IRAQ Ordnance Identification Guide

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The Iraq Ordnance Identification Guide supports the U.S. Department of Defense humanitarian mine action program. This guide provides information to facilitate international unexploded ordnance (UXO) awareness and identification. This guide is not intended for use by Explosive Ordnance Disposal (EOD) technicians. Rather, it is designed for other personnel who, of necessity, are trying to identify ordnance in the absence of trained EOD military professionals.

Prepared by the Naval Explosive Ordnance Technology Division

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MISCELLANEOUS INFORMATION

This guide provides ordnance identification information for approximately 1200 ordnance items. The Iraq Ordnance Identification Guide supports the U.S. Department of Defense humanitarian mine action program. This guide provides information to facilitate international unexploded ordnance (UXO) awareness and identification. This guide is not intended for use by Explosive Ordnance Disposal (EOD) technicians. Rather, it is designed for other personnel who, of necessity, are trying to identify ordnance in the absence of trained EOD military professionals.

- Each weapon category is sorted by diameter (mm).
- Due to space restrictions, a maximum of seven (7) "ordnance used with" entries will be shown. On certain ordnance this list will be incomplete.
- If available, the N.E.W. (Net Explosive Weight) is listed underneath the "ordnance used with" section.

A special thanks to ARDEC EOD Technology Division (Foreign Ordnance Branch), NAVEODTECHDIV In-Country Exploitation and Imaging team members!

DISCLAIMER/WARNING

Demining/unexploded ordnance (UXO) clearance operations are extremely hazardous and subject personnel involved to significant risk of serious injury or death. By its very nature, UXO is unpredictable and each incident presents unique problems that cannot be addressed in a general guide. While this product provides the best available information for identification of ordnance, the developers accept no legal responsibility for damage or injury to personnel or property resulting from its use.

The safe and effective use of the information in this guide assumes a certain level of technical competence in its target audience. At a minimum, users must be trained in general ordnance explosive safety and demolition procedures.

Use this information at your own risk!

Ammunition Filler Codes

Marking	Meaning
А	Amatol (100% Ammonium Nitrate)
А-40	Amatol (40% Ammonium Nitrate, 60% TNT)
АТ-40	Amatol (40% Ammonium Nitrate, 60% TNT Pressed)
А-80	Amatol (80% Ammonium Nitrate, 20% TNT)
АТ-90	Amatol (90% Ammonium Nitrate, 10% TNT)
АТФ 40	TNT (40% Ammonium Nitrate, 60% TNT Pressed)
А-IX-1	RDX 94%, Wax 6%
А-IX-2	RDX 73%, Aluminum 23%, Wax 4%
А-IX-20	RDX 78%, Aluminum 19%, Wax 3%
А-IX-П	RDX with unknown suffix “Ï=P”
ДБ	Dinitrobenzol
ДБТ	Dinitrobenzene and TNT
Г	Hexogen (cyclonite, RDX)
ГАИ-30	RDX 30%
З	Incendiary
М	Picric Acid
МС	TNT, Aluminum, RDX
К-1	TNT 70%, Dinitrobenzene 30%
К-2	TNT 80%, Dinitrobenzene 20%
ОКТОГЕН	HMX
ОКФОЛ	HMX 95%, wax 5% (normal composition)
ОКТОЛ	HMX and TNT
ОЛ	HMX 95%, wax 5% (normal composition)
ПВВ-5А	Plastic Explosive

Marking	Meaning
Т	Trotyl (TNT)
Т-80	TNT 70%, RDX 30%
ТГ	TNT and RDX
ТГ-30	TNT 30%, Hexogen (RDX) 70%
ТГ-50	TNT 50%, Hexogen (RDX) 50%
ТГАФ-5	TNT 40%, RDX 40%, Aluminum 20%
ТГАГ-5	TNT 60%, RDX 20%, Aluminum 15%, Wax 5%
ТД-42	TNT 42%, Dinitronapthalene 58%
ТД-50	TNT 50%, Dinitronapthalene 50%
ТДУ	TNT with spotting charge
ТС	TNT sulfite
Ш	Schneiderite (Ammonium Nitrate 88%, Napthalene
ШТ	Schneiderite and TNT
Р-4	White and Yellow Phosphorus
Р-5	Mustard gas (H)
РС	Lewisite gas (L)
РЮ	Phosgene gas (CG)
Р-15	Adamsite gas (DM)
Р-2	Hydrogen Cyanide gas (AC)
Р-35	Sarin gas (GB)
Р-43	Lewisite gas (L)
Р-55	Soman gas (GD)
Р-74	Mustard gas (H)
РК-7	Mustard/Lewisite mixture (H+L)

General Ordnance Markings

Cyrillic	English	Meaning
А	A	Propaganda or fragmentation
Б	B	Armor-Piercing
З	Z	Incendiary
Р	R	Tracer
БР	BR	Armor-Piercing, Tracer
БЗ	BZ	Armor-Piercing, Incendiary
БЗА	BZA	Armor-Piercing, Incendiary (improved)
БЗР	BZR	Armor-Piercing, Incendiary Tracer
БМ	BM	Armor-Piercing Discarding Sabot (fin or Spin Stabilized)
БП	BP	HEAT Spin Stabilized
БК	BK	HEAT Fin Stabilized
Д	D	Smoke
ДЦ	DTs	Target Marker Smoke
О	O	Fragmentation (Oskolochno)
Ф	F	High Explosive (Fugaasnymi)
ОФ	OF	Fragmentation, High Explosive
Г	G	Concrete-Piercing
ОГ	OG	Fragmentation (launched grenades)
ОФР	OFR	Fragmentation, High Explosive, Tracer
ОФЗТ	OFZT	Fragmentation, High Explosive, Incendiary, Tracer
ОР	OR	Fragmentation, Tracer
ОЗ	OZ	Fragmentation, Incendiary
ОХ	OKh	Fragmentation, Gas

Cyrillic	English	Meaning
ПБР	PBR	Armor-Piercing, Target Practice
ПГ	PG	HEAT (launched grenades)
ПУ	PU	Target Practice
РПО	RPO	Infantry Flame Weapon
С	S	Illumination
СП	SP	Solid Shot, Armor-Piercing
Ш	Sh	Shrapnel
Щ	Shch	Canister
Х	Kh	Gas
ИНЕРТ	INERT	Inert
МАКЕТ	MAKET	Model
ОСКОЛ	OSKOL	Fragmentation
ПРАКТ	PRACT	Practice

Projectile Suffixes

Cyrillic	English	Meaning
А	A	Cast Iron
Б	B	Improved Projectile (Mostly AP Types)
Д	D	Improved Projectile (Mostly AP Types)
ДУ	DU	Improved Projectile (Mostly Frag Types)
Ж	Zh	Sintered Iron Rotating Band
К	K	Improved Projectile (Mostly AP Types)
М	M	Usually HEAT Projectile (Copper Liner)
Н	N	Improved Projectile (Mostly Frag)
П	P	Usually Improved HVAP Projectile
ПК	PK	Usually Improved HVAP Projectile
С	S	Improved HEAT Projectile
СП	SP	Improved AP Projectile
У	U	Usually Improved AP Projectile
УМ	UM	Improved HEAT Projectile

Soviet Projectile Weight Classifications

Symbol	Meaning
ЛГ	Greater than 3% below standard
----	2.33% to 3% below standard
---	1.66% to 2.33% below standard
--	1% to 1.66% below standard
-	0.33% to 1% below standard
Н	0.33% below to 0.33% above standard
+	0.33% to 1% above standard
++	1% to 1.66% above standard
+++	1.66% to 2.33% above standard
++++	2.33% to 3% above standard
ТЖ	Greater than 3% above standard

Caliber of using weapons identified by third-component numbers of the model code.

