with a 0.5 square inch circular base is expressed in pounds of force on the handle per square inch of the base area. In the basic Waterways Experiment Station (WES) Vehicle Cone Index (VCI) system the CI is considered as an index only, and no direct meaning is assigned to its dimensions.

6.3.6 Degradation. Cracked welds, cracked material, permanent deformation, or any other indication of a decline of the structural integrity of the recovery vehicle.

6.3.7 Intentionally not used.

6.3.8 Terrain Conditions.

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6.3.8.1 Primary Roads. Two or more lanes, all weather, maintained, hard surface (paved) roads with good driving visibility used for heavy and high density traffic. These roads have lanes with a minimum width of 9 feet, road crown to 20 degrees and the legal maximum GVW/GCW for the country or state is assured for all bridges. These roads are surfaces having root mean square (RMS) value of 0.1 inches.

6.3.8.2 Secondary Roads. Two lanes, all weather, occasionally maintained, hard or loose surface (e.g., large rock, paved, crushed rock, gravel) intended for medium-weight, low-density traffic. These roads have lanes with minimum width of 8.25 feet and no guarantee that the legal maximum GVW/GCW for the country or state is assured for all bridges. These roads are surfaces having a RMS value varying between 0.3-0.6 inches.

6.3.8.3 Trails. One lane, dry weather, unimproved, seldom maintained loose surface roads, intended for low density traffic. Trails have a minimum width of 8.25 feet, no large obstacles (boulders, logs, stumps) and no bridging. These are surfaces having an RMS value varying between 0.5-1.0 inches.

6.3.8.4 Cross-Country. Vehicle operations over terrain not subject to repeated traffic in addition, no roads, routes, well-worn trails or man made improvements exist (this definition does not apply to vehicle test courses which are used to simulate cross-country terrain). These are surfaces having an RMS value varying between 0.8 and 1.5 inches.

6.3.9 Quality Assurance Terms and Definitions. Unless otherwise specified quality assurance terms used herein shall be as defined in ISO 8402 or ASQC A8402.

6.3.10 Inspection Deficiencies. The inspector shall verify that an inspection of each vehicle is performed by the contractor not only for the characteristics listed herein, but also for any other departure from good workmanship. The Government inspector shall assure that all deficiencies encountered during the inspection are enumerated on the deficiency sheet for the vehicle. Corrective action shall be taken for recurring deficiencies.

6.3.11 Fluid Leakage Defects. The following shall be used in classification of fluid leakage defects:

- a. Class I - Seepage of fluid (as indicated by wetness and discoloration) not great enough to form drops.
- b. Class II - Leakage of fluid great enough to form drops but not great enough to cause drops to drip from item being checked/inspected.
- c. Class III - Leakage of fluid great enough to form drops that fall from the item being checked/inspected.

6.3.12 Useable Winch Cable Length. The length of cable as measured from the center of the pin in the clevis to the bump in the nosepiece with four wraps of cable on the winch drum.

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6.4 Classified Annex A. Requests for copies of the classified Annex A should be addressed to:

ATTN: AMSTA-DSA-CM-H, Warren, MI 48397-5000.

ANNEX B
DCA STANDARD COMPONENTS

<u>COMPONENT</u>	<u>SPECIFICATION/OAR ARMY PART #</u>
Pulse Tachometer, In-Line	12258931-1
Pulse Tachometer, Single-ended	12258931-2
Pressure Transducer -15 PSIG	12258932-1
Pressure Transducer -5 PSIG	12258932-2
Pressure Transducer 10 PSIG	12258932-3
Pressure Transducer 25 PSIG	12258932-4
Pressure Transducer 30 PSIG	12258932-5
Pressure Transducer 100 PSIG	12258932-6
Pressure Transducer 300 PSIG	12258932-7
Pressure Transducer 3000 PSIG	12258932-8
Pressure Transducer 30 PSIG	12358932-9
Pressure Transducer 100 PSIG	12358932-10
Temperature Sensor, Integral Bridge	12258933
Differential Pressure Switch - Multi-point	12258934
Differential Pressure Switch	12258938
Electrolyte Level Sensor	12258935
Shunt 1000 Amp/100 mV	12258937-1
Shunt 2000 Amp/100 mV	12258937-2
Connectors, Harness Transducer	
Contact, Stamped (Pin and Socket)	12258939
Insulator, Housing Receptacle	12258940
Connector, Receptacle 54 Pin	12258941
Cap, Dust	12258943

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ANNEX C
DCA STANDARD MEASUREMENTS/TEST

