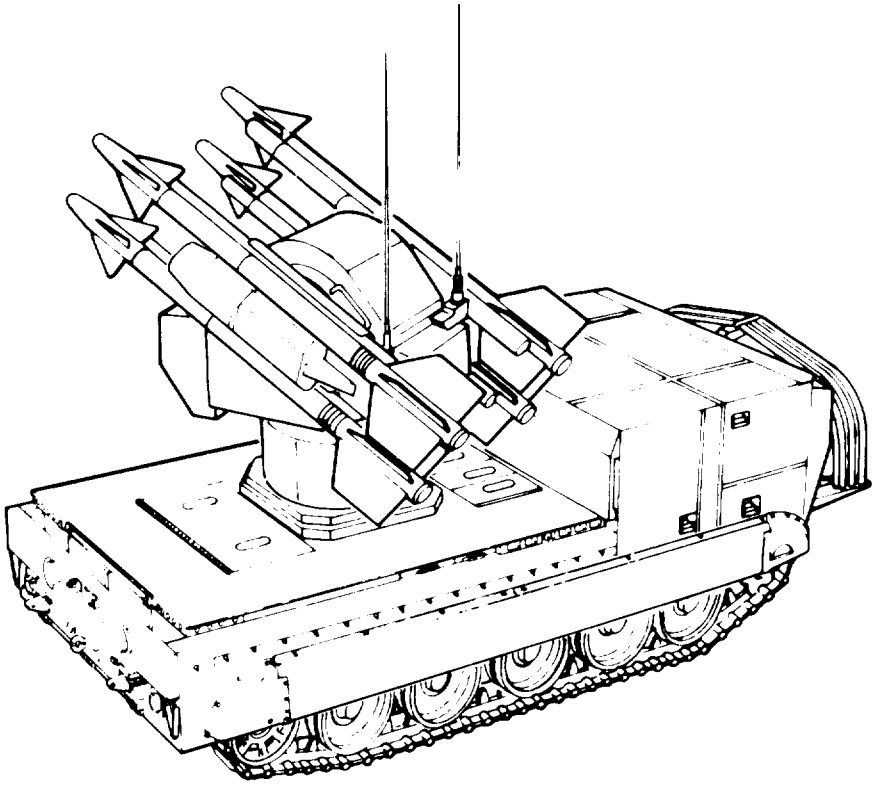
TECHNICAL MANUAL
OPERATOR, ORGANIZATIONAL, DS, AND GS
MAINTENANCE MANUAL
FOR M48A2



GENERAL MAINTENANCE;
SERVICE UPON RECEIPT;
SHIPPING AND STORAGE; AND
DEMOLITION TO PREVENT ENEMY USE,

CHAPARRAL AIR DEFENSE GUIDED MISSILE SYSTEM

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

MS 550522A

HEADQUARTERS, DEPARTMENT OF THE ARMY
JUNE 1984

HIGH PRESSURE DANGER

1. BE CERTAIN that personnel are trained in use of high-pressure air hoses and components.

2. USE system only for its designed purpose.

3. INSPECT all systems using high pressure air before, during and after use. Check for leaks, defective air hoses, improperly adjusted valves, bad regulators and relief valves.

4. USE ONLY the lubricants that are specified for pneumatic components.

5. CLEAR all air hoses and valves at regular intervals. Release pressure through bleeder valves before disconnecting any lines, hoses, or making any repairs.

6. STAND CLEAR of hose connections and turn valves slowly to prevent shock loading or pressure surges when pressurizing a system.

7. KEEP high pressure air hoses flexible, unpainted, free of kinks and twists, slack, secure and properly stored.

8. BLOW DOWN the refrigerant system charge to 0 psig before removing any components.

9. BLOW DOWN high pressure air subsystem at air purifier blowdown valve before performing any maintenance on launch rails, air compressor, slipring or air line connections.

10. BE AWARE that 3000 psig air pressure is used in the operation of this equipment.

MS 550592

HANDLING CLEANING AGENTS

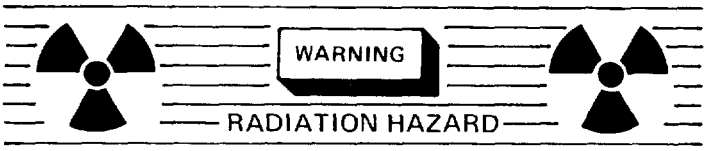
Toxic solvents are used in servicing the equipment. Methyl-ethyl ketone TT-M-261 is a highly flammable solvent containing toxic characteristics that may irritate the skin and cause burns or internal disorders if fumes are repeatedly inhaled.

Trichloroethylene is a flammable solvent that has a chloroform odor. Inhaling concentrated fumes can cause unconsciousness. Inhaling fumes for a prolonged time can cause headache and drowsiness. Solvent absorbed by the skin can also result in internal disorders.

The safety measures described below should be observed in the handling and use of solvents.

1. Avoid prolonged or repeated breathing of vapors.
2. Use only in a well-ventilated area.
3. Keep away from heat, sparks, or open flames.
4. Avoid contact with skin, eyes, and clothing. The use of gloves is advised to prevent irritation or inflammation of the skin. If contact with the skin or eyes does occur, quickly wash the affected area with water for at least 15 minutes. For eyes seek medical attention immediately after flushing eyes with water.

MS 550589



WARNING

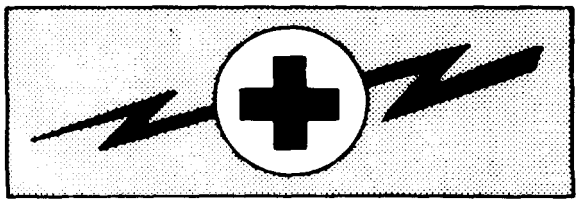
The anti-reflective coating on all infrared optics contains thorium fluoride which is slightly radioactive. The only potential hazard involves ingestion (swallowing or inhaling) of this coating material. Dispose of broken lenses, etc. in accordance with AR385-11.

MS 550588

ELECTROSTATIC DISCHARGE

This equipment contains parts and assemblies sensitive to damage by electrostatic discharge (ESD). Use **ESD PRECAUTIONARY PROCEDURES AND EQUIPMENT** when touching, removing, or inserting assemblies.

MS 550593



DANGEROUS VOLTAGE

HIGH VOLTAGE is used in this system. Death or injury can result if you do not observe the safety precautions given in the instructions.

LOW VOLTAGE can be dangerous. Don't be misled by the term "low voltage!" Any voltage may cause death or injury under certain conditions.

Never work on electronic equipment unless there is another person nearby who is familiar with the operation and hazards of the equipment and competent in administering first aid.

For Artificial Respiration, refer to FM 21-11.

MS 550585

CARBON MONOXIDE

Carbon monoxide is colorless, odorless, **DEADLY POISONOUS** gas which, when breathed, deprives the body of oxygen and causes **SUFFOCATION**. Exposure to air contaminated with carbon monoxide produces symptoms of headache, dizziness, loss of muscular control, apparent drowsiness, coma. Permanent **BRAIN DAMAGE** or **DEATH** can result from severe exposure.

Carbon monoxide occurs in the exhaust fumes of fuel burning heaters and internal-combustion engines and becomes **DANGEROUSLY CONCENTRATED** under conditions of **INADEQUATE VENTILATION**. The following precautions MUST be observed to insure the safety of personnel whenever the personnel heater, the engine coolant heater, or the engine of any equipment is operated for maintenance purposes or tactical use.

1. **DO NOT** operate the heaters, main power unit (MPU), or engine of the carrier in an enclosed area unless it is **ADEQUATELY VENTILATED.**
2. **DO NOT** operate the MPU with the cargo covers installed.
3. **DO NOT** idle the engine for long periods without maintaining **ADEQUATE VENTILATION** in the driver's cab.
4. **DO NOT** drive the carrier with drain cover, access covers, or power plant access panels removed, unless necessary for maintenance purposes.
5. **DO NOT** enter covered portion of vehicle during or immediately after operation of the MPU. Ventilate cargo area before entering.
6. **BE ALERT** at all times during carrier operation for exhaust odors and exposure symptoms. If either are present, **IMMEDIATELY VENTILATE** the driver's cab. If symptoms persist, remove affected personnel from the carrier and treat as follows: expose to fresh air; keep warm; **DO NOT PERMIT PHYSICAL EXERCISE**; if necessary, administer artificial respiration as described in FM 21-11.

THE BEST DEFENSE AGAINST CARBON MONOXIDE POISONING IS ADEQUATE VENTILATION.

MS 550587

HIGH NOISE DANGER

Your hearing can be permanently damaged if you are exposed to constant high noise levels of 85 dB(A) or greater.

Wear approved hearing protection device or the gunner's headset when working in high noise level areas. The noise level reaches 85 dB(A) 30 feet from the fire unit and increases to 100 dB(A) in the area of the Main Power Unit (MPU) compartment. The noise level inside the gunner's compartment ranges from 85 dB(A) to 95 dB(A) when Mount Conditioning is set to HIGH. Personnel exposed to high noise levels shall participate in a hearing conservation program in accordance with TB MED 501.

MS 550586A

ASBESTOS HAZARD

ABLATIVE COATING ON BASE DECK CONTAINS ASBESTOS FIBERS. AVOID CREATING DUST. BREATHING ASBESTOS FIBERS MAY CAUSE SERIOUS BODILY HARM.

Do not sand, grind, file or otherwise abrade ablative coating which also contains silica.

Ablative coating surface preparation must be performed in compliance with:

- 29 CFR 1910.1001 (OSHA Asbestos Standard)
- DoD 6055.5M (Medical Surveillance for Asbestos Workers)
- 29 CFR 1910.1000, Tables Z-1,Z-2, and Z-3
- All Surgeon General's directives applicable to asbestos-related activity
- 29 CFR 1910.134 (Respiratory Protection)

Failure to adopt safe working practices for handling asbestos can cause workers to develop asbestos-related disabling and fatal diseases.

LIST OF EFFECTIVE PAGES

Insert latest changed pages; dispose of superseded pages in accordance with applicable regulations.

NOTE: On a changed page, the portion of the text affected by the latest change is indicated by a vertical line in the margin next to the changed text. Changes to illustrations are indicated by a pointing hand or shading and a sequentially higher letter suffixed to the MS number.

Dates of issue for original and change pages are:

Original ...0 .... 28 Jun 84 Change ... 2... 28 May 87
Change ...1 .... 20 Jan 86 Change ... 3 ... 20 Mar 91

Total number of pages in this manual is 124 consisting of the following:

Page No.	*Change No.
a-b	0
c	2
d	3
A	3
B Blank	1
i	1
ii	2
iii	0
iv	1
1-1	1
1-2 Blank	0
2-1	1
2-2 - 2-6	0
3-1 - 3-3	0
3-4	2
3-5 - 3-7	0
3-8 Blank	0
4-1 - 4-17	0
4-18	2
4-19 - 4-21	0
4-22 - 4-24	3
4-24.1 Added	3
4-24.2 Blank Added	3
4-25	3
4-26	2
5-1 - 5-7	1
5-8 - 5-9	3
5-10	1
5-11	3
5-12 - 5-19	1
5-20 - 5-23	3
5-24	1
5-25 - 5-27	3
5-28 - 5-30	1
5-31	3
5-32	1
5-33 - 5-36	3
5-37 - 5-38	1
5-39	3
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5-41	2
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6-1 - 6-2	0
7-1 - 7-3	0
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A-1	0
A-2 Blank	0
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C-1 -C-7	0
C-8 Blank	0
D-1	0
D-2 - D10	3
D-11 Deleted	3
D-12 Blank Deleted	3

*Zero in this column indicates an original page.

Technical Manual)
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TM 9-1425-2585-14)

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, D.C., *28 June 1984*

**Operator, Organizational, DS, and GS Maintenance Manual for M48A2:
GENERAL MAINTENANCE; SERVICE UPON RECEIPT;
SHIPPING AND STORAGE; AND DEMOLITION
TO PREVENT ENEMY USE**

CHAPARRAL AIR DEFENSE GUIDED MISSILE SYSTEM

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS
You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual directly to Commander, U.S. Army Missile Command, ATTN: AMSMI-LC-ME-PM, Redstone Arsenal, Alabama 35898-5238. A reply will be furnished to you.

TABLE OF CONTENTS - Continued

TABLE OF CONTENTS - Continued

LIST OF ILLUSTRATIONS

LIST OF TABLES

CHAPTER 1

INTRODUCTION

1-1. Scope. This general maintenance manual is for the operator, organizational, direct support (DS), and general support (GS) personnel responsible for maintenance of the launching station M54A2, guided missile system shop equipment (Organizational Maintenance Shop Set) AN/ TSM-95A (OMSS), and support maintenance shop set AN/TSM-96A (SMSS). It is one of a series of technical manuals (TMs) on the assembly, emplacement, operation, and maintenance of the CHAPARRAL Air Defense Guided Missile System M48A2. Throughout this manual, the carrier vehicle will be referred to as the M730 for all series of the vehicle.

1-2. Maintenance Forms and Records. Department of the Army forms and procedures used for equipment maintenance will be those prescribed in DA PAM 738-750, The Army Maintenance Management System (TAMMS). The DA PAM is published in the Maintenance Management UPDATE. Units may subscribe to Maintenance Management UPDATE by submitting a completed DA Form 12-13.

1-3. Reporting Equipment Improvement Recommendations (EIRs). If your OMSS, SMSS, or launching station needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design. Tell us why a procedure is hard to perform. Put it on an SF 368 (Quality Deficiency Report). Mail it to the address stated in DA PAM 738-750. We'll send you a reply.

1-4. Maintenance Allocation. Allocation of maintenance for the launching station M54A2 is contained in the maintenance allocation chart (MAC) in TM 9-1440-2585-20-3, for the OMSS in TM 9-49351587-14, and for the SMSS in TM 9-4935-2585-14-1.

1-5. Modification Work Orders. Refer to TM 9-14252585-10-1 for a listing of all modification work orders affecting the CHAPARRAL Air Defense Guided Missile System.

1-6. Deleted

CHAPTER 2

OPERATION UNDER ADVERSE CLIMATIC CONDITIONS

AND PREPARATION FOR OPERATION UPON RECEIPT

2-1. Operation Under Unusual Conditions.

a. When operating in salt-water areas, exercise care to prevent or remedy corrosion. Keep all equipment as clean and free of moisture as possible. Remove salt deposits daily. Repair all blistered or chipped paint. Be sure to thoroughly prepare and prime surfaces using a corrosion inhibitor such as zinc chromate (para 4-14b).

b. When operating in mud or extremely wet conditions, operate the heaters as frequently as possible to reduce humidity. Refer to TM 9-1425-2586-10 for launching * station heater operation and to TM 9-4935-1587-14 and TM 9-4935-2585-14-1 for the OMSS and SMSS heater operation. Remove all accumulations of mud and moisture, and dry equipment thoroughly as necessary. A trench should be dug around the OMSS and SMSS shelters to provide water drainage.

c. During extreme cold weather operations use the 250,000 Btu heaters provided for additional space heating (OMSS and SMSS only).

d. Refer to TM 9-1425-2586-10 for instructions for operating the M730 vehicle in adverse climatic conditions.

2-2. Service Upon Receipt of Material.

a. Component Requirements of Major Items. Upon receipt of new equipment, always check it against the lists in TM 9-1425-2586-10 to insure that all items required for the launching station are present. Refer to the following lists for component requirements of the remaining major items:

(1) OMSS (AN/TSM-95A) -SC 4935-95-CLA81

(2) SMSS (AN/TSM-96A) -SC 4935-95-CLA82

b. Unpacking and Servicing Equipment.

NOTE

• Level A packing requirements insure protection of the equipment against the most severe conditions which may be encountered during shipment, handling, and storage. Level B requirements provide protection of the equipment under known favorable conditions during shipment, handling, and limited tenure of storage.

(For detailed information about levels of protection see MIL-STD-794D.)

(1) Launching Station Preparation.

(a) Remove all crating (Level A only) (fig.

2-1).

(b) Perform the steps of paragraph 5-9a. Omit steps 2 thru 4 if launching station is mounted on M730 carrier vehicle (refer to figure 2-2 for Level B packaging).

(c) Drain preservative oil from MPU crankcase and replace it with engine lubricating oil (TM 9-1440-2585-20-1).

(d) Add fuel to fuel tanks (TM 9-14402585-20-1).

(e) Deleted.

(f) Perform the inspections of paragraph 5-10a.

(2) OMSS and SMSS Preparation.

(a) Remove all crating (Level A only) (fig.

2-3).

(b) Remove the security tape, safety wire, tie downs and the coverings.

(c) Remove the wooden blocks, used as protective supports, that were inserted between the shelter frame members and equipment frames.

(d) Check the air conditioner humidity indicator and remove from inside shelter.

(e) Loosen the shipping bolts on the OMSS or SMSS air compressor and check the oil level (TM 9-4935-1587-14 or TM 949352585-14-1).

2-3. Camouflage Painting.

a. Color. Except for all white camouflaging, a local commander will choose four paint colors that provide the most suitable camouflaging within the terrain of his locality from table 2-1.

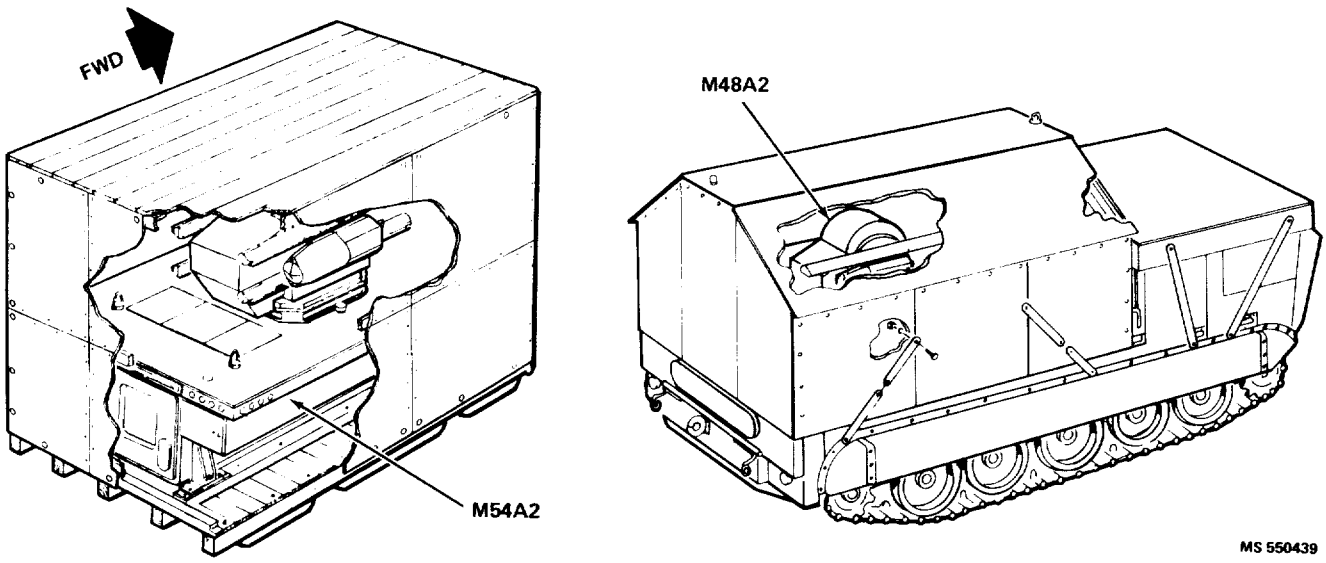


Figure 2-1. Launching Station Shipping Crate and Hutment

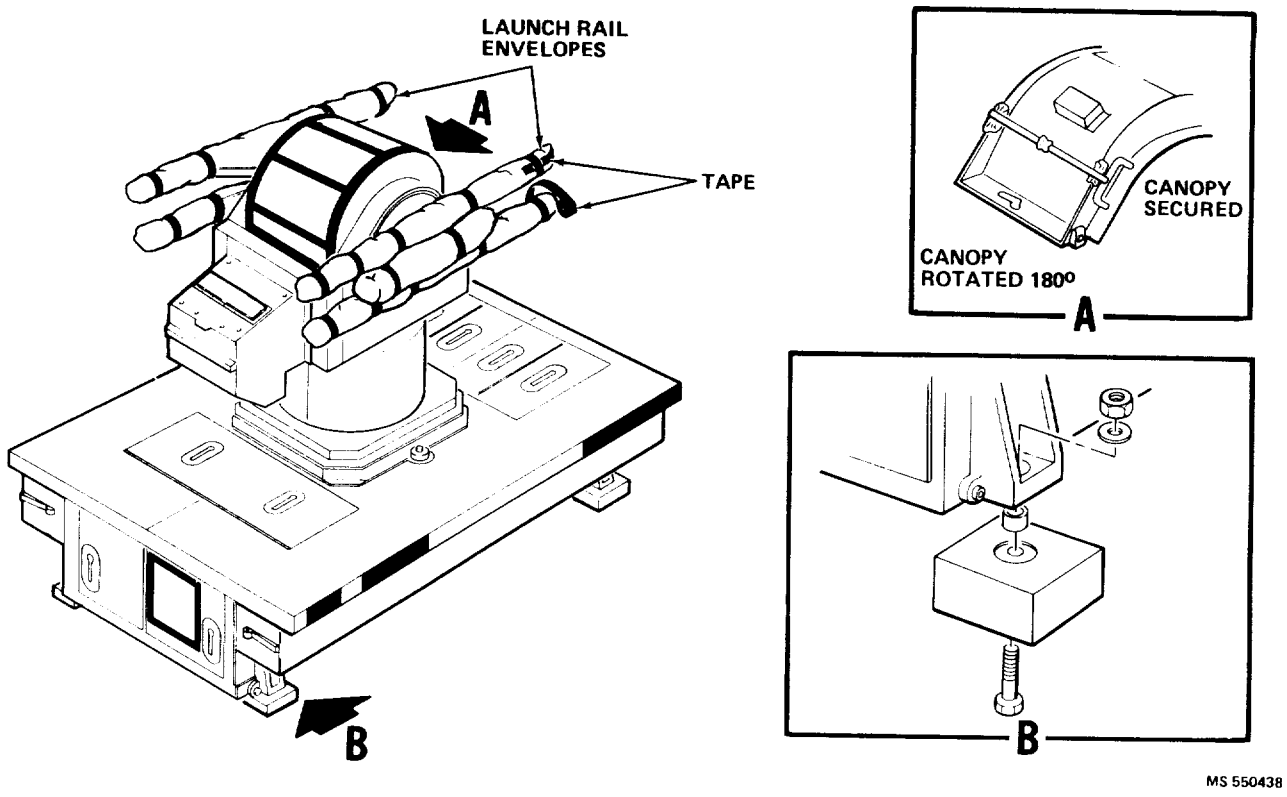


Figure 2-2. Protective Covering and Support Block Removal/installation

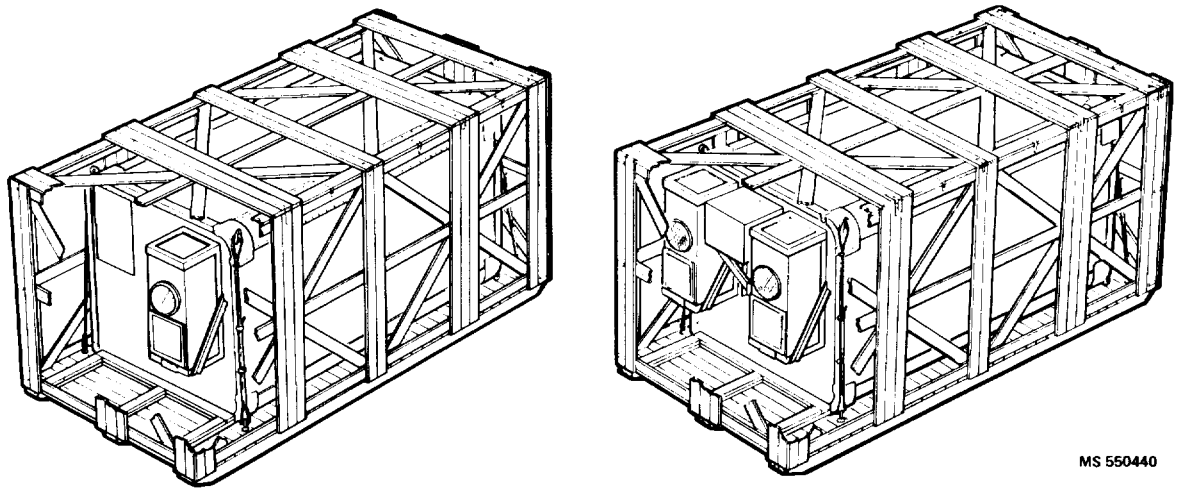


Figure 2-3. OMSS Shipping Crate and SMSS Shipping Crate

TABLE 2-1. PAINT COLORS FOR CAMOUFLAGING

Color	NSN (5 gal.)	NSN (1 gal.)
Desert Sand	8010-00-111-8353	8010-00-111-8004
Sand	8010-00-111-8336	8010-00-111-7988
Earth Yellow	8010-00-111-8130	8010-00-111-7968
Earth Red	8010-00-111 -8345	8010-00-111 -8003
Field Drab	8010-00-111 -8129	8010-00-111 -7943
Earth Brown	8010-00-111-8338	8010-00-111-7998
Olive Drab	8010-00-111-8069	8010-00-111-7940
Light Green	8010-00-111-8007	8010-00-111-7930
Dark Green	8010-00-111-8042	8010-00-111-7938
Forest Green	8010-00-111-8010	8010-00-111-7937
Black	8010-00-111-8356	8010-00-111-8005
White	8010-00-597-5253	None

b. Pattern. The patterns given are four-colored, area-numbered designs. Two colors (area numbers 1 and 2) cover 90 percent and two colors (3 and 4) cover 5 percent. Color 4 is represented by dark shadowing in figures 2-4 thru 2-6.

c. Painting Instructions. Apply colors chosen in paragraph a to suitable area numbers of patterns shown for M54A2 launching station (fig. 2-4), M730 carrier vehicle (fig. 2-5), and AN/TSM-95A and AN/TSM-96A electrical equipment shelters (fig. 2-6). Refer to TM 5-618 (Paints and Protective Coatings), TM 9-213 (Painting for Field Use), and TB 750-260 (Paint Instructions for Operator and Organizational Maintenance). Refer to table 2-2 for primer and thinners.

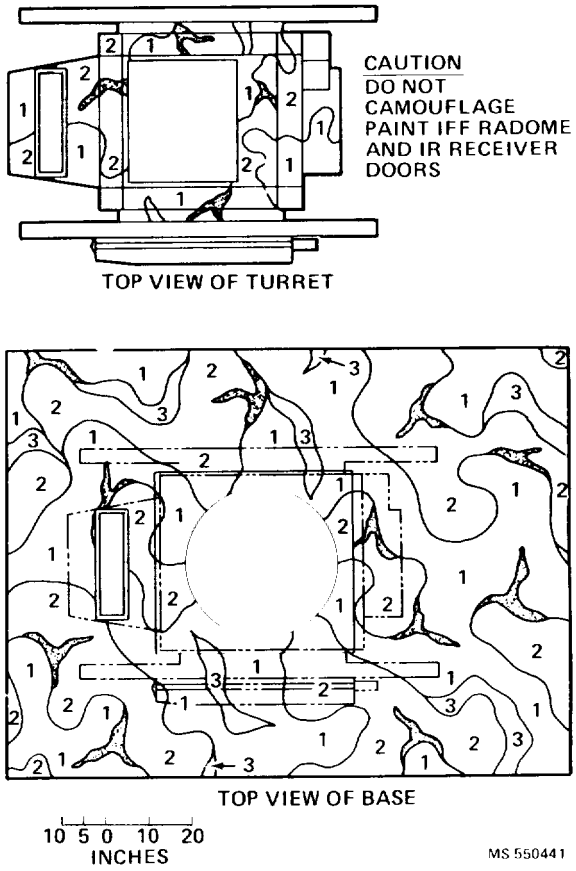


Figure 2-4. Camouflage Pattern for M54A2 Launch Station (sheet 1 of 2).

