

## Appendix C

### Conventional Military Munitions

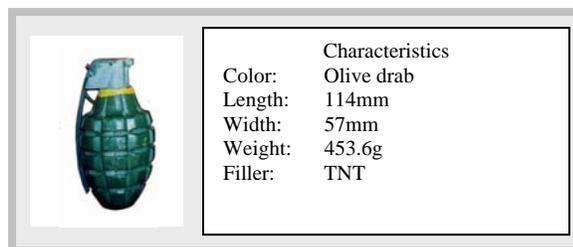
#### General

Although terrorists demonstrate innovation in fabricating improvised explosive devices, conventional weapons are often used in operations. These weapons range from highly sophisticated shoulder-fired air defense missiles to traditional grenades, rocket propelled grenades, and mines. This appendix a sampling of weapons U.S. military forces may encounter when dealing with terrorism.

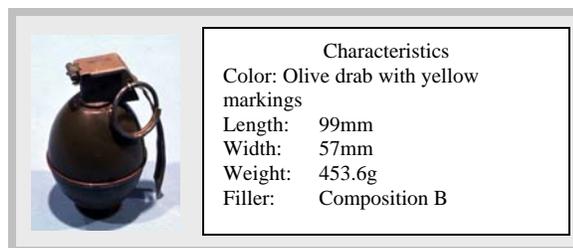
#### Fragmentation Grenades

Grenades are a common weapon used by terrorists. In fact, in the annual report published by HAMAS on terrorist activities in 1998, they stated that a combination of time delayed bombs coupled with commando attacks using hand grenades were the major part of effective operations and caused the most casualties.<sup>260</sup> Although terrorists will use any grenade they can acquire, some of the common grenades available are listed below. These figures are courtesy of the Naval Explosive Ordnance Disposal Technology Division.<sup>261</sup>

- Figure E-1. U.S. Grenade, Fragmentation, M2A1, M2A2, U.S. Army



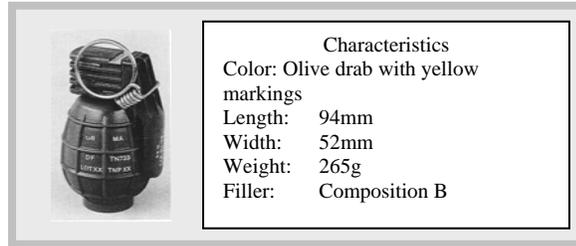
- Figure E-2. U.S. Grenade, Fragmentation, M26, M26A1, M61



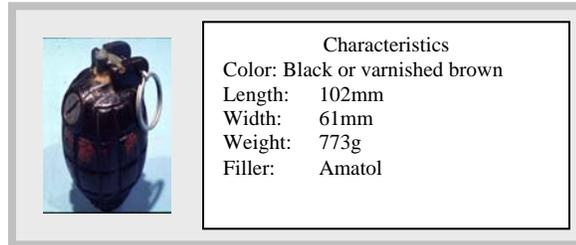
<sup>260</sup> Reuven Paz, *Hamas Publishes Annual Report on Terrorist Activity for 1998* (Herzliya, Israel: International Policy Institute for Counterterrorism, May 3, 1999), 1; available from <http://www.ict.org.il/spotlight/det.cfm?id=259>; Internet; accessed 6 December 2002.

<sup>261</sup> Department of Defense, Naval Explosive Ordnance Disposal Technology Division, *ORDATA II - Enhanced Deminers' Guide to UXO Identification, Recovery, and Disposal*, Version 1.0, [CD-ROM], (Indian Head, MD: Naval Explosive Ordnance Disposal Technology Division, 1999).

