MCRP 4-11.3F

Convoy Operations Handbook

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FOREWORD

Marine Corps Reference Publication (MCRP) 4-11.3F, *Convoy Operations Handbook*, addresses the fundamental principles required for the planning and execution of Marine air-ground task force (MAGTF) convoy operations. This manual provides an overview for convoy planning, organizations, and movement fundamentals, procedures, and techniques.

MCRP 4-11.3F provides a source of reference for commanders and their staffs on convoy operations and functions in support of the MAGTF. Specifically, it gives general planning requirements, support requirements and considerations, and procedures.

MCRP 4-11.3F consolidates and expands existing convoy operations doctrine and supersedes portions of Fleet Marine Force Manual (FMFM) 4-9, *Motor Transport*, (1992); FMFM 9-1, *Marine Corps Tank Employment* (1982); and FMFM 6-9, *Marine Artillery Support* (1993).

Reviewed and approved this date.

BY DIRECTION OF THE COMMANDANT OF THE MARINE CORPS

/s/
EDWARD HANLON, JR.
Lieutenant General, U.S. Marine Corps
Commanding General
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To Our Readers

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Unless otherwise stated, whenever the masculine gender is used, both men and women are included.

CONVOY OPERATIONS HANDBOOK

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CHAPTER 1. MOTOR TRANSPORT OPERATIONS

Planning

For preparations to proceed smoothly and to ensure that all required tasks are completed, responsibilities and procedures are standardized to the maximum extent possible and reflected in unit standing operating procedures (SOPs). When a convoy or tactical motor march is included in the concept of operations ashore, it is included in the operation order. Tactical movements may require an appendix to annex C (Operations) to the operation order. The use of convoys by the combat service support element (CSSE), when included in the concept of combat service support (CSS), should be detailed in an appendix to annex D (Logistics/Combat Service Support). An appendix, outlining the general convoy procedures to be employed, can also be prepared for execution by issuance of fragmentary orders. The use and composition of unit logistic trains will be reflected in the unit's SOP.

Warning Order

A warning order is issued to alert units that will participate in the planned move. It states the general purpose of the convoy, the destination, the type of movement, and the approximate schedule. In addition to alerting commanders of the participating units, and the motor transport unit, the responsible staff officer should brief the designated convoy commander on the mission. The checklist in appendix A will assist the convoy commander in detail planning. Unit commanders notify their key personnel so that the preparation of vehicles, equipment, and personnel may begin. The warning order may be written or oral.

Movement Order

The movement order is issued by the commander. It covers the details for a move and contains the instructions necessary for the orderly conduct of the planned move. An example of a movement order is in appendix B. The movement order includes sufficient detail to clearly define, as applicable to the convoy, the following:

- Current situation.
- Mission or purpose of the convoy.
- Concept of operation for the movement.
- Applicable administrative and logistic procedures and responsibilities.
- Command, control, and communications assignments and techniques that will be employed to carry out the move.

Task Organization

Convoys are task-organized to meet the requirements of the assigned mission. A transport element, an escort or security element, various support elements, and a command and control element are generally included. The specific organization is situation dependent. The tactical situation, enemy capabilities, as well as other planned options should be assessed in developing the convoy task organization.

It is essential that a clear chain of command be established within the convoy task organization.

The results of reconnaissance and liaison dictate the requirements for security and support elements. In some instances, the need for engineer support may necessitate separate tasking of engineer units to perform route maintenance prior to or in conjunction with convoy movement.

In addition to the inclusion of security to accompany the convoy, the need for artillery and air support availability is a consideration in planning for convoy security.

Convoy support, exclusive of security requirements, may include—

- Engineer obstacle teams/mine clearance teams.
- Refueling equipment and personnel, within the convoy and/or at predetermined routes.
- Military police to control traffic.
- Food service support at selected sites or as part of the convoy.
- Materials handling equipment support at loading and unloading points or organic to the convoy.
- Translator or interpreter support.
- Wrecker/maintenance vehicle for recovery operations.

Once the transport, security, and support requirements have been clearly defined, an adequate command and control element is developed. It must include the vehicles, communications equipment, and personnel to allow the convoy commander to direct, control, and coordinate the convoy's operation.

Liaison and Coordination

Liaison and coordination are required with the following:

- **Higher headquarters (HHQ) movement control center.** Convoy commander must receive route clearance from the senior movement control center (MCC) prior to movement.
- **Units located where the convoy will traverse.** Coordination is required to determine restrictions or special requirements, if any, and support which may be provided to the convoy by these units. This liaison may be conducted during the route reconnaissance. The information acquired is provided to the staff planning the move.
- **Units being moved.** Items to be coordinated include the movement schedule, preparation of troop-carrying vehicles, requirements for material handling equipment and loading of vehicles, command relationships, communications, and actions in the event of enemy attack.
- **Units at the convoy's destination.** A motor transport representative should precede the convoy to its destination to coordinate logistic requirements including details for the loading and unloading of vehicles, if required, after arrival. If this is not possible, requirements are communicated to units at the destination via the best available means at the earliest possible time. A confirmation of support availability or limitations should be requested.
- **Military police.** Traffic control along the route should be coordinated. If military police (MP) elements are providing escort for the convoy, their actions in support of the convoy must be coordinated as well. Items to be covered include the mission, march schedule, route to be followed, traffic regulations, communications, and command relationships.

Route Reconnaissance and Selection

A reconnaissance of possible convoy routes should precede the actual selection of a route. Higher headquarters may specify the route selected or the determination may be left to the convoy commander. The convoy commander or a designated representative should make a reconnaissance of both the primary and alternate route if circumstances will allow it.

Map Reconnaissance

A map reconnaissance is made first, followed by a physical (ground or air) reconnaissance, if possible. When making the map reconnaissance, other available information such as engineer intelligence, military police information, and aerial photos should be used. Since route conditions are susceptible to change in a relatively short time due to enemy action or weather, a physical reconnaissance is highly beneficial if time and the security situation permit. Physical reconnaissance should be conducted in concert with the Marine air-ground task force (MAGTF) engineer element. This is particularly critical when gap crossings and route construction may be required. Aerial reconnaissance may be conducted visually, or by using aerial photography or airborne sensor systems. The critical points on each proposed route must be identified (see appendix C).

Considerations

In general, convoy routes are selected by identifying, evaluating, and comparing those factors, which tend to facilitate or impede convoy movement and control. This information can be analyzed using mission, enemy, terrain and weather, troops and support available-time available (METT-T).

Route Characteristics

Considerations related to route characteristics include road surfaces, road capacity, grades, and alignments to be negotiated. Other considerations are: weight and dimensional limits of bridges, constrictions such as defiles and built-up areas, estimated operating speeds over various sections of the route, probable traffic conditions, the nature of areas adjacent to the route, the probable effect of adverse weather on trafficability, clearance requirements, and convoy control requirements.

Enemy Capability

The enemy's capabilities along a route are fully evaluated based on current intelligence. Other considerations in evaluating the enemy threat include recent experience in conducting convoy operations over the route and the identification of points or areas along the route, which enhance the enemy's ability to interdict the convoy.

Vehicle and Bridge Classification

Prior to route selection, vehicles and bridge capacities must be evaluated.

Following reconnaissance and liaison, unless higher headquarters has prescribed the route, one must be determined. The route selected is based on an evaluation of the road net, the tactical situation, available vehicles, external support requirements and availability, and the purpose of the convoy.

Route Classifications

When operating with North Atlantic Treaty Organization (NATO) forces, movement restrictions and highway route control classifications must be considered (appendix D). Route classifications are—

- Open route—minimum control; no movement credit required.
- Supervised route—limited control; any column of ten or more vehicles or outsized equipment requires movement credit.
- Dispatch route—full control; movement credit is required for any vehicle or group of vehicles; priorities are set for this type route.
- Reserve route—reserved for a certain unit, operation or type of vehicle; if reserved for a unit, that unit commander establishes controls.
- Prohibited route—no vehicles allowed.

Movement Credit

Movement credit is the allocation granted to one or more vehicles in order to move over a controlled route in a fixed time according to movement instructions. It includes allocation of a movement number and designated times the first and last vehicles are scheduled to enter and exit the controlled route. The MAGTF motor transport officer normally coordinates the issue of movement credits to MAGTF units.

Commander's Convoy After-Action Report

Vehicle movement and convoys are an excellent source of intelligence. Feedback from executed movements assists planning for future movements. Convoy commander's should submit after-action reports. A sample format can be found in appendix H.

Movement Control

Movement control is the planning, routing, scheduling, and control of personnel and cargo movements over lines of communication (LOCs).

The MAGTF commander may be required to establish a highway traffic regulation system or regulate the movements of units in accordance with a traffic regulation system of a senior headquarters. The military police of the CSSE, in coordination with the motor transport officer, develop highway regulation

plans. If necessary, a traffic circulation plan, normally prepared as an overlay, is prepared and distributed.

It may include—

- Route restrictions, route designations, and direction of movements.
- Locations of unit boundaries, highway regulating points, traffic control points, and principal supply points.
- Major geographic features and light line.

To coordinate movements, the CSSE may also be required to establish an MCC. The MCC plans, schedules, routes, and controls movement. When established, that organization would—

- Issue operating procedures for the highway/road net.
- Receive and process convoy clearance requests.
- Plan traffic routing.
- Coordinate traffic scheduling.
- Coordinate and approve movement credit for controlled routes.
- Establish movement priorities in accordance with the commander's guidance.
- Prepare and maintain road movement table and critical time and point graphs that monitor and control traffic movement.

Logistic Support

The amount of logistic support for a convoy will be affected by the size of the convoy and the distance to be traveled. Planning corresponds to logistic procedures in SOPs. Logistic support in the form of vehicle recovery and repair, fuel, food, road repair, and medical assistance may be coordinated with and provided by units located in the areas the convoy transverses. Logistic support will be required at the convoy's destination for billeting, messing, refueling, minor equipment repairs, ammunition resupply, cargo transfer, and vehicle security. For large convoys, advance coordination at the convoy destination must be made to ensure that logistic support is met.

Communications

Requirements

Factors considered in determining the convoy's communication needs include the mission, the concept of the convoy operations, and the convoy task organization. Communications are normally required to control movement, coordinate with friendly units enroute, control and coordinate actions in response to enemy action, request and control supporting arms fires, request casualty evacuation, and report progress of the convoy.

Resources

Resources (personnel, supplies, and equipment) required to meet identified communication needs are evaluated. Next, they are compared to resources available, including resources of elements tasked to support the convoy. The requirements for internal communications within the convoy can usually be met, in part, with visual and sounds signals. All convoy personnel must be fully briefed on any visual or sound signals that are used.

- Visual signals include arm-and-hand, panels, lights, flags, Pyrotechnics, and message boards or signs.
- Sound signals that may be used include horns, whistles, loudspeakers, sirens, and verbal messages.

Environment

The environmental conditions along the convoy route and the distance between communicating station may affect communication reliability. It may be necessary to establish airborne radio relay or retransmission sites to ensure that adequate communications are maintained at all times.

Communications Responsibilities

Normally, unit responsibility for establishing communications is—

- Senior to subordinate unit—senior commander.
- Supporting to supported unit—supporting unit commander.
- Unit to attached unit—commander of the unit to which the attachment is made.

The communications nets employed by convoys will vary according to the composition of the convoy and the tactical situation. An appropriate convoy control net will provide the means of primary control of the various convoy elements. Convoy security elements enter the convoy control net as necessary to coordinate their actions to the convoy commander. The convoy commander must be prepared to enter and use the air, artillery, and tactical nets of the units in whose area of responsibility he is operating during movements.

Distance, Time, and Rate of Movement

The task of the movement control planner is to plan the arrival of the column at a certain point at a scheduled time. To accomplish this, the planner must know the distance the column is to travel and the time it will take to make the trip. The planner must also compute the space the column will occupy, including the safety factor in distance or time, which must separate march columns and their elements (appendix E). The relationship between distance and time is the basis for all march planning. The rate of movement is the ratio of distance to time. Additional considerations related to distance, time, and rate of movement are discussed in the following paragraphs. Figure 1-1 provides a clearance time picture.

Critical Points

Any road structure or feature that limits road width, overhead clearance or vehicle load class, as well as any feature that interferes with the meeting or crossing of two or more streams of traffic is a critical point. A controller coordinating the movement of a number of convoys over a limited road net will, when necessary, develop numbering systems for critical points within the road net. The controller then plots convoy movements on a critical time and point graph to prevent delays or conflict between authorized convoy movements.

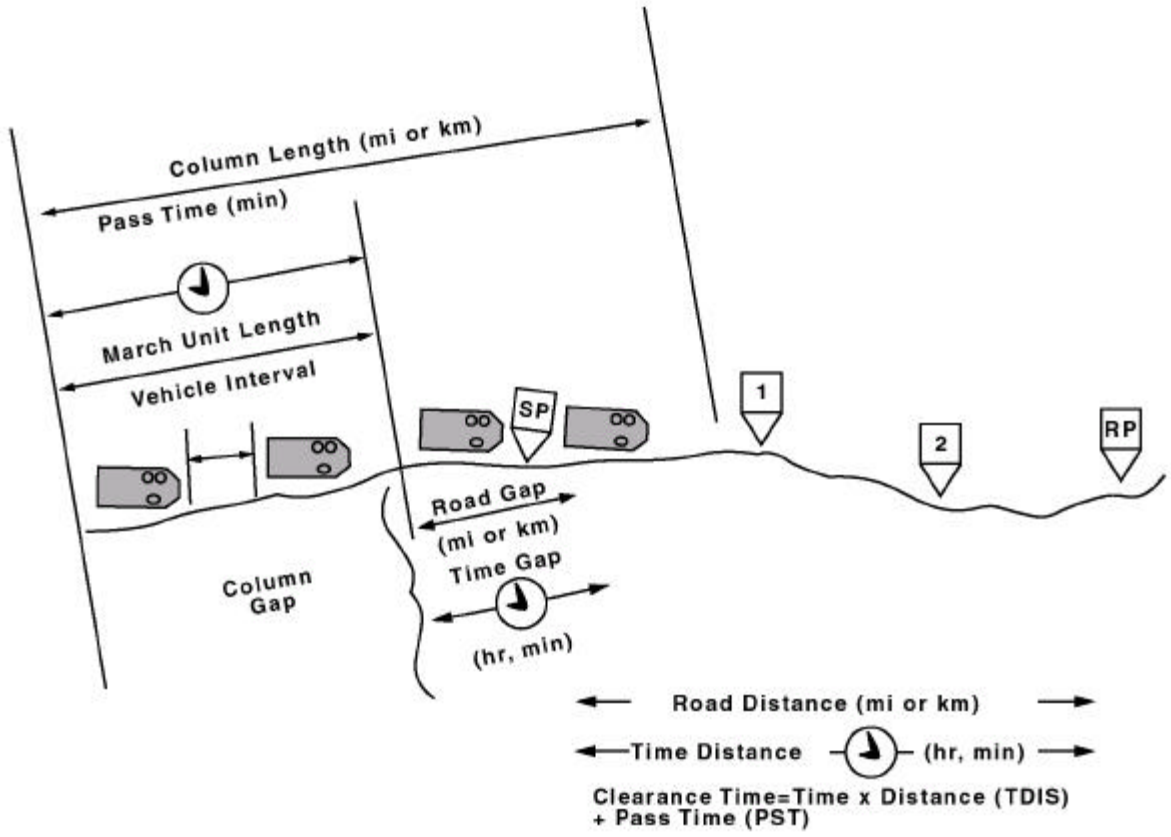


Figure 1-1. Clearance Time Picture.

Halts

The distance to be traveled by the convoy is considered in determining the need for halts and refueling during the march. Convoy security considerations may be a factor in determining the number, type, and location of halts. Halts on the march are described later in this chapter.

Interval

Vehicle interval (distance or gap) is of prime importance in minimizing attack. The enemy cannot bring effective fire to bear on a large number of vehicles separated by wide intervals. By establishing an interval of 50 to 100 meters, mine damage can be limited and the effectiveness of air attacks minimized. Vehicles should close to 50 meters as obstacles are encountered, but generally should get no closer. Unless the move is by infiltration, more than a 100-meter interval detracts from the concept of a mutually supporting defense. When a halt occurs, all vehicles stop at their enroute interval.

Speed and Safety

Normal speed at the lead of the column in a combat situation is 5 to 10 miles per hour (mph) below posted speed limits with a maximum speed that allows for regaining lost distances. The rate of speed is determined by—

- Physical condition and level of training of the vehicle operators.
- Types and mechanical condition of the convoy vehicles.
- Degree of urgency the move requires.
- Condition of the road net (dust, mud, snow, and ice).
- Physical characteristics of the roadway along the route (grades, sharp turns, congestion).
- Weather conditions.

Convoy Staging

During staging, vehicles are lined up in the prescribed march order, final maintenance and load security inspections are conducted, communications equipment and weapons are checked, and convoy personnel are briefed. Staging is an all-hands operation that requires an area large enough to accommodate all vehicles of the march column element.

A group of staged vehicles presents a lucrative target for enemy action; therefore, time spent at the staging site should be held to the minimum necessary to accomplish the tasks described. As a guideline, about 30 minutes should be allowed for each 25 vehicles staged, not to exceed 2 hours.

Personnel are usually briefed after vehicles are lined up in the order of march. The briefing should be conducted by the commander, whenever possible, for all operators/vehicle commanders and key personnel. The briefing should be thorough to include such details as those included in the operation order or the movement order. Appendix F contains an example brief.

Vehicles are inspected as they arrive at the staging area to ensure that they are in acceptable mechanical condition and have vehicle equipment such as spare tire, tow chain, gas can, and jack. Minor deficiencies will be corrected on the spot. Trucks with major deficiencies will be returned to their unit and replaced with satisfactory vehicles. Finally, vehicle loads are inspected to ensure that they are properly secured and the vehicles are ready to move.

Traffic Control

Vehicle movements over the road are subject to both the convoy commander's organizational controls and traffic controls imposed by the area commander(s).

Organizational Control

This control is the responsibility of the convoy commander. It ensures observance of rules of the road, traffic laws and regulations, gaps, routing, schedules, discipline en route and at halts, and local security measures. Organizational control is exercised through SOPs and directives, movement control personnel who direct and supervise convoys, and patrol vehicles that correct improper operational procedures and provide assistance in the event of accidents and vehicle

breakdowns. Escorts from military police units may be placed in direct support of the column. Patrols are used to provide liaison between the column and movement control posts, the unit being transported or the transportation unit when necessary. Route markers can be used to supplement these controls.

Area Control

Area control, by the commander having area jurisdiction, is superimposed on organizational control and employed to the extent necessary to assure orderly and effective movement of vehicles within an area. This control may be exercised through use of traffic control points, movement control posts established along routes of march, and roving highway patrols. Road maintenance patrols and/or wrecker service may also be provided under area control policies.

March Discipline

March discipline comes from training and effective internal control within the march unit. It can be attained by thorough training, constant supervision, practical experience in column movement, and attention to the following techniques:

- Correct driving.
- Immediate and effective responses to all signals and orders.
- Prompt relaying of visual signals.
- Strict obedience to traffic regulations, rules of the road, and instructions of the highway.
- Regulations, traffic control, and command personnel.
- Effective use, as prescribed, of cover, camouflage, dispersion, radio silence, blackout precautions, and other protective measures taken against enemy attack.
- Correct speed, distances, and proper positions within the column.
- Proper care of equipment.
- Proper safety precautions at the halt.

Movement Execution

Start Point

A start point (SP) is a well-defined point on a route at which the movement commander begins to control movement. It is at this point that the column is formed by the successive passing of each of the elements composing the column. In addition to the principal start point of a column, there may be a secondary start point for its different elements. When more than one serial is included in the column, an SP is designated for each serial in addition to the column start point. At the SP, the conduct of movement comes under the active control of the designated commander. It is a place on the route of march, easily recognizable on the map and the ground, that is readily accessible, such as a road intersection. The column or serial is formed, without halting, by the successive arrival of its units at the SP.

The SP is located a sufficient distance from the staging area to allow the serial or column to be organized at the prescribed vehicle interval and travel at the designated speed when crossed. The SP is located where no unit, serial or column must pass through another unit to reach it.

Prior to the start of the movement, each unit and serial (when serials are used) reconnoiters the route from its staging area and serial SP, as appropriate, and determines the exact time required to move to the column SP. The time each unit or serial is to cross the column SP is normally specified in the movement order. Based on the time needed to reach the designated SP, each unit/serial adjusts its start time accordingly. See table 1-1, on page 1-8, for column formations.

Checkpoints

Selected points along the convoy's route may be designated as checkpoints. Checkpoints provide a means by which the movement of a column can easily and rapidly be reported or monitored. They also facilitate rapid and clear dissemination of orders relative to the movement. To identify checkpoints, easily recognizable locations on the ground, traffic regulating posts or critical points are assigned alphabetic or numeric designators. Checkpoints, when designated, are identified in the movement order by the letter/number identifier and grid coordinates.

