

Soldier's Manual and Training Guide

MOS 94P

Multiple Launch Rocket System (MLRS) Repairer

SKILL LEVEL SL1

1 October 2014



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HEADQUARTERS, DEPARTMENT OF THE ARMY

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PREFACE

This publication is for skill level SL1 soldiers holding military occupational specialty (MOS) MOS 94P and for trainers and first-line supervisors. It contains standardized training objectives in the form of task summaries to train and evaluate soldiers on critical tasks that support unit missions during wartime. Trainers and first-line supervisors should ensure soldiers holding MOS/SL MOS 94PSL1 have access to this publication. This STP is available for download from the Central Army Registry (CAR).

This publication applies to the Active Army, the Army National Guard (ARNG)/Army National Guard of the United States (ARNGUS), and the U.S. Army Reserve (USAR) unless otherwise stated.

The proponent of this publication is HQ, TRADOC. Send comments and recommendations on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to Commander, CASCOM SCOE (ATCL-TDF), G-3 Training & Doctrine Development, SUITE 1036, 2221 Adams Ave, Fort Lee, VA 23801-2102.

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Chapter 1

Introduction

1.1 General

The soldier training publication (STP) identifies the individual military occupational specialty (MOS) training requirements for soldiers in various specialties, for example, another source of STP task data is the Central Army Registry (CAR) at <https://www.train.army.mil/>. Commanders, trainers, and soldiers should use the STP to plan, conduct, and evaluate individual training in units. The STP is the primary MOS reference to support the self-development and training of every soldier in the unit. It is used with the Soldier's Manual of Common Tasks, collective training products, and ADRP 7-0, Training Units and Developing Leaders, to establish effective training plans and programs that integrate soldier, leader, and collective tasks. This chapter explains how to use the STP in establishing an effective individual training program. It includes doctrinal principles and implications outlined in ADRP 7-0. Based on these guidelines, commanders and unit trainers must tailor the information to meet the requirements for their specific unit.

1.2 Training Requirement

Every soldier, noncommissioned officer (NCO), warrant officer, and officer has one primary mission — to be trained and ready to fight and win our nation's wars. Success in battle does not happen by accident; it is a direct result of tough, realistic, and challenging training.

a. Operational Environment.

(1) Commanders and leaders at all levels must conduct training with respect to a wide variety of operational missions across the full spectrum of operations. These operations may include combined arms, joint, multinational, and interagency considerations, and span the entire breadth of terrain and environmental possibilities. Commanders must strive to set the daily training conditions as closely as possible to those expected for actual operations.

(2) The operational missions of the Army include not only war, but also military operations other than war (MOOTW). Operations may be conducted as major combat operations, a small-scale contingency, or a peacetime military engagement. Offensive and defensive operations normally dominate military operations in war along with some small-scale contingencies. Stability operations and support operations dominate in MOOTW. Commanders at all echelons may combine different types of

operations simultaneously and sequentially to accomplish missions in war and MOOTW. These missions require training since future conflict will likely involve a mix of combat and MOOTW, often concurrently. The range of possible missions complicates training. Army forces cannot train for every possible mission; they train for war and prepare for specific missions as time and circumstances permit.

(3) One type of MOOTW is the Chemical, Biological, Radiological, Nuclear, and High-Yield Explosive (CBRNE) event. To assist commanders and leaders in training their units, CBERNE-related information is being included in AMEDD mission training plans (MTPs). Even though most collective tasks within an MTP may support a CBRNE event, the ones that will most directly be impacted are clearly indicated with a statement in the CONDITION that reads: "THIS TASK MAY BE USED TO SUPPORT A CBRNE EVENT." These collective tasks and any supporting individual tasks in this soldier's manual should be considered for training emphasis.

(4) Our forces today use a train-alert-deploy sequence. We cannot count on the time or opportunity to correct or make up training deficiencies after deployment. Maintaining forces that are ready now, places increased emphasis on training and the priority of training. This concept is a key link between operational and training doctrine.

(5) Units train to be ready for war based on the requirements of a precise and specific mission. In the process they develop a foundation of combat skills that can be refined based on the requirements of the assigned mission. Upon alert, commanders assess and refine from this foundation of skills. In the train-alert-deploy process, commanders use whatever time the alert cycle provides to continue refinement of mission-focused training. Training continues during time available between alert notification and deployment, between deployment and employment, and even during employment as units adapt to the specific battlefield environment and assimilate combat replacements.

b. How the Army Trains the Army.

(1) Training is a team effort and the entire Army — Department of the Army, major commands (MACOMs), the institutional training base, units, the combat training centers (CTCs), each individual soldier, and the civilian workforce — has a role that contributes to force readiness. Department of the Army and MACOMs are responsible for resourcing the Army to train. The Institutional Army, including schools, training centers, and NCO academies, for example, train soldiers and leaders to take their place in units in the Army by teaching the doctrine and tactics, techniques, and procedures (TTPs). Units, leaders, and individuals train to standard on their assigned critical individual tasks. The unit trains first as an organic unit and then as an integrated

component of a team. Before the unit can be trained to function as a team, each soldier must be trained to perform their individual supporting tasks to standard. Operational deployments and major training opportunities, such as major training exercises, CTCs, provide rigorous, realistic, and stressful training and operational experience under actual or simulated combat and operational conditions to enhance unit readiness and produce bold, innovative leaders. The result of this Army-wide team effort is a training and leader development system that is unrivaled in the world. Effective training produces the force — soldiers, leaders, and units — that can successfully execute any assigned mission.

(2) The Army Training and Leader Development Model (Figure 1-1) centers on developing trained and ready units led by competent and confident leaders. The model depicts an important dynamic that creates a lifelong learning process. The three core domains that shape the critical learning experiences throughout a soldier's and leader's time span are the operational, institutional, and self-development domains. Together, these domains interact using feedback and assessment from various sources and methods to maximize war fighting readiness. Each domain has specific, measurable actions that must occur to develop our leaders.

* The operational domain includes home station training, CTC rotations, and joint training exercises and deployments that satisfy national objectives. Each of these actions provides foundational experiences for soldier, leader, and unit development.

* The institutional domain focuses on educating and training soldiers and leaders on the key knowledge, skills, and attributes required to operate in any environment. It includes individual, unit and joint schools, and advanced education.

* The self-development domain, both structured and informal, focuses on taking those actions necessary to reduce or eliminate the gap between operational and institutional experiences.



Figure 1-1. Army Training and Leader Development Model

(3) Throughout this lifelong learning and experience process, there is formal and informal assessment and feedback of performance to prepare leaders and soldiers for their next level of responsibility. Assessment is the method used to determine the proficiency and potential of leaders against a known standard. Feedback must be clear, formative guidance directly related to the outcome of training events measured against standards.

c. Leader Training and Leader Development.

(1) Competent and confident leaders are a prerequisite to the successful training of units. It is important to understand that leader training and leader development are integral parts of unit readiness. Leaders are inherently soldiers first and should be technically and tactically proficient in basic soldier skills. They are also adaptive, capable of sensing their environment, adjusting the plan when appropriate, and properly applying the proficiency acquired through training.

(2) Leader training is an expansion of these skills that qualifies them to lead other soldiers. As such, doctrine and principles of training require the same level of attention of senior commanders. Leader training occurs in the Institutional Army, the unit, the CTCs, and through self-development. Leader training is just one portion of leader development.

(3) Leader development is the deliberate, continuous, sequential, and progressive process, grounded in Army values, that grows soldiers and civilians into competent and confident leaders capable of decisive action. Leader development is

achieved through the life-long synthesis of the knowledge, skills, and experiences gained through institutional training and education, organizational training, operational experience, and self-development. Commanders play the key role in leader development that ideally produces tactically and technically competent, confident, and adaptive leaders who act with boldness and initiative in dynamic, complex situations to execute mission-type orders achieving the commander's intent.

(4) A life cycle management diagram for soldiers is on page 1-5. You can find more information and check for updates at <http://das.cs.amedd.army.mil/ooc.htm> (scroll down to LIFE CYCLE MANAGEMENT, select ENLISTED, and find the appropriate tab along the bottom). This information, combined with the MOS Training Plan in Chapter 2, forms the career development model for the MOS.

d. Training Responsibility. Soldier and leader training and development continue in the unit. Using the institutional foundation, training in organizations and units focuses and hones individual and team skills and knowledge.

(1) Commander Responsibility.

(a) The unit commander is responsible for the wartime readiness of all elements in the formation. The commander is, therefore, the primary trainer of the organization and is responsible for ensuring that all training is conducted in accordance with the STP to the Army standard.

(b) Commanders ensure STP standards are met during all training. If a soldier fails to meet established standards for identified MOS tasks, the soldier must retrain until the tasks are performed to standard. Training to standard on MOS tasks is more important than completion of a unit training event. The objective is to focus on sustaining MOS proficiency — this is the critical factor commanders must adhere to when training individual soldiers in units.

(2) NCO Responsibility.

(a) A great strength of the US Army is its professional NCO Corps who takes pride in being responsible for the individual training of soldiers, crews, and small teams. The NCO support channel parallels and complements the chain of command. It is a channel of communication and supervision from the Command Sergeant Major (CSM) to the First Sergeants (1SGs) and then to other NCOs and enlisted personnel. NCOs train soldiers to the non-negotiable standards published in STPs. Commanders delegate authority to NCOs in the support channel as the primary

trainers of individual, crew, and small team training. Commanders hold NCOs responsible for conducting standards-based, performance-oriented, battle-focused training and providing feedback on individual, crew, and team proficiency. Commanders define responsibilities and authority of their NCOs to their staffs and subordinates.

(b) NCOs continue the soldierization process of newly assigned enlisted soldiers, and begin their professional development. NCOs are responsible for conducting standards-based, performance-oriented, battle-focused training. They identify specific individual, crew, and small team tasks that support the unit's collective mission essential tasks; plan, prepare, rehearse, and execute training; and evaluate training and conduct after action reviews (AARs) to provide feedback to the commander on individual, crew, and small team proficiency. Senior NCOs coach junior NCOs to master a wide range of individual tasks.

(3) **Soldier Responsibility.** Each soldier is responsible for performing individual tasks identified by the first-line supervisor based on the unit's mission essential task list (METL). Soldiers must perform tasks to the standards included in the task summary. If soldiers have questions about tasks or which tasks in this manual they must perform, they are responsible for asking their first-line supervisor for clarification, assistance, and guidance. First-line supervisors know how to perform each task or can direct soldiers to appropriate training materials, including current field manuals, technical manuals, and Army regulations. Soldiers are responsible for using these materials to maintain performance. They are also responsible for maintaining standard performance levels of all Soldiers' Manual of Common Tasks at their current skill level and below. Periodically, soldiers should ask their supervisor or another soldier to check their performance to ensure that they can perform the tasks.

1.3 Battle-Focused Training

Battle focus is a concept used to derive peacetime training requirements from assigned and anticipated missions. The priority of training in units is to train to standard on the wartime mission. Battle focus guides the planning, preparation, execution, and assessment of each organization's training program to ensure its members train as they are going to fight. Battle focus is critical throughout the entire training process and is used by commanders to allocate resources for training based on wartime and operational mission requirements. Battle focus enables commanders and staffs at all echelons to structure a training program that copes with non-mission-related requirements while focusing on mission essential training activities. It is recognized that a unit cannot attain proficiency to standard on every task whether due to time or other resource constraints. However, unit commanders can achieve a successful training

program by consciously focusing on a reduced number of METL tasks that are essential to mission accomplishment.

a. **Linkage between METL and STP.** A critical aspect of the battle focus concept is to understand the responsibility for and the linkage between the collective mission essential tasks and the individual tasks that support them. For example, the commander and the CSM/1SG must jointly coordinate the collective mission essential tasks and supporting individual tasks on which the unit will concentrate its efforts during a given period. This task hierarchy is provided in the task database at the Reimer Digital Library. The CSM/1SG must select the specific individual tasks that support each collective task to be trained. Although NCOs have the primary role in training and sustaining individual soldier skills, officers at every echelon remain responsible for training to established standards during both individual and collective training. Battle focus is applied to all missions across the full spectrum of operations.

b. **Relationship of STPs to Battle-focused Training.** The two key components of any STP are the soldier's manual (SM) and trainer's guide (TG). Each gives leaders important information to help implement the battle-focused training process. The trainer's guide relates soldier and leader tasks in the MOS and skill level to duty positions and equipment. It states where the task is trained, how often training should occur to sustain proficiency, and who in the unit should be trained. As leaders assess and plan training, they should rely on the trainer's guide to help identify training needs.

(1) Leaders conduct and evaluate training based on Army-wide training objectives and on the task standards published in the soldier's manual task summaries or in the Reimer Digital Library. The task summaries ensure that --

- * Trainers in every unit and location define task standards the same way
- * Trainers evaluate all soldiers to the same standards

(2) Table 1-1 shows how battle-focused training relates to the trainer's guide and soldier's manual:

- * The left column shows the steps involved in training soldiers.
- * The right column shows how the STP supports each of these steps.

Table 1-1. Relationship of Battle-focused Training and STP

BATTLE-FOCUS PROCESS	STP SUPPORT PROCESS
Select supporting soldier tasks	Use TG to relate tasks to METL
Conduct training assessment	Use TG to define what soldier tasks to assess
Determine training objectives	Use TG to set objectives
Determine strategy; plan for training	Use TG to relate soldier tasks to strategy
Conduct pre-execution checks	Use SM task summary as source for task performance
Execute training; conduct after action review	Use SM task summary as source for task performance
Evaluate training against established standards	Use SM task summary as standard for evaluation

1.4 Task Summary Format

Task summaries outline the wartime performance requirements of each critical task in the SM. They provide the soldier and the trainer with the information necessary to prepare, conduct, and evaluate critical task training. As a minimum, task summaries include information the soldier must know and the skills that he must perform to standards for each task. The format of the task summaries included in this SM is as follows:

- a. **Task Title.** The task title identifies the action to be performed.
- b. **Task Number.** A 10-digit number identifies each task or skill. This task number, along with the task title, must be included in any correspondence pertaining to the task.
- c. **Conditions.** The task conditions identify all the equipment, tools, references, job aids, and supporting personnel that the soldier needs to use to perform the task in wartime. This section identifies any environmental conditions that can alter task performance, such as visibility, temperature, or wind. This section also identifies any specific cues or events that trigger task performance, such as a chemical attack or identification of a threat vehicle.
- d. **Standards.** The task standards describe how well and to what level the task must be performed under wartime conditions. Standards are typically described in terms of accuracy, completeness, and speed.
- e. **Performance Steps.** This section includes a detailed outline of information on how to perform the task. Additionally, some task summaries include safety statements and notes. Safety statements (danger, warning, and caution) alert users to

the possibility of immediate death, personal injury, or damage to equipment. Notes provide a small, extra supportive explanation or hint relative to the performance steps.

f. Evaluation Preparation (when used). This subsection indicates necessary modifications to task performance in order to train and evaluate a task that cannot be trained to the wartime standard under wartime conditions. It may also include special training and evaluation preparation instructions to accommodate these modifications and any instructions that should be given to the soldier before evaluation.

g. Performance Measures. This evaluation guide identifies the specific actions that the soldier must do to successfully complete the task. These actions are listed in a GO/NO-GO format for easy evaluation. Each evaluation guide contains an evaluation guidance statement that indicates the requirements for receiving a GO on the evaluation.

h. References. This section identifies references that provide more detailed and thorough explanations of task performance requirements than those given in the task summary description.

1.5 Training Execution

All good training, regardless of the specific collective, leader, and individual tasks being executed, must comply with certain common requirements. These include adequate preparation, effective presentation and practice, and thorough evaluation. The execution of training includes preparation for training, conduct of training, and recovery from training.

a. Preparation for Training. Formal near-term planning for training culminates with the publication of the unit training schedule. Informal planning, detailed coordination, and preparation for executing the training continue until the training is performed. Commanders and other trainers use training meetings to assign responsibility for preparation of all scheduled training. Preparation for training includes selecting tasks to be trained, planning the conduct of the training, training the trainers, reconnaissance of the site, issuing the training execution plan, and conducting rehearsals and pre-execution checks. Pre-execution checks are preliminary actions commanders and trainers use to identify responsibility for these and other training support tasks. They are used to monitor preparation activities and to follow up to ensure planned training is conducted to standard. Pre-execution checks are a critical portion of any training meeting. During preparation for training, battalion and company commanders identify and eliminate potential training distracters that develop within their own organizations. They also stress personnel accountability to ensure maximum attendance at training.

(1) Subordinate leaders, as a result of the bottom-up feed from internal training meetings, identify and select the individual tasks necessary to support the identified training objectives. Commanders develop the tentative plan to include requirements for preparatory training, concurrent training, and training resources. At a minimum, the training plan should include confirmation of training areas and locations, training ammunition allocations, training simulations and simulators availability, transportation requirements, soldier support items, a risk management analysis, assignment of responsibility for the training, designation of trainers responsible for approved training, and final coordination. The time and other necessary resources for retraining must also be an integral part of the original training plan.

(2) Leaders, trainers, and evaluators are identified, trained to standard, and rehearsed prior to the conduct of the training. Leaders and trainers are coached on how to train, given time to prepare, and rehearsed so that training will be challenging and doctrinally correct. Commanders ensure that trainers and evaluators are not only tactically and technically competent on their training tasks, but also understand how the training relates to the organization's METL. Properly prepared trainers, evaluators, and leaders project confidence and enthusiasm to those being trained. Trainer and leader training is a critical event in the preparation phase of training. These individuals must demonstrate proficiency on the selected tasks prior to the conduct of training.

(3) Commanders, with their subordinate leaders and trainers, conduct site reconnaissance, identify additional training support requirements, and refine and issue the training execution plan. The training plan should identify all those elements necessary to ensure the conduct of training to standard. Rehearsals are essential to the execution of good training. Realistic, standards-based, performance-oriented training requires rehearsals for trainers, support personnel, and evaluators. Preparing for training in Reserve Component (RC) organizations can require complex pre-execution checks. RC trainers must often conduct detailed coordination to obtain equipment, training support system products, and ammunition from distant locations. In addition, RC pre-execution checks may be required to coordinate Active Component assistance from the numbered CONUSA, training support divisions, and directed training affiliations.

b. Conduct of Training. Ideally, training is executed using the crawl-walk-run approach. This allows and promotes an objective, standards-based approach to training. Training starts at the basic level. Crawl events are relatively simple to conduct and require minimum support from the unit. After the crawl stage, training becomes incrementally more difficult, requiring more resources from the unit and home station, and increasing the level of realism. At the run stage, the level of difficulty for the training event intensifies. Run stage training requires optimum resources and ideally approaches the level of realism expected in combat. Progression from the walk to the

run stage for a particular task may occur during a one-day training exercise or may require a succession of training periods over time. Achievement of the Army standard determines progression between stages.

(1) In crawl-walk-run training, the tasks and the standards remain the same; however, the conditions under which they are trained change. Commanders may change the conditions, for example, by increasing the difficulty of the conditions under which the task is being performed, increasing the tempo of the task training, increasing the number of tasks being trained, or by increasing the number of personnel involved in the training. Whichever approach is used, it is important that all leaders and soldiers involved understand in which stage they are currently training and understand the Army standard.

(2) An AAR is immediately conducted and may result in the need for additional training. Any task that was not conducted to standard should be retrained. Retraining should be conducted at the earliest opportunity. Commanders should program time and other resources for retraining as an integral part of their training plan. Training is incomplete until the task is trained to standard. Soldiers will remember the standard enforced, not the one discussed.

c. Recovery from Training. The recovery process is an extension of training, and once completed, it signifies the end of the training event. At a minimum, recovery includes conduct of maintenance training, turn-in of training support items, and the conduct of AARs that review the overall effectiveness of the training just completed.

(1) Maintenance training is the conduct of post-operations preventive maintenance checks and services, accountability of organizational and individual equipment, and final inspections. Class IV, Class V, TADSS, and other support items are maintained, accounted for, and turned-in and training sites and facilities are closed out.

(2) AARs conducted during recovery focus on collective, leader, and individual task performance, and on the planning, preparation, and conduct of the training just completed. Unit AARs focus on individual and collective task performance, and identify shortcomings and the training required to correct deficiencies. AARs with leaders focus on tactical judgment. These AARs contribute to leader learning and provide opportunities for leader development. AARs with trainers and evaluators provide additional opportunities for leader development.

1.6 Training Assessment

Assessment is the commander's responsibility. It is the commander's judgment of the organization's ability to accomplish its wartime operational mission. Assessment is a continuous process that includes evaluating individual training, conducting an organizational assessment, and preparing a training assessment. The commander uses his experience, feedback from training evaluations, and other evaluations and reports to arrive at his assessment. Assessment is both the end and the beginning of the training management process. Training assessment is more than just training evaluation, and encompasses a wide variety of inputs. Assessments include such diverse systems as training, force integration, logistics, and personnel, and provide the link between the unit's performance and the Army standard. Evaluation of training is, however, a major component of assessment. Training evaluations provide the commander with feedback on the demonstrated training proficiency of soldiers, leaders, battle staffs, and units. Commanders cannot personally observe all training in their organization and, therefore, gather feedback from their senior staff officers and NCOs.

a. Evaluation of Training. Training evaluations are a critical component of any training assessment. Evaluation measures the demonstrated ability of soldiers, commanders, leaders, battle staffs, and units against the Army standard. Evaluation of training is integral to standards-based training and is the cornerstone of leader training and leader development. STPs describe standards that must be met for each soldier task.

(1) All training must be evaluated to measure performance levels against the established Army standard. The evaluation can be as fundamental as an informal, internal evaluation performed by the leader conducting the training. Evaluation is conducted specifically to enable the individual undergoing the training to know whether the training standard has been achieved. Commanders must establish a climate that encourages candid and accurate feedback for the purpose of developing leaders and trained soldiers.

(2) Evaluation of training is not a test; it is not used to find reasons to punish leaders and soldiers. Evaluation tells soldiers whether or not they achieved the Army standard and, therefore, assists them in determining the overall effectiveness of their training plans. Evaluation produces disciplined soldiers, leaders, and units. Training without evaluation is a waste of time and resources.

(3) Evaluations are used by leaders as an opportunity to coach and mentor soldiers. A key element in developing leaders is immediate, positive feedback that coaches and leads subordinate leaders to achieve the Army standard. This is a tested and proven path to develop competent, confident adaptive leaders.

b. **Evaluators.** Commanders must plan for formal evaluation and must ensure the evaluators are trained. These evaluators must also be trained as facilitators to conduct AARs that elicit maximum participation from those being trained. External evaluators will be certified in the tasks they are evaluating and normally will not be dual-hatted as a participant in the training being executed.

c. **Role of Commanders and Leaders.** Commanders ensure that evaluations take place at each echelon in the organization. Commanders use this feedback to teach, coach, and mentor their subordinates. They ensure that every training event is evaluated as part of training execution and that every trainer conducts evaluations. Commanders use evaluations to focus command attention by requiring evaluation of specific mission essential and battle tasks. They also take advantage of evaluation information to develop appropriate lessons learned for distribution throughout their commands.

d. **After Action Review.** The AAR, whether formal or informal, provides feedback for all training. It is a structured review process that allows participating soldiers, leaders, and units to discover for themselves what happened during the training, why it happened, and how it can be done better. The AAR is a professional discussion that requires the active participation of those being trained.

1.7 Training Support

This manual includes the following information which provides additional training support information.

a. **Glossary.** The glossary, which follows the last appendix, is a single comprehensive list of acronyms, abbreviations, definitions, and letter symbols.

b. **References.** This section contains two lists of references, required and related, which support training of all tasks in this SM. Required references are listed in the conditions statement and are required for the Soldier to do the task. Related references are materials that provide more detailed information and a more thorough explanation of task performance.

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Chapter 2

Trainer's Guide

2.1 General

The MOS Training Plan (MTP) identifies the essential components of a unit training plan for individual training. Units have different training needs and requirements based on differences in environment, location, equipment, dispersion, and similar factors.

Therefore, the MTP should be used as a guide for conducting unit training and not a rigid standard. The MTP consists of two parts. Each part is designed to assist the commander in preparing a unit training plan which satisfies integration, cross training, training up, and sustainment training requirements for soldiers in this MOS.

Part One of the MTP shows the relationship of an MOS skill level between duty position and critical tasks. These critical tasks are grouped by task commonality into subject areas.

Section I lists subject area numbers and titles used throughout the MTP. These subject areas are used to define the training requirements for each duty position within an MOS.

Section II identifies the total training requirement for each duty position within an MOS and provides a recommendation for cross training and train-up/merger training.

- ❑ **Duty Position Column.** This column lists the duty positions of the MOS, by skill level, which have different training requirements.
- ❑ **Subject Area Column.** This column lists, by numerical key (see Section I), the subject areas a soldier must be proficient in to perform in that duty position.
- ❑ **Cross Train Column.** This column lists the recommended duty position for which soldiers should be cross trained.
- ❑ **Train-up/Merger Column.** This column lists the corresponding duty position for the next higher skill level or MOSC the soldier will merge into on promotion.

Part Two lists, by general subject areas, the critical tasks to be trained in an MOS and the type of training required (resident, integration, or sustainment).

- ❑ **Subject Area Column.** This column lists the subject area number and title in the same order as Section I, Part One of the MTP.
- ❑ **Task Number Column.** This column lists the task numbers for all tasks included in the subject area.
- ❑ **Title Column.** This column lists the task title for each task in the subject area.
- ❑ **Training Location Column.** This column identifies the training location where the task is first trained to soldier training publications standards. If the task is first

trained to standard in the unit, the word “Unit” will be in this column. If the task is first trained to standard in the training base, it will identify, by brevity code (ALC, SLC, etc.), the resident course where the task was taught. Table 2-1 contains a list of training locations and their corresponding brevity codes.

Table 2-1. Training Locations

Brevity Code	Training Locations
ASI/SD	Additional Skill Identifier/Special Duty
AIT	Advanced Individual Training
ALC	Advanced Leader Course
SLC	Senior Leader Course
Unit	Training in the Unit

Sustainment Training Frequency Column. This column indicates the recommended frequency at which the tasks should be trained to ensure soldiers maintain task proficiency. Table 2-2. identifies the frequency codes used in this column.

Table 2-2. Sustainment Training Frequency Codes

Code	Meaning
BA	Biannually
AN	Annually
SA	Semi- annually
QT	Quarterly
BM	Bimonthly
MO	Monthly
BW	Biweekly
WK	Weekly
DA	Daily
HR	Hourly

Sustainment Training Skill Level Column. This column lists the skill levels of the MOS for which soldiers must receive sustainment training to ensure they maintain proficiency to soldier's manual standards.

