

FIELD MANUAL

No. 5-31

HEADQUARTERS  
DEPARTMENT OF THE ARMY  
WASHINGTON, D. C., 14 September 1965

## BOOBYTRAPS

	Paragraphs	Page
CHAPTER 1. CHARACTERISTICS OF BOOBYTRAPS		
Section I. Introduction	1-2	3
II. Principles of operation	3-7	3
CHAPTER 2. USE OF BOOBYTRAPS		
Section I. Basic doctrine	8-9	8
II. Planning	10-14	9
III. Installation	15-17	14
CHAPTER 3. BOOBYTRAPPING EQUIPMENT		
Section I. Firing devices	18-26	19
II. Demolition materials	27-30	35
III. Missiles	31-36	45
CHAPTER 4. CONSTRUCTION TECHNIQUES		
Section I. Boobytrapping mines in minefields	37-39	51
II. Boobytrapping buildings	40-44	61
III. Terrain	45-48	79
CHAPTER 5. MISCELLANEOUS BOOBYTRAPS		
Section I. Standard boobytraps	49-50	87
II. Improvisations	51-62	92
CHAPTER 6. BOOBYTRAP DETECTION AND REMOVAL		
Section I. Clearing methods	63-68	119
II. Disarming methods	69-72	123
APPENDIX I. References	---	127

\*This manual supersedes FM 5-31, 31 January 1956, including C 1, 16 December 1957, and C 2, 28 August 1959.

# CHAPTER 1

## CHARACTERISTICS OF BOOBYTRAPS

### Section I. INTRODUCTION

#### 1. Purpose and Scope

a. This manual contains procedures, techniques, and expedients for the instruction of the soldier in the assembly, use, detection, and removal of boobytraps in combat.

b. Included are descriptions and discussions of the design and functioning characteristics of standard demolition items — firing devices, explosives, and accessories — and missiles, such as hand grenades, mortar ammunition, artillery ammunition, and bombs.

c. This manual also contains information on a variety of items and indigenous materials useful for improvising firing devices, explosives, and pyrotechnic mixtures for guerrilla warfare applications.

d. Factory-produced boobytraps (dirty trick devices) are described. Most of these have been developed and used in the field by foreign armies.

e. Safety measures pertinent to boobytrapping operations are provided for the protection of troops from casualty.

f. The contents of this manual are applicable to nuclear and non-nuclear warfare.

#### 2. Comments

Users of this manual are encouraged to forward comments or recommendations for changes for improvement. Comments should be referenced to the page, paragraph, and line of text. The reason for each comment should be given to insure proper interpretation and evaluation. Forward all comments directly to the Commandant, U.S. Army Engineer School, Fort Belvoir, Virginia 22060.

### Section II. PRINCIPLES OF OPERATION

#### 3. Types of Boobytraps

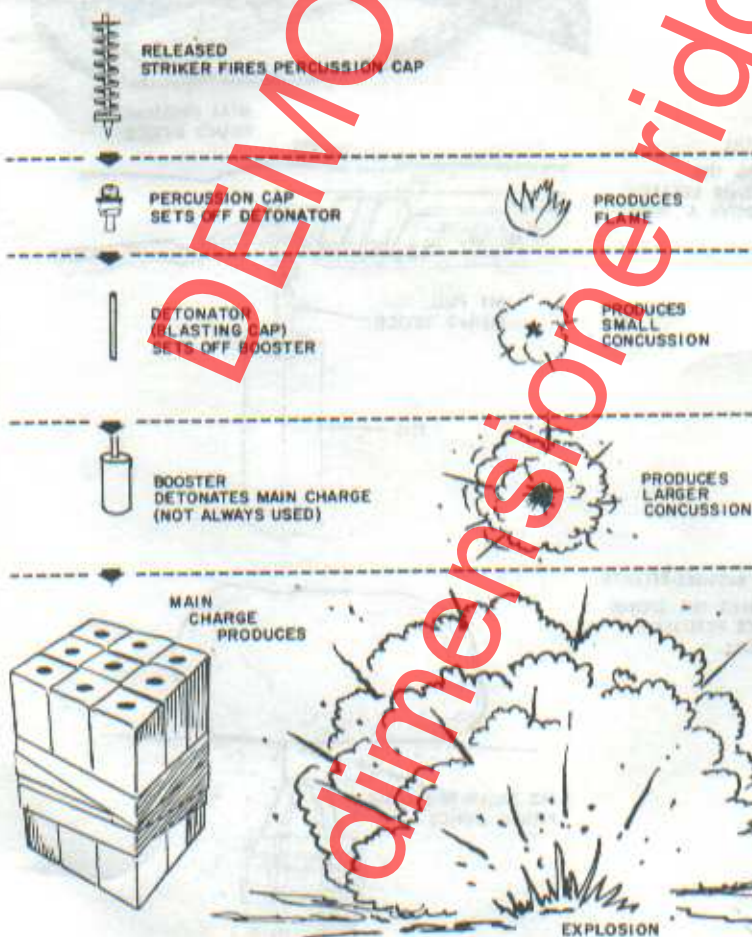
A boobytrap is an explosive charge cunningly contrived to be fired by an unsuspecting person who disturbs an apparently harmless object or performs a presumably safe act. Two types are in use — improvised and manufactured. Improvised boobytraps are assembled from specially provided material or constructed from materials generally used for other purposes. Manufactured boobytraps are dirty trick devices made at a factory for issue to troops. They usually imitate some object or article that has souvenir appeal or that may be used by the target to advantage.