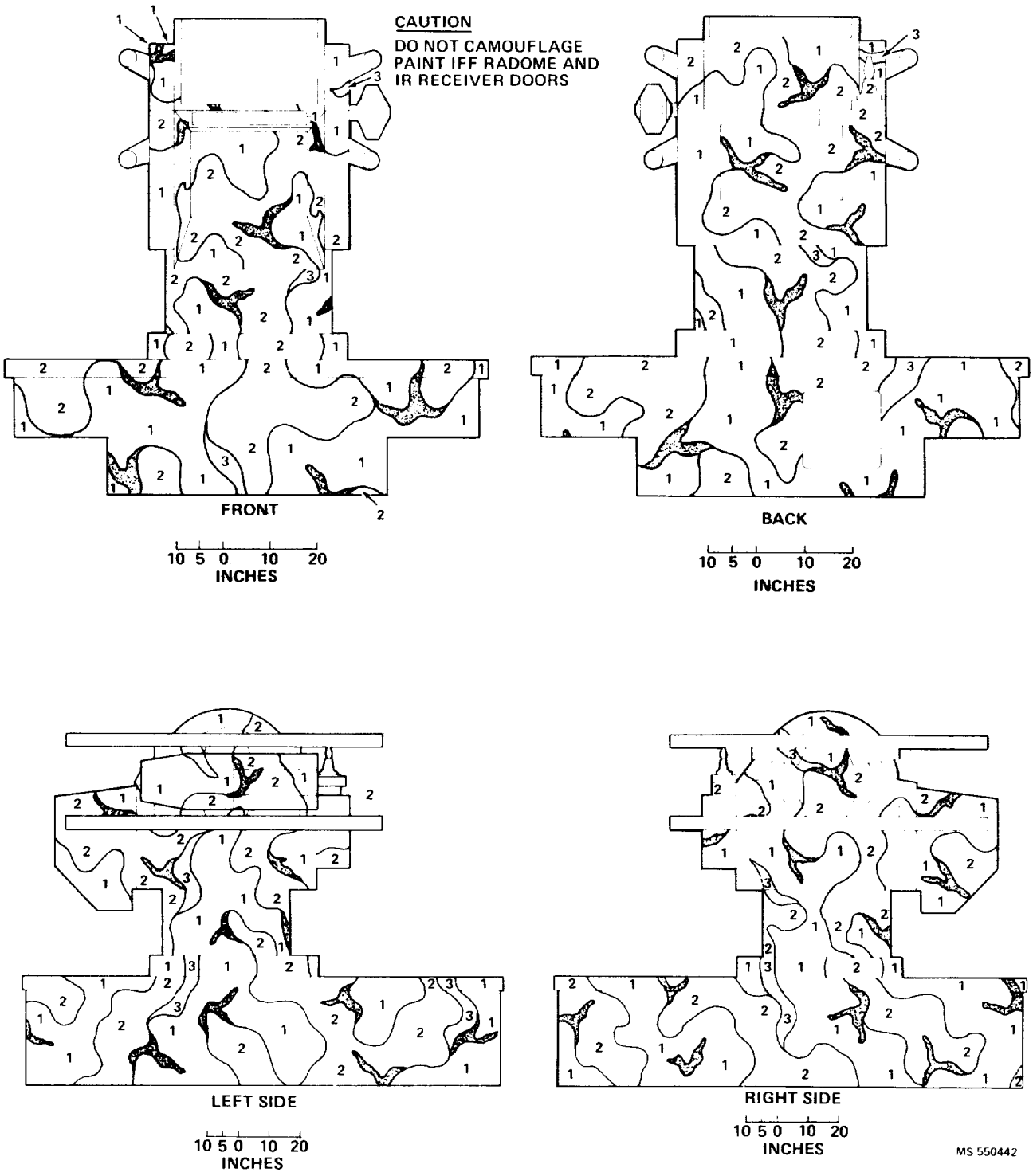


Figure 2-4. Camouflage Pattern for M54A2 Launch Station (sheet 2 of 2).

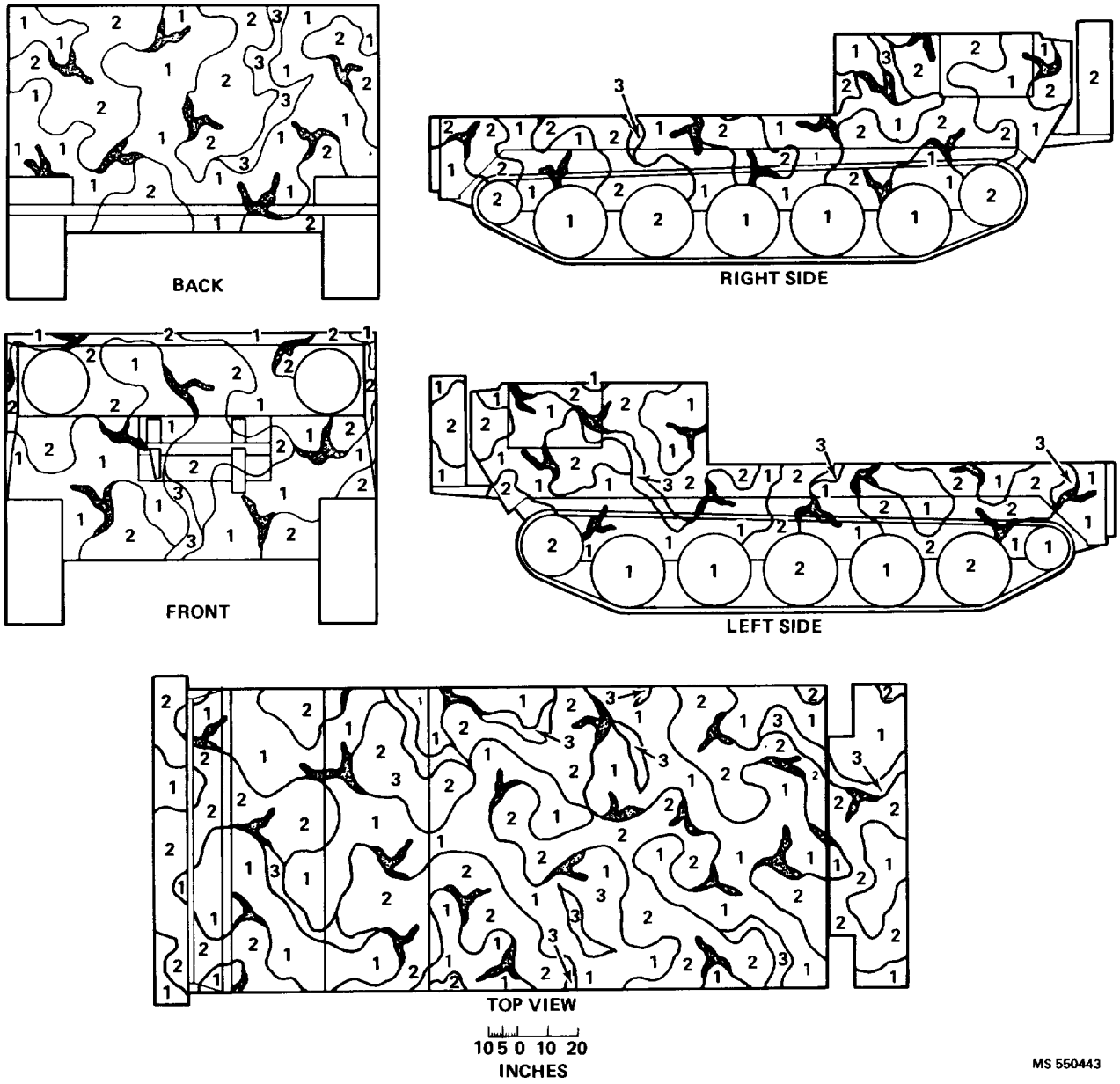


Figure 2-5. Camouflage Pattern for M730 Carrier Vehicle

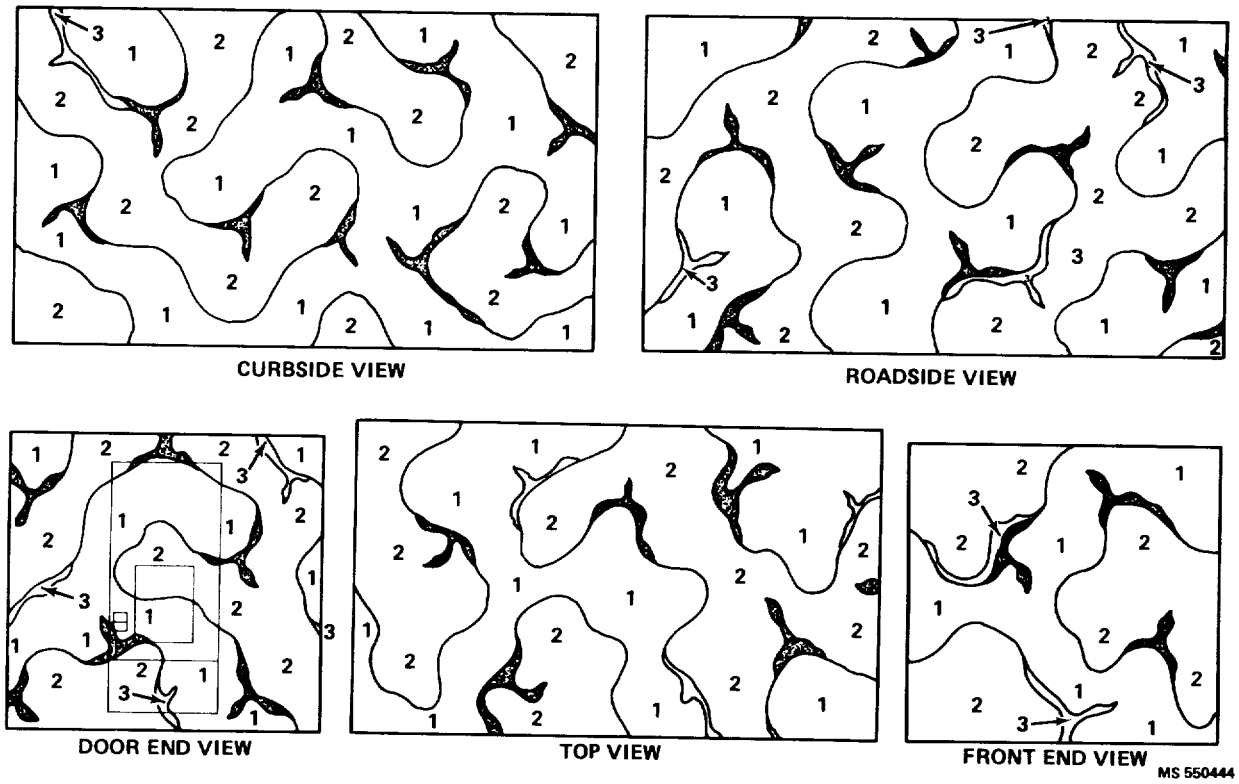


Figure 2-6. Camouflage Pattern for Electrical Equipment Shelters

TABLE 2-2. CONSUMABLE MATERIAL FOR PAINTING

Material	Spec	NSN (1 gal.)	NSN (5 gal.)	NSN (55 gal. drum)
Primer	TT-P-1757	8010-00-582-5318		
Mineral Spirits	TT-T-291		8010-00-558-7026	8010-00-246-6116
Xylene	TT-X-916		6810-00-584-4070	6810-00-290-4166
Butyl Cello solvent	TT-E-776B	6810-00-281-2001		
Thinner, Cellulose Nitrate Dope (For preparing paint to use on neoprene-coated tarps)	MIL-T-6095B	8010-00-162-5289		

CHAPTER 3

INSTALLATION AND REMOVAL OF LAUNCHING STATION

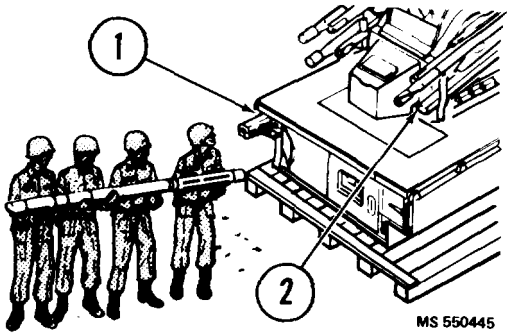
3-1. General. A crane or lifting hoist of at least 10,000lb capacity is required to install the launching station on the M730 carrier. The guide pins and tools necessary for installation on the carrier are contained in Organizational Maintenance Shop Equipment SC-4935-95-CL-A81 (NSN 4935-00-935-9364). Tiedown bolts and other hardware are packaged in the miscellaneous items container.

3-2. Installation on the Carrier. Install the launching station on the carrier using the following procedure:

3-2. INSTALLATION ON THE CARRIER

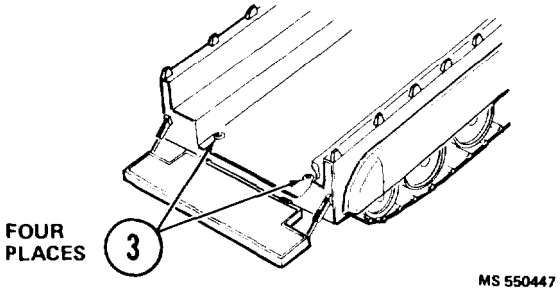
1

A. Remove all missiles from launch rails (2) and missile storage compartments (1) (TM 9-1425-2586-10).
B. Set PRIME POWER, MASTER POWER, and COMM switches on MASTER CONTROL panel to OFF.
C. Remove antenna matching unit MX-6707/ VRC (TM 9-1425-2586-10).



2

Remove tape from carrier bolt holes (3) and remove any accumulated water from holes with dry rags.

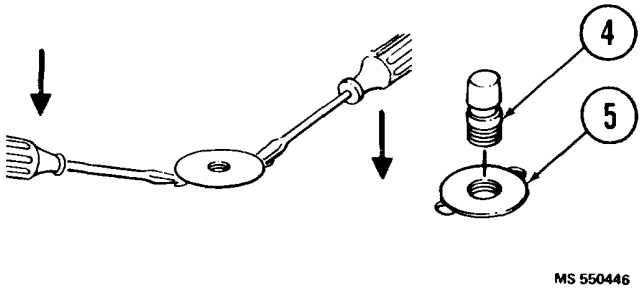


3

NOTE

• Friction plates can be re-used twice on each side. Discard friction plates that show two rings on each side.

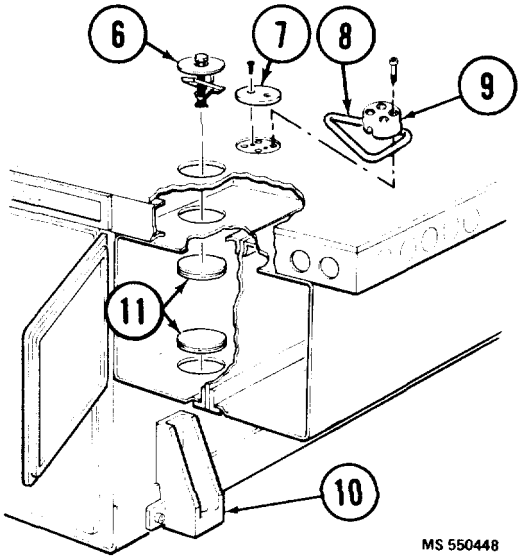
A. Remove friction plates (5) from carrier and reverse or install new friction plates as required.
B. Install the four guide pins (4) through friction plates and into carrier bolt holes.



3-2. INSTALLATION ON THE CARRIER (CONTINUED)

4

A. Remove hoist ring tiedown access covers (7), access cover assemblies (6) and rubber plugs (11).
B. Install hoist rings (8) and bases (9). Torque bolts to 85 ± 5 ft-lb.

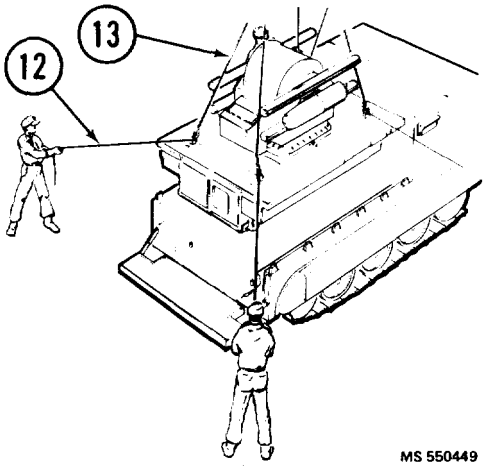


5

A. Secure guide ropes (12) at each hoist ring. Each rope must be of sufficient length to enable personnel to position the launching station while remaining a safe distance from it.

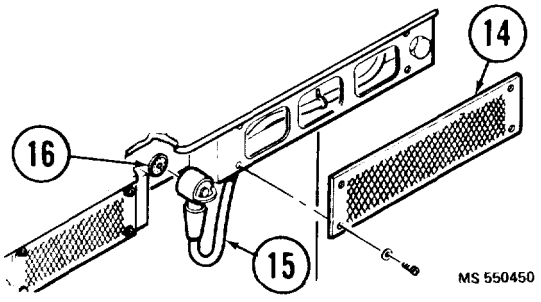
• Insure that all four personnel remain clear of the launching station while it is suspended on the hoist. A 10,000-lb capacity crane or lifting hoist is required.

B. Attach the cables of crane sling (13) to hoist rings and hoist the launching station above the carrier. Center the launching station tiedown brackets (10) over the guide pins.



6

A. Remove screen (14). Route and secure cable W57 (15) through launching station structure.
B. Connect cable W57 to receptacle (16).
C. Install screen.

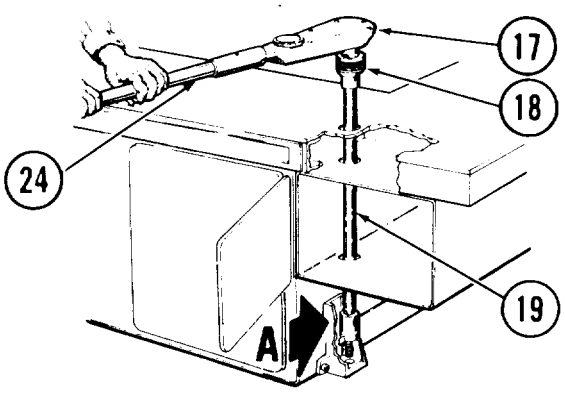


3-2. INSTALLATION ON THE CARRIER (CONTINUED)

7

A. Slowly lower launching station onto carrier, alining tiedown bracket holes with guide pins.

B. Assemble torque wrench (17), rachet adapter (18), extension (19), socket adapter (20), guide pin removal stud (21), and extension handle (24).



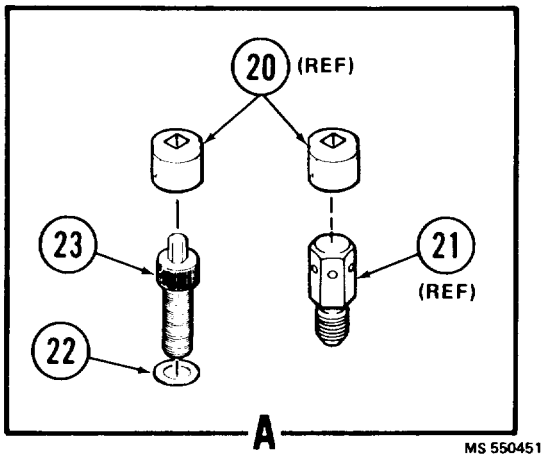
NOTE

• The guide pin removal stud has left-hand threads. Turn the guide pin removal stud counterclockwise into the guide pin until tight, then continue to turn counterclockwise until the guide pin is removed.

C. Insert guide pin removal stud into each guide pin. Unscrew and remove all four guidepins.

D. Remove guide pin removal stud from socket adapter.

E. Paint each tiedown bolt (23) with unthinned zinc chromate per MIL-P-8585 and insert bolt into socket adapter.



NOTE

• Install tiedown bolts with zinc chromate still wet.

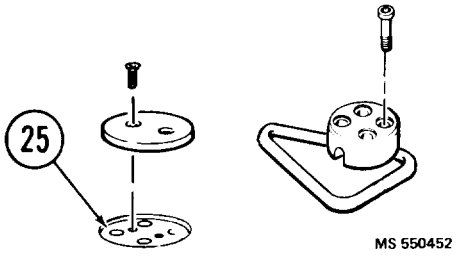
• Make certain that beveled side of washer is against bolthead.

F. Install washer (22) onto tiedown bolt. Fasten washer to socket adapter with masking tape.

G. Install tiedown bolts and washers, and tighten bolts until launching station is drawn against the carrier.

8

Remove crane sling and guide ropes. Disassemble and remove each hoist ring (8) and base (9). Pack grease MIL-G-23827 in the cap screw holes (25) in launching station deck and replace four hoist ring tiedown access covers (7). Store hoist rings in miscellaneous items container.



3-2. INSTALLATION ON THE CARRIER (CONTINUED)

9

A. Tighten tiedown bolts in a diagonal sequence to 650 ft-lb. Repeat sequence and tighten to 1300 ±50 ft-lb.

CAUTION

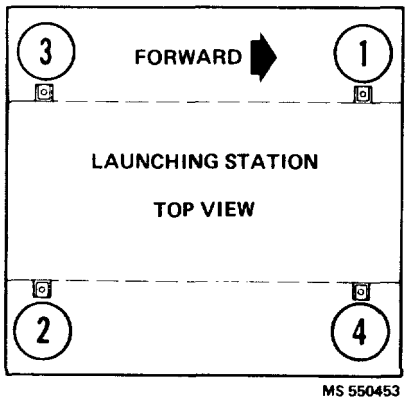
·• To prevent missile corrosion, all four rubber access plugs (11) must be installed in storage compartments.

B. Install access cover assemblies (6) and rubber plugs (11).

C. Attach vertical blast shield (attached to carrier) to forward end of launching station base.

D. Install antenna matching unit MX-6707/VRC (TM 9-1425-2586-10).

E. Install missiles on launch rails and in missile storage compartments (TM 9-1425-2586-10).



END

3-3. Removal from Carrier. Use of the following procedure to remove the launching station from the carrier. All items numbered in this procedure are pictured in paragraph 3-2 and identified by the same number.

NOTE

• A crane or lifting hoist of at least 10,000lb capacity is required to remove the launching station.
• Before removal of launching station, mount must be retracted and in the 6 o'clock position.

a. Removal all missiles from launch rails (2) and missile storage compartments (1) (TM 9-14252586-10).

b. Set PRIME POWER, MASTER POWER, and COMM switches on the MASTER CONTROL panel to OFF.

c. Remove antenna matching unit MX-6707/VRC (TM 9-1425-2586-10).

d. Remove vertical blast shield.

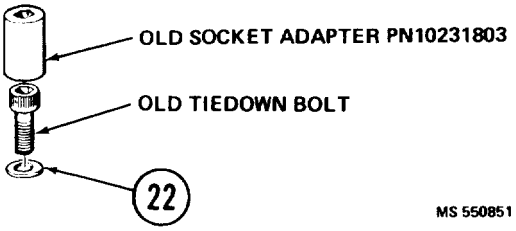
e. Remove access cover assemblies (6) and rubber plugs (11).

CAUTION

• If old tiedown bolts are present, remove dirt from the sockets to insure full engagement of the wrench. Partial engagement can cause the bolt head to strip.

NOTE

• If new tiedown bolts (23) are installed, use socket adapter PN 13142900(20). If old tiedown bolts are installed, use socket adapter PN 10231803.



f. Insert the socket adapter (20) and extension (19) into tiedown bolt access hole. Use the torque wrench (17), racket adapter (18) and extension handle (24) to remove four tiedown bolts (23).

g. Install access cover assemblies (6) and rubber plugs (11).

h. Remove four hoist ring tiedown access covers (7).

i. Install hoist rings (8) and bases (9). Torque bolts to 85 ± 5 ft-lb.

j. Remove screen (14), disconnect cable W57 (15) from connector (16), and remove cable from launching station.

k. Install screen.

• Insure that all personnel remain clear of the launching station while it is suspended on the hoist.

l. Attach guide ropes (12) and cables (13) of the crane sling to hoist rings and hoist the launching station above the carrier.

m. Lower the launching station onto shipping pallet or transporter vehicle and remove sling.

n. Remove hoist rings (8) and bases (9). Pack grease MIL-G-23827 in the cap screw holes (25) in the launching station deck and replace hoist ring tiedown access covers (7).

NOTE

• If the carrier is to remain empty, cover each tiedown bolt hole (3) with tape to prevent corrosion of the threaded insert.

3-4. Stationary Emplacement Guidelines. Tactical circumstances may require that emplacement procedures be performed in a different sequence from the procedure sequence in this chapter. The following considerations should be given to selection of a suitable launching site.

a. Terrain should permit placement of the left and right remote crew positions at least 200 feet from the launching station. Terrain features should allow crew members an unobstructed view of the launching station and observation field of the sky from horizon to overhead.

b. To prevent flying debris from damaging equipment, the launching station should be located away from large rocks or other obstructions. The ground surface should be clear of loose gravel or combustible materials for a radius of at least 50 feet from the launching station.

c. The launching station should not be emplaced on a slope of more than 10 degrees. The degree of slope must be estimated if an M2 compass is not available.

3-5. Installation on Stationary Emplacement. Install the launching station on a stationary emplacement using the ground emplacement kit. The kit consists of four support assembly jacks, a wrench, and 1/2 pint of primer. Use the following procedure:

NOTE

• A crane of at least 10,00-lb capacity must be used to emplace the launching station.

• If support assembly jacks are assembled, perform steps 1, 2 and 5. If support jacks are disassembled, perform steps 1, 3, 4 and 5.

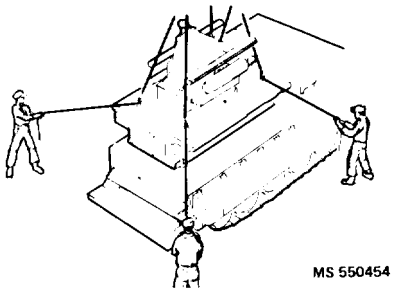
• Tiedown bolts and washers are in the carrier installation kit.

3-5. INSTALLATION ON STATIONARY EMPLACEMENT

1

A. Lift the launching station free of the transporter vehicle (para 3-2).

B. Lower launching station to a convenient working height and install support assembly jacks as follows:



JACKS ASSEMBLED

2

A. Paint tiedown bolts (1) with unthinned zinc chromate per MIL-P-8585.

NOTE

• Install tiedown bolts with zinc chromate still wet.

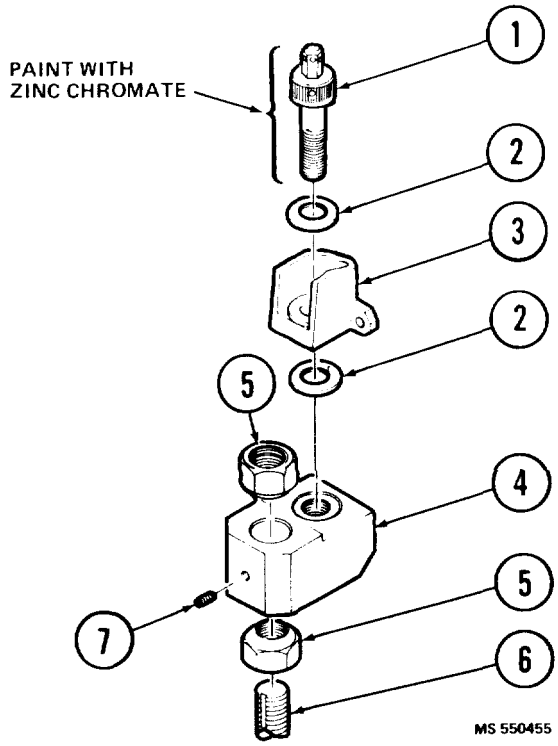
B. Position support assembly jacks with support assemblies (4) under launching station tiedown brackets (3) and secure with tiedown bolts (1) and washers (2). Tighten bolts to 780 ±50 ft-lb of torque.

