1.0. Introduction.

No matter how reliable and proven a product or item of equipment might be, under various conditions, it may fail to function as designed or expected. When this happens, immediate action must be taken. In the case of Class V material, it is essential that proper procedures be utilized to obtain all required information. One of your duties as an ammunition specialist will be to assist in the investigation of munitions malfunctions and provide detailed and accurate information. Human lives and successful operations depend upon proper and timely malfunction investigations and reports.

2.0. Malfunction Investigations Definitions.

- **Malfunction.** The failure of a munitions item to function as expected when fired, when launched, or when explosive components function during a nonfunctional test.
    - Malfunctions include abnormal or premature function of explosive munitions items, warheads, missiles, and rockets as a result of normal handling, maintenance, storage, transportation, and tactical deployment.
    - Malfunctions do not include accidents and incidents resulting from negligence, malpractice, or implications in other situations such as vehicle accidents or fires.
    - Malfunctions are divided into three classes:
        - **Class A.** Malfunctions that have resulted in death or lost-time injury, that are similar to previous malfunctions that have resulted in death or lost-time injury, that are judged as having had an appreciable probability of causing death or lost-time injury, or that have adverse political implications.
        - **Class B.** Malfunctions that have resulted in damage to major equipment that cannot be repaired at the unit level of maintenance, or have resulted in a munitions suspension that significantly impacts readiness or training.
        - **Class C.** Malfunctions that are neither Class A nor Class B.
- **Malpractice.** Any incident or accident, the cause of which is determined to be misuse or abuse of the weapon or munitions on the part of the user. (Example: Inserting two or more black powder charges in a practice hand grenade.)
- **Weapon.** Any device used to launch a projectile, rocket, or guided missile. (Example: rifle, cannon, rocket launcher)

- **Serious Defect.** A defect which, as a result of improper design, manufacture, handling, or storage, could cause a malfunction when munitions are handled or fired. (Example: A dent in the item or a missing part)

- **Misfire.** Failure of the primer or propelling charge to function wholly or in part.

- **Suspended Munitions.** An item withdrawn from issue, movement, and/or use, with or without qualifications, due to a suspected or confirmed unsafe or other defective condition. (Example: Suspensions are direct results of malfunction reports, field reports, and surveillance function testing.)

- **Restricted Munitions.** Munitions that cannot be expected to meet required performance under all conditions but may be issued and used with qualifications on its use. (Example: method of launch, temperature limitations, and weapon applicability)

- **Dud.** An explosive munition that has not been armed as intended or has failed to explode after being armed.

- **Hangfire.** An undesired delay in the functioning of a firing system. A hangfire for a rocket occurs if the rocket propellant is ignited by the firing impulse but the rocket fails to exit the launcher within the expected time.

- **Incident.** An unintentional or chance event considered likely to result in property damage or injury to personnel. In regard to munitions and explosives, this specifically includes the suspected or detected presence of unexploded explosive ordnance that constitutes a hazard to operations, installations, personnel, or materiel.

3.0. Malfunction Causes.

There are three primary causes for malfunctions. This section provides examples of each type of malfunction.

- **Defective Munitions.** The following examples fall under the category of defective munitions:

  - Wet propelling charge.
  - Projectile with damaged rotating band.
  - Fixed round with loose projectile.
  - Improper storage of WP munitions.

- **Defective Weapon.** The following examples fall under the category of defective weapons:

  - Damaged, broken, or missing firing pin.
  - Faulty safety and arming mechanism.

- Excessive rust or corrosion.
- Improper recoil.
- Broken, damaged, or missing parts.

- **Human Error.** The following examples fall under the category of human error:

  - Failure to properly maintain munitions or weapon.
  - Failure to follow correct procedures.
  - Incorrect setting and/or adjustments.
  - Use of suspended, restricted, or defective items.
  - Use of excessive or insufficient propelling charge.
  - Operating under unsafe conditions, adverse weather or obstructions in the line of fire.

3.1. Malfunction Investigation Reporting Procedures.

This section of the lesson discusses malfunction investigation reporting procedures.

3.2. Conventional Munitions and Guided Missiles.

The activity commander, unit commander, or senior person in charge will ensure that all available information on munitions malfunctions is promptly obtained and reported for early determination of the cause and timely action to prevent similar malfunctions.

The commander or person in charge will:

- Immediately cease firing suspected munitions and notify range control or equivalent.

- Immediately contact the local ammunition officer or QASAS at the ammunition supply point where the munitions were stored and issued.

- Relate all available information on the malfunction to the local ammunition officer.

- Secure the malfunction site to prevent the removal or relocation of munitions or munitions components, weapons or weapons debris and munitions packaging until authorized by the ammunition officer or the locally assigned QASAS.

The ammunition officer, with the locally assigned QASAS, if available, and the AMC weapon representative, when appropriate, will:

- Gather data as necessary for all reported malfunctions.

- Locally suspend affected munitions and immediately notify all units in possession of suspended stock.

- Ensure prompt and complete reporting of munitions malfunctions to AMC as stated in the requirements for preliminary and detailed reports. (Refer to Table 1 for dud and misfire reporting rates.)

