TECHNICAL MANUAL

ARMY AMMUNITION DATA SHEETS:

MILITARY PYROTECHNICS (FEDERAL SUPPLY CLASS 1370)

HEADQUARTERS, DEPARTMENT OF THE ARMY

JANUARY 1994

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HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 6 January 1994

ARMY AMMUNITION DATA SHEETS FOR MILITARY PYROTECHNICS (FEDERAL SUPPLY CLASS 1370)

REPORTING OF ERRORS

You can help improve this manual. If you find any mistakes or know of a way to improve the procedures, please let us know. Mail your letter or DA Form 2028, (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual direct to Commander, U.S. Army Armament Research, Development and Engineering Center, ATTN: SMCAR-LSB, Picatinny Arsenal, NJ 07806-5000. A reply will be furnished direct to you.

*This manual supersedes TM 43-0001-37 dated 18 February 1977, including all changes.

Page

CHAPTER 4. SIGNALS - Continued

CHAPTER 5. SIMULATORS

CHAPTER 6. MISCELLANEOUS

CHAPTER 1
INTRODUCTION

1-1. PURPOSE

This manual is a reference handbook published as an aid in planning, training, and identification of military pyrotechnics. It is not to be used as authorization for requisitioning, stockage, or issue of this materiel.

1-2. SCOPE

a. For each item of materiel, there are illustrations and descriptions together with characteristics and related data. Included in the related data are weights, dimensions, performance data, packing, shipping and storage data, type classification, and logistics control codes (LCC).

b. Information concerning supply, operation, and maintenance of the items will be found in the publications referenced for those items. A complete listing of these publications is maintained in DA Pam 310 series indexes.

c. Within this manual, items with the following type-classifications are included:

(1) Standard (LCC-A, LCC-B).

(2) Contingency (CON).

(3) Limited Procurement (LP).

(4) Reclassified obsolete (OBS) for regular Army use, but used by National Guard or Reserve units.

(5) Reclassified OBS for all Army use, but used by Marine Corps, Air Force or Navy.

(6) Reclassified OBS, no users, but US stock remain.

(7) Items with the following type-classification are not included: Reclassified OBS for US use. No US stocks remain. (Foreign use or stock may remain.)

d. Numerical values, such as weights, dimensions, candlepower, etc., are nominal values, except when specified as maximum or minimum. Actual items may vary slightly from these values. Allowable limits can he obtained from the drawings indicated in the data sheets.

1-3. METRIC CONVERSION CHART

For approximate conversions to/from metric measures see figure 1-1.

METRIC CONVERSION CHART

Approximate Conversions to Metric Measures

LENGTH

Symbol	When You Know	Multiply By	To Find	Symbol
in.	inches	2.5	centimeters	cm
ft	feet	30.00	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km

AREA

Symbol	When You Know	Multiply By	To Find	Symbol
in^2	square inches	6.5	sq centimeters	cm^2
ft^2	square feet	0.09	sq meters	m^2
yd^2	square yards	0.8	sq meters	m^2
mi^2	square miles	2.6	sq kilometers	km^2
	acres	0.4	hectares	ha

WEIGHT

Symbol	When You Know	Multiply By	To Find	Symbol
oz	ounces	28.0	grams	g
lb	pounds	0.45	kilograms	kg
	short tons (2000 lb)	0.9	tonnes	t

VOLUME

Symbol	When You Know	Multiply By	To Find	Symbol
tsp	teaspoons	5.00	milliliters	ml
Tbsp	tablespoons	15.00	milliliters	ml
fl oz	fluid ounces	30.00	milliliters	ml
c	cups	0.24	liters	l
pt	pints	0.47	liters	l
qt	quarts	0.95	liters	l
gal	gallons	3.8	liters	l
ft^3	cub feet	0.03	cubic meters	m^3
yd^3	cubic yards	0.76	cubic meters	m^3

TEMPERATURE

Symbol	When You Know	Subtract	Multiply	To Find	Symbol
°F	Fahrenheit	32	by 0.55	Celsius	°C

Approximate Conversions to Metric Measures

LENGTH

Symbol	When You Know	Multiply By	To Find	Symbol
mm	millimeters	0.04	inches	in.
cm	centimeters	0.4	inches	in.
m	meters	3.3	feet	ft
km	kilometers	0.6	miles	mi

AREA

Symbol	When You Know	Multiply By	To Find	Symbol
cm	square centimeters	0.16	square inches	in^2
m^2	square meters	1.2	square yards	yd^2
km^2	square kilometers	0.4	square miles	mi^2
ha	hectares ($10.000m^2$)	2.5	acres	

WEIGHT

Symbol	When You Know	Multiply By	To Find	Symbol
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000kg)	1.1	short tons	

VOLUME

Symbol	When You Know	Multiply By	To Find	Symbol
ml	milliliters	0.03	fluid ounces	fl oz
l	liters	2.1	pints	pt
l	liters	1.06	quarts	qt
l	liters	0.26	gallons	gal
m^3	cubic meters	35.00	cubic feet	ft^3
m^3	cubic meters	1.3	cubic yards	yd^3

TEMPERATURE

Symbol	When You Know	Subtract	Multiply	To Find	Symbol
°C	Celsius	1.8	32	Fahrenheit	°F

Figure 1-1. Metric Conversion Chart.

1-4. QUANTITY-DISTANCE CLASSES AND STORAGE COMPATIBILITY GROUPS

Quantity-Distance (QD) classes and Storage Compatibility groups (SCG) listed in this manual are changed. For conversion to new system see Table 1-1, below.

Table 1-1. Quantity-Distance Classes and Storage Compatibility Groups

Quantity-distance hazard class [1]/		Storage compatibility group [1]/ [3]/
Old	New [2]/	Typical - New
8	6.1	
7	1.1	D
6	1.2(18)	E
5	1.2(12)	
4	1.2(08)	F
3	1.2(04)	G
2	1.3	G
1	1.4	S

NOTES:

[1]/ New QD and SCG's are compatible with classes used by NATO nations.

[2]/ Numbers in parentheses are minimum distances x 100 feet to protect against specific fragment hazards and vary with items and types of ammunition. (Refer to TM 9-1300-206.)

[3]/ There is no simple conversion from old SCG's to new system. The SCG groups listed in this column are typical for the majority of items in the corresponding listed QD class but do not apply to every individual item in the class. For SCG of individual items refer to TM 9-1300-206.

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CHAPTER 2

CARTRIDGES

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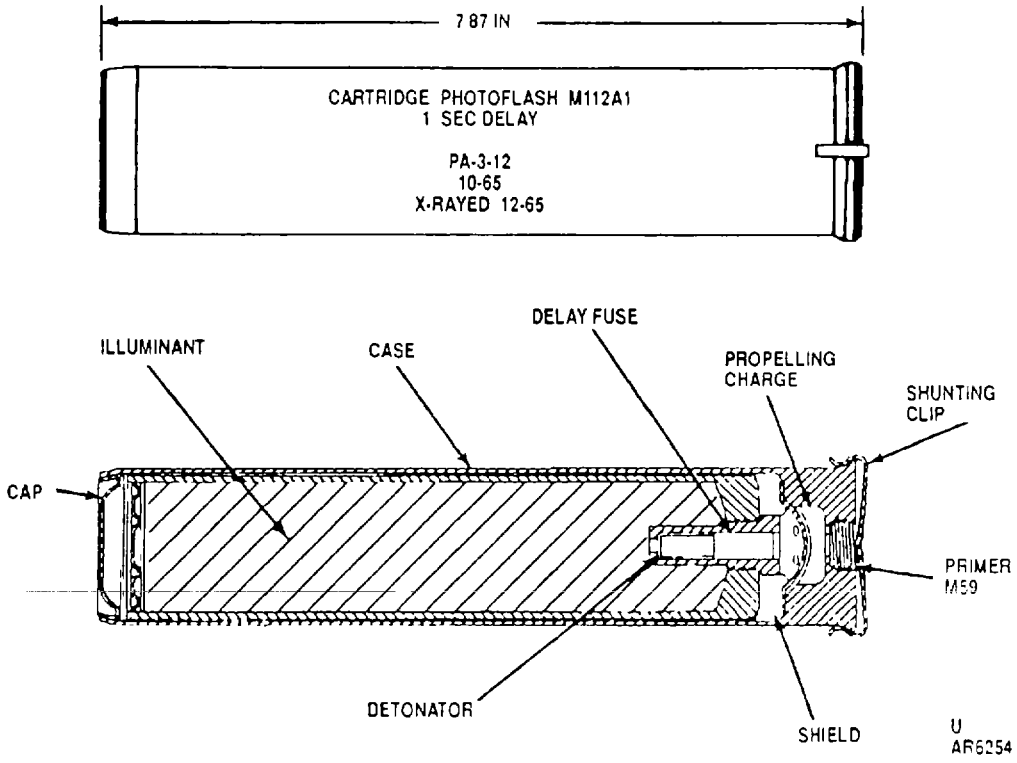
CARTRIDGE, PHOTOFLASH M112A1, 1-. 2-, AND 4- .SECOND DELAY



Type Classification:

Std AMCTC 36841 (1 Sec Delay)
OBS AMCTC 6418 (2 Sec Delay)
OBS MSR 11756003 (4 Sec Delay)

Use:

This cartridge is used to provide illumination for night aerial photographic reconnaissance.

Description:

The cartridge has a cylindrical aluminum case designed for electric firing from an aircraft multi-barrel ejector. Successive round fire control is by an intervalometer to time flashes with camera exposure requirements. Assembled in the base of the cartridge case is in electric primer; a black powder propelling charge, a primer shield assembly, and gas-check wads. The remaining space is occupied by a photoflash charge case with a built-in delay fuse and detonator. The delay time of the fuse is marked on the cartridge case. The cartridge is stored and shipped with a metal shunting clip over the base to protect the primer form accidental firing.

Functioning:

The electrically fired primer ignites the propelling charge. The propelling charge ignites the delay fuse and ejects the photoflash flash case from the cartridge case. At the end of the delay time, the delay fuse ignites the detonator, which ignites the photoflash charge, and the photoflash case explodes to produce a flash brilliant enough for night aerial photography.

Difference Among Models:

Three time delay options are available.

Tabulated Data:

NSN's:	
1 sec delay	1370-00-028-5923
2 sec delay	1370-00-028-5924
4 sec delay	1370-00-028-5925
Weight loaded	1.0 lb
Length (w/o shunting clip)	7.73 in.
Diameter	1.57 in.
Method of actuation	Fired from multi-barrel ejector
Body material	Aluminum
Color	Aluminum w/black markings
Pyrotechnic charge:	
Type	Photoflash powder
Weight	7 oz
Propelling charge:	
Type	Black powder
Weight	35 grains
Primer	Electric, M59
Performance:	
Delay	1, 2, or 4 sec
Burning time	0.04 sec
Candlepower	100,000,000 (peak)
Candleseconds	1,200,000
*Packing	10 per carton; 4 cartons per wooden box
*Packing box:	
Weight	75 lb
Dimensions	19-5/8 x 11-1/2 x 11-13/32 in.
Cube	1.5 cu ft

***NOTE:**
See SC 1340/98 IL for complete packing data including NSN's.

Shipping and Storage Data:

Quantity-distance class	7
Storage compatibility group	Q
DOT shipping class	EXPLOSIVE A
DOT designation	EXPLOSIVE BOMBS

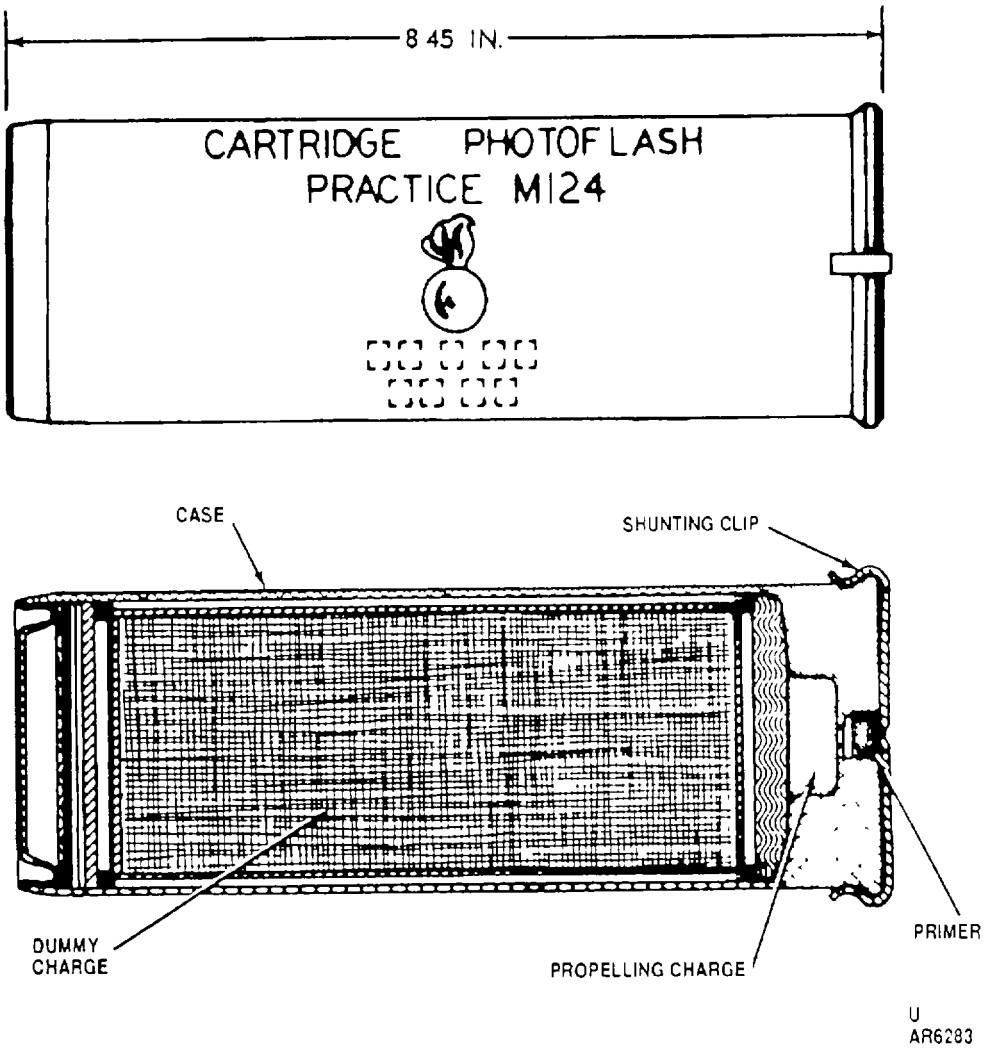
DODAC:

1 sec delay	1370-L135
2 sec delay	1370-L136
4 sec delay	1370-L137
Drawing number	8848546

References:

AMC-P 700-3-5
TM 9-1370-203-20&P
TM 9-1370-203-34&P

CARTRIDGE. PHOTOFLASH PRACTICE, M124



Type Classification:

Std OTCM 36841.

Use:

For training in the use of M1123A1 photoflash cartridges.

Description:

The cartridge has a cylindrical aluminum case designed for electrical firing from an aircraft multi-barrel ejector. Assembled in the base of the cartridge case is an electric primer and a black powder propelling charge. The remaining space is occupied by a dummy charge consisting of an inert charge loaded in a metal can. The cartridge is equipped with a shunting clip over the base to protect the primer from accidental firing during storage, shipping, and handling.

Functioning:

The electrically fired primer ignites the propelling charge, which ejects the dummy charge.

Tabulated Data:

NSN	1370-00-028-5929
Weight loaded	4.3 lb
Length	8.45 in.
Diameter	2.88 in.
Method of actuation	Fired from multi-barrel ejector
Body material	Aluminum

Color	Aluminum w/black markings
Pyrotechnic charge:	
Type	Inert composition
Weight	2.6 lb
Propelling charge:	
Type	Black powder
Weight	44 grains
Primer	Electric, M59
*Packing	3 per carton; 4 cartons per wooden box
*Packing Box:	
Weight (with contents)	74.4 lb
Dimensions	18-5/8 x 12-1/4 x 12-1/32 in.
Cube	1.7 cu ft

***NOTE:**
See SC 1340/98 IL for complete packing data including NSN's.

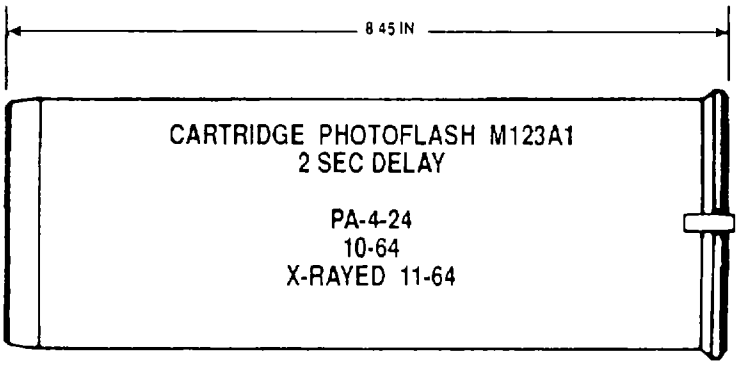
Shipping and Storage Data:

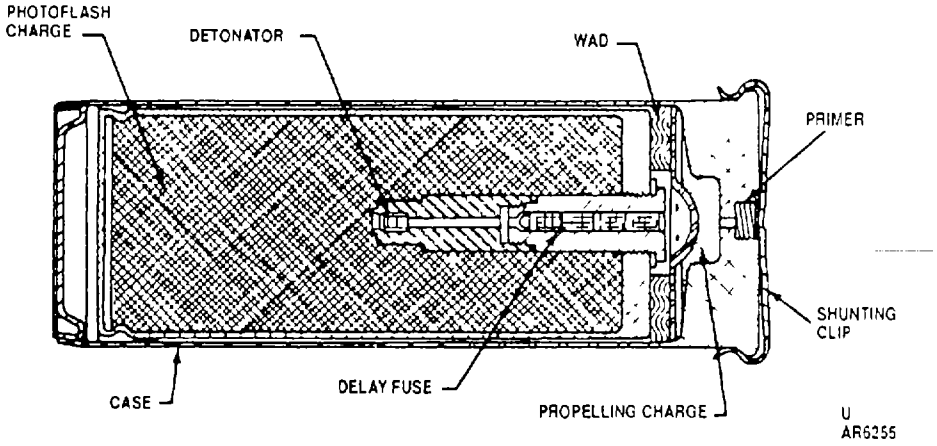
Quantity-distance class	2
Storage compatibility group	N
DOT shipping class	EXPLOSIVE B
DOT designation	SPECIAL FIRE-WORKS HANDLE CAREFULLY KEEP FIRE AWAY
DODAC	1370-L142
Drawing number	8847565

References:

AMC-P 700-3-5
TM 9-1370-203-20&P
TM 9-1370-203-34&P

CARTRIDGE, PHOTOFLASH: M123A1, 2, 4, AND 6-SECOND DELAY





Type Classification:

Std OTCM 36841.

Use:

To provide illumination for night aerial photographic reconnaissance.

Description:

The cartridge has a cylindrical case designed for electrical firing from an aircraft multi-barrel ejector. Successive round fire control is by an intervalometer to time flashes with camera exposure requirements. The case contains an inner aluminum cylinder housing the photoflash charge and a delay fuse. The black powder propelling charge is contained at the base of the photoflash cartridge case. A gas check wad separates these components. The delay fuse is assembled with a detonator and extends into the center of the photoflash charge. An M59 electric primer is fitted into the base of the cartridge case. The cartridge is stored and shipped with a metal shunting clip over the base to protect the primer from accidental firing.

Functioning:

The primer is fired by an electric current timed by the intervalometer in the aircraft. The primer ignites the propelling charge. The propelling charge ejects the inner photoflash charge case out of the cartridge case and ignites the delay fuse. At the end of the delay time, the delay fuse ignites the detonator and the detonator ignites the photoflash charge. The resultant explosion produces a flash brilliant enough for photography of the terrain.

Difference Among Models:

Three time delay options are available: 2, 4, or 6 seconds.

Tabulated Data:

NSN's:	
2 sec delay	1370-00-901-0605
4 sec delay	1370-00-901-0604
6 sec delay	1370-00-901-0603
Weight loaded	4.3 lb
Length	8.45 in.
Diameter	2.88 in.
Method of actuation	Fired from multi-barrel ejector
Body material	Aluminum
Color	Aluminum w/black markings
Pyrotechnic charge:	
Type	Photoflash powder
Weight	700 grams
Propelling charge:	
Type	Black powder
Weight	93 grains
Primer	Electric, M59
Performance:	
Delay	2, 4, or 6 sec
Burning time	0.04 sec
Candlepowder	400,000,000 (peak)
*Packing	3 per carton; 4 cartons per wooden box
*Packing box:	
Weight	74.4 lb
Dimensions	17-7/8 x 12-1/4 x 12-1/32 in.
Cube	1.7 cu ft

***NOTE:**
See SC 1340/98 IL for complete packing data including NSN's.

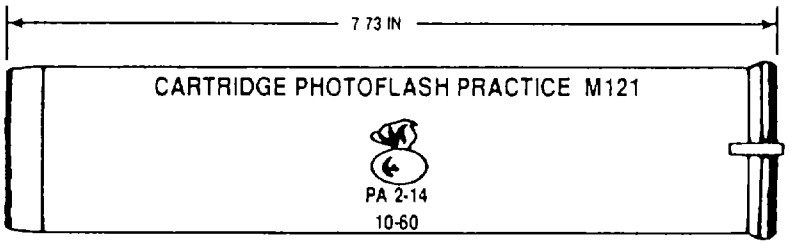
Shipping and Storage Data:

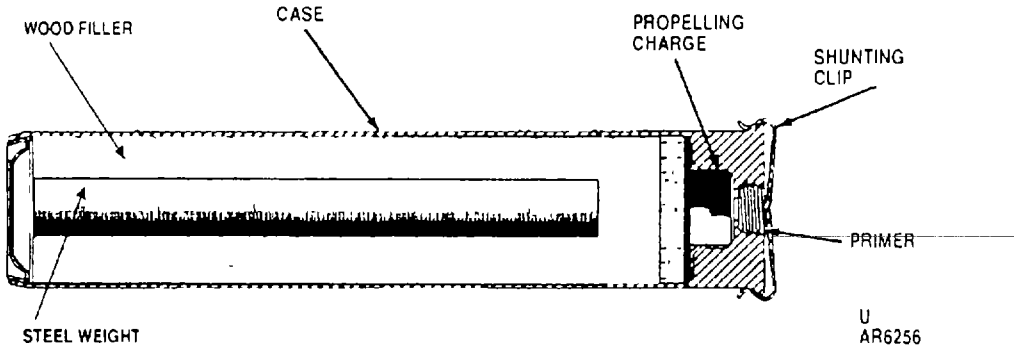
Quantity-distance class	7
Storage compatibility group	Q
DOT shipping class	EXPLOSIVE A
DOT designation	EXPLOSIVE BOMBS
DODAC:	
2 sec	1370-L139
4 sec	1370-L140
6 sec	1370-L141
Drawing number	8847519

References:

AMC-P 700-3-5
TM 9-1370-203-20&P
TM 9-1370-203-34&P

CARTRIDGE, PHOTOFLASH: PRACTICE, M121





Type Classification:

Std OTCM 36841.

Use:

For training in the use of M112A1 photoflash cartridges.

Description:

The cartridge has a cylindrical aluminum case designed for electrical firing from an aircraft multi-barrel ejector. Assembled in the base of the cartridge case are an electric primer and a black powder propelling charge. The remaining space is occupied by a dummy charge of softwood filler weighted with a steel bar. The cartridge is equipped with a metal shunting clip over the base to protect the primer from accidental firing during storage shipping, and handling.

Functioning:

The electrically fired primer ignites the propelling charge, and ejects the dummy charge from the cartridge case.

Tabulated Data:

NSN	370-00-305-0878
Weight loaded	1 lb
Length	7.73 in.
Diameter	1.57 in.
Method of actuation	Fired from multi-barrel ejector
Body material	Aluminum
Color	Aluminum w/black marking

Dummy charge:	
Type	Wood filler
Weight	7 oz
Propelling charge:	
Type	Black powder
Weight	35 grains
Primer	Electric, M59
*Packing	10 per carton; 4 cartons per wooden box
Packing Box:	
Weight (with contents)	75 lb
Dimensions	19-5/8 x 11-1/2 x 11-13/32 in.
Cube	1.5 cu ft

***NOTE:**
See SC 1340/98 IL for complete packing data including NSN's.

Shipping and Storage Data:

Quantity-distance class	2
Storage compatibility group	N
DOT shipping class	EXPLOSIVE B
DOT designation	SPECIAL FIRE-WORKS HANDLE CAREFULLY KEEP FIRE AWAY
DODAC	1370-L138
Drawing number	8848551

References:

AMC-P 700-3-5
TM 9-1370-203-20&P
TM 9-1370-203-34&P

CHAPTER 3

FLARES

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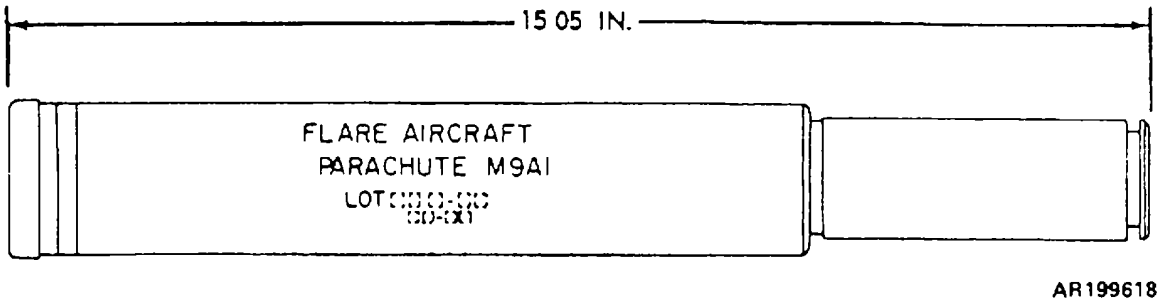
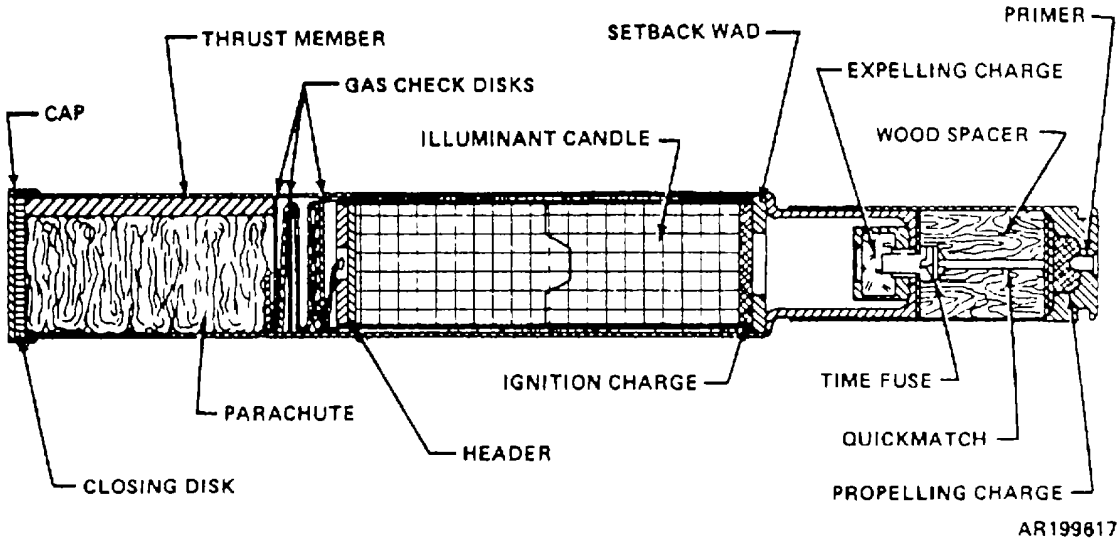
FLARE, AIRCRAFT: PARACHUTE, M9A1





Type Classification:

Obs MSR 11756003.

