CHAPTER 8

SPECIAL CONSIDERATIONS FOR THE 60-mm MORTAR SECTION

This chapter presents special considerations for the tactical employment of the 60-mm mortar section by airborne, air assault, light infantry, and ranger companies. It does not stand alone. It is dependent on the rest of this manual and FM 7-10.

8-1. LIGHT MORTARS ON THE BATTLEFIELD

The 60-mm mortar, M224, provides the mortar sections of the light infantry, air assault, airborne, and ranger infantry battalions an effective, efficient, and flexible weapon.

a. The rifle company commander depends on light mortars to supply close fire support, suppression, smoke, and illumination. Light mortars are the most responsive and versatile sources of indirect fire support available. Their maneuverability, high rate of fire, low minimum-range restrictions, lethality, and proximity to the commander ensure the versatility, reliability, and responsiveness needed in light infantry operations. Because of the demands placed on FA assets by counterfire, suppression, interdiction, and the employment of special munitions in nontraditional artillery roles, infantry leaders must plan and train well to ensure that light mortar sections provide the needed support in combat.

b. High-angle trajectories and multioption fuzes allow light mortars to effectively attack targets--

- In defilade on hilly, mountainous, or rolling terrain.
- Under jungle canopies.
- On marshy or snow-covered terrain.
- Behind buildings and on rooftops and top floors.

The short minimum range of the M224 makes the mortar well suited for close protective fires against an assaulting enemy, for block-to-block fighting in cities, and combat over close terrain with restricted visibility.

c. The light mortar section can be positioned between buildings, in confined areas, and on rough terrain. Light mortars are easy to conceal, can accompany raiding and counterattacking forces, can remain at the FEBA until the last moment, and can be moved with stealth. The location of the mortar section near the rifle platoons makes

communications by alternate means possible when conditions prevent radio contact with field artillery FDCs. The maneuverability of light mortars allows for sustained close fire support over the distances expected in light infantry combat.

d. Commanders increase the effect of their light mortars by--

- Stressing the constant integration of mortar fire into the fire support plan.
- Allocating manpower to help move and secure the mortars in rugged terrain.
- Stressing the value of mortars to the close infantry battle.
- Developing innovative ways to request and control mortar fires so that mortars can provide full support to the infantryman.
- Training their mortar's squads to deliver responsive, accurate fires at all times.
- Considering the timely resupply of mortar ammunition by including it in the plan for logistical support.

8-2. ORGANIZATION

The organization of the 60-mm mortar section in the rifle company is based on the company's TOE. The 60-mm mortar section is separate in the airborne, air assault, and light infantry rifle company. It is part of the weapons platoon in the ranger rifle company.

a. Light mortar sections consist of two squads, each consisting of one mortar and its crew. In the airborne, air assault, and light infantry rifle companies, the senior squad leader is the section leader. He is directly responsible to the company commander. (The organization of these mortar sections is shown in Figure 8-1.) No FDC personnel are in the airborne, air assault, or light infantry mortar sections. The mortar section sergeant coordinates closely with the company FIST chief to increase the effect of the section's fire.

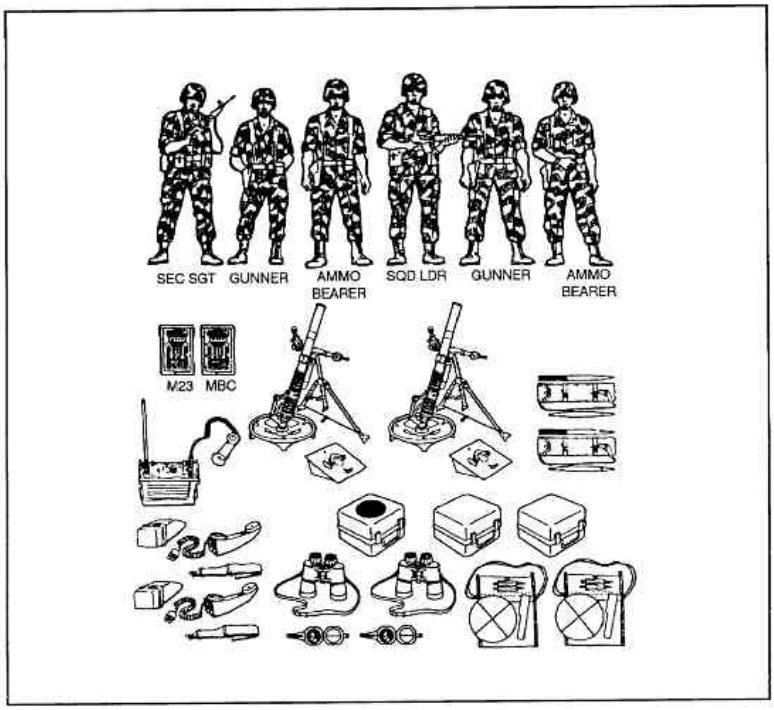

Figure 8-1. Equipment and organization.

b. Since there is no heavy or medium mortar platoon in the ranger battalion, the organic indirect fire support is provided by the 60-mm mortar section in the weapons platoon of each company. The ranger company's light mortar section has the same three-man squads as in the other infantry organizations. Also, it has a separate section sergeant and a single FDC computer. The FISTs in the ranger battalion are assigned rather than attached. This fosters a close relationship between the mortar section sergeant and the FIST.

c. The equipment carried by the mortar section allows the section to perform all the functions of an indirect fire team. Section members are armed for self-protection with M16 rifles (section sergeant and squad leader) or pistols (gunners and ammunition bearers). Each squad is equipped with a complete M224 mortar (baseplates, barrel, bipod, sight, and aiming stakes), fire control equipment (binoculars, M2 compass, MBC, and plotting board), and a TA-1 telephone. The section sergeant has a boresight device and a radio.

8-3. RESPONSIBILITIES

For the light mortar section to complete its tasks, the company commander and each member of the section are responsible for the following:

a. The company commander is responsible for employment of the mortar section. He assigns missions and priority of fires, allocates priority targets, designates general firing locations, and approves fire plans. He determines the suitable command relationships. He plans for logistical support by determining the amount and type of ammunition, and its distribution and resupply. The commander must be concerned with ammunition resupply since a mortar section can fire 280 rounds of 60-mm mortar rounds in five minutes. At that rate, the ammunition supply of a company can drop rapidly.

b. The ranger weapons platoon leader is the main advisor to both the company commander and the FIST chief on the tactical employment of the ranger company's mortar section. He recommends employment methods and positions the section to support the scheme of maneuver. He assists the commander and FIST chief in developing the company fire plan. He keeps them aware of the ammunition status and any range/mask problems. The weapons platoon leader leads the reconnaissance party, reconnoitering new positions and routes for the section based on the company commander's guidance and the enemy situation. He supervises the execution of orders and ensures that security measures are enforced to protect the section. The platoon leader lays the mortars for firing, when required.

c. The mortar section sergeant in the airborne, air assault, and light infantry company is responsible for all the duties of a platoon leader. He also acts as the squad leader for one of the two mortar squads.

d. The other mortar squad leader is responsible for the same duties as the section sergeant when operating as a separate squad. He acts as the section sergeant in the sergeant's absence.

e. The specific duties of the gunner and ammunition bearer are described in FM 23-90. In the light mortar section, the ammunition bearer also acts as assistant gunner.