#### 4. Assembling Boobytraps

A boobytrap consists of a main charge, firing device, standard base (not always used), and detonator. Another item, the universal destructor, is an adapter for installing a firing device assembly in a loaded projectile or bomb to make an improvised boobytrap. Also, firing device assemblies are often attached to the main charge by means of a length of detonating cord.

#### 5. Boobytrap Firing Chain

THE FIRING CHAIN IS A SERIES OF INITIATIONS BEGINNING WITH A SMALL QUANTITY OF HIGHLY SENSITIVE EXPLOSIVE AND ENDING WITH A COMPARATIVELY LARGE QUANTITY OF INSENSITIVE EXPLOSIVE.

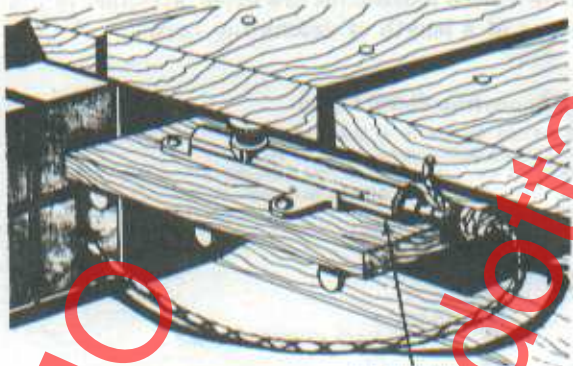


## 6. Initiating Actions

THE INITIATING ACTION STARTS THE SERIES OF EXPLOSIONS IN THE BOOBYTRAP FIRING CHAIN.

### A. PRESSURE

WEIGHT OF FOOT STARTS EXPLOSIVE ACTION.



MIAI PRESSURE FIRING DEVICE

### B. PULL

LIFTING THE SOUVENIR STARTS EXPLOSIVE ACTION.



M1 PULL FIRING DEVICE

TNT

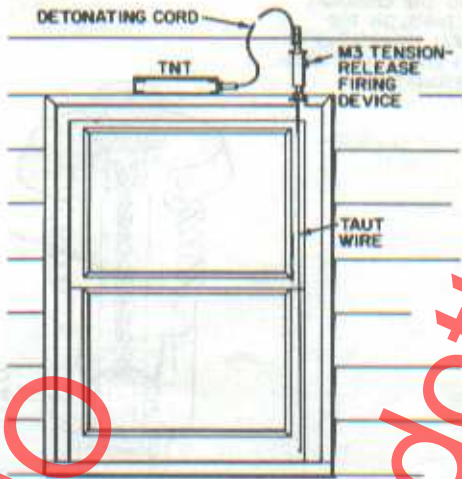
### C. PRESSURE-RELEASE

MOVING THE STONE STARTS EXPLOSIVE ACTION.



M5 PRESSURE-RELEASE FIRING DEVICE

**D. TENSION-RELEASE**  
 RAISING LOWER SASH  
 STARTS EXPLOSIVE ACTION.

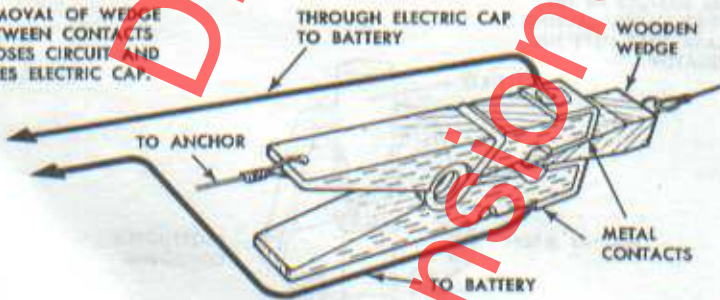


**7. Firing Device Internal Actions**

A FIRING DEVICE, WHEN ACTUATED MAY FUNCTION INTERNALLY IN MANY WAYS TO INITIATE THE FIRING CHAIN.

