

U.S. MARINE CORPS TECHNICAL MANUAL

**PRINCIPAL TECHNICAL CHARACTERISTICS
OF
U.S. MARINE CORPS
ORDNANCE EQUIPMENT**



MARINE CORPS SYSTEM COMMAND
QUANTICO, VA 22134-6050

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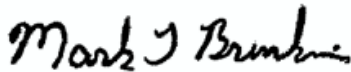
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U.S. MARINE CORPS TECHNICAL MANUAL

PRINCIPAL TECHNICAL CHARACTERISTICS OF U.S. MARINE CORPS ORDNANCE EQUIPMENT

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INTRODUCTION

1-1. SCOPE

This manual provides easy-to-use reference data for the more common items of Marine Corps ordnance equipment. The equipment description sheets, which make up the bulk of the manual, provide a description, function, and technical characteristics of the equipment, including, when applicable, fuel and power requirements, power outputs, major components, and associated components. If available, photographs or drawings of the equipment are provided. For complete data on any item, refer to the appropriate technical manual or Stock List (SL-3 or SL-4). Stock Lists can be accessed on the internet through the MATCOM website <http://mcsd4.ala.usmc.mil/MCSD/SL/>. For additional assistance contact Action Officer at PG 13, PM IW, phone number: 703-432-4942.

1-2. CONTENTS OF THIS MANUAL

a. Introduction. Contains general information about the publication and its use.

b. Equipment Description Sheets. Equipment description sheets provide key characteristics of the equipment and include illustrations or drawings as appropriate. Some equipment items have multiple operating configurations. Those are marked as “varies” under Operating Data.

c. Equipment Listing by Functional Category. The equipment is listed by groupings of functionally similar items of equipment.

d. Equipment Listing by TAM-Number Sequence. This section is a listing arranged in alphanumeric TAMCN sequence of each functional category. The listing provides Table of Authorized Materiel Control Number (TAMCN), equipment Item Designator (ID) number, National Stock Number (NSN), item description, model number, and a page number reference to the equipment description sheets. It should be noted that some TAMCN are common to more than one piece of equipment.

1-3. LOCATING EQUIPMENT DATA

Equipment data may be located by either TAMCN or by Functional Category.

a. Functional Category. If the functional category is known, e.g., floodlight, find the functional category, then refer to the desired sublist item. If more detailed information is required than is presented, refer to the appropriate page in the equipment description sheets section.

b. TAMCN. If the TAMCN is known, refer to the alphanumeric listing in the Equipment Listing by TAM-number sequence to find the equipment. If more detailed information is required than is presented, refer to the appropriate page in the equipment description sheets.

1-4. EQUIPMENT DESCRIPTION SHEET FORMAT

Each end item is given a separate page. Data provided are self-explanatory.

EQUIPMENT LISTING BY FUNCTIONAL CATEGORY

TAMCN	ITEM DESCRIPTION	MODEL
INFANTRY WEAPONS		
E01957M	Carbine, 5.56 mm, M4	M4
E01907M	Carbine, 5.56 mm, M4A1 Close Quarters Battle Weapon (CQBW)	M4A1 CQBW
E09357B	Guided Missile System, Tow 2 Weapon System	M220E4
E02077B	Javelin Weapons System, Command Launch Unit (CLU)	M98A1
E09157M	Launcher, Assault, Rocket, 83 mm (SMAW)	MK 153
E08927M	Launcher, Grenade, 40 mm	M203
E08927M	Launcher, Grenade, 40 mm	M203A1
E00252M	Launcher, Grenade, Multi-Shot, 40 mm	M32
E0055	Launcher System, Saber (ITAS)	M41
E09987M	Machine Gun, 7.62 mm	M240
E0961	Machine Gun, 7.62 mm	M240E1
E09897M	Machine Gun, 7.62 mm	M240B
E09947M	Machine Gun, 40 mm, MK 19 w/BKT	MOD 3
E09807M	Machine Gun, Caliber .50, Browning, M2, Heavy Barrel, Flexible	M2
E0984	Machine Gun, Caliber .50, M2, Heavy Barrel, Flexible, M48 Turret Type	M2 - M48 Type
E09607M	Machine Gun, Light, Squad, 5.56 mm	M249
E10657M	Mortar, 60 mm, Lightweight, Company	M224
E10957M	Mortar, Medium, Extended Range, 81 mm	M252
E11232B	Mount, Machine Gun, MK93	MK93
E00817	Mount, Vehicle, Medium Machine Gun, M35 (MMGVM)	M35
E11232B	Mount, Machine Gun, MK64	MOD 5
E11202M	Mount, Tripod, Machine Gun, 7.62 mm	M122
E11262B	Mount, Tripod, Machine Gun, Caliber .50	M3
E12512M	Pistol, M45 Close Quarters Battle Pistol (CQBP) .45 Caliber	M1911A1
E12502M E12452M	Pistol, Semi-Automatic, 9 mm	M9 and M9A1
E03117M	Rifle, 7.62 mm, M14, Enhanced Marksman Rifle (EMR)	EMR
E14412M	Rifle, 5.56 mm, M16A2	M16A2
E14412M	Rifle, 5.56 mm, M16A4	M16A4
E14752M	Rifle, Scoped, Long Range, Caliber .50	M107
E14602M	Rifle, Sniper, 7.62 mm	M40A3/A5
E17612M	Shotgun, 12 Gage, M1014, Joint Service Combat Shotgun (JSCS)	M1014
E17622M	Shotgun, 12 Gage, Mossberg	500A2
TOWED ARTILLERY WEAPONS		
E06657M	Howitzer, Medium, Towed, 155 mm	M198
E06717M	Howitzer	M777A2

EQUIPMENT LISTING BY FUNCTIONAL CATEGORY - CONTINUED

TAMCN	ITEM DESCRIPTION	MODEL
TRACKED AND WHEELED COMBAT VEHICLES		
E08467K	Assault Amphibian Vehicle, Personnel Carrier	AAVP7A1
E3201	Assault Amphibian Vehicle, Personnel Carrier, Model 7A1, Upgunned Weapons Station (UGWS)	AAVP7A1 UGWS
E07967K	Assault Amphibian Vehicle, Command	AAVC7A1
E08567K	Assault Amphibian Vehicle, Recovery	AAVR7A1
E09967M	Blade, Mine Clearing	M1A1
E01507B	Bridge, Armored Vehicle Launched	
E0947	Gun, Automatic, 25 mm	M242
E1500	M142 High Mobility Artillery Rocket System (HIMARS)	M142
E09427M	Light Armored Vehicle (LAV) - Anti-Tank	LAV-AT
E09467B	Light Armored Vehicle (LAV) - Command and Control	LAV-C ² A1
E09477M	Light Armored Vehicle (LAV) - Light Assault	LAV-25A1
E09487B	Light Armored Vehicle (LAV) - Logistics	LAV-L
E09507B	Light Armored Vehicle (LAV) - Maintenance/Recovery	LAV-RA1
E09497M	Light Armored Vehicle (LAV) - Mortar	LAV-M
E13787K	Recovery Vehicle, Heavy, Full-Track	M88A2
E18887M	Tank, Combat, Full-Track, 120 mm Gun	M1A1
OPTICAL AND MISCELLANEOUS EQUIPMENT		
E00637G	Mini Thermal Imager (MTI)	
E19757G E19767G	Weapon Thermal Sight, Medium (MWTS) and HEAVY (HWTS)	AN/PAS-13B (V)2 AN/PAS-13B (V)3
E1975 E1976	Weapon Thermal Sight, Medium (MWTS) and HEAVY (HWTS)	AN/PAS-13D (V)2 AN/PAS-13D (V)3
E09567B	Laser Borelight System (LBS)	AN/PEM-1
E17987G	Target Pointer Illuminator/Aiming Light (TPIAL)	AN/PEQ-2A
E17997G	Medium Power Laser Illuminator (MPLI)	AN/PEQ-4
E09577B	Light Module, Integrated Laser (ILLM)	AN/PEQ-6A
E17797B	Grenade Launcher Day Night Sight Mount (GLDNSM)	AN/PSQ-18A
E11522B E11522BA	Night Vision Goggles, Individual	AN/PVS-7B and 7D
E11542B	Monocular Night Vision Device (MNVD)	AN/PVS-14
E11627G E11607G	Sight, Miniature Night (MNS)	AN/PVS-17B and 17C
E11592B	Sight, Night Vision, Crew-Served	AN/TVS-5A
N/A	EOTECH Holographic Diffraction Sight (HDS)	
E09567B	Laser Boresight System (LBS)	AN/PEM-1
E00957B	Scout Sniper Periscope (SSP)	

EQUIPMENT LISTING BY FUNCTIONAL CATEGORY - CONTINUED

TAMCN	ITEM DESCRIPTION	MODEL
OPTICAL AND MISCELLANEOUS EQUIPMENT - Continued		
E19787G	Long-Range Thermal Imager (LRTI) AN/PAS-22	AN/PAS-22
E19007B	M49 Telescope, Straight	M49
E17107G (A4) E00177M (M4)	Rifle Combat Optics (RCO), AN/PVQ-31A (A4) and AN/PVQ-31B (M4)	AN/PVQ-31A AV/PVQ-31B
N/A	Scout Sniper Day Scope (SSDS)	
E00387B	Visible Light Illuminator Replacement (VLIR)	AN/PVS-29
E00067B	Infrared Zoom Laser Illuminator Designator (IZLID)	1000P-A1
E00537B	Non-Lethal Visual Hailing Device, LA-9/P	GBD-IIIC
E17987G	Advanced Target Pointer Illuminator Aiming Light (ATPIAL)	AN/PEQ-15
E00587G	Integrated Pointer/Illuminator Module (IPIM)	AN/PEQ-16
E00207B	Scout Sniper Medium Range Night Sight (SSMRNS)	AN/PVS-27
E00677B	Electro-Optical Maintenance Shelter Complex (EOMSC)	
E00127G	Medium Range Thermal Bi-Ocular (MRTB)	
E00627G	Individual Weapon Night Sight-Thermal (IWNS-T)	AN/PAS-27
E00617B	Low Profile Night Vision Goggles (LP-NVG)	AN/PVS-21
E00087G	Individual Weapon Night Sight I ² (IWNS-I ²)	AN/PVS-24
E00587G	Mini-Integrated Pointer/Illuminator Module (MIPIM)	AN/PEQ-16A
E09577B	Integrated Laser White Light Pointer (ILWLP)	AN/PEQ-14
E00167B	Scout Sniper Observation Telescope (SSOT)	
A02507G	Sound Commander 3660	SC3600
C00247B	Non-Lethal/Tube Launched Munition System (NL/TLMS)	
E00327M	Mission Payload Module - Non-Lethal Weapons Systems	
E00807B	Nitrogen Generator	N2-GEN™
C70077B	Shop Equipment Contact Maintenance Vehicle (SECMV)	
E22082B	Tool Kit, Electro-Optical (EOTK)	
E00847B	Infantry Binoculars - Tactical COTS	
E00887B	SU-260P Machine Gun Day Optic (MDO)	
E00827B	SU-258/PVQ Squad Day Optic (SDO)	
ANCILLARY EQUIPMENT		
E02102E	Compass, Magnetic	M2
E12607B	Quadrant, Fire Control, Gunner's	M1A2
E17802E	Sight, Bore, Optical	M45/M45A1
TBD	Sight, Unit	M64A1

LIST OF ABBREVIATIONS/ACRONYMS

<u>Abbreviation/Acronym</u>	<u>Definition</u>
approx	Approximately
APU	Auxiliary Power Unit
BAD	Blast Attenuator Device
C	Celsius; Centigrade
CFM	Cubic Feet per Minute
cm	Centimeter
cu ft	Cubic Feet
cu m	Cubic Meters
DC	Direct Current
deg	Degrees
dia	Diameter
elev	Elevation
F	Fahrenheit
ft/sec	Feet per Second
ft	Feet
ft-lb	Foot-Pound
ft ³	Cubic Feet
g	Gram
gal	Gallon
gpm	Gallons per Minute
gr	Grains
HEDP	High-Explosive, Dual Purpose
ID	Identification Number
in	Inch
in.-lb	Inch-Pound
Incl	Including
J	Joules
kg	Kilogram
kp	Kilopascal
kw	Kilowatt
L	Liter
LAV	Light Armored Vehicle
lb	Pound
m	Meter
m-ton	Metric Ton
m ³	Cubic Meters
mag	Magazine
Max	Maximum
mm	Millimeter
mps	Meters per Second

LIST OF ABBREVIATIONS/ACRONYMS - CONTINUED

<u>Abbreviation/Acronym</u>	<u>Definition</u>
NATO	North Atlantic Treaty Organization
Nm	Newton meters
NSN	National Stock Number
oz	Ounce
PSI	Pounds per Square Inch
PSIG	Pounds per Square Inch, Gage
pwr	Power
qt	Quart
R.H.	Right Hand
Rounds/min	Rounds per Minute
RPM	Revolutions per Minute
sec	Second
sq ft	Square Feet
TAM	Table of Authorized Materiels
TM	Technical Manual
VDC	Volts Direct Current
w/	With
w/o	Without
W/E	With Equipment
yd	Yard

TM 8000-10/1D

**CHAPTER 1
INFANTRY WEAPONS**

CARBINE, 5.56 MM, M4

TAMCN E01957M

NSN 1005-01-231-0973

ID 10012A



TM8K-001

DESCRIPTION AND FUNCTION

Carbine, 5.56 mm, M4 is a lightweight, air-cooled, gas-operated, magazine-fed, shoulder-fired weapon designed for burst (three-round burst) or semi-automatic (single shots) fire by using the selector lever. The weapon has a fully adjustable rear sight and is configured with a flat-top upper receiver and barrel assembly with a detachable carrying handle, integral rear aperture sight, and a compensator that keeps the muzzle down during firing. The M4 Carbine's buttstock has four positions: closed, 1/2 open, 3/4 open, and full open.

TECHNICAL CHARACTERISTICS

Weight:		Rate of Fire:	
w/o Mag and Sling	6.25 lb (2.33 kg)	Maximum	Approx 700 to 900 RPM
Loaded 30-rd Mag and Sling	7.5 lb (2.8 kg)	Semi	45 RPM
Length:		Burst	90 RPM
Buttstock Closed	29.75 in. (75.57 cm)	Sustained	12 to 15 RPM
Buttstock Opened	33.0 in. (84 cm)	Max Effective Range	1,640 ft (500 m)
Fire Selector	SAFE-SEMI-BURST		(individual/pt targets)
Muzzle Velocity (Max)	2,970 ft/sec		1,968 ft (600 m)
			(area targets)

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Qty</u>	<u>Item</u>
1	Bolt Carrier Assembly	1	Upper Receiver and Barrel Assembly
1	Carrying Handle	1	Lower Receiver and Buttstock Assembly

CARBINE, 5.56 MM, M4 - CONTINUED**ASSOCIATED COMPONENTS**

<u>TAM #</u>	<u>ID #</u>	<u>Nomenclature</u>	<u>Type/Model</u>
E0892	07700B	Launcher, Grenade, 40 mm, M203A1	
N/A	10090A	Thermal Sight	AN/PVS-13(V)1
N/A	11059A	Holographic Sight	552.65A
N/A	81015B	Conversion Kit	5304650
E00502E	05576C	OKC3S Bayonet	
E00177M	11064B	AN/PVQ-13B (M4/M4A1)	
E00627G	TBD	IWNS-T	
E11542B	10271A	AN/PVS-14 (MNVD)	
E11607G	10796C	AN/PVS-17C (MNS)	
E11587G	05975D	AN/PVS-4*	
E00087G	TBD	AN/PVS-24	
N60305EP	10012B	VLI	
E00387B	11452A	VLI Replacement**	

* The AN/PVS-4 is being replaced by the AN/PVS-17.

** The 11452A is replacing the 10012B.

REFERENCES

- TM 05538/10012-10A/1; Operator's Manual, Rifles 5.56 mm, M16A2, M16A4, and Carbines 5.56 mm, M4, and M4A1.
- TM 05538/10012-23&P; Maintenance Manual, Rifles 5.56 mm, M16A2, M16A3, M16A4, and Carbines 5.56 mm, M4 and M4A1.

CARBINE, 5.56 MM, M4A1 CLOSE QUARTERS BATTLE WEAPON (CQBW)

TAMCN E01907M

NSN 1005-01-382-0953

ID 10012B



TM8K-002

DESCRIPTION AND FUNCTION

Carbine, 5.56 mm, M4A1 is a lightweight, air-cooled, gas-operated, magazine-fed, shoulder-fired weapon designed for automatic or semi-automatic (single shots) fire by using the selector lever. The weapon has a fully adjustable rear sight and is configured with a flat-top upper receiver and barrel assembly with a detachable carrying handle, integral rear aperture sight, and a modified compensator that allows attachment of a sound suppressor. The M4A1 Carbine's buttstock has four positions: closed, 1/2 open, 3/4 open, and full open.

TECHNICAL CHARACTERISTICS

Weight:		Rate of Fire:	
w/o Mag and Sling	6.25 lb (2.33 kg)	Maximum	Approx 700 to 900 RPM
Loaded 30-rd Mag and Sling	7.5 lb (2.88 kg)	Semi	45 RPM
Length:		Burst	90 RPM
Buttstock Closed	29.75 in. (75.57 cm)	Sustained	12 to 15 RPM
Buttstock Opened	33.0 in. (84 cm)	Max Effective Range	1,640 ft (500 m)
Fire Selector	SAFE-SEMI-AUTO		(individual/pt targets)
Muzzle Velocity (Max)	2,970 ft/sec		1,968 ft (600 m)
			(area targets)

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Qty</u>	<u>Item</u>
1	Bolt Carrier Assembly	1	Upper Receiver and Barrel Assembly
1	Carrying Handle	1	Lower Receiver and Buttstock Assembly

CARBINE, 5.56 MM, M4A1 CLOSE QUARTERS BATTLE WEAPON (CQBW) - CONTINUED

ASSOCIATED COMPONENTS

<u>TAM #</u>	<u>ID #</u>	<u>Nomenclature</u>	<u>Type/Model</u>
E0892	07700B	Launcher, Grenade, 40 mm, M203A1	
E00502E	05576C	OKC3S Bayonet Suppressor MK3	
E00177M	11064B	AN/PVQ-13B (RCO M4/M4A1)	
E00627G	TBD	IWNS-T	
E11542B	10271A	AN/PVS-14 (MNVD)	
E11607G	10796C	AN/PVS-17C (MNS)	
E11587G	05975D	AN/PVS-4*	
E00087G	TBD	AN/PVS-24	
N60302EP	10012B	VLI	
E00387B	11452A	VLI Replacement**	

* The AN/PVS-4 is being replaced by the AN/PVS-17.

** The 11452A is replacing the 10012B.

REFERENCES

- TM 05538/10012-10A/1; Operator's Manual, Rifles 5.56 mm, M16A2, M16A4, and Carbines 5.56 mm, M4, and M4A1.
- TM 05538/10012-23&P; Maintenance Manual, Rifles 5.56 mm, M16A2, M16A3, M16A4, and Carbines 5.56 mm, M4 and M4A1.

GUIDED MISSILE SYSTEM, TOW 2 WEAPON SYSTEM, M220E4

TAMCM E09357B

NSN 1440-01-104-9834

ID 07722B



TM8K-003

DESCRIPTION AND FUNCTION

Guided Missile System, TOW 2 Weapon System, M220E4 is a portable wire guided, heavy anti-tank weapon designed to defeat armored vehicles and other hardened targets, such as field fortifications. It operates day or night under all weather conditions and provides a high first-round hit capability against mobile and stationary targets. The TOW 2 can be mounted on the M998 Series 1-1/4 ton, 4x4 HMMWV, M1045, and M1046.

TECHNICAL CHARACTERISTICS

Weight	550 lb (250 kg)	Volume	60.0 cu ft (1.7 cu m)
Length	75.0 in. (190.5 cm)	Width	40.5 in. (102.9 cm)
Height	34.0 in. (86.6 cm)		

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Qty</u>	<u>Item</u>
1	Encased Missile	1	Night Sight
1	Day Sight Tracker	1	Launch Tube
1	Traversing Unit	1	Power Conditioner
1	Tripod	1	Battery Assembly
1	Missile Guidance Set		

GUIDED MISSILE SYSTEM, TOW 2 WEAPON SYSTEM, M220E4 - CONTINUED

ASSOCIATED COMPONENTS

<u>TAM #</u>	<u>ID #</u>	<u>Nomenclature</u>	<u>Type/Model</u>
K46952E	00554C	Paper, Lens	NNNP40
N/A	85588B	Sight Subassembly	10085144
N/A	85591B	Tracker Assembly	10225748
N/A	85593B	Sensor Assembly	10192412
N/A	85595C	Damper, Azimuth	35560
N/A	85598B	Damper, Azimuth	10191248
N/A	85600D	Modulator, Assembly	13218350
N/A	87008B	Tube, TOW	11486778
N/A	87511B	Wire/Harness Branch	10085148
N/A	88903B	Circuit Card	13099805
N/A	89149B	Clamp Assembly	13195080
N/A	89151B	Wire/Harness Branch	13194973
N/A	8B866B	Cell Assembly, Optic	10192166
N/A	8B975C	Sight Optical LAU	13218329
N/A	8E503B	Miss/Guidance Set	13099890-0307
N/A	8E503C	Miss/Guidance Set	13099890-0408

REFERENCES

- TM 9-1425-450-12; Operator's and Maintenance Manual, TOW 2 Weapon System Guided Missile System, M220E4.
- See SL-1-2 for a complete listing of applicable publications.

LAUNCHER SYSTEM, SABER, M41 (ITAS)

TAMCN E0055

NSN TBD

ID TBD



TM8K-118

DESCRIPTION AND FUNCTION

Guided missile launch system, Saber, M41 Improved Target Acquisition System (ITAS) is a portable, missile launch system that is designed to fire all current and future TOW Missiles to defeat heavily armored vehicles and field fortifications. It operates day or night under all weather conditions. Equipped with laser rangefinder, Far Target Locator (FTL), and digital zoom, it provides twice the target acquisition range, detection, and identification of current systems with unmatched surveillance capability. It is equipped with automatic boresighting, Built In Test (BIT), embedded training, and lithium ion battery. The system can also be the M998 Series 1-1/4 ton, 4x4, HMMWV, M1045, and M1046.

TECHNICAL CHARACTERISTICS

Weight:	TBD	Volume:	TBD
Length:	TBD	Width:	TBD
Height:	TBD		

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Qty</u>	<u>Item</u>
1	Encased Missile	1	Fire Control Subsystem (FCS)
1	Target Acquisition System (TAS)	1	Lithium Battery Box (LBB)
1	Traversing Unit (TU), Modified	1	Far Target Locator (FTL)
1	Launch Tube	1	Tripod
1	Commander's Viewer Kit	1	Lithium Ion AC Charger

LAUNCHER SYSTEM, SABER, M41 (ITAS) - CONTINUED

ASSOCIATED COMPONENTS

<u>TAM #</u>	<u>ID #</u>	<u>Nomenclature</u>	<u>Type/Model</u>
TBD	TBD	Vehicle Mounted Battery Charger	TBD
TBD	TBD	Vehicle Modification Kit	TBD
TBD	TBD	TOW Gunner Protection Kit (TGPK)	TBD
TBD	TBD	Electronic Circuit Resistance Test Set (ECIRTS)	TBD
TBD	TBD	Missile Simulation Round - Anti-Tank Weapon Effect Signature Simulator (MSR ATWESS)	TBD
TBD	TBD	Basic Skills Trainer (BST)	TBD
TBD	TBD	Fault Simulation Cards	TBD

REFERENCES

- TBD
- See SL-1-2 for a complete listing of applicable publications.

JAVELIN WEAPONS SYSTEM, COMMAND LAUNCH UNIT (CLU), M98A1

TAMCN E02077B

NSN 1430-01-478-5345

ID 09397B



TM8K-004

DESCRIPTION AND FUNCTION

Javelin, M98A1 is a medium-range, man-portable, recoilless, antitank assault weapon capable of defeating current and projected enemy armor and hovering enemy helicopters. The Javelin can be used during the day or night or during degraded weather conditions, including electronic and electro-optical countermeasures. The missile has a Top Attack and a Direct Attack mode to defeat enemy armor and hovering enemy helicopters.

TECHNICAL CHARACTERISTICS

CLU w/ Battery:

Weight 14.16 lb (5.3 kg)
 Length 13.71 in. (33.89 cm)
 Height 13.34 in. (33.89 cm)
 Width 19.65 in. (49.91 cm)

Round:

Weight 34.16 lb (12.75 kg)
 Length 47.60 in. (120.90 cm)
 Width 11.75 in. (29.85 cm)

Effective Range, Top Attack Mode:

Min 492 ft (150 m)
 Max 6,562 ft (2,000 m)

Effective Range, Direct Attack Mode:

Min 213 ft (65 m)
 Max 6,562 ft (2,000 m)

ASSOCIATED COMPONENTS

<u>TAM #</u>	<u>ID #</u>	<u>Nomenclature</u>	<u>Type/Model</u>			
		Bag, Carry				
		Cleaning, Kit, Lens				
Associated Component Identification Numbers						
00554C	85600D	89151B	8F580B	8F630B	8F638B	8G222B
85588B	87008B	8B866B	8F616B	8F631B	8F657B	8G287B
85591B	87511B	8B975C	8F622B	8F632B	8F663B	8H081B
85593B	88900C	8E503B	8F623B	8F633B	8F688B	8H160B
85595C	88903B	8E503C	8F627B	8F634B	8G195B	8H362B
85598B	89149B	8F449B	8F628B	8F637B	8G210B	8H363B
						8I912B

REFERENCES

- TM 09397B-12/1; Operator's Manual, Javelin Weapons System.
- See SL-1-2 for a complete listing of applicable publications.

LAUNCHER, ASSAULT, ROCKET, 83 MM (SMAW), MK 153

TAMCN E09157M

NSN 1055-01-164-4608

ID 08673A



TM8K-005

DESCRIPTION AND FUNCTION

Launcher, Assault, Rocket, 83 mm (SMAW), MK153 is a man-portable assault weapon employed at the rifle company level. It is capable of defeating field fortifications (bunkers), urban structures (concrete/masonry), and has a secondary capability of destroying light armor. It employs a dual-mode warhead, which automatically discriminates between relatively soft targets (earth/logs/sandbags) and hard targets (concrete/masonry/light armor), functioning in the delay mode against soft targets and in the immediate detonation mode against hard targets.

TECHNICAL CHARACTERISTICS

Operating Temp Range	-40°F to +140°F (-40°C to +60°C)	Effective Range:	
		Min	55.8 ft (17 m)
Weight (Approx)	29.34 lb (13.3 kg)	Max	820 ft (250 m)
Length (Approx)	54 in. (1.36 m)		

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Qty</u>	<u>Item</u>
1	Front Open Sight	1	Sighting Rifle
1	Rear Open Sight	1	Bipod
1	Launcher Tube	1	Front Pistol Grip
1	Carrying Sling	1	Shoulder Rest
1	Sight Mount	1	Firing Mechanism
1	Telescopic Sight	1	Round

LAUNCHER, ASSAULT, ROCKET, 83 MM (SMAW), MK 153 - CONTINUED

ASSOCIATED COMPONENTS

<u>TAM #</u>	<u>ID #</u>	<u>Nomenclature</u>	<u>Type/Model</u>
E11627G (17B)	10796B	Sight, Night Vision, AN/PVS-17B and 17C	
E11607G (17C)	10796C		
K47425F	07798A	Rag, Wiping, 5 lb.	A-A-222
E20702E	08969A	TK Boresight	MK145MOD0
C43102F	08951A	Carrier BKPK	82A5027A300
N/A	09576A	Mod Kit	82A5027A6430
N/A	8A538B	Telescope	82A5027A1500
N/A	8C544B	Tube, Assembly	82A5027A6100
N/A	8C544C	Tube, Assembly	82A5027A6101
N/A	8E094B	Subassembly Tube	82A5027A5133
N/A	8H373B	Firing Assembly	82A5027A1200
N/A	8H621B	Generator, Firing	82A5027A1210
N/A	8I145B	Trainer, Assembly/Rocket	82A5027A4000
N/A	8I287B	Rifle, Assembly	82A5027A5132
N/A	8I338B	Rifle, Spotting	82A5027A5200

REFERENCES

- TM 08673A-10/1B; Operator's Manual, Launcher, Assault, Rocket, 83 mm (SMAW).
- TM 08673A-25&P/2A; Maintenance Manual, Launcher, Assault, Rocket, 83 mm (SMAW).
- See SL-1-2 for a complete listing of applicable publications.

LAUNCHER, GRENADE, 40 MM, M203

TAMCN E08927M

NSN 1010-00-179-6447

ID 07700A



DESCRIPTION AND FUNCTION

Launcher, Grenade, 40 mm, M203 is used while attached to a M16A2 rifle. It is a lightweight, compact, breech-loading, pump-action, single-shot launcher. The launcher consists of a hand guard and sight assembly with an adjustable metallic folding blade; sight assembly; plastic handguard; and receiver assembly housing the barrel latch, barrel stop, and firing mechanism. The launcher is capable of firing a variety of 40 mm ammunition.