Table 1-1. Column Formations.

Type Formation	When Used	Vehicle Density per mile/km	Speed mph/ kph	Advantages	Disadvantages
Close	Night, poorly marked routes, or in areas of congestion.	67/40	10/16	Full traffic capacity of road can be used. Control is better. Fewer guides, escorts, and route markers are needed.	Quick dispersion is difficult. The column is easily detected. May cause congestion at the point of arrival. Requires careful scheduling and control to avoid blocking at intersections. Causes driver fatigue. Command and control is difficult. Proper vehicle spacing is hard to keep.
Open	Daylight	20/12	15/24	Less chance of enemy oberservation or attack. Cargo moves faster. Driver fatigue is reduced. Fewer accidents, very flexible.	Control is difficult. Full traffic capacity of the route is not used. Driver can get lost.
Infiltration	Daylight, congested areas. Heavy traffic crosses route.	10/6	Various	Provides maximum security and deception. High speeds are possible. Other traffic has little effect on individual trucks. Does not hinder cross traffic.	More time required to complete the move. Column control is nearly impossible. Drivers can get lost. Specific details must be provided each driver. Maintenance, refueling, and messing are difficult to arrange. Vehicle may bunch, causing close columns to form. Requires experienced drivers. Orders are not easily changed. The unit cannot be redeployed as a unit until the last vehicle arrives at destination.

Critical Points

Critical points are points along the route that have the potential to impede or halt the convoy's movement. They are points at which military police units can be effectively employed. At critical points, all column control personnel must be alert to avoid interruption of the traffic flow. When planning the move, the use of a SP that is closely preceded or followed by a critical point should be avoided. Halts should not be scheduled immediately before or after a critical point.

Passage of Obstacles

When conditions on the selected route or the tactical situation dictates, an engineer element accompanies the convoy. Engineer elements are positioned near the head of the convoy to eliminate obstacles such as mines, roadblocks, and tank or vehicle traps.

Engineers also repair roads and bridges; effect passage of natural obstacles; determine route, bridge, raft and vehicle classifications; and improve the route to support the column. When the engineers are committed to removing obstacles in the forward areas, they are not in a position to defend themselves against enemy forces. Therefore, a security force must provide close-in protection and neutralize enemy direct fire weapons that normally cover an obstacle. Once this is done, the engineer element can remove the obstacle. Risk of indirect fire upon convoys halted by obstacles is high; units should be alerted to all aspects of security and ready to take immediate defensive action when obstacles are encountered.

Bridging and Fording

Accompanying engineers determine the number of vehicles that can be permitted on a bridge at any one time, based on vehicle type, load, and bridge classification. In order to pass vehicles over bridges as rapidly as possible, the column speed and density may be increased. The engineers are responsible for determining and posting bridge classifications. If bridges are unusable or destroyed and fording is possible, engineers determine approach, soil conditions of the streambed, reinforcing requirements, and crossing procedures.

Ferrying

If rafts are used to ferry vehicles across water obstacles, particular care must be taken to avoid the unnecessary assembly of vehicles. The ferry waiting area should be secured and not more than five or six vehicles allowed in that area at one time. Engineers determine the raft classification and direct the

placement of vehicles. Vehicles should be driven on and off rafts at a steady pace in low gear; engines are kept running while vehicles are waterborne.

Halts

Depending upon the distance, weather conditions, logistic requirements or tactical situation, one or more halts may be necessary during a movement. Halts are made for rest, personal comfort and relief, messing, refueling, maintenance and inspection of equipment, and schedule adjustment while allowing other traffic to pass. Short halts normally last 10 minutes and are taken, in principle, after every 1 hour and 50 minutes. Short halts are included when calculating the rate of march and are not normally plotted on movement graphs. However, plans must allow at least a 10-minute gap between columns/elements to ensure a following element does not overtake one in front while it is halted. No standard rules are laid down for long halts, but they must be plotted on movement graphs to avoid conflicts with other movements.

Location

Halt locations may be assigned by higher headquarters, established at suitable highway regulation posts or determined by the convoy commander, preferably after conducting a route reconnaissance. The following criteria apply.

- Select locations to minimize the threat of enemy action while providing easy access to and from the road.
- Halt where there is a relatively unobstructed view from the lead and tail of the column.
- Avoid populated areas and locations that have a heavy volume of local traffic.

Traffic Regulation

When a convoy is halted, the convoy commander must take the necessary measures to facilitate road movement and avoid accidents or traffic jams.

- Move off the road as much as possible.
- Post road guards or warning devices at a sufficient distance to the front and rear of the column.
- Organize a traffic direction system along the column, if needed.
- Give a halted column the right-of-way while moving back on the road, unless otherwise prescribed.

Security

At halts, troops must not dismount until so ordered. Frontal, flank, and rear security should be maintained. Air watch personnel remain alert and prepared to sound alarms if enemy aircraft are sighted. Unauthorized personnel, including the local populace, are kept clear of the column's vehicles.

Overtaking of Convoys

There will be occasions during convoy movements when another vehicle or vehicles will overtake the convoy. In such instances, the following procedures apply.

Isolated Vehicles

An isolated vehicle is only authorized to overtake a moving column when—

- Its maximum authorized speed is appreciably higher than the speed at which the column is moving, thus enabling it to overtake each vehicle rapidly.
- There is sufficient distance between the vehicles of the column to allow the overtaking vehicle to regain its position in the proper lane after overtaking each vehicle.
- The trail officer of the column gives a clear signal that overtaking is possible.

Other Columns

On a controlled route, a column may overtake another column only on the orders of the movement authorities and as arranged by the traffic regulating personnel.

On an open route, no column may overtake another moving column, except in special cases. For example, a column may overtake another column on a one-way road, which is wide enough to accommodate passing. In each case, however the commander of the column

desiring to pass contacts the commander of the column to be passed prior to attempting to pass.

Outside these special cases, the overtaking of a column by another column is authorized only if the lead column is halted and provided the moving column has the time to overtake the entire halted column before it is ready to resume its march. In this case, the commander of the moving column contacts the commander of the halted column prior to attempting to pass.

Disabled Vehicles

When a vehicle is disabled during the movement, it should not be allowed to halt the progress of the remainder of the convoy. Operators should be instructed to pull off the roadway and to wave the vehicles following past.

Unless otherwise directed, the first designated tow vehicle to reach a disabled vehicle will take it in tow. If the tow vehicle is unable to take the disabled vehicle safely in tow, it remains with the disabled vehicle until the trail maintenance officer reaches the site. The appropriate course of action is then decided by that officer/noncommissioned officer (NCO).

Towing by wrecker is avoided unless, because of the type of failure and/or operational conditions, a tow bar would be unsafe or incapable of towing the vehicle. If a wrecker is used to tow the disabled vehicle, it will hinder further use of wrecker when required. Mobility of the wrecker is critical for the convoy to ensure that the convoy maintains forward mobility to accomplish the convoy mission.

The trail officer notifies the convoy commander of all disabled vehicles and advises on the ability to effect timely repair/recovery. In combat, the decision to destroy vehicles or cargo that cannot be towed or recovered is made by the convoy commander (see appendix G).

When time is available, the vehicle crew and trail personnel should remove critical cargo or parts from any vehicle that is to be destroyed.

Accidents

If an accident occurs, the main body of the convoy does not stop to assist. The next vehicle renders immediate assistance. Other vehicles to the rear pull around the accident. If the accident blocks the route, every effort is made to clear the route and to continue the march. The first officer or NCO to arrive at the scene takes charge, supervising emergency aid and directing traffic until the trail officer, medical officer or other competent assistance arrives. The trail officer, aided by medical and maintenance personnel, normally supervises and directs care of the injured, salvage or disposition of vehicles and clearance of the route. All accidents are reported without delay to the convoy commander or designated staff officer and to the military police of the nearest military installation. The trail officer conducts an immediate investigation. The trail officer must reach the scene as soon as possible before witnesses or damaged equipment leaves. The trail officer ensures the information needed for completion of Standard Form (SF)-91, *Operator Report of Motor Vehicle Accident*, is collected.

Release Point

The release point (RP) is a well-defined point on a route at which the elements composing a column return under the authority of their respective commanders and may continue its movement towards its own appropriate destination. Like the SP, the RP should be easily recognizable on both a map and the ground and must be on the column's route. Each element clears the RP at the prescribed rate of march. In addition to the primary RP of a column, there may be several secondary RPs for the various elements. In forward areas and congested support areas, it is advisable for guides to meet the various elements or units of the column as they arrive at the RP. Guides lead their elements or units to designated unloading or holding areas. As the vehicles are unloaded, they are dispersed and after-operation maintenance is performed. If the convoy is conducting a round trip, drivers are informed of the place and time they are to assemble for back loading and the return trip. Since convoys in forward locations present an especially profitable target, light and noise discipline is strictly enforced and positive control of convoy personnel is maintained.

Night Movements

Convoy movements at night are planned and carried out in the same basic manner as daylight moves. However, C2 is much more difficult at night, a fact both convoy planners and convoy commanders must take into consideration.

Night movement may be required for tactical reasons, the need to achieve higher cargo haul rates, or in response to some unexpected development that may be either tactical or administrative in nature. Random night movements can also be effective in denying the enemy information as to the commander's intentions.

Route and Vehicles

Convoys that move at night should be kept small and restricted to roads with which the operators are familiar. When possible, one-way roads are used. Outsized, unusually slow or truck and trailer combinations that are difficult to control should be avoided. Consider the ability to tow or recover each convoy vehicle, should any become disabled. Because the ability to perform roadside repairs is greatly reduced at night, increase the towing/recovery capability of a night convoy.

Security

Control capabilities will be reduced at night. At the same time, the convoy's vulnerability to ambush or harassing fire will be increased. Compromise between the need for both security and control. Increasing the size of security forces for night movement creates a greater noise and control problem. Decreasing the security forces permits better control and noise discipline. Carefully consider the requirements for security and control. Regardless of the choice, most vehicles, including escorts, will be road-bound. If an attack is encountered, the best reaction, as in daytime operations, is dependent upon the type of attack. Dispersion and extended intervals offer the best protection from air and artillery attacks. Rapidly clearing or evading the killing zone, along with a high volume of return fire, is the best protection from ambush. Night immediate-action drills should be rehearsed and all convoy members should receive refresher training in night security and night defensive techniques.

Lighting and Security

The unit commander will decide whether the convoy will move with headlights on or under blackout conditions. Under blackout conditions, vehicle distance will be close to approximately 30 feet, and speed will seldom exceed 5 miles per hour. Due to the slow speed and close interval of vehicles, they are extremely vulnerable to enemy action. If the situation permits, the convoy commander may decide to operate with headlights on, extending the vehicle interval to over 150 feet and increasing the speed to over 15 miles per hour. This decision should only be made after weighing the advantages and disadvantages as well as coordinating with local tactical commanders. The use of night vision goggles (NVG) can greatly assist drivers operating in blackout conditions.

Blackout Marker Lights

To provide a means of knowing the location of vehicles during blackouts, military vehicles are equipped with four blackout marker lights, two on the rear corners of the vehicles and two on the front. They do not illuminate the road but indicate the position of a vehicle as much as 750 feet, depending on the weather. They cannot be seen from aircraft flying at an altitude higher than 400 feet.

Tail Lights

Each rear lamp has two pairs of "cat's eyes," which show red when activated. Each pair appears as one red light from a distance of 60 to 180 feet; and as two pairs of cat's eyes in each light at distances less than 60 feet (see figure 1-2 on page 1-12). One point of light informs the following driver of being too far behind the vehicle ahead; two lights indicate a proper interval; and four lights warn the driver of being too close.

Front Lights

Each front light has one pair of "cat's eyes," which show white when activated. Each appears as one light from a distance 60 feet or more. When the distance is less 60 feet, one pair of cat's eyes shows in each light. This provides a warning that the vehicle is near.

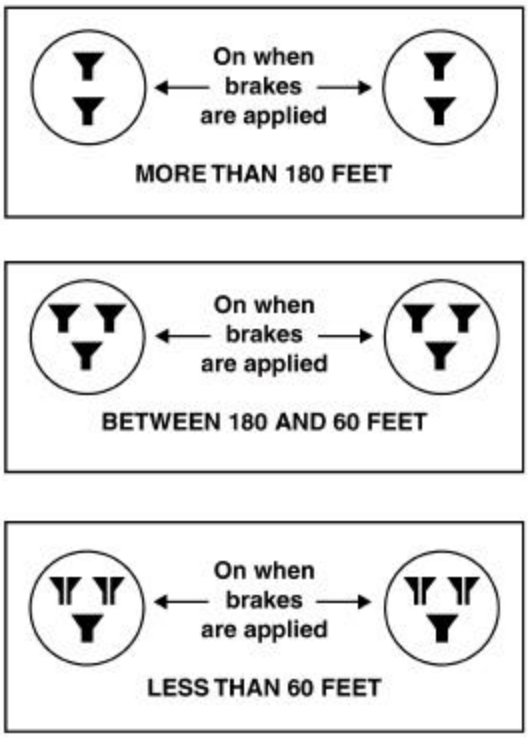


Figure 1-2. Rear Blackout Marker Lights.

Blackout Lights

The blackout driving light is mounted on the left front of the vehicle, usually in the grill of the vehicle (see figure 1-3 below). The blackout driving light may be mounted above, below or to the left of the left headlight. The blackout stoplights are on the rear left and right sides of the vehicle (see figure 1-2 above).

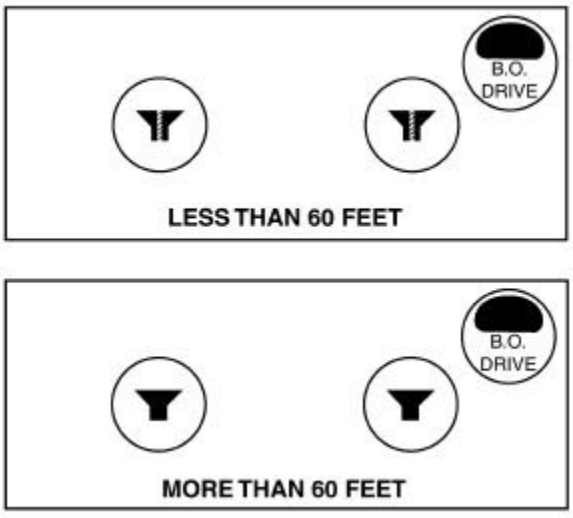


Figure 1-3. Front Blackout Marker Lights.

Ensure that the marker lights and blackout driving light are functioning properly. The shield may be lowered to improve visibility at reduced speeds (5 miles per hour). In column, watch the rear blackout marker lights of the vehicle ahead to maintain the prescribed distance.

When practicable, post someone in the rear of each vehicle to warn the driver who follows if he comes too close. The warning must given in a manner which conforms to the existing blackout regulations. A screened flashing light might be permitted. If this is not desirable, a white handkerchief or some other object may be used. If the vehicle that is following is equipped with front blackout lights, it can be detected more easily. But an alert rear guard can usually detect a vehicle at a reasonable distance even if it has no blackout lights.

Balisage

The marking of a route by a system of dim beacon lights enable vehicles to be driven at near daytime speed, under blackout conditions. Convoys operating in NATO countries may become involved in blackout operations in which the balisage system of traffic lighting for military roads is used. These lights are designed to be readily visible to a driver in a vehicle cab but not readily detectable from the air. Balisages come in several colors, including red, orange, yellow, green, and blue. Their color and positioning provide guidance and warning to vehicle operators.

Communications

Communications requirements need special attention during night movements. The planners and commander of a night convoy should carefully analyze the specific communication needs of each night movement. Give special attention to pyrotechnic, sound, and/or light signals. They may serve as a primary or backup means of internal or short-range communications. Therefore, their special meanings must be coordinated with other friendly forces to be effective for external communications and among all convoy personnel when they are used as internal communications.

Command and Control

In addition to the considerations addressed above, extra emphasis on the following is also required for night movements—

- Communications, coordination, and control for air and fire support.
- Liaison with units through whose areas the convoy will pass.
- Procedures for the passage of traffic control points, critical points, and halts.
- Requirements for guides and escorts enroute and at RPs.

Release Point

At the RP, each element or march unit of the convoy accounts for its personnel and vehicles and reports any previous unreported incidents to the convoy commander. The reports are submitted before the convoy components are released.

CHAPTER 2. OTHER TRANSPORT SUPPORT OPERATIONS

Terrain and Weather Operations

Marine Forces may be employed in areas of extremes in weather and terrain. These areas encompass more than half the earth's land surface and are made up of arctic-like areas, mountains, deserts, jungles, and flooded areas. Additionally, improved technology and dramatic increase of mobile forces worldwide require the Marine Corps to be prepared to conduct mobile operations consistent with current maneuver concepts. In support of mobile maneuver forces in areas of extreme weather or terrain, normal motor transport procedures will require modification to be effective. More information can be found in MCWP 4-11.3, *Transportation Operations.*

Jungle Operations

A reconnaissance of the convoy route is conducted before the movement using an advance officer, if security permits. The advance officer can halt or detour the convoy before an obstacle convoy and cause it to retrace its route. Convoy operations—

- Include in convoys only those vehicles with the mobility to travel the route selected.
- Carry pioneer tools with each vehicle.

Desert Operations

Convoy operations over desert roads will not differ from normal convoy operations except the possibility of vehicle spacing. Vehicles should not be dispatched singly because of the risk of breakdown on the desert where assistance is not available.

Vehicle spacing in the convoy will need to be greater to avoid driving in the dust cloud of the preceding vehicle. The convoy commander will have difficulty maintaining visual contact with the entire convoy.

The desert roads in many areas are trails, which have been used for many years by people, and more recently vehicles of all types. Because desert roads have no heavy base, they are not stable in the sense to which operators are accustomed. Also, the shifting winds will cause depressions and variations in surface conditions in a constantly changing pattern. Sepkhas (dry, crusted-over sandy marshes) may appear to be suitable for cross-country travel; however, their load bearing capacity will vary according to the crust thickness. As a consequence, continuous route reconnaissance and marking is necessary in order to maintain safe convoy operations.

Mountain Operations

Planning convoy operations must include special consideration of road conditions and the weather forecast. Rain at lower elevations can transform into snow or freezing rain at higher levels. Convoy speed will not be constant. As a convoy approaches a steep grade, vehicles will tend to bunch up as lead vehicles slow on the hill. Conversely, when transitional from a steep downgrade to a stretch of flat or rolling road, lead vehicles will increase speed while vehicles further to the rear are at lower speeds descending the grade. Strict convoy discipline will be required to maintain desired spacing and control under such conditions. Computation of time required to travel between points will be more complicated than under normal conditions because of the variations in speed due to changing terrain conditions en route.

Cold Weather Operations

Maintained Road Net

Convoy operations may be carried out normally, except for reduced speeds and increased gaps between vehicles. Convoy speed is adjusted dependent upon the road surface conditions along various sections of the route or changes in weather conditions. Vehicle operators are trained to keep the other vehicles in the group in sight and assist if a vehicle becomes disabled.

Unmaintained Road Net

On roads not fully maintained by snow removal operations, vehicles in the 1 1/4 -ton class can operate at reduced speeds in snow depths up to 6 inches. Vehicles in the 5-ton payload class can operate at reduced speeds in snow up to 12 inches deep and under emergency conditions with full payload in snow depths of 20 inches with fully trained and experienced operators. Use of non-powered trailers or other towed loads should be avoided in heavy snow conditions.

Ice

Frozen lakes and rivers are excellent supply routes. Ice routes must be selected and tested for ice thickness and structural integrity. Even amphibious vehicles may not be able to extricate themselves from an ice holeMechanized Operations

Mechanized operations are conducted by infantry units mounted in assault amphibious vehicles (AAVs), supported by armor, along with a full combined arms team of combat support and CSS elements. Mechanized operations will be characterized by rapid, long-distance movements and requirements for great amounts of supplies. In order to sustain mechanized operations and maintain the momentum of the attack, logistics trains will be formed for the maneuver units. Unlike tank and artillery units, infantry units do not have organic medium trucks that will be required in the logistic trains.

Employment

Mechanized operations will be fast moving and will often move well forward of friendly units or in unanticipated directions to take advantage of a tactical situation. Motor transport units should be attached to infantry battalions to meet the lift requirements of the logistic trains.

Operations

Motor transport unit leaders should retain tactical command of their trucks while under the command of the commander of the logistic train. In this role, the motor transport leader also advises and assists the logistic commander in the planning of convoy procedures and movement routes for the logistic train and routes for resupply of forward combat units.

Mechanized Vehicle Movement

A mechanized unit, when executing its tactical missions, moves across the terrain using formations and techniques of movement appropriate to the situation. The movements are conducted as road marches and the purpose is relocation, with the primary consideration being rapid movement of units.

