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Soldier's Manual and Trainer's Guide

MOS 25L

**CABLE SYSTEMS
INSTALLER-MAINTAINER**

SKILL LEVELS 1, 2, AND 3

MARCH 2005

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MOS 25L

CABLE SYSTEMS INSTALLER-MAINTAINER

Skill Levels 1, 2, and 3

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PREFACE

This publication is for skill levels (SLs) 1, 2, and 3 Soldiers holding military occupational specialty (MOS) 25L 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 supervisor should ensure Soldiers holding MOS 25L SLs 1, 2, and 3 have access to this publication. It should be made available in the Soldier's work area, unit learning center, and unit libraries.

This manual applies to both Active and Reserve Component Soldiers.

The proponent for this publication is the Signal School. Send comments and recommendations on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to Commander, US Army Signal Center and Fort Gordon, ATTN: ATZH-DTM, Fort Gordon, Georgia 30905-5735.

This manual is available on the General Dennis J. Reimer Training and Doctrine Digital Library for viewing and downloading. The WWW address is http://atiam.train.army.mil/portal/index.jsp.

Unless this manual states otherwise, masculine pronouns do not refer exclusively to men.

> **NOTE: Information contained in this publication is subject to change as new equipment is added to the Army inventory and revisions in policy and doctrine are made.**

CHAPTER 1

Introduction

1-1. **GENERAL**. The Soldier training publication (STP) identifies the individual military occupational specialty (MOS) and training requirements for Soldiers in various specialties. Another source of STP task data is the General Dennis J. Reimer Training and Doctrine Digital Library at http://atiam.train.army.mil/ portal/index.jsp. 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, Army training and evaluation programs (ARTEPs), and FM 7-0, *Training the Force*, 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 FM 7-0. Based on these guidelines, commanders and unit trainers must tailor the information to meet the requirements for their specific unit.

1-2. **TRAINING REQUIREMENT**. Every Soldier, noncommissioned officer (NCO), warrant officer, and officer has one primary mission—to be trained and ready to fight and win our nation's wars. Success in battle does not happen by accident; it is a direct result of tough, realistic, and challenging training.

   a.   Operational Environment

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

   (2)   The operational missions of the Army include not only war, but also military operations other than war (MOOTW). Operations may be conducted as major combat operations, a small-scale contingency, or a peacetime military engagement. Offensive and defensive operations normally dominate military operations in war along with some small-scale contingencies. Stability operations and support operations dominate in MOOTW. Commanders at all echelons may combine different types of operations simultaneously and sequentially to accomplish missions in war and MOOTW. These missions require training since future conflict will likely involve a mix of combat and MOOTW, often concurrently. The range of possible missions complicates training. Army forces cannot train for every possible mission; they train for war and prepare for specific missions as time and circumstances permit.

   (3)   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.

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

   b.   How the Army Trains the Army

   (1)   Training is a team effort and the entire Army—Department of the Army, major commands (MACOMs), the institutional training base, units, the combat training centers (CTCs), each individual Soldier and the civilian workforce—has a role that contributes to force readiness. Department of the

Army and MACOMs are responsible for resourcing the Army to train. The Institutional Army, including schools, training centers, and NCO academies, for example, train Soldiers and leaders to take their place in units in the Army by teaching the doctrine and tactics, techniques, and procedures (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, CTCs, and ARTEPs 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 Soldiers and leaders 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.

Figure 1-1. Army Training and Leader Development Model

    (3)   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.

(4) 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 lifelong synthesis of the knowledge, skills, and experiences gained through institutional training and education, organizational training, operational experience, and self-development. Commanders play the key roll 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.

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 (IAW) the STP to the Army standard.

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

(2) **NCO Responsibility**.

(a) A great strength of the US Army is its professional NCO Corps who takes pride in being responsible for the individual training of Soldiers, crews, and small teams. The NCO support channel parallels and complements the chain of command. It is a channel of communication and supervision from the Command Sergeant Major (CSM) to the First Sergeants (1SGs) and then to other NCOs and enlisted personnel. NCOs train Soldiers to the non-negotiable standards published in STPs. Commanders delegate authority to NCOs in the support channel as the primary trainers of individual, crew, and small team training. Commanders hold NCOs responsible for conducting standards-based, performance-oriented, battle-focused training and providing feedback on individual, crew, and team proficiency. Commanders define responsibilities and authority of their NCOs to their staffs and subordinates.

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

(3)   **Soldier Responsibility**. Each Soldier is responsible for performing individual tasks identified by the first-line supervisor based on the unit's mission essential task list (METL). Soldiers must perform tasks to the standards included in the task summary. If Soldiers have questions about tasks or which tasks in this manual they must perform, they are responsible for asking their first-line supervisor for clarification, assistance, and guidance. First-line supervisors know how to perform each task or can direct Soldiers to appropriate training materials, including current field manuals, technical manuals, and Army regulations. Soldiers are responsible for using these materials to maintain performance. They are also responsible for maintaining standard performance levels of all 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 training guide relates Soldier and leader tasks in the MOS and skill level to duty positions and equipment. It states where the task is trained, how often training should occur to sustain proficiency, and who in the unit should be trained. As leaders assess and plan training, they should rely on the training guide to help identify training needs.

(1)   Leaders conduct and evaluate training based on Armywide 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 and trainers evaluate all Soldiers to the same standards.

(2)   Figure 1-2 shows how battle-focused training relates to the training guide and Soldier's manual. The left column shows the steps involved in training Soldiers and the right column shows how the STP supports each of these steps.

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

Figure 1-2. Relationship of Battle-focused Training and STP

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 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.

b.   Task Title. The task title identifies the action to be performed.

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.   Training and Evaluation. The training evaluation section identifies specific actions, known as performance steps, that the Soldier must do to successfully complete the task. These actions are in the evaluation guide section of the task summary and are listed in a GO/NO GO format for easy evaluation. For some tasks, the training and evaluation section may also include detailed training information in a training information outline and an evaluation preparation section. The evaluation preparation section indicates necessary modifications to task performance in order to train and evaluate a task that cannot be trained to the 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.

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

g.   Warnings. Warnings alert users to the possibility of immediate personal injury or damage to equipment.

h.   Notes. Notes provide a supportive explanation or hint that relates to the performance standards.

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)   Leaders use evaluations 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. FM 7-0 provides detailed instructions for conducting an AAR and detailed guidance on coaching and critiquing during training.

1-7. **NCO SELF-DEVELOPMENT AND THE SOLDIER'S MANUAL**

a.   Self-development is one of the key components of the leader development program. It is a planned progressive and sequential program followed by leaders to enhance and sustain their military competencies. It consists of individual study, research, professional reading, practice, and self-assessment. Under the self-development concept, the NCO, as an Army professional, has the responsibility to remain current in all phases of the MOS. The SM is the primary source for the NCO to use in maintaining MOS proficiency.

b.   Another important resource for NCO self-development is the Army Correspondence Course Program (ACCP). Soldiers should refer to DA Pamphlet 350-59, *Army Correspondence Course Program Catalog*, for a list of courses and information on enrolling in this program, or contact ACCP Student Support at DSN 826-2127/3322, COML (757) 878-2127/3322, or E-mail at Sectiona@atsc.army.mil. Soldiers can also access the Army Correspondence Course Program online at http://www.atsc.army.mil/accp/aipdnew.asp.

c.   General Dennis J. Reimer Training and Doctrine Digital Library is an additional resource for NCO self-development. This electronic library is the single repository of approved Army training and doctrine information.

d.   Unit learning centers are valuable resources for planning self-development programs. They can help access enlisted career maps, training support products, and extension training materials, such as field manuals (FMs) and technical manuals (TMs). It is the Soldier's responsibility to use these materials to maintain performance.

1-8. **TRAINING SUPPORT**

This manual includes the following appendixes and information that provide additional training support information.

(a)   Appendix A, DA Form 5164-R (Hands-On Evaluation). This appendix contains the instructions for using DA Form 5164-R and a sample completed form for NCOs to use during evaluation of Soldiers' manual tasks.

(b)   Appendix B, DA Form 5165-R (Field Expedient Squad Book). This appendix contains the instructions for using DA Form 5165-R and a sample completed form for NCOs to use during evaluation of Soldiers' manual tasks.

(c)   Glossary. The glossary is a single comprehensive list of acronyms, abbreviations, definitions, and letter symbols.

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

1-9. **FEEDBACK**. Recommendations for improvement of this STP are requested. Feedback will help to ensure that this STP answers the training needs of units in the field.

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CHAPTER 2

Trainer's Guide

2-1. **GENERAL**. The MOS Training Plan (MTP) identifies the essential components of a unit-training plan for individual training. Units have different training needs and requirements based on differences in environment, location, equipment, dispersion, and similar factors. Therefore, the MTP should be used as a guide for conducting unit training and not a rigid standard. The MTP shows the relationship of an MOS SL between duty position and critical tasks. These critical tasks are grouped by task commonality into subject areas.

The MTP's Subject Area Codes list subject area numbers and titles used throughout the MTP. These subject areas are used to define the training requirements for each duty position within an MOS.

The Duty Position Training Requirements table 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, 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.

The Critical Task List table 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.

- **Task Number column**. This column lists the task numbers for all tasks included in the subject area.

- **Title column**. This column lists the task title for each task in the subject area.

- **Training Location column**. This column identifies the training location where the task is first trained to Soldier training publications standards. If the task is first trained to standard in the unit, the word "Unit" will be in this column. If the task is first trained to standard in the training base, it will identify, by brevity code (ANCOC, BNCOC, etc.), the resident course where the task was taught. Figure 2-1 contains a list of training locations and their corresponding brevity codes.

ASI	Additional Skill Identifier
ANCOC	Advanced NCO Course
UNIT	Trained in the Unit
AIT	Advanced Individual Training

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.

BA - Biannually
AN - Annually
SA - Semiannually
QT - Quarterly
MO - Monthly
BW - Biweekly
WK - Weekly

Figure 2-2. Sustainment Training Frequency Codes

- **Sustainment Training Skill Level column**. This column lists the SLs of the MOS for which Soldiers must receive sustainment training to ensure they maintain proficiency to SM standards.

2-2. **SUBJECT AREA CODES**.

Skill Level 1
1 TELEPHONE CABLE AND EQUIPMENT
2 MULTIPLEXERS
3 TELEPHONE SETS
4 SUBSTATION INSTALLATION
5 TELEPHONE MAINTENANCE TRUCK

Skill Level 2
6 TELEPHONE CABLE AND EQUIPMENT SUPERVISION
7 MULTIPLEXER SUPERVISION
8 TELEPHONE SETS SUPERVISION
9 SUBSTATION INSTALLATION SUPERVISION

Skill Level 3
10 TELEPHONE CABLE AND EQUIPMENT INSPECTION
11 MULTIPLEXER INSPECTION
12 TELEPHONE SETS INSPECTION
13 SUBSTATION INSTALLATION INSPECTION
14 ANTENNA INSTALLATION
15 CABLE SPLICING
16 SIGNAL SYSTEMS
17 FBCB2

2-3. **CRITICAL TASKS LIST**.

MOS TRAINING PLAN
25L13

CRITICAL TASKS

Subject Area	Task Number	Title	Training Location	Sust Tng Freq	Sust Tng SL
Skill Level 1					
1. TELEPHONE CABLE AND EQUIPMENT	113-574-3006	Perform Unit Level Maintenance (ULM) on Telephone, Test Set TS-3647/G	AIT	AN	1-3
	113-574-3010	Perform Unit Level Maintenance (ULM) on Electrical Cable Test Set AN/GTM-12	AIT	SA	1-3
	113-574-3011	Perform Unit Level Maintenance (ULM) on Test Set TS-4117( )/G	AIT	SA	1-3
	113-588-0005	Troubleshoot Telephone Cable WD-1( )/TT or WF-16/U	AIT	SA	1-3
	113-588-0016	Troubleshoot CX-11230A/G Cable System	AIT	SA	1-3
	113-588-0018	Troubleshoot 26-Pair Cable CX-4566/G	AIT	SA	1-3
	113-588-1002	Set Poles	UNIT	AN	1-3
	113-588-1014	Install 26-Pair Cable CX-4566/G	AIT	SA	1-3
	113-588-1015	Recover 26-Pair Cable CX-4566/G	AIT	AN	1-3
	113-588-1022	Install Telephone Cable WD-1( )/TT or WF-16/U	AIT	SA	1-3
	113-588-1094	Install CX-11230A/G Cable System	AIT	AN	1-3
	113-588-1095	Recover CX-11230A/G Cable System	AIT	AN	1-3
	113-588-1104	Recover Telephone Cable WD-1( )/TT or WF-16/U	AIT	SA	1-3
	113-588-2001	Operate Reeling Machine RL-207/G	AIT	QT	1-3
	113-588-3002	Perform Unit Level Maintenance (ULM) on Reeling Machine RL-207/G	AIT	AN	1-3
	113-588-3005	Perform Unit Level Maintenance (ULM) on Reel Unit RL-31( )	AIT	SA	1-3
	113-588-8001	Perform Pole Rescue Operation	UNIT	AN	1-3
	113-632-1004	Install Fiber Optic Cable Assembly (FOCA) CX-13295( )/G	AIT	SA	1-3
	113-632-5001	Troubleshoot Fiber Optic Transmission System (FOTS) Cable System	AIT	SA	1-3

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CRITICAL TASKS

Subject Area	Task Number	Title	Training Location	Sust Tng Freq	Sust Tng SL
	113-632-7001	Recover Fiber Optic Cable Assembly (FOCA) CX-13295( )/G	AIT	SA	1-3
2. MULTI-PLEXERS	113-606-0105	Troubleshoot Multiplexer TD-1233(P)/TTC or Multiplexer-Combiner TD-1234(P)/TTC	AIT	SA	1-3
	113-606-0106	Troubleshoot Line Termination Unit (LTU) CV-4180( )	AIT	SA	1-3
	113-606-1001	Install Multiplexer TD-1233(P)/TTC or Multiplexer-Combiner TD-1234(P)/TTC	AIT	SA	1-3
	113-606-1002	Install Line Termination Unit (LTU) CV-4180( )	AIT	SA	1-3
	113-606-3090	Perform Unit Level Maintenance (ULM) on Multiplexer TD-1233(P)/TTC or Multiplexer-Combiner TD-1234(P)/TTC	AIT	SA	1-3
	113-606-3091	Perform Unit Level Maintenance (ULM) on Line Termination Unit (LTU) CV-4180( )	AIT	SA	1-3
3. TELEPHONE SETS	113-600-0011	Troubleshoot KY-68	AIT	AN	1-3
	113-600-1012	Install Telephone Set TA-312/PT	UNIT	SA	1-3
	113-600-1016	Install Digital Nonsecure Voice Terminal (DNVT)	AIT	SA	1-3
	113-600-1017	Install Telephone Set TA-838/TT	UNIT	SA	1-3
	113-600-1022	Install KY-68	AIT	QT	1-3
	113-600-1025	Install MMT1500 (STU-III)	AIT	SA	1-3
	113-600-3017	Perform Unit Level Maintenance (ULM) on Telephone Set TA-312/PT	UNIT	QT	1-3
	113-600-3020	Perform Unit Level Maintenance (ULM) on Telephone Set TA-838/TT	UNIT	SA	1-3
4. SUB-STATION INSTALLATION	113-600-0006	Troubleshoot a Defective Telephone Substation/Line	AIT	SA	1-3
	113-600-1020	Install Telephone Substation	AIT	SA	1-3
5. TELEPHONE MAINTENANCE TRUCK	113-588-0007	Perform Preventive Maintenance Checks and Services (PMCS) on Telephone Maintenance Truck	UNIT	AN	1-3
	113-588-2007	Operate Telephone Maintenance Truck	UNIT	SA	1-3

CRITICAL TASKS

Subject Area	Task Number	Title	Training Location	Sust Tng Freq	Sust Tng SL
Skill Level 2					
6. TELEPHONE CABLE AND EQUIPMENT SUPERVISION	113-574-7014	Supervise Unit Level Maintenance (ULM) on Test Sets	UNIT	SA	2-3
	113-588-7109	Supervise Installation of Cable Systems	UNIT	SA	2-3
	113-588-7110	Supervise Troubleshooting of Cable Systems	UNIT	SA	2-3
	113-588-7111	Supervise Recovery of Cable Systems	UNIT	SA	2-3
7. MULTI-PLEXER SUPERVISION	113-606-7026	Supervise Installation of Multiplexers	UNIT	SA	2-3
	113-606-7027	Supervise Troubleshooting of Multiplexers	UNIT	SA	2-3
	113-606-7028	Supervise Unit Level Maintenance (ULM) on Multiplexers	UNIT	SA	2-3
8. TELEPHONE SETS SUPERVISION	113-600-7042	Supervise Installation of KY-68	UNIT	SA	2-3
	113-600-7043	Supervise Troubleshooting of KY-68	UNIT	SA	2-3
9. SUB-STATION INSTALLATION SUPERVISION	113-600-7044	Supervise Installation of Telephone Substation	UNIT	SA	2-3
Skill Level 3					
10. TELE-PHONE CABLE AND EQUIPMENT INSPECTION	113-574-9001	Inspect Unit Level Maintenance (ULM) on Test Sets	BNCOC	AN	3
	113-588-5007	Plan a Telephone Cable Line	BNCOC	SA	3
	113-588-6001	Inspect Existing Cable Lines	UNIT	AN	3
	113-588-6007	Prepare a Detailed Cable Route Map	BNCOC	SA	3
	113-588-7075	Inspect Poles	UNIT	SA	3
	113-588-7108	Inspect Preventive Maintenance Checks and Services (PMCS) of Telephone Maintenance Truck	UNIT	AN	3
	113-588-7112	Inspect Installation of Cable Systems	BNCOC	SA	3

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CRITICAL TASKS

Subject Area	Task Number	Title	Training Location	Sust Tng Freq	Sust Tng SL
	113-588-7113	Inspect Troubleshooting of Cable Systems	BNCOC	SA	3
	113-588-7114	Inspect Recovery of Cable Systems	BNCOC	SA	3
11. MULTI-PLEXER INSPECTION	113-606-7029	Inspect Installation of Multiplexers	BNCOC	SA	3
	113-606-7030	Inspect Troubleshooting of Multiplexers	BNCOC	SA	3
	113-606-7031	Inspect Unit Level Maintenance (ULM) on Multiplexers	BNCOC	SA	3
12. TELE-PHONE SETS INSPECTION	113-600-7045	Inspect Installation of KY-68	BNCOC	SA	3
	113-600-7046	Inspect Troubleshooting of KY-68	BNCOC	SA	3
13. SUB-STATION INSTALLATION INSPECTION	113-600-7026	Inspect Installation of Telephone Substation	BNCOC	SA	3
14. ANTENNA INSTALLATION	113-596-1024	Install Parabolic Antenna	ASI	AN	3
	113-596-1027	Install AB-216/U Tower	ASI	AN	3
	113-596-1040	Install Pressurized Transmission Lines	ASI	AN	3
	113-596-1080	Install Self-Support Tower	ASI	AN	3
	113-596-1081	Remove Self-Support Tower	ASI	AN	3
	113-596-1082	Install Spira-Cone High Frequency (HF) Antenna	ASI	AN	3
	113-596-1083	Remove Spira-Cone High Frequency (HF) Antenna	ASI	AN	3
	113-596-1084	Remove AB-216/U Tower	ASI	AN	3
	113-596-1086	Remove Broadband Dipole High Frequency (HF) Antenna	ASI	AN	3
	113-596-3010	Maintain Rotatable Log Periodic Antenna	ASI	AN	3
	113-596-3011	Maintain Delta-Matched Doublet Antenna	ASI	AN	3
	113-596-3012	Maintain Fixed Log Periodic Antenna	ASI	AN	3
	113-596-3014	Maintain Rhombic Antenna	ASI	AN	3
	113-596-3015	Maintain Parabolic Antenna	ASI	AN	3

CRITICAL TASKS

Subject Area	Task Number	Title	Training Location	Sust Tng Freq	Sust Tng SL
	113-596-3016	Maintain Yagi Antenna	ASI	AN	3
	113-596-3018	Maintain AB-216/U Tower	ASI	AN	3
	113-596-3021	Maintain Self-Support Tower	ASI	AN	3
	113-596-3047	Maintain Spira-Cone High Frequency (HF) Antenna	ASI	AN	3
	113-596-3049	Maintain Broadband Dipole High Frequency (HF) Antenna	ASI	AN	3
	113-596-4005	Maintain Coaxial Cable for Antenna Systems	ASI	AN	3
	113-596-4008	Maintain Pressurization Equipment	ASI	AN	3
	113-632-1005	Install Connectors on Fiber Optic Cable	ASI	AN	3
	113-632-1006	Make a Fiber Optic Cable Splice	ASI	AN	3
	113-632-5002	Troubleshoot Fiber Optic Cable	ASI	AN	3
15. CABLE SPLICING	113-588-0019	Troubleshoot Local Area Network/Wide Area Network (LAN/WAN) Distribution System	ASI	AN	3
	113-588-0020	Determine Cable Depth Using the 2273 Advanced Cable and Fault Locator	ASI	AN	3
	113-588-0021	Locate Cable Faults Using a 1503 Time Domain Reflectometer (TDR) Test Set	ASI	AN	3
	113-588-1074	Install Aerial Cable Splicing Equipment	ASI	AN	3
	113-588-1075	Install Underground Cable Splicing Equipment	ASI	AN	3
	113-588-1083	Close Plastic-Sheathed Cable	ASI	AN	3
	113-588-1086	Install Pressurized Cable System	ASI	AN	3
	113-588-1105	Install Local Area Network/Wide Area Network (LAN/WAN) Distribution System	ASI	AN	3
	113-588-1106	Install a Connector on a Stranded Flexible Coaxial Cable	ASI	AN	3
	113-588-1107	Install Underground Cable System	ASI	AN	3
	113-588-1108	Install a CAD-6 Buried Distribution Terminal	ASI	AN	3
	113-588-2008	Perform an In-Line Straight Splice on a Plastic-Sheath, Plastic-Insulated Cable Using the 710 Modular Splicing System	ASI	AN	3

CRITICAL TASKS

Subject Area	Task Number	Title	Training Location	Sust Tng Freq	Sust Tng SL
	113-588-2009	Perform a Splice on a Plastic-Sheath, Plastic-Insulated Cable Using a VS-3 Handtool	ASI	AN	3
	113-588-4022	Repair Plastic-Sheathed Cable	ASI	AN	3
	113-588-6008	Maintain a Communications Systems Installation Record (CSIR)	ASI	AN	3
	113-588-9008	Make a Coaxial Cable Splice	ASI	AN	3
16. SIGNAL SYSTEMS*	*113-609-2053	Operate Automated Net Control Device (ANCD) AN/CYZ-10			
17. FBCB2*	*171-147-0001	PREPARE/SEND COMBAT MESSAGES USING FBCB2 VERSION 3.4			
	*171-147-0002	PERFORM STARTUP PROCEDURES FOR FORCE XXI BATTLE COMMAND BRIGADE AND BELOW (FBCB2) VERSION 3.4			
	*171-147-0005	APPLY MESSAGE ADDRESSING FEATURES IN FBCB2 VERSION 3.4			
	*171-147-0006	PERFORM MESSAGE MANAGEMENT USING FBCB2 VERSION 3.4			
	*171-147-0007	PREPARE/SEND OVERLAYS USING FBCB2 VERSION 3.4			
	*171-147-0008	PREPARE/SEND REPORTS USING FBCB2 VERSION 3.4			
	*171-147-0009	PREPARE/SEND FIRE/ALERT MESSAGES USING FBCB2 VERSION 3.4			
	*171-147-0010	PREPARE/SEND ORDER/REQUEST MESSAGES USING FBCB2 VERSION 3.4			
	*171-147-0011	PERFORM BEFORE-OPERATIONS PREVENTIVE MAINTENANCE CHECKS AND SERVICES ON FBCB2 VERSION 3.4			
	*171-147-0012	PERFORM SHUT-DOWN PROCEDURES FOR FBCB2 VERSION 3.4			
	*171-147-0013	PERFORM DURING-OPERATIONS PREVENTIVE MAINTENANCE CHECKS AND SERVICES ON FBCB2 VERSION 3.4			
	*171-147-0014	PERFORM AFTER-OPERATIONS PREVENTIVE MAINTENANCE CHECKS AND SERVICES ON FBCB2 VERSION 3.4			
	*171-147-0015	PREPARE/SEND A LOGISTICAL STATUS REPORT USING FBCB2 VERSION 3.4			

CRITICAL TASKS

Subject Area	Task Number	Title	Training Location	Sust Tng Freq	Sust Tng SL
	*171-147-0017	EMPLOY MAP FUNCTIONS USING FBCB2 VERSION 3.4			
	*171-147-0019	EMPLOY FIPR FUNCTIONS USING FBCB2 VERSION 3.4			
	*171-147-0020	EMPLOY STATUS FUNCTIONS USING FBCB2 VERSION 3.4			
	*171-147-0021	EMPLOY ADMIN FUNCTIONS USING FBCB2 VERSION 3.4			
	*171-147-0022	EMPLOY APPS FUNCTIONS USING FBCB2 VERSION 3.4			
	*171-147-0023	EMPLOY NAV FUNCTIONS USING FBCB2 VERSION 3.4			
	*171-147-0024	EMPLOY QUICK SEND FUNCTIONS USING FBCB2 VERSION 3.4			
	*171-147-0025	EMPLOY FILTERS FUNCTIONS USING FBCB2 VERSION 3.4			

*These tasks will be trained for familiarization only.

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CHAPTER 3

MOS/Skill Level Tasks

Skill Level 1

Subject Area 1: TELEPHONE CABLE AND EQUIPMENT

Perform Unit Level Maintenance (ULM) on Telephone, Test Set TS-3647/G
113-574-3006

Conditions: Given telephone test set TS-3647/G, a 4-inch flat-tip screwdriver, dust brush and cleaning rags, cable CX-11230A/G, TD-1218/G or TD-1219/G, TD-1233(P)/TTC or TD-1234(P)/TTC, ground wire, DA Form 2404 (Equipment Inspection and Maintenance Worksheet), DA Form 2408-14 (Uncorrected Fault Record), TM 11-5805-703-14, and DA PAM 738-750.

Standards: Performed ULM, completed DA Form 2404 and DA Form 2408-14, and the telephone test set was operational; or evacuated the defective test set to a higher maintenance level.

Performance Steps

1. Initiate DA Form 2404. (Refer to DA PAM 738-750.)

2. Perform routine checks. (Refer to TM 11-5805-703-14.)
    a. Clean, wash, and dust.
    b. Check for frayed cables.
    c. Store unused items.
    d. Cover unused receptacles.
    e. Check for loose nuts, bolts, and screws.

NOTE: A ground wire should be attached from ground lug on front panel of the cable orderwire unit (COU) to equipment being tested and remain in place while equipment is operating.

3. Perform ULM. (Refer to TM 11- 5805-703-14, para 2-4, Operator Preventive Maintenance Checks and Services (PMCS) Table.)
    a. Check COU batteries for operational readiness.
    b. Check handset cradle, handset grommet, PUSH-TO-TALK (PTT) switch, and handset cable.

CAUTION: Caution should be taken when connecting a COU to an operational cable system. Minor errors might be produced causing interruption in data.

4. Check COU operation with a pulse restorer. (Refer to TM 11- 5805-703-14, para 2-4, PMCS Table.)

5. Check COU operation with a remote multiplexer combiner (RMC) or remote loop group multiplexer (RLGM). (Refer to TM 11- 5805-703-14, para 2-4, PMCS Table.)

6. Complete DA Form 2404 and DA Form 2408-14. (Refer to DA PAM 738-750.)

Performance Measures	**GO**	**NO GO**
1. Initiated DA Form 2404. (Refer to DA PAM 738-750.)	——	——
2. Performed routine checks. (Refer to TM 11-5805-703-14.)	——	——

NOTE: A ground wire should be attached from ground lug on front panel of the COU to equipment being tested and remain in place while equipment is operating.

3. Performed ULM. (Refer to TM 11- 5805-703-14, para 2-4, PMCS Table.)	——	——

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

CAUTION: Caution should be taken when connecting a COU to an operational cable system. Minor errors might be produced causing interruption in data.

4. Checked COU operation with a pulse restorer. (Refer to TM 11- 5805-703-14, para 2-4, PMCS Table.) —— ——

5. Checked COU operation with an RMC or RLGM. (Refer to TM 11- 5805-703-14, para 2-4, PMCS Table.) —— ——

6. Completed DA Form 2404 and DA Form 2408-14. (Refer to DA PAM 738-750.) —— ——

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
    Required   **Related**
    DA FORM 2404
    DA FORM 2408-14
    DA PAM 738-750
    TM 11-5805-703-14

Perform Unit Level Maintenance (ULM) on Electrical Cable Test Set AN/GTM-12
113-574-3010

Conditions: Given telephone test set AN/GTM-12, a 4-inch flat-tip screwdriver, dust brush and cleaning rags, DA Form 2404, DA Form 2408-14, TM 11-6625-3292-12, and DA PAM 738-750.

Standards: Performed ULM, completed DA Form 2404 and DA Form 2408-14, and the telephone test set was operational; or evacuated the defective test set to a higher maintenance level.

Performance Steps

1. Initiate DA Form 2404. (Refer to DA PAM 738-750.)

2. Perform routine checks. (Refer to TM 11-6625-3292-12.)
   a. Clean, wash, and dust.
   b. Check for frayed cables, broken connectors, or bent pins.
   c. Inspect case and cover for visible damage.
   d. Inspect battery pack for damaged connectors, torn plastic, broken wires, or missing Velcro fastener.
   e. Check spare fuse pack to ensure that it contains two of each fuse rated 1/2, 1, and 2 amps.
   f. Tighten loose screws.

3. Complete DA Form 2404 and DA Form 2408-14. (Refer to DA PAM 738-750.)

WARNING: Do not use ungrounded extension cords when operating the AN/GTM-12 with alternating current (AC) power. The AN/GTM-12 is equipped with a three-wire AC power cord that grounds the instrument front panel and case when connected to a grounded AC outlet.

Performance Measures	GO	NO GO
1. Initiated DA Form 2404. (Refer to DA PAM 738-750.)	——	——
2. Performed routine checks. (Refer to TM 11-6625-3292-12.) a. Cleaned, washed, and dusted. b. Checked for frayed cables, broken connectors, or bent pins. c. Inspected case and cover for visible damage. d. Inspected battery pack for damaged connectors, torn plastic, broken wires, or missing Velcro fastener. e. Checked spare fuse pack to ensure that it contained two of each fuse rated 1/2, 1, and 2 amps. f. Tightened loose screws.	——	——
3. Completed DA Form 2404 and DA Form 2408-14. (Refer to DA PAM 738-750.)	——	——

WARNING: Do not use ungrounded extension cords when operating the AN/GTM-12 with AC power. The AN/GTM-12 is equipped with a three-wire AC power cord that grounds the instrument front panel and case when connected to a grounded AC outlet.

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any of the PMs are failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

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References
    Required   **Related**
    DA FORM 2404
    DA FORM 2408-14
    DA PAM 738-750
    TM 11-6625-3292-12

Perform Unit Level Maintenance (ULM) on Test Set TS-4117( )/G
113-574-3011

Conditions: Given test set TS-4117( )/G (with battery), pencil, DA Form 2404, DA Form 2408-14, DA PAM 738-750, and TM 11-6625-3227-13&P.

Standards: Performed ULM, completed DA Form 2404 and DA Form 2408-14, and the test set was operational; or evacuated the defective test set to a higher maintenance level.

Performance Steps
(Refer to TM 11-6625-3227-13&P for performance steps 2 through 11.)

   1. Initiate DA Form 2404. (Refer to DA PAM 738-750.)

   2. Perform routine checks. (Check for loose nuts, bolts, and screws.)

   3. Check transit case.

   4. Check handset.

   5. Check reference cable assembly.

   6. Check fiber optic loopback connector.

   7. Check switch actuator assembly.

   8. Check case top O-ring.

   9. Check front panel.

  10. Check battery.

  11. Check optical strength meter (OSM) display.

  12. Complete DA Form 2404 and DA Form 2408-14. (Refer to DA PAM 738-750.)

Performance Measures	**GO**	**NO GO**
(Refer to TM 11-6625-3227-13&P for PMs 2 through 11.)		
1. Initiated DA Form 2404. (Refer to DA PAM 738-750.)	——	——
2. Performed routine checks. (Checked for loose nuts, bolts, and screws.)	——	——
3. Checked transit case.	——	——
4. Checked handset.	——	——
5. Checked reference cable assembly.	——	——
6. Checked fiber optic loopback connector.	——	——
7. Checked switch actuator assembly.	——	——
8. Checked case top O-ring.	——	——
9. Checked front panel.	——	——

      a. OSM display.
      b. Nameplate.
      c. Maintenance orderwire (MOW) connector.
      d. Battery cover.

Performance Measures	**GO**	**NO GO**
e. Audible alarm.		
f. Fiber Optic Cable Assembly (FOCA) test facility (FTF) connector.		
g. MOW communications facility (MCF) connector.		
h. Dust covers and lanyards.		
10. Checked battery.	——	——
11. Checked OSM display.	——	——
12. Completed DA Form 2404 and DA Form 2408-14. (Refer to DA PAM 738-750.)	——	——

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References

Required	**Related**
DA FORM 2404	
DA FORM 2408-14	
DA PAM 738-750	
TM 11-6625-3227-13&P	

Troubleshoot Telephone Cable WD-1( )/TT or WF-16/U
113-588-0005

Conditions: Given a telephone cable, installed (with fault); telephone set TA-312/PT, operational (three each, with six BA-30s); tool equipment TE-33; electrical/friction tape; lineman's gloves; two assistants; TC 24-20; and TM 11-5805-201-12.

Standards: Located and repaired a line fault and restored communications.

Performance Steps
(Refer to TC 24-20 for all performance steps, unless otherwise indicated.)

  1. Verify that telephone cable trouble exists.

  2. Test line for trouble and identify fault. (Refer to TM 11-5805-201-12 for TA-312/PT operations.)
      a. Open.
      b. Short.
      c. Ground.
      d. Crossed circuit.

  3. Localize fault.

  4. Locate fault.

  5. Repair fault.

  6. Retest telephone cable.

  7. Restore communications.

Evaluation Preparation: Setup: Ensure the telephone cable is installed and connected to the field phones.

Brief Soldier: Tell the soldier that the cable must be tested for operation.

Performance Measures (Refer to TC 24-20 for all PMs, unless otherwise indicated.)	**GO**	**NO GO**
1. Verified that telephone cable trouble existed.	——	——
2. Tested line for trouble and identified fault. (Refer to TM 11-5805-201-12 for TA-312/PT operations.)	——	——
3. Localized fault.	——	——
4. Located fault.	——	——
5. Repaired fault.	——	——
6. Retested telephone cable.	——	——
7. Restored communications.	——	——

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
    Required   **Related**
    TC 24-20
    TM 11-5805-201-12

Troubleshoot CX-11230A/G Cable System
113-588-0016

Conditions: Given pre-installed, low-speed cable driven modem MD-1023; pre-installed, high-speed cable driver modem MD-1024; pre-installed, cable orderwire unit C-10716; pre-installed, field cable CX-11230A/G; a pulse form restorer TD-1218 or TD-1219; telephone test set TS-3647/G; battery BA-30 or BA-3030, six each; ground rod MX-148/G; ground strap; stakes; HM-1 hammer; eye protection; and TM 11-5805-703-14.

Standards: Tested and restored the cable system.

Performance Steps
(Refer to TM 11-5805-703-14 for all performance steps.)

    1. Ground the TS-3647/G.

    2. Prepare the TS-3647/G.
        a. Install batteries.
        b. Check batteries.

    3. Connect test set to the cable system at the TD-1218 or TD-1219 pulse form restorer.

    4. Perform orderwire operation.

    5. Perform test procedures.
        a. Locate fault.
        b. Repair fault.

    6. Retest the cable system.

    7. Secure test set.

    8. Restore the cable system.

Performance Measures	**GO**	**NO GO**
(Refer to TM 11-5805-703-14 for all PMs.)		
1. Grounded the TS-3647/G.	——	——
2. Prepared the TS-3647/G.	——	——
3. Connected test set to the cable system at the TD-1218 or TD-1219 pulse form restorer.	——	——
4. Performed orderwire operation.	——	——
5. Performed test procedures.	——	——
6. Retested the cable system.	——	——
7. Secured test set.	——	——
8. Restored the cable system.	——	——

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

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References
    Required   **Related**
    TM 11-5805-703-14   TM 11-5805-701-12
                                                   TM 11-5805-702-12
                                                   TM 11-5995-208-10

Troubleshoot 26-Pair Cable CX-4566/G
113-588-0018

Conditions: Given a faulty cable, AN/GTM-12, tools, DA Form 2404, and TM 11-6625-3292-12.

Standards: Repaired the faults and reestablished communications.

Performance Steps
(Refer to TM 11-6625-3292-12 for all performance steps.)

  1. Inspect the physical appearance of the cable.
     a. Breaks in cable where pairs might be showing so that possible weather conditions could damage and affect the performance.

  2. Perform troubleshooting procedures with the AN/GTM-12 by testing the CX-4566/G 26-pair cable.

NOTE: Perform the following three tests in the order stated.

(1) Continuity-pairs (CONT P).
(2) Insulation Resistance (IR).
(3) Cross talk (X TALK).

  3. Perform conductor continuity measurement: Pair Test.

CAUTION: To avoid damage to the test set or other equipment, ensure that the cable that you intend to test is disconnected from any load, power source, or wiring. Never use the AN/GTM-12 to test a cable that is connected to anything other than an approved shorting block.

     a. Connect adapter cable W100 to connector J100.
     b. Connect the cable to be tested to the U-185B/G connector on adapter cable W100.
     c. Turn on the test set.
     d. Set CABLE LENGTH switch to the length of the cable under test. If testing multiple connected cables, set the switch to the combined length.
     e. Set the AUTO/SINGLE switch to AUTO.
     f. Set the FUNCTION switch to CONT P.

NOTE: The AN/GTM-12 sequentially tests each wire pair for open circuits. If the test proceeds through pair 26 and the END light illuminates for approximately 20 seconds, then the cable under test has no discontinuous (open) conductors. If the AN/GTM-12 detects a conductor break (open circuit), the test will stop, the fault light will illuminate, and the broken wire pair will be identified in the display.

     g. Press and release the ADVANCE switch.
     h. Observe the flashing TEST light (and the advancing circuit numbers in the display window if the test set is powered in the AC or direct current (DC) mode as the test sequences through each wire pair.

NOTE: If a fault is detected, record the number of the defective wire pair. If the END light illuminates for approximately 20 seconds, skip to step j.

     i. Repeat steps g and h until the END light illuminates.
     j. Disconnect the Shorting Block P.

  4. Perform insulation resistance test.
     a. Connect adapter cable W100 to connector J100.
     b. Connect the cable to be tested to the U-185B/G connector on adapter cable W100.
     c. Turn on the test set.
     d. Set the AUTO/SINGLE switch to AUTO.
     e. Set the FUNCTION switch to IR (10M).
     f. Press and release the ADVANCE switch.

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        g. Observe the flashing TEST light and, if the test set is powered in the AC or external DC mode, the advancing circuit numbers in the display window as the test scans forward: A01, A02, A03, etc.

NOTE: If the scan halts, note the displayed conductor number. If the scan advances through B26 and the END light illuminates for approximately 20 seconds, skip the remaining steps.

        h. Press and release the ADVANCE switch.

NOTE: Record the defective conductors shown in the display.

        i. Repeat steps f through h until the test sequence advances through B26 and the END light illuminates.
        j. Set the FUNCTION switch to IR (0.1M), and repeat steps f through h.

NOTE: Conductors that test faulty at the 10M threshold but pass the 0.1M threshold should be examined to determine the cause of low resistance; e.g. moisture and/or dirt on the cable hocks, and appropriate corrective action taken.

    5. Perform X TALK test.

CAUTION: To avoid damage to the test set or other equipment, ensure that the cable that you intend to test is disconnected from any load, power source, or wiring. Never use the AN/GTM-12 to test a cable that is connected to anything other than an approved shorting block.

NOTE: The setup for X TALK is the same as for insulation resistance except the FUNCTION switch position.

        a. Connect adapter cable W100 to connector J100.
        b. Connect the cable to be tested to the U-185B/G connector on adapter cable W100.
        c. Turn on the test set.
        d. Set the AUTO/SINGLE switch to AUTO.
        e. Set the FUNCTION switch to X TALK.

NOTE: The stimuli are applied in turn to the wire pair displayed on the left starting with pair 01, while the higher numbered pairs are displayed on the right. They are being scanned for a response (cross talk).

        f. Press and release the ADVANCE switch.
        g. Observe the flashing TEST light and, if the test set is powered in the AC or external DC mode, the advancing circuit numbers in the display window 01 01, 01 02,.. 01 26, 02 02, 02 03,...etc. to 24 26, 25 25, 25 26, 26 26.

NOTE: If the test sequence stops and the FAULT light illuminates, record the numbers of the defective wire pairs as shown in the display window. If the test sequence proceeds through 25 26 and the END light illuminates, skip the remaining steps.

        h. Repeat steps e and f until the test sequence proceeds through 25 26 and the END light illuminates.

Performance Measures	**GO**	**NO GO**
(Refer to TM 11-6625-3292-12 for all PMs.)		
1. Inspected the physical appearance of the cable.	——	——
a. Breaks in cable where pairs might be showing so that possible weather conditions could damage and affect the performance.		
2. Performed troubleshooting procedures with the AN/GTM-12 by testing the CX-4566/G 26-pair cable.	——	——

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

NOTE: Performed the following three tests in the order stated.

(1) CONT P.
(2) IR.
(3) X TALK.

   3. Performed Conductor Continuity Measurement: Pair Test.   ____   ____

CAUTION: To avoid damage to the test set or other equipment, ensure that the cable that you intend to test is disconnected from any load, power source, or wiring. Never use the AN/GTM-12 to test a cable that is connected to anything other than an approved shorting block.

     a. Connected Adapter Cable W100 to connector J100.
     b. Connected the cable to be tested to the U-185B/G connector on Adapter Cable W100.
     c. Turned on the test set.
     d. Set CABLE LENGTH switch to the length of the cable under test. If testing multiple connected cables, set the switch to the combined length.
     e. Set the AUTO/SINGLE switch to AUTO.
     f. Set the FUNCTION switch to CONT P.

NOTE: The AN/GTM-12 sequentially tests each wire pair for open circuits. If the test proceeds through pair 26 and the END light illuminates for approximately 20 seconds, then the cable under test has no (open) conductors. If the AN/GTM-12 detects a conductor break (open circuit), the test will stop, the fault light will illuminate, and the broken wire pair will be identified in the display.

     g. Pressed and released the ADVANCE switch.
     h. Observed the flashing TEST light (and the advancing circuit numbers in the display window if the test set was powered in the AC or DC mode as the test sequenced through each wire pair).

NOTE: If a fault was detected, recorded the number of the defective wire pair. If the END light illuminated for approximately 20 seconds, skip to step j.

     i. Repeated steps g and h until the END light illuminated.
     j. Disconnected the Shorting Block P.

   4. Performed Insulation Resistance test.   ____   ____
     a. Connected Adapter Cable W100 to connector J100.
     b. Connected the cable to be tested to the U-185B/G connector on Adapter Cable W100.
     c. Turned on the test set.
     d. Set the AUTO/SINGLE switch to AUTO.
     e. Set the FUNCTION switch to IR (10M).
     f. Pressed and released the ADVANCE switch.
     g. Observed the flashing TEST light and, if the test set is powered in the AC or external DC mode, the advancing circuit numbers in the display window as the test scans forward: A01, A02, A03, etc.

NOTE: If the scan halted, noted the displayed conductor number. If the scan advanced through B26 and the END light illuminated for approximately 20 seconds, skipped the remaining steps.

     h. Pressed and released the ADVANCE switch.

NOTE: Recorded the defective conductors shown in the display.

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

      i. Repeated steps f through h until the test sequence advanced through B26
        and the END light illuminated.
      j. Set the FUNCTION switch to IR (0.1M), and repeated steps f through h.

**NOTE: Conductors that test faulty at the 10M threshold, but pass the 0.1M
threshold, should be examined to determine the cause of low resistance; e.g.,
moisture and/or dirt on the cable hocks, and appropriate corrective action taken.**

    5. Performed X TALK Test.   ____   ____

CAUTION: To avoid damage to the test set or other equipment, ensured that the
cable that you intended to test was disconnected from any load, power source, or
wiring. Never use the AN/GTM-12 to test a cable that is connected to anything other
than an approved shorting block.

**NOTE: The setup for cross talk is the same as for insulation resistance except
the FUNCTION switch position.**

      a. Connected Adapter Cable W100 to connector J100.
      b. Connected the cable to be tested to the U-185B/G connector on Adapter
        Cable W100.
      c. Turned on the test set.
      d. Set the AUTO/SINGLE switch to AUTO.
      e. Set the FUNCTION switch to X TALK.

**NOTE: The stimuli are applied in turn to the wire pair displayed on the left
starting with pair 01, while the higher numbered pairs are displayed on the right.
They are being scanned for a response (X TALK).**

      f. Pressed and released the ADVANCE switch.
      g. Observed the flashing TEST light and, if the test set is powered in the AC or
        external DC mode, the advancing circuit numbers in the display window 01
        01, 01 02, 01 26, 02 02, 02 03, etc. to 24 26, 25 25, 25 26, 26 26.

**NOTE: If the test sequence stopped and the FAULT light illuminated, recorded
the numbers of the defective wire pairs as shown in the display window. If the
test sequence proceeded through 25 26 and the END light illuminated, skipped
the remaining steps.**

      h. Repeated steps e and f until the test sequence proceeded through 25 26
        and the END light illuminated.

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any
PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the
soldier perform the PMs until they are done correctly.

References
    Required   **Related**
    DA FORM 2404
    TM 11-6625-3292-12

Set Poles

113-588-1002

Conditions: Given a 30-foot pole, pike poles, and pole supports; digging tools LC-17, LC-18, and LC-19; digging bar; tamping bar LC-3; protective headgear; measuring tape or ruler; carrying hook and cant hooks; anchor and anchor rod; expanding rod AH-1; guy strand; strand grip(s) (2 each); strand clamp or automatic locking device; chain hoist; handline; tool equipment TE-21 and TE-33; shovel; bolt cutter; eyebolt; telephone maintenance truck; team of seven soldiers; and FM 11-372-7.

Standards: Prepared and set a pole in the ground and installed one anchor and one guy line.

Performance Steps

WARNING: A safety briefing is a must. Soldiers working or involved in lifting heavy objects must wear protective headgear and take safe precautions.

(Refer to FM 11-372-7 for all performance steps. Performance steps 1 and 2 can be performed with the use of a telephone maintenance truck.)

   1. Dig holes for pole and anchor.

   2. Raise pole and set in hole.

   3. Face, straighten, and center pole.

   4. Backfill and tamp the earth around pole.

   5. Install anchor.

   6. Backfill and tamp the earth firmly around anchor.

   7. Attach guy to pole.

   8. Attach guy to anchor rod.

   9. Tighten guy.

Evaluation Preparation: Setup: Ensure the ground is checked for stability.

Brief Soldier: Tell the team that each soldier is graded only on his assigned portion of the task.

Performance Measures	GO	NO GO
WARNING: A safety briefing is a must. Soldiers working or involved in lifting heavy objects must wear protective headgear and take safe precautions.		
(Refer to FM 11-372-7 for all PMs. PMs 1 and 2 can be performed with the use of a telephone maintenance truck.)		
1. Dug hole for pole and anchor.	——	——
2. Raised pole and set in hole.	——	——
3. Faced, straightened, and centered pole.	——	——
4. Backfilled and tamped the earth around pole.	——	——
5. Installed anchor.	——	——
6. Backfilled and tamped the earth firmly around anchor.	——	——
7. Attached guy to pole.	——	——

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Performance Measures	GO	NO GO
8. Attached guy to anchor rod.	____	____
9. Tightened guy.	____	____

Evaluation Guidance: Score the soldier as individuals on assigned portions of the task. Score the soldier a GO if all assigned PMs are passed. Score the soldier a NO-GO if any assigned PM is failed. If the soldier fails any assigned PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
Required	**Related**
FM 11-372-7	TM 9-2320-289-20P

Install 26-Pair Cable CX-4566/G
113-588-1014

Conditions: Given CX-4566/G cable; reel unit RL-31( ) (can be vehicle mounted); marline cord; drive hooks (installed on poles); tool equipment TE-21 and TE-33; TA-312/PT telephone set or equivalent; WD-1( )/TT or WF-16/U telephone cable; distribution box J-1077A/U or J-2317A/U (2 each); existing poles or trees; stakes; shovel; hammer; gloves; tags; grease pencil; team of soldiers; TC 24-20, TM 11-3895-202-13, TM 11-5805-201-12, TM 11-6110-201-12P, and TM 11-6110-243-14P.

Standards: Installed the CX-4566/G on existing poles or trees, installed the distribution boxes on both ends of the cable, and established communications.

Performance Steps

1. Install reel unit RL-31( ) for ground or flatbed use. (Refer to TM 11-3895-202-13.)

2. Install cable on surface. (Refer to TC 24-20.)

3. Install cable on poles or trees. (Refer to TC 24-20.)

4. Bury cable when appropriate. (Refer to TC 24-20.)

5. Install distribution boxes J-1077A/U at terminating ends.

6. Connect CX-4566/G to distribution boxes.

7. Establish communications with telephone set TA-312/PT and distribution boxes J-1077A/U or J-2317A/U. (Refer to TM 11-5805-201-12.)

Evaluation Preparation: Setup: Ensure the poles, distribution boxes, and other termination equipment are available.

Brief Soldier: Tell the team that each soldier is graded only on his assigned portion of the task.

Performance Measures	**GO**	**NO GO**
1. Installed reel unit RL-31( ) for ground or flatbed use. (Refer to TM 11-3895-202-13.)	——	——
2. Installed cable on surface. (Refer to TC 24-20.)	——	——
3. Installed cable on poles or trees. (Refer to TC 24-20.)	——	——
4. Buried cable when appropriate. (Refer to TC 24-20.)	——	——
5. Installed distribution boxes J-1077A/U at terminating ends.	——	——
6. Connected CX-4566/G to distribution boxes.	——	——
7. Established communications with telephone set TA-312/PT and distribution boxes J-1077A/U or J-2317A/U. (Refer to TM 11-5805-201-12.)	——	——

Evaluation Guidance: Score the soldier as individuals on assigned portions of the task. Score the soldier a GO if all assigned PMs are passed. Score the soldier a NO-GO if any assigned PM is failed. If the soldier fails any assigned PM, show what was done wrong and how to do it correctly. Have the soldier perform the assigned PMs until they are done correctly.

References
    Required   **Related**
    TC 24-20
    TM 11-3895-202-13
    TM 11-5805-201-12
    TM 11-6110-201-12P
    TM 11-6110-243-14P

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Recover 26-Pair Cable CX-4566/G
113-588-1015

Conditions: Given CX-4566/G cable; reel unit RL-31( ) (can be vehicle mounted); empty reel RC-435/U; tool equipment TE-21 and TE-33; shovel; gloves; lint-free cloth; team of soldiers; TC 24-20, and TM 11-3895-202-13.

Standards: Verified that the team of soldiers recovered and serviced the CX-4566/G.

Performance Steps
(Refer to TC 24-20 for all performance steps, unless otherwise indicated.)

1. Disconnect terminal equipment.

2. Remove ground ties and tags.

3. Remove cable from aerial, surface, and buried construction.

4. Recover all equipment.

5. Recover cable using the RL-31( ). (Refer to TM 11-3895-202-13.)

6. Service cable by cleaning cable while it is on the reel.

Evaluation Preparation: Setup: None.

Brief Soldier: Tell the team that each soldier is graded only on his assigned portion of the task.

Performance Measures	GO	NO GO
(Refer to TC 24-20 for all PMs, unless otherwise indicated.)		
1. Disconnected terminal equipment.	——	——
2. Removed ground ties and tags.	——	——
3. Removed cable from aerial, surface, and buried construction.	——	——
4. Recovered all equipment.	——	——
5. Recovered cable using the RL-31( ). (Refer to TM 11-3895-202-13.)	——	——
6. Serviced cable by cleaning cable while it is on reel.	——	——

Evaluation Guidance: Score the soldiers as individuals on assigned portions of the task. Score the soldier a GO if all assigned PMs are passed. Score the soldier a NO-GO if any assigned PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the assigned PMs until they are done correctly.

References
Required	Related
TC 24-20	TM 11-5805-201-12
TM 11-3895-202-13	

Install Telephone Cable WD-1( )/TT or WF-16/U
113-588-1022

Conditions: Given telephone cable WD-1( )/TT or WF-16/U; reel unit RL-31( ) (can be vehicle mounted); reel RL-159/U; telephone set TA-312/PT (two each) (with four batteries); tool equipment TE-21 and TE-33; lineman's bag; lance poles; marline cord; existing poles or trees; stakes; shovel; hammer; gloves; tags; tape; grease pencil; team of soldiers; TC 24-20, TM 11-3895-202-13, and TM 11-5805-201-12.

Standards: Installed the telephone cable and established communications.

Performance Steps
(Refer to TC 24-20 and TM 11-3895-202-13 for all performance steps, unless otherwise indicated.)

1. Perform pre-installation checks on telephone cable. (Refer to TC 24-20.)

2. Install surface cable.

3. Install aerial telephone cable road crossing.

4. Install buried telephone cable crossing.

5. Perform operational test.

6. Establish communications.

Evaluation Preparation: Setup: None.

Brief Soldier: Tell the team that each soldier is graded only on his assigned portion of the task.

Performance Measures	**GO**	**NO GO**
(Refer to TC 24-20 and TM 11-3895-202-13 for all PMs, unless otherwise indicated.)		
1. Performed pre-installation checks on telephone cable. (Refer to TC 24-20.)	——	——
2. Installed surface cable.	——	——
3. Installed aerial telephone cable road crossing.	——	——
4. Installed buried telephone cable crossing.	——	——
5. Performed operational test.	——	——
6. Established communications.	——	——

Evaluation Guidance: Score the soldiers as individuals on assigned portions of the task. Score the soldier a GO if all assigned PMs are passed. Score the soldier a NO-GO if any assigned PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the assigned PMs until they are done correctly.

References
Required	Related
TC 24-20	
TM 11-3895-202-13	
TM 11-5805-201-12	

Install CX-11230A/G Cable System
113-588-1094

Conditions: Given low-speed cable driver modem MD-1023/TT or high-speed cable driver modem MD-1024/TT; cable orderwire unit C-10716; cable CX-11230A/G; pulse form restorers TD-1218 and TD-1219; telephone test set TS-3647/G; reeling machine RL-207/G; cargo truck (2 1/2-ton); tool equipment TE-21 and TE-33; preformed grips ND-0104 or ND-0107; nylon or marlin cord; A-frames; hammer HM-1; existing poles or trees; ground rod MX-148/G; ground strap; stakes; tags; tape; grease pencil; gloves; power source; multiplexer TD-1233(P)/TTC and multiplexer-combiner TD-1234(P)/TTC; DNVT TA-1042A/U or equivalent; power supply cord; system diagram; flat-tip screwdriver; WF-16/U; TC 24-20, TM 11-3895-209-14, TM 11-5995-208-10, TM 11-5805-701-12, TM 11-5805-702-12, TM 11-5805-703-14, TM 11-5805-706-12, and TM 11-5805-707-12.

Standards: Installed the CX-11230A/G cable system and established orderwire communications.

Performance Steps

1. Install aerial cable on poles or trees. (Refer to TM 11-5995-208-10 and TM 11-3895-209-14.)

2. Install terminal A-frame(s). (Refer to TC 24-20.)

3. Install intermediate A-frame(s). (Refer to TC 24-20.)

4. Install surface cable. (Refer to TM 11-5995-208-10 and TM 11-3895-209-14.)

5. Install buried cable road crossing. (Refer to TM 11-5995-208-10.)

6. Connect the field cable system CX-11230A/G to an unattended station. (Refer to TM 11-5995-208-10.)

7. Establish orderwire communications. (Refer to TM 11-5805-703-14.)

NOTE: Refer to TM 11-5805-706-12 for the TD-1233(P)/TTC and to TM 11-5805-707-12 for the TD-1234(P)/TTC.

8. Program circuit card by system diagram.

NOTE: The evaluator will provide the system diagram.

9. Connect power supply cord to a power source.

10. Connect field cable to the TD-1233(P)/TTC (group) or the TD-1234(P)/TTC (high).

11. Connect the WF-16/U telephone cable to the telephone set.

12. Test cable system for current and data. (Refer to TM 11-5805-701-12 for the TD-1218 and to TM 11-5805-702-12 for the TD-1219.)

Evaluation Preparation: Setup: None.

Brief Soldier: Tell the team that each soldier is graded only on his assigned portion of the task.

Performance Measures	GO	NO GO
1. Installed aerial cable on poles or trees. (Refer to TM 11-5995-208-10 and TM 11-3895-209-14.)	——	——
2. Installed terminal A-frame(s). (Refer to TC 24-20.)	——	——
3. Installed intermediate A-frame(s). (Refer to TC 24-20.)	——	——

Performance Measures	GO	NO GO

4. Installed surface cable. (Refer to TM 11-5995-208-10 and TM 11-3895-209-14.)   ——   ——

5. Installed buried cable road crossing. (Refer to TM 11-5995-208-10.)   ——   ——

6. Connected the field cable system CX-11230A/G to an unattended station. (Refer to TM 11-5995-208-10.)   ——   ——

7. Established orderwire communications. (Refer to TM 11-5805-703-14.)   ——   ——

NOTE: Refer to TM 11-5805-706-12 for the TD-1233(P)/TTC and to TM 11-5805-707-12 for the TD-1234(P)/TTC.

8. Programmed circuit card by system diagram.   ——   ——

NOTE: The evaluator provided a system diagram.

9. Connected power supply cord to a power source.   ——   ——

10. Connected field cable to the TD-1233(P)/TTC (group) or the TD-1234(P)/TTC(high).   ——   ——

11. Connected the WF-16/U telephone cable to the telephone set.   ——   ——

12. Tested cable system for current and data. (Refer to TM 11-5805-701-12 for the TD-1218 and to TM 11-5805-702-12 for the TD-1219.)   ——   ——

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PMs are failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PM until they are done correctly.

References

Required	**Related**
TC 24-20	TM 9-2320-209-10-1
TM 11-3895-209-14	
TM 11-5805-701-12	
TM 11-5805-702-12	
TM 11-5805-703-14	
TM 11-5805-706-12	
TM 11-5805-707-12	
TM 11-5995-208-10	

Recover CX-11230A/G Cable System
113-588-1095

Conditions: Given reeling machine RL-207/G, vehicle mounted; reel unit RL-31( ) (can be vehicle mounted); tool equipment TE-21 and TE-33; cable CX-11230A/G, pre-installed; reels RC-453/G, empty; telephone test set TS-3647/G; hammer HM-1; shovel; gloves; eye protection; cargo truck M35A2, 2 1/2-ton or equivalent; TC 24-20, TM 11-3895-202-13, TM 11-3895-209-14, and TM 11-5995-208-10.

Standards: Recovered the CX-11230A/G cable system.

Performance Steps

1. Disconnect cable from terminal equipment. (Refer to TC 24-20.)

2. Lower aerial cable to ground. (Refer to TM 11-5995-208-10.)

3. Recover buried field cable. (Refer to TC 24-20.)

4. Disconnect connectors and replace cap assembly on connectors. (Refer to TM 11-5995-208-10.)

5. Remove pulse form restorers and tags. (Refer to TM 11-5995-208-10.)

6. Recover field cable using reeling machine RL-207/G or reel unit RL-31( ). (Refer to TM 11-3895-209-14 or TM 11-3895-202-13.)

Evaluation Preparation: Setup: None.

Brief Soldier: Tell the team that each soldier is graded only on his assigned portion of the task.

Performance Measures	GO	NO GO
1. Disconnected cable from terminal equipment. (Refer to TC 24-20.)	——	——
2. Lowered aerial cable to the ground. (Refer to TM 11-5995-208-10.)	——	——
3. Recovered buried field cable. (Refer to TC 24-20.)	——	——
4. Disconnected connectors and replaced cap assembly on connectors. (Refer to TM 11-5995-208-10.)	——	——
5. Removed pulse form restorers and tags. (Refer to TM 11-5995-208-10.)	——	——
6. Recovered field cable using reeling machine RL-207/G or reel unit RL-31( ). (Refer to TM 11-3895-209-14 or TM 11-3895-202-13.)	——	——

Evaluation Guidance: Score the soldiers as individuals on assigned portions of the task. Score the soldier a GO if all assigned PMs are passed. Score the soldier a NO-GO if any assigned PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the assigned PMs until they are done correctly.

References
Required	Related
TC 24-20	TM 11-5805-701-12
TM 11-3895-202-13	TM 11-5805-702-12
TM 11-3895-209-14	TM 11-5805-703-14
TM 11-5995-208-10	TM 9-2320-209-10-1

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Recover Telephone Cable WD-1( )/TT or WF-16/U
113-588-1104

Conditions: Given a telephone cable line, pre-installed; reel unit RL-31( ) (can be vehicle mounted); empty reel RL-159/U; tool equipment TE-33; gloves; assistant, as required; TC 24-20 and TM 11-3895-202-13.

