

# PYROTECHNIC SIGNALS

## OPERATOR'S MANUAL

This copy is a reprint which includes current pages from Change 1.



Supersedes TM 9-1370-206-10, 28 July 1978

Approved for public release, distribution is unlimited.

31 MARCH 1991

TM 9-1370-206-10

DEPARTMENT OF THE ARMY

**WARNINGS**

**SIGNALS CONTAIN HAZARDOUS MATERIALS**

**KEEP** away from FIRE

**DON'T** handle if damaged or parts are missing

Handle **CAREFULLY** and use \*GLOVES and

**FULL HELMET** when possible.

**AIM** at all times **AWAY** from:

**FACE-BODY-FRIENDLY TROOPS**

**BEFORE ITEMS ARE LAUNCHED** check WIND to:

**ACHIEVE HEIGHT FOR VISIBILITY**

**AVOID OVERHEAD OBSTACLES** (foliage, etc.)

**AVOID FALLOUT** (rocket parts, etc.)

Maintain at least 453 elevation to launch.

**CHECK WIND TO AVOID FIRE, SMOKE INHALATION OR IRRITATION WITH ALL  
PYROTECHNIC ITEMS.**

\*Leather work gloves (basic issue)

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**AR 5302**

Change )  
          )  
No. 1    )

HEADQUARTERS  
DEPARTMENT OF THE ARMY  
Washington, DC, 10 March 1992

**PYROTECHNIC SIGNALS  
OPERATOR'S MANUAL**

TM 9-1370-206-10, 31 March 1991, is changed as follows:

1. Remove old pages and insert new pages as indicated below. New or changed material is indicated by a vertical bar in the margin of the page.

Remove pages

7 (8 blank)

None

35 (36 blank)

Insert pages

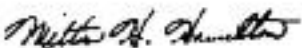
7 and 8

8-1 (8-2 blank)

35 (36 blank)

2. File this change sheet in front of the publication for reference purposes.

By Order of the Secretary of the Army:

Official: 

MILTON H. HAMILTON  
*Administrative Assistant to the  
Secretary of the Army*  
01893

GORDON R. SULLIVAN  
*General, United States Army  
Chief of Staff*

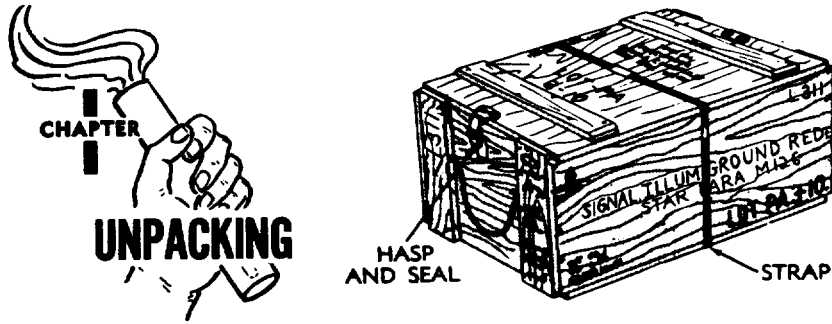
DISTRIBUTION:

To be distributed in accordance with DA Form 12-40-E, (Block 0721), Operator Maintenance Requirements for TM 9-1370-206-10.

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\*This manual supersedes TM 9-1370-206-10, 28 July 1978, including all changes.



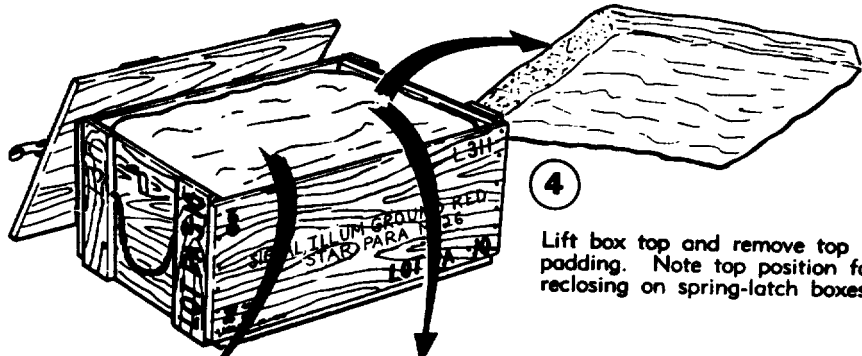
## CHAPTER I. UNPACKING

### WHEN READY FOR USE

#### CAUTION

KEEP BOXES SEALED-DUDS OR IMPROPER FUNCTIONING COULD OCCUR IF EXPOSED TO MOISTURE. OPEN JUST BEFORE USE.

- (1) Cut steel strapping carefully with metal shears to avoid springback. Remove and dispose of straps.
- (2) Cut metallic seal with pliers. Discard seal.
- (3) Turn hasp catch and open hasps on hinge and hasp boxes, or pull out on spring latch to release on spring latch boxes.



4

Lift box top and remove top padding. Note top position for reclosing on spring-latch boxes.



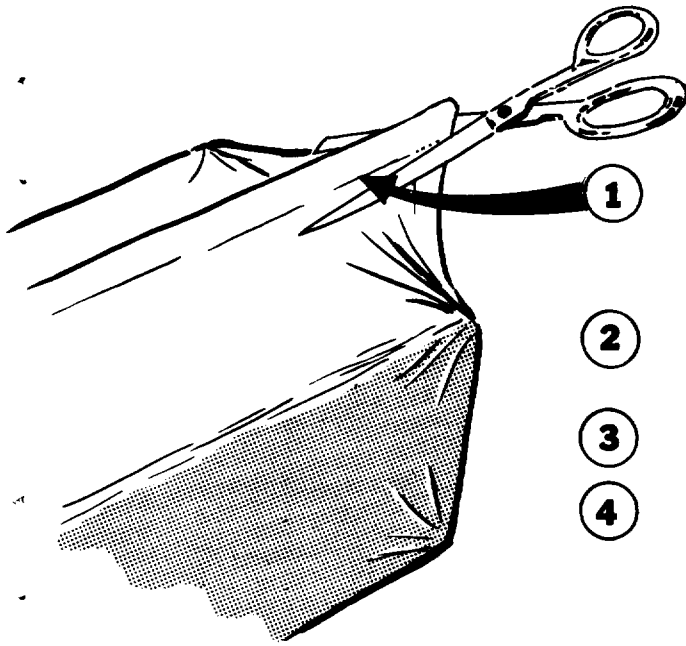
5

Remove inner packs.

