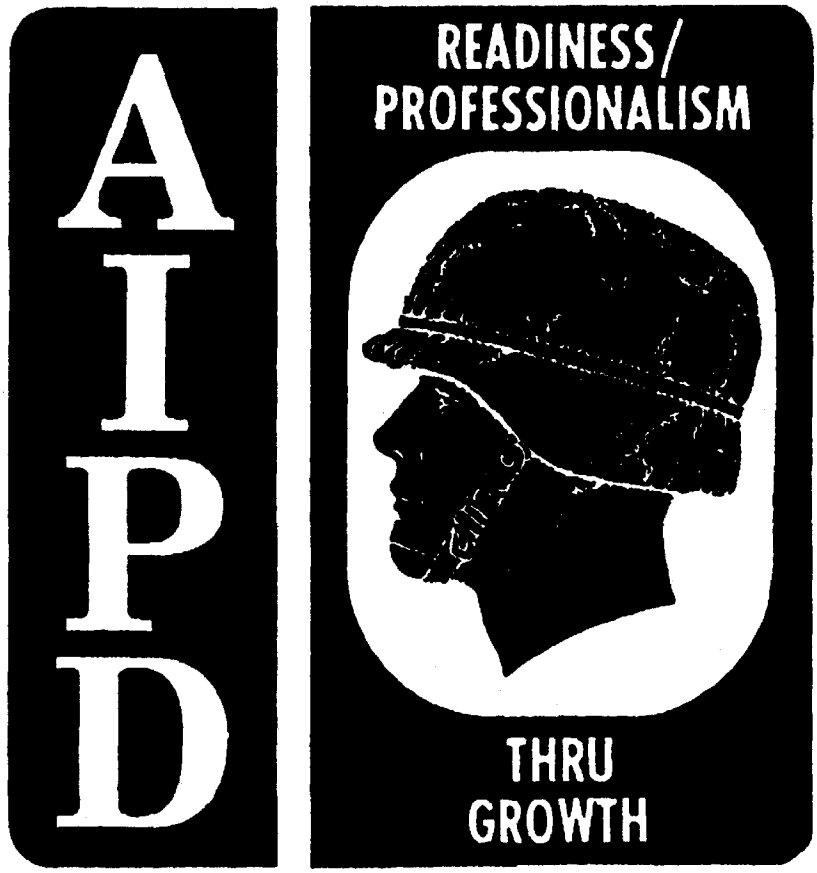
SUBCOURSE
MM3675

EDITION
A

US ARMY AMMUNITION INSPECTOR
MOS 55X SKILL LEVEL 3 COURSE

INSPECTING CONVENTIONAL AMMUNITION PART I



US ARMY ORDNANCE
MISSILE AND MUNITIONS CENTER AND SCHOOL

THE ARMY INSTITUTE FOR PROFESSIONAL DEVELOPMENT

ARMY CORRESPONDENCE COURSE PROGRAM

US Army Ammunition Inspector
MOS 55X Skill Level 3 Course

INSPECTING CONVENTIONAL AMMUNITION
PART I

Subcourse MM 3675

US Army Ordnance Missile and Munitions Center and School

MM3675

This publication is provided for nonresident instruction only. It reflects the current thought of this school and conforms to published Department of the Army doctrine as closely as possible.

Users of this publication are encouraged to recommend changes and submit comments for its improvement. Comments should be keyed to the specific page and line of the text to which the change is recommended. Reasons will be provided for each comment to ensure understanding and complete evaluation.

CONTENTS

INTRODUCTION

As an ammunition inspector, you will be responsible for inspecting a variety of ammunition items. This subcourse, *Inspecting Conventional Ammunition, Part I*, covers the inspection procedures for small arms ammunition, artillery ammunition, hand grenades and the 40mm grenade cartridge, mines, and military pyrotechnics. In *Inspecting Conventional Ammunition, Part II*, the procedures for inspecting demolition materials and propelling charges are covered.

The five lessons in this subcourse have been adapted from TEC lessons. They are based on the following tasks from STP 9-55X34-SM-TG: 093-404-3154, Inspect Artillery Ammunition; 093-404-3155, Inspect Small Arms Ammunition; 093-04-3167, Inspect Military Pyrotechnics; 093-404-3435, Inspect Fuzes; 093-404-3436, Inspect Hand Grenades; and 093-404-3437, Inspect Mines and Associated Equipment.

Supplementary Requirements

There are no supplementary requirements in material or personnel for this subcourse. You will need only this book and will work without supervision.

Credit Hours

Six credit hours will be awarded for the successful completion of this subcourse--a score of at least 70 on the end-of-subcourse examination.

*** * * IMPORTANT NOTICE * * ***

THE PASSING SCORE FOR ALL ACCP MATERIAL IS NOW 70%.

PLEASE DISREGARD ALL REFERENCES TO THE 75% REQUIREMENT.

LESSON 1

INSPECTING SMALL ARMS AMMUNITION

INTRODUCTION

To inspect small arms ammunition, you must be familiar with the various types of small arms ammunition, packaging material, clips, links, bandoleers, and magazine filler adapters. Then you must learn how to identify and classify any defects present in the items you inspect so that you can accept or reject them.

Before you begin an inspection of small arms ammunition, you will use Table 2-2 in SB 742-1 to determine the correct sampling plan.

Table 2-2. Sample Sizes and Acceptance/Rejection Numbers

	Sample Size		Accept/Reject Numbers (Defectives)		
	SAA	Other	Critical AC-RE	Major AC-RE	Minor AC-RE
Outer pack	20	20	0 1	1 2	2 3
Inner pack	20	20	0 1	1 2	2 3
Belt (SAA)	20		0 1	1 2	2 3
Item (Other)		20	0 1	1 2	2 3
Item (SAA)	300		0 1	14 15	21 22

NOTE

Inner pack and item samples must be selected from a minimum of ten outer packs. Additional outer packs must be inspected at either the inspection or storage location(s) to make a total sample size of 20.

NOTE

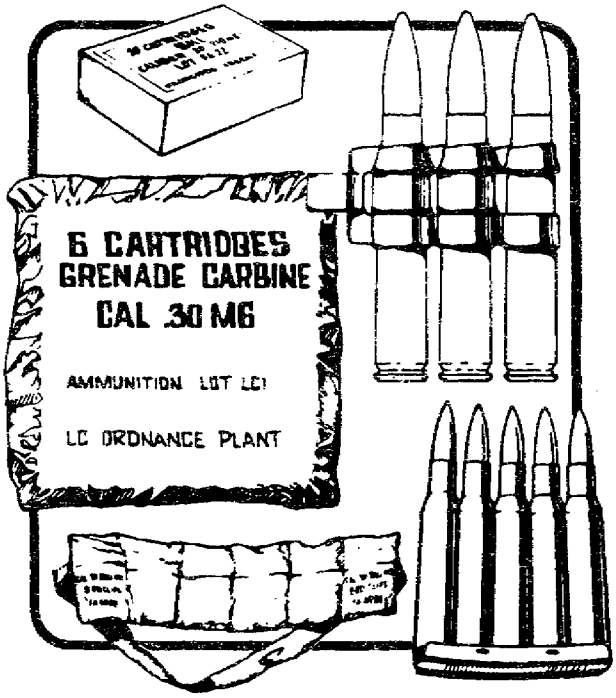
If rounds are linked, 20 belts should be inspected for defective links and subjected to a torsion test and a dead weight test.

In an actual inspection, all defects and other necessary information would be entered on an Ammunition Surveillance and Inspection Report (ASIR). Use of the ASIR is covered in another subcourse.

Before the samples are off-loaded for you at the inspection area by storage personnel, you must make sure that the correct fire symbol is posted. The correct symbol for small arms ammunition is Fire Symbol 4.

SMALL ARMS AMMUNITION PACKAGING

You begin by inspecting the packaging material. Small arms ammunition comes packed in several ways.

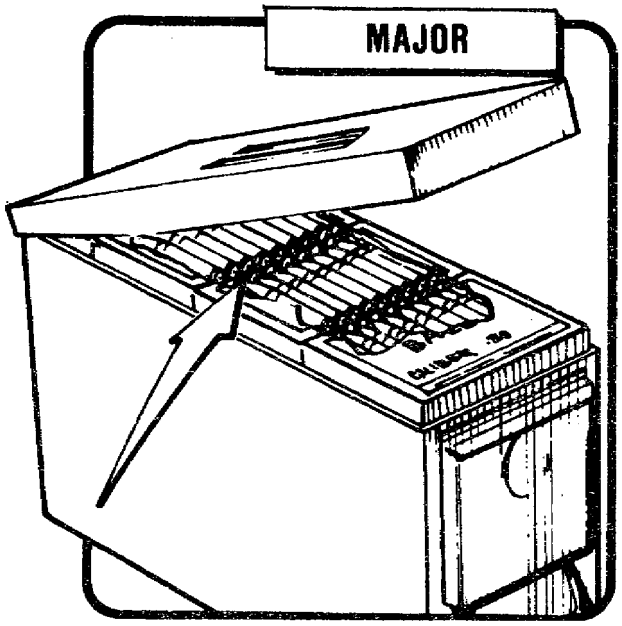


CLASSIFICATION OF DEFECTS IN SMALL ARMS AMMUNITION PACKAGING
(from MIL-STD-644A)

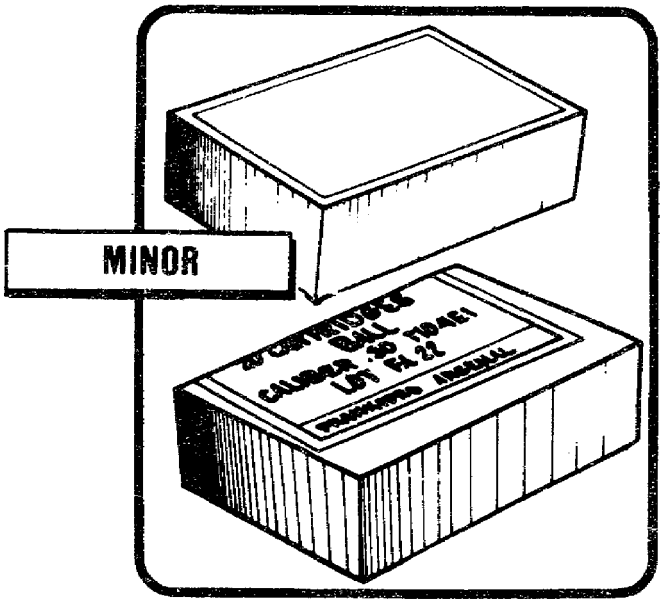
ITEM	DEFECT	CLASSIFICATION
Carton	Packaging of carton in container so that bullet points face primers is a major defect. Other improper packaging is minor.	Major/minor
	Missing or improper fillers, separators, or removal tape.	Minor
	Short or missing resealing tape (when required).	Minor
	Missing label or improperly sealed carton, including label printed in wrong position.	Minor
	Torn carton or label.	Minor
	Incorrect, illegible, or missing ammunition lot number.	Minor
	Incorrect or illegible identification of carton contents—type, caliber, etc.	Minor
Envelope	Torn or improperly sealed envelope.	Major
	Improper packaging of envelopes in container.	Minor
	Missing or improper fillers or separators.	Minor
	Incorrect or illegible identification of envelope contents—type, caliber, etc.	Minor
	Incorrect, illegible, or missing ammunition lot number.	Minor
Clip	Missing cartridge(s).	Minor
	Rusty, excessively oiled, or otherwise defective clips. Major defect if clip will not function; otherwise minor.	Major/minor
	Missing or torn carton (when required).	Minor
	Missing or improper fillers or separators.	Minor
	Improper packaging in container.	Minor
Linked belt	Ammunition packaged in wrong direction in box (where applicable).	Major
	Double loop of link on wrong end of linked ammunition in container (where applicable).	Major
	Other improper packaging of belt(s) in container.	Minor
	Incorrect linking sequence.	Minor
	Stretched, broken, or "frozen" belt. (Defects are major for linked 20mm cartridge, except that a "frozen" link M17 linked belt is a critical defect.)	Major
	Foreign material, oil or grease other than required.	Minor
	Defective protective finish or rust on link(s).	Minor
	Malformed link(s).	Major
	Improper number of cartridges in belt(s) (over two per belt; 20mm must contain the specified amount).	Minor
	Missing or improper fillers.	Minor
	Improper depth of insertion of cartridges in links. (Defect is major for linked 20mm cartridge.)	Minor
	Missing, broken, or malformed belt end (when required).	Minor
Bandoleer	Incorrect or illegible identification of bandoleer contents—type, caliber, and clip.	Major
	Incorrect, illegible, or missing ammunition lot number.	Minor
	Torn or otherwise defective bandoleer.	Minor
	Missing cartridge(s) or clip(s).	Minor
	Improper packaging of clipped ammunition in bandoleer.	Minor
	Improper packaging of bandoleer.	Minor
	Missing magazine filler (when required).	Minor
	Missing safety pin (when required).	Minor

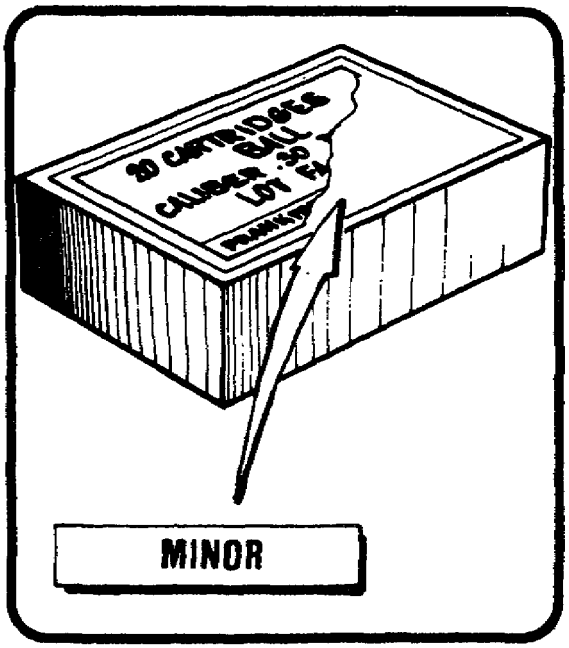
If you find cartons packed in a container so that bullet points are facing primers, this is a MAJOR defect.

Other improper packing of cartons in containers are MINOR defects.



A missing label or improperly sealed carton, including a label printed in the wrong position, is a **MINOR** defect.



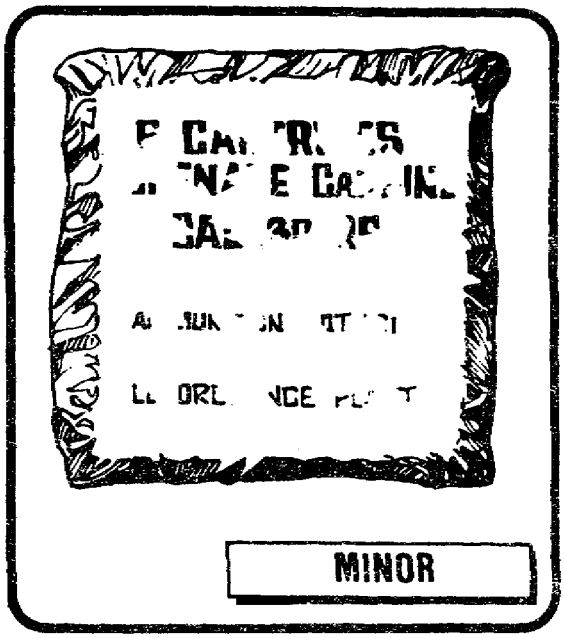


A torn label on a carton is a **MINOR** defect. It is unacceptable if any of the identifying portions of the label are missing.

A torn, ripped, or improperly sealed waterproof envelope is a **MAJOR** defect.

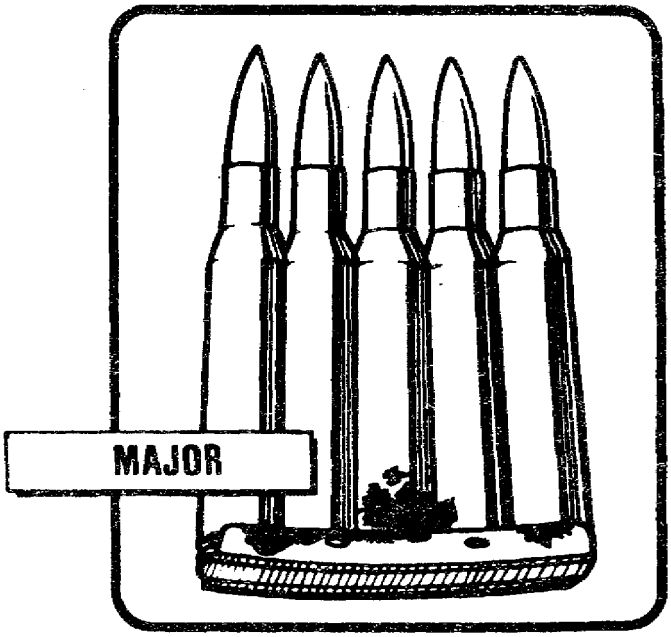
MM3675

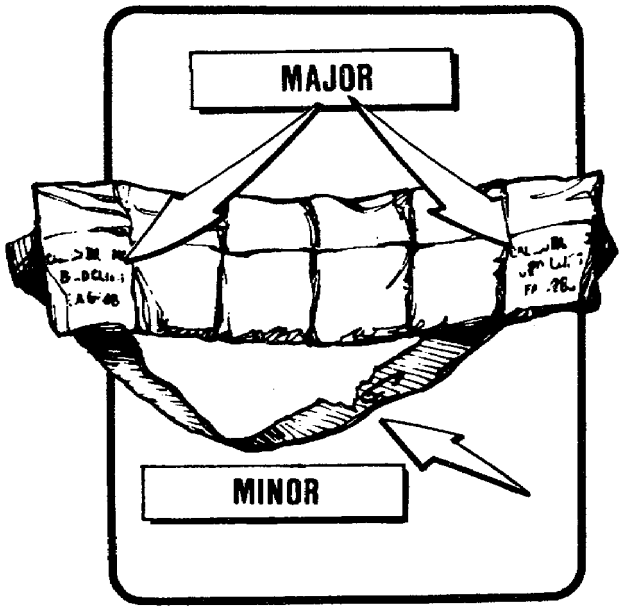
Incorrect or illegible identification of envelope contents (type, caliber, etc.) is a **MINOR** defect.



A rusty, excessively oiled, or otherwise defective clip is a **MAJOR** defect if it will not function as intended.

Other clip defects are **MINOR**.

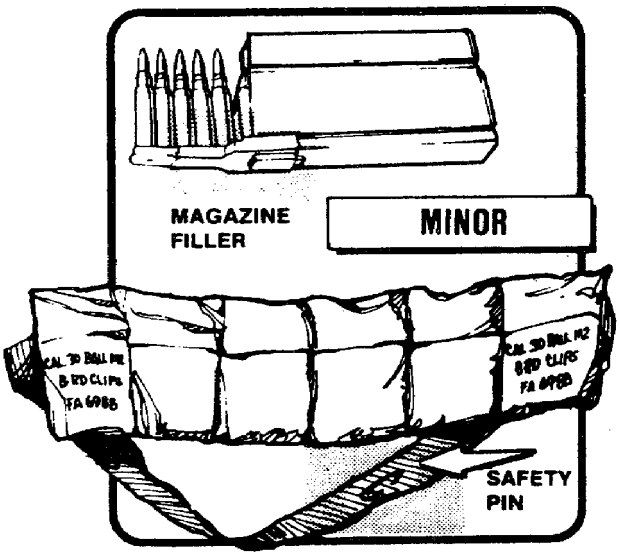




When you inspect a bandoleer, make sure the identification markings are correct and legible and that the contents of the bandoleer match the markings. Classify it a **MAJOR** defect if they are not.

An incorrect, illegible, or missing ammunition lot number is a **MINOR** defect.

A torn, ripped, or otherwise defective bandoleer is a **MINOR** defect.



A missing magazine filler or missing safety pin (when required) is a **MINOR** defect.

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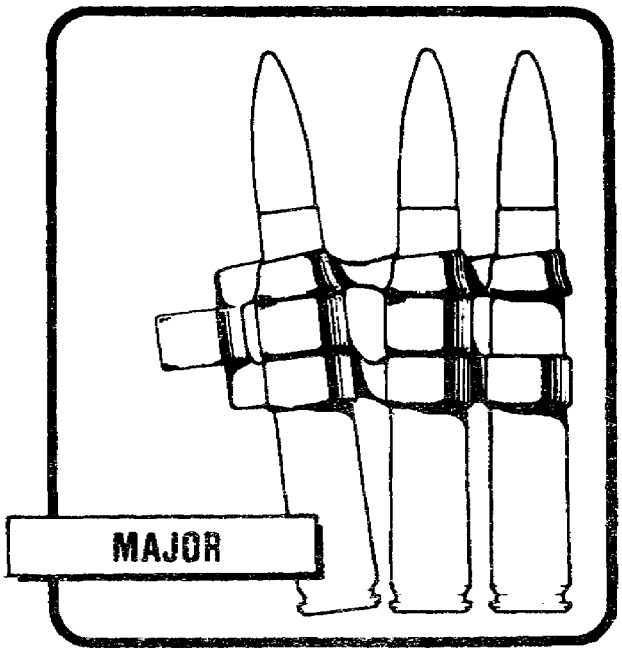
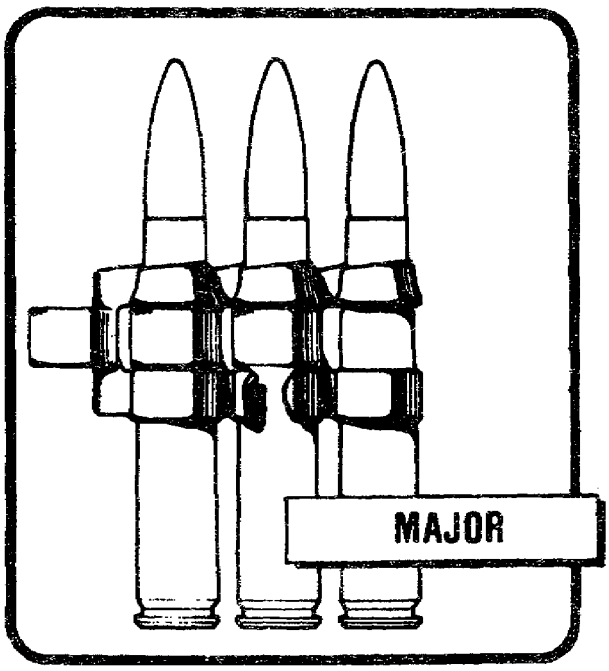
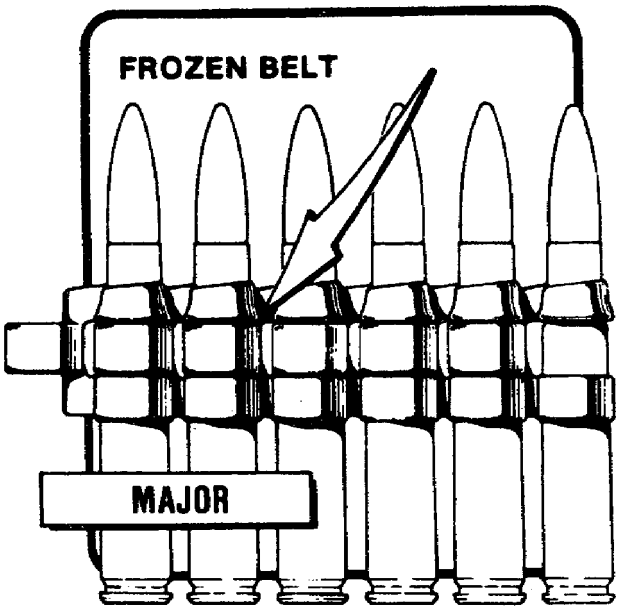
When you are inspecting linked small arms ammunition, check the belt for stretched links. This defect is **MAJOR**.

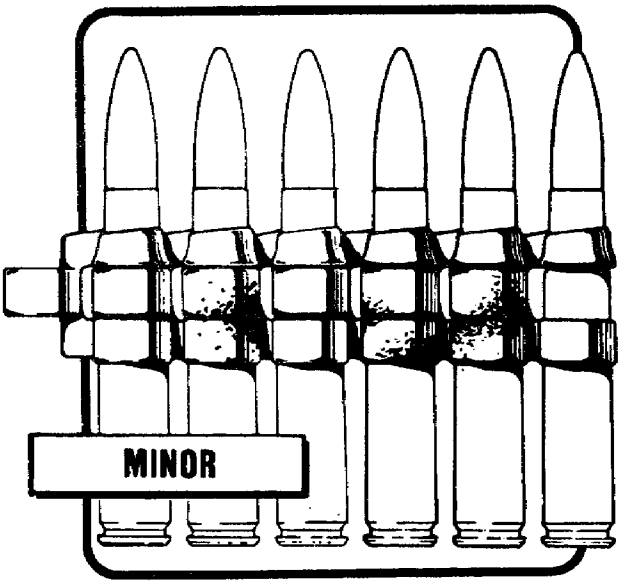


Now, check for a broken belt. This defect is **MAJOR**.





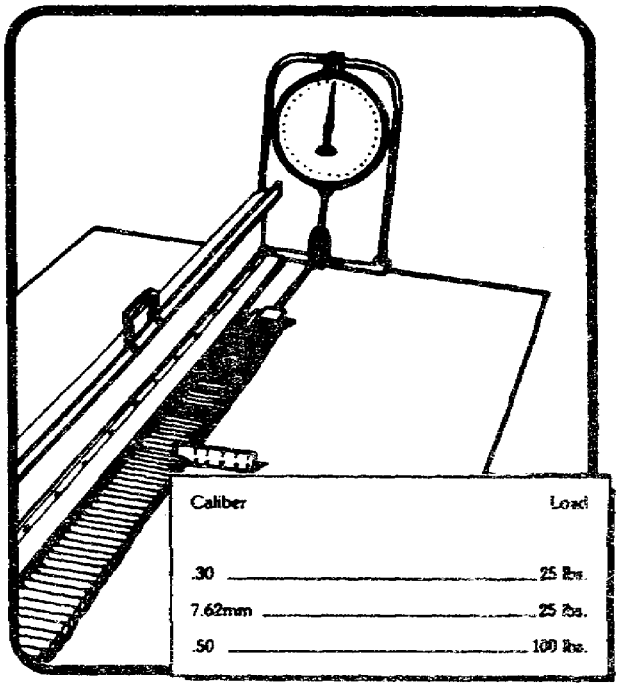
Inspect for a frozen belt, which is one that will not bend freely in both directions. This is a **MAJOR** defect.



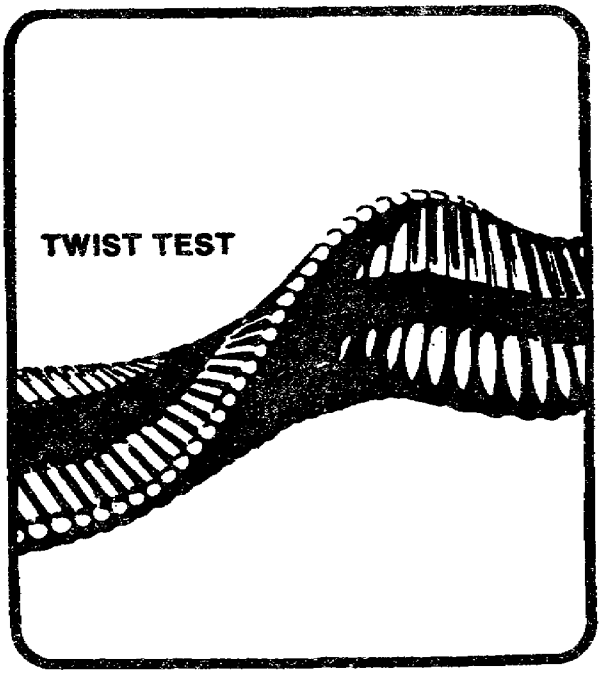
The presence of foreign matter on the link would be classified as a **MINOR** defect.

In your inspection of linked ammunition, you must perform the pull test and the twist test to detect broken or soft links in the belt of cartridges. Links that fail either test must be dismantled and scrapped. The cartridges are inspected visually before rebelting.

To perform the pull test, attach one end of the belt to the scale on the test table, and the other end to the winch. Then turn the self-locking winch until the proper pull is obtained. See the extract from MIL-STD-644A for proper pull in pounds to apply.



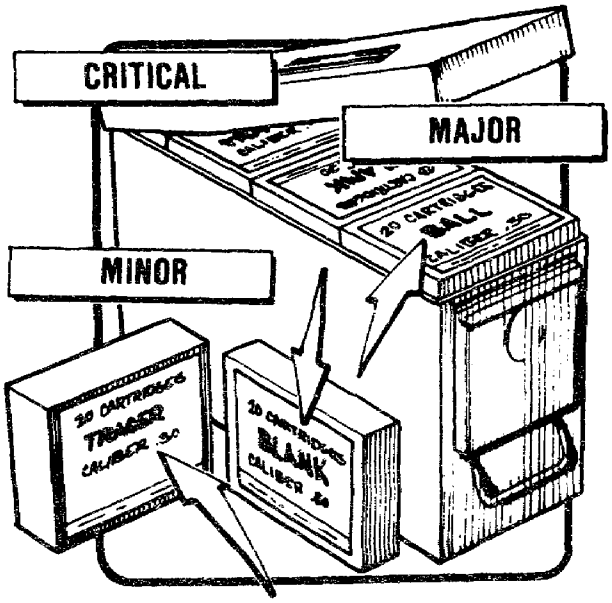
To perform the twist test, lay the belt out flat on a table. Grasp one end and flip the belt over on its other side. Then check for any fractured or broken links.



SMALL ARMS AMMUNITION

CLASSIFICATION OF DEFECTS IN SMALL ARMS AMMUNITION
(from MIL-STD-636)

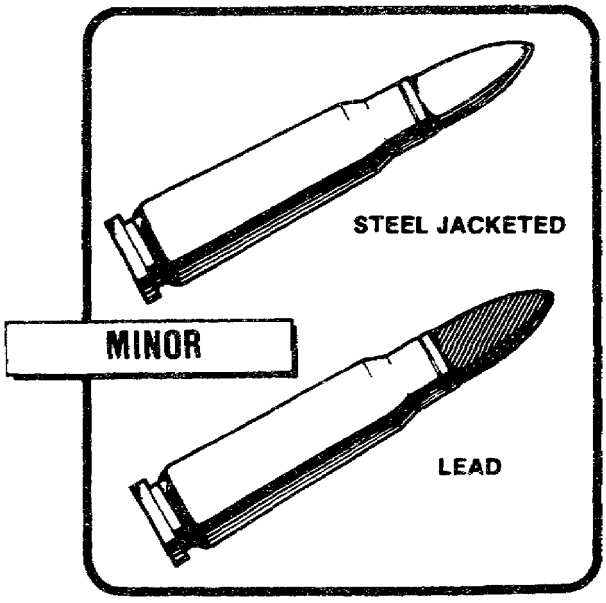
ITEM	DEFECT	CLASSIFICATION
Cartridge	Discolored, dirty, oily, or smeared (waterproofing).	Minor/incidental
	Corroded or stained. Major when etching appears in stained areas, local or general.	Major/incidental
	Mixed ammunition types.	Critical/major/minor
Case	Round head.	Major/incidental
	Dent.	Major/minor/incidental
	Split.	Critical/major
	Perforated.	Critical
	Draw scratch.	Major/minor/incidental
	Scratch.	Minor/incidental
	Beveled underside of head.	Major/incidental
	Case mouth not crimped in cannelure.	Major
	Scaly metal.	Major/minor/incidental
	No chamber on head (rim).	Major/incidental
	Fold, wrinkle, or buckle.	Minor/incidental
	Bulge	Incidental
	Illegible or missing head stamp.	Minor
	Defective head.	Minor/incidental
	Defective mouth.	Minor/incidental
	No visible evidence of mouth anneal.	Major/incidental
Bullet	Dent or scratch.	Minor/incidental
	Split jacket.	Major
	Loose.	Major
	Missing cannelure.	Major
	Scaly metal.	Major/minor/incidental
	Upset (crooked) point.	Minor/incidental
	Exposed steel (clad jacket).	Minor
	Blunt point.	Incidental
	Defective cannelure.	Minor
Primer	Missing.	Critical
	Cocked.	Critical
	Inverted.	Critical
	Loose.	Major
	Nicked or dented.	Minor/incidental
	No waterproofing (primer pocket joint).	Minor/incidental
	Defective crimp.	Minor/incidental



One important thing to check for is mixed ammunition types. This defect can be **CRITICAL**, **MAJOR**, or **MINOR**, depending on the types mixed.

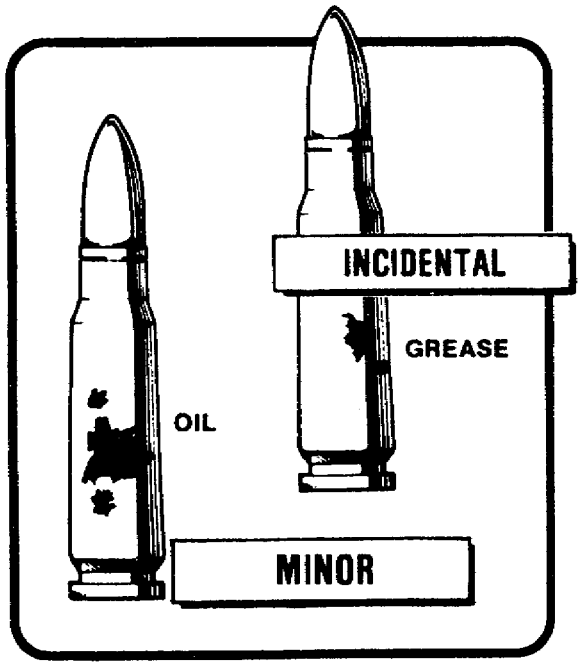
Mixed ammunition types is a **CRITICAL** defect when the types mixed in a lot can result in hazardous or unsafe conditions for persons using or maintaining the item.

For example, ball ammunition mixed with grenade cartridges or blanks is a **CRITICAL** defect.

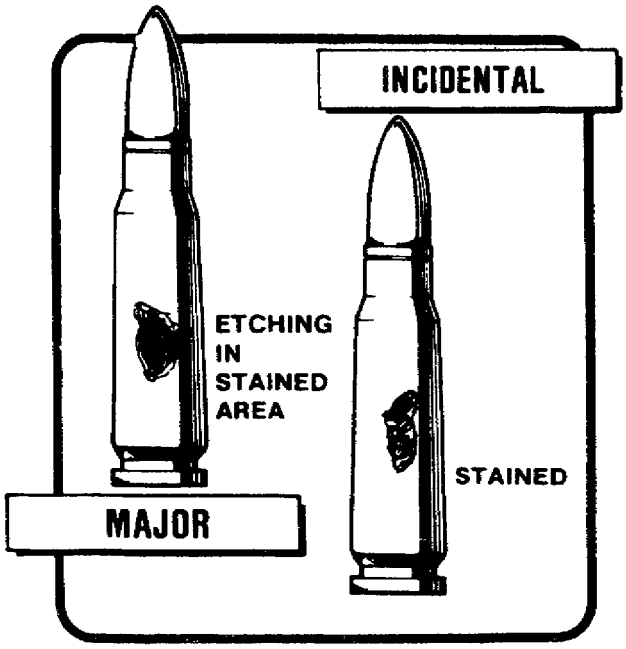


When the types mixed can result in failure during tactical use, it is a **MAJOR** defect. An example would be a mixture of standard ball ammunition with armor-piercing ammunition.

An example of a **MINOR** defect would be the mixing of jacketed bullets with lead bullets of the same caliber and weight.

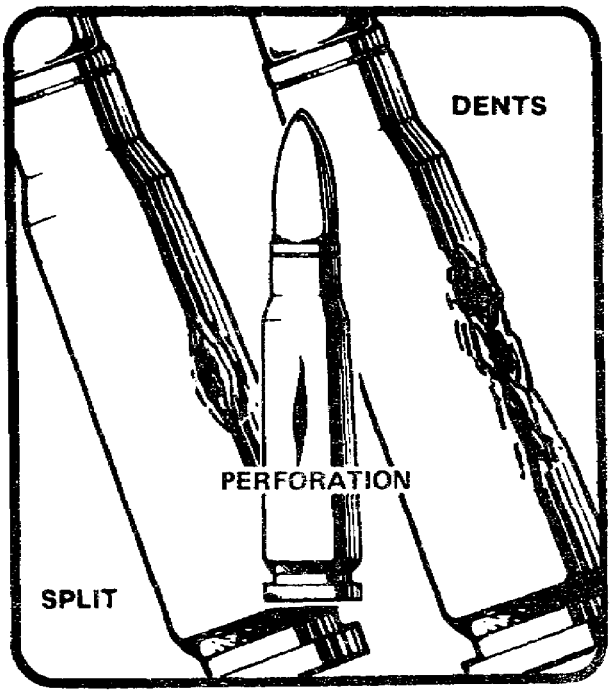


Next, inspect the individual round for dirt, oil, grease or other foreign material. This is a **MINOR** or **INCIDENTAL** defect. **INCIDENTAL** defects are permissible.



Now, look for corrosion or stains on the cartridge. If etching (corrosion eating into the metal surface) appears in stained areas, local or general, it is a **MAJOR** defect. Otherwise, it is **INCIDENTAL**.

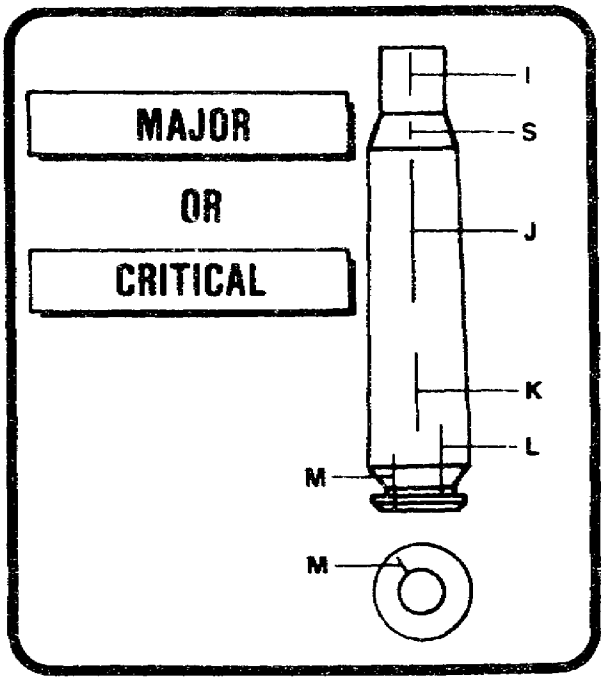
Inspect the cartridge case to see that there are no dents, splits, or perforations.



A split cartridge is either **MAJOR** or **CRITICAL**, depending on the location of the split.

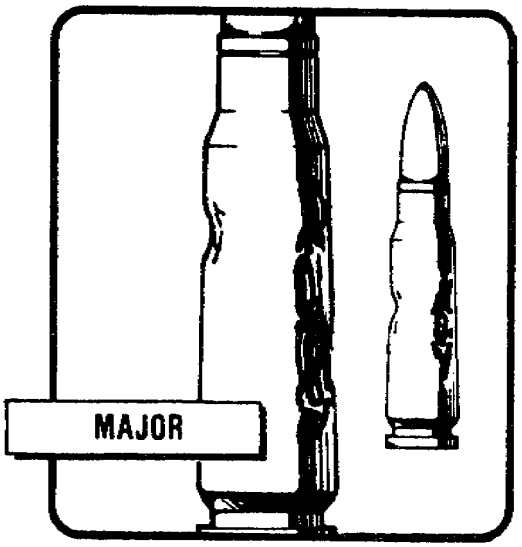
A split in the (I), (S), or (J) position (on picture at right) will be classified as **MAJOR** when no loss of powder occurs and as **CRITICAL** when a loss of powder occurs.

A split in the (K), (L), or (M) position will be classified a **CRITICAL** defect.

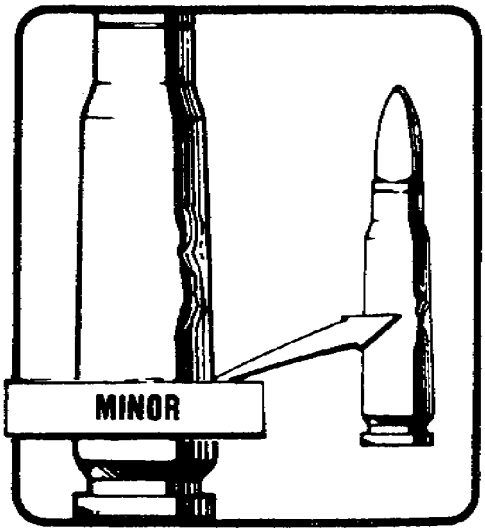


A dent in a cartridge case may be **MAJOR**, **MINOR**, or **INCIDENTAL**, depending on the degree.

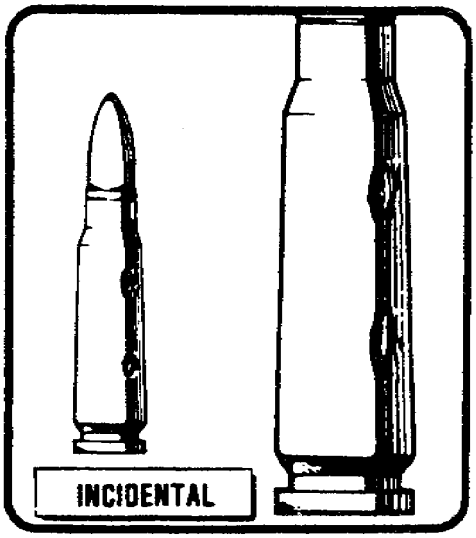
This cartridge has a dent that is a **MAJOR** defect.



This dented cartridge should be classified as a **MINOR** defect.

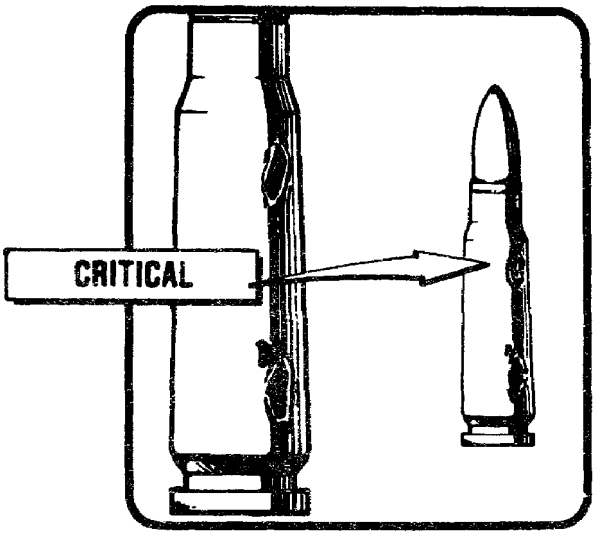


A dent like this one would be classified **INCIDENTAL** and is permissible.

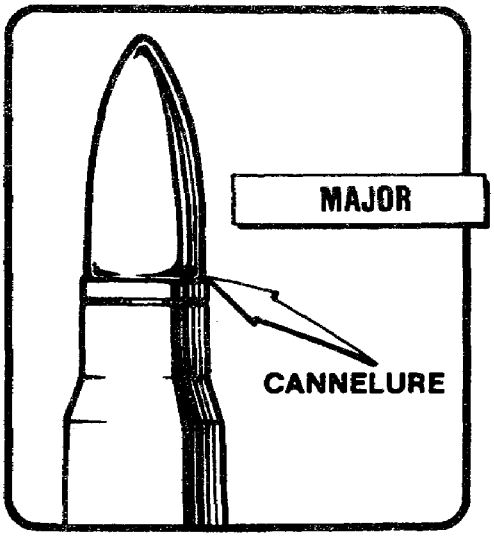


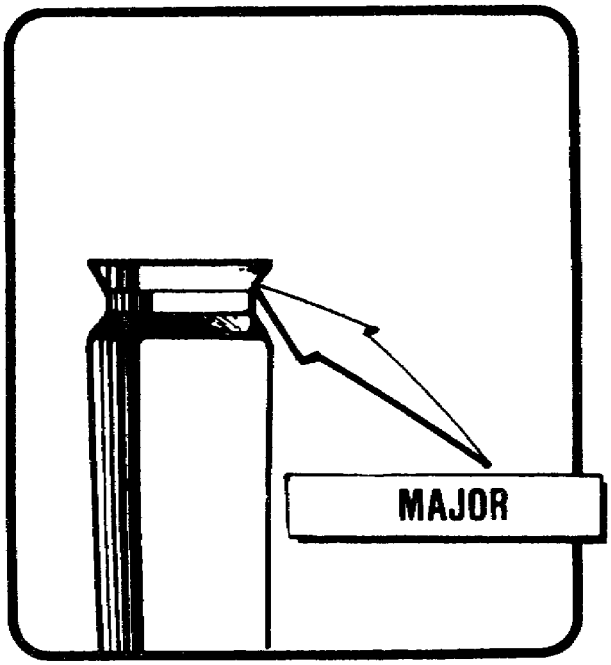
MM3675

A perforated case (a case with a hole in it) is a **CRITICAL** detect.

