

TRAINING SUPPORT PACKAGE (TSP)

TSP Number/Title 55B40C06 Annex C Part I Review

Task Number(s)/ Title(s)

093-400-4274	Conduct Explosive Safety Survey
093-400-4275	Inspect Munitions Storage Facilities
093-400-4276	Inspect Munitions Field Storage Area

Effective Date 21 August 1998

Supersedes TSP(s) MP-11/C

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 Review all TLOs and ELOs for Annex C Part I Lessons.

**This TSP
Contains**

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SECTION I. ADMINISTRATIVE DATA

All Courses Including this Lesson	<u>COURSE NUMBER(S)</u>	<u>COURSE TITLE(S)</u>
	645-55B40	Ammunition Specialist, ANCOC

Task(s) Taught or Supported	<u>TASK NUMBER</u>	<u>TASK TITLE</u>
	None	

Reinforced Task(s)	<u>TASK NUMBER</u>	<u>TASK TITLE</u>
	None	

Academic Hours The academic hours required to teach this lesson are as follows:

	ADT
	<u>HOURS/METHOD</u>
Conference	2.0 / CO
<hr/>	
Total hours	2.0

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 LESSON TITLE
 55B40C01 through 55B40C05

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>
AMCR 385-100			
DA PAM 385-64	Ammunition and Explosives Safety Standards	Draft	
SB 742-1	Ammunition Surveillance Procedures	APR 98	
TM 9-1300-206	Ammunition and Explosives Standards	30 AUG 73	with changes 1-10
TM 43-0001-28	Army Ammunition Data Sheets Artillery Ammunition Guns, Howitzers, Mortars, Recoilless Rifles, Grenade Launchers, and Artillery Fuzes	28 APR 94	
	DoD Consolidated Catalog		
FM 9-13	Ammunition Handbook	4 NOV 86	

Related None

Student Study Assignments Review all notes and student issue for Annex C Part I.

Instructor Requirements One instructor

Additional Support Personnel Requirements

None

Equipment Required

Overhead Projector

Materials Required

INSTRUCTOR MATERIALS: Viewgraphs 55B40C06, VG#1 - VG#7

STUDENT MATERIALS: All Annex C Part I student issue

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. This review is to refresh your memory and reinforce the essential knowledge and skills that you have been taught during the lessons and practical exercises. It also serves to answer your questions about subjects covered in this annex.

Terminal Learning Objective N/A

Safety Requirements None

Risk Assessment Level Low

Environmental Considerations None

Evaluation Written mid annex examination. The student must score a minimum of 70 percent to achieve a GO.

Note: Show VG01 (Title Slide).

Instructional Lead-in During this lesson, we will review each TLO and ELO to ensure you fully understand the task requirements.

SECTION III. PRESENTATION

1. Learning Step/Activity 1:
Review each TLO and ELO for Annex C Part I Lessons.
- Method of instruction: CO
Instructor-to-student ratio: 1:12
Time of instruction: 1.8 hours
Media: Viewgraphs
-

Note: Show VG02 (TLO for 55B40C01).

a. Terminal Learning Objective.

Action: Identify the essential elements necessary to comply with the Army's conventional Class V storage standards required by TM 9-1300-206.

Standard: Demonstrate an understanding of the essential elements necessary to comply with the Army's conventional Class V storage standards by correctly answering written problems with 70 percent accuracy.

Note: Use the questions below to facilitate discussion on the lesson.

SITUATION: You are assisting operations in the selection of magazine storage locations (specific magazine type) to accomplish storage of the following Class V material:

Ammunition 20mm, practice and high pressure test.

Ctg, 40mm, TP.

Ctg, 105mm HE, M1 w/o fuze.

Chemical munitions, Group D, TPA filled, w/o explosive components.

Mines, practice, with spotting charge and/or fuze.

QUESTIONS:

1. Can the material be stored in "standard above-ground munitions magazines"?
2. Due to magazine non-availability, you are considering the storage of 1340-H555 in a primer and fuze type magazine (27 feet 6 inches in width and 43 feet 4 inches in length). Is this magazine authorized by regulation for proper storage of this DODIC?