Mechanized units often conduct road marches to travel long distances. The success of a road march depends on thorough planning. Detailed information is an important factor (refer to figure 1-1, page 1-5). There are three primary road march techniques:

- **Open Column**—This technique is normally used during daylight marches. It can be used at night with blackout lights or night vision equipment. The distance between vehicles varies, depending on road conditions and weather, but is normally 50 to 100 meters. Vehicle density is approximately 15 vehicles per kilometer when mechanized vehicles are 50 meters apart. When the mechanized vehicles are 75 meters apart, the density is 12 vehicles per kilometer, and at 100 meters apart, the density is 10 mechanized vehicles per kilometer.
- **Close Column**—This technique is usually used for marches in darkness or limited visibility. The distance between vehicles is generally 25 meters. The mechanized vehicles should be spaced so that drivers can see the blackout markers of the vehicle in front of them.
- **Infiltration**—This technique is the movement of dispersed, individual units or vehicles at irregular intervals. Infiltration reduces traffic density and prevents undue massing of vehicles. Infiltration provides a passive defense against enemy observation. It can also be used when time and road space are available and when security, deception, and dispersion are desired. Radio silence should be implemented or the use of radios minimized.

Immediate Action Drills

Snipers

Snipers alone can do little harm to a moving convoy. If, however, a sniper can convince a convoy to stop and deploy, a more dangerous situation can develop. Snipers are often used as deceptions to cause a convoy to stop in a larger enemy kill zone, possibly a deliberate ambush. When receiving sniper fire—

- Do not stop.
- Throw smoke to screen enemy observation, if wind conditions permit.
- Suppress the area in the sniper's general direction.
- Provide suppressive fires and supporting arms.
- Be vigilant of potential future confrontations.

Air Attack

Enemy aircraft will pose a major threat to convoys. Convoys are most likely to be strafed along their long axis. This provides the pilot with multiple targets on a single pass. The most efficient way to reduce the pilot's target is for drivers to drive off the road alternately and immediately, seeking concealment in a herring bone formation. Once in position, aim at aircraft as listed in table 2-1. Heavy machine-guns should lead helicopters by 50 meters and fixed-wing aircraft by two hundred yards to be effective. Some units may have low altitude air defense (LAAD) attached with stingers. LAAD provides an active defense against air attack. Passive defensive measures include:

- Selecting routes that take advantage of natural concealment.
- Driving at night and using the closed column formation to greatly reduce the chance of the convoy's acquisition by aircraft, providing that all precautions taken during daylight operations are applied as well.
- Using friendly air or a combat air patrol to provide security of varying degrees.

Table 2-1. Engaging Enemy Aircraft.

Aircraft	Course	Aim Point
Jet	Crossing	Two football fields in front of nose
Jet	Overhead	Two football fields in front of nose
Jet	Directly at you	Slightly above aircraft nose
Helicopter	Crossing	One-half football field in front of nose
Helicopter	Hovering	Slightly above helicopter body
Helicopter	Directly at you	Slightly above helicopter body

Ambushes

The enemy ambush provides the greatest single threat to a convoy's survival. Two categories of ambushes are relevant: blocked or unblocked.

Unblocked Ambush

During an unblocked ambush—

- Vehicles caught in the kill zone continue to move.
- Vehicles that have not yet entered the kill zone find cover and concealment, stop short, and dismount.
- Vehicles caught in the kill zone that become disabled conduct a vehicle unloading drill. Then, situation dependent, the dismounted Marines provide suppressive fire on the enemy or assault through enemy positions.
- The armored escort vehicles find positions to return suppressive fire and support maneuver of security forces.
- Security forces maneuver and assault based on rehearsals or frag orders. Indirect fire or close air support (CAS) are called in on the fleeing or fighting enemy as appropriate.

Blocked Ambush

During a blocked ambush—

- Vehicles that have not yet entered the kill zone find cover and concealment, stop short, and dismount.

- Vehicles blocked and trapped in the kill zone conduct unloading drills and assault or return fire as a base of fire.
- Armored escort vehicles find positions to return suppressive fire and support the maneuver of security forces.
- Security forces maneuver and assault from outside the kill zone based on rehearsals or frag orders.

Vehicle Unloading Battle Drill

The key to surviving an enemy ambush or air attack is the ability of occupants to rapidly exit a vehicle and find cover. If ambushed, a truck may be disabled or unable to escape the kill zone. The occupants need to dismount quickly. A Marine on the truck is on the skyline, and the vehicle is the target.

Unloading Battle Drill Sequence

1. As soon as it is determined that the vehicle is unable to escape the kill zone, two sentries on the enemy side of the truck bed must return a high volume of fire.

2. Alternately, the two sentries should throw smoke grenades in the direction of the enemy.

3. Simultaneously, the remaining vehicle occupants dismount the vehicle on the side opposite of the enemy and ensure they are masked from enemy fire.

4. The A-driver should use the ring mount, if equipped, to lay down suppressive, heavy machine-gun fire.

5. After covering the vehicle by fire, the two sentries should follow the other Marines over the "masked" side.

6. Find cover. The vehicle is the target and Marines should find cover elsewhere vice use it as protection.

7. If the kill zone is well planned by the enemy, cover may not exist, and a rapid and violent assault against the enemy may be required.

8. If cover is available, it should be used and fire returned. The section then becomes a base of fire for another section's maneuver. Once the situation has stabilized, the security force can execute its scheme of maneuver.

Reorienting

Once the enemy ambush has been destroyed or eliminated, all personnel should return to a rally point and accountability should be conducted. Additionally, any injuries should be triaged by corpsmen.

Damaged Vehicles

If a vehicle is damaged beyond immediate repair and a wrecker is not available, the convoy commander may have to order its destruction. Critical cargo and Marines must then be spreadloaded throughout the convoy. When a recovery vehicle is present, METT-T will dictate the actual procedures.

Road Blocks

The most serious threat to a convoy is a road block. The road block is the most efficient method for the enemy to stop the convoy, causing it to become extremely vulnerable to enemy ambush and fire support. All obstacles must be breached quickly in order for the convoy to survive. Breaching any obstacle is a methodical battle drill. The two most critical steps in breaching obstacles are proper organization and early identification. Prior to conducting the convoy, the security force must be organized and rehearsed for limited breaching operations (i.e., separated into support, breach, and assault elements). The lead vehicle in the convoy must be far enough ahead to identify the road block prior to the rest of the convoy entering a possible ambush area or kill zone. Once the convoy commander decides to breach the obstacle, the security force uses the suppress, obscure, secure, and reduce (SOSR) breaching technique to effect the breach. The respective responsibilities of Marines in the designated elements are as follows: the support element moves forward to clear both sides of the road and to provide near and far side security around the obstacle. The breach element is sent forward to clear the obstacle. The assault element is kept in reserve in case the convoy is ambushed during the breaching operation.

CHAPTER 3. TACTICAL CONVOY SECURITY

Convoy Escort

The scout platoon may perform a convoy escort mission either independently or as part of a larger unit's convoy security mission. The convoy escort mission requires that the platoon provide a convoy with close-in protection from direct fire. The platoon can protect 5 to 10 convoy vehicles per escort vehicle. These vehicles can be military CSS or command and control vehicles or civilian trucks or buses. Mechanized vehicles-equipped platoons are better suited to this mission than high mobility multipurpose wheeled vehicle (HMMWV) platoons because of their firepower and armor protection from direct fire, indirect fire, and mines. Careful evaluation of the threat must be undertaken prior to assigning convoy escort to HMMWV-equipped scout platoons. The following considerations apply during convoy escort operations.

Command and Control

Command and control during convoy escort is especially critical due to the inherent task organization of this mission. When the scout platoon is executing the escort mission, it operates under the control of the convoy commander. The relationship between the scout platoon and the convoy commander must provide for unity of command and effort if combat operations are required during the course of the mission.

The platoon leader must ensure that a complete operation order (OPORD) is issued to all vehicle commanders in the convoy prior to execution of the mission. This is vital because the convoy may itself be task-organized from a variety of units and because many of the vehicles may not have tactical radios. The order should follow the standard five-paragraph OPORD format, but special emphasis should be placed on the following subjects:

- Order of march.
- Actions on contact.
- Chain of command.
- Communications and signals.
- Actions on vehicle breakdown.
- Actions at a halt.
- Route of march (to include a sketch for each vehicle commander).

Tactical Disposition

Security during convoy escort missions must be in all directions and throughout the length of the convoy. This requires that the elements of the scout platoon and any combat or CSS attachments be dispersed throughout the convoy formation. Engineer assets should be located toward the front to respond to obstacles; the fire support team (FIST) should be located near the platoon leader. The platoon will normally use the column formation due to its inherent speed and ease of movement (see figures 3-1 below and 3-2 on page 3-2).

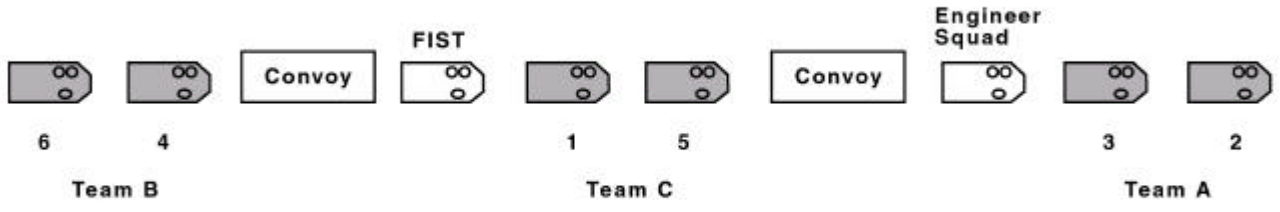


Figure 3-1. Mechanized Scout Platoon Escorting Convoy.

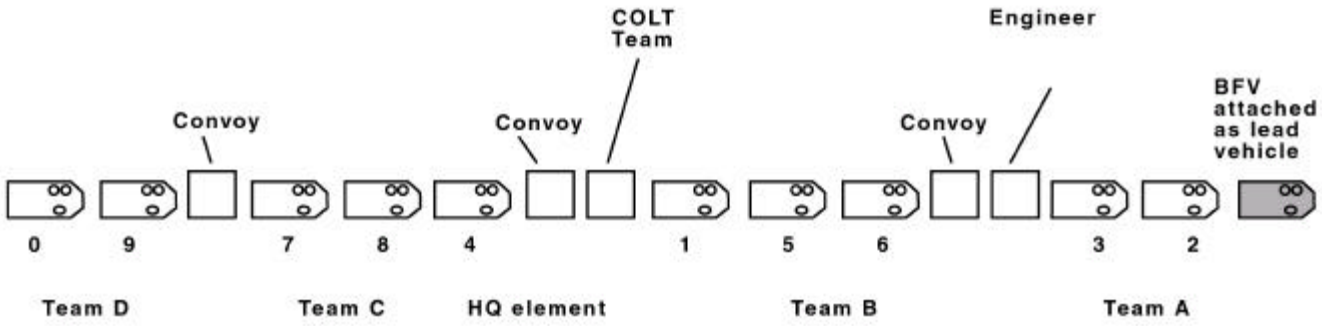


Figure 3-2. HMMWV Scout Platoon Escorting Convoy.

Actions at an Ambush

Ambush is one of the most effective ways to interdict a convoy and is therefore a threat that the convoy escort must be prepared to counter. Reaction to an ambush must be quick, overwhelming, and decisive. It must be executed as a drill by all escort and convoy elements, with care taken to avoid fratricide. The following actions should be included in the convoy escort drill:

- Upon detection of an enemy force, the convoy escort should seek covered positions between the convoy and the enemy and suppress the enemy with the highest possible volume of fire (see figure 3-3). Contact reports are provided to higher headquarters.
- The convoy commander retains control of the convoy vehicles and continues to move them on the route at the highest possible speed.

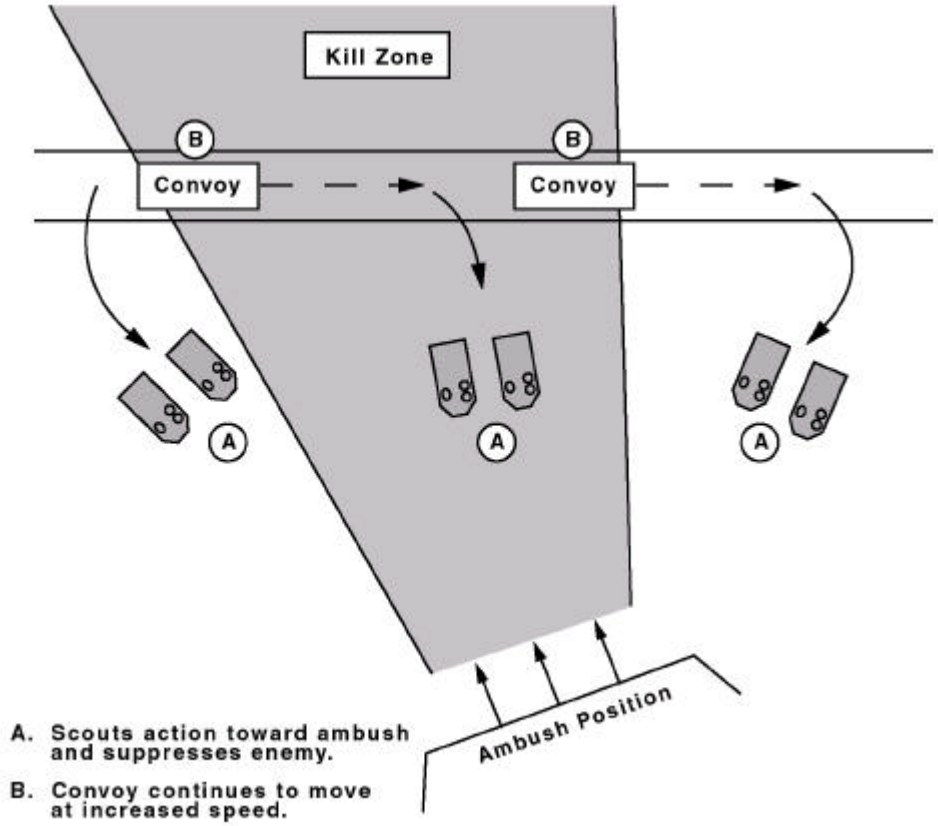


Figure 3-3. Convoy Escort Actions Toward Ambush.

- Convoy vehicles, if armed, may return fire only until the escort has imposed itself between the convoy and the enemy.
- Damaged or disabled vehicles are abandoned and pushed off the route (see figure 3-4).
- The escort leader (scout platoon leader) submits spot reports. If necessary, he requests reinforcement and calls for and directs indirect fires and air support if they are available.
- The escort, once the convoy is clear of the kill zone, chooses one of the following courses of action based on the composition of the escort and the strength of the enemy force:
  - Continue to suppress the enemy while combat reaction forces move to support (see figure 3-5 on page 3-4).
  - Assault the enemy (see figure 3-6 on page 3-5).
  - Break contact and move out of the kill zone (see figure 3-7 on page 3-6).

Generally, mechanized unit-equipped scout platoons will continue to suppress the enemy or execute an assault because of their vehicles' capabilities. HMMWV units are more likely to move out of the kill zone as soon as the convoy is clear. Contact should be broken only with the approval of the scout platoon's higher commander.

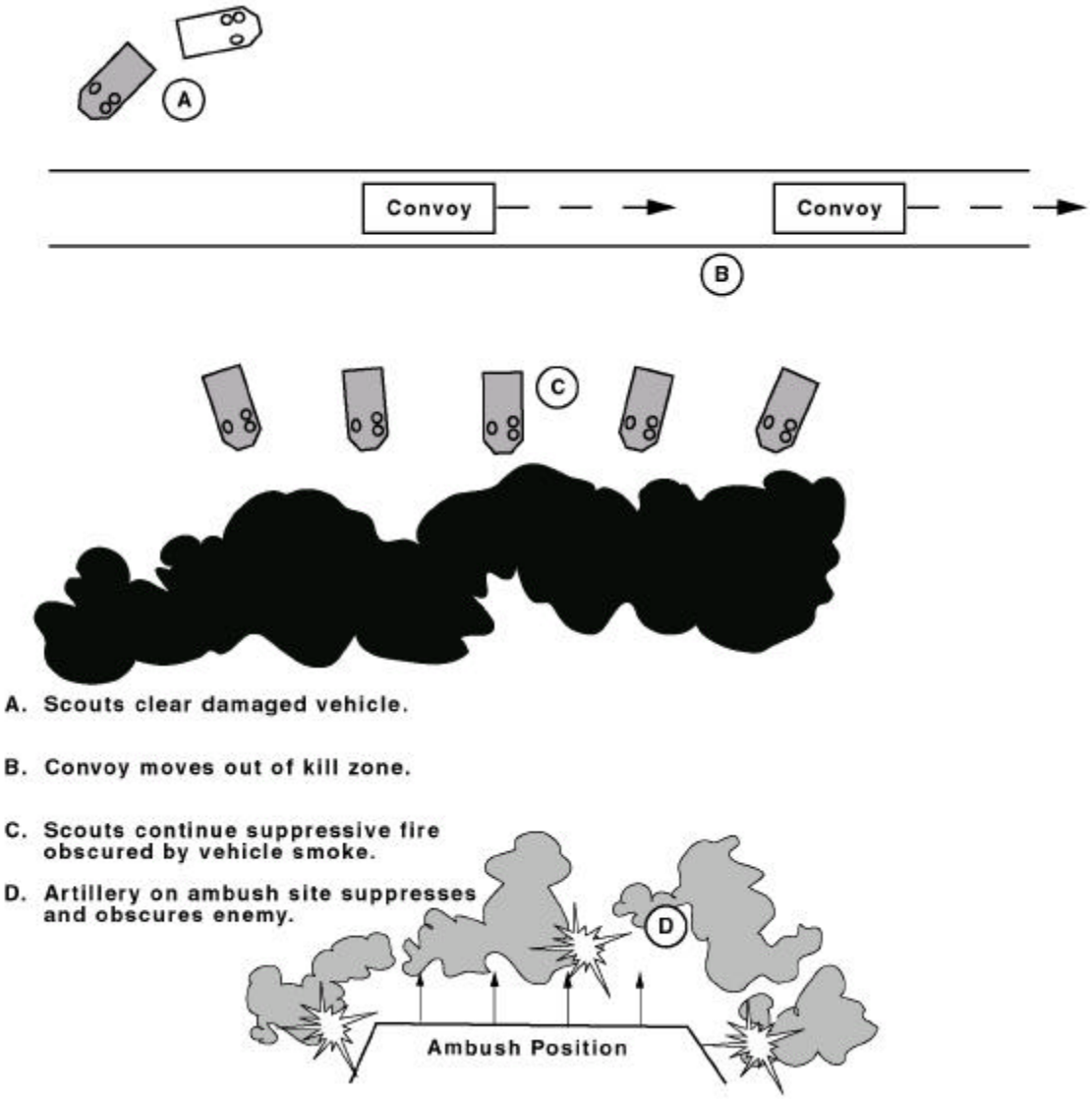


Figure 3-4. Convoy Continues to Move.

