

Convoys, Trains, And Pipelines

Military police responsibility for physical security of convoys, trains, and pipelines can vary greatly in combat and peacetime. And it can vary greatly in degree within these two situations. Convoy security can be an MP unit's responsibility only while the convoy passes through the unit's area; or it can be the unit's responsibility from the point of origin to the point of delivery. During railroad security, MPs work closely with transportation railway service personnel. Pipelines present a very difficult security task. These highly vulnerable and volatile arteries are critical to our peacetime and war effort and must be protected from end to end. This appendix offers details on how best to meet the physical security requirements for each of these tasks.

U-1 Definition

a. A **convoy** is a march column of vehicles moving over the same route for a single movement under the centralized control of a single commander. This column commander is designated by the major commander controlling the movements control center. He may also be designated by the commander of the organization initiating the convoy.

b. Size. A convoy may be one group of vehicles, or it may be broken down into subdivisions, each under control of a subordinate commander. A **serial** is the major subdivision; it may be broken further into **march units**. In some recorded instances, the serial has been eliminated, as in a convoy of 60 vehicles organized into four 15-vehicle march units. Organization depends on many factors. Some of these are road conditions, travel distance, terrain, weather, enemy activity, and the training and experience of all personnel. Normally, a column of 20 or less vehicles is not broken down, since they can all be controlled by one commander. If more than 20 vehicles are involved, the convoy should be broken down because of the difficulty of control in terms of column length.

U-2 Operation

Convoy escort and security is an operation in which military police are

detailed to provide security and movement to a specific group of vehicles. MPs may be called onto help numerous kinds of convoys, to include the following.

- Resupply operations.
- Special ammunition or sensitive material movements.
- Escort of designated commanders and other VIPs.
- Assistance to combat arms units during difficult movements, such as passage of lines or river crossings.

The **area commander** (theater Army, corps, division), through HTH, **allocates MP resources** to convoy security missions. A primary consideration is whether or not the convoy is able to provide its own security. For example, an infantry battalion has the organic weapons to provide its own security; a light truck transportation battalion may not. The specific tactical situation is also a concern, particularly when rear area protection is a factor. Military convoy operations in CONUS are discussed in detail in TM 55-312. Military convoy operations for stability operations are covered in TM 55-311.

U-3 MP Commitment

Military police are committed for convoys in one of two ways—are-oriented or functional-oriented support.

a. In area-oriented support, the MP unit provides MP support within a geographical area. The unit would escort a convoy from the time it enters this area until it leaves the area.

b. In functional-oriented support, the MP unit performs a specific task. This unit would escort a convoy from start to finish, regardless of areas passed through.

U-4 Controls

Convoy movements are usually controlled by two methods—organizational and area control.

a. Organizational control is the responsibility of the commander of the organization or unit using the road. In this case, the commander is concerned with enforcing observance by his drivers of the rules of the road. These rules include traffic laws and regulations, speeds, vehicle distance, routing, time schedules, discipline en route and at halts and local security measures. Organizational control is the rule under peacetime conditions in CONUS and in secure overseas areas. Military police become involved in such functions for traffic control at critical points, escorts through congested areas, and security of critical or sensitive cargo.

b. Area control is the responsibility of the commander having area jurisdiction. This is the more common type of control exercised in an active theater of operations. It is superimposed on organizational control. It is employed only to the extent necessary to assure orderly and effective movement of vehicles over the highway system. It is exercised by a central office, such as a movements control center in the transportation command, or a division transportation office (for a movement entirely within the division area of responsibility).

U-5 Function, Intelligence Placement, and Command

a. Function. Escort and security elements accompany a column or convoy, **assist the convoy's movement**, and protect it from interference from any source. Convoy escort and security elements are placed in direct support of the convoy. The security elements may consist of military police, civilian police, or other personnel assigned to accompany the column through congested areas or areas of possible traffic conflict of armed guards, ground troops, or armed aircraft to protect the movement from sabotage, pilferage, guerrilla activity, or enemy action; or any combination of the foregoing. Military police performing as escorts or security elements will normally be assigned only to high priority missions.

b. Military intelligence. Prior to the movement of convoys, coordination should be effected with the military intelligence unit providing counterintelligence coverage through the area to be traveled. This coordination may provide additional security coverage. It may reveal information on potential guerrilla, terrorist, or sabotage activities along the intended route.

c. Placement. Convoy escort and security elements perform their functions on mission-type commitments. They comply with pertinent command directives and the en route requirements of the convoy commander. The location of these elements within the convoy is determined by locally established policies and procedures; the enemy, weather, and terrain situation; current area intelligence; troops available; availability of armored or hardened vehicles; and experience of the convoy commander and escort and security personnel.

d. Security Element Control. In some instances, particularly with small convoys, the convoy commander may also be the commander of the escort and security force. In

other situations, someone other than the commander may be in control, depending on policies established by the responsible commander. In large convoys, which may include 75 to 150 vehicles, the convoy commander is usually a Transportation Corps officer. He exercises control over the escort and security element through the element commander. In either case, the escort and security commander normally plans, coordinates, and integrates all matters pertaining to security of the convoy, to include noise and light discipline requirements; front, flank, and rear security during movement and halts; air cover; fire support; communications with supporting units and higher headquarters; and interrogation of local civilians along the route to develop current intelligence information concerning road conditions and possible guerrilla or enemy activities.

U-6 Convoy SOP

a. Planning. The degree of success or failure of military convoys is in direct proportion to the planning that precedes its execution. A comprehensive standing operating procedure (SOP) facilitates planning. It provides guidance in various situations in the absence of orders. The SOP must not standardize any procedures into patterns that would indicate to the enemy the anticipated or predictable action of convoy personnel. When routes are established and alternates do not exist, it is advisable to operate on these routes on an irregular schedule. This decreases the convoy's vulnerability to deliberate ambushes. Departure points, halts, and refueling points should be varied when possible to help keep ambush forces off balance.

b. Content. SOPs at company level should conform with SOPs prepared by the next higher headquarters. The local situation

and type of operation will influence the scope of each SOP. The following minimum actions must be covered:

- (1)** Approval authority for convoy movements.
- (2)** Duties of convoy commanders and control personnel.
- (3)** Convoy organization and communication.
- (4)** Weapons and ammunition to be carried.
- (5)** "Hardening" of vehicles (adding armorplating).
- (6)** Protective equipment worn by personnel.
- (7)** Preparation of convoy vehicles, such as detailed instructions regarding tarpaulins, tailgates, and windshields.
- (8)** Counterambush action.
- (9)** Security measures.
- (10)** Maintenance and recovery of disabled vehicles.
- (11)** Refueling and rest halts.
- (12)** Safety measures.

c. Training in convoy operations and counteambush measures should conform as closely as possible to the SOP. This will help insure that personnel are adequately trained to cope with probable situations.

d. Military police assigned to convoy escort duties must be familiar with the SOP of the convoy personnel. The MPs must insure their own SOP is compatible with that of the escorted unit. Exchange of information concerning training and matters of mutual interest aids successful completion of the mission.

e. Convoy air support. Consideration should be given to the use of air cover for security of the convoy. It also maybe used as

a reaction force if the convoy is ambushed. The air element of the convoy security force might consist of one aircraft or more.

U-7 Multi-unit Convoys.

a. Convoys frequently are composed of vehicles and personnel from more than one unit. In some circumstances vehicles are a part of units only remotely related to the command responsible for the convoy organization. This situation may occur when various units must move personnel or equipment over lines of communications. These units may wish to take advantage of the security normally provided a large convoy. Additions of this type are referred to as add-ons. The arrival of unscheduled units at the assembly area with the intention of joining the convoy may disrupt the organization plan. This can be prevented by units making advance notice of their intentions. The notices should arrive at the responsible headquarters 24 hours before convoy departure time. This allows

officers to make necessary adjustments for integration of additional vehicles into the march elements.

b. Local nationals who gather around vehicles in the assembly area or during scheduled or unscheduled halts are a potential source of sabotage and pilferage. **Unauthorized personnel should be kept out of the assembly area.** They should be kept at a safe distance from halted vehicles. Convoy and escort personnel should be alert for any hostile act. They should wear protective equipment and keep their weapons in hand.

U-8 Vehicle Preparation

a. Maintenance. Emphasis must be placed on the importance of preparing vehicles for a convoy operation. When a truck has a mechanical failure in an area infested by insurgents, the truck and its cargo may have to be destroyed. Even when repairs can be made on the spot or the truck taken in tow,

Convoy Vehicle Checklist

- | | |
|---|-----------------------------------|
| <input type="checkbox"/> Air hose couplings | <input type="checkbox"/> Tires |
| <input type="checkbox"/> Oil and lubrication levels | <input type="checkbox"/> Brakes |
| <input type="checkbox"/> Cooling system | <input type="checkbox"/> Battery. |

Supervisory personnel should check for:

- ☐ Availability of additional fuel, water, and lubricants.
- ☐ Windshield in prescribed position.
- ☐ Tarpaulin and end curtains when required.
- ☐ Condition of sandbags in the driver's compartment and in cargo bed when required.
- ☐ Weapons mounted on vehicles must be inspected.

some elements of the column will be delayed. This increases their exposure to ambush, snipers, or terrorist attacks.

b. Unit commander's responsibilities.