8-4. EMPLOYMENT OPTIONS

The maneuver commander employs the mortar section based on his METT-T analysis.

a. The company commander has two options when considering how to employ the 60-mm mortar section--as a complete section or by squad.

(1) When the commander employs the mortars as a section, it operates from a single firing position under the control of the section sergeant. Both mortars engage the same target. The distance between mortars is 25 to 30 meters. This dispersion protects the section from enemy fire and ensures that the bursting radii of the rounds overlap. The section sergeant passes fire commands to the mortar squads by voice or over wire. To increase its responsiveness, the light mortar

section operates from a position near the rifle platoons. It engages targets as quickly as possible, often using fire without an FDC. If fire with an FDC is used, one of the two squads is designated by section SOP as the base squad. The section does not normally adjust the sheaf by firing. Once one mortar has been adjusted onto a target, the remaining mortar is laid parallel by reciprocal lay using the mortar sights (see FM 23-90).

(2) When the commander employs the mortar section by squad, he uses both squads as separate firing units. They may fire at the same target, but most often they engage different targets. Employment by squad may take place during the initial phases of airborne or air assault operations, or while supporting special needs:

- Reinforcing an element conducting a combat patrol.
- Reinforcing the advance guard.
- Performing one-mortar illumination missions.
- Infiltrating the company along multiple routes.
- Supporting detachments left in contact.
- Displacing by bounds to give continuous support during movement by the company.

(3) Employment by squad is the less desirable method. It should be used as a temporary measure when METT-T factors prevent mission accomplishment by section employment. The 60-mm mortar lacks the destructive power of heavy mortars and FA. By concentrating fires, the section can achieve a greater measure of destructive power. The employment of separate mortar squads lessens the destructive power achieved by consolidating the section, but it does gain responsiveness to special situations. Squad employment also increases the problems common to ammunition distribution and resupply, as well as fire control. Employment by squads can reduce the company commander's span of control problems if the mortar squads are attached to platoons or a patrolling element.

(4) Under extreme circumstances, the commander may choose to leave one of the section's mortars behind and have more ammunition carried for the remaining mortar. This could occur during operations over deep snow, requiring the mortar section to use ahkios to transport its weapons and equipment. The six-man mortar section can pull only a single ahkio, which can carry up to 200 pounds. Operations on mountainous terrain can also cause the commander to choose to leave a mortar behind. During assault climbs or infiltration attacks over rough terrain, the efforts of all six mortarmen may be needed just to get a single mortar and its ammunition into a firing position.

b. The battalion commander always has the option of detaching the light mortar sections from the rifle companies and consolidating them under the command and control of the battalion mortar platoon.

(1) This might be done when the battalion's objective is a compact, well-defined area that can be covered completely from one or two mortar firing locations.

(2) Consolidating the battalion's mortars has several advantages:

- Fires can be massed and controlled by a single FDC.
- Ammunition resupply is much easier to control.
- Understrength mortar squads can be consolidated and rested.
- Displacement and transportation can be more easily controlled.
- Security against an enemy ground attack is increased.

(3) Consolidating the battalion's mortars has several disadvantages:

- It increases the chance that a large portion of the battalion's mortars will be destroyed by a single-enemy countermortar strike.
- It requires a larger firing position than normally needed.
- It may limit target coverage and flexibility of fire support.
- It deprives the rifle companies of organic mortar support to complement their direct fires and maneuver.
- It can cause a delay while the mortar sections are consolidated, and again when they return to their parent company.

c. Consolidation of the battalion's mortars, like almost all nonstandard task organizations, is highly dependent on specific METT-T conditions. It has inherent advantages and carries with it inherent risks. It should not be used routinely, but only after a careful analysis of the situation and the commander's desired outcome.

8-5. DISPLACEMENT

Based on the scheme of maneuver and the company commander's guidance, the mortar section sergeant prepares a displacement plan as part of his fire plan. The displacement plan must contain detailed instructions on the type and amount of ammunition to be carried with the section. The company's plan must have provided details on the displacement of the section's bulk ammunition load. The section leader briefs the section on the displacement plan. He orients the section on potential targets using a map, compass, and prominent terrain features. After having received new information, the section leader updates the earlier orientation given to the section, when possible.

a. To support offensive operations, the displacement plan must permit rapid displacement and emplacement, while ensuring the use of immediate fire support. The enemy situation, the distance and terrain to be covered, and the need for continuous fire support determine the displacement method used. However, the mortar section most often displaces as a complete section. The section may occupy successive positions while the company continues to advance. It also may identify likely firing positions and continue to move with the company until required to fire. Continuous orientation by all members of the section reduces the time to bring effective fire on the enemy.

b. The defensive displacement plan has the same needs as the offensive plan with some additions. Each member of the section is shown the route to be used and the exact location of alternate and supplementary locations. Use of prestocked firing positions, prelaid wire for communication, and predetermined firing data are considered. All firing positions should be readied so the gunners can quickly lay the mortars. Also, careful map inspection and coordination between the rifle company and the supporting FA battalion should result in accurate map location of all firing positions. Two methods to speed the emplacement of the mortar section during defense displacement are as follows:

(1) The section sergeant reconnoiters subsequent firing positions and determines the locations of the mortar baseplates. He places a tent peg or stake into the ground at the intended location. Attached to this peg is 5 meters of engineer tape and another peg. The section sergeant runs this tape out and uses his M2 compass to orient the tape in the direction of fire. He then stakes the tape down. Depending on the time of day when the position will be occupied and the tactical situation, chemical lights can be placed at the far end of the tape to aid the gunner. Upon arrival, the mortar crew emplaces the baseplate at one end of the tape, sets the mortar sight on 3200 mils, sights on the light or along the tape, refers the sight to the section's SOP deflection (normally 2800 mils), and places out the aiming stakes. With practice, the mortar crew can emplace quickly during day or night.

(2) If possible, one mortar is carried to the firing location and emplaced using the M2 compass. The mortar crew places out an aiming post as if the mortar were going to occupy that position at that time. A stake is then driven into the ground at the rear of the baseplate, with a portion left visible. The mortar is moved to another position 25 to 30 meters away, and the procedure is repeated. The crew marks both the baseplate stakes and aiming stakes with white engineer tape or chemical lights. It also checks mask and overhead clearance at each location.

c. In retrograde operations, the mortar platoon leader plans displacement to provide continuous support. Close coordination and communication with the commander are needed to ensure that the mortars move at the proper time. Because of its mobility, the mortar section is an ideal supporting weapon to maintain in a firing position until the last of the rifle elements displace. The high rate of fire of the 60-mm mortar allows the section to suppress enemy dismounted assault elements so friendly forces can disengage.

d. The 60-mm mortar section normally displaces as a single element. It is always ready to fire from a hasty position.