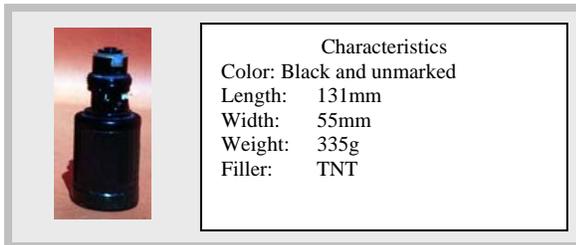
- Figure E-3. French Grenade, Fragmentation, TN 733



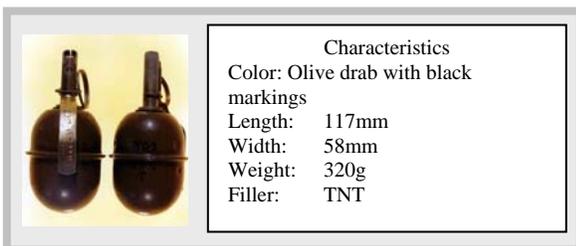
- Figure E-4. U.K. Grenade, Fragmentation, No. 36M MK1



- Figure E-5. Spanish Grenade, Fragmentation, POM 1



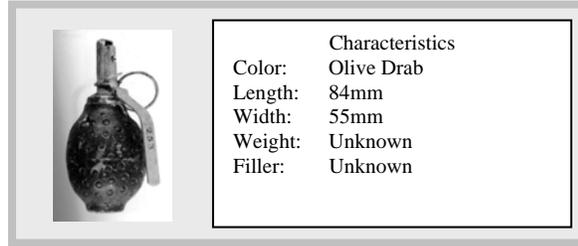
- Figure E-6. U.S.S.R. Grenade, Hand, Defensive, RGD-5



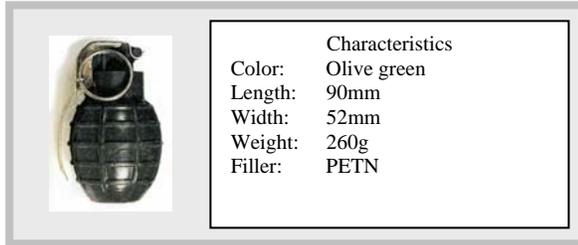
- Figure E-7. U.S.S.R. Grenade, Hand, Defensive, F1



- Figure E-8. North Korean Grenade, Fragmentation, Model Unknown



- Figure E-9. Chinese (P.R.) Grenade, Fragmentation, Type 86P



## Rocket Propelled Grenade

This weapon fires a motorized grenade from a tube-like launcher. Although it is an unguided weapon, a trained operator can negotiate targets at a long distance. Even though it was originally developed for an anti-tank weapon system, many terrorists use them as anti-aircraft weapons. RPGs were used to bring down two MH-47 Chinook helicopters in the Shah-e-Kot area of Afghanistan in 2002 and the same system was used in 1993 in Mogadishu, Somalia, when Somalis firing RPGs brought down a pair of UH-60 Black Hawk helicopters. Many armies use these systems and they are widely available on the weapons black market.

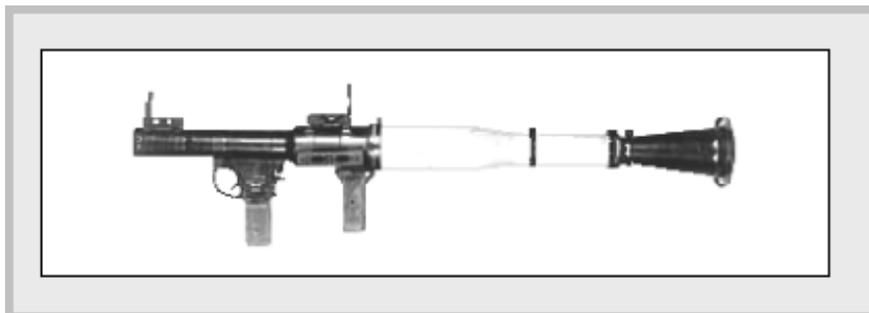


Figure E-10. RPG-7V Antitank Grenade Launcher (Source: WEG)

- Russian 40mm Anti-tank Grenade Launcher RPG-7V. The RPG-7V is abundant throughout the terrorist world and is being used extensively by terrorist organizations in the Middle East and Latin America and is thought to be in the inventory of many

insurgent groups. The RPG-7V is a relatively simple and functional weapon, with an effective range of approximately 500 meters when used against a fixed target, and about 300 meters when fired at a moving target.<sup>262</sup> It can penetrate 330mm of armor. Photo is from the TRADOC *Worldwide Equipment Guide* (WEG).

- U.S. 66mm Light Anti-tank Weapon M72 LAW. Although the M72-series LAW was mainly used as an anti-armor weapon, it may be used with limited success against other targets such as buildings and light vehicles. It's effective range is not as good as the RPG-7V, since it's only effective to 200 meters for stationary targets, and 165 meters for moving targets. It can penetrate 350mm of armor.

