

CHAPTER 1

TYPES OF HAND GRENADES

This chapter describes the various types of hand grenades, their components and mechanical functions, and examples of the grenades used by US forces.

1-1. DESCRIPTION

The hand grenade is a handheld, hand-armed, and hand-thrown weapon. US forces use colored smoke, white smoke, riot-control, special purpose, offensive, and practice hand grenades. Each grenade has a different capability that provides the soldier with a variety of options to successfully complete any given mission. Hand grenades give the soldier the ability to kill enemy soldiers and destroy enemy equipment. Historically, the most important hand grenade has been the fragmentation grenade, which is the soldier's personal indirect weapon system. Offensive grenades are much less lethal than fragmentation grenades on an enemy in the open, but they are very effective against an enemy within a confined space. Smoke and special purpose grenades can be used to signal, screen, control crowds or riots, start fires, or destroy equipment. The hand grenade is thrown by hand; therefore, the range is short and the casualty radius is small. The 4- to 5-second delay on the fuze allows the soldier to safely employ the grenade.

1-2. COMPONENTS

The hand grenade is made up of the following components:

- a. **Body.** The body contains filler and, in certain grenades, fragmentation.
- b. **Filler.** The filler is composed of a chemical or explosive substance, which determines the type of hand grenade for employment factors.
- c. **Fuze Assembly.** The fuze causes the grenade to ignite or explode by detonating the filler.

1-3. MECHANICAL FUNCTION

The following is the sequence for the M67 fragmentation hand grenade safety clip insertion and arming.

- a. **Insert the Safety Clip.** All hand grenades do not have safety clips (NSN 1330-00-183-5996). However, safety clips are available through Class V ammunition supply channels for some types of grenades. The safety clip is adaptable to the M26 and M67 series, the MK2, and the M69 practice grenade. The safety clip prevents the safety lever from springing loose even if the safety pin assembly is accidentally removed. The adjustment instructions are illustrated in Figure 1-1. The safety clip installation instructions are as follows:

- (1) Hold the fuzed grenade in the palm of the hand with the pull ring up.
- (2) Insert the small loop at the open end of the safety clip in the slot of the fuze body beneath the safety lever.
- (3) Press the clip across the safety lever until the closed end of the clip touches the safety lever and snaps securely into place around the safety lever.

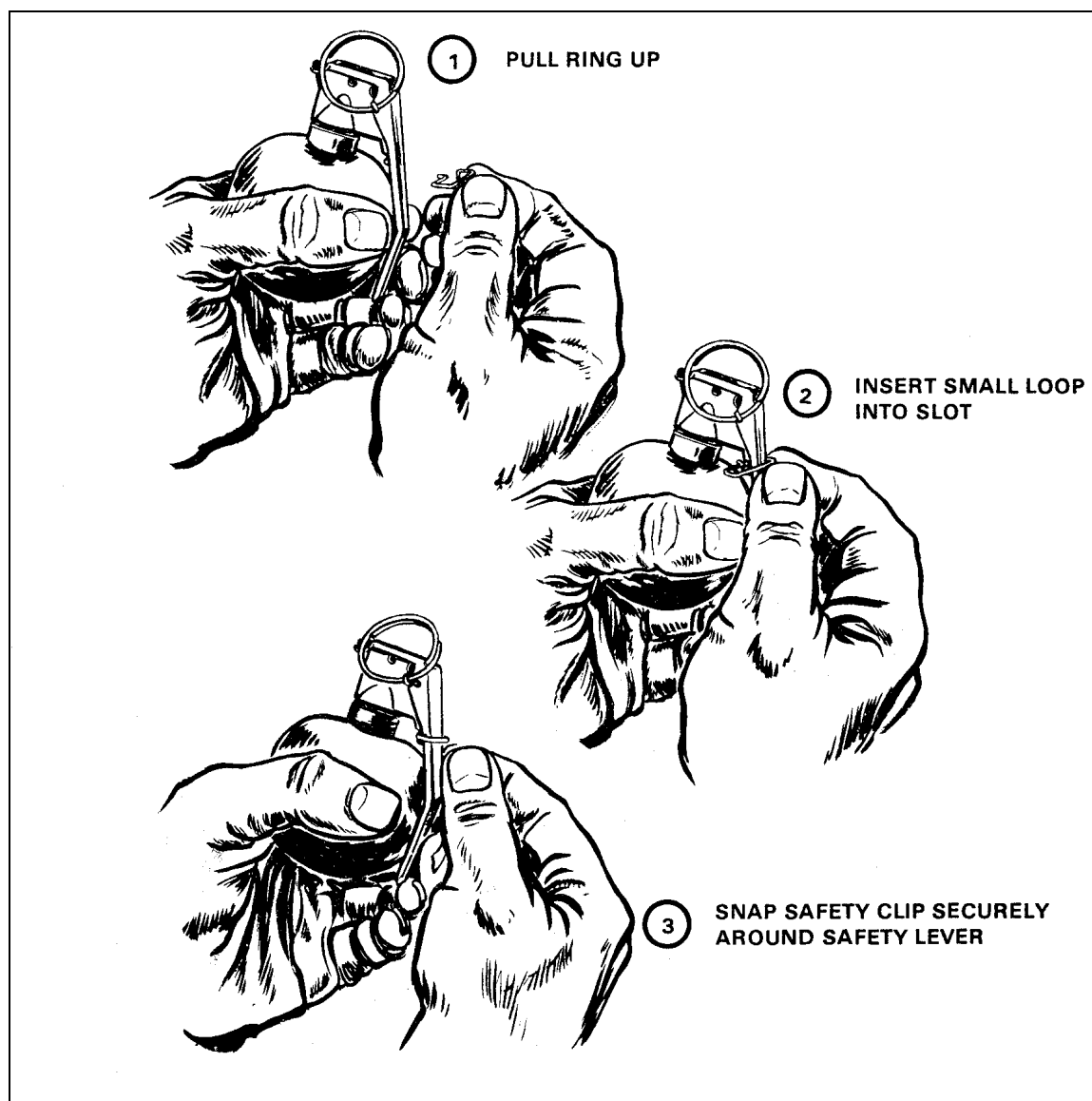


Figure 1-1. Safety clip insertion.

