TECHNICAL MANUAL

OPERATOR'S AND ORGANIZATIONAL MAINTENANCE MANUAL (INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)

WARHEAD SECTION, GUIDED MISSILE, PRACTICE

LIGHTWEIGHT, M252

(NSN 1336-00-021-4497)

HEADQUARTERS, DEPARTMENT OF ARMY

MAY 1980

This copy is a reprint which includes current pages from Changes 1 through 3.

CHANGE 1
No. 4

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON,DC, 30 November 1988

Operator's and Organizational

Maintenance Manual

(Including Repair Parts and Special Tools List)

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Operator's and Organizational

Maintenance Manual

(Including Repair Parts and Special Tools List)

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4-1 through 4-6	4-1 through 4-6
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C-5 through C-10	C-5 through C-10.1
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Inside Cover	0	3-4	1
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i	3	4-1	1
ii	1	4-2	0
iii	3	4-3	1
iv blank	0	4-4	0
1-1	1	4-5	1
1-2	2	4-6 and 4-7	0
1-2.1	1	4-8 blank	0
1-2.2 blank	0	A-1	2
1-3	0	A-2	0
1-4	2	B-1	0
1-5 and 1-6	0	B-2 and B-3	1
1-7	2	B-4 blank	0
1-8	1	C-1 thru C-4	0
1-9	2	C-5 and C-6	0
1-10	0	C-7 thru C-10	1
2-1	2	C-10.1	1
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2-5 and 2-6	2	C-11	0
2-7	4	C-12 blank	0
2-8	0	D-1	1
2-9	4	D-2 blank	0
2-10 blank	0	Authentication	
3-1	1	Page	0

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TECHNICAL MANUAL
No 9-1336-488-12&P

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, 28 May 1980

Operator's and Organizational Maintenance Manual

(Including Repair Parts and Special Tools List)

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LIGHTWEIGHT, M252

(NSN 1336-00-021-4497)

REPORTING OF ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or know of a way to improve the procedures, please let us know. Mail your DA Form 2028 (Recommended changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual direct to Commander, U.S. Army Armament, Munitions and Chemical Command, ATTN: AMSMC-MAY-T(D), Picatinny Arsenal, NJ 07806-5000. A reply will be furnished direct to you.

*This manual supersedes TM 9-1336-488-12&P, 30 March 1976, including all changes.

LIST OF ILLUSTRATIONS

LIST OF TABLES

CHAPTER 1

INTRODUCTION

Section I. GENERAL

1-1. Scope

a. This manual is published for use by personnel responsible for operating and maintaining Lightweight Practice Guided Missile Warhead Section M252. Procedures in this manual are for personnel trained on this weapon system.

b. This manual contains a description of the warhead section and its related components, operating and maintenance procedures, tabulated data, and lists of repair parts and special tools required for organizational maintenance.

Procedures in this manual are the only basis for all technical operations and inspections pertaining to this equipment. However, it may not always be convenient to follow procedures in the sequence indicated.

c. Maintenance may require disassembly for access to only one component for replacement and reassembly. Although the manual may provide a more extensive sequence, unless specified to the contrary, the following rule applies: the organization may change the sequence of procedures to facilitate operations, if no required tests are omitted, no tests or inspections invalidated, and no safety requirements violated.

d. Appendix A contains a list of current references including supply and technical manuals, forms, and other available authorized publications applicable to this materiel.

e. Appendix B contains a maintenance allocation chart and instructions concerning its use. (No BIIL or ITIAL are applicable to this equipment.)

f. Appendix C contains a list of repair parts and special tools that are required to perform maintenance of this materiel.

g. Illustration references prefixed with C (e.g., fig. C-1, fig. C-2, etc.) refer to illustrations in appendix C, Repair Parts and Special Tools List.

h. Refer to TM 43-0002-33 for procedures for destruction of ammunition to prevent enemy use.

1-2. Forms, Records, and Reports

a. General. Department of the Army forms and procedures used for equipment maintenance will be those prescribed in TM 38-750. Lot and serial numbers of the affected items will be included in all reports. The forms required by using units issued ammunition are listed in appendix A. For a listing of all forms, refer to the current DA Pam 310-1.

b. Field Report of Accidents. Any accident involving injury to personnel or damage to materiel will be reported on DA Form 285 (Accident Report), in accordance with AR 385-40.

c. Malfunctions Involving Ammunition or Explosives. A malfunction is defined as the failure of an explosive or nonexplosive ammunition item to function in accordance with the design, intent, and expected performance when fired or launched, or when explosive components function during a nonfunctional test. Malfunctions do not include accidents and incidents from negligence, malpractice, or implications in other situations such as vehicle accidents, fires, etc. However, malfunctions do include abnormal or premature function of an ammunition item as a result of normal handling, maintenance, storage, transportation, and tactical deployment. Explosive ammunition malfunctions will be reported in accordance with AR 75-1. Ammunition malfunctions involving nonexplosive components that are not safety hazards will be reported on Standard Form 368 (Quality Deficiency Report) in accordance, with TM 38-750.

d. Report of Damaged or Improper Shipment. Any shipment of munitions received in damaged or unsatisfactory condition because of deficiencies in preservation, packaging, marking, loading, storage, or handling will be reported on SF 364 (Report of Discrepancy) in accordance with AR 735-11-2 and/or SF 361 (Discrepancy in Shipment Report) in accordance with AR 55-38.

e. Disposition of Unserviceable Ammunition and Components.

(1) An ammunition condition report will be submitted on all unserviceable or obsolete ammunition or ammunition components, in order that appropriate disposition instructions may be issued.

(*a*) "Reject" applies whenever use of the defective item would affect safety or reliability, and the defective item must not be used until the defect is corrected.

(*b*) "Reject" does not apply when the item is combat serviceable, and use of the item *does not*

affect safety or reliability. However, the required corrective action must be accomplished as soon as the tactical situation permits.

(2) Reports will be prepared on DA Form 2415 (Ammunition Condition Report), in accordance with TM 38-750. Multiple reports of a similar nature may be submitted on the same DA Form 2415.

f. Equipment Improvement Recommendations. Standard form 368 (Quality Deficiency Report) will be used to submit equipment improvement recommendations (EIR's) in accordance with TM 38-750.

g. Inspection and Maintenance Records.

(1) Records of inspection and maintenance will be maintained on the equipment maintenance log (EML). All entries are to be annotated on DA Form 2409. Record the required actions due to inspections and maintenance operations, excepting replacement of common hardware (e.g., nuts, bolts, screws, etc.). When the warhead section is expended, DA Form 2409 shall be forwarded to Headquarters, US Army Armament, Munitions and Chemical Command, ATTN: AMSMC-DSM-B, Dover, New Jersey 07801-5001.

(2) The record will be prepared in accordance with TM 38-750, except as follows:

(*a*) Block 5-Enter appropriate information.

(*b*) Blocks 4, 8, 10, 11 and 12-Leave blank.

(*c*) Block 7-Change title to read: LOT NUMBER. Enter lot number.

(*d*) Block 9-Enter appropriate information.

(*e*) Section C-Enter appropriate information in columns a through d.

(*f*) Insert organization designation in section B when warhead section is transferred to another organization.

(3) When the DA Form 2409 is completely filled, a copy will be forwarded to the Headquarters, US Army Armament, Munitions and Chemical Command, ATTN: AMSMC-DSM-B, Dover, New Jersey 07801-5001. A new DA Form 2409 will be used as a continuation sheet. As each form is filled, a copy will be forwarded to the above address.

h. Data Card. A data card is prepared for each lot of ammunition. The data cards will not physically accompany shipment from the manufacturer, but will be shipped separately. Master data card files will be maintained at Headquarters, US Army Armament, Munitions and Chemical Command, ATTN: AMSMC-QAD, Rock Island 61299-6000, and distributed as required. These cards are used to record lot numbers of warhead sections and major components, applicable drawings and other pertinent data (e.g., date of manufacture, National stock numbers, instructions, or remarks).

SECTION II. DESCRIPTION AND DATA

1-3. Warhead Section M252

a. General

(1) Warhead section M252 is a practice, to be fired counterpart of nuclear warhead section M234. Although without nuclear components and explosive, the practice warhead section is a match for the nuclear warhead section in external configuration, weight, center of gravity, and moment of inertia. Functioning of the practice warhead section, however, is initiated by practice guided missile fuze M819E1. The warhead section is inert. The M819E1 fuze (electronic timer) is the only functional component in this warhead section and provides the sustainer engine cutoff (SECO) signal to the missile.

(2) Specific locations on the warhead section are referred to as stations (fig. 1-1). A station number indicates the inch-distance from a theoretical point (1.83 inches in front of the tip of the nose cone) to a particular station. Measurements to determine stations are made along a line parallel to the longitudinal axis of the warhead section. (Stations cannot be measured along the surface of the warhead section).

b. Description. In terms of stations, the warhead section (fig. 1-1) starts at station 1.83. A windshield in the form of a 4-caliber ogive between stations 88 and 17 is behind a conical nose cone ending in a rounded nose. The warhead section, 98.17 inches long, terminates in a cylinder 12 inches long and 22 inches in diameter (max) and weighs 469 pounds. The tangential transition between ogive and cylinder is at station 88; the longitudinal center of gravity is located at station 58. The warhead section contains no explosive or pyrotechnic components; at station 21.92, however, it houses fuze M819E1 within the detachable nose cone (access is afforded by removal of eight studs that hold the nose in place). Provisions are made within the warhead section for installation of DOVAP beacon and battery, a C-Band beacon and battery, and a DOVAP antenna in the nose cone, but these provisions are not covered in this technical manual.

(1) Skin and structure. The structure consists of a welded and bolted aluminum and steel substructure. The substructure is secured through the bulkhead flanges to a steel skin 0.070 to 0.090 inch thick. The aerodynamic skin, assembled from four sections (including nose cone), has breaks at stations 22, 51.5, and 88.

(2) Bulkheads. A bulkhead for fuze mounting,

at station 21.92, is secured to the forward skin. Other bulkheads are located at stations 51.5, 71.5, 88, and 96 to 100. The swing bolts, alignment pins, shear pins, and electrical connector, which secure the warhead section to the main assemblage at the station 100 interface, are anchored in the aft bulkhead.

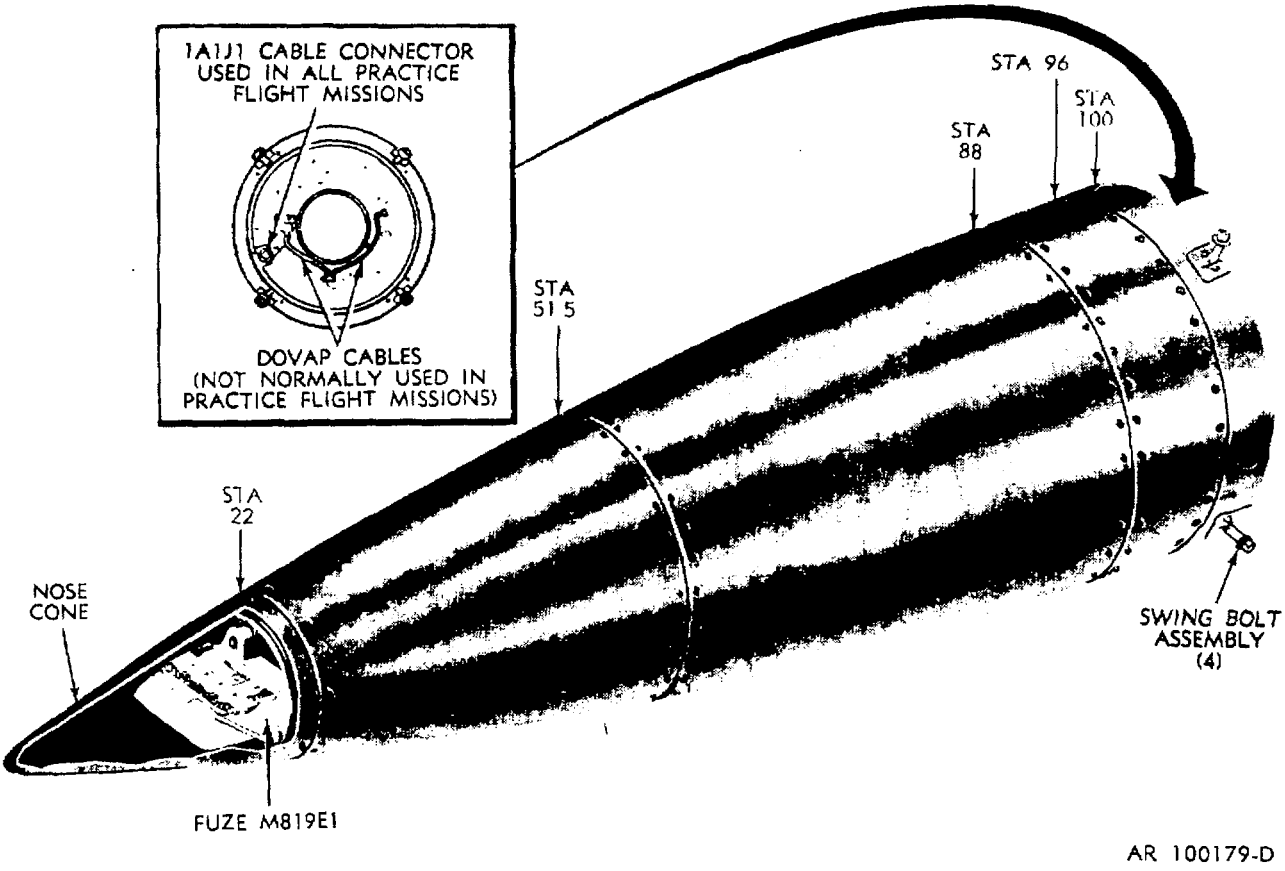


Figure 1-1. Warhead section M252-exterior view.

c. Painting and Marking. The warhead section is painted with forest green camouflage enamel.

NOTE

Since olive drab enamel is being replaced by camouflage enamel, some warhead sections will be painted in olive drab while others in forest green camouflage enamel. This will be permitted until such time as the use of olive drab is exhausted.

Four 4-inch blue color-coding squares, painted around the circumference of the warhead section 900 apart at stations 94 through 98, identify the item as a practice warhead section containing no explosive. Matchmarks (arrows), to assure correct attachment of the nose cone to the forward bulkhead are stenciled at station 21.92 (fig. 1-2), on top. Arrowheads face tip-to-tip when the nose cone is properly aligned and secured. Sling strap locations are indicated by two sets of two stripes on each side of the warhead section. STRAP is marked between the stripes. Stencilled black lines simulate the outline of access doors actually on the nuclear warhead section. FOR SERVICE PRACTICE ONLY is marked on each side of the warhead section near the forward STRAP. TIE DOWN STRAP, between a pair of parallel stripes, and TOP are marked on the top center line, respectively, at stations 71.5 and 99. OPEN is marked next to the PAL connector cover. Three 1-inch diameter dots one on top and one on each side, are located at station 58. These are to simulate destruct locations on the nuclear warhead section. Nomenclature, M252, lot number, serial number, and gross weight are stenciled parallel to the top center line. White stencil ink is used for all markings on olive drab painted warhead sections, except black stencil ink is used to indicate the access door outlines. On forest green camouflage painted warhead sections all markings are black camouflage enamel, including the access door outlines.

1-4. Fuze M819E1

a. General. Fuze M819E1 (fig. 1-3) is a precision electronic timing device. The design for this fuze was originally developed for the High Explosive tactical warhead section. In this configuration it controls sustainer engine cutoff (SECO) for the Lance missile in flight.

b. Description. Fuze M819E1, modular in construction,

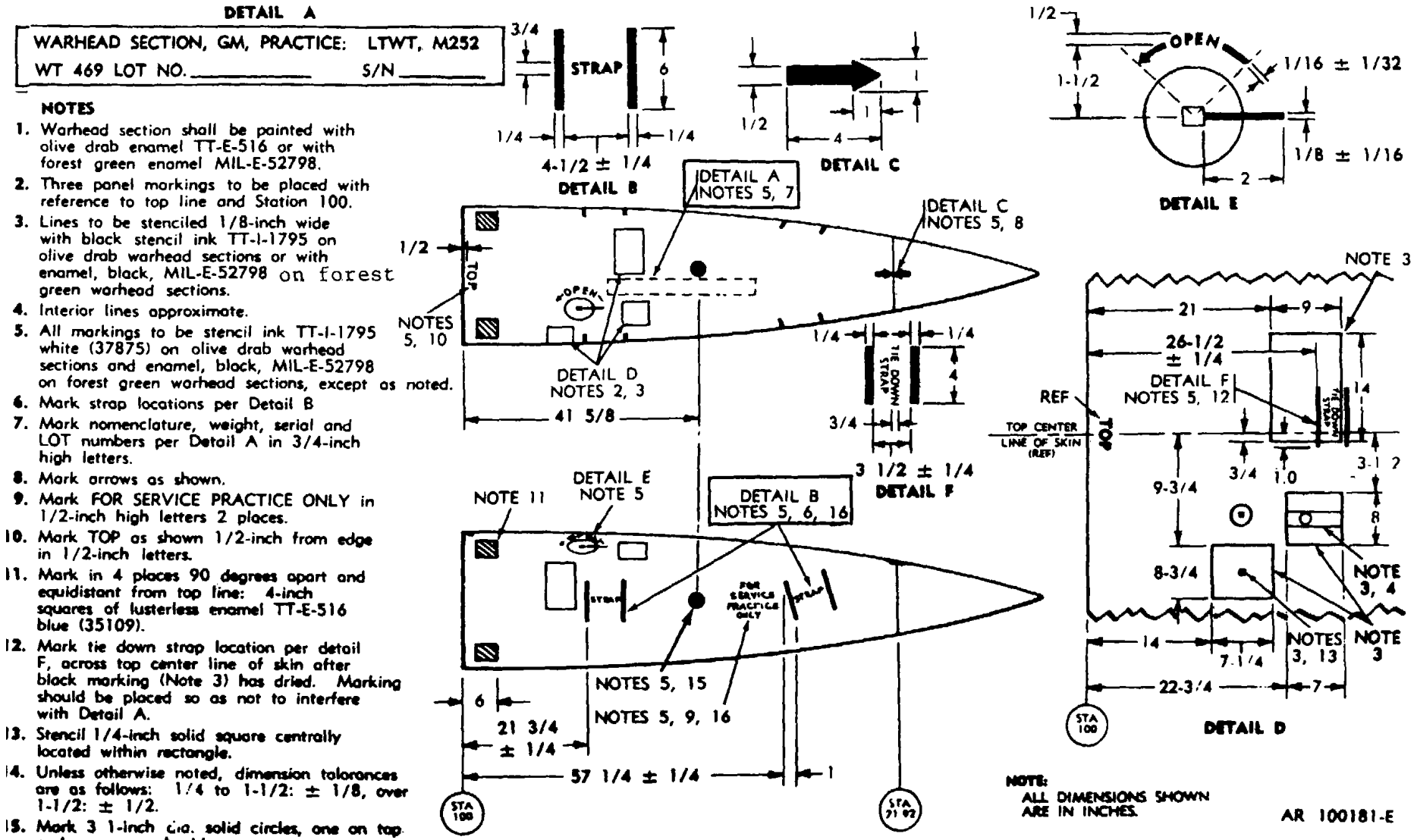


Figure 1-2. Painting and marking-warhead section M252

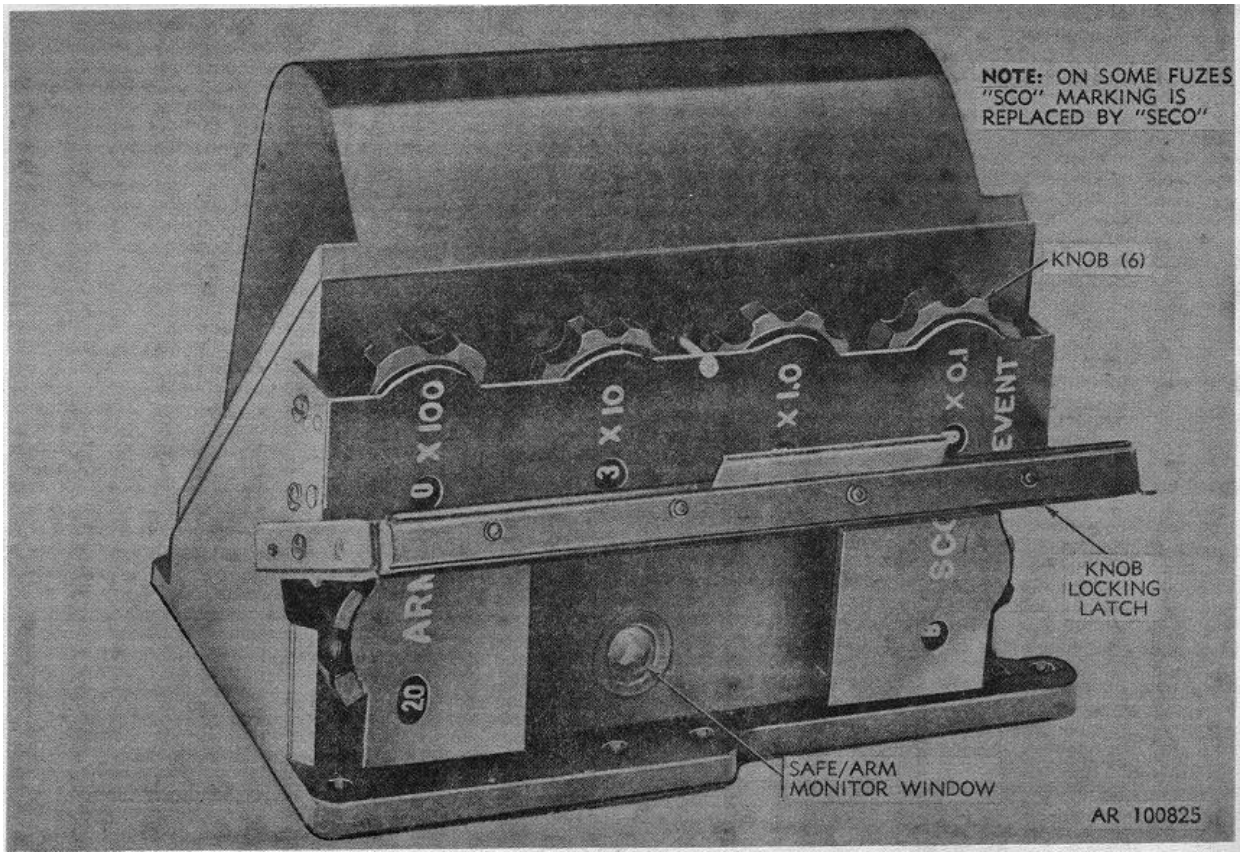


Figure 1-3. Fuze M819E1

is encased in a two-piece machined aluminum housing. Bolted together, the two housing sections form a waterproof and radio frequency interference-shielded enclosure. The fuze is bolted to the forward bulkhead at station 21.92 in the warhead section and is accessible through a removable nose cone. On the face of the fuze are six rotary switches: one switch marked SECO (sometimes marked SCO), four EVENT switches, and an ARM switch.

c. Functioning. Only one switch is used in operating a Lance missile with the warhead section. Because there is no warhead event, the SECO (sometimes marked SCO) switch is the only one that needs to be set in operating a Lance missile with the warhead section M252. Operation of the fuze begins at the instant of fire button depression. The fuze provides a switch closure for the missile guidance section which effects sustainer engine cutoff at any one of the 10 fixed time functions shown below:

SECO(or SCO)Setting	*SECO Time*
N	OFF
P	55
R	66
T	77
U	88
V	99
W	110
X	120
Y	130
Z	140

Since the warhead section is a practice ballast warhead section, there is no event-the complete missile impacts the ground at the end of its trajectory.

d. Painting and Marking. Olive drab or forest green enamel is used for painting the fuze. Nomenclature and lot number are stamped on an attached plate.