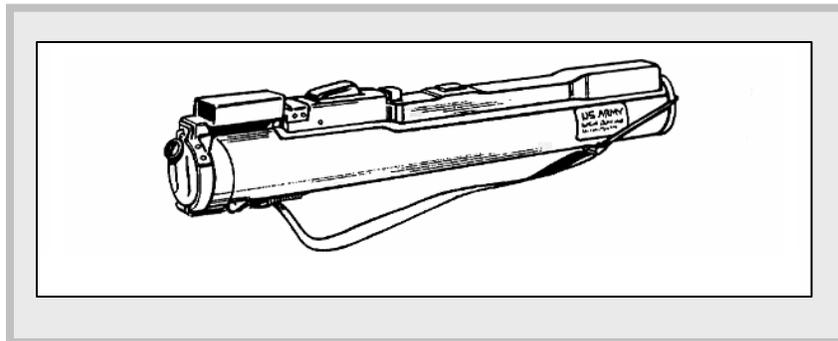


Figure E-11. M72 Series Light Antitank Weapon (Source: FM 23-25)

## Air Defense Weapons

Although there are a myriad of air defense weapon systems, the man portable systems are the ones that will be covered in this section. As the name indicates, these systems are portable and can be employed by terrorists very quickly. Due to excellent performance and the large number of these air defense systems throughout the world, the two systems discussed below represent some of the most formidable threats to aircraft of all types. The fact that terrorists will use these weapons was demonstrated in November 2002 when two surface-to-air missiles were fired at a Tel Aviv bound Arkia airlines Boeing 757 as it departed Mombasa, Kenya. Fortunately the missiles missed their target, but it is an indication of possible employment of the systems in the future.

- U.S. FIM92A Stinger. The US-made Stinger is a man-portable infrared-guided shoulder-launched Surface-To-Air Missile (SAM). It proved to be highly effective in the hands of Afghan Mujahedeen guerrillas during their insurgency against the Soviets. Its maximum effective range is approximately 4,000+ meters. Its maximum effective altitude is approximately 3,500 meters. It has been used to target high-speed jets, helicopters, and commercial airliners.

<sup>262</sup> *Conventional Terrorist Weapons* (New York: United Nations Office for Drug Control and Crime Prevention, 2002), 3; available from [http://www.undcp.org/odccp/terrorism\\_weapons\\_conventional.html](http://www.undcp.org/odccp/terrorism_weapons_conventional.html); Internet; accessed 12 November 2002.

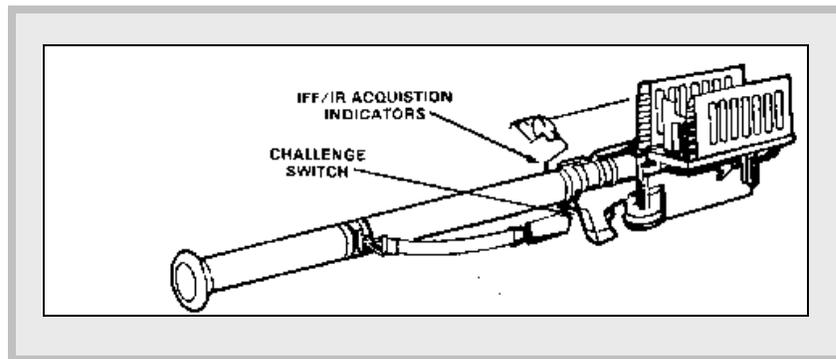


Figure E-12. U.S. FIM92A Stinger (Source: FM 44-18-1)

- Russian SA 7b/Grail. Sold by the thousands after the demise of the former Soviet Union, the SA-7 "Grail" uses an optical sight and tracking device with an infrared seeking mechanism to strike flying targets. Its maximum effective range is approximately 5,500 meters and maximum effective altitude is approximately 4,500 meters. It is known to be in the stockpiles of several terrorist and guerrilla groups.