Standards: Recovered the telephone cable.

Performance Steps
(Refer to TC 24-20 for all performance steps.)

　1.　Disconnect telephone cable from terminal equipment.

　2.　Remove all wire ties and tags and position line along the side of the recovery route.

　3.　Remove cable from all aerial constructions.

　4.　Remove buried wire.

　5.　Recover telephone cable. (Reel unit operation is not graded.)

Evaluation Preparation: Setup: None.

Brief Soldier: Tell the team that each soldier is graded only on his assigned portion of the task.

Performance Measures (Refer to TC 24-20 for all PMs.)	**GO**	**NO GO**
1.　Disconnected telephone cable from terminal equipment.	——	——
2.　Removed all wire ties and tags and positioned line along the side of the recovery route.	——	——
3.　Removed cable from all aerial constructions.	——	——
4.　Removed buried wire.	——	——
5.　Recovered telephone cable. (Reel unit operation is not graded.)	——	——

Evaluation Guidance: Score the soldiers as individuals on assigned portions of the task. Score the soldier a GO if all assigned PMs are passed. Score the soldier a NO-GO if any assigned PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the assigned PMs until they are done correctly.

References
Required	Related
TC 24-20	
TM 11-3895-202-13	

Operate Reeling Machine RL-207/G
113-588-2001

Conditions: Given reeling machine RL-207/G (may be vehicle mounted), reels (with cable), fuel and oil, starter cord, hearing protection, and TM 11-3895-209-14.

Standards: Performed the pre-operational checks and the start-up and shutdown procedures on the RL-207/G.

Performance Steps
(Refer to TM 11-3895-209-14 for all performance steps.)

1. Remove reel axle from the RL-207/G.

2. Insert axle through center of reel(s).

3. Install reels.

4. Pay out cable(s).

5. Perform pre-operational checks.
    a. Visually inspect the RL-207/G.
    b. Check oil and gas levels in crankcase and fuel tank.

6. Perform start-up procedures.
    a. Turn fuel valve fully clockwise.
    b. Pull choke out if engine is cold.
    c. Turn throttle control counterclockwise and pull out halfway.
    d. Turn ignition switch to ON.
    e. Wind starter rope around engine pulley and pull; repeat until engine starts.
     f. Allow engine to warm up for 1 minute.

7. Recover cable with engine.
    a. Turn throttle control counterclockwise and push inward until motor is at desired speed.
    b. Operate control lever so reel turns. Control axle speed at all times.
    c. Guide cable onto reel.
    d. To stop the reel axle, move control lever to brake position.
    e. When reel is full, secure cable to reel.
     f. Remove reel from the axle.
    g. Remove axle from reel and install on the RL-207/G.

8. Recover cable manually.
    a. Remove reel axle.
    b. Insert axle through center of reel(s).
    c. Install reel(s).
    d. Secure cable to reel.
    e. Remove hand crank.
     f. Fit hand crank.
    g. Recover cable by turning hand crank.

9. Perform shutdown procedures.
    a. Turn throttle control counterclockwise and pull it out to the IDLE position.
    b. Turn ignition switch to OFF.
    c. Turn fuel valve fully clockwise (OFF).

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Evaluation Preparation: Setup: Ensure the area in which the soldier is to set up the equipment is sufficient for operation.

Brief Soldier: Tell the soldier that he must prepare and operate the reeling machine according to requirement.

Performance Measures	**GO**	**NO GO**
(Refer to TM 11-3895-209-14 for all PMs.)		
1. Removed reel axle from the RL-207/G.	——	——
2. Inserted axle through center of reel(s).	——	——
3. Installed reels.	——	——
4. Laid out cables.	——	——
5. Performed pre-operational checks.	——	——
6. Performed start-up procedures.	——	——
7. Recovered cable with engine.	——	——
8. Recovered cable manually.	——	——
9. Performed shutdown procedures.	——	——

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
Required	**Related**
TM 11-3895-209-14	

Perform Unit Level Maintenance (ULM) on Reeling Machine RL-207/G
113-588-3002

Conditions: Given the complete reeling machine RL-207/G, fuel and oil, cleaning compound trichlorotrifluoroethane, lint-free cloth, DA Form 2404, DA Form 2408-14, DA PAM 738-750, and TM 11-3895-209-14.

Standards: Performed ULM, completed DA Form 2404 and DA Form 2408-14, and reeling machine RL-207/G was operational; or evacuated the defective reeling machine to a higher maintenance level.

Performance Steps

WARNING: Trichlorotrifluoroethane fumes are toxic. Provide ventilation whenever it is used.

  1. Initiate DA Form 2404. (Refer to DA PAM 738-750.)

  2. Perform routine checks and services.
      a. Clean and dust equipment.
      b. Check cables for proper connections and tightness.
      c. Check cable for frays, cuts, cracks, dry rot, and loose and missing hold-down clamps.
      d. Check equipment surfaces for corrosion, rust, and fungus.

  3. Perform ULM. (Refer to TM 11-3895-209-14.)
      a. Engine.
      b. Fuel and oil.
      c. Belts.
      d. Lubrication.
      e. Wiring.

  4. Complete DA Form 2404 and DA Form 2408-14. (Refer to DA PAM 738-750.)

Performance Measures	GO	NO GO
WARNING: Trichlorotrifluoroethane fumes are toxic. Provide ventilation whenever it is used.		
1. Initiated DA Form 2404. (Refer to DA PAM 738-750.)	——	——
2. Performed routine checks and services.	——	——
3. Performed ULM. (Refer to TM 11-3895-209-14.)	——	——
4. Completed DA Form 2404 and DA Form 2408-14. (Refer to DA PAM 738-750.)	——	——

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
    Required   **Related**
    DA FORM 2404
    DA FORM 2408-14
    DA PAM 738-750
    TM 11-3895-209-14

Perform Unit Level Maintenance (ULM) on Reel Unit RL-31( )
113-588-3005

Conditions: Given reel unit RL-31( ); lint-free cloth and brush; flat-tip screwdriver; grease, automotive, and artillery (GAA); oil, lubricating, preservative, special (PL special); adjustable wrench; initiated DA Form 2404; DA Form 2408-14; DA PAM 738-750, and TM 11-3895-202-13.

Standards: Performed ULM, completed DA Form 2404 and DA Form 2408-14, and the reel unit was operational; or evacuated the defective equipment to a higher maintenance level.

Performance Steps
(Refer to TM 11-3895-202-13 for all performance steps, unless otherwise indicated.)

  1. Initiate DA Form 2404. (Refer to DA PAM 738-750.)

  2. Perform routine checks.
        a. Cleaning.
        b. Preservation.
        c. Dusting.
        d. Washing.
        e. Stowing unused items.
         f. Checking for loose nuts and bolts.

  3. Check mission essential equipment (for completeness).

  4. Check lubrication.

  5. Check brake unit.

  6. Complete DA Form 2404 and DA Form 2408-14. (Refer to DA PAM 738-750.)

Performance Measures	GO	NO GO
(Refer to TM 11-3895-202-13 for all PMs, unless otherwise indicated.)		
1. Initiated DA Form 2404. (Refer to DA PAM 738-750.)	——	——
2. Performed routine checks.	——	——
3. Checked mission essential equipment (for completeness).	——	——
4. Checked lubrication.	——	——
5. Checked brake unit.	——	——
6. Completed DA Form 2404 and DA Form 2408-14. (Refer to DA PAM 738-750.)	——	——

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
  Required   **Related**
  DA FORM 2404
  DA FORM 2408-14
  DA PAM 738-750
  TM 11-3895-202-13

Perform Pole Rescue Operation
113-588-8001

Conditions: Given a simulated victim (on pole), tool equipment TE-21, one drive hook or large flat-tip screwdriver, one knife TL-29, safety equipment, first-aid kit, one rope of sufficient length, and FM 4-25.11.

Standards: Safely rescued the simulated victim from the pole and gave first aid.

Performance Steps

1. Plan rescue.

2. Climb pole.

3. Install drive hook or screwdriver above victim.

4. Wrap the rope twice around the drive hook or screwdriver and secure loose end of the rope to both D-rings of victim's belt.

5. Perform artificial respiration on victim while on top of pole (if needed).

6. Cut the victim's strap (simulate).

7. Lower victim to the ground.

8. Descend pole.

9. Treat victim for shock. (Refer to FM 4-25.11.)

Evaluation Preparation: Setup: Have the soldier ensure sufficient rope is available to complete this task.

Brief Soldier: Tell the soldier that he must wear rubber gloves throughout the rescue operation. When handling energized wires, the soldier should use only one hand if possible. If the voltage exceeds 15,000 volts, the soldier must NOT attempt the rescue until the circuit is definitely broken.

Performance Measures	GO	NO GO
1. Planned rescue.	――	――
2. Climbed pole.	――	――
3. Installed drive hook or screwdriver above victim.	――	――
4. Wrapped the rope twice around the drive hook or screwdriver and secured loose end of the rope to both D-rings of victim's belt.	――	――
5. Performed artificial respiration on victim while on top of pole (if needed).	――	――
6. Cut the victim's strap (simulate).	――	――
7. Lowered victim to the ground.	――	――
8. Descended pole.	――	――
9. Treated victim for shock. (Refer to FM 4-25.11.)	――	――

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the assigned PMs until they are done correctly.

References
  Required   **Related**
  FM 4-25.11

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Install Fiber Optic Cable Assembly (FOCA) CX-13295( )/G
113-632-1004

Conditions: Given a cable-laying vehicle (with driver); reeling machine RL-207/G, vehicle-mounted; FOCA CX-13295( )/G; tool equipment TE-21 and TE-33; shovel; gloves; marline cord; tags; grease pencil; stakes; hammer; route survey; team members; TC 24-20, TM 11-3895-209-14, and TM 11-6020-200-10.

Standards: Deployed and installed the FOCA CX-13295( )/G using a vehicle.

Performance Steps
(Refer to TM 11-6020-200-10 for all performance steps.)

1. Mount reel RC-435/G with the FOCA CX-13295( )/G on reeling machine RL-207/G (vehicle mounted).

2. Perform surface construction of the FOCA.

3. Perform aerial construction of the FOCA.

4. Perform buried construction of the FOCA.

Evaluation Preparation: Setup: None.

Brief Soldier: Tell the team that each soldier is graded only on his assigned portion of the task.

Performance Measures	<u>GO</u>	<u>NO GO</u>
(Refer to TM 11-6020-200-10 for all PMs.)		
1. Mounted reel RC-435/G with the FOCA CX-13295( )/G on reeling machine RL-207/G (vehicle mounted).	——	——
2. Performed surface construction of the FOCA.	——	——
3. Performed aerial construction of the FOCA.	——	——
4. Performed buried construction of the FOCA.	——	——

Evaluation Guidance: Score the soldiers as individuals on assigned portions of the task. Score the soldier a GO if all assigned PMs are passed. Score the soldier a NO-GO if any assigned PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the assigned PMs until they are done correctly.

References
    Required   **Related**
    TC 24-20
    TM 11-3895-209-14
    TM 11-6020-200-10

Troubleshoot Fiber Optic Transmission System (FOTS) Cable System
113-632-5001

Conditions: Given the FOTS terminal, two each; FOCA CX-13295( )/G; test set TS-4117( )/G (with battery); assistants; TM 11-6625-3227-13&P, TM 11-6020-200-10, TM 11-6020-200-23&P, DA Form 2404, DA Form 2407 (Maintenance Request), and DA PAM 738-750.

Standards: Identified and repaired faults and established communications.

Performance Steps

1. Test the FOTS for proper operation.

2. Verify all switch and control settings and equipment controls.

3. Troubleshoot the FOCA using the TS-4117( )/G from either end. (Refer to TM 11-6625-3227-13&P and TM 11-6020-200-10.)

4. If outside the limits, have shelter operator check the FOM; if within limits, proceed to the next connector until fault is found.

5. Replace the FOCA as needed.

6. Reestablish communications.

7. Maintain the FOCA CX-13295( )/G.
    a. Visually inspect cable for burned, broken, loose, or missing connectors, splices, and physical damage to cable. (Refer to TM 11-6020-200-23&P.)
    b. Perform FOCA attenuation testing procedures using the TS-4336/G.
    c. Determine malfunction of the FOCA.
    d. Perform FOCA fault location procedures using the TS-4336/G.
    e. Repair the CX-13295( )/G using cable repair kit MK-2495/G (if required).
     f. Perform final operational test to verify normal operation of the FOCA.
    g. Complete applicable blocks on DA Form 2404 and DA Form 2407. (Refer to DA PAM 738-750.)

Performance Measures	**GO**	**NO GO**
1. Tested the FOTS for proper operation.	――	――
2. Verified all switch and control settings and equipment controls.	――	――
3. Troubleshot the FOCA using the TS-4117( )/G from either end. (Refer to TM 11-6625-3227-13&P and TM 11-6020-200-10.)	――	――
4. If outside the limits, had shelter operator check the FOM; if within limits, proceeded to the next connector until fault was found.	――	――
5. Replaced the FOCA as needed.	――	――
6. Reestablished communications.	――	――
7. Maintained the FOCA CX-13295( )/G.	――	――

    a. Visually inspected cable for burned, broken, loose, or missing connectors, splices, and physical damage to cable. (Refer to TM 11-6020-200-23&P.)
    b. Performed FOCA attenuation testing procedures using the TS-4336/G.
    c. Determined malfunction of the FOCA.
    d. Performed FOCA fault location procedures using the TS-4336/G.
    e. Repaired the CX-13295( )/G using cable repair kit MK-2495/G (if required).

Performance Measures   **GO   NO GO**
     f. Performed final operational test to verify normal operation of the FOCA.
     g. Completed applicable blocks on DA Form 2404 and DA Form 2407. (Refer
       to DA PAM 738-750.)

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the assigned PMs until they are done correctly.

References
    Required   **Related**
    DA FORM 2404
    DA FORM 2407
    DA PAM 738-750
    TM 11-6020-200-10
    TM 11-6020-200-23&P
    TM 11-6625-3227-13&P

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Recover Fiber Optic Cable Assembly (FOCA) CX-13295( )/G
113-632-7001

Conditions: Given a cable-laying vehicle; reeling machine RL-207/G, vehicle mounted; FOCA CX-13295( )/G installed; empty reels RC-435/G; tool equipment TE-21 and TE-33; shovel; gloves; route survey; TC 24-20, TM 11-3895-209-14, and TM 11-6020-200-10.

Standards: Recovered the FOCA cable.

Performance Steps
(Refer to TM 11-6020-200-10 for performance steps 1 through 7.)

   1. Prepare vehicle for recovery.

   2. Disconnect cable from the FOCA and connect dust covers.

   3. Remove aerial cable constructions.

   4. Remove buried cable constructions.

   5. Disconnect each section of cable and immediately reconnect dust covers.

   6. Disconnect cable from stakes and supports.

   7. Mount cable reel on the RL-207/G reel machine.

   8. Recover cable using the RL-207/G reeling machine. (Refer to TM 11-3895-209-14.)

Evaluation Preparation: Setup: Ensure a minimum of 2 km of CX-13295( )/G cable is installed.

Brief Soldier: Give the soldier a safety briefing that covers the use of reeling machine RL-207/G, including watching for dangling objects (dog tags, chains, and so on) which could be caught in the reel unit; and that covers the procedures and warnings dealing with finishing a cable reel and taking up a connector. NO jewelry will be worn.

Performance Measures	GO	NO GO
(Refer to TM 11-6020-200-10 for PMs 1 through 7.)		
1. Prepared vehicle for recovery.	——	——
2. Disconnected cable from the FOCA and connected dust covers.	——	——
3. Removed aerial cable constructions.	——	——
4. Removed buried cable constructions.	——	——
5. Disconnected each section of cable and immediately reconnected dust covers.	——	——
6. Disconnected cable from stakes and supports.	——	——
7. Mounted cable reel on the RL-207/G reel machine.	——	——
8. Recovered cable using the RL-207/G reeling machine. (Refer to TM 11-3895-209-14.)	——	——

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the assigned PMs until they are done correctly.

References
    Required   **Related**
    TC 24-20
    TM 11-3895-209-14
    TM 11-6020-200-10

Subject Area 2: MULTIPLEXERS

Troubleshoot Multiplexer TD-1233(P)/TTC or Multiplexer-Combiner TD-1234(P)/TTC
113-606-0105

Conditions: Given multiplexer TD-1233(P)/TTC or multiplexer-combiner TD-1234(P)/TTC; cable CX-11230A/G; telephone set(s) TA-838/TT or equivalent; digital nonsecure voice terminal TA-1042 or equivalent; telephone cable WF-16/U; power cord; batteries BA-30 or BA-3042 for TA-838/TT or equivalent; assorted CCA cards; TC 24-20, TM 11-5805-650-12, TM 1-5805-706-12, TM 11-5805-707-12, and TM 11-5995-208-10.

Standards: Corrected the fault and reestablished communications.

Performance Steps
(Refer to Troubleshooting Flowcharts in TM 11-5805-706-12 for the TD-1233(P)/ TTC and to TM 11-5805-707-12 for the TD-1234(P)/TTC for all performance steps.)

1. Check all CCA switches for correct configuration.

2. Determine the trouble.

3. Initiate self-test.

4. Localize fault.

5. Correct fault or replace defective equipment.

6. Reestablish communications.

Performance Measures	**GO**	**NO GO**
(Refer to Troubleshooting Flowcharts in TM 11-5805-706-12 for the TD-1233(P)/ TTC and to TM 11-5805-707-12 for the TD-1234(P)/TTC for all PMs.)		
1. Checked all CCA switches for correct configuration.	——	——
2. Determined the trouble.	——	——
3. Initiated self-test.	——	——
4. Localized fault.	——	——
5. Corrected fault or replaced defective equipment.	——	——
6. Reestablished communications.	——	——

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
Required	Related
TC 24-20	
TM 11-5805-650-12	
TM 11-5805-706-12	
TM 11-5805-707-12	
TM 11-5995-208-10	

Troubleshoot Line Termination Unit (LTU) CV-4180( )
113-606-0106

Conditions: Given a pre-installed LTU CV-4180( ) and TM 11-5805-783-13&P

Standards: Preformed troubleshooting procedures, identified the problems, took corrective action, and reestablished communications.

NOTE: To properly troubleshoot the LTU as a stand-alone unit, it must first be taken off-line. Turning off the LTU and setting the Group Modem Cable Length to position 5 so that the group modem function is internally looped back accomplishes this. Also, the LTU must be connected to a trunk encryption device (TED) or have the TED bypass cable installed (TED red cable connected from J1-J4 on the rear panel.)

Performance Steps

1. Verify that trouble exists.

2. Verify that the LTU has power.

3. Conduct pre-troubleshooting checks.
    a. Check that the Master/Slave switch on the TIMTG circuit card assembly (CCA) is in the slave position.
    b. Check that the TIMBT CCA functional configuration switch is set to 2.
    c. Check that the front panel Group Modem Cable Length rotary switch is set to position 5 (loop back).
    d. Check that the power cable connectivity and the corresponding jumper positions have been set on TB1 (located on backside of front panel).

4. Conduct troubleshooting procedures. (Refer to TM 11-5805-783-13&P, para 5-10 and Table 5-2 list).

5. Identify malfunctions.

6. Correct malfunctions.
    a. Check that the power cable connectivity and the corresponding jumper positions have been set on TB1 located on backside of front panel.

7. Reestablish communications.

Performance Measures	GO	NO GO
1. Verified that trouble existed.	――	――
2. Verified that the LTU had power.	――	――
3. Conducted pre-troubleshooting checks.	――	――
a. Checked that the Master/Slave switch on the TIMTG CCA was in the slave position.		
b. Checked that the TIMBT CCA functional configuration switch was set to 2.		
c. Checked that the front panel Group Modem Cable Length rotary switch was set to position 5 (loop back).		
d. Checked that the power cable connectivity and corresponding jumper positions had been set on TB1 (located on backside of front panel).		
e. Checked that all cables, except the power cable and the TED cable, were disconnected.		
4. Conducted troubleshooting procedures. (Refer to TM 11-5805-783-13&P, para 5-10 and Table 5-2 list.)	――	――

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Performance Measures	GO	NO GO
5. Identified malfunctions.	——	——
6. Corrected malfunctions.	——	——
7. Reestablished communications.	——	——

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References

    Required   **Related**
    TM 11-5805-783-13&P

Install Multiplexer TD-1233(P)/TTC or Multiplexer-Combiner TD-1234(P)/TTC
113-606-1001

Conditions: Given multiplexer TD-1233(P)/TTC and multiplexer-combiner TD-1234(P)/TTC; cable CX-11230A/U; power cords; assorted CCA cards, TM 11-5805-706-12, and TM 11-5805-707-12.

Standards: Powered up all equipment and the system was green.

Performance Steps

1. Connect the ground, power cables, and CX-11230A/U.

2. Check for fault light(s) on TD-1233(P)/TTC, TD-1234(P)/TTC, and CCAs. Check all CCA switches for correct configuration.

3. Turn power on for all equipment.

4. Check for fault light(s) on TD-1233(P)/TTC, TD-1234(P)/TTC, and CCAs.

5. Properly turn power off for all equipment.

Performance Measures	GO	NO GO
1. Connected the ground, power cables, and CX-11230A/U.	——	——
2. Checked all CCA switches for correct configuration.	——	——
3. Turned power on for all equipment.	——	——
4. Checked for fault light(s) on TD-1233(P)/TTC, TD-1234(P)/TTC, and CCAs.	——	——
5. Properly turned power off for all equipment.	——	——

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show the soldier what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
    Required   **Related**
    TM 11-5805-706-12
    TM 11-5805-707-12

Install Line Termination Unit (LTU) CV-4180( )
113-606-1002

Conditions: Given an LTU CV-4180( ); LTU cabling set; cable CX-11230A/G; cable CX-4566/G; telephone set(s) TA-954/TT or equivalent; digital nonsecure voice terminal TA-1042 or equivalent; telephone cable WF-16/U; power cord; batteries BA-30 or BA-3042 for TA-838/TT or equivalent; assorted CCA cards; J-1077 box; operation orders (OPORD) or a system planner document (SPD); TC 24-20; and TM 11-5805-783-13&P.

Standards: Installed an LTU and established communications.

Performance Steps

1. Verify location of the LTU.

2. Install LTU.

3. Configure rear panel.
    a. Install power cord.
    b. Install cabling to rear panel connectors as required in OPORD or SPD.
    c. Install CCAs in correct ports according to OPORD or SPD.
    d. Set the TIMBT CCA function switch to appropriate setting.

4. Set initial switch settings on front panel.
    a. Turn power switch to ON.
    b. Set the Test Select switch to Operate.
    c. Set Group Modem switches to appropriate settings.
    d. Set digital voice orderwire (DVOW) switches to appreciate settings.

5. Identify faults in built-in test equipment (BITE) fault readings.

6. Correct faults (if any).

7. Install J-1077 terminal box(es).

8. Terminate cabling from rear panel to distant end as required by OPORD or SPD.

9. Terminate WF-16 from J-1077 to distant end as required by OPORD or SPD.

10. Establish communications.

Performance Measures	**GO**	**NO GO**
1. Verified location of the LTU.	＿＿	＿＿
2. Installed LTU.	＿＿	＿＿

3. Configured rear panel.
    a. Installed power cord.
    b. Installed cabling to rear panel connectors as required in OPORD or SPD.
    c. Installed CCAs in correct ports according to OPORD or SPD.
    d. Set the TIMBT CCA function switch to appropriate setting.
	＿＿	＿＿

4. Set initial switch settings on front panel.
    a. Turned power switch to ON.
    b. Set the Test Select switch to Operate.
    c. Set Group Modem switches to appropriate settings.
    d. Set DVOW switches to appropriate settings.
	＿＿	＿＿

5. Identified faults in BITE fault readings.	＿＿	＿＿

Performance Measures	GO	NO GO
6. Corrected faults (if any).	——	——
7. Installed J-1077 terminal box(es).	——	——
8. Terminated cabling from rear panel to distant end as required by OPORD or SPD.	——	——
9. Terminated WF-16 from J-1077 to distant end as required by OPORD or SPD.	——	——
10. Established communications.	——	——

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References

Required	**Related**
SPD	TM 11-3895-202-13
TC 24-20	TM 11-5805-201-12
TM 11-5805-783-13&P	
UNIT OPORD	

Perform Unit Level Maintenance (ULM) on Multiplexer TD-1233(P)/TTC or Multiplexer-Combiner TD-1234(P)/TTC
113-606-3090

Conditions: Given multiplexer TD-1233(P)/TTC and multiplexer-combiner TD-1234(P)/TTC, flat-tip screwdriver, dust brush and cleaning rags, trichlorotrifluoroethane, DA Form 2404, DA Form 2408-14, DA PAM 738-750, TM 11-5805-706-12, and TM 11-5805-707-12.

Standards: Performed ULM, completed DA Form 2404 and DA Form 2408-14, and the equipment was operational; or evacuated the defective equipment to a higher maintenance level.

Performance Steps

WARNING: Trichlorotrifluoroethane fumes can cause severe irritation or injury. Provide ventilation whenever it is used.

1. Initiate DA Form 2404. (Refer to DA PAM 738-750.)

2. Perform routine checks on the TD-1233(P)/TTC or the TD-1234(P)/TTC.

3. Power on.

4. Perform BITE test.

5. Complete DA Form 2404 and DA Form 2408-14. (Refer to DA PAM 738-750.)

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

WARNING: Trichlorotrifluoroethane fumes can cause severe irritation or injury. Provide ventilation whenever it is used.

1. Initiated DA Form 2404. (Refer to DA PAM 738-750.) —— ——

2. Performed routine checks on the TD-1233(P)/TTC or TD-1234(P)/TTC. —— ——
   a. Checked for frayed cables.
   b. Stored unused items.
   c. Covered unused receptacles.
   d. Checked for loose nuts, bolts, and screws.
   e. Cleaned, dusted, and washed.

3. Powered on. —— ——

4. Performed BITE test. —— ——
   a. Passed (equipment was operational).
   b. Failed.

5. Completed DA Form 2404 and DA Form 2408-14. (Refer to DA PAM 738-750.) —— ——

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
    Required   **Related**
    DA FORM 2404
    DA FORM 2408-14
    DA PAM 738-750
    TM 11-5805-706-12
    TM 11-5805-707-12

Perform Unit Level Maintenance (ULM) on Line Termination Unit (LTU) CV-4180( )
113-606-3091

Conditions: Given an LTU CV-4180( ), dust brush, cleaning rags, cleaning solvent (trichlorotrifluoroethane), DA Form 2404, DA Form 2408-14, DA PAM 738-750, and TM 11-5805-783-13&P.

Standards: Performed ULM, completed DA Form 2404 and DA Form 2408-14, and the equipment was operational; or evacuated the defective equipment to a higher maintenance level.

Performance Steps

1. Initiate DA Form 2404.

2. Perform routine checks on the LTU.
    a. Check for damaged or frayed cables.
    b. Store items not in use.
    c. Cover unused receptacles.
    d. Check for loose nuts, bolts, and screws.
    e. Remove dust and loose dirt with clean, soft, lint-free cloth.
    f. Remove grease, fungus, and ground in dirt with a solution of water and mild detergent and a dampen cloth.
    g. Remove dirt from plugs and connectors with a soft brush.
    h. Remove grease from external cables with clean cloth soaked in trichlorotrifluoroethane.

WARNING: Trichlorotrifluoroethane fumes can cause severe irritation or injury. Provide ventilation whenever it is used. Do not use solvent near heat or open flame.

3. Turn power switch on.

4. Perform BITE test.
    a. Pass (equipment is operational).
    b. Fail.

5. Complete DA Form 2404 and DA Form 2408-14. (Refer to DA PAM 738-750.)

Performance Measures	**GO**	**NO GO**
1. Initiated DA Form 2404.	____	____
2. Performed routine checks on the LTU.	____	____
a. Checked for damaged or frayed cables.		
b. Stored items not in use.		
c. Covered unused receptacles.		
d. Checked for loose nuts, bolts, and screws.		
e. Removed dust and loose dirt with clean, soft, lint-free cloth.		
f. Removed grease, fungus, and ground in dirt with a solution of water and mild detergent and a dampen cloth.		
g. Removed dirt from plugs and connectors with a soft brush.		
h. Removed grease from external cables with clean cloth soaked in trichlorotrifluoroethane.		

WARNING: Trichlorotrifluoroethane fumes can cause severe irritation or injury. Provide ventilation whenever it is used. Do not use solvent near heat or open flame.

	GO	NO GO
3. Turned power switch on.	____	____
4. Performed BITE test.	____	____

Performance Measures   **GO**   **NO GO**
  a. Passed (equipment was operational).
  b. Failed.

  5. Completed DA Form 2404 and DA Form 2408-14. (Refer to DA PAM 738-750.)   ——   ——

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
  Required   **Related**
  DA FORM 2404
  DA FORM 2408-14
  DA PAM 738-750
  TM 11-5805-783-13&P

Subject Area 3: TELEPHONE SETS

Troubleshoot KY-68
113-600-0011

Conditions: Given DSVT TSEC/KY-68, telephone cable WF-16/U, multiplexer TD-1233(P)/TTC, multiplexer-combiner TD-1234(P)/TTC, radio repeater set AN/TRC-138A, radio terminal set AN/TRC-173, radio repeater set AN/TRC-174, radio terminal set AN/TRC-175, BA-1372 (1 each), (O)TM 11-5810-329-10, TM 11-5820-864-12-1, TM 11-5820-865-12-1, TM 11-5820-926-12-1, and TM 11-5820-931-12-1.

NOTE: The unkeyed DSVT TSEC/KY-68 is classified CONFIDENTIAL. It should be handled properly. The DSVT TSEC/KY-68 is loaded with variables for the PMs.

Standards: Performed troubleshooting procedures, identified problems, took corrective action, and reestablished communications.

Performance Steps

1. Verify that trouble exists.

2. Verify that the KY-68 is getting power. (Refer to (O)TM 11-5810-329-10.)

3. Troubleshoot the DSVT TSEC/KY-68 system. (Refer to (O)TM 11-5810-329-10.)

4. Identify malfunction(s).

5. Take corrective actions. (Refer to (O)TM 11-5810-329-10.)

6. Reestablish communications.

Performance Measures	**GO**	**NO GO**
1. Verified that trouble existed.	――	――
2. Verified that the KY-68 was getting power. (Refer to (O)TM 11-5810-329-10.)	――	――
3. Troubleshot the DSVT TSEC/KY-68 system. (Refer to (O)TM 11-5810-329-10.)	――	――
4. Identified malfunction(s).	――	――
5. Took corrective actions. (Refer to (O)TM 11-5810-329-10.)	――	――
6. Reestablished communications.	――	――

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
Required	Related
(O)TM 11-5810-329-10	(O)TM 11-5810-292-13&P
TM 11-5820-864-12-1	AR 380-40
TM 11-5820-865-12-1	DA PAM 25-380-2
TM 11-5820-926-12-1	TB 380-41
TM 11-5820-931-12-1	

Install Telephone Set TA-312/PT
113-600-1012

Conditions: Given telephone set, TA-312/PT; battery, BA-30 or BA-3030 (2 each); tool equipment, TE-33; installed telephone cable, WD-1( )/TT; tags; grease pencil; TM 11-5805-201-12; and TC 24-20.

Standards: Installed the telephone set and established communications.

Performance Steps
(Refer to TM 11-5805-201-12 for all performance steps.)

1. Install the TA-312/PT on a desk, pole, or tree.

2. Set selector switch for proper service.

3. Connect telephone cable to the TA-312/PT.

4. Install power source.

5. Connect external headset when required.

NOTE: Deicing the screen may be used to prevent transmitter from icing during extreme cold weather.

6. Install/remove deicing screen when required.

7. Establish communications.

Evaluation Preparation: Setup: Ensure the telephone cable is laid.

Brief Soldier: Tell the soldier he must complete an outgoing call.

Performance Measures (Refer to TM 11-5805-201-12 for all PMs)	**GO**	**NO GO**
1. Installed the TA-312/PT on a desk, pole, or tree.	——	——
2. Set selector switch for proper service.	——	——
3. Connected telephone cable to the TA-312/PT.	——	——

4. Installed power source.
   a. Connected external batteries when required.
   b. Installed batteries in telephone set.
	——	——

NOTE: PMs 4a and 5 may be used if the telephone operator must have his hand free during operation.

5. Connected external headset, when required.	——	——

NOTE: Deicing the screen may be used to prevent transmitter from icing during extreme cold weather.

6. Installed/removed deicing screen when required.	——	——
7. Established communications.	——	——

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References

Required	**Related**
TC 24-20	
TM 11-5805-201-12	

Install Digital Nonsecure Voice Terminal (DNVT)
113-600-1016

Conditions: Given telephone cable WF-16/U or WD-1( )/ TT, DNVT TA-954/TT, DNVT TA-1042A/U, tool equipment TE-33, screwdriver, TD-1233(P)/TTC or TD-1234(P)/TTC, TB 11-5805-780-15, TM 11-5805-735-12, TM 11-5805-706-12, and TM 11-5805-707-12.

Standards: Installed the telephone set and established communications.

Performance Steps
(Refer to TM 11-5805-735-12 for TA-945/TT and TB 11-5805-780-15 for TA-1042A/U for all performance steps, unless otherwise indicated.)

WARNING: Voltage as high as +56V DC may be present on telephone cables. To avoid injury, only handle the telephone cables and binding posts to which telephone cables are attached by the insulated areas.

   1. Mount the DNVT.

   2. Make bit rate select change.

NOTE: If the bit rate marked on the writing pad of the TA-954/TT or TA-1042A/U is incorrect for a particular application, it must be changed.

   3. Connect telephone cable.

   4. Turn on proper channel card on the TD-1233(P)/TTC or the TD-1234(P)/TTC. (Refer to TM 11-5805-706-12 or TM 11-5805-707-12.)

   5. Establish communications.

Evaluation Preparation: Setup: Ensure the telephone cable is laid and connected to the switching equipment. Prepare the DNVT for common battery (CB) mode of operation.

Brief Soldier: Tell the soldier he must complete an outgoing call.

Performance Measures	**GO**	**NO GO**
(Refer to TM 11-5805-735-12 for TA-945/TT and TB 11-5805-780-15 for TA-1042A/U for all PMs, unless otherwise indicated.)		

WARNING: Voltage as high as +56V DC may be present on telephone cables. To avoid injury, only handle the telephone cables and binding posts to which telephone cables are attached by the insulated areas.

	GO	**NO GO**
1. Mounted the DNVT.	――	――
2. Made bit rate select change.	――	――

NOTE: If the bit rate marked on the writing pad of the TA-954/TT or TA-1042A/U is incorrect for a particular application, it must be changed.

	GO	**NO GO**
3. Connected telephone cable.	――	――
4. Turned on proper channel card on the TD-1233(P)/TTC or the TD-1234(P)/TTC. (Refer to TM 11-5805-706-12 or TM 11-5805-707-12.)	――	――
5. Established communications.	――	――

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Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
Required	**Related**
TB 11-5805-780-15	
TM 11-5805-706-12	
TM 11-5805-707-12	
TM 11-5805-735-12	

Install Telephone Set TA-838/TT
113-600-1017

Conditions: Given telephone set, TA-838/TT; telephone cable, WF-16/U or WD-1( )/TT; battery, BA-42 (Type C) (4 each); or battery, BA-3042/U (4 each); tool equipment TE-33; screwdriver; and TM 11-5805-650-12.

Standards: Installed the telephone set and established communications.

Performance Steps
(Refer to TM 11-5805-650-12 for performance steps 1 through 5.)

1. Install batteries.

2. Perform pre-installation checks.
   a. Select mode switch position.
   b. Check side tone.

3. Mount telephone set on desk or vertical mount.

4. Determine if switchboard connections are 4-wire or 2-wire.

5. Connect WF-16/U to telephone.

6. Establish communications.

Evaluation Preparation: Setup: Ensure the telephone cable is laid and connected to the appropriate switching equipment or another TA-838/TT.

Brief Soldier: Tell the soldier which mode of operation and type of installation must be performed.

Performance Measures	GO	NO GO
(Refer to TM 11-5805-650-12 for PMs 1 through 5.)		
1. Installed batteries.	___	___
2. Performed pre-installation checks.	___	___
3. Mounted telephone set on desk or vertical mount.	___	___
4. Determined if switchboard connections were 4-wire or 2-wire.	___	___
5. Connected WF-16/U to telephone.	___	___
6. Established communications.	___	___

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
Required   Related
TM 11-5805-650-12

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Install KY-68

113-600-1022

Conditions: Given a digital subscriber voice terminal (DSVT) TSEC/KY-68, telephone cable WF-16/U, loaded device KYK-13/TSEC, KYK-15, CYZ-10 battery BA-5372, TD-1233(P)/TTC or TD-1234(P)/TTC, TM 11-5805-706-12, TM 11-5805-707-12, (O)TM 11-5810-292-13&P, and (O)TM 11-5810-329-10.

NOTE: The DSVT TSEC/KY-68 is classified equipment. It should be handled properly.

Standards: Installed the DSVT, loaded variables, and established secure communications.

Performance Steps

1. Install battery.

NOTE: Replace battery BA-1372 or BA-5372 every six months.

2. Install the DSVT TSEC/KY-68 using telephone cable WF-16/U to connect to the TD-1233(P)/TTC or the TD-1234(P)/TTC.

3. Ground the DVST TSEC/KY-68.

4. Load variables into the DSVT TSEC/KY-68.
    a. KYK-13/TSEC.
    b. KYK-15/15A.
    c. AN/CYZ-10.

5. Operate the DSVT TSEC/KY-68 to initiate an outgoing secure call.

Performance Measures	GO	NO GO
1. Installed battery.	――	――

NOTE: Replace battery BA-1372 or BA-5372 every six months.

	GO	NO GO
2. Installed the DSVT TSEC/KY-68 using telephone cable WF-16/U to connect to the TD-1233(P)/TTC or the TD-1234(P)/TTC.	――	――
3. Grounded the DSVT TSEC/KY-68.	――	――

4. Loaded variables into the DSVT TSEC/KY-68.
    a. KYK-13/TSEC.
    b. KYK-15/15A.
    c. AN/CYZ-10.
	――	――

5. Operated the DSVT TSEC/KY-68 to initiate an outgoing secure call.	――	――

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References

Required	Related
(O)TM 11-5810-292-13&P	DA PAM 25-380-2
(O)TM 11-5810-329-10	TB 380-41
TM 11-5805-706-12	
TM 11-5805-707-12	

Install MMT 1500 (STU-III)
113-600-1025

Conditions: Given MMT 1500 (STU-III) telephone, encryption key, commercial phone line, C Block, flat-tip or Phillips screwdriver, snips, pliers TL 13A, DA PAM 25-16, operator manual, and Department of Defense (DOD) Security Institute STU-III Handbook for Industry.

Standards: Programmed and installed the STU-III telephone and established communications.

Performance Steps
(Refer to DA PAM 25-16, operator manual, and DOD Security Institute STU-III Handbook for Industry.)

   1. Identify location requirements.

   2. Install cord connections.
      a. Handset connection.
      b. Terminal connection.
      c. Telephone line connection.

   3. Install power connector.

   4. Install power converter (if required).

   5. Install zeroize adapter (outside continental United States (OCONUS) ONLY).

   6. Install software configuration.

   7. Establish communications.

Performance Measures	**GO**	**NO GO**
(Refer to DA PAM 25-16, operator manual, and DOD Security Institute STU-III Handbook for Industry.)		
1. Identified location requirements.	——	——

2. Loaded cord connections.
   a. Handset connection.
   b. Terminal connection.
   c. Telephone line connection.
	——	——

3. Installed power connector.	——	——
4. Installed power converter (if required).	——	——
5. Installed zeroize adapter (OCONUS ONLY).	——	——
6. Installed software configuration.	——	——
7. Established communications.	——	——

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Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References

Required	**Related**
DA PAM 25-16	
OPER MANUAL	
STU-III Handbook	

Perform Unit Level Maintenance (ULM) on Telephone Set TA-312/PT
113-600-3017

Conditions: Given telephone set TA-312/PT, battery BA-30 (2 each), tool equipment TE-33, lint-free cloth and brush, cleaning compound trichlorotrifluoroethane, DA Form 2404, DA Form 2408-14, TM 11-5805-201-12, and DA PAM 738-750.

Standards: Performed ULM, completed DA Form 2404 and DA Form 2408-14, and the telephone was operational; or evacuated defective telephone set to a higher maintenance level.

Performance Steps

WARNING: Trichlorotrifluoroethane fumes are toxic. Provide ventilation whenever it is used.

1. Initiate DA Form 2404.

2. Perform routine checks. (Refer to TM 11-5805-210-12.)
   a. Clean, dust, and wash.
   b. Check for frayed cables.
   c. Store unused items.
   d. Cover unused receptacles.
   e. Check for loose nuts, bolts, and screws.

3. Check telephone set TA-312/PT.
   a. Batteries.
   b. Binding posts.
   c. Battery compartment.

4. Check case, telephone set.

5. Check handset.

6. Complete DA Form 2404 and DA Form 2408-14. (Refer to DA PAM 738-750.)

Performance Measures	GO	NO GO

WARNING: Trichlorotrifluoroethane fumes are toxic. Provide ventilation whenever it is used.

1. Initiated DA Form 2404. ____ ____

2. Performed routine checks. (Refer to TM 11-5805-201-12.) ____ ____

3. Checked telephone set TA-312/PT. ____ ____

4. Checked case, telephone set. ____ ____

5. Checked handset. ____ ____

6. Completed DA Form 2404 and DA Form 2408-14. (Refer to DA PAM 738-750.) ____ ____

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
    Required   **Related**
    DA FORM 2404
    DA FORM 2408-14
    DA PAM 738-750
    TM 11-5805-201-12

Perform Unit Level Maintenance (ULM) on Telephone Set TA-838/TT
113-600-3020

Conditions: Given an operational telephone set TA-838/TT, screwdriver, clean cloth, DA Form 2404, DA Form 2408-14, TM 11-5805-650-12, and DA PAM 738-750.

Standards: Performed ULM, completed DA Form 2404 and DA Form 2408-14, and the telephone set was operational; or evacuated the defective telephone set to a higher maintenance level.

Performance Steps

1. Initiate DA Form 2404.

2. Perform routine checks. (Refer to TM 11-5805-650-12.)

CAUTION: Do not use solvents to clean any part of the telephone set.

   a. Clean, dust, and wash.
   b. Check for frayed cables.
   c. Store unused items.
   d. Cover unused receptacles.
   e. Check for loose nuts, bolts, and screws.

3. Check telephone set TA-838/TT.
   a. Binding posts.
   b. Battery compartment.
   c. Carrying sling and tie-down strap.
   d. Operational capabilities.
   e. Urgent MWO.

4. Check completeness.

5. Check handset retaining spring.

6. Complete DA Form 2404 and DA Form 2408-14. (Refer to DA PAM 738-750.)

Evaluation Preparation: Setup: Have another TA-838/TT perform the operational test.

Brief Soldier: Tell the soldier that maintenance and an operational test must be performed on the TA-838/TT.

Performance Measures	**GO**	**NO GO**
1. Initiated DA Form 2404.	——	——
2. Performed routine checks. (Refer to TM 11-5805-650-12.)	——	——
CAUTION: Do not use solvents to clean any part of the telephone set.		
3. Checked telephone set TA-838/TT.	——	——
4. Checked completeness.	——	——
5. Checked handset retaining spring.	——	——
6. Completed DA Form 2404 and DA Form 2408-14. (Refer to DA PAM 738-750.)	——	——

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Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References

Required	**Related**
DA FORM 2404	
DA FORM 2408-14	
DA PAM 738-750	
TM 11-5805-650-12	

Subject Area 4: SUBSTATION INSTALLATION

Troubleshoot a Defective Telephone Substation/Line
113-600-0006

Conditions: Given a defective telephone substation line, Telephone Trouble Report with trouble indicated, tool equipment TE-21, handset telephone BECO-1011, ladder, pliers TL-107, long-nose pliers, diagonal pliers, electrical or friction tape, FM 11-372-8, and DA PAM 738-750.

Standards: Located and repaired the trouble and restored communications.

Performance Steps

NOTE: The Telephone Trouble Report is generated at the Dial Central Office utilizing the Telephone Management System (TMS).

(Refer to FM 11-372-8 for all performance steps.)

1. Verify cause of trouble.

2. Test line for trouble and identify fault.
    a. Open.
    b. Short.
    c. Ground.
    d. Crossed circuit
    e. High resistance connection.

3. Locate fault.

4. Repair fault.

5. Retest telephone line.

6. Restore communications.

7. Complete the Telephone Trouble Report. (Refer to DA PAM 738-750.)

Evaluation Preparation: Setup: This task can be simulated or observed on a normal duty. If it is to be simulated, insert into a test number a known-defective component (transmitter, receiver, network, cord, bell, and so on). If no defective components are available, a telephone transmitter or receiver can be made inoperative by taping the contacts. The network, cord, or bell can be made inoperative by removing a wire connection. Do NOT attempt to simulate inductive noise, because it can affect the telephone system.

Brief Soldier: Tell the soldier he should take safety precautions when working around high voltage.

Performance Measures	GO	NO GO
NOTE: The Telephone Trouble Report is generated at the Dial Central Office utilizing the TMS.		
(Refer to FM 11-372-8 for all PMs.)		
1. Verified cause of trouble.	――	――
2. Tested line for trouble and identified fault.	――	――
3. Located fault.	――	――

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Performance Measures	**GO**	**NO GO**
4. Repaired fault.	⎯⎯	⎯⎯
5. Retested telephone line.	⎯⎯	⎯⎯
6. Restored communications.	⎯⎯	⎯⎯
7. Completed the Telephone Trouble Report. (Refer to DA PAM 738-750.)	⎯⎯	⎯⎯

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References

Required	**Related**
DA PAM 738-750	
FM 11-372-8	

Install Telephone Substation
113-600-1020

Conditions: Given telephone set TA-236/FT or TA-938/G; drop wire and inside-house wire; tool equipment TE-21; S- and C-knobs; manual drill with 1/8-inch bit; terminal wrench; pliers TL-107, TC-103, and TL-126; 1/4-inch wood screw (5 each); S-clip; clamp; substation protector; ground wire and clamp; ladder; flat-tip screwdriver; pre-installed telephone pole; ready-access terminal (with working cable pair); connector blocks (modular blocks optional); connection block; carrier tool pouch; 6-inch Phillips screwdriver; long-nosed pliers; side cutter pliers; splicer's snips; C-terminal wrench; stapler gun with staples; DA Form 3938 (Local Service Request (LSR)); TC 24-20; FM 11-372-8; and Maintenance Manual (Stromberg-Carlson Practices).

Standards: Installed the substation and made an operational check with the telephone exchange.

Performance Steps
(Refer to FM 11-372-8 for performance steps 2 and 4 through 10.)

1. Climb pole. (Refer to TC 24-20.)

2. Install drop wire run at poles.

3. Descend pole. (Refer to TC 24-20.)

4. Install drop wire at building.

5. Mount substation protector.

6. Install ground wire, clamp, and/or rod.

7. Install inside-house wire.

8. Install connector blocks and attach inside-house wire.

9. Install telephone set TA-938/G.

10. Mount the four point terminating block at the desired location.

11. Connect the four telephone line cord conductors to their respective terminals on the terminating block.

12. Connect the house cable conductors to the corresponding line cord conductors on the terminal block.

13. Place cover over terminating block and secure it with screw provided.

14. Perform operational test.

15. Establish communications.

Performance Measures	**GO**	**NO GO**
(Refer to FM 11-372-8 for PMs 2 and 4 through 10.)		
1. Climbed pole. (Refer to TC 24-20.)	――	――
2. Installed drop wire run at poles.	――	――
3. Descended pole. (Refer to TC 24-20.)	――	――
4. Installed drop wire at building.	――	――
5. Mounted substation protector.	――	――

Performance Measures	GO	NO GO
6. Installed ground wire, clamp, and/or rod.	——	——
7. Installed inside-house wire.	——	——
8. Installed connector blocks and attached inside-house wire.	——	——
9. Installed telephone set TA-938/G.	——	——
10. Mounted the four point terminating block at the desired location.	——	——
11. Connected the four telephone line cord conductors to their respective terminals on the terminating block.	——	——
12. Connected the house cable conductors to the corresponding line cord conductors on the terminal block.	——	——
13. Placed cover over terminating block and secured it with screw provided.	——	——
14. Performed operational test.	——	——
15. Established communications.	——	——

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References

Required	**Related**
DA FORM 3938	
FM 11-372-8	
MAINTENANCE MANUAL	
TC 24-20	

Subject Area 5: TELEPHONE MAINTENANCE TRUCK

Perform Preventive Maintenance Checks and Services (PMCS) on Telephone Maintenance Truck
113-588-0007

Conditions: Given utility telephone maintenance truck, on-vehicle equipment (OVE) tools, DA Form 2404, DA Form 2408-14, appropriate maintenance allocation chart (MAC), and DA PAM 738-750.

Standards: Performed maintenance, completed DA Form 2404 and DA Form 2408-14, and the telephone maintenance truck was operational; or evacuated the truck to higher echelon maintenance.

Performance Steps

1. Initiate DA Form 2404.

2. Perform routine checks.

3. Perform operator maintenance. (Refer to the appropriate MAC.)

4. Complete DA Form 2404 and DA Form 2408-14. (Refer to DA PAM 738-750.)

Performance Measures	GO	NO GO
1. Initiated DA Form 2404.	——	——
2. Performed routine checks.	——	——
3. Performed operator maintenance. (Refer to the appropriate MAC.)	——	——
4. Completed DA Form 2404 and DA Form 2408-14. (Refer to DA PAM 738-750.)	——	——

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
Required   **Related**
DA FORM 2404
DA FORM 2408-14
DA PAM 738-750

Operate Telephone Maintenance Truck
113-588-2007

Conditions: Given an operator and a utility telephone maintenance truck with appropriate technical manual.

Standards: Leveled the telephone maintenance truck, operated derrick, and moved boom to work position.

Performance Steps

1. Position truck on solid, level ground as close as possible to the work area.

2. Engage parking brake and chock the wheels.

3. Engage power take-off (PTO).

4. Lower the outriggers.

5. Operate derrick and move boom to work position.

Performance Measures	GO	NO GO
1. Positioned truck on solid, level ground as close as possible to the work area.	——	——
2. Engaged parking brake and chocked the wheels.	——	——
3. Engaged PTO.	——	——
4. Lowered the outriggers.	——	——
5. Operated derrick and moved boom to work position.	——	——

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
    Required   **Related**
    APPLICABLE TM

Skill Level 2

Subject Area 6: TELEPHONE CABLE AND EQUIPMENT SUPERVISION

Supervise Unit Level Maintenance (ULM) on Test Sets
113-574-7014

Conditions: Supervise individuals performing ULM on one (or all) of the telephone test sets AN/GTM-12, TS 3647/G, or TS 4117( )/G. They will be provided with a 4-inch flat-tip screwdriver, dust brush, cleaning rags, applicable equipment, DA Form 2404, DA Form 2408-14, TM 11-6625-3292-12, TM 6625-3227-13&P, TM 11-5805-703-14 and DA PAM 738-750.

Standards: Performed ULM, completed DA Form 2404 and DA Form 2408-14, and the telephone test set was operational; or evacuated defective test set to a higher maintenance level.

Performance Steps
(Refer to applicable TM for the specific test set and performance steps.)

1. Ensure that DA Form 2404 and DA Form 2408-14 are available. (Refer to DA PAM 738-750.)

2. Supervise routine checks.
    a. Clean, wash, and dust.
    b. Check for frayed cables, broken connectors, or bent pins.
    c. Inspect case and cover for visible damage.
    d. Inspect battery case and (or) power source for broken wires or damaged connectors.
    e. Tighten loose screws.

3. Verify that DA Form 2404 and DA Form 2408-14 are completed. (Refer to DA PAM 738-750.)

NOTE: Ensure to read all WARNINGS and NOTES applied to each test set in their designated TM.

Performance Measures	**GO**	**NO GO**
(Refer to applicable TM for specific test set and PMs.)		
1. Ensured that DA Form 2404 and DA Form 2408-14 were available. (Refer to DA PAM 738-750.)	——	——
2. Supervised routine checks.	——	——
a. Cleaned, washed, and dusted.		
b. Checked for frayed cables, broken connectors, or bent pins.		
c. Inspected case and cover for visible damage.		
d. Inspected battery case and (or) power source for broken wires or damaged connectors.		
e. Tightened loose screws.		
3. Verified that DA Form 2404 and DA Form 2408-14 were completed. (Refer to DA PAM 738-750.)	——	——

NOTE: Ensure to read all WARININGS and NOTES applied to each test set in their designated TM.

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Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
    Required   **Related**
    DA FORM 2404
    DA FORM 2408-14
    DA PAM 738-750
    TM 11-5805-703-14
    TM 11-6625-3227-13&P
    TM 11-6625-3292-12

Supervise Installation of Cable Systems
113-588-7109

Conditions: You are supervising the installation procedures for cable systems using telephone cable WD-1/TT or WF-16/U in a garrison or field environment. You have access to all tools, equipment, TC 24-20, TM 11-5805-202-13, and TM 11-5805-201-12.

Standards: Supervised the procedures for the installation of a cable system so that the team had met the standards IAW TC 24-20, TM 11-5805-202-13 and TM 11-5805-201-12.

Performance Steps

1. Spot check the pre-installation checks on the telephone cable.

2. Coordinate the installation of the surface cable.

3. Verify that the installation of the aerial telephone cable road crossing was to standard IAW TC 24-20.

4. Inspect the Installed buried telephone cable crossing.

5. Perform operational test.   (Refer to TC 24-20 and TM 11-3895-202-13.)

6. Ensure that communications were established.

Performance Measures	GO	NO GO
1. Spot checked the pre-installation checks on the telephone cable.	——	——
2. Coordinated the installation of the surface cable.	——	——
3. Verified that the installation of the aerial telephone cable road crossing was to standard IAW TC 24-20.	——	——
4. Inspected the installed buried telephone cable crossing.	——	——
5. Performed operational test. (Refer to TC 24-20 and TM 11-3895-202-13.)	——	——
6. Ensured that communications were established.	——	——

Evaluation Guidance: Score the soldiers as individuals on assigned portions of the task. Score the soldier a GO if all assigned PMs are passed. Score the soldier a NO-GO if any assigned PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the assigned PMs until they are done correctly.

References
Required	Related
TC 24-20	
TM 11-3895-202-13	
TM 11-5805-201-12	

Supervise Troubleshooting of Cable Systems
113-588-7110

Conditions: Given a defective telephone substation line, Telephone Trouble Report with trouble indicated, tool equipment TE-21, handset telephone BECO-1011, ladder, pliers TL-107, long-nose pliers, diagonal pliers, electrical or friction tape, FM 11-372-8, and DA PAM 738-750.

Standards: Located and repaired trouble and restored communications.

Performance Steps

NOTE: The Telephone Trouble Report is generated at the Dial Central Office using the TMS.

(Refer to FM 11-372-8 for all performance steps.)

  1. Cross check to verify cause of trouble.

  2. Test line for trouble and identify fault.
        a. Open.
        b. Short.
        c. Ground.
        d. Crossed circuit.
        e. High resistance connection.

  3. Verify location of fault.

  4. Supervise repairing the fault.

  5. Retest telephone line.

  6. Ensure restoration of communications.

  7. Verify complete Telephone Trouble Report. (Refer to DA PAM 738-750.)

Evaluation Preparation: Setup: This task can be simulated or observed on a normal duty. If it is to be simulated, insert into a test number a known-defective component (transmitter, receiver, network, cord, bell, and so on). If no defective components are available, a telephone transmitter or receiver can be made inoperative by taping the contacts. The network, cord, or bell can be made inoperative by removing a wire connection. Do NOT attempt to simulate inductive noise, because it can affect the telephone system.

Brief Soldier: Tell the soldier he should take safety precautions when working around high voltage.

Performance Measures	GO	NO GO

NOTE: The Telephone Trouble Report is generated at the Dial Central Office using the TMS.

(Refer to FM 11-372-8 for all PMs.)

  1. Cross-checked to verify cause of trouble.   ——   ——

  2. Tested line for trouble and identified fault.   ——   ——
        a. Open.
        b. Short.
        c. Ground.
        d. Crossed circuit.
        e. High resistance connection.

Performance Measures	**GO**	**NO GO**
3. Verified location of fault.	——	——
4. Supervised repairing the fault.	——	——
5. Retested telephone line.	——	——
6. Ensured restoration of communications.	——	——
7. Verified complete Telephone Trouble Report. (Refer to DA PAM 738-750.)	——	——

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
    Required   **Related**
    DA PAM 738-750
    FM 11-372-8

Supervise Recovery of Cable Systems
113-588-7111

Conditions: Given a telephone cable line, pre-installed; reel unit RL-31( ) (can be vehicle mounted); empty reel RL-159/U; tool equipment TE-33; gloves; assistant, as required; TC 24-20 and TM 11-3895-202-13.

Standards: Recovered the telephone cable.

Performance Steps
(Refer to TC 24-20 for all performance steps.)

   1. Coordinate disconnection of telephone cable from terminal equipment.

   2. Verify removal of all wire tags and position line along the side of the recovery route.

   3. Supervise the removal of cable from all aerial constructions.

   4. Ensure removal of buried wire.

   5. Supervise the recovery of telephone cable. (Reel unit operation is not graded.)

Evaluation Preparation: Setup: None.

Brief Soldier: Tell the team that each soldier is graded only on his assigned portion of the task.

Performance Measures (Refer to TC 24-20 for all PMs.)	**GO**	**NO GO**
1. Coordinated disconnection of telephone cable from terminal equipment.	——	——
2. Verified removal of all wire tags and positioned line along the side of the recovery route.	——	——
3. Supervised the removal of cable from all aerial constructions.	——	——
4. Ensured removal of buried wire.	——	——
5. Supervised the recovery of telephone cable. (Reel unit operation is not graded.)	——	——

Evaluation Guidance: Score the soldiers as individuals on assigned portions of the task. Score the soldier a GO if all assigned PMs are passed. Score the soldier a NO-GO if any assigned PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the assigned PMs until they are done correctly.

References
Required	Related
TC 24-20	
TM 11-3895-202-13	

Subject Area 7: MULTIPLEXER SUPERVISION

Supervise Installation of Multiplexers
113-606-7026

Conditions: Given a cable team/squad, multiplexer TD-1233(P)/TTC and multiplexer-combiner TD-1234(P)/TTC, cable CX-11230A/U, power cords, assorted CCAs, TM 11-5805-706-12, and TM 11-5805-707-12.

Standards: Powered up all equipment and the system was green.

Performance Steps

1. Verify connection of the ground, power cables, and CX-11230A/U.

2. Check all CCA switches for correct configuration.

3. Ensure power is on for equipment.

4. Check for fault light(s) on TD-1233(P)/TTC, TD-1234(P)/TTC, and CCAs.

5. Ensure power is turned off properly.

Performance Measures	GO	NO GO
1. Verified connection of the ground, power cables, and CX-11230A/U.	——	——
2. Checked all CCA switches for correct configuration.	——	——
3. Ensured power was on for equipment.	——	——
4. Checked for fault light(s) on TD-1233(P)/TTC, TD-1234(P)/TTC, and CCAs.	——	——
5. Ensured power was turned off properly.	——	——

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show the soldier what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
   Required   **Related**
   TM 11-5805-706-12
   TM 11-5805-707-12

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Supervise Troubleshooting of Multiplexers
113-606-7027

Conditions: Given individual(s), multiplexer TD-1233(P)/TTC or multiplexer-combiner TD-1234(P)/TTC, cable CX-11230A/G, telephone set(s) TA-838/TT or equivalent, DNVT, TA-1042 or equivalent, telephone cable WF-16/U, power cord; batteries BA-30 or BA-3042 for TA-838/TT or equivalent, assorted CCAs, TC 24-20, TM 11-5805-706-12, and TM 11-5805-707-12.

Standards: Corrected the fault and reestablished communications.

Performance Steps
(Refer to Troubleshooting Flowcharts in TM 11-5805-706-12 for the TD-1233(P)/TTC and to TM 11-5805-707-12 for the TD-1234(P)/TTC for all performance steps.)

1. Verify that all CCA switches are in the correct configuration.

2. Verify that the problem has been determined.

3. Ensure that the self-test has been initiated.

4. Verify that the fault has been localized.

5. Ensure that the fault has been corrected or the defective equipment has been replaced.

6. Verify that communications have been reestablished.

Performance Measures	**GO**	**NO GO**
(Refer to Troubleshooting Flowcharts in TM 11-5805-706-12 for the TD-1233(P)/TTC and to TM 11-5805-707-12 for the TD-1234(P)/TTC for all PMs.)		
1. Verified that all CCA switches were in the correct configuration.	——	——
2. Verified that the problem had been determined.	——	——
3. Ensured that the self-test had been initiated.	——	——
4. Verified that the fault had been localized.	——	——
5. Ensured that the fault had been corrected or the defective equipment had been replaced.	——	——
6. Verified that communications had been reestablished.	——	——

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show the soldier what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References

Required	Related
TC 24-20	TM 11-5805-384-12
TM 11-5805-706-12	TM 11-5805-650-12
TM 11-5805-707-12	TM 11-5805-703-14
	TM 11-5995-208-10

Supervise Unit Level Maintenance (ULM) on Multiplexers
113-606-7028

Conditions: Given an individual(s), multiplexer TD-1233(P)/TTC and multiplexer-combiner TD-1234(P)/TTC, flat-tip screwdriver, dust brush and cleaning rags, trichlorotrifluoroethane, DA Form 2404, DA Form 2408-14, DA PAM 738-750, TM 11-5805-706-12, and TM 11-5805-707-12.