b. **Arming Sequence.** First remove the safety clip, then the safety pin, from the fuze by pulling the pull ring. Be sure to maintain pressure on the safety lever: it springs free once the safety clip and the safety pin assembly are removed.

c. **Release Pressure on Lever.** Once the grenade is thrown, the pressure on the safety lever is released, and the striker is forced to rotate on its axis by the striker spring, throwing the safety lever off. The striker then detonates the primer, and the primer explodes and ignites the delay element. The delay element burns for the prescribed amount of time then activates either the detonator or the igniter. The detonator or igniter acts to either explode or burn the filler substance (Figure 1-2).

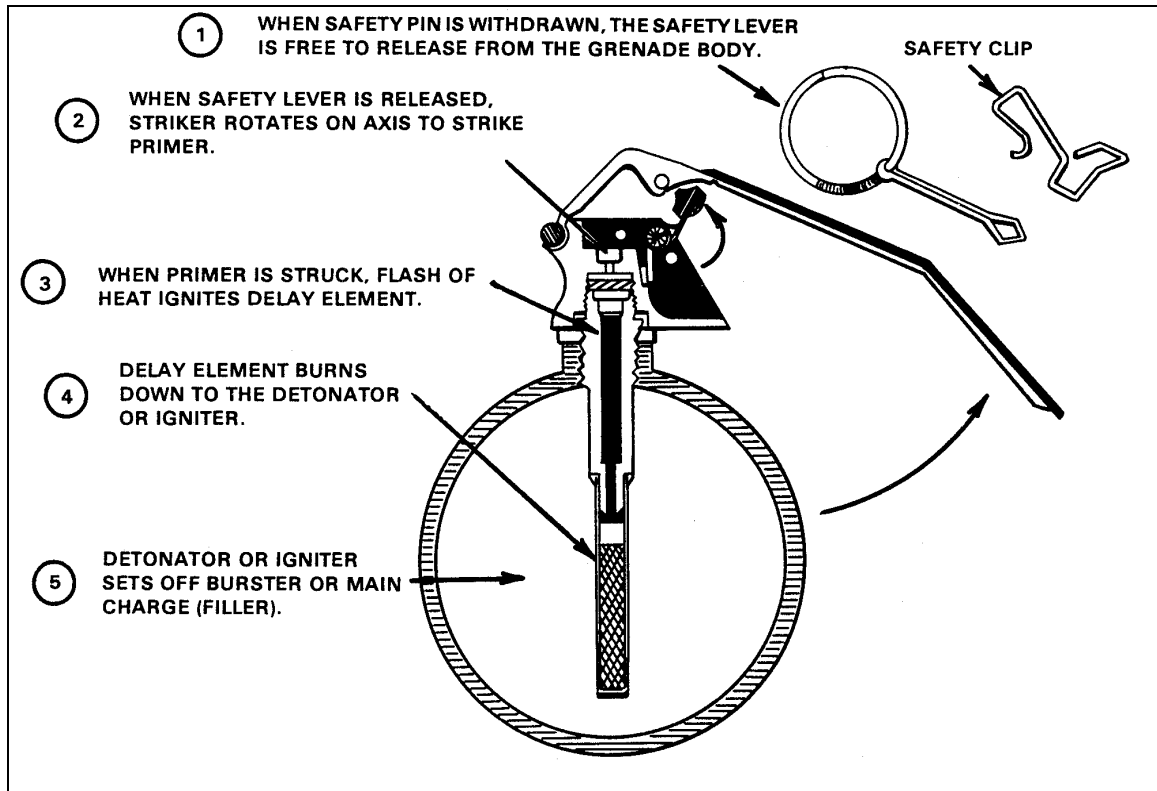


Figure 1-2. Fuze functioning.

1-4. FUZES

The two types of fuzes used in current US hand grenades are detonating and ignition. Both function in the same manner; the difference is how they activate the filler substance.

a. **Detonating Fuze.** Detonating fuzes explode within the grenade body to initiate the main explosion of the filler substance. Detonating fuzes include the M213 and M228.

(1) *M213 fuze.* The M213 fuze (Figure 1-3) is designed for use with the M67 fragmentation grenade. It has a safety clip. The standard delay element is a powder train requiring 4 to 5 seconds to burn to the detonator. In some cases, the delay element may vary from less than 4 seconds to more than 5 seconds due to defective fuzes.

WARNING

If pressure on the safety lever is relaxed after the safety clip and safety pin have been removed, it is possible that the striker can rotate and strike the primer while the thrower is still holding the grenade. This is called “milking” the grenade. Throwers must be instructed to maintain enough pressure on the safety lever so the striker cannot rotate.