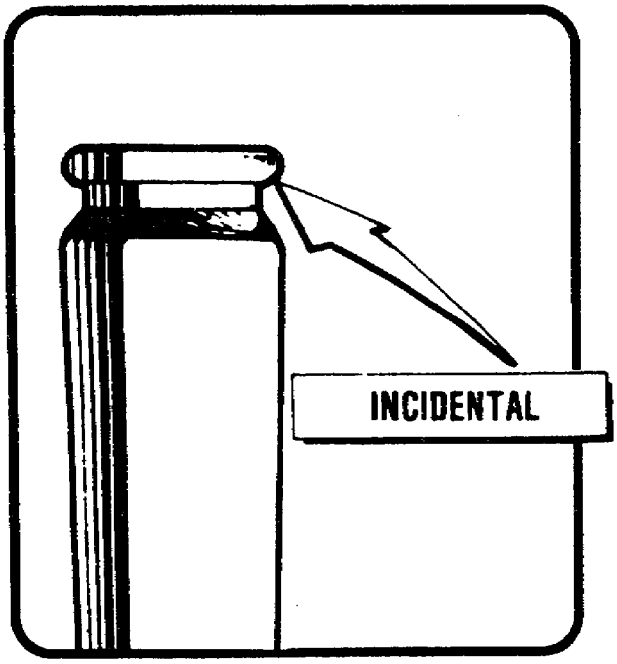


Check the cartridge case to make sure the mouth is crimped in the cannelure. If it is not, it is a **MAJOR** defect.



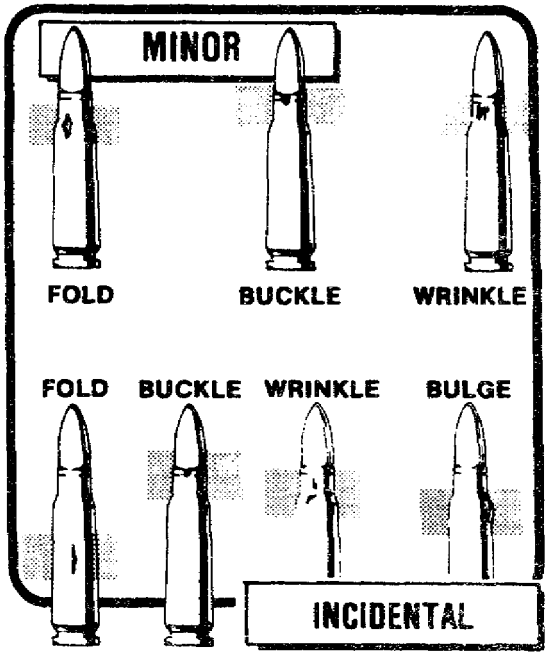


Now, check the case for a beveled underside of head. The example at left has a **MAJOR** defect.

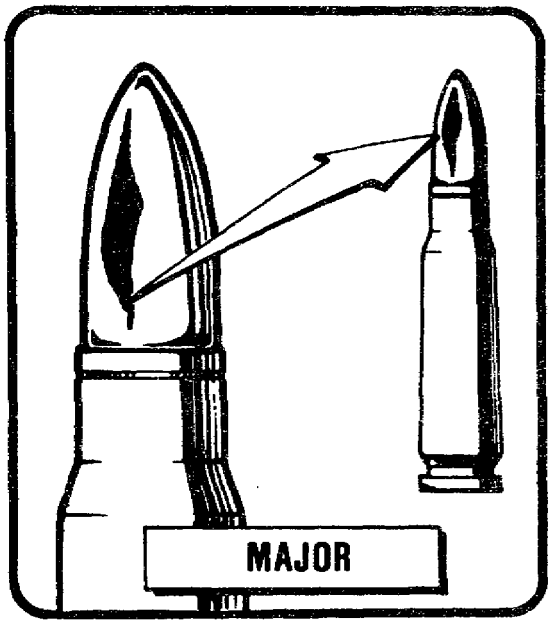


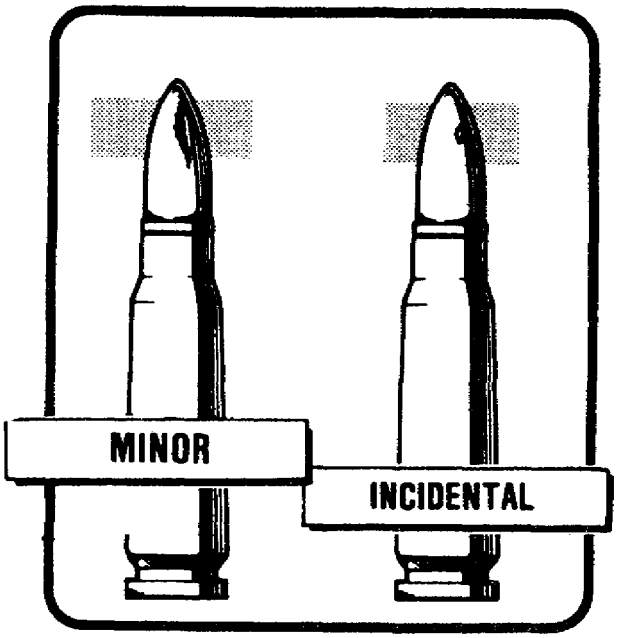
Here is an example of an **INCIDENTAL** defect.

Inspect the cartridge for folds, wrinkles, bulges, or buckles. These are either **MINOR** or **INCIDENTAL** defects, depending on size.



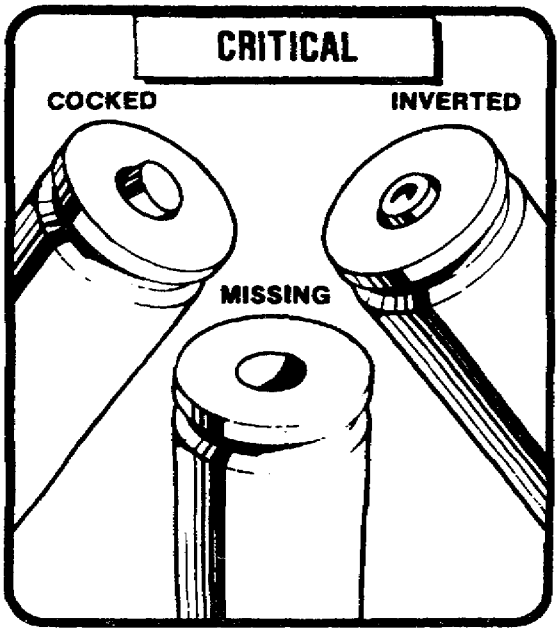
Now, check the bullet for a split jacket. This is a **MAJOR** defect if the jacket shows a definite separation of the metal so that it exposes the core or slug.





Check the bullet for dents. This is a **MINOR** or **INCIDENTAL** defect, depending on size.

A loose bullet is counted as a **MAJOR** defect if the bullet can be moved in the case by twisting, pushing, or pulling it while holding the cartridge in your hand.



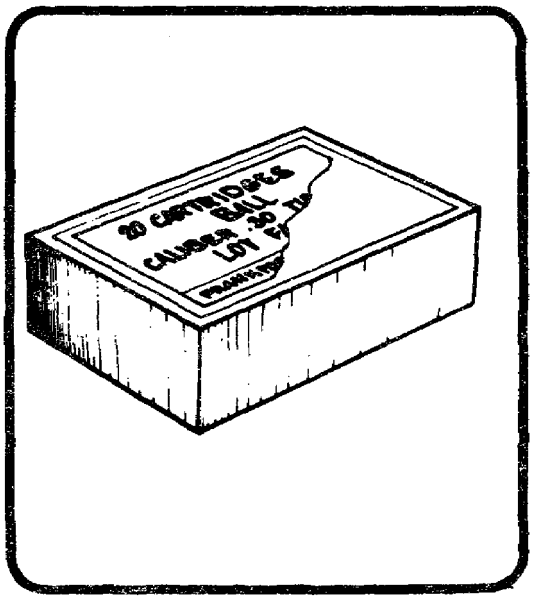
Now, inspect the round's primer. A missing, inverted, or cocked primer is a **CRITICAL** defect.

A loose primer is a **MAJOR** defect.

After completing the inspection, repack the ammunition. Notify storage personnel to return the samples to the storage location. Remove the fire symbol from the inspection area.

PRACTICE EXERCISES

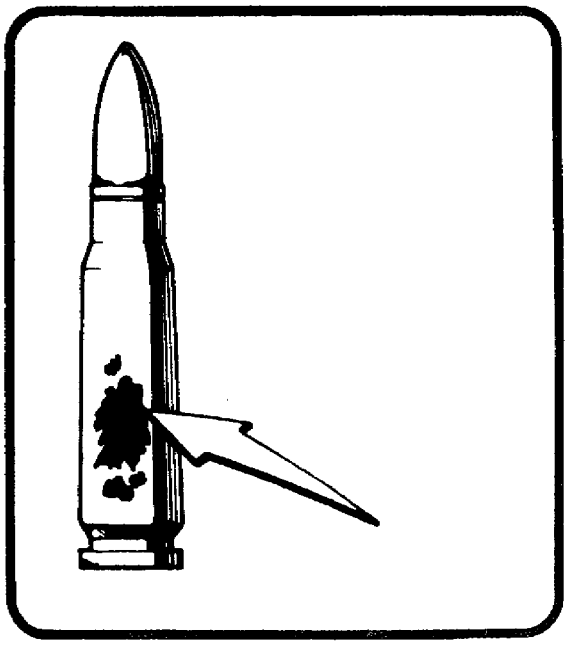
1. What is the classification of this defect?



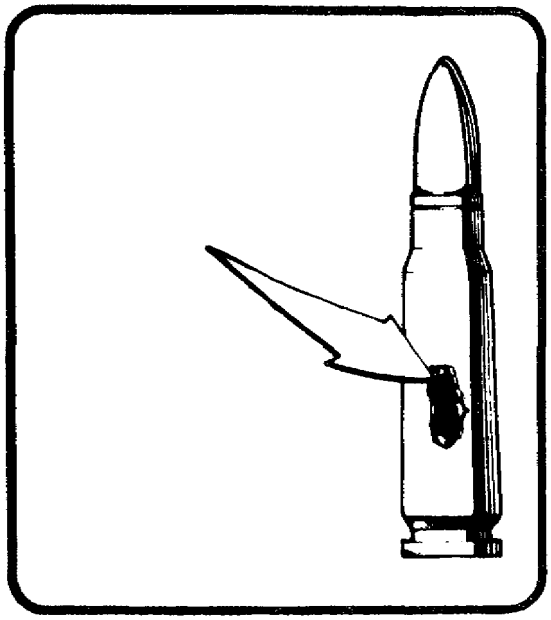
2. What is the correct fire symbol for small arms ammunition?

3. This waterproof envelope containing small arms ammunition is defective. Classify the defect.

4. There is foreign matter on this small arms cartridge. Classify the defect.

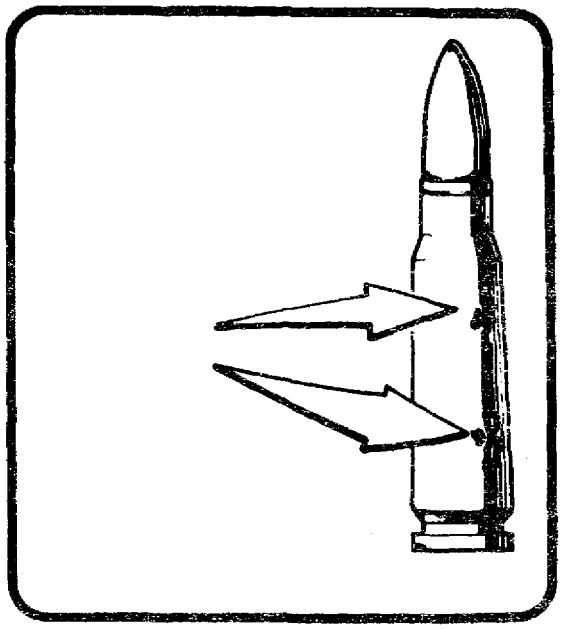


5. This cartridge has etching within a stained area. Classify the defect.

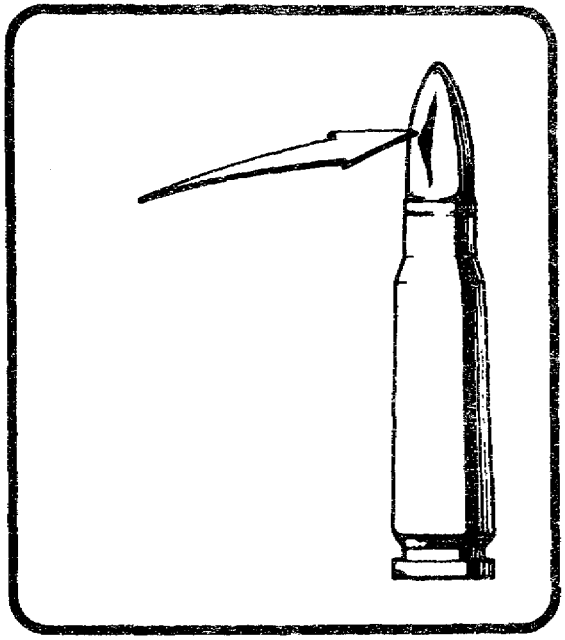


6. In what military publication would you find out the proper loads to apply to a belt of small arms ammunition in the pull test?

7. This small arms round has a perforated cartridge. Classify the defect.



8. This round's bullet is split, revealing the core. Classify the defect.



9. What must be done to a belt of ammunition if some of its links fail during a twist test?

LESSON 2

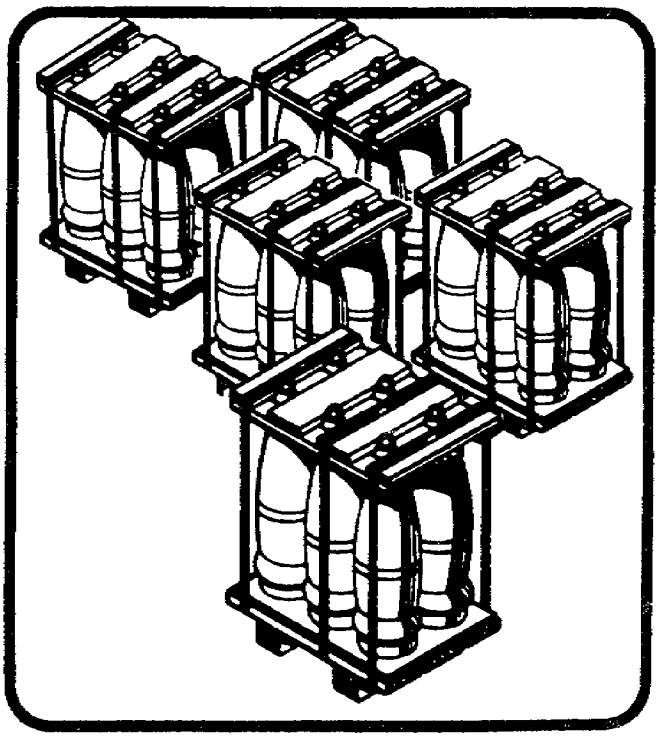
INSPECTING ARTILLERY AMMUNITION

INTRODUCTION

There are many different types of artillery ammunition, and some require special inspection procedures. In this lesson, you will learn the procedures that are used most often.

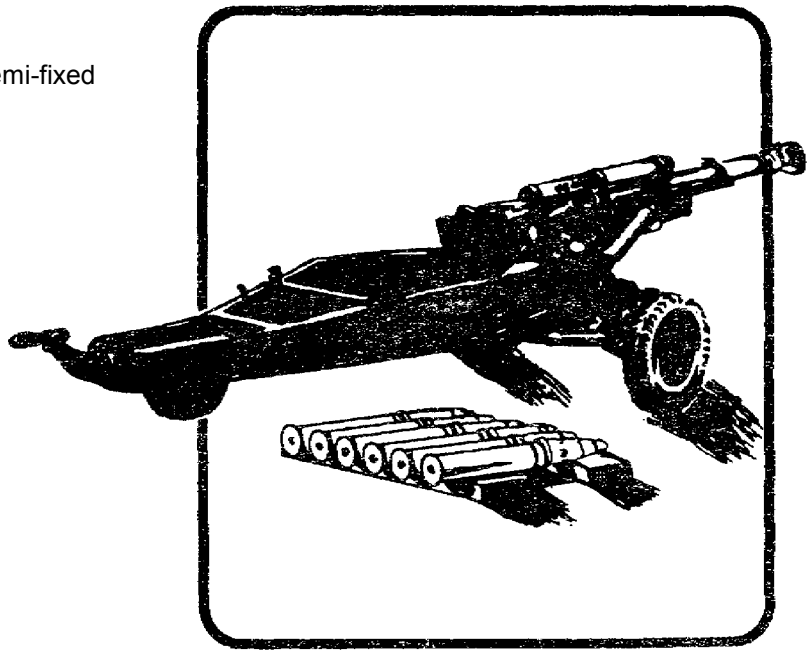
The surveillance inspection of artillery ammunition requires the selection of samples. Selection is made according to the requirements in Table 2-2 of SB 742-1 (see page 1).

The samples selected are loaded and transported to the inspection area by storage personnel. Before they are off-loaded, you must post the proper fire symbol. Fire symbols to be used are determined by TM 9-1300-206. In an actual inspection, you would enter all necessary information on an ASIR during your inspection.



FIXED AND SEMI-FIXED AMMUNITION

The procedures for inspecting fixed and semi-fixed artillery ammunition are very similar.



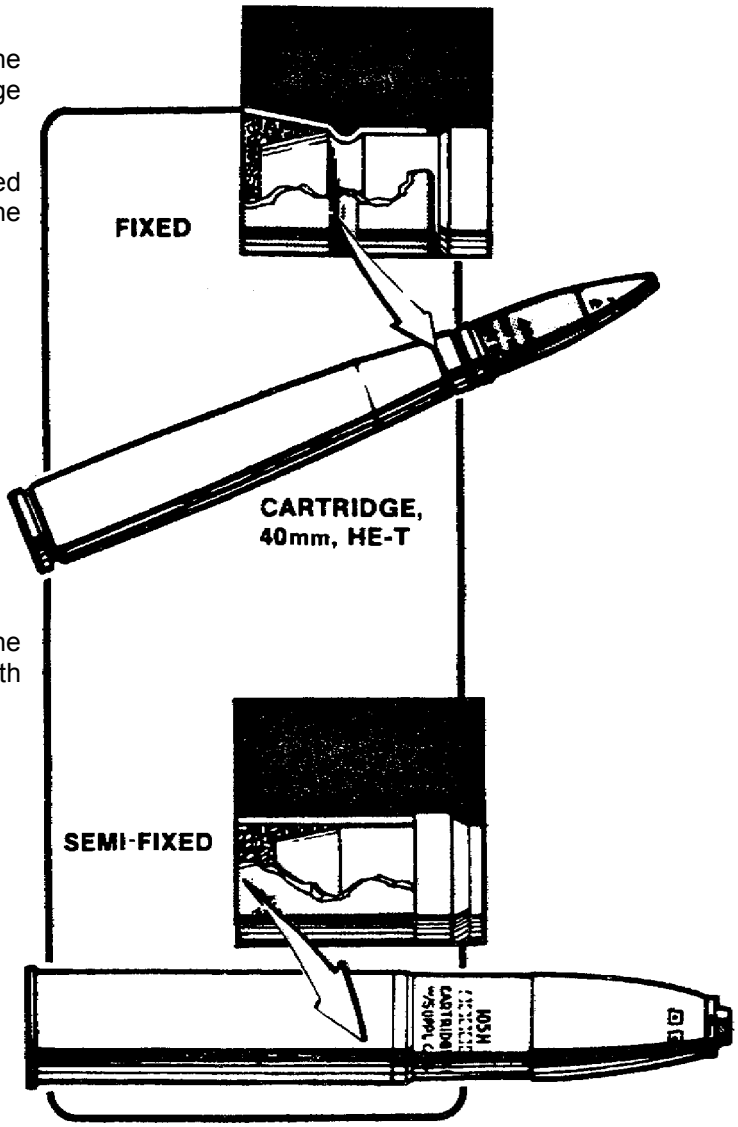
CLASSIFICATION OF DEFECTS IN FIXED AND SEMI-FIXED ARTILLERY AMMUNITION
(from TM 9-1300-251-34)

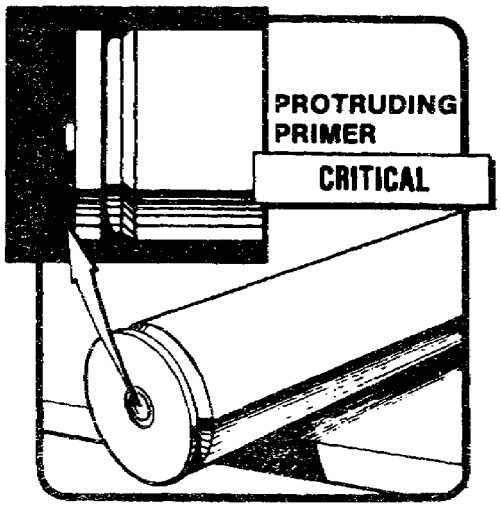
ITEM	DEFECT	CLASSIFICATION
Fixed ammunition (except 152mm)	Distorted or out-of-round projectile.	Critical
	Exudation of filler around fuze well.	Critical
	Corrosion in nose fuze well or supplementary charge.	Major
	Rust or corrosion at bourrelet.	Major
	Damaged rotating band.	Major
	Cracked or split cartridge case.	Critical
	Liner of 106mm recoilless rifle cartridge case damaged. Critical if propellant can escape.	Critical/major
	Corrosion on cartridge case or primer.	Major
	Severe dents in cartridge case.	Major
	Incorrect or illegible markings.	Major
Semi-fixed ammunition (except mortar)	Distorted or out-of-round projectile.	Critical
	Exudation of filler around fuze well.	Critical
	Rust or corrosion at bourrelet.	Major
	Corrosion in fuze well or on supplementary charge.	Major
	Damaged rotating band.	Major
	Cracked or split cartridge case.	Critical
	Rust or corrosion that penetrates base plate.	Major
	Corrosion on cartridge case or primer.	Major
	Severe dents in cartridge case.	Major
	Incorrect or illegible markings.	Major
Propelling charge	Wet or discolored propellant bags.	Critical
	Missing or broken central igniter tube.	Critical
	Blocked or missing central igniter core.	Critical
	Missing or off-center base igniter pad.	Critical
	Missing bag, extra bag, or incorrect sequencing of bags.	Critical
	Bag torn or damaged to extent that black powder or propellant can escape.	Major
	Deteriorated propellant bag.	Major
	Lumpy or caked powder in ignition pad.	Major

Fixed rounds have the cartridge case crimped to the projectile, and the propellant is loose in the cartridge case.

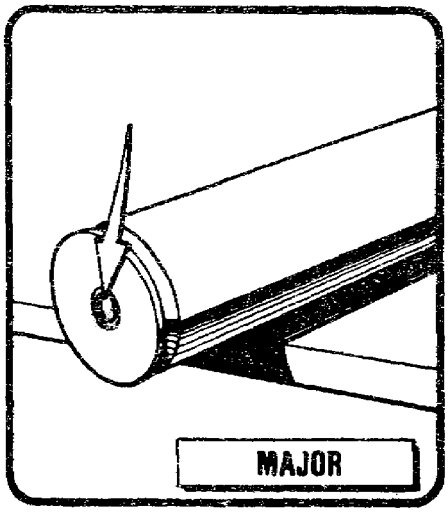
Semi-fixed rounds have the cartridge case free-fitted over the projectile base. This permits removal of the projectile so that the propellant can be adjusted.

A 40mm, HE-T round will be used to illustrate the general inspection procedures that apply to both fixed and semi-fixed rounds.



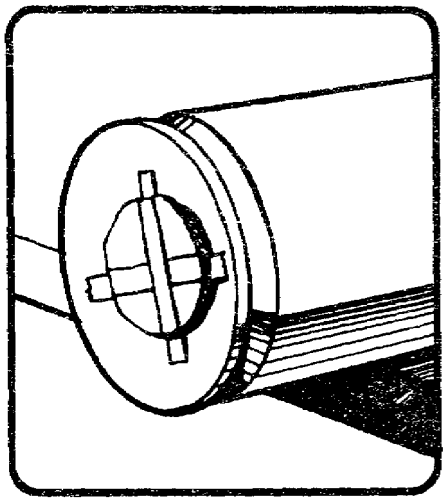


After unpacking the round, check the primer to be sure that it is not above flush. A protruding primer is a CRITICAL defect.



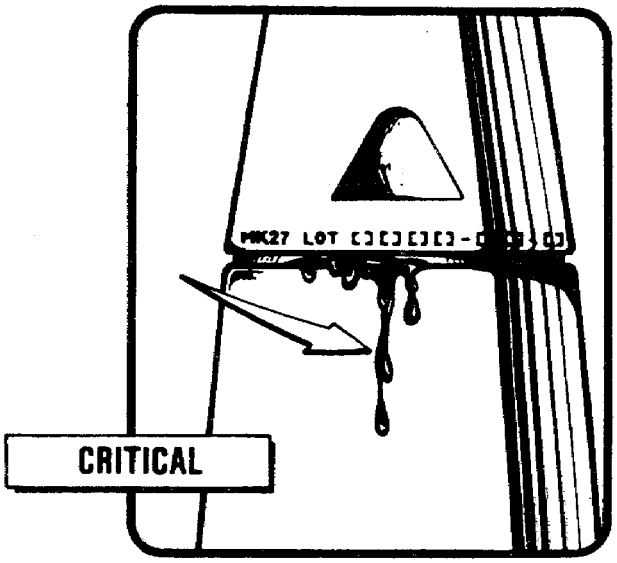
Inspect the primer for corrosion. A corroded primer is a MAJOR defect.

If no hazardous condition is noted, such as a protruding primer or severe damage, continue your inspection.

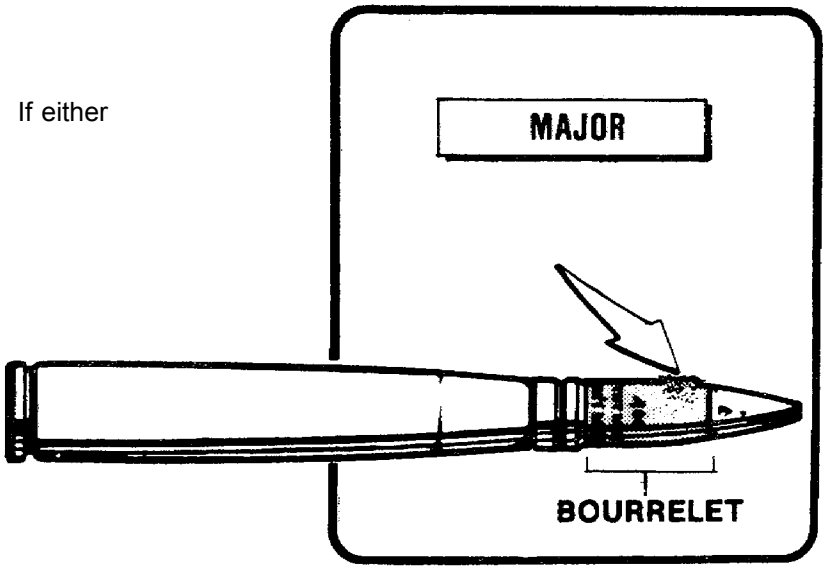


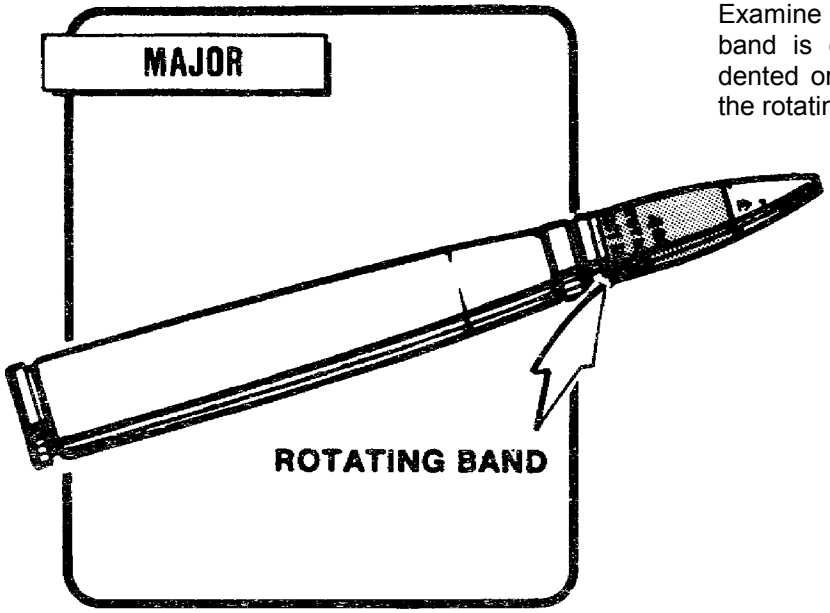
Cover the primer with a piece of cardboard. Tape it securely in place. This will protect the primer during the inspection.

Examine the area where the fuze is screwed into the fuze well for any evidence of filler exudation. Any such exudation will have the appearance and texture of motor oil. Filler exudation is a CRITICAL defect.

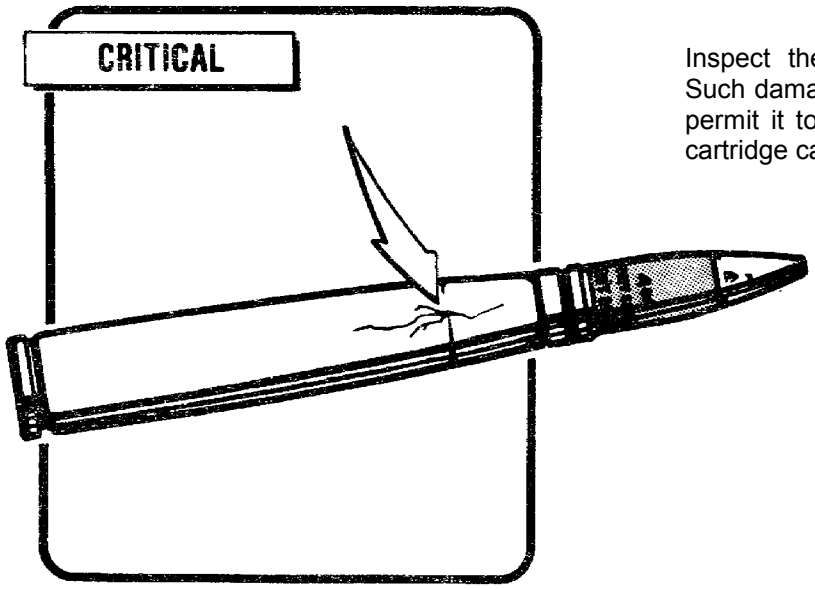


Inspect the bourrelet for rust and corrosion. If either one is found, classify it as a MAJOR defect.



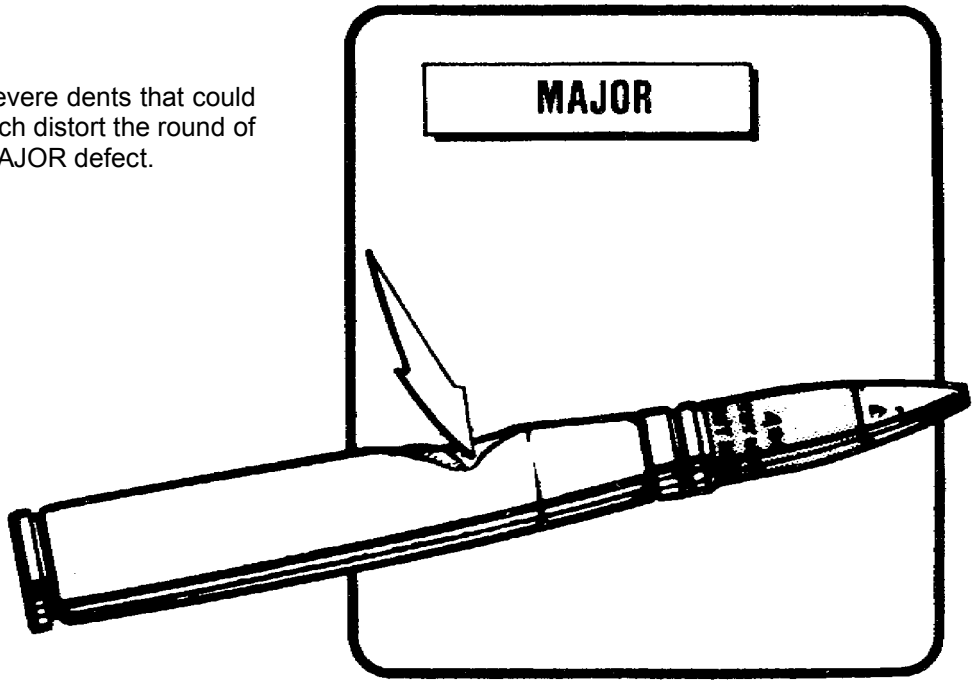


Examine the rotating band for damage. The rotating band is composed of a soft metal and is easily dented or distorted by rough handling. Damage to the rotating band is a MAJOR defect.

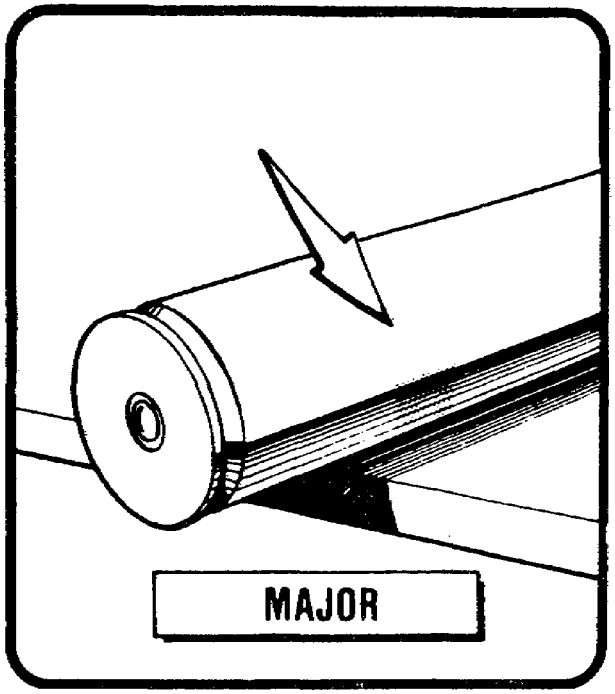


Inspect the cartridge case for cracks and splits. Such damage could expose the propelling charge or permit it to leak from the case. A cracked or split cartridge case is classified as a CRITICAL defect.

Check the cartridge case for severe dents that could become cracks or splits, or which distort the round of the case. A severe dent is a MAJOR defect.



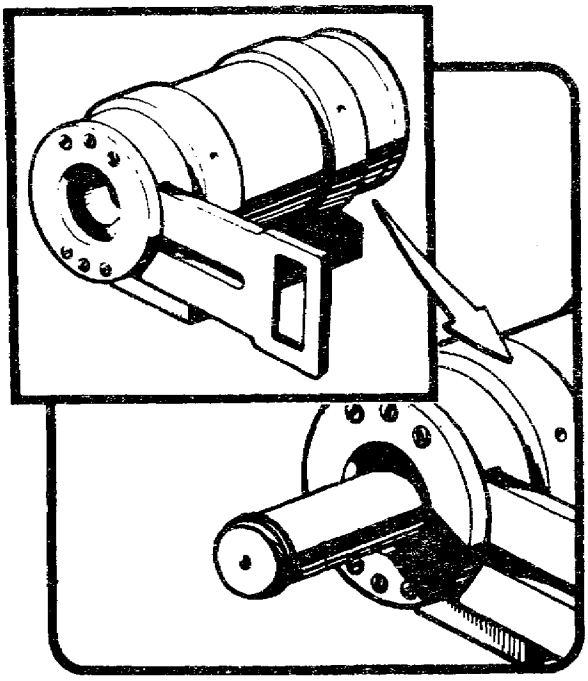
Inspect the cartridge case for corrosion. If corrosion is present, classify it as a MAJOR defect.



MM3675

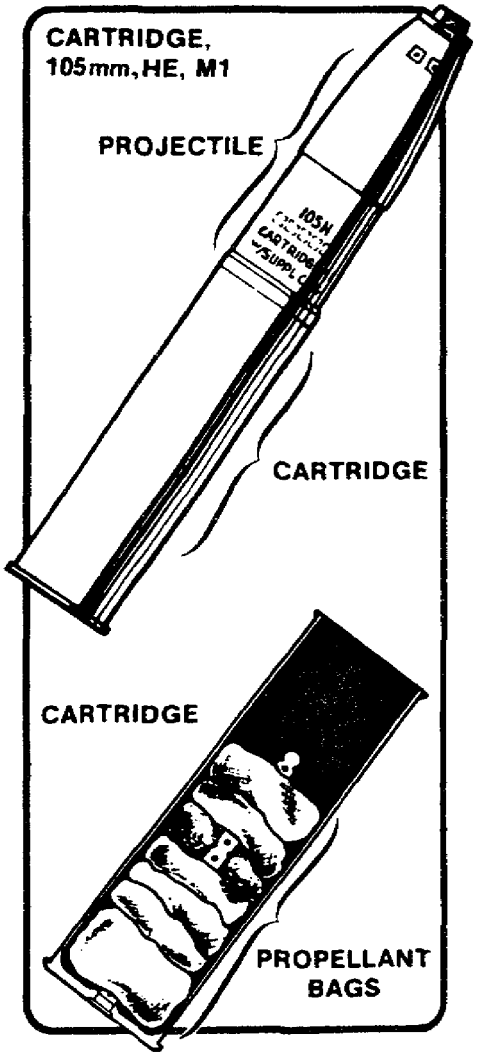
Inspect the markings on the round. If they are incorrect or illegible, this is a MAJOR defect.

Also, check that the lot number on the round is the same as that on the container.

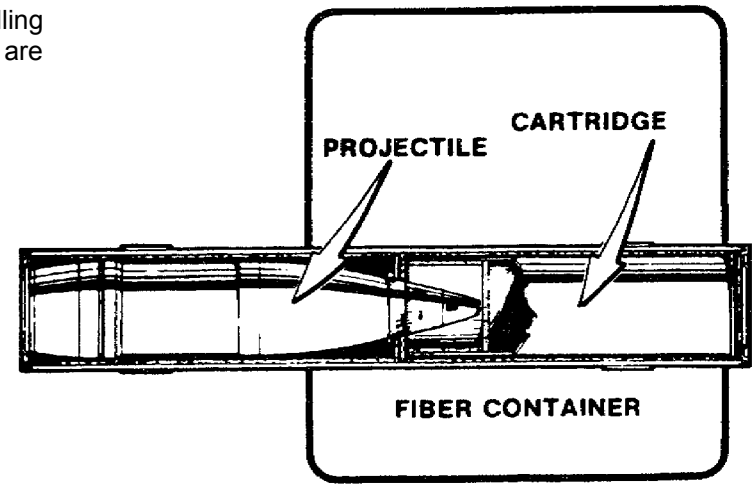


Now, place the round in the proper profile gauge to determine if it will chamber. If it does not fit, there is a MAJOR defect.

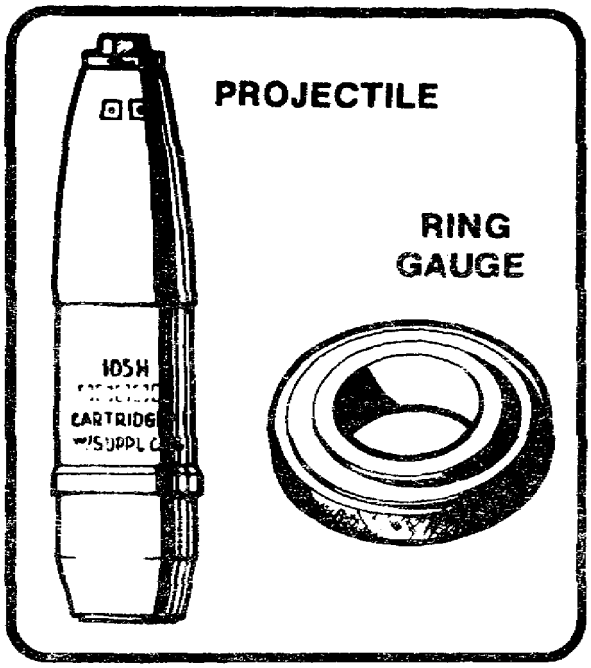
When inspecting semi-fixed ammunition, you follow the same procedures used for fixed ammunition. There are, however, several additional steps to the inspection. The example of semifixed ammunition used here is a 105mm, HE, M1 round. The propelling charge, M67, contains seven increments for maximum range.



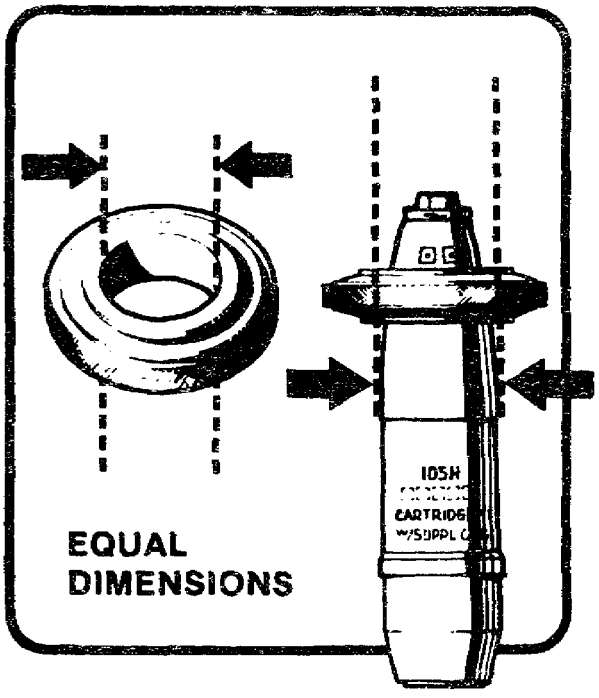
The projectile and the cartridge with the propelling charge are packed in a fiber container. They are assembled just prior to loading.

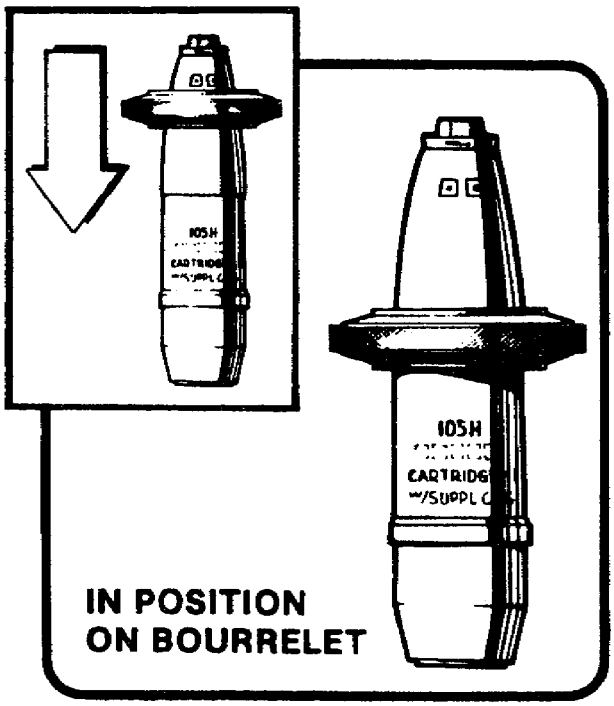


After unpacking the round, your first inspection step is to gauge the projectile to determine if it is distorted or out of round. Always be sure to use the proper ring gauge for the item you are inspecting.