<u>TEST SELECT NUMBER</u>	<u>MEASUREMENT/TEST</u>
10	Engine RPM (Average)
12	Power Test (RPM/SEC)
13	Power Test (Percent)
14	Compression Unbalanced (Percent)
24	Fuel Supply Pressure (PSI)
26	Fuel Filter Pressure Drop (Pass/Fail)
27	Fuel Solenoid Voltage (VDC)
30	Turbocharger Outlet Pressure (Right)(In Hg)
31	Turbocharger Outlet Pressure (Left)(In Hg)
67	Battery Voltage (VDC)
68	Starter Motor Voltage (VDC)
69	Starter Neg. Cable Voltage Drop (VDC)
70	Starter Solenoid Voltage (VDC)
71	Starter Current Average (AMPS)
72	Starter Current First Peak (Peak Amp DC)
73	Battery Internal Resistance (Miliohms)
74	Starter Circuit Resistance (Miliohms)
75	Battery Resistance Change (Miliohms/sec)
80	Battery Current
82	Alt/Gen Output Voltage (VDC)
83	Alt/Gen Field Voltage (VDC)
84	Alt/Gen Neg Cable Voltage Drop (VDC)

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ANNEX D
(RESERVED)

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ANNEX E
(RESERVED)

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ANNEX F

1. OPERATIONAL RELIABILITY AND MAINTAINABILITY FAILURE DEFINITION AND SCORING CRITERIA (FD/SC)

a. Introduction. This paragraph contains the HERCULES failure definition and scoring criteria. The FD/SC is used to establish an agreed upon base. The data base will be used for making reliability and maintainability assessments which measure RAM characteristics and RAM related logistics burden for the system for evaluation of Contractor Furnished Equipment (CFE) and Government Furnished Equipment (GFE) against operational criteria. All test incidents, including embedded computer software incidents, will be scored using guidelines in paragraph b.

b. Mission Essential Functions. The HERCULES has four mission essential functions; they are: move, recover (lift, tow, and winch), communicate, and NBC protection. The levels of performance of these mission essential functions are defined under the applicable essential characteristics in the ROC. An incident which would result in the inability to safely perform one or more of these mission essential functions to a level described below will be charged as an operational mission failure.

(1) Move Function. The HERCULES must be able to safely begin and end operations (start and stop) without outside assistance and must be capable of safely and effectively maneuvering over paved and secondary roads, trails, cross-country terrain, and up and down grades such that the system travel and tow supported disabled vehicles. In order to accomplish this, the system must be able to provide the following mobility, including braking and steering ability, while functioning alone and when towing supported vehicles:

(a) Move forward and backward.

(b) Safely and adequately tow the Main Battle Tank up and down grades, on hard surfaced and cross-country terrain, minimally, as outlined below.

SECONDARY, TRAILS/CROSS-COUNTRY
(FINE GRAIN, 250-330 RCI)

Tow the MBT at maximum weight up a 10% grade ---- 5 MPH

Tow the MBT at maximum weight up a 20% grade ---- 3 MPH

Tow the MBT at maximum weight up a 30% grade ---- Must be able to negotiate with continued, positive forward speed.

(c) Be capable of maintaining combat convoy speeds of supported systems without towed load of 25 MPH on a dry, paved surface, level road.

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(2) Recover Function. The vehicle must be capable of recovering all supported vehicles, including the maximum weight MBT, using integral anchoring/stabilization capability to prevent movement during maximum load recovery operations.

(a) Lift Function. The vehicle must be capable of providing sufficient lift to recover the heaviest overturned/nosed supported system up to rated lift capacity.

(b) Tow Function. The vehicle must be capable of towing all supported vehicles on all realistic recovery routes, without loss of steering/control (jackknifing), or outside assistance.

(c) Winch Function. The vehicle must be capable of winching all supported vehicles, providing up to rated pull force. The light auxiliary winch must enable deployment of the main winchcable by one soldier.

(3) Communicate Function. The communication system must be capable of providing two-way communications within the vehicle (intercom), with other vehicles and other fixed stations.

(4) Provide protection for the equipment/crew passengers against the effects of Nuclear, Biological, and Chemical (NBC) attack.

c. Classification/Chargeability Guidelines.

(1) Outline. The process of scoring test incidents is divided into two parts. The first part is the classification of the test incident based upon the failure definition. Classification is a categorization of the effect on the incident. The classification is made without regard to who or what caused the incident or when it occurred. The classification procedures are covered in steps 1 through 6 of paragraph 3c(3). The second part of the scoring process is the assignment of chargeability for all test incidents. The chargeability step assigns the primary cause for the occurrence of the test incident to one of nine operational elements. Once chargeability has been determined, the appropriate agency will be assigned the responsibility for the corrective action. Figure 3-3 contains the classification /chargeability flow chart. Chargeability is covered in step 7 of paragraph 3c(3).

(2) Operational Mission Failure. An operational mission failure is any incident or malfunction (actual, intermittent, or incipient) of the system which caused or could have caused the inability to perform one or more mission essential functions or a critical or catastrophic hazard to personnel or equipment.

(3) Classification/Chargeability Flow Chart Expansion.

(a) Step 1 -- No Test.

