

# Soldier's Manual and Trainer's Guide

## TACTICAL POWER GENERATION SPECIALIST

### MOS 91D

SKILL LEVELS 1/2/3

OCTOBER 2018



**HEADQUARTERS, DEPARTMENT OF THE ARMY**

**DISTRIBUTION RESTRICTION:** Approved for public release; distribution is unlimited. This determination was made on 23 July 2018 by CASCOM SCoE (ATCL-TDF), 2221 Adams Ave, Fort Lee, VA 23801-2102.

**DESTRUCTION NOTICE:** Destroy by any method that will prevent disclosure of contents or reconstruction of the document.

This publication is available at the Army Publishing Directorate site (<https://armypubs.army.mil>), and the Central Army Registry site (<https://atiam.train.army.mil/catalog/dashboard>)

SOLDIER TRAINING  
PUBLICATION  
No. 9-91D13-SM-TG

HEADQUARTERS  
DEPARTMENT OF THE ARMY  
Washington, DC, 12 October 2018

**Soldier's Manual and Trainer's Guide**  
**TACTICAL POWER GENERATION SPECIALIST**  
**MOS 91D**

**SKILL LEVELS 1, 2, and 3**

**TABLE OF CONTENTS**

	<u>PAGE</u>
PREFACE .....	v
<b>CHAPTER 1</b> .....	1-1
Introduction .....	1-1
1.1 General.....	1-1
1.2 Training Requirement .....	1-1
1.3 Battle-Focused Training.....	1-5
1.4 Task Summary Format .....	1-6
1.5 Training Execution.....	1-7
1.6 Training Assessment .....	1-9
1.7 Training Support .....	1-10
<b>CHAPTER 2</b> .....	2-1
Trainer's Guide .....	2-1
2.1 General.....	2-1
2.2 Part One, Section II, Duty Position Training Requirements .....	2-3
2.3 Part Two, Critical Tasks List.....	2-3

**DISTRIBUTION RESTRICTION:** Approved for public release; distribution is unlimited. This determination was made on 23 July 2018 by CASCOM SCoE (ATCL-TDF), 2221 Adams Ave, Fort Lee, VA 23801-2102.

**DESTRUCTION NOTICE:** Destroy by any method that will prevent disclosure of contents or reconstruction of the document.

<b>Chapter 3</b> .....	3-1
MOS/Skill Level Tasks.....	3-1
<b>Skill Level SL1</b> .....	3-1
<b>Subject Area 1: Generator Tasks</b> .....	3-1
091-MCST-1000 Emplace Mobile Electric Power According to Local Tactical Power Grid Design .....	3-1
091-91D-1111 Perform Preventive Maintenance Checks and Service on Tactical Power Systems.....	3-6
091-91D-1101 Correct Malfunction of Control Panel Components on a Tactical Power System .....	3-18
091-91D-1181 Correct Malfunction of Main AC Generator Assembly on a Tactical Power System.....	3-10
091-91D-1182 Correct Malfunction of Electrical Governor System on a Tactical Power System .....	3-13
091-91D-1183 Correct Malfunction of Battery Charging System on the Engine of a Tactical Power System.....	3-15
091-91D-1184 Correct Malfunction of Components of the Lubrication System on a Diesel Engine of a Tactical Power System.....	3-17
091-91D-1185 Correct Malfunction of the Fuel System on a Diesel Engine of a Tactical Power System.....	3-19
091-91D-1186 Correct Malfunction of the Starting System on a Diesel Engine of a Tactical Power System.....	3-21
091-91D-1187 Correct Malfunction on the DC Circuitry of an Arc Welder .....	3-23
091-91D-1188 Perform Procedures to Determine Tactical Power System Selection to Meet a Particular Power Demand .....	3-25
091-91D-1189 Perform Paralleling Procedures on Tactical Power Systems .....	3-28
091-91D-1191 Correct Malfunction of the Cooling System on a Tactical Electric Power System .....	3-31
091-ASIC9-1001 Operate a Hydraulic Pneumatic Mast (ASI C9) .....	3-38
091-ASIC9-1002 Correct Malfunction of a Defective Hydraulic Pneumatic Mast System .....	3-40
091-ASIC9-1003 Perform Preventive Maintenance Checks and Services on a Hydraulic-Pneumatic Mast System .....	3-43
091-ASIC9-1004 Perform Preventive Maintenance Checks and Services on the Electrical Power Plant II .....	3-45
091-ASIC9-1005 Test Operate the Electrical Power Plant III.....	3-47
091-ASIC9-1006 Correct Malfunction on the Electrical System on the Electric Power Plant III .....	3-49
<b>Skill Level SL 2</b> .....	3-51
<b>Subject Area 2: Generator Tasks</b> .....	3-51
091-91D-2001 Emplace Tactical Power System Grid for a Unit/CP/TOC Using AutoDise Produced Plan .....	3-51
091-91D-2002 Inspect Tactical Power Network unit, Command Post, or Tactical Operations Center Central Power Grid Layout .....	3-59

<b>Skill Level SL3</b> .....	3-63
<b>Subject Area 3:Generator Tasks</b> .....	3-63
091-91D-3101 Perform Diagnostic Procedures on the Electrical Control System of a Tactical Power System.....	3-63
091-91D-3102 Perform Diagnostic Procedures on a Voltage Regulator of a Tactical Power System.....	3-67
091-91D-3103 Perform Diagnostic Procedures on Fault Indicator Panel of a Tactical Power System.....	3-70
091-91D-3104 Perform Diagnostic Procedures of Relay Assembly on a Tactical Power System .....	3-73
091-91D-3105 Perform Diagnostic Procedures on a Governor Assembly of a Tactical Power System.....	3-76
091-91D-3106 Perform Diagnostic Procedures on the Main Generator Assembly of a Tactical Power System.....	3-79
091-91D-3107 Perform Diagnostic Procedures on a Battery Charging Alternator of a Tactical Power System.....	3-82
091-91D-3109 Perform Diagnostic Procedures on the Lubrication System of a Tactical Power System.....	3-85
091-91D-3112 Perform Diagnostic Procedures on Glow Plugs of a Diesel Engine of a Tactical Power System.....	3-88
091-91D-3114 Perform Diagnostic Procedures on a Starter Assembly of a Tactical Power System.....	3-91
091-91D-3118 Perform Diagnostic Procedures on the Fuel System of an Engine of a Tactical Power System.....	3-94
091-91D-3119 Perform Diagnostic Procedures on a Cooling System of a Diesel Engine of a Tactical Power System.....	3-97
091-91D-3120 Perform Diagnostic Procedures on the Electrical Control on a Welding Machine .....	3-100
091-91D-3121 Perform Quality Control/Quality Assurance Inspection on a Generator Set of a Tactical Power System.....	3-103
091-91D-3122 Perform Quality Control/Quality Assurance Inspection on a Welding Machine .....	3-105
091-91D-3123 Perform Classification Inspection on a Tactical Power System .....	3-107
091-91D-3124 Perform Classification Inspection on a Welding Machine.....	3-109
091-91D-3126 Perform Diagnostic Procedures on a Load Bank .....	3-111
091-91D-3127 Replace Cylinder Head on a Engine of a Tactical Power System .....	3-114
091-91D-3128 Perform Diagnostic Procedures on the Output Rectifier Assembly on a Welding Machine .....	3-117
091-91D-3129 Perform Diagnostic Procedures on the Range Switch Assembly on a Welding Machine .....	3-120
091-91D-3130 Perform Diagnostic Procedures on the Reactor Assembly on a Welding Machine .....	3-123
091-91D-3131 Assess Unit, Command Post, or Tactical Operations Center Electrical Power Requirements .....	3-126
<b>Chapter 4</b> .....	4-1
Duty Position Task .....	4-1
<b>GLOSSARY</b> .....	Glossary-1
<b>REFERENCES</b> .....	References-1

**FIGURES**

Figure 1-1 Army Training and Leader Development Model..... 1-3  
Figure 2-1 Training Locations..... 2-1  
Figure 2-2 Sustainment Training Frequency Codes..... 2-2  
Figure 2-3 Duty Position Training Requirements..... 2-3  
Figure 2-3 91D Critical Tasks..... 2-5  
Figure 3-1 Autodise Layout..... 3-52  
Figure 4-1 Autodise Layout..... 3-53  
Figure 5-1 Autodise Layout..... 3-54  
Figure 6-1 Autodise Layout Example..... 3-55  
Figure 7-1 Autodise Layout Example..... 3-55  
Figure 8-1 Autodise Layout Example..... 3-56

**TABLES**

Table 1-1 Relationship of Battle-focused Training and STP..... 1-6

## **PREFACE**

This publication is for skill levels 1, 2, and 3 Soldiers holding Military Occupational Specialty (MOS) 91D 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 91D have access to this publication.

This manual applies to both Active and Reserve Component Soldiers.

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.

This page intentionally left blank.



# Chapter 1

## Introduction

### 1.1 General

The Soldier Training Publication (STP) identifies the individual Military Occupational Specialty (MOS) 91D Tactical Power Generation Specialist requirements for Soldiers in various specialties, for example, another source of STP task data is the Central Army Registry at <https://atiam.train.army.mil/catalog/> 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, and ADP 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 ADP 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. Classroom and shop 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, CBRNE-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 Commands (ACOMs), 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 ACOMs 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 (TTP). 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, and 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 warfighting 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. 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 soldiering 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 Soldier's 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 TG 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

<b>BATTLE-FOCUS PROCESS</b>	<b>STP SUPPORT PROCESS</b>
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. ADP 7-0 provides detailed instructions for conducting an AAR and detailed guidance on coaching and critiquing during training.

## **1.7 Training Support**

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

## Chapter 2

### Trainer's Guide

#### 2.1 General

The MOS Training Plan 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 MOS Training Plan should be used as a guide for conducting unit training and not a rigid standard. The MOS Training Plan 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 MOS Training Plan 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 MOS Training Plan. 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 MOS Training Plan.
- 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 and the Leadership Domain (Institutional, Operational, or Self-Development) where the task is first trained to soldier training publications standards. If the task is first trained to standard in the unit, the word "OP" will be in this column. If the task is first trained to standard in the training base, it will identify, by brevity code (S-D, INST), the resident course where the task was taught. Figure 2-1 contains a list of training locations and their corresponding brevity codes.

<b>ASI</b>	Additional Skill Identifier
<b>INST</b>	Institutional
<b>OP</b>	Operational/Unit
<b>S-D</b>	Self-Development

Figure 2-1. Training Locations

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

<b>BA</b>	Biennially
<b>AN</b>	Annually
<b>SA</b>	Semi-annually
<b>QT</b>	Quarterly
<b>BM</b>	Bimonthly
<b>MO</b>	Monthly
<b>BW</b>	Biweekly
<b>WK</b>	Weekly
<b>DA</b>	Daily
<b>HR</b>	Hourly
<b>OT</b>	One time
<b>OTHER</b>	

Figure 2-2. Sustainment Training Frequency Codes

- **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 GENERATOR TASKS

**Skill Level SL2**

2 GENERATOR TASKS

**Skill Level SL3**

3 GENERATOR TASKS

**2.2 Part One, Section II, Duty Position Training Requirements.**

SKILL LEVEL	DUTY POSITION	SUBJECT AREAS	CROSS TRAIN	TRAIN-UP/MERGER
SL1	Tactical Power Generation Specialist	1	NA	91D20/ Tactical Power Generation Specialist
SL2	Tactical Power Generation Specialist	1	NA	91D30/ Tactical Power Generation Specialist
SL3	SR- Tactical Power Generation Specialist	3	NA	91X40/Maintenance Control Sergeant

Figure 2-3 Duty Position Training Requirements

**2.3 Part Two, Critical Tasks List.**

**MOS TRAINING PLAN  
MOS 91D**

**CRITICAL TASKS**

Task Number	Title	Training Location	Sust Tng Freq	Sust Tng Sl
<b>Skill Level SL1</b>				
<b>Subject Area 1 GENERATOR TASKS</b>				
091-MCST-1000	Emplace Mobile Electric Power According to Local Tactical Power Grid Design.	INST/OP	AN	1-3
091- 91D-1111	Perform Preventive Maintenance Checks and Service on Tactical Power Systems.	INST/OP	AN	1-3
091-91D-1101	Correct Malfunction of Control Panel Components on a Tactical Power System.	INST	AN	1-3
091-91D-1181	Correct Malfunction of Main AC Generator Assembly on a Tactical Power Unit.	INST	AN	1-3
091-91D-1182	Correct Malfunction of Electrical Governor System on a Tactical Power System.	INST	AN	1-3
091-91D-1183	Correct Malfunction of Battery Charging System on the Engine of a Tactical Power System.	INST	AN	1-3
091-91D-1184	Correct Malfunction of Components of the Lubrication System on a Diesel Engine of a Tactical Power System.	INST	AN	1-3
091-91D-1185	Correct Malfunction of the Fuel System on a Diesel Engine of a Tactical Power System.	INST	AN	1-3
091-91D-1186	Correct Malfunction of the Starting System on a Diesel Engine of a Tactical Power System.	INST	AN	1-3
091-91D-1187	Correct Malfunction on the DC Circuitry of an Arc Welder.	INST	AN	1-3
091-91D-1188	Perform Procedures to Determine Tactical Power System Selection to Meet a Particular Power Demand.	INST	AN	1-3
091-91D-1189	Perform Paralleling Procedures on Tactical Power Systems.	INST	AN	1-3

091-91D-1191	Correct Malfunction on the Cooling System of a Tactical Power System.	INST	AN	1-3
<b>Subject Area 2 MAST AND ELECTRIC POWER PLANT MAINTENANCE (ASI C-9 ONLY)</b>				
091-ASIC9-1001	Operate a Hydraulic Pneumatic Mast	INST		
091-ASIC9-1002	Correct Malfunction of a Defective Hydraulic Pneumatic Mast System	INST		
091-ASIC9-1003	Perform Preventive Maintenance Checks and Services on a Hydraulic-Pneumatic Mast System	INST		
091-ASIC9-1004	Perform Preventive Maintenance Checks and Services on the Electrical Power Plant III	INST		
091-ASIC9-1005	Test Operate the Electrical Power Plant III	INST		
091-ASIC9-1006	Correct Malfunction on the Electrical System on the Electric Power Plant III	INST		
<b>Skill Level SL2</b>				
<b>Subject Area 2 GENERATOR TASKS</b>				
091-91D-2001	Emplace Tactical Power System Grid for a Unit/CP/TOC Using AutoDise Produced Plan.	S-D	AN	2-3
091-91D-2002	Inspect Tactical Power Network units, Command Post, or Tactical Operations Center Central Power Grid Layout.	S-D	AN	2-3
<b>Skill Level SL3</b>				
<b>Subject Area 3 GENERATOR TASKS</b>				
091-91D-3101	Perform Diagnostic Procedures on the Electrical Control System of a Tactical Power System	INST	AN	3
091-91D-3102	Perform Diagnostic Procedures on a Voltage Regulator of a Tactical Power System.	INST	AN	3
091-91D-3103	Perform Diagnostic Procedures on Fault Indicator Panel of a Tactical Power System.	INST	AN	3
091-91D-3104	Perform Diagnostic Procedures of Relay Assembly on a Tactical Power System.	INST	AN	3
091-91D-3105	Perform Diagnostic Procedures on a Governor Assembly of a Tactical Power System.	INST	AN	3
091-91D-3106	Perform Diagnostic Procedures on the Main Generator Assembly of a Tactical Power System.	INST	AN	3
091-91D-3107	Perform Diagnostic Procedures on a Battery Charging Alternator of a Tactical Power System.	INST	AN	3
091-91D-3109	Perform Diagnostic Procedures on the Lubrication System of a Tactical Power System.	INST	AN	3
091-91D-3112	Perform Diagnostic Procedures on Glow Plugs of a Diesel Engine of a Tactical Power System.	INST	AN	3
091-91D-3114	Perform Diagnostic Procedures on a Starter Assembly of a Tactical Power System.	INST	AN	3
091-91D-3118	Assess Unit, Command Post, or Tactical Operations Center Electrical Power Requirements.	INST	AN	3
091-91D-3119	Perform Diagnostic Procedures on a Cooling System of a Diesel Engine of a Tactical Power System. P	INST	AN	3
091-91D-3120	Perform Diagnostic Procedures on the Electrical Control on a Welding Machine.	INST	AN	3
091-91D-3121	Perform Quality Control/Quality Assurance Inspection on a Generator Set of a Tactical Power System.	INST	AN	3

091-91D-3122	Perform Quality Control/Quality Assurance Inspection on a Welding Machine.	INST	AN	3
091-91D-3123	Perform Classification Inspection on a Tactical Power System.	INST	AN	3
091-91D-3124	Perform Classification Inspection on a Welding Machine.	INST	AN	3
091-91D-3126	Perform Diagnostic Procedures on a Load Bank.	INST	AN	3
091-91D-3127	Replace Cylinder Head on a Engine of a Tactical Power System.	INST	AN	3
091-91D-3128	Perform Diagnostic Procedures on the Output Rectifier Assembly on a Welding Machine.	INST	AN	3
091-91D-3129	Perform Diagnostic Procedures on the Range Switch Assembly on a Welding Machine..	INST	AN	3
091-91D-3130	Perform Diagnostic Procedures on the Reactor Assembly on a Welding Machine.	INST	AN	3
091-91D-3131	Assess Unit, Command Post, or Tactical Operations Center Electrical Power Requirements.	INST	AN	3

Figure 2-4 91D Critical Tasks

This page intentionally left blank.



## Chapter 3

### MOS/Skill Level Tasks

Skill Level SL1

Subject Area 1: GENERATOR TASKS

091-MCST-1000

Emplace Mobile Electric Power According to Local Tactical Power Grid Design

#### **DANGER**

DO NOT OPERATE GENERATOR OR EQUIPMENT UNLESS PROPERLY GROUNDED FIRST! HIGH VOLTAGES ARE PRESENT WHEN GENERATOR IS RUNNING! NEVER ATTEMPT TO CONNECT/DISCONNECT GENERATOR CABLES WHILE GENERATOR IS RUNNING! DO NOT ATTEMPT REPAIR OF THE GENERATOR WHILE IT IS RUNNING.

#### **WARNING**

USE EYE PROTECTION AND GLOVES! BE CAUTIOUS OF LOOSE CLOTHING OR LANYARDS! REMOVE IDENTIFICATION TAGS (DOG TAGS)!

#### **CAUTION**

Remove all rings, watches, and jewelry. Do not operate generator equipment in an enclosed area unless the area is adequately ventilated. Smoking, sparks, or open flames are not allowed within 50 feet of a generator set that is undergoing fuel system maintenance. Use care when handling fan and radiator. Sharp edges can cause injury. Dry-cleaning solvent is flammable and should not be used in the vicinity of sparks or open flame. When using compressed air, wear eye shields. Do not remove a radiator cap or surge tank cap unless the engine is cool. While working on battery systems, wear rubber gloves and goggles. Before working on the exhaust system, make sure it is cool. Disconnect the negative battery cable prior to performing any electrical system maintenance or when performing repairs in the locality of electrical components. While cutting metal with an oxyacetylene torch, wear leather gloves, leather apron, and welding goggles. When working around engines that are operating, wear hearing protection. When removing components over 75 pounds, two personnel are required. Do not smoke or use an open flame in the vicinity when filling a fuel tank. Do not operate generator set unless ground terminal stud has been connected to a suitable ground. Do not attempt to alter the

position of the voltage reconnection board while the generator set is operating. Do not attempt to connect or disconnect load leads while the generator set is operating. Be careful not to inhale ether gas. Do not allow a crated generator set to swing while it is suspended.

**Conditions:** In an operational environment, as a tactical power generator operator/repairer, assigned or in support of a tactical power operations, given AUTODISE network management plan/Grid Layout or power grid plan, hearing protection, tactical mobile electric power with references, power distribution and illumination equipment (PDISE) or equivalent. As part of preparation for deployment or during deployment, your staff personnel requires you to install or modify current power grid for assigned element.

**Standards:** Install equipment as laid out in power grid plan. When installation is complete, all systems are operable to include a safe efficient balanced load without negative impact to mission. Grid operates within optimal power distribution (and power generation) parameters.

**Special Condition:** None

**Special Standards:** None

**Special Equipment:**

**Cue:** A field unit's power distribution system requires design and set up.

**Note:** Task may be taught, supported and evaluated in multiple lessons.

Equipment identified at the task may not reflect what is required in the formal training environment.

Trained at the institution for 91D.

Trained at the unit for operators.

### **Performance Steps**

1. Perform before operations PMCS

### **CAUTION**

1. Always keep fire extinguishers readily available to the generators.
2. Always place drip pans underneath generators
3. Keep fuel cans and other flammable items clear of the power plant area (at least 15 feet away).

4. Ensure landing legs, outriggers, chock blocks, and hand brakes are extended, engaged, and applied.
5. Always keep generator access doors closed during operation.
6. Keep power plant area clear at all times.

2. Emplace power plants

**Note:** Position generators side by side and in an area where all cables can reach their designated PDISE connections without restrictions. Keep generators as level as possible and at no more than a 15 degree angle (slope).

- a. Generator set "A"
- b. Generator set "B"

3. Ground power plants.

- a. Dig a hole in the area where you intend to place the ground rod, one foot in diameter and one foot deep to provide a place to put salt and drive your ground rod deeper to lower resistance.

- b. Ensure that the three-segmented ground rods are at least eight feet in the ground and no more than 1 foot exposed.

- c. Ensure ground cable (#6AWG) is connected to the GND of the TB1 (load output terminals), to the chassis of the trailer (bonded) and then to the ground rod.

- d. Ensure ALL connections are securely fastened. IE: ground rod clamps, chassis ground stud, and ground terminal (TB1).

- e. Place ground rod as close to the generator as possible.

- f. Ensure all connections are connected to bare metal.

- g. Trench around ground rod so that rainwater or condensate drain will flow into the hole when possible.

4. Install all interconnecting cables.

- a. Connect Inter-connecting cable from generator set "B" to transfer/switch box on generator set "A"

- b. Inter-connecting cable from generator set "B" to transfer/switch box (load contactor control).

- c. Connect paralleling cable between each generator set.

- d. Ensure Transfer/Switch box load contactor switch is open.

- e. Install 100amp pigtails to the transfer/switch box
- f. Install 50ft feeder cables to the 100amp pigtail
- 5. Emplace PDISE components
  - a. Emplace the M100 PDISE feeder boxes
  - b. Install 50ft feeder cables from the M100 PDISE box to the M40 PDISE and from the M100 to the tactical shelters
  - c. Install all extension cables, outlet boxes and light sets from the M46 kit
- 6. Perform during operations PMCS
- 7. Perform paralleling procedures
- 8. Balance the load
- 9. Perform after operations PMCS

**Evaluation Preparation:** TBD

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
1. Performed operator's before operations check PMCS	_____	_____
2. Emplaced power plants.	_____	_____
3. Grounded power plants.	_____	_____
4. Installed all interconnecting cables.	_____	_____
5. Emplaced PDISE components.	_____	_____
6. Performed operational test.	_____	_____
7. Performed PMCS.	_____	_____

**Evaluation Guidance:** The Soldier scores a GO if all performance measures were passed. The Soldier scores a NO-GO if any performance measure was failed. If any performance measure was failed show the Soldier what was done wrong and how it should have been done to score a GO.

**References Required**

- TM 9-6115-643-10
- TM 9-6115-643-24
- TM 9-6115-751-10

**Primary**

**Required**  
TM 9-6115-751-24&P  
AR 600-55  
TC 6-02.6

**Primary**

**091-91D-1111**

**Perform Preventive Maintenance Checks and Services on  
Tactical Power Systems**

**Conditions:** In an operational environment, given a tactical power system, optical anti freeze tester, battery, goggles, apron, general mechanic's tool kit, rags, DA Form 5988-E Equipment Maintenance and Inspection Worksheet (EGA), applicable technical publications and forms, hearing protection, and with supervision/assistance.

**Standards:** Perform preventive maintenance checks and services (PMCS) on a tactical power system in accordance with the applicable technical publications and performance measures. When this task is complete, all shortcomings and deficiencies have been identified on the proper maintenance forms.

**Special Condition:** None

**Special Standards:** None

**Special Equipment:**

**Cue:** The tactical power system requires schedule maintenance and service.

**Note:** Task may be taught, supported and evaluated in multiple lessons. Equipment identified at the task may not reflect what is required in the formal training environment.

**Performance Steps**

1. Select and use applicable publications.
2. Select and used applicable tools to perform PMCS on a tactical power system.
3. Practice shop safety and maintenance discipline.
4. Perform before-operation PMCS on a tactical power system.
5. Operate the tactical power system.
6. Perform during-operation PMCS.
7. Shut down the tactical power system.
8. Perform after-operation PMCS.
9. Ensure required maintenance forms have been completed.
10. Maintain tools and equipment.

**Evaluation Preparation:** Ensure all equipment and special tools are available before evaluation. All initial set up and equipment conditions must be performed in accordance with appropriate references to successfully complete the task.

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
1. Selected and used applicable publications.	_____	_____
2. Selected and used applicable tools to perform PMCS on a tactical power system.	_____	_____
3. Practiced shop safety and maintenance discipline.	_____	_____
4. Performed before-operation PMCS on a tactical power system.	_____	_____
5. Operated the tactical power system.	_____	_____
6. Performed during-operation PMCS.	_____	_____
7. Shut down the tactical power system.	_____	_____
8. Performed after-operation PMCS.	_____	_____
9. Ensured required maintenance forms had been completed.	_____	_____
10. Maintained tools and equipment.	_____	_____

**Evaluation Guidance:** Score the Soldier GO if all performance measures were passed. Score the Soldier NO GO if any performance measure was failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly, and have the Soldier repeat the task.

**References**

**Required**

**Primary**

- TM 9-6115-643-10
- TM 9-6115-643-24
- TM 9-6115-751-10
- TM 9-6115-751-24&P
- DA FORM 5988-E Equipment Maintenance and Inspection Worksheet (EGA)

**091-91D-1101**  
**Correct Malfunction of Control Panel Components on a  
Tactical Power System**

**Conditions:** In an operational environment, given a tactical power system, maintenance request or equipment inspection worksheet describing equipment malfunctions, general mechanic's tool kit, digital multimeter, hearing protection, applicable technical publications, and with assistance.

**Standards:** Correct malfunction of control panel components on a tactical power system in accordance with the applicable technical publications and performance measures. When the task is completed, the power system must be fully mission-capable.

**Special Condition:** None

**Special Standards:** None

**Special Equipment:**

**Cue:** The tactical power system control system will not indicate normal readings.

**Note:** Under performance measures, add steps to also diagnose DCS systems fault indicator panels, special relay box. Task may be taught, supported and evaluated in multiple lessons. Equipment identified at the task may not reflect what is required in the formal training environment.