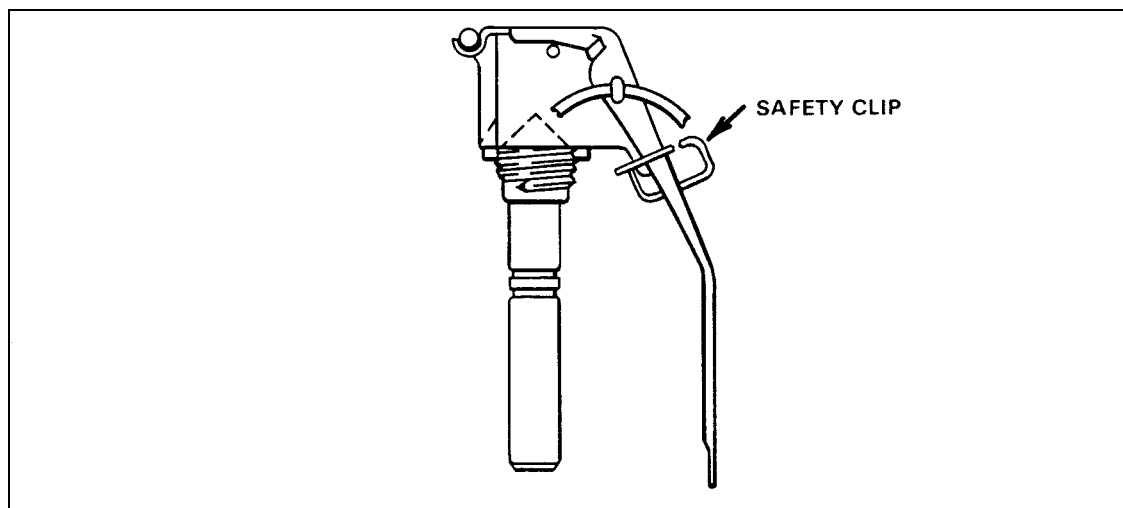


Figure 1-3. M213 fuze.

(2) *M228 fuze.* The M228 fuze (Figure 1-4) is used with the M69 practice grenade to replicate the fuze delay of the M67 fragmentation hand grenade. The time delay element is a powder train with a 4- to 5-second delay burn. In some cases, however, the delay element may vary from less than 4 seconds to more than 5 seconds due to defective fuzes.

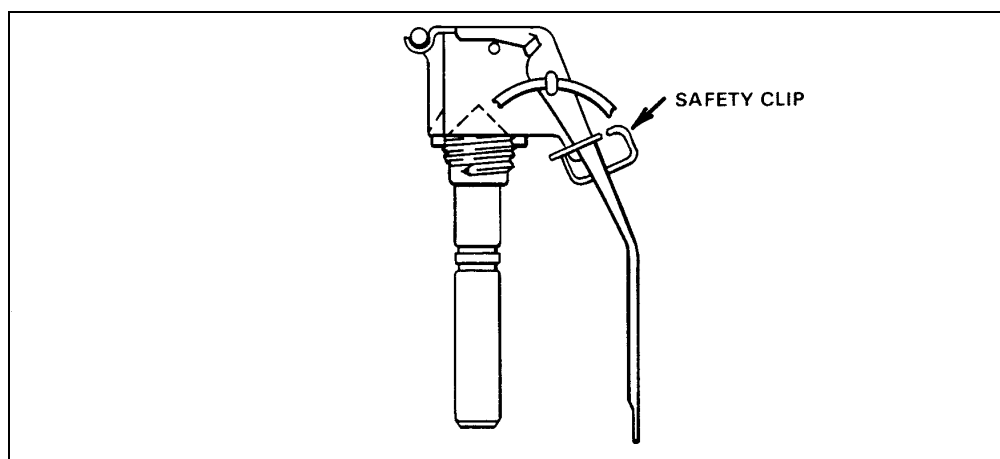


Figure 1-4. M228 fuze.

b. **Igniting Fuze.** Igniting fuzes are designed for use with chemical hand grenades. They burn at high temperatures and ignite the chemical filler. The M201A1 (Figure 1-5) is designed for use with the AN-M83HC white smoke grenade, the AN-M14 TH3 incendiary grenade, and the M18 colored smoke grenade. This fuze is interchangeable with any standard firing device. The time delay element is a powder train requiring 1.2 to 2 seconds to burn to the igniter. The igniter ignites the filler or a pyrotechnic starter with a violent burning action and expels the filler from the grenade body.

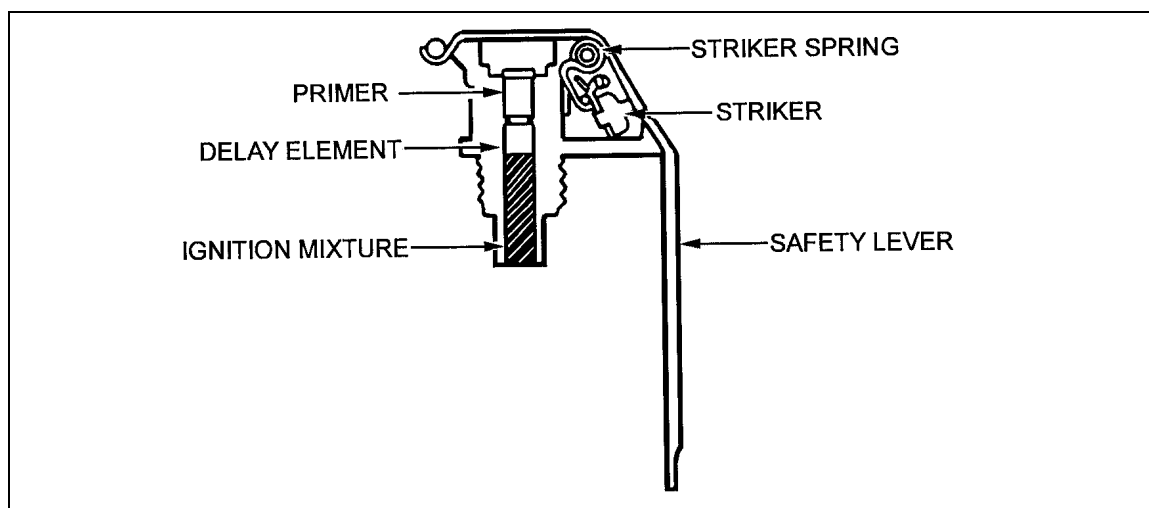


Figure 1-5. M201A1 fuze.