2-2. Part One, Section I. Subject Area Codes.

Skill Level SL1

- 1 Maintain Launcher Drive System
- 2 Test/Repair Cage Assemblies
- 3 Maintain MLRS Test Equipment
- 4 Maintain the HIMARS

2-3. Part One, Section II, Duty Position Training Requirements.

Table 2-3. Duty Position Training Requirements

SKILL LEVEL	DUTY POSITION	SUBJECT AREAS	CROSS TRAIN	TRAINUP/MERGER
SL1	MLRS REPAIRER	1 through 4	N/A	94P10, Multiple Launch Rocket System Repairer

2-4. Part Two, Critical Tasks List.

Table 2-4. MOS Training Plan, Critical Tasks List

MOS TRAINING PLAN MOS 94P				
CRITICAL TASKS				
Task Number	Title	Training Location	Sust Tng Freq	Sust Tng Sl
Skill Level SL1				
Subject Area 1 Maintain Launcher Drive System				
091-94P-1018	Replace the Elevation Position Monitor Transducer	AIT	AN	1
091-94P-1012	Replace the Azimuth Position Transducer	AIT	AN	1
091-94P-1016	Replace the Elevation Angle Drive Unit	AIT	AN	1
091-94P-1051	Maintain Launcher Mechanical System	AIT	AN	1
091-94P-1001	Replace the Turret Assembly	AIT	AN	1
091-94P-1009	Replace the Azimuth Drive Speed Reducer	AIT	AN	1
091-94P-1015	Replace the Elevation Actuator and Support Assembly	AIT	AN	1
Subject Area 2 Test/Repair Cage Assembly				
091-94P-1056	Replace the Cage-Down Limit Switch	AIT	AN	1
091-94P-1062	Replace the Hoist-Down Limit Switch	AIT	AN	1
091-94P-1069	Replace the Boom Extension Actuator	AIT	AN	1
091-94P-1071	Replace the Rocket Pod Hoist Carriage Assembly	AIT	AN	1

Table 2-4. MOS Training Plan, Critical Tasks List Continued

091-94P-1065	Replace the Intermediate Beam	AIT	AN	1
091-94P-1059	Replace the Rocket Pod Latch-Hook Assembly	AIT	AN	1
091-94P-1061	Replace the Hoist-Up Limit Switch	AIT	AN	1
091-94P-1063	Replace the Hoist Hook and Pulley Assembly	AIT	AN	1
091-94P-1074	Replace the Cage Assembly	AIT	AN	1
091-94P-1077	Maintain the Fire Control System	AIT	AN	1
091-94P-1078	Maintain the Boom Control System	AIT	AN	1
091-94P-1079	Replace the Hoist Assembly	AIT	AN	1
091-94P-1080	Repair the Launcher Drive System	AIT	AN	1
091-94P-1082	Perform System Analysis on the Multiple Launch Rocket System	AIT	AN	1
Subject Area 3 Maintain MLRS Test Equipment				
091-94P-1182	Replace the Hydraulic Reservoir Unit	AIT	AN	1
091-94P-1160	Perform Surveillance Test of the Missile/Launch Pod Assembly	AIT	AN	1
091-94P-1178	Perform the Blast Shield Door Adjustment	AIT	AN	1
091-94P-1164	Repair the MFOM Common Test Device	AIT	AN	1
091-94P-1180	Replace the Hydraulic Pump Unit	AIT	AN	1
091-94P-1181	Replace the Azimuth Drive Unit	AIT	AN	1
Subject Area 4 Maintain the HIMARS				
091-94P-1201	Repair the Boom	AIT	AN	1
091-94P-1209	Maintain the Travel Lock Actuators	AIT	AN	1

Table 2-4. MOS Training Plan, Critical Tasks List Continued

091-94P-1211	Perform Load Test	AIT	AN	1
091-94P-1213	Repair the Hoist Carriage Assembly	AIT	AN	1
091-94P-1218	Replace the Elevation Cylinders	AIT	AN	1
091-94P-1222	Replace the Reload Manifold	AIT	AN	1
091-94P-1224	Repair Hoist System	AIT	AN	1
091-94P-1217	Replace the Position Navigational Unit (PNU)	AIT	AN	1
091-94P-1210	Replace the Elevation Resolver	AIT	AN	1
091-94P-1212	Replace the Boom Intermediate Beams	AIT	AN	1
091-94P-1203	Perform Maintenance of the Primary Hydraulic System	AIT	AN	1
091-94P-1204	Replace the Azimuth Drive Unit	AIT	AN	1
091-94P-1200	Maintain the Maintenance Manager	AIT	AN	1
091-94P-1205	Replace the Azimuth Resolver	AIT	AN	1
091-94P-1207	Maintain the Elevation Hydraulic Manifold	AIT	AN	1
091-94P-1208	Replace the Limit Switches	AIT	AN	1
091-94P-1215	Replace the Boom Extension Actuators	AIT	AN	1
091-94P-1216	Replace the Platform	AIT	AN	1
091-94P-1219	Perform System Analysis	AIT	AN	1
091-94P-1221	Repair the Jury Strut	AIT	AN	1
091-94P-1223	Maintain the HIMARS Fire Control System/Launcher Drive System	AIT	AN	1

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Chapter 3 MOS/Skill Level Tasks

Skill Level SL1

Subject Area 1: Maintain Launcher Drive System

091-94P-1018

Replace the Elevation Position Monitor Transducer

DANGER
Follow all Danger warning in TMs
WARNING
Follow all warning in TMs
CAUTION
Comply with all unit/shop SOPs

Conditions: Perform this task in a operational environment given an armored vehicle-mounted M270A1 rocket launcher; an faulty elevation position monitor transducer; DA Form 2404, Equipment Inspection and Maintenance Worksheet; one 94P MLRS repairer; and one 13M MLRS crewmember to assist as required, 94P-shop set and tool kit, lock wire, TM 9-1055-647-13&P (M270A1); TM 9-243; and DA Pamphlet 750-8 The Army Maintenance Management System (TAMMS) Users Manual. **Note:** This task may be performed in a Chemical, Biological, Radiological, and Nuclear (CBRN) environment.

Standards: The elevation position monitor transducer was replaced according to the applicable technical manuals. Perform this task without causing injury to self, other personnel, the environment, or damage to equipment. **CAUTION!** Comply with unit/shop SOP requirements for disposal of scrap metal.

Special Condition: None

Special Standards: None

Special Equipment:

Cue: None

Note: None

Performance Steps

1. Perform a visual inspection of the elevation position monitor transducer and correct any defects. Check the following items below:
 - a. Bolts and nuts.
 - b. Bearings and bushings.
 - c. Components.
 - d. Electrical cables and connectors.
 - e. Hoses and fluid lines.
2. Remove the faulty elevation position monitor transducer.
 - a. Unlatch the four studs and remove door.
 - b. Disconnect the electrical connector from the transducer connector J1.
 - c. Loosen the left coupling clamp screw and the transducer shaft clamp screw.
 - d. Slide the coupling away from transducer to clear the transducer shaft.
 - e. Remove the four nuts, eight washers, and four bolts.
 - f. Remove the elevation Position monitor transducer.
3. Install the elevation position monitor transducer.
 - a. Position the elevation position transducer on LM.
 - b. Install the four bolts, eight washers, and four nuts.
 - c. Connect the electrical connector to the transducer connector J1.
 - d. Check the alignment between the resolver shaft and the pivot bolts.
 - e. Install the coupling.
4. Adjust the elevation position monitor transducer.
5. Verify the elevation position monitor transducer is operational.
6. Cycle the rocket launcher in elevation.
7. Complete maintenance forms.

Evaluation Preparation: Ensure all items required in the condition statement (or appropriate substitutions) are on hand and all safety requirements are met.

Performance Measures	GO	NO-GO
1. Performed a visual inspection of the elevation position monitor transducer and corrected any defects.	_____	_____
2. Performed a visual inspection of the elevation position monitor transducer and corrected any defects.	_____	_____
3. Installed the replacement elevation position monitor transducer.	_____	_____
4. Adjusted the elevation position monitor transducer.	_____	_____
5. Verified that the elevation position monitor transducer was operational.	_____	_____
6. Cycled the rocket launcher in elevation.	_____	_____
7. Completed maintenance forms, if required.	_____	_____

Evaluation Guidance: Score the soldier GO, if all performance measures are passed (P). Score the soldier NO-GO, if any performance measure is failed (F). If the soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

DA Form 2404

DA Pamphlet 750-8

TM 9-1055-647-13&P

TM 9-243

091-94P-1012
Replace the Azimuth Position Transducer

DANGER
Follow all Danger warning in TMs
WARNING
Follow all warning in TMs
CAUTION
Comply with all unit/shop SOPs

Conditions: Perform this task in a operational environment given an armored vehicle-mounted M270A1 rocket launcher; an faulty azimuth position transducer; DA Form 2404, Equipment Inspection and Maintenance Worksheet; a shop set and tool kit; TM 9-1055-647-13&P (M270A1); TM 9-243; and DA Pamphlet 750-8, The Army Maintenance Management System (TAMMS) Users Manual. **Note:** This task may be performed in a Chemical, Biological, Radiological, and Nuclear (CBRN) environment.

Standards: The azimuth position transducer was replaced according to the applicable technical manuals. Perform this task without causing injury to self, other personnel, the environment or damage to equipment. CAUTION! Comply with unit/shop SOP requirements for disposal of scrap metal.

Special Condition: None

Special Standards: None

Special Equipment:

Cue: None

Note: None

Performance Steps

1. Perform a visual inspection of the azimuth position transducer and correct any defects. Check the following:
 - a. Bolts, nuts, and washers.
 - b. Bearings and bushings.
 - c. Components.
 - d. Electrical cables and connectors.

2. Remove the defective azimuth position transducer.
 - a. Remove the four bolts and washers securing azimuth transducer guard plate.
 - b. Disconnect electrical cable connectors from the azimuth transducer.
 - c. Remove the six bolts, five washers, and ground strap.
 - d. Remove the azimuth position transducer.
3. Install azimuth position transducer.
 - a. Install the six bolts, five washers, and ground strap.
 - b. Install the electrical cable connectors from the transducer.
4. Adjust azimuth position transducer. Install the four bolts and washers securing azimuth transducer guard plate.
5. Verify the azimuth position transducer is operational.
6. Move the rocket launcher in azimuth.
7. Perform stow procedures.
8. Complete maintenance forms, if required.

Evaluation Preparation: Ensure all items required in the condition statement (or appropriate substitutions) are on hand and all safety requirements are met.

Performance Measures	GO	NO-GO
1. Performed a visual inspection of the azimuth position transducer and corrected any defects.	_____	_____
2. Removed the defective azimuth position transducer.	_____	_____
3. Installed the replacement azimuth position transducer.	_____	_____
4. Adjusted the azimuth position transducer.	_____	_____
5. Verified that the azimuth position transducer was operational.	_____	_____
6. Cycled the rocket launcher in azimuth.	_____	_____
7. Performed stow procedures.	_____	_____

Performance Measures**GO NO-GO**

8. Completed maintenance forms, if required.

Evaluation Guidance: Score the Soldier GO if all performance measures are passed. Score the Soldier NO-GO if any performance measure is failed. If the Soldier fails any performance measure, show the Soldier what was done wrong and how to do it correctly.

References**Required**

DA Form 2404

DA Pamphlet 750-8

TM 9-1055-647-13&P

TM 9-243

091-94P-1016
Replace the Elevation Angle Drive Unit

DANGER
allow all Danger warning in TMs
WARNING
allow all warning in TMs
CAUTION
comply with all unit/shop SOPs

Conditions: Perform this task in a operational environment given an armored vehicle-mounted M270A1 rocket launcher; an faulty elevation angle drive unit; DA Form 2404, Equipment Inspection and Maintenance Worksheet; one 94P MLRS repairer and one 13M MLRS crewmember to assist as required; HEMTT wrecker and an operator; a hoisting sling; a 94P shop set and 94P tool kit; jury struts; TM 9-1055-647-13&P (M270A1); TM 9-243 and DA Pamphlet 750-8, The Army Maintenance Management System (TAMMS) Users Manual. **Note:** This task may be performed in a Chemical, Biological, Radiological, and Nuclear (CBRN) environment.

Standards: The elevation angle drive unit was replaced according to the applicable technical manuals. Perform this task without causing injury to self, other personnel, the environment, or damage to equipment. **CAUTION!** Use only a few drops of lubricating oil to loosen screws, nuts, and bolts. Use rags to contain any excess oil or grease. Handle disposal of hazardous materials and hazardous waste (such as, ethylene glycol, brake fluid, oil, grease, solvents, and contaminated rags) in accordance with unit Standing Operating Procedures (SOP)/Operations Orders (OPORDs), local regulations, and/or host nation laws. Comply with unit SOP, OPORDs, local regulations, and/or host nation laws for drip pans or secondary containment devices.

Special Condition: None

Special Standards: None

Special Equipment:

Cue: None

Note: None

Performance Steps

1. Perform a visual inspection of the elevation angle drive unit and correct any defects. Check the following items listed below:

- a. Bolts, nuts, shims, and washers.
- b. Bearings and bushings.
- c. Components.
- d. Electrical cables and connectors.
- e. Hoses and fluid lines.

2. Install both jury struts.

Note: If the jury struts cannot be installed, support the cage with the wrecker and the hoisting sling.

3. Remove elevation drive propeller shaft.

4. Remove defective elevation angle drive unit.

- a. Remove the bolts and two washers securing angle drive unit to support.
- b. Remove the four nuts and four washers securing angle drive unit to elevation transmission/brake.
- c. Remove the angle drive unit.

5. Remove the keyed yoke and shaft key.

6. Install shaft key and keyed yoke.

7. Install elevation angle drive unit.

- a. Install the four nuts and four washers to elevation transmission/brake.
- b. Install the bolts and two washers securing angle drive unit to support.

8. Install elevation drive propeller shafts.

9. Verify elevation angle drive unit is operational.

10. Remove jury struts.

11. Move rocket launcher in elevation.

12. Complete maintenance forms.

Evaluation Preparation: Ensure all items required in the condition statement (or appropriate substitutions) are on hand and all safety requirements are met.

Performance Measures	GO	NO-GO
1. Performed a visual inspection of the elevation angle drive unit and corrected any defects.	_____	_____
2. Installed the jury struts.	_____	_____
Note: If the jury struts cannot be installed, support the cage with the wrecker and the hoisting sling.		
3. Removed the elevation drive propeller shaft.	_____	_____
4. Removed the defective elevation angle drive unit.	_____	_____
5. Removed the keyed yoke and shaft key.	_____	_____
6. Installed the shaft key and keyed yoke.	_____	_____
7. Installed the replacement elevation angle drive unit.	_____	_____
8. Installed the elevation drive propeller shafts.	_____	_____
9. Verified that the elevation angle drive unit was operational.	_____	_____
10. Removed the jury struts.	_____	_____
11. Cycled the rocket launcher in elevation.	_____	_____
12. Completed maintenance forms, if required.	_____	_____

Evaluation Guidance: Score the soldier GO if all performance measures are passed (P). Score the soldier NO-GO if any performance measure is failed (F). If the soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

- DA Form 2404
- DA Pamphlet 750-8
- TM 9-1055-647-13&P
- TM 9-243

091-94P-1051
Maintain Launcher Mechanical System

DANGER

Follow all Danger warning in TMs

WARNING

Follow all warning in TMs

CAUTION

When removing the draw bolts record the number of washers between the adjusting nut and the ADU. Retain these washers for installation of the new ADU. They establish a measurement required for ADU operation.

Conditions: Perform this task in a operational environment given an armored vehicle-mounted M270A1 rocket launcher; an faulty Improved Launcher Mechanical System; DA Form 2404, Equipment Inspection and Maintenance Worksheet; one 94P MLRS repairer; one 13M MLRS crewmember; and one 13T field artillery surveyor to assist as required; 94P shop set and a 94P tool kit; a survey's theodolite; TM 9-1055-647-13&P; TM 9-243; and a DA Pamphlet 750-8, The Army Maintenance Management System (TAMMS) Users Manual. **Note:** This task may be performed in a Chemical, Biological, Radiological, and Nuclear (CBRN) environment.

Standards: Maintenance on the Improved Launcher Mechanical System was performed according to the applicable technical manuals. Perform this task without causing injury to self, other personnel, the environment, or damage to equipment.

Special Condition: None

Special Standards: None

Special Equipment:

Cue: None

Note: None

Performance Steps

1. Perform a visual inspection of the Improved Launcher Mechanical System.
 - a. Remove azimuth brake.
 - b. Remove brake from ADU and position out of the way for ADU removal.

c. Using a 10 mm socket, 6-inch extension and 3/8-inch drive socket wrench handle, remove four bolts and washers securing pinion cover to base.

d. Remove pinion cover and retain hardware for installation.

2. Perform the Launcher Mechanical System Maintenance Procedures. Perform maintenance on the following components.

a. Azimuth Drive Unit.

b. Elevation Actuator and Support Assembly.

c. Elevation Angle Drive Unit.

d. Elevation Transmission.

3. Perform Azimuth Drive Unit Maintenance Procedures in accordance with TM 9-1055-647-13&P.

4. Perform Elevation Actuator and Support Assembly Maintenance Procedures in accordance with TM 9-1055-647-13&P.

5. Perform Elevation Angle Drive Unit Maintenance Procedures in accordance with TM 9-1055-647-13&P.

6. Perform Elevation Transmission Maintenance Procedures in accordance with TM 9-1055-647-13&P.

7. Perform follow-on procedures in accordance with TM 9-1055-647-13&P.

Evaluation Preparation: Ensure all items required in the condition statement (or appropriate substitutions) are on hand and all safety requirements are met.

Performance Measures	GO	NO-GO
1. Performed a visual inspection of the Improved Launcher Mechanical System.	_____	_____
2. Performed the Launcher Mechanical System Maintenance Procedures.	_____	_____
3. Installed ADU in accordance with TM 9-1055-647-13&P.	_____	_____

Performance Measures**GO** **NO-GO**

4. Performed Elevation Actuator and Support Assembly Maintenance Procedures in accordance with TM 9-1055-647-13&P. _____

5. Performed Elevation Angle Drive Unit Maintenance Procedures in Accordance with TM 9-1055-647-13&P. _____

6. Performed Elevation Transmission Maintenance Procedures in Accordance with TM 9-1055-647-13&P. _____

7. Performed follow-on procedures in accordance with TM 9-1055-647-13&P _____

Evaluation Guidance: Score the soldier GO if all performance measures are passed (P). Score the soldier NO-GO if any performance measure is failed (F). If the soldier fails any performance measure, show what was done wrong and how to do it correctly.

References**Required**

DA Form 2404

DA Pamphlet 750-8

TM 9-1055-647-13&P

TM 9-243

091-94P-1001
Replace the Turret Assembly

DANGER
Follow all Danger warning in TMs
WARNING
Follow all warning in TMs
CAUTION
Use only a few drops of lubricating oil to loosen screws, nuts, and bolts. Use rags to contain any excess oils or grease. Handle disposal of hazardous materials and hazardous waste (such as, ethylene glycol, brake fluid, oil, grease, solvents, and contaminated rags) in accordance with unit Standing Operating Procedures (SOP)/Operations Orders (OPORDs), local regulations, and/or host nation laws.

Conditions: In a operational environment given an armored vehicle-mounted M270/A1 rocket launcher; a faulty turret assembly; DA Form 2404, Equipment Inspection and Maintenance Worksheet; two 94P MLRS repairers and one 13M MLRS crew member to assist as required; HEMTT wrecker, and operator, or overhead crane a 94P shop set; a tool kit; a hoisting sling; a manila rope; TM 9-1425-648-13&P for the M270 and TM 9-1055-647-13&P, for the M270A1, TM 9-243, and DA Pamphlet 750-8, The Army Maintenance Management System (TAMMS) Users Manual.

Standards: The turret assembly is removed according to the applicable technical manuals (TM). Perform this task without causing injury to self, other personnel, the environment, or damage to equipment. **CAUTION!** Use only a few drops of lubricating oil to loosen screws, nuts, and bolts. Use rags to contain any excess oils or grease. Handle disposal of hazardous materials and hazardous waste (such as, ethylene glycol, brake fluid, oil, grease, solvents, and contaminated rags) in accordance with unit Standing Operating Procedures (SOP)/Operations Orders (OPORDs), local regulations, and/or host nation laws. Comply with unit SOP, OPORDs, local regulations, and/or host nation laws for drip pans or secondary containment devices.

Special Condition: None

Special Standards: None

Special Equipment:

Cue: None

Note: *Comply with unit SOP, OPORDs, local regulations, and/or host nation laws for drip pans or secondary containment devices.*

Performance Steps

1. Perform a visual inspection of the turret assembly and correct any defects. Check the following items below:
 - a. Bolts.
 - b. Bearings and bushings.
 - c. Components.
 - d. Electrical cables and connectors.
 - e. Hoses and fluid lines.
2. Rotate the turret manually until the 1.25-degree limit switch is free (M270 only).
3. Make an index mark on the turret and one on the base.
4. Remove the cable bundle from the turret.
 - a. Disconnect W340P4 and W340P5 (M270A1) Disconnect W23P5 (M270).
 - b. Cut cables ties securing cable.
 - c. Remove four clamps from cable bundle and secure clamps to turret.
 - d. Install cable ties on W305, W306, W307, W318, W81, and W340 to aid in installation.
5. Disconnect the W14P2 connector.
6. Remove the ground strap.
 - a. Loosen bolts and nuts.
 - b. Remove strap.
7. Remove the swivel. Disconnect hydraulic hoses and the following items.
 - a. Elevation motor supply.
 - b. Return.
 - c. Transmission brake.
 - d. Remove four bolts and washers.

8. Remove Elevation Motor.
9. Remove Elevation Transmission.
10. Remove the turret from the base assembly. Remove the 48 bolts and washers from the turret.
11. Attach the hoisting sling.
 - a. Connect wrecker hook to turret sling.
 - b. Attach four guide lines.
12. Lower the turret onto a suitable support to prevent damage to cage components.
13. Inspect the Felt Seal on base assembly.
14. Assemble sling with longer cables to front and shorter cable to rear.
 - a. Connect wrecker hook to turret sling.
 - b. Lift and position turret on base assembly.
15. Align the index mark on turret with index mark on base assembly.
16. Install 48 bolts and washers.
17. Disconnect the hoisting sling from wrecker. Remove sling from turret.
18. Position swivel to swivel support.
 - a. Install four bolts and washers.
 - b. Tighten bolts.
19. Install Elevation Transmission.
20. Install Elevation Motor.
21. Install the ground strap and driver for electrical bond.
 - a. Install swivel with two bolts and two washers.
 - b. Tighten bolts.
22. Connect the hydraulic hoses.
 - a. Elevation motor supply.

-
- b. Return.
 - c. Transmission brake.
23. Install the ground strap.
- a. Install strap.
 - b. Tighten bolts and nuts.
24. Install the cable bundle through turret.
- a. Connect the W14P2 connector.
 - b. Connect the W340P4 and W340P5 cable (M270A1).
 - c. Connect the W23P5 cable (M270).
25. Fill out maintenance forms.

Evaluation Preparation: Ensure all items required in the condition statement (or appropriate substitutions) are on hand and all safety requirements are met.

Note: Setup, Have the cage assemblies removed (Task 091-94P-1074) and the elevation transmission removed.

Performance Measures	GO	NO-GO
1. Performed a visual inspection of the turret assembly and corrected any defects.	_____	_____
2. Rotated the turret manually until the 1.25-degree limit switch was free.	_____	_____
3. Made an index mark on the turret and one on the base.	_____	_____
4. Removed the cable bundle from the turret.	_____	_____
5. Disconnected the W14P2 connector.	_____	_____
6. Removed the ground strap by loosening bolts and nuts.	_____	_____
7. Removed the swivel and ensure elevation motor, return, and transmission brake hydraulic lines are disconnected.	_____	_____
8. Removed elevation motor.	_____	_____

Performance Measures	GO	NO-GO
9. Removed elevation transmission.	_____	_____
10. Removed the turret base assembly.	_____	_____
11. Attached the hoisting sling.	_____	_____
12. Lowed the turret onto suitable support.	_____	_____
13. Inspected the felt seal on base assembly.	_____	_____
14. Attached the guide lines.	_____	_____
15. Aligned the index mark on base assembly.	_____	_____
16. Installed 48 bolts and washers.	_____	_____
17. Disconnected the hoisting sling from wrecker.	_____	_____
18. Positioned swivel and ensure four bolts/washers are tight.	_____	_____
19. Installed elevation transmission.	_____	_____
20. Installed elevation motor.	_____	_____
21. Installed the ground strap and driver for electrical bond.	_____	_____
Ensure swivel and two bolts are secure.		
22. Connected the elevation motor, return, and transmission brake hydraulic lines.	_____	_____
23. Installed the ground strap.	_____	_____
24. Installed the cable bundle through turret.	_____	_____
25. Completed maintenance forms, if required.	_____	_____

Evaluation Guidance: Score the soldier GO if all performance measures are passed (P). Score the soldier NO-GO if any performance measure is failed (F). If the soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

- DA Form 2404
- DA Pamphlet 750-8

TM 9-1055-647-13&P
TM 9-1425-648-13& P
TM 9-243

091-94P-1009
Replace the Azimuth Drive Speed Reducer

DANGER
Follow all Danger warning in TMs
WARNING
Follow all warning in TMs
CAUTION
Comply with all unit/shop SOP

Conditions: Perform this task in a operational environment given an armored vehicle-mounted M270A1 rocket launcher; a faulty azimuth drive speed reducer; DA Form 2404, Equipment Inspection and Maintenance Worksheet; one 94P MLRS repairer and one 13M MLRS crewmember to assist as required; shop set and tool kit; caps and plugs; TM 9-1425-646-10; TM 9-1425-648-13&P; TM 9-243, and DA Pamphlet 750-8, The Army Maintenance Management System (TAMMS) Users Manual. **Note:** This task may be performed in a Chemical, Biological, Radiological, and Nuclear (CBRN) environment.

Standards: The azimuth drive speed reducer was replaced according to the applicable technical manuals (TM). Perform this task without causing injury to self, other personnel, the environment, or damage to equipment. **CAUTION!** Use only a few drops of lubricating oil to loosen screws, nuts, and bolts. Use rags to contain any excess oils or grease. Handle disposal of hazardous materials and hazardous waste (such as, ethylene glycol, brake fluid, oil, grease, solvents, and contaminated rags) in accordance with unit Standing Operating Procedures (SOP)/Operations Orders (OPORDs), local regulations, and/or host nation laws. Comply with unit SOP, OPORDs, local regulations, and/or host nation laws for drip pans or secondary containment devices.