Third-Component Number	Weapon Caliber	Third-Component Number	Weapon Caliber
132	25-mm	883	107-mm (recoilless gun)
167	37-mm	1*, 3*, 5*, 6*	115-mm
240, 243	45-mm	843	120-mm (mortar)
822	50-mm (mortar)	3*, 5*, 6*, 460, 462, 463, 471, 472	122-mm
271, 281	57-mm	482	130-mm
343, 344, 350, 352, 353, 354, 355, 356, 361, 363, 364	76-mm	501, 530, 533, 534, 536, 540, 542, 543, 544, 545, 551	152-mm
832	82-mm (mortar)	852, 853	160-mm (mortar)
881	82-mm (recoilless gun)	23*, 572	180-mm
1*, 365, 366, 367	85-mm	620, 621, 624, 625	203-mm
412, 415	100-mm	864	240-mm (mortar)
420, 422, 423, 425	107-mm	674, 675	280-mm
841	107-mm (mortar)	724	305-mm

* Denotes an observed deviation from established three-number system.

EXAMPLE: OF-412=Fragmentation, High Explosive, 100mm

Model Markings for Mines

Cyrillic	English	Meaning
Б	B	Large or Paper
В	V	Fuze
Д	D	Wooden
Э	E	Electrical
З	Z	Obstacle
К	K	Shaped Charge
М	M	Mine, Metal, or Improved
Н	N	Anti-Handling, Tread Operated, or Directional
О	O	Fragmentation or Obstacle
П	P	Anti-Personnel or Plastic
С	S	Self Destruct or Booby-Trap
Т	T	Anti-Tank
У	U	Training
Ф	F	Explosive, FAE, or Dropped
Х	Kh	Chemical
Ч	Ch	Clockwork or Timer
Ш	Sh	Tilt Rod
Я	Ya	Box (Old Designation) or Anchored
Р	R	Water

Typical Mine Markings

Cyrillic	English	Meaning
МВЗ	MVZ	Mine Fuze Pressure Operated
ЯМ	YaM	Anti-Tank Mine Wooden (Old Designation)
МПМ	MPM	Mine-Bullet-Improved
ЭХЗ	EkhZ	Electric Chemical Fuze
ЧЗ	ChZ	Clockwork/Timer Fuze
МВЧ	MVCh	Clockwork Mine Fuze
УВ	UV	Pull Fuze
МВШ	MVSh	Mine Fuze Tilt-Rod
ОЗМ	OZM	Fragmentation Obstacle Mine
ТМД-Б	TMD-B	Anti-Tank Wooden Cased
ЗТ	ZT	Time Fuze Igniter
МУВ	MUV	Mine Fuze Pull
ТМК	TMK	Anti-Tank Mine With Shaped Charge
ПМД	PMD	Anti-Personnel Mine Wooden Cased
ПОМЗ	POMZ	Anti-Personnel Mine Obstacle
ПМН	PMN	Anti-Personnel Mine Tread Operated
ВПФ	VPF	All Ways Acting Fuze
ТМБ	TMB	Anti-Tank Mine Paper Cased
ТМ	TM	Anti-Tank Mine
МВ	MV	Mine Fuze Pressure Operated
МВМ	MVM	Mine Fuze Improved
МВН	MVN	Mine Fuze Magnetic Influence
ТМН	TMN	Anti-Tank Mine With Anti-Handling Fuze
МОН	MON	Mine Fragmentation Directional

Typical Bomb Markings

Cyrillic	English	Meaning
ФАБ	FAB	General Purpose, High Explosive
ОФАБ	OFAB	General Purpose, Frag-HE
БРАБ	BRAB	Semi-Armor Piercing
БЕТАБ	BETAB	Armor Piercing
ПТАБ	PTAB	Anti-Tank
МАБ	MAB	Light-Case Blast
АО	AO	Fragmentation
ЗАБ	ZAB	Incendiary
РРАБ	RRAB	Container (Cluster)
ХАБ	KhAB or ChAB	Chemical
КРАБ	KRAB	Toxic Smoke
ДАБ	DAB	Incendiary Smoke
ОДАБ	ODAB	Fuel Air Explosive
ФОТАБ	FOTAB	Photo Flash
АНАБ	ANAB	Marker Float
АБ	AB	Propoganda
ДС	DS	Rocket Assisted
АОХ	AOKh or AOCh	Frag-Chemical
САБ	SAB	Flare
АГИТАБ	AGITAB	Leaflet

Transliteration of Russian Alphabet

Russian		English		Russian		English		Russian		English	
А	а	A	a	Л	л	L	l	Ц	ц	Ts	ts
Б	б	B	b	М	м	M	m	Ч	ч	Ch	ch
В	в	V	v	Н	н	N	n	Ш	ш	Sc	sh
Г	г	G	g	О	о	O	o	Щ	щ	Shch	shch
Д	д	D	d	П	п	P	p	Ъ	ъ	(")	(")
Е	е	Ye, E	ye, e[1]	Р	р	R	r	Ы	ы	Y	y
Ж	ж	Zh	zh	С	с	S	s	Ь	ь	(')	(')
З	з	Z	z	Т	т	T	t	Э	э	E	e
И	и	I	i	У	у	U	u	Ю	ю	Yu	yu
Й	й	Y	y	Ф	ф	F	f	Я	я	Ya	ya
К	к	K	k	Х	х	Kh	kh				

[1]ye initially, after vowels, and after ъ, ь; e elsewhere. When written as ё in Russian, translate as yё or ё. Use of diacritical marks is preferred, but such marks may be omitted when expediency dictates.

Russian

Аматол	**Amatol**
Боевой	**Live**
Боевые припасы	**Ammunition**
Бомба	**Bomb**
Бронебойный	**Armor-piercing**
Взведенный	**Armed**
Взрыв	**Explosion; burst**
Взрыватель	**Fuze**
Радиовзрыватель	**Proximity fuze**
Взрывчатое вещество (ВВ)	**Explosive**
Головное зарядное отделение	**Warhead**
Граната	**Grenade; shell**
Детонатор	**Detonator**
Дистанционная трубка	**Time fuze**
Дымовой	**Smoke (adj)**
Зажигательный	**Incendiary**
Зажигательный пристрелочный	**Incendiary ranging**
Замедление	**Delay**

Russian - Continued

Запальник	**Igniter**
Кумулятивный бронепрожигающий	**High-explosive antitank**
Кумулятивный заряд	**Shaped charge**
Кумулятивный снаряд	**Shaped-charge projectile**
Марка	**Mark; stamp; model**
Мгновенный	**Instantaneous**
Мина	**Mortar projectile; mine**
Миномет	**Mortar**
Наконечник	**Cap**
Незаряженный	**Inert; empty**
Неконтактный взрыватель	**Proximity fuze**
Окончательно снаряженный (ок. сн., ок. снар.)	**Fuzed**
Опасно ВВ	**Danger! Explosives**
Осветительный	**Illuminating**
Осветительный снаряд	**Flare; illuminating shell; star shell**
Осколочный (оск., оско.)	**Fragmentation; antipersonnel**
Подрывной	**Demolition**

Russian - Continued

Предохранитель	**Safety**
Противопехотный	**Antipersonnel**
Противотанковый	**Antitank**
Ракета	**Rocket**
Ракетный снаряд	**Rocket projectile**
Снаряд	**Projectile; shell**
Тетрил	**Tetryl**
Тетритол	**Tetrytol**
Тринитротолуол	**Trinitrotoluene**
Тритонал	**Tritonal**
Тротил	**Trinitrotoluene; trotyl**
Трубка	**Fuze; tube; pipe**
Ударный	**Impact (adj)**
Усилитель детонатора	**Booster**
Фосфор	**Phosphorus**
Фугасный	**High explosive**
Химический	**Chemical; gas**
Циклонит	**Cyclonite**
Чувствительный	**Sensitive**