1-5. FRAGMENTATION HAND GRENADES

The following is a description of the M67 fragmentation hand grenade (Figure 1-6):

- a. **Body.** The body is a steel sphere.
- b. **Filler.** The filler has 6.5 ounces of Composition B.
- c. **Fuze.** The fuze is an M213.
- d. **Weight.** The grenade weighs 14 ounces.
- e. **Safety Clip.** The grenade has a safety clip. (See paragraph 1-3.)
- f. **Capabilities.** The average soldier can throw the M67 grenade 35 meters effectively.

The effective casualty-producing radius is 15 meters and the killing radius is 5 meters.

- g. **Color and Markings.** The grenade has an olive drab body with a single-yellow band at the top. Markings are in yellow.

WARNING

Although the killing radius of this grenade is 5 meters and the casualty-producing radius is 15 meters, fragmentation can disperse as far away as 230 meters.

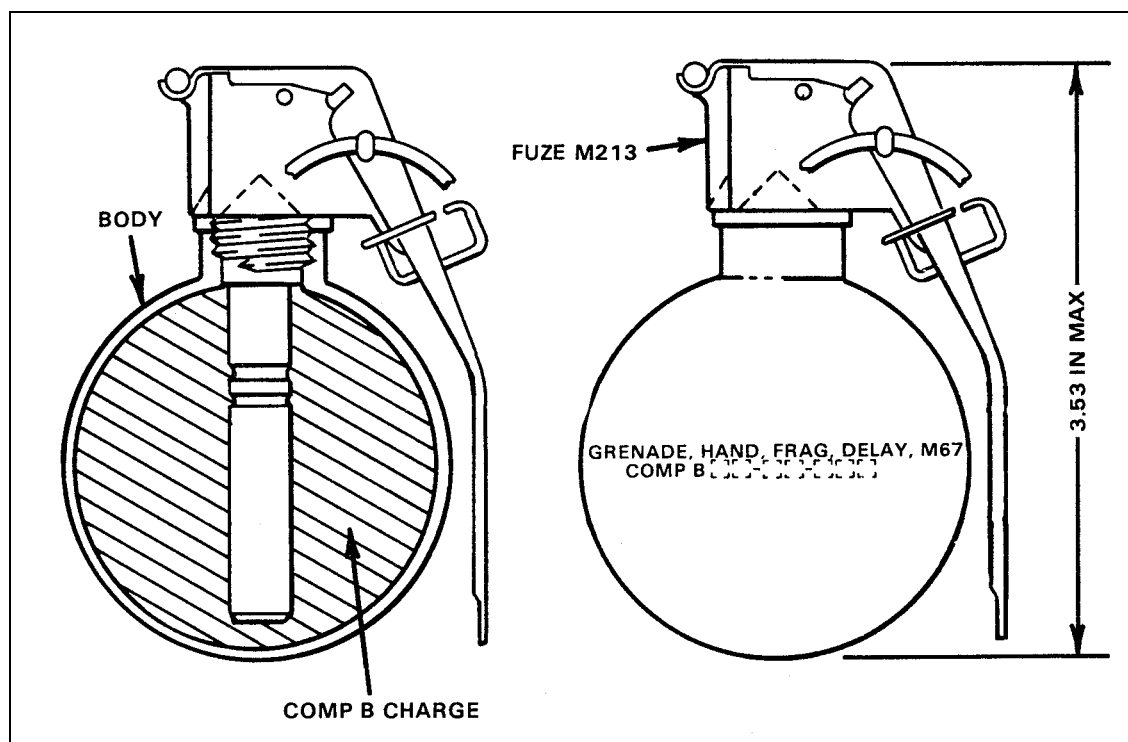


Figure 1-6. M67 fragmentation hand grenade.

1-6. SMOKE HAND GRENADES

Smoke hand grenades are used as ground-to-ground or ground-to-air signaling devices, target or landing zone marking devices, or screening devices for unit movements.

a. **M18 Colored Smoke Hand Grenade.** The following is a description of the M18 colored smoke hand grenade and its components (Figure 1-7).

(1) *Body.* The body has a sheet steel cylinder with four emission holes at the top and one at the bottom. The holes allow smoke to escape when the grenade is ignited.

(2) *Filler.* The filler has 11.5 ounces of colored smoke mixture (red, yellow, green and violet).

(3) *Fuze.* The fuze is an M201A1.

(4) *Weight.* The grenade weighs 19 ounces.

(5) *Safety clip.* This grenade does not have a safety clip.

(6) *Capabilities.* The average soldier can throw this grenade 35 meters. It produces a cloud of colored smoke for 50 to 90 seconds.

(7) *Color and markings.* The grenade has an olive drab body with the top indicating the smoke color.

(8) *Field expedient.* In combat, you may need to use the M18 hand grenade without the fuze. Use the following procedures *in combat only*:

- Remove the tape from the grenade bottom to expose the filler.
- Remove the fuze by unscrewing it from the grenade.
- Ignite the starter mixture with an open flame.
- Throw the grenade immediately to avoid burn injury.