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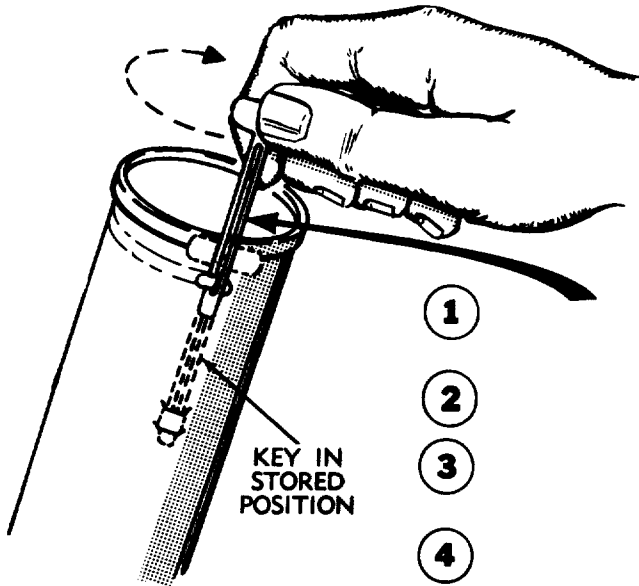
## BARRIER BAG



- (1) Cut barrier bag open along the edge with most free area cutting as close to sealed edge as possible.
- (2) Cut or remove tape and open inner container.
- (3) Remove padding, if any.
- (4) Remove items. If all items are not removed, close and reseal barrier bag with adhesive tape.



## HERMETICALLY SEALED STEEL CONTAINER



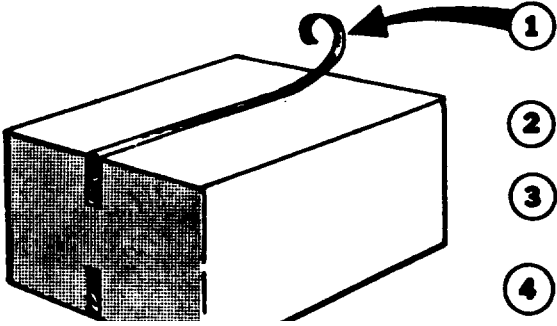
**DO NOT OPEN HERMETICALLY SEALED (AIR TIGHT) CONTAINERS UNTIL READY FOR USE.**

**SIGNAL EXPOSED TO MOISTURE MAY NOT FUNCTION.**

- (1) Using key attached to container, remove sealing strip.
- (2) Remove top of container.
- (3) Remove any padding pieces from container.
- (4) Remove item.

## FIBER CONTAINER

### FIBER CONTAINER



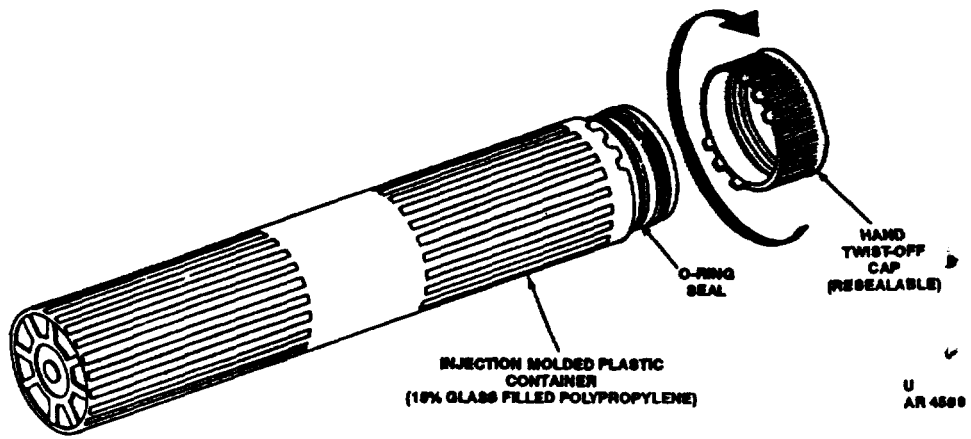
- (1) Remove adhesive tape.
- (2) Open top of container.
- (3) Remove any padding pieces from container.
- (4) Remove item.

SAVE ALL CONTAINERS - WHEN POSSIBLE - FOR REPACK

Change 1 7

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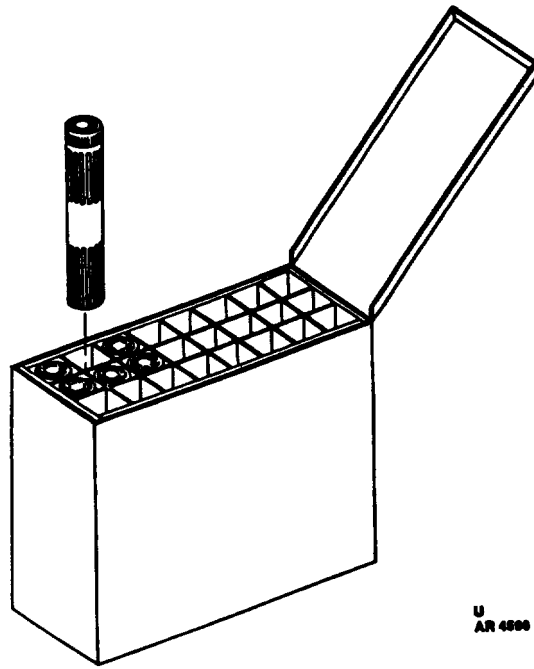
PLASTIC CONTAINER, PA142 FOR FAMILY OF M125 PYROTECHNIC SIGNALS



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PLASTIC PA142 CONTAINER IN M548 OVERPACK