Table 1. Reportable Rates

Type of Munitions	Reportable Malfunction Rate In Percent	Minimum Number 1
High explosive, target practice, and chemical munitions with all types of fuzes:		
Duds	5	2
Misfires	1	2
HEAT and HEP munitions:		
Duds and failure to penetrate	5	2
Misfires	1	2
AP type:		
Failure to penetrate or poor performance	5	2
Misfires	1	2
Anti-personnel rounds:		
Failure to function	5	2
Misfires	1	2
Rockets:		
Duds and poor performance	5	2
Misfires	1	2
Guided missiles:		
Duds	NA	1
Misfires	NA	1
Mines, grenades:		
Duds	5	2
Pyrotechnics (flares, signals, and so forth):		
Duds or poor performance	10	2
Illuminating shells		
Failure to illuminate	15	2
Bombs:		
Duds	5	4
Small arms (through .50 caliber):		
Misfires	0.1	4
Exception to the above:		
Artillery with fuzes set DELAY-duds	15	5
Burning-type grenades-duds	20	5
Failure to trace (20mm and above)	20	5
Failure to self-destroy (if applicable)	10	5
Flare, surface, trip M49 series-duds	10	2
Projectile, 155mm, illuminating, M118 series-duds	20	4
Simulator, booby trap, illuminating, M118-duds	10	2
Munitions, 20mm duds, 150 rounds	3	5

NOTE 1. Minimum number of dud or misfire malfunctions that are required to be reported for the reportable percent of defect rate listed.

Activities responsible for munitions involved in the malfunction will send reports of interest to other commands, installations, or agencies for review and action as appropriate.

Unless overriding safety or security considerations exist, the immediate malfunction area, including equipment and weapons, will not be disturbed before an investigation is conducted. The appropriate AMC commodity command will notify the malfunction location within CONUS or the MACOM OCONUS within 24 hours from receipt of the preliminary report as to whether or not an on-site DAITM investigation will be conducted. Where no DAITM on-site investigation is conducted, a local investigation will be conducted.

Fragments and residue will be kept for 90 days after the malfunction. If disposition instructions are not received within 90 days, local disposition is authorized, unless the malfunction involved personal injury or property damage of civilians. In such cases, fragments and residue should not be disposed of until after the command's staff judge advocate or legal advisor concur.

Accidents or incidents will be reported according to AR 385-40, chapter 3. Accidents in which a munitions malfunction is thought to be a direct or contributing factor will also be reported according to AR 75-1.

Munitions to be reported according to Table 1, if not imminently hazardous, will be retained by the firing unit pending an investigation or until disposition instructions are received from the local ammunition officer.

3.3. Munitions Malfunctions in Combat.

Although the enforcement of all provisions of AR 75-1 during combat operations may not be practical, preliminary reports are required. Detailed reports are desired if possible. The identity of lot numbers for munitions involved in malfunctions is very important. If lot numbers cannot be determined, report the malfunction as "lot unknown." With or without a known lot number, the reports and investigation will be as complete as possible within combat operation limits.

3.4. Test Range and Proving Ground Reporting.

Ammunition test ranges and proving grounds with an ammunition test mission will report malfunctions of standard munitions as follows:

- The local ammunition officer will submit both a preliminary and a detailed report for all malfunctions. The reports will be distributed as stated in preliminary and detailed reporting requirements.

- Installations testing under the Centralized Control Function Test Program may submit a DA Form 984 (Munitions Surveillance Report Descriptive Data of Ammunition Represented by Sample) in lieu of the DA Form 4379-R.

- Information copies of all malfunction reports will be forwarded to the Commander, US Army Test and Evaluation Command, ATTN: AMSTE-LG_C, Aberdeen Proving Ground, MD 21005-5055.

4.0. Preliminary Reports.

After being informed by the firing unit of a malfunction, the local ammunition officer of the storage activity for the QASAS will immediately make a preliminary report. These reports will be submitted in accordance with the guidance below. Reports for Class A and B malfunctions will be made by the fastest means available, such as telephone, teletype, radio, or cable. Class C malfunctions will be submitted using DA Form 4379-R or DA Form 4379-1-R. A Class C malfunction may be submitted using Class A or B procedures if special assistance is required or an unusual circumstance exists.

Preliminary reports will be continued under condition MINIMIZE. The preliminary report will not be delayed if an ammunition officer or QASAS is not available.

When malfunctions occur in an overseas command, the preliminary report will be relayed to the commander or designated representative. This information, in turn, will be properly relayed to the proper address by the end of the day during which the malfunction occurred.

Preliminary reports on malfunctions of conventional munitions and nuclear materiel will be patterned after DA Form 4379-R (see Figure 1), including all Army-designated Class V items except guided missiles and large rockets. This includes warheads and warhead sections (when not assembled to guided missiles or large rockets) and small rockets (2.75 inch and smaller). The preliminary report should contain all applicable information requested in DA Form 4379-R but will not be delayed if some of the information is not immediately available. Preliminary reports of Class A and B malfunctions will be submitted (by telephone if possible) to Commander, U.S. Army Industrial Operations Command, ATTN: AMSIO-IBQ-QAS, Rock Island, IL 61299-6000, DSN 793-7561, alternate DSN 793-7584, Commercial 309-782-7561, alternate 309-782-7584 (FAX DSN 793-7136, Commercial 309-782-7136). During non-duty hours (including holidays and weekends), reports will be made to the IOC staff duty officer, DSN 793-3510, Commercial 309-782-3510. Class C malfunctions may be reported by routine message.

Preliminary reports of Class A and B malfunctions for guided missiles and large rockets will be patterned after DA Form 4379-1-R (See Figure 2). These reports will be submitted to Commander, U.S. Army Aviation and Missile Command, ATTN: AMSAM-MMC-LS-M, Redstone Arsenal, AL 35898-5290, DSN 788-8690, alternate DSN 746-5829 Commercial 256-842-8690, alternate commercial 256-876-5829.

Identical report numbers should be referenced in all correspondence covering the same malfunction. To ensure uniform procedures, assign report numbers consecutively, show the symbol of the reporting unit, the number of reports submitted, and the two-digit calendar year.

For example, the report of a unit's first malfunction for calendar year 1993 would be numbered "Unit Symbol-1-93"; the unit's second report for 1993 would be numbered "Unit Symbol-2-93."