TECHNICAL CHARACTERISTICS

Weight	3 lb (1.4 kg)	Length of Rifling	10 in. (25.4 cm)
Length of Barrel	12 in. (30.5 cm)	Maximum Range	400 m (1,320 ft)
Number of Lands	6		

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Qty</u>	<u>Item</u>
1	Leaf Sight Assembly	1	Barrel Assembly
1	Hand Guard Assembly	1	Receiver Assembly
1	Quadrant Sight Assembly		

ASSOCIATED COMPONENTS

<u>TAM #</u>	<u>ID #</u>	<u>Nomenclature</u>	<u>Type/Model</u>
E14412M	05538C	Rifle, 5.56 mm, M16A2	
N/A	10090A	Thermal Sight	AN/PVS-13 (V)1
E17797B	11065A	Day/Night Sight	AN/PSQ-18A
E09567B	10471A	Laser Borelight	LBS

REFERENCES

- TM 07700A-10/1A; Operator’s Manual, Launcher, Grenade, 40 mm, M203 and M203A1.
- TM 07700A-23&P/2; Maintenance Manual, Launcher, Grenade, 40 mm, M203 and M203A1, W/E.
- See SL-1-2 for a complete listing of applicable publications.

LAUNCHER, GRENADE, 40 MM, M203A1

TAMCN E08927M

NSN 1010-01-434-9028

ID 07700B



DESCRIPTION AND FUNCTION

Launcher, Grenade, 40 mm, M203A1 is used while attached to the M4, 5.56 mm Carbine Series. It is a light-weight, compact, breech-loading, pump-action, single-shot launcher that is functionally identical to the M203. It uses the quick release bracket and is equipped with the M5 adapter rail system.

TECHNICAL CHARACTERISTICS

Weight	3 lb	Max Range	1,312 ft (400 m)
Length of Barrel	12 in.	Minimum Safe Distance:	
Max Effective Range:	1,148 ft (350 m)	Combat Situation	101 ft (31 m)
	(area target)	Training Situation	541 ft (165 m)
	492 ft (150 m)		
	(point target)		

MAJOR COMPONENTS

Qty	Item	Qty	Item
1	Leaf Sight Assembly	1	Barrel Assembly
1	Hand Guard Assembly	1	Receiver Assembly
1	Quadrant Sight Assembly		

ASSOCIATED COMPONENTS

TAM #	ID #	Nomenclature	Type/Model
E01957M	10012A	Carbine, 5.56 mm	M4
E01907M	10012B	Carbine, 5.56 mm	M4A1 CQBW
N/A	10090A	Thermal Sight	AN/PVS-13(V)1
E17797B	11065A	Day/Night Sight	AN/PSQ-18A
E09567B	10471A	Laser Borelight	LBS

REFERENCES

- TM 07700A-10/1A; Operator's Manual, Launcher, Grenade, 40 mm, M203 and M203A1.
- TM 07700A-23&P/2; Maintenance Manual, Launcher, Grenade, 40 mm, M203 and M203A1, W/E.
- See SL-1-2 for a complete listing of applicable publications.

LAUNCHER, GRENADE, MULTI-SHOT, 40 MM, M32

TAMCN E00252M

NSN 1010-01-535-0989

ID 11235A



TM8K-008

DESCRIPTION AND FUNCTION

The Launcher, Grenade, Multi-Shot, 40 mm, M32 multi-shot grenade launcher is a hand held, semi-automatic, revolving action grenade launcher. It provides enhanced fire power at the squad level. With its 5.5-inch chamber, the M32 can be loaded with six 40 mm rounds and is capable of firing all DODTI and NATO standard lethal and non-lethal 40x46 low velocity munitions.

TECHNICAL CHARACTERISTICS

Caliber	40 mm	Cylinder Capacity	6 rounds of 40x46 mm
Weight	13.2 lb (4.92 kg)	Max Effective Range	1,230 ft (375 m)
Length	28 to 32 in. (71.12 to 81.28 cm) (collapsible buttstock)	(Area)	
		Employment	Individual

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Qty</u>	<u>Item</u>
1	Barrel-Receiver Assembly	1	Sight Assembly
1	Cylinder Assembly	1	Stock Assembly
1	Trigger Assembly		

ASSOCIATED COMPONENTS

<u>TAM #</u>	<u>ID #</u>	<u>Nomenclature</u>	<u>Type/Model</u>
N/A	8J945B	Sight Assembly	

REFERENCES

- TM 11235A-IN; 40 mm Multi-Shot Grenade Launcher.

MACHINE GUN, 7.62 MM, M240

TAMCN E09987M

NSN 1005-01-025-8095

ID 08670A



TM8K-009

DESCRIPTION AND FUNCTION

Machine Gun, 7.62 mm, M240 is a lightweight, air-cooled, disintegrating metallic link-belt fed, vehicle mounted machine gun designed as a coaxial weapon for tanks and 7.62 mm firepower for lighter vehicles. It is gas-operated with a fixed headspace. It consists of a barrel assembly, buffer assembly, driving space assembly, bolt and operating rod assembly, trigger and frame assembly, cover assembly, feed tray, and receiver assembly.

TECHNICAL CHARACTERISTICS

Weight	22.2 lb (10.3 kg)	Rate of Fire:	
Range:		Cyclic	650 to 950 rounds/min - Change barrel every minute
Max	4,095 yd (3,725 m)	Sustained	100 rounds/min - Change barrel every 10 minutes
Max Effective (Point)	874 yd (800 m)	Rapid	200 rounds/min - Change barrel every 2 minutes
Max Effective (Area)	1,968 yd (1,800 m)		
Tracer Burnout	Approx 985 yd (900 m)		

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Qty</u>	<u>Item</u>
1	Barrel Assembly	1	Trigger Housing Assembly
1	Buffer and Spade Grip Assembly	1	Cover Assembly
1	Driving Spring Rod Assembly	1	Feed Tray
1	Bolt and Operating Rod Assembly	1	Receiver Assembly

ASSOCIATED COMPONENTS

- None

REFERENCES

- TM 08670A-10/1B; Operator's Manual, Machine Gun, 7.62 mm, M240.
- TM 08670A/09712A-23&P/2C; Maintenance Manual, Machine Gun, M240 series.
- See SL-1-2 for a complete listing of applicable publications.

MACHINE GUN, 7.62 MM, M240E1**TAMCN** E0961**NSN** 1005-01-252-4288**ID** 09111A

TM8K-010

DESCRIPTION AND FUNCTION

Machine Gun, 7.62 mm, M240E1 is designed with front and rear sights, uses 7.62 mm ammunition, and is pintle-mounted on light armored vehicles. It is gas-operated and fires from the open bolt position. The M240E1 has a spade grip for closed-in space triggering for use on vehicles.

TECHNICAL CHARACTERISTICS

Weight	25.7 lb (11.66 kg)	Rate of Fire:	
Range:		Cyclic	650 to 950 rounds/min - Change barrel every minute
Max	4,095 yd (3,725 m)	Sustained	100 rounds/min - Change barrel every 10 minutes
Max Effective (Point)	874 yd (800 m)	Rapid	200 rounds/min - Change barrel every 2 minutes
Max Effective (Area)	1,968 yd (1,800 m)		
Tracer Burnout	Approx 985 yd (900 m)		

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Qty</u>	<u>Item</u>
1	Barrel Assembly	1	Trigger Housing Assembly
1	Buffer and Spade Grip Assembly	1	Cover Assembly
1	Driving Spring Rod Assembly	1	Feed Tray
1	Bolt and Operating Rod Assembly	1	Receiver Assembly

ASSOCIATED COMPONENTS

- None

REFERENCES

- TM 08670A-10/1B; Operator's Manual, Machine Gun, 7.62 mm, M240E1.
- TM 08670A/09712A-23&P/2C; Maintenance Manual, Machine Gun, M240 series.
- See SL-1-2 for a complete listing of applicable publications.

MACHINE GUN, 7.6 MM, M240B

TAMCN E09897M

NSN 1005-01-412-3129

ID 09712B



TM8K-011

DESCRIPTION AND FUNCTION

Machine Gun, 7.62 mm, M240B is the ground-employed version of the basic Machine Gun, 7.62 mm, M240. It is air-cooled, disintegrating metallic link-belt fed, gas-operated with a fixed headspace, and is designed for all applications requiring 7.62 mm automatic firepower. Capable of vehicle mount with pintle of AAV R7, C7.

TECHNICAL CHARACTERISTICS

Length (Overall)	49 in. (124 cm)	Range:	
Weight:		Max	4,075 yd (3,725 m)
w/ Barrel	Approx 27.1 lb (10.11 kg)	Max Effective (Point)	874 yd (800 m)
w/ Spare Barrel	Approx 6.6 lb (2.46 kg)		w/ M122A1 Tripod
M122 Tripod Mount	Approx 15.0 lb (5.6 kg)	Max Effective (Area)	1,968 yd (1,800 m)
Rate of Fire:			w/ M122A1 Tripod
Cyclic	600 to 650 rounds/min with hydraulic buffer	Tracer Burnout	Approx 985 yd (900 m)
Sustained	100 rounds/min		
Rapid	200 rounds/min		

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Qty</u>	<u>Item</u>
1	Barrel Assembly	1	Flex Mount
1	Buttstock and Buffer Assembly	1	Drive Spring Assembly
1	Bolt and Operating Rod Assembly	1	Trigger Housing Assembly
1	Cover Assembly	1	Feed Tray
1	Receiver Assembly		

ASSOCIATED COMPONENTS

<u>TAM #</u>	<u>ID #</u>	<u>Nomenclature</u>	<u>Type/Model</u>
E11202M	06510A	M122 Tripod Mount	
E0081		M122A1	
		M35 MMGVM	

REFERENCES

- TM 08670A/09712A-23&P/2C; Maintenance Manual, Machine Gun, M240 series.
- See SL-1-2 for a complete listing of applicable publications.

MACHINE GUN, 40 MM, MK 19 W/BKT

TAMCN E09947M

NSN 1010-01-490-9697

ID 08521B



DESCRIPTION AND FUNCTION

Machine Gun, 40 mm, MK 19 w/BKT is an air-cooled, disintegrating metallic link-belt fed, blowback-operated, fully automatic weapon and is crew-transportable. It fires a variety of 40 mm grenades. The M430 (HEDP) 40 mm grenade will pierce armor up to 2 inches thick (at zero degrees obliquity) and will produce fragments to kill personnel within 5 meters and wound personnel within 15 meters of the point of impact. The weapon is used in conjunction with the M998 series of 1-1/4 ton, 4x4, HMMWV, M1043, and M1044.

TECHNICAL CHARACTERISTICS

Length	43.1 in. (109.47 cm)	Rate of Fire	325 to 375 rounds/min
Width	14.0 in. (11.5 cm)	Range:	
Height	8.8 in. (22.4 cm)	Effective Point Target	1,640 yd (1,500 m)
Weight	75.6 lb (34.30 kg)	Effective Area Target	2,410 yd (2,212 m)
Cube	1 cu ft (.028 cu m)		

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Qty</u>	<u>Item</u>
1	Receiver Assembly	1	Sear Assembly
1	Feed Slide Assembly and Tray	1	Bolt and Back Plate Assembly
1	Top Cover Assembly		

ASSOCIATED COMPONENTS

<u>TAM #</u>	<u>ID #</u>	<u>Nomenclature</u>	<u>Type/Model</u>
E11232M	MOD 5	Mount, Machine Gun, MK64	MOD 5
E11262B	M3	Mount, Tripod, Machine Gun	M3
E11592B	AN/TVS-5A	Sight, Night Vision	AN/TVS-5A
E11232B		MK93, Mount, Machine Gun	

REFERENCES

- TM 08521A-10/1A; Operator's Manual, Machine Gun, 40 mm, MK 19 MOD 3.
- TM 08521A-23&P/2A Maintenance Manual, Machine Gun, 40 mm, MK 19 MOD 3.
- See SL-1-2 for a complete listing of applicable publications.

MACHINE GUN, CALIBER .50, BROWNING, M2, HEAVY BARREL, FLEXIBLE

TAMCN E09807M

NSN 1005-00-726-5636

ID 02498B



TM8K-013

DESCRIPTION AND FUNCTION

Machine Gun, Caliber .50, Browning, M2, Heavy Barrel, Flexible is an automatic, recoil-operated, disintegrating metallic link-belt fed, air-cooled machine gun with an adjustable headspace that is crew-transportable. By repositioning some of the component parts, ammunition may be fed from either the left or the right side. The metallic link-belt is used to feed the ammunition into the weapon. This gun has a back plate with spade grips, trigger, safety selector, and bolt latch release. This gun may be mounted on most vehicles and tanks as an anti-personnel and anti-aircraft weapon. The weapon can be used in conjunction with the M998 series of 1 1/4 ton, 4x4, HMMWV, M1043, and M1044.

TECHNICAL CHARACTERISTICS

Weight:		Rate of Fire (Max)	450 to 550 rounds/min
Gun	82 lb (37.2 kg)	Maximum Range	
Barrel	26 lb (11.8 kg)	API, M8:	
Length:		30-deg elevation	6,470 yd (5,972 m)
Barrel	45 in. (114.3 cm)	35-deg elevation	7,460 yd (6,886 m)
Overall	65 in. (165.1 cm)		

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Qty</u>	<u>Item</u>
1	Flash Hider	1	Retracting Slide Assembly
1	Barrel Assembly/Group	1	Barrel Buffer Group
1	Back Plate Assembly/Group	1	Barrel Extension Group
1	Bolt Group and Rod Assembly	1	Cover and Receiver Group

ASSOCIATED COMPONENTS

<u>TAM #</u>	<u>ID #</u>	<u>Nomenclature</u>	<u>Type/Model</u>
E11262B	07937A	Mount, Tripod, Machine Gun, Caliber .50	M3
		Blank Firing Adapter	M19
E11232B		Mount, Machine Gun	M93

REFERENCES

- SL-3-02498B; Components List, Machine Gun, Cal .50, Browning, M2.
- TM 02498A-10/1; Operator's Manual, Machine Gun, Caliber .50, Browning, M2.
- TM 02498A-23&P/2A; Maintenance Manual, Machine Gun, Caliber .50, Browning, M2.
- See SL-1-2 for a complete listing of applicable publications.

MACHINE GUN, CALIBER .50, M2, HEAVY BARREL, FLEXIBLE, M48 TURRET TYPE

TAMCN E0984

NSN 1005-00-957-3893

ID 02498C



TM8K108

DESCRIPTION AND FUNCTION

Machine Gun, Caliber .50, M2, Heavy Barrel, Flexible, M48 Turret Type is an air-cooled, recoil-operated, alternate-feed, automatic, crew-served weapon. The weapon is mounted on the M1 and M1A1 Abrams main battle tank commander's station. It provides automatic weapon suppression fire for offensive and defensive purposes. This weapon can be used effectively against personnel, light armored vehicles, and low, slow flying aircraft.

TECHNICAL CHARACTERISTICS

Weight:		Twist, Right-Hand (One Turn)	15 in. (38.2 cm)
Gun	84 lb (38.1 kg)	Feed	Link-belt
Barrel	26 lb (11.8 kg)	Operation	Short recoil
Length:		Muzzle Velocity	3,050 ft/sec (929.6 mps)
Barrel	45 in. (114.3 cm)	Maximum Range	7,400 yd (6,767 m)
Overall	65.1 in. (165.4 cm)	Maximum Effective Range	2,000 yd (1,829 m)
Rifling	41.9 in. (106.4 cm)	Rate of Fire (Cyclic)	450 to 600 rounds/min
Number of Lands and Grooves	8		

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Qty</u>	<u>Item</u>
1	Flash Hider	1	Retracting Slide Assembly
1	Barrel Assembly/Group	1	Barrel Buffer Group
1	Back Plate Assembly/Group	1	Barrel Extension Group
1	Bolt Group and Rod Assembly	1	Cover and Receiver Groups

ASSOCIATED COMPONENTS

- None

REFERENCES

- SL-3-02498B; Components List, Machine Gun, Cal .50, Browning, M2.
- TM 02498A-10/1; Operator's Manual, Machine Gun, Caliber .50, Browning, M2.
- TM 02498A-23&P/2A; Maintenance Manual, Machine Gun, Caliber .50, Browning, M2.
- See SL-1-2 for a complete listing of applicable publications.

MACHINE GUN, LIGHT, SQUAD, 5.56 MM, M249

TAMCN E09607M

NSN 1005-01-127-7510

ID 08671A



TM8K-107

DESCRIPTION AND FUNCTION

Machine Gun, Light, Squad, 5.56 mm, M249 is a portable, gas-operated, magazine or disintegrating metallic link-belt fed, light machine gun with fixed headspace. The M249 engages point targets out to 800 meters, firing the improved, NATO standard 5.56 mm cartridge (M855). It has a fixed regulator. The addition of accessory rails has been implemented.

TECHNICAL CHARACTERISTICS

Weight (w/ Bipod and Tools)	15.16 lb (6.875 kg)	Range:	
Length:		Max Effective	1,094 yd (1,000 m) (area target)
Overall	40.75 in. (103.5 cm)	Rate of Fire:	
Barrel	20.5 in. (52.1 cm)	Cyclic	850 rounds/min (normal) 1,000 rounds/min (max)
Range:		Sustained	50 rounds/min
Max	3,938.4 yd (3,600 m)	Rapid	100 rounds/min

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Qty</u>	<u>Item</u>
1	Barrel Assembly	1	Slide Assembly
1	Rear Sight Assembly	1	Operating Rod Assembly
1	Cover and Feed Mechanism Assembly	1	Receiver Assembly
1	Feed Tray Assembly	1	Trigger Mechanism Assembly
1	Cocking Handle Assembly	1	Handguard Assembly
1	Buttstock and Shoulder Assembly	1	Bipod, Machine Gun
1	Piston Assembly	1	Gas Cylinder Assembly
1	Bolt Assembly		

ASSOCIATED COMPONENTS

<u>TAM #</u>	<u>ID #</u>	<u>Nomenclature</u>	<u>Type/Model</u>
E11202M	06510A	Mount, Tripod, Machine Gun, 7.62 mm	M122

REFERENCES

- TM 08671A-10/1A; Operator's Manual, Machine Gun, Light, Squad, 5.56 mm, M249 W/E.
- TM 08671A-23&P/2A; Maintenance Manual, Machine Gun, Light, Squad, 5.56 mm, M249 W/E.
- See SL-1-2 for a complete listing of applicable publications.

MORTAR, 60 MM, LIGHTWEIGHT, COMPANY, M224**TAMCN** E10657M**NSN** 1010-01-020-5626**ID** 08206A**DESCRIPTION AND FUNCTION**

Mortar, 60 mm, Lightweight, Company, M224 is a smooth bore, muzzle-loading, high-angle-of-fire weapon. The cannon assembly is composed of a barrel, combination base cap, and firing mechanism. The base cap is hollowed and threaded to screw onto the barrel. The mount consists of a bipod and base plate that is provided with screw-type elevating and traversing mechanisms to elevate/traverse the mortar. It has a spring-type shock absorber to absorb the shock of recoil during firing. Weapon Record Book, Part II (NAVMC 10558A) is provided with the mortar.

TECHNICAL CHARACTERISTICS

Weight:		Range:	
Conventional Mode	46.5 lb (21.1 kg)	Minimum	231 ft (70 m)
Hand-Held Mode	18.0 lb (8.2 kg)	Maximum	11,517 ft (3,490 m)
Length	40.0 in. (1.0 m)		

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>
1	Cannon
1	Base Plate M7/M8
1	Bipod

ASSOCIATED COMPONENTS

<u>TAM #</u>	<u>ID #</u>	<u>Nomenclature</u>	<u>Type/Model</u>
E17802E	02368B	Sight, Bore, Optical	M45/M45A1
N/A	N/A	Sight, Bore, Optical	M115
N/A	88129C	Sight Unit (Tritium Powered Radioactive Device [RAD])	M64A1

REFERENCES

- TM 08206A-10/1A; Operator's Manual, Lightweight Company Mortar, 60 mm, M224.
- TM 08206A-23&P/2A; Maintenance Manual, Lightweight Company Mortar, 60 mm, M224.
- See SL-1-2 for a complete listing of applicable publications.

MORTAR, MEDIUM, EXTENDED RANGE, 81 MM, M252**TAMCN** E10957M**NSN** 1015-01-164-6651**ID** 09922A

TM8K-017

DESCRIPTION AND FUNCTION

Mortar, Medium, Extended Range, 81 mm, M252 is a crew-served, lightweight mortar that is highly accurate and provides for a range of 4,500 meters to 5,650 meters. The cannon has a removable breech plug and firing pin. The muzzle end has a short tapered lead-in for the cartridge and blast attenuator device (BAD). The breech end is finned for better cooling. Weapon Record Book, Part II (NAVMC 10558A) is provided with the mortar.

TECHNICAL CHARACTERISTICS

Weight (with BAD)	89 lb (39.72 kg)	Diameter of Baseplate	1 ft, 10 in. (0.56 m)
Overall Length:		Rate of Fire:	
w/ BAD	4 ft, 7 in. (1.40 m)	Sustained	15 rounds/min
w/o BAD	4 ft, 2 in. (1.27 m)	Maximum	30 rounds/min for 2 min

MAJOR COMPONENTS

Qty	Item
1	Mortar Mount
1	Cannon
1	Baseplate

ASSOCIATED COMPONENTS

TAM #	ID #	Nomenclature	Type/Model
E17802E	02368B	Sight, Bore, Optical	M45/M45A1
N/A	88129C	Sight Unit, Gunners Quad (Tritium Powered Radioactive Device [RAD])	M64A1

REFERENCES

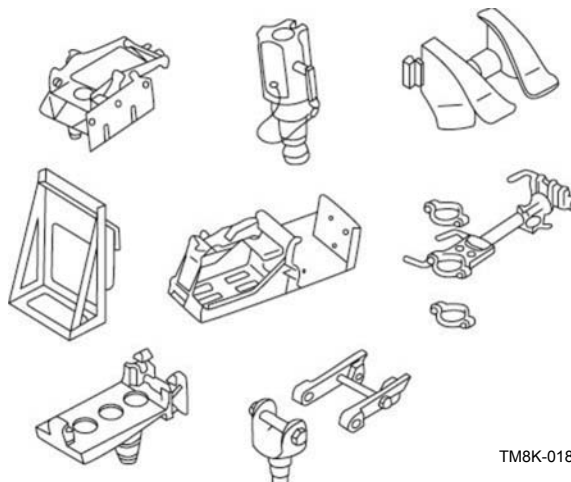
- TM 09922A-10/1; Operator's Manual, Mortar, 81 mm, M252.
- TM 09922A-23&P/2A; Maintenance Manual, Mortar, 81 mm, M252.
- See SL-1-2 for a complete listing of applicable publications.

MOUNT, MACHINE GUN, MK64 MOD 5

TAMCN E11232B

NSN 1010-01-180-9319

ID 09017A



DESCRIPTION AND FUNCTION

Mount, Machine Gun, MK64 MOD 5 includes components that can employ three different types of machine guns on a variety of gun mounts. Its central component is the carriage and cradle assembly. Other features include ammunition containers and container brackets, components to provide control over the machine gun while mounted, and components to provide machine gun and user protection.

TECHNICAL CHARACTERISTICS

Weight:

Ammo Box Mounting Tray Assembly	10 lb (4.54 kg)
Bracket Mounting Assembly	6 lb (2.7 kg)
Cal .50 Mounting Adapter Assembly	4 lb (1.8 kg)
Carriage and Cradle Assembly	21 lb (9.5 kg)

Weight (Continued):

Feed Throat Assembly	2 lb (0.9 kg)
Pintle Adapter Assembly	8.5 lb (3.85 kg)
Platform Assembly	2 lb (0.9 kg)
Traversing and Elevation Assembly	10 lb (4.54 kg)

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Qty</u>	<u>Item</u>
1	Ammunition Box Mounting Tray Assembly	1	Feed Throat Assembly
1	Bracket Mounting Assembly	1	Pintle Adapter Assembly
1	Caliber .50 Mounting Adapter Assembly	1	Platform Assembly
1	Carriage and Cradle Assembly	1	Traversing and Elevation Assembly

ASSOCIATED COMPONENTS

<u>TAM #</u>	<u>ID #</u>	<u>Nomenclature</u>	<u>Type/Model</u>
N/A	N/A	Machine Gun, 7.62 mm	M60E3
E09807M	02498B	Machine Gun, Caliber .50, Browning	M2
E09947M	N/A	Machine Gun, 40 mm, MK19	MOD3
N/A	N/A	Heavy Barrel, Flexible	

REFERENCES

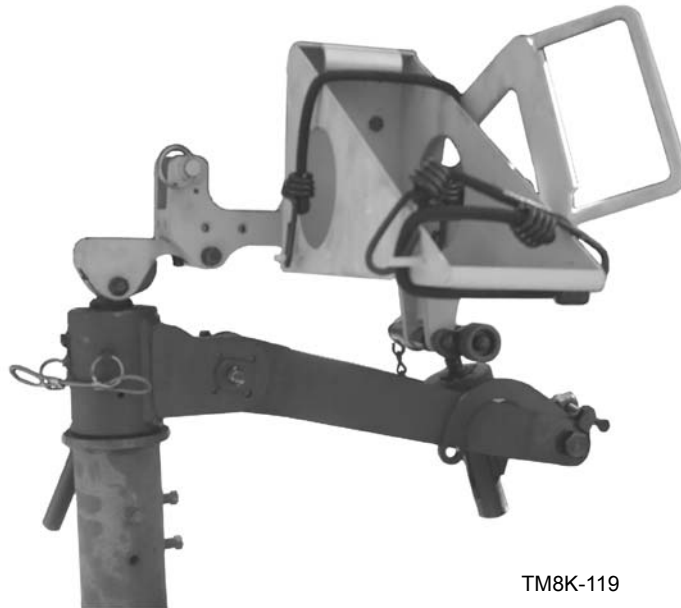
- TM 1005-13A&P/1; Operator's, Unit, and Direct Support Maintenance Manual, Mount, Machine Gun, MK64 MOD 5.
- See SL-1-2 for a complete listing of applicable publications.

MOUNT, VEHICLE, MEDIUM MACHINE GUN, M35 (MMGVM)

TAMCN E00817

NSN 1005-01-557-2693

ID TBD



TM8K-119

DESCRIPTION AND FUNCTION

M35 Medium Machine Gun Vehicle Mount (MMGVM) is a lightweight, vehicle mounting platform for the M240 series and M249 series weapons and ammunition. Supplied with Traverse and Elevation Mechanism (T&E) and used in conjunction with a Universal Pintle Adapter (UPA), it provides an adjustable, low-maintenance, easy-to-operate vehicle mount that accepts either weapon series without having to change mount configuration. A grab handle on the mount aids in weapon control and stability.

TECHNICAL CHARACTERISTICS

Weight (w/o UPA):	12.5 lb (5.67 kg)	Length (mount only):	12.5 in. (31.75 cm)
Weight (w/ UPA):	TBD	Width (mount only):	17.0 in. (43.18 cm)
Height (mount only):	8.0 in. (20 cm)		

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Qty</u>	<u>Item</u>
1	Cradle Assembly	1	Ammunition Can Holder (ACH)
1	Pintle	1	ACH Bracket
1	Front Mounting Pin	1	Ammunition Clip
1	Rear Mounting Pin	1	Shock Cords
1	Grab Handle	1	Traverse and Elevation Mechanism

MOUNT, VEHICLE, MEDIUM MACHINE GUN, M35 (MMGVM) - CONTINUED

ASSOCIATED COMPONENTS

<u>TAM #</u>	<u>ID #</u>	<u>Nomenclature</u>	<u>Type/Model</u>
TBD	TBD	Universal Pintle Adapter (UPA)	TBD
TBD	TBD	HMMWV Pedestal Mount	TBD
TBD	TBD	Carry Bag	TBD
TBD	TBD	Tool Kit	TBD
TBD	TBD	Travel Lock Block	H24-6

REFERENCES

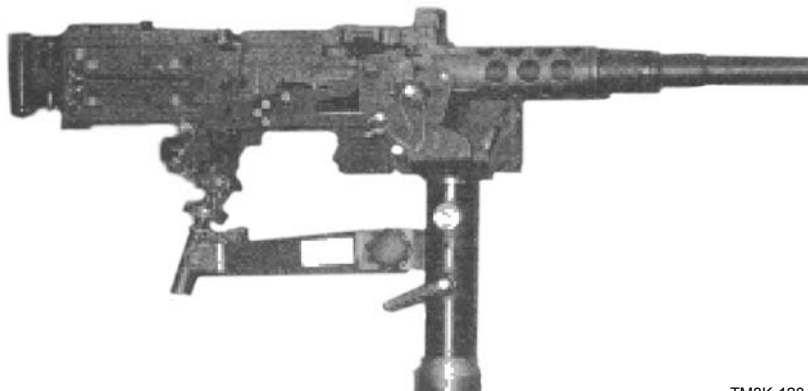
- TM 11491A-OI
- See SL-1-2 for a complete listing of applicable publications.

MOUNT, MACHINE GUN, MK93

TAMCN E11232B

NSN 1010-01-502-7547

ID 08017B



TM8K-120

DESCRIPTION AND FUNCTION

The MK93 machine gun mount is a dual purpose, soft mount for the MK19 Grenade Machine Gun (GMG) and M2 Heavy Machine Gun (HMG). The MK93 is designed for use with either a tripod or a vehicular mount (using the MK175 pintle pedestal). It requires no external adapters or tools to mount either weapon system, making change-overs much easier. The MK93 will provide the capacity to optimize operational capabilities of the M2 HMG and the MK19 GMG in both vehicular and ground mounted modes. It provides platform stabilization, improves accuracy, increases hit probability while decreasing the time and effort to install and interchange weapons. The MK93 replaces the MK64 MOD 5 cradle.

