

STATEMENT OF WORK

SOW-02-833-3-08953A-2/1

**FOR THE IROAN OF THE
M1A1 MAIN BATTLE TANK**

NSN: 2350-01-087-1095

TAMCN: E1888

ID# 08953A

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TABLE OF CONTENTS

<u>PARAGRAPH</u>		<u>PAGE</u>
1.0	Scope	1
1.1	Background	1
2.0	Applicable Documents	1
2.1	Military Standards	1
2.2	Other Government Documents and Publications	1
2.3	Depot Maintenance Work Requirements	3
2.4	Stock List	3
2.5	Operators Manuals	4
2.6	Technical Manuals for Hull	4
2.7	Technical Manuals for Turret	4
2.8	Technical Manuals for Sight/Fire Control	4
2.9	Technical Manuals General	4
2.10	Industry Standards	5
3.0	Requirements	5
3.1	General Task	5
3.2	Detail Task	6
3.2.1	Phase I-Pre-Induction	6
3.2.2	Phase II-IROAN	3
3.2.3	Phase III-Inspection, Testing and Acceptance	9
3.2.4	Phase IV-Packaging, Handling, Storage and Transportation	10
3.3	Configuration Management	10
3.3.1	Configuration Status Accounting (CSA)	10
3.3.2	Configuration Control	11
3.4	Government Furnished Equipment(GFE)/ Government Furnished Material(GFM)	11
3.5	Contractor Furnished Materiel (CFM)	11
3.6	Electromagnetic Environmental Effects (E3) Procedures	11
3.7	Quality Assurance Provisions	11
3.8	Rejection	12
4.0	Reports	12
4.1	Repairable Item Inspection Report	12
4.2	Weekly Progress Report	12
4.3	Monthly Cost Status Report	12
4.4	Pre-shop Analysis/Final Inspection Record/Acceptance Tests/Final Assembly and Testing/Final Performance Check	12
4.5	Dynamometer Run-In Schedules	12
 <u>Appendix</u>		
A	Special Instructions for Contractor	
B	Pre-Induction Checklist	
C	M1A1 Weekly Status Report	

STATEMENT OF WORK (SOW)
Repair Only As Necessary (IROAN) Program
M1A1 Main Battle Tank
NSN 2350-01-087-1095

1.0 Scope. This Statement of Work (SOW), along with Depot Maintenance Work Requirements (DMWRs), establishes and sets forth tasks, and identifies the work efforts that shall be performed by the Contractor. For the purpose of this SOW, Contractor is defined as the commercial or government entity performing the (IROAN) in the effort of the M1A1 Main Battle Tank. This document contain requirements to restore the M1A1 Main Battle Tank to Condition Code "A." Condition Code A is defined as "serviceable/issuable without qualification, new, used, repaired or reconditioned materiel which is serviceable and issuable to all customers without limitation or restriction, including materiel with more than 6 months shelf-life remaining."

1.1 Background. IROAN is defined as "That maintenance technique which determines the minimum repairs necessary to restore equipment components or assemblies to prescribed maintenance serviceability standards by utilizing all available diagnostic equipment and test procedures in order to minimize disassembly and parts replacement."

2.0 Applicable Documents. The following documents form a part of this SOW to the extent specified. Unless otherwise specified, the issues of these documents are those listed in the Department of Defense Index of Specifications and Standards (DoDISS) and supplement thereto which is in effect on the date of solicitation. In the event of conflict between the documents referenced herein and the contents of this SOW, the contents of this SOW shall be the superseding requirements.

2.1 Military Standards

MIL-STD-129	DoD Standard Practice for Military Marking
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2.2 Other Government Documents and Publications

ATPD-2240	Tank Combat Full Tracked, M1 Series, Processing for Storage and Shipment
DoD 4000.25-1-M	MILSTRIP Manual
NAVICPINST 4491.2A	Requisitioning of Contractor Furnished Materiel from the Federal Supply System
MI-08953A-25/1	Installation of Guard Assembly
MI-08953A-25/3	Installation of Position Location Reporting System
MI-08653A-24/1B	Installation of Intercommunication Set, AN/VIC-2 (V)
MI-08953A-25/5	Installation of The Two-Piece Fuel Nozzle Kit
MI-08953A-35/4	External Auxiliary Power Unit
MI-08953A-50/6	Upgrade Fire Control System (Armor Enhancement Initiative)
MI-08953A-35/2A	Installation of Sincgars Radio System
MI-08953A-35/8	Installation of Shield in Manual Hydraulic Pump Handle Assembly

MI-08953A-25/7	Replacement of Hydraulic Pump Pressure Hose
MI-08953A-35/9	Installation of Lubrication Fitting in The Inner Race Bearing Assembly
MI-08953A-35/10	Modify the Gunners Station
MI-08953A-35/11	Modify the Ammo Door Latch Mechanism
MI-08953A-35/12	Installation for the Automatic Fire Extinguisher System Wiring Harness Guard Kit
MI-08953A-35/13	Installation of the Battlefield Override System
MI-08953A-35/14	Installation of the Improved Drivers Periscope Retention
MI-08953A-35/15	Installation of the Smoke Generator Fuel Line
MI-08953A-35/16	Modify Drivers and Loaders Hatch Rim
MI-08953A-35/17	Installation of the Manual Blasting Machine Wiring Harness and Primer Diode Assembly
MI-08953A-35/18	Modify Drivers Hatch Lifting Mechanism
MI-08953A-35/19	Modify Commanders Weapon Station Hatch
MI-08953A-35/20	Improve Operation of the Hull Network Distribution Box
MI-08953A-35/21	Installation of the Pulse Jet Air System
MI-08953A-35/22	Replace Stub Case Catcher
MI-08953A-35/23	Modify Engine Component Fire Extinguisher System
	Dispersion Tube
TB-09728-14&P	Armor Vehicle Maintenance System
TB 9-1300-278	Armor Depleted Uranium
TB 9-2350-320-14	120MM Ammunition
TB 9-2520-276-12	Warranty for the Transmission
TB 9-2590-509-23&P	Mine Clearing Blade, M1A1
TB 43-0001-39-5	Track Components & Solid Rubber Tires
TI-08953A-34/3	Repair of Rotary Shock Absorbers
TI-5820-25/22	Electromagnetic Environmental Effects (E3) Procedures for Installation of Communication Equipment on U.S. Marine Corps Platforms
TI-8400-15/16	Installation of Combat Identification Panel Kits on Marine Corps Vehicles
TM-4750-15/1	Painting Registration Markings
TM-4750-15/2	Camouflage Pattern

2.3 Depot Maintenance Work Requirement (DMWR)

DMWR 9-1200-206-CEU	Computer Electronic Unit
DMWR 9-1200-206-GPS-1	Gunners Primary Sight
DMWR 9-1200-206-GPS-2	Gunners Primary Sight Azimuth Drive Assembly
DMWR 9-1200-206-GPS-3	Gunners Primary Sight Objective & Relay Assembly
DMWR 9-1200-206-GPSE	Commanders Gunners Primary Sight Extension
DMWR 9-1200-206-GTR	Gun Trunnion Resolver
DMWR 9-1200-206-LOS-EU	Line of Sight Electronic Units
DMWR 9-1200-206-LRF	Laser Range finder
DMWR 9-1200-206-STDA	Servo Torque Drive Assembly
DMWR 9-1200-206-TEU	Thermal Electronic Unit

DMWR 9-1200-206-TIS	Thermal Image System
DMWR 9-1200-206-TPCU	Thermal Power Control Unit
DMWR 9-1200-206-TRU	Thermal Receiver Unit
DMWR 9-1200-206-GAS	Gunners Auxiliary Sight
DMWR 9-2350-255-3	Armor Repair
DMWR 9-2520-276 Vols1-3	Transmission Assembly W/Container
DMWR 9-2520-279	Final Drive
DMWR 9-2530-200-24	M1 Hull Track
DMWR 9-2350-264-2	Turret M1& M1A1
DMWR 9-2350-264-2-1	Traverse Servomechanism
DMWR 9-2350-264-2-2	Elevation Servomechanism
DMWR 9-2350-264-2-3	Turret Hydraulic Distribution Valve
DMWR 9-2350-264-2-4	Hull/Turret Slip ring Assembly
DMWR 9-2350-264-2-5	Hydraulic Motor Assembly
DMWR 9-2350-555 Vols 1-6	Hull Power Plant Electronics Components
DMWR 9-2520-276-1 Vols 1-3	Transmission Assembly W/Container
DMWR 9-2550-526	Hydraulic Pump
DMWR 9-2835-255 Vols 1-5	Turbine Engine, Field Service Model AGT 1500 W/Container
DMWR 9-2910-231	Electro-Mechanical Fuel System
DMWR 9-2920-254	Generator (Westinghouse)
DMWR 9-2920-259	Generator (Bendix)
DMWR 9-2940-200	Rotary Pump Assembly
DMWR 9-4320-326	Hydraulic Pump (Vickers)
DMWR 9-4800-206	Nuclear, Biological, Chemical System

