

1. What is a grenade?
  1. Handheld hand armed, hand launched weapon
2. What are the 6 types of grenades?
  1. Frag, illumination, chemical, offensive, practice and training, nonlethal
3. What are Fragmentation grenades used for?
  1. Used to create casualties by high-velocity projection of fragments
4. What are illumination grenades used for?
  1. Illuminates terrain and targets
5. What are chemical grenades used for?
  1. Incendiary, screening, signaling, training, riot control
6. When are non lethal grenades used?
  1. Used when lethal force is not desired
7. What are the three main components of a grenade?
  1. Body, Filler, Fuse
8. What makes up the grenade body?
  1. Contains filler; fragmentation
9. What is a filler?
  1. Chemical or explosive
10. What is a fuse?
  1. Detonates filler
11. What 2 fuses are used in Grenades?
  1. Detonating and igniting
12. What are the characteristics of a detonating fuse?
  1. Explode in grenade body to initiate main explosion of filler substance
13. What are M213 fuse characteristics?
14. What are igniting fuse characteristics?
  1. Burn at high temperatures to ignite chemical filler
  2. M201a1 igniting fuse used w AN-H8 HC M83 practice smoke,
  3. MA3 riot control, AN-M14 incendiary grenade 1.2-2 second delay
15. ABC M7A2, M7A3 Characteristics
  1. Contain CS as only filler
  2. Produces gas for 15-35 seconds
16. What are the components of a M67 fragmentation grenade?
  1. Body steel sphere with steel spring
  2. Filler is 6.5 oz composition
  3. Fuse-m213
  4. Weight- 14 ounces
17. What are the capabilities of the M67?
  1. Avg soldier throws 35m
  2. 5 m kill radius, 15m wound radius
18. What are the characteristics of the M18 smoke grenade?
  1. Body: sheet steel container w 4 emission holes in top
  2. Burns for 50-90 seconds with average burn time of 60 seconds

19. What is the purpose of smoke grenades?
  1. Signaling devices, LZ marking, screening devices
20. What are the characteristics of the AN-M14 TH3 incendiary hand grenade?
  1. used to destroy equipment or start fires. It can also damage, immobilize, or destroy vehicles, weapons systems, shelters, or munitions.
21. What are the components of the AN-M14 TH3 incendiary hand grenade?
  1. • Body: sheet metal.
  2. • Filler: 26.5 ounces of thermate (TH3) mixture.
  3. • Fuse: M201A1.
  4. • Weight: 32 ounces.
22. What are the capabilities of the AN-M14 TH3 hand grenade?
  1. The average soldier can throw the AN-M14 grenade 25 meters. A portion of thermate mixture is converted to molten iron, which burns at 4,330 degrees Fahrenheit. The mixture fuses together the metallic parts of any object that it contacts. Thermate is an improved version of thermite, the incendiary agent used in hand grenades during World War II. The thermate filler can burn through a 1/2-inch homogenous steel plate. It produces its own oxygen and burns under water.
23. What are the Colors and Markings of of the AN-M14 TH3 hand grenade?
  1. The AN-M14 is gray with purple markings and has a single purple band (current grenades). Under the standard color-coding system, incendiary grenades are light red with black markings.
24. What is the Mk3A2 offensive hand grenade?
  1. commonly referred to as the concussion grenade, produces casualties during close combat while minimizing danger to friendly personnel. The grenade is also used for concussion effects in enclosed areas, for blasting, and for demolition tasks. The shock waves (overpressure) produced by this grenade when used in enclosed areas are greater than those produced by the fragmentation grenade. It is, therefore, more effective against enemy soldiers located in bunkers, buildings, and fortified areas.
25. What are the Mk3A2 components?
  1. • Body: fiber (similar to the packing container for the fragmentation grenade)
  2. • Filler: 8 ounces of TNT.
  3. • Fuse: M206A2.
  4. • Weight: 15.6 ounces.
  5. • Safety Clip: may be issued with or without a safety clip.
26. What are the Mk3A2 Capabilities?
  1. The average soldier can throw the Mk3A2 grenade 40 meters. It has an effective casualty radius of 2 meters in open areas, but fragments and bits of fuse may be projected as far as 200 meters from the detonation point.
27. What is the purpose of the M69 practice hand grenade?
  1. simulates the M67-series of fragmentation grenades for training purposes. The M69 provides realistic training and familiarizes the Soldier with the functioning and characteristics of the fragmentation hand grenade.

28. What are the components of the M69?

1. • Body: steel sphere.
2. • Filler: none.
3. • Fuse: M228, which is inserted into the grenade body.
4. • Weight: 14 ounces.
5. • Safety Clip: Yes.

29. What are the capabilities of the M69?

1. The average soldier can throw the M69 hand grenade 40 meters.
2. After a delay of 4 to 5 seconds, the M69 emits a small puff of white smoke and makes a loud popping noise. The grenade body can be used repeatedly by replacing the fuse assembly.

30. When are stun hand grenades used?

1. diversionary or distraction devices during building and room clearing operations when the presence of noncombatants is likely or expected and the assaulting element is attempting to achieve surprise.

31. The components of the M84 diversionary/flash-bang stun hand grenade are:

1. • Body: 5.25 inches in length and 1.73 inches at the corner of the hexagon
2. location. It has a steel hexagon tube with 12 blast and flash release holes along
3. the sides with a heavy steel, hexagon-shaped top and bottom portion.
4. • Fuse and Safety Pin: M201A1 MOD 2, which is designed to be non-
5. fragmenting. It has a primary round pull ring and a secondary safety pin with
6. a triangular pull ring. It has a delay time of 1 to 2.3 seconds.
7. • Weight: 13.3 ounces.

32. What are the capabilities of the M84?

1. Upon detonation, the M84 generates an intensive heat, a flash of over one million candlepower, and a bang that is 170 to 180 decibels at 5 feet. The grenade can cause disorientation, confusion, ear injuries, and temporary loss of hearing within 9 meters. The flash may damage eyesight and night vision.

33. What are the general assemblies of U.S. hand grenades?

1. Hand grenades within the U.S. inventory are composed of a body, filler, and a fuse. Most hand grenades come assembled with the exception of the M69 practice hand grenade and the fuses for the M69, which come in containers of 45.

34. What is the inspection feature for newly issued grenades?

1. (1) Remove the tape and the top cover from the shipping canister. (2) Look down into the canister; if the hand grenade is upside down, return the canister to the issuing person, noncommissioned officer in charge (NCOIC), or officer in charge (OIC). (3) Ensure all required safeties are properly attached to the hand grenade. If a safety pin is missing, return the hand grenade. (4) Check the hand grenade for rust on the body or the fuse. If rust is found, return the hand grenade. (5) Check for holes on the body and the fuse. If any holes are visible, return the hand grenade. (6) If the hand grenade seems to be in order, remove the grenade carefully from the canister and make a visual check for proper fitting of the safety pins. Then, properly secure the grenade to the ammunition pouch.