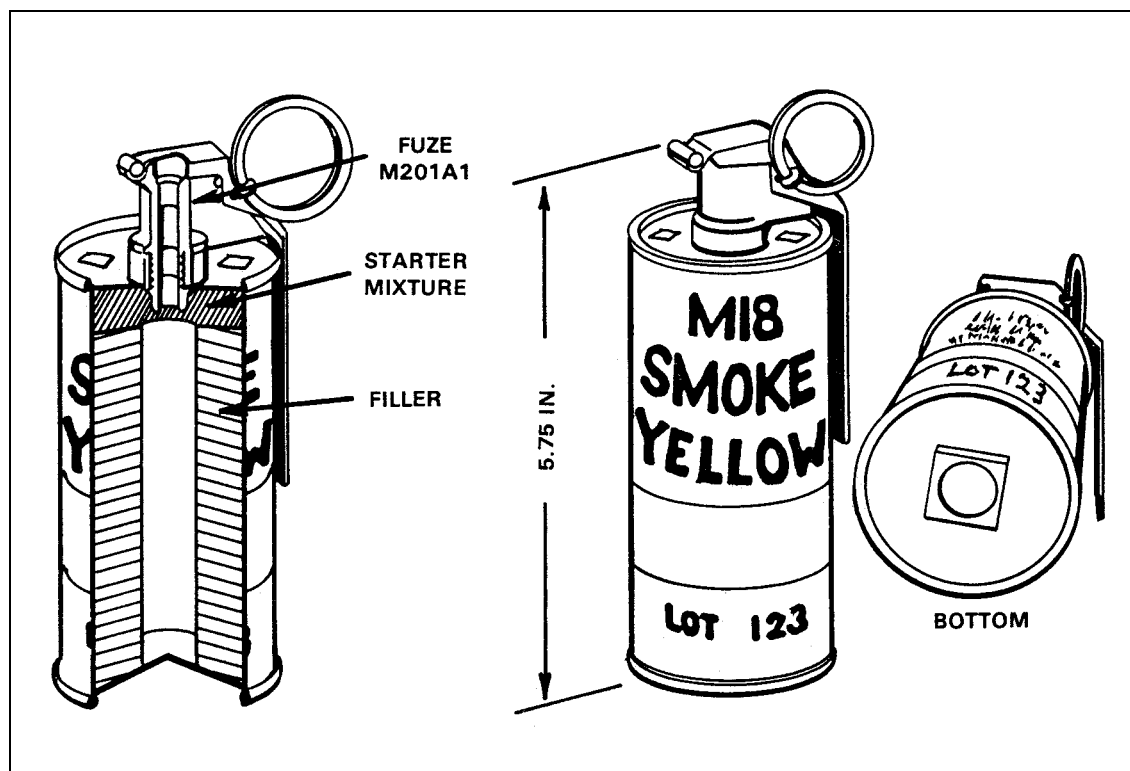


Figure 1-7. M18 colored smoke hand grenade.

WARNING

Do not use a smoke grenade in an enclosed area. If you must remain in the area with the smoke, always wear a protective mask.

b. **AN-M83 HC White Smoke Hand Grenade.** The AN-M83 HC white smoke hand grenade (Figure 1-8) is used for screening the activities of small units and for ground-to-air signaling.

(1) *Body.* The body is a cylinder of thin sheet metal, 2.5 inches in diameter.

(2) *Filler.* The filler has 11 ounces of terephthalic acid.

(3) *Fuze.* The fuze is an M201A1.

(4) *Weight.* The grenade weighs 16 ounces and is 2.5 inches in diameter and 5.7 inches in length.

(5) *Safety clip.* This grenade does not have a safety clip.

(6) *Capabilities.* The AN-M83 produces a cloud of white smoke for 25 to 70 seconds.

(7) *Color and markings.* The grenade has a forest green body with light green markings, a blue band, and a white top.

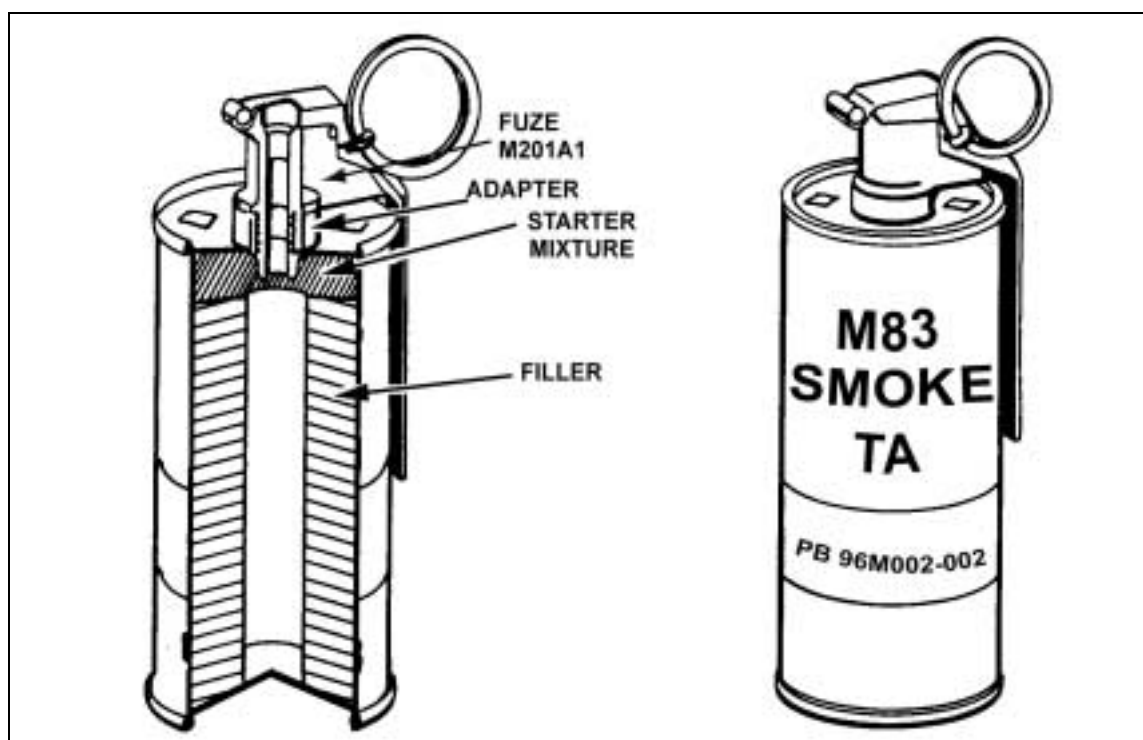


Figure 1-8. AN-M83 white smoke hand grenade.