Military Handbooks (For Guidance)

MIL-HDBK-61	Configuration Management Guidance
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2.4 Stock List

SL-3-08953A	Tank, Combat, Full Tracked M1A1
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2.5 Operators Manuals

TM 9-2350-264-10-1	Operator's Manual Vol 1
TM 9-2350-264-10-2	Operator's Manual Vol 2
TM 9-2350-264-12	Lube Order

2.6 Technical Manuals for Hull

TM 9-2350-264-20-1-1	Unit Maintenance Manual Vol 1
TM 9-2350-264-20-1-2	Unit Maintenance Manual Vol 2
TM 9-2350-264-20-1-3	Unit Maintenance Manual Vol 3
TM 9-2350-264-20-1-4	Unit Maintenance Manual Vol 4
TM 9-2350-264-20-1-5	Unit Maintenance Manual Vol 5

TM 9-2350-264-24-1	Schematics
TM 9-2350-264-24P-1	Unit Direct and General Support Maintenance Repair Parts and Special Tools List
TM 9-2350-264-34-1-1	Unit Direct and General Support Maintenance Vol 1
TM 9-2350-264-34-1-2	Unit Direct and General Support Maintenance Vol 2

2.7 Technical Manuals for Turret

TM 9-2350-264-20-2-1	Unit Maintenance Manual Vol 1
TM 9-2350-264-20-2-2	Unit Maintenance Manual Vol 2
TM 9-2350-264-20-2-3	Unit Maintenance Manual Vol 3
TM 9-2350-264-20-2-4	Unit Maintenance Manual Vol 4
TM 9-2350-264-24-2	Schematics
TM 9-2350-264-24P-2	Unit Direct and General Support Maintenance Repair Parts and Special Tools List
TM 9-2350-264-34-2-1	Unit Direct and General Support Maintenance Vol 1
TM 9-2350-264-34-2-2	Unit Direct and General Support Maintenance Vol 2

2.8 Technical Manuals for Sight/Fire Control

TM 9-1200-206-34-1	Unit Direct and General Support Maintenance Vol 1
TM 9-1200-206-34-2	Unit Direct and General Support Maintenance Vol 2
TM 9-1200-206-34-3	Unit Direct and General Support Maintenance Vol 3
TM 9-1200-206-34P-1	Unit Direct and General Support Maintenance Repair Parts and Special Tools List Vol 1
TM 9-1200-206-34P-2	Unit Direct and General Support Maintenance Repair Parts and Special Tools List Vol 2

2.9 Technical Manuals General

TM 5-4210-218-13&P	Fire Bottles
TM 9-1000-202-14	Evaluation of Cannon Tubes
TM 9-2300-422-23&P	Oil Analysis Program
TB 9-2350-283-23-1	Configuration Matrix
TM 9-2520-276-34	Transmission Maintenance
TM 9-2520-276-34P	Transmission Repair Parts and Special Tool List
TM 9-2520-279-34P	Final Drive
TM 9-2835-255-34	Engine Maintenance
TM 9-2835-255-34&P	Engine Repair Parts and Special Tool List
TM 9-4910-573-14&P	Ground Hop Support Set
TM 9-4910-751-14&P	STE-M1
TM 9-4910-753-13&P	Powerpack Maintenance Stand
TM 9-4931-586-12-1&P	Test Set DSETS (Core)
TM 9-4931-586-12-2&P	Test Set DSETS (M1)
TM 9-4931-586-12-4&P	Test Set DSETS (TIS)
TM 9-4931-586-30&P	Test Set DSETS (DS/MAINT)
TM 9-4933-259-14&P	Muzzle Boresight

TM 9-2530-200-24	Track
TM 9-6115-24&P1	External Auxiliary Power Unit
TM 11-5855-249-10	Drivers Viewer Operator's Manual
TM 11-5855-249-20	Drivers Viewer Maintenance Manual
TM 11-5865-309-2	Missile Countermeasure Device

2.10 Industry Standards.

ANSI/ISO/ASQC Q9002-1994	Quality Systems- Model for Quality Assurance in Production, Installation, and Servicing
JESD625-A	Requirements for Handling Electrostatic-Discharge Sensitive (ESDS) Devices

Industry Standards (For Guidance)

ANSI/EIA-649	National Consensus Standard for Configuration Management
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Copies of Military Standards and Specifications are available from the DOD Single Stock Point, Document Automation and Production Service, Building 4/D, 700 Robbins Avenue, Philadelphia, Pa 19111-5094, Telephone commercial (215) 697-2179 or DSN 442-2179, or <http://www.dodssp.daps.mil>. Copies of other government documents and publications required by contractors in connection with specific SOW requirements shall be obtained through the Contracting Officer: Commander, Attn: Contracting Officer (Code 891), Marine Corps Logistics Bases, 814 Radford Blvd., Albany Georgia 31704-1128, commercial telephone number (229) 639-6761 or DSN 567-6761. Copies of engineering drawings, if applicable, shall be obtained from the Life Cycle Management Center, Attn: Code 851-3, 814 Radford Blvd. Suite 20320, Albany, Georgia 31704-0320, commercial telephone number (229) 639-6410 or DSN 567-6410.

3.0 Requirements

3.1 General Task. In fulfilling the specified requirements, the contractor shall:

- a. Provide material, labor, facilities, missing parts and repair parts necessary to inspect, diagnose, restore, and test the M1A1. Upon completion of the IROAN, vehicles shall be condition Code "A."
- b. Special Instructions in Appendix A must be adhered to.
- c. M1A1 Weekly Status Report must be submitted.
- d. Conduct in-process and final on-site testing for witness by a Marine Corps Logistics Bases (Code 833-3), Albany, Georgia representative.

3.2 Detail Tasks. The following tasks describe the different phases for IROAN of the M1A1.

3.2.1 Phase I - Pre-Induction inspection analysis shall be performed for each M1A1 using the Contractor Facility's diagnosis, inspection and testing techniques to determine extent of work and parts required. These findings shall be annotated on the Pre-Induction Checklist located in Appendix B and shall be provided to MCLBA (Code 833-3) in accordance with Section 4.0 of this SOW.

3.2.2 Phase II . After pre-induction test and inspections have been completed, repair of the M1A1 shall be accomplished in accordance with the following documents:

DMWR 9-1200-206-CEU	Computer Electronic Unit
DMWR 9-1200-206-GPS-1	Gunners Primary Sight
DMWR 9-1200-206-GPS-2	Gunners Primary Sight Azimuth Drive Assembly
DMWR 9-1200-206-GPS-3	Gunners Primary Sight Objective & Relay Assembly
DMWR 9-1200-206-GPSE	Commanders Gunners Primary Sight Extension
DMWR 9-1200-206-GTR	Gun Trunnion Resolver
DMWR 9-1200-206-LOS-EU	Line of Sight Electronic Units
DMWR 9-1200-206-LRF	Laser Range finder
DMWR 9-1200-206-STDA	Servo Torque Drive Assembly
DMWR 9-1200-206-TEU	Thermal Electronic Unit
DMWR 9-1200-206-TIS	Thermal Image System
DMWR 9-1200-206-TPCU	Thermal Power Control Unit
DMWR 9-1200-206-TRU	Thermal Receiver Unit
DMWR 9-1200-206-GAS	Gunners Auxiliary Sight
DMWR 9-2350-255-3	Armor Repair
DMWR 9-2520-276 Vols1-3	Transmission Assembly W/Container
DMWR 9-2520-279	Final Drive
DMWR 9-2530-200-24	M1 Hull Track
DMWR 9-2350-264-2	Turret M1& M1A1
DMWR 9-2350-264-2-1	Traverse Servomechanism
DMWR 9-2350-264-2-2	Elevation Servomechanism
DMWR 9-2350-264-2-3	Turret Hydraulic Distribution Valve
DMWR 9-2350-264-2-4	Hull/Turret Slip ring Assembly
DMWR 9-2350-264-2-5	Hydraulic Motor Assembly
DMWR 9-2350-555 Vols 1-6	Hull Power Plant Electronics Components
DMWR 9-2520-276-1 Vols 1-3	Transmission Assembly W/Container
DMWR 9-2550-526	Hydraulic Pump
DMWR 9-2835-255 Vols 1-5	Turbine Engine, Field Service Model AGT 1500 W/Container
DMWR 9-2910-231	Electro-Mechanical Fuel System
DMWR 9-2920-254	Generator (Westinghouse)
DMWR 9-2920-259	Generator (Bendix)
DMWR 9-2940-200	Rotary Pump Assembly
DMWR 9-4320-326	Hydraulic Pump (Vickers)
DMWR 9-4800-206	Nuclear, Biological, Chemical System
MI-08953A-25/1	Installation of Guard Assembly
MI-08953A-25/3	Installation of Position Location Reporting System
MI-08653A-24/1B	Installation of Intercommunication Set, AN/VIC-2 (V)

