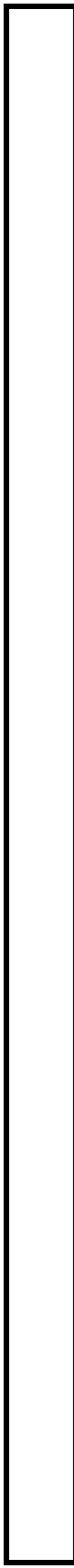
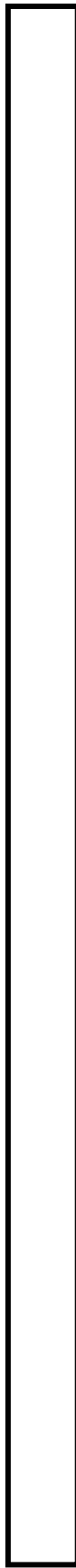


**HEADQUARTERS
DEPARTMENT OF THE ARMY**

ARTEP 44-635-11-DRILL



**PATRIOT Crew Drills for
ELECTRIC POWER PLANT AND
ANTENNA MAST GROUP**



JUNE 2003

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PATRIOT Crew Drills for
ELECTRIC POWER PLANT AND ANTENNA MAST GROUP

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*This publication supersedes ARTEP 44-635-11-Drill, 29 June 1998.

PREFACE

1. Standardized drills are an essential element to the success of the Patriot EPP and AMG on the battlefield. These drills provide performance measures and a collective sequential set of procedures that, when applied Army-wide, will minimize the impact caused by the turnover in personnel. These drills are for use by the trainers at battery and platoon level to train their crews to do the selected collective tasks correctly and rapidly. Drill training is an inseparable part of peacetime combat-oriented training, which improves proficiency in mission-oriented individual and collective tasks, maintains high combat readiness, and promotes cohesive teamwork and esprit de corps.
2. This drill publication is among a set of books that includes ARTEPs 44-635-11-Drill, 44-635-12-Drill, 44-635-13-Drill, 44-635-14-Drill, and 44-635-15-Drill, all of which contain Patriot standardized drill procedures.
3. This drill publication addresses crew drills for march order and emplacement for the EPP and AMG. This drill book is separated into chapters and appendixes with applicable information to assist the platoon leader, platoon sergeant, and squad leader in training his crew.
4. The target audience for this drill includes leaders, trainers, and evaluators of Patriot battalions organized under TOE 44-635.
5. Unless this publication states otherwise, masculine nouns and pronouns do not refer exclusively to men.
6. The proponent for this publication is HQ, TRADOC. To improve this publication, submit recommended changes on DA Form 2028 to: Commandant, United States Army Air Defense Artillery School, ATTN: ATSA-DT-WF, Fort Bliss, Texas 79916-3802.

CHAPTER 1

UNIT TRAINING

1-1. General. The goal of training is to produce combat-ready units that respond rapidly to known or suspected enemy activity and to defeat the enemy. Drill training is a key factor in achieving that goal. It describes a training method for small units. This method requires training individual tasks, leader tasks, and collective tasks before the conduct of critical wartime missions. Leaders should tailor training to realistic, challenging, and attainable goals, while increasing the difficulty of conditions as the unit becomes more proficient.

a. A crew drill is a collective action taken by a crew to successfully use weapons or equipment in combat and or minimize unnecessary casualties. This action is a trained response to a given stimulus such as a simple leader's order or the status of the weapon or equipment. It requires minimal leader orders to accomplish and is standard throughout the Army.

b. These drills have many advantages:

(1) They are based on unit missions and the specific tasks, standards, and performance measures required to support mission proficiency.

(2) They build from simple to complex and focus on the basics.

(3) They link how-to-train and how-to-fight at small unit levels.

(4) They provide an agenda for continuous coaching and critiquing.

(5) They develop leaders and build teamwork and cohesion under stress.

(6) They enhance the chance for individual and unit survival on the battlefield.

1-2. Training Guidance. Crew drills are trained using a talk-through, walk-through, and run-through method. You, of course, must be a master of the drill to train your soldiers to execute it. You may wish to periodically talk your soldiers through the drill- explaining each soldier's role. Then have them go through it slowly, on open ground, correcting any mistakes as they go. Whenever possible, train in a new environment in which you would expect to execute the drill in wartime. Train frequently in MOPP and be tough on yourself and your soldiers. Good teams execute instantly and with precision, your team will pay a high price for failure if they do not.

1-3. Safety Considerations. During the conduct of a drill all soldiers and leaders must be safety conscious. Prior to the beginning of a drill, all personnel must be briefed on specific safety measures to be observed during the conduct of the exercise.

1-4. Evaluation Information. The purpose of evaluating a drill is to determine if the unit can perform all of the performance measures within the allowed standards. During evaluation, concentrate on the units performance, not that of specific individuals. The best location for observers/controllers is one in which the actions of the entire unit can be observed. Use the drill book as a checklist. We recommend you do not use local checklists, as they can become negative training tools.

CHAPTER 2

CREW DRILLS

2-1. General. A crew drill is a collective action taken by a crew to successfully use weapons or equipment in combat and or minimize unnecessary casualties. The crew drill task is initiated on a cue and performed to specific standards.

2-2. Crew Drill 44-5-D001.

TASK: Emplace the EPP III for Tactical Operations (44-5-D001).

CONDITIONS: The battery is preparing to occupy a new position. The EPP is in the march order configuration, and a general location to emplace the EPP has been selected. All components of the EPP are available and operable. A crew has been assigned to emplace and prepare the system for tactical operations in all environmental and NBC conditions, both day and night. As the EPP crew approaches the selected position, the EPP ground guide orients and positions the EPP to a designated spot and commands, "Halt vehicle."

STANDARD: Emplace and prepare the EPP for tactical operations by the performance measures as sequenced in this drill. Complete this drill within 25 minutes at MOPP0 through MOPP3 or in the time standards stated in ARTEP 44-637-30-MTP at MOPP4 (Figure 5-1).

SUPPORTING INDIVIDUAL TASKS: Supporting individual tasks for these drills are listed in Appendix A, Individual Task-to-Drill Matrix.

ILLUSTRATIONS: Figures 2-1 through 2-3.

SETUP INSTRUCTIONS: The following equipment, areas, and personnel must be provided for the drill to be trained correctly.

a. Resources. As a minimum, the following are required: One EPP III, one ECS (truck-mounted), and one RS (trailer-mounted). All are included with basic issue items.

b. Training Site. The potential site must be large enough (10x10 meters) to prevent fires from hot exhaust. The site should be as level as possible. The maximum allowable slope from front-to-rear or side-to-side is 10 degrees.

c. Unit Instructions. The crew members will emplace and prepare the EPP III for tactical operations at a designated location using the following procedures:

(1) The RSOP team decides the position of each FP vehicle before the FP arrives. They will emplace marker stakes and ground rods to show FP vehicle positions.

(2) All FP vehicles arrive on site at approximately the same time. The FP vehicles stop a short distance from the selected FP site.

(3) One crew member from each vehicle serves as a ground guide to direct the driver to position the vehicle at the emplacement site. Position the RS first, the EPP second, the ECS third, the AMG fourth, and LSs last.

TALK-THROUGH INSTRUCTIONS: The mission of the EPP III is to provide electrical power support to the ECS and the RS in a tactical situation. The crew members must be able to emplace the EPP and prepare it for tactical operations where directed and within prescribed time limits.

a. Orientation. Before beginning drill training, ensure that each crew member knows the purpose of the drill and is briefed on safety awareness.

b. Safety/Fratricide. All soldiers who operate the EPP III must know that safety hazards exist while operating the various items of equipment. These hazards can and have caused severe injuries to operators. Be extremely careful when working around the EPP. Throughout the crew drill, observe all dangers, warnings, and cautions required to properly emplace the EPP. Commanders, trainers, and leaders must plan, train, and stress all procedures, which must be followed to avoid fratricide. These procedures include IFF, weapon control status, vehicle and aircraft recognition, corridors, routes, zones, flight levels, and other control measures. Munitions cannot distinguish friend or foe.

c. Demonstration (Optional). If a nearby crew has successfully performed the drill, have that crew demonstrate the drill. Explain what is being done and why, using the performance measures as a guide. After the demonstration, summarize.

d. Explanation. Explain the drill in the following manner:

(1) Using a diagram (Figures 2-1, 2-2, and 2-3), a sand table, or a simple sketch in the dirt, show the crew members how the EPP III should be emplaced.

(2) Tell the crew members what their duties are in the drill.

(3) Read the performance measures of the drill to the crew members.

(4) Have the crew members explain their performance measures to ensure that they understand them.

WALK-THROUGH INSTRUCTIONS:

a. Use the Crawl-Walk-Run Method of Training. Have crew members take their positions and perform the drill. Start the training slowly. Correct any mistakes the crew members make as they go. Do not proceed until drill procedures are performed correctly. After the crew members demonstrate their proficiency at a slow pace, let them do it faster. However, remember, that safety is never sacrificed for speed. Watch carefully to make sure the crew members achieve all of the standards for the drill.

b. Initiating Cue. The EPP ground guide orients and positions the EPP at the selected site and commands, "Halt vehicle."

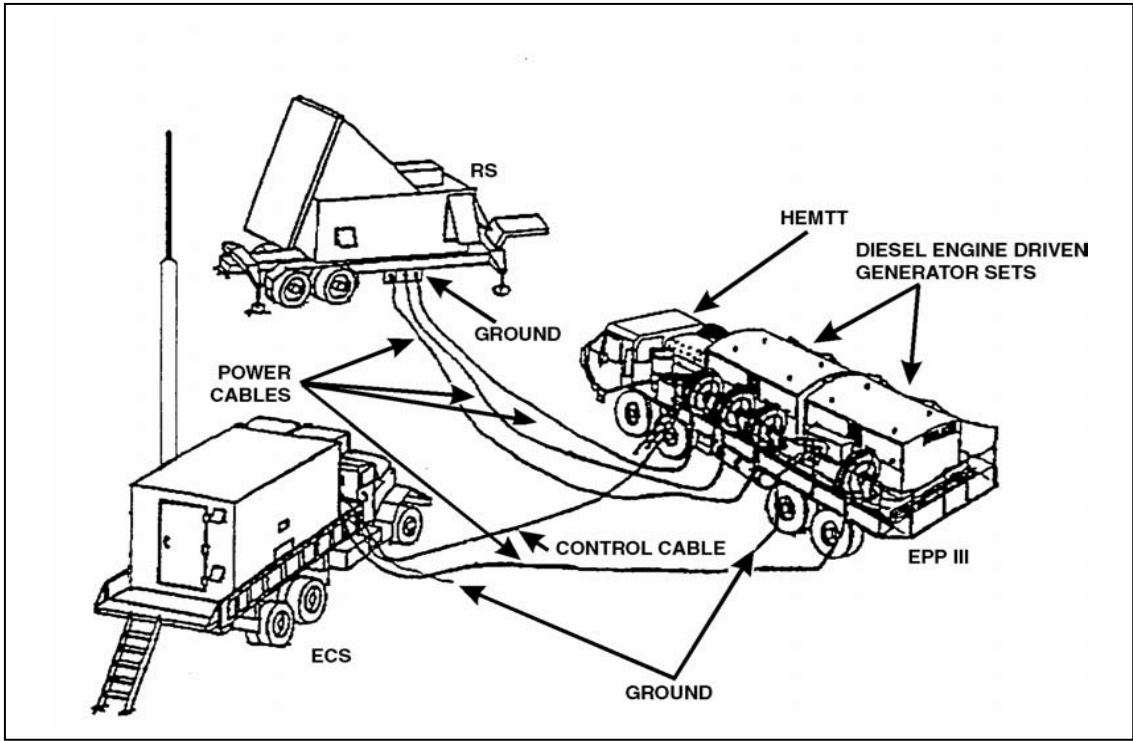
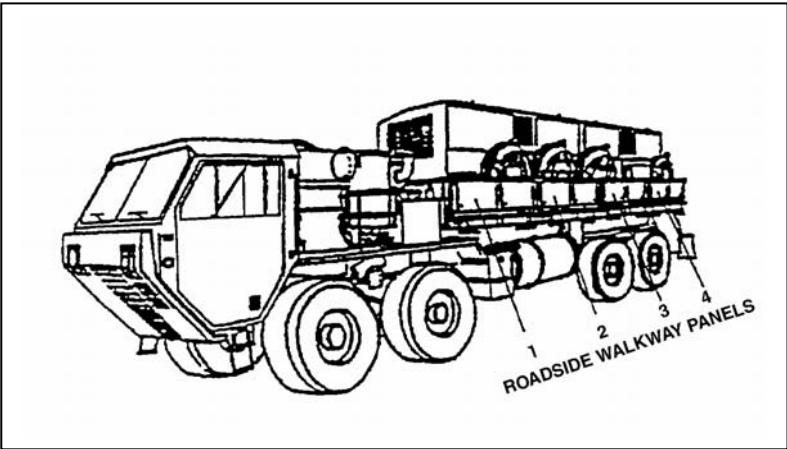


Figure 2-1. Emplaced EPP III



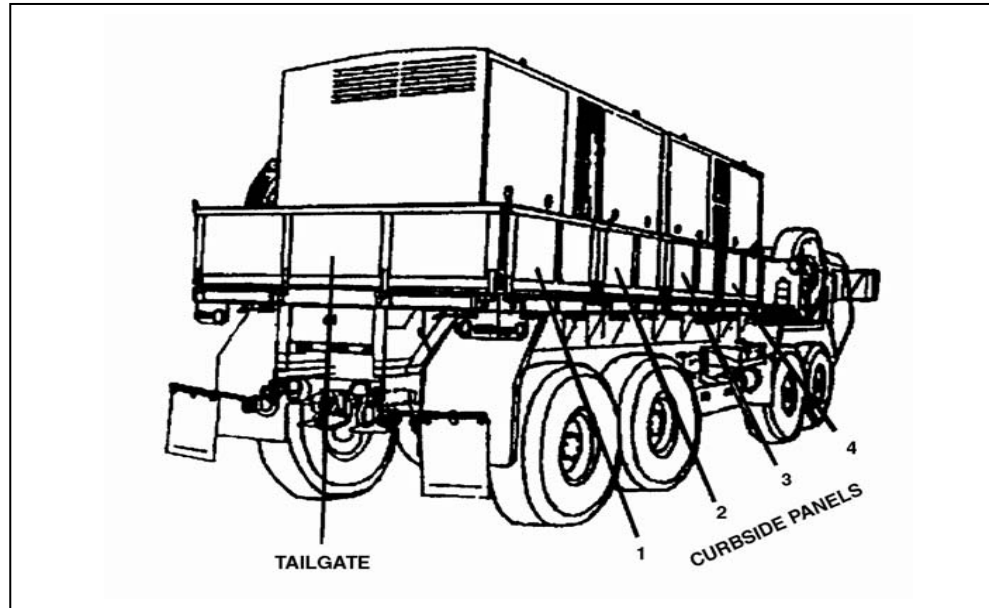


Figure 2-3. EPP III rear and curbside walkway panels

PERFORMANCE MEASURES: Crew members complete their performance measures as they are stated in the sequence shown below. They must synchronize the completion of like-numbered performance measures.

Note: Before proceeding with this drill, read all Danger, Warning, and Caution notices.

WARNING

Position the EPP III with respect to the ECS and RS at maximum distance allowed by cable lengths and terrain. This will reduce fire, carbon monoxide, and noise hazards.

DANGER

Whenever possible, the generators must be turned off before beginning work on the equipment. Always ground every part before touching it. Failure to do so may cause permanent injury or death.

DANGER

Do not attempt to connect wires or cables unless generator sets are shut down and fully de-energized. Failure to do so may cause permanent injury or death.

WARNING

High noise levels from the generators can cause hearing damage. Hearing protection is required while operating this equipment.

WARNING

When refueling is necessary during operation, fuel fumes may be ignited if the tanker truck is not properly grounded. Make sure the tanker truck ground wire is attached to the fuel tank and keep metal-to-metal contact between the fuel nozzle and the fuel tank.

CAUTION

If the ground is too hard to drive in all three grounding rod sections, the equipment must still be properly grounded using alternative grounding procedures.

DANGER

Whenever the nature of the operation permits, keep one hand away from the equipment to reduce the hazard of current flow through vital human organs.