TECHNICAL CHARACTERISTICS

Weight:	30.2 lb (13.7 kg)	Width:	10.0 in. (254 mm)
w/MK175 pintle:	40.2 lb (18.2 kg)	w/MK175 pintle:	10.0 in. (254 mm)
Length:	22.0 in. (558 mm)	Height:	6.8 in. (172 mm)
w/MK175 pintle:	22.0 in. (558 mm)	w/MK175 pintle:	16.8 in. (426.7 mm)

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Qty</u>	<u>Item</u>
1	Carriage and cradle assembly	1	Ammunition can holder
1	Train stop bracket	1	Bolt-on small pintle
1	Bolt-on large pintle	1	Stowage bar assembly

ASSOCIATED COMPONENTS

<u>TAM #</u>	<u>ID #</u>	<u>Nomenclature</u>	<u>Type/Model</u>
E9807M	02498B	Machine Gun, Caliber .50, Browning	M2
E09947M	08521A	Machine Gun, 40mm, MK19	MOD 3

REFERENCES

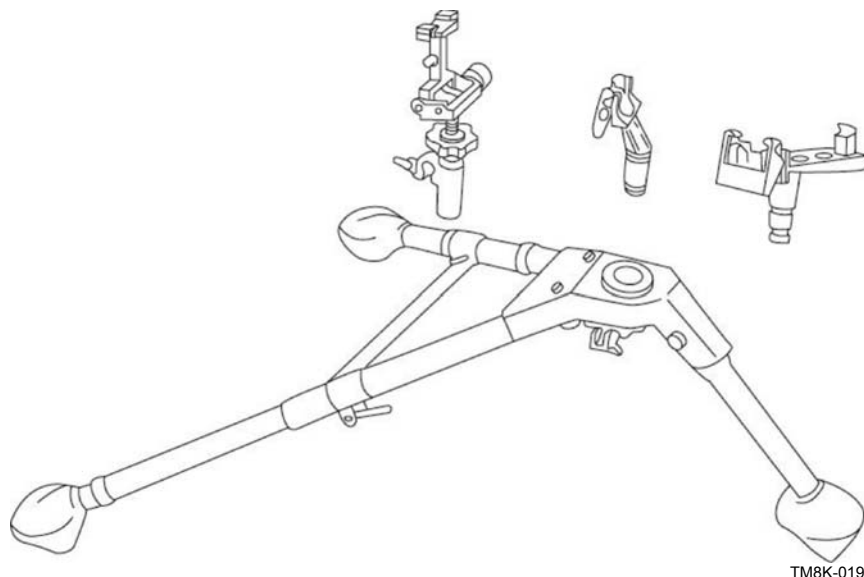
- See SL-1-2 for a complete listing of applicable publications.

MOUNT, TRIPOD, MACHINE GUN, 7.62 MM, M122

TAMNC E11202M

NSN 1005-00-710-5599

ID 06510A



DESCRIPTION AND FUNCTION

Mount, Tripod, Machine Gun, 7.62 mm, M122 is a lightweight, portable, folding mount used for ground fire. It consists of three main groups: the tripod, the traversing and elevating mechanism, and the pintle. The traversing and elevating mechanism has a quick disconnect adapter that fastens to a plate beneath the receiver of the weapon. When released, the weapon may be traversed a full 360 degrees and manually elevated or depressed. The pintle has a platform with a quick disconnect latch that uncouples the weapon from the mount by pressing forward on the release latch (only one pintle is provided per tripod).

TECHNICAL CHARACTERISTICS

Weight	15 lb (6.8 kg)	Length:	
Height	14 in. (35.6 cm)	Extended	32.5 in. (82.6 cm)
		Folded for Transport	27 in. (68.6 cm)
		Spread of Rear Legs	30 in. (76.2 cm)

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Qty</u>	<u>Item</u>
1	Adapter Assembly	1	Right Leg Latch
1	Pintle Assembly	1	Traversing and Elevation Mechanism Assembly
1	Pintle Lock Assembly		

ASSOCIATED COMPONENTS

- Ground Mounted Machine Guns
- M249 SAW
- M240B

REFERENCES

- TM 1005-13A&P/1; Operator's, Unit, and Direct Support Maintenance Manual, M122 Machine Gun Tripod Mount.
- See SL-1-2 for a complete listing of applicable publications.

MOUNT, TRIPOD, MACHINE GUN, CALIBER .50, M3

TAMCN E11262B

NSN 1005-00-322-9716

ID 07937A



TM8K-104

DESCRIPTION AND FUNCTION

Mount, Tripod, Machine Gun, Caliber .50, M3 is a lightweight, portable, folding mount. It consists of three telescoping tubular legs joined in a tripod head; the two rear legs are joined and supported by a traversing bar. The traversing bar forms a single A-truss and serves as a rear support for the traversing and elevating mechanism that supports the mounted gun. The tripod head furnishes a front support for the mounted gun and is supported by the short front leg. This mount is stowed on vehicles and tanks for ground use when conditions warrant. The tripod is used with the M2 and MK19 machine guns.

TECHNICAL CHARACTERISTICS

Weight	44 lb (19.96 kg)	Length:	
Traversing Range:		Extended	74.5 in. (189.23 cm)
w/ Elevating Mechanism	45 deg	Folded	45.5 in. (115.57 cm)
Free	360 deg	Spread of Rear Legs	61.5 in. (156.21 cm)
Max Elevation	5.6 deg	Shipping Data	
Max Depression	-14 deg	(1 mount per wood box):	
		Length	48.75 in. (123.83 cm)
		Width	10.88 in. (27.64 cm)
		Height	8.63 in. (21.92 cm)

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Qty</u>	<u>Item</u>
1	Traversing and Elevation Mechanism	1	Rear Right Leg
1	Front Leg	1	Pintle Lock Assembly
1	Rear Left Leg		

ASSOCIATED COMPONENTS

- Ground Mounted Machine Guns

REFERENCES

- TM 1005-13A&P/1; Operator's, Unit, and Direct Support Maintenance Manual, M3 Machine Gun Tripod Mount.
- See SL-1-2 for a complete listing of applicable publications.

PISTOL, M45 CLOSE QUARTERS BATTLE PISTOL (CQBP) .45 CALIBER

TAMCN E12512M

NSN 1005-01-521-4072

ID 09795B



TM8K-021

DESCRIPTION AND FUNCTION

Pistol, M45 Close Quarters Battle Pistol (CQBP) .45 Caliber is an air-cooled, magazine-fed, recoil-operated, automatic-loading, defensive hand weapon. It is fed from a seven-round, stainless steel magazine and is a semi-automatic weapon, firing one round each time the trigger is squeezed. The weapon can be carried in either a hip or shoulder holster and may be securely connected to the shooter by the pistol lanyard.

TECHNICAL CHARACTERISTICS

Length:		Safety	Ambidextrous thumb safety
Overall	8.37 in. (21.26 cm)	Range:	
Barrel	5.03 in. (12.78 cm)	Max	1,640 yd (1,500 m)
Weight:		Max Effective	54.6 yd (50 m)
Empty Magazine	2.5 lb (.933 kg)	Muzzle Velocity	830 ft/sec
Loaded Magazine	3.0 lb (1.12 kg)		

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Qty</u>	<u>Item</u>
1	Slide Group	1	Receiver Assembly
1	Slide Stop		

ASSOCIATED COMPONENTS

- Holster
- Lanyard

REFERENCES

- TM 09795B-OR; Operator's Manual with Component List, M45 Close Quarters Battle Pistol (CQBP) .45 Caliber.
- TM 09795B-IN; Organizational and Intermediate Maintenance Manual with Repair Parts List (RPL), M45 Close Quarters Battle Pistol (CQBP) .45 Caliber.

PISTOL, SEMI-AUTOMATIC, 9 MM, M9 AND M9A1

TAMCN E12502M
E12452M

NSN 1005-01-118-2640
1005-01-525-7966

ID 08993A
08993B



TM8K-022

DESCRIPTION AND FUNCTION

Pistol, Semi-automatic, 9 mm, M9 (shown above) and M9A1 is a magazine-fed, recoil-operated, double-action pistol, chambered for the 9 mm cartridge. It is a defensive hand weapon, with a 15-round capacity, used for ranges less than 50 yards. Upon firing, the pressure developed by the combustion gases recoils the slide and barrel assembly. After a short run, the locking block will stop the rearward movement of the barrel and release the slide, which continues rearward movement. The slide will then extract and eject the fired cartridge case, cock the hammer, and compress the recoil spring. The slide moves forward under recoil spring pressure, feeding the next round. The slide stop holds the slide and barrel assembly open after the last round has been fired and ejected. The M9A1 lower receiver has an integral MIL-STD-1913 for mounting accessories.

TECHNICAL CHARACTERISTICS

Length	8.54 in. (21.7 cm)	Width	1.50 in. (3.8 cm)
Barrel Length	4.92 in. (12.5 cm)	Height	5.51 in. (14.0 cm)
Weight:		Range:	
Empty Magazine	960 g (33.86 oz)	Max	1,969.2 yd (1,800 m)
Loaded Magazine	1,145 g (40.89 oz)	Max Effective	54.7 yd (50 m)
		Muzzle Velocity	1,230.3 ft/sec (375 mps)

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Qty</u>	<u>Item</u>
1	Slide and Barrel Assembly	1	Receiver Assembly

ASSOCIATED COMPONENTS

- Holster
- Lanyard

REFERENCES

- TM 1005A-10/1; Operator's Manual, Pistol, Semi-automatic, 9 mm, M9.
- TM 1005A-23&P/2A; Maintenance Manual, Pistol, Semi-automatic, 9 mm, M9.
- See SL-1-2 for a complete listing of applicable publications.

RIFLE, 7.62 MM, M14, ENHANCED MARKSMAN RIFLE (EMR)

TAMCN E03117M

NSN 1005-01-553-5196

ID 11473A



TM8K-023

DESCRIPTION AND FUNCTION

Rifle, 7.62 mm, M14, Enhanced Marksman Rifle (EMR) is a lightweight, air-cooled, gas-operated, 20-round magazine-fed, shoulder weapon with semi-automatic fire, and is used primarily for precision. It is equipped with the Scout Sniper Day Scope and an adjustable bipod assembly.

TECHNICAL CHARACTERISTICS

Length (Overall)	44-1/8 in. (112.3 cm)	Range:	
Weight:		Max	4,073 yd (3,725 m)
Empty Magazine	13 lb (4.85 kg)	Maximum Effective	842 yd (770 m)
Loaded Magazine	16.6 lb (6.20 kg)	Rate of Fire (Semi-automatic)	60 RPM

MAJOR COMPONENTS

TBD

ASSOCIATED COMPONENTS

- Case, Carrying
- SSDS

REFERENCES

TBD

RIFLE, 5.56 MM, M16A2

TAMCN E14412M

NSN 1005-01-128-9936

ID 05538C



TM8K-024

DESCRIPTION AND FUNCTION

Rifle, 5.56 mm, M16A2 is a lightweight, air-cooled, gas-operated, magazine-fed, shoulder- or hip-fired weapon designed for either automatic (three-round bursts) or semi-automatic (single shots) fire through the use of a selector lever and has a fully adjustable rear sight. The bottom of the trigger guard opens to provide access to the trigger while wearing winter mittens. The rifle accommodates either M193 or M855 5.56 mm ammunition. The M855 ammunition has increased penetration and range in comparison to the M193 ammunition (600 meters vs. 460 meters).

TECHNICAL CHARACTERISTICS

Weight:		Muzzle Velocity (Approx)	3,100 ft/sec (945 mps)
w/o Magazine or Sling	7.5 lb (3.4 kg)	Rate of Fire (Max):	
w/ Loaded Magazine	8.75 lb (3.97 kg)	Semi-automatic	45 rounds/min
and Sling		Burst	90 rounds/min
Length (w/ Compensator)	39.6 in. (100.65 cm)	Sustained	12 to 15 rounds/min
Range:		Cyclic	800 rounds/min
Max	3,865 yd (3,534 m)		
Max Effective	601.48 yd (550 m)		

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Qty</u>	<u>Item</u>
1	Sling	1	Upper Receiver and Barrel Assembly
1	Bolt Carrier Assembly	1	Lower Receiver and Buttstock Assembly

ASSOCIATED COMPONENTS

<u>TAM #</u>	<u>ID #</u>	<u>Nomenclature</u>	<u>Type/Model</u>
E08927M	07700A	Launcher, Grenade, 40 mm	M203
E11587G	05975D	Sight, Night Vision, Individual Served Weapon	AN/PVS-4
E1798		Rifle Combat Optic (RCO)	

REFERENCES

- TM 05538/10012-10A/1; Operator’s Manual, Rifles 5.56 mm, M16A2, M16A4, and Carbines 5.56 mm, M4 and M4A1.
- TM 05538/10012-23&P; Maintenance Manual, Rifles 5.56 mm, M16A2, M16A3, M16A4, and Carbines 5.56 mm, M4 and M4A1.
- See SL-1-2 for a complete listing of applicable publications.

RIFLE, 5.56 MM, M16A4

TAMCN E14412M

NSN 1005-01-383-2872

ID 05538C



TM8K-025

DESCRIPTION AND FUNCTION

Rifle, 5.56 mm, M16A4 is a lightweight, air-cooled, gas-operated, magazine-fed, shoulder-fired weapon that can be fired in three-round bursts or semi-automatic single shots. The weapon has positive bolt locking. The weapon has a fully adjustable rear sight and is configured with a flat-top upper receiver and barrel assembly with a detachable carrying handle and integral rear aperture sight. The bottom of the trigger guard opens to provide access to the trigger while wearing winter mittens.

TECHNICAL CHARACTERISTICS

Weight:		Muzzle Velocity (Approx)	3,100 ft/sec (945 mps)
w/o Magazine or Sling	7.5 lb (3.4 kg)	Rate of Fire (Max):	
w/ Loaded Magazine and Sling	8.75 lb (3.97 kg)	Semi-automatic	45 rounds/min
Length (w/ Compensator)	39.6 in. (100.65 cm)	Burst	90 rounds/min
Range:		Sustained	12 to 15 rounds/min
Max	3,865 yd (3,534 m)	Cyclic	800 rounds/min
Max Effective	601.48 yd (550 m)		

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Qty</u>	<u>Item</u>
1	Upper Receiver and Barrel Assembly	1	Lower Receiver and Buttstock Assembly
1	Bolt and Carrier Assembly	1	Charging Handle Assembly
1	Cartridge Magazine	1	Small Arms Sling

ASSOCIATED COMPONENTS

<u>TAM #</u>	<u>ID #</u>	<u>Nomenclature</u>	<u>Type/Model</u>
E08927M	07700A	Launcher, Grenade, 40 mm	M203
E11587G	05975D	Sight, Night Vision, Individual Served Weapon	AN/PVS-4
E17107G	11064A	Rifle Combat Optic (RCO)	

REFERENCES

- TM 05538/10012-10A/1; Operator's Manual, Rifles 5.56 mm, M16A2, M16A4, and Carbines 5.56 mm, M4 and M4A1.
- TM 05538/10012-23&P; Maintenance Manual, Rifles 5.56 mm, M16A2, M16A3, M16A4, and Carbines 5.56 mm, M4 and M4A1.
- See SL-1-2 for a complete listing of applicable publications.

RIFLE, SCOPED, LONG RANGE, .50 CALIBER, M107

TAMCN E14752M

NSN 1005-01-469-2133

ID 11110A



TM8K-026

DESCRIPTION AND FUNCTION

Rifle, Scoped, Long Range, .50 Caliber, M107, is a semi-automatic, air-cooled, long-range rifle. It is used to destroy or disable targets at ranges greater than those achievable by conventional small arms, to engage lightly armored vehicles and light fortifications, and for use by explosive ordnance disposal personnel in destroying munitions and hazards from safe distances.

TECHNICAL CHARACTERISTICS

Caliber	.50 (12.7 x 99 mm)	Sights	SSDS
Weight (Unloaded)	28.5 lb (12.9 kg)	Range:	
Length:		Max	7,450 yd (6,812 cm)
Overall	57 in. (144.8 cm)	Max Effective	2,000 yd (1,828 cm)
Takedown	38 in. (96.5 cm)		
Barrel	29 in. (73.7 cm)		

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Qty</u>	<u>Item</u>
1	Upper Receiver Complete	1	Bolt Carrier Complete
1	Lower Receiver Complete		

ASSOCIATED COMPONENTS

<u>TAM #</u>	<u>ID #</u>	<u>Nomenclature</u>	<u>Type/Model</u>
N/A	N/A	Box Magazine	N/A
N/A	N/A	Case, Carrying	N/A
N/A	89072C	Scout Sniper Day Scope	N/A
N/A	N/A	Telescope Adjustment Tools	N/A

REFERENCES

- TM 11110A-OI LRSR/SASR.
- TM 11110A-OR LRSR/SASR.
- See SL-1-2 for a complete listing of applicable publications.

RIFLE, SNIPER, 7.62 MM, M40A3/A5

TAMCN E14602M

NSN 1005-01-495-0843

ID 05539D



TM8K-105

DESCRIPTION AND FUNCTION

Rifle, Sniper, 7.62 mm, M40A3/A5 is a heavy barrel, bolt-action, manually operated, magazine-fed, shoulder-fired weapon with an optical sight. The M40A3/A5 closed-bolt design offers a high degree of accuracy and control while providing a greater degree of safety. An accessory rail has been added on at the front of the stock providing more area to mount accessories. The M40A5 is equipped with muzzle break and suppressor.

TECHNICAL CHARACTERISTICS

Length:		Max Effective Range	1,000 yd (914 m)
w/ Suppressor	49.75 in. (126.4 cm)	Caliber	7.62 NATO
w/o Suppressor	44.0 in. (111.76 cm)	Telescope	SSDS
Barrel	24.0 in. (60.96 cm)	Telescope Weight	Approx 1.5 lb (.56 kg)
Weight:		Suppressor Weight	19 oz. (.54 kg)
w/ Suppressor	17.20 lb (7.8 kg)	Suppressor Length	9.8 in. (24.89 cm)
w/o Suppressor	16.05 lb (5.99 kg)	Suppressor Diameter	1.5 in. (3.81 cm)

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Qty</u>	<u>Item</u>
1	Barrel and Receiver Assembly	1	Platform, Optical
1	Bipod Assembly	1	Stock Assembly
1	Bolt Assembly	1	Telescope Assembly

ASSOCIATED COMPONENTS

- Case, Carrying (hard cover)
- Soft Case

REFERENCES

- TM 05539D-10/1; Operator's Manual, Sniper Rifle, 7.62 mm, M40A3.
- TM 05539D-24A&P/2; Maintenance Manual, Sniper Rifle, 7.62 mm, M40A3.
- See SL-1-2 for a complete listing of applicable publications.

SHOTGUN, 12 GAGE, M1014, JOINT SERVICE COMBAT SHOTGUN (JSCS)

TAMCN E17612M

NSN 1005-01-472-3147

ID 10698A



TM8K-028

DESCRIPTION AND FUNCTION

The M1014 Combat Shotgun, is a semi-automatic weapon with a fixed, tubular magazine. It functions using the Auto Regulating Gas Operated (ARGO) Twin Operating System with rotating bolt head and dual-locking lugs. It is self-regulated for cartridges of varying length and power levels and functions reliably under all environmental conditions. All controls and sling attachment points allow for ambidextrous operation.

TECHNICAL CHARACTERISTICS

Length (Overall):		Weight (Unloaded)	8.44 lb (3.15 kg)
Buttstock Extended	39.8 in. (101.09 cm)	Magazine Capacity:	7 rounds, 2.75-in shells
Buttstock Collapsed	34.9 in. (88.65 cm)	Caliber	6 rounds, 3-in. shells
			12 gage

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Qty</u>	<u>Item</u>
1	Receiver	1	Barrel
1	Buttstock	1	Bolt Assembly
1	Pistol grip		

ASSOCIATED COMPONENTS

- Sling

REFERENCES

- TM 10698A-10/1; Operator's Manual, Combat, 12 gage, Semi-automatic, M1014.
- TM 10698A-23B&P/2; Maintenance Manual, Shotgun, Combat, 12 gage, Semi-automatic, M1014.
- See SL-1-2 for a complete listing of applicable publications.

SHOTGUN, 12 GAGE, MOSSBERG 500A2

TAMCN E17622M

NSN 1005-01-371-5639

ID 09081A



TM8K-029

DESCRIPTION AND FUNCTION

Shotgun, 12 Gage, Mossberg 500A2 is a manually operated, repeating, magazine-fed, shoulder-fired weapon. The action lock lever allows the action to be unlocked without engaging the trigger and is located on the right side of the trigger group. When in the locked ON position, the safety prevents the firing of the weapon. When the safety is OFF, a red dot will be exposed, indicating the weapon is fireable. The trigger controls the firing of the weapon. The fore end assembly is used to open and close the bolt assembly, permitting loading and firing of the weapon, and ejection of the spent cartridge.

TECHNICAL CHARACTERISTICS

Weight	6.9 lb (3.1 kg)	Magazine Capacity	5 shells
Length of Shotgun	37.8 in. (95.9 cm)	Caliber	12 gage
Length of Barrel	20 in. (50.8 cm)	Choke	Cylinder
Shell Length	2.75 in. (6.99 cm)	Type of Action	Slide (pump)
Type of Magazine	Tubular	Type of Firing Mechanism	Internal hammer

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Qty</u>	<u>Item</u>
1	Receiver	1	Barrel
1	Buttstock Assembly	1	Fore End

ASSOCIATED COMPONENTS

- Sling

REFERENCES

- TM SW370-BB-OPI-010; Operator’s Manual, Mossberg, Model 500A1, 500A2 Shotgun.
- TM SW370-AQ-MMO-010; Maintenance Manual, Mossberg, Model 500A1, 500A2 Shotgun.

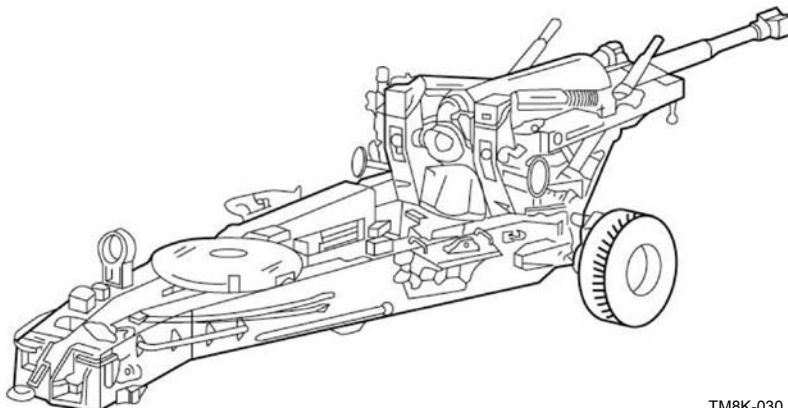
CHAPTER 2
TOWED ARTILLERY WEAPONS

HOWITZER, MEDIUM, TOWED, 155 MM, M198

TAMCN E06657M

NSN 1025-01-026-6648

ID 08198A



TM8K-030

DESCRIPTION AND FUNCTION

Howitzer, Medium, Towed, 155 mm, M198 is a field artillery howitzer. It is constructed of aluminum and steel and is air transportable by CH-53E helicopter and C-130 or larger fixed wing aircraft. The M198 has a maximum range of 22,400 meters with conventional ammunition and 30,000 meters using the M549 rocket assisted projectile (RAP). Its use significantly extends the range, lethality, and counterbattery fires of the direct support artillery battalions. The M198 fires all current and developmental 155 mm ammunition.

TECHNICAL CHARACTERISTICS

Length:		Maximum Range	32,820 yd (30,000 m)
Towed Position	40 ft, 3 in. (12.27 m)	Rate of Fire:	
Stowed Position	24 ft, 8 in. (7.52 m)	Maximum	4 RPM
Width (Towed Position)	9 ft, 2 in. (2.79 m)	Sustained	2 RPM
Height (Towed Position)	9.5 ft (2.89 m)	Weight	15,750 lb (7,087.5 kg)

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Qty</u>	<u>Item</u>
1	Carriage	1	Firing Baseplate
1	Cannon	1	Recoil Mechanism

ASSOCIATED COMPONENTS

- M17 Sights Tritium Powered Radio Active Device (RAD)
- M18 Sights Tritium Powered Radio Active Device (RAD)
- M139 Sights Tritium Powered Radio Active Device (RAD)
- M137 Sights Tritium Powered Radio Active Device (RAD)
- Collimator

HOWITZER, MEDIUM, TOWED, 155 MM, M198 - CONTINUED**ASSOCIATED COMPONENTS**

<u>TAM #</u>	<u>ID #</u>	<u>Nomenclature</u>	<u>Type/Model</u>
		M17 Fire Control Quadrant	
		M18 Fire Control Quadrant	
		M137 Panoramic Telescope	
		M138 Elbow Telescope	
		M139 Alignment Device	
E01702E	00475A	Pump Kit, Hydraulic	M3
K46352E	01904A	Pail, Metal	A-A-1273
E12607B	02193A	Quadrant F/Control	M2
E02057M	04914B	Collimator, Aiming	M1A1
N61722E	08694A	Tool Kit, Org.	001008SL83
E02777B	09054A	Data/Dis., Directional	0D144(V)3
E03427B	09923A	Extractor, Assembly	M712
N/A	10915M	Mod. Kit, Gun	12965280
N/A	87570B	Actuating Cylinder	12007765
N/A	87596B	Rail, Recoil Mechanism	12007812
N/A	87597B	Yoke Assembly, Recoil	12007722
N/A	87598B	Cylinder Assembly	12008010
N/A	87600B	Counterbalance Breech	11578900
N/A	87602B	Cylinder Assembly	12007640
N/A	87603B	Valve, Assembly Oil	12007890
N/A	87606B	Mount, Telescope	M171
N/A	87607B	Mount, Telescope	M172
N/A	87608B	Elbow Assembly	11741201
N/A	87609B	Drive Unit	12008230

REFERENCES

- SL-3-08198A; Components List, Howitzer, Medium, Towed, 155 mm, M198.
- TM 9-1025-211-10; Operator's Manual, Howitzer, Medium, Towed, 155 mm, M198.
- See SL-1-2 for a complete listing of applicable publications.

HOWITZER, M777A2

TAMCN E06717M

NSN 1025-99-463-7551

ID 10407A



TM8K-031

DESCRIPTION AND FUNCTION

The M777A2 Howitzer is an extended range weapon that can be towed by muzzle tow with any four-wheel drive vehicle over 2.5 tons. The Howitzer is also transportable by rotary fixed wing aircraft. The body has trails, spades, and stabilizers that can be folded for transportation and storage. The Howitzer has a low profile, may be emplaced rapidly, and has a 6,400-mil speed shift capability.

TECHNICAL CHARACTERISTICS

Weight (w/o Basic Issue Items):		Length:	
M777A2	9,840 lb (4,463 kg)	Firing Position:	
Dimensions (Travel Conditions):		Center Traverse	35 ft (10.21 m)
Ground Clearance at	2 ft, 3 in. (0.66 m)	Maximum Traverse	35 ft, 4 in. (10.83 m)
Rear of Body		Towed Position	31 ft, 2-1/4 in. (9.51 m)
Height at Spades	7 ft, 2-2/3 in. (2.65 m)	Tread (Center-to-Center)	7 ft, 6-1/2 in. (2.30 m)
(Towed Position)			

MAJOR COMPONENTS

Qty	Item
1	Cannon Tube, Breech Ring
1	Recoil
1	Carriage
1	DFCS
	-DAGR
	- Singars

HOWITZER, M777A2 - CONTINUED**ASSOCIATED COMPONENTS**

<u>TAM #</u>	<u>ID #</u>	<u>Nomenclature</u>	<u>Type/Model</u>
K44962F	0737B	Kit, Bag Flyer	DUCK170
K43502E	01845B	Flashlight	TL122D
E12607B	02193A	Quadrant, Fire Control	M2
N/A	8J209B	Cover, Access	13005079
N/A	8J210B	Quadrant, Fire Control	M18A1
N/A	8J224B	Telescope, Elbow	M138A1
N/A	8J225B	Counter Box Assembly	12984734
N/A	8J226B	Mount, Telescope	M172A1
N/A	8J231B	Quadrant, Fire Control	M17A1
N/A	8J232B	Elbow Assembly	12984733
N/A	8J233B	Telescope, Panoramic	M137A2
N/A	8J234B	Mount, Telescope	M171A1
N/A	8J236B	Bearing Unit, Ball	13005082
N/A	8J237B	Telescope Subassembly	12961438
N/A	8J557B	Accumulator, Hydraulic	AM010422000
N/A	8J558B	Spade Damper Assembly	AMP020223000
N/A	8J559B	Transmission, Mechanism	AMP030020000
N/A	8J560B	Traverse Gearbox Assembly	AM020921000
N/A	8J767B	Computer, Digital	10057140-4
N/A	8K225B	PCCM	GD-561-PS
N/A	8K226B	Radio Enclosure Assembly	10059678
N/A	8K227B	Indicator, Digital	10059150-4
N/A	8K228B	Indicator, Digital	1005E9200

REFERENCES

CHAPTER 3
TRACKED AND WHEELED COMBAT VEHICLES

ASSAULT AMPHIBIAN VEHICLE, PERSONNEL CARRIER (AAVP7A1)

TAMCN E08467K

NSN 2350-01-458-7410

ID 09674A



TM8K-097

DESCRIPTION AND FUNCTION

Assault Amphibian Vehicle, Personnel Carrier (AAVP7A1 RAM/RS) is an armored, amphibious, full-tracked landing vehicle and personnel carrier. The AAVP7A1 RAM/RS provides combat support for amphibious operations, carrying 21 fully equipped combat troops and a crew of three. The vehicle is designed to operate from ship to shore, through rough water and surf zone, to inland objectives for subsequent operations ashore.