**Performance Steps**

1. Select and use applicable publications.
2. Select and use applicable tools and test, measurement, and diagnostic equipment (TMDE).
3. Practice shop safety and maintenance discipline.
4. Inspect the control panel components on a tactical power system.
5. Test the control panel components.
6. Repair control panel components as required.
  - a. Diagnose DCS systems fault indicator panels.
  - b. Diagnose special relay box.
7. Replace control panel components as required.
8. Perform a final operational test to verify fault(s) have been corrected.



- 9. Ensure required maintenance forms have been completed.
- 10. Maintain tools and equipment.

**Evaluation Preparation:** Ensure all equipment and special tools are available before evaluation. All initial set up and equipment conditions must be performed in accordance with appropriate references to successfully complete the task.

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
1. Selected and used applicable publications.	_____	_____
2. Selected and used applicable tools and TMDE.	_____	_____
3. Practiced shop safety and maintenance discipline.	_____	_____
4. Inspected the control panel components on a tactical power system.	_____	_____
5. Tested the control panel components.	_____	_____
6. Repaired control panel components, as required.	_____	_____
7. Replaced control panel components, as required.	_____	_____
8. Performed a final operational test to verify fault(s) have been corrected.	_____	_____
9. Ensured required maintenance forms have been completed.	_____	_____
10. Maintained tools and equipment.	_____	_____

**Evaluation Guidance:** Score the Soldier GO if all performance measures were passed. Score the Soldier NO GO if any performance measure was failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly, and have the Soldier repeat the task.

**References**

**Required**

**Primary**

- TM 9-6115-643-10
- TM 9-6115-643-24
- TM 9-6115-751-10
- TM 9-6115-751-24&P
- DA FORM 5988-E( EGA)
- DA FORM 5990-E( EGA)

**091-91D-1181**  
**Correct Malfunction of Main AC Generator Assembly on a  
Tactical Power System**

**Conditions:** In an operational environment, given a tactical power system, maintenance request or equipment inspection worksheet describing equipment malfunctions, or external power supply, direct current (DC) power supply, general mechanic's tool kit, digital multimeter, hearing protection, applicable technical publications, and with assistance.

**Standards:** Correct malfunction of main generator assembly on a tactical power system in accordance with the applicable technical publications and performance measures. When the task is completed, the tactical power system must be fully mission-capable.

**Special Condition:** None

**Special Standards:** None

**Special Equipment:**

**Cue:** The tactical power system is not producing Alternating Current (AC) output.

**Note:** None

**Performance Steps**

1. Select and use applicable publications.
2. Select and use applicable tools and test, measurement, and diagnostic equipment (TMDE).
3. Practice shop safety and maintenance discipline.
4. Inspect the main generator assembly on a tactical power system.
5. Test the main generator assembly.
6. Diagnose electrical faults on a tactical power system.
  - a. Troubleshoot the excitation system as applicable.
  - b. Test AC Control/Fault Indicator Panel, Special Relay Assembly on a 60Kw Generator as applicable.
  - c. Diagnose AC motors as applicable.
  - d. Diagnose parallel circuits as applicable.
  - e. Diagnose series circuits as applicable.
  - f. Diagnose Electrical/Protection Devices as applicable.

- g. Diganose three phase circuits as applicable.
- 7. Repair main generator assembly, as required.
- 8. Replace main generator assembly, as required.
- 9. Perform a final operational test to verify fault(s) have been corrected.
- 10. Ensure required maintenance forms have been completed.
- 11. Maintain tools and equipment.

**Evaluation Preparation:** Ensure all equipment and special tools are available before evaluation. All initial set up and equipment conditions must be performed in accordance with appropriate references to successfully complete the task.

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
1. Selected and used applicable publications.	_____	_____
2. Selected and used applicable tools and TMDE.	_____	_____
3. Practiced shop safety and maintenance discipline.	_____	_____
4. Inspected the main generator assembly on a tactical power system.	_____	_____
5. Tested the main generator assembly.	_____	_____
6. Diagnosed electrical faults on a tactical power system.	_____	_____
7. Repaired main generator assembly, as required.	_____	_____
8. Replaced main generator assembly, as required.	_____	_____
9. Performed a final operational test to verify fault(s) have been corrected.	_____	_____
10. Ensured required maintenance forms have been completed.	_____	_____
11. Maintained tools and equipment.	_____	_____

**Evaluation Guidance:** Score the Soldier GO if all performance measures were passed. Score the Soldier NO GO if any performance measure was failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly, and have the Soldier repeat the task.

**References**

- Required**
- TM 9-6115-643-10
- TM 9-6115-643-24

**Primary**

TM 9-6115-751-10  
TM 9-6115-751-24&P  
DA FORM 5988-E(EGA)  
DA FORM 5990-E(EGA)

**091-91D-1182****Correct Malfunction of Electrical Governor System on a Tactical Power System**

**Conditions:** In an operational environment, given a tactical power system, maintenance request or equipment inspection worksheet describing equipment malfunctions, general mechanic's tool kit, digital multimeter, hearing protection, applicable technical publications, and assistance.

**Standards:** Correct malfunction of electrical governor on a tactical power system in accordance with applicable technical publications and performance measures. When the task is completed, the tactical power system must be fully mission-capable.

**Special Condition:** None

**Special Standards:** None

**Special Equipment:**

**Cue:** None

**Note:** Equipment identified at the task may not reflect what is required in the training environment.

**Performance Steps**

1. Select applicable publications.
2. Select and use applicable tools and test, measurement, and diagnostic equipment (TMDE).
3. Practice shop safety and maintenance TMDE.
4. Inspect the electrical governor on a tactical power system.
5. Test the electrical governor.
  - a. Diagnose the DC/AC Output Systems on a tactical power system as applicable.
  - b. Diagnose the Electronic Governor System on a tactical power system as applicable.
  - c. Diagnose AC Current Circuits.
6. Repair electrical governor, as required.
7. Replace electrical governor, as required.
8. Perform a final operational test to verify fault(s) have been corrected.
9. Ensure required maintenance forms have been completed.

10. Maintain tools and equipment.

**Evaluation Preparation:** Ensure all equipment and special tools are available before evaluation. All initial set up and equipment conditions must be performed in accordance with appropriate references to successfully complete the task.

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
1. Selected applicable publications.	_____	_____
2. Selected and used applicable tools and TMDE.	_____	_____
3. Practiced shop safety and maintenance TMDE.	_____	_____
4. Inspected the electrical governor on a tactical power system.	_____	_____
5. Tested the electrical governor.	_____	_____
6. Repaired electrical governor, as required.	_____	_____
7. Replaced electrical governor, as required.	_____	_____
8. Performed a final operational test to verify fault(s) have been corrected.	_____	_____
9. Ensured required maintenance forms have been completed.	_____	_____
10. Maintained tools and equipment.	_____	_____

**Evaluation Guidance:** Score the Soldier GO if all performance measures were passed. Score the Soldier NO GO if any performance measure was failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly, and have the Soldier repeat the task.

**References  
Required**

**Primary**

- TM 9-6115-643-10
- TM 9-6115-643-24
- TM 9-6115-751-10
- TM 9-6115-751-24&P
- DA FORM 5988-E(EGA)
- DA FORM 5990-E(EGA)

**091-91D-1183**  
**Correct Malfunction of Battery Charging System on the Engine of a Tactical Power System**

**Conditions:** In an operational environment, given a tactical power system, maintenance request or equipment inspection worksheet describing equipment malfunctions, general mechanic's tool kit, schematic and wiring diagram, digital multimeter, hearing protection, applicable technical publications, and with minimal assistance.

**Standards:** Correct malfunction of battery charging alternator on a tactical power system in accordance with the applicable technical publications and performance measures. When the task is completed, the tactical power system must be fully mission-capable.

**Special Condition:** None

**Special Standards:** None

**Special Equipment:**

**Cue:** None

**Note:** Task may be taught, supported and evaluated in multiple lessons. Equipment identified at the task may not reflect what is required in the formal training environment.

**Performance Steps**

1. Select and used applicable publications.
2. Select and use applicable tools and test, measurement, and diagnostic equipment (TMDE).
3. Practice shop safety and maintenance discipline.
4. Inspect the battery charging alternator.
5. Test the battery charging alternator.
  - a. Diagnose the DC/AC Output Systems on a 3Kw TQG Set as applicable.
  - b. Diagnose DED DC Circuitry as applicable.
  - c. Diagnose TQG DC Circuits as applicable.
  - d. Diagnose AC Generators as applicable.
6. Repair battery charging alternator, as required.
7. Replace battery charging alternator, as required.
8. Perform a final operational test to verify fault(s) have been corrected.

- 9. Ensure required maintenance forms have been completed.
- 10. Maintain tools and equipment.

**Evaluation Preparation:** Ensure all equipment and special tools are available before evaluation. All initial set up and equipment conditions must be performed in accordance with appropriate references to successfully complete the task.

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
1. Selected and used applicable publications.	_____	_____
2. Selected and used applicable tools and TMDE.	_____	_____
3. Practiced shop safety and maintenance discipline.	_____	_____
4. Inspected the battery charging alternator.	_____	_____
5. Tested the battery charging alternator.	_____	_____
6. Repaired battery charging alternator, as required.	_____	_____
7. Replaced battery charging alternator, as required.	_____	_____
8. Performed a final operational test to verify fault(s) have been corrected.	_____	_____
9. Ensured required maintenance forms have been completed.	_____	_____
10. Maintained tools and equipment.	_____	_____

**Evaluation Guidance:** Score the Soldier GO if all performance measures were passed. Score the Soldier NO GO if any performance measure was failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly, and have the Soldier repeat the task.

**References  
Required**

- TM 9-6115-641-10
- DA FORM 5988-E(EGA)
- DA FORM 5990-E(EGA)

**Primary**



**091-91D-1184****Correct Malfunction of Components of the Lubrication System on a Diesel Engine of a Tactical Power System**

**Conditions:** In an operational environment, given a tactical power system, maintenance request or equipment inspection worksheet describing equipment malfunctions, general mechanic's tool kit, hearing protection, applicable technical publications, and with minimal assistance.

**Standards:** Correct malfunction of lubrication system of a tactical power system in accordance with the applicable technical publications and performance measures. When the task is completed, the tactical power system must be fully mission-capable.

**Special Condition:** None

**Special Standards:** None

**Special Equipment:**

**Cue:** None

**Note:** Task may be taught, supported and evaluated in multiple lessons. Equipment identified at the task may not reflect what is required in the formal training environment.

**Performance Steps**

1. Select and use applicable publications.
2. Select and use applicable tools and test, measurement, and diagnostic equipment (TMDE).
3. Practice shop safety and maintenance discipline.
4. Inspect the lubrication system.
5. Diagnose the lubrication system.
6. Test the lubrication system.
7. Repair lubrication system as required.
8. Perform a final operational test to verify fault(s) have been corrected.
9. Ensure required maintenance forms have been completed.
10. Maintain tools and equipment.

**Evaluation Preparation:** Ensure all equipment and special tools are available before evaluation. All initial set up and equipment conditions must be performed in accordance with appropriate references to successfully complete the task.

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
1. Selected and used applicable publications.	_____	_____
2. Selected and used applicable tools and TMDE.	_____	_____
3. Practiced shop safety and maintenance discipline.	_____	_____
4. Inspected the lubrication system.	_____	_____
5. Diagnosed the lubrication system.	_____	_____
6. Tested the lubrication system.	_____	_____
7. Repaired lubrication system as required.	_____	_____
8. Performed a final operational test to verify fault(s) have been corrected.	_____	_____
9. Ensured required maintenance forms have been completed.	_____	_____
10. Maintained tools and equipment.	_____	_____

**Evaluation Guidance:** Score the Soldier GO if all performance measures were passed. Score the Soldier NO GO if any performance measure was failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly, and have the Soldier repeat the task.

**References  
Required**

**Primary**

- TM 9-6115-643-10
- TM 9-6115-643-24
- TM 9-6115-751-10
- TM 9-6115-751-24&P
- DA FORM 5988-E(EGA)
- DA FORM 5990-E(EGA)

**091-91D-1185****Correct Malfunction of the Fuel System on a Diesel Engine of a Tactical Power System**

**Conditions:** In an operational environment, given a tactical power system, maintenance request or equipment inspection worksheet describing equipment malfunctions, general mechanic's tool kit, hearing protection, applicable technical publications, and with minimal assistance.

**Standards:** Correct malfunction of fuel transfer pump on a diesel engine on a tactical power system in accordance with the applicable technical publications and performance measures. When the task is completed, the tactical power system must be fully mission-capable.

**Special Condition:** None

**Special Standards:** None

**Special Equipment:**

**Cue:** None

**Note:** Task may be taught, supported and evaluated in multiple lessons. Equipment identified at the task may not reflect what is required in the formal training environment.

**Performance Steps**

1. Select and use applicable publications.
2. Select and use applicable tools.
3. Practice shop safety and maintenance discipline.
4. Inspect the fuel transfer pump on a diesel engine.
5. Test fuel transfer pump.
  - a. Diagnose the fuel system on a 5/10 KW tactical power system.
  - b. Time the fuel injection pump as applicable.
  - c. Conduct compression test and injector maintenance as applicable.
6. Repair fuel transfer pump, as required.
7. Replace fuel transfer pump, as required.
8. Perform a final operational test to verify fault(s) have been corrected.
9. Ensure required maintenance forms have been completed.

10. Maintain tools and equipment.

**Evaluation Preparation:** Ensure all equipment and special tools are available before evaluation. All initial set up and equipment conditions must be performed in accordance with appropriate references to successfully complete the task.

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
1. Selected and used applicable publications.	_____	_____
2. Selected and used applicable tools.	_____	_____
3. Practiced shop safety and maintenance discipline.	_____	_____
4. Inspected the fuel transfer pump on a diesel engine.	_____	_____
5. Tested fuel transfer pump.	_____	_____
6. Repaired fuel transfer pump, as required.	_____	_____
7. Replaced fuel transfer pump, as required.	_____	_____
8. Performed a final operational test to verify fault(s) have been corrected.	_____	_____
9. Ensured required maintenance forms have been completed.	_____	_____
10. Maintained tools and equipment.	_____	_____

**Evaluation Guidance:** Score the Soldier GO if all performance measures were passed. Score the Soldier NO GO if any performance measure was failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly, and have the Soldier repeat the task.

**References**

**Required**

**Primary**

- TM 9-6115-643-10
- TM 9-6115-643-24
- TM 9-6115-751-10
- TM 9-6115-751-24&P
- TM 9-6115-641-10
- TM 9-6115-642-10
- DA FORM 5988-E(EGA)
- DA FORM 5990-E(EGA)

**091-91D-1186**  
**Correct Malfunction of the Starting System on a Diesel Engine of a Tactical Power System**

**Conditions:** In an operational environment, given a tactical power system, maintenance request or equipment inspection worksheet describing equipment malfunctions, general mechanic's tool kit, schematics and wiring diagram, digital multimeter, hearing protection, applicable technical publications, and with minimum assistance.

**Standards:** Correct malfunction of the starter assembly on a tactical power system in accordance with the applicable technical publications and performance measures. When the task is completed, the tactical power system must be fully mission-capable.

**Special Condition:** None

**Special Standards:** None

**Special Equipment:**

**Cue:** None

**Note:** Task may be taught, supported and evaluated in multiple lessons. Equipment identified at the task may not reflect what is required in the formal training environment.

**Performance Steps**

1. Select and use applicable publications.
2. Select and use applicable tools and test, measurement, and diagnostic equipment (TMDE).
3. Practice shop safety and maintenance discipline.
4. Inspect the starter assembly.
5. Diagnose the starter assembly.
6. Repair starter assembly, as required.
7. Replace starter assembly, as required.
8. Perform a final operational test to verify fault(s) have been corrected.
9. Ensure required maintenance forms have been completed.
10. Maintain tools and equipment.

**Evaluation Preparation:** Ensure all equipment and special tools are available before evaluation. All initial set up and equipment conditions must be performed in accordance with appropriate references to successfully complete the task.

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
1. Selected and used applicable publications.	_____	_____
2. Selected and used applicable tools and TMDE.	_____	_____
3. Practiced shop safety and maintenance discipline.	_____	_____
4. Inspected the starter assembly.	_____	_____
5. Diagnosed the starter assembly.	_____	_____
6. Repaired starter assembly, as required.	_____	_____
7. Replaced starter assembly, as required.	_____	_____
8. Performed a final operational test to verify fault(s) have been corrected.	_____	_____
9. Ensured required maintenance forms have been completed.	_____	_____
10. Maintained tools and equipment.	_____	_____

**Evaluation Guidance:** Score the Soldier GO if all performance measures were passed. Score the Soldier NO GO if any performance measure was failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly, and have the Soldier repeat the task.

**References**

**Required**

**Primary**

- TM 9-6115-643-10
- TM 9-6115-643-24
- TM 9-6115-751-10
- TM 9-6115-751-24&P
- TM 9-6115-641-10
- TM 9-6115-642-10
- DA FORM 5988-E(EGA)
- DA FORM 5990-E(EGA)

**091-91D-1187****Correct Malfunction on the DC Circuitry of an Arc Welder**

**Conditions:** In an operational environment, given an arc welder, general mechanic's tool kit, schematic and wiring diagrams, digital multimeter, clean rags, hearing protection, applicable technical publications and forms, and with minimum assistance.

**Standards:** Correct malfunction on a DC Arc Welder in accordance with technical publications and performance measures. When the task is complete, the DC Arc Welder will be fully mission capable.

**Special Condition:** None

**Special Standards:** None

**Special Equipment:**

**Cue:** None

**Note:** Task may be taught, supported and evaluated in multiple lessons. Equipment identified at the task may not reflect what is required in the formal training environment.

**Performance Steps**

1. Select and use applicable publications.
2. Select and use applicable tools.
3. Practice shop safety and maintenance discipline.
4. Verify correct malfunction has been identified.
5. Troubleshoot DC circuitry malfunction of the DC Arc Welder.
6. Repair DC circuitry malfunction if applicable.
7. Replace part(s) as needed.
8. Operate DC Arc Welder and verify proper operation.
9. Ensure required maintenance forms have been completed.
10. Maintain tools and equipment.

**Evaluation Preparation:** Ensure all equipment and special tools are available before evaluation. All initial set up and equipment conditions must be performed in accordance with appropriate references to successfully complete the task.

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
1. Selected and used applicable publications.	_____	_____
2. Selected and used applicable tools.	_____	_____
3. Practiced shop safety and maintenance discipline.	_____	_____
4. Verified correct malfunction has been identified.	_____	_____
5. Troubleshoot the DC circuitry malfunction of the DC Arc Welder.	_____	_____
6. Repaired DC circuitry malfunction if applicable.	_____	_____
7. Replaced part(s) as needed.	_____	_____
8. Operated DC Arc Welder and verified proper operation.	_____	_____
9. Ensured required maintenance forms have been completed.	_____	_____
10. Maintained tools and equipment.	_____	_____

**Evaluation Guidance:** Score the Soldier GO if all performance measures were passed. Score the Soldier NO GO if any performance measure was failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly, and have the Soldier repeat the task.

**References**

**Primary**

**Required**

- TM 9-6115-643-10
- TM 9-6115-643-24
- TM 9-6115-751-10
- TM 9-6115-751-24&P
- DA FORM 5988-E(EGA)
- DA FORM 5990-E(EGA)



**091-91D-1188****Perform Procedures to Determine Tactical Power System Selection to Meet a Particular Power Demand**

**Conditions:** As a Tactical Power Generation Specialist in an operational environment, given tactical power system, applicable tool kit, and TM 9-6115-643-24, equipment specified in references and a field unit's power distribution system.

**Standards:** Calculate the required power requirement to meet a particular power demand in accordance with references and performance measures. When the task is completed, the power distribution system will be set up and operate in accordance with references.

**Special Condition:** None

**Special Standards:** None

**Special Equipment:**

**Cue:** A field unit's power distribution system requires design and set up.

**Note:** Task may be taught, supported and evaluated in multiple lessons. Equipment identified at the task may not reflect what is required in the formal training environment.

**Performance Steps**

1. Compute the load.
  - a. Map the field unit.
  - b. Determine the electrical load for each area.
  - c. Compute the connected load for each structure.
  - d. Compute the demand load.
  - e. Compute the diversity factor.
  - f. Compute the power factor.
  - g. Compute the voltage drop.
  - h. Compute for growth.
2. Compute the cable size.
  - a. Compute total current demand for each phase.
  - b. Determine wire size capable of carrying the total current.

c. Determine the total resistance of the cable when it is connected between the tactical power system and the load.

3. Balance the load.

a. Single Phase Systems.

b. Three Phase Systems.

4. Select generator set.

a. Calculate the following criteria.

(1) Electrical loads to supply.

(2) Kilowatt rating requirements.

(3) Operating voltages required.

(4) Number of phases required.

(5) Frequency requirements.

(6) Availability of fuels.

(7) Expected life of the field unit.

(8) Availability of skilled maintenance personnel.

(9) Probable load deviation.

b. Calculate power and voltage requirements.

c. Calculate Load Classification requirements.

**Evaluation Preparation:** Ensure all equipment and special tools are available before evaluation. All initial set up and equipment conditions must be performed in accordance with appropriate references to successfully complete the task.

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
1. Computed the load.	_____	_____
2. Computed the cable size.	_____	_____
3. Balanced the load.	_____	_____
4. Selected tactical power system.	_____	_____

**Evaluation Guidance:** Score the Soldier GO if all performance measures were passed. Score the Soldier NO GO if any performance measure was failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly, and have the Soldier repeat the task.

**References****Required**

TM 9-6115-643-10

TM 9-6115-643-24

TM 9-6115-751-10

TM 9-6115-751-24&amp;P

DA FORM 5988-E(EGA)

DA FORM 5990-E(EGA)

**Primary**

**091-91D-1189**

**Perform Paralleling Procedures on Tactical Power Systems**

**Conditions:** As a Tactical Power Generation Specialist in an operational environment, given two or more tactical power systems, applicable tool kit, TM 9-6115-643-24, and applicable tactical power system technical manuals (TM).

**Standards:** Synchronize multiple tactical power systems and perform parallel operations of two or more tactical power systems. Ensure that synchronizing lamps blink in unison to insure proper voltage and frequency outputs in accordance with the performance measures and the appropriate TMs. Once paralleled the tactical power systems will meet load requirements in the parallel configuration.

**Special Condition:** None

**Special Standards:** None

**Special Equipment:**

**Cue:** You are required to provide continuous power and to allow shutdown time for servicing the tactical power systems

**Note:** Task may be taught, supported and evaluated in multiple lessons. Equipment identified at the task may not reflect what is required in the formal training environment.

**Performance Steps**

1. Close the main circuit breaker on the base set.
2. Ensure that the voltmeter indicates the frequency required for the load.
  - a. During the synchronizing process the base (operating) tactical power system may be connected to the load and operating or it may be disconnected from the load and operating.
  - b. After Steps 1 and 2 are completed, the incoming generator set may be synchronized with the base unit.
3. Open the circuit breaker on the incoming generator set.
4. Ensure that the voltage and frequency outputs of the incoming generator set are the same as those of the base set.

5. Place the paralleling switch on the control panels of the base and incoming tactical power system in the ON position. When the paralleling switches are on, the two paralleling lamps on the control panel of the incoming set will begin to blink on and off at the same time if the tactical power systems are connected properly.

a. Ensure that the lights blink in unison.

b. Adjust the throttle (on utility sets) of the frequency adjust rheostat (on precise sets) until the lamps go on and off at 3- to 5-second intervals.

c. When the lights are completely dark, close the main circuit breaker on the incoming set until the kilowatt meter indicates one-half of the power of the base set.

d. Adjust the voltage rheostats on both sets, if necessary to eliminate crosscurrents.

6. When the synchronizing lamps blink in unison the two sets are operating as one base unit.

NOTE: The following step is for paralleling operations of 3 or more generators.

7. Complete steps 3 through 6 for each additional incoming set.

a. The percent-of-power meter on the third set should indicate one-third of the load of the base set.

b. After all tactical power systems are operating in parallel, divide the load equally among them. To do this, adjust the voltage and frequency outputs of each set.

**Evaluation Preparation:** Ensure all equipment and special tools are available before evaluation. All initial set up and equipment conditions must be performed in accordance with appropriate references to successfully complete the task.

**Performance Measures**

	<b>GO</b>	<b>NO GO</b>
1. Closed the main circuit breaker on the base set.	_____	_____
2. Ensured that the voltmeter indicated the frequency required for the load. After Steps 1 and 2 were completed, the incoming tactical power system may be synchronized with the base unit.	_____	_____
3. Opened the circuit breaker on the incoming generator set.	_____	_____
4. Ensured that the voltage and frequency outputs of the incoming generator set are the same as those of the base set.	_____	_____
5. Placed the paralleling switch on the control panels of the base and incoming tactical power systems in the ON position. When paralleling switches are on, the two paralleling lamps on the control panel of the incoming set will begin to blink on and off at the same	_____	_____
6. When synchronizing lamps blink in unison the two sets operated as one base unit.	_____	_____
7. Completed steps 3 through 6 for each additional incoming set.	_____	_____

**Evaluation Guidance:** Score the Soldier GO if all performance measures were passed. Score the Soldier NO GO if any performance measure was failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly, and have the Soldier repeat the task.

**References**

**Required**

TM 9-6115-643-10  
TM 9-6115-643-24  
TM 9-6115-751-10  
TM 9-6115-751-24&P

**Primary**

**091-91D-1191****Correct Malfunction of the Cooling System on a Tactical Electric Power System**

**Conditions:** In an operational environment, given a tactical power system, maintenance request or equipment inspection worksheet describing equipment malfunctions, general mechanic's tool kit, hearing protection, applicable technical publications, and with minimal assistance.

**Standards:** Correct malfunctions of a cooling system on a tactical power system in accordance with the applicable technical manual procedures and specifications. Equipment must be fully mission capable when completed.

**Special Condition:** Under supervision and with assistance as needed

**Special Standards:** None

**Special Equipment:**

**Cue:** None

**Note:** None

**Performance Steps**

1. Identify the Advanced Medium Mobile Power Sources (AMMPS) manual to be used.

**Note:** This TM cannot list all malfunctions that may occur or all tests or inspections and corrective actions. If the malfunction encountered is not listed or is not corrected by the listed corrective action, replace the lowest level LRU component that will remedy the malfunction.

**DANGER**

Do not allow hot coolant to come in contact with skin, face eyes or hands. Use proper protective gear at all times.

2. [Fault 151: High Coolant Temperature] displayed on DCS screen.

**Note:** [Warning 146: Pre-High Coolant Temperature] is displayed on the DCS screen when coolant temperature reaches 220°F (104.4°C). [Fault 151: High Coolant Temperature] is displayed on the DCS screen and results in a generator set shutdown when coolant temperature reaches 230°F (110°C).