Standards: Performed ULM, completed DA Form 2404 and DA Form 2408-14, and the equipment was operational; or evacuated the defective equipment to a higher maintenance level.

Performance Steps

1. Ensure that DA Form 2404 has been initiated. (Refer to DA PAM 738-750.)

2. Verify that routine checks on the TD-1233(P)/TTC or the TD-1234(P)/TTC have been performed.

3. Verify that power is on.

4. Ensure that the BITE test has been performed.

5. Verify that DA Form 2404 and DA Form 2408-14 have been completed. (Refer to DA PAM 738-750.)

Performance Measures	GO	NO GO
1. Ensured that DA Form 2404 had been initiated. (Refer to DA PAM 738-750.)	——	——
2. Verified that routine checks on the TD-1233(P)/TTC or the TD-1234(P)/TTC have been performed.	——	——
3. Verified that power was on.	——	——
4. Ensured that the BITE test had been performed.	——	——
5. Verified that DA Form 2404 and DA Form 2408-14 had been completed. (Refer to DA PAM 738-750.)	——	——

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
    Required   **Related**
    DA FORM 2404
    DA FORM 2408-14
    DA PAM 738-750
    TM 11-5805-706-12
    TM 11-5805-707-12

Subject Area 8: TELEPHONE SETS SUPERVISION

Supervise Installation of KY-68
113-600-7042

Conditions: Given a cable team, a DSVT, TSEC/KY-68, telephone cable WF-16/U, variable loading device, battery BA-1372, multiplexing unit, (O)TM 11-5810-292-13&P, (O)TM 11-5810-329-10, TM 11-5805-706-12, and TM 11-5805-707-12.

Standards: Team Chief verified that cable team members had placed a secure call for the originating station to a receiving station.

Performance Steps

1. Verify the installation of battery.

NOTE: Replace battery BA-1372 or BA-5372 every six months.

2. Coordinate the installation of the DSVT TSEC/KY-68 using telephone cable WF-16/U to connect to the TD-1233(P)/TTC or the TD-1234(P)/TTC.

3. Spot-check the grounding of the DVST TSEC/KY-68.

4. Supervise loading variables into the DSVT TSEC/KY-68.
   a. KYK-13/TSEC.
   b. KYK-15/15A.
   c. AN/CYX-10.

5. Supervise the operation of the DSVT TSEC/KY-68 to initiate an outgoing secure call.

Performance Measures	GO	NO GO
1. Verified the installation of battery.	——	——

NOTE: Replace battery BA-1372 or BA-5372 every six months.

2. Coordinated the installation of the DSVT TSEC/KY-68 using telephone cable WF-16/U to connect to the TD-1233(P)/TTC or the TD-1234(P)/TTC.	——	——
3. Spot checked the grounding of the DVST TSEC/KY-68.	——	——

4. Supervised loading variables into the DSVT TSEC/KY-68.
   a. KYK-13/TSEC.
   b. KYK-15/15A.
   c. AN/CYZ-10.
	——	——

5. Supervised the operation of the DSVT TSEC/KY-68 to initiate an outgoing secure call.	——	——

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References

Required	Related
(O)TM 11-5810-292-13&P	DA PAM 25-380-2
(O)TM 11-5810-329-10	TB 380-41
TM 11-5805-706-12	
TM 11-5805-707-12	

Supervise Troubleshooting of KY-68
113-600-7043

Conditions: Given a DSVT TSEC/KY-68, telephone cable WF-16/U, multiplexer TD-1233(P)/TTC, multiplexer combiner TD-1234(P)/TTC, radio repeater set AN/TRC-138A, radio terminal set AN/GRC-173, radio repeater set AN/TRC-174, radio terminal set AN/TRC-175, battery BA-1372 (1 each), (O)TM 11-5810-329-10, TM 11-5820-864-12-1, TM 11-5820-865-12-1, TM 11-5820-926-12-1, and TM 11-5820-931-12-1.

NOTES:

(1) The unkeyed DSVT TSEC/KY-68 is classified CONFIDENTIAL. It should be handled properly.

(2) The DSVT TSEC/KY-68 is loaded with variables for the PMs.

Standards: Performed troubleshooting of the DSVT TSEC/KY-68, identified the problem, corrected the fault(s), and reestablished communications IAW the PMs.

Performance Steps

1. Verify that the trouble exists.

2. Verify that the KY-68 is getting power. (Refer to (O)TM 11-5810-329-10.)

3. Supervise the troubleshooting of the DSVT TSEC/KY-68 system. (Refer to (O)TM 11-5810-329-10.)

4. Ensure malfunction(s) is identified.

5. Ensure corrective actions are taken. (Refer to (O)TM 11-5810-329-10.)

6. Supervise the reestablishment of communications.

Performance Measures	GO	NO GO
1. Verified that the trouble existed.	——	——
2. Verified that the KY-68 was getting power. (Refer to (O)TM 11-5810-329-10.)	——	——
3. Supervised the troubleshooting of the DSVT TSEC/KY-68 system. (Refer to (O)TM 11-5810-329-10.)	——	——
4. Ensured malfunction(s) were identified.	——	——
5. Ensured corrective actions were taken. (Refer to (O)TM 11-5810-329-10.)	——	——
6. Supervised the reestablishment of communications.	——	——

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly

References
Required	Related
(O)TM 11-5810-329-10	(O)TM 11-5810-292-13&P
TM 11-5820-864-12-1	AR 380-40
TM 11-5820-865-12-1	DA PAM 25-380-2
TM 11-5820-926-12-1	TB 380-41
TM 11-5820-931-12-1	

Subject Area 9: SUBSTATION INSTALLATION SUPERVISION

Supervise Installation of Telephone Substation
113-600-7044

Conditions: Given telephone set TA-236/FT or TA-938/G; drop wire and inside-house wire; tool equipment TE-21; S- and C-knobs; manual drill with 1/8-inch bit; terminal wrench; pliers TL-107, TC-103, and TL-126; 1/4-inch wood screw, five each; S-clip; clamp; substation protector; ground wire and clamp; ladder; flat-tip screwdriver; preinstalled telephone pole; ready-access terminal (with working cable pair); connector blocks (modular blocks optional); connection block; carrier tool pouch; 6-inch Phillips screwdriver; long-nosed pliers; side cutter pliers; splicer's snips; C-terminal wrench; stapler gun with staples; DA Form 3938; TC 24-20; FM 11-372-8; and Maintenance Manual (Stromberg-Carlson Practices).

Standards: Installed the substation and made operational check with the telephone exchange.

Performance Steps
(Refer to FM 11-372-8 for performance steps 2 and 4 through 10.)

   1. Climb pole. (Refer to TC 24-20.)

   2. Install drop wire run at poles.

   3. Descend pole. (Refer to TC 24-20.)

   4. Install drop wire at building.

   5. Mount substation protector.

   6. Install ground wire, clamp, and/or rod.

   7. Install inside-house wire.

   8. Install connector blocks and attach inside-house wire.

   9. Install telephone set.

  10. Perform operational test.

  11. Establish communications

Performance Measures	**GO**	**NO GO**
(Refer to FM 11-372-8 for PMs 2 and 4 through 10.)		
1. Climbed pole. (Refer to TC 24-20.)	——	——
2. Installed drop wire run at poles.	——	——
3. Descended pole. (Refer to TC 24-20.)	——	——
4. Installed drop wire at building.	——	——
5. Mounted substation protector.	——	——
6. Installed ground wire, clamp, and/or rod.	——	——
7. Installed inside-house wire.	——	——
8. Installed connector blocks and attached inside-house wire.	——	——
9. Installed telephone set.	——	——

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Performance Measures	**GO**	**NO GO**
10. Performed operational test.	___	___
11. Established communications.	___	___

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
Required	**Related**
DA FORM 3938	
FM 11-372-8	
MAINTENANCE MANUAL	
TC 24-20	

Skill Level 3

Subject Area 10: TELEPHONE CABLE AND EQUIPMENT INSPECTION

Inspect Unit Level Maintenance (ULM) on Test Sets
113-574-9001

Conditions: Performed in a tactical or nontactical situation under all weather conditions; it may be performed in an NBC environment. You will be provided with the following: telephone test set, flat-tip screwdriver, DA Form 2404 or computer generated DA Form 5988-E (Equipment Inspection Maintenance Worksheet (EGA)), applicable TM, and DA PAM 738-750.

Standards: Inspected ULM IAW the PMs.

Performance Steps

1. Inspect ULM on identified test set.

2. Complete DA Form 2404 or computer-generated DA Form 5988-E. (Refer to DA PAM 738-750.)

Performance Measures	GO	NO GO
1. Inspected ULM on identified test set.	——	——
2. Inspected completed DA Form 2404 or computer-generated DA Form 5988-E. (Refer to DA PAM 738-750.)	——	——

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
 Required   **Related**
 APPLICABLE TM
 DA FORM 2404
 DA PAM 738-750

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Plan a Telephone Cable Line
113-588-5007

Conditions: Given grid map sheets covering the area of operations, coordinates of all terminal points, protractor, FM 3-25.26, and TC 24-20.

Standards: Walked the line and verified the data on the telephone cable layout.

Performance Steps

1. Perform map reconnaissance. (Refer to TC 24-20).

2. Plot the coordinates of all terminal points. (Refer to TC 24-20).
   a. Select primary and alternate routes.
   b. Identify difficult terrain areas.
   c. Identify crossings.

3. Estimate amount of wire required. (Refer to FM 3-25.26).
   a. Compute map distance. (Refer to FM 3-25.26.)
   b. Estimate amount of wire required. (Refer to TC 24-20.)

4. Estimate crossing/construction materials required. (Refer to TC 24-20).

5. Estimate time required.

6. Determine personnel requirements IAW personnel assets.

7. Conduct ground reconnaissance. (Refer to TC 24-20).

Performance Measures	GO	NO GO
1. Plotted the coordinates of all terminal points. (Refer to TC 24-20.)	——	——
2. Performed map reconnaissance. (Refer to TC 24-20.)	——	——
3. Estimated amount of wire required. (Refer to FM 3-25.26.)	——	——
4. Estimated crossing/construction materials required. (Refer to TC 24-20.)	——	——
5. Estimated amount of time required.	——	——
6. Determined personnel requirements IAW personnel assets.	——	——
7. Conducted ground reconnaissance. (Refer to TC 24-20.)	——	——

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly.   Have the soldier perform the PMs until they are done correctly.

References
   Required   **Related**
   FM 3-25.26
   TC 24-20

Inspect Existing Cable Lines
113-588-6001

Conditions: Given vehicle (with driver), notebook, pencil, DA Form 2407, and FM 11-372-6.

Standards: Inspected and noted any defects noticed on the drive through, and (if required) prepared and submitted DA Form 2407 to repair crew or a higher maintenance level for correction.

Performance Steps

Tactical Performance (Refer to FM 11-372-6 for all performance steps.)

  1. Check for broken sections in the cable.

  2. Check for disconnected cable or pulse restorers.

  3. Check aerial and buried road crossings.

  4. Check for proper sag at aerial road crossings.

Strategic Performance

  5. Check for missing or defective cutting rings.

  6. Check for creeping cable.

  7. Check insulated joints and cable bonds.

  8. Check for tree growth along cable route.

  9. Check cable terminals and terminal boxes.

 10. Check cables for bowing.

 11. Check for dancing cable.

 12. Check suspension strand.

Performance Measures	**GO**	**NO GO**
Tactical Performance (Refer to FM 11-372-6 for all PMs.)		
1. Checked for broken sections in the cable.	——	——
2. Checked for disconnected cable or pulse restorers.	——	——
3. Checked aerial and buried road crossings.	——	——
4. Checked for proper sag at aerial road crossings.	——	——
Strategic Performance		
5. Checked for missing or defective cutting rings.	——	——
6. Checked for creeping cable.	——	——
7. Checked insulated joints and cable bonds.	——	——
8. Checked for tree growth along cable route.	——	——
9. Checked cable terminals and terminal boxes.	——	——
10. Checked cables for bowing.	——	——

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Performance Measures	<u>**GO**</u>	<u>**NO GO**</u>
11. Checked for dancing cable.	___	___
12. Checked suspension strand.	___	___

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
    Required   **Related**
    DA FORM 2407
    FM 11-372-6

Prepare a Detailed Cable Route Map
113-588-6007

Conditions: Given map sheet(s) covering the area of operations, coordinates of all termination points, protractor GTA 5-2-10, overlay sheet, a completed wire plan with all changes annotated, FM 3-25.26, FM 24-1, FM 24-16, TC 24-20, and FM 101-5-1.

Standards: Annotated terminal points, line routes, construction symbols, and all marginal information on the overlay.

Performance Steps

1. Place the overlay material over the map area to be annotated. (Refer to FM 3-25.26.)

2. Secure material to the map.

3. Register the material to the map.

4. Plot the position of the terminal using authorized military symbols. (Refer to FM 3-25.26, FM 101-5-1, and FM 24-1.)

5. Plot line routes and construction symbols. (Refer to FM 3-25.26, FM 24-1, TC 24-20, and FM 24-18.)

6. Enter marginal information. (Refer to FM 3-25.26.)

7. Turn into company operations.

Performance Measures	GO	NO GO
1. Placed the overlay material over the map area to be annotated. (Refer to FM 3-25.26.)	——	——
2. Secured material to the map.	——	——
3. Registered the material to the map.	——	——
4. Plotted the position of the terminals using authorized military symbols. (Refer to FM 3-25.26, FM 101-5-1, and FM 24-1.)	——	——
5. Plotted line routes and construction symbols. (Refer to FM 3-25.26, FM 24-1, TC 24-20, and FM 24-16.)	——	——
6. Entered marginal information. (Refer to FM 3-25.26.)	——	——
7. Turned into company operations.	——	——

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
    Required   **Related**
    FM 101-5-1
    FM 3-25.26
    FM 24-1
    FM 24-16
    TC 24-20

Inspect Poles
113-588-7075

Conditions: Given a notebook, pencil, flat-tip screwdriver, 2-pound hammer, lag wrench, pole, shovel, and FM 11-372-7.

Standards: Verified the pole as sound or notified operations of the requirement for replacement.

Performance Steps
(Refer to FM 11-372-7 for all performance steps.)

1. Visually inspect the pole.
    a. Obvious rot.
    b. Cracks.
    c. Broken hardware.

2. Inspect poles below ground.

3. Calculate proper pole depth.

4. Check poles for defects.
    a. Hollow hearts.
    b. Internal rot.
    c. Exposed pockets.

5. Check guy wires and anchor.

6. Record information from inspections and preserve it as permanent record.

Performance Measures	GO	NO GO
(Refer to FM 11-372-7 for all PMs.)		
1. Inspected the pole visually.	——	——
a. Obvious rot.		
b. Cracks.		
c. Broken hardware.		
2. Inspected poles below ground.	——	——
3. Calculated proper pole depth.	——	——
4. Checked poles for defects.	——	——
a. Hollow hearts.		
b. Internal rot.		
c. Exposed pockets.		
5. Checked guy wires and anchor.	——	——
6. Recorded information from inspections and preserved it as permanent record.	——	——

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
  Required   **Related**
   FM 11-372-7

Inspect Preventive Maintenance Checks and Services (PMCS) of Telephone Maintenance Truck
113-588-7108

Conditions: Given utility telephone maintenance truck, DA Form 2404, DA Form 2408-14, a soldier performing PMCS, TM 9-2320-269-10, and DA PAM 738-750.

Standards: Inspector observed PMCS performance and annotated on DA Form 2404, if required.

Performance Steps

1. Review license of the operator.

2. Ensure TM 9-2320-269-10 and DA Form 2404 and DA Form 2408-14 are available.

3. Observe actual PMCS performances by the operator.

4. Inspect DA Form 2404 for operator entries.

5. Sign DA Form 2404 if fault actually exists.

Performance Measures	GO	NO GO
1. Reviewed license of the operator.	——	——
2. Ensured TM 9-2320-269-10 and DA Form 2404 and DA Form 2408-14 were available.	——	——
3. Observed actual PMCS performances by the operator.	——	——
4. Inspected DA Form 2404 for operator entries.	——	——
5. Signed DA Form 2404 if fault actually existed.	——	——

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
    Required   **Related**
    DA FORM 2404
    DA FORM 2408-14
    DA PAM 738-750
    TM 9-2320-269-10

Inspect Installation of Cable Systems
113-588-7112

Conditions: This task is performed in a tactical or nontactical situation, under all weather conditions; it may be performed in an NBC environment. You will be provided with the following: low-speed driver modem MD-1023; high-speed driver modem MD-1024; cable orderwire unit C-10716; field cable CX-11230 A/G; pulse-form restorer TD-1218; pulse-form restorer TD-1219; telephone test set; reeling machine RL-207/G; cargo truck, M1078 2 1/2-ton LMTV; tool equipment TE-21; tool equipment TE-33; preformed grips ND-0104 or ND-0107; a-frames; hammer HM-1; poles, pre-installed; ground rod MX-148/G; ground strap; stakes; gloves; eye protection and TM 11-5995-208-10.

Standards: Inspected the installation of the cable system IAW the PMs.

Performance Steps

   1. Inspect the installation of telephone poles.

   2. Inspect the erection of two terminal A-frames and two intermediate A-frames.

   3. Inspect surface cable construction.

   4. Inspect buried road-crossing construction.

   5. Inspect the connection of field cable to the TD-1218 or TD-1219 pulse restorer.

   6. Inspect the established orderwire communications.

   7. Inspect the connection of the test set to test cable current and data.

Performance Measures	**GO**	**NO GO**
1. Inspected the installation of telephone poles.	——	——
2. Inspected the erection of two terminal A-frames and two intermediate A-frames.	——	——
3. Inspected surface cable construction.	——	——
4. Inspected buried road-crossing construction.	——	——
5. Inspected the connection of field cable to the TD-1218 or TD-1219 pulse restorer.	——	——
6. Inspected the established orderwire communications.	——	——
7. Inspected the connection of the test set to test cable current and data.	——	——

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
Required	**Related**
TM 11-5995-208-10	TC 24-20
	TM 11-3895-209-14
	TM 11-5805-701-12
	TM 11-5805-702-12
	TM 11-5805-703-14
	TM 9-2320-209-10-1

Inspect Troubleshooting of Cable Systems
113-588-7113

Conditions: Given an individual to perform the task on the FOTS terminal, two each; FOCA CX-13295( )/G; test set TS-4117( )/G (with battery); assistants; TM 11-6020-200-10, and TM 11-6625-3227-13&P.

Standards: Identified and repaired faults and reestablished communications.

Performance Steps

1. Inspect the testing of the FOTS for proper operation.

2. Verify all switch and control settings and equipment controls.

3. Inspect the troubleshooting procedures of the FOCA using the TS-4117( )/G from either end. (Refer to TM 11-6625-3227-13&P and TM 11-6020-200-10.)

4. Ensure, if outside of limits, that the individual has the shelter operator check the fiber optic modem (FOM); if within limits, proceed to the next connector until fault is found.

5. Ensure that the FOCA is replaced as needed.

6. Verify the reestablishment communications.

Performance Measures	GO	NO GO
1. Inspected the testing of the FOTS for proper operation.	——	——
2. Verified all switch and control settings and equipment controls.	——	——
3. Inspected the troubleshooting procedures of the FOCA using the TS-4117( )/G from either end. (Refer to TM 11-6625-3227-13&P and TM 11-6020-200-10.)	——	——
4. Ensured, if outside of limits, that the individual had the shelter operator check the FOM; if within limits, proceeded to the next connector until fault was found.	——	——
5. Ensured that the FOCA was replaced as needed.	——	——
6. Verified the reestablishment communications.	——	——

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the assigned PMs until they are done correctly.

References
    Required   **Related**
    TM 11-6020-200-10
    TM 11-6625-3227-13&P

Inspect Recovery of Cable Systems
113-588-7114

Conditions: This task is performed in a tactical or nontactical situation, under all weather conditions; it may be performed in an NBC environment. You will be provided with the following: reeling machine RL-207/G, vehicle-mounted; tool equipment TE-21; tool equipment TE-33; field cable CX-11230 A/G, pre-installed; reels RC-453/G, empty; telephone test set; hammer HM-1; shovel; gloves; eye protection; cargo truck M-1078, 2 1/2 ton LMTV; TC 24-20; TM 11-5995-208-10; and TM 11-3895-209-14.

Standards: Inspected the recovery of the system IAW the PMs.

Performance Steps

1. Inspect the recovery of aerial field cable CX-11230 A/G. (Refer to TM 11-5995-208-10.)

2. Inspect the recovery of buried field cable CX-11230 A/G. (Refer to TC 24-20.)

3. Inspect the disconnection of connectors and replacement of the cap assembly on connectors. (Refer to TM 11-5995-208-10.)

4. Inspect the removal of pulse form restorers and tags. (Refer to TM 11-5995-208-10.)

5. Inspect the recovery of field cable using reeling machine RL-207/G. (Refer to TM 11-3895-209-14.)

Performance Measures	**GO**	**NO GO**
1. Inspected the recovery of aerial field cable CX-11230 A/G. (Refer to TM 11-5995-208-10.)	——	——
2. Inspected the recovery of buried field cable CX-11230 A/G. (Refer to TC 24-20.)	——	——
3. Inspected the disconnection of connectors and replacement of the cap assembly on connectors. (Refer to TM 11-5995-208-10.)	——	——
4. Inspected the removal of pulse form restorers and tags. (Refer to TM 11-5995-208-10.)	——	——
5. Inspected the recovery of field cable using reeling machine RL-207/G. (Refer to TM 11-3895-209-14.)	——	——

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier NO GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
Required	Related
TC 24-20	TM 11-5805-701-12
TM 11-3895-209-14	TM 11-5805-702-12
TM 11-5995-208-10	TM 11-5805-703-14
	TM 9-2320-209-10-1

15 March 2005

Subject Area 11: MULTIPLEXER INSPECTION

Inspect Installation of Multiplexers
113-606-7029

Conditions: This task is performed in a tactical or nontactical situation, under all weather conditions; it may be performed in an NBC environment. You will be provided with the following: multiplexer TD-1233(P)/TTC; multiplexer-combiner TD-1234(P)/TTC; field cable CX-11230( )/G; telephone set TA-341( )/TT; ground rod MX-148/G; ground strap; power supply cord; system diagram; cable orderwire unit C-10716; flat-tip screwdriver; TM 11-5805-706-12; and TM 11-5805-707-12.

Standards: Inspected the installation of the TD-1233(P)/TTC or TD-1234(P)/TTC IAW the PMs.

Performance Steps

1. Inspect the programming of the circuit card by system diagram.

2. Inspect for proper connection of the power supply cord.

3. Inspect for proper connection of the field cable to the TD-1233(P)/TTC (group) or TD-1234(P)/TTC (high).

Performance Measures	<u>GO</u>	<u>NO GO</u>
1. Inspected the programming of the circuit card by system diagram.	——	——
2. Inspected for proper connection of the power supply cord.	——	——
3. Inspected for proper connection of the field cable to the TD-1233(P)/TTC (group) or TD-1234(P)/TTC (high).	——	——

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PM until they are done correctly.

References
Required	**Related**
TM 11-5805-706-12	TC 24-20
TM 11-5805-707-12	

15 March 2005

Inspect Troubleshooting of Multiplexers
113-606-7030

Conditions: This task is performed in a tactical or nontactical situation, under all weather conditions; it may be performed in an NBC environment. You will be provided with the following: multiplexer TD-1233(P)/TTC, multiplexer combiner TD-1234(P)/TTC, cable orderwire unit C-10716, field cable CX-11230( )/G, telephone set TA-341( )/TT, telephone set TA-838/TT, DSVT TSEC/KY-68, telephone cable WF-16/U, power cord, TM 11-5805-706-12, and TM 11-5805-707-12.

Standards: Inspected the troubleshooting of the TD-1233(P)/TTC or TD-1234(P)/TTC and verified that the fault had been identified and located IAW the PMs.

Performance Steps

 1. Direct the use of the TD-1233(P)/TTC or TD-1234(P)/TTC troubleshooting flowcharts. (Refer to TM 11-5805-706-12 for the TD-1233(P)/TTC or TM 11-5805-707-12 for the TD-1234(P)/TTC.)

Performance Measures	GO	NO GO
1. Directed the use of the TD-1233(P)/TTC or TD-1234(P)/TTC troubleshooting flowcharts. (Refer to TM 11-5805-706-12 for the TD-1233(P)/TTC or TM 11-5805-707-12 for the TD-1234(P)/TTC.)	——	——

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PM until they are done correctly.

References

Required	Related
TM 11-5805-706-12	TC 24-20
TM 11-5805-707-12	TM 11-5805-384-12
	TM 11-5805-650-12
	TM 11-5805-703-14
	TM 11-5995-208-10

Inspect Unit Level Maintenance (ULM) on Multiplexers
113-606-7031

Conditions: Given a TD-1233(P)/TTC or TD-1234(P)/TTC with ULM already performed, DA Form 2404, TM 11-5805-706-12, TM 11-5805-707-12, and DA PAM 738-750.

Standards: Verified that the TD-1233(P)/TTC or TD-1234(P)/TTC passed the self-test and verified that fault annotations were on DA Form 2404 should faults exist.

Performance Steps

1. Inspect ULM IAW technical manual maintenance chart. (Refer to TM 11-5805-706-12 for the TD-1233(P)/TTC or TM 11-5805-707-12 for the TD-1234(P)/TTC.)

2. Inspect completed DA Form 2404. (Refer to DA PAM 738-750.)

Performance Measures	GO	NO GO
1. Inspected ULM IAW technical manual maintenance chart. (Refer to TM 11-5805-706-12 for the TD-1233(P)/TTC or TM 11-5805-707-12 for the TD-1234(P)/TTC.)	——	——
2. Inspected completed DA Form 2404. (Refer to DA PAM 738-750.)	——	——

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
Required	Related
DA FORM 2404	
DA PAM 738-750	
TM 11-5805-706-12	
TM 11-5805-707-12	

Subject Area 12: TELEPHONE SETS INSPECTION

Inspect Installation of KY-68
113-600-7045

Conditions: This task is performed in a tactical or nontactical situation, under all weather conditions; it may be performed in an NBC environment. You will be provided with the following: DSVT TSEC/KY-68, telephone cable WF-16/U, loaded device KYK-13/TSEC, and (O)TM 11-5810-329-10.

NOTE: The DSVT TSEC/KY-68 is classified equipment. It should be handled properly.

Standards: Under your direction, the DSVT TSEC/KY-68 had been secured, and the DSVT was operating IAW the PMs.

Performance Steps

1. Direct the installation of battery BA-1372.

2. Direct the installation and grounding of the DSVT TSEC/KY-68.

3. Direct the loading of variables into the DSVT using the KYK-13/TSEC.

4. Direct the operation of the DSVT TSEC/KY-68.

Performance Measures	GO	NO GO
1. Directed the installation of battery BA-1372.	――	――
2. Directed the installation and grounding of the DSVT TSEC/KY-68.	――	――
3. Directed the loading of variables into the DSVT using the KYK-13/TSEC.	――	――
4. Directed the operation of the DSVT TSEC/KY-68.	――	――

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
    Required   **Related**
    (O)TM 11-5810-329-10

Inspect Troubleshooting of KY-68
113-600-7046

Conditions: This task is performed in a tactical or nontactical situation, under all weather conditions; it may be performed in an NBC environment. You will be provided with the following: DSVT TSEC/KY-68, telephone cable WF-16/U, multiplexer TD-1233(P)/TTC, multiplexer-combiner TD-1234(P)/TTC, radio repeater set AN/TRC-138A, radio terminal set AN/GRC-173, radio repeater set AN/TRC-174, radio terminal set AN/TRC-175, (O)TM 11-5810-329-10, TM 11-5820-864-12-1, TM 11-5820-865-12-1, TM 11-5820-926-12-1, and TM 11-5820-931-12-1.

NOTE: The DSVT TSEC/KY-68 is classified equipment. It should be handled properly.

Standards: Under your direction, the soldiers performed troubleshooting of the DSVT TSEC/KY-68, identified the problem, and corrected the fault(s) IAW the PMs.

Performance Steps

1. Direct the troubleshooting of the DSVT TSEC/KY-68 system.

2. Direct the identification of fault(s) on the DSVT TSEC/KY-68 system.

3. Direct the corrective actions of fault(s) on the DSVT TSEC/KY-68 system.

Performance Measures	GO	NO GO
1. Directed the troubleshooting of the DSVT TSEC/KY-68 system.	——	——
2. Directed the identification of fault(s) on the DSVT TSEC/KY-68 system.	——	——
3. Directed the corrective actions of fault(s) on the DSVT TSEC/KY-68 system.	——	——

Evaluation Guidance: Score the soldier GO if all PMs are passed. Score the soldier NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
    Required   **Related**
    (O)TM 11-5810-329-10
    TM 11-5820-864-12-1
    TM 11-5820-865-12-1
    TM 11-5820-926-12-1
    TM 11-5820-931-12-1

Subject Area 13: SUBSTATION INSTALLATION INSPECTION

Inspect Installation of Telephone Substation
113-600-7026

Conditions: Given telephone set TA-236/FT or TA-938/G; drop wire and inside-house wire; tool equipment TE-21; S- and C-knobs; manual drill with 1/8-inch bit; terminal wrench; pliers TL-107, TC-103, and TL-126; 1/4-inch wood screw, five each; S-clip; clamp; substation protector; ground wire and clamp; ladder; flat-tip screwdriver; pre-installed telephone pole; ready-access terminal (with working cable pair); connector blocks (modular blocks optional); connection block; carrier tool pouch; 6-inch Phillips screwdriver; long-nosed pliers; side cutter pliers; splicer's snips; C-terminal wrench; stapler gun with staples; DA Form 3938; TC 24-20, FM 11-372-8, and Maintenance Manual (Stromberg-Carlson Practices).

Standards: Inspected the telephone substation installation and checked with operator to verify that the phone was functioning.

Performance Steps
(Refer to FM 11-372-8 for performance steps 2 and 4 through 10.)

1. Check drop wire from pole to building. (Refer to TC 24-20.)

2. Check drop wire connection at terminal.

3. Check splicer.

4. Check mounting of substation protector.

5. Check inside wire run.

6. Check telephone connections.

7. Perform operational test.

Performance Measures (Refer to FM 11-372-8 for PMs 2 and 4 through 10.)	**GO**	**NO GO**
1. Checked drop wire from pole to building. (Refer to TC 24-20.)	___	___
2. Checked drop wire connection at terminal.	___	___
3. Checked splicer.	___	___
4. Checked mounting of substation protector.	___	___
5. Checked inside wire run.	___	___
6. Checked telephone connection.	___	___
7. Performed operational test.	___	___

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
    Required   **Related**
    DA FORM 3938
    FM 11-372-8
    MAINTENANCE MANUAL
    TC 24-20

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CHAPTER 4

Duty Position Tasks

ADDITIONAL SKILL IDENTIFIER (ASI) J2

Communications Cable and Antenna Systems Maintainer

Subject Area 14: ANTENNA INSTALLATION

Install Parabolic Antenna
113-596-1024

Conditions: This task is performed at a fixed installation during daylight hours. It should NOT be performed under adverse weather conditions. Given an engineering scheme, antenna materials (antenna blueprint scheme), tools and equipment listed in TM, safety equipment, and TM 11-5985-338-14.

NOTE: You will work under the supervision of a team/crew chief. Assistance is provided as required.

Standards: Installed the parabolic antenna.

Performance Steps
(Refer to TM 11-5985-338-14 for all performance steps.)

1. Inventory equipment.

2. Install antenna feed assembly to antenna reflector.

3. Attach guy wires to feed horn assembly and antenna radome assembly.

4. Adjust guy wire cable tension.

5. Assemble and attach frame mount to back of antenna reflector.

6. Attach elevation adjusting rod assembly and secure azimuth adjusting rod.

7. Install radome on reflector.

8. Raise antenna to desired mounting position.

9. Attach and secure antenna to support elements.

NOTE: Torque to 39 foot-pounds.

10. Attach azimuth-mounting brackets to support elements.

Performance Measures	GO	NO GO
(Refer to TM 11-5985-338-14 for all PMs.)		
1. Inventoried equipment.	⎯⎯	⎯⎯
2. Installed antenna feed assembly to antenna reflector.	⎯⎯	⎯⎯
3. Attached guy wires to feed horn assembly and antenna radome assembly.	⎯⎯	⎯⎯
4. Adjusted guy wire cable tension.	⎯⎯	⎯⎯
5. Assembled and attached frame mount to back of antenna reflector.	⎯⎯	⎯⎯

Performance Measures	GO	NO GO
6. Attached elevation adjusting rod assembly and secured azimuth adjusting rod.	——	——
7. Installed radome on reflector.	——	——
8. Raised antenna to desired mounting position.	——	——
9. Attached and secured antenna to support elements.	——	——

NOTE: Torqued to 39 foot-pounds.

10. Attached azimuth mounting brackets to support elements.	——	——

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
    Required   **Related**
    TM 11-5985-338-14

Install AB-216/U Tower
113-596-1027

Conditions: This task is performed during daylight hours. It should NOT be performed under adverse weather conditions. Given an engineering scheme, tools and equipment, tower erection davit MX-1215/U, capstan E-12U, safety equipment, Antenna Safety Manual–Antenna Products Company Manual (Safety Climbing Equipment), construction vehicle (1/4 ton or above) M-876, and TM 11-5073.

NOTE: You will work under the supervision of a team/crew chief. Assistance is provided as required.

Standards: Installed the AB-216/U tower.

Performance Steps
(Refer to TM 11-5073 for all performance steps.)

   1. Install safety equipment.

NOTE: Safety climbing equipment must be installed either with the tower method or with the pole method. Refer to the Antenna Safety Manual.

   2. Install tower.
      a. Identify tower location.
      b. Connect tower support base plates AB-206/U to foundation timbers.
      c. Assemble tower sections AB-208/U and AB-207/U.
      d. Install tower section AB-208/U.
      e. Connect triangular frame to tower section AB-208/U.
      f. Locate guy anchors.
      g. Install guy anchors using one of the following methods.
         (1) Manually.
         (2) Telephone maintenance truck M-876.
      h. Assemble davit MX-1215/U.
      i. Connect davit MX-1215/U to tower top horizontal member.
      j. Install snatch block and coupler to tower.
      k. Secure the hook on snatch block using the mouse method.
      l. Install ground on tower.
      m. Erect tower section using one of the following methods:
         (1) Manually.
         (2) Vehicle.
         (3) Capstan.
      n. Connect tower section to existing tower and transfer part, as required.
      o. Erect guys to desired guy level.
      p. Connect guys to tower.
      q. Install guy spacers and take up winch on anchors.
      r. Connect tension guy wire to tower.
      s. Install antenna support AB-296/G.
      t. Erect antenna support AB-296/G.
      u. Connect antenna support AB-296/G.

NOTE: If required to install tower platform section MT-1156/U and obstruction marker, refer to TM 11-5073.

   3. Install ground obstruction marker.

CAUTION: Electrical equipment must be handled carefully when moving or installing it.

NOTE: Suggested method: davit MX-1215/U.

Performance Steps
      a. Install block and tackle to support.
      b. Hoist davit MX-1215/U using block and tackle.
      c. Attach davit MX-1215/U to tower.
      d. Attach lamp socket and cable assembly to each obstruction light assembly.

CAUTION: Whenever the three-conductor cable passes through a feed-through connector, the rubber plug in the connector must have an oversized hole. In all unused feed-through connectors, the rubber must be replaced with a blank plug.

      e. Install obstruction light assembly on tower.

NOTE: Use a tag line to hold the obstruction and cable assembly out from the tower at a safe distance to keep from damaging obstruction lights and cable assembly.

      f. Assemble/attach beacon, platform, and cable assembly together.
      g. Hoist beacon, platform, and cable assembly to top of tower.
      h. Install beacon, platform, and cable assembly to tower.
      i. Install automatic control equipment on tower.
      j. Perform pre-operational checks.
      k. Perform adjustment on control.

WARNING: The circuit breaker lever must be placed in the OFF position before adjusting the position of the permanent magnet breaker.

NOTE: It is recommended that this adjustment be made in the early evening when the daylight intensity is approximately that at which the lights should come on each day.

Performance Measures   **GO**   **NO GO**
(Refer to TM 11-5073 for all PMs).

  1. Installed safety equipment.   ____   ____

NOTE: Safety climbing equipment must be installed either with the tower method or with the pole method. Refer to the Antenna Safety Manual.

  2. Installed tower.   ____   ____
      a. Identified tower location.
      b. Connected tower support base plates AB-206/U to foundation timbers.
      c. Assembled tower sections AB-208/U and AB-207/U.
      d. Installed tower section AB-208/U.
      e. Connected triangular frame to tower section AB-208/U.
      f. Located guy anchors.
      g. Installed guy anchors using one of the following methods.
          (1) Manually.
          (2) Telephone maintenance truck M-876.
      h. Assembled davit MX-1215/U.
      i. Connected davit MX-1215/U to tower top horizontal member.
      j. Installed snatch block and coupler to tower.
      k. Secured the hook on snatch block using the mouse method.
      l. Installed ground on tower.
      m. Erected tower section using one of the following methods.
          (1) Manually.
          (2) Vehicle.
          (3) Capstan.
      n. Connected tower section to existing tower and transferred part, as required.
      o. Erected guys to desired guy level.
      p. Connected guys to tower.
      q. Installed guy spacers and take-up winch on anchors.

Performance Measures	GO	NO GO
r. Connected tension guy wire to tower.		
s. Installed antenna support AB-296/G.		
t. Erected antenna support AB-296/G.		
u. Connected antenna support AB-296/G.		

NOTE: If required to install tower platform section MT-1156/U and obstruction marker, refer to TM 11-5073.

3. Installed ground obstruction marker.   ___   ___

CAUTION: Electrical equipment must be handled carefully when moving or installing it.

NOTE: Suggested method: davit MX-1215/U.

    a. Installed block and tackle to support.
    b. Hoisted davit MX-1215/U using block and tackle.
    c. Attached lamp socket and cable assembly to each obstruction light assembly.
    d. Attached davit MX-1215/U to tower.

CAUTION: Whenever the three-conductor cable passes through a feed-through connector, the rubber plug in the connector must have an oversized hole. In all unused feed-through connectors, the rubber must be replaced with a blank plug.

    e. Installed obstruction light assembly on tower.

NOTE: Use a tag line to hold the obstruction and cable assembly out from the tower at a safe distance to keep from damaging obstruction lights and cable assembly.

    f. Assembled/attached beacon, platform, and cable assembly together.
    g. Hoisted beacon, platform, and cable assembly to top of tower.
    h. Installed beacon, platform, and cable assembly to tower.
    i. Installed automatic control equipment on tower.
    j. Performed pre-operational checks
    k. Performed adjustment on control.

WARNING: The circuit breaker lever must be placed in the OFF position before adjusting the position of the permanent magnet breaker.

NOTE: It is recommended that this adjustment be made in the early evening when the daylight intensity is approximately that at which the lights should come on each day.

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
    Required   **Related**
    ANTENNA SAFETY MANUAL
    TM 11-5073

Install Pressurized Transmission Lines
113-596-1040

Conditions: This task is performed at a fixed installation during daylight hours. It should NOT be performed under adverse weather conditions. Given an engineering scheme, tools and equipment, pressurization material, required safety equipment, and FM 11-487-2/14.

NOTE: Assistance is provided, as required.

Standards: Installed the appropriate pressurization system, purged the line, and pressurized the cable.

Performance Steps
(Refer to FM 11-487-2/14 for all performance steps.)

1. Install mechanical dehydrator/dehumidifier.

2. Install dehydration pump system.

3. Install dehydration nitrogen system for single transmission line.

4. Install dehydration nitrogen system for multiple transmission line

5. Purge cable line.

6. Pressurize cable.

NOTE: If cable does NOT maintain correct air pressure, use soap, bucket, and brush to make a soapy solution and spread it around connections and fittings to locate air leakage. Check connections and fittings for looseness or damage. Replace as necessary.

Performance Measures	GO	NO GO
(Refer to FM 11-487-2/14 for all PMs.)		
1. Installed mechanical dehydrator/dehumidifier.	____	____
2. Installed dehydration pump system.	____	____
3. Installed dehydration nitrogen system for single transmission line.	____	____
4. Installed dehydration nitrogen system for multiple transmission line.	____	____
5. Purged cable line.	____	____
6. Pressurized cable.	____	____

NOTE: If cable did NOT maintain correct air pressure, used soap, bucket, and brush to make a soapy solution and spread it around connections and fittings to locate air leakage. Checked connections and fittings for looseness or damage. Replaced as necessary.

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
   Required   **Related**
      FM 11-487-2/14

Install Self-Support Tower
113-596-1080

Conditions: This task is performed at a fixed installation during daylight hours. It should NOT be performed under adverse weather conditions. Given self-support tower, engineering scheme, tools and equipment, carrier rail material, tower erection davit MX 1215/U, safety equipment, block and tackle, FM 11-487-27, TM 11-5073, and Antenna Safety Manual–Antenna Products Company Manual (Safety Climbing Equipment).

NOTE: Assistance is provided as required.

Standards: Completed the self-support tower including site selection, site survey, and base installation.

Performance Steps

   1. Install safety equipment using tower method.

NOTE: Safety climbing equipment must be installed either with the tower method or with the pole method. Refer to the Antenna Safety Manual.

   2. Install tower. (Refer to FM-11-487-27 and engineer scheme.)
      a. Identify tower location.
      b. Conduct inventory of equipment.
      c. Install tower base per engineer scheme.
      d. Assemble tower per engineer scheme.
      e. Erect tower per engineer scheme.

   3. Install ground obstruction marker.

CAUTION: Electrical equipment must be handled carefully when moving or installing it.

NOTE: Suggested method: davit MX-1215/U.

      a. Install block and tackle to support. (Refer to TM 11-5073.)
      b. Hoist davit MX-1215/U using block and tackle. (Refer to TM 11-5073.)
      c. Attach davit MX-1215/U to tower. (Refer to TM 11-5073.)
      d. Attach lamp socket and cable assembly to each obstruction light assembly.

CAUTION: Whenever the three-conductor cable passes through a free through connector, the rubber plug in the connector must have an oversized hole. In all unused feed through connectors, the rubber must be replaced with a blank plug.

      e. Install obstruction light assembly on tower.

NOTE: Use a tag line to hold the obstruction and cable assembly out from the tower at a safe distance to keep from damaging obstruction lights and cable assembly.

      f. Assemble/attach beacon, platform, and cable assembly together.
      g. Hoist beacon, platform, and cable assembly to top of tower.
      h. Install beacon, platform, and cable assembly to tower.
      i. Install automatic control equipment on tower.
      j. Perform pre-operational checks.
      k. Perform adjustment on control.

WARNING: The circuit breaker lever must be placed in the OFF position before adjusting the position of the permanent magnet breaker.

NOTE: It is recommended that this adjustment be made in the early evening when the daylight intensity is approximately that at which the lights should come on each day.

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

    1. Installed safety equipment using tower method.   ____   ____

NOTE: Safety climbing equipment must be installed either with the tower method or with the pole method. Refer to the Antenna Safety Manual.

    2. Installed tower. (Refer to FM-11-487-27 and engineer scheme.)   ____   ____
        a. Identified tower location.
        b. Conducted inventory of equipment.
        c. Installed tower base per engineer scheme.
        d. Assembled tower per engineer scheme.
        e. Erected tower per engineer scheme.

    3. Installed ground obstruction marker.   ____   ____

CAUTION: Electrical equipment must be handled carefully when moving or installing it.

NOTE: Suggested method: Davit MX-1215/U.

        a. Installed block and tackle to support. (Refer to TM 11-5073.)
        b. Hoisted davit MX-1215/U using block and tackle. (Refer to TM 11-5073.)
        c. Attached davit MX-1215/U to tower. (Refer to TM 11-5073.)
        d. Attached lamp socket and cable assembly to each obstruction light assembly.

CAUTION: Whenever the three-conductor cable passes through a free through connector, the rubber plug in the connector must have an oversized hole. In all unused feed through connectors, the rubber must be replaced with a blank plug.

        e. Installed obstruction light assembly on tower.

NOTE: Use a tag line to hold the obstruction and cable assembly out from the tower at a safe distance to keep from damaging obstruction lights and cable assembly.

        f. Assembled/attached beacon, platform, and cable assembly together. (Refer to TM 11-5073.)
        g. Hoisted beacon, platform, and cable assembly to top of tower. (Refer to TM 11-5073.)
        h. Installed beacon, platform, and cable assembly to tower.
        i. Installed automatic control equipment on tower.
        j. Performed pre-operational checks.
        k. Performed adjustment on control.

WARNING: The circuit breaker lever must be placed in the OFF position before adjusting the position of the permanent magnet breaker.

NOTE: It is recommended that this adjustment be made in the early evening when the daylight intensity is approximately that at which the lights should come on each day.

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
Required	**Related**
ANTENNA SAFETY MANUAL	
FM 11-487-27	
TM 11-5073	

Remove Self-Support Tower
113-596-1081

Conditions: This task is performed at a fixed installation during daylight hours. It should NOT be performed under adverse weather conditions. Given self-support tower (installed), tools and equipment, safety equipment, block and tackle, and FM 11-487-27.

NOTE: Assistance is provided as required.

Standards: Disassembled the self-support tower including removing all installed equipment, tower braces, and structure pieces.

Performance Steps
(Refer to FM 11-487-27 for all performance steps.)

   1. Remove all installed equipment.

   2. Remove tower braces.

   3. Lower braces to ground.

   4. Store equipment as required.

Performance Measures	GO	NO GO
(Refer to FM 11-487-27 for all PMs.)		
1. Removed all installed equipment.	——	——
2. Removed tower braces.	——	——
3. Lowered braces to ground.	——	——
4. Stored equipment as required.	——	——

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
   Required   **Related**
   FM 11-487-27

Install Spira-Cone High Frequency (HF) Antenna
113-596-1082

Conditions: This task is performed at a fixed installation during daylight hours. It should NOT be performed under adverse weather conditions. Given the Spira-cone HF antenna, tools and equipment, safety equipment, and FM 11-487-1.

NOTE: You will work as a team member to perform this task.

Standards: Installed the Spira-cone HF antenna including assembly of antenna curtains, erection of mast, and anchorage of down-lead guys to anchor points.

Performance Steps

WARNING: The supervisor will brief soldiers on climbing procedures and being watchful of falling objects.

(Refer to FM 11-487-1 for all performance steps.)

   1. Select site for antenna installation.

   2. Inventory equipment.

   3. Install base for antenna.

   4. Install anchors.

   5. Assemble mast section.

   6. Install HF antenna curtains.

   7. Install down-lead guys.

Performance Measures	GO	NO GO

WARNING: The supervisor will brief soldiers on climbing procedure and being watchful of falling objects.

(Refer to FM 11-487-1 for all PMs.)

   1. Selected site for antenna installation.   —— ——

   2. Inventoried equipment.   —— ——

   3. Installed base for antenna.   —— ——

   4. Installed anchors.   —— ——

   5. Assembled mast section.   —— ——

   6. Installed HF antenna curtains.   —— ——

   7. Installed down-lead guys.   —— ——

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Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
    Required   **Related**
    FM 11-487-1

Remove Spira Cone High Frequency (HF) Antenna
113-596-1083

Conditions: This task is performed at a fixed installation during daylight hours. It should NOT be performed under adverse weather conditions. Given Spira-cone HF antenna (installed), tools and equipment, safety equipment, and FM 11-487-1.

NOTE: Supervision and assistance are provided as required.

Standards: Removed the Spira-cone HF antenna including removal of the mast, antenna curtains, and down-lead guys.

Performance Steps

WARNING: The supervisor will brief soldiers on climbing procedure and being watchful of falling objects.

(Refer to FM 11-487-1 for all performance steps.)

1. Remove down-lead guys.

2. Lower HF antenna curtains.

3. Remove anchors.

4. Disassemble mast section.

Performance Measures	GO	NO GO
WARNING: The supervisor will brief the soldiers on climbing procedure and being watchful of falling objects.		
(Refer to FM 11-487-1 for all PMs.)		
1. Removed down-lead guys.	——	——
2. Lowered HF antenna curtains.	——	——
3. Removed anchors.	——	——
4. Disassembled mast section.	——	——

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
    Required   **Related**
    FM 11-487-1

Remove AB-216/U Tower
113-596-1084

Conditions: This task is performed during daylight hours. It should NOT be performed under adverse weather conditions. Given tower AB-216/U, light set MK-221/G or MK-222/G, tower erection davit MX-1215/U, capstan E-12U, tools and equipment, safety equipment, telephone maintenance truck M-876, and TM 11-5073.

NOTE: Supervision and assistance are provided as required.

Standards: Removed tower AB-216/U and disassembled all guy wire assemblies, anchors, and equipment.

Performance Steps
(Refer to TM 11-5073 for all performance steps.)

1. Remove light set MK-221/G or MK-222/G.

2. Remove antenna support AB-296/U.

3. Lower antenna support AB-296/G.

4. Remove antenna support AB-296/G.

5. Remove tension guy wires from tower.

6. Remove guy spacer and take-up winch from anchors.

7. Remove guys from tower.

8. Remove tower section from existing tower and transfer parts, as required.

9. Lower tower section using one of the following methods:
    a. Manually.
    b. Vehicle.
    c. Capstan.

10. Remove hook from snatch block.

11. Remove davit MX-1215/U from top horizontal member.

12. Remove guy anchors using one of the following methods:
    a. Manually.
    b. Vehicle.

13. Remove anchors from position.

14. Remove triangular frame from tower section AB-208/U.

15. Remove ground from tower.

16. Remove tower section AB-208/U.

17. Disassemble tower sections AB-208/U and AB-207/U.

18. Remove tower support base plates AB-206/U from foundation timbers.

Performance Measures	GO	NO GO
(Refer to TM 11-5073 for all PMs.)		
1. Removed light set MK-221/G or MK-222/G.	——	——
2. Removed antenna support AB-296/U.	——	——
3. Lowered antenna support AB-296/G.	——	——
4. Removed antenna support AB-296/G.	——	——
5. Removed tension guy wires from tower.	——	——
6. Removed guy spacer and took up winch from anchors.	——	——
7. Removed guys from tower.	——	——
8. Removed tower section from existing tower and transferred parts, as required.	——	——

9. Lowered tower section using one of the following methods:
   a. Manually.
   b. Vehicle.
   c. Capstan.
	——	——

10. Removed hook from snatch block.	——	——
11. Removed davit MX-1215/U from top horizontal member.	——	——

12. Removed guy anchors using one of the following methods:
   a. Manually.
   b. Vehicle.
	——	——

13. Removed anchors from position.	——	——
14. Removed triangular frame from tower section AB-208/U.	——	——
15. Removed ground from tower.	——	——
16. Removed tower section AB-208/U.	——	——
17. Disassembled tower sections AB-208/U and AB-207/U.	——	——
18. Removed tower support base plates AB-206/U from foundation timbers.	——	——

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References

Required	**Related**
TM 11-5073	

Remove Broadband Dipole High Frequency (HF) Antenna
113-596-1086

Conditions: This task is performed at a fixed installation during daylight hours. It should NOT be performed under adverse weather conditions. Given broadband dipole HF antenna (installed), tools and equipment, safety equipment, telephone maintenance truck M-876, and FM 11-487-1.

NOTE: Assistance is provided as required.

Standards: Removed the broadband dipole HF antenna including disassembly of the support pole, guys, and anchors.

Performance Steps

WARNING: The supervisor will brief soldiers on climbing procedure and being watchful of falling objects.

(Refer to FM 11-487-1 for all performance steps.)

1. Remove support guys.

2. Lower support poles with dipole antenna.

3. Remove dipole from support poles.

Performance Measures	GO	NO GO
WARNING: The supervisor will brief soldiers on climbing procedure and being watchful of falling objects.		
(Refer to FM 11-487-1 for all PMs.)		
1. Removed support guys.	___	___
2. Lowered support poles with dipole antenna.	___	___
3. Removed dipole from support poles.	___	___

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
    Required   **Related**
      FM 11-487-1

Maintain Rotatable Log Periodic Antenna
113-596-3010

Conditions: This task is performed at a fixed installation during daylight hours. It should NOT be performed under adverse weather conditions. Given a rotatable log periodic antenna (installed), variable standing wave ratio (VSWR) testing equipment, multimeter, safety equipment, tool kit TK-115/G, tool equipment TE-33, block and tackle, engineers transit, open-end wrenches, DA Form 2404, DA PAM 738-750, TM 11-2615A, and Antenna Safety Manual–Antenna Products Company Manual (Safety Climbing Equipment).

NOTE: Assistance is provided as required.

Standards: Inspected the antenna, lubricated the gearbox fittings, performed the VSWR test, and completed DA Form 2404.

Performance Steps
(Refer to TM 11-2615A for performance steps 1 through 4, unless otherwise indicated.)

  1. Inspect tower safety devices.
    a. Check climbing belts for cuts, frays, and cracks.
    b. Check climbing sleeve bearing.
    c. Check locking pawl for cleanliness and excess wear.

NOTE: Ensure the radius of the locking edge does NOT exceed 1/16 inch when worn.

    d. Check the locking pawl spring for proper tension.
    e. Complete and submit DA Form 2404. (Refer to DA PAM 738-750.)

  2. Maintain guyed supported tower.

CAUTION: The radio equipment must be disconnected before work is performed on the tower.

    a. Check tower for loose hardware.
    b. Check tower for rust.
    c. Inspect tower footing for loose hardware.
    d. Check to ensure that tower is plumb (tension guys as required).
    e. Check tower ground for corrosion and loose hardware.

NOTE: Reconnect radio equipment.

    f. Complete and submit DA Form 2404. (Refer to DA PAM 738-750.)

  3. Maintain antenna.
    a. Check antenna boom and elements for corrosion.
    b. Inspect antenna boom and elements for loose hardware.

NOTE: It may be necessary to lower the antenna to tighten hardware or clean corrosion.

    c. Check insulators.
      (1) Element mounts for cracks.
      (2) Fiberglass tubes for cracks/breaks.
    d. Check lubrication of rotator gearbox.

NOTE: Oil should be replaced after 240 hours of operation.

    e. Lubricate grease fitting on gearbox.

NOTE: The bearing should be lubricated every 3 months.

    f. Check setscrews on motor flywheel for tightness.
    g. Check slack on rotator chain.

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CAUTION: Tightening the rotator mount bolts may cause tension on the chain.

NOTE: Reconnect the radio equipment.

>   h. Perform the VSWR test.
>   i. Complete and submit DA Form 2404. (Refer to DA PAM 738-750.)

> 4. Inspect ground obstruction marker.

WARNING: Do NOT damage the load contact relay when the relay contacts are cleaned.

>   a. Inspect obstruction lamps.
>   b. Check all interconnecting cables and connectors for cracks and breaks.
>   c. Check control assembly.
>   d. Clean obstruction components.
>   e. Check electron tube.
>   f. Adjust timer beacon as required.
>   g. Lubricate shaft bearing and cam.
>   h. Complete and submit DA Form 2404. (Refer to DA PAM 738-750.)

Performance Measures	**GO**	**NO GO**
(Refer to TM 11-2615A for PMs 1 through 4, unless otherwise indicated.)		

> 1. Inspected tower safety.   ____   ____
>   a. Checked climbing belts for cuts, frays, and cracks.
>   b. Checked climbing sleeve bearing.
>   c. Checked locking pawl for cleanliness and excess wear.

NOTE: Ensure the radius of the locking edge does NOT exceed 1/16 inch when worn.

>   d. Checked the locking pawl spring for proper tension.
>   e. Completed and submitted DA Form 2404. (Refer to DA PAM 738-750.)

> 2. Maintained guyed supported tower.   ____   ____

CAUTION: The radio equipment must be disconnected before work is performed on the tower.

>   a. Checked tower for loose hardware.
>   b. Checked tower for rust.
>   c. Inspected tower footing for loose hardware.
>   d. Checked to ensure that tower was plumb (tension guys as required).
>   e. Checked tower ground for corrosion and loose hardware.

NOTE: Reconnect radio equipment.

>   f. Completed and submitted DA Form 2404. (Refer to DA PAM 738-750.)

> 3. Maintained antenna.   ____   ____
>   a. Checked antenna boom and elements for corrosion.
>   b. Inspected antenna boom and elements for loose hardware.

NOTE: It may be necessary to lower the antenna to tighten hardware or clean corrosion.

>   c. Checked insulators.
>   (1) Element mounts for cracks.
>   (2) Fiberglass tubes for cracks/breaks.
>   d. Checked lubrication of rotator gearbox.

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

NOTE: Oil should be replaced after 240 hours of operation.

     e. Lubricated grease fitting on gearbox.

NOTE: The bearing should be lubricated every 3 months.

     f. Checked setscrews on motor flywheel for tightness.
     g. Checked slack on rotator chain.

CAUTION: Tightening the rotator mount bolts may cause tension on the chain.

NOTE: Reconnect the radio equipment.

     h. Performed the VSWR test.
     i. Completed and submitted DA Form 2404. (Refer to DA PAM 738-750.)

   4. Inspected ground obstruction marker.   ___   ___

WARNING: Do NOT damage the load contact relay when the relay contacts are cleaned.

     a. Inspected obstruction lamps.
     b. Checked all interconnecting cables and connectors for cracks and breaks.
     c. Checked control assembly.
     d. Cleaned obstruction components.
     e. Checked electron tube.
     f. Adjusted timer beacon as required.
     g. Lubricated shaft bearing and cam.
     h. Completed and submitted DA Form 2404. (Refer to DA PAM 738-750.)

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
   Required   **Related**
   ANTENNA SAFETY MANUAL
   DA FORM 2404
   DA PAM 738-750
   TM 11-2615A

Maintain Delta-Matched Doublet Antenna
113-596-3011

Conditions: This task is performed at a fixed installation during daylight hours. It should NOT be performed under adverse weather conditions. Given delta-matched doublet antenna (installed), carrier rail (installed), ground obstruction marker (installed), screwdriver set, pliers (common), VSWR testing equipment, wrench set, tool kit TK-21, tape measure, level, knife, safety equipment, DA Form 2404, FM 11-487-11, TM 11-2615A, DA PAM 738-750, and Antenna Safety Manual–Antenna Products Company Manual (Safety Climbing Equipment).

NOTE: Assistance is provided as required.

Standards: Corrected the fault, obstruction lights were operational, and completed the VSWR test.

Performance Steps
(Refer to TM 11-2615A for performance steps 1 through 4, unless otherwise indicated.)

1. Inspect tower safety devices.
   a. Check climbing belts for cuts, frays, and cracks.
   b. Check climbing sleeve bearing.
   c. Check locking pawl for cleanliness and excess wear.

NOTE: Ensure the radius of the locking edge does NOT exceed 1/16 inch when worn.

   d. Check the locking pawl spring for proper tension.
   e. Complete and submit DA Form 2404. (Refer to DA PAM 738-750.)

2. Maintain guyed supported tower.

CAUTION: The radio equipment must be disconnected before work is performed on the tower.

   a. Check tower for loose hardware.
   b. Check tower for rust.
   c. Inspect tower footing for loose hardware.
   d. Check to ensure that tower is plumb (tension guys as required).
   e. Check tower ground for corrosion and loose hardware.

NOTE: Reconnect radio equipment.

   f. Complete and submit DA Form 2404. (Refer to DA PAM 738-750.)

3. Maintain antenna. (Refer to FM 11-487-11.)

CAUTION: The radio equipment must be disconnected before any work is performed on the antenna.

   a. Check antenna for loose hardware.
   b. Check for cracked, chipped, or broken insulator.
   c. Check elements for signs of deterioration (clean as required).
   d. Readjust antenna height and antenna curtain length.
   e. Readjust antenna down-lead spacing and down-lead length.

NOTE: Reconnect radio equipment.

   f. Perform VSWR test.
   g. Complete and submit DA Form 2404. (Refer to DA PAM 738-750.)

4. Inspect ground obstruction marker.

WARNING: Do NOT damage the load contact relay when the relay contacts are cleaned.

   a. Inspect obstruction lamps.
   b. Check all interconnecting cables and connectors for cracks and breaks.

Performance Steps
     c. Check control assembly.
     d. Clean obstruction components.
     e. Check electron tube.
     f. Adjust timer beacon as required.
     g. Lubricate shaft bearing and cam.
     h. Complete and submit DA Form 2404. (Refer to DA PAM 738-750.)

Performance Measures   **GO**   **NO GO**
(Refer to TM 11-2615A for PMs 1 through 4, unless otherwise indicated.)

1. Inspected tower safety devices.   ___   ___
     a. Checked climbing belts for cuts, frays, and cracks.
     b. Checked climbing sleeve bearing.
     c. Checked locking pawl for cleanliness and excess wear.

NOTE: Ensure the radius of the locking edge does NOT exceed 1/16 inch when worn.

     d. Checked the locking pawl spring for proper tension.
     e. Completed and submitted DA Form 2404. (Refer to DA PAM 738-750.)

2. Maintain guyed supported tower.   ___   ___

CAUTION: The radio equipment must be disconnected before work is performed on the tower.

     a. Checked tower for loose hardware.
     b. Checked tower for rust.
     c. Inspected tower footing for loose hardware.
     d. Checked to ensure that tower was plumb (tension guys as required).
     e. Checked tower ground for corrosion and loose hardware.
     f. Completed and submitted DA Form 2404. (Refer to DA PAM 738-750.)