Arabic

0	٠
1	١
2	٢/٢
3	٣/٢
4	٤
5	٥
6	٦
7	٧
8	٨
9	٩
10	١٠
11	١١
20	٢٠

Arabic - Continued

antiaircraft ----------	. مضاد للطائرات (م/ط)
antipersonnel ----------	. مضاد للأشخاص (م/أ)
antitank ----------	. مضاد للدبابات (م/د)
armor-piercing ----------	. ثاقب المدرع (ث/م)• ثاقب (ث)
bomb (aircraft) ----------	. قنبلة (قن)
bomb (mortar) ----------	. بمبة
delay ----------	. تعويق
electrical ----------	. كهربائية . كهربائي
explosive ----------	. أنفجار

Arabic - Continued

fuze	طابة • صمامة .
base fuze	صمامة القاعدة .
fuze cap	غطاء الصمامة .
delay fuze	صمامة تعويق .
electrical fuze	صمامة كهربائية .
base fuze	صمامة مصادمة .
instantaneous fuze	صمامة فورية • طابة لحظية .
mechanical-time fuze	صمامة آلية زمنية .
point fuze	صمامة الرأس .
quick fuze	صمامة سريعة .
safety fuze	طابة الامن .
time fuze	طابة زمنية .

Arabic - Continued

grenade	. قنبلة
handgrenade	. قنبلة يدوية
high explosive	. شديد الانفجار (ش/ف). متفجرة
illumination	. مضيئة
impact	. مصادمة
incendiary	. حارق
inert	. خامد
instantaneous	. لحظية
mine	. لغم
model	. نموذج • طراز
mortar	. هاون (ها)

Arabic - Continued

projectile ----------	. قنبلة • مقذوف • قذيفة
illumination projectile ------	. مقذوف مضيئ
AP projectile ----------	. مقذوف ثاقب المدرع
concrete-piercing----------	. مقذوف ثاقب خرسانة
HE projectile ----------	. مقذوف شديد الانفجار
HEAT projectile ----------	. مقذوف ذات حشوة جوفاء قذيفة مجوفة
incendiary projectile -------	. مقذوف حارق
practice projectile ---------	. مقذوف تمرين
smoke projectile ----------	. مقذوف دخان
tracer projectile ----------	. مقذوف بكاشف

Arabic - Continued

rocket	----------	. صاروخ
smoke	----------	. دخان
tracer	----------	. كاشف . خطاطة
type	----------	. طراز . نوع
year	----------	. عام . سنة

Chinese

一	1
二	2
三	3
四	4
五	5
六	6
七	7
八	8
九	9
十	10
十	11
一百 or 百	100
杀	Antipersonnel

Chinese - Continued

杀爆变钢	Antipersonnel HE fragmentation
彈底信管	Base-detonating fuze
黑火藥	Black-powder
延	Delayed Action (fire)
炸藥	Explosive
輕放	Fragile (no rough handling)
杀爆	Fragmentation
信管	Fuze
破壞藥	High explosive
曳破	High Explosive Antitank (HEAT)
碰炸信管	Impact fuze
燒夷彈	Incendiary shell
	Black incendiary (thermite)

Chinese - Continued

瞬發信管	Instantaneous fuze
迫擊炮彈	Mortar shell
瞬	Nondelay
彈頭信管	Point-detonating fuze
彈頭 or 彈丸 or 炮彈	Projectile
火箭	Rocket
破	Shaped charge
短時延期信管	Short-delay fuze
煙藥彈	Smoke shell
定時信管	Time fuze
梯恩梯/茶褐火藥	TNT
式	Type

Below is a list of common alphanumeric markings that may be found on ordnance.

Alphanumeric Markings	Country
9M	USSR
AA	USSR
AK	NETHERLANDS
AMA	DENMARK
AMC	FRANCE
APX	FRANCE
ARF	ITALY
ARGES	AUSTRIA
ARS	FRANCE
AS	FRANCE
AS	USSR
ASS	FRANCE
AT	USSR
ATM	NORTH KOREA
AZDM	GERMANY (FEDERAL REPUBLIC POST WWII)
AZZ	GERMANY (FEDERAL REPUBLIC POST WWII)
BAE	UNITED KINGDOM
BCK	GERMANY (FEDERAL REPUBLIC POST WWII)
BCK	GERMANY (PRE WWII)
BK	USSR
BL	FRANCE
BMP	BELGIUM
BPD	ITALY
BR	SPAIN
BR	USSR
BRP	SPAIN
BT	FRANCE
C	CANADA

Alphanumeric Markings	Country
CAA	CHINA
CIS	SINGAPORE
CSA	CHINA
CSS	CHINA
CSSC	CHINA
DM	GERMANY (FEDERAL REPUBLIC POST WWII)
DM	GERMANY (FEDERAL REPUBLIC POST WWII)
DYNAMITE NOBEL	GERMANY (FEDERAL REPUBLIC POST WWII)
EAB	FRANCE
ECIA	SPAIN
ECN	FRANCE
ECP	FRANCE
EF	SINGAPORE
EHD	BELGIUM
EM	CHINA
ET	CHINA
ET	USSR
EURO	NETHERLANDS
EVR	CZECHOSLOVAKIA
F	CHILE
F	SWEDEN
F	USSR
FAB	USSR
FB	CHILE
FB	ITALY
FERRANTI	UNITED KINGDOM
FFR	SWEDEN
FFV	SWEDEN
FL	NETHERLANDS
FMK	ARGENTINA

Alphanumeric Markings	Country
FN	BELGIUM
FROG	USSR
FrSv	CZECHOSLOVAKIA
FUI	FRANCE
GIAT	FRANCE
gts	CZECHOSLOVAKIA
H	FRANCE
HBS	UNITED KINGDOM
HGC	IRAQ
HGE	IRAQ
HE	IRAQ
HP	AUSTRIA
IMB	UNITED KINGDOM
IMI	ISRAEL
JNS	NETHERLANDS
KAAKAA	EGYPT
KB	YUGOSLAVIA
KV/YU	YUGOSLAVIA
KY/KU	YUGOSLAVIA
L	UNITED KINGDOM
LOS	GERMANY (FEDERAL REPUBLIC POST WWII)
LU	FRANCE
LUL	FRANCE
M	BELGIUM
M	CHILE
M	ISRAEL
M	ITALY
M	SOUTH AFRICA
M	SPAIN
M	SWEDEN
M	SWEDEN

Alphanumeric Markings	Country
M	SWEDEN
M	SWEDEN
M	YUGOSLAVIA
M.Md1	FRANCE
MA	BELGIUM
MA	NETHERLANDS
MAUSER	GERMANY (FEDERAL REPUBLIC POST WWII)
MCR	BELGIUM
MDH	VIETNAM
MK	FRANCE
MK	ISRAEL
MK	ITALY
MK	PAKISTAN
MK	SWEDEN
MK	UNITED KINGDOM
MKE	TURKEY
MKS	ISRAEL
MKS	UNITED KINGDOM
MLE	FRANCE
MN	ITALY
MOD	TURKEY
MODEL	AUSTRIA
MODEL	BELGIUM
MODEL	EGYPT
MODEL	FRANCE
MODEL	FRANCE
MODEL	GERMANY (FEDERAL REPUBLIC POST WWII)
MODEL	ITALY
MODEL	SPAIN
MODEL	SWEDEN
MODEL	SWITZERLAND