3. Follow all steps outlined in the TM.

4. Follow all safety measures.

5. Low coolant level, improper type used, or clogged cooling fins in radiator
  - a. Check coolant level in coolant overflow bottle first and then check coolant level in radiator. Add coolant as required IAW proper TM.
  - b. Check radiator for excessive debris or clogs on cooling fins. Remove or clean debris or clogs as required per Cooling System Service.
  - c. If symptom continues, verify proper type of coolant is used IAW applicable TM.
  - d. If improper coolant or mixture is suspected, drain cooling system and fill with proper coolant per Cooling System Service WP.
  - e. If leak is suspected or symptom continues, proceed to next malfunction.
6. Loose, defective, or improperly fitted radiator cap or coolant overflow bottle cap.
  - a. Check for loose, improperly fitted, or visibly defective radiator cap and coolant overflow bottle cap.
  - b. Install properly if loose or incorrectly fitted. Replace if defective.
  - c. Test radiator cap to determine proper operation.
  - d. If defective, replace as required.
  - e. Check coolant level in coolant overflow bottle and radiator, and add coolant as required per TM.
  - f. If symptom continues, proceed to next malfunction.
7. Coolant system leak.
  - a. Perform a cooling system pressure check at radiator.
  - b. If loss of pressure is observed on gage of cooling system tester, refer to STEP 4.
  - c. Check radiator and coolant overflow bottle hoses and clamps. Check hoses and clamps at winterization kit as required. Also inspect hoses and clamps at oil cooler for signs of leakage. Replace any hose or clamp as necessary.
  - d. Check radiator for leaks and replace as required.
  - e. Check coolant overflow bottle for signs of leaks and replace as required.
  - f. Check water pump, hoses and clamps for leaks. Check cold start device hoses to and from water pump and cold start device.
  - g. Replace water pump, hoses, clamps or gasket as required.
  - h. Check freeze plugs on engine for leaks. Replace freeze plugs if leaks are found. Refer to TM General Maintenance.



- i. Flush cooling system and fill as required.
  - j. If symptom continues, proceed to next malfunction.
8. Inoperable thermostat.
- a. Test thermostat and replace as required.
  - b. If symptom continues, proceed to next malfunction.

## WARNING

Cooling fan has sharp blades. Use caution and wear gloves when removing or installing fan. Failure to comply may cause injury or death to personnel.

9. Inoperable cooling fan(s).

**Note:** Cooling fan(s) should run at high Pulse Width Modulated (PWM) signal when coolant temperature is above 223°F (106.1°C). Fan speed (controlled by PWM signal) is dependent on coolant temperature.

- a. Check air intake for obstruction and remove any obstruction.
- b. Test cooling fan operation by disconnecting engine temperature sensor wire IAW applicable WP or by using InPower AMMPS software under TM General Maintenance.
- c. Start generator set and allow it to reach rated speed IAW TM 9-6115-751-10.
- d. Compare fan speed PWM visually with In Power AMMPS software in TM General Maintenance WP to coolant temperature.

**Note:** (Note for Instructor) Refer students to applicable table within General Maintenance WP.

- e. If fan(s) is not operating, install engine temperature sensor connector and check cooling fan circuit breakers and relays, resetting or replacing as required.
- f. If cooling fan is found to be operating properly, install engine temperature sensor connector and proceed to next malfunction.
- g. If symptom continues, remove battery ground cable and test continuity between cooling fan and wiring to relay panel and DCS for opens or shorts. Refer to General Maintenance and Foldout Pages.
- h. Replace or repair wiring or connectors as required.
- i. If symptom continues, replace cooling fan(s).
- j. If symptom continues, check DCS LEDs and replace as required.

10. Defective temperature sensor.

a. Troubleshoot IAW [Warning 144: Coolant Temp Sensor OOR High] displayed on DCS screen symptom in WP for Electrical System Troubleshooting with a DCS Code.

b. If symptom continues, proceed to next malfunction.

11. Generator set overload.

a. Check for generator set overload by checking the generator line current indicator on the generator status display screen.

b. Proceed to next malfunction if generator set is operating at proper load.

c. If load is too great for the generator set, replace with a larger generator set to match load requirements.

12. Excessive slack in alternator belt causing water pump malfunction.

a. Check battery-charging alternator belt for excessive wear and proper tension and replace as required.

b. Check water pump pulley for smooth turning and proper seating of belt.

c. Replace water pump pulley if malfunction is detected.

d. If not defective, proceed to next malfunction.

13. Improperly operating water pump.

a. Turn shaft/pulley of water pump to feel for excessive resistance and play in the shaft.

b. Replace water pump if improper operation is suspected.

c. Observe engine temperature after replacement and check for engine overheating.

d. If water pump is operating properly, proceed to next malfunction.

14. Insufficient cooling effect of radiator.

a. Check hoses for obstructions, rust, or buildup and for signs of kinking causing restriction. Repair or replace as required.

b. Observe engine temperature on DCS screen is IAW generator TM 9-6115-751-10.

c. Replace radiator if insufficient cooling effect of radiator continues.

d. If not defective, proceed to next malfunction.

15. Low engine oil level.

- a. Add oil to the proper level IAW TM.
  - b. If engine oil is low, troubleshoot lubrication system for oil consumption.
  - c. If full, proceed to next malfunction.
16. Clogged muffler or clog in exhaust system.
- a. Troubleshoot exhaust system for restriction (high back pressure/restriction in exhaust system).
  - b. If symptom continues, proceed to next malfunction.
17. Engine used at high temperatures or high altitude.
- a. Check output drop and load matching requirements. Reduce load as required IAW TM.
  - b. If not applicable, proceed to next malfunction.

## **WARNING**

Fuel is combustible and toxic to eyes, skin, and respiratory tract. Skin and eye protection are required when working in contact with fuel. Avoid repeated or prolonged contact. Provide adequate ventilation. Operators are to wash skin and change clothing promptly if in contact with fuel. Failure to comply may cause injury or death to personnel.

18. Improper fuel injection.
- a. Check fuel injectors for proper spray pattern and pressure rating and replace fuel injectors as required.
  - b. If not defective, proceed to next malfunction.
19. Incorrect fuel injection timing or governor actuator fault.
- a. Troubleshoot IAW [Warning 2967: Governor Fault]displayed on DCS screen symptom.
  - b. If symptom continues, check fuel injection pump timing and adjust as required.
  - c. Replace fuel injection pump if timing cannot be adjusted or if found defective.
  - d. If symptom continues, proceed to next malfunction.
20. Internal engine problem.
- a. Perform an engine compression check.

b. If compression check reveals fault, replace cylinder head gasket.

c. If symptom continues, replace engine.

21. Cooling system malfunction.

a. Troubleshoot IAW [Fault 151: High Coolant Temperature] displayed on DCS screen symptom.

b. Repair and replace as needed.

**Evaluation Preparation:** Ensure all equipment and special tools are available before evaluation. All initial set up and equipment conditions must be performed in accordance with appropriate references to successfully complete the task.

Performance Measures	GO	NO GO
1. Identified Advanced Medium Mobile Power Source (AAAMPS) manual to be used.	_____	_____
2. Identified Fault on DCS screen.	_____	_____
3. Followed steps outlined in technical manual.	_____	_____
4. Followed all safety measures.	_____	_____
5. Checked for improper coolant level and debris or clogs on cooling fins. Filled and cleaned as needed.	_____	_____
6. Inspected for loose, improperly fitted. or visibly defective radiator cap and coolant overflow bottle.	_____	_____
7. Inspected for leaks in radiator, water pump, hoses, caps, freeze plugs, overflow bottle and etc.	_____	_____
8. Tested thermostat.	_____	_____
9. Checked Air intake for obstruction, tested cooling fan, fan relays and circuit breakers and wiring to relay panel.	_____	_____
10. Troubleshoot temperature sensor.	_____	_____
11. Checked generator line current indicator for generator set overload.	_____	_____
12. Inspected alternator belt for wear or looseness and checked water pump pulley for smooth turing and proper belt seating.	_____	_____
13. Turned water pump pulley to check for excessive resistnace or play. Verified engine temperature for proper reading if water pump replacement is performed.	_____	_____

Performance Measures	GO	NO GO
14. Inspected for rust, obstructions, or kinking in cooling system hoses. Observed engine temperature on DCS screen IAW TM and replaced radiator if needed.	_____	_____
15. Verified proper engine oil level.	_____	_____
16. Verified no restriction within exhaust system(high back pressure/restriction in exhaust system).	_____	_____
17. Verified output drop and load matching requiriements. Reduced load as required IAW TM.	_____	_____
18. Inspected fuel injectors for proper spray pattern and pressure rating. Replaced fuel injectors if needed.	_____	_____
19. Troubleshoot [Warning 2967:Governor Fault] displayed on DCS screen system.	_____	_____
20. Performed engine compression check.	_____	_____
21. Troubleshoot IAW [Fault 151: High Coolant Temperature] displayed on DCS screen symptom.	_____	_____

**Evaluation Guidance:** Score the Soldier GO if all performance measures were passed. Score the Soldier NO GO if any performance measure was failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly, and have the Soldier repeat the task.

**References**

**Required**

- TM 9-6115-643-10
- TM 9-6115-643-24
- TM 9-6115-751-10
- TM 9-6115-751-24&P
- TM 9-6115-641-10
- TM 9-6115-642-10
- AR 385-10
- DA PAM 750-3
- DA FORM 5988-E(EGA)
- DA FORM 5990-E(EGA)

**Primary**

Subject Area 2: MAST AND ELECTRIC POWER PLANT MAINTENANCE (ASI C-9 ONLY)

**091-ASIC9-1001**

**Operate a Hydraulic Pneumatic Mast**

**Conditions:** As a Tactical Power Generation Specialist, in a contemporary operational environment, given an antenna mast group, OA-9054(V) 4/G, applicable tools, and TM 11-5985-368-34 and TM 11-5985-368-12&P.

**Standards:** Operate the Antenna Mast Group in accordance with applicable references and performance measures. When the task is complete, the Antenna Mast group will be fully operational.

**Special Condition:** None

**Special Standards:** None

**Special Equipment:** None

**Cue:** None

**Note:** Task may be taught, supported, and evaluated in multiple lessons. Equipment identified at the task level may not reflect what is required in the formal training environment.

**Performance Steps**

1. Identify major components of the Antenna Mast Group.

**Note:** Locate and describe the following major components:

- a. Stabilizing Struts
- b. Mast Control Box
- c. Hydraulic Component Assembly
- d. Distribution Box
- e. Antenna Protective cover and Hydraulic Cylinder
- f. Pneumatic Component Assembly
- g. Inter vehicle Cables and Cable Rack
- h. Antenna Position
- i. Antenna Protective Cover Pump
- j. Mast Hydraulic Cylinder

- k. Mast
- l. Antenna Amplifier Assemblies
- m. Support Frame
- n. Ground Rod Box
- o. Truck M811A1 or M942
- p. Mast Inclinator

2. Perform Preventive Maintenance Checks and Services on the Antenna Mast Group.

**Note:** When performing inspection, check all hydraulic components for leaks.

- 3. Place Antenna Mast Group into Operation.
  - a. Emplacement of vehicle.
  - b. Connect ground rod cable.
  - c. Deploy intervehicle cables.
  - d. Charge air tank.
  - e. Deploy Mast Group in accordance with applicable references.
- 4. Test Operate the Antenna Mast Group.

**Evaluation Preparation:** None

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
1. Identified major components of the Antenna Mast Group.	_____	_____
2. Performed Preventive Maintenance Checks and Services on the Antenna Mast Group.	_____	_____
3. Placed Antenna Mast Group into Operation.	_____	_____
4. Operated the Antenna Mast Group.	_____	_____

**Evaluation Guidance:** The Soldier scores a GO if all performance measures were passed. The Soldier scores a NO-GO if any performance measure was failed. If any performance measure was failed show the Soldier what was done wrong and how it should have been done to score a GO.

**References Required**  
 TM11-5985-368-12&P  
 TM11-5985-368-34

**Primary**

**091-ASIC9-1002**  
**Correct Malfunction of a Defective Hydraulic Pneumatic Mast System**

**Conditions:** In an operational environment, given a Hydraulic Pneumatic Mast System.

**Standards:** Correct malfunction in accordance TM 11-5985-368-34 and the performance measures. When the task is complete, the Mast will be fully operational.

**Special Condition:** None

**Special Standards:** None

**Special Equipment:**

**Cue:** None

**Note:** Task may be taught, supported, and evaluated in multiple lessons. Equipment identified at the task may not reflect what is required in the formal training environment.

**Performance Steps**

1. Review work request.
2. Review equipment inspection and maintenance work sheet and/or work request.
3. Ensure task is within shop capability/authorization.
4. Determine the require maintenance action.
5. Ensure applicable technical publication is available.
6. Determine if required maintenance is within shop capability/authorization.
7. Ensure proper tool are available to inspect, repair/replace, and test hydraulic mast system.
8. Select necessary tools and test equipment.
9. Perform initial inspection.
10. Select necessary publications.
11. Diagnose faults(s) and determine maintenance action to be performed.
12. Identify repair parts and requisition, if required.
13. Follow all safety precautions.
14. Assign personnel to perform the task.



15. Identify faults.
16. Ensure all safety precautions and procedures are followed.
17. Determine corrective action.
18. Provide assistance when necessary.
19. Complete The Army Maintenance Management System (TAMMS) form, when required.
20. Repair hydraulic mast assembly to acceptable standards.
21. Conduct an in process inspection.
22. Perform a final inspection to ensure the Hydraulic Pneumatic Mast assembly is fully mission-capable.

**Evaluation Preparation:** None

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
1. Reviewed work request.	_____	_____
2. Reviewed equipment inspection and maintenance work sheet and/or work request.	_____	_____
3. Ensured task is within shop capability/authorization.	_____	_____
4. Determined the required maintenance action.	_____	_____
5. Ensured applicable technical publications are available.	_____	_____
6. Determined if required maintenance is within shop capability/authorization.	_____	_____
7. Ensured proper tools are available to inspect, repair/replace, and test the hydraulic mast system.	_____	_____
8. Selected necessary tools and test equipment.	_____	_____
9. Performed initial inspection.	_____	_____
10. Selected necessary publications.	_____	_____
11. Diagnosed fault(s) and determine maintenance action to be performed.	_____	_____
12. Identified repair parts and requisition, if required.	_____	_____
13. Followed all safety precautions.	_____	_____

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
14. Assigned personnel to perform task.	_____	_____
15. Identified faults.	_____	_____
16. Ensured all safety precautions and procedures are followed.	_____	_____
17. Determined corrective action.	_____	_____
18. Provided assistance when necessary.	_____	_____
19. Completed TAMMS forms, as required.	_____	_____
20. Repaired hydraulic mast assembly to acceptable standards.	_____	_____
21. Conducted an in-process inspection.	_____	_____
22. Performed a final inspection to ensure the Hydraulic Pneumatic Mast assembly is fully mission-capable.	_____	_____

**Evaluation Guidance:** The Soldier scores a GO if all performance measures were passed. The Soldier scores a NO-GO if any performance measure was failed. If any performance measure was failed show the Soldier what was done wrong and how it should have been done to score a GO.

**References  
Required**  
TM11-5985-368-34

**Primary**

**091-ASIC9-1003**  
**Perform Preventive Maintenance Checks and Services on a  
Hydraulic-Pneumatic Mast System**

**Conditions:** In a contemporary operational environment, given a field or classroom, given an antenna mast assembly.

**Standards:** Perform preventive maintenance checks and services (PMCS) on a Hydraulic-Pneumatic Mast in accordance with technical manual TM 11-5985-368-34, and performance measures. Soldier must identify all deficiencies on the piece of equipment when conducting the PMCS.

**Special Condition:** None

**Special Standards:** None

**Special Equipment:** None

**Cue:** None

**Note:** Task may be taught, supported, and evaluated in multiple lessons. Equipment identified at the task level may not reflect what is required in the formal training environment.

**Performance Steps**

1. Select and use applicable publications.
2. Select and use applicable tools to perform PMCS on the Hydraulic-Pneumatic Mast.
3. Practice shop safety and maintenance discipline.
4. Perform before-operation PMCS on a Hydraulic-Pneumatic Mast.
5. Operate the Hydraulic-Pneumatic Mast.
6. Perform during-operation PMCS.
7. Shut down the Hydraulic Pneumatic Mast
8. Perform after-operation PMCS.
9. Ensure required forms have been completed.
10. Maintain tools and equipment.

**Evaluation Preparation:** None

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
1. Selected and used applicable publications.	_____	_____
2. Selected and used applicable tools to perform PMCS on a Hydraulic-Pneumatic Mast.	_____	_____
3. Practiced shop safety and maintenance discipline.	_____	_____
4. Performed before-operation PMCS on a Hydraulic-Pneumatic Mast.	_____	_____
5. Operated the Hydraulic-Pneumatic Mast.	_____	_____
6. Performed during-operation PMCS.	_____	_____
7. Shut down the Hydraulic-Pneumatic Mast.	_____	_____
8. Performed after-operation PMCS.	_____	_____
9. Ensured required maintenance forms have been completed.	_____	_____
10. Maintained tools and equipment.	_____	_____

**Evaluation Guidance:** The Soldier scores a GO if all performance measures were passed. The Soldier scores a NO-GO if any performance measure was failed. If any performance measure was failed show the Soldier what was done wrong and how it should have been done to score a GO.

**References  
Required**  
TM11-5985-368-34

**Primary**

**091-ASIC9-1004**  
**Perform Preventive Maintenance Checks and Services on the**  
**Electrical Power Plant III**

**Conditions:** In a contemporary operational environment, given an Electrical Power Plant III, a general mechanics tool kit, applicable technical publications, forms, and hearing protection.

**Standards:** Perform preventive maintenance checks and services (PMCS) on the Electrical Power Plant III in accordance with technical manual TM 11-5985-368-34. Soldier must identify all deficiencies on the piece of equipment when conducting the PMCS.

**Special Condition:** None

**Special Standards:** None

**Special Equipment:** None

**Cue:** None

**Note:** Task may be taught, supported, and evaluated in multiple lessons. Equipment identified at the task level may not reflect what is required in the formal training environment.

**Performance Steps**

1. Select and use applicable publications.
2. Select and use applicable tools to perform PMCS on an Electrical Power Plant III.
3. Practice shop safety and maintenance discipline.
4. Perform before-operation PMCS on an Electrical Power Plant III.
5. Operate the Electrical Power Plant III.
6. Perform during-operation PMCS.
7. Shut down the Electrical Power Plant III.
8. Perform after-operation PMCS.
9. Ensure required maintenance forms have been completed.
10. Maintain tools and equipment.

**Evaluation Preparation:** None

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
1. Selected and used applicable publications.	_____	_____
2. Selected and used applicable tools to perform PMCS on a Electrical Power Plant III.	_____	_____
3. Practiced shop safety and maintenance discipline.	_____	_____
4. Performed before-operation PMCS on an Electrical Power Plant III.	_____	_____
5. Operated the Electrical Power Plant III.	_____	_____
6. Performed during-operation PMCS.	_____	_____
7. Shut down the Electrical Power Plant III.	_____	_____
8. Performed after-operation PMCS.	_____	_____
9. Ensured required maintenance forms have been completed.	_____	_____
10. Maintained tools and equipment.	_____	_____

**Evaluation Guidance:** The Soldier scores a GO if all performance measures were passed. The Soldier scores a NO-GO if any performance measure was failed. If any performance measure was failed show the Soldier what was done wrong and how it should have been done to score a GO.

**References  
Required**  
TM11-5985-368-34

**Primary**

**091-ASIC9-1005  
Test Operate the Electrical Power Plant III**

**Conditions:** In a contemporary operational environment, given instruction, a Electric Power Plant III, applicable references, tools, and equipment .

**Standards:** Operate the Electric Power Plant III in accordance with TM 11-5985-368-34 and performance measures.

**Special Condition:** None

**Special Standards:** None

**Special Equipment:** None

**Cue:** None

**Note:** Task may be taught, supported and evaluated in multiple lessons. Equipment identified at the task may not reflect what is required in the formal training environment.

**Performance Steps**

1. Select and use applicable publications.
2. Select and use applicable tools.
3. Practice shop safety and maintenance discipline.
4. Perform preventive maintenance checks and services (PMCS) on the Electrical Power Plant III in accordance with applicable references.
5. Operate the Electric Power Plant III.
6. Perform shutdown of Electric Power Plant III.

**Evaluation Preparation:** None

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
1. Selected and used applicable publications.	_____	_____
2. Selected and used applicable tools.	_____	_____
3. Practiced shop safety and maintenance discipline.	_____	_____
4. Performed PMCS on the Electrical Power Plant III in accordance with applicable references.	_____	_____
5. Operated the Electric Power Plant III.	_____	_____
6. Performed shutdown of Electric Power Plant III.	_____	_____

**Evaluation Guidance:** The Soldier scores a GO if all performance measures were passed. The Soldier scores a NO-GO if any performance measure was failed. If any performance measure was failed show the Soldier what was done wrong and how it should have been done to score a GO.

**References  
Required**  
TM11-5985-368-34

**Primary**



**091-ASIC9-1006**  
**Correct Malfunction on the Electrical System on the Electric**  
**Power Plant III**

**Conditions:** In a contemporary operational environment, given a field or garrison environment, Electrical Power Plant III, general mechanics tool kit, applicable technical publications and forms, and hearing protection.

**Standards:** Correct malfunction on the electrical system of the Electric Power Plant III in accordance with TM 11-5985-368-34 and performance measures. After task is completed, Electrical Power Plant III will be fully operational.

**Special Condition:** None

**Special Standards:** None

**Special Equipment:** None

**Cue:** None

**Note:** Task may be taught, supported and evaluated in multiple lessons. Equipment identified at the task may not reflect what is required in the formal training environment.

**Performance Steps**

1. Select and use applicable publications.
2. Select and use applicable tools and test, measurement, and diagnostic equipment (TMDE).
3. Practice shop safety and maintenance discipline.
4. Inspect the control panel components on the Electrical Power Plant III.
5. Test the electrical system components.
6. Repair electrical system components, as required.
7. Replace electrical system components, as required.
8. Perform a final operational test to verify fault(s) have been corrected.
9. Ensure required maintenance forms have been completed.
10. Maintain tools and equipment.

**Evaluation Preparation:** None

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
1. Selected and used applicable publications.	_____	_____
2. Selected and used applicable tools and TMDE.	_____	_____
3. Practiced shop safety and maintenance discipline.	_____	_____
4. Inspected the control panel components on the Electrical Power Plant III.	_____	_____
5. Tested the electrical system components.	_____	_____
6. Repaired electrical system components, as required.	_____	_____
7. Replaced electrical system components, as required.	_____	_____
8. Performed a final operational test to verify fault(s) have been corrected.	_____	_____
9. Ensured required maintenance forms have been completed.	_____	_____
10. Maintained tools and equipment.	_____	_____

**Evaluation Guidance:** The Soldier scores a GO if all performance measures were passed. The Soldier scores a NO-GO if any performance measure was failed. If any performance measure was failed show the Soldier what was done wrong and how it should have been done to score a GO.

**References Required**  
 TM11-5985-368-34

**Primary**

**Skill Level SL2****Subject Area 2: GENERATOR TASKS****091-91D-2001****Emplace Tactical Power System Grid for a Unit/CP/TOC Using  
AutoDise Produced Plan****DANGER**

HIGH VOLTAGES ARE PRESENT WHEN GENERATOR IS RUNNING! NEVER ATTEMPT TO CONNECT/DISCONNECT GENERATOR CABLES WHILE GENERATOR IS RUNNING!

**WARNING**

DO NOT OPERATE GENERATOR OR EQUIPMENT UNLESS PROPERLY GROUNDED FIRST! DO NOT ATTEMPT REPAIR OF THE GENERATOR WHILE IT IS RUNNING.

**CAUTION**

USE EYE PROTECTION AND GLOVES! BE CAUTIOUS OF LOOSE CLOTHING OR LANYARDS! REMOVE IDENTIFICATION TAGS (DOG TAGS)!

**Conditions:** As a tactical power generator repairer, assigned or in support of a tactical operations center or command post, given equipment list from MTOE or unit layout, draft inventory, AUTODISE software, tactical mobile electric power with references, power distribution and illumination equipment (PDISE) with references. As part of deployment or power demand requirements changes due to mission, you are directed to emplace the tactical power system in support of Unit/TOC/CP electrical demand.

**Standards:** When the task is completed correctly, the tactical power system should produce power in an efficient way.

**Special Condition:** Element has not replaced numerous smaller military generator sets, e.g., 3kW to 10kW, with larger sets commensurate with the power demands of a given CP design.

**Special Standards:** The CPS design will result in units reducing the number of individual generator sets that units may use for a command post without affecting mission requirements and increasing efficiency.

**Special Equipment:**

**Cue:** None

**Note:** Task may be taught, supported and evaluated in multiple lessons. Equipment identified at the task may not reflect what is required in the formal training environment.

