CHAPTER 8

MANUAL EVACUATION

8-1. General

Manual evacuation is the process of transporting casualties by manual carries. It is accomplished without the aid of a litter or other forms of transport. It is intended to end at the point where a more sophisticated means of evacuation becomes available. For example, manual evacuation ends when either a litter or a vehicle becomes available.

8-2. Casualty Handling

Casualties evacuated by manual means must be carefully handled. Rough or improper handling may cause further injury to the patient. The evacuation effort should be organized and performed methodically. Each movement made in lifting or moving casualties should be performed as deliberately and gently as possible. Casualties should not be moved before the type and extent of their injuries are evaluated and the required EMT is administered.

NOTE

The exception to this occurs when the situation dictates immediate movement for safety reasons. For example, if a casualty is on the ground near a burning vehicle, it may be necessary to move him a safe distance away from the vehicle. This situation dictates that the urgency of casualty movement outweighs the need to administer EMT. Even when immediate movement of casualties is required, they should be moved only far enough to be out of danger.

8-3. Casualty Treatment

a. Many lifesaving and life-preserving measures are carried out before evacuating injured or wounded soldiers. Except in extreme emergencies, the type and extent of injuries must be evaluated before any movement of the casualty is attempted. Measures are taken, as needed, to—

- Open the airway and restore breathing and heartbeat.
- Stop bleeding.
- Prevent or control shock.
- Protect the wound from further contamination.

b. When a fracture is evident or suspected, the injured part must be immobilized. Every precaution must be taken to prevent broken ends of bone from cutting through muscle, blood vessels, nerves, and skin.

c. When a casualty has a serious wound, the dressing over the wound should be reinforced to provide additional protection during manual evacuation.

8-4. General Rules for Bearers

a. In manual evacuation, individuals performing the evacuation are referred to as bearers. Improper handling of a casualty can result in injury to the bearers as well as to the casualty. To minimize disabling injuries (muscle strain, sprains, or other injuries) that could hamper the evacuation effort, the following rules should be followed:

- Use the body's natural system of levers when lifting and moving a casualty.
- Know your physical capabilities and limitations.
- Maintain solid footing when lifting and transporting a casualty.
- Use the leg muscles (not the back muscles) when lifting or lowering a casualty.
- Use the shoulder and leg muscles (not the back muscles) when carrying or standing with a casualty.
- Keep the back straight; use arms and shoulders when pulling a casualty.
- Work in unison with other bearers, using deliberate, gradual movements.

- Slide or roll, rather than lift, heavy objects that must be moved.

- Rest frequently, or whenever possible, while transporting a casualty.

b. Normally, a casualty's individual weapon is not moved through the evacuation chain with him. Weapons are turned in at the first available MTF (BAS or division clearing station) to be returned through supply channels. Individual equipment, to include protective clothing and mask, remains with the casualty and is evacuated with him.

8-5. Manual Carries

Manual carries are tiring for the bearers and involve the risk of increasing the severity of the casualty's injuries. In some instances, however, they are essential to save the casualty's life. When a litter is not available or when the terrain or the combat situation makes other forms of casualty transport impractical, a manual carry may be the only means to transport a casualty to where a medic can treat him. The distance a casualty can be transported by a manual carry depends upon many factors, such as—

- Strength and endurance of the bearers.
- Weight of the casualty.
- Nature of the injuries.
- Obstacles encountered during transport.

8-6. Casualty Positioning

The first step in any manual carry is to position the casualty to be lifted. If he is conscious, he should be told how he is to be positioned and transported. This helps to lessen his fear of movement and to gain his cooperation. It may be necessary to roll the casualty onto his abdomen, or his back, depending upon the position in which he is lying and the particular carry to be used.

a. To roll a casualty onto his abdomen, kneel at the casualty's uninjured side.

(1) Place his arms above his head; cross his ankle which is farther from you over the one that is closer to you.

(2) Place one of your hands on the shoulder which is farther from you; place your other hand in the area of his hip or thigh.

(3) Roll him gently toward you onto his abdomen (Figure 8-1).

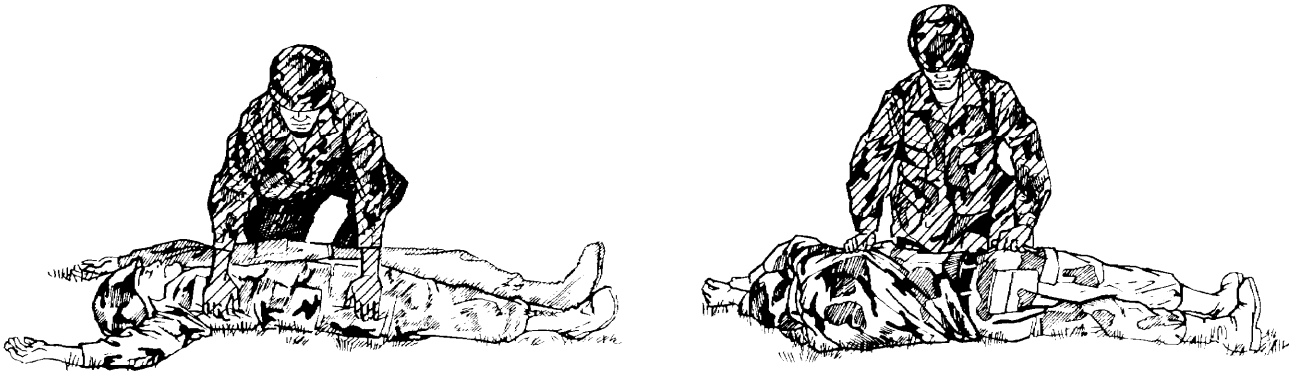

Figure 8-1. Positioning the casualty (on his abdomen).

b. To roll a casualty onto his back, follow the same procedure described in *a* above, except gently roll the casualty onto his back, rather than onto his abdomen (Figure 8-2).

Figure 8-2. Positioning the casualty on his back.

8-7. Categories of Manual Carries

a. One-Man Carries. These carries should be used when only one bearer is available to transport the casualty.

(1) The *fireman's carry* (Figure 8-3) is one of the easiest ways for one individual to carry another. After an unconscious or disabled casualty has been properly positioned (Figure 8-1), he is raised from the ground, then supported and placed in the carrying position.

(a) After rolling the casualty onto his abdomen, straddle him. Extend your hands under his chest and lock them together.

(b) Lift the patient to his knees as you move backwards.

(c) Continue to move backward, thus straightening the casualty's legs and locking his knees.

(d) Walk forward, bringing the casualty to a standing position; tilt him slightly backward to prevent his knees from buckling.

(e) As you maintain constant support of the casualty with one arm, free your other arm, quickly grasp his wrist, and raise his arm high. Instantly pass your head under his raised arm, releasing it as you pass under it.

(f) Move swiftly to face the casualty and secure your arms around his waist. Immediately place your foot between his feet and spread them apart (approximately 6 to 8 inches).

(g) Grasp the casualty's wrist and raise his arm high over your head.

(h) Bend down and pull the casualty's arm over and down on your shoulder, bringing his body across your shoulders. At the same time, pass your arm between his legs.

(i) Grasp the casualty's wrist with one hand, and place your other hand on your knee for support.

(j) Rise with the casualty positioned correctly. Your other hand is free for use.

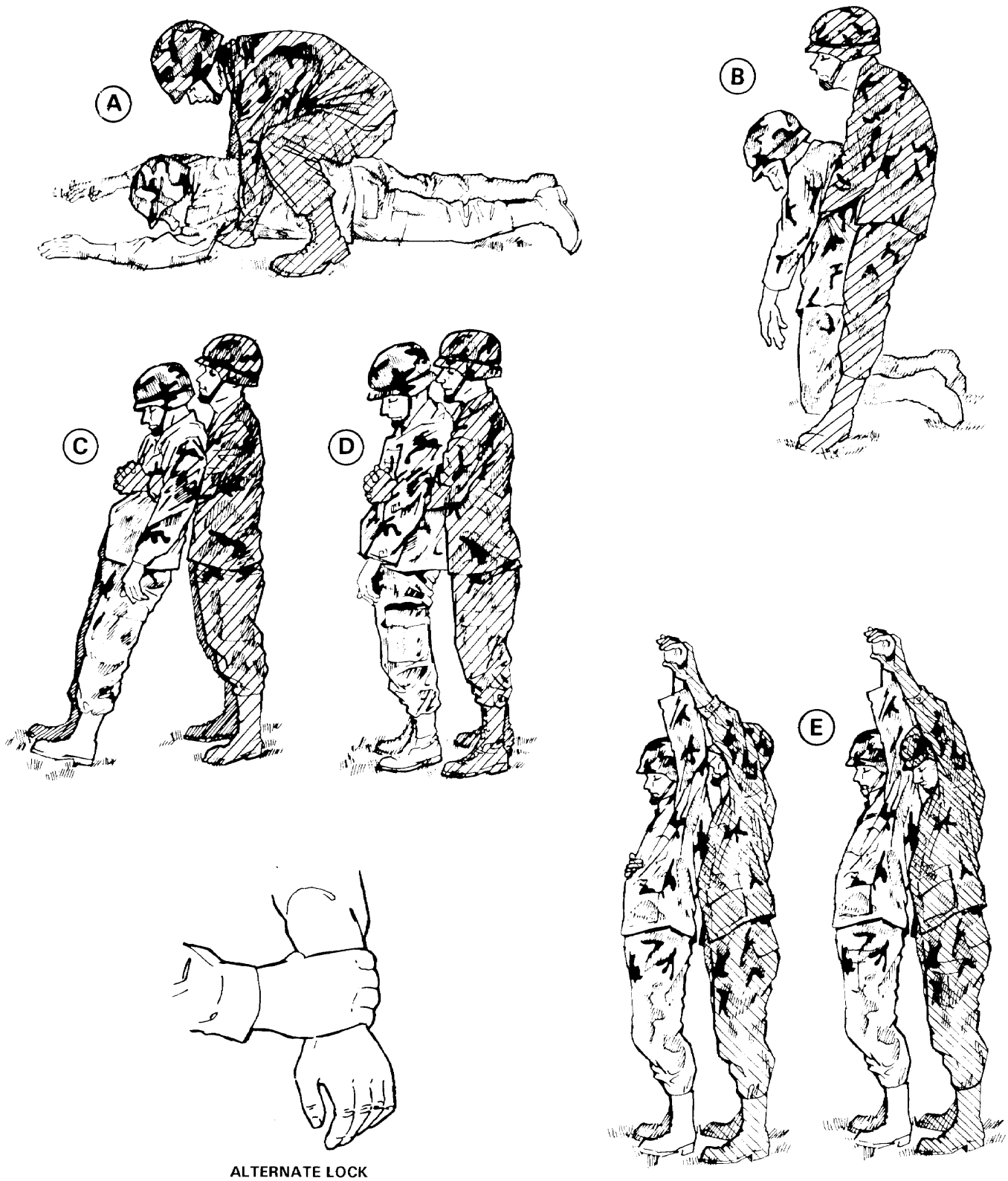

Figure 8-3. Fireman's carry.

Figure 8-3. Fireman's carry (continued).

(2) The alternate method of the *fireman's carry* for raising a casualty from the ground is illustrated in Figure 8-4; however, it should be used only when the bearer believes it to be safer for the casualty because of the location of his wounds. When the alternate method is used, care must be taken to prevent the casualty's head from snapping back and causing a neck injury. The steps for raising a casualty from the ground for the fireman's carry are also used in other one-man carries.

(a) Kneel on one knee at the casualty's head and face his feet. Extend your hands under his armpits, down his sides, and across his back.

(b) As you rise, lift the casualty to his knees. Then secure a lower hold and raise him to a standing position with his knees locked.

Figure 8-4. Fireman's carry (alternate method for lifting the patient to a standing position.

(3) In the *supporting carry* (Figure 8-5), the casualty must be able to walk, or at least hop, on one leg, using the bearer as a crutch. This carry can be used to transport a casualty as far as he is able to walk or hop.

(a) Raise the casualty from the ground to a standing position by using the fireman's carry.

(b) Grasp the casualty's wrist and draw his arm around your neck.

(c) Place your arm around his waist. The casualty is now able to walk or hop, using you as a support.

Figure 8-5. Supporting carry.