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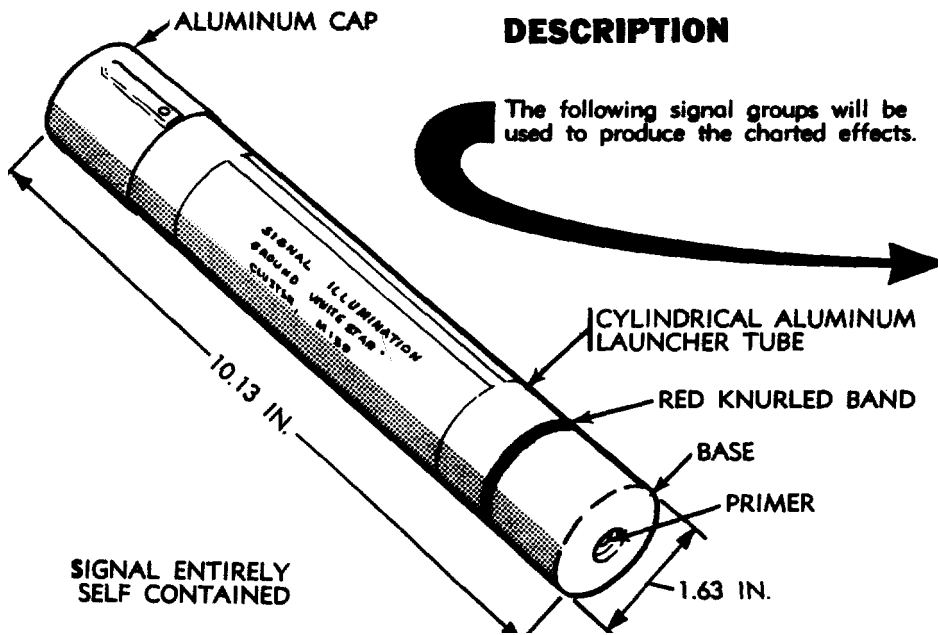
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## CHAPTER II. DESCRIPTION AND OPERATION

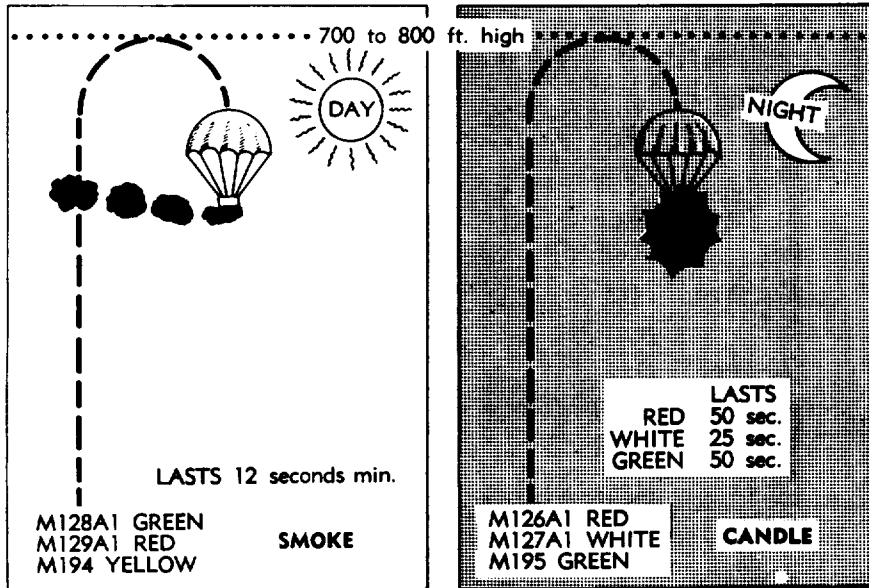
### SECTION 1. SELF CONTAINED GROUND SIGNALS



M125A1	GREEN CLUSTER ILLUMINATION
M126A1	RED PARACHUTE ILLUMINATION
M127A1	WHITE PARACHUTE ILLUMINATION
M128A1	GREEN PARACHUTE SMOKE
M129A1	RED PARACHUTE SMOKE
M158	RED CLUSTER ILLUMINATION
M159	WHITE CLUSTER ILLUMINATION
M194	YELLOW PARACHUTE SMOKE
M195	GREEN PARACHUTE ILLUMINATION



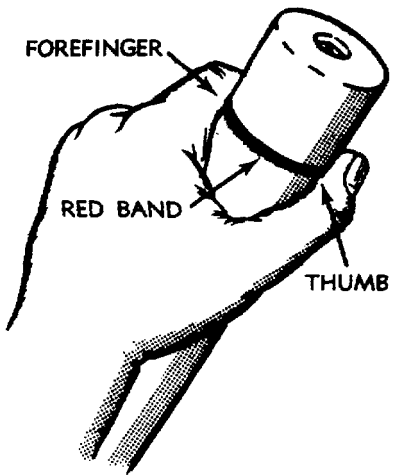
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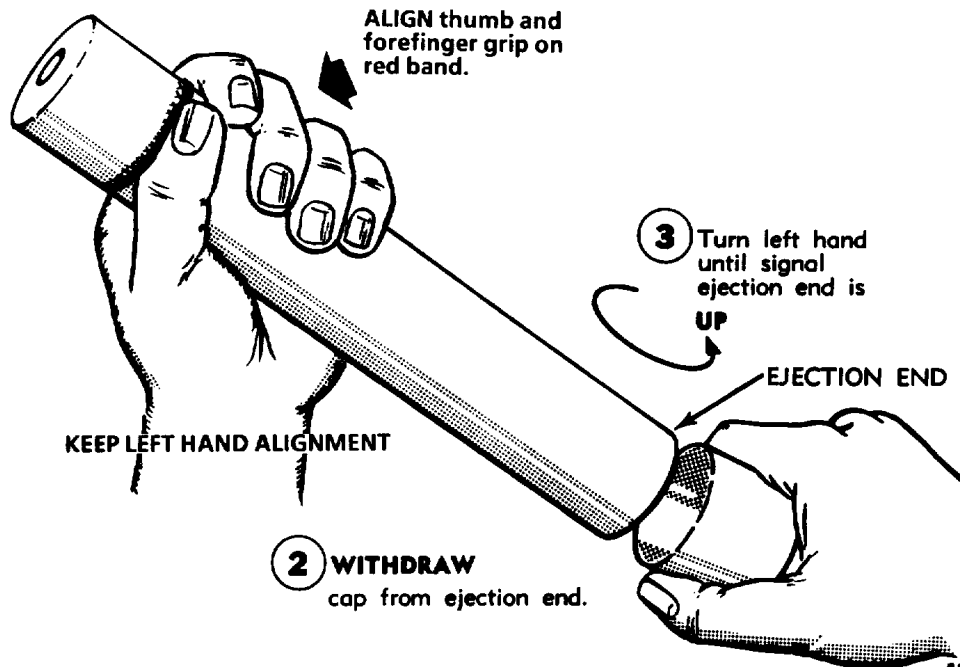