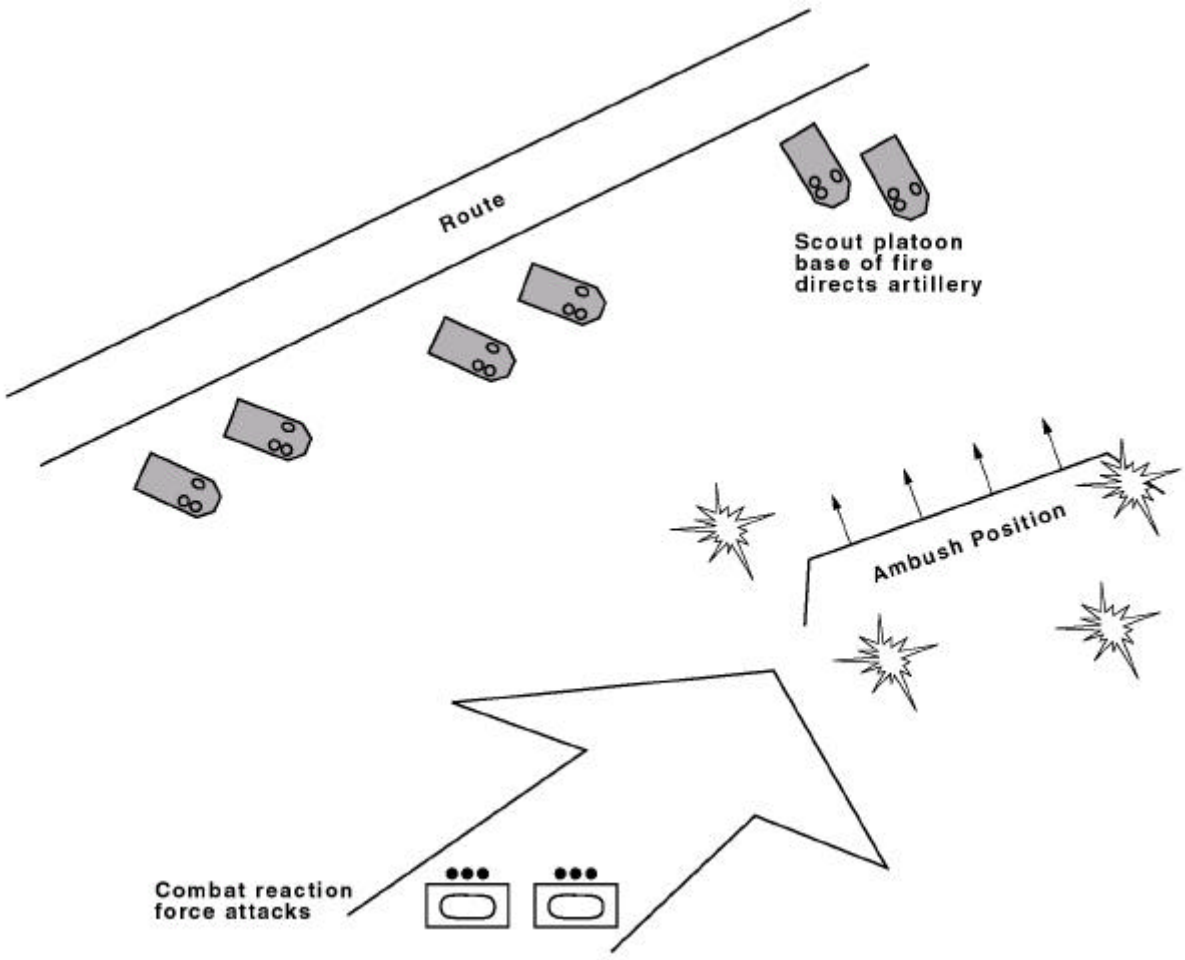


Figure 3-5. Escort Suppresses Ambush for Reaction Force Attack.

Actions during a Short Halt

Short halts may be required for a number of reasons during the execution of a convoy. During a short halt, the escorting unit is at REDCON l regardless of what actions the convoy vehicles are taking. If the halt is for any reason other than an obstacle, the following actions should be taken:

- The convoy commander signals the short halt and transmits the order via tactical radio. All vehicles in the convoy assume a herringbone formation.
- Escort vehicles assume a herringbone formation, if possible, up to 100 meters beyond the convoy vehicles, which are just clear of the route: Escort vehicles remain at REDCON 1 but establish local security (see figure 3-8 on page 3-7).
- Convoy vehicles first reestablish the column formation, leaving space for the escort vehicles, when the order is given to move-out (see figure 3-9 on page 3-8). Once the convoy is in column the escort vehicles join the column, leaving local security dismounted (see figure 3-10 on page 3-9).
- Local security personnel mount when all elements are in column, and the convoy continues to move.

Actions at an Obstacle

Obstacles are a major threat to convoys. The purpose of the route reconnaissance ahead of the convoy is to identify obstacles and either breach them or find bypasses. In some cases, it is not possible to mount a route reconnaissance ahead of the convoy; in other cases, the enemy or its obstacles may avoid detection by the

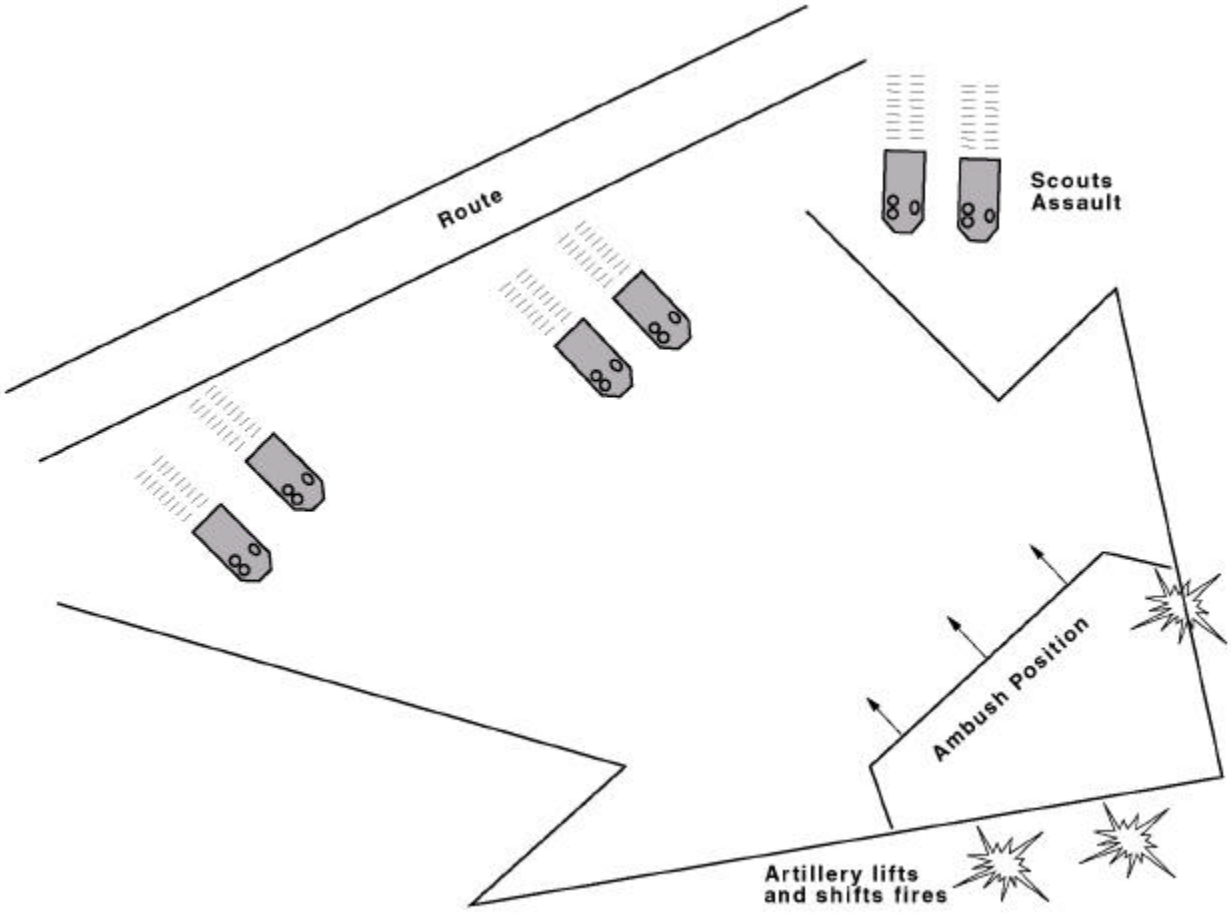


Figure 3-6. Escort Assaults Ambush.

reconnaissance element. In either situation, the convoy must take actions to reduce or bypass the obstacle.

Obstacles can be used to harass the convoy by delaying it; if the terrain is favorable, the obstacle may be able to stop the convoy altogether. In addition, obstacles can be used to channel or stop the convoy as a setup for an ambush. When a convoy is dealing with an obstacle, it faces a two-sided problem: it is more vulnerable because it is stopped, and its escort force is occupied with tasks required to overcome or bypass the obstacle. For these reasons, security becomes critical, and actions at the obstacle must be accomplished very quickly. The following actions should be taken when the convoy escort encounters a point-type obstacle:

- The lead security element identifies the obstacle and directs the convoy to make a short halt and establish security. The convoy establishes over watch of the obstacle (see figure 3-11 on page 3-10).
- The convoy commander relays a spot report to higher headquarters and requests support by combat reaction forces, engineer assets (if they are not already part of the convoy, and aerial reconnaissance elements. In addition, artillery units are alerted to be prepared to provide fire support. These steps are designed to reduce the time the convoy is halted and thus to reduce its vulnerability. The convoy commander must assume that the obstacle is over watched and covered by the enemy.

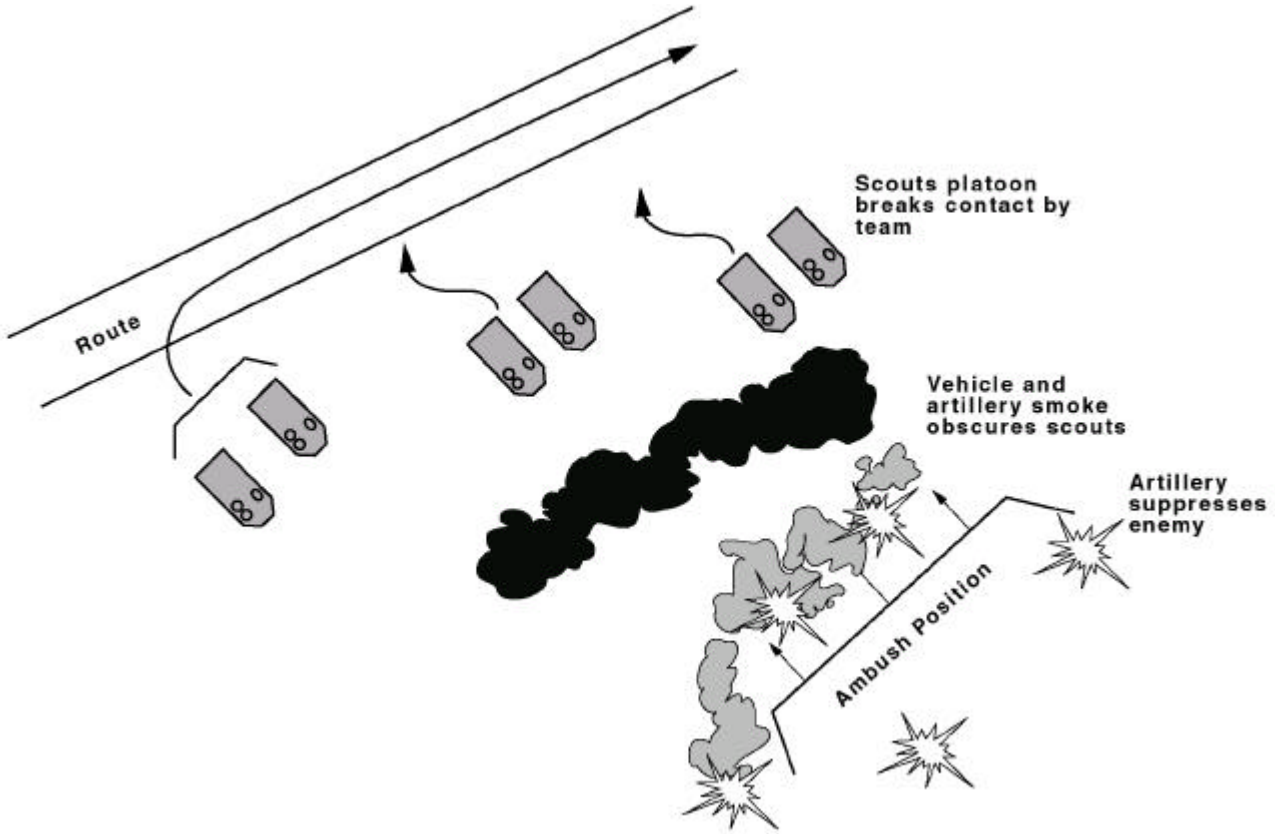


Figure 3-7. Escort Breaks Contact.

- Simultaneously, an additional reconnaissance team made up of escort elements and/or engineers moves forward to conduct an obstacle reconnaissance. Because of limited time and assets, farside security need not be established prior to reconnaissance of the obstacle (see figure 3-12 on page 3-11).
- The escort forces form a reconnaissance team and begin reconnaissance for a bypass while maintaining 360-degree security of the convoy (see figure 3-12 on page 3-11).
- Once all reconnaissance is completed, the convoy commander determines which of the following courses of action he will take:
  - Bypass the obstacle.
  - Breach the obstacle with the assets on hand.
  - Breach the obstacle with reinforcing assets.

The convoy commander executes the best course of action and continues the mission.

Area Security

Area security missions require that the scout platoon protect a designated key and vulnerable area from enemy direct fires and observation. The requirement for protection is in all directions unless otherwise specified. Area security operations make use of a variety of techniques and may include reconnaissance, security, defensive, and offensive tasks.

When deploying for area security, the platoon generally adopts a three- or four-team organization in coil formation around the point, area or asset to be secured. Vehicle positions are adjusted to orient on likely enemy avenues of approach. In HMMWV-equipped platoons, the headquarters element is positioned in the center of the coil to facilitate command and control and to ensure enhanced protection. The smaller size of mechanized platoons will usually require all vehicles to be positioned in the coil.

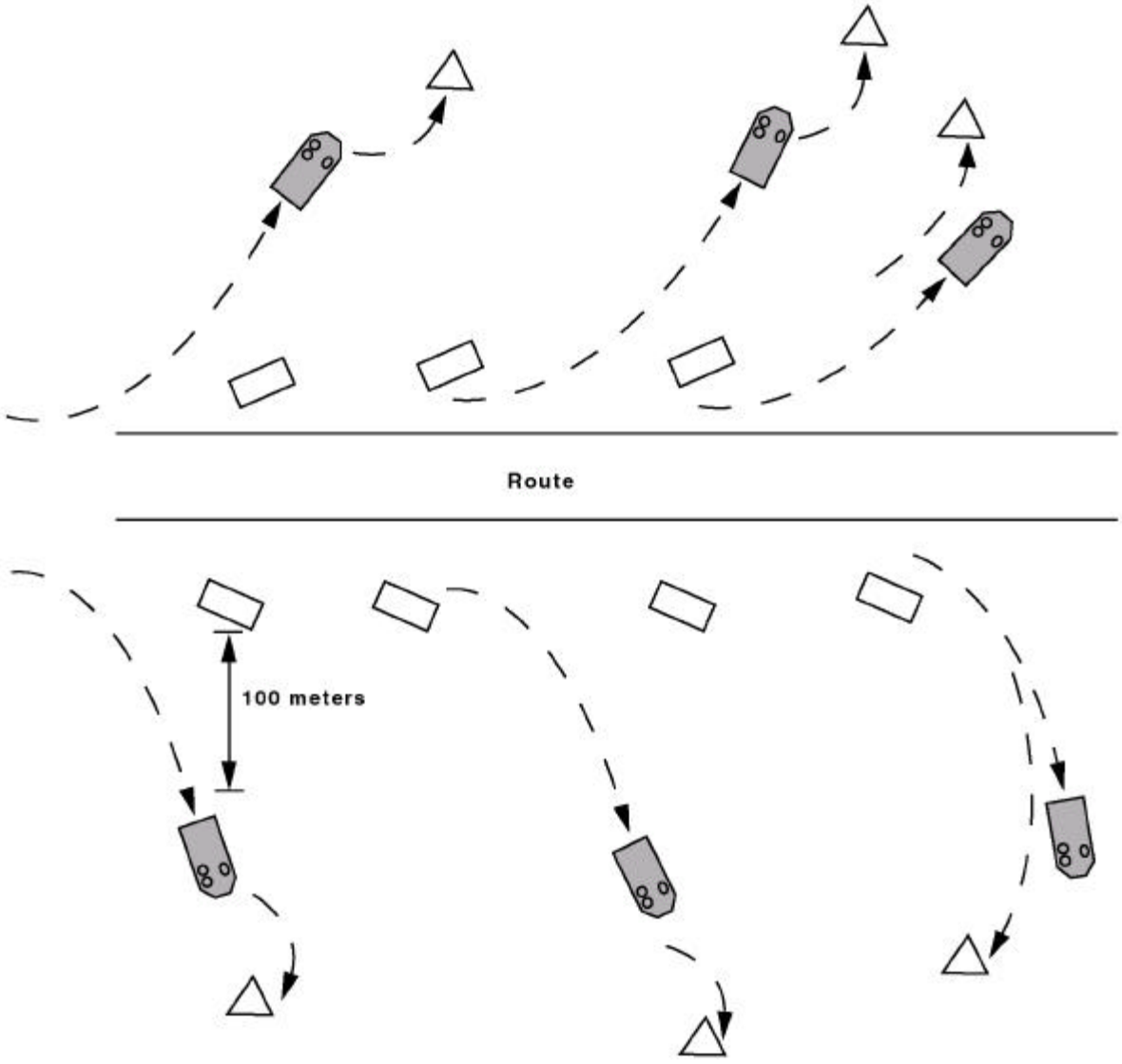


Figure 3-8. Convoy Assumes Herringbone Formation.

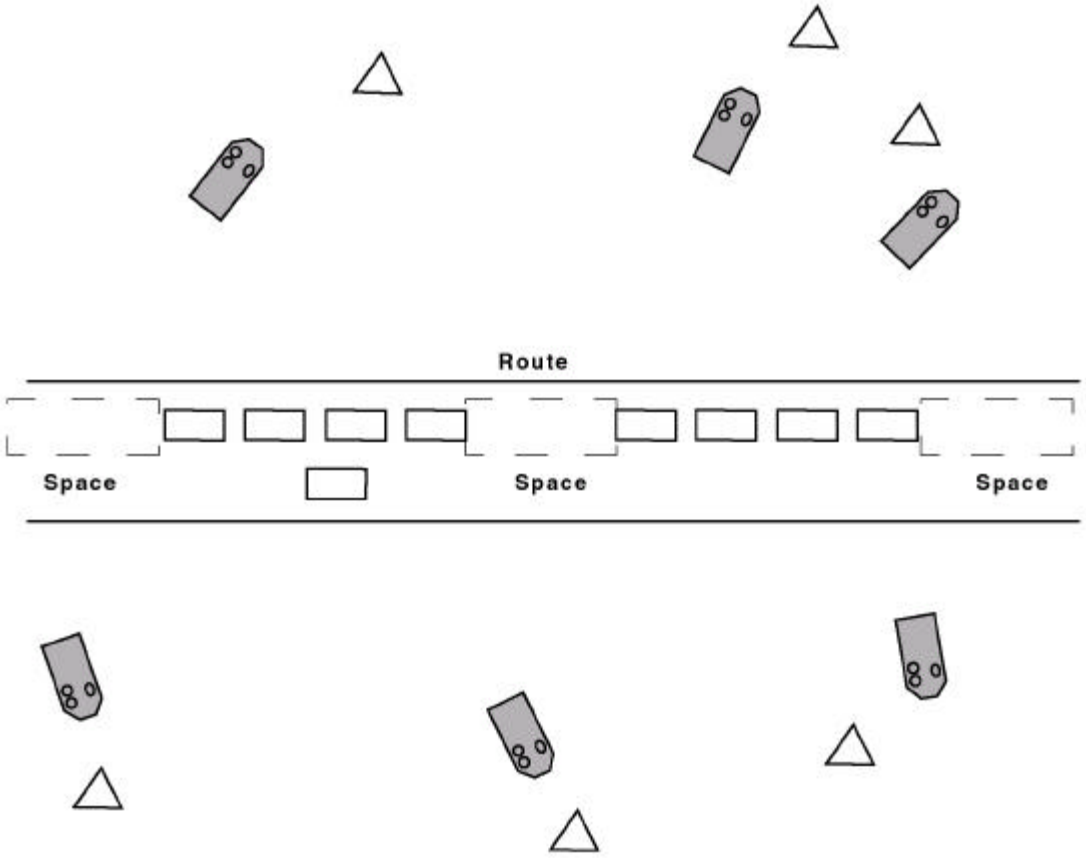


Figure 3-9. Convoy Moves Back into Column Formation.