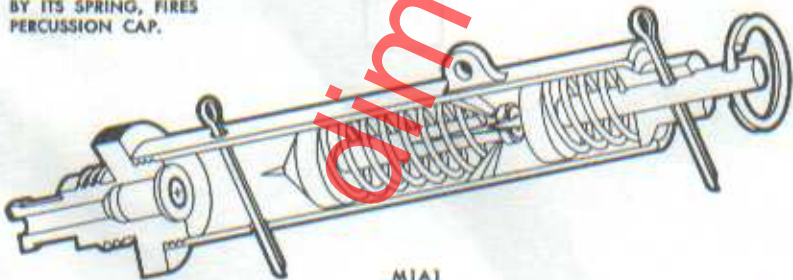
**A. ELECTRIC**

REMOVAL OF WEDGE BETWEEN CONTACTS CLOSSES CIRCUIT AND FIRES ELECTRIC CAP.



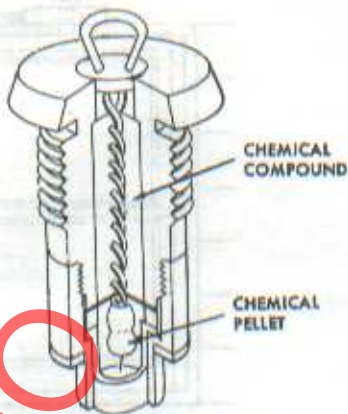
**B. MECHANICAL**

RELEASED STRIKER, DRIVEN BY ITS SPRING, FIRES PERCUSSION CAP.



**C. PULL-FRICTION**

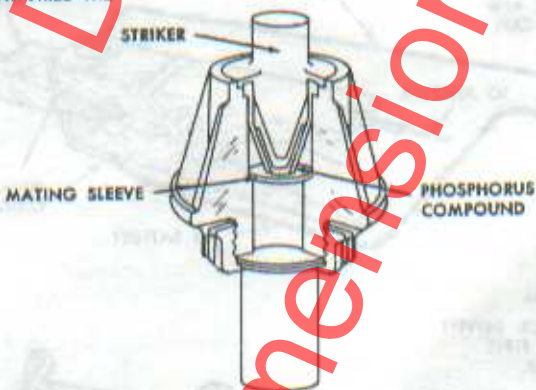
PULLING THE CHEMICAL PELLET THROUGH THE CHEMICAL COMPOUND CAUSES FLASH THAT FIRES THE DETONATOR.



FULL-FRICTION FUZE, WEST WW II GERMANY

**D. PRESSURE-FRICTION**

PRESSURE ON TOP OF THE STRIKER FORCES ITS CONE-SHAPED END INTO THE PHOSPHORUS AND GLASS MIXTURE IN THE MATING SLEEVE CAUSING A FLASH THAT FIRES THE DETONATOR

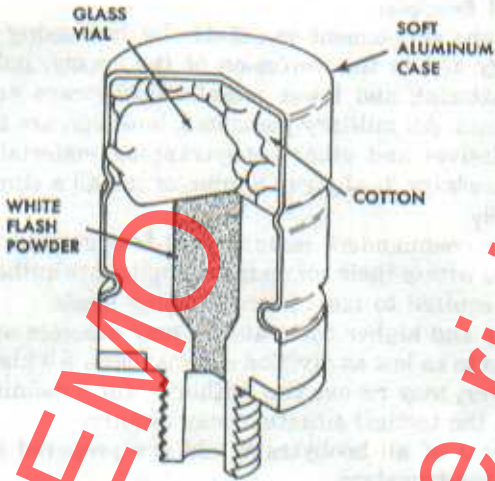


MODEL 1952 FRANCE

**E. CHEMICAL**

**(1) PRESSURE**

PRESSURE ON THE TOP BREAKS THE VIAL, FREEING THE SULPHURIC ACID TO MIX WITH THE FLASH POWDER, PRODUCING A FLAME THAT FIRES THE DETONATOR.



