

**DEPARTMENT OF THE ARMY**

**TM 9-1370-208-10**

**PHOTOFLASH CARTRIDGES,**

**SURFACE FLARES**

**AND**

**MISCELLANEOUS**

**PYROTECHNIC**

**ITEMS**



**Supersedes TM 9-1370-208-10.  
30 November 1981**

**Approved for public release, distribution unlimited**

**MARCH 1991**

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

**WARNING**

**PYROTECHNIC ITEMS CONTAIN HAZARDOUS MATERIALS**

**KEEP AWAY FROM FIRE**

**DON'T HANDLE IF DAMAGED**

**HANDLE CAREFULLY AND  
ALWAYS AIM AWAY FROM:  
FACE-BODY-FRIENDLY TROOPS**

**IF SITUATION PERMITS:  
WEAR FULL HELMET  
AND GLOVES**

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

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AR 5335**

**WARNING: THIS MANUAL CONTAINS ITEMS WHICH THE FOLLOWING INSTRUCTIONS APPLY. CHECK THE PARAGRAPH FOR EACH ITEM FOR SPECIFIC APPLICATIONS.**

**DO NOT TOUCH THE DUD!**

**MARK LOCATION OF DUD FOR  
EXPLOSIVE ORDNANCE  
DISPOSAL (EOD) PERSONNEL**

**CALL EOD FOR DISPOSAL**

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CHANGE )  
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NO. 2 )

HEADQUARTERS  
DEPARTMENT OF THE ARMY  
WASHINGTON, DC, 28 March 2002

**Operator's Manual  
for  
Photoflash Cartridges, Surface Flares, and  
Miscellaneous Pyrotechnic Items**

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

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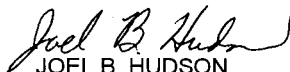
1 and 2  
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TM 9-1370-208-10

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By Order of the Secretary of the Army:

Official:

Handwritten signature of Joel B. Hudson in black ink.

JOEL B. HUDSON

*Administrative Assistant to the  
Secretary of the Army*

0207701

ERIC K. SHINSEKI  
*General, United States Army  
Chief of Staff*

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**TM 9-1370-208-10**  
**C1**

Change     )  
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No. 1       )

HEADQUARTERS  
DEPARTMENT OF THE ARMY  
Washington, DC, 30 September 1993

**OPERATOR'S MANUAL**  
**FOR**  
**PHOTOFLASH CARTRIDGES, SURFACE FLARES, AND**  
**MISCELLANEOUS PYROTECHNIC ITEMS**

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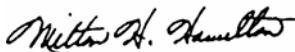
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*Chief of Staff*

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MILTON H. HAMILTON  
*Administrative Assistant to the*  
*Secretary of the Army*  
05569

Distribution:

To be distributed in accordance with DA Form 12-40-E, block 0702, requirements for TM 9-1370-208-10.

**\*TM 9-1370-208-10**

Technical Manual       )  
                                  )  
No. 1370-208-10       )

HEADQUARTERS  
DEPARTMENT OF THE ARMY  
Washington, DC, 31 March 1991

**OPERATOR'S MANUAL.  
FOR  
PHOTOFLASH CARTRIDGES. SURFACE FLARES AND  
MISCELLANEOUS PYROTECHNIC ITEMS**

\*This manual supersedes TM 9-1370-208-10, 30 November 1981.

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## TECHNICAL MANUAL

No.1370-208-10

HEADQUARTERS  
DEPARTMENT OF THE ARMY  
Washington, DC, 31 March 1991

### Operator's Manual for Photoflash Cartridges, Surface Flares and Miscellaneous Pyrotechnic Items

#### REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

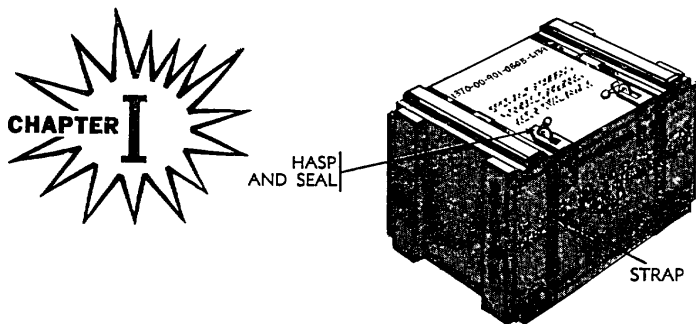
You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter or DA Form 2028-2 (Recommended Changes to Equipment Technical Publications) directly to Commander, U.S. Army TACOM, Armament Research, Development and Engineering Center, ATTN: AMSTA-AR-WEL-S, Picatinny Arsenal, NJ 07806-5000. You may also send in your recommended changes via electronic mail or by fax. Our e-mail address is LSB@PICA.ARMY.MIL. Our fax number is DSN 880-4633, Commercial (973) 724-4633. A reply will be furnished to you.