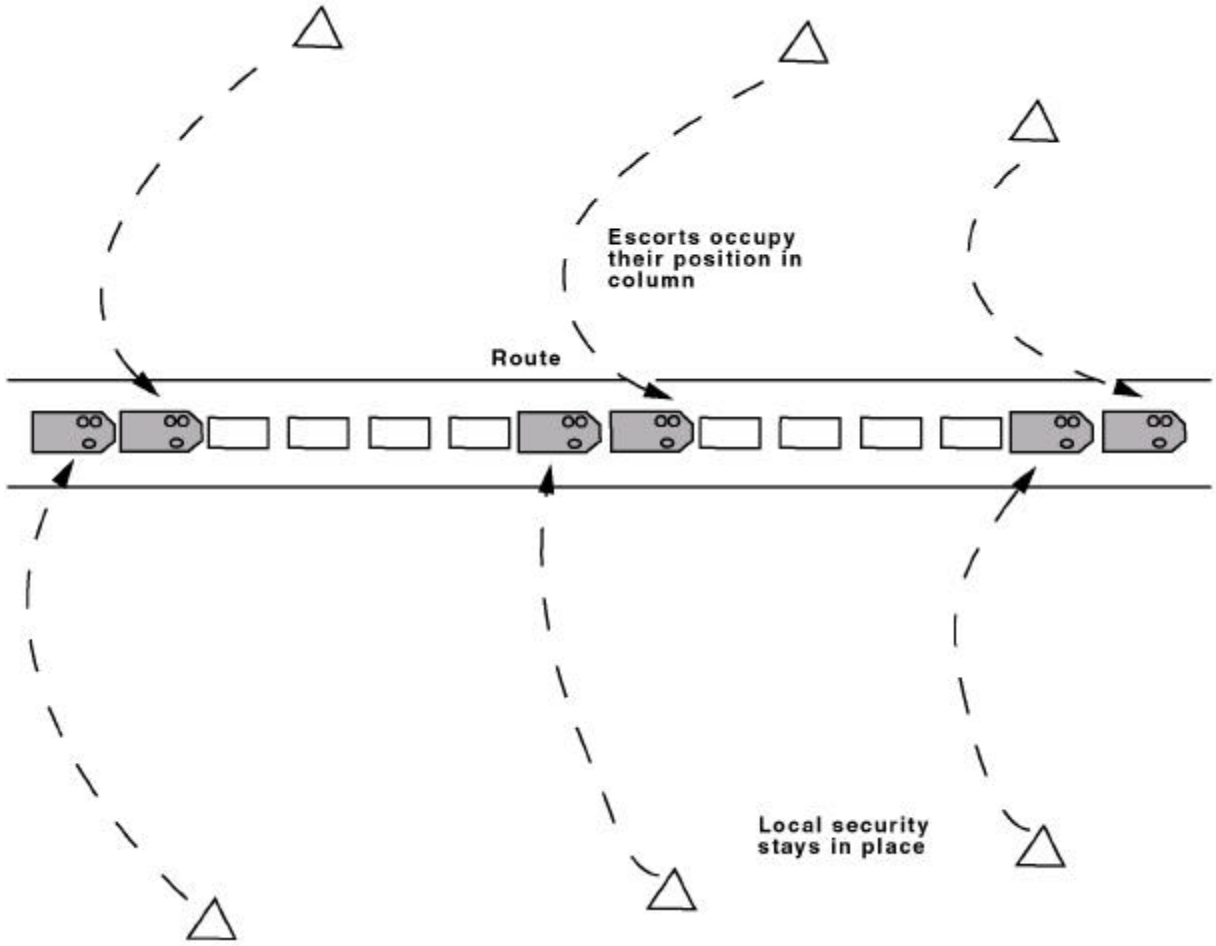


Figure 3-10. Escort Vehicles Rejoin Columns.

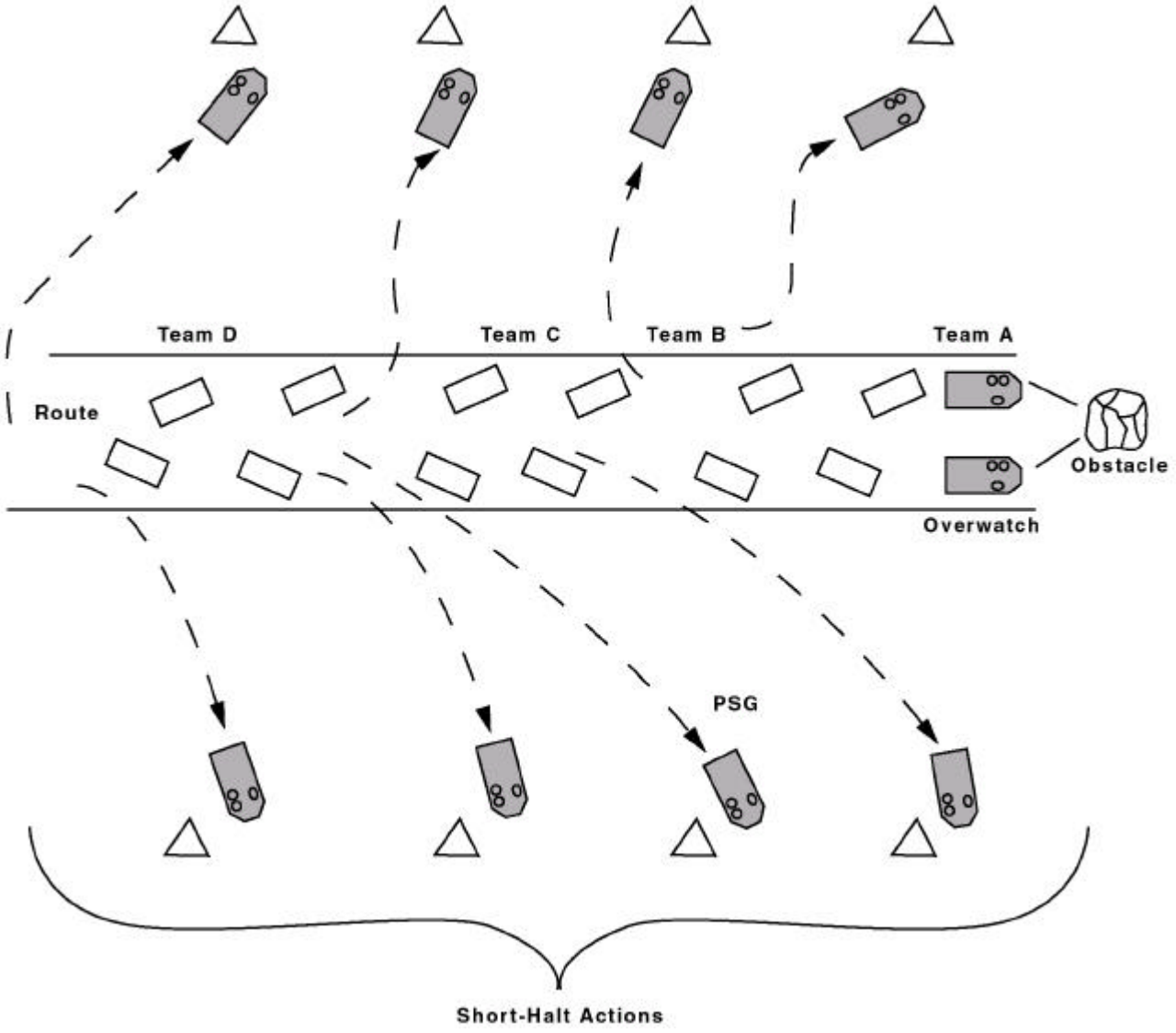


Figure 3-11. Overwatch of an Obstacle.

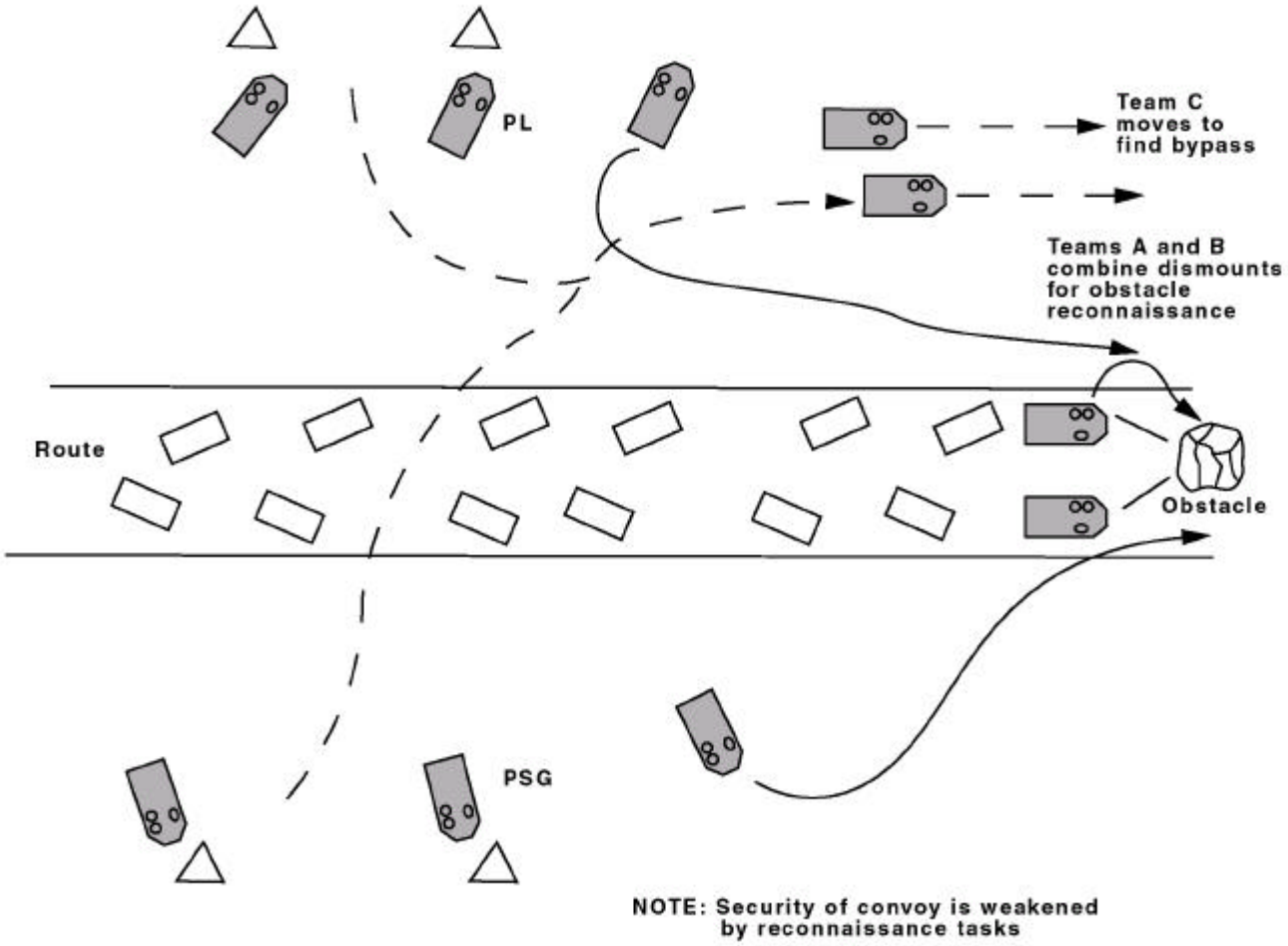


Figure 3-12. Developing the Situation at an Obstacle.

APPENDIX A. CONVOY COMMANDER'S CHECKLIST

Mission Requirements

- Current Intelligence/Situation
- Task Vehicles: Type and Quantity
- Personnel
- Cargo by Type, Class, and Size
- Security Vehicles: Type and Quantity
- Maintenance Vehicles
- Materials Handling Equipment
- Command and Control Vehicles: Type and quantity
- Lighting/Blackout Conditions/NVGs

Reconnaissance

- Map and Photo
- Physical

Route Selection

- Road
- Bridges and Tunnels
- Grades and Curves
- Traffic Density
- Requirements for Route Preparation or Repair

Liaison and Coordinate

- Units along Route
- Units Being Moved
- Supporting Units
- Highway Control Agencies/Movement Control Centers
- Shippers/Cargo Handlers
- Engineer/explosive ordnance disposal requirements

Convoy Organization

- Size of Serials/March Units
- Type of Column
- Operating Gaps
- Serials/March Units

Convoy Organization (Continued)

- Vehicles
- Positions of Security and Supporting Units
- Positions of Control Personnel/Escorts Guides
- Organization for Command
- Vehicle Marking

Movement Plan

- Controlled Route
- Convoy Clearance/Movement Credit
- Road Movement Table
- Special Permits or Authorization
- Distance, Time, and Rate of Movement
- Trip Distance
- Required Start Time
- Column Length
- Slowest Vehicle
- Required Delivery Time
- Rate of Movement/Speed (Speedometer Multiplier)
- Maximum Catch-up Speed
- Loading
- Time and Place
- Report to
- Type/Class Cargo
- Outsize Loads
- Materials Handling Equipment Required
- Blocking, Bracing, and Cargo Restraints
- Staging
- Location
- Vehicle Checks
- Cargo Checks
- Time to Start Point
- Operator Briefing
- Start Point
- Location/Grid Coordinates
- Identification Characteristics
- Checkpoints

Movement Plan (Continued)

- Locations/Grid Coordinates
- Identification Characteristics/ Alphanumeric Designators
- Guides and Markers
- Positions
- Posting and Pickup
- Halts
- Purpose
- Time Duration
- Locations
- Maintenance
- Trail
- Enroute Support
- Medical Support
- Organic Capability
- Evacuation
- Release Point
- Location/Grid Coordinates
- Identification Characteristics
- Report Requirements
- Control of Vehicles and Operators
- Unloading
- Time and Place
- Report to HHQ at Destination
- Materials Handling Equipment Required
- Backload and Turn Around

Security Enroute

- Action in Event of Attack

Security Enroute (Continued)

- Air Attack
- Artillery Attack
- Ground Attack
- Sniper
- Air Support Procedures
- Fire Support Procedures
- Use of Lights/Blackout Restrictions

Service Support

- Fuel
- Location/Times
- Types and Quantity
- Accompanying Convoy
- Messing/Rations
- Locations/Times
- Units on Route
- Prescribed Loads

Communications

- Convoy Control Net
- Serial/March Unit Commanders
- Parent Unit/Headquarters
- Alert/Broadcast Net
- Security/Tactical Nets
- Fire and Air Support Nets
- Medical Evacuation
- Visual Signals
- Sound Signals
- Interpreter Requirements

Convoy Commander's After-Action Report

APPENDIX B. MOVEMENT ORDER

CLASSIFICATION

Copy no. ____ of _____ copies
5th MEB
Quantico, Virginia
260001 R April 19
CO-1

MOVEMENT ORDER 8-87

(U) REFERENCES:

(a) Maps

(U) TIME ZONE: S

(U) TASK ORGANIZATION:

Command/Control Element — Major T. R. RHODES
Det Radio Sect, H&S Co, TSB
Det MP Co, H&S Bn, FSSG

Security Element — Capt. L.L. SMITH
Co. A, 1st Bn, Mar (Rein)
Obstacle Tm, 2d Plat, Co, CEB
FO Tm, Btry, Mar
FAC Tm, H&S Co, 1st Bn, Mar (Rein)
1st Dragon Sect, Dragon Plat, H&S Co, lst Bn, Mar (Rein)

Transport Element — Capt. A. LANE
1st Plat, DS Co, TSB
2d Plat, DS Co, TSB
Maint Det, H&S Co, TSB

1. (U) Situation

a. (U) Enemy Forces. See current INTSUMS.

b. (U) Friendly Forces. See Operation Order 1-87 (previously issued).

c. (U) Attachments and Detachments. No Changes.

2. (U) Mission. On order, TSB will transport personnel, unit supplies, and equipment of H&S Co, 7th Bn from combat service support area (CSSA) ALFA to XX in order to complete the movement of the 7th Bn to the TAA.

CLASSIFICATION

3. (U) Execution

a. (U) Concept of Operations. Convoy elements assemble at CSSA ALFA. Upon completion of loading personnel and cargo, movement will commence NLT 291000 to arrive by 291830. Return to CSSA ALFA NLT 301800. Conduct of movement in accordance with Appendix (Convoy Operations), Annex D (Logistics/Combat Service Support) to Operation Order 1-87 (previously issued).

b. (U) Tasks

(1) (U) Btry, Mar (Rein) in DS of Co. A, lst Bn, Mar (Rein) during the period of subject movement.

(2) (U) MAG XX. See Annex M (Air Operations) to Operation Order 1-87 (previously issued).

(3) (U) BSSG-5. Coordinate convoy operations and service support in accordance with Appendix (Convoy Operations), Annex D (Logistics/Combat Service Support) to Operation Order 1-87 (previously issued).

c. (U) Coordinating Instructions

(1) (U) Major T.R. Rhodes designated convoy commander.

(2) (U) Designated elements OPCON to convoy commander 281200.

(3) (U) Convoy commander submit on call target list to Bn, Mar (Rein) fire support coordination center (FSCC) NLT 282400.

(4) (U) The below listed checkpoints will be utilized to report convoy movement and position:

Checkpoint	Grid Coordinates	Miles Between Checkpoints
SP	721462	
83	711112	9.6
6	709342	2.1
41	695179	3.0
10	703240	2.8
7	684106	8.4
1	677215	3.1
RP	664219	2.2

d. (U) Convoy task organization will terminate on order.

4. (U) Administration and Logistics. See Annex D (Logistics/Combat Service Support) to Operation Order I -87 (Previously issued).

CLASSIFICATION

5. (U) Command and Signal

a. (U) Convoy Commander. Major T.R. RHODES.

b. (U) Signal.

c. (U) Command Posts. NA.

ACKNOWLEDGE RECEIPT

/s/ _____

_____

DISTRIBUTION:

APPENDIX C. ROUTE RECONNAISSANCE PROCEDURES

Hasty Route Reconnaissance

Hasty route reconnaissance is conducted to determine the immediate military trafficability of a specified route. Such information is vital to all units engaged in planning and executing vehicular movements. It is limited to critical terrain data that is both necessary for route classification and meets the intelligence requirements of the situation. Full appreciation of a route's capability cannot be determined until each factor affecting traffic flow is separately analyzed. The report of hasty route reconnaissance usually consists of a map overlay, supplemented by additional reports (dependent on the detail required) about various aspects of the terrain (see figure C-1). The route reconnaissance overlay is accurate, clear, and concise. Standard topographic symbols, military symbols, and overlay symbols are used to ensure that route reconnaissance reports are universally understood.

Figure C-2, on page C-2, provides many of the common symbols used in route reconnaissance maps.

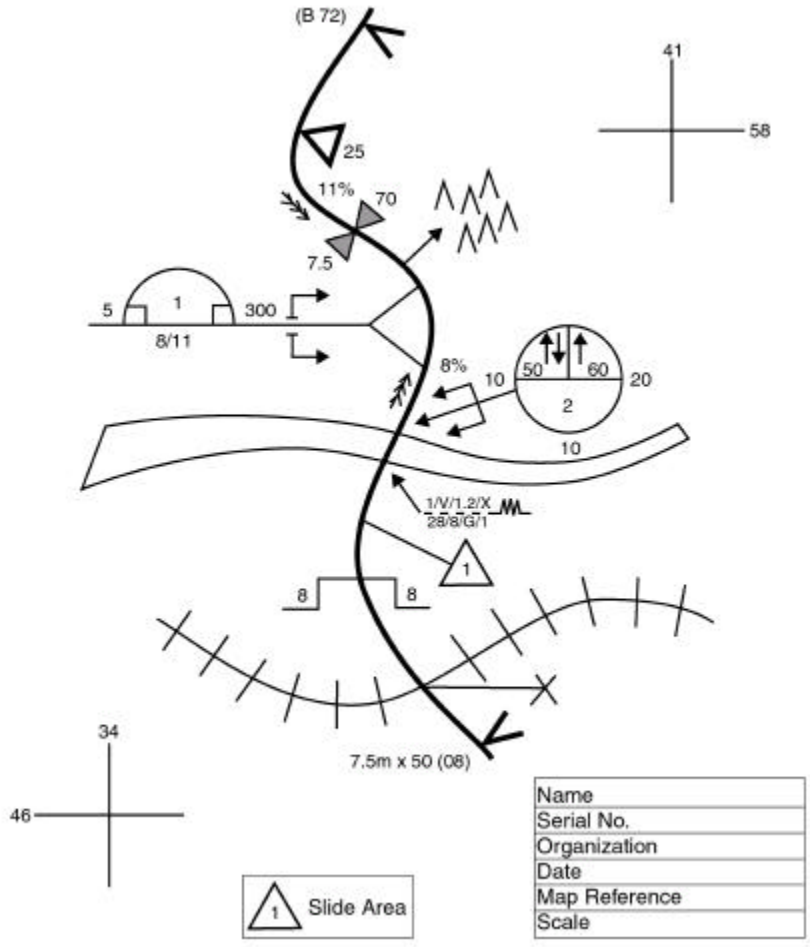


Figure C-1. Sample Route Reconnaissance Overlay.

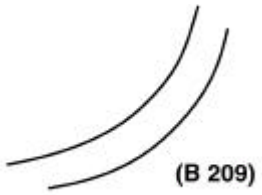
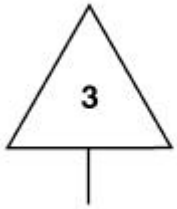
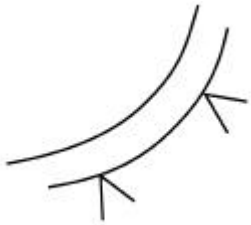
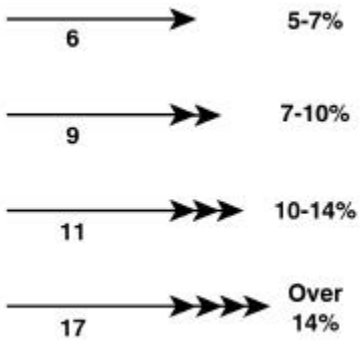
Explanation	Symbol	Remarks/Reference
Civil or military route design		Designation written in parentheses along route.
Critical point		Critical points are numbered and described in legend. They may be used to point out features not adequately covered by other reconnaissance symbols.
Limits of sector		Limits of reconnoitered sector or route.
Grades		Arrows point uphill; actual percentage of slope is shown to the right of the symbol. Length of arrow represents length of grade if map scale permits.