3. What type of magazine is used for the intermediate storage of minimum quantities of explosives, which is necessary for the safe and efficient conduct of a processing operation (e.g., explosive filled operation)?
4. Which type of magazine is preferred for the storage of all munitions and bulk explosives?
5. What is the usual spacing requirement maintained between two primer and fuze type magazines?
6. Which storage class/divisions should standard above-ground munitions magazines be restricted to according to current munitions and explosives standards?
7. SITUATION: During the conduct of a storage inspection, it is noted that the following Class V material is currently provided storage in an earth-covered igloo magazine: Projectile, 155mm HE, M449/M449E1 (1320-D561) and Projectile, 155mm HE, M483A1 (1320-D563). Munitions surveillance has identified this location as not complying with specific compatibility requirements for storage.

Determine if the findings of the surveillance safety inspection are valid and, if so, determine the required action necessary to correct the safety violation.

8. Your storage platoon is presently engaged in the transfer of 1375-M030 and 1375-M032 from damaged packages to new containers. What type of tools and personnel safety equipment are required during this operation and what is the minimum safety distance required from the storage magazine to the maintenance location?
9. SITUATION: The storage activity has received the authority to place 1320-D544 and 1315-C508 in an outside storage location for approximately 30 days. During the planning phase of the operation, you are advised by SFC Woods that assets of palletized small-arms munitions should be used to construct barricades between the outside storage locations and the magazine storage facility.

Is the procedure advised by SFC Woods valid, or is it in violation of established storage regulations?

10. SITUATION: Your storage activity has received advanced notification via DD Form 1348-1 (advanced shipping document) concerning the receipt of 60,000 rounds of 1320-D509 Projectile, 155mm AT, M741. Subject munitions are identified as Q-D Class (18)1.2 and are fitted with case recessed lifting plugs. Total NEW of individual magazine locations (igloo magazines) will exceed 15,000 pounds of explosive per storage location.

Which quantity-distance table applies and which AMC storage drawing is required to meet this specific storage requirement?

11. SITUATION: During the conduct of a storage safety inspection concerning a 80'L x 25'W x 14'H reinforced concrete oval arch stradley magazine, it is noted that assets of H555, H557, and TOW missiles are placed into individual stacks with their warheads pointing toward the door of the magazine.

Is the above storage in violation of specific safety requirements and, if so, what are they?

12. SITUATION: The following Class V material is presently provided storage in a standard ordnance igloo magazine (81'L x 26'6"W x 12'9"H): Projectile, 155mm, Dummy, M7 with charge propelling Dummy, M2; Projectile, 155mm, HE, M107; and Projectile, 155mm HERA, M549A1. This storage was necessary due to limited availability of magazine storage space.

Does the above storage situation violate safety? Are any additional procedures required in order to promote safety?

13. A storage igloo magazine is presently used for the storage of the following ClassV material:
- (a) 1315-C276
 - (b) 1315-C512
 - (c) 1315-C708
 - (d) 1320-D550
 - (e) 1330-G945
 - (f) 1305-A360
 - (g) 1305-A071
 - (h) 1305-A400
 - (i) 1305-A475

As the platoon leader, your responsibility is to ensure that all of your personnel are provided with the correct protective equipment and must be readily available to munitions handlers during the storage operation.

What protective equipment is necessary to be centrally stored and issued in the event of an emergency?

14. What corrective action is necessary in the event a fire is present in magazine 0036 (Corbetta type) and the structure is stored with Class V materials having the following fillers?

- (a) TEA
- (b) TH
- (c) IM

15. It is necessary to store Chemical Group B munitions in outside storage.

Who must be contacted for prior approval, and what measure concerning protection must be identified and implemented during the conduct of this storage operation?

16. Your storage activity has received advanced notification via message traffic that it will be receiving Projectile, 155mm, GB2. The projectiles will be uploaded with its non-critical compound (OPA). In addition, canisters of DF are slated to arrive at the magazine area in 15 days.

What are the specific storage requirements for the munitions and the critical component identified by the message?

17. During the inspection of 1340-01-122-3506 H104 (using unit field return concerning 3 pods), it is identified by munitions surveillance personnel that the material is in a suspect condition.

What specific storage procedures are required based on this situation?

ANSWERS

1. ANSWER: Yes.
2. ANSWER: No. Magazine type should be restricted to the storage of Classes (04) 1.2 and 1.3 (except rockets and rocket motors) and 1.4 munitions.
3. ANSWER: Service magazines and service storage buildings are used for the intermediate storage of minimum amounts of explosives necessary for safe and efficient processing operations.
4. ANSWER: Earth covered magazines are preferred for the storage of all munitions and bulk explosives.
5. ANSWER: Primer and fuze type magazines are usually spaced 300 to 400 feet apart.