1-5. Shipping and Storage Container M511

a. General.

(1) The warhead section is packed and shipped in reusable container M511 (fig. 1-4). The warhead section is supported by a rubber, resilient-mounted suspension frame. The container cover is secured by 22 tee head bolts. Two-way pressure relief valves, which operate automatically, maintain the pressure differential between the container internal

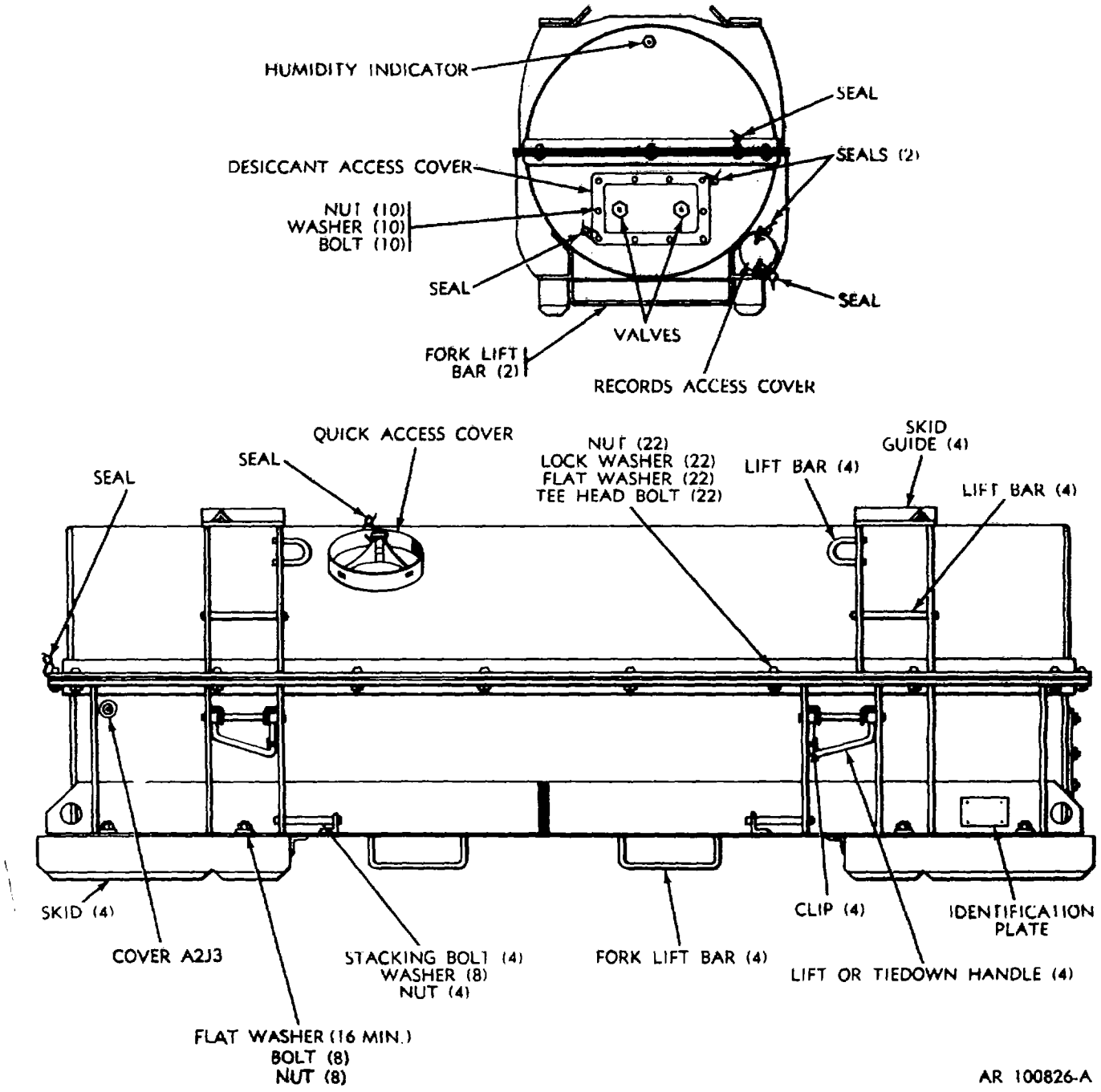


Figure 1-4. Exterior view of M511 shipping and storage container

pressure and external pressure within allowable limits, as, for example, during air transport. By pushing the valve pushbuttons, personnel can equalize internal and external pressure before opening the container. Bolts and associated hardware are provided for stacking the containers. When not in use the stacking bolts are placed in a stowed position on the container base.

(2) Included in the container is the equipment maintenance log (DA Form 2409). A desiccant basket is provided for desiccant to dry out excessive interior humidity. A humidity indicator monitors humidity conditions within the sealed container, and indicates desiccant saturation or container puncture or leakage.

b. Description. The M511 (fig. 1-4) is a skid-mounted, steel-reinforced, sheet-metal container. (For

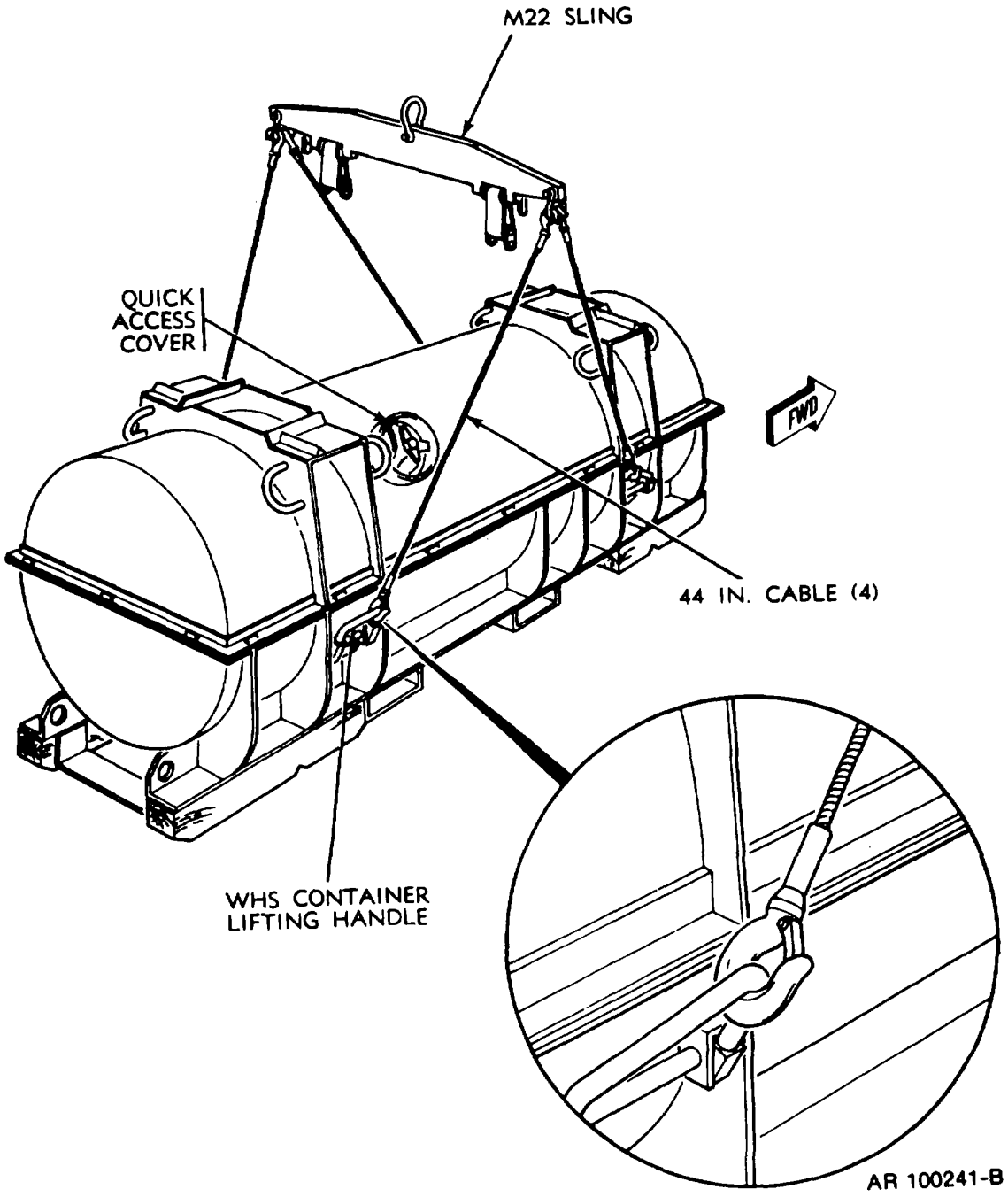


Figure 1-5. Shipping and storage container M511 with M22 sling.

ease in handling, the container is equipped with facilities for cover lift, container lift (fig. 1-5), forklift, and tiedown, table 1-1). It consists of a cover assembly and a base assembly in which is installed a resilient-mounted suspension frame assembly that supports and secures the warhead section. The resilient-mounted, steel suspension frame assembly is secured to the sides of the base assembly through resilient rubber mountings. A saddle and holddown strap are attached to the suspension frame assembly at the forward end. The container has combination electronic-shielding and weather-sealing gaskets at interface of cover and base assemblies, as well as on all access covers.

NOTE

Included in the missile mating tool kit are two H4244 open end wrenches (figure C-5) used to disengage all tee head bolts that secure shipping and storage container cover and hold down strap.

The container does not utilize a PAI, cable in shipment and storage of the warhead section.

c. Painting and Marking. Olive drab enamel or forest green (camouflage) enamel is used for painting the container. Serial number and lot number of the warhead section are stencilled on the container with white ink. Six 4-inch blue color-coding squares are painted on the container (fig. 1-6).

Table 1-1. Sling Strap and Cable Use

Unit to he lifted	Equipment used
Warhead section M252.	Straps, Part of beam type sling M22.
Shipping and storage container M511 (beam perpendicular to container centerline).	Cables-44-inch (two each at front and rear). Part of f beam type sling M22.
Cover assembly of container M511.	Cables-44-inch (two each at front and rear). Part of beam type sling M22

1-6. Tabulated Data

Warhead section:
Weight (with fuze)..... 469 lb
Length (approx)..... 98.2 in.
Diameter (max) ..... 2 in.
Fuze M819 Series;
Length..... 7.25 in.
Width ..... 5.00 in.
Height. ..... 5.50 in.
Weight ..... 7.0 lb
Setting type..... Alpha readout
Activation ..... Two external signals from G&C section
Power source..... Two self-contained ammonia batteries. 8.3 volts nominal
Explosive ..... None
Temperature range:
Operational ..... -40°F. to +140°F.
Storage ..... 65°F. to +155°F.
Shipping and storage container M511 (approximate data);
Length..... 115.5 in.
Width ..... 36.5 in.
Height ..... 39 in.
Volume ..... 95.2 cu ft
Weight:
Empty ..... 1000 lb
Loaded:..... 1469 lb
Beam-type sling M22:
Weight ..... 62 lb
Length..... 54 in.
DOT shipping designation..... Ammunition nonexplosive

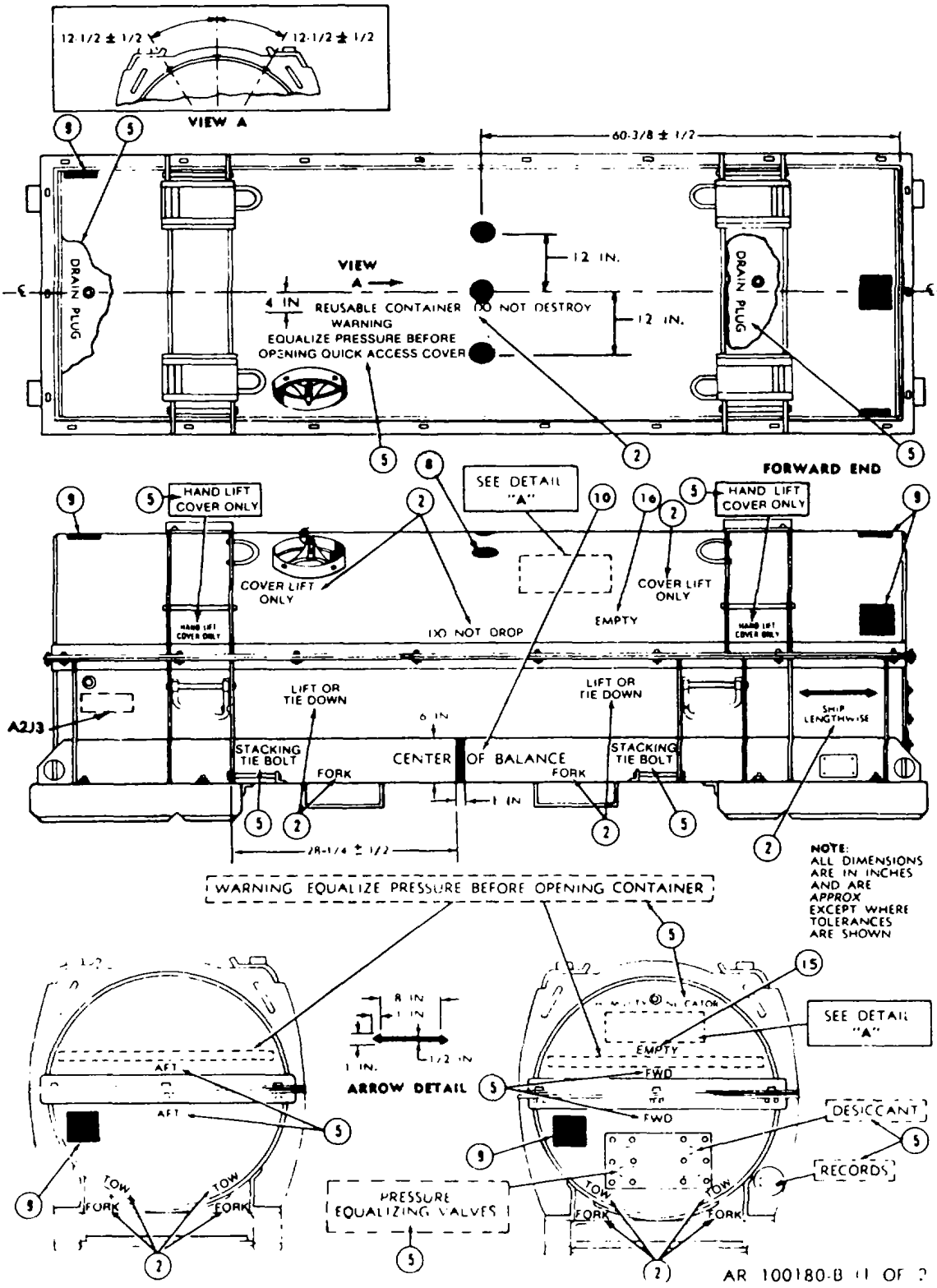


Figure 1-6. Painting and marking--shipping and storage container M511 (1 of 2).

M511 CONTAINER MARKING INSTRUCTIONS

FOR CONTAINER ASSOCIATED WITH ITEM

1 - OBLITERATE WORD "EMPTY" FROM LOCATIONS SHOWN (2 PLACES) IF APPLICABLE.

(2) - MARKING SHALL BE IN 1-INCH HIGH LETTERS.

3 - MARK CONTAINER ON ONE SIDE AND ON ONE END IN ACCORDANCE WITH DETAIL "A" USING 1/2-INCH HIGH LETTERS.

4 - MARK CONTAINER DIRECTLY OPPOSITE ON BOTH SIDES WITH HANDLING INFORMATION SHOWN.

(5) - MARKING SHALL BE IN 1/2-INCH HIGH LETTERS.

6 - MARK "SHIP LENGTHWISE" ARROW IN ACCORDANCE WITH DIMENSIONS SHOWN.

7 - MARK BOTH ENDS OF CONTAINER AS SHOWN.

(8) - MARK 1 INCH DIAMETER DOTS AS SHOWN.

(9) - APPLY SIX 4-INCH SQUARE PATCHES AS SHOWN, USING COLORS SPECIFIED.

(10) - MARK "CENTER OF BALANCE" AS SHOWN (BOTH SIDES), USING 1-INCH HIGH STENCIL.

11 - COLOR TO BE AS SPECIFIED IN CONTAINER MARKING CHART.

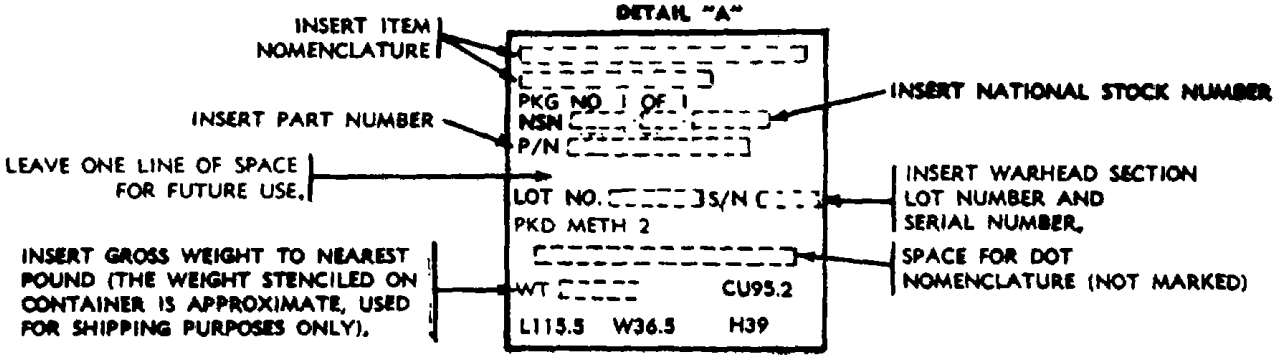
FOR EMPTY CONTAINER

12 - OBLITERATE MARKINGS CALLED FOR IN DETAIL "A," AND 8 AND 9.

14 - COLOR TO BE AS SPECIFIED IN CONTAINER MARKING CHART.

15 - MARK EMPTY WEIGHT (1000 POUNDS) LOCATED IN DETAIL "A" USING 1/2-INCH HIGH LETTERS.

(16) - MARK WORD "EMPTY" IN LOCATION SHOWN (TWO PLACES) USING 1-INCH HIGH LETTERS.



MARKING CHART FOR OLIVE DRAB CONTAINERS

SEE DETAIL	PART NUMBER	ITEM NOMENCLATURE	NATIONAL STOCK NUMBER	EXTERIOR	SQUARES	MARKING
A	10246025	WARHEAD SECTION, GM, PRACTICE: LT WT, M252	1336-00-021-4497-V726	OLIVE DRAB NO X34087 ENAMEL TT-E-516	BLUE NO. 35109 TT-E-516	WHITE NO. 37875 STENCIL INK TT-I-1795

MARKING CHART FOR FOREST GREEN (CAMOUFLAGE) CONTAINERS

SEE DETAIL	PART NUMBER	ITEM NOMENCLATURE	NATIONAL STOCK NUMBER	EXTERIOR	SQUARES	MARKING
A	10246025	WARHEAD SECTION, GM, PRACTICE: LT WT, M252	1336-00-021-4497-V726	ENAMEL: FOREST GREEN (CAMOUFLAGE) MIL-E-52798	BLUE NO. 35109 TT-E-516	WHITE NO. 37875 STENCIL INK TT-I-1795

AR 100180-C (2 OF 2)

Figure 1-6. Painting and marking--shipping and storage container M511 (2 of 2)

CHAPTER 2

HANDLING AND USE

Section I. SAFETY PRECAUTIONS

2-1. General

The lightweight practice warhead sections and practice fuzes are completely inert items. There is no explosive or nuclear hazard in the handling and use of the warhead sections and components. However, the warhead sections are practice warhead sections, safety precautions peculiar to explosive and nuclear warhead sections shall be observed.

2-2. Safety Precautions

Safety requirements appropriate to storage and handling of conventional explosive-type warhead sections also apply to the practice warhead section. There is no equipment or technique peculiar to the warhead sections.

WARNING

Do not place hands or other parts of body under a suspended load. However, hands may be placed under the suspended load when connecting the two bottom swing bolts of warhead section to main missile assemblage.

a. Adhere strictly to all general safety practices to prevent dropping warhead section.

b. Avoid rough or improper handling of practice warhead section.

c. When using handing equipment or hoist, lift practice warhead section or container no higher than required for operation and keep warhead section suspended no longer than necessary.

d. Keep area around warhead section clear of trash, flammable material, or any other material that could interfere with operational safety and efficiency.

e. The warhead section and container will be handled only with issued or approved equipment. The container is designed to protect the warhead section from damage during shipping, handling, and storage. The warhead section, packed in the shipping container, will be lifted only with equipment approved for use on the Lance System. Refer to TM 9-1410-485-12 and TM 9-1450-486-12 for description of equipment and procedure.

f. Be extremely careful not to damage the ogive and not to strike the fuze or drop any tools or other metal items on the fuze when the ogive is opened.

g. The fuze shall not be removed from the warhead section.

h. When mating or demating, place a block of wood approximately 4 inches X 4 inches X 24 inches between interface surfaces of the warhead section and missile main assemblage when connecting or disconnecting cable.

i. Exercise care, especially during handling, unpacking, and packing, to avoid denting or otherwise damaging a warhead section. A warhead section should be handled only with beam type sling M22, and when removed from container, should be placed on a Lance maintenance stand. Containers will not be tumbled, rolled, dropped, or otherwise roughly handled.

j. Before initiating any operation involving a warhead section, an adequate unit standing operating procedure (SOP) should be prepared. Personnel concerned should be aware of the contents of the unit SOP which will include, as a minimum, the following information.

(1) Specific and general safety requirements applicable to the operation and situation.

(2) Personnel limits.

(3) Location and sequence of operations.

(4) Required equipment.

(5) Supervisory designations.

k. The following minimum safety requirements must be observed during transport of warhead sections:

(1) Except in an emergency. do not perform maintenance on any vehicle carrying a warhead section.

(2) Prior to loading and unloading operations, set vehicle brakes and block rear wheels on both sides.

(3) Shut down vehicle engine during loading and unloading operation.

(4) Any time a loaded vehicle is stopped, set brakes. On multifuel/diesel vehicles place gear shift in neutral and on gasoline engine vehicles, place gear shift in 1st gear.

l. The following general precautions establish the minimum safety requirements and precautions that must be observed in the use of tools and handling equipment. Prevention of accidents during

mechanical operations is dependent upon proper instruction and training of personnel, adequate maintenance and inspection of equipment, and observation of safety precautions. Lack of proper maintenance and inspection of materiel handling equipment may result in defects which can present a hazardous condition when such equipment is in use.

(1) Defective tools or equipment will not be used.

(2) No item of materiel handling equipment will be used for other than its intended purpose.