35. What are the following inspection procedures for unpacked grenades or for grenades that are stored on ammunition pouches.
1. (1) Inspect unpacked or stored grenades daily to ensure safety pins are present. Under hostile conditions, remove the safety clip from fragmentation hand grenades because Soldiers under stressful situations may forget to remove the clip before throwing the
  2. grenade.
  3. (2) Check the body for rust or dirt.
  4. (3) Make sure the lever is not broken or bent.
36. The rifle, the bayonet, and the hand grenade are the Soldier's basic lethal weapons. Historically, hand grenade training has received less emphasis than marksmanship and bayonet training. What does this mean?
1. The hand grenade must receive greater emphasis in training programs and field training exercises. The proper use of hand grenades could determine the fate of the soldier or the success of the mission.
37. The storing of hand grenades on ammunition pouches is one of the most neglected aspects of hand grenade training. Why is this?
1. Experiences of American infantry, both in combat and in training, point out the need for specific training in storing hand grenades on ammunition pouches and integration of this type of training into tactical training exercises. Commanders should make every effort to issue training hand grenades for wear and use during all training activities. The Soldier must be as confident in carrying and using hand grenades as he is with his rifle and bayonet.
38. Before storing a hand grenade, take what following safety precautions?
1. a. Check the grenade fuse assembly for tightness. It must be tightly fitted in the grenade fuse well to prevent the grenade from working loose and separating from the grenade body. Never remove the fuse from a grenade.
  2. b. If the grenade safety lever is broken, do not use the grenade. A broken safety lever denies the thrower the most critical safety mechanism of the grenade.
  3. c. Do not bend the ends of the safety pin back flush against the fuse body. This
  4. practice, intended to preclude the accidental pulling of the pin, makes the removal of the safety pin difficult. Repeated working of the safety pin in this manner causes the pin to break, creating a hazardous condition.
  5. d. Carry hand grenades either on the ammunition pouch, using the carrying safety straps designed specifically for this purpose (Figure 3-1), or in the grenade pockets of the enhanced tactical load-bearing vest (Figure 3-2).
39. The importance of properly gripping the hand grenade cannot be overemphasized. Soldiers must understand that a grenade not held properly is difficult to arm. What grip helps sliders effectively use hand grenades?
1. Holding the grenade in the throwing hand with the safety lever placed between the first and second joints of the thumb provides safety and throwing efficiency.

40. Gripping procedures differ slightly for right- and left-handed Soldiers. What are these differences?
1. Right-handed Soldiers hold the grenade upright with the pull ring away from the palm of the throwing hand so that the pull ring can be easily removed by the index or middle finger of the free hand (Figure 3-3).
  2. c. Left-handed Soldiers invert the grenade with the fingers and thumb of the throwing hand positioned in the same manner as by right-handed personnel (Figure 3-4).
41. Since few Soldiers throw in the same manner, it is difficult to establish firm rules or techniques for throwing hand grenades. What does this mean?
1. How accurately they are thrown is more important than how they are thrown. If a soldier can achieve more distance and accuracy using his own personal style, he should be allowed to do so as long as his body is facing sideways, towards the enemy's position, and he throws basically overhand. There is, however, a recommended method of throwing hand grenades.
42. What are general guidelines for effective use of hand grenades?
1. (1) Observe the target to mentally establish the distance between the throwing position and the target area. In observing the target, minimize exposure time to the enemy (no more than 3 seconds).
  2. (2) Grip the hand grenade in the throwing hand.
  3. (3) Grasp the pull ring with the index or middle finger of the nonthrowing hand. Remove the safety pin with a pulling and twisting motion. If the tactical situation permits, observe the safety pin's removal.
  4. (4) Look at the target and throw the grenade using the overhand method so that the grenade arcs, landing on or near the target.
  5. (5) Allow the motion of the throwing arm to continue naturally once the grenade is released. This follow-through improves distance and accuracy and lessens the strain on the throwing arm.
  6. (6) Practice the necessary throws that are used in combat, such as the underhand and sidearm throws. Soldiers can practice these throws with practice grenades, but they must throw live fragmentation grenades overhand in a training environment.

43. What is the most desirable position from which to throw grenades? What procedures must be followed when throwing from such a position?
1. The standing position (Figure 3-5, page 3-6) is the most desirable and natural position from which to throw grenades. It allows the Soldier to obtain the greatest possible throwing distance. Soldiers normally use this position when occupying a fighting position or during operations in fortified positions or urban terrain. Use the following procedures when throwing from this position:
  2. a) Observe the target to mentally estimate the range. Use the proper handgrip, and arm the grenade while behind cover. (b) Assume a natural stance with the weight balanced equally on both feet. Hold the grenade shoulder high and hold the nonthrowing hand at a 45-degree angle with the fingers and thumb extended, joined, and pointing toward the intended target. c) Throw the grenade with a natural motion, using the procedures described in paragraph 3-3a. (d) Seek cover to avoid being hit by fragments or direct enemy fire. If no cover is available, drop to the prone position facing the direction of the grenade's detonation.
44. The prone-to-standing position allows the soldier to throw the grenade for a greater distance than the alternate prone but he is exposed more. What is the most effective method to throw from the prone-to-standing position?
- (a) Lie down on the stomach with the body parallel to the grenade's intended line of flight. Hold the grenade at chest level (A, Figure 3-6).
  - (b) Place the hands in a push-up position and stand up while holding the grenade in the throwing hand.
  - (c) Assume a natural stance with the weight balanced equally on both feet. Hold the grenade shoulder high and hold the nonthrowing hand at a 45-degree angle with the fingers and thumb extended, joined, and pointing toward the intended target (B, Figure 3-6). Try to assume a good standing position—the throw will be longer and more accurate—but it is more important to quickly get up and prepare the grenade.
  - (d) Throw the grenade with a natural motion (C, Figure 3-6).
  - (d) After throwing the grenade, drop to the ground on the stomach and press flat against the ground