Special Condition: None

Special Standards: None

Special Equipment:

Cue: None

Note: None

Performance Steps

1. Perform a visual inspection of the azimuth drive speed reducer and correct any defects. Check the following items listed below.

-
- a. Bolts.
 - b. Bearings and bushings.
 - c. Components.
 - d. Electrical cables and connectors.
 - e. Hoses and fluid lines.
 - f. Remove the pinion gear cover.
 - g. Mark the position of the X-marks on the base. Align azimuth geared bearing X-mark with the pinion gear X-mark.
 - h. Disconnect flexible drive shaft from the speed reducer. Disconnect the hydraulic hose quick-disconnect coupling half from the speed reducer.

2. Remove azimuth drive speed reducer.

Note: Mark the position of the X-marks on the base.

- a. Remove the four nuts and washers securing speed reducer to base.

WARNING: Heavy. Two people are required to remove or install. Do not drop
Personnel injury and/or equipment damage can occur.

- b. Record thickness of the shims on each stud.
 - c. Slowly pull the speed reducer away from base.
3. Install the azimuth drive speed reducer.
- a. Install new shims.
 - b. Install the four nuts and washers.
4. Position pinion gear X-mark between the X-mark on the geared bearing.
5. Align azimuth geared bearing X-marks with the X-mark on the base.
6. Ensure the pinion gear and gearing teeth is parallel.
- a. Check backlash.
 - b. Torque to specification.
7. Connect the hydraulic hose quick-disconnect coupling half to the speed reducer.

8. Connect the flexible drive shaft to the speed reducer.
9. Verify the azimuth drive speed reducer is operational.
10. Complete maintenance forms, if required.

Evaluation Preparation: Ensure all items required in the condition statement (or appropriate substitutions) are on hand and all safety requirements are met.

Performance Measures	GO	NO-GO
1. Performed a visual inspection of the azimuth drive speed reducer and corrected any defects.	_____	_____
2. Removed azimuth drive speed reducer. Ensure you mark the X-mark on the base.	_____	_____
3. Installed the azimuth drive speed reducer along with the shims and four bolts/washer to secure reducer.	_____	_____
4. Positioned the pinion gear X-mark between the X-mark on the geared bearing.	_____	_____
5. Aligned the azimuth geared bearing X-marks with the X-mark on the base.	_____	_____
6. Ensured that the pinion gear and gearing teeth were parallel.	_____	_____
7. Connected the hydraulic hose to the speed reducer.	_____	_____
8. Connected the flexible drive shaft to the speed reducer.	_____	_____
9. Verified that the azimuth drive speed reducer was operational.	_____	_____
10. Completed maintenance forms, if required.	_____	_____

Evaluation Guidance: Score the soldier GO if all performance measures are passed (P). Score the soldier NO-GO if any performance measure is failed (F). If the soldier fails any performance measure, show what was done wrong and how to do it correctly.

References Required

DA Form 2404
 DA Pamphlet 750-8
 TM 9-1425-646-10
 TM 9-1425-648-13&P
 TM 9-243

091-94P-1015

Replace the Elevation Actuator and Support Assembly

DANGER
Follow all Danger warning in TMs
WARNING
Follow all warning in TMs
CAUTION
Comply with all unit/shop SOPs

Conditions: Perform this task in a operational environment given an armored vehicle-mounted M270A1 rocket launcher; an faulty elevation actuator-support assembly; DA Form 2404, Equipment Inspection and Maintenance Worksheet; one 94P MLRS repairer and one 13M MLRS crewmember to assist as required; HEMTT wrecker and an operator; or overhead crane; a nylon sling; a shop set and tool kit; hoisting sling; two jury struts; TM 9-1055-647-13&P (M270A1); TM 9-243, and DA Pamphlet 750-8, The Army Maintenance Management System (TAMMS) Users Manual. **Note:** This task may be performed in a Chemical, Biological, Radiological, and Nuclear (CBRN) environment.

Standards: The elevation actuator-support assembly was replaced according to the applicable technical manuals. Perform this task without causing injury to self, other personnel, the environment, or damage to equipment. CAUTION! Comply with unit/shop SOP requirements for disposal of scrap metal.

Special Condition: None

Special Standards: None

Special Equipment:

Cue: None

Note: None

Performance Steps

1. Perform a visual inspection of the elevation actuator-support assembly and correct any defects. Check the following:
 - a. Bolts and nuts.
 - b. Bearing and bushings.
 - c. Components.

-
- d. Electrical cables and connectors.
 - e. Hoses and fluid lines.
2. Install both jury struts.
Note: *If the jury struts cannot be installed, support the cage with the wrecker and the hoisting sling.*
 3. Remove elevation drive propeller shaft.
 4. Remove the splined yoke.
 5. Remove faulty elevation actuator-support assembly.
 - a. Remove the four nuts, four washers, and four bolts securing the support assembly to actuator.
 - b. Remove the elevation drive propeller shaft.
 6. Install elevation actuator-support assembly.
 - a. Position bearings on the actuator trunnion and install the support so the bearings rest in the support groove.
 - b. Adjust the shims thickness.
 - c. Install the shims.
 - d. Install the four bolts, washers, and nuts.
 - e. Tighten the nuts evenly and torque.
 7. Install the splined yoke.
 8. Install elevation drive propeller shafts.
 9. Verify elevation actuator-support assembly is operational.
 10. Remove both jury struts.
 11. Move rocket launcher in elevation.
 12. Complete maintenance forms, if required.

Evaluation Preparation: Ensure all items required in the condition statement (or appropriate substitutions) are on hand and all safety requirements are met.

Performance Measures	GO	NO-GO
1. Performed a visual inspection of the elevation actuator-support assembly and corrected any defects.	_____	_____
2. Installed the jury struts.	_____	_____
Note: If the jury struts cannot be installed, support the cage with the wrecker and the hoisting sling.		
3. Removed the elevation drive propeller shaft.	_____	_____
4. Removed the splined yoke.	_____	_____
5. Removed the faulty elevation actuator-support assembly.	_____	_____
6. Installed the replacement elevation actuator-support assembly.	_____	_____
7. Installed the splined yoke.	_____	_____
8. Installed the elevation drive propeller shafts.	_____	_____
9. Verified that the elevation actuator-support assembly was operational.	_____	_____
10. Removed the jury struts.	_____	_____
11. Cycled the rocket launcher in elevation.	_____	_____
12. Completed maintenance forms, if required.	_____	_____

Evaluation Guidance: Score the soldier GO if all performance measures are passed (P). Score the soldier NO-GO if any performance measure is failed (F). If the soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

DA Form 2404
DA Pamphlet 750-8
TM 9-1055-647-13&P
TM 9-243

Subject Area 2: Test/Repair Cage Assembly

091-94P-1056

Replace the Cage-Down Limit Switch

WARNING

Follow all warning in TMs

CAUTION

Comply with unit/shop SOP requirements for disposal of scrap metal.

Conditions: Perform this task in a operational environment given an armored vehicle-mounted M270A1 rocket launcher; a faulty cage-down limit switch; DA Form 2404, Equipment Inspection and Maintenance Worksheet; one 94P MLRS repairer and one 13M MLRS crewmember to assist as required; 94P shop set and a 94P tool kit; a 8050A digital multi-meter; lock wire; jury struts; TM 9-1055-647-13&P; TM 9-243, and DA Pamphlet 750-8, The Army Maintenance Management System (TAMMS) Users Manual.

Note: This task may be performed in a Chemical, Biological, Radiological, and Nuclear (CBRN) environment.

Standards: The cage-down limit switch was replaced according to the applicable technical manuals. Perform this task without causing injury to self, other personnel, the environment, or damage to equipment. CAUTION! Comply with unit/shop SOP requirements for disposal of scrap metal.

Special Condition: None

Special Standards: None

Special Equipment:

Cue: None

Note: None

Performance Steps

1. Perform a visual inspection of the cage-down limit switch and correct any defects. Check the following items below:

- a. Components.
- b. Electrical cables and connectors.
- c. Switch.

-
2. Install the jury struts.
 3. Remove the faulty cage-down limit switch.
 - a. Remove four bolts washers securing limit switch cover.
 - b. Remove the cover.
 - c. Disconnect electrical cable from limit switch.
 - d. Cut the lock wire from locknut and limit switch rotary arm locking screw.
 - e. Remove nut, washer, and rotary arm.
 - f. Remove the locknut and thrust washer from switch bracket.
 - g. Remove the limit switch from bracket.
 4. Install the replacement cage-down limit switch.
 - a. Engage the two pins on the switch body into the holes in the bracket.
 - b. Install the thrust washer and locknut on switch shaft. Tighten the locknut finger tight.
 - c. Assemble the rotary arm onto the switch shaft.
 - d. Install washer and nut on switch shaft to secure the rotary arm in position.
 - e. Loosen limit switch locknut.
 - f. Rotate switch 1/2 turn (180) degrees) to the normal position.
 5. Adjust the cage-down limit switch.
 6. Verify the cage-down limit switch is operational.
 7. Install the cover.
 8. Install the four bolts washers securing limit switch cover.
 9. Remove the jury struts.
 10. Move the rocket launcher in elevation.
 11. Perform the stow procedures.
 12. Complete maintenance forms.

Evaluation Preparation: Ensure all items required in the condition statement (or appropriate substitutions) are on hand and all safety requirements are met.

Performance Measures	GO	NO-GO
1. Performed a visual inspection of the cage-down limit switch and corrected any defects.	_____	_____
2. Installed the jury struts.	_____	_____
3. Removed the faulty cage-down limit switch.	_____	_____
4. Installed the replacement cage-down limit switch.	_____	_____
5. Adjusted the cage-down limit switch.	_____	_____
6. Verified that the cage-down limit switch was operational.	_____	_____
7. Installed the cover.	_____	_____
8. Installed the four bolts washer securing limit switch cover.	_____	_____
9. Removed the jury struts.	_____	_____
10. Cycled the rocket launcher in elevation.	_____	_____
11. Performed stow procedures.	_____	_____
12. Completed maintenance forms, if required.	_____	_____

Evaluation Guidance: Score the soldier GO if all performance measures are passed (P). Score the soldier NO-GO if any performance measure is failed (F). If the soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

DA Form 2404

DA Pamphlet 750-8

TM 9-1055-647-13&P

TM 9-243

091-94P-1062
Replace the Hoist-Down Limit Switch

WARNING

Follow all warning in TMs

CAUTION

Comply with all unit/shop SOPs

Conditions: Perform this task in a operational environment given an armored vehicle-mounted M270A1 rocket launcher; a faulty hoist-down limit switch; DA Form 2404, Equipment Inspection and Maintenance Worksheet; one 94P MLRS repairer; one 13M MLRS crewmember to assist as required; a 94P shop set; a 94P tool kit; a digital multi-meter; lock wire; TM 9-1055-647-13&P; TM 9-243, and a DA Pamphlet 750-8, The Army Maintenance Management System (TAMMS) Users Manual. **Note:** This task may be performed in a Chemical, Biological, Radiological, and Nuclear (CBRN) environment.

Standards: The hoist-down limit switch was replaced according to the applicable technical manuals. Perform this task without causing injury to self, other personnel, the environment, or damage to equipment. CAUTION! Comply with unit/shop SOP requirements for disposal of scrap metal.

Special Condition: None

Special Standards: None

Special Equipment:

Cue: None

Note: None

Performance Steps

1. Perform a visual inspection of the hoist-down limit switch and correct any defects. Check components, electrical cable, and connectors.
 - a. Remove the lower cover.
 - b. Lower the hoist hooks.
 - c. Disconnect limit switch connector P1.
 - d. Remove the ground wire.
 - e. Cut the lock wire and rotate switch mount to access switch.

2. Remove the faulty hoist-down limit switch.
3. Install the replacement hoist-down limit switch.
 - a. Screw the switch into mount only far enough to hold it in mount before adjustment.
 - b. Install the ground wire.
4. Adjust the hoist-down limit switch.
 - a. Connect limit switch cable to hoist breakout box.
 - b. Connect the multi-meter.
 - c. Rotate switch mount.
 - d. Lock wire limit switch and switch mount jam nuts together.
 - e. Reconnect the limit switch connector P1.
5. Verify the hoist-down limit switch is operational.
6. Fill out maintenance forms, if required.

Evaluation Preparation: Ensure all items required in the condition statement (or appropriate substitutions) are on hand and all safety requirements are met.

Performance Measures	GO	NO-GO
1. Performed a visual inspection of the hoist-down limit switch and corrected any defects.	_____	_____
2. Removed the faulty hoist-down limit switch.	_____	_____
3. Installed the replacement hoist-down limit switch.	_____	_____
4. Adjusted the hoist-down limit switch.	_____	_____
5. Verified that the hoist-down limit switch was operational.	_____	_____
6. Completed maintenance forms, if required.	_____	_____

Evaluation Guidance: Score the soldier GO if all performance measures are passed (P). Score the soldier NO-GO if any performance measure is failed (F). If the soldier fails any performance measure, show what was done wrong and how to do it correctly.

References**Required**

DA Form 2404

DA Pamphlet 750-8

TM 9-1055-647-13&P

TM 9-243

091-94P-1069
Replace the Boom Extension Actuator

DANGER

Follow all Danger warning in TMs

WARNING

Follow all warning in TMs

Conditions: Perform this task in a operational environment given an armored vehicle-mounted M270A1 Rocket Launcher; a faulty boom extension actuator; DA Form 2404, Equipment Inspection and Maintenance Worksheet; one 94P MLRS repairer and one 13M MLRS crewmember to assist as required; a 94P shop set and tool kit; lock wire; TM 9-1055-647-13&P; TM 9-243; DA Pamphlet 750-8, The Army Maintenance Management System (TAMMS) Users Manual. **Note:** this task may be performed in a Chemical, Biological, Radiological, and Nuclear (CBRN) environment.

Standards: The boom extension actuator was replaced according to the applicable technical manuals. Perform this task without causing injury to self, other personnel, the environment, or damage to equipment.

Special Condition: None

Special Standards: None

Special Equipment:

Cue: None

Note: None

Performance Steps

1. Perform a visual inspection of the boom extension actuator and correct any defects. Check the following items below:

- a. Bolts and nuts.
- b. Bearings and bushings.
- c. Components.
- d. Electrical cables and connectors.

2. Remove the damaged boom extension actuator.

-
- a. Manually extend the boom 3 to 4 feet.
 - b. Remove the drive shafts from both actuators.
 - c. Remove the forward support assembly to bracket.
 - d. Remove the tube assembly from actuator.
 - e. Rotate both ball nut drive assemblies to clear rear support on intermediate beam.
 - f. Remove the actuator from cage.
 - g. Remove the rear tube support and ball nut drive assembly.
3. Measure and record the distance from the ball nut drive to the edge of the actuator gear housing.
 4. Install the boom extension actuator.
 - a. Replace the bushing, sleeve, and seal.
 - b. Install the ring on sleeve and secure with lock washer and spanner nut.
 - c. Position the rear tube support and ball nut drive assembly.
 - d. Secure the rear tube support to ball nut drive assembly.
 - e. Rotate the ball nut drive assembly to position recorded during removal.
 - f. Slide actuator to the rear until you install actuator to cage.
 - g. Rotate both the ball nut drive assemblies to clear rear support on the intermediate beam.
 - h. Slide the tube assembly through forward mount assembly and rear tube support.
 - i. Install the drive shaft to actuator and motor and reduction gearbox.
 - j. Secure the forward tube support to bracket.
 5. Measure the gap between the forward pull collar and the support assembly. Manually retract the boom to full in position while checking that the boom travel is smooth and not binding.
 6. Verify the boom extension actuator is operational.
 7. Complete maintenance forms.

Evaluation Preparation: Ensure all items required in the condition statement (or appropriate substitutions) are on hand and all safety requirements are met.

Performance Measures	GO	NO-GO
1. Performed a visual inspection of the boom extension actuator and corrected any defects.	_____	_____
2. Removed the damaged boom extension actuator.	_____	_____
3. Measured and recorded the distance from the ball nut drive to the edge of the actuator gear housing.	_____	_____
4. Installed the replacement boom extension actuator.	_____	_____
5. Measured the gap between the forward pull collar and the support assembly.	_____	_____
6. Verified that the boom extension actuator was operational.	_____	_____
7. Completed maintenance forms, if required.	_____	_____

Evaluation Guidance: Score the soldier GO if all performance measures are passed (P). Score the soldier NO-GO if any performance measure is failed (F). If the soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

DA Form 2404

DA Pamphlet 750-8

TM 9-1055-647-13&P

TM 9-243

091-94P-1071
Replace the Rocket Pod Hoist Carriage Assembly

DANGER

Follow all Danger warning in TMs

WARNING

Follow all warning in TMs

Conditions: Perform this task in a operational environment given an armored vehicle-mounted M270/A1 rocket launcher; a faulty Rocket Pod Hoist Carriage Assembly; DA Form 2404, Equipment Inspection and Maintenance Worksheet; two 94P MLRS repairers; one 13M MLRS crewmember to assist as required; a HEMTT wrecker and operator; or overhead crane; a 94P tool kit; a manila rope; TM 9-1055-647-13&P for the M270A1; TM 9-243, and a DA Pamphlet 750-8, The Army Maintenance Management System (TAMMS) Users Manual. **Note:** This task may be performed in a Chemical, Biological, Radiological, and Nuclear (CBRN) environment.

Standards: The rocket pod hoist carriage assembly was removed according to the applicable technical manuals. Perform this task without causing injury to self, other personnel, the environment, or damage to equipment. **CAUTION!** Use only a few drops of lubricating oil to loosen screws, nuts, and bolts. Use rags to contain any excess oil or grease. Handle disposal of hazardous materials and hazardous waste (such as, ethylene glycol, brake fluid, oil, grease, solvents, and contaminated rags) in accordance with unit Standing Operating Procedures (SOP)/Operations Orders (OPORDs), local regulations, and/or host nation laws.

Special Condition: None

Special Standards: None

Special Equipment:

Cue: None

Note: None

Performance Steps

1. Visual inspects the rocket pod hoist carriage assembly and corrects any defects. Check the following items below:

- a. Bolts and nuts.

- b. Bearings and bushings.
 - c. Components.
 - d. Electrical cables and connectors.
 - e. Hoses and fluid lines.
2. Extend the intermediate beam manually.
- a. Extend the intermediate beam on boom not being repaired to acquire the access holes in fixed beam.
 - b. Extend the intermediate beam on boom with defective carriage until intermediate beam and cage outer plate is aligned with access hole in fixed beam and cage outer plate.
 - c. Remove the following items:
 - (1) Inboard retaining ring from roller axle.
 - (2) Roller through the top access hole.
 - (3) Forward tube support assembly to bracket.
 - (4) Ball nut drive assemblies to the intermediate beam.
 - (5) Forward end beam assembly, spacers, and shims.
 - (6) Electrical cable from hoist electrical control box connector J1.
3. Remove the boom extension actuators.
4. Remove the flexible cable.
- a. Remove the flexible cable bracket to hoist support.
 - b. Remove the flexible cable from hoist support.
5. Secure the intermediate beams in position.
- a. Secure the intermediate beam using a C-clamp.
 - b. Remove the hoist carriage from the intermediate beam.
6. Install hoist carriage assembly.
- a. Lift the carriage into position and pull carriage rails into intermediate beam.

(1) Remove the C-clamps and pull carriage and intermediate beam into fixed beam.

(2) Count the rack gear teeth to ensure that there are same number of gears teeth past the intermediate beam pinion gear top and bottom.

(3) Move the forward end beam and spacers in position on intermediate beam.

b. Install shims.

c. Measure the distance from both sides of rear surface of intermediate beam and rear of the fixed beam.

d. Install the flexible cable and flexible cable bracket to hoist support assembly.

e. Connect W75P2 or W76P2 to hoist electrical control box connector J1.

f. Manually rotate the jackscrew to position the ball nut drive assembly in line with mounting holes in intermediate beam.

g. Secure switch cam and ball nut drive assembly to intermediate beam.

h. Install the forward tube support to bracket.

i. Manually retract the boom until holes for axle in roller mounting brackets line up with access hole in fixed beam and cage outer plate.

(1) Place rollers into position through access holes in top of fixed beam.

(2) Manually retract boom to full position, and check boom travel movement is smooth.

j. With the hoist carriage fully retracted.

(1) Measure the clearance between the flexible cable, as it lies in tray, and inside cage armor plate.

(2) Check to ensure the flexible conduit (W75 or W76) is supported by the roller assembly.

k. Check the adjustments of boom limit switches, and hoist limit switches.

l. Perform the after maintenance repair load test procedures.

7. Complete maintenance forms, if required.

Evaluation Preparation: Ensure all items required in the condition statement (or appropriate substitutions) are on hand and all safety requirements are met.

Performance Measures	GO	NO-GO
1. Performed a visual inspection of the rocket pod hoist carriage assembly and corrected any defects.	_____	_____
2. Extended the intermediate beam manually.	_____	_____
3. Removed the boom extension actuators.	_____	_____
4. Removed the flexible cable.	_____	_____
5. Secured the intermediate beams in position.	_____	_____
6. Installed hoist carriage assembly.	_____	_____
7. Completed maintenance forms, if required.	_____	_____

Evaluation Guidance: Score the soldier GO if all performance measures are passed (P). Score the soldier NO-GO if any performance measure is failed (F). If the soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

DA Form 2404

DA Pamphlet 750-8

TM 9-1055-647-13&P

TM 9-243

091-94P-1065
Replace the Intermediate Beam

DANGER
Follow all Danger warning in TMs
WARNING
Follow all warning in TMs
CAUTION
Comply with all unit/shop SOPs

Conditions: Perform this task in a operational environment given an armored vehicle-mounted M270A1 rocket launcher; a faulty intermediate beam; DA Form 2404, Equipment Inspection and Maintenance Worksheet; one 94P MLRS repairer; one 13M MLRS crewmember to assist as required; a 94P shop set and tool kit, a manila rope; two 4-inch by 4-inch by 5-foot wood supports; a HEMTT wrecker and an operator; TM 9-1055-647-13&P; TM 9-243, and a DA Pamphlet 750-8, The Army Maintenance Management System (TAMMS) Users Manual. **Note:** This task may be performed in a Chemical, Biological, Radiological, and Nuclear (CBRN) environment.

Standards: The intermediate beam was replaced according to the applicable technical manuals. Perform this task without causing injury to self, other personnel, the environment, or damage to equipment.

Special Condition: None

Special Standards: None

Special Equipment:

Cue: None

Note: None

Performance Steps

1. Inspect the intermediate beam and correct any defects. Check the following items below:

- a. Bolts and nuts.
- b. Bearings and bushings.
- c. Components.

- d. Electrical cables and connectors.
 - e. Hoses and fluid lines.
2. Remove the W75 or W76 cable assembly.
 - a. Temporarily install forward end beam.
 - b. Remove the boom extension actuator.
 - c. Remove the C-clamps securing the intermediate beam to fixed beam.
 - d. Remove the upper guide roller for W75 or W76 cable.
 - e. Remove the W75 or W76 cable.
 3. Remove the defective intermediate beam.
 - a. Pull the intermediate beam out of fixed beam.
 - b. Inspect the beam slide buttons.
 - c. Inspect the separator strip on fixed beam.
 4. Install the intermediate beam.
 - a. Slide the intermediate beam into fixed beam until pinion gear is just forward of fixed beam rack gear.
 - b. Remove the forward end beam.
 - c. Install the hoist carriage.
 5. Install the W75 or W76 cable assembly.
 6. Verify the intermediate beam is operational.
 7. Complete the required maintenance forms.

Evaluation Preparation: Ensure all items required in the condition statement (or appropriate substitutions) are on hand and all safety requirements are met.

Setup: Have the hoist carriage removed (Task 091-94P-1071).

Performance Measures

GO **NO-GO**

1. Performed a visual inspection of the intermediate beam and corrected any defects.

Performance Measures**GO** **NO-GO**

2. Removed the W75 or W76 cable assembly.	_____	_____
3. Removed the defective intermediate beam.	_____	_____
4. Installed the replacement intermediate beam.	_____	_____
5. Installed the W75 or W76 cable assembly.	_____	_____
6. Verified that the intermediate beam was operational.	_____	_____
7. Completed maintenance forms, if required.	_____	_____

Evaluation Guidance: Score the soldier GO if all performance measures are passed (P). Score the soldier NO-GO if any performance measure is failed (F). If the soldier fails any performance measure, show what was done wrong and how to do it correctly.

References**Required**

DA Form 2404

DA Pamphlet 750-8

EM 0208 TM 9-1055-647-13&P

TM 9-243

091-94P-1059
Replace the Rocket Pod Latch-Hook Assembly

DANGER
Follow all danger warning in TMs
WARNING
Follow all warning in TMs
CAUTION
Comply with all unit/shop SOPs

Conditions: Perform this task in an operational environment given an armored vehicle-mounted M270A1 rocket launcher; a faulty rocket pod latch-hook assembly; DA Form 2404, Equipment Inspection and Maintenance Worksheet; a 94P shop set, a 94P tool kit; lock wire; TM 9-1055-647-13&P; TM 9-243, and a DA Pamphlet 750-8, The Army Maintenance Management System (TAMMS) Users Manual. **Note:** This task may be performed in a Chemical, Biological, Radiological, and Nuclear (CBRN) environment.

Standards: The rocket pod latch-hook assembly was replaced according to the applicable technical manuals. Perform this task without causing injury to self, other personnel, the environment, or damage to equipment. CAUTION! Comply with unit/shop SOP requirements for disposal of scrap metal.

Special Condition: None

Special Standards: None

Special Equipment:

Cue: None

Note: None

Performance Steps

1. Visually inspect the rocket pod latch-hook assembly and correct any defects. Check the following items below:

- a. Bolts.
- b. Bearing and bushings.
- c. Components.
- d. Electrical cables and connectors.

-
- e. Hoses and fluids.
2. Remove the link assembly from the rocket pod latch-hook assembly in accordance with TM 9-1055-647-13&P.
 - a. Set the latch handle to open (unlatched) position.
 - b. Remove the nut and washer from the eccentric pin.
 - c. Remove the eccentric pin.
 - d. Remove the cotter pin from nut securing bell crank assembly.
 3. Remove the faulty rocket pod latch-hook assembly.
 4. Install the replacement rocket pod latch-hook assembly in accordance with TM 9-1055-647-13&P.
 5. Perform the rigging gauge adjustment procedures in accordance with TM 9-1055-647-13&P.
 6. Connect the link assembly to the rocket pod latch-hook assembly.
 - a. Install the cotter pin to nut securing bell crank assembly.
 - b. Install the eccentric pin.
 - c. Install the nut and washer to the eccentric pin.
 - d. Open the latch handle to open (unlatched) position.
 7. Operate the latch handle to ensure a smooth. Perform RP latch assembly adjustment if criteria are not met.
 8. Verify the rocket pod latch-hook assembly is operational.
 9. Complete maintenance forms.