Figure C-2. Route Reconnaissance Map Symbols.

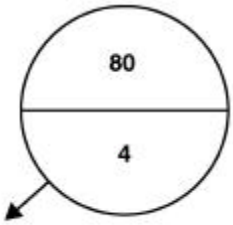
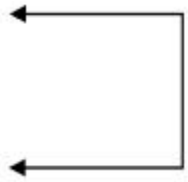
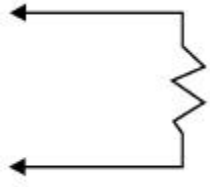
Explanation	Symbol	Remarks/Reference
Sharp curve		Vertex of triangle points to map location of curve; number indicates radius.
Series of sharp curves		Left figure indicates number of curves. Right figure indicates radius of the sharpest curve.
Full bridge symbol		Arrow extends to bridge location on map. Minimum width is placed below, overhead clearance to the left, and overall length to the right of the basic symbol. Lower portion of the symbol indicates bridge serial number; upper portion, military load classification. Underlined values are those below minimum standards.
Abbreviated bridge symbol		Arrow extends to location on map. Lower portion of symbol indicates bridge serial number; upper portion, military load classification. Class number must be underlined if width or overhead clearance is below minimum standards.
Bypass easy		Used in conjunction with bridge and reconnaissance symbols.
Bypass difficult		Used in conjunction with bridge and reconnaissance symbols.

Figure C-2. Route Reconnaissance Map Symbols (Continued).

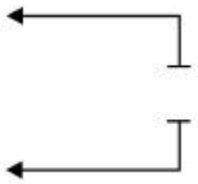
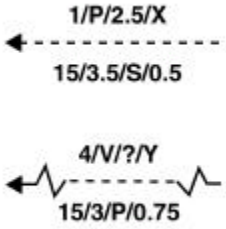
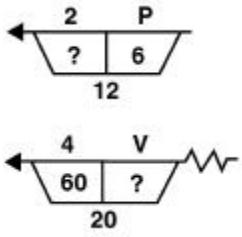
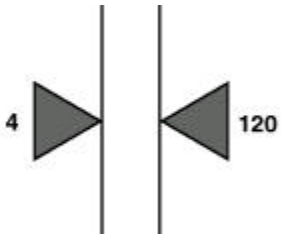
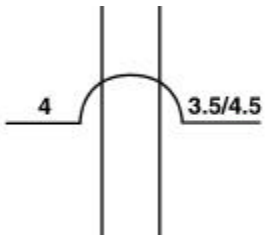
Explanation	Symbol	Remarks/Reference
Bypass impossible		Used in conjunction with bridge and reconnaissance symbols.
Ford		Arrow extends to ford location on map. Data above line indicates, in order: serial number, ford type, stress velocity per second, and seasonal limitations. Data below line indicates, in order: length, width, bottom type, and depth. Question marks indicate unknown information. Difficult approaches are represented by zig-zag lines and correspond to shore position of approach. Ford type:Bottom type: V-vehicularM-Mud P-pedestrianC-Clay S-Sand G-Gravel R-Rock P-Artificial paving Seasonal limiting factors: X-None Y-Significant
Ferry		Arrow extends to ferry location on map. Data above indicates ferry serial number and type. Data inside symbol indicates military load class of deck and dead weight capacity in tons. Data below symbol is turnaround time in minutes. Question mark indicates unknown information. Difficult approaches are represented by zig-zag lines corresponding in position to shore approach. Ferry type: V-Vehicular P- Pedestrian
Width construction		Figure to the left indicates the width of the route constriction; figure to the right, the total constricted length.
Arch underpass constriction		Figure to the left indicates width of constriction; figure to the right, overhead clearance. If different, both minimum and maximum clearances are given.

Figure C-2. Route Reconnaissance Map Symbols (Continued).

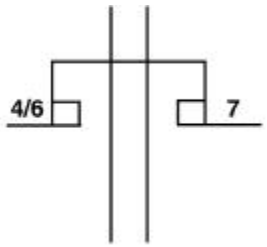
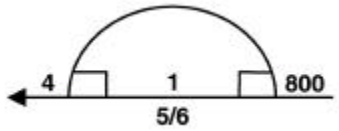
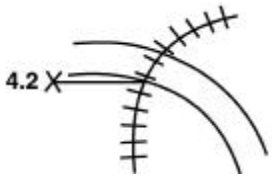
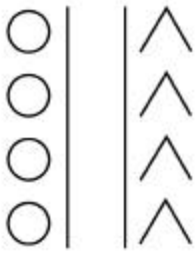
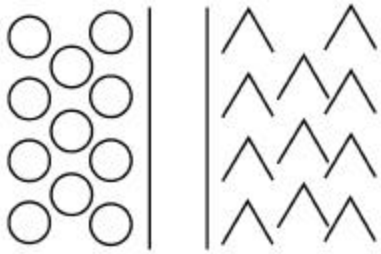
Explanation	Symbol	Remarks/Reference
Rectangular underpass constriction with sidewalks		Number indicates width of traveled way followed by total width, including sidewalk to left of symbol. Overhead clearance appears on right.
Tunnel with sidewalks		Arrow extends to tunnel location on map. Serial number is placed inside symbol; Width to the left; total length to the right; minimum/maximum overhead clearance is placed below.
Railroad grade crossing		Grade crossing is level; passing trains will interrupt traffic flow. Number indicates height of powerline above ground (if present).
Concealment		Road lined with trees, deciduous on left, evergreen on right.
Concealment		Woods bordering road, deciduous trees on left, evergreens on right.
Side road turnoff Additional information Wheeled vehicle Dead-end road over 1 km		Arrow indicates direction of turnoff. Number indicates length of turnoff.

Figure C-2. Route Reconnaissance Map Symbols (Continued).

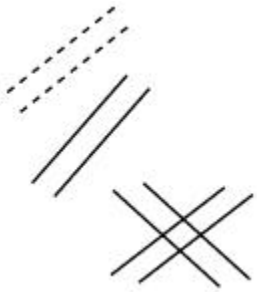
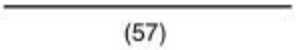
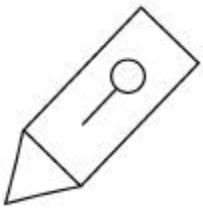
Explanation	Symbol	Remarks/Reference
Roadblock, craters, and blown bridges Proposed Prepared but passable Completed		Center of symbol indicates position of block.
Lateral route		Broken lines indicate lateral route identified by even number.
Axial route		Solid line indicates axial route identified by odd number.
Unknown or doubtful information		
Parking area		
Traffic control point		

Figure C-2. Route Reconnaissance Map Symbols (Continued).

Deliberate Route Reconnaissance

Deliberate route reconnaissance is made when enough time and qualified engineers are available. It provides necessary data for a thorough analysis and classification of significant terrain features along a route including, when required, repair or demolition procedures. Deliberate reconnaissance is detailed. An overlay is used to point out exact map location of each reconnoitered terrain feature. Enclosures are attached to the overlay. The use of enclosures establishes a permanent record and ensures that enough detail concerning important route characteristics is included. The enclosures describe, in detail, each terrain feature noted on the overlay.

Route Reconnaissance Checklist

To ensure that critical terrain data is not overlooked during a route reconnaissance and to aid in the preparation of reconnaissance reports, a checklist is recommended. It is based on the characteristics of the AO and includes the following general information about the route.

- Identification and location of reconnoitered route.
- Distances between easily recognized points both on the ground and map.
- The percent of slope and length that are 7 percent or greater.
- Locations and limiting data of fords and ferries.
- Sharp curves that have a radius of curvature of 100 feet and less.
- Bridge military load classifications and limiting dimensions to include suitable bypasses.
- Route constrictions, such as underpasses, which are below minimum standards and, if appropriate, the distances such restrictions extend.
- Locations and limiting dimensions of tunnels to include suitable bypasses.
- Suitable areas for short halts and bivouacs that offer drive-off facilities, adequate dispersion, cover and concealment.
- Area of rock falls and slides that may present a traffic hazard.

APPENDIX D. ROUTE CLASSIFICATION PROCEDURES

Route Classification System

The route classification system is designed to assist in planning and executing military movements. Usually, classification is carried out during hasty route reconnaissance. When technical difficulties are encountered, routes are classified by military engineers whose findings are based on information contained on route reconnaissance reports. Route classification is established for favorable conditions of light and weather. Conditions other than favorable, such as blackout movement, require special considerations. If reconnaissance personnel are to fulfill their mission adequately, reconnaissance instructions must include other than normal ways by which movement could be made.

Route Classification Formula

Routes are classified by using the route classification formula (see figure C-2). The route classification formula briefly describes a specific route and is used on the route reconnaissance overlay. The formula is made up of a series of numbers and letters that express, in a standardized sequence, the route width, route type, lowest military load classification, overhead clearance, obstructions to traffic flow, and special conditions on the route.

Route Widths

The width of a route, including bridges, tunnels, roads, and other considerations, is the narrowest width of the traveled way and is expressed in meters or feet. The width of the traveled way determines the number of lanes of a given route. The number of lanes determines traffic flow.

The average width of a lane required for movement of one column is established at 3.5 meters (11.5 feet) for wheeled vehicles and 4 meters (13 feet) for tracked vehicles. A single-flow route can accommodate vehicular traffic in one direction only with no overtaking or passing.

A route is double flow when it allows two columns of vehicles to proceed simultaneously either in the same or opposite direction. The width of a double flow route must be greater than or equal to two lanes.

If reconnaissance personnel are to perform hasty route reconnaissance, instructions indicate whether the anticipated traffic is to be single or double flow and whether the route is for the use of wheeled or tracked vehicles. A width obstruction for single-flow wheeled traffic does not exist until the traveled way is less than 5.5 meters (see table D-1). The minimum width must be increased to 6 meters to accommodate single-flow tracked vehicles. For double-flow traffic, a width

Table D-1. Traffic Flow Data.

Flow Possibilities	Width for Wheeled Vehicles	Width for Tracked Vehicles
Isolated vehicles of appropriate width and in one direction only.	At least 3.5 m (11.5 ft)	At least 4 m (13 ft)
Generally one-way only; no overtaking or passing.	3.5m to 5.5 m (11.5 ft to 18 ft)	4 to 6 m (13 to 19.5 ft)
Single flow	5.5 m to 7.3 m (18 ft to 24 ft)	6 to 8 m (19.5 to 26 ft)
Double flow	Over 7.3 m (24 ft)	Over 8 m (26 ft)

obstruction is not present for wheeled vehicles until the traveled way is reduced below 7.3 meters. For tracked vehicles, the width is critical below 8 meters. In the absence of instructions, routes are reconnoitered and reported based on the minimum traveled way for double-flow tracked vehicles.

Route Types

For the purpose of classification, routes are designated by their ability to withstand the effects of weather. The worst section of the route determines route type. There are three types of routes: X, Y, and Z.

Type X

Type X is an all-weather route that, with reasonable maintenance, is passable throughout the year to maximum capacity traffic. The roads that form this type of route normally have waterproof surfaces and are only slightly affected by precipitation or temperature changes. At no time is the route closed to traffic other than temporary blockages created by severe weather conditions.

Type Y

Type Y is a limited, all-weather route that, with reasonable maintenance, can be kept open in all weather but is sometimes open to less than maximum capacity traffic. The roads that form this type of route usually do not have waterproof surfaces and are considerably affected by precipitation or temperature changes. The route may be closed for short periods of up to 1 day at a time by adverse weather conditions when heavy use of the road would probably lead to complete collapse.

Type Z

Type Z is a fair-weather route that quickly becomes impassable in adverse weather and cannot be kept open by maintenance short of major construction. This category of route is so seriously affected by weather that traffic may be brought to a halt for long periods.

Military Load Classification

During sustained operations ashore, the MAGTF must make maximum use of existing routes. To do this, the military load carrying capacity of the routes in the objective area must be determined. This process is known as classification. The military load classification system assigns whole numbers to vehicles, bridges, roads, and routes. Weight, type, and effect of routes determine vehicle classifications. Bridge, road, and route classifications are determined by physical characteristics, type and flow of traffic, weather effects, and other special conditions.

Usually the lowest bridge military load classification number (regardless of vehicle type or conditions of traffic flow) determines the military load classification of a route. By selecting the lowest bridge classification number, it is assured that the bridge is not overloaded. In cases where vehicles have a higher military load classification than the route, the route reconnaissance overlay is checked or a special reconnaissance is initiated to determine whether a change in traffic control procedures, such as a single-flow crossing, would permit use of the route by heavier traffic. If no bridge is located on the route, the worst section of the road governs the route's classification.

The basic military road network is composed of average routes and includes a number of heavy and a few very heavy traffic routes. The class of a military road maneuver network is fixed by the minimum route classification of the network.

Individual routes are grouped and identified in broad categories:

- Average traffic routes—Class 50.
- Heavy traffic routes—Class 80.
- Very heavy traffic routes—Class 120.

Overhead Clearance

Overhead clearance is the vertical distance between the road surface and any obstruction over which it denies use of the route/road to all vehicles or loads that exceed this height. If clearance is unlimited, is it

symbolized by using the infinity symbol in the route classification formula.

Route Obstructions

Route obstructions are factors that restrict the type, amount or speed of traffic flow. Route obstructions are indicated in the route classification formula by the abbreviation OB. If an obstruction is shown in the route classification formula, the route reconnaissance overlay will show the exact nature of the obstruction. Reconnaissance overlay symbols are used to describe the nature of each obstruction on the route reconnaissance overlay. The following obstructions must be reported:

- Overhead obstructions such as bridges, tunnels, underpasses, overhead wires, and overhanging buildings with overhead clearance of less than 4.3 meters (14 feet).
- Reduction in traveled way widths that are below standard minimums prescribed for the type of traffic flow such as bridges, tunnels, craters, lanes through mined areas, and projecting buildings or rubble.
- Gradient (slopes) of 7 percent or greater.
- Curves with a radius of 100 feet or less.
- Ferries and fords.

Snow Blockage and Flooding

The effects of snow are not usually considered an obstruction to traffic flow in route classification since vehicular movement is determined by the depth of snow and the availability of snow removal equipment. However, in those cases where snow blockage is regular, recurrent, and serious, the formula for classifying a route is followed by the letter T.

The effects of flooding are also not usually considered in route classification except where flooding is regular, recurrent, and serious. In such cases, the formula for classifying a route is followed by the letter W.

Route Classification Formula Examples

- **20 ft/Z/40/00.** This example formula describes a fair-weather route (Z) with a minimum traveled way of 20 feet and a military load classification of 40. Overhead clearance is unlimited and there are no obstructions to traffic flow. This route, based on its minimum width of traveled way, accommodates both wheeled and tracked, single-flow traffic without obstruction.
- **20 ft/Z/4/00 (OB).** This example formula describes a route with characteristics similar to those of the previous example but with an obstruction. This obstruction could consist of overhead clearances of less than 4.3 meters (14 feet), grades of 7 percent or greater, curves with a radius of 25 meters (82.5 feet) or less or fords and ferries. Twenty feet of traveled way limits this route to single-flow traffic without a width obstruction. However, if the route is to be used for double flow traffic, 20 feet of traveled way constitutes an obstruction and is indicated in the formula as such.
- **7 m/Y/50/4.6 (OB).** This formula describes a limited all-weather route (Y) with a minimum traveled way of 7 meters, a military load classification of 50, an overhead clearance of 4.6 meters, and an obstruction. The route width is not suitable for double flow, wheeled or tracked traffic. This width constriction would be indicated as (OB) in the route classification formula if the route were to be used for double flow traffic.
- **10.5 m/X/120/00 (OB) (W).** This formula describes an all-weather route (X) with a minimum traveled way width of 10.5 meters, which is suitable for both wheeled and tracked double flow traffic, a military load classification of 120, an unlimited overhead clearance, an obstruction, and regular, recurrent flooding.

Military Load Classification System

The military load classification system is a load capacity rating system based on the vehicle's weight and its effects on routes and bridges. In this classification system, whole numbers are assigned to

vehicles, bridges, and routes. Military load classifications are assigned to bridges and routes based on their safe load capacity and physical dimensions.

Vehicles

Except for prime movers, self-propelled vehicles in Class 3 or higher and towed vehicles in Class 1 or higher are marked to indicate their class. Prime movers are marked either with their own class or the class of the normal combination of prime mover with trailer. Markings of trucks should be on the right front, on or above the bumper and below the driver's vision. United States Marine Corps (USMC) vehicles are not marked with military load classification numbers.

Bridges

Military bridges are posted with a number capacity to indicate the highest weight class vehicle that can safely cross. Fixed bridges may also be marked with the length in feet of the span.

There are two types of bridge signs: classification signs (circular) and information signs (rectangular). In both types, symbols and letters are black on a yellow background (see fig. D-1).

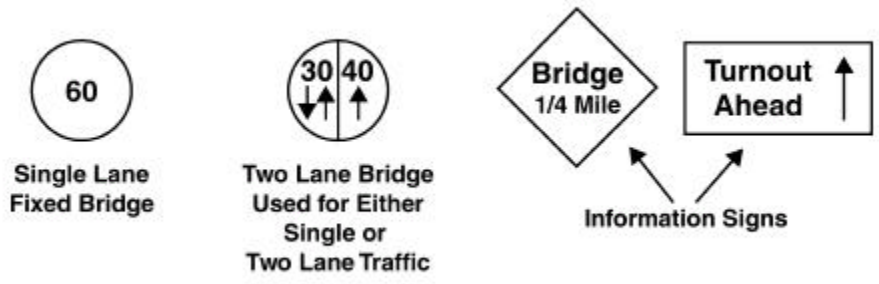


Figure D-1. Bridge and Information Signs.

APPENDIX E. ROAD MOVEMENT PLANNING

In joint and combined operations, the MAGTF may operate under procedures established by other Services or other nations. This appendix provides the motor transport planner with information that will facilitate the coordination of MAGTF operations and their counterparts.

Relationship between Distance and Time

The road movement planner is interested in every phase of a movement. The planner's main job, however, is to plan for the arrival of a column at a certain point at a scheduled time. To accomplish this, the planner must know how far the column is to travel (distance) and how long it will take to make the trip (time). The planner must also figure the space the column will occupy on the road, including a safety factor of distance or time to separate march columns and their elements. Each term used for distance has a corresponding term for time (see table E-1).

Table E-1. Terms for Distance and Time.

Distance	Time
Length	Time Length
Gap	Time Gap
Lead	Time Lead
Road Space	Time Space
Road Distance	Time Distance
Road Clearance	Road Clearance Time

Distance Factors

Distances in a march column are expressed in miles, yards, feet, kilometers or meters. The column may be several kilometers long, and each vehicle may have several meters between it and the next vehicle in the column. The terms used to describe these distances are discussed in the following paragraphs.

Length

Length of any column or element of a column is the length of the roadway which it occupies, measured from front to rear. Length also applies to a single vehicle.

Road space

Road space is a total length of a roadway occupied by a column or element thereof, and any space added to the length that may be required for safety or to maintain flexibility.

Gap

Gap is the space between elements or successive vehicles in a column or between successive columns as measured from the rear of one element to the front of the following element.

Lead

Lead is the linear spacing between the heads of elements in a column or between heads of successive vehicles, serials, march units or columns.

Road Distance

Road distance is the distance from point to point by road, usually expressed in kilometers or miles.

Road Clearance Distance

Road clearance distance is the total distance that the head of a column must travel for the entire column to clear a given section of the road.

Time Factors

Time factors are used to clock the relative positions and the arrival and/or passage of elements of a march. They are expressed in hours, minutes, and seconds. A planner must be able to tell what time a motor column will pass a particular place on the route and how long it will take to get from one place to another. To plan efficiently, the planner uses the following time factors.

Pass Time (Time Length)

Pass time (time length) is the time required for a column or element thereof, to pass a given point. Time length may also be applied to a single vehicle.

Time Gap

Time gap is the time measured from the rear of one element or vehicle and the front of the next vehicle or element as they move past any given point.

Time Lead

Time lead (headway) is the time measured between the head of one element or vehicle and the head of the next as they pass a given point.

Time Distance

Time distance is the time required to move from one point to another at a given rate of speed.

Road Clearance

Road clearance time is the total time a column or element thereof requires to travel over and clear either a section or all of a road. Road clearance time equals time distance plus time length.