MI-08953A-25/5	Installation of The Two-Piece Fuel Nozzle Kit
MI-08953A-35/4	External Auxiliary Power Unit
MI-08953A-50/6	Upgrade Fire Control System (Armor Enhancement Initiative)
MI-08953A-35/2A	Installation of Sincgars Radio System
MI-08953A-35/8	Installation of Shield in Manual Hydraulic Pump Handle Assembly
MI-08953A-25/7	Replacement of Hydraulic Pump Pressure Hose
MI-08953A-35/9	Installation of Lubrication Fitting in The Inner Race Bearing Assembly
MI-08953A-35/10	Modify the Gunners Station
MI-08953A-35/11	Modify the Ammo Door Latch Mechanism
MI-08953A-35/12	Installation for the Automatic Fire Extinguisher System Wiring Harness Guard Kit
MI-08953A-35/13	Installation of the Battlefield Override System
MI-08953A-35/14	Installation of the Improved Drivers Periscope Retention
MI-08953A-35/15	Installation of the Smoke Generator Fuel Line
MI-08953A-35/16	Modify Drivers and Loaders Hatch Rim
MI-08953A-35/17	Installation of the Manual Blasting Machine Wiring Harness and Primer Diode Assembly
MI-08953A-35/18	Modify Drivers Hatch Lifting Mechanism
MI-08953A-35/19	Modify Commanders Weapon Station Hatch
MI-08953A-35/20	Improve Operation of the Hull Network Distribution Box
MI-08953A-35/21	Installation of the Pulse Jet Air System
MI-08953A-35/22	Replace Stub Case Catcher
MI-08953A-35/23	Modify Engine Component Fire Extinguisher System
	Dispersion Tube
TB-09728-14&P	Armor Vehicle Maintenance System
TB 9-1300-278	Armor Depleted Uranium
TB 9-2350-320-14	120MM Ammunition
TB 9-2520-276-12	Warranty for the Transmission
TB 9-2590-509-23&P	Mine Clearing Blade, M1A1
TB 43-0001-39-5	Track Components & Solid Rubber Tires
TI-08953A-34/3	Registration Markings
TM-4750-15/2	Camouflage Pattern
SL-3-08953A	Tank Repair of Rotary Shock Absorbers
TI-5820-25/22	Electromagnetic Environmental Effects (E3) Procedures for Installation of Communication Equipment on U.S. Marine Corps Platforms
TI-8400-15/16	Installation of Combat Identification Panel Kits on Marine Corps Vehicles
TM-4750-15/1	Painting, Combat, Full Tracked M1A1
TM 9-2350-264-10-1	Operator's Manual Vol 1
TM 9-2350-264-10-2	Operator's Manual Vol 2
TM 9-2350-264-12	Lube Order
TM 9-2350-264-20-1-1	Unit Maintenance Manual Vol 1

TM 9-2350-264-20-1-2	Unit Maintenance Manual Vol 2	
TM 9-2350-264-20-1-3	Unit Maintenance Manual Vol 3	
TM 9-2350-264-20-1-4	Unit Maintenance Manual Vol 4	
TM 9-2350-264-20-1-5	Unit Maintenance Manual Vol 5	
TM 9-2350-264-24-1	Schematics	
TM 9-2350-264-24P-1	Unit Direct and General Support Maintenance	
	Repair Parts and Special Tools List	
TM 9-2350-264-34-1-1	Unit Direct and General Support Maintenance Vol 1	
TM 9-2350-264-34-1-2	Unit Direct and General Support Maintenance Vol 2	
TM 9-2350-264-20-2-1	Unit Maintenance Manual Vol 1	
TM 9-2350-264-20-2-2	Unit Maintenance Manual Vol 2	
TM 9-2350-264-20-2-3	Unit Maintenance Manual Vol 3	
TM 9-2350-264-20-2-4	Unit Maintenance Manual Vol 4	
TM 9-2350-264-24-2	Schematics	
TM 9-2350-264-24P-2	Unit Direct and General Support Maintenance	
	Repair Parts and Special Tools List	TM 9-
2350-264-34-2-1	Unit Direct and General Support Maintenance Vol 1	
TM 9-2350-264-34-2-2	Unit Direct and General Support Maintenance Vol 2	
TM 9-1200-206-34-1	Unit Direct and General Support Maintenance Vol 1	
TM 9-1200-206-34-2	Unit Direct and General Support Maintenance Vol 2	
TM 9-1200-206-34-3	Unit Direct and General Support Maintenance Vol 3	
TM 9-1200-206-34P-1	Unit Direct and General Support Maintenance	
	Repair Parts and Special Tools List Vol 1	
TM 9-1200-206-34P-2	Unit Direct and General Support Maintenance	
	Repair Parts and Special Tools List Vol 2	
TM 5-4210-218-13&P	Fire Bottles	
TM 9-1000-202-14	Evaluation of Cannon Tubes	
TM 9-2300-422-23&P	Oil Analysis Program	
TB 9-2350-283-23-1	Configuration Matrix	
TM 9-2520-276-34	Transmission Maintenance	
TM 9-2520-276-34P	Transmission Repair Parts and Special Tool List	
TM 9-2520-279-34P	Final Drive	
TM 9-2835-255-34	Engine Maintenance	
TM 9-2835-255-34&P	Engine Repair Parts and Special Tool List	
TM 9-4910-573-14&P	Ground Hop Support Set	
TM 9-4910-751-14&P	STE-M1	
TM 9-4910-753-13&P	Powerpack Maintenance Stand	
TM 9-4931-586-12-1&P	Test Set DSETS (Core)	
TM 9-4931-586-12-2&P	Test Set DSETS (M1)	
TM 9-4931-586-12-4&P	Test Set DSETS (TIS)	
TM 9-4931-586-30&P	Test Set DSETS (DS/MAINT)	
TM 9-4933-259-14&P	Muzzle Boresight	
TM 9-2530-200-24	Track	
TM 9-6115-24&P1	External Auxiliary Power Unit	
TM 11-5855-249-10	Drivers Viewer Operator's Manual	
TM 11-5855-249-20	Drivers Viewer Maintenance Manual	
TM 11-5865-309-2	Missile Countermeasure Device	

Deficiencies noted on the Pre-Induction Checklist during Phase I shall be repaired/replaced. Components shall not be disassembled for replacement of mandatory parts unless that part has failed, or the component assembly wherein the part is located is disassembled for repair.

a. Hardware

(1) Replace broken, unserviceable and/or missing hardware including nuts, bolts, screws, washers, turnlock fasteners, mandatory replacement items, safety, and one-time use items, etc., in accordance with the IROAN. Unserviceable would include any of the above that failed to function properly.

(2) Ensure proper hardware locking devices are present on all moving mechanical assemblies.

(3) Hardware normally supplied with commercial parts shall be used unless specifically prohibited.

3.2.3 Phase III - Inspection, Testing and Acceptance

a. Inspection, Testing and Acceptance of the M1A1 shall be conducted in accordance with Appendix "A" and Appendix "B." These completed documents shall be provided to MCLBA (Code 833-3) in accordance with Section 4.0 of this SOW.

b. The contractor shall be responsible for the conducting of required test and shall ensure all necessary personnel are available to complete the final acceptance. Acceptance test shall be held by the Contractor. MCLBA (Code 833-3) shall be given a minimum of two weeks notice prior to the beginning of acceptance testing. The test area shall be clear of all equipment parts, components, etc., not required for the test.

c. The contractor shall be responsible for correcting any deficiencies identified during inspection/testing. MCLBA (Code 833-3) may require the contractor to repeat test portions thereof, if the original test fails to demonstrate compliance with this SOW.