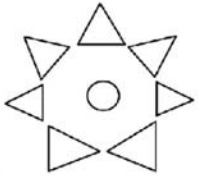
Alphanumeric Markings	Country
MP	CHINA
MPA	BELGIUM
MR	FRANCE
MVA	SWEDEN
MZ	CZECHOSLOVAKIA
NASR	EGYPT
NICO	GERMANY (FEDERAL REPUBLIC POST WWII)
NICO	GERMANY (PRE WWII)
NO.	AUSTRIA
NO.	ISRAEL
NO.	UNITED KINGDOM
NR	BELGIUM
NR	NETHERLANDS
NWN	NETHERLANDS
NZ	CZECHOSLOVAKIA
O	USSR
OF	CZECHOSLOVAKIA
OF	USSR
OZM	USSR
OZT	CZECHOSLOVAKIA
P	ITALY
P	PAKISTAN
PBR	BELGIUM
PDB	SPAIN
PDM	BULGARIA
PDM	USSR
PI	GERMANY (FEDERAL REPUBLIC POST WWII)
PI	GERMANY (PRE WWII)
P-ISV	CZECHOSLOVAKIA
PL	CHINA
PMA	CZECHOSLOVAKIA

Alphanumeric Markings	Country
PMA	YUGOSLAVIA
PMP	GERMANY (PEOPLES REPUBLIC POST WWII)
PO	SPAIN
POM	YUGOSLAVIA
PP	CZECHOSLOVAKIA
PPD	NORWAY
PP-MI	CZECHOSLOVAKIA
PRB	BELGIUM
PRB	NETHERLANDS
PROM	YUGOSLAVIA
PS	SOUTH KOREA
PSM	BULGARIA
PSV	CZECHOSLOVAKIA
PT	CZECHOSLOVAKIA
PT-MI	CZECHOSLOVAKIA
R77	PHILIPPINES
RBK	USSR
RBS	SWEDEN
RHEIMENTALL	GERMANY (FEDERAL REPUBLIC POST WWII)
RKV	SWITZERLAND
RKVDIR	SWITZERLAND
RMS	FRANCE
RO	CZECHOSLOVAKIA
RTE	FRANCE
RYN	FRANCE
S	ITALY
S	SINGAPORE
S	USSR
SA	USSR
SAE	FRANCE
SC	FRANCE

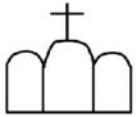
Alphanumeric Markings	Country
SET	USSR
SM	FRANCE
SNILA	ITALY
SOL	ISRAEL
SPRA	UNITED KINGDOM
SS	FRANCE
SS	USSR
TAAS	ISRAEL
TAM	FINLAND
TECTEL	SOUTH AFRICA
TMA	CZECHOSLOVAKIA
TMA	YUGOSLAVIA
TYPE	CHINA
TYPE	DENMARK
TYPE	FRANCE
TYPE	GERMANY (FEDERAL REPUBLIC POST WWII)
TYPE	GERMANY (PRE WWII)
TYPE	JAPAN
UMR	YUGOSLAVIA
UPM	YUGOSLAVIA
UT	YUGOSLAVIA
UTI	YUGOSLAVIA
UTM	YUGOSLAVIA
UTU	YUGOSLAVIA
V	FRANCE
V	USSR
VS	ITALY
W	SPAIN
WALLOP	UNITED KINGDOM
YAM	USSR
ZAB	USSR

Below are common graphic symbols and markings found on ordnance.