(4) The *arms carry* (Figure 8-6) is useful in carrying a casualty for a short distance (up to 50 meters) and for placing a casualty on a litter.

(a) Raise or lift the casualty from the ground to a standing position, as in the fireman's carry.

(b) Place one arm under the casualty's knees and your other arm around his back.

(c) Lift the casualty.

(d) Carry the casualty high to lessen fatigue.

Figure 8-6. Arms carry.

(5) Only a conscious casualty can be transported by the *saddleback carry* (Figure 8-7) because he must be able to hold onto the bearer's neck. To use this technique—

(a) Raise the casualty to an upright position, as in the fireman's carry.

(b) Support the casualty by placing an arm around his waist. Move to the casualty's side. Have the casualty put his arm around your neck and move in front of him with your back to him.

(c) Have the casualty encircle his arms around your neck.

(d) Stoop, raise him on your back, and clasp your hands together beneath his thighs, if possible.

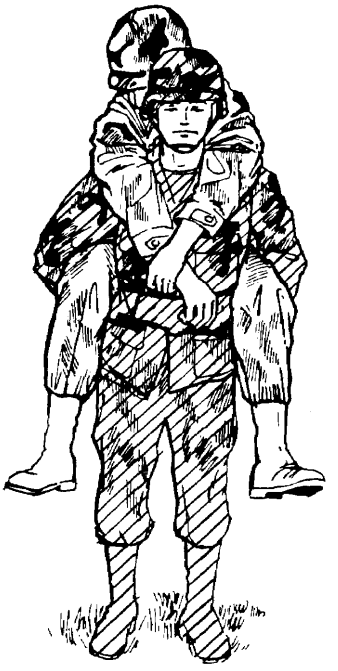

Figure 8-7. Saddleback carry.

(6) In the *pack-strap carry* (Figure 8-8), the casualty's weight rests high on your back. This makes it easier for you to carry the casualty a moderate distance (50 to 300 meters). To eliminate the possibility of injury to the casualty's arms, you must hold the casualty's arms in a palms-down position.

(a) Lift the casualty from the ground to a standing position, as in the fireman's carry.

(b) Support the casualty with your arms around him and grasp his wrist closer to you.

(c) Place his arm over your head and across your shoulders.

(d) Move in front of him while still supporting his weight against your back.

(e) Grasp his other wrist and place this arm over your shoulder.

(f) Bend forward and raise or hoist the casualty as high on your back as possible so that his weight is resting on your back.

NOTE

Once the casualty is positioned on the bearer's back, the bearer remains as erect as possible to prevent straining or injuring his back.

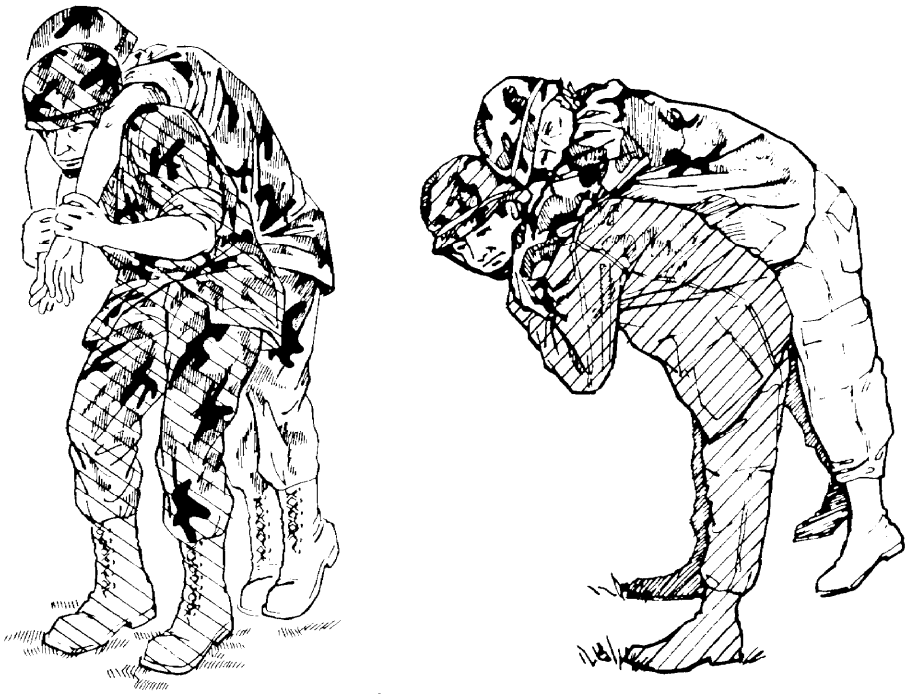

Figure 8-8. Pack-strap carry.

(7) The *pistol-belt carry* (Figure 8-9) is the best one-man carry for a long distance (over 300 meters). The casualty is securely supported upon your shoulders by a belt. Both your hands and the casualty's (if conscious) are free for carrying a weapon, equipment, or climbing obstacles. With your hands free and the casualty secured in place, you are also able to creep through shrubs and under low-hanging branches.

(a) Link two pistol belts (or three, if necessary) together to form a sling. Place the sling under the casualty's thighs and lower back so that a loop extends from each side.

NOTE

If pistol belts are not available for use, other items such as a rifle sling, two cravat bandages, two litter straps, or any other suitable material which will not cut or bind the casualty may be used.

(b) Lie face up between the casualty's out stretched legs. Thrust your arms through the loops and grasp his hands and trouser leg on his injured side.

(c) Roll toward the casualty's uninjured side onto your abdomen, bringing him onto your back. Adjust the sling, if necessary.

(d) Rise to a kneeling position. The belt will hold the casualty in place.

(e) Place one hand on your knee for support and rise to an upright position. (The casualty is supported on your shoulders.)

(f) Carry the casualty with your hands free for use in rifle firing, climbing, or surmounting obstacles.

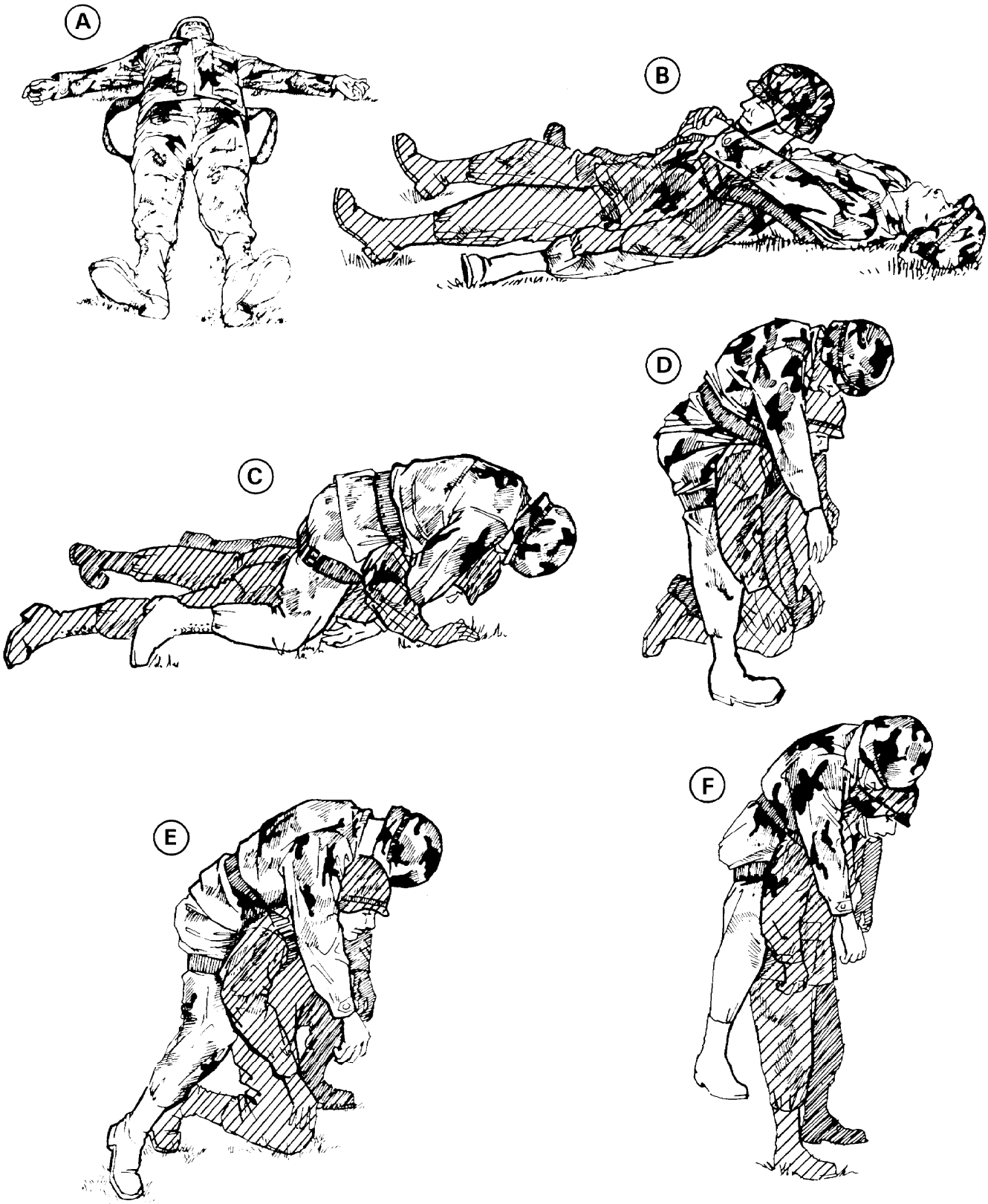

Figure 8-9. Pistol-belt carry.

(8) The *pistol-belt drag* (Figure 8-10), as well as other drags, is generally used for short distances (up to 50 meters). This drag is useful in combat, since both the bearer and the casualty can remain closer to the ground than in other drags.

(a) Extend two pistol belts or similar objects to their full length and join them together to make a continuous loop.

(b) Roll the casualty onto his back, as in the fireman's carry.

(c) Pass the loop over the casualty's head, and position it across his chest and under his armpits. Then cross the remaining portion of the loop, thus forming a figure eight.

(d) Lie on your side facing the casualty.

(e) Slip the loop over your head and turn onto your abdomen. This enables you to drag the casualty as you crawl.

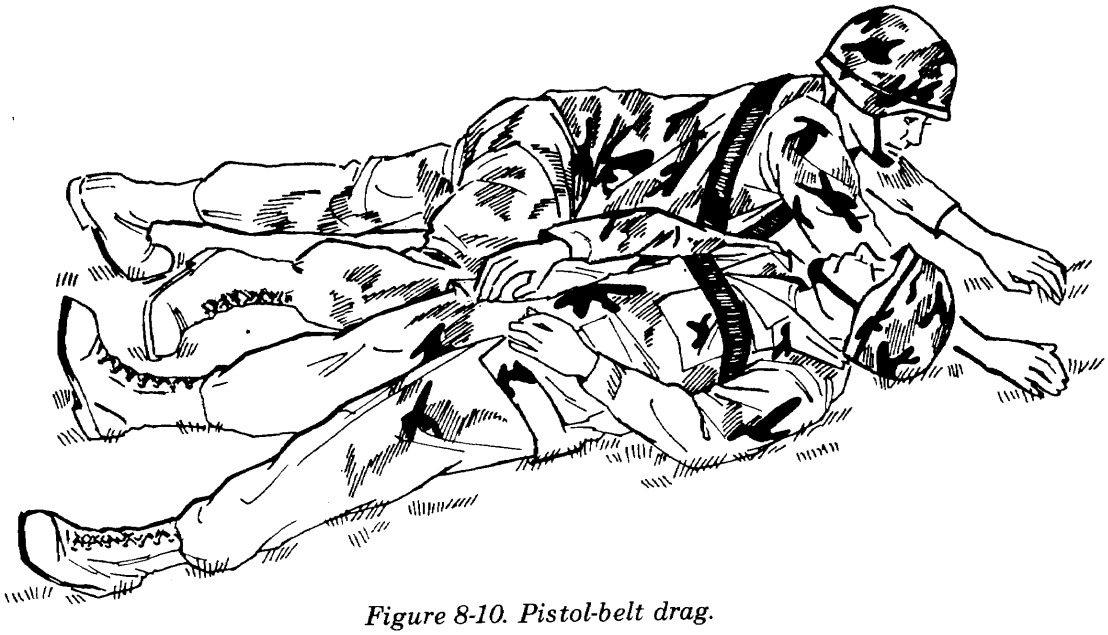

Figure 8-10. Pistol-belt drag.