1-7. RIOT-CONTROL HAND GRENADES

The ABC-M7A2 and ABC-M7A3 riot-control hand grenades (Figure 1-9) contain only CS as a filler. They differ only in the amount of filler and the form of the CS they contain. Description and components are as follows:

- a. **Body.** The bodies of both grenades are sheet metal with four emission holes at the top and one at the bottom.
- b. **Filler.** The ABC-7A2 grenade has 5.5 ounces of burning mixture and 3.5 ounces of CS in gelatin capsules. The ABC-M7A3 has 7.5 ounces of burning mixture and 4.5 ounces of pelletized CS agent.
- c. **Fuze.** The fuze for either grenade is an M201A1.
- d. **Weight.** Each grenade weighs about 15.5 ounces.
- e. **Safety.** These grenades do not have safety clips.
- f. **Capabilities.** The average soldier can throw these grenades 40 meters. Both grenades produce a cloud of irritant agent for 15 to 35 seconds.
- g. **Color and Markings.** Both grenades have gray bodies with red bands and markings.

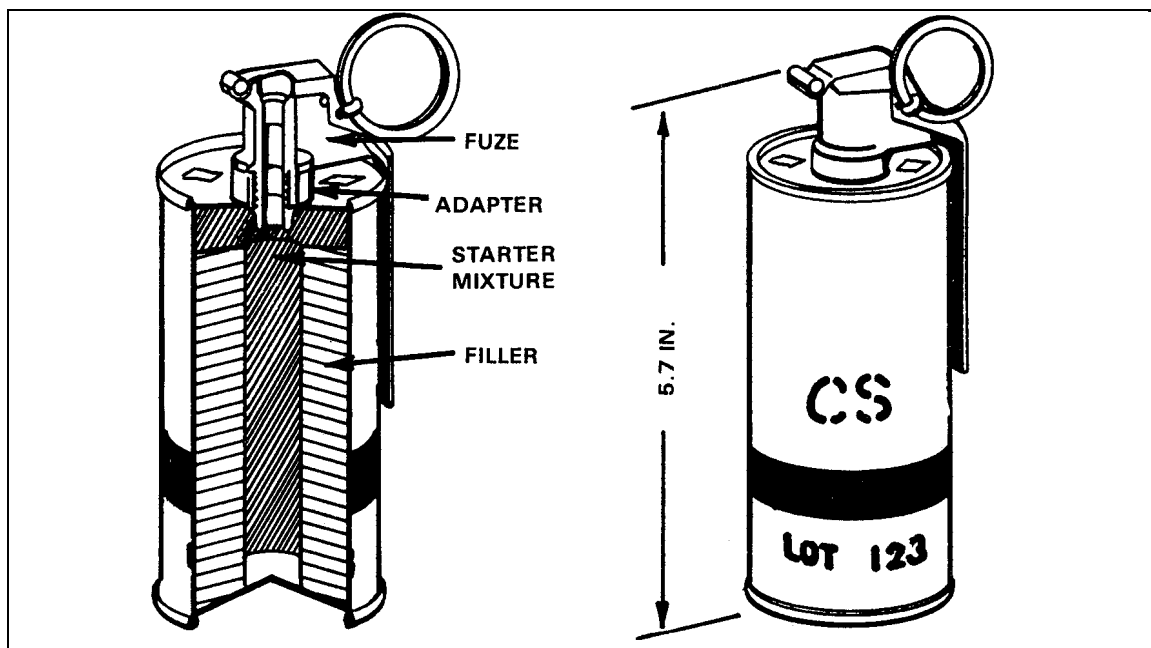


Figure 1-9. ABC-M7A2 and M7A3 riot-control hand grenades.

WARNING

Do not use a riot control grenade in an enclosed area. If you must remain in the area, always wear a protective mask.

1-8. SPECIAL-PURPOSE HAND GRENADES

a. **Incendiary.** The AN-M14 TH3 incendiary hand grenade (Figure 1-10) is used to destroy equipment or start fires. It can also damage, immobilize, or destroy vehicles, weapons systems, shelters, or munitions. The description and components are as follows:

- (1) *Body.* The body is sheet metal.
- (2) *Filler.* The filler has 26.5 ounces of thermate (TH3) mixture.
- (3) *Fuze.* The fuze is an M201A1.
- (4) *Weight.* The grenade weighs 32 ounces.
- (5) *Safety clip.* This grenade does not have a safety clip.

(6) *Capabilities.* The average soldier can throw this grenade 25 meters. A portion of thermate mixture is converted to molten iron, which burns at 4,000 degrees Fahrenheit. The mixture fuzes 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.

(7) *Color and markings.* The grenade is gray in color with purple markings and a single purple band (current grenades). Under the standard color-coding system, incendiary grenades are light red with black markings.

WARNING

Avoid looking directly at the incendiary hand grenade as it burns. The intensity of the light is hazardous to the retina and can cause permanent eye damage.

