

TRAINING SUPPORT PACKAGE (TSP)

TSP Number/Title 55B40C02 Inspect Ammunition Storage Facilities

Task Number(s)/ Title(s) 093-400-4275 Inspect Munitions Storage Facilities

Effective Date 21 August 1998

Supersedes TSP(s) MP-03/C 645-55B40

TSP User USAOMMCS, Redstone Arsenal, Alabama and Accredited Ordnance TASS Battalion

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Foreign Disclosure Restrictions If Allied students are scheduled to attend this class, coordination with Security Division (ATSK-AS) is required to determine if the information can be released to Allied students.

Preface

Purpose

This training support package provides the instructor with a standardized lesson plan for presenting instruction for:

LESSON TITLE:	Inspect Ammunition Storage Facilities
CONDITIONS:	In a classroom environment given: Latest lightning protection test report Latest magazine site inspection report DA Form 3020-R TM 9-1300-206 DA PAM 385-64 SB 742-1
STANDARD:	Inspect munitions storage facilities in accordance with SB 742-1, DA PAM 385-64, TM 9-1300-206. Correctly record and report all deficiencies noted during the inspection on the magazine site inspection report. Correctly post and report and nonstandard conditions on DA Form 3020-R.

**This TSP
Contains**

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SECTION I. ADMINISTRATIVE DATA

All Courses Including this Lesson	<u>COURSE NUMBER(S)</u> 645-55B40	<u>COURSE TITLE(S)</u> Ammunition Specialist, ANCOC
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Task(s) Taught or Supported	<u>TASK NUMBER</u> 093-400-4275	<u>TASK TITLE</u> Inspect Munitions Storage Facilities
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Reinforced Task(s)	<u>TASK NUMBER</u> None	<u>TASK TITLE</u>
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Academic Hours The academic hours required to teach this lesson are as follows:

	ADT
	<u>HOURS/METHOD</u>
Conference	3.0 / CO
Total hours	3.0

Test Lesson Number	<u>Hours</u>	<u>Lesson No.</u>
Testing:	3.0 TE2	55B40C07
Review of test results:	1.0 CO	55B40C08

Prerequisite Lesson(s)

LESSON NUMBER
55B40C01

LESSON TITLE
Ammunition/Explosive Storage Standards

Clearance and Access

Unclassified - If Allied students are scheduled to attend this class, coordination with Security Division (ATSK-AS) is required to determine if the information can be released to Allied students.

References Required.

<u>Number</u>	<u>Title</u>	<u>Date</u>	<u>Additional Information</u>
TM 9-1300-206	Ammunition and Explosives Standards	30 AUG 73	with changes 1-10
DA PAM 385-64	Ammunition and Explosives Safety Standards	Draft	
SB 742-1	Ammunition Surveillance Procedures	APR 98	

Related

N/A

Student Study Assignments

None

Instructor Requirements

One instructor

Additional Support Personnel Requirements

None

Equipment Required

Overhead Projector

Materials Required INSTRUCTOR MATERIALS: References listed above. Viewgraphs 55B40C02, VG#01 - VG#13

STUDENT MATERIALS: TM 9-1300-206, SB 742-1, DA PAM 385-64

Classroom, Training Area, and Range Requirements One 30-person classroom

Munitions Requirements None

Instructional Guidance Before presenting this lesson, instructors must thoroughly prepare by studying this lesson and identified reference material.

Proponent Lesson Plan Approvals

<u>Name</u>	<u>Rank</u>	<u>Position</u>	<u>Date</u>

SECTION II. INTRODUCTION

Method of instruction: CO
 Instructor-to-student ratio: 1:12
 Time of instruction: 0.1 hours

Motivator Good morning/afternoon, class. I am _____. I will be your primary instructor for this lesson. As a munitions inspector, in a surveillance position, one of your responsibilities may be to inspect munitions storage buildings. You will be responsible for inspecting and then reporting the conditions that determine whether the storage facilities are serviceable and suitable for storing munitions.