8-6. RECONNAISSANCE AND POSITION SELECTION

Reconnaissance for mortars determines its use for mission accomplishment. Although ground and air reconnaissance can be used, the section sergeant normally performs a map reconnaissance. A detailed ground reconnaissance is the preferred method of locating positions for the mortar section, but lack of time and mobility may not allow it. The mortar section sergeant accompanies the commander on the leader's reconnaissance.

a. The general location of the mortar section is chosen by the company commander. He decides the location based on a careful consideration of the METT-T factors as well as:

(1) The need to provide maximum coverage of the company's area. He considers both minimum and maximum ranges of each type round. Positioning the mortar section near the center of the rifle company sector or battle position normally provides the best target coverage and flexibility.

(2) The need to place the mortars in defilade. This protects the mortar section from enemy direct and low-angle fires while still allowing it to support the company.

(3) The need to provide some measure of security for the mortar section. The section should be positioned near or with other elements of the company. The commander can position the mortars near the company CP, near the rearmost rifle platoon, with the company trains, or with the reserve force, if there is one.

(4) The need to provide for ease of ammunition resupply. The chosen position need not be directly on a route for resupply vehicles. However, if the position is near one, the resupply problem is eased if vehicles are used. Since the mortar ammunition is lightweight, resupply by a carrying party over short distances is possible.

b. Once the company commander designates the general location of the mortar section, the section sergeant reconnoiters and determines the precise location for each squad.

c. Once a section occupies a position and the mortars are laid, the section sergeant initializes the MBC or prepares an observed firing chart. Ready ammunition is unpacked, and communications are established. The mortars are left in temporary firing positions, and the emplacements are built to Stage I specifications. These positions are updated until they are at Stage III. Alternate and supplemental positions can be prepared or designated.

d. Communication with the mortar section is the key to effective employment. The section uses the single man-packed radio to monitor the company command net. The radio can be placed on the frequency used by the platoon having priority of fire. It can be used to enter the FIST fire control net but does not operate routinely in that net. Wire is the primary means of communication during long halts or defensive operations. The company commander ensures that the wire is quickly laid to the mortar section and that all platoons pass calls for fire to the mortars. Voice is the most common means of controlling the fires during fire without an FDC. Initial commands to move or fire may be passed to the section over the company command net but not long fire missions.

e. Advance party operations by the light mortar section are the exception rather than the rule. The size of the section and the simplicity of the weapon make a rapid and efficient emplacement possible without an advance party. When the section is expecting to move, mainly at night, and enough time exists to reconnoiter and prepare the new position, the

section sergeant does so. A set of direction and baseplate stakes, marked for easy identification, can help the crew in emplacement. Chemical lights of different colors can be useful, depending on the tactical situation.

8-7. TYPES OF ENGAGEMENT

The light mortar section must be prepared to engage targets using fire with or without an FDC.

a. Fire with an FDC increases the effect of the mortar section. The section sergeant sets up and operates an FDC when the mortar section occupies semipermanent positions or makes a long halt. The FDC influences the outcome of the battle by massing mortar fires, furnishing prearranged fires during reduced visibility, shifting fires, effecting time-on-target missions, lifting all fires, or furnishing fire support to other companies within range. Fire with an FDC may not always be possible. The mortar section can still be effective without using an FDC if the members are well trained in this method of fire.

b. Even though light infantry companies can employ the mortar without an FDC, they must not disregard the FDC method of employment. The section sergeant cross trains the other squad leader and gunners in FDC procedures. He establishes and employs an FDC whenever possible.

8-8. SUPPORT AND COMMAND RELATIONSHIPS

The mortar section can fire in support of any of the company's rifle platoons. The company commander sets priorities of fire and command relationships. He designates priority targets. Command relationships are limited to keeping the mortar section under the company commander's control or to attaching squads to the rifle platoons. The company commander can attach one mortar squad to a platoon while keeping the other mortar squad under his control-for example, when a platoon is sent out on a combat patrol.

8-9. SUPPORT DURING OFFENSIVE OPERATIONS

The mortar section is the only indirect fire support element that can accompany the rifle platoons as they move to the objective and begin the assault. The planning considerations outlined in Chapter 3 apply to the 60-mm mortar section sergeant's planning. The amount and type of ammunition available are considered first when using the light mortar in the attack.

a. The section sergeant and company commander consider how much ammunition is carried and who carries it. The mortar section can carry only a limited amount of ammunition. The approach load of mortarmen must be kept to a minimum. Extra pounds of personal equipment decrease the ammunition carried by the section. In World War II, the gunner of the 60-mm mortar squads carried the mortar tube and six rounds. Two other members of the squad carried 12 rounds each. This represents only one minute of fire at

the maximum rate for the 60-mm mortar. The company commander's options for carrying more mortar rounds are limited.

(1) Each member of the rifle platoons and company headquarters can carry one or two mortar rounds. This adds weight to the already heavy load of the riflemen and machine gunners, but it does ensure that mortar ammunition is available. This method is hard to control if the enemy opposition is intermittent but can be effective during a deliberate attack. As the rifle platoons pass through or near the proposed mortar firing position, they can drop their mortar rounds. A modification of this method was used in the Korean War when attacks were being made along or up steep ridge lines. The lead rifle platoons did not carry any mortar rounds. The mortar section moved second in the line of march, carrying as much ammunition as it could. The second and third rifle platoons, moving behind the mortars, carried one or two rounds on each man. When enemy contact was made, the leading platoon immediately began the assault, supported by the mortar section firing the ammunition it carried. As each succeeding rifle platoon passed the mortar position, it dropped its mortar rounds and joined the attack.