All preliminary reports of malfunctions involving munitions and explosives will include the RCS GSGLD-1961.

NOTE: Refer to the example in the Practical Exercise section for additional details on preliminary reports.

5.0. Detailed Reports.

A detailed written report, with pictorial evidence of Class A and B malfunctions if possible, will follow the preliminary report. The report will be sent through proper channels within 10 days of the reported malfunction. The report should be expedited through channels to ensure prompt arrival at the investigating office. The detailed report will include all points specified on DA Form 4379-R or DA Form 4379-1-R, as appropriate, and any other available pertinent information. Eyewitness accounts or statements should be included, if available. Identify all correspondence covering the same malfunction with identical report numbers. Refer to the Supplemental Reading for additional details on detailed reports.

6.0. Preparation Instructions for DA Form 4379-R (RCS GSGLD-1961 (MIN)).

This section will provide you with step-by-step procedures for completing the DA Form 4379-R (refer to Figure 1).

- **Block 1.** Enter the report number. The report number will be identical for both preliminary and detailed reports covering the same malfunction. Enter the date of the preliminary report beneath the report number.

- **Block 2.** Enter the complete nomenclature for the item that malfunctioned. Include, as applicable, the caliber, type, model, NSN, DODIC, lot number, and serial number, if available.

- **Block 3.** Provide the following information, as applicable (if necessary, continue on the back of the form or on a separate sheet of paper):

  a. For small arms and fixed and semi-fixed conventional munitions including mortar rounds:

     (1) Fuze type, model, and lot number.
     (2) Headstamp of cartridge case (manufacturer's symbol and year of manufacture).

  b. For separate loading conventional munitions:

     (1) Projectile caliber, type, model, NSN, DODIC, lot number, and kind of filler.

(2) Type and lot number of booster or burster.
(3) Propelling charge caliber, type, model, NSN, DODIC, and lot number.
(4) Weight of propelling charge, to include a statement of the number of increments used with the round that malfunctioned.
(5) Physical condition of propelling charge bag and wrappings.
(6) Pressure and velocity of round that malfunctioned (if available).
(7) Fuze type, model, NSN, DODIC, and lot number.
(8) State whether the fuze was properly assembled and seated with a fuze wrench prior to loading.
(9) Primer type, model, NSN, DODIC, and lot number.

c. For all other conventional munitions (for example, grenades, rockets, mines, smoke pots, pyrotechnics, demolition materiel, cartridge actuated devices, and propellant actuated devices):

(1) Type, model, NSN, DODIC, and lot number of end item and components, such as fuzes, rocket motors, and bursters.
(2) Type of filler (chemical munitions).

d. For warheads and warhead sections (conventional or chemical filler) not assembled to guided missiles or large rockets:

(1) Type of filler (chemical munitions).
(2) Type, model, and lot number of fuze.
(3) Type, model, and lot number of propulsion system.
(4) Type, model, and lot number of adaptation kit or adaptation kit component involved in malfunction.

e. For nuclear weapons projectiles:

(1) Warhead type, model, and serial number.
(2) Yield option (if selectable).
(3) Fuze type, model, and lot number.
(4) Propulsion system type, model, and lot number.
(5) Type, model, and lot number of adaptation kit or adaptation kit component involved in malfunction.

f. For nuclear demolition munitions:

(1) Warhead type, model, and serial number.
(2) Yield option (if selectable).
(3) Fuze or firing device type, model, and lot number.
(4) Mode of operation (if optional).

- **Block 4.** Enter a brief description of the malfunction.

- **Block 5.** Enter the name of the geographic location or military installation where the malfunction occurred, including the range number.

- **Block 6.** Enter the complete identification and mailing address of the organization or military unit that must be contacted in order to arrange a visit to the malfunction site.

- **Block 7.** Enter the complete identification and mailing address of the organization or military unit that was using the munitions at the time it malfunctioned if different from block 6.

- **Block 8.** Enter the date and local military time of the malfunction.

- **Block 9.** Enter the number of personnel casualties inflicted by the malfunctioning item. Hospitalization refers to in-patient hospital care only. Describe all injuries, using the back of the form or a continuation sheet if necessary. Indicate the location of casualties with respect to the weapon.

- **Block 10.** Indicate whether the weapon was damaged by the malfunction and, if so, whether the damage could be repaired at the unit level. Describe the damage, using the back of the form or a continuation sheet if necessary, and attach any photographs, sketches, measurements, or other relevant description. Provide information on damage to materiel not associated with the weapon when such information supports the suspected cause of the malfunction or helps define the extent of the hazard (as in the case of chemical exposure or radioactive contamination).

- **Block 11.** Self-explanatory.

- **Block 12.** Enter the quantity of the malfunctioning munitions on hand, and state whether a local suspension is in effect for the malfunction lot.

- **Block 13.** Self-explanatory.

- **Block 14.** Enter an abbreviated item nomenclature and enter the NSN and serial number of the weapon or launcher in which the malfunctioning item was fired. Fill in the remaining blanks as applicable. Provide the following information (when appropriate) on the back of the form or on a continuation sheet:

  a. Name of manufacturer (plant or arsenal).

  b. For mortar rounds, include the number of propellant increments fired.

  c. Length or recoil.

  d. Condition of weapon or launcher prior to the malfunction. Include (as applicable) the date of last overhaul, the overhauling installation, the timing and headspace dimension of the

weapon (by actual gage check), the date of the last cleaning, and the date of the last boresight.

e. For weapons 37mm or over, enter the total number of rounds fired through the tube before the malfunction. Read and report the pullover gage reading of the damaged gun tube. If the tube has been destroyed or the gage is not available, extract the most recent pullover gage reading from the log book and list the total number of rounds fired subsequent to that reading.