**Performance Steps**

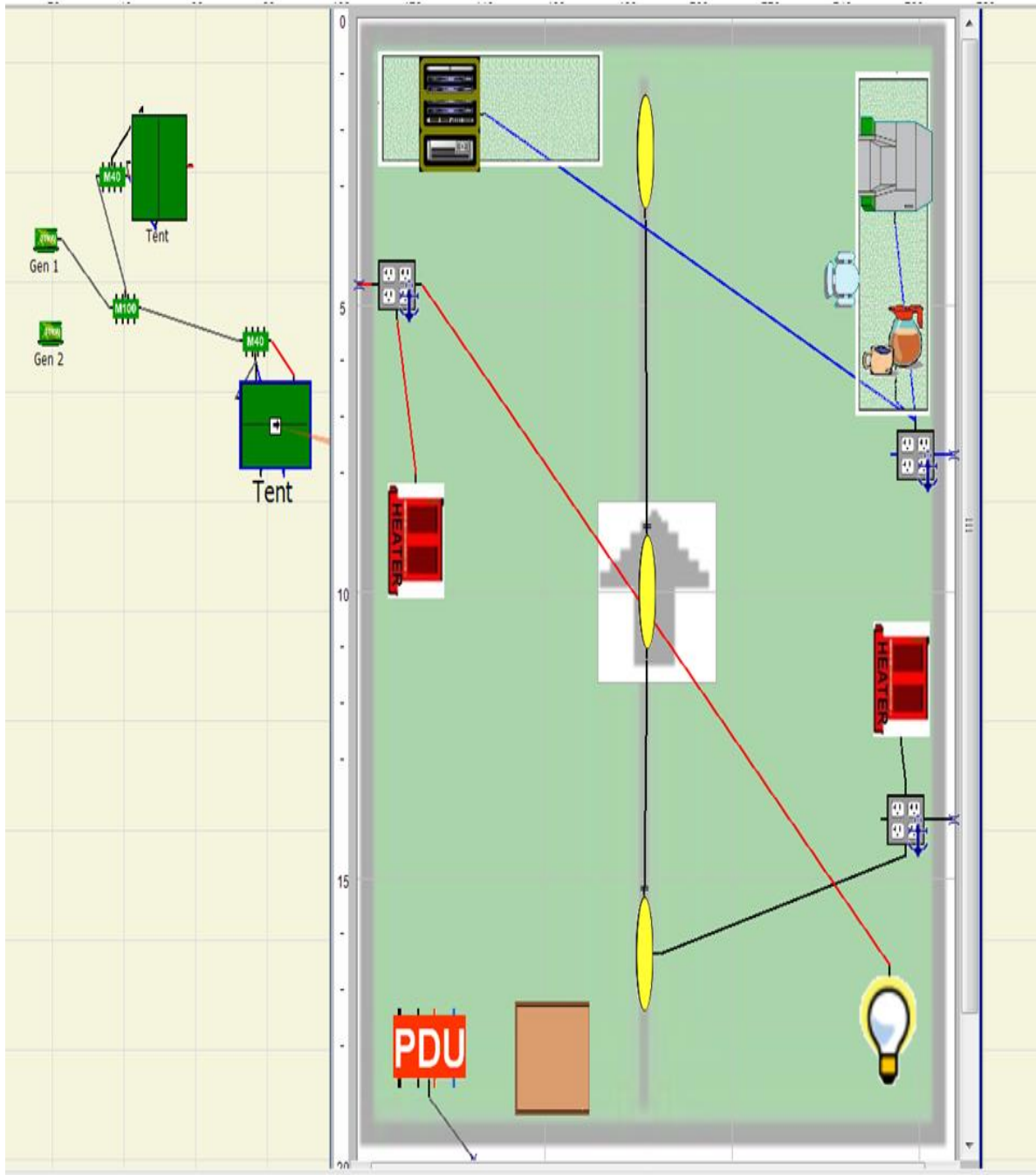


Figure 3-1 Autodise Layout

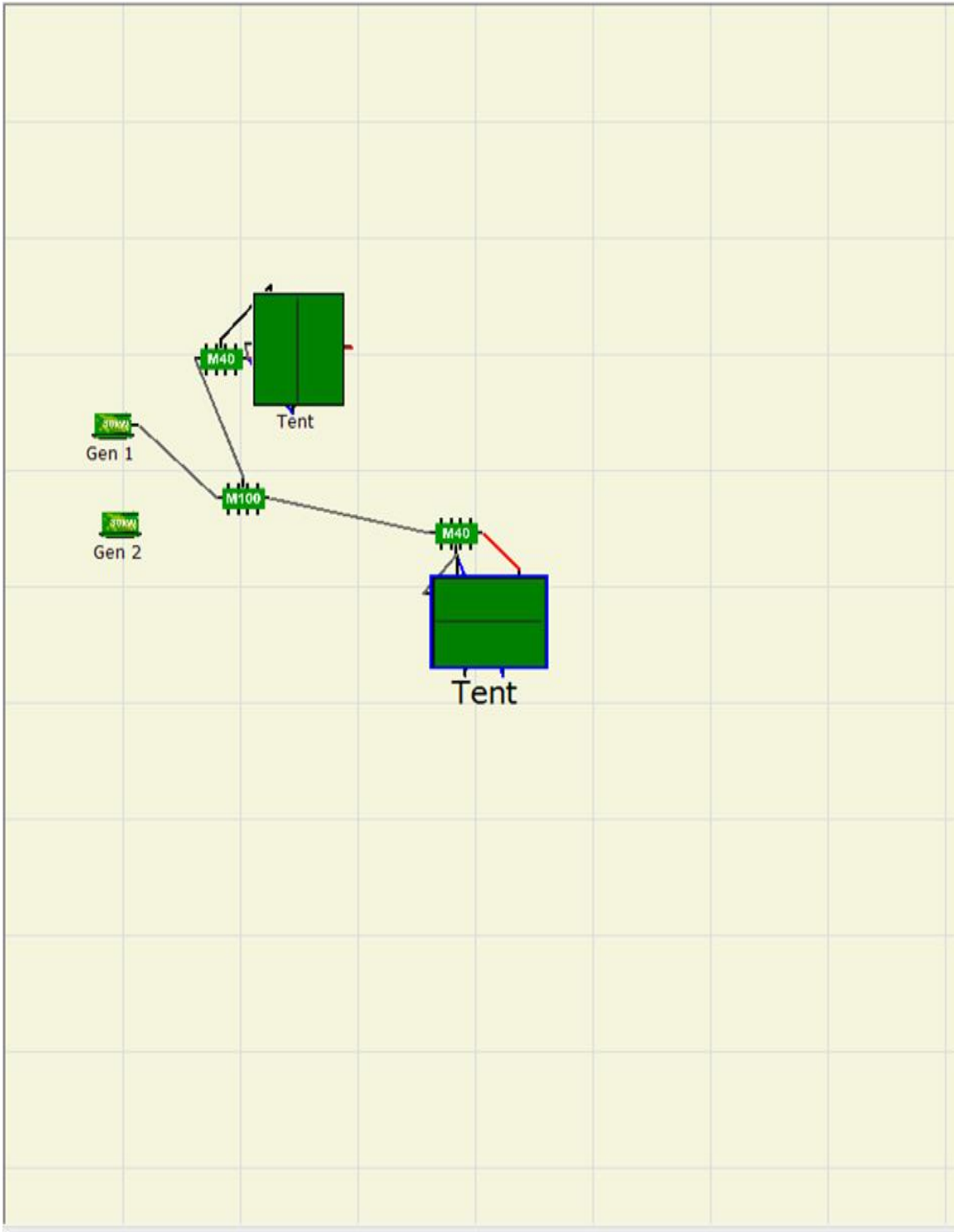


Figure 4-1 Autodise Layout

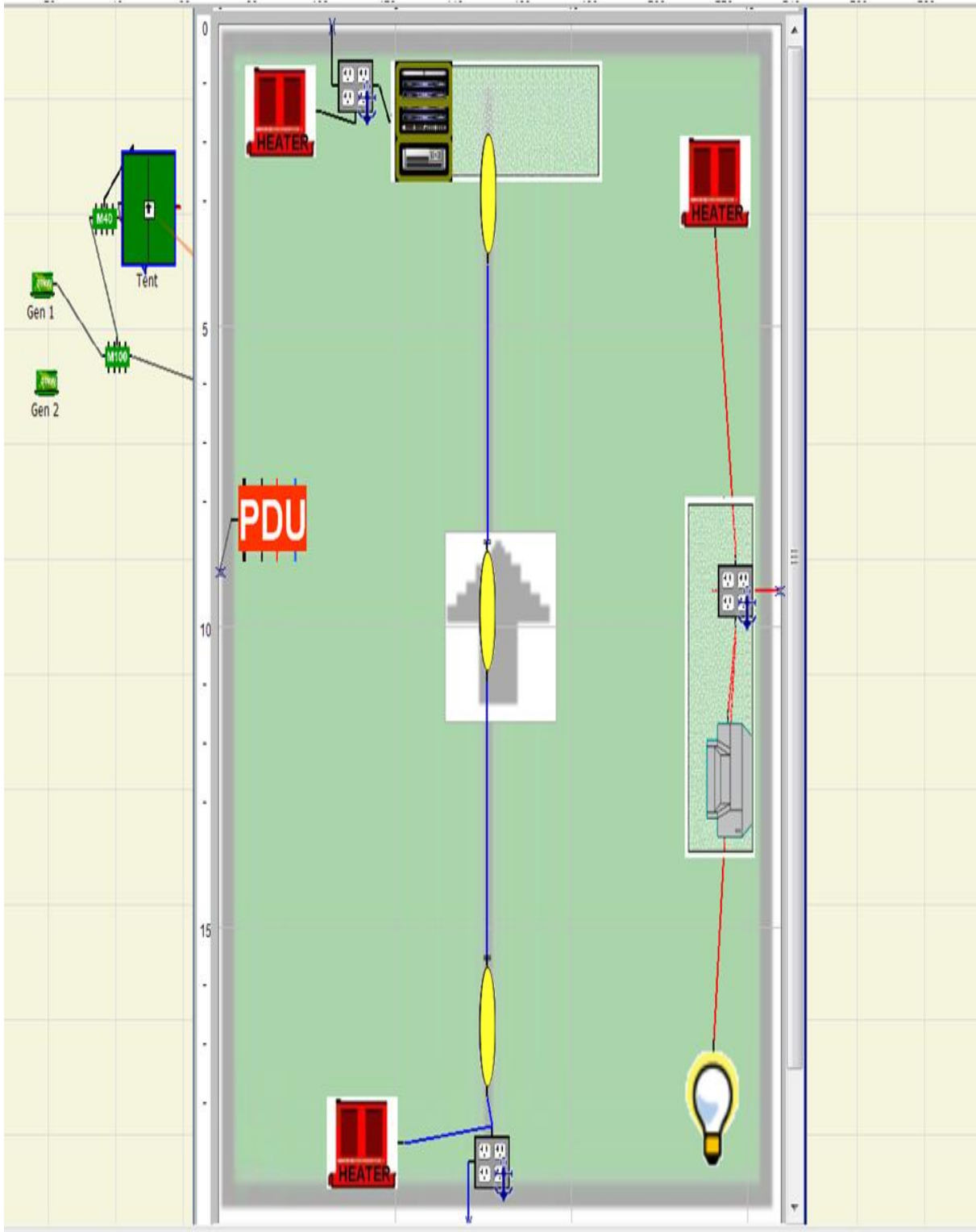


Figure 5-1 Autodisc Layout

Type	Name	Quantity	Rating, kW	Rating, A per Ø	Rating, Volts	# Ø	Location	Generator	Mode	AC/DC	Cable Length (ft)
Cable	Branch	6	-	20	-	1	Main Layout	-	-	-	8
Cable	Extension	1	-	20	-	1	Main Layout	-	-	-	15
Cable	Extension	13	-	20	-	1	Main Layout	-	-	-	3.5
Cable	Pigtail	1	-	100	-	3	Main Layout	-	-	-	4
Cable	Service/Feeder	3	-	60	-	3	Main Layout	-	-	-	25
Cable	Service/Feeder	1	-	100	-	3	Main Layout	-	-	-	50
Cable	Service/Feeder	1	-	60	-	3	Main Layout	-	-	-	50
DISE	M100	1	36	100	120	3	Main Layout	Gen 1	-	AC	-
DISE	M40	1	14.4	40	120	3	Main Layout	Gen 1	-	AC	-
DISE	M40 (1)	1	14.4	40	120	3	Main Layout	Gen 1	-	AC	-
Generator	Gen 1	1	30	83.33	120/208	3	Main Layout	Gen 1	120/208V, 3Ø 4-wire Mode	AC	-
Generator	Gen 2	1	30	83.33	120/208	3	Main Layout	Gen 2	120/208V, 3Ø 4-wire Mode	AC	-
Shelter	Tent	1	-	-	-	-	Main Layout	-	-	-	-
Shelter	Tent	1	-	-	-	-	Main Layout	-	-	-	-

Figure 6-1 Autodise Layout Example

Type	Name	Quantity	Rating, kW	Rating, A per Ø	Rating, Volts	# Ø	Location	Generator	Mode	AC/DC	Cable Length (ft)
AC Consumer	fan 2	1	0.56	4.66	120	1	Tent	Gen 1	-	AC	-
AC Consumer	heater 2	1	1.5	12.5	120	1	Tent	Gen 1	-	AC	-
AC Consumer	heater 2 (1)	1	1.5	12.5	120	1	Tent	Gen 1	-	AC	-
AC Consumer	iron 2	1	1	8.33	120	1	Tent	Gen 1	-	AC	-
AC Consumer	light 2	1	0.15	1.25	120	1	Tent	Gen 1	-	AC	-
AC Consumer	light 2 (1)	1	0.15	1.25	120	1	Tent	Gen 1	-	AC	-
AC Consumer	light 2 (2)	1	0.15	1.25	120	1	Tent	Gen 1	-	AC	-
AC Consumer	loadbank 2	1	6.24	17.33	120	3	Tent	Gen 1	-	AC	-
AC Consumer	microwave 2	1	0.9	7.5	120	1	Tent	Gen 1	-	AC	-
AC Consumer	printer 2	1	0.41	3.4	120	1	Tent	Gen 1	-	AC	-
Non-Electrical item	chair tent 2	1	-	-	-	-	Tent	-	-	-	-
Non-Electrical item	table tent 2-3	1	-	-	-	-	Tent	-	-	-	-
Non-Electrical item	Table, Transparent	1	-	-	-	-	Tent	-	-	-	-
Non-Electrical item	Table, Transparent	1	-	-	-	-	Tent	-	-	-	-
Receptacle	Double Duplex (1)	1	2.4	20	120	1	Tent	Gen 1	-	AC	-
Receptacle	Double Duplex (2)	1	2.4	20	120	1	Tent	Gen 1	-	AC	-
Receptacle	Double Duplex (6)	1	2.4	20	120	1	Tent	Gen 1	-	AC	-

Figure 7-1 Autodise Layout Example

Type	Name	Quantity	Rating, kW	Rating, A per Ø	Rating, Volts	# Ø	Location	Generator	Mode	AC/DC	Cable Length (ft)
AC Consumer	base heater 1	1	1	8.33	120	1	Tent	Gen 1	.	AC	.
AC Consumer	base heater 1 (1)	1	1	8.33	120	1	Tent	Gen 1	.	AC	.
AC Consumer	base heater 1 (2)	1	1	8.33	120	1	Tent	Gen 1	.	AC	.
AC Consumer	fan 1	1	0.56	4.66	120	1	Tent	Gen 1	.	AC	.
AC Consumer	light 1	1	0.15	1.25	120	1	Tent	Gen 1	.	AC	.
AC Consumer	light 1 (1)	1	0.15	1.25	120	1	Tent	Gen 1	.	AC	.
AC Consumer	light 1 (2)	1	0.15	1.25	120	1	Tent	Gen 1	.	AC	.
AC Consumer	loadbank 1	1	6.24	17.33	120	3	Tent	Gen 1	.	AC	.
AC Consumer	microwave 1	1	1.3	10.83	120	1	Tent	Gen 1	.	AC	.
AC Consumer	printer 1	1	0.46	3.81	120	1	Tent	Gen 1	.	AC	.
Non-Electrical item	Table, Transparent	1	.	.	.	.	Tent	.	.	.	.
Non-Electrical item	Table, Transparent	1	.	.	.	.	Tent	.	.	.	.
Receptacle	Double Duplex (1)	1	2.4	20	120	1	Tent	Gen 1	.	AC	.
Receptacle	Double Duplex (4)	1	2.4	20	120	1	Tent	Gen 1	.	AC	.
Receptacle	Double Duplex (5)	1	2.4	20	120	1	Tent	Gen 1	.	AC	.

Figure 8-1 Autodise Layout Example

1. Gather preliminary data on item, system, or unit Equipment list from MTOE.

a. Unit/CP/TOC Layout(s).

(1) Review Unit/CP/TOC Layout.

(2) Review existing Unit/CP/TOC power grid hook-up.

b. BOIP and MTO&E List.

(1) Request and acquire Unit/CP/TOC BOIP or MTO&E list.

(2) If list is not available, request TOC equipment inventory list including power distribution system and ECU's.



(3) Conduct preliminary analysis using Unit/CP/TOC Layout and BOIP or MTO&E list.  
c. Equipment inventory list with power data.

(1) Type and number of ECU's in the Unit/TOC

(2) PDISE equipment information

(a) Configuration

(b) Type

(c) Quantity

(d) Type of Generator set used.

(3) Generate an overall inventory list with the equipment name, corresponding model and serial no., voltage and current, and power consumption in idle mode and operational mode.

(a) Using the BOIP or MTO&E list, find the individual electric components with their respective power consumptions data (nameplate data) and quantities authorized.

(b) Once the list has been established, calculate the power demand. This calculated result is considered the equipment operational worst-case condition. The worst-case condition means, every piece of equipment are turn on 100% all time. In real world scenario, not all the equipment is turn on 100% all the time, instead 75-80% is the realistic number for calculating the power demand.

(c) Existing Unit/TOC Layout with power distribution system.

## 2. Prepare AutoDISE Layouts.

a. Using the TOC layout provided, generate an AUTODISE TOC Layout (computer model of the TOC) with all the authorize equipment populating each of the tent in the Unit/CP/TOC.

b. Once the TOC has been completely modeled, verify and validate that all the TOC equipments are located in the proper tents and that all the equipments are connected to the TOC internal micro-grid (M40 and M46 kits).

c. Prepare Map Layout.

d. Generate the Central Power Grid around the TOC using the PDISE equipments (M100 and M200) distribution system and Gen Set(s), power unit or power plants.

## 3. Analyze Data, Build Grids

a. Analyzed the layout.

b. Designed and developed an optimized Unit/CP/TOC central power grid. The central power grid will concentrate on "Mission Load" only.

c. Add a secondary central power grid to accommodate ECU loads.

d. Review data and discussed preliminary results with Commander and supporting personnel.

4. Generate power assessment report with the optimized Unit/CP/TOC layout and central power grid.

**Evaluation Preparation:** Ensure all equipment and special tools are available before evaluation. All initial set up and equipment conditions must be performed in accordance with appropriate references to successfully complete the task.

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
1. Gathered preliminary data on item, system, or unit Equipment list from MTOE.	_____	_____
2. Prepared AutoDISE Layouts.	_____	_____
3. Analyzed Data, Built Grids.	_____	_____
4. Generated power assessment report with the optimized Unit/CP/TOC layout and central power grid.	_____	_____

**Evaluation Guidance:** Score the Soldier GO if all performance measures were passed. Score the Soldier NO GO if any performance measure was failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly, and have the Soldier repeat the task.

**References Required**

**Primary**

- TM 9-6115-643-10
- TM 9-6115-643-24
- TM 9-6115-751-10
- TM 9-6115-751-24&P
- DA FORM 5988-E(EGA)
- DA FORM 5990-E(EGA)

**091-91D-2002**  
**Inspect Tactical Power Network unit, Command Post, or Tactical Operations**  
**Center Central Power Grid Layout**

**DANGER**

DO NOT OPERATE GENERATOR OR EQUIPMENT UNLESS PROPERLY GROUNDED FIRST! HIGH VOLTAGES ARE PRESENT WHEN GENERATOR IS RUNNING! NEVER ATTEMPT TO CONNECT/DISCONNECT GENERATOR CABLES WHILE GENERATOR IS RUNNING!

**WARNING**

DO NOT ATTEMPT REPAIR OF THE GENERATOR WHILE IT IS RUNNING. USE EYE PROTECTION AND GLOVES! BE CAUTIOUS OF LOOSE CLOTHING OR LANYARDS! REMOVE IDENTIFICATION TAGS (DOG TAGS)!

**Conditions:** As a tactical power generator repairer, assigned or in support of a tactical operations center or command post, given AUTODISE network management plan/Grid Layout, power grid plan, hearing protection, tactical mobile electric power with references, power distribution and illumination equipment (PDISE) or equivalent. As part of preparation for deployment or during deployment, tactical power operators have laid out power system and requires you to inspect power grid lay out to ensure it meets safety and Central Power Solution requirements for particular unit, TOC, or CP.

**Standards:** Ensure power grid layout meets Infantry Brigade Combat Team Command Post Central Power Solution and safety requirements. When installation is complete, all systems are operable to include a balanced load without negative impact to mission. Grid operates within optimal power distribution (and power generation) parameters.

**Special Condition:** In an operational environment, as a tactical power generator repairer, assigned or in support of a tactical operations center or command post, given AUTODISE network management plan/Grid Layout or power grid plan, hearing protection, tactical mobile electric power with references, power distribution and illumination equipment (PDISE) or equivalent. As part of preparation for deployment or during deployment, your staff personnel requires you to install or modify current power grid to meet Central Power Solution requirements to sections of assigned element.

**Special Standards:** Power Grid lay out must meet current requirements for:

1. Brigade Main Command Post
2. Maneuver Battalion, Field Artillery or Brigade Special Troops Battalion
3. Brigade Support Battalion
4. Cavalry Battalion Central Power

**Special Equipment:**

**Cue:** A field unit's power distribution system requires design and set up.

**Note:** Task may be taught, supported and evaluated in multiple lessons. Equipment identified at the task may not reflect what is required in the formal training environment.

**Performance Steps**

1. Identify type of Central Power supporting element.

a. Brigade (Bde) Main Command Post (CP)

b. Maneuver Battalion (Bn, Field Artillery (FA) Bn, Brigade Special Troops Battalion (BSTB) Central Power

c. Brigade Support Battalion (BSB) Central Power

d. Cavalry (Cav) Bn Central Power

2. Complete inventory of CPS Component.

a. Brigade Main Command Post (CP): 1 (ea) 60KW Tactical Quiet Generator (TQG) Power Plant (AN/MJQ-41 A or B model) consisting of:

(1) 2 trailer mounted 60KW TQG (A or B model) generators.

**Note:** The generator with the transfer box mounted to the tongue-end of the trailer is designated as the "A" set; the generator without a transfer box is designated as the "B" set.

(a) Provides 120/208VAC, 60HZ, single and three-phase power to the distribution system and to the CP.

(b) Provides a means for uninterrupted power load transfer between generator sets.

(c) Provides precise voltage and frequency control for tactical weapon systems.

(d) Provides CP the equivalent of a 200 amp commercial, 3-phase, electrical service.

(2) 1 (ea) transfer box mounted to set "A"

(3) 1 (ea) Interconnecting 200amp power cable

(4) 2 (ea) Paralleling cables

(5) 2 (ea) Grounding Kits

(6) 3 (ea) M100 PDISE

**Note:** The standard BDE Main CP power configuration uses 2 (ea) M100 PDISE, 1 for each half of the CP, as a means to distribute power from the power plant to tactical shelters, to other PDISE, and to the CP.

(a) The M100 serves as a 100-amp distribution panel for the BDE Main CP.

(b) The M100 is equipped with 1 (ea) 100-amp breaker, 2 (ea) 60-amp breakers, 2 (ea) 40-amp breakers, and 2 (ea) 20-amp breakers (single phase).

(c) Each M100 is equipped with phase indicator lights that illuminate when input power is applied.

(d) The M100 functions the same as a residential or commercial main panel.

(7) 3 (ea) M40 PDISE

**Note:** The standard BDE Main CP power configuration uses 3 (ea) M40 PDISE that are fed from the M100 PDISE and are positioned to supply power to specific cells within the CP.

(a) The M40 serves as a “branch circuit” panel for the CP.

(b) M40s provide power to electrical outlets and lights within the TOC/CP.

(c) The M40 functions the same as a residential or commercial sub-panel.

(8) 9 (ea) M46 Electrical Utility Assembly

**Note:** The standard BDE Main CP power configuration uses up to 9 (ea) M46 kits to supply power outlets/receptacles and lighting to the interior of the CP.

(a) The M46 contains electrical cables and outlets that allow users to plug in their single-phase electrical/electronic equipment inside the CP.

(b) The M46 contains electrical cables and light sets for interior CP illumination.

(c) M46 cables are connected to the 20 amp connectors on the M100 and/or M40.

(9) 2 (ea) 100 amp, 4-ft Pigtails

**Note:** These cables provide the connection from power plant transfer/switch box to 100-amp service feeder cable or directly to M100 PDISE.

(10) 4 (ea) 100 amp 50-ft Cables

**Note:** Service Feeder Cables provide connection between 100 amp pigtail and M100 PDISE or from 100 amp pigtail to another 100 amp Service Feeder Cable.

(11) 2 (ea) 40/60 amp, 4-ft Pigtails

**Note:** The Pigtail Cable provides connection from power plant transfer/switch box to 40amp service feeder cable or directly to M40 PDISE.

-This cable is not normally used in the BDE Main CP power configuration

(12) 4 (ea) 40/60 amp, 50-ft cables

**Note:** Service Feeder Cable provides connection between 40/60 amp pigtail and M40 PDISE or from M100 to M40 or from M100 to another to another 40/60 amp Service Feeder Cable.

b. Maneuver BN, FA BN, and BSTB Central Power

3. Emplace system according to element.

a. Inspect Grounding

b. bonding of the power grid

**Evaluation Preparation:** Ensure all equipment and special tools are available before evaluation. All initial set up and equipment conditions must be performed in accordance with appropriate references to successfully complete the task.

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
1. Inspected proper emplacement of power plants.	_____	_____
2. Inspected proper grounding and bonding of power plants.	_____	_____
3. Inspected proper installation of all interconnecting cables.	_____	_____
4. Inspected proper emplacement of PDISE components.	_____	_____
5. Verified that proper preventive maintenance checks and were completed.	_____	_____
6. Had personnel perform Operational test to verify proper connections.	_____	_____
7. Verified that operators corrected all any operator faults noted.	_____	_____

**Evaluation Guidance:** Score the Soldier GO if all performance measures were passed. Score the Soldier NO GO if any performance measure was failed. If the Soldier fails any performance measure, show what was done wrong and how to do it correctly, and have the Soldier repeat the task.

**References**

**Required**

- TM 9-6115-643-10
- TM 9-6115-643-24
- TM 9-6115-751-10
- TM 9-6115-751-24&P
- DA FORM 5988-E(EGA)
- DA FORM 5990-E(EGA)
- AR 600-55

**Primary**

**Skill Level SL3****Subject Area 3: GENERATOR TASKS****091-91D-3101****Perform Diagnostic Procedures on the Electrical Control System of a Tactical Power System****WARNING**

The following safety precautions must be adhered to when performing the tasks listed in this manual: Remove all rings, watches, and jewelry. Do not operate generator equipment in an enclosed area unless the area is adequately ventilated. Smoking, sparks, or open flames are not allowed within 50 feet of a generator set that is undergoing fuel system maintenance. Use care when handling fan and radiator. Sharp edges can cause injury. Dry-cleaning solvent is flammable and should not be used in the vicinity of sparks or open flame. When using compressed air, wear eye shields. Do not remove a radiator cap or surge tank cap unless the engine is cool. While working on battery systems, wear rubber gloves and goggles. Before working on the exhaust system, make sure it is cool. Disconnect the negative battery cable prior to performing any electrical system maintenance or when performing repairs in the locality of electrical components. While cutting metal with an oxyacetylene torch, wear leather gloves, leather apron, and welding goggles. When working around engines that are operating, wear hearing protection. When removing components over 50 pounds, two personnel are required. Do not smoke or use an open flame in the vicinity when filling a fuel tank. Do not operate generator set unless ground terminal stud has been connected to a suitable ground. Do not attempt to alter the position of the voltage reconnection board while the generator set is operating. Do not attempt to connect or disconnect load leads while the generator set is operating. Be careful not to inhale ether gas. Do not allow a crated generator set to swing while it is suspended.

**Conditions:** In an operational environment, given a maintenance request or equipment inspection worksheet describing equipment malfunctions, required tools and test equipment, and a tactical power system.

**Standards:** Perform diagnostic procedures of the electrical control system on a tactical power system in accordance with listed references and performance measures, ensuring that all applicable safety precautions are followed. When the task is completed, the power system must be fully mission-capable.