(9) The *neck drag* (Figure 8-11) is useful in combat because the bearer can transport the casualty as he creeps behind a low wall or shrubbery, under a vehicle, or through a culvert. If the casualty is unconscious, his head must be protected from the ground. The neck drag cannot be used if the casualty has a broken arm.

NOTE

If the casualty is conscious, he may clasp his hands together around your neck.

(a) Tie the casualty's hands together at the wrists.

(b) Straddle the casualty in a kneeling face-to-face position.

(c) Loop the casualty's tied hands over and around your neck

(d) Crawl forward dragging the casualty with you.

NOTE

If the casualty is unconscious, protect his head from the ground.

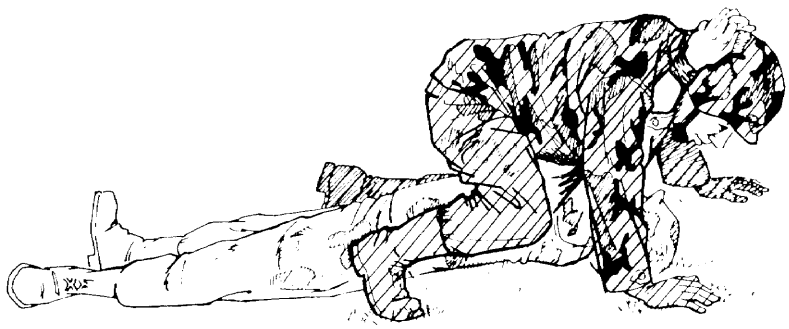

Figure 8-11. Neck drag.

(10) The *cradledrop drag* (Figure 8-12) is effective in moving a casualty up or down steps.

(a) Kneel at the casualty's head (with him lying on his back). Slide your hands, with palms up, under the casualty's shoulders and get a firm hold under his armpits.

(b) Rise (partially), supporting the casualty's head on one of your forearms. (You may bring your elbows together and let the casualty's head rest on both of your forearms.)

(c) Rise and drag the casualty backward. (The casualty is in a semisitting position.)

(d) Back down the steps, supporting the casualty's head and body and letting his hips and legs drop from step to step.

NOTE

If the casualty needs to be moved up the steps, you should back up the steps, using the same procedure.

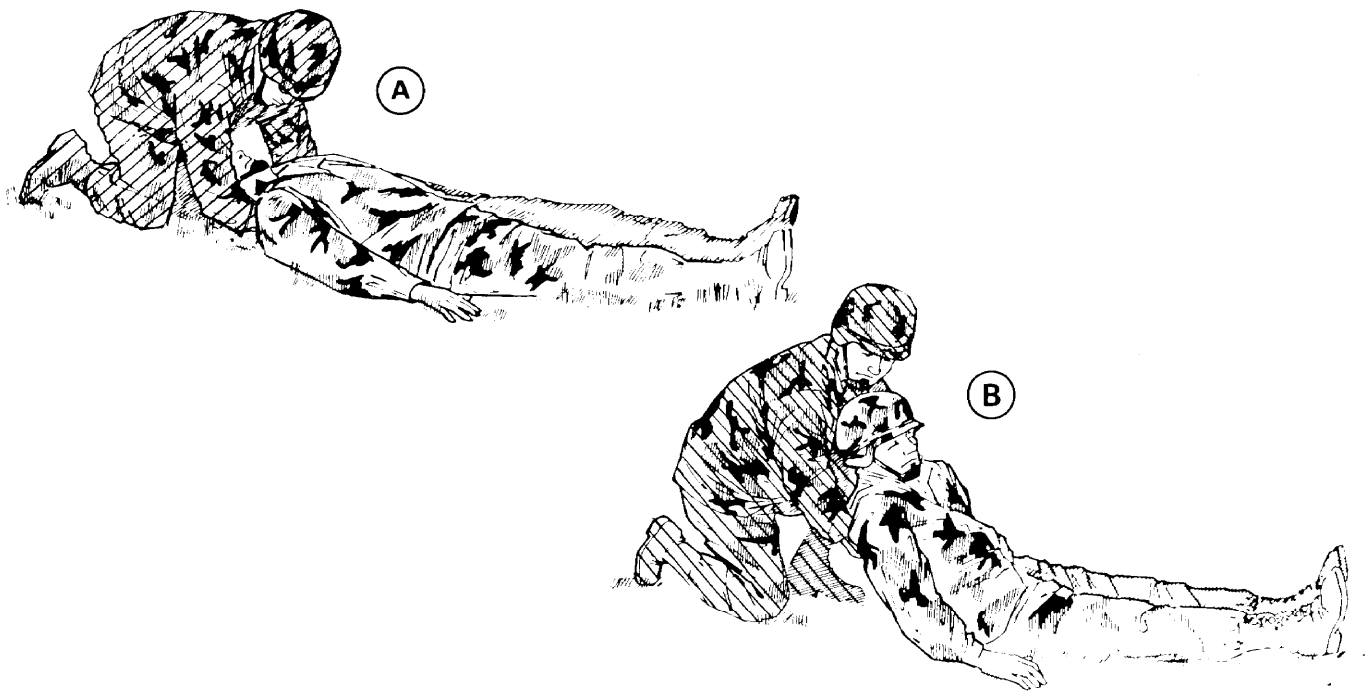

Figure 8-12. Cradle-drop drag.

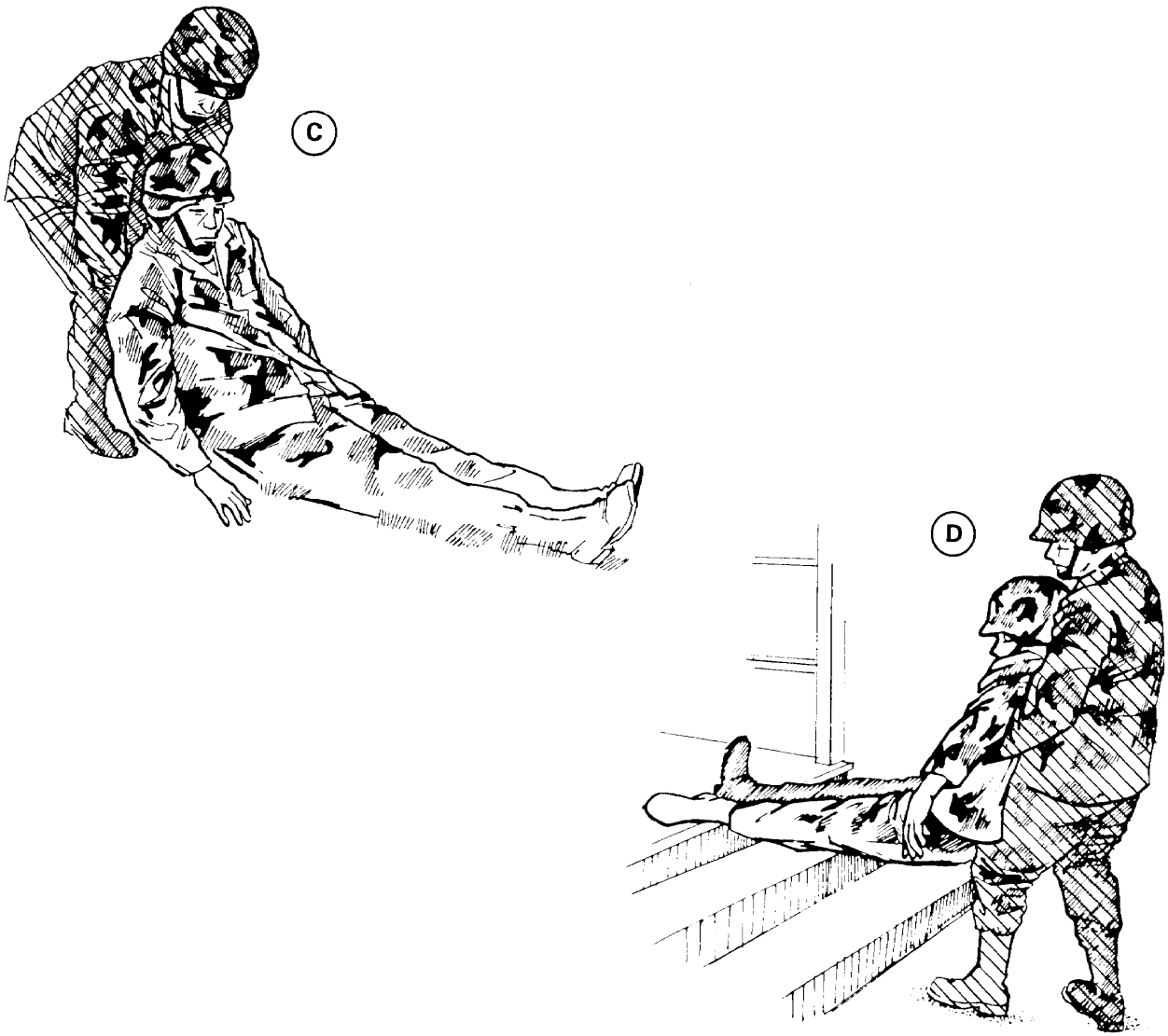

Figure 8-12. Cradle-drop drag (continued).

(11) The *load bearing equipment (LBE) carry using the bearer's LBE* can be used with a conscious casualty (Figure 8-13).

(a) Loosen all suspenders on your LBE.

(b) Have the casualty place one leg into the loop formed by your suspenders and pistol belt.

(c) Squat in front of the standing casualty. Have him place his other leg into the loop, also.

(d) Have the casualty place his arms over your shoulders, lean forward onto your back, and lock his hands together.

(e) Stand up and lean forward into a comfortable position.

(f) Continue mission.

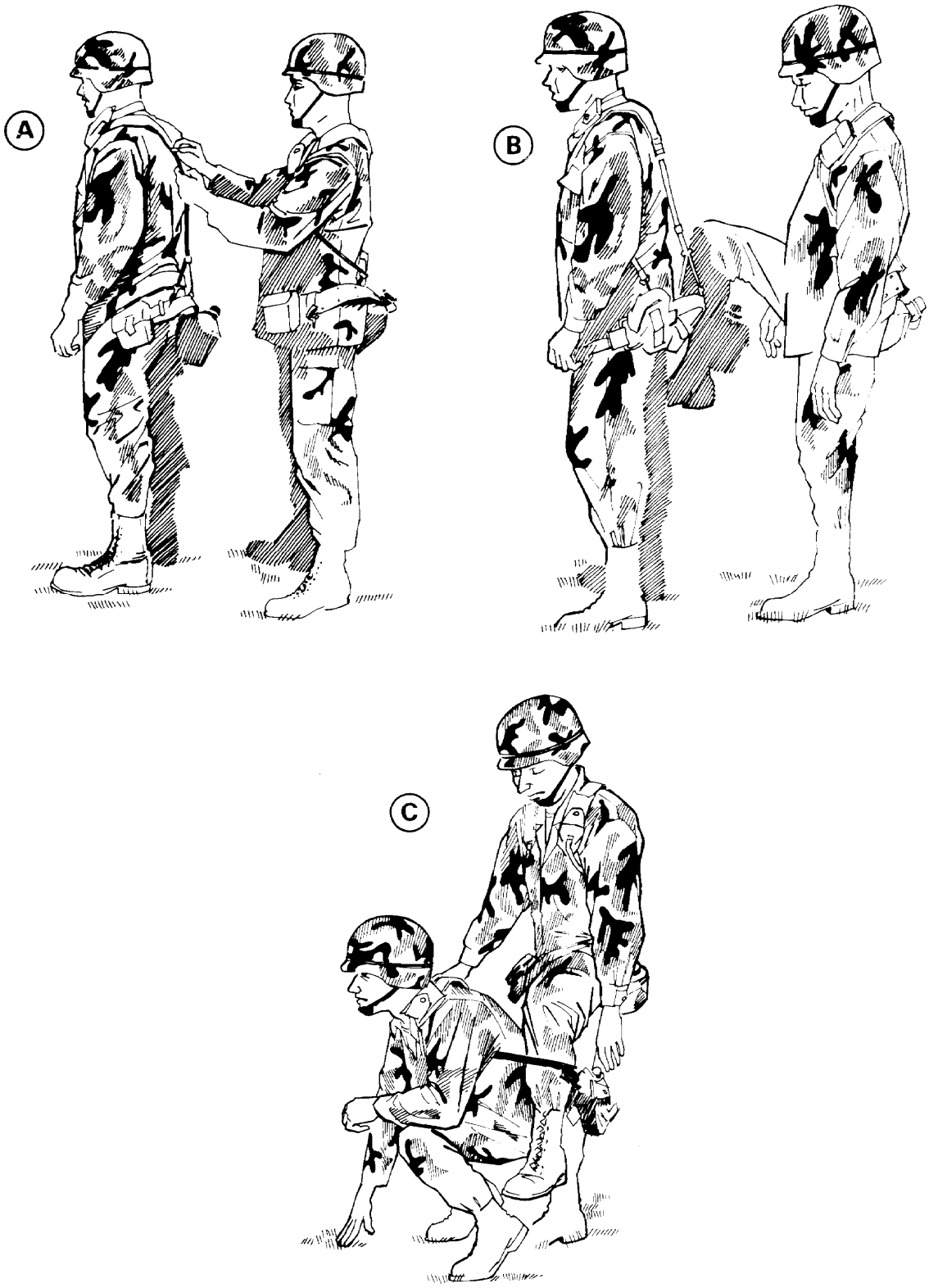

Figure 8-13. LBE carry using bearer's LBE (conscious casualty).