C. Proceed to step 5.

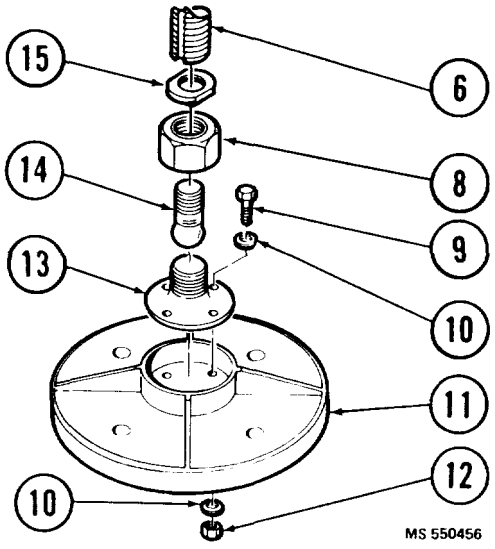
3-5. INSTALLATION ON STATIONARY EMPLACEMENT (CONTINUED)

JACKS DISASSEMBLED

A. Paint tiedown bolts (1) with unthinned zinc chromate per MIL-P-8585.
B. With zinc chromate still wet, install four tiedown bolts and washers (2) through launching station tiedown bracket (3) into support assembly (4), and tighten to 780 ±50 ft-lb of torque.
C. Install guide screw (7) into support assembly to proper depth to receive groove in jack shaft (6).
D. Install jack shaft into support assembly engaging guide screw in groove.
E. Retain jack shaft in place with upper nut (5).
F. Install lower nut (5) and adjust to nominal position to establish height of support assembly above ground.



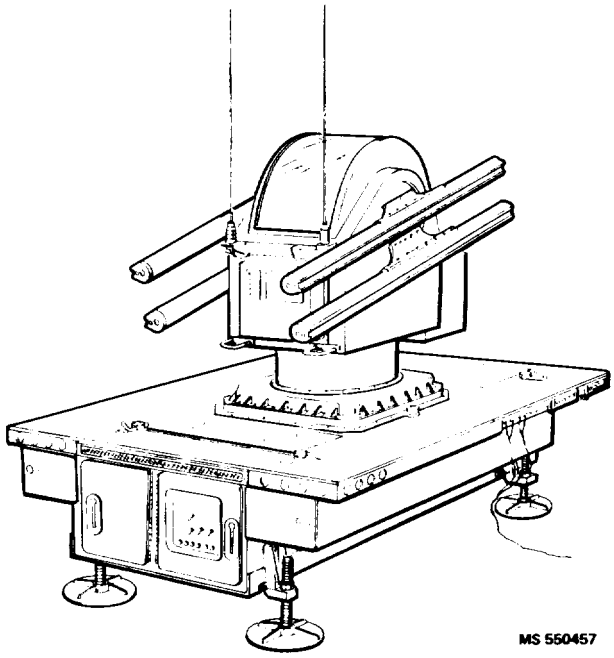
A. Install nut (8) over ball (14) and install ball into jack shaft retaining in place with collar (15).
   Coat surfaces with wet zinc chromate per MILP-8585.
B. Install fitting (13) on foot pad (11) with bolts (9), washers (10), and nuts (12) coated with wet zinc chromate.
C. Secure footpad to jack shaft (6) with nut (8).



3-5. INSTALLATION ON STATIONARY EMPLACEMENT (CONTINUED)

A. Lower launching station into position.

B. Install communications equipment (TM 9-14252586-10).



END

3-6. Removal from the Stationary Emplacement.

a. Deenergize the launching station (TM 9-14252586-10).

b. Disconnect field telephone and radio lines from external communication panels and MASTER CONTROL panel (TM 9-1425-2586-10).

c. Store phones, radios, and cables (TM 9-14252586-10).

d. Prepare launching station in accordance with paragraph 3-2, steps 1 through 5A.

• Insure that all personnel remain clear of the launching station while it is suspended. A 10,000-lb capacity crane or lifting hoist is required.

e. Attach cables of crane sling to hoist rings and lift launching station off the ground to a convenient working height and remove jack support assembly as follows:

NOTE

• Item numbers referenced below are pictured in paragraph 3-5.

(1) Remove tiedown bolts (1) and washers (2). Store them in the carrier installation kit.

(2) Remove support assemblies (4).

NOTE

• Support assembly jacks may be stored in assembled condition.

f. Install launching station on the M730 carrier in accordance with paragraph 3-2, steps 5B through 9.

CHAPTER 4

GENERAL MAINTENANCE

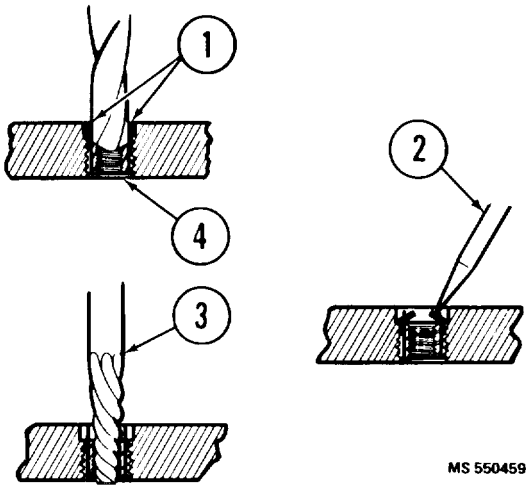
4-1. Inserts. Inserts cannot be replaced more than two times for any given hole. Different types of inserts are listed and described in table 4-1 by manufacturer's number (NAS code). In the NAS column, the number 1394 indicates a standard duty gage and 1395 indicates a heavy duty gage. The dash numbers indicate the internal thread size (internal column). The letter C preceding the dash number indicates 303 CRES steel, the letters CA indicate A286 steel, and no code letters indicate 4130 or 4140 steel. The letter L suffixing the dash number, if used, indicates a self-locking internal thread. Remove and install inserts by the following procedure, referring to table 4-1 for removal drill size and depth of drilling and installation tool size.

a. Removal.

(1) Drill inserts (4) until lock keys (1) are exposed.

(2) Deflect and break off keys with a drift punch (2) and hammer.

(3) Remove insert with extractor screw (3) or E-Z Out tool.



b. Installation.

(1) Install insert (1) with installation tool (5) called out by table 4-1.

(2) Engage keys (2) on inserts in corresponding slots of installation tool.

(3) Coat insert with zinc chromate TT-P-1757 Comp. G Col.T and, while wet, thread into receiving hole of piece/part until top of insert is flush with piece/part surface.

(4) Turn insert two complete turns below piece/part surface.

(5) Lift installation tool from insert and rotate tool until tool slots clear insert keys.

(6) Lock insert by placing driving end of tool on insert keys and use hammer to drive tool downward.

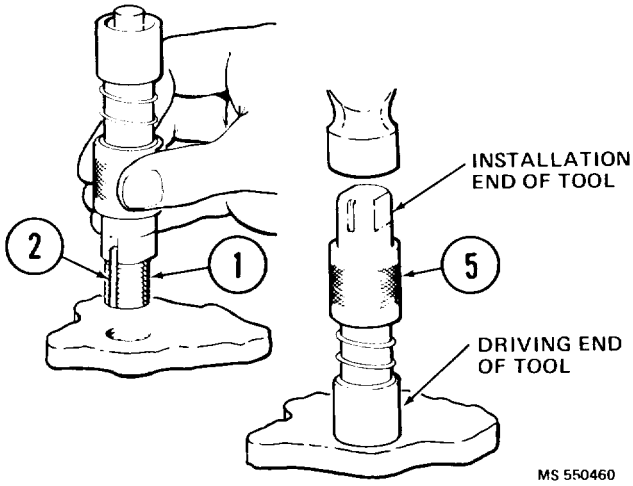


TABLE 4-1. INSERT (SCREW-THREADED) DESCRIPTION AND APPLICABLE TOOL CROSS-REFERENCE

	Thread			Removal Drill		
MFG no.	Internal	External	NSN	Size	Depth	Installation Tool
NAS 1394-08	8-32	1/4-20		3/16	1/8	TD832L
NAS 1394-08L	8-32	1/4-20		3/16	1/8	TD832L
NAS 1394-C08	8-32	1/4-20	5340-00-977-0905	3/16	1/8	TD832L
NAS 1394-C08L	8-32	1/4-20	5340-00-241-6829	3/16	1/8	TD832L
NAS 1394-3	10-32	5/16-18	5340-00-992-4457	7/32	5/32	TD1032L
NAS 1394-3L	10-32	5/16-18	5340-00-776-1055	7/32	5/32	TD1032L
NAS 1394-C3	10-32	5/16-18	5340-00-973-6933	7/32	5/32	TD1032L
NAS 1394-C3L	10-32	5/16-18	5340-00-021-3495	7/32	5/32	TD1032L
NAS 1394-4	1/4-28	3/8-16	5340-00-939-6022	9/32	3/16	TD428L
NAS 1394-4L	1/4-28	3/8-16	5340-00-842-6237	9/32	3/16	TD428L
NAS 1394-C4	1/4-28	3/8-16	5340-00-019-0008	9/32	3/16	TD428L
NAS 1394-C4L	1/4-28	3/8-16	5340-00-085-0219	9/32	3/16	TD428L
NAS 1394-5	5/16-24	7/16-14	5340-00-939-6021	11/32	3/16	TD524L
NAS 1394-5L	5/16-24	7/16-14	5340-00-773-1246	11/32	3/16	TD524L
NAS 1394-C5	5/16-24	7/16-14	N/A	11/32	3/16	TD524L
NAS 1394-C5L	5/16-24	7/16-14	5340-924-5909	11/32	3/16	TD524L
NAS 1394-6	3/8-24	1/2-13	N/A	13/32	3/16	TD624L
NAS 1394-6L	3/8-24	1/2-13	5340-00-842-6236	13/32	3/16	TD624L
NAS 1394-C6	3/8-24	1/2-13	5340-00-928-2679	13/32	3/16	TD624L
NAS 1394-C6L	3/8-24	1/2-13	N/A	13/32	3/16	TD624L
NAS 1394-7	7/16-20	9/16-12	N/A	15/32	3/16	TD720L
NAS 1394-7L	7/16-20	9/16-12	N/A	15/32	3/16	TD720L
NAS 1394-C7	7/16-20	9/16-12	N/A	15/32	3/16	TD720L
NAS 1394-C7L	7/16-20	9/16-12	N/A	15/32	3/16	TD720L
NAS 1394-8	1/2-20	5/8-11	N/A	17/32	3/16	TD820L
NAS 1394-8L	1/2-20	5/8-11	5340-00-781-9858	17/32	3/16	TD820L
NAS 1394-C8	1/2-20	5/8-11	N/A	17/32	3/16	TD820L
NAS 1394-C8L	1/2-20	5/8-11	N/A	17/32	3/16	TD820L
NAS 1395-04	4-40	12-40	N/A	5/32	1/8	THD440L
NAS 1395-04L	4-40	12-40	N/A	5/32	1/8	THD440L
NAS 1395-C04	4-40	12-40	5340-00-514-7490	5/32	1/8	THD440L
NAS 1395-C04L	4-40	12-40	5340-00-977-0907	5/32	1/8	THD440L
NAS 1395-06	6-32	1/4-20	3/16	1/8	THD632L	
NAS 1395-06L	6-32	1/4-20	5340-00-905-0753	3/16	1/8	THD632L
NAS 1395-C06	6-32	1/4-20	5340-00-995-6690	3/16	1/8	THD632L
NAS 1395-C06L	6-32	1/4-20	5340-00-085-0218	3/16	1/8	THD632L
NAS 1395-08	8-32	5/16-18	N/A	7/32	1/8	THD832L
NAS 1395-08L	8-32	5/16-18	N/A	7/32	1/8	THD832L
NAS 1395-C08	8-32	5/16-18	N/A	7/32	1/8	THD832L
NAS 1395-C08L	8-32	5/16-18	5340-00-085-1125	7/32	1/8	THD832L
NAS 1395-3	10-32	3/8-16	5340-00-713-4765	9/32	1/8	THD1032L
NAS 1395-3L	10-32	3/8-16	5340-00-948-9834	9/32	1/8	THD1032L
NAS 1395-C3	10-32	3/8-16	N/A	9/32	1/8	THD1032L
NAS 1395-C3L	10-32	3/8-16	5340-00-989-0434	9/32	1/8	THD1032L
NAS 1395-4	1/4-28	7/16-14	N/A	11/32	3/16	THD428L
NAS 1395-4L	1/4-28	7/16-14	5340-00-834-8427	11/32	3/16	THD428L
NAS 1395-C4	1/4-28	7/16-14	5340-00-805-0337	11/32	3/16	THD428L
NAS 1395-C4L	1/4-28	7/16-14	5340-00-966-3785	11/32	3/16	THD428L
NAS 1395-5	5/16-24	1/2-13	N/A	13/32	3/16	THD524L
NAS 1395-5L	5/16-24	1/2-13	N/A	13/32	3/16	THD524L
NAS 1395-C5	5/16-24	1/2-13	5340-00-776-8139	13/32	3/16	THD524L
NAS 1395-C5L	5/16-24	1/2-13	5340-00-969-6953	13/32	3/16	THD524L

TABLE 4-1. INSERT (SCREW-THREADED) DESCRIPTION AND APPLICABLE TOOL CROSS-REFERENCE - CONTINUED

	Thread			Removal Drill		
MFG no.	Internal	External	NSN	Size	Depth	Installation Tool
NAS 1395-6	3/8-24	9/16-12	N/A	15/32	3/16	THD624L
NAS 1395-6L	3/8-24	9/16-12	N/A	15/32	3/16	THD624L
NAS 1395-C6	3/8-24	9/16-12	5340-00-805-0339	15/32	3/16	THD624L
NAS 1395-C6L	3/8-24	9/16-12	5340-00-957-0577	15/32	3/16	THD624L
NAS 1395-7	7/16-20	5/8-11	N/A	17/32	3/16	THD720L
NAS 1395-7L	7/16-20	5/8-11	N/A	17/32	3/16	THD720L
NAS 1395-C7	7/16-20	5/8-11	N/A	17/32	3/16	THD720L
NAS 1395-C7L	7/16-20	5/8-11	N/A	17/32	3/16	THD720L
NAS 1395-8	1/2-20	11/16-11	N/A	19/32	3/16	THD820L
NAS 1395-8L	1/2-20	11/16-11	5340-00-776-1365	19/32	3/16	THD820L
NAS 1395-C8	1/2-20	11/16-11	5340-00-732-2844	19/32	3/16	THD820L
NAS 1395-C8L	1/2-20	11/16-11	5340-00-241-6672	19/32	3/16	THD820L
NAS 1395-9	9/16-18	13/16-16	N/A	23/32	3/16	THD918L
NAS 1395-9L	9/16-18	13/16-16	N/A	23/32	3/16	THD918L
NAS 1395-C9	9/16-18	13/16-16	N/A	23/32	3/16	THD918L
NAS 1395-C9L	9/16-18	13/16-16	N/A	23/32	3/16	THD918L
NAS 1395-10	5/8-18	7/8-14	N/A	25/32	3/16	THD1018L
NAS 1395-10L	5/8-18	7/8-14	N/A	25/32	3/16	THD1018L
NAS 1395-C10	5/8-18	7/8-14	N/A	25/32	3/16	THD1018L
NAS 1395-C10L	5/8-18	7/8-14	5340-00-956-5845	25/32	3/16	THD1018L

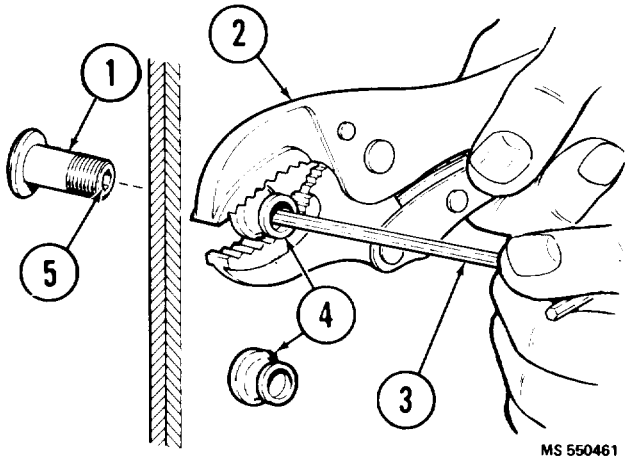
4-2. Fastener Assembly. Remove and install fastener assemblies using the following procedure:

a. Removal.

(1) Grip fastener (1) with vise grip (2) or adjustable pliers.

(2) Insert hex wrench (3) into pin hex recess (4) to retain pin (5) in place.

(3) Using vise grips, unscrew and remove fastener.



4-2. FASTENER ASSEMBLY (CONTINUED)

b. Installation.

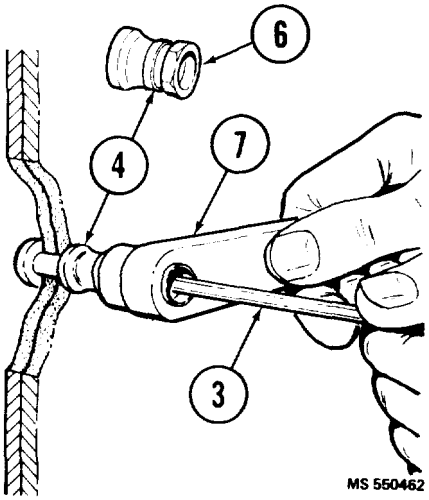
(1) Insert pin (5) into holes of base materials to be fastened.

(2) Screw fastener (1) onto pin finger tight.

(3) Place special socket wrench (6) on wrenching collar (7) of fastener.

(4) Slide hex wrench (3) through socket wrench and into hex recess (4) of pin.

(5) Retain pin in place and tighten fastener until firmly seated against base material.



NOTE

• If more than one fastener is to be replaced, tighten each in a sequence which will not introduce undue stress in base material.

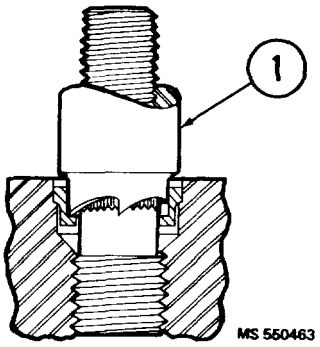
(6) Continue tightening until wrenching collar shears off.

4-3. Ring-Locked Studs. Remove and install ringlocked studs using the following procedure:

a. Removal.

(1) Install removal tool (1) (Rosan SM141-26 or equivalent) in drill chuck and aline axes of stud and chuck.

(2) Lower tool over stud shank before starting drill motor.

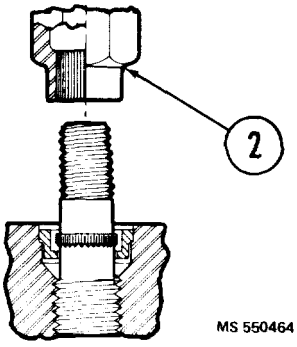


NOTE

• Do not mill completely through lock ring. Raise tool every few seconds to allow chips to clear cutting teeth.

(3) Without raising spindle, start drill motor and mill partially through lock ring until stud wrench will seat over splines of stud.

(4) Place stud wrench (2) over stud and turn to remove stud and lock ring.



NOTE

• When stud thread flanks bear against lower surface of lock ring, continued turning of stud wrench will cause lock ring to be jacked out. If lock ring has been inadvertently milled through and fails to lift out with stud, remaining portion may be collapsed with a drift punch and removed.

4-3. RING-LOCKED STUDS (CONTINUED)

b. Installation.

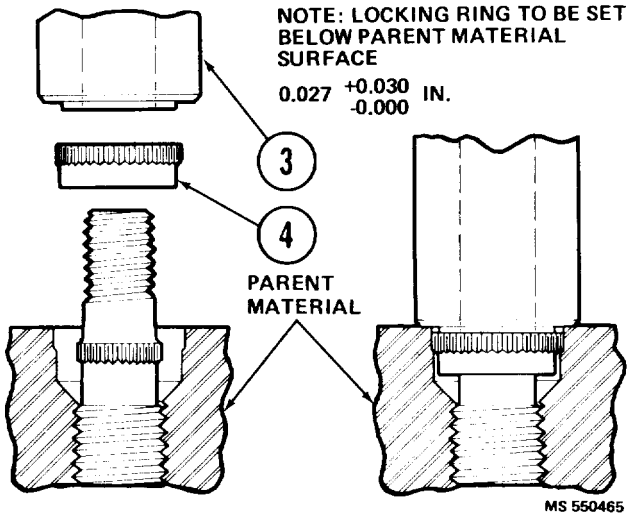
(*1*) *New ring-locked studs may be installed in* holes from which defective parts were removed. Rotate new lock ring (3) to aline serrations with splines on stud.

(2) Install stud with wrench to depth shown.

NOTE

• Location of flange is important so that the lock ring drive tool (Rosan S141D-14 or equivalent) will not make contact with top surface of lock ring. Any impact or pressure on this surface may cause damage to threads in base material, resulting in a loose fit.

(3) Using drive tool (4), install lock ring to depth shown.



4-4. Spline Nuts. Remove and install spline nuts using the following procedure:

a. Removal.

(1) Using a tapered punch and hammer, knock the spline nut out of the entrance side of the hole.

(2) Pound around the outside edge of the hole and redrill to obtain an unchamfered edge on the entrance side.

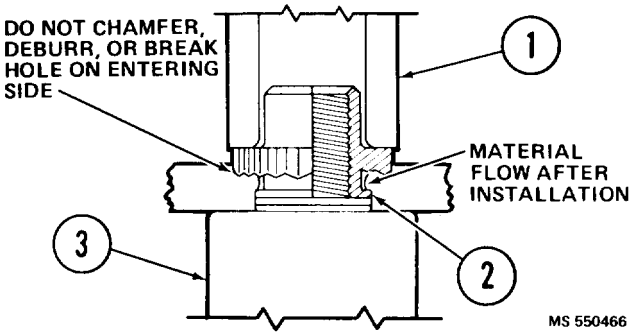
b. Installation.

NOTE

• Installation of spline nuts should always be made on the exit side of the hole.

(*1*) *Press the part with the pilot flange (2) lightly* into the hole.

(2) Using a drive tool (1) and anvil (3), apply enough force to cause the part to penetrate a minimum of 0.015 in. into the parent material.



4-5. Blind Nuts. Remove and install blind nuts using the following procedure:

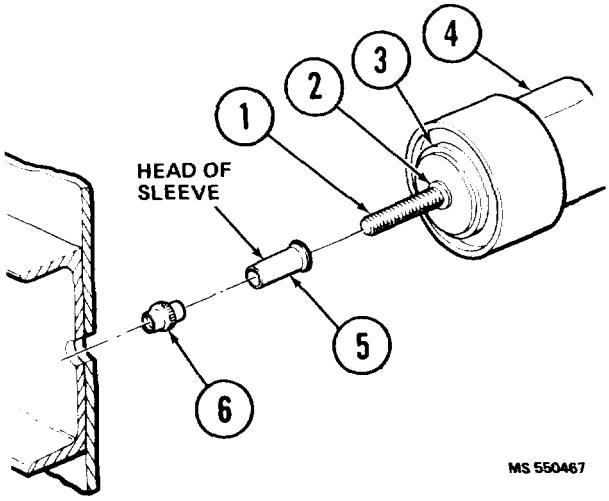
NOTE

• Blind nuts shall not be replaced in the same hole more than twice.

a. Removal.

(1) Drill through the center of the nuts until they are loosened.

(2) Punch out the nuts with a drift punch and hammer.



b. Installation.

(1) Using the equipment and procedures in Hi-Shear Hydraulic Hand Pump Assembly Kit BH26A, select the anvil (1), chuck (2), and mandrel (3) required for the size of the blind nut being installed from table 4-2.

(2) Assemble the anvil, chuck, and mandrel on the hydraulic gun (4) before operating the pump.

(3) Slip the sleeve (5) of the blind nut expander onto the mandrel.

(4) Spin the blind nut expander (6) onto the threaded end of the mandrel until finger tight.

(5) Turn the chuck bolt clockwise to seal the anvil (on body) firmly onto the head of the sleeve.

(6) Insert the expander and sleeve (on mandrel) fully into the hole of the work part.

(7) Complete the installation by operating the hand pump assembly to the pressure required, as shown in pressure setting table in BH26A installation instructions.

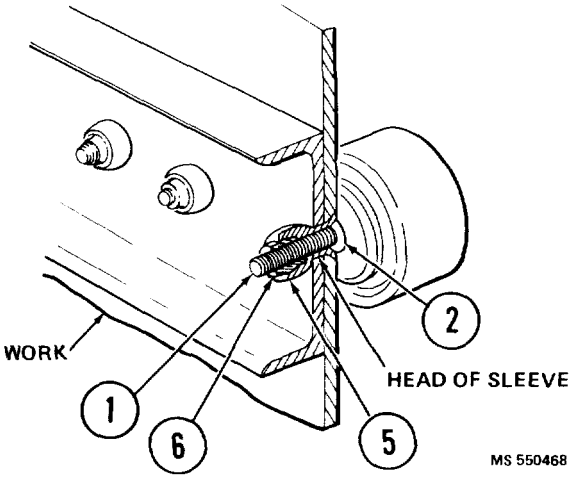


TABLE 4-2. BLIND NUT DRIVING TOOLS FOR BH26A GUN

Blind Nut		Mandrel*			
Part No.	**Hi-Shear No.**	**Anvil**	**Chuck**	**Grip to 1 in.**	**Grip 1 - 2 in.**
11070007-1	BN360-440-2	A27-440	C2-5	M1-5	M2-5
2	-428-2	-428	-12	-12	-12
3	-832-2	-832	-8	-8	-8
4	BN360-1032-2	-1032	-1032	-1032	-1032
5	BN359-428-5	-428	-12	-12	-12
7	BN360-1032-4	-1032	-1032	-1032	-1032
8	-428-5	-428	-12	-12	-12
9	-428-4	-428	-12	-12	-12
10	624-4	-624	-16	-16	-16
11	-820-5	-820-	--	--	--
12	-428-3	-428	-12	-12	-12
14	-624-8	-624	-16	-16	-16
15	-524-8	-524	-14	-14	-14
16	-1032-3	-1032	-1032	-1032	-1032
17	-524-3	-524	-14	-14	-14
18	-832-9	-832	-8	-8	-8
19	-1032-8	-1032	-1032	-1032	-1032
20	-1032-5	-1032	-1032	-1032	-1032
21	-1032-12	-1032	-1032	-1032	-1032
22	-428-11	-428	-12	-12	-12
23	-524-2	-524	-14	-14	-14
24	-1032-1	-1032	-1032	-1032	-1032
25	-1032-9	-1032	-1032	-1032	-1032
26	-1032-13	-1032	-1032	-1032	-1032
27	-428-7	-428	-12	-12	-12
28	BN360-832-1	A27-832	C2-8	M1-8	M2-8

*Grip (shank) length is determined by the thickness of the work to be penetrated.

4-6. Clinch Nuts. Remove and install clinch nuts using the following procedure:

a. Removal.

(1) Insert a bolt (1) of the same thread size as the clinch nut but about 1/2-inch longer than the bolt used for installation.

(2) Tap head of bolt until serrated base of clinch nut (2) is driven from base material.

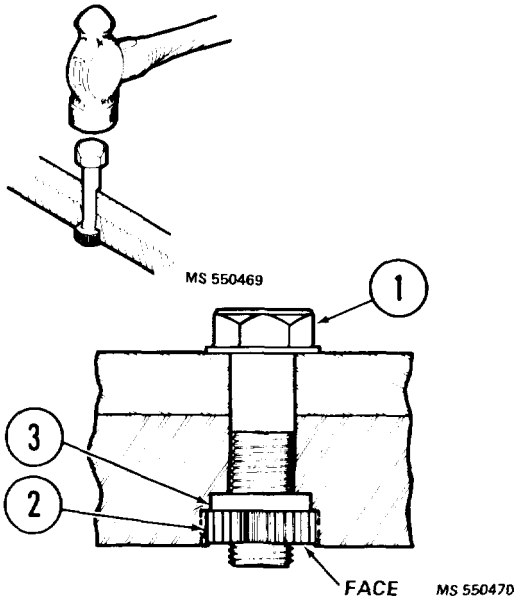
b. Installation.

NOTE

• Clinch nuts may be installed in the same hole from which they were removed.

(1) Position nut (2) with pilot flange (3) in hole and screw bolt (1) 1/2-inch longer than thickness of base material) into nut from opposite side of material.

(2) Tighten bolt until face of clinch nut is even with surface of material; remove bolt.



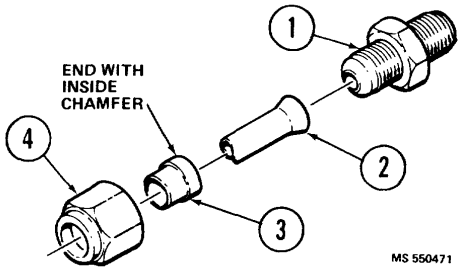
4-7. Steel Tube Nut and Sleeve. Remove and install tube nuts and sleeves using the following procedure:

a. Removal.