3. Maintained antenna. (Refer to FM 11-487-11.)   ___   ___

CAUTION: The radio equipment must be disconnected before any work is performed on the antenna.

     a. Checked antenna for loose hardware.
     b. Checked for cracked, chipped, or broken insulator.
     c. Checked elements for signs of deterioration (cleaned as required).
     d. Readjusted antenna height and antenna curtain length.
     e. Readjusted antenna down-lead spacing and down-lead length.

NOTE: Reconnect radio equipment.

     f. Performed the VSWR test.
     g. Completed and submitted DA Form 2404. (Refer to DA PAM 738-750,)

4. Inspected ground obstruction marker.   ___   ___

WARNING: Do NOT damage the load contact relay when the relay contacts are cleaned.

     a. Inspected obstruction lamps.
     b. Checked all interconnecting cables and connectors for cracks and breaks.
     c. Checked control assembly.
     d. Cleaned obstruction components.
     e. Checked electron tube.
     f. Adjusted timer beacon as required.
     g. Lubricated shaft bearing and cam.

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Performance Measures   GO   NO GO
     h. Completed and submitted DA Form 2404. (Refer to DA PAM 738-750.)

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
    Required   **Related**
    ANTENNA SAFETY MANUAL
    DA FORM 2404
    DA PAM 738-750
    FM 11-487-11
    TM 11-2615A

Maintain Fixed Log Periodic Antenna
113-596-3012

Conditions: This task is performed at a fixed installation during daylight hours. It should NOT be performed under adverse weather conditions. Given rotatable log periodic antenna (installed), VSWR testing equipment, multimeter, safety equipment, tool kit TK-115/G, tool equipment RE-33, block and tackle, engineers transit, open-end wrenches, DA Form 2404, DA PAM 738-750, TM 11-2615A, and Antenna Safety Manual–Antenna Products Company Manual (Safety Climbing Equipment).

NOTE: Assistance is provided as required.

Standards: Inspected the antenna, lubricated the gearbox fittings, performed the VSWR test, and completed DA Form 2404.

Performance Steps
(Refer to TM 11-2615A for performance steps 1 through 4, unless otherwise indicated.)

  1. Inspect tower safety devices.
    a. Check climbing belts for cuts, frays, and cracks.
    b. Check climbing sleeve bearing.
    c. Check locking pawl for cleanliness and excess wear.

NOTE: Ensure the radius of the locking edge does NOT exceed 1/16 inch when worn.

    d. Check the locking pawl spring for proper tension.
    e. Complete and submit DA Form 2404. (Refer to DA PAM 738-750.)

  2. Maintain guyed supported tower.

CAUTION: The radio equipment must be disconnected before work is performed on the tower.

    a. Check tower for loose hardware.
    b. Check tower for rust.
    c. Inspect tower footing for loose hardware.
    d. Check to ensure that tower is plumb (tension guys as required).
    e. Check tower ground for corrosion and loose hardware.

NOTE: Reconnect radio equipment.

    f. Complete and submit DA Form 2404. (Refer to DA PAM 738-750.)

  3. Maintain antenna.
    a. Check antenna boom and elements for corrosion.
    b. Inspect antenna boom and elements for loose hardware.

NOTE: It may be necessary to lower the antenna to tighten hardware or clean corrosion.

    c. Check insulators.
      (1) Element mounts for cracks.
      (2) Fiberglass tubes for cracks/breaks.
    d. Check lubrication of rotator gearbox.

NOTE: Oil should be replaced after 240 hours of operation.

    e. Lubricate grease fitting on gearbox.

NOTE: The bearing should be lubricated every 3 months.

    f. Check setscrews on motor flywheel for tightness.
    g. Check slack on rotator chain.

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Performance Steps

CAUTION: Tightening the rotator mount bolts may cause tension on the chain.

NOTE: Reconnect the radio equipment.

      h. Perform the VSWR test.
      i. Complete and submit DA Form 2404. (Refer to DA PAM 738-750.)

   4. Inspect ground obstruction marker.

WARNING: The load contact relay should not be damaged when the relay contacts are cleaned.

      a. Inspect obstruction lamps.
      b. Check all interconnecting cables and connectors for cracks and breaks.
      c. Check control assembly.
      d. Clean obstruction components.
      e. Check electron tube.
      f. Adjust timer beacon as required.
      g. Lubricate shaft bearing and cam.
      h. Complete and submit DA Form 2404. (Refer to DA PAM 738-750.)

Performance Measures	**GO**	**NO GO**
(Refer to TM 11-2615A for PMs 1 through 4, unless otherwise indicated.)		

   1. Inspected tower safety devices.   ——   ——
      a. Checked climbing belts for cuts, frays, and cracks.
      b. Checked climbing sleeve bearing.
      c. Checked locking pawl for cleanliness and excess wear.

NOTE: Ensure the radius of the locking edge does NOT exceed 1/16 inch when worn.

      d. Checked the locking pawl spring for proper tension.

   2. Maintained guyed supported tower.   ——   ——

CAUTION: The radio equipment must be disconnected before work is performed on the tower.

      a. Checked tower for loose hardware.
      b. Checked tower for rust.
      c. Inspected tower footing for loose hardware.
      d. Checked to ensure that tower was plumb (tension guys as required).
      e. Checked tower ground for corrosion and loose hardware.

NOTE: Reconnect radio equipment.

      f. Completed and submitted DA Form 2404. (Refer to DA PAM 738-750.)

   3. Maintained antenna.   ——   ——
      a. Checked antenna boom and elements for corrosion.
      b. Inspected antenna boom and elements for loose hardware.

NOTE: It may be necessary to lower the antenna to tighten hardware or clean corrosion.

      c. Checked insulators.
         (1) Element mounts for cracks.
         (2) Fiberglass tubes for cracks/breaks.
      d. Checked lubrication of rotator gearbox.

NOTE: Oil should be replaced after 240 hours of operation.

Performance Measures	GO	NO GO

    e. Lubricated grease fitting on gearbox.

NOTE: The bearing should be lubricated every 3 months.

    f. Checked setscrews on motor flywheel for tightness.
    g. Checked slack on rotator.

CAUTION: Tightening the rotator mount bolts may cause tension on the chain.

NOTE: Reconnect the radio equipment.

    h. Performed the VSWR test.
    i. Completed and submitted DA Form 2404. (Refer to DA PAM 738-750.)

  4. Inspected ground obstruction marker.   ____   ____

WARNING: The load contact relay should not be damaged when the relay contacts are cleaned.

    a. Inspected obstruction lamps.
    b. Checked all interconnecting cables and connectors for cracks and breaks.
    c. Checked control assembly.
    d. Cleaned obstruction components.
    e. Checked electron tube.
    f. Adjusted timer beacon as required.
    g. Lubricated shaft bearing and cam.
    h. Completed and submitted DA Form 2404. (Refer to DA PAM 738-750.)

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
    Required   **Related**
    ANTENNA SAFETY MANUAL
    DA FORM 2404
    DA PAM 738-750
    TM 11-2615A

Maintain Rhombic Antenna
113-596-3014

Conditions: This task is performed at a fixed installation during daylight hours. It should NOT be performed under adverse weather conditions. Given rhombic antenna (installed), multimeter, safety equipment, coffin hoist, tool equipment TE-21, tool equipment TE-87, engineers transit, block and tackle kit, open-end wrenches, screwdriver set, pliers, adjustable wrench, level, tape measure, DA Form 2404, TM 11-2615A, FM 11-487-25, DA PAM 738-750, and Antenna Safety Manual–Antenna Products Company Manual (Safety Climbing Equipment).

NOTE: You will work under the supervision of a crew chief.   Assistance is provided as required.

Standards: Corrected the faults and completed DA Form 2404.

Performance Steps
(Refer to TM 11-2615A for performance steps 1 through 4, unless otherwise indicated.)

 1. Inspect tower safety devices.
    a. Check climbing belts for cuts, frays, and cracks.
    b. Check climbing sleeve bearing.
    c. Check locking pawl for cleanliness and excess wear.

NOTE: Ensure the radius of the locking edge does NOT exceed 1/16 inch when worn.

    d. Check the locking pawl spring for proper tension.

 2. Maintain guyed supported tower.

CAUTION: The radio equipment must be disconnected before work is performed on the tower.

    a. Check tower for loose hardware.
    b. Check tower for rust.
    c. Inspect tower footing for loose hardware.
    d. Check to ensure that tower is plumb (tension guys as required).
    e. Check tower ground for corrosion and loose hardware.

NOTE: Reconnect radio equipment.

    f. Complete and submit DA Form 2404. (Refer to DA PAM 738-750.)

 3. Maintain antenna.

CAUTION: The radio equipment must be disconnected before any work is performed on the antenna.

    a. Check for loose or broken elements.
    b. Check for defective insulators.
        (1) Cracked.
        (2) Chipped.
        (3) Broken.
    c. Check connections for corrosion.
    d. Check antenna for proper tension.
    e. Check down lead for proper tension.
    f. Check dissipation line.
        (1) Proper tension.
        (2) Proper grounding.
        (3) Proper horn gap.
    g. Test for impedance.
        (1) Input.
        (2) Terminating.

Performance Steps

NOTE: Reconnect the radio equipment.

      h.   Complete and submit DA Form 2404. (Refer to DA PAM 738-750.)

  4. Inspect ground obstruction marker.

WARNING: Do NOT damage the load contact relay when the relay contacts are cleaned.

      a. Inspect obstruction lamps.
      b. Check all interconnecting cables and connectors for cracks and breaks.
      c. Check control assembly.
      d. Clean obstruction components.
      e. Check electron tube.
      f. Adjust timer beacon as required.
      g. Lubricate shaft bearing and cam.

  5. Fabricate harness 3-wire antenna. (Refer to FM 11-487-25.)
      a. Cut a section of 2.2 meters to a length of 7 feet.
      b. Bend one end into an 8-inch oval loop.
      c. Insert a 3/16-inch thimble into loop.
      d. Tightly fit strand around thimble and secure it with seizing wire.
      e. Unravel 2.2-meter strands close to thimble end and straighten them.
      f. Select first wire of the serve and dress other six wires against mother strand.
      g. Make wraps tight and cut off excess wire.

NOTE: The rhombic antenna curtain requires six side harnesses.

  6. Fabricate end harness 3-wire. (Refer to FM 11-487-25.)

NOTE: The rhombic antenna curtain requires two end harnesses.

      a. Select a straight and even cross arm and cut two pieces 3 feet long.

NOTE: Treat the sawed areas with wood preservative.

      b. Measure and mark the points for drilling.
      c. Cut a 5/8-inch by 14-inch double arming bolt in half (file off the burrs of each side.
      d. Attach the 3-bolt clamps of harness cross arm using the cut bolts.
      e. Mount cross arm on top of harness strand clamps.
      f. Adjust the 5/8-inch nuts holding harness strand to cross arm. Loosen enough to permit harness to adjust itself to line of antenna curtain.
      g. Install downed eyebolts into the 9/16-inch hole of cross arm.

NOTE: Do NOT tighten the nut fully. Allow the eyebolts to be free in the holes so that tension variations to the down-lead wires can be made.

Performance Measures	**GO**	**NO GO**
(Refer to TM 11-2615A for PMs 1 through 4, unless otherwise indicated.)		
1. Inspected tower safety devices.	____	____
a. Checked climbing belts for cuts, frays, and cracks.		
b. Checked climbing sleeve bearing.		
c. Checked locking pawl for cleanliness and excess wear.		

NOTE: Ensure the radius of the locking edge does NOT exceed 1/16 inch when worn.

      d. Checked the locking pawl spring for proper tension.

2. Maintained guyed supported tower.	____	____

Performance Measures   **<u>GO</u>**   **<u>NO GO</u>**

CAUTION: The radio equipment must be disconnected before work is performed on the tower.

    a. Checked tower for loose hardware.
    b. Checked tower for rust.
    c. Inspected tower footing for loose hardware.
    d. Checked to ensure that tower was plumb (tension guys as required).
    e. Checked tower ground for corrosion and loose hardware.

NOTE: Reconnect radio equipment.

    f. Completed and submitted DA Form 2404. (Refer to DA PAM 738-750.)

  3. Maintained antenna.   ____   ____

CAUTION: The radio equipment must be disconnected before any work is performed on the antenna.

    a. Checked for loose or broken elements.
    b. Checked for defective insulators.
        (1) Cracked.
        (2) Chipped.
        (3) Broken.
    c. Checked connections for corrosion.
    d. Checked antenna for proper tension.
    e. Checked down lead for proper tension.
    f. Checked dissipation line.
        (1) Proper tension.
        (2) Proper grounding.
        (3) Proper horn gap.
    g. Tested for impedance.
        (1) Input.
        (2) Terminating.

NOTE: Reconnect the radio equipment.

    h. Completed and submitted DA Form 2404. (Refer to DA PAM 738-750.)

  4. Inspected ground obstruction marker.   ____   ____

WARNING: Do NOT damage the load contact relay when the relay contacts are cleaned.

    a. Inspected obstruction lamps.
    b. Checked all interconnecting cables and connectors for cracks and breaks.
    c. Checked control assembly.
    d. Cleaned obstruction components.
    e. Checked electron tube.
    f. Adjusted timer beacon as required.
    g. Lubricated shaft bearing and cam.

  5. Fabricated harness 3-wire antenna. (Refer to FM 11-487-25.)   ____   ____
    a. Cut a section of 2.2 meters to a length of 7 feet.
    b. Bend one end into an 8-inch oval loop.
    c. Inserted a 3/16-inch thimble into loop.
    d. Secured strand around thimble with seizing wire and ensured tight fit.
    e. Unraveled 2.2-meter strands close to thimble end and straightened them.
    f. Selected first wire of the serve and dressed other six wires against mother strand.
    g. Made wraps tight and cut off excess wire.

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

NOTE: The rhombic antenna curtain requires six side harnesses.

 6. Fabricated end harness 3-wire. (Refer to FM 11-487-25.)   ____   ____

NOTE: The rhombic antenna curtain requires two end harnesses.

    a. Selected a straight and even cross arm and cut two pieces 3 feet long.

NOTE: Treat the sawed areas with wood preservative.

    b. Measured and marked the points for drilling.
    c. Cut a 5/8-inch by 14-inch double arming bolt in half (filed off the burrs of each side).
    d. Attached the 3-bolt clamps of harness cross arm using the cut bolts.
    e. Mounted cross arm on top of harness strand clamps.
    f. Adjusted the 5/8-inch nuts holding harness strand to cross arm. Loosened enough to permit harness to adjust itself to line of antenna curtain.
    g. Installed downed eyebolts into the 9/16-inch hole of cross arm.

NOTE: Do NOT tighten the nut fully. Allow the eyebolts to be free in the holes so that tension variations to the down-lead wires can be made.

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
   Required   **Related**
   ANTENNA SAFETY MANUAL
   DA FORM 2404
   DA PAM 738-750
   FM 11-487-25
   TM 11-2615A

Maintain Parabolic Antenna
113-596-3015

Conditions: This task is performed at a fixed installation during daylight hours. It should NOT be performed under adverse weather conditions. Given parabolic antenna (installed), carrier rail (installed), ground obstruction marker (installed), screwdriver set, adjustable wrench, open-end wrench, knife, level tape measure, binoculars (field type), VSWR testing equipment, safety equipment, common pliers, tool equipment TE-87/U, DA Form 2404, TM 11-5985-338-14, and DA PAM 738-750.

NOTE: Assistance is provided as required.

Standards: Corrected the faults, checked the directional setting, performed the VSWR test, and completed DA Form 2404.

Performance Steps

CAUTION: The radio equipment must be disconnected before any work is performed on the antenna.

(Refer to TM 11-5985-338-14 for performance steps 1 through 3, unless otherwise indicated.)

1. Inspect tower safety devices.
    a. Check climbing belts for cuts, frays, and cracks.
    b. Check climbing sleeve bearing.
    c. Check locking pawl for cleanliness and excess wear.

NOTE: Ensure the radius of the locking edge does NOT exceed 1/16 inch when worn.

    d. Check the locking pawl spring for proper tension.

2. Maintain antenna.
    a. Check parabolic antenna reflector.
    b. Check directional setting on the parabolic antenna (reset as required).
    c. Check feed assembly for dents or broken parts.

NOTE: Reconnect the radio equipment.

    d. Perform the VSWR test.
    e. Complete and submit DA Form 2404. (Refer to DA PAM 738-750.)

3. Inspect ground obstruction marker.

WARNING: Do NOT damage the load contact relay when the relay contacts are cleaned.

    a. Inspect obstruction lamps.
    b. Check all interconnecting cables and connectors for cracks and breaks.
    c. Check control assembly.
    d. Clean obstruction components.
    e. Check electron tube.
     f. Adjust timer beacon as required.
    g. Lubricate shaft bearing and cam.

Performance Measures   <u>GO</u>   <u>NO GO</u>

CAUTION: The radio equipment must be disconnected before any work is performed on the antenna.

(Refer to TM 11-5985-338-14 for PMs 1 through 3, unless otherwise indicated.)

1. Inspected tower safety devices.   ____   ____
    a. Inspected tower safety devices.
    b. Checked climbing sleeve bearing.

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

      c. Checked locking pawl for cleanliness and excess wear.

NOTE: Ensure the radius of the locking edge does NOT exceed 1/16 inch when worn.

      d. Checked the locking pawl spring for proper tension.

  2. Maintained antenna.   ____   ____
      a. Checked parabolic antenna reflector.
      b. Checked directional setting on the parabolic antenna (reset as required).
      c. Checked feed assembly for dents or broken parts.

NOTE: Reconnect the radio equipment.

      d. Performed the VSWR test.
      e. Completed and submitted DA Form 2404. (Refer to DA PAM 738-750.)

  3. Inspected ground obstruction marker.   ____   ____

WARNING: Do NOT damage the load contact relay when the relay contacts are cleaned.

      a. Inspected obstruction lamps.
      b. Checked all interconnecting cables and connectors for cracks and breaks.
      c. Checked control assembly.
      d. Cleaned obstruction components.
      e. Checked electron tube.
      f. Adjusted timer beacon as required.
      g. Lubricated shaft bearing and cam.

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
    Required   **Related**
    DA FORM 2404
    DA PAM 738-750
    TM 11-5985-338-14

Maintain Yagi Antenna
113-596-3016

Conditions: This task is performed at a fixed installation during daylight hours. It should NOT be performed under adverse weather conditions. Given Yagi antenna (installed), carrier rail (installed), ground obstruction marker (installed), screwdriver set, open-end wrench, knife, level tape measure, VSWR testing equipment, signal generator, block and tackle set, safety equipment, 6-inch adjustable wrench, common pliers, tool equipment TE-21, DA Form 2404, and DA PAM 738-750.

NOTE: Assistance is provided as required.

Standards: Corrected the fault, performed the VSWR and reflectomatic tests, and completed DA Form 2404.

Performance Steps

  1. Inspect tower safety devices.
     a. Check climbing belts for cuts, frays, and cracks.
     b. Check climbing sleeve bearing.
     c. Check locking pawl for cleanliness and excess wear.

NOTE: Ensure the radius of the locking edge does NOT exceed 1/16 inch when worn.

     d. Check the locking pawl spring for proper tension.

  2. Maintain antenna.

CAUTION: The radio equipment must be disconnected before any work is performed on the antenna.

     a. Check antenna element for looseness or bends.
     b. Check elements for deterioration.
     c. Check connector for corrosion.

NOTE: Reconnect radio equipment.

     d. Perform time domain reflectometer test.
     e. Complete and submit DA Form 2404. (Refer to DA PAM 738-750.)

  3. Inspect ground obstruction marker.

WARNING: Do NOT damage the load contact relay when the relay contacts are cleaned.

     a. Inspect obstruction lamps.
     b. Check all interconnecting cables and connectors for cracks and breaks.
     c. Check control assembly.
     d. Clean obstruction components.
     e. Check electron tube.
     f. Adjust timer beacon as required.
     g. Lubricate shaft bearing and cam.

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

1. Inspected tower safety devices.
  a. Checked climbing belts for cuts, frays, and cracks.
  b. Checked climbing sleeve bearing.
  c. Checked locking pawl for cleanliness and excess wear.
	___	___

NOTE: Ensure the radius of the locking edge does NOT exceed 1/16 inch when worn.

     d. Checked the locking pawl spring for proper tension.

Performance Measures	**GO**	**NO GO**
2. Maintained antenna.	___	___

CAUTION: The radio equipment must be disconnected before any work is performed on the antenna.

> a. Checked antenna element for looseness or bends.
> b. Checked elements for deterioration.
> c. Checked connector for corrosion.

NOTE: Reconnect radio equipment.

> d. Performed the VSWR test.
> e. Performed time domain reflectometer test.
> f. Completed and submitted DA Form 2404. (Refer to DA PAM 738-750.)

3. Inspected ground obstruction marker.	___	___

WARNING: Do NOT damage the load contact relay when the relay contacts are cleaned.

> a. Inspected obstruction lamps.
> b. Checked all interconnecting cables and connectors for cracks and breaks.
> c. Checked control assembly.
> d. Cleaned obstruction components.
> e. Checked electron tube.
> f. Adjusted timer beacon as required.
> g. Lubricated shaft bearing and cam.

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
    Required   **Related**
    DA FORM 2404
    DA PAM 738-750

Maintain AB-216/U Tower
113-596-3018

Conditions: This task is performed during daylight hours. It should NOT be performed under adverse weather conditions. Given tower AB-216/U (installed), carrier rail (installed), ground obstruction marker (installed), screwdriver set, pliers, adjustable wrench, open-end wrench, knife, level, tape measure, tension meters, engineers transit, block and tackle, safety equipment, tool equipment TE-87, tool equipment TE-21, DA Form 2404, TM 11-5073, TM 11-2615A, DA PAM 738-750, and Antenna Safety Manual–Antenna Products Company Manual (Safety Climbing Equipment).

NOTE: Assistance is provided as required.

Standards: Corrected the fault, inspected and lubricated the tower, and completed DA Form 2404.

Performance Steps
(Refer to TM 11-2615A for performance steps 1 through 4, unless otherwise indicated.)

1. Inspect tower safety devices.
    a. Check climbing belts for cuts, frays, and cracks.
    b. Check climbing sleeve bearing.
    c. Check locking pawl for cleanliness and excess wear.

NOTE: Ensure the radius of the locking edge does NOT exceed 1/16 inch when worn.

    d. Check the locking pawl spring for proper tension.
    e. Complete and submit DA Form 2404. (Refer to DA PAM 738-750.)

2. Maintain the guyed-supported tower.

CAUTION: The radio equipment must be disconnected before work is performed on the tower.

    a. Check tower for loose hardware.
    b. Check tower for rust.
    c. Inspect tower footing for loose hardware.
    d. Check to ensure that tower is plumb (tension guys as required).
    e. Check tower ground for corrosion and loose hardware.

NOTE: Reconnect radio equipment.

    f. Complete and submit DA Form 2404. (Refer to DA PAM 738-750.)

3. Maintain tower.
    a. Check area around support timbers and base plates for proper drainage.
    b. Check tower section AB-208/U for leveling.
    c. Check for loose anchors.
    d. Check take-up winch.
    e. Check guy wire attachment.
    f. Check guy tension.
    g. Check for clogged drain holes in the vertical and horizontal tower members.
    h. Check tower for bent, damaged, or missing braces.
    i. Check ground rods.
    j. Lubricate davit assembly, snatch block, and capstan.
    k. Paint tower as needed.
    l. Complete and submit DA Form 2404. (Refer to DA PAM 738-750.)
    m. Lubricate davit assembly, snatch block, and capstan.

4. Inspect ground obstruction marker.

WARNING: Do NOT damage the load contact relay when the relay contacts are cleaned.

Performance Steps
   a. Inspect obstruction lamps.
   b. Check all interconnecting cables and connectors for cracks and breaks.
   c. Check control assembly.
   d. Clean obstruction components
   e. Check electron tube.
   f. Adjust timer beacon as required.
   g. Lubricate shaft bearing and cam.
   h. Complete and submit DA Form 2404. (Refer to DA PAM 738-750.)

Performance Measures   **GO**   **NO GO**
(Refer to TM 11-2615A for all PMs, unless otherwise indicated.)

   1. Inspected tower safety devices.   ____   ____
      a. Checked climbing belts for cuts, frays, and cracks.
      b. Checked climbing sleeve bearing.
      c. Checked locking pawl for cleanliness and excess wear.
      d. Checked the locking pawl spring for proper tension.
      e. Completed and submitted DA Form 2404. (Refer to DA PAM 738-750.)

NOTE: Ensure the radius of the locking edge does NOT exceed 1/16 inch when worn.

   2. Maintained guyed-supported tower.   ____   ____

CAUTION: The radio equipment must be disconnected before work is performed on the tower.

      a. Checked tower for loose hardware.
      b. Checked tower for rust.
      c. Inspected tower footing for loose hardware.
      d. Checked to ensure that tower was plumb (tension guys as required).
      e. Checked tower ground for corrosion and loose hardware.

NOTE: Reconnect radio equipment.

      f. Completed and submitted DA Form 2404. (Refer to DA PAM 738-750.)

   3. Maintained tower.   ____   ____
      a. Checked area around support timbers and base plates for proper drainage.
      b. Checked tower section AB-208/U for leveling.
      c. Checked for loose anchors.
      d. Checked take-up winch.
      e. Checked guy wire attachment.
      f. Checked guy tension.
      g. Checked for clogged drain holes in the vertical and horizontal tower members.
      h. Checked tower for bent, damaged, or missing braces.
      i. Checked ground rods.
      j. Lubricated davit assembly, snatch block, and capstan.
      k. Painted tower as needed.
      l. Completed and submitted DA Form 2404. (Refer to DA PAM 738-750.)

   4. Inspected ground obstruction marker.   ____   ____

WARNING: The load contact relay should not be damaged when the relay contacts are cleaned.

      a. Inspected obstruction lamps.
      b. Checked all interconnecting cables and connectors for cracks and breaks.

Performance Measures   <u>GO</u>   <u>NO GO</u>
     c. Checked control assembly.
     d. Cleaned obstruction components.
     e. Checked electron tube.
     f. Adjusted timer beacon as required.
     g. Lubricated shaft bearing and cam.
     h. Completed and submitted DA Form 2404. (Refer to DA PAM 738-750.)

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
    Required   **Related**
    ANTENNA SAFETY MANUAL
    DA FORM 2404
    DA PAM 738-750
    TM 11-2615A
    TM 11-5073

Maintain Self-Support Tower
113-596-3021

Conditions: This task is performed at a fixed installation during daylight hours. It should NOT be performed under adverse weather conditions. Given self-support tower (installed), tool equipment TE-21, tool equipment TE-27, ground obstruction marker, screwdriver set, pliers, adjustable wrench, open-end wrench, level, tape measure, knife, safety equipment, carrier rail installed, DA Form 2404, FM 11-487-27, DA PAM 738-750, and Antenna Safety Manual–Antenna Products Company Manual (Safety Climbing Equipment).

NOTE: You will work as a team member to perform this task.

Standards: Corrected the fault and completed DA Form 2404.

Performance Steps

1. Inspect tower safety devices.
    a. Check climbing belts for cuts, frays, and cracks.
    b. Check climbing sleeve bearing.
    c. Check locking pawl for cleanliness and excess wear.

NOTE: Ensure the radius of the locking edge does NOT exceed 1/16 inch when worn.

    d. Check the locking pawl spring for proper tension

2. Inspect tower.
    a. Check base for signs of deterioration.
    b. Check for grounding.
    c. Check for loose braces.
    d. Check paint.
    e. Check structure for signs of deterioration.
     f. Record uncorrected faults on DA Form 2404. (Refer to DA PAM 738-750.)

3. Inspect obstruction lamps.

WARNING: Do NOT damage the load contact relay when the relay contacts are cleaned.

    a. Inspect obstruction lamps.
    b. Check all interconnecting cables and connectors for cracks and breaks.
    c. Check control assembly.
    d. Check obstruction components.
    e. Check electron tube
     f. Adjust timer beacon as required.
    g. Lubricate shaft bearing and cam.

Performance Measures	**GO**	**NO GO**
1. Inspected tower safety devices.	____	____

a. Checked climbing belts for cuts, frays, and cracks.
b. Checked climbing sleeve bearing.
c. Checked locking pawl for cleanliness and excess wear.

NOTE: Ensure the radius of the locking edge does NOT exceed 1/16 inch when worn.

    d. Checked the locking pawl spring for proper tension.

2. Inspected tower.	____	____

a. Checked base for signs of deterioration.
b. Checked for grounding.

Performance Measures   **GO**   **NO GO**
    c. Checked for loose braces.
    d. Checked paint.
    e. Checked structure for signs of deterioration.
    f. Recorded uncorrected faults on DA Form 2404. (Refer to DA PAM 738-750.)

  3. Inspected ground obstruction marker.   ___   ___

WARNING: Do NOT damage the load contact relay when the relay contacts are cleaned.

    a. Inspected obstruction lamps.
    b. Checked all interconnecting cables and connectors for cracks and breaks.
    c. Checked control assembly.
    d. Cleaned obstruction components.
    e. Checked electron tube
    f. Adjusted timer beacon as required.
    g. Lubricated shaft bearing and cam.

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
  Required   **Related**
  ANTENNA SAFETY MANUAL
  DA FORM 2404
  DA PAM 738-750
  FM 11-487-27

Maintain Spira-Cone High Frequency (HF) Antenna
113-596-3047

Conditions: This task is performed at a fixed installation during daylight hours. It should NOT be performed under adverse weather conditions. Given Spira-cone HF antenna, tools and equipment, carrier rail, ground obstruction marker, screwdriver set, pliers, open-end wrench, knife, level, tape measure, adjustable safety equipment, DA Form 2404, FM 11-487-1, TM 11-2615, DA PAM 738-750, and Antenna Safety Manual–Antenna Products Company Manual (Safety Climbing Equipment).

NOTE: Assistance is provided as required.

Standards: Checked the Spira-cone HF antenna including base antenna curtains and structure braces for signs of deterioration; checked down-lead guys and anchors for proper tension; and recorded uncorrected faults on DA Form 2404.

Performance Steps
(Refer to TM 11-2615A for performance steps 1 through 4, unless otherwise indicated.)

1. Inspect tower safety devices.
    a. Check climbing belts for cuts, frays, and cracks.
    b. Check climbing sleeve bearing.
    c. Check locking pawl for cleanliness and excess wear.

NOTE: Ensure the radius of the locking edge does NOT exceed 1/16 inch when worn.

    d. Check the locking pawl spring for proper tension.

2. Inspect guys.

CAUTION: The radio equipment must be disconnected before work is performed on the tower.

    a. Check tower for loose hardware.
    b. Check tower for rust.
    c. Inspect tower footing for loose hardware.
    d. Check to ensure that tower is plumb (tension guys are required).
    e. Check tower ground for corrosion and loose hardware.

NOTE: Reconnect radio equipment.

    f. Complete and submit DA Form 2404. (Refer to DA PAM 738-750.)

3. Inspect antenna.
    a. Check antenna base.
    b. Check down-lead guys.
    c. Check anchors.
    d. Check structure.
    e. Check antenna curtains.
    f. Record uncorrected faults on DA Form 2404. (Refer to DA PAM 738-750.)

4. Inspect ground obstruction marker.

WARNING: Do NOT damage the load contact relay when the relay contacts are cleaned.

    a. Inspect obstruction lamps.
    b. Check all interconnection cables and connectors for cracks and breaks.
    c. Check control assembly.
    d. Clean obstruction components.
    e. Check electron tube.
    f. Adjust timer beacon as required.
    g. Lubricate shaft bearing and cam.

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Performance Measures	GO	NO GO

(Refer to TM 11-2615A for all PMs, unless otherwise indicated.)

1. Inspected tower safety devices.   ____   ____
    a. Checked climbing belts for cuts, frays, and cracks.
    b. Checked climbing sleeve bearing.
    c. Checked locking pawl for cleanliness and excess wear.

NOTE: Ensure the radius of the locking edge does NOT exceed 1/16 inch when worn.

    d. Checked the locking pawl spring for proper tension.

2. Inspected guys.   ____   ____

CAUTION: The radio equipment must be disconnected before work is performed on the tower.

    a. Checked tower for loose hardware.
    b. Checked tower for rust.
    c. Inspected tower footing for loose hardware.
    d. Checked to ensure that tower was plumb (tension guys are required).
    e. Checked tower ground for corrosion and loose hardware.

NOTE: Reconnect radio equipment.

    f. Recorded uncorrected faults on DA Form 2404. (Refer to DA PAM 738-750.)

3. Inspected antenna.   ____   ____
    a. Checked antenna base.
    b. Checked down-lead guys.
    c. Checked anchors.
    d. Checked structure.
    e. Checked antenna curtains.
    f. Completed and submitted DA Form 2404. (Refer to DA PAM 738-750.)

4. Inspected ground obstruction marker.   ____   ____

WARNING: Do NOT damage the load contact relay when the relay contacts are cleaned.

    a. Inspected obstruction lamps.
    b. Checked all interconnection cables and connectors for cracks and breaks.
    c. Checked control assembly.
    d. Cleaned obstruction components.
    e. Checked electron tube.
    f. Adjusted timer beacon as required.
    g. Lubricated shaft bearing and cam.
    h. Recorded uncorrected faults on DA Form 2404. (Refer to DA PAM 738-750.)

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References

Required	Related
ANTENNA SAFETY MANUAL	
DA FORM 2404	
DA PAM 738-750	
FM 11-487-1	
TM 11-2615A	

Maintain Broadband Dipole High Frequency (HF) Antenna
113-596-3049

Conditions: This task is performed at a fixed installation during daylight hours. It should NOT be performed under adverse weather conditions. Given broadband HF antenna (installed), tools and equipment, safety equipment, DA Form 2404, FM 11-487-1, and DA PAM 738-750.

NOTE: Assistance is provided as required.

Standards: Performed maintenance to include checking the support pole, coaxial cable, and antenna curtain for signs of deterioration and checking guys for tension; and recorded uncorrected faults on DA Form 2404.

Performance Steps
(Refer to FM 11-487-1 for performance steps 1 through 4.)

  1. Check support pole for deterioration.

  2. Check guys for tension.

  3. Check antenna curtain for signs of deterioration.

WARNING: The supervisor will ensure the radio power is turned OFF before the soldiers climb the broadband HF antenna.

  4. Check coaxial cable for signs of deterioration.

  5. Record uncorrected faults on DA Form 2404. (Refer to DA PAM 738-750.)

Performance Measures	GO	NO GO
(Refer to FM 11-487-1 for PMs 1 through 4.)		
1. Checked support pole for deterioration.	——	——
2. Checked guys for tension.	——	——
3. Checked antenna curtain for signs of deterioration.	——	——

WARNING: The supervisor will ensure the radio power is turned OFF before the soldiers climb the broadband HF antenna.

4. Checked coaxial cable for signs of deterioration.	——	——
5. Recorded uncorrected faults on DA Form 2404. (Refer to DA PAM 738-750.)	——	——

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
    Required   **Related**
    DA FORM 2404
    DA PAM 738-750
    FM 11-487-1

Maintain Coaxial Cable for Antenna Systems
113-596-4005

Conditions: This task is performed during daylight hours. It should NOT be performed under adverse weather conditions. Given materials, tools, safety equipment, warning sign, DA Form 2404, FM 11-487-2/14, and DA PAM 738-750.

NOTE: Assistance is provided as required.

Standards: Performed the air pressure and electrical test on the cable, repressurized the cable, and recorded any uncorrected faults on DA Form 2404.

Performance Steps
(Refer to FM 11-487-2/14 for performance steps 1 through 6.)

   1. Disconnect coaxial cable.

NOTE: Place WARNING sign on transmitter.

   2. Check air pressure in the coaxial cable.

NOTE: Turn off pressurization equipment.

   3. Repair coaxial cable.

   4. Perform electrical test on cable.

   5. Connect coaxial cable from antenna to radio equipment.

   6. Repressurize cable.

NOTE: Remove WARNING sign.

   7. Complete and submit DA Form 2404. (Refer to DA PAM 738-750.)

Performance Measures	**GO**	**NO GO**
(Refer to FM 11-487-2/14 for PMs 1 through 6.)		
1. Disconnected coaxial cable.	――	――
NOTE: Place WARNING sign on transmitter.		
2. Checked air pressure in the coaxial cable.	――	――
NOTE: Turn off pressurization equipment.		
3. Repaired coaxial cable.	――	――
4. Performed electrical test on cable.	――	――
5. Connected coaxial cable from antenna to radio equipment.	――	――
6. Repressurized cable.	――	――
NOTE: Remove WARNING sign.		
7. Completed and submitted DA Form 2404. (Refer to DA PAM 738-750.)	――	――

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
  Required   **Related**
  DA FORM 2404
  DA PAM 738-750
  FM 11-487-2/14

Maintain Pressurization Equipment
113-596-4008

Conditions: This task is performed at a fixed installation during daylight hours. It should NOT be performed under adverse weather conditions. Given tools and test equipment, mechanical dehydrator/dehumidifier (installed), hand pump/cylinder (installed), DA Form 2404, and DA PAM 738-750.

NOTE: Assistance is provided as required.

Standards: Tested the pressurization equipment and the pressure held for 2 hours; and recorded any uncorrected faults on DA Form 2404.

Performance Steps

1. Check low-pressure alarm for defects.

2. Check humidity assembly for defects.

3. Check air tank drain valve for defects.

4. Check dehydrator for evidence of fungus.

WARNING: Trichlorotrifluoroethane fumes are toxic. Thorough ventilation should be provided whenever it is used. It should NOT be used near an open flame. Trichlorotrifluoroethane is not flammable, but exposure of the fumes to an open flame converts the fumes to highly toxic, dangerous gases.

5. Clean the exterior of the dehydrator; remove rust, dirt, grease, and fungus.

6. Prepare equipment for repainting/refinishing.

7. Clean hand pump, as required, with clean, dry rag.

8. Lubricate hand pump shaft, as required, with a light coat of grease.

9. Check hand pump for loose connections; tighten as required.

10. Check air tubing line for loose connections; tighten/replace as required.

11. Check pressure gauge for proper reading.

12. Check cylinder for loose connections; tighten as required.

13. Replace nitrogen cylinder when it becomes empty.

14. Check pressure gauge for proper reading.

15. Complete and submit DA Form 2404. (Refer to DA PAM 738-750.)

Performance Measures	GO	NO GO
1. Checked low-pressure alarm for defects.	⎯⎯	⎯⎯
2. Checked humidity assembly for defects.	⎯⎯	⎯⎯
3. Checked air tank drain valve for defects.	⎯⎯	⎯⎯
4. Checked dehydrator for evidence of fungus.	⎯⎯	⎯⎯

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

WARNING: Trichlorotrifluoroethane fumes are toxic. Thorough ventilation should be provided whenever it is used. It should NOT be used near an open flame. Trichlorotrifluoroethane is not flammable, but exposure of the fumes to an open flame converts the fumes to highly toxic, dangerous gases.

	GO	**NO GO**
5. Cleaned the exterior of the dehydrator; removed rust, dirt, grease, and fungus.	——	——
6. Prepared equipment for repainting/refinishing.	——	——
7. Cleaned hand pump, as required, with clean, dry rag.	——	——
8. Lubricated hand pump shaft, as required, with a light coat of grease.	——	——
9. Checked hand pump for loose connections; tightened as required.	——	——
10. Checked air tubing line for loose connections; tightened/replaced as required.	——	——
11. Checked pressure gauge for proper reading.	——	——
12. Checked cylinder for loose connections; tightened as required.	——	——
13. Replaced nitrogen cylinder when it became empty.	——	——
14. Checked pressure gauge for proper reading.	——	——
15. Completed and submitted DA Form 2404. (Refer to DA PAM 738-750.)	——	——

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
    Required   **Related**
    DA FORM 2404
    DA PAM 738-750

Install Connectors on Fiber Optic Cable
113-632-1005

Conditions: Given a section of fiber optic cable, connectors (ST, SMA, Bi-conical, Hot-melt), splicer's hand tools, cleaving tools, polishing adapter, lapping film, microscope, curing oven, safety glasses, ANSI/TIA/EIA 568/569 cabling standard, FM 11-487-5, MIL-STD-188/111, Manufacturer's Instruction Booklet A, and Manufacturer's Instruction Booklet B.

NOTE: Let soldier know that assistance is available.

WARNING: Be very careful when disposing of fiber ends. The fiber creates slivers that can cause injury. Always wear safety glasses when working with optical fibers.

CAUTION: Do not touch bare fibers with fingers, as oil from skin can weaken the fiber by making it brittle.

Standards: Terminated the fiber optic connector to the fiber optic cable as indicated by Manufacturer's Instruction Booklets A and B and retained a reading level of no more than 1 dB loss per connector.

Performance Steps

1. Inventory and clean connector parts.

2. Prepare cable and fiber.

3. Prepare epoxy.

4. Crimp connectors.

5. Cure epoxy.

6. Assemble connector parts on cable.

7. Cleave fiber ends.

8. Polish fiber.

9. Test fiber connector and cable.

Performance Measures	**GO**	**NO GO**
1. Inventoried and cleaned connector parts.	——	——
2. Prepared cable and fiber.	——	——
3. Prepared epoxy.	——	——
4. Crimped connectors.	——	——
5. Cured epoxy.	——	——
6. Assembled connector parts on cable.	——	——
7. Cleaved fiber ends.	——	——
8. Polished fiber.	——	——
9. Tested fiber connector and cable.	——	——

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
> **Required**   **Related**
> ANSI/TIA/EIA 568/569
> FM 11-487-5
> MFG INSTR BOOKLET A
> MFG INSTR BOOKLET B
> MIL-STD-188/111

Make a Fiber Optic Cable Splice
113-632-1006

Conditions: Given a section of fiber optic cable, splicer's hand tools, cleaving tools, polishing adapter, reagent alcohol, microscope, mechanical splice workstation equipment, Norland optical adhesive, Fiberlok 2501 assembly tool, fiber optic fusion splicer, safety glasses, ANSI/TIA/EIA 568/569 cabling standard, FM 11-487-5, MIL-STD-188/111, Manufacturer's Instruction Booklet A, and Manufacturer's Instruction Booklet B.

Standards: Spliced the fiber optic cable as indicated by Manufacturer's Instruction Booklets A and B.

Performance Steps

1. Identify splicing technique.
    a. Norland UVC optical splice.
    b. AMP optimate mechanical fiber optic splice.
    c. Fusion splicer.
    d. Fiberlok optical splice.

2. Set up workstation and equipment according to splicing technique.

3. Prepare fiber cable.

4. Splice fiber cable according to splicing technique.

Performance Measures	**GO**	**NO GO**
1. Identified splicing technique. a. Norland UVC optical splice. b. AMP optimate mechanical fiber optic splice. c. Fusion splicer. d. Fiberlok optical splice.	⎯⎯	⎯⎯
2. Set up workstation and equipment according to splicing technique.	⎯⎯	⎯⎯
3. Prepared fiber cable.	⎯⎯	⎯⎯
4. Spliced fiber cable according to splicing technique.	⎯⎯	⎯⎯

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
    Required   **Related**
    ANSI/TIA/EIA 568/569
    FM 11-487-5
    MFG INSTR BOOKLET A
    MFG INSTR BOOKLET B
    MIL-STD-188/111

Troubleshoot Fiber Optic Cable
113-632-5002

Conditions: Given a pre-installed Fiber Optic Cable System; loss test set/power meter, optical faultfinder, Optical Time Domain Reflectometer (OTDR), or equivalent test sets; connectors; ANSI/TIA/EIA 568/569 cabling standard, FM 11-487-5, MIL-STD-188/111, Manufacturer's Instruction Booklet A, and Manufacturer's Instruction Booklet B.

Standards: Identified and repaired faults and established communications.

Performance Steps

1. Ensure there is no equipment problem prior to checking fiber cable.

2. Conduct a visual inspection of cable.
   a. Inspect for breaks.
   b. Check for kinks.
   c. Check for loose connections.

3. Replace faulty connectors as needed.

4. Test cable.
   a. Conduct continuity test using loss test set/power meter or equivalent test sets.
   b. Test for faults and excess attenuation using optical faultfinder or equivalent test sets.
   c. Test for reflection and fiber defects using OTDR or equivalent test sets.
   d. Test for dB/km using OTDR or equivalent test sets.
   e. Identify connector loss/splice loss using OTDR or equivalent test sets.

5. Isolate fault.

6. Repair fiber optic cable.

7. Test cable.

8. Restore service

Performance Measures	**GO**	**NO GO**
1. Ensured there was no equipment problem prior to checking fiber cable.	——	——
2. Conducted a visual inspection of cable.	——	——
a. Inspected for breaks.		
b. Checked for kinks.		
c. Checked for loose connections.		
3. Replaced faulty connectors as needed.	——	——
4. Tested cable.	——	——
a. Conducted continuity test using loss test set/power meter or equivalent test sets.		
b. Tested for faults and excess attenuation using optical faultfinder or equivalent test sets.		
c. Tested for reflection and fiber defects using OTDR or equivalent test sets.		
d. Tested for dB/km using OTDR or equivalent test sets.		
e. Identified connector loss/splice loss using OTDR or equivalent test sets.		
5. Isolated fault.	——	——
6. Repaired fiber optic cable.	——	——

Performance Measures	**GO**	**NO GO**
7. Tested cable.	‒‒‒	‒‒‒
8. Restored service.	‒‒‒	‒‒‒

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References

Required	**Related**
ANSI/TIA/EIA 568/569	
FM 11-487-5	
MFG INSTR BOOKLET A	
MFG INSTR BOOKLET B	
MIL-STD-188/111	

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Subject Area 15: CABLE SPLICING

Troubleshoot Local Area Network/Wide Area Network (LAN/WAN) Distribution System
113-588-0019

Conditions: Given a pre-existing LAN or WAN, ohmmeter, spectrum analyzer, Time Domain Reflectometer (TDR), loss test set/power meter, optical faultfinder, network documents, FM 11-487-5, MIL-STD-188/111, Manufacturer's Instruction Booklet A, and Manufacturer's Instruction Booklet B.

Standards: Identified and repaired faults and reestablished communications.

Performance Steps

1. Gather network type information using network documents.

2. Make visual inspection checks of network.
   a. Missing terminations.
   b. Cut kinked cable.
   c. Blown fuses.
   d. Loose connections.

3. Turn off equipment to other networks.

4. Test cable according to type:
   a. Metallic cable–ohmmeter, spectrum analyzer or TDR.
   b. Fiber optic cable–loss test/power meter, optical faultfinder, or OTDR.

5. Annotate test results on the appropriate network documentation.

6. Identify fault.

7. Isolate fault.

8. Repair fault.

9. Maintain an engineering installation drawing.

10. Maintain LAN/WAN system.
    a. Conduct periodic systems test.
    b. Annotate appropriate network records.

Performance Measures	**GO**	**NO GO**
1. Gathered network type information using network documents.	——	——

2. Made visual inspection checks of network.
   a. Missing terminations.
   b. Cut kinked cable.
   c. Blown fuses.
   d. Loose connections.
	——	——

3. Turned off equipment to other networks.	——	——

4. Tested cable according to type:
   a. Metallic cable - ohmmeter, spectrum analyzer or TDR.
   b. Fiber optic cable - loss test/power meter, optical faultfinder, or OTDR.
	——	——

5. Annotated test results on the appropriate network documentation.	——	——
6. Identified fault.	——	——

Performance Measures	**GO**	**NO GO**
7. Isolated fault.	―	―
8. Repaired fault.	―	―
9. Maintained an engineering installation drawing.	―	―
10. Maintained LAN/WAN system.	―	―

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
Required	**Related**
FM 11-487-5	
MFG INSTR BOOKLET A	
MFG INSTR BOOKLET B	
MIL-STD-188/111	

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Determine Cable Depth Using the 2273 Advanced Cable and Fault Locator
113-588-0020

Conditions: This task is performed during daylight hours. It should NOT be performed under adverse weather conditions. Given a pre-installed buried cable section, a 2273-advanced cable and fault locator, orange communication cable flags, batteries, and manufacturers' manuals.

NOTE: Never connect ground to water pipe of services in the area. The return signal may mislead the trace.

Standards: Identified and annotated the location, marking, and depth of an existing buried cable.

Performance Steps

1. Test batteries.
    a. Test batteries in transmitter.
    b. Test batteries in receiver.

2. Isolate cable shield.

3. Install ground rod.

4. Place transmitter in proper location.

5. Attach transmitter clips to the ground rod (black clip) and to the cable shield (red clip).

6. Adjust test set controls/switches.
    a. Set transmitter controls/switches.
    b. Set receiver controls/switches.

7. Trace and mark cable path.

8. Determine cable depth.

9. Turn off test set.

10. Disconnect equipment.
    a. Disconnect transmitter.
    b. Disconnect receiver.

Performance Measures	**GO**	**NO GO**
1. Tested batteries. a. Tested batteries in transmitter. b. Tested batteries in receiver.	——	——
2. Isolated cable shield.	——	——
3. Installed ground rod.	——	——
4. Placed transmitter in proper location.	——	——
5. Attached transmitter clips to the ground rod (black clip) and to the cable shield (red clip).	——	——
6. Adjusted test set controls/switches. a. Set transmitter controls/switches. b. Set receiver controls/switches.	——	——
7. Traced and marked cable path.	——	——

Performance Measures	**GO**	**NO GO**
8. Determined cable depth.	——	——
9. Turned off test set.	——	——
10. Disconnected equipment.	——	——
a. Disconnected transmitter.		
b. Disconnected receiver.		

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
Required	**Related**
MANUFACTURERS' MANUALS	

Locate Cable Faults Using a 1503 Time Domain Reflectometer (TDR) Test Set
113-588-0021

Conditions: This task is performed during daylight hours. It should NOT be performed under adverse weather conditions. Given a pre-installed cable section, a 1503 TDR, paper, pen/pencil, and manufacturers' manuals.

Standards: Measurements were within + 25 feet of the evaluator's readings for each fault reading taken.

Performance Steps

1. Perform operations check.
   a. Set controls.

2. Locate short.
   a. Connect the test cables to cable connector.
   b. Connect the test cables to the tip and ring of good pair.
   c. Set controls.
   d. Disconnect the test cable from good pair.
   e. Connect the test cables to the tip and ring of the shorted pair.
   f. Measure and record the distance to the fault.

3. Locate crosses.
   a. Connect the test cable to the tip and ring of only ONE pair involved in the cross.
   b. Measure and record the distance to the fault.

4. Locate grounds.
   a. Connect the test cable to the tip and ring of a pair containing ground.
   b. Measure and record the distance to the fault.

5. Locate opens.
   a. Connect the test cable to the tip and ring of a pair containing an open.
   b. Measure and record the distance to the fault.

Performance Measures	GO	NO GO
1. Performed operations check.	――	――
a. Set controls.		
2. Located short.	――	――
a. Connected the test cables to cable connector.		
b. Connected the test cables to the tip and ring of good pair.		
c. Set controls.		
d. Disconnected the test cable from good pair.		
e. Connected the test cables to the tip and ring of the shorted pair.		
f. Measured and recorded the distance to the fault.		
3. Located crosses.	――	――
a. Connected the test cable to the tip and ring of only ONE pair involved in the cross.		
b. Measured and recorded the distance to the fault.		
4. Located grounds.	――	――
a. Connected the test cable to the tip and ring of a pair containing ground.		
b. Measured and recorded the distance to the fault.		
5. Located opens.	――	――
a. Connected the test cable to the tip and ring of a pair containing an open.		

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Performance Measures   **GO**   **NO GO**
      b. Measured and recorded the distance to the fault.

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
    Required   **Related**
    MANUFACTURERS' MANUALS

Install Aerial Cable Splicing Equipment
113-588-1074

Conditions: This task is performed during daylight hours. It should NOT be performed under adverse weather conditions. Given tool equipment TE-21; manila rope, 1/2-inch diameter; aerial handline; extension ladder; slack puller; wire clamps; gloves; splicing platform; cable car; splicer's umbrella; wrench; pliers; splicer's scissors; FM 11-372-1, FM 11-372-2, FM 11-372-3, FM 11-372-4, FM 11-372-5, FM 11-372-6, FM 11-372-7, and FM 11-372-8; and TC 24-20.

NOTE: Supervision and assistance are available.

Standards: Positioned the splicing equipment and made all safety checks.

Performance Steps

WARNING: Installer should be careful when erecting aerial splicing equipment to prevent coming in contact with power lines or power attachments.

1. Check pole for defect. (Refer to FM 11-372-2.)

2. Check suspension strand for tension. (Refer to FM 11-372-1.)

3. Climb pole, if required. (Refer to FM 11-372-2 and TC 24-20.)

WARNING: Installer should look both up and down at all times while climbing a pole. This will protect him from climbing into attachments on the pole and from climbing over the top of the pole. Installer should visually check to ensure that the snap engages the D-ring. Installer should NOT depend on the sound of the keeper snapping to indicate that the snap hook has engaged.

4. Set up ladder, if required. (Refer to FM 11-372-2.)

WARNING: Installer should NOT move the foot of the ladder after the ladder is lashed to the strand.

5. Remove aerial cable rings or lashing wire, if required. (Refer to FM 11-372-2.)

6. Terminate cable-lashing wire.

7. Make proper slack in cable using the slack puller. (Refer to FM 11-372-1 and FM 11-372-2.)

WARNING: Installer should NOT use the slack puller on a rusty, pitted strand. Such a strand is likely to be broken by the slack puller. Installer should substitute a chain hoist equipped with strand grips for the puller.

8. Set up other splicing equipment, if required. (Refer to FM 11-372-1 and FM 11-372-2.)
    a. Splicing platform.
    b. Splicer's tent.
    c. Cable car.
    d. Splicer's umbrella.

NOTE: An aerial handline should be used when setting up splicing equipment.

Evaluation Preparation: Setup: None.

Brief Soldier: Tell the soldier that he is graded only on his assigned portion of the task.

Performance Measures	GO	NO GO

WARNING: Installer should be careful when erecting aerial splicing equipment, to prevent coming in contact with power lines or power attachments.

   1. Checked pole for defect. (Refer to FM 11-372-2.)   ——   ——

   2. Checked suspension strand for tension. (Refer to FM 11-372-1.)   ——   ——

   3. Climbed pole, if required. (Refer to FM 11-372-2 and TC 24-20.)   ——   ——

WARNING: Installer should look both up and down at all times while climbing a pole. This will protect him from climbing into attachments on the pole and from climbing over the top of the pole. Installer should visually check to ensure that the snap engages the D-ring. Installer should NOT depend on the sound of the keeper snapping to indicate that the snap hook has engaged the D-ring.

   4. Set up ladder, if required. (Refer to FM 11-372-2.)   ——   ——

WARNING: Installer should NOT move the foot of the ladder after the ladder is lashed to the strand.

   5. Removed aerial cable rings or lashing wire, if required. (Refer to FM 11-372-2.)   ——   ——

   6. Terminated cable-lashing wire.   ——   ——

   7. Made proper slack in cable using the slack puller. (Refer to FM 11-372-1 and FM 11-372-2.)   ——   ——

WARNING: Installer should NOT use the slack puller on a rusty, pitted strand. Such a strand is likely to be broken by the slack puller. Installer should substitute a chain hoist equipped with strand grips for the puller.

   8. Set up other splicing equipment, if required. (Refer to FM 11-372-1 and FM 11-372-2.)   ——   ——

NOTE: An aerial handline should be used when setting up splicing equipment.

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References

    Required   **Related**
    FM 11-372-1
    FM 11-372-2
    FM 11-372-3
    FM 11-372-4
    FM 11-372-5
    FM 11-372-6
    FM 11-372-7
    FM 11-372-8
    TC 24-20

Install Underground Cable Splicing Equipment
113-588-1075

Conditions: This task is performed outside a manhole during daylight hours. Given ventilator/blower, electrical, AC/DC, 115-V, 60-cycle, 1-HP; generator set, 3-kW gas engine, 60-Hz, 1-3 HP, 120/208-V, SKD TAC utility; fire extinguisher, carbon dioxide, with rubber nozzle, charge, WHLD 50 lb; manhole cover hooks; carbon monoxide detector; flags; warning signs; barricades; FM 11-372-2 and FM 11-372-7.

NOTE: Supervision and assistance are available.

Standards: Made all safety checks, tested manhole atmosphere, and ventilated the manhole completely.

Performance Steps

  1. Place warning devices. (Refer to FM 11-372-2.)
        a. Barricades.
        b. Flags or flagmen.
        c. Warning signs.

  2. Remove manhole cover. (Refer to FM 11-372-2.)

  3. Test manhole atmosphere. (Refer to FM 11-372-2 and FM 11-372-7.)
        a. Oxygen deficiency.
        b. Carbon monoxide.

  4. Ventilate manhole, if required. (Refer to FM 11-372-2 and FM 11-372-7.)
        a. Artificial.
        b. Natural.

Evaluation Preparation: Setup: None.

Brief Soldier: Tell the soldier that he is graded only on his assigned portion of the task.

Performance Measures	GO	NO GO

1. Placed warning devices. (Refer to FM 11-372-2.)
      a. Barricades.
      b. Flags or flagmen.
      c. Warning signs.
	——	——

2. Removed manhole cover. (Refer to FM 11-372-2.)	——	——

3. Tested manhole atmosphere. (Refer to FM 11-372-2 and FM 11-372-7.)
      a. Oxygen deficiency.
      b. Carbon monoxide.
	——	——

4. Ventilated manhole, if required. (Refer to FM 11-372-2 and FM 11-372-7.)
      a. Artificial.
      b. Natural.
	——	——

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
    Required   **Related**
    FM 11-372-2
    FM 11-372-7

Close Plastic-Sheathed Cable
113-588-1083

Conditions: This task is performed during daylight hours. Given chipping knife, rubber tape, friction tape, carding brush, sealing washers, sealing tape, B-sealing cord, lashing wire, muslin material or polyethylene tape, vinyl tape, adapter, lint-free cloth, cleaning fluid, wrench or torque wrench, splicer's scissors, and FM 11-372-1.

NOTE: Supervision and assistance are available.

Standards: Closed cable, applied back pressure, and no leaks were indicated.

Performance Steps
(Refer to FM 11-372-1 for all performance steps.)

    1. Prepare the splice.
        a. Place collar of four turns of muslin material.
        b. Install layers of polyethylene tape.
        c. Apply one layer of muslin material over polyethylene tape.

NOTE: Two layers of polyethylene tape are required for PE-22 type cable; four layers of polyethylene tape are required for PE-23 and D.S. PIC type cable. Step 1c above is NOT required if a splice case is used.

    2. Prepare the cable sheath.
        a. Prepare the cable ends for installation of Scotchcast 8980-series closure.
        b. Prepare the cable ends for installation of better buried closure kits
        c. Prepare cable sheath for installation of 3M brand K and B vault closures.
        d. Prepare cable sheath for installation of type-9 through type-12 splice cases.
        e. Prepare cable sheath for installation of type-20 and type-21 splice cases.

    3. Prepare and install one of the following splice closures:
        a. Scotchcast 8980-series closure.
        b. Better buried closure kits.
        c. 3M brand K and B vault closures.
        d. Type-9 through type-12 splice cases.
        e. Type-20 or type-21 splice case.

NOTE: Flash testing should be performed to check if seals would hold air pressure.

    4. Install permanent bonds.

    5. Install splice tag identification.

Performance Measures	GO	NO GO
(Refer to FM 11-372-1 for all PMs.)		
1. Prepared the splice.	____	____
a. Placed collar of four turns of muslin material.		
b. Installed layers of polyethylene tape.		
c. Applied one layer of muslin material over polyethylene tape.		

NOTE: Two layers of polyethylene tape are required for PE-22 type cable; four layers of polyethylene tape are required for PE-23 and D.S. PIC type cable. Step 1c above is NOT required if a splice case is used.

2. Prepared the cable sheath.	____	____
a. Prepared the cable ends for installation of Scotchcast 8980-series closure.		
b. Prepared the cable ends for installation of better-buried closure kits.		

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

      c. Prepared cable sheath for installation of 3M brand K and B vault closures.
      d. Prepared cable sheath for installation of type-9 through type-12 splice cases.
      e. Prepared cable sheath for installation of type-20 and type-21 splice cases.

  3. Prepared and installed one of the following splice closures: ____   ____
      a. Scotchcast 8980-series closure.
      b. Better buried closure kits.
      c. 3M brand K and B vault closures.
      d. Type-9 through type-12 splice cases.
      e. Type-20 or type-21 splice case.

NOTE: Flash testing should be performed to check if seals would hold air pressure.

  4. Installed permanent bonds.   ____   ____

  5. Installed splice tag identification.   ____   ____

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
    Required   **Related**
    FM 11-372-1

Install Pressurized Cable System
113-588-1086

Conditions: This task is performed during daylight hours on aerial and underground cable. Given the following conditions to:

(1) **Install pressure bypass**: Given OD copper, plastic, or lead tubing, 1/4 inch; wrench; bypass valve; soldering equipment; lashed cable supports; plastic tie-down straps; pressure test flanges; mounting brackets; plugs; wood; pipes, pipe straps; valve housing; drive anchor, 1 1/4 inches x 1/4 inch size; C-gauge; soap solution; and FM 11-372-5.