Italy



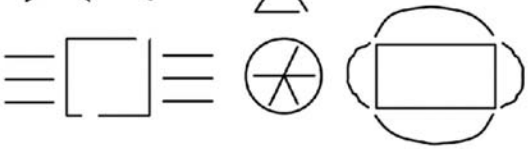
Denmark



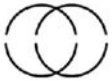
Bulgaria

Belgium

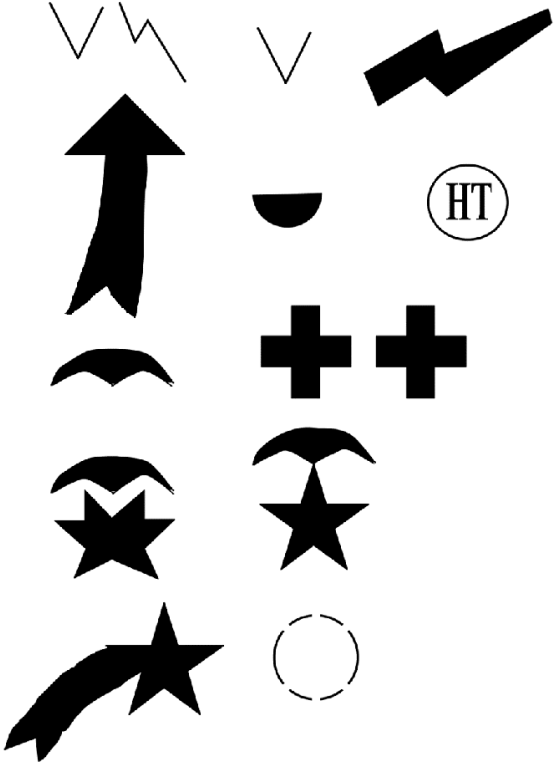
China



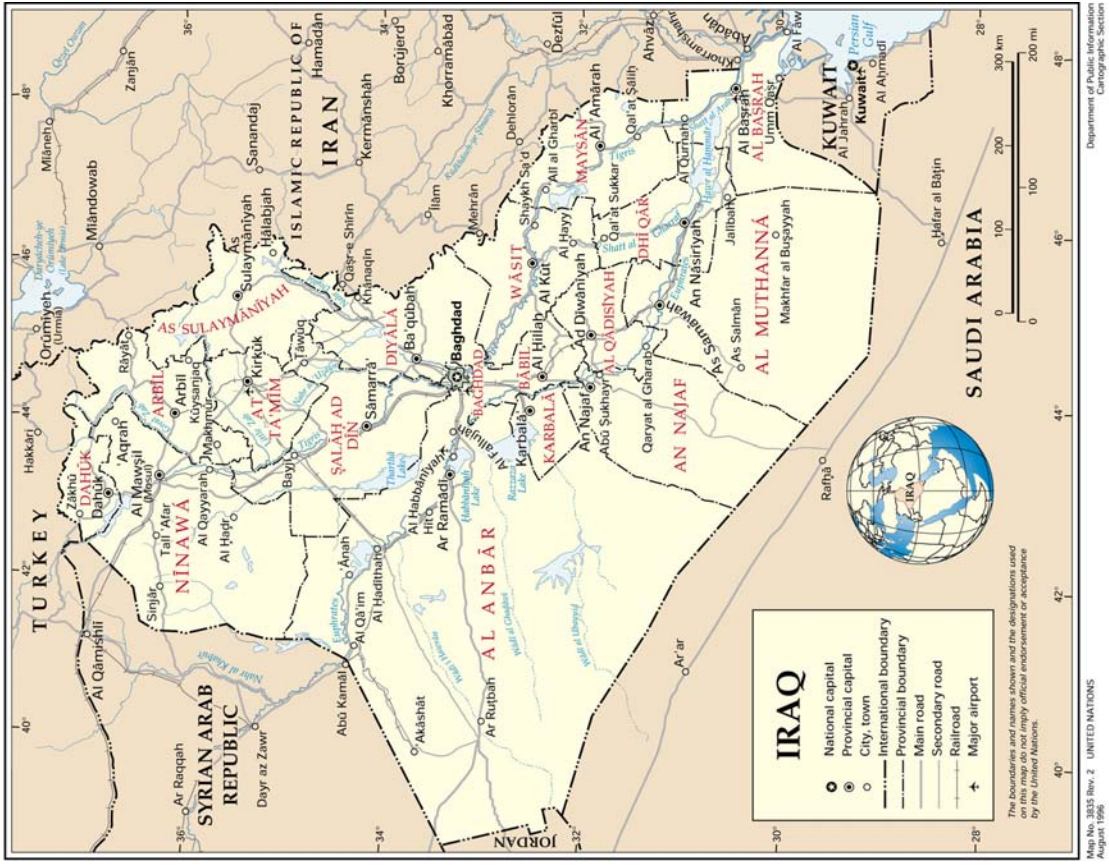
USSR



France



MAP OF IRAQ


IRAQ
National capital
Provincial capital
City, town
International boundary
Provincial boundary
Main road
Secondary road
Railroad
Major airport
The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.
Map No. 3835 Rev. 2 UNITED NATIONS
August 1996
Department of Public Information
Cartographic Section
TURKEY
IRAN
ISLAMIC REPUBLIC OF
SYRIAN ARAB REPUBLIC
JORDAN
SAUDI ARABIA
KUWAIT
Persian Gulf
NĪNAWĀ
AS SULAYMĀNĪYAH
ARBĪL
AT TAMĪM
DAHŪK
ṢALĀḤ AD DĪN
DIYĀLĀ
BAGHDĀD
WĀSIT
MAYSĀN
DHĪ QĀR
AL QĀDISĪYAH
BĀBIL
KARBALĀ
AN NAJAF
AL ANBĀR
AL MUTHANNĀ
AL BAṢRAH
Baghdad
Mosul
Kirkuk
Erbil
Sulaymānīyah
Ḥalabjah
Dahūk
Zākhū
Al Mawṣil
Tall 'Afar
Sinjār
Al Qāmishlī
Ar Raqqah
Dayr az Zawr
Abū Kamāl
Al Qā'im
Ānah
Al Ḥadīthah
Ar Rutbah
Akāshāt
Ar Ramādī
Al Ḥillah
Karbalā'
An Najaf
Al Kūt
Al Ḥayy
Al 'Amārah
Qal'at Ṣāliḥ
Al Qurnah
Al Baṣrah
Umm Qaṣr
Al Fāw
Al Jahrah
Kuwait
Al Aḥmadī
Ḥafar al Bāṭin
Rafḥā'
Ar 'Ar'ar
Khorramshahr
Abadan
Ahvāz
Dezfūl
Shaykh Sa'd
Dehlorān
Mehrān
Īlām
Khorramābād
Borūjerd
Kermānshāh
Qaṣr-e Shīrīn
Khānaqīn
Samarrā'
Ba'qūbah
Tawuq
Bayjī
Hīt
Al Ḥabbānīyah
Al Fallūjah
Sanandaj
Mīāndowab
Mīāneh
Zanjān
Rāyat
Aqrah
Arbīl
Kūysanjaq
Maktūm
Al Qayyārah
Al Ḥaḍr
Ṭāl 'Afar

BOMB

INTRODUCTION:

- Positively identify the bomb.
- HE-filled bombs may have rocket motors or fillers such as chemical agents, photoflash composition, or incendiary material.
- Observe safety precautions for the applicable fuze(s) during fin removal.
- Presuppose the most dangerous fuze(s) installed if visual recognition cannot be performed.
- Protective works should be considered before demolition.
- Tail sections may break away during impact altering appearance.
- Nose fuzes may be unidentifiable after impact.
- Tail sections may conceal a fuze, be badly damaged, or unremovable.

SAFETY:

- Do not move/jar except by remote means; fuzes may contain a hung cocked striker, antidisturbance device, etc.
- Do not move/jar a bomb until determination of fuzing type.
- Do not drop/jar a fuze; the fuze may start or resume functioning, or may release a hung cocked striker.
- Do not turn arming vanes, insert safety pins or pop-out pins, pull or cut arming lanyards, or attempt fuze removal.
- Tail sections may incorporate hazardous components such as ejection charges and powerful springs.
- Recognition of anti-disturbance, electronic multifunction, and long-delay fuzes is a priority.
- Do not use fuze-related accessories, such as lanyard lock, lanyard adjusters, closure ring/closure plug as positive identification features.

SAFETY CONSIDERATIONS

HIGH EXPLOSIVE/FRAGMENTATION:

- Observe magnetic, seismic, and acoustic precautions during the approach and continue to observe until it is ascertained that the precautions are not present.
- Do not remove fuzes by hand on picric acid filled bombs, fuze removal could detonate the bomb if salts are present.
- Do not pack a fuze well with plastic explosive if the well contains a detonator. Detonators are sensitive to heat, shock, and friction.
- Do not attempt to separate the detonator from the pistol, if attached, after pistol is removed from bomb. The firing pin may be embedded in the detonator, or explosive salts may have formed between the detonator and the pistol.
- Do not remove a United Kingdom tail pistol by hand if it has been in the bomb in excess of 14 days. Removal may function the detonator if explosive salts have formed between the detonator and the pistol.
- Thermal coating will attenuate the power of demolition charges.

BOMB - continued

SAFETY CONSIDERATIONS - continued

CHEMICAL:

- Large carrier bombs may contain linear cutting charges/central bursters.
- Most are thin-walled and therefore liable to rupture leaking contents.
- Personnel Protective Clothing and breathing apparatus may be required.
- Identification of fill is vital before any action.
- Leak sealing and packaging may be necessary.
- Downwind hazard areas should be calculated.

PYROTECHNIC:

- Photoflash bombs must be handled with the same care as black powder, and with even greater care than conventional explosive-loaded bombs. When loose photoflash powder is observed, stop all work until the loose powder has been desensitized and the leaking bomb has been removed from the operating area.
- Do not manually remove a fuze from a photoflash bomb. The bomb burster charge or photoflash powder may be in the fuze threads, and may detonate the bomb if pinched in the threads.
- Non-stabilized incendiary bombs may use all-way acting fuzes.

DISPENSER

INTRODUCTION:

- Observe all safety precautions applicable to the fuze.
- Observe all safety precautions applicable to the payload.
- Positively identify the dispenser and payload. It may contain random delay fuzing and a payload of HE, incendiary, chemical, or smoke munitions.

SAFETY CONSIDERATIONS

- Approach a dispenser from an upwind direction until certain that no chemical or other toxic agent is present.
- Approach and work from the side of a dispenser only. Should an actuation occur, payload items may be ejected with dangerous force.
- Consider a dispenser loaded. The presence or absence of a payload may not be obvious from an external examination.
- Exercise caution around a dispenser or cluster adapter that contains no payload. The dispenser may contain explosive detents, ejection cartridges, or other explosive devices.
- Remain clear of retracted dispenser fins; actuation may cause injury.
- Do not jar or unnecessarily move the fuze or dispenser. Such action may initiate the dispenser and eject its contents.
- Do not remove munitions from a dispenser unless absolutely necessary. Many of the contained munitions are designed to arm as soon as they leave the dispenser.
- Render safe any separated contents before performing the procedures on the cluster adapter. Bombs outside the adapter/dislodged within it may be armed.
- If multi-fuzed, evaluate all conditions and render safe the most dangerous fuze first.

PROJECTILE

INTRODUCTION:

- Projectiles include guns, mortars, howitzers, and recoilless rifles other than small arms and may be rocket assisted.
- Carry any type of payload, including high explosive, chemical, incendiary, pyrotechnic, biological, inert, training, and spotting payloads.
- Sizes from less than 20 millimeters to over 16.00 inches in diameter.
- Vary widely in fuze functioning and operating principles.
- May have multi-fuzing in a single projectile.