(1) Grip connector body (1) (adaptor, elbow, or other fitting) with wrench to prevent turning.

(2) Unscrew connector nut (4) and slide back along tube. Separate connector body and flared end of tube (2).

(3) Cut tubing with tube cutter about 1 inch behind flare, and remove connector nut and sleeve (3).



b. Installation.

(1) Slide connector nut (4) and sleeve (3) on new or replacement tube.

NOTE

• Be sure end of sleeve with inside chamfer is toward end of tube to be flared.

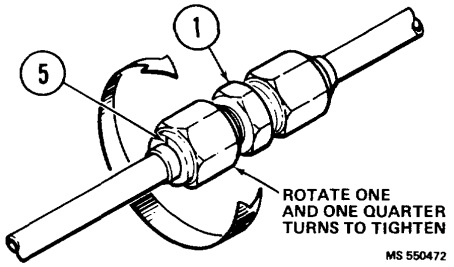
(2) Flare end of tube (2) to be connected.

(3) Hold tube flare against tapered conical end of connector body, slide sleeve against tube flare, and screw connector nut finger tight to fitting.

(*4)* *Scribe line (5) on periphery of connector nut* to use as a locator.

(5) Hold connector body (1) with wrench.

(6) Tighten connector nut one and one quarter turns.



4-8. Rivets. Remove and install rivets using the following procedure:

a. Removal.

(*1*) *Lightly punch heads of undimpled rivets (2)* with center punch (1).

(2) Aline drill bit with dimple or punch hole in head.

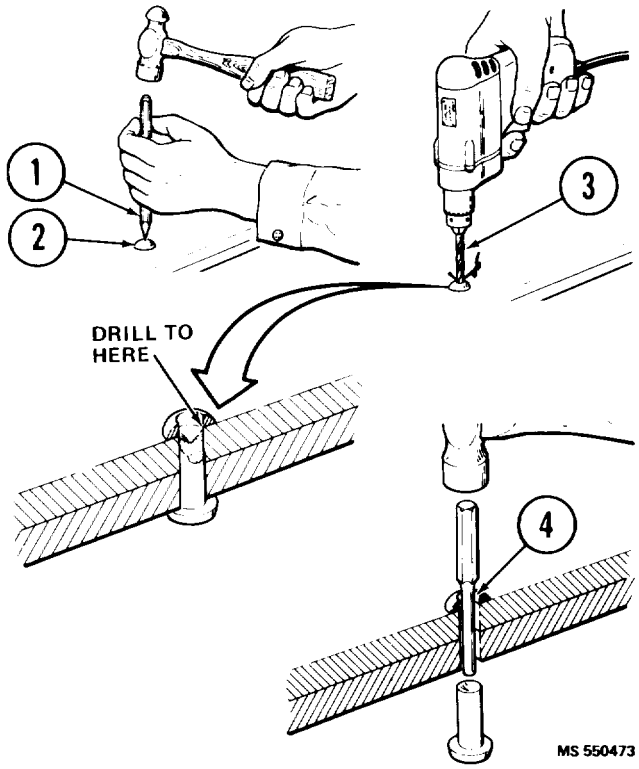
(3) Using a drill bit (3) equal in diameter to rivet shank, intermittently start and stop drill motor and drill through rivet head.

(4) Drill only through rivet head. Top of drill hole in rivet shank should be flush with base material.

CAUTION

• Do not drive punch with force which would cause punch to expand rivet hole.

(5) Remove drill bit and drive shank of rivet out of base material with straight shank punch (4). Rivet head will break off.



b. Installation.

(1) Rivets may be installed in the same holes from which they were removed. If the hole is distorted, it may be drilled larger to accept a slightly larger size rivet.

(2) Coat rivets (2) with wet zinc chromate MILP-8585 and insert in base material hole.

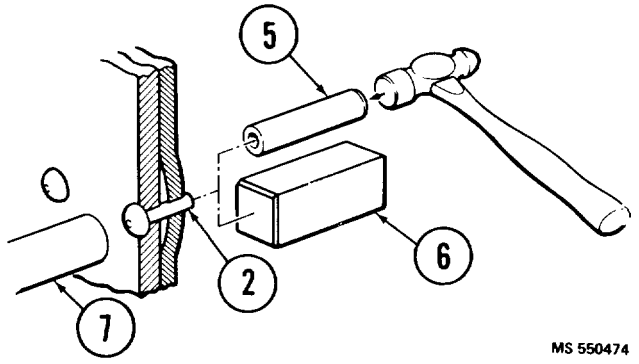
CAUTION

• Keep rivet tool (7) and bucking bar (6) firmly in place to prevent pinching rivet head or shearing rivet shank.

(3) Drive rivet until shank swells and is tight in base material hole.

(4) Check base materials to determine if the areas being riveted are in contact. If so, complete riveting operation.

(5) If areas are not in contact, draw material together by inserting drawing tool (5) over shank of rivet and tapping lightly until material is drawn together.



4-9. Standoff Terminals. Remove and install standoff terminals using the following procedure:

a. Removal. Remove standoff terminals (2) by driving terminals out of the hole with a punch (1) of slightly smaller diameter than the hole.

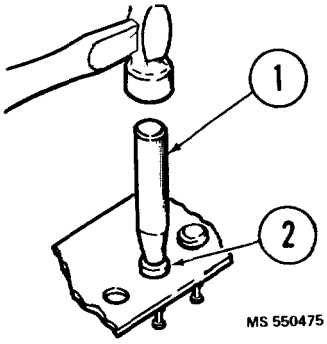
b. Installation.

(1) Place insertion tool (4) in drill press (motor power off) or arbor press (3).

(2) Insert standoff terminal (2) in insertion tool.

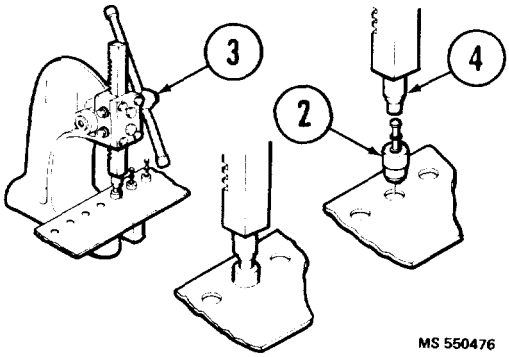
(3) Dress installation hole so that entry edge is chamfered, smooth, and free of burrs and sharp edges.

(4) Press standoff terminal into installation hole. Back up installation hole firmly, and keep tool perpendicular to installation surface.



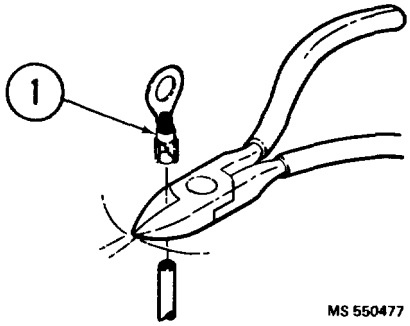
NOTE

• Installation hole must be 0.013 +0.002 in. smaller than minor diameter of standoff terminal. This can be assured by redressing hole, or selecting a terminal with a larger diameter.



(5) Release tool from arbor or drill press and remove tool from terminal.

4-10. Solderless Terminals. Remove and install solderless terminals using the following procedure:



a. Removal Solderless terminals (1) are removed by clipping lead wire adjacent to terminal body.

NOTE

• A new terminal may be installed on original wire if wire is undamaged and of sufficient length.

4-10. SOLDERLESS TERMINALS (CONTINUED)

b. Installation.

(1) Select a terminal of proper size(wire fits snugly within barrel of terminal).

CAUTION

• When stripping wire, insure that solid wire conductor is not cut, nicked, or scraped. Insure that standard conductor has no more than two cut or scraped strands to a depth of no more than 20 percent.

(2) Strip wire using either thermal or mechanical stripping tool as follows:

(a) When thermal stripper is used, there shall be no roll back of insulation or globules on the wire, and not more than a slight heat discoloration of insulation.

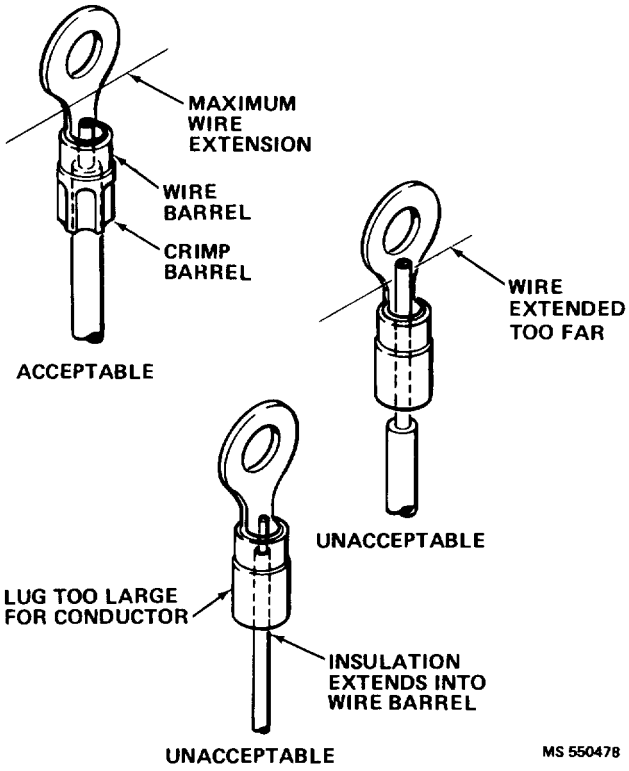
(b) When mechanical stripper is used, the number of cut or broken strands shall be limited to the following:

No. of strands in conductor	Allowable cuts or broken strands
1 -15	0
16 - 19	1
20 or more	2

(3) Insert stripped wire into solderless terminal so that when terminal is installed, wire side will be up.

(4) Crimp terminal to conductor using crimping tool MS3191 or MS3198.

(5) Make sure unacceptable conditions do not exist on new terminal.



4-11. Connector Contacts (Crimped). Remove and install crimped connector contacts using the following procedure.

a. Removal. Connector contacts are removed by being punched out of connector grommet and being cut from the running wire as closely as possible in the same manner as a solderless terminal.

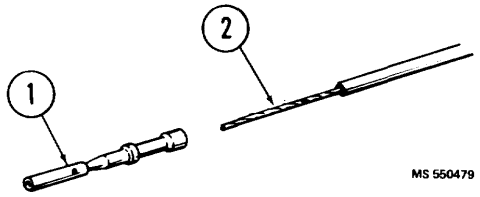
NOTE

• The running wire should be redressed for installation of a new contact if wire is of sufficient length and undamaged.

4-11. CONNECTOR CONTACTS (CRIMPED) (CONTINUED)

b. Installation of Running Wire Contacts.

(1) Contact (1) must be of a design suitable for the intended connector and of a size suitable for the required running wire. The wire must fit snugly within the contact and the contact must fit snugly within the connector grommet.



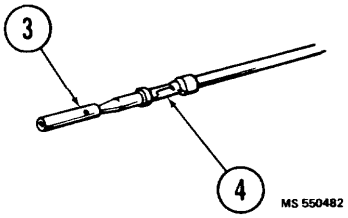
CAUTION

• When stripping wire, insure that stranded conductor has no more than two cut or scraped strands to a depth of no more than 20 percent.

(2) Strip wire using either thermal or mechanical stripping tool as follows:

(a) When thermal stripper is used, there shall be no roll back of insulation or globules on the wire, and not more than a slight heat discoloration of insulation.

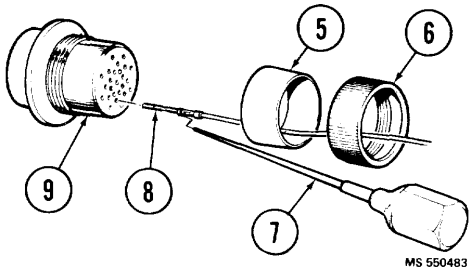
(b) When mechanical stripper is used, the number of cut or broken strands shall be limited to the following:



No. of strands in conductor	Allowable cuts or broken strands
1 - 15	0
16- 19	1
20 or more	

(c) Strip a sufficient length of wire for conductor to extend beyond contact peep hole and insulation to reach contact butt ring.

(d) Clean stripped wire (2) with isopropyl alcohol.



(3) Insert wire into contact and insure that bare wire is visible at peep hole (3).

(4) Crimp contact onto wire at (4) using crimping tool MS3191 or MS3198.

(5) Thread wire through connector locking ring (6) and connector grommet compression (5) ring.

(6) Place insertion tool (7) against contact butt ring (8) and press contact into proper connector grommet (9) hole.

4-11. CONNECTOR CONTACTS (CRIMPED) (CONTINUED)

c. Installation of Running Wire and Junction Wire Contacts.

(1) Prepare running wire in accordance with paragraph b. However, before contact is installed in connector grommet, strip a 1/2-inch segment (11) 3/4 of an inch away from contact (1) with a razor-type knife and clean with isopropyl alcohol.

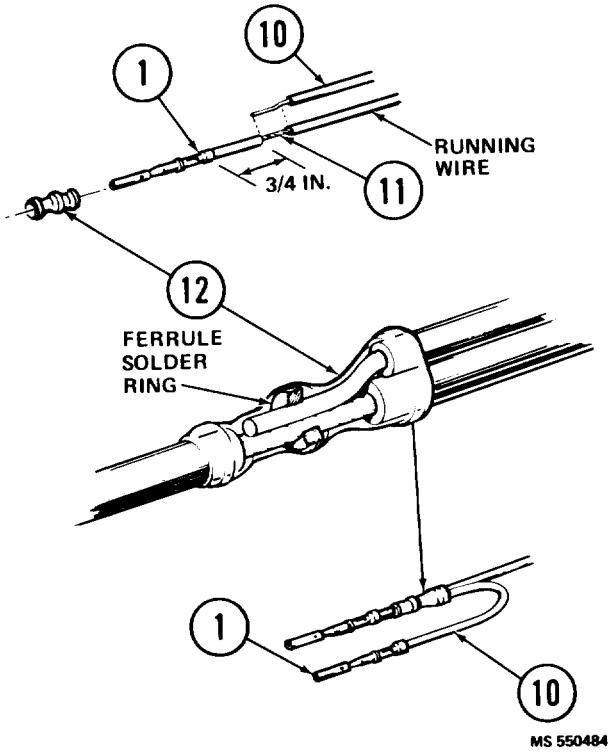
(2) Prepare both ends of junction wire by stripping (para b) and then cleaning them with isopropyl alcohol.

(3) Marry one end of the junction wire (10) to the stripped segment of the running wire.

(4) Slide a thermal-shrink solder ferrule (1 2) over the married wire joint and apply heat so that the solder runs and the ferrule shrinks.

(5) Crimp a connector contact (1) on the free end of the junction wire (para b).

(6) Install contacts into connector grommet (para b).



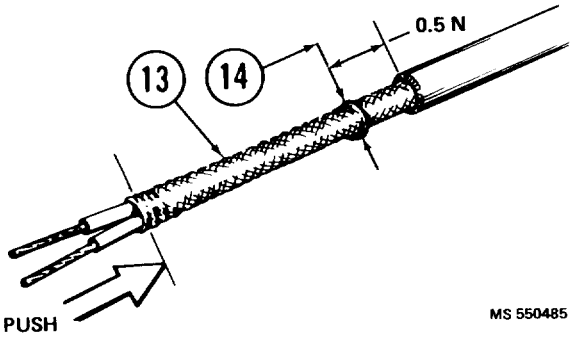
d. Installation of Shielded Wire and Shield Jumper Wire Contacts.

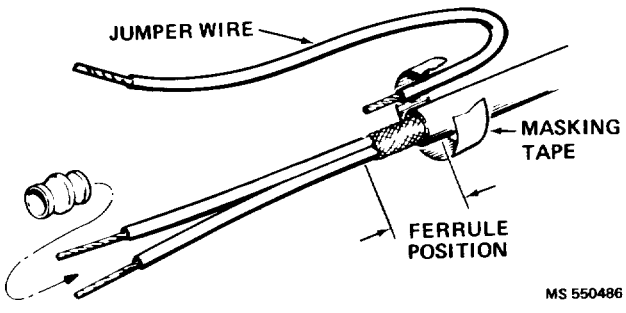
(1) Work shielding (1 3) back along wire until a slight ridge (14) rises 1/2 an inch from the outer insulation and cut excess shielding off with cutting pliers at the ridge. Clean remaining portion of shield with isopropyl alcohol.

(2) Prepare all wire ends (para b).

(3) Marry one end of the jumper wire to the shield and install thermal-shrink solder ferrule (para c).

(4) Crimp and install contacts (para b).

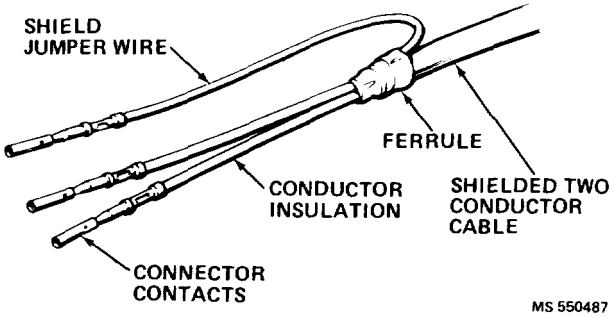


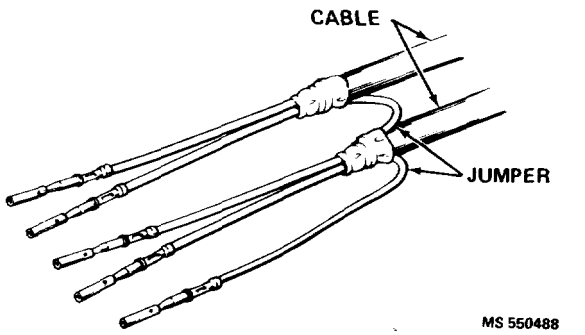


4-11. CONNECTOR CONTACTS (CRIMPED) (CONTINUED)

e. Installation of Daisychained Shielded Wire Contacts.

(1) Prepare wires (para b).
(2) Prepare all shield jumpering joints (para d).
(3) Marry each end of daisychained jumper to the shield and install thermal-shrink solder ferrule (para d).
(4) Crimp and install contacts (para b).





4-12. Repair of Cable Outer Insulation. Cable insulation is repaired as follows:

NOTE

• Cable outer insulation damage which does not exceed the following limitations can be repaired.

a. Limitations.

(1) The damaged area to the outer insulation of the cable must not exceed 6 inches in length.
(2) The damaged area must be a minimum of 1/2-inch from any assembly or termination point.

b. Repair.

• Observe all safety regulations regarding handling of toxic materials.

NOTE

• The sleeving used to accomplish the repair must be the same size and type used on the cable section being repaired.

(1) Cut a piece of sleeving 2 inches longer than the limits of the damaged area.
(2) Heat shrink the sleeving until it is a little larger than the circumference of the cable section being repaired.
(3) Make a longitudinal cut to the sleeving so it can be opened and placed around the damaged area.
(4) Prepare the mating surface of the sleeving for bonding using abrasive cloth and trichloroethylene.

4-12. REPAIR OF CABLE OUTER INSULATION (CONTINUED)

(5) Prepare the mating surface of damaged area for bonding using abrasive cloth and trichloroethylene.

(6) Apply adhesive to the damaged area being certain to go around the entire cable section.

(7) Center sleeving around the damaged area with the longitudinal cut directly opposite the actual damage.

(8) Shrink sleeving until it fits cable section.

(9) Spot-tie the sleeving in place with tight and closely placed Spot-ties. (Ty Raps can be used in place of Spot-ties.)

CAUTION

• Do not remove the Spot-ties until the adhesive has set.

(10) After removal of the Spot-ties, apply potting compound to the edges of the added sleeve, and to the longitudinal cut. Allow to cure.

(11) After it has cured, sand the potting compound to make a smooth, symmetrical, voidless repair.

(12) Test repaired cable section for continuity.

4-13. Repair of Monitoring Set Cable Assemblies.

NOTE

• The following procedures are typical repair instructions for cable assemblies W101, W102, W103, and W104, including connectors, contacts, and switch overrider contained in the AN/TSQ-T3 and AN/TSQ-T3A monitoring sets (fig. 4-1). Refer to figures 4-2, 4-3, 4-4 and 4-5 when performing continuity checks. Refer to the illustration and table 4-3 for cable assembly identification and minimum conduit assembly lengths.

a. Cable Disassembly (Typical).

(1) Remove nut (1), screw (4), clamp (5), chain (3) and protective cap (2).

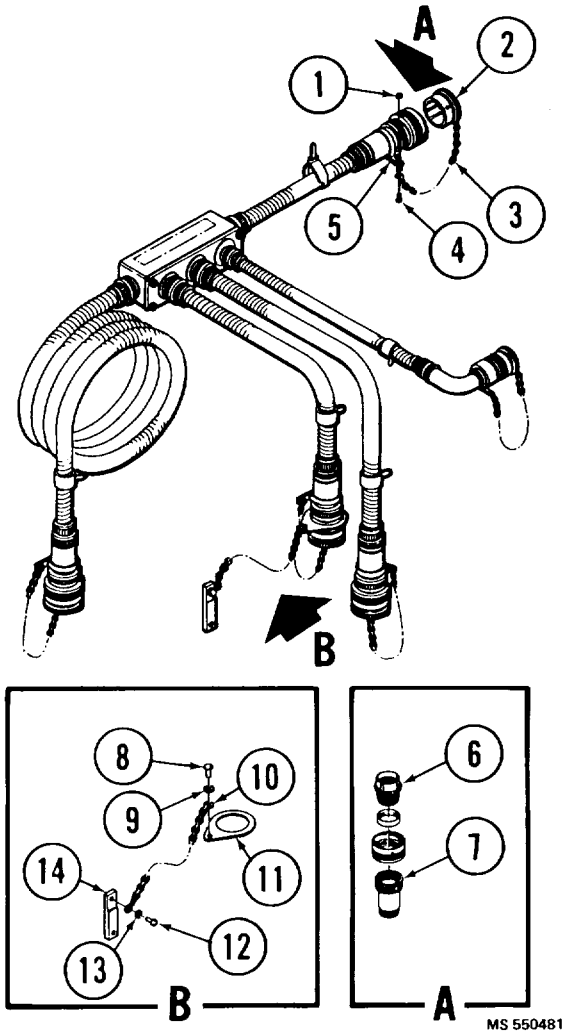
(2) Unthread knurled nut (6) from connector (7).

NOTE

• Proceed to steps (3) and (4) for additional disassembly procedures for cable assembly W102. Otherwise, proceed to paragraph b for repair.

(3) Drill out rivet (8) (para 4-8) and remove flat washer (9), and end of chain (10) from retainer washer (11).

(4) Drill out rivet (1 2) (para 4-8) and remove flat washer (13) and chain from switch overrider (14).



4-13. REPAIR OF MONITORING SET CABLE ASSEMBLIES (CONTINUED)

b. Cable Repair (Typical). Cable repair consists of replacing damaged protective covers, clamps, and chains; switch overrider and chain; and contacts.

(1) Replace contacts in accordance with paragraph 4-1 1.

(2) Replace damaged parts in accordance with paragraph c.

c. Cable Assembly (Typical).

(1) Secure chain (10) to switch overrider (14) with flat washer (13) and rivet (12) (para 4-8).

(2) Secure chain to retainer washer (11) with flat washer (9) and rivet (8) (para 4-8).

(3) Thread knurled nut (6) onto connector (7).

(4) Install protective cap (2) with chain (3), clamp (5), screw (4), and nut (1).

TABLE 4-3. LIMITS FOR REPAIR AND REPLACEMENT OF MONITOR CABLES

Cable	Conduit Assembly	Minimum Length (inches)
W101	1	19
	2	13
	3	13
	4	15
	5	15
W102	6	242
	7	13
	8	18
	9	24
	10	19
W103	11	48
	12	49
	13	51
W104	14	243
	15	49

4-13. REPAIR OF MONITORING SET CABLE ASSEMBLIES (CONTINUED)

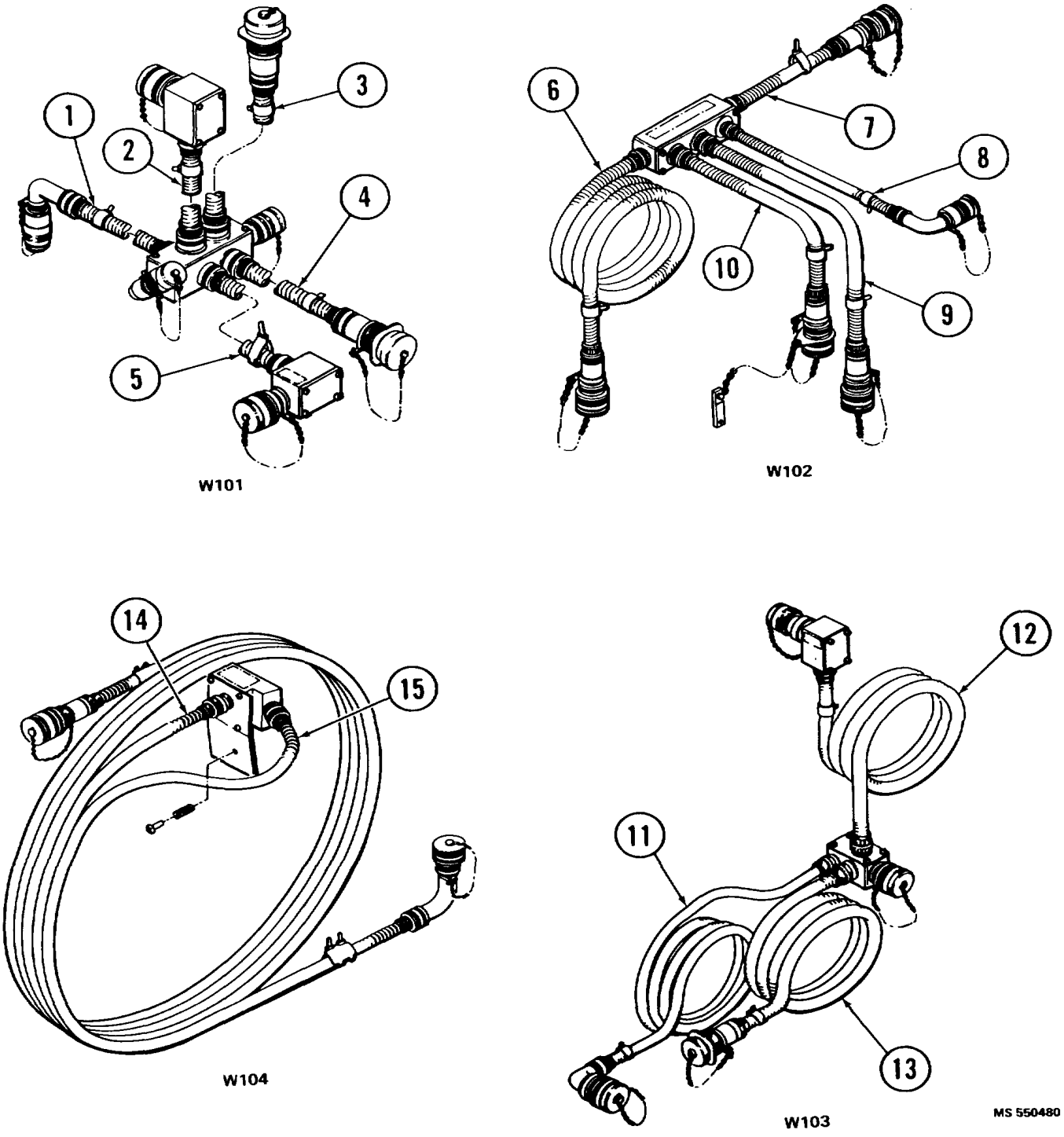


Figure 4-1. Monitoring Set Cable Assemblies

4-13. REPAIR OF MONITORING SET CABLE ASSEMBLIES (CONTINUED)