Use:

To provide illumination for aerial reconnaissance.

Description:

The flare and propelling charge is housed in an aluminum tube having two diameters. The smaller base end contains a percussion primer, propelling charge, wooden spacer, and expelling charge. A quickmatch extending through the spacer connects the propelling charge with a time fuse for the expelling charge. The base of the illuminant candle has an ignition charge to receive flame from the expelling charge, and a setback wad for protection against shock. At the top of the illuminant a fireclay header, gas check wad, and 3 gas check disks protect the parachute from the burning illuminant. A thrust member is installed longitudinally alongside the parachute in the top end of the tube to protect the parachute from compression. A cap is used to close the assembly

Functioning:

The firing pin of the pistol strikes the primer, the propelling charge is ignited The propelling charge ignites the quickmatch and projects the flare case assembly containing the expelling charge, illuminate candle, and parachute some 80 feet from the aircraft. At this time, the delay fuse ignites the expelling charge, and the candle, parachute assembly is blown out through the end of the tube Simultaneously: the expelling charge ignites the illuminant. The parachute opens upon leaving the case to lower the flare slowly.

Tabulated Data:

NSN	1370-00-984-4472
Weight loaded	2.11 lb
Length	15.05 in.
Diameter	2.07 in.
Method of actuation	Fired from Pyrotechnic Pistol AN-M8
Body material	Aluminum
Color	Aluminum w/black markings
Pyrotechnic charge:	
Type	Illuminant composition
Weight	1.2 lb
Propelling charge:	
Type	Black powder
Weight	15.43 grains
Expelling charge:	
Type	Black powder
Weight	30 grains
Primer	Percussion, M39A1
Performance:	
Delay	2.5 sec
Burning time	60 to 80 sec
Candlepower	60,000
*Packing	7 per container; 2 containers per box
*Packing Box:	
Weight	50 lb
Dimensions	18-15/'16 x 15-1/16 x 9-5/32 in.
Cube	1.5 cu ft

***NOTE:**
See SC 1340/98 IL for complete packing data including NSN's.

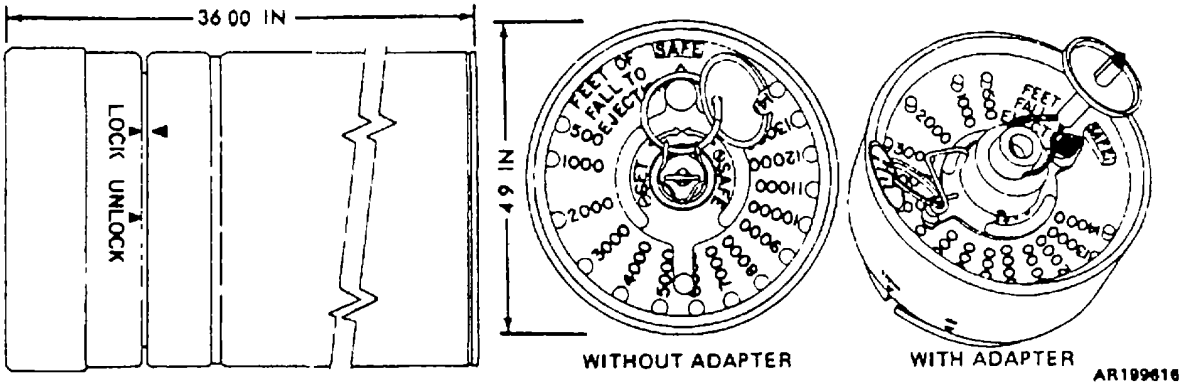
Shipping and Storage Data:

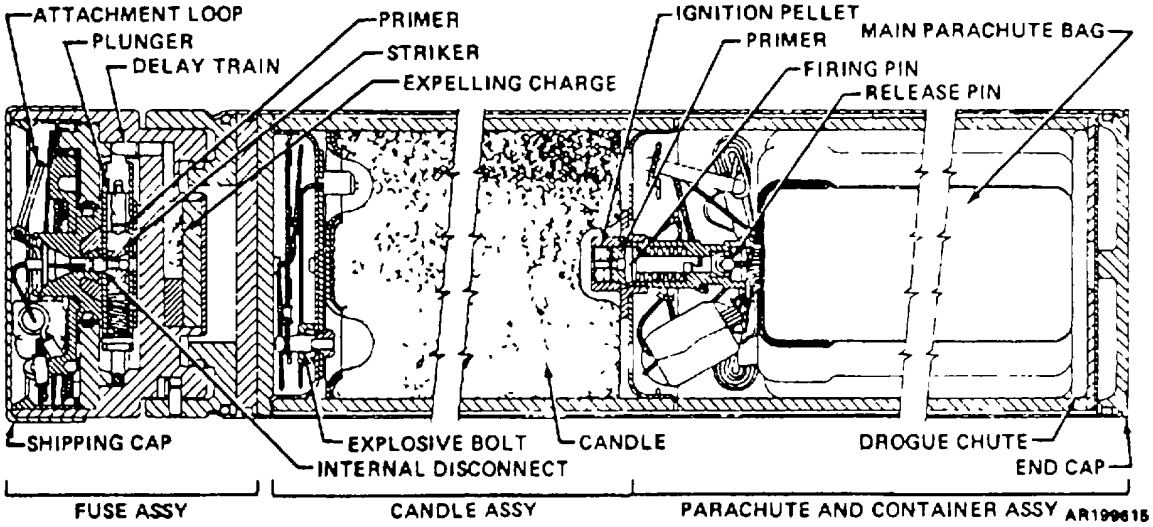
Quantity-distance class	2
Storage compatibility group	N
DOT shipping class	EXPLOSIVE B
DOT designation	SPECIAL FIRE-WORKS HANDLE CAREFULLY KEEP FIRE AWAY
DODAC	1370-L389
Drawing number	88,18573
Spec number	MIL-F-20531

References:

TM 9-1370-203-20&P
TM 9-1370-203-34&P

FLARE, AIRCRAFT: PARACHUTE, MK45 MOD O AND MOD O W/ADAPTER





Type Classification:

LP AMCTC 7078.
LP Ext AMCTC 8152.
Std AMCTC 9013.

Use:

Released from aircraft for battlefield illumination, target marking, and reconnaissance. Restricted to launch from aircraft operating below 70 knots indicated air speed.

Description:

The complete flare is approximately 36 inches long and 4.9 inches in diameter. It has two separate major subassemblies. One is a hermetically sealed MK364 flare fuze assembly that is approximately 3-1/2 inches long. The other is a hermetically sealed flare and outer container assembly that is approximately 33-3/4 inches long. This outer container assembly contains a parachute and container assembly and a candle and suspension assembly A decal on the outer container body states fuze setting and safing information. A setting dial located on the flare fuze indicates fuze setting positions in terms of feet of free fall. This fuze assembly contains an initiator assembly, a time delay fuse cord, and a black powder ejection pellet.

Functioning:

When the flare is launched, a launched exerts a pull force on a toggle and disconnect pin loop to free the disconnect pin. Removal of the disconnect pin frees a spring loaded striker to initiate a primer located in a plunger. Simultaneously, this primer ignites a 2 second fixed delay element and drives the plunger into a time delay fuse. The time fuse ignites the expelling charge which, in turn, ejects the candle and parachute assemblies from the outer

container. A drogue parachute deploys and pulls the main parachute from its bag. When this main parachute deploys, a pull force is applied to a candle ignition system by one of its suspension cables. This action starts the candle burning. Near the end of the candle burning time, enough heat to activate an explosive bolt is created. Once this bolt explodes one of the parachute suspension lines is freed. This loose line allows the parachute canopy to collapse which, in turn, causes the parachute to fall to the ground quicker than a non-collapsed parachute canopy.

Difference Between Models:

Addition of the adapter to the MK364 Mod O fuze permits the flare to be launched from an M19 flare dispenser. Both models can be hand launched and have the same flare and outer container assembly

Tabulated Data:

NSN	1370-00-088-5658 (L473) MK45 Mod O 1370-00-461-1526 (L424) MK45 Mod O w/adapter
Weight loaded	28.0 lb nom
Length	36.0 in.
Diameter	4.87 in.
Method of actuation	Deploy from aircraft L473: launched by hand only, L424: launched through M19 flare dispenser or by hand
Body material	Aluminum
Color	Black markings on aluminum
Pyrotechnic charge:	
Type	Illuminant composition
Weight	17.6 lb
Expelling charge:	
Type	Black powder pellet
Weight	10 grams
Fuze	Flare Fuze MK364 Mod 0-2127860 Flare Fuze MK364 Mod O w/adapter 2128088
Performance:	
Delay	2.0 sec min MK45 Mod O 3.0 sec min. MK45 Mod O w/adapter
Burning time	210 sec nom
Candlepowder	2 million nom
*Packing	The shipping container is made up of molded polystyrene upper and lower halves secured with tape. Each container holds 2 flares
Weight	59.7 lb
Dimensions	44-1/4 x 14-1/4 x 6-1/2 in.
Cube	2.37 cu ft

***NOTE:**
See SC 1340/98 IL for complete picking data including NSN's.

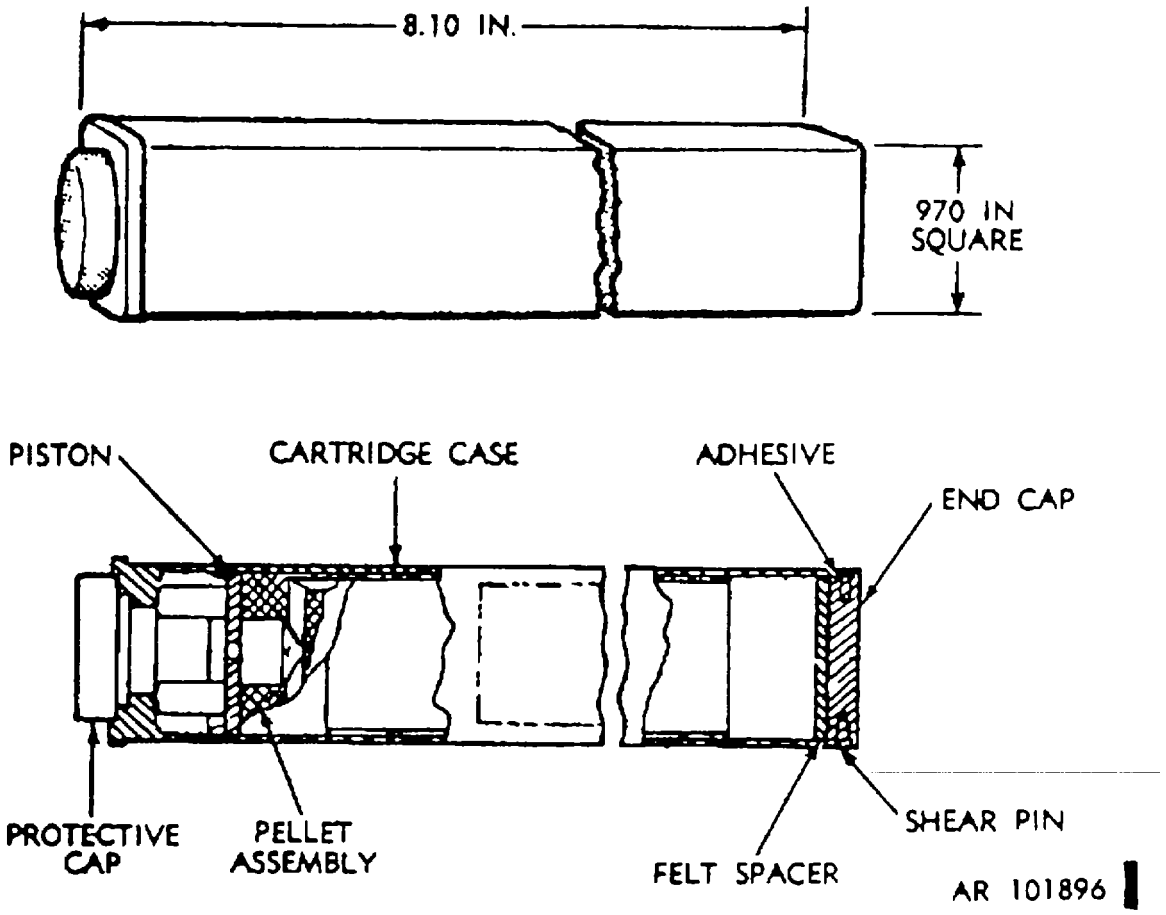
Shipping and Storage Data:

Quantity-distance class	1.3
Storage compatibility group	G
DOT shipping class	Explosive B
DOT designation	SPECIAL FIRE-WORKS HANDLE CAREFULLY KEEP FIRE AWAY
DODAC	1370-L473 (MK45 Mod 0) 1370-L424 (MK45 Mod O with adapter
Drawing number	2141527 (MK45 Mod 0) 2816233 (MK45 Mod O with adapter

References:

AMC-P 700-3-5
TM 9-1370-201-20&P
TM 9-1370-203-34&P

FLARE, AIRCRAFT: COUNTERMEASURE, M206



Type Classification:

Std LCC-A.

Use:

The flares are dispensed from aircraft to decoy infrared seeking missile threats away from aircraft.

Description:

The flare consists of an aluminum case which houses the flare pellet, piston, and end cap. The flare is approximately 8 inches long and has a square .97 x .97-inch cross-section and weighs approximately 0.43 pounds per unit. The payload composition consists of magnesium, teflon and a binder.

Functioning:

The flanged base of the cartridge case has a preformed hole to enable insertion of the M796 impulse cartridge. The impulse cartridge is fired by an electrical impulse. Expanding hot gas, developed by the impulse cartridge, causes the piston to expel the flare pellet from the cartridge case; simultaneously, the flare pellet is ignited.

Tabulated Data:

NSN	1370-01-048-2138
Weight loaded	0.43 lb
Length	8.10 in.
Width	0.97 in.
Height	0.97 in.
Method of Actuation	Dispensed from Impulse Charge M796
Body Material	Aluminum
Color	Anodized metallic yellow/brown
Pyrotechnic charge:	
Type	Magnesium/teflon (pellet form)
Weight	150 grams (5.3 oz)
Expelling charge:	
Type	Hercules Bulls Eye smokeless powder
Weight	0.25 grams
Packing	100 per box (2 metal cans of 50 each)
Packing box:	
Weight	67 lb
Dimensions	14-1/2 in. x 13 in. x 11 in.
Cube	1.3 cu ft

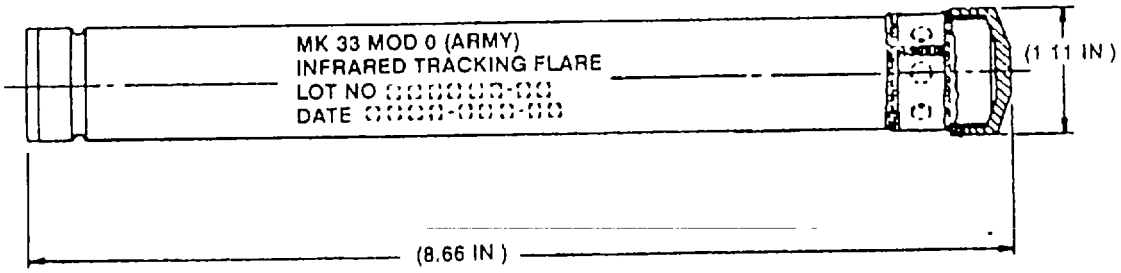
Shipping and Storage Data:

Quantity-distance class	1.3
Storage compatibility group	G
DOT shipping class	B
DOT markings	SPECIAL FIRE-WORKS HANDLE CAREFULLY KEEP FIRE AWAY
DODAC	1370-L410
Drawing number	9311623

References:

TM 9-1095-206-13&P

FLARE, BALLISTIC AERIAL TARGET; INFRARED TRACKING MK33, MOD 0



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Type Classification:

Std December 30, 1992

Use:

The MK33, MOD 0 Flare is strapped to a 2.75-inch rocket motor to increase the infrared signature. Two flares are used and up to five rocket motors. The rocket motors and flares are assembled to the ballistic aerial target and launched to provide an aerial target during air defense gunnery training.

Description:

The flare consists of a steel case housing the flare composition. The steel case contains holes projecting radially at one end with aluminum tape used as a sealer over them. The flare is approximately 8-5/8 inches long and 1 inch in diameter. The flare composition consists of magnesium, teflon, and rubber binder.

Functioning:

The flare is clamped to a 2.75-inch rocket with the aluminum taped end aft of rocket motor. The rocket motor flame burns through the aluminum tape to initiate the flare composition. The flare provides the infrared signature needed for heat-seeking munitions. The flare also provides a source of light for day and night operations.

Tabulated Data:

NSN	1370-01-208-0686
Weight loaded	0.625 lb
Length	8.66 in.
Diameter	1.11 in.
Method of actuation	2.75 inch rocket motor
Body material	Steel
Color	Not painted
Pyrotechnic Charge:	
Type	Magnesium
Weight	125 g

Packing	50 per box (2 metal M2A1 cans of 25 each)
Packing box:	
Weight	55.5 lb
Dimensions	14 x 12 in. x 8 in.
Cube	0.93 cu ft
Packing drawing	12597933

Shipping and Storage Data:

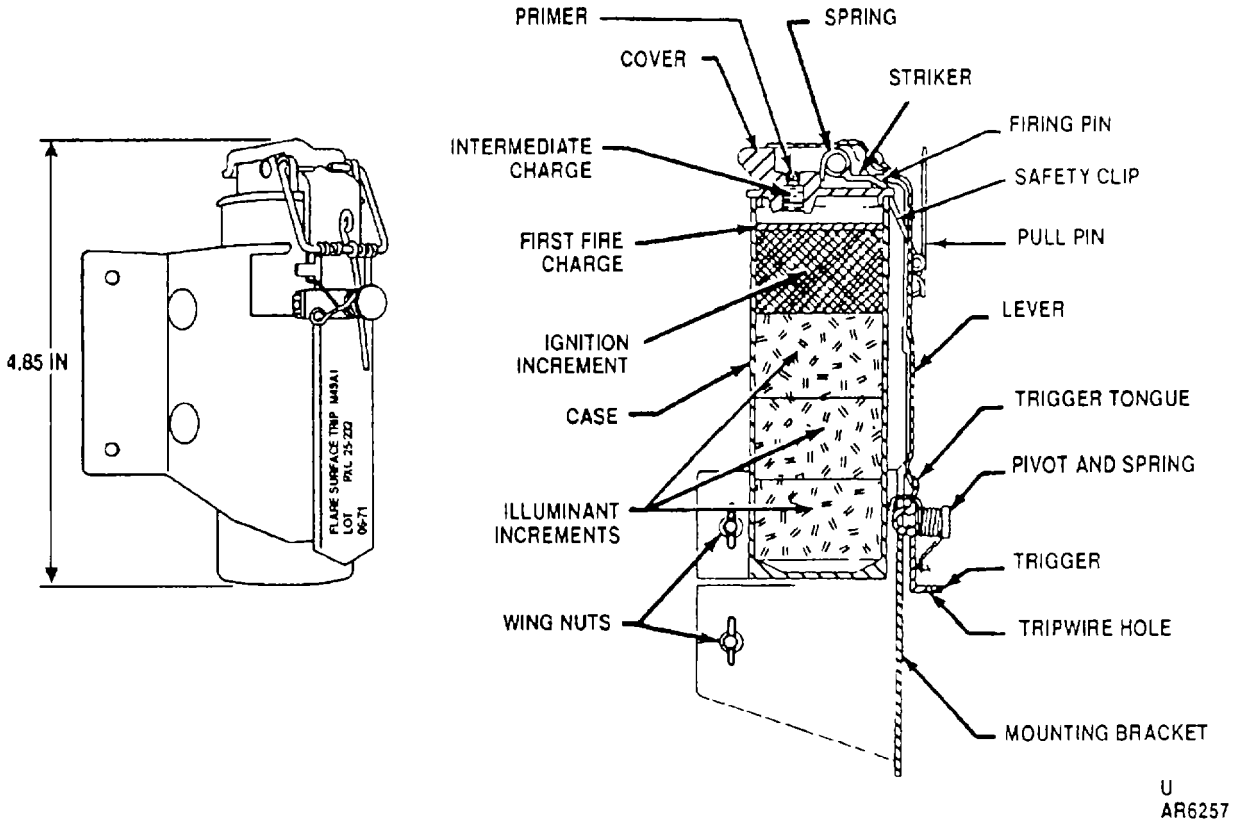
Quantity-distance class	1.3
Storage compatibility group	G
DOT shipping class	CLASS B EXPLOSIVE
DOT markings	SPECIAL FIRE-WORKS HANDLE CAREFULLY KEEP FIRE AWAY

DODAC	1370-L477
Drawing number	9387055
UN markings:	
Proper shipping name	FLARES, AERIAL
Identification No.	UN 0093
POP marking	ž µC1/Y29SS** ž USA/DOD AYD

References:

TM 9-1370-203-20&P
TM 9-1370-203-34&P
TM 9-1370-418-14

FLARE, SURFACE: TRIP, M49A1



Type Classification:

Std OTCM 37523.

Use:

To give warning of infiltrating troops by illuminating the field of the advancing enemy.

Description:

The trip flare consists of an illuminant assembly, cover loading assembly, and mounting bracket assembly. The illuminant assembly is an aluminum case containing an ignition increment and three illuminant increments. The waterproof cover loading assembly contains a percussion primer, intermediate charge and a springloaded striker. The mounting bracket holds the illuminant assembly in the position desired. Two carriage bolts with wing,, nuts are provided to tighten the sleeve, and a flange with two nail holes is included for vertical mounting. The base of the bracket is pointed for in-ground installation. The trigger is attached to the exterior of the mounting bracket. The lever is hinged to the cover and is held in position by the safety clip when unarmed.

The flare is armed by attaching a trip wire to either the trigger or pull pin.

Functioning:

A pull on the trip wire causes either the trigger tongue or pull pin to release the lever, which in turn permits the firing pin to strike the primer. The primer sets off the intermediate charge, and the intermediate charge ignites the first-fire composition on the ignition increment of the flare. The trip flare will provide a light intensity exceeding 35,000 candlepower for approximately one minute.

Tabulated Data:

NSN	1370-00-752-8060
Weight loaded	0.75 lb
Length	4.85 in.
Diameter	3.10 in.
Method of actuation	Trip wire (50 ft)
Body material	Aluminum
Color	Olive drab w/black markings

Pyrotechnic charge:	
Type	Illuminant composition
Weight	5 oz (Illuminant)
Primer	Percussion M42
Performance:	
Delay	0 sec
Burning time	55 sec minimum
Average candlepower	35,000 minimum
*Packing	32 per box; 32 per inner pack
*Packing Box:	
Weight	62 lb
Dimensions	20-7/16 x 15-5/6 x 12-25/32 in.
Cube	2.3 cu ft.

***NOTE:**
See SC 1340/98 IL for complete packing data including NSN's.

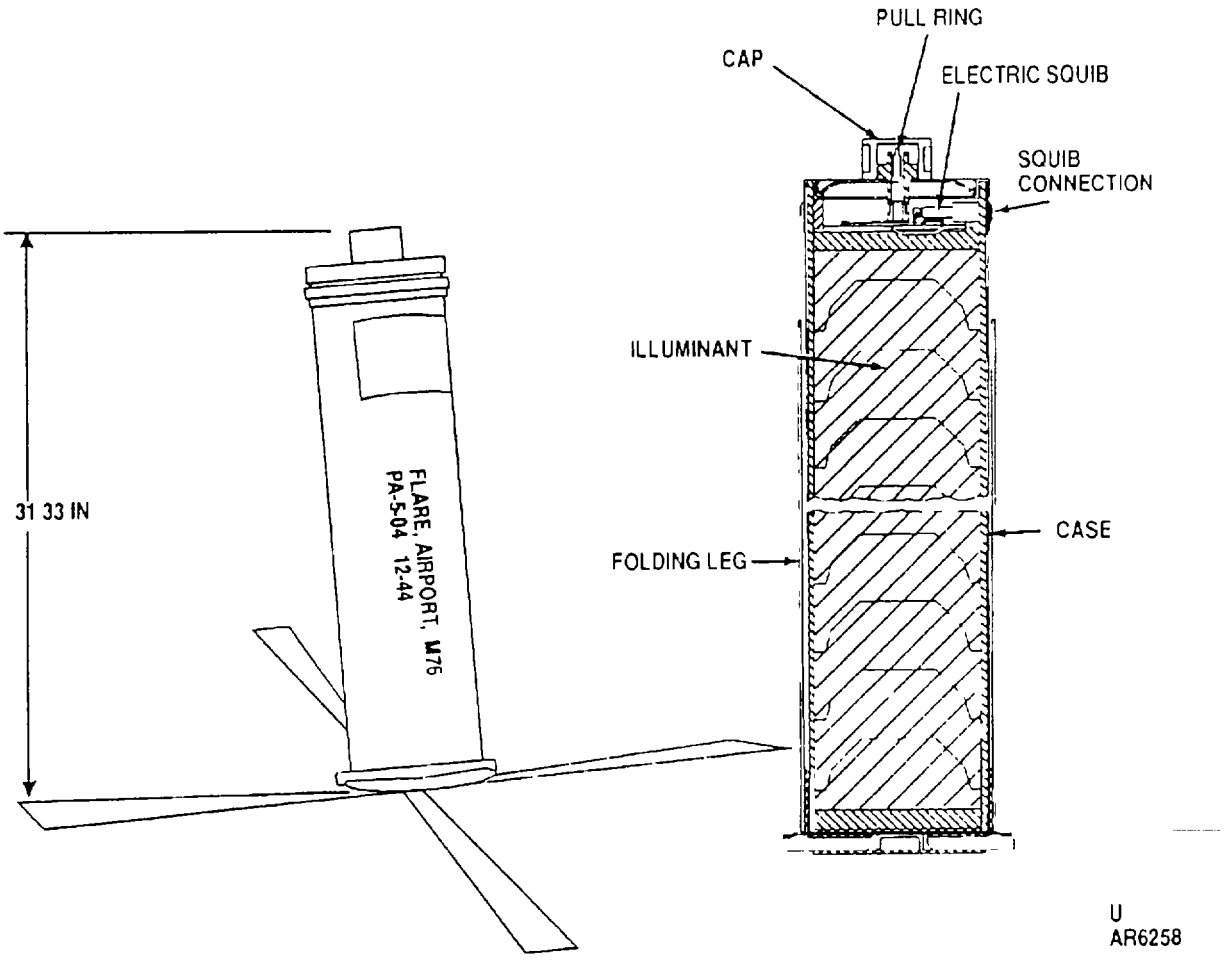
Shipping and Storage Data:

Quantity-distance class	2
Storage compatibility group	N
DOT shipping class	EXPLOSIVE B
DOT designation	SPECIAL FIREWORKS HANDLE CAREFULLY KEEP FIRE AWAY
DODAC	1370-L495
Drawing number	8836957

References:

AMC-P 700-3-5
TM 9-1370-203-20&P
TM 9-1370-203-34&P

FLARE, SURFACE: AIRPORT, M76



Type Classification:

Obs MSR 11756003.

Use:

To illuminate runways or landing areas for aircraft operating at night.