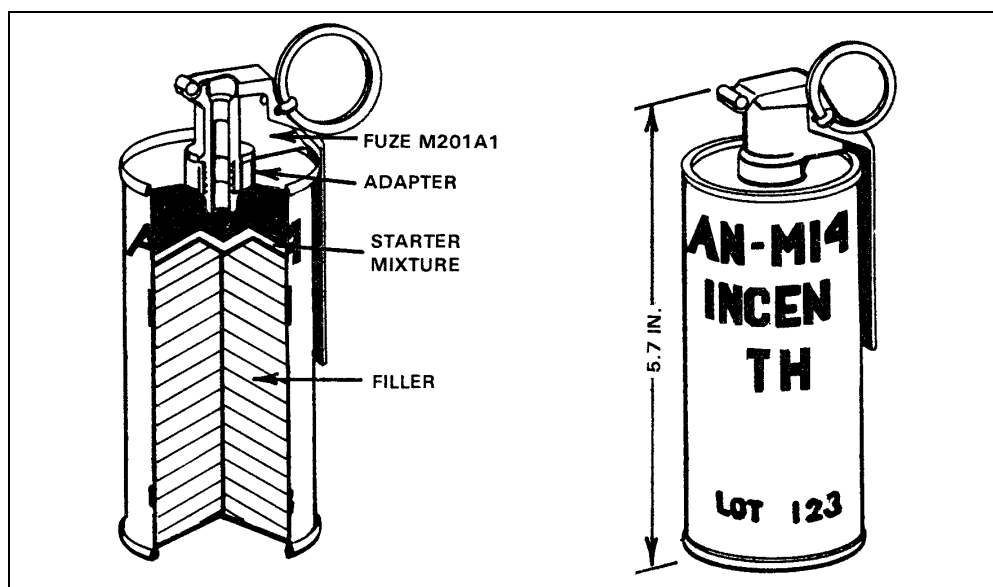


Figure 1-10. AN-M14 TH3 incendiary hand grenade.

b. **Offensive.** The MK3A2 offensive hand grenade (Figure 1-11), commonly referred to as the concussion grenade, is designed to produce 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, very effective against enemy soldiers located in bunkers, buildings, and fortified areas.

(1) *Body.* The body is fiber (similar to the packing container for the fragmentation grenade.)

(2) *Filler.* The filler has 8 ounces of TNT.

(3) *Fuze.* The fuze is an M206A1 or M206A2 (see paragraph 1-4).

(4) *Weight.* The grenade weighs 15.6 ounces.

(5) *Safety clip.* The MK3A2 may be issued with or without a safety clip (see paragraph 1-3).

(6) *Capabilities.* The average soldier can throw this grenade 40 meters. It has an effective casualty radius of 2 meters in open areas, but secondary missiles and bits of fuze may be projected as far as 200 meters from the detonation point.

(7) *Color and markings.* The grenade is black with yellow markings around its middle.

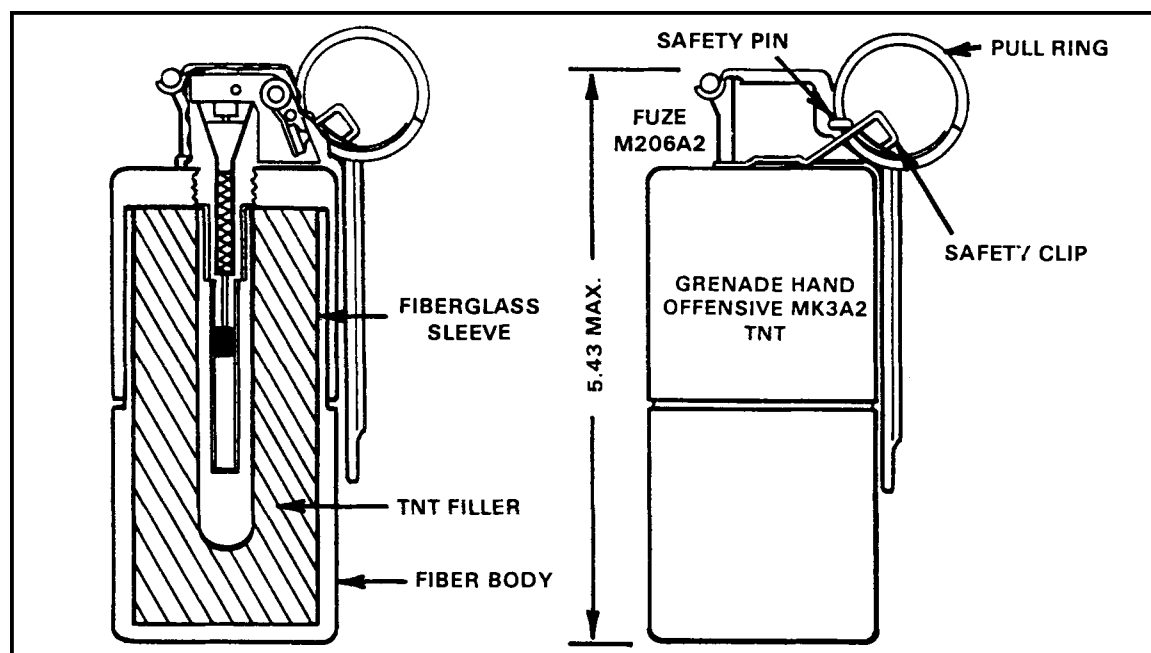


Figure 1-11. MK3A2 offensive grenade.

1-9. PRACTICE HAND GRENADES

The M69 practice hand grenade (Figure 1-12) simulates the M67 series of fragmentation hand grenades for training purposes. The grenade provides realistic training and familiarizes the soldier with the functioning and characteristics of the fragmentation hand grenade. The following is a description of the M69 practice hand grenade and its components:

a. **Body.** The body is a steel sphere.

b. **Fuze.** The fuze is an M228, which is inserted into the grenade body.