Evaluation Preparation: Ensure all items required in the condition statement (or appropriate substitutions) are on hand and all safety requirements are met.

Performance Measures

GO NO-GO

1. Performed a visual inspection of the rocket pod latch-hook assembly and corrected any defects.

Performance Measures	GO	NO-GO
2. Removed the link assembly from the rocket pod latch-hook assembly.	_____	_____
3. Removed the faulty rocket pod latch-hook assembly.	_____	_____
4. Installed the replacement rocket pod latch-hook assembly.	_____	_____
5. Performed rigging gauge adjustment.	_____	_____
6. Connected the link assembly to the rocket pod latch-hook assembly.	_____	_____
7. Operated the latch handle to ensure a smooth operation.	_____	_____
8. Verified that the rocket pod latch-hook assembly was operational.	_____	_____
9. Completed maintenance forms, if required.	_____	_____

Evaluation Guidance: Score the soldier GO if all performance measures are passed (P). Score the soldier NO-GO if any performance measure is failed (F). If the soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

DA Form 2404

DA Pamphlet 750-8

TM 9-1055-647-13&P

TM 9-243

091-94P-1061
Replace the Hoist-Up Limit Switch

WARNING

Follow all warning in TMs

CAUTION

Comply with all unit/shop SOPs

Conditions: Perform this task in a operational environment given an armored vehicle-mounted M270A1 rocket launcher; a faulty hoist-up limit switch; DA Form 2404, Equipment Inspection and Maintenance Worksheet; one 94P MLRS repairer; one 13M MLRS crewmember to assist as required; a 94P shop set; a 94P tool kit, a 8050A digital multi-meter; lock wire; TM 9-1055-647-13&P; TM 9-243, and DA Pamphlet 750-8, The Army Maintenance Management System (TAMMS) Users Manual. **Note:** This task may be performed in a Chemical, Biological, Radiological, and Nuclear (CBRN) environment.

Standards: The hoist-up limit switch was replaced according to the applicable technical manuals. Perform this task without causing injury to self, other personnel, the environment, or damage to equipment. **CAUTION!** Comply with unit/shop SOP requirements for disposal of scrap metal.

Special Condition: None

Special Standards: None

Special Equipment:

Cue: None

Note: None

Performance Steps

1. Perform a visual inspection of the hoist-up limit switch and correct any defects. Check the following items below:

- a. Components.
- b. Electrical cables and connectors.
- c. Turn off system.
- d. Disconnect the electrical connector from limit switch.

- e. Remove the jam nut and lock washer.
2. Remove the faulty hoist-up limit switch.
3. Install the replacement hoist-up limit switch.
 - a. Install the jam nut and lock washer.
 - b. Connect the electrical connector to limit switch.
 - c. Turn on system power.
4. Adjust the hoist-up limit switch.
5. Verify the hoist-up limit switch is operational.
6. Complete maintenance forms, if required.

Evaluation Preparation: Ensure all items required in the condition statement (or appropriate substitutions) are on hand and all safety requirements are met.

Performance Measures	GO	NO-GO
1. Performed a visual inspection of the hoist-up limit switch and corrected any defects.	_____	_____
2. Removed the faulty hoist-up limit switch.	_____	_____
3. Installed the replacement hoist-up limit switch.	_____	_____
4. Adjusted the hoist-up limit switch.	_____	_____
5. Verified that the hoist-up limit switch was operational.	_____	_____
6. Completed maintenance forms, if required.	_____	_____

Evaluation Guidance: Score the soldier GO if all performance measures are passed (P). Score the soldier NO-GO if any performance measure is failed (F). If the soldier fails any performance measure, show what was done wrong and how to do it correctly.

**References
Required**

- DA Form 2404
- DA Pamphlet 750-8
- EM 0208
- TM 9-243

091-94P-1063
Replace the Hoist Hook and Pulley Assembly

WARNING

Follow all warning in TMs

CAUTION

Comply with all unit/shop SOPs

Conditions: Perform this task in a operational environment given an armored vehicle-mounted M270A1 rocket launcher; a faulty hoist hook and pulley assembly; DA Form 2404, Equipment Inspection and Maintenance Worksheet; one 94P MLRS repairer; one 13M MLRS crewmember to assist as required; a 94P shop set and tool kit; TM 9-1055-647-13&P; TM 9-243, and a DA Pamphlet 750-8, The Army Maintenance Management System (TAMMS) Users Manual. **Note:** This task may be performed in a Chemical, Biological, Radiological, and Nuclear (CBRN) environment.

Standards: The hoist hook and pulley assembly was replaced according to the applicable technical manuals. Perform this task without causing injury to self, other personnel, the environment, or damage to equipment. **CAUTION!** Comply with unit/shop SOP requirements for disposal of scrap metal.

Special Condition: None

Special Standards: None

Special Equipment:

Cue: None

Note: None

Performance Steps

1. Perform a visual inspection of the hoist hook and pulley assembly and correct any defects. Check the following items below:

- a. Bolts and nuts.
- b. Bearings and bushings.
- c. Components.
- d. Electrical cable and connectors.

2. Remove the faulty hoist hook and pulley assembly. Remove the following items:

- a. Pulley assembly.
- b. RP hoist hooks.
- c. Lock spring.
- d. Lock assembly.
- e. Spacer assembly.
- f. Splice Plate.
- g. Spreader assembly.
- h. Handle Assembly.

3. Install the hoist hook and pulley assembly. Install the following items:

- a. Handle Assembly.
- b. Spreader assembly.
- c. Splice Plate.
- d. Spacer assembly.
- e. Lock assembly.
- f. Lock spring.
- g. RP hoist hooks.
- h. Pulley assembly.

i. Verify the hoist hook and pulley assembly is operational. Perform load test after repair.

4. Complete maintenance forms.

Evaluation Preparation: Ensure all items required in the condition statement (or appropriate substitutions) are on hand and all safety requirements are met.

Performance Measures

GO NO-GO

1. Performed a visual inspection of the hoist hook and pulley assembly and corrected any defects.

Performance Measures**GO** **NO-GO**

- | | | |
|--|-------|-------|
| 2. Removed the faulty hoist hook and pulley assembly. | _____ | _____ |
| 3. Installed the replacement hoist hook and pulley assembly. | _____ | _____ |
| 4. Completed maintenance forms, if required. | _____ | _____ |

Evaluation Guidance: Score the soldier GO if all performance measures are passed (P). Score the soldier NO-GO if any performance measure is failed (F). If the soldier fails any performance measure, show what was done wrong and how to do it correctly.

References**Required**

DA Form 2404

DA Pamphlet 750-8

TM 9-1055-647-13&P

TM 9-243

091-94P-1074
Replace the Cage Assembly

DANGER
Follow all Danger warning in TMs
WARNING
Follow all warning in TMs
CAUTION
Comply with all unit/shop SOPs

Conditions: Perform this task in a operational environment given an faulty armored vehicle-mounted M270A1 rocket launcher; DA Form 2404, Equipment Inspection and Maintenance Worksheet; HEMTT wrecker and operator; two 94P MLRS repairers and three 13M MLRS crewmember to assist as required; 94P shop set and tool kit; hoisting sling; two fabricated elevation actuator supports; manila rope; TM 9-1055-647-13&P; TM 9-243, and DA Pamphlet 750-8, The Army Maintenance Management System (TAMMS) Users Manual. **Note:** This task may be performed in a Chemical, Biological, Radiological, and Nuclear (CBRN) environment.

Standards: The cage assembly was removed according to the applicable technical manuals. Perform this task without causing injury to self, other personnel, the environment, or damage to equipment.

Special Condition: None

Special Standards: None

Special Equipment:

Cue: None

Note: None

Performance Steps

1. Visually inspect the cage assembly and correct any defects. Check the following items below:

- a. Bolts, nuts, and screws.
- b. Bearings and bushings.
- c. Components.
- d. Electrical cables and connectors.

-
- e. Hoses and fluid lines.
 2. Remove two screws four washers and two nuts securing U clamp to L Clamp where the cable bundle passes through the turret to the rear of the cage.
 3. Remove two screws and washers securing L clamp to turret where the cable bundle passes through the turret to the rear of the cage.
 4. Remove cable clamp securing ground strap.
 5. Remove cage down limit switch from limit switch bracket.
 6. Remove Jury Struts.
 7. Manually Lower Cage.
 8. Remove elevation resolver door assembly.
 9. Scribe transducer shaft mounting brackets.
 10. Remove the transducer shaft-mounting bracket.
 11. Remove power harness door.
 - a. Unlatch four studs securing power harness door assembly.
 - b. Remove the door assembly.
 - c. Unlatch and open right RP connector door.
 12. Using cross tip screwdriver, perform the following.
 - a. Unlatch stud securing harness trough door assembly, open door.
 - b. Unlatch two studs securing wire harness door assembly, remove door assembly.
 - c. Unlatch and open armor door and PDB door assembly.
 13. Disconnect the following electrical connectors.
 - a. W305, W306, and W81 from PNU.
 - b. W305, W306, W307, and W318 from WIU.
 - c. W340 and W14 from PDB.
 - d. Remove all cable clamps and cable ties securing the W340, W14, W305, W306, W307, W318, and W81 to the cage structure.

- e. Remove grounding strap.
 - f. Pull cables and grounding strap from cage and place in vehicle bed.
14. Prepare the cage for removal.
- a. Connect the hoisting sling to cage.
 - b. Remove the left and right elevation actuator upper bolts and washers.
 - c. Manually lower actuators to rest on elevation actuator supports.
 - d. Release pressure on pivot bolts, lift cage at rear with screw jacks.
 - e. Remove hardware securing pivot fitting to turret pivot lugs.
 - f. Lift and lower cage onto a suitable support area to prevent damage to cage compartments.
 - g. Lift, lower actuators off supports, and lay supports on turret and then lower actuators on supports.
15. Perform maintenance inspection procedures.
16. Install the cage assembly.
- a. Lift elevation actuators and install supports.
 - b. Measure and note dimension between turret pivot lugs.
 - c. Slowly lower the cage and align pivot fittings in turret pivot lugs.
 - d. Using screw jacks, line up bolt holes in pivot fitting with holes in turret pivot lugs and install bolts.
 - e. Tighten nut until dimension at point marked between turret pivot lugs is 0.18mm (0.007 inch) less than the dimension noted in earlier step.
17. Disconnect hoisting sling from wrecker.
- a. Remove sling from cage.
 - b. Remove jacks, guidelines, and wooden supports.
18. Install the cable as follows:

a. Route W305, W306, W307, W318 and W81 and ground strap through hole in rear of cage.

b. Route W340 and W14 through cable troughs on right bottom of cage to the PDB.

c. Route W305, W306, W307, and W318 and W81 up the side of the PNU compartment.

d. Reconnect cables to their LRU's.

e. Install all cable clamps and cable ties securing the W340, W14, W305, W306, W307, W318, and W81 to the cage structure.

f. Install grounding strap.

g. Close and latch PDB/SNVT and FCU/SRP door assemblies.

h. Install and secure wire harness door assembly by latching studs.

(1) Close and secure RP connector right hand door assembly and harness trough door assembly.

(2) Secure four latching studs, install power harness door assembly.

i. Install the transducer shaft bracket.

(1) Slide clamp onto transducer shaft.

(2) Tighten clamp screw.

(3) Adjust transducer.

(4) Install the elevation resolver door assembly door to cage.

(5) Install the WIU/PNU and PDB doors.

j. Install the cage down limit switch.

k. Using the BC to extend and retract boom two times.

l. Check for smooth operation, and stow LM.

19. Complete maintenance forms.

Evaluation Preparation: Ensure all items required in the condition statement (or appropriate substitutions) are on hand and all safety requirements are met.

Performance Measures	GO	NO-GO
1. Performed a visual inspection of the cage assembly and corrected any defects.	_____	_____
2. Removed two screws four washers and two nuts securing U clamp to L Clamp.	_____	_____
3. Removed two screws and washers securing L clamp to turret.	_____	_____
4. Removed cable clamp securing ground strap.	_____	_____
5. Removed cage down limit switch from limit switch bracket.	_____	_____
6. Removed Jury Struts.	_____	_____
7. Manually lower cage.	_____	_____
8. Removed elevation resolver door assembly.	_____	_____
9. Scribed transducer shaft mounting brackets.	_____	_____
10. Removed the transducer shaft-mounting bracket.	_____	_____
11. Removed power harness door.	_____	_____
12. Used cross tip screwdriver to unlatch stud securing harness, two studs securing wire harness door assembly, and open armor door and PDB door assembly.	_____	_____
13. Removed all cable clamps, grounding straps, and cable ties securing the W305, W306, W307, W318 , W14 , W340 , and W81 to the cage structure.	_____	_____
14. Prepared the cage for removal.	_____	_____
15. Performed maintenance inspection procedures.	_____	_____
16. Installed the cage assembly.	_____	_____
17. Disconnected hoisting sling from wrecker.	_____	_____
18. Routed, reinstalled and tighten all cables, wire harness, transducer shaft brackets, elevation resolver door assembly, and ensured LM operated and stowed smoothly.	_____	_____

Performance Measures**GO NO-GO**

19. Completed maintenance forms, if required.

Evaluation Guidance: Score the soldier GO if all performance measures are passed (P). Score the soldier NO-GO if any performance measure is failed (F). If the soldier fails any performance measure, show what was done wrong and how to do it correctly.

References**Required**

DA Form 2404

DA Pamphlet 750-8

TM 9-1055-647-13&P

TM 9-243

091-94P-1077
Maintain the Fire Control System

DANGER
Follow all Danger warning in TMs
WARNING
Follow all warning in TMs
CAUTION
Comply with all unit/shop SOPs

Conditions: Perform this task in a operational environment given an armored vehicle-mounted M270A1 rocket launcher; a faulty Fire Control System; DA Form 2404, Equipment Inspection and Maintenance Worksheet; a 94P tool kit; a digital multi-meter; LAGS boxes; a test cable; two jury struts; TM 9-1055-647-13&P for the M270A1; TM 9-243, and DA Pamphlet 750-8, The Army Maintenance Management System (TAMMS) Users Manual. **Note:** This task may be performed in a Chemical, Biological, Radiological, and Nuclear (CBRN) environment.

Standards: Troubleshooting procedures on the Fire Control System (FCS) are performed according to the applicable technical manuals. Perform this task without causing injury to self, other personnel, the environment, or damage to equipment.

Special Condition: None

Special Standards: None

Special Equipment:

Cue: None

Note: None

Performance Steps

1. Visually inspect the FCS and correct any defects. Check the following items below:
 - a. Bolts, nuts, and screws.
 - b. Bearings and bushings.
 - c. Components.
 - d. Electrical cables and connectors.

2. Troubleshoot the FCS and isolate malfunction of a faulty component. Perform the troubleshooting procedures for the following:

a. LM will not move.

(1) In the stowed position.

(2) LDS malfunction prompt appears, perform malfunction number 22.

(3) Travel locks unlock when LM command to move (NO), perform malfunction number 121.

(4) LDS pump motor don't come on, perform malfunction number 89.

(5) LM will not elevate, perform malfunction number 24.

(6) LM will not move in azimuth (see note), perform malfunction number 25.

Observation of LM movement is important to assure correct procedure is followed.

(7) LM moves in azimuth, perform malfunction number 89.

b. Perform LRU bit light on procedures on the following:

(1) EU LRU BIT LIGHT ON.

(2) FCU LRU BIT LIGHT ON.

(3) SRP/PDS LRU BIT LIGHT ON.

(4) CMP LRU BIT LIGHT ON.

c. Follow the FAULT messages procedures outlined in technical manual.

3. Remove the faulty component.

4. Install the replacement component. Perform installation procedures for new component.

5. Verify the FCS is operational.

6. Complete maintenance forms.

Evaluation Preparation: Ensure all items required in the condition statement (or appropriate substitutions) are on hand and all safety requirements are met.

Performance Measures	GO	NO-GO
1. Performed a visual inspection of the FCS and corrected any defects.	_____	_____
2. Performed troubleshooting procedures on the FCS and isolated the malfunction to a faulty component.	_____	_____
3. Removed the faulty component.	_____	_____
4. Installed the replacement component.	_____	_____
5. Verified that the FCS was operational.	_____	_____
6. Completed maintenance forms, if required.	_____	_____

Evaluation Guidance: Score the soldier GO if all performance measures are passed (P). Score the soldier NO-GO if any performance measure is failed (F). If the soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

DA Form 2404

DA Pamphlet 750-8

TM 9-1055-647-13&P

TM 9-243

091-94P-1078
Maintain the Boom Control System

DANGER
Follow all Danger warning in TMs
WARNING
Follow all warning in TMs
CAUTION
Comply with all unit/shop SOPs

Conditions: Perform this task in a operational environment given an armored vehicle-mounted M270/A1 rocket launcher; a faulty Boom Control System; DA Form 2404, Equipment Inspection and Maintenance Worksheet; a 94P tool kit; breakout boxes; a digital multi-mete; a test cable, jury struts; TM 9-1425-648-13&P for the M270 and TM 9-1055-647-13&P for the M270A1; TM 9-243, and DA Pamphlet 750-8, The Army Maintenance Management System (TAMMS) Users Manual. **Note:** This task may be performed in a Chemical, Biological, Radiological, and Nuclear (CBRN) environment.

Standards: Troubleshooting procedures on the boom control system were performed according to the applicable technical manuals. Perform this task without causing injury to self, other personnel, the environment, or damage to equipment.

Special Condition: None

Special Standards: None

Special Equipment:

Cue: None

Note: None

Performance Steps

1. Perform a visual inspection of the boom control system and correct any defects.
Check the following items below:

- a. Bolts, nuts, and screws.
- b. Bearings and bushings.
- c. Components.
- d. Electrical cables and connectors.

- e. Hoses and fluid lines.
2. Perform troubleshooting procedures on the boom control system and isolate the malfunction to a faulty component. (Note: This task is to be performed in Maintenance Manager for the M270A1).
 - a. Perform the following troubleshooting procedures if boom control system malfunction.
 - b. Boom coast to a stop.
 - c. Boom operation is erratic.
 - d. Left or right boom will not extend.
 - e. Left or right boom will not retract.
 3. Remove the faulty component.
 - a. Disconnect the electrical connector from connector J2.
 - b. Disconnect the electrical connector P1 from connector J1.
 - c. Remove the ground from cage structure; remove the four nuts and four washers.

Use caution when removing nuts, one repairer need to support the assembly while removing assembly

 - d. Remove the control assembly.
 4. Install the replacement component.
 - a. While one repairer positions the boom control assembly, the other repairer installs four bolts, eight washers, and four nuts.
 - b. Tighten the nuts in crisscross sequence.
 - c. Install the ground strap to cage structure.
 - d. Connect the electrical connectors P1 to J1, and W26P2 or W27P2 to J2.
 5. Verify the boom control system is operational.
 - a. Use the BC to extend and retract the boom two times.
 - b. Check for smooth operation, stow LM.
 6. Complete maintenance forms.

Evaluation Preparation: Ensure all items required in the condition statement (or appropriate substitutions) are on hand and all safety requirements are met.

Performance Measures	GO	NO-GO
1. Performed a visual inspection of the boom control system And corrected any defects.	_____	_____
2. Performed troubleshooting procedures on the boom control System and isolated the malfunction to a faulty component.	_____	_____
3. Removed the faulty component.	_____	_____
4. Installed the replacement component.	_____	_____
5. Verified that the boom control system was operational.	_____	_____
6. Completed maintenance forms, if required.	_____	_____

Evaluation Guidance: Score the soldier GO if all performance measures are passed (P). Score the soldier NO-GO if any performance measure is failed (F). If the soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

DA Form 2404

DA Pamphlet 750-8

TM 9-1055-647-13&P

TM 9-1425-648-13&P

TM 9-243

091-94P-1079
Replace the Hoist Assembly

DANGER
Follow all Danger warning in TMs
WARNING
Follow all warning in TMs
CAUTION
Comply with all unit/shop SOPs

Conditions: Perform this task in a operational environment given an armored vehicle-mounted M270/A1 rocket launcher; a faulty Hoist Assembly; DA Form 2404, Equipment Inspection and Maintenance Worksheet; a 94P tool kit; breakout boxes; a digital multi-meter; a test cable; jury struts; TM 9-1425-648-13&P for the M270; TM 9-1055-647-13&P for the M270A1; TM 9-243, and DA Pamphlet 750-8, The Army Maintenance Management System (TAMMS) Users Manual. **Note:** This task may be performed in a Chemical, Biological, Radiological, and Nuclear (CBRN) environment.

Standards: Troubleshooting procedures on the hoist assembly were performed according to the applicable technical manuals. Perform this task without causing injury to self, other personnel, the environment, or damage to equipment.

Special Condition: None

Special Standards: None

Special Equipment:

Cue: None

Note: None

Performance Steps

1. Visually inspect the hoist assembly and corrects any defects. Check the following items below:

- a. Bolts, nuts, and screws.
- b. Bearings and bushings.
- c. Components.
- d. Electrical cables and connectors.

e. Hoses and fluid lines.

2. Troubleshoot the hoist assembly and isolate the malfunction to a faulty component. Perform the following malfunctions procedures.

Note: *This task must be performed in Maintenance Manager for the M270A1.*

a. Left or right hoist will not lower.

b. Left or right hoist will not rise.

3. Remove the faulty component.

a. Cut the lock wire and disconnect four electrical connectors at control assembly.

b. Remove nuts, washers, bolts securing the control assembly.

c. Remove the control assembly.

4. Install the replacement component.

a. Position new control assembly on supports and install the control assembly.

b. Connect electrical connectors as follows:

(1) W75P2 or W76P2 to J1.

(2) W57P1 to J2.

(3) W53P1 to J3.

(4) Hoist down switch P1 to J4.

c. Lock wire W75P2 or W76P2 to hoist down switch P1.

d. Lock wire W57P1 to W53P1.

e. Lock wire W57P2 J1 on hoist motor.

5. Verify the hoist assembly is operational.

a. Using the BC to lower and raise hoist hook two times.

b. Check for smooth operation.

c. Retract the boom, and stow LM.

6. Complete maintenance forms.

Evaluation Preparation: Ensure all items required in the condition statement (or appropriate substitutions) are on hand and all safety requirements are met.

Performance Measures	GO	NO-GO
1. Performed a visual inspection of the hoist assembly and corrected any defects.	_____	_____
2. Performed troubleshooting procedures on the hoist assembly and isolated the malfunction to a faulty component.	_____	_____
3. Removed the faulty component.	_____	_____
4. Installed the replacement component.	_____	_____
5. Verified that the hoist assembly was operational.	_____	_____
6. Completed maintenance forms, if required.	_____	_____

Evaluation Guidance: Score the soldier GO if all performance measures are passed (P). Score the soldier NO-GO if any performance measure is failed (F). If the soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

DA Form 2404
 DA Pamphlet 750-8
 TM 9-1055-647-13&P
 TM 9-1425-648-13&P
 TM 9-243

091-94P-1080
Repair the Launcher Drive System

DANGER
Follow all Danger warning in TMs
WARNING
Follow all warning in TMs
CAUTION
Comply with all unit/shop SOPs

Conditions: Perform this task in an operational environment given an armored vehicle-mounted M270/A1 rocket launcher; a faulty Launcher Drive System; DA Form 2404, Equipment Inspection and Maintenance Worksheet; a 94P tool kit; breakout boxes; a digital multi-meter; a test cable; jury struts; TM 9-1425-648-13&P for the M270; TM 9-1055-647-13&P (M270A1); TM 9-243, and DA Pamphlet 750-8, The Army Maintenance Management System (TAMMS) Users Manual. **Note:** This task may be performed in a Chemical, Biological, Radiological, and Nuclear (CBRN) environment.

Standards: Troubleshooting procedures on the launcher drive system were performed according to the applicable technical manuals. Perform this task without causing injury to self, other personnel, the environment, or damage to equipment.

Special Condition: None

Special Standards: None

Special Equipment:

Cue: None

Note: None

Performance Steps

1. Perform a visual inspection of the launcher drive system and correct any defects.

Check the following items below:

- a. Bolts, nuts, and screws.
- b. Bearings and bushings.
- c. Components.
- d. Electrical cables and connectors.

e. Hoses and fluid lines

2. Perform troubleshooting procedures on the launcher drive system and isolate the malfunction to a faulty component.

Check for fault messages, and BIT lights failures.

a. Perform Power indication checks before electrical troubleshooting begins.

b. Follow the flow chart in the back of technical manual.

c. The schematics should also be used to assist in rectifying a malfunction.

3. Remove the faulty component.

4. Install the replacement component.

5. Verify the launcher drive system is operational.

6. Complete maintenance forms.

Evaluation Preparation: Ensure all items required in the condition statement (or appropriate substitutions) are on hand and all safety requirements are met.

Performance Measures	GO	NO-GO
1. Performed a visual inspection of the launcher drive system and corrected any defects.	_____	_____
2. Performed troubleshooting procedures on the launcher drive system and isolated the malfunction to a faulty component.	_____	_____
3. Removed the faulty component.	_____	_____
4. Installed the replacement component.	_____	_____
5. Verified that the launcher drive system was operational.	_____	_____
6. Completed maintenance forms, if required.	_____	_____

Evaluation Guidance: Score the soldier GO if all performance measures are passed (P). Score the soldier NO-GO if any performance measure is failed (F). If the soldier fails any performance measure, show what was done wrong and how to do it correctly.

References**Required**

DA Form 2404

DA Pamphlet 750-8

EM 0208

TM 9-1425-648-13&P

TM 9-243

091-94P-1082**Perform System Analysis on the Multiple Launch Rocket System**

DANGER
Follow all Danger warning in TMs
WARNING
Follow all warning in TMs
CAUTION
Comply with all unit/shop SOPs

Conditions: Perform this task in operational environment given an faulty armored vehicle-mounted M270/A1 rocket launcher; DA Form 2404, Equipment Inspection and Maintenance Worksheet; a 94P tool kit; a digital multi-meter; LAG, breakout boxes; jury Struts; a test cable; TM 9-1425-648-13&P for the M270; TM 9-1055-647-13&P for the M270A1; TM 9-243, and DA Pamphlet 750-8, The Army Maintenance Management System (TAMMS) Users Manual. **Note:** This task may be performed in a Chemical, Biological, Radiological, and Nuclear (CBRN) environment.