DANGER

Never work on electrical equipment unless there is another person nearby who is familiar with the operation and hazards of the equipment and who is competent in administering first aid. When the operators aid the technician, he must warn them about dangerous areas. Failure to do so may cause permanent injury or death.

WARNING

Hazardous fuels are used in this equipment. Personal injury or damage to equipment may result if personnel fail observe precautions.

DANGER

Remove dog tags, rings, watches, and other jewelry before working on electrical equipment. Metal contact with electrical current can cause severe burns.

DANGER

Do not be misled by the term “low voltage.” Potentials as high as 50 volts may cause death under adverse conditions.

CREW MEMBER 1

CREW MEMBER 2

CAUTION

Truck and generator exhaust temperatures are high and may cause a fire. Do not park close to trees or vegetation. In the event of fire, perform the following actions:

- Shut down all generator sets.
- Call for any available fire fighting support equipment.
- Use an available fire extinguisher if the fire is not severe and not near a fuel source.
- Evacuate the area immediately if the fire is severe or near a fuel source.

1. Maneuvers EPP III truck to designated position and orients as directed by CM 2.

1. Directs and orients CM 1 to properly position the EPP III to its designated spot.

CREW MEMBER 1	CREW MEMBER 2
----------------------	----------------------

Note: For evaluation purposes, time starts here.

a. Halts vehicle, sets hand brake, and shifts truck to neutral.

a. Commands, "Halt vehicle." (Refer to Appendix B.)

DANGER

Do not stand in front of or in back of the vehicle until wheels are chocked. Failure to do so may cause permanent injury or death.

b. Notifies CM 2 to chock wheels.

b. Obtains wheel chocks from EPP III truck and chocks truck. (Refer to Appendix B.)

c. When notified by CM 2 that wheels are chocked, turns engine off and exits vehicle.

c. Notifies CM 1 that truck wheels are chocked.

WARNING

To prevent injury, use extreme caution when maneuvering on and around cable drums.

2. Extends panel swing-out support arms on roadside and tailgate of EPP III to emplaced position.

2. Extends panel swing-out support arms on curbside of EPP III to emplaced position.

3. Lowers fold-down walkway panels.

3. Lowers fold-down walkway panels.

Note: Crew members 1 and 2 must work together to safely lower walkway panels. The battery commander has the option to allow a third person from the ECS/RS to assist with lowering and supporting panels and supporting cables during connection.

WARNING

Ensure ladder is at a sufficient angle to prevent falling. Do not step past second rung.

CREW MEMBER 1	CREW MEMBER 2
---------------	---------------

4. Replaces fire extinguishers.

4. Gives CM 1 the fire extinguishers from platform.

Note: Ensure that the ladder is securely locked into position.

DANGER
High voltage is used in the operation of this equipment. Death or severe injury may result if personnel fail to observe safety precautions.

DANGER
Do not operate generator set unless ground terminal stud is connected to a suitable ground. An electrical fault in generator sets, load lines, or load equipment, can cause severe injury or death from contact with an ungrounded system.

Note: Ensure the corner panel and the walkway safety rail holes line up.

5. Assists CM 2 with corner panels as needed.

5. Retrieves and replaces the two corner panels.

6. Connects power and control cables.

6. Connects power and control cables.

a. Removes rail posts and safety chins from stowed position.

a. Assists as needed.

b. Deploys rail posts and safety chains.

b. Retrieves and installs safety pins in rail posts.

7. Assists as needed.

7. Grounds the EPP.

WARNING
Short cable may come loose when drum spins and can cause damage to equipment.

WARNING
Gloves are required to protect hands when reeling and unreeling cables.

CREW MEMBER 1

CREW MEMBER 2

CAUTION

Avoid damage to cable connector. Do not allow cable head to drag across ground when extending cable from, or returning to, storage on cable drum assemblies.

Note: If ECS personnel are available, they will assist in deploying cables. The CM 1 will deploy cables to the ECS. If RS personnel are available, they will assist in deploying cables. If not, the CM 1 will deploy cables. The RS personnel will remove protective covers from cables and panel connectors, and connect cables at the RS. The RS personnel can assist EPP crew with cables.

8. Removes short cables one at a time and gives to RS/ECS CM if available.

a. Assists as needed.

8. Removes short cables one at a time and gives to RS/ECS CM if available.

a. Attaches short cables to PDU panel.

WARNING

Hot exhaust can cause fires. Do not place exhaust pipes on or near bushes or dry grass.

9. Installs generator exhaust pipes on priority generator and PMCS generator.

10. Establishes visual or voice communications with ECS crew.

11. Performs pre-start procedures per TM.

12. Powers up generator set and verifies operation.

Note: A generator set operating instructions plate with starting procedures is attached to the inside surface of the generator set access panel door. If the ambient temperature is below -25 degrees Fahrenheit (more than 25 degrees below zero), activate the engine preheater by pressing the HEATING ON button on the generator control panel. After approximately 12 minutes of heating, the READY TO START IF HEATING IS ON indicator should illuminate. If the ambient temperature is above -25 degrees Fahrenheit, do not use the preheater.

13. When notified by CM 2 that the ECS and RS are ready for prime power, applies power.

9. Assists as needed.

10. Assists as needed.

11. Assists as needed.

12. Assists as needed.

13. Establishes communications with the ECS and RS crew. Notifies CM 1 when the ECS and RS are ready for prime power.

CREW MEMBER 1	CREW MEMBER 2
---------------	---------------

Note: For evaluation purposes, time stops here.

14. After electrical load is applied to RS and ECS, verifies voltage and frequency are steady.

14. Notifies ECS crew that AC power is applied to ECS and RS.

15. Performs PMCS during operations.

15. Installs generator exhaust pipes on remaining generator and conducts PMCS.

COACHING POINT: The performance measures are completed in the sequence outlined. All crew members do their like-numbered performance measures at the same time. When all the performance measures have been mastered and all crew members can do their jobs without coaching, go for speed and remember to be safety-conscious. The more the drill is performed, the better the crew members will perform together.

RUN-THROUGH INSTRUCTIONS: The crew members should practice this drill until they can perform the drill according to the standard without using the drill book. The initial run-through should be conducted slowly. The crew members should change positions in order to learn all steps and standards.

PERFORM: When the crew members can perform this crew drill to standard, inform the platoon sergeant or platoon leader that the crew members are ready to be evaluated.

SUPPORTED T&EOs

ARTEP NUMBER	T&EO NUMBER	T&EO TASK TITLE
44-637-30-MTP	44-2-9004.44-P20P	Emplace the Firing Battery

2-3. Crew Drill 44-5-D002.

TASK: Emplace the AMG for Tactical Operations (44-5-D002).

CONDITIONS: The battalion or battery is preparing to occupy a new position. The AMG is in the march order configuration, and a general location to emplace the AMG has been selected. All components of the AMG are available and operable. A crew has been assigned to emplace and prepare the system for tactical operations in all environmental and NBC conditions, both day and night. As the AMG crew approaches the selected position, the AMG ground guide orients and positions the AMG to a designated spot and commands, "Halt vehicle."

STANDARD: Emplace and prepare the AMG for tactical operations by the performance measures as sequenced in this drill. Complete this drill within 45 minutes at MOPP0 through MOPP3 or in the time standards stated in ARTEP 44-637-30-MTP at MOPP4 (Figure 5-1). Allow additional emplacement time when installing the AMG guy wire kit.

SUPPORTING INDIVIDUAL TASKS: Supporting individual tasks for this drill are listed in Appendix A, Individual Task-to-Drill Matrix.

ILLUSTRATIONS: Figures 2-4 through 2-11.

SETUP INSTRUCTIONS: The following equipment, areas, and personnel must be provided for the drill to be trained correctly.

a. Resources. As a minimum, the following is required: One EPP (two 150-kilowatt, 400-hertz generators), one AMG (truck-mounted), one ECS (truck-mounted), and one RS (trailer-mounted). All are included with basic issue items.

b. Training Site. The potential site must be large enough (10x10 meters) to perform all operations of emplacement without any overhead obstacles or power lines. The site should be as level as possible. The maximum allowable slope from front to back is 10 degrees and must be within 1/2 degree from side to side.

c. Unit Instructions. The crew members will emplace and prepare the AMG for tactical operations at a designated location using the following procedures:

- (1) The RSOP team decides the position of each FP vehicle before the FP arrives. They will emplace marker stakes and ground rods to show FP vehicle positions.
- (2) All FP vehicles arrive on site at approximately the same time. The FP vehicles stop a short distance from the selected FP site.
- (3) Crew member from each vehicle serves as a ground guide to direct the driver in positioning the vehicle at the emplacement site. Position the RS first, the EPP second, the ECS third, the AMG fourth, and the LSs last.

TALK-THROUGH INSTRUCTIONS: The mission of the AMG is to overcome terrain obstacles and increase the range of the communications network. The crew members must be able to emplace and prepare the AMG for tactical operations where directed within prescribed time limits.

a. Orientation. Before beginning drill training, ensure that each crew member knows the purpose of the drill and is briefed on safety awareness.

b. Safety/Fratricide. All soldiers who operate the AMG must know that safety hazards exist while operating the various items of equipment. These hazards can and have caused severe injuries to operators. Be extremely careful when working around the AMG. Throughout the crew drill, observe all dangers, warnings, and cautions required to properly emplace the AMG. All commanders, trainers, and leaders must plan, train, and stress all procedures, which must be followed to avoid fratricide. These procedures include IFF, weapon control status, vehicle and aircraft recognition, corridors, routes, zones, flight levels, and other control measures. Munitions cannot distinguish friend or foe.

c. Demonstration (Optional). If a nearby crew has successfully performed the drill, have that crew demonstrate the drill. Explain what is being done and why, using the performance measures as a guide. After the demonstration, summarize.

d. Explanation. Explain the drill in the following manner:

(1) Using a diagram, Figures 2-4 through 2-11, a sand table, or a simple sketch in the dirt, show the crew members how the AMG should be emplaced.

(2) Tell the crew members what their duties are in the drill.

(3) Read the performance measures of the drill to the crew.

(4) Have crew members explain their performance measures to ensure that they understand them.

WALK-THROUGH INSTRUCTIONS:

a. Use the Crawl-Walk-Run Method of Training. Have crew members take their positions and perform the drill. Start the training slowly. Correct any mistakes the crew members make as they go. Do not proceed until drill procedures are performed correctly. After the crew members demonstrate their proficiency at a slow pace, let them do it faster. However, remember that safety is never sacrificed for speed. Watch carefully to make sure the crew members achieve all of the standards for the drill.

b. Initiating Cue. The AMG ground guide orients and positions the AMG at the selected site and commands, "Halt vehicle."