TECHNICAL CHARACTERISTICS

Crew	3	Grade Ascending Ability (Combat-Loaded):	
Armament	Machine Gun, .50 Cal, M2HB (one needed) Machine Gun, 40 mm, MK19, MOD 3 (one needed)	Forward Slope	60 deg
Dimensions:		Obstacle Ability:	
Length	321.32 in. (816.15 cm)	Solid Wall	3 ft (0.92 m)
Width		Trench Spans	8 ft (2.44 m)
w/o EAAK	130.61 in. (331.75 cm)	Speed (Forward):	
w/ EAAK	147.61 in. (374.93 cm)	Land	45 mph (72.4 km/h)
Height	130.56 in. (331.62 cm)	Water	8.2 mph (13.6 km/h)
Weight (w/ EAAK):		Speed (Reverse):	
Combat-Loaded	52,504 lb (23,815 kg)	Land	12 mph (19.3 km/h)
Less Crew, Stowage and Fuel	48,060 lb (21,800 kg)	Water	4.5 mph (7.2 km/h)
Fuel System	171 gal. (647.23 L)	Electrical:	
Cruising range:		Voltage	24
Land	200 miles (321.87 km) (Depending on terrain)	Amperage	300
Water	7 hours	4 Batteries (12 volts each) connected in series (parallel)	
Draft (Combat-Loaded)	79 in. (201 cm)		

ASSAULT AMPHIBIAN VEHICLE, PERSONNEL CARRIER, (AAVP7A1) - CONTINUED

ASSOCIATED COMPONENTS

<u>TAM #</u>	<u>ID #</u>	<u>Nomenclature</u>	<u>Qty</u>	<u>Type/Model</u>
		Driver's Night Viewer	2	AN/VAS-5A(V)6
		Periscope	1	M27E4

Associated Component Identification Numbers

10004A	88948B	8G282B	8I401B	8J782B	8J788B
84403F	8F419C	8H667G	8I427B	8J784B	8J792B
84403G	8F419D	8H667H	8J779B	8J785B	
84406D	8G280B	8I043B	8J780B	8J786B	
84409B	8G281B	8I044B	8J781B	8J787B	

REFERENCES

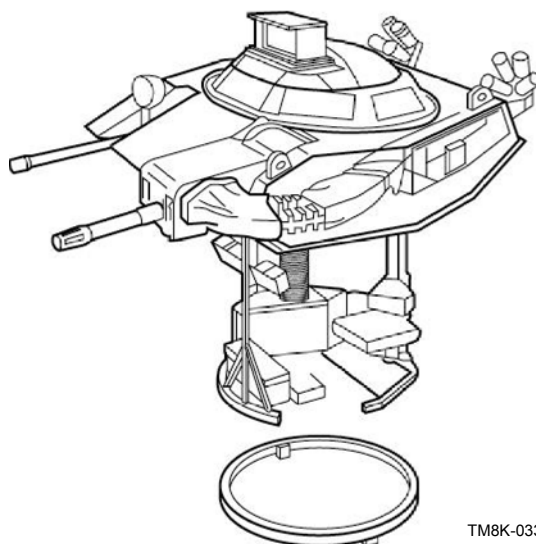
- TM 09674A-10/3B; Operator's Manual, Assault Amphibian Vehicle.
- TM 09674A-25&P/4B; Maintenance Manual, Assault Amphibious Vehicle, 7A1 Family of Vehicles and RAM/RS.
- See SL-1-2 for a complete listing of applicable publications.

**ASSAULT AMPHIBIAN VEHICLE, PERSONNEL CARRIER, MODEL 7A1,
(AAVP7A1), UPGUNNED WEAPONS STATION (UGWS)**

TAMCN E3201

NSN 1010-01-233-9493

ID 10004A



TM8K-033

DESCRIPTION AND FUNCTION

The UGWS is constructed of armor plates welded together to form an outside ballistic structure. A basket is attached to the structure, which houses the gunner and the equipment necessary to operate the station. The primary weapon is a 40 mm, MK 19 MOD 3 Machine Gun; the secondary weapon is a .50 cal, M2HB Machine Gun. Two M257 four-tube smoke grenade launchers are mounted on the weapons station.

TECHNICAL CHARACTERISTICS

Weight (w/ Armament)	2,350 lb (1,067 kg)	Smoke Grenade:	
Height (Overall)	76.7 in. (194.5 cm)	Launchers	Two M257 smoke grenade launchers, four discharge tubes each
Diameter	54 in. (137.1 cm)	Max Range	22 to 55 yd (20 to 50 m)
Length (w/o Armament)	84 in. (213.4 cm)	Sighting	
Operation	Electric/manual	Daylight	(a) Unity (b) Optical, 7-Power
Performance		Thermal	
Traverse	360 deg continuous	Ammunition	
Elevation	+45 deg	40 mm	96 ready rounds
Depression	-8 deg	.50 cal	200 ready rounds
Armament		L8A1 Smoke Grenade	Four grenades each launcher
Primary:	40 mm, MK 19 MOD 3 Machine Gun	Lighting	
Weight	75.6 lb (34 kg)	External Spotlight	100,000 candlepower
Rate of Fire (Cyclic)	325 to 375 RPM	Utility Light	White or red light
Muzzle Velocity	790 ft/sec (241 mps)	Dome Light	White or blue light
Max Range	2,419 yd (2,212 m)		
Secondary:	.50 cal, M2HB Machine Gun		
Weight	110 lb (49.9 kg)		
Rate of Fire (Cyclic)	450 to 550 RPM		
Muzzle Velocity	2,810 ft/sec (857 mps)		
Max Range	7,323 yd (6,700 m)		

**ASSAULT AMPHIBIAN VEHICLE, PERSONNEL CARRIER, MODEL 7A1,
(AAVP7A1), UPGUNNED WEAPONS STATION (UGWS) - CONTINUED**

ASSOCIATED COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Qty</u>	<u>Item</u>
1	.50 Cal, M2HB Machine Gun E09997M	1	40 mm, MK 19, MOD 3 Machine Gun E0997
2	M257 Grenade Launcher		

REFERENCES

- TM 10004A-10/1C, Operator's Manual, Uppgunned Weapons Station (UGWS), Assault Amphibious Vehicle, Personnel, Model 7A1, AAVP7A1 with Components List.
- TM 10004A-25&P/2; Maintenance Manual, Assault Amphibian Vehicle Personnel, Model 7A1, (AAVP7A1), Uppgunned Weapons Station (UGWS).
- See SL-1-2 for a complete listing of applicable publications.

ASSAULT AMPHIBIAN VEHICLE, COMMAND (AAVC7A1)

TAMCN E07967K

NSN 2350-01-458-7318

ID 07268B



TM8K-098

DESCRIPTION AND FUNCTION

Assault Amphibian Vehicle, Command (AAVC7A1 Ram R/S) is a mobile command post for the maneuver element commander and is a means to communicate with supporting arms, logistical support units, and other units. The system is a state-of-the-art design, providing totally secure voice communication. Work stations and direct access to the communication system are provided for nine staff persons. Communication equipment is located along the port side and staff equipment on the starboard side.

TECHNICAL CHARACTERISTICS

Crew	3	Grade Ascending Ability (Combat-Loaded)	
Armament	1-Machine gun M240B, 7.62 mm	Forward Slope	60 deg
	8-Rifle M16A4, 5.56 mm (Troop Issue)	Obstacle Ability:	
		Solid Wall	3 ft (0.92 m)
Dimensions:		Trench Spans	8 ft (2.44 m)
Length	321.32 in. (816.15 cm)	Speed (Forward):	
Width:		Land	45 mph (72.4 km/h)
w/o EAAK	130.61 in. (331.75 cm)	Water	8.2 mph (13.6 km/h)
w/ EAAK	147.61 in. (374.93 cm)	Speed (Reverse):	
Height	130.56 in. (331.62 cm)	Land	12 mph (19.3 km/h)
Weight (w/ EAAK):		Water	4.5 mph (7.2 km/h)
Combat-Loaded	54,765 lb (24,841 kg)	Electrical:	
Less Crew, Stowage and Fuel	51,360 lb (23,297 kg)	Voltage	24
Fuel System	171 gal. (647.23 L)	Amperage	300
Cruising range:		4 Batteries (12 volts ea) connected in series (parallel)	
Land	200 miles (321.87 km)		
Water	7 hours		
Draft (Combat-Loaded)	75.6 in. (192 cm)		

ASSAULT AMPHIBIAN VEHICLE, COMMAND (AAVC7A1) - CONTINUED

ASSOCIATED COMPONENTS

<u>TAM #</u>	<u>ID #</u>	<u>Nomenclature</u>	<u>Qty</u>	<u>Type/Model</u>
		Driver's Night Viewer	2	AN/VAS-5A(V)6
		Periscope	1	M27E4

Associated Component Identification Numbers

00146B	00379A	00398A	01076A	01592D	01695C	01846A
01905A	01907C	01909C	04667A	04669A	04670A	04674D
06790D	06790E	06790F	06791A	07429B	07430B	07867A
08114A	08150A	08336A	08337A	08366A	08491A	08548B
08549A	08551A	08794A	08854A	08980A	09094A	09285A
09471B	09570M	09668A	09674A	09987A	10247A	11584A
84236B	84236C	84338B	84338C	84403C	84403D	84403E
84403F	84403G	84404B	84406C	84406D	84406E	84409B
84409C	84441B	84442B	85059B	85655B	85656B	85657B
86386C	86499B	86501B	86523B	86979B	87541B	87542B
87543B	87544B	87545B	87546B	87548B	87548C	87550C
87553B	87555B	87556B	87557B	87558B	87559B	87559C
87560B	87561B	87562B	87566B	87894B	88104B	88152B
88626B	88643B	88643C	88653B	89431B	89433B	89434B
8A259B	8A264B	8A265B	8A266B	8A281B	8A282B	8A303B
8A313B	8A315B	8A326B	8A327B	8A602B	8A613B	8A643B
8A648B	8A850B	8A853B	8A854B	8A858B	8A950B	8A986B
8B001B	8B002B	8B004B	8B005B	8B015B	8B021B	8B024B
8B025B	8B026B	8B039B	8B177B	8B204B	8B211B	8B212B
8B214B	8B319B	8B320B	8B321B	8B322B	8B323B	8B324B
8B325B	8B334B	8B349B	8B418B	8B419B	8B469B	8B470B
8B471B	8B472B	8B473B	8B474B	8B475B	8B477B	8B478B
8B479B	8B484B	8B485B	8B486B	8B487B	8B488B	8B489B
8B490B	8B491B	8B492B	8B493B	8B496B	8B501B	8B508B
8B553B	8B554B	8B560B	8B630B	8B631B	8B921B	8B943B
8B948B	8B963B	8C128B	8C129B	8C131B	8C139B	8C140B
8C142B	8C144B	8C145B	8C147B	8C148B	8C149B	8C152B
8C153B	8C174B	8C193B	8C194B	8C195B	8C196B	8C199B
8C242B	8C433B	8C516B	8C529B	8C633B	8C651B	8C658B
8C687B	8C689B	8C690B	8C707B	8C708B	8C719B	8C720B
8C721B	8C722B	8C723B	8C724B	8C725B	8C726B	8C727B
8C728B	8C729B	8C730B	8C731B	8C732B	8C733B	8C864B
8C865B	8C866B	8C958B	8D020B	8D023B	8D024B	8D485B
8D509B	8D700B	8D729B	8D733B	8D739B	8D740B	8D741B
8D775B	8D790B	8D921B	8D922B	8D924B	8D925B	8D931B
8F152B	8F242B	8F244B	8F245B	8F246B	8F247B	8F250B
8F252B	8F254B	8F397B	8F462B	8F596B	8F597B	8F764B
8F866B	8F933B	8F934B	8F935B	8F936B	8F937B	8G018B
8G019B	8G020B	8G021B	8G112B	8G441B	8G865B	8H049B
8H567B	8H667G	8H667H	8I043B	8I044B	8I904B	

ASSAULT AMPHIBIAN VEHICLE, COMMAND (AAVC7A1) - CONTINUED

REFERENCES

- TM 09674A-10/3B; Operator's Manual, Assault Amphibian Vehicle.
- TM 07268B-25&P/2A; Assault Amphibious Vehicle, Command, Model 7A1, AAVC7A1 and AAVC7 RAM/RS Supplement to TM 09674A-10/3.
- See SL-1-2 for a complete listing of applicable publications.

ASSAULT AMPHIBIAN VEHICLE, RECOVERY (AAVR7A1)

TAMCN E08567K

NSN 2350-01-458-7550

ID 07267B



TM8K-099

DESCRIPTION AND FUNCTION

Assault Amphibian Vehicle, Recovery (AAVR7A1 RAM R/S) is a recovery vehicle with field maintenance capability through the third echelon. Principal equipment includes a hydraulic telescoping crane with a 6,000-pound capacity, a 30,000-pound capacity recovery winch, as well as cutting, welding, and other portable maintenance equipment.

TECHNICAL CHARACTERISTICS

<p>Crew</p> <p>Armament</p> <p>Dimensions:</p> <p>Length</p> <p>Width</p> <p>Height</p> <p>Weight:</p> <p>Combat-Loaded</p> <p>Less Crew, Stowage and Fuel</p> <p>Fuel System:</p> <p>4 Batteries (12 volts each) connected in series (parallel)</p>	<p>5, 2-5 crew members are not permanently assigned to vehicle</p> <p>1-Machine Gun, M240B 7.62 mm</p> <p>5-Rifle M16A2, 5.56 mm (Troop Issue)</p> <p>320.40 in. (813.82 cm)</p> <p>129.25 in. (326.95 cm)</p> <p>129.25 in. (328.30 cm)</p> <p>54,069 lb (24,525 kg)</p> <p>52,059 lb (23,614 kg)</p> <p>171 gal. (647.23 L)</p>	<p>Performance</p> <p>Cruising Range:</p> <p>Land (at 25 mph) 200 miles (321.87 km) under ideal conditions</p> <p>Water 7 hours</p> <p>Draft (Combat-Loaded) 68.1 in. (172.97 cm)</p> <p>Grade Ascending Ability (Combat-Loaded)</p> <p>Forward Slope 60 deg</p> <p>Obstacle Ability:</p> <p>Solid Wall 3 ft (0.92 m)</p> <p>Trench Span 8 ft (2.44 m)</p> <p>Speed (Forward):</p> <p>Land 45 mph (72.41 km/h)</p> <p>Water 8.2 mph (13.68 km/h)</p> <p>Speed (Reverse):</p> <p>Land 12 mph (19.31 km/h)</p> <p>Water 4.5 mph (7.24 km/h)</p> <p>Turning Radius (Land) Pivot</p>
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ASSAULT AMPHIBIAN VEHICLE, RECOVERY (AAVR7A1) - CONTINUED

TECHNICAL CHARACTERISTICS - CONTINUED

Recovery Equipment

Electrical Power Source	
Alternator (Engine Driven)	
Rating	14.2 kw. -17.4 KVA
Output	120 VAC and 230 3 Phase
Speed	3,600 RPM
Hydraulic Power Source	
Pump (Engine Driven)	
Pressure	2,200 PSI (15,169 kPa)
Delivery rate at 1,800 engine RPM and 1,680 pump RPM:	
Section 1	20.0 gpm (121.12 lpm)
Section 2 and 3	20.0 gpm (75.7 lpm)
Section 4	9.0 gpm (34.07 lpm)
Air Compressor	
(2 stage reciprocating):	
Operating Pressure	145 PSI to 175 PSI
Speed	720 RPM
Welder Power Supply	
Range:	
MIG Welding	14 to 35 VDC, 250 Amp
Metallic ARC (Stick)	75 to 200 Amp, 40 VDC
Welding (Gas)	OXY-ACL-Argon
Torch	OXY-ACL
Speeds:	
Forward	4
Reverse	2
Water Jet Pumps	2 (qty)
Capacity	14,000 gpm (52,990 lpm)
Thrust	3.025 lb static (1.37 kg)
Location	Port and starboard aft

Hydraulic Crane

Horizontal Reach Max Boom:	
Load Capacity	6,500 lb (12,724 kg)
Room Working Angle	0 to 65 deg
Crane Swing-Mount Capacity	14,000 lb (6,350.3 kg)
Crane Mount Rating	129,000 lb (58,513.4 kg)
Crane Swing Speed	1.5 RPM
Azimuth Rotational Speed	
<u>Crane Winch:</u>	
Single-Line Rating	6,500 lb (2,724 kg)
Line Speed	
First Layer	25.6 fpm (7.81 mpm)
Second Layer	31.2 fpm (9.52 mpm)
Third Layer	36.7 fpm (11.47 mpm)
Wire Rope	
Diameter and Class	1/2 in. 6x9 wire
Breaking Strength	23,000 lb (10,442 kg)
Length	85 ft (25.93 m)
<u>Recovery Winch:</u>	
Line Pull/Speed	
Low Speed	
Bare Drum	38,200 lb (17,327 kg) @ 22 fpm (6.71 mpm)
Full Drum	22,000 lb (9,979 kg) @ 36 fpm (10.98 mpm)
High Speed	
Bare Drum	11,500 lb (5,216 kg) @ 97 fpm (29.59 mpm)
Full Drum	9,000 lb (4,082 kg) @ 160 fpm (48.8 mpm)
<u>Wire Rope:</u>	
Diameter and Class	3/4 in. 6x37 wire
Breaking Strength	48,600 lb (22,064.4 kg)
Length	278 ft (84.79 m)

ASSAULT AMPHIBIAN VEHICLE, RECOVERY (AAVR7A1) - CONTINUED

ASSOCIATED COMPONENTS

<u>TAM #</u>	<u>ID #</u>	<u>Nomenclature</u>		<u>Qty</u>	<u>Type/Model</u>	
		Driver's Night Viewer		1	AN/VAS-5A(V)6	
		Periscope		1	M27E4	
Associated Component Identification Numbers						
00146B	00363B	00373B	01076A	01592D	01695C	01816D
01846A	01905A	01907C	01909C	02964B	03014A	03210A
03223A	03239B	03424E	03533A	04667A	04669A	06790D
06790E	06790F	06791A	07429B	07430B	07797A	08114A
08150A	08336A	08337A	08491A	08548A	08548B	08551A
08794A	08854A	08980A	09094A	09570M	09668A	09674A
09987A	09988A	84236B	84236C	84338B	84338C	84403C
84403D	84403E	84403F	84403G	84404B	84406C	84406D
84406E	84409B	84409C	84441B	84442B	85059B	85655B
85656B	85657B	86386C	86499B	86501B	86523B	86979B
87541B	87542B	87543B	87544B	87545B	87546B	87548B
87548C	87550C	87553B	87555B	87556B	87557B	87558B
87559B	87559C	87560B	87561B	87562B	87566B	88104B
88626B	88643B	88643C	88653B	89431B	89433B	89434B
8A259B	8A264B	8A265B	8A266B	8A303B	8A313B	8A315B
8A326B	8A327B	8A602B	8A613B	8A643B	8A648B	8A950B
8A986B	8B001B	8B002B	8B004B	8B319B	8B320B	8B322B
8B323B	8B324B	8B325B	8B334B	8B349B	8B350B	8B351B
8B352B	8B353B	8B354B	8B355B	8B356B	8B357B	8B358B
8B359B	8B360B	8B361B	8B362B	8B418B	8B419B	8B469B
8B470B	8B508B	8B553B	8B554B	8B560B	8B630B	8B631B
8B921B	8C128B	8C129B	8C139B	8C140B	8C142B	8C144B
8C145B	8C147B	8C148B	8C149B	8C152B	8C153B	8C174B
8C193B	8C194B	8C195B	8C196B	8C199B	8C242B	8C433B
8C516B	8C529B	8C633B	8C651B	8C658B	8C687B	8C689B
8C690B	8C707B	8C708B	8C719B	8C720B	8C721B	8C722B
8C723B	8C724B	8C725B	8C726B	8C727B	8C728B	8C729B
8C730B	8C731B	8C732B	8C733B	8C864B	8C865B	8C866B
8C958B	8D020B	8D023B	8D024B	8D485B	8D507B	8D509B
8D700B	8D729B	8D733B	8D739B	8D740B	8D741B	8D775B
8D790B	8F244B	8F245B	8F246B	8F247B	8F250B	8F252B
8F254B	8F397B	8F462B	8F596B	8F597B	8F764B	8F866B
8F933B	8F934B	8F935B	8F936B	8F937B	8G018B	8G019B
8G020B	8G021B	8G112B	8G441B	8G553B	8G865B	8H667G
8H667H	8I008B	8I043B	8I044B	8I904B	8J018B	01816D
8D507B	8H667G	8H667H	8J561B	8J562B		

ASSAULT AMPHIBIAN VEHICLE, RECOVERY (AAVR7A1) - CONTINUED

REFERENCES

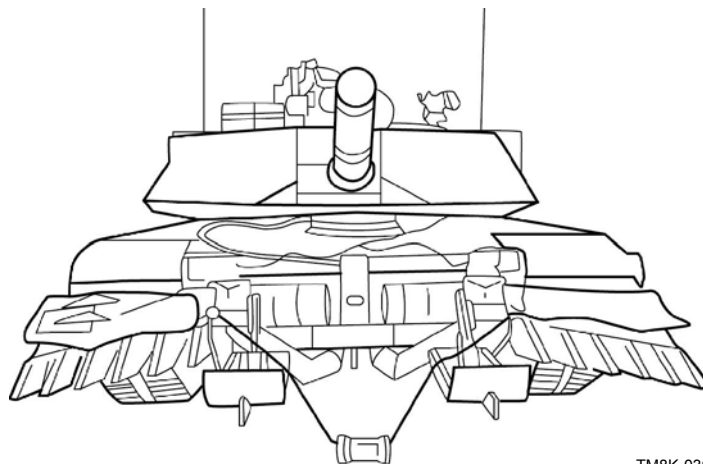
- TM 09674B-10/1C; Operator's Manual, Assault Amphibian Vehicle (AAVR7A1).
- TM 072678-25&P12; Maintenance Manual, Assault Amphibian Vehicle (AAVR7A1).
- See SL-1-2 for a complete listing of applicable publications.

BLADE, MINE CLEARING, M1A1

TAMCN E09967M

NSN 2590-01-230-8862

ID 09147A



DESCRIPTION AND FUNCTION

The Mine Clearing Blade (MCB), when mounted to the front of the M1 or M1A1 Abrams Tank, is used to clear 8-, 10- and 12-inch deep mines from a tank's path. As the tank pushes the MCB through a minefield, loose dirt and mines are rolled up onto moldboards and then pushed to the sides of tracks. A chain and dogbone attached between the moldboards detonate any tilt rod mines in the center lane. A control box located in the driver's compartment provides operator control for raising and lowering the moldboards. A manual release system allows moldboards to be lowered to the plowing position if the electrical system fails.

TECHNICAL CHARACTERISTICS

Length (Front to Back)	115 in. (292.0 cm)	Height:	
Width:		Blade Mounted to Tank	53 in. (134.6 cm)
Side to Side w/o Extensions	148 in. (375.9 cm)	Blade at Stored Condition	29 in. (73.6 cm)
Side to Side w/ Extensions	176 in. (447.0 cm)	Power Requirement	24 VDC
Weight	7,560 lb (3,432 kg)	Ground Clearance (Travel Mode)	16.75 in. (42.5 cm)

MAJOR COMPONENTS

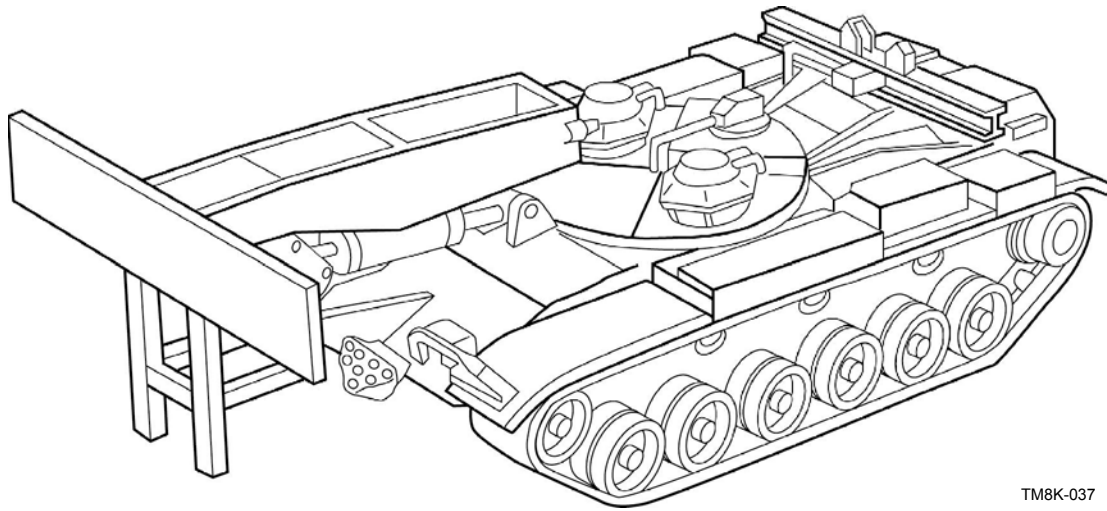
<u>Qty</u>	<u>Item</u>	<u>Qty</u>	<u>Item</u>
1	Mounting Frame	2	Lifting/Lowering Mechanism
2	Push Beam	1	Chain and Dogbone
2	Moldboard	1	Control Box
2	Skidshoe		

ASSOCIATED COMPONENTS

- None

REFERENCES

- TM 2590-10/1; Operator's Manual, Mine Clearing Blade.
- TM 2590-23&P2; Maintenance Manual, Mine Clearing Blade.
- See SL-1-2 for a complete listing of applicable publications.

BRIDGE, ARMORED VEHICLE LAUNCHED**TAMCN E01507B****NSN 5420-00-889-2020****ID 08940A**

TM8K-037

DESCRIPTION AND FUNCTION

Bridge, Armored Vehicle Launched is mounted on an M60A1 chassis. It provides a transportable bridge that can be launched and retrieved. The mobility and flexibility allows dispersed and concentrated combat vehicle support over great distances. The armor provides maximum ballistic protection for the crew and is suitable for a nuclear, biological, and/or chemical environment.

TECHNICAL CHARACTERISTICS

Dimensions (Travel Position):

Length (w/o Bridge)	28.3 ft (8.63 m)	Width (w/o Bridge)	12.0 ft (3.66 m)
Length (w/ Bridge)	37.0 ft (11.28 m)	Width (w/ Bridge)	13.2 ft (4.02 m)
Height (w/o Bridge)	10.0 ft (3.05 m)	Weight (w/o Bridge)	46.1 tons (42 metric tons)
Height (w/ Bridge)	12.8 ft (3.9 m)	Weight (w/ Bridge)	61 tons (55.3 metric tons)

ASSOCIATED COMPONENTS

- Transportable Bridge

REFERENCES

- SL-3-08940A/08942A; Components List, Bridge, Armored Vehicle Launched (AVLB).
- TM 5-5420-202-10; Operator's Manual, Launcher and M60A1 Tank Chassis, Transporting: For Bridge, Armored-Vehicle-Launched Scissoring Type, Class 60.
- TM 5-5420-202-20-1; Maintenance Manual, M60A1 Tank Chassis, Transporting: For Bridge, Armored-Vehicle-Launched Scissoring Type, Class 60.
- See SL-1-2 for a complete listing of applicable publications.

GUN, AUTOMATIC, 25 MM, M242**TAMCN E0947****NSN 1005-01-086-1400****ID 08672A**

TM8K-106

DESCRIPTION AND FUNCTION

Gun, Automatic, 25 mm, M242 is the main gun for the LAV-25 and the Bradley Fighting Vehicle. An electric motor, located on the bottom and to the rear of the auto gun receiver, drives all the moving parts inside the gun to perform ammunition feeding, loading end firing, extraction, and ejection. The gun does not depend on barrel recoil or expanding gases for operation. The auto gun receiver is attached to a rigid mount and does not recoil when the gun is fired; only the barrel, breech, and bolt assemblies recoil. The firing pin is cocked just before firing to ensure safe operation during the ram cycle. The bolt is seared (locked in the "open-bolt" position) when the trigger is released. A receiver assembly mechanical interlock system stops the gun with the bolt locked in the breech position if there is no recoil (round misfires or hangfires). The gun can be removed from a mount and another gun installed in a short time. Two people can remove the automatic gun feeder, barrel assembly, and auto gun receiver.

TECHNICAL CHARACTERISTICS

Caliber	25 mm	Barrel Length	80 in. (203.2 cm)
Weight	244 lb (110.5 kg)	Rate of Fire	Single shot, 100, 200 rounds/min
Length	108.7 in. (276.1 cm)	Range Max	11,156 yd (10,201 m)
Height	15.0 in. (38.0 cm)	Range Effective	1,641 yd (1,500 m)
Width	13.0 in. (33.0 cm)		

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Qty</u>	<u>Item</u>
1	Barrel Assembly	1	Auto Gun Receiver
1	Automatic Gun Feeder		

ASSOCIATED COMPONENTS

- None

REFERENCES

- TM 08672A-23&P; Maintenance Manual for Gun, Automatic: 25 mm, M242.
- See SL-1-2 for a complete listing of applicable publications.

M142 HIGH MOBILITY ARTILLERY ROCKET SYSTEM (HIMARS)**TAMCN E1500****NSN 1055-01-473-4350****ID 10937A**

TM8K-117

DESCRIPTION AND FUNCTION

HIMARS is a C130 transportable, indirect fire, field artillery rocket system that is capable of firing all rockets and missiles in the current Multiple Launch Rocket System (MLRS) family of munitions (MFOM). HIMARS battalions are to be assigned to the Corps Field Artillery Brigades in support of light, airborne, air assault divisions, and force/early entry contingency force operations. The overall system consist of the M142 Launcher, ammunition trucks and trailers, MFOM, and its command and control (C2) system. The M142 launcher is made up of the on board Universal Fire Control System (UFCS), XM1140 wheeled vehicle chassis, and the Launcher Module (LM). The M142 launcher is capable of carrying one rocket pod or one Guided Missile launching assembly (GMLA), each of which may contain six rockets or one missile, respectively.