(2) The rifle company can have the mortar section carry as much ammunition as possible and rely on vehicles, aircraft, or battalion-carrying parties to resupply ammunition. This method works best when the advance is along a road net or over trafficable terrain. Organic vehicles may be used, or captured enemy equipment may be pressed into service. A method that saves time and effort is to have mortar ammunition broken out of its boxes either at the ammunition transfer point or unit trains. The individual canisters can then be placed into color-coded aviator kit bags and stockpiled for movement forward by the available transportation means. Using the kit bag eases loading, unloading, and transferring the ammunition. About 15 rounds of ammunition can be carried in each kit bag, making a load that can be handled easily by two men, or by one man in an emergency. In some areas of the world, labor service units provided by our allies can carry ammunition. In the lesser developed countries, indigenous pack animals may be available. If carrying parties or pack animals are used, the company XO and first sergeant must coordinate to ensure that guides and drivers/handlers are available and supervised.

b. Light infantry company offensive operations are characterized by dismounted movement, often over rugged terrain, and by rapidly changing situations. These operations require flexibility on the part of the mortar section. The value of the 60-mm mortar section in the offense does not lie in its volume of fire or its continuous fire support. The mortar section's best contribution to combat success is its immediate responsiveness to the company commander's orders, the speed at which it can be brought into action, and the effectiveness and accuracy of its multioption fuze-equipped rounds. Due to the limited ammunition and destruction power of each round, commanders must consider when and at what the mortar should be fired. The company mortar section should be used to engage targets that appear suddenly and cannot be immediately engaged by other indirect support. Once effective battalion mortar or FA fire is brought

on the enemy, the company mortar section normally ceases fire to save ammunition. The commander must decide if increased fire is needed to destroy or neutralize the enemy. If so, he can direct the company mortar section to continue fire.

c. The lightweight M8 baseplate is used most often during offensive operations. In the attack or movement to contact, the larger M7 baseplate can be left at the trains location and brought forward later. The smaller M8 baseplate is lighter by 11 pounds, which allows the crew to carry three more rounds for each mortar. If a mortar squad is attached to a platoon conducting a combat patrol, the squad leader can choose to carry only the mortar cannon and the M8 baseplate. This is the lightest combination possible, weighing only 18 pounds. The mortar is then fired using the direct-lay, hand-held mode.

d. The mortar section normally moves as a section within the company formation. The chance of enemy contact determines whether the commander chooses the traveling, traveling overwatch, or bounding overwatch technique of movement.

(1) When the company is moving using the traveling or traveling overwatch technique, the mortar section moves either directly behind the company command group or directly behind the second rifle platoon in the line of march. The section sergeant monitors the company command radio net and continually orients the section members to the terrain. At halts, he moves forward to coordinate with the company commander and the FIST chief.

(2) If the company is moving in bounding overwatch, the mortar section is positioned directly behind the command group, and it moves with that element. The section sergeant estimates the range to the lead elements of the bounding platoon, and he is prepared to provide fire support from his location or to move to a better position. The company commander may attach one mortar squad to each of the two lead rifle platoons to assist them in overwatch.

e. Maintaining orientation is important for the mortar section when moving during limited visibility. The mortar section lacks night vision devices, and it relies on natural light or luminous markers to keep track of the element ahead. During limited visibility, the company commander may move with the lead platoon. The mortar section then moves behind the last squad of this platoon rather than with the commander. During short halts, the mortar section spreads out in prone positions behind cover. During longer halts, the mortars are set up, and a limited amount of ammunition is readied. Specified amounts of illumination ammunition (determined by SOP) can be carried ready-to-use. Also, fire without an FDC is difficult at night.

8-10. SUPPORT DURING A MOVEMENT TO CONTACT

The displacement method chosen during a movement to contact depends on the company commander's evaluation of the chance of enemy contact, distance to be traveled, and terrain being traversed. The mortars normally move as a section. If the terrain does not allow good observation, it may be best to attach the squads to the rifle platoons.

a. The commander may attach one of the mortar squads to the lead platoon. This allows quick response to enemy contact by the lead element, but it hampers the massing of fires by the section. When the company is acting as the advance guard and has a dedicated battery in DS, the company commander keeps the mortar section under his control. The section sergeant monitors the company command net and makes sure the section is in range of anticipated targets. The mortar section can supplement the fires of the dedicated battery by covering other priority targets as they become visible. In the movement to contact, light mortars are effective when firing HE and WP for suppression or WP for screening and obscuration.

b. The mortar section carries only a limited amount of ammunition during a movement to contact. The disadvantage is offset by the ability to bring immediate fire on the enemy. During World War II, the mortar section was most effective in the movement to contact when it followed close behind the lead elements, opened fire quickly, had effective first rounds, and fired about three or four rounds for each target. When the enemy offers intermittent resistance, the section is best used by attaching a mortar squad to each of the two forward platoons. This uses the quick response of the mortars to its fullest. If there is a greater resistance, the mortars are kept under the company commander's control and moved 75 to 100 meters behind the lead platoons. This provides quick response while making concentration of fire easier.

c. Communication between the lead platoon (that can see targets) and the mortar section is critical. There are several effective methods that have been used in combat to aid such communications:

(1) The mortar section sergeant can monitor the radio frequency of the lead platoon. If enemy resistance is encountered, the mortars immediately stop and conduct a hip shoot, firing the adjusting round forward of the friendly lead elements. This requires close monitoring of the lead platoon's location by the section sergeant who acts as the FDC. The platoon sends corrections to the mortars by radio. This method is used when the company commander expects the enemy resistance to be great. The mortar section is protected from the initial enemy fires by remaining slightly to the rear, yet staying close enough to fire quickly.

(2) The section sergeant can carry a roll of wire and a telephone or have a designated soldier to move with the mortar section and carry a wire dispenser. When enemy resistance is encountered, the mortars are emplaced, and the wire is connected to a telephone at the mortar position. The section sergeant (and wireman, if used) moves to a position where he can observe the enemy and adjust fires, unrolling the wire as he moves. Assault wire (MX-6894 or NIX-6895 combat assault rolls) is used for fast installation and light weight. Assault wire is thinner and not as strong as WD-1, but the 800-meter MX-6894 weighs 4 pounds as compared to 25 pounds for the same length of WD-1 wire on the MX-306. Standard WD-1 field wire is used either on the MX-306 doughnut roll or the CE-11.

(3) The mortar section can move behind the company command group until the lead element makes contact with the enemy. The section sergeant then leads the section forward to a position where they can fire using either direct alignment or direct lay. The company commander directs the section sergeant by voice command, arm-and-hand signals, radio, or messenger.

8-11. SUPPORT DURING A HASTY ATTACK

In the hasty attack, the commander develops the situation and uses immediate fire rapid maneuver to maintain momentum.

a. The targets engaged by the mortar section are mainly targets of opportunity, although the commander preplans targets, when possible. The company commander keeps the mortar section under his control. The section sergeant uses his judgment and initiative in the absence of orders to determine how best to support the company maneuver. He employs the section aggressively to support the assault elements as they close with the enemy.

b. Once the objective is seized, the mortar section is brought forward to a position from which to support the entire company. The mortar section prepares to fire against an enemy counterattack. The section sergeant acts decisively, using his best judgment and initiative to accomplish the commander's intent. The mortar section plays a key role in the defense against a counterattack. During the period after the seizure of the objective and before the assault force has reorganized, consolidated, and planned other fires, the company mortar section is the most responsive fire support means available. The section sergeant displaces the section forward to support the company, establishes fire control and communications, computes data and prepares to fire the section FPF, evaluates existing ammunition stocks, redistributes ammunition, coordinates resupply requests, and makes sure his squads prepare hasty defensive positions. He must do this with little guidance from the company commander.