(2) **Install pressure plugs**: Given polyurethane compound, Rosalyn 164-compound or equivalent, C-compound, 4-ounce can; channeling pins; tie-down plastic straps, 7 inches long; plastic (vinyl) tape, 3/4 inch wide; plastic (vinyl) tape, 1 1/2 inches wide; hose clamp; injection fitting USF-1A; tabbing shears; splicer's scissors; knife; cable core depressor; chipping and sheathing knife; orange sticks; cable drill; carding brush; 3M, 4401-compound; injection gun; screwdriver; paper tape 1/2 inch wide; DR tape; B-sealing tape; Allen wrench, 3/16-inch; small hammer; and FM 11-372-5.

(3) **Install pressure test point**: Given stainless steel sealing clamps (hose clamps); vinyl tape; appropriate pressure tubing; appropriate pressure fittings; knife; wrench; tubing cutter; emery cloth; pipe joint compound; carding brush; cable drill; orange sticks; corrosion-resistant steel strip; metal shears; file; screwdriver; core depressor tool; muslin strips; split poly washer of correct diameter, four each; B-sealing tape; B-cord release compound; socket, 1/4-inch; torque wrench; DR tape; splicer's scissors; C-cement; splice case or lead sleeve; sleeve spreader; soldering torch or iron; sandpaper; Stearin flux; tubing rack; galvanized machine screws; tubing straps; pole or timber, 8-foot; galvanized pipe, 1 1/4-inch, 5-foot; pipe straps; marker tags; and FM 11-372-5.

(4) **Install contactor terminal**: Given aerial or underground contactor; screwdriver, 3-inch; open-end wrench, 1/4-inch; open-end wrench, 7/32-inch; C-pressure gauge; splicer's headset; battery, 4 1/2-volt; jumper cords and clips; cylinder of nitrogen (with regulator); pipe joint compound; C-flange; C-valve stem; file; copper tubing elbow; B-pressure cell; emery cloth; drill set, 3/8-inch; nylon or lead screw anchors; round-head galvanized wood screws, No. 10; tubing cutter; small one-hole straps; and FM 11-372-5.

(5) **Install transducer terminal**: This task is performed on aerial and underground cable. Given transducer, O-flange, pipe joint compound, F-valve, tie-down plastic straps, C-gauge, nitrogen cylinder, lead marker tag, wrench, cord, two-conductor, soap solution, polyethylene cable solution, bucket and brush, pressure regulator, and FM 11-372-5.

(6) **Install continuous-feed pressure system**: Given compressor-dehydrator, air dryer, SAE-30 non-detergent automotive or turbine oil, soap solution, bottled nitrogen gas (if required), appropriate tubing and fittings, one-hole clamps, appropriate wood screws, appropriate anchors, 3-wire 1/2-inch flexible BX conduit, wrench, screwdriver, and FM 11-372-5.

NOTE: Supervision and assistance are available for all conditions.

Standards: Installed the contactor terminal and the readings between the valve on the sleeve and contactor terminal were equal, installed the transducer terminal with a test desk reading within the 2.5-volt tolerance, and pressurized the cable and held constant pressure for 2 hours.

Performance Steps
(Refer to FM 11-372-5 for all performance steps.)

1. Install bypass.
   a. Install aerial cable bypass.
   b. Install underground cable bypass.

Performance Steps
  c. Install buried cable bypass.

 2. Install pressure plug.
  a. Install pressure plug using the sheath injection method.
   (1) Prepare poly-sheathed cables.
   (2) Prepare lead-sheathed cables.
   (3) Prepare and inject plugging compound.

CAUTION: The 4401-compound should NEVER be mixed with the 185N-compound.

    (a) Mix compound.
    (b) Inject compound.
    (c) Install 3A pressure plug.
    (d) Install cable cap, if required.
  b. Install pressure plug using the pour method with type-9 closure.
   (1) Prepare cable.
   (2) Place horizontal plug, if required.
   (3) Place vertical plug, if required.
   (4) Install combination plug and insulating joint, if required.
   (5) Mix and pour compounds.

CAUTION: The 4401-compound should NEVER be mixed with the 185N-compound.

  c. Install pressure plug using the pour method with 8980-series closure.
   (1) Prepare cable.
   (2) Pour compound.

CAUTION: The 4401-compound should NEVER be mixed with the 185N-compound.

 3. Install pressure test point.
  a. Reinforce cable.
  b. Install pressure test valves.
   (1) Install E-pressure flange on plastic-sheathed cable.
   (2) Install pressure fittings and test valves on lead-sheathed cable.
  c. Install pressure tubing, fittings, and accessories.

 4. Install contactor terminal.
  a. Install aerial contactor.
   (1) Modify aerial contactor.
   (2) Adjust aerial contactor.

 5. Install transducer terminal.
  a. Install transducer on sleeve.
  b. Install transducer on splice case.
  c. Monitor transducer pressure.
   (1) Transducer monitoring.
   (2) Automatic transducer monitoring system.
  d. Test cable using pressure-testing apparatus.

 6. Install continuous-feed pressure system.
  a. Install compressor/air dryer unit.
   (1) Install refrigerant type 750 and 7,500 standard cubic feet per day (SCFD) capacity air
    dryer.
   (2) Install refrigerant type 5,000 SCFD capacity compressor.
   (3) Make required inspections.
   (4) Start compressor unit.
   (5) Maintain end pressure.
  b. Adjust air outlet pressure.
  c. Install pole-mounted air dryer.

Performance Steps

NOTE: Refer to FM 11-372-5 for installation procedures for pressure testing valves and pressure connection.

      d. Test cable pressure.
          (1) Install pressure-measuring equipment.
          (2) Flash-test for leaks.

Evaluation Preparation: Setup: None.

Brief Soldier: Tell the soldier to observe safety precautions concerning nitrogen and any other pressurized gases.

Performance Measures	**GO**	**NO GO**
(Refer to FM 11-372-5 for all PMs.)		
1. Installed bypass.	____	____
2. Installed pressure plug.	____	____

CAUTION: The 4401-compound should NEVER be mixed with the 185N-compound.

3. Installed pressure test point.	____	____
4. Installed contactor terminal.	____	____
5. Installed transducer terminal.	____	____
6. Installed continuous-feed pressure system.	____	____

NOTE: Refer to FM 11-372-5 for installation procedures for pressure testing valves and pressure connection.

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
Required	**Related**
FM 11-372-5	FM 11-372-2

Install Local Area Network/Wide Area Network (LAN/WAN) Distribution System
113-588-1105

Conditions: Given Category (CAT) 5, 4-pair Unshielded Twisted Pair (UTP) cable, D-814 impact tool with 110 blade, RJ-45 crimp tool, RJ-45 connectors, work area outlet connector with RJ-45 jack, jacket stripper, splicer scissors (snips), tape measure (feet/metric), small flat-tip screwdriver, engineering drawings, FM 11-487-5, MIL-STD-188/111, and manufacturers' manuals.

Standards: Terminated the 4-pair CAT 5 UTP cable using the appropriate configurations and all cabling passed test requirements.

Performance Steps

1. Conduct pre-installation procedures.
    a. Identify, remove, and/or mark any hazards prior to the installation at each location.
    b. Select the cable support method to be used and complete all necessary preparations.
    c. Tie back any existing loose cables to avoid entanglements.
    d. Select the installation method (raising or lowering) and set up the associated hardware (shoes, sheaves, supports, winch, and other needed equipment).
    e. Set up safety measures such as perimeters, cones, reels, and sheave blocks.
    f. Use the rolling hitch knot to raise and lower heavy backbone cable.
    g. Test cable and annotate results.

NOTE: Before starting the cable installation, make sure enough cable is available for the entire cable installation. If the cable installation was previously engineered, then follow the engineer's statement of work. Locate the footage numbers at both ends of the cable and subtract the numbers. The results of the subtracted footage numbers indicate the length of available cable.

2. Install cable.
    a. Route the cable through predetermined path.
    b. Pull enough additional cable to ensure that 24 inches of cable will be available at the work area outlet.
    c. Install a tip cable on a main distribution frame using distribution rings.
    d. Test cable and annotate results.

3. Terminate cable in work area.
    a. Inventory work area parts.
    b. Prepare cable for termination.
    c. Prepare and position conductors for termination.
    d. Terminate conductors using the D-814 impact tool with the 110 blade.

CAUTION: Ensure the impact setting is adjusted to low impact. Also ensure the outlet connector is located on a solid surface.

    e. Secure outlet connector.
    f. Test cable, repair faults, and annotate results.

4. Terminate cable in telecommunications closet.
    a. Prepare cable by managing slack.
    b. Locate which side of the equipment the cable will terminate on.
    c. Form the cable to the desired terminating block.
    d. Prepare cable for termination.
    e. Terminate conductors using the D-814 tool with the 110 blade.
    f. Terminate conductors on a 700 series Main Distribution Frame (MDF) terminal using the wire wrap method.
    g. Test cable, repair faults if required and annotate results.

5. Fabricate a CAT 5 UTP patch cord if required.

Performance Steps

        a. Inventory parts.
        b. Remove jacket.
        c. Untwist all the cable pairs to the ringed jacket.
        d. Align conductors from left to right according to the T568A or the T568B terminating configuration.
        e. Position conductors into rear of the RJ-45 plug.
        f. Insert the front of the plug into the RJ-45 slot of the crimping tool and squeeze handle fully.
        g. Ensure conductors and jacket are fully seated and crimped.

    6. Test cable for faults.

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

1. Conducted pre-installation procedures.   ____   ____
        a. Identified, removed, and/or marked any hazards prior to the installation at each location.
        b. Selected the cable support method to be used and completed all necessary preparations.
        c. Tied back any existing loose cables to avoid entanglements.
        d. Selected the installation method (raising or lowering) and set up the associated hardware (shoes, sheaves, supports, winch, and other needed equipment).
        e. Set up safety measures such as perimeters, cones, reels, and sheave blocks.
        f. Used the rolling hitch knot to raise and lower heavy backbone cable.
        g. Tested cable and annotated results

NOTE: Before starting the cable installation, make sure enough cable is available for the entire cable installation. If the cable installation was previously engineered, then follow the engineer's statement of work. Locate the footage numbers at both ends of the cable and subtract the numbers. The results of the subtracted footage numbers indicate the length of available cable.

2. Installed CAT 5 UTP cable.   ____   ____
        a. Routed the cable through predetermined path.
        b. Pulled enough additional cable to ensure that 24 inches of cable would be available at the work area outlet.
        c. Installed a tip cable on a main distribution frame using distribution rings.
        d. Tested cable and annotated results.

3. Terminated cable in work area.   ____   ____
        a. Inventoried work area parts.
        b. Prepared cable for termination.
        c. Prepared and positioned conductors for termination.
        d. Terminated conductors using the D-814 impact tool with the 110 blade.

CAUTION: Ensure the impact setting is adjusted to low impact. Also ensure the outlet connector is located on a solid surface.

4. Terminated cable in telecommunications closet.   ____   ____
        a. Prepared cable by managing slack.
        b. Located which side of the equipment the cable would terminate on.
        c. Formed the cable to the desired terminating block.
        d. Prepared cable for termination.
        e. Terminated conductors using the D-814 tool with the 110 blade.
        f. Terminated conductors on a 700 series MDF terminal using the wire wrap method.

Performance Measures	GO	NO GO
g. Test cabled, repaired faults if required, and annotated results.		

5. Fabricated a CAT 5 UTP patch cord if required.   ____   ____
   - a. Inventoried parts.
   - b. Removed jacket.
   - c. Untwisted all the cable pairs to the ringed jacket.
   - d. Aligned conductors from left to right according to the T568A or the T568B terminating configuration.
   - e. Positioned conductors into rear of the RJ-45 plug.
   - f. Inserted the front of the plug into the RJ-45 slot of the crimping tool and squeeze handle fully.
   - g. Ensured conductors and jacket were fully seated and crimped.

6. Tested cable for faults.   ____   ____

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
    Required   **Related**
    FM 11-487-5
    MANUFACTURERS' MANUALS
    MIL-STD-188/111

Install a Connector on a Stranded Flexible Coaxial Cable
113-588-1106

Conditions: Given a section of coaxial cable, connector, handtool set, solder, soldering iron, knife or tubing cutter, clean damp cloth, safety glasses, and manufacturers' manuals.

NOTE: Let soldier know assistance is available.

Standards: Installed the connector on the coaxial cable without deficiencies.

Performance Steps

WARNING: Remove all jewelry for this task. Notify soldier of safety concerns while operating a soldering iron.

1. Inventory connector parts.

2. Cut cable end.

3. Place nut, washer, and gasket on cable.

4. Remove outer jacket.

5. Place braid clamp on cable.

6. Cut braid and dielectric.

7. Cut and tin inner conductor.

8. Place contact on cable.

9. Position gasket, washer, and nut.

10. Install assembly.

Performance Measures	**GO**	**NO GO**
WARNING: Remove all jewelry for this task. Notify soldier of safety concerns while operating a soldering iron.		
1. Inventoried connector parts.	――	――
2. Cut cable end.	――	――
3. Placed nut, washer, and gasket on cable.	――	――
4. Removed outer jacket.	――	――
5. Placed braid clamp on cable.	――	――
6. Cut braid and dielectric.	――	――
7. Cut and tin inner conductor.	――	――
8. Placed contact on cable.	――	――
9. Positioned gasket, washer, and nut.	――	――
10. Installed assembly.	――	――

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
    Required   **Related**
    MANUFACTURERS' MANUALS

Install Underground Cable System
113-588-1107

Conditions: This task is performed at a fixed installation during daylight hours. It should NOT be performed under adverse weather conditions. Given manhole rail guard, barricades with warning lights, warning signs, warning flag, flag and warning light stand, rodding and duct cleaning equipment, winch-operated chains, construction vehicle with winch, rope, cable reel, cable trailer, reel jacks, cable lubrication, cable feeder, pulling eye, pulling line, cable grip, duct tape, core-hitch eye, cable guide, loading coil and apparatus cases, duct shields, water activated cement, cable sheave and shackle, atmosphere tester, manhole cover hooks, ventilator, water pump, TM 11-372-2, and USAF TO 31-10-3.

NOTE: Let soldier know that assistance is available.

Standards: Installed the underground cable system, terminated cable if used, and restored communications or sealed cable ends if not used.

Performance Steps

WARNING: There are numerous safety precautions to take into consideration with this task. Refer to TM 11-372-2 for safety information.

1. Conduct pre-installation activities.
   a. Position safety equipment in proper locations.
   b. Pump water from manholes.
   c. Perform atmosphere test prior to entering in manholes.
   d. Ventilate manholes.
   e. Rod and clean ducts.
   f. Test duct alignment.
   g. Prepare cable reel and pulling apparatus.
   h. Attach pulling line to the cable.
   i. Install a cable grip on 25 pairs.

2. Install cable system.
   a. Attach cable guide.
   b. Lubricate cable.
   c. Pull cable through manholes.
   d. Repeat performance steps 1a through 2c for each manhole.

3. Terminate cable.
   a. Install a tip cable on a main distribution frame using distribution rings.

4. Conduct post-installation activities.
   a. Seal cable using a B end cap.
   b. Tie and bond cable.
   c. Place underground load coil cases.
   d. Seal ducts.

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

1. Conducted pre-installation activities.   ___   ___
   a. Positioned safety equipment in proper locations.
   b. Performed atmosphere test prior to entering in manholes.
   c. Ventilated manholes.
   d. Rodded and cleaned ducts.
   e. Tested duct alignment.
   f. Prepared cable reel and pulling apparatus.
   g. Attached pulling line to the cable.

Performance Measures	**GO**	**NO GO**
h. Installed a cable grip on 25 pairs.		
2. Installed cable system.	____	____
a. Attached cable guide.		
b. Lubricated cable.		
c. Pulled cable through manholes.		
d. Repeated PMs 1a through 2c for each manhole.		
3. Terminated cable.	____	____
a. Installed a tip cable on a main distribution frame using distribution rings.		
4. Conducted post-installation activities.	____	____
a. Tied and bonded cable.		
b. Placed underground load coil cases.		
c. Sealed cable using a B end cap.		
d. Sealed ducts.		

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
    Required   **Related**
    FM 11-372-2
    USAF TO 31-10-3

Install a CAD-6 Buried Distribution Terminal
113-588-1108

Conditions: Given a CAD-6 distribution terminal, a ground rod, ground connector, mounting stake, a shovel, engineer specifications, and manufacturers' manuals.

NOTE: Supervision and assistance are available.

Standards: Installed the CAD-6 distribution terminal according to engineer specifications.

Performance Steps

1. Determine CAD-6 distribution terminal location using engineer specifications.

2. Prepare location–dig section of earth in an 8 x 8 square and 16" deep.

3. Remove covers of the CAD-6 distribution terminal.
      a. Separate upper and lower front covers.
      b. Unlock the divider plate and swing it open.

NOTE: DO NOT use the divider plate to lift or carry the cable closure.

4. Install mounting stake.

5. Install grounding rod–place ground rod on the right side of the back plate assembly.

6. Secure back plate assembly.
      a. Mount the back plate assembly to the stake.
      b. Install # 6 ground wire on the right side of back plate assembly.

7. Install grounding connector.
      a. Clean an area 1 1/2 times the size of connector on grounding rod.
      b. Install # 6 ground wire on the right side of back plate assembly.

8. Ground CAD-6 distribution terminal.

Performance Measures	**GO**	**NO GO**
1. Determined CAD-6 distribution terminal location using engineer specifications.	——	——
2. Prepared location–dug section of earth in an 8 x 8 square and 16" deep.	——	——

3. Removed covers of the CAD-6 distribution terminal.
    a. Separated upper and lower front covers.
    b. Unlocked the divider plate and swung it open.
	——	——

NOTE: DO NOT use the divider plate to lift or carry the cable closure.

	GO	**NO GO**
4. Installed mounting stake.	——	——
5. Installed grounding rod–dug section of earth in an 8 x 8 square and 16" deep.	——	——

6. Secured back plate assembly.
    a. Mounted the back plate assembly to the stake.
    b. Installed # 6 ground wire on the right side of back plate assembly.
	——	——

7. Installed grounding connector.
    a. Cleaned an area 1 1/2 times the size of connector on grounding rod.
    b. Installed connector to grounding rod.
	——	——

8. Grounded CAD-6 distribution terminal.	——	——

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References

Required	**Related**
MANUFACTURERS' MANUALS	

Perform an In-Line Straight Splice on a Plastic-Sheath, Plastic-Insulated Cable Using the 710 Modular Splicing System
113-588-2008

Conditions: This task is performed at a fixed installation during daylight hours. It should NOT be performed under adverse weather conditions. Given a 25-pair plastic-sheath, plastic-insulated cable prepared for splicing, polyethylene tape, lineman scissors, paper tape, electrical tape, 710A-connector system, an 890A modular splicing tool, FM 11-487-5, MIL-STD-188/111, and manufacturers' manuals.

Standards: Spliced the cable with no errors for 25 pairs or with no more than one pair or two wires not correctly spliced per 100 pairs.

Performance Steps

1. Prepare conductors for splicing.

2. Assemble the 710A tool mount kit.

3. Position the 890A tool and check operation.

4. Secure binder groups.

5. Place index strip into 890A tool.

6. Place conductors into index strip.

7. Check placed conductors with error-tester application.

8. Cut off excess conductors.

9. Place connector module body onto Index strip.

10. Seat connector module body onto Index strip.

11. Place matching binder group into connector module body.

12. Check conductor placement.

13. Seat and cut conductors.

14. Place and seat cap on connector module body.

15. Make splice.

16. Remove completed module from 890A tool.

17. Repeat performance steps 4 through 16 until all units in cable have been spliced.

18. Wrap completed splice using polyethylene tape.

Performance Measures	GO	NO GO
1. Prepared conductors for splicing.	――	――
2. Assembled the 710A tool mount kit.	――	――
3. Positioned the 890A tool and checked operation.	――	――
4. Secured binder groups.	――	――
5. Placed index strip into 890A tool.	――	――

Performance Measures	GO	NO GO
6. Placed conductors into index strip.	——	——
7. Checked placed conductors with error-tester application.	——	——
8. Cut off excess conductors.	——	——
9. Placed connector module body onto Index strip.	——	——
10. Seated connector module body onto Index strip.	——	——
11. Placed matching binder group into connector module body.	——	——
12. Checked conductor placement.	——	——
13. Seated and cut conductors.	——	——
14. Placed and seated cap on connector module body.	——	——
15. Made splice.	——	——
16. Removed completed module from 890A tool.	——	——
17. Repeated PMs 4 through 16 until all units in cable had been spliced.	——	——
18. Wrapped completed splice using polyethylene tape.	——	——

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References

Required	**Related**
FM 11-487-5	
MANUFACTURERS' MANUALS	
MIL-STD-188/111	

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Perform a Splice on a Plastic-Sheath, Plastic-Insulated Cable Using a VS-3 Handtool
113-588-2009

Conditions: Given a pre-installed cable system, a VS-3 handtool, picabonds, muslin, B-polyethylene tape, paper taper, and manufacturers' manuals.

NOTE: Let soldier know assistance is available.

WARNING: Use caution when closing the handles of the VS-3 handtool to avoid pinching your hand. Remember the ratchet will not release until the handles have been fully closed.

Standards: Spliced the cable and restored communications.

Performance Steps

 1. Make cable splice.
     a. Identify one cable pair to splice from first cable using color code.
     b. Identify the corresponding cable pair to splice from second cable using color code.
     c. Insert the tip conductor of the first cable completely into wire support, leaving slack in the conductor.
     d. Repeat the above procedure for the tip conductor from the second cable.
     e. Insert a connector into the VS-3 handtool.
      f. Hold tool steady and close the handle unit until the ratchet releases and handles open.
     g. Remove the crimped connector from the tool.
     h. Gauge the crimped connection.
      i. Perform visual inspection of connections.
      j. Correct improper connections.
     k. Repeat performance steps 1a through 1h to splice remaining conductors and/or pairs.
      l. Wrap conductor with muslin.
     m. Wrap splice with two half-lapped layers of polyethylene tape.
     n. Secure splice with paper tape.

 2. Perform a bridge splice.

NOTE: The first bank of a bridge splice is always started from the "Y" side of the splice. The starting point is measured 1/3 inch of the splice opening and measured from the sheath butt. Splice the cable in banks leaving a 1/4-inch space between each bank.

     a. Prepare splice opening.
     b. Repeat performance steps 1a through 1b (see above).
     c. Insert the tip conductor from the main cable into the wire support below the guide pin.
     d. Insert the tip conductor from the bridge cable into the wire support above the guide pin.
     e. Repeat performance steps 1e through 1n (see above).

 3. Perform a butt splice.

NOTE: Never put more than one conductor at one time when clear capping. This could cause shorts in a working cable system.

     a. Identify method of splicing.
        (1) Straight method.
        (2) Loop method.
     b. Select two pair in the top cable and two pair in the bottom cable.
     c. Separate each pair.
     d. Position the handtool on the splice opening and insert conductors individually into VS-3 handtool.
     e. Place each conductor of each pair into the handtool and crimp the connector on them individually.

Performance Steps
    f. Clear cap 4-pair in each cable using the stagger-cut method.
    g. Perform visual inspection of connections.
    h. Wrap conductors with muslin.
    i. Wrap the splice with polyethylene tape.
    j. Secure with paper tape.

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

1. Made cable splice.   ____   ____
    a. Identified one cable pair to splice from first cable using color code.
    b. Identified the corresponding cable pair to splice from second cable using color code.
    c. Inserted the tip conductor of the first cable completely into wire support, leaving slack in the conductor.
    d. Repeated the above procedure for the tip conductor from the second cable.
    e. Inserted a connector into the VS-3 handtool.
    f. Held tool steady and closed the handle unit until the ratchet released and handles opened.
    g. Removed the crimped connector from the tool.
    h. Gauged the crimped connection.
    i. Performed visual inspection of connections.
    j. Corrected improper connections.
    k. Repeated PMs 1a through 1h to splice remaining conductors and/or pairs.
    l. Wrapped conductor with muslin.
    m. Wrapped splice with two half-lapped layers of polyethylene tape.
    n. Secured splice with paper tape.

2. Performed a bridge splice.   ____   ____

NOTE: The first bank of a bridge splice is always started from the "Y" side of the splice. The starting point is measured 1/3 from the splice opening and measured from the sheath butt. Splice the cable in banks leaving a 1/4-inch space between each bank.

    a. Prepared splice opening.
    b. Repeated PMs 1a through 1b (see above).
    c. Inserted the tip conductor from the main cable into the wire support below the guide pin.
    d. Inserted the tip conductor from the bridge cable into the wire support above the guide pin.
    e. Repeated PMs 1e through 1n (see above).

3. Performed a butt splice.   ____   ____

NOTE: Never put more than one conductor at one time when clear capping. This could cause shorts in a working cable system.

    a. Identified method of splicing.
      (1) Straight method.
      (2) Loop method.
    b. Selected two pair in the top cable and two pair in the bottom cable.
    c. Separated each pair.
    d. Positioned the handtool on the splice opening and inserted conductors individually into VS-3 handtool.
    e. Placed each conductor of each pair into the handtool and crimped the connector on them individually.
    f. Cleared cap 4-pair in each cable using the stagger-cut method.
    g. Performed visual inspection of connections.

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

      h. Wrapped conductors with muslin.

      i. Wrapped the splice with polyethylene tape.

      j. Secured with paper tape.

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References

    Required   **Related**

    MANUFACTURERS' MANUALS

Repair Plastic-Sheathed Cable
113-588-4022

Conditions: Given aluminum tape, asbestos blanket for heat shield, cable clamps, carding brush, channel pulling tool, chipping knife, E-pressure flange, friction tape, hammer, heat gun, heat-shrinkable split sleeve, lash wire clamp, metal channel lengths, neoprene tape, P-compound and B-compound, propane torch; retaining clip, 5-inch; rubber cement, shave hook, skinning knife, slack puller (if required), splice case, splicing kit, heat-shrinkable sleeve; steel strap, tabbing shears, vinyl tape, and FM 11-372-6.

NOTE: Supervision and assistance are available.

Standards: Repaired the plastic-sheathed cable and sealed the damaged section.

Performance Steps
(Refer to FM 11-372-6 for all performance steps.)

   1. Repair minor sheath damage to aerial, buried, and underground plastic-sheathed cable, if required.
      a. Repair plastic cable sheath.
      b. Repair filled plastic cable.
      c. Repair plastic sheath on pressurized cable.

   2. Perform a section replacement on a 25-pair plastic-sheath, plastic insulated cable, if required.
      a. Select the location for the new cable installation.
      b. Install new cable section temporarily.
      c. Remove all hardware from preexisting cable.
      d. Secure the new cable section.
      e. Make splice opening.
      f. Install shield bond clamp and install bond braid.
      g. Install end plate on new section of cable.
      h. Seal splice temporarily.
      i. Establish talk circuit.
      j. Half-tap splice in new cable.
      k. Wrap finished splice.

   3. Repair plastic-sheathed aerial, buried, and underground cable with major damage, if required.
      a. Open cable.
      b. Dry conductors.
      c. Repair conductors.
      d. Repair cable sheath.
      e. Wrap core.

NOTES:

(1) When cable core is filled, repair operations should be accomplished, if possible, without removing the filling compound. The compound is removed only from those cable conductors that need repairing.

(2) When the cable core is filled, the cable core is replaced in the sheath without wrapping.

(3) If the cable is pressurized, a pressure plug must be installed before the cable sheath is opened. This is to prevent loss of pressure.

   4. Close cable.
      a. Clean sheath and apply cement.
      b. Apply tapes.

NOTE: Cable damage that has excessive injury to the sheath may require the removal of a portion of the plastic sheath. These cables may be closed by the use of a splice case or closure.

Performance Steps

    5. Repair cable terminals in plastic-sheathed cable.
          a. Repair strand-mounted terminals.
          b. Repair distribution terminals.
          c. Repair cross-connect terminals.

    6. Repair cable pedestals.

    7. Locate and repair pressurization leaks.

Evaluation Preparation: Setup: None.

Brief Soldier: Tell the soldier to observe safety precautions concerning open flames, propane gas, and other pressurized gases.

Performance Measures	**GO**	**NO GO**
(Refer to FM 11-372-6 for all PMs.)		

    1. Repaired minor sheath damage to aerial, buried, and underground plastic-sheathed cable, if required.   ———   ———
          a. Repaired plastic cable sheath.
          b. Repaired filled plastic cable.
          c. Repaired plastic sheath on pressurized cable.

    2. Performed a section replacement on a 25-pair plastic-sheath, plastic insulated cable.   ———   ———
          a. Selected the location for the new cable installation.
          b. Installed new cable section temporarily.
          c. Removed all hardware from pre-existing cable.
          d. Secured the new cable section.
          e. Made splice opening.
          f. Installed shield bond clamp and installed bond braid.
          g. Installed end plate on new section of cable.
          h. Sealed splice temporary.
          i. Established talk circuit.
          j. Half-tapped splice in new cable.
          k. Wrapped finished splice.

    3. Repaired plastic-sheathed aerial, buried, and underground cable with major damage, if required.   ———   ———
          a. Opened cable.
          b. Dried conductors.
          c. Repaired conductors.
          d. Repaired cable sheath.
          e. Wrapped core.

NOTES:

(1) When cable core is filled, repair operations should be accomplished, if possible, without removing the filling compound. The compound is removed only from those cable conductors that need repairing.

(2) When the cable core is filled, the cable core is replaced in the sheath without wrapping.

(3) If the cable is pressurized, a pressure plug must be installed before the cable sheath is opened. This is to prevent loss of pressure.

    4. Closed cable.   ———   ———

Performance Measures   **GO**   **NO GO**
     a. Cleaned sheath and applied cement.
     b. Applied tapes.

NOTE: Cable damage that has excessive injury to the sheath may require the removal of a portion of the plastic sheath. These cables may be closed by the use of a splice case or closure.

   5. Repaired cable terminals in plastic-sheathed cable.   ____   ____
     a. Repaired strand-mounted terminals.
     b. Repaired distribution terminals.
     c. Repaired cross-connect terminals.

   6. Repaired cable pedestals.   ____   ____

   7. Located and repaired pressurization leaks.   ____   ____

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
    Required   **Related**
    FM 11-372-6

Maintain a Communications Systems Installation Record (CSIR)
113-588-6008

Conditions: Given a communications systems installation record (CSIR), an engineering change request/authorization (ECRA) scenario, colored pencils, local command directive, and a Symbols and Explanation (SE) Booklet.

NOTE: Supervision and assistance are available.

Standards: Correctly annotated proposed changes from the ECRA on the CSIR using the correct color pencil to mark changes.

Performance Steps

1. Identify proposed change(s) requested.

2. Annotate proposed change(s).
   a. Verify appropriate symbol.
   b. Select appropriate colored pencil.
   c. Annotate change(s) on CSIR.

3. Submit CSIR to engineer team chief.

Performance Measures	GO	NO GO
1. Identified proposed change(s) requested.	——	——
2. Annotated proposed change(s).	——	——
a. Verified appropriate symbol.		
b. Selected appropriate colored pencil.		
c. Annotated change(s) on CSIR.		
3. Submitted CSIR to engineer team chief.	——	——

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
    Required   **Related**
    LOCAL CMD DIR
    SE BOOKLET

Make a Coaxial Cable Splice
113-588-9008

Conditions: Given paper tape; cotton tape; vinyl tape; measuring tape; scotch tape; electrical tape; muslin material; polyethylene tape; No 5 transflex tubing; tinned-copper sleeves, No 16; paper clip or test clip; lead sleeve (if required); rosin core solder; soldering iron; carding brush; hammer; pliers; chipping knife; cutting tool; slitting tool; shears; cable stripper; splicer's scissors; gloves; test boards; cotton sleeves; cable bonding clamp; bond wire or textile-insulated wire; and FM 11-372-1.

NOTE: Cables were installed, leaving approximately 5 feet on both ends for splicing. Supervision and assistance are available.

Standards: Spliced and soldered the video cable with no errors.

Performance Steps
(Refer to FM 11-372-1 for all performance steps.)

   1. Prepare cables for splice opening.
      a. Install temporary supports.
      b. Install cable supports.
      c. Measure for lead-sleeve splice.

   2. Open cable.
      a. Open lead-sheathed cable.
         (1) Remove cable sheath (slitting required).

CAUTION: Make sure the chipping knife does NOT cut the core wrapping paper or damage the conductors.

         (2) Prepare sheath ends to protect conductors.
            (a) Rotate cable, if required.
            (b) Butt cable with two-paper wrapping and with four-paper wrapping.
            (c) Install temporary bonds.
         (3) Remove layer shields. (Exposes conductors.)
      b. Open polyethylene-covered cable (non-isolated).
         (1) Remove cable sheath.
         (2) Remove metal sheath.
         (3) Cut tabs.
         (4) Install inner-sheath clamps.
         (5) Install temporary bonding.

CAUTION: Gloves should be worn when removing metal sheath.

      c. Open polyethylene-covered cable (isolated).
         (1) Remove cable sheath.
         (2) Remove metal sheath, except two strips.
         (3) Fold back and tape metal strips.
         (4) Install inner-sheath clamps.

CAUTION: Gloves should be worn when removing metal sheath.

   3. Expose conductors.
      a. Separate binding groups.
      b. Mark binding groups (color code).

   4. Prepare conductors for splicing by drying out wet cable using heat gun method.

CAUTION: Desiccant should NOT be used on plastic- or rubber-insulated conductors.

   5. Splice video cable.

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Performance Steps
       a. Regular shield cable.
          (1) Straight splice.
          (2) Butt splice.
          (3) Regular shield cable spliced to terminal stub.
       b. Flexible shield cable.
          (1) Flexible shield cable only.
          (2) Splice to paper-insulated cable.
       c. Regular shield video cable spliced to other cables.
          (1) Nonflexible shield.
          (2) Flexible shield.

Evaluation Preparation: Setup: None.

Brief Soldier: Tell the soldier that he will be graded only on his assigned portion of the task.

Performance Measures	**GO**	**NO GO**
(Refer to FM 11-372-1 for all PMs.)		
1. Prepared cables for splice opening.	——	——
2. Opened cable.	——	——
3. Exposed conductors.	——	——
4. Prepared conductors for splicing by drying out wet cable using heat gun method.	——	——

CAUTION: Desiccant should NOT be used on plastic- or rubber-insulated conductors.

5. Spliced video cable.	——	——

Evaluation Guidance: Score the soldier a GO if all PMs are passed. Score the soldier a NO-GO if any PM is failed. If the soldier fails any PM, show what was done wrong and how to do it correctly. Have the soldier perform the PMs until they are done correctly.

References
    Required   **Related**
    FM 11-372-1

CHAPTER 5

Digital Common Core

Subject Area 16: SIGNAL SYSTEMS

Operate Automated Net Control Device (ANCD) AN/CYZ-10
113-609-2053

Conditions: As a radio operator in a field environment, given data transfer device AN/CYZ-10 (C), TB 11-5820-890-12, TM 11-5820-890-10-8, DA Form 2404, and a requirement to operate the AN/CYZ-10.

Standards: Performed in sequence the transfer of communications security (COMSEC) keys and signal operation instructions (SOI) information from an automated net control device (ANCD) to an ANCD, loaded Single-Channel Ground and Airborne Radio System (SINCGARS) radio with COMSEC variables using ANCD, obtained SOI information from ANCD, and corrected all errors within 15 minutes.

Performance Steps

1. Transfer COMSEC keys and SOI information from ANCD to ANCD.
   a. Turn on both ANCDs.
   b. Make main menu selection (ANCD).
   c. Make source ANCD menu selections.
   d. Make target ANCD menu selections.
   e. Transfer data from ANCD to ANCD.
   f. Turn OFF/disconnect ANCDs.

2. Load radio from ANCD using Mode 2 fill.
   a. Turn radio and ANCD power ON.
   b. Make main menu selection on ANCD
   c. Make application menu selection on ANCD
   d. Set controls of radio and connect to ANCD with fill cable.
   e. Transfer Mode 2 fill from ANCD to radio.
   f. Disconnect ANCD from radio and turn ANCD power OFF.

3. Obtain SOI information from ANCD
   a. Turn ANCD power ON.
   b. Make main menu selection.
   c. Make SOI menu selection
   d. Turn ANCD power OFF.

4. Perform PMCS on ANCD.
   a. Make a visual inspection of the ANCD.
   b. Check the battery.
   c. Check the fill port/crypto ignition key (CIK) port.
   d. Record entries on DA Form 2404.

Performance Measures	GO	NO GO
1. Transferred COMSEC data and SOI information from ANCD to ANCD.	——	——
2. Loaded radio from ANCD using Mode 2 fill.	——	——
3. Obtained SOI information from ANCD.	——	——
4. Performed PMCS on ANCD.	——	——

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Evaluation Guidance: Score the soldier GO if all steps are passed. Score the soldier NO-GO if any step is failed. If the soldier fails any step, show what was done wrong and how to do it correctly. Have the soldier practice until the task can be performed correctly.

References
    Required   **Related**
    DA FORM 2404
    TB 11-5820-890-12
    TM 11-5820-890-10-8

Subject Area 17: FBCB2

PREPARE/SEND COMBAT MESSAGES USING FBCB2 VERSION 3.4
171-147-0001

Conditions: Given a vehicle with an operational AN/UYK-128 Force XXI Battle Command Brigade and Below (FBCB2) system with software version 3.4 loaded, SINCGARS, GPS, and EPLRS (if equipped), and tactical situation requiring you to prepare and send combat messages. Default Message Addressing settings have already been set.

Standards: As a minimum, you must prepare and send one of each of the Combat Messages (SALT, MEDEVAC, NBC 1, FIRE MISSION, CHECK FIRE ALL, and SITREP) using FBCB2.

Performance Steps

1. Select the Combat Msgs button from the Function bar or the F3 button on the keyboard. The system will display the Combat Messages dialog box.

NOTE: Combat Messages are designed to quickly create and send mission essential messages during combat operations. Combat Messages are easier and require fewer steps than Long Form Messages. Use the Touch screen or embedded pointing device to make the entries. Combat Messages do not require keystrokes to make the entries. Combat Messages with programmed transmission settings provide the capability to build and send a message within 10 seconds. The Combat Messages function has six tabs which include: SALT = Size, Activity, Location, and Time; MEDEVAC = Medical Evacuation; NBC1 = Nuclear, Biological, Chemical; FIRE MISSION; CHECK FIRE ALL; SITREP = Situations Report. The system defaults to the SALT tab or the last tab selected when using Combat Messages.

2. Prepare and send a SALT message.

NOTE: Subordinate units use the SALT message to provide combat intelligence information on enemy units to higher echelons. The user can initiate a call-for-fire message from within this template. The SALT message automatically generates and broadcasts enemy georeference icons to friendly platforms throughout the Brigade. The user can submit an abbreviated Call for Fire Message using the information entered in the SALT Message. The dual message capability saves the user time and eliminates repetitive data input.

    a. Select the SALT tab. The system displays the combat messages SALT template.
    b. Select the equipment pull-down arrow. The system will display the equipment options list.

NOTE: If there is more than one different type of equipment, put the most dangerous target in the first equipment text box.

    c. Select an option from the list. The system displays the selection in the equipment combo box.
    d. Select the + or - button to the right of the Equipment pull-down arrow. Select the + button to increase the number or the - button to decrease the number.

NOTE: There are two additional Equipment Combo boxes if there is more than one type of equipment that is observed.

    e. Select the activity pull-down arrow. The system will display the activity options list.
    f. Select an option from the list. The system displays the selection in the activity combo box.
    g. Select the Map button. The Combat Messages dialog box will disappear and the mouse cursor will be replaced with the cross hair.
    h. Select a location on the map where the target is located. The Combat Messages dialog box will reappear with the location in the location text box or select LRF if the user's platform has a Laser Range Finder and Lase the target. The location will appear in the Location text box.
    i. Select the NOW button or the DTG button to update the Date Time Group.

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Performance Steps

NOTE: The Date Time Group auto-fills when the user opens a message but does not update automatically. Selecting the NOW button enters the current DTG. Selecting the DTG button makes the user manually enter the DTG.

      j. Select the Speed pull-down arrow. The system will display the Speed options list.

NOTE: If you picked stationary for the Activity field, then you would select None for speed.

      k. Make a selection from the list. The system will display the selection in the Speed text box.
      l. Select the Course pull-down arrow. The system will display the Course option list.
      m. Select the direction that the equipment is moving or oriented in. The system will display the selection in the Course text box.
      n. Select the CFF Msgs Check box. The system will display a check mark in the box, which will give access to the Method of Engagement window.

NOTE: This function enables a request for fire support when sending a SALT message.

      o. Select the Method of Engagement combo box down arrow button. The system will display the Fire Request Type options list.
      p. Select an option from the list. The system displays the selection in the Method of Engagement text box.
      q. Select the Save button to save the message. The system will save the message and display Message saved to file Spot with the DTG after it.
      r. Select the Send button to send the message. The system will transmit the message and display "Last SALT message sent at DTG."
      s. Select the Close button to close the Combat Messages dialog box. The system will close the combat messages dialog box.

  3. Prepare and send a fire mission message.
      a. Select the Combat Msgs button on the Function Bar or the F3 button on the keyboard.
      b. Select the Fire Mission tab. The system displays the Fire Mission tab group.

NOTE: The Fire Mission template is used to request indirect fire support from supporting fire support units. The Fire Mission Tab group consists of: Summary, CFF, Subsequent Adjust, Check Fire, On Call Fire Cmd, and EOM tabs. The Summary and CFF tabs are enabled at all times. The Subsequent Adjust, Check Fire, On Call Fire Command, and End of Mission tabs are grayed out. These tabs only become active when a Fire Mission is approved by the Advanced Field Artillery Tactical Data System (AFATDS).

      c. Select the CFF tab to access the Call For Fire message template.
      d. Select the Type of Mission pull-down arrow. Select an option from the list. The system will display the Type of Mission in the Type of Mission text box.
      e. Select the equipment pull-down arrow. The system will display the equipment options list.
      f. Select an option from the list. The system displays the selection in the Equipment text box.
      g. Enter the quantity by selecting the + or - button for the amount of equipment that the user observes or select the text box and enter the amount with the keyboard. The system will display the amount in the text box.
      h. Select the Map button. The Combat Messages dialog box will disappear and the mouse cursor will be replaced with the cross hair.
      i. Select the location on the map where the target is observed. The Combat Messages dialog box reappears and displays the location in the Target Location text box.
      j. Select the Fill LRF button. The system will input the location provided by the laser range finder (LRF).

NOTE: The LRF button only works with vehicles equipped with a Laser Range Finder.

      k. Select the Protection Level pull-down arrow. The system will display the Protection Level options list. Select an option from the list. The system displays the selection in the Protection Level text box.

Performance Steps

NOTE: The Protection Level combo box is grayed out and only becomes active when Dismounted Personnel is selected in the Equipment combo box.

    l. Select the Method of Control pull-down arrow. The system will display the Method of Control options list. Select an option from the list. The system displays the selection in the Method of Control text box.

NOTE: The Timed Time On Target (Zulu) field only becomes active if the Timed Time on Target is selected in the Method Of Control field.

    m. Select the Save button if you desire to save the message. The system will save the message.
    n. Select the Send button if you desire to send the message. The system will transmit the message.
    o. Select the Summary tab, to display the Summary tab group.

NOTE: The Summary tab displays a list of all fire missions received along with their current status. You can access additional fire support messages from the Summary tab group after a Call For Fire message has been sent and a Message to Observer (read only) message has been received.

    p. Select the Close button. The system will return to the Ops screen.

  4. Prepare and send a medical evacuation (MEDEVAC) request.

NOTE: Use the MEDEVAC request message to request ground or aircraft support to evacuate friendly and/or enemy casualties. The MEDAVAC tab group is accessed from Combat Msgs button on the Function Bar or the F3 button on the keyboard.

    a. Select the Combat Msgs button on the Function Bar or the F3 button on the keyboard.
    b. Select the MEDEVAC tab. The system will display the MEDEVAC template.
    c. Select the Map button. The Combat Messages dialog box will disappear and the mouse cursor will be replaced with a cross hair.
    d. Select a location on the map and the grid location will appear in the Pick Up Location text box.
    e. Or Select the LRF button. The system will input the location provided by the Laser Range Finder.

NOTE: This function only works if your vehicle is equipped with the Laser Range finder.

    f. Select the Amb Patients + or - buttons to input the amount of Amb patients or place the cursor in the Amb Patients text box and enter the amount with the keyboard.

NOTE: Holding down on the + or - button will scroll through the numbers at a fast pace.

    g. Select the Ltr Patients + or - buttons to input the amount of Litter patients or place the cursor in the Litter Patients text box and enter the amount with the keyboard.
    h. Select the Marking pull-down arrow. The system will display the Marking options list.
    i. Select an option from the list. The system displays the selection in the Marking text box.
    j. Select the Color pull-down arrow. The system will display the Color options list.
    k. Select an option from the list. The system displays the selection in the Color text box.
    l. Select the Pickup Zone Hot check box. The system will display a check mark in the Pickup Zone Hot text box.

NOTE: If the area is not Hot, then do not check this box. Hot means that the area has hostiles in the vicinity.

    m. Select the MEDAVAC Priority pull-down arrow. The system will display the MEDAVAC Priority options list.
    n. Select and option from the list. The system will display the selection in the MEDEVAC Priority text box.
    o. Select the NBC Contamination pull-down arrow if there is any type of contamination in the area. The system will display the NBC Contamination option list.

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Performance Steps

      p. Make a selection from the option list. The selection will display in the NBC Contamination Type text box.

      q. Select the Security pull-down arrow. The system will display the Security option list.

      r. Make a selection from the option list. The selection will display in the Security text box.

      s. Select the Save button if you desire to save the message. The system will save the message and display the Message saved to file spot DTG.

      t. Select the Send button if you desire to send the message. The system will display the Last MEDEVAC message sent with the DTG.

      u. Select the Close button when you desire to close the message box. The system will close the Combat Messages dialog box.

  5. Prepare and send a nuclear, biological, chemical (NBC 1) message.

NOTE: NBC 1 is accessed from Combat Msgs button on the Function Bar or the F3 button on the keyboard. The Nuclear, Biological, Chemical (NBC 1) message allows the user to transmit observer's basic data on a single NBC attack. The message will automatically create a georeference location on the SA Display.

      a. Select the Combat Msgs. button on the Function Bar or the F3 button on the keyboard.

      b. Select the NBC 1 tab. The system will display the NBC 1 template.

      c. Select the NBC Event Type pull-down arrow. The system will display the NBC Event Type options list.

      d. Select an option from the list. The system displays the selection in NBC Event Type text box.

      e. Select the Delivery Means pull-down arrow. The system will display the Delivery Means option list.

      f. Make a selection from the option list. The system will display the selection in the text box.

      g. Select the first Map button to the right of the Attack Location 1 text box. The Combat Messages dialog box will disappear and the cursor will be replaced with a cross hair.

NOTE: There are two Attack Location fields. Do the same for the second Attack Location.

      h. Select a location on the map and the system will display the location in the Attack Location 1 text box.

      i. Or select the LRF button and lase the location. The location will appear in the Attack Location 1 text box.

      j. Enter the Attack Time 1(Zulu) data by selecting the NOW button Or, Selecting the plus + or - buttons to increase or decrease the Day, Hour and Minute.

      k. Enter the Attack Time 2(Zulu) data by selecting the NOW button Or, Selecting the plus + or - buttons to increase or decrease the Day, Hour and Minute.

      l. Select the Save button if you desire to save the message.

      m. Select the Send button if you desire to send the message. The system will transmit the message.

      n. Select the Close button. The system will close the Combat Messages dialog box.

  6. Prepare and send a Check Fire message.

      a. Select the Combat Msgs. button on the Function Bar or the F3 button on the keyboard.

      b. Select the Check Fire All tab. The system will display the Check Fire All template.

NOTES:

(1) The Check Fire All tab allows the user to send an immediate Check Fire command for all active fire missions in the Summary tab group.

(2) To cancel a Check Fire All, just select the Cancel Check Fire All radio button.

(3) The Cancel Check Fire All radio button will be grayed out until the Check Fire All radio button is selected.

Performance Steps

        c. Select the Check Fire All radio button. The system will Highlight the Check Fire All radio button.

        d. Select the Send button if you desire to send the message. The system will transmit the message.

        e. Select the Close button. The system will close the Combat Messages dialog box.

    7. Prepare and send a SITREP Message.

NOTE: SITREP is a dual-purpose message that generates a situation report message and displays the status of subordinate units. The SITREP displays a table format for ease of entry and a correlated view of received reports. The SITREP table graphically depicts the status of five critical categories that the commander uses to determine the units' status. The SITREP message displays subordinate unit status or provides a detail view of individual platform status two levels down.

        a. Select the Combat Msgs button on the Function Bar or the F3 button on the keyboard.

        b. Select the SITREP tab. The system will display the SITREP template.

NOTE: The combat messages SITREP template displays a color-coded graphical representation of your own situation and the situation of those units/platforms subordinate to you. The color key is as follows: black (not mission capable), red (marginally mission capable with major deficiencies), amber (mission capable with only minor deficiencies), green (full strength), and White (no report received). The SELF-tab displays a color-coded graphical representation of your own situation. The Unit tab displays a color-coded graphical representation of your subordinate platforms situation.

        c. Select the Self-tab if not already selected to EDIT your status. The system will display seven headings and what they represent under each: Self, which is your platform name, Fuel which is the status of your fuel, Mun which is the status of you ammunition, Pers which is status of your personnel, Eqmt which is status of your Equipment, Unit which is status of your unit, and DTG which is the date time group.

        d. Select your Unit/role name which is the name that is under the heading Self. The system will display the Situation Report Details dialog box.

NOTE: The Unit/Role is a dual-purpose button that identifies the Unit/Role associated with the report and displays the Situation Report details. There are three push buttons in this dialog box which are: Edit which displays the SITREP long form message template, the Close button which closes the dialog box, and the Help button which gives help on the Situation Report Details dialog box.

        e. Select Close. The system will close the dialog box and display the Ops (Map) Screen.

        f. Select the Combat Msgs button on the Function Bar or the F3 button on the keyboard. The system will display the Combat Messages dialog box.

        g. Select the SITREP Tab. The system will display the SITREP tab group.

        h. Select the White box with a W in it under the heading Fuel. The box will turn Black with a B in it.

NOTE: Each time you click on that box it will change color. Select the color to indicate what the status is for that category. Each Category is done the same way.

        i. Select the Unit Tab. The system will display the Unit Situation.

NOTE: If you are the Platoon Sergeant or Platoon Leader you will have your subordinate platform's status under your own.

        j. Select the Save button. The system will display Sit Rep saved at and the DTG.

        k. Select the Send button if you desire to send the message. The system will transmit the message.

        l. Select the Close button. The system will close the Combat Messages dialog box and return to the Ops screen.

Performance Measures	**GO**	**NO GO**
1. Select the Combat Msgs button.	——	——
2. Prepare and send a SALT message.	——	——
3. Prepare and send a fire mission message.	——	——
4. Prepare and send a MEDEVAC message.	——	——
5. Prepare and send an NBC 1 message.	——	——
6. Prepare and send a Check Fire message.	——	——
7. Prepare and send a SITREP message.	——	——

Evaluation Guidance: Score the Soldier GO if all steps are passed. Score the Soldier NO-GO if any step is failed. If the Soldier scores NO-GO, show him what was done wrong and how to do it correctly.

PERFORM STARTUP PROCEDURES FOR FORCE XXI BATTLE COMMAND BRIGADE AND BELOW (FBCB2) VERSION 3.4

171-147-0002

Conditions: Given a vehicle with an operational Force XXI Battle Command Brigade and Below (FBCB2) system with software version 3.4 loaded, SINCGARS, PLGR, EPLRS (if equipped), and TM 11-7010-326-10.

Standards: Start up the FBCB2 system and its components for operation in accordance with the TM. As a minimum, you must: Start up the PLGR, EPLRS (if equipped), INC, SINCGARS, and Applique+V4 computer; and perform Session Manager functions.

Performance Steps

CAUTION: Apply power to the FBCB2 system in the correct sequence to avoid damage to the equipment. Ensure that the Appliqué+ V4 computer and all interface equipment are off when starting the vehicle.

NOTES:

(1) It is essential that the equipment operator apply power in the correct sequence. By not following an orderly progression, the Appliqué+ V4 computer may not see all the equipment. This will cause a bad start-up and the TIM system will not work correctly.

(2) PLGR display results shown in Table 2-7 in the TM are examples only. Actual results will vary with date, time, and location.

   1. Perform PLGR start-up procedures.

NOTE: PLGR display results are examples only. Actual representation/values will differ.

     a. Press the ON BRT [1] button for two (2) seconds. The PLGR powers up and runs a diagnostics test.

NOTE: It may take as long as 15 minutes for the PLGR to acquire satellites. Ensure the PLGR has a good Line-Of-Sight (LOS) to the sky.

     b. Press the down arrow [5] button. The display will show the Zulu time, Date, TFOM, Speed too slow.
     c. Press the down arrow [5] button three more times or until FOM is displayed.

   2. Perform EPLRS start-up procedures.

NOTE: If the vehicle is not equipped with EPLRS go to step 3.

     a. Turn EPLRS POWER switch on the Receiver -Transmitter, Radio to ON + AUDIBLE.

NOTE: If the green Power indicator is illuminated, proceed to self-test. If the red Alarm indicator is illuminated, follow Unit SOP to load EPLRS COMSEC before proceeding to self-test.

     b. EPLRS performs self-test. On the URO, after 5 seconds, T and URO-OK are displayed in the MODE and MSG descriptor fields.
     c. Press repeatedly the User Readout (URO) RCVD button, until the EAST/BRG and NORTH/RNG fields of the URO display either: If under MSG the following is displayed: @C or @S. This is a good fill. If under MSG the following is displayed: @1, @3, or @4. This indicates improper fill. Reload COMSEC per Unit SOP. If under MSG the following is displayed: @0. This indicates no fill. Reload COMSEC per Unit SOP.
     d. EPLRS and URO, observe whether the OUT-OF-NET red indicator light(s) are lit. If no red light(s) are lit, the EPLRS is correctly initialized. If a steady (or blinking) red light is displayed , refer to the EPLRS TM before proceeding.

Performance Steps

NOTE: It may take several minutes for EPLRS to enter the Net.

> e. Verify that your URO radio Set ID (RSID) is the same as your FBCB2 setting (displayed under Admin/Platform Settings/Misc tab). If correct RSID, proceed with SINCGARS ASIP start-up. If wrong RSID, zeroize the EPLRS and wait 30 seconds. Turn on the EPLRS and enter "_ _" in MSG field. Enter in your FBCB2 RSID and guard channel. Press SEND key. Confirm changes were accepted. Reload COMSEC, then go back to step b.

3. Perform INC start-up procedures.

NOTE: At User read out (URO), after 5 seconds MODE will display T and URO-OK in mode and Msg Descriptor field.

> a. At the Vehicular Amplifier Adaptor (VAA), set the CB1 Power toggle switch to ON (up) position. The DS1 power light is illuminated.

4. Perform SINCGARS ASIP start-up procedures.
> a. At the Receiver/Transmitter (R/T), set the function switch to SQ ON (i.e., Squelch On) and verify settings. WAIT first appears, then the following is displayed: PWR - (LO, M, HI), MODE - (FH), CHAN- (1) per SOP, CMSC - (CT)
> b. Verify that COMSEC Crypto key is loaded. If COMSEC Crypto is loaded, proceed. If COMSEC Crypto is not loaded, follow proper Unit SOP to load Crypto before proceeding. (Refer to SINCGARS TM if necessary)

NOTE: If the COMSEC Crypto key is not loaded, FILL1 will be displayed and a steady tone will be heard over the radio. To enable FBCB2 to communicate, your SINCGARS ASIP must be set to the correct Net ID displayed under the Admin F6 / Platform settings/Misc tab.

> c. Verify that Net ID Frequency displayed is the same as the FBCB2 setting. Press FREQ button on the Receiver/Transmitter (R/T) keypad to display SINCGARS Net ID frequency. If correct frequency is displayed, go to next step d. If wrong frequency is displayed, set the FBCB2 Data Net Frequency into radio before proceeding. (Refer to SINCGARS TM if necessary.)
> d. Verify PCKT mode. Press the 4 button on the R/T keypad, then press the 7 button repeatedly until PCKT is displayed. PCKT Data Mode is set and verified when PCKT is displayed.

5. Perform Computer start-up/Log in on the AN/UYK-128(V).

NOTES:

(1) This step describes the start-up/Log in procedures for the AN/UYK-128(V) computer. The PLGR, EPLRS (if equipped) INC, and SINCGARS ASIP (if equipped) must be fully operational before powering-up the AN/UYK-128(V) computer.

(2) Ensure KU is connected to the AN/UYK-128(V) computer prior to start-up/log in.

> a. Ensure the vehicle primary power is on. Set circuit breaker / switch on PU to on. The circuit breaker/ switch is pointed toward the centerline of the PU when set to the ON position.
> b. Press the Display Unit (DU) PWR button for up to (4) seconds and release after the PWR green Light Emitting Diode (LED) illuminates. PWR, D ISP, and CPU green light LEDs illuminate. Start-up continues automatically until DU displays the Session Manager Screen with Task bar on the bottom.
> c. Select Cancel Time out button on the Ops Auto-Login dialog box. The Ops Auto-Login dialog box closes after the Cancel Time out button is selected. The Comm initialization dialog box is displayed on the Session Manager screen and continuously updates during Comm start-up. The Router initialization dialog box is displayed and will not update until Ops button is selected.

NOTE: The Count Down Timer has a 20 second time limit. If the timer is allowed to go to zero, the FBCB2 process to go online will begin automatically.

Performance Steps

      d. Check the color of both GPS and Router dialog boxes (when Comm and GPS cycle is complete) to determine the operational status. Green color-coding indicates that the equipment is fully mission capable. Yellow color-coding indicates degraded operation. Red color-coding in the GPS and/ or Router dialog box indicates that initialization has failed and that the GPS and/or Router is not responding.

NOTE: Red or Yellow color-coding indicates a problem to be addressed before proceeding.

      e. Select the Done button on both the GPS and Router dialog boxes when initialization is complete. The GPS and Router dialog boxes close.

NOTE: Always verify that the correct Unit/Role ID is displayed before proceeding with Login. Otherwise, the user will not be able to receive his incoming FBCB2 messages.

      f. Check the Unit/Role in the Function Bar located in the lower right hand corner of the Session Manager screen. If correct Unit/Role is displayed, proceed to next step. If the wrong Unit/Role is displayed, perform configure role setup (refer to the user's manual) before proceeding.

      g. Select the Start button. The Start option menu is displayed.

      h. Select the Login option. The Ops Login dialog box is displayed.

      i. Type in the password. Asterisks are displayed as the password is typed followed by a blinking cursor in the Password text box.

      j. Select the Continue button. The Ops Login dialog box closes.

NOTE: Perform clear logs and queues as per SOP. Perform touchscreen calibration if required.

      k. Select the Ops button in the Session Manager Function Bar. The system goes online. The Ops Main Screen with the FBCB2 Display Process dialog box is displayed.

  6. Perform Touchscreen Calibration on the AN/UYK-128(V) computer.

NOTE: The Calibrate Touchscreen option is used to realign Display Unit touchscreen sensors with the FBCB2 software. This procedure is performed after the AN/UYK-128(V) start-up/Login is completed.

      a. Select the Start button. The Start option menu is displayed.

      b. Select the Settings option. The Settings option menu is displayed.

      c. Select the Touchscreen option. The calibration touchscreen is displayed with a target bull's-eye at the lower left hand corner.

      d. Select the center of the bull's-eye with the stylus. The calibration touchscreen is displayed with a target bull's-eye at the upper right hand corner.

      e. Select the center of the target bull's-eye with the stylus. The calibration touchscreen is displayed with a target bull's-eye at the lower right hand corner.

      f. Select the center of the target bull's-eye with the stylus. The calibration screen closes. The osc_touch_calibrate.ksh dialog box is displayed.

      g. Type the letter "y." The letter y is displayed at the ENTER prompt.

      h. Select an enter button or key. The osc_touch_calibrate.ksh dialog box closes.

  7. Perform Clear Logs and Queues on the AN/UYK-128(V) Computer.

NOTE: The Processor Unit will operate more efficiently (less chance of a software slowdown or need to reboot) if logs and queues are cleared regularly. This procedure is performed after the AN/UYK-128(V) start-up/Login is completed. Performed while off line but after login.

      a. Select the Start button. The Start button option is displayed.

      b. Select the FBCB2 option. The FBCB2 option menu is displayed.

      c. Select the Clear Logs and Queues option. The Clear Logs and Queues dialog box is displayed.

      d. Under Select Items to Clear, select option(s) by selecting button next to corresponding option. Option(s) button selected is shown with check mark.

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Performance Steps

      e. Select the Apply button to clear selected option(s). Clear Logs and Queues Status dialog box opens.

      f. Select Close button when message COMPLETED CLEAR LOGS AND QUEUES OPERATION is displayed. The Clear Logs and Queues Status dialog box closes.

      g. Select Close button in Clear Logs and Queues dialog box. Clear Logs and Queues dialog box closes.