Description:

The flare consists of a metal tube filled with an illuminant charge, and with an igniter assembly at the top end. The tube is held upright by four folding legs. The igniter may be initiated either by an electric squib in the assembly or manually by a lanyard and pull ring connected with a firing pin. As shipped, the igniter assembly is protected by a plastic cap, and the support legs are folded. The pull ring lanyard, wire lead from the electric squib, land the legs are secured by adhesive tape. A label specifying operating instructions is affixed near the top of the container.

Functioning:

The primer may be initiated either by an electric current to the firing squib or manually by a quick pull on the lanyard to operate the firing pin. The primer ignites a first-fire charge at the top of the illuminant candle to ignite the illuminant composition. The flare provides a minimum of 500,000 candlepower for 5 to 7 minutes. Visibility of the flare is up to 30 miles on a clear night.

Tabulated Data:

NSN	1370-00-028-5941
Weight loaded	27.6 lb
Length	31.3:3 in.
Diameter	4.26 in.
Method of actuation	Manually or electric squib
Body material	Zinc
Color	Olive drab w/black markings
Pyrotechnic charge:	
Type	Illumination composition
Weight	20 lb
Primer	Percussion
Performance:	
Delay	0 sec
Burning time	300 to 420 sec
Candlepowder	600,000 to 850,000
*Packing	1 flare per box
*Packing Box:	
Weight	42 lb
Dimensions	35-3/4 x 6-9/16 x 7-7/32 in.
Cube	1.0 cu ft

***NOTE:**
See SC 1340/98 IL for complete packing data including NSN's.

Shipping and Storage Data:

Quantity-distance class	2
Storage compatibility group	N
DOT shipping class	EXPLOSIVE B
DOT designation	SPECIAL FIREWORKS HANDLE CAREFULLY KEEP FIRE AWAY
DODAC	1370-L425
Drawing number	9242383

References:

AMC-P 700-3-5
TM 9-1370-203-20&P
TM 9-1370-203-34&P

CHAPTER 4

SIGNALS

4-1

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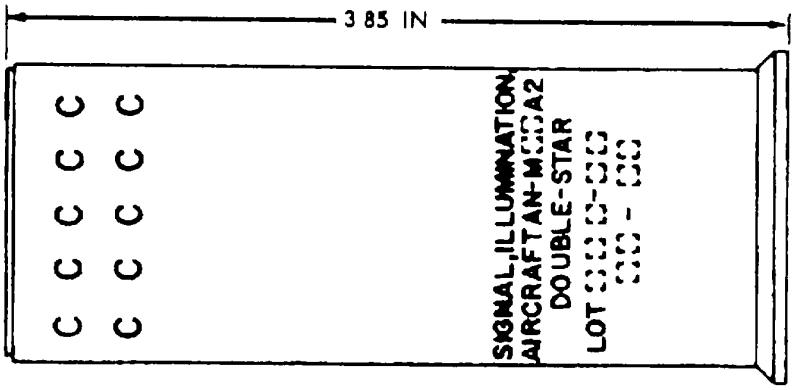
SIGNALS, ILLUMINATION, AIRCRAFT: DOUBLE STAR, AN-MV37A2; AN-M38A2; AN-M39A2; AN-M40A2, AN-M41A2 AND AN-M42A2



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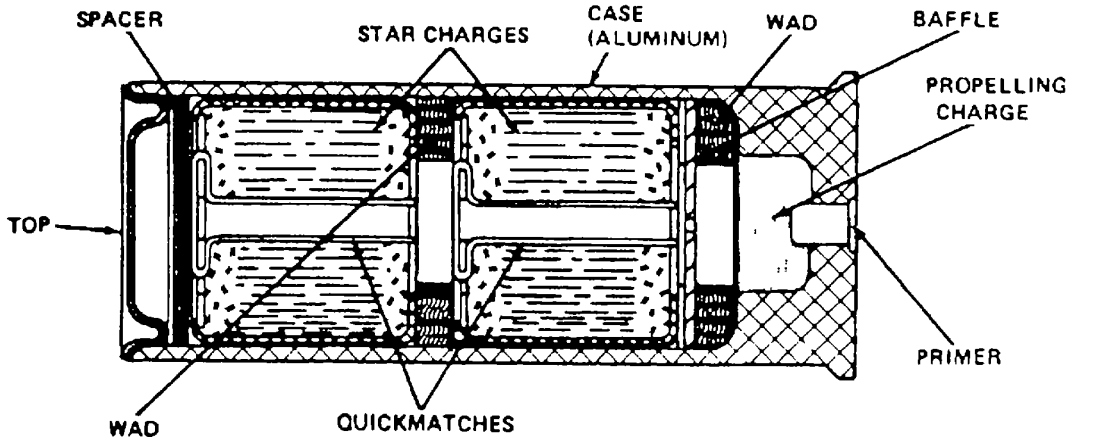


AR199635

Type Classification:

Std OTCM 36841.

Use:

To signal from air to air, air-to-surface, surface-to-surface, and surface-to-air.

Description:

Double star signals are available in red-red, yellow-yellow, green-green, red-yellow, red-green and green-yellow. The signals have a one-piece aluminum case with an extracting rim, and resemble a large shotgun shell. Two bands of colored C's are marked on the forward end of the case to indicate the colors of the signal stars.

Functioning:

The signals are fired from Pyrotechnic Pistol AN-MS or hand Pyrotechnic Projector M9. In either case, the firing pin strikes the primer igniting the propelling charge. The propelling charge expels the two self-contained star charges from the case, at the same time igniting the quickmatches extending through the center of both star charges. Within 2 seconds after expulsion of the star charges. the quickmatch has ignited the first-fire composition in each of the star charges and in turn, the entire star charges are ignited. Burning time is 7 to 13 seconds, depending upon the composition of the illuminant.

Difference Among Models:

Color, weight and candlepower of stars:
AN-M37A2, Red-Red
AN-M38A2, Yellow-Yellow
AN-M39A2, Green-Green
AN-M40A2, Red-Yellow
AN-M41A2, Red-Green
AN-M42A2, Green-Yellow

Tabulated Data:

NSN's:	
AN-M37A2	1370-00-618-2401
AN-M38A2	1370-00-618-5786
AN-M39A2	1370-00-618-5784
AN-M40A2	1370-00-618-2403
AN-M41A2	1370-00-618-5788
AN-M42A2	1370-00-618-5789
Weight loaded	0.35-0.43 lb
Length	3.85 in.
Diameter	1.57 in.
Method of actuation	AN-M8 pistol or M9 projector
Body material	Aluminum
Color	Black markings, colored bands
Pyrotechnic charge:	
Type	Illuminant compositions
Weight	Variable with signal
Propelling charge:	
Type	Black powder
Weight	2.5 grams, max
Primer	Percussion M39A1
Performance:	
Delay	0 sec
Burning time	7.13 sec
Candlepowder	25,000 red, 20,000 other colors
*Packing	80 per box; 10 per pack
*Packing Box:	
Weight	57.5 lb
Dimensions	19-3/8 x 11-3/16 x 11-25/32 in.
Cube	1.6 cu ft

*NOTE: See SC 1340/98 IL for complete packing data including NSN's.

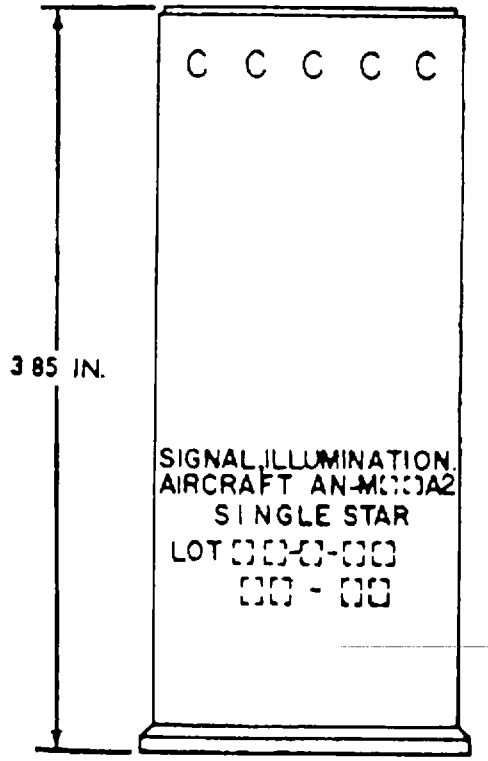
Shipping and Storage Data:

Quantity-distance class	2
Storage compatibility group	N
DOT shipping class	EXPLOSIVE B
DOT designation	SPECIAL FIREWORKS HANDLE CAREFULLY KEEP FIRE AWAY
DODAC	
AN-M37A2	1370-L225
AN-M38A2	1370-L226
AN-M39A2	1370-L227
AN-M40A2	1370-L228
AN-M41A2	1370-L229
AN-M42A2	1370-L230
Drawing number	8847462

References:

AMC-P 700-3-5
TM 9-1095-201-15
TM 9-1370-203-20&P
TM 9-1370-203-34&P

SIGNALS, ILLUMINATION, AIRCRAFT: SINGLE STAR, AN-M43A2; AN-M44A2; M45A2



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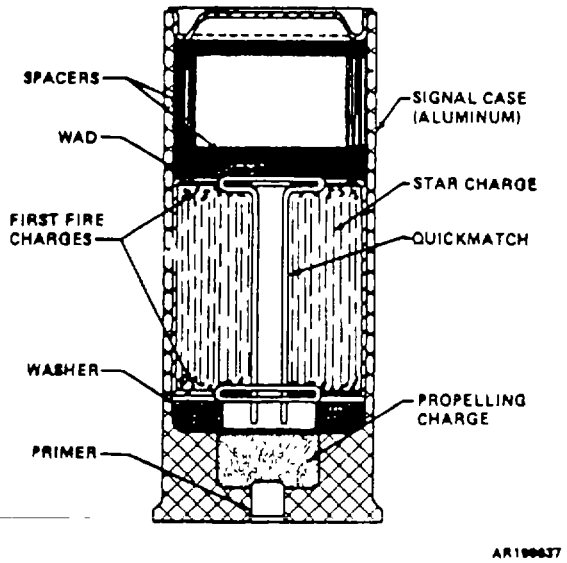


AR190637

Type Classification:

AN-M43 series Std OTCM 36841.
AN-M44 series Std OTCM 36841.
AN-M45 series Std OTCM 35781.

Use:

To signal from air-to-air, air-to-surface, surface-to-surface, and surface-to-air.

Description:

Single star signals are available in red, yellow, and green. The signals have a one-piece aluminum case with an extracting rim, and resemble a large shotgun shell. A band of colored C's are marked on the forward end of the case to indicate the color of the signal star.

Functioning:

The signals are fired from Pyrotechnic Pistol AN-M8 or hand Pyrotechnic Projector M9. In either case, the firing pin strikes the primer igniting the propelling charge. The propelling charge expels the self-contained star charge from the case, at the same time igniting the quickmatch which extends through the center of the star charge. Within 2 seconds after expulsion of the star charge, the quickmatch has ignited the first-fire composition at either end of the star charge and, in turn, the entire star charge ignited. Burning time is 7 to 13 seconds, depending upon the composition of the illuminant.

Difference Among Models:

AN-M43A2, Red
AN-M44A2, Yellow
AN-M45A2, Green

Tabulated Data:

NSN:

AN-M43A2	1370-00-618-5790
AN-M44A2	1370-00-618-5791
AN-M45A2	1370-00-618-241)2
Weight loaded	0.26-0.32 lb
Length	3.85 in.
Diameter	1.57 in.
Method of actuation	AN-M8 pistol or M9 projector

Body material	Aluminum
Color	Black markings, colored band
Pyrotechnic charge:	
Type	Illuminant compositions
Weight	Variable with signal
Propelling charge:	
Type	Black powder
Weight	2.5 grams, max
Primer	Percussion M39A1
Performance:	
Delay	0 sec
Burning time	7-13 sec
Candlepowder	20,000 green, 25,000 red and yellow
*Packing	80 per box; 10 per box
*Packing Box:	
Weight	57.5 lb
Dimensions	19.4 x 11.2 x 11.6 in.
Cube	1.6 cu ft

*NOTE: See SC 1340/98 IL for complete packing data including NSN's.

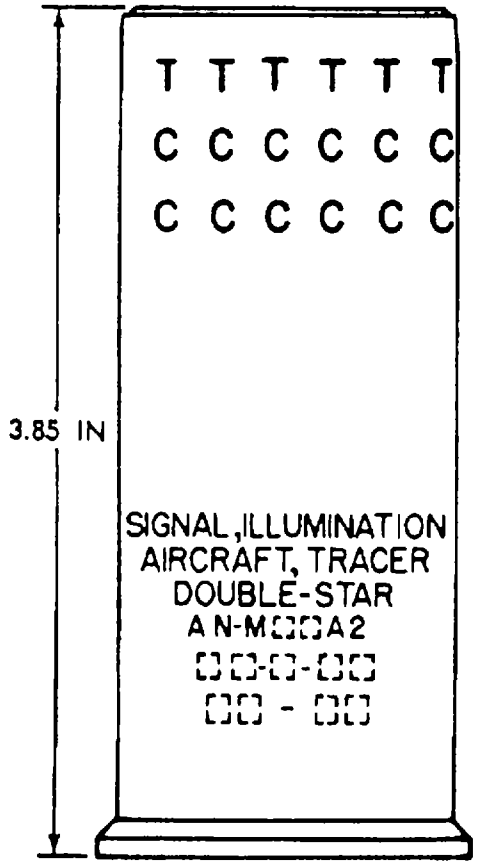
Shipping and Storage Data:

Quantity-distance class	2
Storage compatibility group	N
DOT shipping class	EXPLOSIVE B
DOT designation	SPECIAL FIREWORKS HANDLE CAREFULLY KEEP FIRE AWAY
DODAC:	
M43A2	1370-L231
M44A2	1370-L232
M45A2	1370-L233
Drawing number	8847467

References:

AMC-P 700-3-5
TM 9-1095-201-15
TM 9-1370-203-20&P
TM 9-1370-203-34&P

SIGNALS, ILLUMINATION, AIRCRAFT: DOUBLE STAR WITH TRACER AN-M53A2; AN-M54A2; AN-M55A2; AN-M56A2; AN-M57A2 AND AN-M58A2



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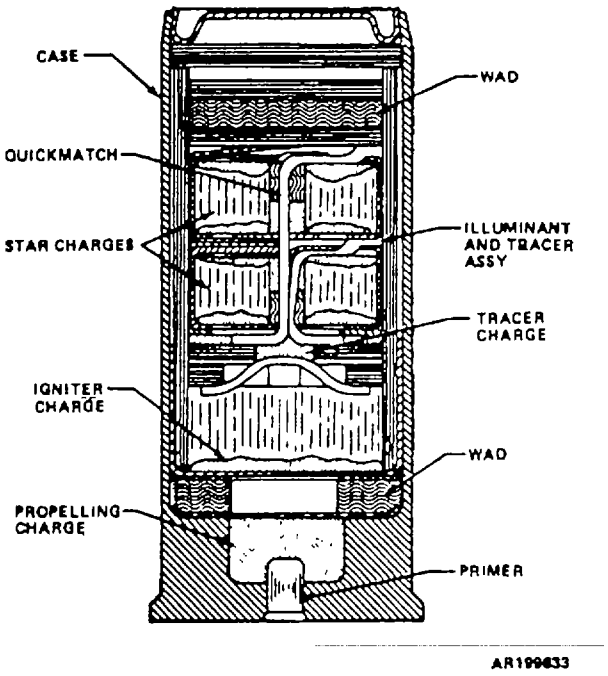


AR199633

Type Classification:

Std OTCM 36841 (All models).
Except AN-M53A2 Obs, MSR 11756003.

Use:

To signal from air-to-air, air-to-surface, surface-to-surface, and surface-to-air.

Description:

Double star signals with tracers are available in red-yellow with yellow tracer, red-red with green tracer, green-red with green tracer, green-green with red tracer, red-red with red tracer, and red-green with red tracer. The signals have a one-piece aluminum case with an extracting ring, and resemble a large shotgun shell. Three bands of colored letters (two bands of C's for the candles and one band of T's for the tracer) are marked on the forward end of the case to indicate the colors of the signal stars and of the tracer. Inside the signal case, the illuminant and tracer assembly is enclosed in an inner case. This assembly consists of a tracer charge and two star charges interconnected with quickmatch and a relay charge.

Functioning:

The signals are fired from Pyrotechnic Pistol AN-M8 or hand Pyrotechnic Projector N19. In either case, the firing pin strikes the primer igniting the propelling charge. The propelling charge expels the illuminant and tracer assembly from the signal case, at the same time igniting the igniter charge. The igniter charge, in turn, ignites the tracer charge. As the illuminant and tracer assembly approaches the peak of its trajectory, the final burning of the tracer charge ignites a quickmatch to ignite the relay charge. The relay charge serves the double function of expelling the two star charges from the inner case and of lighting the quickmatch which interconnects the two star charges. By the time the two star charges have reached the trajectory peak, the quickmatch has ignited the

first-fire composition in each of the star charges and, in turn, the entire star charges are ignited. Burning time is 2.5 to 4 seconds for the tracer and 3 to 4.5 seconds for each star, depending upon. the compositions of the tracer and of the illuminant.

Difference Among Models:

AN-M53A2, Red-Yellow w/yellow tracer
AN-M54A2, Red-Red w/green tracer
AN-M55A2, Green-Red w/green tracer
AN-M56A2, Green-Green wired tracer
AN-M57A2, Red-Red wired tracer
AN-M58A2, Red-Green wired tracer

Tabulated Data:

NSN's:	
AN-M53A2	1370-00-618-5793
AN-M54A2	1370-00-618-5794
AN-M55A2	1370-00-618-5774
AN-M56A2	1370-00-618-5775
AN-M57A2	1370-00-618-5776
AN-M58A2	1370-00-618-5777
Weight loaded	0.32 lb
Length	3.85 in.
Diameter	1.57 in.
Method of actuation	AN-M8 pistol or M9 projector
Body material	Aluminum
Color	Black markings, colored bands
Pyrotechnic charge:	
Type	Illuminant compositions
Weight	Variable with signal
Propelling charge:	
Type	Black powder
Weight	2.5 grams, max
Primer	Percussion M39A1
Performance:	
Delay	0 sec
Burning time:	
Tracer	2.5-4 sec
Candle	3-4.5 sec
Candlepower:	
Tracer	25,000 green, 30,000 all other colors
Candle	30,000 red, 25,000 yellow, 20,000 green
*Packing	80 per box, 10 per pack
Packing Box:	
Weight	57.5 lb
Dimensions	19.4 x 11.2 x 11.9 in.
Cube	1.6 cu ft

*NOTE: See SC 1340/98 IL for complete packing data including NSN's.

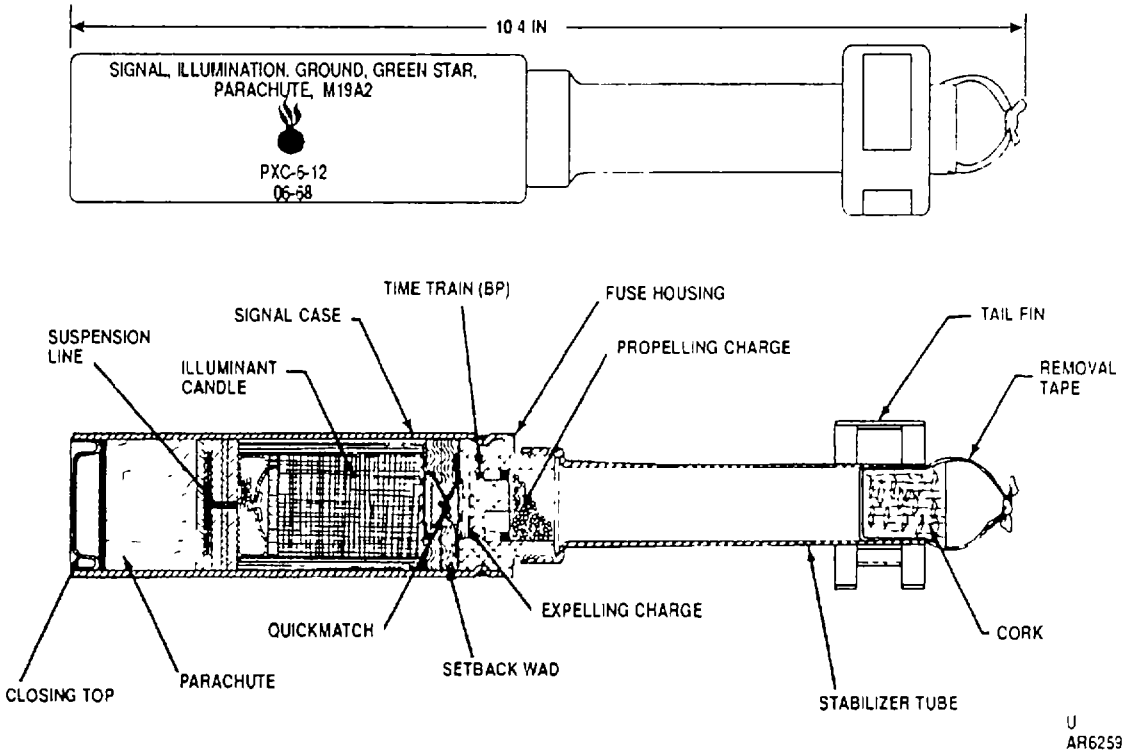
Shipping and Storage Data:

Quantity-distance class	2
Storage compatibility group	N
DOT shipping	EXPLOSIVE B
DOT designation	SPECIAL FIREWORKS HANDLE CAREFULLY KEEP FIRE AWAY
DODAC:	
AN-M53A2	1370-L234
AN-M54A2	1370-L235
AN-M55A2	1370-L236
AN-M56A2	1370-L237
AN-M57A2	1370-L238
AN-M58A2	1370-L239
Drawing number	8847441

References:

AMC-P 700-3-5
TM 9-1095-201-15
TM 9-1370-203-20&P
TM 9-1370-203-34&P

SIGNAL, ILLUMINATION, GROUND: GREEN STAR, PARACHUTE M19A2 AND M19A2B2



Type Classification:

Obs MSR 11756003.

Use:

For signaling during night operations.

Description:

The signal consists of a single green star illuminant candle with parachute and expelling charge in a cylindrical aluminum case. An aluminum fuse housing is crimped to the base of the cylinder. The fuse housing contains a smokeless powder propelling charge with a retaining disk, and a circular time train groove filled with black powder. A felt setback wad containing a quickmatch separates the fuse housing and the illuminant candle. The quickmatch connects the expelling charge with a first fire charge at the base of the illuminant candle. A stabilizer tube with a circular tail fin is threaded to the fuse housing. The hollow tube is closed prior to firing with a cork plug and removal tape.

Functioning:

Flash from the M64 grenade cartridge passes through the stabilizer to ignite the propelling charge, and the burning propellant ignites the black powder 5.5 seconds delay train. Near the top of the trajectory, the time train ignites the expelling charge and the quickmatch is ignited. The expelling charge blows the illuminant candle and parachute assembly out through the top of the container. The illuminant is ignited by the quickmatch

and the parachute opens to lower the candle slowly. The signal produces a minimum of 5000 candle-power for 20 to 30 seconds.

Tabulated Data:

NSN	1370-00-965-0864
Weight loaded	1.02 lb
Length	10.4 in.
Diameter	1.88 in.
Method of actuation	Rifle Grenade Launcher M76 in M14 Rifle
Body material	Aluminum
Color	Black markings and green top
Pyrotechnic charge:	
Type	Green composition
Weight	2.5 oz
Propelling charge:	
Type	M9
Weight	1.69 grams
Expelling charge:	
Type	Black powder
Weight	1.03 grams
Primer	Percussion
Performance:	
Delay	5.5 sec
Burning time	20 to 30 sec
Candlepower	5000
*Packing	30 per box, 2 per pack
*Packing Box:	
Weight	62.0 lb
Dimensions	18-1/4 x 12-1/2 x 13-21/32 in.
Cube	1.8 cu ft

*NOTE: See SC 1340/98 IL for complete packing data including NSN's.

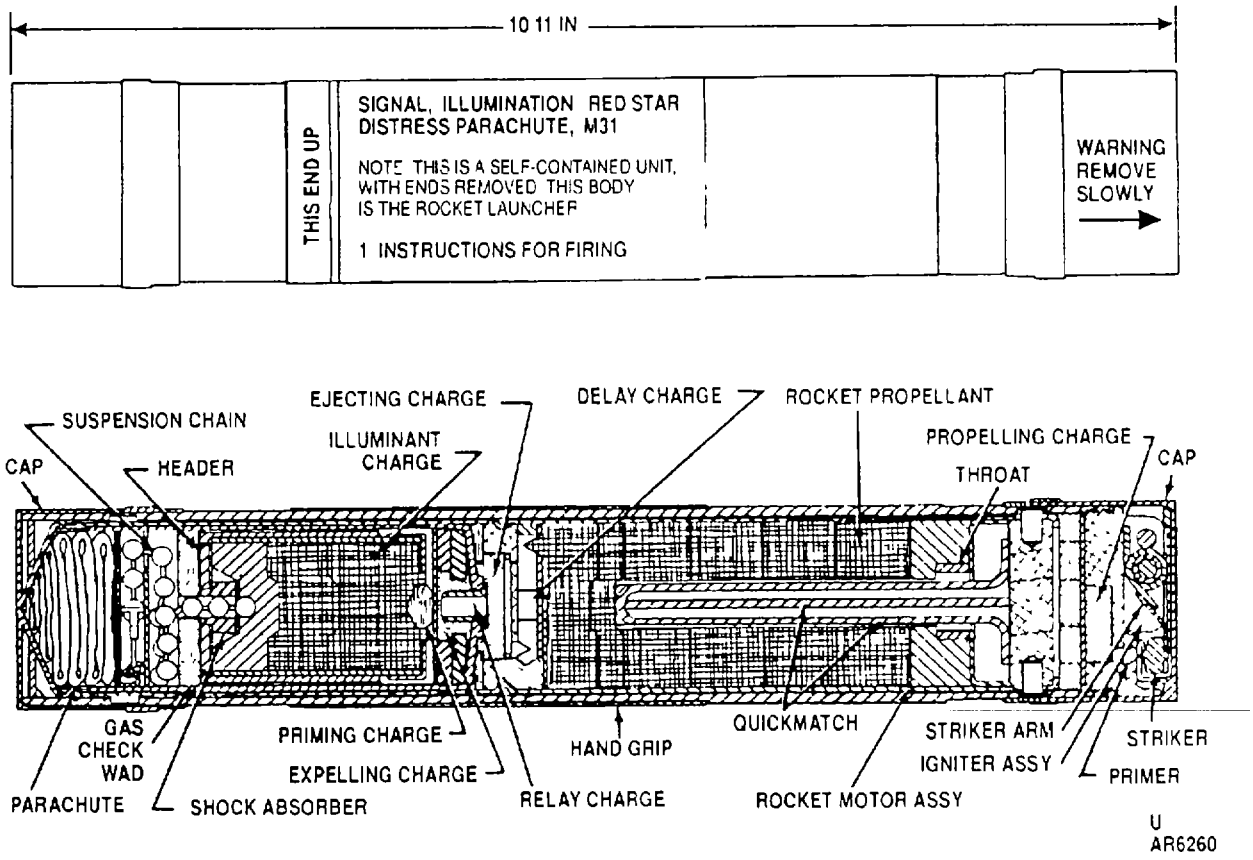
Shipping and Storage Data:

Quantity-distance class	2
Storage compatibility group	N
DOT shipping class	EXPLOSIVE B
DOT designation	SPECIAL FIREWORKS HANDLE WITH CARE KEEP FIRE AWAY
DODAC	1370-L310
Drawing number	9207849

References:

AMC-P 700-3-5
TM 9-1370-203-20&P
TM 9-1370-203-34&P

SIGNAL, ILLUMINATION, GROUND: RED STAR, PARACHUTE, M131



Type Classification:

Std OTCM 36841.