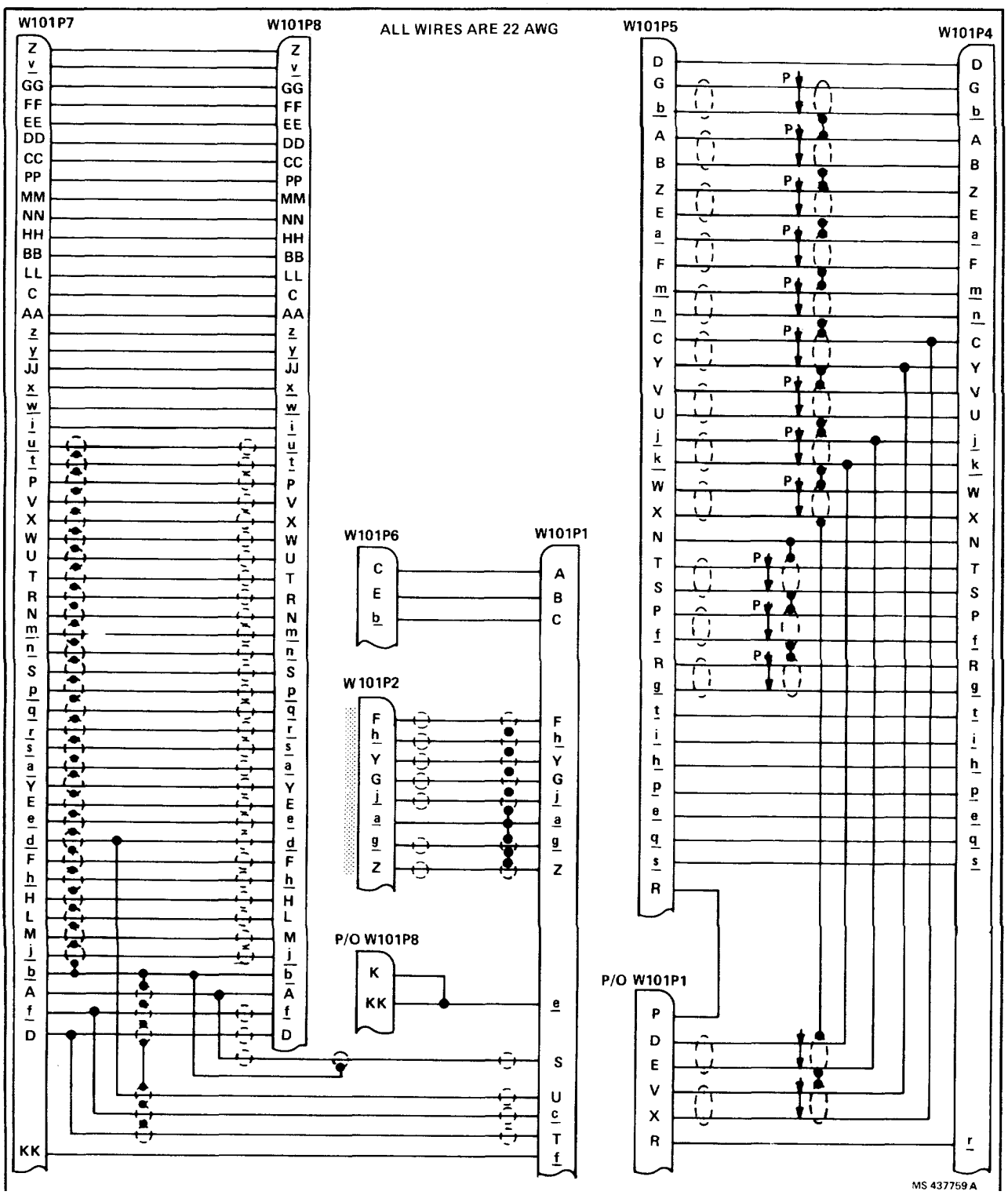


Figure 4-2. Cable Assembly W101 Wiring Diagram

4-13. REPAIR OF MONITORING SET CABLE ASSEMBLIES (CONTINUED)

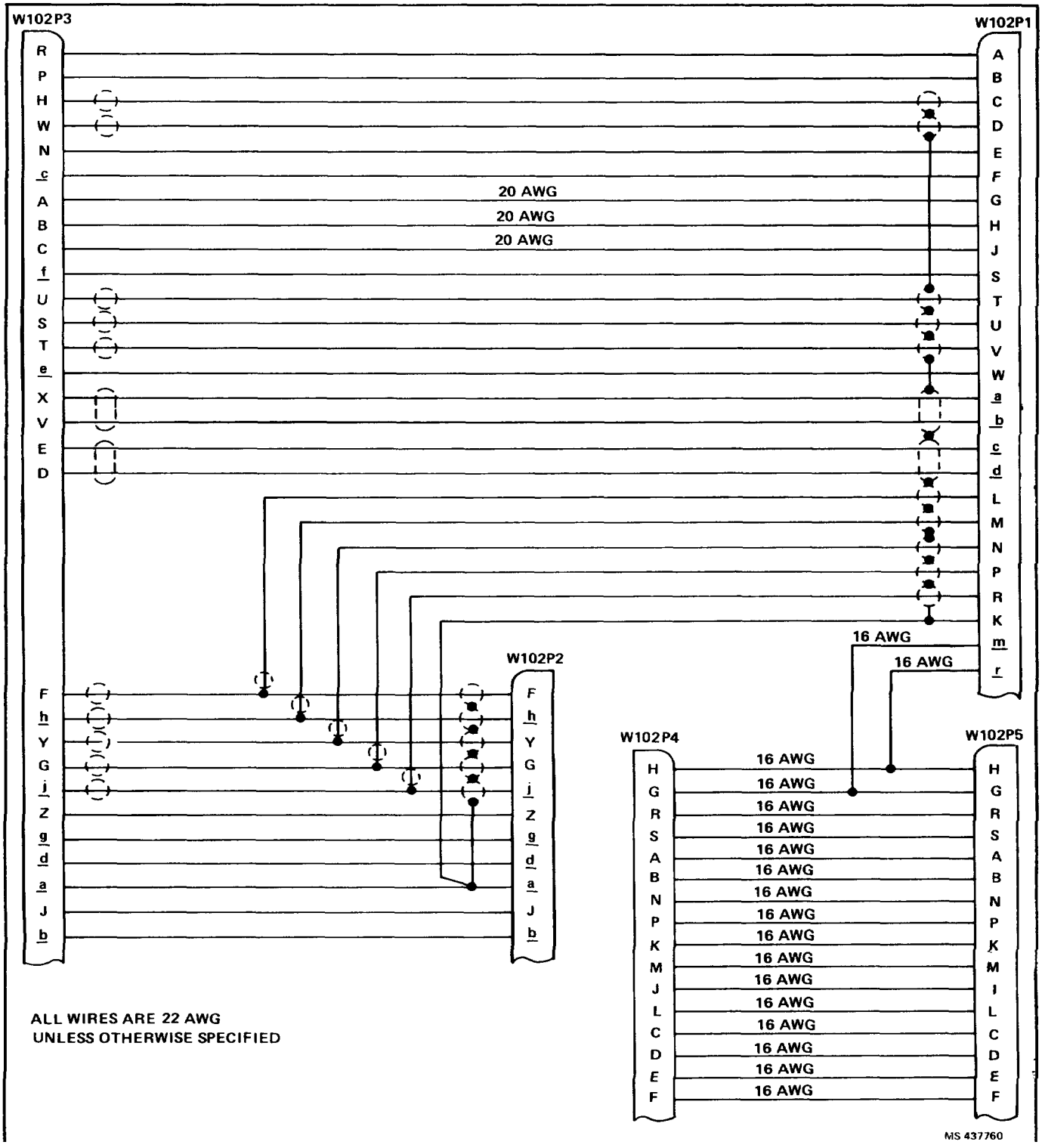


Figure 4-3. Cable Assembly W102 Wiring Diagram

4-13. REPAIR OF MONITORING SET CABLE ASSEMBLIES (CONTINUED)

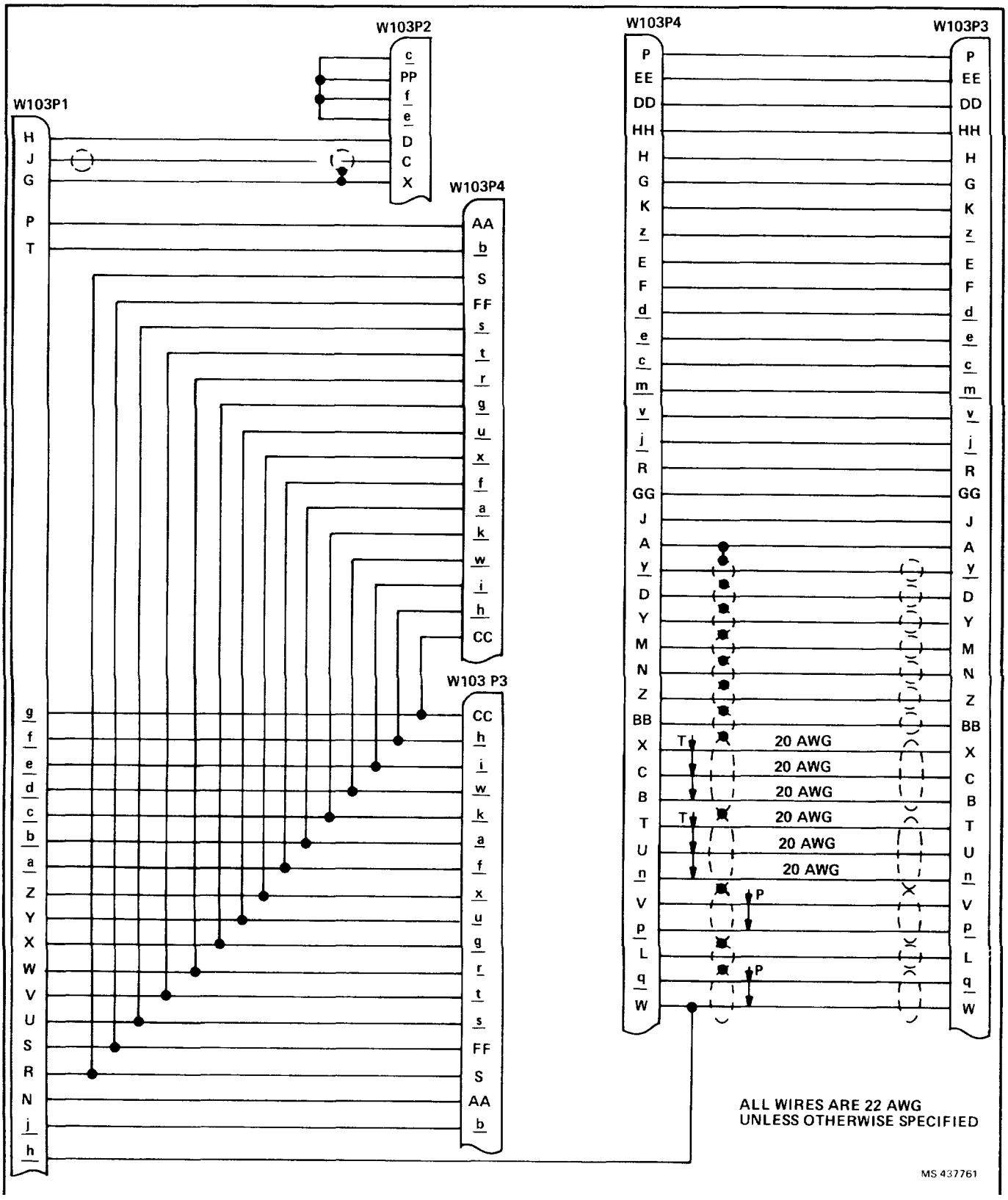


Figure 4-4. Cable Assembly W103 Wiring Diagram

4-13. REPAIR OF MONITORING SET CABLE ASSEMBLIES (CONTINUED)

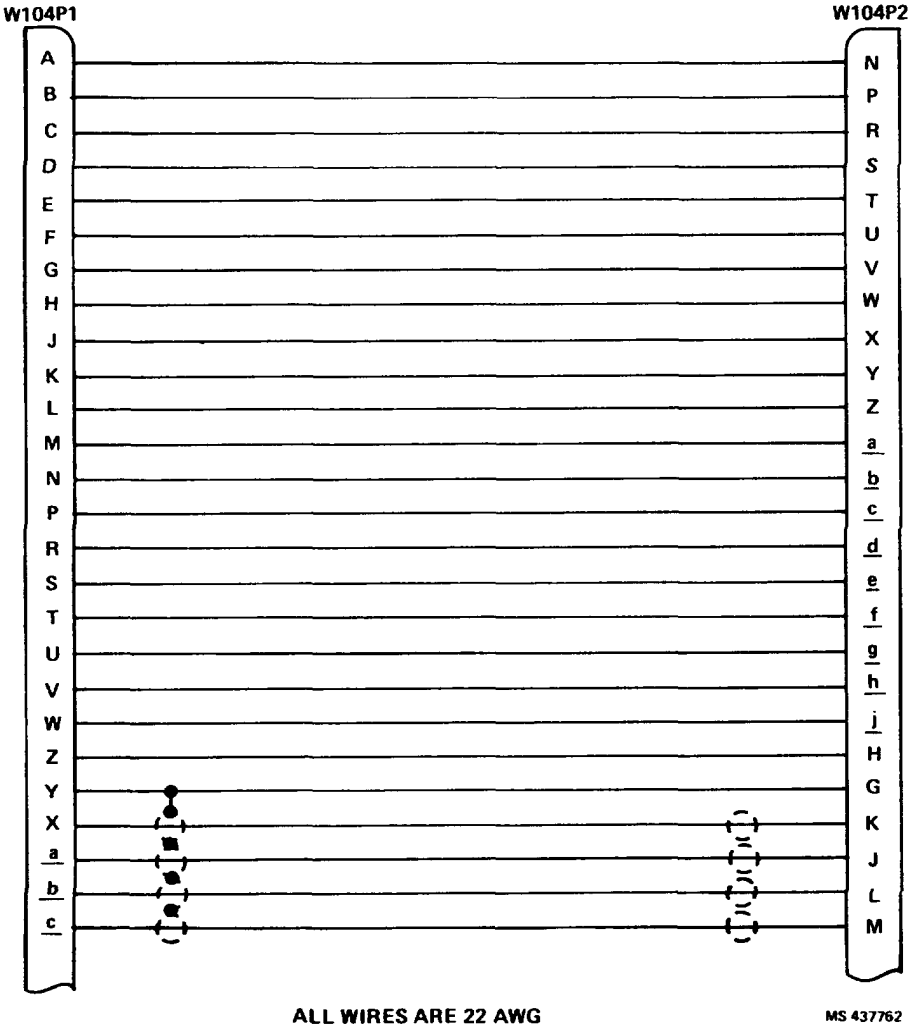


Figure 4-5. Cable Assembly W104 Wiring Diagram

4-14. Ablative Coating Repair

To perform repairs on the ablative coating, proceed as follows:

• Any repairs to the ablative coating which would require mechanical abrading (sand, grind, file, wire brush, etc.) that would create dust must be performed by depot under controlled conditions.

NOTE

• Ablative coating surface preparation must be performed in compliance with the following: 29 CFR 1910.1001 (OSHA Asbestos Standard) DoD 6055.5M (Medical Surveillance for Asbestos Workers) 29 CFR 1910.1000, Tables Z-1, Z-2, and Z-3 All Surgeon General's directives applicable to asbestos related activity 29 CFR 1910.134 (Respiratory Protection)

• Use of the following equipment is required during ablative coating repair procedures.

a.Personal Protective and Safety Equipment.

(1) Respirator mask (included with parts kit, item 1, appx D).

(2) Safety goggles (included with parts kit, item 1, appx D).

(3) Butyl rubber gloves with ten-inch gauntlet (included with parts kit, item 1, appx D).

(4) Non-porous asbestos waste bags (included with parts kit, item 1, appx D).

(5) Plunger cans (item 108.1, appx D) used for solvent dispensing.

b. Removal.

(1) Clear area of unauthorized and unprotected personnel.

(2) Put on all personal protective equipment.

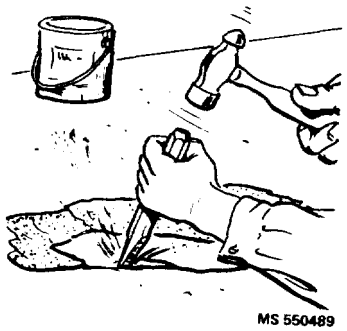
(3) Wet damaged area with water to control waste movement.

• The ablative coating material contains asbestos fibers. DO NOT mechanically abrade (sand, grind, file, wire brush, etc.) this material in any manner that would create hazardous dust. Asbestos fibers may cause respiratory ailments if they are breathed. Ablative coating also contains silica.

NOTE

• To avoid unintentional abrasion of ablative coating later in the procedure, remove enough ablative coating to allow roughening of base metal (typically 1 to 3 inches around damaged area).

(4) Using a hammer and chisel, remove charred or loose ablative coating.



4-14. ABLATIVE COATING REPAIR (CONTINUED).

- Do not use cleaning solvents near an open flame or sparks.
- Concentrations of solvents in the work area must be maintained below the levels prescribed in CFR 1910.1000, Z-1 and Z-2.
- Respiratory protection for asbestos is not effective for organic solvents. Use only in well ventilated area.
- Avoid allowing solvents to contact skin or eyes. Wash exposed skin areas thoroughly with soap and water for at least 15 minutes. For eyes, seek medical attention immediately after flushing eyes with water.
- Keep solvent container closed at all times.
- No sweeping or use of compressed air is allowed for collection of waste material.

(5) Thoroughly wipe off all dust and particles resulting from ablative coating removal with cloths dipped in methyl-ethyl ketone solvent (item 68, appx D) or water.

(6) Dispose of waste material and cloths in labeled impermeable waste bag. All ablative coating shall be disposed of in labeled impermeable waste bag. Seal the bag until next use.

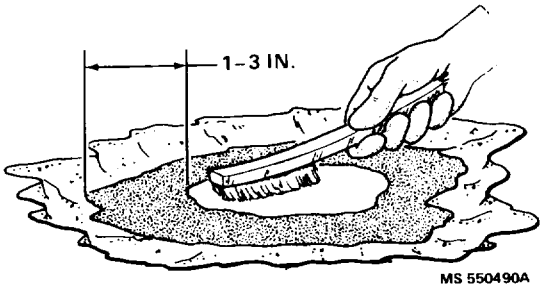
c. Application.

CAUTION

- Do not use a steel-wire brush on aluminum or magnesium metals.

(1) Clean and roughen the base metal using a wire brush (item 22.1, appx D) having bristles made from corrosion resistant steel.

(2) Using solvent plunger can (item 108.1, appx D), apply a small amount of methyl-ethyl



MS 550490A

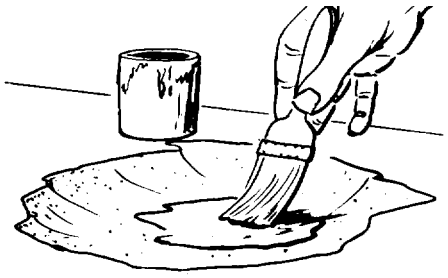
ketone solvent (item 68, appx D) to a lint-free cloth (item 25, appx D) and clean the bare area. Allow area to dry for at least 15 minutes.

(3) When the area is dry, use masking tape (item 126, appx D) to mask areas which are not to be coated

.

- Do not use primers near an open flame or sparks.
- Respiratory protection for asbestos is not effective for primers. Use primer only in well ventilated area.
- Avoid allowing primers to contact skin or eyes. Wash exposed skin areas thoroughly with soap and water for at least 15 minutes. For eyes, seek medical attention immediately after flushing eyes with water.

(4) Apply a thin coat of ablative coating primer (included with parts kit, item 1, appx D) to the bare metal and allow to dry at least 30 minutes.


MS 550491

4-14. ABLATIVE COATING REPAIR (CONTINUED).

- Do not use ablative coating components near an open flame or sparks.
- Avoid allowing ablative coating components to contact skin, eyes, or clothing. Use protective gloves to prevent irritation or inflammation of skin. Wash exposed skin areas thoroughly with soap and water for at least 15 minutes. For eyes, seek medical attention immediately after flushing eyes with water.

CAUTION

- Equipment used in mixing, stirring, application, or handling of the ablative coating components shall be made from materials having no detrimental effect on the coating and be free of dust or contamination. Use metal spatulas, containers, and mixing equipment. Porous and absorbent materials such as paper or wood shall be avoided.

NOTE

- The application life of mixed ablative coating is as specified by manufacturer. If the temperature is lowered, the application life will be lengthened.

(5) Wear proper gloves and thoroughly mix the two components, parts A and B of ablative coating material (included with parts kit, item 1, appx D) per manufacturer's instructions.

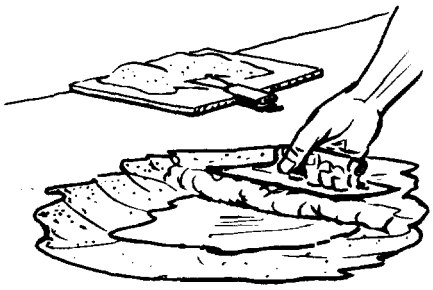
CAUTION

- Equipment used in mixing, stirring, application, or handling of the ablative coating components shall be made from materials having no detrimental effect on the coating and be free of dust or contamination. Use metal spatulas, containers, and mixing equipment. Porous and absorbent materials such as paper or wood shall be avoided.

NOTE

- Any suitable heat source, such as a heat gun or tooling that has been heated, may be used to aid flow and improve surface finish of ablative coating.

(6) Apply mixed coating over primed area so it is even with surface of existing coating. Up to 0.205 inch of coating can be applied to vertical surfaces without flowing.



MS 550492

- Keep heat sources away from flammable solvent containers and cloths.

NOTE

- The application life of mixed ablative coating is as specified by manufacturer. If the temperature is lowered, the application life will be lengthened.

(7) Work coating into small areas. Prevent voids and air pockets, and maintain coating thickness compatible with the original. Open any existing air pockets and fill voids with additional coating material.

(8) Allow the coating to cure for 8 hours if temperature is above 60°F (15.6°C). At temperatures below 60°F (15.6°C), a longer curing period is required.

4-14. ABLATIVE COATING REPAIR (CONTINUED).

d. Station Shutdown.

(1) Put asbestos waste in labeled impermeable waste bags. Only approved landfills can be used. Consult Army safety personnel for disposal.

(2) If any local exhaust ventilation systems are used to capture ablative coating dust, appropriate asbestos filtration must be used and special precautions must be taken when maintaining the ventilation system and changing filters.

(3) Ablative coating should be periodically we mopped with cloth to prevent buildup of any fibers.

(4) If any repair involves mechanical abrading or drilling, creating dust, such work must be conducted under controlled conditions. Consult Army safety personnel prior to conducting this work.

(5) Dispose of remaining coating material, spreader, mixing equipment and respirator in labeled impermeable waste bag.

e. Painting. Prepare surface for painting (para 4-15).

4-15. Preparation for Painting.

Prepare surfaces as follows:

- Do not use cleaning solvents, primers, or paints near an open flame or sparks. Use only in well ventilated area. Avoid allowing solvents to contact skin. Wash exposed skin areas thoroughly with soap and water.
- The ablative coating material contains asbestos fibers. DO NOT mechanically abrade (sand, grind, file, wire brush, etc.) this material in any manner that would create hazardous dust. Asbestos fibers may cause respiratory ailments if they are breathed.
- Any repairs to the ablative coating which would require mechanical abrading (creating dust) MUST be performed by depot under controlled conditions.

4-16. Insulating Material Removal and Replacement.

Repair damaged foam rubber insulating material as follows:

a. Remove old insulation by peeling off the exterior layer and then scraping the remainder loose. Be careful to not damage the launching station surfaces.

- Do not use a steel-wire brush on aluminum or magnesium metals.

b. Clean area using abrasive paper or a wire brush (item 22.1, appx D) with bristles made of corrosion resistant steel.

c. Prepare and paint any exposed bare metal (para 4-15). Allow paint to dry thoroughly before installing new insulation.

- Do not use a steel-wire brush on aluminum or magnesium metals.

(a) Clean and sand damaged surfaces and apply primer.

(b) After primer is fully dry, paint surface using same color and type of paint as originally applied to equipment.

d. Bond new insulation to surface as follows:

- Use all safety precautions regarding handling of flammable and toxic materials.

(1) Clean surface with isopropyl alcohol (item 15, appx D).

(2) Apply adhesive (item 6, appx D) to surface and allow 10 to 15 minutes to set.

(3) Install new insulation (item 55, appx D) with the crinkled film surface exposed and allow to harden for 24 hours minimum.

4-17. Precautions When Cleaning with Water.

- Turn off all electrical power when washing the components. Failure to remove power may result in serious injury to personnel or damage to equipment.

- Do not use high-pressure water, air, or steam to clean the turret, base assembly structures, or internal components.

  a. Protect MPU from water spillage while cleaning duct cover seals. Remove any water and wipe dry surrounding areas.
  b. Protect rear electrical compartment components from water spillage while cleaning compartment door seals. Remove any water and wipe dry surrounding areas.
  c. Protect the wing and fin storage components from water spillage while cleaning compartment seals, and remove any excess water from surrounding areas.
  d. Batteries shall be removed from battery box for cleaning. Water shall not be flushed into battery compartment to clean terminal clamps. Remove and thoroughly wipe dry any water spillage in battery box and surrounding areas.
  e. Protect the air conditioner compartments from water spillage while cleaning door seals with water. Remove any excess water.
  f. Protect heater unit components from water spillage while cleaning seals. Remove and wipe dry surrounding areas.
  g. Insure that canopy is closed, latched, and sealed tightly before washing canopy plexiglas.
  h. Insure the IR receiver blast shield doors are closed when the IR receiver is being cleaned with water.

CHAPTER 5
SHIPMENT AND STORAGE

Section I. PREPARATION FOR SHIPMENT

5-1. Launching Station M54A2 and M48A2 Preparation

a. General. The launching station is packaged to Level A requirements (crated) for overseas shipment by water transportation (para b and c). This level is designed to protect equipment against all extremes of climatic, terrain, ,operational, and transportation environments. For domestic shipment, the launching station is packaged to Level B requirements (para g). This level is designed to protect equipment against physical and environmental damage during known favorable conditions of shipment, handling, and storage. Military specifications for materials and fabrication are listed in Appendix B.

5-1. LAUNCHING STATION M54A2 AND M48A2 PREPARATION (CONTINUED)

b. M54A2 Level A Packaging

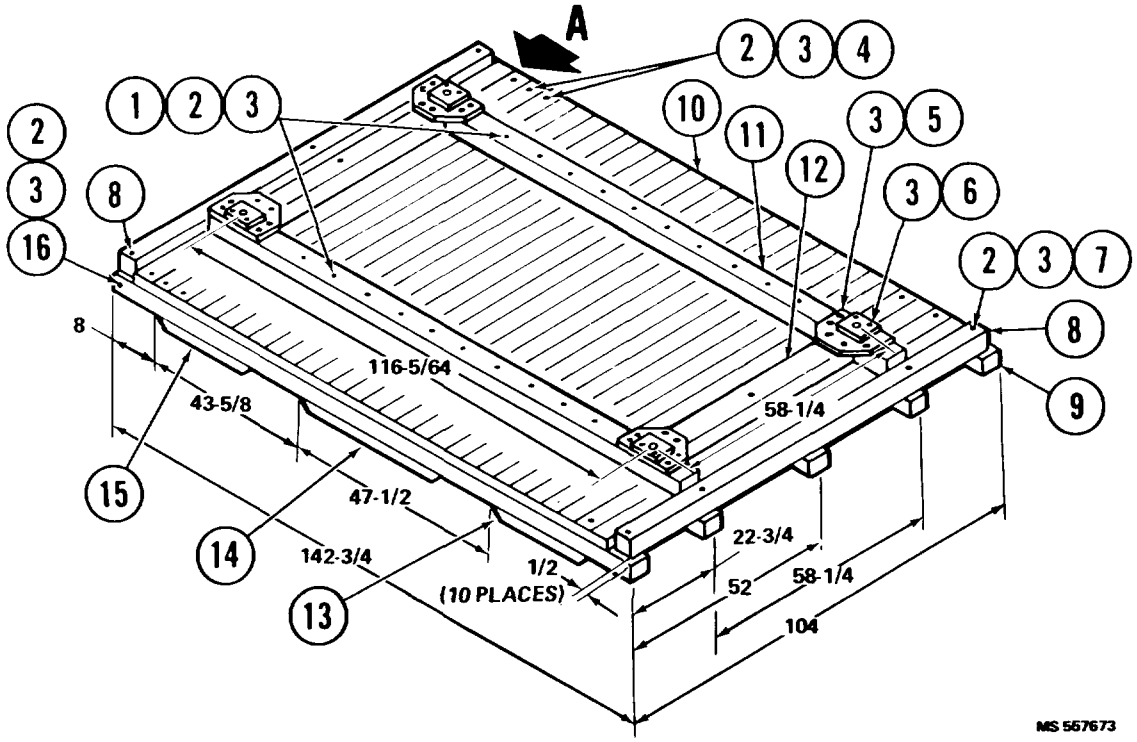
Fabricate launching station M54A2 shipping container in accordance with the following illustrations.