(3) A warhead section or container will not be left unattended when suspended from a hoist or other elevating mechanism.

m. The area around the storage location or assembly area will be kept clear of loose equipment, tools, trash, flammable materials, or any other material which could interfere with the safety and efficiency of the operation.

n. All tools and equipment will be kept in their proper locations when not in use.

Section II. INSPECTION

2-3. General

a. This section outlines inspection procedures required for the warhead section and the shipping and storage container. The purpose of the following inspections is to assure that materiel is acceptable for its intended use:

(1) Receipt Inspection.

(2) Premate and Mate Inspection.

(3) Prefire Inspection.

(4) Repackaging Inspection.

b. All rejected material shall be reported for disposition on DA Form 2415 (Ammunition Condition Report) in accordance with TM 38-750.

2-4. Receipt Inspection

a. When a warhead section is received from a supporting unit or when there is a change of custody, the receiving organization will perform a receipt inspection in accordance with Table 2-1.

b. The receipt inspection is a container exterior inspection only. However, containers may be opened, if desired, for internal inspection at the discretion of the unit Commander.

Table 2-1. Receipt Inspection

Item	Inspection	Action to be taken
1. Shipping and Storage Container Exterior (fig. 1-4).	*a*. Lead seals missing or broken.	*a*. If defect cannot be accounted for. report defect in accordance with local directives.
	b. Container deformed, punctured, or structurally damaged.	*b*. If damage to warhead section is suspected as a result of damage, reject container and contents and report for disposition.
	c. Lift bars/stacking brackets cracked. broken, or loose.	*c*. Reject container and report for disposition.
	d. Lift handles cracked. broken, or loose.	*d*. Reject container and report for disposition.
	e. Lift handle clips unserviceable or missing.	*e*. Straighten; replace.
	f. Markings do not agree with figure 1-6, or illegible.	*f*. Touch up; if extensive remarking is required, notify support unit.
	g. Humidity indicator card reads 40 percent or more (criteria for tactical warhead section is 30 percent).	*g*. Replace card and desiccant.
	h. Equipment Maintenance Log (DA Form 2409) missing from records container. NOTE Records container does not have wrenches H4244.	*h*. Replace.
	i. Quick access cover loose; missing; unserviceable.	*i*. Tighten; recement or replace gasket; Replace cover.
	j. Fork lift guides unserviceable.	*j*. Notify support unit.
	k. Wooden runner (skid) unserviceable. (1) a. Cracks up to 5 inches long which extend through skid. b. Skid loose. (2) a. Cracks more than 5 inches long which extend through skid. b. Skid broken or worn more than 1/3 of load bearing surface.	*k*. (1) *a*. Repair *b*. Torque bolts to 30±5 foot-pounds. (2) *a* and *b*. Replace.

Table 2-1. Receipt Inspection-Continued

Item	Inspection	Action to be taken
1. Shipping and Storage Container Exterior (fig. 1-4). -Continued.	(3) Cracks which do not extend through skids will be considered season checks and are acceptable.	(3) No action required.
	l. Peeling or inadequate paint, scratches.	*l.* Touch up with present paint color or notify support unit.
	m. Fungus or other foreign material.	*m*. Clean. If paint damage is extensive, notify support unit.
	n. Cover (A2J3) missing.	*n*. Replace.
	o. Missing or unserviceable hardware (i.e., tee head bolts, stacking bolts).	*o*. Replace. Torque stacking bolts to 10 ± 2 foot-pounds with 3/4 inch wrench in stowed position.
	p. Corrosion.	*p*. Clean and touch-up with present paint color. If extensive, notify support unit.
	q. Defective welds on lift handle vertical flanges near lift handle (i.e., cracked, visible holes, or length of weld too short). **NOTE Does not include weld on sealing flanges. See figure 4-2.**	*q*. Notify support unit.
	r. Records container cover loose; cover disk or gasket missing, loose, or unserviceable.	*r*. Tighten; replace. Replace disk with gasket.
	s. Humidity indicator plug/card unserviceable.	*s*. Replace.
	t. Pressure equalizing valve(s) damaged.	*t*. Replace.
	u. Desiccant access cover loose.	*u*. Tighten. Inspect shielding gasket; re-cement or replace.

2-5. Premate and Mate Inspection

Before a container is opened for the purpose of removing a warhead section for mating to the missile main assemblage, the using organization will perform inspection of item 1 in Table 2-2, Premate and Mate Inspection. The container will then be opened to accomplish the inspection of item 2 of Table 2-2. Perform touch-up of warhead section and correction of sling marks as time permits.

Table 2-2. Premate and Mate Inspection

Item	Inspection	Action to be taken
1. Shipping and Storage Container Exterior (fig. 1-4).	*a*. Lead seals missing or broken.	*a*. If defect cannot be accounted for, report defect in accordance with local directives.
	b. Container deformed, punctured, or structurally damaged.	*b*. If damage to warhead section is suspected as a result of damage, reject container and contents and report for disposition.
2. Warhead Section.	*a*. Markings do not agree with figure 1-2; or illegible.	*a*. Touch up; if extensive remarking is required, notify support unit.
	b. Sling strap locations incorrect (fig. 1-2).	*b*. Correct.
	c. Punctures.	*c*. Reject warhead section and report for disposition.
	d. Dents in nose cone.	*d*. Replace.
	e. Nose cone studs loose, or missing.	*e*. Tighten; replace.
	f. Dents in skin beyond nose cone which exceed either 3/16 inch deep or 6 inches long.	*f*. Reject warhead section, and report for disposition.
	g. Swing bolts or swing bolt covers (station 100) unserviceable, missing, or loose.	*g*. Replace; torque swing bolt cover screws to 25 ± 5 inch-pounds.
	h. Alignment and shear pins loose, missing, or unserviceable.	*h*. Tighten; replace.
	i. Bulkhead (station 100) punctured or deformed.	*i*. Reject warhead section and report for disposition.
	j. Connector cover (station 100) missing or unserviceable.	*j*. Replace.
	k. Connector (station 100) unserviceable.	*k*. (1) Straighten bent pins; (2) Reject warhead section and report for disposition.

Table 2-2. Premate and Mate Inspection - Continued

Item	Inspection	Action to be taken
	l. Aft RF seal (station 100) loose or unserviceable. *m.* PAL connector cover loose, damaged, or missing. *n.* PAL connector cover cannot be seated and/ or secured.	*l.* Notify support unit. *m.* Inspect seal; replace if unserviceable Tighten cover to matchmark with 1/4-inch square drive wrench. *n.* Replace.

2-6. Prefire Inspection

When a warhead section is mated to the missile main assemblage and in location for firing, the firing crew will perform a prefire inspection in accordance with table 2-3.

Table 2-3. Prefire Inspection

Item	Inspection	Action to be taken
1. Warhead section; nose cone removed.	*a.* Fuse M819E1 damaged.	*a.* Demate and reject warhead section. Report for disposition in accordance with TM 38-750.
	b. SECO (sometimes marked SCO) dial damaged or stuck (Knob locking latch opened).	*b.* Demate and reject warhead section. Report for disposition in accordance with TM 38-750.
	c. Fuse loose.	*c.* Tighten four cross slotted screws to 20 to 25 inch-pounds.
	d. Nose cone dented.	*d.* Replace.
2. Warhead section; nose cone	*a.* Punctures. installed.	*a.* Demate and reject warhead section. Report for disposition,
	b. Warhead section visibly out of concentricity. for disposition.	*b.* Demate and reject warhead section. Report
	c. Nose cone improperly attached; any one of eight studs loose or missing.	*c.* Replace; tighten studs.

2-7. Repackaging Inspection

If a warhead section is demated and repackaged, a two-phase inspection is required, Initially, the container and demated warhead section are inspected prior to repacking. Then, the closed container is inspected. Repackaging inspection is conducted in accordance with table 2-4.

Table 2-4. Repackaging Inspection

Item	Inspection	Action to be taken
1. Shipping and storage con- ner inteior (fig. 3-4).	*a.* Container cover shielding gasket loose or unserviceable.	*a.* Recement or replace.
	b. Container cover alignment pins (2) bent,	*b.* Straighten.
	c. Container cover alignment pins (2) missing or broken.	*c.* Notify support unit,
	d. Cushioning pads unserviceable / missing	*d.* Repair; replace.
	e. Drain plug(s) loose or missing.	*e.* Tighten; replace. Torque to 25 +3 foot-pounds.
	f. Suspension frame assembly unserviceable.	*f.* Reject container and report for disposition
	g. Resilient mounts for suspension frame as- sembly unserviceable.	*g.* Notify support unit,
	h. Support plate loose.	*h.* Torque to 30 ± 5 foot pounds.
	i. Peeling or inadequate paint. **NOTE** **Do not inspect hardware box or adjacent brackets.**	*i.* Touch up or notify support unit.
	j. Fungus, or other foreign material.	*j.* Clean. If paint damage is extensive, notify support unit.
	k. Nonmetallic channel under holddown strap or on saddle damaged or missing.	*k.* Replace.
	l. Corrosion.	*l.* Clean and touch-up. If extensive notify support unit.

Table 2-4. Repackaging Inspection - Continued

Item	Inspection	Action to be taken
2. Warhead section.	*a*. Markings do not agree with figure 1-2 or 1-3, or illegible.	*a*. Touch up; if extensive remarking is required, notify support unit.
	b. Sling strap locations incorrect (fig. 1-2).	*b*. Correct.
	c. Punctures.	*c*. Reject warhead section, and report for disposition.
	d. Dents in nose cone.	*d*. Replace.
	e. Dents in skin beyond nose cone which exceed either 3/16-inch deep or 6-inches long.	e. Reject warhead section and report for disposition.
	f. Swing bolts or swing bolt covers (station 100) unserviceable, missing, or loose.	*f*. Replace; torque swing bolt cover screws to 25 ±5 inch-pounds.
	g. Alignment and shear pins loose, missing, or unserviceable.	*g*. Tighten; replace.
	h. Bulkhead (station 100) punctured or deformed.	*h*. Reject warhead section and report for disposition.
	i. Connector cover (station 100) missing or unserviceable.	*i*. Replace.
	j. Connector (station 100) unserviceable.	*j*. (1) Straighten bent pins; (2) Reject warhead section and report for disposition.
	k. Aft RF seal (station 100) loose or unserviceable.	*k*. Notify support unit.
	l. PAL connector cover loose, damaged, or missing.	*l*. Inspect seal; replace if unserviceable. Tighten cover with 1/4-inch square drive wrench.
	m. PAL connector cover cannot be seated and / or secured.	*m*. Replace.
	n. Fungus or foreign material.	*n*. Clean. If paint damage is extensive, notify support unit.
	o. Peeling or inadequate paint.	*o*. Touch up with present paint color, or notify support unit.
	p. Rust or corrosion.	*p*. Clean and touch up with present color extensive, notify support unit.
	q. Scratches.	*q*. Touch up with present paint color.
3. Shipping and Storage Container Exterior (fig. 1-4).	*a*. Lead seals missing or broken.	*a*. Replace.
	b. Container deformed, punctured, or structurally damaged.	*b*. Reject container and report for disposition.
	c. Lift bars/stacking brackets cracked, broken, or loose.	*c*. Reject container and report for disposition.
	d. Lift handles cracked, broken, or loose.	*d*. Reject container and report for disposition.
	e. Lift handle clips unserviceable or missing.	*e*. Straighten; replace,
	f. Markings do not agree with figure 1-6 or illegible.	*f*. Touch up; if extensive remarking is required, notify Support Unit.
	g. Equipment Maintenance Log (DA Form 2409) missing from records container. (Note-Records container does not have wrenches H4244.)	*g*. Replace.
	h. Quick access cover loose, missing; unserviceable.	*h*. Tighten. Recement or replace gasket. Replace cover.
	i. Forklift guides unserviceable.	*i*. Notify Support Unit.
	j. Wooden runner (skid) unserviceable.	*j*.
	(1) *a*. Cracks up to 5 inches long which extend through skid.	(1) *a*. Repair.
	b. Skid loose.	*b*.. Torque bolts to 30 ± 5 foot-pounds.
	(2) *a*. Cracks more than 5 inches long which extend through skid.	(2) *a* and *b*. Replace.
	b. Skid broken or worn more than 1/3 of load bearing surface.	
	(3) Cracks which do not extend through skids will be considered season checks and are acceptable.	(3) No action required.
	k. Peeling or inadequate paint, scratches.	*k*. Touch up with present paint color or notify support unit.

Table 2-4. Repackaging Inspection--Continued

Item	Inspection	Action to be taken
3. Shipping and Storage Container Exterior (fig. 1-4). -Continued	*l*. Fungus, or other foreign material.	*l*. Clean. If paint damage is extensive, notify support unit.
	m. Corrosion.	*m*. Clean and touch up with present paint color. If extensive, notify support unit.
	n. Cover (A2J3) missing.	*n*. Replace.
	o. Missing hardware (i.e., tee head bolts, stacking bolts).	*o*. Replace. Torque stacking bolts to 10 ± 2 foot-pounds with 3/4 inch wrench.
	p. Defective welds on lift handle vertical flanges near lift handle (i.e., cracked, visible holes, or length of weld too short) (Note: Does not include weld on sealing flanges). See figure 4-2.	*p*. Notify support unit.
	q. Records container cover loose; cover disk or gasket missing, loose, or unserviceable.	*q*. Tighten; replace. Replace disk with gasket.
	r. Humidity indicator plug/card unserviceable.	*r*. Replace.
	s. Pressure equalizing valve(s) damaged.	*s*. Replace.
	t. Desiccant access cover loose.	*t*. Tighten. Inspect shielding gasket; recement or replace.

Section III. PREPARATION FOR USE

2-8. General

This section contains procedures for unpacking the warhead section from the shipping and storage container and mating it to the missile main assemblage.

2-9. Unpackaging Warhead Section From Container (fig. 2-1)

a. (Receipt Inspection Perform receipt inspection (table 2-1), if required.

b. Shipping and Storage Container. Open shipping and storage container, as follows:

(1) Inspect container in accordance with table 2-2, item 1.

(2) Remove metallic seals, if present.

(3) Depress buttons on pressure relief valves to equalize pressure.

(4) Release side tee head bolts, then end bolts, that secure container cover to base. Each bolt is released by turning tee head counterclockwise 90 degrees with wrench H4244 until bolt falls into slot in container cover assembly, or by loosening nuts underneath with a 3/4-inch socket wrench until bolts can easily be turned 90 degrees.

CAUTION

Use extreme care when removing container cover assembly to avoid damaging warhead section.
When container is moved with hoist and sling, use lifting bars on sides of base assembly. Do not use cover lift bars on cover assembly to lift container.

NOTE

If desired, the container cover may be manually removed, using four or more individuals. If so accomplished, proceed to (6) below.

(5) Using beam type sling M22, (fig. 2-2), position sling over container and perpendicular to container's length. Connect sling to hoist or other suitable lifting device. Attach four sling cables (44 inch) to four cover lift bars and remove container cover by lifting straight up until cover is clear of warhead section. Place cover on dunnage out of immediate work area and retain for future use.

(6) Using wrench H4244, turn four tee head bolts holding holddown strap to suspension frame saddle by rotating away from warhead section.

Remove holddown strap.

(7) Perform as much of premate and mate inspection as is practical (Table 2-2, item 2, a thru f, m and n).

c. Attaching Beam Type Sling to Warhead Section.

(1) Prepare sling for attachment to warhead section by installing sling straps and guide lines on sling beam (fig. 2-1).

(2) Lower sling until beam is slightly above warhead section. Loop two sling straps under warhead section, aligning rear strap between aft strap location marks. (Rear strap is the strap with only one connector loop.) Align forward strap between forward strap location marks. (Forward is the strap with two connector loops.)
(3) Position two sling straps in proper positions around warhead section as follows:

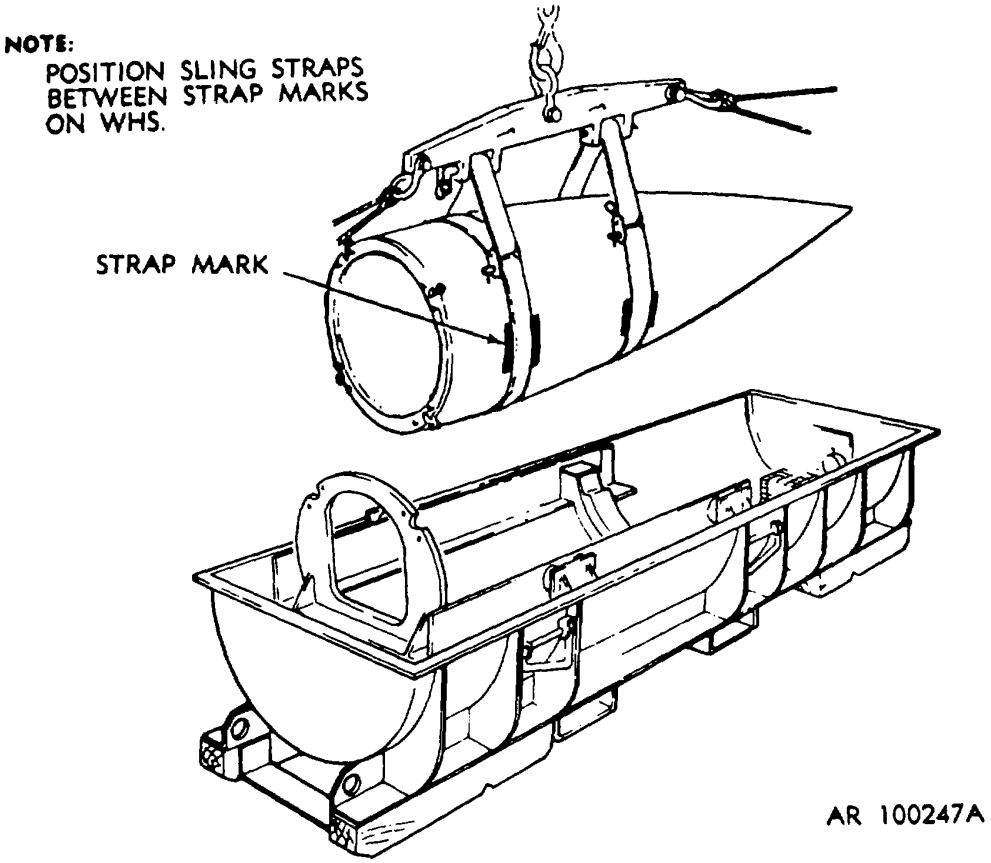


Figure 2-1. Removing warhead section from container.

(a) Connect rear strap loop-to buckle by pulling inside part of strap with buckle over the top of the warhead section to make connection. Position .straps so that buckle is at the side of the warhead section.

(b) Connect forward strap in the second connector loop of strap, resulting in a smaller of the available diameters. Ensure both straps are located at their appropriate markings on the warhead sections (fig. 2-1).

d. Removing Warhead Section from Container.

CAUTION

Do not continue to loosen swing bolt nuts after stop pin has been reached or nut will become locked over stop pin.

(1) Loosen the swing bolt assembly nuts with a 12 point, 13/16 inch, deep socket wrench in the following order: Loosen nut on each of two swing bolts at top of station 100 to stop pin. Swing each bolt outward into fully extended position. Then loosen nut on each of two bottom swing bolts at station 100 to stop pin. Swing each bolt outward into fully extended position.

(2) Apply more tension oil sling so that warhead section can be moved forward. This will disengage warhead section pins from container support plate.

WARNING

While removing a warhead section from a container, do not place hands or other parts of body under a suspended warhead section.

(3) Lift warhead section clear of container.

(4) Complete inspection of warhead section in accordance with Table 2-2, item 2. a and c thru l.

2-10. Mating Warhead Section to Missile Main Assemblage

NOTE

The firing platoon commander is required to have in his possession a protective cover and flag assembly from the 1A1J1 cable connector for each mated missile in his platoon.

a. Mate warhead section to missile main assemblage in accordance with procedures given in TM 9-1410-485-12.

b. Repackage empty container in accordance with paragraph 2-16 as soon as tactically possible.

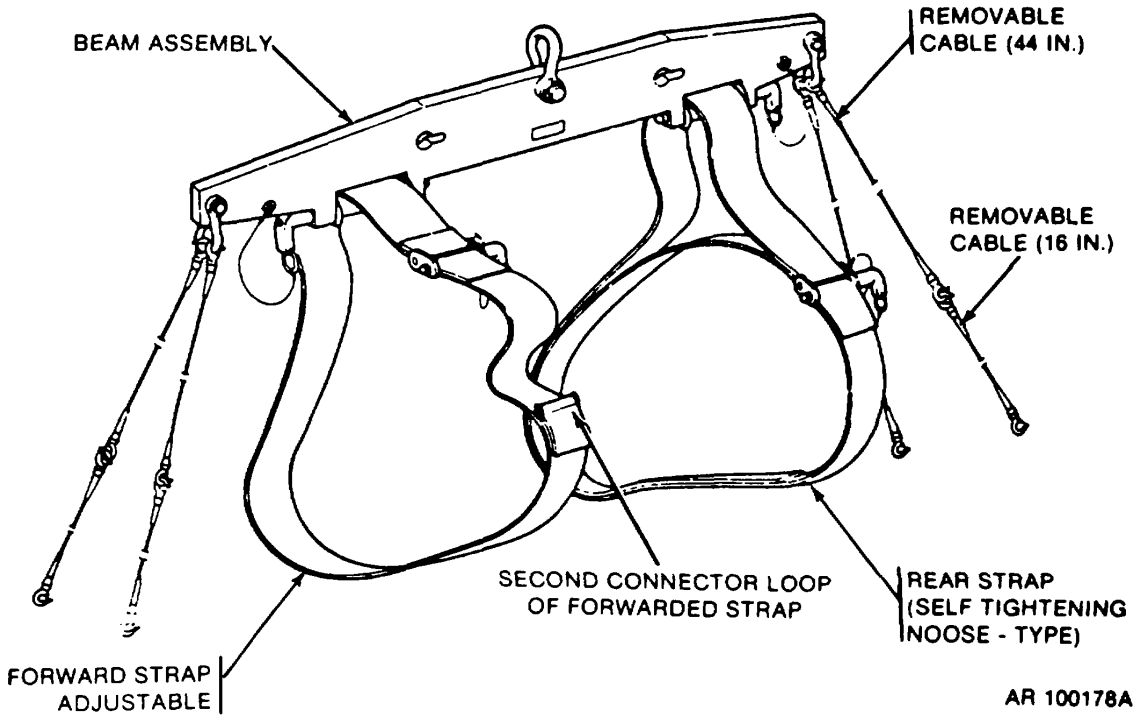


Figure 2-2. Beam-type sling M22.

Section IV. PREPARATION FOR FIRING

2-11. Fuze Setting

a. Remove nose cone by unscrewing eight studs which attach it to warhead section.

CAUTION

Do not damage the two DOVAP cable connectors which extend from the fuze mounting bulkhead. (These cables are for special instrumentation and are not required for a normal practice firing.)

b. Conduct prefire inspection (table 2-3, item 1) on warhead section.

NOTE

Window in fuze is nonoperational. This fuze does not arm.

c. Pull out knob locking latch to release setting knobs.