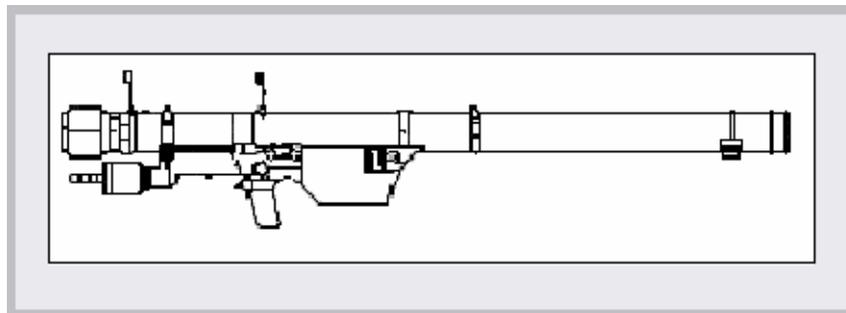


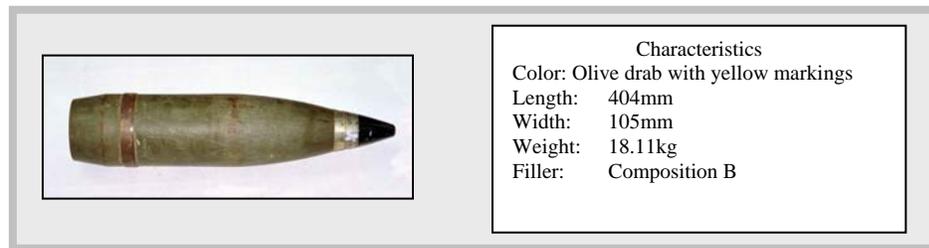
Figure E-13. Russian SA 7b/Grail (Source: WEG)

## Bombs and Artillery

Although most bombs used by terrorists are fabricated devices, they do use some conventional munitions, especially as booby traps. They often use unexploded ordnance and modify it for their purposes. A 2001 report from the United Nations Mine Action Coordination Center on the former Yugoslav Republic of Macedonia indicates a plethora of unexploded munitions, to include 122 mm artillery rounds, 100 mm tank rounds, 82 mm and 120 mm mortar rounds, 20 mm and 30 mm cannon rounds, and 50 mm rocket rounds.<sup>263</sup> The following reflects some common munitions used by terrorist organizations. These figures are courtesy of the Naval Explosive Ordnance Disposal Technology Division.<sup>264</sup>

<sup>263</sup>C.J. Clark, *Mine/UXO Assessment: Former Yugoslav Republic of Macedonia* (New York: United Nations Mine Action Coordination Center, 8 October 2001), 2; available from

- Figure E-14. U.S. Artillery Projectile, 105mm, HE, M1



- Figure E-15. U.S. Artillery Projectile, 155mm, HE, M107



- Figure E-16. U.S.S.R. Artillery Projectile, 122mm, HE, FRAG, Model OF-472



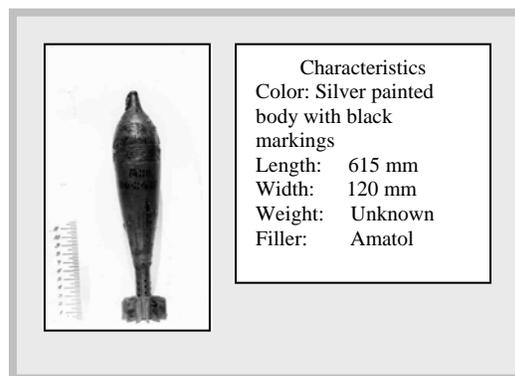
[http://www.mineaction.org/sp/mine\\_awareness/\\_refdocs.cfm?doc\\_ID=707](http://www.mineaction.org/sp/mine_awareness/_refdocs.cfm?doc_ID=707); Internet; accessed 13 December 2002.

<sup>264</sup> Department of Defense, Naval Explosive Ordnance Disposal Technology Division, *ORDATA II - Enhanced Deminers' Guide to UXO Identification, Recovery, and Disposal*, Version 1.0, [CD-ROM], (Indian Head, MD: Naval Explosive Ordnance Disposal Technology Division, 1999).