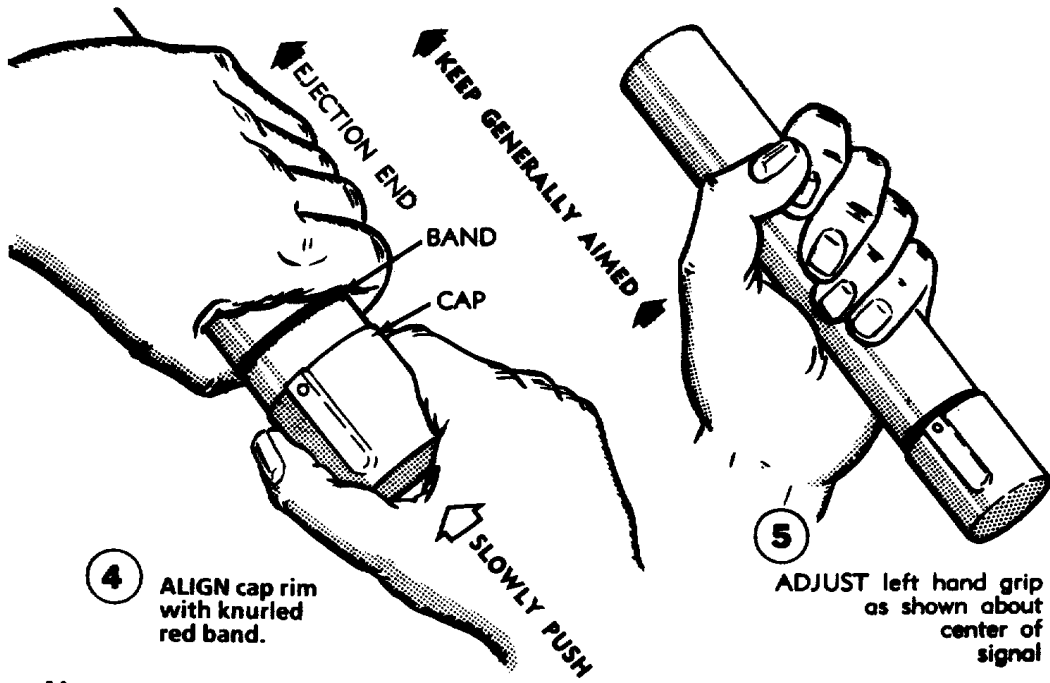
## OPERATION

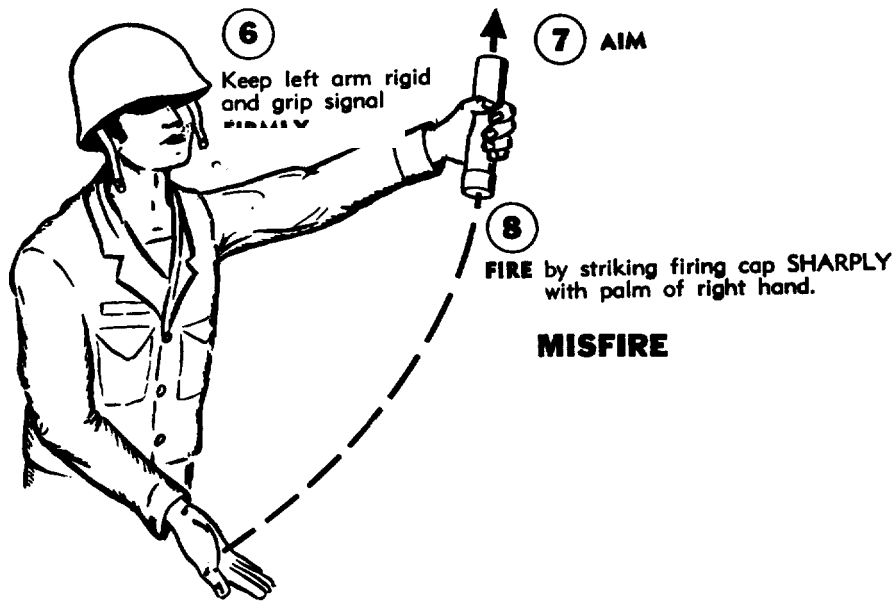
1 HOLD signal in LEFT hand











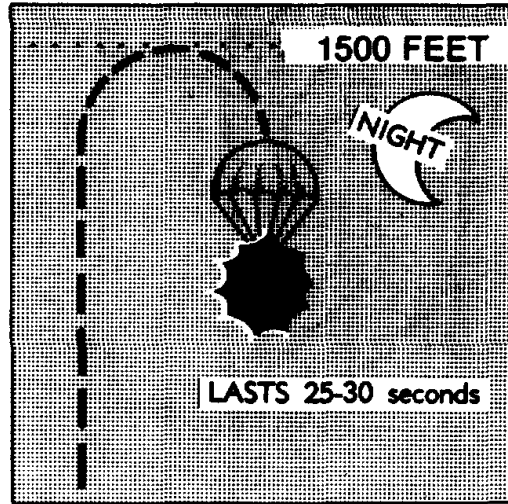
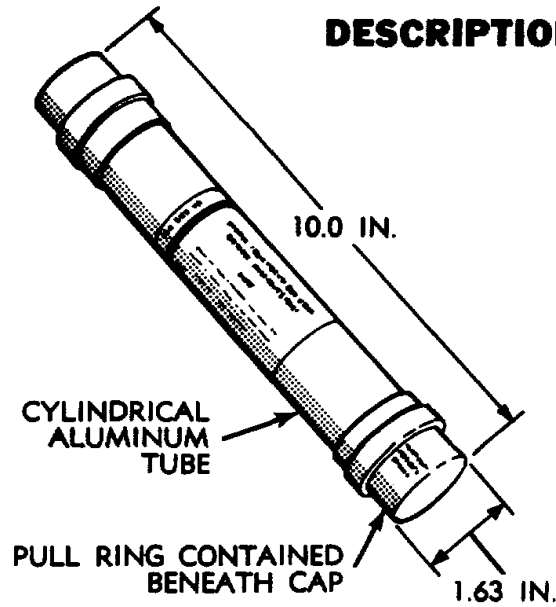
- KEEP SIGNAL AIMED.
- PULL CAP BACK TO RED KNURLED BAND AND ROTATE 90'.
- MAKE TWO MORE ATTEMPTS TO FIRE.
- WAIT 30 SECONDS WITH ARM REMAINING RIGID AND SIGNAL AIMED OVERHEAD.
- RETURN CAP TO EJECTION END. TURN IN TO AMMUNITION SUPPLY POINT.