45. The kneeling position (Figure 3-7, page 3-8) reduces the distance a Soldier can throw a grenade. It is used primarily when a Soldier has only a low wall, a shallow ditch, or similar cover to protect him. How do you throw from the kneeling position?
1. (a) Observe the target to mentally estimate the throwing distance. Using the proper grip, arm the grenade while behind cover.
  2. (b) Hold the grenade shoulder high and bend the nonthrowing knee at a 90-degree angle, placing that knee on the ground. Keep the throwing leg straight and locked with the side of the boot firmly on the ground. Move the body to face sideways toward the target position. Keep the nonthrowing hand at a 45-degree angle with the fingers and thumb extended, joined, and pointing toward the enemy position.
  3. (c) Throw the grenade with a natural throwing motion. Push off with the throwing foot to give added force to the throw. Follow through with the throwing arm as described in paragraph 3-3.
  4. (d) Drop to the prone position or behind available cover to reduce exposure to fragmentation and direct enemy fire.
46. Hand grenades provide the individual Soldier with a number of highly versatile and effective weapons systems. Why are grenades used in combat?
1. Soldiers employ hand grenades throughout the spectrum of warfare, from low- to high-intensity conflict, to conceal positions, save ammunition, and inflict greater casualties.
47. Fragmentation hand grenades are mainly used to:
1. kill or wound enemy Soldiers, but can also be used to destroy or disable equipment.
48. Incendiary hand grenades are mainly used to:
1. destroy equipment and start fires, but can also be used to destroy or disable vehicles and weapons.
49. Colored smoke grenades are mainly used to:
1. identify or mark positions, but can also be used to mark areas for ground-to-ground or ground-to-air operations.
50. White smoke grenades are mainly used to:
1. conceal or create a smoke screen for offensive or retrograde operations.
51. Riot-control hand grenades are used to:
1. control crowds or riots.
52. Stun grenades are used to:
1. temporarily stun or disorient the occupants of an enclosed area such as a building or room.
53. While all hand grenades have application in modern combat, the fragmentation hand grenade remains the most important. Why is this?
1. it is not only the primary killing hand grenade, but also the most dangerous to employ. Fragmentation hand grenades are equally lethal to friendly and enemy Soldiers; therefore, they must be employed properly to protect friendly Soldiers.

54. On the modern battlefield, the close-in fight can occur anywhere, anytime. What are some of the advantages of using grenades in close combat?
1. Fragmentation hand grenades allow the soldier to effectively engage and kill enemy soldiers located within a radius of 40 meters where line-of-sight systems are no longer effective. Since there is no muzzle flash, grenades also help conceal a Soldier's position as he engages the enemy. The fragmentation hand grenade is the weapon of choice when the enemy is within range, but the terrain masks engagement areas. The fragmentation hand grenade is the Soldier's indirect-fire weapon system.
55. Many times in combat, the nature of the targets confronting the infantryman make normal methods of target engagement inadequate. What are some examples of this? How can grenades engage these threats?
1. Against Soldiers or weapons in trenches or fighting positions, for example, having a grenade burst over the target is more effective. Furthermore, if the targets are on sloping ground, then a grenade needs to detonate as near impact as possible to prevent its rolling away from the target before detonating. Such above-ground detonation also prevents the enemy from securing the grenade and throwing it back within the 4- to 5-second fuse delay.
56. Above ground detonation is especially critical when engaging bunker-type emplacements. How can above ground detonation be achieved?
1. To achieve above-ground detonation or near-impact detonation, remove the grenade's safety pin, release the safety lever, count ONE THOUSAND ONE, ONE THOUSAND TWO, and throw the grenade. This is called cooking-off.
57. When is the combat load for grenades determined?
- 1.
58. What determines the combat load for grenades?
1. The theater commander normally establishes basic and combat loads of hand grenades. The combat load is not a fixed quantity; it can be altered as the situation dictates. Units vary the combat load depending upon the commander's analysis of METT-TC. The most important factor in determining the combat load for hand grenades is unit mission, which influences the type and quantity of hand grenades needed.
59. How much does each grenade usually weigh?
1. Each hand grenade weighs close to one pound. Consequently, each grenade the soldier carries adds another pound to his total load.
60. What considerations must be made when determining what weapons to send on mission?
1. Soldiers cannot carry everything commanders would like to take into battle. Commanders must consider the value of various weapons and munitions to determine which contribute the most to mission accomplishment. For example, tradeoff may be required between hand grenades and mines, between hand grenades and mortar ammunition, or between different types of grenades.

61. How is the supply of grenades to be balanced?
1. Different types of hand grenades are required on all missions. Generally, fragmentation and colored smoke grenades are required for all missions. Distribute hand grenades selected for a mission among several Soldiers, if not among all of them.
62. The fragmentation hand grenade is the:
1. primary type of grenade used during offensive operations. These grenades provide the violent, destructive, close-in firepower essential for the individual Soldier to overcome and kill the enemy.
63. Fragmentation hand grenades contribute greatly in what psychological aspects of combat?
1. destroying the enemy's will to continue the fight. The noise, flash, and concussion generated by fragmentation hand grenades have severe psychological effects on enemy soldiers.
64. Offensive grenades are much less lethal than fragmentation grenades on an enemy in the open. Where are offensive grenades effective?
1. but they are very effective against an enemy within a confined space. The concussion they produce is capable of killing or severely injuring enemy personnel, not just stunning them.
65. Soldiers must throw hand grenades accurately into enemy positions to avoid what?
1. The chances of friendly hand grenades hitting friendly forces.
66. In an assault against a dug-in, well-prepared enemy, the Soldier uses hand grenades to clear what targets first?
1. crew-served weapons first. Once the first defensive belt has been penetrated, he uses hand grenades in a priority effort to attack command bunkers and communications equipment and to kill or capture enemy leaders within those bunkers.
67. In the assault, the Soldier participates as a squad member in clearing trenches, destroying bunkers, and clearing rooms. In clearing a trench within a fortified position, the buddy team forms the basis for all fragmentation grenade employment in what manner?
1. (1) Before entering the trench, the first clearing team throws or drops hand grenades into the trench, attempting to keep the individual grenades separated by at least 5 meters.
  2. (2) After the grenades explode, the first clearing team rolls into the trench, landing on their feet and firing their weapons down both directions of the trench.
  3. (3) The first clearing team holds the entry point.
  4. (4) The teams following the first clearing team enter at the same position and begin clearing in one direction only (FM 7-8).
  5. (5) As the lead buddy team moves to the right (or left), one Soldier is the designated grenadier. He moves along the wall closest to the next bend in the trench. His movement is covered by his buddy, who is ready to fire at any enemy

soldiers advancing toward them. The grenadier holds a grenade at the ready as he moves rapidly down the trench.