Standards: System analysis was performed on the MLRS according to the applicable technical manuals. Perform this task without causing injury to self, other personnel, the environment, or damage to equipment.

Special Condition: None

Special Standards: None

Special Equipment:

Cue: None

Note: None

Performance Steps

1. Perform a system analysis on the MLRS and identify the faulty component.

Note: Troubleshooting the FCS and LDS must be performed with the LAG equipment and in Maintenance Manager for the M270A1. Check the following items below:

- a. Bolts, nuts, and screws.
- b. Bearings and bushings.
- c. Components.
- d. Electrical cables and connectors.

-
- e. Hoses and fluid lines.
 - f. Perform Power indication checks.
 - g. Check for fault messages, and BIT lights failures.
 - h. Each malfunction, tests or inspections should be performed in the order listed.
 - i. During troubleshooting, check electrical cable loosen or broken connectors and bents pins before replacing component.

2. Repair or replace the faulty component.

- a. Follow all maintenance procedures.
- b. The schematics should be used to assist in performing system analysis on MLRS.
- c. Perform repair or replace component procedures prescribed in the applicable technical manuals.

3. Verify the MLRS launcher is operational.

4. Complete maintenance forms.

Evaluation Preparation: Ensure all items required in the condition statement (or appropriate substitutions) are on hand and all safety requirements are met.

Performance Measures	GO	NO-GO
1. Performed a system analysis on the MLRS and identified the faulty component.	_____	_____
2. Repaired or replaced the faulty component.	_____	_____
3. Verified that the MLRS was operational.	_____	_____
4. Completed maintenance forms, if required.	_____	_____

Evaluation Guidance: Score the soldier GO if all performance measures are passed (P). Score the soldier NO-GO if any performance measure is failed (F). If the soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

- DA Form 2404
- DA Pamphlet 750-8
- TM 9-1055-647-13&P
- TM 9-1425-648-13&P
- TM 9-243

Subject Area 3: Maintain MLRS Test Equipment
091-94P-1182
Replace the Hydraulic Reservoir Unit

DANGER

Follow all Danger warning in TMs

WARNING

Follow all warning in TMs

Conditions: Perform this task in a operational environment given an armored vehicle-mounted M270A1 rocket launcher; DA Form 2404, Equipment Inspection and Maintenance Worksheet; two 94P MLRS repairer; one 13M MLRS crewmember to assist as required DA Form 2407, Maintenance Request; 94P shop set and tool kit; a faulty hydraulic reservoir unit; fluid hydraulic; Maintenance Support Device (MSD); TM 9-1055-647-13&P; TM 9-243; DA Pamphlet 750-8, The Army Maintenance Management System (TAMMS) Users Manual; and lock wire. **Note:** This task may be performed in a Chemical, Biological, Nuclear and Radiological (CBNR) environment.

Standards: Removed and replaced the hydraulic reservoir unit in accordance with all applicable technical manuals. Perform the task without causing injury to self, other personnel, the environment, or damage to equipment.

Special Condition: None

Special Standards: None

Special Equipment:

Cue: None

Note: None

Performance Steps

1. Perform a visual inspection of the hydraulic reservoir and correct any defects. Check the following items below:
 - a. Check bolts, nuts, and screws.
 - b. Check bearings and bushings.
 - c. Check components.
 - d. Check electrical cables and connectors.
 - e. Check hoses and fluid lines.
2. Disconnect the following electrical cables.

-
- a. W339P2 connector from the reservoir J2 connector.
 - b. W339P3 connector from the reservoir J3 connector.
 - c. W339P5 connector from the reservoir J5 connector.
 - d. W339P7 connector from the reservoir J1 connector.
3. Disconnect the following hydraulic hoses.
 - a. High Pressure Supply Hose, Port B.
 - b. Azimuth Brake Press Hose, Port E.
 - c. Low Pressure Return Hose, Port K.
 - d. Azimuth Motor Low Pressure Return Port D.
 - e. High Pressure Supply Hose, Port A.
 - f. Azimuth Motor High Pressure Supply Hose, Port C.
 - g. Case Drain Hose, Port G.
 - h. Low Pressure Return Hose, Port I.
 4. Remove ground strap from reservoir.
 5. Remove the damaged hydraulic reservoir.
 6. Install ground strap to reservoir.
 7. Install the hydraulic reservoir.
 8. Connect the following hydraulic hoses.
 - a. Low Pressure Return Hose, Port I.
 - b. Case Drain Hose, Port G.
 - c. Azimuth Motor High Pressure Supply Hose, Port C.
 - d. High Pressure Supply Hose, Port A.
 - e. Azimuth Motor Low Pressure Return Port D.
 - f. Low Pressure Return Hose, Port K.
 - g. Azimuth Brake Press Hose, Port E.
 - h. High Pressure Supply Hose, Port B.
 9. Connect the following electrical cables.

- a. W339P6 connector to reservoir J6 connector.
 - b. W339P4 connector to reservoir J4 connector.
 - c. W339P7 connector to reservoir J1 connector.
 - d. W339P5 connector to reservoir J5 connector.
 - e. W339P3 connector to reservoir J3 connector.
 - f. W339P2 connector to reservoir J2 connector.
10. Bleed the hydraulic system.
 11. Inspect Reservoir sight glass, and refill if needed.
 12. Verify the hydraulic reservoir is operational.
 13. Complete maintenance forms.

Evaluation Preparation: Ensure all items required in the condition statement (or appropriate substitutions) are on hand and all safety requirements are met.

Performance Measures	GO	NO-GO
1. Performed a visual inspection of the hydraulic reservoir and corrected any defects.	_____	_____
2. Disconnected electrical cables.	_____	_____
3. Disconnected hydraulic hoses.	_____	_____
4. Removed ground strap from reservoir.	_____	_____
5. Removed the damaged hydraulic reservoir.	_____	_____
6. Installed ground strap to reservoir.	_____	_____
7. Installed the replacement hydraulic reservoir.	_____	_____
8. Connected the hydraulic hoses.	_____	_____
9. Connected electrical cables.	_____	_____
10. Bled the hydraulic system, if required.	_____	_____
11. Inspected Reservoir sight glass to ensure tub is filled.	_____	_____
12. Verified that the hydraulic reservoir was operational.	_____	_____
13. Completed maintenance forms, if required.	_____	_____

Evaluation Guidance: Score the soldier GO if all performance measures are passed (P). Score the soldier NO-GO if any performance measure is failed (F). If the soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

DA Form 2404

DA Form 2407

DA Pamphlet 750-8

TM 9-243

TM 9-1055-647-13&P

091-94P-1160
Perform Surveillance Test of the Missile/Launch Pod Assembly

DANGER
Follow all Danger in TMs
WARNING
Following all Warning in TMs
CAUTION
Comply with all unit/shop SOPs

Conditions: Perform this task in an operational environment given a missile test (AN/TSM-212 Missile Monitor Test Device (MMTD)); a faulty Missile/Launch Pod Assembly (MLPA); equipment; tools; 94P repairers needed to perform a surveillance test on the M/LPA; DA Form 2415, Ammunition Condition Report; DA Pamphlet 750-8, The Army Maintenance Management System (TAMMS) Users Manual; SF 368, Product Quality Deficiency Report; SF 364, Report of Discrepancy (ROD) and TM 9-4935-1644-40&P. **Note:** This task may be performed in an Chemical, Biological, Nuclear and Radiological (CBNR) environment.

Standards: The surveillance test on the M/LPA was performed according to the technical manuals. Ensure that this task is performed without causing injury to personnel, the environment, or damage to equipment.

Special Condition: None

Special Standards: None

Special Equipment:

Cue: None

Note: None

Performance Steps

1. Perform Surveillance Inspections in accordance with Classification of Defects Check List. Access the Classification of Defects Check List by TM 9-1410-ATACMS-BAT, then clicking on the following Hot Spots: Ammunition TM 9-1410-644-40&P, ARMY TACMS Table of Contents, Inspection and Test Requirements, Surveillance Inspection, General.
2. Perform MFOM Common Test Device (MCTD) setup and power up procedures.
3. Perform MCTD W3 self test and test cable (W4, W5, or W6) self test for selected M/LPA.
4. Connect the MCTD to the M/LPA and perform Electronic Surveillance Test on the M/LPA.

5. Complete maintenance forms.

Evaluation Preparation: Ensure all items required in the condition statement (or appropriate substitutions) are on hand and all safety requirements are met.

Performance Measures	GO	NO-GO
1. Performed Surveillance Inspections in accordance with Classification of Defects Check List. Access the Classification of Defects Check List by TM 9-1410-ATACMS-BAT, then clicking on the following Hot Spots: Ammunition TM 9-1410-644-40&P, ARMY TACMS Table of Contents.	_____	_____
2. Performed MCTD setup and power up procedures.	_____	_____
3. Performed MCTD W3 self test and test cable (W4, W5, or W6) self test for selected M/LPA.	_____	_____
4. Connected the MCTD to the M/LPA and perform Electronic Surveillance test on the M/LPA.	_____	_____
5. Completed maintenance forms, if required.	_____	_____

Evaluation Guidance: Score the soldier GO if all performance measures are passed (P). Score the soldier NO-GO if any performance measure is failed (F). If the soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

DA Form 2415

DA Pamphlet 750-8

SF FORM 364

SF FORM 368

TM 9-4935-1644-40&P

091-94P-1178**Perform the Blast Shield Door Adjustment****DANGER**

Follow all Danger warning in TMs

WARNING

Follow all Warning in TMs

Conditions: Perform the task in a operational environment given a armored vehicle-mounted M270/M270A1 rocket launcher with a faulty Blast Shield Door; DA Form 2404, Equipment Inspection and Maintenance Worksheet; necessary tools; expendables; TM 9-243; TM 9-1055-647-13&P for the M270A1 and a TM 9-1425-648-13&P for the M270. two 94P MLRS repairers; one 13M MLRS crewmember to assist as required; a 94P shop set; a 94P tool kit; two rocket pod test loads. **Note:** This task may be performed in a Chemical, Biological, Radiological, and Nuclear (CBRN) environment.

Standards: Perform blast shield door adjustments repairs according to the applicable technical manuals. Perform this task without causing injury to self, other personnel, the environment, or damage to the equipment.

Special Condition: None

Special Standards: None

Special Equipment:

Cue: None

Note: None

Performance Steps

1. Perform a visual check of the blast shield assembly and correct any defects. Check the following items below:
 - a. Bolts, nuts, and screws.
 - b. Bearings and bushings.
 - c. Components.
2. Check the clearance between door close cam and center of door hinge.
 - a. Clearance should be 1.0 to 3.0mm (0.039 to 0.118 in.)

-
- b. Manually extend boom until door open cam is directly under roller on link assembly.
 - c. Check that link is against stop bolt and roller is secured by retainer.
 - d. Adjust door open cam and link roller is 1.0 to 25mm (0.039 to 0.098 in.)
 - e. Extend booms until door close cam is centered under door stiffener.
 - f. Check clearance between door close cam and door stiffener is 31 to 36mm (1.22 to 1.42 in.)
 - g. Manually retract boom while watching for interference between link roller and door open cam and link roller and door close cam.
 - h. Extend boom a short distance, then using BC, retract boom to electrical stop.
 - i. Maintain vertical adjustment on door open cam while pulling door forward to remove free play in linkage.
3. Pull the door forward and measure, in plane of motion of link, for 4.5 to 8.5mm clearance between door and Launch Pod/Container (LP/C) channel.
 4. Recheck the adjustments between the door and LP/C channel.
 - a. Use BC to extend and retract boom two times.
 - b. Check for smooth operation.
 5. Complete maintenance forms.

Evaluation Preparation: Ensure all items required in the condition statement (or appropriate substitutions) are on hand and all safety requirements are met.

Performance Measures	GO	NO-GO
1. Performed a visual check of the blast shield assembly and corrected any defects.	_____	_____
2. Checked the clearance between door close cam and center of door hinge.	_____	_____
3. Pulled door forward and measured, in plane of motion of link, for 4.5 to 8.5mm clearance between door and Launch Pod/Container (LP/C) channel.	_____	_____

Performance Measures	GO	NO-GO
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4. Re-checked the adjustments between the door and LP/C channel. _____

5. Completed maintenance forms, if required. _____

Evaluation Guidance: Score the soldier GO if all performance measures are passed (P). Score the soldier NO-GO if any performance measure is failed (F). If the soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

DA Form 2404

DA Pamphlet 750-8

TM 9-243

TM 9-1055-647-13&P

TM 9-1425-648-13&P

091-94P-1164

Repair the MFOM Common Test Device

DANGER
Follow all Danger warning in TMs
WARNING
Follow all Warning in TMs
CAUTION
Comply with all unit/shop SOPs

Conditions: Perform this task in an operational environment given a faulty AN/TSM 212 MFOM Common Test Device (MCTD); DA Form 2404, Equipment Inspection and Maintenance Worksheet; a 94P shop set and tool kit; TM 9-1410-644-40&P; TM 9-4935-1644-40&P; TM 9-243, and DA Pamphlet 750-8, the Army Maintenance Management System (TAMMS) Users Manual. **Note:** This task may be performed in a Chemical, Biological, Radiological, and Nuclear (CBRN) environment.

Standards: The AN/TSM 212 GMTS was repaired according to the applicable technical manuals. Perform this task without causing injury to self, other personnel, the environment, or damage to equipment.

Special Condition: None

Special Standards: None

Special Equipment:

Cue: None

Note: None

Performance Steps

1. Perform a visual inspection of the AN/TSM 212 MCTD and correct any defects.

Check the following items below:

- a. Check bolts, nuts, and screws.
- b. Check components.
- c. Check electrical cables and connectors.

2. Remove the faulty component.

3. Install the replacement component.

4. Verify the MFOM Common Test Device (MCTD) is operational.

5. Complete maintenance forms.

Evaluation Preparation: Ensure all items required in the condition statement (or appropriate substitutions) are on hand and all safety requirements are met.

Performance Measures	GO	NO-GO
1. Performed a visual inspection of the AN/TSM 212 GMTS and corrected any defects.	_____	_____
2. Removed the faulty component.	_____	_____
3. Installed the replacement component.	_____	_____
4. Verified that the AN/TSM 212 GMTS was operational.	_____	_____
5. Completed maintenance forms, if required.	_____	_____

Evaluation Guidance: Score the soldier GO if all performance measures are passed (P). Score the soldier NO-GO if any performance measure is failed (F). If the soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

DA Form 2404

DA Pamphlet 750-8

TM 9-1410-644-40&P

TM 9-243

TM 9-4935-1644-40&P

091-94P-1180
Replace the Hydraulic Pump Unit

DANGER

Follow all Danger warning in TMs

WARNING

Follow all warning in TMs

CAUTION

Comply with all unit/shop SOPs

Conditions: Perform this task in a operational environment given an armored vehicle-mounted M270A1 rocket launcher; a faulty Hydraulic Pump; DA Form 2404, Equipment Inspection and Maintenance Worksheet; a 94P shop set and tool kit; lock wire; Maintenance Support Device (MSD); TM 9-1055-647-13&P; TM 9-243, and DA Pamphlet 750-8, The Army Maintenance Management System (TAMMS) Users Manual. One 13M, two 94P personnel, **Note:** This task may be performed in a Chemical, Biological, Radiological, and Nuclear (CBRN) environment.

Standards: Removed and replaced the hydraulic pump unit in accordance with technical manuals. Perform the task without causing injury to self, other personnel, the environment, or damage to equipment.

Special Condition: None

Special Standards: None

Special Equipment:

Cue: None

Note: None

Performance Steps

1. Perform a visual inspection of the hydraulic pump unit and correct any defects. Check the following items below.

a. Use the Interactive Electronic Technical Manual (IETM) with Maintenance Support Device (MSD) and following the on screen prompts to perform maintenance procedures.

b. Remove the defective hydraulic pump unit.

- (1) Remove tie down straps securing hoses to hose support bracket at right of engine compartment.
 - (2) Disconnect the hydraulic pump pressure hose from engine compartment bulkhead 109.
 - (3) Disconnect the hydraulic pump return hose from engine compartment bulkhead 109.
 - (4) Disconnect the hydraulic pump to heat exchanger pressure hose from Heat Exchanger Unit (HEU) port A.
 - (5) Disconnect the hydraulic pump to heat exchanger return hose from Heat Exchanger Unit (HEU) port B.
 - (6) Remove tie down straps securing heat exchanger hoses to transmission hose, so the hoses can be removed from pump.
 - (7) Remove fan drive propeller shaft guard. Disconnect the W338P3 connect from hydraulic pump J1.
 - (8) Disconnect the W338P4 connect from hydraulic pump J2. Remove the ground strap from ground stud. Install hardware on pump grounding stud.
 - (9) Secure pump with lifting strap and maintain tension. Remove clamp from around pump mounting flange.
 - (10) Guide pump shaft away from clutch until splined coupling shaft is fully disengaged from clutch. Remove pump and set the hoses as high as possible in relation to pump to minimize fluid loss.
- c. Install the replacement hydraulic pump unit.
- (1) Lower pump into engine compartment.
 - (2) Guide pump forward toward clutch until pump splined coupling shaft engages clutch receptacle.
 - (3) Install clamp from around pump mounting flange. Tighten pump mounting clamp, and torque clamp nut between 7.9 to 8.5 Nm (69.92 to 75.23 in-lbs).
 - (4) Install ground strap and secure to pump ground stud. Connect cable W338P3 to hydraulic pump J1.
 - (5) Connect cable W338P4 to hydraulic pump J2. Install fan drive propeller shaft guard.

(6) Connect hydraulic pump to heat exchanger pressure hose to Heat Exchanger Unit (HEU) port A.

(7) Connect hydraulic pump to heat exchanger return hose to Heat Exchanger Unit (HEU) port B.

(8) Install tie down straps securing heat exchanger hoses to transmission hose. Connect hydraulic pump case drain hose to engine compartment bulkhead 109.

(9) Connect hydraulic pump return hose to engine compartment bulkhead 109.

(10) Connect hydraulic pump pressure hose to engine compartment bulkhead 109.

(11) Locate aft right engine compartment, and secure hoses to hose support bracket.

d. Connect the electrical cables W338 to the hydraulic pump.

e. Perform a hydraulic system status check.

f. Move the M270A1 rocket launcher in azimuth and elevation.

g. Complete maintenance forms.

2. Use the Interactive Electronic Technical Manual (IETM) with Maintenance Support Device (MSD) and following the on screen prompts to perform maintenance procedures.

3. Remove the defective hydraulic pump unit.

a. Remove tie down straps securing hoses to hose support bracket aft right engine compartment. Disconnect the hydraulic pump pressure hose from engine compartment bulkhead 109. Disconnect the hydraulic pump return hose from engine compartment bulkhead 109.

b. Disconnect the hydraulic pump case drain hose from engine compartment bulkhead 109. Disconnect the hydraulic pump to heat exchanger pressure hose from Heat Exchanger Unit (HEU) port A. Disconnect the hydraulic pump to heat exchanger return hose from Heat Exchanger Unit (HEU) port B.

c. Remove tie down straps securing heat exchanger hoses to transmission hose, so the hoses can be removed from pump.

d. Remove fan drive propeller shaft guard. Disconnect the W338P3 connect from hydraulic pump J1.

e. Disconnect the W338P4 connect from hydraulic pump J2. Remove the ground strap from ground stud.

f. Install hardware on pump grounding stud. Secure pump with lifting strap and maintain tension.

g. Remove clamp from around pump mounting flange. Guide pump shaft away from clutch until spindled coupling shaft is fully disengaged from clutch. Remove pump and set the hoses as high as possible in relation to pump to minimize fluid loss.

4. Install the replacement hydraulic pump unit.

a. Lower pump into engine compartment. Guide pump forward toward clutch until pump splined coupling shaft engages clutch receptacle.

b. Install clamp from around pump mounting flange. Tighten pump mounting clamp, and torque clamp nut between 7.9 to 8.5 Nm (69.92 to 75.23 in-lbs).

c. Install ground strap and secure to pump ground stud. Connect cable W338P3 to hydraulic pump J1.

d. Connect cable W338P4 to hydraulic pump J2. Install fan drive propeller shaft guard.

e. Connect hydraulic pump to heat exchanger pressure hose to Heat Exchanger Unit (HEU) port A.

f. Connect hydraulic pump to heat exchanger return hose to Heat Exchanger Unit (HEU) port B.

g. Install tie down straps securing heat exchanger hoses to transmission hose. Connect hydraulic pump case drain hose to engine compartment bulkhead 109.

h. Connect hydraulic pump return hose to engine compartment bulkhead 109. Connect hydraulic pump pressure hose to engine compartment bulkhead 109.

i. Locate aft right engine compartment, and secure hoses to hose support bracket.

5. Connect the electrical cables W338 to the hydraulic pump.

6. Perform a hydraulic system status check.

7. Move the M270A1 rocket launcher in azimuth and elevation.

8. Complete maintenance forms.

Evaluation Preparation: Ensure all items required in the condition statement (or appropriate substitutions) are on hand and all safety requirements are met.

Performance Measures	GO	NO-GO
1. Performed a visual inspection of the hydraulic pump unit and corrected any defects.	_____	_____
2. Used the proper Interactive Electronic Technical Manual (IETM) using the SPORT and following the on screen prompts to perform maintenance procedures.	_____	_____
3. Removed the defective hydraulic pump unit.	_____	_____
4. Installed the replacement hydraulic pump unit without causing damage to the unit.	_____	_____
5. Connected the electrical cable W338.	_____	_____
6. Performed a hydraulic system status check after repairs were completed.	_____	_____
7. Cycled the M270A1 rocket launcher in azimuth and elevation.	_____	_____
8. Completed maintenance forms, if required.	_____	_____

Evaluation Guidance: Score the soldier GO if all performance measures are passed (P). Score the soldier NO-GO if any performance measure is failed (F). If the soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

DA Form 2404

DA Pamphlet 750-8

TM 9-243

TM 9-1055-647-13&P

091-94P-1181
Replace the Azimuth Drive Unit

DANGER
Follow all Danger warning in TMs
WARNING
Follow all warning in TMs
CAUTION
Comply with all unit/shop SOPs

Conditions: Perform this task in a operational environment given an armored vehicle-mounted M270A1 rocket launcher; a faulty Azimuth Drive Unit, DA Form 2404, Equipment Inspection and Maintenance Worksheet; DA Form 2407, Maintenance Request, 94P shop set and tool kit; caps; and plugs; Maintenance Support Device (MSD); TM 9-1055-647-13&P; TM 9-243, and a DA Pamphlet 750-8, The Army Maintenance Management System (TAMMS) Users Manual. One 13M, two 94P personnel, **Note:** This task may be performed in a Chemical, Biological, Radiological, and Nuclear (CBRN) environment.

Standards: The Azimuth Drive Unit was replaced according to the applicable technical manuals. Perform the task without causing injury to self, other personnel, the environment, or damage to equipment.

Special Condition: None

Special Standards: None

Special Equipment:

Cue: None

Note: None

Performance Steps

1. Inspect the azimuth drive unit and correct any defects.
 Check the following items below:

- a. bolts, nuts, and screws.
- b. Bearings and bushings.
- c. Components.

d. Check electrical cables and connectors.

e. Hoses and fluid lines.

2. Check the position of the X-marks on the base assembly.

a. Inspect the azimuth drive unit and correct any defects. Inspect bolts, nuts, and screws. Check bearings, bushings and, components. Check electrical cables, connectors, hoses and fluid lines.

b. Check the position of the X-marks on the base assembly.

c. Align the azimuth geared bearing X-marks with the pinion gear X-mark(M270).

d. Remove the azimuth drive unit. (M270A1).

(1) Remove brake from ADU and position out of the way for ADU removal.

(2) Remove pinion cover to base remove two draw bolts securing ADU to standoff adjuster.

(3) Loosen each jack bolt, using a crisscross pattern.

(4) Remove super bolts by hand and retain for installation.

(5) Ensure all cables and hydraulic lines are out of the way before removing the ADU.

(6) Remove the ADU.

e. Install replacement ADU.

(1) Remove the two adjusting nuts on the standoff adjuster of the ADU support bracket.

(2) Position the pinion gear high point to the rear of the ADU.

(3) Rotate the pinion gear to obtain alignment with azimuth gear bearing.

(4) Install jack bolts into super bolt body, and then install super bolts.

(5) Install washers on draw down bolts.

(6) Verify that the super bolts are free in the support bracket.

(7) Install draw down bolts by alternately torque the two draw down bolts in 1/4 increments.

(8) Tighten jack bolts on each of the four super bolts to finger tight.

(9) Re-torque each of the six jack bolts for each of the four super bolts to a final torque of 25.8 to 28.5 Nm (227 to 251 in lbs).

(10) Measure the distance between the adjusting nuts and the support bracket.

(a) The measurement must be 10mm or less.

(b) Tighten the adjusting nut against washer 1/6 turn (approximately 1 flat of the nut) past hand tight.

(11) Perform install azimuth brake procedures.

(12) Install azimuth hydraulic motor.

(13) Torque two draw bolts between 230 to 243 Nm (2024 to 2138 in-lbs).

(14) Install the pinion gear cover.

f. Record the thickness of the shims on each stud (M270).

g. Replace bad shims.

h. Align the pinion gear X-mark between the X-marks on the azimuth gear bearing (M270).

i. Torque the nuts.

j. Check the backlash.

k. Ensure the pinion gear and gearing teeth is parallel.

l. Align the azimuth geared bearing X-marks with the X-marks on the base assembly.

m. Use the Maintenance Support Device (MSD) to ensure the system is operating properly.

n. Verify the azimuth drive unit is operational.

o. Complete maintenance forms.

3. Align the azimuth geared bearing X-marks with the pinion gear X-mark (M270).

4. Remove the azimuth drive unit (M270A1).

a. Remove brake from ADU and position out of the way for ADU removal.

b. Remove pinion cover to base remove two draw bolts securing ADU to standoff adjuster.

c. Loosen each jack bolt, using a crisscross pattern.

d. Remove super bolts by hand and retain for installation.

e. Ensure all cables and hydraulic lines are out of the way before removing the ADU.

f. Remove the ADU.

5. Install replacement ADU.

a. Remove the two adjusting nuts on the standoff adjuster of the ADU support bracket.

b. Position the pinion gear high point to the rear of the ADU.

c. Rotate the pinion gear to obtain alignment with azimuth gear bearing.

d. Install jack bolts into super bolt body, and then install super bolts.

e. Install washers on draw down bolts.

f. Verify that the super bolts are free in the support bracket.

g. Install draw down bolts by alternately torque the two draw down bolts in 1/4 increments.

h. Tighten jack bolts on each of the four super bolts to finger tight.

i. Re-torque each of the six jack bolts for each of the four super bolts to a final torque of 25.8 to 28.5 Nm (227 to 251 in lbs).

j. Measure the distance between the adjusting nuts and the support bracket.