- c. **Weight.** The grenade weighs 14 ounces.
- d. **Safety Clip.** The M69 grenade has a safety clip.
- e. **Capabilities.** The average soldier can throw the M69 hand grenade 40 meters. 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 fuze assembly.
- f. **Color and Markings.** The grenade is light blue with white markings. The safety lever of the fuze is light blue with black markings and a brown tip.

WARNING

Fuze fragments may exit the hole in the base of the grenade body and cause injuries.

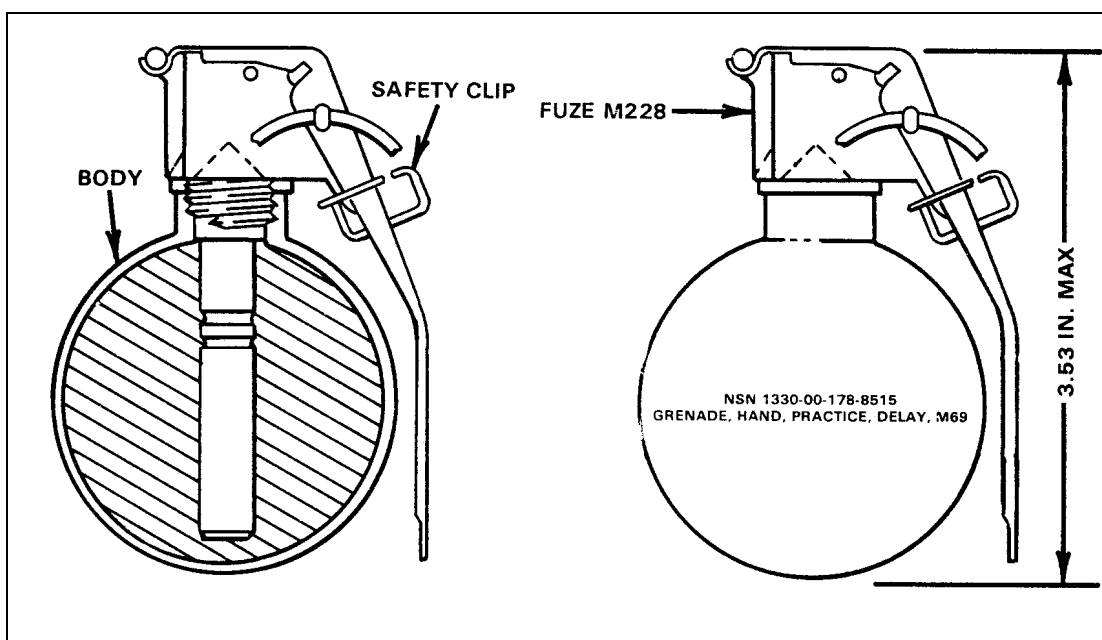


Figure 1-12. M69 practice hand grenade.

1-10. STUN HAND GRENADES

Stun hand grenades are used as 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. The following is a description of the M84 diversionary/flash-bang stun hand grenade and its components (Figure 1-13).

- a. **Body.** The body is a steel hexagon tube with holes along the sides to allow for the emission of intense light and sound when the grenade is ignited.
- b. **Fuze and safety pin.** The fuze is the M201A1. The M84 also has a secondary safety pin with a triangular pull ring.
- c. **Weight.** The grenade weighs 8.33 ounces.

d. **Capabilities.** The handheld device is designed to be thrown into a room (through an open door, a standard glass window, or other opening) where it delivers a loud bang and bright flash sufficient to temporarily disorient personnel in the room.

e. **Field-expedient early warning device.** In combat, you may need to use the M84 stun hand grenade as an early warning device. Use the following procedures in combat only:

- (1) Attach the grenade to a secure object such as a tree, post, or picket.
- (2) Attach a tripwire to a secure object, extend it across a path, and attach it to the pull ring of the grenade.
- (3) Bend the end of the pull pin flat to allow for easy pulling.
- (4) Remove the secondary safety pin.

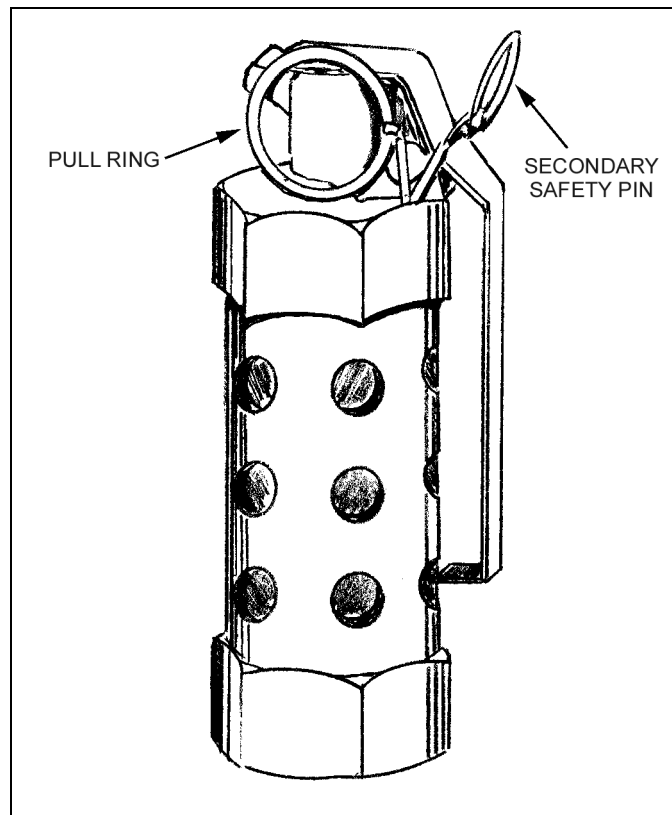


Figure 1-13. M84 stun hand grenade.

CAUTION

Use stun grenades as field-expedient early warning devices only when in a combat environment.