BASE SECTION

Fasten unbolted decking (10) to skids (9) with a minimum of two 16d nails per skid.

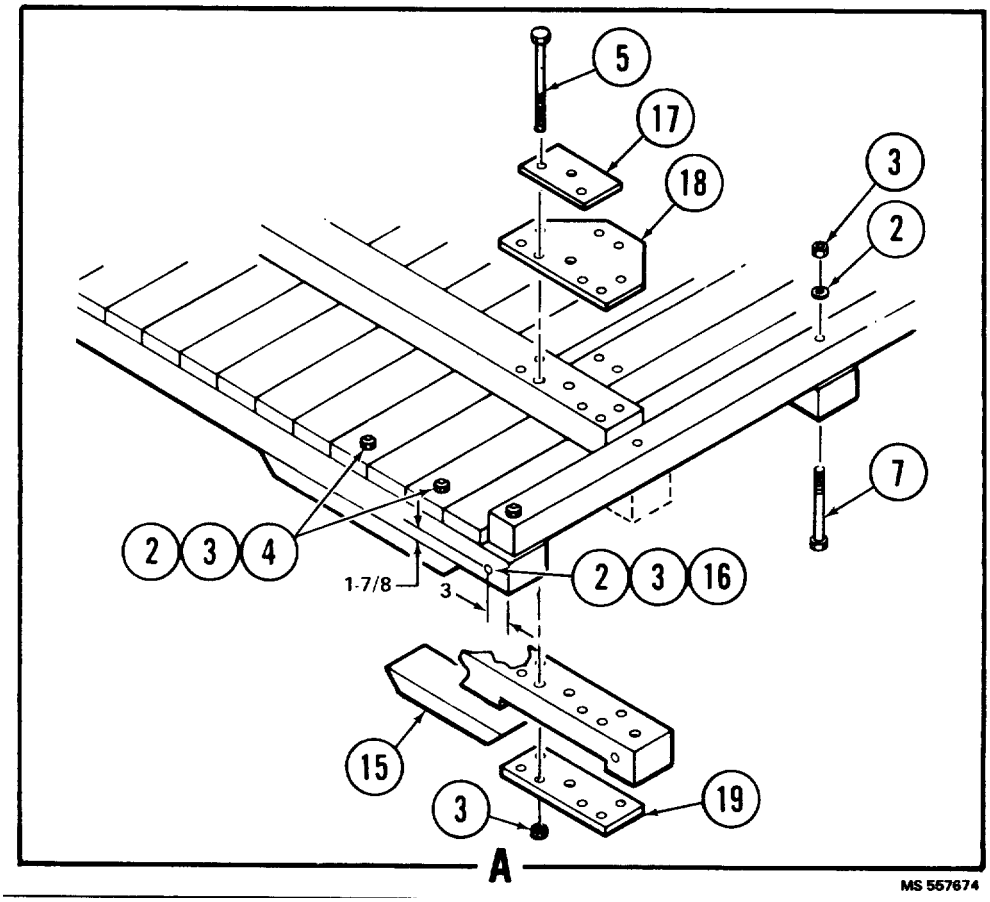
NOTE

- All dimensions are in inches.
- Bolts (1, 5, 6) are installed with heads up.
- Shorten rub strips (13, 15) four places as shown in view A.



5-1. LAUNCHING STATION M54A2 AND M48A2 PREPARATION (CONTINUED)

b. M54A2 Level A Packaging (Continued)

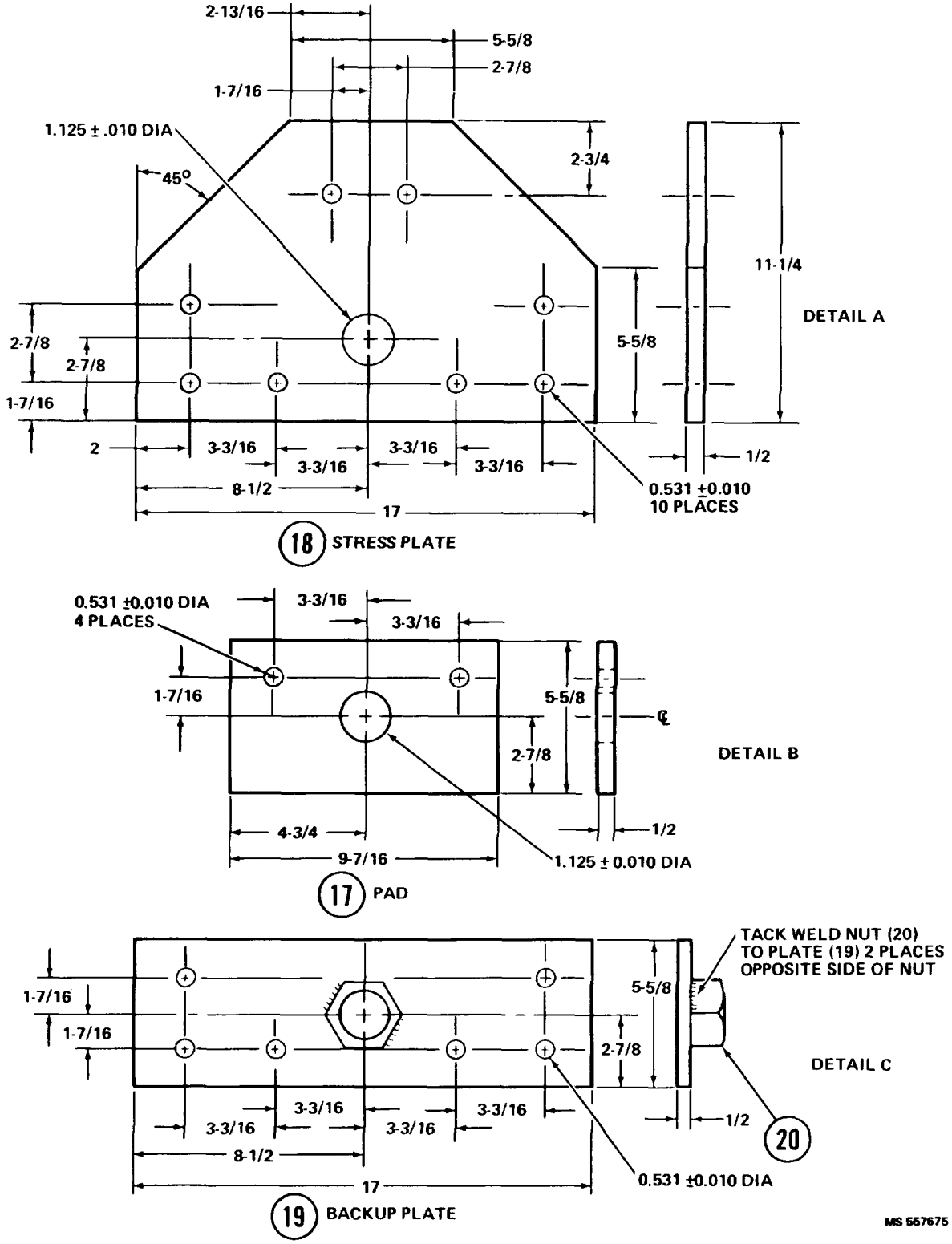


No.	Item	Qty	Size (in.) Nominal	Materials/Notes
1	Bolt, carriage	20	1/2 x 8-3/4	Steel Tighten to400 in.-lb of torque
2	Washer, flat common	70	1/2 ID	Steel
3	Nut, hex	80	1/2	Steel
4	Bolt, carriage	8	1/2 x 6	Steel
5	Bolt, machine	24	1/2 x 10	Steel
6	Bolt, machine	8	1/2 x 10-1/2	Steel Tighten to 400 in.- lb. of torque
7	Bolt, carriage	10	1/2 x 8	Steel
8	Header	2	4 x 4 x 104	Wood
9	Skid	5	4 x 6 x 142-3/4	Wood
10	Decking	24	2 x 6 x 104	Wood
11	Beam, loading bearing, long	2	4 x 6 x 134-1/2	Wood

5-1. LAUNCHING STATION M54A2 AND M48A2 PREPARATION (CONTINUED)

b. M54A2 Level A Packaging (Continued)

1 CONTINUED



5-1. LAUNCHING STATION M54A2 AND M48A2 PREPARATION (CONTINUED)

b. M54A2 Level A Packaging (Continued)

1 CONTINUED

No-.	Item	Qty	Size (in.) Nominal	Materials/Notes
12	Beam, load, bearing, lateral	2	4 x 6 x 52-5/8	Wood
13	Rub strip	5	2 x 6x 35	Wood
14	Rubstrip	5	2x 6x 36	Wood
15	Rub strip	5	2 x 6 x 31-1/2	Wood
16	Bolt, carriage	10	1/2 x4-1/2	Steel Tighten to 400 in.-lb of torque
17	Pad	4	See detail B	Aluminum 6061-T6
18	Plate, stress	4	See detaiL A	Steel, carbon
19	Plate, backup	4	See detail C	Steel, carbon, plate
20	Nut, hex (for bolt 50)	4	1-8 UNC	Steel

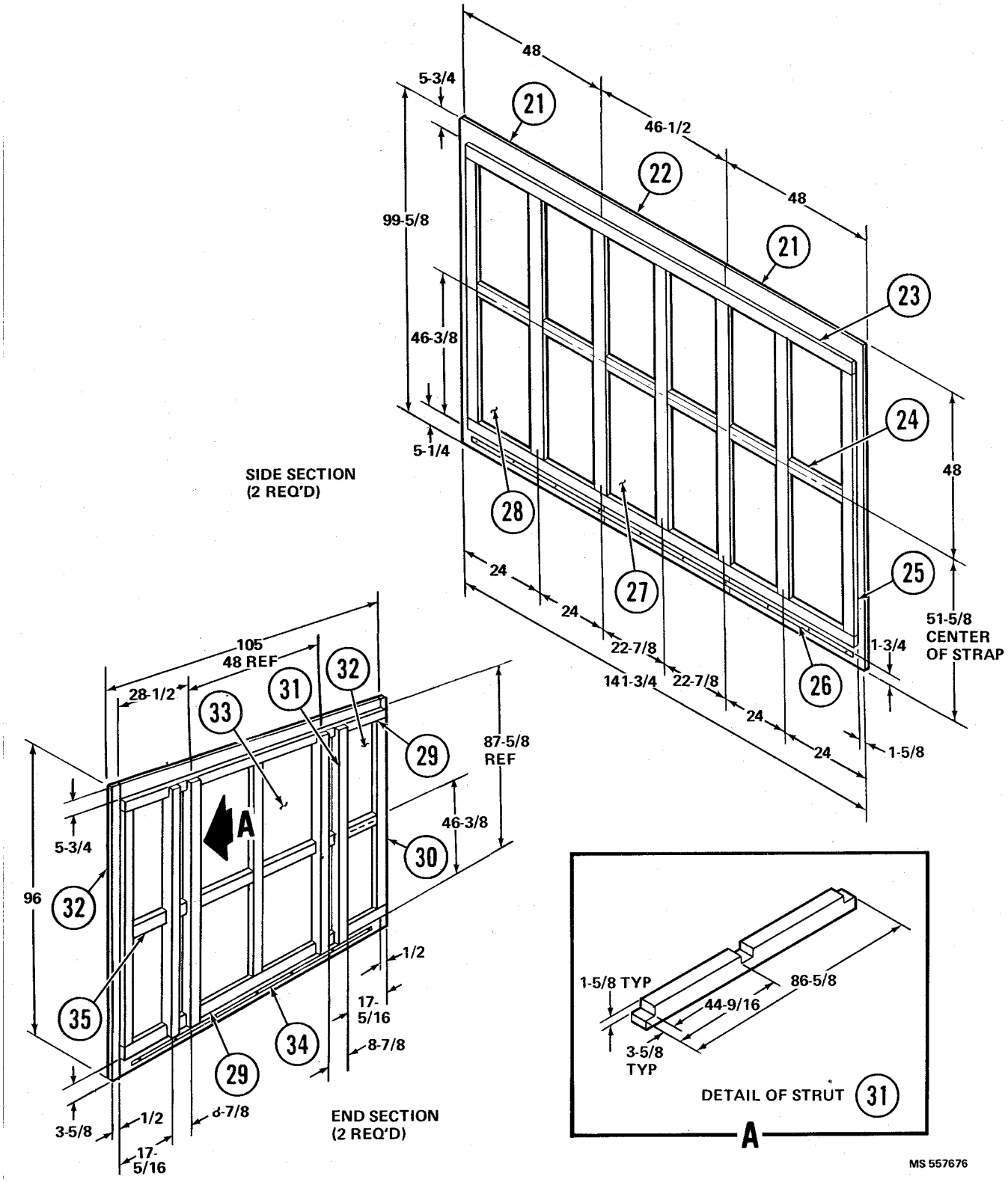
2 SIDE AND END SECTIONS

No.	Item	Qty	Size (in.) Nominal	Materials/Notes:
21	Panel	4	48 x 48 x 1/2	Plywood
22	Panel	2	45-3/4 x 48 x 1/2	Plywood
23	Frame member	4	2x 4 x 138-1/2	Wood
24	Brace	8	2 x 4 x 19-9/16	Wood
25	Strut	14	2 x 4 x 81-3/8	Wood
26	Strap, lag screw	2	2 x 0.050 x 138-1/2	Steel
27	Panel	4	45-3/4 x 51-5/8 x 1/2	Plywood'
28	Panel	2	48 x 51-5/8 x 1/2	Plywood
29	Frame member	4	2 x 4 x 104	Wood
30	Strut	6	2 x 4 x 79-3/4	Wood
31	Strut	8	4 x 4 x 86-5/8	Wood
32	Sheeting	4	28-1/2 x 96 x 1/2	Plywood
33	Sheeting	2	48 x 96 x 1/2	Plywood
34	Strap, lag screw	2	1-1/4 x 0.035 x 104	Steel
35	Brace, horizontal	2	2 x 4 x 96-3/4	Wood

5-1. LAUNCHING STATION M54A2 AND M48A2 PREPARATION (CONTINUED)

b. M54A2 Level A Packaging (Continued)

2 CONTINUED SIDE AND END SECTIONS



5-1. LAUNCHING STATION M54A2 AND M48A2 PREPARATION (CONTINUED)

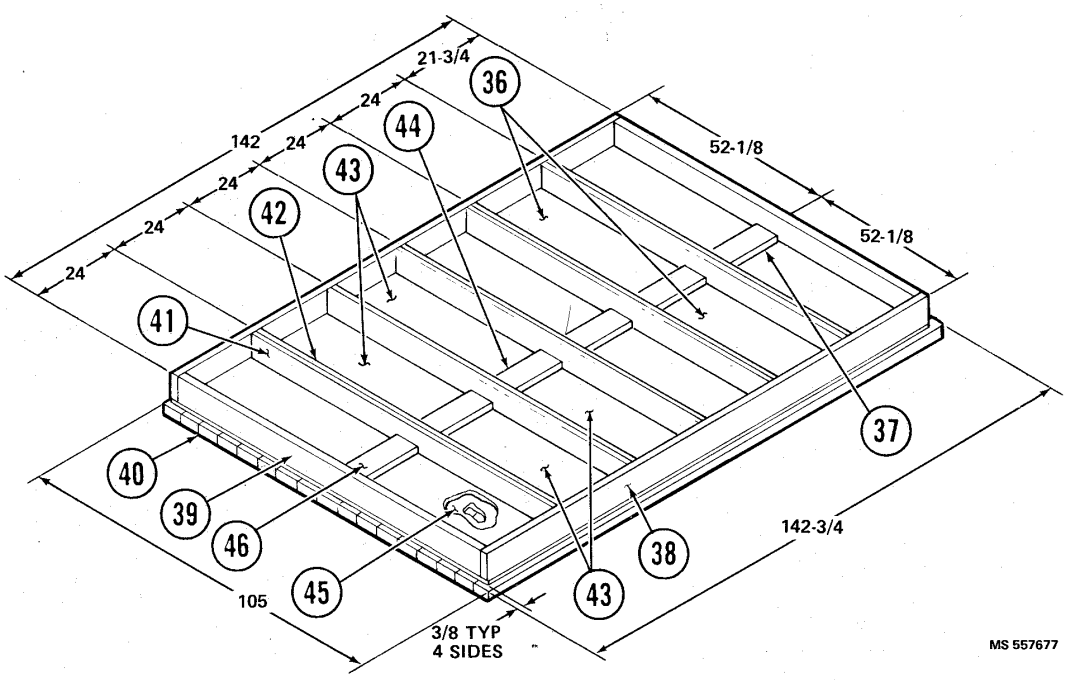
b. M54A2 Level A Packaging (Continued)

TOP SECTION

(a) Apply roofing felt (45) (item 42.1, appx D) over plywood underlayer.

(b) Extend felt outside top frame member edges a distance equal to thickness of side and end sheathing minus 1/8 in.

(c) When overlap is required, install felt with 4 in minimum overlap. Seal with asphalt mastic compound (item 26.1, appx D).



No.	Item	Qty	Size (in.) Nominal	Materials/Notes
36	Panel	2	45-3/4 x 52-1/8 x 1/4	Plywood
37	Brace	1	2 x 4 x 18-9/16	Wood
38	Header	2	1 x 6 x 142	Wood
39	Joist, end	2	2 x 6 x 102-3/4	Wood
40	Sheathing	19	1 x 6 x 142-3/4	Wood
41	Joist	5	2 x 6 x 102-3/4	Wood
42	Joist, doubler	5	1 x 6 x 102-3/4	Wood
43	Panel	4	48 x 52-1/8 x 1/4	Plywood
44	Brace	4	2 x 4 x 21-5/8	Wood
45	Felt, roofing	-		Asphalt 45 lb. minimum
46	Brace	1	2 x 4 x 21-9/16	Wood

5-1. LAUNCHING STATION M54A2 AND M48A2 PREPARATION (CONTINUED)

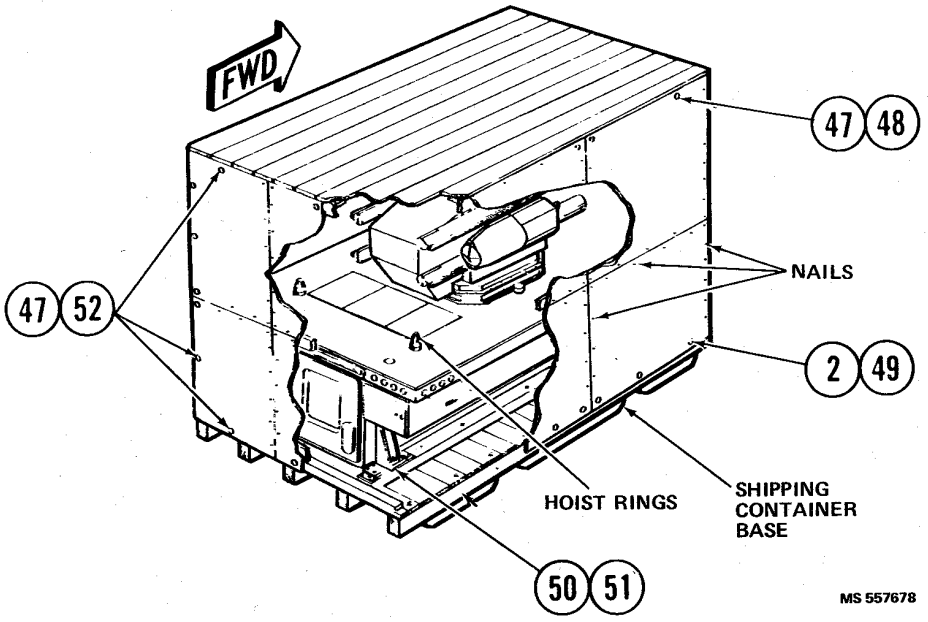
b. M54A2 Level A Packaging (Continued)

4 ENCLOSURE

(a) Secure launching station to shipping container base section with four bolts (50) and washers (51) in weld nuts (20).

(b) Tighten bolts to a torque value of 400 ±40 ft-lb.

(c) Assemble sections and fasten as follows:
(1) Install lag screws (52) and washers (47) in end sections. Start first screws 12 in. from top and bottom edges, remaining screws approximately 17 in. apart
(2) Install lag screws (52) and washers (47) in end sections. Start first screws 6 in. from left and right edges, remaining screws approximately 18 in. apart.
(3) Install lag screws (48) and washers (47) in top of side sections. Lag to ends of top section joists or into edge of top frame members.
(4) Install lag screws (49) and washers (2) in bottom of side sections. Start first screws 6 in. from edges, remaining screws approximately 19 in. apart.



No.	Item	Qty	Size (in.) Nominal	Materials/Notes
47	Washer, flat	50	3/8	Steel
48	Lag screw	10	3/8 x 3-1/2	Steel
49	Lag screw	8	1/2 x 4	Steel
50	Bolt, machine	4	1-8 UNC x 12-1/2	Steel (ultimate tensile strength 75000psi). Tighten to 400±40 ft-lb of torque
51	Washer, flat	4	1 ID x 2-1/2 OD	Steel
52	Lag screw	40	3/8 x 2-1/2	Steel

5-1. LAUNCHING STATION M54A2 AND M48A2 PREPARATION (CONTINUED)

c. M48A2 Level A Packaging

Fabricate launching station M48A2 shipping container in accordance with the following illustrations.

CAUTION

- Prior to hutment installation, remove launch rail plastic covers, if installed

NOTE

- Structure conforms to Berne Gauge requirements. When Berne Gauge compliance is not required, a rectangular hutment may be used.
- All dimensions are in inches.

SIDE PANELS

(a) Assemble side panels according to illustrations.

(b) Bond rub strips (4) (item 79.1, appx D) to bottom edges of panels with adhesive (item 12.1, appx D)

(c) Nail plywood sheathing to frame members with 7d cement-coated sinkers. Install with nail heads on plywood side and clinch on frame side. Double nail at sheathing butt joints.

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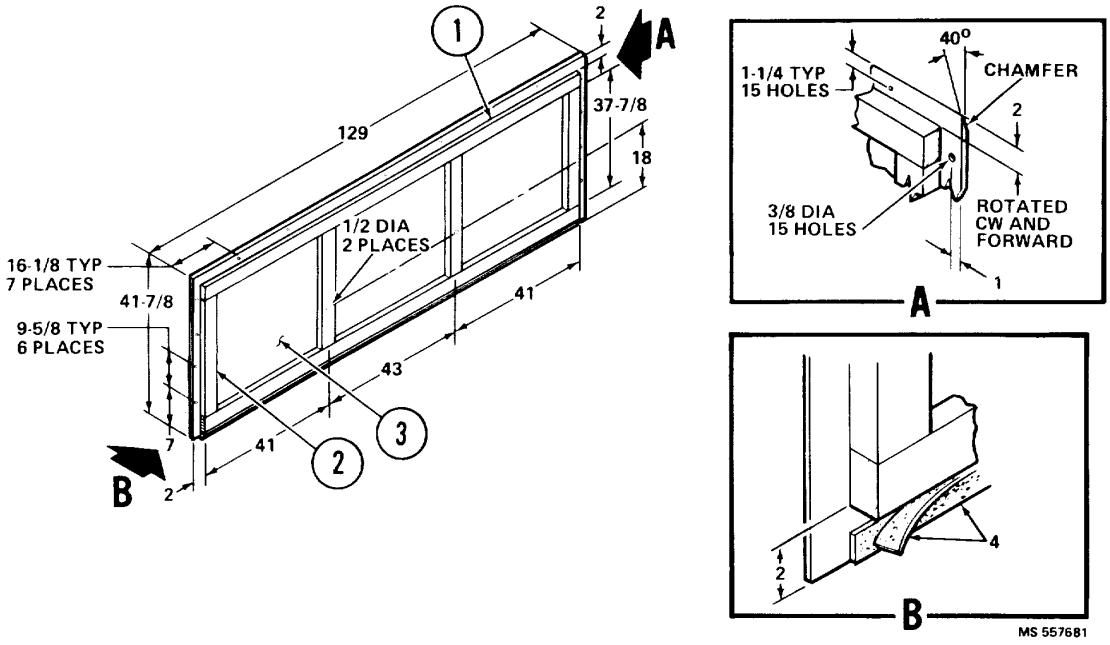


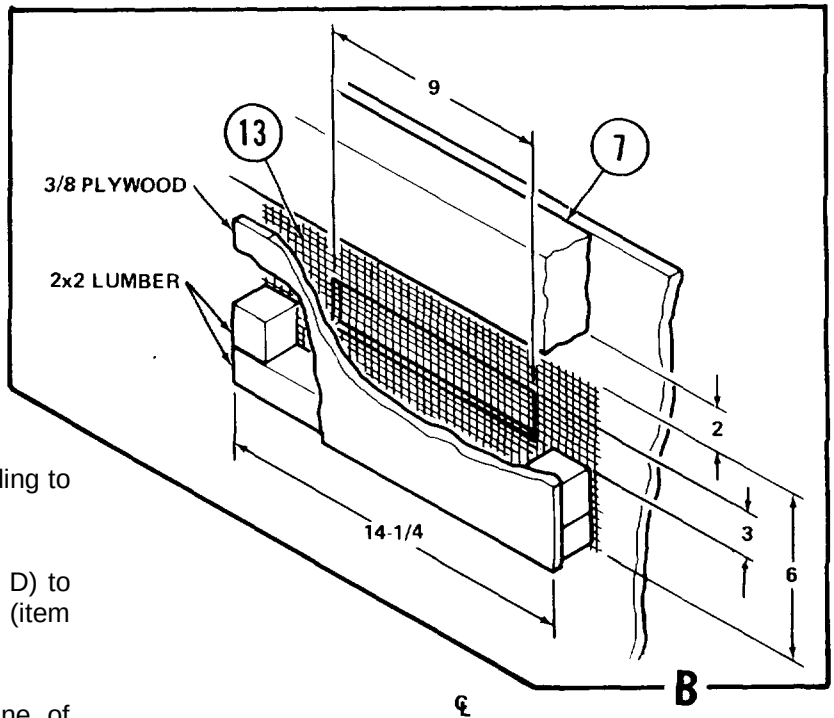
No.	Item	Qty*	Size (in.) Nominal	Materials/Notes
1	Frame member	2	2 x 4 x 125	Wood
2	Strut, vertical	4	2 x 4 x 30-7/8	Wood
3	Sheathing	3	41-7/8 x 43 x 3/8	Plywood
4	Rub strip	2	3/16 x 1-1/1 x 125	Polyethylene foam

*Quantity listed for single side panel - two required.

5-1. LAUNCHING STATION M54A2 AND M48A2 PREPARATION (CONTINUED)

c. M48A2 Level A Packaging (Continued)

FORWARD END PANEL



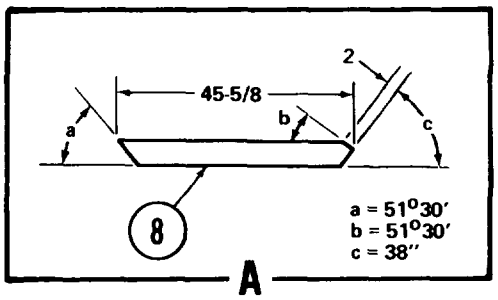
(a) Assemble forward end panel according to illustrations.