The commander of the unit furnishing vehicles for a convoy and for a convoy security escort is responsible for their condition. Before dispatching vehicles to the convoy assembly points, each vehicle should be thoroughly inspected by qualified maintenance personnel. (See checklist on page 469.)

c. Assembly area inspection teams.

Trucks scheduled for the convoy normally arrive at the assembly area during the night prior to departure time. To insure all vehicles are in satisfactory mechanical condition, the convoy commander may appoint a night maintenance inspection team to inspect vehicles on arrival. Minor deficiencies must be corrected on the spot. Vehicles with major deficiencies must be returned to the parent unit and replaced with satisfactory ones. Under no circumstances will a mechanically defective vehicle be allowed to depart with the convoy. **A comparable procedure should be followed with military police security escort vehicles.**

d. Windshields. Unless prescribed by higher headquarters, the convoy commander should consider the following when deciding whether to have windshields removed, lowered, or left in place. Windshields left in place provide protection against heavy dust and driving rain. They also serve as a connecting point for chicken wire that may be secured to each window to protect against incoming grenades. They provide protection from wire stretched across the road to decapitate personnel. However, windshields should be removed when they interfere with the use of weapons, and during blackout operations. To prevent windshields from breaking because of shock and vibration when lowered, a piece of plywood or similar material covered with sandbags should be placed between the windshield and the hood.

e. Hardening vehicles. The floors of troop-carrying vehicles should be covered with at least a double interlocking layer of sandbags. Cab floors of all vehicles should be sandbagged with a double layer under the driver's seat. As an additional precaution, a heavy rubber or fiber mat is recommended over the sandbags to reduce danger from fragments such as stones, sand, metal parts of the vehicle, and shrapnel. The life of sandbags is prolonged when the sandbags are covered by a mat. Sandbags also may be placed on the gas tank, fenders, and hood. Armorplating may be installed on general purpose vehicles when authorized by the responsible commander. Fuel tanks can be hardened by inserting steel plates between the fuel tanks and hanger straps.

f. Tarpaulins and cab tops.

(1) In some areas the use of tarpaulins, canvas truck tops, and cab tops is decided by the responsible area commander. In other areas, it may be left to the discretion of the responsible convoy commander. When the decision is made by the convoy commander, he should weigh the disadvantages against the advantages. (It can be assumed that when cargo will be damaged by prevailing weather conditions, it will be covered.)

(2) The **principal advantage** in covering a shipment is that it makes it more difficult for an ambush force to identify critical cargo such as ammunition and POL products—always a preferred target.

(3) The **main disadvantage** of using truck top or tarpaulins is that they have to be removed for loading and unloading operations; thus reducing the operating time of the truck. In some instances, a truck top interferes with the driver's vision to the rear and with the gunner firing to the rear—a distinct disadvantage.

(4) By leaving the cab top on **POL loaded vehicles**, some protection is afforded the driver if the cargo tank ruptures and the

contents are ignited. Tankers of 1,200-gallon capacity can be effectively disguised by rigging bows and canvas over the cargo tank. Except at very close range, this gives the appearance of a general purpose 2½-ton truck.

g. Additional precautions. Loaded vehicles in the assembly area present a profitable target to the enemy. To prevent sabotage, the area should be secure against enemy infiltration. When vehicles are equipped with gas cap locking devices, these should be locked. An adequate guard force should be on duty at all times.

U-9 Staff Actions

a. Planning a convoy operation requires high quality, aggressive staff action on the part of the truck unit staff. The officer designated as convoy commander has only a limited period to reconnoiter the route. He must give instructions to subordinate element commanders and other supervisory personnel, and achieve final coordination with the security force commander. These duties cannot be neglected for functions that are a truck unit staff responsibility.

b. Units through whose tactical areas of responsibility the convoy is to be moved must be contacted. This is to determine what restrictions and requirements are placed on convoys in each area and what convoy support can be furnished. This support could include the following:

Security forces
Escort vehicles
Fire support
Vehicle recovery and repair
Engineer road repair
Medical support.

Any special problems that may interfere with the convoy must be reconciled. After

this information has been collected, the staff can complete planning for fire support, road outposting and clearing, escort forces, and engineer support. Based on this information, detailed instructions go to the convoy commander and affected units in an operations order. The operations order does not eliminate the requirement for a briefing. This is usually conducted by members of the battalion staff.

U-10 Convoy Commander

a. Briefing. An officer or NCO appointed as convoy commander should contact the unit S3 officer and determine when he can be briefed for the operation. The briefing should cover all topics mentioned in paragraph U-9 and any others affecting the convoy. The convoy commander should ask questions on any facet not covered or not clear. When the responsible staff officer cannot answer the question, he should get the answer, while the convoy commander is present, if possible. Before leaving the briefing, the convoy commander should bring his maps up to date.

b. Route reconnaissance. If a choice of routes is possible, the decision of which route to be used will depend on these factors:

- Time.
- Distance.
- Current and expected enemy activity.
- Availability of security forces.
- Availability of fire support along the selected route.
- Trafficability of the roadbed and any bridges.
- Other critical factors.

In many instances the route will be prescribed by higher headquarters. In this case a map reconnaissance will enable the convoy commander and the unit staff to select tentative checkpoints or confirm those already

established. This reconnaissance should ascertain all units whose tactical areas of responsibility they will pass through. It should also identify potential trouble areas and ambush sites.

After the map reconnaissance is completed and the route selected, the convoy commander should conduct either a ground or aerial reconnaissance of the road. If aerial reconnaissance is made, it should be conducted, whenever possible, several times prior to the date scheduled for the convoy. As many subordinate convoy leaders as possible should be included in these reconnaissance flights. This enhances the convoy commander's briefing of the convoy leaders on the route and its potential trouble areas.

Military police should be able to conduct a hasty reconnaissance of the route to be used by the convoy. At least a map reconnaissance is necessary. All sources of information should be consulted, especially the engineers and highway traffic headquarters. Aircraft should be used if possible. Classification of the route is important.

The following administrative color codes are used to classify roads. (Designations are made on the basis of intelligence available at the time. The designation can be incorrect.)

- **Green—generally free from enemy activity** and may be used unarmed.
- **Yellow—risk of enemy activity.** All military personnel should be armed and each vehicle should carry at least two persons.
- **Red—in the combat zone** and may require offensive or defensive action by combat troops in the field.

c. Fire support and coordination. The convoy commander should not rely on his knowledge of the battery's call sign and frequency in lieu of direct coordination. An artillery unit sets up priorities of fire for the units it supports. A staff officer or the convoy commander must coordinate to obtain a priority for the convoy. If a request for a fire mission is received from an unknown observer, time

could be lost in establishing his identity. Information furnished the artillery unit should include the convoy's start and release points, time schedule, checkpoints, and size. Call signs, frequencies, and other signal operating instructions (SOI) should be exchanged. Information received from the area security officer or obtained by route reconnaissance, regarding critical areas of enemy activity is important. It should be used to plan additional fire along the route. An overlay may be prepared for the convoy commander's map, showing the reference points and concentrations planned by the artillery. Fire can be called for and adjusted from these points much more quickly and with greater accuracy than if unplanned. Further coordination may include

- Types of ammunition to be fired under various conditions.
- Number of rounds to be fired at a given target.
- Types of targets that warrant fire missions.

Any no fire zones should be designated. If the artillery unit cannot provide support along the entire route, its range limitation should be noted on the map. Actual calls for fire missions and adjustment of fire should also be coordinated and rehearsed, even though these calls are standard throughout the Army. The convoy commander may coordinate fire on the assumption that the artillery officer is the authority on fire support. He is capable of planning available artillery resources to the convoy's best advantage.

Another element of fire support that should be planned is the use of gun ships and airborne rocket artillery (ARA). Through coordination, these gun ships and ARA can be either on alert status or overhead while the convoy is en route. In either situation, their radio frequencies must be known to convoy radio operators and control personnel. A means of marking the target should be established, to obtain the full benefit of these weapons systems. All communications and con-

trol personnel should be trained in calling for and adjusting artillery fire.

d. Convoy organization. After being briefed by members of the unit staff, the convoy commander should have sufficient information to enable him to prepare his convoy organization plan. Local conditions will dictate the details of the plan; however, the following should be considered under most circumstances:

(1) Deployment of vehicles loaded with critical cargo. The convoy commander should give special consideration to the placement of vehicles loaded with ammunition and POL supplies. The grouping of vehicles loaded with critical cargo provides a very profitable and easily identifiable target for the enemy. To avoid giving the ambush force this advantage, POL and ammunition loaded vehicles should be dispersed throughout the march elements comprising the convoy.