**MISFIRE**

SECTION 2. RED STAR PARACHUTE ILLUMINATION GROUND SIGNAL M131

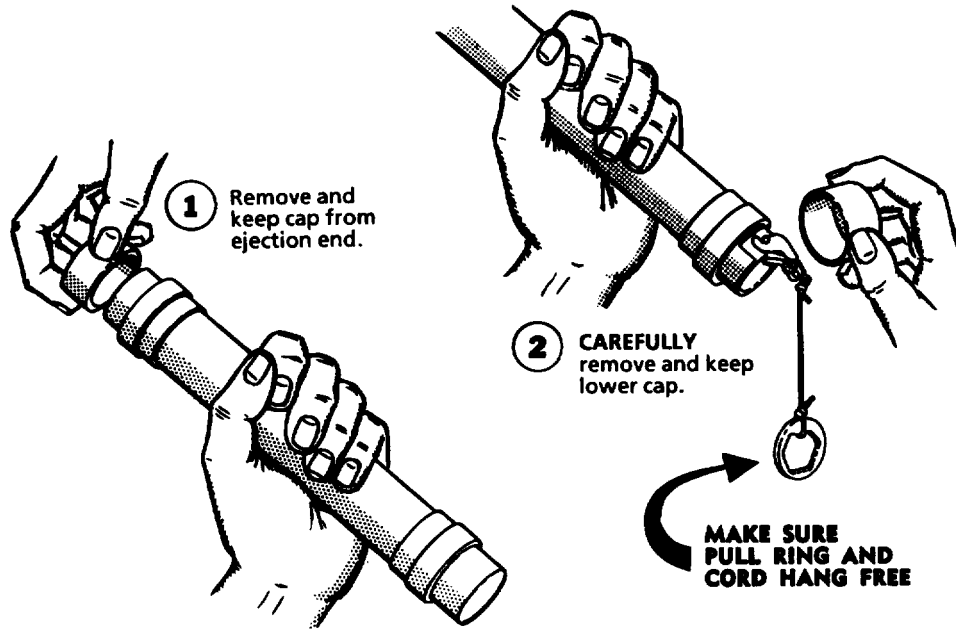
**DESCRIPTION**

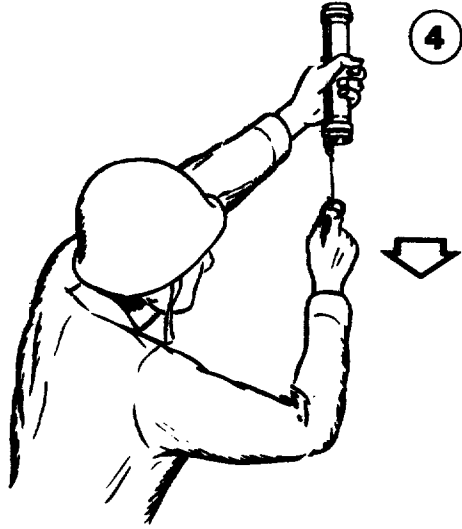
This hand held signal illuminates the same as M126A1 except at an altitude of 1500 feet.



## OPERATION

Hold signal firmly in left hand with ejection end away from body.





(3) Grasp signal FIRMLY with left hand. Keep arm rigid as shown.

(4) **AIM**

(5) Insert finger of right hand in pull ring and pull downward.

#### **MISFIRE**

- KEEP SIGNAL AIMED.
- WAIT 30 SECONDS WITH ARM REMAINING RIGID.
- CAREFULLY INSTALL BOTH CAPS. TURN IN TO AMMUNITION SUPPLY POINT.

### SECTION 3. ILLUMINATION GROUND SIGNALS AND KITS

#### KIT 1. THREADED PROJECTOR (cloth bandoleer)

##### DESCRIPTION

Each of the signals listed below may be fired from a hand held projector while encompassed in a bandoleer.

- RED ILLUMINATION GROUND SIGNAL, M187
- WHITE ILLUMINATION GROUND SIGNAL, M188
- GREEN ILLUMINATION GROUND SIGNAL; M189
- AMBER ILLUMINATION GROUND SIGNAL, M190

The projector and the bandoleer plus seven signals make up the signal kit.

All signals may be obtained and fired separately.

5 seconds burning time-candle power **3200**

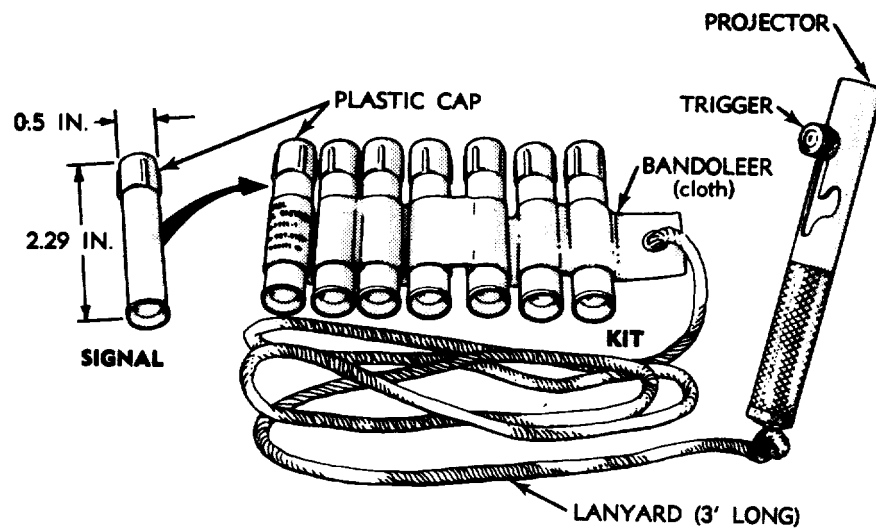
in kit form.....

RED PERSONNEL SIGNAL KIT, M185

(Contains only red signals).

VARIOUS COLOR SIGNAL KIT, M186

(Contains 3 red, 2 white and 2 green signals).