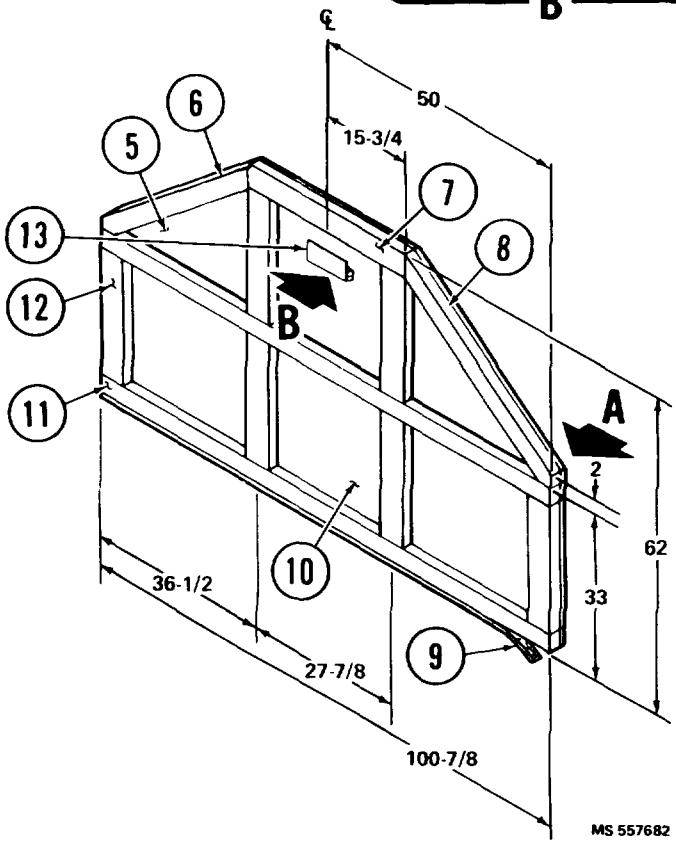
(b) Bond rub strip (9) (item 79.1, appx D) to frame member (11) with adhesive (item 12.1, appx D).

(c) Butt sheathing (5, 10) at centerline of struts (6, 12).

(d) Nail plywood sheathing to frame members with 7d cement-coated sinkers. Install with nail heads on plywood side and clinch on frame side. Double nail at sheathing butt joints.

(e) Prepare hutment ventilation cutout in center sheathing (10) as shown in detail illustration.





5-1. LAUNCHING STATION M54A2 AND M48A2 PREPARATION (CONTINUED)

c. M48A2 Level A Packaging (Continued)

2 CONTINUED

No.	Item	Qty	Size (in.) Nominal	Material
5	Sheathing, outer	2	36-1/2 x 62 x 3/8	Plywood
6	Strut, upper	2	2 x 4 x 25-1/2	Wood
7	Joist	1	2 x 4 x 31-1/2	Wood
8	Brace	2	2 x 4 (cut to fit)	Wood
9	Rub strip	1	3/8 x 1-5/8 x 100	Polyethylene foam
10	Sheathing, center	1	27-7/8 x 62 x 3/8	Plywood
11	Frame member	2	2 x 4 x 100-7/8	Wood
12	Strut, lower	4	2 x 4 x 29-1/8	Wood
13	Screen, ventilation	1	6 x 14-1/4	1/4 x 3/8 mesh screen

3 AFT END PANEL

No.	Item	Qty	Size (in.) Nominal	Materials/Notes
14	Joist	1	2 x 4 x 31-1/2	Wood
15	Brace	2	2 x 4 (cut to fit)	Wood
16	Sheathing	2	36-1/2 x 69-3/8 x 3/8	Plywood
17	Rub strip	2	3/16 x 1/2 x 100-7/8	Polyethylene foam
18	Frame member	2	2 x 4 x 100-7/8	Wood
19	Sheathing, center	1	27-7/8 x 69-3/8 x 3/8	Plywood
20	Strut, lower	4	2 x 4 x 31-3/8	Wood
21	Strut, upper	2	2 x 4 x 25-1/2	Wood

5-1. LAUNCHING STATION M54A2 AND M48A2 PREPARATION (CONTINUED)

c. M48A2 Level A Packaging

3 CONTINUED

(a) Assemble aft end panel according to illustrations.

(b) Bond rub strip (17) (item 79.1, appx D) to bottom edge of panels with adhesive (item 12.1, appx D).

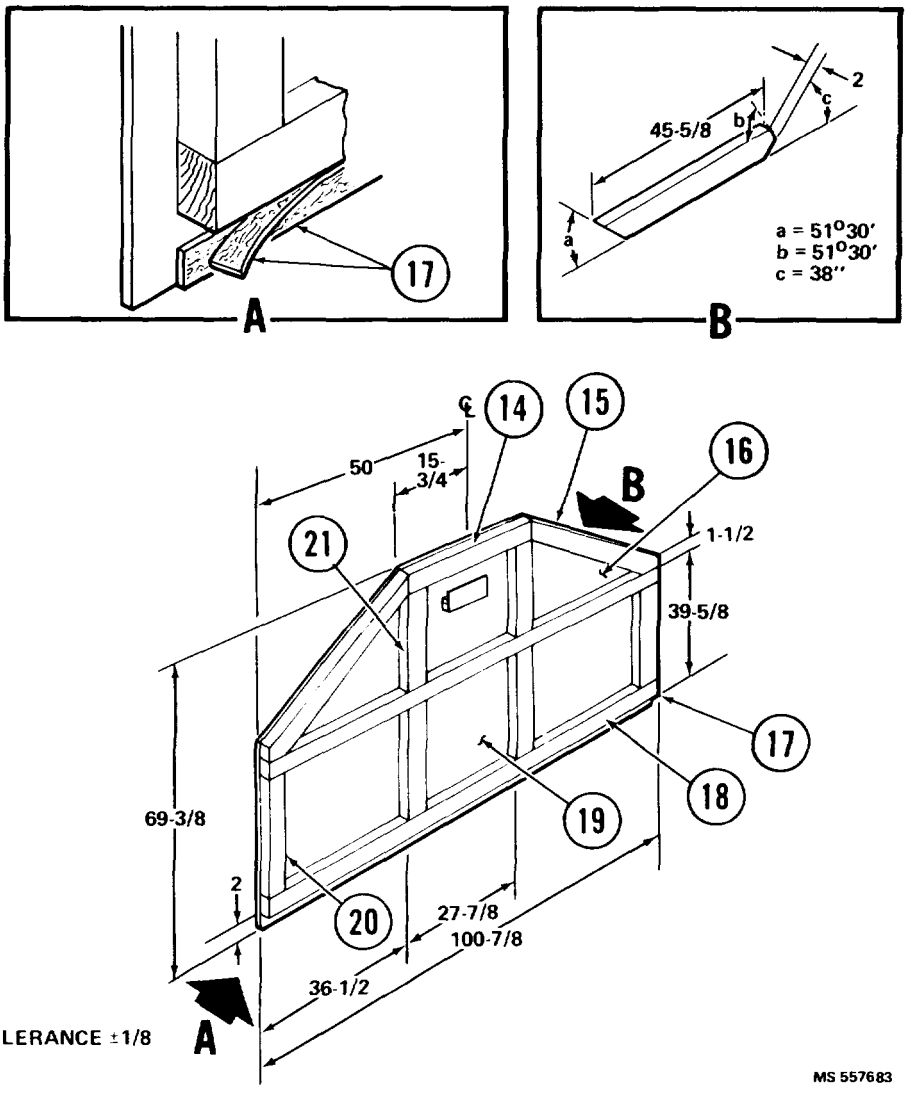
(c) Butt sheathing (16, 19) at centerline of struts (20, 21).

(d) Nail plywood sheathing to frame members with 7d cement-coated sinkers. Install with nail heads on plywood side and clinch on frame side. Double nail at sheathing butt joints.

(e) Prepare hutment ventilation cutout in center sheathing (19) as shown in step 2.

NOTE

Sheathing (16,19) sizes are blank sizes to be cut to fit.



5-1. LAUNCHING STATION M54A2 AND M48A2 PREPARATION (CONTINUED)

c. M48A2 Level A Packaging (Continued)

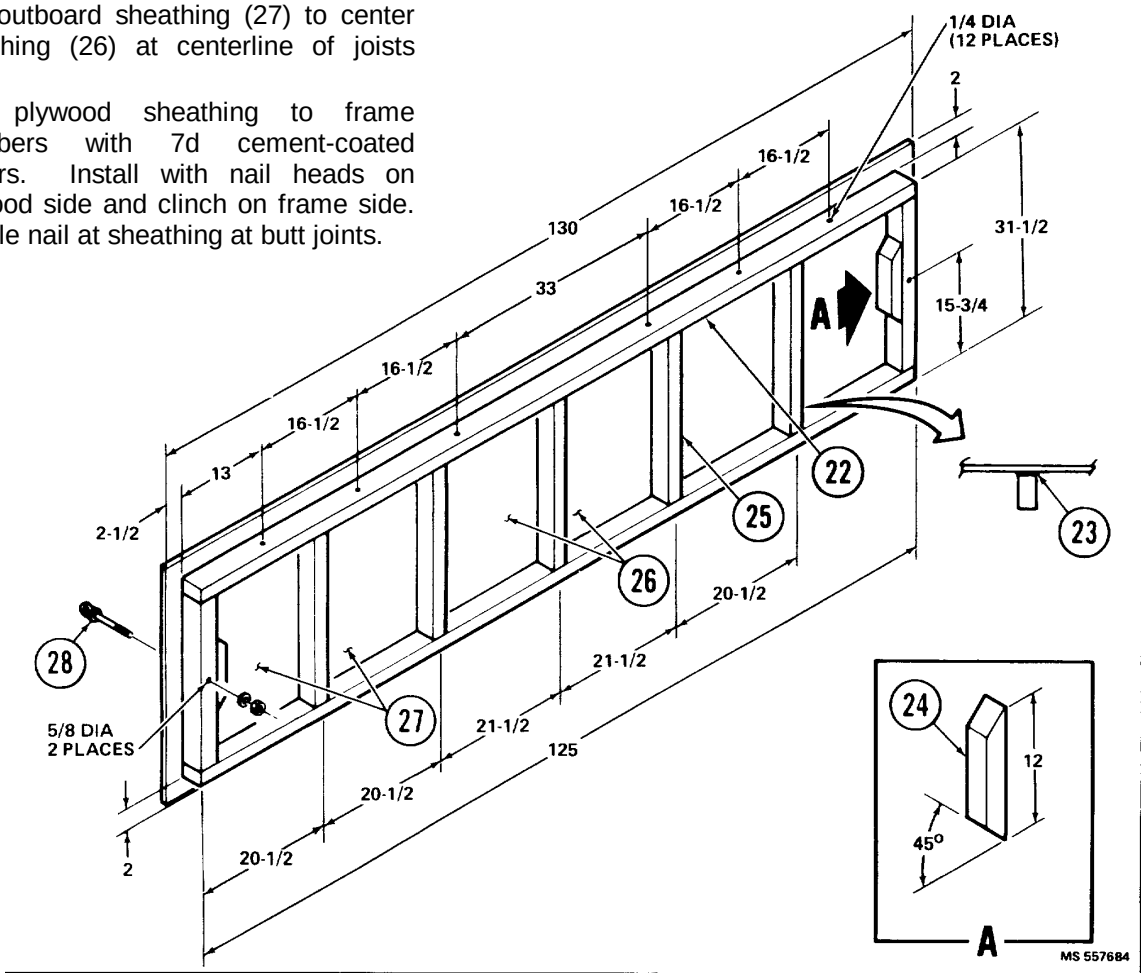
4 CENTER TOP PANEL

(a) Assemble center top panel according to illustrations.

(b) Apply non-hardening caulking compound (23) (item 26.2, appx D) between sheathing (26, 27)an frame members (22, 25) before installing attaching hardware.

(c) Butt outboard sheathing (27) to center sheathing (26) at centerline of joists (25).

(d) Nail plywood sheathing to frame members with 7d cement-coated sinkers. Install with nail heads on plywood side and clinch on frame side. Double nail at sheathing at butt joints.



No.	Item	Qty	Size (in.) Nominal	Materials/Notes
22	Header	2	2 x 4 x 125	Wood
23	Caulking compound	AR		TT-C-598, type 1 or equivalent
24	Doubler	2	2 x 4 (see detail)	Wood
25	Joist	7	2 x 4 x 28-1/2	Wood
26	Sheathing, center	1	43 x 35-1/2 x 3/8	Plywood
27	Sheathing, outboard	2	43-1/2 x 35-1/2 x 3/8	Plywood
28	Eye bolt, w/shoulder	2	5/8 shank, 1-1/4 eye x 6	Steel (includes nut and washer)

5-1. LAUNCHING STATION M54A2 AND M48A2 PREPARATION (CONTINUED)

c. M48A2 Level A Packaging (Continued)

5 OUTBOARD TOP PANELS

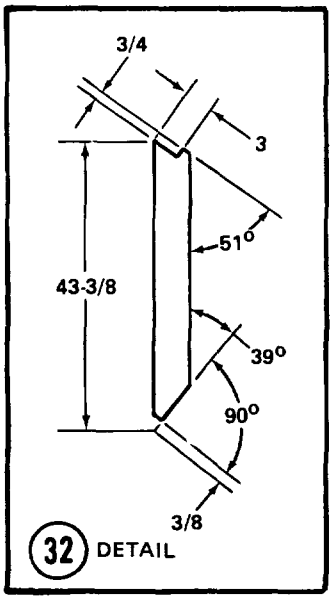
(a) Assemble outboard top panels according to illustrations.

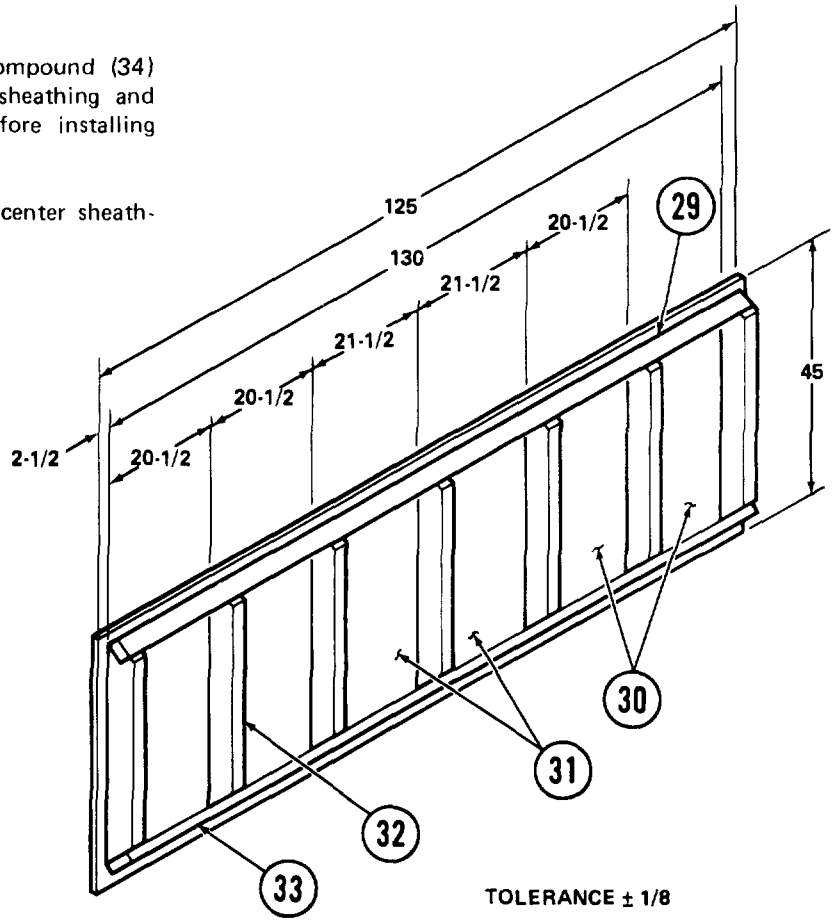
(b) Bevel edge of top header (20) to fit sheathing panels (30, 31).

(c) Apply non-hardening caulking compound (34) (item 26.2, appx D) between sheathing and frame members (29, 32, 33) before installing attached hardware.

(d) Butt outboard sheathing (30) to center sheathing (31) at centerline of joists (32).

(e) Nail plywood sheathing to frame members with 7d cement-coated sinkers. Install with nail heads on plywood side and clinch on frame side. Double nail at sheathing butt joints.





No.	Item	Qty*	Size (in.) Nominal	Materials/Notes
29	Header, top	1	125 x 1 x 4	Wood
30	Sheathing, outboard	2	43-1/2 x 45 x 3/8	Plywood
31	Sheathing, center	1	43 x 45 x 3/8	Plywood
32	Joist	7	2 x 4 (see detail)	Wood
33	Header, bottom	1	125 x 2 x 4	Wood
34	Caulking compound	AR		TT-C-598, type 1, or equivalent

*Quantity listed for single top panel - two required.

5-1. LAUNCHING STATION M54A2 AND M48A2 PREPARATION (CONTINUED)

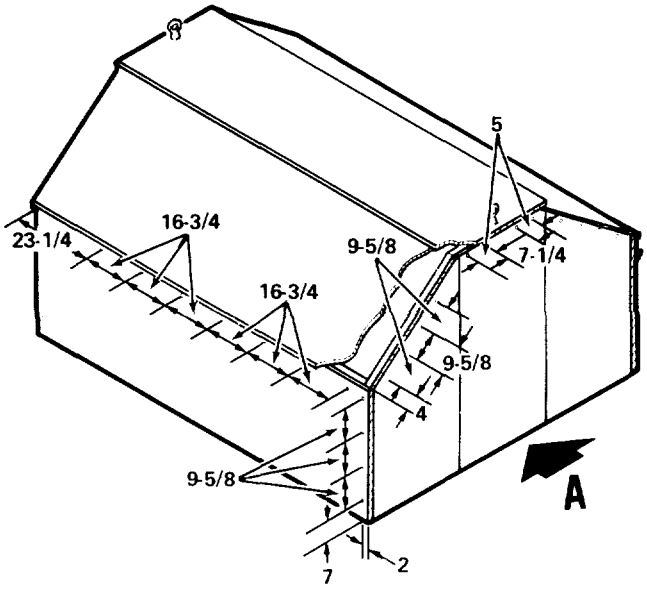
c. M48A2 Level A Packaging (Continued)

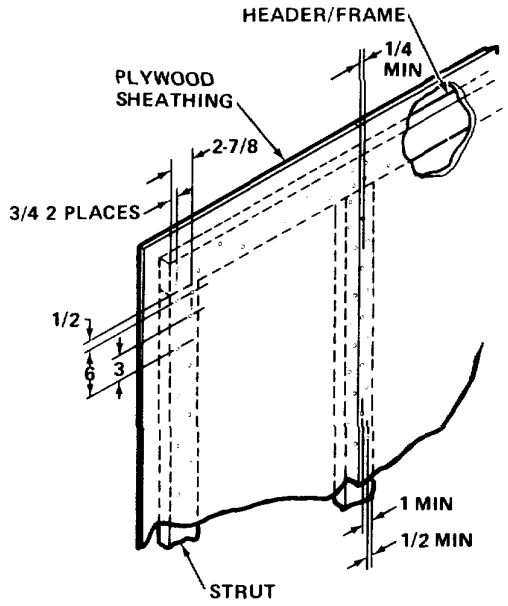
6 ENCLOSURE

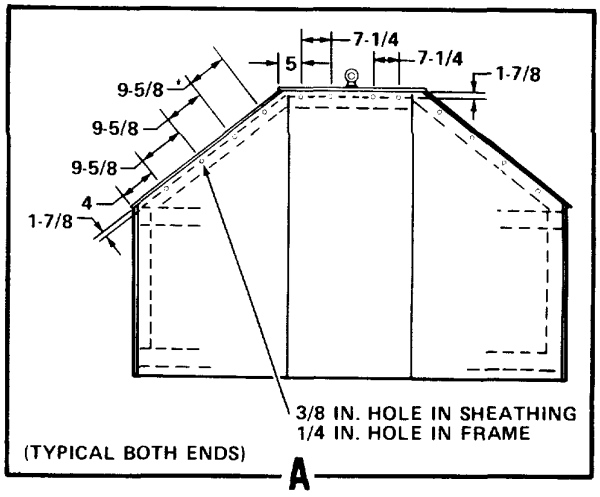
(a) Nail plywood sheathing to frame members with 7d cement-coated sinkers. Install with nail heads on plywood side and clinch on frame side. Double nail at sheathing butt joints.

(b) Tack assembled end and side panels in place with non-cement-coated nails. Using pilot holes as guides, drill 1/4 in. anchor holes in mating parts.

(c) Install 12 3/8 x 3 in. lag screws in each end and 15 in each side as shown.

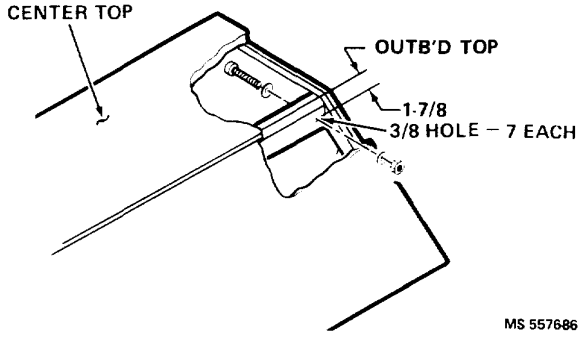






(d) Assemble center and outboard top panels with 3/8 x 3 in. carriage bolts, washers, and nuts. Install six bolts on each side.

(e) Apply non-hardening caulking compound (item 26.2, appx D) between center and top outboard panels. Apply full length on both sides.



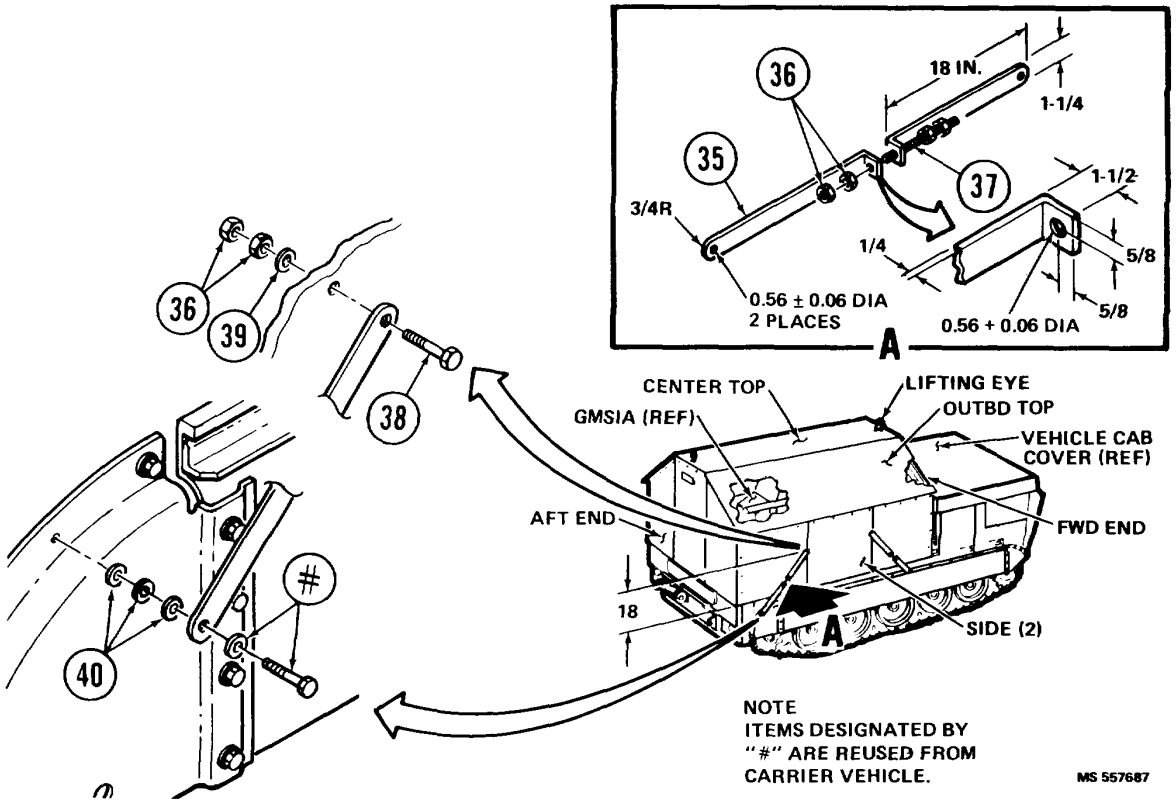
5-1. LAUNCHING STATION M54A2 AND M48A2 PREPARATION (CONTINUED)

c. M48A2 Level A Packaging (Continued)

6 CONTINUED

(f) Install three washers (40) between tiedown straps and carrier track rear cover. Use existing washers between straps and bolt heads.

(g) Locate straps as shown. Tension bolts until straps are taut. Tighten forward straps on both sides of hutment first.

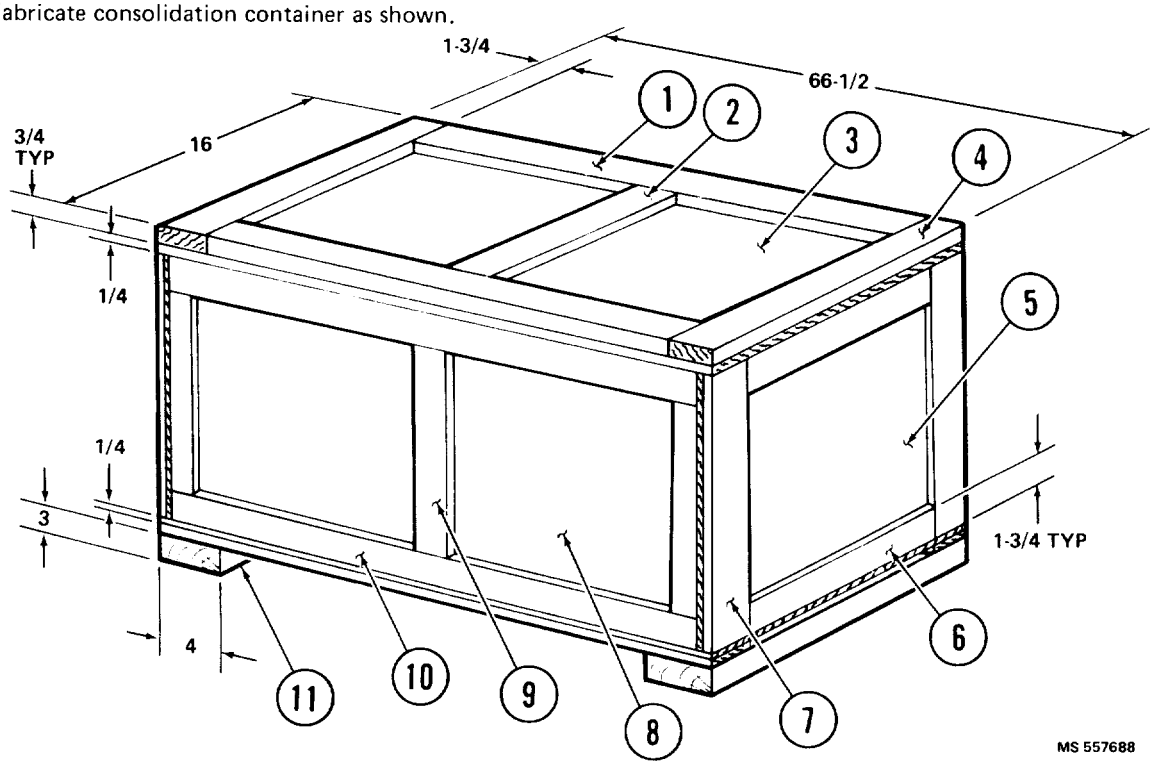


No.	Item	Qty	Size (in.) Nominal	Materials/Notes
35	Strap, tiedown	4	(see detail)	Steel, carbon
36	Nut, hex	24	1/2-13	Steel, unf
37	Threaded rod	4	1/2-13 x 8	Steel, commercial, unf
38	Bolt, machine	4	1/2-13 UNC x 3	Steel
39	Washer, flat		9/16 ID X1-3/8	Steel, cad. plated
40	Washer, flat	12	AN960-816	Steel

5-1. M54A2 AND M48A2 LAUNCHING STATION PREPARATION (CONTINUED)

d. Consolidation Container Level A Packaging

Fabricate consolidation container as shown.



No.	Item	Qty	(Size (in.) Nominal	Materials/Notes
1	Cleat	4	1 x 3 x 60-1/2	Wood
2	Cleat	2	1 x 3 x 12	Wood
3	Panels, top and bottom	2	66-1/2 x 16 x 3/8	Plywood
4	Cleat	4	1 x 3 x 16	Wood
5	Panel, end	2	14 x 10-3/4 x 3/8	Plywood
6	Cleat	4	1 x 3 x 10	Wood
7	Cleat	4	1 x 3 x 10-3/4	Wood
8	Panel, side	2	64-1/2 x 10-3/4 x 3/8	Plywood
9	Cleat	2	1 x 3 x 4	Wood
10	Cleat	4	1 x 3 x 64-/2	Wood
11	Skid	2	3 x 4 x 16	Wood

5-1. M54A2 AND M48A2 LAUNCHING STATION PREPARATION (CONTINUED)

e. Launching Station Conditioning

MPU PRESERVATION

(a) Perform launching station pre-energizing control settings (TM 9-1425-2586-10).