6. (6) At the bend in the trench, the designated grenadier throws a grenade around the bend. After the explosion, the rifleman moves rapidly around the bend and fires rapid bursts horizontally and alternately along the long axis of the trench.
  7. (7) Movement down the trench continues by alternating the designated rifleman and grenadier roles or maintaining the same roles throughout. Fire teams and squads bound forward to continue clearing the trench line.
68. Clearing an enemy bunker and killing the enemy soldiers inside requires violence and speed of execution, plus synchronization of effort at the buddy and squad level, in order to succeed. The following are procedures for clearing a bunker:
1. (1) A two-man team assaults a single bunker using a combination of grenades and rifle fire. One member of the buddy team provides overwatching suppressive fire while the other member moves rapidly toward the bunker using a combination of individual movement techniques and the best available covered route.
  2. (2) As he approaches to within 75 meters of the bunker, the grenadier can use white smoke to help conceal his movement for the remaining distance. The white smoke
  3. grenade should be thrown on line with the bunker and as close to the enemy's firing port as possible.
  4. (3) Once the grenadier member of the buddy team is at the side of the bunker, he holds the grenade at a 90-degree angle from his body, releases the safety lever, mentally counts two seconds (ONE THOUSAND ONE, ONE THOUSAND TWO), and throws or pushes the grenade into the firing port of the bunker. Once he releases the grenade, he rolls away from the bunker and faces to the rear of the bunker, prepared to engage escaping enemy soldiers with his rifle.
  5. (4) After the grenade detonates, the grenadier enters the position from the rear to kill or capture remaining enemy soldiers.
69. When clearing a room or moving through an urban area, the following considerations apply:
1. • What types of grenades do the ROE permit and restrict?
  2. • What effect is desired—kill, stun, obscure, destroy equipment, mark a
  3. location, and so forth?
  4. • Does the structural integrity of the room and building permit the types of
  5. grenades selected for use?
  6. • Will the scheme of maneuver permit the use of fragmentation grenades and
  7. not cause fratricide?
  8. • Will the type of grenade used cause an urban fire in an undesired location?
70. The use of hand grenades during raids always depends on the mission. The raid, as a type of offensive operation, is characterized by heavy use of fragmentation and offensive grenades, but it may also require other types of grenades. Use grenades according to the following guidelines:

1. (1) If the mission is to secure prisoners, the employment of offensive grenades is appropriate. (2) If the mission calls for the destruction of vehicles, weapons, or special equipment, incendiary grenades and fragmentation grenades are appropriate. (3) Smoke grenades are often used to create a smoke screen covering the advance of friendly forces or to mark the location of friendly forces and pickup points. Colored smoke is used mainly for signaling purposes.
  2. h. Reaction to an enemy ambush requires an immediate, rapid, and violent response. The longer friendly forces remain in the ambush kill zone, the greater the probability of friendly force destruction. Using a combination of fragmentation hand grenades to kill the enemy and white smoke grenades to obscure the enemy's sight and rifle fire, the Soldiers within a squad assault the enemy force. Soldiers train and drill to throw fragmentation grenades first, then smoke grenades.
  3. Hand grenades are used in defensive operations during the final phase of the close-in battle. The primary hand grenade in all defensive operations is the fragmentation grenade.
71. Dismounted Soldiers should try to destroy or disable enemy armor only as a last resort. When employing hand grenades for this purpose, follow these procedures:
1. Remain in a covered fighting position until the vehicle closes to within its visual dead space. Approach the vehicle from the rear, moving aggressively.
  2. • Place an incendiary grenade over the engine compartment.
  3. • Attempt to drop a fragmentation grenade into an open hatch if incendiary grenades are not available.
  4. grenades are not available.
  5. • Destroy any crewmen who exit the vehicle.
72. The considerations for the defensive employment of grenades on urban terrain are generally the same as offensive considerations with respect to ROE, structural integrity of the building, fratricide avoidance, and desired effects of the type grenade to be used. Additionally, the following also apply:
1. (1) Fragmentation grenades are effective in producing casualties when thrown at assaulting enemy troops between buildings or on streets from windows, doors, mouseholes, or other building apertures.
  2. (2) Stun grenades can cause confusion and hesitation when thrown at assaulting enemy soldiers, allowing time for withdrawal from rooms. This is especially useful if the structural integrity of the building does not permit the use of fragmentation or concussion grenades.
  3. (3) Use of smoke grenades inside buildings may displace oxygen in poorly ventilated rooms and make breathing difficult while also rendering protective masks ineffective.

73. Special applications or considerations for hand grenade use during retrograde operations relate to creating obstacles, marking friendly force locations, and breaking contact. How can grenades be used in each of these aspects?
1. a. Create Obstacles. When terrain conditions permit, Soldiers can use incendiary grenades to impede and disrupt enemy movement by initiating fires in specific areas.
  2. b. Mark Locations. Soldiers can use colored smoke hand grenades to mark friendly force positions and identify friendly forces.
  3. c. Break Contact. During retrograde operations, some elements of the friendly force often become decisively engaged. Soldiers can use fragmentation, white smoke, and CS grenades to break contact and regain flexibility of maneuver. Use of hand grenades in volley fire following the employment of white smoke is especially effective. The smoke obscures enemy observation of friendly force movement from covered positions, and the fragmentation grenades force the enemy to cover.
74. Army operations doctrine recognizes that the nature of a future war poses a significant threat to rear areas. These threats range from large operational maneuver groups to highly trained, special operating forces and even terrorists. What does this mean?
1. All U.S. Soldiers in combat, CS, and CSS units must be prepared to fight using small arms, antitank weapons, Claymore mines, and fragmentation grenades. At every element level throughout the corps battle area, individual U.S. Soldiers must react to every action by aggressive, violent employment of grenades and individual weapons.
75. What are special considerations for grenade use?
1. Two features of rear area operations provide for unique considerations concerning hand grenade employment. In certain areas of the world, the U.S. Army and its allies must anticipate a large number of civilian refugees moving into and through the rear area, which can be confusing with the large numbers of CS and CSS units operating throughout the rear area.
76. These factors dictate the following guidelines for offensive grenade employment in the rear areas:
1. Individual Soldiers throw offensive grenades at enemy soldiers in situations where noncombatants and support troops may be intermingled with threat forces. These factors dictate the following guidelines for Riot-Control Grenade employment in the rear areas: It is reasonable to expect enemy special forces, special agent provocateurs, and fifth columnists to try to incite riots in the rear areas, especially if the conflict begins to stalemate and does not result in a rapid victory for either side.
  2. Forces in the rear areas must quell these riots as quickly as possible while limiting damage to the lives and property of noncombatants. Riot-control grenades, which are usually associated with peacetime law and order functions, also have relevancy in maintaining control of the rear area.