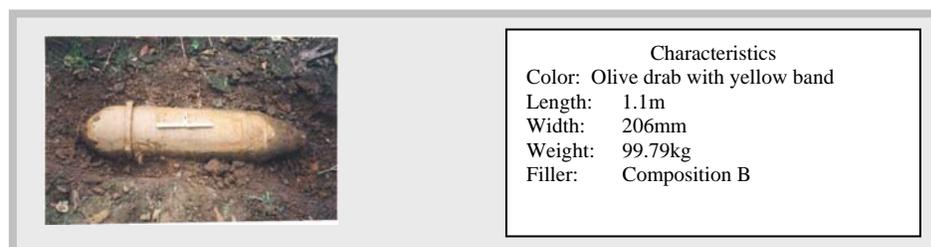
- Figure E-17. U.S.S.R. Projectile, 100 mm, HEAT-FS, Model ZBK-5M



- Figure E-18. U.S.S.R. Projectile, 120 mm, Mortar, HE-FRAG, Model OF-843A



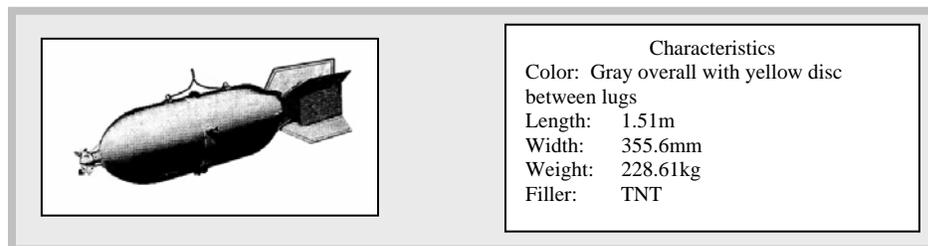
- Figure E-19. U.S. Bomb, 220 lb, Fragmentary, AN-M88



- Figure E-20. U.S. Bomb, 250 lb, GP, AN-M57 & AN-M57A1



- Figure E-21. U.S. Bomb, 500 lb, GP, MK3, MOD 1



## Mines

Similar to the homemade bombs used by terrorists, mines are another means used to inflict damage by terrorist organizations. They use both anti-personnel and anti-tank mines. Unlike conventional military forces that use mines against an opposing military force, terrorists use mines to disrupt social, economic, and political operations. Consequently, mines are often placed around schools, on walking paths, or around wells, in order to gain terror effects.<sup>265</sup> When examining the proliferation of these type weapons throughout the world, it becomes readily apparent that it will be a true threat to U.S. forces. The information in Table E-1 is from the 2001 Landmine Monitor Report and shows the various countries of the world that are affected by landmines and unexploded ordnance. Many of these mines have been emplaced by terrorist organizations.

<sup>265</sup> Margaret Buse, "Non-State Actors and Their Significance," *Journal of Mine Action* (December 2002): 2; available from [http://maic.jmu.edu/journal/5.3/features/maggie\\_buse\\_nsa/maggie\\_buse.htm](http://maic.jmu.edu/journal/5.3/features/maggie_buse_nsa/maggie_buse.htm); Internet; accessed 13 December 2002.

Africa	Americas	Asia-Pacific	Europe/Central Asia	Middle East/ North Africa
Angola	Chile	Afghanistan	Albania	Algeria
Burundi	Colombia	Bangladesh	Armenia	Egypt
Chad	Costa Rica	Burma	Azerbaijan	Iran
Congo-Brazz.	Cuba	Cambodia	Belarus	Iraq
DR Congo	Ecuador	China	Bosnia & Herzegovina	Israel
Djibouti	El Salvador	India	Croatia	Jordan
Eritrea	Guatemala	North Korea	Cyprus	Kuwait
Ethiopia	Honduras	South Korea	Czech Republic	Lebanon
Guinea-Bissau	Nicaragua	Laos	Denmark	Libya
Kenya	Peru	Mongolia	Estonia	Morocco
Liberia	Falkland-Malvinas	Nepal	Georgia	Oman
Malawi		Pakistan	Greece	Syria
Mauritania		Philippines	Kyrgyzstan	Tunisia
Mozambique		Sri Lanka	Latvia	Yemen
Namibia		Thailand	Lithuania	Golan Heights
Niger		Vietnam	FYR Macedonia	Northern Iraq
Rwanda		Taiwan	Moldova	Palestine
Senegal			Poland	Western Sahara
Sierra Leone			Russia	
Somalia			Tajikistan	
Sudan			Turkey	
Swaziland			Ukraine	
Tanzania			Uzbekistan	
Uganda			Yugoslavia	
Zambia			Abkhazia	
Zimbabwe			Chechnya	
Somaliland			Kosovo	
			Nagorno-Karabakh	

Source: "Humanitarian Mine Action", *Landmine Monitor Report – 2001*; available from <http://www.icbl.org/lm/2001/exec/hma.html#Heading514>; Internet; accessed 13 December 2002.