**Special Condition:** None

**Special Standards:** None

**Special Equipment:**

**Cue:** None

**Note:** Equipment identified at the task may not reflect what is required in the operational environment.

**Performance Steps**

1. Review equipment inspection and maintenance worksheet and/or work request.
2. Select necessary publications.
3. Ensure task is within shop capability/authorization.
4. Determine the required maintenance action.
5. Ensure proper tools are available to inspect, repair/replace, and test the electrical control system of a generator set.
6. Select necessary tools and test equipment.
7. Perform initial inspection
8. Diagnose fault(s) and determine maintenance action to be performed.
9. Identify repair parts and requisition, if required.
10. Follow all safety precautions.
11. Assign personnel to perform task.
12. Identify faults.
13. Ensure all safety precautions and procedures are followed.
14. Determine corrective action.
15. Provide assistance when necessary.
16. Ensure the electrical control system is repaired in accordance with standards.
17. Perform a final inspection to ensure the electrical control system is fully mission-capable.
18. Complete DA Form 5988-E and/or DA Form 5990-E as required.

**Evaluation Preparation:** Ensure all equipment and special tools are available before evaluation. All initial set up and equipment conditions must be performed in accordance with appropriate references to successfully complete task.



Performance Measures	GO	NO GO
1. Reviewed equipment inspection and maintenance worksheet and/or work request.	_____	_____
2. Selected necessary publications.	_____	_____
3. Ensured task is within shop capability/authorization.	_____	_____
4. Determined the required maintenance action.	_____	_____
5. Ensured proper tools are available to inspect, repair/replace, and test the electrical control system of a generator set.	_____	_____
6. Selected necessary tools and test equipment.	_____	_____
7. Performed initial inspection	_____	_____
8. Diagnosed fault(s) and determine maintenance action to be performed.	_____	_____
9. Identified repair parts and requisition, if required.	_____	_____
10. Followed all safety precautions.	_____	_____
11. Assigned personnel to perform task.	_____	_____
12. Identified faults.	_____	_____
13. Ensured all safety precautions and procedures are followed.	_____	_____
14. Determined corrective action.	_____	_____
15. Provided assistance when necessary.	_____	_____
16. Ensured the electrical control system is repaired in accordance with standards.	_____	_____
17. Performed a final inspection to ensure the electrical control system is fully mission-capable.	_____	_____
18. Completed DA Form 5988-E and/or DA Form 5990-E as required.	_____	_____

**Evaluation Guidance:** The Soldier scores a GO if all performance measures were passed. The Soldier scores a NO-GO if any performance measure was failed. If any performance measure was failed show the Soldier what was done wrong and how it should have been done to score a GO.

**References  
Required**

TM 9-6115-643-10  
TM 9-6115-643-24  
TM 9-6115-751-10  
TM 9-6115-751-24&P  
DA FORM 5988-E(EGA)  
DA FORM 5990-E(EGA)

**Primary**

**091-91D-3102**  
**Perform Diagnostic Procedures on a Voltage Regulator of a  
Tactical Power System**

**Conditions:** In an operational environment, given a maintenance request or equipment inspection worksheet describing equipment malfunctions, required tools and test equipment, a generator set and minimum supervision

**Standards:** Soldier must perform this task in accordance with listed references performance measures, ensuring that all applicable safety precautions are followed.

**Special Condition:** None

**Special Standards:** None

**Special Equipment:** None

**Cue:** None

**Note:** Task may be taught, supported and evaluated in multiple lessons. Equipment identified at the task may not reflect what is required in the formal training environment.

**Performance Steps**

1. Review equipment inspection and maintenance worksheet and/or work request.
2. Select necessary publications.
3. Ensure task is within shop capability/authorization.
4. Determine the required maintenance action.
5. Ensure proper tools are available to inspect, repair/replace, and test the voltage regulator of a generator set.
6. Select necessary tools and test equipment.
7. Perform initial inspection.
8. Diagnose fault(s) and determine maintenance action to be performed.
9. Identify repair parts and requisition, if required.
10. Follow all safety precautions.
11. Assign personnel to perform task.
12. Identify faults.

13. Ensure all safety precautions and procedures are followed.
14. Determine corrective action.
15. Provide assistance when necessary.
16. Ensure the voltage regulator system is repaired in accordance with standards.
17. Perform a final inspection to ensure the voltage regulator system is fully mission-capable.
18. Complete DA Form 5988-E and/or DA Form 5990-E as required.

**Evaluation Preparation:**

**WARNING:** The following safety precautions must be adhered to when performing the tasks listed in this manual: Remove all rings, watches, and jewelry. Do not operate generator equipment in an enclosed area unless the area is adequately ventilated. Smoking, sparks, or open flames are not allowed within 50 feet of a generator set that is undergoing fuel system maintenance. Use care when handling fan and radiator. Sharp edges can cause injury. Dry-cleaning solvent is flammable and should not be used in the vicinity of sparks or open flame. When using compressed air, wear eye shields. Do not remove a radiator cap or surge tank cap unless the engine is cool. While working on battery systems, wear rubber gloves and goggles. Before working on the exhaust system, make sure it is cool. Disconnect the negative battery cable prior to performing any electrical system maintenance or when performing repairs in the locality of electrical components. While cutting metal with an oxyacetylene torch, wear leather gloves, leather apron, and welding goggles. When working around engines that are operating, wear hearing protection. When removing components over 75 pounds, two personnel are required. Do not smoke or use an open flame in the vicinity when filling a fuel tank. Do not operate generator set unless ground terminal stud has been connected to a suitable ground. Do not attempt to alter the position of the voltage reconnection board while the generator set is operating. Do not attempt to connect or disconnect load leads while the generator set is operating. Be careful not to inhale ether gas. Do not allow a crated generator set to swing while it is suspended.

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
1. Reviewed equipment inspection and maintenance worksheet and/or work request.	_____	_____
2. Selected necessary publications.	_____	_____
3. Ensured task is within shop capability/authorization.	_____	_____
4. Determined the required maintenance action.	_____	_____
5. Ensured proper tools are available to inspect, repair/replace, and test the voltage regulator system of a generator set.	_____	_____
6. Selected necessary tools and test equipment.	_____	_____
7. Performed initial inspection.	_____	_____

Performance Measures	GO	NO GO
8. Diagnosed fault(s) and determine maintenance action to be performed.	_____	_____
9. Identified repair parts and requisition, if required.	_____	_____
10. Followed all safety precautions.	_____	_____
11. Assigned personnel to perform task.	_____	_____
12. Identified faults.	_____	_____
13. Ensured all safety precautions and procedures are followed.	_____	_____
14. Determined corrective action.	_____	_____
15. Provided assistance when necessary.	_____	_____
16. Ensured the voltage regulator system is repaired in accordance with standards.	_____	_____
17. Performed a final inspection to ensure the voltage regulator system is fully mission-capable.	_____	_____
18. Completed DA Form 5988-E and/or DA Form 5990-E as required.	_____	_____

**Evaluation Guidance:** The Soldier scores a GO if all performance measures were passed. The Soldier scores a NO-GO if any performance measure was failed. If any performance measure was failed show the Soldier what was done wrong and how it should have been done to score a GO.

**References**

**Required**

- TM 9-6115-643-10
- TM 9-6115-643-24
- TM 9-6115-751-10
- TM 9-6115-751-24&P
- DA FORM 5988-E(EGA)
- DA FORM 5990-E(EGA)

**Primary**

**091-91D-3103**  
**Perform Diagnostic Procedures on Fault Indicator Panel of a  
Tactical Power System**

**Conditions:** In an operational environment, given a maintenance request or equipment inspection worksheet describing equipment malfunctions, required tools and test equipment, and a malfunctioning generator set.

**Standards:** Perform diagnostic procedures on a fault indication panel of a generator set in accordance with listed references and performance set, ensuring that all applicable safety precautions are followed.

**Special Condition:** None

**Special Standards:** None

**Special Equipment:** None

**Cue:** None

**Note:** Task may be taught, supported and evaluated in multiple lessons. Equipment identified at the task may not reflect what is required in the formal training environment.

**Performance Steps**

1. Review equipment inspection and maintenance worksheet and/or work request.
2. Select necessary publications.
3. Ensure task is within shop capability/authorization.
4. Determine the required maintenance action.
5. Ensure proper tools are available to inspect, repair/replace, and test the fault indicator panel of a generator set.
6. Select necessary tools and test equipment.
7. Perform initial inspection.
8. Diagnose fault(s) and determine maintenance action to be performed.
  - a. Diagnose fault(s) on a 3kW TQG as applicable
  - b. Diagnose fault(s) on a 15-60kW TQG as applicable
  - c. Diagnose fault(s) on AC and DC Circuits as applicable
9. Identify repair parts and requisition, if required.

10. Follow all safety precautions.
11. Assign personnel to perform task.
12. Identify faults.
13. Ensure all safety precautions and procedures are followed.
14. Determine corrective action.
15. Provide assistance when necessary.
16. Ensure the fault indicator panel is repaired in accordance with standards.
17. Perform a final inspection to ensure the fault indicator panel is fully mission-capable.
18. Complete DA Form 5988-E and/or DA Form 5990-E as required.

**Evaluation Preparation:**

WARNING: The following safety precautions must be adhered to when performing the tasks listed in this manual: Remove all rings, watches, and jewelry. Do not operate generator equipment in an enclosed area unless the area is adequately ventilated. Smoking, sparks, or open flames are not allowed within 50 feet of a generator set that is undergoing fuel system maintenance. Use care when handling fan and radiator. Sharp edges can cause injury. Dry-cleaning solvent is flammable and should not be used in the vicinity of sparks or open flame. When using compressed air, wear eye shields. Do not remove a radiator cap or surge tank cap unless the engine is cool. While working on battery systems, wear rubber gloves and goggles. Before working on the exhaust system, make sure it is cool. Disconnect the negative battery cable prior to performing any electrical system maintenance or when performing repairs in the locality of electrical components. While cutting metal with an oxyacetylene torch, wear leather gloves, leather apron, and welding goggles. When working around engines that are operating, wear hearing protection. When removing components over 75 pounds, two personnel are required. Do not smoke or use an open flame in the vicinity when filling a fuel tank. Do not operate generator set unless ground terminal stud has been connected to a suitable ground. Do not attempt to alter the position of the voltage reconnection board while the generator set is operating. Do not attempt to connect or disconnect load leads while the generator set is operating. Be careful not to inhale ether gas. Do not allow a crated generator set to swing while it is suspended.

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
1. Reviewed equipment inspection and maintenance worksheet and/or work request.	_____	_____
2. Selected necessary publications.	_____	_____
3. Ensured task is within shop capability/authorization.	_____	_____
4. Determined the required maintenance action.	_____	_____

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
5. Ensured proper tools are available to inspect, repair/replace, and test the fault indicator panel of a generator set.	_____	_____
6. Selected necessary tools and test equipment.	_____	_____
7. Performed initial inspection.	_____	_____
8. Diagnosed fault(s) and determine maintenance action to be performed.	_____	_____
9. Identified repair parts and requisition, if required.	_____	_____
10. Followed all safety precautions.	_____	_____
11. Assigned personnel to perform task.	_____	_____
12. Identified faults.	_____	_____
13. Ensured all safety precautions and procedures are followed.	_____	_____
14. Determined corrective action.	_____	_____
15. Provided assistance when necessary.	_____	_____
16. Ensured fault indicator panel is repaired to acceptable standards.	_____	_____
17. Performed a final inspection to ensure the fault indicator panel of a generator set is fully mission-capable.	_____	_____
18. Completed DA Form 5988-E and/or DA Form 5990-E as required.	_____	_____

**Evaluation Guidance:** The Soldier scores a GO if all performance measures were passed. The Soldier scores a NO-GO if any performance measure was failed. If any performance measure was failed show the Soldier what was done wrong and how it should have been done to score a GO.

**References  
Required**

**Primary**

- TM 9-6115-641-10
- TM 9-6115-642-24
- TM 9-6115-643-24
- TM 9-6115-644-24
- TM 9-6115-645-24
- DA FORM 5988-E(EGA)
- DA FORM 5990-E(EGA)



**091-91D-3104**  
**Perform Diagnostic Procedures of Relay Assembly on a**  
**Tactical Power System**

**Conditions:** In an operational environment, given a maintenance request or equipment inspection worksheet describing equipment malfunctions, required tools and test equipment, and a malfunctioning Relay Assembly on a Generator Set.

**Standards:** Perform diagnostic procedures of relay assembly on a generator net in accordance with listed references and performance measures, ensuring that all applicable safety precautions are followed.

**Special Condition:** None

**Special Standards:**

None **Special Equipment:**

None **Cue:** None

**Note:** Task may be taught, supported and evaluated in multiple lessons. Equipment identified at the task may not reflect what is required in the formal training environment.

**Performance Steps**

1. Review equipment inspection and maintenance worksheet and/or work request.
2. Select necessary publications.
3. Ensure task is within shop capability/authorization.
4. Determine the required maintenance action.
5. Ensure proper tools are available to inspect, repair/replace, and test the relay assembly of a generator set.
6. Select necessary tools and test equipment.
7. Perform initial inspection.
8. Diagnose fault(s) and determine maintenance action to be performed.
  - a. Diagnose fault(s) on a 3kW TQG Relay assembly as applicable
  - b. Diagnose fault(s) on a 5-60kW TQG Relay assembly as applicable
9. Identify repair parts and requisition, if required.
10. Follow all safety precautions.

11. Assign personnel to perform task.
12. Identify faults.
13. Ensure all safety precautions and procedures are followed.
14. Determine corrective action.
15. Provide assistance when necessary.
16. Ensure the relay assembly is repaired in accordance with standards.
17. Perform a final inspection to ensure the relay assembly is fully mission-capable.
18. Complete DA Form 5988-E and/or DA Form 5990-E as required.

**Evaluation Preparation:** None

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
1. Reviewed equipment inspection and maintenance worksheet and/or work request.	_____	_____
2. Selected necessary publications.	_____	_____
3. Ensured task is within shop capability/authorization.	_____	_____
4. Determined the required maintenance action.	_____	_____
5. Ensured proper tools are available to inspect, repair/replace, and test the relay assembly of a generator set.	_____	_____
6. Selected necessary tools and test equipment.	_____	_____
7. Performed initial inspection.	_____	_____
8. Diagnosed fault(s) and determine maintenance action to be performed.	_____	_____
9. Identified repair parts and requisition, if required.	_____	_____
10. Followed all safety precautions.	_____	_____
11. Assigned personnel to perform task.	_____	_____
12. Identified faults.	_____	_____
13. Ensured all safety precautions and procedures are followed.	_____	_____
14. Determined corrective action.	_____	_____

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
15. Provided assistance when necessary.	_____	_____
16. Ensured relay assembly is repaired to acceptable standards.	_____	_____
17. Performed a final inspection to ensure the relay assembly is fully mission-capable.	_____	_____
18. Completed DA Form 5988-E and/or DA Form 5990-E as required.	_____	_____

**Evaluation Guidance:** The Soldier scores a GO if all performance measures were passed. The Soldier scores a NO-GO if any performance measure was failed. If any performance measure was failed show the Soldier what was done wrong and how it should have been done to score a GO.

**References  
Required**

**Primary**

- TM 9-6115-639-13&P
- TM 9-6115-641-24
- TM 9-6115-642-24
- TM 9-6115-643-24
- TM 9-6115-644-24
- TM 9-6115-645-24
- DA FORM 5988-E(EGA)
- DA FORM 5990-E(EGA)

**091-91D-3105**  
**Perform Diagnostic Procedures on a Governor Assembly of a  
Tactical Power System**

**Conditions:** In an operational environment, given a maintenance request or equipment inspection worksheet describing equipment malfunctions, required tools and test equipment and a malfunctioning governor assembly on a generator set.

**Standards:** Perform diagnostic procedures on an electrical governor of a generator set in accordance with listed references and performance measures, ensuring that all applicable safety precautions are followed. After completion the Generator Set will be fully functional.

**Special Condition:** None

**Special Standards:** None

**Special Equipment:** None

**Cue:** None

**Note:** Task may be taught, supported and evaluated in multiple lessons. Equipment identified at the task may not reflect what is required in the formal training environment.

**Performance Steps**

1. Review equipment inspection and maintenance worksheet and/or work request.
2. Select necessary publications.
3. Ensure task is within shop capability/authorization.
4. Determine the required maintenance action.
5. Ensure proper tools are available to inspect, repair/replace, and test the governor assembly of a generator set.
6. Select necessary tools and test equipment.
7. Perform initial inspection.
8. Diagnose fault(s) and determine maintenance action to be performed.
9. Identify repair parts and requisition, if required.
10. Follow all safety precautions.
11. Assign personnel to perform task.
12. Identify faults.

13. Ensure all safety precautions and procedures are followed.
14. Determine corrective action.
15. Provide assistance when necessary.
16. Ensure governor assembly is repaired to acceptable standards.
17. Perform a final inspection to ensure the governor assembly is fully mission-capable.
18. Complete DA Form 5988-E and/or DA Form 5990-E as required.

**Evaluation Preparation:**

**WARNING:** The following safety precautions must be adhered to when performing the tasks listed in this manual: Remove all rings, watches, and jewelry. Do not operate generator equipment in an enclosed area unless the area is adequately ventilated. Smoking, sparks, or open flames are not allowed within 50 feet of a generator set which is undergoing fuel system maintenance. Use care when handling fan and radiator. Sharp edges can cause injury. Dry-cleaning solvent is flammable and should not be used in the vicinity of sparks or open flame. When using compressed air, wear eye shields. Do not remove a radiator cap or surge tank cap unless the engine is cool. While working on battery systems, wear rubber gloves and goggles. Before working on the exhaust system, make sure it is cool. Disconnect the negative battery cable prior to performing any electrical system maintenance or when performing repairs in the locality of electrical components. While cutting metal with an oxyacetylene torch, wear leather gloves, leather apron, and welding goggles. When working around engines that are operating, wear hearing protection. When removing components over 75 pounds, two personnel are required. Do not smoke or use an open flame in the vicinity when filling a fuel tank. Do not operate generator set unless ground terminal stud has been connected to a suitable ground. Do not attempt to alter the position of the voltage reconnection board while the generator set is operating. Do not attempt to connect or disconnect load leads while the generator set is operating. Be careful not to inhale ether gas. Do not allow a crated generator set to swing while it is suspended.

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
1. Reviewed equipment inspection and maintenance worksheet and/or work request.	_____	_____
2. Selected necessary publications.	_____	_____
3. Ensured task is within shop capability/authorization.	_____	_____
4. Determined the required maintenance action.	_____	_____
5. Ensured proper tools are available to inspect, repair/replace, and test the governor assembly of a generator set.	_____	_____
6. Selected necessary tools and test equipment.	_____	_____
7. Performed initial inspection.	_____	_____

Performance Measures	GO	NO GO
8. Diagnosed fault(s) and determine maintenance action to be performed.	_____	_____
9. Identified repair parts and requisition, if required.	_____	_____
10. Followed all safety precautions.	_____	_____
11. Assigned personnel to perform task.	_____	_____
12. Identified faults.	_____	_____
13. Ensured all safety precautions and procedures are followed.	_____	_____
14. Determined corrective action.	_____	_____
15. Provided assistance when necessary.	_____	_____
16. Ensured governor assembly is repaired to acceptable standards.	_____	_____
17. Performed a final inspection to ensure the governor assembly is fully mission-capable.	_____	_____
18. Completed DA Form 5988-E and/or DA Form 5990-E as required.	_____	_____

**Evaluation Guidance:** The Soldier scores a GO if all performance measures were passed. The Soldier scores a NO-GO if any performance measure was failed. If any performance measure was failed show the Soldier what was done wrong and how it should have been done to score a GO.

- References Required** **Primary**
- TM 9-6115-641-24
  - TM 9-6115-642-24
  - TM 9-6115-643-24
  - TM 9-6115-644-24
  - TM 9-6115-645-24
  - DA FORM 5988-E(EGA)
  - DA FORM 5990-E(EGA)

**091-91D-3106**  
**Perform Diagnostic Procedures on the Main Generator**  
**Assembly of a Tactical Power System**

**Conditions:** In an operational environment, given a maintenance request or equipment inspection worksheet describing equipment malfunctions, required tools and test equipment, and a malfunctioning Main Generator Assembly on a Generator Set.

**Standards:** Perform diagnostic procedures on the main generator assembly of a generator set in accordance with listed references and performance measures, ensuring that all applicable safety precautions are followed. After task is completed, Generator Set will be fully mission capable.

**Special Condition:** None

**Special Standards:** None

**Special Equipment:** None

**Cue:** None

**Note:** Task may be taught, supported and evaluated in multiple lessons. Equipment identified at the task may not reflect what is required in the formal training environment.

**Performance Steps**

1. Review equipment inspection and maintenance worksheet and/or work request.
2. Select necessary publications.
3. Ensure task is within shop capability/authorization.
4. Determine the required maintenance action.
5. Ensure proper tools are available to inspect, repair/replace, and test the main generator assembly of a generator set.
6. Select necessary tools and test equipment.
7. Perform initial inspection.
8. Diagnose fault(s) and determine maintenance action to be performed.
  - a. Diagnose DC Circuits on a Generator Set as applicable
  - b. Diagnose AC Circuits on a Generator Set as applicable
9. Identify repair parts and requisition, if required.

10. Follow all safety precautions.
11. Assign personnel to perform task
12. Identify faults.
13. Ensure all safety precautions and procedures are followed.
14. Determine corrective action.
15. Provide assistance when necessary.
16. Ensure the main generator assembly is repaired in accordance with standards.
17. Perform a final inspection to ensure the main generator assembly is fully mission-capable.
18. Complete DA Form 5988-E and/or DA Form 5990-E as required.

**Evaluation Preparation:**

WARNING: The following safety precautions must be adhered to when performing the tasks listed in this manual: Remove all rings, watches, and jewelry. Do not operate generator equipment in an enclosed area unless the area is adequately ventilated. Smoking, sparks, or open flames are not allowed within 50 feet of a generator set which is undergoing fuel system maintenance. Use care when handling fan and radiator. Sharp edges can cause injury. Dry-cleaning solvent is flammable and should not be used in the vicinity of sparks or open flame. When using compressed air, wear eye shields. Do not remove a radiator cap or surge tank cap unless the engine is cool. While working on battery systems, wear rubber gloves and goggles. Before working on the exhaust system, make sure it is cool. Disconnect the negative battery cable prior to performing any electrical system maintenance or when performing repairs in the locality of electrical components. While cutting metal with an oxyacetylene torch, wear leather gloves, leather apron, and welding goggles. When working around engines that are operating, wear hearing protection. When removing components over 75 pounds, two personnel are required. Do not smoke or use an open flame in the vicinity when filling a fuel tank. Do not operate generator set unless ground terminal stud has been connected to a suitable ground. Do not attempt to alter the position of the voltage reconnection board while the generator set is operating. Do not attempt to connect or disconnect load leads while the generator set is operating. Be careful not to inhale ether gas. Do not allow a crated generator set to swing while it is suspended.

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
1. Reviewed equipment inspection and maintenance worksheet and/or work request.	_____	_____
2. Selected necessary publications.	_____	_____
3. Ensured task is within shop capability/authorization.	_____	_____
4. Determined required maintenance action.	_____	_____



<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
5. Ensured proper tools are available to inspect, repair/replace, and test the main generator assembly of a generator set.	_____	_____
6. Selected necessary tools and test equipment.	_____	_____
7. Performed initial inspection.	_____	_____
8. Diagnosed fault(s) and determine maintenance action to be performed.	_____	_____
9. Identified repair parts and requisition, if required.	_____	_____
10. Followed all safety precautions.	_____	_____
11. Assigned personnel to perform task.	_____	_____
12. Identified faults.	_____	_____
13. Ensured all safety precautions and procedures are followed.	_____	_____
14. Determined corrective action.	_____	_____
15. Provide assistance when necessary.	_____	_____
16. Ensured the main generator assembly is repaired to acceptable standards.	_____	_____
17. Performed a final inspection to ensure the main generator assembly is fully mission-capable.	_____	_____
18. Completed DA Form 5988-E and/or DA Form 5990-E as required.	_____	_____

**Evaluation Guidance:** The Soldier scores a GO if all performance measures were passed. The Soldier scores a NO-GO if any performance measure was failed. If any performance measure was failed show the Soldier what was done wrong and how it should have been done to score a GO.

**References Required**

**Primary**

- TM 9-6115-641-24
- TM 9-6115-642-24
- TM 9-6115-643-24
- TM 9-6115-644-24
- TM 9-6115-645-24
- DA FORM 5988-E(EGA)
- DA FORM 5990-E(EGA)

**091-91D-3107**  
**Perform Diagnostic Procedures on a Battery Charging**  
**Alternator of a Tactical Power System**

**Conditions:** In an operational environment, given a maintenance request or equipment inspection worksheet describing equipment malfunctions, required tools, test equipment and a malfunctioning battery charging Alternator.

**Standards:** Perform diagnostic procedures on a battery charging alternator in accordance with listed references and performance measures, ensuring that all applicable safety precautions are followed. After task is completed, Battery Charging Alternator will be fully mission capable.

**Special Condition:** None

**Special Standards:** None

**Special Equipment:** None

**Cue:** None

**Note:** Task may be taught, supported and evaluated in multiple lessons. Equipment identified at the task may not reflect what is required in the formal training environment.

**Performance Steps**

1. Review equipment inspection and maintenance worksheet and/or work request.
2. Select necessary publications.
3. Ensure task is within shop capability/authorization.
4. Determine the required maintenance action.
5. Ensure proper tools are available to inspect, repair/replace, and test the battery charging alternator of a generator set.
6. Select necessary tools and test equipment.
7. Perform initial inspection.
8. Diagnose fault(s) and determine maintenance action to be performed.
  - a. Diagnose DED Engine electrical system as applicable.
  - b. Diagnose DC circuits on a 5/10 kW TQG as applicable.
  - c. Diagnose DC circuits on a 15/60 kW TQG as applicable.
9. Identify repair parts and requisition, if required.

10. Follow all safety precautions.
11. Assign personnel to perform task.
12. Identify faults.
13. Ensure all safety precautions and procedures are followed.
14. Determine corrective action.
15. Provide assistance when necessary.
16. Ensure the battery charging alternator is repaired to in accordance with standards.
17. Perform a final inspection to ensure the battery charging alternator is fully mission-capable.
18. Complete DA Form 5988-E and/or DA Form 5990-E as required.