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**UPON RECEIPT**

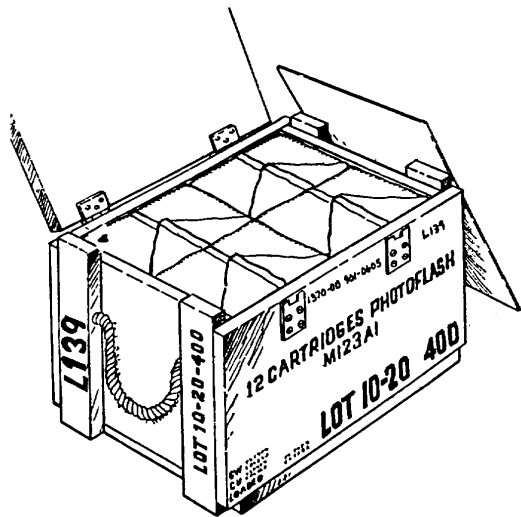


## SECTION (1) UNPACKING

**CAUTION:  
KEEP BOXES SEAL - DUDS OR  
IMPROPER FUNCTIONING  
COULD OCCUR IF EXPOSED  
TO MOISTURE.  
OPEN JUST BEFORE USE**

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

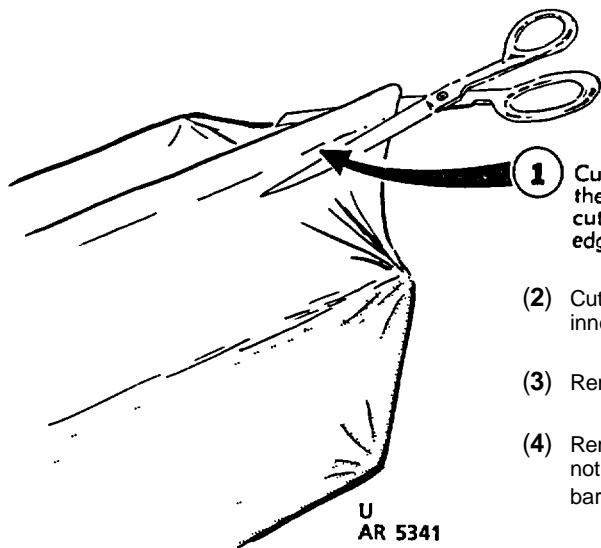


- (4) Lift box top and remove top filler. Note top position for reclosing on springlatch boxes.
- (5) Remove barrier bagged inner pack if ready for immediate use.

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**PROCEED  
TO STEP 1 ➔**

## SECTION (2) OPENING BARRIER BAG



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

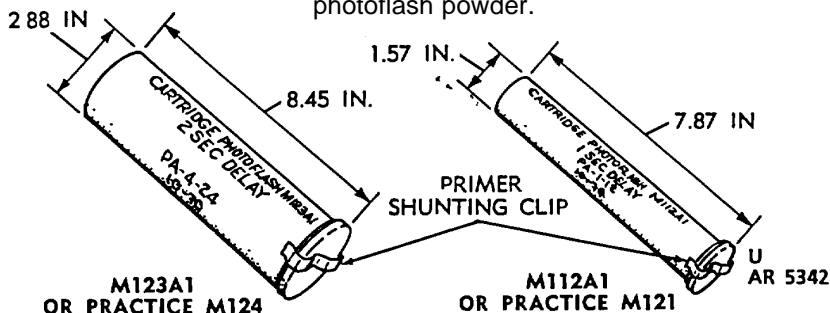
# CHAPTER II

## DESCRIPTION AND OPERATION

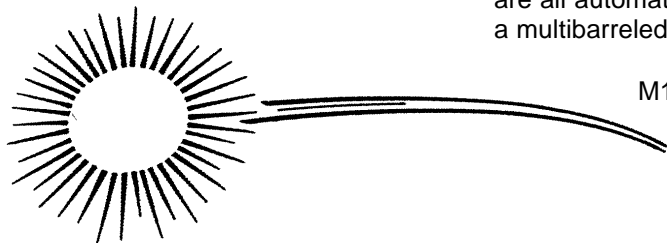
### SECTION (1) PHOTOFLASH CARTRIDGES

#### DESCRIPTION

Photoflash Cartridges consist of a small propelling charge and an electrically primed, cylindrical, aluminum cartridge case containing photoflash powder.



Photoflash cartridges produce a single illuminating flash for aerial photography during reconnaissance missions. They are all automatically fired from a multibarreled ejector.



M123A1 comes in:

- 2-second delay (L139)
- 4-second delay (L140)
- 6-second delay (L141)
- \* M124 Practice (L142)

M112A1 comes in:

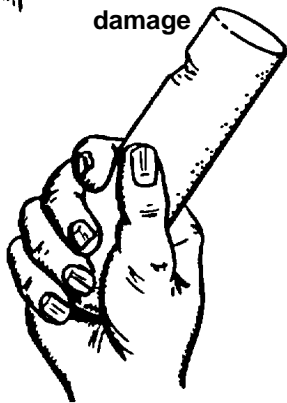
- 1-second delay (L135)
- 2-second delay (L136)
- 4-second delay (L137)
- \* M121 Practice (L138)

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AR 5343

- \* The two practice cartridges are similar to the service cartridges, but contain inert charges. They are fired from the same ejectors and approximate the same weight and handling characteristics as the service cartridges.



**first inspect  
CARTRIDGE  
for defects and/or  
damage**



## **OPERATION**

- (1) Remove and save shunting clip just prior to placing into ejector.
- (2) Place cartridge in aircraft ejector.
- (3) Cartridge is automatically fired when camera is operated.

**After mission**, remove fired cartridge cases from ejector and dispose of in accordance with local regulations. Remove any cartridges not fired from ejector, replace shunting clip, and place in barrier bag. Store in dry area. Remove misfired cartridges from ejector, replace shunting clip, and turn into authorized disposal personnel.