TECHNICAL CHARACTERISTICS**GENERAL DATA**

Crew:	3 (Driver, Gunner, Section Chief)
Fire Power (Rocket Munitions):	6 per rocket pod (RP)
Fire Power (Missile Munitions):	1 per guided missile launching assembly (GMLA)

M142 WEIGHT DATA

M142 Empty:	28,197 lb (12,817kg)
M142 Combat Loaded:	34,985 lb (15,902 kg)
Max Tactical RP/GMLA:	5,030 lb (2,886 kg)

M142 SIZE DATA

Length:	25 ft, 8 in. (7,765 mm)
Width:	8 ft (2,438 mm)
Height (stowed):	10 ft, 3 in. (3,036 mm)
Height Max EL:	20 ft, 4 in. (6,200 mm)
Height (jury struts installed):	11 ft, 6 in. (3,457 mm)

M142 HIGH MOBILITY ARTILLERY ROCKET SYSTEM (HIMARS) - CONTINUED

TECHNICAL CHARACTERISTICS - CONTINUED

M142 OPERATING TEMP RANGE DATA

Operating temperature range: -32 to +60° C (-25 to +140°F)

PERFORMANCE DATA

Firing slope limits (rockets and missiles): 0 to 89 mils slope (0 to 5 degrees)

Reload slope limits: 0 to 89 mils slope (0 to 5 degrees)

Minimum/maximum fire zone elevation: 36 to 1,067 mils (2.03 to 60 degrees)

ASSOCIATED COMPONENTS

<u>TAM #</u>	<u>ID #</u>	<u>Nomenclature</u>	<u>Type/Model</u>
E09607M	08671A	M249 Squad Automatic Weapon	

REFERENCES

- IETM 9-1055-1646-13&P
- TM 9-2300-310-14&P
- See SL-1-2 for a complete listing of applicable publications.

LIGHT ARMORED VEHICLE (LAV) - ANTI-TANK (LAV-AT)**TAMCN** E09427M**NSN** 2320-01-123-1609**ID** 08652A

TM8K-109

DESCRIPTION AND FUNCTION

LAV - Anti-Tank (LAV-AT) is armed with the TOW II Anti-Tank Guided Missile (ATGM), which is fired from a modified Emerson Electric (M901A1) weapon station. The LAV-AT delivers accurate and destructive fire from defilade positions against enemy tanks. It carries a crew of four (driver, commander, gunner, and loader), the TOW weapon system, and ammunition.

TECHNICAL CHARACTERISTICS

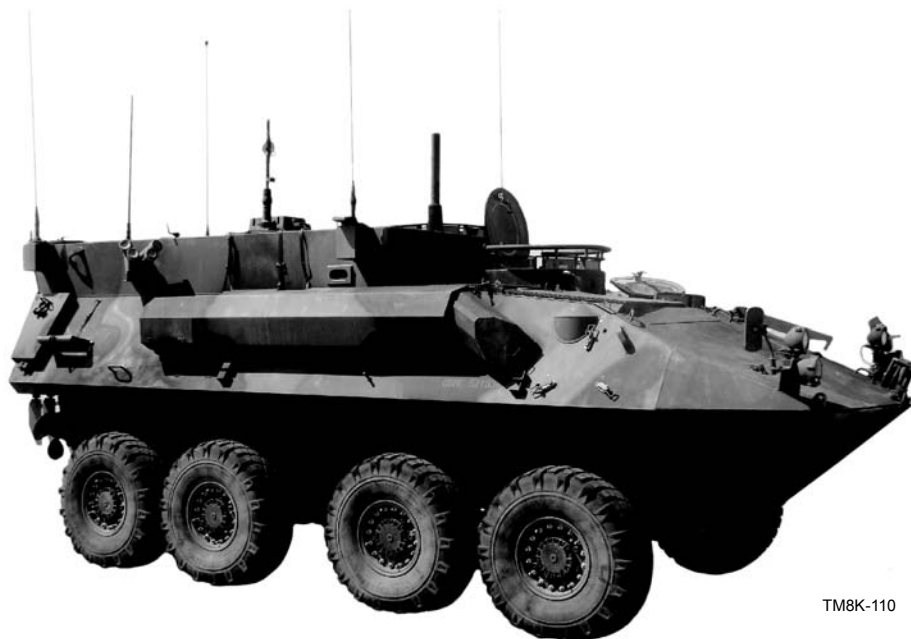
Armament	Machine Gun, 7.62 mm, M60E3 TOW II Anti-Tank Guided Missile (ATGM)	Height	9.37 ft (2.86 m)
		Fuel Capacity	71 gal. (268.73 L)
		Range:	437.5 miles (30 to 40 mph) 704.1 km (48 to 64 km/h)
Max Speed:		Weight:	
Land	62.2 mph (100.0 km/h)	Combat-Loaded	27,650 lb (12,440 kg)
Water	6.5 mph (10.4 km/h)	Empty Curb	24,850 lb (11,350 kg)
Length	21.2 ft (6.46 m)	Cargo Weight	2,800 lb (1,090 kg)
Width	8.20 ft (2.5 m)		

ASSOCIATED COMPONENTS

- Driver's Night Viewer, AN/VVS-2(V)4
- Periscope, M17

REFERENCES

- TM 08652A-10/2B; Operator's Manual Supplement, Light Armored Vehicle, Anti-Tank, LAV-AT.
- See SL-1-2 for a complete listing of applicable publications.

LIGHT ARMORED VEHICLE (LAV) - COMMAND AND CONTROL (LAV-C²A1)**TAMCN** E09467B**NSN** 2320-01-123-1606**ID** 08650A

TM8K-110

DESCRIPTION AND FUNCTION

Light Armored Vehicle (LAV) - Command and Control (LAV-C²A1) is armed with a pintle-mounted Machine Gun, 7.62 mm, M240E1. The vehicle carries a suite of radios, a portable shelter, and an auxiliary power unit (APU) to substitute for vehicle power when needed. The LAV-C²A1 provides the battalion commander and his operational staff with the capability to effectively command and control the battalion or combat team. It carries a crew of two (driver and commander), plus six operations/staff personnel.

TECHNICAL CHARACTERISTICS

Armament	Machine Gun, 7.62 mm, M240E1	Fuel Capacity	71 gal. (268.73 L)
Max Speed:		Range:	400 miles (30 to 40 mph) 643.6 km (48 to 64 km/h)
Land	62.5 mph (100.0 km/h)	Weight:	
Water	6.5 mph (10.4 km/h)	Combat-Loaded	27,060 lb (12,285.24 kg)
Length	21.08 ft (6.43 m)	Empty Curb	24,840 lb (11,277.36 kg)
Width	8.20 ft (2.5 m)	Cargo Weight	2,220 lb (1,007.88 kg)
Height	9.17 ft (2.79 m)		

ASSOCIATED COMPONENTS

- Driver's Viewer, Enhanced (DVE)
- Periscope, M17

REFERENCES

- SL-3-08650B; Component's List; Light Armored Vehicle, Command and Control, LAV-C²A1.
- See SL-1-2 for a complete listing of applicable publications.

LIGHT ARMORED VEHICLE (LAV) - LIGHT ASSAULT (LAV-25A1)**TAMCN** E09477M**NSN** 2320-01-123-1602**ID** 08594A

TM8K-111

DESCRIPTION AND FUNCTION

Light Armored Vehicle (LAV) - Light Assault (LAV-25A1) is armed with the stabilized M242, 25 mm Automatic Cannon and a coaxially mounted M240, 7.62 mm Machine Gun in a two-man turret. The LAV-25A1 delivers accurate and destructive direct fire against enemy personnel, lightly armored vehicles, and materiel targets. Its capability to rapidly deploy/redeploy troops within the battle area permits their arrival at the point of commitment with reduced casualties and fatigue. An auxiliary power unit (APU) supplies power when the LAV-25A1 is operational with the engine shut down. The LAV-25A1 carries a crew of three (driver, gunner, and commander) plus six combat equipped infantrymen.

TECHNICAL CHARACTERISTICS

Armament	Cannon, Automatic, 25 mm, M242 Machine Gun, 7.62 mm, M240	Height	8.41 ft (2.6 m)
Max Speed:		Fuel Capacity	71 gal. (268.73 L)
Land	62.2 mph (100.0 km/h)	Cruising Range	400 miles (643.6 km)
Water	6.5 mph (10.4 km/h)	Average Speed	30 to 40 mph (48 to 64 km/h)
Length	21.05 ft (6.4 m)	Weight:	
Width	8.20 ft (2.5 m)	Combat-Loaded	28,400 lb (12,893.6 kg)
		Empty Curb	24,470 lb (11,109.4 kg)

ASSOCIATED COMPONENTS

- Driver's Viewer, Enhanced (DVE)
- Periscope, M17

REFERENCES

- SL-3-08594B; Components List, Light Armored Vehicle, LAV-25A1.
- TM 08594A-10/1C; Operator's Manual, LAV-25 Turret.
- TM 08594A-34/9; Maintenance Manual, LAV-25 Turret.
- See SL-1-2 for a complete listing of applicable publications.

LIGHT ARMORED VEHICLE (LAV) - LOGISTICS (LAV-L)**TAMCN E09487B****NSN 2320-01-123-1612****ID 08654A**

TM8K-112

DESCRIPTION AND FUNCTION

Light Armored Vehicle (LAV) - Logistics (LAV-L) consists of a cargo crane, loading/unloading hatches, and a maximized payload capability for volume and weight. The LAV-L delivers rations, ammunition, fuel, spare parts, and equipment to LAV vehicles/units deployed away from main roads and networks. It carries a crew of three (driver, commander, and logistics crewman).

TECHNICAL CHARACTERISTICS

Armament	Machine Gun, 7.62 mm, M240	Fuel Capacity	71 gal. (268.73 L)
Max Speed:		Range:	437.5 miles at 30 to 40 mph (704.1 km at 48 to 64 km/h)
Land	62.5 mph (100.0 km/h)	Weight:	
Water	6.5 mph (10.4 km/h)	Combat-Loaded	28,200 lb (12,802.8 kg)
Length	21.22 ft (6.47 m)	Empty Curb	22,760 lb (10,333.04 kg)
Width	8.20 ft (2.50 m)	Cargo Weight	4,000 lb (1,816 kg)
Height	9.08 ft (2.77 m)		

ASSOCIATED COMPONENTS

- Driver's Viewer, Enhanced (DVE)
- Periscope, M17

REFERENCES

- SL-3-08654A; Component's List; Light Armored Vehicle, Logistics, LAV-L.
- See SL-1-2 for a complete listing of applicable publications.

LIGHT ARMORED VEHICLE (LAV) - MAINTENANCE/RECOVERY (LAV-RA1)**TAMCN** E09507B**NSN** 2320-01-123-1608**ID** 08651A

TM8K-113

DESCRIPTION AND FUNCTION

Light Armored Vehicle (LAV) - Maintenance/Recovery (LAV-RA1) is equipped with a boom crane, winch, spade, compressed air for pneumatic tools, fuel, a transfer pump, and floodlights. The LAV-RA1 provides repair and recovery services at the organizational and intermediate maintenance levels. An auxiliary power unit (APU) supplies additional power for the vehicle's maintenance and recovery equipment. The LAV-RA1 carries a crew of five (driver, rigger, commander, and two maintenance/recovery crewmen) and has additional stowage capabilities.

TECHNICAL CHARACTERISTICS

Armament	Machine Gun, 7.62 mm, M240	Fuel Capacity	71 gal. (268.73 L)
Max Speed:		Range:	437.5 miles at 30 to 40 mph (704.1 km at 48 to 64 km/h)
Land	62.5 mph (100.56 km/h)	Weight:	
Water	6.5 mph (10.4 km/h)	Combat-Loaded	28,400 lb (12,893.60 kg)
Length	20.96 ft (6.39 m)	Empty Curb	26,900 lb (12,212.60 kg)
Width	8.2 ft (2.5 m)	Cargo Weight	1,500 lb (681 kg)
Height	8.58 ft (2.62 m)		

ASSOCIATED COMPONENTS

- Driver's Viewer, Enhanced (DVE)
- Periscope, M17

REFERENCES

- SL-3-08651B; Components List; Light Armored Vehicle, Maintenance/Recovery, LAV-RA1.
- See SL-1-2 for a complete listing of applicable publications.

LIGHT ARMORED VEHICLE (LAV) - MORTAR (LAV-M)**TAMCN** E09497M**NSN** 2320-01-123-1607**ID** 08655A

TM8K-114

DESCRIPTION AND FUNCTION

Light Armored Vehicle (LAV) - Mortar (LAV-M) is armed with the 81 mm mortar, which can be fired from inside or outside the vehicle. The LAV-M provides indirect fire support and carries a crew of five (driver, commander, gunner, loader, and ammo handler), the mortar, and ammunition.

TECHNICAL CHARACTERISTICS

Armament	Machine Gun, 7.62 mm, M240 Mortar, Medium, Extended Range, 81 mm, M252	Height	7.02 ft (2.14 m)
		Fuel Capacity	71 gal. (268.73 L)
		Range:	437.5 miles at 30 to 40 mph (643.6 km at 48 to 64 km/h)
Max Speed:		Weight:	
Land	62.5 mph (100.0 km/h)	Combat-Loaded	26,300 lb (12,130.88 kg)
Water	6.5 mph (10.4 km/h)	Empty Curb	23,400 lb (10,678.08 kg)
Length	21.0 ft (6.4 m)	Payload	2,900 lb (1,452.8 kg)
Width	8.2 ft (2.5 m)		

ASSOCIATED COMPONENTS

- Driver's Viewer, Enhanced (DVE)
- Periscope, M17

REFERENCES

- SL-3-08655A; Components List; Light Armored Vehicle, Mortar, LAV-M.
- See SL-1-2 for a complete listing of applicable publications.

RECOVERY VEHICLE, HEAVY, FULL-TRACKED, M88A2

TAMCN E13787KNSN 2350-01-390-4683ID 07769B

TM8K-100

DESCRIPTION AND FUNCTION

The M88A2 Heavy Recovery Vehicle is an armored, full-tracked, low silhouette vehicle. It is used for hoisting, winching, and towing operations for all vehicles up to 70 tons (63.49 metric tons). It is equipped to assist in repairing disabled vehicles under field conditions. The vehicle carries a crew of three: commander, operator, and mechanic/rigger.

TECHNICAL CHARACTERISTICS

Weight (Combat-Loaded)	139,600 lb (63,699 kg)	Performance (Continued):	
Dimensions:		Grade Descending Ability (Max)	60%
Length	28.33 ft (8.64 m)	Side Slope Grade (Max)	30%
Width	12 ft (3.66 m)	Maximum Vertical Wall	42 in. (1.07 m)
Height	9.75 ft (2.97 m)	Maximum Trench	8.5 ft (2.59 m)
Ground pressure	13.39 PSI (92.3 kPa)	Crossing Width	
Capacities		Minimum Turning Radius	Pivot in one vehicle length
(Refill Approximate):		Draw Bar Pull	107,000 lb (48,578 kg)
Fuel Tanks	413 gal. (1563 L)	Boom Capacity	70,000 lb (31,780 kg)
Main Engine Crankcase	18.5 gal. (70.02 L)	Boom Lift Height:	
Transmission (Refill)	17 gal. (64.35 L)	8-ft Reach	22.5 ft (6.9 m)
Main Winch	9.5 gal. (36.0 L)	4-ft Reach	25.13 ft (7.66 m)
Hoist Winch	9 pt (4.23 L)	Hoisting Capacity	
Auxiliary Winch	6 pt (2.82 L)	(Four-Part Line):	
Hydraulic System	80 gal. (302.8 L)	Spade Up	12,000 lb (5,448 kg)
Electromagnetic Clutch	5.2 qt (4.94 L)	Spade Up w/ Lockout	50,000 lb (22,700 kg)
Electrical System:		Blocks Installed	
Batteries	Six 12 V	Spade Down	70,000 lb (31,780 kg)
Battery Power	24 VDC	Main Winch:	
Generator Power	28 ± 0.7 VDC	Cable Size	1.4 in. (0.0356 m)
Performance:		Cable Length	320 ft (97.53 m)
Speed (Max)	25 mph (48.3 km/h)	Useable Length	280 ft (85.34 m)
(w/o Towed Load)		Cable Speed	20 fpm (6.1 mpm)
Cruising Range (Max)	314 mi (505.2 km)	Straight Line Pull	140,000 lb (63,560 kg)
Grade Ascending	60%		
Ability (Max)			
Power Brakes			
w/Manual Back Up			

RECOVERY VEHICLE, HEAVY, FULL-TRACKED, M88A2 - CONTINUED

TECHNICAL CHARACTERISTICS (Continued)

Performance (Continued):

Hoist Winch:

Cable Size	0.75 in. (0.019 m)
Cable Length	225 ft (68.58 m)
Useable Length	41 ft (12.5 m)
Straight Line Pull	17,500 lb (7,945 kg)

Auxiliary Winch:

Cable Size	0.375 in. (0.00952 m)
Cable Length	668 ft (203.60 m)
Useable Length	654 ft (199.34 m)
Straight Line Pull	6,000 lb (2,724 kg)

Auxiliary Equipment

Fire Extinguisher:

Portable (2 Included)

Type	Carbon dioxide (CO ₂)
Volume	218 cu in. (3.57 L)
Weight Empty	5 lb (2.27 kg)
Weight Fully-Charged	15.5 lb (7 kg)

Fixed (2 Banks of 4 Cylinders)

Type	Carbon dioxide (CO ₂)
Volume	505 cu in. (8.28 L)
Weight Empty	10 lb (4.5 kg)
Weight Fully-Charged	45 lb (20.4 kg)

Communications Equipment:

Radio Set and Interphone, Consisting of:

- Radio Sets - AN/VRC-90A
- Suppressor - MX 7778A
- Intercommunication System - AN/VIC-1(V)
(Four Controls) or AN/VIC-3(V)
(Four Controls and Loudspeaker)

Smoke Grenade Equipment (M239) consisting of:

- Grenade Bin
- Canvas Covers
- Push Button Control Unit
- Dischargers
- 12 Red Phosphorous

Exhaust Smoke Generating System consisting of:

- Modification Kit 12275753
(Engine - NSN 2815-01-077-7856)
- Modification Kit 1672388
(Hull - NSN 2590-01-084-6051)

Fording:

w/o Fording Kit	56 in. (1.422 m)
w/ Fording Kit	90 in. (2.286 m)

ASSOCIATED COMPONENTS

- None

REFERENCES

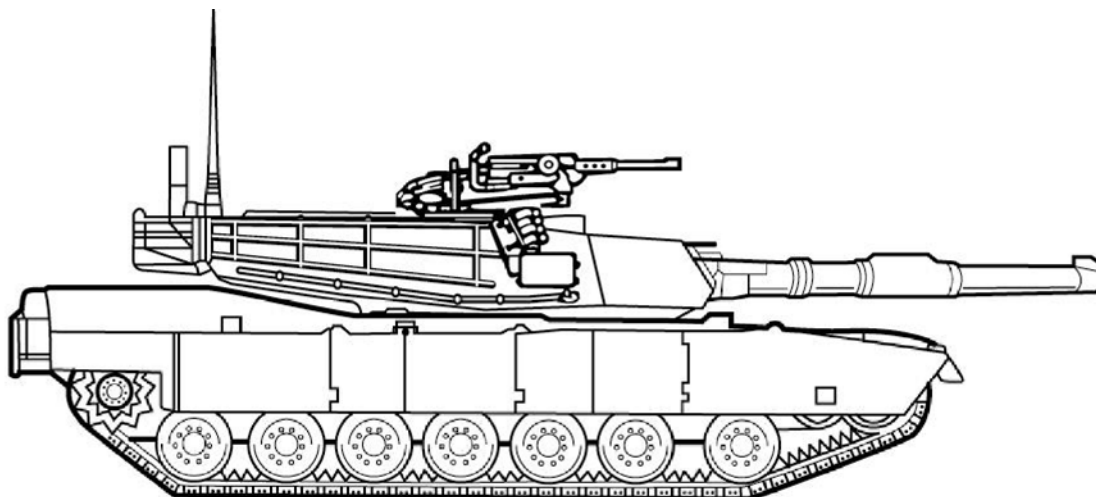
- TM 07769B-10/1; Operator's Manual, Recovery Vehicle, Heavy, Full-Track, M88A2.
- TM 07769B-20/2-1; Maintenance Manual, Recovery Vehicle, Heavy Full-Track, M88A2.
- See SL-1-2 for a complete listing of applicable publications.

TANK, COMBAT, FULL-TRACKED, 120 MM GUN, M1A1

TAMCN E18887M

NSN 2350-01-087-1095

ID 08953A



TM8K-046

DESCRIPTION AND FUNCTION

Tank, Combat, Full-Track, 120 mm Gun, M1A1 is a heavily armored land combat vehicle operated by a four-man crew consisting of the commander, gunner, loader, and driver. It is powered by a 1,500 horsepower turbine engine, an automatic transmission, and two final drives. The main armament on the vehicle is the 120 mm M256 main gun mounted on a traversable turret. Additional fire power is provided by a coaxial-mounted 7.62 mm M240 machine gun, a 7.62 mm M240 at the loaders station, and a .50-caliber M48 machine gun mounted at the Commander's Weapon Station. Weld fabricated rolled, homogeneous armor, combined with hull and turret armor assemblies, provide frontal armor protection. The turret front and sides, including the gun shield, are protected against specified large caliber threats. Large caliber protection for the hull front is provided by an armor assembly across the entire hull width with high obliquity upper and lower glacis plates. Hull side protection consists of armored skirts and structure. The rear hull structure and rear grille doors give protection from small arms fire.

TECHNICAL CHARACTERISTICS

Weight Combat Loaded (w/o Kits)	67.6 tons (61.3 m-ton)	Width: (Continued)	
Ground Clearance:		Reducible	136 in. (348 cm)
Center Portion of Hull Structure	18.5 in. (47.0 cm)	Pivot Steering	1.5 vehicle length max
Other Portions of Hull Structure	16.5 in. (41.9 cm)	Turning Radius	20-ft radius (6.1 m)
Ground Pressure	15 PSI	Range (Constant Speed of 25 mph [40.2 km/h] on Dry and Level Secondary Roads w/o Refueling)	273 to 298 miles (440 to 480 km)
Height (Ground to Turret Roof)	96 in. (243.8 cm)	Fuel Capacity	504.4 gal. (1,909.2 L)
Max Tank Height:		Engine Oil Capacity	17 qt (16.1 L)
Overall	113.6 in. (288.5 cm)	Armament:	
Reducible Overall	103.5 in. (262.9 cm)	Main Gun	120 mm, M256
Length (Overall Main Weapon):		Coax Machine Gun	7.62 mm, M240
Forward	386.9 in. (982.7 cm)	Commander's Machine Gun	.50 caliber, M2
Rearward	355.6 in. (903.2 cm)	Commander's Alternate Machine Gun	7.62 mm, M240
Width:		Loader's Machine Gun	7.62 mm, M240
Overall	143.75 in. ±.54 in. (365.3 cm ±1.4 cm)		

TANK, COMBAT, FULL-TRACKED, 120 mm GUN, M1A1 - CONTINUED

ASSOCIATED COMPONENTS

<u>TAM #</u>	<u>ID #</u>	<u>Nomenclature</u>	<u>Type/Model</u>
N/A	N/A	Cannon 120 mm	M256
E09847M	02498C	Machine Gun, .50-Cal, Browning	M48
N/A	N/A	Machine Gun, 7.62 mm	M240 (2)

REFERENCES

- TM 08953A-10/1-1; Operator's Controls, PMCS, Operation Under Usual Conditions.
- TM 08953A-10/1-2; Operator's Manual; Unusual Conditions, Troubleshooting, and Maintenance.
- TM 08953A-10/1-3; Boresighting and Zeroing M1A1 Tank Armament (USMC only).
- SL-3-08953A; Components List, Tank, Combat, Full-Track, 120 mm Gun, M1A1.
- See SL-1-2 for a complete listing of applicable publications.

CHAPTER 4
OPTICAL AND MISCELLANEOUS EQUIPMENT

MINI THERMAL IMAGER (MTI)**TAMCN E00637G****NSN 5855-01-554-4673****ID 11532A**

TM8K-047

DESCRIPTION AND FUNCTION

The Mini Thermal Imager (MTI) is a dual field of view, lightweight, hand-held/helmet mountable, pocket-sized thermal imaging system. The MTI will increase the ability of the user to detect enemy threats at increased ranges and surfaces in all environmental conditions, with video capabilities. The MTI will contain an integrated (Class 1) eye-safe infrared laser pointer and a user selectable reticle.

TECHNICAL CHARACTERISTICS

Objective Lens	32 mm	Power Source	DL123A Lithium (two needed)
Field of View	29.00 deg diagonal	Length	5 in.
Weight (w/ battery)	11.5 oz	Width	2.8 oz
		Height	2.2 in.

MAJOR COMPONENTS

Qty	Item	Qty	Item
1	Bag, Carrying, Softcase	1	Video Cable
1	Quick Reference Card	1	Neck Cord
1	Night Adaptive Filter/Demist Shield	1	Battery, 2 DL123A Lithium
1	Memory Stick	1	Eye Cup, Removable

ASSOCIATED COMPONENTS

- Helmet Adapter
- Lens, Tissue
- Mounting Bracket

REFERENCES

TM 11532A-OR

**WEAPON THERMAL SIGHT, AN/PAS-13B, (V)2 MEDIUM (MWTS)
AND AN/PAS-13B, (V)3 HEAVY (HWTS)**

TAMCN E19757G
TAMCN E19767G

NSN 5855-01-464-3152 (MWTS)
NSN 5855-01-464-3151 (HWTS)

ID 10092A
ID 10091B



DESCRIPTION AND FUNCTION

The Thermal Weapon Sight (TWS) is a lightweight, low-power, high-performance, forward-looking infrared (FLIR) device that augments crew-served night vision sights. TWS is completely passive and, although primarily designed for target detection and engagement with individual and crew-served weapons, it can also be used for all-weather surveillance. The U.S. Marine Corps is procuring both the Medium Weapon Thermal Sight (MWTS) and the Heavy Weapon Thermal Sight (HWTS) in FY05. The MWTS will be mounted to the M249 Squad Automatic Weapon (SAW) and M240G Medium Machine Gun. The HWTS will be mounted to the M2 .50 cal Heavy Machine Gun and MK19 40 mm Machine Gun. The MWTS can effectively engage targets out to 1,000 meters, while the HWTS can effectively engage targets out to 2,000 meters. The HWTS is virtually the same size as the MWTS with the exception of the overall length and larger diameter lens.

TECHNICAL CHARACTERISTICS

	<u>MWTS</u>	<u>HWTS</u>
Length	15.5 in. (39.37 cm)	18.0 in. (45.72 cm)
Width	6.25 in. (15.87 cm)	6.25 in. (15.87 cm)
Height	6.25 in. (15.87 cm)	6.25 in. (15.87 cm)
Weight	4.19 lb (1.56 kg)	4.55 lb (1.70 kg)

Field of View (FOV)

Narrow (degrees)	MWTS 6, HWTS 3
Wide (degrees)	MWTS 18, HWTS 9

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>
1	Case, Carrying
1	Mounting Bracket Assembly

ASSOCIATED COMPONENTS

- Bag, Carrying
- Battery, Dry

REFERENCES

- TM 10091A/10092A-10/1, Operator's Manual, Sight, Thermal, AN/PAS-13B, (V)2 MWTS and (V)3 HWTS.
- TM 10091B/10092B-23&P/2, Maintenance Manual Sight, Thermal, AN/PAS-13B, (V)2 MWTS and (V)3 HWTS.
- See SL-1-2 for a complete listing of applicable publications.

**WEAPON THERMAL SIGHT, AN/PAS-13D, (V)2 MEDIUM (MWTS)
AND AN/PAS-13D, (V)3 HEAVY (HWTS)**

TAMCN E1975
TAMCN E1976

NSN 5855-01-524-4313 (MWTS)
NSN 5855-01-524-4314 (HWTS)

ID 10092C
ID 10091C



DESCRIPTION AND FUNCTION

The Thermal Weapon Sight is a self-contained, lightweight, compact, durable, battery-operated, infrared imaging sensor used for target acquisition. It can be used under conditions of limited visibility such as darkness, smoke, fog, dust and haze, and is effective during daylight hours. The MWTS and HWTS have the same design but the difference lies in the telescope and the software. The system comes with a MIL-STD-1913 rail grabber interface, including a vertical spacer. The MWTS can effectively engage targets out to 1,100 meters while the HWTS can effectively engage targets out to 2,200 meters. The AN/PAS-13D (V)2 can be mounted on the M240B Machine Gun and the M249 series. The AN/PAS-13D (V)3 can be mounted on the M16A1/A2 Rifle, M4 series, M2 Machine Gun, and the MK19 Machine Gun.