77. What are some considerations to make when employing hand grenades on MOPP gear?
1. Exercise additional caution when employing hand grenades in MOPP gear. The thrower should execute arming and throwing procedures carefully and deliberately and concentrate on using the proper grip. Observing each arming action (removal of safety clip and safety pin) is also recommended in MOPP. Note that wearing gloves inhibits the thrower's feel and could decrease his throwing ability and range.
78. What are considerations to make when using grenades at night?
1. Throwers must have clear fields of fire with no overhead obstructions. Depth perception is generally impaired under limited visibility conditions.
79. Ground pyrotechnic signals rise to what height?
1. 180 to 250 meters before functioning, unlike the old smoke grenades that functioned either on impact or shortly after firing.
80. What are signals and what do they include?
1. These signals are issued in their own launching mechanism and are designed to reach a minimum height of 200 meters. This group of signals includes five-star clusters; single-star parachutes, and smoke parachutes. Hand-held signals have replaced all rifle-projected pyrotechnic signals and chemical grenades.
81. The current types of star clusters include the:
1. M125 and M125A1 (green star), the M158 (red star), and the M159 (white star).
82. Operation of hand-held signals should be as follows:
1. (a) Hold the signal in your left hand, red-knurled band down, with your little finger in alignment with the red band.
  2. (b) Withdraw the firing cap from the upper end of the signal.
  3. (c) Point the ejection end of the signal away from your body and slowly push the
  4. firing cap onto the signal until the open end of the cap is aligned with the red band.
  5. (d) Grasp the center of the signal firmly with your left hand, holding your elbow tight against your body with the signal at the desired trajectory angle and the firing cap at the bottom. Turn your head down and away from the signal to avoid injury to your face and eyes from particles ejected by the small rockets.
  6. (e) Strike the bottom of the cap a sharp blow with the palm of your right or left hand or strike it on a hard surface, keeping your left or right arm rigid.
  7. (f) In the event of a misfire, while keeping the signal aimed, pull the cap back to the red knurled band and rotate 90 degrees. Make two more attempts to fire. If it still does not fire, wait 30 seconds keeping the arm rigid and the signal aimed overhead. Return the cap to the ejection end of the signal and turn it in to the ammunition supply point.

83. How do hand-held signal devices function?
1. As the signal is expelled, four flexible steel fins unfold to stabilize the signal during flight. After the signal rises about 6 meters, the rocket motor, which was ignited by the propelling gases, begins to burn fully, forcing the signal to a height of 200 to 215 meters. At that point, a delay element ignites an ejection charge, which in turn forces the five-star illumination cluster out of the nose of the signal body.
  2. Function. When the firing cap is struck, the firing pin is forced into the base of the launcher tube at the primer. When the primer is struck, the flash from the primer ignites an initiating charge of black powder at the base of the signal. Gases from the burning initiating charge expel the signal from the launcher (rocket barrel) with a slight recoil.
84. What are star parachutes and what are they used for?
1. Star parachutes are also used for signaling and illuminating.
  2. They are issued in an expendable launcher that consists of a launching tube and a firing cap. These signals produce a single illuminant star suspended from a parachute.
85. The current types of star parachutes include the:
1. M126A1 (red star),
  2. the M127A1 (white star),
  3. the M195 (green star).
86. What is the M126 and M127 maximum height? How long do they burn for? What is their average rate of descent? How long can their signals be seen for?
1. The M126- and M127-series star parachutes rise to a height of 200 to 215 meters.
  2. The M126 burns for 50 seconds, and the M127 burns for 25 seconds. The average rate of descent for both is 2.1 meters each second. The signals can be seen for 50 to 58 kilometers at night.
87. What are smoke parachutes designed to be used for?
1. Smoke parachutes are for signaling only. They are issued in an expendable launcher that consists of a launching tube and a firing cap. These signals produce a single, perforated, colored smoke canister suspended from a parachute.
88. The current types of smoke parachutes include the
1. M128A1 (green smoke)
  2. M129A1 (red smoke)
  3. M194 (yellow smoke).
89. What is the smoke parachute maximum height? How long do they burn for? What is their average rate of descent? How long can their signals be seen for?
1. Smoke parachutes rise to a height of 200 to 215 meters. The signals emit smoke for 12 seconds during the day, forming a smoke cloud that persists for 60 seconds. Their rate of descent is 4 meters per second.
  2. At night, the M128A1 emits smoke for 50 seconds, the M129A1 for 25 seconds, and the M194 for 50 seconds.

90. How are hand held signals identified?
1. Hand-held ground signals are identified as to color and type on the label and muzzle cap. The muzzle cap is the color of the signal. The star clusters and parachutes also have two raised letters on the muzzle cap allowing the color and type to be identified at night by feel, which should be practiced in the dark or blindfolded. Smoke clusters have a plain-colored cap with no letters.
91. Hand-held colored pyrotechnic signal flares (star cluster and star parachute) burn at different intensities. What does this mean?
1. Determining specific colors at night is not difficult, but in daylight it is sometimes hard to differentiate between white and green depending on lighting conditions.
92. What do green flares indicate?
1. very pale in daylight and is especially difficult to detect in fog, haze, or smoke-filled skies. In fact, white flares are easier to detect in daylight than green.
93. What flares can be mistaken for what kind of flares?
1. Illumination flares.
94. Red flares may be difficult to detect in what situations?
1. When launched in a position that forces the observer to see it near a vivid sunrise or sunset.
95. Caution must be used when signaling aircraft at night with star clusters. Why is this?
1. Red and green star clusters can be mistaken for tracers causing the aircraft to open fire on the friendly ground element or to withdraw. No type of flare or signal should ever be launched directly at friendly aircraft regardless of its distance from the launch site, as it is extremely distracting to the crew since it is difficult for them to determine how close it is, especially when wearing vision goggles.
96. What is the M49A1 trip flare used for?
1. provide early warning of infiltration of enemy troops and to illuminate an immediate area
97. In addition to its use as an early warning device, the trip flare may also be used as a:
1. signal device. It can be hand thrown to ignite fires or illuminate small areas, thrown inside bunkers and buildings to identify firing ports and or force the enemy to withdraw, and to destroy small sensitive pieces of equipment in the same manner as an incendiary grenade.
98. What are the characteristics of the M49A1 trip flare?
1. • Body material: aluminum.
  2. • Weight: 0.75 pounds.
  3. • Length: 4.85 inches.
  4. • Diameter: 3.10 inches.
  5. • Method of activation: trip wire (50 feet).
  6. • Burn time: 55 seconds minimum.
  7. • Average candlepower: 35,000 minimum.
  8. • Area of illumination: approximately 300-meter radius.
  9. • Color: olive drab with black markings.