Another effective technique which has been used when an ambush is expected, is a 500-meter distance between all vehicles. In many instances, because of the extended vehicle distances, the ambush will not be executed since only a limited number of vehicles will be in the kill zone at any one time. To effectively employ this technique, the convoy commander should be airborne. Overhead surveillance by airborne forward observers and light fire teams must cover the entire length of the column. Oncall artillery, airstrikes, and a ready reaction force must also be available.

(2) Deceptive measures. Deception should be used throughout the convoy, especially on POL and ammunition vehicles. Vehicles may be camouflaged with canvas covered frames or by placing lumber, wire, or other cargo over the primary load.

(3) Control vehicles. Such vehicles, especially the convoy commander's, are priority targets for the ambush force. By taking these vehicles out of action at the

onset of an attack, key leaders are eliminated. Consequently, communications with other elements and reaction forces are disrupted. The ambush force can be placed at some disadvantage by avoiding a set pattern in the location of control vehicles. You can create further deception by using a cargo vehicle (2½-ton or 5-ton truck) with radios installed for the command vehicle. When a cargo truck is used, conceal antennas under the truck body. The military police planner decides the best method of escort to use. The types of escorts are described in FM 19-25, Chapter 1, Installation Traffic Control. Considerations are terrain, persons or cargo, volume, length, enemy actions, and resources available to the convoy and MPs. Methods of escorts are:

- ☐ Leading and following
- ☐ Empty truck (or modified)
- ☐ Leapfrog
- ☐ Perimeter.

(4) Maintenance and recovery vehicles. The size of the trail party and the number of recovery vehicles is determined by the size of the convoy and the experience of convoy personnel. Normally, recovery vehicles are assigned to each march element of the convoy. The recovery capability of 5-ton tractors (bobtail) and 2½-ton cargo trucks without trailers and equipped with tow bars should be considered. The availability of these vehicles will leave wreckers free for the recovery of more critically damaged equipment. One tractor truck for every 10 tractor-semi-trailer combinations is considered a satisfactory ratio. A radio mounted in the wrecker enables the convoy commander to effectively control vehicle recovery without being physically present. This provides greater flexibility in the march unit communications system.

(5) Armored escort vehicles. The location of escort vehicles in the convoy is dictated by the number available, size of

the convoy, terrain, highway characteristics, enemy situation, availability of reaction forces, and techniques employed by the enemy. One hardened vehicle should be located near the head of the convoy so that fire can be placed on enemy personnel suddenly encountered. The remaining escort vehicles are located where they can provide maximum protection for all convoy elements. Since it is easier for vehicles to move forward than rearward, some escort vehicles must be positioned in the rear of the march element to which they are attached. Under no circumstances should escort vehicles be located where they can be isolated from the convoy by the enemy. They must be able to provide a base of fire for the segment of convoy for which they are responsible.

(6) Unloading. When it will not compromise the security of the convoy, locate trucks requiring the longest unloading time at the head of the march element. This will achieve the fastest turnaround time.

U-11 Command and Control Planning

a. When the operation order is issued, command and control must be completely delineated. This must include:

- (1)** Chain of command to be followed on the convoy.
- (2)** Relationship between the convoy commander and the escort commander.
- (3)** Procedures to be followed in obtaining combat support.

Elements to be on each control frequency should be delineated. This insures proper use of radio nets and complete reporting of essential information. For adequate convoy control there should be a convoy command net.

This should include the convoy commander, security force commander, march element commanders, and trail party commander on the net. Each march element should have its control net with the march element commanders, lead and trail escort vehicles, all radio vehicles, and the recovery vehicle in the net.

b. Except in hill country where it may reveal the identity of the command vehicle, control vehicles may be marked with aircraft panel marking. These markers can be numbered with tape for easy identification from the air. Numbers should correspond to the radio call sign of the vehicle.

c. Vehicle distance depends on many variables. Normally it is 50 meters in urban areas with heavy traffic and 100 meters on the open road.

d. Convoy speed depends on the condition of the road, traffic, and on the speed of the slowest vehicle. Airborne command elements using the radio capability can make necessary adjustments to maintain the prescribed vehicle distance and gap between convoy elements. On a long move over rough highways, the speed should not exceed 15 to 20 miles per hour. Prescribed maximum catchup speed is 25 to 30 miles per hour.

e. Coordination should be made with the local area military police for escorts through populated areas, traffic control at road junctions and other critical points. Road outposting and mine sweeps should be obtained when appropriate.

U-12 Final Convoy Preparation

a. Time required. The convoy must be physically organized. The convoy commander and element commanders must brief personnel. They must also inspect in-

dividual equipment and vehicles. The time for this is influenced by the size of the convoy and the experience of the drivers and control personnel. In planning the convoy preparation schedule, provisions should be made for the lineup of vehicles in the order of march at least 1 hour before start point time.

b. Commander's briefing. The convoy commander holds his briefing after the vehicles have been lined up in the order of march. This briefing should cover at least the following points:

- (1) Tactical situation, to include locations of friendly forces, support units, and the enemy situation.
- (2) Mission, including types of cargo being transported and the destination.
- (3) Execution, to include organization of the convoy, time schedule, routes of march, convoy speed, catchup speed, vehicle distances, and emergency measures to be followed.
- (4) Administration and logistics matters, such as control of personnel, billeting and messing of convoy personnel, and refueling and servicing of vehicles.
- (5) Command and signal items, to include location of the convoy commander, designation of assistant commander and serial/march unit commander, arm and hand signals, other prearranged signals, and the applicable radio frequencies and call sign.

(6) Safety measures, to include hazards of the route, weather conditions, and defensive driving.

c. Element commander's briefing. After the convoy commander's briefing, personnel return to control of the march element commanders. Here they receive final instructions concerning their elements. Control personnel make final inspections of loads to insure they are properly secured and that vehicles are ready to move.

d. Communications personnel check their equipment and enter the net approximately one half hour before start point time.

e. Guncrews check their weapons and insure they are clear. Rounds are not chambered until a designated geographical marker is reached, or until directed by the convoy commander. When an authorized area is available, guncrews may be directed to test fire their weapons to insure all weapons are operational before departure.

Convoy Commander's Briefing Points

1. Tactical Situation

2. Mission

3. Execution

4. Admin & Logistics

5. Command and Signals

6. Safety

U-13 Rules of Engagement

a. General. The two primary types of engagement likely during convoy movement are **snipers and ambush**. The amount of damage sustained by the convoy when subjected to these attacks is usually in inverse ratio to the amount of training in convoy defense and the adequacy of the briefing convoy personnel have received.

b. Sniper Fire. Extreme caution must be observed when sniper fire is received. We must insure that any return fire does not harm friendly civilians or friendly troops in the area. Especially important is the prevention of indiscriminate firing by convoy personnel without a specific target. The best actions are passive. This should consist of insuring that all personnel wear steel helmets and armored vests at all times. When sniper fire is received, all convoy vehicles should move on through the area without stopping. Escort personnel should:

- Notify the march element commander.
- Give the prescribed signal, usually a red smoke grenade thrown in the direction of the fire.
- Attempt to locate and destroy the sniper by longrange fire if in a free-fire zone.

Fire must not be returned in a no-fire zone. Under order of the convoy commander, additional fire or supporting forces maybe placed in the area to destroy, capture, or drive off the sniper. Convoy personnel should be aware that a heavy volume of fire is frequently employed by the enemy to slow a convoy down just prior to an ambush attack.

c. Ambush Sites. Ambush sites are usually characterized by the following:

- (1) Concealment of the ambush force by a screen of foliage, holes dug in the ground, or similar methods.
- (2) Good visibility of target area and approaches for the ambush force.

(3) Good field of fire for attacking force.

(4) Good exit route for the attacking force's withdrawal.

(5) Restriction of the attacked element's movements to one flank by natural or man-made obstacles. Natural obstacles include cliffs, steep embankments, swamps, steep grades, sharp curves in the road, narrow trails, streams, and heavily wooded areas. Man-made obstacles usually consist of mines, boobytraps, demolitions, roadblocks, and damaged bridges.

d. Ambush—Road Not Blocked. Extensive road space is occupied by even a platoon size convoy. Because security or lack of available forces may limit the size of the ambushing force, ambush forces are seldom able to contain an entire convoy in a single kill zone. More frequently, a part of a convoy—either head, trail, or a section of the main body is ambushed. The part of a convoy that is in the kill zone and receiving fire must drive out of the ambush if the road to the front is not blocked. Vehicles disabled by enemy fire are left behind. If they are blocking the road, they must be pushed out of the way by following vehicles. Occupants of these vehicles may be picked up by following vehicles.