1 - Question: Is the incident a "No Test?"

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2 - Procedure: If the answer is "NO", proceed directly to Step 2. If the answer is "YES", score the incident as "NO TEST" and record the no test category, then stop.

3 - Expansion: The "No Test" category includes the following:

a - Pretest Checkout. This includes an initial road test and "burn-in" of components. The test plan must specify the number of miles or hours for the pretest "burn-in." The "burn-in" period specified for the test will be the same as that which is planned for all future production vehicles. Incidents occurring during this period are scored as "NO TEST." All incidents detected after the initial inspection period will be scored on their own merits under succeeding steps.

b - Equipment Modification. This includes all maintenance actions involved in the installation of hardware kits or incorporation of redesigned components. If the replaced component was not functioning at the time of its replacement with the modification, the incident will be scored on its own merit. The maintenance time will be estimated based on the time to restore the system to its original condition. Subsequent malfunctions of the modification will be scored on their own merit.

c - Test Peculiar. Malfunctions caused by non-system equipment or people not acting as crew or maintenance personnel are scored as "NO TEST." Engineering evaluations to analyze the cause of malfunctions as well as any malfunctions and/or maintenance efforts caused by the engineering evaluation are scored as "NO TEST." This also includes maintenance evaluations conducted as a part of the test plan and malfunctions to or caused by test peculiar instrumentation. Incidents related to test peculiar diagnostic equipment used in lieu of the diagnostic equipment which will be fielded are scored under their own merit under succeeding steps. Incidents caused by contractor or other personnel acting as crew or maintenance personnel will be scored under their own merit under succeeding steps.

d - Daily Checks and Services. This consists of pre-operation, during operation, and post-operation checks and services performed by the crew as prescribed by the equipment publication which were completed within 30 minutes using non-excessive quantities of Petroleum, Oils and Lubricants (POL) and on the On Equipment Materiel (OEM) tools and repair parts. If these criteria are not met, the incident will be scored on its own merit under succeeding steps.

e - Deliberate Abuse. This includes willful abuse (e.g., performance capability limit test) whether it was prescribed by the test plan or not. Abuse by crew or maintenance personnel will be scored on its own merit under succeeding steps.

f - Non-RAM Oriented. This step includes those events for which a test incident report might be initiated by the test activity, but which are not incidents used in RAM computations. Examples include suggested improvements, reports of test procedure, unusable or unacceptable replacement parts which were discovered prior to or during installation, inability to meet performance specifications where no malfunction occurred and selected human factors improvements. Recommended changes to the system support package not related to a specific test incident are also covered by this step.

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(b) Step 2 - Crew Correctable Maintenance Action (CCMA).

1 - Question: Was the incident a malfunction which was corrected by the crew (as authorized by the operators -10 manuals) using only on-board tools, repair parts and spares, and which was performed within 30 minutes?

2 - Procedure: If the answer is "NO", proceed directly to Step 3. If the answer is "YES", classify as a "CCMA" and record one removal for each spare (i.e., repairable item) used. Record the clock minutes, maintenance man-minutes and repair parts used, go to Step 7.

3 - Expansion: This step covers those minor maintenance actions which may interrupt the mission, but which the crew can correct by "immediate action" and continue the mission. Crew "action" need not be maintenance, but may be simply rerunning the "beginning operations" procedures. In a test environment, there will usually be test peculiar analysis and diagnostic time associated with the action. Delete test peculiar time before scoring this incident. Crew maintenance man-hours are not included in the maintainability parameters. A spare is defined as "those support items that are coded as repairable (i.e., repairable items)." A repair

part is defined as "those support items that are coded as not repairable (i.e., consumable items.)"

(c) Step 3 - Operational Mission Failure (OMF)

1 - Question: Did the incident cause or could it have caused either:

a - The inability to perform one or more of the mission essential functions to the degree specified in paragraph 3.b.?

b - A critical or catastrophic hazard to personnel or equipment as defined by MIL-STD-882E, 11 May 2012.

2 - Procedure: If the answer is "NO", proceed directly to Step 4. If the answer is "YES", and before proceeding to Step 7, classify incident as "OMF", "Essential Maintenance Action" (EMA) and "Unscheduled Maintenance Action" (UMA). Record one removal for each spare used. Record the clock minutes, maintenance man-minutes for both on and off-system maintenance by level and Military Occupational Specialty (MOS) and repair parts used.

3 - Expansion: A malfunction caused by another simultaneous malfunction is scored as one failure. The maintenance time will be the sum of the maintenance time for both incidents. An incipient malfunction whose repair is/can be deferred to a scheduled maintenance period will be scored on its own merit under succeeding steps. If a system has two items which are redundant at all times, an OMF is not scored unless both times are down at the same time. If a backup system is not redundant at all times, a failure of the primary item will be scored as an OMF regardless of the status of the backup system at the time of the incident. System effectiveness parameters must account for the effects of day/night operations, good/bad weather, etc., on the loss of a mission essential function.