99. Simulators are used in training for what purposes?
1. imitate the sounds and effects of combat detonations and the initiations of early warning devices. The three types of booby trap simulators each generate a different effect upon initiation
100. What are booby trap simulators activated by?
1. Trip wires attached to the igniter cords, which instantaneously activate when pulled.
101. What is the purpose of the M115A2? How is it activated? What does it produce?
1. The M115A2 replicates the detonation of artillery and mortar projectiles or artillery-type rockets. It is activated by pulling its M3A1 friction delay igniter cord and immediately thrown into a cleared area. After a 6- to 10-second delay, it produces a high-pitched whistle that lasts 2 to 4 seconds and then detonates with a loud report and brilliant flash. Burning pyrotechnic compound generates the whistle.
102. The M116A1 hand grenade simulator is used for what purposes?
1. Used to create battle noises and flashes during training. It differs from the ground-burst simulator in that it is shorter and does not emit a high-pitched whistle before detonation. The hand grenade simulator is thrown in the same manner as a live grenade. It creates a flash and loud report 5 to 10 seconds after ignition.
103. The pen gun flare supports the small-unit leader in what actions?
1. fire control, maneuver, and initiating operations such as ambushes. These signals are also a component of air crewmen's survival vest and are used for distress signaling or to identify ground locations for aircraft. This pen gun flare has a threaded projector with the projectiles contained in a cloth bandoleer. Each of the signals listed below may be fired from a hand-held projector while in a bandoleer.
104. What are some of the signals fired from the pen gun flare?
1. • Red illumination ground signal, M187.
  2. • White illumination ground signal, M188.
  3. • Green illumination ground signal, M189.
  4. • Amber illumination ground signal, M190.
105. What components comprise a signal kit?
1. The projector and the bandoleer plus seven projectiles or signals make up the signal kit (Figure 5-7). All signals may be obtained and fired separately. M185 red signal kit contains only red signals. The M186 signal kit contains three red, two white, and two green signals.
106. How do you select and prepare flares for firing?
1. Select the signal to be fired by color. If the bandoleer contains more than one signal of the chosen color, use the one farthest from the lanyard. Remove and discard the plastic cap. Cock the projector by moving the trigger to the safety slot. Carefully thread the projector onto the signal, taking care not to dislodge the trigger from the safety slot.

107. What is the procedure for the inspection of hand grenades?
- Open the canister and visually inspect the grenade.
  - If grenade is packed upside down, turn in grenade. (See TM 9-1330-200-12.)
  - If safety pin or safety clip is missing, turn in grenade.
  - If all the above is in order, remove grenade from canister.
  - If grenade body is cracked, turn in grenade.
  - If fuse lugs are broken, turn in grenade.
  - If safety lever is bent or broken, turn in grenade.
  - The safety pin must have either a diamond crimp or a 45-degree spread; if not,
  - turn in grenade (TM 9-1330-200-12).
  - If pull ring is cracked, turn in grenade.
  - If fuse is loose, turn in grenade.
108. Duds must be regarded as dangerous. What are the procedures for effectively dealing with duds?
- a. M69 Practice Grenade. Wait 5 minutes before defuzing the M69 practice grenade. Keep the bottom of the grenade oriented in a safe area. Place the dud fuse in a sand-filled container and return it to the issuing facility.
  - b. Fragmentation Grenade. The thrower and supervisor wait in the throwing pit for 5 minutes before returning to a covered area. Notify EOD immediately. Do not throw any hand grenades into the area of the dud until it has been neutralized. If range facilities provide, continue training on adjacent impact area separated by berms.
109. Where should grenades be carried during ruck marches?
- do not attach hand grenades on ammunition pouches during airborne operations. Carry the grenades in the main body of the rucksack instead.
110. During wartime conditions, it is essential that soldiers are prepared to engage the enemy as soon as the chopper hits the ground. How does this influence the storing of grenades in combat situations?
- Soldiers must carry their grenades in their ammunition pouches with the secondary safety removed.
111. RGN OFFENSIVE/DEFENSIVE HAND GRENADE
- Type: offensive/defensive (Figure D-1).
  - Weight: 290 grams.
  - Body material: aluminum.
  - Filler material: 97 grams A-1X-1 (RDX 96 percent, wax 4 percent) explosive.
  - Fuse type: striker release, impact, or self-destruct.
  - Fuse delay: impact, 1 to 2 seconds; time, 3.5 to 4 seconds (self-destruct).
  - Range thrown: 30 meters.
  - Lethal radius: 8 to 10 meters.

112. RGO DEFENSIVE HAND GRENADE

- Type: defensive (Figure D-2).
- Weight: 530 grams.
- Body material: steel.
- Filler material: 90 grams A-1X-1 (RDX 96 percent, wax 4 percent) explosive.
- Fuse type: striker release, impact, or self-destruct.
- Fuse: impact (1 to 2 seconds after being thrown) or 3.5 to 4 seconds.
- Range thrown: 30 to 40 meters.
- Lethal radius: 20 meters.

113. F1 FRAGMENTATION HAND GRENADE

- Type: fragmentation (Figure D-3).
- Weight: 600 grams.
- Body material: cast iron.
- Filler material: 60 grams TNT.
- Fuse type: striker release, UZRGM.
- Fuse delay: 3.2 to 4.2 seconds.
- Range thrown: 30 meters.
- Lethal radius: 20 to 30 meters.

114. RKG-3M ANTITANK HAND GRENADE

- Type: antitank (Figure D-4).
- Weight: with fuse, 1.07 kilograms.
- Weight of HE filling: TNT/RDX, 567 grams.
- Penetration: 165 millimeters of armor plate.
- Fuse type: instantaneous impact, base detonating.
- Effective fragment radius: 20 meters.
- Length: 362 millimeters.
- Diameter: 56 millimeters.

115. RGD-5 OFFENSIVE HAND GRENADE

- Type: offensive (Figure D-5).
- Weight: 310 grams.
- Body: steel.
- Filler material: 110 grams of TNT.
- Fuse type: striker release, UZRGM or DM -78.
- Fuse delay: 3.2 to 4.2 seconds (UZRGM), 3.2 to 4. seconds (DVM-78).
- Range thrown: 40 meters.
- Effective fragment radius: 20 to 25 meters; maximum fragment range about 30 meters.

116. RG-42 OFFENSIVE HAND GRENADE

- Type: offensive (Figure D-6).
- Weight: 420 grams.
- Body material: steel.
- Filler material: 110 to 120 grams TNT.
- Fuse type: striker release, UZRGM.
- Fuse delay: 3.2 to 4.2 seconds.
- Range thrown: 30 meters.
- Effective fragment radius: 10 meters.

117. RDG-1 SMOKE HAND GRENADE

- Type: white smoke (Figure D-7).
- Weight: 500 grams.
- Body material: cardboard, handle wood/cardboard.
- Burning time: 60 to 90 seconds.
- Fuse: pull-type friction igniter.
- Fuse delay: unknown.
- Filler: smoke mixture.
- Range thrown: 35 meters.

118. RDG-2 SERIES SMOKE HAND GRENADE

- Types: (Figure D-8).  
RDG-2: white smoke.  
RDG-2Ch: black smoke.  
RDG-2Kh: irritant gas (CS).

- RDG-3: orange smoke.
- Weight: 500 grams.
- Body material: cardboard or black plastic.
- Burning time: 50 to 90 seconds.
- Fuse: pull-type friction igniter.
- Fuse delay: unknown.
- Filler: smoke mixture.
- Range thrown: 35 meters.