Performance Measures	**GO**	**NO GO**
1. Perform PLGR start-up procedures.	——	——
2. Perform EPLRS start-up procedures.	——	——
3. Perform INC Start-up procedures.	——	——
4. Perform SINCGARS ASIP start-up procedures.	——	——
5. Perform Computer Start-up/Log in on the AN/UYK-128(V).	——	——
6. Perform Touchscreen Calibration on the AN/UYK-128(V) computer.	——	——
7. Perform Clear Logs and Queues on the AN/UYK-128(V) Computer.	——	——

Evaluation Guidance: Score the Soldier GO if all steps are passed. Score the Soldier NO-GO if any step is failed. If the Soldier scores NO-GO, show him what was done wrong and how to do it correctly.

APPLY MESSAGE ADDRESSING FEATURES IN FBCB2 VERSION 3.4
171-147-0005

Conditions: Given a vehicle with an operational Force XXI Battle Command Brigade and Below (FBCB2) system with all of it's components with software version 3.4 loaded and a completed message.

Standards: As a minimum: You must apply the Message Addressing settings so that the message can be transmitted to other platforms.

Performance Steps

NOTE: Message Addressing allow the operator to set the default message options for each message subtype. These default message options should be standardized and included in the unit's TACSOP. This will help speed the message sending process. If the settings and addresses for each message subtype are set ahead of time, that is one less thing that the operator to do prior to sending the message. To take advantage of this capability, the default settings should be set for each type of message that the operator is going to use, especially for Combat Messages. Even if the Default Message addressing has been set for all the message types, the message address can be changes from within the Message itself by selecting the Message Addressing button. Operators should not change the default settings unless the unit TACSOP directs it.

1. Set the Default Message Addressing settings.
   a. Select the Messages button from the Function bar or the F4 button on the keyboard. The Messages dialog box will display.
   b. Select the Create tab.

NOTE: The Create tab group contains the following options: (1) Message Type Radio buttons, which include Orders/Requests, Fires/Alerts, Reports, and Overlays. (2) Message Sub Type panel, which shows a list of the message subtypes. (3) Set Default Message Addressing button for setting the default message options for message sub types. (4) Edit Address Groups button for creating and editing their own address groups. (5) Execute, Close, and Help buttons

   c. Select a Message Type Radio button (Orders/Requests, Fires/Alerts, Reports, Overlays). The radio button will highlight for the message type that was selected and a list of message subtypes will appear in a panel to the right.
   d. Select a message subtype from the list by left clicking on the subtype. The subtype will highlight.

NOTE: If there is a scroll bar on the right of the panel, then there are more subtypes below.

   e. Select the Default Message Addressing button. The Message Addressing dialog box will display.

NOTE: This Message Addressing dialog box contains two tabs: The Message Settings tab and the Addresses tab.

   f. Select the Message Settings tab.

Performance Steps

NOTES:

(1) This tab contains four areas: (1) Precedence for Emergency Cmd, Flash, Immediate, Priority, and Routine. (2) Acknowledge- Check boxes for "MA" (Machine Acknowledge), "OA" (Operator Acknowledge) and "OR" (Operator Response). "MA," "OA," and "OR" may be grayed out depending on the message subtype that was selected. (3) Security Level- Sets the Security level of an outgoing message. (Grayed out. Only available when FBCB2 System is in the Classified mode). (4) Perishability DTG - Indicates when the message is no longer valid and is not a function of the "Default Message Addressing settings.

(2) The "Precedence" radio button allows the user to set the message precedence for the selected message subtype. The system places the selected precedence in the message header of the outgoing messages. This directs the receiving FBCB2 System to place the message into the appropriate incoming message queue. The message precedence also ties to the priority the INC uses to forward the message for delivery.

      g. Select Precedence radio button. The radio button will highlight.
      h. Select an Acknowledge check box. The checkmark will appear in the box.

NOTES:

(1) Use the Acknowledge function if the user wants the receiving station to confirm receipt of the message, or if you want the operator to respond to the message. The Acknowledge function also activates the incoming message queue of the receiving station.

(2) "MA" - Machine Acknowledge - The receiving system transmits an automatic response to the sending system when the message is received. "OA" - Operator Acknowledge - The receiving system transmits an automatic response to the sending system when the operator opens the message. There is an audible alert associated with this type of response as long as it is not muted. "OR" - Operator response - The operator is required to indicate compliance and give a short written reply. There is an audible alert associated with this type of response.

      i. Select the Security level radio button associated with the message. The radio button will highlight. (If in Secret mode).

NOTE: The "Security Level" allows the user to select the classification of an outgoing message. This only works on a system that is configured as Secret. An unclassified user cannot send a secret message.

      j. Select the Addresses tab. The Addresses tab options will display.

NOTE: This tab contains the following options: (Add) - adds addresses, (Delete) - deletes selected addresses, (Delete All) - deletes all selected addresses, (Search) - Executes a search for entered text, (Keypad) - Access a victual keyboard, (OK) - Accepts changes and closes the dialog box, (Apply) - Applies changes and keeps the dialog box open, (Restore Defaults) - Restores message addressing settings back to original defaults, (Close) - Closes the dialog box without saving changes, (Help) - Accesses context sensitive Help.

      k. Select the Select From: pull-down arrow. The system will display the Select From menu.

NOTE: This menu contains three options: (1) Master Address Book- contains the addresses of all units in the current UTO, the user cannot add or delete addresses from the Master address Book, (2) User Address Groups - Groups created by the user, Battalion Address Book - Contains the addresses within the units platform.

      l. Select the Master Address Book. The Master Address Book will Highlight and display in the Select From: text box and all the addresses in the current UTO will appear in the pane below.

Performance Steps

NOTE: The user can select an address by selecting it from the list or by typing the name in the search text box.

     m. Select a unit from the pane by left clicking on the + sign to expand the major unit and left clicking on the unit, or type the name in the Search text box and select the Search button. The name will highlight in the Select From: pane.

     n. Select the Add button. The name will appear in the Address pane on the right.

NOTE: Do the same for each address that needs to be added.

     o. Select the Add Addresses pull-down arrow under the Addresses tab name. The system will display Action Addresses and Info Addresses.

NOTE: Action addresses are addresses that need to respond in some way. Info Addresses are addresses that are getting the message as information and do not include an acknowledgement. The default is Action Addresses.

     p. Select either Action or Info addresses. The option will highlight and appear in the Add Addresses text box.

NOTE: An address cannot exist in Action Addresses and Information Addresses simultaneously.

     q. Select the Apply button. The system will apply the entries and keep the dialog box open.

     r. Select the close button. The system will return to the Messages dialog box.

  2. Create Address Groups.

NOTE: Each platform has several predefined user address groups. The platform's role determines which groups exist, and the addresses in each group. The address groups consist of groups that the platform belongs to by doctrine, groups that the platform's echelon owns, and groups that that the platform's parent organization owns. This does not prevent the operator from generating additional groups to fit specific needs. The operator has the ability to add or delete an address, or delete an entire group.

     a. Select the Create tab.

     b. Select the Edit Address Groups button. The Edit Address Groups dialog box displays.

NOTE: The following functions are: (New Group) - Adds a new group to the right hand window; (Rename Group) - Renames the selected group in the right hand window to the new name; (Delete Group) - Deletes the selected group from the right hand window; (Add Address) - Adds the address from the left hand window to the selected group in the right hand window; (Delete Address) - Deletes the selected address from the right hand window; (Search) - Executes a search for entered text. Data can be entered using either the virtual keyboard or the computer keyboard. (Name Text Box) - Allows the user to manually type text. The left window displays a listing of all addresses. The right window displays the folder list. If there are no user address groups, there are no folders listed.

     c. Select the Name text box by placing the cursor in the text box and left clicking and typing the name that the user wants to call the folder, or Select the Virtual Keyboard and type the name using the mouse pointer and select OK. The name will appear in the text box and the New Group button will become active.

     d. Select the New Group button. The folder will be created in the window on the right side.

     e. Select the Folder that was just created by highlighting it. The Delete Group button will become active.

     f. Select the Search text box and type the name of the unit that the user wants to add to the new group, or select the Virtual Keyboard and type the name and select the OK button. The Name will highlight on the left window and the Add Addresses button will become active.

NOTE: If the Add Addresses button does not become active, click on another name then back on the correct name in the left window and the button should become active.

Performance Steps

       g. Select the Add Address button. The address will be added to the Folder on the right side window.

NOTE: Continue these same steps until all of the addresses are added.

       h. Select the Folder that was created with all the addresses in it.

NOTE: If there is a plus sign next to the folder, click on it to open the folder to view all of the addresses within the folder.

       i. Select a name that is in the folder by highlighting it. The Delete Address button becomes active.

       j. Select the Delete Address button. The address is deleted from the window on the right.

NOTE: Continue this until all the addresses that the user wants to delete are deleted. If the user wants to delete a whole group, it is done the same way. Highlight the folder name and the Delete Group button becomes active. The user just selects the Delete Group button to delete the whole group.

       k. Select the OK button. The system will save and exit the Edit Address Groups dialog box and return to the Messages dialog box.

       l. Select the Close button. The system will return to the Ops screen.

Performance Measures	**GO**	**NO GO**
1. Set the Default Message Addressing settings.	——	——
2. Create Address Groups.	——	——

Evaluation Guidance: Score the Soldier GO if all steps are passed. Score the Soldier NO-GO if any step is failed. If the Soldier scores NO-GO, show him what was done wrong and how to do it correctly.

PERFORM MESSAGE MANAGEMENT USING FBCB2 VERSION 3.4
171-147-0006

Conditions: Given a vehicle with an operational Force XXI Battle Command Brigade and Below (FBCB2) system with software version 3.4 loaded. To better organize FBCB2 information you have received, you need to manage your messages.

Standards: As a minimum: you must rename, delete files and folders, and move files from one folder to another by using the Manage tab on the Messages function.

Performance Steps

1. Select the Messages button from the Function Bar or the F4 button on the keyboard.

2. Select the Manage Tab. The system will display the Manage fields and push buttons.

NOTE: The Manage tab allows the user to create, delete, move, and rename folders and delete messages. There are eight push buttons consisting of: (New Folder), which creates a folder; (Delete), which deletes folders and files; (Rename), which rename folders and files; (Move), which moves files from one folder to another; (Execute), which activates a message; (Grayed Out); (Close), which closes the Messages dialog box; and (Help), which gives help on the Manage Tab; and a Virtual Keyboard.

   a. Ensure that all of the message type boxes are checked under the Msg Type so that all the folders and files will be displayed in the folder window on the right.
   b. Select the + sign next to a folder that the user wants to manage or double-click the folder name, which will also open the folder. The folder will open and display all the files within that folder.

3. Rename a file.
   a. Select one of the files listed under the folder that needs to be renamed. The file will be highlighted.
   b. Select the Name: text box at the bottom of the Messages dialog box. The cursor will be blinking inside the text box
   c. Type the new name. The name will display in the text box.
   d. Select the Rename button. The file name will be changed and displayed under the folder in Alphabetical / Numerical order by file names.

NOTE: If the user typed a name that is not valid, a Rename Error dialog box saying, "This name is not valid, please re-enter the new message name!" with an OK button will appear.

4. Rename a folder.
   a. Select the Folder name from the folders window. The folder name will be highlighted.
   b. Select the Name: text box at the bottom of the Messages dialog box. The cursor will be blinking inside the text box.
   c. Type the new name for the folder. The name will display in the text box.
   d. Select the Rename button. The Folder name will change and be displayed in Alphabetical/ Numerical order by Folders.

5. Delete a file or folder.

NOTE: The steps for deleting a file or folder are the same.

   a. Select a file from one of the folders. The file will be highlighted.
   b. Select the Delete button. The Delete File dialog box will be displayed saying "You are about to delete message "name of File or Folder" and its associations, continue with this action?" with a OK and Cancel button.
   c. Select the OK button. The file or Folder that the user selected will be deleted.

Performance Steps

    6. Move a file from one folder to another folder.
        a. Select a file from one folder. The file will be highlighted.
        b. Select the Move button. The Choose Destination Folder dialog box will display with all the folders that have been saved.
        c. Select the folder that the user wants to move the file to. The Folder will be highlighted.
        d. Select the OK button. The file will be displayed in the new folder.
        e. Select the Close button. The system will return to the Ops screen.

Performance Measures	**GO**	**NO GO**
1. Select the Messages button from the Function Bar or the F4 button on the keyboard.	——	——
2. Select the Manage Tab. The system will display the Manage fields and push buttons.	——	——
3. Rename a file.	——	——
4. Rename a folder.	——	——
5. Delete a file or folder.	——	——
6. Move a file from one folder to another folder.	——	——

Evaluation Guidance: Score the Soldier GO if all steps are passed. Score the Soldier NO-GO if any step is failed. If the Soldier scores NO-GO, show him what was done wrong and how to do it correctly.

PREPARE/SEND OVERLAYS USING FBCB2 VERSION 3.4
171-147-0007

Conditions: Given a vehicle with an operational Force XXI Battle Command Brigade and Below (FBCB2) system with software version 3.4 loaded, an operation order (OPORD), and the commander's guidance. Default Message Addressing settings have been set.

Standards: As a minimum, you must: create an overlay or select an overlay, change or edit an overlay, save the overlay, and send an overlay.

Performance Steps

NOTE: Operational plans, operational concepts, units and weapon symbols, objectives, boundaries, routes of march, and other control measures can be created in a digital overlay to provide command and control. Digital Overlays can be created faster with greater degree of accuracy and can be edited and quickly disseminated to other members in the BDE. Some overlays automatically post to the map SA area and generate an audible alert when they are received which is designed to prompt the operator to look at their display for life threatening obstacles. The SA display on the FBCB2 system can be tailored to show up to four distinct layers of information. Any combination of these layers can appear on the SA display simultaneously. The Four electronic layers consist of the currently displayed overlay, previously loaded overlay, any SA elements that the system has been set to display, and the map which forms the base of the display. Layer 1 is the Map Display. Layer 2 is the SA display. Layer 3 is the Loaded Overlays. Layer 4 is the current overlay.

1. Select the Messages button from the Function Bar or the F4 button on the keyboard. The system will display the Message dialog box.
    a. Select the Create tab. The system will display the Create Tab options.
    b. Select the Overlays radio button under the Msg Type field. The Overlays radio button will highlight and show a list of available Overlay types.

NOTE: If there is a scroll bar to the right of the list, then there are more types of overlays to view.

    c. Select an Overlay type from the list by highlighting it.

NOTE: If the user doesn't set the Default Message Addressing Settings at this time, then the user can set them before the message is sent.

    d. Select the Execute button. The system will display the Overlay Toolbox dialog box.

NOTE: The system will display Three tabs: the Overlay, Object, and Group Setup tab. The Overlay tab is used to select the Overlay type, save an overlay, and reference specific information about the overlay. The Object tab is used to add and edit symbology to the map SA area. The Group Setup tab allows the operator to create a customized group of icons for specific missions; for example, Operations symbology or Fire Coordination symbology.

2. Select the Overlay tab if it is not already selected. The system will display the Overlay tab fields.

NOTE: The Overlay tab allows the user to set the basic information for the overlay. This is where the overlay type, Operations Order or Operations Plan reference, storage data, version, message size, statistics and additional comments are set for the overlay. There are eight push buttons at the bottom of the Overlay tab: Save button, which saves the overlay; Delete, which deletes the overlay; Message Addressing, which is used to set the address where the overlay will be sent; Save As, which is used to save the overlay initially; Print (unavailable); Send, which is used to send the overlay; Keep overlay displayed, which is used to keep the overlay displayed on the map when you close the Overlay toolbox; Close, which is used to close the Toolbox; and Help for help on the overlay toolbox.

    a. Select the Overlay Type pull-down arrow to display the different overlay types. The system will display the Overlay type list.

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Performance Steps

NOTE: The user may have to scroll up to view the Overlay Type pull down arrow. The Overlay type that was selected in step 4 should be displayed in the Overlay Type text box. If not, then select it now.

    b. Use the Scroll bar on the right side of the Overlay Toolbox and scroll down to the Operation field.
    c. Select the Operation Set radio button. The system will display the DTG text box, DTG button, and Identification text box.

NOTE: The Operation option button is used to enter/change the Operation DTG and Identification number.

    d. Place the cursor in the DTG text box and type the date time group in with the keyboard or select the DTG button and use the + or - keys to enter the DTG or select the NOW button for the current DTG and select the OK button. The system will display the DTG in the DTG text box.
    e. Place the cursor in the Identification Num text box and enter the Identification number (numeric 00 to 99) in the text box. The system will display the number in the Identification Num: text box.

NOTE: This number ties the overlay to an Operations Order or an Operations Plan.

    f. Scroll down and select the Recalc Size button to calculate the size in bytes and display the overlay file size in the Message Size information box.

NOTE: This function only works after you have placed symbols on the overlay. This is to inform the operator of how large the overlay size is in Bytes. See the equipment operator's manual or pocket guide for maximum overlay size that can be transmitted.

    g. Scroll down and select the Details button under the Statistics field. The system will display the Objects Details dialog box.

NOTE: There will not be data in the Object Details dialog box until the operator has placed objects on the overlay. This function is used to quickly center on an object and view it's attributes.

    h. Select the Close button to close the Objects Details dialog box. The system will go back to the Overlay Toolbox.
    i. Select the Comment Set radio button to activate the comments field. The system will display the Comment text box and make the Virtual Keyboard button become active.

NOTE: The comments field is limited to a maximum of 200 alphanumeric characters that is used to make comments about the overlay. To add comments, just left click in the text box and type the comment.

    j. Select the Save As button. The system will display the Save As dialog box.
    k. Highlight the folder that the overlay will be saved to, or create a folder with the New folder button.
    l. Type the name of the overlay in the File text box at the bottom of the Save AS dialog box.
    m. Select the OK button. The system will display an Information dialog box stating "The message was saved" with an OK button.
    n. Select the OK button. The system will return to the Overlay Toolbox.

3. Select the Object tab. The system will display the Object tab group consisting of : Group, 2525B, and UTO tabs.

NOTE: The Object tab selects an object, identifies its attributes, (friend, foe, or unknown), and adds it to an overlay. The Object tab displays all the object information and is used to add graphical objects, (create) or revise (edit) a graphical objects attributes, textual labels, or location on the current overlay.

4. Select the Group Sub tab (Default). The system will display the Group sub tab group.

Performance Steps

NOTE: The Group Sub tab displays graphic symbol files and sub-files and is used to select and add icons to the Map SA area. The Graphic symbol files are: Areas, Equipment, Equipment-Air, Fire Support, Lines, Obstacles, Points, Units, and any groups that the user created.

      a. Select the Group pull down arrow. The system will display the graphic symbol types.
      b. Select a graphic type from the list by highlighting it with the mouse pointer. The graphic type will display in the Group text box and a list of graphic sub types will display in the preview windowpane below.
      c. Select a graphic sub type from the list. The selection will highlight and the Add button will become active.
      d. Select the Add button. The system will display the Map with the Create Object function bar to the right and the cursor will become a cross hair.

NOTE: Some objects require more than one point on the map to be inserted. If more than one point is required and the user selects the OK button without selecting the required amount of points, the system will display a Warning dialog box saying " Requires at least Three points." When adding objects that require more then one point, a solid white circle will represent each point.

      e. Select a location on the map where the object will be inserted. The object will appear on the map.
      f. Select the OK button. The Overlay Toolbox will be displayed.

NOTE: Continue steps (1) through (6) for all the graphics that need to be inserted.

      g. Select the Grab button. The Overlay Toolbox dialog box will disappear and the cursor will be replaced with the pencil pointer.
      h. Place the pointer on the map to the top left of the object that the user wants to grab and left click the mouse.
      i. Move the pointer to the bottom right of the object and left click the mouse. A box will appear over the object and the Overlay Toolbox will reappear.

NOTE: The user can select more than one object by dragging the box over several objects.

      j. Select the Edit button. The system will display the Overlay Edit dialog box with three sub tabs containing: Attributes, Labels, and Location.

NOTE: This function is used to modify a graphical object's characteristics, including affiliation, status, color, mobility, size, and designation. Some of these areas will be grayed out depending on the selected object. There is a preview window to view the selected object. The two arrows pointing to the left and right are the scroll arrows to move through the selected objects that were grabbed earlier. The number on the left of the / is the object that is selected for edit and the number on the right of the / is the amount of objects that were grabbed.

   5. Select the Attributes tab. The system will display the Attributes sub tab group.

NOTE: Some functions may be grayed out depending on the object that is selected for edit.

      a. Select the Status pull down arrow. The system will display the Status menu.

NOTE: This refers to whether an object currently exists at the location (Present) or in the future could reside at the location (Planned).

      b. Select the status from the list. The selection will appear in the Status text box.
      c. Select the color pull down arrow. The system will display the colors that can be selected.
      d. Select the Affiliation pull down arrow. The system will display the Affiliation menu.

NOTE: The Affiliation field allows the user to set the affiliation that is associated with the selected object.

      e. Select an affiliation from the menu. The affiliation will display in the Affiliation text box.

Performance Steps
      f. Select the Mobility pull down arrow. The system will display the Mobility menu.

NOTE: The Mobility field allows the user to set what type of mobility (if any) the object is.

      g. Select the Size pull down arrow. The system will display the Size menu.

NOTE: The Size field allows the user to set the size of the object.

      h. Select a size from the menu. The Size will display in the Size text box.
      i. Place a Checkmark in the Check box next to HQ, Task Force, Feint, or Installation depending on what the Icon represents. The user can place checkmarks in more than one check box.
      j. Select the Apply button. The changes will apply and return to the Overlay Edit dialog box.

  6. Select the Labels tab. The system will display the Labels tab group.

NOTE: The Labels function allows the user to modify an object's icon labels.

      a. Select the First DTG button. The system will display the DTG keypad.

NOTE: The DTG button allows the user to enter the Date, Time group associated with the object.

      b. Select the Year text box by selecting it with the mouse pointer.
      c. Select the OK button. The system will return to the Overlay Edit dialog box.
      d. Select the + or - key to increase or decrease the year or select the NOW button.

NOTE: Do the same for the Month, Day , Hour, and Minute for each object that is entered on the overlay.

      e. Select the Additional Information text box and type the information or select the virtual keyboard by entering the information with the mouse pointer.

NOTE: The Additional Information function allows the user to enter supplementary facts about the object.

      f. Select the Unique Designation text box and type the specification, or select the virtual keyboard and enter the specification with the mouse pointer and select OK.
      g. Select the Apply button. The system will apply the entries and keep the Overlay Edit dialog box open.

  7. Select the Location tab. The system will display the Location Tab group.

NOTE: The Location Tab displays the Current Grid Points of a selected object, whether it is a single point object or a multi-point object. The Location tab facilitates moving single point objects, such as a unit and modifying the points of multi-point objects such as routes. The user can move an object to another location on the map by using the Fill Location button and modify the dimensions of a multi-point object.

      a. Select the right arrow at the bottom left of the Overlay Edit dialog box. The system will cycle to the next object and display the grid coordinates of the object.

NOTE: Each time the user selects the right arrow, it will cycle to the next object.

      b. Select a grid from the list by highlighting it with the mouse pointer. The grid will highlight.
      c. Select the Fill Location button. The Overlay Edit dialog box will disappear and the pointer will become a cross hair.
      d. Select a spot on the map where the user wants to move the object for a single points or a dimension of a multi-point object. The Overlay Edit dialog box will reappear.
      e. Select the Apply button. The object or dimension will move to the new location.

NOTE: Do the same for all the objects or dimensions that need to be moved or modified.

      f. Select the OK button. The system will return to the Overlay toolbox.

  8. Select the 2525B. The system will display the 2525B tab group.

Performance Steps

NOTE: The 2525B sub-tab function allows the user to acquire Warfighting symbols, Tactical graphics, weather and signal intelligence symbols. The 2525B sub tab works in the same way as the Group sub tab. Choose from the Dimension, Type, and Sub-type menus in order to select the desired symbol.

      a. Select the Dimension pull down arrow. The system will display the Dimension menu.
      b. Select a symbol from the list. The symbol name will display in the Dimension text box.
      c. Select the Type pull down arrow. The system will display the Type menu.
      d. Select a type from the menu. The Type name will display in the Type text box.
      e. Select the Subtype pull down arrow. The Subtype menu will display.

NOTE: The Subtype menu may or may not be available depending on the Dimension or type that was selected in steps 2 and 4.

      f. Select a Subtype from the list. The name will appear in the Subtype menu.
      g. Select the Attributes button. The Symbol Attributes dialog box will display.

NOTE: The Attributes button is done exactly like the Attributes Tab in step a, sub step 11 through 20.

      h. Select the OK button after completing the Attributes. The Overlay Toolbox will reappear.

NOTE: Do the same for all the symbols that are placed on the overlay.

  9. Select the UTO sub-tab. The UTO sub tab group will display.

NOTE: The UTO sub tab allows the user to select unit symbols from various Unit Task Organizations (UTO) for inclusion in the overlay.

      a. Select the Search button. The system will display the UTO Search dialog box.
      b. Type the Name of the unit in the search text box with the keyboard or the virtual keyboard. The name will display in the search text box.
      c. Select the Search button. The unit will be highlighted.
      d. Select an Organization in the Unit column. The Organization will be highlighted and the unit symbol appears in the Preview pane in the bottom left hand corner.
      e. Select the OK button. The system will return to the UTO sub tab with the unit name under the Unit field and the symbol in the preview pane.
      f. Select the Attributes button and enter the attributes for the symbol and select Octet system will return to the Overlay Toolbox.
      g. Select the Add button. The system will display the unit symbol on the overlay.
      h. Select the OK button. The system will return to the Overlay Toolbox.

NOTE: Continue sub steps (1) through (8) until all symbols are on the overlay.

  10. Select the Overlay tab. The system will display the overlay tab fields.

NOTE: Scroll up to the Overlay Type. Ensure that it still shows the Overlay type that was selected at the beginning. Scroll down to the Storage field. Ensure that the Folder and File display the correct name. Scroll down to Version to view the Creation DTG, Revision DTG, and Revision. Scroll down to the Recalc Size button under the Message Size field. Select the Recalc button to display the size of the overlay in bytes. The user can center on an object by selecting the Details button, then highlighting the object from the list, and selecting the Center on Object button. The user can set the Message Addressing settings and re save the overlay from here.

  11. Select the Group Setup Tab. The system will display the Group Setup tab fields and buttons.

NOTE: The Group Setup Tab creates user-defined object group files and sub-files. User-defined object groups can be developed and used to expedite the creation of overlays.

      a. Select the Group down arrow. The system will display the Group menu including the user-defined groups if there were any created.

Performance Steps
>   b. Select the Group Name text box. The text box will highlight.
>   c. Type a name for the new group folder. The name will appear in the Group Name text box.
>   d. Select the New Group button. The system will display the newly created folder in the Group text box.

12. Select the Object tab then the Group sub tab.
>   a. Select the Group down arrow. The system will display the Group Menu including the group folder that was just created.
>   b. Select a group folder from the list. The sub file names will display in the Group window.
>   c. Select a group sub file from the list of sub files. The sub file will be highlighted and the icon will be displayed in the preview window.

13. Select the Group Setup tab. The newly created folder should still be in the Group text box.

NOTE: The Add Icon button will be active now.

>   a. Select the Add Icon button. The sub file will be displayed under the New folder.

NOTE: Repeat this process until all desired icons are in the new Group folder. After saving Object Groups, they remain in the system until the user deletes them from within the Group Setup tab or by clearing Logs and Queues.

>   b. Select the new folder that was created by highlighting it in the Group text box.
>   c. Select the Save Groups button. The system saves the Group.

NOTE: If the user wants to delete a group sub file, highlight the sub file and select the Delete Icon button. If the user wants to delete a group, highlight the Group name and select the Delete Group button.

>   d. Select the Close button. The system returns to the Ops screen.

Performance Measures	**GO**	**NO GO**
1. Select the Messages button from the Function Bar or the F4 button on the keyboard.	——	——
2. Select the Overlay tab if it is not already selected.	——	——
3. Select the Object tab.	——	——
4. Select the Group Sub tab (default).	——	——
5. Select the Attributes tab.	——	——
6. Select the Labels tab.	——	——
7. Select the Location tab.	——	——
8. Select the 2525B.	——	——
9. Select the UTO sub-tab.	——	——
10. Select the Overlay tab.	——	——
11. Select the Group Setup Tab.	——	——
12. Select the Object tab then the Group sub tab.	——	——
13. Select the Group Setup tab.	——	——

Evaluation Guidance: Score the Soldier GO if all steps are passed. Score the Soldier NO-GO if any step is failed. If the Soldier scores NO-GO, show him what was done wrong and how to do it correctly.

PREPARE/SEND REPORTS USING FBCB2 VERSION 3.4
171-147-0008

Conditions: Given an operational Force XXI Battle Command Brigade and Below (FBCB2) system with software version 3.4 loaded. You have received an operation order (OPORD) or fragmentary order (FRAGO) to conduct a tactical operation. Default Message Addressing settings have been set.

Standards: As a minimum: you must prepare and send one each of the following reports: Airborne Artillery, Personnel Status Report and a Freetext message. All mandatory fields must be completed.

Performance Steps

NOTE: The Airborne Artillery FCR, Bridge Report, Chemical Downwind Report, Contact Report, Effective Downwind Message, Engagement Report, Initial Airborne Artillery FCR, Land Minefield Laying Report, Medical SITREP, Mortuary Affairs, NBC3, NBC4, Obstacle Report, Position Report, and Supply Point Status Report are all done the same as the Airborne Artillery FCR. For LOG Report, refer to task 171-147-0004 (Prepare/Send a Platoon Logistical Status Reports Using FBCB2 Version 3.4) and task 171-147-0015 (Prepare/Send a Vehicle Logistical Status Reports Using FBCB2 Version 3.4). The Land Route is done the same as task 171-147-0023 (Employ NAV Functions Using FBCB2 Version 3.4). NBC1 is done the same as task 171-147-0001step 5(Prepare/Send Combat Messages Using FBCB2 Version 3.4). The Personnel Status Report is done the same as task 171-147-0022 sub- step f. (Employ Apps Functions Using FBCB2 Version 3.4). The Situation Report is done the same as task 171-147-0001, step 7 (Prepare/Send Combat Messages Using FBCB2 Version 3.4). The Spot Report is done the same as task 171-147-0001, step 2 (Prepare/Send Combat Messages Using FBCB2 Version 3.4).

1. Prepare and send an Airborne Artillery FCR Report.
    a. Select the Messages button on the Function Bar or the (F4) button on the keyboard. The system will display the Message dialog box.
    b. Select the Create tab.

NOTE: Default Message Addressing Settings for all the Reports should be set prior to the PCC/PCIs. Refer to Task 171-147-0005 Apply Message Addressing Features in FBCB2 Version 3.4.

    c. Select the Reports radio button form the Msg Type Field. The Reports radio button will highlight.

NOTE: The radio buttons are the diamond shaped boxes under the Msg Type field.

    d. Select the Airborne Artillery FCR option from the Message windowpane. The Airborne Artillery FCR message will highlight.
    e. Select the Execute button. The system will display the Create: Airborne Artillery FCR Template
    f. Select the Outline Tab.

NOTE: All of the fields that are red in color and have an "M" in front of them are mandatory fields. These fields must be completed in order for the message to be sent. If the user tries to save or send the message without entering data into the mandatory fields, they will get the error message: "The mandatory field Scan URN is not complete" with an OK button. All the fields in Black are optional. Some Black fields may be mandatory per SOP.

    g. Select the "M" Mission Selection field from the Outline windowpane by highlighting the field. The Mission Selection in the right windowpane will also highlight.

NOTE: The Outline windowpane is a quick way of getting to the option that the user wants to enter data.

    h. Select the Mission Selection pull-down arrow in the right windowpane. The options will be displayed.
    i. Select an option from the list. The option will be displayed in the text box.

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Performance Steps

      j. Select the mandatory field Scan URN from the Outline tab. The option will highlight in the Outline windowpane as well as the right windowpane.

      k. Select the pull-down arrow. The system will display the Unit Name dialog box.

      l. Select a Unit Name from the list or type it in the search text box to find the Unit, then select it from the list. The Unit name will be displayed in the text box.

     m. Select the mandatory field Scan Time from the Outline windowpane.

      n. Select the Scan Time DTG button. The DTG Keypad dialog box will be displayed.

      o. Select the + or - buttons to increase or decrease the Day, Hour, and Minute or select the NOW button and OK button.

      p. Select the mandatory field Location from the Outline windowpane.

      q. Select the Location pull-down arrow. The system will display the Location menu.

NOTE: This function allows the user to enter the location using the Keyboard (Kbd), Laser Range Finder (LRF), Map by using the mouse pointer (Map), Virtual Keyboard (Vkb), The user's location (Own), and A named location from a list, (Name).

      r. Select an option from the list. The option is displayed in the text box.

      s. Select the mandatory field Altitude from the Outline windowpane.

      t. Select the Altitude Virtual Keypad and enter the altitude or select the text box and enter the altitude with the keyboard.

      u. Select the Save As button. The Save As dialog box will be displayed.

      v. Select the Folder Text box and type the name for the folder that the message will be saved in and select the New Folder button. The new folder will be displayed in the Folders windowpane.

NOTE: If a folder was created earlier, then the user can highlight the folder and save the file to that folder.

      w. Select the File text box at the bottom of the Save As dialog box.

      x. Type the name for the message. The name will appear in the File text box.

      y. Select the OK button. The Save As Confirmation dialog box will be displayed.

      z. Select the OK button. The system will return to the Create: Airborne Artillery FCR Template.

     aa. Select the Send button. The Message Sent dialog box will appear stating "The message was sent " with an OK button.

NOTE: If the Default Message Addressing Settings or Message Addressing Settings within the message were not set prior to sending the message, the user would receive a Send Error dialog box saying No addressee selected with an OK button. The user would select the OK button and select the Message Addressing button and set the address.

     ab. Select the OK button. The system will return to the Create: Airborne Artillery FCR template.

     ac. Select the Close button. The system will return to the Ops screen.

  2. Prepare and send a Personnel Status Report.

      a. Select the Messages button on the function bar or the F4 button on the keyboard. The Messages dialog box will display.

      b. Select the Create tab. The system will display the Create tab group.

      c. Select the Reports radio button. The Report types will display in the Message type windowpane.

      d. Select the Personnel Report. The option will be highlighted.

      e. Select the Default Message Addressing button. The system will display the Message Addressing dialog box.

      f. Select the Message Settings Tab.

      g. Select the Precedence of the message. The proper radio button will highlight.

      h. Select the desired acknowledge radio button. The proper radio button will highlight.

      i. Select the Addresses Tab. The system will display the Addresses tab group.

      j. Select the Select From: pull-down arrow. The system will display the three Address Books: Master, User, and Battalion.

Performance Steps

      k. Select the Address Book that contains the Unit/Platform name that the message will be sent to. The Address Book will appear in the Select From: text box and all the units in that Address Book will appear in the Select From: window pane.

      l. Select the name of the Unit/Platform that the message needs to go to by selecting it from the Select From: windowpane on the left. The Unit/Platform name will be highlighted.

      m. Select the Add button. The Unit/Platform name will appear in the Address windowpane on the right side of the dialog box.

NOTE: If the user cannot find the Unit/Platform name, use the search button by selecting the search text box, typing the name, and selecting the Search button. If the name was spelled exactly the way it is in the UTO, then the name would highlight in the Select From: windowpane. The user can then select the Add button, which would place the Unit/Platform name in the Addresses windowpane. Do the same for all the unit/platform names that the message will go to.

      n. Select the OK button. The system will return to the Messages dialog box.

      o. Select the Execute button. The system will display the Personnel Status Report dialog box.

      p. Select the New button. The system will display the Add Personnel Record dialog box.

      q. Select the (Last Name): text box or the virtual keyboard and type the last name of the individual that the user is entering data for.

NOTE: Do the same for the First Name, Middle Name, Suffix, and SSN.

      r. Select the Nationality pull-down arrow. The system will display the available options.

      s. Select the Nationality of the individual. The system will display the Nationality in the text box.

NOTE: Do the same for Religion, Blood type, Unit Name, Role ID, Grade, MOS, and Status.

      t. Select the Male or Female radio button for the individual you are entering data for.

      u. Select the Apply button. The system will apply the data and present a new Add Personnel Record dialog box.

NOTE: Complete a record for each individual. After a record is done on each individual, select the Close button to get back to the Personnel Status Report dialog box.

      v. Select the SEARCH BY: pull down arrow at the bottom of the Personnel Status Report dialog box. The system will display the list of option that can be searched by.

      w. Select an option from the list. The option will display in the SEARCH BY text box.

NOTE: If the user selects Last Name, then the user will have to type the Last Name in the Search text box.

      x. Select the Search text box to the right of the SEARCH BY: pull down arrow. The cursor will blink inside the text box.

      y. Type the Last name of the individual that the user is looking for. The name will appear in the Search text box.

      z. Select the Search button. The system will highlight the record in the Personnel Status Report list at the top of the dialog box and activate the Modify button.

      aa. Select the Modify button. The system will display the Modify Personnel Record dialog box with the information on the individual being searched.

NOTE: The user can make changes to the record and apply them.

      ab. Select the Cancel button. The system will return to the Personnel Status Report dialog box.

      ac. Select the Close button. The system will return to the Ops screen.

  3. Prepare and send a Freetext message.

      a. Select the Messages button on the function bar or the F4 button on the keyboard. The Messages dialog box will display.

      b. Select the Create tab. The system will display the Create tab group.

      c. Select the Reports radio button under the Msg Type field. The Reports radio button will highlight.

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        d. Scroll to the Freetext Message in the Msg Type windowpane. The message will highlight.

        e. Select the Execute button. The Create Freetext dialog box will display.

        f. Type a message in the text windowpane with the keyboard or the Virtual keyboard.

NOTE: The user can save the message before being sent or just send it without saving. The user can also change the address where the message will be sent by selecting the Message Addressing button.

        g. Select the Save As button. The system will display the Save As dialog box on top of the Create Freetext dialog box.

        h. Select a folder in the windowpane to save the message to by highlighting it or create a new folder by selecting the Folder text box and type a name for the new folder and select the Folder button. The folder will appear in the Folders windowpane.

        i. Highlight the new folder and select the File text box and type a name for the message that will be save to the folder.

        j. Select the OK button. The Save As Confirmation dialog box will appear stating "Message was saved" with an OK button.

        k. Select the OK button. The system will return to the Create Freetext dialog box.

        l. Select the Close button. The system will return to the Ops screen.

Performance Measures	**GO**	**NO GO**
1. Prepare and send an Airborne Artillery FCR Report.	———	———
2. Prepare and send a Personnel Status Report.	———	———
3. Prepare and send a Freetext message.	———	———

Evaluation Guidance: Score the Soldier GO if all steps are passed. Score the Soldier NO-GO if any step is failed. If the Soldier scores NO-GO, show him what was done wrong and how to do it correctly.

PREPARE/SEND FIRE/ALERT MESSAGES USING FBCB2 VERSION 3.4
171-147-0009

Conditions: Given a vehicle with an operational Force XXI Battle Command Brigade and Below (FBCB2) system loaded with software version 3.4, you have received an operation order (OPORD) or fragmentary order (FRAGO) to conduct a tactical operation. Default Message Addressing settings have been set.

Standards: You must create and send a fire/alert message with significant and immediate information both horizontally and vertically on the battlefield. As a minimum, you must create and send: an Airborne Fire Mission, Subsequent Adjust, Check Fire, On Call Fire Cmd, and an End of Mission.

Performance Steps

NOTE: The Fire Support Coord Measures, MAYDAY Message, MOPP Alert, Observer Readiness Report, RECON Report, Threat Warning, and Strike Warning are done exactly the same way as the Airborne Fire Mission. The Call For Fire (CFF) is done exactly like task 171-147-0001 Step3 sub-step c. Subsequent Adjust, Check Fire, On Call Fire Cmd, and EOM messages are grayed out until a Fire mission is received from the Advanced Field Artillery Tactical Data System (AFATDS).

1. Prepare and send an Airborne Fire Mission.
   a. Select the Messages button on the Function Bar or the (F4) button on the Keyboard. The system will display the Message dialog box.
   b. Select the Create tab box.

NOTE: Default Transmission Settings should have been completed prior to PCC/PCIs. You cannot send or save a message until you have set your Default Transmission settings for each type of message or set the Transmission settings from within the message.

   c. Select the Fires/Alerts from the Msg Types field. The Fires/Alerts radio button will highlight.

NOTE: The Fires/Alerts function contains message templates for: Airborne Fire Mission, Call for Fire, Check Fire, EOM & Surveillance, Fire Support Coord Measures, Freetext Message, MAYDAY Message, MOPP Alert, Observer Readiness Report, On Call Fire Cmd, REDCON, and Strike Warning

   d. Select the Airborne Fire Mission. The System will highlight the Airborne Fire Mission.
   e. Select the Execute button. The system will display the Create: Airborne Fire Mission Template.
   f. Select the Outline Tab. The system will display the (M) Mandatory, (O) Optional, and (OG) Optional Group fields for this particular message.

NOTE: All of the fields with an M in front of them and are Red in color are mandatory fields and must be entered in order to be sent or saved. If you try to send or save the message before the mandatory fields are entered, you will get an error message saying, " The mandatory field Scan URN is not complete" with an OK button.

   g. Select the first mandatory field (Fire Mission Designator) by selecting the field name in the Outline windowpane. The option will be highlighted as well as the Fire Mission Designator in the right windowpane.
   h. Select the Fire Mission Designator pull-down arrow. The system will display a list of options.
   i. Select an option. The option will display in the text box.

NOTE: Once the mandatory fields are completed, you may send the message. You may also select optional fields such as Observer ID or Optional groups such as Target Location and enter the data. However, if you select an optional group, you will have to complete the mandatory fields from within that group.

   j. Select the Save As button. The system will display the Save As dialog box.
   k. Select the Folder text box. The cursor will blink in the text box.
   l. Type the Name you want to call the Folder. The name will be displayed in the text box
   m. Select the New Folder button. The new folder will be displayed in the Folder's windowpane.

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        n. Select the Folder that you created by highlighting it.

        o. Select the File text box. The cursor will be blinking in the text box.

        p. Type the name that you want to call the message. It will be displayed in the text box

        q. Select the OK button. The Save As Confirmation dialog box will be displayed saying, "Message was saved."

        r. Select the OK button. The system will return to the Create: Airborne Fire Mission Template.

        s. Select the Send button. The system will display the Message Sent dialog box saying, "The message was sent."

        t. Select the OK button. The system will return to the Airborne Fire Mission Template.

        u. Select the Close button. The system will return to the Ops (MAP) screen.

NOTE: You must select the Messages button on the Function Bar or the F4 button on the keyboard and the Fires/Alerts radio button each time to get to the next Fires and alerts message.

    2. Perform a Subsequent Adjust.

NOTE: Subsequent Adjust Fire message is used to adjust fall of shot against an area target or for a registration fire mission. A Message to Observer (MTO) must be received by the users system from Advanced Field Artillery Tactical Data System (AFATDS) before the user can access the Subsequent Adjust, Check Fire, On Call Fire Cmd, and EOM tabs.

        a. Select the FIPR button. The FIPR dialog box will be displayed.

        b. Select the tab that has the MTO message.

        c. Highlight the MTO Message by selecting it from the list.

        d. Select the Display button at the bottom of the FIPR dialog box. The system will display the Combat Messages dialog box with Fire Mission Tab and Summary Sub-Tab selected.

NOTE: The Subsequent Adjust, Check Fire, On Call Fire Cmd, and EOM tabs are now active.

        e. Select the Subsequent Adjust Tab. The system will display the Subsequent Adjust Template.

NOTE: If the Subsequent Adjust template does not have all the desired options, the user can select the Long Form Message button at the bottom of the Combat Messages dialog box. This will bring up the Long Form template, which has more options. The Long Form is completed the same as all the Combat Messages.

        f. Select the Left or Right Radio button for the direction that the round needs to move. The radio button will highlight.

        g. Select the + button to increase or the - button to decrease the direction. The number will display in the text box.

        h. Select the Add or Drop Radio button for the distance the round needs to move. The Radio button will highlight.

        i. Select the + button to increase the distance or the - button to decrease the distance.

        j. Select the Up or Down radio button for the altitude. The Radio button will highlight.

        k. Select the + button to increase the height or the - button to decrease the height.

        l. Select the Method of Control pull-down arrow. The system will display the options.

        m. Select the desired option. The option will appear in the Text box.

NOTE: The Time On Target (Zulu) field will be Grayed out unless Timed Time on Target is selected in the Method of Control.

        n. Select the save button. The message stating "Message saved to file Subseq_DTG will be displayed in the Text window towards the bottom of the Combat messages dialog box.

        o. Select the send button. The message " Last Subsequent Adjust message sent at Date, Time Group (DTG)"

        p. Select the close button. The system will return to the FIPR button.

        q. Select the Close button. The system will return to the Ops screen.

        r. Select the FIPR button. The system will display the FIPR dialog box.

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     s. Select the Tab that has the MTO in it. The system will display the list of Messages under the Tab that you selected.

     t. Highlight the MTO message.

     u. Select the Display button. The system will display the Combat Messages dialog box with the Fire Mission Tab and the Summary Sub-Tab displayed.

     v. Select the Mission that you want to put the Check Fire on. The mission will be highlighted.

     w. Select the Check Fire Tab. The Check Fire Template will be displayed.

     x. Select the proper Check Fire Radio button for the action that you want to do.

NOTE: Check Fire Order is for Checking a certain mission, Check Fire All is for checking all missions, and Cancel Check Fire is for canceling the Check Fire command.

     y. Select the send button. The system will display "Last Check Fire Message sent at DTG" in the Message window.

     z. Select the Close button. The system will return to the FIPR dialog box.

     aa. Select the Close button. The system will return to the Ops screen.

  3. Perform the Check Fire Function.

NOTE: Remember that an MTO must be received by the users system from AFATDS to get access to this tab.

     a. Select the FIPR button. The FIPR dialog box will be displayed.

     b. Select the tab that has the MTO message.

     c. Highlight the MTO Message by selecting it from the list.

     d. Select the Display button at the bottom of the FIPR dialog box. The system will display the Combat Messages dialog box with Fire Mission Tab and Summary Sub-Tab selected.

     e. Select the Check Fire tab. The system will display the Check Fire tab group.

     f. Select the radio button for the desired option under the Check Fire/Cancel Check Fire Cmd field. The radio button will highlight.

     g. Select the Send button. The system will display "Message sent at DTG" in the message pane.

     h. Select the Close button. The system will return to the FIPR Queue.

  4. Perform the On Call Fire Cmd function.

NOTE: The On Call Fire Command " message is used by friendly units to send Fire commands to the Fire support unit for the Fire mission selected from the Summary tag group. An MTO must be received before the "On Call Fire Cmd" tab can be activated.

     a. Select the FIPR button. The system will display the FIPR dialog box.

     b. Select the Tab that has the mission that you want to call the indirect fires on.

     c. Select the Mission by highlighting the Originator and DTG of the mission.

     d. Select the display button. The system will display the Combat Messages dialog box with the Fire Mission Tab and the Summary Sub-tab selected.

     e. Select the On call Fire Cmd Tab. The On Call Fire Cmd Template will be displayed with a message saying, " An "FO Command" to fire the mission will be transmitted by sending this message!"

     f. Select the Send button if the user wants the mission to fire. The message " Last On Call Fire Cmd message sent at DTG" will be displayed in the message window pane Or select the Cancel button to the right of the message window.

     g. Select the Close button. The system will return to the FIPR dialog box.

     h. Select the Close button. The system will return to the Ops screen.

  5. Perform the End of Mission (EOM) function.

NOTE: The End of Mission function is used to direct the end of mission processing of a fire mission, selected from the Summary tab group and to provide target surveillance and provide Fire mission refinement data.

     a. Select the FIPR button. The system will display the FIPR dialog box.

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      b. Select the Tab that has the mission that the user wants to associate the EOM to.

      c. Select the mission from the list by highlighting it.

      d. Select the Display button. The system will display the Combat messages dialog box with the Fire Mission Tab and the Summary Sub-tab.

      e. Select the EOM Tab. The system will display the EOM Template.

      f. Select the EOM Type pull-down arrow. The system will display End of Mission and End of Mission & Surveillance.

      g. Select the desired option from the list. The option will be displayed in the text box.

NOTE: The Surveillance Info field will be grayed out unless the user selects the End of Mission & Surveillance option from the EOM Type field.

      h. Select the Effect Achieved: pull-down arrow. The system will display the options list.

      i. Select the desired option from the list. The option will be displayed in the text box.

      j. Select the + button to increase or the - button to decrease the number of Enemy Casualties.

      k. Select the send button. The message "Last EOM message sent at DTG"

      l. Select the Close button. The system will return to the FIPR dialog box.

      m. Select the Close button. The system will return to the Ops screen.

Performance Measures	**GO**	**NO GO**
1. Prepare and send an Airborne Fire Mission.	——	——
2. Perform a Subsequent Adjust.	——	——
3. Perform the Check Fire Function.	——	——
4. Perform the On Call Fire Cmd function.	——	——
5. Perform the End of Mission (EOM) function.	——	——

Evaluation Guidance: Score the Soldier GO if all steps are passed. Score the Soldier NO-GO if any step is failed. If the Soldier scores NO-GO, show him what was done wrong and how to do it correctly.

PREPARE/SEND ORDER/REQUEST MESSAGES USING FBCB2 VERSION 3.4
171-147-0010

Conditions: Given a vehicle with an operational Force XXI Battle Command Brigade and Below (FBCB2) system loaded with software version 3.4, you have received an operation order (OPORD) to conduct a tactical operation. Default Message Addressing settings have been set.

Standards: You must create and send an Orders/Requests message with significant and immediate information both horizontally and vertically on the battlefield. As a minimum, you must create and send: a Fragmentary Order, Freetext Message, MEDEVAC Request, CTIL Action, and a LOG Call for Support.

Performance Steps

NOTE: The LOG Call for Support, Operation Order, Operations Plan, Unit Ref Query, and the Warning Order are completed the same way as the Fragmentary Order. For each message type that the user wants to complete, the user will need to select the Messages button, Create tab, Orders/Requests radio button, and then the Message type for each message.

1. Prepare and send a Fragmentary Order.

NOTE: Fragmentary Order is an abbreviated version of the Operations Order and is used by the Commander / Staff to issue plans/orders to subordinate units to effect the coordinated execution of an operation.

a. Select the Messages button on the Function Bar or the (F4) button on the Keyboard. The system displays the Messages dialog box.

NOTE: The Messages function displays six tabs: Send, Create, Edit, Print, Manage, and Sent Queue.

b. Select the Create tab. The system will display the Create tab group.

NOTE: All the Tabs in the Messages dialog box have three common push buttons at the bottom of the Tab which consists of: Execute, which activates the selection, Close which closes the dialog box, and Help which gives help on that tab.

c. Select the Orders/Requests radio button from the Msg Type Field. The radio button will highlight.
d. Select the Fragmentary Order from the Message windowpane. The Fragmentary Order will be highlighted.

NOTE: The Default Transmission Settings should be completed prior to the PCC/PCIs. You cannot send or save a message until you have set the Default Transmission Settings for each type of message or the Transmission Settings from within the Message.

e. Select the Execute button. The system will display the Create: FRAGO Template.
f. Select the Outline tab. The system will display the (M) Mandatory, (O) Optional, (OG) Optional Groups fields.

NOTE: All the Fields with the M in front of them and are red in color must be completed in order for the message to be sent or saved. If you try to send or save the file without entering data into the mandatory fields, an error message saying " The Mandatory field Scan URN is not complete" with an OK button. If this happens, select the OK button and go back and enter the Mandatory fields that were missed.

g. Select the mandatory field (OPORD Name) from the Outline windowpane. The option will be highlighted.
h. Select the OPORD Name text box from the window on the right of the Create: FRAGO Template. The OPORD Name text box will activate and the cursor will blink.
i. Type the Name that you want to call the OPORD. The Name will be displayed in the text box.

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NOTE: Once the mandatory fields are completed, you may send the Order or Request. You may also select optional fields like FRAGO ID Number and optional groups like Annex Data (0/20) and enter them. However, if you select an optional group, you will need to enter the mandatory fields from within that group.

     j. Select the Save As button. The system will display the Save As dialog box.

     k. Select the Folder text box and type the Folder Name and select the New Folder button or select a folder that was already created by highlighting the folder name in the folders window.

     l. Select the File text box and type the name that you want to call the Order or Request.

     m. Select the Ok button. The system will display the Save As Confirmation dialog box saying, "Message was saved" with the OK button.

     n. Select the OK button. The system will return to the Create: FRAGO Template.

     o. Select the Send button. The message "The Message was sent" with an OK button will be displayed.

NOTE: If the Default Transmission Settings or Transmission Settings were not set prior to sending this Order or request, you would receive an Error message saying, "No addressee selected" with an OK button. You would have to select the OK button and select the Transmission Settings button and set the address that you want the message to go to.

     p. Select the Close button. The system will return to the Ops Screen.

  2. Prepare and send a Freetext Message.

NOTE: A Freetext Message is used to send information that is not covered in the other message types in FBCB2. It also is used to send a plain text message.

     a. Select the Create tab. The Create tab fields will display.

     b. Select the Orders/Requests radio button. The radio button will highlight.

     c. Select the Freetext Message from the Message type windowpane. The message will be highlighted.

     d. Select the Set Default Transmission Settings button. The Transmission Settings dialog box will be displayed.

     e. Select the Settings Tab.

     f. Enter the Precedence, Acknowledgement, Retries, and Perishability DTG.

     g. Select the Add Addresses tab.

     h. Select the Address that you want to send the message to and add it to the right windowpane as an action or info address.

     i. Select the OK button. The Apply dialog box will display.

     j. Select the OK button. The system will return back to the Message dialog box with the Freetext Message still highlighted.

     k. Select the Execute button. The system will display the Create: Freetext dialog box.

     l. Type the message that you want to send in the text windowpane.

     m. Select the Save As button. The Save As dialog box will be displayed.

     n. Select the Folder from the Folders window that you want to save the message to or Create a new folder by selecting the Folder text box and typing the name that you want to call it and selecting the New Folder button. This will create a new folder in the Folders windowpane.

     o. Highlight the new folder in the Folders windowpane.

     p. Select the File text box and type the name that you want to call the message.

     q. Select the OK button. The Save As dialog box will be displayed saying, "Message was saved." with an OK button.

     r. Select the OK button. The system will return to the Create: Freetext dialog box with the new name at the top.

     s. Select the Send button. The system will display the Message Sent dialog box.

     t. Select the OK button. The system will return to the Create: Freetext dialog box.

     u. Select the Close button. The system will return to the Ops screen.

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    3. Prepare and send a MEDEVAC Request.

NOTE: Use the MEDEVAC request message to request ground or aircraft support to evacuate friendly and/or enemy casualties. The MEDAVAC tab group is accessed from Combat Msgs button on the Function Bar or the F3 button on the keyboard, Or from the Messages button under Orders/Request.

NOTE: The MEDEVAC Request is also addressed as part of the task 171-146-0001 "Prepare/Send Combat Messages Using FBCB2 Version 3.3."

       a. Select the Messages button on the Function Bar or the F4 button on the keyboard.
       b. Select the MEDAVAC Request. The system will highlight the MEDAVAC Request.
       c. INSERT DEFAULT TRANS
       d. Select the Execute button. The system will display the Combat Messages dialog box.
       e. Select the Fill Loc button. The Combat Messages dialog box will disappear and the mouse cursor will be replaced with a cross hair.
       f. Select a location on the map where the pick up site will be. The system displays the location in the Location text box.
       g. Or Select the Fill LRF button. The system will input the location provided by the laser range finder.

NOTE: This function works if your vehicle is equipped with the Laser Range finder.

       h. Select the Amb Patients + or - button to increase or decrease the number of Ambulatory patients.
       i. Select the Ltr Patients + or - button to increase or decrease the number of Litter Patients.
       j. Select the Marking pull-down arrow. The system will display the Marking options list. Select an option from the list. The system displays the selection in the Marking text box.
       k. Select the Color pull-down arrow. The system will display the Color options list. Select an option from the list. The system displays the selection in the Color text box.
       l. Select the Pickup Zone Hot check box. The system will display a check mark in the Pickup Zone Hot text box.

NOTE: If the area is not Hot, then do not check this box. Hot meaning that the area has hostiles.

       m. Select the MEDAVAC Priority pull-down arrow. The system will display the MEDAVAC Priority options list. Select and option from the list. The system will display the selection in the MEDEVAC Priority text box.
       n. Select the NBC Contamination pull-down arrow. The system will display the NBC Contamination option list. Make a selection

    4. Prepare and send a CTIL Action.

NOTE: The CTIL Action message allows the authorized user (Access Level 4) to modify the Commander's Tracked Items List (CTIL) to meet the Unit's specific requirement's. Upon receipt and acceptance by the receiver, this message overwrites the previously received CTIL. FBCB2 user should validate the message sender prior to accepting the new CTIL message. If an errant CTIL message is loaded, the only way to replace it is to call for another CTIL message from the proper logistic source.

       a. Select the Messages button on the Function Bar, or the F4 button on the keyboard. The Messages dialog box will display.
       b. Select the Create tab. The system will display the Create tab group.
       c. Select the Orders/Request radio button from the Msg Type field. The button will highlight.
       d. Select the CTIL Action message by highlighting it. The message will highlight.
       e. Select the Execute button. The system will display the Using Default CTILS dialog box.
       f. Place a checkmark in the box to the left of each item that is specific to the unit. A checkmark will display in each box that was selected.

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  g. Select the Message Addressing button. The system will display the Message Addressing dialog box.

NOTE: If the Default Message Addressing settings for the CTIL Action message were completed prior to preparing this message, then the Message addressing can be skipped.

  h. Select the Message Settings tab. The Message Settings tab group will display.
  i. Select the desired Precedence. The selected radio button will highlight.
  j. Select the desired Acknowledge option. A checkmark will be displayed in the selected box.

NOTE: Some Acknowledge options will be grayed out depending on the selected message.

  k. Select the proper Security Level.

NOTE: The Security level can only be changed by authorized personnel only. The Security Level may be grayed out.

  l. Select the DTG button under the Perishability DTG: field. The DTG Keypad dialog box will display.
  m. Enter the proper DTG by selecting the + or - buttons to increase or decrease the number. The numbers will display in the text boxes.
  n. Select the OK button. The system will return to the Message Addressing dialog box.
  o. Select the Addresses tab. The system will display the Addresses tab group.
  p. Select the Selected From: pulldown arrow. The system will display the three types of users groups.
  q. Select the desired user's group. The selected user group will display in the Selected From: text box with a list of the units in the user's group.
  r. Select the unit by either highlighting it in the Selected From: windowpane, or selecting the Search text box and typing the name of the unit and selecting the search button. The unit will highlight in the Selected From: windowpane.
  s. Select the Add button. The unit will display in the right window pane under the Addresses tab.

NOTE: Do the same for all the Unit/Platforms that the user wants the message to go to.

  t. Select the OK button. The system will return to the Using Default CTILS dialog box.
  u. Select the Send CTILs button. The system will display a CTILs Sent dialog box.
  v. Select the OK button. The system will return to the Using Default CTILS dialog box.
  w. Select the Close button. The system will return to the Ops screen.

  5. Create and send a LOG Call for Support.

NOTE: The LOG Call for Support is threaded messages that the operator can send to request logistic support. Typically a call for support is sent through the chain of command to the supporting unit using the LOG Call for Support message "Orders/Requests."

  a. Select the Messages button on the Function Bar, or the F4 button on the keyboard.
  b. Select the Create tab. The system will display the Create tab group.
  c. Select the Orders/Requests radio button. The radio button will highlight.
  d. Select the LOG Call for Support message. The message will highlight.
  e. Select the Execute button. The Create: LOG Call for Support dialog box will display.

NOTE: The fields with red fonts with an "M" in front of them under the Outline tab are the mandatory fields that must be entered in order to send the message. The message will not send unless these fields are completed. Unit SOPs may require more fields to be completed. There is a short cut the user can use to quickly get to the field to enter data. By selecting the field in the Outline tab, it will highlight the text box for the field that was selected. The user can now enter the data for that field.

  f. Select the "Request Type pull down arrow. The system will display the available options.
  g. Select the desired option. The option will display in the text box.
  h. Select the Action pull down arrow. The system will display the available options.

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i. Select the desired option. The option will be displayed in the text box.
j. Select the Supporting Unit pull down arrow. The system displays the Unit Name dialog box.
k. Select the Name of the Unit that needs the support. The Unit Name will display in the text box.
l. Select the Point of Contact pull down arrow. The Unit Name dialog box will display.
m. Select the Name of the Unit that was selected in the Supporting Unit text box. The Unit name will display in the text box.
n. Select the Mission Location pull down arrow. The available options will display.
o. Select the desired option. The option will display in the text box.

NOTE: If available options are: Map, which is selecting a location on the map; (LRF), which is using a Laser Range Finder; (Kbd), which is using the Keyboard to enter the location; (Vkb), which is using the Virtual Keyboard; Own, which is selecting your own location; and Name, which is selecting from a list of names.

p. Scroll down to the Comments field and select the Edit/View button. The system will display the Edit/View Text dialog box.
q. Type the comments that will transmit with the message. The comment will display in the text box.
r. Select the OK button. The system will return to the Create: LOG Call for Support dialog box.
s. Select the Save As button. The system will display the Save As dialog box.
t. Select the Folder that the message will be saved to, or create a new folder and then highlight the folder. The folder will be highlighted.
u. Select the File text box and type the name that the user wants to call the message.
v. Select the OK button. The system will display the Save AS Confirmation dialog box with an OK button.
w. Select the OK button. The system will return to the Create: LOG Call for Support dialog box.