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(d) Step 4 - Essential Maintenance Action (EMA).

1 Question: Was the incident an unscheduled maintenance action which required corrective action prior to starting the next mission?

2 Procedure: If the answer is "NO", proceed directly to Step 5. If the answer is "YES", classify as "EMA" and "UMA" and record one removal for each spare used. Record the clock minutes, maintenance man-minutes for both on and off-system maintenance by level and MOS, and the repair parts used, go to Step 7.

3 Expansion: Essential maintenance actions include all operational mission failures plus any additional unscheduled maintenance actions which require corrective action prior to starting the next mission (e.g., repair of a redundant mission essential component).

(e) Step 5 - Unscheduled Maintenance Action (UMA).

1 Question: Was the incident an unscheduled maintenance action?

2 Procedure:

a If the incident is not an unscheduled maintenance action go to Step 6.

b Otherwise, classify the incident as an unscheduled maintenance action, and record one removal for each spare used. Record the clock minutes, maintenance man-minutes for both on and off-system maintenance by level and MOS, and the repair parts used, and then go to Step 7.

c Test-peculiar time should be excluded from the maintenance times recorded.

(f) Step 6 - Scheduled Maintenance Action (SMA).

1 Statement: The incident was an SMA.

2 Procedure: Classify the incident as a SMA and record one removal for each spare used. Record the clock minutes, maintenance man-minutes for both on and off-system maintenance by level and MOS, and the repair part used.

3 Expansion:

a SMAs are services or repairs performed at intervals measured by calendar time, by mileage or by conditions (wear limits, low-battery-power, depleted lubrications, etc).

b To qualify as an SMA, the maintenance must be prescribed by an equipment publication, and there must be enough latitude in the

time for the performance of the maintenance that it can be done in a slack period between missions.

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(g) Step 7 - Identification of Chargeable Elements.

1 Question: What operational element was primarily responsible for the incident?

2 Procedure: Assign the test incident to one of the following categories.

a Chargeable to the Hardware (CH). This includes personnel related incidents that are attributable to characteristics of the hardware design.

b Chargeable to Embedded Computer Software (CS). This includes personnel related incidents that are attributable to characteristics of the embedded computer software and Built-In Test Equipment (BITE) and its software. Each occurrence of a recurring embedded software incident will be scored on its own merit.

c Chargeable to Crew (CC).

d Chargeable to Maintenance Personnel (CMP).

e Chargeable to manuals (CM). This includes personnel related incidents that are attributable to misleading, incorrect, or missing information.

f Chargeable to Support Equipment (CSE). The support equipment includes special and common tools, spares, repair parts, associated software, etc.

g Chargeable to Accident (CA). This includes only accidents which cannot be charged to one of the above elements; e.g., an accident caused by a crew error would be charged as "CC".

h Chargeable to Government Furnished Equipment (GFE).

i Chargeable to Training. These are incidents caused by an inadequate training support package.

3 Expansion: This step assigns chargeability to all incidents except the "NO TEST" and scheduled maintenance incidents. Actual maintenance need not be performed in order to assign chargeability. During the scoring of a conference corrective action process, the chargeability may be further broken out if necessary. (e.g. Contractor Furnished Equipment (CFE), Government Furnished Equipment (GFE)).

d. Extract of MIL-STD-882E, Department of Defense Standard practice System Safety, dated 11 May 2012, provides uniform requirements and criteria for establishing and implementing system safety programs. Under Section V, the work hazard severity is defined as follows:

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Hazard severity categories are defined to provide a qualitative measure of the worst potential consequences resulting from personnel error, environmental conditions, design inadequacies, procedural deficiencies, and system subsystem or component failure or malfunctions as follows:

Category I Catastrophic

Could result in one or more of the following: death, permanent total disability, irreversible significant environmental impact, or monetary loss equal to or exceeding \$10M. Category II Critical

Could result in one or more of the following: permanent partial disability, injuries or occupational illness that may result in hospitalization of at least three personnel, reversible significant environmental impact, or monetary loss equal to or exceeding \$1M but less than \$10M.

Category III Marginal

Could result in one or more of the following: injury or occupational illness resulting in one or more lost work day(s), reversible moderate environmental impact, or monetary loss equal to or exceeding \$100K but less than \$1M.

Category IV Negligible

Could result in one or more of the following: injury or occupational illness not resulting in a lost work day, minimal environmental impact, or monetary loss less than \$100K.

ANNEX G
(Transmitted By Email)

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ANNEX H
(RESERVED)

ATPD 2150J

ANNEX I

Engine:

Engine oil: Engine oil shall be in accordance with MIL-PRF-2104.

A sample shall be obtained after every 25 hours of engine operation or 30 days (whichever comes first) for the Army Oil Analysis Program (AOAP).