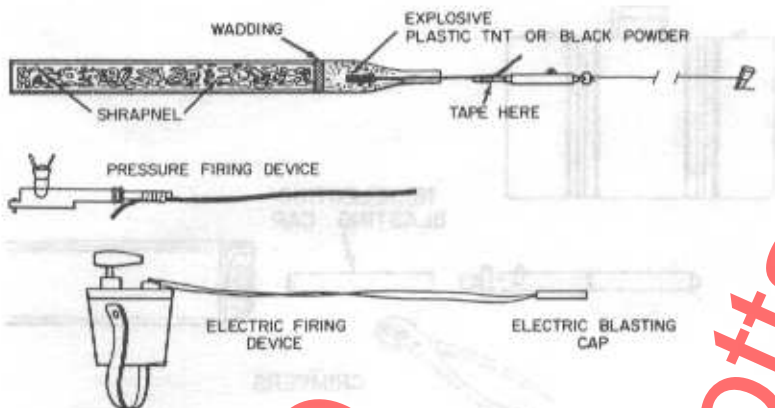
WW II GERMANY  
BUCK CHEMICAL  
FUZE

**(2) DELAY**

CRUSHING THE AMPULE RELEASES THE CHEMICAL TO CORRODE THE RETAINING WIRE, FREEING THE STRIKER TO FIRE THE DETONATOR. THE DELAY IS DETERMINED BY THE TIME NEEDED FOR THE CHEMICAL TO CORRODE THE RETAINING WIRE.

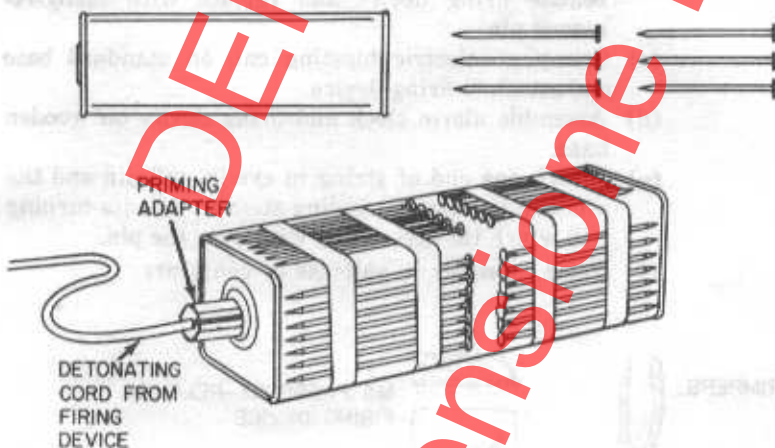


M1 DELAY



### b. Nail Grenade.

Attach nails to top and sides of charge by means of tape or string. Under certain conditions, nails may be required on only two sides, or even on one side.



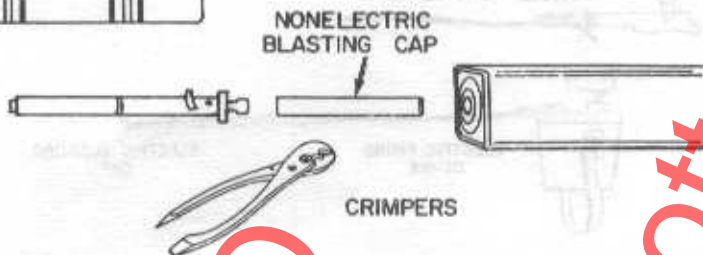
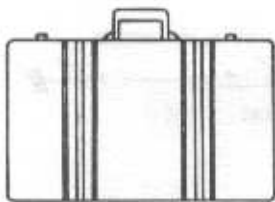
### c. Delay Bomb.

#### (1) Chemical delay.

- (a) Crimp nonelectric blasting cap on base of appropriate M1 delay firing device.
- (b) Assemble firing device and charge in package.
- (c) Crush copper end of firing device with fingers.
- (d) Place package in suitcase or container.