Time Space

Time space is the time consumed while a column or element thereof proceeds past any point in route. It includes time gaps between subordinate elements and any additional time added for safety or flexibility.

How to Measure Movement

Movement is measured by finding how long it takes to move a given distance (see figure E-1). It is expressed in kilometers or miles per hour. Convoy planners use three terms to express rate of movement: speed, pace, and rate of march.

Speed

Speed is the actual rate at which a vehicle is moving at a given time as shown on the speedometer. It is normally expressed in miles per hour (mph) or kilometers per hour (kph).

Pace

Pace is the regulated speed of a column or element as set by the lead vehicle, the pacesetter. Pace is constantly adjusted to suit the road, terrain, traffic, and weather conditions. It is expressed in mph or kph.

Rate of March

Rate of march is the average number of miles traveled in any specific time period. It includes short periodic halts and delays. It does not include long hauls such as messing or overnight stops. It is expressed in mph or kph.

How to Find Distance, Rate, and Time

A move cannot be scheduled, or a road movement graph prepared without using certain basic formulas. The terms make up the necessary vocabulary of the road movement planner. The formulas represent the basic arithmetic. Regardless of the size of the move, the planner uses the same basic terms and formulas. Using simple formulas, the planner can find the unknown factor necessary to complete the movement plan. The three basic march factors are distance (D), rate (R), and time (T). When two of the three are known, the third can be found by simple algebraic equations.

D = R x T (distance equals rated multiplied by time)

R = D/T (rate equals distance divided by time)

T = D/R (time equals distance divided by rate)

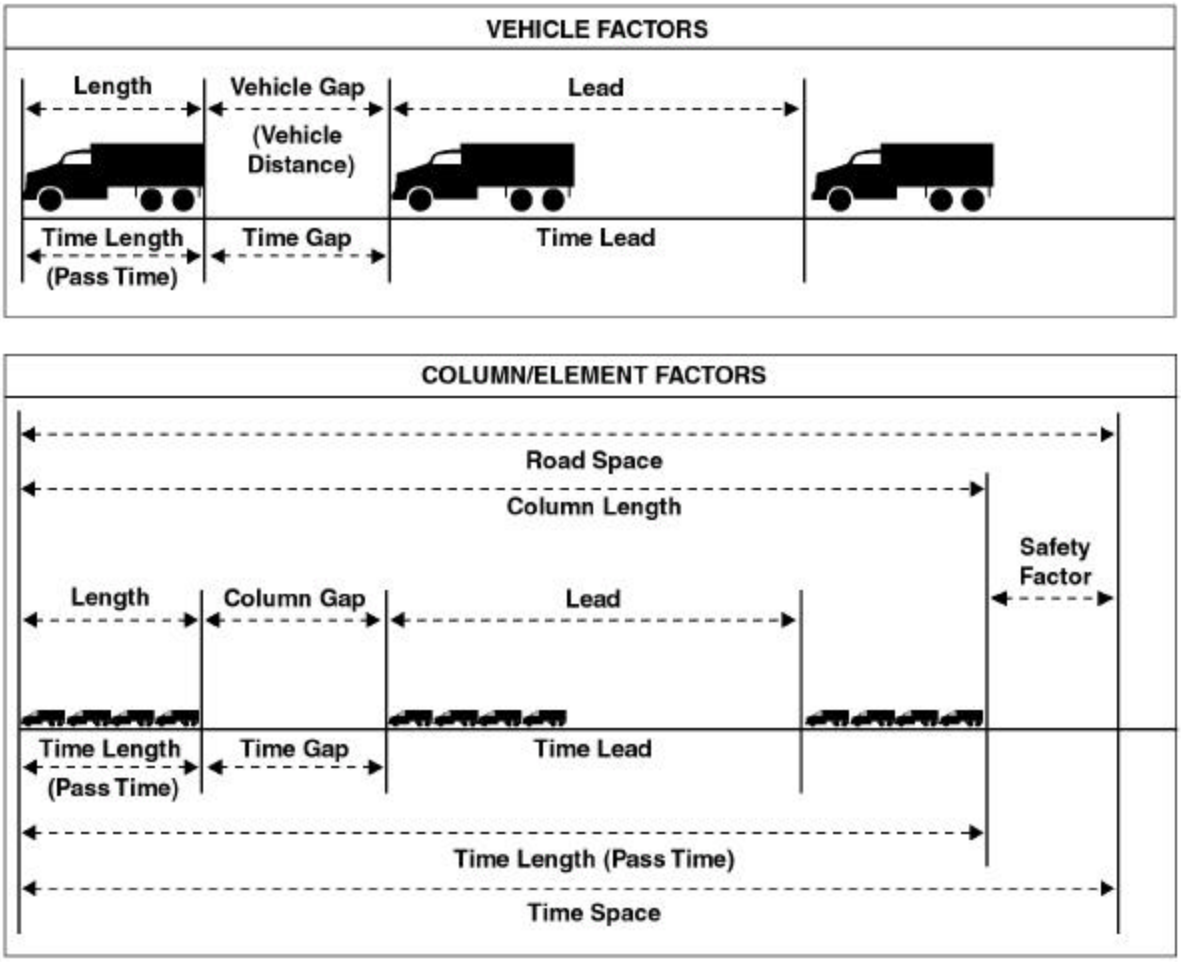


Figure E-1. Distance and Time Factors, Vehicle and Column/Element.

Determining Distance

Distance is how far a march column travels. If the rate of march is 40 kilometers per hour and the time is 4 hours, the distance traveled is 160 kilometers.

Determining Rate

Rate (R) is expressed as kilometers or miles per hour. For example, a column travels for 5 hours to complete a 190-kilometer trip. Its rate of march would be 38 kph.

R = 190/5

Determining Time

Time (T) is how long it takes to complete a move including short halts or other small delays. For example, a column traveling 210 kilometers at 42 kph would require 5 hours to complete the move.

T = 210/42

Plotting a Road Movement Graph

In this section, convoy operations and motor moves in general have been discussed. In the remainder of this appendix, a fictitious motor move is planned and plotted on a road movement graph. Specific formulas for figuring road space and time length are explained.

Graph Preparation

The road movement graph is prepared with the vertical axis showing distance, and the horizontal axis showing time. Critical points along the route such as cities,

towns, road junctions, and bottlenecks are indicated in the left margin in scale with the graph at their respective distances from the start point.

Figure E-2 shows the movement of the head of a column from Newport to Jackson Heights. The vertical scale shows kilometers. Each line equals 3 kilometers. The horizontal scale of the graph indicates hours. Each line equals 12 minutes. The head of the column is plotted on the graph at the time it is scheduled to leave Newport (0400), travel time to Jackson Heights, which is a distance of 90 kilometers, and a scheduled arrival time of 0700. To complete the move in the prescribed time, a rate of march of 30 kph must be maintained.

Columns, serials or march units are shown on the graph by parallel diagonal lines. The time it takes for the march element to clear a section of road (time length [TL]) is shown by the horizontal space between the diagonal lines. A horizontal line is drawn connecting the points representing the first and the last vehicles of an element and the time length of that element. In the following explanations, the first vehicle of a march element is called the head, and the last vehicle is called the tail. The head of the column is plotted at the intersection of the starting point on the vertical scale and at the starting time on the horizontal scale. Then, clearance time of the tail is plotted.

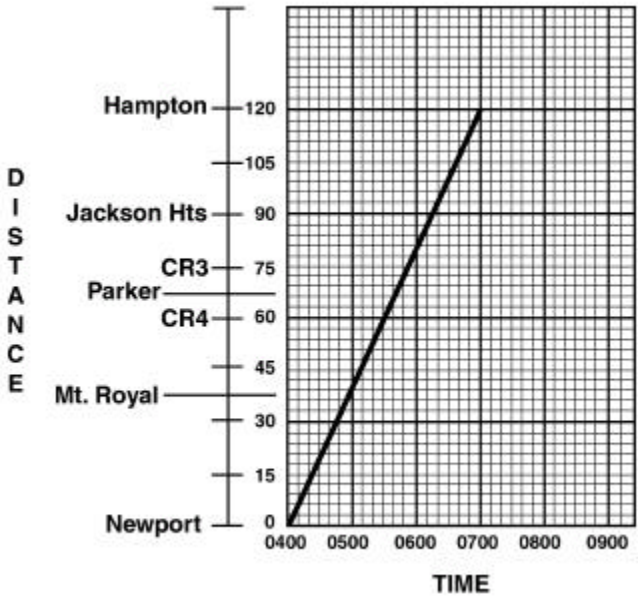


Figure E-2. Schedule of the Head of a Column.

Progress of the column or element is indicated by plotting time and distance on the graph using the planned rate of march. When halts are planned, they are shown on the graph. The graph can be altered to show schedule changes as they occur.

Figure E-3 shows the motor movement terms. Notice that a move is now completely pictured; both the head and the tail are shown by the two parallel diagonal lines. The time length of the column is shown as 36 minutes; that is, it took 36 minutes for the entire column to clear the start point. In addition, this graph shows the column length to be about 14 kilometers, according to the position of its head and tail. Remember that time distance (TD) is how long it took the head of the column to go from the start point to the release point. Pass time TL is how long it took the entire column to pass one point. The road clearance time is the time distance plus the pass time TL of the column.

Critical Time and Point Graphs

A critical time and point graph may be used by the headquarters responsible for the movement of numerous columns over a limited road net. This aid will speed consolidation of road movement graphs of subordinate units to help solve conflicts at critical points.

The critical time and point graph consists of a separate graph chart for each selected critical point. These charts are divided into four sections representing the directions of column movement and into time segments to represent a 24-hour period.

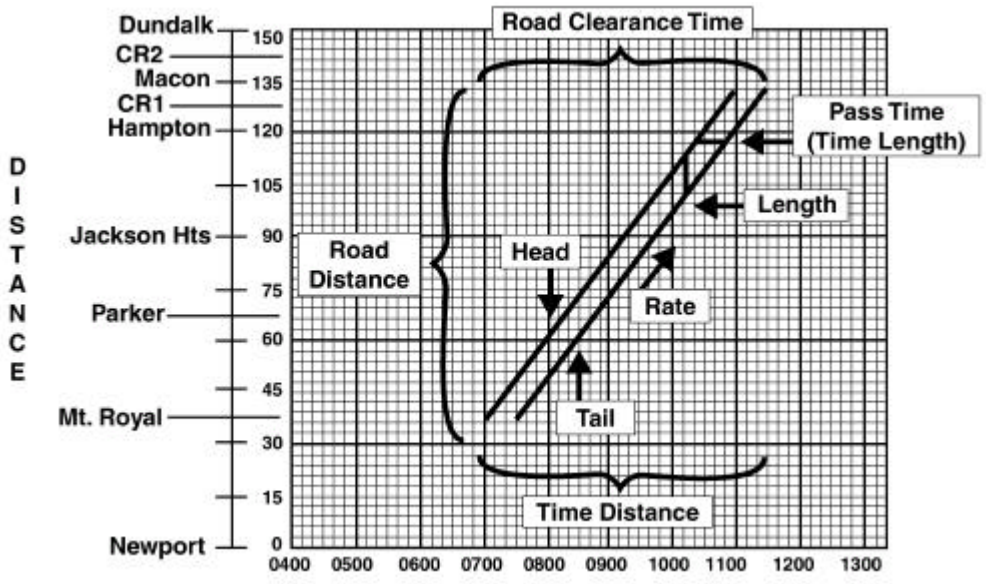


Figure E-3. Road Movement Graph.

To use a critical time and point graph, the period of occupation of each numbered critical point is taken from the road movement graphs of units using the road net during the same period. As this information is plotted, conflicts will emerge. Separate columns may be identified by symbols or colors instead of shading.

To demonstrate the use of the graph (see figure E-4), three numbered critical points have been selected and identified. A column traveling east will occupy critical point 25 from 0015 to 0030. It will occupy critical point 26 from 0130 to 0145 where it changes direction to move north. Between 0245 and 0300, it will occupy critical point 35. With this information plotted on the graph, possible conflicts will emerge as information of other movements is plotted.

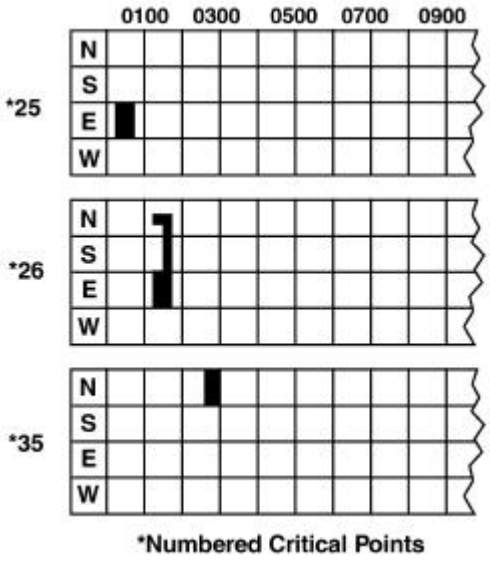


Figure E-4. Critical Time Point Graph.

Other information is recorded in the space above or on the reverse side of the graph. It includes the average speed of the convoy, average density, halts, routes, and critical points.

Extra Time Allowance

When 25 vehicles are moving in a serial, 1 extra minute is added to the serial's pass time as determined by the pass time formula. A serial less than 25 vehicles is not allotted extra time. Table E-2 contains planning figures used for extra time allowances (extal).

Table E-2. Extra Time Allowances.

# of Vehicles	Amount of Extal (min)
25 or fewer	0
25-37	1
38-62	2
63-87	4

Formulas

Calculations are a basic part of road movement planning. Formulas must be worked and properly applied to a situation to obtain the information needed to plan a move. The planner must know the distance, rate, and time formulas discussed earlier along with the following.

$$\text{road space} = \frac{\text{\# of vehicles}}{\text{density}} + \frac{\text{time gaps x rate}}{\text{60 (minutes)}}$$

$$\text{pass time (time length)} = \frac{\text{road space x 60}}{\text{rate}} + \text{Extal}$$

$$\text{time distance} = \frac{\text{distance}}{\text{rate}}$$

Restrictions

Often the commander of a road movement is ordered not to move the column over certain sections of a route during certain hours. Planners must schedule motor columns to comply with these route restrictions.

Passing After Restriction Ends. To compute the earliest time the first vehicles of a column or element thereof can cross the start point to clear the end of a route restriction without halting at the restriction, the following formula is used:

End of restriction time + safety factor - time distance from start point to restriction point = earliest time the first vehicle can cross the start point.

> Example: Restriction is from 1140 to 1240. The distance from the start point to the restriction is 32 kilometers. A safety factor of 15 minutes is in force before and after the restriction to keep other moves from interfering with the column using the route. This is a closed column move executed at a rate of 16 kph; time length is 12 minutes.
>
> End of restriction = 1240
>
> Safety factor = 15 minutes
>
> Time distance = 2 hours (32 km/16 kph)
>
> 1055 is the earliest time a vehicle can cross the start point.

Passing Before Restriction Begins. To compute the latest time the first vehicle of a column can cross the start point to have the last vehicle clear at the 1140 to 1240 restriction before it begins, the following formula is used:

Beginning of restriction - safety factor - time distance from start point to restriction - time length = latest time the first vehicle can cross the start point.

> Beginning of restriction = 1040
>
> Safety factor = 15 minutes
>
> Time distance = 2 hours (32 km / 16 kph)
>
> Time length = 12 minutes
>
> 0913 is the latest time the first vehicle can cross the start point.

Road Movement Tables

Data on a road movement graph are not in a form that can be readily used by operating units. Therefore, information is taken from the graph and put on an easily read table, called a road movement table. This table serves as a convenient means of sending subordinates and other interested personnel the movement schedule and other essential details pertaining to a move. It may be issued as an annex to the operation order.

The road movement table (see figure E-5) shows the date of the move, units involved, number of vehicles, and load class of the heaviest vehicle. It also shows the routes to be used and the times at which the serials will arrive and clear critical points.

(CLASSIFICATION)

Annex or Appendix "Movement table" to Movement Order No. Copy No.

Map ISSUING HEADQUARTERS

General Data PLACE OF ISSUE

1. Average speed 4. Routes (i.e., between start points and release points) Date-Time Group of Signature

2. Traffic density 5. Critical Points Message Reference No.

3. Halts (a) Start points

(b) Release points

(c) Other critical points

6. Main routes to start points

7. Main routes from release points

Serial or Move-ment Number	Date	Units/ Formation	Number of Vehicles	Load Class of Heaviest Vehicles	From	To	Route	Route to Start Point	Critical Points			Route from Release Point	Remarks
									Ref	Due (hrs)	Clear (hrs)		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)

Acknowledge:

Distribution:

Authentication

(CLASSIFICATION)

Figure E-5. Road Movement Table.

APPENDIX F. CONVOY BRIEFING OUTLINE

Situation

- Friendly forces
- Support units
- Enemy situation

Mission

- Type of cargo
- Origin
- Destination

Execution

- General organization of convoy
- Time schedule
- Routes
- Convoy speed
- Vehicle distance/gaps
- Checkpoints
- Emergency measures:
  - Accidents
  - Breakdowns
  - Separation from convoy
  - Attack
    - Action of convoy in the event of an attack
    - Action of the security forces during attack
    - Air watch and air attack alarms
    - Medical support

Administration and Logistics

- Cargo loading and unloading
- Control of personnel
- Cargo security
- Uniform and equipment
- Billeting arrangements
- Refueling of vehicles
- Vehicle recovery
- Offload instructions

Command and Signal

- Location of convoy commander
- Designation of assistant convoy commander
- Succession of command
- Action of the security forces commander
- Serial commander's responsibility
- Arm and hand signals
- Radio frequencies and call signs for:
  - Control personnel
  - Security force commander
  - Fire support elements
  - Medical evacuation support

Safety

- Hazards of route and weather conditions
- Defensive driving
- Weapons safety and security

APPENDIX G. VEHICLE DEMOLITION METHODS

When necessary to prevent the enemy from using or salvaging vehicles, commanders should destroy or damage beyond repair all parts essential to the operation of the vehicle. It must be emphasized that the decision to destroy organic equipment must be made by competent authority. Additionally, efforts should include, to the maximum extent possible, removal of essential spare parts. Three methods for destroying vehicles are outlined in the order of effectiveness. Whichever is used, the sequence outlined should be followed to assure uniformity of destruction among a group of similar vehicles.

Method 1

Using an axe, pick, sledge or any other heavy object, smash all vital elements, such as the distributor, carburetor, air cleaner, radiator, generator, ignition coil, fuel pump, spark plugs, lights, instruments, and controls. If time permits and a sufficiently heavy object is available, smash the engine cylinder block and head, crankcase, transmission, and axles. Deflate, slash, and destroy the tires. Puncture fuel tanks. Remove or dispose of fire extinguishers. Pour gasoline or oil over the entire vehicle and ignite it.

Method 2

Puncture the fuel tanks. Remove or dispose of fire extinguisher. Use tanks, artillery, antitank rockets or grenades to fire on the vehicle. Aim at the engine compartment, axles, and wheels. If a good fire is started, the vehicle may be considered destroyed.

Method 3

Prepare charges of explosive with a non-electric blasting cap and an appropriate length of safety fuse for each charge. Each charge should be dual primed if feasible, to increase the potential for successful detonation. Place one charge on the transmission and one as low as possible on either side of the engine. The second charge is placed to insure destruction of the engine block and crankcase. Ignite the charges and take cover. The danger zone is approximately 200 yards. The fuse will burn approximately 1 minute for each 2 feet of fuse.

WARNING

If charges are prepared beforehand and carried in the vehicle, keep the blasting caps and safety fuses separated from the charges until they are used.

Destroy pneumatic tires, including the spare, even if time will not permit destruction of any other part of the vehicle.

Ignite one grenade under each tire. When this method is combined with the destruction of the vehicle by other explosives, the incendiary fires must be well started before the charge is detonated.

An axe, a pick or gunfire may be used to damage tires. Deflate tires and destroy valves. Gasoline may be poured on slashed or punctured tires and ignited to provide for complete tire destruction.

APPENDIX H. CONVOY COMMANDER'S AFTER-ACTION REPORT

1. **General.** The convoy commander's after-action report provides detailed information on convoy operations from which operational data may be obtained for reporting purposes and for future plans. It is submitted after the completion of a convoy operation but the convoy commander formulates it as an operation progresses.

2. **Format.** The format of the convoy commander's report, as presented herein, provides for the minimum operational data required, and is offered as guidance only. It may be modified to suit the requirements of any given situation. For instance, this report includes no information on security forces, which may accompany a convoy. In instances where such action is required, additional information requirements covering escort and/or security forces and measures may be inserted into this format.