3.2.4 Phase IV – Packaging, Handling, Storage and Transportation (PHS&T)

a. The contractor shall be responsible for the preservation and packaging of items being repaired under the terms of this Statement of Work. Items scheduled for long term storage shall be in accordance with the Level "A" requirements of the ATPD 2240. Items scheduled for immediate shipment to all other destinations, with the exception of Maritime Pre-Positioned Forces (MPF), shall be preserved to Level "B", Drive-on/Drive/off. Items scheduled for overseas destinations shall be Level "B" and have a label affixed which reads: "NOT FOR WEATHER DECK STOWAGE". Items scheduled for MPF shall be preserved to Level "B", MPF Modified Drive-away."

(1) Drive-on/Drive-off: Batteries shall be hot and disconnected from the vehicle electrical system. Terminals and leads shall be taped. Fuel tank shall be ¼ full of JP5 with additives. Air intake system, exhaust system, brake system, drive train and gauges shall be depreserved.

(2) MPF Modified Drive-Away: Batteries shall be hot and connected to the vehicle electrical system. Fuel system shall be $\frac{3}{4}$ full of JP5 with additives. Air intake system, exhaust system, brake system, drive train and gauges shall be depreserved. Fire extinguisher bracket and seats shall be installed.

c. Marking for shipment and storage shall be in accordance with MIL-STD-129.

d. The Marine Corps will provide the contractor with the shipping address(es) for delivery of the rebuilt equipment. The contractor shall be responsible for arranging for the shipment to the pre-designated site(s). The Marine Corps will be responsible for transportation cost associated with shipping the subject equipment to and from the Contractor.

3.3 Configuration Management

3.3.1 Configuration Status Accounting (CSA)

a. The Contractor shall record and submit data on retrofit accomplished during Phase II. All approved Modification Instructions (MI's) shall be verified or applied during Phase II of the IROAN.

b. The contractor shall determine the application status of approved configuration changes by visual inspection. The government will identify the configuration changes to be inspected by furnishing a Configuration Inspection Checklist to the contractor. The contractor shall use one checklist Appendix B per M1A1 to record their inspection findings along with other required data.

c. The contractor shall record serial numbers of the assemblies listed on the Configuration Inspection Checklist. The contractor shall record the information on the same form that was used to record the application status of configuration changes.

3.3.2 Configuration Management. The contractor shall apply configuration control procedures to established configuration items. The contractor shall not implement any changes to an item's documented performance or design characteristics without written authorization. If it is necessary to temporarily depart from the authorized configuration, the contractor shall prepare and submit a Request for Deviation. MIL-HDBK-61 and ANSI/EIA-649 provide guidance for preparing this configuration control document.

3.4 Government Furnished Equipment (GFE)/Government Furnished Material (GFM). GFE is government owned equipment authorized by the contract for use by a commercial/government contractor. It is neither consumed during production nor incorporated into any product. GFM is materiel furnished to a contractor that will be consumed during the course of production or incorporated into the product being manufactured/remanufactured under a contract/statement of work. In the event the Marine Corps does have GFE/GFM requirements the Management Control Activity (MCA/Code 827-2), Marine Corps Logistics Bases, Albany, Georgia, will coordinate required GFE and will maintain a central control on Marine Corps assets in the Contractors possession. The MCA will forward a GFE Accountability agreement to the Contractors Facility for signature to establish a chain of custody and property responsibility for Marine Corps assets.

3.5 Contractor Furnished Material (CFM). The Marine Corps has adopted the Navy's procedures regarding Contractor Furnished Materiel (NAVICPINST 4491.2A). In the event that Contractor Furnished Materiel (CFM) is required for repair parts, the contractor shall requisition repair parts through the DoD Supply System. DoD 4000.25-1-M (MILSTRIP), Chapter 11 authorizes contractors to requisition through the DOD Supply System.

3.6 Electromagnetic Environmental Effects (E3) Procedures.

a. The contractor shall plan for the proper E3 control procedures in the IROAN process and use TI-5820-25/22 in conjunction with the detailed requirements specified in this document.

b. Electrostatic Discharge (ESD) Control Program. The contractor shall establish, implement, and document an ESD control program following the guidelines provided in JESD625-A. ESD protective measures shall be used during manufacturing, handling, inspection, test, marking, packaging, storing, and transporting ESD sensitive components.

3.7 Quality Assurance Provisions. The Contractor shall provide and maintain a quality System that as a minimum adheres to the requirements of ANSI/ISO/ASQC Q9002-94, Quality Systems Model for Quality Assurance in Production, Installation, and Servicing. The Contractors work shall be subject to reviews and inspections for compliance with the procedures and standards by MCLBA (Code 833-3) during working hours. Inspection by MCLBA Code 833-3 of test plans and materials furnished hereunder does not relieve the contractor from any responsibility regarding defects or other failures to meet contract requirements, which may be, contract termination. Notwithstanding such MCLBA (Code 833-3) inspection, it shall be the contractors' responsibility to ensure that the entire system meets the performance requirements delineated and addressed in this SOW and applicable references. The contractor shall establish and maintain an Inspection System Requirement in compliance with ANSI/ISO/ASQC Q9002-94 and in accordance with this SOW. The contractor shall provide an Inspection and Test Plan to MCLBA (Code 833-3).

3.8 Rejection. Failure to comply with any of the specified disclosed prior to final acceptance. Failure of the contractor to promptly correct deficiencies discovered shall be reason for suspension of acceptance until corrective action has been accomplished. The contractor shall have in place documented procedures and standards for quality assurance and the contractors work shall be subject to reviews and inspections for compliance with the procedures and standards by MCLBA (Code 833-3). Noncompliance with procedures resulting in degraded quality of work may result in a stop-work order requiring action by the contractor to correct the work performed and to enforce compliance with quality assurance procedures or face requirements listed herein shall be reason for rejection by MCLBA (Code 833-3). The contractor shall, at no additional cost to MCLBA (Code 833-3), provide the following:

a. Develop an approach for modification or correction of all deficiencies.

b. Upon approval of a documented approach, the contractor shall correct the deficiencies and result the verification until an acceptable compliance with acceptance test procedures is demonstrated.

4.0 Reports.

4.1 Repairable Item Inspection Report. The contractor shall provide a Repairable Item Inspection Report, to MCLBA (Code 833-3), for each M1A1. The report shall be identified by U.S. Marine Corps Serial Number.

4.2 Weekly Progress Report. The contractor shall provide Weekly Progress Reports, to MCLBA (Code 833-3), summarizing the progress and status of the IROAN Program.

4.3 Monthly Cost Status Report. The contractor shall provide Monthly Cost Status Reports, to MCLBA (Code 833-3), summarizing cost data by individual vehicle serial number.

4.4 Pre-shop Analysis/Final Inspection Record/Acceptance Tests/Final Assembly and Testing/Final Performance Check. The overhaul/repair facility shall complete a Pre-shop Analysis Checklist, Final Inspection Record, Acceptance Test, Final Assembly and Testing, and Final Performance Check for each M1A1 repaired. These documents shall be available during final acceptance testing. One copy of each document shall be provided to MCLBA (Code 833-3) after final acceptance of the M1A1.

4.5 Dynamometer Run-In Schedules. The contractor shall complete a copy of the Dynamometer Run-In Schedules. These documents shall show dynamometer test results required on the M1A1 during the Pre-Induction Phase. These documents shall be available during final acceptance testing. One copy shall be provided MCLBA (Code 833-3) after acceptance of the M1A1.

APPENDIX A

SPECIAL INSTRUCTIONS FOR CONTRACTOR

1. All Supply System Responsibility Items (SSRI) will be repaired/boxed and shipped with each vehicle to Condition Code A standards.
2. The contractor will perform a joint Limited Technical Inspection (LTI) with the owning unit for all tanks being inducted into the CVE program. Unit will notify Code 833-3 in advance of which tanks have been nominated for evacuation. Code 833-3 will pass this info on to the contractor within three days of receipt.
3. Contractor will provide the owning unit and Code 833-3 a copy of their LTI sheet upon conclusion of the subject inspection. The contractor shall conduct another LTI prior to induction into the contractor's production facility for work identified within the SOW. Prior to induction LTI, the contractor will notify Code 833-3 that they are ready to proceed with their induction LTI. Code 833-3 will accordingly send a representative to the contractors facility to observe the induction LTI. Upon conclusion of the induction LTI Code 833-3 will retain a copy and one copy will be forwarded to the owning unit.

NOTE

The contractor shall submit all Quality Deficiency Reports (QDR's) and Reports of Discrepancy (ROD's) to Code 833-3 no later than thirty (30) working days after Induction LTI is completed.