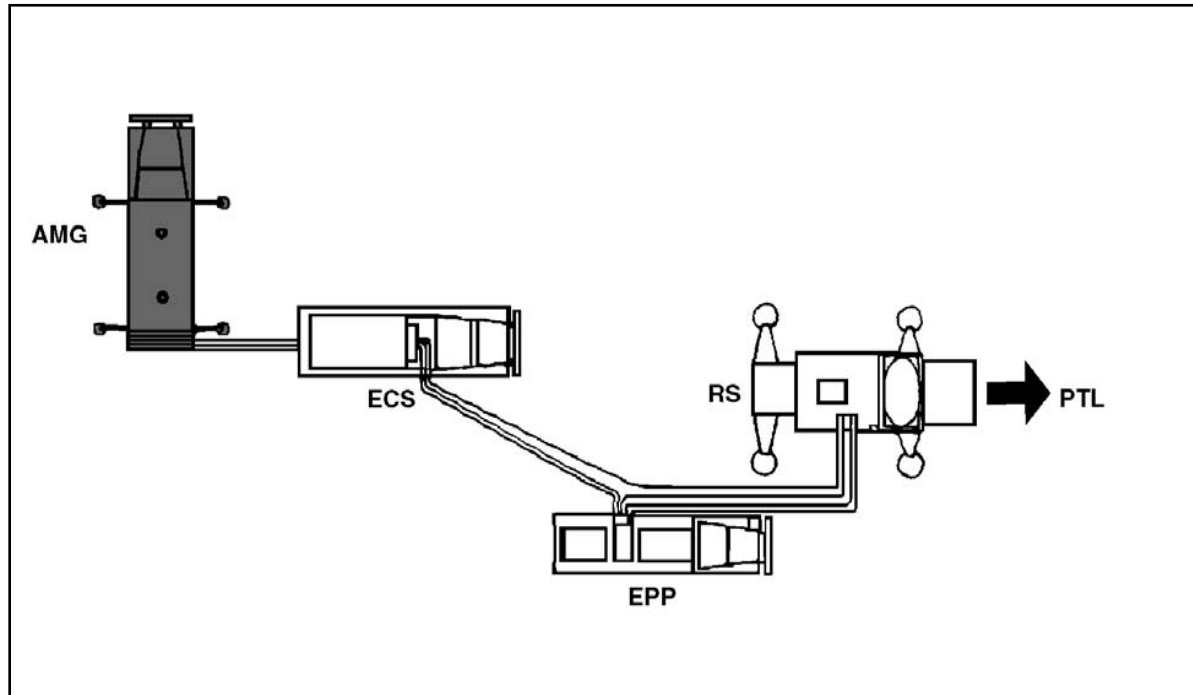


Figure 2-4. Emplacement of AMG with ECS

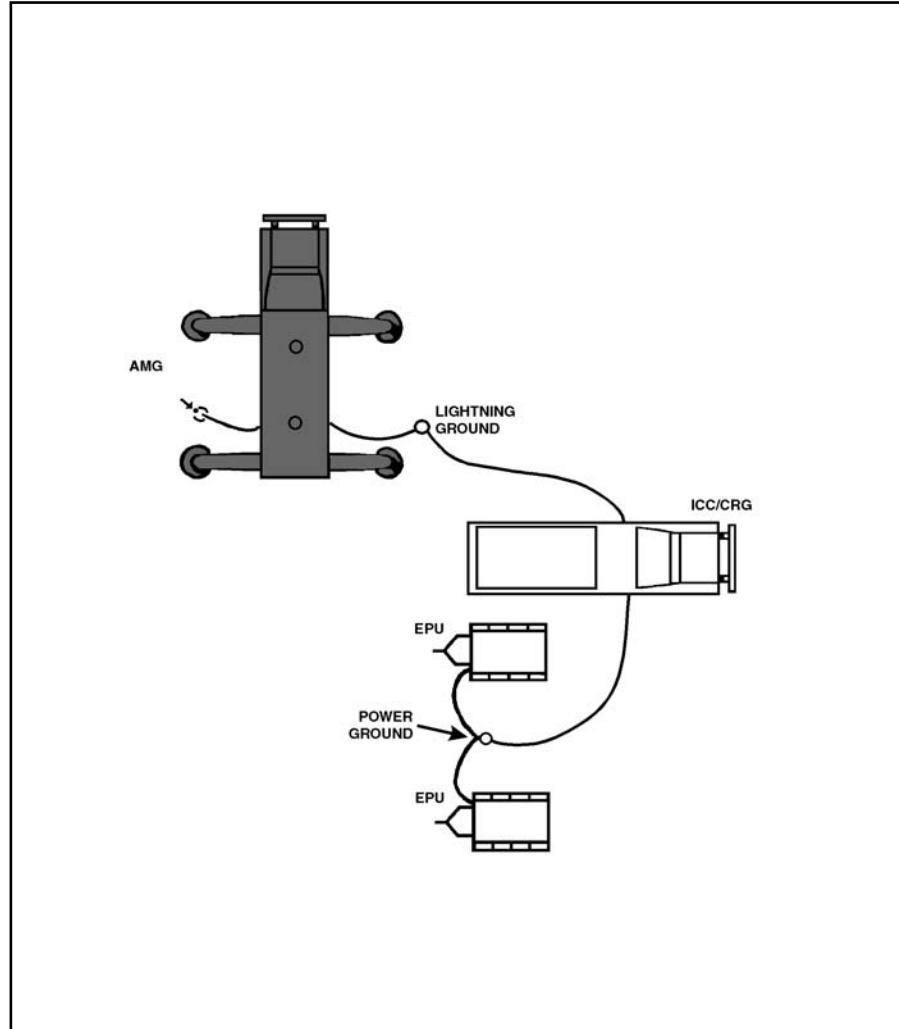


Figure 2-5. Emplacement of AMG with ICC or CRG

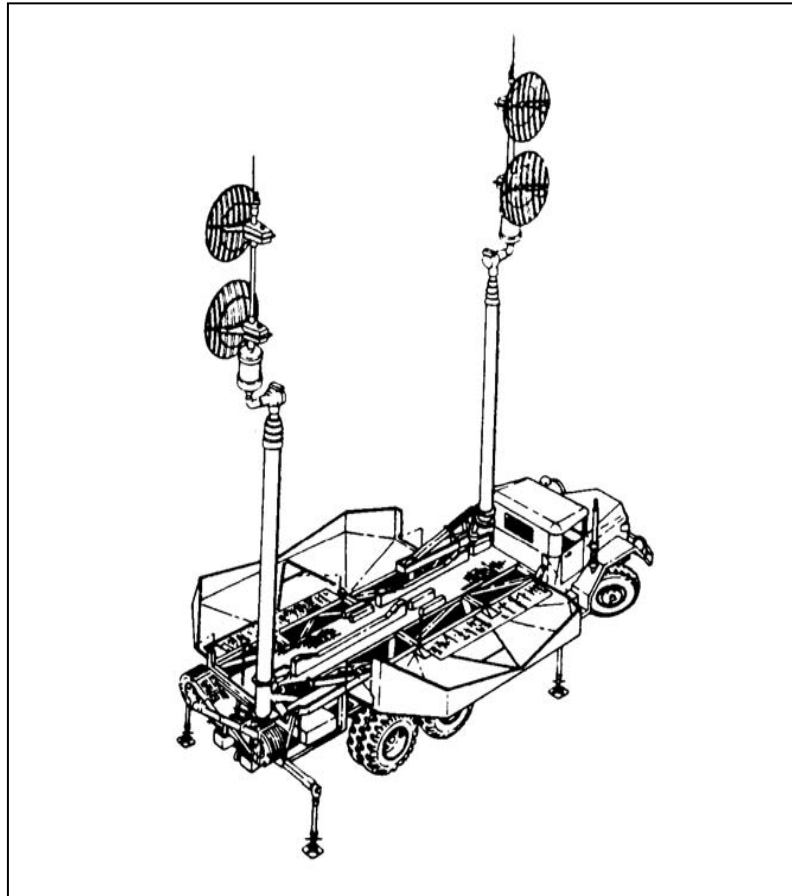


Figure 2-6. Emplaced AMG

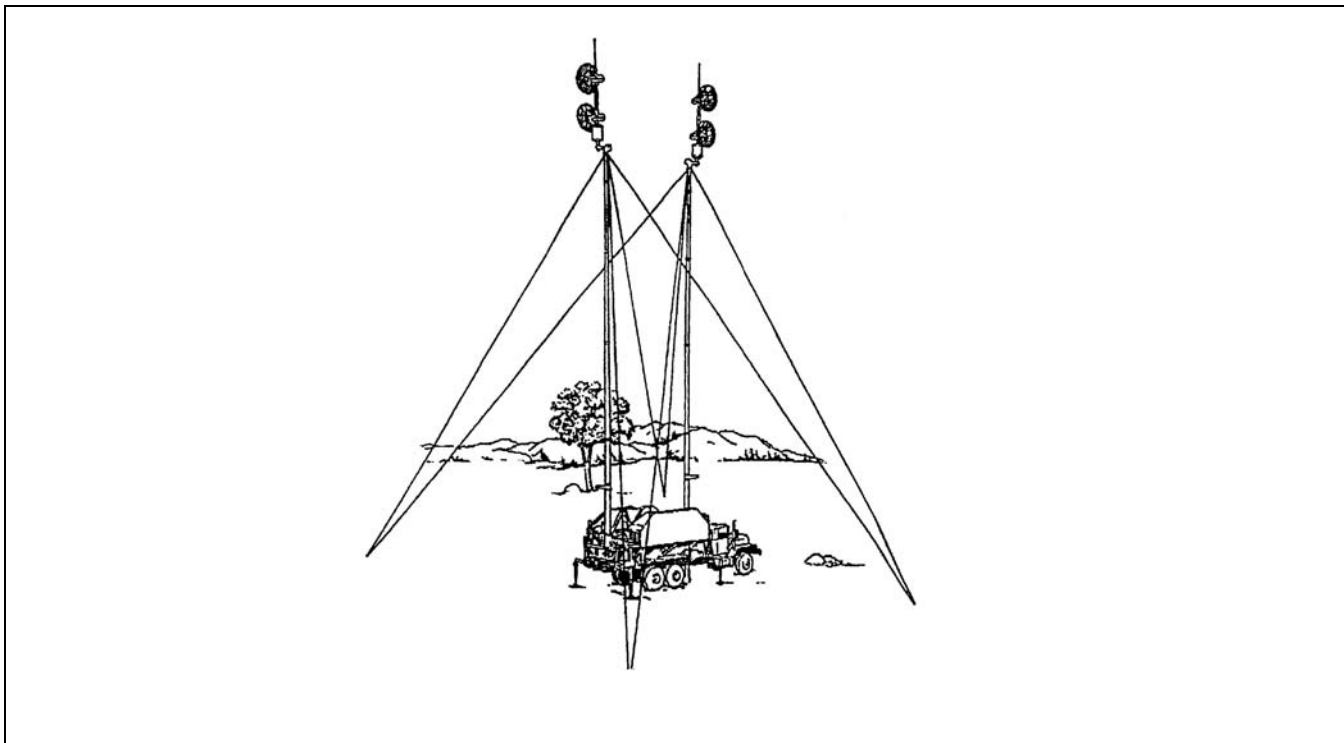


Figure 2-7. Emplaced AMG with guy wires installed

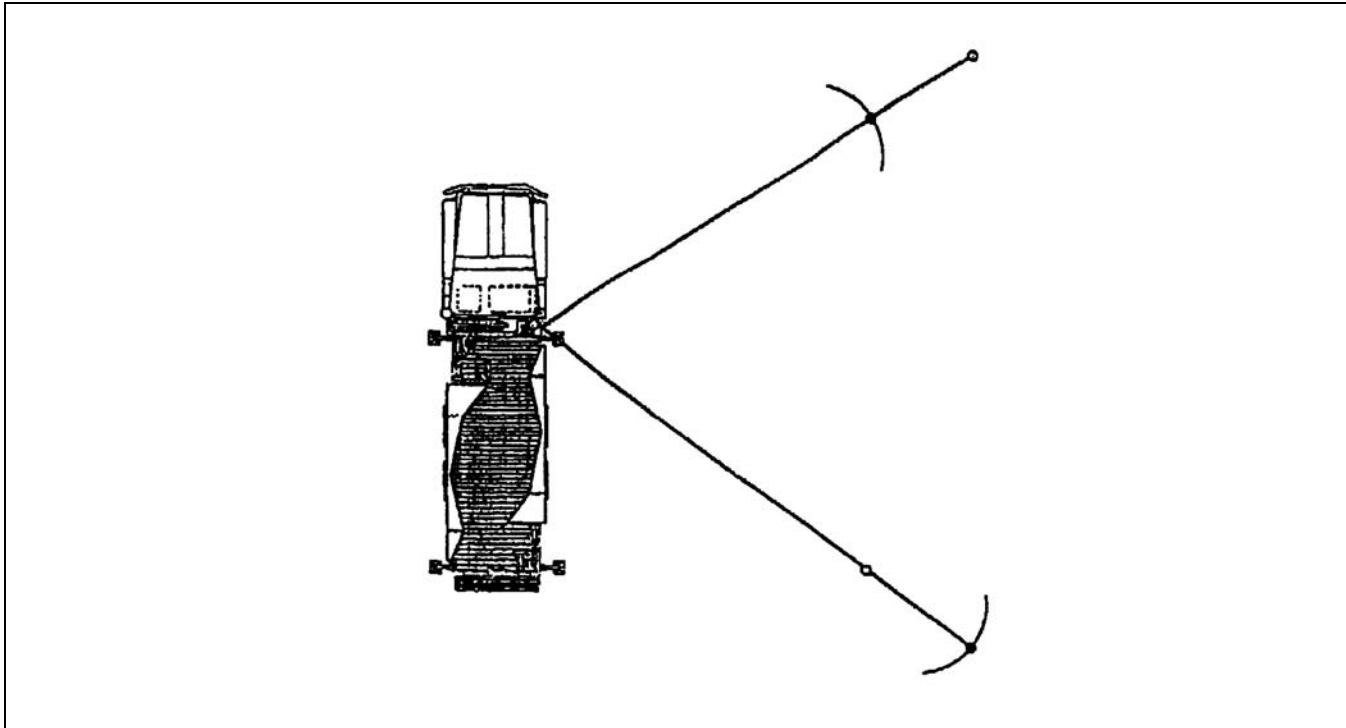


Figure 2-8. Scribing of AMG arc lines

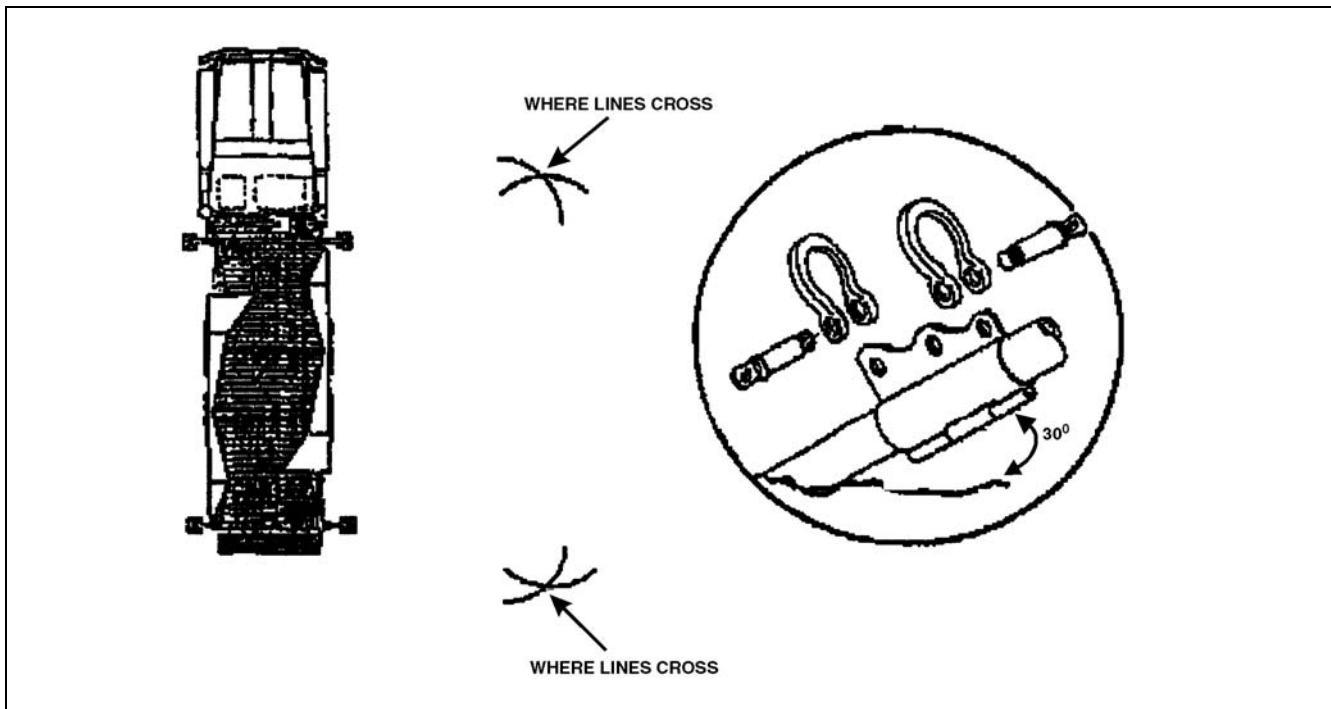


Figure 2-9. Scribing lines marked for guy wire stake emplacement

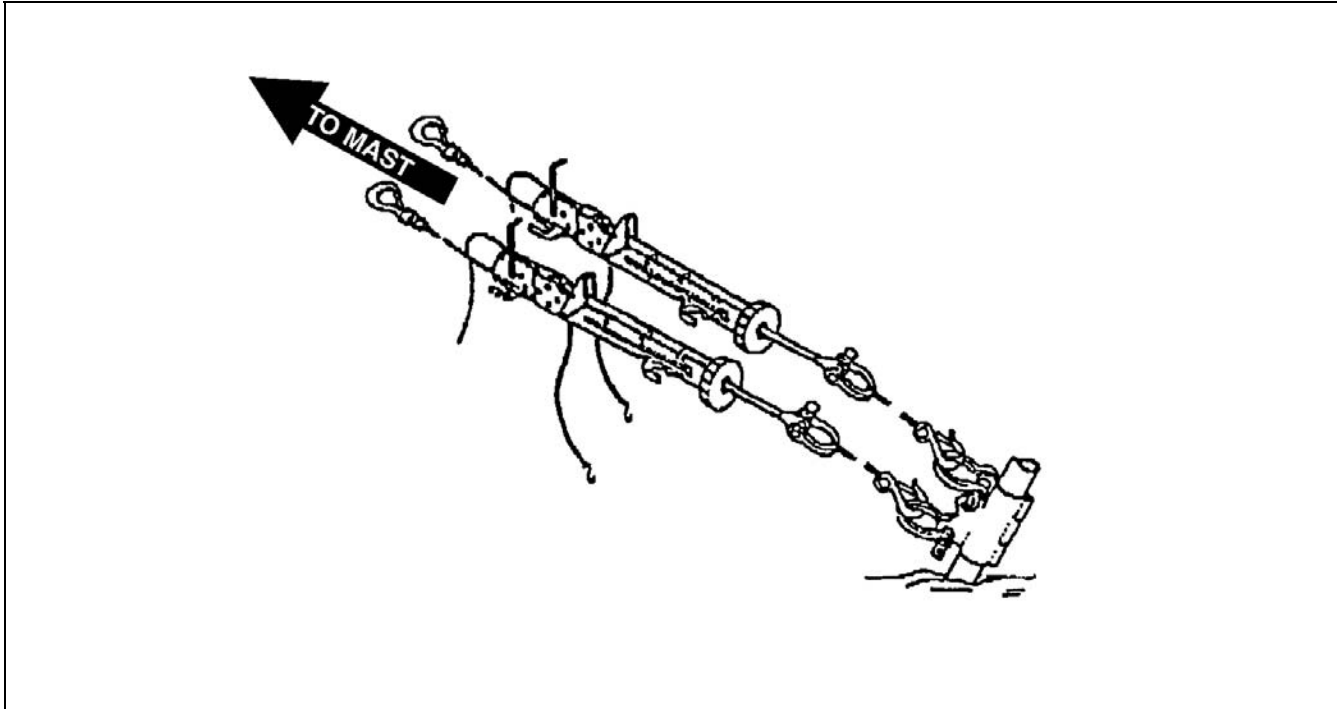


Figure 2-10. AMG—hooking guy wire tensioners to stake

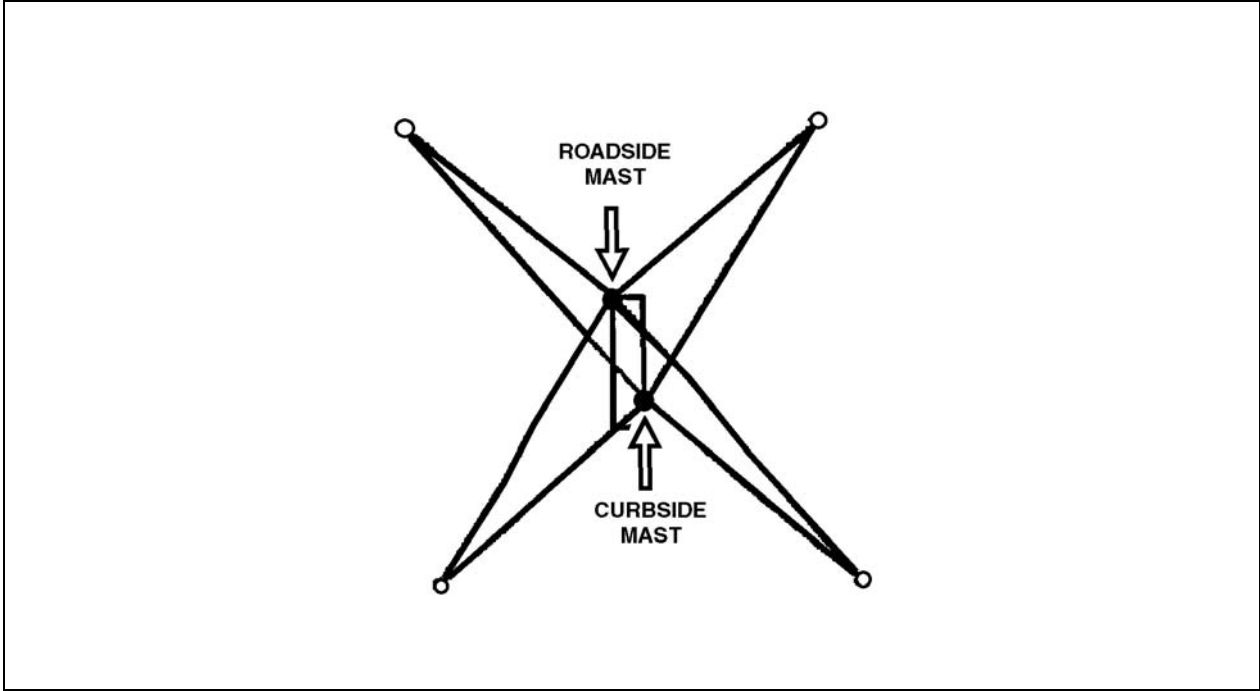


Figure 2-11. AMG—tension guy wire layout

PERFORMANCE MEASURES: Crew members complete their performance measures as they are stated and in the sequence shown. They must synchronize the completion of like-numbered performance measures.