Use:

Primarily for distress signaling. A distinctive red light is produced above overcast and ground fog or haze such as is commonly encountered in arctic regions, thereby enabling ground personnel who are obscured by such conditions to signal to personnel in aircraft.

Description:

The signal is a hand-held device containing a single red star illuminant candle, a parachute to suspend the candle, and a small rocket propulsion motor. The outer case constitutes the launcher tube. A rough hand grip is provided on the exterior and there are two internal helical rotation grooves which impart spin to the signal as it leaves the launcher. A metal closing cover is at each end. The igniter assembly in the base includes a pull ring with a lanyard, safety latch, spring-actuated striker arm, primer, and propelling charge. The motor assembly includes a quickmatch extending through the solid rocket propellant within the tube, a fire clay throat, and exhaust housing. Located ahead of the propellant in the motor assembly is a transition charge, delay assembly, and ejecting charge. A relay assembly, expelling charge, and a primary charge are incorporated in the illuminant assembly. The parachute with suspension chain and a shock absorber are packed on top of the illuminant assembly which is protected by a fire clay header and gas check wad.

Functioning:

When the ring is pulled, the firing pin strikes the primer to ignite the propelling charge. A wad protects the forward components from the force of setback. The propelling charge ignites the motor quickmatch to ignite the rocket propellant. The rocket carries the signal too an altitude of approximately 1500 feet and upon burnout ignites the delay assembly. The ejecting charge then functions to separate the illuminant assembly (illuminant and parachute assembly) from the motor assembly. At the same time, the ignition train continues through the relay assembly to the expelling charge. The expelling charge expels the illuminant and parachute assembly out the top of the case and ignites the illuminant. The parachute opens to slowly lower the burning illuminant which provides a red star signal visible at distances up to 35 miles.

Tabulated Data:

NSN	1370-00-096-3136
Weight loaded	1.21 lb
Length	10.11 in.
Diameter	1.68 in.
Method of actuation	Manual
Body material	Aluminum tube
Color	White label w/black markings
Pyrotechnic charge:	
Type	Red composition
Weight	1.62 oz
Rocket charge:	
Type	Black powder
Weight	100 grams
Expelling charge:	
Type	Black powder
Weight	2.25 grams
Relay charge:	
Type	Black powder
Weight	.203 grams
Ejecting charge:	
Type	Black powder
Weight	.75 grams
Propelling charge:	
Type	Black powder
Weight	1.25 grams
Primer	Percussion M42
Performance:	
Delay	5 sec
Burning time	30 sec
Candlepower	10,000
*Packing	25 per box
*Packing Box:	
Weight	50 lb
Dimensions	13-1/8 x 11-9/16 x 12-31/32 in.
Cube	1.2 cu ft

*NOTE: See SC 1340/98 IL for complete packing data including NSN's.

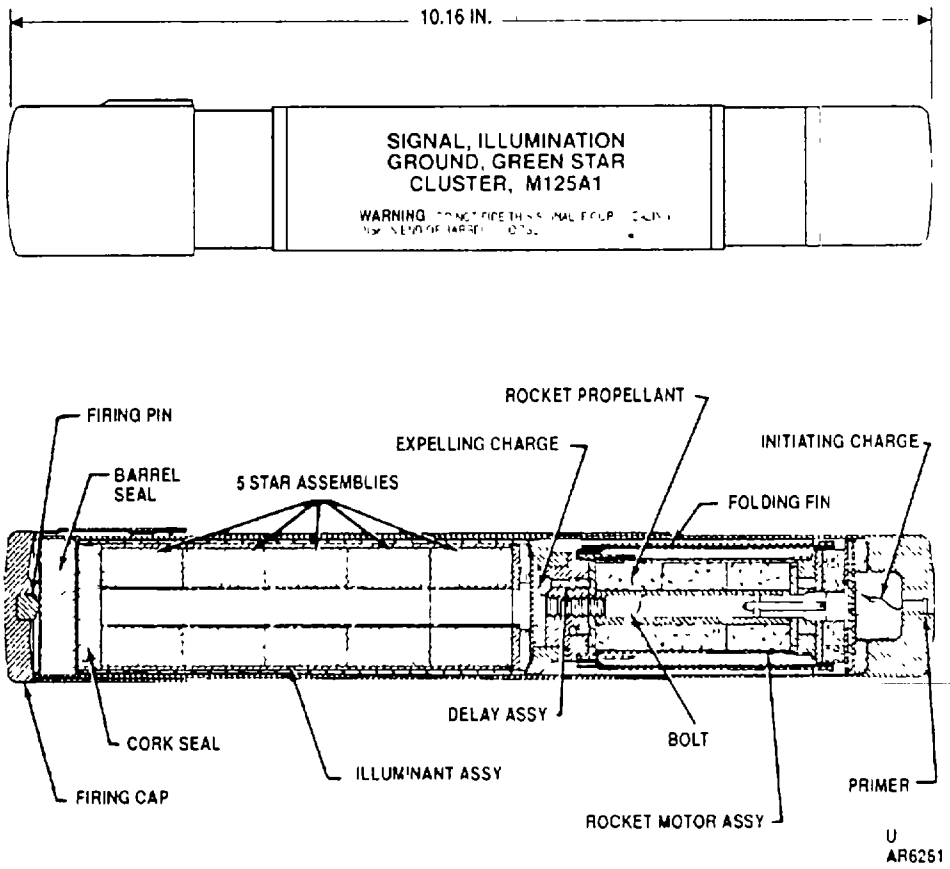
Shipping and Storage Data:

Quantity-distance class	2
Storage compatibility group	N
DOT shipping class	EXPLOSIVE B
DOT designation	SPECIAL FIREWORKS HANDLE WITH CARE KEEP FIRE AWAY
DODAC	1370-L277
Drawing number	8838071

References:

AMC-P 700-3-5
TM 9-1370-203-20&P
TM 9-1370-203-34&P

SIGNALS, ILLUMINATION, GROUND: CLUSTERS, GREEN STAR, M125A1; RED STAR, M158; WHITE STAR, M159



Type Classification:

M125A1 Std OTCM38047.
M158 Std OTCMM37833.
M159 Std OTCM137833.

Use:

For daytime or nighttime signaling.

Description:

Star cluster signals consist of five-star illuminant assemblies and a rocket motor propulsion assembly contained in a hand-held aluminum launching tube. The base of the launching tube contains a primer and an initiating charge. As shipped, the firing pin cap is assembled to the forward end and must be reversed for firing. Stabilizing fins on the tail assembly of rocket are folded parallel to the axis of the signal. A bolt, which also transfers the initiating charge flash to the propellant extends into the center of the solid propellant which fills the propulsion assembly, The illuminant assembly is mounted on top of the propulsion assembly with a delay assembly and an expelling charge between. A label specifying firing procedures is secured to the body of the signal.

Functioning:

When the firing cap is placed on the initiator end in preparation for firing the signal, the firing pin is aligned with the primer. Striking the primer with the firing pin fires the initiating charge to ignite the rocket propellant. As the rocket emerges from the launching tube, the fins extend for flight stability. Before rocket motor burnout at 200 feet, the black powder expelling charge is ignited performing the two-fold function of expelling and igniting the 5-star illuminant assemblies. Burning time is 6 to 10 seconds with burnout occurring at 25 250 to 300 feet above the ground.

Difference Among Models:

Colors of signals:

M125A1	Green
M158	Red
M159	White

Tabulated Data:

Weight loaded	1.3 lb
Length	10.16 in.
Diameter	1.67 in.
Method of actuation	Hand held rocket launching mechanism
Body material	Aluminum
Color	White label w/black markings. Each signal has a cork seal the color of the signal

Pyrotechnic charge:

Type	Illuminant composition

Weight:

M125A1	2.50 oz (71 grams)
M158	2.50 oz (71 grams)
M159	3.75 oz (107 grams)

Initiating charge:

Type	Black powder
Weight	0.725 grams

Propellant charge:

Type	Black powder composition (91% black powder, 9% calcium carbonate)
Weight	39.0 grams

Expelling charge:

Type	Black powder
Weight	39.0 grams
Primer	Percussion No. 68

Performance:

Delay	5 sec
Burning time	6-10 sec

Candlepowder (min):

M125A1	9,000
M158	30,000
M159	30,000
*Packing	36 per box

NSN's:

M125A1	1370-00-629-2335
M158	1370-00-756-2591
M159	1370-00-756-2588

*Packing Box:

Weight	55 lb
Dimensions	15 x 13-7/16 x 13- 9/32 in.
Cube	1.5 cu ft
*Packing	1 per inner plastic pack (PA142), 24 per metal container (M548)

NSN's:

M125A1	1370-00-341-6283
M158	1370-00-343-1966
M159	1370-00-345-3000

*Packing Container:

Weight	53 lb
Dimensions	18-19/32 x 14-19/32 x 8-19/64 in.
Cube	1.3 cu ft
Packing Drawing	12900009

*NOTE: See SC 1340/98 IL for complete packing data including NSN's.

Shipping and Storage Data:

Quantity-distance class	1.3
Storage compatibility group	G
DOT shipping class	EXPLOSIVE B
DOT designation	SPECIAL FIREWORKS HANDLE CAREFULLY KEEP FIRE AWAY

DODAC:

M125A1	1370-L314
M158	1370-L306
M159	1370-L307

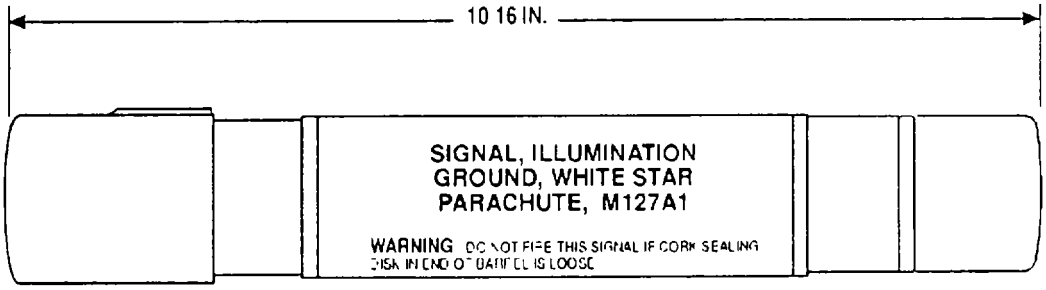
Drawing number:

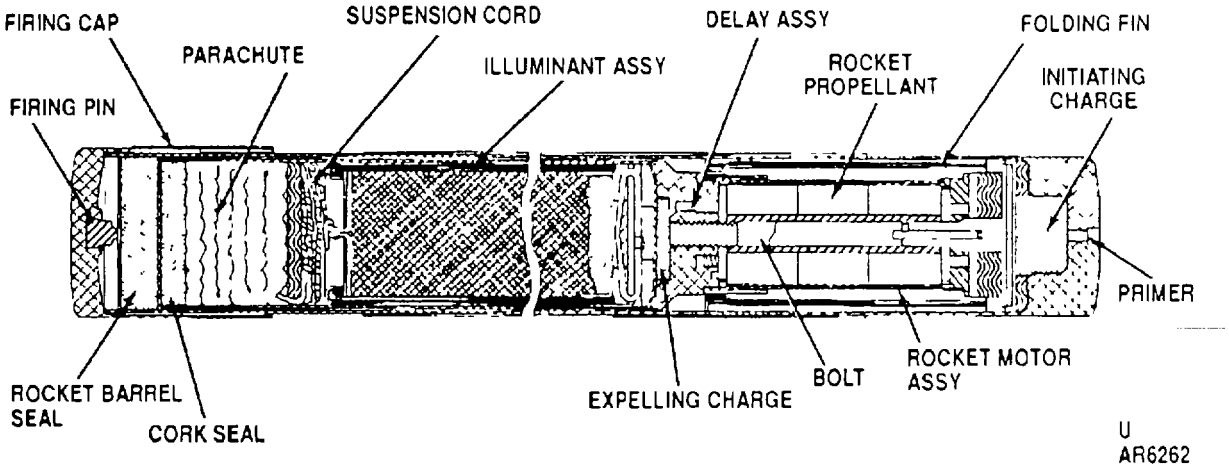
M125A1	8797920
M158	8797320-1
M159	8797320-2

References:

AMC-P 700-3-5
TM 9-1370-203-20&P
TM 9-1370-203-34&P
TM 9-1370-206-10

SIGNALS, ILLUMINATION. GROUND: PARACHUTES, RED STAR. M126A1 WHITE STAR M127A1; AND GREEN STAR M195





Type Classification:

M126A1 Std AMCTC 8237.
127A1 Std AMCTC 8237.
M195 Std AMCAMCTC 8600.

Use:

For daytime and nighttime signaling, and nighttime illumination in the case of the M127A1.

Description:

These signals consist of a parachute-suspended illuminant assembly and a rocket motor propulsion assembly contained in a handheld aluminum launching tube. The base of the launching tube contains a primer and initiating charge. As shipped, the firing pin cap is assembled to the forward end and must be reversed for firing. Stabilizing fins on the rocket are folded parallel to the axis of the signal. A bolt, which transfers the initiating charge flash to the propellant, extends into the center of the solid propellant filling the propulsion assembly. The parachute illuminant assembly is mounted on top od the propulsion assembly with a delay assembly and an expelling charge between them. The parachute with suspension cords is packed on top of the illuminant, and the tube end is sealed with a cork disk (Rocket barrel seal). A label specifying firing procedure is secured to the body of the signal.

Functioning:

When the firing cap is placed on the initiator end in preparation for firing the signal, the firing pin is aligned with the primer. Striking the primer with the firing pin fires the initiating charge to ignite the rocket propellant. As the rocket emerges from the launching tube, the fins extend for flight stability. Before rocket motor burnout at 200 feet, a delay charge ignites and burns for about 5 to 6 seconds, allowing the signal to reach an altitude of 700 to 750 feet. The expelling charge is ignited at delay burnout performing the two-fold function of expelling the illuminant/parachute assembly and igniting the first-fire composition of the illuminant assembly. Burning time is 30 seconds for M127A1 and 60 seconds for the M126A1 and M195.

Difference Among Models:

Colors of signals:	
M126A1	Red
M127A1	White
M195	Green

Tabulated Data:

Weight loaded	1.2 lb for all but M195 which is 1.3 lb
Length	10.16 in.
Diameter	1.67 in.
Method of actuation	Hand-held rocket launching mechanism
Body material	Aluminum
Color	White label w/black markings. Each signal has a rocket barrel seal the color of the signal.
Pyrotechnic charge:	
Type	Illuminant composition
Weight:	
M126A1	3.0 oz (80 grams)
M127A1	3.0 oz (80 grams)
M195	3.2 oz (90 grams)
Initiating charge:	
Type	Black powder
Weight	0.725 grams
Propelling charge:	
Type	Black powder composition (91% black powder, 9% calcium carbonate)
Weight	39.0 grams
Expelling charge:	
Type	Black powder
Weight	0.75 grams
Primer	Percussion No. 68
Performance:	
Delay	5 sec
Burning time:	
M126A1	50 sec minimum
M127A1	25 sec minimum
M195	50 sec minimum
Candlepowder (min):	
M126A1	10,000
M127A1	125,000
M195	5,000
*Packing	36 per box
NSN's:	
M126A1	1370-00-629-2336
M127A1	1370-00-753-1859
M195	1370-00-182-3408
*Packing Box:	
Weight	55 lb
Dimensions	15 x 13-7/16 x 13- 9/32 in.
Cube	1.5 cu ft
*Packing	1 per inner plastic pack (PA142) 24 per metal container (M548)
NSN's:	
M126A1	1370-01-343-1965
M127A1	1370-01-341-5159
M195	1370-01-342-6872
*Packing Container:	
Weight	53 lb
Dimensions	18-19/32 x 14-19/32 x 8-19/64 in.
Cube	1.3 cu ft
Packing Drawing	12900009

*NOTE: See SC 1340/98 IL for complete packing data including NSN's.

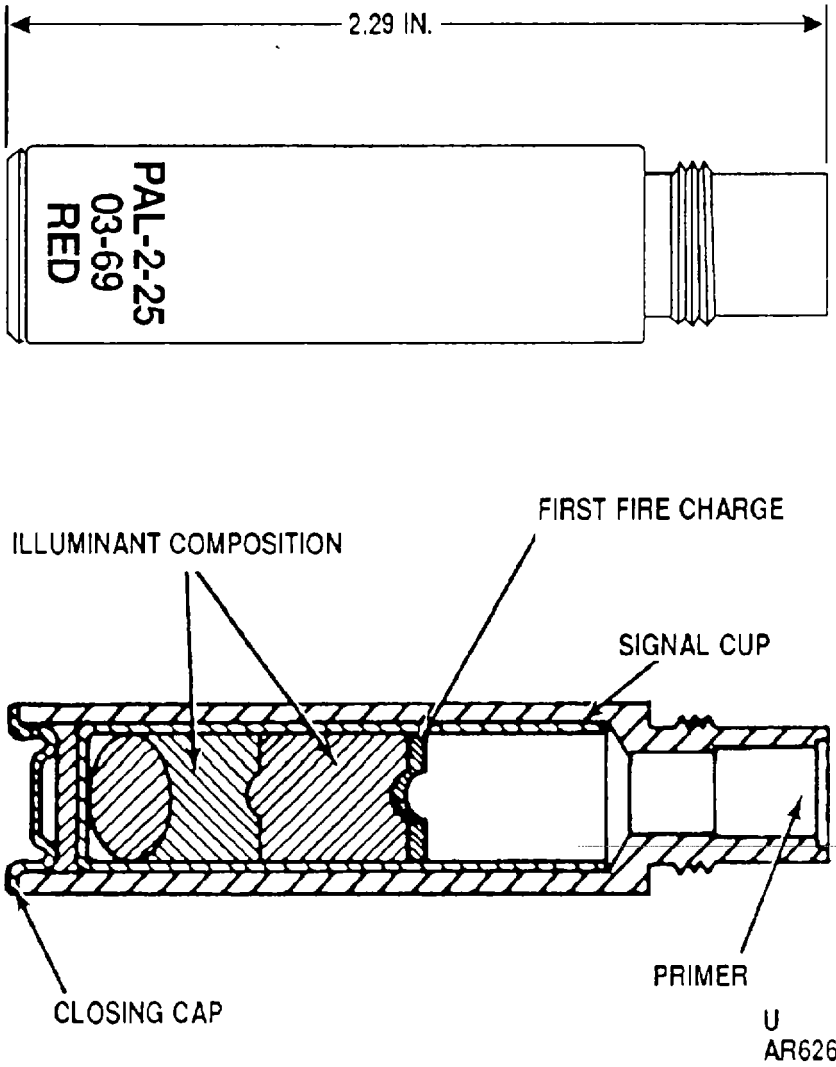
Shipping and Storage Data:

Quantity-distance class	1.3
Storage compatibility group	G
DOT shipping class	EXPLOSIVE B
DOT designation	SPECIAL FIREWORKS HANDLE CAREFULLY KEEP FIRE AWAY
DODAC:	
M126A1	1370-L311
M127A1	1370-L312
M195	1370-L305
Drawing number:	
M126A1	8797968
M127A1	8797968
M195	9255112

References:

AMC-P 700-3-5
TM 9-1370-203-20&P
TM 9-1370-203-34&P
TM 9-1370-206-10
SC 1340/98-IL

SIGNALS, ILLUMINATION, GROUND: RED, M187; WHITE, M188 GREEN, M189; AMBER, M190



Type Classification:

CON (all models) MSR 11756003.

Use:

For surface-to-air or air-to-surface signaling and are used in personnel Signal Kits M185 and M1836.

Description:

The signal bodies are made of aluminum and anodized to match the color of the candle, except for the white signal which has an aluminum colored body. The lower portion of the case has a smaller diameter and external threads, allowing assembly to the open end of the projector. A percussion primer is fitted in the base. The top of the signal is sealed by a steel cap. A ribbed plastic screw-on cap protects the primer end of the signal.

Functioning:

When the primer is struck by the firing pin of the handheld projector, it ignites the first-fire charge and also ejects the burning flare. The signal provides a minimum light intensity of 3200 candlepower for 5 seconds an attains an altitude of 360 feet.

Difference Among Models:

Color of illuminant and case.

Tabulated Data:

NSN:	
M187	1370-00-921-6118
M188	1370-00-921-6119
M189	1370-00-921-6120
M190	1370-00-921-6121
Weight loaded	16.0 grams
Length	2.29 in.
Diameter	0.5 in.
Method of actuation	Hand-held projector
Body material	Aluminum
Color	M187 anodized red; M188 aluminum; M189 anodized green; M190 anodized amber
Pyrotechnic charge:	
Type M187	Red illuminant composition
Type M188	White illuminant composition
Type M189	Green illuminant composition
Type M190	Amber illuminant composition
Weight	4 grams
Prime	Alcan 220 percussion
Performance:	
Delay	0 sec
Burning time	5 sec
Candlepower	3200 approx
Candleseconds	1600 approx
*Packing	1250 items per box; 50 items per pack
*Packing Box:	
Weight	81 lb
Dimensions	21-5/8 x 15-11/16 x 10-6/16 in.
Cube	2.1 cu ft

*NOTE: See SC 1340/98 IL for complete packing data including NSN's.

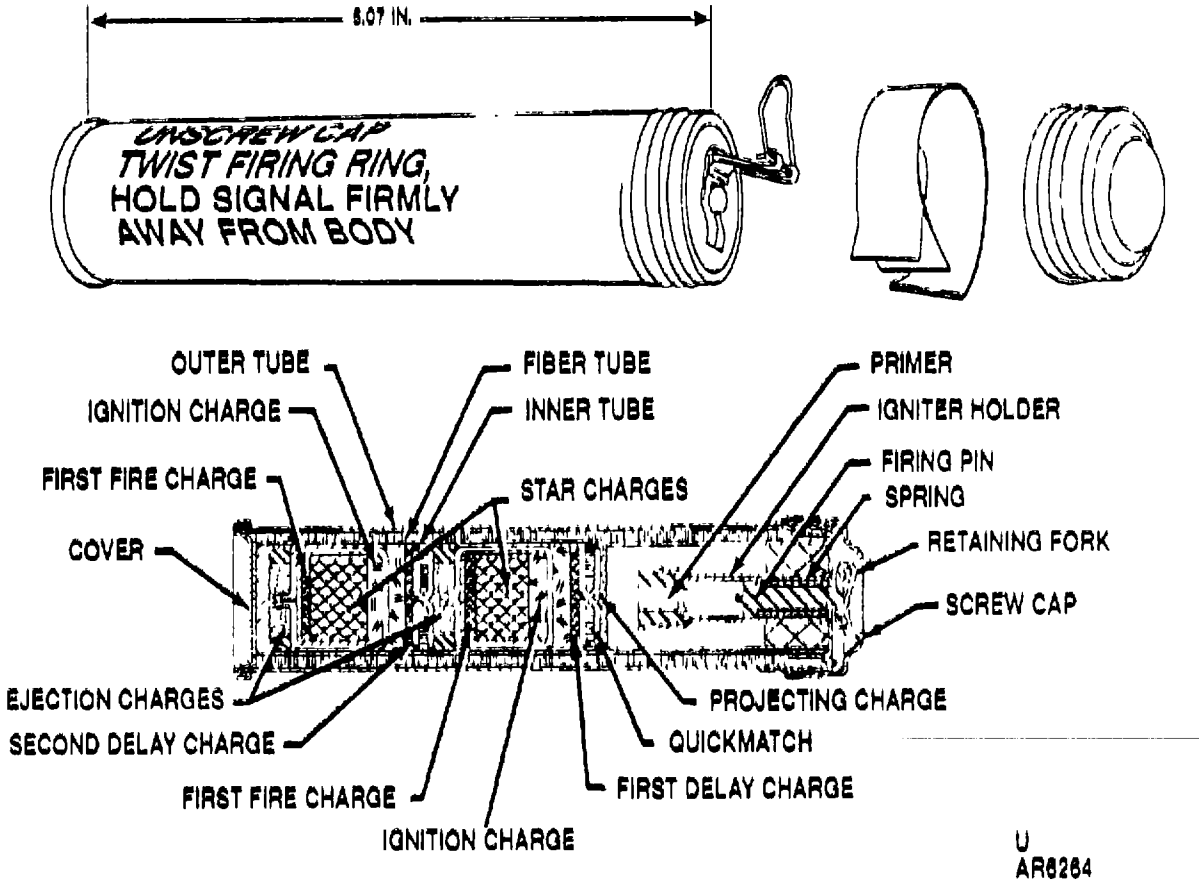
Shipping and Storage Data:

Quantity-distance class	1.3
Storage compatibility group	N
DOT shipping class	EXPLOSIVE C
DOT designation	HAND SIGNAL DEVICES HANDLE CAREFULLY KEEP FIRE AWAY
DODAC:	
M187	1370-L278
M188	1370-L279
M189	1370-L280
M190	1370-L281
Drawing numbers:	
M187	9230101-1
M188	9230101-3
M189	9230101-2
M190	9230101-4

References:

AMC-P 700-3-5
TM 9-1370-203-20&P
TM 9-1370-203-34&P
TM 9-1370-206-10

SIGNAL, ILLUMINATION, MARINE: TWO-STAR, RED, AN-M75



Type Classification:

Obs MSR 11756003.

Use:

As hand-held distress signal used by aircrew personnel forced down over water. The signal may be seen up to 3 miles on a clear day or 15 miles on a clear night.

Description:

The signal consists of an inner and an outer aluminum tube separated by a fiber tube. The outer tube is sealed at one end and closed at the other with a screw type cup and a tape strip. The inner tube contains the igniter holder assembly, a propelling charge, and two star charges. The igniter holder assembly consists of a spring actuated firing pin, a firing ring and retaining fork, a first-fire charge, and an ejection charge. These charges are fired in the proper sequence by lengths of a quickmatch. Firing instructions are printed on the outside of each signal.

Functioning:

Removing the retainer fork by pulling or twisting forcefully on the firing ring allows the spring loaded firing pin to fire the percussion primer. The flash from the primer ignites the igniter holder projecting charge, and also ignites the quickmatch leading the first delay charge. The igniter holder assembly is projected from the tube by the ignition of the projecting

charge. The first delay charge ignites the ignition charge and it, in turn, ignites the quickmatch leading to the first ejection charge and the first-fire charge of the first star charge. The first star charge is ejected and the first-fire charge ignites the first star charge at the height of the trajectory. The ejection charge also ignites the second delay charge, and the sequence just described is repeated: delay charge, ignition charge, quickmatch, second ejection charge, and first-fire charge. The time from actuation of the firing ring to full function of the first star is 2 to 4 seconds, and for the second 4. to 8 seconds. Burning time for the star charges is 4 to 6 seconds each.

Tabulated Data:

NSN	1370-00-028-6013
Weight loaded	0.34 lb
Length	5.07 in.
Diameter	1.20 in.
Method of actuation	Manual
Body material	Aluminum
Color	Red w/black markings
Pyrotechnic charge:	
Type	Red-Red composition
Weight	0.42 oz
Expelling charge:	
Type	Black powder
Weight	0.80 grams
Primer	Percussion M27
Performance:	
Delay	2 to 4 sec for first star 4 to 8 sec for second star
Burning time	4 to 6 sec for each star
Candlepower	8,000 (each star)
*Packing	5 per inner pack; 100 per box
*Packing Box:	
Weight	60.3 lb
Dimensions	22-3/16 x 9-1/4 x 14-5/32 in.
Cube	1.7 cu ft

*NOTE: See SC 1340/98 IL for complete packing data including NSN's.