TECHNICAL CHARACTERISTICS

	<u>MWTS</u>	<u>HWTS</u>
Length	13.5 in. (34.29 cm)	16 in. (40.64 cm)
Width	3.5 in. (8.89 cm)	4.25 in. (10.79 cm)
Height	4.75 in. (12.06 cm)	5.5 in. (13.97 cm)
Weight	2 lb, 9 oz (1.26 kg) (battery pack and rail grabber with spacer)	3 lb, 9 oz (1.4 kg) (battery pack and rail grabber with spacer)
Field of View	18 deg and 6 deg	9 deg and 3 deg
Power Requirements	AA 1.6 VDC Lithium or Alkaline (six needed)	
Range of a 70% probability of recognition of a moving man with moderate clutter is:		
w/ MWTS	1,202 yd (1,100 m)	
w/ HWTS	2,406 yd (2,200 m)	

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Qty</u>	<u>Item</u>
1	Case, Carrying	1	Case, Transit Storage
2	Pack, Battery	1	Cover, Battery Pack

ASSOCIATED COMPONENTS

- Kit, Lens Cleaning
- Towelettes, Anti-Fog
- Tape, Pressure Sensitive Adhesive

REFERENCES

- TM 10091C/10092C-IN/2, Unit and Direct Support Maintenance Manual (including Repair Parts and Special Tools List) for Sight, Thermal AN/PAS-13D (V)1, (V)2, and (V)3.
- TM 10091C/10092C-OR/1, Operator's Manual Sight, Thermal AN/PAS-13D (V)1, (V)2, and (V)3.

LASER BORELIGHT SYSTEM (LBS), AN/PEM-1

TAMCN E09567B

NSN 5860-01-471-2091

ID 10471B



DESCRIPTION AND FUNCTION

The Laser Borelight System (LBS) is a Class 2 laser that emits a highly collimated beam of visible light for precisely zeroing weapon sight to the weapon. This system facilitates zeroing of iron sights, image intensification (I²) sights, thermal weapon sights, and laser aiming devices. The AN/PEM-1 has a low power laser setting that is useful when performing weapon boresighting during daylight, low light, and darkness conditions. The LBS is used in combination with the aiming light or weapon sight using naked eyes, powered optics, or night vision devices. The LBS comes with 5.56 mm, 7.62 mm, and .50 cal. attachable mandrels. The AN/PEM-1 will replace the LBS-050.

TECHNICAL CHARACTERISTICS

Weight (w/ one AA battery)	4.1 oz (.127 kg)	Height	2.3 in. (5.84 m)
Length	3.8 in. (9.65 cm)	Output Power	.9 mW (MAX)
Width	1.2 in. (3.04 cm)	Wavelength Beam	650 ± 30 Nm
Divergence	≤ .5 mrad		
Power Source	1 AA battery		

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Qty</u>	<u>Item</u>
1	Case, Soft Carrying	2	Batteries, AA Alkaline
1	Targets, Boresight	3	Mandrels, (5.56 mm, 7.62 mm, .50 cal)
1	Gage, Distance 10 m		

ASSOCIATED COMPONENTS

- Adapter, Mandrel (40 mm Mk19)
- Adapter, Mandrel (40 mm M203)
- Target, M203 DNS

REFERENCES

- TM 10471-OI/1, Operator and Unit Maintenance Manual (Including Repair Parts and Special Tools List).

TARGET POINTER ILLUMINATOR/AIMING LIGHT (TPIAL), AN/PEQ-2A

TAMCN E17987G

NSN 5855-01-447-8992

ID 10470A



TM8K-052

DESCRIPTION AND FUNCTION

The AN/PEQ-2A is a lightweight, self-contained, battery-powered infrared (IR) aiming light/illuminator. When zeroed to the weapon and activated, the AN/PEQ-2A projects an IR dot that illuminates the target and is visible only with image intensifying night vision devices. The AN/PEQ-2A attaches to the upper receiver of the M16A2 rifle and M240B Medium Machine Gun or any M16 Series Rail System.

TECHNICAL CHARACTERISTICS

Weight	7.5 oz (.21 kg)	Output Power:	
Length	6.4 in. (6.26 cm)	Aim	25 mW (+10%)
Width	2.8 in. (7.12 cm)	Illuminator	30 mW (+50, -20%)
Height	1.2 in. (3.05 cm)	Beam Divergence:	
Battery Type	AA batteries	Aim	0.5 mrad
		Illuminator	1.0-115 mrad (min)

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Qty</u>	<u>Item</u>
1	TPIAL Assembly w/ Safety Block	1	Cable Switch, 20 in., Button
1	Rail Grabber Mounting Bracket	1	Bracket Adapter
1	Neck Cord 1 Strap, Retention	1	M16A2 Bracket Assembly
1	Cable Switch, 12 in., Membrane		

ASSOCIATED COMPONENTS

- Bag, Textile
- Batteries, 1.5 V, AA

REFERENCES

- TM 10470A-OI/1, Operator's and Maintenance Manual, Target Pointer, Illuminator/Aiming Light AN/PEQ-2A.
- See SL-1-2 for a complete listing of applicable publications.

MEDIUM POWER LASER ILLUMINATOR (MPLI), AN/PEQ-4

TAMCN E17997G

NSN 5855-01-460-8365

ID 10580A



TM8K-053

DESCRIPTION AND FUNCTION

The Medium Power Laser Illuminator (MPLI) is a Class 4 laser pointing and illuminating system capable of providing illumination and point capabilities for close air support (CAS). The MPLI will be used in conjunction with image intensified (I²) night vision devices, such as the AN/PVS-7, AN/PVS14, and AN/AVS-6 Night Vision Goggles.

TECHNICAL CHARACTERISTICS

Output Power	Low: 100 mw; High: 600-800 mw	Length	9.5 in. (24.13 cm)
Beam Divergence	min-1 mrad, Max-3 deg	Width	2.0 in. (5.08 cm)
Weight	0.75 lb (.34 kg)	Height	2.13 in. (5.42 cm)

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Qty</u>	<u>Item</u>
1	Laser Assembly	1	Cover, Attenuator, Filter
3 and 6	Batteries, DL123 & AA	1	Cover, Solid
1	Battery Box, Spare	2	On/Off Switch, Detachable
1	Cable Switch, 24-in. Membrane		

ASSOCIATED COMPONENTS

- Hexkey 5/32
- Bag, Carrying
- MIL-STD 1913 Mounting Rail

REFERENCES

- TM 10580A-12&P/1, Operator's and Organizational Maintenance Manual.

LIGHT MODULE, INTEGRATED LASER (ILLM), AN/PEQ-6A

TAMCN E09577B

NSN 5860-01-491-9639

ID 10820A



TM8K-054

DESCRIPTION AND FUNCTION

The AN/PEQ-6A Integrated Laser Light Module (ILLM) provides the user with visible or infrared illumination of the target for target acquisition and visible or infrared target aiming point for fire control. Both laser beams can be zeroed to the weapon and each other. The laser beams can also be operated in combination with the visible and IR illumination beams. The AN/PEQ-6A is intended for use on the M9 pistol and Close Quarter Battle Weapon, but can be attached to any weapon that uses a MIL-STD-1913 rail. Turning the illuminator's bezel can focus the visible illuminator beam.

TECHNICAL CHARACTERISTICS

Weight (w/ two DL123A Lithium Batteries)	5.0 oz (.141 kg)	Output Power Visible Laser	<5 mW
Length	4.23 in. (10.74 cm)	Illumination White Light Beam	>60 Lumens
Width	1.53 in. (3.89 cm)	IR Aiming Laser	>0.7 mW
Height	1.97 in. (5 cm)	IR Illuminator Laser	>.15-.65 mW

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>
1	Case, Carrying

ASSOCIATED COMPONENTS

- Bag, Carrying

REFERENCES

- TM 10820A-12&P/W1, Operator's Manual Laser Light Module.

GRENAD LAUNCHER DAY NIGHT SIGHT MOUNT (GLDNSM), AN/PSQ-18A**TAMCN** E17797B**NSN** 1010-01-516-0953**ID** 11065A

TM8K-055

DESCRIPTION AND FUNCTION

The AN/PSQ-18A is an enhanced aiming device designed to enable the combat shooter to rapidly and precisely fire the M203 40 mm grenade launcher in daylight, low light, and night conditions. The device has a built-in range scale, an integrated aiming illuminating laser, an anti-cant indicator, and a built-in iron Backup sight.

TECHNICAL CHARACTERISTICS

Length	6.5 in.	LCD Display Resolution	+/- 5 m
Weight with AA Battery	17.7 oz	Accuracy	5 m
Height	4.0 in.	Peak Output Power:	
Width	4.5 in.	Low Power	2.9-3.4 mW
Beam Divergence	Aim 0.8 mrad (max)	High Power	22.5-27.5 mW
Illuminator	53.0 mrad (max)	Battery Type	1.5 V AA Lithium/ Alkaline (one needed)
Range	40 to 400 m		

ASSOCIATED COMPONENTS

- Safety Block
- Textile Carrying Case
- MIL-STD-1913 Mounting Rail

REFERENCES

- TM 11065A-OR, Operator and Unit Maintenance Manual AN/PSQ-18A in development.

NIGHT VISION GOGGLES, INDIVIDUAL, AN/PVS-7B AND -7D

TAMCN E11522B
TAMCN E11522BA

NSN 5855-01-228-0937 (7B)
NSN 5855-01-422-5413 (7D)

ID 09500A
ID 10497A



TM8K-057

DESCRIPTION AND FUNCTION

The AN/PVS-7B and AN/PVS-7D are lightweight, hand-held or head-mounted night vision systems that enable walking, driving, weapon firing, short-range surveillance, map reading, vehicle maintenance, and first aid administration in both moonlight and starlight. The goggles collect the available light from a scene illuminated by the night sky and project an intensified image into the operator's eye in the proper perspective. Its third generation (GEN III) image intensification (I^2) tube produces a clearer and sharper image than the second generation (GEN II) tube found in the AN/PVS-5s. An internal electronic circuit controls the battery power to the I^2 . The IR illumination accommodates various operational requirements and difference in physical characteristics of the individual operators.

TECHNICAL CHARACTERISTICS

Magnification	1.0X	Width	12 in. (30.48 cm)
Field of View	40 deg	Height	7 in. (17.78 cm)
Focus Range	7.87 in. (20 cm) (7.9 deg) to infinity	Length	17 in.
Objective Focus	9.84 in. (25 cm) to infinity	Battery Requirements:	AA Alkaline, 1.5 VDC (two needed) or Lithium L91 (one needed)
Weight	1.5 lb (56 kg)	Diopter Adjustment	+2 to -6 diopters

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Qty</u>	<u>Item</u>
1	Headmount Assembly	1	Light Interference Filter
2	Browpad	1	Goggles Assembly
1	Lens Cover	1	Case, Carrying

ASSOCIATED COMPONENTS

- Carrying Case
- Shipping and Storage Case (AR Item)
- Demist Shields
- Sacrificial Window

REFERENCES

- TM 09500A-10/1A, Operator's Manual, Night Vision Goggles (NVG), AN/PVS-7B and AN/PVS-7D.
- TM 0095A-23&P/2A, Maintenance Manual, Night Vision Goggles, AN/PVS-7B.

MONOCULAR NIGHT VISION DEVICE (MNVD), AN/PVS-14**TAMCN** E11542B**NSN** 5855-01-432-0524**ID** 10271A

TM8K-058

DESCRIPTION AND FUNCTION

The AN/PVS-14 Monocular Night Vision Device (MNVD) is a lightweight, hand-held, head-mounted, helmet-mounted, or weapon-mounted night vision system that enables walking, weapon firing, short-range surveillance, map reading, vehicle maintenance, and first aid administration in both moonlight and starlight. It uses third generation (GEN III) image intensification (I^2) technology. Each unit allows for vertical adjustment (by using head strap), fore-and-aft adjustment, objective lens focus and eyepiece focus. The MNVD is a self-contained night vision device that enables improved night vision using ambient light from the night sky. It is equipped with an infrared (IR) source, low-battery indicator, and gain control. The AN/PVS-14 is smaller, lighter, and provides greater latitude than the AN/PVS-7B/D.

TECHNICAL CHARACTERISTICS

Magnification	1X (3X with 3X magnifier)	Battery Type	AA Alkaline (two needed) or AA Lithium L91 (two needed)
Field of View	40 deg (13 deg with 3X magnifier)	Monocular Operating Temperature	-59°F to +120° F (-51°C to +49°C)
Focus Range	9.84 in. (25 cm) (9.8 deg) to infinity	Monocular Storage Temperature	-59°F to +185°F (-51°C to +85°C)
Diopter Adjustment	+2 to -6 diopters	Illumination Required	Overcast starlight to moonlight
Objective Lens Focus	9.84 in. (25 cm) to infinity		
Variable Gain	±10 to >3000		

MAJOR COMPONENTS

Qty	Item
1	Head Mount Assembly
1	Monocular Assembly
1	Helmet Mount Assembly

ASSOCIATED COMPONENTS

- Case, Carrying
- Case, Shipping and Storage

REFERENCES

- 10271A-10/1A, Operator's Manual, Monocular Night Vision Device (MNVD), AN/PVS-14.
- 10271A-23&P/2, Maintenance Manual, Monocular Night Vision Device (MNVD), AN/PVS-14.

SIGHT, MINIATURE NIGHT (MNS), AN/PVS-17B AND -17C

TAMCN E11627G

NSN 5855-01-491-0140 (17B)

ID 10796B

TAMCN E11607G

NSN 5855-01-491-6967(17C)

ID 10796C



TM8K-59

DESCRIPTION AND FUNCTION

The AN/PVS-17 is a lightweight, compact, high performance device that will use the OMNI IV MX 10160 image intensifier tube. The system weighs less than 2 pounds, comes with a MIL-STD-1913 rail grabber interface, and is immersible to 66 feet. The AN/PVS-17 consists of two configurations: AN/PVS-17B and AN/PVS-17C. The 17B incorporates a 2.25X magnification and the 17C incorporates a 4.5X magnification. The AN/PVS-17 can be mounted to any weapon that uses the standard MIL-STD-1913 rail and will replace the AN/PVS-4 in select units. The 17B is intended for mount on the M16 Series and the 17C is intended for mount on the M249 Squad Automatic Weapon (SAW) and M240G Medium Machine Gun.

TECHNICAL CHARACTERISTICS

Magnification:		Temperature Range:	
17B	2.25X ± .15X	Operating	-40°F to +125.6°F (-40°C to +52°C)
17C	4.5X ± .3X	Storage	-59°F to +159.8°F (-51°C to +71°C)
Field of View:		Maximum Altitude	45,000 ft (13,716 m)
17B	17 deg vertical, 20 deg horizontal	Maximum Immersion	2 atmosphere seawater
17C	10 deg vertical, 8 deg horizontal	Height: 17B	66 ft fresh water
Objective Focus	Infinity	17C	4.75 in. (12.06 cm)
Eyepiece Focus	+3 to -3 diopters ±1	Width: 17B	3.0 in. (7.62 cm)
Battery Type	AA Alkaline (one needed) or Lithium, 1.5 or 3.6 V (one needed)	17C	3.25 in. (8.25 cm)
Reticle Dot Size	0.6 mrad (2 MOA) 17C	Weight: 17B	2 lb (.97 kg)
	0.3 mrad (1 MOA) 17B	17C	3 lb (136 kg)

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Item</u>
1	Case, Soft Carrying	M16 Mounting Kit

ASSOCIATED COMPONENTS

- Bag, Carrying
- Battery, AA Alkaline, 1.5 VDC

REFERENCES

- TM 10796-OR/1, Operator's and Maintenance Manual, Miniature Night Sight (MNS), AN/PVS-17B&C.
- TM 10796-IN/1, Intermediate Maintenance Manual Including Repair Parts Special Tools for AN/PVS-17B and 17C, Miniature Night Sight.

SIGHT, NIGHT VISION, CREW-SERVED, AN/TVS-5A

TAMCN E11592B

NSN 5855-01-422-8777

ID 07098D



TM8K-062

DESCRIPTION AND FUNCTION

The Sight, Night Vision, Crew-Served, AN/TVS-5A is a portable, battery-operated, GEN III I² device used for observation and aimed fire of weapons at night. It amplifies reflected light such as moonlight, starlight, and skyglow so that the viewed scene becomes visible to the operator. The AN/TVS-5A can be tripod-mounted for surveillance; however, it is generally used in the Marine Corps as a crew-served weapon sight. The AN/TVS-5A can be mounted on the M2 .50 Caliber Machine Gun and the MK 19 40 mm Machine Gun.

TECHNICAL CHARACTERISTICS

Magnification	5.6X	Battery Type:	BA-5567/U (two needed)
Field of View	9 deg	Voltage	3.0 VDC
Eyepiece Focus	+3 to -6 diopters	Shelf Life	1 year at 70°F (21°C)
Objective Lens Focus	25 m to infinity	Operating Life	50 hours at normal temperature
Range	1,093 to 1,312 yd (1,000 to 1,200 m) (for vehicle targets) in starlight or moonlight	Battery Type:	BA-3058/U (two needed)
Reticle Adjustment	±2.5° (1/4-mil increments)	Voltage	.5 VDC
Operating Conditions	-65°F to +125°F (-54°C to +52°C)	Shelf Life	9 months
		Operating Life	50 hours at normal temperature

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Qty</u>	<u>Item</u>
1	Case, Carrying	1	Mounting Bracket Assembly
1	Reticle Cell Assembly	1	Low Temperature Adapter Assembly
1	Cover, Daylight		

ASSOCIATED COMPONENTS

- Bag, Carrying
- Battery, Dry

REFERENCES

- TM 11-5855-214-10, Operator's Manual, Sight, Night Vision, AN/TVS-5A.
- TM 11-5855-214-23&P, Maintenance Manual, Sight, Night Vision, AN/TVS-5A.
- See SL-1-2 for a complete listing of applicable publications.

EOTECH HOLOGRAPHIC DIFFRACTION SIGHT (HDS)

TAMCN N/A

NSN 1240-01-492-5264

ID 11059A



TM8K-063

DESCRIPTION AND FUNCTION

The EOTech Holographic Diffraction Sight (HDS) is a non-magnified optical sight that facilitates the rapid engagement of targets at short- and mid-range distances. The holographic sight employs a heads-up display that eliminates blind spots, constricted vision, or the tunnel vision associated with tubed sights. The HDS is compatible with all generations of night vision intensifier tubes and can be positioned in tandem with many image intensification devices. The HDS is a SAC 1 SL-3 component that will be mounted on the M4A1 Close Quarter Battle Weapon (CQBW).

TECHNICAL CHARACTERISTICS

Knurled Weaver Bolt Adjustment		Normal and Night Vision Modes	
Anti-Reflection Material	1X	Automatic Shutdown	
Magnification		Weight	11.5 oz (.32 kg)
Power Requirements	AA 1.5 VDC Alkaline Battery (two needed)		

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>
1	Site Assembly

ASSOCIATED COMPONENTS

- Type N or AA Alkaline Batteries
- 7/64-in. Allen Wrench

REFERENCES

- EOTech User Manual
- CQBW Manuals

LASER BORESIGHT SYSTEM (LBS)

TAMCN E09567B

NSN 5860-01-466-2087

ID 10471A



TM8K-064

DESCRIPTION AND FUNCTION

The Laser Boresight System (LBS) is used to boresight (align) the Thermal Weapon Sights (TWS), the Medium Power Laser Illuminator, and other night vision devices to the various weapon systems to which they are attached. The LBS comes with 5.56 mm, 7.62 mm, and .50 cal attachable mandrels.

TECHNICAL CHARACTERISTICS

Weight (w/ one AA battery)	4.5 oz (.13 kg)	Wavelength Beam	650 ± 30 mm
Length	3.8 in. (9.65 cm)	Battery	AA 1.5 V
Width	1.1 in. (2.8 cm)		Alkaline or Lithium
Divergence	≤ .8 mrad		(one needed)
Height	2.2 in. (5.6 cm)		
Output Power	.9 mW (MAX)		

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>
1	Case, Carrying

ASSOCIATED COMPONENTS

- Bag, Carrying
- Battery, Dry

REFERENCES

- TM 10471A-12&P/1, Operator's Manual, Laser Boresight System (LBS).

SCOUT SNIPER PERISCOPE (SSP)

TAMCN E00957B

NSN 1240-01-571-5004

ID 11700A



TM8K-128

DESCRIPTION AND FUNCTION

The SSP will provide the Sniper with an improved observation capability providing increased survivability and enhanced situation awareness. The SSP is a lightweight, variable power (4.5X-9.5X) telescopic device that enhances Sniper maneuverability and observation capabilities, specifically in urban environments. The SSP will include accessories to attach a flashlight and an AN/PVS-14 Monocular Night Vision Device.

TECHNICAL CHARACTERISTICS

Magnification	4.5X-9.5X	Recognition Range:	
Field of View	4.5X: 9.5 deg	Weight	1.2 lb w/o attachments
	9.5x: 5.0 deg	Length	TBD

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>
1	Periscope Assembly

ASSOCIATED COMPONENTS

- AN/PVS-14

REFERENCES

- TBD

AN/PAS-22 LONG-RANGE THERMAL IMAGER (LRTI)

TAMCN E19787G

NSN 5855-01-536-3532

ID 10988B



TM8K-066

DESCRIPTION AND FUNCTION

The LRTI is a stand-alone, portable binocular, hand-held, battery-operated style instrument used to observe/orient, detect and identify targets, conduct surveillance, and assist in engaging targets during all lighting conditions. It can be used under conditions of limited visibility and battlefield obscurants such as smoke, fog, and sandstorms. This binocular will provide vision and range-finding capabilities for long-range observation and reconnaissance. The LRTI shall operate to detect man-sized targets at a range of 3,600 meters. This binocular thermal imager will replace the SOPHIE thermal system.

TECHNICAL CHARACTERISTICS

Magnification 2X	Extender with 1X to 4X electronic zoom	Fields of View:	
Focus Charge	Motorized	Narrow (HxV)	2.75 deg X 2.06 deg ± 5%
Focus Range	30 m to infinity in NFOV 10 m to infinity in WFOV	Wide (HxV)	8.25 deg X 6.18 deg ± 5%
Reticle Adjustment	Electronically generated	Length	9.6 in. (24.3 cm)
Weight	7 lb w/ batteries	Width	10 in. (25.4 cm)
		Height	3.95 in. (10.03 cm)

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Qty</u>	<u>Item</u>
1	Pack, Carrying	1	Cleaning, Kit
1	2X Extender	1	Battery, Disposable

REFERENCES

- TM 10988B-OR/1, Operator's Manual, Thermal Sight, AN/PAS-22.
- TM 10988B-IN/1, Field Level Maintenance Manual, AN/PAS-22.
- See SL-1-2 for a complete listing of applicable publications.

M49 TELESCOPE, STRAIGHT

TAMCN E19007B

NSN 6650-00-530-0960

ID 00591A



TM8K-067

DESCRIPTION AND FUNCTION

The M49 Telescope, Straight is an erect image instrument of the prism offset type that uses two Porro prisms and the lenses in the eyepiece to erect and magnify an image. It has no reticle, has a fixed magnification, and is used only for observation. The telescope is focused by turning the knurled focusing sleeve on the eyepiece. The tripod, M15, supports the instrument about 1 foot above the ground and provides full rotation in azimuth and limited movement in elevation.

TECHNICAL CHARACTERISTICS

Magnification	20X	Objective	14.21 in. (36.10 cm)
Field of View	2 deg, 12 ft	Eyepiece	5.8 in. (14.73 cm)
Diameter of Exit Pupil	0.108 in. (.274 cm)	Volume	0.3 cu.ft
Equiv. Focal Length-Objective	14.21 in. (36.09 cm)	Length	14.5 in. (36.8 cm)
Equiv. Focal Length-Eyepiece	0.716 in. (1.81 cm)	Width	5 lb (2.3 kg)
Weight	1 lb, 12 oz (.794 kg)		

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Qty</u>	<u>Item</u>
1	Objective Assembly	1	Body, Tube
1	Prism Housing Assembly	1	Eyepiece Assembly
1	Eyepiece Cover	1	Objective Cover

ASSOCIATED COMPONENTS

- Tripod M15
- Case, Telescope M164
- Case, Carrying M42A1

REFERENCES

- TM 9-6650-212-12, Operator's and Organizational Maintenance Manual, Telescope, Observation, M49, W/E.
- TM 9-6550-212-20P, Maintenance Manual, Telescope, Observation, M49, W/E.
- See SL-1-2 for a complete listing of applicable publications.

RIFLE COMBAT OPTICS (RCO), AN/PVQ-31A (A4) AND AN/PVQ-31B (M4)

TAMCN E17107G (A4)

NSN 1240-01-525-1648

ID 11064A (A4)

TAMCN E00177M (M4)

NSN 1240-01-534-1114

ID 11064B (M4)



TM8K-068

DESCRIPTION AND FUNCTION

The Rifle Combat Optics (RCO) is an optical aiming sight designed for use with the service rifle configured with the MIL-STD-1913 Rail Adapter System. It attaches to the rail to provide the user a targeting tool to engage distant daylight and near low-lit targets with increased identification certainty. The reticles of the two RCO scopes appear identical. However, each reticle is specific to the ballistics of the weapon and is marked with identification at the bottom center of the reticle display. The RCO is a slightly modified version of the ACOG. The RCO (A4) will be mounted on the M16A2 or M16A4 Rifles. The RCO (M4) will be mounted on the M4A1 Carbine.

TECHNICAL CHARACTERISTICS

Magnification	4X	Eye Relief	1.5 in. (3.81 cm)
Field of View	7.0 deg, 36.8 ft @ 100 yd	Length	5.8 in. (14.73 cm)
Reticle Adjustment	19 in. (.453 kg) @ 300 yd		
Weight	1 lb (.453 kg)		

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>
1	Case, Carrying, Lightweight

ASSOCIATED COMPONENTS

- Bag, Carrying
- TA31 Flattop Mount
- Battery, Dry
- Softcase, Lens Pen
- Case, Storage, Transport
- Lens Protector, Rubber

REFERENCES

- TM 11064-OI/1 Operator's Manual for the AN/PVQ-31A and AN/PVQ-31B, Rifle Combat Optic.
- See SL-1-2 for a complete listing of applicable publications.

SCOUT SNIPER DAY SCOPE (SSDS)

TAMCN N/A

NSN 1240-01-533-1854

ID 89072C



TM8K-070

DESCRIPTION AND FUNCTION

The Scout Sniper Day Scope (SSDS) is replacing the 10X Unertl Sniper Scope with a variable power scope telescope on rifles throughout the United States Marine Corps. The SSDS is a variable power scope that provides the scout/sniper with the capability to clearly, easily, and quickly acquire and engage targets out to the maximum effective range of the host weapon. The SSDS allows for the use of properly matched adjustment cams to fire from 100 yards to the maximum effective range for the M40A3 firing M118LR ammunition and the M82A3 firing MK211 Raufoss ammunition. It is waterproof up to 33 feet and has a first focal plane, USMC mil-dot duplex type reticle. The SSDS mounts on existing MIL-STD-1913 rail systems on the M40A3 and M82A3 sniper rifles. It has an adjustable magnification ranging from 3X to 15X and contains a USMC mil-dot duplex type reticle.

TECHNICAL CHARACTERISTICS

Magnification	3X to 15X	Weight	2 lb, 3 oz
Mil-dot Reticle	0.2 mm round dot duplex	Eye Relief	3 in. to 5 in. (7.62 cm to 12.7 cm)
Battery Type	3 VDC CR2032 Lithium		

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>
1	Sight Assembly

ASSOCIATED COMPONENTS

- Soft Carrying Case
- Lens Cleaning Kit
- Lens Covers

REFERENCES

- SSDS COTS TM

VISIBLE LIGHT ILLUMINATOR REPLACEMENT (VLIR), AN/PVS-29

TAMCN E00387B

NSN 5855-01-552-3289

ID 11452A



TM8K-073

DESCRIPTION AND FUNCTION

This VLIR is a compact, lightweight, combat flashlight that projects a wide-angle beam with a concentrated central beam of white light for searching, acquisition, identification, and momentary dazzling of targets in any low-light environment. The VLIR can be used in either the hand-held or weapon-mounted mode. The VLIR mounts to the M16A4 service rifle, M4A1 Close Quarter Battle Weapon, and the M1014 shotgun via an integral MIL-STD-1913 rail attachment and Rail Adapter System (RAS).

TECHNICAL CHARACTERISTICS

Weight	11.5 oz (.32 kg) w/o batteries	Battery Type	CR123A 3.0 V Lithium (two needed) or AA (six needed)
Range	> 100 yd (100 m)	Output Power Visible:	
Waterproof	To 66 ft (20.11 m)	High	125 Lumens (60 min)
Length	8.125 in. (20.6 cm)	Ultra High	225 Lumens (20 min)
Width	2.8 in. (7.1 cm)		
Height	1.6 in. (4 cm)		

MAJOR COMPONENTS

Qty	Item	Qty	Item
1	Cable Switch, Membrane	2	Strap, Retention
1	Filter, Black	1	Filter, Red
1	Filter, Opaque	1	Manual, Operators
6	Batteries (AA)	3	Batteries (Lithium)
1	Carrying Bag	3	Fastener Tape, Loop
1	Jack Plug		

ASSOCIATED COMPONENTS

- Beam Diffuser
- Filters; Blue, Red and Infrared

REFERENCES

- TM 11452A-OR/1, Operator's Manual, AN/PVS-29.
- See SL-1-2 for a complete listing of applicable publications.

INFRARED ZOOM LASER ILLUMINATOR DESIGNATOR (IZLID) 1000P-A1

TAMCN E00067B

NSN 5855-01-502-6414

ID 11173A



TM8K-074

DESCRIPTION AND FUNCTION

The IZLID is a Class 4 infrared laser pointer and illuminator for use with night vision or infrared sensitive camera systems. The beam is adjustable from tight pinpoint (0.1 mrad) to a wide flood beam (13.4 mrad) with a quick twist of the lens. A multi-position switch allows the laser to operate at three different power levels. LOW (500 mW), HIGH (900 mW), and PULSE (1,000 mW @ 304 Hz).