Note: Before proceeding with this drill, read all Danger, Warning, and Caution notices.

DANGER

Never attempt to open hydraulic bleed plugs on hydraulic cylinder. Mast can lower very rapidly when plugs are opened, severely injuring or killing personnel. If your mast will not lower, call for direct support maintenance personnel for assistance.

WARNING

Do not allow bare flesh to touch metal during extreme cold or heat. Serious injury may result.

WARNING

Do not perform blackout operations unless they are mission-essential. There is increased risk of injury to personnel during blackout operations. Use extreme caution and do not hurry.

WARNING

Do not move vehicle with masts raised. Do not extend masts in high winds. Extend masts only high enough for communications.

WARNING

Keep a weather watch. Masts may require retracting if adverse weather develops. Immediately retract both masts if personnel in the ECS, CRG, or ICC tell you that the mast monitor panel alarm is on. Periodically check the ground conditions around guy wire stakes. Heavy rains or wet soil can reduce the load capacity of the stakes.

WARNING

There are many tripping hazards on the mast group; use care.

WARNING

Do not exceed maximum load on antenna protective covers (600 pounds).

WARNING

Position truck so there are no overhead obstructions, especially power lines. Position the truck at a distance at least twice the mast height from overhead power lines.

WARNING

Do not pass underneath a mast being raised or lowered.

WARNING

Do not leave handle on winch shaft if variable height limiter is set up and mast is to be extended. Handle will spin rapidly, possibly injuring personnel.

Note: The following warnings and caution pertain specifically to AMG guy wire usage:

WARNING

When selecting locations for guy wire stakes, ensure the ground is firm and avoid traveled areas and roads. Clearly mark all wires with warning flags.

CREW MEMBER 1	CREW MEMBER 2	CREW MEMBER 3
---------------	---------------	---------------

WARNING

Check guy wires and stakes daily, and before and immediately after bad weather. If ice forms on guy wires, post warning signs and rope off the area. Do not try to erect antennas during an electrical storm.

CAUTION

If, for any reason, a mast must be repositioned (raised or lowered) after guy wire tension is completed, you must release tension and then re-tension guy wires

Note: The commander will determine when use of the guy wires is necessary. The vehicle must be heading either up-slope or down-slope. Maximum allowable slope is 10 degrees. Check your emplacement with the RSOP team. Perform PMCS on the antenna mast system before operating masts.

WARNING

Position truck so there are no overhead obstructions, especially power lines.

1. Maneuvers the AMG truck to designated position and orients, as directed by CM 2.

1. Directs and orients CM 1 to properly position the AMG truck to its designated spot. Observes inclinometer and locates a spot that is cross-leveled to 1/2 degree.

1. Assists as needed.

Note: For evaluation purposes, time starts here.

a. Halts vehicle, sets hand brake, and places transmission in NEUTRAL. Leaves engine running and notifies CM 2 to chock wheels.

a. Commands, "Halt vehicle." (Refer to Appendix B.)

CREW MEMBER 1	CREW MEMBER 2	CREW MEMBER 3
<p>c. Exits vehicle after being notified by CM 2 that wheels are chocked</p> <p>2. Assists as required.</p> <p>3. Connects ground cable.</p> <p>a. Removes cables from rear of AMG; takes to rear of ECS or ICC if emplaced with FDS.</p> <p>4. Employs roadside stabilizing struts.</p> <p>Note: Ensures indicator guide is aligned for the appropriate soil condition.</p> <p>5. Repeats step 3 for the other roadside strut.</p>	<p>b. Obtains wheel chock, and chocks vehicle. (Refer to Appendix B.)</p> <p>c. Notifies CM 1 that truck wheels are chocked.</p> <p>2. Assists as required.</p> <p>3. Sets up distribution box.</p> <p>a. Opens the distribution box (7A1A1) on roadside of AMG. Establishes communication with the ECS.</p> <p>b. Adjusts the LAMP CONTROL switch to DIM for blackout operations or to BRIGHT for daytime operations.</p> <p>c. Places MAST WARNING LIGHTS to OFF for blackout conditions or to ON for normal operations.</p> <p>d. Ensures that POWER, MODE DRIVER, and MODE FINAL switches are set to OFF for all amplifiers.</p> <p>4. Determines AMG heading from rear of AMG and reports azimuth.</p> <p>5. Assists as needed.</p>	<p>b. Obtains wheel chock, and chocks vehicle. (Refer to Appendix B.)</p> <p>c. Notifies CM 2 that truck wheels are chocked.</p> <p>2. Emplaces ground rod, if necessary.</p> <p>3. Assists as required.</p> <p>4. Employs curbside stabilizing struts.</p> <p>Note: Ensures indicator guide is aligned for the appropriate soil condition.</p> <p>5. Repeats step 3 for the other curbside strut.</p>

CREW MEMBER 1	CREW MEMBER 2	CREW MEMBER 3
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WARNING
There are many trip hazards on the mast group platform. Use care when walking on the platform.

Note: Compressor air flaps should be open, MAST EXTENSION switch set to IN, Compressor Mode Switch set to AC/AUTO, and DC power should be applied during road march to new emplacement site.

- | | | |
|---------------------------------------|---------------------|---------------------------------------|
| 6. Employs antenna protective covers. | 6. Checks air tanks | 6. Employs antenna protective covers. |
|---------------------------------------|---------------------|---------------------------------------|

Note: Ensure that the air vent plug is opened about ½ turn before lowering covers. Do not remove plug after covers are down. Place control valve lever to hold.

WARNING
Warn personnel on the ground, before lowering each antenna protective cover.

Note: Unscrew two captive bolts only far enough to release clamp. Do not remove bolts from clamp.

WARNING
Do not unscrew T-handle. Mast clamp can fall from mast and injure personnel.

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| 7. Unclamps roadside mast clamp by unscrewing the two captive bolts to release it. | 7. Assists as needed | 7. Unclamps curbside mast clamp by unscrewing the two captive bolts to release it |
|--|----------------------|---|

CAUTION
Feed horns are fragile; handle with extreme care.

WARNING
It is easy to pinch finger during feedhorn deployment. Use extreme care.

CREW MEMBER 1	CREW MEMBER 2	CREW MEMBER 3
8. Employs antenna feedhorns on priority selected antenna mast.	8. Assists as needed.	8. Assists CM 1 in employing feedhorns on priority-selected antenna mast.
9. Sets antenna polarization on priority mast according to the multichannel commo plan.	9. Assists as needed.	9. Assists CM 1 in adjusting antenna polarization on priority mast, if required.
10. Sets antenna elevation angle on priority mast according to the multichannel communications plan.	10. Assists as needed	10. Assists CM 1 in adjusting antenna elevation angle on priority mast.

CAUTION
Do not open cover until mast is raised. Otherwise, cover will not clear mast clamp.

Note: Change HYDRAULIC PUMP MODE switch to AC as soon as AC power is available.

WARNING
Stand away from mast. Wait until CM 2 has raised mast assembly before starting next step.

WARNING
Mast travel path must be clear of personnel. Notify crew members that you are going to raise mast.

Note: If adverse weather conditions are expected, the ice shields and or height limiter on antenna masts must be deployed on antenna masts. Refer to TM 11-5985-368-12&P.

11. Erects priority mast.

11. Erects priority mast.

11. Erects priority mast.

a. Adjusts mast height limiter cable according to the multichannel communications plan. (Base plus two, if plan calls for base for first mast.)

CREW MEMBER 1	CREW MEMBER 2	CREW MEMBER 3
<p>b. Opens roadside cable tray.</p> <p>c. Notifies CM 2 to raise mast until antenna is positioned about 1 foot above handrail.</p> <p>d. Removes amplifier cover.</p>	<p>b. Prepares to raise priority mast; goes to priority mast control panel and opens cover.</p> <p>c. When notified by CM 1, holds MAST ERECTION switch in RAISE position.</p>	<p>b. Opens curbside cable tray.</p> <p>c. Observes mast and notifies CM 2 to stop mast movement if there are any obstructions.</p> <p>d. Removes amplifier cover.</p>
<p>12. Unfolds priority mast.</p> <p>a. Notifies CM 3 to unfold mast. Observes antennas. Notify CM 3 to stop unfolding antennas, if there are any obstructions.</p> <p>b. Secures upper mast section.</p>	<p>12. Assists as needed.</p>	<p>12. Unfolds priority mast.</p>

Note: Skip step 13 if guy wires will not be installed.

<p>WARNING</p> <p>Guy wires can injure hands. Use gloves when handling.</p>

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| 13. Connects guy wires to priority mast. | 13. Assists as needed. | 13. Assists CM 1 in connecting guy wires. |
|--|------------------------|---|

Note: Release enough cable so tensioners will not drag on the ground when masts are extended.

Note: Check with ECS or ICC and find out if AC power is available. If AC power is available, proceed to step 14 to raise and extend priority mast. If AC power is not available, repeat steps 7 through 12 for the other antenna mast and step 13 for guy wire installation.

CREW MEMBER 1	CREW MEMBER 2	CREW MEMBER 3
<p>14. Raises priority mast to vertical.</p> <p>a. Notifies CM 2 it is clear to raise mast to vertical. Guides cables out of tray.</p> <p>b. Observes cables, guy wires, and mast. Notifies CM 2 to stop raising the mast if either cables or guy wires become entangled.</p> <p>c. Removes lock strut from its storage position.</p> <p>d. Fastens lock strut on pin with quick-release pin.</p>	<p>14. Raises priority mast to vertical.</p> <p>a. When notified by CM 1, holds MAST ERECTION switch to RAISE on the priority mast control panel until ball of mast inclinometer is centered in green position.</p> <p>b. Reports to the ECS or ICC that priority mast is vertical and antennas are ready for rotation.</p>	<p>14. Raises priority mast to vertical.</p> <p>a. Assists CM 1 in guiding cables out of tray.</p> <p>b. Observes cables, guy wires, and mast. Notifies CM 2 to stop raising mast if either cables or guy wires become entangled.</p>

Note: Wait until CM 1 has engaged lock strut before starting next step.

WARNING
Keep lock strut installed at all times when mast is vertical.

Note: If variable height limiter is being used for height limitation of mast group, set ratchet lever to UP.

CAUTION
Do not operate MAST ERECTION switch with lock strut installed.

15. Extends priority mast.

15. Extends priority mast.

15. Extends priority mast.

CREW MEMBER 1	CREW MEMBER 2	CREW MEMBER 3
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a. Notifies CM 2 to extend the mast.

a. When notified by CM 1, holds MAST EXTENSION switch to OUT. Extends mast a minimum of base plus 2

a. Guides cables out of tray.

b. Stands by and observes cables, guy wires, and mast.

b. When mast has fully extended, leaves MAST EXTENSION switch in the OUT position.

b. Notifies CM 2 to stop mast extension if either cables or guy wires become entangled.

Note: Ensure no one steps in any loop of the guy wires.

c. After second mast is erected, sets mast height according to the multichannel communications plan.

c. Closes cable tray covers when mast is extended to prescribed height.

Note: Set amplifier operational mode according to the multichannel communications plan. Priority mast must remain at base plus 2 until the second mast has been erected to the vertical position. If second mast has not been erected, repeat steps 7 through 13.

d. At the amplifier distribution box for the mast just raised, sets the POWER ON/OFF, MODE DRIVER ON/OFF, and MODE FINAL ON/OFF switches to ON or OFF, per communications plan.

CAUTION
When raising a mast, take care that the antennas of one mast do not get entangled in the cables of the other mast.

16. Repeats steps 14 and 15 to raise and extend the second mast.

16. Repeats steps 14 and 15 to raise and extend the second mast.

16. Repeats steps 14 and 15 to raise and extend the second mast.

17. Closes roadside cable storage tray covers when masts are extended to prescribed height.

17. Notifies ECS/ICC to set the MAST SELECTOR switch to BOTH on antenna mast monitor panel.

17. Closes curbside cable storage tray covers when masts are extended to prescribed height. Connects chain to rear handrails.

CREW MEMBER 1	CREW MEMBER 2	CREW MEMBER 3
<p>18. Raises antenna protective covers.</p> <p>a. Places control valve to HOLD.</p> <p>b. Pushes pump handle down and secures. Closes air vent plug.</p> <p>19. Dismounts AMG platform and shuts off truck engine.</p>	<p>18. Notifies ECS/ICC that AMG guy wire installation is about to begin (if used).</p> <p>a. Uncoils radius rope toward curbside or roadside front of the AMG and pulls tight.</p> <p>b. Assists as needed.</p> <p>19. Assists as needed.</p>	<p>18. Raises antenna protective covers.</p> <p>a. Places control valve to HOLD.</p> <p>b. Pushes pump handle down and secures. Closes air vent plug.</p> <p>19. Dismounts AMG platform.</p>

Note: For evaluation purposes, time stops here.

Note: Skip steps 20 through 25 if guy wires will not be installed. Place stake through the radius rope rings to scribe arc lines.

<p>20. Assists CM 2 in scribing arc lines.</p>	<p>20. Scribes arc lines. (See Figure 2-8.)</p> <p>a. At curbside or roadside front of AMG, swings radius rope in an arc and clearly scribes a line on the ground, using the radius rope red ring.</p> <p>b. At curbside or roadside rear of AMG, swings radius rope in an arc and clearly scribes a line on the ground, using the radius rope white ring.</p> <p>c. Disconnects radius rope from curbside or roadside front lift eye, and attaches to the curbside or roadside rear lift eye. Pulls rope tight.</p>	<p>20. Assists CM 2 in scribing arc lines.</p>
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CREW MEMBER 1	CREW MEMBER 2	CREW MEMBER 3
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d. Scribes two arc lines on the ground as in steps a and b above, only this time, uses the radius rope **white** ring at the **front** of the AMG, and the **red** ring at the **rear** of the AMG.

Note: Where the arc lines cross, drive a stake into the ground for guy wire installation.

21. Drives guy wire stake into the ground. (See Figure 2-9.)

a. Uses a sledgehammer and drives a stake into the ground where the arc lines cross. (Angles stake slightly away from AMG, about 30 degrees from the ground.)

b. Clamps stake attachment using a shackle and pin through the upper and lower three holes.

21. Repeats step 21 to scribe arc lines for the other side.

21. Assists CM 1 with guy wire stakes or assists CM 2 in scribing arc lines.

WARNING
Guy wires can injure hands. Use gloves when handling.

Note: Attach hooks of two tensioners to each stake. Each guy stake will have two guy wires attached to it (one guy wire from each mast).

22. Repeats step 21 for remaining stake locations.

22. Hooks guy wire tensioners to stakes. (See Figure 2-10.)

22. Assists CM 1 with guy wire stakes.

a. Uncoils guy wire from tensioner, and turns adjusting nut to extend threaded rod completely.

b. Hooks tensioner to guy stake.