NOTE: The user can send the message if the Message Addressing settings were completed earlier or the user can select the Message Addressing button and enter the address the same way it was done earlier in the task.

x. Select the Send button. The system will display the Message Sent dialog box with an OK button.
y. Select the OK button. The system will return to the Create: LOG Call for Support dialog box.
z. Select the Close button. The system will return to the Ops screen.

Performance Measures	**GO**	**NO GO**
1. Prepare and send a Fragmentary Order.	――	――
2. Perform a Freetext Message.	――	――
3. Prepare and send a MEDEVAC Request.	――	――
4. Prepare and send a CTIL Action.	――	――
5. Create and send a LOG Call for Support.	――	――

Evaluation Guidance: Score the Soldier GO if all steps are passed. Score the Soldier NO-GO if any step is failed. If the Soldier scores NO-GO, show him what was done wrong and how to do it correctly.

**PERFORM BEFORE-OPERATIONS PREVENTIVE MAINTENANCE CHECKS AND SERVICES ON
FBCB2 VERSION 3.4**

171-147-0011

Conditions: Given a vehicle with an operational Force XXI Battle Command Brigade and Below (FBCB2) system with software version 3.4 loaded and TM 11-7010-326-10.

Standards: As a minimum you must: Make sure that the vehicle's MASTER POWER has been turned off. Check the following components for damage: AN/UYK-128 (V) Computer, Display Unit, Processor unit, Keyboard unit, and Cables and Connectors. Notify unit maintenance of any damaged or missing parts. Follow all warnings and cautions in the TM to prevent injury to personnel and or damage to equipment.

Performance Steps

NOTE: The Appliqué+ V4 computer requires daily and weekly checks. Daily checks are to be performed before operation, during operation, and after operation as indicated in the "Service Interval" column.

   1. Check the AN/UYK-128(V) Computer.
      a. Ensure all computer components, accessories, and cables are present, secured and properly stowed to avoid damage.
      b. Check mounting bolts before extensive equipment use.
      c. Check the ram ball mount assembly for tightness, if equipped.

NOTE: If the processor unit (PU), display unit (DU), keyboard unit (KU), or connecting cables are missing/damaged, they are not fully mission capable. The system is degraded if: PLGR, SINCGARS, or EPLRS (if so equipped) are missing/damaged.

   2. Check the Touchscreen on display unit (DU).
      a. Check for cracks, severe scratches, or other damage to the screen.

NOTE: The touchscreen is degraded if: Touchscreen is cracked or has severe scratches that would prevent its proper operation.

   3. Check the Grounding strap on display unit (DU) chassis.
      a. Conduct visual check to see if the grounding strap is present and tight on the bottom of the DU.

NOTE: The equipment is not fully mission capable if the grounding strap for the DU chassis is missing, frayed, or disconnected.

   4. Check the processor unit (PU).
      a. Check the battery tray/battery box inside the PU for charge.

NOTE: The Processor Unit is degraded if: Battery charge indicators show that battery(s) have a low charge/ no charge. For PU with NSN 7025-01-474-3793, press button twice on front of battery box to display diagnostic codes. Ensure that code "05" (i.e., Back-up Battery Low) is not displayed. For PU with NSN 7025-01-475-0217, check front of battery tray to ensure that the charge indicator displays at least three (3) LCD bars.

   5. Check the Grounding strap on Processor Unit (PU) chassis.
      a. Check to make sure that the Grounding strap is present, not frayed or disconnected.

NOTE: The Processor Unit is not mission capable if: the Grounding strap is missing, frayed or disconnected or the Grounding strap cannot be fastened securely

   6. Check the keyboard unit (KU).
      a. Check KU for non-functioning/ missing alphanumeric or Enter keys.

Performance Steps

NOTE: The keyboard unit is not mission capable if it has missing keys or alphanumeric, or Enter keys that do not function.

7. Check the cables and connectors.
   a. Check for cables with frayed, broken, or bare wires.
   b. Check to see that all cable connectors are properly mated (i.e., only the blue band should be visible).

NOTE: Cables and Connectors are not mission capable if: Wires or cables are damaged (i.e., frayed, broken, or bare). Connector(s) are not properly mated and any red band is visible on connector(s).

Performance Measures	GO	NO GO
1. Check the AN/UYK-128(V) computer.	——	——
2. Check the touchscreen on display unit (DU).	——	——
3. Check the grounding strap on display unit (DU) chassis.	——	——
4. Check the processor unit (PU).	——	——
5. Check the grounding strap on processor unit (PU) chassis.	——	——
6. Check the keyboard unit (KU).	——	——
7. Check the cables and connectors.	——	——

Evaluation Guidance: Score the Soldier GO if all steps are passed. Score the Soldier NO-GO if any step is failed. If the Soldier scores NO-GO, show him what was done wrong and how to do it correctly.

PERFORM SHUTDOWN PROCEDURES FOR FBCB2 VERSION 3.4
171-147-0012

Conditions: Given a vehicle with an operational Force XXI Battle Command Brigade and Below (FBCB2) system loaded with software version 3.4, TM 11-7010-326-10, Precision Lightweight Global Positioning System Receiver (PLGR), enhanced position location reporting system (EPLRS) if equipped, and Single-channel Ground and Airborne Radio System (SINCGARS) with Internet controller (INC).

Standards: As a minimum you must: Shut down the FBCB2 computer, PLGR, SINCGARS, and EPLRS. Perform all steps in sequence. Follow the warnings and cautions in the TM to prevent injury to personnel and or damage to equipment.

Performance Steps

NOTE: This task describes shutdown procedures for the AN/UYK-128(V) computer. The AN/UYK-128(V) computer must be shutdown first before the PLGR, EPLRS (if equipped), and SINCGARS ASIP (if equipped).

CAUTION: Do not shutdown power to the computer without first following software shutdown procedures. Failure to comply may cause the loss of program data.

CAUTION: Leaving the Processor Unit (PU) circuit breaker/switch set to "ON" will enable the battery pack to continuously charge as long as there is 18-33 Volts Direct Current (VDC) power available. This could possibly result in a dead vehicle battery if left in this condition over an extended period.

CAUTION: The keyboard should be disconnected and properly stowed when not in use to prevent it from causing equipment damage.

1. Perform AN/UYK-128(V) computer shutdown.
    a. Select the F6 Admin button. The Admin dialog box is displayed.
    b. Select the Exit Ops button. The Exit Ops confirmation dialog box is displayed.
    c. Select the Yes button. Exit Ops confirmation dialog box closes. The Ops Auto-Log in dialog box opens with countdown timer started.
    d. Select Cancel Time out button. The Ops Auto-Log in dialog box closes.
    e. Select the Start button. The Start button option menu is displayed.
    f. Select the Shut Down option. The Shut down option menu is displayed.
    g. Select the Shutdown option. Shut down confirmation dialog box is displayed
    h. Select the Yes button. Screen displays: Shutting Down the System. Safe to power off when the screen message says, Type any key to continue or approximately 10 seconds after syncing file systems...done is displayed.
    i. Press DU PWR button for up to 4 seconds and release after DU PWR LED goes dark.
    j. Set the circuit breaker/switch on the PU to the "OFF" position. The circuit breaker/switch is pointed toward the outside edge of the PU.
    k. Ensure system is properly secured (e.g., PU, DU and KU locked and secured).

2. Perform PLGR shutdown.
    a. Press the OFF (0) button for two seconds. PLGR displays: Unit Turning OFF in __seconds ON: to cancel OFF: quick off.

3. Perform SINCGARS ASIP shutdown.
    a. Place the function switch to STBY or OFF per SOP. The SINCGARS display goes blank (i.e., dark).

4. Perform INC shutdown.
    a. At the VAA set the CB1 POWER toggle switch to OFF (i.e., down position). The DS1 green POWER light goes off.

Performance Steps

    5. Perform EPLRS shutdown.
        a. Turn POWER switch to the OFF position. Green POWER indicator LED goes off.

Performance Measures	**GO**	**NO GO**
1. Perform AN/UYK-128(V) computer shutdown.	——	——
2. Perform PLGR shutdown.	——	——
3. Perform SINCGARS ASIP shutdown.	——	——
4. Perform INC shutdown.	——	——
5. Perform EPLRS shutdown.	——	——

Evaluation Guidance: Score the Soldier GO if all steps are passed. Score the Soldier NO-GO if any step is failed. If the Soldier scores NO-GO, show him what was done wrong and how to do it correctly.

PERFORM DURING-OPERATIONS PREVENTIVE MAINTENANCE CHECKS AND SERVICES ON FBCB2 VERSION 3.4

171-147-0013

Conditions: Given a vehicle with an operational Force XXI Battle Command Brigade and Below (FBCB2) system with software version 3.4 loaded and TM 11-7010-326-10. The Before checks have been completed.

Standards: As a minimum you must: Perform the During Preventive Maintenance Checks and Services on the FBCB2 system in sequence with the TM. The Before checks have been completed.

Performance Steps

1. Verify that the green LEDs are illuminated for PWR (Power), DISP (Display), and CPU (Processor Unit) on the DU Controls and Indicators Panel.

NOTE: Equipment is not fully mission capable if: Any red LED remains continuously lit when operating. Shutdown the AN/UYK-128(V) immediately. Perform Troubleshooting procedures. The red and/or amber LEDs may Illuminate briefly during initial power application.

2. Verify that the Local Comm status is "G" (green) which is the first gumball from the left on the Classification/Status Bar on the FBCB2 Ops Main screen.

NOTE: The equipment is degraded if: Local Comm status gumball is "A" (Amber). Status is Unknown if gumball is "W" (White).

3. Verify that the Global Positioning System (GPS) status is "G" (green) on the FBCB2 Ops Main screen, which is the second gumball from the left on the Classification/Status Bar.

NOTE: The equipment is degraded if: GPS status gumball is "R" (red) or "A" (amber). Status is Unknown if gumball is "W" (white).

4. If so equipped, verify that the Battlefield Combat Identification System (BCIS) status is "G" (green) on the FBCB2 Ops Main screen.

NOTE: The Equipment is degraded if: BCIS status gumball is "R" (red) or "A" (amber), which is the third gumball from the left on the Classification/Status Bar. Status is Unknown if gumball is "W" (white).

Performance Measures	**GO**	**NO GO**
1. Verify that the green LEDs are illuminated for PWR (Power), DISP (Display), and CPU (Processor Unit) on the DU Controls and Indicators Panel.	——	——
2. Verify that the Local Comm status is "G" (green) which is the first gumball from the left on the Classification/Status Bar on the FBCB2 Ops Main screen.	——	——
3. Verify that the Global Positioning System (GPS) status is "G" (green) on the FBCB2 Ops Main screen, which is the second gumball from the left on the Classification/Status Bar.	——	——
4. If so equipped, verify that the Battlefield Combat Identification System (BCIS) status is "G" (green) on the FBCB2 Ops Main screen.	——	——

Evaluation Guidance: Score the Soldier GO if all steps are passed. Score the Soldier NO-GO if any step is failed. If the Soldier scores NO-GO, show him what was done wrong and how to do it correctly.

**PERFORM AFTER-OPERATIONS PREVENTIVE MAINTENANCE CHECKS AND SERVICES ON
FBCB2 VERSION 3.4**

171-147-0014

Conditions: Given a vehicle with an operational Force XXI Battle Command Brigade and Below (FBCB2) system with software version 3.4 loaded and TM 11-7010-326-10. The Before and During checks have been completed.

Standards: As a minimum you must: Perform the After Preventive Maintenance Checks and Services on the FBCB2 system in sequence with the TM. The Before and During checks have been completed.

Performance Steps

1. Check the AN/UYK-128 (V) Computer.
    a. Ensure all computer components, accessories, and cables are present, secured and properly stowed to avoid damage.
    b. Check mounting bolts before extensive equipment use.
    c. Check Ram Ball assembly for tightness, if equipped.

NOTE: Equipment is degraded if: PLGR, SINCGARS, or EPLRS (if so equipped) are missing/damaged and if Processor Unit (PU), Display Unit (DU), Keyboard Unit (KU), or connecting cables are missing/damaged, and thereby prevent proper equipment operation.

2. Check the Processor Unit (PU).
    a. Securely fasten the Removable Hard Disk Cartridge (RHDDC) access door. All four (or all six) captive fasteners must be evenly and securely tightened.

NOTE: Equipment is not fully mission capable if: RHDDC access door is not properly closed due to obstructions, bad seal, and broken/missing/loose captive fastener(s).

3. Check the Processor Unit (PU), Display Unit (DU), and Keyboard Unit (KU).
    a. Safeguard with 5200 series lock(s)/cables to secure PU, DU, and KU as applicable to your platform.

NOTE: Equipment is not fully mission capable if: PU, Hard Disk Drive Door, DU, and/or KU are not secured and cables and/or locks are missing/damaged.

4. Set Circuit Breaker (CB) toggle switch to OFF position.

NOTE: Equipment is degraded if: CB toggle switch is not set to OFF position or CB switch is broken/damaged.

Performance Measures	**GO**	**NO GO**
1. Check the AN/UYK-128 (V) Computer.	——	——
2. Check the Processor Unit (PU).	——	——
3. Check the Processor Unit (PU), Display Unit (DU), and Keyboard Unit (KU).	——	——
4. Set Circuit Breaker (CB) toggle switch to "OFF" position.	——	——

Evaluation Guidance: Score the Soldier GO if all steps are passed. Score the Soldier NO-GO if any step is failed. If the Soldier scores NO-GO, show him what was done wrong and how to do it correctly.

PREPARE/SEND A LOGISTICAL STATUS REPORT USING FBCB2 VERSION 3.4
171-147-0015

Conditions: Given a vehicle with an operational Force XXI Battle Command Brigade and Below (FBCB2) system with software version 3.4 loaded. You are in an assembly area or battle position and you have received a platoon operation order (OPORD) or fragmentary order (FRAGO) for a resupply operation. The default Message Addressing settings for this report have been set.

Standards: As a minimum you must: Select the LOG Report on FBCB2 and enter your logistical data in the on-hand column. Save the updated information and send the report to higher.

Performance Steps

1. Select the Apps button from the Function bar or select the F7 button from the keyboard. The system will display the Apps dialog box.

2. Select the FBCB2 tab which should be the Defaulted Tab. The system will display the FBCB2 tab group.

3. Select LOG Report under the FBCB2 Tab. The system will highlight the LOG Report.

NOTE: The LOG Report can also be accessed through the Messages button, Create tab, and Reports radio button. The Logistics Status Report message is used to report an individual unit's, multiple units', or a compilation of the units' commander's tracked items list (CTIL) and basic required items list (BRIL) on-hand quantities. FBCB2 receives LOGSITREP data from other single FBCB2 platforms. FBCB2 will not automatically save multiple LOGSITREPs associated with the same unit or operational facility (OPFAC); new reports will overwrite old ones. If the logistics application is active when a "Logistics" Report message arrives, a flag icon appears on the [Redisplay] button highlighted in yellow.

4. Select the Execute button. The system will display the LOG Report dialog box with a Roll up tab and a Single tab.

NOTE: The Roll up tab is divided into three areas: (1) The operational Information, which includes the Reporting DTG, Roll up Unit, Quantity Displayed, Roll up Check box, Roll up Comments button, and the Subordinate Unit Information. (2) The CTIL Data display, which includes the Individual items of the CTIL and the Class of supply on the left side. (3) The push buttons, which include the Roll up, Message Addressing, Tailor CTILs, Select All, Send, Redisplay, Deselect All, Save, Close, Delete, Print, and Help. There will be from two columns to several columns on the Roll up tab depending on the user's duty position. The first column is the Roll up column, which is the column below the Roll up Comments button. The user's column is the column just to the right of the Roll up column. If subordinate platforms will be sending their LOG Report to this platform, then there will be several more columns to the right of the user's column.

5. Select the Single tab. The system displays the Single tab group.

NOTE: The Single Tab is similar to the Roll up tab. The Single tab is the tab that the quantities will be entered into.

6. Select the text box under the On-Hand/Operational Item Count column for the first item. The system will display NS highlighted in black.

7. Enter the amount that the user has on-hand in the text box. The system will display the amount in the text box.

NOTE: If the number will not enter in the text box, then go back to he Roll up Tab and uncheck the User's column, then go back to the Single tab and enter the number.

8. Select the text box under the Authorized Item Count column. The system will display the NS highlighted in black.

Performance Steps

9. Enter the amount that the user is authorized. The system will display the amount in the text box.

10. Place the cursor in the text box under the Required Item Count Column for the first item and click the left mouse button. The system will automatically calculate the difference.

11. Select the Save button. The system will display a Successful Save dialog box stating "Saved the logistics record for (the user's platform name)" with an OK button.

12. Select the OK button. The system will return to the Single tab.

NOTE: Complete steps 6 through 12 for each item in the CTIL.

13. Select the Roll up Tab. The system will display the Roll up tab group with the quantities entered in the Single tab.

14. Place a checkmark in the checkbox above the user's column next to the word Selected and any column to the right of the user's column.

NOTE: Before selecting the Roll up button, ensure that the Selected Checkbox above the Roll up column is check marked and all the columns to the right of the user's column to include the user's column are check marked.

15. Select the Roll up button. The system will roll up all the quantities for all the columns into the Roll up column.

16. Select the Roll up Comments button. The system will display the Comments: dialog box.

17. Type a comment that the user wants to send with the keyboard or the virtual keyboard.

18. Select the OK button. The system will return to the Roll up tab with a checkmark on the Roll up Comments button.

NOTE: If the LOG Report needs to be sent higher, then the user would check the Redisplay button if there was a Black flag highlighted in yellow to update the Log Report, Roll up the new data and send it to higher.

19. Select the Close button. The system will return to the Ops screen.

Performance Measures	**GO**	**NO GO**
1. Select the Apps button from the Function bar or select the F7 button from the keyboard.	——	——
2. Select the FBCB2 tab which should be the Defaulted Tab.	——	——
3. Select LOG Report under the FBCB2 Tab.	——	——
4. Select the Execute button.	——	——
5. Select the Single tab.	——	——
6. Select the text box under the On-Hand/Operational Item Count column for the first item.	——	——
7. Enter the amount that the user has on-hand in the text box.	——	——
8. Select the text box under the Authorized Item Count column.	——	——
9. Enter the amount that the user is authorized.	——	——
10. Place the cursor in the text box under the Required Item Count Column for the first item and click the left mouse button.	——	——

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Performance Measures	**GO**	**NO GO**
11. Select the Save button.	⎯⎯	⎯⎯
12. Select the OK button.	⎯⎯	⎯⎯
13. Select the Rollup Tab.	⎯⎯	⎯⎯
14. Place a checkmark in the checkbox above the user's column next to the word Selected and any column to the right of the user's column.	⎯⎯	⎯⎯
15. Select the Rollup button.	⎯⎯	⎯⎯
16. Select the Rollup Comments button.	⎯⎯	⎯⎯
17. Type a comment that the user wants to send with the keyboard or the virtual keyboard.	⎯⎯	⎯⎯
18. Select the OK button.	⎯⎯	⎯⎯
19. Select the Close button.	⎯⎯	⎯⎯

Evaluation Guidance: Score the Soldier GO if all steps are passed. Score the Soldier NO-GO if any step is failed. If the Soldier scores NO-GO, show him what was done wrong and how to do it correctly.

EMPLOY MAP FUNCTIONS USING FBCB2 VERSION 3.4

171-147-0017

Conditions: Given a vehicle with an operational Force XXI Battle Command Brigade and Below (FBCB2) system with software version 3.4 loaded, precision lightweight global positioning system receiver (PLGR), enhanced position location radio system (EPLRS), and single-channel ground air radio system (SINCGARS) with Internet controller (INC).

Standards: As a minimum you must: Employ Map functions to manage and exchange information, to include: Background type, Map scale, Zoom, Brightness, Contrast, Grid Coordinate type, MGRS accuracy, Grid line spacing, Grid line color, Center on a Unit/Platform, Center on a location, Edit a location, View a location in the World map, and scroll with the scroll function.

Performance Steps

1. Select the Map button from the Function Bar or press the F1 key on the keyboard. The system will display the Map Control dialog box.

NOTE: The Map Button allows the user to change the background which gives the user more of less detail of the battlefield, add grid lines with different color and spacing, and center on a known point, platform or georeference. The Background Tab group is used to choose the Type, Scale, Zoom magnification, and appearance (brightness/Contrast) of the Map display. The Four background types are: (1) (CADRG) Compressed Arc Digital Raster Graphics, which is the Joint services standard map background product. (2) (VPF) Vector Product Format which is the map that displays major man-made and natural features on the SA screen such as cities, railroads, major roads, rivers, and lakes, (3) (DTED) Digital Terrain Elevation Data which is the uniform matrix of terrain elevation values, and provides basic quantitative data for all Military systems that require terrain elevation, slope, and surface roughness. (4) (Imagery) which is Reconnaissance Imagery that can be sent to the FBCB2 and displayed. The Map Control dialog box has standard push buttons at the bottom of each tab: Set Defaults, which sets the current settings as the Map default settings; Restore Defaults, which changes the current settings to the map default settings; the OK button, which applies the changes and closes the dialog box; the Apply button, which applies the changes and keeps the dialog box open; the Close button, which closes the dialog box; and the Help button, which provides help on the background tab.

2. Select the Background tab if it is not selected. The system will display the Background tab group.
    a. Deselect CADRG by unchecking the box to the left of CADRG.

NOTE: You must deselect one background type before you select another due to the fact that if you have more then on type selected, you might cover information from one map with the other.

    b. Select the VPF by placing your cursor in the box to the left of VPF and clicking, which will put a checkmark in the box.
    c. Select Apply. The system will display a light tan colored map with Cities, Lakes, Rivers, Railroads, Names, and Roads if they are on the map.
    d. Select the edit button to the right of the VPF. The system will display a VPF dialog box.

NOTE: From here you can turn off one or more of the attributes by deselecting whatever one the user don't want displayed.

    e. Deselect the names and select apply.

NOTE: Notice how the Names that were displayed on the map are no longer displayed. If the user wants it back on the map then all the user needs to do is select the box next to the attribute and select apply.

    f. Select close. The system will redisplay the Map Control dialog box.
    g. Deselect the VPF and select DTED.
    h. Select the apply button. The system will display a Dark green, Light green and Brown map.

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Performance Steps

NOTE: There are no edit functions for the CADRG, DTED, or Imagery.

      i. Deselect the DTED and select the Imagery and select apply. The system will display an aerial photograph of the earth surface as seen from above.

      j. Deselect the Imagery and select the CADRG and select apply. The system will display the standard map.

      k. Select the Scale pull-down button. The system will display the different scales that can be selected between 1 meter and 10 kilometers.

      l. Select 250K and select apply. The system will display a tannish colored map in a scale of 250K.

NOTE: Notice that it is hard to read. You can use the zoom button to enlarge the image.

      m. Select the Zoom pull-down button. The system will display the different zoom magnifications between 1/4X to 8X.

      n. Select the 2X and select the apply button. The system will display the map in 2X magnification.

      o. Select the Brightness slide bar and drag it left or right to adjust the brightness of the map display.

      p. Select the Contrast slide bar and drag it left or right to adjust the Contrast.

      q. Select the Zoom pull-down menu and select 50K and select apply.

      r. Select the Zoom pull-down button and select 1X and select apply. The system will display the standard map.

   3. Select the Grid tab. The system will display the Grid tab group.

NOTE: The Grid tab allows the user to customize the map display grid lines. The Grid tab contains two areas: Grid type and Grid Lines. The Grid Type area includes two combo boxes: Coordinate Type and MGRS Accuracy.

      a. Select the Coordinate pull-down arrow. The system will display the coordinate types.

NOTE: The four Coordinate types are: Military Grid Reference System (MGRS), Longitude and Latitude (LAT/LON), Degrees, Minutes, Seconds (DMS), Universal Traverse Mercator (UTM).

      b. Select the MGRS if it is not already set to that type, which is the standard, coordinate type for the military. The system will display the MGRS in the Coordinate type text box.

      c. Select MGRS Accuracy pull-down arrow. The system will display 1, 10, and 100 meters.

      d. Select 1m. The system will display 1m in the MGRS Accuracy text box.

      e. Select the box to the left of Show Grid to check the box. The system will show a checkmark in the box and activate two additional pull down arrows: Grid line Spacing and Grid line color.

NOTE: Grid line Spacing provides the user options based on the Coordinate type selected. The Grid line Color gives the user the option of changing the color of the grid lines.

      f. Select the Grid line spacing pull-down arrow. The system will show the different selections for spacing.

      g. Select 1km which is the standard distance that the Military uses between grid squares

      h. Select the Grid line color pull-down arrow. The system will show the different colors for the grid lines.

      i. Select black which is the standard color that the Military uses for a Map.

      j. Select Apply. The system will display the grid lines in the color and distance that the user chose.

      k. Deselect the Show grid lines.

      l. Select Apply.

   4. Select the Center tab. The system will display the Center tab group.

NOTE: The Center Tab will display three additional tabs: the Unit/Platform tab, Location tab, and the Scroll tab. The Center tab gives the user the ability to move quickly around the map. The Center function allows the user to move the map around to a specific unit or a general location.

Performance Steps

    5. Select the Unit/Platform tab if it is not already selected. The system will display the Unit/Platform tab group.

NOTE: The Unit/Platform Tab allows the user to center the map on any units, platforms, or georeference that exist as SA within the visible battle space. The Unit/Platform tab contains: Refresh button, which refreshes or updates the unit platform options. The Search box allows the user to find the desired unit in a quick manner. The Details button allows the user to get information about a selected icon. The pull-down arrow allows the user the ability to center on Friendly, Observed, Air and Georeference one time unlike the Auto Center button which continually keeps the user's own platform centered. If no units of the type exist, the system does not display any units.

        a. Select the Unit/Platform pull down arrow just under the virtual keyboard. The system will display four selections.

NOTE: There must be some friendly, observed, Air and georeference on the map in order to see how the next steps work. The user can place some of these on the map by the SALT report in Combat Messages. See Task 171-147-0001 Step 2. After putting some icons on the map go back to the Map button, Center tab, Unit/Platform tab and select the refresh button.

        b. Make a selection from the list such as Observed. The system will display the observed/hostile/unknown units and platforms available to the user in the window under the Unit/Platform tab.

        c. Select one of the available Units or platforms from the window under the Unit/Platform tab. The system will highlight that selection.

        d. Select the Apply button. The system will center on the Unit/Platform that the user selected.

        e. Select the Unit/Platform pull down arrow. The system will display the same four selections.

        f. Select Friendly. The system will display Friendly in the text box and display all the friendly Units/Platforms that are on the map in the window below the Unit/Platform tab.

        g. Select one of the Unit/Platforms from the list. The system will highlight the selection.

        h. Select the Apply button. The system will center on that Unit/Platform.

    6. Select the Location tab. The system will display the Location tab group with a list of all the available, pre-loaded, Map Data Groups and Georeference.

NOTE: The Location tab gives the user five methods of changing the map display area: Map data groups/Georeference which is the window with the list of all the available, pre-loaded, map data groups and georeference, Fill Location button which allows the user to pick a location using the mouse cursor, Manual Fill location text box which allow the user to type in the Location, The Edit Locations button which allows the user to create and modify a desired map data group, and World Coverage button which allows the user to choose and load a SA map anywhere in the world provided that the map area is loaded into the software.

        a. Select the Fill Loc button. The Map control dialog box will disappear and the mouse cursor will be replaced with a cross hair.

        b. Select a location on the map. The system will display the Map control dialog box with the location in the Location text box.

        c. Select apply. The map will center on the location that you picked.

NOTE: Move the Map Control dialog box to the side if it is in the way to see that it centered on the location that the user picked.

        d. Select the Edit Locations button. The system will display the Edit Map Locations dialog box.

NOTE: The Edit Locations button allows the user to make a map data group for ease of movement on any loaded map.

        e. Select the Group Name text box and type a name that the user wants to call the folder or select the virtual keyboard and type the name using the mouse and select OK.

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NOTE: The group name is limited to 20 characters.

     f. Select the Location Label text box and type the name that the user wants to call the location or select the virtual keyboard and use the mouse to type the name and select the OK button.

NOTE: The Location Label is limited to 20 characters.

     g. Select the Fill Loc button and select a location on the map. The Edit Map Locations dialog box will reappear with the location in the Location text box.

     h. Select the Apply button. The Edit Map Location dialog box will display the new group folder in the window with the Location name under the folder.

NOTE: Now all the user has to do is select the group from the Location tab and center on it.

     i. Select close. The system will display the Location Tab group.

     j. Select the World Coverage button. The system will display the World Coverage dialog box.

NOTE: The World Coverage allows the user to choose and load a SA map anywhere in the world provided the map area is loaded in the software. Currently all maps are not loaded. There are two tabs in the World Coverage dialog box: Background and Scroll. There are several common push buttons that appear in each of the two tabs. They do the same thing in both tabs. They consist of: Zoom Out, which zooms the map back out once you have zoomed in on a portion of the map, Previous View which lets the user go back one view at a time, Set Center which allows the user to quickly set center anywhere in the world, World View which quickly displays the world map, Close which closes the World Coverage dialog box, and Help which give the user help on the World Coverage dialog box.

     k. Select the Background tab which has two groups: Types and Scales.

     l. Select the type of map that you want to see (CADRG, DTED, IMAGERY) by checking the box next to the name.

NOTE: If the User wants to see the World map in the Imagery mode, the user must go to the Background tab in the Map Control dialog box and uncheck the map type that it is in and then check the Imagery type and select OK and then go back to the Center tab, Location tab and select the World Coverage button.

     m. Select the scale by checking the box next to the scale that you want. The system will display a checkmark in the box and a yellow blotch on the map where that scale applies.

NOTE: The user can only have one scale checked at once so the user must uncheck the scale that the user doesn't want.

     n. Select Set Center button and move your cursor over the world map. The cursor changes to a square box.

     o. Place the cursor over the area on the map that the user wants to center on and click the left mouse button. The system will center the SA map on that location.

     p. Select the Close button. The system will display the Map Control dialog box.

     q. Double-click on the Defaults folder on the Location Tab, Or select the + sign to the left of the Defaults folder to open the folder.

NOTE: Notice the list of Different areas that you can center on.

     r. Select a location from the list. The system will highlight the selection.

     s. Select the Apply button. The system will center the map on that area and leave the Map Control dialog box open.

     t. Select the Close button. This will close the Map Control dialog box.

  7. Select the Scroll Tab. The system will display the Scroll Tab group.

NOTE: This function allows the user to scroll the map display in the direction of the arrow one full screen at a time. This is used when the user needs to view an area close by.

Performance Steps
   a. Select any arrow and watch the map move one screen in the direction that was selected.
   b. Select the Close button. The system will return to the Ops screen.

Performance Measures	**GO**	**NO GO**
1. Select the Map button from the Function Bar or press the F1 key on the keyboard.	——	——
2. Select the Background tab if it is not selected.	——	——
3. Select the Grid tab.	——	——
4. Select the Center tab.	——	——
5. Select the Unit/Platform tab if it is not already selected.	——	——
6. Select the Location tab.	——	——
7. Select the Scroll Tab.	——	——

Evaluation Guidance: Score the Soldier GO if all steps are passed. Score the Soldier NO-GO if any step is failed. If the Soldier scores NO-GO, show him what was done wrong and how to do it correctly.

EMPLOY FIPR FUNCTIONS USING FBCB2 VERSION 3.4

171-147-0019

Conditions: Given a vehicle with an operational Force XXI Battle Command Brigade and Below (FBCB2) system with software version 3.4 loaded, precision lightweight global positioning system receiver (PLGR), enhanced position location radio system (EPLRS) if equipped, and single-channel ground air radio system (SINCGARS) with Internet controller (INC).

Standards: As a minimum you must: Employ screen operations functions to manage and exchange information, to include: Displaying messages in the FIPR queue; Identifying if the message is an Alert, the time the message was sent, the Message type, if an Operator response is required, who the Source Originator is, the Address type, type of Danger Zone, distance to the danger zone, direction to the danger zone, location of the danger zone, Originator of the danger zone, and view the alerts in the marquee.

Performance Steps

NOTE: Messages of each precedence must be received in the FIPR Queue before this task can be accomplished.

  1. Select the FIPR (flash, immediate, priority, routine) button on the Function bar. The system will display the FIPR dialog box.

NOTES:

(1) The FIPR button allows the user to check messages that the system receives. An audible alarm of short duration alerts the user to incoming messages. The number at the end of the "FIPR" button represents the total number of messages in the queue. The system ranks messages by precedence as set by VMF (variable message format). A black exclamation mark (!) highlighted in yellow on the FIPR button informs the user that one or more warning messages are on the queue. A black plus (+) mark highlighted in yellow informs the user that an operator response is requested.

(2) There are six buttons on the FIPR Queue no matter what tab the user is in. The Display button, which allows the user to display the message, the Delete button, which allows the user to delete the message that is highlighted, the Delete All in Tab, which allows the user to delete all messages in the tab that is selected, the Refresh button, which allows the user to refresh the FIPR queue if a message arrived while viewing other messages, which is indicated by a black flag highlighted in yellow, the Close button which closes the FIPR Queue, and the Help button, which allows the user to get help on the FIPR function.

  2. Select the FLASH tab if it is not selected already. The system will display the Flash tab group.

Performance Steps

NOTES:

(1) The FIPR dialog box contains five tabs. Each tab represents message precedence in their order of rank. The number on each tab indicates the number of messages for that level of precedence. Flash is the highest, then Immediate, Priority, Routine, and Warnings, which contains Warnings/Alerts, Cautions, and Danger Zones. If no messages have been sent to the system, a 0 will be displayed on the FIPR button.

(2) Each tab in the FIPR queue (Flash, Immediate, Priority, Routine) has six message headers which include: (1) Alert which informs the user if the message is an Alert or not. (2) Time, which informs the user of the time that the message was sent. (3) Sec, which informs the user of the Security classification of the message. (4) Msg Type, which informs the user of the Type of message. (5) OR which informs the user that an operator's response is required. This column will display a Y when a response is required. (6) Source Originator, which informs the user who sent the message. The last tab, which is the Warnings tab, contains information on Warnings/Alerts, Cautions, and Danger Zones.

      a. Select the message from the list by left clicking it with the mouse pointer. The message will highlight.
      b. Select the Display button. The dialog box for the type of message that was selected will display.

NOTE: If a LOG Report was selected in sub-step a., then the LOG Report dialog box will display.

      c. Select the Close button for the message that was displayed. The system will return to the FIPR Queue on the same tab that the user was on.

  3. Select the Immediate tab when you want to read an immediate (second highest precedence) message.

NOTE: The system displays the exact same dialog box except that you are in the Immediate tab now. All functions are the same for each of the tabs except for the Warnings Tab.

      a. Select the message from the list by left clicking it with the mouse pointer. The message will highlight.
      b. Select the Display button. The dialog box for the type of message that was selected will display.
      c. Select the Close button for the message that was displayed. The system will return to the FIPR Queue on the same tab that the user was on.

  4. Select Priority tab when you want to read a priority (third highest precedence) message.
      a. Select the message from the list by left clicking it with the mouse pointer. The message will highlight.
      b. Select the Display button. The dialog box for the type of message that was selected will display.
      c. Select the Close button for the message that was displayed. The system will return to the FIPR Queue on the same tab that the user was on.

  5. Select the Routine tab when you want to read a routine (lowest precedence) message.
      a. Select the message from the list by left clicking it with the mouse pointer. The message will highlight.
      b. Select the Display button. The dialog box for the type of message that was selected will display.
      c. Select the Close button for the message that was displayed. The system will return to the FIPR Queue on the same tab that the user was on.

  6. Select the Warning tab. The system will display the Danger Zones and Marquee tabs.

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NOTE: The Warnings Tab contains a window that displays the warnings received by the system. Under the Warnings Tab, on the FIPR dialog box is a Danger Zones Tab. The FBCB2 system creates these zones when the operator receives certain messages. As the operator's vehicle approaches these danger zones, the FBCB2 system warns the operator with an audible tone and displays the alert on the Warnings/Alerts marquee. The Danger Zones tab has five columns. (1) Type, which contains the type of Danger Zone. (2) Dist, which contains the distance to the Danger zone from the Platforms location. (3) Dir, which contains the direction to the Danger zone. (4) Location, which contains the grid location of the Danger zone. (5) Originator, which contains the name of the message originator.

  a. Select the Danger Zones tab if it is not selected. The system will display the Danger Zones tab group.

NOTES:

(1) A Warning/Alert must first be sent to the users system that is close to it's platform's location before the next step can be performed such as a MOPP alert. Once the users platform gets that warning, it should show in the FIPR Queue and on the Warnings/Alert Marquee.

(2) All of the Tab groups in the FIPR dialog box have common push buttons at the bottom of the box. Display button shows the highlighted message. Delete button deletes the highlighted message, Delete all in tab button deletes all the messages in the tab, Refresh button updates the Queue when the system receives a new message while the user was viewing the messages by showing a black flag highlighted in yellow on the Refresh button, Close button closes the dialog box and Help button helps the user with the FIPR Queue button.

  b. Select the Danger Zones tab. The system will display the Danger Zones tab group.

NOTE: If there is no warnings such as an NBC1 report listed in the Danger Zones tab then go to the Messages Button and create a NBC1 and locate it close to your platform icon on the map then send it out. Once this happens it should show in the Danger Zones tab.

  c. Select one of the danger zone messages in the Danger Zones tab by highlighting it. The system will show the message highlighted in black.
  d. Select the Details button at the bottom of the Danger Zones tab. The system will display the Hook dialog box, which shows the content of the danger zone.

NOTE: From the Hook dialog box the user can delete, and edit the message.

  e. Select the Close button. The system will return to the ops screen.
  f. Reselect the FIPR button and then the Warnings tab. The system will display the Warnings tab group.
  g. Select the Marquee tab. The system will display the Marquee tab group.

NOTE: The Marquee tab allow the user to view all the warnings and alerts together on one page.

  h. Select the Close button. The system will return to the ops screen.

Performance Measures	GO	NO GO
1. Select the FIPR (flash, immediate, priority, routine) button on the Function bar.	——	——
2. Select the FLASH tab if it is not selected already.	——	——
3. Select the Immediate tab when you want to read an immediate (second highest precedence) message.	——	——
4. Select Priority tab when you want to read a priority (third highest precedence) message.	——	——

Performance Measures	**GO**	**NO GO**
5. Select the Routine tab when you want to read a routine (lowest precedence) message.	——	——
6. Select the Warning tab.	——	——

Evaluation Guidance: Score the Soldier GO if all steps are passed. Score the Soldier NO-GO if any step is failed. If the Soldier scores NO-GO, show him what was done wrong and how to do it correctly.

EMPLOY STATUS FUNCTIONS USING FBCB2 VERSION 3.4
171-147-0020

Conditions: Given a vehicle with an operational Force XXI Battle Command Brigade and Below (FBCB2) system with software version 3.4 loaded, precision lightweight global positioning system receiver (PLGR), enhanced position location radio system (EPLRS) if equipped, and single-channel ground air radio system (SINCGARS) with Internet controller (INC).

Standards: As a minimum you must: Employ screen operations functions to manage and exchange information, to include: Determine if a component is degraded, determine the status of the network, Situational awareness data, the count of Observed and Friendly icons, and the status of the Hard drive.

Performance Steps

1. Select the Status button from the Function Bar or the F5 button on the Keyboard. The system will display the Status tab group.

NOTE: The Status function provides a means for the user to observe the operational status of the Platform's communications systems, the Tactical Internet (TI), and the general disk employment. The Status tool should also be used as a quick reference and troubleshooting tool when it is noticed that the system is not operating at its optimal level. The Status Dialog box contains three Sub-tabs: the Systems, SA, and General tab. The Status button contains read-only information.

2. Select the Systems tab. The systems tab displays two columns of information: Systems Name and Status.

NOTE: System Name has small file folders that represent the user platform's Global Positioning System (GPS), Local Communications (LOCAL COMM), and other associated systems connected to the platform, to include the Laser Range Finder (if applicable). The second tab is the Status tab which displays the diagnostic details for the associated component, which are: Go (Green) diagnostic test indicated that the component is operative at the optimal level, Degraded (Amber) diagnostic test indicated that the test is operative at an acceptable level, No GO (RED) diagnostic test indicated that the component is inoperative or not operative within acceptable parameters, Not Tested (WHITE) device unavailable or not configured for the system.

   a. Select the + sign to the immediate left of the GPS folder symbol, Or double-click on the folder symbol itself to open the contents. You should see the associated sub-components and their corresponding status indications. If there is no + sign showing then there is no information available for that component.

NOTE: You should see the following status indications: TIME- displays the Time Figure of Merit (TFOM) quality, HEADING- displays the quality of the heading received from the GPS, POSITION- displays the Figure of Merit (FOM) quality

   b. Close the GPS Component by selecting the - sign to the immediate left of the GPS folder symbol, Or double-click the GPS folder symbol.
   c. Open the LOCAL COMM folder by selecting the + sign, or double-clicking the LOCAL COMM folder.

Performance Steps

NOTE: The Local Comm status tells the user how the communication devices located on the platform are functioning. The List of devices and interfaces will vary based on the platform role and configuration. Opening the LOCAL COMM displays the sub files with the diagnostic results for that system. The sub files reveal the names of the pertinent devices. The devices you should see are: Local Area Network (LAN) used to connect local FBCB2 systems by way of a continuous cable, REMOTE DISPLAY which is a remote that can be dismounted. Router_1, which is a special-purpose computer (or software package) that transfers data between two or more networks that use the same protocols. Routers look at the destination addresses of the information packets and route them to the proper FBCB2 system. The FBCB2 uses the INC to perform the duties of the router.

d. Select the + sign next to the Router 1 folder, or double-click the Router 1 folder to open it.

NOTE: Router_1, which is a special-purpose computer (or software package) that transfers data between two or more networks that use the same protocols. Routers look at the destination addresses of the information packets and route them to the proper FBCB2 system. The FBCB2 uses the INC to perform the duties of the router. Router_1_PPP is Point-to-Point Protocol. It allows a computer to use TCP/IP (Internet) protocols. A protocol is a definition of how computers will act when talking to each other.

e. Open the R1_SINCGARS1 folder by selecting the + sign or double-clicking the folder.

NOTE: R1_SINCGARS1 and R1_SINCGARS2 are the radios that are connected to the FBCB2 system. The sub-components are Interface which is an expansion board within the radio system that permits connection of the external devices, the Net_ID/Frequency which is the Network identification numbers and or frequency, the Pckt_Mode which enables the transmission and reception of data blocks containing control information- such as routing, address, and error control, as well as data.

f. Open the R1 EPLRS_Radio by selecting the + sign or double-clicking the folder.

NOTE: The R1 EPLRS_Radio is the Enhanced Position Location Reporting System which is an integrated Command, Control, and Communications (C3) system that provides near real-time data communications, position/location, navigation, identification and reporting information on the modern battlefield. The sub-components are R1 EPLRS_LCN_1, LCN_2, and so on depending on how many channels. The Logical Channel Number (LCN) packet switched networks allocate a number at the time a call is set up, which distinguishes packets belonging to one call on a link from all others.

3. Select the SA Tab. The system will display the SA tab group.

NOTE: The SA Tab function is used to give the user information on the Current SA server, the Broadcast net, SA net member count, switching of nets 1, 2, and CSMA, Server connectivity and status on TI location quality.

a. Select the Net 2 radio button. The system will switch to that net if your platform has that capability.

NOTE: When you switch the net, all the information on the SA tab also switches.

b. Select the Net 1 radio button to switch back.

4. Select the General Tab. The system will display the status of the Disk Utilization.

NOTE: The General tab displays a pie chart of the system's disk utilization in percentages and total disk capacity. Percentages of disk space used and free indications appear to the right of the pie chart.

a. Select the refresh button to refresh the Information.
b. Select the Close button to close the dialog box.

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Performance Measures	**GO**	**NO GO**
1. Select the Status button from the Function Bar or the F5 button on the Keyboard.	——	——
2. Select the Systems tab.	——	——
3. Select the SA Tab.	——	——
4. Select the General Tab.	——	——

Evaluation Guidance: Score the Soldier GO if all steps are passed. Score the Soldier NO-GO if any step is failed. If the Soldier scores NO-GO, show him what was done wrong and how to do it correctly.

EMPLOY ADMIN FUNCTIONS USING FBCB2 VERSION 3.4
171-147-0021

Conditions: Given a vehicle with an operational Force XXI Battle Command Brigade and Below (FBCB2) system with software version 3.4 loaded, precision lightweight global positioning system receiver (PLGR), enhanced position location radio system (EPLRS) if equipped, and single-channel ground air radio system (SINCGARS) with internet controller (INC).

Standards: As a minimum you must: Employ screen operations functions to manage and exchange information, to include: setting the Platform location and Quality manually, setting the Course, Speed, Elevation and Altitude if applicable manually, Determine if the proper Data Net Frequency and Radio Set ID is set, setting the Requesters call sign and Medevac Voice Net Frequency, setting the Display/Message and audio settings, Local time zone, Time and Motion filters, and the Reporting mode.

Performance Steps

　1.　Select the Admin Button (F6). The system will display the Admin dialog box.

NOTE: The Exit Ops, Destroy FBCB2, OK, Apply, Close, and Help buttons at the bottom of the Admin dialog box stay displayed when cycling through each of the tabs in the Admin dialog box. Those buttons do the same thing in each tab.

(1) The Exit Ops button allows the user to exit the Ops screen and go back to the session manager screen.

(2) The Destroy FBCB2 button allows the user to destroy the FBCB2 by overwriting the files.

(3) The Ok button allows the user to make the changes and closes the dialog box.

(4) The Apply button allows the user to make the changes and keeps the dialog box open.

(5) The Help button allows the user to get help on the Admin function.

　2.　Select the Platform Settings Tab. The system will display two additional tabs, the Location and the Misc tab.

NOTE: This function allows the user to manually enter the vehicle/platform location. The PLGR usually provides this information. If the PLGR is inoperable, the user can manually enter the required settings. If the platform is fitted with an EPLRS, the Net Control Station reports the EPLRS location and compares the quality of SA on the Tactical Internet.

　3.　Select the Location tab. The system will display the Location tab group.
　　　a.　Select the Location text box and type in the grid where you want your platform to be, or select the Fill Loc Button and select a position on the Map. The system will display your icon on the map.

NOTE: If the Admin dialog box is in the way of your icon, left click the dark gray area at the top of the Admin dialog box and drag it to the side.

　　　b.　Select the Quality Down arrow and make a selection from the list.

NOTE: If a PLGR was connected to the FBCB2 and functioning correctly, this information would be entered automatically. The Quality is the degree of accuracy, which is the Figure of Merit on the PLGR.

　　　c.　Select the Course text box and type in a direction in degrees or select the virtual keypad and type the degrees in using the mouse pointer select any degree between 0 and 359 and select OK. The system will return to the Admin dialog box.
　　　d.　Select the Speed text box and type in the speed in Kph between 0 and 2047 or use the virtual keypad as before.

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      e. Select the Elevation text box and type in the elevation in feet between 1 and 65536 or use the virtual keypad.
      f. Select the Apply button. The system will apply the entries.

NOTE: Notice how your Platform icon is displayed on the map.

   4. Select the Misc tab. The system will display the Misc tab group.

NOTE: If the Requester's Call sign and MEDEVAC Voice Net Frequency are not entered before attempting to utilize the MEDEVAC Combat message, the user will be unable to send a MEDEVAC Combat massage. The Data Net Frequency field is a view only field containing the programmed SINCGARS frequency for the Tactical Internet. This Frequency will vary from unit to unit. The Radio Set ID is a view only field containing the programmed EPLRS radio frequency.

      a. Select the Requester's Call Sign text box and type in the Call sign, Or select the virtual keyboard and type the call sign in.

NOTE: When typing the call sign, it must be at least 17 characters long or it will not accept it. If your call sign is only 3 characters then type those 3 characters and hit the space bar 14 more times.

      b. Select the MEDEVAC Voice Net Frequency text box and type the frequency, Or select the virtual keyboard and type the frequency and select OK.

NOTE: When typing the MEDEVAC Voice Net Frequency, it must be at least 8 characters long or it will not accept it. If the frequency is only 5 characters long, then type the 5 characters and select the space bar 3 more times.

      c. Select the apply button.

NOTE: If the entries were entered correctly it would apply them. If they were entered incorrectly an error message would appear explaining what the problem is.

   5. Select the Local Settings tab. The system will display Two additional tabs, the Display/Message, and the Audio tabs.
      a. Select the Display/Message Tab. The system will display the Display/Message tab group.
      b. Select the Chembio Auto Send radio button On/Off.

NOTE: This function will be grayed out if your vehicle is not equipped with the (MICAD) Multipurpose Integrated Chemical Agent Detector or the (LRBSDS) Long Range Biological Stand-Off Detection System.

      c. Select the Reminder Dialog radio On button. The On button will highlight.

NOTE: The Reminder Dialog function toggles all Periodic Reminders and Voice on/off.

      d. Select the Warning Time Interval pull down arrow. Make a selection from the list between 3 seconds and 10 seconds.

NOTE: This is the time that each Alert/Warning message will be displayed in the Alert/Warning Marquee on the Classification/Status Bar.

      e. Select the Local Time Zone pull down arrow and scroll to your time zone.
      f. Select the Apply button to make the changes.

   6. Select the Audio tab. The system will display the Audio tab group.

NOTE: The Audio button allows the user to set Alerts, Notices, and Reminders to Tone, Voice, or Off. It also sets the voice volume and to mute alerts or preview a voice alert.

      a. Select the Tone, Voice, or Off radio button under Alerts depending on if you want to hear a tone, voice or nothing on the speaker.
      b. Select the Tone or Off radio button under Notices if you want to hear Notices.

Performance Steps

     c. Select the Tone1, Tone2, or Off radio button under the Reminders.

NOTE: There are two different tones that you can hear for Reminders.

     d. Select the Voice volume slider by left clicking and holding. Move the slider right to increase and left to decrease the volume.

     e. Check the Mute all box if you don't want to hear anything.

NOTE: Mute All is not recommended.

     f. Select the Preview Voice pull-down arrow. Make a selection from the list.

     g. Select the Play button and listen to the speaker.

NOTE: If you want to hear a voice, make sure that Alerts is set to voice.

     h. Select the Apply button to make the changes.

  7. Select the SA Settings Tab. The system will display the SA Tab Group.

  8. Select the Own tab. The System will display the Own Tab Group.

NOTE: This feature allows the user to set their own Time and Motion filters and the reporting Mode settings.

     a. Select the Time Filter pull down arrow and make a selection from the list between 10 seconds and 60 minutes.

     b. Select the Motion Filter pull down arrow and make a selection from the list between 50 meters and 2500 meters.

     c. Select the Reporting Mode radio button: Auto, Manual, or Off.

     d. Select the Apply button.

  9. Select the Friendly Tab. The system will display the Friendly Tab Group.

     a. Select the Stale pull down arrow and make a selection from the list between 5 minutes and 2 hours. The system will display the time in the Stale text box.

     b. Select the Old pull down arrow and make a selection from the list between 10 minutes and 4 hours.

NOTE: The Old feature allows the user to set the elapse time before a friendly SA symbol becomes old (grays out on the map). If the system does not update its position report in the prescribed time, the system marks the last position as old.

     c. Select the Purge pull down arrow and make a selection from the list between 1 hour and 20 hours. The system will display the time in the Purge text box.

NOTES:

(1) The Purge Time is the elapse time before your system purges the symbol from your map (deletes it off your map) if the friendly system doesn't send its position report.

(2) You must select the settings according to your SOP.

(3) Restore all SA Default settings allows the user to restore the settings back to the default

     d. Select the Apply button.

 10. Select the Observed Tab. The system displays the Observed Tab group. Complete the Observed tab exactly like the Friendly tab.

 11. Select the Air tab. The system will display the Air tab group. Complete the Air tab exactly like the Observed tab.

     a. Select the Apply button. The system will save the settings.

     b. Select the OK button. The system will return to the Ops screen.

Performance Measures	<u>**GO**</u>	<u>**NO GO**</u>
1. Select the Admin Button (F6).	——	——
2. Select the Platform Settings Tab.	——	——
3. Select the Location tab.	——	——
4. Select the Misc tab.	——	——
5. Select the Local Settings tab.	——	——
6. Select the Audio tab.	——	——
7. Select the SA Settings Tab.	——	——
8. Select the Own tab.	——	——
9. Select the Friendly Tab.	——	——
10. Select the Observed Tab.	——	——
11. Select the Air tab.	——	——

Evaluation Guidance: Score the Soldier GO if all steps are passed. Score the Soldier NO-GO if any step is failed. If the Soldier scores NO-GO, show him what was done wrong and how to do it correctly.

EMPLOY APPS FUNCTIONS USING FBCB2 VERSION 3.4
171-147-0022

Conditions: Given a vehicle with an operational Force XXI Battle Command Brigade and Below (FBCB2) system with software version 3.4 loaded, precision lightweight global positioning system receiver (PLGR), enhanced position location radio system (EPLRS) if equipped, and single-channel ground air radio system (SINCGARS) with Internet controller (INC).

Standards: As a minimum you must: Employ screen operations functions to manage and exchange information, to include: Driver's Display, Line of Sight, Periodic Reminders, Personnel Status Report, and Radio Net Join.

Performance Steps

1. Perform Driver's Display Function.
    a. Select the Apps button from the Function Bar or select the F7 button from the keyboard. The system will display the Apps dialog box.

NOTE: The Apps function provides the user with many unique applications and tools. The Apps dialog box has Two sub-tabs: the FBCB2 tab and the Misc tab which is not available.

    b. Select the FBCB2 tab if it is not already selected. The system will display the FBCB2 Applications list.
    c. Select Driver's Display and select the execute button. The system will display the Driver's Display: Compass dialog box.

NOTE: The Driver's Display gives the user the ability to turn the compass on for the driver to follow. The dialog box has two push buttons: The Navigation button, which allows the user to switch to the Navigation Dialog Box, and the Close button, which closes the dialog box. The Nav button does the same thing as the Navigation function learned earlier in the task.

    d. Select the Close button. The system will return to the Ops screen.
    e. Select the Apps button on the Function bar or select the F7 button on the keyboard. The system will display the Apps dialog box.
    f. Select the Close button. The system will return to the Ops screen.

2. Perform the Line of Sight Function.

NOTE: The Line of Sight function allows the user to draw a line on the SA display map from the Start (S) point to the End (E) point and view a graphic representation of the topography between the two points. The Function bar has several push buttons consisting of: Coordinate button which is a toggle button that shows the different types of coordinates, OK button which is used once you have selected your start and end points, Cancel to cancel the last action, Delete to delete the Start and end point, Help to get help on the Line of Sight tool, Virtual keyboard to type the coordinates in the Location text box, Add which is used to add point if you are using the type mode to enter coordinates, Named button which is for selecting pre-loaded locations.

    a. Select the Apps button from the Function Bar or select the F7 key from the keyboard. The system will display the Apps dialog box.
    b. Select the Line Of Sight function and select the Execute button. The system will display the Select 2 Points function bar on the right side of the map and the cursor as a cross hair.
    c. Select a start point on the map by left clicking a spot on the map. The system will display a white circle on that point.
    d. Select a second point on the map. The system will display a blue line connecting both of the points.
    e. Select OK. The system will remove the function bar and display the Line Of Sight dialog box.

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NOTE: The LOS dialog box displays the range, bearing, Start location, and end location of the line that you selected. It also has three push buttons consisting of Close to close the dialog box, Profile (SHOW) that brings up the Profile dialog box, and Help.

      f. Select the Profile (SHOW) button. The system will display the LOS Profile dialog box on top of the Line Of Sight dialog box.

NOTE: If the LOS dialog box is on top of the Line Of Sight dialog box, just drag the LOS dialog box over so both dialog boxes can be seen. The dialog box displays the Line of sight in the form of a graph from the start to the end point. Anything above the yellow line is dead space. It shows the distance in (Km) along the bottom and the Height in (Ft) on the left side of the dialog box.

      g. Select the Start point on the map by placing the cursor over the White circle with an S in it and left clicking the mouse, holding it and dragging the Start point around.

NOTE: Notice how the view changes on the LOS dialog box as the Start point is moved.

      h. Select the Close button. The system will return to the Ops screen.

   3. Perform the Periodic Reminders function.

NOTE: The "Periodic Reminders" tool allows the user to create and store message reminders that will, at a users determined date and time, display a reminder dialog box with a user created text message. d time. There is an option to trigger an audio alert when the reminder is displayed. Zulu time (Greenwich Mean Time (GMT)) is the standard.

      a. Select the Apps button from the Function bar or the F7 key on the keyboard. The system will display the Apps dialog box with the FBCB2 tab selected.

NOTE: The Reminders dialog box has six common push buttons that are in each of the five tabs consisting of: OK which applies the changes and closes the dialog box, Apply which applies the changes and keeps the dialog box open, Defaults which sets the settings back to the original settings, Close which closes the dialog box, List which brings up a list of all reminders that have been set, and Help which gives the user help on the tab that is displayed.

      b. Select the Periodic Reminders by highlighting the name.
      c. Select the Execute button. The system will display the Periodic Reminders dialog box.

NOTE: The Periodic Reminders dialog box contains the following tabs, which is based on the frequency of the reminder: Once, which is used to create a one-time reminder. Daily which is used to create a reminder for each day, Weekly which is used to create a reminder for once a week, Monthly which is used to create a reminder for once a month, and Floating which is used to create a reminder for a particular time, day, and week among a range of months.

      d. Select the Once tab. The system will display the Once tab fields.
      e. Select the Reminder month radio button for the month that you want the reminder.

NOTE: The system defaults to the current month.

      f. Select the Reminder Time Hour slide button and hold the left mouse button and drag left to decrease the hour and right to increase the hour.
      g. Select the Reminder Time Minute slide button and hold the left mouse button and drag left to decrease the minute and right to increase the minute.
      h. Select the Reminder Day slide button and hold the left mouse button and drag left to decrease the day and right to increase the day.
      i. Select the Reminder Audio Yes/No radio button.

NOTE: Select Yes if you want to hear an audible tone when you are reminded or No if you don't want to hear a tone.

      j. Place your mouse pointer inside the Reminder Text box and click the left mouse button and type the text that you want to be reminded of.

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      k. Select the Daily tab. The system will display the Daily tab fields.

NOTE: The Daily tab is done just like the Once tab. The only difference is there is no Month and Day field.

      l. Select the Weekly tab. The system displays the Weekly tab fields.

NOTE: The Weekly tab is done just like the Once tab. The only difference is there is you can select more than one day.

      m. Select the Monthly tab. the system will display the Monthly tab fields.

NOTE: The Monthly tab is done just like the Once tab. The only difference is that you can select more than one month to have the reminder.

      n. Select the Floating tab. The system will display the Floating tab fields.

NOTE: The Floating tab is done just like the Once tab. The only difference is you can select more than one month and you can select which week of the month to get the reminder.

      o. Select the Close button. The system closes the Create Reminders dialog box and displays the Ops screen.

   4. Perform The Personnel Status Report.

NOTE: This function allows the user to update the Personnel Status Report and send it to higher Headquarters. At Battalion S1, the Personnel Status Report interfaces with the Combat Service Support Control System (CSSCS), which transmits personnel reports to higher echelons.

      a. Select the Apps button from the Function Bar or the F7 button from the keyboard. The system will display the Apps dialog box.
      b. Select the Personnel Status Report from the list with the mouse pointer. The system will highlight the Personnel Status Report.
      c. Select the Execute button. The system will display the Personnel Status Report dialog box.

NOTE: The Personnel Status Report dialog box has eight common push buttons which consist of: Message Addressing, which allows the user to set how and who they will send the message to, New which brings up a new Add personnel Record, Delete which deletes a record, Refresh, which refreshes the Data Display Area, Send which sends the report, Modify which allows the user to edit a record, Close which closes the Personnel Status Report, and Help which gives the user help on Personnel Status Reports. There is also a SEARCH BY pull-down arrow which allows the user to search for a record by: Last name, SSN number, Status, Unit name, Role ID, Grade, MOS, Gender, Nationality, Religion, Blood type and Effective DTG. There is also a search text box that allows the user to search for a record by typing the information in the text box and selecting the search button.

      d. Select the Message Addressing button. The system will display the Message Addressing dialog box.
      e. Enter the Message settings and Addresses as in task 171-147-0005, Apply Message Addressing features in FBCB2 Version 3.4
      f. After setting the Message Addressing settings, select the New button on the Personnel Status Report dialog box. The system will display the Add Personnel Record dialog box.

NOTE: The New button allows the user to enter information on new personnel by using the Virtual keyboard, Computer keyboard, Drop down arrows, and Radio buttons. Notice how the OK and Apply buttons at the bottom of the Add Personnel Record dialog box are grayed out. All the fields must be filled out before the buttons will become available.

      g. Select the Last Name text box with the mouse pointer or select the virtual keyboard and enter the last name in the text box.

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NOTE: If you select the text box, you can enter the information with the computer keyboard. If you select the virtual keyboard you must type the information by selecting the characters with the mouse pointer. The Last Name must not be more than 20 characters long.

      h. Select the First Name text box and enter the name.

NOTE: The First Name cannot be more than ten characters long.

      i. Select the Middle Name text box and enter the name if applicable.

NOTE: The Middle name cannot be more than ten characters long.

      j. Select the Suffix text box and enter the suffix if applicable.