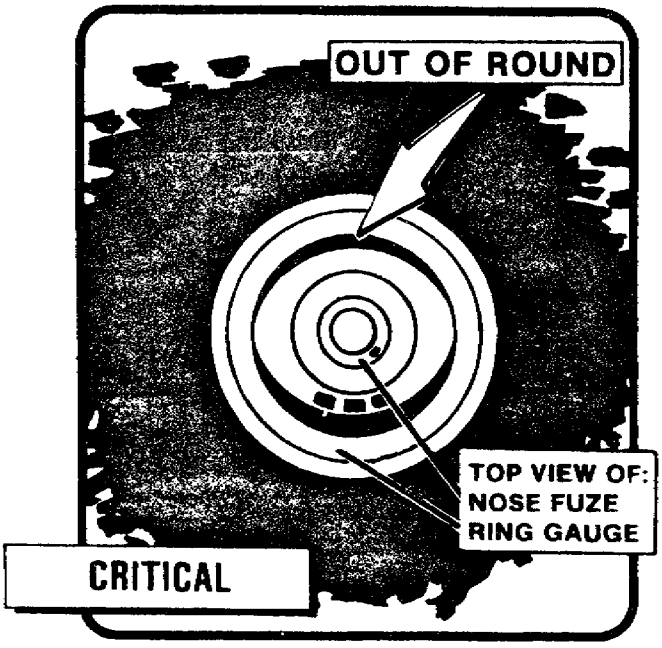


The inside diameter of the ring gauge matches the outside diameter of the bourrelet of the projectile.



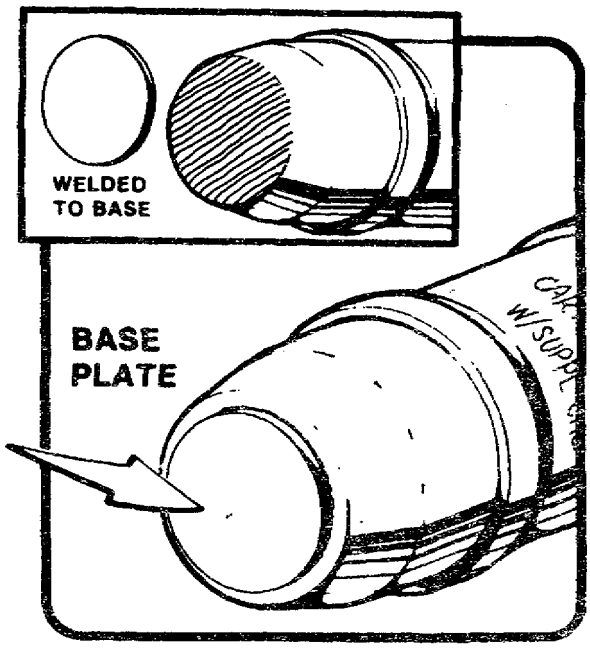


Fit the ring gauge over the bourrelet of the projectile to simulate the fit of the projectile in the bore of the weapon.



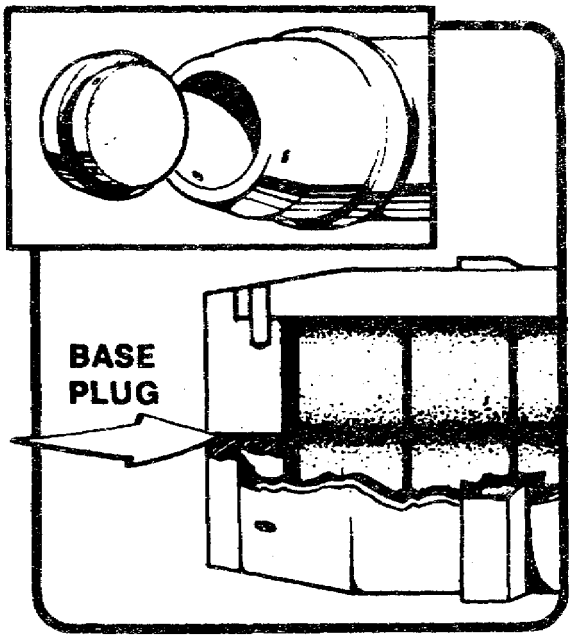
Carefully inspect the bourrelet, using the gauge, for distortion or being out of round. The gauge should fit the bourrelet at all points. Since being distorted or out of round could prove hazardous, failure to fit is a CRITICAL defect.

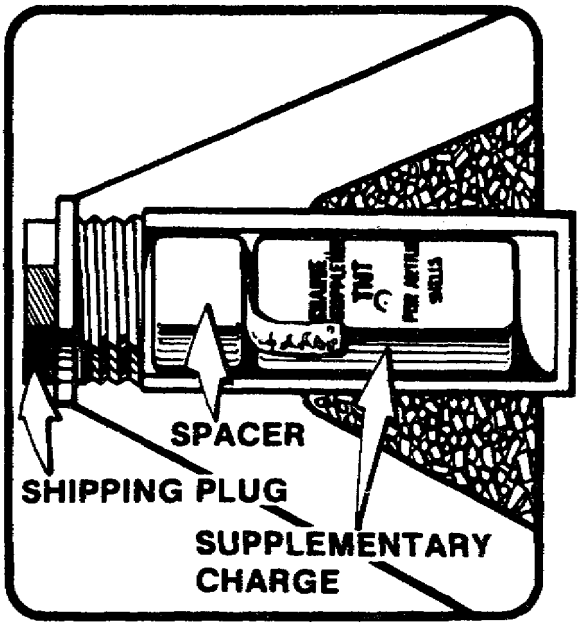
The base plate of the projectile must be checked for rust and corrosion. Extensive rust or corrosion is a MAJOR defect. Rust or corrosion that penetrates the base plate is a CRITICAL defect.



Projectiles with a base ejection capability, such as illuminating projectiles or smoke projectiles, will have a base plug.

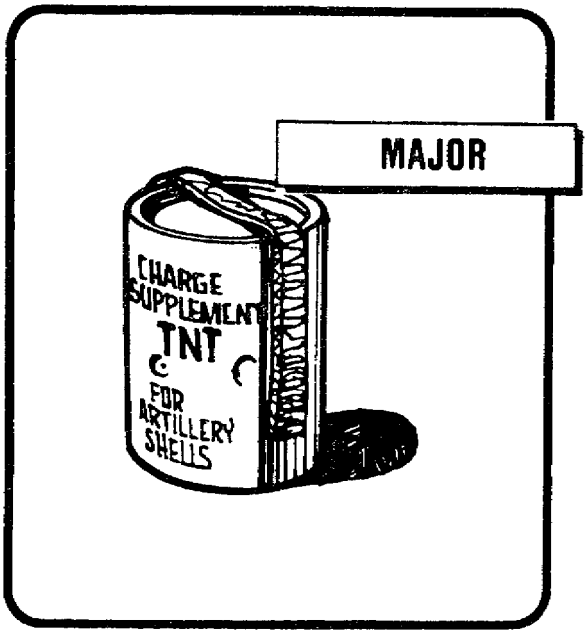
This plug is discarded by the expelling charge of the projectile upon fuze functioning.





Remove the shipping plug and check the fuze well for leakage.

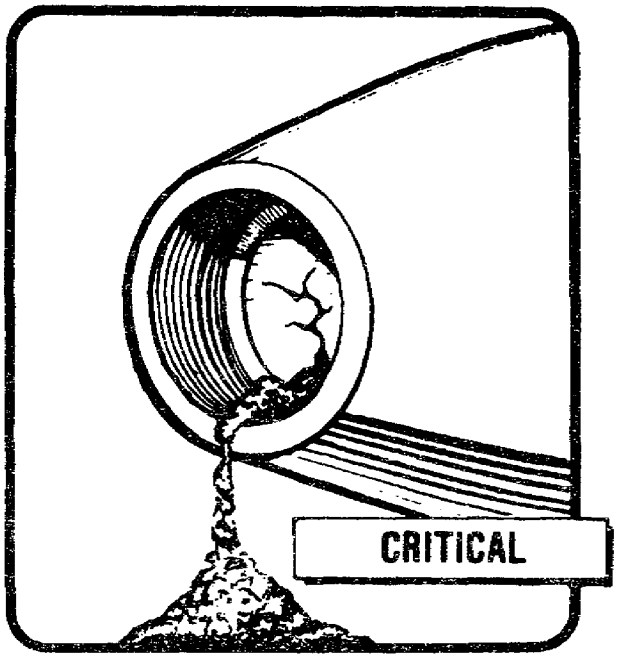
To check the fuze well, the spacer and the supplementary charge must be removed.



The 105mm, HE, M1 round contains a supplementary charge that must be inspected. If it is corroded, it is a MAJOR defect. This is just one of several inspection points for the supplementary charge.

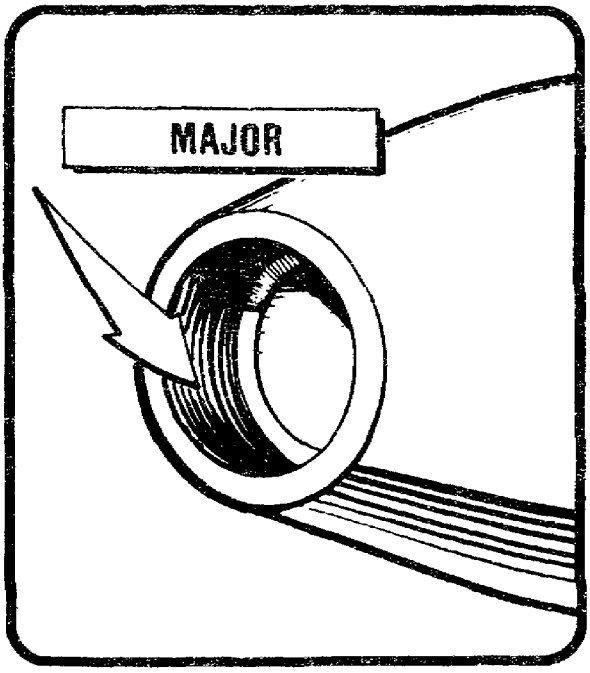
MM3675

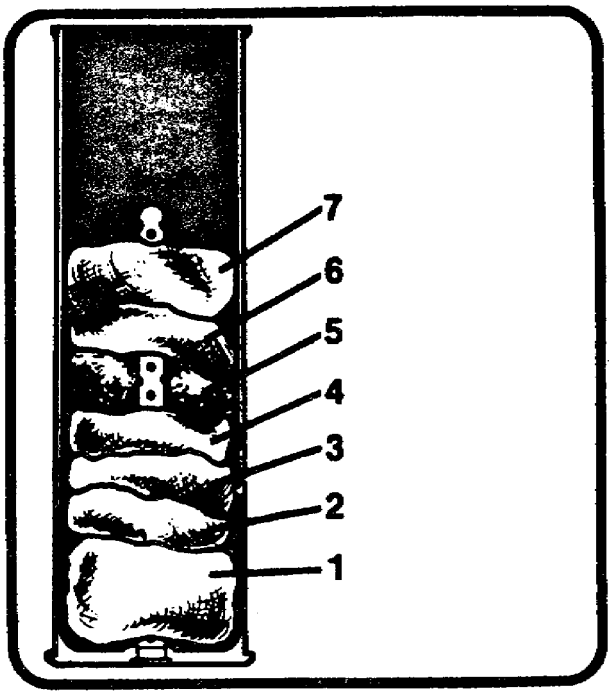
If the aluminum cup in the bottom of the fuze well is cracked, you may find powder granules present. This is a CRITICAL defect.



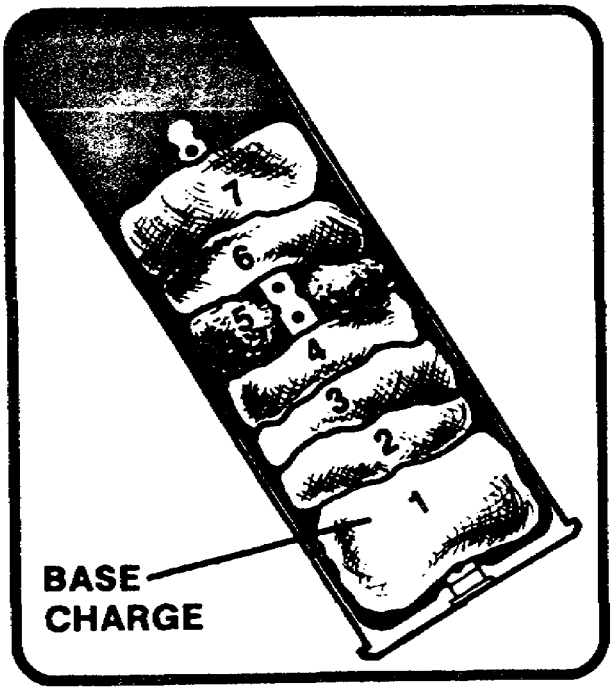
Inspect the fuze well threads for damage. This is a MAJOR defect.

The supplementary charge and spacer must be placed back in the fuze well prior to replacing the shipping plug.





The M67 propellant charge, used in the 105mm, HE, M1 round, consists of seven bagged increments. They are numbered 1 through 7, and their sequencing is extremely important. Their proper placement in the cartridge case is shown in this drawing. The number 5 increment has a foil side which must face toward the primer. When replacing the increments, make sure this is done.

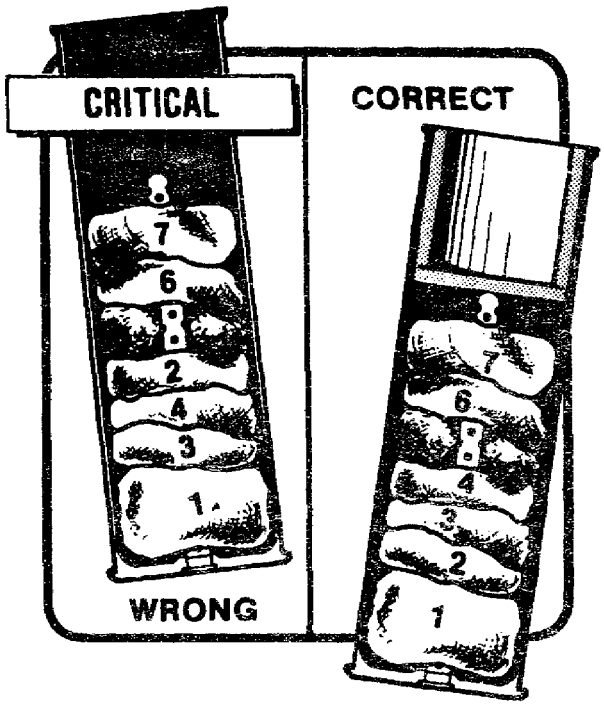


The number 1 increment is the base charge. It is located at the cartridge case base. The other increments are packed on top of the base charge in numerical order. Increment number 7 is the last bag of propellant. It is located next to the open end of the cartridge case.

MM3675

Remove the filler cup (fiberboard). This holds the propellant in place. Then carefully remove the bags of propellant, and check the order in which they were packed in the cartridge case.

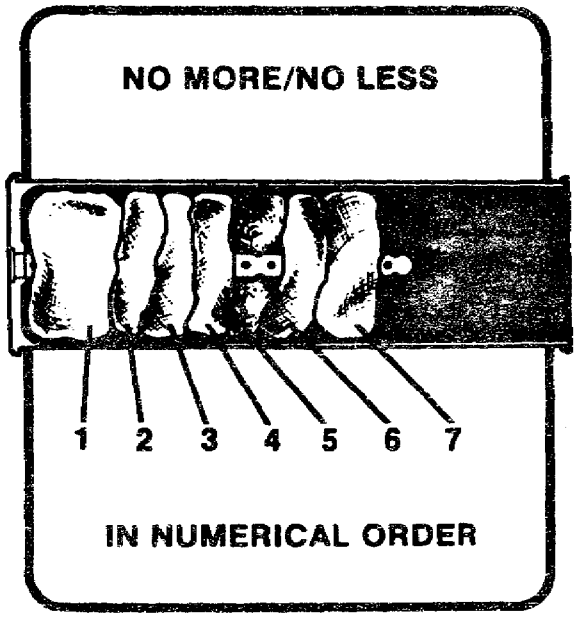
Improper sequencing of the propellant increments is a CRITICAL defect.

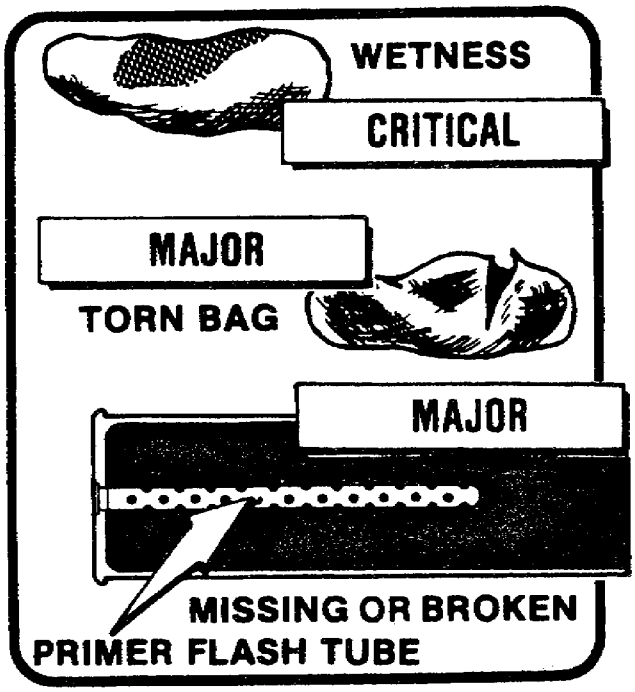


The correct number of bags is also very important. In the example used here, there must be seven bags present.

A missing bag or an extra bag is a CRITICAL defect.

Remember, you must inspect for the proper number of increments and for the proper sequencing of the increments.

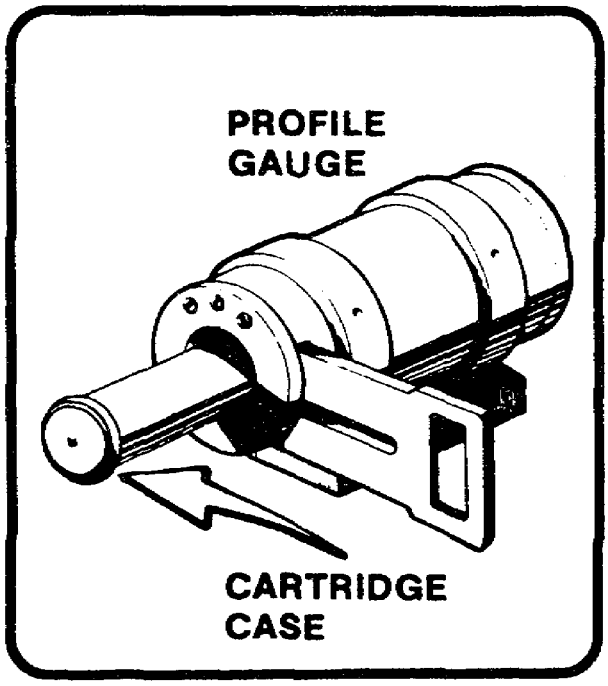




Inspect the propellant bags for deterioration, tears. or damage that will permit the propellant to spill or leak. This is a MAJOR defect.

Carefully examine the bags for wetness or discoloration. This is a CRITICAL defect.

Inspect the primer flash tube inside the cartridge case. If it is missing or broken, this is a MAJOR defect.

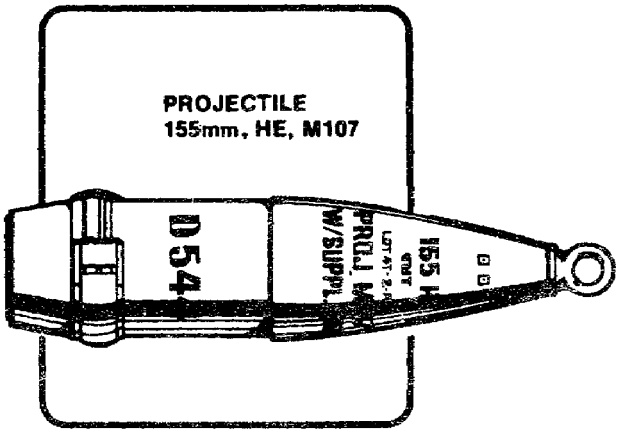


Before replacing the round in its container, check the cartridge case in a profile gauge to make sure the round will chamber properly.

SEPARATE LOADING PROJECTILES

Separate loading projectiles require much the same inspection as the projectiles of semi-fixed rounds.

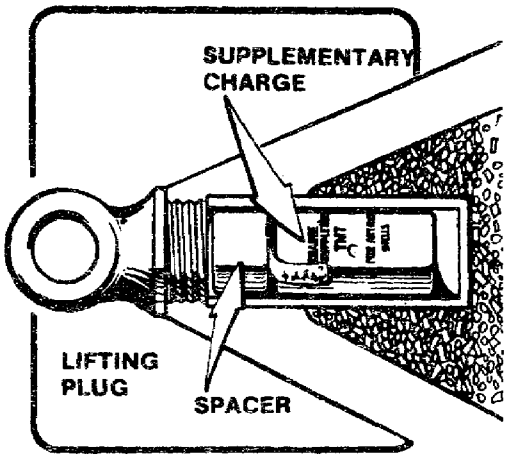
All of the steps followed in the inspection of the projectiles of fixed and semi-fixed rounds are followed in the inspection of separate loading projectiles, plus some steps special to these rounds. Inspection of propelling charges for separate loading ammunition is covered in another subcourse.

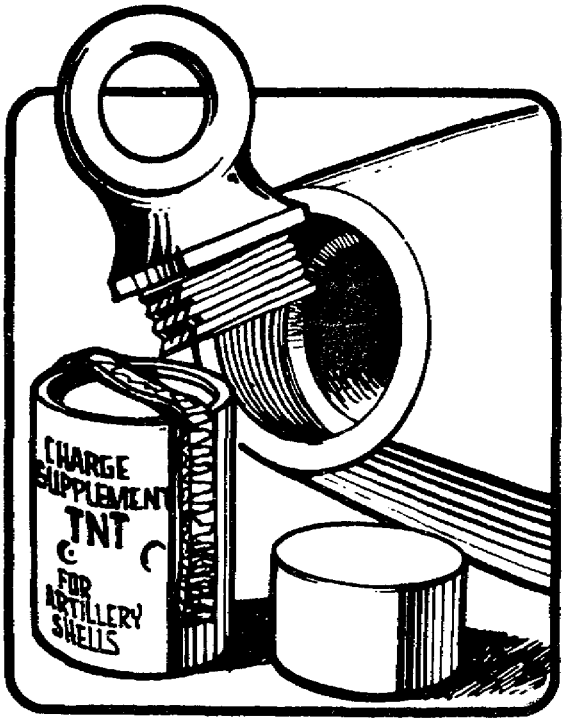


CLASSIFICATION OF DEFECTS IN SEPARATE LOADING PROJECTILES
(from TM 9-1300-251-34)

DEFECT	CLASSIFICATION
Distorted or out-of-round body.	Critical
Exudation of filler.	Critical
Rust through projectile base plate.	Critical
Rust or corrosion over bourrelet.	Major
Corrosion in fuze well or on supplementary charge.	Major
Damaged rotating band.	Major
Damaged obturating band.	Major

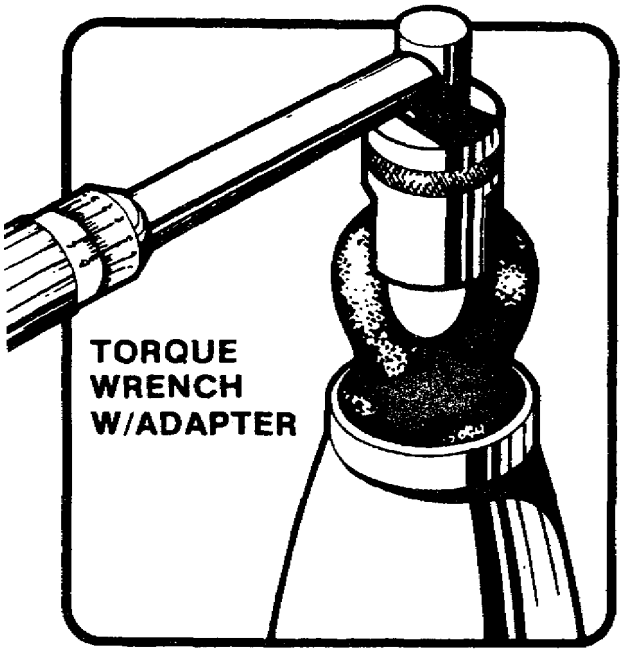
Larger caliber projectiles are handled using a lifting plug fitted into the fuze well. They may contain a supplementary charge in the fuze well. This supplementary charge must be inspected.





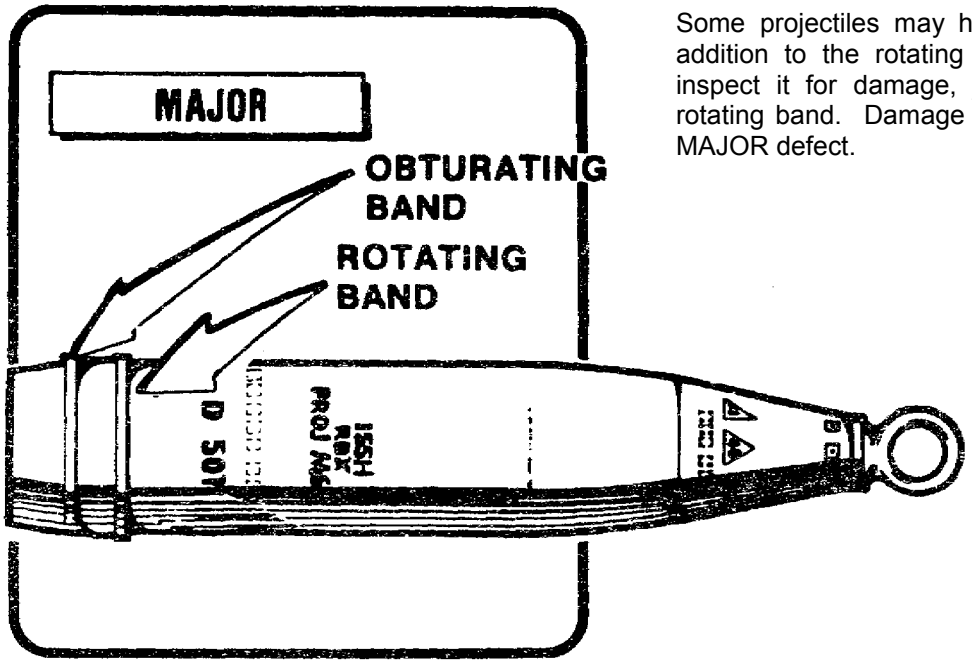
Remove the lifting plug by unscrewing it from the fuze well. Check the lifting plug for damaged or rusty threads. Inspect the fuze well and the supplementary charge for corrosion. If corrosion is present, classify it as a MAJOR defect.

Inspect the spacer that holds the supplementary charge in position.

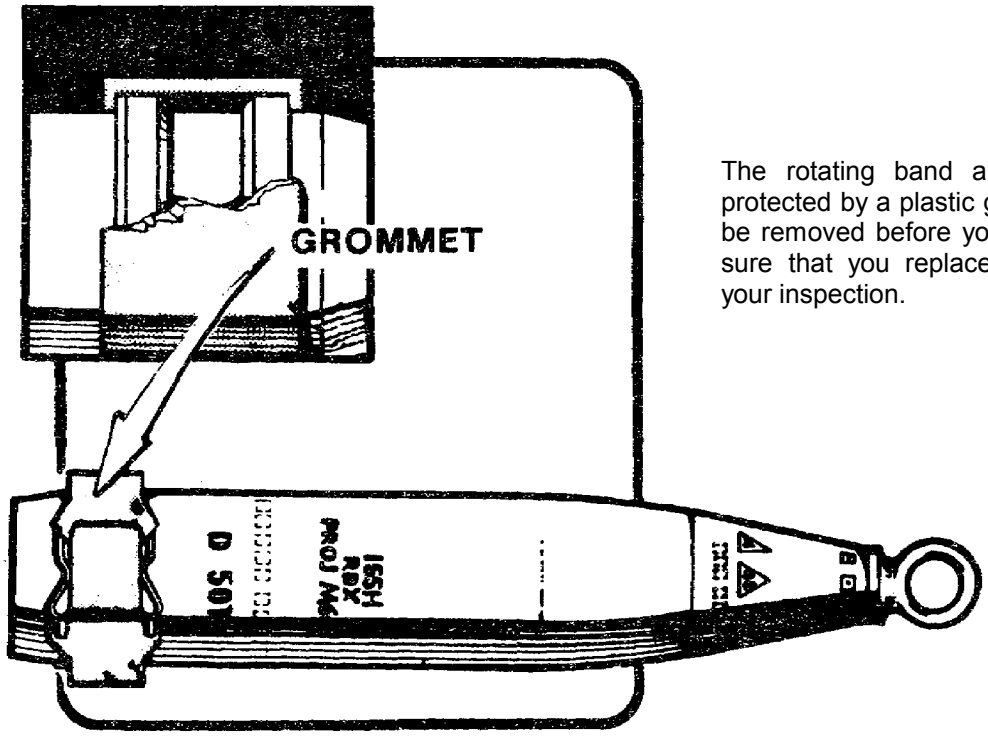


The lifting plug must be replaced and torqued, using an approved wrench, as required by the TM for the round being inspected.

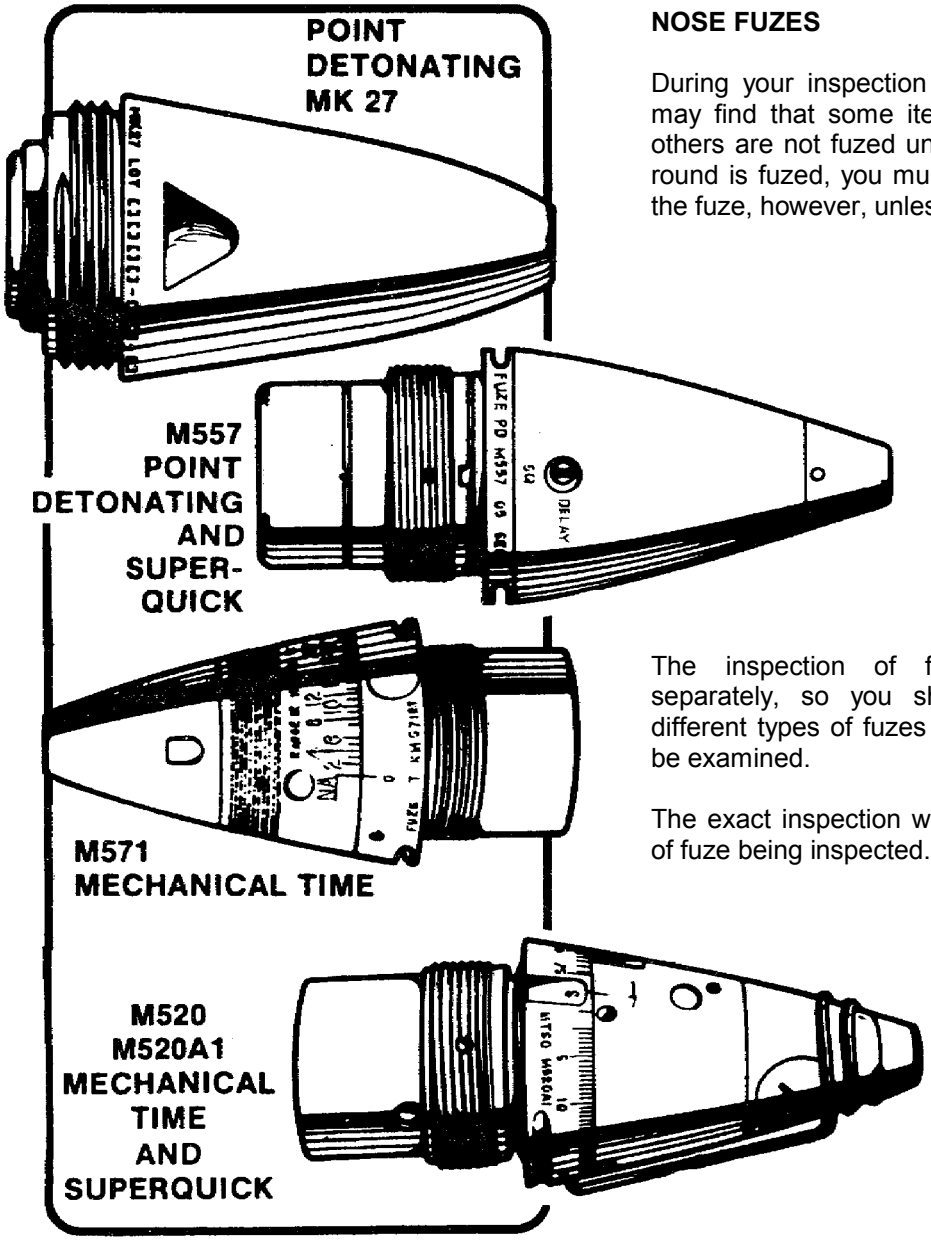
MM3675



Some projectiles may have an obturating band in addition to the rotating band. If one is present, inspect it for damage, just as you inspected the rotating band. Damage of the obturating band is a MAJOR defect.



The rotating band and the obturating band are protected by a plastic grommet. This grommet must be removed before you can inspect the bands. Be sure that you replace the grommet properly after your inspection.



NOSE FUZES

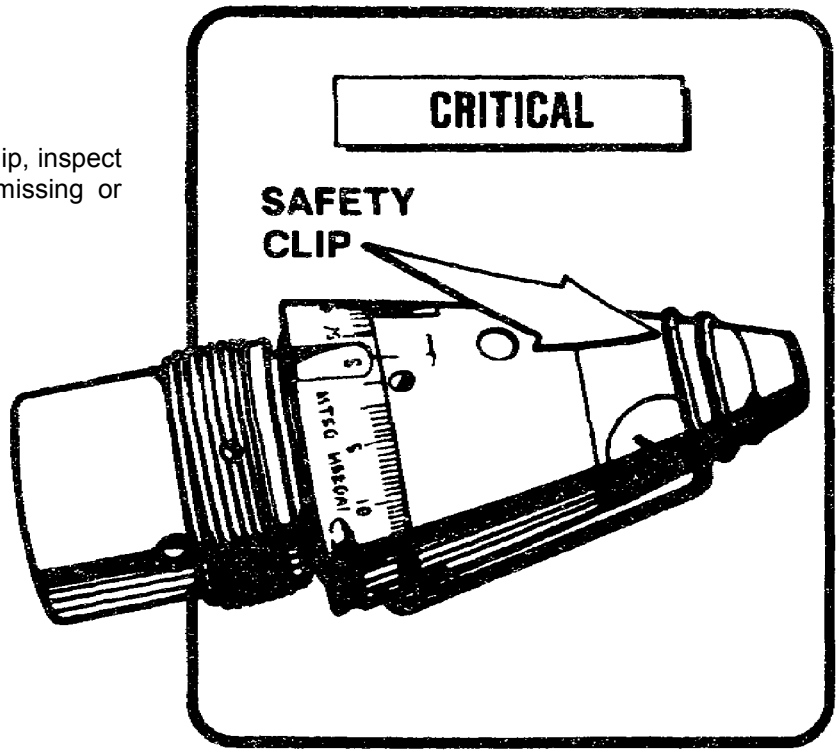
During your inspection of artillery ammunition, you may find that some items contain nose fuzes and others are not fuzed until just before loading. If the round is fuzed, you must inspect it. Do not remove the fuze, however, unless local SOP requires it.

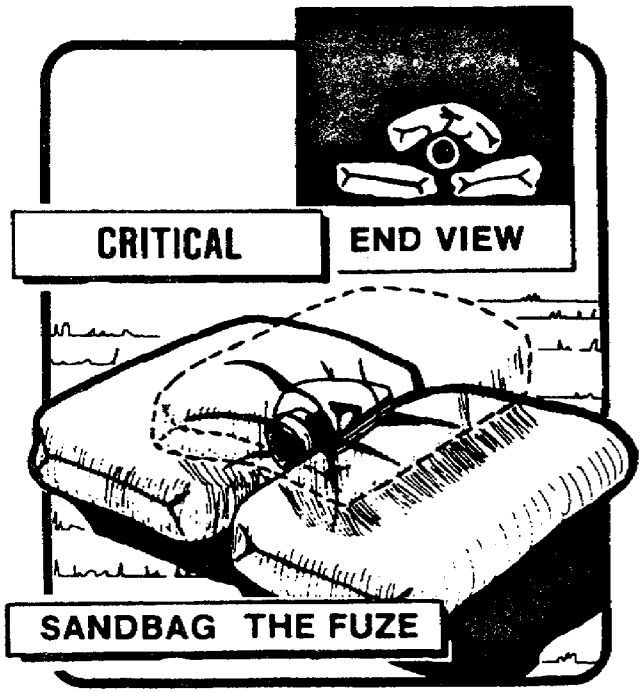
The inspection of fuzes is often conducted separately, so you should be familiar with the different types of fuzes and the points which should be examined.

The exact inspection will be determined by the type of fuze being inspected.

CLASSIFICATION OF DEFECTS IN NOSE FUZES (from TM 9-1300-251-34)	
DEFECT	CLASSIFICATION
Missing or broken safety pin or clip (howitzer and mortar fuzes only).	Critical
Loose nose cap.	Critical
Missing or broken component.	Critical
Corrosion on time rings.	Critical
Severe physical damage.	Critical
Fuzes suspected of being armed.	Critical
Corrosion on fuze body.	Major
Loose booster assembly (only for fuzes not on rounds).	Major

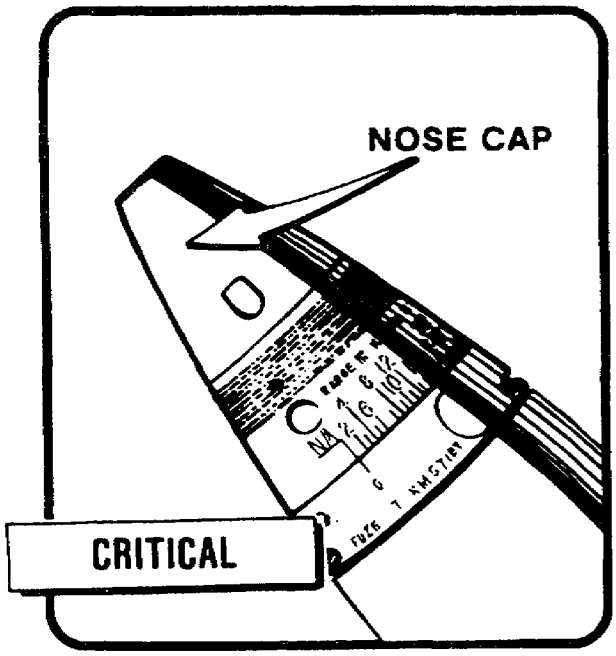
If the fuze should contain a safety pin or clip, inspect for its presence and for breakage. A missing or broken pin or clip is a CRITICAL defect.





If there is reason to suspect that the fuze is armed, isolate the fuze in a safe area and notify your supervisor. This is a CRITICAL defect.

Remember, nose fuzes must be handled with extreme care at all times, since they are explosive items!

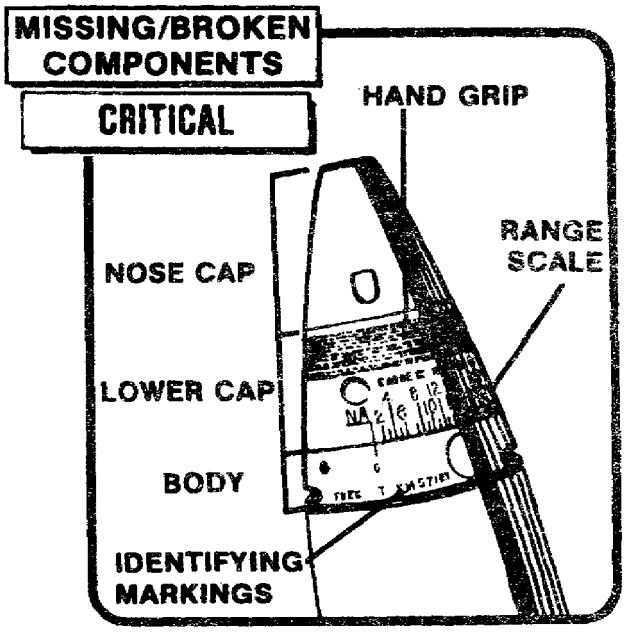


Check the nose cap of the fuze for looseness. A loose nose cap is a CRITICAL defect.

Inspect for missing or broken components. This is a CRITICAL defect.

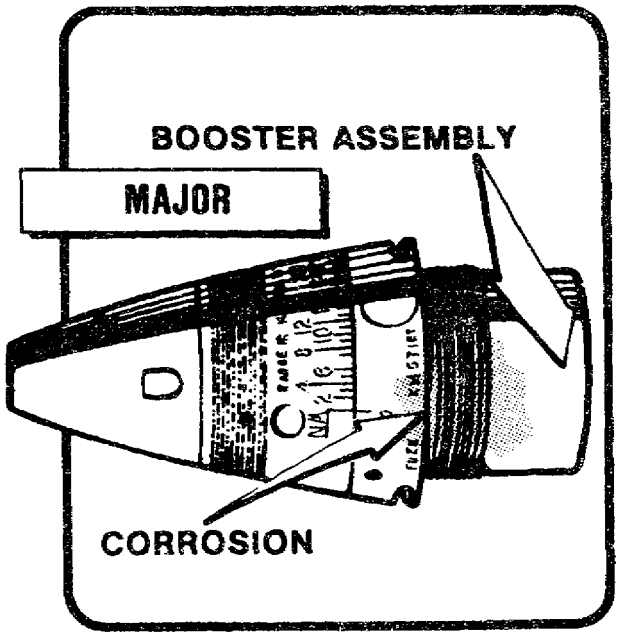
Check for corrosion on the time rings. This is a CRITICAL defect.

Any severe physical damage to the fuze is classified as a CRITICAL defect.



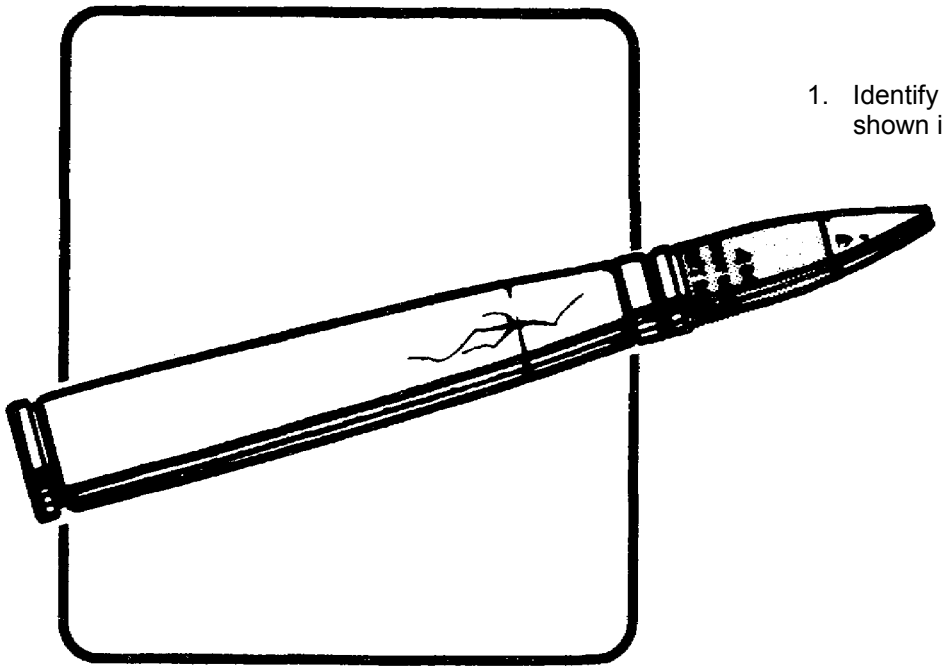
Inspect the fuze body for corrosion. Corrosion on the fuze body is a MAJOR defect.