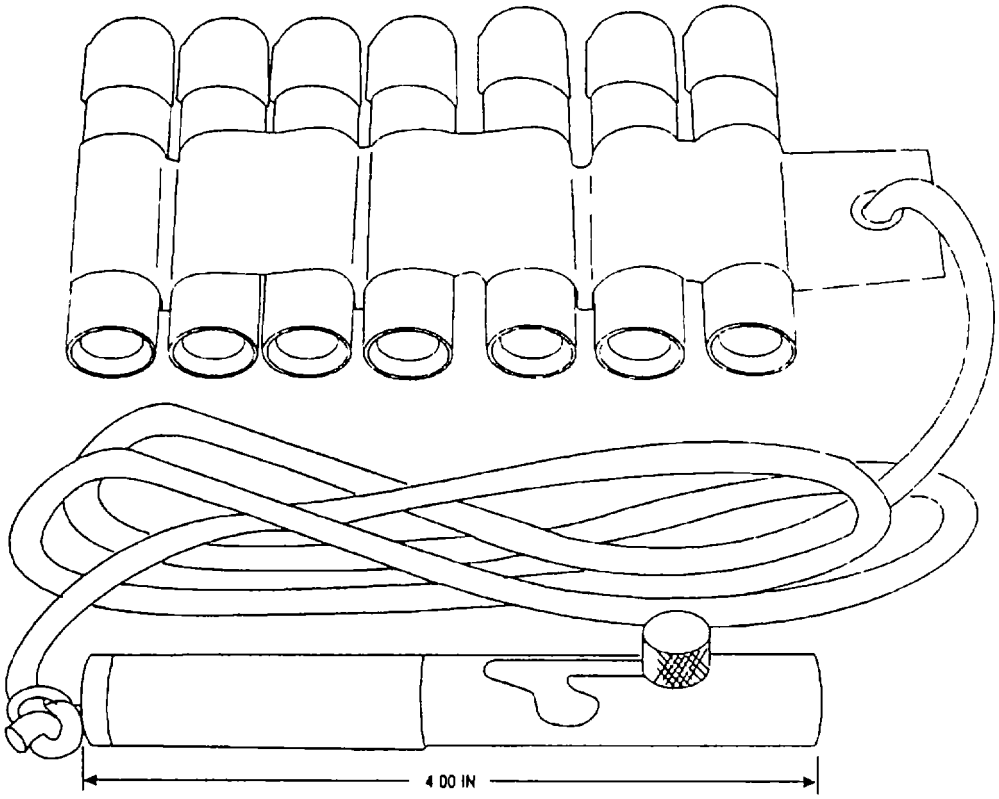
Shipping and Storage Data:

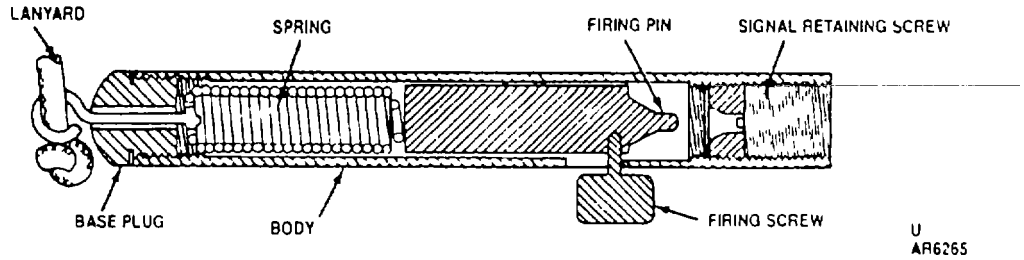
Quantity-distance class	2
Storage compatibility group	N
DOT shipping class	EXPLOSIVE B
DOT designation	SPECIAL FIREWORKS HANDLE CAREFULLY KEEP FIRE AWAY
DODAC	1370-L276
Drawing number	78-0-82

References:

AMC-P 700-3-5
TM 9-1370-203-20&P
TM 9-1370-203-34&P
TM 9-1370-206-10

SIGNAL KITS, PERSONNEL, DISTRESS: RED, M185 AND VARIOUS COLORS, M186





Type Classification:

Std AMCTC 7544.

Use:

As a distress signaling device by downed airmen or others.

Description:

Each of these kits consists of one hand-held projector, seven ground illumination signals, and an instruction sheet in a moisture vapor-proof barrier hag. Kit M185 is supplied with seven red ground Illumination Signals M187; Kit M186 is equipped with three red ground Illumination Signals M187, two green ground Illumination Signals M188, and two white ground Illumination Signals M189. The signals are held in a pressure sensitive tape bandoleer connected to the projector by a 36-inch lanyard. The projector body has internal threads at each end. An aluminum plug cap with a stainless steel eyebolt is threaded and staked to one end. The plug cap and lower portion of the projector body are knurled. A combination safety and firing slot is cut into the upper portion of the body. A stainless steel, spring-loaded firing pin is assembled inside the projector body. A stainless steel, knurled trigger screw is affixed to the firing pin.

Functioning:

The projector is first cocked by drawing back the trigger screw of the firing pin into the safety slot. Then the projectile is threaded onto the selected signal, after removing the plastic signal cap, without removing the signal from the bandoleer. Firing is accomplished by raising the projector overhead and releasing the firing pin screw from the safety slot with the thumb. The firing pin strikes a primer in the signal. The primer ignites the first fire charge and ejects the burning flare.

Difference Between Kits:

Color of signals in kit.

Tabulated Data:

NSN:	
M185	1370-00-921-6172
M186	1370-00-926-9387
Weight loaded	0.39 lb
Length:	
Projector	4 in.
Lanyard	36 in.
Signal	2.29 in.
Diameter:	
Projector	0.59 in.
Signal	0.5 in.
Method of actuation	From projector
Body material	Aluminum
Color	Black projector; anodized color coding on signals
Pyrotechnic charge:	
Type	Illuminant composition
Weight	4 grams
Primer	Alcan 220 percussion
Performance of charge:	
Burning time	5 sec
Candlepower	3200
*Packing	240 per box; 60 per inner pack
*Packing Box:	
Weight	135 lb
Dimensions	25 x 22-5/16 x 17-9/32 in.
Cube	5.7 cu ft

*NOTE: See SC 1340/98 IL for complete packing data including NSN's.

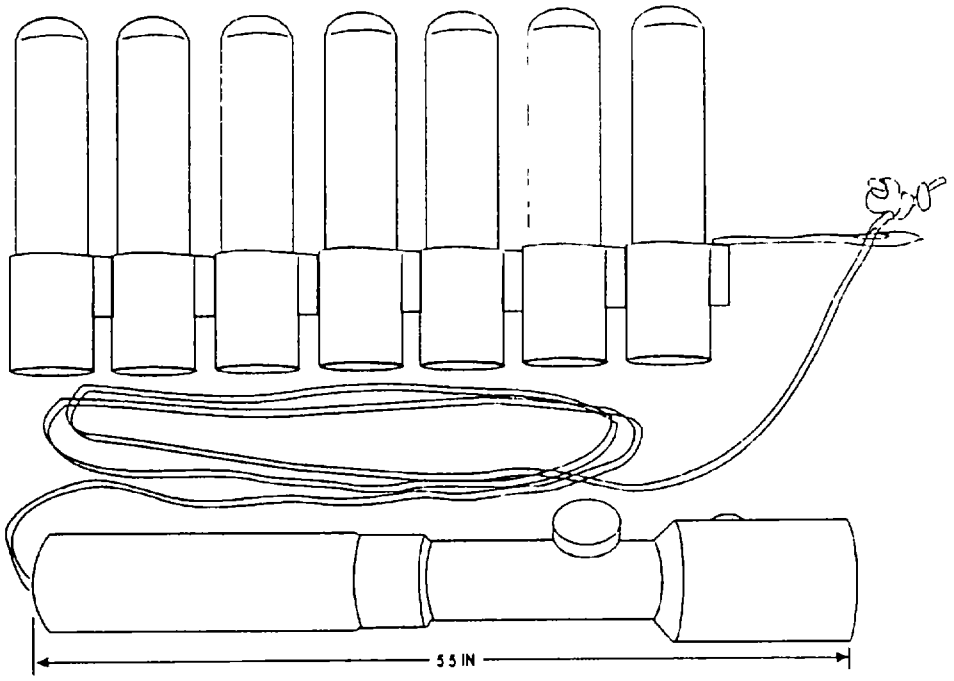
Shipping and Storage Data:

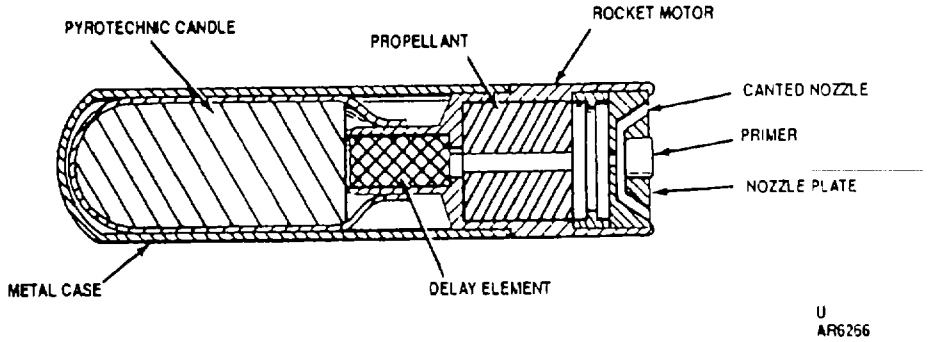
Quantity-distance class	1.4
Storage compatibility group	G
DOT sipping class	EXPLOSIVE C
DOT designation	HAND SIGNAL DEVICES HANDLE CAREFULLY KEEP FIRE AWAY
DODAC:	
Kit:	
M185	1370-L116
M186	1370-L117
Drawing number	9231549

References:

AMC-P 700-3-5
TM 9-1370-203-20&P
TM 9-1370-203-34&P
TM 9-1370-206-10

SIGNAL KIT, PERSONNEL DISTRESS: FOLIAGE PENETRATING, RED, M260





Type Classification:

This Signal Kit is a component of the survival kit vest type SRU-21/P (AMCTC 8808 STD A).

Use:

As a distress signaling device by downed airmen or others exposed to emergency escape and evasion situations.

Description:

The kit comes equipped with a hand fired projector and a bandoleer assembly which contains a plastic molded bandoleer holding seven red signals. The signals consist of small solid propellant rocket motors actuated by it percussion primer, a delay element, and a pyrotechnic candle in a metal case. 'The surface of the case is dyed red to match the color of the candle. The projector is black anodized aluminum, has a signal gripping device and a firing mechanism which consists of a free traveling firing pin with

a smooth actuation knob and spring. The projector is connected to the bandoleer by a 30-inch lanyard.

Functioning:

The nozzle end of the signal is inserted into the projector firmly until signal bottoms out. Firing is then accomplished by raising the signal overhead, aiming the desired direction, pulling the trigger knob to the rear of slot with thumb, and releasing quickly. The firing pin strikes a primer in the signal which ignites the propellant. Exhaust gases are expelled through the nozzle holes and propel the flare out of the projector in a spin stabilized flight. After traveling about 600 feet, the payload ignites causing separation from the rocket motor. Burning time is approximately 10 seconds and provides a 10,000 candlepower illumination visible for 15 to 20 miles.

Tabulated Data:

NSN	1370-00-490-7362
Weight loaded	3.2 oz
Length:	
Projector	5.5 in.
Lanyard	30 in.
Signal	2 in.
Diameter:	
Projector	0.8 in.
Signal	0.5 in.
Method of actuation	From a projector
Body material	Aluminum
Color	Black anodized projector
Pyrotechnic charge:	
Type	Illuminant composition
Weight	0.5 oz
Performance of charge:	
Burning time	10 sec
Candlepower	10,000
Packing	100 signal kits/box
Packing Box:	
Weight	100 signal kits -90 lb
Dimensions	32-3/4 x 19-3/8 x 11 in.
Cube	8 cu ft

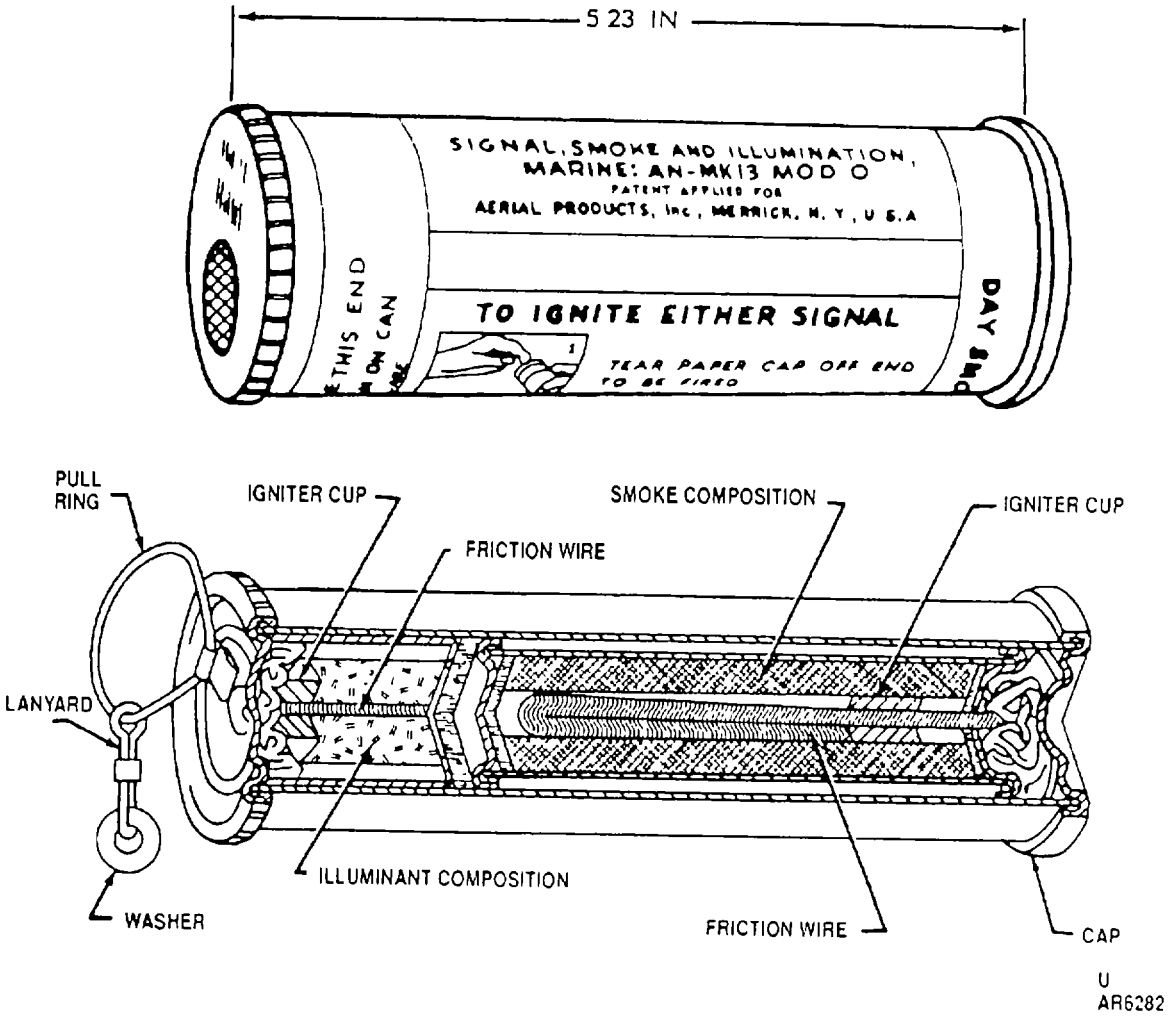
Shipping and Storage Data:

Quantity-distance class	1.3
Storage compatibility group	G
DOT shipping class	CLASS C
DOT designation	COMMON FIREWORKS HANDLE CAREFULLY KEEP FIRE AWAY
DODAC:	
Kit, A/P 258-5A	1370-L119

References:

TM 9-1370-203-20&P
TM 9-1370-203-34&P
TM 9-1370-206-10

SIGNAL, SMOKE AND ILLUMINATION, MARINE: AN-MK 13 MOD O



Type Classification:

Navy Item not classified in Army System.

Use:

For day or night use by aircraft crewmen downed at sea.

Description:

The signal is a metal cylinder filled with illuminant composition in one end and smoke composition in the other. Each end is fitted with a plastic protective cap covering a pull ring and lanyard. The cap on the flare end has three molded protrusions or beads on the face for night identification. The smoke end cap is smooth. The lanyard on the flare end pull ring has a washer tied to the end for further identification in the darkness. Each pill ring is connected to a friction wire extending through the internal igniter cup containing ignition composition. A label around each end and provides precise instructions for use.

Functioning:

When the ring on either end is pulled, the friction wire sparks the ignition compound in the igniter cap to initiate combustion of either the illuminant or the smoke composition. The smoke composition produces smoke for 18 seconds for daytime use and the nighttime illuminant candle will burn with a red flame for 18 to 20 seconds with a minimum of 3000 candle-power. Use of either end does not impair the future usefulness of the other.

Tabulated Data:

NSN	1370-00-309-5028
Weight loaded	0.40 lb
Length	5.37 in.
Diameter	1.63 in.
Method of actuation	Manual
Body material	Steel
Color	Gray w/black markings on decal
Pyrotechnic charge:	
Type	Smoke and illuminant
Weight:	
Flare comp	1 oz
Smoke comp	2 oz
Primer	Friction
Performance:	
Delay	0 sec
Burning time	Light 18-20 sec; smoke 18 sec
Candlepower	3,000 (min)
*Packing	108 per box; 12 per inner pack
*Packing Box:	
Weight	80 lb
Dimensions	28 x 8-5/8 x 22-9/16 in.
Cube	3.2 cu ft

*NOTE: See SC 1340/98 IL for complete packing data including NSN's.

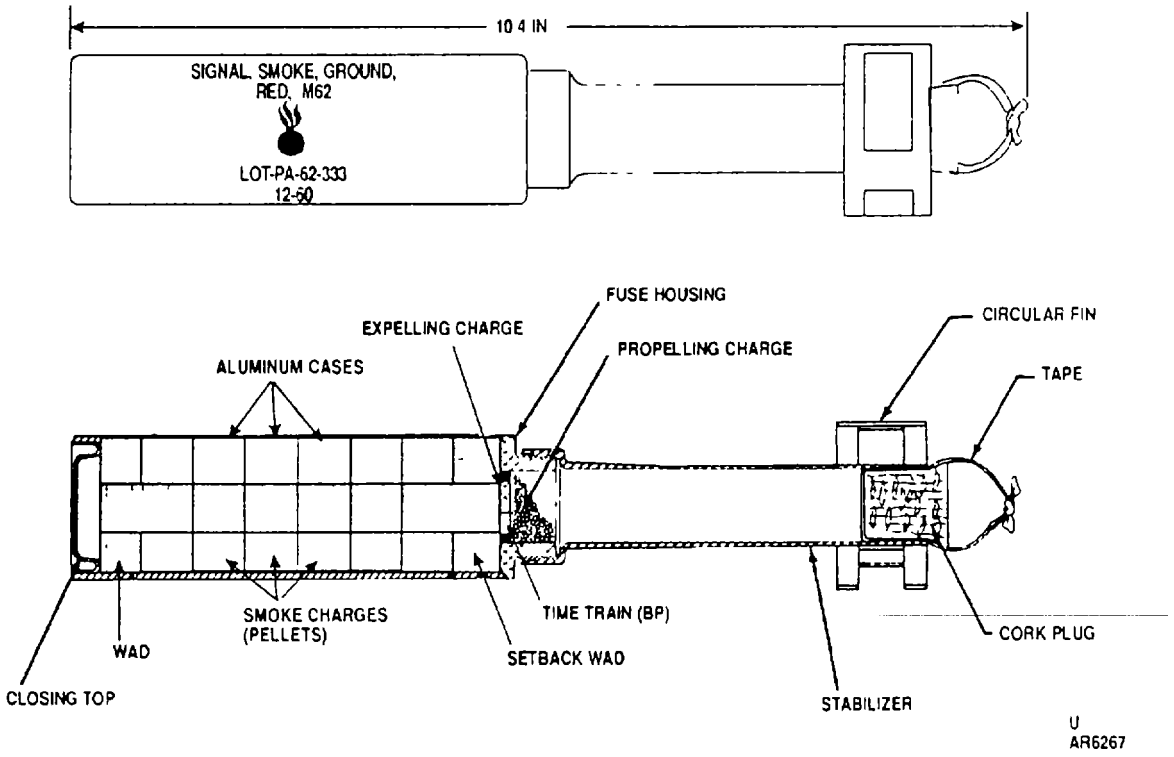
Shipping and Storage Data:

Quantity-distance class	2
Storage compatibility group	N
DOT shipping class	EXPLOSIVE B
DOT designation	SPECIAL FIREWORKS HANDLE CAREFULLY KEEP FIRE AWAY
DODAC	1370-L275
Drawing number	712793

References:

AMC-P 700-3-5
TM 9-1370-203-20&P
TM 9-1370-203-34&P
TM 9-1370-206-10

SIGNALS, SMOKE, GROUND: RED, M62; YELLOW, M64; GREEN, M65; VIOLET, M66



Type Classification:

M62 Obs MSR 11756003.
M64 Obs MSR 11756003.
M65 Obs MSR 11756003.
M66 LSD OTCM 36841.

Use:

For signaling during the daylight.

Description:

Each signal consists of an expelling charge and six smoke charges. The signal case, closed at the nose end with a steel closing top, is a drawn aluminum body secured at the base to an aluminum fuse housing. The fuse housing has a circular time train groove filled with black powder and a smokeless powder propelling charge. A retaining disk holds the charge in place. A stabilizer, consisting of a hollow steel tube with a circular tail fin, is threaded to the fuse housing. The open end is closed, prior to firing, by a cork plug with a removal tape.

Functioning:

Flash from the M64 grenade launcher cartridge passes through the stabilizer to ignite the propelling charge, and the burning propellant ignites the 5.5 second delay train. Near the top of the trajectory, the time train initiates the expelling charge. The expelling charge ejects and ignites the smoke charges out through the top of the case. As the charges descend tumbling from the trajectory height of approximately 600 feet, colored smoke streamers are emitted. The streamers will persist for about 20 seconds in a 5 MPH wind and may be seen up to 3 miles in clear weather.

Difference Among Models:

Color of smoke:

M62	Red
M64	Yellow
M65	Green
M66	Violet

Tabulated Data:

NSN's:

M62	1370-00-028-5999
M64	1370-00-028-6000
M65	1370-00-028-6001
M66	1370-00-028-6002
Weight loaded	0.89
Length	10.40 in.
Diameter	1.88 in.
Method of actuation	Fired from M76 grenade launcher
Body material	Aluminum
Color	Band with color of smoke, markings in black

Pyrotechnic charge:

Type-M62	Red composition
Type-M64	Yellow composition
Type-M65	Green composition
Type-M66	Violet composition
Weight	4.26 oz

Propelling charge:

Type	Smokeless powder
Weight	1.11 grams

Performance:

Delay	5.5 sec
Burning time (smoke)	4-8 sec
*Packing	30 items per box

*Packing Box:

Weight	55 lb
Dimensions	18-1/4 x 12-1/2 x 13-21/32 in.
Cube	1.8 cu ft

*NOTE: See SC 1340/98 IL for complete packing data including NSN's.

Shipping and Storage Data:

Quantity-distance class	2
Storage compatibility group	N
DOT shipping class	EXPLOSIVE B
DOT designation	SPECIAL FIREWORKS HANDLE CAREFULLY KEEP FIRE AWAY

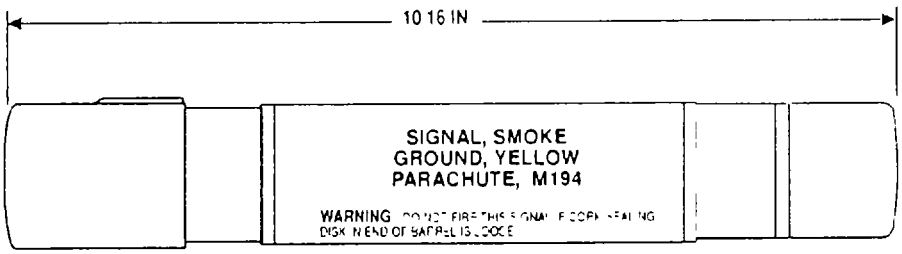
DODAC:

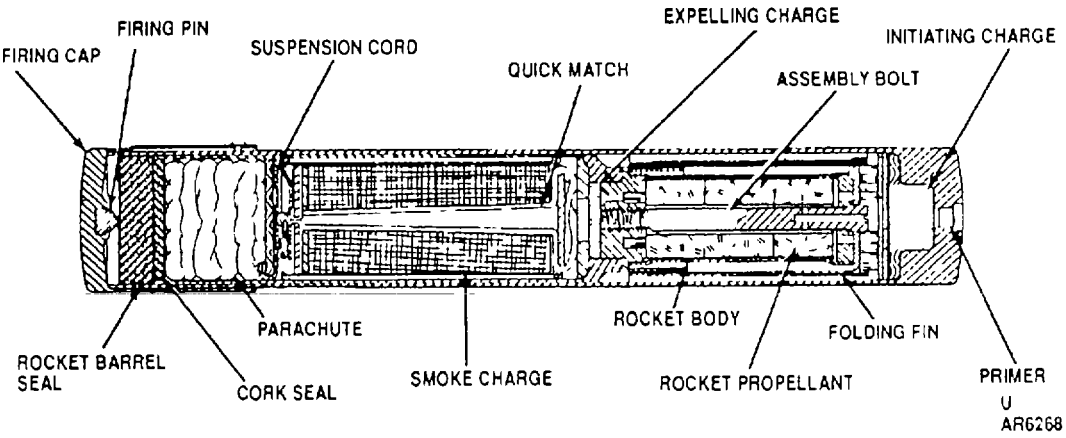
M62	1370-L320
M64	1370-L322
M65	1370-L318
M66	1370-L321
Drawing number	78-0-106

References:

AMC-P 700-3-5
TM 9-1370-203-20&P
TM 9-1370-203-34&P
TM 9-1370-206-10

SIGNALS, SMOKE, GROUND: PARACHUTE, GREEN, M128A1; RED, M129A1; YELLOW, M194





Type Classification:

M128A1 Std OTCM.
M129A1 Std OTCM.
M194 Std AMCTC.

Use:

For day or night signaling.

Description:

Parachute smoke signals consist of a parachute-suspended smoke composition element and a rocket motor propulsion assembly enclosed in a hand-held aluminum launching tube. The base of the tube contains a primer and an initiating charge. As shipped. the firing pin cap is assembled to the forward end and must he reversed for firing. Stabilizing fins on the rocket are folded parallel to the axis of the signal. An assembly bolt which also transfers the initiating charge flash to the propellant extends into the center of' the solid propellant filling the propulsion assembly. The parachute with suspension cord is packed on top of the smoke charge, and the tube end is sealed with a rocket barrel seal. A label specifying the firing procedure is affixed to the body of the signal.