CREW MEMBER 1	CREW MEMBER 2	CREW MEMBER 3
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c. Pulls tensioner trigger back to release lock handle; pulls lock handle up to release guy wire.

d. Pulls guy wire slack through tensioner, pushes lock handle down to secure guy wire, and releases tensioner trigger to lock.

Note: Ensure guy wires are not crossed. If two guy wires are crossed, unhook tensioner and guy wires around each other to uncross them. After tensioning a guy wire, the next guy wire to be tensioned is diagonally across from the tensioned guy wire on the same mast.

23. Tensions guy wire.
(See Figure 2-11.)

23. Repeats step 22 until all guy wire tensioners are hooked to stakes.

23. Assists CM 1 with guy wire tension.

a. Prepares the tensiometer; selects a riser marked "2C" and places on tensiometer pin.

b. Pulls tensiometer trigger to open, and places tensiometer on guy wire.

CAUTION

Do not allow the tensiometer pointer to go beyond the 100 mark on the dial. When applying the tensiometer to a guy wire, close the trigger slowly and watch the pointer to ensure it does not go over the 100 mark.

c. Slowly closes tensiometer trigger.

c. Observes the mast and ensures it does not bend tensioning guy wires.

d. Notifies CM 3 to adjust the tensioner.

d. When notified by CM 1, adjusts the adjustment nut on the tensioner slowly to increase guy wire tension.

CREW MEMBER 1	CREW MEMBER 2	CREW MEMBER 3
<p>e. Observes tensiometer dial; notifies CM 3 to stop when the dial indicates “22” (or 110 pounds).</p> <p>f. Pulls tensiometer trigger to open and removes tensiometer from guy wire.</p> <p>g. Flips tensiometer lever to place pointer to zero.</p>		<p>e. Stops adjusting tensiometer when notified by CM 1.</p>
<p>24. Repeats step 23 until all guy wires are checked for tension.</p>	<p>24. Unhooks and coils radius rope; places in stowage bag and stows bag.</p>	<p>24. Assists CM 1 with guy wire tension.</p>
<p>25. Rechecks all guy wires again for proper tension.</p>	<p>25. Assists as needed.</p>	<p>25. Coils any excess guy wire and secures to tensioner using chain.</p>
	<p>26. Notifies ECS or ICC that guy wire installation and AMG emplacement are complete.</p> <p>a. Disconnects and stows telephone (if used).</p> <p>b. Closes and secures amplifier distribution boxes.</p>	

COACHING POINT: The performance measures are completed in the sequence outlined. All crew members do their like-numbered performance measures at the same time. When all the performance measures have been mastered and all crew members can do their jobs without coaching, go for speed and remember to be safety-conscious. The more the drill is performed, the better the crew members will perform together.

RUN-THROUGH INSTRUCTIONS: The crew members should practice this drill until they can perform the drill according to the standard without using the drill book. The initial run-through should be conducted slowly. The crew members should change positions in order to learn all steps and standards.

PERFORM: When the crew members can perform this crew drill to standard, inform the platoon sergeant or platoon leader that the crew members are ready to be evaluated.

SUPPORTED T&EOs

ARTEP NUMBER	T&EO NUMBER	T&EO TASK TITLE
44-637-30-MTP	44-2-9004.44-P20P	Emplace the Firing Battery

2-4. Crew Drill 44-5-D003.

TASK: Prepare the EPP III for March Order (44-5-D003).

CONDITIONS: The battery has been ordered to occupy a new position. The EPP III is in the emplaced configuration. All components of the EPP are available and operational. A crew has been assigned to prepare and march order the EPP in all environmental and NBC conditions, both day and night. The march order command has been received.

STANDARD: March order the EPP by the performance measures as sequenced in this drill. Complete this drill within 25 minutes at MOPPO through MOPP3 or in the time standards stated in ARTEP 44-637-30-MTP at MOPP4 (Figure 5-1). Measure time from when CM 2 notifies CM 1 to proceed with EPP power down and march order.

SUPPORTING INDIVIDUAL TASKS: Supporting individual tasks for this drill are listed in Appendix A, Individual Task-to-Drill Matrix.

ILLUSTRATIONS: Figure 2-12.

SETUP INSTRUCTIONS: The following equipment, areas, and personnel must be provided for the drill to be trained correctly.

- a. Resources. As a minimum, the following are required: One EPP III (two 150-kilowatt, 400-hertz generators), one AMG (truck-mounted), one ECS (truck-mounted), and one RS (trailer-mounted). All are included with prime movers and basic issue items.
- b. Training Site. Has an emplaced EPP in an area large enough (10x10 meters) to perform all operations for march order. The site is as level as possible. The maximum allowable slope front to back or side to side is 10 degrees.
- c. Unit Instructions. The crew members prepare the EPP for march order.

TALK-THROUGH INSTRUCTIONS: The battery has received the movement order to a new field position. The crew members have the responsibility to march order the EPP within the prescribed time limits.

- a. Orientation. Before beginning drill training, ensure that each crew member knows the purpose of the drill and is briefed on safety awareness.
- b. Safety/Fratricide. All soldiers who operate the EPP must know that safety hazards exist while operating the various items of equipment. These hazards can and have caused severe injuries to operators. Be extremely careful when working around the EPP. Throughout the crew drill, observe all dangers, warnings, and cautions required to properly emplace the EPP. All commanders, trainers, and leaders must plan, train, and stress all procedures that must be followed to avoid fratricide. These procedures include IFF, weapon control status, vehicle and aircraft recognition, corridors, routes, zones, flight levels, and other control measures. Munitions cannot distinguish friend or foe.
- c. Demonstration (Optional). If a nearby crew has successfully performed the drill, have that crew demonstrate the drill. Explain what is being done and why, using the performance measures as a guide. After the demonstration, summarize.

d. Explanation. Explain the drill in the following manner:

(1) Using a diagram, Figure 2-12, a sand table, or a simple sketch in the dirt, show the crew members how the EPP should be march ordered.

(2) Tell the crew members what their duties are in the drill.

(3) Read the performance measures of the drill to the crew members.

(4) Have the crew members explain their performance measures to ensure that they understand them.

WALK-THROUGH INSTRUCTIONS:

a. Use the Crawl-Walk-Run Method of Training. Have crew members take their positions and perform the drill. Start the training slowly. Correct any mistakes the crew members make as they go. Do not proceed until drill procedures are performed correctly. After the crew members demonstrate their proficiency at a slow pace, let them do it faster. However, remember that safety is never sacrificed for speed. Watch carefully to make sure the crew members achieve all of the standards for the drill.

b. Initiating Cue. ECS gives the command, "March order."

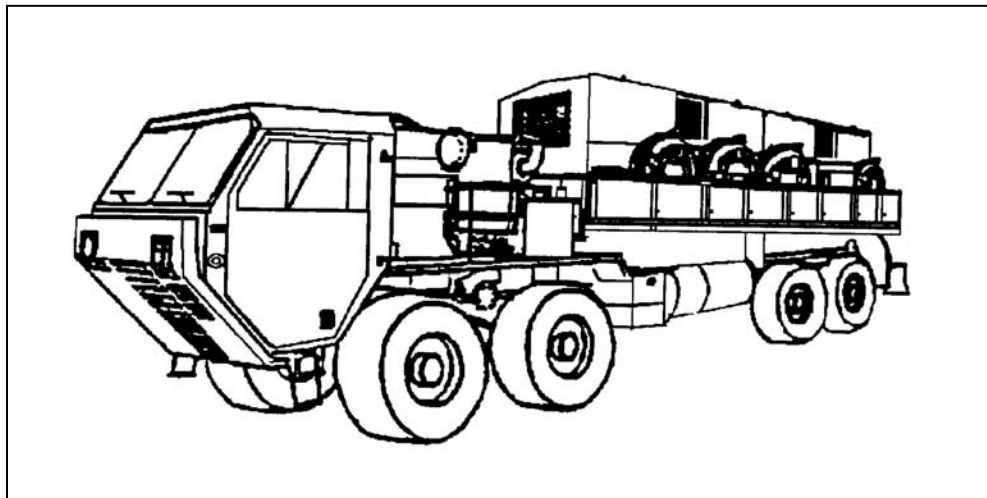


Figure 2-12. March-ordered EPP III

PERFORMANCE MEASURES: Crew members complete their performance measures as they are stated and in the sequence shown. They must synchronize the completion of like-numbered performance measures.

Note: Before proceeding with this drill, read all Danger, Warning, and Caution notices.

DANGER

Remove dog tags, rings, watches, and other jewelry before working on electrical equipment. Metal contact with electrical current can cause severe burns.

DANGER

Do not be misled by the term “low voltage.” Potentials as low as 50 volts may cause death under adverse conditions.

DANGER

Do not attempt to connect wires or cables unless generator sets are shut down and fully de-energized. Failure to do so may cause death or permanent injury.

WARNING

High noise level of the generators can cause hearing damage. Hearing protection is required while operating this equipment.

WARNING

Shut down generator set before disconnecting any cables.

CAUTION

Allow generator to run at no-load for 5 minutes (if possible) to cool down the engine.

CREW MEMBER 1

1. Receives and confirms march order from ECS. Prepares for power down.
2. Climbs into HEMTT and starts vehicle.

Note: Allow 5 minutes cool down before powering down EPP III.

3. Climbs onto truck and goes to generator control panel.

Note: Time starts when CM 1 presses AC INTERRUPT switch.

CREW MEMBER 2

1. Receives and confirms march order from ECS. Prepares for power down.

3. Establishes visual or voice communications with the ECS/RS and informs them that the generator set is shut down completely.

CAUTION

Avoid damage to cable connector. Do not allow cable head to drag across ground when extending cable, from or returning to, storage on cable drum assemblies.

Note: If ECS or RS crew members are available, they will assist CM 2 in retrieving and stowing control and power cables (steps 4, 5, and 6 only).

4. Disconnects cables W1 through W5 from J1 through J5 on the PDU panel.
4. Assists as needed.

WARNING

Gloves are required to protect hands when reeling and unreeling cables.

5. Stows control and power cables.
6. Retrieves and stows ground cables from walkway near the PDU panel.

5. Stows control and power cables.
6. Disconnects EPP III ground cable, coil, and places on walkway near the PDU panel.

CREW MEMBER 1

CREW MEMBER 2

WARNING

Generator exhaust extensions may become hot. To prevent injury to hands, wear gloves for removal of exhaust extensions.

7. Removes and stows generator exhaust extensions.

7. Retrieves and stows fire extinguishers.

WARNING

Once safety rail posts are removed, corner platforms are unsecured. To prevent injury, do not step on unsecured corner platforms.

8. Removes and stows safety rail posts and corner platforms.

8. Removes and stows safety rail posts and corner platforms.
Assists CM 1 with removing and stowing safety rail posts and corner platforms; removes safety pins from the base of each rail post.
Stows safety pin.

WARNING

To prevent injury, use extreme caution when maneuvering on and around cable drums.

Note: To safely raise walkway panels, the battery commander has the option to allow a third person to assist CMs 1 and 2 only in performing step 9.

9. Raises EPP III walkway panels.

9. Raises EPP III walkway panels.

10. Assists as needed.

10. Rotates pivot support braces into stowed position.

11. Verifies vehicle operations. Performs vehicle safety checks.

11. Assists CM 1 with vehicle operations and safety checks.

12. Enters vehicle and notifies CM 2 to remove wheel chocks.

12. Removes and stows wheel chocks.

CREW MEMBER 1	CREW MEMBER 2
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13. Moves vehicle forward 6 feet.

13. Grounds guide vehicle.

Note: Time stops when vehicle is moved forward

COACHING POINT: The performance measures are completed in the sequence outlined. All crew members do their like-numbered performance measures at the same time. When all the performance measures have been mastered and all crew members can do their jobs without coaching, go for speed and remember to be safety-conscious. The more the drill is performed, the better the crew members will perform together.

RUN-THROUGH INSTRUCTIONS: The crew members should practice this drill until they can perform the drill according to the standard without using the drill book. The initial run-through should be conducted slowly. The crew members should change positions in order to learn all steps and standards.

PERFORM: When the crew members can perform this crew drill to standard, inform the platoon sergeant or platoon leader that the crew members are ready to be evaluated.

SUPPORTED T&EOs

ARTEP NUMBER	T&EO NUMBER	T&EO TASK TITLE
44-637-30-MTP	44-2-9044.44-P20P	Perform March Order

2-5. Crew Drill 44-5-D004.

TASK: Prepare the AMG for March Order (44-5-D004).

CONDITIONS: The battalion and or battery has been ordered to occupy a new position. The AMG is in the emplaced configuration. All components of the AMG are available and operational. A crew has been assigned to prepare and march order the AMG in all environmental and NBC conditions, both day and night. The march order command has been received.

STANDARD: March order the AMG by the performance measures as sequenced in this drill. Complete this drill within 25 minutes at MOPPO through MOPP3 and in the time standards stated in ARTEP 44-637-30 MTP at MOPP4 (Figure 5-1). Measure time from when CM 1 receives and confirms march order from ECS or ICC. Allow additional march order time for AMG guy wire kit removal.

SUPPORTING INDIVIDUAL TASKS: Supporting individual tasks for this drill are listed in Appendix A, Individual Task-to-Drill Matrix.

ILLUSTRATIONS: Figure 2-13.

SETUP INSTRUCTIONS: The following equipment, areas, and personnel must be provided for the drill to be trained correctly.

- a. Resources. As a minimum, the following are required: One EPP III (two 150-kilowatt, 400-hertz generators), one AMG (truck-mounted), one ECS (truck-mounted), and one RS (trailer-mounted). All are included with prime movers and basic issue items.
- b. Training Site. Emplaced AMG in an area large enough (10x10 meters) to perform all operations for march order. The site should be as level as possible. The maximum allowable slope from front to back is 10 degrees and must be within 1/2 degree from side to side.
- c. Unit Instructions. The crew members will prepare the AMG for march order.

TALK-THROUGH INSTRUCTIONS: The battalion or battery has received the movement order to a new field position. The crew members have the responsibility to march order the AMG within the prescribed time limits.

- a. Orientation. Before beginning drill training, ensure that each crew member knows the purpose of the drill and is briefed on safety awareness.
- b. Safety/Fratricide. All soldiers who operate the AMG must know that safety hazards exist while operating the various items of equipment. These hazards can and have caused severe injuries to operators. Be extremely careful when working around the AMG. Throughout the crew drill, observe all dangers, warnings, and cautions required to properly march order the AMG. All commanders, trainers, and leaders must plan, train, and stress all procedures that must be followed to avoid fratricide. These procedures include IFF, weapon control status, vehicle and aircraft recognition, corridors, routes, zones, flight levels, and other control measures. Munitions cannot distinguish friend or foe.
- c. Demonstration (Optional). If a nearby crew has successfully performed the drill, have that crew demonstrate the drill. Explain what is being done and why, using the performance measures as a guide. After the demonstration, summarize.

d. Explanation. Explain the drill in the following manner:

(1) Using a diagram, Figure 2-13, a sand table, or a simple sketch in the dirt, show the crew members how the AMG should be march-ordered.

(2) Tell the crew members what their duties are in the drill.

(3) Read the performance measures of the drill to the crew.

(4) Have crew members explain their performance measures to ensure that they understand them.

WALK-THROUGH INSTRUCTIONS:

a. Use the Crawl-Walk-Run Method of Training. Have crew members take their positions and perform the drill. Start the training slowly. Correct any mistakes the crew members make as they go. Do not proceed until drill procedures are done correctly. After the crew members demonstrate their proficiency at a slow pace, let them do it faster. However, remember that safety is never sacrificed for speed. Watch carefully to make sure the crew members achieve all of the standards for the drill.

b. Initiating Cue. ICC or ECS gives the command, "March order."