Figure 8-13. LBE carry using bearer's LBE (conscious casualty) (continued).

(12) The *LBE carry using the bearer's LBE* can be used with an unconscious casualty or one who cannot stand (Figure 8-14).

(a) Position the casualty on the flat of his back.

(b) Remove your LBE and loosen all suspender straps.

(c) Lift the casualty's leg and place it through the loop formed by your suspenders and pistol belt. Then place the other leg. The LBE is moved up until the pistol belt is behind the casualty's thighs.

(d) Lay between the casualty's legs; work his arms though his LBE suspenders.

(e) Grasp the casualty's hand (on the injured side), and roll the casualty (on his uninjured side) onto his back.

(f) Rise to one knee and then push into a standing position.

(g) Bring the casualty's arms over your shoulders. Grasp his hands and secure them if the casualty in unconscious. If the casualty is conscious, have him lock his hands in front if he is able to do so.

(h) Lean forward into a comfortable position and continue the mission.

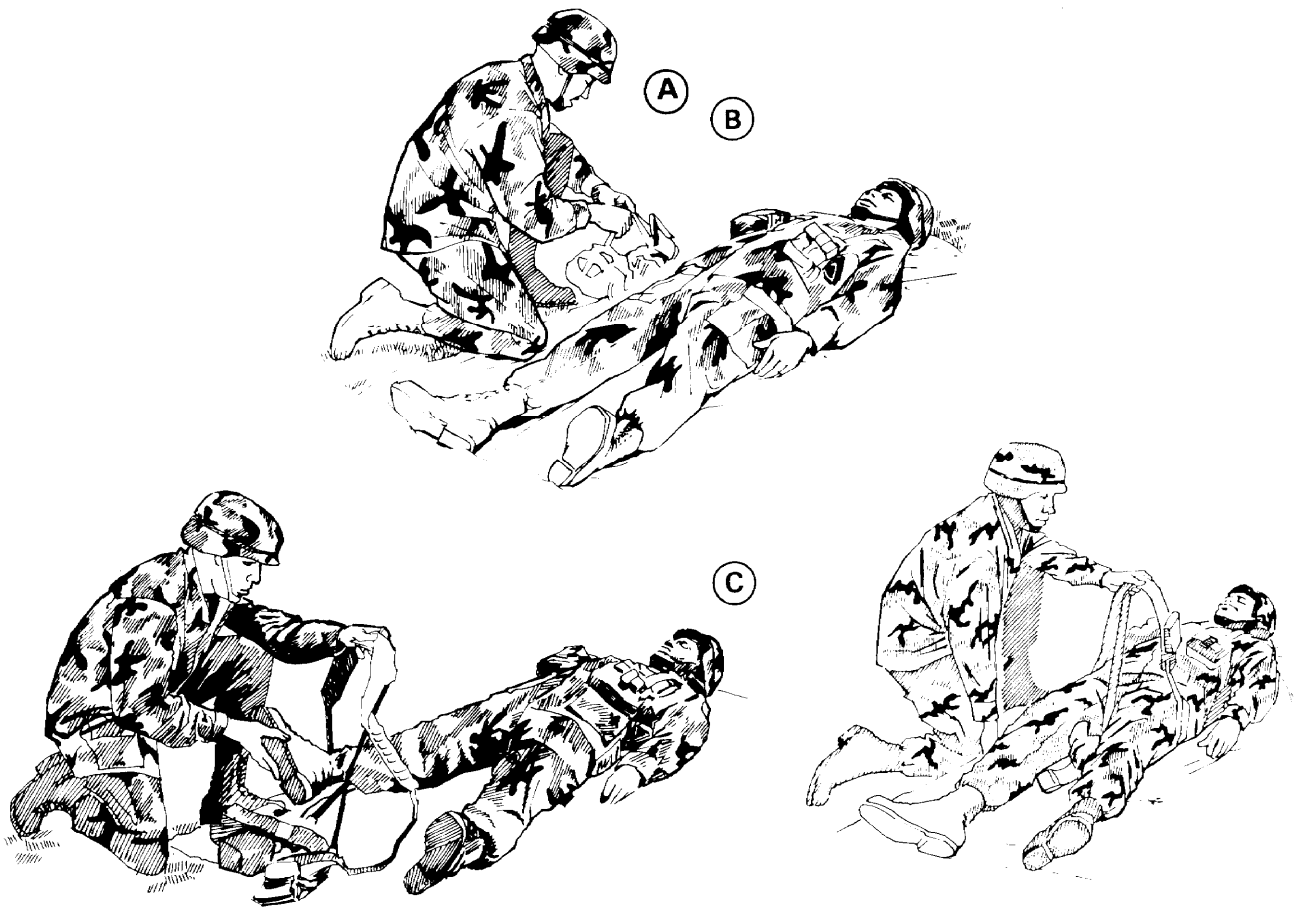

Figure 8-14. LBE carry using bearer's LBE (unconscious casualty or one that cannot stand).

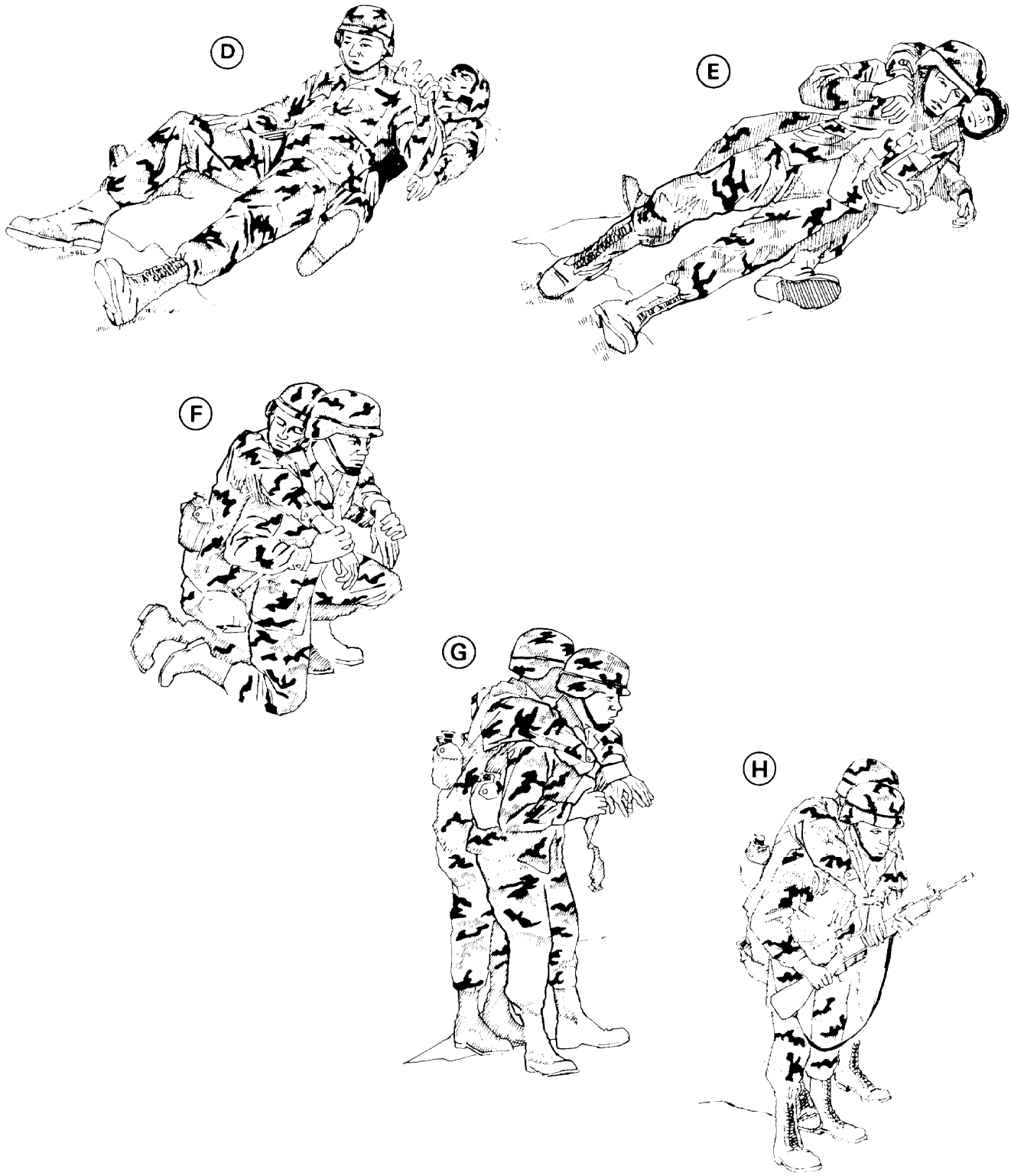

Figure 8-14. LBE carry using bearer's LBE (unconscious casualty or one that cannot stand) (continued).

(13) The *LBE carry using the casualty's LBE* (Figure 8-15) can be used with a conscious or unconscious casualty.

(a) Position the casualty on his back with his LBE on.

(b) Loosen the casualty's two front suspenders.

(c) Position yourself between the casualty's legs, and slip your arms into the casualty's two front suspenders (up to his shoulders).

(d) Work his arms out of his LBE suspenders.

(e) Grasp the casualty's hand (on the injured side, and roll him (on his uninjured side) onto his back.

(f) Rise to one knee, then into a standing position.

(g) Grasp the casualty's hands and secure them, if the casualty is unconsciouss. Have the casualty lock his hands in front of you, if he is conscious.

(h) Lean forward into a comfortable position and continue the mission.