Convoy Commander's After-Action Report

(Appropriate Headquarters)
(Unit designation)
(Convoy clearance number)
(Date)
(Number and type of task vehicles)

(Control Vehicles)

a. Forward Movement

1. Convoy Operating Time

(a) Arrive start point	0600
(b) Arrive load point	0700
(c) Depart load point	0800
(d) Loading time	1 hr
(e) Arrive highway checkpoints:	
No. 1 (list as needed)	0915
No. 2	1100
(f) Depart (clear) CP(s):	
No. 1 (list as needed)	0930
No. 2	1115
(g) Arrive unload point	1200
(h) Depart unload point	1330
(i) Time at unload point	1 hr 30 min

2. Cargo/Personnel

(a) Cargo (short tons [STONs])	200
(b) Class/type	Ammunition
(c) Number of personnel	0

3. Distance (Speedometer Reading, Lead Vehicles)

(a) Start point	7175
(b) Loading point	7190
(c) Forward mileage (no load)	15
(d) Unload point	7265
(e) Forward mileage (loaded) (load point to unload point)	75

4. Remarks. (Include such data as location of start point, route conditions en route, delays encountered and other intelligence and operational information as deemed appropriate; for example: refugee traffic along route; concentrations of civilians; fires; damage to roads, bridges or buildings along the route.)

b. Return Movement

1. Convoy Operating Time

(a) Arrive return load point	1330
(b) Depart return load point	1400
(c) Return load time	30 min
(d) Arrive (CP(s)):	
No. 1 (list as needed)	1445
No. 2	1630
(e) Depart (clear) CP(s):	
No. 1	1500
(f) Arrive unload point	1645
(g) Depart unload point	1800
(h) Time at unload point	15 min
(i) Arrive unit area	1915

2. Cargo/Personnel

(a) Cargo (STONS)	*30 (10 vehicles)
(b) Class/type	Salvage brass
(c) Number of personnel	0

3. Distance (Speedometer Reading, Lead Vehicle)

(a) Unloaded point (forward movement)	7265
(b) Return load point	**7265
(c) Return mileage (no load)	0
(d) Return load destination (release point)	7340
(e) Return mileage (loaded)	75
(f) Arrive unit area	7355
(g) Return (no load)	15

4. Remarks. (Include any operational remarks such as explanation for asterisks as follows.)

c. Round Trip Data

1. Convoy Operating Time

(a) Start point time (forward movement)	0600
(b) Returned to start point (return movement)	1915
(c) Total dispatch hours	13 hr 15 min
(d) Deadhead hours (unit to load area; unload area to unit)	2 hours
(e) Total load hours	1 hr 30 min
(f) Total unload hours	1 hr 45 min
(g) Total operational hours	8 hr

2. Cargo/Personnel

(a) Forward tons/class	200/ammunition
(b) Return tons/class1	0/salvage
(c) Personnel forward	0
(d) Personnel return	0

3. Distance in Miles

(a) Unit to forward load area	15
(b) Forward load area to destination	75
(c) Destination to return load area	0
(d) Return load area to destination	75
(e) Return unload area to unit	15
(f) Deadhead total	30
(g) Operational total	180

4. Remarks. (Include operational remarks as deemed appropriate to include passenger, ton-miles, and/or average rate of march.)

* 10 vehicles with return load; 40 vehicles return.
** Picked up return load at same place that forward load was unloaded.

APPENDIX I. GLOSSARY

PART I. ACRONYMS

A

AAA . . . . . arrival and assembly area
AAFS . . . . . .amphibious assault fuel system
AAOE . . . . . arrival and assembly operations element
AAOG. . . . . arrival and assembly operations group
AAV . . . . . assault amphibious vehicle
ACE. . . . . aviation combat element
AO. . . . . area of operations
ATF. . . . . amphibious task force

B

BMU . . . . . beachmaster unit
BSA. . . . . .beach support area

C

C2 . . . . . command and control
CAS. . . . . close air support
CATF . . . . . .commander, amphibious task force
CCO . . . . . combat cargo officer
CSS . . . . . combat service support
CSSA. . . . . combat service support area
CSSE. . . . . combat service support element

D

D . . . . . distance
DOD . . . . . Department of Defense

E

extal. . . . . extra time allowances

F

FIE. . . . . fly-in echelon
FIST . . . . . fire support team
FSCC. . . . . fire support coordination center
FSSG. . . . . .force service support group

G

GCE. . . . . .ground combat element

H

H&S . . . . . .headquarters and service
HHQ . . . . . .higher headquarters
HMMWV high mobility multipurpose wheeled vehicle
HST. . . . . .helicopter support team

J

JP. . . . . .joint publication

K

kph. . . . . .kilometer per hour

L

LAAD . . . . . low altitude air defense
LF . . . . . landing force
LOC. . . . . lines of communications
LZ . . . . . landing zone

M

MAGTF. . . . . .Marine air-ground task force
MCC . . . . . .movement control center
MCRP . . . . . Marine Corps reference publication
MCWP . . . . . Marine Corps warfighting publication
MEB . . . . . Marine expeditionary brigade
METT-T . . . . . mission, enemy, terrain and weather, troops and support available-time available
MP. . . . . military police
MPE/S. . . . . maritime pre-positioned equipment and supplies
MPF. . . . . maritime pre-positioning force
mph . . . . . miles per hour
MPS. . . . . maritime pre-positioning ships
MPSRON . . maritime pre-positioning ships squadron

N

NATO . . . . . North Atlantic Treaty Organization
NAVCHAPGRU . . . . . Navy cargo handling and port group
NCO. . . . . noncommissioned officer
NLT . . . . . no later than
NSE . . . . . Navy support element
NVG . . . . . night vision goggles
NWP . . . . . naval warfare publication

O

OPCON . . . . . operational control
OPORD . . . . . operation order
OPP . . . . . offload preparation party

P

PLGR. . . . . precision lightweight global position system

R

R . . . . . rate
RP . . . . . release point
rpm . . . . . revolutions per minute

S

SF . . . . . standard form
SLRP . . . . . survey, liaison, and reconnaissance party
SOP . . . . . standing operating procedure
SOSR. . . . . suppress, obscure, secure, and reduce
SP . . . . . start point
STON . . . . . short tons

T

T . . . . . time
TAA. . . . . tactical assembly area
TAFDS . . . . . tactical airfield fuel dispensing system
TD . . . . . time distance
TL . . . . . time length
TSB . . . . . Transportation Support Battalion

U

USMC . . . . . United States Marine Corps

PART II. DEFINITIONS

A

advance party—A task organization formed by the MAGTF commander that consists of personnel designated to form the nucleus of the arrival and assembly organizations.

amphibious assault—(DOD) The principal type of amphibious operation that involves establishing a force on a hostile or potentially hostile shore. (JP 1-02)

amphibious assault bulk fuel system—The US Navy system of flexible, buoyant hose used to effect ship-to-shore transfer of fuels. Five thousand feet of 6-inch hose connects amphibious shipping to shore-based fuel storage systems located at the high water mark. (MCRP 5-12C)

amphibious assault fuel system (AAFS)—The Marine Corps' primary fuel storage system used to support amphibious operations. (extract from MCRP 5-12C)

amphibious force—An amphibious task force and a landing force together with other forces that are trained, organized, and equipped for amphibious operations. (Proposed for inclusion in JP 1-02 by JP 3-02.)

amphibious planning—The process of planning for an amphibious operation, distinguished by the necessity for concurrent, parallel and detailed planning by all participating forces. (extract from JP 1-02)

amphibious task force (ATF)—A Navy task organization formed to conduct amphibious operations. The amphibious task force, together with the landing force and other forces, constitutes the amphibious force. (Proposed for inclusion in JP 1-02 by JP 3-02.)

arrival and assembly area (AAA)—An area designated by Commander, MPF in coordination with the unified commander and host nation for arrival, offload, and assembly of forces and MPE/S, and preparations for subsequent operations.

arrival and assembly operations element (AAOE)—An agency in each MAGTF element and the NSE which coordinates the logistics functions of the offload of MPE/S and the arrival and assembly of forces.

arrival and assembly operations group (AAOG)—A staff agency of the MAGTF, composed of personnel from the MAGTF and a liaison from the NSE, to control the arrival and assembly operations.

B

basic load—(DOD, NATO) The quantity of supplies required to be on hand within, and which can be moved by, a unit or formation. It is expressed according to the wartime organization of the unit or formation and maintained at the prescribed levels. (JP 1-02)

beach organization—In an amphibious operation, the planned arrangement of personnel and facilities to effect movement, supply, and evacuation across beaches and in the beach area for support of a landing force. (JP 1-02)

beach support area (BSA)—In amphibious operations, the area to the rear of a landing force or elements thereof, established and operated by shore party units, which contains the facilities for the unloading of troops and materiel and the support of the forces ashore; it includes facilities for the evacuation of wounded, enemy prisoners of war, and captured materiel. (JP 1-02)

beachhead—A designated area on a hostile or potentially hostile shore that, when seized and held, ensures the continuous landing of troops and materiel, and provides maneuver space requisite for subsequent projected operations ashore. (JP 1-02)

beachmaster—The naval officer in command of the beachmaster unit of the naval beach group. (JP 1-02)

beachmaster unit (BMU)—A commissioned naval unit of the naval beach group designed to provide to the shore party a naval component known as a beach party which is capable of supporting the amphibious landing of one division (reinforced). (JP 1-02)

C

CLZ support team—Provides logistic support to the landing force and terminal control of landing craft, air cushion. (extract from NWP 3)

combat cargo officer (CCO)—(DOD) An embarkation officer assigned to major amphibious ships or naval staffs, functioning primarily as an adviser to and representative of the naval commander in matters pertaining to embarkation and debarkation of troops and their supplies and equipment and to the management of landing force operational reserve material (LFORM).

commander, amphibious task force—The Navy officer designated in the order initiating the amphibious operation as the commander of the amphibious task force. (Proposed for inclusion in JP 1-02 by JP 3-02.)

commander, landing force—(CLF) The officer designated in the order initiating the amphibious operation as the commander of the landing force for an amphibious operation. (Proposed for inclusion in JP 1-02 by JP 3-02.)

concept of logistic support—A verbal or graphic statement, in a broad outline, of how a commander intends to support and integrate with a concept of operations in an operation or campaign. (JP 1-02)

coordinating authority—A commander or individual assigned responsibility for coordinating specific functions or activities involving forces of two or more military departments or two or more forces of the same Service. The commander or individual has the authority to require consultation between the agencies involved, but does not have the authority to compel agreement. In the event that essential agreement cannot be obtained, the matter shall be referred to the appointing authority. (extract from JP 1-02)

D

debarkation—(DOD) The unloading of troops, equipment, or supplies from a ship or aircraft. (JP 1-02)

E

embarkation—(DOD) The process of putting personnel and/or vehicles and their associated stores and equipment into ships and/or aircraft. (JP 1-02)

F

flight ferry—The movement by self-deployment of the aircraft of the ACE to the AAA.

fly-in echelon (FIE)—Airlifted forces and equipment of the MAGTF and NSE plus aircraft and personnel arriving in the flight ferry of the ACE.

G

general unloading period—In amphibious operations, that part of the ship-to-shore movement in which unloading is primarily logistic in character, and emphasizes speed and volume of unloading operations. It encompasses the unloading of units and cargo from the ships as rapidly as facilities on the beach permit. It proceeds without regard to class, type, or priority of cargo, as permitted by cargo handling facilities ashore. (JP 1-02)

H

helicopter support team (HST)—A task organization formed and equipped for employment in a landing zone to facilitate the landing and movement of helicopterborne troops, equipment and supplies, and to evacuate selected casualties and enemy prisoners of war. (Joint Pub 1-02). It may be built around a nucleus of shore party and helicopter landing zone control personnel. (JP 3-02)

hydrography—(DOD, NATO) The science which deals with the measurements and description of the physical features of the oceans, seas, lakes, rivers, and their adjoining coastal areas, with particular reference to their use for navigational purposes. (JP 1-02)

I

initial unloading period—In amphibious operations, that part of the ship-to-shore movement in which unloading is primarily tactical in character and must be instantly responsive to landing force requirements. All elements intended to land during this period are serialized. (JP 1-02)

L

landing beach—(DOD, NATO) That portion of a shoreline usually required for the landing of a battalion landing team. However, it may also be that portion of a shoreline constituting a tactical locality (such as the shore of a bay) over which a force larger or smaller than a battalion landing team may be landed. (JP 1-02)

landing craft—(DOD, NATO) A craft employed in amphibious operations, specifically designed for carrying troops and equipment and for beaching, unloading, and retracting. Also used for logistic cargo resupply operations. (JP 1-02)

landing force (LF)—A Marine Corps or Army task organization formed to conduct amphibious operations. The landing force, together with the amphibious task force and other forces, constitute the amphibious force. (Proposed for inclusion in JP 1-02 by JP 3-02.)

landing schedule—(DOD) In an amphibious operation, a schedule which shows the beach, hour, and priorities of landing of assault units, and which coordinates the movements of landing craft from the transports to the beach in order to execute the scheme of maneuver ashore. (JP 1-02)

landing zone (LZ)—(DOD, NATO) Any specified zone used for the landing of aircraft. (JP 1-02)

landing zone control party—(DOD, NATO) Personnel specially trained and equipped to establish and operate communications devices from the ground for traffic control of aircraft/helicopters for a specific landing zone. (JP 1-02)

M

Marine air-ground task force—The Marine Corps principal organization for all missions across the range of military operations, composed of forces task-organized under a single commander capable of responding rapidly to a contingency anywhere in the world. The types of forces in the MAGTF are functionally grouped into four core elements: a command element, an aviation combat element, a ground combat element, and a combat service support element. The four core elements are categories of forces, not formal commands. The basic structure of the MAGTF never varies, though the number, size, and type of Marine Corps units comprising each of its four elements will always be mission dependent. The flexibility of the organizational structure allows for one or more subordinate MAGTFs, other Service and/or foreign military forces, to be assigned or attached.

maritime pre-positioned equipment and supplies (MPE/S)—Unit equipment and sustaining supplies associated with a MAGTF and a NSE, which are deployed on maritime prepositioning ships.

maritime pre-positioning force (MPF)—A task organization of units under one commander formed for the purpose of introducing a MAGTF and its associated equipment and supplies into a secure area The MPF is composed of a command element, a maritime prepositioning ships (MPS) squadron, a MAGTF, and a Navy support element. (MCRP 5-12C)

maritime pre-positioning ships (MPS)—(DOD) Civilian-crewed, Military Sealift Command-chartered ships which are organized into three squadrons and are usually forward-deployed. These ships are loaded with prepositioned equipment and 30 days of supplies to support three Marine expeditionary brigades. (JP 1-02)

maritime pre-positioning ships squadron (MPSRON)—A group of civilian-owned and civilian-crewed ships chartered by Military Sealift Command loaded with prepositioned equipment and 30 days of supplies to support a MAGTF up to MEB size.

marshalling area—In amphibious operations, the designated area in which, as part of the mounting process, units are reorganized for embarkation; vehicles and equipment are prepared to move directly to embarkation areas; and housekeeping facilities are provided for troops by other units. (MCRP 5-12C)

N

naval beach group (NBG)—(DOD, NATO) A permanently organized naval command, within an amphibious force, comprised of a commander, and staff, a beachmaster unit, an amphibious construction battalion, and an assault craft unit, designed to provide an administrative group from which required naval tactical components may be made available to the attack force commander and to the amphibious

landing force commander to support the landing of one division (reinforced). (JP 1-02)

naval beach unit—See naval beach group.

Navy cargo handling and port group (NAVCHAPGRU)—(DOD) The active duty, cargo handling battalion-sized unit composed solely of active duty personnel. (JP 1-02) These units are part of the operating forces and represent the Navy's capability for open ocean cargo handling.

Navy support element (NSE)—The Maritime Prepositioning Force element that is composed of naval beach group staff and subordinate unit personnel, a detachment of Navy cargo handling force personnel, and other Navy components, as required. It is tasked with conducting the off-load and ship-to-shore movement of maritime prepositioned equipment/supplies. (JP 1-02)

nonscheduled waves—Units of the landing force held in readiness for landing during the initial unloading period but not included in scheduled or on-call waves.

O

offload preparation party (OPP)—A task organization of Navy and Marine maintenance, embarkation and cargo handling personnel deployed to the MPSRON before or during its transit to the objective area to prepare the ship's offload systems and embarked equipment for offload.

S

serial—An element or a group of elements within a series which is given a numerical or alphabetical designation for convenience in planning, scheduling, and control. (JP 1-02)

ship-to-shore movement—(DOD, NATO) That portion of the assault phase of an amphibious operation which includes the deployment of the landing force from the assault shipping to designated landing areas. (JP 1-02)

shore party—A task organization of the landing force, formed for the purpose of facilitating the landing and movement off the beaches of troops, equipment, and supplies; for the evacuation from the beaches of casualties and enemy prisoners of war; and for facilitating the beaching, retraction, and salvaging of landing ships and craft. It comprises elements of both the naval and landing forces. (JP 1-02)

survey, liaison, and reconnaissance party (SLRP)—A task organization formed from the MAGTF and NSE, which is introduced into the objective area prior to the arrival of the main body of the FIE to conduct initial reconnaissance, establish liaison with in-theater authorities, and initiate preparations for the arrival of the main body of the FIE and the MPSRON.

T

TACLOG group—Representatives designated by troop commanders to assist Navy control officers aboard control ships in the ship-to-shore movement of troops, equipment, and supplies. (JP 1-02)

tactical airfield fuel dispensing system (TAFDS)—An expeditionary system providing bulk fuel storage and dispensing facilities at airfields not having permanently installed fuel systems; also used to support fuel dispensing at established airfields. (MCRP 5-12C)

throughput—(DOD) In logistics, the flow of sustainability assets in support of military operations, at all levels of war, from point of origin to point of use. It involves the movement of personnel and materiel over lines of communications using established pipelines and distribution systems. (MCRP 5-12C)

APPENDIX J. REFERENCES AND RELATED PUBLICATIONS

Department of Defense Directive (DODD)

4500.9	Transportation and Traffic Management

Allied Tactical Publications (ATPs)

8(A)	Doctrine for Amphibious Operations
35(B)	Land Force Tactical Doctrine
36(A)	Amphibious Operations Ship to Shore Movement
39(A)	Amphibious Embarkation
46(A)	Air Drop Systems for Personnel and Supply Equipment

Joint Publications (JPs)

1-02	Department of Defense Dictionary of Military and Associated Terms
3-02	Joint Doctrine for Amphibious Operations
3-02.1	Joint Doctrine for Landing Force Operations
3-02.2	Joint Doctrine for Amphibious Embarkation
4-0	Doctrine for Logistic Support of Joint Operations
4-01	Joint Doctrine for the Defense Transportation System
4-01.3	JTTP for Movement Control
4-01.5	Joint Tactics, Techniques, and Procedures for Water Terminal Operations
4-01.6	Joint Tactics, Techniques, and Procedures for Joint Logistics over the Shore
4-01.7	Joint Tactics, Techniques, and Procedures for Use of Intermodal Containers in Joint Operations

Navy Supplement Publication (NAVSUP PUB)

505	Preparation of Hazardous Material for Military Air Shipment

Marine Corps Warfighting Publications (MCWPs)

2-1	Intelligence Operations
3-17	Engineer Operations
4-1	Logistics Operations
4-11	Tactical-Level Logistics
4-11.1	Health Service Support Operations
4-11.3	Transportation Operations
4-11.5	Seabee Operations in MAGTF
6-22	Communications and Information Systems

Marine Corps Reference Publications (MCRPs)

4-11.3B	Movement of Units in Air Force Aircraft
4-11.3E	Multiservice Helicopter Sling-Load Volumes I, Basic Operations and Equipment, Volume II Single Point Rigging Procedures, Volume III Dual-Point Load Rigging Procedures
5-12C	Marine Corps Supplement to the Department of Defense Dictionary of Military and Associated Terms

Marine Corps Orders (MCOs)

P4030.19	Preparing Hazardous Materials for Military Air Shipments
8010.1E	Class V(W) Planning Factors for Fleet Marine Force Combat Operations

Fleet Marine Force Manuals (FMFMs)

1-8/NWP 22-3	Ship-to-Shore Movement (under revision as MCWP 3-31.5)
4-2	The Naval Beach Group
4-6	Movements of Units in Air Force Aircraft (under revision as MCRP 4-12A)
10-553	Airdrop of Supplies and Equipment: Rigging Ammunition

47-47	Airdrop of Supplies and Equipment: Rigging Containers

Army Technical Manual (TM)

38.50	Packaging, Materials Handling, and Preparing of Hazardous Materials for Military Air Shipment

Army Field Manuals (FMs)

17-98	Scout Platoon
55-17	Terminal Operations Coordinator’s Handbook

Army Technical Bulletin (TB)

55-46-1	Standard Characteristics (dimensions, weight, and cube) for Transportability of Military Vehicles and Other Outside/Overweight Equipment