For Hard Time Intervals:

When AOAP is not available and OE/HDO is used, drain and refill engine oil at 1500 miles of operation, or 150 hours or semi-annually (whichever comes first). If Engine Oil Arctic (OEA) is used, drain and refill at 750 miles of operation or quarterly (whichever comes first).

Transmission:

Transmission fluid shall be in accordance with Caterpillar TO-4.

When AOAP support is not available, drain and refill the transmission at 1500 miles or semi-annually (whichever comes first).

ATTACHMENT 0002
DD FORM 254 CONTRACT SECURITY CLASSIFICATION GUIDE
Revision 4, 24 July 2013

To be provided under separate cover

ATTACHEMENT 0003
GOVERNMENT FURNISHED MATERIAL (GFM)
Revision 4, 24 July 2013

M88A2 HERCULES - FY13 US ARMY
VEHICLE QUANTITY - 48 EACH

<u>PART NUMBER</u>	<u>NOMENCLATURE</u>	<u>MAX QTY</u>
	SINGARS Installation Kits	49 each
	Heater	49 each
	VIS	49 each
See Attachment 0008	BII	49 veh sets
See Attachment 0008	COEI	49 veh sets
	OBS	49 veh sets
NSN: 5855-01-499-3576	DVE AN/VAS-5A(V)IX	49 each
	M88A1 Hulls and Components	49 veh sets

5895-01-225-3333-GFM SINGAR INSTALLATION KIT												1
JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
3	3	3	4	1								
5-19-2295				FILTER, GAS								2
JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
6	6	6	8	2								
5-19-853				FILTER, PARTICULATE								2
JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
6	6	6	8	2								

GFM deliveries are expected to occur the end of the indicated month

ATTACHMENT 0005
RESERVED

ATTACHMENT 0006
APPROVED ECPs
Revision 4, 24 July 2013

<u>ECP NO.</u>	<u>DESCRIPTION</u>
GSD-W1350	COMMON IUID PLATES (CLASS I)
GSD-W1355	GATE VALVE AND REFUEL DEFUEL PUMP (CLASS I)
GSD-W1405	ANTENNA GASKET MATERIAL CHANGE 7726600*00 TO *01 (CLASS II)
GSD-W1402	STOWAGE OPMOD VER/VAL (CLASS I)
GSD-W1410	CLARIFICATION NEEDED FOR RVX100013/M88 APPLIQUE ARMOR HEAT TREAT REQUIREMENT (CLASS II)
GSD-W1418	HYDRAULIC CYLINDER FEATURE CONTROL M88A2 (CLASS II)
GSD-W1406	M88A2 DRIVERS ACCELERATOR PEDALPAINT FREE HOLE (CLASS II)

ATTACHMENT 0007
COMPONENTS REQUIRING UID MARKING
Revision 4, 24 July 2013

<u>Part Number</u>	<u>Description</u>
123670933307-025	APU Assembly
123647812022057	Transmission
123644592344	Spade Weldment
123645660990064	Hoist Winch
123670943307-025	Engine Assy-Service Engine
12365133L0616	RT Box
12365937-133050639	Pump, Hyd (Front Triple pump)
125106872367	Final Drive Left Side
1247486412298	Heater
12478486611106728/00181	Manifold, Main and Hoist Winch
1236453000850	Main Winch
123648960406	Level Winder Assy
125106882398	Final Drive Right Side
123645510357	Hydraulic Reservoir Assembly
1236665642154928	Hyd Motor Assembly
12364852512376-3-5	Power Take Off Clutch
1236593749662853	Pump Hyd Front Triple Pump
123644580375	Spade Arms
123645730991077	AUX Winch
12364610SEQKC007	SEQKC007 OCMV
1236480081060	Engine

ATTACHMENT 0008
 BASIC ISSUE ITEMS (BII)
 COMPONENTS OF THE END ITEM (COEI)