Inspect the booster assembly for looseness. This is a MAJOR defect.

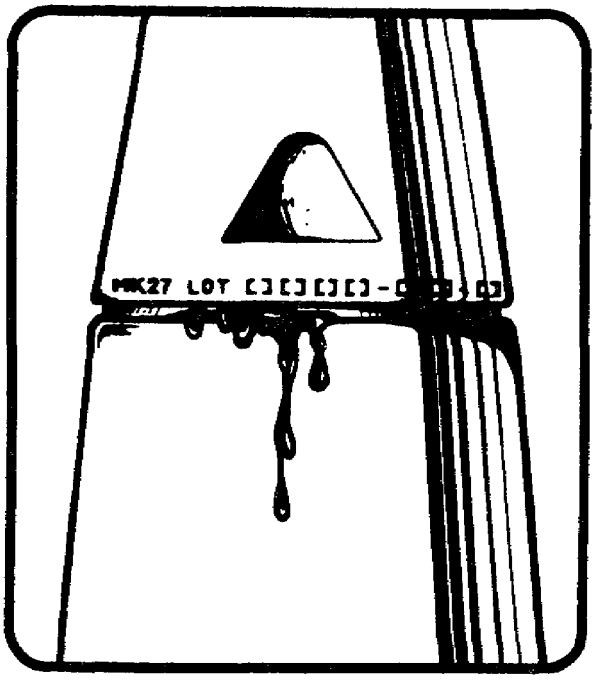


When you have completed your inspection, all samples are repacked, marked, and returned to storage. You must remove the fire symbol. Then you will complete all necessary forms, check them for accuracy, and forward them to the surveillance office.

PRACTICE EXERCISES



1. Identify and classify the defect in the round shown in this drawing.



2. While inspection a round of fixed ammunition, you find traces of an oily liquid where the fuze and the projectile are joined. Classify this defect.

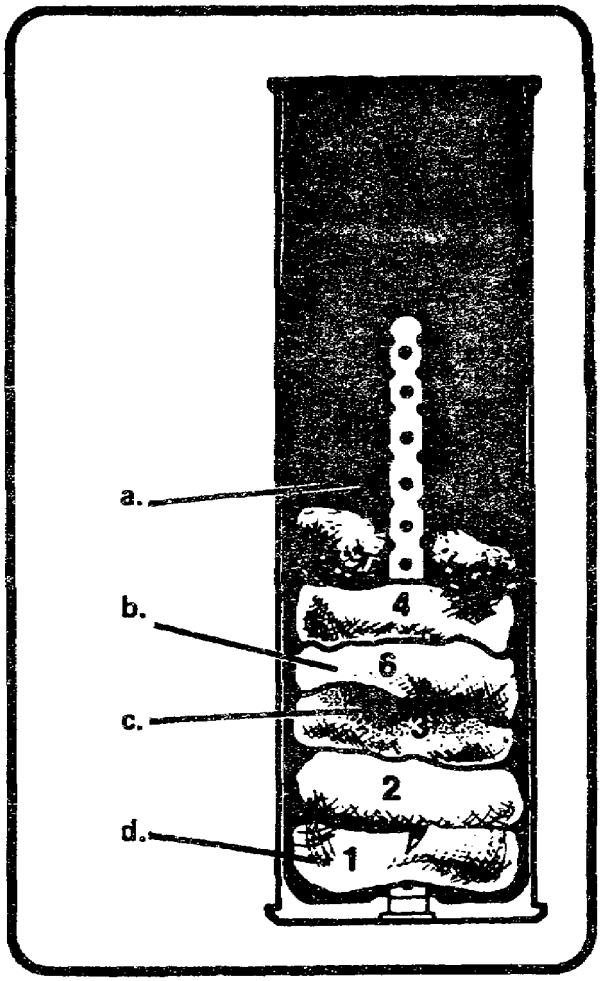
3. You are inspecting the propelling charge of this round of semi-fixed ammunition (105mm, HE, M1). Four defects are illustrated. Identify and classify each one.

   a. _____

   b. _____

   c. _____

   d. _____



4. How should you classify damage to the obturating band on a round of separate loading ammunition?

5. How should you classify a broken safety pin on the nose fuze of a separate loading round?

LESSON 3

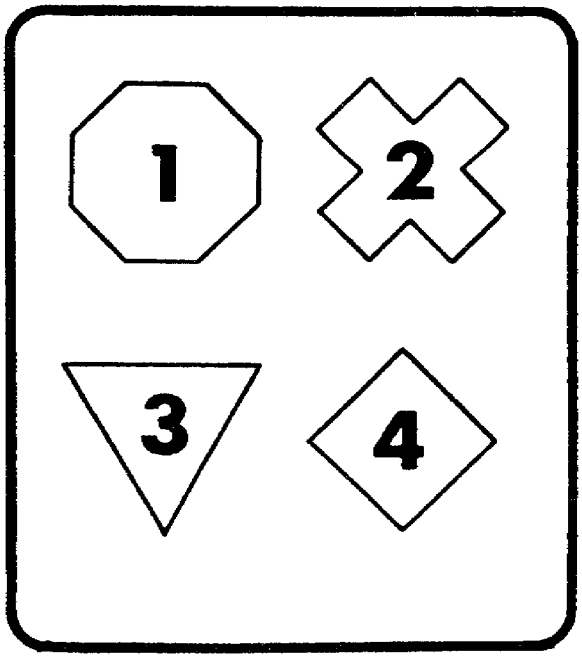
INSPECTING HAND GRENADES AND THE 40mm GRENADE CARTRIDGE

INTRODUCTION

Hand grenades are of various types determined by their uses. They are used for combat, riot control, smoke screening, demolition, blast effect, signaling, illumination, and training. In this lesson, you will inspect fragmentation grenades, smoke-white phosphorus (WP) grenades, smoke grenades, riot control grenades, and incendiary grenades. You will also inspect the 40mm grenade cartridge, which is fired from a grenade launcher.

The selection of grenade and 40mm grenade cartridge samples for inspection is determined by Table 2-2 of SB 742-1 (see page 1). If it is available, the SB for a specific item should be consulted.

Storage personnel will transport the samples to the inspection area. You must post the correct fire symbol, in accordance with TM 9-1300-206, before the samples are off-loaded.

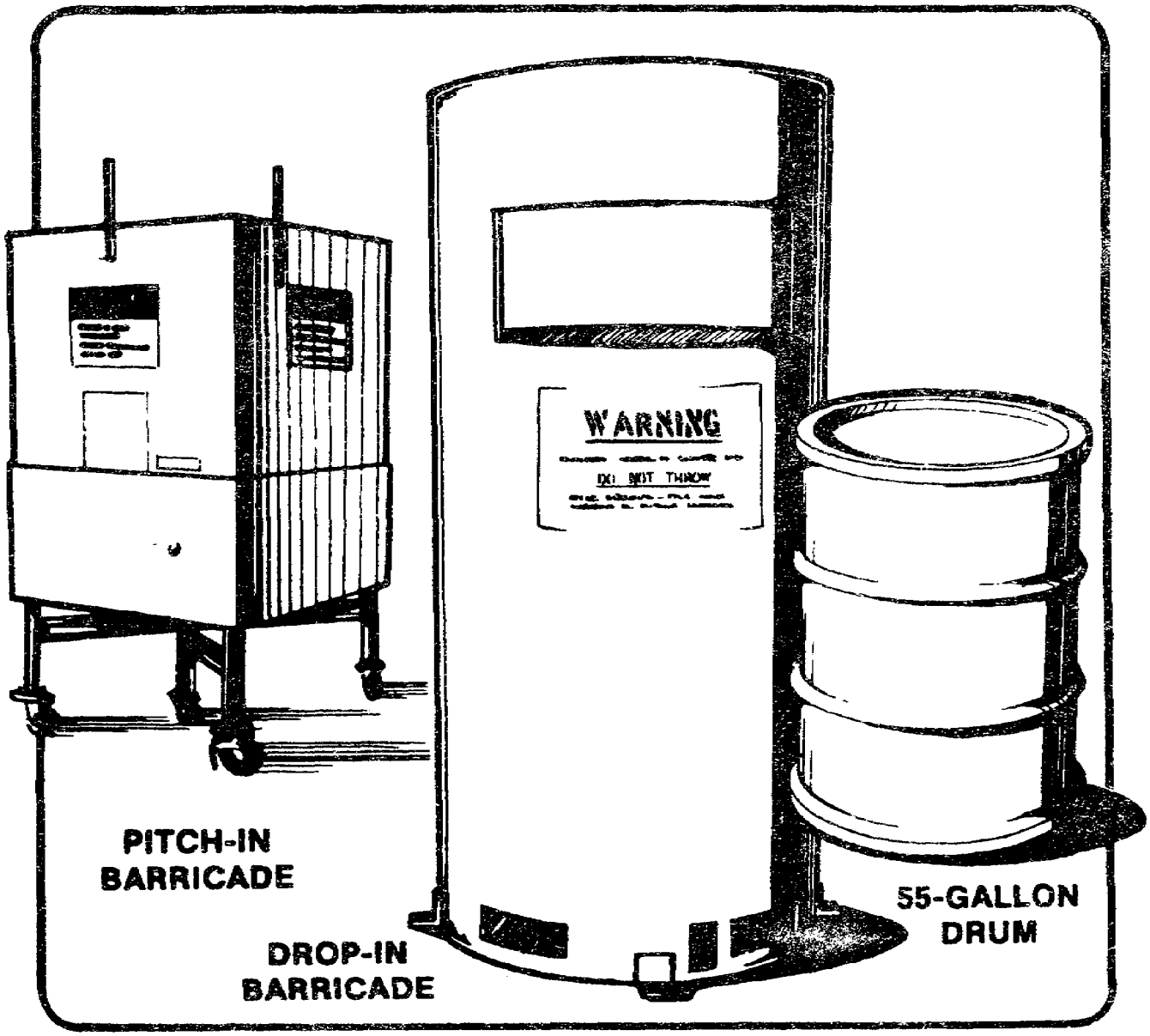


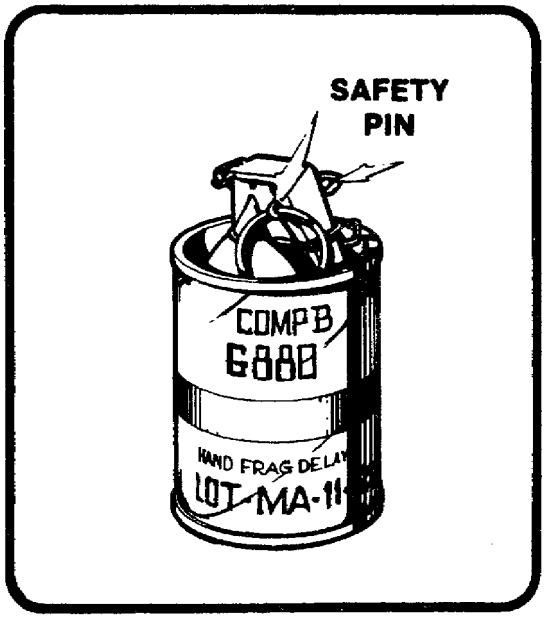
SAFETY PRECAUTIONS

If you are inspecting any hand grenades except smoke-WP, make sure you have a pitch-in barricade within easy reach.

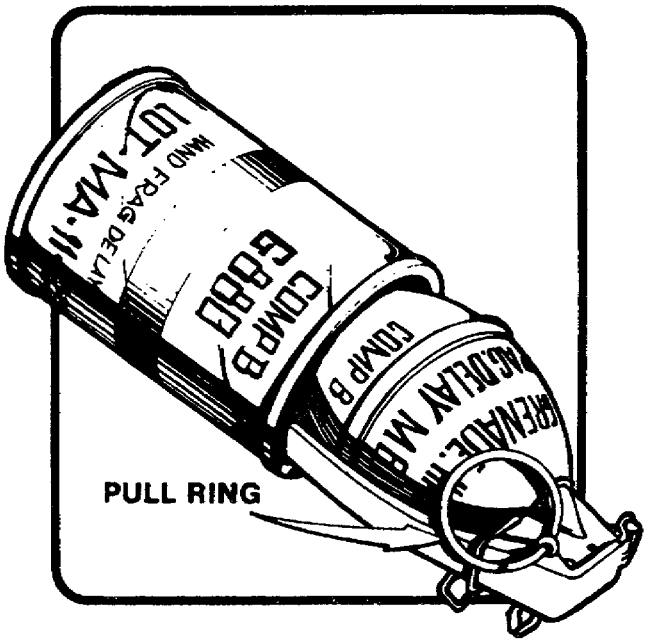
The grenades covered in this lesson have pyrotechnic delay-detonating fuzes, but you should know that grenades with impact-sensitive fuzes require a drop-in barricade rather than a pitch-in barricade.

Smoke-WP grenades require a water barrel, such as a 55-gallon drum, in which a leaking grenade can be completely submerged.





Before you remove any grenade from its fiber container, look into the open container to see if the safety pin is present on the grenade. Inspect the safety pin while the grenade is still in the container. If the safety pin is not properly in place, do not remove the grenade. Set it aside, still in its container, for disposition in accordance with local SOP.



If the safety pin is properly in place, remove the grenade from the container and continue the inspection. Never use the pull ring for lifting or handling a grenade during an inspection.

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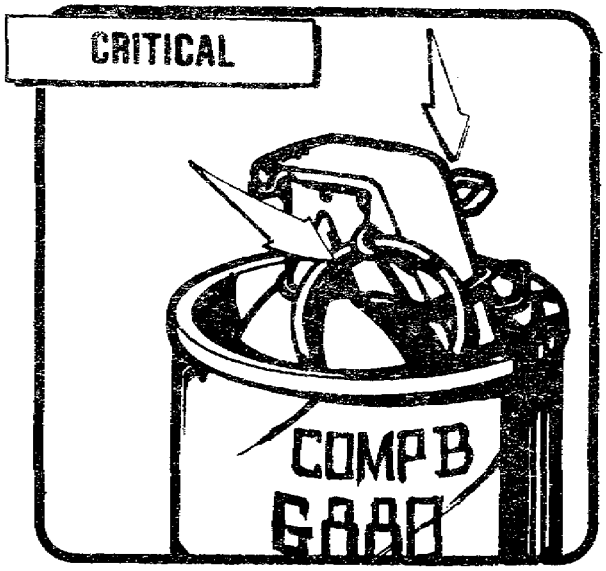
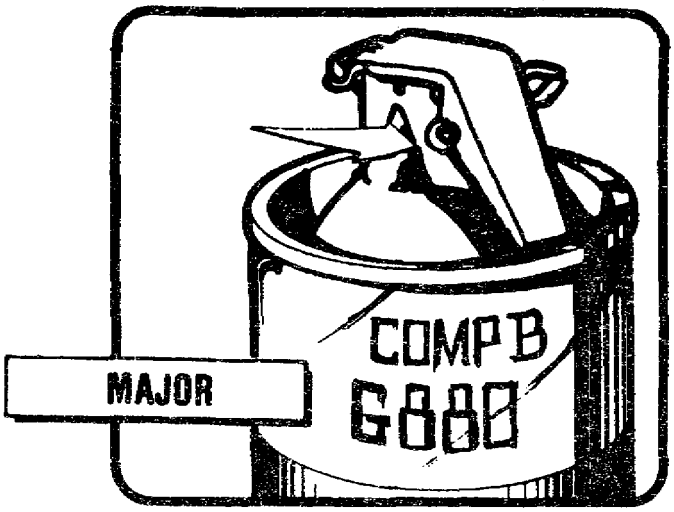
FRAGMENTATION GRENADES

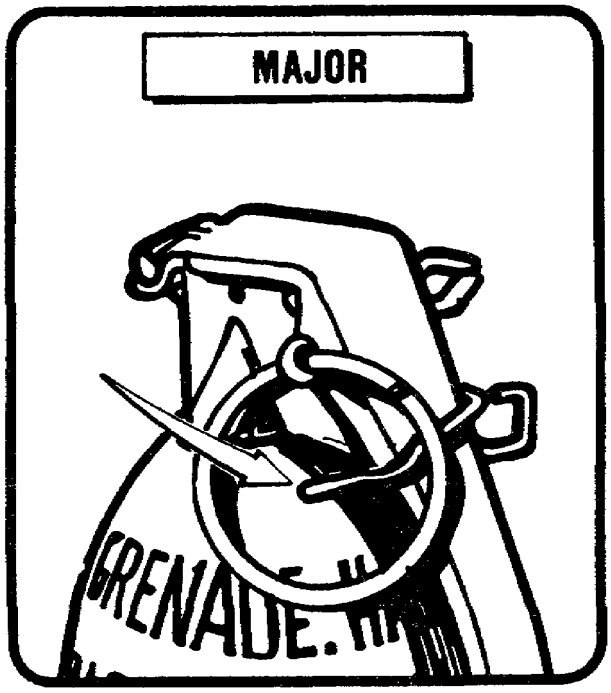
CLASSIFICATION OF DEFECTS IN FRAGMENTATION HAND GRENADES (from SB 742-1330-94-435)	
DEFECT	CLASSIFICATION
Safety pin missing or insecurely assembled to extent that user endangered.	Critical
Safety clip missing or with major damage (if applicable).	Major
Pull ring missing or with major damage.	Major
Marking misleading as to type of grenade.	Major
Major rust or corrosion.	Major
Improper or illegible marking.	Minor
Minor rust or corrosion.	Minor

Before you remove the grenade from its container, inspect the safety pin. If it is insecurely assembled to the extent that it endangers the user, it is a **CRITICAL** defect.



Check for the presence of the safety clip and the pull ring. If either is missing, classify it as a **MAJOR** defect. (Some models are issued without a safety clip.)



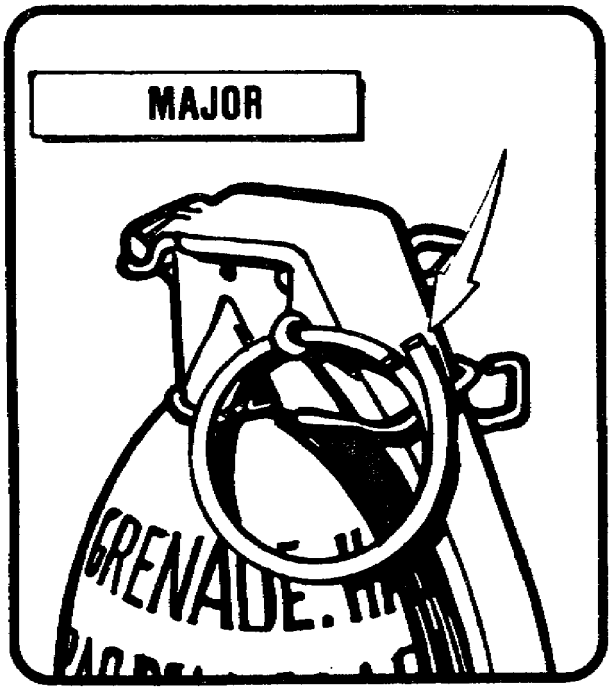


Remove the grenade from the fiber container.

Check for major damage to the safety clip.

If major damage is present, classify it as a **MAJOR** defect.

A broken safety clip is an example of such major damage.



Inspect the pull ring for major damage.

If there is major damage, classify it as a **MAJOR** defect.

For example, a splayed pull ring--that is, one with the parts of the spiral spread apart--would be a **MAJOR** defect.

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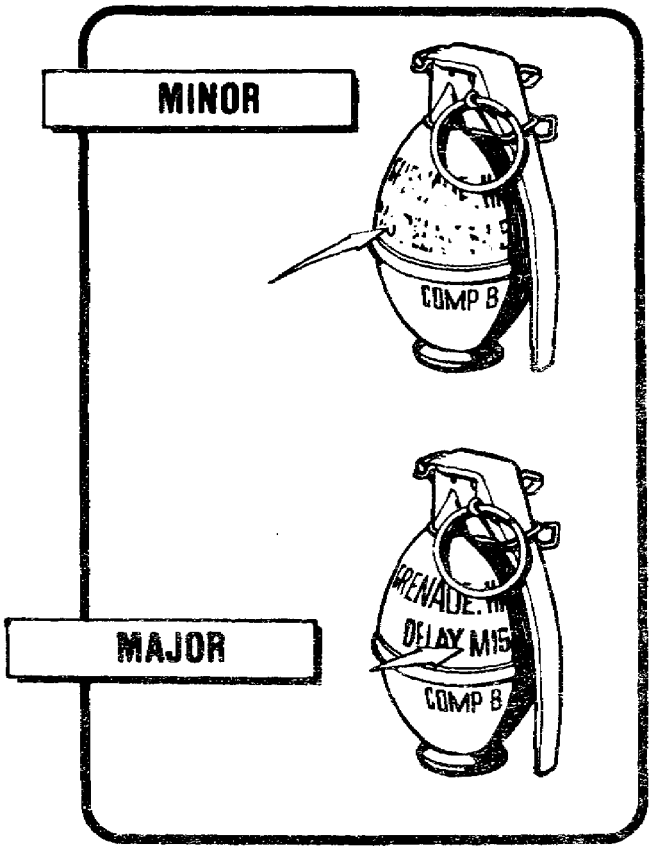
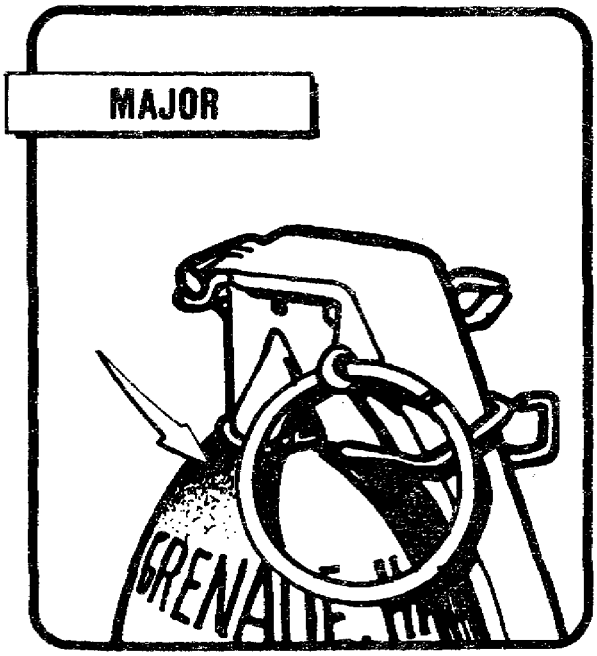


Check the markings to see if they are misleading as to the type of grenade.

If so, classify it as a **MAJOR** defect.

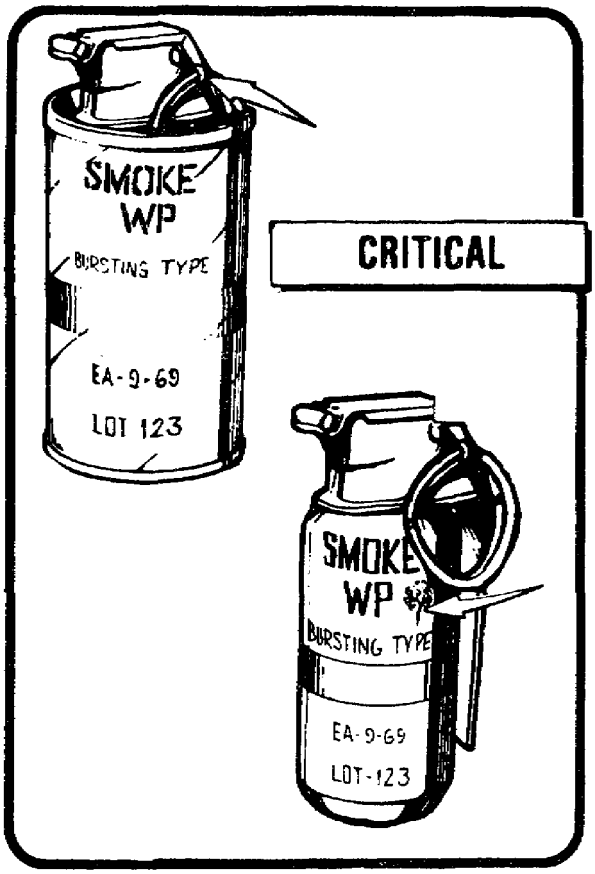
Check for improper or illegible markings on the grenade and classify them as a **MINOR** defect. This grenade is olive drab with yellow markings.



Check for major rust or corrosion on the grenade and classify it as a **MAJOR** defect.

Inspect for minor rust or corrosion and classify it as a **MINOR** defect.

SMOKE-WHITE PHOSPHORUS (WP) GRENADES



Before you inspect this or any other chemical grenade, you must take the proper protective measures required by your local SOP. When you inspect smoke-WP grenades, for example, you are required to don Set 3 full-protective clothing. You must have a water barrel within arm's reach.

While the grenade is still in its fiber container, inspect the safety pin. If it is missing or partially withdrawn, there is a **CRITICAL** defect.

If the pin is properly inserted in the grenade, remove the grenade from the container.

Inspect the grenade to make sure it is not leaking. Leaking is a **CRITICAL** defect.

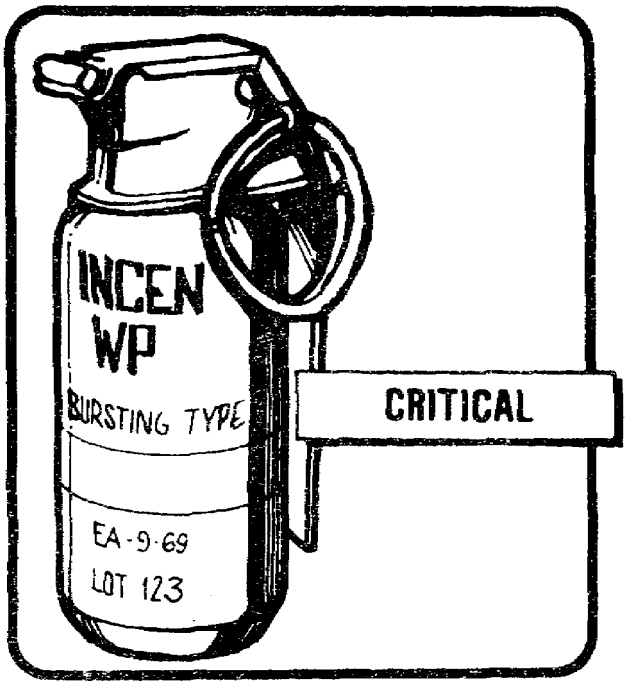
If you find a leaking grenade, submerge it completely in the water barrel until it can be safely disposed of.

CLASSIFICATION OF DEFECTS IN SMOKE-WP HAND GRENADES
(from SB 742-1330-94-435)

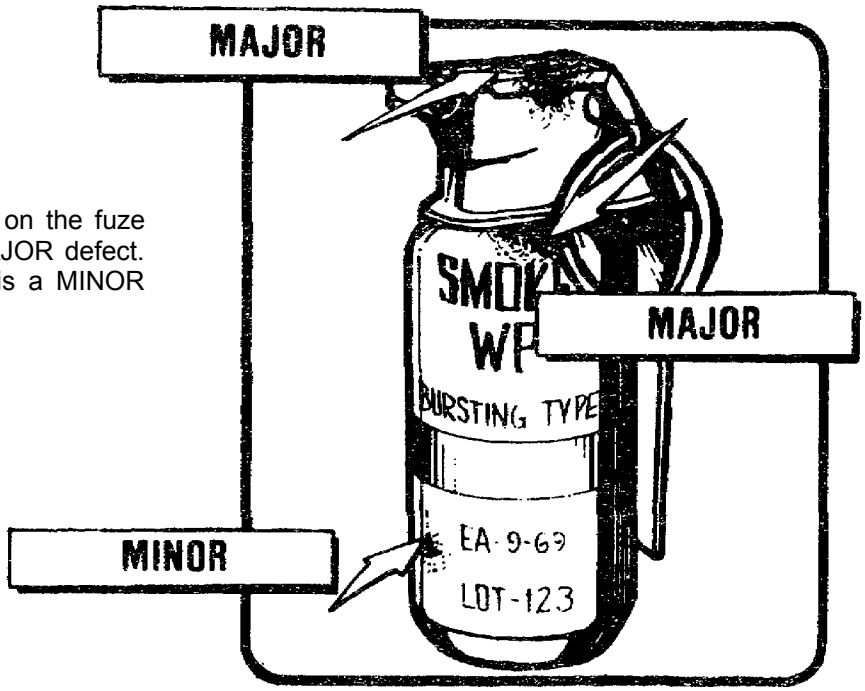
DEFECT	CLASSIFICATION
Safety pin missing or partially withdrawn.	Critical
Grenade leaking.	Critical
Grenade designation incorrect.	Critical
Incorrect fuze installed (M206 series).	Major
Corrosion on fuze assembly, major or minor.	Major/minor
Major corrosion on grenade body.	Major
Fuze body crushed or cracked.	Major
Fuze lever cracked.	Major
Fuze lot markings incorrect.	Major
Date of manufacture on fuze incorrect or illegible.	Minor

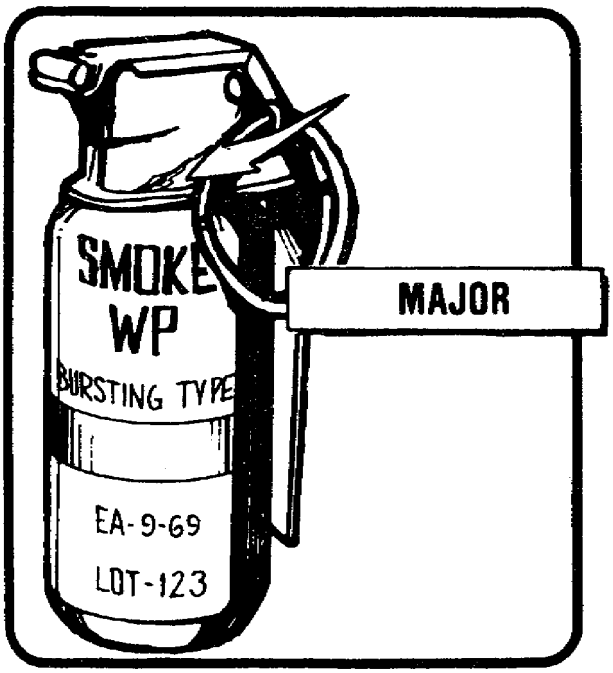
Look at the markings on the grenade body. If the grenade designation is incorrect, it is a CRITICAL defect.

The grenade should be light-green with light-red markings and one yellow band. Look for an M206 series fuze. If an incorrect fuze has been installed, it is a MAJOR defect.

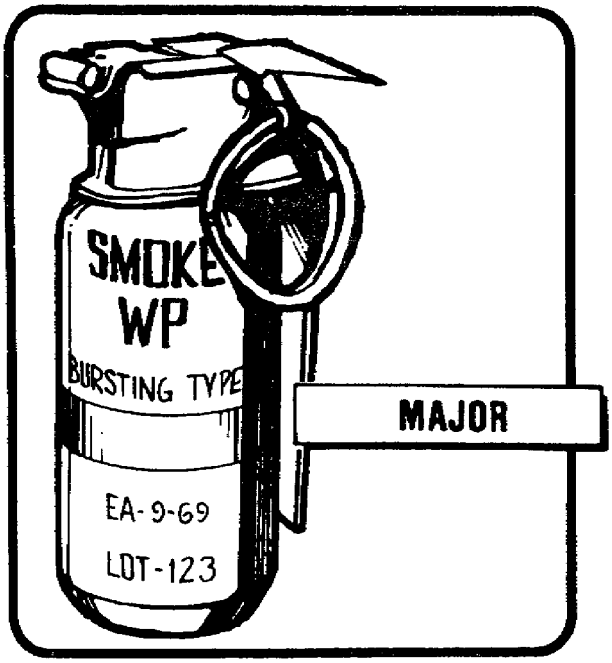


Inspect for corrosion. Major corrosion on the fuze assembly or the grenade body is a MAJOR defect. Minor corrosion on the grenade body is a MINOR defect.





A crushed or cracked fuze body is a MAJOR defect.



A cracked fuze lever is also a MAJOR defect.

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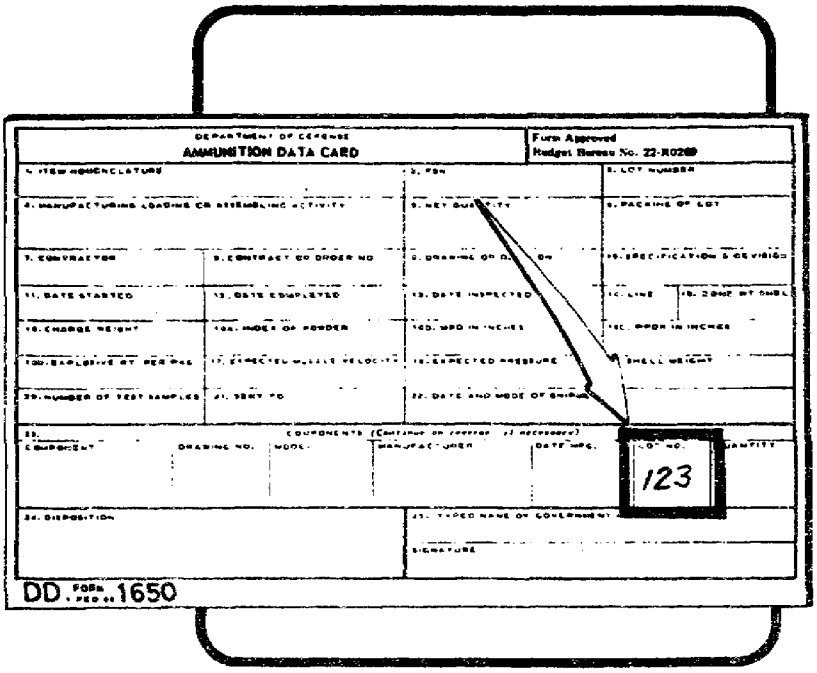
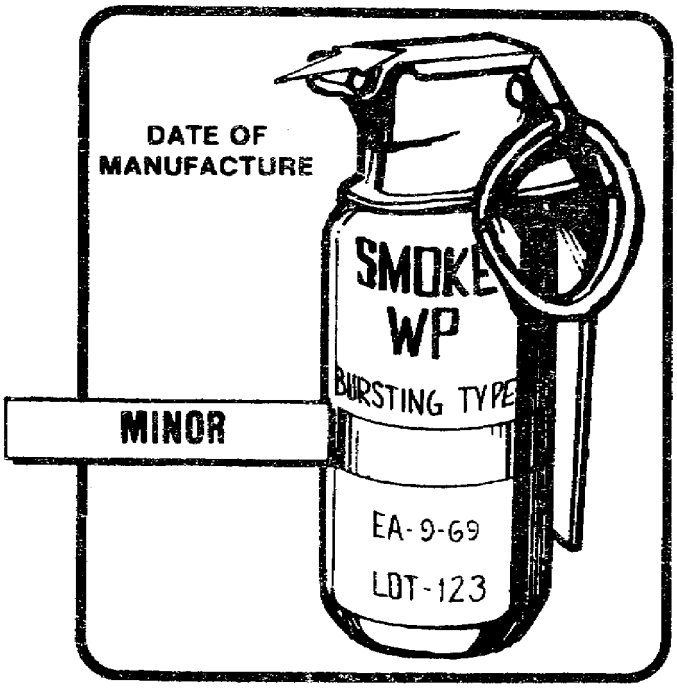


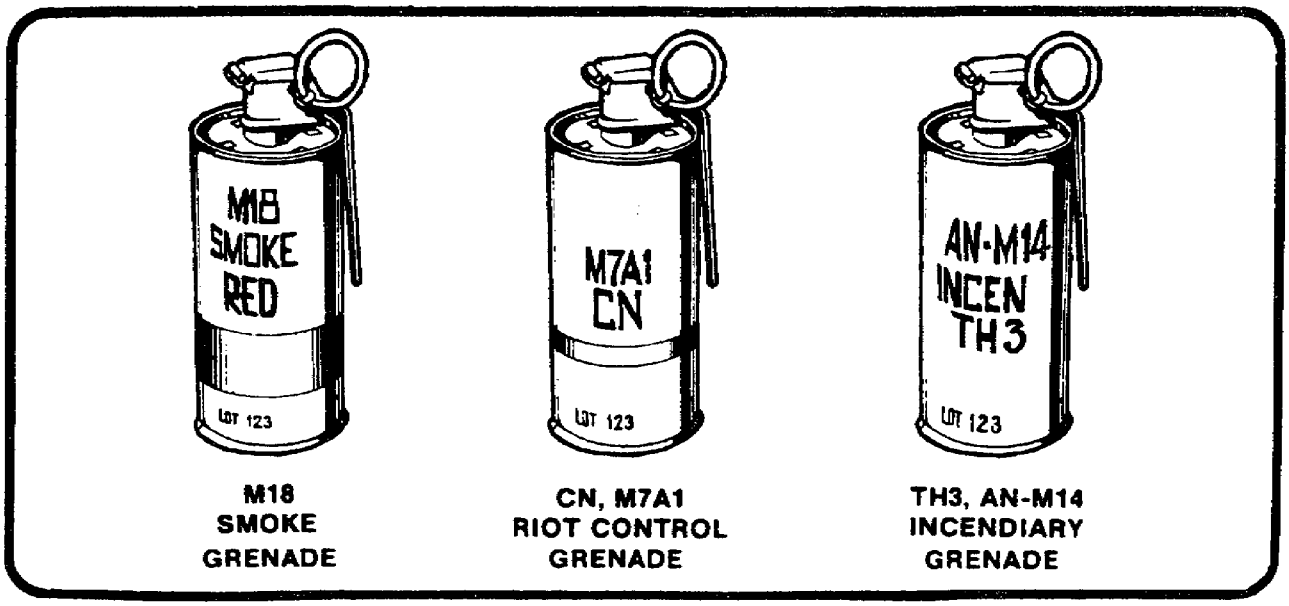
Look for the lot identification number on the fuze. Compare it with the lot number listed for the fuze on the DD Form 1650 (Ammunition Data Card) for the grenade. If the lot identification number is incorrect, it is a MAJOR defect.



Compare the date of manufacture on the fuze with the date listed for the fuze on the DD Form 1650. If the date on the fuze is incorrect or illegible, it is a MINOR defect.

SMOKE, RIOT CONTROL, AND INCENDIARY GRENADES

Inspection points for these grenades are generally the same, so they will be covered together.



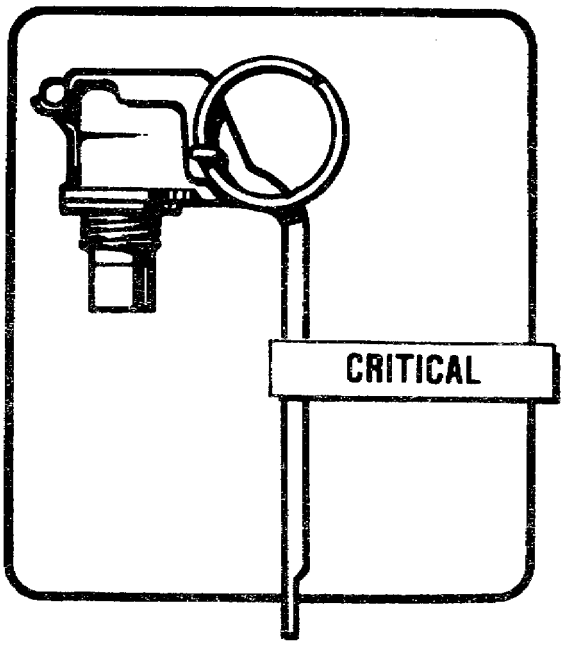
M18 SMOKE GRENADE | **CN, M7A1 RIOT CONTROL GRENADE** | **TH3, AN-M14 INCENDIARY GRENADE**

CLASSIFICATION OF DEFECTS IN SMOKE, RIOT CONTROL, AND INCENDIARY HAND GRENADES
(from SB 742-1, SB 742-1330-94-3, SB 742-1330-94-12, and SB 742-1330-9-8)

GRENADE	DEFECT	CLASSIFICATION
Smoke	Unauthorized fuze installed (M201 series).	Critical
	Safety pin missing or not spread.	Critical
	Tape loose, missing, or not completely covering emission hole.	Major
	Burning mixture loose (shake manually).	Major
	Corrosion on fuze assembly, major or minor.	Major/minor
	Corrosion or rust on grenade body, major or minor.	Major/minor
	Fuze body crushed.	Major
	Fuze lever damaged.	Major
	Fuze lot markings incorrect.	Major
	Marking or color coding missing, incorrect, misleading, or illegible.	Major
	Cracks, holes, or other perforations on grenade body.	Major
Riot control	Unauthorized fuze installed (M201 series).	Critical
	Safety pin missing or improperly spread (less than 30-degree or 3/16-inch gap at open end).	Critical
	Major damage to fuze assembly.	Major
	Corrosion on fuze assembly, major or minor.	Major/minor
	Rust or corrosion on grenade body, major or minor.	Major/minor
	Major damage to grenade body.	Major
	Tape loose, missing, or not completely covering emission hole.	Major
	Fuze lot markings incorrect.	Major
	Marking or color coding missing, incorrect, misleading, or illegible.	Major
Incendiary	Unauthorized fuze installed (M201 series).	Critical
	Safety pin missing or improperly spread (less than 30-degree or 1/4-inch gap at open end).	Critical
	Tape loose, missing, or not completely covering emission hole.	Major
	Major damage to fuze assembly.	Major
	Corrosion on fuze assembly, major or minor.	Major/minor
	Rust or corrosion on grenade body, major or minor.	Major/minor
	Fuze lot markings incorrect.	Major
	Marking or color coding missing, incorrect, misleading, or illegible.	Major

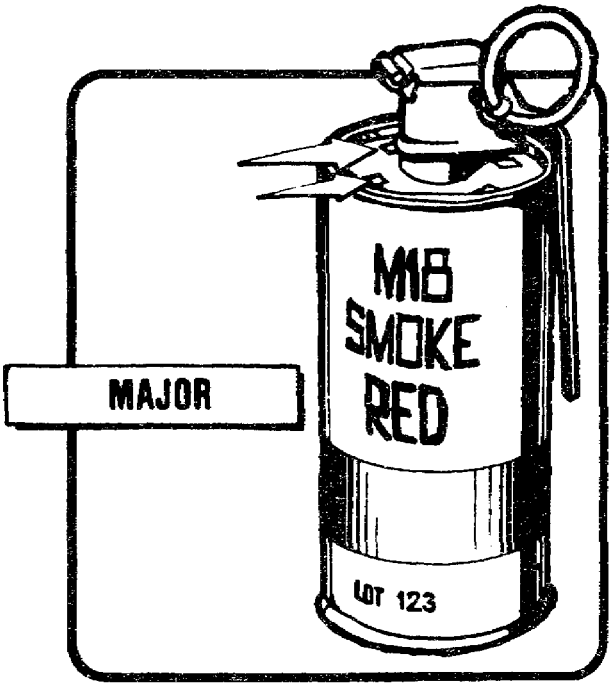
Inspect the safety pin. If the safety pin on the smoke grenade is not spread, or if the safety pin on a riot control grenade or incendiary grenade is not properly spread, it is a **CRITICAL** defect.

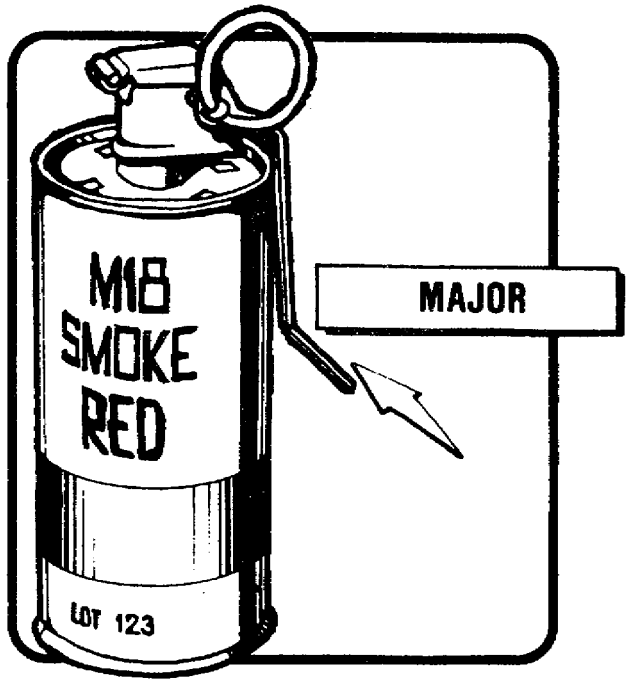
The fuze authorized for these grenades is the M201 series. If you find any other fuze installed, record a **CRITICAL** defect.