6. ANSWER: For future use, standard magazines should be used for the storage of Classes, (04)1.2, (08)1.2, (12)1.2, 1.3 and 1.4 materials, excluding rockets and rocket motors.
7. ANSWER: Yes. Both items are Compatibility Group D. They are identified as improved conventional munitions (ICM). Due to their sensitivity to initiation, cargo may be ejected from the projectile during a fire. Magazines for these items should be located on the perimeter of the storage area in order to minimize contamination of the entire storage area.
8. ANSWER: When handling is accomplished in loose form (e.g., loose explosives), require handlers to wear safety/non-sparking shoes and use spark-resistant tools in opening boxes. Material in damaged boxes to be transferred to new boxes requires a distance of 90 feet from a magazine containing Class V.
9. ANSWER: Boxed small arms munitions shall not be used as barricades or dividing walls between stacks of other types of munitions and is in violation of current munitions and explosive safety standards, as outlined by TM 9-1300-206.
10. ANSWER: When Class (18)1.2 items are provided storage in above ground magazines, the quantity-distance requirements for Class 1.1 shall apply. Drawing 19-48-4003 will be used.
11. ANSWER: Whenever practicable, small rockets and missiles may be stored nose down, and may be stored in standard earth-covered magazines without regard to direction in which they are pointed; however, they will not be pointed toward the door of the magazine.
12. ANSWER: Dummy or inert munitions may be stored with live or practice munitions if other storage space is not available. The service rounds (proj. 155mm, HE and HERA) 2 will be segregated and clearly identified.
13. ANSWER: Chemical Group C material is provided storage at location 0027 and requires the following protective equipment:
- a. Fire resistant gloves and coveralls.
 - b. Chemical safety goggles.
 - c. Protective mask.
14. ANSWER: Firefighters shall be confined to preventing the spread of the fire. Fires in corbetta magazines will not be fought.

15. ANSWER: Approval must be obtained from the appropriate major command (MACOM) on a case-by-case basis. Munitions should be covered with tarpaulins to protect from direct rays of the sun and exposure to the elements. Munitions should be stacked to permit free air circulation. Tarpaulins should be supported to permit free flow of air under the tarpaulins.
16. ANSWER: The storage of projectile 155mm GB-2 and DF canisters will require placement in separate fireproof buildings. The two binary containers (OPA and DF) are incompatible. DF will not be stored with other industrial type chemicals. When the DF is assembled in projectiles, the uploaded projectiles are assigned to SCG K and separate storage in igloo magazines is required.
17. ANSWER: Items shall be segregated and stored separately from serviceable munitions based on the quantity and type as related to the appropriate quantity-distance standards.

QUESTIONS

1. SITUATION: Due to present non-availability of suitable storage space, the commanding general has authorized the temporary storage of motor vehicles at your munitions storage facility.

Munitions surveillance (QA/QC) has identified that the only available storage space to meet the commanding general's requirement is located 715 feet from all storage locations (25' x 80' type magazines located in a storage block).

Can these motor vehicles be stored at this facility?

2. SITUATION: Two standard earth-covered, arch-type magazines are positioned side-to-side at 80 feet.

Using magazine distance, determine the maximum allowable (NEW) of 1.1 that each of the magazines is authorized?

3. SITUATION: Combinations of mass detonating and non-mass detonating munitions are presently slated for storage in a standard earth-covered, arch-type magazine. All items to be stored are compatible and meet current mixing requirements outlined in TM 9-1300-206.

What is the basis used to determine the maximum quantity of explosives authorized with the storage location?

4. SITUATION: Projectiles, separate loading (explosive D loaded) (18)1.2, are authorized for destruction. Presently the items are stored in an igloo arch-type magazine. Inspection of the storage location identifies that munitions are not stored in properly spaced 15,000 lb stacks.

Which quantity-distance requirements apply?

5. SITUATION: The following Class V material is provided storage in an igloo-type magazine (25' x 80'): composition C-4, fuse lighters, and safety fuse.

You have been advised by the operations officer, via the findings of a safety inspection conducted by munitions surveillance, that the following safety violations are present:

A storage compatibility problem is present at the storage location.

Magazine explosive content is exceeded. (Magazine is located 3,900 feet from the facility laundry and 2,250 feet from a public traffic route. Explosive content has been computed as being 500,000 pounds NEW).

- (a) Does a storage compatibility problem exist at the storage location?
- (b) Is the magazine "overloaded" and, if so, what is the authorized net explosive weight (NEW)?