TECHNICAL CHARACTERISTICS

Weight	1 lb, 7 oz	Output Power:	
Divergence:		Low	500 mV (max)
Narrow	0.263 mrad	High	950 mV
Wide	6.7 mrad	Pulse	1,000 mV
Wavelength	860 ± 10 Nm	Pulse Duration	145 ms
Length	10.75 in. (27.3 cm)	Battery Type	AA Alkaline (four needed)
Width	2 in. diameter (5.0 cm)		
Waterproof	To 66 ft (20.11 m)		

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Qty</u>	<u>Item</u>
1	Case, Carry	1	Mount, Sight
1	Cover, Flip Lens	4	Batteries (AA)
1	Switch, Remote Fire	1	Plug, Arming

ASSOCIATED COMPONENTS

- LENS PEN
- Loctite, Blue 587
- Paper, Lens
- Kit, Lens Cleaning
- Grease, Silicone

REFERENCES

- TM 11173A-OR/1A, Operator's Manual, Infrared Zoom Laser Illuminator Designator (IZLID).
- See SL-1-2 for a complete listing of applicable publications.

NON-LETHAL VISUAL HAILING DEVICE (GBD-IIIC), LA-9/PTAMCN E00537BNSN 5860-01-544-7175ID 11352A

TM8K-075

DESCRIPTION AND FUNCTION

The GBD-IIIC is an equipment mounted non-lethal visual disruption system. It is a Class IIIB (ANSI Class 3b) laser that emits a concentrated beam of visible green light. This laser device performs two functions: to provide a decisive hail and warning signal in excess of 1,000 m and to visually disrupt the critical task of a targeted subject. This laser device is weapon mountable and can be zeroed to the weapon with an optional ELCAN mount.

Intended Operators: Marines engaged in AT/FP missions.

Weapon Platforms: The GBD-IIIC should be used in weapon-mounted mode. The GBD-IIIC mounts to the M16A2/A4 service rifle, M4A1 Close Quarter Battle Weapon, and the M1014 shotgun via an integral MIL-STD-1913 rail attachment bracket.

TECHNICAL CHARACTERISTICS

Weight	24 oz (.68 kg)	Waterproof	To 66 ft (20.11 m)
Length	10.5 in. (26.6 cm)	Wavelength	532 ± 10 Nm
Width	1.7 in. diameter (4.3 cm)	Battery Type	AA Alkaline (four needed)
Output Power	80-250 mW, 140 mW typical		

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Qty</u>	<u>Item</u>
1	Case, Carry	1	Mount, Sight (ELCAN)
4	Batteries (AA)	1	Plug, Interlock
1	Switch, Remote Fire		

ASSOCIATED COMPONENTS

- LENS PEN
- Grease, Silicone
- Loctite, Blue 587

REFERENCES

- TM 11352A-OI, Operator's Manual, Non-Lethal Visual Hailing Device (GBD-IIIC).
- See SL-1-2 for a complete listing of applicable publications.

AN/PEQ-15 ADVANCED TARGET POINTER ILLUMINATOR AIMING LIGHT (ATPIAL)

TAMCN E17987G

NSN 5855-01-534-5931

ID 10470B



TM8K-076

DESCRIPTION AND FUNCTION

The ATPIAL provides a highly collimated beam of infrared energy for weapon aiming and an adjustable focus infrared beam for target illumination. This Class 3b laser device also provides a highly collimated beam of visible energy for weapon aiming. The ATPIAL has low profile aiming and illumination borelight adjusters. This device is 50% smaller and lighter than the TPIAL. The system comes with a MIL-STD-1913 rail grabber interface using the integral rail grabber bracket. The ATPIAL is the successor to the AN/PEQ-2A.

Intended Operators: One per individual and crew-served weapon in Ground Combat Element; one per night vision goggles for Wing and MLG units.

Weapon Platforms: The ATPIAL has an integral rail grabber bracket that mounts to any weapon using the standard MIL-STD-1913 rail, which includes the M4/M16 A4 rifles, M249, M240, M2, and MK 19. The ATPIAL can also be used as a handheld illuminator/pointer.

TECHNICAL CHARACTERISTICS

Weight	7.5 oz (21.0 Kg)	Output Power	4.0 mW (±1.0 mW)
Battery Type	DL123A Lithium 3.0 V (one needed)	Waterproof	To 19.68 ft (6 m)
Length	4.5 in. (11.43 cm)	Wavelength	605 to 665 Nm
Width	2.8 in. (7.11 cm)	Range	82 ft (25 m)
Height	1.6 in. (4.06 cm)	Divergence	0.5 mrad

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Qty</u>	<u>Item</u>
1	Case, Soft Carry	5	Generators, Pattern
1	Battery, DL123A (Lithium)	1	Strap, Retaining
1	Switch, Remote Cable		

ASSOCIATED COMPONENTS

- Kit, Lens Cleaning
- Switch, Cable, 20-in.
- Switch, Cable, 25-in.
- Switch, Cable, 28-in.
- Borelight, Laser

REFERENCES

- TM 10470B-OI/1, Operator and Unit Maintenance Manual, Advanced Target Pointer Illuminator Aiming Light, AN/PEQ-15.
- See SL-1-2 for a complete listing of applicable publications.

AN/PEQ-16 INTEGRATED POINTER/ILLUMINATOR MODULE (IPIM)**TAMCN** E00587G**NSN** 5855-01-538-5521**ID** 104470A

TM8K-077

DESCRIPTION AND FUNCTION

This Class 3b laser device, the IPIM, provides a highly collimated beam of infrared energy for weapon aiming and an adjustable focus infrared beam for target illumination. The IPIM is designed to withstand the shock of heavy weapons. The White Light Illuminator provides target identification/illumination without night vision devices, and is greater than 60 lumens in the high power mode. The IPIM has low profile aiming and illumination bore light adjusters. This device can be used as a handheld illuminator/pointer or can be mounted to weapons with a MIL-STD-1913 Rail. Will replace TPIAL along with ATPIAL and AN/PEQ-16A Mini-IPIM (MIPIM).

Intended Operators: One per Close Quarters Battle Weapon (CQBW) (kit).

Weapon Platforms: The IPIM has an Integral Rail Grabber Bracket that mounts to various weapons, including M16A4, M4/M4A1, M240B, M249, and M240G. The IPIM has an M240/M249 Adapter Bracket.

TECHNICAL CHARACTERISTICS

Weight	11 oz (.31 kg)	Output Power	4.0 mW (± 1.0 mW)
Battery Type	DL123A Lithium 3.0 V (two needed)	Waterproof	19.68 ft (6 m)
Length	5.5 in. (13.9 cm)	Wavelength	605 to 665 Nm
Width	2.9 in. (7.3 cm)	VIS Light	82 ft (25 m)
Height	2.3 in. (5.8 cm)	Divergence	0.5 mrad
Range	25 - 2,000 M		

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Qty</u>	<u>Item</u>
1	Case, Soft Carry	1	Generators, Pattern (Set of Five)
1	Battery, DL123A Lithium 3.0 v	1	Strap, Retaining
1	Switch, Remote Cable	1	Bracket, Adapter (M240/M249)
1	Assembly, Bulb		

ASSOCIATED COMPONENTS

- Kit, Lens Cleaning
- Grease, Silicone
- Switch, Cable, 20-in.
- Switch, Cable, 25-in.
- Switch, Cable, 28-in.
- Borelight, Laser

REFERENCES

- TM 10470B-OI/1, Operator and Unit Maintenance Manual, Advanced Target Pointer Illuminator Aiming Light, AN/PEQ-15.
- See SL-1-2 for a complete listing of applicable publications.

AN/PVS-27 SCOUT SNIPER MEDIUM RANGE NIGHT SIGHT (SSMRNS)

TAMCN E00207B

NSN 5855-01-547-9489

ID 8J671B



TM8K-078

DESCRIPTION AND FUNCTION

System Description: The SSMRNS will provide a new medium-range night sight capability that will integrate with the M40A3, M82A3, and a semi-automatic sniper rifle. The SSMRNS is a lightweight, weapon mounted, battery operated imaging device for engagement of targets at night and low light conditions. The SSMRNS is an individual optic, capable of assisting scout sniper teams engaging targets during reduced light and/or obscured targets with increased identification certainty from 400-800 yards. The SSMRNS shall be used in conjunction with the Scout Sniper Day Scope (SSDS).

Intended Operators: Scout Sniper Teams and Designated Marksmen.

Weapon Platforms: The SSMRNS mounts to the M40A3 Sniper Rifle, MIL-STD-1913 Rail, and existing rail systems on the M40A3, M82A3, and MK11 Mod1 Sniper Rifles.

TECHNICAL CHARACTERISTICS

Magnification	1X	Range:	
Field of View	10 deg	Starlight	
Weight	3.5 lb (w/o batteries) 3.7 lb (w/ batteries)	Vehicle	3,444 yd (3,150 m)
Length	9 in. (22.8 cm)	Man	1,476 yd (1,350 m)
Focus Range	15 m to infinity	1/4 Moon	
Battery Type	AA 1.5 VDC (two needed) (Lithium or Alkaline)	Vehicle	4,450 yd (4,070 m)
Battery Life	> 8 hours @ -25°F (-32°C) > 18 hours @ ≥ 32°F (-36°C)	Man	1,891 yd (1,730 m)
		Recognition Range	800-1,000 yd (731-914 m)

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Qty</u>	<u>Item</u>
1	Carrying/Storage Case	1	Wrench, Mount Adjustment
4	Battery, AA 1.5 VDC (2 Sets)	1	LENSPEN 1
1	2.0 x 40 Screwdriver	1	Card, Laminated, Light Shroud Instruction
1	Card, Laminated, Operation/Maintenance	1	Operator/Maintenance Manual
1	Lens Cover, Front	1	Anti-Reflection Device (ARD)
1	Lens Cover, Rear	1	Night Sight Assembly (w/ lever actuated rail mount attached)

REFERENCES

- TM 11085B-OR/1, Operator Manual Sight, Night Vision Sniperscope AN/PVS-27.
- See SL-1-2 for a complete listing of applicable publications.

ELECTRO-OPTICAL MAINTENANCE SHELTER COMPLEX (EOMSC)
















TAMCN E00677B

NSN 5410-01-551-1127

ID 11424A



TM8K-101

<p>Generator Set, Diesel Engine</p>  <p>B10217B</p>  <p>E00707B</p>	<p>EOMSC Equipment Carrier (Flat-rack)</p>  <p>E00787B</p> <p>MEPDIS-R 30kw MEPDIS-R 100kw</p>  <p>B00307B</p>  <p>B00317B</p>	<p>Maintenance, Extended Height Workshop (MEX -26)</p>  <p>E00797B</p>
<p>Optics Shelter E17137B</p>   <p>E03602E E03902E E04302E E00807B E12607B</p>  <p>E00707B A25467GA B00087B</p>	<p>Night Sight Shelter E10227B</p>   <p>E19487G A77067GA E00807B</p>  <p>E00707B A25467GA B00087B</p>	<p>TOW Shelter E32367B</p>   <p>A77067GA A25467GA E00807B</p>  <p>E00707B B00087B</p>

TM8K-115

DESCRIPTION AND FUNCTION

System Description: The EOMSC Program is a maintenance program to replace all of the out-of-date Electro-Optical Maintenance Shelter platforms in the Fleet Marine Force. The new Shelter Complex will provide a larger working area while lessening the logistics embarkation footprint by half. It consists of three trailer-mounted shelters with a flat rack to carry all ECUs, generators, ducting, power cables, and tenting.

Intended Operators: Electro-Optical Repairmen (MOS 2171).

TECHNICAL CHARACTERISTICS

Weight 135,980 lb (61,679 kg) (combined equipment)
 Power Requirements 60 kw generator

ELECTRO-OPTICAL MAINTENANCE SHELTER COMPLEX (EOMSC) - CONTINUED

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>
TBD	TBD

ASSOCIATED COMPONENTS

- | | |
|---------|-------|
| • B1021 | E0390 |
| • E0070 | E0430 |
| • E0078 | E0080 |
| • B0030 | E1260 |
| • B0031 | E0070 |
| • E0079 | A2546 |
| • E1713 | B0008 |
| • E1022 | E1948 |
| • E3236 | A7706 |
| • E0360 | |

REFERENCES

- Technical Manual in development.
- See SL-1-2 for a complete listing of applicable publications.

MEDIUM RANGE THERMAL BI-OCULAR (MRTB)

TAMCN E00127G

NSN 5855-01-535-0971

ID 11237A



TM8K-121

DESCRIPTION AND FUNCTION

MRTB is a stand-alone, hand-held, battery-operated portable binocular used to observe/orient, detect, and identify targets, conduct surveillance, and assist in engaging targets during all lighting conditions. It can be used under conditions of limited visibility and battlefield obscurants such as smoke, fog, and sandstorms. This binocular will provide vision capabilities for tactical-range observation and machine gun fire direction and control. The MRTB will have an integrated laser pointer with selectable Class 1 eye-safe mode and Class 3B combat mode to designate targets, danger areas, and points of interest for Marines equipped with Image Intensifier devices such as the AN/PVS-14 and AN/PVS-17 night vision systems.

TECHNICAL CHARACTERISTICS

Magnification	1.0X, 2.0X, 4.0X Digital Zoom		
Range	<550 m	Eye Pupil	TBD
Objective Lens	TBD	Length	TBD
Field of View	12 deg x 9 deg	Width	TBD
Reticle Adjustment	TBD	Weight	3.75 lb w/ batteries (1.70 kg)
Eye Relief	TBD	Battery Requirements	AA (four needed) (non-rechargeable)

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>
TBD	TBD

ASSOCIATED COMPONENTS

- TBD

INDIVIDUAL WEAPON NIGHT SIGHT-THERMAL (IWNS-T), AN/PAS-27

TAMCN E00627G

NSN 5855-01-559-7064

ID 11545A



TM8K-122

DESCRIPTION AND FUNCTION

IWNS-T is a clip-on thermal sight that will be used in conjunction with the RCO in the M16A4 service rifle and M4 carbine. The IWNS-T will attach in front of the RCO to the MIL-STD-1913 rail system, while maintaining zero. This thermal device is a portable, battery operated, electro-optical sight used to locate and engage targets during day, night, and other adverse conditions such as light rain, light snow, and dry smoke.

TECHNICAL CHARACTERISTICS

Magnification	1.0X (with RCO) and 2.0X Digital Zoom		
Range	546 yd (500 m)	Height	3.8 in. (96.5 mm)
Field of View	12 deg	Weight	<2 lb (.74 kg) w/ batteries
Length	7.3 in. (185.4 mm)	Battery	4 DL123A Lithium
Width	2.9 in. (73.66 mm)		(four needed)

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Qty</u>	<u>Item</u>
1	Soft case	8	Batteries
1	Operator's Manual	1	Video Cable
1	Lens Kit	1	Interface Hood
1	Quick Reference Guide (QRG)		

ASSOCIATED COMPONENTS

- TBD

REFERENCES

- TM 11545A-OR

AN/PVS-21 LOW PROFILE NIGHT VISION GOGGLES (LP-NVG)**TAMCN** E00617B**NSN** 5855-01-511-0994**ID** 11487A

TM8K-081

DESCRIPTION AND FUNCTION

The AN/PVS-21 Low Profile Night Vision Goggle (LP-NVG) design enables aggressive night mobility. The low-profile design with a total depth of just over 3 inches is unequalled for aggressive night operations such as rapid terrain traversal, weapons employment, parachuting, close-quarter battle, and vehicle operations. The see-through optics design eliminates tunnel vision and enables smooth, natural transition from dark to light, defeats blinding glare, and improves operations during ambient light surges. The AN/PVS-21 has the Enhanced Heads Up Display (EHUD) that allows integration of additional sensors/systems into a single image.

TECHNICAL CHARACTERISTICS

Range	13 in. (33 cm) to infinity	Length	TBD
Field of View	40 deg	Weight	1.68 lb (1.72 kg) w/ battery
Magnification	1.0X		
Battery Type	Lithium or 3.6 VDC Lithium (one needed)		

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>
TBD	TBD

ASSOCIATED COMPONENTS

- TBD

REFERENCES

- STS Inc., Beavercreek, OH

AN/PVS-24A INDIVIDUAL WEAPON NIGHT SIGHT I² (IWNS-I²)

TAMCN E00087G

NSN 5855-01-558-3616

ID 11499A



TM8K-082

DESCRIPTION AND FUNCTION

IWNS-I² is an individual imaging device capable of acquiring targets at night with increased recognition certainty when used in conjunction with the RCO variants.

TECHNICAL CHARACTERISTICS

Range	153 yd (140 m)	Length	5.8 in. (147.3 mm)
Magnification	1.0X	Width	3.7 in. (93.98 mm)
Battery Type	CR123A Lithium battery (one needed) or AA Alkaline battery (one needed)	Height	3.3 in. (83.8 mm)
Weight	1.70 lb (.71 kg) w/ batteries		

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Qty</u>	<u>Item</u>
1	Soft Case	3	Batteries
1	Operator Manual	1	Battery Adapter
1	Quick Reference Guide (QRG)	1	Objective Hood
1	Lens Kit	1	Interface Hood
1	Wrench - 3/8 in.		

ASSOCIATED COMPONENTS

- TBD

REFERENCES

- Insight Technology Inc., Londonderry, NH
- TM 11499A-OR

AN/PEQ-16A MINI-INTEGRATED POINTER/ILLUMINATOR MODULE (MIPIM)

TAMCN E00587G

NSN 5855-01-550-2780

ID 11407C



TM8K-127

DESCRIPTION AND FUNCTION

This is a Class 3b laser device that provides a highly collimated beam of infrared energy for weapon aiming and an adjustable focus infrared beam for target illumination. The MIPIM is designed to withstand the shock of heavy weapons. The White Light Illuminator provides target identification/illumination without night vision devices, and is greater than 60 lumens in the high power mode. The MIPIM has low profile aiming and illumination bore sight adjusters. This device can be used as a MIL-STD-1913 Rail. This item is planned to replace the TPIAL along with the ATPIAL and IPIM.

TECHNICAL CHARACTERISTICS

Range:		Wavelength	605-665 nm visible
Laser	25-2,000 m		820-860 nm infrared aiming
Visible Light	50 m		820-860 nm infrared illumination
Battery Type	DL123A Lithium or equivalent (two needed)	Range	25 m visible
Weight	9.9 oz (.28 kg) w/ batteries		600 m infrared aiming (LOW)
Height	2.3 in. (58.42 mm)		2,000 m infrared aiming (HIGH)
Width	2.9 in. (73.66 mm)		600 m infrared illumination (LOW)
Length	5.5 in. (139.7 mm)		2,000 m infrared illumination (HIGH)
Output Power	4.0 mW (± 1.0 nW)		

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>
TBD	TBD

ASSOCIATED COMPONENTS

- TBD

REFERENCES

- Insight Technology Inc., Londonderry, NH

AN/PEQ-14 INTEGRATED LASER WHITE LIGHT POINTER (ILWLP)**TAMCN** E09577B**NSN** 5855-01-538-0191**ID** 10820C

TM8K-084

DESCRIPTION AND FUNCTION

The AN/PEQ-14 ILWLP is a Class 3b laser device that provides the user with either visible or infrared illumination of the target for target acquisition, and either visible or infrared target aiming point for fire control. Both laser beams can be zeroed to the weapon and each other. The laser beams can also be operated in combination with the visible and IR illumination beams.

TECHNICAL CHARACTERISTICS

Range:	
Laser	328 ft (100 m) minimum; visible
Light	82 ft (25 m)
Battery Type	DL123A Lithium or equivalent (two needed)
Weight	6 oz (.18 kg) with batteries

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>
TBD	TBD

ASSOCIATED COMPONENTS

- TBD

REFERENCES

- Insight Technology Inc., Londonderry, NH

SCOUT SNIPER OBSERVATION TELESCOPE (SSOT)

TAMCN E00167B

NSN TBD

ID TBD

TBD

DESCRIPTION AND FUNCTION

The SSOT is a lightweight, variable power, tripod mounted telescope that will replace the out-dated M49 Sniper 20X power fixed telescope throughout the United States Marine Corps. The SSOT is used for detecting, recognizing, observing, identifying, and ranging targets during daylight with increased identification certainty. The Sniper Observer Night Observation Device. The intent of the SSOT is to provide the Marine Scout Sniper Team with enhanced ability to clearly, easily, and quickly engage targets out to the maximum effective range of the individual weapons during the day and when used in conjunction with the SSMRNS in night and low light conditions.

TECHNICAL CHARACTERISTICS

Range	TBD	Width	TBD
Magnification	TBD	Weight	TBD
Battery Type	N/A		
Range	TBD		

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>
TBD	TBD

ASSOCIATED COMPONENTS

- TBD

REFERENCES

- TBD

SOUND COMMANDER 3600 (SC3600)

TAMCN A02507G

NSN TBD

ID TBD



TM8K-129

DESCRIPTION AND FUNCTION

The SC3600 tactical sound system generates clear, articulate audio at a continuous volume level of 134dB (RMS). The SC3600 can reach out to ranges beyond 2,000 meters. The system, with exception of the adjustable equipment stand, is contained within two rugged Roto-Mold hard cases. The first case contains a high-quality, multiple input audio controller/preamplifier; power amplifier; internal three-speaker reentrant horn array; and hands-free headset microphone, three-tone siren, and internal 12 VDC rechargeable battery pack. The second Roto-Mold hard case contains an additional three loudspeaker, horizontal array (also removable for remote operation), and an additional soft accessory storage case in the lid. Hardware is included for stacking and locking one case on top of the other, thus forming a single stacked array of six loudspeakers, offering maximum power projection in one direction.

TECHNICAL CHARACTERISTICS

Power Rqmts	12 VDC
Range	328 to 2,187 yd (300 to 2,000 m)
Weight:	
Operational	76 lb (34.5 kg)
Stowage	92 lb (42 kg)

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>		
2	Molded Hard Cases	2	3-Speaker Arrays
1	Stacking/Locking Hardware	1	Audio Controller/Preamplifier
1	Power Amplifier	1	Hands-Free Headset/Microphone
1	Three-Tone Siren	1	12 VDC Rechargeable Battery Pack
2	Soft Accessory Storage Case	1	Adjustable Equipment Stand w/ Case
1	AC/DC Power Supply/Charger		

ASSOCIATED COMPONENTS

- TBD

REFERENCES

- TBD

NON-LETHAL/TUBE LAUNCHED MUNITION SYSTEM (NL/TLMS)

TAMCN C00247B

NSN 1055-01-563-6749

ID 11586A



TM8K-123

DESCRIPTION AND FUNCTION

The NL/TLMS is a 40 mm, multi-shot, electrically-actuated, non-lethal munitions grenade launcher mounted to the High Mobility Multi-purpose Wheeled Vehicle (HMMWV) turret blast shield. The NL/TLMS system consists of three banks of 10 launch tubes, each at fixed angles of 10, 20, and 30 from the horizontal, achieving 360-degree coverage by traversing the HMMWV turret. The Non-Lethal/Tube Launched Munitions System fires a multi-flash-bang grenade out to ranges beyond 100 m. The system is comprised of three subsystems: launcher, firing circuit, and ammunition. NL/TLMS will provide Marine Forces the ability to deliver a high volume of non-lethal fire at range, both day and night, enhancing convoy security operations. NL/TLMS will enable Marines to deter and dissuade errant vehicle operators from encroaching into security zones by helping to determine intent and increasing standoff distance and reaction time in responding to threats.

TECHNICAL CHARACTERISTICS

Power Rqmts	12 VDC	Battery	AA, Alkaline (six needed)
Range	120 m (± 10 m)	Field of Fire	10 deg, 20 deg, and 30 deg banks
Magazine	30 rounds		
Coverage	360 deg	Weight	34 lb without ammunition
Munitions	Flash-bang		65 lb with ammunition

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>
TBD	TBD

ASSOCIATED COMPONENTS

- TBD

REFERENCES

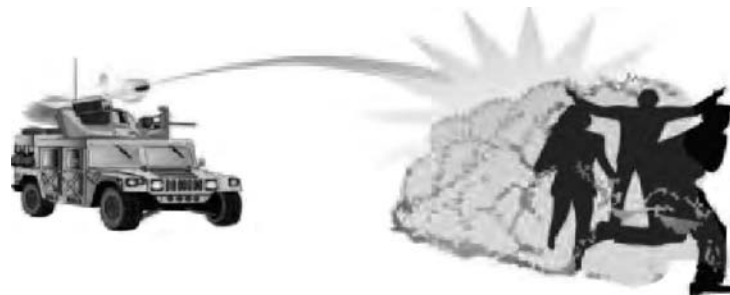
- Combined Tactical Systems, Jamestown, PA

MISSION PAYLOAD MODULE - NON-LETHAL WEAPONS SYSTEMS

TAMCN E00327M

NSN TBD

ID TBD



TM8K-124

DESCRIPTION AND FUNCTION

The Mission Payload Module (MPM) - Non-Lethal Weapons System is being developed to engage group targets and deter personnel from conducting potentially hostile acts while minimizing the possibility of permanent injury or death. When fielding, the MPM will provide greater range and standoff distances than existing non-lethal munitions and will address current shortcomings and operational deficiencies in volume of (non-lethal) fire against area targets. The availability of the longer-range non-lethal capability mounted on a variety of platforms will allow U.S. commanders to engage threatening personnel in a graduated, non-lethal manner, short of employing lethal force. The U.S. Marine Corps is currently in Technology Development and will proceed into System Development and Demonstration in FY09.

TECHNICAL CHARACTERISTICS

Power Rqmts	TBD
Range	492 ft (150 m)
Duration	TBD
Accuracy	TBD

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>
TBD	TBD

ASSOCIATED COMPONENTS

- TBD

REFERENCES

- TBD

NITROGEN GENERATOR

TAMCN E00807B

NSN 3655-01-556-1083

ID 11483A



TM8K-086

DESCRIPTION AND FUNCTION

The N2-GEN™ provides an economical, precise means of generating high-purity nitrogen. The system consists of an internal nitrogen generator and air compressor and extracts nitrogen from air. The nitrogen is generated by means of the air compressor pushing air into the simple membrane element, which in turn mechanically separates nitrogen molecules from other molecules found within air.

TECHNICAL CHARACTERISTICS

Power Rqmts	110 VAC; 20-amp breaker
Range	N/A
Weight	75 lb (34 kg)

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>
TBD	TBD

ASSOCIATED COMPONENTS

- TBD

REFERENCES

- South-Tek, Raleigh, NC

SHOP EQUIPMENT CONTACT MAINTENANCE VEHICLE (SECMV)

TAM C70077B

NSN 4940-01-552-1599

ID 11446A



TM8K-102

DESCRIPTION AND FUNCTION

The SECMV will provide a contact maintenance capability that will allow Marines to travel forward of the battle area and perform limited preventive and corrective maintenance on all types of Marine Corps weapons systems. The SECMV shall be a M1152 HMMWV with an S-788/G Short Shelter designed to provide “As Far Forward As Possible”, Operator/Crew and Field Level maintenance capability for the maintenance/repair of combat equipment and weapon systems throughout the Marine Corps.

TECHNICAL CHARACTERISTICS

Power Rqmts	AC Shore Power Capable/DC Power generated by HMMWV via on-board 5000W DC/AC inverter
Range	N/A
Weight:	
M1152 Straight Leg	9,595 lb (4,352 kg)
M1152A	10,295 lb (4,670 kg)
M1152 Up Armored	11,955 lb (5,423 kg)

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>
TBD	TBD

ASSOCIATED COMPONENTS

<u>TAM #</u>	<u>ID #</u>	<u>Nomenclature</u>	<u>Type/Model</u>
B00074BA	11453A	Air Conditioner, 0.75 Ton, 9,000 BTU/hr, 60 Hz	9KECU (NSN 4120-01-552-5225)
D00227KA	11285A	Truck, Utility	M1152 (NSN 2320-01-518-7332)
A0126	11255A	Radio Set, Multi-band High-Frequency Vehicle-Mounted	AN/VRC-103 (NSN 5820-01-537-7562)
A25467GA	10838F	Laptop, Ruggedized	Tough Book Laptop (NSN 7010-09-000-4287)
E00807B	11483B	Nitrogen, Generator	(NSN 3655-01-556-1083)

REFERENCES

- Systems integrator is Marine Corps Logistics Base, Barstow, CA.

TOOL KIT, ELECTRO-OPTICAL (EOTK)**TAMCN** E22082B**NSN** 5180-01-382-1335**ID** 09863A

TM8K-090

DESCRIPTION AND FUNCTION

The EOTK is intended to be issued as an individual tool kit for the Electro-Optical Ordnance Repairer (MOS 2171) who inspects, tests, and repairs Marine Corps electrical optics. The Electro-Optical Tool Kit will support all the Electro-Optical equipment in the Marine Corps. The optics serviced by this kit include, but are not limited to, are the E0139 M3 Bore Scope, E0180 M292 Aiming Circle, E0205 M1A2 Collimator, E0325 AN/UAS12 Night Vision Equipment, E1045 AN/PAQ3 Laser Equipment, E1152 AN/PVS-7 Night Vision Goggles, E1154 AN/PVS-14 Night Vision Goggles, E1159 AN/PVS-5 Night Vision Sight, and E1900 M49 Telescope.

TECHNICAL CHARACTERISTICS

Power Rqmts	Not Applicable
Range	N/A
Weight	70 lb

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>
TBD	TBD

ASSOCIATED COMPONENTS

<u>TAM #</u>	<u>Nomenclature</u>
E10227B	Night Sight Shelter
E17137B	Optics Shelter
E32367B	TOW Shelter
E70077B	SECM Vehicle

REFERENCES

- TBD

INFANTRY BINOCULARS – TACTICAL COTS

TAMCN E00847B

NSN 6650-01-559-3648

ID 11539A



TM8K-091

DESCRIPTION AND FUNCTION

The Tactical Infantry Binocular is a hand-held binocular. This system will aid the individual Marine in target detection, recognition, and identification of threats. The ability of Marines to identify IEDs from greater distances and locate snipers shall be enhanced, thereby increasing the combat effectiveness and lethality of the Marine.