**Evaluation Preparation:**

WARNING: The following safety precautions must be adhered to when performing the tasks listed in this manual: Remove all rings, watches, and jewelry. Do not operate generator equipment in an enclosed area unless the area is adequately ventilated. Smoking, sparks, or open flames are not allowed within 50 feet of a generator set that is undergoing fuel system maintenance. Use care when handling fan and radiator. Sharp edges can cause injury. Dry-cleaning solvent is flammable and should not be used in the vicinity of sparks or open flame. When using compressed air, wear eye shields. Do not remove a radiator cap or surge tank cap unless the engine is cool. While working on battery systems, wear rubber gloves and goggles. Before working on the exhaust system, make sure it is cool. Disconnect the negative battery cable prior to performing any electrical system maintenance or when performing repairs in the locality of electrical components. While cutting metal with an oxyacetylene torch, wear leather gloves, leather apron, and welding goggles. When working around engines that are operating, wear hearing protection. When removing components over 75 pounds, two personnel are required. Do not smoke or use an open flame in the vicinity when filling a fuel tank. Do not operate generator set unless ground terminal stud has been connected to a suitable ground. Do not attempt to alter the position of the voltage reconnection board while the generator set is operating. Do not attempt to connect or disconnect load leads while the generator set is operating. Be careful not to inhale ether gas. Do not allow a crated generator set to swing while it is suspended.

**Performance Measures**

	<b>GO</b>	<b>NO GO</b>
1. Reviewed equipment inspection and maintenance worksheet and/or work request.	_____	_____
2. Selected necessary publications.	_____	_____
3. Ensured task is within shop capability/authorization.	_____	_____
4. Determined the required maintenance action.	_____	_____

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
5. Ensured proper tools are available to inspect, repair/replace, and test the battery charging alternator of a generator set.	_____	_____
6. Selected necessary tools and test equipment.	_____	_____
7. Performed initial inspection.	_____	_____
8. Diagnosed fault(s) and determine maintenance action to be performed.	_____	_____
9. Identified repair parts and requisition, if required.	_____	_____
10. Followed all safety precautions.	_____	_____
11. Assigned personnel to perform task.	_____	_____
12. Identified faults.	_____	_____
13. Ensured all safety precautions and procedures are followed.	_____	_____
14. Determined corrective action.	_____	_____
15. Provided assistance when necessary.	_____	_____
16. Ensured the battery charging alternator is repaired to in accordance with standards.	_____	_____
17. Performed a final inspection to ensure the battery charging alternator is fully mission-capable.	_____	_____
18. Completed DA Form 5988-E and/or DA Form 5990-E as required.	_____	_____

**Evaluation Guidance:** The Soldier scores a GO if all performance measures were passed. The Soldier scores a NO-GO if any performance measure was failed. If any performance measure was failed show the Soldier what was done wrong and how it should have been done to score a GO.

**References Required**

**Primary**

- TM 9-6115-641-24
- TM 9-6115-642-24
- TM 9-6115-643-24
- TM 9-6115-644-24
- TM 9-6115-645-24
- DA FORM 5988-E(EGA)
- DA FORM 5990-E(EGA)

**091-91D-3109**  
**Perform Diagnostic Procedures on the Lubrication System of**  
**a Tactical Power System**

**Conditions:** In an operational environment, given a maintenance request or equipment inspection worksheet describing equipment malfunctions, required tools and test equipment, and a malfunctioning lubrication system on a generator set.

**Standards:** Perform diagnostic procedures on the lubrication system in accordance with listed references and performance measures, ensuring that all applicable safety precautions are followed. After task is completed, Generator Set will be fully mission capable.

**Special Condition:** None

**Special Standards:** None

**Special Equipment:** None

**Cue:** None

**Note:** Task may be taught, supported and evaluated in multiple lessons. Equipment identified at the task may not reflect what is required in the formal training environment.

**Performance Steps**

1. Review equipment inspection and maintenance worksheet and/or work request.
2. Select necessary publications.
3. Ensure task is within shop capability/authorization.
4. Determine the required maintenance action.
5. Ensure proper tools are available to inspect, repair/replace, and test the lubrication system of a generator set.
6. Select necessary tools and test equipment.
7. Perform initial inspection.
8. Diagnose fault(s) and determine maintenance action to be performed.
  - a. Diagnose lubrication system malfunction as required.
  - b. Perform cylinder head maintenance as required.
9. Identify repair parts and requisition, if required.
10. Follow all safety precautions.

11. Assign personnel to perform task.
12. Identify faults.
13. Ensure all safety precautions and procedures are followed.
14. Determine corrective action.
15. Provide assistance when necessary.
16. Ensure the lubrication system is repaired in accordance with standards.
17. Perform a final inspection to ensure the lubrication system is fully mission-capable.
18. Complete DA Form 5988-E and/or DA Form 5990-E as required.

**Evaluation Preparation:**

WARNING: The following safety precautions must be adhered to when performing the tasks listed in this manual: Remove all rings, watches, and jewelry. Do not operate generator equipment in an enclosed area unless the area is adequately ventilated. Smoking, sparks, or open flames are not allowed within 50 feet of a generator set that is undergoing fuel system maintenance. Use care when handling fan and radiator. Sharp edges can cause injury. Dry-cleaning solvent is flammable and should not be used in the vicinity of sparks or open flame. When using compressed air, wear eye shields. Do not remove a radiator cap or surge tank cap unless the engine is cool. While working on battery systems, wear rubber gloves and goggles. Before working on the exhaust system, make sure it is cool. Disconnect the negative battery cable prior to performing any electrical system maintenance or when performing repairs in the locality of electrical components. While cutting metal with an oxyacetylene torch, wear leather gloves, leather apron, and welding goggles. When working around engines that are operating, wear hearing protection. When removing components over 75 pounds, two personnel are required. Do not smoke or use an open flame in the vicinity when filling a fuel tank. Do not operate generator set unless ground terminal stud has been connected to a suitable ground. Do not attempt to alter the position of the voltage reconnection board while the generator set is operating. Do not attempt to connect or disconnect load leads while the generator set is operating. Be careful not to inhale ether gas. Do not allow a crated generator set to swing while it is suspended.

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
1. Reviewed equipment inspection and maintenance worksheet and/or work request.	_____	_____
2. Selected necessary publications.	_____	_____
3. Ensured task is within shop capability/authorization.	_____	_____
4. Determined the required maintenance action.	_____	_____
5. Ensured proper tools are available to inspect, repair/replace, and test the lubrication system of a generator set.	_____	_____

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
6. Selected necessary tools and test equipment.	_____	_____
7. Performed initial inspection.	_____	_____
8. Diagnosed fault(s) and determine maintenance action to be performed.	_____	_____
9. Identified repair parts and requisition, if required.	_____	_____
10. Followed all safety precautions.	_____	_____
11. Assigned personnel to perform task.	_____	_____
12. Identified faults.	_____	_____
13. Ensured all safety precautions and procedures are followed.	_____	_____
14. Determined corrective action.	_____	_____
15. Provided assistance when necessary.	_____	_____
16. Ensured the lubrication system is repaired to acceptable standards.	_____	_____
17. Performed a final inspection to ensure the lubrication system is fully mission-capable.	_____	_____
18. Completed DA Form 5988-E and/or DA Form 5990-E as required.	_____	_____

**Evaluation Guidance:** The Soldier scores a GO if all performance measures were passed. The Soldier scores a NO-GO if any performance measure was failed. If any performance measure was failed show the Soldier what was done wrong and how it should have been done to score a GO.

- |                            |                |
|----------------------------|----------------|
| <b>References Required</b> | <b>Primary</b> |
| TM 9-6115-643-10           |                |
| TM 9-6115-643-24           |                |
| TM 9-6115-751-10           |                |
| TM 9-6115-751-24&P         |                |
| DA FORM 5988-E(EGA)        |                |
| DA FORM 5990-E(EGA)        |                |

**091-91D-3112**

**Perform Diagnostic Procedures on Glow Plugs of a Diesel  
Engine of a Tactical Power System**

**Conditions:** In an operational environment, given a maintenance request or equipment inspection worksheet describing equipment malfunctions, required tools and test equipment, and a Diesel Generator engine with malfunctioning glow plug system.

**Standards:** Soldier must perform this task in accordance with listed references and performance measures, ensuring that all applicable safety precautions are followed. After task is completed, the generator set will be fully mission capable.

**Special Condition:** None

**Special Standards:** None

**Special Equipment:** None

**Cue:** None

**Note:** Task may be taught, supported and evaluated in multiple lessons. Equipment identified at the task may not reflect what is required in the formal training environment

**Performance Steps**

1. Review equipment inspection and maintenance worksheet and/or work request.
2. Select necessary publications.
3. Ensure task is within shop capability/authorization.
4. Determine the required maintenance action.
5. Ensure proper tools are available to inspect, repair/replace, and test the glow plugs of a diesel engine on a generator set.
6. Select necessary tools and test equipment.
7. Perform initial inspection.
8. Diagnose fault(s) and determine maintenance action to be performed.
9. Identify repair parts and requisition, if required.
10. Follow all safety precautions.
11. Assign personnel to perform task.
12. Identify faults.



13. Ensure all safety precautions and procedures are followed.
14. Determine corrective action.
15. Provide assistance when necessary.
16. Ensure the glow plugs are repaired in accordance with standards.
17. Perform a final inspection to ensure the glow plugs are fully mission-capable.
18. Complete DA Form 5988-E and/or DA Form 5990-E as required.

**Evaluation Preparation:**

**WARNING:** The following safety precautions must be adhered to when performing the tasks listed in this manual: Remove all rings, watches, and jewelry. Do not operate generator equipment in an enclosed area unless the area is adequately ventilated. Smoking, sparks, or open flames are not allowed within 50 feet of a generator set that is undergoing fuel system maintenance. Use care when handling fan and radiator. Sharp edges can cause injury. Dry-cleaning solvent is flammable and should not be used in the vicinity of sparks or open flame. When using compressed air, wear eye shields. Do not remove a radiator cap or surge tank cap unless the engine is cool. While working on battery systems, wear rubber gloves and goggles. Before working on the exhaust system, make sure it is cool. Disconnect the negative battery cable prior to performing any electrical system maintenance or when performing repairs in the locality of electrical components. While cutting metal with an oxyacetylene torch, wear leather gloves, leather apron, and welding goggles. When working around engines that are operating, wear hearing protection. When removing components over 75 pounds, two personnel are required. Do not smoke or use an open flame in the vicinity when filling a fuel tank. Do not operate generator set unless ground terminal stud has been connected to a suitable ground. Do not attempt to alter the position of the voltage reconnection board while the generator set is operating. Do not attempt to connect or disconnect load leads while the generator set is operating. Be careful not to inhale ether gas. Do not allow a crated generator set to swing while it is suspended.

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
1. Reviewed equipment inspection and maintenance worksheet and/or work request.	_____	_____
2. Selected necessary publications.	_____	_____
3. Ensured task is within shop capability/authorization.	_____	_____
4. Determined the required maintenance action.	_____	_____
5. Ensured proper tools are available to inspect, repair/replace, and test the glow plugs on a diesel engine on a generator set.	_____	_____
6. Selected necessary tools and test equipment.	_____	_____
7. Performed initial inspection.	_____	_____

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
8. Diagnosed fault(s) and determine maintenance action to be performed.	_____	_____
9. Identified repair parts and requisition, if required.	_____	_____
10. Followed all safety precautions.	_____	_____
11. Assigned personnel to perform task.	_____	_____
12. Identified faults.	_____	_____
13. Ensured all safety precautions and procedures are followed.	_____	_____
14. Determined corrective action.	_____	_____
15. Provided assistance when necessary.	_____	_____
16. Ensured the glow plugs are repaired in accordance with standards.	_____	_____
17. Performed a final inspection to ensure the glow plugs are fully mission-capable.	_____	_____
18. Completed DA Form 5988-E and/or DA Form 5990-E as required.	_____	_____

**Evaluation Guidance:** The Soldier scores a GO if all performance measures were passed. The Soldier scores a NO-GO if any performance measure was failed. If any performance measure was failed show the Soldier what was done wrong and how it should have been done to score a GO.

**References  
Required**

**Primary**

- TM 9-6115-643-10
- TM 9-6115-643-24
- TM 9-6115-751-10
- TM 9-6115-751-24&P
- DA FORM 5988-E(EGA)
- DA FORM 5990-E(EGA)

**091-91D-3114**  
**Perform Diagnostic Procedures on a Starter Assembly of a  
Tactical Power System**

**Conditions:** In an operational environment, given a maintenance request or equipment inspection worksheet describing equipment malfunctions, required tools and test equipment, and a malfunctioning generator set.

**Standards:** Perform diagnostic procedures on a starter assembly in accordance with listed references and performance measures, ensuring that all applicable safety precautions are followed. After task is complete, Generator Set will be fully mission capable.

**Special Condition:** None

**Special Standards:** None

**Special Equipment:** None

**Cue:** None

**Note:** Task may be taught, supported and evaluated in multiple lessons. Equipment identified at the task may not reflect what is required in the formal training environment.

**Performance Steps**

1. Review equipment inspection and maintenance worksheet and/or work request.
2. Select necessary publications.
3. Ensure task is within shop capability/authorization.
4. Determine the required maintenance action.
5. Ensure proper tools are available to inspect, repair/replace, and test the starter assembly of a generator set.
6. Select necessary tools and test equipment.
7. Perform initial inspection.
8. Diagnose fault(s) and determine maintenance action to be performed.
  - a. Diagnose 3kW TQG AC/DC Circuitry as required
  - b. Diagnose starting system on External Auxilliary Power Unit, (APU) as required
  - c. Diagnose DC Circuits on a 5/10 Kw TQG as required.
  - d. Diagnose DC Circuits on a 15 and 60 Kw TQG as required.

9. Identify repair parts and requisition, if required.
10. Follow all safety precautions.
11. Assign personnel to perform task.
12. Identify faults.
13. Ensure all safety precautions and procedures are followed.
14. Determine corrective action.
15. Provide assistance when necessary.
16. Ensure the starter assembly is repaired in accordance with standards.
17. Perform a final inspection to ensure the starter assembly is fully mission-capable.
18. Complete DA Form 5988-E and/or DA Form 5990-E as required.

**Evaluation Preparation:**

WARNING: The following safety precautions must be adhered to when performing the tasks listed in this manual: Remove all rings, watches, and jewelry. Do not operate generator equipment in an enclosed area unless the area is adequately ventilated. Smoking, sparks, or open flames are not allowed within 50 feet of a generator set that is undergoing fuel system maintenance. Use care when handling fan and radiator. Sharp edges can cause injury. Dry-cleaning solvent is flammable and should not be used in the vicinity of sparks or open flame. When using compressed air, wear eye shields. Do not remove a radiator cap or surge tank cap unless the engine is cool. While working on battery systems, wear rubber gloves and goggles. Before working on the exhaust system, make sure it is cool. Disconnect the negative battery cable prior to performing any electrical system maintenance or when performing repairs in the locality of electrical components. While cutting metal with an oxyacetylene torch, wear leather gloves, leather apron, and welding goggles. When working around engines that are operating, wear hearing protection. When removing components over 75 pounds, two personnel are required. Do not smoke or use an open flame in the vicinity when filling a fuel tank. Do not operate generator set unless ground terminal stud has been connected to a suitable ground. Do not attempt to alter the position of the voltage reconnection board while the generator set is operating. Do not attempt to connect or disconnect load leads while the generator set is operating. Be careful not to inhale ether gas. Do not allow a crated generator set to swing while it is suspended.

**Performance Measures**

	<b>GO</b>	<b>NO GO</b>
1. Reviewed equipment inspection and maintenance worksheet and/or work request.	_____	_____
2. Selected necessary publications.	_____	_____
3. Ensured task is within shop capability/authorization.	_____	_____

Performance Measures	GO	NO GO
4. Determined the required maintenance action.	_____	_____
5. Ensured proper tools are available to inspect, repair/replace, and test the starter assembly of a generator set.	_____	_____
6. Selected necessary tools and test equipment.	_____	_____
7. Performed initial inspection.	_____	_____
8. Diagnosed fault(s) and determine maintenance action to be performed.	_____	_____
9. Identified repair parts and requisition, if required.	_____	_____
10. Followed all safety precautions.	_____	_____
11. Assigned personnel to perform task.	_____	_____
12. Identified faults.	_____	_____
13. Ensured all safety precautions and procedures are followed.	_____	_____
14. Determined corrective action.	_____	_____
15. Provided assistance when necessary.	_____	_____
16. Ensured the starter assembly is repaired to acceptable standards.	_____	_____
17. Performed a final inspection to ensure the starter assembly is fully mission-capable.	_____	_____
18. Completed DA Form 5988-E and/or DA Form 5990-E as required.	_____	_____

**Evaluation Guidance:** The Soldier scores a GO if all performance measures were passed. The Soldier scores a NO-GO if any performance measure was failed. If any performance measure was failed show the Soldier what was done wrong and how it should have been done to score a GO.

- References Required** **Primary**
- TM 9-6115-641-24
  - TM 9-6115-642-24
  - TM 9-6115-643-24
  - TM 9-6115-644-24
  - TM 9-6115-645-24
  - DA FORM 5988-E(EGA)
  - DA FORM 5990-E(EGA)

**091-91D-3118**  
**Perform Diagnostic Procedures on the Fuel System of an**  
**Engine of a Tactical Power System**

**Conditions:** In an operational environment, given a maintenance request or equipment inspection worksheet describing equipment malfunctions, required tools and test equipment, and a malfunctioning fuel system on a generator set.

**Standards:** Perform diagnostic procedures on the fuel system of an engine in accordance with listed references and performance measures, ensuring that all applicable safety precautions are followed. After the task is completed the generator set will be fully mission capable.

**Special Condition:** None

**Special Standards:** None

**Special Equipment:** None

**Cue:** None

**Note:** Task may be taught, supported and evaluated in multiple lessons. Equipment identified at the task may not reflect what is required in the formal training environment.

**Performance Steps**

1. Review equipment inspection and maintenance worksheet and/or work request.
2. Select necessary publications.
3. Ensure task is within shop capability/authorization.
4. Determine the required maintenance action.
5. Ensure proper tools are available to inspect, repair/replace, and test the fuel system of an engine on a generator set.
6. Select necessary tools and test equipment.
7. Perform initial inspection.
8. Diagnose fault(s) and determine maintenance action to be performed.
  - a. Diagnose 5/10 kW DED Generator Set fuel pump system as applicable.
  - b. Diagnose 10/15/30 kW TQG Generator Set fuel pump system as applicable.
  - c. Diagnose 10 kW TQG Fuel Injection Pump as applicable.
9. Identify repair parts and requisition, if required.

10. Follow all safety precautions.
11. Assign personnel to perform task.
12. Identify faults.
13. Ensure all safety precautions and procedures are followed.
14. Determine corrective action.
15. Provide assistance when necessary.
16. Ensure the fuel system is repaired in accordance with standards.
17. Perform a final inspection to ensure the fuel system is fully mission-capable.
18. Complete DA Form 5988-E and/or DA Form 5990-E as required.

**Evaluation Preparation:**

WARNING: The following safety precautions must be adhered to when performing the tasks listed in this manual: Remove all rings, watches, and jewelry. Do not operate generator equipment in an enclosed area unless the area is adequately ventilated. Smoking, sparks, or open flames are not allowed within 50 feet of a generator set that is undergoing fuel system maintenance. Use care when handling fan and radiator. Sharp edges can cause injury. Dry-cleaning solvent is flammable and should not be used in the vicinity of sparks or open flame. When using compressed air, wear eye shields. Do not remove a radiator cap or surge tank cap unless the engine is cool. While working on battery systems, wear rubber gloves and goggles. Before working on the exhaust system, make sure it is cool. Disconnect the negative battery cable prior to performing any electrical system maintenance or when performing repairs in the locality of electrical components. While cutting metal with an oxyacetylene torch, wear leather gloves, leather apron, and welding goggles. When working around engines that are operating, wear hearing protection. When removing components over 75 pounds, two personnel are required. Do not smoke or use an open flame in the vicinity when filling a fuel tank. Do not operate generator set unless ground terminal stud has been connected to a suitable ground. Do not attempt to alter the position of the voltage reconnection board while the generator set is operating. Do not attempt to connect or disconnect load leads while the generator set is operating. Be careful not to inhale ether gas. Do not allow a crated generator set to swing while it is suspended.

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
1. Reviewed equipment inspection and maintenance worksheet and/or work request.	_____	_____
2. Selected necessary publications.	_____	_____
3. Ensured task is within shop capability/authorization.	_____	_____
4. Determined the required maintenance action.	_____	_____

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
5. Ensured proper tools are available to inspect, repair/replace, and test the fuel system of a generator set.	_____	_____
6. Selected necessary tools and test equipment.	_____	_____
7. Performed initial inspection.	_____	_____
8. Diagnosed fault(s) and determine maintenance action to be performed.	_____	_____
9. Identified repair parts and requisition, if required.	_____	_____
10. Followed all safety precautions.	_____	_____
11. Assigned personnel to perform task.	_____	_____
12. Identified faults.	_____	_____
13. Ensured all safety precautions and procedures are followed.	_____	_____
14. Determined corrective action.	_____	_____
15. Provided assistance when necessary.	_____	_____
16. Ensured the fuel system is repaired to acceptable standards.	_____	_____
17. Performed a final inspection to ensure the fuel system is fully mission-capable.	_____	_____
18. Completed DA Form 5988-E and/or DA Form 5990-E as required.	_____	_____

**Evaluation Guidance:** The Soldier scores a GO if all performance measures were passed. The Soldier scores a NO-GO if any performance measure was failed. If any performance measure was failed show the Soldier what was done wrong and how it should have been done to score a GO.

**References  
Required**

TM 9-6115-641-24  
 TM 9-6115-642-24  
 TM 9-6115-643-24  
 TM 9-6115-644-24  
 TM 9-6115-645-24  
 DA FORM 5988-E(EGA)  
 DA FORM 5990-E(EGA)

**Primary**



**091-91D-3119**  
**Perform Diagnostic Procedures on a Cooling System of a Diesel Engine of a Tactical Power System**

**Conditions:** In an operational environment, given a maintenance request or equipment inspection worksheet describing equipment malfunctions, required tools and test equipment, and a malfunctioning cooling system on a generator set.

**Standards:** Perform diagnostic procedures on a cooling system of a diesel engine in accordance with listed references and performance measures, ensuring that all applicable safety precautions are followed. When task is completed, generator set will be fully mission capable.

**Special Condition:** None

**Special Standards:** None

**Special Equipment:** None

**Cue:** None

**Note:** Task may be taught, supported and evaluated in multiple lessons. Equipment identified at the task may not reflect what is required in the formal training environment.

**Performance Steps**

1. Review equipment inspection and maintenance worksheet and/or work request.
2. Select necessary publications.
3. Ensure task is within shop capability/authorization.
4. Determine the required maintenance action.
5. Ensure proper tools are available to inspect, repair/replace, and test the cooling system of a diesel engine on a generator set.
6. Select necessary tools and test equipment.
7. Perform initial inspection.
8. Diagnose fault(s) and determine maintenance action to be performed.
9. Identify repair parts and requisition, if required.
10. Follow all safety precautions.
11. Assign personnel to perform task.

12. Identify faults.
13. Ensure all safety precautions and procedures are followed.
14. Determine corrective action.
15. Provide assistance when necessary.
16. Ensure the cooling system is repaired in accordance with standards.
17. Perform a final inspection to ensure the cooling system is fully mission-capable.
18. Complete DA Form 5988-E and/or DA Form 5990-E as required.

**Evaluation Preparation:**

**WARNING:** The following safety precautions must be adhered to when performing the tasks listed in this manual: Remove all rings, watches, and jewelry. Do not operate generator equipment in an enclosed area unless the area is adequately ventilated. Smoking, sparks, or open flames are not allowed within 50 feet of a generator set that is undergoing fuel system maintenance. Use care when handling fan and radiator. Sharp edges can cause injury. Dry-cleaning solvent is flammable and should not be used in the vicinity of sparks or open flame. When using compressed air, wear eye shields. Do not remove a radiator cap or surge tank cap unless the engine is cool. While working on battery systems, wear rubber gloves and goggles. Before working on the exhaust system, make sure it is cool. Disconnect the negative battery cable prior to performing any electrical system maintenance or when performing repairs in the locality of electrical components. While cutting metal with an oxyacetylene torch, wear leather gloves, leather apron, and welding goggles. When working around engines that are operating, wear hearing protection. When removing components over 75 pounds, two personnel are required. Do not smoke or use an open flame in the vicinity when filling a fuel tank. Do not operate generator set unless ground terminal stud has been connected to a suitable ground. Do not attempt to alter the position of the voltage reconnection board while the generator set is operating. Do not attempt to connect or disconnect load leads while the generator set is operating. Be careful not to inhale ether gas. Do not allow a crated generator set to swing while it is suspended.

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
1. Reviewed equipment inspection and maintenance worksheet and/or work request.	_____	_____
2. Selected necessary publications.	_____	_____
3. Ensured task is within shop capability/authorization.	_____	_____
4. Determined the required maintenance action.	_____	_____
5. Ensured proper tools are available to inspect, repair/replace, and test the cooling system of a diesel on a generator set.	_____	_____
6. Selected necessary tools and test equipment.	_____	_____

Performance Measures	GO	NO GO
7. Performed initial inspection.	_____	_____
8. Diagnosed fault(s) and determine maintenance action to be performed.	_____	_____
9. Identified repair parts and requisition, if required.	_____	_____
10. Followed all safety precautions.	_____	_____
11. Assigned personnel to perform task.	_____	_____
12. Identified faults.	_____	_____
13. Ensured all safety precautions and procedures are followed.	_____	_____
14. Determined corrective action.	_____	_____
15. Provided assistance when necessary.	_____	_____
16. Ensured the cooling system is repaired to acceptable standards.	_____	_____
17. Performed a final inspection to ensure the cooling system is fully mission-capable.	_____	_____
18. Completed DA Form 5988-E and/or DA Form 5990-E as required.	_____	_____

**Evaluation Guidance:** The Soldier scores a GO if all performance measures were passed. The Soldier scores a NO-GO if any performance measure was failed. If any performance measure was failed show the Soldier what was done wrong and how it should have been done to score a GO.

**References Required**

**Primary**

- TM 9-6115-643-10
- TM 9-6115-643-24
- TM 9-6115-751-10
- TM 9-6115-751-24&P
- DA FORM 5988-E(EGA)
- DA FORM 5990-E(EGA)

**091-91D-3120**  
**Perform Diagnostic Procedures on the Electrical Control on a**  
**Welding Machine**

**Conditions:** In an operational environment, given a maintenance request or equipment inspection worksheet describing equipment malfunctions, required tools and test equipment, and a welding machine with an electrical control malfunction.

**Standards:** Perform diagnostic procedures on the electrical control on a welding machine in accordance with listed references and performance measures, ensuring that all applicable safety precautions are followed. After task is completed, welding machine will be fully mission capable.

**Special Condition:** None

**Special Standards:** None

**Special Equipment:** None

**Cue:** None

**Note:** Task may be taught, supported and evaluated in multiple lessons. Equipment identified at the task may not reflect what is required in the formal training environment.