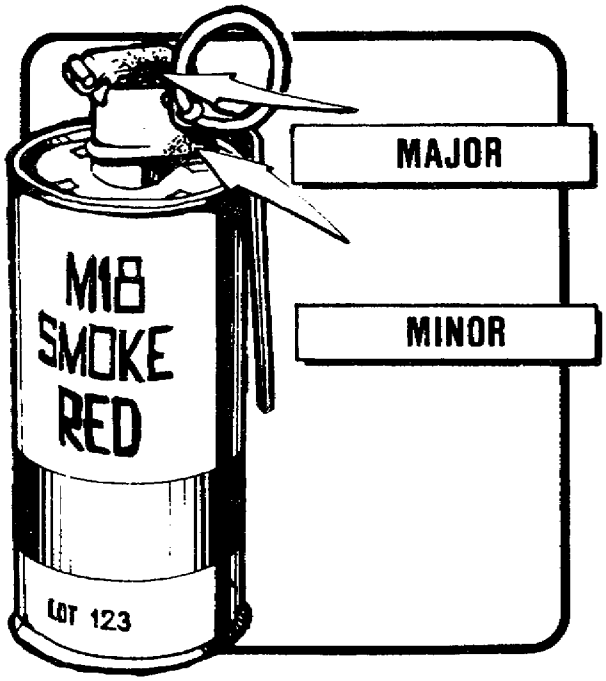
Check the tape over each emission hole. If it is loose, missing, or does not completely cover the hole, classify it as a **MAJOR** defect. (If you do not see four taped emission holes on the top of a grenade, turn it upside down. There should be four covered holes on the bottom.)

If you are inspecting a smoke grenade, shake it gently so you can tell if the burning mixture is loose. If it is, it is a **MAJOR** defect.





Inspect the fuze assembly. Major damage, such as a crushed fuze body or a damaged fuze lever, is a **MAJOR** defect.



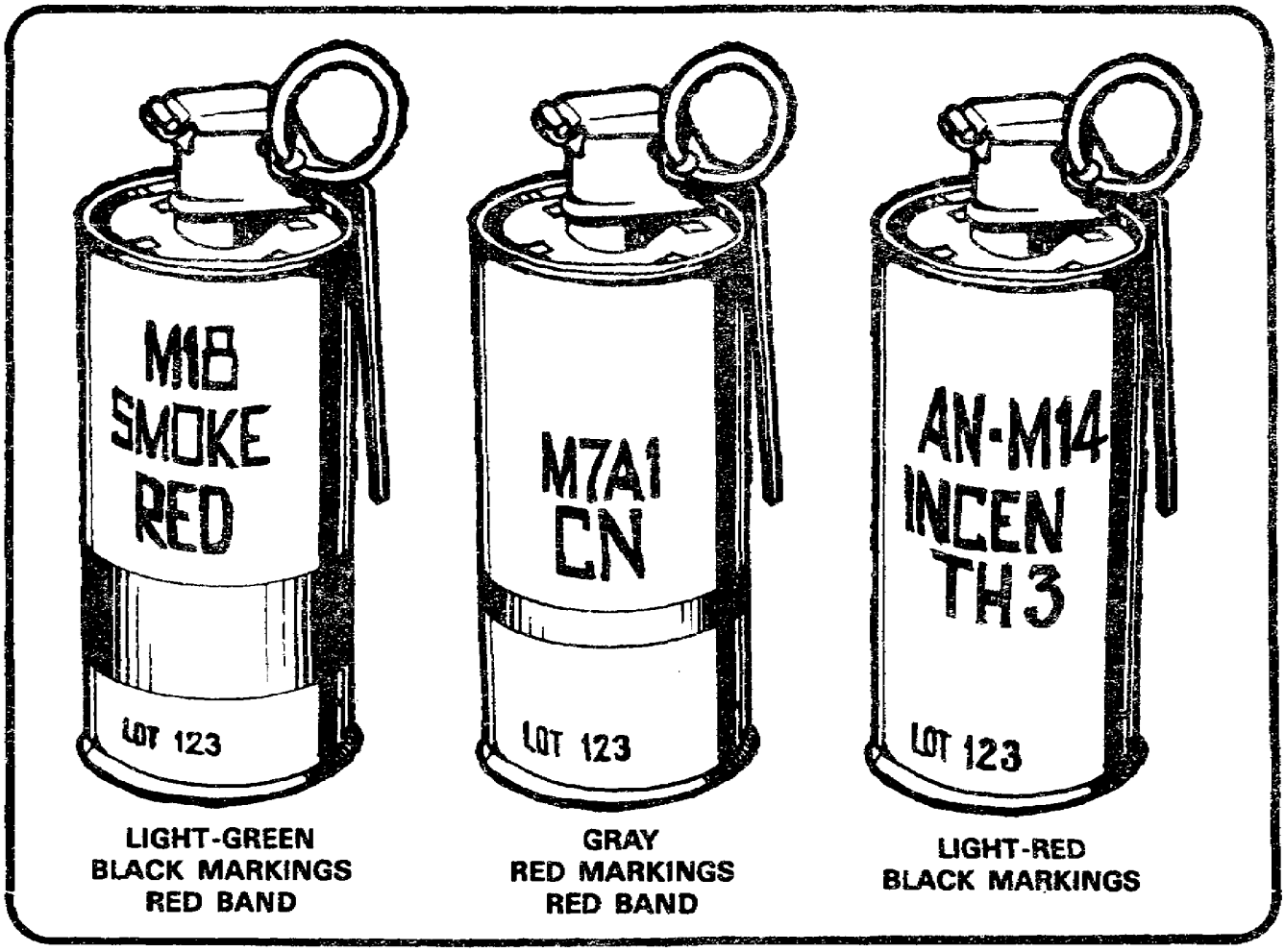
Major corrosion on the fuze assembly is a **MAJOR** defect; minor corrosion, a **MINOR** defect.

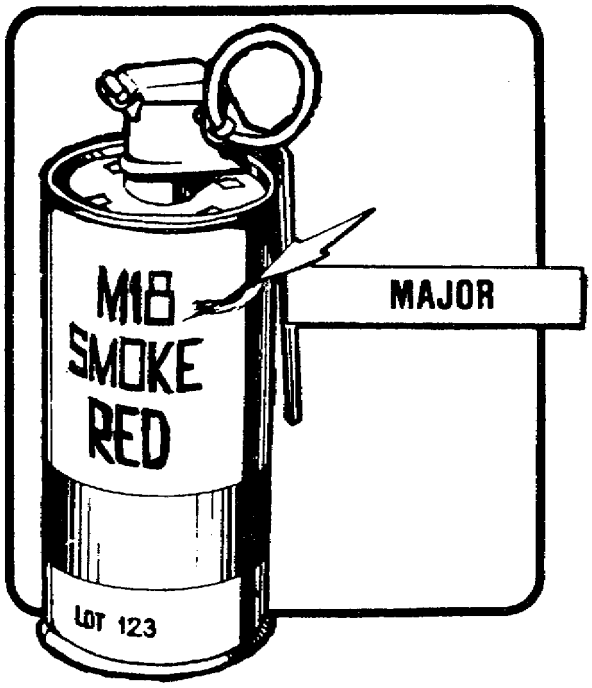
Check the fuze lot marking against the lot number on the Ammunition Data Card for the grenade. An incorrect fuze lot marking is a **MAJOR** defect.

MM3675

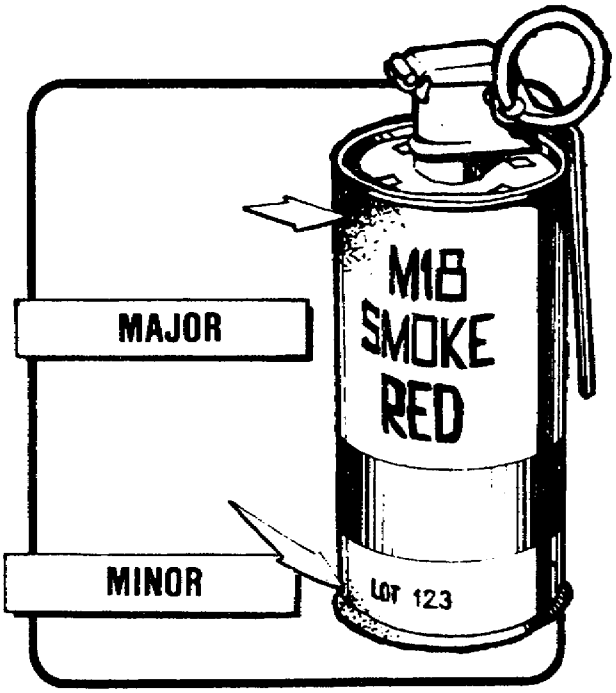
Each grenade must have the proper markings and color coding. Smoke grenades in the M18 series are identical except for the color of the smoke indicated by the colored band--yellow, green, violet, or red, as shown in the illustration.

Missing, incorrect, misleading, or illegible markings or color coding is a MAJOR defect.





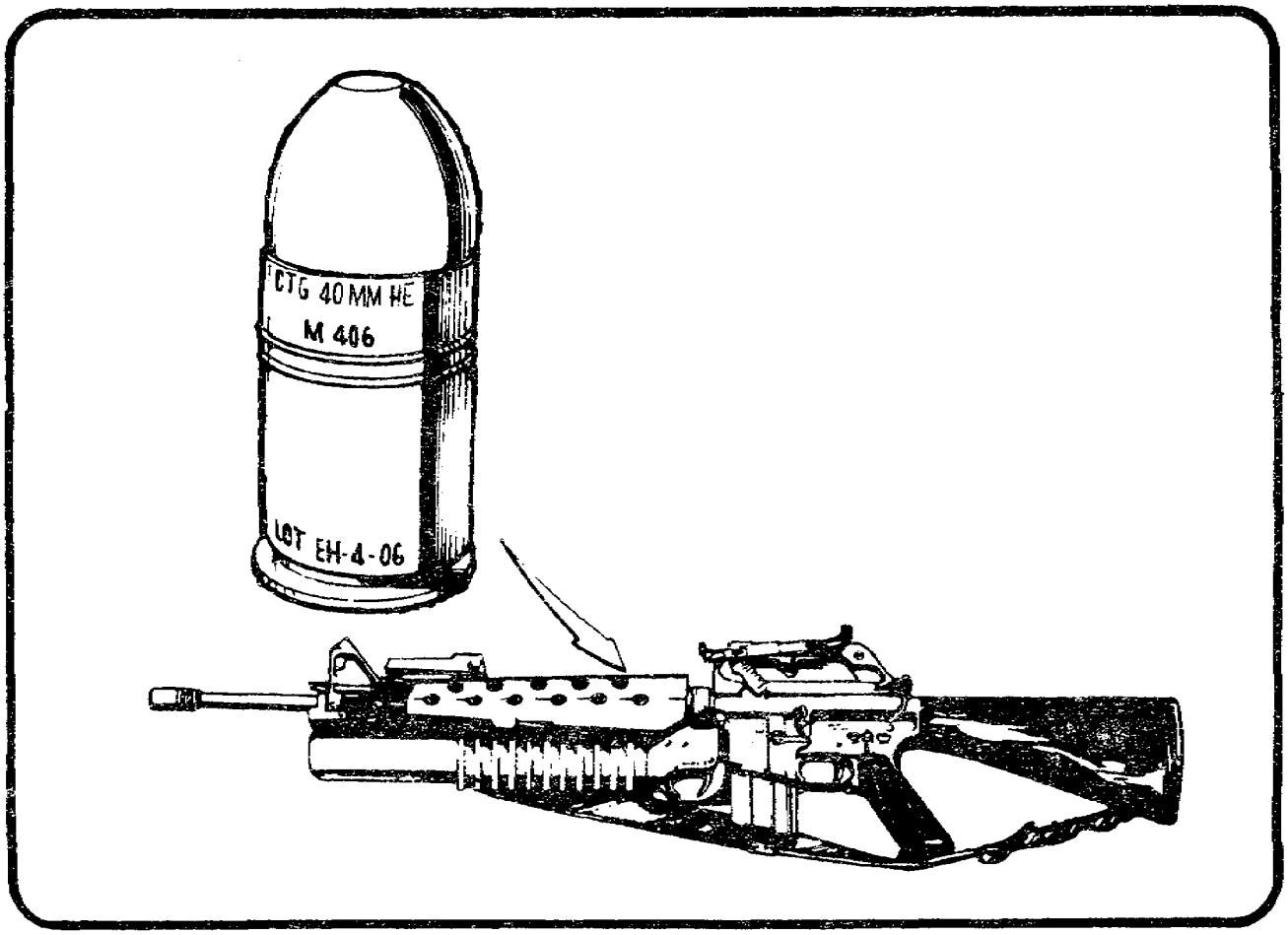
Inspect the grenade body. Major damage, such as a crack, hole, or other perforation, is a **MAJOR** defect.



Major rust or corrosion on the grenade body is a **MAJOR** defect; minor rust or corrosion, a **MINOR** defect.

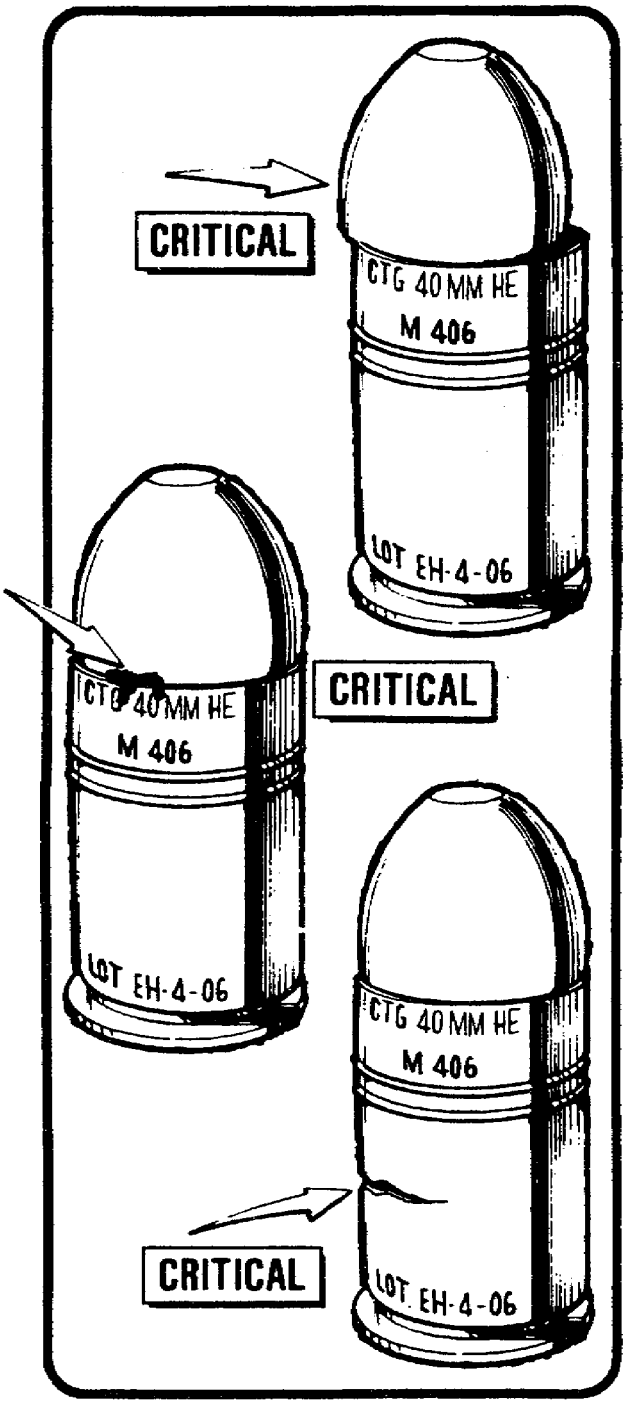
40mm GRENADE CARTRIDGES

The 40mm HE, M406 cartridge is a fixed round of ammunition used to supplement hand grenades. It is fired from 40mm grenade launchers M203 (attached to the M16 series rifle) and M79. The cartridge consists of a projectile with a rotating band and a cartridge case assembly that contains the propelling charge and the percussion primer.



CLASSIFICATION OF DEFECTS IN 40mm GRENADE CARTRIDGES
(from TM 9-1330-251-34)

DEFECT	CLASSIFICATION
Projectile distorted or out of round.	Critical
Exudation of filler around fuze well.	Critical
Cracked or split cartridge case.	Critical
Damaged rotating band.	Major
Corrosion on cartridge, cartridge case, or primer.	Major
Severe dent(s) in cartridge case.	Major
Incorrect or illegible markings.	Major



Visually inspect the cartridge for any distortion of the projectile that would produce an out-of-round condition. This is a **CRITICAL** defect.

Check for exudation of filler at the juncture of the projectile and the cartridge case. If it is present, record a **CRITICAL** defect.

Inspect the cartridge case for cracks or splits. If present, classify them as **CRITICAL** defects.

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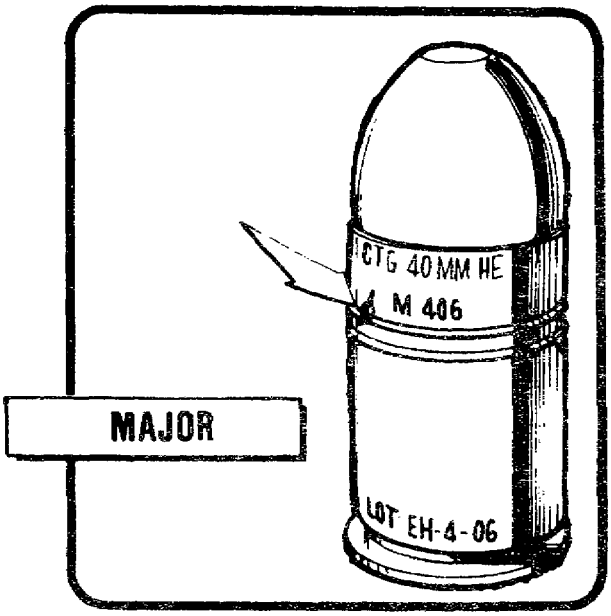
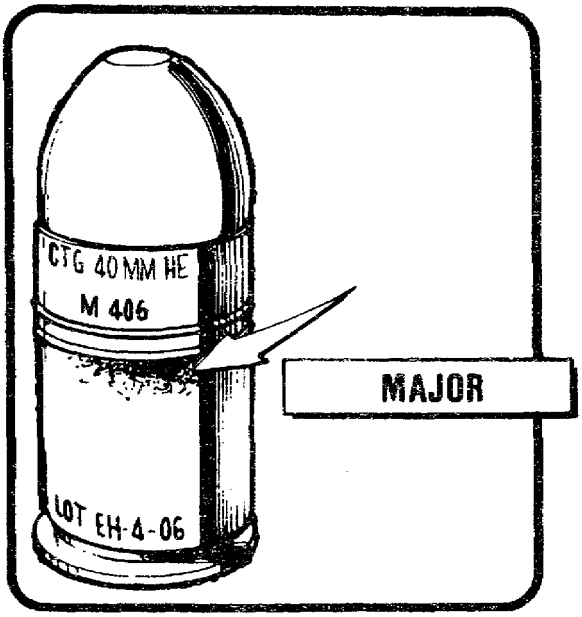
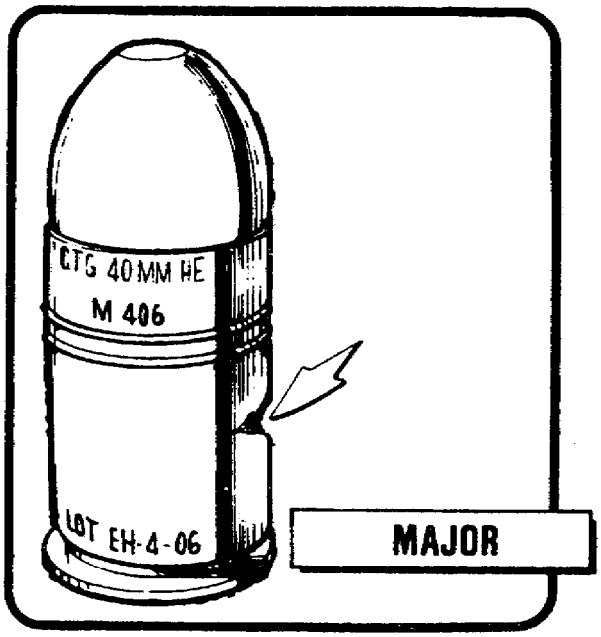
Check the rotating band for damage. This is a **MAJOR** defect.

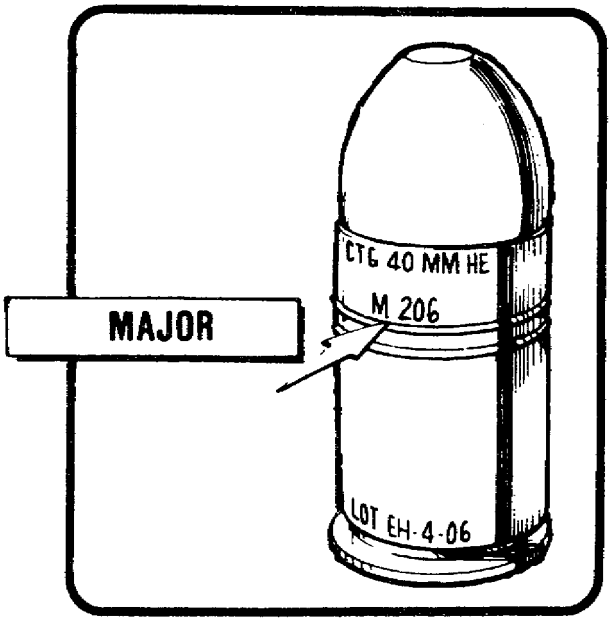


Look for corrosion on the cartridge case and the primer. This is a **MAJOR** defect.



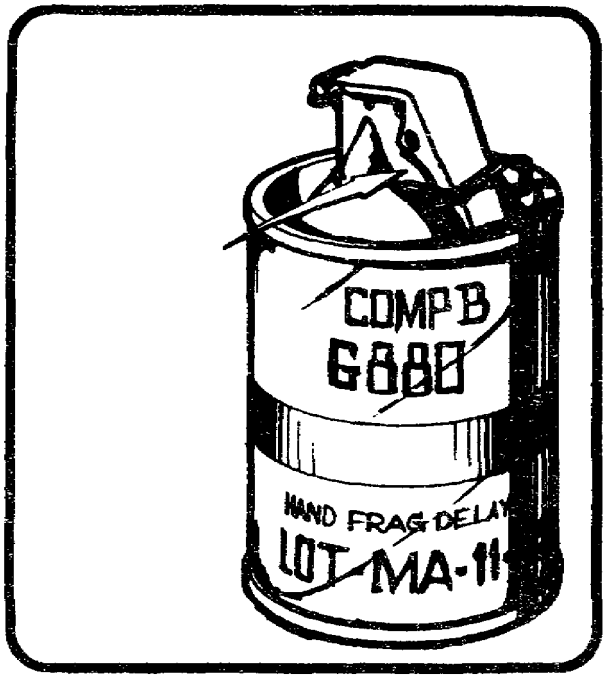


Inspect the cartridge case for severe dents. This is a **MAJOR** defect.

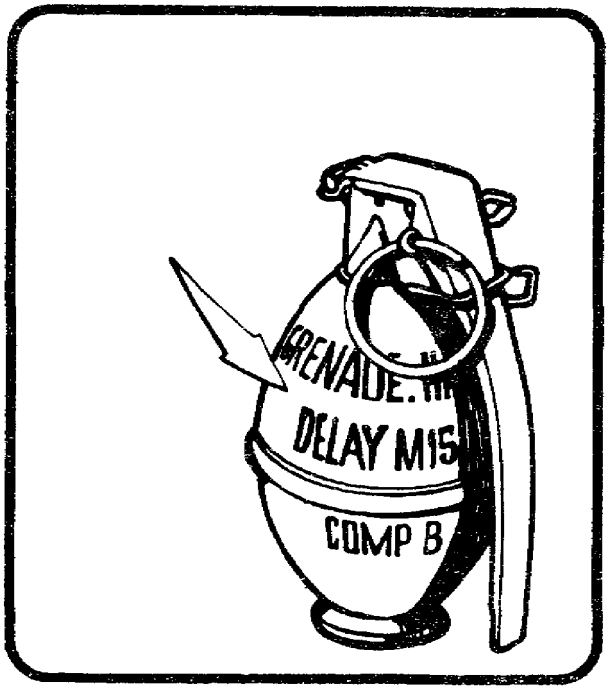


If the markings are incorrect or illegible, record a **MAJOR** defect.

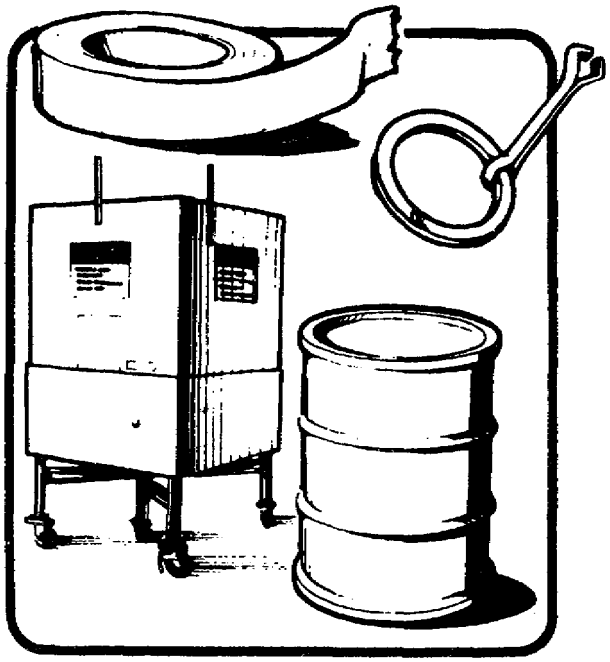
PRACTICE EXERCISES



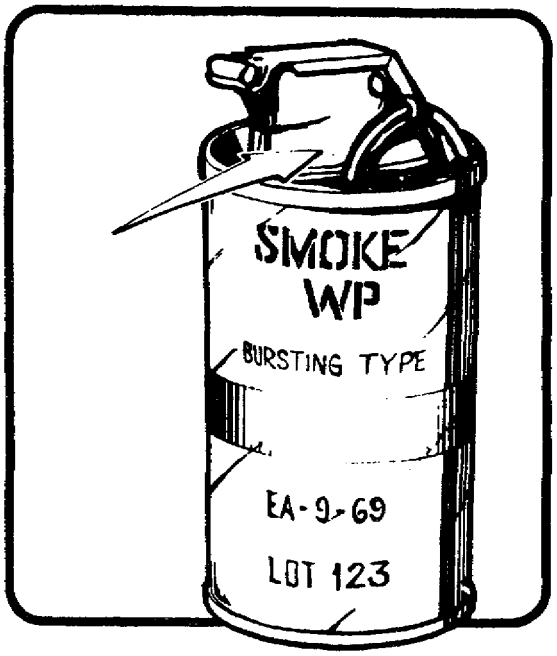
1. During the inspection of a fragmentation hand grenade, you discover that the safety pin is missing. What is the classification of this defect?



2. If the markings are misleading as to the type of grenade, what is the classification of this defect?

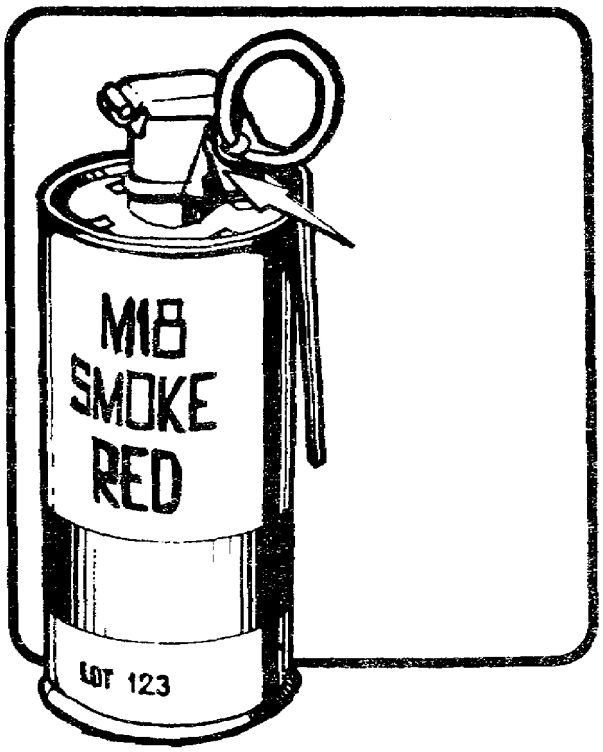


3. For safety, what is it you must have within arm's reach when you are inspecting smoke-WP hand grenades?

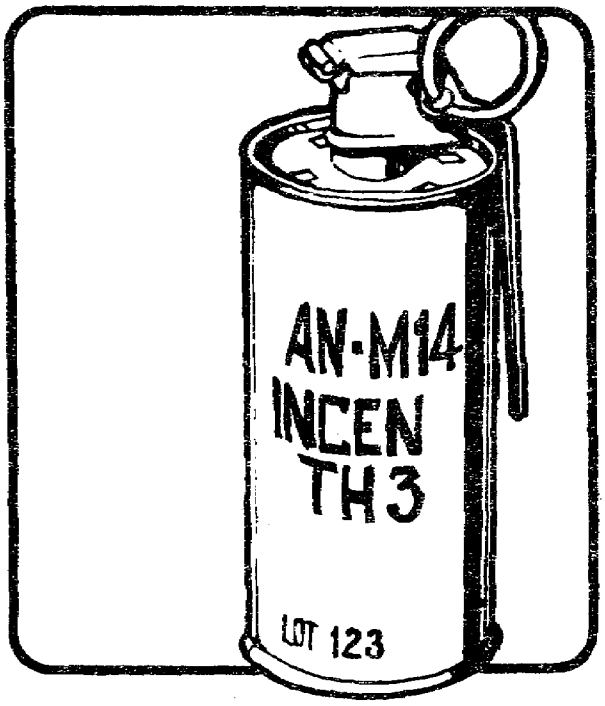


4. How can you tell if the safety pin is properly inserted in a smoke-WP grenade?

5. You are inspecting a hand grenade, M18, red smoke, and find an unauthorized fuze installed. Classify the defect.



6. You are inspecting a hand grenade, incendiary, TH3, AN-M14. Against what must you check the fuze lot marking?



7. How should a damaged rotating band on a 40mm grenade cartridge be classified?

8. During your inspection of a hand grenade, riot control, CN, M7A1, you discover that the markings are misleading as to the type of grenade. How should you classify this defect?

LESSON 4

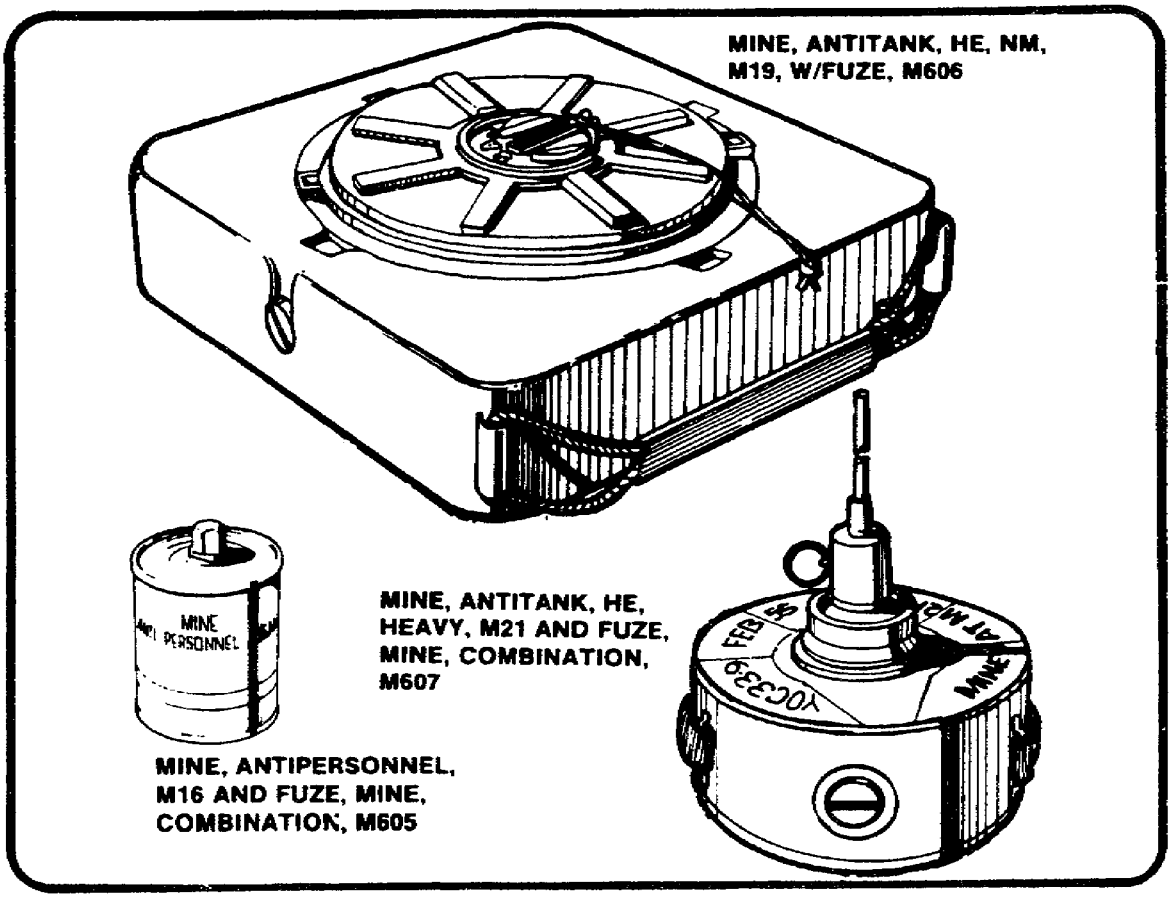
INSPECTING MINES AND ASSOCIATED EQUIPMENT

INTRODUCTION

Although mines come in a variety of types and sizes, only three will be covered in this lesson. They are: mine, antipersonnel, M16, with fuze, mine, combination, M605; mine, antitank, HE, NM, M19, with fuze, M606; and mine, antitank, HE, heavy, M21, with fuze, mine, combination, M607. The inspection procedures and the classification criteria for these mines will help you to understand the specific procedures used in the inspection of other mines.

Select the sample size using Table 2-2 in SB 742-1 (see page 1). Have the items transported by storage personnel to an authorized inspection site. Post the correct fire symbol before the samples are off-loaded. In an actual inspection, you would record everything on an ASIR.

Inspect the outer and inner containers for proper markings and for damage. Then inspect for the proper quantity and contents.



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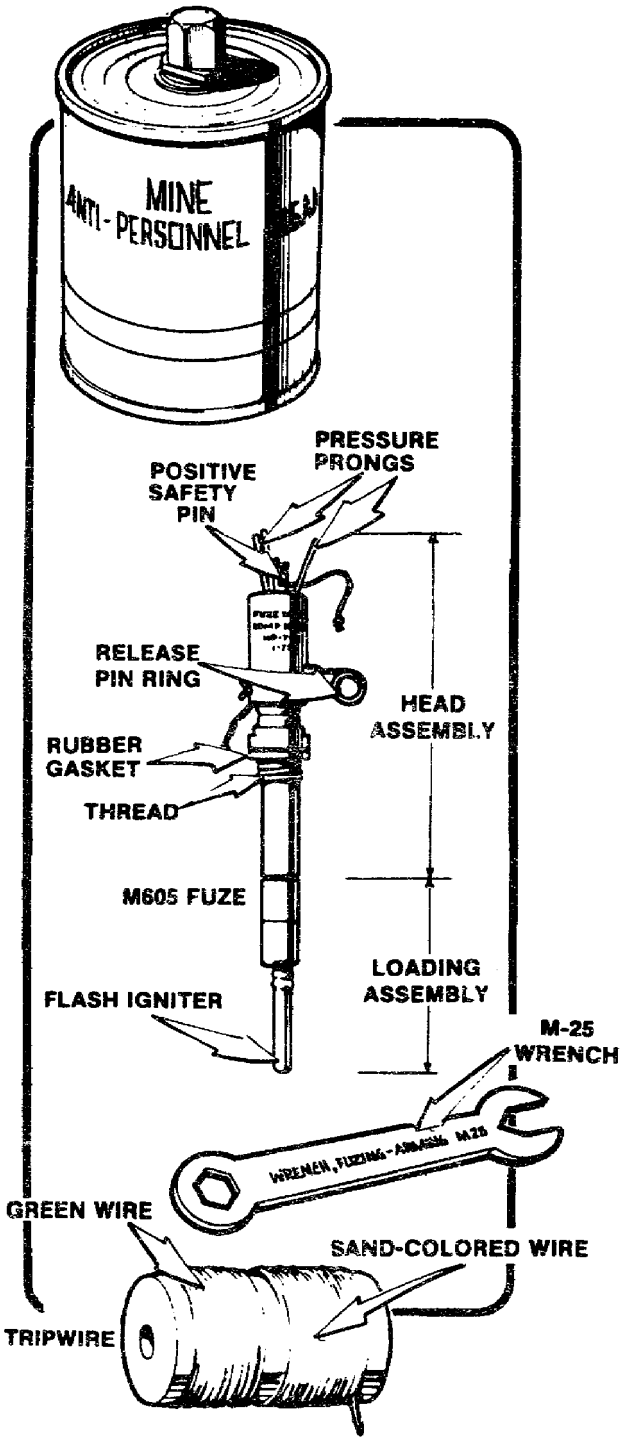
M16 MINE AND M605 FUZE

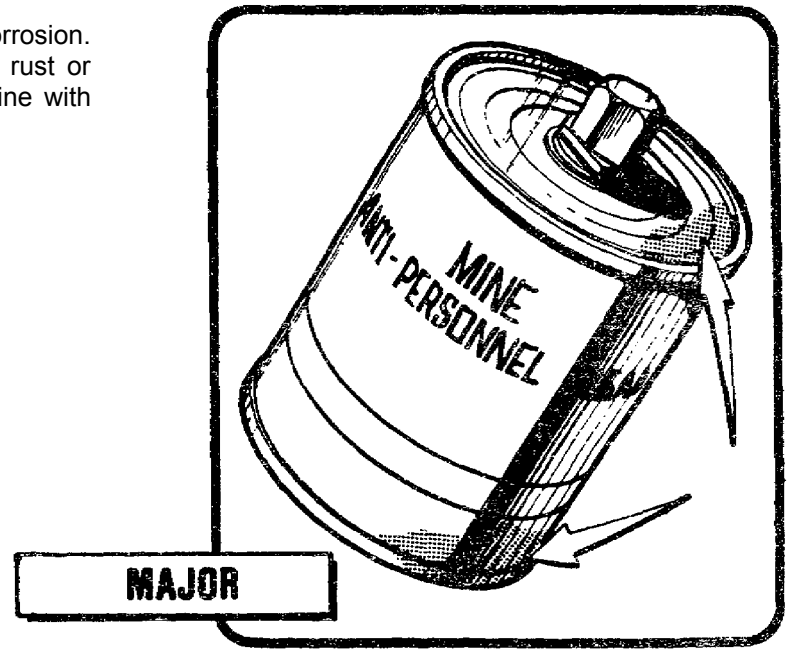
Begin the inspection by examining each item for damage. Missing or unusable items such as wrenches, keys, and trip wire are **MINOR** defects, since the mine is still serviceable.



CLASSIFICATION OF DEFECTS IN MINES
(from SB 742-1345-94-44 and TM 9-1345-203-34&P)

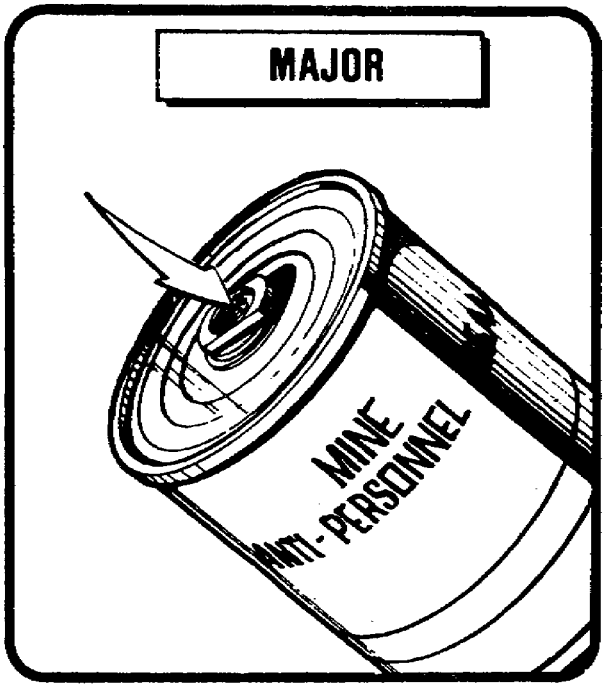
MINE	DEFECT	CLASSIFICATION
M16 mine, M605 fuze	All safety pins missing.	Critical
	Safety pins insecurely assembled to extent that handling or storing is unsafe.	Critical
	Water leaks into fuze well.	Major
	Prongs, pull ring, threads, fuze, or other items missing or damaged to extent that precludes use of mine.	Major
	Major rust or corrosion.	Major
	No varnish on bushing threads.	Minor
	Loose bushing (less than 20 inch-pounds).	Minor
	Loose shipping plug (less than finger-tight).	Minor
	Wrench, trip wire, key for container of fuzes, shipping plug, shipping gasket, or other items missing or damaged to extent that their use is precluded but not the use of the mine.	Minor
	Fuze marking misleading or unidentifiable as to type of fuze.	Minor
	Minor rust or corrosion.	Minor
M19 mine, M606 fuze	Indicator mark on fuze missing or incorrect.	Critical
	Assembly cracked or split.	Major
	Carrying cord missing.	Major
	Booster pellet missing.	Major
	Fuze assembly missing or damaged.	Major
	Components missing.	Major
	Fuze assembled with detonator holder assembly in lieu of shipping plug.	Major
	Fuze not on safe.	Major
	Housing gasket missing.	Major
M21 mine, M607 fuze	Any break in chamber for main charge.	Critical
	Pull ring assembly missing.	Critical
	Shipping plug, charge cap, or closing plug turns when torque of 30 inch-pounds is applied tightening.	Major
	Charge cap missing.	Major
	Fuze hole thread damaged.	Major
	Components missing.	Major
	Closure assembly turns when minimum torque of 15 inch-pounds is applied tightening.	Major
	Fuze assembly damaged (dented, deformed, cracked, or punctured.	Major

Next, inspect the mine body for rust and corrosion. A mine that can not be used due to major rust or corrosion is a MAJOR defect. A usable mine with minor rust or corrosion is a MINOR defect.



Inspect for the presence of the shipping plug. Remove it with the M25 wrench. If the shipping plug is missing, less than finger-tight, or damaged enough to prevent the mine's use, there is a MINOR defect.

Inspect the bushing. If it is loose or if there is no varnish on the bushing threads, a **MINOR** defect exists.



Damage to the bushing threads which prevents inserting the fuze in the mine is a **MAJOR** defect. It is a **MINOR** defect if it can be inserted.

Now replace the shipping plug to finger tightness.