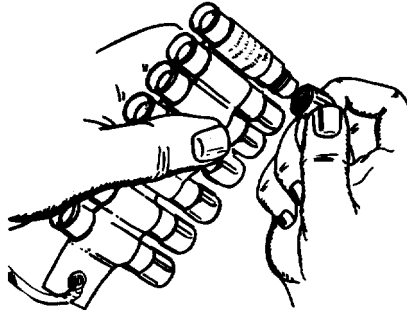


Caps protect threaded end of signal which attach to the projector.

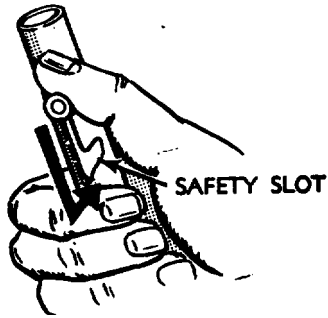


## OPERATION

- (1) Select signal by color, if bandoleer contains more than one signal of that color, use the one farthest from the lanyard.



- (2) Remove and keep plastic cap.

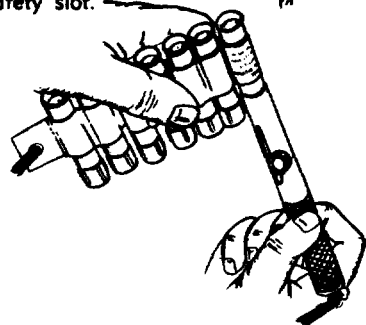


- (3) Cock projector firing pin by moving trigger to safety slot.

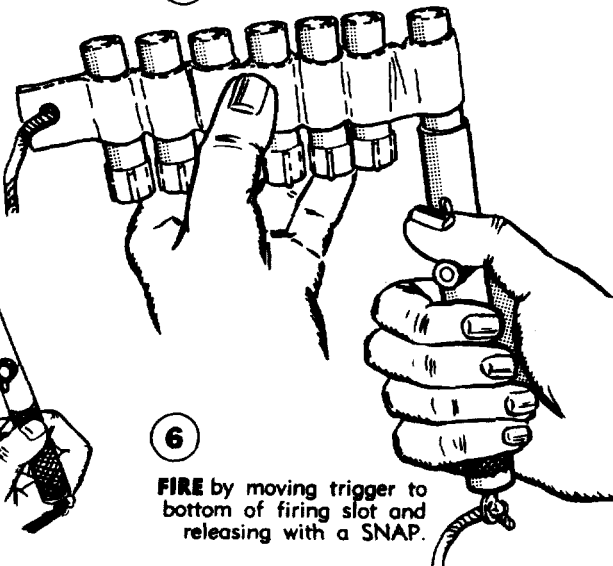
**KEEP  
ON  
TARGET**

**4**

**Carefully** thread projector onto signal so as not to dislodge trigger from safety slot.



**5** AIM CAREFULLY



**6**

**FIRE** by moving trigger to bottom of firing slot and releasing with a SNAP.

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- (7) If expended signal is on end of bandoleer, or if signals between expended signal and end have been used, cut bandoleer and discard waste.
- (8) **RETURN PARTIALLY USED KIT TO BARRIER BAG AND SEAL WITH TAPE.**



**REPEAT STEP (6)**

**IF SIGNAL STILL FAILS TO FIRE WAIT 10 SECONDS KEEPING SIGNAL AIMED.  
REMOVE FROM PROJECTOR.  
CUT SIGNAL FROM BANDOLEER.**

**REPLACE CAP.  
TURN IN TO AMMUNITION SUPPLY POINT.**

## KIT 2. FORCED FIT PROJECTOR (plastic bandoleer)

### DESCRIPTION

Signals must be removed from bandoleer before firing.

- RED ILLUMINATION GROUND SIGNAL, M260

The projector and the bandoleer plus seven signals make up the signal kit.

All signals may be obtained and fired separately.

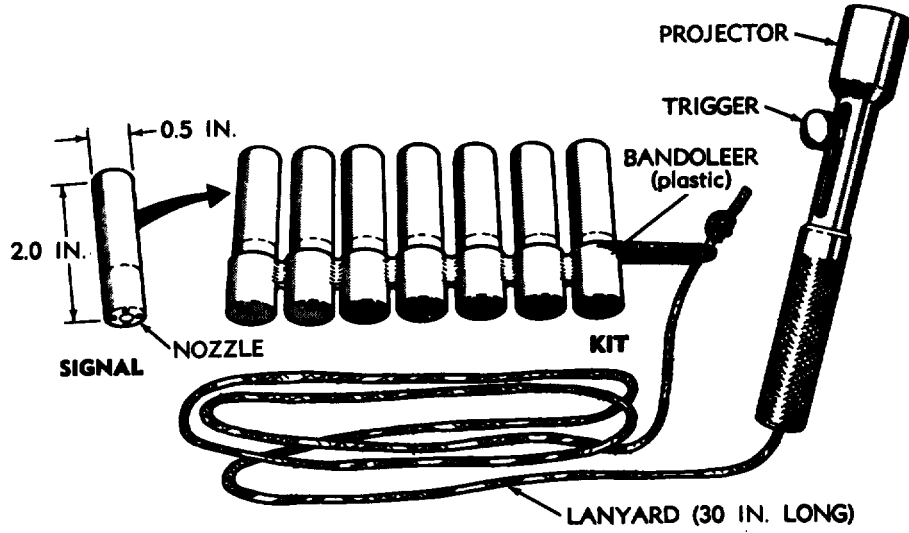
**10** seconds burning time-candle power **10000**

in kit form.....