Table E-1. Landmine/UXO Problem in the World

There are hundreds of different types of mines that can be employed against our troops. As Robert Williscroft stated in *Defense Watch*, "At least 800 different mine types populate the world's minefields. These range from homemade coffee can bombs to sophisticated 'smart' non-metallic devices that can distinguish between potential targets."<sup>266</sup> Manufactured mines used by terrorists originate from many of the former Warsaw Pact countries, the United States, China, Britain, and Iran, to name just a few

<sup>266</sup>Robert G. Williscroft, "The Economics of Demining Defines Success and Failure," *Defense Watch* (13 February 2002): 4; available from <http://www.sftt.org/dw02132002.html>; Internet; accessed 13 December 2002.

sources.<sup>267</sup> Some common mines are shown below. These can be detonated through the use of trip wires, pressure, or command detonation. These figures are courtesy of the Naval Explosive Ordnance Disposal Technology Division.<sup>268</sup>

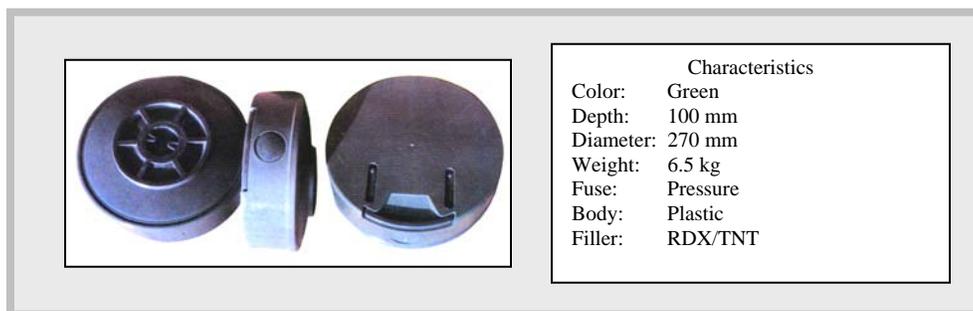
- Figure E-22: Chinese (P.R.) Landmine, APERS, Type 59



- Figure E-23. Chinese (P.R.) Landmine, APERS, Type 66



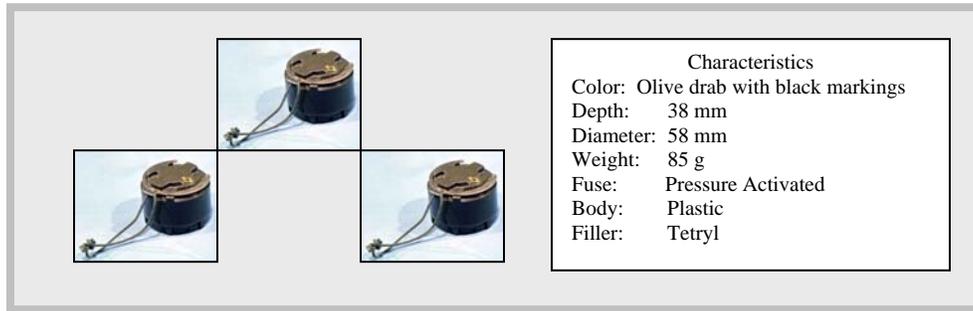
- Figure E-24. Chinese (P.R.) Landmine, AT, Type 72



<sup>267</sup> C.J. Clark, *Mine/UXO Assessment: Former Yugoslav Republic of Macedonia* (New York: United Nations Mine Action Coordination Center, 8 October 2001), 2; available from [http://www.mineaction.org/sp/mine\\_awareness/\\_refdocs.cfm?doc\\_ID=707](http://www.mineaction.org/sp/mine_awareness/_refdocs.cfm?doc_ID=707); Internet; accessed 13 December 2002; and Jerry White, "Ridding the World of Land Mines," *Union-Tribune* (24 January 2002): 4; available from <http://www.wand.org/9-11/discuss6.html>; Internet; accessed 13 December 2002.