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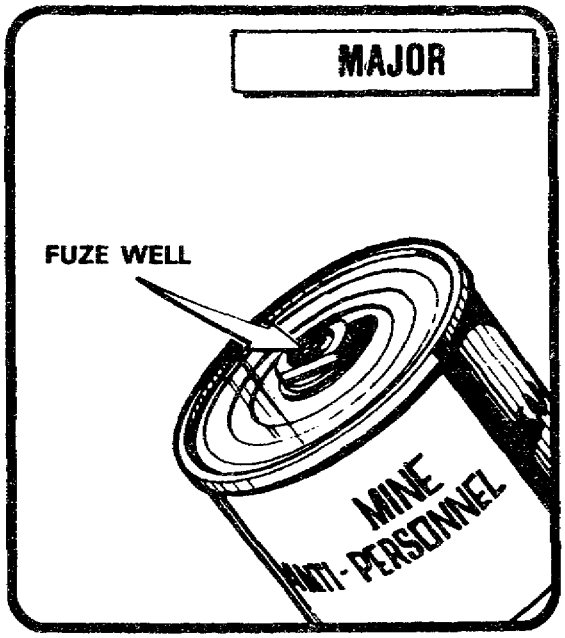
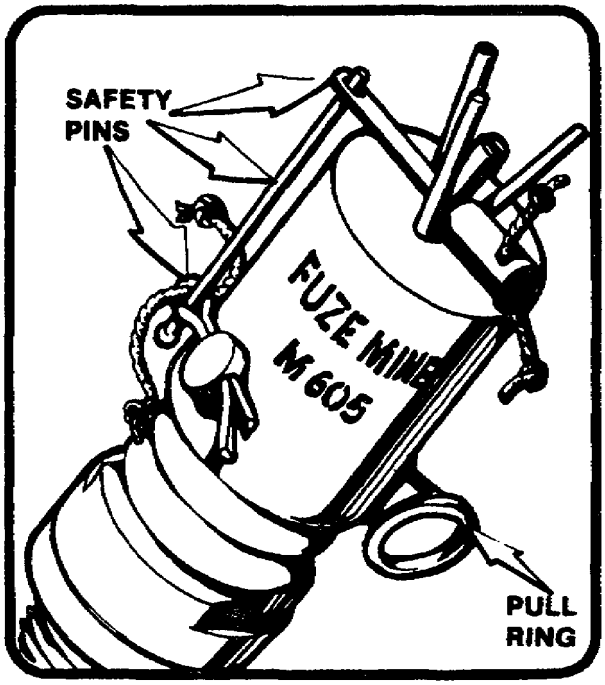
Check the shipping gasket. A missing or damaged shipping gasket is a **MINOR** defect.

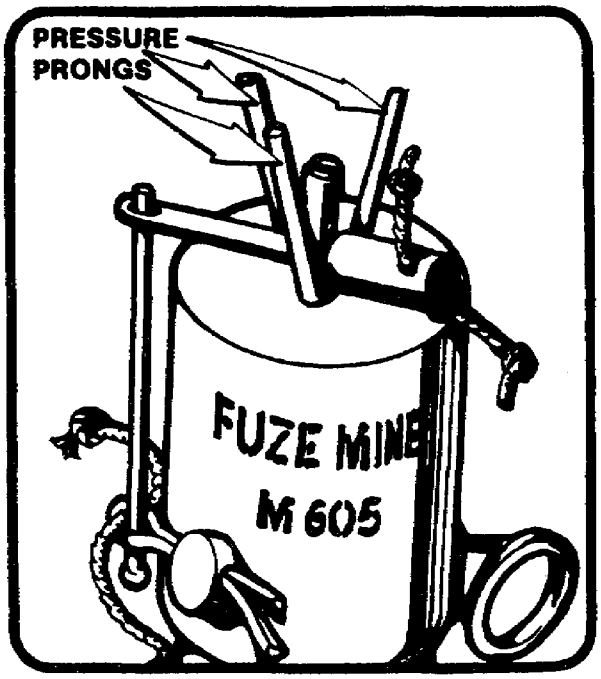
Examine the fuze well for water leaks. Evidence of water is a **MAJOR** defect.





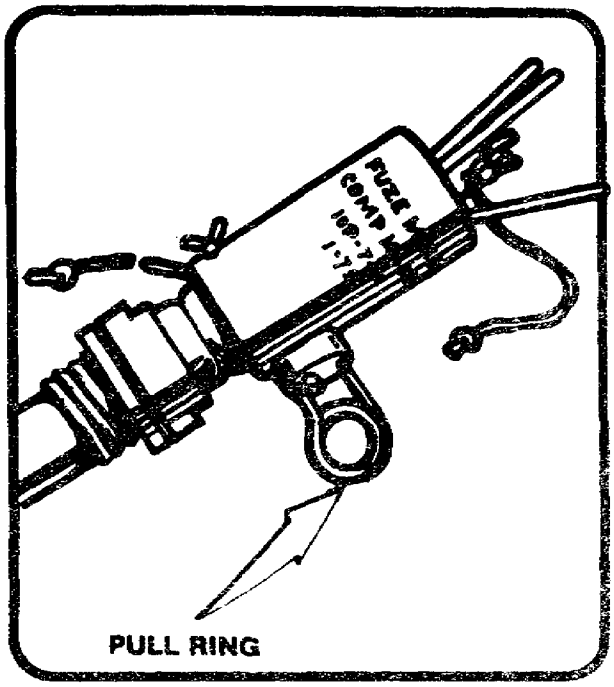
Now, begin your inspection of the M605 fuze. First examine the safety pins. If the pins are missing or insecurely assembled, the defect is **CRITICAL**.

Check the fuze for damage. An unserviceable fuze prevents the use of the mine and is a **MAJOR** defect.

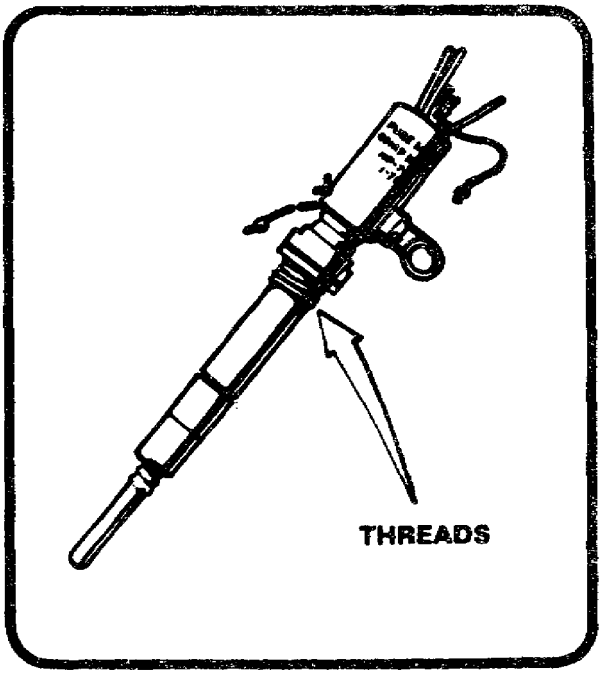


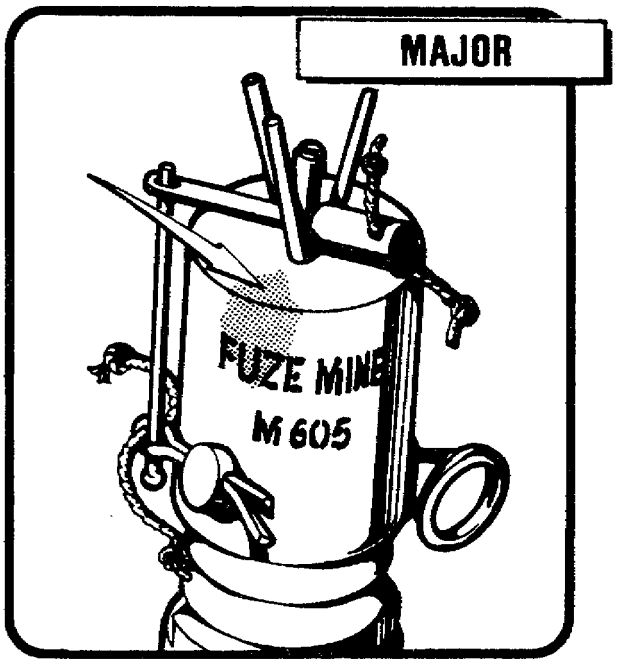
Examine the pressure prongs. If any prong is missing or damaged preventing the use of the fuze, it is a **MAJOR** defect.

Inspect the pull ring. Classify a missing pull ring or one so damaged that the fuze can not be used as a MAJOR defect.

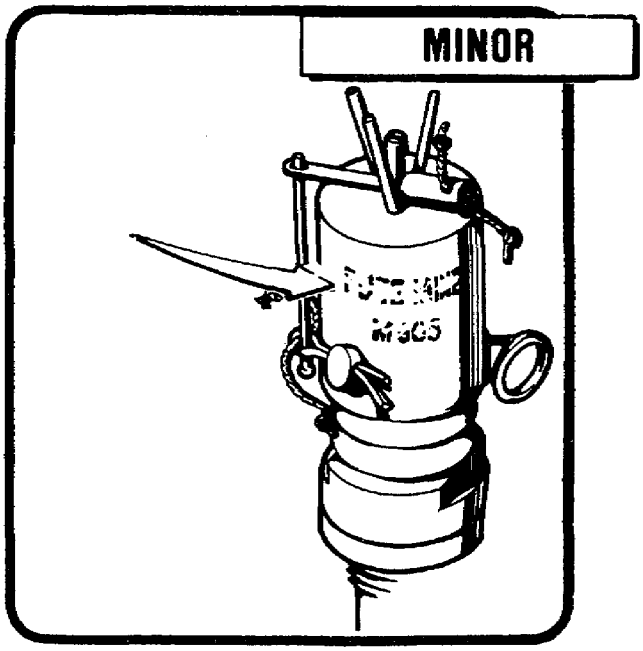


Examine the threads of the fuze. Damage that prevents the use of the fuze is a MAJOR defect.





Check the fuze for rust and corrosion. A fuze that can not be used because of rust or corrosion is a MAJOR defect. A fuze with minor rust or corrosion is a MINOR defect.



Next, look at the markings on the fuze. If they are misleading or unidentifiable as to the type of fuze, a MINOR defect exists.

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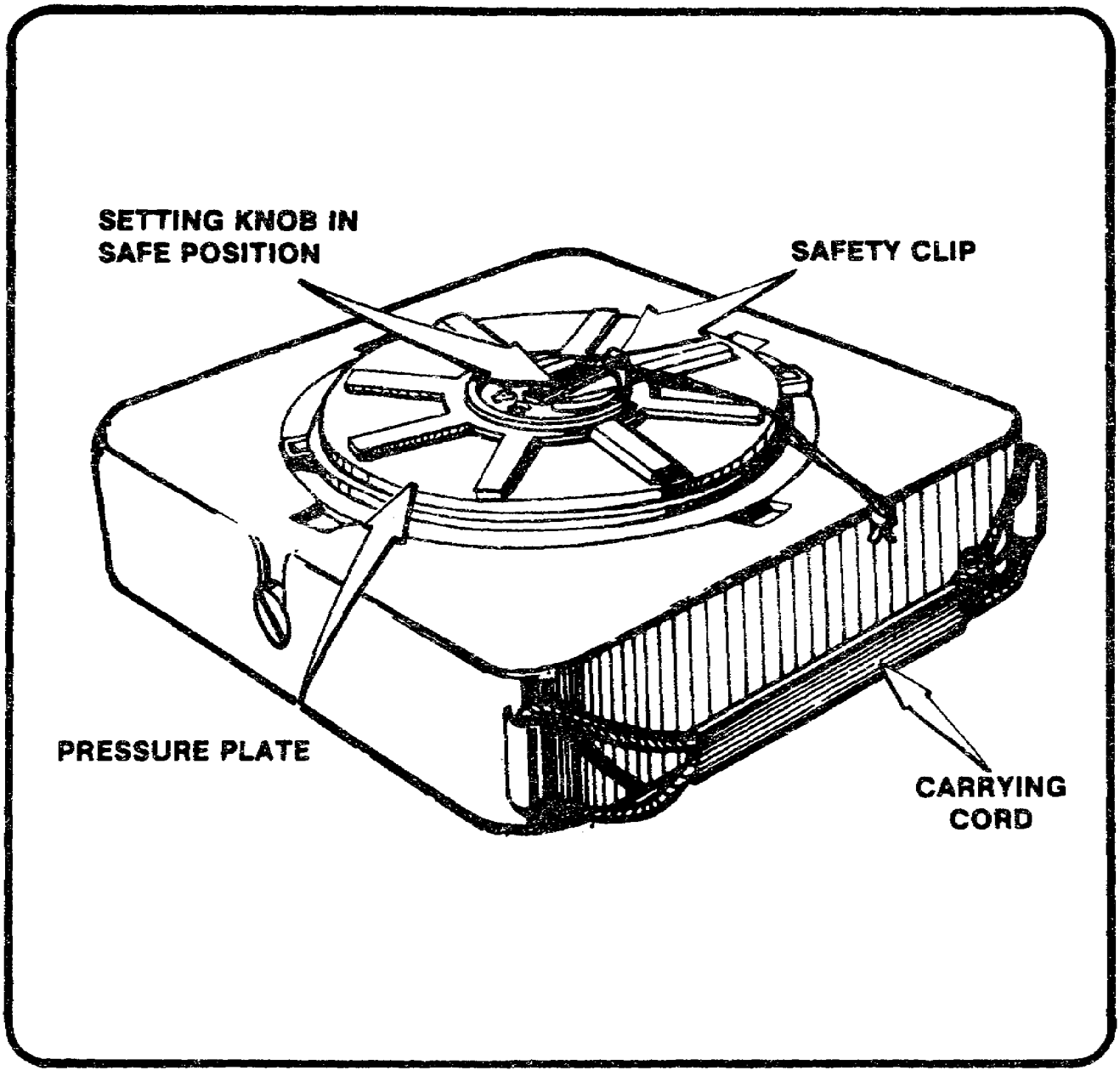
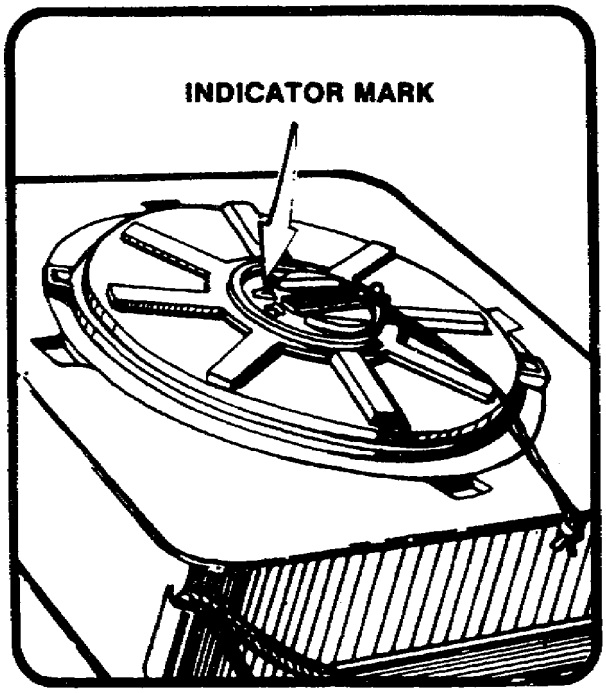
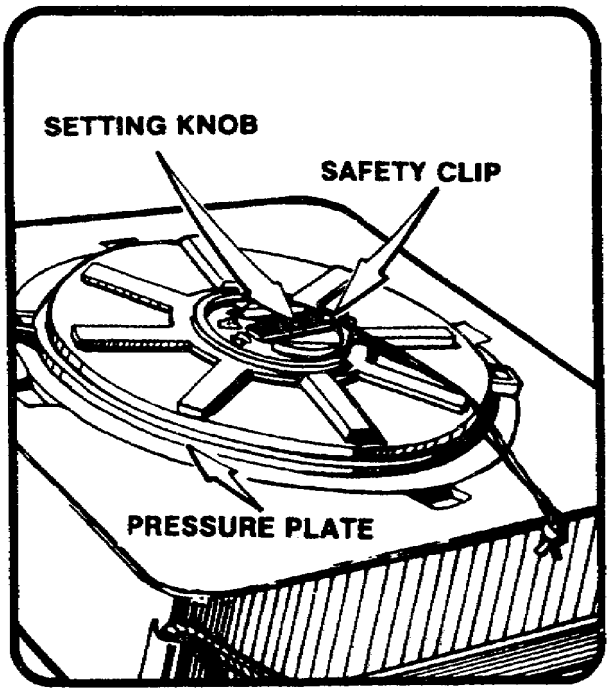
M19 MINE AND M606 FUZE

The next mine you will inspect is the Mine, Antitank, HE, NM, M19, w/Fuze, M606.



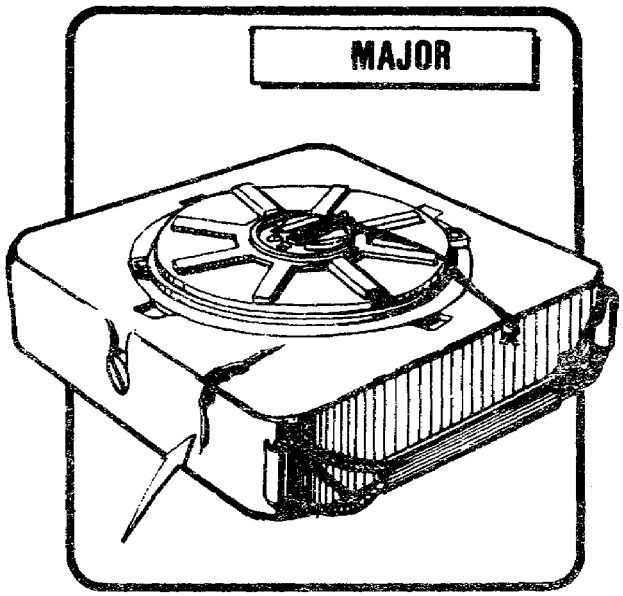


Begin by inspecting the indicator marks on the fuze. An S (safe) mark and an A (armed) mark should be clearly present. If a mark is missing or incorrect, classify it as a CRITICAL defect.

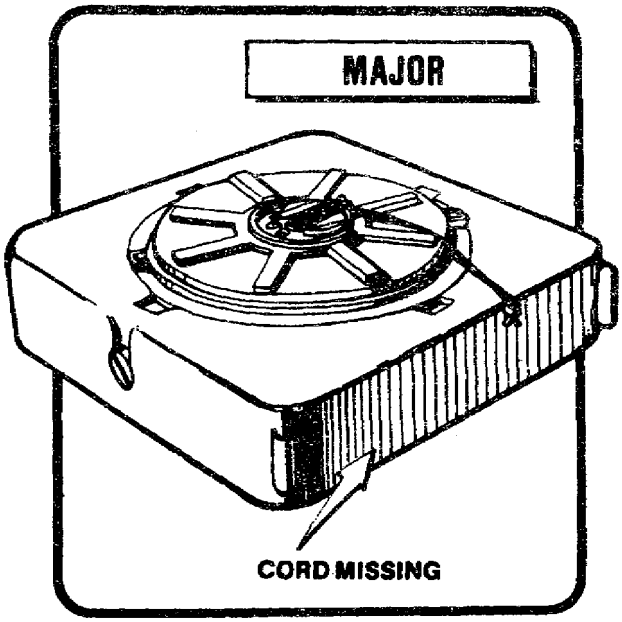


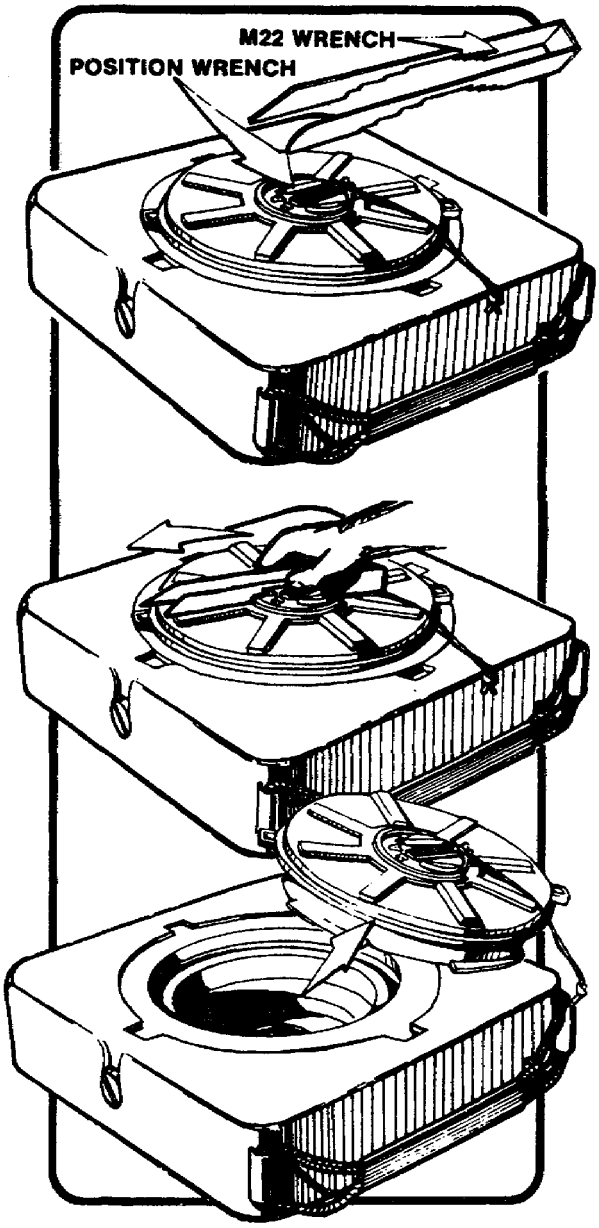
Make sure that the setting knob on the fuze pressure plate is in the safe position. Then check to see if the safety clip is in place to prevent movement of the setting knob. Classify it as a MAJOR defect if the fuze setting knob is not in the safe position.

Examine the mine assembly for cracks or splits. These are **MAJOR** defects.



If the carrying cord is missing, it is a **MAJOR** defect.





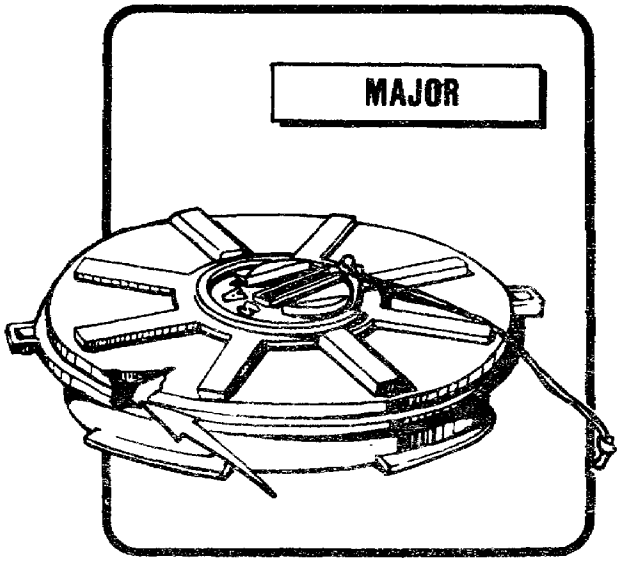
Remove the fuze assembly. Position the M22 wrench on the fuze pressure plate.

Turn the wrench counterclockwise until the fuze is free.

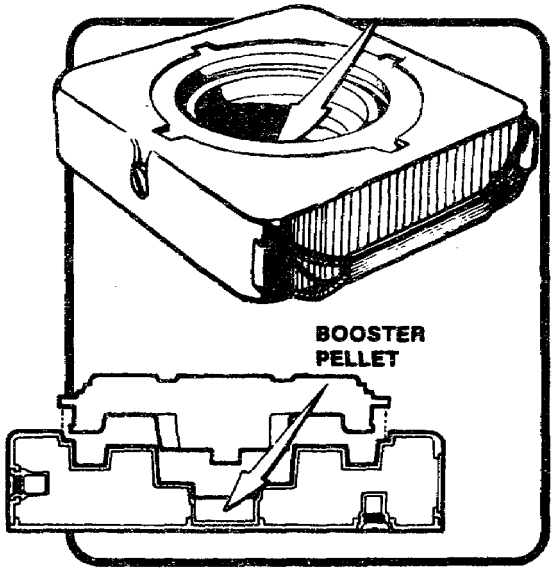
Then lift the fuze assembly from the fuze well.

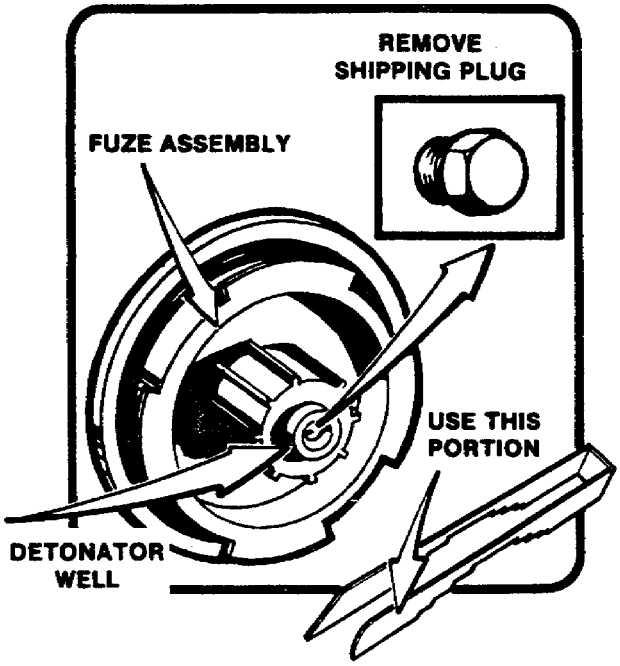
MM3675

If the fuze assembly is missing, or if it is damaged by cracks, warps, or distortion precluding the use of the mine, it is a **MAJOR** defect.



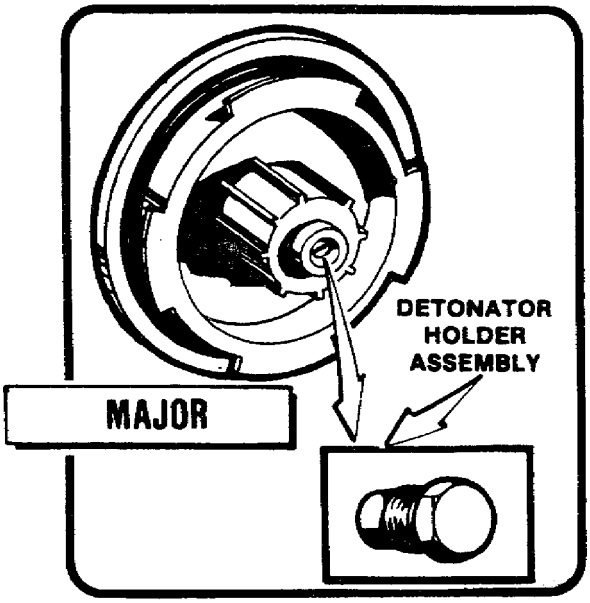
Look into the fuze well and inspect for the presence of the booster pellet at the bottom of the well. If there is no pellet, there is a **MAJOR** defect.





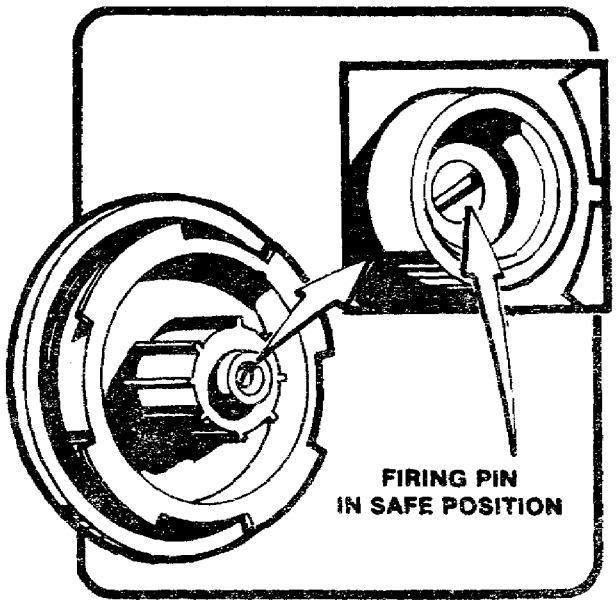
Turn the fuze assembly bottom side up and look for the white plastic shipping plug. Using a M22 wrench, remove the shipping plug from the detonator well by turning it counterclockwise.

Now check the detonator well for foreign material.



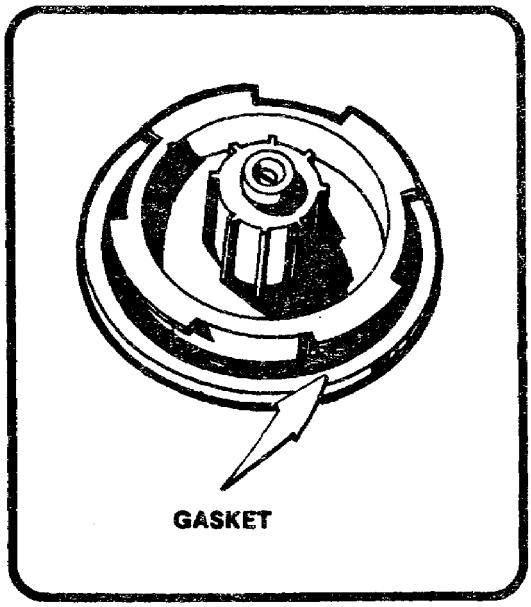
If you find that the fuze is assembled with the detonator holder assembly in lieu of a shipping plug, classify a **MAJOR** defect.

Look for the firing pin. It should be in the safe position.



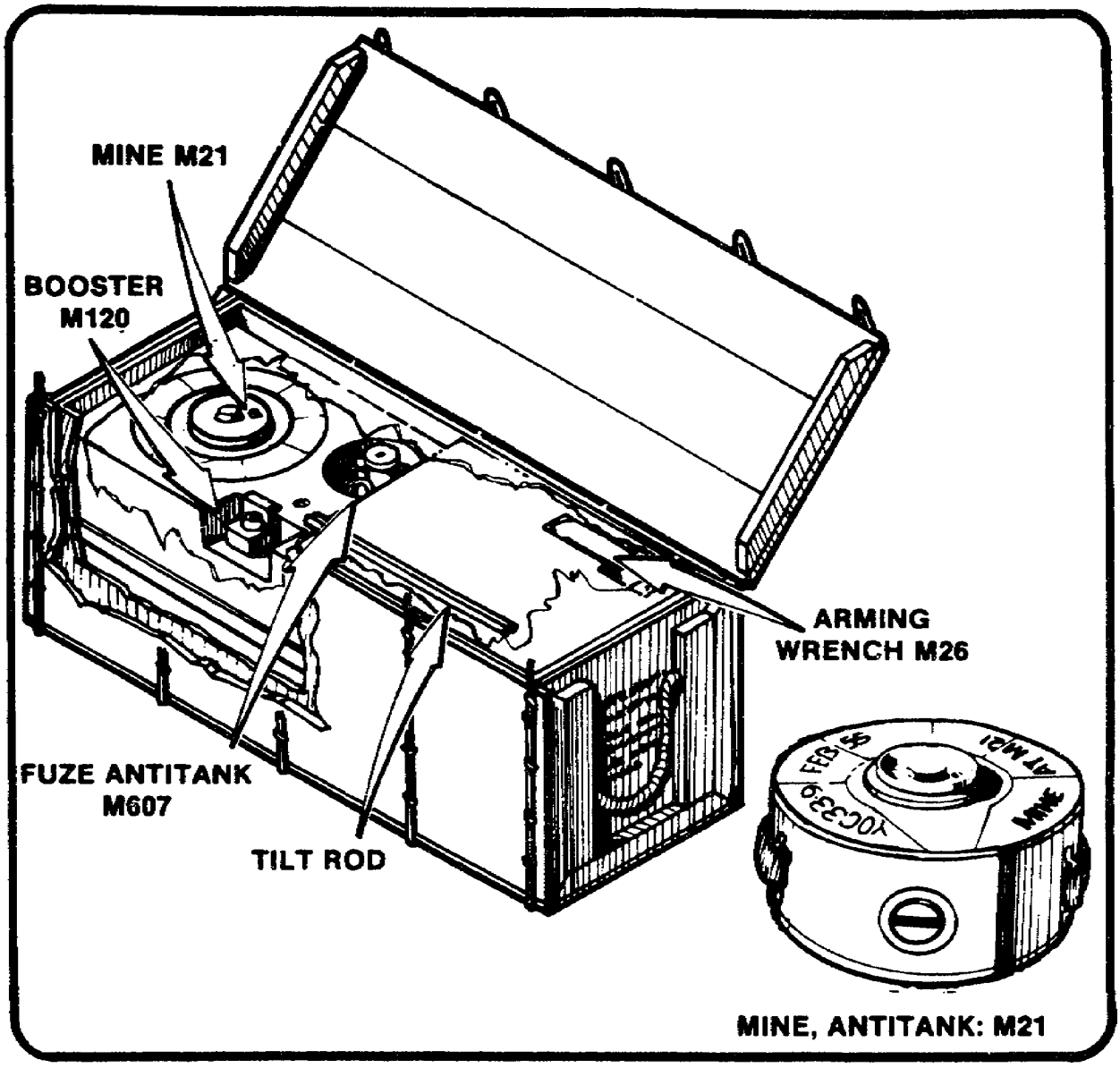
Then look for the housing gasket. A missing gasket is a MAJOR defect.

If you found any other components that affect the serviceability of the mine missing during your inspection, classify each as a MAJOR defect.

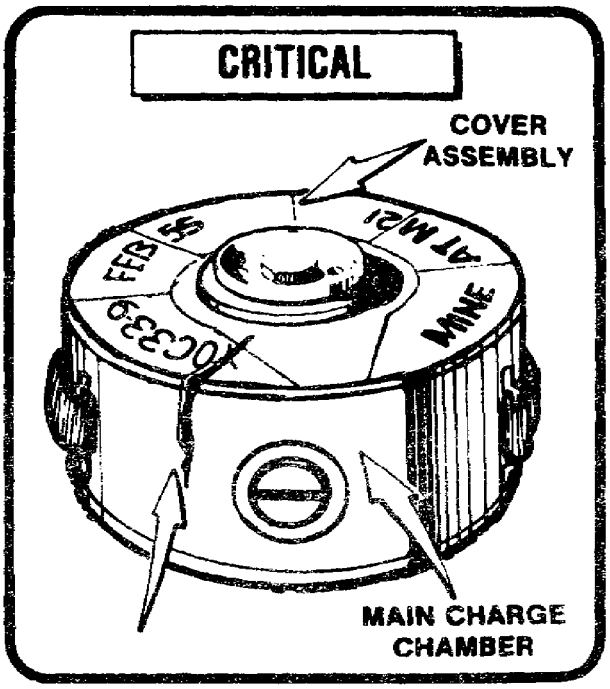


M21 MINE AND M607 FUZE

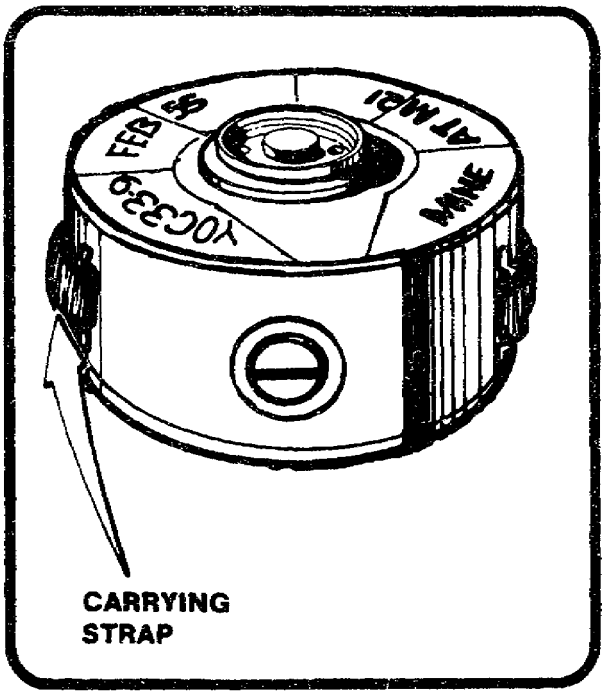
Inspect for the presence of the components that affect the use of the mine. If any component is missing, it is a MAJOR defect.

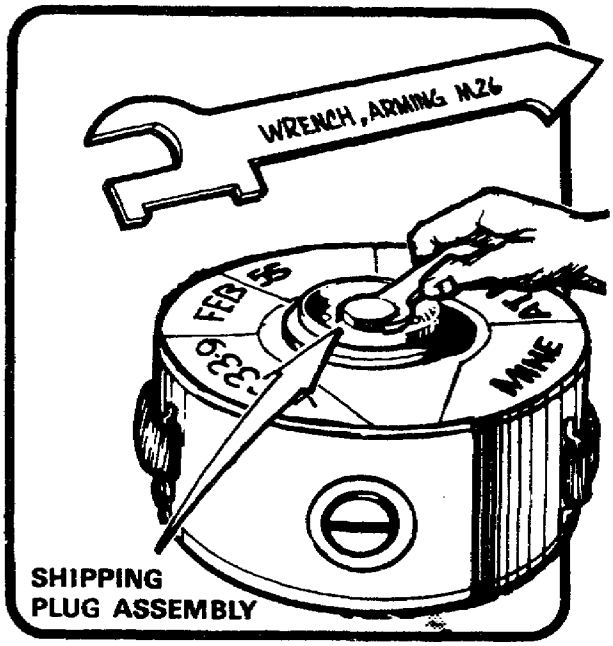


Examine the main charge chamber for damage. Breaks in this area are CRITICAL defects. Also inspect the cover assembly for damage.



Then check for the presence of the carrying strap and for any damage to the strap. A missing carrying strap is a MAJOR defect.

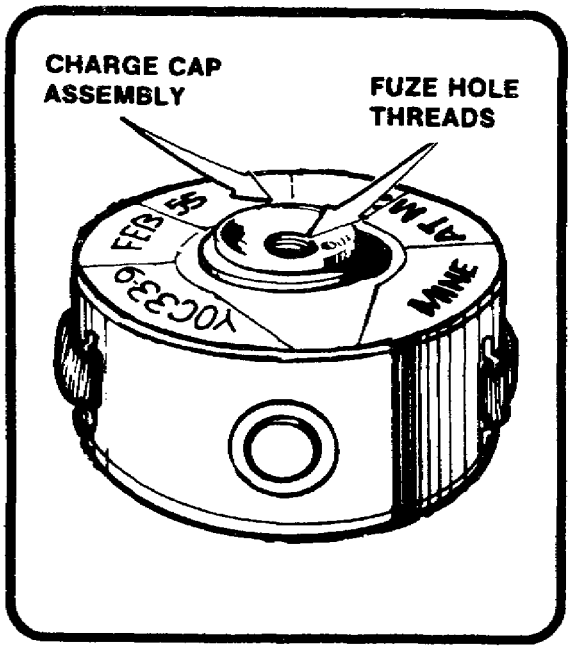




Look to see if the shipping plug assembly is present.

Position the M26 wrench on the shipping plug assembly as shown. Turn the wrench counterclockwise and remove the shipping plug assembly from the fuze cavity.

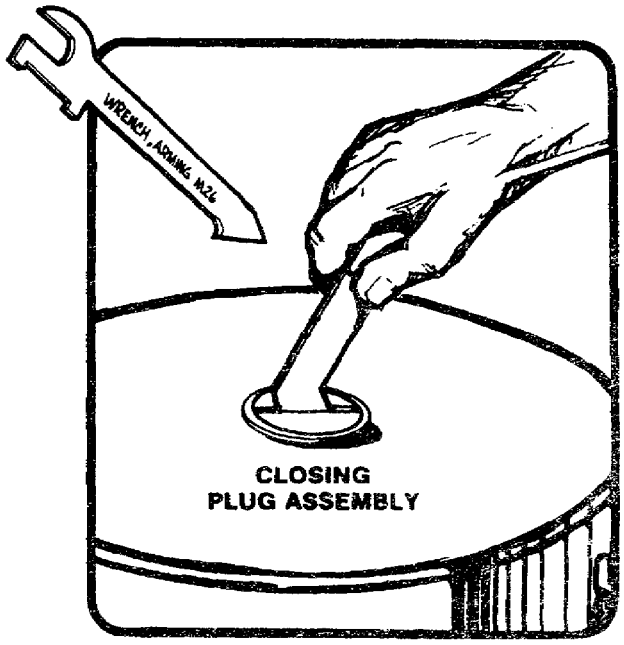
Inspect for damage to the shipping plug assembly and to its threads.



Next, see if the charge cap assembly is missing or damaged. Look at the fuze hole threads in the charge cap. It is a MAJOR defect if they are damaged.

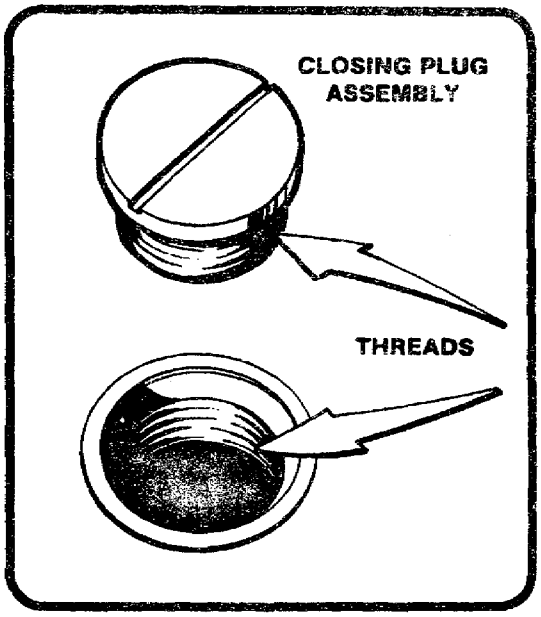
Turn the mine bottom side up and check for the presence of the closing plug assembly.

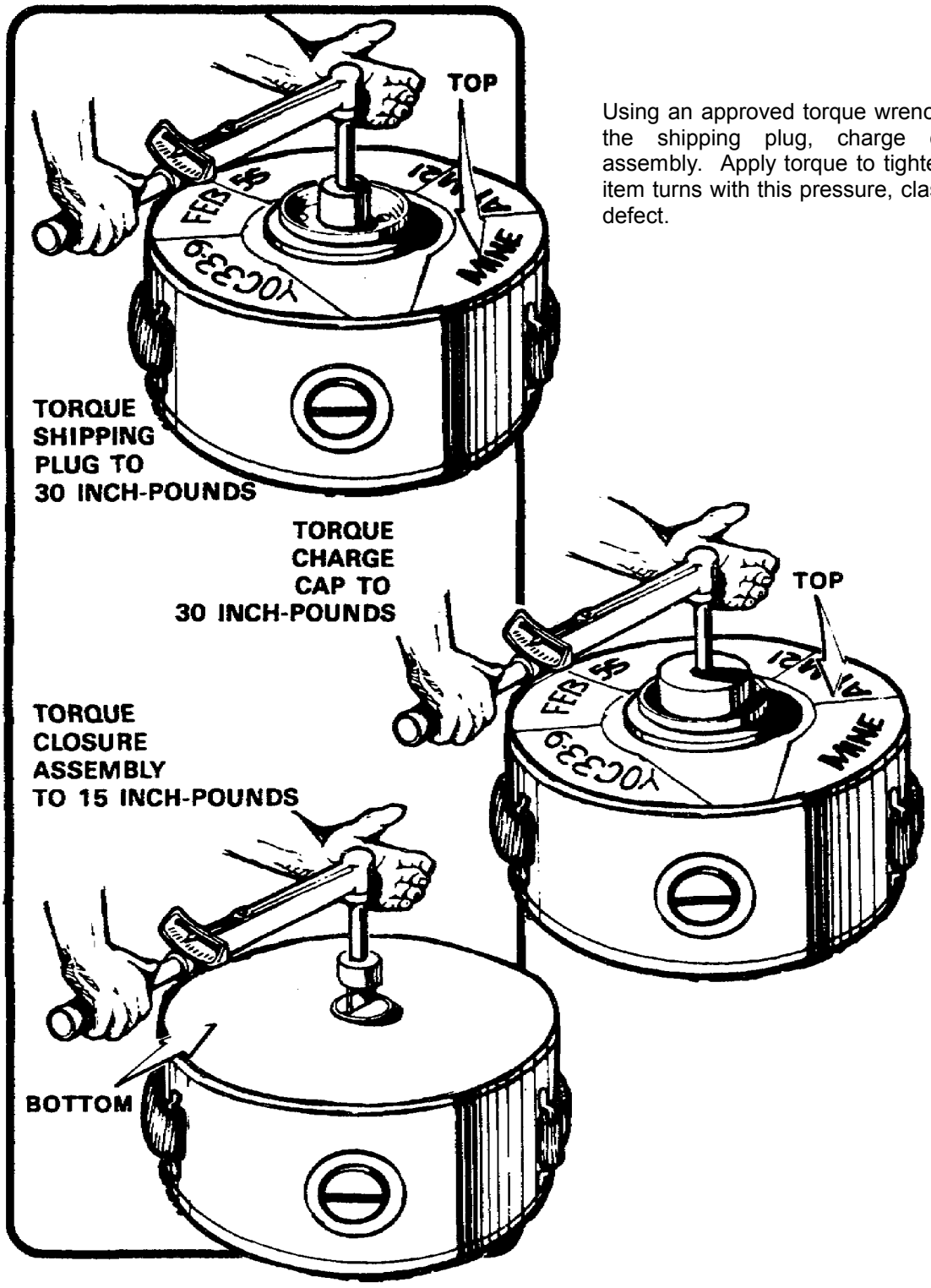
With the screwdriver end of the M26 wrench, remove the closing plug assembly by turning counterclockwise.