Armored escort vehicles must not block convoy vehicles by halting in the traveled portion of the road to return enemy fire. Vehicles that have not entered the kill zone must not attempt to run the gauntlet. They should stop, and personnel should dismount and take defensive positions. Since escort vehicles may have left the road to attempt to overrun hostile positions, elements of the convoy should not fire on suspected enemy positions without coordinating with the escort force. Other actions available to convoy personnel for neutralizing the ambush force are:

- (1) Call for artillery fire on enemy positions.

Remember:

Vehicles in the kill zone must keep moving!

(2) Call for gun ship fire on enemy positions.

(3) Direct gun trucks and other vehicles mounted with heavy weapons to lay down a heavy volume of fire on the ambush force.

(4) Call for reaction forces.

(5) Direct all nondriving personnel to place a heavy volume of fire on enemy forces as vehicles move out of the kill zone as rapidly as possible.

e. Passive Actions. Actions taken by the convoy commander regarding supporting forces will vary according to the situation. Regardless of his course of action, the element of the convoy caught in the kill zone should clear it as rapidly as possible. A motor transport convoy with a limited escort is seldom able to defeat a hostile force and should not attempt to do so. When part of the convoy is isolated in the kill zone, vehicles that have not entered the ambush area may be required to turn around. They should return to the nearest secured area until supporting forces can clear the ambush. Normally, a transport unit will not deploy to attack a hostile force unless it is necessary to prevent destruction of the convoy elements. However, they will rely on supporting air, artillery, escort, and reaction forces.

f. Ambush—Road Blocked. When an element of a convoy is halted in the kill zone and is unable to proceed due to disabled vehicles, a damaged bridge, or other obstruction, personnel must dismount, take cover, and return a maximum volume of fire on enemy

positions. Troops from vehicles that have passed through the ambush area dismount and prepare to attack the flanks of the ambush position. The security force stays behind to protect the vehicles. Personnel in vehicles who have not entered the kill zone follow the same procedure. Before attempting to flank the ambush force, the officer or NCO in charge should insure that his force will not be in the field of artillery fire that may be called in. Reaction forces should be called in as soon as the ambush attack is launched.

When a tactical escort is provided, the officer in command of the escort force takes charge and attempts to neutralize the ambush; otherwise, the senior officer or NCO present takes charge. In an ambush situation, immediate reaction and aggressive leadership are essential in limiting casualties and damage to equipment. The maneuver plan may be altered by the supporting fire plan. Example, if immediate air or artillery is available, personnel are restricted to a specified distance from the road to avoid casualties from friendly fire. In this situation, personnel in the kill zone establish a base of fire. Others take up defensive positions around their vehicles and wait while supporting fire is called in on the enemy positions.

(1) Fire in the kill zone maybe from only one side of the road with a small holding force on the opposite side. To contain the convoy element in the kill zone, mines and boobytraps are frequently placed on the holding force side. Caution must also be taken in assaulting the main ambush force as mines are commonly used to protect its flanks.

(2) When the enemy is dislodged, the road must be cleared. Convoy movement must be resumed as soon as possible. Wounded personnel are evacuated, usually by medical evacuation helicopters. When disabled vehicles cannot be towed, their cargo should be distributed among other vehicles if time permits. When it is not feasible to evacuate vehicles and cargo, they must be destroyed upon orders from the convoy commander. When possible, radios and other critical items are recovered before vehicles are destroyed. Under no circumstances will such items be allowed to fall into enemy hands.

g. Employment of Non-Air Defense Weapons Against Aircraft.

(1) In the absence of orders to the contrary, individual weapons operators will engage attacking aircraft. Engagement of all other hostile aircraft must be on orders issued through the unit chain of command and must be supervised by unit leaders.

(2) A full discussion of this subject area is in FM 44-23, TC 7-1, and TC 23-44.

U-14 Mines and Boobytraps

a. Mines and boobytraps are frequently employed by ambush forces. In fact, a command-detonated mine usually signals an ambush. Mines, either command- or pressure-detonated, vary in size from a few pounds of explosives to several hundred pounds. Some are recovered, unexploded bombs or artillery rounds planted nose up in the road. Mines also are planted along the shoulder of the road for harassment and interdiction. A boobytrap system employed against personnel in vehicles consists of hand grenades attached to tree branches over the road where antennas or other projections from vehicles will snag and detonate the grenades. Claymore mines may be sus-

pended from trees and command detonated when a vehicle passes.

b. The following guidelines have proven effective in decreasing damage by mines in convoy operations:

(1) Track the vehicle in front.

(2) Avoid driving on the shoulder of the road.

(3) Whenever possible do not run over foreign objects, brush or grass in the road.

(4) Avoid fresh earth in the road.

(5) Watch local national traffic and thereaction of people on foot. They frequently give away the location of any mines or boobytraps.

(6) When possible, arrange for the engineers to sweep the road before the convoy is scheduled to move over it.

(7) Heavy vehicles, such as tanks, are useful in exploding small mines when deployed in front of the convoy.

U-15 Halts

a. On long trips it is usually necessary to make one or more scheduled halts for refueling, inspection, and maintenance of equipment, mess, rest, and relief. Locations for halts should be selected before departure of the convoy. They should be situated in a relatively secure area and, when possible, under the surveillance of a security force.

b. The convoy should be halted only at points where there is an unobstructed view of about 200 yards from the head and tail of the column. There should be no restrictions, curves, or grades. Vehicles should be pulled over to the side as far as possible. Drivers should maintain the prescribed vehicle distance. Scheduled halts should not be made in

populated areas or where there is a heavy volume of local traffic, especially on foot. Local civilians should not be allowed to gather around convoy vehicles. All vehicles remain off the road, keeping the traveled portion clear. Guards are required at the head and tail of the column to direct traffic.

U-16 Road and Bridge Damage

Roads or bridges can be damaged, either by natural causes or by the enemy. When alternate routes are not available, engineer support is required to restore the roads to a serviceable condition. One of the benefits of an aerial reconnaissance prior to the convoy's departure is the identification of problem areas along the route. Also, it enhances selection of a bypass or alternate route.

U-17 Vehicle Recovery

a. The assignment of a trained maintenance officer or maintenance sergeant to command the trail party is essential. He must be capable of determining whether a disabled vehicle should be repaired, recovered, or destroyed.

b. The trail party must have security, especially during recovery operations. Trail party vehicles should be hardened and personnel armed with automatic weapons.

c. An effective policy is that the first recovery vehicle to reach a disabled vehicle recovers it unless orders directing other action are received. Normally, a disabled vehicle pulls to the right side of the road to allow those following to continue to move. The shotgunner and any passengers dismount and take up positions from which they can observe possible sniper fire or other enemy action. This protects the driver and vehicle

while the driver attempts to repair the vehicle.

(Road shoulders are frequently mined or boobytrapped. Before a driver or crewman dismounts, filled sandbags can be thrown on the ground from the protection of the vehicle, then used as stepping stones. The impact of the sandbags will detonate most pressure type antipersonnel explosive devices near the vehicle.)

When the trail of the march element arrives, the escort vehicle commander notifies the convoy and march element commanders. He then attempts a recovery until the head of the next march element arrives. At this time he returns to his trail escort position.

If the disabled vehicle requires towing, the wrecker or other vehicle to be used, stops 25 to 50 meters in front of the disabled vehicle. The tow bar is then attached to the disabled vehicle. A hasty reconnaissance for mines is conducted in the space between the disabled vehicle and the tow vehicle. Then the tow vehicle is backed into towing position, connected to the disabled vehicle and, if between march elements, moves under escort to the rear of the march element ahead. If in a passing march element, the driver of the tow vehicle waits until the trail of the passing march element arrives. He then takes a position to the rear of the march element. The most important elements in recovery are vehicle security and speed in recovering the disabled vehicle. This recovery keeps the road clear.

The march element and convoy commander must be kept informed of the status of disabled vehicles. If a vehicle is disabled because of a mine, fire, wreck, or enemy weapons, the convoy commander must decide if the vehicle is recoverable. If it appears that recovery is impracticable, he may decide to destroy it in place, provided such action has been authorized by the appropriate commander. This can be performed by the engineers using explosives, by gunfire from the escort force, or by artillery or tactical air fire after the convoy has cleared the area. All personnel should understand that destruction

of equipment is a command decision. Destruction should be employed only to prevent it from falling into the hands of the enemy. Critical parts of the equipment to be destroyed should be recovered if sufficient time is available.

U-18 Release Point

Prior to arrival it is a good policy to contact the receiving units by radio. This notifies them of the expected time of arrival. It enables them to meet the convoy at the release point and guide the vehicles to the proper unloading points. As the vehicles are unloaded, they should be dispersed and after-operation maintenance should be performed. Drivers should be informed where and at what time to assemble for the return trip. Since forward locations present an especially profitable target when a convoy is present, light and noise discipline should be strictly enforced.