Functioning:

When the firing cap is placed on the initiator end in preparation for firing the signal, the firing pin is aligned with the primer. Striking the primer with the firing pin fires the initiating charge to ignite the rocket propellant. As the rocket emerges from the launching tube, the fins extend for flight stability. Before rocket motor burnout at 200 feet, a delay charge ignites and burns for about 5 to 6 seconds, allowing the signal to reach an altitude of 700 to 750 feet. The expelling charge is ignited at delay burnout performing the two-fold function of expelling the smoke charge and

parachute and at the same time, igniting the smoke composition. The parachute deploys to lower the smoke element slowly. The signal will produce smoke for 6 to 18 seconds leaving a high visible smoke cloud before burnout at 500 to 600 feet.

Difference Among Models:

The principal difference is the color of smoke.

Tabulated Data:

Weight loaded:	
M128A1 and M129A1	1.3 lb
M194	1.2 lb
Length	10.16 in.
Diameter	1.67 in.
Method of actuation	Hand-held rocket launcher
Body material	Aluminum
Color	White label w/black markings. Each signal has a rocket barrel seal the color of the signal.
Pyrotechnic charge:	
Type	Colored smoke compositions
Weight:	
M128A1 and M129A1	2 oz (57 grams)
M194	70 grams
Initiating charge:	
Type	Black powder
Weight	0.725 grams
Expelling charge:	
Type	Black powder
Weight	0.75 grams
Propelling charge:	
Type	Black powder
Weight	39.0 grams
Primer	Percussion No. 68
Performance:	
Delay	5.0 sec
Burning time:	
M128A1	6-18 sec
M129A1	6-18 sec
M194	9-18 sec
*Packing	36 per box
NSN's:	
M128A1	1370-00-301-1131
M129A1	1370-00-301-3132
M194	1370-00-182-3396
*Packing Box:	
Weight	55 lb
Dimensions	15 x 13-7/16 x 13- 9/32 in.
Cube	1.5 cu ft
*Packing	1 per inner plastic pack (PA142) 24 per metal container (M548)
NSN's:	
M128A1	1370-01-341-6283
M129A1	1370-01-342-3842
*Packing Container:	
Weight	53 lb
Dimensions	18-19/32 x 14-19/32 x 8-19/64 in.
Cube	1.3 cu ft
Packing Drawing	12900009

*NOTE: See SC 1340/98 IL for complete packing data including NSN's.

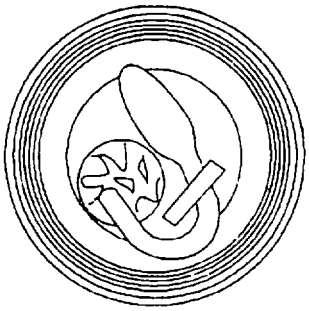
Shipping and Storage Data:

Quantity-distance class	2
Storage compatibility group	N
DOT shipping class	EXPLOSIVE B
DOT designation	SPECIAL FIREWORKS HANDLE CAREFULLY KEEP FIRE AWAY
DODAC:	
M128A1	1370-L324
M129A1	1370-L323
M194	1370-L293
Drawing number:	
M128A1 and M129A1	8797996
M194	9255782

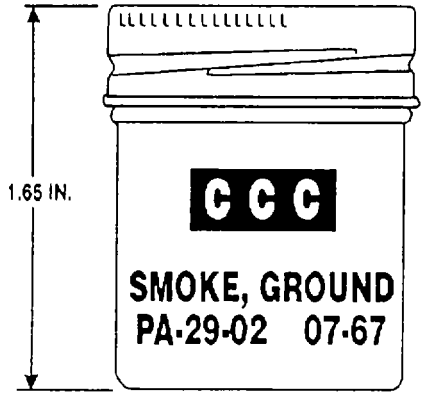
References:

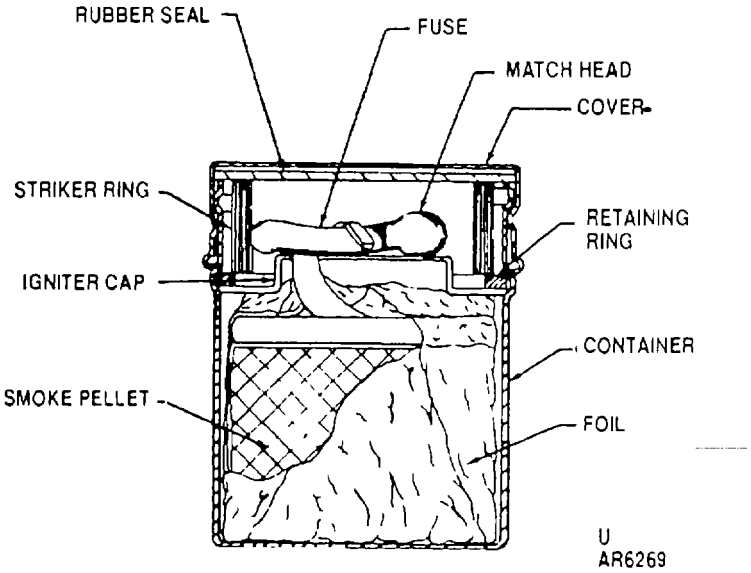
AMC-P 700-3-5
TM 9-1370-203-20&P
TM 9-1370-203-34&P
TM 9-1370-206-10

SIGNALS, SMOKE, GROUND: WHITE, M166 GREEN, M167; RED, M168; YELLOW, M169



SIGNAL WITH
COVER REMOVED





Type Classification:

OBS MSR 11756003 (All models).

Use:

By ground troops for self-identification and location signaling.

Description:

Each signal consists of a cylindrical smoke pellet, a fuse (thermalite-type ignitacord), an igniter cap, an internal retaining ring, and a striker ring assembled in an aluminum container. The container has a screw-on cover with a rubber disk seal. The fuse is attached to one end of the smoke pellet and is coiled on top of the smoke pellet. The cut end of the fuse is dipped in match composition and is formed into a match head. Aluminum foil is folded and hand pressed around the pellet and a portion of the fuse. Two books of matches in individual hags are provided as a secondary means of igiting the fuse.

Functioning:

Ignition of the fuse is ;accomplished by friction of the striker ring against the match head. or by lighting with a match. Within 2 to 8.5 seconds, a smoke cloud is emitted that lasts for a period of 13 to 30 seconds. The smoke cloud is visible at a slant range of 3,281 feet 1,000 meters) from aircraft at an altitude of 1,000 feet (305 meters).

Difference Among Models:

Color of smoke.

Tabulated Data:

NSN's:
M1661370-00-926-1931
M1671370-00-926-1930
M1681370-00-926-1933
M1691370-00-926-1932
Weight loaded ..... 40 grams for M166
27 grams for others

Tabulated Data - (Cont):

Length .....1.65 in.
Diameter .....1.25 in.
Method of actuation .....Manual
Body material .....Aluminum
Color Black markings
and colored C's corresponding to smoke color
Pyrotechnic charge:
Type----------Colored smoke compositions
Weight----------18 grams for all but M166, (28 grams)
Primer ----------Friction
Performance:
Delay----------2-8.5 sec
Burning time----------13-30 sec
*Packing ----------240 per box; 6 per inner pack
*Packing Box:
Weight ----------56 lb
Dimensions ----------15-5/8 x 13-9116 x 10-11/32 in.
Cube----------1.2 cu ft

*NOTE: See SC 1340/98 IL for complete packing data including NSN's.

Shipping and Storage Data:

Quantity-distance class----------2
Storage compatibility group ..... N
DOT shipping class----------B
DOT designation ----------SPECIAL FIREWORKS HANDLE CAREFULLY KEEP FIRE AWAY
DODAC:
M1661370-L340
M1671370-L341
M1681370-L342
M1691370-L343
Drawing number 9212733

References:

AMC-P 700-3-5
TM 9-1370-203-20&P
TM 9-1370-203-34&P
TM 9-1370-206-10

CHAPTER 5

SIMIULATORS

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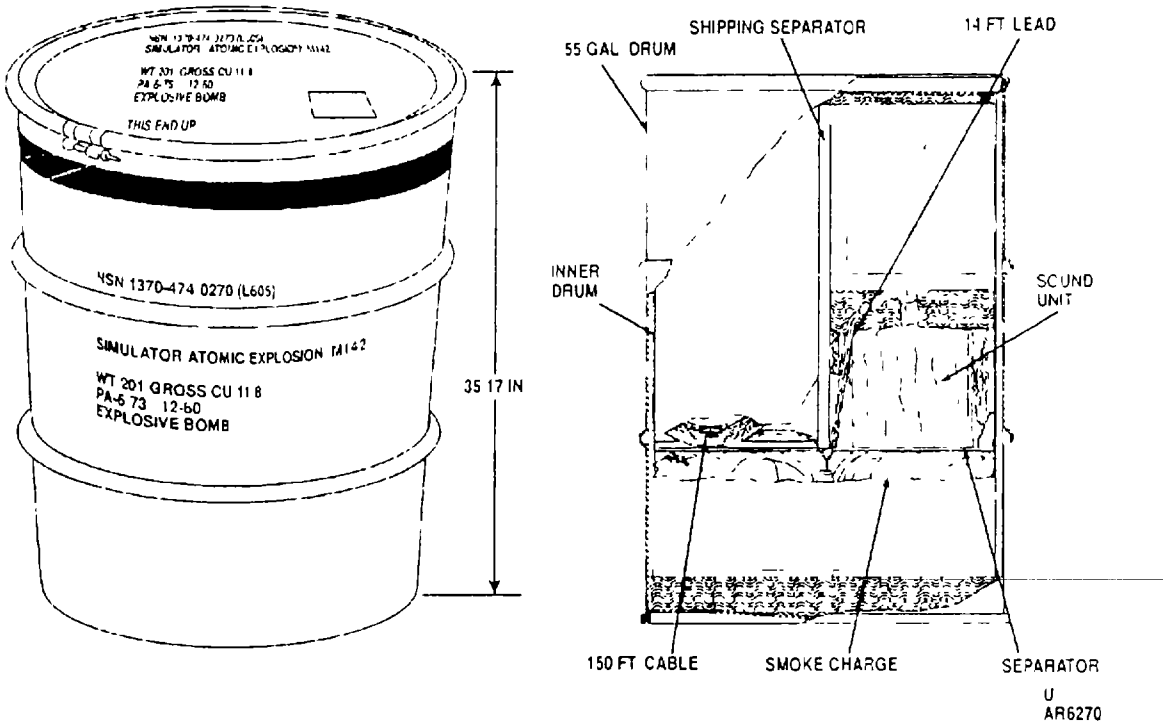
SIMULATOR, ATOMIC EXPLOSION: M142



Type Classification:

Std OTCM 37405.

Use:

To simulate a ground-detonated nuclear explosion.

Description:

Within the 55-gallon steel drum is an inner drum of water-resistant fiberboard housing the smoke charge, sound unit, and electric cable. The smoke charge, a pyrotechnic compound of five equal increments, is located at the bottom of the fiber drum in five cotton duck bags. A five-fingered cloth igniter bag is attached to the individual charges. Separated from the smoke charge by a circular chipboard separator is a sound unit consisting of a sound charge in a Kraft paper bag enclosed in a twine-reinforced chipboard cylinder. The sound unit is rolled in several thicknesses of cushioning material for protection during handling and transportation. A 150-foot length of electric cable is stored adjacent to the sound unit but separated from it by a shipping separator. A 14 foot, electric lead between the ends of the cable and the squibs on the sound unit allow the sound unit to be placed at a safe distance from the drum prior to activation. The ends of the cable are also attached. to the squibs in the five-fingered igniter bag. The free ends of the 150-foot cable terminate in two alligator clips. A warning label is attached to the outside ,of each container, and one set of operating instruction is packed inside each container.

Functioning:

Prior to firing this simulator the sound unit is removed from the drum and positioned downwind the full length of its electric lead, about 14 feet. Electrical firing of the squibs in the sound unit and in the igniter bag is from a fully charged 12 or 24 volt automotive-type battery. Burning time is 1.8-2.4 seconds. The simulator produces a bright flash, a loud report, and a mushroom-shaped cloud.

Tabulated Data:

NSN 1370-00-474-0270
Weight loaded ..... 190-199 lb
Length 35.17 in.
Diameter ..... 23.9 in.
Method of actuation ..... Electric squibs
Body material ..... Steel
Color White w/black markings and brown band
Pyrotechnic charge:
  Type Smoke charge
  Weight ..... 104 lb (1744 oz)
  Type Sound composition
  Weight ..... 4 lb (1814.4 grams)
Primer Electric squib S67, BP 325
Performance:
  Delay ..... 0 sec
  Burning time ..... 1.8-2.4 sec
  Cloud ..... Fireball, 10 ft minimum diameter
*Packing ..... One per 55 gal drum
*Packing Box:
  Weight ..... 190-199 lb
Dimensions:
  Diameter ..... 23-5/8 in.
  Length ..... 35-1/16 in.
  Cube 11.8 cu ft
  *NOTE: See SC 1340/98 IL for complete packing data including NSN's.

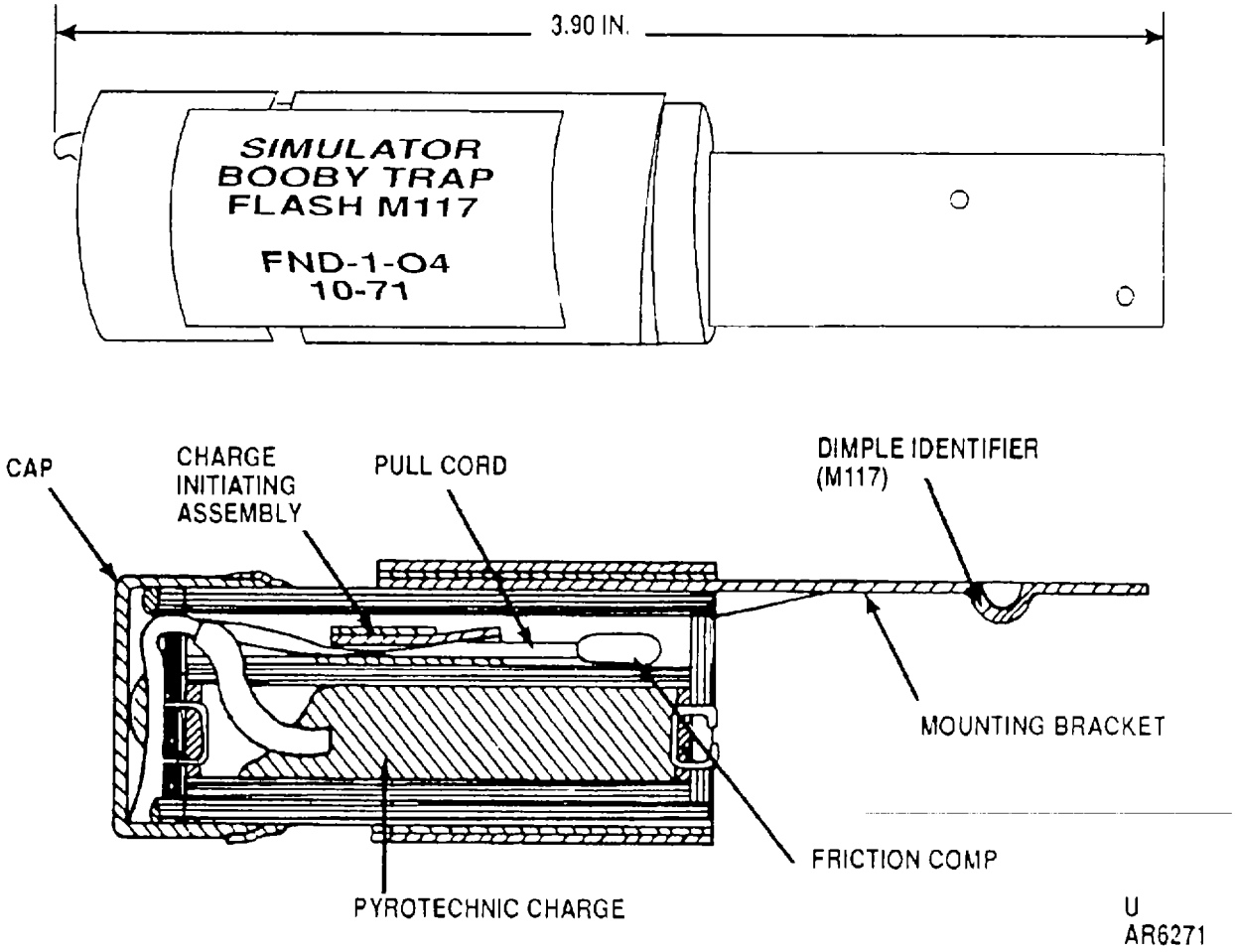
Shipping and Storage Data:

Quantity-distance class 7
Storage compatibility group ..... Q
DOT shipping class ..... EXPLOSIVE A
DOT designation ..... EXPLOSIVE BOMB
DODAC 1370-L605
Drawing number 8864243

References:

AMC-P 700-3-5
TM 9-1370-203-20&P
TM 9-1370-203-34&P

SIMULATORS, EXPLOSIVE BOOBYTRAP: FLASH, M117; ILLUMINATING, M118: WHISTLING, M119



Type Classification:

Std OTCM :36i841.

Use:

As safe boobytraps during maneuvers and in troop training to teach the installation, detection and use of boobytraps, and to install caution in troops exposed to traps set by an enemy

Description:

The simulators consists of a cylindrical outer tube and a flat, metal nailing bracket extending from one end of the tube. Located within the outer tube is a charge initiating, assembly and inner tube containing a pyrotechnic charge. Running through the initiating assembly is a length of pull cord. One end of the cord is covered with a friction composition, the other end is coiled and a strip of tape. The M117 simulator has a dimple in the mounting bracket for additional identification at night. Issued with each simulator is a spool of tripwire, an extension spring three staples, and four nails for boobytrap installation.

Functioning:

Movement of the end of the pull cord through the charge-initiating assembly produces an ignition flash. This flash is transmitted into the flash tube directly Igniting the, pyrotechnic charge. Functioning differs among the three models. (See Tabulated Data.)

Difference Among Models:

Effect produced on initiation:
- M117 Explosion, flash and sound
- M118 Illumination
- M119 Whistle sound

Tabulated Data:

NSN's:
- M117 1370-00-028-5256
- M118 1370-00-028-5257
- M119 1370-00-028-5255

Weight loaded:
- M117 0.14 lb
- M118 0.14 lb
- M119 0.15 l1b

Length:
- M117 3.9 in.
- M118 3.9 in.
- Ml1.9 4.4 in.

Diameter ..... 0.98 in. (all)
Method of actuation ..... Tripwire
Body material ..... Kraft paper
Color White w/black markings
Pyrotechnic charge:
Type
- M117 Flash composition (loose)
- M118 Illumination composition (consolidated)
- M119 Whistle composition (consolidated)

Weight:
- M117 0.09 oz
- M118 0.18 oz
- M119 0.12 oz

Initiator Pull cord (match)! charge initiating assembly (scratcher assembly)

Performance:
Delay ..... None
Functioning time:
- M117 Instantaneous explosion
- M118 28 sec minimum flame
- M119 2.5 to 5 sec whistle

*Packing ..... 150 per box; 5 per inner pack
*Packing Box:
Weight ..... 47 lb
Dimensions ..... 17-1/2 x 13-11/16 x 10-23/32 in.
Cube 1.5 cu ft

*NOTE: See SC 1340/98 IL for complete packing data including NSN's.

Shipping and Storage Data:

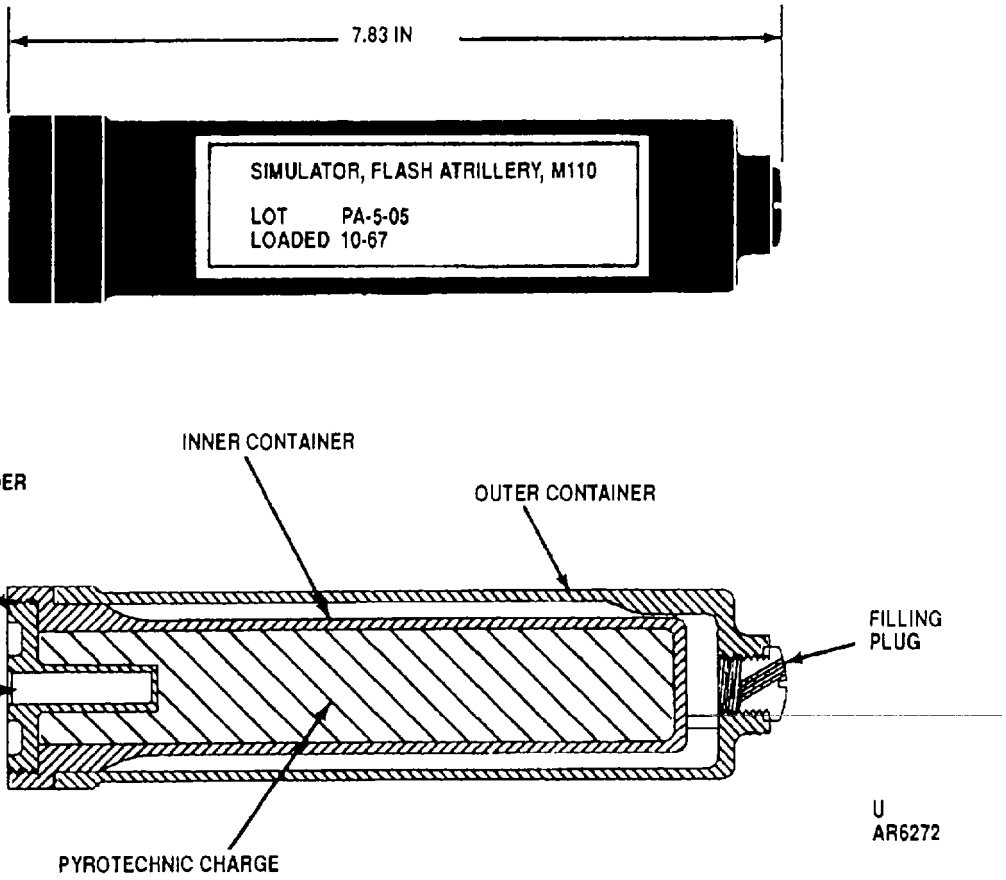
Quantity-distance class 2
Storage compatibility group ..... N
DOT shipping class ..... EXPLOSIVE B
DOT designation ..... SPECIAL FIREWORKS HANDLE CAREFULLY KEEP FIRE AWAY
DODAC:
- M117 1370-L598
- M118 1370-L599
- M119 1370-L600

Drawing number:
- M117 8848600
- M118 8848601
- M119 8848602

References:

AMC-P 700-3-5
TM 9-1370-203-20&P
TM 9-1370-203-34&P

SIMULATOR, FLASH, ARTILLERY: M110



Type Classification:

Std OTCM 36841.

Use:

To effect battle conditions in artillery maneuvers and as a decoy in forward combat areas. Its flash closely resembles those of the 90mm Gun M2 series and the 155mm Howitzer M1 series (particularly with Charge 5).

Description:

Simulator. The simulator consists of an inner container and an outer container, both of black plastic. The inner container, containing the pyrotechnic charge, is closed at one end and internally threaded at the base to receive the adapter holder. The outer container seats upon the shoulder of the inner container at the base and is internally threaded to accept a filling plug at the other end. A commercial squib S93 is shipped with each round. Preparation for tiring includes installation of the squib into the adapter holder, and pouring 70 cubic centimeters of gasoline through the filler hole into the space between the inner and outer containers.

Firing Tube. A locally fabricated firing tube is required to discharge the simulator. The steel tube is 10 inches long, 3 inches outer diameter, 2-9/16 inner diameter. A steel plate 3 inches in diameter by 3/4 inch thick is welded to bottom of tube.

Functioning:

The simulator is electrically activated and discharged in a locally fabricated steel firing tube. A minimum current of 1/2 ampere is required for actuation of the squib and the current source may be a battery or a blasting machine. The electric squib ignites the pyrotechnic charge and the gasoline. The simulator flash lasts slightly longer than that of the actual weapon. Its report is loud, but not comparable to the actual weapon report.

Tabulated Data:

Simulator M110:

NSN	1370-00-935-1969
Weight loaded	0.76 lb
Length	7.81 in.
Diameter	1.88 in.
Method of actuation	Fired from tube but actuated by blasting machine or battery
Body material	Plastic
Color	Black w/white label and black markings

Pyrotechnic charge:

Type	Flash composition
Weight	3.0 oz (85 grams)
Primer	Electric squib S93

Performance:

Delay	0 sec
Burning time	Instantaneous
*Packing	30 per box

*Packing Box:

Weight	55 lb
Dimensions	19-5/8 x 14-7/16 x 10-31/32 in.
Cube	1.8 cu ft

*NOTE: See SC 1340/98 IL for complete packing data including NSN's.

Shipping and Storage Data:

Quantity-distance class	2
Storage compatibility group	N
DOT shipping class	EXPLOSIVE B
DOT designation	SPECIAL FIRE-WORKS HANDLE CAREFULLY KEEP FIRE AWAY
DODAC	1370-L596
Drawing number	8848614

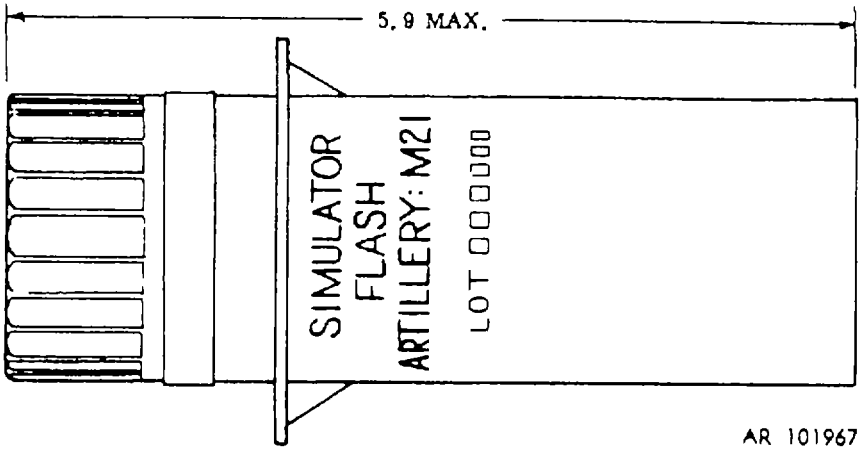
Firing Tube (Locally Fabricated):

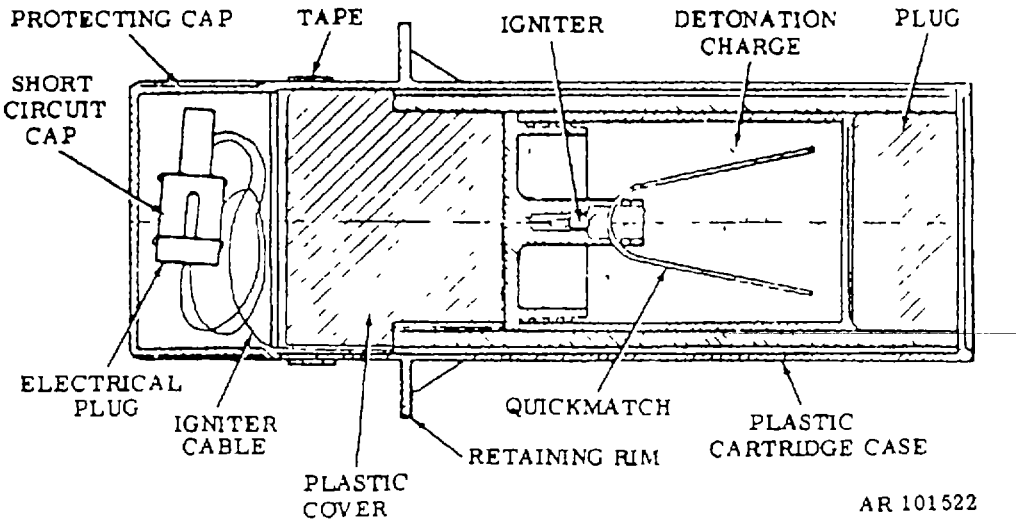
Tube, body	Steel
Length	10 in.
Outer diameter	3 in.
Inner diameter	2-9/16 in.
Plate, steel	3 in. diameter by 3/4 in. Thick

References:

AMC-P 700-3-5
TM 9-1370-203-20&P
TM 9-1370-203-34&P

SIMULATOR, FLASH, ARTILLERY: M21





Type Classification:

STD LCC-A (MSR 0379001).