4. All vehicle lubricants will be replaced. New improved GAA Grease will be used.
5. Remove power pack, steam clean engine compartment, remove all rust.
6. Preservative will be added to engine turboshaft oil to comply with MPF directives.
7. 30 WT PE Oil will be used in Transmission and Final Drive.
8. Remove #2 shock housing both left and right clean and inspect the hull cavity to ensure there is no damage to the fuel cells or leaks.
9. All fuel cells will be drained and cleaned in accordance with current directives.
10. DF 2 Diesel Fuel will be drained from the fuel system and replaced with JP5 fuel with additive for all vehicles. (The fuel filters will be replaced after DF2 has been drained for the MPF vehicles)
11. Smoke Generator electrical cable for MPF vehicles will be disconnected at smoke generator fuel pump prior to adding JP5. A Warning Tag will be attached to the vehicle master panel stating that the smoke generator will not be used (Tag should state: Fuel cells contain JP 5).

12. All vehicle tracks, to include pads, will be serviceable Condition Code B T158/T158LL Track, in accordance with TB 43-001-39-5.
13. All roadwheels will be serviceable in Condition Code B, in accordance with TB43-001-39-5.
14. Rotary shocks found unserviceable will be repaired in accordance with TI-08953A-34/3.
15. All turrets will be removed for technical inspection, servicing, and corrosion prevention.
16. Gun tubes will have 50% remaining life for MPF. More than 20% gun tube life for non MPF units will be required.
17. Recoil mechanisms/breeches showing 4,500 EFC will be rebuilt in accordance with the current edition of TM-1000-202-14.
18. All "LRU" batteries will be replaced. (CEU)
19. Ammo compartments must be free of moisture and dirt, and rust.
20. All vision blocks will be Condition Code A. Only Laser Safe vision blocks are authorized.
21. Fire extinguishers shall have only MARROTTA type valves installed (NO EXCEPTIONS).
22. All fire bottles will be hydrostatic tested as required and stenciled in one inch letters to reflect test date in a visible area as well as being stamped w/test date IAW CFR 29 and 49.
23. Petroleum, Oil, and Hydraulic leaks are unacceptable.
24. New Gas Particulate/Main NBC/Backup NBC filters will be installed.
25. V Packs and Seals will be replaced.
26. Serial Numbers D11239/L11239 and above will be of M1A1 Common Tank configuration.
27. All communication assets will be operationally checked. If tank has radios installed after op check, ensure all SSRI/Collateral Equipment (antennas, antenna cases, etc) are on the vehicle.
28. Ensure all tanks are in compliance with E3Q Directives.
29. All main NBC components will be removed from the sponsor box and cleaned, preserved, serviced, and replaced as required.
30. The Digital Electronic Control Unit (DECU) Battery Cover (NSN 2590-01-318-0762) shall not be replaced unless it is unserviceable.
31. Stage 1 and 2 corrosion, as identified in TB 43-0213/ TM-3080-34 (Corrosion and Prevention Control), shall be properly treated per standard practices prior to being painted. If stage 3 or 4

corrosion is present, Code 833-3 shall be contacted for future guidance. Vehicles/Components shall not be disassembled for the purpose of identifying or repairing corrosion unless corrosion beyond stage 2 is evident on the exterior of the component.

32. Unless otherwise directed, the contractor shall paint the interior/exterior of the vehicle with Water Reducible Chemical Agent Resistant Coating (CARC), MIL-P-64159 Type 1 and spot paint the interior as indicated in TM 4750-15/1 and TM 4750-15/2. Should the coating not be available the contractor shall request a waiver from Code 833-3 on a by system/vehicle basis.
33. Inspector will record an "A" in block 16 of the monthly page (NAVMC 10394). Block 17 will state ASPM completed.
34. Engine Performance: Tanks leaving the Contractor must meet the current performance standard of 41.5 Miles Per Hour + or- 3.5 Miles Per Hour as determined by the use of a Radar Gun. Mission Capability Power (MCP) number will not exceed 3. Engine should have sufficient power to achieve and maintain the required speed regardless of the time of day or temperature. Any exception would require a waiver from the Weapon System Manager.

1. Requested for waiver should contain the following:
 - a. Date of Test _____.
 - b. Temp at Time of Road Test _____.
 - c. DECU Percent of Power _____.
 - d. MCP# _____.
 - e. Day Power _____ % TI V _____ PTS V _____ Table A and E 20-1-2
 - f. Altitude _____ Table G 20-1-2
 - g. Vehicle Location _____.
 - h. Engine and Vehicle Ser#'s _____
 - i. Engine Components Replaced During Rework

35. NOTE: All units to include EEAP and Reserves will use the Standards outlined in the current Technical Manuals for Accepting/Rejecting Tanks with low engine power.
36. The following action will be taken to improve the quality of preservation on the M1A1 Tank, in addition to requirements of ATPD 2240 dated 9 Jan 98.
 - a. Cover the air intake on the right side of the vehicle.
 - b. Cover the center vent located on the rear of the vehicle under the turret.
 - c. Cover the air access door on the right and left of the vehicle.
 - d. Disconnect negative buss bar. Seal battery box doors.
 - e. Remove the drain plugs on the bottom of the storage box.

- f. Seal tank commander hatch.
 - g. Apply P-19 preservative to the inside turret bolts around the loaders hatch.
 - h. Apply P-11 (GAA) to all exposed non-painted bare metal on the interior of the tank.
 - i. Ensure all areas in the interior of the vehicle required to be painted are painted.
 - j. Tape up drivers and loaders hatches. NOTE: This operation will have to take place after the vehicle is placed on the rail car.
 - k. Seal the access hole for the wind sensor.
 - l. Cut a breather hole in the wind sensor preservation bag so the bag will not collect water or condensation.
 - m. Clean the paint off of the side panel pins and apply P-19 preservative to the surface.
 - n. Seal the gun tube elevation area on exterior of turret.
36. For purposes of clarification and definition, throughput time shall be defined as that time the vehicle is received by the contractor till the time the vehicle is placed back into condition code "A" status. Should the contractor be one of our Marine Corps depots, through-put will be defined as from the time the vehicle is received by the depot from Fleet Support Center till the time the vehicle is accepted by Fleet Support Center in a condition code "A" status.
37. Code 833-3 reserves the right to request a Production Progress meeting when deemed appropriate to discuss issues of concern regarding throughput time. Code 833-3's support objectives as they relate to throughput time are threshold of 90 days with an optimal objective of 60 days.

APPENDIX B
M1A1
Pre-Induction Checklist

HULL

<u>ITEM</u>	<u>STANDARD</u>	<u>INSPECTOR</u>
1. ROADTEST	Inspect vehicle condition and fluid levels prior to road test. Class I, II, III fuel leaks are unacceptable. Verify operation of all controls and suspension system components. Warning/caution lights must operate. Road test vehicle at least 5km. Perform Engine Health test and BIT on DECU prior to and after road test; If fault message appears on display, troubleshoot accordingly.	_____
2. PERFORMANCE	Min. speed requirement shall be 41.5 mph +/- 3.5 mph as determined by the use of a Radar Gun. This is a Contractor requirement for this SOW.	_____
3. SPEEDOMETER	Must be operational. Unusual movement of needle is unacceptable.	_____
4. PANELS DIP, DMP, DAP <input type="checkbox"/>	a. Gages, lights and switches shall operate properly.	_____
	b. All data shall be legible.	_____
	c. Mounting.	_____
5. SMOKE GENERATOR	Operate smoke generator, assure heavy smoke is visible. rear fuel tank shall be at least 1/8 full for smoke generator to operate properly. NOTE: Smoke generator is connected only if DF2 is being used. If JP5 is used, smoke generator shall be disconnected and red-tagged on steering column "DO NOT USE".	_____
6. PARKING AND SERVICE	a. Apply parking brake, move shift control to "L" and run engine slightly above idle. (1000-1100 rpm). Tank should not move.	_____
	<input type="checkbox"/> b. Hydraulic pressure must remain between 1150 and 1700 PSI on parking brake gage. Leaks are unacceptable.	_____

<u>ITEM</u>	<u>STANDARD</u>	<u>INSPECTOR</u>
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- 7. DRIFTING** Drive tank with control centered. Unusual wondering or pulling is unacceptable. REQUIREMENTS: 3 feet drift maximum in 100 foot distance on smooth pavement. _____

- 8. SHIFT RANGE**

 - a. Control shall operate properly, no binding. _____
 - b. Transmission shall operate properly in all ranges. _____

- 9. TACTICAL IDLE** Must operate properly. REQUIREMENT is 1250 - 1350. _____

- 10. HULL**

 - a. Damaged, missing parts, and leaks are unacceptable. All lines, fittings, hardware, and components shall be serviceable. _____
 - b. All labels and decals must be affixed and legible _____