NOTE: The Suffix cannot be more than three characters long.

      k. Select the SSN text box and enter the Social Security Number.

NOTE: You do not have to enter the dashes in the Social Security Number. The numbers will automatically move to the proper digit.

      l. Select the Nationality pull-down arrow and select the Nationality of the person that the user is entering the information for. The Nationality will display in the text box.
      m. Select the Religion pull-down arrow and select the Religion of the person.
      n. Select the proper radio button, either Male or Female for the person you entering information on. The radio button will highlight.
      o. Select the Blood Type pull-down arrow and select the Blood type for the person you entering information about.

NOTE: You must select the Whole Blood type, not the Platelet type.

      p. Select the Unit Name pull-down arrow and select the Unit that the person is in by highlighting the unit or by typing in the unit in the text box and selecting the search button.

NOTE: You must enter the Unit name exactly as it is displayed on the computer or it will not find the unit in the list.

      q. Select the Role/ID pull-down arrow and select the Role/ID from the list.
      r. Select the Grade pull-down arrow and select the grade of the person.
      s. Select the MOS pull-down arrow and select the MOS of the person.
      t. Select the Status pull-down arrow and select what the persons status is from the list.
      u. Select the Apply button to apply the new record. The system will display a new Add Personnel Record dialog box, Or Select OK, which will complete the record and return to the Personnel Status Report dialog box.

NOTE: Continue to do this until you have a record for all the personnel.

      v. Modify a Personnel Status Report.
      w. Select a record from the list on the Personnel Status Report dialog box. The record will highlight.
      x. Select the Modify button. The system will display the Modify Personnel Record(s) dialog box.
      y. Select the field that you want to edit or modify and make the changes.
      z. Select the OK button. The system will make the changes and display the Personnel Status Report dialog box.
      aa. Select the Send button to send the Report to the address that you entered in the Message addressing settings. The system will display a Personnel Report Sent dialog box stating that "THE Personnel Report was Sent."
      ab. Select the OK button. The system will return to the Personnel Status Report dialog box.
      ac. Select the Close button. The system will display the Ops screen.

  5. Perform the Radio Net Join function.

Performance Steps

NOTE: DO NOT select a new Network unless you intend to switch Networks because this function will reboot the computer and assume the new Network. The Radio Net Join function allows the user to re configure the communication subsystems on their own platform. Radio Net Join will automatically re configure the FBCB2 database, INC router, SINCGARS-ASIP and EPLRS. This is used when the users platform travels outside its SINCGARS or EPLRS network and must join a different network in order to continue to receive SA and C2 data. There are two areas in the Radio Net Join function: the SINCGARS Hop set and the EPLRS Configuration. The SINCGARS Hop set displays the current description and frequency identification. The EPLRS Configuration changes the network to a different units configuration.

    a. Select the Apps button from the Function Bar or the F7 key on the keyboard. The system will display the Apps dialog box.

    b. Select the Radio Net Join function from the list. The Radio Net Join will highlight.

    c. Select the Execute button. The system will display the Radio Net Join dialog box.

    d. Select the New FREQ_ID pull-down arrow under the SINCGARS Hop set. The system will display the SINCGARS Agent Table dialog box with the available Units and Net_ID frequencies.

    e. Select the Network that you want.

    f. Select the Change pull-down arrow under the EPLRS Configuration. The system will display the Unit Name dialog box.

NOTE: Here the user can select a new EPLRS network for FBCB2 communication purposes.

    g. Select the Network that the user wants to change to.

    h. Select OK if you actually want to switch networks or Close to stay in the same configuration.

Performance Measures	**GO**	**NO GO**
1. Perform Drivers Display Function.	――	――
2. Perform the Line of Sight Function.	――	――
3. Perform the Periodic Reminders function.	――	――
4. Perform the Personnel Status Report.	――	――
5. Perform the Radio Net Join function.	――	――

Evaluation Guidance: Score the Soldier GO if all steps are passed. Score the Soldier NO-GO if any step is failed. If the Soldier scores NO-GO, show him what was done wrong and how to do it correctly.

EMPLOY NAV FUNCTIONS USING FBCB2 VERSION 3.4
171-147-0023

Conditions: Given a vehicle with an operational Force XXI Battle Command Brigade and Below (FBCB2) system with software version 3.4 loaded, precision lightweight global positioning system receiver (PLGR), enhanced position location radio system (EPLRS) if equipped, and single-channel ground air radio system (SINCGARS) with internet controller (INC).

Standards: As a minimum you must: Employ screen operations functions to manage and exchange information, to include: Creating a route, reversing the way points, setting Route Attributes and Analyze Route settings, Editing a route, Center on a route, Apply the Roll over Mode, turn on the Driver's display, and Select a Single point to navigate to.

Performance Steps

 1. Select the NAV button. The system will display the Navigation dialog box.

NOTE: The Navigation function allows the user to create a new Route of March (ROM), select and edit a previously created ROM, reverse the direction of march on a selected route, set route attributes, analyze a route, center the SA map on the selected ROM, and transmit the Land Route Report. The "Roll over Mode" option when used with the driver's display will display the bearing and distance to the next way point as each way point is passed.

 2. Select the Route Tab if it is not already selected. The system will display the Route Tab group.

NOTE: The Route ID function allows the user to select and display a route that has been previously created and saved by selecting the drop down arrow and highlighting the saved route. Once a saved route is selected, all of the other function buttons on the "Route" dialog box become active.

   a. Select the create button. The system will display the Create New Route dialog box.

NOTE: The Create New Route dialog box has three buttons: Map, List, and Cancel. The Map button allows the user to select locations on the map. The list button displays the Create Way points dialog box and allows the user to enter waypoints by typing them in the Enter Way point combo box.

   b. Place the cursor in the Enter New Route Name text box and select the back space key to delete the name that appears then type the name that you want to call the route up to 9 characters.

NOTE: You can also type the name by selecting the Virtual Keyboard and using the mouse to select the keys on the Virtual Keyboard or your fingers on the touch screen.

   c. Select the Map button. The system will display the Map with the Create Route Function Bar to the right and the cursor becomes a cross hair.
   d. Create the route by clicking a spot on the map where you want the route to start, and then continue to click along the route creating waypoints each time the mouse is clicked until you have plotted the route.

NOTES:

(1) Notice on the map that the points where you selected when creating the route have checkpoint symbols with the first one highlighted in white. You can move to the next waypoint by selecting the right arrow in the Navigation Dialog box.

(2) If the Navigation dialog box is in front of the route that you created, you can move the box by placing the cursor in the dark gray area of the Navigation dialog box and left clicking and holding the button and dragging the box to the side.

Performance Steps
   e. Select the OK button. The system will display the Navigation dialog box with the new name in the Route ID text box and all the buttons in the Navigation dialog box are active now.

3. Select the Manage button. The system will display the Edit Route dialog box.

NOTE: The Manage button allows the user to rename, copy, or delete a route and modify an existing route. The user can rename a route by typing the name in the Name text box and selecting the Rename button. The user can delete a route by typing the name of the route that you want to delete in the Name text box and selecting the Delete button. The user can copy a route with a new name by typing the new name of the route in the Name text box and selecting the Copy button.

   a. Select the Map button. The system will display the Edit Route function bar with the route highlighted in blue with a white circle on waypoint one.

NOTE: If the user wanted to modify a different route then the one they are currently on then they would have to go back to the Navigation dialog box and select the route from the pull down arrow then select the Manage button.

   b. Place the cursor on a spot on the map after the last way point and left click the mouse. The system will add a waypoint to the existing route.
   c. Select the Delete button. The system will delete the last waypoint.

NOTE: Every time the user clicks on the map a new waypoint is added. If the user makes a mistake, they can select the delete button and delete the last waypoint.

   d. Select the OK button when finished with the modification. The system will display the Edit Route dialog box.

4. Select the List button. The system will display the Edit waypoints dialog box with all the way points in the Way point List text box that you created earlier.

NOTE: The List button allows the user to delete a single waypoint, delete all waypoints from the list, or add additional waypoints to the list. Notice that some of the buttons are not active until a waypoint is selected for deletion or a waypoint is entered in the Enter Way point text box.

   a. Select the last waypoint in the list. The waypoint will be highlighted.
   b. Select the Delete button. The waypoint will be deleted from the list but not from the route on the map.
   c. Select the Save button. The system will delete the waypoint from the route on the map and return to the Edit Route dialog box.
   d. Select the List button. The system will display the Edit Way point dialog box.
   e. Place the cursor in the Enter Way point text box and left click the mouse.
   f. Enter a grid close to the grid of the last waypoint in the list.

NOTE: Ensure that you type the grid just like the waypoints that are in the list with the Grid Zone designator.

   g. Select the Insert button. The system will add the waypoint to the list but not to the route.
   h. Select the Save button. The system will add the waypoint to the Route and return to the Edit route dialog box.

Performance Steps

NOTES:

(1) If the user wants to delete all the way points, the user would highlight one of the way points in the list and select the Delete All button and select the Yes button on the Confirm Deletion dialog box.

(2) The user can add way points by selecting the pull down arrow on the Edit Way points dialog box and select either Keyboard (Kbd), Laser Range Finder (LRF), Map, Own, Name, and Virtual Keyboard (Vkb).

      i. Select the close button from the Edit Route dialog box. The system will display the Navigation dialog box.

  5. Select the Reverse button several times.

NOTE: Notice how the Start Point on the route becomes the new Release point and the Release point becomes the new Start point.

  6. Select the Route Attributes button. The system will display the Route Attributes dialog box.

NOTE: The Route Attributes allows the user to describe the aspects of the route.

      a. Select the Route Description pull down arrow. The system will display a list.
      b. Select an option from the list. The option will be displayed in the text box.

NOTE: Do the same for the Route Classification, Movement Rate, Open/Concealed Indicator, and Route type.

      c. Select the Virtual Keypad to the right of the Overhead Clearance/Height (m) text box. The system will display the Virtual Keypad on the screen.
      d. Enter the Height in meters by selecting the appropriate keys and selecting the OK button. The system will display the Height in the text box.

NOTES:

(1) Notice in the Virtual Keypad at the bottom that there is a number that the user must stay within when entering a number.

(2) Do the same for Traveled Way Width (m), and Weight Classification (tons).

      e. Place the cursor in the Comments text box and left click the mouse.
      f. Type any comments that pertain to the Route Attributes if applicable.
      g. Select the OK button. The system will display the Navigation dialog box.

  7. Select the Analyze Route button. The system will display the Analyze Route dialog box.

NOTES:

(1) Analyze Route button allows the user to analyze an existing Route of March to determine the Flank Line of Sight, areas that exceed the vehicles maximum uphill and downhill degree of grade, degree of side slope for each segment of the route, the 360 degree Line of Sight at any point along the route, the travel time of each leg of the route and show a graphical profile of each segment of the route.

(2) The Route Data on the right side of the Analyze Route dialog box shows the name of the route, how many waypoints are on the route, and the length of the route in Km. The Segment Data shows the grid of the Start point and End point and the Segment length. To find out what the length of the other segments just click on the right arrow underneath the Show Segment Profile. Each time the arrow is selected, it will show the next segment.

Performance Steps
      a. Select the Virtual Keypad under the Flank Line of Sight Data for the Range. The system will display the Virtual Keypad on the screen.
      b. Enter the appropriate range in meters between 1 and 100000 by selecting the numbers with the mouse and selecting the OK button. The system will display the numbers in the text box.

NOTE: Do the same for the Distance Above Ground (m), Maximum Uphill Grade (%), Maximum Downhill Grade (%), Max Slope (%), and Rte Width (m).

      c. Select the Color pull down arrow and select a color from the list. The color will be displayed in the Color text box.

NOTE: The color is the color that the shading will be on the screen when the line of sight is displayed on the map.

      d. Select the box next to the Show Segment Profiles. The system will display the Segment Profile dialog box showing the line of sight for that particular segment. To show the next segment profile, just select the right arrow underneath the Show Segment Profile.
      e. Select the box to the left of the Show Segment Profile to uncheck it. The Segment Profile dialog box will disappear.
      f. Select the Execute button. The system will re display the route with red for the areas that have difficulty due to the side slope and Green in areas that are Passable.
      g. Select the Show Segment Details button. The system will display the Segment Details dialog box on top of the Analyze Route dialog box.

NOTES:

(1) If the dialog box is in the way of the Analyze Route dialog box and the route itself then left click on the dark gray area of the dialog box and drag it out of the way. The user should be able to have both the Segment Details and the Analyze Route dialog boxes on the screen and still view part of the route.

(2) The Segment Details dialog box will appear with the side slopes and grids of the difficulty areas of the first segment unless the first segment is passable without difficulty. If the segment is passable without difficulty then the Segment Details dialog box will display Segment is passable. If the Segment is not passable or has difficulty then the dialog box will display the side slope percentage and the grid of each area that has some difficulty.

(3) If the Segment Details dialog box has grids and percentages displayed in it, then the user can highlight the grid and a white dot will appear on the route to show the user where the difficult area is.

      h. Select the first grid on the Segment Detail dialog box. The system will display a white circle on the route where the difficult area is. Each grid that the user highlights, it will display the white circle on that grid.

NOTE: If the first segment is passable, then select the right arrow on the Analyze Route dialog box under the Show Segment Details until the Segment Details dialog box displays grids and percentages of the difficult areas.

      i. Select the Show All button on the Segment Details dialog box. The system will display the white circles on all the grids for that particular segment of the route that are difficult.
      j. Select the close button. The system will close the Segment Details dialog box and return to the Analyze Route dialog box as long as the user didn't close it earlier.
      k. Select the right arrow under the Show Segment Profile to move to the next waypoint.

NOTE: The number should have changed in between the arrows. It should show a number with a / and another number representing how many waypoints that are in the whole route. Each time the user select the right arrow, The number on the left of the / should change to the number of the next waypoint.

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   l. Select the Show Segment Details button again. The Segment Details dialog box will display with the side slopes and grids of the next segment.

NOTE: Again the Segment Details dialog box will display either Segment is Passable or it will display all the side slope percentages and grids of each point on the route that has some difficulty in travel.

   m. Select the close button. The system will return to the Analyze Route dialog box.

  8. Select the Circular Line of Sight button on the bottom of the Analyze Route dialog box. The system will display the Circular Line of Sight dialog box.

NOTE: The Circular Line of Sight button allows the user to analyze a 360-degree line of sight from any point on the map. The user can control the analysis by entering the desired radius of the circle, the "Spacing" (distance between center points along a route), and the "Vertical Offset" (height from the ground to the desired eye level at the circle center) in the appropriate text box.

   a. Select the Points along a route button if the user wants to check the circular line of sight along the route, otherwise select the select points from map button to check the circular line of sight anywhere on the map.
   b. Select the Virtual Keypad next the Line of Sight Radius (m) text box and use the mouse pointer to enter the radius in meters between 1 and 10000 or place the cursor inside the text box and enter the number from the keyboard.

NOTE: Do the same for the Spacing (m) and the Vertical Offset (m) text boxes. If the user needs to know what the limits are that can be entered, the user can select the virtual keypad and look at the bottom of the keypad to see the limit.

   c. Select the Execute button. The system will display the Circular line of Sight on the first waypoint.

NOTE: If the user chose Points along route, the user would be able to just select the right arrow on the Circular line of Sight dialog box and the system would display the circular line of sight on the next way point. If the user chose Select points from map, the user can choose any point on the map or route.

   d. Select the Close button. The system will display the Analyze Route dialog box.

  9. Select the Travel Time button. The system will display the Travel time dialog box.

NOTES:

(1) The Travel Time button allows the user to compute the time of each segment and the entire route based on the average speed factor.

(2) The Travel Time dialog box shows the Route length and the first segment length and the Estimated time under each that is blank until the user enters Average speed in Kilometers per hour and selects the Execute button.

   a. Select the Virtual keypad. Enter the speed between 1 and 200 by using the mouse pointer and selecting the OK button or enter the speed by placing the cursor in the Avg Speed (Kph) text box and type it in with the keyboard.
   b. Select the Execute button. The system will display the Estimated times under the Route Data and Segment Data.
   c. Select the Minimize button. The system will display the Minimize dialog box over the Analyze Route dialog box with the Travel Time dialog button with arrows facing left and right and two numbers with a / between them. The left number representing the waypoint that the data is displayed for and the number on the right representing the total number of waypoints.
   d. Select the Right arrow. The number on the left of the / should change to 2 and the number on the right should stay the same.

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        e. Select the Travel Time Dialog button. The system will display the Travel Time dialog box with the new Estimated times for the second segment.

NOTE: The user will need to select Minimize each time that the user wants to move to the next way point then select the Travel Time dialog button to see the Estimated times.

        f. Select the Close button. The system will return to the Analyze Route Dialog box.

  10. Select the Edit Route button. The system will display the Map with the Edit Route Function bar on the right of the map and the route highlighted in blue with the last way point highlighted with a white circle.

NOTE: The Edit Route Button allows the user to edit the route on the map graphically. It also allows the user to grab, zoom, and view draw description, delete, and target a location route by name.

        a. Place the cursor at a spot on the map after the last way point and left click the mouse. The system will add a segment to the route. Each time the user selects a spot on the map, it will add a segment to the route.

NOTE: If the user added a way point on the map by mistake, just select the delete button and the system will delete the last segment added to the map and each time the delete button is selected, it will delete a segment of the route, Or select a way point on the route and move it to the desired location.

        b. Select the OK button. The system will return to the Analyze Route dialog box.
        c. Select the Close button. The system will display the Navigation dialog box.

  11. Select the Manage button. The system will display the Edit Route dialog box.

NOTE: The Manage button allows the user to edit, rename, copy, or delete the route of march.

        a. Place the cursor in the Name text box and type a new name for the route using the keyboard and select the Rename button. The system will display the new name in the Name text box, or select the Virtual Keypad and enter the new name using the Mouse pointer and select the OK button. The name will display in the Name text box.

NOTE: To copy the route and add a new name, the user would type a new name in the Name text box and select the Copy button. The system would save a copy of the route with the new name in the Navigation dialog box. To delete a route, the user would type the name of the route that needs to be deleted and select the Delete button. The system would delete the route.

        b. Select the Map button. The system will display the Edit Route function bar with the route displayed on the map.

NOTE: From here the user can add or delete segments of the route.

        c. Select the OK button. The system will return to the Edit Route dialog box.
        d. Select the List button. The system will display the Edit way points dialog box with all the grids to the waypoints in the route.

NOTE: From here the user can add, modify, and delete waypoints and save the route.

        e. Scroll down and select the last way point in the list and then select the delete button. The system will delete the last waypoint.
        f. Select the Save button. The system will redisplay the route with the last way point deleted and return to the Edit Route dialog box.
        g. Select the Close button. The system will return to the Navigation dialog box.

  12. Select the Center On button. The system will center on the route.
        a. Select the Msg Addressing button. The system will display the Message Addressing dialog box.

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NOTE: Refer to Task 171-147-0005 to address and send the route.

      b. Select the Close button on the Navigation dialog box. The system will return to the Ops screen.

Performance Measures	**GO**	**NO GO**
1. Select the NAV button.	——	——
2. Select the Route Tab if it is not already selected.	——	——
3. Select the Manage button.	——	——
4. Select the List button.	——	——
5. Select the Reverse button.	——	——
6. Select the Route Attributes button.	——	——
7. Select the Analyze Route button.	——	——
8. Select the Circular Line of Sight button on the bottom of the Analyze Route dialog box.	——	——
9. Select the Travel Time button.	——	——
10. Select the Edit Route button.	——	——
11. Select the Manage button.	——	——
12. Select the Center On button.	——	——

Evaluation Guidance: Score the Soldier GO if all steps are passed. Score the Soldier NO-GO if any step is failed. If the Soldier scores NO-GO, show him what was done wrong and how to do it correctly.

EMPLOY QUICK SEND FUNCTIONS USING FBCB2 VERSION 3.4
171-147-0024

Conditions: Given a vehicle with an operational Force XXI Battle Command Brigade and Below (FBCB2) system with software version 3.4 loaded, precision lightweight global positioning system receiver (PLGR), enhanced position location radio system (EPLRS) if equipped, and single-channel ground air radio system (SINCGARS) with Internet controller (INC).

Standards: As a minimum you must: Employ screen operations functions to manage and exchange information, to include: Applying a message to the Quick Send button, naming the Button label, and naming the Balloon label.

Performance Steps

NOTE: The operator must create, and save a message to associate this button to before this task can be accomplished.

1. Select the Quick Send button. The Quick Send Button Setup dialog box will display.

NOTE: The Quick Send button allows the user to send a pertinent message in an expedient manner. The operator creates, and saves the message, then associates it with the Quick Send button. The Quick Send button has three dashes on it (---) and is located to the right of the NAV button.

2. Click the "+" sign to the left of the folder that contains the message that the user wants to associate to the Quick Send button. The will open and display all the messages in the folder.

3. Left-click on the message that will be associated to the Quick send button. The message will highlight.

4. Select the Button label text box and type a three-letter abbreviation that you want to apply to the button. Or select the virtual keyboard and type the abbreviation.

NOTE: The abbreviation is what you will see on the Quick Send button on the Function Bar.

5. Select the Balloon Label text box and type a short description of what the message is about, or select the virtual keyboard and type the description.

NOTE: The Balloon label is what the user will see when the cursor is placed over the Quick Send button; it will display what you typed in the Balloon Label text box.

6. Select the Apply button. The three-letter abbreviation will appear on the Quick Send button.

NOTE: Notice that the three letters that you typed in the Button Label text box appears on the Quick send Button on the function bar. If the user did not highlight a message to apply to the button, a selection error message would appear stating, "No message has been associated with this message."

7. Select the Display button. The system will display the message.

NOTE: From here the user can change the message address, forward the message, and save the message.

8. Select the Close button. The system will return to the Quick Send Button Setup dialog box.

9. Select OK. The system will return to the Ops screen.

NOTES:

(1) Place the cursor over the Quick Send Button for a couple of seconds and the short message that the user typed in the Balloon Label text box will appear.

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Performance Steps

(2) Send the message now by selecting the button.

Performance Measures	**GO**	**NO GO**
1. Select the Quick Send button.	——	——
2. Click the "+" sign to the left of the folder that contains the message that the user wants to associate to the Quick Send button.	——	——
3. Left-click on the message that will be associated to the Quick send button.	——	——
4. Select the Button label text box and type a three-letter abbreviation that you want to apply to the button.	——	——
5. Select the Balloon Label text box and type a short description of what the message is about, or select the virtual keyboard and type the description.	——	——
6. Select the Apply button.	——	——
7. Select the Display button.	——	——
8. Select the Close button.	——	——
9. Select OK.	——	——

Evaluation Guidance: Score the Soldier GO if all steps are passed. Score the Soldier NO-GO if any step is failed. If the Soldier scores NO-GO, show him what was done wrong and how to do it correctly.

EMPLOY FILTERS FUNCTIONS USING FBCB2 VERSION 3.4
171-147-0025

Conditions: Given a vehicle with an operational Force XXI Battle Command Brigade and Below (FBCB2) system with software version 3.4 loaded, precision lightweight global positioning system receiver (PLGR), enhanced position location radio system (EPLRS) if equipped, and single-channel ground air radio system (SINCGARS) with Internet controller (INC).

Standards: As a minimum you must: Employ screen operations functions to manage and exchange information, to include: Select the desired radio button for the Labels, Friendly, Enemy, Unknown, and Georeference for the SA tab. Select Units to Collapse or Expand. Select the desired radio button for the labels for the Overlays tab. Load and Unload an overlay. Display and Hide an Overlay.

Performance Steps

NOTE: The FBCB2 system maintains near real-time data for friendly/enemy/unknown unit positions, and targets. The FBCB2 system also maintains data for fixed Geo-references such as bridges, mountains, and rivers. The "Filters" function permit the user to view or filter out friendly and enemy platforms or units according to currency, dimension, unit type, and echelon. Additionally, it loads, unloads, and displays overlays. This function also provides the user with the capability to monitor Geo-references and to filter overlays. Unit Standard Operating Procedures (SOP) determines filter use. Before this task can be completed, one or more of the following types of messages must be sent to the users system first: Spot Report, Obstacle Report, Bridge Report, Position Report, NBC1 Report. An Obstacle Overlay and one of any other type of Overlay should also be sent to the user's system. These reports generate the graphical images necessary to use all the Filter functions. Once the Messages and Overlays have been received, they must be saved to the user's system. Once the messages have been saved, the overlays can be displayed by opening the overlays and check the Keep Overlay displayed check box.

1. Select the Filters button on the Function bar or the F2 button on the keyboard. The system will display the Filters dialog box.

NOTE: The "Filters" function permit the user to view or filter out friendly and enemy platforms or units according to currency, dimension, unit type, and echelon. Additionally, it loads, unloads, and displays overlays. This function also provides the user with the capability to monitor Geo-references and to filter overlays. Unit Standard Operating Procedures (SOP) determines filter use. The Filters dialog box contains four tabs: SA (Situational Awareness), Collapse/Expand, Overlays, and Obstacle Overlays. If the user moves the Filters dialog box to the side, the user can view the labels, icons, and symbols appear and disappear from the screen as some of the functions are selected.

2. Select the SA tab if it is not already selected. The system will display the SA tab group.

NOTE: The SA tab group allows the user to access and filter SA data with the following functions: (All On), which displays all of the SA data that has been sent or received on the SA display area; (All Off), which filters out everything on the SA display area except the map, overlays, overlay objects and the platform's own position; (Labels), which filters the labels that are attached to the SA data; (Friendly), which enables the user to display or hide designated friendly platforms; (Enemy), which enables the user to display or hide designated enemy platforms; (Unknown), which displays or hides unidentified units; and Georef, which displays or hides geographical references.

   a. Select the None radio button under the Labels field. The labels for all the SA on the map will disappear.

Performance Steps

NOTE: Notice how the word SET highlighted in yellow appeared on the Filters button on the function bar. This is to inform the user that filters have been set. By selecting the All button, the labels will reappear.

   b. Select the Select radio button under the Friendly field. The Currency, Dimension, Type, and Echelon fields will display.

NOTE: These functions allow the user to display or hide friendly SA according to their Current, Stale or Old settings, and Air or Ground units, or by Branch or affiliation, and by type of Echelon. The user can uncheck any field that he or she does not want to see.

   c. Select the All button under the Friendly field. The all friendly SA will reappear on the map.
   d. Select the Select radio button under the Enemy field. The Currency, Dimension, Type, and Source of Info fields will appear.

NOTE: The only difference between Friendly and Enemy is Echelon was replaced with Source of Info, which allows the user to filter enemy icons based on its source. The Three sources are: ASAS (All Source Analysis System), FAAD (Forward Area Air Defense), and Spot Rprt (Spot Report). Deselect the check box of the source that the user does not want. Users should avoid having both the ASAS and Spot Rprt checked at the same time. This can cause a distorted picture because enemy icons may be depicted twice.

   e. Select the All radio button under the Enemy field. The system will redisplay all the enemy icons.
   f. Select the None radio button under the Unknown field. Al of the Unidentified icon will disappear off the map.
   g. Select the All radio button under the Unknown field. The system will display all the unidentified icons.
   h. Select the None radio button under the Georef field. All of the Geographical references will disappear.
   i. Select the All radio button under the Georef field. The system will redisplay the Geographical Geo-references.

   3. Select the Collapse/Expand tab. The system will display the Collapse/Expand tab group.

NOTE: This function allows the user to collapse and expand the elements of a combat unit on the local display to a single Center of Mass (CM). This function collapses multiple unit icons under a single unit icon. Units collapse in accordance with the current UTO.

   a. Select the Search text box by placing the cursor in the text box and left clicking. The text box will become active.

NOTE: The Search text box is used as an expedient way of finding a unit to expand or collapse.

   b. Type the name of the unit that needs expanding or collapsing.

NOTE: The name must be spelled and spaced exactly the way it is in the UTO in order for the search function to find the unit. If the name was spelled and spaced right, the name will be highlighted when the search button is pushed.

   c. Select the "+" or "-" sign next to the unit.

NOTE: Selecting the "-" sign expands the unit selected into specific level. Selecting the "+"sign collapses the unit into one icon.

   4. Select the Overlays tab. The system will display the Overlays tab group.

NOTE: This function allows the user to display or hide labels on the Overlay and Load and Unload Overlays.

   a. Select the None radio button under the Labels field. All the Labels that are on the overlays will disappear.

Performance Steps

      b. Select the All radio button under the Labels field. The system will redisplay the Labels.

      c. Select the Selected radio button under the Overlays field. The system will display the names of all the overlays that have been created, received, and saved on the system along with the Load, Unload Selected, and Unload All buttons.

NOTE: The Load button will load the overlays that have been check marked. The Unload Selected will unload all the overlays that have been check marked. The Unload All button will unload all overlays that have been saved on the system. If the user received any overlays from other platforms, they must be saved to a folder on the user's computer before the system will load them. The overlays that the user creates and saves can also be loaded and unloaded.

      d. Select the Load button. The system will display the Overlay Loader dialog box with all the folders that have been created on the system.

      e. Select the folder that has the overlay(s) that the user wants to load by double-clicking the folder or selecting the "+" sign. The system will highlight the overlay name.

      f. Select the OK button. The system will return to the Filters dialog box with the name of the overlay displayed.

NOTE: If there are more overlays that the user wants to load, then the user will have to do the same steps to load them.

      g. Select the overlay that was just loaded by left clicking on the name. The overlay name will be highlighted.

      h. Select the Unload Selected button. The system will display the Unload Selected Overlay dialog box stating "You are about to unload overlay with the 'name' Continue with this action? with an OK button.

      i. Select the OK button. The system will unload the overlay and return to the Overlays tab.

   5. Select the Obstacle Overlays tab. The system will display the Obstacle Overlays tab group with an All and None radio button and the names of the Originators and DTG of all the Obstacle Overlays that have been created, received, and saved on the system.

NOTE: An Obstacle overlay must be loaded in order to view this function.

      a. Select the None button. All the Obstacle Overlays that are displayed on the map will disappear.

      b. Select the All radio button. The Obstacle overlays will reappear on the map.

      c. Select an Obstacle Overlay by highlighting the Originator. The name of the Originator will highlight.

      d. Select the Delete Selected button. The system will remove the Obstacle Overlay from the Obstacle Overlays tab group but not from the system.

      e. Select the Close button. The system will return to the Ops screen.

Performance Measures	**GO**	**NO GO**
1. Select the Filters button on the Function bar or the F2 button on the keyboard.	——	——
2. Select the SA tab if it is not already selected.	——	——
3. Select the Collapse/Expand tab.	——	——
4. Select the Overlays tab.	——	——
5. Select the Obstacle Overlays tab.	——	——

Evaluation Guidance: Score the Soldier GO if all steps are passed. Score the Soldier NO-GO if any step is failed. If the Soldier scores NO-GO, show him what was done wrong and how to do it correctly.

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

A-1. Introduction.

The DA Form 5164-R allows the trainer to keep a record of the performance measures a Soldier passes or fails on each task. Instructions for using this form follow.

A-2. Prior to evaluating the Soldier.

a. Obtain a blank copy of DA Form 5164-R, which you may locally reproduce on 8 1/2- by 11-inch paper.

b. Enter the task title and 10-digit task number from the Soldier's manual task summary in Chapter 3.

c. In column a, enter the number of each PM listed under the Performance Measures section in the task summary.

d. In column b, enter the PM corresponding to the PM number in column a. (You may abbreviate this information if necessary.)

e. Enter the Evaluation Guidance statement from the Soldier's manual task summary just below the last PM.

f. Locally reproduce the partially completed form if you are evaluating more than one Soldier on the task or the same Soldier on more than one task.

A-3. During the evaluation.

a. Enter the date just before evaluating the Soldier's task performance.

b. Enter the evaluator's name and the Soldier's name and unit.

c. For each PM, column b, enter a check in column c *(PASS)* or column d *(FAIL)*, as appropriate.

d. Compare the number of PMs the Soldier passes (and if applicable, which ones) against the task standard shown in the Evaluation Guidance statement. If the standard is met or exceeded, check the *GO* block under *STATUS*; otherwise check the *NO-GO* block.

Figure A-1 is a sample of a completed DA Form 5164-R.

	HANDS-ON EVALUATION		DATE	
	For use of this form, see AR 350-57. The proponent agency is ODCSOPS.		**2 FEB 2004**	

TASK TITLE	**PERFORM SYSTEM SHUTDOWN FOR SEN SYSTEM AN/TTC-48(V)**		TASK NUMBER **113-625-2090**	

ITEM a	PERFORMANCE STEP b		SCORE (Check One)	
			PASS c	FAIL d
1	**PERFORMED OPERATIONAL SHUTDOWN PROCEDURES**		✔ P	☐ F
2	**PERFORMED STORAGE PROCEDURES**		✔ P	☐ F
3	**PERFORMED POWER CABLING REMOVAL/ STORAGE PROCEDURES**		✔ P	☐ F
4	**PERFORMED SUBSCRIBER FIELD CABLE REMOVAL/STORAGE PROCEDURES**		✔ P	☐ F
5	**PERFORMED GROUNDED STRAP AND ROD REMOVAL PROCEDURES**		☐ P	✔ F
6	**SECURED THE SHELTER DOOR AND ALL EXTERNAL COVERS**		✔ P	☐ F

SAMPLE

EVALUATOR'S NAME **SFC WHITMAN**		UNIT **A CO 369TH**	
SOLDIER'S NAME **SPC ANDERSON**		STATUS ☐ GO ✔ NO GO	

DA FORM 5164-R, SEP 85 (EDITION OF DEC 82 IS OBSOLETE)

Figure A-1. Sample DA Form 5164-R.

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

B-1. Introduction.

The DA Form 5165-R allows the trainer to keep a record of task proficiency for a group of Soldiers. Instructions for using this form follow.

B-2. Prior to evaluating the Soldier.

a. Obtain a blank copy of DA Form 5165-R, which you may locally reproduce on 8 1/2- by 11-inch paper.

b. Enter the SM task number and abbreviated task title for the evaluated tasks in the appropriate column. Use additional sheets as necessary.

c. Locally reproduce the partially completed form if you are evaluating more than nine Soldiers.

B-3. During the evaluation.

a. Enter the names of the Soldiers you are evaluating, one name per column, at the top of the form. You may add the names of newly assigned Soldiers if there are blank columns.

b. Under STATUS, record (*in pencil*) the date in the GO block if the Soldier demonstrated task proficiency to Soldier's manual standards. Keep this information current by always recording the most recent date on which the Soldier demonstrated task proficiency. Record the date in the NO GO block if the Soldier failed to demonstrate task proficiency to Soldier's manual standards. Soldiers who failed to perform the task should be retrained and re-evaluated until they can meet the standards. When that occurs, enter the date in the appropriate GO block and erase the previous entry from the NO GO block.

B-4. After the evaluation.

a. Read down each column (GO/NO GO) to determine the training status of that individual. This will give you a quick indication on which tasks a Soldier needs training.

b. Read across the rows for each task to determine the training status of all Soldiers. You can readily see on which tasks to focus training.

c. Line through the training status column of any Soldier who departs from the unit.

Figure B-1 is a sample of a completed DA Form 5165-R.

FIELD EXPEDIENT SQUAD BOOK

For use of this form, see AR 350-57. The proponent agency is ODCSOPS.

SHEET 1 OF 5

USER APPLICATION	SOLDIER'S NAME							
STP 11-31U14 SIGNAL SUPPORT SYSTEMS SPECIALIST	MOEHLMAN	COOPER	ESKEW	L.SMITH	PRUITT			
TASK NUMBER AND SHORT TITLE	STATUS	STATUS	STATUS	STATUS	STATUS	STATUS	STATUS	STATUS
	GO / NO GO	GO / NO GO	GO / NO GO	GO / NO GO	GO / NO GO	GO / NO GO	GO / NO GO	GO / NO GO
113-580-0053 TRBLSHT A TACLAN CABLE	3-2-0	3-2-0	3-2-0	3-2-0				
113-587-0074 SYS TRBLSHT RADIO AN/PRC-127	3-7-0	3-7-0	3-7-0	3-7-0				
113-587-1071 INSTALL MULTIPLEXER TD-1456/VRC	5-12-0	5-12-0	5-12-0	5-12-0				
113-587-2081 MAINTAIN SECURE AN/VRC-49 RETRANS	5-17-0	5-17-0		5-17-0	5-17-0			
113-587-2082 MAINTAIN SECURE AN/VRC-49 RETRANS								
113-589-1009 INSTALL SECURE AN/VSC-7								
113-587-2083 MAINTAIN SECURE TACSAT RETRANS								
113-580-1034 INSTALL ATCCS CHS								
113-580-0040 TRBLSHT MCS								
113-580-3053 PERFORM SCHEDULED ULM ON MCS								
113-580-0052 TRBLSHT SICPS CHS								
113-580-0044 TRBLSHT PLGR								

DA FORM 5165-R, SEP 85 (EDITION OF DEC 82 IS OBSOLETE)

Figure B-1. Sample DA Form 5165-R.

GLOSSARY

Section I
Acronyms & Abbreviations

(O)	FOR OFFICIAL USE ONLY
(U)	Unclassified
(V)	version
1SG	First Sergeant
A	amber
AAR	after action review
AC	alternating current/Active Component/assistant commandant
ACCP	Army Correspondence Course Program
admin	administration
AFATDS	Advanced Field Artillery Tactical Data System
AIT	Advanced Individual Training
Amb	ambulatory
AMP/amp	amplifier; ampere(s)
AN	Annually (frequency code)
ANCD	automated net control device
ANCOC	Advanced Noncommissioned Officer Course
AR	Army Regulation; Army Reserve
ASAS	All Source Analysis System
ASI	Additional Skill Identifier; alarm status indicator
ASIP	Advanced System Improvement Plan or Program
ATTN/attn	attention
BA	biannually (frequency code)
BCIS	Battlefield Combat Identification System
Bde	Brigade
BITE	built-in test equipment

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BNCOC	Basic Noncommissioned Officer Course
BRIL	basic required items list
BW	Biweekly (frequency code)
C2	command and control
C3	command, control, and communications
CADRG	Compressed Arc Digital Raster Graphic
CAT	category
CB	circuit breaker; chemical, biological; common battery; citizens band; common base transistor; color bars
CCA	circuit card assembly
CFF	call for fire
CHAN	channel
CIK	crypto/cryptographic ignition key
CM/cm	communications modem; control monitor; centimeter; center of mass
CMD	command; color monitor device
COML	commercial
COMM	communications
COMSEC	communications security
CONT P	continuity pair
CONUSA	the numbered Armies in the continental United States
COU	cable orderwire unit
CPU	central processing unit
CSIR	Communications Systems Installation Record
CSM	Command Sergeant Major
CSMA	carrier-sensor multiple access
CSSCS	Combat Service Support Control System
CTC	Combat Training Center
CTIL	commander's traced items list
DA	Department of the Army; distribution amplifier

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DC	direct current; District of Columbia; Dental Corps
DISP	display
DMS	Defense Message System; degrees, minutes, seconds
DNVT	digital nonsecure voice terminal
DOD	Department of Defense
DSVT	digital subscriber voice terminal
DTED	digital terrain elevation data
DTG	date-time group; digital transmission group
DU	display unit
DVOW	digital voice orderwire
E	end
e.g.	for example
ECRA	engineering change request/authorization
EOM	end of message; end of mission
EPLRS	Enhanced Position Location Reporting System
Eqmt	equipment
etc.	et cetera (and so forth)
FAAD	Forward Area Air Defense
FBCB2	Force XXI Battle Command Brigade and Below
FH	frequency hopping
FIPR	flash, immediate, priority, routine
FM	field manual; frequency modulation; file maintenance
FOCA	fiber optic cable assembly
FOM	fiber optic modem
FOTS	fiber optic transmission system
FRAGO	fragmentary order
FREQ/freq	frequency

FT	feet
FTF	FOCA test facility
G	green
GA	Georgia
GAA	grease, automotive, and artillery
GMT	Greenwich Mean Time
GPS	Global Positioning System
GTA	Graphic Training Aid
HF	high frequency
HI	high
HP	horsepower
Hz	hertz
i.e.	that is
IAW	in accordance with
ID	identification
INC	Internet Controller–part of the SINCGARS SIP program. The INC is mounted in the SINCGARS SIP vehicle amplifier-adapter (VAA)
IR	infrared; insulation resistance
Kbd	keyboard
KU	keyboard unit
KW	kilowatt
LAN	local area network
LAT/LONG	latitude/longitude
LCN	logical channel number
LED	light emitting diode
LO	Learning Objective; low
LOG/Log	logistics
LOS	line of sight

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LRBSDS	Long-Range Biological Standoff Detection System
LRF	Laser Range Finder
Ltr	litter
LTU	line terminating/termination unit
M	meter; medium; mandatory
MA/ma	machine acknowledge/milliampere
MAC	Maintenance Allocation Chart
MACOM	major Army command
MCF	MOW Communications Facility
MDF	Main Distribution Frame
MEDEVAC	Medical Evacuation
METL	mission essential task list
MGRS	Military Grid Reference System
MICAD	multipurpose integrated chemical agent detector
MIL-STD	military standard
Misc	miscellaneous
MO	Monthly (frequency code)
MOOTW	military operations other than war
MOPP	mission-oriented protection posture
MOS	Military Occupational Specialty
MOSC	Military Occupational Specialty Code
MOW	Maintenance Orderwire
MSG/Msg	message
MTO	message to observe
Mun	Ammunition
MWO	modification work order
NAV	navigation
NBC	nuclear, biological, chemical

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NCO	noncommissioned officer
O	Optional
OA	operator acknowlege
OCONUS	Outside Continental United States
OG	operations group; optional group
OM	operator manual
OPFAC	operational facility
OPORD	operation order
OPS/Ops	operations
OR	Ocean Region, operator response
OSM	optical strength meter
OTDR	Optical Time Domain Reflectometer
OVE	on-vehicle equipment
PAM/Pam	pamphlet
PCC	printed circuit card
PCI	peripheral component interconnect
Pers	personnel
PLGR	Precision Lightweight Global Positioning System Receiver
PM	preventive maintenance; performance measure(s)
PMCS	preventive maintenance checks and services
PPP	point-to-point protocol
PTO	power take off
PTT	push-to-talk
PU	power unit, processor unit
PWR	power
QT	Quarterly (frequency code)
R	red
R/T	receiver/transmitter

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RC	Reserve Component; remote control; resistance-capacitance
RCVD	received
RECON/recon	reconnaissance
RHDDC	removable hard disk cartridge
RLGM	remote loop group multiplexer
RMC	remote multiplexer combiner
ROM	read only memory; Rough Order of Magnitude; route of march
rprt	report
RSID	radio set ID - the identifier that the EPLRS system uses to identify a specific radio in a network. The RS ID is unique for each radio and cannot be reused within the EPLRS community.
S	start
SA	situational awareness; semiannually (frequency code)
SALT	size, activity, location, and time
SCFD	standard cubic feet per day
SINCGARS	Single-Channel Ground and Airborne Radio System
SITREP	Situation Report
SM	soldier's manual
SOI	signal operation instructions
SOP	standard operating procedure
SPD	system planner document
SQ ON	Squelch On
SSN	Social Security Number
STBY	standby
STP	soldier training publication
Sust	sustainment
TAC	tactical
TACSOP	tactical standard operating procedure
TB	technical bulletin

TC	training circular
TCP	telecommunications protocol
TDR	Training Device Requirement; Time Domain Reflectometer
TED	trunk encryption device
TFOM	time figure of merit
TG	trainer's guide
TGMOW	Transmission Group Module/Orderwire
TI	Tactical Internet; test instrument; technical inspection
TIMBT	Built-in test equipment card
TIMTG	Timing Generator/Auto Strapping Card
TM	technical manual
TMS	Telephone Management System
TNG/Tng	training
TSEC	telecommunications security
TTP	Tactics, Techniques, and Procedures
ULM	unit level maintenance
UNIT	trained in the unit (brevity code)
URO	user readout
US	United States
UTM	Universal Transverse Mercator
UTO	unit task organization
UTP	Unshielded Twisted Pair
V	volt
VAA	vehicular amplifier adaptor; viewer adapter assembly
VDC	voltage/volts direct current
Vkb	virtual keyboard
VMF	variable message format
VPF	Vector Product Format

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VSWR	variable standing wave ratio
W	white
WAN	Wide Area Network
WK	Weekly (frequency code)
WWW	World Wide Web
X TALK	cross talk

Section II
Terms

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 systems 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.

Army Training and Evaluation Program (ARTEP)
The US Army's collective training program. The ARTEP establishes unit-training objectives critical to unit survival and performance in combat. They combine the training and the evaluation processes into one integrated function. The ARTEP is a training program and not a test. The sole purpose of external evaluation under this program is to diagnose unit requirements for future training.

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

duty position
The job a service member performs within the unit. AR 611-201 has names of official duty positions for each MOS.

individual training
Training which the officer, NCO, or soldier receives in the training base, units, on the job, or by self-study. This training prepares the individual to perform specified duties or tasks related to the assigned or next higher specialty code of MOS skill level and duty position.

MOS training plan (MTP)
The MTP is a guide for the conduct of individual training in units. The MTP is developed for each MOS/AOC and addresses all skill levels of an MOS/AOC and all duty positions. The MTP lists all MOS/AOC-specific and shared critical tasks for which the MOS/AOC is responsible. It will not include common tasks.

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.

Sustainment training
The provision of instruction and opportunities for practice to insure that individual or collective task proficiency is maintained at a requisite level. The frequency will vary with individual and collective tasks, the role, location, and personnel fill of the unit, and the desires of the commander.

task summary (TS)
A statement of the task in an action-verb format plus all essential performance measures. A standard format fully describes the task for the soldier in the field. It will accommodate any product or process task whether it is in fixed sequence, alternate sequence, or combination. The task summary is used both to train the soldier to perform the task and to evaluate the soldier's ability to perform the task (within testing constraints).

Technical manual (TM)
A publication that describes equipment, weapons, or weapons systems with instructions for effective use. It may include sections for instructions covering initial preparation for use and operational maintenance and overhaul.

Training Circular (TC)
TCs are publications (paper or computer-based), which provide a means to distribute unit, or individual soldier training information that does not fit standard requirements for other established types of training publications. TCs are part of the Armywide Doctrinal and Training Literature Program (ADTLP).

Unit Task Organization (UTO)
Unit Task Organization contains the structure of a unit in terms of actual units, personnel, and equipment.

REFERENCES

Required Publications

Required publications are sources that users must read in order to understand or to comply with this publication.

Department of Army Forms

DA FORM 2028	Recommended Changes to Publications and Blank Forms (This item is included on EM 0001).
DA FORM 2404	Equipment Inspection and Maintenance Worksheet (This item is included on EM 0001).
DA FORM 2407	Maintenance Request.
DA FORM 2408-14	Uncorrected Fault Record (This item is included on EM 0001).
DA FORM 3938	Local Service Request (LSR) (This item is included on EM 0001).
DA FORM 5988-E	Equipment Inspection Maintenance Worksheet (EGA)

Department of Army Pamphlets

DA PAM 25-16	Security Procedures for the Secure Telephone Unit, Third Generation (STU-III). 01 April 1993
DA PAM 738-750	Functional Users Manual for the Army Maintenance Management System (TAMMS) (This item is included on EM 0001). 01 August 1994

Field Manuals

FM 101-5-1	Operational Terms and Graphics. 30 September 1997
FM 11-372-1	Standard Installation Practices Outside Plant Cable Splicing (Reprinted w/Basic Incl C1-5). 15 July 1980
FM 11-372-2	Outside Plant Cable Placement. 01 May 1986
FM 11-372-3	Outside Plant Cable, Termination (Reprinted w/Basic Incl C1). 15 March 1984
FM 11-372-4	Outside Plant Cable Testing. 01 February 1980
FM 11-372-5	Outside Plant Cable, Pressurization (Reprinted w/Basic Incl C1). 31 December 1984
FM 11-372-6	Outside Plant Cable Maintenance and Repair (Reprinted w/Basic Incl C1-2). 01 October 1979
FM 11-372-7	Outside Plant Cable, Open Wire and Pole Line Installation Maintenance and Repair (Reprinted w/Basic Incl C1). 01 February 1986
FM 11-372-8	Standard Installation Practices: Telephone Outside Plant Installation Drop and Block Wiring and Station Installation (Reprinted w/Basic Incl C1-2). 30 April 1975
FM 11-487-1	Installation Practices: HF Radio Communications Systems. 18 April 1991
FM 11-487-11	Standard Installation Practices: Delta-Matched Doublet Antenna (Reprinted w/Basic Incl C1). 31 January 1975
FM 11-487-2/14	Standard Installation Practices: RF Connectors and Cables (Reprinted w/Basic Incl C1-4). 14 December 1979

FM 11-487-25	Antenna Systems - HF Rhombic Antenna (Reprinted w/Basic Incl C1). 30 May 1977
FM 11-487-27	Installation Practices: Erection of Steel Towers (Reprinted w/Basic Incl C1-5). 15 March 1969
FM 11-487-5	Fiber Optic Communication Cable and Connector. 15 April 1988
FM 24-1	Signal Support in the AirLand Battle. 15 October 1990
FM 24-16	Communications-Electronics Operations, Orders, Records, and Reports. 07 April 1978
FM 3-25.26	Map Reading and Land Navigation (This item is included on EM 0001). 20 July 2001
FM 4-25.11	First Aid. 23 December 2002

Other Product Types

ANSI/TIA/EIA 568/569	Commercial Building Telecommunications Cabling Standard
ANTENNA SAFETY MANUAL	Antenna Products Company Manual, Safety Climbing Equipment
LOCAL CMD DIR	Local Command (CMD) Directives (DIR)
MAINTENANCE MANUAL	Stromberg-Carlson Practices S-C-2500D, Desk, TONE DIAL Telephone (Connections, Maintenance, Parts Identification, and List)
MFG INSTR BOOKLET A	Manufacturer's Instruction Booklet A (Conduct Periodic Systems Test)
MFG INSTR BOOKLET B	Manufacturer's Instruction Booklet B (Annotate Appropriate Network Records)
MFG MANUALS	Manufacturers' manuals, issued with initial issue of equipment
MIL-STD-188/111	Subsystem Design and Engineering Standards for Common Long-Haul and Tactical Fiber Optic Communications
SPD	System Planner Document
STU-III HANDBOOK	Department of Defense (DOD) Security Institute STU-III Handbook for Industry
UNIT OPORD	Unit/Unit's Operation Order (OPORD)
USAF TO 31-10-3	Outside Plant Installation. 31 January 1969
VS-3	Manufacturer's Manual

Technical Bulletins

TB 11-5805-780-15	Warranty Program for Digital Non-Secure Voice Terminal with Digital Data Port TA-1042A/U (This item is included on EM 0180). 15 May 1992
TB 11-5820-890-12	Operator and Unit Maintenance for AN/CYZ-10 Automated Net Control Device (ANCD) with the Single Channel Ground and Airborne Radio Systems (SINCGARS) (This item is included on EM 0071). 01 April 1993

Technical Manuals

(O)TM 11-5810-292-13&P	Operator's, Unit and Direct Support Maintenance Manual for General Purpose Tape Reader KOI-18, Electronic Transfer Device KYK-13, Net Control Device KYX-15/15A. 31 May 1989
(O)TM 11-5810-329-10	Operator's Manual for Digital Subscriber Voice Terminal TSEC/KY-68 and Auxiliary Power Supply HYP-71/TSEC. 03 June 1996
APPLICABLE TM	Applicable Technical Manuals (TMs)

TM 11-2615A	Antenna Support AB-105C/FRC (Reprinted w/Basic Incl C3) (NG). 15 July 1952
TM 11-3895-202-13	Operator's, Organizational, and Direct Support Maintenance Manual for Reel Units RL-31, RL-31-B, RL-31-C, RL-31-D, and RL-31-E. 15 January 1986
TM 11-3895-209-14	Operator's, Organizational, Direct Support and General Support Maintenance Manual for Reeling Machines, Cable, Engine-Driven, RL-207/G and RL-207A/G. 15 June 1986
TM 11-5073	Towers AB-216/U and AB-216A/U; Tower Section Set AB-298/U; Guy Kit MK-99/U; Accessory Kit MK-100/U and Guy Kit MK-101/U (Reprinted w/Basic Incl C1, 2-4) (NG). 19 June 1956
TM 11-5805-201-12	Operator's and Unit Maintenance Manual for Telephone Sets, TA-312/PT and TA-312A/PT (This item is included on EM 0059). 01 August 1990
TM 11-5805-650-12	Operator's and Organizational Maintenance Manual for Telephone Set, TA-838/TT and TA-838A/TT (Reprinted w/Basic Incl C1-2) (This item is included on EM 0059). 25 June 1985
TM 11-5805-701-12	Operator's and Organizational Maintenance Manual for Restorer, Pulse Form, TD-1218/G (Reprinted w/Basic Incl C1) (This item is included on EM 0128). 05 March 1985
TM 11-5805-702-12	Operator's and Organizational Maintenance Manual for Restorer, Pulse Form, TD-1219/G (Reprinted w/Basic Incl C1) (This item is included on EM 0128). 05 March 1985
TM 11-5805-703-14	Operator's, Organization, Direct Support and General Support Maintenance Manual for Test Set, Telephone, TS-3647/G (Reprinted w/Basic Incl C1-3) (This item is included on EM 0128). 16 September 1985
TM 11-5805-706-12	Operator's and Organizational Maintenance Manual for Multiplexer, TD-1233(P)/TTC (Reprinted w/Basic Incl C1-3) (This item is included on EM 0128). 14 January 1985
TM 11-5805-707-12	Operator's and Unit Maintenance Manual for Multiplexer-Combiner, TD-1234(P)/TTC (Reprinted w/Basic Incl C1-3) (This item is included on EM 0128). 14 January 1985
TM 11-5805-735-12	Combined Operation and Maintenance Instructions (Operator and Organizational Levels) Digital Non-Secure Voice Terminal, TA-954/TT, Part No. 23400-502. 15 December 1983
TM 11-5805-783-13&P	Operator's, Unit, and Direct Support Maintenance Manual Including Repair Parts and Special Tools List for Line Termination Unit CV-4180(V)1/T, CV-4180(V)2/T, CV-4180, ... (Reprinted w/Basic Incl C1-2) (This item is included on EM 0059). 15 November 1992
TM 11-5820-864-12-1	Operator's and Unit Maintenance Manual for Radio Repeater Set AN/TRC-174, Volume I (Reprinted w/Basic Incl C1) (This item is included on EM 0152). 01 January 1989
TM 11-5820-865-12-1	Operator's and Unit Maintenance Manual for Radio Terminal Set AN/TRC-173 (Reprinted w/Basic Incl C1-2) (This item is included on EM 0152). 01 January 1989
TM 11-5820-890-10-8	Operator's Manual for SINCGARS Ground Combat Net Radio, ICOM Manpack Radio, AN/PRC-119A, Short Range Vehicular Radio AN/VRC-87A, Short Range Vehicular Radio with Single Radio Mount AN/VRC-87C, ... (This item is included on EM 0071). 01 December 1998

TM 11-5820-926-12-1	Operator's and Unit Maintenance Manual for Radio Repeater Set AN/TRC-138A Volume I (Reprinted w/Basic Incl C1) (This item is included on EM 0152). 01 January 1989
TM 11-5820-931-12-1	Operator's and Unit Maintenance Manual for Radio Terminal Set AN/TRC-175 (Reprinted w/Basic Incl C1) (This item is included on EM 0152). 01 January 1989
TM 11-5985-338-14	Operator's, Organizational, Direct Support, and General Support Maintenance Manual Including Repair Parts and Special Tools Lists.... (Reprinted w/Basic Incl C1) (NG). 12 May 1972
TM 11-5995-208-10	Operator's Manual for Cable Assembly, Special Purpose, Electrical, CX-11230/G (1/4 Mile), CX-11230/G (100 Foot), CX-11230A/G (1320 Foot), CX-11230A/G (100 Foot) and CX-10734/G (This item is included on EM 0059). 07 November 1983
TM 11-6020-200-10	Operator's Manual for Fiber Optic Cable Assemblies CX-13295/G (300M) and CX-13295/G (1000M) (This is item is included on EM 0128). 15 March 1993
TM 11-6020-200-23&P	Unit and Direct Support Maintenance Manual (Including Repair Parts and Special Tools List) for Fiber Optic Cable Assemblies CX-13295/G (300M) and CX-13295/G (100M) (This item is included on EM 0128). 15 March 1993
TM 11-6110-201-12P	Operator's and Organizational Maintenance Repair Parts and Special Tools Lists for Distribution Boxes J-1077/U and J-1077A/U (This item is included on EM 0059). 22 July 1977
TM 11-6110-243-14P	Operator's, Organizational, Direct Support and General Support Maintenance Repair Parts and Special Tools Lists (Including Depot Maintenance Repair Parts and Special Tools) for Distribution Boxes J-2317/U and J2317A/U. 08 September 1976
TM 11-6625-3227-13&P	Operator's, Unit, and Direct Support Maintenance Manual (Including Repair Parts and Special Tools List) for Optical Communications Test Set TS-4117/G (This item is included on EM 0068). 15 May 1994
TM 11-6625-3292-12	General Support Maintenance Manual for Telephone Cable Test Set AN/GTM-12. 27 February 1995
TM 9-2320-269-10	Operator's Manual for Truck, Telephone Maintenance, Utility; C/S; 36,000 GVW, 6X4 w/Winch, W/E, M876 (Reprinted w/Basic Incl C1). 04 April 1984

Training Circulars

| TC 24-20 | Tactical Wire and Cable Techniques. 03 October 1988 |

Related Publications

Related publications are sources of additional information. They are not required in order to understand this publication.

Army Regulations

| AR 380-40 | (O) Policy for Safeguarding and Controlling Communications Security (COMSEC) Material (U). 30 June 2000 |

Department of Army Forms

DA FORM 5164-R   Hands-On Evaluation (LRA) (This item is included on EM 0001).

DA FORM 5165-R   Field Expedient Squad Book (LRA) (This item is included on EM 0001).

Department of Army Pamphlets

DA PAM 25-380-2   (O) Security Procedures for Controlled Cryptographic Items. 10 January 1991

DA PAM 350-59   Army Correspondence Course Program Catalog (This item is included on EM 0001). 01 October 2002

Field Manuals

FM 7-0   Training the Force. 22 October 2002

Technical Bulletins

TB 380-41   (O) Procedures for Safeguarding, Accounting, and Supply Control of COMSEC Materials (Reprinted w/Basic Incl C1). 01 October 1994

Technical Manuals

((O)TM 11-5810-292-13&P   Operator's, Unit and Direct Support Maintenance Manual for General Purpose Tape Reader KOI-18, Electronic Transfer Device KYK-13, Net Control Device KYX-15/15A. 31 May 1989

TM 11-3895-202-13   Operator's, Organizational, and Direct Support Maintenance Manual for Reel Units RL-31, RL-31-B, RL-31-C, RL-31-D, and RL-31-E. 15 January 1986

TM 11-3895-209-14   Operator's, Organizational, Direct Support and General Support Maintenance Manual for Reeling Machines, Cable, Engine-Driven, RL-207/G and RL-207A/G. 15 June 1986

TM 11-5805-201-12   Operator's and Unit Maintenance Manual for Telephone Sets, TA-312/PT and TA-312A/PT (This item is included on EM 0059). 01 August 1990

TM 11-5805-384-12   Operator's and Organizational Maintenance Manual for Telephone Set, TA-341B/TT (Reprinted w/Basic Incl C1-2). 14 December 1982

TM 11-5805-650-12   Operator's and Organizational Maintenance Manual for Telephone Set, TA-838/TT and TA-838A/TT (Reprinted w/Basic Incl C1-2) (This item is included on EM 0059). 25 June 1985

TM 11-5805-701-12   Operator's and Organizational Maintenance Manual for Restorer, Pulse Form, TD-1218/G (Reprinted w/Basic Incl C1) (This item is included on EM 0128). 05 March 1985

TM 11-5805-702-12   Operator's and Organizational Maintenance Manual for Restorer, Pulse Form, TD-1219/G (Reprinted w/Basic Incl C1) (This item is included on EM 0128). 05 March 1985

TM 11-5805-703-14   Operator's, Organization, Direct Support and General Support Maintenance Manual for Test Set, Telephone, TS-3647/G (Reprinted w/Basic Incl C1-3) (This item is included on EM 0128). 16 September 1985

TM 11-5995-208-10	Operator's Manual for Cable Assembly, Special Purpose, Electrical, CX-11230/G (1/4 Mile), CX-11230/G (100 Foot), CX-11230A/G (1320 Foot), CX-11230A/G (100 Foot) and CX-10734/G (This item is included on EM 0059). 07 November 1983
TM 9-2320-209-10-1	Operation, Installation and Reference Data Operator Level for 2 1/2-Ton, 6X6, M44A1and M4412 Series Trucks (Multifuel); Cargo: M35A1 W/O Winch, W/W; M35A2, W/O Winch, W/W; M35A2C, W/O Winch, W/W; M36A2 ... (Reprinted w/Basic Incl C1-2). 26 September 1980
TM 9-2320-289-20P	Unit Maintenance Repair Parts and Special Tools List Including Depot Maintenance Repair Parts and Special Tools for Truck, Cargo, Tactical, 1-1/4 Ton, 4x4, M1008; Truck, Cargo, Tactical, 1-1/4 Ton, ... (This item is included on EM 0070). 01 May 1992

Training Circulars

TC 24-20	Tactical Wire and Cable Techniques. 03 October 1988

References - 6

15 March 2005

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