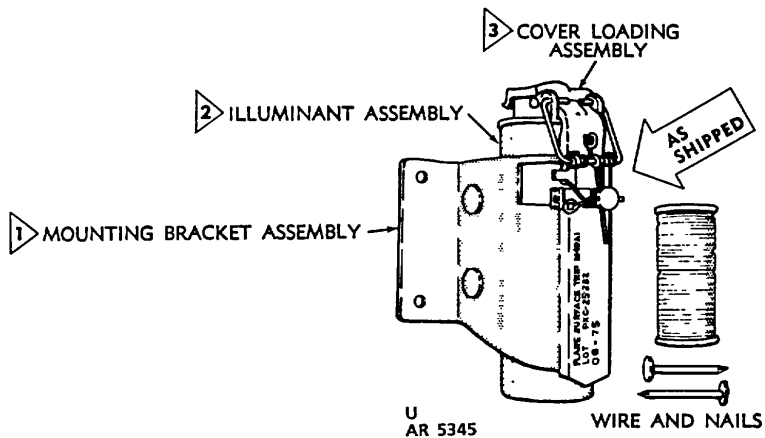
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## SECTION (2) SURFACE FLARES

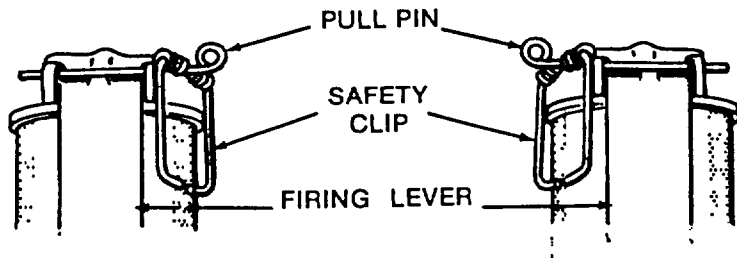
### Trip Surface Flare M49A1

#### DESCRIPTION

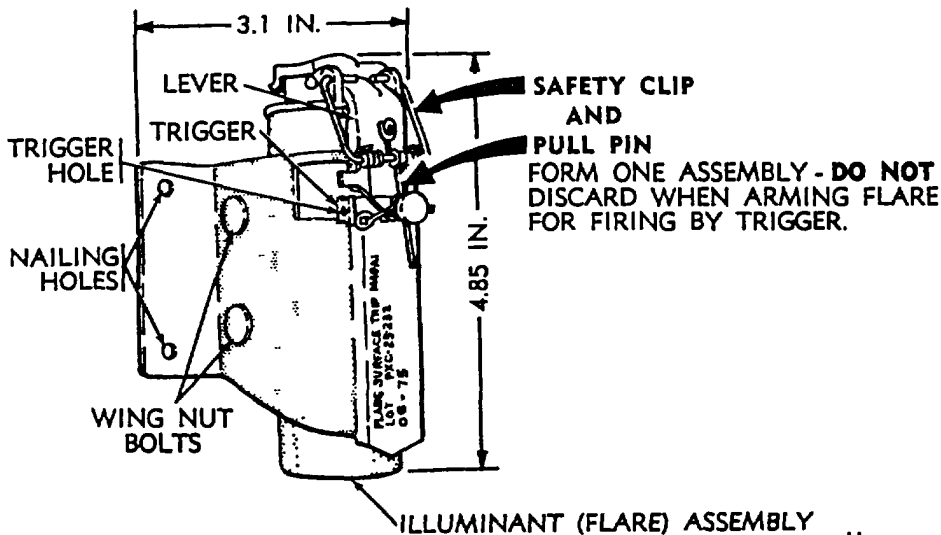


The flare consists of the above assemblies and is used to illuminate the area of advancing enemy troops. It is fired by tripwire.

- 1 MOUNTING BRACKET ASSEMBLY secures Illuminant (Flare) and Cover Loading Assembly with two wing nuts during shipment. It contains a tab with two nail holes to position and hold the flare. It also houses the trigger assembly which may or may not be used to fire the flare
- 2 ILLUMINANT (FLARE) ASSEMBLY consists of a cupped round aluminum case containing ignition pellet and illuminant pellets
- 3 COVER LOADING ASSEMBLY is force fitted into the Illuminant Assembly. It contains the firing lever, pull pin and safety clip The pull pin may be reversed in position to allow reversal of tripwire.



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## OPERATION

### Inspect

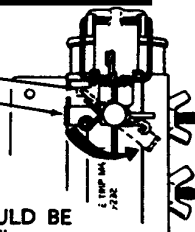


Press lever against flare body and **CHECK FOR:**

- ✓ Straightness of pull pin.
- ✓ Alignment of safety clip and holes in cover loading assembly.
- ✓ Corrosion and looseness of cover loading assembly.
- ✓ Alignment of hinge pins in cover loading assembly.

**WARNING** FORWARD IMMEDIATELY TO AUTHORIZED DISPOSAL PERSONNEL IF COVER ASSEMBLY IS CORRODED OR LOOSE, OR IF HINGE PINS ARE MISALIGNED.

- ✓ Deformed flare and bracket.
- ✓ Tension and position of trigger spring. Trigger should rotate counterclockwise to extreme position (as shown) and return to original position when released.
- ✓ Legibility of ammunition lot number.