SAFETY CONSIDERATIONS:

- Consider armed if fired.
- Determine the condition of the fuze or fuzes before moving.
- Ascertain type and amount of projectile main charge or filler and the number and types of any other explosive or pyrotechnic components which may be present.
- Physical characteristics and engraved/stamped.
- Determine the country of origin of the projectile and compare its color marking against known national markings and color codes, if possible.
- Examine a projectile for the presence or absence of an unfired tracer.
- Stay clear of front and rear of ejection projectile.
- Do not pick up a fired projectile.
- Observe rocket motor precautions with a rocket-assisted projectile.
- Do not dismantle, disassemble, or strip unexploded projectiles.
- Personnel Protective Equipment (PPE) available when handling smoke and/or riot-control agents
- Do not approach a smoking WP/PWP projectile unless absolutely necessary.
- Assume a practice projectile contains a live charge until determined.
- Some cartridges contain powdered metals, which may react violently and liberate explosive or toxic fumes when exposed to moisture.
- Extreme caution when handling explosive-loaded components which have been separated from the projectile.

PROJECTILE - continued

FUZES:

- Exercise extreme care in handling graze-sensitive, electric, switch-actuated, piezoelectric, spring-loaded, and cocked-striker fuzes.
- Wait 1 hour before approaching a possible armed VT fuze to permit the electrical charge to bleed off.
- Do not attempt to remove base fuzes from projectiles unless remote stripping facilities are available.
- Extreme care in handling air column fuzes; Many are always armed.
- Do not disturb or remove any foreign matter embedded in an armed fuze.
- Do not attempt to replace safety pins/wires, or to reset.
- Seal the open end of the flash tube with tape/suitable material.
- Protect the primer when handling or transporting ammunition/propellant case.
- Observe EMR precautions on fuzes with stored electric energy or electric-producing crystals (piezo).

GRENADE

INTRODUCTION:

- Hand or rifle projected.
- Main charge includes HE, riot-control agents, smokes, and incendiary and pyrotechnic materials.
- Fuzing is varied and may be time-delay or impact fuzed.
- Are easily and frequently boobytrapped.
- Practice grenades are usually externally identical to the grenades they simulate

SAFETY:

- Do not drop or jar.
- Do not disturb, except remotely, until fuze condition can be determined.
- Do not handle unless safety pin and fly-off lever in place and secured.
- Wait at least 30 minutes before approaching a suspected dud-fired grenade, deterioration/dampness may prolong the burning time of the delay.
- Do not attempt to remove the fuze from a dud-fired grenade.
- Do not attempt to replace the safety pin in a dud-fired grenade.
- Manually handle an armed grenade as a last resort and after considering all methods of remote disposal.
- Wear protective equipment with known/suspected chemical grenades.
- Do not approach a smoking WP grenade unless absolutely necessary.
- Move an embedded grenade remotely, it may contain a piezoelectric fuzing system.
- Do not dispose by functioning normally, may be boobytrapped.
- Observe cover and safe distances before disposal. Fragments may be projected over a radius of 650 feet (198 meters).

SAFETY CONSIDERATIONS

ANTI-ARMOR/HEAT:

- Armed or damaged anti-armor/heat grenades should not be touched.
- Stab-sensitive detonator assembly contains a substantial booster charge.
- Ensure shaped charge cone is crushed during disposal.
- Ensure presence of fuze-cover securing stable prior to removing handle.

GRENADE - continued

SAFETY CONSIDERATIONS - continued

FRAGMENTATION:

- Fly-off lever partially released – dangerous condition.
- Percussion cap not struck sufficiently hard.
- Pyrotechnic fuse not ignited or fails to burn completely to detonator.
- Fuze loosens or unscrews on contact – separating detonator and main charge.
- Fragmentation grenades may be single thickness of steel deeply serrated or double thickness with inner-notched fragmentation coil.

IMPACT FRAGMENTATION:

- In addition to conventional design, have added all-way acting fuze
- Armed all-way acting fuzes may be sensitive to movement
- Mechanical fuze may be fully armed and functional even when delay detonator has failed.

RIFLE:

- Nose fuzes on fired unexploded rifle grenades are likely to be damaged.
- Observe shaped charge precautions until positive identification.
- Often difficult to identify warhead type, e.g., HEAT warheads may not have their normal characteristic profile.
- Fuze mechanisms vary widely and not readily identifiable unless marked.

CHEMICAL/SMOKE:

- Smoke grenades are usually make of thin sheet metal
- Riot-control grenades have emission holes covered with tape, spherical plastic, or synthetic rubber case.
- Incendiary grenades are usually sheet metal.

SPIN-STABILIZED (CANISTER/CARTRIDGE TYPE LAUNCHED):

- During demolition, ensure unfired grenades are not launched.
- Impacted fuzes may make unexploded grenades sensitive to shock.
- Despite size, these can be lethal at significant distances.
- Observe shaped precautions unless positively identified.

FUZE

INTRODUCTION:

- Fuzes contain, in a single unit, an explosive initiating charge and the means for initiating this charge. Fuzing systems divide these elements and functions among several units.
- Certain elements of fuzing systems closely resemble fuzes and should be treated similarly to fuzes. Safety and arming (S&A) devices containing explosives, electrical circuits, and arming systems are typical of these.
- Fuzes and fuzing systems are used in a wide variety of surface ordnance, including bombs, dispensers, clusters, launchers, projectiles, grenades, rockets, landmines, guided missiles, pyrotechnic devices, and in some types of underwater ordnance.
- Fuzes and fuzing systems may be mechanical, pyrotechnic, chemical, electrical, electronic, or combinations of these. They function in a variety of designed modes such as impact, long delay, time after launch, and antidisturbance.

SAFETY CONSIDERATIONS:

- When identification of a fuze is impossible, the type of arming device and type of firing device in the fuze must be determined.
- When a fuze can be identified only as one of several types, treat the fuze as the most hazardous type.
- Do not drop, strike, or jar an armed fuze. It may be in a very sensitive condition and may be fired by such action.
- Avoid any unnecessary movement of an armed fuze.
- The fuze is considered the most hazardous component of explosive ordnance, regardless of type or condition.
- Observe magnetic, seismic, infrared, and acoustic precautions when approaching an unidentified fuze.
- Do not allow movement of equipment in the area until it is determined to be safe to do so. Some fuzes are designed to function on passage of a predetermined number of targets.
- Some fuzes contain boobytraps that function on fuze removal.
- Do not attempt to reset an adjustable clockwork fuze to an indicated safe position or reinsert any fuze safety device.
- Assume that an electric fuze is sensitive to shock, heat, discharges of static electricity, and stray electric current.
- Turn off any source of radio-frequency energy in the vicinity of a known or suspected proximity (VT) fuze. A proximity fuze may be capable of being fired by radio-frequency energy transmitted to the fuze by an outside transmitter.
- If the munition is known to contain a VT fuze, do not approach it until the prescribed waiting time has expired.
- Do not drop, jar, or strike a fuze, or subject it to heat or any other force likely to fire a possibly armed fuze. Many fuzes are fired by spring-loaded firing pins. In addition, the firing pin or other metal fuze part may be embedded in an explosive component.
- Keep a fuze which has been removed from ordnance separated from other explosive ordnance. A fuze located near another explosive charge may induce its detonation should the fuze accidentally explode.
- When transporting any fuze, position the fuze in the most neutral orientation possible, considering its design and all forces which may act on it or its components.

ROCKET

INTRODUCTION:

- Rockets may be launched from aircraft, ships, vehicles, fixed positions, and by individuals.
- May contain a HE main charge or a variety of fillers including chemicals, submunitions, pyrotechnics, incendiaries, or combinations of these agents.
- The hazards include the warhead section and the propulsion system.