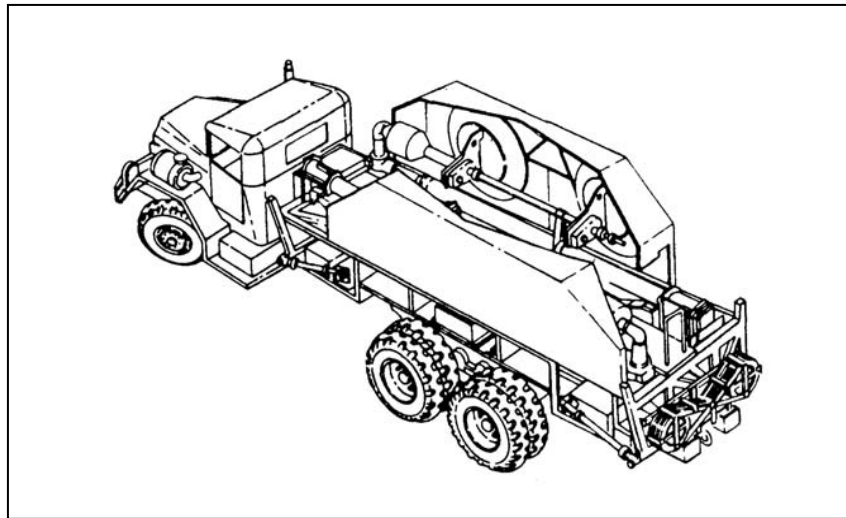


Figure 2-13. March-ordered AMG

PERFORMANCE MEASURES: Crew members complete their performance measures as they are stated and in the sequence shown. They must synchronize the completion of like-numbered performance measures.

Note: Before proceeding with this drill, read all Danger, Warning, and Caution notices.

DANGER

Never attempt to open hydraulic bleed plugs on hydraulic cylinder. Mast can lower very rapidly when plugs are opened, severely injuring or killing personnel. If your mast will not lower, call direct support maintenance personnel for assistance.

WARNING

Do not perform blackout operations unless they are mission-essential. There is increased risk of injury to personnel during blackout operations. Use extreme caution and do not hurry.

WARNING

Do not allow bare flesh to touch metal during extreme cold or heat. Serious injury may result.

WARNING

There are many tripping hazards on the mast group; use care.

WARNING

Do not exceed maximum load on antenna protective covers (600 pounds).

WARNING

Do not pass underneath a mast being raised or lowered.

CREW MEMBER 1	CREW MEMBER 2	CREW MEMBER 3
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Note: Time starts when crew members receive and confirm march order from ICC or ECS. Disconnecting, observing, and removing stakes and guy wires apply only to AMG's with guy wire accessories.

Note: Remove any guy wire warning signs or flags, and area ropes.

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| <ol style="list-style-type: none"> 1. Prepares for march order. <ol style="list-style-type: none"> a. Starts vehicle. b. Climbs onto AMG platform. c. Opens cable tray covers. | <ol style="list-style-type: none"> 1. Prepares for march order. <ol style="list-style-type: none"> a. Assists as needed. b. Informs ECS or ICC operator to rotate antennas to stow. c. Turns off distribution switches. | <ol style="list-style-type: none"> 1. Prepares for march order. <ol style="list-style-type: none"> a. Releases tension on curbside guy wire tensioners. b. Climbs onto AMG platform. c. Opens cable tray covers. |
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CAUTION

Before lowering the first mast, ensure that the other mast is one section higher than base.

Note: CMs 1 and 3 skip step 2 if antenna protective covers were not raised during AMG guy wire emplacement.

Note: Do not remove air vent plug during step 2.

- | | | |
|---|---|---|
| <ol style="list-style-type: none"> 2. Deploys antenna protective covers by turning air plug vent ccw, about one-half turn. | <ol style="list-style-type: none"> 2. Assists as needed. | <ol style="list-style-type: none"> 2. Deploys antenna protective covers by turning air plug vent ccw, about one-half turn. |
|---|---|---|

WARNING

Warn personnel on the ground, before lowering each antenna protective cover.

Note: Ensure control valve lever is in the HOLD position when covers are down.

CREW MEMBER 1	CREW MEMBER 2	CREW MEMBER 3
---------------	---------------	---------------

WARNING
Notify CM 2 to stop mast retraction if either cables or guy wires become entangled.

WARNING
Notify crew members you are going to retract the mast. Ensure crew members are ready.

Notes: If mast comes down too quickly, place MAST EXTENSION switch to PAUSE temporarily.

- Notify CMs if mast comes down too quickly.
- Wait until CM 1 has stowed lock strut and is clear of mast path before continuing.
- When mast is retracted, each cable tray section should have two layers of cable. Unhook safety chain between rear handrails. Hook chain back after masts are stowed.

- | | | |
|--|--------------------------------|-----------------------|
| 3. Retracts the selected mast. Notifies CM 2 to retract the selected mast. | 3. Retracts the selected mast. | 3. Assists as needed. |
|--|--------------------------------|-----------------------|

WARNING
Do not release lock if hydraulic system is leaking or not working.

CAUTION
Do not operate MAST ERECTION switch with lock strut installed.

- | | | |
|--|--|-----------------------|
| 4. Notifies CM 2 to lower selected mast to the 15-degree position. | 4. Lowers selected mast to the 15-degree position. | 4. Assists as needed. |
| | a. After lock strut is stowed, secures it. | |

CREW MEMBER 1	CREW MEMBER 2	CREW MEMBER 3
---------------	---------------	---------------

WARNING
Before lowering mast, be sure mast travel path is clear of personnel.

CAUTION
 Take care that antennas of one mast do not get entangled in cables or guy wires of the other mast.

Note: Observe mast; notify CM 2 to stop mast movement if there are any obstructions.

WARNING
Guy wires can injure hands. Use gloves when handling.

b. When notified by CM 1, sets MAST ERECTION switch to LOWER, and lowers the mast.

Note: If mast fails to lower, there may be a small amount of air left in the mast. Place MAST EXTENSION switch to IN to exhaust all air from mast. Use AC power as long as it is available. When AC power is terminated, switch to DC MODE. Skip step 5 if guy wire removal does not apply. Each mast will have four guy wires for removal (two guy wires to each hoisting ring).

5. Disconnects or assists disconnecting guy wires from selected mast.

a. Hands each guy wire down to CM 2.

b. Removes antenna positioner handle from its storage position.

5. Takes guy wires from CM 1 and CM 3.

a. Takes each guy wire from CM 1 or CM 3, and places on the ground, out of the way for safety.

5. Disconnects or assists disconnecting guy wires from selected mast.

a. Hands each guy wire down to CM 2.

CREW MEMBER 1	CREW MEMBER 2	CREW MEMBER 3
6. Repeats steps 3 through 6 to lower the other mast to horizontal position.	6. Repeats steps 3 through 7 to lower the other mast to horizontal position.	6. Repeats steps 3 through 6 to lower the other mast to horizontal position.
7. Folds in upper mast amplifier assembly. a. Secures upper mast assembly. b. Installs amplifier covers.	7. Observes antennas for obstructions. a. Assists as required. b. Assists as required.	7. Folds in upper mast amplifier assembly. a. Secures upper mast assembly. b. Installs amplifier covers.
8. Repeats step 7 for other antenna, if required.		8. Repeats step 7 for other antenna, if required.

CAUTION
Position antennas so bars are horizontal (vertical polarization) before stowing antennas.

WARNING
If handles are not positioned correctly, they can puncture the vehicle fuel tank, causing a severe fire.

9. If necessary, changes antenna polarization to vertical.	9. Collapses and stows stabilizing struts.	9. Assists CM 1, if necessary, in changing antenna polarization to vertical.
Note: Coordinates this operation with CM 3.	Note: Ensures handles are folded when stowing stabilizing struts.	

WARNING
Use extreme caution when walking on antenna protective cover. There are many tripping and falling hazards.

CREW MEMBER 1	CREW MEMBER 2	CREW MEMBER 3
---------------	---------------	---------------

WARNING
It is easy to pinch fingers when stowing feedhorns; use caution.

10. Stows antenna feed horns.

10. Collapses and stows stabilizing struts.

10. Assists CM 1 with stowing antenna feed horns.

11. Returns each antenna to 0-degree elevation, if necessary.

11. Closes air flaps on air compressor intakes if AMG will not be emplaced after road march.

11. Assists CM 1 in returning each antenna to 0-degree elevation, if necessary.

12. Raises roadside antenna protective cover.

12. Assists as needed.

12. Raises roadside antenna protective cover.

a. Places control valve to HOLD. Pushes pump handle down and secures. Closes air vent plug.

a. Places control valve to HOLD. Pushes pump handle down and secures. Closes air vent plug.

b. Connects chain to rear handrails.

13. Contacts ECS or ICC and ensures all power is off. At distribution box, performs the following:

a. Sets MAST WARNING LIGHT switch to OFF.

b. Sets LAMP CONTROL switch to desired position.

14. Dismounts AMG platform.

14. Removes wrench and sledgehammer (or driver assembly) from storage box.

14. Dismounts AMG platform.

WARNING
Make sure power is off, before cables are disconnected.

CREW MEMBER 1	CREW MEMBER 2	CREW MEMBER 3
15. Retrieves and stows AMG cables from the ECS/ICC.	15. Disconnects and stores ground cables, rods, wrench, and sledgehammer (or driver assembly) in storage (if required).	15. Assists CM 1 in retrieving and stowing AMG cables from the ECS/ICC.

Note: Coil cables tightly in a figure eight configuration with the assistance of CM 3. Skip step 17 if guy wire removal does not apply.

WARNING
Guy wires can cut bare hands. Use gloves when handling.

16. Stows guy wire accessories.	16. Stows guy wire accessories.	16. Stows guy wire accessories.
17. Climbs into vehicle cab and checks instruments.	17. Makes visual check of AMG to verify it is ready for road march.	17. Assists as needed.
18. Verifies vehicle operations. Performs vehicle safety checks. Waits for instructions from ground guide.	18. Verifies vehicle operations and safety.	18. Assists CM 1 with vehicle operations and safety checks.
19. Notifies CM 3 to remove and stow wheel chocks.	19. Notifies convoy commander that AMG is ready for road march.	19. Removes and stows wheel chocks. Enters vehicle cab.

COACHING POINT: The performance measures are completed in the sequence outlined. All crew members do their like-numbered performance measures at the same time. When all the performance measures have been mastered and all crew members can do their jobs without coaching, go for speed and remember to be safety-conscious. The more the drill is performed, the better the crew members will perform together.

RUN-THROUGH INSTRUCTIONS: The crew members should practice this drill until they can perform the drill according to the standard without using the drill book. The initial run-through should be conducted slowly. The crew members should change positions in order to learn all steps and standards.

PERFORM: When the crew members can perform this crew drill to standard, inform the platoon sergeant or platoon leader that the crew members are ready to be evaluated.

SUPPORTED T&EOs

ARTEP NUMBER	T&EO NUMBER	T&EO TASK TITLE
44-637-30-MTP	44-2-9044.44-P20P	Perform March Order

APPENDIX A

INDIVIDUAL TASK-TO-DRILL MATRIX

A-1. **General.** The following matrix identifies individual tasks from STPs 44-14E1-SM, 44-14E24-SM-TG, and STP 44-14T14-SM-TG, which support each EPP II, EPP III, and AMG crew drill. A "B" or a "D" in the column below the crew drill number indicates individual tasks that support a drill. A "B" indicates tasks that are trained before the drill, and a "D" indicates tasks that are trained during the drill.

CREW DRILL NUMBER AND TITLE				
Individual Task Number and Soldier Manual Task Title	44-5-D001 Emplace the EPP III for Tactical Operations	44-5-D002 Emplace the AMG for Tactical Operations	44-5-D003 March Order the EPP III and Prepare for Action	44-5-D004 March Order the AMG and Prepare for Action
551-721-1364 Drive Vehicle with Automatic/Semi- automatic Transmission	B	B	B	B
441-084-1115 Perform Organizational Maintenance on the AMG	D	D	D	D
441-084-3026 Supervise Road March Procedures			B	B
441-084-4025 Monitor Road March Procedures			B	B
441-083-4000 Monitor FCS Emplacement	D	D		
441-083-4001 Monitor FCS March Order			D	D
441-083-4002 Monitor PMCS of the FCS	D	D	D	D
441-083-4003 Monitor FDS Emplacement		D		

APPENDIX B

ILLUSTRATIONS

B-1. Visual Signals. This section describes various arm-and-hand signals and flashlight signals used by Patriot crew members. Visual signals should be used when audible signals may be lost due to loud equipment or vehicle noise. Visual signals are especially useful for guiding and directing Patriot crew members during emplacement, road march, and missile reload procedures.

a. Arm-and-Hand Signals. Good visibility is essential for arm-and-hand signal communications. A crew member using these signals must have line of sight with the other crew member to which signals are directed. Use flashlight signals at night. Figure B-1 shows some arm-and-hand signals. Signals illustrated with a single-headed arrow indicate the signal is not continuously repeated. However, the signals may be repeated at intervals until acknowledged or until the desired action is taken. Signals illustrated with a double-headed arrow are repeated continuously until acknowledged or until the desired action is taken. See FM 21-60 for additional visual signals.

b. Visible Flashlight Signals. Figure B-2 shows standard flashlight signals. Flashlight signals can be used to control movement when visibility is limited.