6. SITUATION: 1315-C454 is presently provided storage in an igloo-type magazine. The magazine is located 1,200 feet from a public traffic route and 1,375 feet (IBD) safety distance.

What is the maximum net explosive weight (NEW) authorized at the storage location?

7. SITUATION: The following Class V material is provided storage in an earth-covered igloo magazine.

- (a) Ctg, cal 50, AP
- (b) Ctg, 20mm, practice.
- (c) Ctg, 105mm, HEAT, M341
- (d) Grenade fragmentation
- (e) Grenade, riot control, CS1, M25A2
- (f) Grenade, smoke, HC
- (g) Grenade, smoke, WP, hand M15

Does a compatibility problem exist?

8. SITUATION: Loading Docks A and B support a single operating line. The docks are authorized to hold 250,000 pounds of explosive each.

What quantity-distance application is applied to the following locations?

- (a) Loading dock to loading dock?
 - (b) Loading Dock-A to the operating line the dock supports?
 - (c) Loading Dock-B to administrative areas or munitions workshops not served by the dock?
 - (d) Loading Dock-A to the nearest magazine storage location? (The storage magazine is authorized to store a maximum of 500,000 pounds of 1.1 explosive material.)
9. SITUATION: An individual sentry post is located at the entrance to the magazine storage block. Magazines within the storage block are Stradley type and are authorized to store 500,000 pounds (NEW) per storage location.

What is the quantity-distance required between the sentry post and the explosive storage locations?

10. SITUATION: For personnel protection, a bombproof shelter is used at the munitions surveillance function test range.

What is the type of separation distance required between a magazine containing 1.1 materials and the bombproof?

11. When are railroad cars, trucks, or trailers containing munitions and explosives, and the explosive content of the storage location (magazine) considered as a unit for quantity-distance purposes?
12. If a minimum distance number (e.g., (18)) is not shown for cased munitions of Class 1.1, what is the minimum safety distance required between a storage location and the post laundry?
13. SITUATION: A magazine is constructed and meets the following specifications: Reinforced concrete, arch-type, earth-covered magazine whose construction is not equivalent in strength to Corps of Engineer Drawing 33-15-06, dated 1 August 1951. All distance requirements for IBD, PTR, magazine distance and intraline distance are satisfied to allow maximum capacity storage.

What is the maximum quantity of explosives that may be stored in magazines that meet these same specifications?

14. What chemical storage groups are currently assigned to Class 6.1?
15. United Nations Organization (UNO) recommendations include Class 1.5 (comprising certain very insensitive explosive substances). For the purposes of TM 9-1300-206 at DOD activities, what is the class/division and SCG consideration for these items?
16. What is the expected hazard and current storage hazard class and division assigned to superseded hazard Class-5 munitions and explosives?
17. What is the IBD and above-ground magazine distance required when a magazine is authorized to store 500,000 pounds (NEW) of H110?
18. May the following Class V items be combined in storage without regard to explosive quantity limitations?
 - (a) Ctg, cal 50, ball
 - (b) Ctg, 20mm HPT
 - (c) Ctg, igniter, M2
 - (d) Catapults, aircraft ejection seat M4A1 and M5
19. What munitions storage compatibility group (SCG) is Class V material assigned to when their characteristics do not permit storage with other types of munitions, or kinds of explosives, or dissimilar munitions of this group?

ANSWERS

1. ANSWER: No. When no other suitable storage space is available, sites located at the appropriate intraline distance (but not less than 800 feet) from magazines and open sites containing munitions and explosives, may be selected in the magazine area for the storage of motor vehicles, artillery, tanks, etc.
2. ANSWER: 250,000 pounds NEW.
3. ANSWER: Combinations of 1.1 and 1.2 shall be treated on the basis that all are subject to detonation and the total calculated quantity used.
4. ANSWER: Quantity-distance for 1.1 applies.
5. ANSWER:
 - a. A compatibility problem does not exist.
 - b. 500,000 pounds of explosive (NEW) exceeds allowable limits.
6. ANSWER: (2) 1.2 (500,000 lb NEW).
7. ANSWER: No, unless 1,000 pounds rule is applied.