SAFETY CONSIDERATIONS:

- Approach/work from the side. Ignition will create a missile hazard/hot exhaust.
- Do not jar or disturb an armed warhead. If necessary to move, do remotely.
- Perform initial movement of an embedded rocket remotely.
- Positively ID, or assume most hazardous type fuze.
- Work most hazardous fuze first.
- Wait a sufficient time (at least 1 hour) for charged capacitors to discharge.
- Protect rockets within in an EMR field/environment.
- Do not dismantle, disassemble, or strip unexploded rockets or components.
- Wear Personnel Protective Equipment (PPE) for suspected chemical agents.
- Do not approach a smoking WP warhead unless absolutely necessary
- Wash thoroughly (soap and water) after handling rocket motor propellant.
- Do not expose electrically fired rocket motors within 25.0 feet (7.6 meters) of any exposed electronic transmitting equipment or exposed antenna leads.
- Do not transport an unfired rocket unless the motor igniter is shielded from EMR.

GUIDED MISSILE

INTRODUCTION:

- Launched from aircraft, ships, vehicles, and by individuals.
- Size from large, fixed/mobile weapon to being carried/fired by one person.
- Warhead may contain HE, chemical, or biological agents.
- Propulsion may be solid propellant or liquid fuels and oxidizers.
- May be multi-fuzed and incorporate a self-destruct system.
- Most proximity fuzes have some type of impact backup.
- Location of explosive components should be verified before demolition
- Ensure venturi is destroyed during demolition to prevent flight.
- Unburned propellant may be capable of detonation under some circumstances.
- Unconventional fuzes may not be recognizable.
- The possible presence of tandem warheads must be considered.

SAFETY CONSIDERATIONS

APPROACH:

- Restrict all vehicle movement in the vicinity of the missile.
- Avoid entanglement with the wires of a wire-guided missile.
- Terminate radio transmissions as per safe distance recommendations of service directives.
- Approach an unidentified guided missile from the side. Many missiles have proximity fuzes, IR fuzes, and some produce microwave radiation.
- Do not approach a guided missile that has been in a fire until sufficient time has elapsed for it to cool. If the missile has a specified waiting period, the period should commence after the missile has cooled.
- When approaching an unidentified guided missile, observe chemical and fuel precautions until monitoring has verified that the missile does not contain a chemical warhead or a leaking motor.
- Approach/work on an unfired rocket motor from the side.
- Do not approach an armed guided missile that has proximity fuzing while using a fluorescent light. Fluorescent light has been known to function armed proximity fuzes.
- Impact fuzes may be located on the leading edge of fins.

GUIDED MISSILE - continued

SAFETY CONSIDERATIONS - continued

IDENTIFICATION:

- Remotely perform initial movement necessary for missile identification.
- An air-to-air or surface-to-air missile generally contains an HE-fragmentation warhead.
- A surface-to-surface or air-to-surface missile may contain any type of warhead.
- Single-piece rocket motor probably contains solid propellant, while a two/ or three-piece construction may be an engine containing liquid propellant.
- Some liquid-propellant engines may have a solid-propellant grain (gas generator) for combining the fuel and oxidizer.
- If possible, wait for a period after impact before approaching an unknown missile. (Wait requirements vary widely; observe a minimum of 3 hours, if possible.) This period may allow the missile to self-destruct, shut off, or exhaust its firing power.

FUZING SYSTEMS:

- Consider the warhead armed if the missile's has been fired.
- Do not strike or jar any missile components.
- Some also contain an anti-breakup device along the length of the warhead.
- Do not disconnect or cut any electrical cable. A fuzing and firing circuit can fire because of a loss of or drop in voltage.

PROPULSION SYSTEMS:

- Wear protective clothing/respiratory equipment when working on a liquid-propellant rocket engine.
- Observe maximum fire-prevention precautions for the rocket motor.
- Remain upwind when missile is suspected of leaking fuels and oxidizers.
- Do not allow fuels to mix with oxidizers. Mixture of the two liquids will result in a violent hypergolic reaction.
- Thoroughly wash the outer surface of protective clothing after working in the presence of fuels and/or oxidizers.
- Do not attempt to remove an igniter from a missile motor section.
- Guidance and control systems.
- Protect against burns and toxic dust/gases from a thermal battery.
- Avoid body contact with the highly corrosive electrolyte used in wet-cell batteries.
- Do not move, bend, cut, or disconnect any high-pressure lines until certain that the system is void of pressure. Remotely cut or separate any line suspected of being under pressure. Almost all guidance and control systems contain high-pressure air, hydraulic liquid under pressure, or both.

LANDMINE

INTRODUCTION:

- Landmines are emplaced area-denial weapons, from small antipersonnel (apers) types to larger antitank (AT) or special-purpose types (off-route).
- Landmines may be designed to be boobytrapped with anti-lift devices.
- Landmines may be loaded with high explosives, chemicals, or pyrotechnic materials.
- Fuzed in a variety of ways, including mechanical, electrical, chemical, acoustic/seismic, infrared, magnetic-influence, or controlled firing systems. They may be fired by pressure, tripwire, tension release, explosive pressure pulse, pressure release, magnetic field changes, or direct electrical circuit closure.

SAFETY:

- Observe magnetic precautions when approaching/working with a known or suspected magnetic influence fuze.
- If it is absolutely necessary to walk into a mined area, move slowly, looking at the ground carefully to note disturbances in the soil and the presence of any tripwires.
- Permit only one person at a time to work on one mine.
- Probe and examine the ground around a mine before starting to work on it.
- Take boobytrap precautions.
- Before lifting a mine, neutralize all external fuzes.
- Perform all initial movement of the mine remotely.
- Assume the presence of other mines nearby whenever a landmine is located.
- Before disarming, determine the number and types of fuzes within the mine to ensure proper safety precautions are followed.
- A nonmagnetic probe is safer to use, as the mine may have a magnetic fuze.
- AT mines may be protected by apers mines.
- Do not manually disturb, drop, or strike an armed mine or mine fuze. It may contain a cocked-striker firing system.
- Consider an emplaced landmine armed and remove remotely.
- Do not cut/pull a taut wire; never pull a slack one.
- Take cover before pulling a mine and wait for at least 60 seconds.
- Do not handle an AT mine that has been pulled from its emplacement until after closely examining the mine case to ensure that the case was not deliberately altered to permit separation at its base. Separation of the mine case from its base and main charge will function an internal pressure/pressure-release fuze.
- Do not use force on a mine or boobytrap. If a part cannot be removed without applying an undue amount of force, cease removal procedures and destroy the mine in place.
- If a mine or boobytrap must be left unlifted, mark the location prominently and notify the proper authorities.
- Improvised grapnels may be used to clear tripwire-actuated mines.

LANDMINE - continued

- When cutting the wires of an electric detonator, cut and tape them one at a time to avoid closing the circuit with the wire cutters. A mine is harmless if the firing train is broken, but there may be more than one firing train.
- Do not stack fuzed mines. Many types contain pressure-actuated fuzing which may be fired by such action.
- If possible, destroy in place all mines loaded with picric acid explosive. Extremely sensitive explosive salts may have formed wherever the explosive contacts the metal.
- Observe acoustic/seismic precautions when approaching or working on landmines with a known or suspected acoustic/seismic fuze.
- Do not remove a mine from its emplacement if the pressure plate is compressed or deformed. The fuze may contain a hung cocked firing pin.
- The preferred disposal procedure for antipersonnel and antitank landmines is to detonate or burn using incendiary grenades for the situation found.
- Do not permit personnel, vehicles, or any heat-generating source to pass in front of an infrared receiver.
- Some fuzes may not have a safety feature, or a safety device may not be available or cannot be applied.