NOTE

The four knobs marked EVENT and the knob marked ARM have no function on the fuze. These knobs will normally be set and left in the 000.0 and 80 positions, respectively, although this is not mandatory.

d. Set fuze to desired SECO (or SCO) time by selecting one of 10 letters; as directed. Close knob locking latch.

e. Reinstall nose cone by placing over fuze mounting bulkhead and aligning white arrow match-marks. Install eight studs with screwdriver, until tight.

f. Conduct prefire inspection (table 2-3. item 2).

2-12. Change in Target Requirement

In case of a change of target which would effect SECO (or SCO) time, the fuze setting may be changed at any time prior to firing.

2-13. Safing Warhead Section

a. General. The warhead section, being inert, does

not have to be "safed" in the conventional sense of the term, but to be consistent with its practice function, a safing procedure will be performed subsequent to the following occurrences:

(1) Cancelled firing.
(2) Traverse limited/change fire.
(3) Cease fire march order.
(4) NC-GO.
(5) Misfire.
(6) Hangfire.

b. Procedures. Procedures applicable to a mated missile in the event of one of the above occurences are described in TM 9-1425-485-10-2, safe warhead section as prescribed below.

(1) Remove nose cone.

(2) Reset fuze SECO (or SCOT to letter N (off). Close knob locking latch.

(3) Reinstall nose cone in accordance with paragraph 2-11*e*.

c. Fuze Replacement. In the event of a misfire or hangfire, power supplied to the missile may have activated fuze batteries and caused the batteries to be expended. Do not attempt to refire the affected warhead section, except as authorized by TM 9-1425-485-10-2. Demate the affected warhead section and report for disposition in accordance with DA Pam 738-750.

Section V. REPACKAGING AND INSPECTION

2-14. Demating Warhead Section

Demate warhead section from missile main assemblage in accordance with procedures outlined in TM 9-1410-485-12.

2-15. Repackaging Warhead Section

a. Inspect warhead section and container in accordance with table 2-4. Insure container is clean and dry.

b. With warhead section in sling M22, suspend warhead section above container.

CAUTION

Care should be taken in loosening swing bolt assembly nuts so that nuts are not backed over stop pins.

c. Loosen the four swing bolt nuts on warhead section to the stop pins to facilitate repackaging.

d. Swing the four swing bolts all the way out.

e. Lower the warhead section into position until shear pins and alignment pins can be guided into the holes of the support plate. Engage top two swing bolts into the slots in the support plate and tighten until station 100 of warhead meets support plate. Lower the nose of the warhead into the container saddle. Engage and secure bottom two swing bolts.

f. Torque all swing bolt nuts to 75 ± 5 foot-pounds. Any pair of nuts diametrically opposed can be torqued first, followed by torquing of remaining pair.

g. Remove M22 sling.

h. Place holddown strap across warhead section and secure with four tee head bolts. Turn and tighten the four tee head bolt nuts to 30 ± 5 foot-pounds with 3/4-inch socket wrench. Any pair of nuts diametrically opposed can be torqued first, followed by torqueing of remaining pair.

i. Place 64 units of fresh or reactivated desiccant into desiccant basket. Assure that base assembly flange is free of foreign material.

j. Replace humidity indicator card.

k. Install container cover assembly and turn all tee head bolts to lock position.

l. Torque the 22 tee head bolt nuts to 35 ± 5 foot-pounds. Two individuals should accomplish this, starting in opposite corners, and working around the container in the same direction. If desired, this may be accomplished by four individuals (two pairs). In each pair, one individual shall use an H4244 wrench to hold the top of the teehead bolts while the other individual torques the nut.

m. Install lead seals on container as required (fig. 1-4).

n. Apply a thin coat of primer (TT-P-664) to exposed threads of the tee head bolts.

o. Perform repackaging inspection (table 2-4) on container.

2-16. Repackaging Empty Container

a. Install hold down strap using H4244 wrench and a socket wrench, torque four tee head bolts to 5 to 10 foot-pounds.

b. Assure that container cover flange is free of foreign material.

c. Perform 2-15*k* and *l* above, except torque each nut to 5 to 10 foot-pounds.

d. Apply a thin coat of primer (TT-P-664) to exposed threads of tee head bolts.

e. The using unit shall tag container in such a manner that is readily 'identified as an empty container. Do not obliterate markings on exterior of container. Do not remove tag if empty container is to be returned to the ordnance support unit.

f. Upon receipt of an empty container from a using unit, the support unit shall remove tag and apply markings in accordance with figure 1-6.

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CHAPTER 3

ORGANIZATIONAL MAINTENANCE

Section I. REPAIR PARTS, TOOLS, AND EQUIPMENT

3-1. General

Repair parts, tools, and equipment are issued to the using unit for operating and maintaining the warhead section. Tools and equipment should not be used for purposes other than those prescribed and, when not in use, should be stored properly. The use of unauthorized tools and equipment could damage the materiel. When using a torque wrench or torque screwdriver do not select a wrench or screwdriver that requires torque values to be read below 20 percent of the full scale value.

3-2. Repair Parts

Repair parts are supplied to the using organization for replacement of those parts that become worn, broken, or otherwise unserviceable, provided replacement of these parts is within the scope of organizational maintenance. These repair parts are listed in appendix C, which is the authority for requisitioning.

3-3. Common Tools and Equipment

Standard and commonly used tools and equipment having general application to the warhead section are authorized for issue by tables of organization and equipment or by tables of allowances.

3-4. Special Tools and Equipment

a. Tools. Special tools and equipment authorized for issue to using unit personnel for use with the warhead section are listed in appendix C. The authority for requisitioning are the tables of organization and equipment and appendix C. A brief description of the Lance maintenance stand is given below.

b. Lance Maintenance Stand. The Lance maintenance stand (fig.C-6) may be used to support the warhead section for maintenance work. It is fabricated locally, of wood, by the supporting unit.

c. Beam-Type Sling M22.

(1) The beam-type sling M22 is a multipurpose piece of hoisting equipment used in conjunction with either the loader transporter or the tripod hoist. The sling consists of an aluminum-alloy beam assembly, two strap assemblies, and removable cables on either end of the beam assembly.

(2) The strap assemblies are used for lifting warhead sections, missile main assemblages, or complete missile rounds. One strap assembly is adjustable and the other is of a noose-type construction, which functions by tightening as lifting force becomes greater. The noose-type strap assembly will prevent load slippage in the event the sling beam is not positioned directly over the center of gravity (CG) of an item being lifted.

(3) Six 16-inch and four 44-inch removable cables are included with each sling. The cables are used in various combinations with each other, depending on the item to be lifted, and are used to lift main assemblage containers, warhead section containers, or the basic launch fixture.

(4) Either olive drab enamel or forest green camouflage enamel is used for painting the sling. Serial No., Stock No., Part No., Contract No., and the letters, US, appear on a metal decal on the front of the beam; a white stencil on the back indicates the load test.

Section II. MAINTENANCE INSTRUCTIONS

3-5. General

a. Maintenance functions prescribed for the warhead section and container M511 are authorized in the Maintenance Allocation Chart (App. B).

b. Some repairs may be performed on the warhead section while it is resting on the suspension frame assembly of the shipping and storage container (cover removed). These repairs include those which are performed on the upper, more accessible, part of the warhead section. Other repairs may require removal of warhead section to a Lance maintenance stand (fig. C-6). Warhead section may be rotated, if necessary, in sling before placing on stand.

c. Perform unpackaging and repackaging procedures in accordance with chapter 2, as applicable.

3-6. Expendable Materials

Expendable materials authorized for painting, cleaning, preserving, and other maintenance related operations for the warhead section and the shipping and storage container are listed in appendix D.

Section III. WARHEAD SECTION

3-7. Removal/Replacement of Swing Bolts and Bolt Covers

a. Remove two screws from bolt cover and remove cover (fig. 3-1).

b. Remove bolt from its recess.

c. Assemble serviceable washer, nut, pin, and bolt; insert assembled bolt into its recess.

d. Install serviceable bolt cover and secure with two screws. Torque screws to 25 ± 5 inch-pounds.

3-8. Removal/Replacement of Shear Pins and Alignment Pins (Headless Shoulder Pins)

Remove or install pins as shown in figure 3-2. Install until pin is tight. Assure pin is fully seated.

3-9. Removal/Replacement of Nose Cone

a. Removal.

CAUTION

Do not damage the two DOVAP cable connectors which extend from the fuze mounting bulkhead.

Remove nose cone from warhead section by removing the eight studs.

b. Installation. Secure replacement nose cone and place over fuze mounting bulkhead. Install eight studs with screwdriver until tight. Nose cone may have to be rotated for all eight holes on nose cone to align with stud receptacles on fuze mounting bulkhead.

c. Painting. Paint arrow on top of nose cone to align with that on warhead section (fig. 1-2).

3-10. Connector 1A1J1 at Station 100

CAUTION

To prevent possible electrostatic damage to the warhead section fuze, the connector pins must not be touched, except with a non-conducting, non-metallic tool or through the insulated handles of the authorized smooth jaw needle nose pliers.

a. Carefully straighten bent electrical connector (pin(s) using smooth jaw needle nose pliers.

b. Pins may be straightened without regard to number bent, providing correct mating or connector results.

c. Reject warhead section if pins are broken or missing.

3-11. Cleaning and Painting

a. Remove foreign material in accordance with table 3-1.

b. Touch up warhead section paint and/or markings in accordance with instructions in figure 1-2.

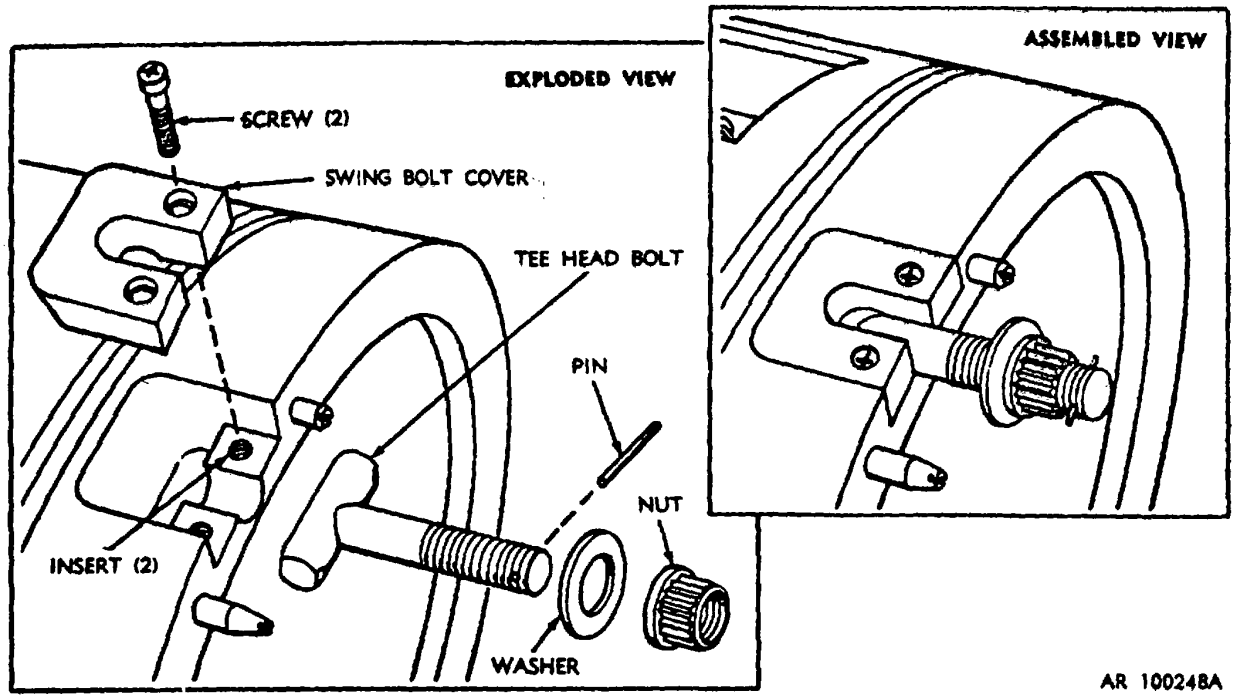


Figure 3-1. Removal/replacement of swing bolts and bolt covers.

Apply metal pretreatment and primer coating to exposed bare metal. Different shades of paint are permitted provided specification requirements are met.

c. If warhead section requires extensive painting or remarking, notify support unit.

Table 3-1. Cleaning.

WARNING
Use toluene only in a ventilated area.

Foreign material	Cleaning method
Rust and Corrosion.	Use abrasive cloth, paper, or wire brush until bright metal surfaces are exposed. Prevent particles from entering interior areas. Wipe surfaces with a clean cloth moistened with cleaning compound.
Adhesive, rubber sealing compound, grease and oil on unpainted surfaces.	Use a clean cloth moistened with cleaning compound. Remove adhesive or rubber sealing compound using a clean cloth moistened with toluene.
Mud, salt water, grease, or oil on painted surfaces.	Use a soft clean cloth moistened with detergent and water. Avoid getting water or detergent in interior areas.
Fungus.	Use a clean cloth moistened with alcohol and water solution (60 to 70 percent alcohol).

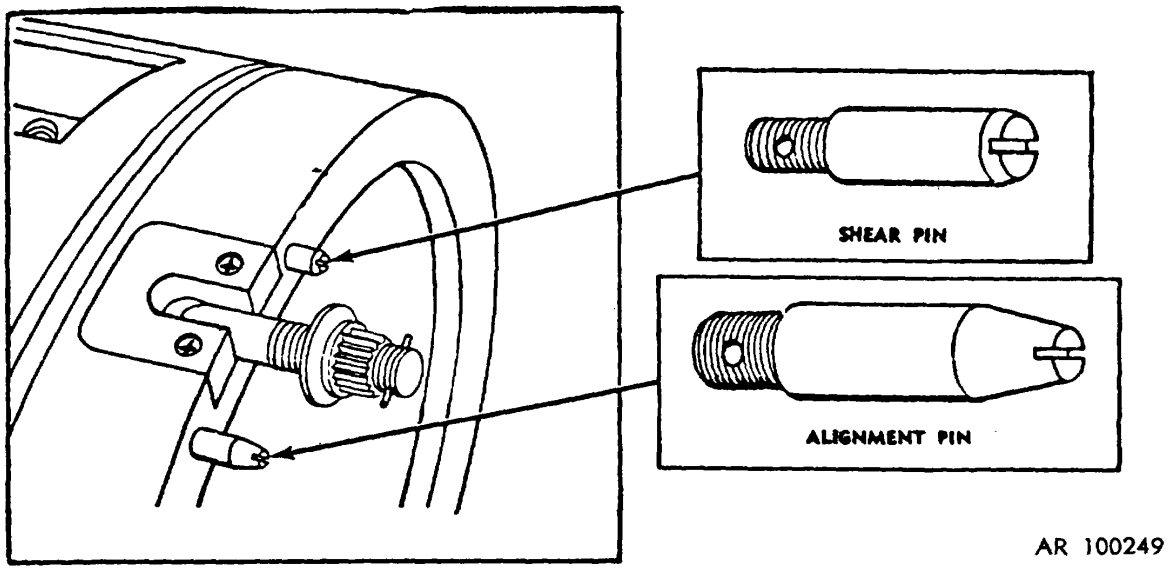


Figure 3-2. Remove/replacement of shear pins and alignment pins.

Section IV. SHIPPING AND STORAGE CONTAINER

3-12. Removal/Replacement of Humidity Indicator Card/Plug

a. Depress buttons on pressure equalizing valve to vent container.

b. Replace humidity indicator card/plug in accordance with c through j and figure 3-3.

c. Using a 1 3/8-inch socket wrench, rotate indicator housing counterclockwise until it is free of container.

d. While holding indicator housing, insert a 1/2-inch hexagon head wrench in retaining ring. Turn retaining ring counterclockwise until it is free of indicator housing. Remove retainer ring.

e. Remove all components from humidity indicator

plug as shown in figure 3-3.

f. Inspect packing, window, washer (nonmetallic), shield, washer, ring, and gasket. If any of these components is unserviceable, replace the plug.

g. Place packing and window in housing. Install new humidity indicator card.

h. Reassemble humidity indicator plug in accordance with figure 3-3. Tighten retaining ring to 75 ± 5 inch-pounds torque. Install humidity indicator plug in container and torque to 22 ± 2 foot-pounds.

i. Allow 24 hours for humidity indicator to stabilize after closing container.

3-13. Removal/Replacement of Pressure Equalizing Valves

a. Depress buttons on pressure equalizing valves to vent the container.

b. If container cover is installed, remove desiccant access cover (fig. 3-4) on which valves are installed.

c. Using 1 3/8-inch wrench, rotate head of valve counterclockwise until it is free of desiccant access cover.

d. Assure that replacement valve gasket is serviceable. Install replacement valve and gasket in desiccant access cover and tighten. Tighten nuts and washers on inner side of desiccant access cover. Torque valve nut to 135 ± 5 inch-pounds.

e. Install desiccant access cover. Secure cover with 10 nuts and washers. Torque diagonally opposed nuts to 135 ± 5 inch-pounds. Install two lead seals.

3-14. Removal/Replacement of Container Desiccant

a. Depress buttons on pressure equalizing valves to vent the container.

b. Remove desiccant access cover with 1/2-inch wrench to gain access to desiccant basket (fig. 3-4).

c. Remove and replace desiccant with fresh desiccant (eight 8-unit bags or equivalent).

d. Install desiccant access cover and secure with 10 nuts and washers. Torque diagonally opposed nuts to 135 ± 5 inch-pounds. Install two lead seals in opposite corners of flange where holes are provided.

3-15. Removal/Replacement of Tee Head Bolts

This procedure is applicable to 22 tee head bolts that secure container cover, as well as four tee head bolts that secure saddle holddown strap (fig. 3-4).

a. Using wrench H4244 and a 3/4-inch socket wrench, remove nut and washers from tee head bolt; remove bolt.

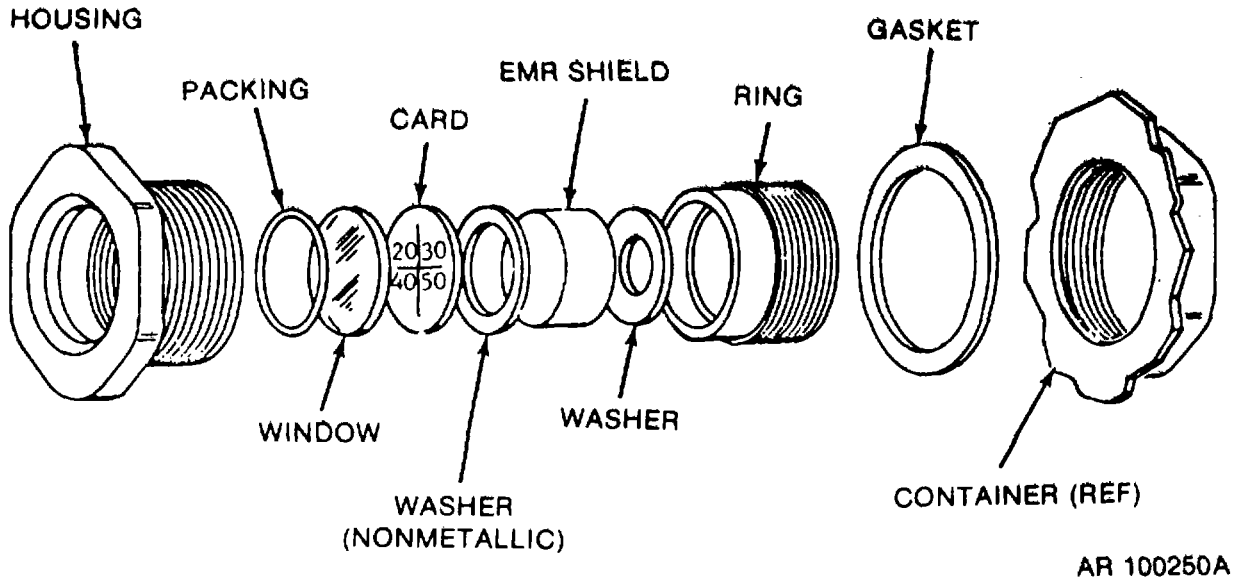


Figure 3-3. Removal/replacement of humidity indicator card/plug.

b. Install replacement tee head bolt.

c. Install flat washer, lock washer, and nut on tee head bolt.

3-16. Recementing/Replacement of Shielding Gaskets

WARNING

Use of gloves is required. Fine wire mesh imbedded in gasket surface may injure hands. Use toluene only in a ventilated area.

a. Using nonmetallic tool, remove shielding gasket from its seating groove (fig. 3-4).

b. Using nonmetallic tool, clean old adhesive from groove and gasket surfaces. Use clean cloth moistened with toluene to complete cleaning process. Do not permit toluene to contact any more painted surface than is necessary.

c. Apply adhesive to groove and adhering surfaces as follows:

(1) When installing shielding gasket on flange of container, apply adhesive to a 2-inch area, spaced at 14-inch intervals, along groove and adhering surfaces.

(2) When installing shielding gasket on desiccant access cover opening, apply adhesive to all groove and adhering surfaces.

d. Carefully fit gasket in groove and press firmly into place. Using clean cloth moistened with toluene, wipe away excess adhesive while still tacky (within 15 minutes).

e. Allow at least 6 hours drying time before in

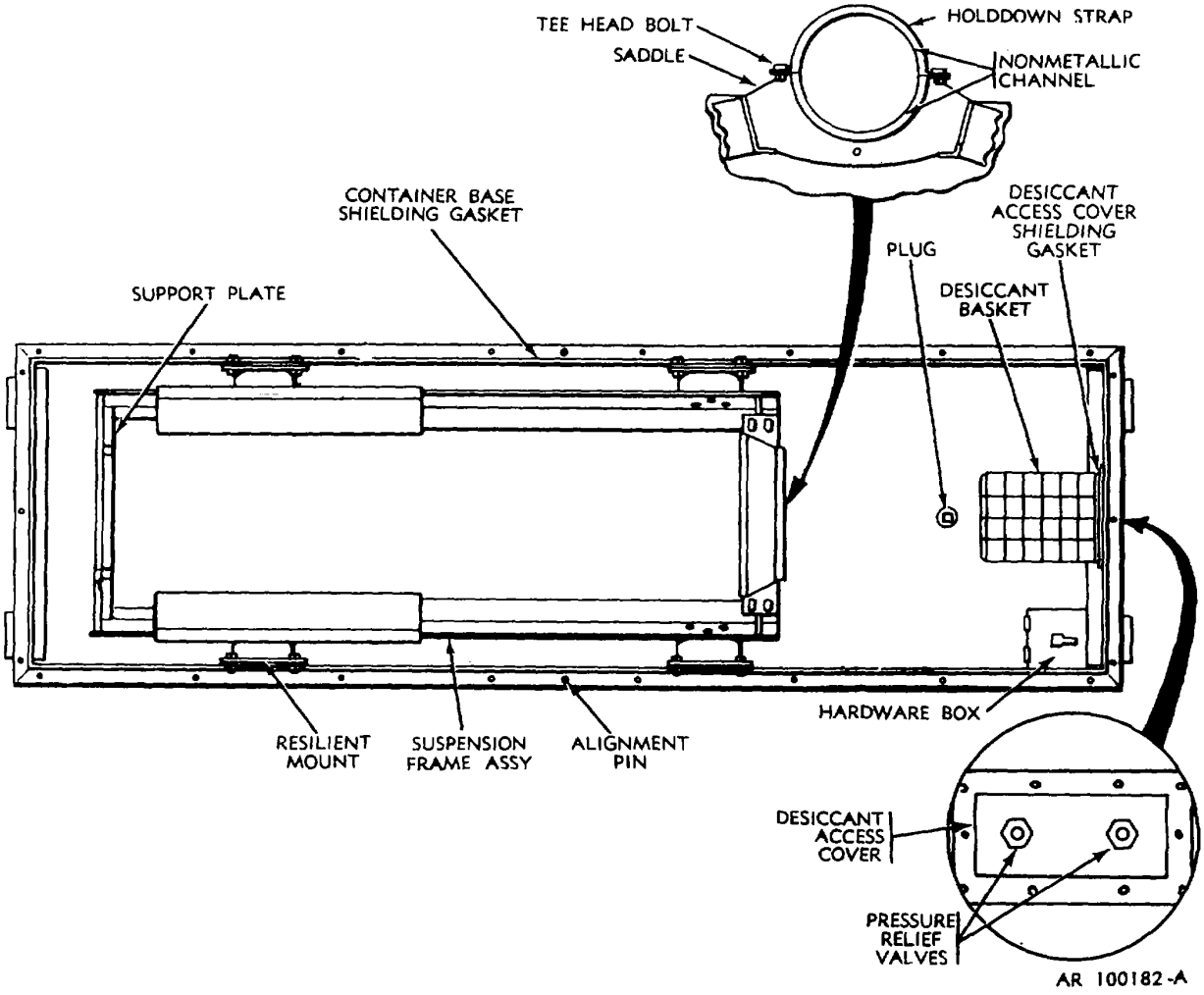


Figure 3-4. Open shipping and storage container M511.

stalling the associated cover.