**FLARES UNABLE TO PASS THE ABOVE INSPECTION SHOULD BE FORWARDED TO AUTHORIZED DISPOSAL PERSONNEL**

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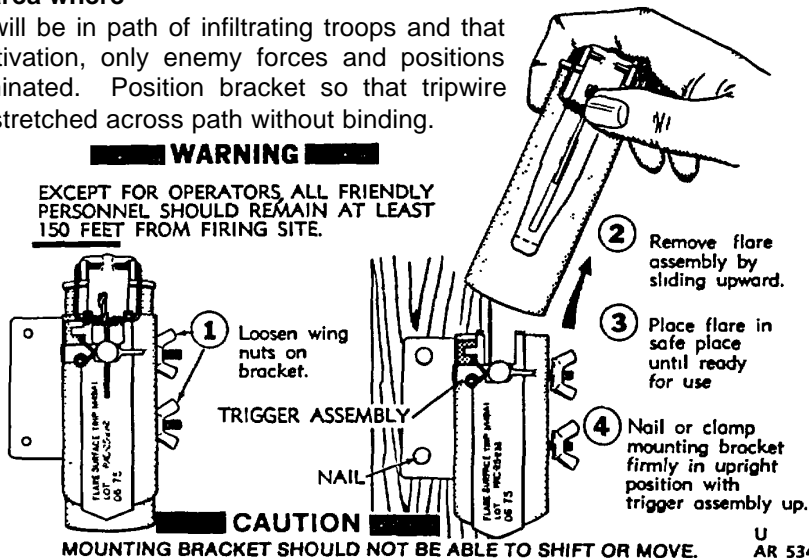
## TO INSTALL MOUNTING BRACKET

### Locate area where

tripwire will be in path of infiltrating troops and that upon activation, only enemy forces and positions are illuminated. Position bracket so that tripwire may be stretched across path without binding.

### WARNING

EXCEPT FOR OPERATORS, ALL FRIENDLY PERSONNEL SHOULD REMAIN AT LEAST 150 FEET FROM FIRING SITE.



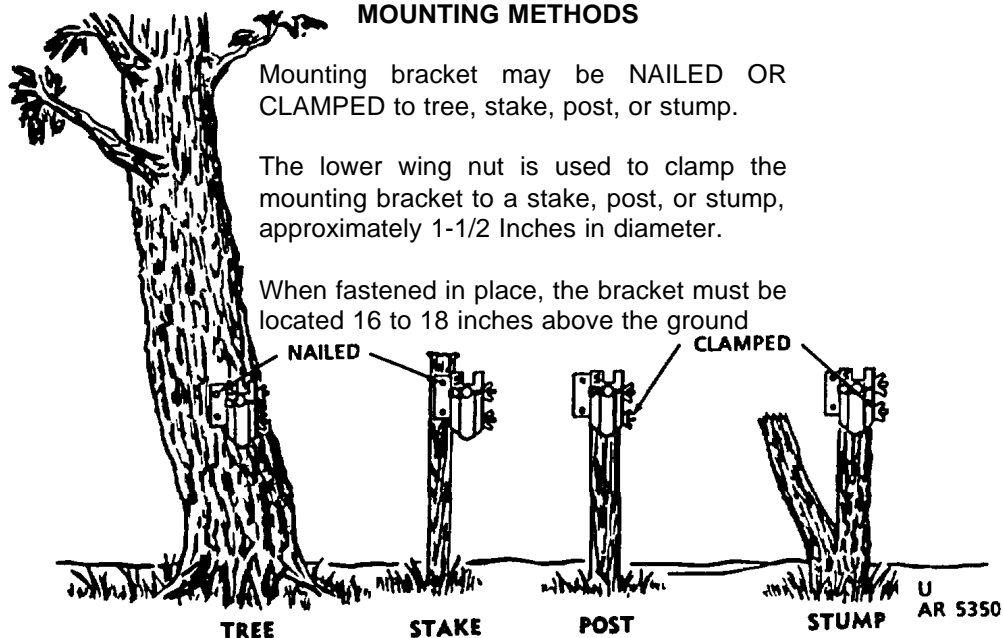
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## MOUNTING METHODS

Mounting bracket may be NAILED OR CLAMPED to tree, stake, post, or stump.

The lower wing nut is used to clamp the mounting bracket to a stake, post, or stump, approximately 1-1/2 Inches in diameter.

When fastened in place, the bracket must be located 16 to 18 inches above the ground



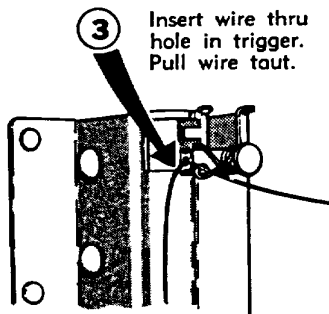
## SET UP WITH TRIGGER



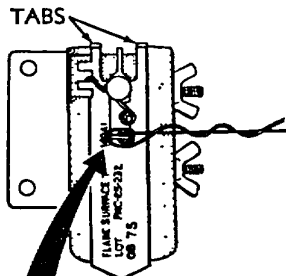
- (1) Approximately 40 feet to the right of the mounted bracket, attach tripwire to post, stake, tree or other rigid object. Make sure tripwire is in line with rotation of trigger assembly so that it will not bind or snag when attached.