- **Block 15.** Briefly describe the general conditions at the firing site and along the flight path of the item (for example, marsh, jungle, woods, dry grassy plain, or muddy hillside). Describe any natural or artificial barriers, such as overhanging trees or heavy camouflage, that may have been an obstruction in the line of fire. Enter the distance from which witnesses to the malfunction had an unobstructed view of the flight path.

- **Block 16.** Enter the estimated visibility limit due to atmospheric conditions such as haze, smoke, rain, or fog. Briefly describe the nature and quantity of any precipitation such as rain, sleet, or snow, either at the time of, or shortly before, the malfunction. Enter the temperature and relative humidity.

- **Block 17.** Self-explanatory.

- **Block 18.** Mark the appropriate blocks. If the package was determined to be inadequate or damaged, provide a description on the back of the form or on a separate continuation sheet.

- **Block 19.** On the back of the form or on a separate continuation sheet (as applicable):

  a. Describe the events immediately before the malfunction and the actions of personnel following the malfunction.

  b. Indicate the location of casualties with respect to the weapon and the malfunctioning item.

  c. Describe the most probable path of fragments, the distance fragments were found from the malfunction site, and the weight and appearance of the fragments. Attach photographs if available.

  d. For nuclear or chemical items, describe the extent and type of contamination resulting from the malfunction. Provide radiation readings if applicable.

  e. Indicate whether operation of the weapon was normal just before the malfunction and describe the action of the weapon at the time of the malfunction.

  f. Indicate whether there is evidence or a possibility that foreign objects such as pebbles, gravel, or stones could have been blown into the bore from the previous rounds.

g. Indicate whether there was any evidence of unburned powder or residue in the tube.

h. If the round detonated in the gun tube, indicate where in the tube the detonation occurred; that is, at breech, at muzzle, or half way.

i. Indicate whether the projectile reached the anticipated point of impact or intercept.

j. If a premature detonation, indicate whether it functioned at high or low order.

k. Indicate the setting of the dual purpose or time fuze.

l. For electrically initiated munitions or explosives, describe any nearby sources of electrical or electromagnetic energy, including power lines, generators, microwave towers, and radar antennas. Include the power rating of the source and its distance from the munitions at the time of malfunction.

m. Describe any nonstandard condition, such as the use of extra propellant beyond that specified for the weapon and round, or any deviation from instructions in the technical manuals.

n. Indicate whether unauthorized modifications to the weapon or munitions had been made and if so, whether the modification is believed to have contributed to the malfunction.

o. Provide a copy of the press release, if any.

p. For a 2.75-inch hangfire, include the tube number in which the hangfire occurred, type of aircraft involved, location of the launcher on aircraft, and number of rockets fired through the tube before hangfire.

q. For malfunctions of rifle grenades, indicate whether bulleted munitions were in use.

- **Block 20.** Enter the names and phone numbers of witnesses or other persons who can provide additional first-hand information.

- **Block 21.** Enter the name, signature, and phone number of the person who compiled the information for the report and the date of the report.

Figure 1. DA Form 4379-R

AMMUNITION MALFUNCTION REPORT
For use of this form, see AR 75-1; the proponent agency is DCSLOG

1. REPORT NO. — *Requirements Control Symbol - CSGLD 1961*

2. MALFUNCTIONING ITEM

3. ITEM COMPONENTS

4. MALFUNCTION DESCRIPTION

5. SITE OF MALFUNCTION

6. UNIT CONTROLLING SITE

7. UNIT USING AMMUNITION

8a. DATE MALFUNCTION OCCURRED

8b. TIME

9a. CASUALTIES *(No. Killed)*

9b. CASUALTIES *(Hospitalized)*

9c. CASUALTIES *(Other Injuries)*

9d. DESCRIPTION

10. DAMAGE
a. WEAPON DAMAGED? ☐ Yes ☐ No ☐ N/A
b. DAMAGE REPAIRABLE AT UNIT LEVEL? ☐ Yes ☐ No ☐ N/A

10c. DESCRIPTION

11. DETONATION
☐ a. None ☐ b. In Weapon

c. M FROM WEAPON

d. M FROM NEAREST PERSON

12. Quantity Remaining

a. FIRING SITE

b. LOCAL STORAGE

c. SUSPENDED? ☐ YES ☐ NO

13. EXHIBITS AVAILABLE *(Hold Exhibits Pending Disposition Instructions per AR 75-1, para. 2-1).*
☐ a. Fragments ☐ b. Intact Components
☐ c. Weapon ☐ d. None

14. Firing Conditions for Malfunction Lot

a. WEAPON

b. TARGET

c. RANGE M

d. AZIMUTH

e. ELEVATION

f. ZONE

g. FUZE SETTING

h. FIRED HOW MANY ROUNDS PER MINUTE FROM WEAPON

i. FOR HOW MANY MINUTES BEFORE MALFUNCTION

j. TOTAL FIRED FROM WEAPON ON DAY OF MALFUNCTION

k. TOTAL MALFUNCTIONED

l. TOTAL FIRED

m. MALFUNCTION RATE %

15. Terrain

a. FIRING SITE

b. DOWN RANGE

c. POSSIBLE OBSTRUCTIONS

d. CLEAR VIEW OF FLIGHT PATH M

16. Weather Conditions

a. VISIBILITY

b. PRECIPITATION

c. TEMPERATURE F

d. PRIOR 24 HOURS — HIGH F / LOW F

e. RELATIVE HUMIDITY

17. Malfunction Lot Storage Conditions

a. Firing Site: ☐ Open ☐ Enclosed b. Local Storage: ☐ Open ☐ Enclosed

c. UNPACKED HOW MANY HRS. BEFORE MALFUNCTION

d. MAGAZINE TYPE

e. STORED HOW MANY MONTHS

18. Packaging of Malfunction Lot

	YES	NO
a. Original Package?		
b. Original Seal?		
c. Package Adequate?		
d. Package Damaged?		