WARNING
Use toluene only in a ventilated area.

3-17. Replacement of Nonmetallic Channel

a. Using nonmetallic tool, remove channel from hold-down strap and/or saddle (fig. 3-4).

b. Using nonmetallic tool, clean out old adhesive if present from adhering surfaces. Use clean cloth moistened with toluene to complete cleaning process.

c. Place long nonmetallic channel (9248698-1) on the saddle and assure that the ends extend equally above the saddle edge.

d. Place short nonmetallic channel (9248698-2) on the hold-down strap and assure that the ends are recessed equally at both ends.

3-18. Removal/Installation/Repair of Container Quick Access Cover

a. Depress buttons on pressure equalizing valves to vent the container.

b. Loosen cover (fig. 1-4) by striking handle in a counterclockwise direction with a suitable object. Rotate handle fully counterclockwise and remove cover.

c. Using nonmetallic tool, remove special rubber seal gasket from quick access cover and clean old adhesive from adhering surfaces. Use clean cloth moistened with toluene to complete cleaning process.

d. Apply adhesive to adhering surfaces and fit gasket carefully into access cover and press firmly into place. Wipe away excess adhesive using clean cloth moistened with toluene.

e. Reinstall cover on container. Turn handle clockwise until initial seating is accomplished. Then, further tighten cover, from three-quarter to one turn, by striking handle, if required, with suitable object. Install lead seal.

3-19. Repair of Wood Runner (Skid)

Repair skid by driving corrugated fasteners crosswise to the splits, spaced no less than 1 inch apart along the length of split. Do not install fasteners on sliding surface of skids.

3-20. Removal/Replacement of Wood Runner (Skid)

Remove or install skid in accordance with figure 3-5. Torque bolts to 30 ±5 foot-pounds using 1 1/4-inch wrench. If countersink in bottom of skid is 1 1/8 ± 1/32

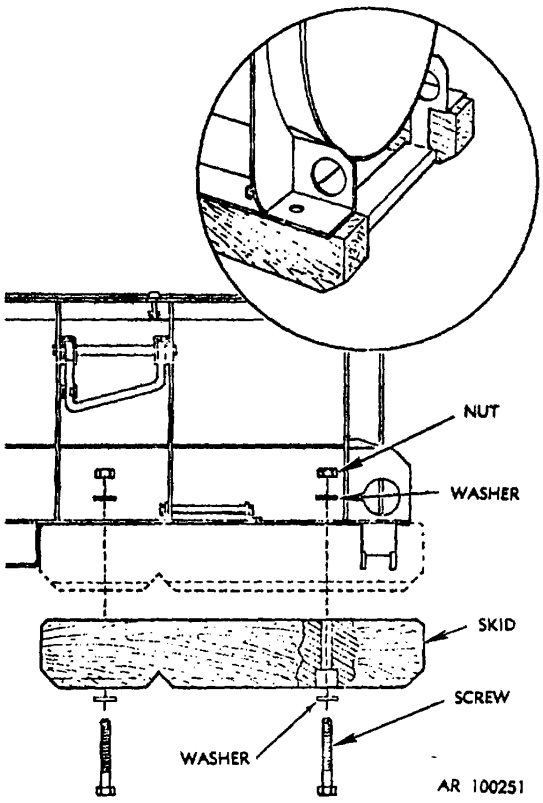


Figure 3-5. Removal/replacement of wood runner(skid).

inch deep, add washers under nut, as necessary, to assure nut will not seat on unthreaded portion of screw.

3-21. Removal/Replacement of Cushioning Pad

a. Pull upper edge of cushioning pad from flange of suspension frame assembly to gain access to attaching hardware (fig. C-4). Remove exposed screw, nuts, and washers. Remove pad.

b. Install serviceable cushioning pad with screws, nuts, and washers and torque to 10 ± 2 inch-pounds using 7/16-inch wrench. Snap upper edge of pad over flange of suspension frame assembly.

3-22. Cleaning

Remove foreign material in accordance with applicable procedures outlined in table 3-1.

3-23. Painting

a. Touch up container paint and/or markings in accordance with instructions in figure 1-6.

b. Apply one coat of metal pretreatment coating to exposed bare metal and allow to dry. Apply one coat of primer over metal pretreatment coating. Allow primer to dry. Apply two coats of enamel over primer coating. Different shades of paint are permitted provided specification requirements are met.

c. If container requires extensive painting or remarking, notify support unit.

3-24. Removal/Installation of Records Access Cover Disk or Gasket

WARNING

Use toluene only in a ventilated area.

NOTE

Some records access covers have a gasket made of a solid disc of rubber 1/16 inch thick by 4 inches diameter. This is being replaced by the gasket shown in figure 3-6.

a. If records access cover has disk installed, remove disk from cover. Remove old adhesive with toluene; clean surfaces; and refinish surfaces of cover, as required. If gasket is installed on records container, remove gasket.

b. Install gasket on records container in accordance with figure 3-6.

c. Install records container access cover. Put a washer and wing nut on the studs and stake end of studs so that the wing nut will not come off easily.

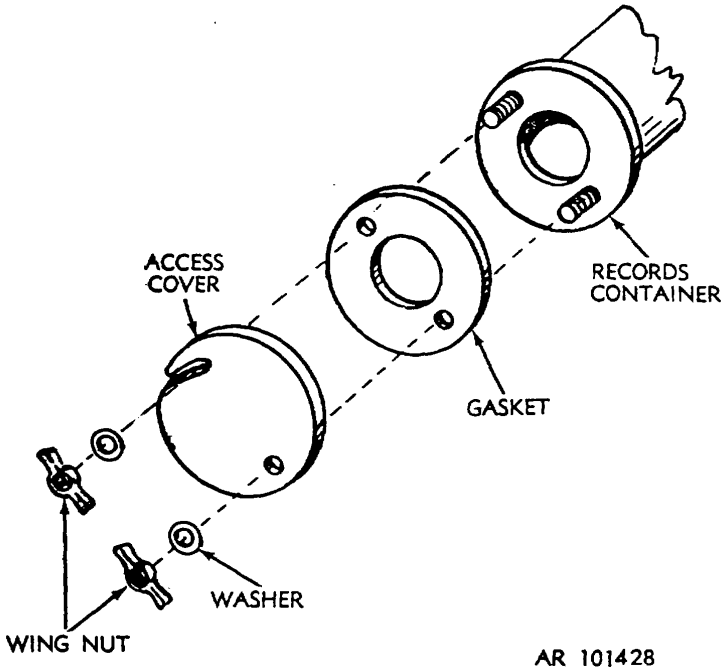


Figure 3-6. Removal/installation of records access cover gasket.

3-25. Straightening of Container Cover Alignment Pins
Straighten bent pins by carefully tapping with a hammer.

CHAPTER 4

SHIPMENT AND STORAGE

4-1. Shipment

a. Shipment of warhead sections will be in accordance with TM 9-1300-206.

b. Tie down warhead sections in M511 containers on Air Force aircraft in accordance with AF TO 1C-C130A-16 or AF TO 1C-C141A-16.

c. Lift warhead sections in M511 containers by helicopter in accordance with TM 55-1425-485-15-1.

4-2. General Storage

a. This paragraph provides information pertaining to storage of the warhead section. Refer to TM 9-1300-206 for general storage information.

b. A warhead section is stored in a completely assembled configuration in the shipping and storage container M511.

c. A warhead section that is mated to the main assemblage is considered as being in storage unless the missile is being prepared for immediate firing or for transportation to firing position.

d. When stacking M511 containers (empty or loaded) in open storage, install stacking bolts as shown in figure 4-1. Torque nuts to 36 ± 3 foot-pounds. When stacking bolts are not used to secure containers together, install on container base, as shown in figure 4-1. Torque nuts to 10 ± 2 foot-pounds.

e. Containers that contain a warhead section will be stacked no more than two high.

4-3. Storage Monitoring

a. Storage monitoring is a periodic inspection of major items in stockpile or operational storage to determine if container and contents are serviceable.

b. The frequency of storage monitoring may be varied to suit operational considerations provided that the period does not exceed 12 months.

c. Inspect for damage and adequacy of markings. If markings are illegible, remark in accordance with figure 1-6. If damage has occurred which may affect warhead section, notify the supporting unit.

d. Inspect seven lead seals on access covers of container. If any seal is missing or broken and the defect cannot be accounted for, report defect in accordance with local directives.

e. Perform a humidity check (table 2-1). If humidity indicator card and desiccant require replacement, perform storage inspection (para 4-4) and record action on Equipment Maintenance Log (EML).

f. Place EML and associated records ill records container

g. Secure records container cover and install lead seals.

4-4. Storage Inspection.

a. Storage inspection, performed once a year or on special occasions, is a continuing program of inspection to assure that warhead sections and their components will function within specified requirements.

b. An equal number of samples will be selected from upper, central, and lower tiers when containers are stored in this fashion.

c. Controls will be established (i.e., lot and serial number recording) to assure that same warhead section is not utilized as a sample during subsequent storage inspections until all warhead sections in storage location have been subjected to this inspection.

d. Definitions.

(1) *Critical defect*. A defect which could result in hazardous or unsafe conditions for individuals using or maintaining the warhead section, or which could prevent function of the warhead section.

(2) *Major defect*. A defect other than critical which could result in failure or in significant reduction of the intended performance of the warhead section.

(3) *Minor defect*. A defect which could not significantly reduce the intended performance of the warhead section and is not considered essential to repair but only desirable to repair except that minor corrosion should be removed as soon as possible.

(4) *Visual inspection*. To take note of listed defects and any other obvious abnormalities (e.g., deformation, missing part, etc.)

(5) *Manual inspection*. To inspect by moving the part by hand to determine presence of listed defects (e.g., looseness, stiffness, weakness, etc.)

(6) *Gage inspection* To check with a measuring instrument or a standard mating piece to determine whether size is acceptable in specified areas.

(7) *Inspection lot*. Inspection lots will be formed by placing serial numbered warhead sections on hand into homogeneous lot, not to exceed 100 warhead sections. Lots will consist of items with identical stock numbers, manufactured under similar conditions and stored under similar conditions and time periods.

e. Procedures.

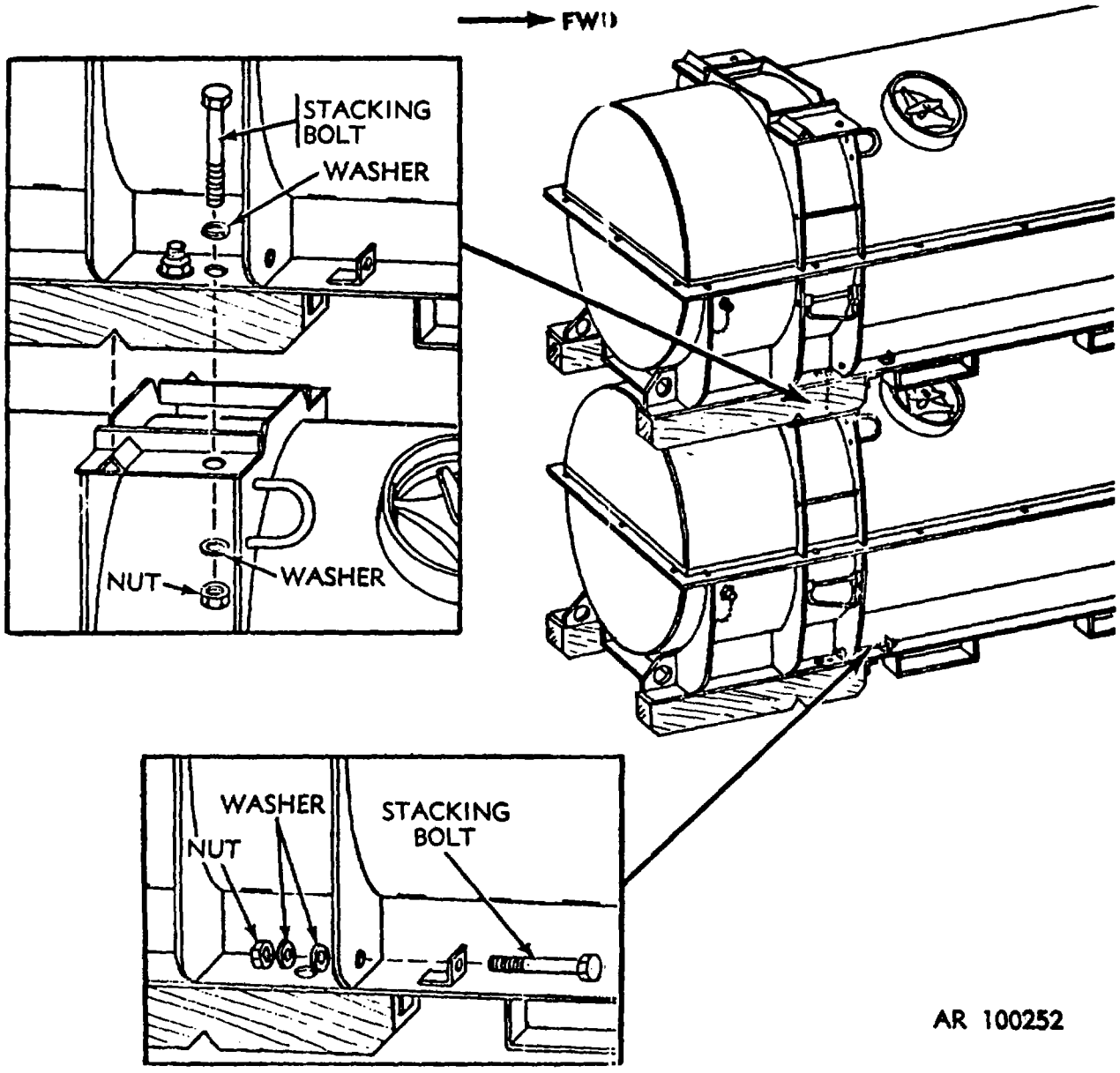


Figure 4-1. Installation of stacking bolts on container M511.

(1) Sample size and acceptance criteria shall be per table 4-1.

(2) Inspection shall be in accordance with classification of defects and inspection method listed in table 4-2.

(3) Instructions in paragraph 2-9 will be used for removal of warhead sections from containers. Lower part of warhead section will be inspected while the warhead section is suspended. Do not stand under suspended warhead section. Warhead section will then be placed on a Lance Maintenance Stand (fig. C-6) prior to inspecting upper portion of warhead section and interior of container.

(4) Open nose cone in accordance with paragraph 2-1; open knob locking latch and rotate SECO (or SCO) knob. Leave knob in N (off) position. Close knob locking latch and reinstall nose cone. Nose cone should not be loose.

(5) Repack warhead section into container in accordance with paragraph 2-15.

(6) Remove EML from records container and record inspection.

(7) Replace EML in records container and install lead seals.

f. Disposition instructions.

(1) Serviceable samples will be returned to the parent lot.

(2) All items found with critical or major defects will be repaired before being returned to the lot, or reported to higher authority if repair is not within the capability of the unit.

(3) All items found with minor defects should be repaired before being returned to the lot, but may be used if repair is not immediately practicable.

Table 4-1. Sample Sizes and Acceptance Number for Defectives

Number warhead sections in lot	Sample size	Critical defects (Note 1)	Major defects		Minor defects (Note 4)
			A (Notes 2, 4)	B (Notes 3, 4,5)	
2-8	2	0	0	0	1
9-15	3	0	0	0	1
16-25	6	0	0	0	1
26-50	8	0	0	1	2
51-90	13	0	1	1	3
91-100	20	0	1	2	5

NOTE

1. If this criteria is exceeded, a 100% inspection of the lot shall be made for critical defects.
2. Major A acceptance number is the maximum number of mechanical (manual or gage) or electrical inspection failures permitted in the sample, which will cause missile failure.
3. Major B acceptance number is the maximum number of visual inspection defectives permitted in the sample which would cause missile failure or significantly reduce the useability of the warhead section.
4. If this criteria is exceeded, a second sample, of the same size, shall be drawn to inspect only for those defects already found. If this second sample is also rejected, a 100% inspection shall be performed for these defects only.
5. If major corrosion is initially found, 100% inspection of the lot shall be performed for this defect.
6. Criteria in the table applies to inspection by class fall defects in a defect category combined) and not to individual characteristics.

Table 4-2. Classification of Material Defects for Storage Inspection

Component	Category	Defect	Method of inspection
Container exterior	Minor	Lead seals not in place or broken.	Visual
	Major	Lift handles cracked, broken or loose.	Visual/manual
	Major	Lift bars/stacking brackets cracked, broken or loose.	Visual/manual
	Major	Fork lift guides unserviceable.	Visual
	Minor	Cracks up to 5 inches long which extend through wooden runner.	Visual/gage
	Major	Cracks more than 5 inches long which extend through wooden runner.	Visual/gage
	Major	Corrugated fasteners on bottom surface of wooden runner.	Visual
	Major	Wooden runner broken or worn more than V: of load bearing surface.	Visual/gage
	Major	Wooden runner or improperly attached.	Visual/manual
	Major	Major	Visual
	Major	Tee-head bolts missing/unserviceable.	Visual
	Minor	Spring tension clips missing/unserviceable.	Visual/manual
	Major	Markings not in agreement with figure 1-6 or illegible.	Visual
	Major	Humidity indicator card reads 40 percent or more.	Visual
	Major	Humidity indicator plug/card unserviceable.	Visual
	Major	Pressure equalizing valve damaged.	Visual/manual
	Critical	Welds defective on lift handle vertical flanges near lift handle (i.e., cracked, showing holes, or length of weld too short) (NOTE: does not include weld on sealing flange).	Visual, see figure 4-2.
	Major	Quick access cover loose, missing, or unserviceable	Visual/manual
	Major	Records container cover or gasket loose missing or damaged.	Visual/manual
	Minor	Identification plate missing.	Visual
	Major	Cover (A2J3) missing or unserviceable	Visual
	Minor	Equipment maintenance log (DA Form 2409) missing from records container.	Visual
	Major	Desiccant access cover/welding bolts loose, missing, or damaged.	Visual/manual

Table 4-2. Classification of Material Defect for Storage Inspection-Continued

Component	Category	Defect	Method of inspection
Container exterior and interior	Major	RF shielding/sealing gasket on closure flange of container base loose or unserviceable. RF shielding/sealing gasket on desiccant access cover loose or unserviceable.	Visual. See figure 4-3
	Major	Corrosion causing pitting and perforations.	Visual
	Minor	Corrosion which can be removed	Visual
	Major	Peeling or inadequate paint.	Visual
	Minor	Scratches.	Visual
	Minor	Fungus or foreign material.	Visual
	Major	Punctures, dents of any size which impair structural integrity of container.	Visual
	Major	Dents greater than 1 inch in depth and greater than 10 square inches in area.	Visual/gage
Container interior	Minor	Alignment pins bent/missing/broken.	Visual
	Major	Holddown strap; non-metallic channels; tee-head bolts missing or un serviceable.	Visual/manual
	Major	Suspension frame resilient mounts/attaching hardware unserviceable.	See figure 4-4
	Major	Aft support plate loose.	Visual/manual
	Major	Drain plugs loose or missing.	Visual/manual
	Major	Cushioning pad missing, damaged or improperly assembled to suspension frame assembly.	Visual
Warhead section M252	See table 4-3	RF gasket, see table 4-3	See table 4-3
	Major	Dents in nose cone.	Visual
	Major	Nose cone turnlock fastener stud/receptacles loose, missing, or damaged.	Visual/manual
	Major	Fuze knob cover and latch assembly damaged.	Visual/manual
	Major	Fuze damaged; dials stuck.	Visual/manual
	Major	Fuze loose.	Visual/manual
	Minor	Fuze settings not on Event: 000.0, ARM: 80, SECO: N (off)	Visual
	Major	Markings do not agree with figure 1-2, or illegible.	Visual
	Minor	Fungus or foreign material.	Visual
	Minor	Corrosion which can be removed.	Visual
	Major	Dents in skin in excess of 3/16 inch deep or 6 inch long.	Visual/gage
	Major	Peeling or inadequate paint.	Visual
	Minor	Scratches.	Visual
	Major	Swing bolt covers unserviceable/loose/missing.	Visual/manual
	Major	Swing bolts unserviceable/difficult to move/swing too freely.	Visual/manual
	Major	Bulkhead punctured/deformed.	Visual
	Major	Skin punctured.	Visual
	Major	Cable connector (station 100) unserviceable/flag and cover missing or un servicable.	Visual
	Major	Alignment and shear pins loose; missing/unserviceable.	Visual/manual
	Major	Warhead section visibly out of concentricity.	Visual
	Major	PAL connector cover loose, damaged, of missing.	Visual/manual

Table 4-3. Inspection Requirements for RF Gasket on Warhead Section

Category	Defect	Method of inspection
Minor	Foreign material.	Visual
Major	Loose or improperly installed.	Visual/manual
Major	Gouged; cut from outer edge to inner edge.	Visual
Major	Missing.	Visual
Major	Wire separated from rubber.	Visual
Major	Ends not butted.	Visual