8-12. SUPPORT DURING A DELIBERATE ATTACK

The deliberate attack is characterized by detailed planning, both for maneuver elements and fires. The commander uses the light mortar section to supplement scheduled fires of heavier indirect fire weapons. The flexibility of the light mortar is best suited for use against targets of opportunity encountered during the attack and for immediate screening missions.

a. Light mortars are included in the preparation fires when ammunition, positioning, and the enemy situation permit. The commander keeps in mind that mortar ammunition fired early can be hard to replace later. Mortars should provide fires on the objective to support the final assault, especially if the direct support artillery is 155 mm. This allows indirect fire suppression of the enemy until the assaulting forces close to within about 50 meters (minimum safe distance). Assaulting forces can get closer to the enemy under the cover of small caliber mortar fire than would be possible with fires from medium or heavy

artillery. A method that was used successfully in World War II was for the assaulting platoon to approach as close as possible to the objective while the mortars fired HE to suppress the enemy. On a prearranged signal by the assault force, the mortars switched to WP rounds and fired several in quick succession. The bursting WP rounds were the signal to the rifle platoon that the mortars were shifting their fires 50 to 100 meters beyond the objective. As soon as the last WP round had burst, the assault forces closed with the enemy. Not only do the WP rounds signal the shifting of fires, but also the smaller casualty-producing radius provides a margin of safety for the assault force. The psychological effect of the WP and the smoke produced combine to create confusion among the enemy during the critical moments when the friendly forces are exposed. This requires well-trained and practiced mortar crews, as well as close coordination between the mortar section and the assaulting force.

b. During a deliberate attack against a fortified position, the mortar section is best employed with the company's support element. Although 60-mm HE fires will not penetrate a properly constructed fortification with overhead cover, they force the enemy to remain inside his positions, limiting his observation. HE fires inflict casualties on troops in open trenches. By firing WP, the mortar section obscures enemy observation from adjacent positions and assists the assault element in gaining a foothold. After the assault element has made an entry into the fortified position, the mortar section moves forward with the support element. Follow-on elements from the company carry mortar ammunition as they move forward and through the support position.

c. During MOUT operations, the light mortar section is employed with the company's support element. The section provides the rifle platoons the firepower and obscuration needed to isolate a building or strongpoint while assault and security elements move forward to gain the initial foothold.

d. The 60-mm mortar is effective against enemy positions on urbanized terrain. Its high rate of fire and short minimum range allow the mortar section to mass fire on specific enemy positions in the restricted confines of city fighting. It is used to attack targets behind buildings that cannot be hit by low-angle artillery fire. The mortar section is used to obscure, neutralize, suppress, or illuminate targets. The multioption fuze increases the mortar round's effectiveness, but the HE round, even employing the delay fuze setting, can penetrate only the upper floors of light buildings.

8-13. SUPPORT DURING DEFENSIVE OPERATIONS

The 60-mm mortar section provides the company commander organic indirect fire support that must be integrated into the company's overall defensive fire plan to be effective.

a. **Planning.**

(1) The mortar section is used to engage the following:

(a) Dismounted enemy infantry, especially when it is covered from direct fire or concealed.

(b) Enemy armored vehicles, using HE rounds with proximity fuze settings. This causes the crew to button up, reducing the effectiveness of the vehicle while separating it from any accompanying dismounted infantry.

(c) Enemy long-range, direct-fire weapons that support the attack. The section engages these using a mixture of WP and HE rounds to suppress and screen.

(d) Assaulting enemy forces, using close defensive fires and FPF.

(e) Enemy mortars, especially light and medium mortars, with a combination of proximity and near-surface burst fuze settings.

(f) Enemy forces trying to breach friendly wire or mine obstacles.

(2) The M224 60-mm mortar fires the M83A3 illumination round to about 950 meters. The small size and limited burn time of the 60-mm illumination round make it more suitable for point illumination rather than area.

(3) The M302A1 WP round has a maximum range of about 1,600 meters. During the defense, its primary use is to screen enemy observation and fire. It can also be used to mark targets for air strikes. The round has a limited incendiary and casualty-producing effect.

b. **Fire Support During the Defense.**

(1) The company mortar section is employed as a section during defensive operations with priority of fires to a designated rifle platoon. The mortar section is assigned an FPF, which is integrated into the company's defensive fire plan to augment the fires of heavier weapons.

(2) The light mortar section should be emplaced in a defilade position near the company CP. It may collocate with the company reserve or the rearmost rifle platoon. Wire communications are established through the company CP with each rifle platoon and OPs. The section's second telephone can be connected to a wire line laid to the platoon having the priority of fires. This provides alternate communications if the primary wire is cut by artillery fire. Positions are dug in, and overhead cover is provided for both the ammunition and crew. Positions are camouflaged and wire lines are buried.

(3) The section sergeant acts as the FDC and closely coordinates with the FIST chief and the company commander to ensure effective integration of the section's

fires. The section sergeant locates and, if time permits, prepares an OP where he can control the fires of the section himself, if wire communication is lost. He monitors the company command radio net and can change to a platoon frequency or the FIST frequency, depending on the company commander's guidance.

(4) The mortar section's fires are not normally included in the defender's counterpreparation fires. Battalion mortars and field artillery should be used for this role. The company mortar section can be used to engage targets of opportunity, especially at night, or targets in close defilade positions. The light mortar section is used to fire as an immediate response to enemy direct fire weapons or against enemy mortars firing from positions near friendly lines. It is better to engage small enemy probes, breach teams, or reconnaissance patrols with indirect fire from the mortar section than to disclose the locations of friendly machine gun, SAW, or rifle positions.

(5) Once the enemy attacks, the company mortar section fires to break up his formations and to destroy his forces. Enemy elements assaulting the friendly positions and enemy crew-served weapons locations are primary targets. Fires from the 60-mm mortar are effective against enemy forces that have closed with friendly elements. The mortar section can still engage these targets by using near-surface burst and proximity-fuze settings or rounds fired directly onto dug-in friendly positions. This type mortar fire is effective against the enemy infantry outside while not harming friendly personnel inside a well-constructed bunker with overhead cover. The mortar section, firing from the reserve platoon's position, can support a counterattack or limit the enemy penetration. If the rifle company is counterattacking, the mortar section supports with fire from preplanned positions.

(6) The 60-mm mortar section can fire FPF that are about 70 meters wide and 35 meters deep. FPF are normally fired using impact or near-surface burst fuze settings. The mortar section has a single FPF assigned. Because of the light weight and small bursting radius of the mortar round, single mortar FPF have limited effectiveness. This does not preclude assigning of separate priority targets to each mortar squad. It means that such targets must be important enough to the commander to outweigh the need for FPF. The mortar section's FPF should be carefully integrated into the defensive fire plan of the company. It is most effective when the mortar section's FPF supplement the FPF of the battalion mortar platoon and the supporting field artillery. The accuracy and short minimum range of the M224 mean that the FPF can be close to friendly positions. (The M224 firing charge 0 has a maximum range probable error of only 3 meters.) Mortar FPF are always within small-arms range of friendly positions.