19. ADDITIONAL DATA *(If more space is needed, use continuation sheet or back of form)*

20a. FOR ADDITIONAL DATA, CONTACT

b. TELEPHONE NO. *(Include Area Code)*

21a. PERSON COMPLETING REPORT

b. TELEPHONE NO. *(Include Area Code)*

c. DATE

DA FORM 4379-R, JAN 89 DA FORM 4379, JUN 75 MAY BE USED USAPPC V1.00

7.0. Preparation Instructions for DA Form 4379-1-R.

This section of the lesson will provide instructions to properly complete a DA Form 4379-1-R.

- **Block 1.** Self-explanatory.
- **Block 2.** Give the unit identification symbol and report number.
- **Block 3.** Self-explanatory.
- **Block 4.** Enter the battery, battalion, division, or organization that experienced the malfunction.
- **Block 5.** Enter the location of the malfunction (for example: McGregor Range, Fort Bliss, TX).
- **Block 6.**

  a. Line a. Enter the type of firing for example, troop training, fire demonstration, standardization flight, or annual service practice.

  b. Line b. Enter the method of firing such as surface-to-surface or surface-to-air.

- **Block 7.** Enter missile flight time in seconds (length of time from launch until malfunction occurred).
- **Block 8.** Enter the missile type and model number for example, SHILLELAGH-MTM-51A.
- **Block 9.** Enter the missile serial number, lot number, and NSN from the missile body.
- **Block 10.** Enter the warhead type and serial numbers from DD Form 1650 (Ammunition Data Card).
- **Block 11.** Enter the rocket motor model designation, serial, and lot numbers from DD Form 1650.
- **Block 12.** Enter the rocket motor cluster, model identification (where applicable), serial, and lot numbers from DD Form 1650. (If additional space is needed, continue under block 27).
- **Block 13.** Enter the igniter model identification, serial, and lot numbers from DD Form 1650.
- **Block 14.** Enter the fuze model, serial, and lot numbers from DD Form 1650.

- **Block 15.** Enter the safe and arming device model, serial, and lot numbers from DD Form 1650.

- **Block 16.** For missiles using liquid propellants, include the name of fuel and oxidizer.

- **Block 17.** Enter the model and serial number of the launcher.

- **Block 18.** Under weather conditions, include wind speed and direction, visibility, and temperature, in degrees Fahrenheit, at the time of malfunction.

- **Blocks 19 through 22.** Self-explanatory.

- **Block 23.** Enter the model number of telemetry, where appropriate.

- **Block 24.** Include information such as—

  a. Conditions before malfunction.
  b. Whether materiel was received in original sealed containers.
  c. Length of time exposed to climatic conditions.
  d. Whether materiel was stored in uncovered open storage.

- **Block 25.** Describe damage to the launcher or other property. Include photographs, sketches, and measurements of important features.

- **Block 26.** Enter the number of fatalities or injuries resulting from the malfunction. Classify injuries as minor or major. Classify injuries as major only if lost-time, inpatient hospitalization is required.

- **Block 27.** Describe the missile or rocket. If flight was abnormal or erratic, give details (for example, “The missile flew a normal trajectory for about 100 meters. At that time, it made a sharp downward turn to the right and detonated on impact with the ground”).

- **Block 28.** Enter the number of missiles fired from the lot on the day the malfunction occurred. Give quantity of rounds of that lot remaining on hand.

- **Block 29.** Enter the estimated or actual distance, in yards or meters, from the launcher where the malfunction occurred.

- **Block 30.** State whether the involved lot was temporarily suspended from further issue and use.

- **Block 31.** Check applicable blocks, stating whether fragments or other components of interest are available. Also indicate whether technical assistance is needed from the commodity command.

- **Block 32.** Give other pertinent information for personnel evaluating the report. Include photographs or sketches of important features as appropriate. In addition, include all personnel actions or errors that may have contributed to the malfunction. If any unusual observations were made during preparation for firing, include a history statement.

- **Block 33.** Enter the names and phone numbers of witnesses or other persons who can provide added first-hand information.

  a. Typed or printed name. Enter the name of the person submitting the report.
  b. Signature. Enter the signature of the person submitting the report.