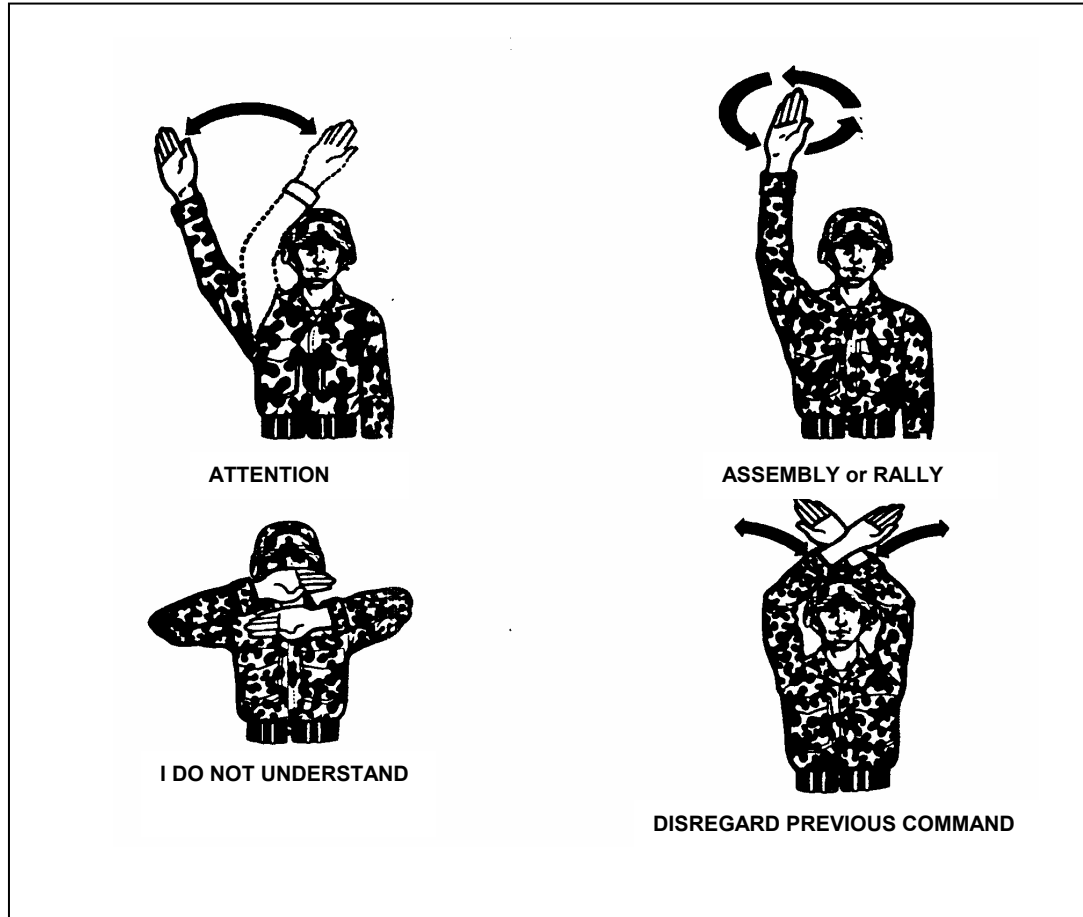


Figure B-1. Arm-and-hand signals

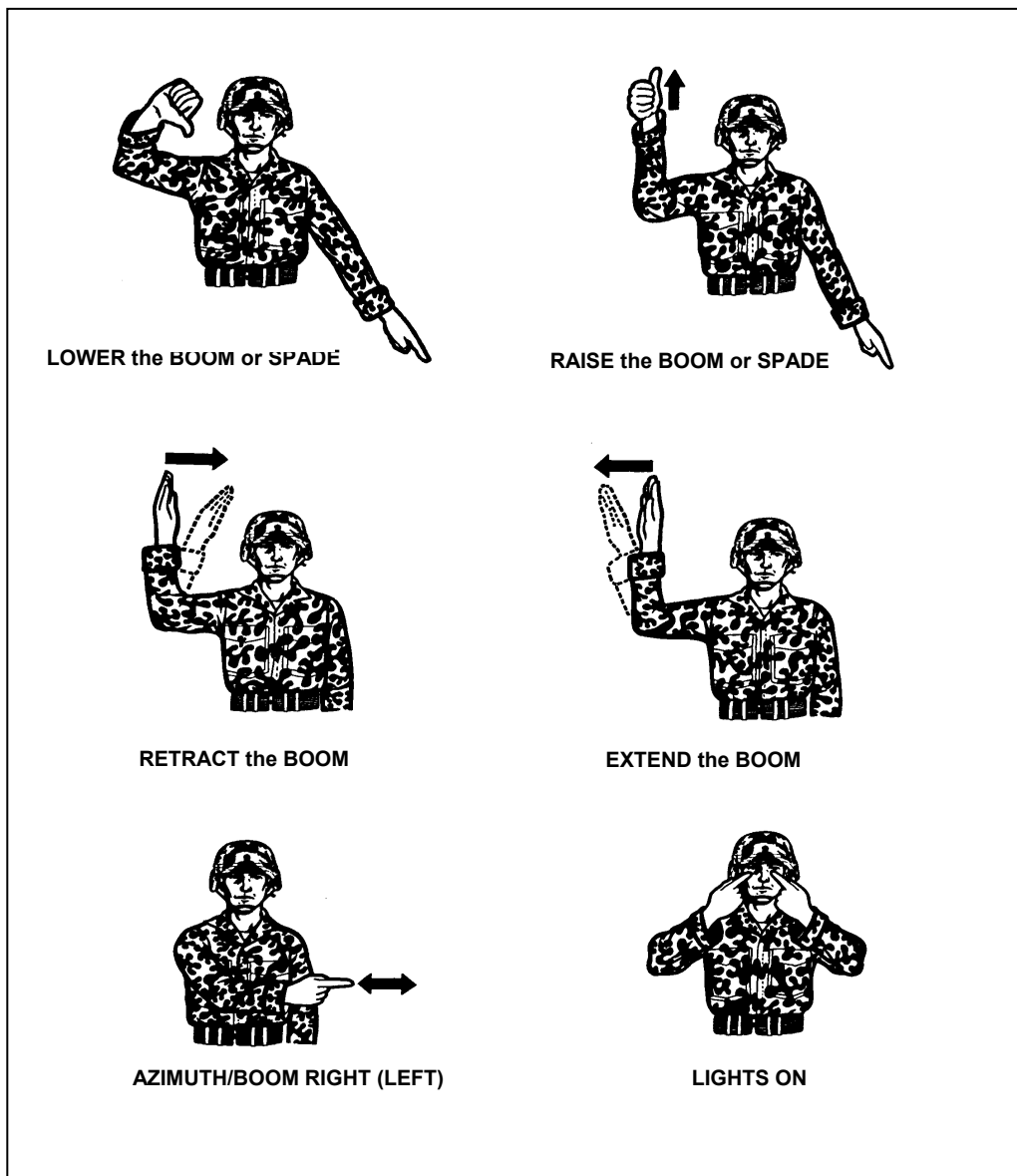


Figure B-1. Arm-and-hand signals (continued)



Figure B-1. Arm-and-hand signals (continued)

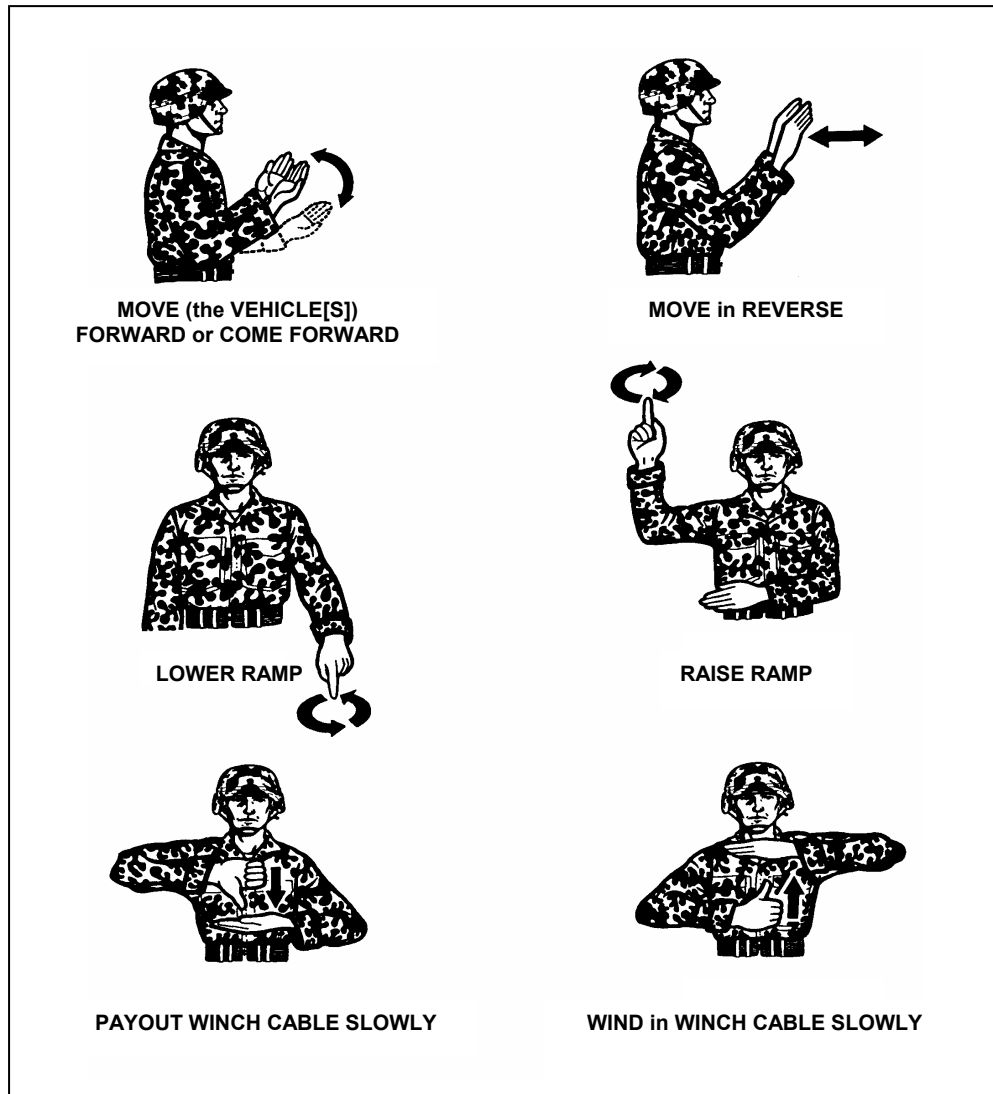


Figure B-1. Arm-and-hand signals (continued)

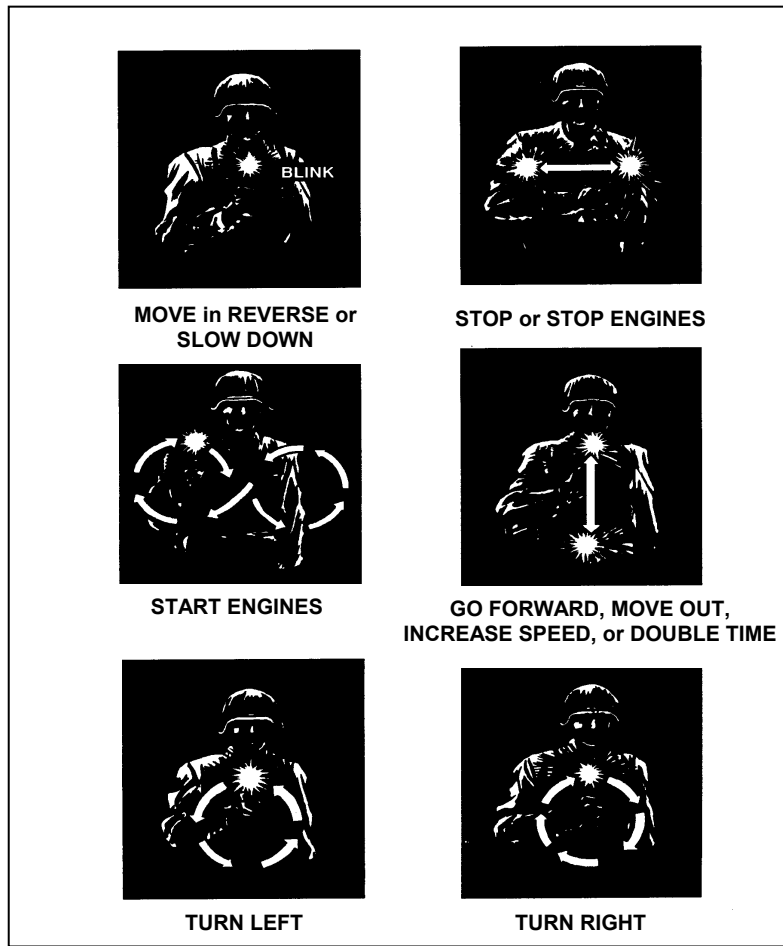


Figure B-2. Flashlight signals

B-2. Chocking. A chock is a wedge or block used for blocking the movement of a wheel. Chock blocks are stored on all wheeled vehicles. They are used to chock the wheels when the vehicle (tractor or trailer) is being emplaced or is temporarily parked and left unattended with the engine at idle. Safety is the reason for chocking vehicles. Chocking prevents damage to equipment or physical harm to individuals. Figures B-3 through B-7 illustrate the proper method for chocking the Patriot vehicles.

Notes:

- Chock block, NSN 2540-00-678-3469, rubberized triangular block is for use on 5-ton vehicles and smaller.
- Chock block, NSN 2540-01-165-6136, wood rectangular block is for use on 10-ton vehicles and semitrailers.