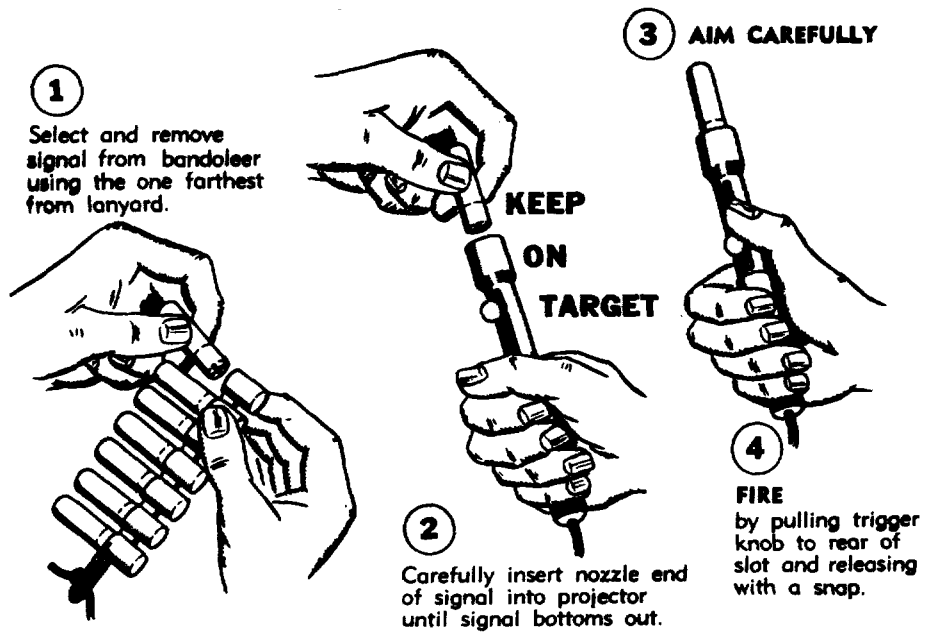
**RED PERSONNEL DISTRESS SIGNAL KIT: A/P255-5A**

**(Contains only red signals).**

THIS SIGNAL KIT IS A COMPONENT OF THE SRU-211P, VEST SURVIVAL KIT. AND CANNOT BE PROCURED SEPARATELY.



# OPERATION



- (5) Retain bandoleer for future use.
- (6) RETURN PARTIALLY USED KIT TO PLASTIC BAG AND SEAL WITH TAPE.

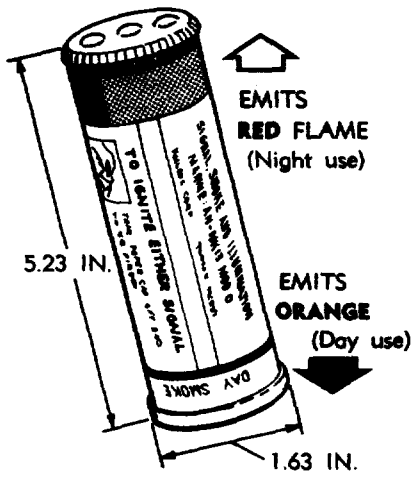
**MISFIRE**

**REPEAT STEP (4)**

**IF SIGNAL STILL FAILS TO FIRE WAIT 10 SECONDS KEEPING SIGNAL AIMED.  
REMOVE FROM PROJECTOR.**

**REINSTALL IN BANDOLEER.  
TURN IN TO AMMUNITION SUPPLY POINT.**

SECTION 4. SMOKE AND ILLUMINATION MARINE SIGNAL, AN-MK13 MOD O



DESCRIPTION

A hand held signal which contains a signal for day use and a signal for night use. (Both ends useable)



The end of the signal used for day operations contains a non-serrated cap. The pull ring has no attached cord.

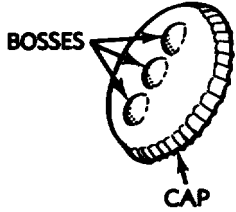
The DAY signal emits ORANGE smoke  
Burning time 18-20 seconds



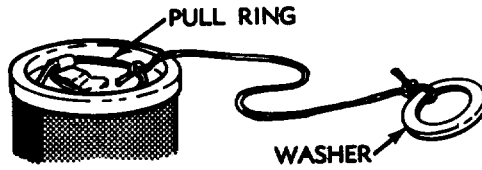
**DESCRIPTION (continued)**



For identification in darkness the night signal end cap is serrated and contains three bosses.

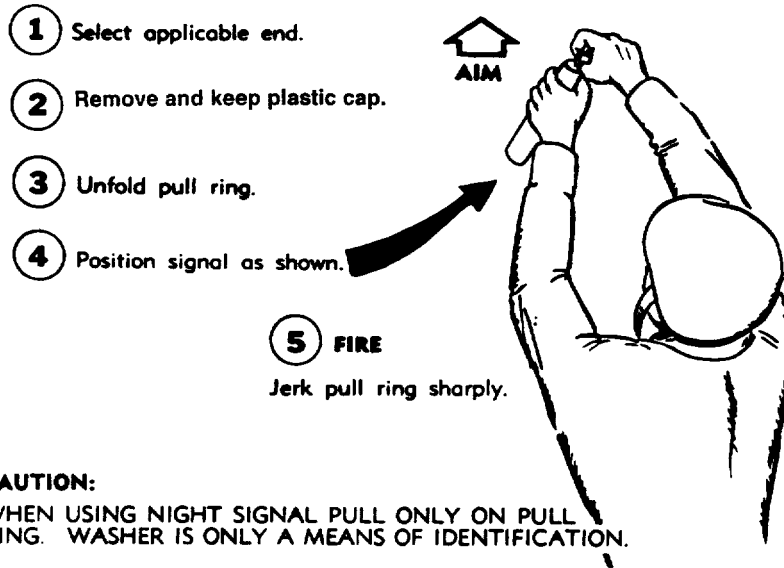


When the cap is removed from the night signal end the pull ring appears with an attached cord and washer.



The NIGHT signal emits a RED FLAME  
Candle power 3000      Burning time 18-20 seconds

## OPERATION



**CAUTION**  
WHEN USING NIGHT SIGNAL PULL ONLY ON PULL RING. WASHER IS ONLY A MEANS OF IDENTIFICATION.

- (6) If only one end of signal is used IMMERSE that end ONLY in oil or water to cool. DRY CAREFULLY
- (7) Place signal back in original packing (Retain for use of opposite end.)



KEEP SIGNAL AIMED  
WAIT 30 SECONDS

REPLACE PLASTIC CAP.  
TURN IN TO AMMUNITION SUPPLY POINT.