Figure 2. DA Form 4379-1-R

MISSILE AND ROCKET MALFUNCTION REPORT For use of this form, see AR 75-1; the proponent agency is DCSLOG			*Requirements Control Symbol - CSGLD 1961*
TO Commander U.S. Army Missile Command ATTN: AMSMI-LC-AM Redstone Arsenal, AL 36809		FROM	
1a. DATE OF MALFUNCTION	1b. TIME OF MALFUNCTION	2. MALFUNCTION REPORT NO.	3. DATE OF REPORT
4a. UNIT *(Battery)*		4b. BATTALION	
4c. DIVISION		4d. OTHER *(Specify)*	
5. LOCATION OF FIRING	6. TYPE AND METHOD OF FIRING a. Type of Firing b. Method of Firing		7. MISSILE TIME OF FLIGHT *(SEC)*
8a. MISSILE OR ROCKET TYPE		8b. MODEL NO.	
9a. MISSILE SERIAL NO.	9b. MISSILE LOT NO.	9c. MISSILE NSN	
10a. WARHEAD TYPE	10b. SERIAL NO.	10c. LOT NO.	
11a. ROCKET MOTOR MODEL	11b. SERIAL NO.	11c. LOT NO.	
12a. MOTOR CLUSTER MODEL	12b. SERIAL NO.	12c. LOT NO.	
13a. IGNITER MODEL	13b. SERIAL NO.	13c. LOT NO.	
14a. FUZE MODEL	14b. SERIAL NO.	14c. LOT NO.	
15a. S&A DEVICE MODEL	15b. SERIAL NO.	15c. LOT NO.	
16a. LIQUID PROPELLANTS *(Fuel)*		16b. LIQUID PROPELLANTS *(Oxidizer)*	
17a. LAUNCHER MODEL		17b. SERIAL NO. *(If damaged, explain in Item 32)*	
18a. WEATHER CONDITIONS *(Wind)*	18b. WEATHER CONDITIONS *(Visibility)*	18c. WEATHER CONDITIONS *(Temperature)*	
19. TARGET RANGE *(Meters or Kilometers)*	20. TARGET ALTITUDE *(Feet or Kilometers)*	21. TARGET AZIMUTH *(MLS)*	22. TARGET SPEED *(Knots or Meters Per Sec)*
23. TELEMETRY SYSTEM	24. STORAGE CONDITIONS PRIOR TO FIRING OR OPERATION		
25. NATURE OF PROPERTY DAMAGE		26. NUMBER OF FATALITIES OR INJURIES	
27. DESCRIPTION OF MALFUNCTION *(Erratic Flight, Short Round, In-Flight Breakup, Down-Range Premature, Etc.) (Continue on Reverse Side)*			

DA FORM 4379-1-R, JAN 89 DA FORM 4379-1-R, JUN 75 MAY BE USED USAPPC V1.00

Figure 3. 4379-1-R (Back Side)

27. DESCRIPTION (Continued)

28a. NO. ROUNDS/MISSIILES FIRES FROM SUSPECT LOT ON DAY OF MALFUNCTION	28b. NO. ROUNDS/MISSIILES REMAINING FROM SUSPECT LOT ON DAY OF MALFUNCTION	29. LOCATION OF MALFUNCTION IN RELATION TO WEAPON OR LAUNCHER *(Yards or Meters)*

30. CORRECTIVE ACTION *(Such as Withdrawal of Missiles/Rockets from Use)*

31a. FRAGMENTS OR COMPONENTS OF INTEREST TO MALFUNCTION INVESTIGATION ARE AVAILABLE?	31b. TECHNICAL ASSISTANCE FROM COMMODITY COMMAND IS NECESSARY TO DETERMINE CAUSE OF MALFUNCTION?
☐ YES ☐ NO	☐ YES ☐ NO

32 OTHER PERTINENT INFORMATION *(Include Sketches or Photographs of Important Features that may Assist in Establishing the Cause of the Malfunction)*

33a. NAME OF WITNESS WHO CAN PROVIDE ADDITIONAL INFORMATION REQUIRED	33b. TELEPHONE NO. OF WITNESS

34a. TYPED NAME OF AMMUNTION OFFICER OR PERSON MAKING REPORT	34b. RANK	34c. SIGNATURE OF AMMUNITION OFFICER OR PERSON MAKING REPORT	34d. DATE

8.0. Dud and Misfire Reporting.

Prior to submitting a malfunction report, the ammunition officer must determine if the item is a reportable malfunction. Certain percentage rates of duds and misfires are allowed for certain types of munitions. Malfunction reports will be submitted only when the misfire or dud rate exceeds the percentage outlined in Appendix B, AR 75-1. An exception can be made if, in the opinion of the ammunition officer, a lot of munitions exhibits an unusual rate or quantity of misfires and/or duds. A malfunction of this nature is required.

9.0. Summary.

This lesson has discussed conducting malfunction investigations. It defined key terminology, discussed preliminary and detailed reports, and provided step-by-step instructions for completing DA Form 4379-R and DA Form 4379-1-R.

To help you understand the procedure for reporting and investigating a malfunction, the following example is issued in this lesson. After reviewing the example complete the attached practical exercise.

Example

The unit commander calls you and reports that an 81mm mortar round has prematurely detonated above the heads of a squad of troops. He tells you that the lot number for the munitions are LS-214-6.

The unit commander also informs you that several soldiers were injured, and he has suspended use of the munitions.

Before proceeding to the accident site for an on-site investigation, assemble the necessary forms and equipment you will need to take with you. Suggested items to aid in a malfunction investigation include:

- Related technical publications (TB 9-1300-385)
- A checklist
- A blank DA Form 4379-1-R (if it is a missile malfunction)
- A camera, film, metal tape ruler, and a flashlight

PRELIMINARY REPORT

Proceed to the site where the mortar round malfunctioned. Using your checklist and DA Form 4379 as a guide, get as many answers as you can and enter the information on DA Form 4379.

Cross reference the following numbers to the corresponding numbers on the foldout page as a guide in filling out DA Form 4379.

1. The unit report number in this example is W85JAA 1-87. You can obtain the unit report number from the orderly room/supply section.

2. The unit identification in this example is 2nd PLT, Co D, 6th INF.

3. This unit is located in Fort Carson, Colorado.

4. Check the weapon and enter the caliber of the weapon, model number, serial number, and manufacturer. This information can be found on the data plate on the weapon. Enter this information in section d.

5. Look at the remaining rounds of munitions to determine the type and lot number. Check the outer package to obtain the NSN and DODIC. If this is not possible, then review the DA Form 581 that the item was issued on. Enter this information in section e.

6. Enter the fuze nomenclature derived from the DA Form 581 on which the item was issued.

7. To determine the "Type of Malfunction" code, you must refer to the table on the back of DA Form 4379 (see page 7). In this example, personnel were seriously injured, so it would be a Class A malfunction. Then looking under Class A, you see that code A03 is for munitions detonating downrange premature (over 60 meters). Enter A03 in section g.