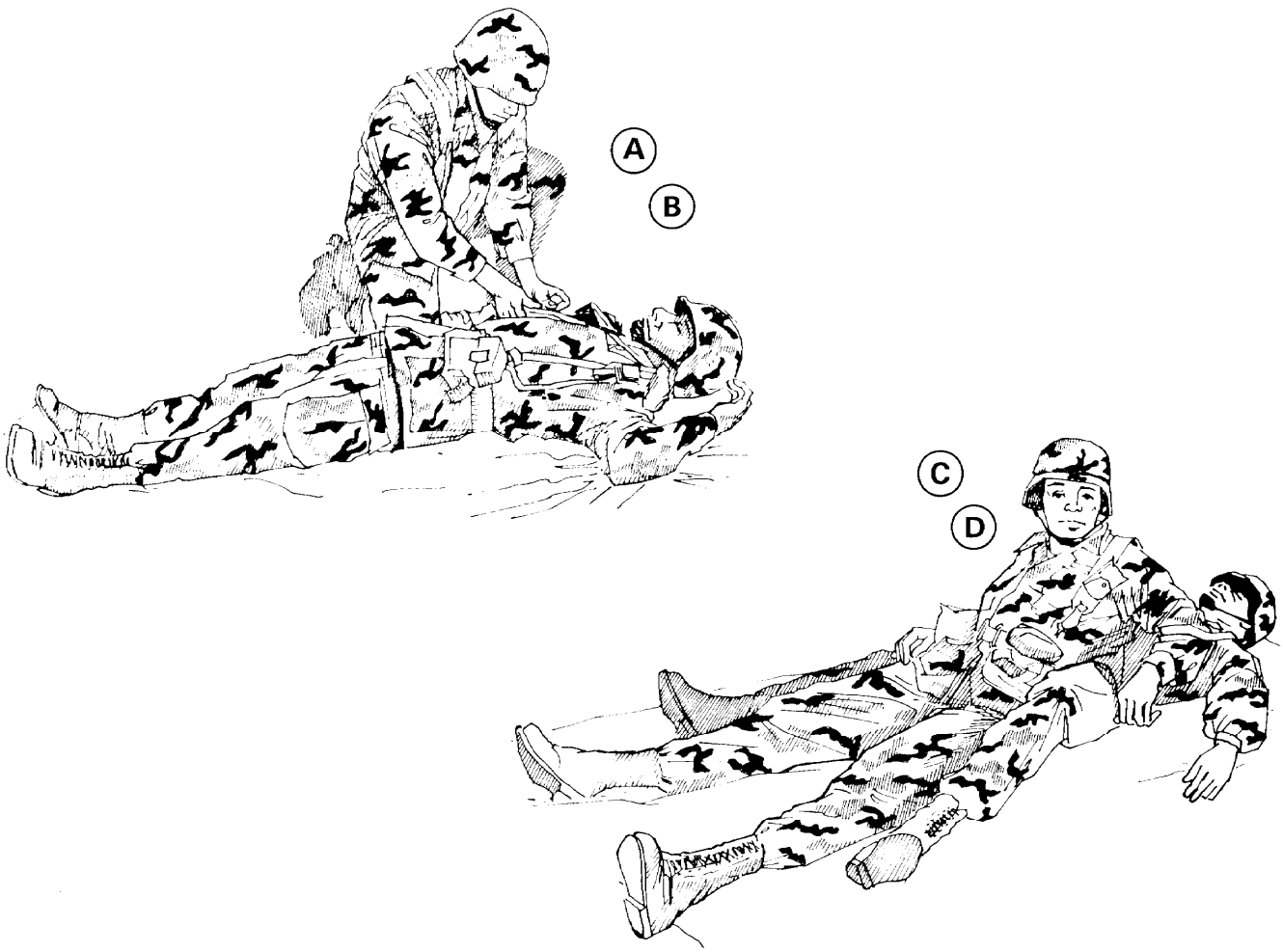

Figure 8-15. LBE carry using casualty's LBE.

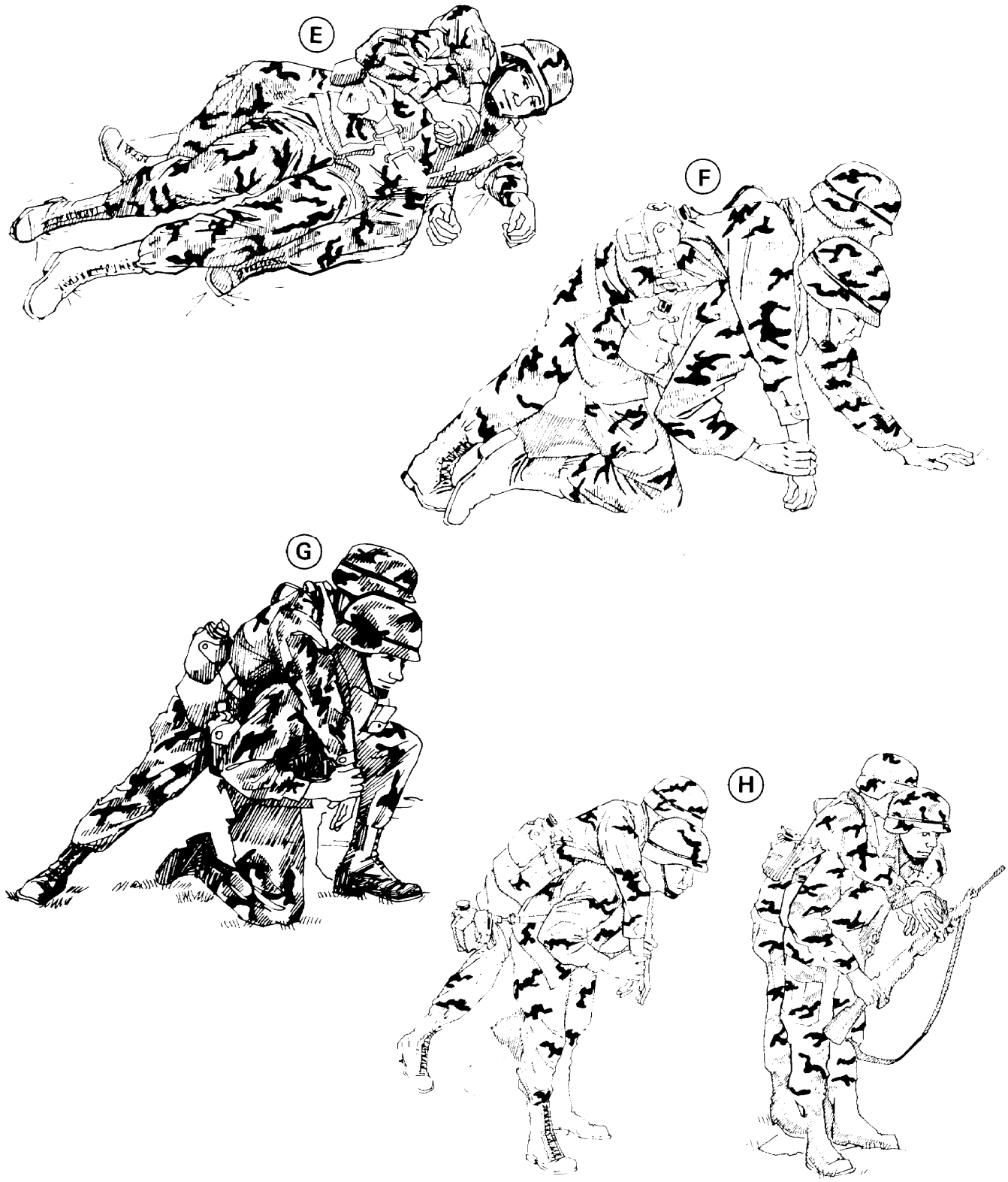

Figure 8-15. LBE carry using casualty's LBE (continued).

b. Two-Man Carries. These carries should be used whenever possible. They provide more casualty comfort, are less likely to aggravate injuries, and are less tiring for the bearers. Five different two-man carries can be used.

(1) The *two-man supporting carry* (Figure 8-16) can be used in transporting both conscious and unconscious casualties. If the casualty is taller than the bearers, it may be necessary for the bearers to lift the casualty's legs and let them rest on their forearms. The bearers—

(a) Help the casualty to his feet and support him with their arms around his waist.

(b) Grasp the casualty's wrists and draw his arms around their necks.

Figure 8-16. Two-man supporting carry.

(2) The *two-man arms carry (Figure* 8-17) is useful in carrying a casualty for a moderate distance (50 to 300 meters) and placing him on a litter. To lessen fatigue, the bearers should carry the casualty high and as close to their chests as possible. In extreme emergencies when there is not time to obtain a spine board, this carry is the safest one for transporting a casualty with a back injury. If possible, two additional bearers should be used to keep the casualty's head and legs in alignment with his body. The bearers—

(a) Kneel at one side of the casualty and extend his arms above his head; then they place their arms beneath the casualty's back, waist, hips, and knees.

(b) Lift the casualty while rising to their knees.

(c) Turn the casualty toward their chests, while rising to a standing position. Carry the casualty high to lessen fatigue.

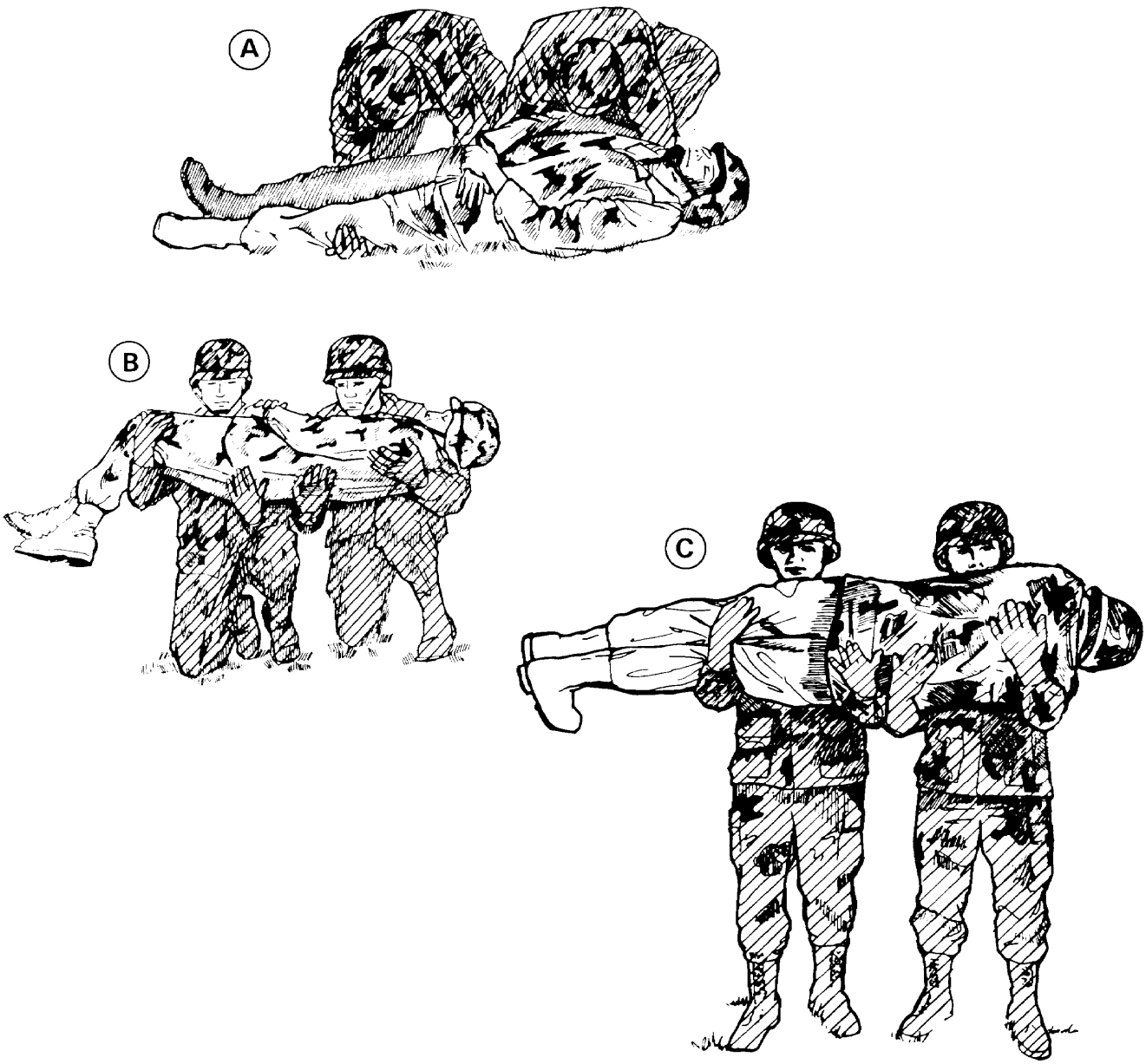

Figure 8-17. Two-man arms carry.

(3) The *two-man fore-and-aft carry* (Figure 8-18) is a useful two-man carry for transporting the casualty over a long distance (over 300 meters). The taller of the two bearers should position himself at the casualty's head. By altering this carry so that both bearers face the casualty, it is useful for placing a casualty on a litter.

(a) One bearer spreads the casualty 's legs and kneels between them with his back to the casualty. He positions his hands behind the casualty's knees. The other bearer kneels at the casualty's head, slides his hands under the arms, across the chest, and locks his hands together.