Terminal Learning Objective Note: Inform the students of the following terminal learning objective requirements.
 At the completion of this lesson, you (the student) will:

ACTION:	Inspect munitions storage facilities
CONDITIONS:	In a classroom environment and given: Latest lightning protection test report Latest magazine site inspection report DA Form 3020-R SB 742-1 TM 9-1300-206 DA PAM 385-64
STANDARD:	Inspect munitions storage facilities in accordance with SB 742-1, DA PAM 385-64, TM 9-1300-206, and the applicable environmental guidelines. Correctly record and report all deficiencies noted during the inspection on the magazine site inspection report. Correctly post and report any nonstandard conditions on DA Form 3020-R.

Safety Requirements None

Risk Assessment Level Low

Environmental Considerations None

Evaluation Written Examination. The student must score a minimum of 70 percent to achieve a GO.

Note: **Show VG01 (Title Slide).**

Instructional Lead-in This class is designed to provide you with the knowledge necessary to inspect various types of munitions storage facilities.

SECTION III. PRESENTATION

1. Learning Step/Activity 1: Describe the requirements for inspecting munitions storage facilities.

Method of instruction: CO
Instructor-to-student ratio: 1:12
Time of instruction: 2.7 hours
Media: Viewgraphs

Note: Discuss all environmental considerations as they occur in the applicable regulations.

Note: Show VG02 (Standard Earth Cover Arch-Type Magazine).

Note: Inform students that there are various types of munitions storage facilities. The inspection procedures for munitions storage facilities are basically the same even though there are different types in use.

- a. **Inspect empty munitions storage facilities.** Empty magazines will be inspected upon notification of removal of materiel. An empty magazine need not be reinspected before being reused for storage provided that: (SB 742-1, paragraph 10-2d (1)).
- It was inspected after it was emptied.
 - Magazines and storage sites having had chemical surety materiel stored therein have been certified free of toxic hazard (AR 50-6).
 - All defects noted during the inspection have been verified as being corrected.
 - Use for storage is accomplished within 24 months following the last inspection.
 - Empty magazines must be sealed with a numbered seal to assure that munitions is not stored without proper notification.

Note: Show VG03 (Old MSIR and New MSIR).

Note: Inform students, you will need a locally devised Magazine/Site Inspection Report (MSIR) to record the defects and comments. You will also need the MSIR from the previous inspection to determine if the defects found during that inspection have been corrected.

b. Inspection.

Note: Show VG04 (Overgrown Vegetation).

- (1) **Vegetation.** Grass, undergrowth, weeds, and the like, which is or may become a fire hazard, will be controlled. Controlling the growth of vegetation is done by weed killer, mowing, plowing, or cutting; by livestock grazing under supervised conditions or, in calm weather and with proper control, by burning.
 - (a) Weed killers shall not contain chlorates or other substances which may ignite spontaneously under hot, dry conditions.
 - (b) Cut vegetation and undergrowth should be removed.
 - (c) Burning will not be permitted within 50 feet of any earth covered magazine containing explosives or munitions or within 200 feet of any above ground type magazine or outdoor storage site (or pad) containing explosives and munitions.
 - 1 During burning operations, all windows, doors, and ventilators will be closed.
 - 2 While burning around magazines, firefighting equipment must be available at the site.
 - (d) Once you reach the magazine site, check the grounds around the magazine for adequate vegetation control. If the vegetation needs clearing, note it on your MSIR. (Reference: TM 9-1300-206, paragraph 3-2f page 3-2.)
- (2) **Fire Break.** A fire break at least 50 feet wide and free from flammable material will be maintained around each above ground magazine and each outdoor storage pad containing munitions or explosives. The earth adjacent to and extending over earth covered magazines will be cleared of dry debris.