FY13 M88A2 PRODUCTION BAE LIST

Item	NSN	QTY	CAGE	Part No
Tow Bar Assembly, Heavy	2540-01-434-8595	2	19206	11580775
Auxiliary Boom	2590-01-431-1220	1	19207	12365452
Block, Snatch, 140-Ton	3940-01-421-6962	1	06085	12364523
Block, Hook, 35-Ton	3940-01-429-8206	1	06085	12365945
Block, Snatch, 6.5-Ton	3940-01-435-6371	1	19207	12366387
Hoist, Hand Chain	3950-01-436-4605	1	19207	12366425
Cables, Tow, Steel, 1-1/2 IN DIA X15 FT LG	4010-01-421-2793	2	19207	12364389
Shackle, 50 Ton	4030-01-420-8862	4	06085	12364385-1
Shackle, 21 Ton	4030-01-420-8863	6	19207	12364735
Shackle, 12-1/2-Ton	4030-01-433-2301	6	06085	12364386
Hose, Hydraulic, Impact Wrench 3/8 IN DIA X 5 FT LG	4720-00-856-0483	1	19207	10894463
Hose, Hydraulic, Impact Wrench 1/2 IN DIA X 5 FT LG	4720-00-856-0484	1	19207	10894462
Wrench, Impact, Electric, 1/2 IN Square Drive	5130-01-309-6589	1	19207	12369282
Block Assembly, Lockout, Right	5340-01-440-6732	1	19207	12365794-2
Block Assembly, Lockout, Left	5340-01-460-1440	1	19207	12365794-1
Wheel, Solid Rubber	2530-00-701-3976			7013976or
owWheel, Solid Rubber	2530-01-532-1569	2	19207	12478116
Sprocket Wheel	3020-00-293-5136	2	19207	8705893
Track Parts Kit, Connector Wedge	2530-00-608-2271	6	19207	5702471
Track Parts Kit, Center Guide	2530-00-860-7348	4	19207	5703035
Bolt, Support Roller	5308-00-538-0854	12	19207	5380854
Nut, Sprocket Bolt	5310-00-225-6408	22	96906	MS51922-53
Bolt, Sprocket	5306-00-799-7722	22	19207	7997722
Nut, Road Wheel	5310-01-064-3910	20	19207	12274570
Manual, Technical, Operators	TM9-2350-292-10	1		\~ \~
Wheel, Solid Rubber	2530-00-293-5137	2	19207	8706067
Seat, Vehicle	2540-00-087-0199	2	19207	8676244
Cutter, Exothermic	3439-01-553-0279	1	19207	12478096
Net, Cargo	3940-01-477-7074	1	098P0	B9154-096-
064-2R				
Kit, Exterior Lighting				1 1920712543900

FY13 M88A2 GFM (BII/COEI)

<u>Item</u>	<u>NSN</u>	<u>QTY</u>	<u>CAGE</u>	<u>Part Number</u>
Radio Intercommunication System, AN/VIC-3(V) 14 (M88A1/M88A2)	5830-01-452-3568	1	80063	3210704
Driver's Vision Enhancer (DVE), FOS CV Kit for M88	5855-01-499-3576	1	80063	1000351- 101
Mount, Machine Gun .50 Cal	1005-00-704-6650	1	19204	7046650
Launcher, Grenade, Armament Subsystem*	1055-01-015-0874	1	81361	B13-12-32
Cover, Protective, Discharger, Left Hand	1040-01-042-3861	1	81361	13-12-39
Cover, Protective, Discharger, Right Hand	1040-01-043-7896	1	81361	13-12-38
Discharger, Grenade, Smoke, Countermeasures, Left Hand	1040-99-965-8028	1	81361	13-12-34
Discharger, Grenade, Smoke, Countermeasures, Right Hand	1040-99-965-8029	1	81361	13-12-35
M239 Storage Box	2540-01-208-7115	2	81361	13-12-176
Push Button, M239	5930-01-167-4606	1	81361	13-12-37

PIIN/SIN W56HZV-13-C-0358

MOD/AMD

ATT/EXH ID Attachment 0008

PAGE 2

Items to be provided at Fielding Site. BAE Systems shall not be responsible for indicated GFM items ()