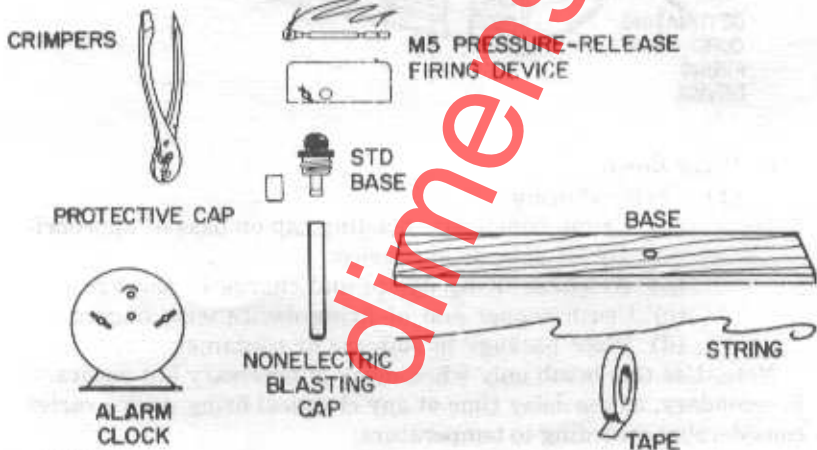
Note. Use this bomb only when delay is necessary but accuracy is secondary, as the delay time of any chemical firing device varies considerably according to temperature.





(2) Alarm clock delay.

- (a) Drill hole in wooden base of proper size to hold standard base firmly.
- (b) Remove standard safety pin from M5 pressure-release firing device and replace with easily-removed pin.
- (c) Crimp nonelectric blasting cap on standard base and attach to firing device.
- (d) Assemble alarm clock and firing device on wooden base.
- (e) Attach one end of string in eye in pull pin and the other to the alarm winding stem so that its turning will winch the string and withdraw the pin.
- (f) Place assembly in suitcase or container.



# APPENDIX I

## REFERENCES

### 1. Field Manuals

FM 5-25 Explosives and Demolitions.  
FM 20-32 Land Mine Warfare.

### 2. Technical Manuals

TM 5-280 Foreign Mine Warfare Equipment.  
TM 9-1345-200 Land Mines.  
TM 9-1375-200 Demolition Materials.

127

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NG: State AG (3); units—same as active Army.

USAR: Units—same as active Army except allowance is one copy to each unit.

For explanation of abbreviations used, see AR 320-50.

## INDEX

	Paragraph	Page
Abandoned materiel, boobytrapping of:		
Ammunition.....	47b	82
Lumber.....	47c	83
Serviceable items.....	47a	82
Vehicles.....	48a-d	84
Activator, A/T mine.....	27f	41
Adapter, priming.....	27	40
Antilift devices:		
Double detonator.....	59b	103
Moveable contact.....	59a	103
Sliding contact.....	59c	104
Antitank mine, boobytrapped:		
Pull.....	38a	51
Pressure-release.....	38b	53
Armor, body.....	65a	119
Authority, boobytrapping.....	9	9
Bangalore torpedo.....	28	42
Blasting caps:		
Electric.....	27p	40
Electric, improvised.....	54c	93
Nonelectric.....	27q	40
Bomb charge.....	35	48
Bombs, improvised:		
Antidisturbance.....	61a(2)	107
Delay bombs.....	61c(1)(2)	107
Envelope.....	61d	111
Hot shrapnel bomb.....	61e	112
Pipe grenade.....	61a(1)	107
Rice paddy bomb.....	61f	112
Tin can bomb.....	61g	113
Buildings, boobytrapping:		
Beams and columns.....	43c	67
Doors.....	42c	65
Dwellings.....	41b	61
Entrances.....	42	62
Floor boards.....	43d	63
Load-bearing walls.....	43b	63
Windows.....	42a, b	62, 63
Potential.....	40	61
Surroundings.....	41a	61

	Paragraph	Page
Charges, delayed action.....	41c	61
Charges, improvised:		
Claymore.....	62d	116
Platter charge.....	62c	115
Shaped charge.....	62a	114
Shrapnel charge.....	62b	114
Clearance teams.....	64	119
Components, boobytrap.....	4	4
Curiosity.....	11f	12
Charges, demolition (See Demolition charges.)		
Definition.....	3	3
Delay firing devices:		
Alarm clock.....	60c(1), (2)	105, 106
Cigarette timer.....	60a	104
Dried seed.....	60b	104
Wrist watch.....	60d	106
Demolition charges:		
Amatol.....	27j	37
Composition B.....	27h	36
M1 chain.....	27b	35
M2.....	27c	35
M3 and M5.....	27i	36
M5A1 (Composition C4).....	27e	36
M112.....	27f	36
M118.....	27g	36
PETN.....	27k	37
RDX.....	27k	37
Destruction in place.....	71a	124
Destructor, universal M10.....	27s	41
Detonating cord:		
Types I, II.....	27l(1)	37
Type IV.....	27l(2)	38
Detonator:		
8-second delay.....	24	30
15-second delay.....	23	29
Disarming methods.....	69	123
Disposal, explosive.....	72	126
Distraction.....	11b	10
Effects, boobytrapping.....	10	9
Electric blasting caps.....	27p	40
Enemy boobytraps.....	9d	9
Firing chain.....	5	4
Firing devices, standard:		
M1 delay.....	25	31
M1A1 pressure.....	19	19
M1 pressure-release.....	26	32
M5 pressure-release.....	22	26
M1 pull.....	20	22
M3 pull-release.....	21	24
Foreign mines, boobytrapped:		
Antipersonnel mines.....	39b	60
Czechoslovakia.....	39a(1)(b)	56
France.....	39a(2)(b)	59