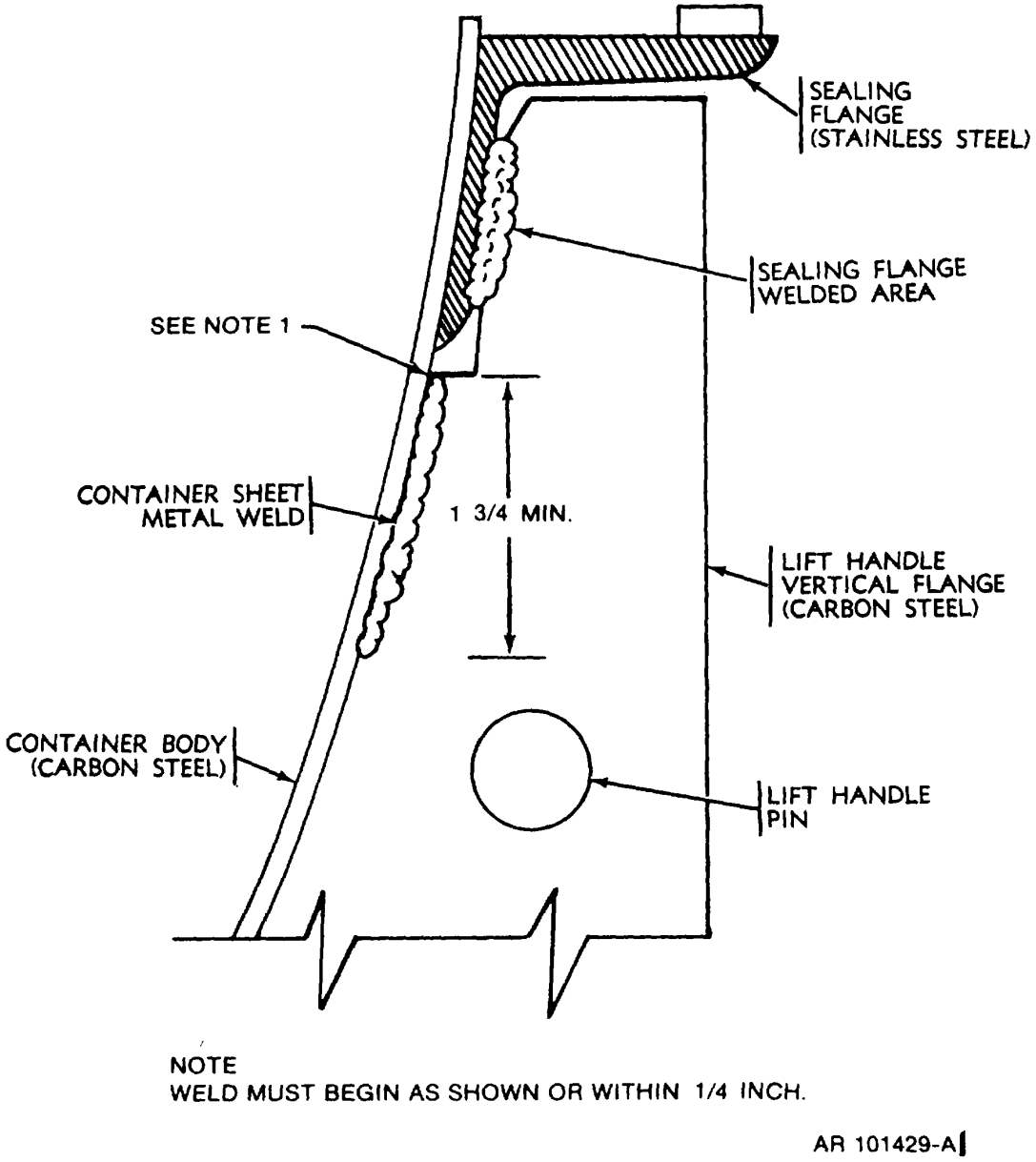
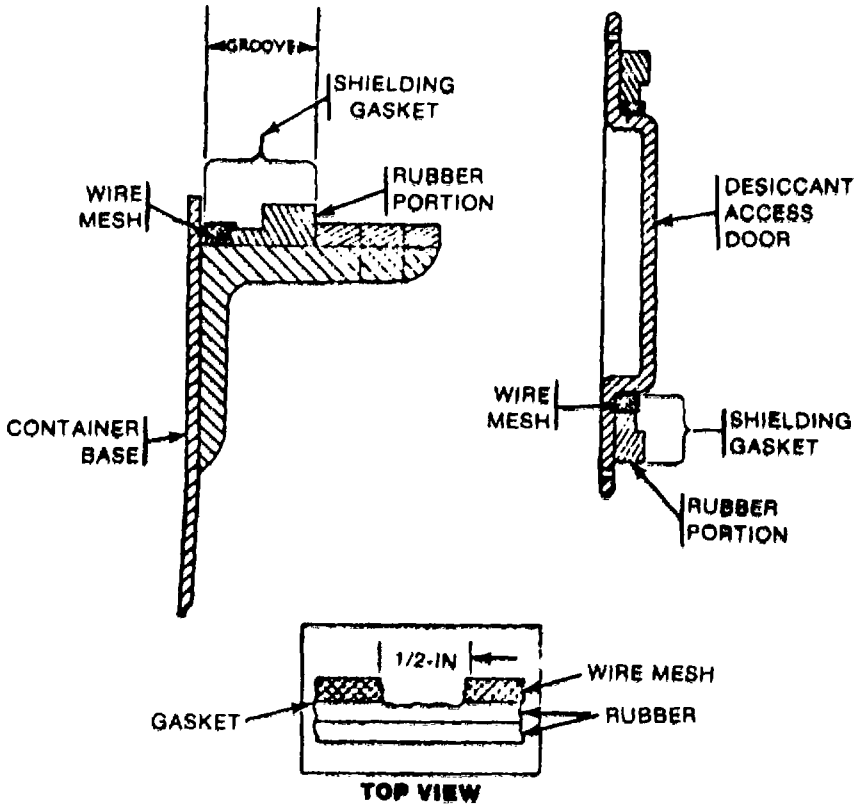


Figure 4-2. Lift handle vertical flange welds.



INSPECTION CRITERIA FOR ELECTRONIC SHIELDING GASKETS	
INSPECTION	ACTION
A. FOREIGN MATERIAL (EXCLUDING BONDING AT SPLICE).	CLEAN
B. GASKET IMPROPERLY POSITIONED.	ADJUST AND CEMENT
C. RUBBER GOUGED, MISSING, OR CUT THROUGH FROM OUTER EDGE TO INNER EDGE	REPLACE
D. SEPARATION OF WIRE MESH FROM RUBBER EXCEEDS ONE (1) INCH	REPLACE
E. WIRE MESH CUT THROUGH FROM INNER EDGE TO OUTER EDGE (EXCLUDING SPLICE).	REPLACE
F. WIRE MESH SEPARATION AT SPLICE EXCEEDS 1/2-INCH.	REPLACE

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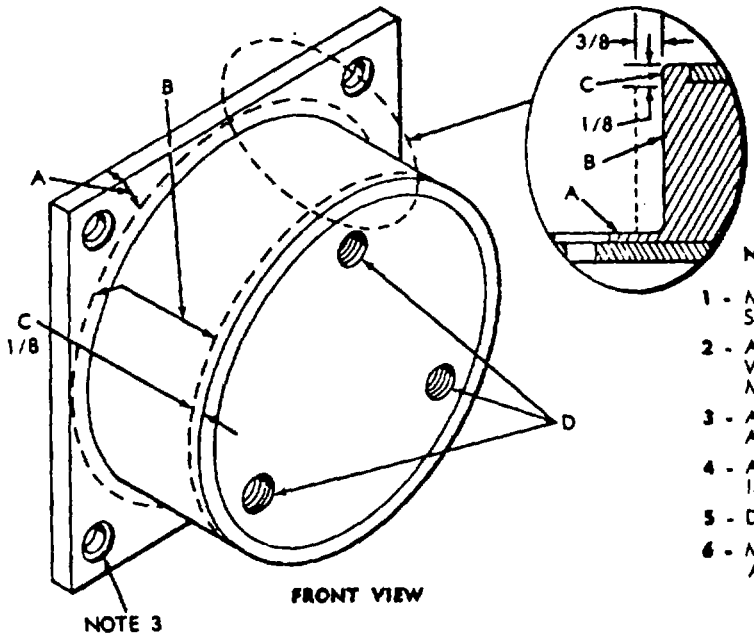
Figure 4-3. Inspection criteria for M511 container electronic shielding gasket.



NOTES:

1 - MOUNTS SHALL NOT BE REMOVED SOLELY FOR INSPECTION PURPOSES.

2 - AREA D WILL BE INSPECTED ONLY WHEN DISASSEMBLY OF RESILIENT MOUNTS IS REQUIRED.

3 - ANY DAMAGE AT MOUNTING HOLE AREAS IS NOT CAUSE FOR REJECTION.

4 - ALL DIMENSIONS SHOWN ARE IN INCHES AND ARE APPROXIMATE.

5 - DELETED.

6 - MOLD INDENTATIONS OR PROJECTIONS ARE NOT CAUSE FOR REJECTION.

– CAUTION –

VISUAL INSPECTION ONLY WILL BE PERFORMED. NO PROBING OR PHYSICAL PRESSURE EITHER BY FINGER PRESSURE OR WITH A TOOL WILL BE APPLIED WHILE CONDUCTING INSPECTION, SINCE THIS CAN INFLICT DAMAGE TO THE MOUNT.

INSPECTION CRITERIA FOR RESILIENT MOUNTS

DEFECT	AREA	ACTION
HOLES, CUTS, GOUGES, TEARS AND PUNCTURES	A	REJECT, IF METAL PLATE IS EXPOSED AND THERE IS VISIBLE EVIDENCE OF CORROSION.
	B	REJECT (SEE NOTE 6).
	C	REJECT IF WITHIN 1/8 INCH OF EDGE AND METAL PLATE EXPOSED
STRIPPED THREADS	D	REJECT

AR 200640-B

Figure 4-4. Inspection requirements for resilient mounts.

APPENDIX A

REFERENCES

A-1. Publication Index

The following publication index should be consulted frequently for the lastest changes or revisions of references given in this appendix and in this manual:

Consolidated Index of Army Publications and Blank Forms	DA Pam 310-1

A-2. Technical Manuals

Use and Care of Handtools and Measuring Tools	TM 9-243
Ammunition and Explosive Standards	TM 9-1300-206
General Support Maintenance Manual (Including RPSTL) Warhead Section, Guided Missile, Practice: Lightweight, M252	TM 9-1336-488-40&P
Operator's and Organizational Maintenance Manual for M5 MMA Ammunition	TM 9-1410-485-12
Lance Firing Operations	TM 9-1425-485-10-2
Operator's and Organizational Maintenance Manual, Lance Holding Equipment for Loader Transporter M688: Mobility Kit, M234, Tripod Hoist, M38 and Sling Beam M22	TM 9-1450-486-12
The Army Maintenance Management System (TAMMS)	DA Pam 738-750
Procedures for Destruction of Improved Conventional Munitions (ICM) to Prevent Enemy Use	TM 43-0002-33
Transportability Guidance: Lance Missile System	TM 55-1425-485-15-1

A-3. Supply Catalogs

Tool Kit, GM: Missile Mating, Lance (NSN 4935-00-930-7553) (LIN W41617)	SC 4935-95-CL-A67
Tool Kit, Organizational Maintenance, Lance (NSN 5180-00-160-8572) (LIN W42993)	SC 5180-95-CL-A65

A-4. Army Regulations

Reporting Transportation Discrepancies in Shipment	AR 55-38
Malfunctions Involving Ammunition and Explosives	AR 75-1
Accident Reporting and Records	AR 385-40
Regulations for Firing Guided Missiles and Heavy Rockets for Training, Target Practice, and Combat	AR 385-62
Reporting of Item and Packaging Discrepancies	AR 735-11-2

A-5. Forms

US Army Accident investigation Report	DA Form 285
Recommended Changes to Publications and Blank Forms	DA Form 2028
Equipment Maintenance Log (Consolidated)	DA Form 2409
Ammunition Condition Report	DA Form 2416
Discrepancy in Shipment Report	SF 361
Report of Discrepancy	SF 364
Quality- Deficiency Report	SF 368

APPENDIX B

MAINTENANCE ALLOCATION CHART

Section I. INTRODUCTION

B-1. General

a. The Maintenance Allocation Chart designates responsibility for the performance of maintenance functions.

b. Only the lowest level of maintenance authorized to perform a maintenance function is indicated.

c. A maintenance function assigned a maintenance level will automatically be authorized to be performed at any higher maintenance level.

d. A maintenance function that cannot be performed at the assigned level of maintenance for any reason may be transferred to the next higher maintenance organization. Higher maintenance levels will perform the maintenance functions of lower maintenance levels when required or directed by the appropriate commander.

B-2. Definitions of Maintenance Functions

The implementation of maintenance tasks will be consistent with the assigned maintenance in accordance with the following definitions.

a. Inspect. To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination.

b. Test. To verify serviceability and to detect possible failure by measuring the mechanical or electrical characteristics of an item and comparing those characteristics with prescribed standards.

c. Service. Operations required periodically to keep an item in proper operating conditions.

(1) *Unpack*. To remove item from packing box for service or when required for the performance of other maintenance operations.

(2) *Repack*. To return item to packing box after service and other maintenance operations.

(3) *Clean*. To rid the item of contamination.

(4) *Touch up*. To spot paint scratched or blistered surfaces.

(5) *Mark*. To restore obliterated identification.

d. Install. To emplace, seat, or fix into position an item in a manner to allow the proper functioning of the equipment.

e. Adjust. To maintain within prescribed limits by bringing into proper or exact position, or by setting the operating characteristics to the specified parameters.

f. Renovate. To restore item to serviceable condition.

(1) *Paint*. To repaint the entire item.

(2) *Repair*. To restore serviceability to an item by correcting specific damage, fault, malfunction, or failure through the application of maintenance services or other maintenance actions.

(3) *Replace*. To substitute a serviceable component in a manner to allow the proper functioning of equipment.

B-3. Explanation of Format

Purpose and use of the format are as follows:

a. Column 1, Group Number. Column 1 lists group numbers, the purpose of which is to identify components, assemblies, and subassemblies with the next higher assembly.

b. Column 2, Functional Group. Column 2 lists the next higher assembly group and item names of components, assemblies, subassemblies, and modules within the group for which maintenance is authorized.

c. Column 3, Maintenance Function.

(1) Column lists the maintenance functions defined in B-2 above. Each maintenance function required for an item is specified by the symbol among those listed in (2) below which indicates the level responsible for the required maintenance.

Under this symbol is listed an appropriate work measurement time value.

(2) The following symbols are used to prescribe work function responsibility:

C- Operator/Crew.
O- Organization.
H- General Support.
D- Depot.

(3) The active repair time (man-hours) required to perform the maintenance function is included directly below the symbol identifying the category of maintenance.

d. Column 4, Tools and Equipment. This column specifies-by code, those tools and test equipment required to perform the designated function.

e. Column 5, Remarks. Self-explanatory.

Section II. MAINTENANCE ALLOCATION CHART

(1)	(2)	(3)												(4)	(5)
		Maintenance function													
				Service							Renovate				
Group No.	Functional group	Inspect	Test	Unpack	Repack	Clean	Touch up	Mark	Install	Adjust	Paint	Repair	Replace	Tools and equipment	Remarks
	GROUP 01—WARHEAD SECTION, GUIDED MISSILE, PRACTICE: LIGHTWEIGHT, M252	-	-	O	O	-	-	-	-	-	-	D	-	Wrench,	
		-	-	0.8	0.8	-	-	-	-	-	-	-	-	H4244; Lance	
	Fuze, Guided Missile, Practice:														
	M819	C	D	-	-	-	-	-	-	-	-	-	D	Maintenance	
		0.1	-	-	-	-	-	-	-	-	-	-	-	Stand	
0101	Nose Cone	C	-	-	-	O	O	O	C	-	H	-	O		
		0.1	-	-	-	0.1	0.1	0.2	0.2	-	0.4	-	0.2		
	Receptacle (for turnlock fastener stud)	C	-	-	-	-	-	-	-	-	-	-	H		
		0.1	-	-	-	-	-	-	-	-	-	-	0.4		
0102	Skin Assembly	C	-	-	-	O	O	H	-	-	H	-	-		
		0.2	-	-	-	0.4	0.4	1.0	-	-	2.8	-	-		
	PAL Connector Cover	C	-	-	-	-	-	-	-	O	-	-	O		
		0.1	-	-	-	-	-	-	-	0.1	-	-	0.2		
0103	Aft Bulkhead Area Swing Bolt	C	-	-	-	-	-	-	-	-	-	-	O		
		0.2	-	-	-	-	-	-	-	-	-	-	0.4		
	Swing Bolt Cover	C	-	-	-	-	-	-	-	-	-	-	O		
		0.1	-	-	-	-	-	-	-	-	-	-	0.4		
	Headless Shoulder Pin	C	-	-	-	-	-	-	-	-	-	-	O		
		0.1	-	-	-	-	-	-	-	-	-	-	0.1		
	Cable Connector	C	-	-	-	-	-	-	-	-	-	O	-		
		0.1	-	-	-	-	-	-	-	-	-	0.3	-		
	Cable connector protective cover	C	-	-	-	-	-	-	-	-	-	-	C		
		0.1	-	-	-	-	-	-	-	-	-	-	0.1		
	RF Seal (Knitted Wire Mesh)	C	-	-	-	-	-	-	-	-	-	-	H		
		0.1	-	-	-	-	-	-	-	-	-	-	0.5		
	GROUP 02—SHIPPING AND STORAGE CONTAINER, WARHEAD SECTION: M511	C	-	-	-	O	O	H	-	-	H	H	-		
		0.4	-	-	-	1.5	0.4	1.0	-	-	4.0	4.0	-		
0201	Cover Assembly														
	Lead Seal	C	-	-	-	-	-	-	-	-	-	-	C		
		0.2	-	-	-	-	-	-	-	-	-	-	0.6		
	Quick Access Cover (Door)	C	-	-	-	-	-	-	-	C	-	-	O		
		0.1	-	-	-	-	-	-	-	0.1	-	-	0.1		
	Humidity Indicator	C	-	-	-	-	-	-	-	-	-	-	O		
		0.1	-	-	-	-	-	-	-	-	-	-	1.2		
0202	Base Assembly														
	Tee Head Bolt (for base assembly flange)	C	-	-	-	-	-	-	-	-	-	-	O		
		0.2	-	-	-	-	-	-	-	-	-	-	0.4		
	Shielding Gasket (for base assembly flange)	C	-	-	-	-	-	-	-	--	-	-	O		
		0.1	-	-	-	-	-	-	-	-	-	-	2.0		
	Identification Plate	H	-	-	-	-	-	-	-	-	-	-	H		
		0.1	-	-	-	-	-	-	-	-	-	-	0.4		
	Wood Runner (Skid)	C	-	-	-	-	O	-	-	-	-	O	O		
		0.2	-	-	-	-	0.4	-	-	-	-	1.0	1.8		
	Lift Handle Clip	C	-	-	-	-	-	-	-	-	-	-	O		
		0.2	-	-	-	-	-	-	-	-	-	-	0.4		
	Lift Handle	C	-	-	-	-	-	-	-	-	-	D	D		
		0.2	-	-	-	-	-	-	-	-	-	-	-		

(1)	(2)	(3)												(4)	(5)
		Maintenance function													
				Service							Renovate				
Group No.	Functional group	Inspect	Test	Unpack	Repack	Clean	Touch up	Mark	Install	Adjust	Paint	Repair	Replace	Tools and equipment	Remarks
	Lift Bar	C	-	-	-	-	-	-	-	-	-	D	D		
		0.2	-	-	-	-	-	-	-	-	-	-	-		
	Forklift Bar	C	-	-	-	-	-	-	-	-	-	H	-		
		0.2	-	-	-	-	-	-	-	-	-	2.0	-		
	Drain Plug	C	-	-	-	-	-	-	-	-	-	-	O		
		0.1	-	-	-	-	-	-	-	-	-	-	0.1		
	Stacking Bolts	C	-	-	-	-	-	-	-	-	-	-	O		
		0.1	-	-	-	-	-	-	-	-	-	-	0.1		
	Desiccant Access Cover (Door)	C	-	-	-	-	-	-	-	O	-	-	-		
		0.1	-	-	-	-	-	-	-	0.1		-	-		
	Welding Bolts (desiccant access cover	C	-	-	-	-	-	-	-	-	-	-	H		
		0.1	-	-	-	-	-	-	-	-	-	-	0.8		
	Shielding Gasket (for desiccant access cover)	C	-	-	-	-	-	-	-	-	-	-	O		
		0.1	-	-	-	-	-	-	-	-	-	-	0.5		
	Alignment Pin	C	-	-	-	-	-	-	-	O	-	-	H		
		0.1	-	-	-	-	-	-	-	0.5	-	-	2.0		
	Pressure Equalizing Valve	C	-	-	-	-	-	-	-	-	-	-	O		
		0.1	-	-	-	-	-	-	-	-	-	-	0.5		
	Records Container	C	-	-	-	-	-	-	-	-	-	H	-		
		0.1	-	-	-	-	-	-	-	-	-	1.0	-		
	Records Container Gasket	C	-	-	-	-	-	-	-	-	-	-	O		
		0.1	-	-	-	-	-	-	-	-	-	-	0.5		
	A2J3 Cover	C	-	-	-	-	-	-	-	-	-	-	O		
		0.1	-	-	-	-	-	-	-	-	-	-	0.1		
0203	Suspension Frame Assembly Holddown strap	C	-	-	-	-	-	-	C	-	-	-	-		
		0.1	-	-	-	-	-	-	0.1	-	-	-	-		
	Tee Head Bolt (for holdown strap)	C	-	-	-	-	-	-	-	-	-	-	O		
		0.2	-	-	-	-	-	-	-	-	-	-	0.4		
	Resilient Mount	C	-	-	-	-	-	-	-	-	-	-	H		
		0.2	-	-	-	-	-	-	-	-	-	-	3.0		
	Cushioning Pad	C	-	-	-	-	-	-	-	-	-	-	O		
		0.1	-	-	-	-	-	-	-	-	-	-	1.0		
	Support Plate	C	-	-	-	-	-	-	-	O	-	-	-		
		0.2	-	-	-	-	-	-	-	0.8	-	-	-		
	Non-Metallic Channel	C	-	-	-	-	-	-	-	-	-	-	O		
		0.1	-	-	-	-	-	-	-	-	-	-	0.5		
	GROUP 03—SHIPPING AND STORAGE CONTAINER, WARHEAD SECTION: XM612 (Note 1)	H	-	H	H	H	H	H	-	-	-	H	-	Metal strapping and associated equipment	
		1.0	-	0.5	1.0	0.4	0.5	0.5	-	-	-	1.0	-		
	Spacer Assembly	D	-	-	-	-	-	D	H	-	-	-	D		
		0.1	-	-	-	-	-	0.1	0.1	-	-	-	0.1		

Note 1. For description of XM612 shipping and storage container, see TM 9-1336-488-40&P.

APPENDIX C

ORGANIZATIONAL MAINTENANCE REPAIR PARTS AND SPECIAL TOOLS LIST

Section I. INTRODUCTION

C-1. Scope

This appendix lists repair parts and special tools required for the performance of organizational maintenance of the warhead section.

C-2. General

This appendix is divided into the following sections:

a. Repair Parts List-Section II. A list of repair parts authorized for the performance of maintenance at the organizational level.

b. Special Tools List-Section III. A list of special tools and equipment authorized for the performance of maintenance at the organizational level.

c. National Stock Number and Part Number Index-Section IV. A list, in ascending numerical sequence, of all National stock numbers appearing in the listings, followed by a list, in alphameric sequence, of all part numbers appearing in the listings. National stock numbers and part numbers are cross-referenced to each illustration figure and item number appearance.

C3. Explanation of Columns

The following provides an explanation of columns in sections II and III.

a. Illustration. This column is divided as follows:

(1) *Figure number*. Indicates the figure number of the illustration on which the item is shown.