(1) The measurement must be 10mm or less.

(2) Tighten the adjusting nut against washer 1/6 turn (approximately 1 flat of the nut) past hand tight.

- k. Perform install azimuth brake procedures.
 - l. Install azimuth hydraulic motor.
 - m. Torque two draw bolts between 230 to 243 Nm (2024 to 2138 in-lbs).
 - n. Install the pinion gear cover.
6. Record the thickness of the shims on each stud (M270).
 7. Replace bad shims.
 8. Align the pinion gear X-mark between the X-marks on the azimuth gear bearing (M270).
 9. Torque the nuts.
 10. Check the backlash.
 11. Ensure the pinion gear and gearing teeth is parallel.
 12. Align the azimuth geared bearing X-marks with the X-marks on the base assembly.
 13. Use the Maintenance Support Device (MSD) to ensure the system is operating properly.
 14. Verify the azimuth drive unit is operational.
 15. Complete maintenance forms.

Evaluation Preparation: Ensure all items required in the condition statement (or appropriate substitutions) are on hand and all safety requirements are met.

Performance Measures	GO	NO-GO
1. Performed a visual inspection of the azimuth drive unit and corrected any defects.	_____	_____
2. Noted the position of the X-marks on the base assembly.	_____	_____
3. Aligned the azimuth geared bearing X-marks with the pinion gear X-mark.	_____	_____
4. Removed the azimuth drive unit.	_____	_____
5. Installed replacement ADU.	_____	_____

Performance Measures	GO	NO-GO
6. Recorded the thickness of the shims on each stud.	_____	_____
7. Installed the shims replaced bad shims.	_____	_____
8. Positioned the pinion gear X-mark between the X-marks on The azimuth gear bearing.	_____	_____
9. Torque the nuts.	_____	_____
10. Performed backlash check.	_____	_____
11. Ensured that the pinion gear and gearing teeth were parallel.	_____	_____
12. Aligned the azimuth geared bearing X-marks with the X-marks on the base assembly.	_____	_____
13. Used the Maintenance Support Device (MSD) to ensure that system was operating properly.	_____	_____
14. Verified that the azimuth drive unit was operational.	_____	_____
15. Completed maintenance forms, if required.	_____	_____

Evaluation Guidance: Score the soldier GO if all performance measures are passed (P). Score the soldier NO-GO if any performance measure is failed (F). If the soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

- DA Form 2404
- DA Form 2407
- DA Pamphlet 750-8
- TM 9-243
- TM 9-1055-647-13&P

091-94P-1201
Repair the Boom

DANGER
Follow all Danger warning in TMs
WARNING
Follow all warning in TMs
CAUTION
Comply with all unit/shop SOPs

Conditions: Perform this task in a operational environment given an M142 launcher; a faulty boom; Computerized Built-In Test (CBIT); Maintenance Manager (MM); Launcher Adapter Group (LAG); MM/LAG; DA Form 2404, Equipment Inspection and Maintenance Worksheet; two 94P HIMARS repairer; one 13M to assist as required; a 94P tool kit; a digital multi-meter; a test cable; TM 9-1055-1646-13&P; TM 9-243, and DA Pamphlet 750-8, The Army Maintenance Management System (TAMMS) Users Manual. **Note:** This task may be performed in a Chemical, Biological, Radiological, and Nuclear (CBRN) environment.

Standards: The boom system is repaired according to the applicable technical manuals. Perform this task without causing injury to self, other personnel, the environment, or damage to equipment.

Special Condition: None

Special Standards: None

Special Equipment:

Cue: None

Note: None

Performance Steps

1. Inspect the boom system and correct any defects. Check the following items below:
 - a. Check bolts, nuts, and screws.
 - b. Check bearings and bushings.
 - c. Components of the boom/hoist system.
 - d. Electrical cables and connectors.

2. Perform repair procedures on boom system in accordance with TM 9-1055-1646-13&P.

a. First, isolate the exact malfunction of the boom in accordance with TM 9-1055-1646-13&P.

b. Perform Boom system removal procedures in TM 9-1055-1646-13&P.

3. Remove the faulty component in accordance with TM 9-1055-1646-13&P.

4. Install the replacement component in accordance with TM 9-1055-1646-13&P.

5. Perform boom/hoist follow on procedures after repairing the boom/hoist system.

6. Verify the boom/hoist system is operational.

7. Complete maintenance forms.

Evaluation Preparation: Ensure all items required in the condition statement (or appropriate substitutions) are on hand and all safety requirements are met.

Performance Measures	GO	NO-GO
1. Performed a visual inspection of the boom system and corrected any defects.	_____	_____
2. Performed repair procedures on boom system.	_____	_____
3. Removed the faulty component.	_____	_____
4. Installed the replacement component.	_____	_____
5. Performed boom/hoist follow on procedures.	_____	_____
6. Verified that the boom/hoist system was operational.	_____	_____
7. Completed maintenance forms, if required.	_____	_____

Evaluation Guidance: Score the soldier GO if all performance measures are passed (P). Score the soldier NO-GO if any performance measure is failed (F). If the soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

DA Pamphlet 750-8

TM 9-1055-1646-13&P

TM 9-1055-647-13&P

TM 9-243

091-94P-1209

Maintain the Travel Lock Actuators

DANGER	Follow all Danger warning in TMs
WARNING	Follow all warning in TMs
CAUTION	Comply with all unit/shop SOPs

Conditions: Perform this task in a operational environment given an M142 launcher; a faulty elevation travel lock actuator; DA Form 2404, Equipment Inspection and Maintenance Worksheet; one 94P HIMARS repairer and one 13M MLRS crewmember to assist as required; a 94P tool kit; lock wire; TM 9-1055-1646-13&P; TM 9-243, and DA Pamphlet 750-8, The Army Maintenance Management System (TAMMS) Users Manual. **Note:** This task may be performed in a Chemical, Biological, Radiological, and Nuclear (CBRN) environment.

Standards: The elevation travel lock actuator was replaced according to the applicable technical manuals. Perform this task without causing injury to self, other personnel, the environment, or damage to equipment.

Special Condition: None

Special Standards: None

Special Equipment:

Cue: None

Note: None

Performance Steps

1. Inspect the elevation travel lock actuator and correct any defects.
 - a. Check bolts, nuts, and screws.
 - b. Check bearings and bushings.
 - c. Check components.
 - d. Check electrical cables and connectors.
 - e. Check hoses and fluid lines.

2. Disconnect the cable from elevation travel lock actuator in accordance with TM 9-1055-1646-13&P.
3. Remove the faulty elevation travel lock actuator in accordance with TM 9-1055-1646-13&P.
4. Install the elevation travel lock actuator in accordance with TM 9-1055-1646-13&P.
5. Reconnect the cable to elevation travel lock actuator.
6. Verify the elevation travel lock actuator is operational.
7. Complete maintenance forms.

Evaluation Preparation: Ensure all items required in the condition statement (or appropriate substitutions) are on hand and all safety requirements are met.

Performance Measures	GO	NO-GO
1. Performed a visual inspection of the elevation travel lock actuator and corrected any defects.	_____	_____
2. Disconnected the W525P3 or W525P4 from elevation travel Lock actuator.	_____	_____
3. Removed the faulty elevation travel lock actuator.	_____	_____
4. Installed the replacement elevation travel lock actuator.	_____	_____
5. Reconnected the W525P3 or W525P4 to elevation travel lock actuator.	_____	_____
6. Verified the elevation travel lock actuator was operational.	_____	_____
7. Completed maintenance forms, if required.	_____	_____

Evaluation Guidance: Score the soldier GO if all performance measures are passed (P). Score the soldier NO-GO if any performance measure is failed (F). If the soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

- DA Form 2404
- DA Pamphlet 750-8
- TM 9-1055-1646-13&P
- TM 9-243

091-94P-1211
Perform Load Test

DANGER
Follow all Danger warning in TMs
WARNING
Follow all warning in TMs
CAUTION
Comply with all unit/shop SOPs

Conditions: Perform this task in a operational environment given an M142 HIMARS launcher; DA Form 2404, Equipment Inspection and Maintenance Worksheet, one 94P HIMARS repairer; one 13M MLRS crewmember to assist as required; a 94P shop set; a 94P tool kit; two rocket pod test loads, black coating; TM 9-1055-1646-13&P; TM 9-243, and a DA Pamphlet 750-8, The Army Maintenance Management System (TAMMS) Users Manual. Note. The load test is performed either after repair or replacement of the hoist, the hoist cable, the hook and pulley assembly, the hoist carriage assembly, the booms, or it is performed annually. **Note:** This task may be performed in a Chemical, Biological, Radiological, and Nuclear (CBRN) environment.

Standards: A load test is performed according to the applicable technical manuals. Perform this task without causing injury to self, other personnel, the environment, or damage to equipment.

Special Condition: None

Special Standards: None

Special Equipment:

Cue: None

Note: None

Performance Steps

1. Inspect the HIMARS launcher and correct any defects:
 - a. Check bolts, nuts, and screws.
 - b. Check bearings and bushings.
 - c. Check components.
 - d. Check hoses and fluid lines for damage.

2. Position the HIMARS launcher.
 - a. Make sure launcher is on firm flat level ground.
 - b. LM is positioned at 3200 Mils Azimuth, 0 Mils in Elevation.
 - c. Positioned LM with towing pintle in line with center of test load, with rear bumper approximately five feet from test load.
3. Inspect the hoist cables.
4. Perform the load test in accordance with TM 9-1055-1646-13&P.
5. Perform the final inspection on the rocket pods in accordance with TM 9-1055-1646-13&P.
6. Stencil the date of the load test on the cage.
7. Complete maintenance forms.

Evaluation Preparation: Ensure all items required in the condition statement (or appropriate substitutions) are on hand and all safety requirements are met.

Performance Measures	GO	NO-GO
1. Performed a visual inspection of the HIMARS launcher and corrected any defects.	_____	_____
2. Positioned the HIMARS launcher.	_____	_____
3. Inspected the cables.	_____	_____
4. Performed a 125 percent load test.	_____	_____
5. Performed the final inspection on the rocket pods.	_____	_____
6. Stenciled the date of the load test on the cage.	_____	_____
7. Completed maintenance forms, if required.	_____	_____

Evaluation Guidance: Score the soldier GO if all performance measures are passed (P). Score the soldier NO-GO if any performance measure is failed (F). If the soldier fails any performance measure, show what was done wrong and how to do it correctly.

References**Required**

DA Form 2404

DA Pamphlet 750-8

TM 9-1055-1646-13&P

TM 9-243

091-94P-1213
Repair the Hoist Carriage Assembly

DANGER
Follow all Danger warning in TMs
WARNING
Follow all warning in TMs
CAUTION
Comply with all unit/shop SOPs

Conditions: Perform this task in an operational environment given an M142 HIMARS launcher, hoist carriage assembly; DA Form 2404, Equipment Inspection and Maintenance Worksheet; two 94P HIMARS repairers; one 13M MLRS crewmember to assist as required; a M1089A1 wrecker and an operator; a 94P tool kit; a manila rope; TM 9-1055-1646-13&P; TM 9-243, and a DA Pamphlet 750-8, The Army Maintenance Management System (TAMMS) Users Manual. **Note:** This task may be performed in an Chemical, Biological, Radiological, and Nuclear (CBRN) environment.

Standards: The hoist carriage assembly was repaired according to the applicable technical manuals. Perform this task without causing injury to self, other personnel, the environment, or damage to equipment.

Special Condition: None

Special Standards: None

Special Equipment:

Cue: None

Note: None

Performance Steps

1. Perform a visual inspection of the hoist carriage assembly and correct any defects. Inspect hoist carriage rack gears and intermediate beam pinion gear.
2. Remove hoist cover from hoist carriage assembly.
3. Remove the boom extension actuator.
4. Disconnect the W505P2 from hoist up limit switch J1 and W505P3 hoist down limit switch J1.

-
5. Pull the cable guide through intermediate beam to rear of platform assembly.
 6. Secure the intermediate beams in position.
 7. Install the hoist carriage assembly into intermediate beams.
 8. Verify the hoist carriage assembly and intermediate beam is properly positioned within fixed beams.
 9. Measure both side of the intermediate beam in accordance with TM 9-1055-1646-13&P.
 10. Insert the boom out stops into intermediate beams.
 11. Manually position the hoist carriage and intermediate beam.
 12. Route the flex drive cable support, W505 cable assembly, and hydraulic hose through intermediate beam to hoist carriage assembly.
 13. Connect the coupling halves to rear of hoist assembly.
 14. Connect the W505P2 connector to hoist up limit switch connector J1 and W505P3 connector to hoist down limit switch connector J1.
 15. Install the hoist cover to the hoist carriage assembly.
 16. Install the boom extension actuator in accordance with TM 9-1055-1646-13&P.
 17. Manually extend the boom-out and boom-in.
 18. Adjust the boom-in limit switch in accordance with TM 9-1055-1646-13&P.
 19. Adjust the boom-out limit switch in accordance with TM 9-1055-1646-13&P.
 20. Perform the reloader safety load test in accordance with TM 9-1055-1646-13&P.
 21. Verify the hoist carriage assembly is operational.
 22. Complete maintenance forms.

Evaluation Preparation: Ensure all items required in the condition statement (or appropriate substitutions) are on hand and all safety requirements are met.

Performance Measures

GO NO-GO

1. Performed a visual inspection of the hoist carriage assembly and corrected any defects.

Performance Measures	GO	NO-GO
2. Removed the hoist cover on the hoist carriage assembly.	_____	_____
3. Removed the boom extension actuator.	_____	_____
4. Disconnected the W505P2 from hoist up limit switch J1 and W505P3 hoist down limit switch J1.	_____	_____
5. Pulled the cable guide through intermediate beam to rear of platform assembly.	_____	_____
6. Secured the intermediate beams in position.	_____	_____
7. Installed the hoist carriage assembly into intermediate beams.	_____	_____
8. Verified that the hoist carriage assembly and intermediate beams are properly positioned within fixed beams.	_____	_____
9. Performed side measurements of the intermediate beam.	_____	_____
10. Inserted the boom out stops into intermediate beams.	_____	_____
11. Positioned the hoist carriage and intermediate beam manually.	_____	_____
12. Routed the flex drive cable support, W505 cable assembly, and hydraulic hose through intermediate beam to hoist carriage assembly.	_____	_____
13. Connected coupling halves at rear of hoist assembly.	_____	_____
14. Connected the W505P2 connector to hoist up limit switch connector J1 and W505P3 connector to hoist down limit switch connector J1.	_____	_____
15. Installed the hoist cover on the hoist carriage assembly.	_____	_____
16. Installed the boom extension actuator.	_____	_____
17. Performed boom-out and boom-out operations manually.	_____	_____
18. Performed boom-in limit switch procedure.	_____	_____
19. Performed boom-out limit switch procedure.	_____	_____

Performance Measures**GO** **NO-GO**

20. Performed reloader safety load test procedure.

21. Verified that the hoist carriage assembly was operational.

22. Completed maintenance forms, if required.

Evaluation Guidance: Score the soldier GO if all performance measures are passed (P). Score the soldier NO-GO if any performance measure is failed (F). If the soldier fails any performance measure, show what was done wrong and how to do it correctly.

References**Required**

DA Form 2404

DA Pamphlet 750-8

TM 9-1055-1646-13&P

TM 9-243

091-94P-1218
Replace the Elevation Cylinders

DANGER
Follow all Danger warning in TMs
WARNING
Follow all warning in TMs
CAUTION
Comply with all unit/shop SOPs

Conditions: Perform this task in a operational environment given an M142 HIMARS launcher; an faulty elevation actuator; DA Form 2404, Equipment Inspection and Maintenance Worksheet; 94P HIMARS repairer and one 13M MLRS crewmember to assist as required; M1089A1 wrecker and an operator; a nylon sling; a 94P shop set and 94P tool kit; hoisting sling; TM 9-1055-1646-13&P; TM 9-243, and DA Pamphlet 750-8, The Army Maintenance Management System (TAMMS) Users Manual. **Note:** This task may be performed in a Chemical, Biological, Radiological, and Nuclear (CBRN) environment.

Standards: The elevation actuator is replaced according to the applicable technical manuals. Perform this task without causing injury to self, other personnel, the environment, or damage to equipment.

Special Condition: None

Special Standards: None

Special Equipment:

Cue: None

Note: None

Performance Steps

1. Inspect the elevation actuator and correct any defects.
 - a. Check bolts, nuts, and screws.
 - b. Check bearings and bushings.
 - c. Check components.
 - d. Check hoses and fluid lines.

-
2. Remove the hose assembly from the elevation actuator retraction port in accordance with TM 9-1055-1646-13&P.
 3. Remove the joint swivel assembly and O-ring from elevation actuator extension port in accordance with TM 9-1055-1646-13&P.
 4. Remove the faulty elevation actuator in accordance with TM 9-1055-1646-13&P.
 5. Install the elevation actuator in accordance with TM 9-1055-1646-13&P.
 6. Install the joint swivel assembly and O-ring from the elevation actuator extension port in accordance with TM 9-1055-1646-13&P.
 7. Install the hose assembly from the elevation actuator retraction port in accordance with TM 9-1055-1646-13&P.
 8. Verify the elevation actuator is operational.
 9. Cycle the launcher in elevation.
 10. Complete maintenance forms.

Evaluation Preparation: Ensure all items required in the condition statement (or appropriate substitutions) are on hand and all safety requirements are met.

Performance Measures	GO	NO-GO
1. Performed a visual inspection of the elevation actuator and corrected any defects.	_____	_____
2. Removed the hose assembly from elevation actuator retraction port.	_____	_____
3. Removed the joint swivel assembly and O-ring from elevation actuator extension port.	_____	_____
4. Removed the faulty elevation actuator.	_____	_____
5. Installed the replacement elevation actuator.	_____	_____
6. Installed the joint swivel assembly and O-ring from elevation actuator extension port.	_____	_____
7. Installed the hose assembly from elevation actuator retraction port.	_____	_____

Performance Measures**GO** **NO-GO**

8. Verified that the elevation actuator was operational.

9. Cycled the launcher in elevation.

10. Completed maintenance forms, if required.

Evaluation Guidance: Score the soldier GO if all performance measures are passed (P). Score the soldier NO-GO if any performance measure is failed (F). If the soldier fails any performance measure, show what was done wrong and how to do it correctly.

References**Required**

DA Form 2404

DA Pamphlet 750-8

TM 9-1055-1646-13&P

TM 9-243

091-94P-1222
Replace the Reload Manifold

DANGER
Follow all the Danger warning in TMs
WARNING
Follow all the warning in TMs
CAUTION
Comply with all unit/shop SOPs

Conditions: Perform this task in a operational environment given an M142 HIMARS launcher; a faulty Reload Manifold; DA Form 2404, Equipment Inspection and Maintenance Worksheet; two 94P HIMARS repairers and one 13M HIMARS crew member to assist as required; a 94P tool kit; TM 9-1055-1646-13&P; TM 9-243, and DA Pamphlet 750-8, The Army Maintenance Management System (TAMMS) Users Manual.

Note: This task may be performed in a Chemical, Biological, Radiological, and Nuclear (CBRN) environment.

Standards: Repair the Reload Manifold is performed according to the applicable technical manuals. Perform this task without causing injury to self, other personnel, the environment, or damage to equipment.

Special Condition: None

Special Standards: None

Special Equipment:

Cue: None

Note: None

Performance Steps

1. Inspect the reload manifold and correct any defects in accordance with TM 9-1055-1646-13&P.
2. Disconnect the hydraulic coupling halves.
3. Disconnect all the W510 cables from the reload manifold.
4. Remove the adapter assembly and o-ring from the boom drain port.
5. Remove the elbow assembly and coupling half from the reload manifold hoist brake port union.

6. Remove the union and o-ring from the reload manifold hoist brake port.
7. Remove the reload manifold from the curbside sponson.
8. Install the reload manifold in accordance with TM 9-1055-1646-13&P.
9. Install the union and o-ring to the reload manifold hoist brake port.
10. Install the elbow assembly and coupling half to the reload manifold hoist brake port union.
11. Install the adapter assembly and o-ring to the boom drain port.
12. Reconnect all the W510 cables to the reload manifold.
13. Reconnect all the hydraulic coupling halves.
14. Perform a hydraulic system status check in accordance with TM 9-1055-1646-13&P.
15. Cycle the HIMARS launcher boom-in/out, and the hoist down/up operation.
16. Complete maintenance forms.

Evaluation Preparation: Ensure all items required in the condition statement (or appropriate substitutions) are on hand and all safety requirements are met.

Performance Measures	GO	NO-GO
1. Performed a visual inspection of the reload manifold and corrected any defects.	_____	_____
2. Disconnected hydraulic coupling halves.	_____	_____
3. Disconnected all the W510 cables from reload manifold.	_____	_____
4. Removed the adapter assembly and o-ring from boom drain port.	_____	_____
5. Removed the elbow assembly and coupling half from reload manifold hoist brake port union.	_____	_____
6. Removed union and o-ring from the reload manifold hoist brake port.	_____	_____

Performance Measures**GO** **NO-GO**

- | | | |
|---|-------|-------|
| 7. Removed the reload manifold from curbside sponson. | _____ | _____ |
| 8. Installed the replacement reload manifold. | _____ | _____ |
| 9. Installed the union and o-ring to the reload manifold hoist brake port. | _____ | _____ |
| 10. Installed elbow assembly and coupling half to the reload manifold hoist brake port union. | _____ | _____ |
| 11. Installed adapter assembly and o-ring to boom drain port. | _____ | _____ |
| 12. Reconnected all the W510 cables to reload manifold. | _____ | _____ |
| 13. Reconnected all the hydraulic coupling halves. | _____ | _____ |
| 14. Performed a hydraulic system status check after repairs were completed. | _____ | _____ |
| 15. Cycled the HIMARS launcher boom-in/out and hoist down/up operation. | _____ | _____ |
| 16. Completed maintenance forms, if required. | _____ | _____ |

Evaluation Guidance: Score the soldier GO if all performance measures are passed (P). Score the soldier NO-GO if any performance measure is failed (F). If the soldier fails any performance measure, show what was done wrong and how to do it correctly.

References**Required**

DA Form 2404

DA Pamphlet 750-8

TM 9-1055-1646-13&P

TM 9-243

**091-94P-1224
Repair Hoist System**

DANGER	
Follow all warning in TMs	
WARNING	
Follow all Danger warning in TMs	
CAUTION	
Comply with all unit/shop SOPs	

Conditions: Perform this task in a operational environment given an M142 HIMARS launcher; a faulty Reload Manifold; DA Form 2404, Equipment Inspection and Maintenance Worksheet; two 94P HIMARS repairers and one 13M HIMARS crew member to assist as required; a 94P shop set; a 94P tool kit; TM 9-1055-1646-13&P; TM 9-243, and DA Pamphlet 750-8, The Army Maintenance Management System (TAMMS) Users Manual. **Note:** This task may be performed in a Chemical, Biological, Radiological, and Nuclear (CBRN) environment.

Standards: Repair the Hoist System is performed according to the applicable technical manuals. Perform this task without causing injury to self, other personnel, the environment, or damage to equipment.

Special Condition: None

Special Standards: None

Special Equipment:

Cue: None

Note: None

Performance Steps

1. Inspect the reload manifold and correct any defects in accordance with TM 9-1055-1646-13&P.
2. Isolate the exact malfunction of the hoist.
3. Turn system power on and select Reload from the operational menu.
4. Position the LLM at 3200 MILS using the BC.

-
5. Visually inspect the hoist assembly for damage and cable connections, to include the BC to verify there is no damage or obstruction.
 6. Extend the boom out fully.
 7. Attempt to operate the hoist all the way down and all the way up.
 8. Once the fault has been determined, follow the test procedures in TM 9-1055-1646-13&P.
 9. Replace faulty component in accordance with TM 9-1055-1646-13&P.
 10. Cycle the HIMARS launcher boom-in/out, and the hoist down/up operation.
 11. Complete maintenance forms as required.

Evaluation Preparation: Ensure all items required in the condition statement (or appropriate substitutions) are on hand and all safety requirements are met.

Performance Measures	GO	NO-GO
1. Inspected the reload manifold and correct any defects in accordance with TM 9-1055-1646-13&P.	_____	_____
2. Isolated the exact malfunction of the hoist.	_____	_____
3. Turned the system power on and select Reload from the operational menu.	_____	_____
4. Positioned the LLM at 3200 MILS using the BC.	_____	_____
5. Visually inspected the hoist assembly for damage and cable connections, to include the BC to verify there is no damage or obstruction.	_____	_____
6. Extended the boom out fully.	_____	_____
7. Operated the hoist all the way down and all the way up.	_____	_____
8. Performed follow-on test procedures in TM 9-1055-1646-13&P.	_____	_____
9. Replaced faulty component in accordance with TM 9-1055-1646-13&P.	_____	_____
10. Cycled the HIMARS launcher boom-in/out, and the hoist down/up operation.	_____	_____

Performance Measures**GO NO-GO**

11. Completed maintenance forms as required.

Evaluation Guidance: Score the soldier GO if all performance measures are passed (P). Score the soldier NO-GO if any performance measure is failed (F). If the soldier fails any performance measure, show what was done wrong and how to do it correctly.

References**Required**

DA Form 2404

DA Pamphlet 750-8

TM 9-1055-1646-13&P

TM 9-243

091-94P-1217
Replace the Position Navigational Unit (PNU)

DANGER
Follow all Danger warning in TMs
WARNING
Follow all warning in TMs
CAUTION
Comply with all unit/shop SOPs

Conditions: Perform this task in a operational environment given an M142 HIMARS launcher, faulty Position Navigational Unit (PNU) Mounting Adjusting Bolts, DA Form 2404 Equipment Inspection and Maintenance Worksheet, two 94P HIMARS repairers and one 13M HIMARS crew member to assist as required; a 94P shop set, a 94P tool kit; TM 9-1055-1646-13&P, TM 9-243, and DA Pamphlet 750-8 The Army Maintenance Management System (TAMMS) Users Manual. **Note:** *This task may be performed in a Chemical, Biological, Radiological, and Nuclear (CBRN) environment.*

Standards: In accordance to the applicable technical manuals. Perform this task without causing injury to self, other personnel, the environment, or damage to equipment.