(7) The company commander must consider the section's ammunition status, the resupply rate, and the tactical situation when designating how much ammunition to keep in reserve for the FPF. The company SOP should set guidelines regarding the amount of ammunition to be fired at any one target. This is important since the

ammunition stockpiled can be expended rapidly. The company SOP clearly states who has the authority to call for the FPF to be fired and under what conditions.

c. **Fire Support During Retrograde Operations.**

(1) The mortar section sergeant coordinates closely with the company commander and the FIST chief to ensure that he understands the mortar section's role in the company retrograde fire support plan. Factors influencing the mission, employment, and movement of the 60-mm mortar section are as follows:

(a) Whether the withdrawal will be conducted under pressure.

(b) Whether DLIC, security forces, or the entire withdrawing force is to be supported.

(c) Whether smoke screening is needed. The screen produced by the M224 mortar WP round is not as effective as that of the heavier mortars and field artillery. The mortar section should be used to obscure selected, critical areas or to add to the screen produced by other elements. It can be effective when used to screen the withdrawal of small elements such as OPs.

(d) Whether ammunition and transportation assets will be available to support the mortar section. If ammunition can be stockpiled at progressively rearward positions and vehicles available can assist in section displacement, the 60-mm mortar section can maintain almost continuous fires as the company withdraws. Communication to control the displacement of the mortar section must be positive and timely.

(e) The displacement schedule of the battalion mortars and supporting field artillery. If possible, the 60-mm mortar section should not displace at the same time as the battalion mortars.

(2) During retrograde, the mortar section is normally employed as a single element, but the commander may want to split the section, depending on his needs. If there are detachments left in contact, a mortar can be attached to the DLIC commander. The single squad is then used to continue the normal fires of the section and to aid the DLIC in breaking contact, if needed.

d. **Fire Support During a Relief in Place.**

(1) The company mortar section is the last element to be relieved. It stays in position, ready to fire, until all the maneuver elements are relieved. The section sergeant passes all target lists and FPF information to the relieving section. Ammunition, prestocked in a defensive location, is transferred to the relieving section. Baseplates and aiming stakes can be transferred, especially if the section

being relieved has well-prepared defensive positions. The relieving mortar section's base gun can be laid parallel with the guns of the relieved section by sight-to-sight reciprocal lay. Wire lines should be transferred to the relieving section.

(2) The mortar section can be required to continue to fire the missions associated with normal battlefield activity during the relief in place. If so, the two section sergeants coordinate to ensure a smooth transition of responsibility. The section sergeant of the relieved section should conduct a daylight reconnaissance of the route back to the company assembly area, as well as the section's location in the assembly area.

8-14. RATES OF FIRE

The 60-mm mortar section can quickly fire large amounts of ammunition. The M224 can fire 120 rounds in four minutes-a three-man crew can have 15 to 20 rounds in the air before the first round impacts. The high rate of fire is due to the simplicity of the mortar and its lightweight ammunition. The cooling fins at the base of the mortar allow the high rate of fire to be maintained for long periods. In the past, mortar crews, trying to produce and maintain a high rate of fire, have used the two-man loading method. This method should not be used; it increases the chances of double-loading the mortar and causing an in-bore premature detonation. A single loader can fire almost as fast with less chance of double-loading. If a high rate of fire is required and ammunition is available, the squad leader can assist the ammunition bearer in preparing rounds. With practice, they can establish a smooth flow of rounds.

8-15. LOAD-CARRYING TECHNIQUES

The load carried by the 60-mm mortar section has a direct effect on the section's ability to traverse terrain at the rate needed to move with other elements of the rifle company.

a. Since the mortar section is most effective when it is close to the point of enemy contact (although not under direct fire), the company commander and the section sergeant must monitor the section's load and keep it at the minimum required for the mission and tactical situation. Section members should carry only their minimum combat load in order to carry the mortar and enough ammunition. If transportation for the section's existence load is not available, the amount of ammunition and firepower of the section are reduced.

b. The M224 can be broken down into parts and hand carried. This, plus the flexibility in the choice of baseplates, allows the section sergeant to tailor the section's load to a specific mission and specific terrain.

(1) If the company is conducting an administrative road march, the section sergeant should request or coordinate to have the mortars and ammunition moved either by battalion or company vehicles. This conserves the strength of the section

members, allows members to carry their entire existence load, and provides the maximum protection to the ammunition, which can be kept in its packing boxes. The mortar section should move in the march column near the vehicle carrying the mortars. Care must be taken in transporting the mortars to ensure that nothing is lost or damaged, especially the sights. A section member can be detailed to ride with the mortars to ensure mortars are safe and delivered to the correct location.

(2) If the company is conducting a tactical road march or if vehicular transport is not available, the mortars should be carried using the three-man carry. The section sergeant and squad leader carry the radio, telephones, aiming stakes, sightunits, boresight, MBC, and plotting boards. They relieve the gunner and assistant gunner of their loads from time to time, allowing them to rest. Ammunition can either be carried on battalion vehicles or distributed among the crew members. To ease the strain, these loads should be rotated often.

(3) When the mortar crew is accompanying a patrol or is performing an airborne or air assault insertion, it may carry only the cannon with the M8 baseplate attached. This is the lightest combination possible (18 pounds), allowing the easiest portability. It requires that the mortar be employed in the direct-fire mode.

8-16. LOAD-CARRYING DEVICES

The heavy loads of equipment and ammunition carried by the mortar section can quickly exhaust soldiers moving over rugged terrain unless loads are distributed evenly and load-carrying equipment is properly used.

a. There are four pieces of standard Army equipment that can help the mortar section members transport the weapon and ammunition.

(1) The combat field pack, either the large or medium size, can be used with or without the metal pack frame. Either pack allows the soldier to carry his combat load and more ammunition. The 60-mm mortar rounds can be carried inside the pack or in the outside pockets. Individual rounds should be kept in their cylindrical packing container to protect both fuze and propellant charges from exposure and possible damage. Use of the pack frame with the field pack allows the greatest flexibility in load carrying. Some sections are equipped with newer packs that do not have an external metal frame. Mortar ammunition carried in these packs should be packed on top of all other items in the top portion of the pack.

(2) The pack frame can be used to carry heavy or bulky loads without the field pack by attaching the cargo shelf to the pack frame either at the middle or the bottom brace of the frame (Figures 8-2 and 8-3). Cargo tie-down straps are used to secure the load to the pack frame (Figure 8-4). The mortar, bipod, baseplates, and sightunits can also be secured to the frame by tie-down straps.