Inspect the closing plug assembly and its threads for damage. Then look for any damage to the threads in the closing plug cavity on the mine.

Replace the closing plug assembly and shipping plug assembly.





Using an approved torque wrench, manually inspect the shipping plug, charge cap, and closure assembly. Apply torque to tighten each one. If the item turns with this pressure, classify it as a MAJOR defect.

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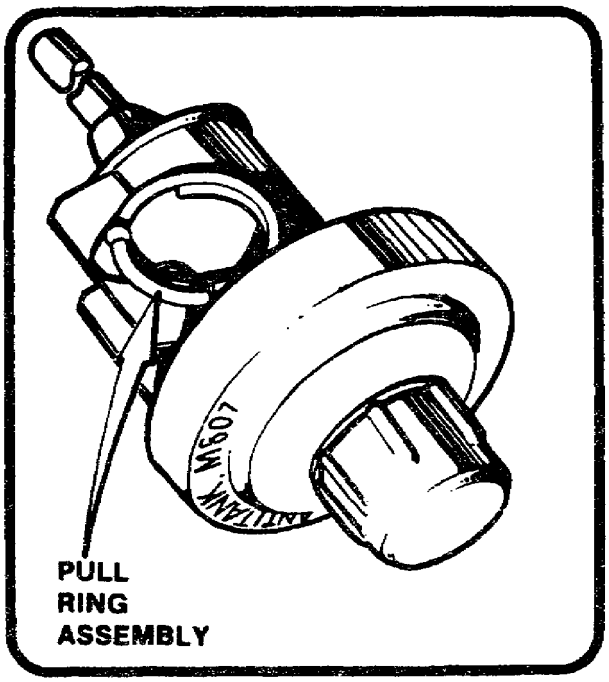
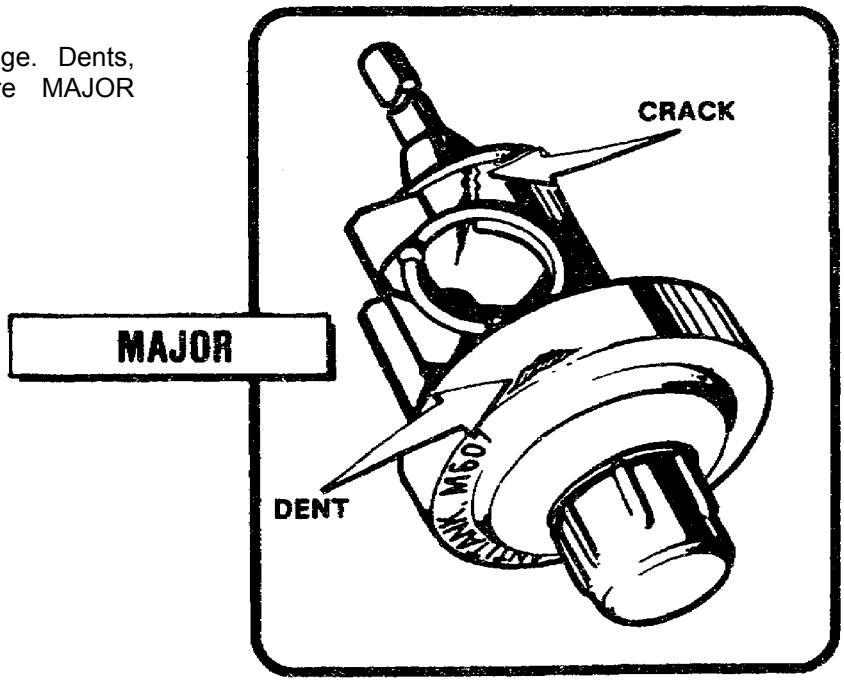
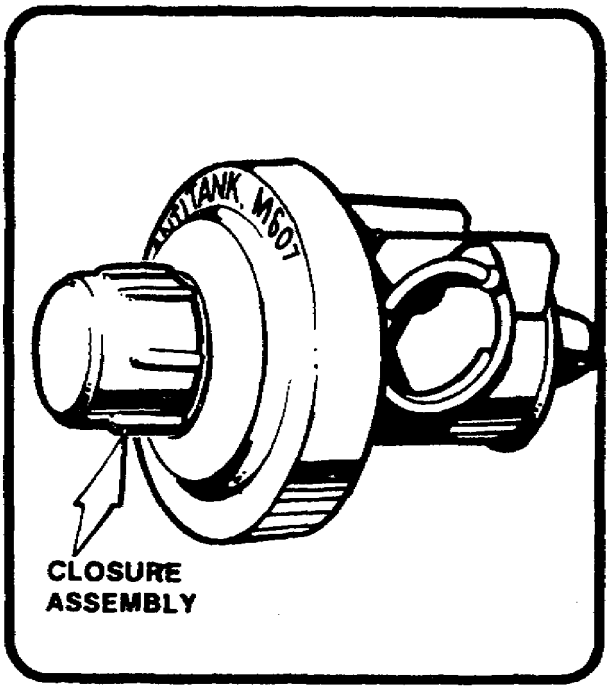
Examine the fuze for the presence of the pull ring assembly. If it is missing, a CRITICAL defect exists.

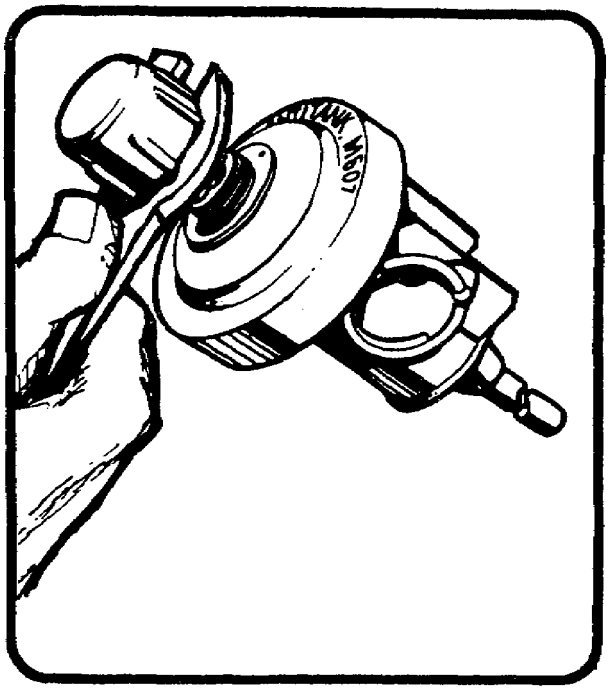


Next, check the fuze assembly for damage. Dents, deformities, cracks, or punctures are MAJOR defects.





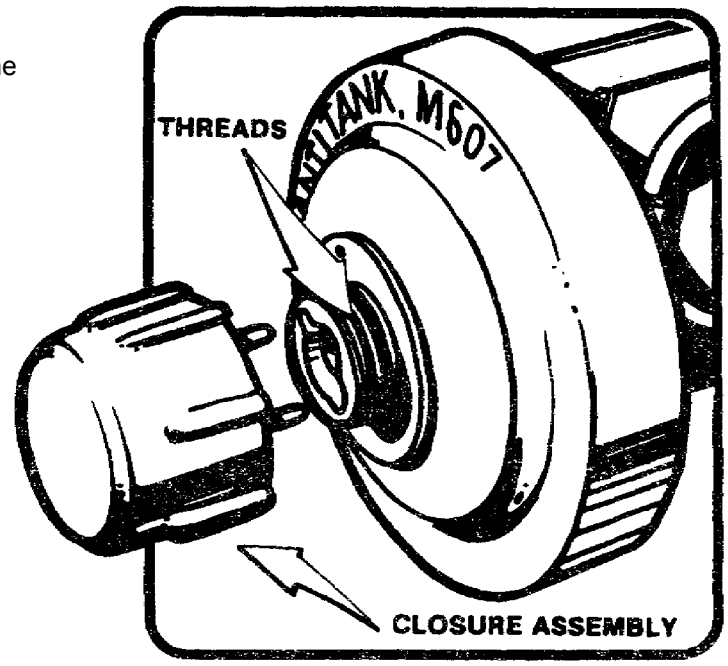
Then check for the presence of the closure assembly.



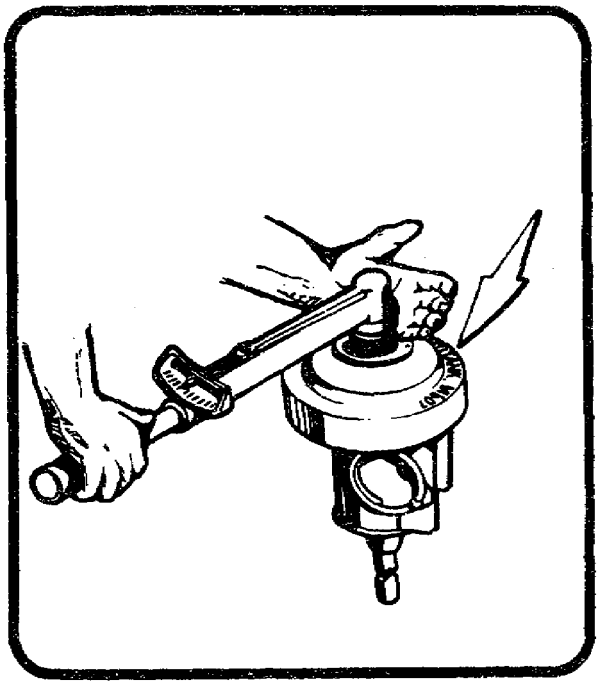
With the closure assembly end of the M26 wrench, remove the closure assembly.

Check the closure assembly and the threads on the fuze for any damage.

Then replace the closure assembly on the fuze.

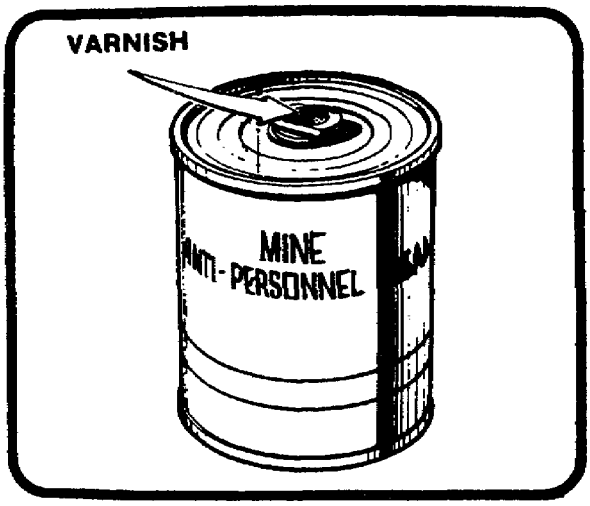


Torque the fuze closure assembly using a minimum of 15 inch-pounds of pressure to tighten. If it turns, classify it as a MAJOR defect.



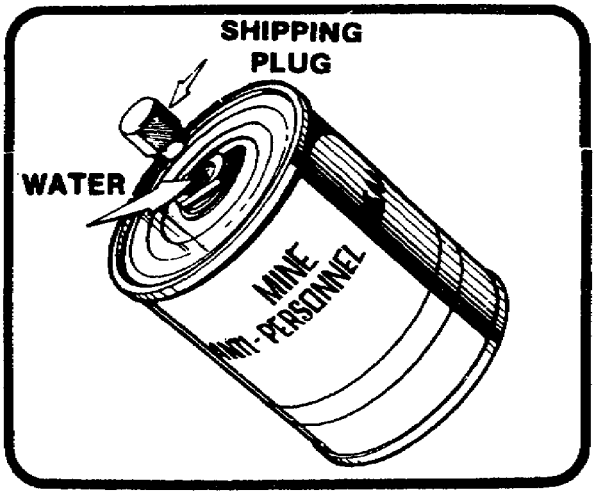
At the end of your inspection, repack and reseal all containers and mark them as surveillance samples. Have them returned to their storage location and remove the fire symbols. Check all necessary forms for completeness and accuracy and send them to the surveillance office.

PRACTICE EXERCISES



1. While inspecting the bushing on this mine, you see varnish on the threads. If this is a defect, how should you classify it?

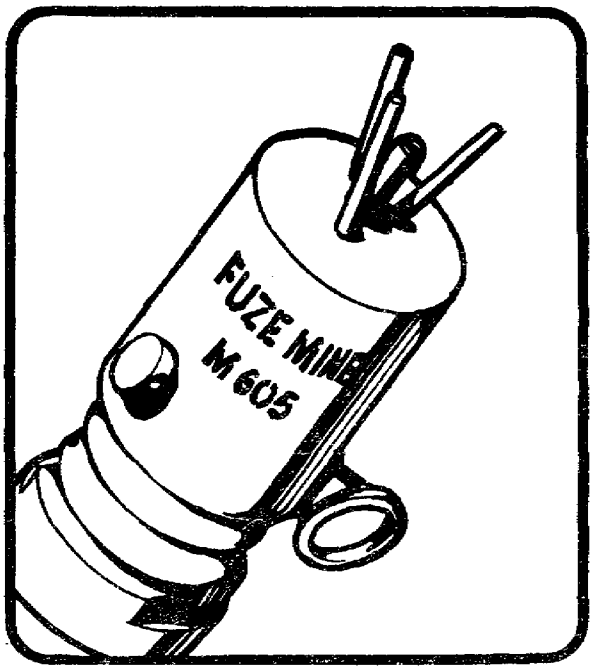
2. The bushing threads of this M16 mine are damaged to the point where the fuze can not be inserted. Classify the defect.



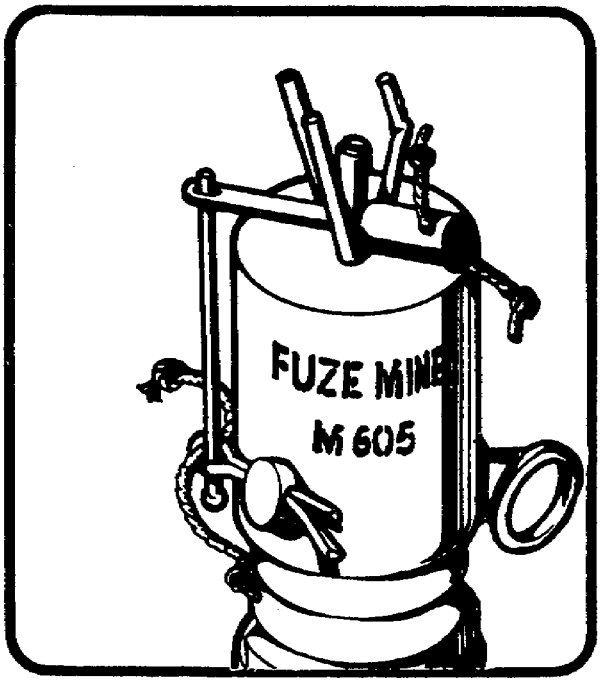
3. Classify the defect on this mine.

MM3675

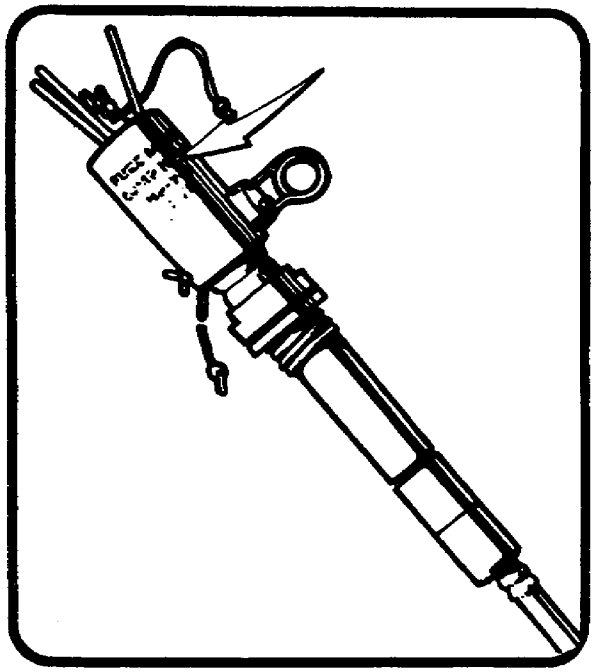
4. Classify the defect on this mine fuze.



5. The pull ring on this M605 fuze is damaged to the extent that it can not be used. Classify the defect.

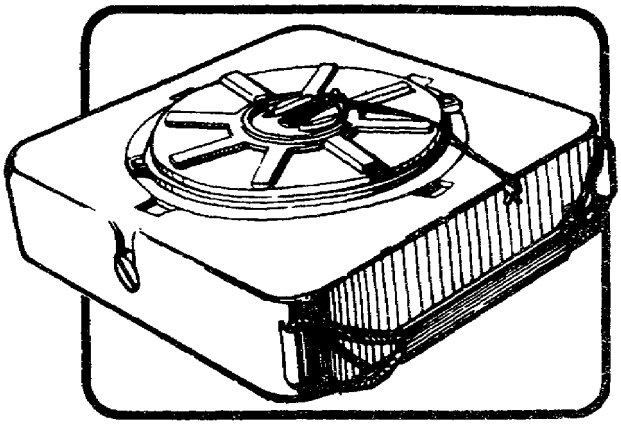


6. Classify the defect on this M605 fuze.

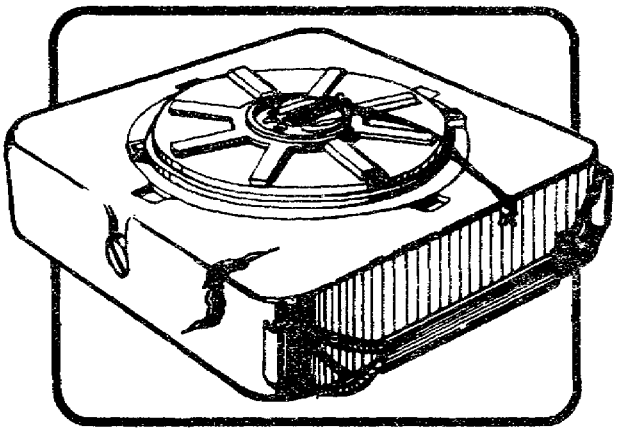


7. Classify the defect on this fuze.

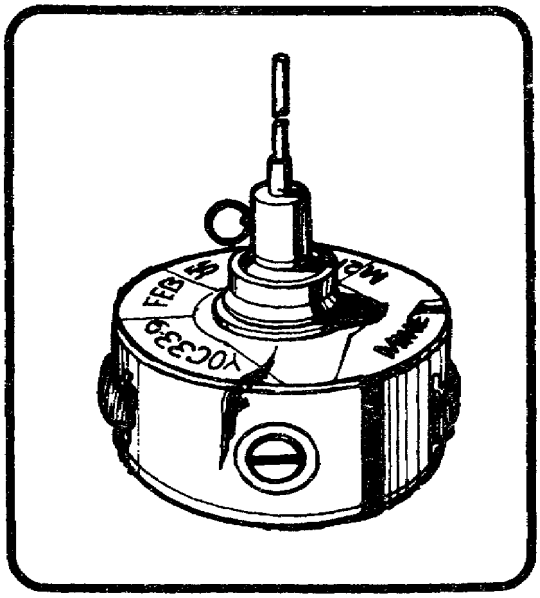
8. The indicator mark is missing on the M606 fuze on this mine. Classify the defect.



9. There is a major defect on this M19 mine. What is it?



10. Classify the defect on the main charge chamber of this M21 mine.



LESSON 5

INSPECTING MILITARY PYROTECHNICS

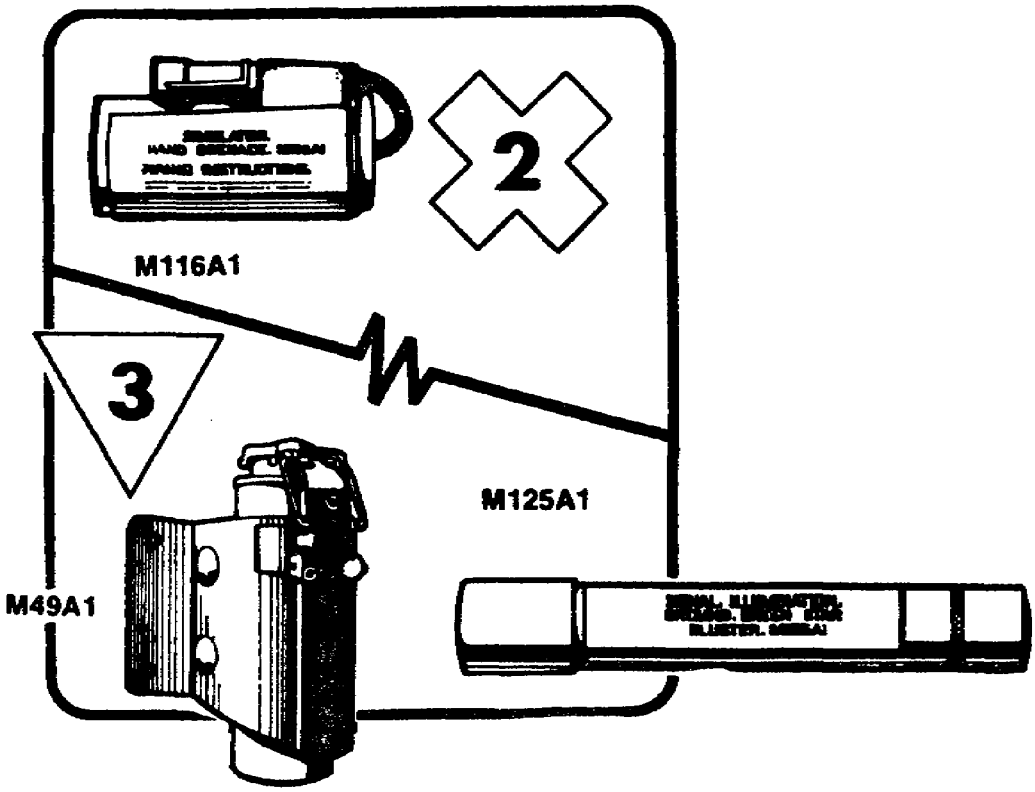
INTRODUCTION

Military pyrotechnics consist of three major types, classified according to use as signals, simulators, or illuminators. The pyrotechnics used to represent these three types in this lesson are the ground illuminating signal, the hand grenade simulator, and the trip surface flare. They are typical of the military pyrotechnics you may be responsible for inspecting.

Pyrotechnics consist of compounds that are especially hazardous. They ignite easily and are sensitive to heat, flame, static electricity, friction, and moisture.

For your inspection, first select the sample size according to Table 2-2 in SB 742-1 (see page 1) or the SB for the item. Storage personnel will transport the samples from the storage area to your authorized inspection area. All necessary information is entered on an ASIR as you perform your inspection.

Make sure that the correct fire symbols are posted at the inspection site before samples are off-loaded. Fire Symbol 2 is used for the hand grenade simulator, M116A1. Fire Symbol 3 is used for the ground illuminating signal, M125A1, and the trip surface flare, M49A1.



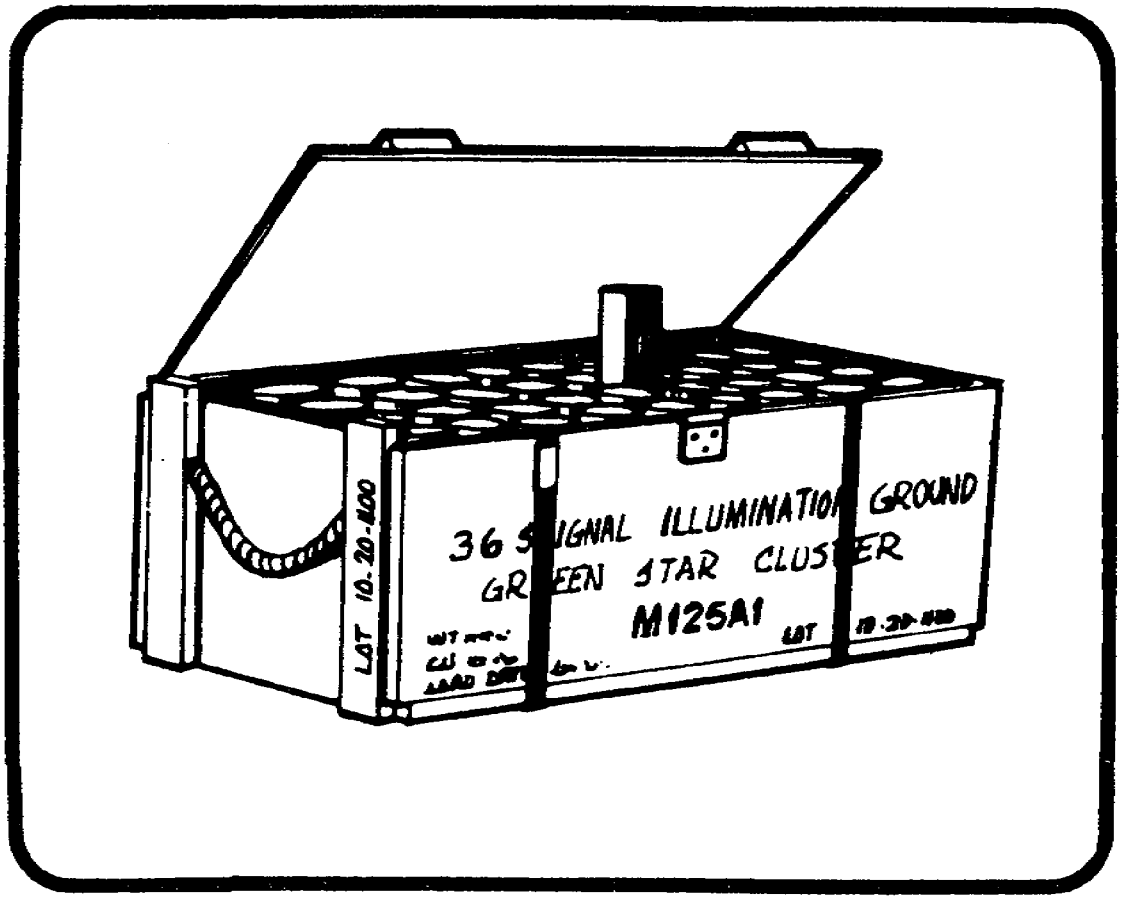
CLASSIFICATION OF MILITARY PYROTECHNICS
(from SB 742-1370-94-419, SB 742-1370-94-442, SB 742-1370-30, and SB 742-1)

ITEM	DEFECT	CLASSIFICATION
Container	Damage or condition that renders it unsafe to personnel.	Critical
	Damage, weathering, or deterioration that prevents further use.	Major
	Damage or condition that makes contents difficult to remove.	Major
	Damage or condition that renders contents unprotected.	Major
	Incorrect or illegible markings—major if they prevent use of contents.	Major/minor
	Damage or deterioration that must be repaired before container can be issued or used.	Minor
Ground illuminating signal	Primer above flush.	Critical
	Key or label containing instructions missing.	Major
	Major damage to such components as key, sealed container, rocket barrel, or firing cap assembly.	Major
	Rust or corrosion, major or minor depending on extent.	Major/minor
	Signal can not be removed from container even with handtool.	Major
	Marking misleading or unidentifiable.	Minor
	Evidence of moisture inside sealed container.	Minor
	Removal of signal from container requires handtool such as pliers.	Minor
	Tear strip breaks or terminates, preventing removal of signal from container.	Minor
Hand grenade simulator	Safety clip missing, insecurely engaged, or incorrectly positioned.	Critical
	Explosive on exterior of assembly.	Critical
	Safety fuse loose at junction with top disc (can be removed by light finger pressure).	Critical
	Major damage to such components as firing instruction label, cement at time blasting fuse (safety fuse) and disc contact surface, fuse tape, sealing tape, vent hole in fuse tape, fuse lighter assembly, safety fuse, or closing disc.	Major
	Excessive protective coating on fuse lighter, to extent removal of safety clip or fuse lighter is very difficult.	Major
	Rust or corrosion, major or minor depending on extent.	Major/minor
	Protective coating inadequate—bare spots larger than a thumbnail.	Minor
	Improper or illegible markings.	Minor
	Simulator not properly sealed.	Minor
	Foreign matter such as dirt, oil, or grease.	Minor
Trip surface flare	Safety clip missing, broken, or incorrectly attached.	Critical
	Striker assembly not held in cocked position by lever but resting on sealing disc that covers primer.	Critical
	Top separates from body during normal handling.	Critical
	Trigger, trigger pivot, trigger spring, trigger tongue, trip wire, mounting bracket, pull pin, or other component missing or damaged to a major degree.	Major
	Trigger binds.	Major
	Rust or corrosion, major or minor depending on extent.	Major/minor
	Nail holes in bracket missing.	Minor
	Trip wire broken.	Minor

GROUND ILLUMINATING SIGNAL

The procedures for inspecting the M125A1 ground illuminating signal will be covered first.

This signal is a green star cluster. It is held in the hand for firing. The signals come packed in metal containers, 36 to a wooden box.



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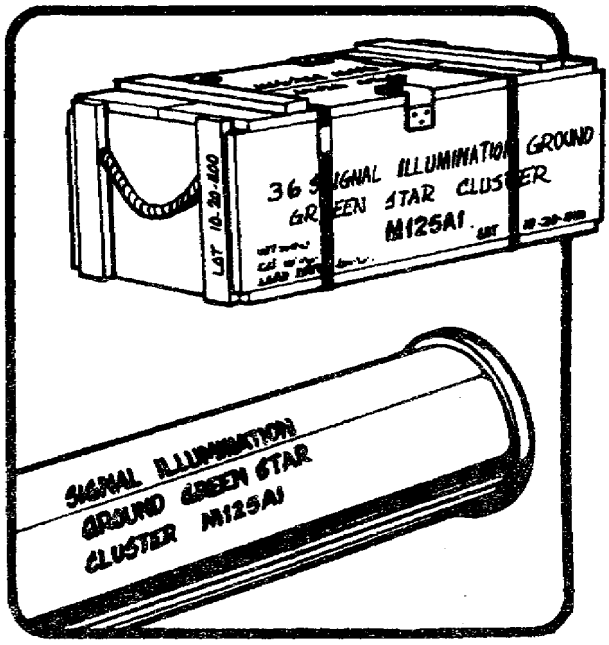
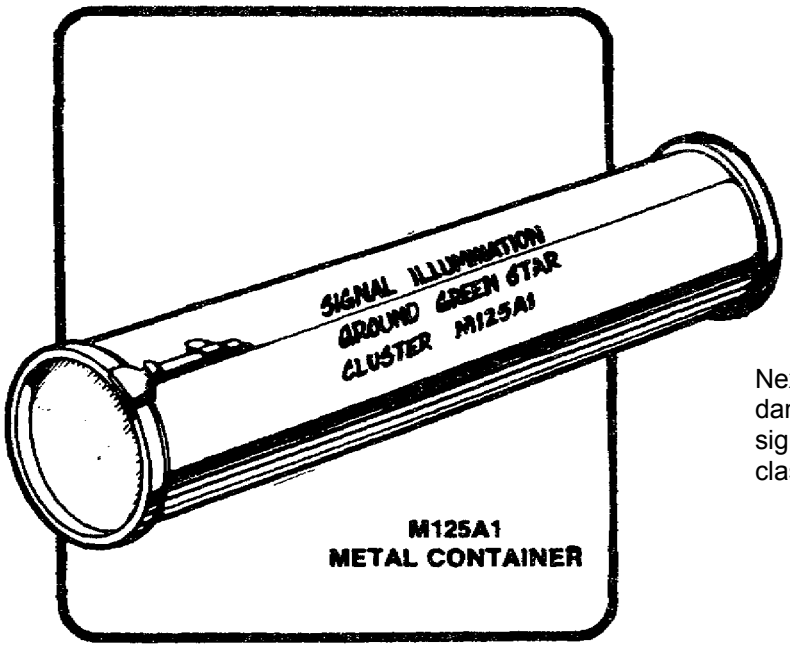


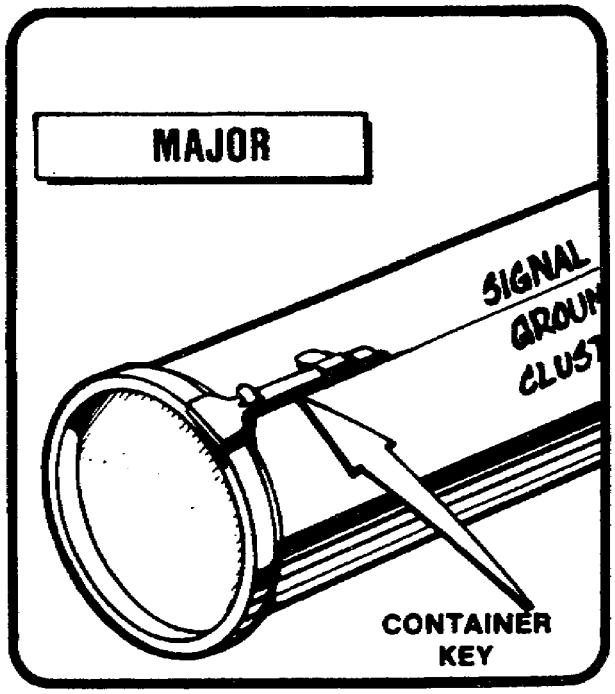
First, inspect the markings on the outer pack.

Then, open the box and remove a metal container.

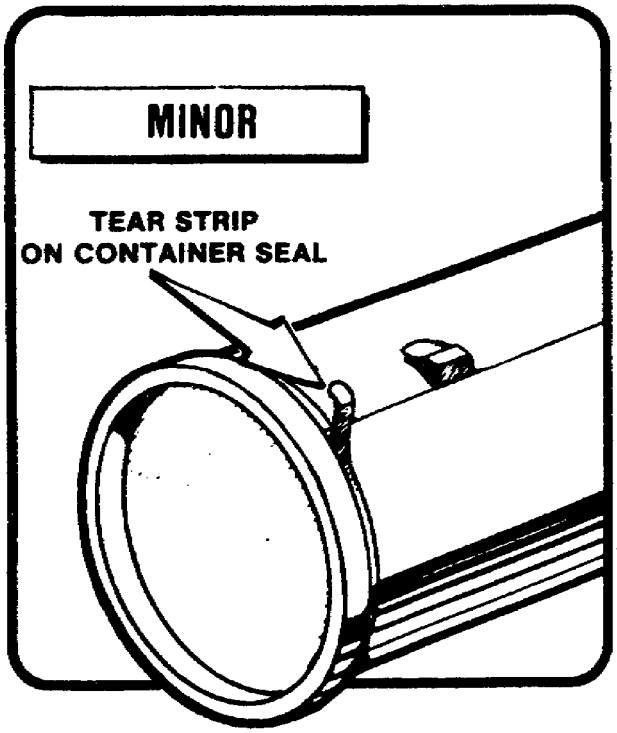
If the markings on the outer pack or the metal container are unidentifiable or misleading, classify it as a MINOR defect.



Next, inspect the sealed metal container for major damage, such as weathering or deterioration. If the signal inside the container has not been protected, classify the defect as MAJOR.



Make certain that the key for opening the metal container is present and in serviceable condition. If key is missing or it is bent or broken, it is a MAJOR defect.



Use the key to open the sealed container. If the tear strip breaks or terminates, preventing the removal of the signal, classify the defect as MINOR.

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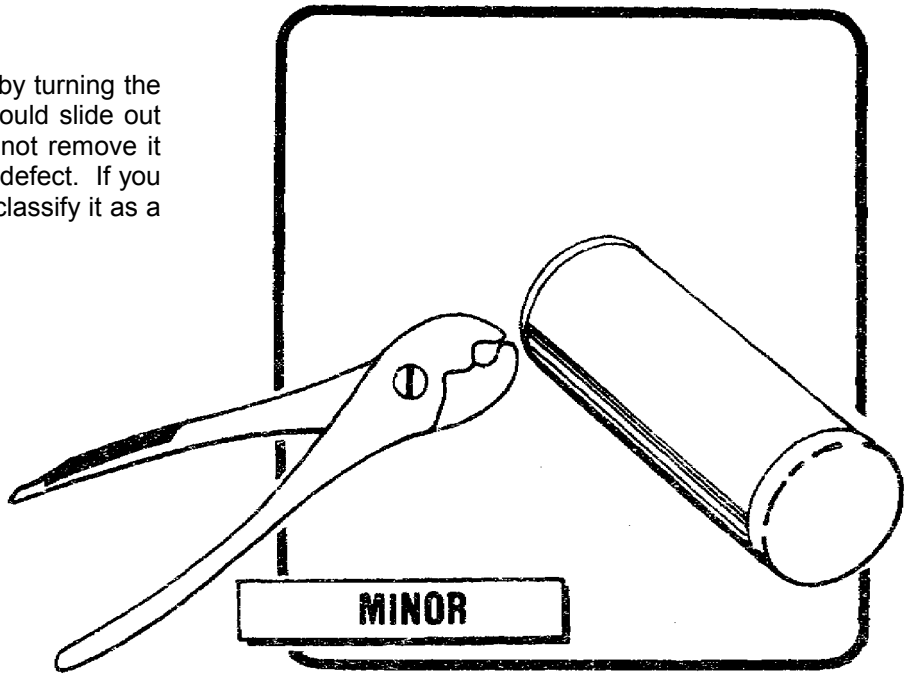
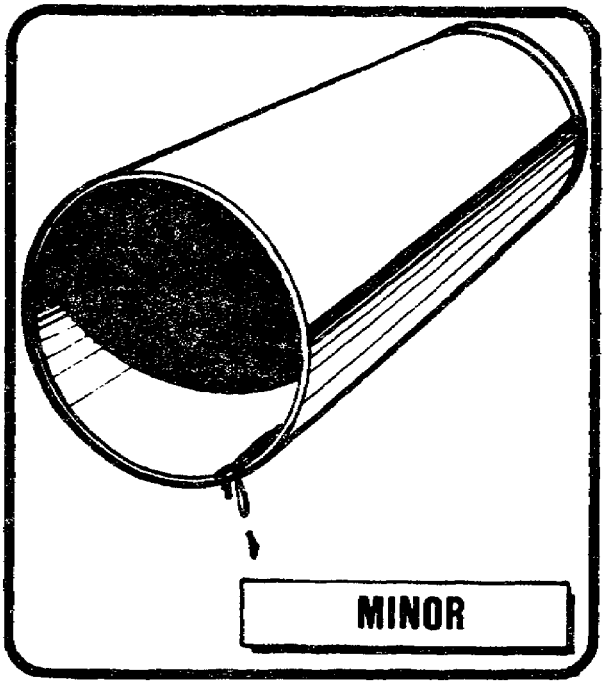
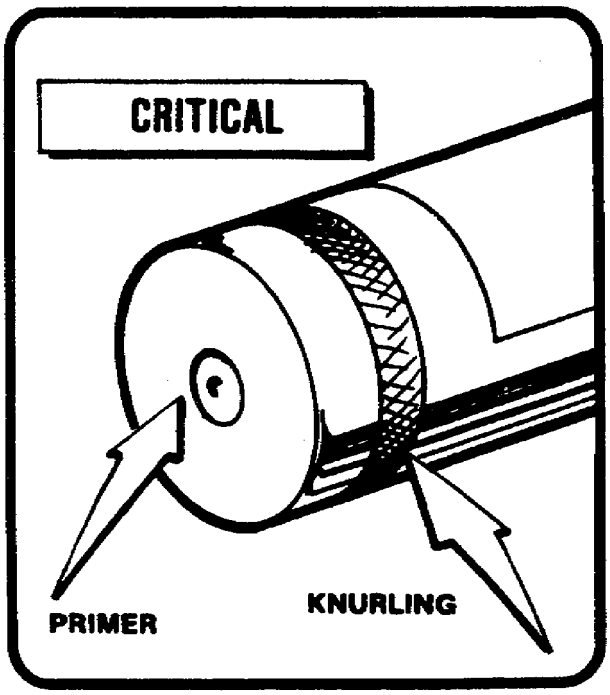
Remove the signal from the container by turning the container upside down. The signal should slide out easily. If it sticks inside and you can not remove it with handtools, classify it as a MAJOR defect. If you can remove the signal with handtools, classify it as a MINOR defect.



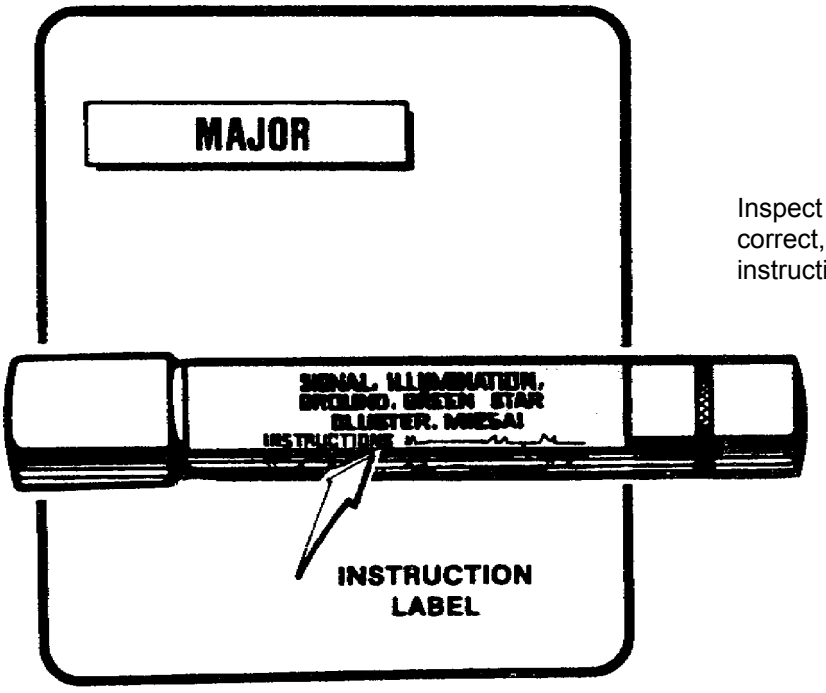
After removing the signal, inspect the inside of the container for evidence of moisture--a MINOR defect.





Next, inspect the signal for defects.

First inspect the primer. The primer end is marked by a band of red-lacquered knurling. The primer should be flush. A primer above flush is a CRITICAL defect.



Inspect the firing instruction label next. It should be correct, complete, and easily read. A missing firing instruction label is a MAJOR defect.