U-19 Night Convoys

a. Due to their extreme vulnerability to ambush and sniper fire, night convoys are **not recommended as a routine operation**. However, intermittent night moves that do not set a pattern can be very effective in keeping enemy forces off balance and in maintaining high resupply levels. When employed, night convoys are much smaller than normal day convoys for easier control. Familiar routes should be used.

b. Planning and Coordination. Night convoy moves are planned the same as day moves. Effective coordination between convoy personnel, escort troops, artillery sup-

port, and reaction forces becomes more critical as visibility decreases. It is important that all personnel understand the correct use and interpretation of pyrotechnic signals. Night convoys should be made up of vehicles with uniform capabilities. Outsized or overloaded vehicles should be avoided.

c. Speed, Vehicle Distance, and Light Discipline. Whether a convoy moves under blackout conditions or with lights is determined by local conditions. Under blackout conditions, the vehicle distance is closed to approximately 15 to 20 meters. Speed seldom exceeds 5 to 10 miles per hour. When operating with lights, vehicles usually maintain a distance between vehicles of 50 to 100 meters at a speed of 15 to 20 miles per hour.

d. Escorts. Due to control and security difficulties resulting from reduced visibility, it is essential that march elements be organized in easily manageable sizes. They should have an adequate security escort. When possible, additional radios should be provided to insure rapid communication between all elements involved. Gun jeeps, armored cars, helicopters, armored personnel carriers, and tanks can be effectively used as escorts and security elements. Tanks with organic searchlights and high firepower can be highly effective deployed throughout the column as security vehicles. In case of an ambush, they may be driven directly into the ambush, employing shock as well as firepower to neutralize the attacking force. As in all ambushes, it is critical that convoy vehicles caught in the kill zone keep moving. Those that have not entered the kill zone must halt until it is safe to proceed.

e. Release Point. Receiving units must have guides available at the release point to expedite the movement of vehicles to their unloading points. Confusion or delay at the release point is an invitation to an ambush with the resulting loss of men, equipment, and supplies.

U-20 After Action Reports

The final action in any convoy escort operation is submission of an after action report. This can be either orally or in

writing, depending on occurrences during the trip. The primary purpose of the report is to provide a record of any unusual occurrences. It provides current intelligence and serves as a record of lessons learned.

Railroad Security

Section II

U-21 Vulnerability

a. Railroads are profitable targets for regular and irregular enemy forces. They are particularly vulnerable to guerrilla attack because a train's movement is directly determined by the condition of the rails. Cutting the rails can produce effects comparable to direct attacks—stopping the train or preventing delivery of critical goods.

b. Even when friendly forces dominate the area, railroads present a target for deliberate sabotage or overt attack. These targets are present in CONUS and the theater of operations. They range from a switch that can be thrown the wrong way to a trestle that can be demolished. The destruction of switches, signals, or trackage may be only harassment, or it may trigger a chain reaction of a larger scope. The destruction of a bridge or a tunnel may disrupt a whole railway system and may require a long time for repair or replacement. Each individual bridge and tunnel must be considered as a separate security problem.

c. Security measures for railroad operations are determined by the situation and area of operations. General protective measures may include the following:

- (1) Route reconnaissance by Army aircraft.
- (2) Occupation of critical terrain features along the route prior to and during movement.
- (3) Use of special observation cars that permit surveillance of the entire train.
- (4) Placement of the locomotive at the middle of the train to minimize damage to the locomotive in case of sabotage. An alternate method is to place two or three gondola cars, filled with rocks, sand, or other ballast, in front of the engine to absorb the effects of any detonation of mines placed on the railway.
- (5) Use of empty and decoy trains to precede critical shipments.
- (6) Use of escort or scout trains to patrol the right of way.
- (7) Use of special armored guard cars.
- (8) Placing of mobile maintenance trains in strategic locations along the route or moving with trains.
- (9) Consolidation of trains to assure the most economical use of available air cover.
- (10) Movement at highest safe speeds through areas where guerrillas or partisans are active.

(11) Placing of security patrols along the length of the line to be traversed.

These measures are discussed in more detail in the following paragraphs.

d. In addition to the train security operations discussed in this section, military police may be tasked to provide security of railway yards.

U-22 Bridge Vulnerability

A railroad bridge, because of the weight it must support, may be rendered unserviceable merely by weakening it. Bridge approaches or abutments are extremely vulnerable to attack. On a single span bridge, the destruction of an abutment is usually sufficient. In this case not only is the bridge wholly or partly demolished, but the destruction of the abutment makes it difficult to obtain a footing for the foundation of a new bridge on the same site. On a multiple span bridge, the demolition of an intermediate pier usually has the same effect as the destruction of an abutment.

U-23 Bridge Security

The security measures appropriate for a bridge are based on its sensitivity. This is determined by the bridge's location, its relation to other structures and alternate routes, and its proximity to populated areas. Usually the most effective security measure is a stationary security force. Mechanical aids may be used to supplement security. Forces should be placed at both ends of the bridge so they can observe its understructure as well as its roadway. The draw-mechanism of drawbridges should be guarded at all times. Guard boats and upstream booms permit inspection of vessels before allowing

them to pass under a bridge. The security force should be quartered at a safe distance from the bridge, but near enough for personnel not on duty to be readily available in an emergency. The full length of the bridge should be inspected at irregular intervals. Sentry dogs may be used to supplement personnel.

U-24 Tunnels

The most vulnerable point of a tunnel or tube is the place where it passes through loose or shifting earth, sand, or other unstable material. At such a location, a saboteur may attempt to destroy the lining by placing explosive charges along the crown or upper sides. It may be sufficient to destroy one side of an arch ring in this manner. If this occurs, the pressure of the over-burden may bring down the roof and fill a section of the tunnel. This type of destruction is normally not possible in firm soil or solid rock without the use of large breaching charges. Saboteurs usually avoid this due to the difficulty of placing the charges surreptitiously. However, a similar but not as serious result may be obtained by derailing a train in the tunnel. Ventilating shafts are also vulnerable points.

U-25 Military Police In TRS Security

a. Transportation Railway Service (TRS) personnel are highly trained with one primary mission—to operate and maintain railroads. TRS units are organized especially to fulfill this mission and this mission alone. All TRS personnel have specific jobs in the rail operation. Therefore, security functions beyond the capabilities of TRS units must be handled by those trained and equipped to do the job—the military police.

b. The military police brigade, organic to the area support command in TRANSCOM, provides military police services for the TRS. The brigade has two military police guard battalions, and each battalion has four military police guard companies. One MP guard battalion is assigned to the transportation command for each railway group in the TRS. MP guard companies are assigned on the basis of one per railway battalion.

c. When the TRANSCOM organization does not exist, military police may be detailed for railway security operations from local area MP units.

d. Military police units assigned to the TRS have the specific purpose of providing security for train operations. They may be supplemented by civilian guards; but this practice should be avoided when possible.

e. Train security forces must have all items of equipment and supplies needed for the operation. In addition to their regularly assigned individual weapons (pistols or rifles) and ammunition, special armament may be necessary. They may require bedrolls, rain gear, fire extinguishers, rations, flashlights, lanterns, protective masks, and many similar items. They also must have radios capable of establishing communications with units stationed along or near the railway line. Contact must be established at the earliest opportunity.

f. The NCOIC of the security force should obtain a time schedule for the movement. He should make a map reconnaissance of the route, so he will be able to plan his actions at scheduled stops, at relief points, if any, and to deploy his forces accordingly. He also should plot the locations of military police units and other friendly forces along the route, together with their radio frequencies and call signs. The NCO should establish communication with such units as the train enters their areas of responsibility. This way

the units may provide additional support and protection as necessary.

g. The NCOIC also should have an intelligence report covering the route. This provides information as to any sites or locations where sabotage may occur, attacks may be expected, boxcar thievery is on the increase, and similar information.

h. TRS training. Military and civilian security units attached to the TRS should be given a brief training program based on the material presented in this section. This training should familiarize members of these units with basic railway operations, rail terminology, and railway signals. It should also teach them how to coordinate their efforts with those of the train crews for better train protection. All security units should be thoroughly familiar with the requirements of their duties, and know where their duties end and the train crew's begin. The conductor or train commander has the responsibility for the operation and security of his train. He will make all decisions affecting both of these responsibilities. The conductor is the train commander unless a TRS officer is assigned to that train for specific reasons. Close cooperation between train crew members and security forces is imperative.

U-26 Operations Security

a. The primary mission of the train operating crew and the security forces on-board is to get the train to its destination with its freight intact. Normally, a train operating crew consists of four or five people—the engineer, the conductor, a fireman, the senior brakeman, and the brakeman or flagman—and this crew has control of the train. The number of men in a train security force will depend on:

■ Sensitivity of the freight

■ Priority of its need

■ Terrain over which the train will pass.