**Performance Steps**

1. Review equipment inspection and maintenance worksheet and/or work request.
2. Select necessary publications.
3. Ensure task is within shop capability/authorization.
4. Determine the required maintenance action.
5. Ensure proper tools are available to inspect, repair/replace, and test the electrical control on a welding machine.
6. Select necessary tools and test equipment.
7. Perform initial inspection.
8. Diagnose fault(s) and determine maintenance action to be performed.
9. Identify repair parts and requisition, if required.
10. Follow all safety precautions.
11. Assign personnel to perform task.

12. Identify faults.
13. Ensure all safety precautions and procedures are followed.
14. Determine corrective action.
15. Provide assistance when necessary.
16. Ensure the electrical control is repaired in accordance with standards.
17. Perform a final inspection to ensure the electrical control is fully mission-capable.
18. Complete DA Form 5988-E and/or DA Form 5990-E as required.

**Evaluation Preparation:**

**WARNING:** The following safety precautions must be adhered to when performing the tasks listed in this manual: Remove all rings, watches, and jewelry. Do not operate generator equipment in an enclosed area unless the area is adequately ventilated. Smoking, sparks, or open flames are not allowed within 50 feet of a generator set that is undergoing fuel system maintenance. Use care when handling fan and radiator. Sharp edges can cause injury. Dry-cleaning solvent is flammable and should not be used in the vicinity of sparks or open flame. When using compressed air, wear eye shields. Do not remove a radiator cap or surge tank cap unless the engine is cool. While working on battery systems, wear rubber gloves and goggles. Before working on the exhaust system, make sure it is cool. Disconnect the negative battery cable prior to performing any electrical system maintenance or when performing repairs in the locality of electrical components. While cutting metal with an oxyacetylene torch, wear leather gloves, leather apron, and welding goggles. When working around engines that are operating, wear hearing protection. When removing components over 75 pounds, two personnel are required. Do not smoke or use an open flame in the vicinity when filling a fuel tank. Do not operate generator set unless ground terminal stud has been connected to a suitable ground. Do not attempt to alter the position of the voltage reconnection board while the generator set is operating. Do not attempt to connect or disconnect load leads while the generator set is operating. Be careful not to inhale ether gas. Do not allow a crated generator set to swing while it is suspended.

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
1. Reviewed equipment inspection and maintenance worksheet and/or work request.	_____	_____
2. Selected necessary publications.	_____	_____
3. Ensured task is within shop capability/authorization.	_____	_____
4. Determined the required maintenance action.	_____	_____
5. Ensured proper tools are available to inspect, repair/replace, and test the electrical control on a welding machine.	_____	_____
6. Selected necessary tools and test equipment.	_____	_____

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
7. Performed initial inspection.	_____	_____
8. Diagnosed fault(s) and determine maintenance action to be performed.	_____	_____
9. Identified repair parts and requisition, if required.	_____	_____
10. Followed all safety precautions.	_____	_____
11. Assigned personnel to perform task.	_____	_____
12. Identified faults.	_____	_____
13. Ensured all safety precautions and procedures are followed.	_____	_____
14. Determined corrective action.	_____	_____
15. Provided assistance when necessary.	_____	_____
16. Ensured the electrical control is repaired to acceptable standards.	_____	_____
17. Performed a final inspection to ensure the electrical control is fully mission-capable.	_____	_____
18. Completed DA Form 5988-E and/or DA Form 5990-E as required.	_____	_____

**Evaluation Guidance:** The Soldier scores a GO if all performance measures were passed. The Soldier scores a NO-GO if any performance measure was failed. If any performance measure was failed show the Soldier what was done wrong and how it should have been done to score a GO.

**References  
Required**

**Primary**

- TM 9-6115-643-10
- TM 9-6115-643-24
- TM 9-6115-751-10
- TM 9-6115-751-24&P
- DA FORM 5988-E(EGA)
- DA FORM 5990-E(EGA)

**091-91D-3121****Perform Quality Control/Quality Assurance Inspection on a Generator Set of a Tactical Power System**

**Conditions:** In a operational environment, given a maintenance request or equipment inspection worksheet describing equipment malfunctions, required tools and test equipment, and a Generator Set.

**Standards:** Perform quality control (QC)/quality assurance (QA) inspections on a generator set in accordance with listed references and performance measures, ensuring that all applicable safety precautions are followed.

**Special Condition:** None

**Special Standards:** None

**Special Equipment:**

**Cue:** None

**Note:** Task may be taught, supported and evaluated in multiple lessons. Equipment identified at the task may not reflect what is required in the formal training environment

**Performance Steps**

1. Review work request.
2. Use applicable publications.
3. Apply diagnosing procedures.
4. Apply inspection procedures.
5. Use test, measurement, and diagnostic equipment (TMDE), if required.
6. Ensure all safety precautions are followed.
7. Determine disposition of equipment.
8. Complete DA Form 5988-E and/or DA Form 5990-E as required.

**Evaluation Preparation:** None

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
1. Reviewed work request.	_____	_____
2. Used applicable publications.	_____	_____
3. Applied troubleshooting procedures.	_____	_____
4. Applied inspection procedures.	_____	_____
5. Used TMDE, if required.	_____	_____
6. Ensured all safety precautions are followed.	_____	_____
7. Determined disposition of equipment.	_____	_____
8. Completed DA Form 5988-E and/or DA Form 5990-E as required.	_____	_____

**Evaluation Guidance:** The Soldier scores a GO if all performance measures were passed. The Soldier scores a NO-GO if any performance measure was failed. If any performance measure was failed show the Soldier what was done wrong and how it should have been done to score a GO.

**References Required**

**Primary**

- TM 9-6115-643-10
- TM 9-6115-643-24
- TM 9-6115-751-10
- TM 9-6115-751-24&P
- DA FORM 5988-E(EGA)
- DA FORM 5990-E(EGA)



**091-91D-3122**  
**Perform Quality Control/Quality Assurance Inspection on a**  
**Welding Machine**

**Conditions:** In a contemporary operational environment, given a maintenance request or equipment inspection worksheet describing equipment malfunctions, required tools and test equipment, and a welding machine.

**Standards:** Perform quality control (QC)/quality assurance (QA) inspection on a welding machine in accordance with listed references and performance measures, ensuring that all applicable safety precautions are followed.

**Special Condition:** None

**Special Standards:** None

**Special Equipment:** None

**Cue:** None

**Note:** Task may be taught, supported and evaluated in multiple lessons. Equipment identified at the task may not reflect what is required in the formal training environment.

**Performance Steps**

1. Review work request.
2. Use applicable publications.
3. Apply diagnosing procedures.
4. Apply inspection procedures.
5. Ensure proper tools are available to perform QC/QA inspection on a welding machine.
6. Ensure all safety precautions and procedures are followed.
7. Use test, measurement, and diagnostic equipment (TMDE), if required.
8. Ensure all safety precautions are followed.
9. Determine disposition.
10. Complete DA Form 5988-E and/or DA Form 5990-E as required.

**Evaluation Preparation:** None

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
1. Reviewed work request.	_____	_____
2. Used applicable publications.	_____	_____
3. Applied troubleshooting procedures.	_____	_____
4. Applied inspection procedures.	_____	_____
5. Ensured proper tools are available to perform QC/QA inspection on a welding machine.	_____	_____
6. Ensured all safety precautions and procedures are followed.	_____	_____
7. Used TMDE, if required.	_____	_____
8. Ensured all safety precautions are followed.	_____	_____
9. Determined disposition.	_____	_____
10. Completed DA Form 5988-E and/or DA Form 5990-E as required.	_____	_____

**Evaluation Guidance:** The Soldier scores a GO if all performance measures were passed. The Soldier scores a NO-GO if any performance measure was failed. If any performance measure was failed show the Soldier what was done wrong and how it should have been done to score a GO.

**References  
Required**

**Primary**

- TM 9-6115-643-10
- TM 9-6115-643-24
- TM 9-6115-751-10
- TM 9-6115-751-24&P
- DA FORM 5988-E(EGA)
- DA FORM 5990-E(EGA)

**091-91D-3123**  
**Perform Classification Inspection on a Tactical Power System**

**Conditions:** In a contemporary operational environment, given a maintenance request or equipment inspection worksheet describing equipment malfunctions, required tools and test equipment, and a generator set requiring classification.

**Standards:** Perform classification inspection on a generator set in accordance with listed references and performance measures, ensuring that all applicable safety precautions are followed.

**Special Condition:** None

**Special Standards:** None

**Special Equipment:** None

**Cue:** None

**Note:** None

**Performance Steps**

1. Review the work order/ work request.
2. Use applicable publications.
3. Ensure task is within shop capability/authorization.
4. Ensure proper tools are available to perform classification inspection on a generator set.
5. Apply inspection procedures.
6. Apply diagnosing procedures.
7. Use test, measurement, and diagnostic equipment (TMDE), if required.
8. Perform classification inspection on a generator set.
9. Determine disposition.
10. Ensure tools and equipment are properly maintained.
11. Complete DA Form 5988-E and/or DA Form 5990-E as required.

**Evaluation Preparation:** None

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
1. Reviewed the work order/ work request.	_____	_____
2. Used applicable publications.	_____	_____
3. Ensured task is within shop capability/authorization.	_____	_____
4. Ensured proper tools are available to perform classification inspection on a generator set.	_____	_____
5. Applied inspection procedures.	_____	_____
6. Applied diagnosing procedures.	_____	_____
7. Ensured all safety precautions and procedures are followed.	_____	_____
8. Used TMDE, if required.	_____	_____
9. Performed classification inspection on a generator set.	_____	_____
10. Determined disposition.	_____	_____
11. Ensured tools and equipment are properly maintained.	_____	_____
12. Completed DA Form 5988-E and/or DA Form 5990-E as required.	_____	_____

**Evaluation Guidance:** The Soldier scores a GO if all performance measures were passed. The Soldier scores a NO-GO if any performance measure was failed. If any performance measure was failed show the Soldier what was done wrong and how it should have been done to score a GO.

**References  
Required**

**Primary**

- TM 9-6115-643-10
- TM 9-6115-643-24
- TM 9-6115-751-10
- TM 9-6115-751-24&P
- DA FORM 5988-E(EGA)
- DA FORM 5990-E(EGA)

**091-91D-3124**  
**Perform Classification Inspection on a Welding Machine**

**Conditions:** In a contemporary operational environment, given a maintenance request or equipment inspection worksheet describing equipment malfunctions, required tools and test equipment, and a welding machine.

**Standards:** Perform classification inspection on a welding machine in accordance with listed references and performance measures, ensuring that all applicable safety precautions are followed.

**Special Condition:** None

**Special Standards:**

None **Special Equipment:**

None **Cue:** None

**Note:** Task may be taught, supported and evaluated in multiple lessons. Equipment identified at the task may not reflect what is required in the formal training environment.

**Performance Steps**

1. Review work request.
2. Use applicable publications.
3. Apply diagnosing procedures.
4. Apply inspection procedures.
5. Use test, measurement, and diagnostic equipment (TMDE), if required.
6. Ensure all safety precautions are followed.
7. Determine disposition.
8. Complete DA Form 5988-E and/or DA Form 5990-E as required.

**Evaluation Preparation:** None

**Performance Measures**

	<b>GO</b>	<b>NO GO</b>
1. Reviewed work request.	_____	_____
2. Used applicable publications.	_____	_____
3. Applied diagnostic procedures.	_____	_____
4. Applied inspection procedures.	_____	_____

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
5. Used TMDE, if required.	_____	_____
6. Ensured all safety precautions are followed.	_____	_____
7. Determined disposition.	_____	_____
8. Completed DA Form 5988-E and/or DA Form 5990-E as required.	_____	_____

**Evaluation Guidance:** The Soldier scores a GO if all performance measures were passed. The Soldier scores a NO-GO if any performance measure was failed. If any performance measure was failed show the Soldier what was done wrong and how it should have been done to score a GO.

**References  
Required**

**Primary**

- TM 9-6115-643-10
- TM 9-6115-643-24
- TM 9-6115-751-10
- TM 9-6115-751-24&P
- DA FORM 5988-E(EGA)
- DA FORM 5990-E(EGA)

**091-91D-3126****Perform Diagnostic Procedures on a Load Bank**

**Conditions:** In an operational environment, given diagnostic procedures on a load bank.

**Standards:** Troubleshoot the load bank and analyze the results to determine the cause of the malfunction, in accordance with technical manual (TM) 9-6115-641-10 and performance measures.

**Special Condition:** None

**Special Standards:** None

**Special Equipment:** None

**Cue:** None

**Note:** Task may be taught, supported and evaluated in multiple lessons. Equipment identified at the task may not reflect what is required in the formal training environment.

**Performance Steps**

1. Review equipment inspection and maintenance worksheet and/or work request.
2. Select necessary publications.
3. Ensure task is within shop capability/authorization.
4. Determine the required maintenance action.
5. Ensure proper tools are available to inspect, repair/replace, and test the load bank.
6. Select necessary tools and test equipment.
7. Perform initial inspection.
8. Diagnose fault(s) and determine maintenance action to be performed.
9. Identify repair parts and requisition, if required.
10. Follow all safety precautions.
11. Assign personnel to perform task.
12. Identify faults.
13. Ensure all safety precautions and procedures are followed.
14. Determine corrective action.

15. Provide assistance when necessary.
16. Ensure the load is repaired in accordance with standards.
17. Perform a final inspection to ensure the load bank is fully mission-capable.
18. Complete DA Form 5988-E and/or DA Form 5990-E as required.

**Evaluation Preparation:**

**WARNING:** The following safety precautions must be adhered to when performing the tasks listed in this manual: Remove all rings, watches, and jewelry. Do not operate generator equipment in an enclosed area unless the area is adequately ventilated. Smoking, sparks, or open flames are not allowed within 50 feet of a generator set which is undergoing fuel system maintenance. Use care when handling fan and radiator. Sharp edges can cause injury. Dry-cleaning solvent is flammable and should not be used in the vicinity of sparks or open flame. When using compressed air, wear eye shields. Do not remove a radiator cap or surge tank cap unless the engine is cool. While working on battery systems, wear rubber gloves and goggles. Before working on the exhaust system, make sure it is cool. Disconnect the negative battery cable prior to performing any electrical system maintenance or when performing repairs in the locality of electrical components. While cutting metal with an oxyacetylene torch, wear leather gloves, leather apron, and welding goggles. When working around engines that are operating, wear hearing protection. When removing components over 75 pounds, two personnel are required. Do not smoke or use an open flame in the vicinity when filling a fuel tank. Do not operate generator set unless ground terminal stud has been connected to a suitable ground. Do not attempt to alter the position of the voltage reconnection board while the generator set is operating. Do not attempt to connect or disconnect load leads while the generator set is operating. Be careful not to inhale ether gas. Do not allow a crated generator set to swing while it is suspended.

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
1. Reviewed equipment inspection and maintenance worksheet and/or work request.	_____	_____
2. Selected necessary publications.	_____	_____
3. Ensured task is within shop capability/authorization.	_____	_____
4. Determined the required maintenance action.	_____	_____
5. Ensured proper tools are available to inspect, repair/replace, and test the load bank.	_____	_____
6. Selected necessary tools and test equipment.	_____	_____
7. Performed initial inspection.	_____	_____
8. Diagnosed fault(s) and determine maintenance action to be performed.	_____	_____
9. Identified repair parts and requisition, if required.	_____	_____



<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
10. Followed all safety precautions.	_____	_____
11. Assigned personnel to perform task.	_____	_____
12. Identified faults.	_____	_____
13. Ensured all safety precautions and procedures are followed.	_____	_____
14. Determined corrective action.	_____	_____
15. Provided assistance when necessary.	_____	_____
16. Ensured the load bank is repaired in accordance with standards.	_____	_____
17. Performed a final inspection to ensure the lubrication system is fully mission-capable.	_____	_____
18. Completed DA Form 5988-E and/or DA Form 5990-E as required.	_____	_____

**Evaluation Guidance:** The Soldier scores a GO if all performance measures were passed. The Soldier scores a NO-GO if any performance measure was failed. If any performance measure was failed show the Soldier what was done wrong and how it should have been done to score a GO.

**References**

**Required**

- TM 9-6115-641-10
- DA FORM 5988-E(EGA)
- DA FORM 5990-E(EGA)

**Primary**

**091-91D-3127**  
**Replace Cylinder Head on a Engine of a Tactical Power System**

**Conditions:** In an operational environment, given a tactical quiet generator set, general mechanic's tool kit, torque wrench, replacement parts (gasket), TM 9-6115-643-10, and TM 9-6115-643-24.

**Standards:** Replace the cylinder head on the diesel engine, in accordance with TM 9-6115-643-24 and performance measures.

**Special Condition:** None

**Special Standards:**

None **Special Equipment:**

None **Cue:** None

**Note:** Task may be taught, supported and evaluated in multiple lessons. Equipment identified at the task may not reflect what is required in the formal training environment.

**Performance Steps**

1. Review equipment inspection and maintenance worksheet and/or work request.
2. Select necessary publications.
3. Ensure task is within shop capability/authorization.
4. Determine the required maintenance action.
5. Ensure proper tools are available to inspect, repair/replace the cylinder head.
6. Select necessary tools and test equipment.
7. Perform initial inspection.
8. Diagnose fault(s) and determine maintenance action to be performed.
9. Identify repair parts and requisition, if required.
10. Follow all safety precautions.
11. Assign personnel to perform task.
12. Identify faults.
13. Ensure all safety precautions and procedures are followed.

14. Determine corrective action.
15. Provide assistance when necessary.
16. Ensure the cylinder head is replaced in accordance with standards.
17. Perform a final inspection to ensure the cylinder head in fully mission-capable.
18. Complete DA Form 5988-E and/or DA Form 5990-E as required.

**Evaluation Preparation:**

**WARNING:** The following safety precautions must be adhered to when performing the tasks listed in this manual: Remove all rings, watches, and jewelry. Do not operate generator equipment in an enclosed area unless the area is adequately ventilated. Smoking, sparks, or open flames are not allowed within 50 feet of a generator set that is undergoing fuel system maintenance. Use care when handling fan and radiator. Sharp edges can cause injury. Dry-cleaning solvent is flammable and should not be used in the vicinity of sparks or open flame. When using compressed air, wear eye shields. Do not remove a radiator cap or surge tank cap unless the engine is cool. While working on battery systems, wear rubber gloves and goggles. Before working on the exhaust system, make sure it is cool. Disconnect the negative battery cable prior to performing any electrical system maintenance or when performing repairs in the locality of electrical components. While cutting metal with an oxyacetylene torch, wear leather gloves, leather apron, and welding goggles. When working around engines that are operating, wear hearing protection. When removing components over 75 pounds, two personnel are required. Do not smoke or use an open flame in the vicinity when filling a fuel tank. Do not operate generator set unless ground terminal stud has been connected to a suitable ground. Do not attempt to alter the position of the voltage reconnection board while the generator set is operating. Do not attempt to connect or disconnect load leads while the generator set is operating. Be careful not to inhale ether gas. Do not allow a crated generator set to swing while it is suspended.

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
1. Reviewed equipment inspection and maintenance worksheet and/or work request.	_____	_____
2. Selected necessary publications.	_____	_____
3. Ensured task is within shop capability/authorization.	_____	_____
4. Determined the required maintenance action.	_____	_____
5. Ensured proper tools are available to inspect, repair/replace cylinder head.	_____	_____
6. Selected necessary tools and test equipment.	_____	_____
7. Performed initial inspection.	_____	_____

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
8. Diagnosed fault(s) and determine maintenance action to be performed.	_____	_____
9. Identified repair parts and requisition, if required.	_____	_____
10. Followed all safety precautions.	_____	_____
11. Assigned personnel to perform task.	_____	_____
12. Identified faults.	_____	_____
13. Ensured all safety precautions and procedures are followed.	_____	_____
14. Determined corrective action.	_____	_____
15. Provided assistance when necessary.	_____	_____
16. Ensured the cylinder head is repaired in accordance with standards.	_____	_____
17. Performed a final inspection to ensure the cylinder head is fully mission-capable.	_____	_____
18. Completed DA Form 5988-E and/or DA Form 5990-E as required.	_____	_____

**Evaluation Guidance:** The Soldier scores a GO if all performance measures were passed. The Soldier scores a NO-GO if any performance measure was failed. If any performance measure was failed show the Soldier what was done wrong and how it should have been done to score a GO.

**References  
Required**

**Primary**

- TM 9-6115-643-10
- TM 9-6115-643-24
- DA FORM 5988-E(EGA)
- DA FORM 5990-E(EGA)

**091-91D-3128**  
**Perform Diagnostic Procedures on the Output Rectifier**  
**Assembly on a Welding Machine**

**Conditions:** In an operational environment, given a welding machine, maintenance request or equipment inspection worksheet describing equipment malfunctions, schematic and wiring diagram, general mechanic's tool kit, color/grease pencils, multimeter, hearing protection, and applicable technical publications.

**Standards:** Perform diagnostic procedures on the output rectifier assembly on a welding machine in accordance with the applicable technical publications. When the task is completed, the welding machine must be fully mission-capable.

**Special Condition:** None

**Special Standards:** None

**Special Equipment:** None

**Cue:** None

**Note:** Task may be taught, supported and evaluated in multiple lessons. Equipment identified at the task may not reflect what is required in the formal training environment.

**Performance Steps**

1. Review equipment inspection and maintenance worksheet and/or work request.
2. Select necessary publications.
3. Ensure task is within shop capability/authorization.
4. Determine the required maintenance action.
5. Ensure proper tools are available to inspect, repair/replace, and test the output rectifier assembly on a welding machine.
6. Select necessary tools and test equipment.
7. Perform initial inspection.
8. Diagnose fault(s) and determine maintenance action to be performed.
9. Identify repair parts and requisition, if required.
10. Follow all safety precautions.
11. Assign personnel to perform task.

12. Identify faults.
13. Ensure all safety precautions and procedures are followed.
14. Determine corrective action.
15. Provide assistance when necessary.
16. Ensure the output rectifier assembly is repaired in accordance with standards.
17. Perform a final inspection to ensure the output rectifier assembly is fully mission-capable.
18. Complete DA Form 5988-E and/or DA Form 5990-E as required.

**Evaluation Preparation:**

WARNING: The following safety precautions must be adhered to when performing the tasks listed in this manual: Remove all rings, watches, and jewelry. Do not operate generator equipment in an enclosed area unless the area is adequately ventilated. Smoking, sparks, or open flames are not allowed within 50 feet of a generator set that is undergoing fuel system maintenance. Use care when handling fan and radiator. Sharp edges can cause injury. Dry-cleaning solvent is flammable and should not be used in the vicinity of sparks or open flame. When using compressed air, wear eye shields. Do not remove a radiator cap or surge tank cap unless the engine is cool. While working on battery systems, wear rubber gloves and goggles. Before working on the exhaust system, make sure it is cool. Disconnect the negative battery cable prior to performing any electrical system maintenance or when performing repairs in the locality of electrical components. While cutting metal with an oxyacetylene torch, wear leather gloves, leather apron, and welding goggles. When working around engines that are operating, wear hearing protection. When removing components over 75 pounds, two personnel are required. Do not smoke or use an open flame in the vicinity when filling a fuel tank. Do not operate generator set unless ground terminal stud has been connected to a suitable ground. Do not attempt to alter the position of the voltage reconnection board while the generator set is operating. Do not attempt to connect or disconnect load leads while the generator set is operating. Be careful not to inhale ether gas. Do not allow a crated generator set to swing while it is suspended.

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
1. Reviewed equipment inspection and maintenance worksheet and/or work request.	_____	_____
2. Selected necessary publications.	_____	_____
3. Ensured task is within shop capability/authorization.	_____	_____
4. Determined the required maintenance action.	_____	_____
5. Ensured proper tools are available to inspect, repair/replace, and test the output rectifier assembly on a welding machine.	_____	_____
6. Selected necessary tools and test equipment.	_____	_____
7. Performed initial inspection.	_____	_____

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
8. Diagnosed fault(s) and determine maintenance action to be performed.	_____	_____
9. Identified repair parts and requisition, if required.	_____	_____
10. Followed all safety precautions.	_____	_____
11. Assigned personnel to perform task.	_____	_____
12. Identified faults.	_____	_____
13. Ensured all safety precautions and procedures are followed.	_____	_____
14. Determined corrective action.	_____	_____
15. Provided assistance when necessary.	_____	_____
16. Ensured the output rectifier assembly is repaired in accordance with standards.	_____	_____
17. Performed a final inspection to ensure the output rectifier assembly is fully mission-capable.	_____	_____
18. Completed DA Form 5988-E and/or DA Form 5990-E as required.	_____	_____

**Evaluation Guidance:** The Soldier scores a GO if all performance measures were passed. The Soldier scores a NO-GO if any performance measure was failed. If any performance measure was failed show the Soldier what was done wrong and how it should have been done to score a GO.

**References**

**Required**

**Primary**

- TM 9-6115-643-10
- TM 9-6115-643-24
- TM 9-6115-751-10
- TM 9-6115-751-24&P
- DA FORM 5988-E(EGA)
- DA FORM 5990-E(EGA)

**091-91D-3129**  
**Perform Diagnostic Procedures on the Range Switch**  
**Assembly on a Welding Machine**

**Conditions:** In an operational environment, given a welding machine, maintenance request or equipment inspection worksheet describing equipment malfunctions, schematic and wiring diagram, general mechanic's tool kit, multimeter, hearing protection, and applicable technical publications.

**Standards:** Perform diagnostic procedures on the range switch assembly on a welding machine in accordance with the applicable technical publications and performance measures. When the task is completed, the welding machine must be fully mission-capable.

**Special Condition:** None

**Special Standards:** None

**Special Equipment:** None

**Cue:** None

**Note:** Task may be taught, supported and evaluated in multiple lessons. Equipment identified at the task may not reflect what is required in the formal training environment.

**Performance Steps**

1. Review equipment inspection and maintenance worksheet and/or work request.
2. Select necessary publications.
3. Ensure task is within shop capability/authorization.
4. Determine the required maintenance action.
5. Ensure proper tools are available to inspect, repair/replace, and test the range switch assembly on a welding machine.
6. Select necessary tools and test equipment.
7. Perform initial inspection.
8. Diagnose fault(s) and determine maintenance action to be performed.
9. Identify repair parts and requisition, if required.
10. Follow all safety precautions.
11. Assign personnel to perform task.



12. Identify faults.
13. Ensure all safety precautions and procedures are followed.
14. Determine corrective action.
15. Provide assistance when necessary.
16. Ensure the range switch assembly is repaired in accordance with standards.
17. Perform a final inspection to ensure the range switch assembly is fully mission-capable.
18. Complete DA Form 5988-E and/or DA Form 5990-E as required.