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**CHAPTER III. MAINTENANCE (OPERATOR LEVEL)**

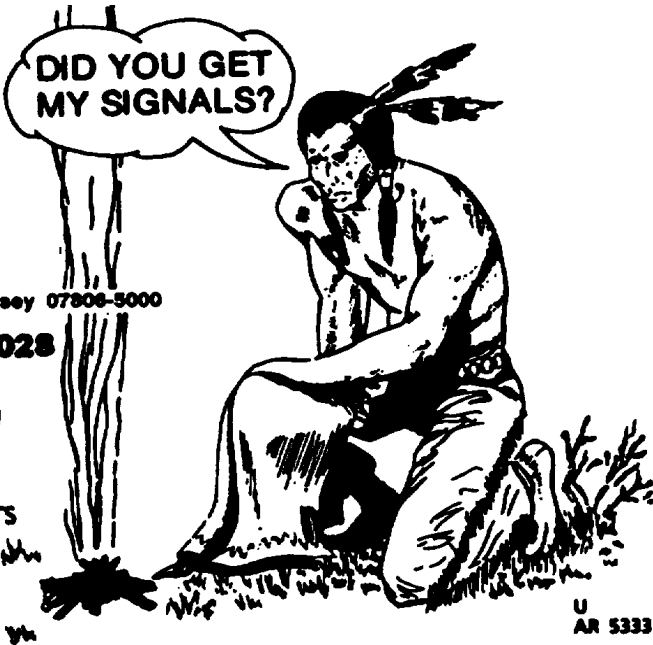


**ALL REPACKING SHOULD BE TIGHTLY WRAPPED. CLEARLY MARKED AND WATERPROOF**

TURN IN UNUSED ITEMS TO AMMUNITION SUPPORT AREA AS SOON AS POSSIBLE. PROVIDE AS MUCH PROTECTION FOR THESE ITEMS BY REPACKING IN ORIGINAL CONTAINERS, IF AVAILABLE, OR EQUIVALENT IMPROVISED PACKING.

**AVOID EXPOSURE TO....MOISTURE-DENTS-ETC.**

To report errors  
and omissions  
or to suggest  
improvements



**PLEASE WRITE**

COMMANDER  
USA ARDEC  
ATTN: SMCAR-LMB  
Picatinny Arsenal, New Jersey 07906-5000

**USE FORM DA 2028**

**WE NEED TO KNOW**

**MALFUNCTION REPORTS**

SUBMIT MALFUNCTION REPORTS IN  
ACCORDANCE WITH AR 70-1

U  
AR 5333

☆U.S. GOVERNMENT PRINTING OFFICE: 1994-300-4211/3056

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AR 5333

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## Pyrotechnic Signals

By Order of the Secretary of the Army:

CARL E. VUONO  
General, United States Army  
Chief of Staff

Official:  
THOMAS F. SIKORA  
Brigadier General, United States Army  
The Adjutant General

DISTRIBUTION: To be distributed in accordance with DA Form 12-40-E, block 0721 Operator Maintenance requirements for Pyrotechnics.

**TM 9-1370-206-10**

**U**  
**AR 5300**

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS

 <div style="border: 1px solid black; border-radius: 15px; padding: 5px; display: inline-block; margin-left: 20px;"> <p style="margin: 0;"><i>THEN...JOT DOWN THE DOPE ABOUT IT ON THIS FORM. CAREFULLY TEAR IT OUT, FOLD IT AND DROP IT IN THE MAIL.</i></p> </div>		SOMETHING WRONG WITH PUBLICATION	
		FROM: (PRINT YOUR UNIT'S COMPLETE ADDRESS)	
		DATE SENT	
PUBLICATION NUMBER		PUBLICATION DATE	PUBLICATION TITLE
IN THIS SPACE, TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT.			
BE EXACT PIN-POINT WHERE IT IS			
PAGE NO.	PARA- GRAPH	FIGURE NO.	TABLE NO.
PRINTED NAME, GRADE OR TITLE AND TELEPHONE NUMBER		SIGN HERE	

## The Metric System and Equivalents

### Linear Measure

1 centimeter = 10 millimeters = .39 inch  
 1 decimeter = 10 centimeters = 3.94 inches  
 1 meter = 10 decimeters = 39.37 inches  
 1 dekameter = 10 meters = 32.8 feet  
 1 hectometer = 10 dekameters = 328.08 feet  
 1 kilometer = 10 hectometers = 3,280.8 feet

### Weights

1 centigram = 10 milligrams = .15 grain  
 1 decigram = 10 centigrams = 1.54 grains  
 1 gram = 10 decigrams = .035 ounce  
 1 decagram = 10 grams = .35 ounce  
 1 hectogram = 10 decagrams = 3.52 ounces  
 1 kilogram = 10 hectograms = 2.2 pounds  
 1 quintal = 100 kilograms = 220.46 pounds  
 1 metric ton = 10 quintals = 1.1 short tons

### Liquid Measure

1 centiliter = 10 milliliters = .34 fl. ounce  
 1 deciliter = 10 centiliters = 3.38 fl. ounces  
 1 liter = 10 deciliters = 33.81 fl. ounces  
 1 dekaliter = 10 liters = 2.64 gallons  
 1 hectoliter = 10 dekaliters = 26.42 gallons  
 1 kiloliter = 10 hectoliters = 264.18 gallons

### Square Measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch  
 1 sq. decimeter = 100 sq. centimeters = 15.5 sq. inches  
 1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet  
 1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. feet  
 1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres  
 1 sq. kilometer = 100 sq. hectometers = .386 sq. mile

### Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch  
 1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches  
 1 cu. meter = 1000 cu. decimeters = 35.31 cu. feet

## Approximate Conversion Factors

<i>To change</i>	<i>To</i>	<i>Multiply by</i>	<i>To change</i>	<i>To</i>	<i>Multiply by</i>
inches	centimeters	2.540	ounce-inches	Newton-meters	.007062
feet	meters	.305	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	.093	square centimeters	square inches	.155
square yards	square meters	.836	square meters	square feet	10.764
square miles	square kilometers	2.590	square meters	square yards	1.196
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.028	square hectometers	acres	2.471
cubic yards	cubic meters	.765	cubic meters	cubic feet	35.315
fluid ounces	milliliters	29.573	cubic meters	cubic yards	1.308
pints	liters	.473	milliliters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallons	liters	3.785	liters	quarts	1.057
ounces	grams	28.349	liters	gallons	.264
pounds	kilograms	.454	grams	ounces	.035
short tons	metric tons	.907	kilograms	pounds	2.205
pound-feet	Newton-meters	1.356	metric tons	short tons	1.102
pound-inches	Newton-meters	.11296			

### Temperature (Exact)

°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C
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PIN: 014886-001