FY11 M88A2 Production Rock Island List

Item	NSN	QTY	CAGE	PAGE		
				Part	Number	3
Link Assembly, Track Shoe	2530-00-692-9316			6	19207	8705914
Binder, Cargo Tie-Down	3990-01-235-0367			1	19207	12344373
Chain Assembly, Double Leg, Lifting, Heavy Duty, 7/8 IN	4010-00-133-6517		1	19207	10929894	
Chain, Utility 5/8" X 16' Single Leg w/Hook and End Link	4010-00-473-6166		4	19207	7077063	
Shackle, Anchor, High Strength, Federal Spec RR-C-271, Type IVA, Grade B, Class 1, 2.00 INMM) DIA	4030-00-377-1389		4	81348	RR-C-271 TYIVA GRB CL1 SZ	
2 IN						
Extinguisher, Fire, Portable, 5-LB CO2 or 7359703	4210-00-270-4512			2	80063	SCD539482
		4210-01-500-9658			2	19207
Tube, Filler, Nozzle, 34 IN LG	4710-00-792-9886			1	19207	10867298
Hose, Hydraulic, Impact Wrench, 3/8 IN DIA X 25 FT LG	4720-00-792-9884		2	19207	10867295	
Hose, Hydraulic, Impact Wrench, 1/2 IN DIA X 25 FT LG	4720-01-475-6916		2	19207	10867293	
Nozzle & Fuel Hose Assembly	4930-00-861-9982			1	19207	10884808
Vise, Bench & Pipe, 4-bolt mounting	5120-00-243-9072			1	80244	5120-00-243-9072
Fixture, Track, Connect, 3/4 IN Drive w/Bar Lever	5120-01-016-2149		2	19207	12252120	
Wrench, Impact, Hydraulic, 3/4 IN Square Drive	5130-01-471-1328		1	19207	12390171	
Pin, Locking, Quick Attach	5315-00-350-4326			12	19207	5213744
Pin, Standard 10929861	5315-00-539-9174				6	19207
Padlock Set, 1-3/4 IN (5 Lock Set)	5340-00-682-1505			2	96906	MS21313-52
Clevis, M1 12322662	5340-01-267-2908				4	19207
Bag, Pamphlet 11676920	2450-00-670-2459				1	19207
Hook, Tow Cable 7068219	2540-00-706-8219				2	19207
Pin, Tow Cable Hook	5315-00-706-9195				4	19207
Cylinder, Compressed, Gas, "Oxygen" w/Valve and Cap, Filled -15	8120-00-357-7992	1		81348		C901/1
Folder, Equipment Record 43986	7530-01-065-0166	1		81349		MIL-F-
Binder, Loose Leaf, For Manuals 3	7510-00-889-3494	1		19207		1167700
Clevis Assembly, Tow Bar, (Medium Duty), M113 5	2540-00-863-3153	2		19207		1089425
Tarpaulin 4-1T	2540-01-330-8062	1		19207		1093626
Kit, Slave Cable, Special Purpose 9-1	2590-00-148-7961	1		19207		1168237
Sling, Endless, 4 FT 48	3940-00-675-5002	1		81996		PD101-
Apron, Blacksmith 55098	8415-00-234-9254	1		58536		A-A-
						Type I
Class I						
Adapter, Thin Stem Gun, Lubr, Sleeve Type	4930-00-204-2550	1		19207		5349744
Adapter, Extension, Hydraulic Gun Tube, Flex 12 IN LG	4930-00-288-1511	1		19207		6300333
Grease Gun, Hand, High Pressure, 21 OZ. Capacity 2or r	4930-00-766-3545	1		19207		1094752
	or					Grease Gun, Hand, High Pressure, 21 OZ.
Capacity	4930-01-133-7143	1				1231211
8Axe, Single Bit, 4 LB	5110-00-293-2336	1		19207		6150925
Hammer, Machinist, Ball Peen 8-3	5120-00-061-8546	1		19207		1167702

Hammer, Hand, Blacksmith	5120-00-203-4656	1	05047	B107.54
Handle, Breaker Bar, 3/4 IN Square Drive 0	5120-00-221-7959	1	19207	1247492
Jack, Hydraulic, Hand, 12-Ton w/Operating Handle 00-224-7330	5120-00-224-7330	1	80244	5120-
Wrench, Adjustable, 18 IN LG	5120-00-240-1414	1	05047	B107.8
Mattock, Pick, w/o Handle 2	5120-00-243-2395	1	19207	1167702
Bar, Crow, Pinch, 5 FT. LG, 1-1/4 IN W 9-1	5120-00-224-1390	2	19207	1167704
Lube Fitting Tool 2311	5120-00-246-2311	1	80244	5120-00-246-
Wrench, Adjustable, Automotive Type, 15 IN LG, 3.625 IN Jaw Opening 3793	5120-00-264-3793	1	80244	5120-00-264-
Wrench, Adjustable, Open End, 12 IN 8-5	5120-00-264-3796	1	19207	1165577
Wrench, Pliers, 1-3/4 IN Opening	5120-00-277-4244	1	05047	B107.24
Handle, Mattock, 36.0 IN Long, Type V, Class I, No. 6 Eye, Grade AA 1	5120-00-288-6574	1	19207	1167702
Shovel, General Purpose, D-Handled, Size 2, Round Point 4	5120-00-293-3336	1	19207	1165578
Pliers, 1-3/4 IN Opening, Curved Jaw w/Cutter	5120-00-494-1911	1	05047	B107.24
Pin, Drift	5120-00-505-5918	2	80244	DWG5120-00-239-0035
Handle, socket wrench, 3/4-inch drive 3/4 Drive	5120-00-249-1076	1	80244	B107.10TY1CL2
Sledge, Blacksmith, Double Face, 10 LBS TY10CL1	5120-00-900-6097	1	80244	GGG-H-86
Key Set, Type 1, Hexagon Socket Screw Key, L Type, Class 1 Short Series, Set Consists of These Keys W/Case	5120-00-935-4641	1	05047	B18.3
Puller & Pump, Track End Connector 9	5120-01-052-5642	1	19207	1228547
Wrench Set, Socket, 3/4 IN Square Drive, 6 Point, Heavy Duty, w/Case & Extension Bars, 9/16 IN To 1-1/2 IN Opening 16 Pieces	5130-00-357-5135	1	05047	B107.2
Socket, Socket Wrench, Power Drive, 6 Point, Thin Wall, 1-5/16 IN Opening (Used On Track Center Guide Nut) 7-1	5130-01-084-6025	1	19207	1089484
Universal, Impact, 3/4 IN Square Drive	5130-01-299-0175	1	55719	IP82
Bag, Tool, Satchel 9	5140-00-473-6256	1	19207	1165597
First Aid Kit, Motor Vehicle, 12 Unit, Size 1 1	6545-00-922-1200	2	19207	1167701
Surveyor's Level 0200	6675-00-641-3163	1	74067	80-
Can, Water, Military, 5 Gal	7240-00-089-3827	2	45152	3819249
or 2	7240-01-365-5317	2	81349	MIL-C-43613D Type
Spout, Can, Flex Nozzle 0	7240-00-177-6154	2	19207	1167702
Funnel, S, Zinc Coated, 1 QT (8 IN LG Flexible Tube Spout w/Removable Strainer)	7240-00-559-7364	1	0T115	495
Can, Fuel, Military, 5 Gal, Tan or	7240-01-337-5268	2	1EFH8	3007547 Can,