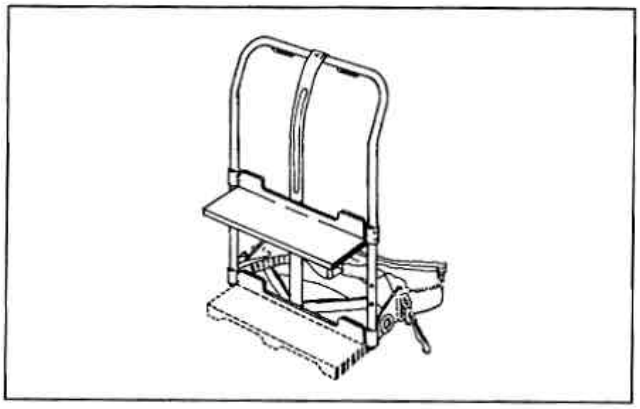

Figure 8-2. Attachment of the cargo shelf.

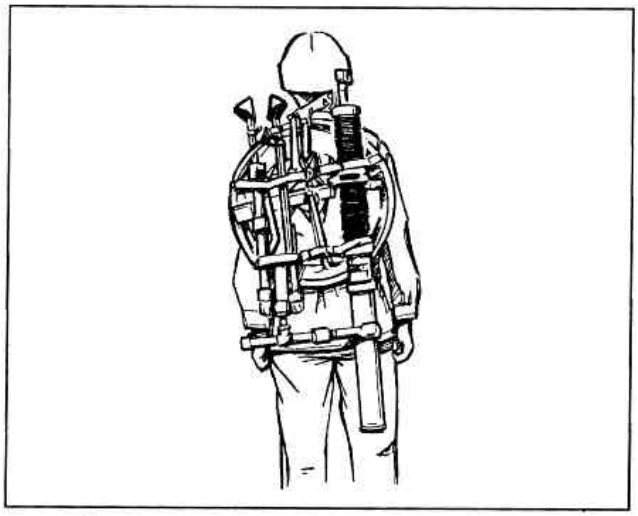

Figure 8-3. The 60-mm mortar carry-on backpack with frame.

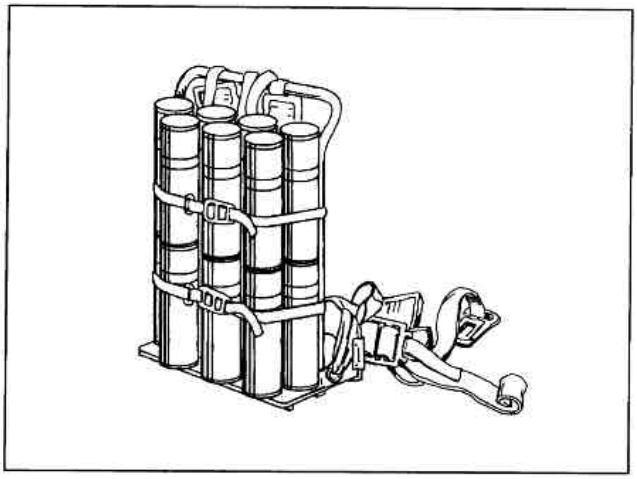

Figure 8-4. Cargo tie-down straps.

(3) The universal load-carrying sling (Figure 8-5) can be used to carry ammunition or the mortar. The sling is adjustable and can be shifted to the position needed to attach various loads. One sling can be used alone, or two slings can be combined, depending on the load. Not more than 35 pounds per sling should be carried. A method for using the sling to carry the 60-mm mortar ammunition containers is shown in Figure 8-6.

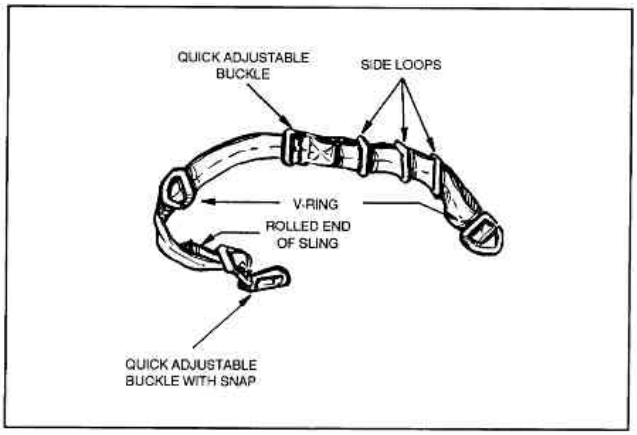

Figure 8-5. Universal load-carrying sling.

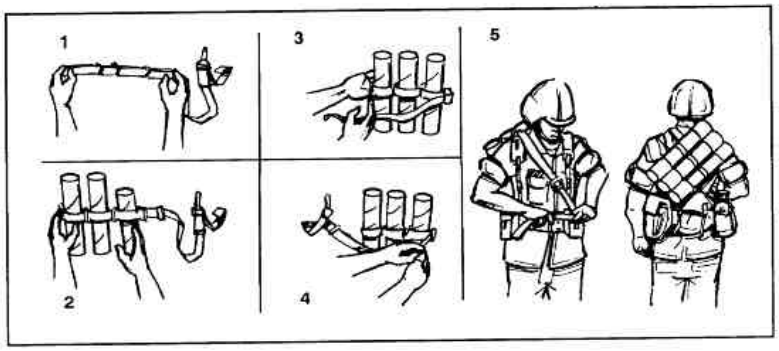

Figure 8-6. Carrying ammunition containers.

(4) The plywood packboard is an efficient means to carry heavy loads. When the packboard is used, 50 pounds can be carried easily, and more than 100 pounds can be transported for moderate distances. Irregular-shaped loads can be lashed onto the packboard with a rope. Standard loads, like fiber canisters, are secured using the quick-release straps (Figure 8-7).

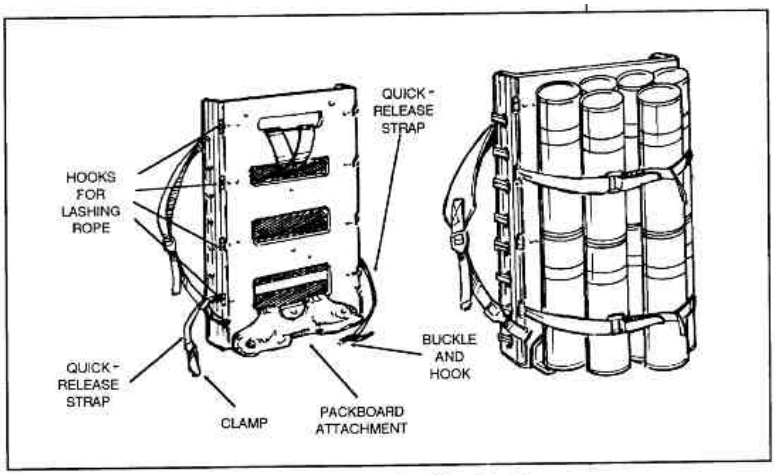

Figure 8-7. Typical packboard load.

b. The use of field-expedient, load-carrying methods is encouraged and only limited by the imagination of the soldiers and leaders involved. Five field-expedient methods of carrying loads that the mortar section can use are as follows:

(1) The nylon sling issued for carrying the M60 machine gun can be used to carry the M224 mortar. One end of the sling is formed into a loop, using the adjustable buckle. It is then looped around the cannon between the baseplate and the carrying handle. The other end is also looped and placed around the upper saddle. The mortar is carried across the body much like the M60 machine gun (Figure 8-8). Never loop the sling through the mortar's own carrying handle. The sling would then interfere with firing the mortar in the trigger-fire mode, and it would be difficult to remove during a fire mission.