TECHNICAL CHARACTERISTICS

Power Rqmts	N/A	Intended Effects	TBD
Duration	N/A	Weight	22.9 oz (.64 kg)
Accuracy	N/A		

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>
TBD	TBD

ASSOCIATED COMPONENTS

- TBD

REFERENCES

- Leupold & Stevens, Inc. Beaverton, OR.

SU-260P MACHINE GUN DAY OPTIC (MDO)

TAMCN E00887B

NSN 1240-01-578-0211

ID 11792A



TM8K-125

DESCRIPTION AND FUNCTION

Medium Machine Gun Day Optic (MDO) will be a magnified day optic that mounts on the M240B Medium Machine Gun. This system will aid the machine gunner in target detection, recognition, and identification, thereby increasing the combat effectiveness and lethality of the machine gun team.

TECHNICAL CHARACTERISTICS

Magnification	6.0X	Intended Effects	TBD
Power Source	Fiber Optic/Tritium	Recognition Range	1,312 yds (1,200 m)
Battery Life	Not Applicable		
Field of View	3.2 deg		
Weight	2.7 lb (1.2 kg)		

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>
TBD	TBD

ASSOCIATED COMPONENTS

- TBD

REFERENCES

- TBD

SU-258/PVQ SQUAD DAY OPTIC (SDO)

TAMCN E00827B

NSN 1240-01-575-1724

ID TBD



TM8K-126

DESCRIPTION AND FUNCTION

M249 Squad Automatic Weapon Day Optic (SDO) will be a magnified day optic that mounts on the M249 Squad Automatic Weapon and Infantry Automatic Rifle (IAR). This system will aid the automatic rifleman in target detection, recognition, and identification, thereby increasing the combat effectiveness and lethality of the Marine Corps fire team.

TECHNICAL CHARACTERISTICS

Magnification	3.5X	Intended Effects	TBD
Power Source	Fiber Optic/Tritium	Recognition Range	1,094 yds (1,000 m)
Battery Life	Not Applicable		
Field of View	5.5 deg		
Weight	1.3 lb (.59 kg)		

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>
TBD	TBD

ASSOCIATED COMPONENTS

- TBD

REFERENCES

- TBD

CHAPTER 5
ANCILLARY EQUIPMENT

COMPASS, MAGNETIC, M2

TAMCN E02102E

NSN 1290-00-930-4260

ID 00477A



TM8K-103

DESCRIPTION AND FUNCTION

Compass, Magnetic, M2 is a multiple purpose instrument used for obtaining clinometer, angle of sight, and azimuth readings. The body of the compass is dust proof and moisture proof and is made of nonmagnetic material, except for the magnetic needle and its pivot. When the cover is closed, the magnetic needle is automatically lifted from its pivot to protect the pivot point and jewel bearing, which is agate. The compass is provided with an angle of sight scale and azimuth scale. The azimuth scale may be rotated approximately 1,800 roils. The compass is equipped with circular and tubular levels, and it employs front and rear leaf sights in conjunction with a mirror in the cover for sighting and reading the angles. The instrument has an azimuth scale adjuster for orienting the azimuth scale to the local magnetic declination so that the grid of Y-azimuths may be read directly.

TECHNICAL CHARACTERISTICS

Weight	8 oz (226.8 g)	Azimuth Scale	0 to 6,400 roils
Dimensions (Closed)	2-3/34 x 1-1/8 in. (6.99 x 2.86 cm)	Angle of Site Scale	1,200 - 0 - 1,200 roils

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Item</u>	<u>Qty</u>
1	Compass Body	1	Azimuth Scale
1	Cover	1	Front and Rear Leaf Sights

ASSOCIATED COMPONENTS

- None

REFERENCES

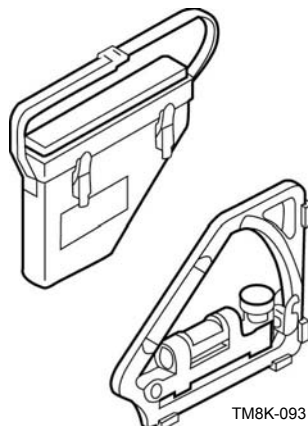
- SL-3-00477A; Components List, Compass, Magnetic Unmounted, M2, W/E.
- TM 9-1290-333-15; Operator and Maintenance Manual, Compass, Magnetic, Unmounted, M2.
- See SL-1-2 for a complete listing of applicable publications.

QUADRANT, FIRE CONTROL, GUNNER'S, M1A2

TAMCN E12607B

NSN 1290-00-169-1937

ID 02193C



DESCRIPTION AND FUNCTION

Quadrant, Fire Control, Gunner's, M1A2 is a portable, precision-leveling instrument used for laying artillery weapons in elevation, measuring their angles of elevation, and checking the adjustments of elevating mechanisms on sighting and fire control equipment. It consists of a sector-shaped frame to which is pivoted a leveling radial arm carrying a level vial tube assembly. Four frame shoes, arranged in pairs, provide two reference surfaces at right angles to each other for seating the instrument when taking readings. Machined teeth on the inside arc of the frame engage with a spring-loaded plunger in the radial arm to permit rapid setting of the arm in coarse 10-mil steps, as read on elevation scales provided on each side of the frame. The left scale is used for elevations from 0 to 800 mil and the right scale is used for elevations from 800 to 1,600 mil. The leveling radial arm has a micrometer graduated in 0.2-mil steps for fine adjustment. When the level bubble is centered, elevation is read as the sum of the coarse and fine scale readings.

TECHNICAL CHARACTERISTICS

Course Elevation Scales:		Width	1-1/16 in. (2.7 cm)
Lower	0 to 800 mil	Height	6 in. (15.24 cm)
Upper	800 to 1,600 mil	Weight	1.8 lb (0.82 kg)
Length	6-7/8 in. (17.46 cm)		

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Qty</u>	<u>Item</u>
1	Holder	1	Radial Arm Plunger
1	Level Vial	1	Data Plate
1	Frame Assembly	4	Frame Shoes
1	Left Elevation Scale	1	Right Elevation Scale
1	Micrometer		

ASSOCIATED COMPONENTS

- Case, Carrying, M82

REFERENCES

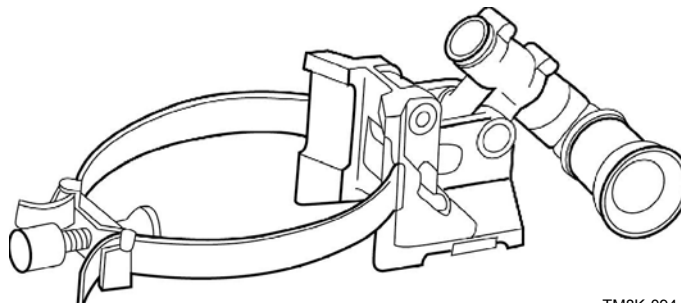
- TM 02193C-14&P; Operator's and Maintenance Manual, Quadrant, Fire Control Gunner's, M1A2.
- See SL-1-2 for a complete listing of applicable publications.

SIGHT, BORE, OPTICAL, M45/M45A1

TAMCN E17802E

NSN 1240-00-152-3512

ID 02368B



TM8K-094

DESCRIPTION AND FUNCTION

Sight, Bore, Optical, M45/M45A1 is a fixed-focus telescope adapted for use to align the bore axis of the mortar M224/M252 with a distant aiming point. The boresight is constructed so that the telescope line of sight lies in the plane established by the center lines of the V-slides. When the boresight is properly secured to the mortar tube, the center line of the contracting V-slide is parallel to the center line and the mortar tube ties in the same vertical plane.

TECHNICAL CHARACTERISTICS

Weight	2.5 lb (1.13 kg)	Field of View	12 deg (12 min)
Length	4.5 in. (11.43 cm)	Diameter of Exit Pupil	0.15 in. (0.38 cm)
Width	4 in. (10.16 cm)	Equivalent Focal Length of Objective	2.362 in. (5.99 cm)
Height	4.75 in. (12.07 cm)	Clear Eye Distance	0.604 in. (1.53 cm)
Magnification	3X		

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Qty</u>	<u>Item</u>
1	Clamp, Assembly	1	Telescope, Elbow, M62A1C
2	Strap, Assembly		

ASSOCIATED COMPONENTS

- Case, Carrying, M45

REFERENCES

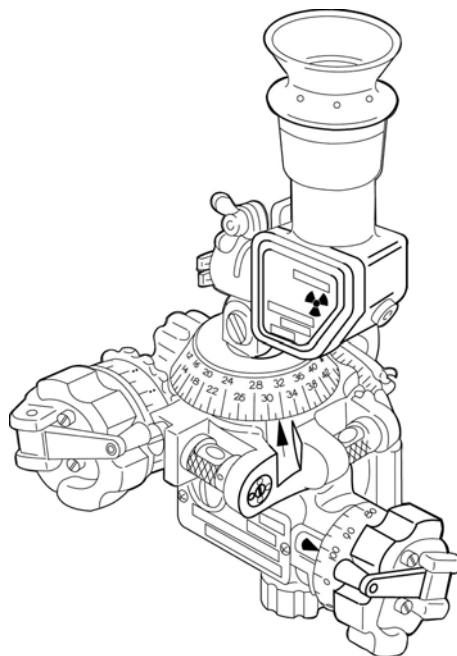
- TM 02368B-24&P; Maintenance Manual, Optical Boresight, M45 / M45A1.
- See SL-1-2 for a complete listing of applicable publications.

SIGHT UNIT, M64A1

TAMCN N/A
TAMCN

NSN 1240-01-201-8299
NSN 1240-01-211-3608

ID 88129C



TM8K-095

DESCRIPTION AND FUNCTION

Sight Unit, M64A1 consists of the telescope elbow and telescope mount. It is used to lay the mortar M224/M252 in deflection and elevation. The elbow is 1.5 power, hermetically sealed with a tritium illuminated cross hair reticle. The mount is provided with tritium backlighted level vials, indices, and translucent plastic scales for use in orientating the telescope elbow in azimuth and elevation.

TECHNICAL CHARACTERISTICS

Weight	2.5 lb (1.1 kg)	Elevation	0 to 6,400 mils
Field of View	302 mil (17 deg)	Azimuth	0 to 6,400 mils
Magnification	1.5X nominal		

MAJOR COMPONENTS

<u>Qty</u>	<u>Item</u>	<u>Qty</u>	<u>Item</u>
1	Telescope, Elbow	1	Elevation Knob/Scale
1	Mount, Telescope	1	Azimuth Knob/Scale

ASSOCIATED COMPONENTS

- Case, Carrying

REFERENCES

- TM 9-1010-223-10; Operator's Manual for Lightweight Company Mortar 60 mm M224.
- TM 88129C-24&P; Maintenance Manual, M64A1 Sight Unit.
- See SL-1-2 for a complete listing of applicable publications.

CHAPTER 6
EQUIPMENT LISTING BY TAM-NUMBER SEQUENCE

EQUIPMENT LISTING BY TAM-NUMBER SEQUENCE					
TAMCN	ID	NSN	ITEM DESCRIPTION	MODEL	PAGE
INFANTRY WEAPONS					
E0055	TBD	TBD	Launcher System, Saber, M41 (ITAS)	M41	1-7
E00252M	11235A	1010-01-535-0989	Launcher, Grenade, Multi-Shot, 40 mm	M32	1-14
E00817	TBD	1005-01-557-2693	Mount, Vehicle, Medium Machine Gun, M35 (MMGVM)	M35	1-25
E01907M	10012B	1005-01-382-0953	Carbine, 5.56 mm, M4A1 Close Quarters Battle Weapon (CQBW)	M4A1 CQBW	1-3
E01957M	10012A	1005-01-231-0973	Carbine, 5.56 mm, M4	M4	1-1
E02077B	09397B	1430-01-478-5345	Javelin Weapons System, Command Launch Unit (CLU)	M98A1	1-9
E03117M	11473A	1005-01-553-5196	Rifle, 7.62 mm, M14, Enhanced Marksman Rifle (EMR)	EMR	1-32
E08927M	07700B	1010-01-434-9028	Launcher, Grenade, 40 mm	M203A1	1-13
E08927M	07700A	1010-00-179-6447	Launcher, Grenade, 40 mm	M203	1-12
E09157M	08673A	1055-01-164-4608	Launcher, Assault, Rocket, 83 mm (SMAW)	MK 153	1-10
E09357B	07722B	1440-01-104-9834	Guided Missile System, TOW 2 Weapon System	M220E4	1-5
E09607M	08671A	1005-01-127-7510	Machine Gun, Light, Squad, 5.56 mm	M249	1-21
E0961	09111A	1005-01-252-4288	Machine Gun, 7.62 mm	M240E1	1-16
E09807M	02498B	1005-00-726-5636	Machine Gun, Caliber .50, M2, Heavy Barrel, Flexible	M2	1-19
E0984	02498C	1005-00-957-3893	Machine Gun, Caliber .50, Browning, M2, Heavy Barrel, Flexible, M48 Turret Type	M2 - M48 Type	1-20
E09897M	09712B	1005-01-412-3129	Machine Gun, 7.62 mm	M240B	1-17
E09947M	08521B	1010-01-430-9697	Machine Gun, 40 mm, MK 19 w/BKT		1-18
E09987M	08670A	1005-01-025-8095	Machine Gun, 7.62 mm	M240	1-15
E10657M	08206A	1010-01-020-5626	Mortar, 60 mm, Lightweight, Company	M224	1-22
E10957M	09922A	1015-01-164-6651	Mortar, Medium, Extended Range, 81 mm	M252	1-23
E11202M	06510A	1005-00-710-5599	Mount, Tripod, Machine Gun, 7.62 mm	M122	1-28
E11232B	09017A	1010-01-180-9319	Mount, Machine Gun, MK64	MOD 5	1-24
E11232B	08017B	1010-01-502-7547	Mount, Machine Gun, MK93	MK93	1-27
E11262B	07937A	1005-00-322-9716	Mount, Tripod, Machine Gun, Caliber .50	M3	1-29

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TAMCN	ID	NSN	ITEM DESCRIPTION	MODEL	PAGE
E12452M	08993B	1005-01-525-7966	Pistol, Semi-Automatic, 9 mm	M9A1	1-31
E12502M	08993A	1005-01-118-2640	Pistol, Semi-Automatic, 9 mm	M9	1-31
E12512M	09795B	1005-01-521-4072	Pistol, M45 Close Quarters Battle Pistol (CQBP) .45 Caliber	M45 CQBP	1-30
E14412M	05538C	1005-01-128-9936	Rifle, 5.56 mm, M16A2	M16A2	1-33
E14412M	05538C	1005-01-383-2872	Rifle, 5.56 mm, M16A4	M16A4	1-34
E14602M	05539D	1005-01-495-0843	Rifle, Sniper, 7.62 mm	M40A3/A5	1-36
E14752M	11110A	1005-01-469-2133	Rifle, Scoped, Long Range, Caliber .50	M107	1-35
E17612M	10698A	1005-01-472-3147	Shotgun, 12 Gage, M1014, Joint Service Combat Shotgun (JSCS)	M1014	1-37
E17622M	09081A	1005-01-371-5639	Shotgun, 12 Gage, Mossberg	500A2	1-38
TOWED ARTILLERY WEAPONS					
E06657M	08198A	1025-01-026-6648	Howitzer, Medium, Towed, 155 mm	M198	2-1
E06717M	10407A	1025-99-463-7551	Howitzer, M777A2	M777A2	2-3
TRACKED AND WHEELED COMBAT VEHICLES					
E01507B	08940A	5420-00-889-2020	Bridge, Armored Vehicle Launched		3-13
E07967K	07268B	2350-01-458-7318	Assault Amphibian Vehicle, Command	AAVC7A1	3-5
E08467K	09674A	2350-01-458-7410	Assault Amphibian Vehicle, Personnel Carrier	AAVP7A1	3-1
E08567K	07267B	2350-01-458-7550	Assault Amphibian Vehicle, Recovery	AAVR7A1	3-8
E09427M	08652A	2320-01-123-1609	Light Armored Vehicle (LAV) - Anti- Tank	LAV-AT	3-17
E09467B	08650A	2320-01-123-1606	Light Armored Vehicle (LAV) - Command and Control	LAV-C ² A1	3-18
E0947	08672A	1005-01-086-1400	Gun, Automatic, 25 mm	M242	3-14
E09477M	08594A	2320-01-123-1602	Light Armored Vehicle (LAV) - Light Assault	LAV-25A1	3-19
E09487B	08654A	2320-01-123-1612	Light Armored Vehicle (LAV) - Logistics	LAV-L	3-20
E09497M	08655A	2320-01-123-1607	Light Armored Vehicle (LAV) - Mortar	LAV-M	3-22
E09507B	08651A	2320-01-123-1608	Light Armored Vehicle (LAV) - Maintenance/Recovery	LAV-RA1	3-21
E09967M	09147A	2590-01-230-8862	Blade, Mine Clearing	M1A1	3-12
E13787K	07769B	2350-01-390-4683	Recovery Vehicle, Heavy, Full-Track	M88A2	3-23

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E1500	10937A	1055-01-473-4350	High Mobility Artillery Rocket System (HIMARS)	M142	3-15
E18887M	08953A	2350-01-087-1095	Tank, Combat, Full-Track, 120 mm Gun	M1A1	3-25
E3201	10004A	1010-01-233-9493	Assault Amphibian Vehicle, Personnel Carrier, Model 7A1, Upgunned Weapons Station (UGWS)	AAVP7A1	3-3
OPTICAL AND MISCELLANEOUS EQUIPMENT					
A02507G	TBD	TBD	Sound Commander 3600	SC3600	4-35
C70077B	11446A	4940-01-552-1599	Shop Equipment Contact Maintenance Vehicle (SECMV)		4-39
E00067B	11173A	5855-01-502-6414	Infrared Zoom Laser Illuminator Designator (IZLID)	1000P-A1	4-21
E00087G	11499A	5855-01-558-3616	Individual Weapon Night Sight I ² (IWNS-I ²)	AN/PVS-24A	4-31
E00167B	TBD	TBD	Scout Sniper Observation Telescope (SSOT)		4-34
E17107G	11064A (A4)	1240-01-525-1648	Rifle, Combat Optics (RCO)	AN-PVQ-31A (A4)	4-18
E00177M (M4)	11064B (M4)	1240-01-534-1114	Rifle Combat Optics (RCO) AN/PVQ-31B (M4)	AV/PVQ-31B (M4)	4-18
E00207B	8J671B	5855-01-547-9489	Scout Sniper Medium Range Night Sight (SSMRNS)	AN/PVS-27	4-25
E00387B	11452A	5855-01-552-3289	Visible Light Illuminator Replacement (VLIR)	AN/PVS-29	4-20
E00537B	11352A	5860-01-544-7175	Non-Lethal Visual Hailing Device	GBD-IIIC, LA-9/P	4-22
E00587G	104470A	5855-01-538-5521	Integrated Pointer/Illuminator Module (IPIM)	AN/PEQ-16	4-24
E00587G	11407C	5855-01-550-2780	Mini-Integrated Pointer/Illuminator Module (MIPIM)	AN/PEQ-16A	4-32
E00617B	11487A	5855-01-511-0994	Low Profile Night Vision Goggles (LP-NVG)	AN/PVS-21	4-30
E00627G	11545A	5855-01-559-7064	Individual Weapon Night Sight-Thermal (IWNS-T)	AN/PAS-27	4-29
E00637G	11532A	5855-01-554-4673	Mini Thermal Imager (MTI)		4-1
E00677B	11424A	5410-01-551-1127	Electro-Optical Maintenance Shelter Complex (EOMSC)		4-26
E00807B	11483A	3655-01-556-1083	Nitrogen Generator	N2-GEN™	4-38

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E00847B	11539A	6650-01-559-3648	Infantry Binoculars - Tactical COTS		4-41
E00957B	11700A	1240-01-571-5004	Scout Sniper Periscope (SSP)	SSVZ-S	4-15
E09567A	10471A	5860-01-466-2087	Laser Boresight System (LBS)	AN/PEM-1	4-14
E09567B	10471B	5860-01-471-2091	Laser Boresight System (LBS), AN/PEM-1	AN/PEM-1	4-4
E09577B	10820A	5860-01-491-9639	Light Module, Integrated Laser (ILLM)	AN/PEQ-6A	4-7
E09577B	10820C	5855-01-538-0191	Integrated Laser White Light Pointer (ILWLP)	AN/PEQ-14	4-33
E11522B E11522BA	09500A 10497A	5855-01-228-0937 (7B) 5855-01-422-5413 (7D)	Night Vision Goggles, Individual	AN/PVS-7B and -7D	4-9
E11542B	10271A	5855-01-432-0524	Monocular Night Vision Device, (MNVD)	AN/PVS-14	4-10
E11592B	07098D	5855-01-422-8777	Sight, Night Vision, Crew-Served	AN/TVS-5A	4-12
E11607G	10796C	5855-01-491-6967 (17C)	Sight, Miniature Night (MNS)	AN/PVS-17C	4-11
E11627G	10796B	5855-01-491-0140 (17B)	Sight, Miniature Night (MNS)	AN/PVS-17B	4-11
E17107G (A4)	11064A (A4)	1240-01-525-1648	Rifle Combat Optics (RCO), AN/PVQ- 31A (A4) and AN/PVQ-31B (M4)	AN/PNQ-31A (A4)	4-18
E17797B	11065A	1010-01-516-0953	Grenade Launcher Day Night Sight Mount (GLDNSM)	AN/PSQ-18A	4-8
E17987G	10470A	5855-01-447-8992	Target Pointer Illuminator/Aiming Light (TPIAL)	AN/PEQ-2A	4-5
E17997G	10580A	5855-01-460-8365	Medium Power Laser Illuminator (MPLI)	AN/PEQ-4	4-6
E1975 E1976	10092C 10091C	5855-01-524-4314 (MTWS) 5855-01-524-4314 (HTWS)	Weapon Thermal Sight, Medium (MWTS) and Heavy (HWTS)	AN/PAS-13D (V)2 AN/PAS-13D (V)3	4-3
E19757G E19767G	10092A 10091B	5855-01-464-3152 (MWTS) 5855-01-464-3151 (HWTS)	Weapon Thermal Sight, Medium (MWTS) and Heavy (HWTS)	AN/PAS-13B (V)2 AN/PAS-13B (V)3	4-2
N/A	11059A	1240-01-492-5264	EOTECH Holographic Diffraction Sight (HDS)		4-13
E19787G	10988B	5855-01-536-3532	Long-Range Thermal Imager (LRTI) AN/PAS-22	AN/PAS-22	4-16
E19007B	00591A	6650-00-530-0960	M49 Telescope, Straight	M49	4-17

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N/A	89072C	1240-01-533-1854	Scout Sniper Day Scope (SSDS)		4-19
E17987G	10470B	5855-01-534-5931	Advanced Target Pointer Illuminator Aiming Light (ATPIAL)	AN/PEQ-15	4-23
E00127G	11237A	5855-01-535-0971	Medium Range Thermal Bi-Ocular (MRTB)		4-28
C00247B	11586A	1055-01-563-6749	Non-Lethal/Tube Launched Munition System (NL/TLMS)		4-36
E00327M	TBD	TBD	Mission Payload Module - Non-Lethal Weapons Systems		4-37
E22082B	09863A	5180-01-382-1335	Tool Kit, Electro-Optical (EOTK)		4-40
E79007B	10919	5180-01-504-5665	Tool Kit, Armorer's		
E00887B	11792A	1240-01-578-0211	SU-260P Machine Gun Day Optic (MDO)		4-42
E00827B	TBD	1240-01-575-1724	SU-258/PVQ Squad Day Optic (SDO)		4-43
ANCILLARY EQUIPMENT					
E02102E	00477A	1290-00-930-4260	Compass, Magnetic	M2	5-1
E12607B	02193C	1290-00-169-1937	Quadrant, Fire Control, Gunner's	M1A2	5-2
E17802E	02368B	1240-00-152-3512	Sight, Bore, Optical	M45/M45A1	5-3
N/A	88129C	1240-01-201-8299 1240-01-211-3608	Sight, Unit	M64A1	5-4

CHAPTER 7
GLOSSARY

GLOSSARY

Air Cooled. Cooling by air without the use of an intermediate medium.

Angle of Sight. The angle formed by the line of sight and the horizontal plane.

Azimuth. Quantities may be expressed in positive quantities, quantities increasing in a clockwise direction, or in X,Y coordinates where south and west are negative. They may be referenced to true north or magnetic north depending on the particular weapon system used.

Blowback Operated. An unlocked action in which only the mass of the breech-block and involved components (springs, etc.) resist the backward thrust of the cartridge. It is usually employed with low-pressure cartridges, and is used in submachine guns and semi-automatic pistols.

Break Open. A weapon design where the barrel group pivots down at the front, raising the breech end, and providing access to the chamber.

Breech Loading. A weapon that receives its ammunition at the breech.

Coaxial Weapon. The weapon mounted beside the main gun of a tank which fires on a coincidental axis.

Continuous Pull (Self-Cocking). A firing mechanism that is cocked and discharged as the lanyard is pulled.

Deflection. The departure of an indicator or pointer from the zero reading on the scale of an instrument.

Diopter. A unit of measurement of the refractive power of lenses, equal to the reciprocal of the focal length in meters.

Direct Fire. Gunfire delivered on a target, using the target itself as a point of aim for either the gun or the director.

Disintegrating Metallic Link-Belt. Ammunition that is belted through the use of metal links. The links are held together by using the cartridges as the link pins. When the cartridges are stripped from the belt during the firing of the weapon, the metal links fall apart.

Double Action. A pull of the trigger will advance the cylinder, cock the hammer, then discharge the weapon.

Elevation. The vertical distance of a point or level on, or affixed to, the surface of the earth measured from mean sea level.

Full Tracked. A vehicle that moves on a tracked drive only.

Gas Operated. A weapon action in which gases from a fired round are bled off into a cylinder. A piston in the cylinder is driven back by the gas pressure. The action of the piston opens the bolt and cycles the weapon.

Howitzer:

1. A cannon that combines certain characteristics of guns and mortars. The howitzer delivers projectiles with medium velocities, either by low or high trajectories.
2. Normally a cannon with a tube length of 20 to 30 calibers. However, the tube length can exceed 30 calibers and still be considered a howitzer when the high angle fire zoning solution permits range overlap between charges.

Indirect Fire. Fire delivered on a target that is not itself used as a point of aim for the weapons or the director.

Line of Sight. A line from an observer's eye to a distant point toward which he is looking.

Link-Belt Fed. The supply of ammunition to a weapon by a link belt. See Disintegrating Metallic Link-Belt.

GLOSSARY - Continued

Mil. A unit of angular measurement equal to 1/6400 of a circle and used especially in artillery.

Muzzle Loading. A weapon that receives its ammunition at the muzzle.

Pintle. An upright pivot pin on which another part turns.

Pyrotechnic Projector. Flare gun.

Recoil Operated. See Blowback Operated.

Reticle. A mark such as a cross or a system of lines lying in the image plane of a viewing apparatus. It may be used singly as a reference mark on certain types of monocular instruments, or as one of a pair to form a floating mark as in certain types of stereoscopes.

Select Fire. A weapon that is capable of both semi-automatic and automatic fire.

Semi-Fixed Ammunition. Ammunition in which the cartridge case is not permanently attached to the projectile.

Single Action. A pull of the trigger will release the hammer to discharge the weapon. The hammer must be manually cocked or cocked by the cycling of the weapon.

Tritium Dot. A radioactive isotope that glows in the dark, mounted on the front sight.

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THE METRIC SYSTEM AND EQUIVALENTS

<p>Linear Measure</p> <p>1 Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches 1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches 1 Kilometer = 1000 Meters = 0.621 Miles</p> <p>Weights</p> <p>1 Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces 1 Kilogram = 1000 Grams = 2.2 Pounds 1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons</p> <p>Liquid Measure</p> <p>1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces 1 Liter = 1000 Milliliters = 33.82 Fluid Ounces</p>	<p>Square Measure</p> <p>1 Sq Centimeter = 100 Sq Millimeters = 0.155 Sq Inches 1 Sq Meter = 10,000 Sq Centimeters = 10.76 Sq Feet 1 Sq Kilometer = 1,000,000 Sq Meters = 0.386 Sq Miles</p> <p>Cubic Measure</p> <p>1 Cu Centimeter = 1,000 Cu Millimeters = 0.06 Cu Inches 1 Cu Meter = 1,000,000 Cu Centimeters = 35.31 Cu Feet</p> <p>Temperature</p> <p>$5/9 (°F - 32) = °C$ 212° Fahrenheit is equivalent to 100° Celsius 90° Fahrenheit is equivalent to 32.2° Celsius 32° Fahrenheit is equivalent to 0° Celsius $9/5 C + 32 = F$</p>
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APPROXIMATE CONVERSION FACTORS

To Change	To	Multiply By
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Sq Inches	Sq Centimeters	6.451
Sq Feet	Sq Meters	0.093
Sq Yards	Sq Meters	0.836
Sq Miles	Sq Kilometers	2.590
Acres	Sq Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
Pints	Liters	0.473
Quarts	Liters	0.946
Gallons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds per Sq Inch	Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

To Change	To	Multiply By
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Sq Centimeters	Sq Inches	0.155
Sq Meters	Sq Feet	10.764
Sq Meters	Sq Yards	1.196
Sq Kilometers	Sq Miles	0.386
Sq Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
Liters	Gallons	0.264
Grams	Ounces	0.035
Kilograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pound-Feet	0.738
Kilopascals	Pounds per Sq Inch	0.145
Kilometers per Liter	Miles per Gallon	2.354
Kilometers per Hour	Miles per Hour	0.621