8. Talking with the range safety officer, you are told one round of munitions malfunctioned.

9. The rate and duration of fire is not applicable to this lesson.

10. During your investigation, you discover six persons were injured in this malfunction; two were fatalities, two were hospitalized, and two injuries were minor.

11. Investigating the accident site, you see that there was no property damage.

12. The lot involved has been locally suspended from use by the unit commander.

13. Checking with the unit commander, you are told that six rounds out of the munitions lot had been fired, and they were all fired the day of the malfunction. There are 20 rounds still on hand at the unit. Enter this information in section m.

14. The quantity in storage cannot be determined at this time. This information must be obtained from the accountable officer after you return to your office. For the purpose of this lesson, the quantity on hand in storage is 1,580 rounds.

15. You see that the munitions at the firing site have been in covered storage. You are told it was unpacked two hours before it was fired. Enter this information in section n.

16. The storage information can be obtained by reviewing the DSR card (DA Form 3022-R) when you return to the surveillance office. For the purpose of this lesson, the munitions were stored in an earth-covered magazine for 8 months.

17. Next enter the date, time, and temperature at the time of the malfunction. Also indicate the weather condition.

18. A witness told you that the malfunction occurred 1,000 meters from the weapon and 10 meters from the troops. Enter this information in section p.

19. Section q is not applicable to this lesson.

20. There are no political implications in this example.

21. During your inspection of the area, you find that a fin assembly and several fragments have been recovered. Check YES in section s.

22. Inspect the packaging for the munitions lot number that was involved in the malfunction to determine if it is satisfactory or unsatisfactory.

23. Enter here all actions that have occurred since the malfunction. In this example, all firing was suspended, an ambulance was called, and the area was roped off at the tube and impact sites.

24. Any explanatory remarks should be entered here. The results of your investigation show that the probable cause of the malfunction was an improperly installed fuze.

25. Enter your phone number and the date and time you are submitting this report in section w.

26. The date, time, and phone number of the person relaying the report to higher headquarters should be entered in section x.

The ordnance support activity will perform a technical inspection of the weapon to determine if any defects were present at the time of the firing that may be the probable cause of the malfunction.

DETAILED REPORT

The detailed report is a summary in letter form of the information received during the investigation. It must be on formal letterhead and submitted to the appropriate addressees, within 15 working days following the malfunction.

Use AR 75-1, Appendix C, DA Form 4379; and any other information from the ordnance support activity in preparing this report.

An example of a detailed report on the malfunction of the 81mm mortar round used in this lesson is on the next three pages.

DEPARTMENT OF THE ARMY
USA FIELD ARTILLERY TRAINING CENTER
Fort Carson, Colorado

AKPSH-D2/PC-8 20 June 1995

SUBJECT: Detailed Malfunction Report

THRU: Commanding General
Fourth United States Army
ATTN: AKADD-CDM

TO: Commander
US Army Armament and Readiness Command
Attn: DRSAR-QAS
Rock Island, IL 61201

1. Reference paragraph 2-1 g, AR.75-1, 1 March 1989.

2. Malfunction report on subject munitions is submitted:

a. Report Number: W85JAA 1-87. A preliminary report was submitted on 6 June 1995.

b. Identification of Unit: 2nd PLT, Co.D. 6thINF.

c. Weapon:

(1) Description: Mortar, M29

(2) Manufacturer: American Can Company

(3) Serial Number: 126819

(4) Type of fire: Not applicable

(5) Elevation: 45 degrees

(6) Length of recoil: Not applicable

(7) Range to target: No target involved

(8) Condition of weapon before malfunction: Weapon was in a serviceable condition.

(a) Date of last overhaul: Not applicable
(b) Overhauling installation: Not applicable

AKPSH-D2/PC-8
Subject: Malfunction Report

(9) Description of weapon after malfunction: Weapon was turned in to the maintenance shop. Inspection revealed weapon, serial number 126819, to be dirty and required cleaning. The probable cause of the malfunction was an improperly installed fuze on the mortar round.

(10) Number of rounds fired from weapon on day of malfunction: A total of six rounds were fired on the day of the malfunction.

d. Description of malfunction:

(1) Weapon: Operation of weapon was normal prior to this malfunction. Mortar rounds were being fired at a 45 degree elevation by noncommissioned officer cadre personnel from the USA Field Artillery Training Center in the presence of a range safety officer.

(2) Munitions:

(a) There were no obstructions in the line of fire, and there were no deviations from instructions in the technical manuals. One round of subject munitions prematurely detonated 10 meters over the heads of troops. PVT John Doe, 000-00-0000, and PVT Jim Jones, 000-00-0000, were mortally wounded. PVT Jack Smith, 000-00-0000, and PVT Ted Green, 000-00-0000, received head lacerations and required hospitalization. PVT Ed Brown, 000-00-0000, and PVT Bill Banks, 000-00-0000, received temporary hearing impairments.

(b) Description of munitions: Cartridge. 81 MM, HE, M362 w Fuze, PD, M524

(c) Name of manufacturer: Lone Star Army Ammunition Plant

(d) Lot Number: LS-214-6

(e) Headstamp of malfunction cartridge case: Not applicable

(f) Condition of munitions: Munitions were in original sealed containers. Containers were opened 2 hours prior to the exercise.

(g) Total number of rounds remaining on hand: 1600

3. Munitions on hand in using units have been turned in to supply division. Subject lot number is currently on Worldwide Malfunction Investigation Supplementary File, Number 87-145.

AKPSH-D2/PC-8
Subject: Malfunction Report

4. Prevailing conditions:

   a. 80 degrees and cloudy

   b. Malfunction occurred at 1543 on 6 June 1987.