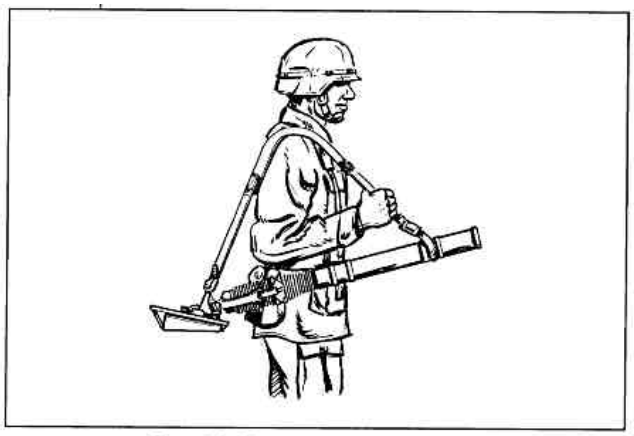

Figure 8-8. Use of the M60 machine gun sling.

(2) The M60 machine gun sling can be modified by a direct-support canvas repair unit to make it even more useful as a carrying sling (Figure 8-9). A sewn canvas cup, slightly larger than the tube, can be attached to one end and slipped over the cannon muzzle during transport. It supports the mortar while also preventing dirt, leaves, and other debris from entering the bore and possibly causing a misfire. A sturdy metal hook (locally fabricated) can be placed on the other end of the sling and hooked onto the carrying handle. It will hold the mortar during transport and is easily removed when the mortar is placed into action.

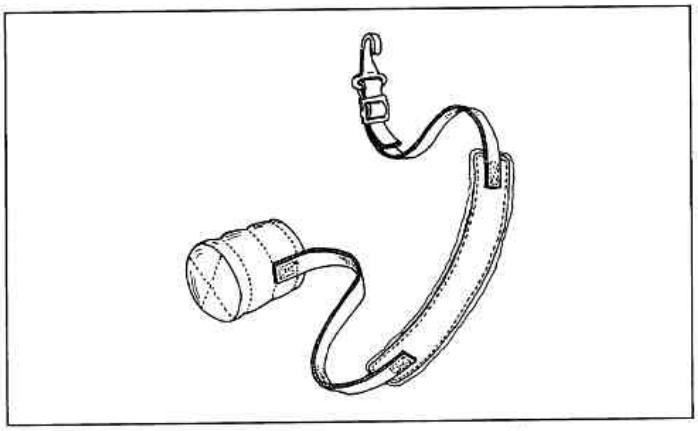

Figure 8-9. Modified M60 machine gun sling.

(3) A canvas repair unit can also fabricate a simple ammunition carrying vest. This type of vest, the M2A1 ammunition bag, was issued to World War II and Korean War 60-mm mortar crews, but it is no longer standard. The vest consists of a piece of sturdy canvas cut and sewn as indicated in Figure 8-10. Simple adjustment straps or ties secure the vest and ammunition. The hole for the head must be cut large enough to slip over the helmet and protective mask. The vest is worn over the combat load. Fiber containers of mortar ammunition are stacked horizontally both front and back.

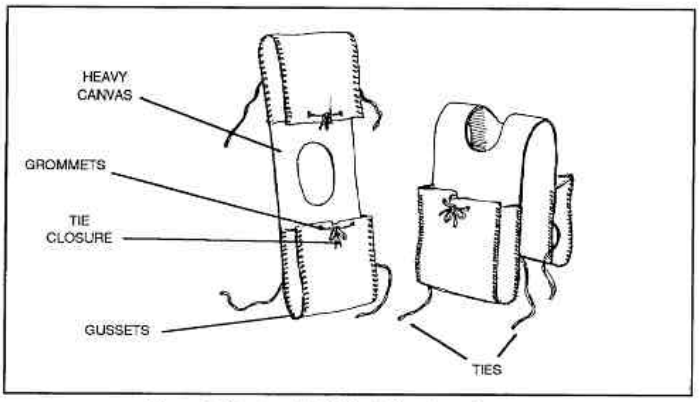

Figure 8-10. Locally fabricated load-carrying vest.

(4) One or two 60-mm mortar rounds can be carried in an empty Claymore mine bag. This method is good to use when other members of the company must carry other mortar rounds for the section. The bags can easily be taken off and dropped at the mortar position when needed. They can just as easily be handed back out again if the ammunition is not fired.

(5) For carrying mortar ammunition short distances, a standard Army litter can be used. A detail of two to four men can carry large amounts of mortar ammunition over rough terrain by lashing it to a litter and using universal slings to distribute the load (Figure 8-11). Using the sling frees the hands to carry weapons or negotiate obstacles. This method is useful in circumstances where an ammunition resupply vehicle can approach near the mortar section location, but large amounts of ammunition must still be carried the last few yards. Carrying the ammunition in one or two trips by using a litter reduces the time that the carrying party is exposed to enemy observation or fire. Medical personnel should not be used to transport ammunition since doing so violates their status as noncombatants.

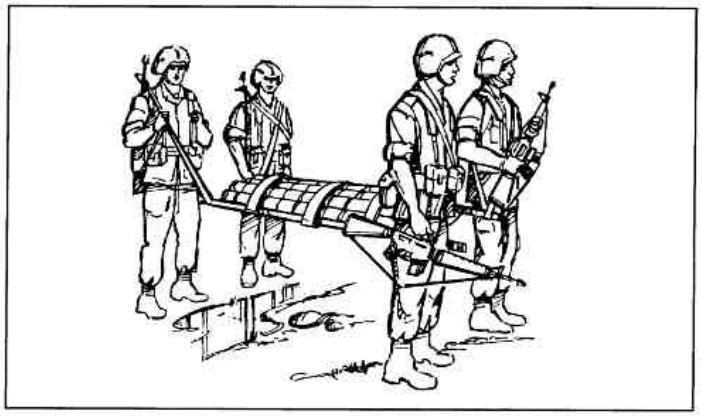

Figure 8-11. Use of litter and universal slings.

(6) The rapidly employable, lightweight litter referred to as the SKEDS litter can also be used to move mortar ammunition and equipment. One man can pull a fully loaded SKEDS litter out of a helicopter and over most types of terrain for short distances.