(b) The two bearers rise together, lifting the casualty.

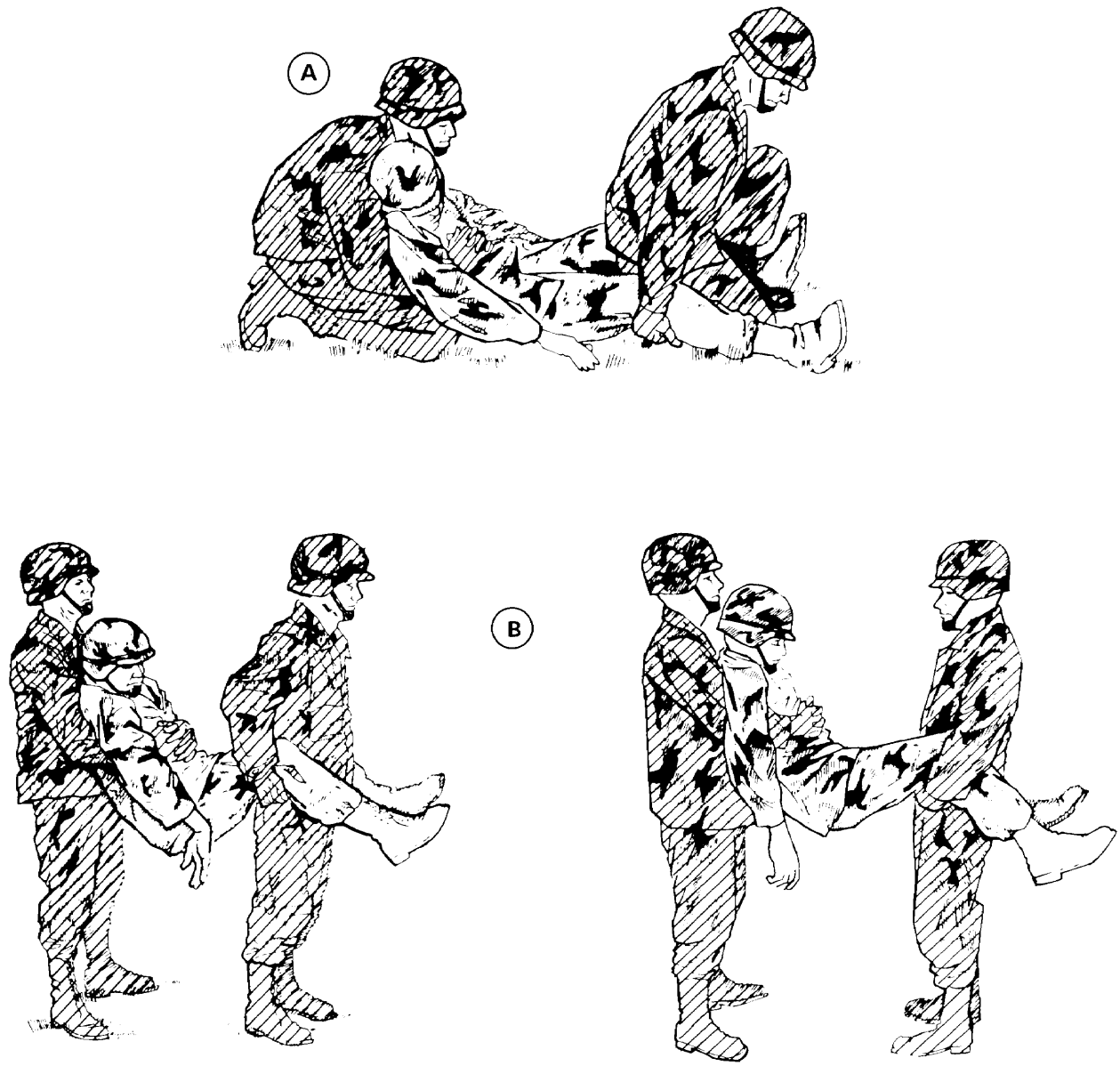

Figure 8-18. Two-man fore-and-aft carry.

(4) Only a conscious casualty can be transported with the *four-hand seat carry* (Figure 8-19) since he must help support himself by placing his arms around the bearers' shoulders. This carry is especially useful in transporting a casualty with a head or foot injury for a moderate distance (50 to 300 meters). It is also useful in placing a casualty on a litter.

(a) Each bearer grasps one of his wrists and one of the other bearer's wrists, thus forming a packsaddle.

(b) The two bearers lower themselves sufficiently for the casualty to sit on the packsaddle; then, they have the casualty place his arms around their shoulders for support. The bearers then rise to an upright position.

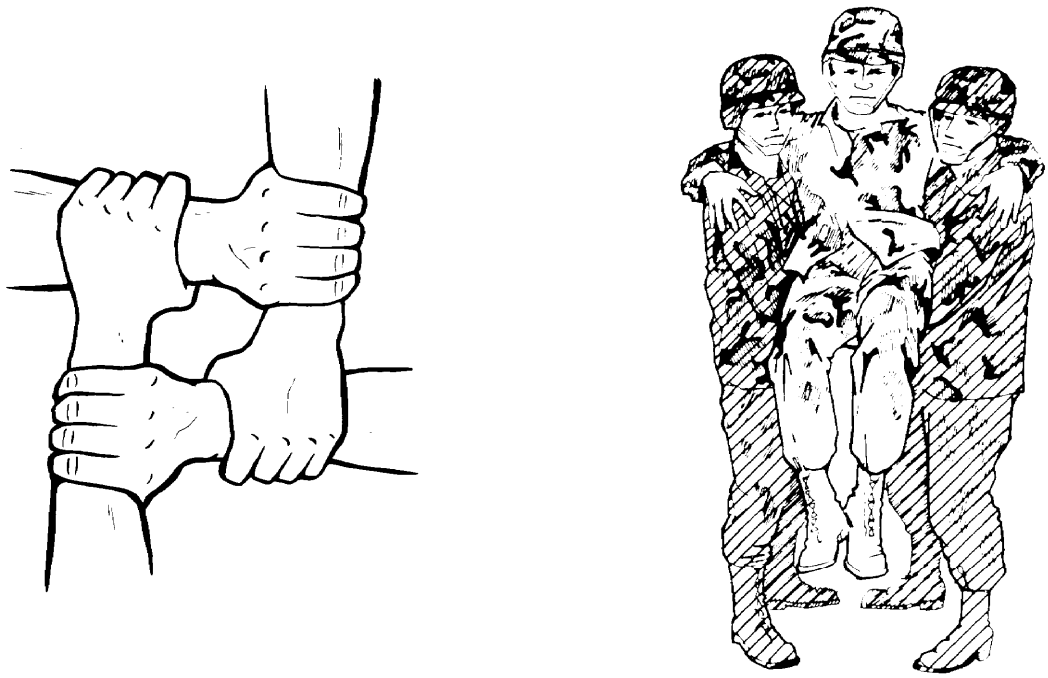

Figure 8-19. Four-hand seat carry.

(5) The *two-hand seat carry* (Figure 8-20) is used when carrying a casualty for a short distance (up to 50 meters) and in placing a casualty on a litter. With the casualty lying on his back, a bearer kneels on each side of the casualty at his hips. Each bearer passes his arms under the casualty' thighs and back, and grasps the other bearer's wrists. The bearers rise lifting the casualty.

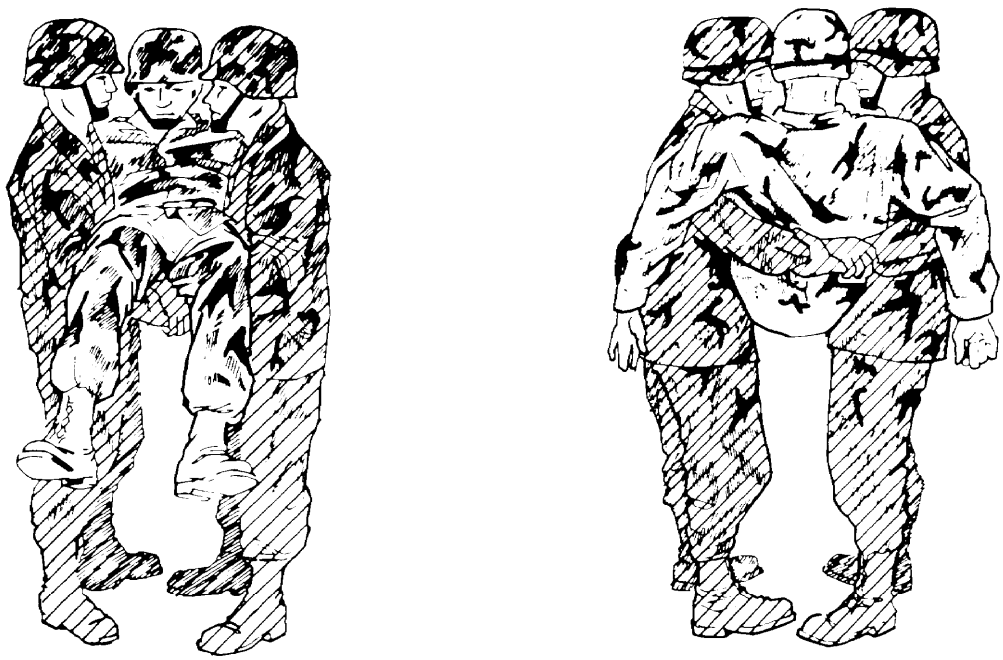

Figure 8-20. Two-hand seat carry.

8-8. Special Manual Evacuation Techniques

The use of special techniques is required to remove injured soldiers from tanks, other armored vehicles, motor vehicles, or from other limited-access positions. The procedures for extracting a casualty include—

- Observing the vehicle for fire.

WARNING

DO NOT approach a burning vehicle.

- Gaining access to the casualty.
- Administering lifesaving measures.
- Freeing the casualty from the vehicle or other limited-access positions.
- Preparing the casualty for removal.
- Transporting the casualty from the site.

NOTE

Removing a wounded soldier from the interior of a tank is difficult and requires speed (stationary tanks are lucrative targets; all disabled armored vehicles may explode). Two soldiers should be used to extract a casualty.

a. Removing an Injured Soldier from a Tank Turret (Figure 8-21).

(1) One soldier goes into the tank and supports the casualty from below. The second soldier stands on top of the turret and lifts the casualty through the hatch.

NOTE

If only one soldier is available, he uses a pistol belt or similar device to lift the injured soldier from the tank.

(2) The second soldier holds the casualty in place on the hatch rim, while stepping onto the fender or stowage chest of the tank. He supports the casualty until the first soldier can get out of the tank and jump to the ground. The second soldier then lowers the casualty into the arms of the first soldier.

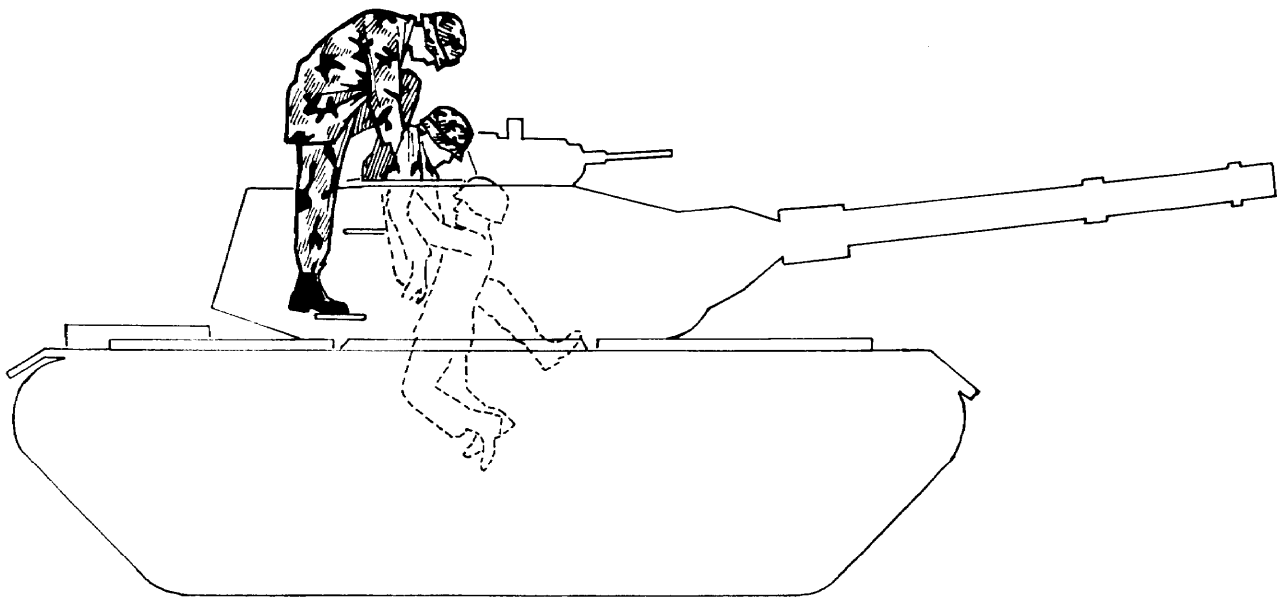

Figure 8-21. Removing an injured soldier from a tank turret.