Security forces may ride in a specific car that requires protection, in the caboose, or in a security car or cars if provided. If only one security car is used, it should be near the center of the train. If more than one is used, spacing should be arranged to provide the best protection for the train. When security forces are assigned to each train, their names are listed on the train dispatcher's roster with the names of the train operating crew. The same security and train crews should, as far as possible, work together on every run. Train crews are either freight or passenger crews, and each type of security force then would need to be trained in only one kind of security. Duties differ on passenger and freight trains.

b. The security force on a freight train must keep a constant check on car doors, seals, wires, and locks to detect tampering. They also must be on the alert for cars that may be loaded in a way that would invite pilferage. It is standard railroad practice in making up trains to group the cars according to their respective destinations. However, cars containing easily pilferable freight should be grouped within the train to obtain the most efficient use of security forces. This grouping may be feasible when all cars of the train have the same general destination. When flatcars or gondolas are used for transporting sensitive or easily pilfered freight, the security forces should be placed where they can continuously observe and protect these cars and their freight. If a car is set out on a siding because of a defect, a member of the security force must stay with the car until it is either unloaded or repaired. If more than one car is set out, two or more guards may be required to protect them.

c. Military police may be assigned to passenger service to help maintain discipline and order. Normally, two men are assigned to a train. They do not interfere with the duties

and responsibilities of the train crew. They work with the train conductor on all matters pertaining to the passengers. If they desire to check passes, they do it at the same time as the conductor is checking tickets or the passenger list. Military police assigned to passenger trains should be selected with care because their duties involve people rather than inanimate objects of freight. They should possess such personal qualities as tact, poise, and the ability to work harmoniously with others.

U-27 Ground Attack

a. Security of the rail lines, installations, and right-of-way are only part of the job. Trains operating in the threatened area and their freight also must be protected. Military police units attached to the TRS help in accomplishing this task.

b. Underbrush and thick forests should be cleared from the sides of the roadbed to eliminate cover for anyone attempting to interrupt traffic. Railway gondolas carrying mounted machineguns, mortars, and rocket launchers may be manned by military police. Also rail cars loaded with rock and dirt or scrap material may be pushed ahead of the engine for protection against mines, sabotage, or obstructed tracks. Passenger trains should carry a supply of ammunition and hand grenades for the crew and passengers to use if needed. They should also contain fire extinguishers and first-aid kits. All vestibule doors should be kept closed. This prevents guerrillas from boarding. Windows should be covered with securely fastened heavy mesh wire screen to prevent hand grenades or other explosives from being thrown into the cars. With security troops posted at strategic positions and trains carrying armed security forces, rail interruptions resulting from sabotage and guerrilla action can be greatly reduced.

c. Should the train be attacked, either by sniper fire or by ambush in force, the first consideration is to keep the train moving, if at all possible. The NCOIC of the security force should deploy his forces in the best manner to return fire and repel the attack. If the train is halted they should remain in the car if the security force car will withstand the fire of the attackers. If not, they should get off the train and take up the most advantageous firing positions. All possible fire should be directed to neutralize or destroy the attackers. They must, however, be familiar with and alert for the train whistle signal for reboarding, so they will not be left behind or injured trying to board the train as it moves out.

U-28 Air Attack

a. Trains, track, and all rail facilities are exceedingly vulnerable to air attacks. When trains are operated in areas subject to these attacks, antiaircraft weapons may be mounted on cars spaced throughout the train and manned by members of the security force attached to the battalion. When the train is attacked in open and exposed areas, it should continue to move if possible. Heavily wooded areas or deep cuts through banks or hills provide some cover. Trains attacked in such terrain should use whatever cover is available. Tunnels afford excellent cover for trains if the tunnels are long enough. Short tunnels can be used for hiding locomotives or cars containing special equipment.

b. If possible, trains operating in areas subject to air attack should run at night and stop in concealed places during the day. Diesel-electric locomotives can be camouflaged to look like boxcars. Steam locomotives are much more difficult to conceal. As a rule, rail lines are not considered profitable targets for airstrikes because they are quickly repaired. Rail installations such as terminals, port areas, and railheads generally suffer the

greatest damage. Bridges and stations for refueling and watering locomotives are also likely targets. It is highly improbable that train operations could continue with any great degree of success under sustained air attacks.

U-29 Freight Security

The physical security or safekeeping of freight requires that all personnel are well trained in all phases of movement and protection of supplies. Because of the poor economic state that results from the ravages of war, pilferage and theft are continual threats in theaters of operations. Favorite targets of pilferers are food, clothing, fuel, tools, and other supplies that sustain life. This threat does not always come solely from local inhabitant. Freight must be protected against removal by any persons except those authorized to receive freight shipments. Usually, pilferage centers around small easy-to-carry items. Mail and high-priority materials always present security problems. The following paragraphs discuss some methods of achieving freight security at the origin of movement, while in transit, and at its destination.

U-30 Security at Origin

a. The shipper is responsible for the security of all carload freight until it is turned over to the TRS and the loaded car coupled to a locomotive for movement. Carload freight is that loaded by the carload, as opposed to a few boxes or crates of freight. The shipper is also responsible for properly loading the cars. This includes blocking and bracing, closing and sealing the car doors, icing if required, and documenting the cars. Before loading a car, he should inspect it thoroughly

to insure that it meets security requirements. Doors should be securely in place. No holes should be in the roof, sides, or floors. If he finds a defective car, he should report it immediately to the railway organization that supplied the car. It is very important that rail cars be loaded properly when they are turned over to the TRS for movement. The shipper's responsibility in getting them ready to move is discussed in detail in the following paragraphs.

b. One of the most vulnerable places during movement of cargo is the loading point. Rail cars should be loaded as soon as the freight is brought to the carrier. Loads should be evenly distributed over the car, so that no side or end is more heavily loaded than the other. Improper placement of the load can cause the car to sway and the load to shift. If shipments are made in open cars, they should be covered with securely fastened tarpaulins if the contents can be damaged by bad weather. If boxcars are available, small items should be shipped in them. CONEX containers are also ideal for shipping small items on flatcars. They reduce the turnaround time of the rail equipment, protect freight from weather, and greatly reduce the chance of pilferage.

c. The main objective of blocking and bracing is to insure that freight will be immobile during transit and will arrive at its destination in good condition. Lumber used for blocking and bracing should be sound and free of knotholes and splits. These impair strength and interfere with nailing. Great emphasis should be placed on proper blocking and bracing of loads because of the danger of their shifting, and thereby breaking equipment and freight. Also, if a load shifts and a box or crate of small items breaks open, the chance of pilferage and theft is greatly increased. There are two very good reasons why this is true. It is much simpler to steal something that can be easily moved and hidden, and a thief is more likely to tamper with a broken crate or box. Second, most

items are not identifiable from the outside of a box or crate. A thief will not usually go to a lot of trouble to steal something unless he knows that he can use it, sell it, or deprive US forces of critical material.

d. The standard method of sealing a railway car door (in addition to locks or wires) is by a soft metal strap or cable seal). Sealing the cars and containers may discourage pilferage but does not prevent it. Broken seals indicate that the car and contents have been tampered with just as unbroken seals normally indicate that the contents are secure. Train security forces or operating crews can easily check the seals on cars when the train stops and before it starts again. Any broken seals help pinpoint the time and place of the theft. It is important that a broken seal be reported immediately.

e. Rail cars and their loads are documented to aid in identifying and controlling them. When proper documentation is presented to TRS personnel, they are authorized to move the railway car. The document normally used in TRS operations is the Freight Waybill, or Government Bill of Lading (GBL). This form is filled in by the shipper or field transportation officer. It shows the car number, gives a brief description of its contents, weight of the load, names the consignor and consignee, and tells the origin and destination. In addition, it may show special instructions for the movement or security of the car and contents. One copy of this form accompanies the car. Each car has its own waybill rather than one large waybill for the entire train; because one or more cars maybe set out on a siding while en route if they become defective. An adequate system of documentation is essential for the security of all rail shipments. Through the use of documents, it is easy to determine if something is missing from a shipment. They prevent the loss of a car or contents and provide a means of locating cars loaded with critical cargo so that priority movements can be authorized. Transportation movement officers are responsible for the completeness,

correctness, and proper handling of waybills. TRS is responsible for moving the freight and insuring that all instructions on shipping documents are followed. When the trip is completed, the secured cars are inspected by the receiver or his authorized agent. The NCOIC of the security force must obtain a receipt for those cars.

f. Insuring that cars containing perishable commodities are iced is the responsibility of the shipper. The TRS must insure that the car is routed so that any necessary reicing can be accomplished.