- (a) Any temporary magazine of fire-resistant construction in which the combustible framing, plates, or sills are exposed will be protected by a 50-foot firebreak (in all directions) on which no materials or vegetation capable of supporting combustion are permitted to exist.
 - (b) Erosion will be prevented to the extent possible by means of diversion terraces, drop inlets, and lines channels.
 - (c) Magazines with fire-resistant exterior covering which completely covers the combustible framing, plants and sills, and outdoor munitions storage pads containing munitions more resistant to fire such as heavy case HE bombs must be protected by a firebreak beginning at the magazine or pad and extending 50 feet in all directions. This firebreak need not be clear of vegetation, but the vegetation must be controlled by moving or grazing to prevent possible rapid transmission of fire to the magazine or pad.
 - (d) Excess vegetation and dry shrubs, sprouts, and trees whose weight or root system may damage the magazine must be removed.
 - (e) A clear space will be maintained by mowing or clipping around earth covered ventilators in a manner that will prevent rapid transmission of fire and provide visibility of the ventilator flag from ground level. Firebreaks around the entire magazine area, such as along railroad tracks, will be maintained wherever necessary.
 - (f) Plowed or bladed firebreaks will be used only where exceptional fire hazards exist and will be protected from erosion by wind or water by means of approved soil-conserving measures. (Reference: TM 9-1300-206, paragraph 3-2h, page 3-2).
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Note: Show VG05 (Heavy Erosion).

- (3) **Erosion.** Check the grounds around the magazine for erosion control.
- (4) **Lightning protection.** Lightning protection systems within the munitions area will receive a visual examination test for electrical continuity and adequacy of grounding at intervals contained in AR 385-64/DA PAM 385-64/DOD 6055.9-STD.
 - (a) These inspections and tests will normally be conducted by a designated operations organization within the installation.
 - (b) The procedures and the results of these inspections and tests will be monitored and reviewed by the munitions surveillance organization to assure that the lightning protection systems are properly inspected and tested. Copies of all inspection and test results will be provided to and maintained IAW DA PAM 385-64.

- (c) Suitable commercial test equipment or APE 1052, lightning protection system test equipment may be used.
- (d) A record of results obtained from the continuity and grounding tests, including action taken to correct deficiencies noted, must be maintained at the installation.
- (e) Any system shall be considered deficient if electrical continuity does not exist.
- 1 Except where counterpoises are installed, systems shall be considered deficient if resistance to ground exceeds 10 ohms or less resistance to ground, the record may consist of a single statement to that effect.
 - 2 When resistance to ground exceeds 10 ohms, the record should include the following: (Reference: SB 742-1, paragraph 10-2 b, page 11-3 and TM 9-1300-206, Appendix F, paragraph F-21a, page F-19.)
 - Building number, contents and/or use.
 - Date of inspection.
 - Identification of part of system.
 - Resistance (in ohms).
 - Remarks such as mechanical condition, nature of soil, etc.
 - Corrective action taken.
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Note: TM 9-1300-206 states lightning protection systems shall be visually inspected every seven months and be tested every 14 months to afford testing of the system during all seasons.

- (5) **Overhead transmission lines.** Overhead transmission lines serving explosives operating facilities should be installed underground from a point not less than 50 feet away from such facilities. (Reference: TM 9-1300-206, paragraph 3-2d, page 3-1.)
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Note: Conduct Check on Student Learning.

Question: When is an empty munitions storage building inspected?

Answer: Will be inspected upon notification of removal of material.
(Reference: SB 742-1, paragraph 10 - 2d.)

Question: How many feet will a fire break be maintained around an above ground

magazine?
Answer: 50 feet wide. (Reference: TM9 - 1300 - 206, paragraph 3-2h, page 3-2.)

Note: Show VG06 (Ventilator and Screen).

- (6) **Vermin control.** Openings, other than doors, in magazines should be screened to prevent entry of insects, rodents, and reptiles. (Reference: AMC-R 385-100, paragraph 18-4e, page 18-2.)
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Note: Show VG07 (Magazine Door, Heavy Rust and Broken Part).

- (7) **Doors.** Doors and locks must be kept in good working order. Magazines shall be locked at all times except when permitted operations are in progress in the magazine.
- (a) A crew must not be permitted to work in a position in a magazine which requires passing the work aisle or position of a second crew to reach an exit.
 - (b) The number of crews shall not exceed the number of exits.
 - (c) Two or more doors must be unlocked and open when personnel work in magazines having more than one door. (Reference: TM 9-1300-206, paragraph 4-3f(4), page 4-4.)
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Note: Show VG08 (Ventilator and Fusible Links).