- 11. SKIRTS, HARDWARE** Must all be present and serviceable. Hinges and struts shall be serviceable with pins straight, secured with ring pins or roll pins. Cracks and damage are unacceptable. _____

- 12. FENDERS MUDGUARDS** Holes/cracks NTE 3/8", dents NTE 8" in length and 1/2" in depth. Shall be properly installed with torsion bar hold-down assemblies. _____

- 13. HULL ACCESS & GRILL DOORS** All doors and accesses shall be serviceable and in place with required hardware _____

- 14. EXTERIOR LIGHTS** All lights shall function properly, housing shall be serviceable, all mounting secure. Lenses shall not be cracked and shall not contain moisture. _____

- 15. PLENUM SEAL** Remove hull inspection plate on bottom of vehicle, inspect seal for sealing, cuts, rips, or holes. Insure seal clamp is flat and in place around flange. NOTE: No clamp required on new type seal. _____

- 16. DRAIN VALVES** Shall operate properly without binding. _____

ITEM	STANDARD	INSPECTOR
17. TRACK ADJUSTING LINK AND TRACK TENSION	Loose, missing, broken hardware and lube fittings, loose or missing lock bolt is unacceptable. Pressure relief valve must be capable of holding 2750 - 3200 PSI.	_____
18. ROADWHEEL, COMP IDLER, SUPPORT ROLLERS	Must be serviceable to include the wearplates. Fifty percent factor in TM refers to width only. Chunking NTE 20 percent of entire area. Base separation NTE 3/4" on either side. Wear plate shall have a minimum of circumference of the wheel at the top of plate.	_____
	Leakage Criteria: No grease leakage, however, lubrication leakage is normal at rear of Support Roller in seal adjacent to housing during lubricating.	
19. SHOCK ABSORBERS	a. After road test, check housings for temp cooler than others. Check with hand.	_____
	b. The following conditions are unacceptable:	
	(1) Oil leaks.	_____
	(2) Loose or damaged hardware, plugs, and fittings.	_____
	(3) Cracked, painted, or distorted sight gage. (frosting is acceptable)	_____
	(4) Contaminated.	_____
	c. Leakage Criteria: No oil leakage around Shock Absorbers.	
20. BUMPER STOP BRACKETS	Missing/broken brackets are unacceptable. Required mounting hardware shall be tight at the 1, 2, and 7 positions.	_____
21. TORSION BARS	The following conditions are unacceptable:	
	(1) Arm lifted off track.	_____
	(2) Number 2 thru 6 arms can be lifted with pry bar.	_____
	(3) Tank is tilted or lifting of roadwheel and track at the number 1, 2, and 7 positions	_____
	(4) Broken, damaged, or missing caps.	_____
ITEM	STANDARD	INSPECTOR

22. ROADWHEEL

a. After road test, check hubs for one hotter (unusual temp) than others with hand. _____

b. The following conditions are unacceptable:

(1) Improper oil level. _____

(2) Loose hardware, plugs and fittings. _____

(3) Cracked, painted, or distorted hub caps. _____

(4) Missing or loose support roller retainer shaft retainer pin. _____

(5) Contaminated _____

c. Comp idler shall meet requirements of 1/8" clearance between end connector and skirt. _____

d. Gap between the comp idler and retainer shall not exceed 1/4" (.250). _____

e. Leakage Criteria: No evidence of oil leakage (weep) around Roadwheel and Compensating Idler Hubs at fill plug and flange of hubcaps. At the rear of each hub in the seal area leakage not to exceed 1 drop of oil in 2 hours. At each Arm Upper Spindle in the seal area at positions 1, 2, and 7 leakage not to exceed 1 drop of oil in 2 hours. No grease leakage at seal areas at Upper Spindle at positions 3, 4, 5, and 6. _____ □

23. SPROCKETS, HUBS, FINAL DRIVES

The following conditions are unacceptable:

(1) Missing or loose hardware. _____

(2) Cracks or sharp edged gouges at hub. _____

(3) Exceeds wear gauge limits. _____

(4) Excessive cupping _____

(5) If powerpack is pulled, check trunions, bolt holes etc. _____

Leakage Criteria: No evidence of drip or droplet leakage except during and immediately after engine operation when a drip of 1 drop per 5 minutes is permissible at the Output Shaft Seal area.

24. TRACK

a. Inspect shoe assemblies for missing, bent, or broken center guides and loose or missing nuts and bolts. _____

b. Check for missing, cracked, or unserviceable end connectors. _____

c. End connector wedge bolts shall be tight and seated properly. _____

d. Check for cracked or broken end plates. _____

f. Inspect for dead (broken) track shoes. (A dead track shoe appears to be out of line.) _____

g. Check for exposed binocular tubes on roadwheel path and or grouser surface IAW TM. _____

25. FUEL FILLER NECKS, TANK, AND COVERS

Filler strainers shall be serviceable and clean. Neck cap, chain, grommet cover, and hardware shall be serviceable. Leaks are unacceptable _____

26. TOW PINTLE, TOW POINTS ON HULL

a. Locks, safety pins, and chains shall be installed and free of damage. _____

b. Tow pintle shall open and rotate properly, cracks and excessive play is unacceptable. _____

27. BATTERIES

a. Must start engine; no corrosion present. _____

b. Battery cables shall be tight and rubber covers serviceable and installed correctly. _____

c. Fluid levels shall be correct. _____

d. Battery compartment shall be clean. _____

e. Access doors and hardware shall be serviceable. _____

28. PTS ACTUATOR

Visually inspect PTS actuator. Bottom elbow shall be parallel to the center line of the cylinder hose. Swaged end shall be toward the front of the engine. Swaged end of the top hose will be positioned at approximately the 6 - 7 o'clock position. _____

- 29. AIR INDUCTION SYSTEM**
- a. Access doors, grills, and mounting hardware shall be serviceable. _____
 - b. Precleaner assembly shall be free of dents and cracks. Must seal on plenum box. Latches shall be serviceable. Damaged Vortex Tubes shall not exceed 9 unserviceable tubes. _____
 - c. Air cleaner elements (VEE-Packs) shall be clean and serviceable. _____
 - d. Plenum box shall be clean and free of cracks and broken welds. _____
 - e. (Vehicles equipped with PJAS) Perform PJAS operational check, maintain RPM 1450 for 2 minutes. System shall complete cleaning cycle of 27 pulses. _____

30. ENGINE OIL TANK/SYSTEM Oil leaks are unacceptable. Damaged lines, components, and loose connections are unacceptable. TI 08953A-15/4 relates. Refer to Leakage Criteria. _____

31. FUEL SYSTEM Fuel lines shall be free of damage. Fuel leaks are unacceptable. Fire sheathing shall be serviceable. Loose connections are unacceptable. NOTE: IGV/PTS components are part of the fuel system. _____

32. AIR BLEED TUBE Shall be free of cracks, breaks, holes, or tears. All mounting hardware and clamps shall be serviceable and tight. _____

ITEM **STANDARD** **INSPECT**

33. AIR SCAVENGER TUBE Cracks, breaks, holes, or tears are unacceptable. All mounting hardware and clamps must be serviceable and tight. _____

34. ELECTRICAL HARNESS Cracks, breaks, bare wires, cracks in heat shrink material and protrusions, or wire braiding are unacceptable _____

35. SMOKE GENERATOR SYSTEM Damaged, leaking, loose lines and hoses, fittings, clamps, and mounting hardware are unacceptable. _____

36. TRANSMISSION Transmission components shall be free of damage. _____

Leakage Criteria: No drip except during and immediately after engine operation, when a drip of 1 drop per 5 minutes is allowed at the Output seal area.

37. ENGINE AND TRANSMISSION OIL COOLING SYSTEM

- a. Fan and coolers must be clean. _____
- b. Cracked, missing, or damaged hardware, tubes and fittings are unacceptable. _____
- c. Oil leaks are unacceptable. _____

38. OIL CROSS OVER TUBE

Damaged tube fittings and oil leaks are unacceptable. Tube shall not be laying on exhaust duct. _____

39. ENGINE EXHAUST DUCT

- a. No exhaust leaks. _____
- b. Seals shall be free of dents, holes, cuts, burns, or damaged/missing hardware. _____

40. ENGINE COMPARTMENT

- a. Dirty or damaged fire sensors are unacceptable. _____
- b. Any missing or damaged heat shields are unacceptable. _____
- c. All hoses, fittings, fluid lines, wiring harnesses, connections/connectors and hardware shall be tight and free of damage that shall be detrimental to operation. _____
- d. All components shall be mounted properly with serviceable hardware. _____
- e. Brake and steering controls shall be free from damage. _____
- f. Mounting pins shall be serviceable and chains shall be mounted. _____
- g. Electrical panel connectors shall be free of arcing Connectors shall lock tight to the panel. _____
- h. No more than 1 quart of oil consumption permitted in 1 hour. _____

Leakage Criteria: (Engine/Transmission Mating Area) No more than 4 drops of fluid per minute. (Engine) A total of 3 drops, 9ccs, per minute is allowed at the Accessory Gearbox drains during engine running or up to 2 hours after shutdown. No evidence of oil at any of the 4 weep holes. (Output Shaft Seal, # 10) Shall not exceed 2 drops, 6ccs, per minute during engine running or up to 2 hours after shutdown. (All other areas) Shall exhibit no leakage greater than 2 drops, 0.1ccs, per hour.