	Paragraph	Page
Foreign mines, boobytrapped—Continued		
Soviet.....	39a(1)(a)	59
WW II Germany.....	39a(1)(c)	57
Furnishings, interior, boobytrapped:		
Bed.....	44g	75
Book.....	44i	77
Card file.....	44b(2)	71
Chairs and sofas.....	44b	70
Desk.....	44a	70
Electric iron.....	44c	72
List finder, telephone.....	44b(1)	70
Pressure cooker.....	44e	73
Radio.....	44f	75
Tea kettle.....	44d	73
Television.....	44f	75
Fuse:		
Safety M700.....	27n	38
Time.....	27m	37
Grapnels.....	65c	120
Hand disarming.....	71c	125
Hand grenade (charge).....	32	45
Hand tools.....	65e	121
High explosive shell (charge).....	34	47
Improvised boobytrap.....	3	3
Ingenuity.....	51	107
Initiating actions.....	6	5
Internal actions.....	7	6
Laying boobytraps:		
Methods.....	16	14
Teams.....	16c, d	14, 15
Responsibility.....	15	14
Lighter, fuse, M60.....	27o	35
Locations, boobytrap.....	11c-e	10
Lures, boobytrap.....	11h	12
Manufactured boobytraps.....	3, 50	3
Markers.....	65e	121
Marking.....	17c	17
Mine, antitank (charge).....	36	49
Mortar shell, 81MM (charge).....	33	46
Neutralization.....	9d, 64c,	9, 119,
	69, 71c	123, 125
Nonelectric blasting caps.....	27q	40
Path, boobytrapped.....	46c	81
Percussion cap, improvised.....	54d	119
Planning.....	14a-f	13
Pressure-release firing devices, improvised:		
Bottom plunger.....	58c	102
Clothes pin.....	58b	101
Double contact.....	58a	101
Mouse trap.....	58d	102

	Paragraph	Page
Pull firing devices, improvised:		
Clothes pin.....	55b	94
Rope and cylinder.....	55d	95
Stake or pole initiator.....	55c	95
Trip lever and pull pin.....	55e	96
Pressure firing devices, improvised:		
Electrical.....		
Flexible side.....	56b(2)	98
Lever arm.....	56b(1)	98
Mechanical concussion.....	56a	97
Metal box.....	56b(5)	100
Springed pressure board.....	56b(3)	99
Wooden plunger.....	56b(4)	99
Probes, sprunged wooden.....	65d	120
Reconnaissance.....	13	13
Recording.....	17b	17
Records.....	9c	9
Reports:		
Completion.....	17a(3)	17
Initiation.....	17a(2)	15
Intention.....	17a(1)	15
Revocation of authority.....	9a, b	9
Safety rules.....	70	124
Searching techniques:		
Indoor.....	68	122
Outdoor.....	67	121
Shaped charges:		
M2A3.....	29	43
M3.....	30	44
Specialists, trained.....	63	119
Standard boobytraps:		
British.....	50c	88
Italian.....	50d(5)	90
Japanese.....	50d(4)	89
Soviet.....	50a	87
WW II Germany.....	50b, d(1)- (3), (6)- (8)	87, 88, 90
Tape, marking.....	65f	121
Team, clearance.....	64	119
Tension-release firing device, improvised.....	57	100
Terrain, boobytrapping.....	45, 46	79
Time fuse, improvised.....	54a, b	92, 93
TNT.....	27a	35
Training.....	52	92
Types of boobytraps.....	3	3
Uses of boobytraps.....	8	9
Withdrawal.....	14g	13