Special Condition: None

Special Standards: None

Special Equipment:

Cue: None

Note: None

Performance Steps

1. Inspect the Position Navigational unit (PNU) in accordance with TM 9-1055-1646-13&P.
2. Remove the PNU mounting/adjusting bolts in accordance with TM 9-1055-1646-13&P.
3. Perform vehicle leveling procedures in accordance with TM 9-1055-1646-13&P.
4. Install the PNU mounting/adjustment bolts in accordance with TM 9-1055-1646-13&P.

5. Adjust the PNU mounting/ adjusting bolts in accordance with TM 9-1055-1646-13&P.
6. Torque the two nuts on the mounting/adjusting bolt in accordance with TM 9-1055-1646-13&P.
7. Install and secure the PNU in accordance with TM 9-1055-1646-13&P.
8. Perform follow-on procedures and completed maintenance forms, if required.

Evaluation Preparation: Ensure all items required in the condition statement (or appropriate substitutions) are on hand and all safety requirements are met.

Performance Measures	GO	NO-GO
1. Performed a visual inspection of the Position Navigational unit (PNU) Mounting/adjustment bolts.	_____	_____
2. Removed the PNU mounting/adjusting bolts.	_____	_____
3. Performed vehicle leveling procedures.	_____	_____
4. Installed the PNU mounting/adjustment bolts.	_____	_____
5. Adjusted the PNU mounting/ adjusting bolts.	_____	_____
6. Torqued the two nuts on the mounting/adjusting bolt.	_____	_____
7. Installed and secured the PNU.	_____	_____
8. Completed maintenance forms, if required.	_____	_____

Evaluation Guidance: Score the soldier GO if all performance measures are passed (P). Score the soldier NO-GO if any performance measure is failed (F). If the soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

- DA Form 2404
- DA Pamphlet 750-8
- TM 9-1055-1646-13&P
- TM 9-243

091-94P-1210
Replace the Elevation Resolver

DANGER
Follow all Danger warning in TMs
WARNING
Follow all warning in TMs
CAUTION
Comply with all unit/shop SOPs

Conditions: Perform this task in a operational environment given an M142 HIMARS launcher; an faulty elevation resolver; DA Form 2404, Equipment Inspection and Maintenance Worksheet; one 94P HIMARS repairer and one 13M MLRS crewmember to assist as required; 94P-shop set and tool kit; lock wire; TM 9-1055-1646-13&P; TM 9-243, and DA Pamphlet 750-8, The Army Maintenance Management System (TAMMS) Users Manual. **Note:** This task may be performed in a Chemical, Biological, Radiological, and Nuclear (CBRN) environment.

Standards: The elevation resolver is replaced according to the applicable technical manuals. Perform this task without causing injury to self, other personnel, the environment, or damage to equipment.

Special Condition: None

Special Standards: None

Special Equipment:

Cue: None

Note: None

Performance Steps

1. Inspection the elevation resolver and correct any defects.
 - a. Inspect bolts, nuts, and screws.
 - b. Inspect bearings and bushings.
 - c. Check components.
 - d. Check electrical cables and connectors.
2. Disconnect W540P3 cable from the elevation resolver J1.

3. Remove the faulty elevation resolver in accordance with TM 9-1055-1646-13&P.
4. Install the elevation resolver in accordance with TM 9-1055-1646-13&P.
5. Reconnect the W540P3 cable to elevation resolver J1.
6. Adjust elevation resolver and the hardware in accordance with TM 9-1055-1646-13&P.
7. Verify the elevation resolver is operational.
8. Cycle the HIMARS launcher in elevation.
9. Complete maintenance forms.

Evaluation Preparation: Ensure all items required in the condition statement (or appropriate substitutions) are on hand and all safety requirements are met.

Performance Measures	GO	NO-GO
1. Performed a visual inspection of the elevation resolver and corrected any defects.	_____	_____
2. Disconnected W540P3 cable from the elevation resolver J1.	_____	_____
3. Removed the faulty elevation resolver.	_____	_____
4. Installed the replacement elevation resolver.	_____	_____
5. Reconnected the W540P3 cable to elevation resolver J1.	_____	_____
6. Performed the elevation resolver alignment and hardware adjustment procedure.	_____	_____
7. Verified that the elevation resolver was operational.	_____	_____
8. Cycled the HIMARS launcher in elevation.	_____	_____
9. Completed maintenance forms, if required.	_____	_____

Evaluation Guidance: Score the soldier GO if all performance measures are passed (P). Score the soldier NO-GO if any performance measure is failed (F). If the soldier fails any performance measure, show what was done wrong and how to do it correctly.

References**Required**

DA Form 2404

DA Pamphlet 750-8

TM 9-1055-1646-13&P

TM 9-24

091-94P-1212
Replace the Boom Intermediate Beams

DANGER
Follow all danger warning in TMs
WARNING
Follow all warning in TMs
CAUTION
Comply with all unit/shop SOPs

Conditions: Perform this task in a operational environment given an armored vehicle-mounted M142 HIMARS launcher; a faulty intermediate beam; DA Form 2404, Equipment Inspection and Maintenance Worksheet; two 94P MLRS repairer; one 13M MLRS crewmember to assist as required; one M1089A1 Wrecker; one 63BH8 operator; a 94P shop set and tool kit; four 8 ft. endless nylon slings; two C-Clamp 10in.; one Depth Gauge, as Required 4-inch by 4-inch by 5-foot wood supports; TM 9-1055-1646-13&P; TM 9-243, and a DA Pamphlet 750-8 The Army Maintenance Management System (TAMMS) Users Manual. **Note:** This task may be performed in a Chemical, Biological, Radiological, and Nuclear (CBRN) environment.

Standards: The intermediate beam is replaced according to the applicable technical manuals. Perform this task without causing injury to self, other personnel, the environment, or damage to equipment.

Special Condition: None

Special Standards: None

Special Equipment:

Cue: None

Note: None

Performance Steps

1. Inspect the intermediated beam and correct any defects. Check the following items below:

- a. bolts, nuts, and screws.
- b. bearings and bushings.
- c. components.

d. electrical cables and connectors.

e. hoses and fluid lines.

2. Remove the defective intermediate beam in accordance with TM 9-1055-1646-13&P.

3. Install the intermediate beam in accordance with TM 9-1055-1646-13&P.

4. Verify the intermediate beam is operational.

5. Complete maintenance forms.

Evaluation Preparation: Ensure all items required in the condition statement (or appropriate substitutions) are on hand and all safety requirements are met.

Setup: Have the hoist carriage removed.

Performance Measures

GO NO-GO

1. Performed a visual inspection of the intermediated beam and corrected any defects.

2. Removed the defective intermediate beam.

3. Installed the replacement intermediate beam.

4. Verified that the intermediate beam was operational.

5. Completed maintenance forms, if required.

Evaluation Guidance: Score the soldier GO if all performance measures are passed (P). Score the soldier NO-GO if any performance measure is failed (F). If the soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

DA Form 2404

DA Pamphlet 750-8

TM 9-1055-1646-13&P

TM 9-243

091-94P-1203
Perform Maintenance of the Primary Hydraulic System

DANGER
Follow all Danger warning in TMs
WARNING
Follow all warning in TMs
CAUTION
Comply with all unit/shop SOPs

Conditions: Perform this task in a operational environment given an M142 HIMARS launcher; a faulty hydraulic system; DA Form 2404, Equipment Inspection and Maintenance Worksheet; two 94P HIMARS repairer and one 13M HIMARS crewmember to assist as required; hydraulic servicing unit and drain pan; hydraulic fluid; clear plastic tubing; cotton cloth; TM 9-1055-1646-13&P; TM 9-243, and DA Pamphlet 750-8, The Army Maintenance Management System (TAMMS) Users Manual.
Note: This task may be performed in a Chemical, Biological, Radiological, and Nuclear (CBRN) environment.

Standards: Maintenance of the Primary Hydraulic system is performed according to the applicable technical manuals. Perform this task without causing injury to self, other personnel, the environment, or damage to equipment.

Special Condition: None

Special Standards: None

Special Equipment:

Cue: None

Note: None

Performance Steps

1. Inspect the hydraulic systems and correct defects. Check the following items below:
 - a. bolts, nuts, screws.
 - b. bearings and bushings.
 - c. components.
 - d. electrical cables and connectors.

e. hoses and fluid lines for damage.

2. Use the Interactive Electronic Technical Manual (IETM) with the Maintenance Support Device (MSD) and following the screen prompts to perform maintenance procedures.

3. Remove the defective hydraulic system component.

a. Isolate the exact malfunction of the hydraulic system in accordance with TM 9-1055-1646-13&P.

b. Perform the hydraulic system failure removal procedures in TM 9-1055-1646-13&P.

4. Install the hydraulic component.

5. Connect all electrical cables.

6. Perform hydraulic system status check.

7. Cycle the M142 HIMARS launcher in azimuth and elevation.

8. Complete maintenance forms.

Evaluation Preparation: Ensure all items required in the condition statement (or appropriate substitutions) are on hand and all safety requirements are met.

Performance Measures

GO NO-GO

1. Performed a visual inspection of the hydraulic systems and corrected any defects.	_____	_____
2. Used the proper Interactive Electronic Technical Manual (IETM) using the Maintenance Support Device (MSD) and followed the screen prompts to perform maintenance procedures.	_____	_____
3. Removed the defective hydraulic system component(s).	_____	_____
4. Installed the replacement hydraulic component(s) without causing damage to the unit.	_____	_____
5. Connected all electrical cables.	_____	_____
6. Performed a hydraulic system status check after repairs were completed.	_____	_____

7. Cycled the M142 HIMARS launcher in azimuth and elevation. _____
8. Completed maintenance forms, if required. _____

Evaluation Guidance: Score the soldier GO if all performance measures are passed (P). Score the soldier NO-GO if any performance measure is failed (F). If the soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

DA Form 2404

DA Pamphlet 750-8

TM 9-1055-1646-13&P

TM 9-243

091-94P-1204
Replace the Azimuth Drive Unit

DANGER
Follow all Danger warning in TMs
WARNING
Follow all warning in TMs
CAUTION
Comply with all unit/shop SOPs

Conditions: Perform this task in a operational environment given an M142 launcher; a faulty azimuth drive unit; DA Form 2404, Equipment Inspection and Maintenance Worksheet; two 94P HIMARS repairers and one 13M HIMARS crewmember to assist as required; 94P-shop set and tool kit; caps and plugs; TM 9-1055-1646-13&P; TM 9-243, and DA Pamphlet 750-8, The Army Maintenance Management System (TAMMS) Users Manual. **Note:** This task may be performed in a Chemical, Biological, Radiological, and Nuclear (CBRN) environment.

Standards: The azimuth drive unit is replaced according to the applicable technical manuals (TM). Perform this task without causing injury to self, other personnel, the environment, or damage to equipment.

Special Condition: None

Special Standards: None

Special Equipment:

Cue: None

Note: None

Performance Steps

1. Inspect the azimuth drive unit and correct any defects. Check the following items below:

- a. bolts, nuts, and screws.
- b. bearings and bushings.
- c. components.
- d. electrical cables and connectors.

- e. hoses and fluid lines for damage.
- 2. Check the position of the X-marks on the ADU pinion gear and the azimuth geared bearing assembly.
- 3. Remove the six jack-bolts from the super-bolt until each jack-bolt is unloaded. Repeat the procedure for the three remaining super bolts.
- 4. Record the number of washers and washer location for installation.
- 5. Remove the azimuth drive unit in accordance with TM 9-1055-1646-13&P.
- 6. Install the azimuth drive unit in accordance with TM 9-1055-1646-13&P.
- 7. Install the six jack-bolts into the super-bolt until each jack-bolt is flush with super-bolt mounting surface. Ensured the super-bolts, does not extend beyond mounting surface of the super-bolts. Repeat the procedure for the remaining three super-bolts.
- 8. Rotate the ADU azimuth manual drive input and two turret-to-azimuth gearing mounting bolts until high point of ADU pinion gear (X) is aligned between high points (X) on azimuth geared bearing.
- 9. Push the ADU forward against azimuth geared bearing aligning X mark of pinion rear between two X marks on geared bearing. Position ADU so vertical mounting surfaces of ADU is parallel (evenly spaced) to mounting surfaces or the base assembly.
- 10. Install and torque all bolts in accordance with TM 9-1055-1646-13&P.
- 11. Ensure the system is operating properly.
- 12. Complete maintenance forms.

Evaluation Preparation: Ensure all items required in the condition statement (or appropriate substitutions) are on hand and all safety requirements are met.

Performance Measures	GO	NO-GO
1. Performed a visual inspection of the azimuth drive unit and corrected any defects.	_____	_____
2. Noted the position of the X-marks on the ADU pinion gear and the azimuth geared bearing assembly.	_____	_____
3. Removed the six jack-bolts from the super-bolt until each jack-bolt is unloaded. Repeat the procedure for the three remaining super-bolts.	_____	_____

Performance Measures**GO** **NO-GO**

4. Recorded the number of washers and washer location for installation.

5. Removed the azimuth drive unit.

6. Installed the azimuth drive unit.

7. Installed the six jack-bolts into the super-bolt until each jack-bolt is flush with super-bolt mounting surface. Ensured the super-bolts does not extend beyond mounting surface of the super-bolts. Repeat the procedure for the remaining three super-bolts.

8. Rotated the ADU azimuth manual drive input and two turret-to-azimuth gearing mounting bolts until high point of ADU pinion gear (X) is aligned between high points (X) on azimuth geared bearing.

9. Pushed the ADU forward against azimuth geared bearing aligning X mark of pinion rear between two X marks on geared bearing. Position ADU so vertical mounting surfaces of ADU are parallel (evenly spaced) to mounting surfaces or the base assembly.

10. Installed and torque all bolts.

11. Ensured the system was operating properly.

12. Completed maintenance forms, if required.

Evaluation Guidance: Score the soldier GO if all performance measures are passed (P). Score the soldier NO-GO if any performance measure is failed (F). If the soldier fails any performance measure, show what was done wrong and how to do it correctly.

References**Required**

DA Form 2404

DA Pamphlet 750-8

TM 9-1055-1646-13&P

TM 9-243

091-94P-1200
Maintain the Maintenance Manager

DANGER

Follow all Danger warning in TMs

WARNING

Follow all warning in TMs

Conditions: Perform this task in a operational environment given an M142 rocket launcher; fault information on the Maintenance Manager Software; DA Form 2404, Equipment Inspection and Maintenance Worksheet; two 94P tool kit and shop set; TM 9-1055-1646-13&P Interactive Electronic Technical Manual (IETM); Maintenance Support Device (MSD); Computerized Built-In Test (CBIT); Maintenance Manager (MM); two 94P personnel; TM 9-243, and DA Pamphlet 750-8, The Army Maintenance Management System (TAMMS) Users Manual. **Note:** This task may be performed in a Chemical, Biological, Radiological, and Nuclear (CBRN) environment.

Standards: In accordance to the applicable technical manuals. Perform this task without causing injury to self, other personnel, the environment, or damage to equipment.

Special Condition: None

Special Standards: None

Special Equipment:

Cue: None

Note: None

Performance Steps

1. Perform a visual inspection of the system power level.
 - a. Check bolts, nuts, screws.
 - b. Check bearing and bushings.
 - c. Check the components.
 - d. Check electrical cables and connectors.
2. Perform Fire Control System initialization and start the Commanded Built-In Test (CBIT) process in accordance with TM 9-1055-1646-13&P.

-
3. Select the maintenance (PFK) function and press the CONFIRM PFK to enter Maintenance Manager Menu in accordance with TM 9-1055-1646-13&P.
 4. Verify the Maintenance Manager is operational.
 5. Power down the Maintenance Manager in accordance with TM 9-1055-1646-13&P.
 6. Complete maintenance forms.

Evaluation Preparation:

Ensure all items required in the condition statement (or appropriate substitutions) are on hand and all safety requirements are met.

Performance Measures	GO	NO-GO
1. Performed a visual inspection of the system power level.	_____	_____
2. Performed Fire Control System initialization and started the Commanded Built-In Test (CBIT) process.	_____	_____
3. Selected the maintenance (PFK) function and press the CONFIRM PFK to enter Maintenance Manager Menu.	_____	_____
4. Verified that the Maintenance Manager was operational.	_____	_____
5. Performed Power down procedures for the Maintenance Manager.	_____	_____
6. Completed maintenance forms, if required.	_____	_____

Evaluation Guidance: Score the soldier GO if all performance measures are passed (P). Score the soldier NO-GO if any performance measure is failed (F). If the soldier fails any performance measure, show what was done wrong and how to do it correctly.

**References
Required**

- DA Form 2404
- DA Pamphlet 750-8
- TM 9-1055-1646-13&P
- TM 9-243

091-94P-1205
Replace the Azimuth Resolver

DANGER
Follow all Danger warning in TMs
WARNING
Follow all warning in TMs
CAUTION
Comply with all unit/shop SOPs

Conditions: Perform this tasking a operational environment given an M142 HIMARS launcher; a faulty azimuth resolver; DA Form 2404, Equipment Inspection and Maintenance Worksheet; two 94P HIMARS repairers and one 13M HIMARS crewmember to assist as required; 94P shop set and 94P tool kit; TM 9-1055-1646-13&P; TM 9-243, and DA Pamphlet 750-8, The Army Maintenance Management System (TAMMS) Users Manual. **Note:** This task may be performed in a Chemical, Biological, Radiological, and Nuclear (CBRN) environment.

Standards: The azimuth resolver is replaced according to the applicable technical manuals. Perform this task without causing injury to self, other personnel, the environment or damage to equipment.

Special Condition: None

Special Standards: None

Special Equipment:

Cue: None

Note: None

Performance Steps

1. Perform a visual inspection of the azimuth resolver and correct any defects. Check the following items below:

- a. bolts, nuts, and screws.
- b. bearings and bushings.
- c. components.
- d. electrical cables and connectors.

e. hoses and fluid lines.

2. Remove the defective azimuth resolver. Perform azimuth removal procedures in accordance with TM 9-1055-1646-13&P.
3. Install the azimuth resolver. Perform azimuth installation procedures in accordance with TM 9-1055-1646-13&P.
4. Perform azimuth resolver adjustment procedures.
5. Cycle the HIMARS launcher in azimuth.
6. Stow the launcher.
7. Complete maintenance forms.

Evaluation Preparation: Ensure all items required in the condition statement (or appropriate substitutions) are on hand and all safety requirements are met.

Performance Measures	GO	NO-GO
1. Performed a visual inspection of the azimuth resolver and corrected any defects.	_____	_____
2. Removed the defective azimuth resolver.	_____	_____
3. Installed the replacement azimuth resolver.	_____	_____
4. Performed the azimuth resolver adjustment procedure.	_____	_____
5. Cycled the HIMARS launcher in azimuth.	_____	_____
6. Performed stow procedures.	_____	_____
7. Completed maintenance forms, if required.	_____	_____

Evaluation Guidance: Score the soldier GO if all performance measures are passed (P). Score the soldier NO-GO if any performance measure is failed (F). If the soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

DA Form 2404
DA Pamphlet 750-8
TM 9-1055-1646-13&P
TM 9-243

091-94P-1207
Maintain the Elevation Hydraulic Manifold

DANGER
Follow all Danger warning in TMs
WARNING
Follow all warning in TMs
CAUTION
Comply with all unit/shop SOPs

Conditions: Perform this task in a operational environment given an M142 HIMARS launcher; a faulty elevation hydraulic manifold; DA Form 2404, Equipment Inspection and Maintenance Worksheet; two 94P HIMARS repairers; one 13M HIMARS crewmember to assist as required; a 94P shop set and tool kit; TM 9-1055-1646-13&P; TM 9-243, and a DA Pamphlet 750-8, The Army Maintenance Management System (TAMMS) Users Manual. **Note:** This task may be performed in a Chemical, Biological, Radiological, and Nuclear (CBRN) environment.

Standards: The elevation hydraulic manifold is repaired according to the applicable technical manuals. Perform this task without causing injury to self, other personnel, the environment, or damage to equipment.

Special Condition: None

Special Standards: None

Special Equipment:

Cue: None

Note: None

Performance Steps

1. Inspect the Elevation Hydraulic Manifold and correct any defects. Check the following items below:

- a. bolts, nuts, and screws.
- b. bearings and bushings.
- c. components.
- d. electrical cables and connectors.

e. hoses and fluid lines.

2. Isolated the malfunction to a faulty component in accordance with TM 9-1055-1646-13&P.

3. Remove the faulty component in accordance with TM 9-1055-1646-13&P.

4. Install the replacement component in accordance with TM 9-1055-1646-13&P.

5. Verify the elevation hydraulic manifold is operational.

6. Complete maintenance forms.

Evaluation Preparation: Ensure all items required in the condition statement (or appropriate substitutions) are on hand and all safety requirements are met.

Performance Measures

GO NO-GO

1. Performed a visual inspection of the Elevation Hydraulic Manifold and corrected any defects.

2. Performed troubleshooting procedures and isolated the malfunction to a faulty component.

3. Removed the faulty component.

4. Installed the replacement component.

5. Verified that the elevation hydraulic manifold was operational.

6. Completed maintenance forms, if required.

Evaluation Guidance: Score the soldier GO if all performance measures are passed (P). Score the soldier NO-GO if any performance measure is failed (F). If the soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

DA Form 2404

DA Pamphlet 750-8

TM 9-1055-1646-13&P

TM 9-243

091-94P-1208

Replace the Limit Switches

DANGER	
Follow all Danger warning in TMs	
WARNING	
Follow all warning in TMs	
CAUTION	
Comply with all unit/shop SOPs	

Conditions: Perform this task in a operational environment given an M142 HIMARS launcher; a faulty limit switch; DA Form 2404, Equipment Inspection and Maintenance Worksheet; one 94P HIMARS repairer and one 13M MLRS crewmember to assist as required; digital multi-meter; a 94P shop set and 94P tool kit; lock wire; TM 9-1055-1646-13&P; TM 9-243, and DA Pamphlet 750-8, The Army Maintenance Management System (TAMMS) Users Manual. **Note:** This task may be performed in a Chemical, Biological, Radiological, and Nuclear (CBRN) environment.

Standards: The limit switch is replaced according to the applicable technical manuals. Perform this task without causing injury to self, other personnel, the environment, or damage to equipment.

Special Condition: None

Special Standards: None

Special Equipment:

Cue: None

Note: None

Performance Steps

1. Inspect the limit switches and correct any defects.
 - a. Check bolts, nuts, and screws.
 - b. Check bearings and bushings.
 - c. Check components.
 - d. Check electrical cables and connectors.
2. Deploy the jury struts.

-
3. Remove the faulty limit switch in accordance with TM 9-1055-1646-13&P.
 4. Install the limit switch in accordance with TM 9-1055-1646-13&P.
 5. Adjust the limit switch in accordance with TM 9-1055-1646-13&P.
 6. Retract the jury struts.
 7. Verify the limit switch is operational.
 8. Complete maintenance forms.

Evaluation Preparation: Ensure all items required in the condition statement (or appropriate substitutions) are on hand and all safety requirements are met.

Performance Measures	GO	NO-GO
1. Performed a visual inspection of the limit switches and corrected any defects.	_____	_____
2. Deployed the jury struts.	_____	_____
3. Removed the faulty limit switch.	_____	_____
4. Installed the replacement limit switch.	_____	_____
5. Performed the limit switch adjustment.	_____	_____
6. Verified that jury struts are retracted.	_____	_____
7. Verified that the limit switch was operational.	_____	_____
8. Completed maintenance forms, if required.	_____	_____

Evaluation Guidance: Score the soldier GO if all performance measures are passed (P). Score the soldier NO-GO if any performance measure is failed (F). If the soldier fails any performance measure, show what was done wrong and how to do it correctly.

**References
Required**

- DA Form 2404
- DA Pamphlet 750-8
- TM 9-1055-1646-13&P
- TM 9-243

091-94P-1215
Replace the Boom Extension Actuators

DANGER
Follow all Danger warning in TMs
WARNING
Follow all warning in TMs
CAUTION
Comply with all unit/shop SOPs

Conditions: Perform this task in a operational environment given an M142 HIMARS Launcher; a faulty boom extension actuator; DA Form 2404, Equipment Inspection and Maintenance Worksheet; one 94P HIMARS repairer and one 13M MLRS crewmember to assist as required; a 94P shop set and tool kit; lock wire; TM 9-1055-1646-13&P; TM 9-243; DA Pamphlet 750-8, The Army Maintenance Management System (TAMMS) Users Manual. **Note** this task may be performed in a Chemical, Biological, Radiological, and Nuclear (CBRN) environment.

Standards: The boom extension actuator is replaced according to the applicable technical manuals. Perform this task without causing injury to self, other personnel, the environment, or damage to equipment.

Special Condition: None

Special Standards: None

Special Equipment:

Cue: None

Note: None

Performance Steps

1. Inspect the boom extension actuator and correct any defects.
 - a. Check bolts, nuts, and screws.
 - b. Check bearings and bushings.
 - c. Check components.
 - d. Check electrical cables and connectors.
 - e. Check hoses and fluid lines.

-
2. Remove the cable guide cover, cable guide support.
 3. Measure and record the distance from the ball nut drive assembly from the rear of the boom extension actuator in accordance with TM 9-1055-1646-13&P.
 4. Remove the extension actuator in accordance with TM 9-1055-1646-13&P.
 5. Install the boom extension actuator in accordance with TM 9-1055-1646-13&P.
 6. Install the cable guide cover, cable guide support.
 7. Adjust the boom-in and boom-out limit switch in accordance with TM 9-1055-1646-13&P.
 8. Verify the boom extension actuator is operational.
 9. Complete maintenance forms.

Evaluation Preparation: Ensure all items required in the condition statement (or appropriate substitutions) are on hand and all safety requirements are met.

Performance Measures	GO	NO-GO
1. Performed a visual inspection of the boom extension actuator and corrected any defects.	_____	_____
2. Removed the cable guide cover, cable guide support.	_____	_____
3. Measured and recorded the distance from the ball nut drive assembly from the rear of the boom extension actuator to aid in installation.	_____	_____
4. Removed the extension actuator.	_____	_____
5. Installed the replacement boom extension actuator.	_____	_____
6. Installed the cable guide cover, cable guide support.	_____	_____
7. Performed the boom-in and boom-out limit switch adjustment procedure.	_____	_____
8. Verified that the boom extension actuator was operational.	_____	_____
9. Completed maintenance forms, if required.	_____	_____

Evaluation Guidance: Score the soldier GO if all performance measures are passed (P). Score the soldier NO-GO if any performance measure is failed (F). If the soldier fails any performance measure, show what was done wrong and how to do it correctly.