Use:

To simulate the acoustic (bang) and optional (flash and smoke) signature of tank main gun. Firing is from the Simulator Tank Gunfire: Main Gun Weapons Effect Signature.

Description:

The cartridge consists of an outer, plastic case encompassing two sections which are taped together. The upper section is a protective cap and is removed prior to loading and firing. The hollow space within the cap houses the ignition leads and plug used to electrically initiate the cartridge. The lower section is loaded into the firing drums of the simulator and contains the pyrotechnic charge and electrical igniter assembly. The plastic case is provided with a retaining rim which presses against the inner wall of the drum to prevent the cartridge from falling out.

Functioning:

Nine cartridges are inserted singly into the nine firing drums of the Simulator Tank Gunfire: Main Gun Weapons Effect Signature and electrically connected by their plugs to the corresponding sockets of the firing drums. The simulator is mounted on the tank's main gun tube and each cartridge is activated electrically upon depressing the main gun trigger. The cartridges function in place to produce the audible and visual simulation of the tank gun. After each round is expended, a firing device automatically prepares the next round for firing. The simulator is adaptable to the following US combat vehicles: M60, M60A1, M60A2, M60A3, M48, M48A3, M48A5, M551, and the XM1.

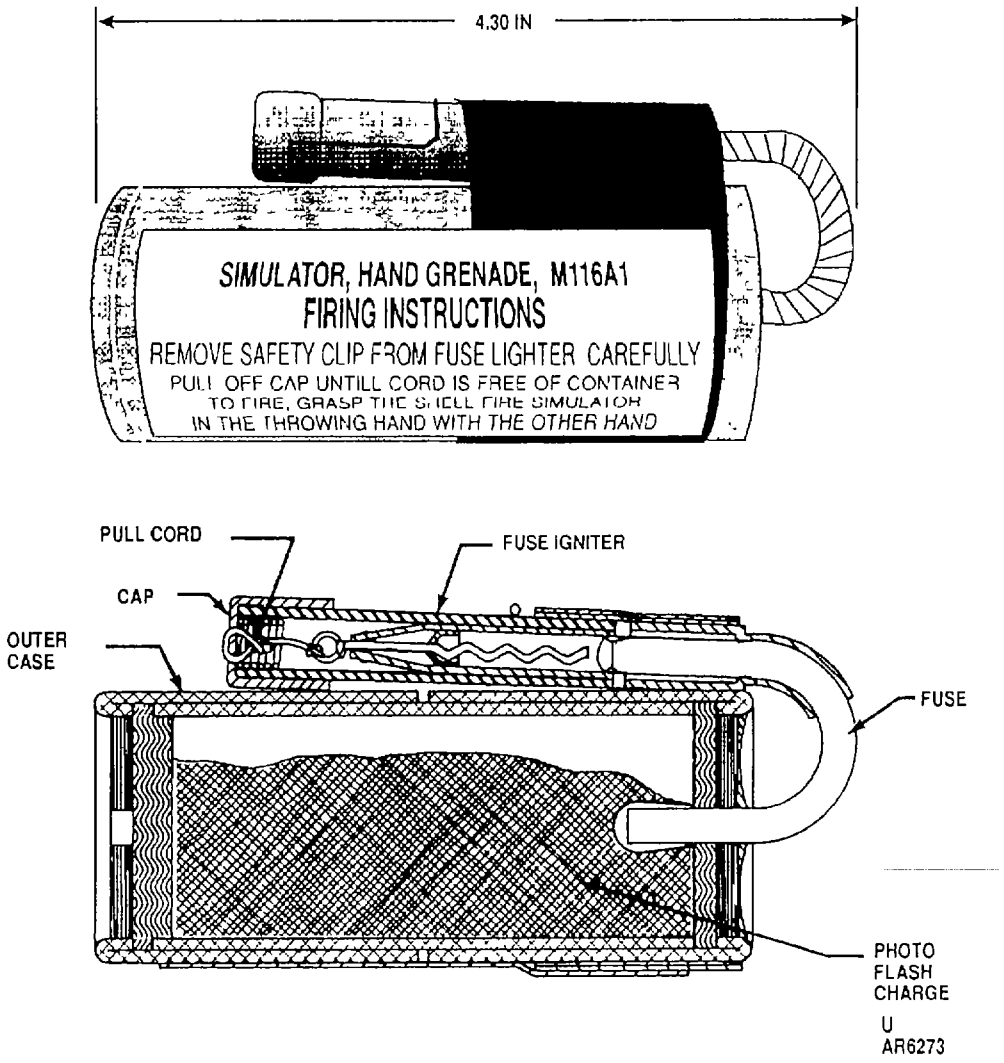
Tabulated Data:

NSN	1370-01-034-1397
Weight; loaded	0.31 lb (140 grams)
Length	5.9 in. (150mm)
Diameter	1.97 in (50mm)
Diameter (overall)	2.85 in. (72.5nimm)
Method of actuation	Electrical
Body material	Polyethylene
Color	Yellow olive w/white markings
Pyrotechnic Charge:	
Type	Flash powder
Weight	1.5 oz (42 ,qrams)
Igniter	Electrical
Performance:	
Burning time	Instantaneous
Packing	162 per box;9) per inner pack
Packing Box:	
Weight	94.6 lb (4:3 kg) approx
Dimensions	22-1/2 x 16 x 20-2/5 in. (572mm x 406mm x 520mm)
Cube	4.34 cu ft (0.12 cu meters)

Shipping and Storage Data:

Quantity-distance class	1.4
Storage compatibility group	G
DOT shipping class	EXPLOSIVE B
DOT designation	SPECIAL FIRE-WORKS HANDLE CAREFUILLIY KEEP FIRE AWAY
DODAC	1370-L602
Drawing Number	9322059

SIMULATOR, HAND GRENADE: M116A1



Type Classification:

Std OTCM 37524.

Use:

To simulate battle noises and effects during troop maneuvers. (On land only.)

Description:

The body of this simulator consists of a cylindrical paper tube containing a sealed charge of photoflash powder. A fuse igniter, Type M3A1, is taped to the outside of the tube, and is joined to the photoflash charge by a safety fuse. A safety clip through the cap of the fuse igniter prevents accidental detonation. A label giving firing instructions is attached to the outside of each simulator.

Functioning:

This simulator is hand-thrown device. The pull cord-actuated igniter is of the friction type and ignites the safety fuse. The burning of the safety fuse provides a 5 to 10 second delay after igniting by jerking the pull cold and throwing the simulator. The safety fuse ignites the photoflash charge which explodes, producing a flash and a loud report.

Tabulated Data:

NSN	1370-00-752-8124
Weight loaded	0.2 lb
Length	4.30 in.
Diameter	2.18 in.
Method of actuation	Manual pull cord
Body material	Kraft paper
Color	White w/white label w/black markings
Pyrotechnic charge:	
Type	Photoflash powder
Weight	1.3 oz
Igniter	Blasting Fuse M3A1
Performance:	
Delay	5 to 10 sec
Photoflash powder	Instantaneous
*Packing	150 per box; 5 per inner pack
*Packing Box:	
Weight	65 lb
Dimensions	23-1/4 x 13-5/8 x 15-25/32 in.
Cube	3.1 cu ft

*NOTE: See SC 1340/98 IL for complete packing data including NSN's.

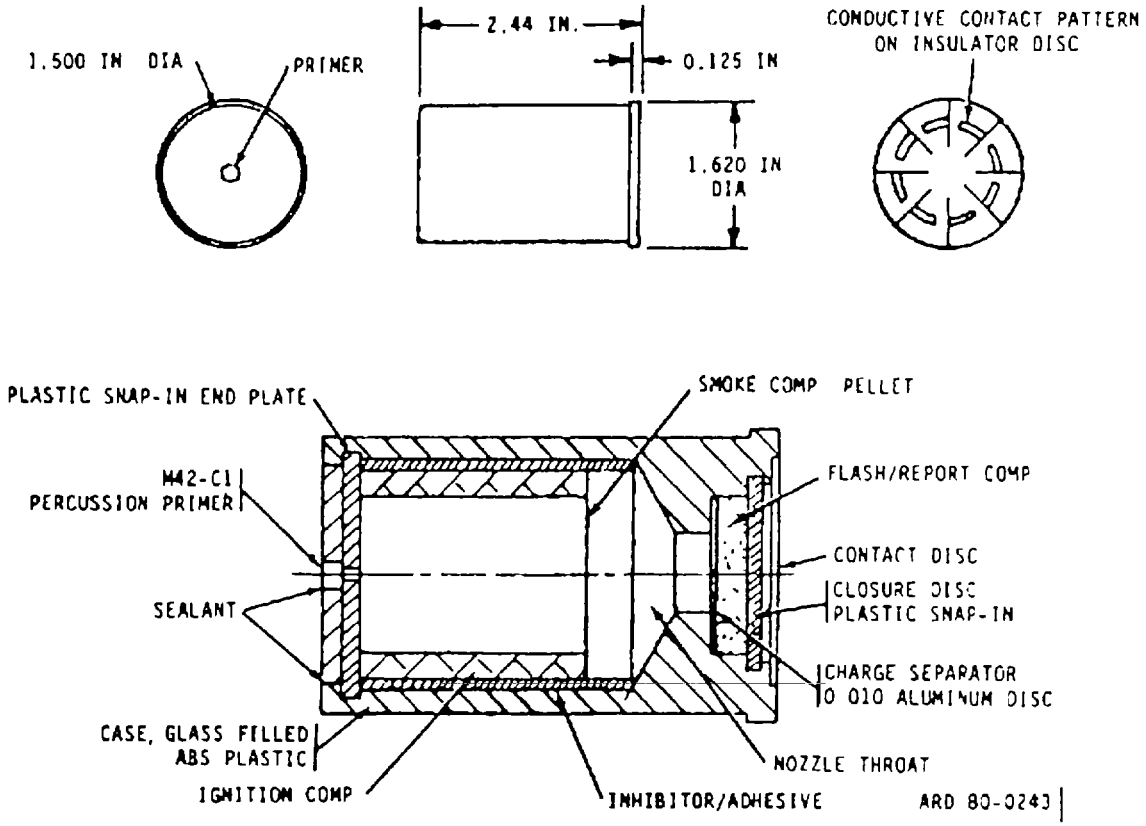
Shipping and Storage Data:

Quantity-distance class	1.2
Storage compatibility group	B
DOT shipping class	EXPLOSIVE B
DOT designation	SPECIAL FIREWORKS HANDLE CAREFULLY KEEP FIRE AWAY
DODAC	1370-L601
Drawing number	8835109

References:

AMC-P 700-3-5
TM 9-1370-203-20&P
TM 9-1370-203-34&P

SIMULATOR, LAUNCHING, ANTI-TANK, GUIDED MISSILE AND ROCKET, M22



Type Classification:

MSR 12796006.

Use:

The simulator is a part of the Multiple Integrated Laser Engagement System (MILES). It is employed with the MILES TOW, DRAGON, and VIPER firing devices. It provides a credible simulation of the weapon signature including report, flash and smoke. The simulator is common to all three weapon simulators and is fired by a common firing device.

Description:

The simulator is a three piece injection molded unit consisting of cylindrical housing with a flange on one end, a snap-in primer plate, and a snap-in closure disc for the flanged end of the unit. The primer plate has a hole in its center to accept a standard MIL-Spec primer. A preformed pellet of magnesium teflon composition is coated with a first fire composition that accelerates ignition of the pellet. This pellet is placed in a cardboard tube within the simulator and provides the flash and smoke upon functioning. The bang composition is composed of sixty milligrams of loose magnesium teflon powder and is loaded into the bang composition chamber.

Functioning:

The housing of the ATWESS assembly is cylindrical and sized to fit the LAW/VIPER launch tube. For TOW and DRAGON launch tubes, adapter rings are used to accommodate the larger tube diameters. The firing chamber is sized to accept the simulator. When the simulator is inserted and the breech door is closed and an electrical circuit is completed along the copper contacts on the face of the simulator. This circuit path must be complete for the MILES laser transmitter to fire. The simulator has a small printed circuit contact disc on its face which before it is fired provides the electrical path. When the simulator is fired, the center of the contact disc is blown out and the circuit path is broken. Thus the MILES will not fire again until a new simulator is inserted.

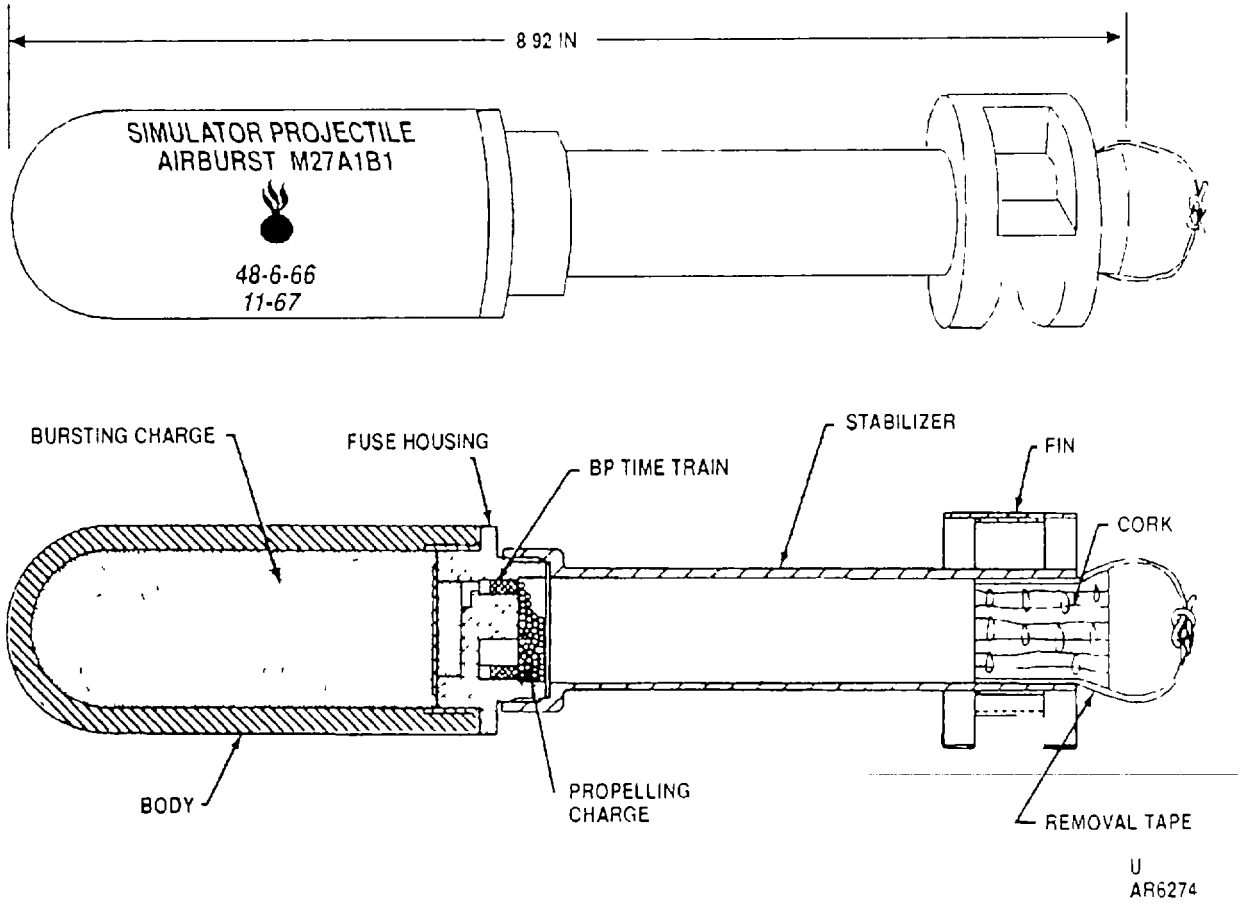
Tabulated Data:

NSN	1370-01-085-2601
Weight	52 grams (1.83 oz)
Length	62mm (2.44 in.)
Diameter	41.1mm (1.62 in.)
Method of actuation	Electrical/Mechanical
Body material	Case glass filled ABS plastic
Pyrotechnic charges:	
Pressed smoke composition:	
Weight	14 grams (.49 oz)
Ignition composition:	
Weight	5 grams (0.1 oz)
Bang composition:	
Weight	6 grams (.02 oz)
Performance:	
Bang	165dB @ 1 foot
Flash	400 ms duration, 4000°F
Smoke	White
Packing	10/inner cartons; 24 inner cartons' shipping container
Packing Box:	
Weight	Approx 16-18 kg (35-40 lb)
Dimensions	305mm, 305mm, x 457mm (1 in. x 1 in. x 18 in.)
Cube	0.4m^3 (1.5 $ft.^3$)

Shipping and Storage Data:

Quantity distance class	1.3
Storage compatibility group	G
DOT shipping class	EXPLOSIVE C CARTRIDGE, FLASH
DODAC	1370-L367
Drawing number	11749630

SIMULATOR, PROJECTILE AIR BURST: M27A1B1



Type Classification:

OBS MSR 11756003.

Use:

To simulate the airburst of an artillery. projectile for high-burst ranging , practice. Launching is from an M76 grenade launcher attached to an M14 rifle firing a 7.62mm Grenade Cartridge M64.

Description:

The simulator has a plastic body with a round nose containing the bursting smoke charge. This body is threaded to one end of an aluminum fuse housing containing the propelling charge and the black powder time training for igniting the smoke charge. Threaded to the other end of the fuse housing is the stabilizer, a hollow tube with circular fin at one end. The open end of the stabilizer is closed prior to firing by a cork plug with a removal tape.

Functioning:

Flash from the M64 grenade cartridge passes through the stabilizer to ignite the propelling charge, launching the simulator, and igniting the timing train ring. After a 5 second delay, the time train ring ignites the smoke charge directly resulting in a flash, a puff of gray smoke, and a loud report.

Tabulated Data:

NSN	1370-00-028-6003
Weight loaded	0.58 lb
Length	8.92 in.
Diameter	1.88 in.
Method of actuation	M76 grenade launcher
Body material	Plastic
Color	Blue-gray w/black markings
Pyrotechnic charge:	
Type	Smoke composition
Weight	2.2 oz
Propelling charge:	
Type	M9
Weight	0.60 grams
Primer	None
Performance:	
Delay	5.0 sec
Burning time	Instantaneous
*Packing	36 per box; 9 per inner pack
*Packing Box:	
Weight	51.3 lb
Dimensions	20-3/4 x 15-1/2 x 12-1/2 in.
Cube	2.28 cu ft

*NOTE: See SC 1340/98 IL for complete packing data including NSN's.

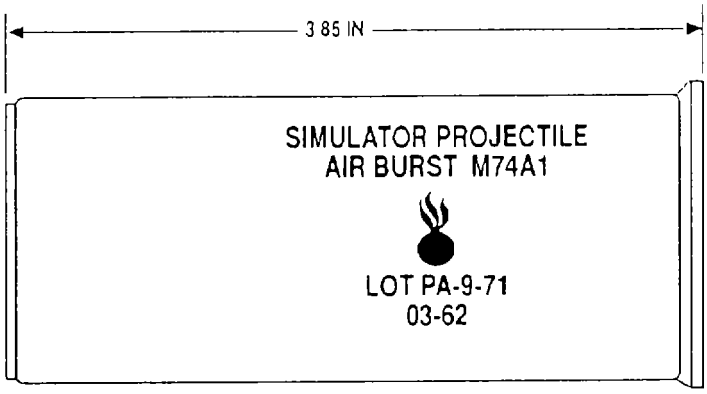
Shipping and Storage Data:

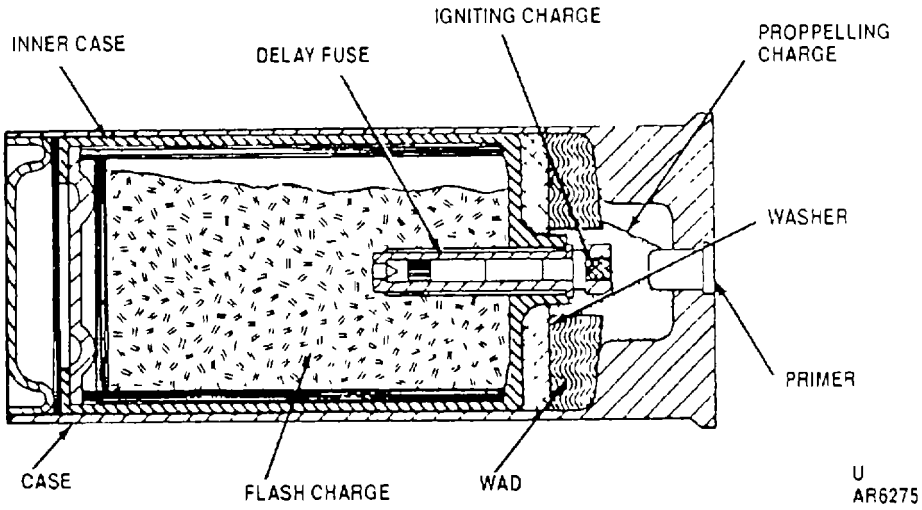
Quantity-distance class	2
Storage compatibility group	N
DOT shipping class	EXPLOSIVE B
DOT designation	SPECIAL FIRE-WORKS HANDLE CAREFULLY KEEP FIRE AWVAY
DODAC	1370-L351
Drawing number	8848652

References:

AMC-P 700-3-5
TM 9-1370-203-20&P
TM 9-1370-203-34&P

SIMULATOR PROJECTILE AIR BURST M74A1 AND M74





Type Classification:

Std OTCM 36841.

Use:

To simulate artillery fire air bursts.

Description:

The simulators have a one-piece aluminum case with an extracting rim, and resemble a large shotgun shell. The case contains a percussion primer mounted in the base, a black powder propelling charge, a delay fuse, and an inner case containing a flash charge.

Functioning:

The simulators are fired from Pyrotechnic Pistol AN-M8. The firing pin of the pistol strikes the primer, igniting the propelling charge. The propelling charge expels the self-contained flash charge from the case, at the same time igniting the igniting charge. The igniting charge ignites the delay fuse, and the fuse in turn, ignites the flash charge producing a bright flash and a loud noise. The total delay from actuation of the firing pin to ignition of the flash charge is 2-3 seconds. Aimed at a 45 degree elevation, the height of burst is about 100 feet.

Difference Among Models:

The primary difference is the higher reliability of the fuse in the M74A1.

Tabulated Data:

NSN	1370-00-028-6007
Weight loaded	.34 lb
Length	3.85 in.
Diameter	1.57 in.
Method of actuation	Pyrotechnic Pistol, AN-M8
Body material	Aluminum
Color	Black markings on aluminum
Pyrotechnic charge:	
Type	Flash powder
Weight	1.25 oz
Propelling charge:	
Type	Black powder
Weight	1.36 grams
Primer	Percussion M39A1
Performance:	
Delay	2-3 sec
Burning time	Instantaneous
Candlepower	600,000
*Packing	80 per box; 10 per inner pack
*Packing Box:	
Weight	57.5 lb
Dimensions	23-7/8 x 11-1/4 x 11-3/4 in.
Cube	1.6 cu ft

*NOTE: See SC 1340/98 IL for complete pack ing data including NSN's.

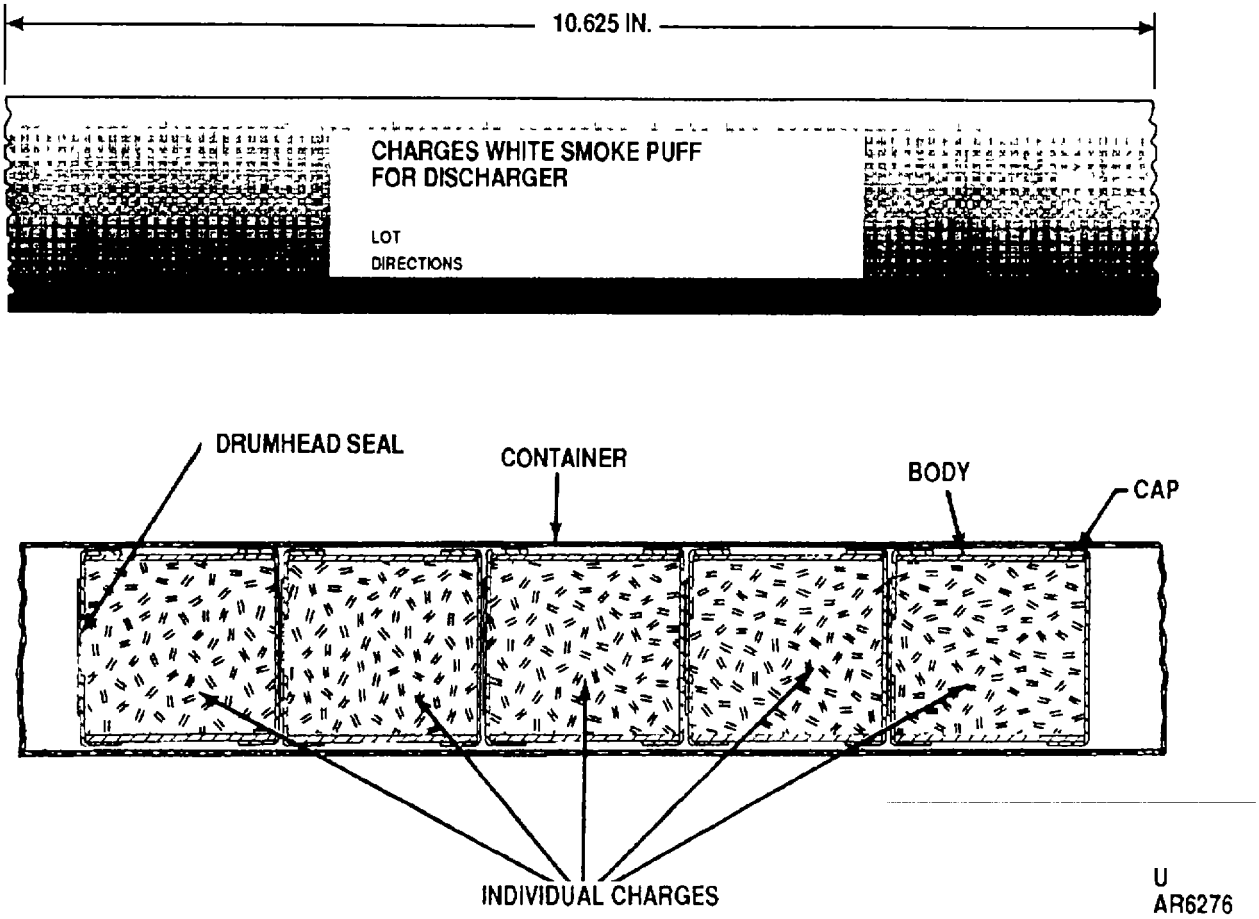
Shipping and Storage Data:

Quantity-distance class	2
Storage compatibility group	N
DOT shipping class	EXPLOSIVE B
DOT designation	SPECIAL FIRE-WORKS HANDLE CAREFULLY KEEP FIRE AWAY
DODAC	1370-L366
Drawing number	8848486

References:

AMC-P 700-3-5
TM 9-1095-201-15
TM 9-1370-203-20&P
TM 9-1370-203-34&P

SIMULATOR, PROJECTILE AIR BURST: CHARGE, SMOKE PUFF, WHITE



Type Classification:

OBS-MSR-11756003.