119. ROUND FRAGMENTATION GRENADE

- Type: fragmentation (Figure D-9).
- Weight: 600 grams.
- Body material: cast aluminum body with 140 to 150 cast iron balls embedded in it.
- Fuse: striker release.
- Fuse delay: 3.2 to 4.2 seconds.
- Filler: TNT, 60 grams.
- Effective casualty radius: 20 meters.

120. RECTANGULAR FRAGMENTATION GRENADE

- Type: fragmentation (Figure D-10).
- Weight: 370 grams.
- Body material: sheet steel with about 1,300 steel balls in a cavity between the outer wall and the explosive filler.
- Fuse: striker release.
- Fuse delay: 3.2 to 4.2 seconds.
- Filler: composition B, 55 grams.
- Effective casualty radius: 20 meters.

121. LACHRYMATORY (CS) GRENADE

- Type: lachrymatory (CS) (Figure D-11).
- Weight: 350 grams.
- Body material: sheet steel with a wooden handle.
- Fuse: pull friction.
- Fuse delay: 3 to 4 seconds.
- Filler: CS mixture/TNT.
- Range thrown: 20 meters.
- Effective radius: 10 meters.

122. TYPE 1 FRAGMENTATION GRENADE, TYPE 86P

- Type: fragmentation (Figure D-12).
- Weight: 600 grams.
- Body material: cast iron.
- Fuse: striker release.
- Fuse delay: 3 to 4 seconds.
- Filler: TNT, 50 grams.
- Lethal range: 20 meters.

123. TYPE 73 FRAGMENTATION MINI-GRENADE

- Type: fragmentation (Figure D-13).
- Weight: 190 grams.
- Body material: two-piece sheet metal body enclosing a layer of 580 steel balls.
- Fuse: percussion.
- Fuse delay: 0.5 to 1 second.
- Filler: unknown.
- Effective casualty radius: 7 meters.

124. TYPE 77-1 FRAGMENTATION STICK

- Type: fragmentation (Figure D-14).
- Weight: 380 grams.
- Body material: cast iron with a plastic handle and sheet metal or plastic fuse cover cap.
- Fuse: pull friction.
- Fuse delay: 2.8 to 4 seconds.
- Filler: TNT, 70 grams.
- Lethal radius: 7 meters.

125. SC-2 LACHRYMATORY (CS)/SMOKE GRENADE

- Type: lachrymatory (CS)/smoke (Figure D-15).
- Weight: 110 grams.
- Body material: plastic.
- Fuse: striker release or friction.
- Fuse delay: 1.8 to 2.8 seconds.
- Filler: tear agent/smoke mixture, 70 grams.

126. JYD-1

- Type: stun (Figure D-16).
- Weight: 150 grams.
- Body material: plastic.
- Fuse: striker release or friction.
- Fuse delay: 2.8 to 3.4 seconds.
- Filler: 840 rubber balls; bursting charge, 4 grams.
- Effective radius: 0.3 to 3 meters.

127. JYB-1

- Type: stun (Figure D-17).
- Weight: 150 grams.
- Body material: plastic.
- Fuse: striker release or friction.
- Fuse delay: 3 to 4 seconds.
- Filler: pyrotechnic mixture, 45 grams.
- Coverage: sound level over 150 decibels within 10 meters.

128. JYS-1

- Type: flash/bang (Figure D-18).
- Weight: 45 grams.
- Body material: plastic.
- Fuse: striker release or friction.
- Fuse delay: unknown.
- Filler: pyrotechnic mixture, 25 grams.
- Effective range: 10 meters.

129. NR 17 OFFENSIVE HAND GRENADE

- Type: offensive (Figure E-1).
- Weight: 475 grams.
- Length: 125 millimeters.
- Diameter: 56 millimeters.
- Body material: plastic.
- Filler material: red, yellow, green, or violet compound.
- Filler weight: 205 grams.
- Fuse type: striker release.
- Fuse delay: 3-4 seconds.
- Effective radius: 5 meters.
- Range thrown: 30 to 40 meters.

130. NR 13C1 FRAGMENTATION HAND GRENADE

- Type: Fragmentation, offensive. (Figure E-2)
- Weight: 475 grams.
- Length: 143 millimeters.
- Diameter: 54 millimeters.
- Body Material: Steel.
- Filler Weight: 225 grams.
- Filler Material: High explosive.
- Fuse Type: Pyrotechnic delay.
- Fuse Delay: 5 seconds.
- Range Thrown: 30 meters.

131. Mk 2A1 FRAGMENTATION HAND GRENADE

- Type: fragmentation (Figure E-3).
- Length: 114 millimeters.
- Diameter: 57 millimeters:
- Body material: cast iron.
- Filler weight: 55 grams.
- Filler material: TNT powdered.
- Fuse type: pyrotechnic delay.
- Fuse delay: 3 seconds.
- Color and markings: olive drab body, narrow yellow band below fuse.

132. NR1C1 FRAGMENTATION HAND GRENADE

- Type: fragmentation (Figure E-4).
- Weight: 670 grams.
- Length: 122 millimeters.
- Body material: cast iron.
- Filler weight: 55 grams.
- Filler material: TNT powdered.
- Fuse type: pyrotechnic delay.
- Fuse delay: 3 seconds.

133. NR10 COLORED SMOKE HAND GRENADE

- Type: smoke (Figure E-5).
- Weight: 660 grams.
- Length: 151 millimeters.
- Diameter: 63 millimeters.
- Body material: tinned steel.
- Filler material: red, yellow, green, or violet smoke compound
- Fuse delay: 2 to 3 seconds.
- Burn time: 1 to 2 minutes.

134. NR 12 INCENDIARY HAND GRENADE

- Type: incendiary (Figure E-6).
- Weight: 820 grams.
- Length: 153 millimeters.
- Diameter: 63 millimeters.
- Body material: tinned steel.
- Filler material: thermite.
- Fuse type: striker release.
- Fuse delay: 1 to 3 seconds.
- Range thrown: 40 meters.
- Burn time: 40 seconds.
- Peak intensity: 2,200 degrees Centigrade.

135. NR 16 WP SMOKE HAND GRENADE

- Type: smoke (Figure E-7).
- Weight: 284 grams.
- Length: 101 millimeters.
- Diameter: 50 millimeters.
- Body material: tinned steel.
- Filler material: white phosphorus.
- Fuse type: delay.
- Fuse delay: 4 seconds.
- Range thrown: 37 meters.

136. NR20C1 FRAGMENTATION HAND GRENADE

- Type: fragmentation (Figure E-8).
- Weight: 390 grams.
- Length: 104 millimeters.
- Diameter: 61 millimeters.
- Body material: plastic body with inner lining of steel balls.
- Filler weight: 150 grams.
- Filler material: composition B.
- Fuse type: striker release.
- Fuse delay: 3 to 4 seconds.
- Lethal radius: 5 meters; safety range, 15 to 20 meters.