41. HEAT EXCHANGER HYDRAULIC

Must be clean, no oil leaks, and all components shall be serviceable

42. FIRE EXTINGUISHER

a. Check all fire bottle gages for proper pressure relative to ambient temperature. All labels shall be legible.

b. Check for proper mounting, adjustment and serviceability of all hardware

c. Verify bottles are tight, in mounting brackets, and torqued properly.

d. Insure safety pin and anti-recoil plug are present and serviceable.

e. Hydrostatic Test Date **MUST** have three (3) years remaining; if not, fire extinguisher **MUST** be Hydrostatically tested and stamped with the correct date.

NOTE: In addition, Hydrostatic Test Date shall be stenciled in 1 inch letters in a visible area on the fire bottle.

43. HYDRAULIC SYSTEM RESERVOIR

a. Filter indicators shall not be popped out.

b. Safety pins shall be present.

c. Filter and indicators shall be safety wired.

d. Loose or damaged hardware and components are unacceptable.

e. Fluid level shall be FULL at O pressure.

f. Check Hull distribution manifold for leaks.

- 44. HULL AMMUNITION COMPARTMENT**
 - a. Pins and door shall be serviceable and operate freely. _____
 - b. Excessive looseness, broken rollers etc. that will cause door to bind on track is unacceptable. _____
 - c. Mounting brackets and seals shall be free from distortion. _____
 - d. Tubes shall be serviceable, plunger must move freely. _____
 - e. Bent, broken or missing springs are unacceptable. Angle of spring shall be less than 90 degrees. _____
 - f. Shall be clean and free of moisture. _____

<u>ITEM</u>	<u>STANDARD</u>	<u>INSPECTOR</u>
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45. HULL ELECTRICAL	All cables shall be free of damage. Mounting hardware and connectors shall be serviceable.	_____
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46. STEERING BRAKE CONTROLS	Must be serviceable. No binding and function properly.	_____
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47. HULL ELECTRICAL NETWORKS BOX	Must be free from cracks, breaks, loose connections. All circuit breakers shall operate properly and labeling legible.	_____
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48. PERSONNEL HEATER	<ul style="list-style-type: none"> a. Shall operate properly. Insure all indicator lamps function. _____ b. Heater controls shall operate freely. No fuel or exhaust leaks are acceptable. _____ 	_____
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49. DRIVERS NIGHT VISION □	<ul style="list-style-type: none"> a. System shall be operational and checked with operational DNV. Mounting and storage device shall be serviceable. _____ b. DNV shall operate properly. _____ 	_____
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50. DRIVER'S HATCH	<ul style="list-style-type: none"> a. Shall open, close, and lock into position freely. _____ b. Seal shall be serviceable. Minor nicks and cuts that do not effect serviceability are acceptable. _____ c. Periscopes shall be installed and serviceable. Wipers/ washer must be operational. _____ d. Knobs shall operate freely. All hardware shall be present and serviceable. _____ 	_____
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51. DRIVER'S DOME LIGHT Must operate properly. Lenses shall not be cracked or broken. All mounting hardware shall be installed and serviceable. Red or blue lenses are acceptable. _____

52. DRIVER'S SEAT

- a. Shall be serviceable. All adjustments shall operate properly. _____
- b. Headrest shall be serviceable and lock into position. _____
- c. Cushion tears of 1 inch or less may be taped. _____

ITEM	STANDARD	INSPECTOR
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53. TURRET PUMP/GAGE	Check operation and component serviceability. Seal must hold 25 PSI for a minimum of 20 minutes.	_____
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54. BILGE PUMP	Must be serviceable with no unusual noise.	_____
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55. CLEANLINESS OF VEHICLE	Vehicle must be clean. <input type="checkbox"/>	_____
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56. NBC BACK-UP SYSTEM	<ul style="list-style-type: none"> a. Hose, connectors, and orifices shall be serviceable. b. Air flow must be evident at hose end with system operating. NOTE: At all crew stations (4)	_____ _____
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57. MAIN NBC SYSTEM	<ul style="list-style-type: none"> a. Remove NBC sponson covers and insure box is clean and replace seal. b. With engine running at tactical idle, check that the NBC main mode light is lit. Feel for air escapage at all hoses and clamps in box. c. Turn air temp control knob to full warmer position and feel for warm air at bulk dump valve on the NBC filter manifold. d. Turn air temp control knob to full cooler position and feel for cold air at the bulk dump valve. (NOTE: 3-4 minutes are required for the temperature to change). e. Comply with all "Safety of Use Messages." 	_____ _____ _____ _____
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TURRET

<u>ITEM</u>	<u>STANDARD</u>	<u>INSPECTOR</u>
1. TURRET EXTERIOR	Storage boxes shall be complete and serviceable.	_____
2. GUN MOUNT □	a. Hydraulic leaks are not acceptable. b. Hose connections shall be secure. c. Mounting hardware for all components shall be secure and serviceable. d. Replenisher oil level shall be above minimum. e. Exercise gun if over 90 days has elapsed since last exercise.	_____ _____ _____ _____ _____
3. GUN TUBE	NOTE: recoil leak criteria applies after exercising/firing. a. Shall be inspected in accordance with TM 9-1000-202-14. b. Must have 50% remaining gun tube life for MPS. Must have 20% remaining gun tube life for the FMF. c. Parts I & II of the Weapons Record Book shall be complete IAW TM 4700-15/1_. d. Shall be clean.	_____ _____ _____ _____ _____
4. BORE EVACUATOR	a. Inspect for cracks, dents, and punctures. Ensure all mounting hardware is serviceable and complete. b. Shall be properly installed.	_____ _____
5. THERMAL SHROUDS	a. Shall be installed properly and free of damage. b. Cracks are not acceptable.	_____ _____

ITEM	STANDARD	INSPECTOR
6. MUZZLE REFERENCE <input type="checkbox"/>	a. Evidence of moisture inside is unacceptable. b. Cracks, breaks, and loose or missing hardware is unacceptable.. c. Caution/instruction plate shall be installed and legible.	_____ _____ _____ <input type="checkbox"/>
NOTE: With MRS lever to the IN position, reticle must be clear and visible		
7. BREECH GROUP	a. Breech block and loaders tray shall operate without binding and be free of burrs and cracks. b. Chamber, block, breech ring, and extractors shall be free of corrosion/rust and excess wear. c. All components shall clean, lubricated, and function properly.	_____ _____ _____
8. FIRING CIRCUIT BLASTING MACHINE <input type="checkbox"/>	a. Harnesses/wiring must be properly installed and in good condition. b. Safety switches and relays shall be properly installed and function properly. c. Firing at all stations shall be functional when checked with firing circuit tester. d. Must pass firing inhibit checks.	_____ _____ _____ _____
9. MAIN HYDRAULIC PUMP <input type="checkbox"/>	a. Pressure shall stay between 1500 - 1700 PSI with the engine running. b. Unusual noises in pump during operation as well as any hydraulic leaks are unacceptable.	_____ _____
10. AUXILIARY HYDRAULIC PUMP	a. Pressure shall stay between 1150 - 1700 PSI. b. Unusual noises during operation as well as any hydraulic leaks are unacceptable.	_____ _____

ITEM	STANDARD	INSPECTOR
11. MAIN ACCUMULATOR <input type="checkbox"/>	a. Nitrogen pressure must be between 600 - 800 PSI. b. All mounting hardware must be serviceable and installed correctly.	_____ _____
12. ELEVATION MECHANISM	a. Hydraulic leaks are unacceptable. b. All mounting hardware shall be serviceable and installed properly. c. Cylinder check valves shall be laced. d. Filter indicators should not be popped out.	_____ _____ _____ _____
13. LIGHT SWITCHES RHEOSTATS	a. Shall be properly installed and function properly. <input type="checkbox"/>	_____ <input type="checkbox"/>
14. SMOKE GRENADE SYSTEM	a. Switches, wiring, and electrical components shall be properly installed and serviceable. b. All mounting brackets shall be free of cracks, broken welds etc. All hardware shall be installed and tight.	_____ _____
15. GUNNER'S PRIMARY SIGHT <input type="checkbox"/>	a. Must be complete. Ballistic doors must function properly. b. Must pass all functional tests and checks. c. All lights, switches, knobs, and levers must be complete and function properly. d. Leakage of water between Turret and GPS is not acceptable. If questionable, check with water from outside of Turret. No leakage is acceptable. e. Moisture and/or fungus present in sight is unacceptable.	_____ _____ _____ _____ _____
16. GPS EXTENSION	a. Field of view must be equal to that of the GPS. b. Diopter setting shall be capable of +2 to -6. c. Moisture or fungus in sight is unacceptable.	_____ _____ _____

ITEM	STANDARD	INSPECTOR
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**17. GUN/TURRET
POWER CONTROL**

a. Control handles must be capable of operation in elevation and azimuth. Commander's handle must override.

b. Check for proper response and smoothness.

c. Check azimuth deck clearance switch for proper operation.