(2) *Item number*. Indicates the callout number used to reference the item on the illustration.

b. Source, Maintenance, and Recoverability Codes (SMR).

(1) Source code (first and second positions) indicates the source for the listed items. Source codes are:

Code	Explanation
PA ...	Item procured and stocked for anticipated or known usage.
PG ...	Item procured and stocked to provide for sustained support for the life of the equipment. It is applied to an item peculiar to the equipment which, because of probable discontinuance or shutdown of production facilities, would prove uneconomical to reproduce at a later date.
MH ..	Item to be manufactured or fabricated at the general support maintenance level.

(2) Maintenance code consists of two parts-use code (third position) and repair code (fourth position). Use code indicates the lowest maintenance level authorized to remove, replace, and use the listed items. Repair code indicates whether the item is to be repaired and identifies the lowest maintenance level authorized to repair the listed items. Maintenance codes are:

Code	Explanation
Use	
O.....	Support item is removed, replaced, and used at organizational level of maintenance.
Repair	
H.....	The lowest maintenance level capable of complete repair of the support item is the general support level.
Z	Nonreparable support item. No repair is authorized.

(3) Recoverability code (fifth position) indicates the disposition action on unserviceable items. Recoverability codes are:

Code	Explanation
Z	Nonreparable item. When unserviceable, condemn and dispose of at the level indicated in position 3.

c. National Stock Number. This column indicates the National stock number assigned to the item and will be used for requisitioning purposes.

d. Part Number. This column indicates the primary number used by the manufacturer (individual, company, firm, corporation, or government activity), which controls the design characteristics of the item by means of its engineering drawings, specifications standards, and inspection requirements, to identify an item or range of items.

e. Federal Supply Code for Manufacturers (FSCM). This column indicates a five-digit numeric code used to identify the manufacturer, distributor, or government agency that controls the design characteristics of the item. Federal supply codes for manufacturers are:

Code	Manufacturer
18876.....	US Army Missile Command
19200.....	US Army Armament Research and Development Command
19203.....	Picatinny Arsenal
80205.....	National Aeronautical Standards
96906.....	Military Standards

f. Description. This column indicates the Federal item name and any additional description of the item required.

g. Unit of Measure (U/M). A two-character alphabetic abbreviation indicating the unit upon which the allowances are based; e.g., ft, ea, pr, etc.

h. Quantity Incorporated in Unit. This column indicates the quantity of the item used with or on the equipment.

C-4. How to Locate Repair Parts

a. When National stock number or reference number is unknown:

(1) *First*. Using the table of contents, determine the functional or subfunctional group within which the repair part belongs; i.e., warhead section, practice fuze, etc. This is necessary since illustrations are prepared for groups and listings are divided into the same groups.

(2) *Second*. Find the illustration covering the functional or subfunctional group to which the repair part belongs.

(3) *Third*. Identify the repair part on the illustration and note the illustration figure and item number of the repair part.

(4) *Fourth*. Using the repair parts listing, find the functional or subfunctional group to which the repair part belongs and locate the illustration figure and item number identified in (2) above. The part is listed opposite the figure and item number shown.

b. When National stock number or part number is known:

(1) *First*. Using the index of National stock numbers and part numbers, find the pertinent National stock number or part number. This index is in ascending NSN sequence followed by a list of part numbers in ascending alphameric sequence, cross-referenced to the illustration figure number and item number.

(2) *Second*. Using the repair parts listing find the functional or subfunctional group of the repair part and the illustration figure number and item number referenced in the index of National stock numbers and part numbers.

C-5. Abbreviations

cd-pltd	cadmium plated
ck	countersunk
cres	corrosion-resistant steel
dia	diameter
fin	finish

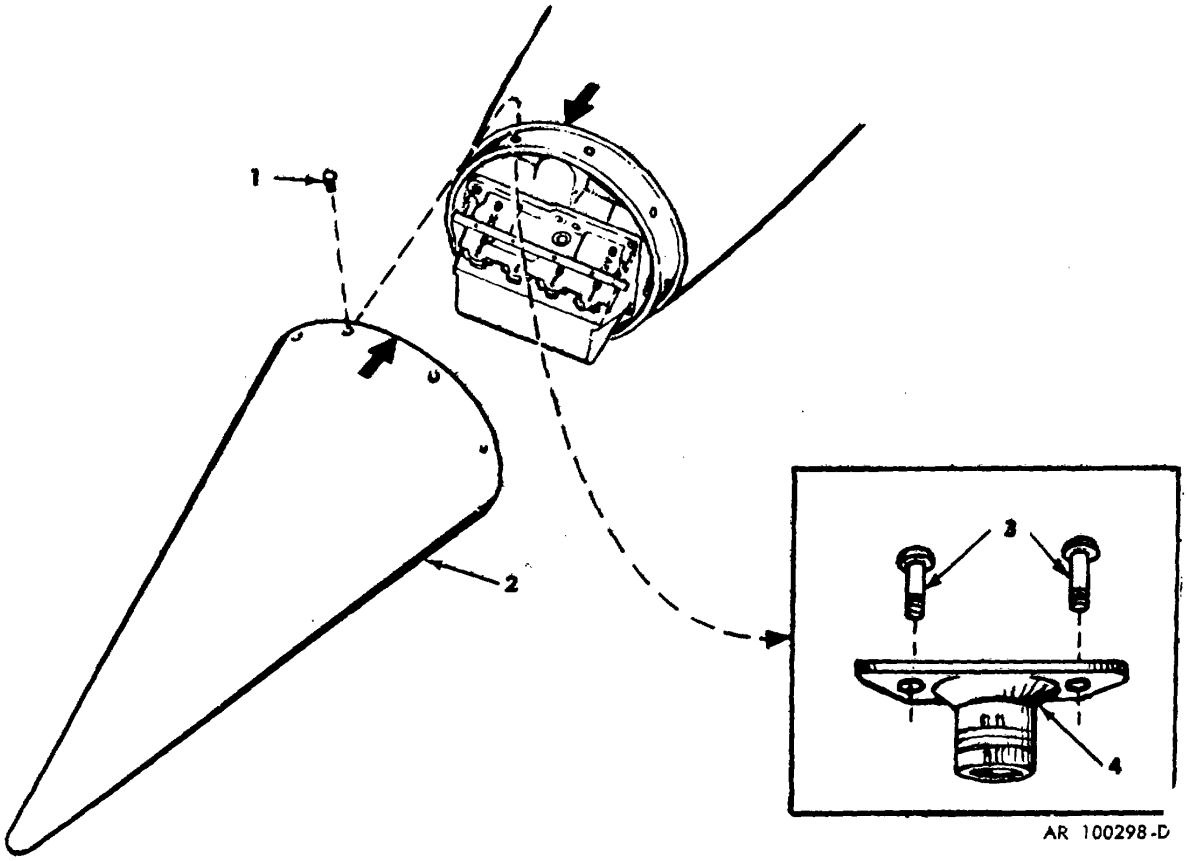


Figure C-1. Warhead section--nose cone and attaching hardware.

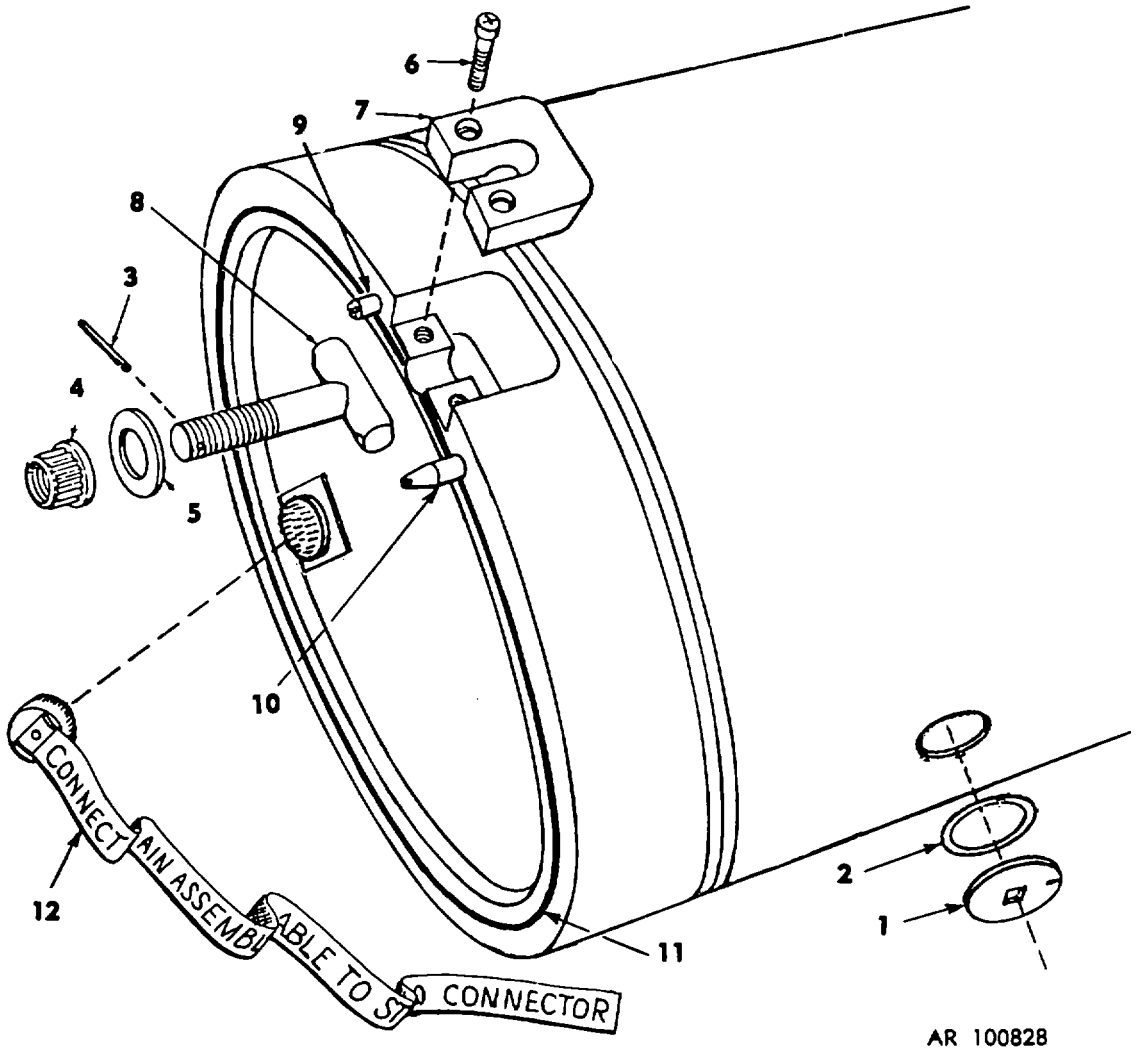


Figure C-2. Warhead section - aft bulkhead area

fl-fil-hd ..... flat fillister head
fl-hd ..... flat head
h ..... high
id ..... inside director
in ..... inch
lg ..... long
NF ..... National Fine
NPT ..... National Pipe Thread
o/a ..... overall
od ..... outside diameter
S ..... steel
thk ..... thick
UNC ..... Unified Coarse Thread
UNF ..... Unified Fine Thread
UNJF ..... Unified Joint Fine Thread
w ..... wide

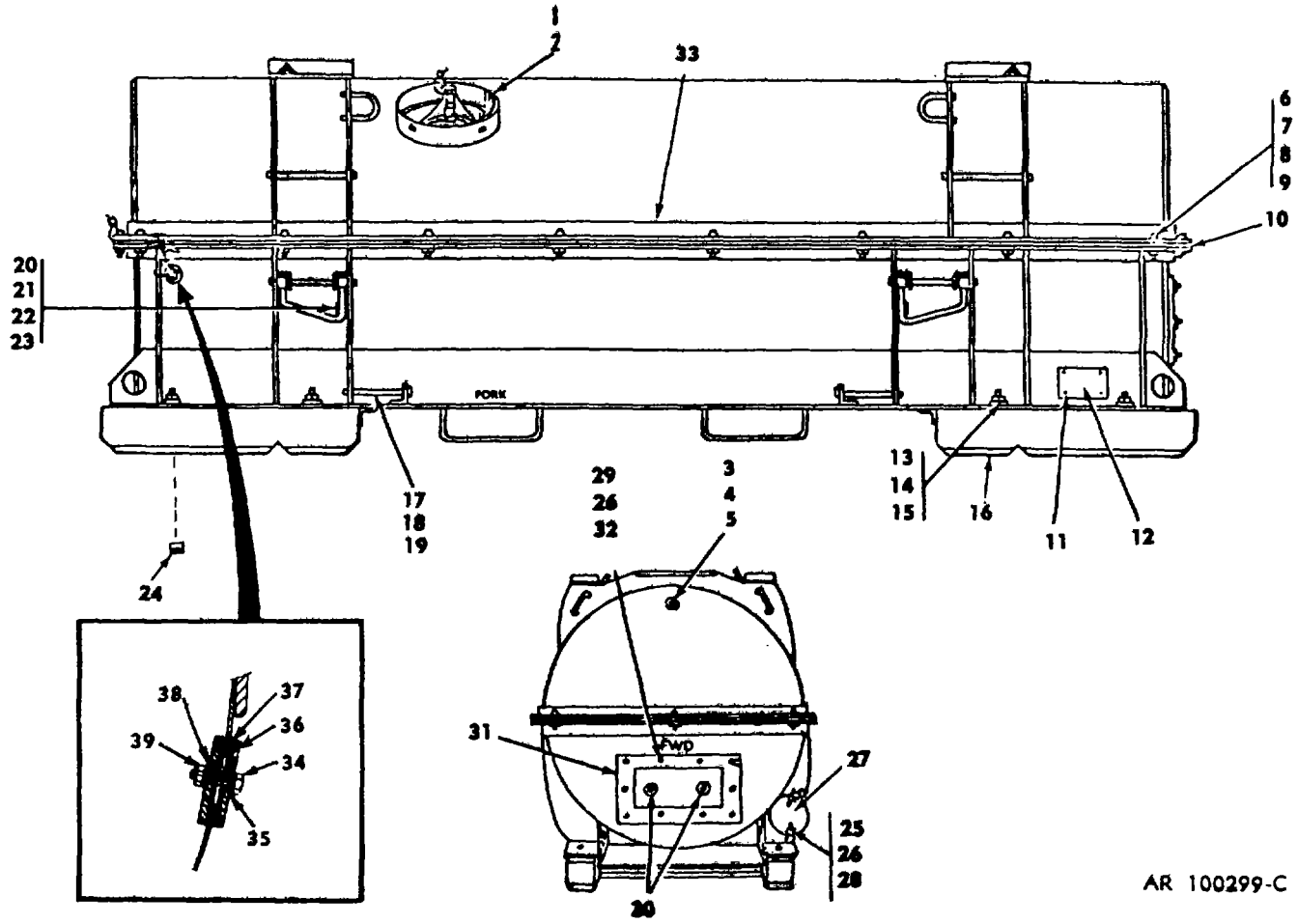


Figure C-3. Shipping and Storage container-cover assembly and base assembly

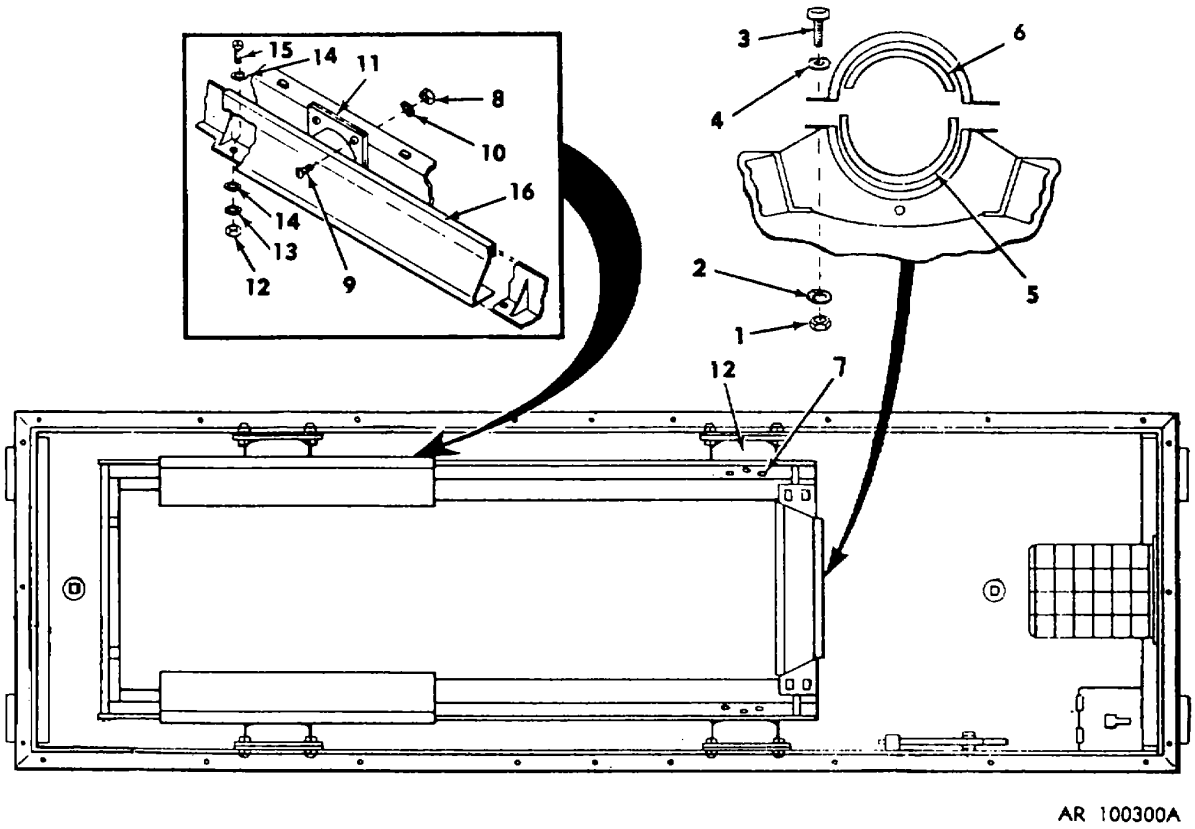


Figure C-4. Shipping and storage container suspension frame assembly.

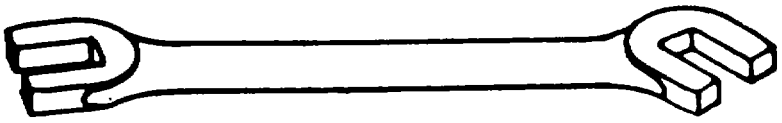


Figure C-5. H4244 wrench.

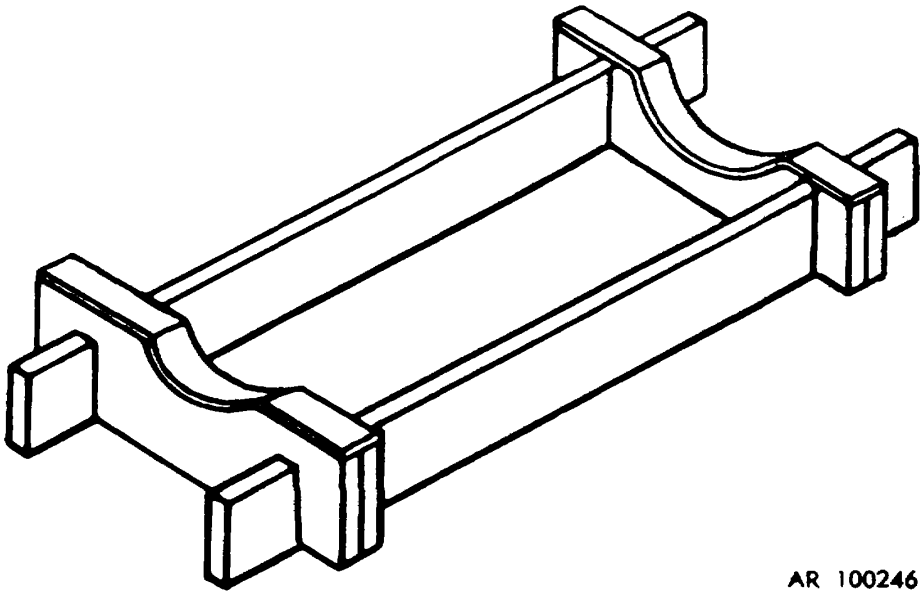


Figure C-6. Lance Maintenance stand.