- (2) Return to mounted bracket while unrolling tripwire. Make sure that tripwire will not bind or snag when attached.

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- ④ Rotate trigger counterclockwise one quarter turn. Center trigger over opening between tabs.

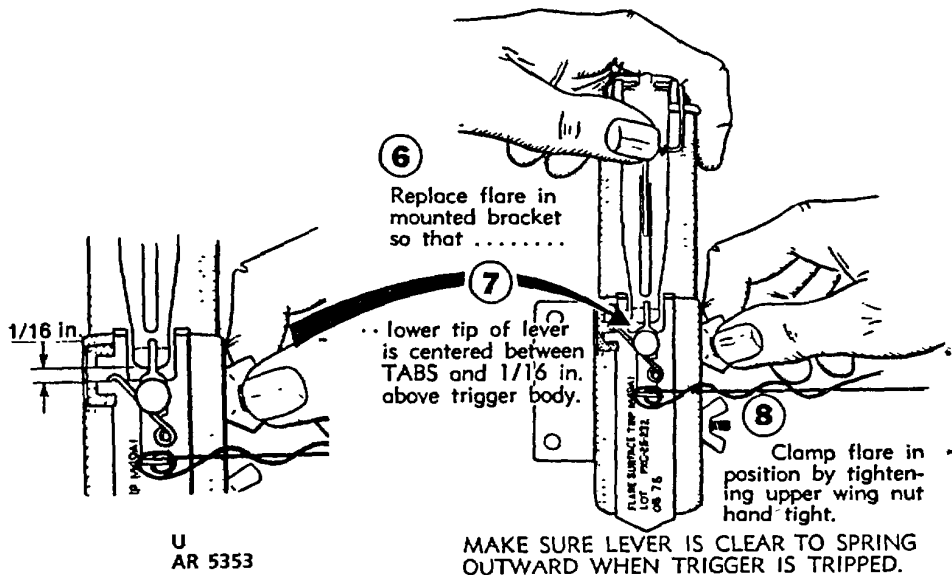


- ⑤ Pull wire tight to hold trigger in this position. Wrap wire around trigger and twist to secure

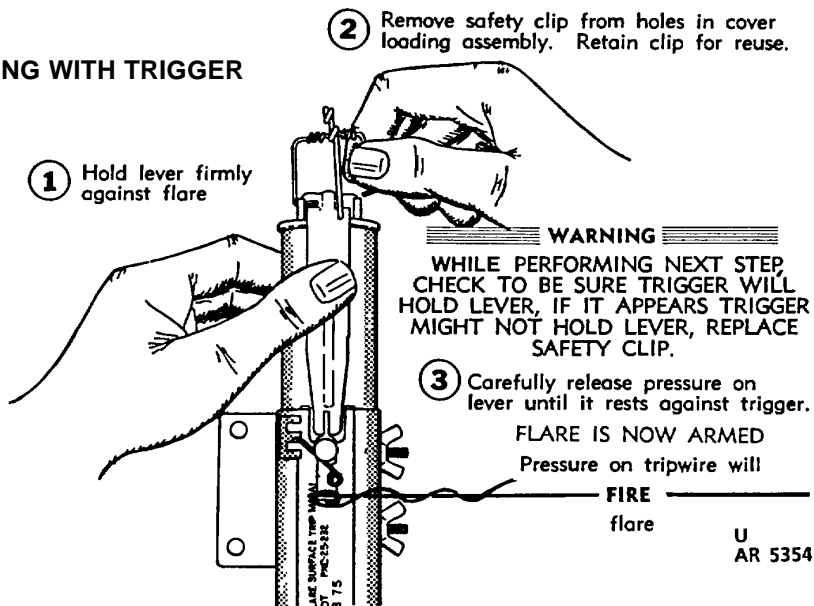
✓ CHECK to be sure ...  
 Tripwire is free of snags  
 and will not bind.  
 Trigger is centered  
 between tabs.

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 AR 5352



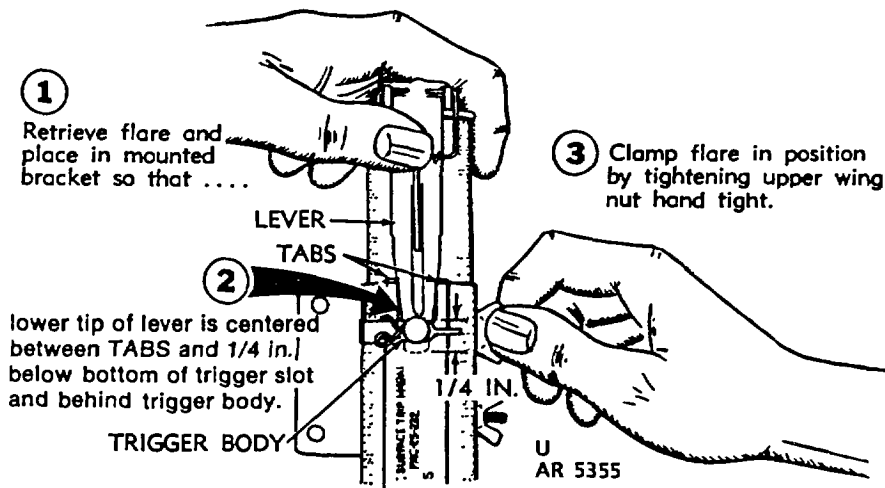


## ARMING WITH TRIGGER



## SET UP WITH PULL PIN

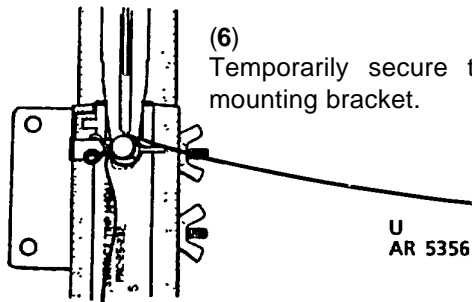
MOUNT BRACKET AS SHOWN ON  
PAGES 14 AND 15





- (4) Approximately forty feet to the right or left of flare mounting, attach tripwire to post, stake, tree or other rigid object.