SAFETY CONSIDERATIONS

ANTI-TANK (AT) MINES:

- Do not uncover until the ground has been thoroughly checked for anti-lift devices. Probe cautiously, for even nearby disturbance by the probe may release the fuze striker.
- Exercise care when disarming wooden AT mines by hand. Frequently, holes are drilled through the bottom of the case and pull-wires connected to auxiliary fuzes are threaded and anchored to a stake underneath. If the stake is driven deep enough, it is not easy to locate the wire by probing. A pressure-release fuze or pull fuze with pullwire may be actuated by raising or removing the pressure plate or lid. Some wooden mines have a special mousetrap device that is actuated in this way.
- Exercise care with wooden AT mines that have been buried for a long time. Because of soil conditions, the wood deteriorates and the slightest inadvertent pressure on the top may initiate the fuze.

ANTIPERSONNEL:

- Be alert for small apers mines laid along the side of or underneath the tripwire to hinder disarming.
- Always trace the tripwire from the friendly side - do not straddle it - as a safeguard against accidental tripping or stepping on a small apers mine laid underneath the tripwire.

LANDMINE - continued

SAFETY CONSIDERATIONS - continued

OFF-ROUTE:

- Electronic off-route mines may contain an anti-handling option.
- Contact with fuzing sensor or into field of view may initiate.
- Do not cut connected electric wires/breakwires – collapsing circuit.
- Precautions to prevent formation of HEAT jet or self-forging fragment.

FUZES:

- Be extremely cautious disarming tilt fuzes by hand, especially if they have been partially initiated. There must be no movement of the tiltrod when the fuze is removed from the mine.

NAVAL MINE

INTRODUCTION:

- Naval mine may be air-laid, submarine-laid, or surface-laid.
- Identification of a naval mine is inherent in the features of the mine case and fittings as influenced by the laying agent, and features inherent in its firing system.
- Most naval mines employ a case shape involving a sphere, some part of a sphere, a cylinder, or a combination of these
- Mine case identifying elements include the size and shape of the case, details of its external features, and any attached fittings or accessories.
- Painting and markings, as well as the type of material of the case and components, are valuable data if they can be readily determined without disturbing the mine.

SAFETY:

- Observe influence precautions when approaching all unidentified mines until the firing means is identified, then observe the appropriate precautions.
- Do not touch an unidentified mine with any metallic object.
- Do not assume all mine in a minefield are of the same type or setting.
- Do not approach a mine in the surf. Wait until the tide drops or surf subsides.
- Attempt to locate and stay clear of flooders.
- Assume the mine contains the most hazardous component combination for which it is designed.
- Do not disturb or move an armed mine except by remote means from a safe distance.
- Assume all mines contain a self-destruct capability.
- Use nonmagnetic tools and equipment to gain access to an unknown mine buried no land.
- Assume an unknown mine is fitted with antirecovery devices.
- Consider all mines adrift on the surface to be armed and functional.

NAVAL MINE - continued

CONSIDERATIONS

CONTACT MINES:

- Chemical horn, cocked striker and sea water battery firing systems have an indefinite firing life.
- Chemical horn mine may remain functional even if the case is flooded.
- Avoid all lines and cables attached to the mine as they may be snag lines or function as galvanic antennas.
- Move a beached/sunken mine remotely. Mine movement can function a chemical or switch horn or whisker, or actuate an inertial firing device.
- Do not move any protruding object on a mine until its function has been positively identified.
- Do not put tension on a baseplate mooring spindle.
- Do not tamper with switches on a baseplate.
- Do not lift or move a mine by the mooring cable or place a strain on the cable unless it is determined such action will not close an internal mooring switch.

INFLUENCE MINES:

- Approach bottom mines from the nose end within a 45 to 90 degree angle of either side of the nose.
- Consider all influence mines of recent development to use magnetometers as the magnetic sensor
- Maintain influence precautions until the mine is determined to be unarmed, neutralized, or rendered safe.
- Keep all craft, other than the diving platform, at least 600 feet from the mine.
- Do not chip or scrape marine growth or rust from an armed influence mine.

CONTROLLED MINES

- If possible, determine the mine control point and ensure the actuation means is safed.
- Consider the possibility that more than one mine may be controlled from a single point, and that a single mine may have more than one control point.

DEPTH CHARGE, SOUND SIGNALS, MARKERS, & MISCELLANEOUS

INTRODUCTION:

- It must be assumed personnel are reasonably familiar with procedures and have experience in these areas.
- There is no safe procedure for disposal of ordnance, but merely a procedure that is considered least dangerous.
- An operation involving both diving and explosives must be based on all safety considerations.
- No “always correct” rule or set of rules apply.
- Assume ordnance is in an armed condition and ready to fire unless it is determined to be otherwise.

CONSIDERATIONS

DEPTH CHARGES AND DEPTH BOMBS:

- Allow at least one passage of high tide before diving on a depth charge (bomb). An increase in water depth may take the fuze past its firing pressure, resulting in detonation.
- Observe magnetic safety precautions until it is established the charge/bomb does not contain a magnetic-influence firing mechanism.
- DO NOT rely on retraction of the booster extender to safe a depth charge.

PYROTECHNIC MARKERS AND SIGNALS:

- Consider these types of markers/signals to be armed if they have been subjected to water.
- DO NOT look directly at a burning marker/signal.
- DO NOT crush or break crusted phosphorus residue that may be present on an expended marker/signal.
- DO NOT inhale gases produced by markers/signals.
- DO NOT allow either end of a marker/signal to come in line with personnel, as ejected elements are a missile hazard.
- Be aware when red phosphorus is burned, incomplete combustion may produce deposits of red and white phosphorus which may contaminate surrounding areas.

PRACTICE DEPTH CHARGES AND SIGNALS, UNDERWATER SOUND (SUS):

- DO NOT disassemble a practice depth charge or SUS. Explosive exudate may be in the threads.
- DO NOT depress or retract a detonator holder. Depressing will align the detonator with the firing pin and explosive train while retraction could cause detonation if the firing pin has been driven into the detonator.
- DO NOT subject an armed practice depth charge or SUS to rough treatment. It may contain a cocked striker.

SCATTERABLE

INTRODUCTION:

- From the very small, simple, cheap devices to the large, highly complex and expensive ‘smart’ munitions.
- Delivered by missiles, rockets, projectiles, and mortars.
- Fillers include HE, pyrotechnics, illuminants, and chaff.
- Dispensed by nose ejection, rear ejection, or case rupture.
- Stabilization includes fins, a streamer, or parachute.
- Most incorporate a separate arming mechanism.
- Targets include personnel, equipment, machinery, and area-denial.
- Most function upon impact but some are victim-operated or contain delays.

SAFETY:

- May incorporate stab-sensitive or all-way acting fuze(2).
- All-way acting fuze mechanisms can behave like an anti-disturbance device.
- Large numbers at a contaminated site complicates a clearance operation.
- Often found above ground in vegetation or manmade structures.
- Dispensers contain hazardous components such as ejection charges and linear cutting charges.
- Presence is indicated by empty containers and packaging.
- Armed bomblets prone to failure if impact angle too great or fall broken by vegetation or soft ground.
- May fail to arm if drop height is insufficient.
- Presence of an unexploded scatterable may indicate others are present.

CONSIDERATIONS

CHUTE-STABILIZED:

- May not arm if release altitude too low.
- Impacted fuzes may be in a highly sensitive state.

DPICM:

- Subject to a high failure rate.
- If armed, munition is highly sensitive to pressure on the fuze.
- They often become tangled in vegetation and structures.

SCATTERABLE - continued

FIN-STABILIZED (HEAT):

- May penetrate soft ground and be buried due to high sectional density.
- Impacted fuzes may be highly sensitive especially piezoelectric types.

FIN-STABILIZED (FRAGMENTATION):

- Thick-walled varieties can produce heavy fragments, lethal at substantial ranges.

SPIN-ARMED:

- Due to failure in the fully armed condition due to insufficient impact energy.
- Armed with all-way acting fuzes sensitive to movement.
- Despite external corrosion, fuze mechanisms and detonators may be fully operational after many years.