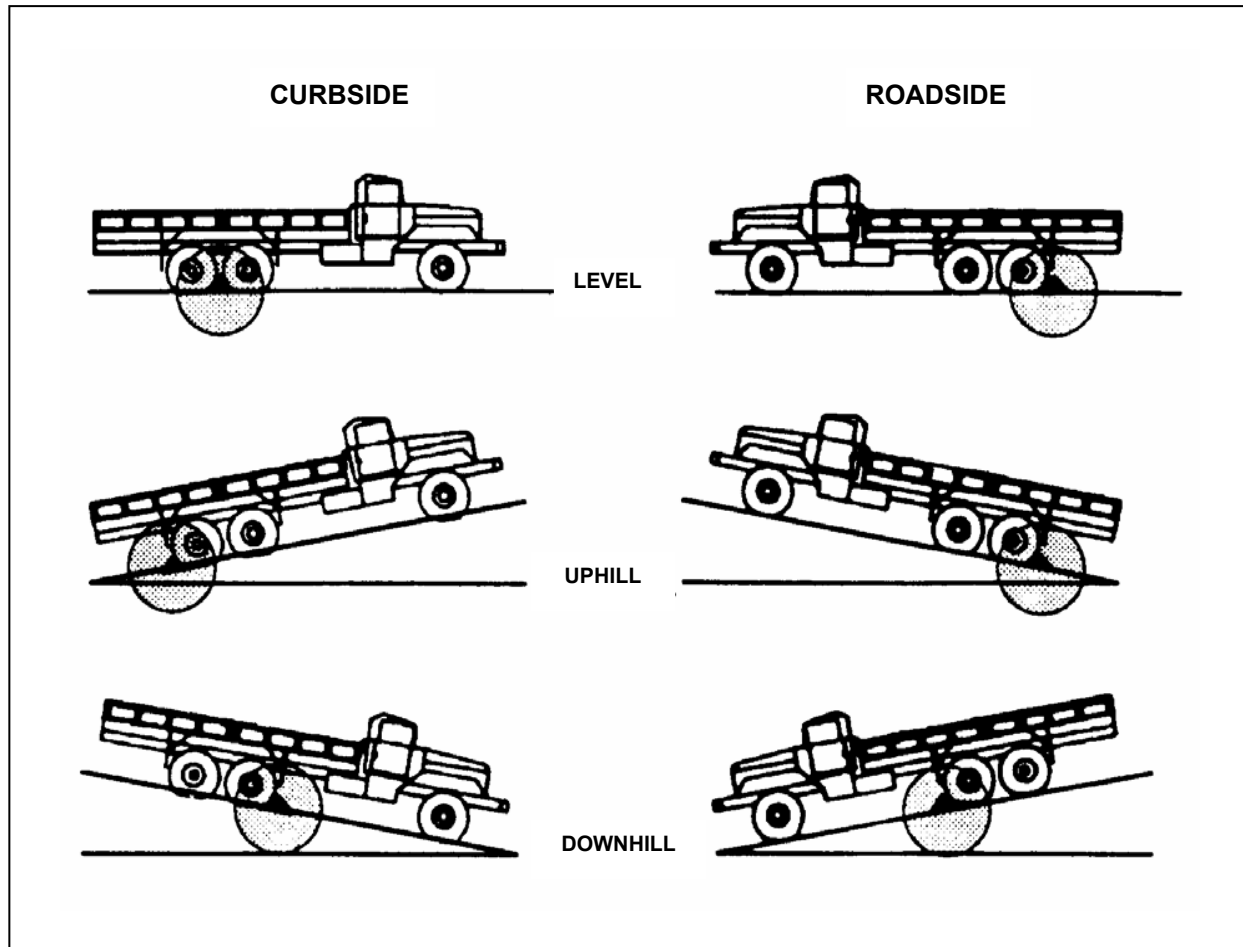


Figure B-3. Chocking the ECS, ICC, CRG, EPP, and AMG trucks

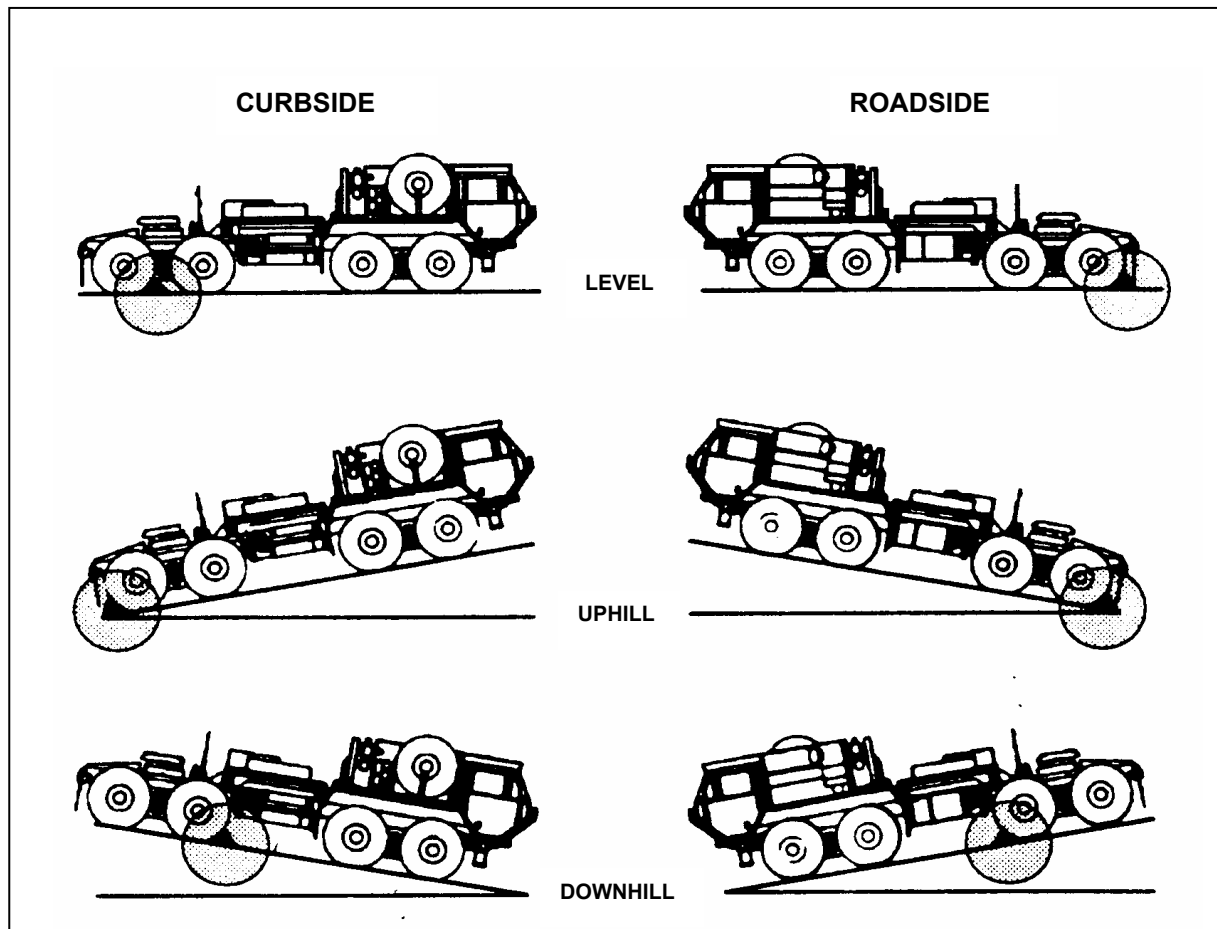


Figure B-4. Chocking the HEMTT

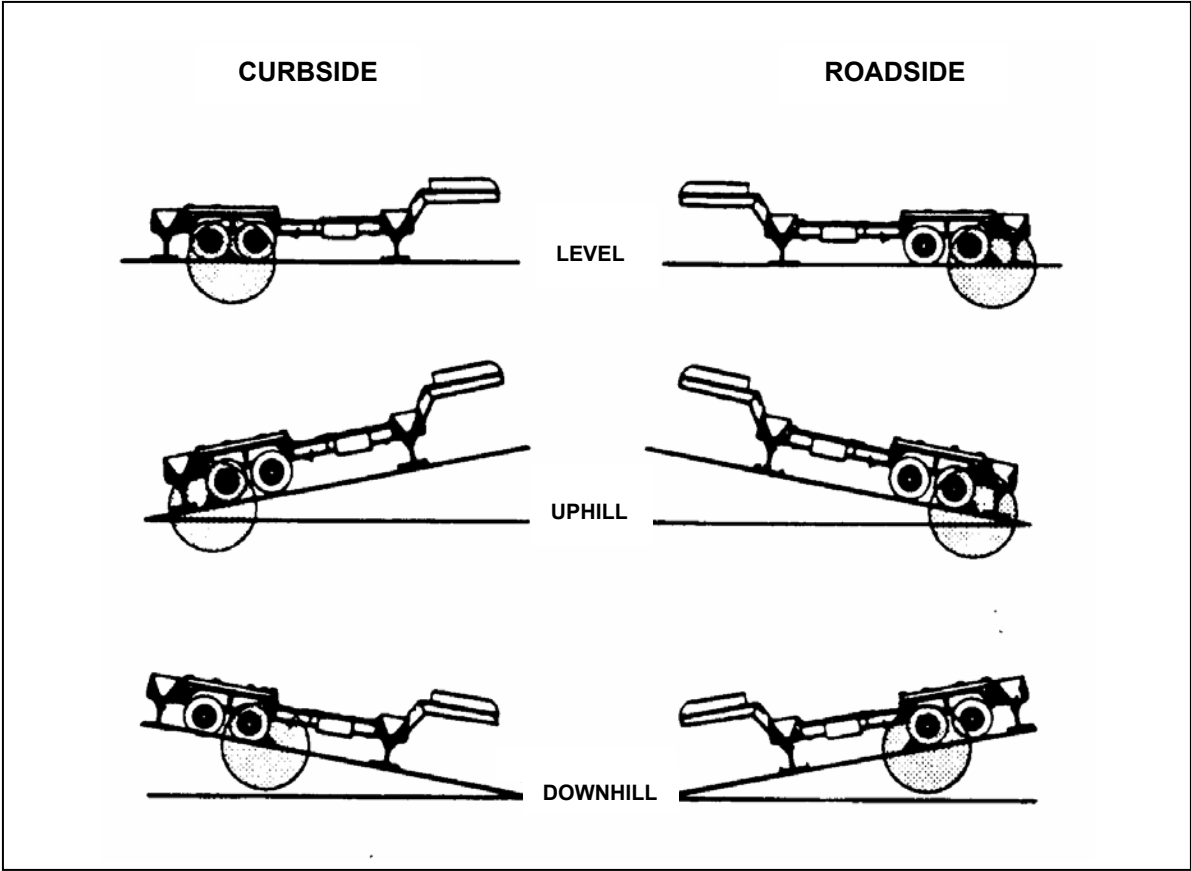


Figure B-5. Chocking the LS and RS semitrailer

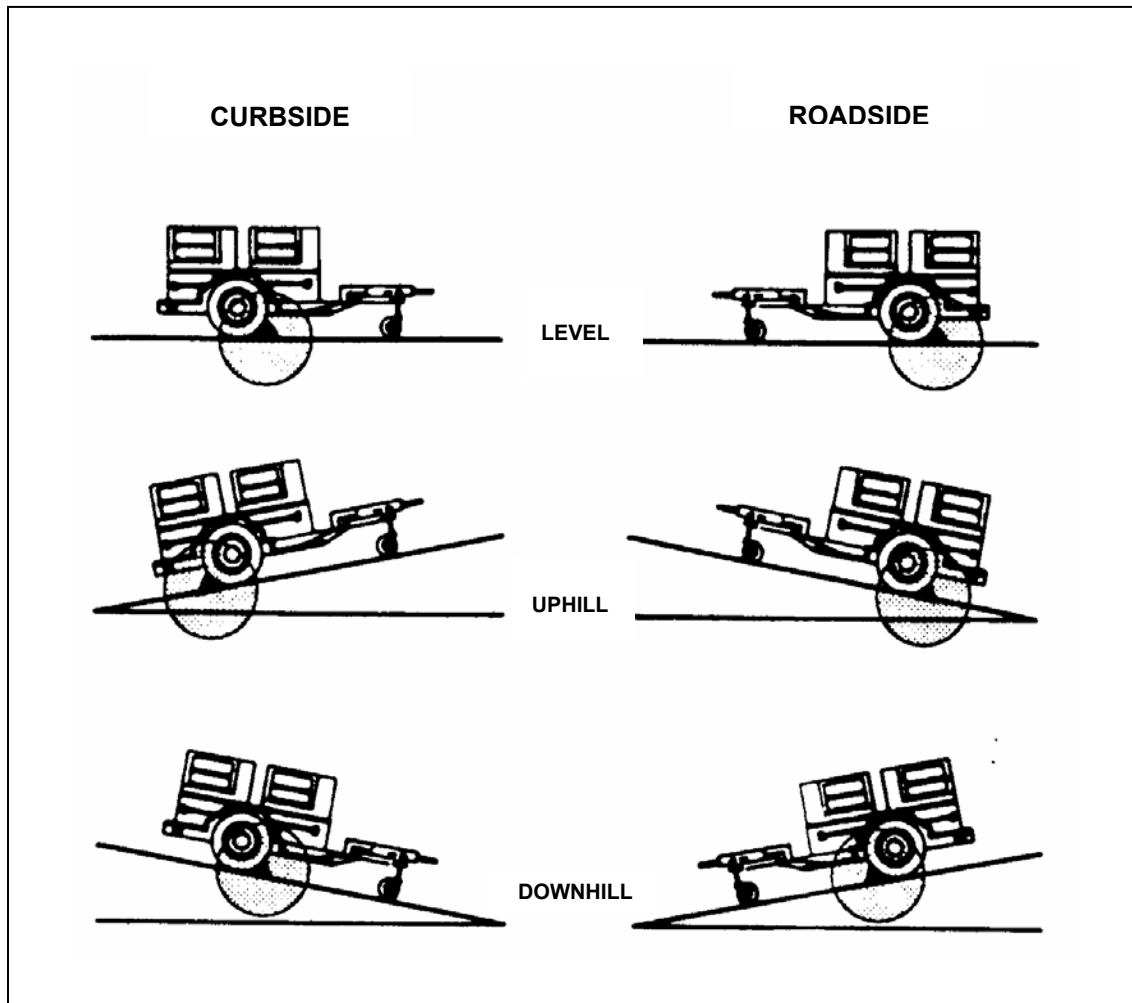


Figure B-6. Chocking the EPU trailer

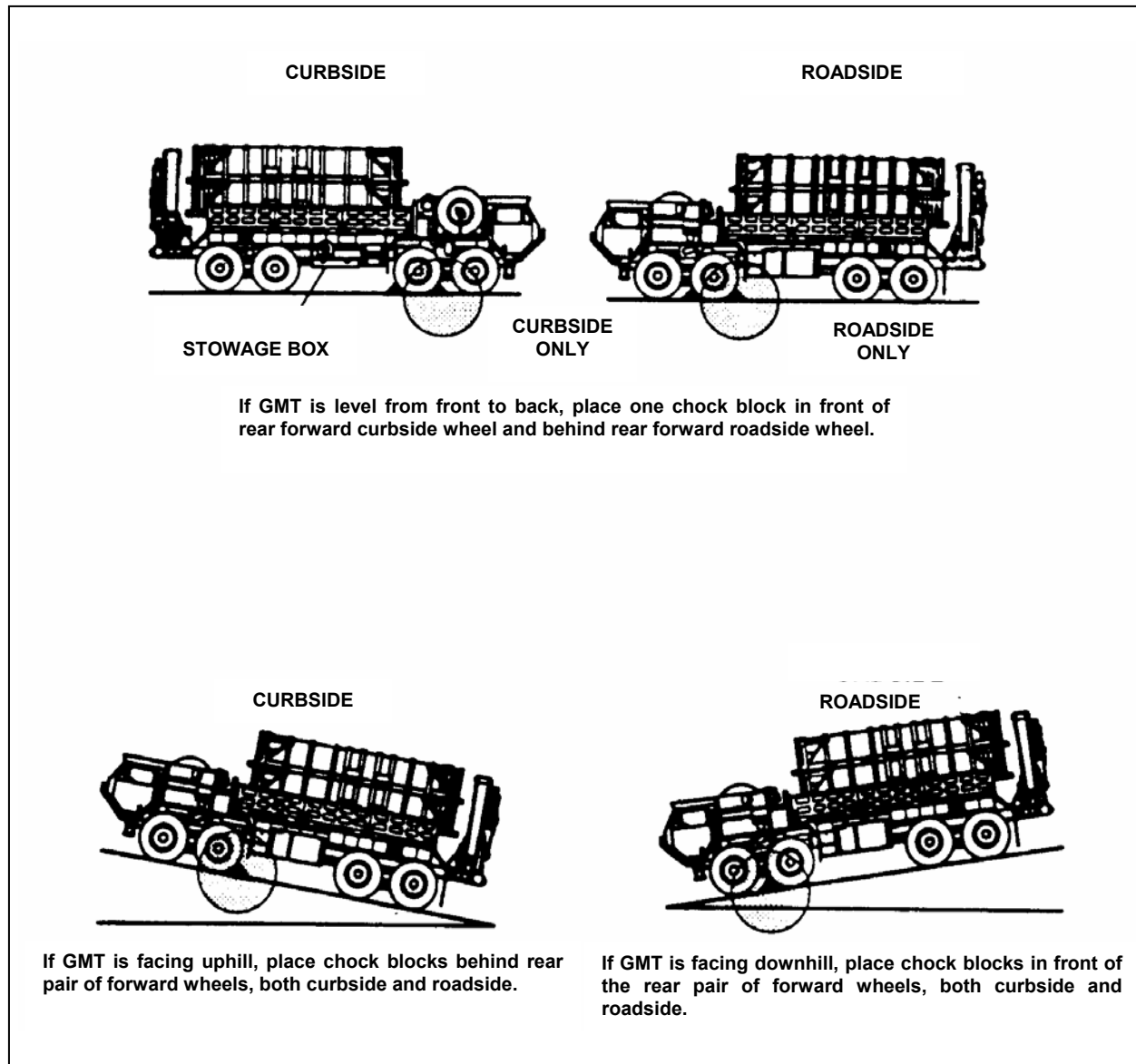


Figure B-7. Chocking the GMT

GLOSSARY

AAL

additional authorizations list

AC, ac

Active Component; assistant commandant; alternating current; aircraft

ACP

airspace control point; Allied Communication Publication

ADA

air defense artillery

AMG

antenna mast group

ARTEP

Army Training and Evaluation Program

attn

attention

B

before

BCT

basic combat training; battle coordination team; brigade combat team

BII

basic issue items

CM

crew member; cruise missile

COEI

components of end item; communication electronics operating instructions

CRG

communications relay group

D

during; daily; demonstration

DA

Department of the Army

DC, dc

District of Columbia; direct current

DCT

digital communications terminal

DD

Department of Defense (form)

DOD

Department of Defense

ECS

engagement control station

EGA

electronically generated form; extended graphics adapter

EMO

electronic media only

EPP

electric power plant

EPU

electric power unit

FDS

fire distribution section; fire direction section

FM field manual; frequency modulation

FP fire platoon; firing position; firing point

GMT guided missile transporter

HEMTT heavy expanded mobility tactical truck

HQ headquarters

Hz (HZ) hertz (cycles per second)

ICC information and coordination central; information control center

ICOM integrated COMSEC; imbedded communications

IFF identification, friend or foe

kw kilowatt

LS launching station; launching section

MCS Maneuver Control System

MOPP mission-oriented protective posture

MTP

mission training plan; MOS training plan

NBC

nuclear, biological, and chemical

OF

observed fire; optional form; overlapping fires

PALS

Patriot automated logistics system

pam

pamphlet

PDU

power distribution unit

PMCS

preventive maintenance checks and services

prelim

preliminary

RS

radar set; radio set; readiness station (USA term); Roving Sands; roadside

RSOP

reconnaissance, selection, and occupation of position; readiness standing operating procedure(s)

SINGARS

single-channel ground and airborne radio system

SM

soldier's manual

STP

soldier training publication

T&EO

training and evaluation outline

TACFIRE

tactical fire

TAMMS

The Army Maintenance Management System

TB

technical bulletin

TG

trainer's guide

TM, tm

technical manual; theater missile; team

TOE

table of organization and equipment

TRADOC

Training and Doctrine Command

v

volt

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TM 9-2320-272-10-HR Hand Receipt Covering End Item/Components of End Item (COEI), Basic Issue Items (BII), and Additional Authorizations List (AAL) for Truck, 5-Ton, 6X6, M939, M939A1 and M939A2 Series (Diesel). 30 April 1990

TM 9-2320-279-10-2 Operator's Manual for M977 Series, 8X8 Heavy Expanded Mobility Tactical Trucks (HEMTT) Truck, Cargo, with Winch, M977, Truck, Cargo, without Winch, M977 (Change 5, 15 February 2002). 15 June 1987

TM 9-2320-279-10-HR Hand Receipt Covering Contents of Components of End Item (COEI), Basic Issue Items (BII), and Additional Authorization List (AAL) for M977 Series, 8X8 Heavy Expanded Mobility Tactical Trucks (HEMTT). 15 February 2002

TM 9-6115-464-12 Operator and Unit Maintenance Manual for Generator Set, Diesel Engine Driven, Tactical Skid Mounted, 15 KW, 3 Phase, 4 Wire, 120/208 and 240/416 Volts DOD Model MED-004A Utility Class 50/60 Hertz (Change 2, 31 March 1997). 30 July 1993

TM 9-6115-669-13&P Operator, Unit, and Direct Support Maintenance Manual (Including Repair Parts and Special Tools List) for Electric Power Plant III, 2 X 150 KW, 400 HZ (Change 1, 20 September 1999). 1 June 1998

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Operator's Manual for Embedded Trainers/Operator Training Instructions (Patriot Air Defense Guided Missile System) (EMO). 1 August 2002

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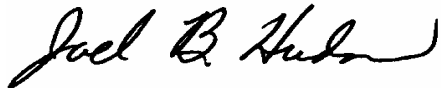
Operators and Organizational Maintenance Manual Including Repair Parts and Special Tools List for Electronic System Test Set AN/PSM-80(V)1 (EMO). 30 April 2001

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