- (5) Return to mounted flare while unrolling tripwire  
Make sure wire does not bind or snag.



- (6) Temporarily secure tripwire to mounting bracket.

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AR 5356

**8** Remove safety clip from holes in cover loading assembly.

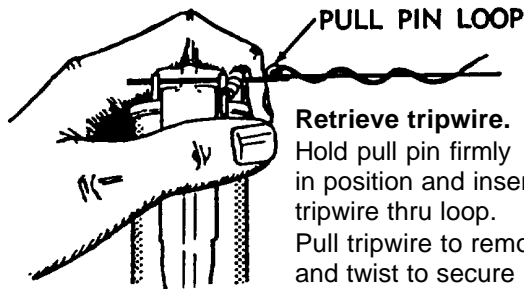
**7**  
Hold lever firmly  
against flare.

**9** Retain pressure on lever  
and insert pull pin thru  
BOTH safety pin holes.

MAKE SURE THE PULL  
PIN LOOP IS ON SAME  
SIDE OF FLARE AS  
TRIPWIRE.

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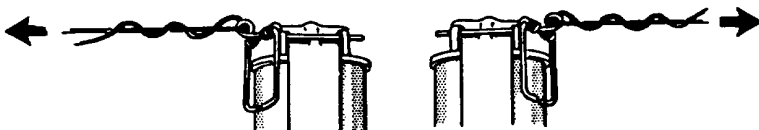
**10**



**Retrieve tripwire.**

Hold pull pin firmly  
in position and insert  
tripwire thru loop.

Pull tripwire to remove slack  
and twist to secure  
to pull pin.

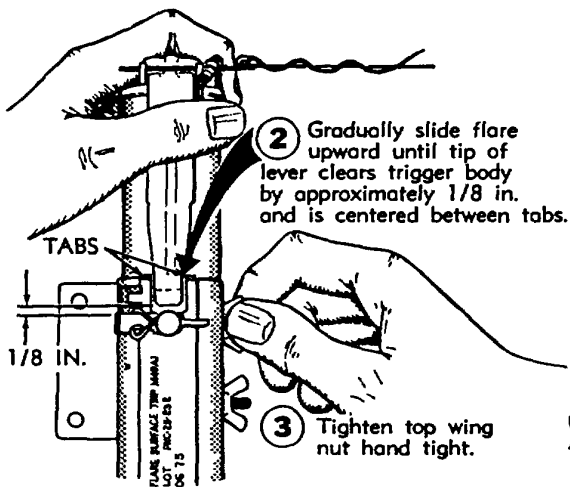


**NOTE: THE PULL PIN MAY BE INSERTED FROM EITHER  
SIDE SO THAT THE TRIPWIRE CAN BE RUN TO  
RIGHT OR LEFT**

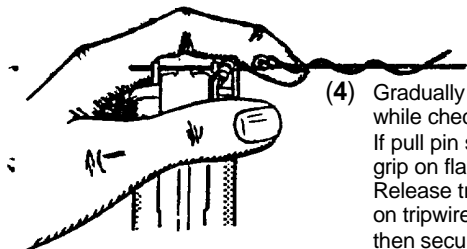
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## ARMING WITH PULL PIN

- ① Retain grip on pull pin and flare lever, and with other hand loosen top wing nut.

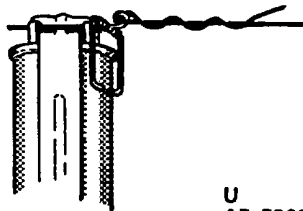


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AR 5359



- (4) Gradually release grip on pull pin and lever while checking that pull pin remains in place. If pull pin slips through holes, tighten grip on flare and replace pull pin. Release tripwire and adjust tension on tripwire until pull pin remains in place, then secure wire to pull pin.

## FLARE IS ARMED



- (5) Gently remove hand completely from flare and leave area QUICKLY

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AR 5360



**DISARMING PROCEDURE**  
**WHEN SET UP FOR TRIGGER FIRING.**

**WARNING**

AVOID CONTACT WITH TRIPWIRE  
UNTIL SAFETY CLIP IS IN PLACE

- (1) Carefully depress and hold lever against flare body.
- (2) Insert end of safety clip through safety clip hole.
- (3) Loosen upper wing nut and push flare down  
Into mounting bracket.
- (4) Slowly release lever until certain safety clip is  
properly positioned and holding lever.
- (5) Remove wire from trigger and rewind.

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**AR 5361**

**FLARE IS NOW DISARMED**

## **DISARMING PROCEDURE (con't)**

### **WHEN SET UP FOR PULL PIN FIRING**

- (1) Firmly depress lever against body and hold pull pin in place.
- (2) Loosen upper wing nut and push flare down into mounting bracket.
- (3) Detach tripwire from pull pin.
- (4) Remove pull pin and insert safety clip.