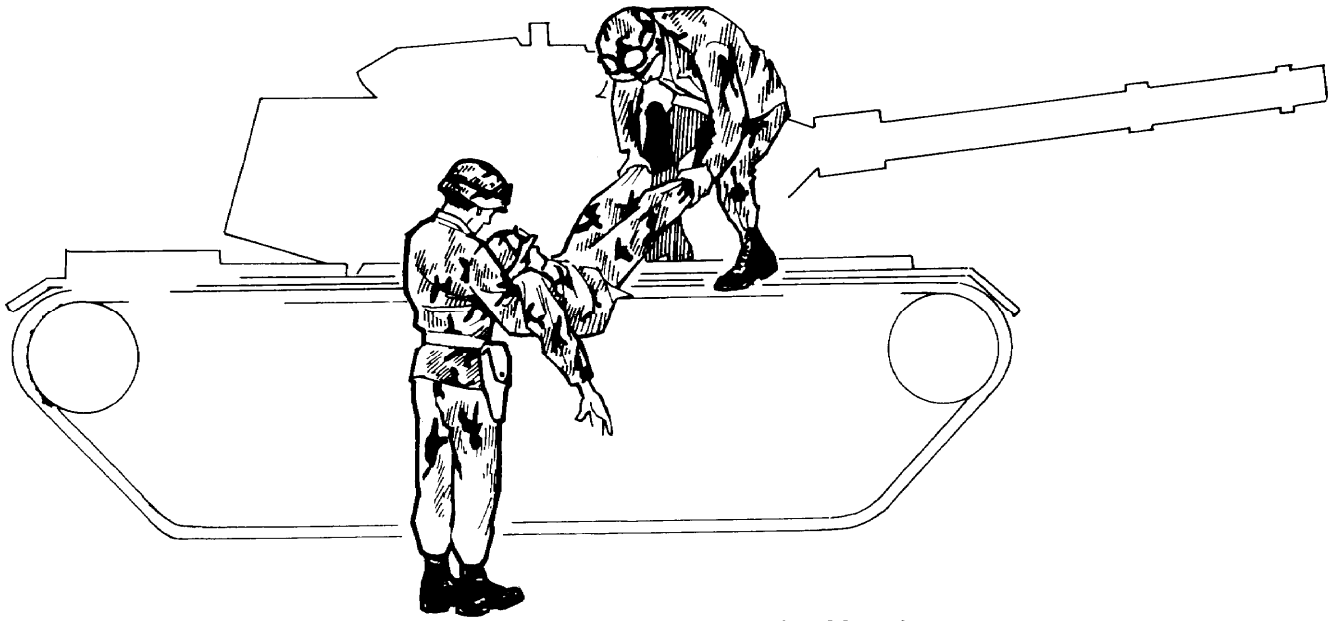

Figure 8-21. Removing an injured soldier from a tank turret (continued).

b. Removing an Injured Soldier from the Driving Compartment (Figure 8-22).

(1) The two soldiers open the hatch, reach down, fold the casualty's arms across his chest, and turn him until he faces the rear. With one soldier standing on each side of the hatch, they lift the casualty until he is sitting on the hatch rim.

(2) One soldier jumps to the ground, while the other lowers the casualty down the front slope plate.

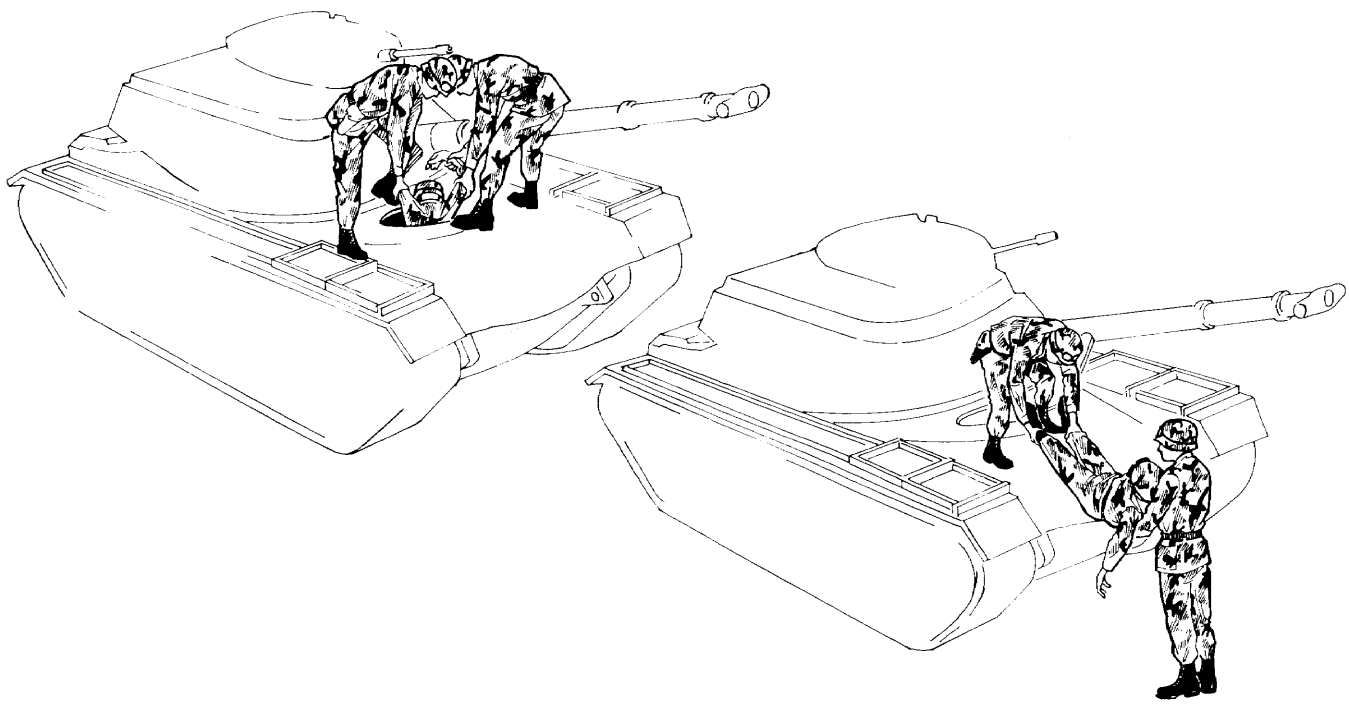

Figure 8-22. Removing an injured soldier from the driving compartment.

8-9. Evacuation from the Bradley Infantry Fighting Vehicle

a. Steps in Casualty Evacuation.

(1) Observe the vehicle for fire.

(2) Extract the casualty from the vehicle.

(3) Check and treat casualty.

(4) Evacuate casualty.

b. Vehicle Exit Procedures.

(1) The M2 BIFV is equipped with six exits (Figure 8-23). Some of these exits are used to evacuate specific crew members while others are used to evacuate any of the crew. The exits are—

- Commander's hatch.
- Gunner's hatch.
- Driver's hatch.
- Cargo hatch.
- Ramp door.
- Ramp.

(2) When possible, the commander's, gunner's, and driver's hatches are the evacuation exits for personnel from each of these three positions. If any or all of these exits are blocked, or if the tactical situation prevents their use, casualties from these three positions are evacuated through the troop compartment and out the ramp door or the ramp.

(3) The ramp is the main exit used to evacuate casualties from the troop compartment. The ramp door is used if the ramp is inoperative and cannot be opened. Because of the difficulty in evacuating casualties through the cargo hatch, it should be used only as a last resort.

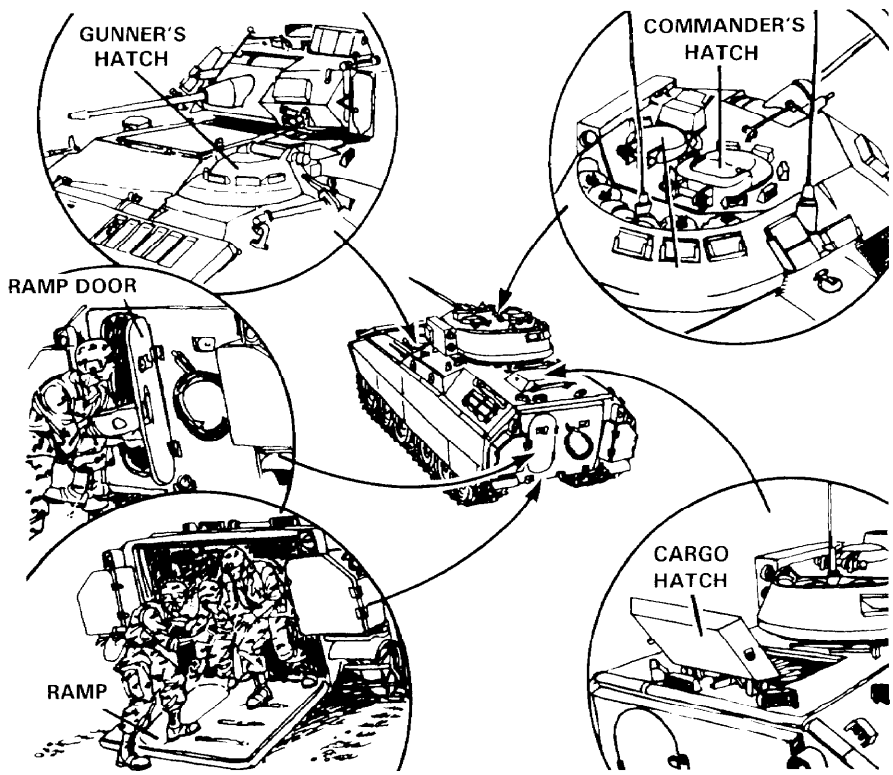

Figure 8-23. BIFV exit points.

c. Casualty Evacuation Procedures.

(1) *Driver.* When possible, the driver is evacuated through the driver's hatch. After the hatch is unlocked and opened from the outside, one member of the evacuation squad leans, head first, into the hatch to ensure that the engine is off, range selector is in gear, and hand brake is set. The squad member raises the driver's seat to the full upright position, unbuckles the driver's seat belt, and removes his helmet. Depending on the driver's injuries, he is lifted out of the vehicle by two individuals (helped by another from inside the vehicle when possible). A pistol belt placed around the driver's chest can be used to help pull him from the vehicle (Figure 8-24).