**Evaluation Preparation:**

WARNING: The following safety precautions must be adhered to when performing the tasks listed in this manual: Remove all rings, watches, and jewelry. Do not operate generator equipment in an enclosed area unless the area is adequately ventilated. Smoking, sparks, or open flames are not allowed within 50 feet of a generator set that is undergoing fuel system maintenance. Use care when handling fan and radiator. Sharp edges can cause injury. Dry-cleaning solvent is flammable and should not be used in the vicinity of sparks or open flame. When using compressed air, wear eye shields. Do not remove a radiator cap or surge tank cap unless the engine is cool. While working on battery systems, wear rubber gloves and goggles. Before working on the exhaust system, make sure it is cool. Disconnect the negative battery cable prior to performing any electrical system maintenance or when performing repairs in the locality of electrical components. While cutting metal with an oxyacetylene torch, wear leather gloves, leather apron, and welding goggles. When working around engines that are operating, wear hearing protection. When removing components over 75 pounds, two personnel are required. Do not smoke or use an open flame in the vicinity when filling a fuel tank. Do not operate generator set unless ground terminal stud has been connected to a suitable ground. Do not attempt to alter the position of the voltage reconnection board while the generator set is operating. Do not attempt to connect or disconnect load leads while the generator set is operating. Be careful not to inhale ether gas. Do not allow a crated generator set to swing while it is suspended.

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
1. Reviewed equipment inspection and maintenance worksheet and/or work request.	_____	_____
2. Selected necessary publications.	_____	_____
3. Ensured task is within shop capability/authorization.	_____	_____
4. Determined the required maintenance action.	_____	_____
5. Ensured proper tools are available to inspect, repair/replace, and test the range switch assembly.	_____	_____
6. Selected necessary tools and test equipment.	_____	_____

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
7. Performed initial inspection.	_____	_____
8. Diagnosed fault(s) and determine maintenance action to be performed.	_____	_____
9. Identified repair parts and requisition, if required.	_____	_____
10. Followed all safety precautions.	_____	_____
11. Assigned personnel to perform task.	_____	_____
12. Identified faults.	_____	_____
13. Ensured all safety precautions and procedures are followed.	_____	_____
14. Determined corrective action.	_____	_____
15. Provided assistance when necessary.	_____	_____
16. Ensured the range switch assembly is repaired to acceptable standards.	_____	_____
17. Performed a final inspection to ensure the range switch assembly is fully mission-capable.	_____	_____
18. Completed DA Form 5988-E and/or DA Form 5990-E as required.	_____	_____

**Evaluation Guidance:** The Soldier scores a GO if all performance measures were passed. The Soldier scores a NO-GO if any performance measure was failed. If any performance measure was failed show the Soldier what was done wrong and how it should have been done to score a GO.

**References  
Required**

**Primary**

- TM 9-6115-643-10
- TM 9-6115-643-24
- TM 9-6115-751-10
- TM 9-6115-751-24&P
- DA FORM 5988-E(EGA)
- DA FORM 5990-E(EGA)

**091-91D-3130**  
**Perform Diagnostic Procedures on the Reactor Assembly on**  
**a Welding Machine**

**Conditions:** In an operational environment, given a welding machine, maintenance request or equipment inspection worksheet describing equipment malfunctions, general mechanic's tool kit, multimeter, hearing protection, and applicable technical publications.

**Standards:** Perform diagnostic procedures on the reactor assembly on a welding machine in accordance with the applicable technical publications. When the task is completed, the welding machine must be fully mission-capable.

**Special Condition:** None

**Special Standards:** None

**Special Equipment:** None

**Cue:** None

**Note:** Task may be taught, supported and evaluated in multiple lessons. Equipment identified at the task may not reflect what is required in the formal training environment.

**Performance Steps**

1. Review equipment inspection and maintenance worksheet and/or work request.
2. Select necessary publications.
3. Ensure task is within shop capability/authorization.
4. Determine the required maintenance action.
5. Ensure proper tools are available to inspect, repair/replace, and test the reactor assembly on a welding machine.
6. Select necessary tools and test equipment.
7. Perform initial inspection.
8. Diagnose fault(s) and determine maintenance action to be performed.
9. Identify repair parts and requisition, if required.
10. Follow all safety precautions.
11. Assign personnel to perform task.
12. Identify faults.

13. Ensure all safety precautions and procedures are followed.
14. Determine corrective action.
15. Provide assistance when necessary.
16. Ensure the reactor assembly is repaired in accordance with standards.
17. Perform a final inspection to ensure the reactor assembly is fully mission-capable.
18. Complete DA Form 5988-E and/or DA Form 5990-E as required.

**Evaluation Preparation:**

WARNING: The following safety precautions must be adhered to when performing the tasks listed in this manual: Remove all rings, watches, and jewelry. Do not operate generator equipment in an enclosed area unless the area is adequately ventilated. Smoking, sparks, or open flames are not allowed within 50 feet of a generator set that is undergoing fuel system maintenance. Use care when handling fan and radiator. Sharp edges can cause injury. Dry-cleaning solvent is flammable and should not be used in the vicinity of sparks or open flame. When using compressed air, wear eye shields. Do not remove a radiator cap or surge tank cap unless the engine is cool. While working on battery systems, wear rubber gloves and goggles. Before working on the exhaust system, make sure it is cool. Disconnect the negative battery cable prior to performing any electrical system maintenance or when performing repairs in the locality of electrical components. While cutting metal with an oxyacetylene torch, wear leather gloves, leather apron, and welding goggles. When working around engines that are operating, wear hearing protection. When removing components over 75 pounds, two personnel are required. Do not smoke or use an open flame in the vicinity when filling a fuel tank. Do not operate generator set unless ground terminal stud has been connected to a suitable ground. Do not attempt to alter the position of the voltage reconnection board while the generator set is operating. Do not attempt to connect or disconnect load leads while the generator set is operating. Be careful not to inhale ether gas. Do not allow a crated generator set to swing while it is suspended.

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
1. Reviewed equipment inspection and maintenance worksheet and/or work request.	_____	_____
2. Selected necessary publications.	_____	_____
3. Ensured task is within shop capability/authorization.	_____	_____
4. Determined the required maintenance action.	_____	_____
5. Ensured proper tools are available to inspect, repair/replace, and test the reactor assembly.	_____	_____
6. Selected necessary tools and test equipment.	_____	_____
7. Performed initial inspection.	_____	_____

Performance Measures	GO	NO GO
8. Diagnosed fault(s) and determine maintenance action to be performed.	_____	_____
9. Identified repair parts and requisition, if required.	_____	_____
10. Followed all safety precautions.	_____	_____
11. Assigned personnel to perform task.	_____	_____
12. Identified faults.	_____	_____
13. Ensured all safety precautions and procedures are followed.	_____	_____
14. Determined corrective action.	_____	_____
15. Provided assistance when necessary.	_____	_____
16. Ensured the reactor assembly is repaired in accordance with standards	_____	_____
17. Performed a final inspection to ensure the reactor assembly is fully mission-capable.	_____	_____
18. Completed DA Form 5988-E and/or DA Form 5990-E as required.	_____	_____

**Evaluation Guidance:** The Soldier scores a GO if all performance measures were passed. The Soldier scores a NO-GO if any performance measure was failed. If any performance measure was failed show the Soldier what was done wrong and how it should have been done to score a GO.

**References**

**Required**

TM 9-6115-643-10

TM 9-6115-643-24

TM 9-6115-751-10

TM 9-6115-751-24&P

DA FORM 5988-E(EGA)

DA FORM 5990-E(EGA)

**Primary**

**091-91D-3131**  
**Assess Unit, Command Post, or Tactical Operations Center**  
**Electrical Power Requirements**

**Conditions:** As a tactical power planner, assigned or in support of a tactical operations center (TOC) or Command Post (CP) staff, given a current Central Power Solution (CPS), the existing TOC Layout with power distribution system, PDISE equipment information (configuration, type and quantity), equipment inventory list with power data, list of Generator sets available, AutoDISE software, and a mission statement that changes power demand requirements.

**Standards:** Designed a network management plan/Grid Layout that meets Central Power Solution requirements. Prepared comprehensive report containing maximum measured loads, demand factors, recommended power generation source and PDISE distribution system set up. The report incorporated operational constraints and AutoDISE models were completed. System is designed within optimal power distribution (and power generation) parameters.

**Special Condition:** Element has not replaced numerous smaller military generator sets, e.g., 3kW to 10kW, with larger sets commensurate with the power demands of a given unit or CP design.

**Special Standards:** The CPS design will result in units reducing the number of individual generator sets that units may use for a unit or unit command post without affecting mission requirements.

**Special Equipment:**

**Cue:** None

**Note:** None

**Performance Steps**

1. Review existing operational layout and power grid.
  - a. View document for current information if applicable.
  - b. If no document exists, physically check the grid for current connections and power inputs.
2. Determine power requirements for your mission/operational area.
  - a. Gather data on all equipment to be used to include issued, fielded and purchased items.
  - b. Calculate power requirements using "worst-case" condition.
3. Determine available tactical power output using equipment on hand.

- a. Collect data on all available power generation equipment.
- b. Collect data on all available power distribution equipment.

4. Prepare AutoDISE Layouts.

a. Generate an AUTODISE unit, TOC, or CP Layout (computer model of the TOC) using the layout provided with all of the authorized equipment populating each the tent in the Unit/CP/TOC.

b. Verify and validate that all of the TOC equipment is located in the proper tent. This is done after the Unit/TOC/CP has been completely modeled.

c. Verify that all of the equipment is connected to the TOC internal micro-grid.

d. Analyze the layout, and ensure the program has designed and developed an optimized TOC central power grid. (The central power grid will concentrate on "Mission Load" only)

e. Add secondary central power grid to accommodate ECU loads as needed.

5. Generate power assessment report with the optimized TOC layout and central power grid.

a. Generate AutoDise Power Grid design that supports the mission load.

b. Generate a secondary central power grid to accommodate ECU loads, etc.

c. Review data of preliminary results with Commander and supporting personnel.

**Evaluation Preparation:** Ensure all equipment and special tools are available before evaluation. All initial set up and equipment conditions must be performed in accordance with appropriate references to successfully complete the task.

<b>Performance Measures</b>	<b>GO</b>	<b>NO GO</b>
1. Reviewed existing operational layout and power grid.	_____	_____
2. Determined power requirements for the mission/operational area.	_____	_____
3. Determine available tactical power output using equipment on hand (issued, fielded and purchased).	_____	_____
4. Prepared AutoDISE Layouts.	_____	_____
5. Generated power assessment reports with the optimized Unit/CP/TOC layout and central power grid.	_____	_____

**Evaluation Guidance:**

1. Use an establish element central power solution as a problem. A BDE Main CP, Maneuver BN, FA BN, BSTB, BSB or CAV BN can be used.

2. When the task is completed correctly, the Soldier should produce reports with correct systems and PDISE, operational constrains and an AutoDise model/design to be used to emplace the grid by operators.

**References Required**

**Primary**

TM 9-6115-643-10

TM 9-6115-643-24

TM 9-6115-751-10

TM 9-6115-751-24&P

DA FORM 5988-E(EGA)

DA FORM 5990-E(EGA)



## Chapter 4

### Duty Position Task

#### **10-91D. MOS 91D--Tactical Power Generation Specialist (TAC Pwr Gen Spec), CMF 91 (Army Civilian Acquired Skills Program (ACASP) designated MOS) (Effective 2017/10)**

- a. *Major duties.* The Tactical Power Generation Specialist supervises operation and performs field level maintenance functions, including overhaul, but not rebuild of power generation equipment, internal combustion engines and associated equipment up through 200KW (except for turbine engine driven generators). Duties for MOS 91D at each skill level are:

- (1) *MOSC 91D10.* Perform field level maintenance on tactical power generation sets, power distribution systems, internal combustion engines and associated items of equipment. Assists operators in proper employment of tactical power generation equipment.
- (2) *MOSC 91D20.* Perform duties in preceding skill level, supervises junior grade Soldiers and provides technical guidance to the Soldiers in the accomplishment of their duties. Repairs/overhauls starters, alternators, generators, fuel injectors, voltage regulators, switches, control circuits, etc. Perform duties as unit power planner. Determine proper generator selection to efficiently meet power demands. Train operators in the proper maintenance and employment of tactical power generation and power distribution systems.
- (3) *MOSC 91D30.* Perform duties in preceding skill levels, supervises junior grade Soldiers and provides technical guidance to the Soldiers in the accomplishment of their duties. Supervise activities of a section performing field maintenance on tactical power generation sets, power distribution systems, and internal combustion engines and associated equipment. Apply maintenance management and quality control including production and quality control in maintenance activities. Perform duties as tactical power planner. Complete power assessments and tactical power grid designs to achieve proper operating efficiencies. Advises unit staff personnel on how best to employ tactical power generation and power distribution equipment to best meet unit power requirements.

- b. *Physical demands rating and qualifications for initial award of MOS.* Tactical Power Generation Specialist must possess the following qualifications:

- (1) A physical demands rating of very heavy.
- (2) A physical profile of 222222.
- (3) Qualifying scores.
  - (a) A minimum score of 100 in aptitude area GM in Armed Services Vocational aptitude Battery (ASVAB) tests administered prior to 2 January 2002.
  - (b) A minimum score of 97 in aptitude area GM on ASVAB tests administered on and after 2 January 2002 and prior to 1 July 2004.

(c) A minimum score of (88 in aptitude area GM and 88 in aptitude area GT) or a minimum score of 98 in aptitude area GM on ASVAB tests administered on and after 1 July 2004.

(4) Formal training (completion of MOS 91D course conducted under the auspices of the USA Ordnance School) is mandatory unless a waiver is granted by the Commandant, U.S. Army Ordnance School or meet the civilian acquired skills criteria per paragraph 9-5b (5) (b) of this pamphlet and in paragraph (5) below.

(5) ACASP qualification criteria. Must have 2 years of experience or a combination of formal training and experience totaling 2 years as a powerhouse mechanic, power plant mechanic or gas-turbine power plant mechanic.

c. *Additional skill identifiers.* (Note: Refer to table 12-8 for (Listing of universal ASI's associated with all enlisted MOS)). C9--MAST and Electric Power Plant Maintenance (skill level 1 and 2 only).

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

- (1) *Table 10-91D-1.* Physical requirements.
- (2) *Table 10-91S-2.* Standards of grade TOE/MTOE.
- (3) *Table 10-91S-3.* Standards of grade TDA.

## GLOSSARY

### Section I Acronyms & Abbreviations

<b>AAR</b>	After Action Review
<b>ASI C9</b>	Mast and Electric Power Plant Maintenance
<b>CAR</b>	Central Army Registry
<b>CATS</b>	Combine Arms Training Strategy
<b>METL</b>	Mission Essential Task List
<b>MOOTW</b>	Military Operations Other Than War
<b>PMCS</b>	Preventive Maintenance Checks and Services
<b>STP</b>	Soldier Training Publication
<b>TADSS</b>	Training Aids, Devices, Simulators, and Simulations
<b>TM</b>	Technical Manual
<b>TMDE</b>	Test, Measurement, and Diagnostic Equipment
<b>TOC</b>	Tactical Operations Center
<b>TQG</b>	Tactical Quiet Generator
<b>TTP</b>	Tactics, Techniques, and Procedures

### Section II Terms

#### **Ampere**

Unit of electric-current-flow measurement. The current that will flow through a 1-ohm resistance when 1 volt is impressed across the resistance.

#### **Circuit Breaker**

In electric circuits, a mechanism designed to break or open the circuit when certain conditions exist; especially the device in automotive circuits that opens the circuit between the generators and battery to prevent overcharging of the battery. (One of the three units comprising a generator regulator).

#### **Critical skill**

A military occupational specialty (MOS) with less than 80 percent assigned of the ARNG wartime required strength.

#### **Duty MOS**

The MOS of the position on the TOE/TDA/MTOE to which a Soldier is assigned.

#### **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.

#### **GO/NO-GO**

This is a pass-fail criterion of evaluation whereby the soldier cannot be "partially correct." The soldier either meets the standard or does not meet the standard.

**Generator**

In the electrical system, the device that changes mechanical energy to electrical energy for lighting lights, charging the battery, etc.

**Leader task**

An individual task performed by a leader that is integral to successful performance of a collective task.

**Lubrication**

The process of supplying a coating of oil between moving surfaces to prevent actual contact between them. The oil film permits relative movement with little frictional resistance

**Mission essential task list (METL)**

A compilation of collective mission essential tasks which must be successfully performed if an organization is to accomplish its wartime mission(s).

**Open Circuit**

An open circuit is a condition caused by an open switch or a broken electrical wire or connection. When this condition exists, signal or supply voltage can no longer reach its intended destination.

**Regulator**

A device used to control output of the charging system

**Short Circuit**

1. A short circuit is a condition where an electrical circuit is inadvertently connected to an undesirable point. An example of a short circuit is a wire which rubs against a machine frame and this rubbing eventually wears off wire insulation. Electrical contact with frame is made and a short circuit results. 2. In electrical circuits, an abnormal connection that permits current to take a short path or circuit, thus bypassing important parts of the normal circuit.

**Soldier Manual of Common Tasks (SMCT)**

A document which contains the critical tasks which every soldier must be able to perform in order to fight and win on the battlefield. It provides the conditions, standards, and performance measures for each common soldier critical task.

**Task Performance Steps**

The required unit/individual actions that must be performed to accomplish the critical task. Each step must be specific and detailed and contain only one action or unit of work. Note: A collective task step may be a supporting individual or collective task.

**Volt**

A unit of potential, potential difference, or electrical pressure

**Voltage Regulator**

A device used in connection with a generator to keep the voltage constant and to prevent it from exceeding a predetermined maximum. (One of the three units comprising a generator regulator.)

**Additional skill identifier (ASI)**

Identification of specialized skills that are closely related to, and are in addition to, those required by MOS or specialty skill identifier (SSI). Specialized skills identified by the ASI include operation and maintenance of specific weapons systems and equipment, administrative-type system and subsystems, computer programming, languages, procedures, installation management, analytic methods, animal-handling techniques, and similar required skills that are too restricted in scope to comprise an MOS or SSI.

**Alternating current (AC)**

Electrical energy as supplied by normal wall outlets.

**Common task**

A critical task for which all soldiers at a given skill level are accountable, regardless of their MOS.

**Condition code**

A one-position, alphabetical character used to classify materiel (ammunition). Condition codes identify the degree of serviceability, the condition, and the completeness of ammunition in terms of readiness for issue and use. They also can be used to identify actions under way to change the status of materiel.

**Field manual**

1. DA publication that contains doctrine that prescribes how the Army and its organizations function on the battlefield in terms of missions, organizations, personnel, and equipment. The level of detail should facilitate an understanding of "what" and "how" for commanders and staffs to execute the missions and tasks. An FM may also be used to publish selected alliance doctrinal publications that are not readily integrated into other doctrinal literature.
2. One of two manuals that together form the Association of American Railroads Code of Interchange Rules governing the condition and repair of railway equipment used in interchange service. The Field Manual contains technical information concerning mechanical condition, wear limits, and repair criteria for interchange cars.

**Ground terminal**

The portion of a lightning protection system, such as a ground rod, ground plate, or ground conductor, that is installed for the purpose of providing electrical contact with the earth.

**Skill level (SL)**

A number which denotes the level of qualification within the total MOS. Levels of qualification are identified by characters 0 through 5 in the position of the MOS code.

**Task conditions**

The specific circumstances or situations under which a job is done. It lists the people, tools, equipment, environment, and other items necessary to perform the job.

**Task standards**

A description of how well, how completely, how accurately or how quickly a task must be performed in wartime. Combined standards, such as how well and how quickly a task must be performed, may also be used.

**Tasks**

A set of instructions, data, and control information capable of being executed by a soldier in job specific duties, or by a CPU to accomplish a specific purpose.

**Unit training**

Training (individual, collective, and joint or combined) that takes place outside the Army's institutional base.

## REFERENCES

### Required Publications

Required publications are sources that users must read in order to understand or to comply with this publication. New reference material is being published all the time. Present references, as listed below may become obsolete. To keep up-to-date, see PAM 25-30. Many of these publications and forms are available in electronic format from the sites listed below:

**ADP 1-02** Terms and Military Symbols, 14 August 2018

**ADP 7-0** Training Units and Developing Leaders, 29 August 2018

**AR 385-10** The Army Safety Program, 24 February 2017

**AR 600-55** The Army Driver And Operator Standardization Program (SELECTION, TRAINING, TESTING, AND LICENSING), 1 May 2017

**DA PAM 750-3** Soldiers` Guide for Field Maintenance Operations, 18 September 2013

**DOD Dictionary of Military and Associated Terms**, August 2018

**TC 6-02.6** Grounding Techniques for Tactical Equipment and Systems, 22 November 2017

**TM 9-6115-639-13&P** Operator, Unit, And Direct Support Maintenance Manual (Including Repair Parts And Special Tools List) 3KW Tactical Quiet Generator Set MEP-831A (60HZ) (NSN: 6115-01-285-3012) (EIC: VG6) MEP-832A (400 HZ) (NSN: 6115-01-287-2431) (EIC: VN7) {TO 35C2-3-386-51W/IPB & TM 10155A-OI/1}, 31 August 2017

**TM 9-6115-641-10** Operator's Manual For Generator Set Skid Mounted, Tactical Quiet 5 KW, 60 HZ MEP-802A (NSN 6115-01-274-7387) (EIC: VG2) Generator Set, Skid Mounted, Tactical Quiet, 5KW, 400 HZ, MEP-812A (6115-01-274-7391) (EIC: VN2) {TO 35C2-3-456-11} (This Item Is Included On EM 0086), 15 October 2009

**TM 9-6115-641-24** Field And Sustainment Maintenance Manual For Generator Set, Skid Mounted, Tactical Quiet, 5 KW, 60 HZ MEP-802A (NSN 6115-01-274-7387) (EIC VG2) Generator Set, Skid Mounted, Tactical Quiet, 5 KW, 400 HZ MEP-812A (NSN 6115-01-274-7391) (EIC VN2), 15 April 2012

**TM 9-6115-641-24&P** Field And Sustainment Maintenance Manual Repair Parts And Special Tools List For Generator Set, Skid Mounted, Tactical Quiet, 5 KW, 50/60 HZ, MEP-802A (60 HZ) (NSN 6115-01-274-7387) (EIC VG2) Generator Set, Skid Mounted, Tactical Quiet, 5 KW, 400 HZ, MEP-812A (400 HZ) (NSN 6115-01-274-7391) (EIC VN2), 30 November 2012

**TM 9-6115-642-10** Operator's Manual for Generator Set Skid Mounted, Tactical Quiet 10 KW, 60 AND 400 HZ MEP-803A (60 HZ) (NSN 6115-01-275-5061) MEP-813A (400 HZ) (6115-01-274-7392) {TO 35C2-3-455-11; TM 09247A/09248A-10/1} (This Item Is Included on EM 0086), 15 September 2010

**TM 9-6115-642-24** Field And Sustainment Maintenance Manual For Generator Set, Skid Mounted, Tactical Quiet, 10 KW, 60 HZ MEP-803A (NSN 6115-01-275-5061) (EIC : VG3) Generator Set, Skid Mounted, Tactical Quiet, 10 KW, 400 HZ MEP-813A (NSN 6115-01-274-7392) (EIC : VN3), 15 April 2012

**TM 9-6115-643-10** Operator's Manual For Generator Set, Skid Mounted, Tactical Quiet 15 KW, 50/60HZ HZ MEP-804A (NSN 6115-01-274-7388) MEP-804B (6115-01-530-1458) Generator Set, Skid Mounted, Tactical Quiet, 15KW, 400 HZ, MEP-814A (6115-01-274-7393) MEP-814B (6116-01-529-9494) {TO 35C2-3-445-21} (This Item Is Included On EM 0086), 15 February 2010

**TM 9-6115-643-24** Direct Support And General Support Maintenance Manual For Generator Set, Skid Mounted, Tactical Quiet 15 KW, 50/60 HZ, MEP-804A (NSN: 6115-01-274-7388) MEP-804B (6115-01-530-1458) Generator Set, Skid Mounted, Tactical Quiet, 15KW, 400 HZ, MEP-814A (6115-01-274-7393) MEP-814B (6115-01-529-9494) {TO 35C2-3-445-22} (This Item Is Included On EM 0086), 1 May 2008

**TM 9-6115-644-24** Field And Sustainment Maintenance Manual For Generator Set, Skid Mounted Tactical Quiet 30 KW, 50/60 HZ, MEP-805A (NSN: 6115-01-274-7389) (EIC: VG5) Generator Set, Skid Mounted, Tactical Quiet, 30 KW, 400 HZ, MEP-815A (6115-01-274-7394) (EIC: VN5) {TO 35C2-3-446-12; TM 09249A/09246A-IN}, 15 May 2010

**TM 9-6115-645-24** Unit, Direct Support And General Support Maintenance Manual For Generator Set, Skid Mounted, Tactical Quiet 60KW, 50/60 AND 400 HZ MEP-806A (50/60 HZ) (NSN 6115-01-274-7390) MEP-816A (400 HZ) (6115-01-274-7395) {TO 35C2-3-444-12; TM 09244A/09245A-24/2} (REPRINTED W/BASIC INCL C1-4) (This Item Is Included On EM 0086), 1 September 1993

**TM 9-6115-751-10** Technical Manual Operator Manual For Generator Set, Skid Mounted 15KW Advanced Medium Mobile Power Sources (AMMPS) MEP-1050 50/60 HZ (NSN: 6115-01-561-7634) (EIC: N/A) MEP-1051 400 HZ (NSN: 6115-01-561-7674) (EIC: N/A) 1 February 2011

**TM 11-5985-368-12&P** Operator's And Organizational Maintenance Manual Including Repair Parts And Special Tools List For Mast Group, Hydraulic-Pneumatic OA-9054(V)4/G (NSN 5985-01-129-1794) (REPRINTED W/BASIC INCL C1-5) (This Item Is Included On EM 0133) 27 October 1983

**TM 11-5985-368-34** Direct Support And General Support Maintenance Manual For Mast Group, Hydraulic-Pneumatic OA-9054(V)4/G (NSN 5985-01-129-1794) (REPRINTED W/BASIC INCL C1-5) (This Item Is Included On EM 0133), 5 December 1983



## Related Publications

Related publications are sources of additional information. They are not required in order to understand this publication. Most Army doctrinal publications are available on the Army Publishing Directorate ADP web site: <https://armypubs.army.mil>.

### Electronic Manual

<https://liw.logsa.army.mil/etmapp/#/etm/home>.

## Prescribed Forms

This section contains no entries.

## Referenced Forms

### Department of the Army Form

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

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

**DA FORM 5988-E** Equipment Maintenance and Inspection Worksheet (EGA).

**DA FORM 5990-E** Maintenance Request (EGA).

This page intentionally left blank.

**STP 9-91D13-SM-TG**  
**12 October 2018**

By Order of the Secretary of the Army:

**MARK A. MILLEY**  
*General, United States Army*  
*Chief of Staff*

Official:

A handwritten signature in black ink, appearing to read 'Mark F. Averill', written in a cursive style.

**MARK F. AVERILL**  
*Acting Administrative Assistant*  
*to the Secretary of the Army*  
1827003

**DISTRIBUTION:**

Distributed in electronic media only(EMO).