U-31 Security in Transit

a. In a theater of operations, when property and material are in transit, security problems are prevalent. Loading procedures, placing the cargo into carriers, and moving these carriers all present security hazards of varying degrees. Sabotage and pilferage may be encouraged because of the economic state or the political sympathy of the local population. All elements that contribute to security hazards must be evaluated to obtain the most effective security system possible. One way of insuring the security of cargo in transit is by having the responsibility of the consignor, the earner, and the consignee clearly established. In general, the protection of property and material in transit is the responsibility of the person who has the shipment in his custody. However, this varies according to its size and the means of transportation.

b. For shipments by rail, as stated in paragraph U-30a, the shipper is responsible for the security of loaded cars until they are properly turned over to the transportation railway service. TRS responsibility commences when the loaded and sealed cars are coupled to a locomotive or train. It ceases when the loaded cars are delivered to a designated

depot siding, or track. The consignee or receiver assumes responsibility for the security of loaded cars at the time they are delivered at the designated depot, siding, or track.

c. Before moving a car from its loading origin, TRS personnel inspect it for defects, proper loading, secure seals, and proper documentation. The train operating crew and the train security forces are responsible for the security of the car and cargo. They must report any discrepancies or interruption in the normal operating procedures during the entire movement. When operations permit, cars containing highly pilferable freight, high-priority cargo, or special shipments are grouped in the train to permit the most economical use of train security forces. If necessary, the shipper or loading agency also may assign specially trained personnel to safeguard critical or highly sensitive cargo in transit. Military police or other patrols should be stationed at critical portions of the route where attempts at pilferage may be expected. When cars containing such freight arrive in a rail yard, the yard-master makes note of the receipt of them. To expedite the shipment of sensitive cargo, information about the movement is normally transmitted from division to division by the chief train dispatcher through his telephone circuit. This method provides an efficient integration of high-priority shipments into the movements program.

d. The train security forces prepare and maintain a record by car number of all guarded cars in the train. They note and report any irregularities in procedures, the presence and actions of any unauthorized persons, and any deficiencies and/or incidents that occur en route. If these forces are relieved by other security forces while en route, an inspection of the guarded cars is made jointly by both crews, and the relief forces sign the record.

e. When the train is traveling at slow speeds on steep grades, through tunnels,

cuts, villages, or in wooded, restricted, or congested areas, the danger of looting or attack increases. Security forces and operating crews must be more alert for persons attempting to board or damage the train. When the train is stopped, security forces dismount and check the train on both sides. They verify that seals, locks, and wires are intact. They check for any damage to the cars, including overheating journal boxes, which may cause damage to the axles.

U-32 Security at Destination

a. Because unloading points are highly vulnerable to pilferage and sabotage, cars should be unloaded as soon as the train arrives at its destination. This may not always be possible; but immediate handling of freight reduces opportunities for its loss. Speedy unloading of rail cars also increases the availability of the rail equipment.

b. The wire sealing on closed car doors should be removed carefully to avoid breaking the door latches. After unloading, if the

material must be stored, every possible effort must be made to achieve the desired level of security. Remember, both open and covered items in storage are vulnerable to all types of sabotage.

U-33 Trip Reports

At the conclusion of the trip, the NCOIC prepares a report covering the trip. There is no prescribed form, but the report should contain, in addition to the items listed in par. U-30d, the following:

- Dates and times of commencement and completion.
- Personal data of the security forces and train crews.
- Any recommendation for correction of deficiencies or improvement of future train security operations.

Additional items may be included, either as required by local or command directives, or at the discretion of the NCOIC. The receipt obtained for the secured cars (par. U-30e) must be attached to the report.

Pipeline Security

Section III

U-34 General

a. Pipeline (and hoseline) systems are used extensively, especially in active theaters of operations. They are used for economical delivery of large quantities of bulk petroleum products, especially automotive and aviation gasolines, diesel and jet fuels. They are generally designated as logistical or tactical pipeline systems. A **logistical**

system is either permanent or semi-permanent. A tactical system is either temporary or semipermanent. A tactical system consists of rapidly coupled pipe or tubing systems and rapidly emplaced storage tanks. It furnishes fuel to advancing units in corps or division areas. A variation of the tactical system is an assault pipeline system. This is composed of hose, collapsible fuel cells, and portable

pumps. It is rapidly installed to supply rapidly advancing troops in combat areas.

b. These systems consist, in general, of discharging facilities for tankers at ports, water terminals, or other points of entry; inland tank farms, terminals, and other storage and dispersing facilities; pump stations (which may be designated as trunk stations or booster stations when used on the main line, or as branch stations when used on a branch pipeline or hoseline); and pipelines that extend as far forward as practicable from the point of entry. Branch pipelines or hoselines are lines leading off the main pipeline to major users, such as airfields, or to general support suppliers.

c. Pipe and tubing used in the construction of military pipelines are of three main varieties—standard lightweight, standard weight, and special.

(1) Standard lightweight steel tubing makes up most of the length of the pipeline. This tubing comes in 20-foot sections. Lightweight tubing, because its wall is thin, is not normally buried nor used in submerged water course crossings. It also is not used in populated areas and other places where the hazards of fire and physical damage are great.

(2) Standard weight pipe is used where standard lightweight steel tubing does not give sufficient strength. Such pipe is used in submarine pipelines, river crossings, and other critical locations. Standard weight pipe may be either coupled or welded. In the Army it is usually coupled. It is fabricated in diameters of 4, 6, 8, 12, 16, 18, 20, and 22 inches. However, it is not normally stocked by the Army in diameters in excess of 12 inches.

(3) Special pipe and tubing includes pipe and tubing made of aluminum or other alloys or material. It is used where lightness of material is essential. Special tubing includes the flexible hoses used in the

construction of beach manifolds. It also is used for unloading lines leading to off-shore tanker anchorages. Hoselines also are used in forward areas, such as at pipeheads. They also may be used as temporary lateral extensions from rigid pipelines to supply points and airfields. Hoselines also can be used as temporary bypasses when sections of rigid pipeline are being repaired or replaced.

U-35 Security Hazards

a. Pipelines are vulnerable to a variety of security hazards throughout their lengths, from point of entry to point of final delivery.

b. Pilferage is the most common hazard, especially in areas where gasoline is scarce and expensive on the civilian market. Pipelines are tapped by loosening the flange bolts that join the sections of pipe. Gasoline draining through the opening is poured directly into containers of any type (depending on space available beneath the pipe) or permitted to fall into a hole dug under the line. From the hole it is transferred to containers. Much gasoline can be pilfered in this manner. Gasoline can be pilfered from hoselines by either loosening the couplings between sections of hose, or by cutting holes in the hoseline.

c. Such pilferage frequently causes fire or explosion along the pipeline. This is due to the spilling of highly volatile fuel during pilferage and afterward because flange bolts or hose couplings are seldom properly tightened. Also, the holes in hoselines are not plugged or mended.

d. Even when such actions of pilferers do not result in fire or explosion, they add immensely to the total loss because of the continued flow of petroleum from opened flanges or holes. Experience indicates that losses may exceed 16 percent over a 5-month

period from this type of activity in a theater of operations.

e. Sabotage is always a security hazard. It is committed by any method such as simply opening pipe flanges, cutting hoseline, or setting fires and causing explosions to destroy portions of a line.

f. Security hazards also exist at pumping stations, frequently at locations remote from supporting units. They are vulnerable to attack primarily for sabotage by destruction of either the pumping machinery or the entire station.

U-36 Organization and Planning for Security

a. Pipeline security may be performed either by military police units or by infantry units assigned to military police units, or both. Organization of forces and planning for security can be a responsibility of the military police commander. He must coordinate with the security officers of the petroleum group and petroleum operating battalions. He must coordinate with other security officers, especially those with a physical security responsibility for any area through which the pipeline passes.

b. He should, where possible, coordinate with the pipeline construction and using agencies prior to construction. Here he can provide advice and recommendations on physical security. If the pipeline is already in operation, he should cause a thorough reconnaissance of the pipeline to be made from point of entry to terminal. He should include any branch lines, pumping stations, or other facilities.

c. The MP commander's coordination

should include consultation with the command engineer. The engineer is responsible under the provisions of AR 415-22, for physical protection measures, including the hardening or dispersion of petroleum storage and related facilities. Types and methods of protection mentioned in that AR include

- Buried or semiburied construction
- Floating roof, suitably protected
- Splinter-proofing, blast walls, and revetments
- Use of natural terrain features
- Dispersion
- Use of security guards
- Other physical aids for protection against sabotage.

The type and level of protection best suited and economically feasible for all elements of petroleum installations is determined by target analysis and feasibility evaluation. This is also an engineer responsibility. Protection from strafing, high explosive bombing, atomic blast, and fire must be considered. The AR contains a table that reflects the degrees of protection afforded by various means of construction against various types of attack. The physical security officer should be familiar with these procedures and cooperate with the engineer in his target analysis and feasibility evaluation.

d. The level of intensity of the warfare situation has a considerable effect on the type and extent of the security hazards to be anticipated. In a peacetime or stable situation, the chief hazard is usually pilferage. The extent of pilferage depends on the local availability and prices of petroleum products in the area. As the level of intensity increases from low to high intensity, the hazard of sabotage becomes increasingly important. Security measures should be increased and altered to meet this threat.