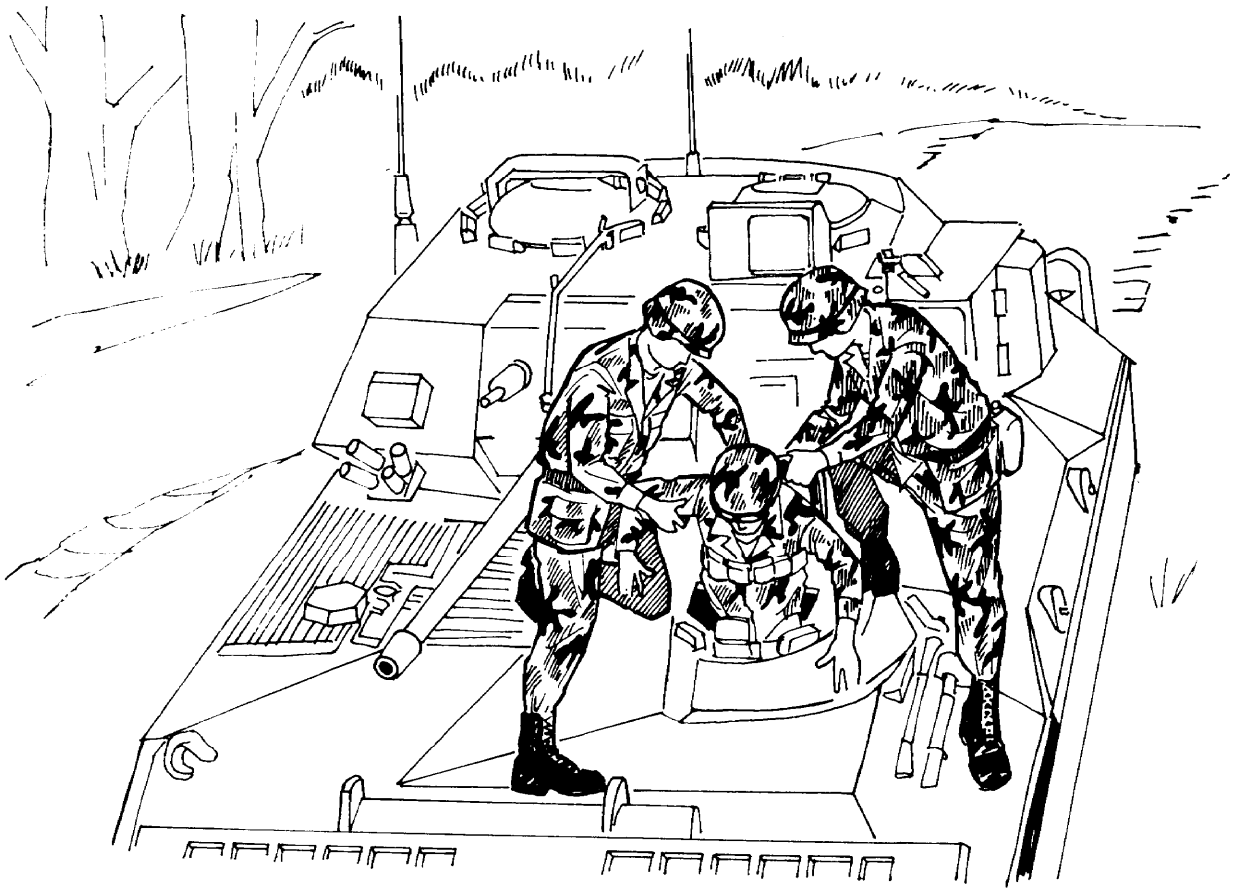

Figure 8-24. Evacuating BIFV driver.

(a) If the driver's hatch is inoperative or the vehicle is receiving enemy fire, it may be necessary to evacuate the driver through the troop compartment and out the ramp. The driver's seat back is lowered, his seat belt is unbuckled, and his helmet removed. The evacuation team then pulls him over the vehicle seats taking care not to further injure the driver.

(b) If the vehicle is on its side, the driver must be further supported during the evacuation process to prevent further injury. If the vehicle is on its left side, it requires two people to remove the driver because the hatch opening will be next to the ground. If the vehicle is on its right side, four people will be required to remove the driver and pass him down from the vehicle to the ground (Figure 8-25).

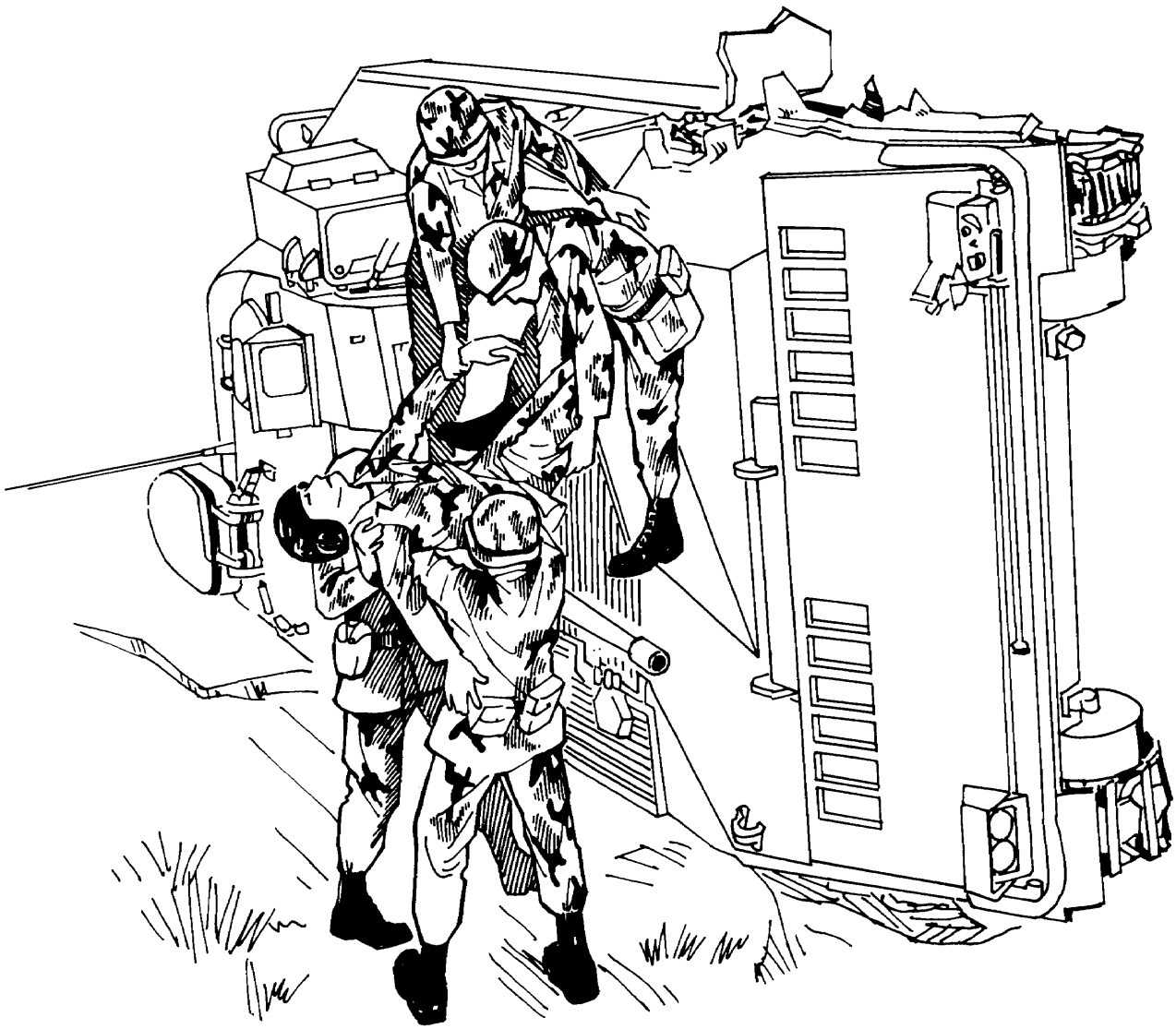

Figure 8-25. BIFV driver evacuation, vehicle on side.

(2) *Vehicle commander and gunner.* The methods of evacuating the vehicle commander and the gunner depend upon whether one or both are casualties and whether or not the turret is operational.

(a) If the turret is operational and only one soldier is injured, the uninjured soldier rotates the turret to the 6400 mil position. This action aligns the turret opening with the turret shield door. The turret power drive should then be turned off to prevent the turret from moving during the evacuation. The injured soldier is rotated to the center of the turret and pulled from his seat. He is guided through the turret shield opening, moved into the troop compartment, and out the ramp. If the turret cannot be rotated, the evacuation must be accomplished through the turret hatches.

(b) If the turret hatch cover does not function, the hatch will have to be opened from the top of the vehicle. A crowbar and mattock head are used to pry open the gunner's hatch, with the mattock head as a pivot for the crowbar. The hatch can be opened by prying between the gunner's right periscope and the vehicle commander's left periscope (Figure 8-26).

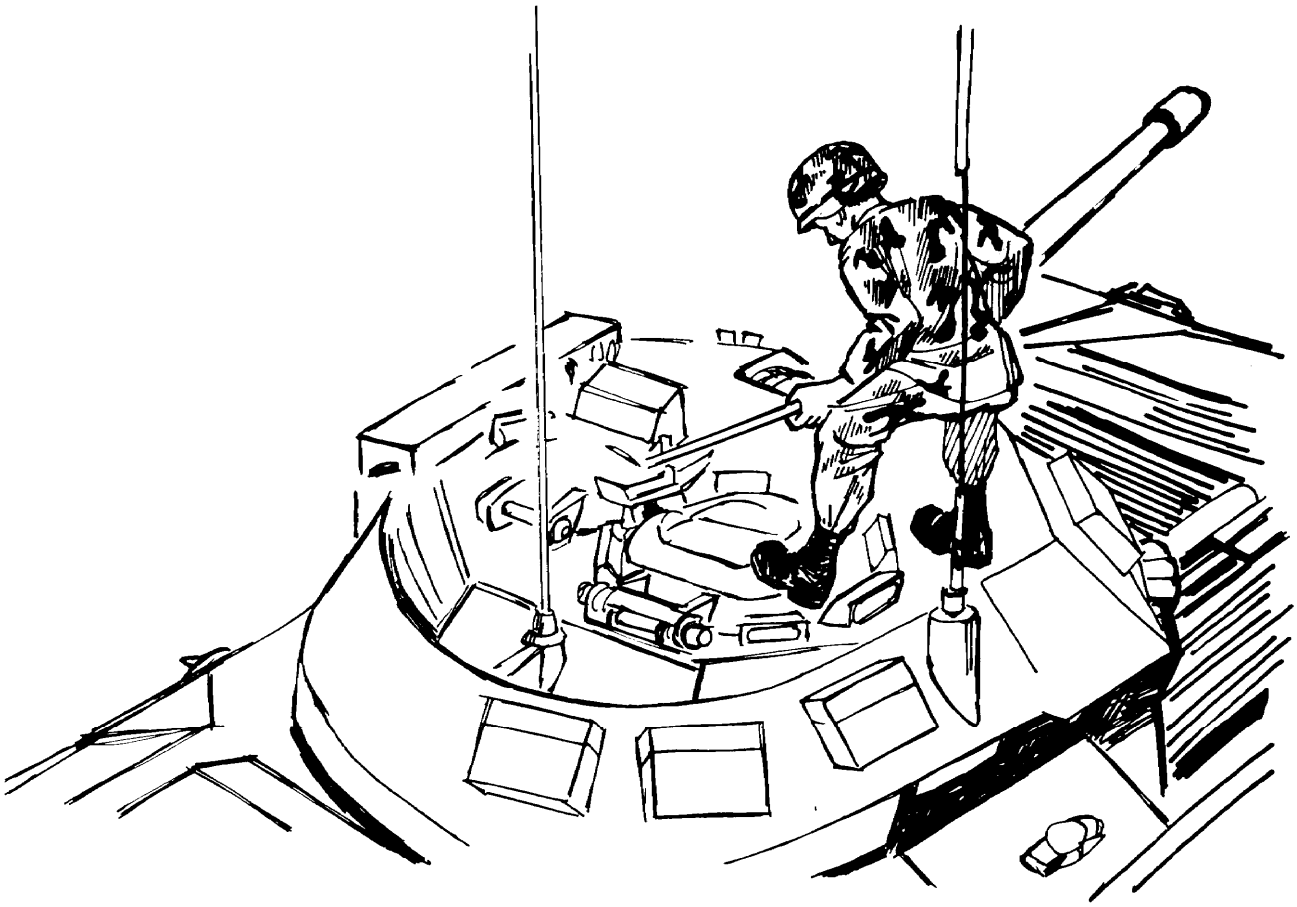

Figure 8-26. Opening gunner's hatch from outside vehicle.

(3) *Soldiers in the troop compartment.* Injured soldiers in the troop compartment will be evacuated through the ramp, ramp door, or cargo hatch. The casualties' seat belts must be unbuckled and their helmets disconnected or headsets removed. They will then be evacuated through the most con-venient exit.

NOTE

During peacetime training and whenever possible, the Kendricks Extrication Device (KED) can be used to remove a casualty from a tank to more effectively stabilize the spine.