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AR 5362**

**FLARE IS NOW DISARMED.**

**DUD .....**

**DO NOT TOUCH THE DUD !**

**MARK LOCATION OF DUD FOR  
EOD PERSONNEL**

**CALL EOD FOR DISPOSAL**

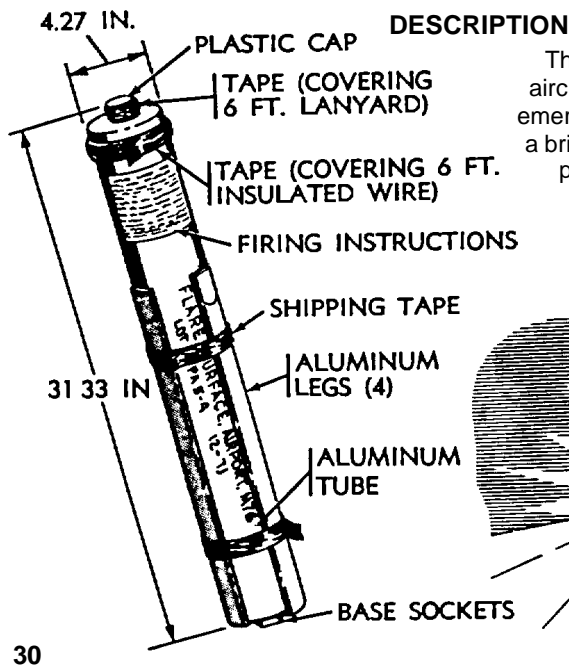
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## **TO REPACK**

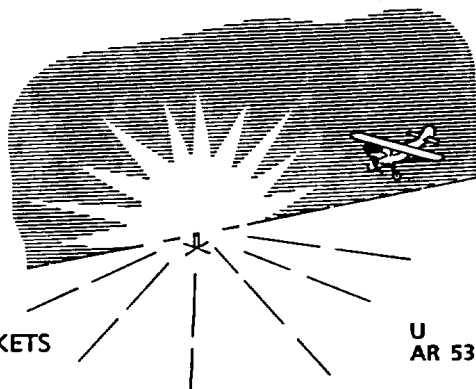
- (1) Remove bracket and flare assembly from mounting post.
- (2) CLEAN and DRY flare and bracket assembly.
- (3) Repack in original packing.

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## Airport Surface Flare M76

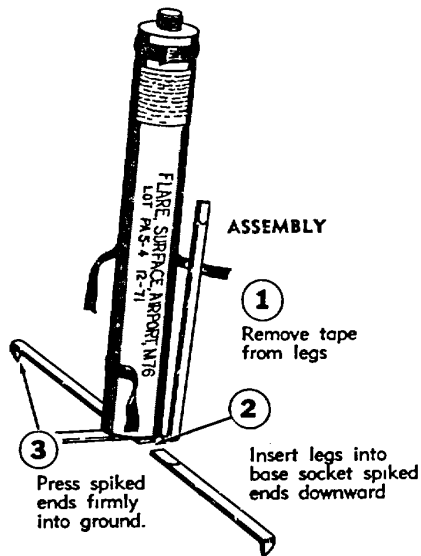


This flare is used to illuminate aircraft landings or to illuminate emergency landing fields. It has a brightness of 500,000 candlepower for 5-7 minutes and is visible for 20-30 miles. It may be initiated manually or electrically.



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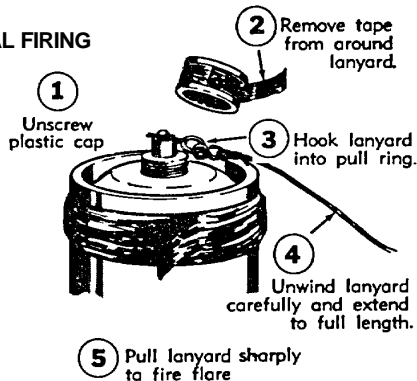
## OPERATION



## WARNING

**BEFORE FIRING** CHECK TO BE SURE AREA AROUND FLARE IS CLEAR OF PERSONNEL AND FLAMMABLE MATERIAL.

## MANUAL FIRING

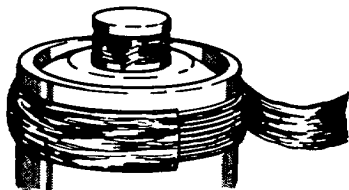


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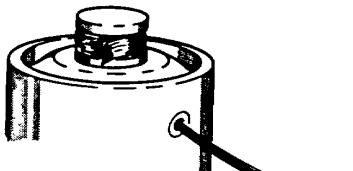
DUD....

DO NOT TOUCH THE DUD! MARK LOCATION OF DUD FOR EOD PERSONNEL. CALL EOD FOR DISPOSAL.

## ELECTRICAL FIRING



- (1) Remove tape from around insulated wire.



- (2) Unwind insulated wire and extend to full length.

- (3) Connect one wire lead to a terminal of 12 volt two terminal power source.



- (4) Touch second wire lead to other terminal of power source to fire.

## MISFIRE ....

WAIT THIRTY SECONDS  
TURN FLARE IN TO AMMUNITION  
SUPPLY POINT.