**18. GUN/TURRET
MANUAL
CONTROL**

a. Must be capable of elevation/depression and azimuth movement of the turret and gun.

b. Check for proper response and smoothness.

c. Turret shall traverse in both speeds.

**19. STABILIZA-
TION**

Must be capable of maintaining target acquisition regardless of hull movement.

**20. LOADER'S
PANEL**

Must be installed properly. All switches and lights shall be functional.

**21. COMMANDER'S
PANEL**

Must be installed properly. All switches and lights must be functional. All panel functions must be operational.

**22. LOADER'S
STATION**

a. Seat and platform must lock in all positions.

b. Knee, toe, and shoulder guards must be installed and free of damage

c. Cushions will have no padding missing. Tears exceeding 1 inch are not acceptable. Tears less than 1 inch must be taped.

**23. LOADER'S
HATCH**

a. Hatch must be operational and lock in all positions.

b. Seals must be serviceable.

c. Periscope turntable must operate smoothly

**24. LOADER'S
MACHINE GUN
MOUNT**

a. Missing or damaged parts are unacceptable.

b. Pintle mount, skate, and locks must be fully operational, without binding.

ITEM	STANDARD	INSPECTOR
25. GUN/TURRET LOCKS	Missing, bent, or damaged parts or welds are unacceptable. Must engage and disengage properly.	_____
26. COMMANDER'S STATION □	a. Seat and platform must lock in all positions. b. Guards must be installed, operational and free from damage. c. Cushions will have no padding missing. Tears exceeding 1 inch are unacceptable. Tears of 1 inch or less will be taped.	_____ _____ _____
27. COMMANDER'S HATCH	a. Must be serviceable and lock in all positions. b. Seal must be serviceable.	_____ _____
28. COMMANDER'S WEAPON STATION □	a. Must be capable of 360 degree traverse in both power and manual modes. b. Operation must be smooth during tracking. c. Commander's sight must be properly installed and the field of view shall follow the motion of the gun. d. Sight must be free of moisture and fungus.	_____ _____ _____ _____
29. GUNNER'S STATION □	a. Seat must be complete and must lock in all positions. b. All guards must be installed, free of damage and operate properly. c. Cushions will have no padding missing. Tears exceeding 1 inch are not acceptable. Tears of 1 inch or less shall be taped.	_____ _____ _____ _____
30. GUNNER'S AUXILIARY SIGHT	a. Check for proper function, i.e. reticle brightness, focusing ring, filter knob, and selector knobs. b. Moisture and/or fungus in sight is unacceptable.	_____ _____
31. TURRET DISTRIBUTION MANIFOLD	Check for leaks. Leakage is unacceptable.	_____

ITEM	STANDARD	INSPECTOR
32. TURRET NETWORKS BOX <input type="checkbox"/>	a. Check for proper installation of all components, wiring harnesses, circuit breakers, and connectors.	_____
	b. Check all visible harness assemblies near the electronics rack and networks box for frayed insulation and broken wires.	_____
	c. Check all visible ground points for cracks, broken lugs, or loose connections.	_____
33. TRAVERSING MECHANISM <input type="checkbox"/>	a. Must be properly installed and functional.	_____
	b. Fluid must be at the proper level	_____
	c. Manual drive mode light must come ON when manual palm handle is depressed.	_____
	d. Filter indicators shall not be popped out.	_____
34. WIRING HARNESS	a. Check for “ F “ symbol and fire control fault malfunction light.	_____
	b. Check for cracks, breaks, cracks in heat shrink material, and protrusions of wire or abrading.	_____
	c. All cables within the turret, especially those near the circuit breaker box and loader's position, should be dressed and tie wrapped.	_____
35. AMMO STORAGE TURRET	a. Doors must be operational. Knee switch and door edge safety switches must be operational. All mounting hardware, hoses, pins, and latches must be serviceable and function properly.	_____
	b. Seals and rails must be clean and free of cracks burrs, breaks and excessive wear.	_____
	c. Caliber .50 and 7.62 ammo boxes must be serviceable and installed properly.	_____

ITEM	STANDARD	INSPECTOR
36. CROSSWIND SENSOR □	<p>a. Must be installed properly. Mount should be free of cracks. Latch assemblies and strikes must be free from cracks, bends, breaks, loose or missing screws and must lock tightly in the upright position. Fraying of cable is unacceptable</p> <p>b. Sensor ports must be clean and free of cracks and dents</p> <p>c. Web strap must be serviceable. Fraying or missing strap components is unacceptable</p> <p>d. Cushioning pad must be serviceable and glued properly.</p> <p>e. Must function properly.</p>	<p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>
37. COMPUTER CONTROL PANEL	<p>a. Computer must accept and store all inputs from the control panel and TCP.</p> <p>b. Must pass computer self test</p>	<p>_____</p> <p>_____</p>
38. BORESIGHT	<p>Boresight main gun and fire control systems. Ensure system is capable of achieving and maintaining boresight information.</p>	<p>_____</p>
39. PURGING, CHARGING, SERVICING	<p>a. GPS.</p> <p>b. GAS.</p> <p>c. Commander's Extension.</p> <p>d. CWS Sight.</p> <p>e. LRF.</p> <p>f. ICU</p>	<p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>
	<p>NOTE: Moisture and/or fungus in sights is unacceptable.</p>	
40. THERMAL IMAGING SYSTEM	<p>a. Perform TIS checkout procedure.</p> <p>b. Insure all knobs and switches operate properly.</p>	<p>_____</p> <p>_____</p>

ITEM	STANDARD	INSPECTOR
41. LABELS DECALS □	a. All labels and decals must be affixed throughout the turret.	_____
	b. All labels shall be legible and not obstructed by paint or grease.	_____
42. PLRS	Ensure all mounting hardware is complete.	_____
43. MCD	Ensure all mounting hardware is complete.	_____
44. EAPU □	a. Unit must be installed properly and securely in the bustle rack.	_____
	b. Class I, II, and III oil and fuel leaks are unacceptable.	_____
	c. Battery box and cables shall be clean and tight. Fluid levels shall be correct.	_____
	d. Check units' operation from all positions and voltage output.	_____
45. COMMUNICATIONS □	a. Ensure intercom system is operational from all crew stations.	_____
	b. Ensure "SINCGARS Installation Kit" is installed and complete.	_____

LEAKAGE TERMINOLOGY IS DEFINED AS:

1. CLASS I: Seepage of fluid (as indicated by wetness or discoloration) not great enough to form drops.
2. CLASS II: Leakage of fluid great enough to form drops but not enough to cause drops to drip from the item being checked.
3. CLASS III: Leakage of fluid great enough to form drops that fall from the item being checked.
4. WEEP: Any non-recurring evidence of fluid beyond the seal or joint.
5. SEEP: Any recurring evidence of fluid beyond the seal or joint that does not result in an accumulation of more than .05 cc volume.
6. DROPLET: Any recurring evidence of fluid beyond the seal or joint that does not result in an accumulation of more than .05 cc that does not fall.
7. DROP: A volume of .05 cc.
8. DRIP: Any recurring evidence of fluid beyond the seal or joint where a droplet or more forms and falls.

M1A1 WEEKLY STATUS REPORT Appendix C

				10%	20%	30%	35%	40%	50%	55%	60%	70%	80%	90%				95%		100%			
Prod. #	Job #	USMC#	Status	Tear Down	Steam	Hull Station	Turret Station	Service Pack	Susp.	Install	Pack	NBC	1600 Test	Road Test	1800 Test	Common	Steam	Paint	CWC	P&P	Div Final	Remarks	
			In																				
			Out																				
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