Use:

To visually simulate the bursting of an artillery projectile near the ground.

Description:

Each simulator charge consists of a cylindrical shipboard tube filled with a charge of black powder and closed at each end with a straw-board cup. The bottom cap is of the drumhead type. The kraft paper drumhead allows the charge to be opened for priming. The simulators are coated with paraffin wax and packed in paper tubes, five per tube, with a label attached to the outside of each package.

Functioning:

One charge is used in the smoke puff discharger (NSN 6920-00-714-9756) and fired by a percussion primer cap (NSN 1370-(0-(028-5248). The primer cap is fired by a blow from the manually actuated firing arm. The flash from the primer ignites the loose black powder in the discharger cap which ignites the charge. Burning is instantaneous.

Tabulated Data:

NSN	1370-00-028-5249
Weight loaded	0.15 lb

Length	1-29/32 in.
Diameter	1-29/32 in.
Method of actuation	Percussion Primer in smoke puff discharger
Body material	Chipboard
Color	White w/black markings (package of 5)
Pyrotechnic charge:	
Type	Black powder
Weight	2.0 oz
Primer	Percussion cap
Performance:	
Delay	0 sec
Burring time	Instantaneous
*Packing	5 per inner pack; 200 per box
*Packing Box:	
Weight	79 lb
Dimensions	29 x 13 x 12 in.
Cube	2.48 cu ft

*NOTE: See SC 1340/98 IL for complete packing data including NSN's.

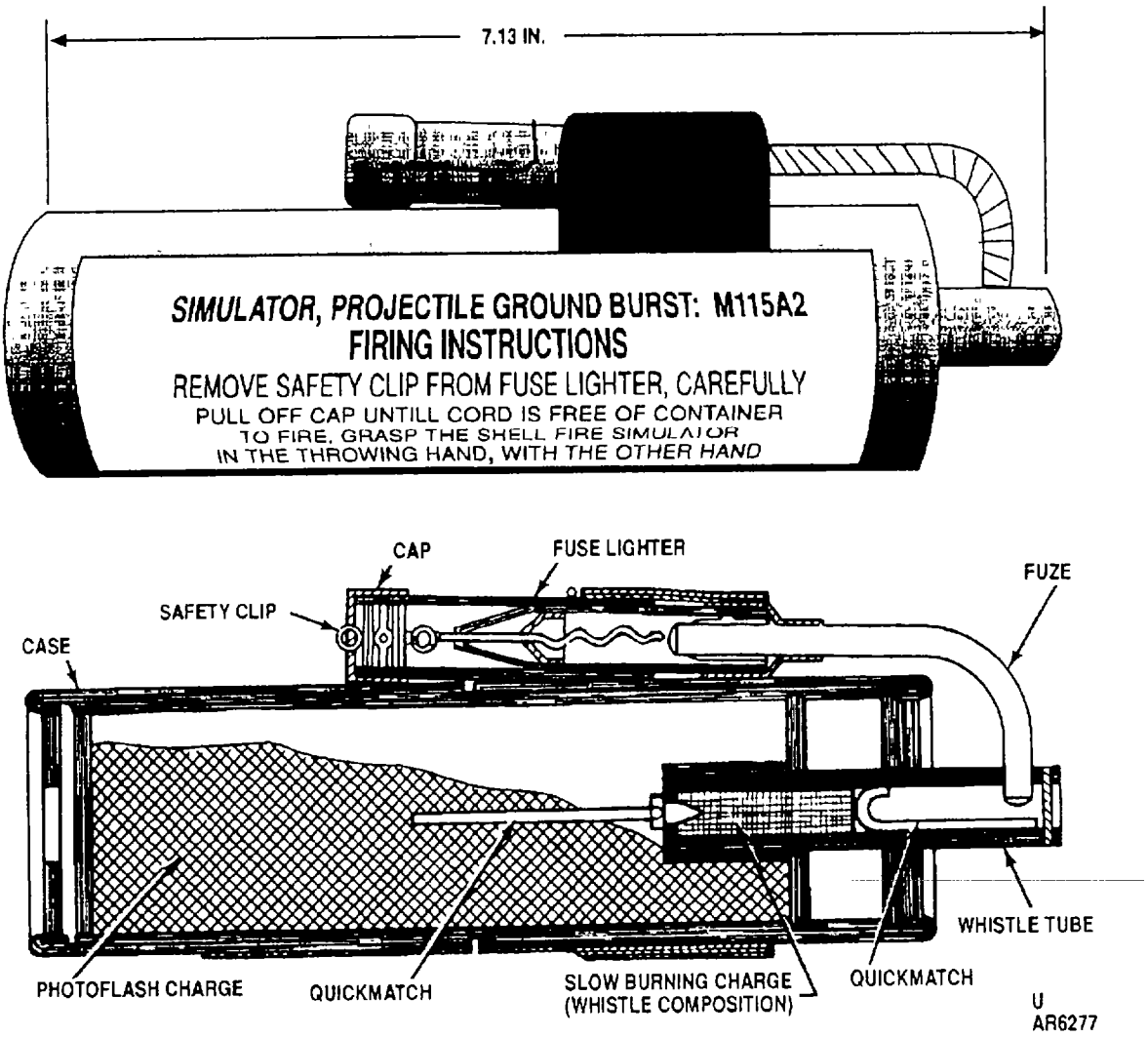
Shipping and Storage Data:

Quantity-distance class	7
Storage compatibility group	O
DOT shipping class	EXPLOSIVE A
DOT designation	BLACK POWDER
DODAC	1370-L373
Drawing number	71-13-3

References:

AMC-P 700-3-5
TM 9-1370-203-20&P
TM 9-1370-203-34&P

SIMULATOR, PROJECTILE, GROUND BURST: M115A2



Type Classification:

Std OTCM 37524.

Use:

To simulate battle noises and effects (shells in flight and ground explosions) during troop maneuvers (on land only).

Description:

The body of this simulator consists of a cylindrical paper tube containing a photoflash charge and a whistle assembly. The whistle assembly, extending from one end of the photo-flash charge, is a paper tube containing a slow burning whistle composition, and is joined to a fuse lighter by a length of safety fuse. The fuse lighter is the friction type M3A1 and is taped to the outside of the simulator. A safety (clip through the cap of the fuse lighter prevents accidental detonation. A label lighter prevents accidental detonation. A label giving firing instructions is attached to the outside of each simulator.

Functioning:

This simulator is a hand-thrown device. The pull cord-actuated igniter is of the friction type and ignites the safety fuse. The burning of the safety fuse provides a 6 to 10 second delay after igniting by jerking the pull cord and throwing the simulator. the safety fuse ignites the quickmatch in the whistle assembly and the quickmatch ignites the whistle composition. Whistle time for this composition in the whistle assembly is 2 to 4 seconds. The final burning ignites the photoflash charge which explodes producing a flash and a loud report.

Tabulated Data:

NSN	1370-00-752-8126
Weight loaded	0.30 lb
Length	7.13 in.
Diameter	2.38 in. overall
Method of actuation	Hand pull cord
Body material	Kraft paper
Color	White w/white label w/black markings
Pyrotechnic charge:	
Type;	Photoflash powder
Weight	2.2 oz
Type	Whistle composition
Weight	2.0 grams
Igniter	Blasting Fuse M3A1
Performance:	
Delay	(Whistle 6-10 sec) after ignition) Burst 8-14 sec) after ignition)
Burning time:	
Photoflash powder	Instantaneous
Whistle	2-4 sec
*Packing	100 per box; 5 per inner box
*Packing Box:	
Weight	67 lb
Dimensions	25-11/16 x 13-5/16 x 18-31/32 in.
Cube	3.8 cu ft

*NOTE: See SC 1340/98 IL for complete packing data including NSN's.

Shipping and Storage Data:

Quantity-distance class	7
Storage compatibility group	Q
DOT shipping class	EXPLOSIVE B
DOT designation	SPECIAL FIREWORKS HANDLE CAREFULLY KEEP FIRE AWAY
DODAC	1370-L594
Drawing number	7549246

References:

AMC-P 700-3-5
TM 9-1370-203-20&P
TM 9-1370-203-34&P

CHAPTER 6

MISCELLANEOUS

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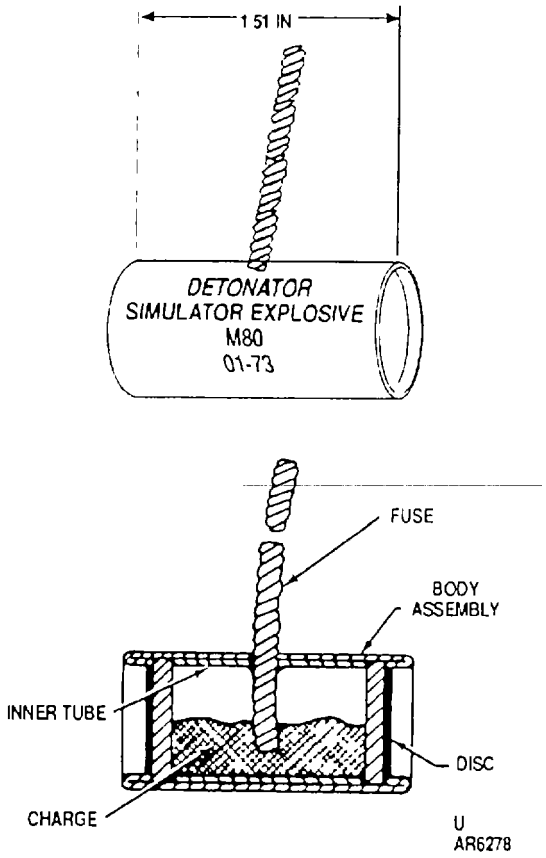
DETONATION SIMULATOR, EXPLOSIVE: M80



Type Classification:

Std AMCTC 7008 dtd 1969.

Use:

To simulate rifle or artillery fire, hand grenades, boobytraps, or land mines.

Description:

This simulator is a paper cylinder containing 3 grams of flash composition. Each end of the cylinder is closed by a disk, crimp sealed in place. A length of fuse extends from the side of the cylinder.

Functioning:

The simulator is fired by lighting the fuse with a match or similar source of flame. The burning time of the fuse provides a 4 to 7 second delay, and directly ignites the flash charge at the completion of the delay. When used for simulating boobytraps or land mines, a firing device such as a pull type, pull-release type, or pressure type may be substituted for fuse. (See TM 9-1375-213-12 for such devices).

Tabulated Data:

NSN	1370-00-028-5252
Weight loaded	0.013 lb
Length	1.5 in
Diameter	0.69 in.
Method of actuation	Ignition of fuse by match
Body material	Kraft paper
Color	Black markings
Pyrotechnic charge	
Type	Flash composition
Weight	3 grams
Initiator	Firecracker fuse
Performance:	
Delay	4-7 sec
Burning time	Instantaneous
*Packing	2500 per box; 50 per inner pack
*Packing Box:	
Weight	68 lb
Dimensions	24-5 x 7-11 16 x 15-11 32 in.
Cube	3.8 cu ft

*NOTE: See SC 134098IL for complete packing data including NSN's.

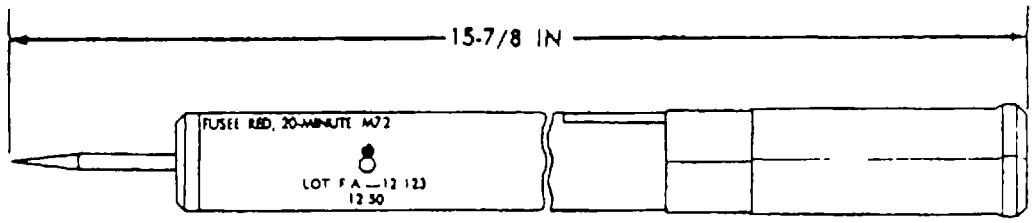
Shipping and Storage Data:

Quantity-distance class	7
Storage compatibility group	Q
DOT shipping class	EXPLOSIVE A
DOT designation	HIGH EXPLOSIVES DANGEROUS
DODAC	1370-L378
Drawing number	9234991

References:

AMC-P 700-3-5
TM 9-1370-203-20&P
TM 9-1370-203-34&P
TM 9-1375-21:3-12

FUSEE, WARNING, RAILROAD: RED, M72



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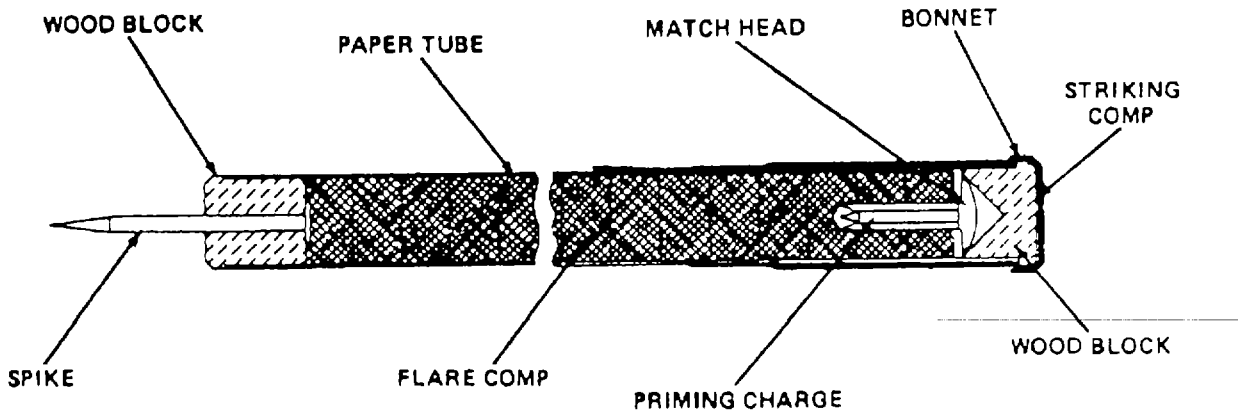


AR199577

Type Classification:

Std OTCM 36841.

Use:

To outline emergency airfield boundaries under poor visibility conditions, as well as for recognition and signaling along railroad rights-of-way.

Description:

The device consists of a cylindrical paper tube filled with a red flare composition. The base of the tube is sealed with a wooden block from which a spike protrudes approximately 11/2 inches. The spike is used for securing the fusee to the ground, or to soft wood surfaces. Embedded in the firing end of the flare composition is a priming charge and a friction type initiator. The match head of the initiator is protected by a wooden block secured to the body of the fusee by a paper bonnet. The top surface of the wooden block is coated with a striking composition for initiating the primer and a tear strip between the bonnet and the body of the fusee facilitates preparing the fusee for use.

Functioning:

Pulling the tear strip opens the paper bonnet, releases the wooden striking block, and exposes the head of the primer initiator. Rubbing the head of the initiator on the striking composition covering the wooden block ignites the initiator. The initiator ignites the priming charge, and the priming charge ignites the flare composition. Burning time is 10, 15, or 20 minutes.

Differences Between Models:

The primary difference is burning time (10, 15, 20 minutes) and length.

Tabulated Data:

NSN's:	
10 min	1370-00-344-2387
15 min	1370-00-800-9973
20 min	1370-00-096-3135
Weight loaded	0.64 lb (20 min)
Length	12-1/'8 to 15-7/8 in. (depending upon model)
Diameter	1.0 in.
Method of actuation	Manual
Body material	Paper
Color	Red w/black markings
Pyrotechnic charge:	
Type	Illuminant composition
Weight	9.0 oz, 20 min, 7.3 oz, 15 min, 4.5 oz, 10 min
Initiator	Friction type
Performance:	
Delay	Instantaneous
Burning time	10-15-20 min (depending upon model)
Candlepower	850
*Packing	40 per box; 10 per inner pack
*Packing Box:	
Weight	46 lb
Dimensions	18-7/8 x 12-11, 16 x 8-27/32 in.
Cube	1.3 cu ft

*NOTE: See SC 1340/98 IL for complete packing data including NSN's.

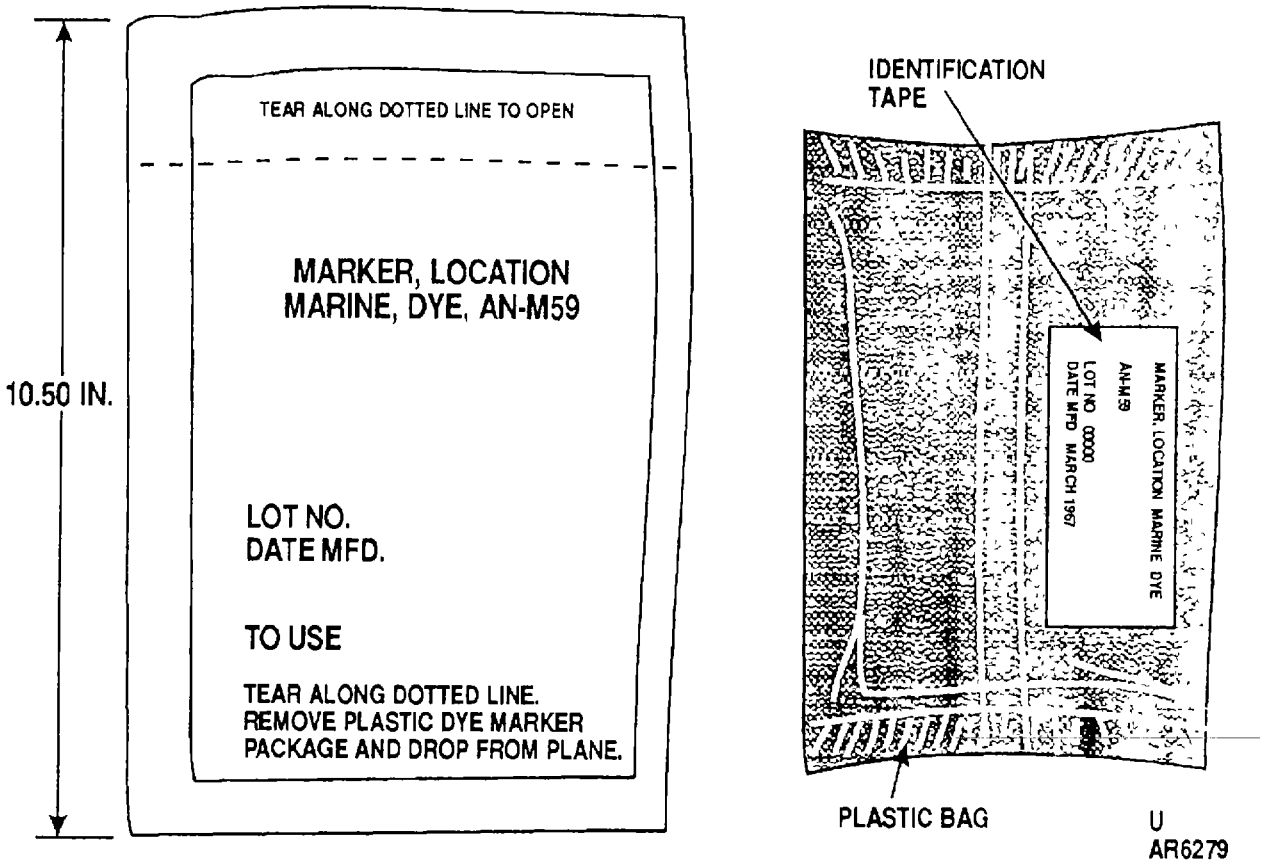
Shipping and Storage Data:

Quantity-distance class	2
Storage compatibility group	N
DOT shipping class	FLAMMABLE SOLID
DOT designation	FUSEES HANDLE CAREFULLY KEEP FIRE AWAY
DODAC:	
10 min	1370-L50(i
15 min	137()-L507
20 min	1 70-L5,0
Drawing number	9254991

References:

AMC-P 700-3-5
TM 9-1370-203-20&P
TM 9-1370-203-34&P

MARKER, LOCATION, MARINE: DYE, AN-M59



Type Classification:

Std OTCM 36841.

Use:

To aid aircraft navigators by providing a stationary reference point for determination of aircraft drift. It is also used to mark the location of a submarine or other objects for the attention of surface vessels.

Description:

This marker consists of a heat-sealed plastic laminate bag filled with uranine, a dye composed of soluble sodium salt and fluroescein. The marker is protected by a barrier bag overpack. Instructions are stenciled on the outer package.

Functioning:

The marker is dropped from aircraft by day over water. The marker does not burn. However, the laminate bag container ruptures upon hitting the water. The contents form a brilliant, fluorescent, emerald green slick. The slick (20 feet in diameter) is visible for at least 2 hours within a 10-mile radius at an altitude of 3,000 feet. The marker weighs 1.4 pounds.

Tabulated Data:

NSN	1370-00-028-6010
Weight loaded	1.4 lb
Length	9.5 in.
Diameter	5.5 in.
Method of actuation	By hand
Body material	Plastic

Color	White envelope w/black markings
Marker:	
Type	Marker dye
Weight	22 oz
*Packing	30 per box, 10 per inner pack
*Packing Box:	
Weight	70 lb
Dimensions	33-9/16 x 16-3/4 x 15-11/32 in.
Cube	4.4 cu ft

*NOTE: See SC 1340/98 IL for complete packing data including NSN's.

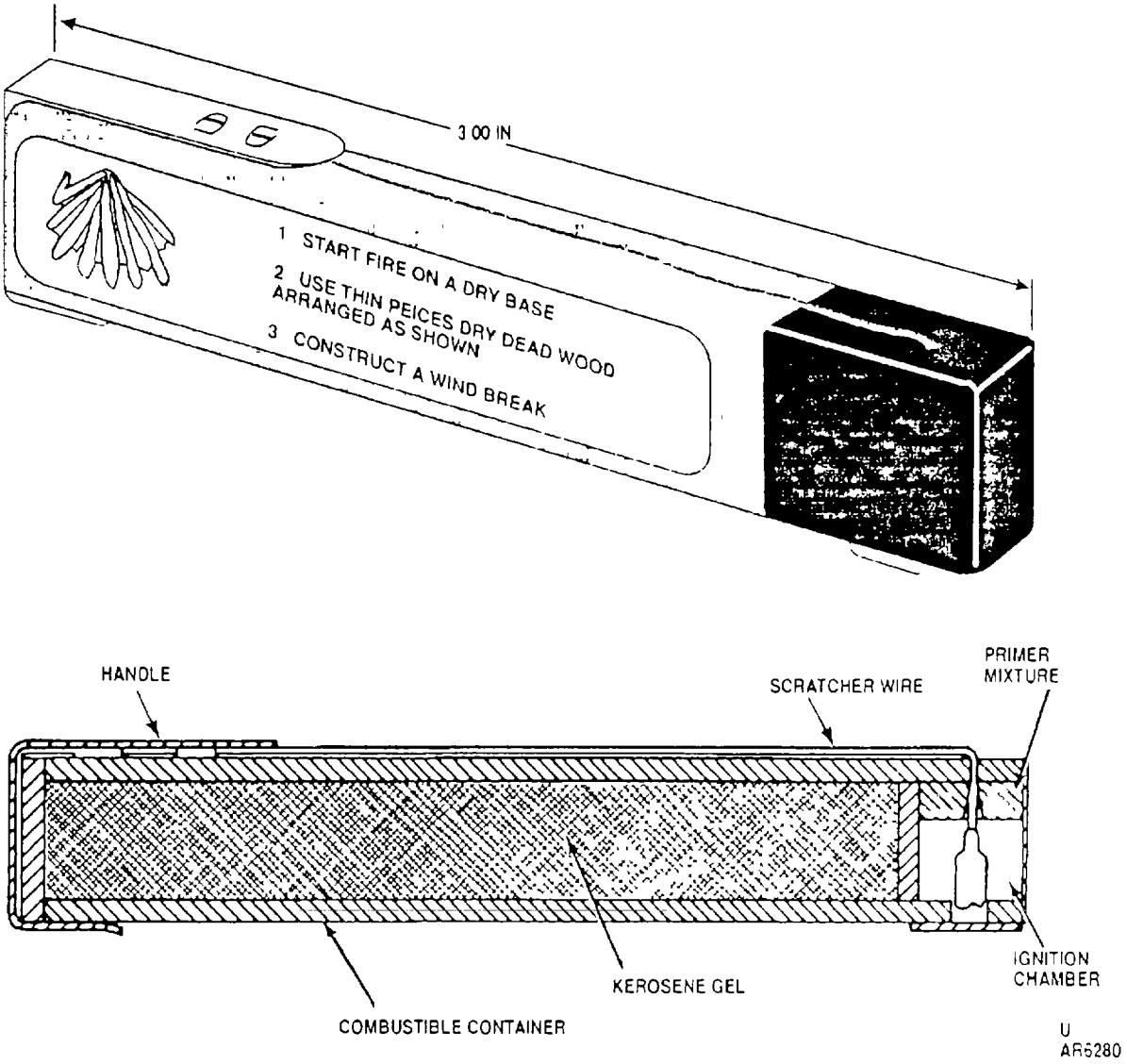
Shipping and Storage Data:

Quantity-distance class	
Storage compatibility group	
DOT shipping class	
DOT designation	NON EXPLOSIVE
DODAC	1370-L582
Drawing number	9224950

References:

AMC-P 700-3-5
TM 9-1370-203-20&P
TM 9-1370-203-34&P

STARTER, FIRE M2



Type Classification:

Std CCTC 2691.

Use:

Designed to be carried in a pocket of a survival kit, is used for starting fires under adverse climatic conditions, such as in wet jungles or on snowcovered terrain.

Description:

The device has a rectangular cellulose nitrate container filled with thickened kerosene, and is provided with an ignition device consisting of a match head mixture and a pull type scratcher wire. The scratcher wire is cemented lightly to the side of the container and has a metal handle attached to the free end. There are two instruction labels one on either side of the device. The ignition end of the device is dyed red and the entire assembly is waterproof.

Functioning:

Prior to operation, the ignition end of the device is pierced with the metal handle allowing air to enter the ignition chamber. Pulling the scratcher wire through the match head mixture ignites the mixture, providing ignition for the gel kerosene in the main body of the device. Burning time is four minutes.

Tabulated Data:

NSN	1370-00-219-8566
Weight loaded	0.5 oz
Length	3 in.
Width	0.5 in.
Height	0.5 in.
Method of actuation	Match type striker
Body material	
Color	Amber w/purple at one end and red at other; White label w/black markings
Pyrotechnic charge:	
Type	Gel kerosene
Weight	4.8 grams
Initiator	Friction
Performance:	
Delay	0 sec
Burning time	4 min
*Packing	500 per box
*Packing Box:	
Weight	35 lb
Dimensions	20-1/2 x 8 x 7-1/4 in.
Cube	1.12 cu ft

*NOTE: See SC 1340/98 IL for complete packing data including NSN's.

Shipping and Storage Data:

Quantity-distance class	2
Storage compatibility group	N
DOT shipping class	B
DOT designation	SPECIAL FIRE-WORKS HANDLE CAREFULLY KEEP FIRE AWAY
DODAC	1370-L621
Drawing number	C 4-1-14

References:

AMC-P 700-3-5
TM 9-1370-203-12
TM 9-1370-203-20&P
TM 9-1370-203-34&P
TM 9-1370-208-10

By Order of the Secretary of the Army:

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

Official:

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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 decigram = .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 milliters = .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

To change	*To*	*Multiply by*	*To change*	*To*	*Multiply by*
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

PIN: 017651-000