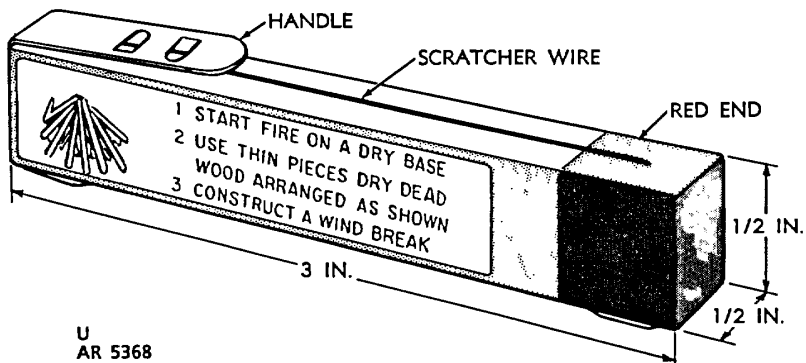
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## SECTION (3) MISCELLANEOUS

### Fire Starter M2

#### DESCRIPTION

A rectangular cellulose nitrate container designed to be carried in pocket of survival kit, it is used to start fires under adverse climatic conditions.



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AR 5368



## **OPERATION**

Fire starting instructions  
are contained on labels.

**CAUTION: HANDLE ONLY AT CLEAR END  
KEEP FINGERS CLEAR OF RED AREA WHEN  
IGNITING.**

- (1) Slide handle from case.
- (2) Pierce red end of fire starter with handle.
- (3) Point red end down and hold starter with thumb  
above scratcher wire outlet.
- (4) Grasp handle and pull scratcher wire out of case.
- (5) Ignition should take place - remain in position with  
red end down until red end is thoroughly ignited.

NOTE: If handle breaks, wrap wire around a twig and pull.

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**AR 5369**

## **Section (2.1) INFRARED TRACKING FLARE**

### **BALLISTIC AERIAL TARGET, MK33, MOD 0, FLARE**

The MK33, MOD 0 Flare is an infrared tracking flare to be used with the Ballistic Aerial Target System (BATS).

Refer to TM 9-1340-418-14, Operator, Unit, DS and GS Maintenance manual for Ballistic Aerial Target System (BATS).

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## **MISFIRE**

SHOULD IGNITION DEVICE FAIL, IGNITE FIRE STARTER WITH MATCH,  
CIGARETTE LIGHTER, ETC.

IF IT STILL DOES NOT FUNCTION - - - - -

FORWARD DEFECTIVE ITEMS TO  
AMMUNITION SUPPLY POINT

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**AR 5370**

## Warning Railroad Fusee, Red M72

### DESCRIPTION

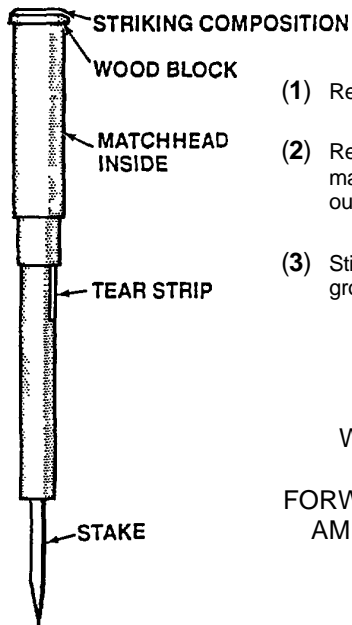


A round red paper covered fusee, 15-7/8 in. long by 1-1/16 in. diam. It is capped with a wood block and has a stake protruding from the wood bottom plug for emplacement. It is used to mark railroad car positions and outline emergency airport boundaries under conditions of poor visibility. Fusees may also be used for recognition and signaling.



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AR 5371

## OPERATION



- (1) Remove red paper from wood block with tear strip.
- (2) Remove wood block and ignite fusee by striking matchhead with striking composition that is on outer surface of cap
- (3) Stick fusee in an inclined position in ground or soft material.

## MISFIRE

WAIT **THIRTY SECONDS-**  
**THEN**  
FORWARD DEFECTIVE ITEMS TO  
AMMUNITION SUPPLY POINT

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## **MAINTENANCE**

### **OPERATOR LEVEL**

ALL PREPACKED ITEMS SHOULD BE TIGHTLY WRAPPED AND SEALED IN WATERPROOF BARRIER BAG (WHEN POSSIBLE) AND CLEARLY MARKED.

UNUSED ITEMS SHOULD BE TURNED IN TO AMMUNITION SUPPLY POINT AS SOON AS POSSIBLE. PROVIDE AS MUCH PROTECTION FOR THESE ITEMS BY REPACKING IN ORIGINAL CONTAINERS, IF AVAILABLE, OR EQUIVALENT IMPROVISED PACKING ALL EFFORTS MUST BE MADE TO GET THESE ITEMS TO ORGANIZED MAINTENANCE IN THE BEST POSSIBLE CONDITION.

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

**U  
AR 5373**

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# **Photoflash Cartridges, Surface Flares and Miscellaneous Items**

By Order of the Secretary of the Army

Official:

**THOMAS F. SIKORA**

Brigadier General, United States Army  
The Adjutant General

CARL E. VUONO

General, United States Army  
Chief of Staff

DISTRIBUTION: To be distributed in accordance with DA Form 12-40-E,  
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