137. DM 24/68 SMOKE HAND GRENADE

- Type: incendiary smoke (Figure E-9).
- Weight: 340 grams.
- Length: 133 millimeters.
- Diameter: 67 millimeters.
- Body material: plastic.
- Filler weight: 255 grams.
- Filler material: red phosphorus.
- Fuse type: mechanical ignition.
- Fuse delay: 2.5 seconds after ignition.
- Burn time: 5 minutes.

138. HC DM 15 WHITE SMOKE HAND GRENADE

- Type: Burning, white smoke. This grenade is fired from vehicle-mounted smoke grenade projectors (Figure E-10).
- Weight: 1,200 grams.
- Length: 175 millimeters.
- Diameter: 76 millimeters.
- Body material: hexachlorethane.
- Fuse type: mechanical ignition.
- Fuse delay: 2.5 seconds after ignition.
- Burn time: 2.5 minutes.

139. M-DN 11 FRAGMENTATION HAND GRENADE

- Type: fragmentation, defensive (Figure E-11).
- Weight: 467 grams.
- Length: 97 millimeters.
- Diameter: 60 millimeters.
- Body material: plastic with embedded steel balls.
- Filler weight: 43 grams, plasticized PETN.
- Fuse type: striker release.
- Fuse delay: 3.5 to 4.5 seconds.

140. NO. M36 HAND GRENADE

- Type: defensive (Figure E-12).
- Weight: 600 grams.
- Length: 102 millimeters.
- Diameter: 60 millimeters.
- Body material: cast iron.
- Filler weight: TNT, 60 grams.
- Fuse type: striker release.
- Fuse delay: 3.5 to 4.5 seconds.
- Range thrown: 25 meters.
- Effective radius: 30 to 100 meters.

141. L2A2 FRAGMENTATION HAND GRENADE

- Type: fragmentation (Figure E-13).
- Weight: 395 grams.
- Length: 106 millimeters.
- Diameter: 60 millimeters.
- Body material: two-piece sheet-steel body with spiral wrapped fragmentation sleeve inside.
- Filler material: RDX/TNT, 170 grams.
- Fuse type: striker release.
- Fuse delay: 4 to 5 seconds.
- Range thrown: 40 meters.
- Lethal radius: 10 meters.

142. NO. 83 N 201 RIOT-CONTROL HAND GRENADE

- Type: lachrymatory (CS) (Figure E-14).
- Weight: 340 grams.
- Length: 135 millimeters.
- Diameter: 63 millimeters.
- Body material: tin.
- Filler weight: 205 grams.
- Filler material: CS, gas.
- Fuse type: striker release.
- Fuse delay: 2 to 3 seconds.
- Range thrown: 25 to 30 meters.
- Burn time: about 25 seconds.

143. RUBBER BURSTING CS HAND GRENADE

- Type: riot control, L13A1 (N225 is similar) (Figure E-15).
- Weight: 550 Grams.
- Length: 175 millimeters.
- Diameter: 66 millimeters.
- Body material: rubber.
- Filler weight: 470 grams.
- Filler material: CS, 23 separate CS pellets.
- Fuse type: striker release.
- Fuse delay: 2 to 2.4 seconds.
- Range thrown: 25 to 35 meters.
- Burn time: 12 seconds.
- Effective radius: 15 meters.

144. GRENADE FRAGMENTATION, NO. 36M MK1

- Type: offensive.
- Color: black or varnished brown (Figure E-16).
- Length: 102 millimeters.
- Width: 61 millimeters.
- Weight: 773 grams
- Filler: Amatol.

145. SPL HGR 77 HAND GRENADE

- Type: Defensive. (Figure E-17)
- Weight: 470 grams.
- Length: 96 millimeters.
- Diameter: 63 millimeters.
- Body Material: Rigid plastic.
- Filler Material: Plasticized PETN, 70 grams.
- Fuse Type: Striker release.
- Fuse Delay: 3.5 to 4.5 seconds.
- Range Thrown: 45 meters.
- Effective Radius: 10 to 12 meters.

146. HDGR 78 HAND GRENADE

- Type: defensive (Figure E-18).
- Weight: 520 grams.
- Length: 115 millimeters.
- Diameter: 60 millimeters.
- Body material: plastic with steel pellets.
- Filler weight: 70 grams.
- Filler material: plasticized PETN.
- Fuse type: striker release.
- Fuse delay: 3 to 5 seconds.
- Range thrown: 35 to 40 meters.
- Effective radius: 10 meters.

147. HDGR 79 HAND GRENADE

- Type: defensive (Figure E-19).
- Weight: 370 grams.
- Length: 96 millimeters.
- Diameter: 58 millimeters.
- Body material: plastic.
- Filler weight: 45 grams.
- Filler material: plasticized PETN.
- Fuse type: striker release.
- Fuse delay: 3.5 to 4.5 seconds.
- Range thrown: 45 meters.
- Effective radius: 10 meters.

148. SPL HGR 84 HAND GRENADE

- Type: defensive (Figure E-20).
- Weight: 490 grams.
- Length: 115 millimeters.
- Diameter: 61 millimeters.
- Body material: plastic.
- Filler weight: 95 grams.
- Fuse type: striker release.
- Fuse delay: 3.5 to 5.5 seconds nominal.
- Range thrown: 35 to 40 meters.
- Effective radius: 10 meters.

149. HDGR 72 HAND GRENADE

- Type: defensive (Figure E-21).
- Weight: 485 grams.
- Length: 115 millimeters.
- Diameter: 60 millimeter.
- Body material: rigid plastic.
- Filler weight: 65 grams.
- Filler material: plasticized PETN.
- Fuse type: striker release.

- Fuse delay: 3 to 5 seconds.
  - Effective radius: 10 meters.
150. HDGR 73 HAND GRENADE
- Type: defensive (Figure E-22).
  - Weight: 355 grams.
  - Length: 91 millimeters.
  - Diameter: 57 millimeters.
  - Body material: plastic.
  - Filler weight: 37 grams.
  - Filler material: plasticized PETN.
  - Fuse type: striker release.
  - Fuse delay: 3 to 5 seconds.
  - Effective radius: 10 meters.
151. GRENADE, FRAGMENTATION, TN 733 (FRANCE)
- Type: offensive.
  - Color: olive drab with yellow markings (Figure E-23).
  - Length: 94 millimeters.
  - Width: 52 millimeters.
  - Weight: 265 grams.
  - Filler: Composition B.
152. GRENADE, FRAGMENTATION, POM 1 (SPAIN)
- Type: offensive.
  - Color: black and unmarked.
  - Length: 107 millimeters.
  - Width: 54 millimeters.
  - Weight: 475 grams.
  - Filler: TNT.