Fuel, Military, 5 Gal, Olive Drab 53109 9207	7240-01-337-5269 Funnel, Offset 12477631	2 7240-01-517-5539	81349	MIL-C- 1	1
Diagram, Strap Locator 5	7690-01-056-2033	1	19207	1167212	
Highway Warning Device Set, Portable Triangular Shaped 0	9905-00-148-9546	1	19207	1166900	
Rope, Fibrous, 100 FT LG 1	4020-01-204-7039	1	19207	1232257	
Adapter, Impact, 1/2 IN Drive to 3/4 IN Drive	5120-01-378-5897	1	55719	GLA12B	

ATTACHMENT 0009
 US ARMY PARTS INSTALLED OR STOWED POST-DD250
 Revision 4, 24 July 2013

PRE-SHIP

12366000	STOWAGE BASKET (WELDED)	EA	1
12366002	STOWAGE BASKET (WELDED)	EA	1
12366003	STOWAGE BASKET (WELDED)	EA	1
12366004*01	STOWAGE BASKET (WELDED)	EA	1
BB-0-925-GFM-TAN	CYLINDER, OXYGEN PAINT TAN CARC 686A, 33446	EA	1
8120-00-357-7992-CFM	CYLINDER, COMPRESSED, GAS, 'OXYGEN' W/VALVE AND CAP, FILLED	EA	1
AA59486-1AB05S2E1	PADLOCK SET OF 5 KEYED ALIKE	EA	1
MS90727-62	SCREW (B1821BH038F125N)	EA	3
MS27183-14	WASHER, FLAT	EA	30
MS51968-8	NUT	EA	3
MS90725-174	SCREW	EA	2
MS51967-20	NUT	EA	2
BMY23000-1*00	ACCESS COVER SCREEN BMY23000	EA	1
BMY23000-2*00	ACCESS COVER SCREEN S.O. BMY23000	EA	3
BMY23000-3*00	ACCESS COVER SCREEN S.O. BMY23000	EA	1
MS35338-46	WASHER (W211NAA0037NN155NNNF1)	EA	30
MS90725-58	SCREW	EA	30
U14974	COVER, PERISCOPE .125 X 2.75 X 7.75 TYPE 2, SURFACE 2, FINISH D	EA	17
10867412*01	LOCK, DOOR	EA	5
IRV00183-R-TAN	KIT, BOLTED GRILL DOORS REMAN	EA	1
MS27183-18	WASHER	EA	17
MS35338-48	WASHER (W211NAA0050NN155NNNF1)	EA	12
MS90727-108	SCREW, CAP-HEX	EA	5
MS90727-114	SCREW, CAP-HEX	EA	8
MS90727-117	SCREW, B1821BH050F250N	EA	4

CLOSE/LOAD/SHIP

<u>Item</u>	<u>Description</u>	<u>UOM</u>
<u>Qty</u>		
AK13904683-FY11-BOX1-GFM	KIT, COEI/BII, ARMY GFM	EA 1
AK13904683-FY11-BOX2-TAN	KIT, COEI/BII, ARMY TAN	EA 1
AK13904683-FY11-BOX3-GFM	KIT, COEI/BII, ARMY GFM	EA 1
AK13904683-FY11-BOX4-GFM	KIT, COEI/BII, ARMY TAN	EA 1
AK13904683-FY11-BOX5-TAN-GFM	KIT, COEI/BII, ARMY TAN GFM	EA 1
AK13904683-FY11-BOX6-TAN-GFM	KIT, COEI/BII, ARMY TAN GFM	EA 1
7240-00-089-3827-GFM	CAN, WATER	EA 2
7240-01-337-5268GFM	PLASTIC GAS CAN TAN	EA 2
7359703-GFM	EXTINGUISHER, FIRE, PORTABLE	EA 2
12478096	EXOTHERMIC CUTTER KIT ARMY	EA 1