References**Required**

DA Form 2404

DA Pamphlet 750-8

TM 9-1055-1646-13&P

TM 9-243

091-94P-1216
Replace the Platform

DANGER
Follow all Danger warning in TMs
WARNING
Follow all warning in TMs
CAUTION
Comply with all unit/shop SOPs

Conditions: Perform this task in an operational environment given an M142 HIMARS; a faulty Platform; DA Form 2404, Equipment Inspection and Maintenance Worksheet; two 94P HIMARS repairers and one 13M MLRS crewmember to assist as required; one M1089A wrecker and an 63BH8 wrecker driver/operator; a nylon sling; a 94P shop set and 94P tool kit; hoisting sling; four pieces of nylon rope; TM 9-1055-1646-13&P; TM 9-243, and DA Pamphlet 750-8, The Army Maintenance Management System (TAMMS) Users Manual. **Note:** This task may be performed in a Chemical, Biological, Radiological, and Nuclear (CBRN) environment.

Standards: The Platform is replaced according to the applicable technical manuals. Perform this task without causing injury to self, other personnel, the environment, or damage to equipment.

Special Condition: None

Special Standards: None

Special Equipment:

Cue: None

Note: None

Performance Steps

1. Perform a visual inspection of the platform and correct any defects in accordance with TM 9-1055-1646-13&P.
2. Open air side bleed valve on hydraulic Reservoir and open vehicle braking system air tanks and allow air tanks to drain.
3. Remove the azimuth resolver in accordance with TM 9-1055-1646-13&P.
4. Ensure the LM is approximately 0 mils azimuth.

5. Remove the azimuth geared bearing dust seals in accordance with TM 9-1055-1646-13&P.
6. Perform removal of upper hydraulic Swivel mount in accordance with TM 9-1055-1646-13&P.
7. Manually unlock both elevation travel locks.
8. On Platform Assembly, install hoisting sling to forward Floor Beam Assembly.
 - a. Attach opposite end of sling to wrecker and remove slack from hoisting sling. Use wrecker and raise forward end of Platform Assembly until both Jury Struts can be deployed.
 - b. In accordance with TM 9-1055-1646-13&P continue the removal, routing of cables, disconnecting of hoses and raising of the Elevation Actuator in support of removing Platform.
9. Using wrecker, slowly raise LM clear of two Turret installation guide pins. Position LM clear of vehicle and lower onto dunnage.
10. Install Platform Assembly:
 - a. Verify attachment of LM hoisting sling and four guide ropes to LM. Using wrecker, position LM over top of Turret installations guide pins and onto Azimuth Geared Bearing.
 - b. Position lifting sling around upper end of Elevation Actuator. Ensure sling is not positioned over Elevation Actuator hydraulic tube. Complete the installation in accordance with TM9-1055-1646-13&P.
11. Inspect the azimuth geared bearing and azimuth drive pinion gear.
12. Install the azimuth geared bearing dust seals in accordance with TM 9-1055-1646-13&P.
13. Install the azimuth resolver in accordance with TM 9-1055-1646-13&P.
14. Install bolts, hoses, ground straps, and routing of cables as recorded during removal, in accordance with TM 9-1055-1646-13P.
15. Perform all procedures in order indicated in accordance with TM 9-1055-1646-13&P, TM 9-2300-310-14P.
16. Perform FCS AFTER MAINTENANCE FOLLOW-ON procedures in accordance with TM 9-1055-1646-13&P.

17. Complete maintenance forms.

Evaluation Preparation: Ensure all items required in the condition statement (or appropriate substitutions) are on hand and all safety requirements are met.

Performance Measures	GO	NO-GO
1. Performed a visual inspection of the platform and corrected any defects.	_____	_____
2. Opened air tanks to bleed valve on hydraulic Reservoir.	_____	_____
3. Removed the azimuth resolver.	_____	_____
4. Returned the LM to approximately 0 mils azimuth.	_____	_____
5. Removed the azimuth geared bearing dust seals.	_____	_____
6. Removed the upper hydraulic swivel mount.	_____	_____
7. Unlocked both the curbside and roadside elevation travel locks.	_____	_____
8. Installed the hoisting sling to forward floor beam assembly.	_____	_____
9. Used wrecker, to slowly raise LM clear of two Turrets Installation guide pins and lower onto dunnage.	_____	_____
10. Verified the platform and turret assembly was installed correctly.	_____	_____
11. Inspected the azimuth geared bearing and azimuth drive pinion.	_____	_____
12. Installed the azimuth geared bearing dust seals.	_____	_____
13. Installed the azimuth resolver.	_____	_____
14. Installed bolts, hoses, ground straps, and routing of cables as recorded during removal.	_____	_____
15. Performed all procedures in order indicated in accordance with TM 9-1055-1646-13&P and TM 9-2300-310-14P.	_____	_____
16. Performed FCS AFTER MAINTENANCE FOLLOW-ON procedures.	_____	_____
17. Completed maintenance forms, if required.	_____	_____

Evaluation Guidance: Score the soldier GO if all performance measures are passed (P). Score the soldier NO-GO if any performance measure is failed (F). If the soldier fails any performance measure, show what was done wrong and how to do it correctly.

References**Required**

DA Form 2404

DA Pamphlet 750-8

TM 9-1055-1646-13&P

TM 9-243

091-94P-1219
Perform System Analysis

DANGER
Follow all Danger warning in TMs
WARNING
Follow all warning in TMs
CAUTION
Comply with all unit/shop SOPs

Conditions: Perform this task in a operational environment given an faulty M142 HIMARS; Computerized Built-In Test (CBIT); Maintenance Manager (MM); Launcher Adapter Group (LAG); MM/LAG; DA Form 2404, Equipment Inspection and Maintenance Worksheet; a 94P tool kit; a AN/PSM-45 digital multi-meter; a test cable; TM 9-1055-1646-13&P; TM 9-243, and DA Pamphlet 750-8, The Army Maintenance Management System (TAMMS) Users Manual The Army Maintenance Management System (TAMMS) Users Manual. **Note:** This task may be performed in a Chemical, Biological, Radiological, and Nuclear (CBRN) environment.

Standards: System analysis is performed on the HIMARS according to the applicable technical manuals. Perform this task without causing injury to self, other personnel, the environment, or damage to equipment.

Special Condition: None

Special Standards: None

Special Equipment:

Cue: None

Note: None

Performance Steps

1. Perform a system analysis on the HIMARS and identify the faulty component in accordance with TM 9-1055-1646-13&P.
2. Perform all procedures in the order indicated.
 - a. Power indication check.
 - b. Initialize the FCS.
 - c. Reload operation.

- d. Initiate CBIT procedure.
- 3. Repair the faulty component in accordance with TM 9-1055-1646-13&P.
- 4. Verify the HIMARS is operational.
- 5. Complete maintenance forms.

Evaluation Preparation: Ensure all items required in the condition statement (or appropriate substitutions) are on hand and all safety requirements are met.

Performance Measures	GO	NO-GO
1. Performed a system analysis on the HIMARS and identified the faulty component.	_____	_____
2. Performed Power indication check, Initialize the FCS, Reload Operation, and Initiate CBIT procedure in order.	_____	_____
3. Repaired the faulty component.	_____	_____
4. Verified that the HIMARS was operational.	_____	_____
5. Completed maintenance forms, if required.	_____	_____

Evaluation Guidance: Score the soldier GO if all performance measures are passed (P). Score the soldier NO-GO if any performance measure is failed (F). If the soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

- DA Form 2404
- DA Pamphlet 750-8
- TM 9-1055-1646-13&P
- TM 9-243

091-94P-1221
Repair the Jury Strut

DANGER
Follow all Danger warning in TMs
WARNING
Follow all warning in TMs
CAUTION
Comply with all unit/shop SOPs

Conditions: Perform this task in a operational environment given an M142 HIMARS launcher; a faulty Jury Strut; DA Form 2404, Equipment Inspection and Maintenance Worksheet; two 94P HIMARS repairers and one 13M HIMARS crew member to assist as required; a 94P shop set; a 94P tool kit; TM 9-1055-1646-13&P; TM 9-243, and DA Pamphlet 750-8, The Army Maintenance Management System (TAMMS) Users Manual.

Note: This task may be performed in a Chemical, Biological, Radiological, and Nuclear (CBRN) environment.

Standards: Maintain Jury Strut according to the applicable technical manuals. Perform this task without causing injury to self, other personnel, the environment, or damage to equipment, other personnel, the environment, or damage to equipment.

Special Condition: None

Special Standards: None

Special Equipment:

Cue: None

Note: None

Performance Steps

1. Inspect the jury strut and correct any defects. Check the following items below:
 - a. bolts, nuts, and screws.
 - b. components.
 - c. cables and connectors.
2. Remove the threaded pin that secure the jury strut to LM.
3. Remove the retaining ring and pin attached to lower link arm assembly.

4. Remove the faulty jury strut in accordance with TM 9-1055-1646-13&P.
5. Install the jury strut in accordance with TM 9-1055-1646-13&P.
6. Install the retaining ring and pin attached to lower link arm assembly.
7. Install the threaded pin that secure the jury strut to LM.
8. Verify the jury strut is operational.
9. Complete maintenance forms.

Evaluation Preparation: Ensure all items required in the condition statement (or appropriate substitutions) are on hand and all safety requirements are met.

Performance Measures	GO	NO-GO
1. Performed a visual inspection of the jury strut and corrected any defects.	_____	_____
2. Removed the threaded pin that secured the jury strut to LM.	_____	_____
3. Removed the retaining ring and pin attached to lower link arm assembly.	_____	_____
4. Removed the faulty jury strut.	_____	_____
5. Installed the replacement jury strut.	_____	_____
6. Installed the retaining ring and pin attached to lower link arm assembly.	_____	_____
7. Installed the threaded pin that secured the jury strut to LM.	_____	_____
8. Verified that the jury strut was operational.	_____	_____
9. Completed maintenance forms, if required.	_____	_____

Evaluation Guidance: Score the soldier GO if all performance measures are passed (P). Score the soldier NO-GO if any performance measure is failed (F). If the soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

- DA Form 2404
- DA Pamphlet 750-8

TM 9-1055-1646-13&P
TM 9-243

091-94P-1223

Maintain the HIMARS Fire Control System/Launcher Drive System

DANGER	
Follow all Danger warning in TMs	
WARNING	
Follow all warning in TMs	
CAUTION	
Comply with all unit/shop SOPs	

Conditions: Perform this task in an operational environment given an M142 HIMARS; a faulty Fire Control/Launcher Drive System; DA Form 2404, Equipment Inspection and Maintenance Worksheet; a 94P shop set and tool kit; TM 9-1055-1646-13&P; TM 9-243, and DA Pamphlet 750-8, the Army Maintenance Management System (TAMMS) Users Manual. **Note:** This task may be performed in a Chemical, Biological, Radiological, and Nuclear (CBRN) environment.

Standards: The HIMARS Fire Control System is repaired according to the applicable technical manuals. Perform this task without causing injury to self, other personnel, the environment, or damage to equipment.

Special Condition: None

Special Standards: None

Special Equipment:

Cue: None

Note: None

Performance Steps

1. Inspect the Fire Control System and correct any defects in accordance with TM 9-1055-1646-13&P.
2. Use the Maintenance Manager/ Launcher Adapter Group and isolate the malfunction to a faulty component in accordance with TM 9-1055-1646-13&P.
3. Use IETM as a guide for performing tests within CBIT and MM/LAG.
4. Remove the faulty component in accordance with TM 9-1055-1646-13&P.
5. Install the replacement component in accordance with TM 9-1055-1646-13&P.

-
6. Verify the FCS is operational.
 7. Complete maintenance forms.

Evaluation Preparation: Ensure all items required in the condition statement (or appropriate substitutions) are on hand and all safety requirements are met.

Performance Measures	GO	NO-GO
1. Performed a visual inspection of the Fire Control System and corrected any defects.	_____	_____
2. Performed repair procedures with the Maintenance Manager/Launcher Adapter Group and isolated the malfunction to a faulty component.	_____	_____
3. Used IETM as a guide for performing tests within CBIT and MM/LAG.	_____	_____
4. Removed the faulty component(s).	_____	_____
5. Installed the replacement component(s).	_____	_____
6. Verified that the FCS was operational.	_____	_____
7. Completed maintenance forms, if required.	_____	_____

Evaluation Guidance: Score the soldier GO if all performance measures are passed (P). Score the soldier NO-GO if any performance measure is failed (F). If the soldier fails any performance measure, show what was done wrong and how to do it correctly.

References

Required

- DA Form 2404
- DA Pamphlet 750-8
- TM 9-1055-1646-13&P
- TM 9-243

Chapter 4

Duty Position Tasks

MOS 94P--Multiple Launch Rocket System Repairer (MLRS Rep), CMF 94

a. Major duties. The MLRS repairer supervises or performs field maintenance on multiple launch rocket system (MLRS) M270A1, and High Mobility Artillery Rocket System (HIMARS), self-propelled launcher loader (SPLL) (less carrier), launcher pod/container (LP/C) trainer, and test support group. Duties for MOS 94P at each level of skill are:

(1) MOSC 94P10. Troubleshoot SPLL and the launcher loader module (LLM) electrical, electronic, mechanical assemblies, modules and interconnecting cables to isolate malfunctions. Replaces or repairs electrical, hydraulic and mechanical assemblies, modules, and cables determined to be faulty. Uses breakout boxes and built in test equipment (BITE) for fault isolation and verification or adjustment of electrical assemblies and modules of LLM. Repairs, replaces chassis mounted components on units under test. Operate system cable tester. Perform unit maintenance on system peculiar test, training, and ancillary equipment. Assist automatic test equipment (ATE) operator in fault isolating LLM electronic modules and assemblies to component level at organizational level. Prepares and maintains equipment logs, equipment modification and utilization records, exchange logs, and calibration data cards. Complete maintenance and supply forms and records.

(2) MOSC 94P20. Perform duties shown in preceding level of skill. Supervises junior grade Soldiers and provides technical guidance to Soldiers in the accomplishment of their duties. Provides technical assistance to supported units.

(3) MOSC 94P30. Supervises subordinate MLRS repairers engaged in support maintenance activities. Supervise inspection and maintenance teams. Perform as maintenance quality assurance and quality control (QA/QC) inspector, and implements quality control measures. Perform initial; work in process, final and onsite technical and quality control inspections. Monitors activities associated with maintenance of MLRS for potential problem areas and recommends improved procedures, if required. Identifies faulty work practices and demonstrates proper maintenance techniques. Organizes and conducts OJT programs.

b. Physical demands rating and qualifications for initial award of MOS. Multiple launch rocket system repairer must possess the following qualifications:

- (1) A physical demands rating of heavy.
- (2) A physical profile of 222221.
- (3) Qualifying scores.

(a) A minimum score of 95 in aptitude area EL on the Armed Services Vocational Aptitude Battery (ASVAB) tests administered prior to 2 January 2002.

(b) A minimum score of 93 in aptitude area EL on ASVAB tests administered on and after 2 January 2002.

(4) Be eligible for SECRET access under AR 380-67.

(5) A U.S. citizen.

(6) Formal training by completion of MOS 94P Course conducted under the auspices of the U.S. Army Ordnance School (USAOS) mandatory unless a waiver is granted by Commandant, U.S. Army Ordnance School, Fort Lee, VA 23801 or Soldier meets the civilian acquired skills criteria listed in AR 601-210.

c. Additional skill identifiers. (Note: Refer to table 12-8 (Listing of universal ASI's associated with all MOS).

d. Physical requirements and standards of grade. Physical requirements and SG relating to each skill level are listed in the following tables:

(1) Table 10-94P-1. Physical requirements.

(2) Table 10-94P-2. Standards of grade TOE/MTOE.

(3) Table 10-94P-3. Standards of grade TDA.

10-94P-1, Physical requirements for MOS 94P		
Skill Level	Task numbers	Task
1	1,2,3,4	1. Frequently lifts and lowers 55 pound and carry a distance of 10 feet. 2. Frequently lifts, lowers, climbs, and descends 4 to 6 feet while carrying 75 pound. 3. Frequently lifts and lowers 150 pounds and carries 4 to 6 feet as part of a 2 Soldier team (prorated at 75 pound per Soldier). 4. Must possess finger dexterity in both hands.
2	1,2,3,4	
3	2,3,4	
4	2,3,4	

APPENDIX A - HANDS-ON EVALUATION (DA FORM 5164-R) INSTRUCTIONS

HANDS-ON EVALUATION (DA FORM 5164-R) INSTRUCTIONS (Excerpted from STP 21-24-SMCT, Appendix C)

DA Form 5164-R, Hands-On Evaluation, allows the trainer to keep a record of the performance measures a soldier passes or fails on each task.

Before evaluation:

1. Obtain a blank copy of DA Form 5164-R, which you may locally reproduce on 8 ½" x 11" paper.
2. Enter the task title and 10-digit number from the STP task summary.
3. In column a, enter the performance measure numbers from the task summary.
4. In column b, enter the performance measure corresponding to the number in column a (you may abbreviate this information if necessary).
5. Locally reproduce the partially completed form when evaluating more than one Soldier on the task or when evaluating the same soldier more than once.

During evaluation:

1. Enter the date just before evaluating the soldier's task performance.
2. Enter the evaluator's name, the soldier's name, and the unit.
3. For each performance measure in column b, enter a check in column c (PASS) or column d (FAIL), as appropriate.
4. Compare the number of performance measures the soldier passes (and, if applicable, which ones) against the task standards specified in the task summary. If the standards are met or exceeded, check the GO block under STATUS; otherwise, check the NO-GO block.

Sample DA Form 5164-R (Hands-On Evaluation)

**APPENDIX B - FIELD EXPEDIENT SQUAD BOOK (DA FORM 5165-R)
INSTRUCTION**

**FIELD EXPEDIENT SQUAD BOOK (DA FORM 5165-R)
INSTRUCTIONS
(Excerpted from STP 21-24-SMCT, Appendix C)**

DA Form 5165-R (Field Expedient Squad Book) allows the trainer to keep a record of task proficiency for a group of soldiers.

Before evaluation:

1. Obtain a blank copy of DA Form 5165-R, which you may locally reproduce on 8 ½,, x 11,, paper.
2. Locally reproduce the partially completed form if you are evaluating more than nine soldiers.

During evaluation:

1. Enter the names of the soldiers you are evaluating, one name per column, at the top of the form.
2. Under STATUS, record (in pencil) the date in the GO block if the soldier demonstrated task proficiency to soldier's manual standards. Keep this information current by always recording the most recent date on which the soldier demonstrated task proficiency. Record the date in the NO-GO block if the soldier failed to demonstrate task proficiency to soldier's manual standards. Soldiers who failed to perform the task should be retrained and reevaluated until they can meet the standards. When the standards are met, enter the date in the appropriate GO block and erase the previous entry from the NO-GO block.

After evaluation:

1. Read down each column (GO/NO-GO) to determine the training status of an individual. This will give you a quick indication of which tasks a soldier needs training on.
2. Read across the rows for each task to determine the training status of all soldiers. You can readily see which tasks to focus training on.
3. Line through the STATUS column of any soldier who leaves the unit.

GLOSSARY

Section I

Acronyms & Abbreviations

AAR	After action report; after action review; administrative adjustment report
ACCP	The Army Correspondence Course Program
AIT	Advanced Individual Training
ALC	Advanced Leaders Course
AN	Annually (frequency code)
ASI	Additional skill Identifier
AR	Armor; Army regulation
BDAR	Battle damage assessment and repair
CBRN	Chemical, biological, radiological, and nuclear
DA FORM	Department of the Army
DA PAM	Department of the Army pamphlet
FM	Field Manual; frequency modulated modulation
HEMTT	Heavy Expanded Mobility Tactical Truck
IETM	Interactive Electronic Technical Manual
MLRS	Multiple Launch Rocket System
MOPP	Mission-oriented Protective Posture
MOS	Military Occupational Specialty
MST	Maintenance Support Team
NCO	Noncommissioned Officer
NCOES	NCO Education System
NCOIC	Noncommissioned Officer in Charge
OPORD	Operation Order
PMCS	Preventive Maintenance Checks and Services
SL	Skill Level
SLC (Senior Leaders Course)	This acronym replaces ANCOC (Advanced Non Commissioned Officer Course)
SM	Soldier's Manual; service member
SM/TG	Soldier's Manual/Trainer's Guide
STP	Soldier Training Plan
SOP	Standing Operating Procedure
TM	technical manual
TRADOC	United States Army Training and Doctrine Command

Section II

Terms

Collective training

Training, either in institutions or units, that prepares cohesive teams and units to accomplish their missions on the battlefield and in operations other than war.

Critical task

A task which is essential for accomplishment of successful individual skill performance.

Duty Position

Duty positions are determined by military occupational specialties (MOSs), which are subdivided into five major skill levels (SLs). These SLs are further subdivided into related individual tasks which identify a Soldier's SL or job.

REFERENCES

REQUIRED PUBLICATIONS

Required publications are sources that users must read in order to understand or to comply with this publication. Most Army doctrinal and training publications are available online: www.apd.army.mil.

Joint Publications

Most joint publications are available online:
www.dtic.mil/doctrine/new_pubs/jointpub.htm.

JP 1-02 *Department Of Defense Dictionary Of Military And Associated Terms* 8 November 2010.

Department of Defense Interactive Electronic Technical Manuals

Web site for these manuals at: <https://liw.logsa.army.mil>

EM 0185 TM 9-1425-646-13&P, Interactive Electronic Technical Manual (IETM) for Multiple Launch Rocket System (MLRS) (SB 740-92-15, SB 742-1340-92-011, TB 9-1425-646-14-1, TB 9-1425-646-14-2, TM 43-0003-34, TM 9-1055-648-40, TM 9-1425-646-13&P, TM 9-1425-646-L, TM 9-1425-648-13&P, TM 9-4935-646-13&P, TM 9-5411-647-30, TM 9-6920-647-13&P, TM 9-7440-648-12)

EM 0208 TM 9-1055-647-13&P, Interactive Electronic Technical Manual (IETM) M270A1 Launcher And M993/M993A1 Carrier Multiple Launch Rocket System (TM 9-1055-647-13&P, TM 9-1055-647-13&P, TM 9-1425-646-L, TM 9-1425-646-L, TM 9-4935-646-13&P, TM 9-6920-647-13&P, TM 9-6920-647-13&P)

Department of the Army Publications

ADRP 1-02 *Terms And Military Symbols* 24 September 2013.

ADRP 7-0 *Training Units And Developing Leaders* 23 August 2012.

AR 380-67 *Personnel Security Program* 24 January 2014.

AR 601-210 *Active And Reserve Components Enlistment Program* 8 February 2011.

DA PAM 750-8 *The Army Maintenance Management System (Tamms) Users Manual* 22 August 2005.

STP 21-24-SMCT *Soldier's Manual Of Common Tasks (SMCT) Warrior Leader Skill Level 2, 3, and 4* 9 September 2008.

TM 9-243 *Use And Care of Hand Tools and Measuring Tools* {M6290-AJ-MAN-010; TO 32-1-101; TM-10209-10/1} 1 December 2004.

TM 9-1055-647-13&P *Interactive Electronic Technical Manual (IETM) for M270A1 Launcher and M993/M993A1 Carrier Multiple Launch Rocket System (This Item is Included on EM 0208)* 9 January 2013.

TM 9-1055-1646-13&P *Interactive Electronic Technical Manual (IETM) For High Mobility Artillery Rocket System (Himars) (This Item Is Included On EM 0259) {TM 10937A-OD}* 14 January 2013.

TM 9-1410-644-40&P *General Support Maintenance Manual Including Repair Parts and Special Tools List and Surveillance for Army TACMS, Guided Missile and Launching Assembly: M39 (BLOCK I) (NSN 1427-01-274-3904) (EIC: QSD) (PL81) (1427-00-000-0195) (EIC: N/A) (PL81) (1427-01-386-3113) (EIC: N/A) (PL81) M39A1:(BLOCK IA) (1427-01-398-6538) DODIC PL38 (EIC: N/A) (1427-01-463-0001) DODIC PL38 (EIC: N/A) M48: (QUICK REACTION UNITARY) (1427-01-480-8516) DODIC PL65 (EIC: N/A) M39A3: (BLOCK II) (1427-01-439-8639) DODIC PL47 (EIC: N/A) XM52 (BLOCK II SRP) PN 13331600 (ARMY TACTICAL MISSILE SYSTEM) (THIS ITEM IS INCLUDED ON EM 0184)* 15 May 2014.

TM 9-1425-646-10 *Operator's Manual for Launcher, Rocket, Armored Vehicle Mounted: M270 Part NO. 13029700-201 (1055-01-192-0358) Multiple Launch Rocket System (Reprinted W/Basic INCL C1-9) (NG) (IL)* 15 May 2014.

TM 9-1425-648-13&P *Operator, Organizational, and Direct Support Maintenance Instructions, Destruction of Materials to Prevent Enemy use Battlefield Damage Assessment and Repair, Repair Parts and Special Tools List for Launcher, Rocket, Armored Vehicle Mounted: M270 (NSN 1055-01-329-6826) EIC: QBU, Part Number 13029700-203 (This Item Is Included On EM 0185)* 15 June 2006.

TM 9-4935-1644-40&P *General Support Maintenance Instructions (Including Repair Parts and Special Tools List) for Test Set, Guided Missile: AN/TSM-207, Part Number 13366124 (NSN 4935-01-422-3135) (EIC: QSF) (Army Tactical Missile System) (This Item Is Included EM 0184)* 15 May 2014.

RELATED PUBLICATIONS

None.

PRESCRIBED FORMS

None.

REFERENCED FORMS

Unless otherwise indicated, DA forms are available on the Army Publishing Directorate (APD) Web site (<http://www.apd.army.mil>).

DA FORM 2028 *Recommended Changes to Publications and Blank Forms*.

DA FORM 2404 *Equipment Inspection and Maintenance Worksheet.*
DA FORM 2407 *Maintenance Request.*
DA FORM 2415 *Ammunition Condition Report*
DA Form 5164-R *Hands-On Evaluation (LRA)*
DA Form 5165-R *Field Expedient Squad Book*
SF Forms can be found at: <http://www.gsa.gov/portal/forms/type/SF>
SF FORM 364 *Report Of Discrepancy (ROD)*
SF FORM 368 *Product Quality Deficiency Report*

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STP 9-94P1-SM-TG
01 OCTOBER 2014

By order of the Secretary of the Army:

RAYMOND T. ODIERNO
General, United States Army
Chief of Staff

Official:

A handwritten signature in black ink, appearing to read "Gerald B. O'Keefe". The signature is fluid and cursive, with the first name "Gerald" being the most prominent.

GERALD B. O'KEEFE
Administrative Assistant to the
Secretary of the Army
1424705

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