- (8) **Ventilator.** Newer magazines have a large ventilator on each side of the door and a large rear stack ventilator. Inspect the ventilators for the presence of fusible links. The fusible links are positioned on the support chains of the ventilator lids. The links prevent fire from spreading into the magazines from the outside by melting and releasing the lid (allowing lid to close) when the links are subject to heat at 155° to 165°F. Fusible links have a minimum rated breaking strength. For the door ventilator link it is 20 pounds, and for the rear stack link it is 8 pounds. (Reference: TM 743-200-1, paragraph 5.2.4., TM 743-200-1 paragraph 5.2.4.2.1, page 52-2).
- (9) **Magazine interior.** Check condition of walls, floor, and ceiling. Facilities must not be repaired until it has been decided whether the contents are first to be removed. Under no circumstances shall repairs be made to the interior of magazines containing bulk explosives. (Reference: AMC-R 385-100, paragraph 18-12a, page 18-6.)

- (10) Buildings and magazines within an explosives area will be kept clean and orderly at all times.

Check to make sure that the magazine is free of trash and debris; this includes dunnage, boxes, and other items that were not removed when the magazine was emptied.

(Reference: TM 9-1300-206, paragraph 2-9, pages 2-3 and 2-4.)

- (a) **Waste Materials.** Oily rags, combustible and explosives scrap, and paper will be kept separate from each other. Each type of waste should be placed in self-closing, noncombustible containers properly marked and preferably located outside the buildings.
- (b) **Cleaning.** A regular cleaning program will be carried on as frequently as required for maintaining safe operations. Extensive cleaning should not be conducted while an explosives operations is being performed.
- (c) **Sweeping Compounds.** Hot water or steam should be used wherever practicable for cleaning floors in buildings containing exposed explosives. Sweeping compounds which are nonabrasive and compatible with the explosives involved may be used where the use of steam or hot water is not practicable. Such compounds may be combustible but will not be volatile (closed cup flash point will be more than 230°F). Sweeping compounds containing wax will not be used on conductive flooring. Where nitrated organic explosives are involved that may form sensitive explosive compounds with caustic alkalies, use of cleaning agents containing caustic alkalies is prohibited.
- (d) **Explosives Recovery and Reuse.** All loose explosives recovered as sweepings from floors of operating buildings will be destroyed.
- c. **Record Results.** Inspect for any defects and record deficiencies found during an inspection of munitions facilities containing explosive munitions items.
- (1) Magazines containing explosives are inspected annually unless otherwise directed by the QASAS in charge. (Reference: SB 742-1, paragraph 10-2a.
- (2) The heading of the MSIR is filled in the same manner for inspecting a magazine containing munitions as it is for inspection of an empty magazine with one exception. For a magazine containing explosives, you will enter the authorized explosive limit in the appropriate column on the new MSIR.

Note: Inform the students that the authorized explosive limit can be obtained from the storage plan.

Note: Show VG09 (DA Label 85).

Note: Refer the students to TM 9-1300-206, paragraph 4-3f(1), page 4-4, and Figure 4-3, page 4-4.3, Storage and Care of Explosives (Magazine Placard).

- d. DA Label 85.** Ensure that DA Label 85 is posted on or near each doorway. If the magazine you are inspecting is in an overseas location, the DA Label 85 must be in English and the language of the host country.
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Note: Show VG10 (Storage Drawings).

- e. Storage.** Ensure explosive items in storage are in compliance with storage drawings. (Reference: DA PAM 75-5.)
- (1) Munitions or explosives shall be stored by munitions lot number in stacks, arranged so that free circulation of air beneath and throughout the stack is possible. When more than one lot is stored, all items or containers of a lot should be stored together and the line of separation between lots should be clearly indicated. A magazine data card (DA Form 3020-R) should also be affixed to the stack.
 - (2) Lots of munitions shall never be mixed randomly. Except in igloos, tops of munitions stacks shall be below the level of the eaves but not closer than 18 inches from the roof to avoid the heated space directly beneath the roof. In igloos, munitions shall not touch the roof or sides of the igloo.
 - (3) In heated warehouses or other buildings, munitions stacks shall not be closer than 18 inches to radiators or heaters.
 - (4) The bottom layer should be raised off the floor about 3 inches.
 - (5) Dunnage should be level; if necessary, shims or wedges will be used to prevent the stacks from tipping.