U-37 Security Considerations

a. One of the first security considerations is to coordinate all efforts, tactical and nontactical, in the area of the pipeline system to provide surveillance, report observations, and to take immediate actions to protect the system. Forces dedicated entirely to pipeline security are rarely sufficient in number for complete and continuous surveillance of the entire system. The security officer must deploy his forces in the best manner to provide coverage, by static, motorized, and air patrols, of the most vulnerable portions. Other portions must be covered by surveillance by other forces. These other forces in the course of their normal duties, can observe and report items of intelligence for further investigation. Some suspicious activities in the pipeline area might include the unusual presence of commercial tank trucks, appearance of gasoline drums or cans, or increased use of motor vehicles in fuel-scarce areas. These also include any unexplained personnel in the vicinity of the system, especially in remote places. All commanders must be impressed with the necessity for reporting such information, since the pipeline system represents such an important part of their subsistence.

b. A second consideration is the locations of terminals. These locations, as well as the size and number of terminals, depend on tactical, logistical, and similar military considerations. The principal military factor is the capability of an enemy to destroy one or more of the terminals. Another factor is the ability of other terminals to take over the functions of the terminals that may be destroyed. Such mandatory locations represent risks the commander must consider. The system represents a compromise between the requirements imposed by military necessity and the requirements for technical efficiency. The concern of the physical security officer is the defense of these terminals. It may be that he will have no voice in their selection; how-

ever, if he does, he should recommend those locations that lend themselves most suitably to static security. These may best serve as central control points for his static and roving patrols along the pipeline.

c. The pipeline itself should, insofar as possible, be laid in accordance with FM 10-67. Adherence to the following guidelines will, in addition to logistical considerations, provide the most beneficial situations from a security standpoint:

(1) The pipeline must follow the main military effort. In general, the route should take advantage of existing facilities and follow the most direct route feasible.

(2) The fundamentals of route selection are discussed in TM 10-1118 and TM 5-343. The latter also contains information pertaining to laying pipelines. Some of the more important considerations that influence route selection are listed next:

(a) Location, availability, and condition of pier or wharf facilities.

(b) Geographic and topographic considerations in establishing tanker unloading and base terminal facilities.

(c) Location, availability, and condition of existing military or civilian pipelines and petroleum products tankage.

(d) Probable need for dispersal of facilities.

(e) Planned or actual location of major fuel-consuming installations, such as naval supply depots and airfields. Pipelines used chiefly to supply bulk aviation fuels generally follow the most direct route to the airbases, with branch lines as required. Hoselines may be used when necessary as expedient branch lines. Responsibility of the Army ends with the delivery of the product to the Navy or Air Force base perimeter.

(f) Use of secondary all-weather roads to support construction of the pipelines

and to facilitate their security, supply, and maintenance.

(g) Maximum use of cover and concealment consistent with other criteria.

(h) Avoidance of such natural obstacles and barriers as swamps and rivers. Avoidance of urban and industrial areas and other potential profitable targets. Pipelines should not parallel operating railroads; neither should they be laid near railroads used by coal-burning locomotives, unless there is no other place to locate them.

(i) Compatibility, as required and feasible, with post-hostilities requirements and plans.

d. Pump stations are vital elements in the pipeline system. Not only do they push the products through the pipeline, they also feed the pipeline and may be used to transfer fuel between tanks and supply dispensing outlets. The location and spacing of pump stations depends upon the hydraulic design of the pipeline and the topographic features of the pipeline route. Location and spacing also depend upon the type and properties of the fuel to be pumped, operating characteristics of the pumping units selected, and the friction head losses for the selected size of pipe. In addition, spacing of stations must take into account effective control and maintenance of the line and efficient administration of the troop units that build and operate it. Underground shelter should be provided, when practicable, to protect personnel against attack.

e. An important consideration for security is the question of whether the pipeline should or should not be buried. Also to be considered is whether tanks should be buried, or covered with earth or other protective covering. (Note: Standard lightweight steel tubing is not normally buried. Standard weight pipe is required for burying.) The advantage of burying pipe and tanks is greater security, concealment from aerial observation, and reduced maintenance requirements. The physi-

cal security officer should stress these advantages and recommend burial when practicable. As an alternative, all possible means of cover and camouflage must be recommended. If burial is accomplished, it should be at a depth sufficient for protection against small arms fire or fire from any aircraft called in for spraying (par f, next). It should also protect the pipe and tanks from aircraft or mortar flares falling to the ground before burnout.

f. The physical security officer should coordinate with appropriate agencies for air surveillance of pipeline systems. He should arrange for heliborne night illumination when required. He should arrange for airstrikes on call to "spray" particular portions of the system area when essential to drive off saboteurs. Plans for such actions must be carefully made to preclude damage to the system or injury to friendly forces or innocent civilians.

g. Arms and equipment for security forces vary according to the tactical level of intensity, the prevailing situation, opposition anticipated or experienced, and similar factors. Radio communications are essential, and should be tied in with all available supporting forces in the area.

h. Finally, the physical security officer must be aware and alert for changes in the type and density of the population in areas adjacent to pipeline systems. The need for civic action requires coordination with appropriate military and civilian authorities for the education of local populations in the importance of the pipeline to their welfare. It should address the dangers to them if they interfere with its operation. This is particularly important when rapid population growth is observed, such as the springing up of new refugee hamlets or villages in the vicinity. The reasons for such growth must be analyzed. Any indication that it is connected with access to the pipeline for pilferage or other such activities should be investigated thoroughly.

Order of Economy	Most Effective Use	Capabilities	Limitations
Motor transport	<p>Supplementary mode for providing the connecting link for an integrated transportation system. It can also be used effectively in scheduled line haul operations by the trailer relay system.</p> <p>Primary mode for distribution operations and for logistical support operations in the combat zone.</p>	Most flexible mode over trafficable terrain; practically all weather (terrain factor important); increases flexibility of other modes; can transport nearly any commodity with a variety of specialized equipment for both on- and off-road movement.	Over-the-road operations influenced by route interferences and by obstacles created by weather, terrain, or enemy action; sustained line haul operations over long distances uneconomical in terms of ton-mile output versus expenditure of manpower and equipment.
Rail	Primary inland mode for maintaining a sustained flow of large quantities of traffic over long distances.	All-weather; any commodity; most economical continuous line haul operation; greatest sustained ton-mile capability; a variety of specialized equipment and services.	Flexibility limited by fixed routes; rail line clearances restrict outside movements; capability limited by availability of motive power; rail line highly vulnerable to enemy action.
Water	<p>Primary over-ocean mode.</p> <p>Supplementary inland surface mode for movement of large quantities of cargo in bulk and heavy and outsize materiel.</p>	All-weather; any commodity; most economical overall long-distance carrier; particularly useful for relieving other modes for more suitable employment.	Relatively slow; flexibility limited by adequacy of terminals, waterways facilities, and channels; vulnerable to enemy action and difficult to restore.
Air	<p>Complementary mode for providing expedited movement of mission-essential traffic.</p> <p>Primary or major supplementary mode when terrain conditions reduce effectiveness of surface modes.</p> <p>Scheduled operation is the most economical method of employment and produces greatest sustained ton-mile capability.</p>	Greatest potential speed of delivery and most flexible with respect to terrain obstacles. When these factors are combined with substantial lift capability, air transport over long distances becomes more economically favorable.	Operational capabilities and effectiveness limited by weather factors and trafficability of takeoff and landing areas. Relatively high ton-mile operating costs.
Pipeline	Primary mode for bulk liquids and solids suspended in liquid.	All-weather; few terrain restrictions; most economical and reliable mode for bulk liquids; relatively few personnel required for operation and maintenance.	Flexibility limited by immobile facilities; vulnerable to sabotage and enemy action; large construction tonnages required.

Figure 11-1 Mode selection guide

Class I—Subsistence.

Class II—Clothing, individual equipment, tentage, organizational tool sets and toolkits, handtools, administrative, and housekeeping supplies and equipment.

Class III—POL: Petroleum fuels, lubricants, hydraulic and insulating oils, preservatives, liquid and compressed gases, bulk chemical products, coolants, deicing and antifreeze compounds, together with components and additives of such products, and coal.

Class IV—Construction materials to include installed equipment and all fortification/barrier materials.

Class V—Ammunition of all types (including chemical, biological, radiological, and special weapons), bombs, explosives, mines, fuses, detonators, pyrotechnics, missiles, rockets, propellants, and other associated items.

Class VI—Personal demand items (nonmilitary sales items).

Class VII—Major End Items: A final combination of end products which is ready for its intended use, such as, launchers, tanks, mobile machine shops, and vehicles.

Class VIII—Medical materiel, including medical-peculiar repair parts.

Class IX—Repair Parts (less medical—peculiar repair parts): All repair parts and components to include kits, assemblies, and sub-assemblies, reparable and nonreparable, required for maintenance support of all equipment.

Class X—Materiel to support nonmilitary programs, such as, agricultural and economic development, not included in classes I through IX.

Figure U-2. Classes of supply.