5. Unauthorized modifications or alterations had not been made.

WILLIAM R. CHURCH, JR.
2LT, AG
Assistant Adjutant

PRACTICAL EXERCISE

PERFORM MALFUNCTION INVESTIGATION

SITUATION: You are an ammunition inspector assigned to the 542nd Ammunition Depot. Your commanding officer designates you to investigate a malfunction.

REQUIREMENT: Complete a preliminary ammunition malfunction report utilizing the information below. Items on the report which are unserviceable will be answered as unknown.

The following information will be utilized for this problem:

4th report in 1995.

Cartridge 105mm.

NSN 1315-00-965-0777 (C444).

2nd Section, 1/20 FA, Ft. Sill, OK WB72AA, was the firing unit and unit controlling the range.

Range, 45,000 meters.

210 rounds on hand in unit.

24 rounds fired on day of malfunction.

The malfunction occurred on the 24th round fired. Only one round malfunctioned.

Temperature 95 degrees F, clear skies, 88% humidity.

Fuze lot, PBA 79A003-045.

Munitions locally suspended.

Time of malfunction, 21 July 1995, 1415.

Ammunition lot number, PBA 88D015-046.

10 personnel injured, (hospitalized), 11 personnel killed.

No property damage.

Howitzer, Cannon M4, Serial No. 130418.

Ammunition issued by 260th Ord Depot on 4 January 1995.

Fuze, PD. M557, 1390-00-892-4302 N335.

Munitions were used for basic load.

Munitions were stored in a MILVAN in the DIVARTY Ammunition Holding Area.

Boxes and fiber containers opened 5 hours prior to firing. All packaging was original and in good condition.

New munitions issued 15 May 1995; new stocks were put into basic load and munitions issued on 4 January 1988 was used for training.

Munitions being used for overhead firing on training range # 55.

Round impacted and exploded high order approximately 10 meters from a reconnaissance patrol.

Round exploded approximately 4000 meters from weapon.

Pieces of fragments are available.

Total number of rounds fired 13.

No overhaul on weapon.

Weapon in good condition prior to firing and after.

Elevation 450 mils.

Quantity on hand in storage 4554 rds.

Quantity remaining at firing site 63.

Received munitions at depot on 14 March 73.

This page intentionally left blank.

Complete the blank DA Form 4379-R using the above listed information.

AMMUNITION MALFUNCTION REPORT
For use of this form, see AR 75-1; the proponent agency is DCSLOG

1. REPORT NO. — *Requirements Control Symbol - CSGLD 1961*

2. MALFUNCTIONING ITEM

3. ITEM COMPONENTS

4. MALFUNCTION DESCRIPTION

5. SITE OF MALFUNCTION

6. UNIT CONTROLLING SITE

7. UNIT USING AMMUNITION

8a. DATE MALFUNCTION OCCURRED

8b. TIME

9a. CASUALTIES *(No. Killed)*

9b. CASUALTIES *(Hospitalized)*

9c. CASUALTIES *(Other Injuries)*

9d. DESCRIPTION

10. DAMAGE
a. WEAPON DAMAGED? ☐ Yes ☐ No ☐ N/A
b. DAMAGE REPAIRABLE AT UNIT LEVEL? ☐ Yes ☐ No ☐ N/A

10c. DESCRIPTION

11. DETONATION
☐ a. None ☐ b. In Weapon

c. M FROM WEAPON

d. M FROM NEAREST PERSON

12. Quantity Remaining

a. FIRING SITE

b. LOCAL STORAGE

c. SUSPENDED? ☐ YES ☐ NO

13. EXHIBITS AVAILABLE *(Hold Exhibits Pending Disposition Instructions per AR 75-1, para. 2-1).*
☐ a. Fragments ☐ b. Intact Components
☐ c. Weapon ☐ d. None

14. Firing Conditions for Malfunction Lot

a. WEAPON

b. TARGET

c. RANGE M

d. AZIMUTH

e. ELEVATION

f. ZONE

g. FUZE SETTING

h. FIRED HOW MANY ROUNDS PER MINUTE FROM WEAPON

i. FOR HOW MANY MINUTES BEFORE MALFUNCTION

j. TOTAL FIRED FROM WEAPON ON DAY OF MALFUNCTION

k. TOTAL MALFUNCTIONED

l. TOTAL FIRED

m. MALFUNCTION RATE %

15. Terrain

a. FIRING SITE

b. DOWN RANGE

c. POSSIBLE OBSTRUCTIONS

d. CLEAR VIEW OF FLIGHT PATH M

16. Weather Conditions

a. VISIBILITY

b. PRECIPITATION

c. TEMPERATURE F

d. PRIOR 24 HOURS — HIGH F / LOW F

e. RELATIVE HUMIDITY

17. Malfunction Lot Storage Conditions

a. Firing Site: ☐ Open ☐ Enclosed b. Local Storage: ☐ Open ☐ Enclosed

c. UNPACKED HOW MANY HRS. BEFORE MALFUNCTION

d. MAGAZINE TYPE

e. STORED HOW MANY MONTHS

18. Packaging of Malfunction Lot

	YES	NO
a. Original Package?		
b. Original Seal?		
c. Package Adequate?		
d. Package Damaged?		

19. ADDITIONAL DATA *(If more space is needed, use continuation sheet or back of form)*

20a. FOR ADDITIONAL DATA, CONTACT

b. TELEPHONE NO. *(Include Area Code)*

21a. PERSON COMPLETING REPORT

b. TELEPHONE NO. *(Include Area Code)*

c. DATE

DA FORM 4379-R, JAN 89 DA FORM 4379, JUN 75 MAY BE USED USAPPC V1.00

55B40B08
PRACTICAL EXERCISE
SOLUTION

Verify the data you have entered using the information in the lesson. Ensure all required information is entered in each block of the DA Form 4379-R.