- (6) Stacks shall not be so high that munitions or its containers in the lower layers will be crushed or deformed. Partly filled boxes should be fastened securely, marked and kept on the top of the stack.
- (a) Except for unit basic loads, only one light box per lot is authorized.
 - (b) Light boxes will be painted orange; however, within local ASPs light boxes need not be painted orange if a positive means of identification is used, i.e., a light box card securely attached to the box.
 - (c) This method of identifying light boxes is for ASP use only; all issued or shipped light boxes will be painted orange. (Reference: TM 9-1300-206, paragraph 4-1b, page 4-1.)
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Note: Refer students to SB 742-1, paragraph 11-2b, suspension control, and READ. SB 742-1, paragraph 11-2b (3).

- f. Suspended Items.** Be sure any suspended items are properly identified, DD Form 1575 (suspended tag materiel). (SB 742-1, paragraph 11-2,b (4)(a).
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Note: Show VG11 (DA Form 3020-R).

- g. DA Form 3020-R.** Ensure that there is a DA Form 3020-R (magazine data card) affixed to each lot of explosives. (Reference: TM 9-1300-206, paragraph 4-1b, page 4-1.)
- h. Munitions Stacking.** Munitions and explosives shall be stored in containers as prescribed by drawings and specifications and should be stacked and arranged in a magazine in accordance with instructions set forth in Army Regulations and approved drawings and directives. (Reference: TM 9-1300-206, paragraph 4-3g, page 4-4.)
- (1) Explosives or munitions in stacks shall be grouped and identified according to lots. General rules described above should be followed in the absence of or when operational necessity prevents adherence to applicable storage drawings.
 - (2) Methods used for stacking must provide for good ventilation to all parts of the stack. Adequate dunnage shall be used when necessary for this purpose.

Note: Show VG12 (Aisles Clean).

(3) Aisles shall be maintained so that units in each stack may be inspected, inventoried, and removed for shipment or surveillance test.

- i. **QD and Fire/Chemical Symbols.** Check QD limits in stacks and storage buildings to see that they are in compliance with authorized explosive limits.

Check for fire symbol and/or chemical hazard symbols(s) posted.

- j. **Inspection Completion.** You have now completed the inspection of a munitions storage facility. Review the MSIR for completeness and accuracy, then return it to the chief inspector for processing.
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Note: Conduct Check on Student Learning.

QUESTION: What is affixed to each lot of explosive munitions in a storage facility?

ANSWER: DA Form 3020-R (Magazine Data Card) (Reference: TM 9-1300-206, paragraph 4-1b.)

SECTION IV. SUMMARY

Note: Show VG13 (Summary).

Method of instruction: CO
Instructor-to-student ratio: 1:12
Time of instruction: 0.2 hours

**Review/
Summarize
Lesson**

During the last sixteen hours, we have discussed the requirements of inspecting munitions storage facilities and provided you with the necessary knowledge to ensure munitions storage facilities are in compliance with regulatory requirements.

**Check on
Learning**

Determine if students have learned the material presented by:

- a. Soliciting student questions and explanations.
 - b. Asking questions and getting answers from the students.
 - c. Correcting student misunderstandings.
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**Transition to
Next Lesson**

Your next lesson will be Lesson 03C, Plan Munitions Storage Operations

SECTION V. STUDENT EVALUATION

Testing Requirements Upon completion of Part I of this annex, your performance will be evaluated by a written examination.

- Feedback Requirement**
- a. Schedule and provide feedback on the evaluation and any information to help answer students' questions about the test.
 - b. Provide remedial training as needed.
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Note: Rapid, immediate feedback is essential to effective learning.