<sup>268</sup> Department of Defense, Naval Explosive Ordnance Disposal Technology Division, *ORDATA II - Enhanced Deminers' Guide to UXO Identification, Recovery, and Disposal*, Version 1.0, [CD-ROM], (Indian Head, MD: Naval Explosive Ordnance Disposal Technology Division, 1999).

- Figure E-25. U.S. Landmine, APERS, HE, M14



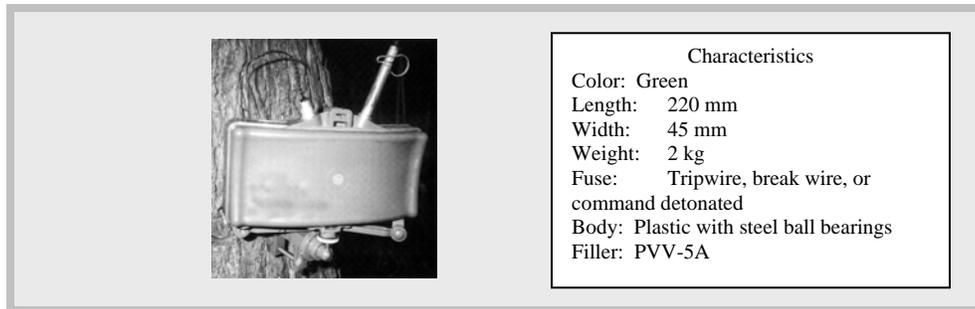
- Figure E-26. U.S. Landmine, APERS, HE, M18A1



- Figure E-27. U.S. Landmine, AT, HE, M21



- Figure E-28. U.S.S.R. Landmine, APERS, Directional, MON-50



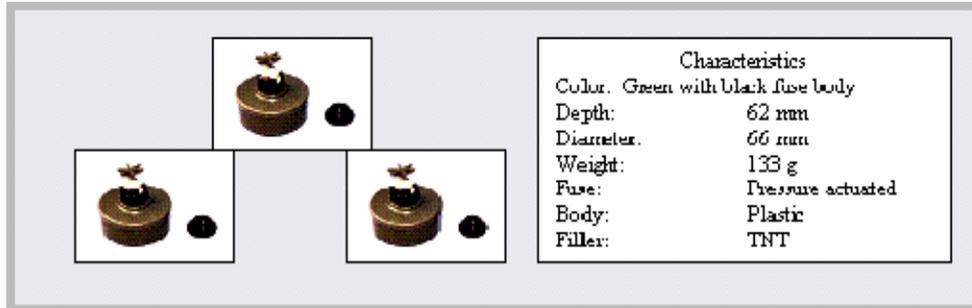
- Figure E-29. U.S.S.R. Landmine, APERS, PMN-2



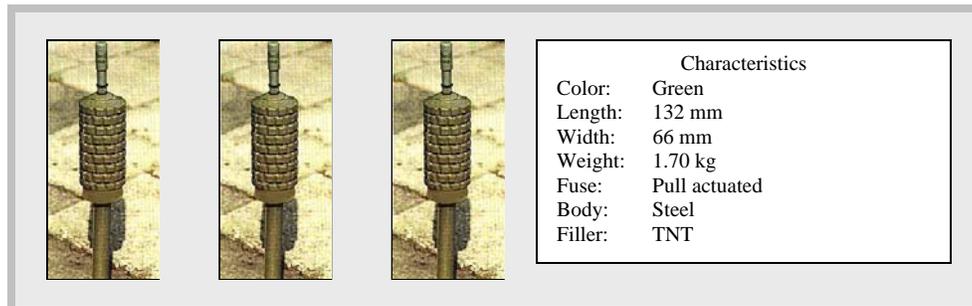
- Figure E-30. U.S.S.R. Landmine, AT, TM-62M



- Figure E-31. Yugoslav Landmine, APERS, PMA-2



- Figure E-32. Yugoslav Landmine, APERS, PMR-2A



- Figure E-33. Yugoslav Landmine, AT, TMA-4