Section II. REPAIR PARTS LIST

(1) Illustration (a) No. Fig.	(1) Illustration (b) Item No.	(2) SMR code	(3) National stock No.	(4) Part No.	(5) Federal supply code for manufacturing	(6) Description	(7) Unit of measure	(8) Quantity incorporated in unit
						GROUP 01-WARHEAD SECTION, GUIDED MISSILE, PRACTICE: LIGHTWEIGHT , M252 0101-NOSE CONE		
C-1	1	PAOZZ	5325-00-639-5098	10293167	19203	STUD, TURNLOCK FASTENER: S. cd-pltd, slotted head drive, I in. o/a length.	ea	8
C-1	2	PGOZZ	1336-00-283-9463	10246033	19203	NOSE CONE: 0102-SKIN ASSEMBLY	ea	1
C-2	1	PAOZZ	5935-00-410-2748	8879955	19203	COVER, ELECTRICAL,. CONNECTOR: (PAL).	ea	1
C-2	2	PAOZZ	5330-00-840-6410	MS9068-133	96906	PACKING PREFORMED: 01 03-AFT BULKHEAD AREA	ea	1
C-2	3	PAOZZ	5315-00-841-4442	MS16562224	96906	PIN, SPRING: cres 1/8 in. dia. 3/4 in lg, 1132 in. thk (part of swing bolt, assembly}.	ea	4
C-2	4	PAOZZ	5310-00-001-1301	92 37309	19203	NUT, PLAIN, EXTENDED WASHER, DOUBLE HEXAGON: S. cd-pltd, 5/8-18UNJF3B, 13/16 in. w, 45/64 in. h, 1-1/4 in. od of washer (part of the swing bolt assembly).	ea	4
C-2	5	PAOZZ	5310-00-614-3505	MS15795820	96906	WASHER, FLAT: cres, 5/8 in.id. 1-5/16 in. od. 1/8 in. thk (part of swing bolt assembly).	ea	4
C-2	6	PAOZZ	5305-00-084-2757	NAS1189E3P18	80205	SCREW, SELF-LOCKING: cres, No. 10-32NF-2A X 1-1/8.	ea	8
C-2	7	PAOZZ	1115-00-883-8134	8878938	192()3	COVER, TEE HEAD BOLT:	ea	4

(1) Illustration (a) No. Fig.	(1) Illustration (b) Item No.	(2) SMR code	(3) National stock No.	(4) Part No.	(5) Federal supply code for manufacturing	(6) Description	(7) Unit of measure	(8) Quantity incorporated in unit
C-2	8	PAOZZ	5306-00-172-3171	9237322	19203	BOLT, TEE HEAD: alloy-S, 5/8-18UNF-3A X 3-19132 (part of swing bolt assembly.	ea	4
C-2	9	PAOZZ	5315-00-933-7586	8877426	19203	PIN, SHOULDER, HEADLESS: cres, 1/2 in. lg.	ea	6
C-2	10	PAOZZ	5315-00-189-4661	8877425	19203	PIN, SHOULDER, HEADLESS: cres, 2 in. lg.	ea	2
C-2	12	PAOZZ	5935-00-279-1587	9281653	19203	COVER, ELECTRICAL CONNECTOR: protective cover and flag assembly.	ea	1
						GROUP 02-SHIPPING AND STORAGE' CONTAINER, WARHEAD SECTION: M511		
						0201-CO VER ASSEMBLY		
C-3	1	PAOZZ	8140-00-883-1538	9219562	19200	DOOR, ACCESS, SHIPPING AND STORAGE CONTAINER:	ea	1
C-3	2	PAOZZ	5330-00-883-1540	8880558-4	19203	SEAL., RUBBER SPECIAL SHAPED SECTION:	ea	1
C-3	3	PAOZZ	6685-00-998-7412	9220303	19203	INDICATOR, HUMIDITY PLUG:	ea	1
C-3	5	PAOZZ	6685-00-052-1865	8881094	19203	INDICATOR, HUMIDITY CARD:	ea	1
						0202-BASE ASSEMBLY		
C-3	6	PAOZZ	5310-00-768-0318	MS51967-14	96906	NUT, PLAIN, HEXAGON: carbon, cd-pltd, l/2- 13 UNC-2B.	ea	22
C-3	7	PAOZZ	5310-00-584-5272	MS35338-48	96906	WASHER, LOCK: S. cd-pltd, split, for 1/2-in. bolt size.	ea	22
C-3	8	PAOZZ	5306-00-252-4423	9231556	19203	BOLT, TEE HEAD: S. cd pltd, 1/2-13 UNC-2A X 2.00 in. lg.	ea	22
C-3	9	PAOZZ	5310-00-809-5998	MS27183-18	96906	WASHER, FLAT: S. cd-pltd, 0.500 in. id, 1.062 in. od, 0.074 in. thk.	ea	22
C-3	10	PAOZZ	5999-00-252-4379	9231557-1	19203	SHIELDING GASKET, ELECTRONIC:	ea	1
C-3	13	PAOZZ	5310-00-763-8901	MS51968-23	96906	NUT, PLAIN, HEXAGON: carbon S. cd-pltd, 3/4-16 UNF-2B.	ea	8
C-3	14	PAOZZ	6310-00-809-8533	MS27183-23	96906	WASHER, FLAT: S. cd-pltd, 0.805 in. id, }.462 in. oaf, 0.108 in thk.	ea	16
C-3	15	PAOZZ	5305-00-940-8069	MS90727-197	96906	SCREW, CAP, HEXAGON HEAD: S. cd-pltd, 3/4-16UNF-2A X 4.500 in. lg.	ea	8
C-3	16	MHOOZ		9219399	19200	RUNNER, WOOD:	ea	4
C-3	17	PAOZZ	5310-00-067-9507	MS51922-37	96906	NUT, SELF LOCKING, HEXAGON: carbon S. cd-pltd, 1/2-20UNF-2B.	ea	4
C-3	18	PAOZZ	5310-00-809-3079	MS27183-19	96906	WASHER, FLAT: S. cd-pltd, 0.500 in. id, 1.375 in. od, 0.109 in. thk.	ea	8
C-3	19	PAOZZ	5305-00-719-5275	MS90727-128	96906	SCREW, CAP, HEXAGON HEAD: S. cd-pltd, 1/2-20UNF-2A X 5.500 in. lg.	ea	4
C-3	20	PAOZZ	5310-00-081-8087	MS21044-NO6	96906	NUT, SELF-LOCKING, HEXAGON: S. 0.138-32 UNJC-3B.	ea	4
C-3	21	PAOZZ	5310-00-082-1404	MS27183-6	96906	WASHER, FLAT: S. cd-pltd, 0.151 in. id, 0.370 in. oaf, 0.036 in. thk.	ea	4
C-3	22	PAOZZ	5305-00-889-3001	MS35206-231	96906	SCREW, MACHINES: S. cd-pltd, fl-hd, No 6-32UNC-2A X 0.625 in. lg.	ea	4
C-3	23	PAOZZ	5340-00-235-9685	9223266	19203	CLIP, SPRING TENSION:	ea	4
C-3	24	PAOZZ	4730-00-992-7272	MS20913-3K	96906	PLUG, PIPE:corr-res-S, 0.375-18NPT	ea	2
C-3	25	PAOZZ	5310-00-828-8}89	MS35425-41	96906	NUT, PLAIN, WINGS. cd-pltd, 5/l6-18, UNC- 2B	ea	2
C-3	26	PAOZZ	5310-00-081-4219	MS27183-12	96906	WASHER. FLAT: S. cd-pltd, 0.344 in. id 0.687 in. oaf, 0.051 in. thk.	ea	12
C-3	27	PAOZZ	5330-01-008-6660	9287680	19203	GASKET	ea	1
C-3	29	PAOZZ	5310-00-984-3806	MS51922-9	96906	NUT, SELF-LOCKING, HEXAGON: S. cd-pltd, 5/16-18UNC-2B.	ea	10

(1) Illustration (a) No. Fig.	(1) Illustration (b) Item No.	(2) SMR code	(3) National stock No.	(4) Part No.	(5) Federal supply code for manufacturing	(6) Description	(7) Unit of measure	(8) Quantity incorporated in unit
C-3	30	PAOZZ	4820-00-122-1121	9220106-2	19203	VALVE, PRESSURE EQUALIZING	ea	2
C-3	31	PAOZZ	5999-00-408-0952	9231657-2	19203	SHIELDING GASKET, ELECTRONIC	ea	1
C-3	34	PAOZZ	5306-00-225-8499	MS90725-34	96906	BOLT, MACHINES, cd-pltd, 5/16-18 UNC-2A X 1.000 in. lg.	ea	1
C-3	35	PAOZZ	5330-00-248-3831	MS29513-011	96906	PACKING , PREFORMED :syn-ru.0.296 in. min id, 0.067 in. min h.	ea	1
C-3	36	PAOZZ	5310-01-021-5237	9224971	19203	WASHER:	ea	2
C-3	37	PAOZZ	5330-01-035-5059	9224970	19203	GASKET:	ea	2
C-3	38	PAOZZ	5310-00-407-9566	MS35338-45	96906	WASHER, LOCK: S. cd-pltd, 0.318 in. min hole dia.	ea	1
C-3	39	PAOZZ	5310-00-880-7744	MS51967-5	96906	NUT, PLAIN, HEXAGON: S. cd-pltd, 5/16- 18UNC-2B	ea	1
						0203—SUSPENSION FRAME ASSEMBLY		
C-4	1	PAOZZ	5310-00-768-0318	MS51967-14	96906	NUT, PLAIN, HEXAGON: carbon S. cd-pltd, l/2-13UNC-2B.	ea	4
C-4	2	PAOZZ	5310-00-584-5272	MS35338-48	96906	WASHER, LOCK: S. cd-chromate fin., split, for '/~-in. bolt size.	ea	4
C-4	3	PAOZZ	5306-00- 252-4423	9231556	19203	BOLT. TEE HEAD: S c d · p 1 t d. tz2-13UNC-2A X 2.001g.		
C-4	4	PAOZZ	5310-00-809-5998	M,§27183-18	96906	WASHER, FLAT: S. cd pltd, 0.500 in. id, 1.062 in. od, 0.075 in. thk.	ea	4
C-4	5	PAOZZ	9390-00-409-5640	9248698-1	19203	NONMETALLIC CHANNEL	ea	1
C-4	6	PAOZZ	9390-00-409-5641	9248698-2	19203	NONMETALLIC CHANNEL	ea	1
C-4	12	PAOZZ	5310-00-761-6882	MS51967-2	96906	NUT, PLAIN, HEXAGON: carbon S. ¼-20 UNC-2B.	ea	6
C-4	13	PAOZZ	5310-00-582-5965	MS35338-44	96906	WASHER, LOCK: S. ki in. bolt size	ea	6
C-4	14	PAOZZ	5310-00-809-4058	MS27183-10	96906	WASHER, FLAT: S, cd-pltd, '.~-in. screw size.	ea	12
C-4	15	PAOZZ	5305-00-071-2505	MS90728-7	96906	SCREW, CAP, HEXAGON HEAD: S. cd-pltd, 'Z`-20 UNC-2A X 0.875 in. lg.	ea	6
C-4	16	PAOZZ	8140-00-250-8667	9280023	19203	PAD, CUSHIONING: ru, 26.750 in. 1g. 7.135 in. w,2 in. thk.	ea	2

Section III. SPECIAL TOOLS LIST

(1) Illustration (a) No. Fig.	(1) Illustration (b) Item No.	(2) SMR code	(3) National stock No.	(4) Part No.	(5) Federal supply code for manufacturing	(6) Description	(7) Unit of measure	(8) Quantity incorporated in unit
						GROUP 04—TOOLS AND, EQUIPMENT		
C-5	-	PAOZZ	5120-00-866-6677	9219129	19203	WRENCH, OPEN END, FIXED: H4244 issued Two per missile mating tool kit).	ea	
C-6	-	MHOHZ				LANCE MAINTENANCE STAND.	ea	
2-2	-	PEODD	1450-00-937-0894	10162468	18876	SLING, BEAM TYPE: M22	ea	

Section IV. NATIONAL STOCK NUMBER, PART NUMBER AND ITEM NUMBER INDEX

National stock number cross-reference to figure and item number

National stock number	Figure No.	Item No.
1115-00-883-8134	C-2	7
1336-00-283-9463	C-1	2
1450-00-937-0894	2-2	-
4730-00-992-7272	C-3	24
4820-00-122-1121	C-3	30
5120-00-866-6677	C-5	-
5305-00-071-2505	C-4	15
5305-00-719-5275	C-3	19
5305-00-084-2757	C-2	6
5305-00-889-3001	C-3	22
5305-00-940-8069	C-3	15
5306-00-172-3171	C-2	8
5306-00-225-8499	C-3	34
5306-00-252-4423	C-3	8
5306-00-252-4423	C-4	3
5310-00-001-1301	C-2	4
5310-00-067-9507	C-3	17
5310-00-081-4219	C-3	26
5310-00-081-8087	C-3	20
5310-00-082-1404	C-3	21
5310-00-407-9566	C-3	38
5310-00-582-5965	C-4	13
5310-00-584-5272	C-3	7
5310-00-584-5272	C-4	2
5310-00-614-3505	C-2	5
5310-00-761-6882	C-4	12
5310-00-763-8901	C-3	13
5310-00-768-0318	C-3	6
5310-00-768-0318	C-4	1
	C-3	16
5310-00-809-3079	C-3	18
5310-00-809-4058	C-4	14
5310-00-809-5998	C-3	9
5310-00-809-5998	C-4	4
5310-00-809-8533	C-3	14
5310-00-880-7744	C-3	39
5310-00-984-3806	C-3	29
5310-01-021-5237	C-3	36
5315-00-189-4661	C-2	10
5315-00-841-4442	C-2	3
5315-00-933-7586	C-2	9
5325-00-639-5098	C-1	1
5330-00-248-3831	C-3	35
5330-00-840-6410	C-2	2
5330-00-883-1540	C-3	2
5330-01-008-6660	C-3	27
5330-01-035-5059	C-3	37
5340-00-235-9685	C-3	23
5935-00-410-2748	C-2	1
5935-00-279-1587	C-2	12
5999-00-252-4379	C-3	10
5999-00-408-0952	C-3	31
6685-00-052-1865	C-3	5
6685-00-998-7412	C-3	3
8140-00-250-8667	C-4	16
8140-00-883-1538	C-3	1
9390-00-409-5640	C-4	5
9390-00-409-5641	C-4	6

Part Number Cross-Referenced to Figure and Item Number

Part number	Mfr No.	Fig. No.	Item No.
MS9068-133	96906	C-2	2
MS15795-820	96906	C-2	5
MS16562-224	96906	C-2	3
MS20913-SK	96906	C-3	24
MS21044-N06	96906	C-3	20
MS27183-6	96906	C-3	21
MS27183-10	96906	C-4	14
MS27183-12	96906	C-3	26
MS29153-011	96906	C-3	35
MS51967-2	96906	C-4	12
MS51922-9	96906	C-3	29
MS51922-37	96906	C-3	17
MS51967-5	96906	C-3	39
MS51967-15	96906	C-3	6
MS51967-15	96906	C-4	1
MS51968-23	96906	C-3	13
MS90725-34	96906	C-3	34
MS90727-128	96906	C-3	19
MS90727-197	96906	C-3	15
MS90728-7	96906	C-4	15
NAS1189E3P18	80205	C-2	6
8877425	19203	C-2	10
8877426	19203	C-2	9
8878938	19203	C-2	7
8879955	19203	C-2	1
8880558-4	19200	C-3	2
8881004	19203	C-3	5
MS27183-18	96906	C-3	9
MS27183-18	96906	C-4	4
MS27183-19	96906	C-3	18
MS27183-23	96906	C-3	14
MS35206-231	96906	C-3	22
MS35338-44	96906	C-4	13
MS35338-45	96906	C-3	38
MS35338-48	96906	C-3	7
MS35338-48	96906	C-4	2
9219129	19203	C-5	------
9219399	19200	C-3	16
9219562	19200	C-3	1
9220106-2	19203	C-3	30
9220303	19203	C-3	3
9223266	19203	C-3	23
9224970	19203	C-3	37
9224971	19203	C-3	36
9287680	19203	C-3	27
9231556	19203	C-3	8
9231556	19203	C-4	3
9231557-1	19203	C-3	10
9231557-2	19203	C-3	31
9237309	19203	C-2	4
9237322	19203	C-2	8
9248698-1	19203	C-4	5
9248698-2	19203	C-4	6
9280023	19203	C-4	16
9281653	19203	C-2	12
10162468	18876	2-2	------
10246033	19203	C-I	2
10293157	19203	C-i	1

Figure Number Cross-Referenced to National Stock Number

Figure No.	Item No.	National stock number
C-i	1	5325-00-639-5098
C-i	2	1336-00-283-9463
C-2	1	5935-00-410-2748
C-2	2	5330-00-840-6410
C-2	3	5315-00-841-4442
C-2	4	5310-00-001-1301
C-2	5	5310-00-614-3505
C-2	6	5305-00-084-2757
C-2	7	1115-00-883-8134
C-2	8	5306-00-172-3171
C-2	9	5315-00-933-7586
C-2	10	5315-00-189-4661
C-2	12	5935-00-297-1587
C-3	1	8140-00-883-1538
C-3	2	5330-00-883-1540
C-3	3	6685-00-998-7412
C-3	5	6685-00-052-1865
C-3	6	5310-00-768-0318
C-3	7	5310-00-584-5272
C-3	8	5306-00-252-4423
C-3	9	5310-00-809-5998
C-3	10	5999-00-252-4379
C-3	13	5310-00-763-8901
C-3	14	5310-00-809-8533
C-3	15	5305-00-940-8069
C-3	16	
C-3	17	5310-00-067-9507
C-3	18	5310-00-809-3079
C-3	19	5305-00-719-5275
C-3	20	5310-00-081-8087
C-3	21	5310-00-082-1404
C-3	22	5305-00-889-3001
C-3	23	5340-00-235-9685
C-3	24	4730-00-992-7272
C-3	26	5310-00-081-4219
C-3	27	5330-01-008-6660
C-3	29	5310-00-984-3806
C-3	30	4820-00-122-1121
C-3	31	5999-00-408-0952
C-3	34	5306-00-225-8499
C-3	35	5330-00-248-3831
C-3	36	5310-01-021-5237
C-3	37	5330-01-035-5059
C-3	38	5310-00-407-9566
C-3	39	5310-00-880-7744
C-4	1	5310-00-768-0318
C-4	2	5310-00-584-5272
C-4	3	5306-00-252-4423
C-4	4	5310-00-809-5998
C-4	5	9390-00-409-5640
C-4	6	9390-00-409-5641

Figure No.	Item No.	National stock number
C-4	12	5310-00-761-6882
C-4	13	5310-00-582-5965
C-4	14	5310-00-809-4058
C-4	15	5305-00-071-2505
C-4	16	8140-00-250-8667
C-5		5120-00-866-6677
2-2		1450-00-937-0894

APPENDIX D

EXPENDABLE SUPPLIES

Section I. INTRODUCTION

D-1. Scope
This appendix lists expendable supplies which are authorized for organizational maintenance.

D-2. Explanation of Columns
The following provides an explanation of columns in section II.

a. National Stock Number. Column 1 indicates the National stock number assigned to the item. This number will be used for requisitioning purposes.

b. Description. Column 2 indicates the item name and brief description.

c. Unit of Issue. Column 3 indicates the unit of issue for each item.

Section II. EXPENDABLE SUPPLIES

(1) National Stock No.	(2) Description	(3) Unit of measure
	Listed items should be requisitioned. as required, through normal supply channels.	
8040-00-543-7170	ADHESIVE: synthetic rubber, spec MMM-A- 189	pt
6810-00-983-8551	ALCOHOL, ISOPROPYL, TECHNICAL: TT-I-735.	qt
8020-00-242-7266	BRUSH, PAINT: hog bristle, flat w/sq edge, 3 in. w, 7/8 in. thick, 3¼4 in. exposed lg, spec H-B-420, class 1, grade B.	ea
8020-00-850-0084	BRUSH, PAINT: oval w/chisel edge l/2-inch. w, 1-7/8 in. min exposed lg, spec H-B-491, type I, class 1.	ea
7920-00-255-5135	BRUSH, WIRE, SCRATCH: cop-beryllium curved handle; 13-l/4 in. lg, spec H-B-178, type 1, class 2.	ea
6850-00-984-5853	CLEANING COMPOUND, SOLVENT: spec M IL-C-81302.	cn
5350-00-192-5049	CLOTH, ABRASIVE: closed coating aloxide, #120 grit extra fine, 9 X 11 in., spec P-C-451, type I, class 1.	pg
5350-00-221-0872	CLOTH, ABRASIVE: crocus cloth, 9 X 11 in., spec P-C-458, class 1.	pg
7920-00-292-9204	CLOTH, CLEANING: lintless fabric, 18 in. X 16-V1 in., spec CCC-C-46, type I, class 1.	pg
8030-00-165-8577	COATING COMPOUND, METAL PRETREATMENT: spec MIL-C-15328.	kt
6850-00-264-6571	DESICCANT, ACTIVATED: MIL-D-3464.	dr
7930-00-249-8036	DETERGENT, GENERAL PURPOSE: 5 lb, spec P-D-220, type 1.	lb
8010-00-111-8005	ENAMEL: black (camouflage) MIL-E-52798, 1 gl.	gl
8010-00-935-7156	ENAMEL: blue, lusterless, No. 35109, pressurized can, spec TT-E-516.	pt
8010-00-297-0801	ENAMEL: blue, lusterless, No. 35109, spec TT-E-516	gl
8010-00-111-8010	ENAMEL: forest green (camouflage) MIL-E-52798 5 gl.	gl
8010-00-111-7937	ENAMEL: forest green (camouflage) MIL-E-52798, 1 gl.	gl
8010-00-848-9272	ENAMEL: olive drab, lusterless, No 34087, pressurized can, spec TT-E-516.	pt
8010-00-297-2116	ENAMEL: olive drab, lusterless, No. 34087, spec TT-E-516.	gl
5315-00-597-9766	FASTENER, CORRUGATED: wood joint, spec FF-F-133, type 1.	bx
7510-00-191-6030	INK, MARKING, STENCIL: black, No. 37038, spec TT-I-1795. Type I or 111II	gl
7510-00-224-6732	INK, MARKING, STENCIL: white, No. 37875, spec TT-I-1795, Type I.	pt
5350-00-186-8821	PAPER, ABRASIVE: garnet, #150 grit, 9 X 11 in., closed coat, spec P-P-121, class 2.	pg
5350-00-221-0881	PAPER, ABRASIVE: garnet, #150 grit, 9 X 11 in., open coat, spec P-P-121, class 1.	pg
8010-00-936-8372	PRIMER, COATING: zinc-chromate, pressurized can, spec TT-P-664.	pt
5340-00-902-0426	SEAL, ANTIPILFERAGE: 0.500 in dia lead, 24 in. 4 strand wire, spec MS 51938-6.	hd
8135-00-081-3180	SHEET, PLASTIC: polyethylene, colorless, 50 in. X 20 in. X 0.005 in. thick, spec L-P-378, type 1, grade A, fin. 1.	ea
8135-00-836-0810	TAPE, PRESSURE-SENSITIVE, ADHESIVE, BLUE: spec PPP-T-60, class 1.	ro
8010-00-160-5794	THINNER, SYNTHETIC RESIN, ENAMEL: spec TT-T-306	gl
6810-00-290-0048	TOLUENE, TECHNICAL: 5-gal. can, spec TT-T-548	cn

BY Order of the Secretary of the Army:

E .C. MEYER
General United States Army
Chief of Staff

Official

J. C. PENNINGTON
Major General United States Army
The Adjutant General

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The Metric System and Equivalents

Linear Measure

1 centimeter = 10 millimeters = .39 inch
1 decimeter = 10 centimeters = 3.94 inches
1 meter = 10 decimeters = 39.37 inches
1 dekameter = 10 meters = 32.8 feet
1 hectometer = 10 dekameters = 328.08 feet
1 kilometer = 10 hectometers = 3,280.8 feet

Weights

1 centigram = 10 milligrams = .15 grain
1 decigram = 10 centigrams = 1.54 grains
1 gram = 10 decigram = .035 ounce
1 dekagram = 10 grams = .35 ounce
1 hectogram = 10 dekagrams = 3.52 ounces
1 kilogram = 10 hectograms = 2.2 pounds
1 quintal = 100 kilograms = 220.46 pounds
1 metric ton = 10 quintals = 1.1 short tons

Liquid Measure

1 centiliter = 10 milliliters = .34 fl. ounce
1 deciliter = 10 centiliters = 3.38 fl. ounces
1 liter = 10 deciliters = 33.81 fl. ounces
1 dekaliter = 10 liters = 2.64 gallons
1 hectoliter = 10 dekaliters = 26.42 gallons
1 kiloliter = 10 hectoliters = 264.18 gallons

Square Measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch
1 sq. decimeter = 100 sq. centimeters = 15.5 sq. inches
1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet
1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. feet
1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres
1 sq. kilometer = 100 sq. hectometers = .386 sq. mile

Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch
1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches
1 cu. meter = 1000 cu. decimeters = 35.31 cu. feet

Approximate Conversion Factors

To change	*To*	*Multiply by*	*To change*	*To*	*Multiply by*
inches	centimeters	2.540	ounce-inches	newton-meters	.007062
feet	meters	.305	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	.093	square centimeters	square inches	.155
square yards	square meters	.836	square meters	square feet	10.764
square miles	square kilometers	2.590	square meters	square yards	1.196
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.028	square hectometers	acres	2.471
cubic yards	cubic meters	.765	cubic meters	cubic feet	35.315
fluid ounces	milliliters	29.573	cubic meters	cubic yards	1.308
pints	liters	.473	milliliters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallons	liters	3.785	liters	quarts	1.057
ounces	grams	28.349	liters	gallons	.264
pounds	kilograms	.454	grams	ounces	.035
short tons	metric tons	.907	kilograms	pounds	2.205
pound-feet	newton-meters	1.365	metric tons	short tons	1.102
pound-inches	newton-meters	.11375			

Temperature (Exact)

^{o}F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	^{o}C

PIN : 027394-000