8. ANSWER: a. Magazine distance from other loading docks.
b. Intraline distance from loading Dock-A to the operating line it serves.
c. IBD from the loading Dock-B to munitions workshops and administrative areas not served by the loading dock.
d. Magazine distance from magazines based on the NEW in the magazine or dock, whichever is greater.
9. ANSWER: Individual sentry posts are not subject to Q-D standards, but should be located at prudent fire protection from the explosive facility.
10. ANSWER: Unbarricaded intraline distance.
11. ANSWER: When simultaneous detonation can occur.
12. ANSWER: 1,250 feet safety rule applies.
13. ANSWER: Not over 250, 000 pounds of explosives (NEW) may be stored.
14. ANSWER: Chemical Ammunition Groups A and B without explosive components.
15. ANSWER: Class 1.1 D.
16. ANSWER: (12) 1.2.
17. ANSWER: 1200 feet IBD and 300 feet magazine distance.
18. ANSWER: Yes.
19. ANSWER: SCG L.

Note: Show VG03 (TLO for 55B40C02).

b. Terminal Learning Objective.

Action: Inspect Munitions Storage Facilities.

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 report. Correctly post and report any nonstandard conditions on DA Form 3022-R.

Note: Use the following questions to facilitate discussion on the lesson.

1. Can excess dunnage be temporarily stored on the firebreak near a magazine?
2. Can munitions pilferable items be stored in outdoor storage on a temporary basis?
3. May repairs be made to the interior of a magazine without removing all the explosives?
4. How often must a formal examination be made when munitions are stored in outside storage sites?
5. When conducting a magazine inspection that has munitions are stored, will the results of that inspection be recorded and considered part of the technical history of the items stored?

ANSWERS

1. No.
 2. No, unless there is no other option.
 3. No.
 4. Quarterly.
 5. Yes.
-

Note: Show VG04 (TLO Lesson 55B40C03).

c. Terminal Learning Objective.

Action: Plan munitions storage operations.

Standard: Plan munitions storage operations without violation of explosive safety standards or environmental guidelines.

Enabling Learning Objective #1.

Action: Verify storage plan.

Enabling Learning Objective #2.

Action: Determine quantity-distance class and division.

Enabling Learning Objective #3.

Action: Determine quantity-distance storage requirements.

Enabling Learning Objective #4.

Action: Identify types of storage facilities to be used.

Enabling Learning Objective #5.

Action: Determine barricade requirements.

Enabling Learning Objective #6.

Action: Determine NEW, NEQ, or gross tonnage limits.

Enabling Learning Objective #7.

Action: Determine requirements for waivers or exemptions.

Note: Use the following questions to facilitate discussion on the lesson.

1. What is the purpose of safety rewarehousing?
2. Should rewarehousing be a thing to do in order to keep the troops busy?

ANSWERS

1. To eliminate or minimize an unsatisfactory of hazardous storage condition.
 2. No. Rewarehousing should be kept to a minimum.
-

Note: Show VG05 (TLO 55B40C04).

d. Terminal Learning Objective.

Action: Conduct explosive safety survey.

Standard: Ensure compliance with all explosive safety standards.

Note: Use the following questions to facilitate discussion on the lesson.

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1. Who is the controlling authority for granting waivers of Q-D Safety Standards?
 2. Are the safety precautions to be implemented during the force of a waiver required to be submitted with a request for waiver?
 3. How often must waivers be reviewed?
 4. Can an exemption to Q-D standards be granted when impairment of the overall defense posture would result?

ANSWERS

1. CSA, Chief of Staff, US Army.
2. Yes.
3. Each year.
4. Yes.

Note: Show VG06 (TLO 55B40C05).

e. Terminal Learning Objective.

Action: Inspect munitions field storage area.

Standard: Inspect munitions field storage areas in accordance with FM 9-13 and TM 9-1300-206. Correctly record and report all deficiencies noted on the site inspection report.

Note: Use the following questions to facilitate discussion on the lesson.

1. Are tarpaulin considered temporary shelters when storing munitions in the field?
2. Are units with basic loads of munitions stocks required to maintain storage conditions in accordance with TM 9-1300-206?
3. What is the field storage category for WP filled munitions?
4. Can semi-fixed WP munitions be stored with Category A munitions?
5. What is the maximum gross tonnage that may be placed in one stack of Category C munitions?

ANSWERS

1. Yes.
 2. Yes.
 3. Category D.
 4. No.
 5. 30 Tons.
-

SECTION IV. SUMMARY

Note: **Show VG07 (Summary).**

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

**Review/
Summarize
Lesson**

During this lesson we have reviewed the Annex C Part I lessons in preparation for the mid annex examination.

**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.
-

**Transition to
Next Lesson**

Your next lesson will be the mid annex examination.

SECTION V. STUDENT EVALUATION

**Testing
Requirements**

Upon completion of this annex, your performance will be evaluated by an end-of-annex 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.