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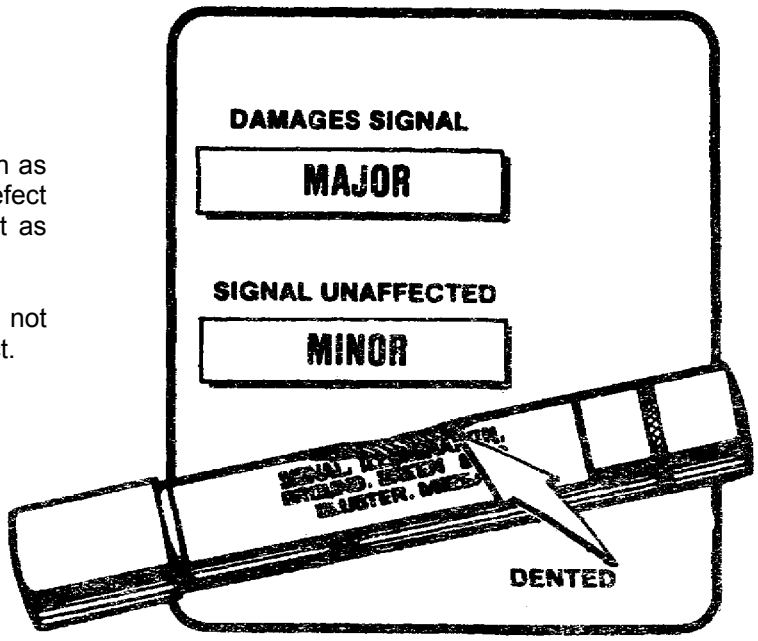
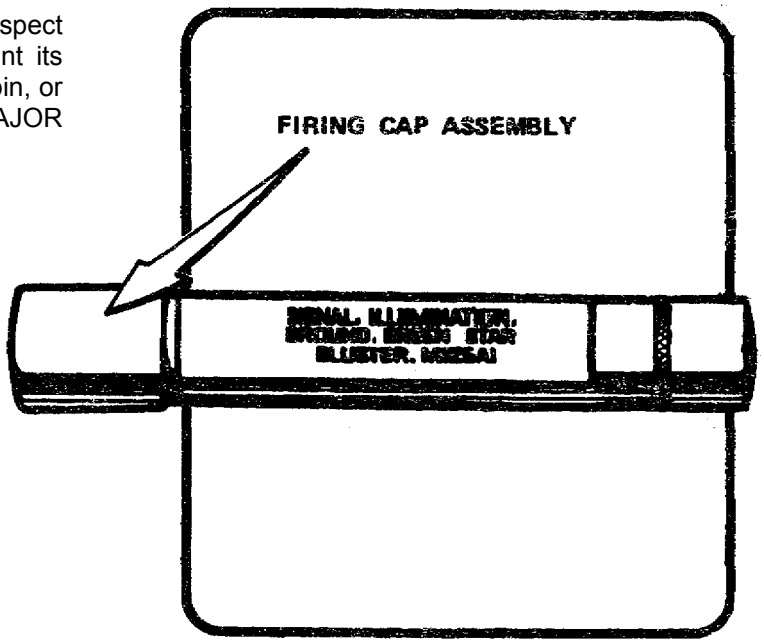
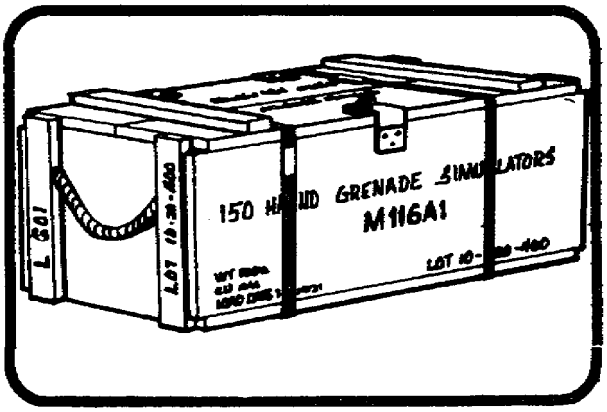
Inspect the rocket barrel for major damage, such as dents, holes, rust, and corrosion. If the defect affects the serviceability of the signal, classify it as MAJOR.

If there is minor rust or corrosion that does not prevent the use of the signal, it is a MINOR defect.



You must remove the firing cap assembly to inspect it. Look for major damage that would prevent its use, such as major corrosion, a missing firing pin, or a major dent. Any such damage would be a MAJOR defect.





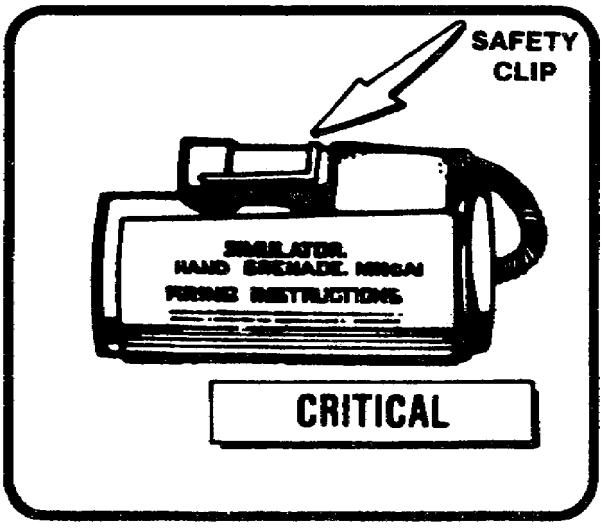
HAND GRENADE SIMULATOR

M116A1 hand grenade simulators are packed 5 to a paperboard carton, with 30 cartons to a wooden box for a total of 150 simulators in a box.

First, inspect the markings on the outer pack--the wooden box. Then, open the box and remove an inner pack--paperboard carton--and inspect its markings.

Open the carton and remove a simulator. Check its markings.

If you find any markings on the outer pack, inner pack, or simulator that are improper or illegible, classify it as a MINOR defect.



Next, inspect the safety clip. A missing or insecurely engaged or incorrectly positioned safety clip is a CRITICAL defect.

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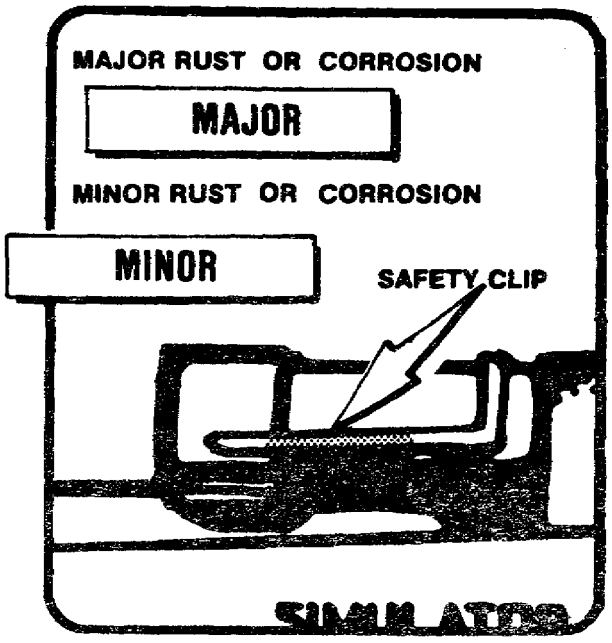
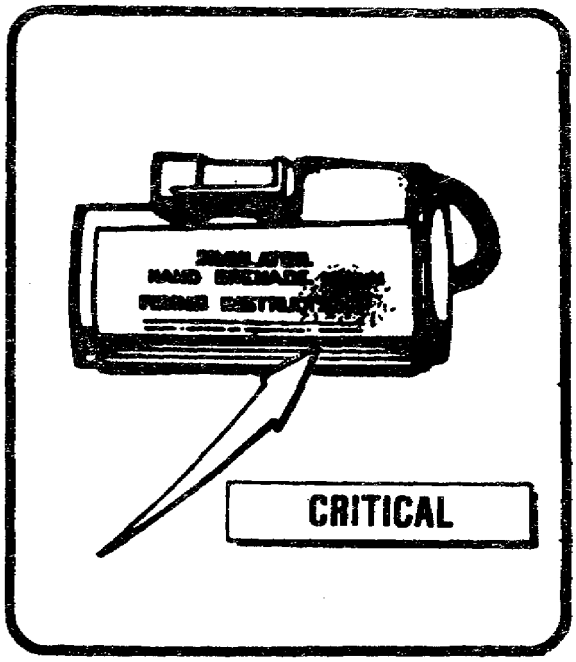
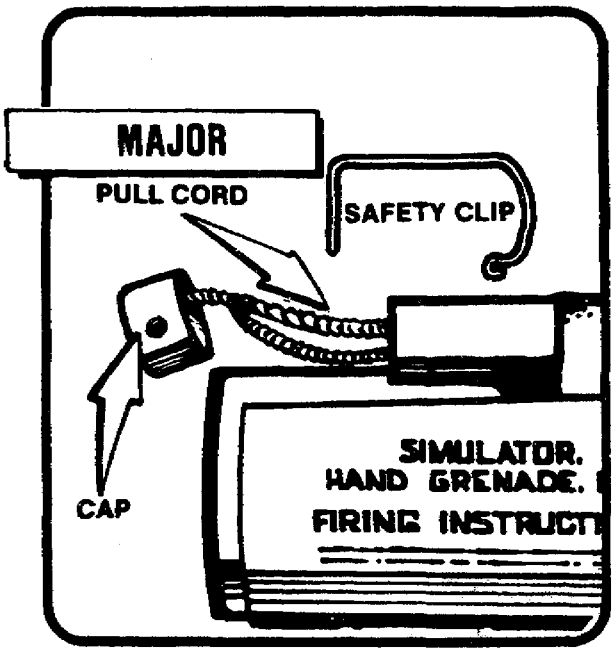
Inspect the safety clip for rust and corrosion.



Then inspect for explosive on the exterior of the assembly. Exposed explosive is hazardous; classify this as a CRITICAL defect.

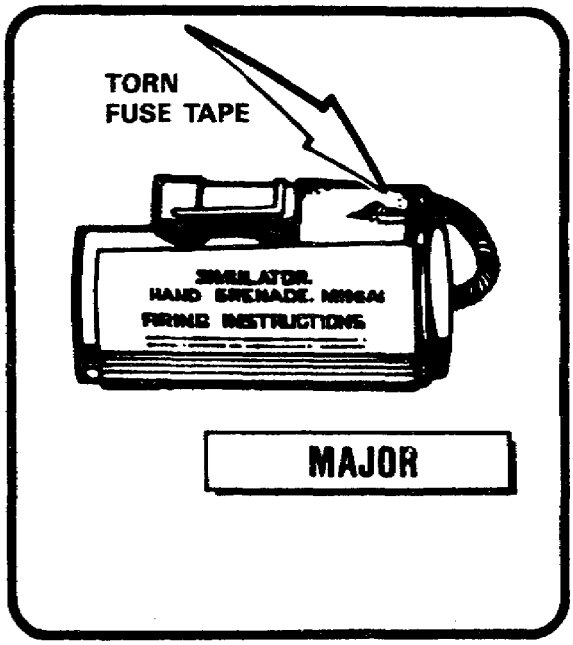




Inspect the fuse lighter assembly for damage that would prevent the use of the simulator. That is a MAJOR defect.

Carefully remove the safety clip and the fuse lighter cap to see if the pullcord is in place. Replace the cap and the safety clip.

If the protective coating is excessive to the extent that removing the cap is very difficult, there is a MAJOR defect.

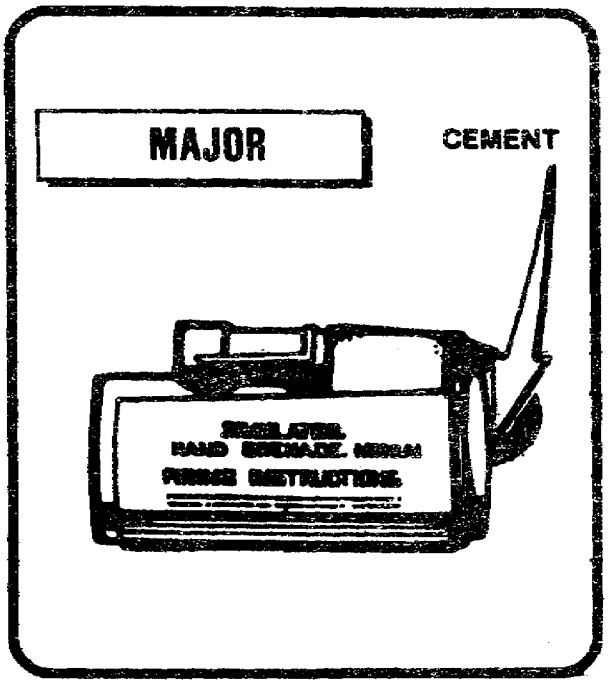


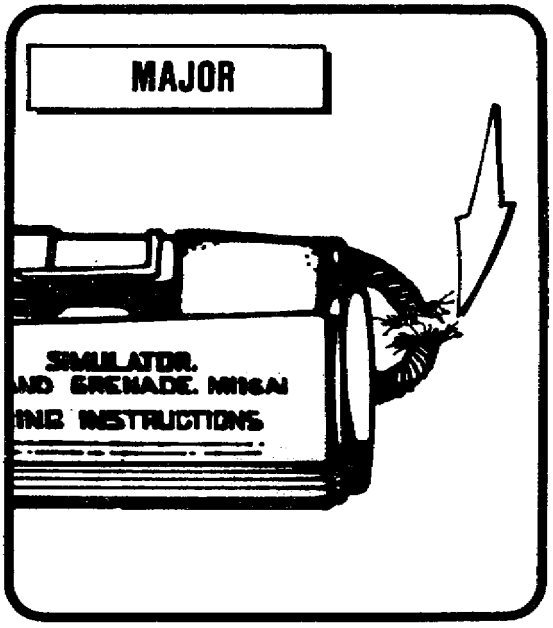
Examine the fuse tape that holds the fuse igniter to the simulator. If it is damaged, classify it as a MAJOR defect.

MM3675

Inspect the safety fuse (time blasting fuse) for looseness. Apply light finger pressure to the fuse at its juncture with the top disc. If the fuse can be pushed out by light pressure, there is a CRITICAL defect.

Examine the cement at the juncture of the fuse and the disc contact surface. This cement holds the fuse to the top disc. If there is no cement, it is classified as a MAJOR defect.



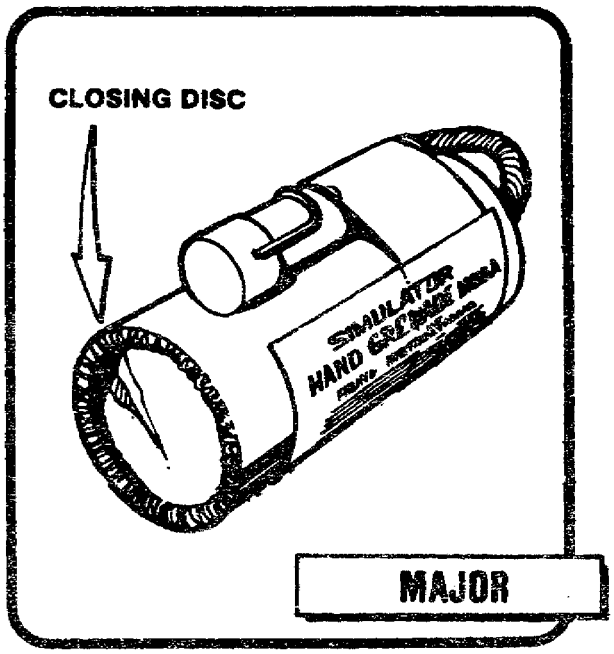


Inspect the safety fuse for major damage--damage that could result in failure, such as a torn fuse. This kind of major damage is a MAJOR defect.

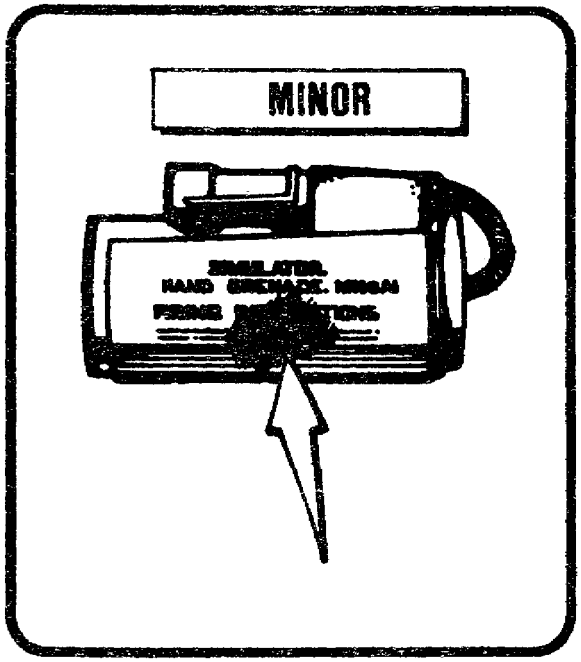
Examine the firing instruction label. If it is damaged to a major degree, classify it as a MAJOR defect.

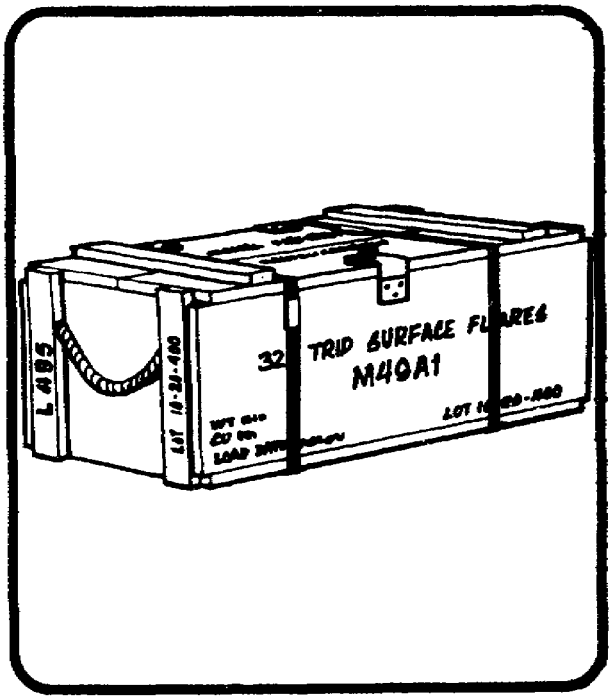
Inspect the closing disc for dents, perforations, and other major damage, such as being pushed out of place. These are MAJOR defects.

Examine the protective coating for bare spots larger than a thumbnail in size--a MINOR defect.



Inspect the simulator to see that it is properly sealed, and for the presence of such foreign matter as dirt, oil, or grease. Improper sealing and the presence of foreign matter are MINOR defects.

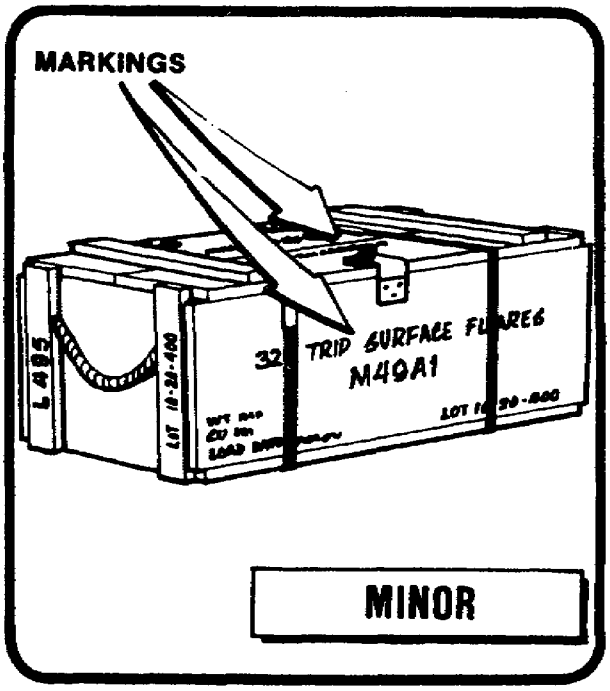




TRIP SURFACE FLARE

Trip surface flares are packed 32 in a carton, one carton per waterproof bag, one bag to a wooden box.

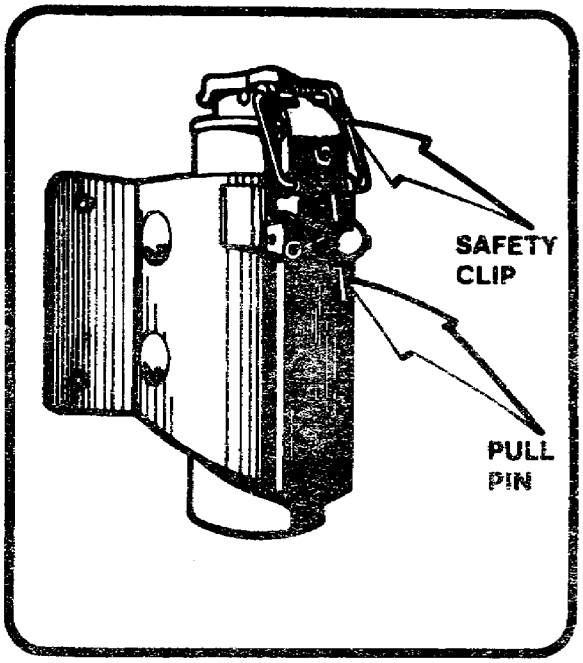
Inspect the markings on the outer pack (wooden box) first. Then open the box, the waterproof bag, and the inner pack carton.



If you find any markings on the outer or inner pack that are incorrect or illegible, classify it as a MINOR defect.

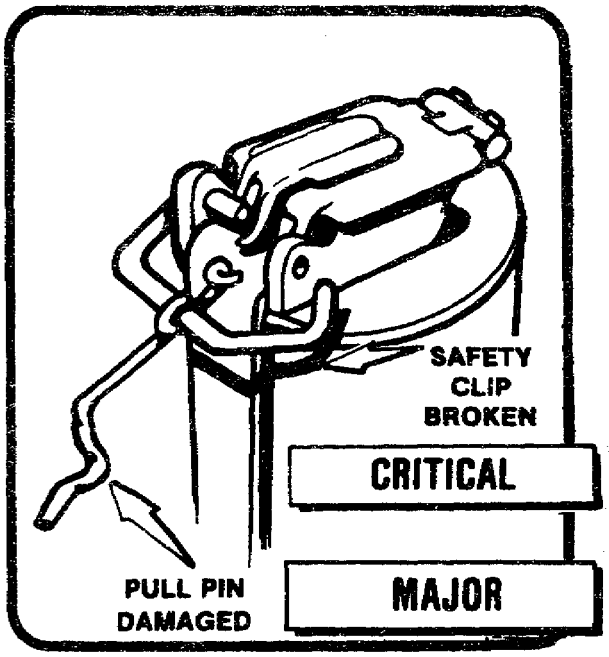
Next, remove one flare from the carton.

Inspect the safety clip assembly, which consists of the safety clip and the pull pin. The safety clip snaps into two holes in the cover loading assembly. The pull pin is attached to the safety clip.



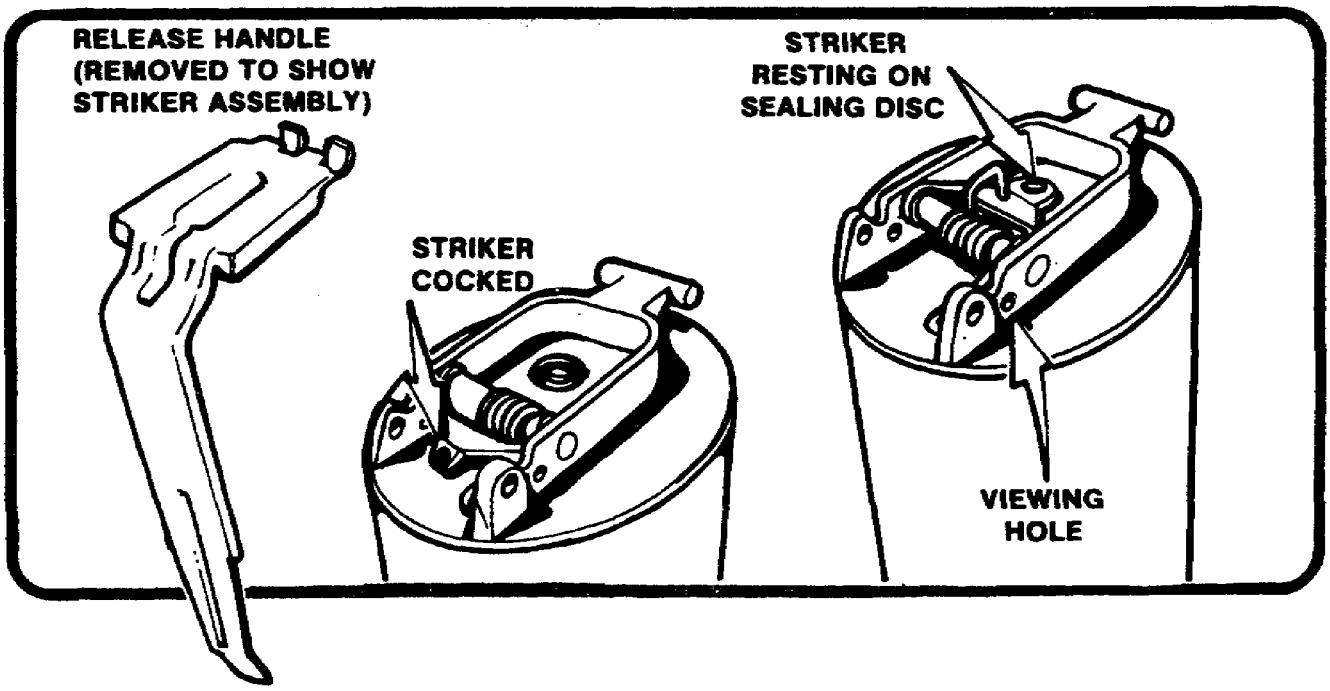
If the safety clip is missing or incorrectly attached or broken, classify it as a CRITICAL defect.

A pull pin missing or damaged to a major degree--broken or bent beyond use, for example--is a MAJOR defect.



If the safety clip is in the correct position, make sure that the striker assembly is in the cocked position. You can see if the striker is cocked by looking through the hole in the fuze body right behind the striker pivot.

If the striker is resting on the sealing disc that covers the primer, the striker is not cocked. This is a CRITICAL defect.



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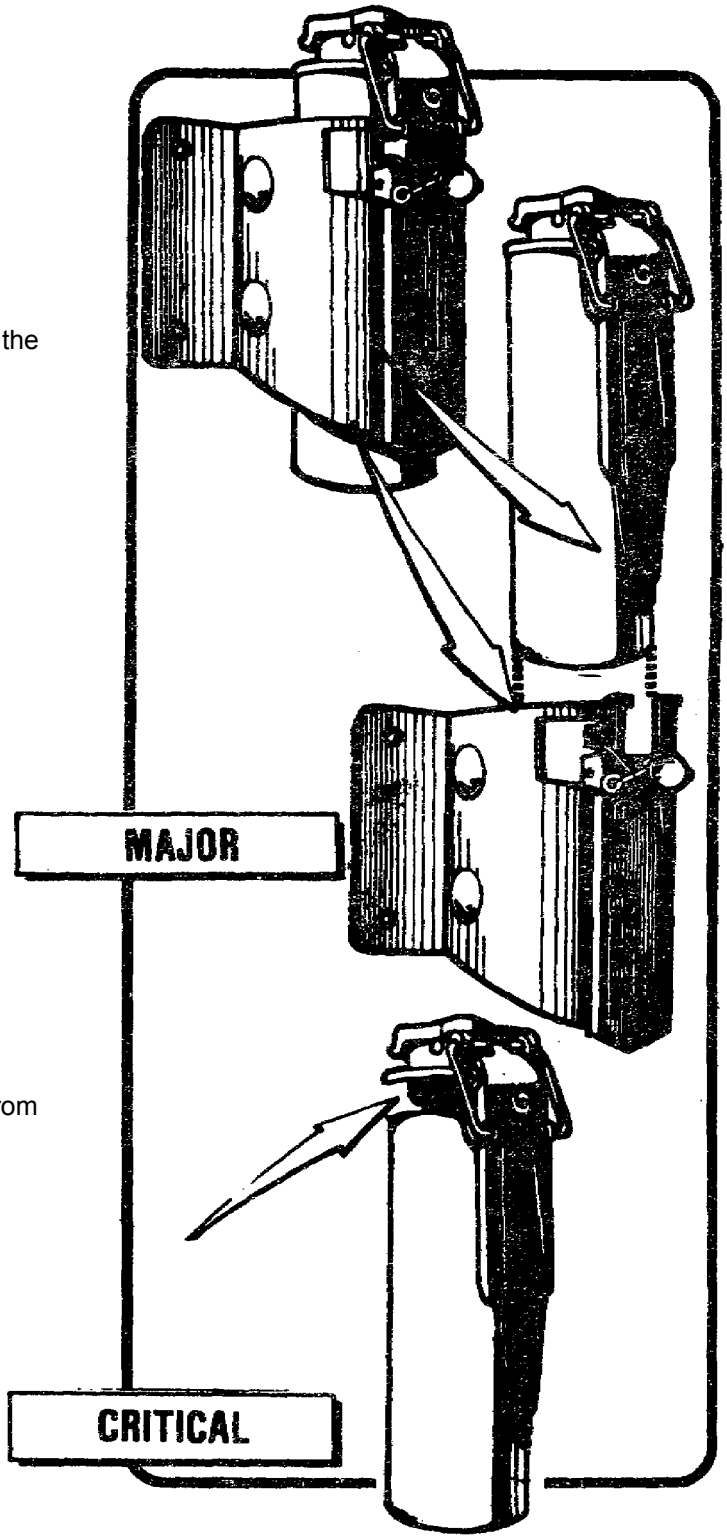
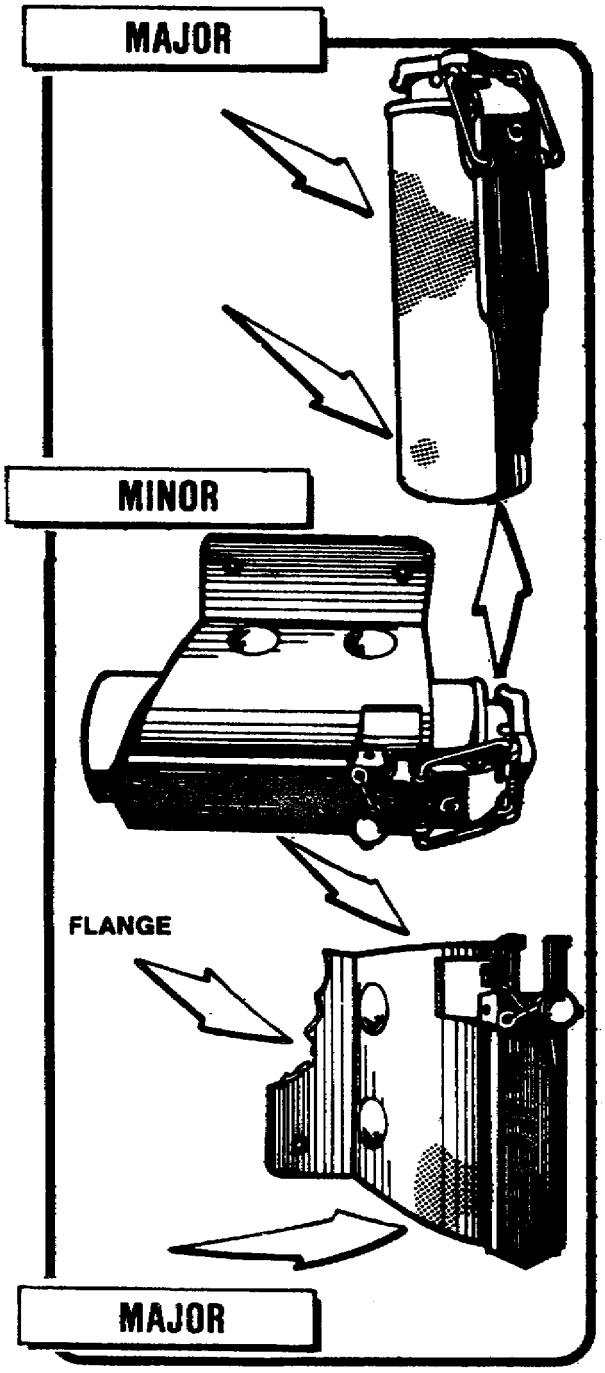
Remove the mounting bracket from the body of the flare. A missing bracket is a **MAJOR** defect.

See if the top of the flare is loose or separates from the body during normal handling.

This is a **CRITICAL** defect.



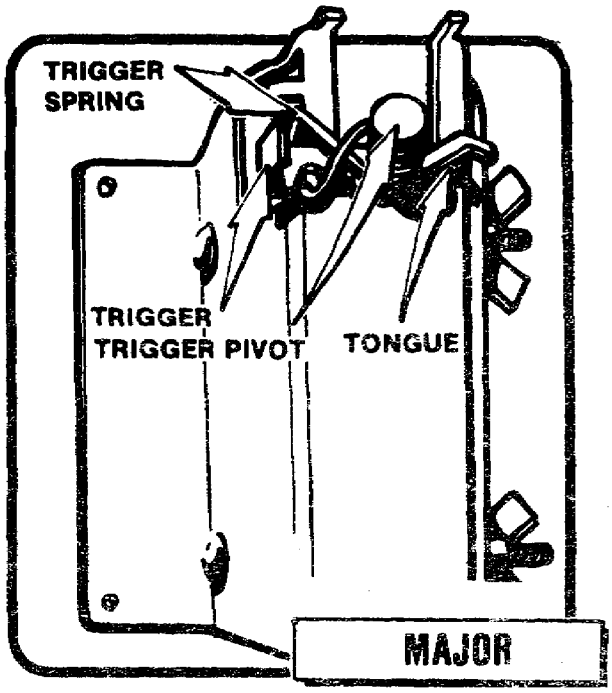


Inspect the body of the flare for rust and corrosion. If the serviceability of the flare is affected by the rust or corrosion, classify the defect as MAJOR. Otherwise, it is MINOR.

Inspect the mounting bracket for such damage as a broken flange or rust and corrosion. Any defect that prevents the use of the mounting bracket is a MAJOR defect. Any defect that does not prevent use of the bracket is a MINOR defect. Minor defects include missing nail holes and minor rust or corrosion.

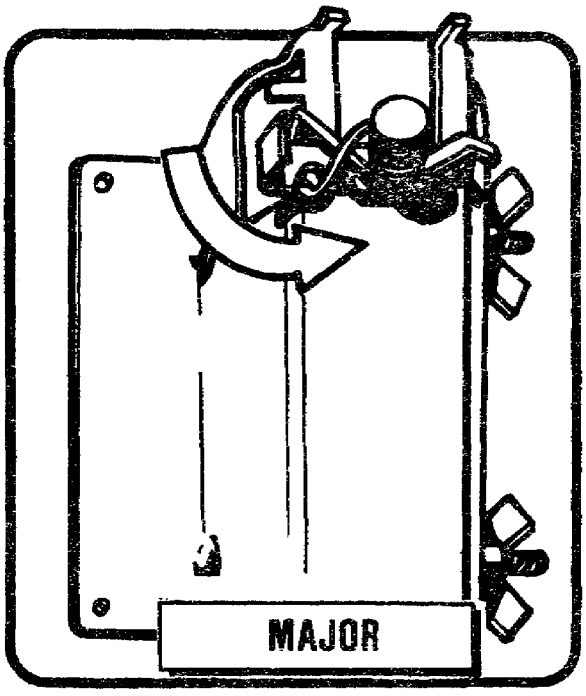
MM3675

Next, inspect the trigger assembly for missing parts or major damage. If any part is missing or damaged to a major degree, classify the defect as MAJOR.



Now, test the trigger assembly on the mounting bracket to find out if it binds. Rotate the trigger from left to right against the trigger spring. If you can not rotate the trigger, the trigger binds. This is a MAJOR defect.

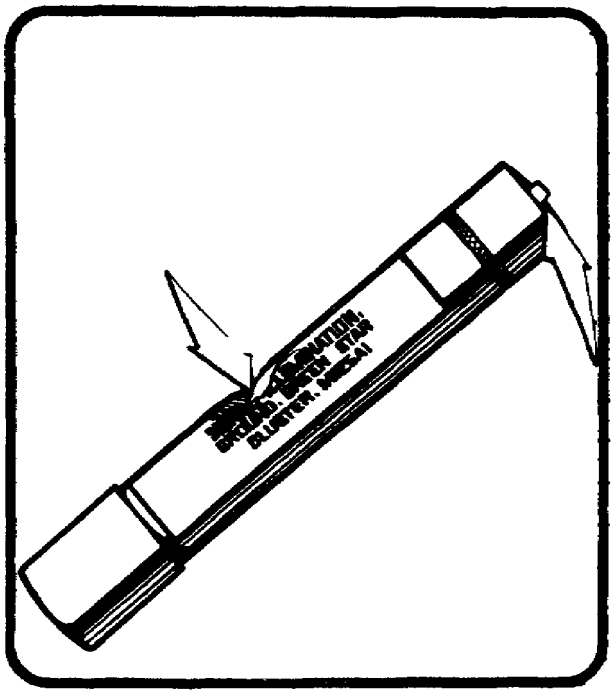
Finally, inspect the trip wire. If it is missing or damaged to the extent that it can not be used (major rust, for example), classify it as a MAJOR defect. A broken trip wire can be tied together and used, so it should be classified as a MINOR defect.



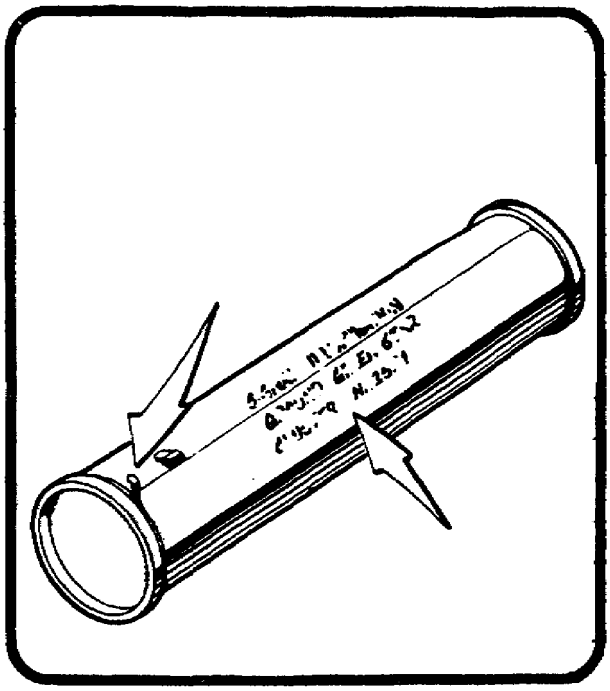
After you have completed your inspection, serviceable samples must be repacked in their original containers and marked as surveillance samples.

Storage personnel will return them to the storage site. Have the fire symbols removed from the inspection area. When you have checked your ASIR to make sure it is complete and correct, forward it with other necessary forms to the surveillance office.

PRACTICE EXERCISES

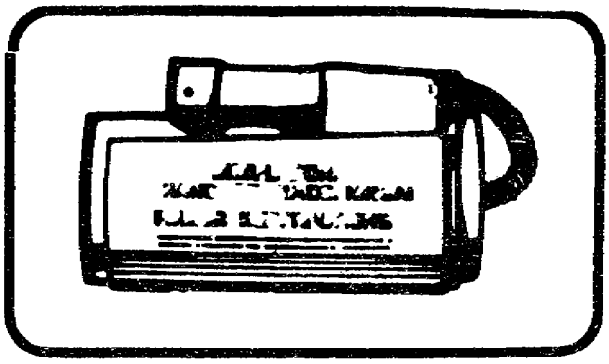


1. Find and classify the two defects on this M125A1 ground illuminating flare.

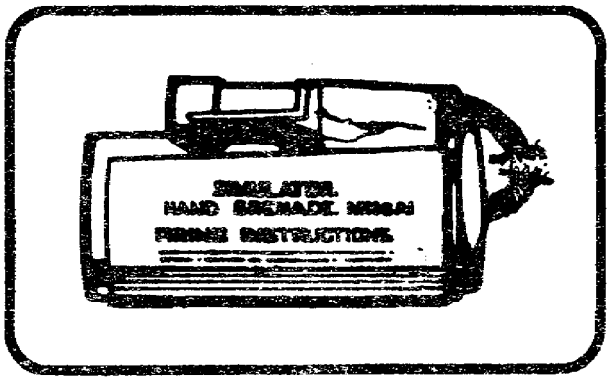


2. Find and classify the two defects on this container for an M125A1 ground illuminating flare.

3. Find and classify the two defects on this hand grenade simulator M116A1.

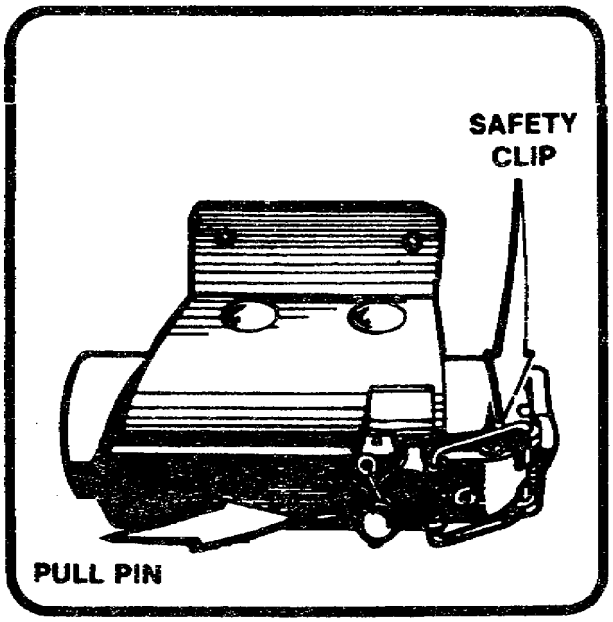


4. Find and classify the two defects on this hand grenade simulator M116A1.



5. This trip surface flare M49A1 has two defects. Its safety clip is broken, and its pull pin is damaged to a major degree. Classify these defects.

6. Classify these two defects on a trip surface flare M49A1. The trigger binds when you try to move it, and the nail holes in the mounting bracket are missing.



SOLUTIONS TO PRACTICE EXERCISES

LESSON 1

1. Minor. See pages 3 and 5.
2. Fire Symbol 4. See page 2.
3. Major. See pages 3 and 5.
4. Minor. See pages 11 and 13.
5. Major. See pages 11 and 13.
6. MIL-STD-644A. See page 10.
7. Critical. See pages 11 and 16.
8. Major. See pages 11 and 18.
9. The links must be dismantled and scrapped and the cartridges visually inspected before rebelting. See pages 3 and 10.

LESSON 2

1. Cracked cartridge case, a critical defect. See pages 24 and 28.
2. Critical. See pages 24 and 27.
3. a. One bag of propellant is missing, a critical defect. See pages 24 and 37.
   b. Propellant bags are incorrectly sequenced, a critical defect. See pages 24 and 37.
   c. The bag of propellant is wet or discolored, a critical defect. See pages 24 and 39.
   d. The bag of propellant is torn, allowing the propellant to spill, a major defect. See pages 24 and 39.
4. Major. See page 42.
5. Critical. See page 44.

LESSON 3

1. Critical. See page 52.
2. Major. See pages 52 and 54.
3. A water barrel. See pages 50 and 55.
4. Before removing the grenade from the container, make sure that the safety pin is not partially withdrawn. See page 55.
5. Critical. See pages 59 and 60.
6. The Ammunition Data Card, or DD Form 1650. See page 58.
7. Major. See pages 64 and 66.
8. Major. See pages 59 and 62.

LESSON 4

1. No defects. See pages 73 and 75.
2. Major. See pages 73 and 75.
3. Major. See pages 73 and 76.
4. Critical. See pages 73 and 77.
5. Major. See pages 73 and 78.
6. Major. See pages 73 and 77.
7. Minor. See pages 73 and 79.
8. Critical. See pages 73 and 81.
9. Major. See pages 73 and 82.
10. Critical. See pages 73 and 88.

LESSON 5

1. A dented rocket barrel, a major defect, and a primer above flush, a critical defect. See pages 100, 105, and 106.
2. A missing key, a major defect, and unidentifiable markings, a minor defect. See pages 101, 102, and 103.
3. A missing safety clip, a critical defect, and an illegible firing instruction label, a minor defect. See pages 100 and 107.
4. The fuse tape is tom, a major defect, and the safety fuse is damaged, a major defect. See pages 100, 109, and 111.
5. The broken safety clip is a critical defect, and the damaged pull pin is a major defect. See pages 100 and 114.
6. The binding trigger is a major defect, and the missing nail holes are a minor defect. See pages 100, 117, and 118.