NOTE

The following controls may be left in the OFF position:

- Auxiliary Radio Receiver R442/VRC POWER switch.
- Radio Receiver/Transmitter RT-524/VRC POWER switch.
- FLIR Subsystem circuit breakers: Receiver Power Supply Tracking Signal Processor Camera Video Signal Processor

(b) At MASTER CONTROL panel, set MASTER POWER switch to ON.

CAUTION

- Before attempting to erect or retract turret, verify that turret unlock lever is set to UNLOCK.
- Insure that all personnel are clear of turret movement area.

(c) Erect turret as follows:

(1) Set turret unlock lever to UNLOCK.

(2) Hold ERECT/RETRACT switch to ERECT until turret stops.

CAUTION

- When entering gunner's compartment, take care not to break control panel switches or indicators.

(d) Enter gunner's compartment and press hand control action switches to slew turret to 3 or 9 o'clock to get hydraulic pumping unit in front of access door.

(e) Set turret unlock lever to LOCK.

(f) At MASTER CONTROL panel, set:

ERECT-RETRACT BREAKER to OFF MASTER POWER switch to OFF.

(g) Preserve MPU as follows:

(1) Fill engine crankcase with operational oil (LO 9-1440-585-12).

(2) Seal exhaust openings to engine interior with masking tape (item 126, appx D).

(3) Attach a red warning tag stating "BEFORE CRANKING, REMOVE TAPE FROM EXHAUST OPENINGS" on MASTER CONTROL panel in a conspicuous location.

(4) Adjust V-belts for immediate operation (TM 9-1440-2585-20-1).

CAUTION

- Before attempting to erect or retract turret, verify that turret unlock lever is set to UNLOCK.
- Insure that all personnel are clear of turret movement area.

(h) Retract the turret as follows: (1) Set turret unlock lever to UNLOCK.

(2) Set MASTER POWER switch to ON.

(3) Set ERECT-RETRACT BREAKER to ON.

(4) Hold LOAD/STOW switch to STOW position until turret rotates to 6 o'clock position, launch rails are at 00, and AZIMUTH OK and ELEVATION OK indicators light.

5-1. M54A2 AND M48A2 LAUNCHING STATION PREPARATION (CONTINUED)

e. Launching Station Conditioning (Continued)

1 CONTINUED

(5) Hold ERECT/RETRACT switch to RETRACT until turret stops.

NOTE

• Distance from top of chain guard to bottom of turret should be approximately 1 inch.

(i) Shut down the launching station by setting the following controls as indicated.

(1) At left hand control panel, set: MOUNT DRIVE Breaker to OFF MOUNT CONDITIONING BREAKER to OFF PWR SUPPLY Breaker to OFF

(2) In crew equipment compartment, set air purifier circuit breaker to OFF.

(3) Set turret unlock lever to LOCK and insert lockpin.

(4) At MASTER CONTROL panel, set: ERECT-RETRACT BREAKER to OFF MASTER POWER switch to OFF COMM switch to OFF.

2 BATTERY REMOVAL

• Lead-acid batteries contain sulfuric acid which can cause severe burns. If battery electrolyte is spilled, take immediate action to stop its corrosive (burning) effects.

• Lead-acid battery gases can explode. Don't smoke, have open flames, or make sparks around a battery, especially if the caps are off. If a battery is gassing, it can explode and cause injury to you.

(a) Remove four 6TN 12-volt batteries from crew equipment compartment (TM 9-1440-2585-203). Secure cables, thermostat, and mounting brackets. Process batteries through normal supply channels.

(b) Remove and discard six BA-30 batteries from local control unit C-2329A/GRA-39 and from remote control unit C-2328/GRA-39.

3 AIR SYSTEM CONDITIONING

• Always take care during blowdown procedures. Escaping air can blow loose items or dust into your eyes.

(a) Verify that I R receiver air valve is open.

(b) Slowly open blowdown valve on air purifier to remove moisture from moisture separator.

(c) Close blowdown valve on air purifier.

NOTE

• Do not remove desiccant cartridge.

4 AIR CONDITIONER

(a) Remove RFI filter (TM 9-1440-2585-20-3).

(b) Close air conditioner service valves.

(c) Install RFI filter (TM 9-1440-2585-20-3).

(d) Attach tag to left hand control panel MOUNT CONDITIONING controls which reads:

CAUTION

OPEN COMPRESSOR SERVICE VALVES BEFORE ENERGIZING AIR CONDITIONER.

5-1. M54A2 AND M48A2 LAUNCHING STATION PREPARATION (CONTINUED)

e. Launching Station Conditioning (Continued)

5 FUEL CELL CONDITIONING

- Do not permit open flames or smoking within 50 feet of launching station.
- Do not operate the launching station while removing fuel or while an external fuel supply is within 50 feet of launching station.
- For fire prevention, observe normal safety precautions.

(a) Remove each fuel cell filler cap, filler, and filler strainer (TM 9-1440-2585-20-3).

(b) Set FUEL TANK VALVE selector to BOTH.

(c) Place suitable container under fuel drain pipe to retain fuel.

(d) Set FUEL DRAIN valve to OPEN and allow fuel to drain into container.

NOTE

- Approximately one inch of residual fuel will remain in bottom of each fuel cell.

(e) Use lint-free cloth (item 25, appx D) to soak up fuel and residue from bottom of each fuel cell. Insure that cloth is removed from fuel cell.

CAUTION

- Fuel cell material can be punctured. Use soft hose without metallic tip for blow drying.

(f) Gently blow out each fuel cell with shop air until cell is dry. Insure that no fuel or residue remains in fuel cell.

(g) Install filler strainer, filler, and filler cap (TM 9-1440-2585-20-3).

(h) Close FUEL DRAIN valve.

6 CLEANING

(a) Clean exterior surfaces of the launching station of dirt, grease, or other contaminants, then dry. Exposed areas shall be cleaned and dried using any process that cannot damage the surface.

(b) Remove any protective paper and/or tape.

(c) Clean Plexiglas canopy as follows:

CAUTION

- Remove rings from fingers.
- Do not use gasoline, kerosene, or alcohol as cleaning agents.
- Do not rub canopy with dry cloth.

(1) Flush canopy with water. Using bare hands only, gently dislodge any dirt, sand, or mud.

(2) Wash canopy surface with mild soap and water, using bare hands only.

(3) Pat or gently blot surface, using clean, damp chamois.

(4) Clean and polish canopy with Plexiglas polishing kit (item 58, appx D).

5-1. M54A2 AND M48A2 LAUNCHING STATION PREPARATION (CONTINUED)

e. Launching Station Conditioning (Continued)

CARGO COVER BOW PACKAGING

(a) Preserve unpainted metal surfaces with nontacky corrosion preventive compound.

(b) Wrap each bow with grease-proof, waterproof barrier material (item 15.2, appx D) and secure with paper sealing tape (item 126.1, appx D).

(c) Secure three wrapped bows together at five places with 1-inch-wide pressure sensitive tape (item 123.1, appx D).

(d) Position bows on base around turret (three on each side). Secure in place with steel straps.

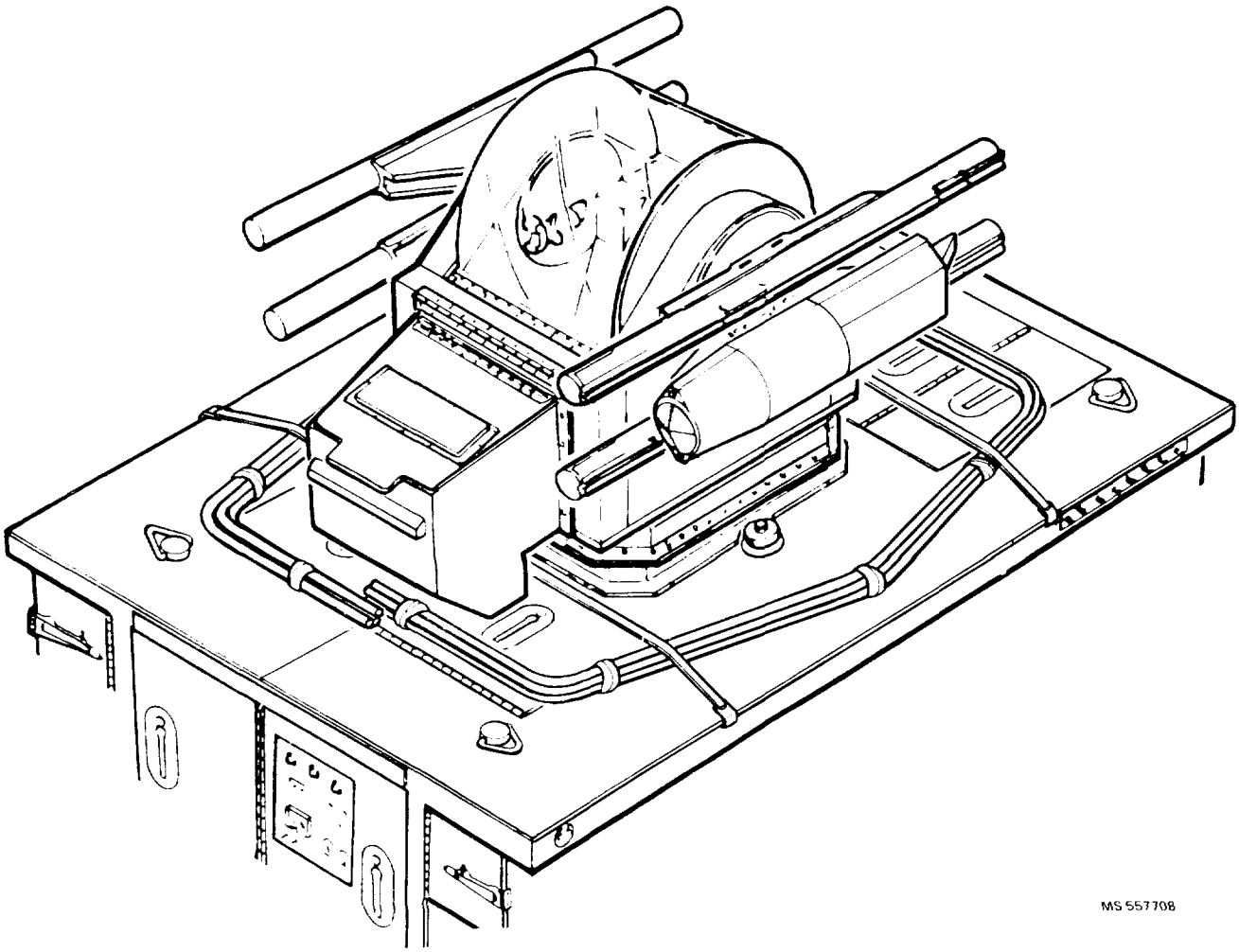
(e) Package remaining bow and stanchion hardware and cargo cover assembly as follows:

(1) Preserve unpainted metal surfaces with non-tacky corrosion preventive compound.

(2) Insure that cover assembly and ropes are thoroughly dry. Fold cover and place with ropes in single-wall corrugated fiberboard container.

(3) Package removed screws, nuts, and washers in separate groups in waterproof bags (item 15.1, appx D). Place bags in cover assembly container.

(4) Enclose cover assembly container in plywood cleated or wood box, approximately 33-1/4 x 30-1/2 x 16-3/4 inches. Determine exact size by items to be packed.



MS 557708

5-1. M54A2 AND M48A2 LAUNCHING STATION PREPARATION (CONTINUED)

e. Launching Station Conditioning (Continued)

8 M54A2 INSTALLATION ON CONTAINER BASE

(A) Secure gunner's sight to side of compartment with tape or twine.

(b) Package log book in waterproof bag (item 15.1, appx D), heat seal, identify, and place in gunner's compartment.

NOTE

- If M54A2 is not mated to M730 carrier, proceed to step e.
- Chapter 3 references contain illustrations that identify launching station parts and their locations.

(c) Remove tiedown bolt access cover assemblies, rubber plugs, and tiedown bolts (para 3-3).

(d) Remove screen, disconnect cable connector W57P1, then install screen (para 3-3).

NOTE

- Hoist rings remain installed during transportation and storage of M54A2.

(e) Remove hoist ring tiedown access covers and install hoist rings (para 3-2).

(f) Tighten hoist ring bolts to a torque value of 85 ±5 ft-lb.

CAUTION

- Positioning launching station requires lifting device capable of lifting 10,000 lb.

(g) Connect guide ropes and cables of crane sling to hoist rings (para 3-3).

- Insure that personnel remain clear of launching station while it is suspended.

(h) Lift launching station and place on shipping container base section (para 5-1b, step 1).

(i) Remove crane sling and secure launching station to shipping container base section (para 5-1b, steps 4a and 4b).

(j) Install tiedown bolt access cover assemblies and rubber plugs (para 3-2).

9 SMALL ITEMS, BII PACKAGING

NOTE

- Refer to TM 9-1425-2586-10 for removal of BII and loose equipment communication items discussed in the following steps.
- Refer to appendix B for packaging material specifications.

(a) Remove antenna elements and mast sections.

(b) Clean and dry antenna elements and mast sections. Use any cleaning process that cannot damage the items physically or electrically.

(c) Place each antenna element and mast section in waterproof bag (item 15.1, appx D), heat seal, and identify.

(d) Cover antenna mount receptacles with plastic caps, size 13 and 22 (item 23.1, appx D), or seal with preservation and sealing tape (item 126.2, appx D).

5-1. M54A2 AND M48A2 LAUNCHING STATION PREPARATION (CONTINUED)

e. Launching Station Conditioning (Continued)

9 (CONTINUED)

(e) Clean all BII and communication loose items using any process that will not damage the items physically or electrically.

(f) Remove headset from gunner's compartment and package as follows:

(1) Wrap headset assembly in two layers of water-resistant cellulosic cushioning material (item 40.1, appx D).

(2) Place wrapped assembly in waterproof bag (item 15.1, appx D), heat seal, and identify.

(3) Place assembly in single-wall corrugated fiberboard box. Seal box with paper sealing tape (item 126.1, appx D) and identify.

(g) Package cables W40, W60, W61as follows:

(1) Wrap cable connector switch water resistant cellulosic cushioning material (item 40.1, appx D).

(2) Coil cables W60 and W61 into approximately 10-inch coils.

(3) Coil cable W40 into approximately 14inch coil.

(4) Secure coils with twine or other suitable material at four equally-spaced locations around the coil.

(5) Place each coil in separate waterproof bag (item 15.1, appx D) and heat seal. Identify bag contents.

(6) Place packaged cables in single-wall corrugated fiberboard box, 14 x 14 x 8 inches. Seal box with paper sealing tape (item 126.1, appx D) and identify.

(h) Place safety streamers in waterproof bag (item 15.1, appx D), heat seal, and identify.

(i) Package radio control group as follows: (1) Place radio control set, hand set, lamp, sling, and technical manual in carry bag compartments (TM 11-5820-477-12).

(2) Close bag and place in single-wall corrugated fiberboard box. Seal box with paper sealing tape (item 126.1, appx D) and identify.

(i) (M54A2 only) Wrap tiedown bolts individually in non-corrosive paper (item 97.1, appx D). Secure with masking tape (item 126, appx D). Place in 6 x 2 x 2-inch paperboard box with metal corner stays or equivalent. Seal box with paper sealing tape (item 126.1, appx D) and identify.

(k) Place four washers and hoist ring covers and eight cover screws in 6 x 6-inch waterproof bags (item 15.1, appx D), one set per bag. Heat seal bags and identify.

(/) Place the following manuals in a heavy duty waterproof bag. Heat seal bag and identify.

DA Form2408-1
DA Form 2408-5
DA Form 2408-9
DA Form 2408-14
DD Form 518
LO 9-1440-585-12
LO 9-1450-585-12
SF 91
TM 9-1425-2585-14
Log Book 7510-00-889-3494
TM 9-1425-2586-10
TM 9-1425-2586-10-HR
TM 9-1440-2585-20-1
TM 9-1440-2585-20-2
TM 9-1440-2585-20-3
TM 9-1440-1585-24P
TM 9-1440-2585-34
TM 11-5805-201-12
TM 11-5830-340-12
TM 11-5965-262-13

(m) Package antenna tiedown, AN/VRC-47 lamps, and CW-206/GR bag as follows:

(1) Coil antenna tiedown cord and secure with tape or twine.

(2) Place tiedown cord in heavy-duty waterproof bag (item 15.1, appx D), heat seal and identify.

5-1. M54A2 AND M48A2 LAUNCHING STATION PREPARATION (CONTINUED)

e. Launching Station Conditioning (Continued)

9 (CONTINUED)

(3) Wrap lamps separately in non-corrosive paper (item 97,1, appx D), place in heavy duty waterproof bag (item 15.1, appx D), heat seal, and identify.

(4) Fold CW-206/GR bag to smallest cube. Wrap in non-corrosive paper (item 97.1, appx D), seal with paper sealing tape (item 126.1, appx D), and identify.

(n) Place packaged communication items in single wall corrugated fiberboard box, 64-1/2 x 15 x 10-1/2 inches.

(1) Place antenna elements and mast sections in bottom of container first, followed by remaining packaged items.

(2) Immobilize items with water-resistant cellulosic cushioning material (item 40.1, appx D). Seal all seams with paper sealing tape (item 126.1, appx D).

(o) in a cleated plywood box, approximately 64-3/4 x 16 x 11 inches (para 5-1d).Adjust size based on items to be packed.

NOTE

- Top of container to be 5/8-inch interior grade plywood with exterior glue minimum.

(P) Secure container with two steel straps (item 116.2, appx D) around length of container and two straps around width.

(q) Package all Bll not covered in preceding steps as follows:

(1) Wrap all items individually in grease-proof material (item 15.2, appx D). Seal with paper sealing tape (item 126.1, appx D) and identify.

(2) Place items in waterproof bag (item 15.1, appx D) and heat seal.

(3) Construct cleated plywood box, approximately 31 x 18 x 17 inches. Adjust size based on items to be packed.

NOTE

- Top of container to be 5/8-inch interior grade plywood with exterior glue minimum.

(4) Install moisture-proof, vapor-proof case liner (item 15.3, appx D) in container.

(5) Place BII in container so that heavier items are on bottom.

(6) Immobilize packaged Bll with water resistant cellulosic cushioning material (item 40.1, appx D).

(7) Install container top and secure by nailing.

(r) Mark containers/items in accordance with military specifications. The weight and cube as shown in tables 5-1 and 5-2 shall be marked in a conspicuous location.

(s) Secure compartment doors.

(t) Place consolidation containers over cab/engine compartments. Position boxes to permit opening of blast shield over driver's seat.

NOTE

- Providing access to driver's seat allows M48A2 vehicle Level B driveway or allows vehicle preserved to Level A requirements to be driven onto transporter.

(u) Prepare and load carrier as follows:

(1) Raise blast shield section and secure in vertical position with rope or other suitable material.

(2) Position windshield box over engine compartment.

CAUTION

- When standard exhaust duct is installed, failure to perform step (3) may cause damage to exhaust duct when installing windshield box strapping.

(3) If standard exhaust duct is installed, position 4 x 4 x 12-inch lumber above exhaust duct. Secure to windshield box with minimum of two nails.

TABLE 5-1. M54A2 LADING DATA

Item	Dimensions (in.)	Weight (lb)	Cube (ft)
Level A			
Guided missile system	142-3/4 x 104 x 102-7/8	11,270	833.8
Loose equipment	45 x 18-1/2 x 17	130	8.2
Electrolyte (2 containers)	14 x 14 x 7-3/4 (1 cont)	100	1.28
Antennas	69 x 7-1/2 x 5-1/2	30	1.8
Level B lading data same as level A with the following exceptions:			
Guided missile system, intercept-aerial	128-1/2 x 94-3/8 x 87-3/4	8,906	615.3

TABLE 5-2. M54A2 LADING DATA

Item		Dimensions (in.)	Weight (lb)	Cube (ft)
Level A				
Guided missile system	Coded Uncoded	1927 0881 1003 231-1/4 x 105-3/4 x 120-3/8	00266M 26,185 (includes weight of hutment)	1703C 1702.78
Loose equipment		30 x 19-1/4 x 20-3/8	115	6.8
Antennas		69 x 7-1/2 x 5-1/2	30	1.8
Electrolyte (3 containers)		14 x 14 x 7-3/4 (1 cont)	150	2.67
Level B lading data same as Level A with the following exceptions:				
Guided missile system	Coded	1927 0881 0971	00252M	1649C
Uncoded		231-1/4 x 105-3/4 x 116-1/2	25,185	1648.45

5-1. M54A2 AND M48A2 LAUNCHING STATION PREPARATION (CONTINUED)

e. Launching Station Conditioning (Continued)

9 (CONTINUED)

NOTE

- Use corner protectors under all strapping.
- Use barrier material (item 15.2, appx D) between strapping and vehicle.
- Load boxes in manner that does not increase cube of M48A2.

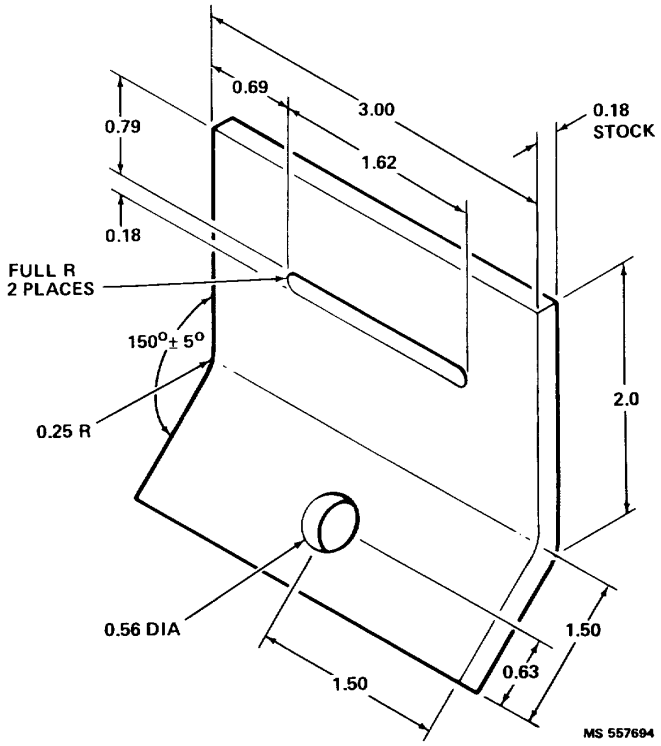
(4) Install two steel straps (item 116.2, appx D) from skirt bolts on one side of carrier, across length of windshield box, to skirt bolts on opposite side. Use four strapping plates at skirt bolt attaching points.

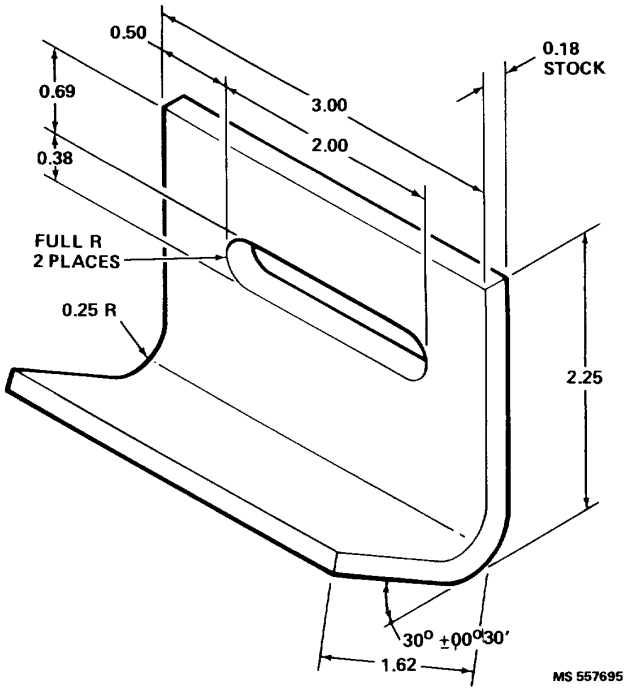
(5) Secure smaller wooden containers independently to allow separate removal. Use strapping 0.75 inches wide, 0.0375 inches thick.

(6) Insure that containers are secured to avoid movement during transit.

(7) Install one length of 1.25-inch strapping from the vertical blast shield, over the highest container, across the center of the vehicle cab, to the winch assembly protective pipe. Use "J" strapping plates as shown.

(8) Stencil "NO LIFT" inboard of each clevis on vehicle tail gate. Use at least 1-inch-high lettering in white for vehicle painted dark color; use black lettering for vehicle painted light color.





5-1. LAUNCHING STATION M54A2AND M48A2 PREPARATION (CONTINUED)

f. Level A Driveaway

Prepare the M48A2 the same as for Level A Packaging, except as follows:

1 When specified, fill launching station batteries with electrolyte. Disconnect battery cables and secure to battery carrier to prevent contact with battery terminals.

2 Install fully-charged batteries filled with electrolyte into vehicle. Do not connect battery cables, but secure to battery carrier to prevent contact with battery terminals.

3 Fill MPU crankcase with operational oil (LO 9-1440-585-12). Preservation is not required.

4 Fill vehicle fuel tank with diesel fuel to 1/4 indication on fuel gauge.

5 Attach red warning tag inside vehicle cab in conspicuous location, such as control panel. Tag to read: PRIOR TO OPERATING VEHICLE, REMOVE BOXED ITEMS AND OPEN COVERS OVER ENGINE COMPARTMENT.

6 Secure removable tag to front of vehicle to indicate that fuel is in tank and that activated batteries are installed.

g. Level B Packaging

1

Preserve the M54A2 the same as for Level A Packaging, except as follows:

(a) Bll

(1) Wrap Bll individually in grease-proof, waterproof material (item 15.2, appx D) and seal with paper sealing tape (item 126.1, appx D).

(2) Place wrapped BI I in waterproof bags (item 15.1, appx D) and heat seal.

(3) Place Bll in single-wall corrugated fiberboard boxes and seal with paper sealing tape (item 126.1, appx D).

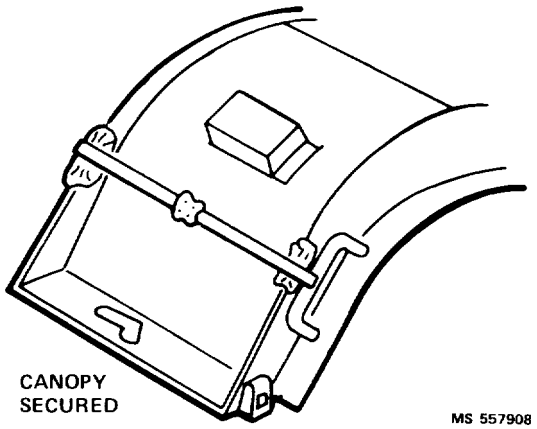
(b) Canopy

(1) Cover exterior Plexiglas with protective pressure-sensitive tape(item 127.1, appx D). Seal edges and seams with 2-inch wide preservation and sealing tape (item 126.2, appx D).

(2) Secure canopy with 5/8 x 0.030 inch non-metallic strapping (item 116.1, appx D) 7-1/2 feet long. Install strapping between canopy handles as shown.

(3) Apply tension and seal strapping.

(c) Air System. Preservation is not required.



(d) MPU. Fill crankcase with operational oil (LO9-1440-585-12).Preservation is not required.

(e) Compartment Deck Doors

(1) Close compartment doors and secure latches.

(2) When specified, seal doors and openings with plastic coating compound (item 27.1, appx D). Apply per manufacturer's instructions.

5-1. LAUNCHING STATION M54A2 AND M48A2 PREPARATION (CONTINUED)

g. Level B Packaging (Continued)

1 (CONTINUED)

(f) Fuel Tanks

- For fire prevention, observe normal safety precautions. Do not operate launching station while removing fuel or while external fuel supply is within 50 feet of launching station. Do not permit open flames or smoking within 50 feet of launching station.

Drain both fuel tanks. Approximately 1/2 gallon of residual fuel in each tank is acceptable.

(g) Air Conditioner and Heat Exchanger

NOTE

- If air conditioner service valves are closed and controls are properly tagged, service valves need not be opened.

(1) Keep service valves in open position.

(2) Clean surfaces with isopropyl alcohol (item 15, appx D) where tape is to be applied.

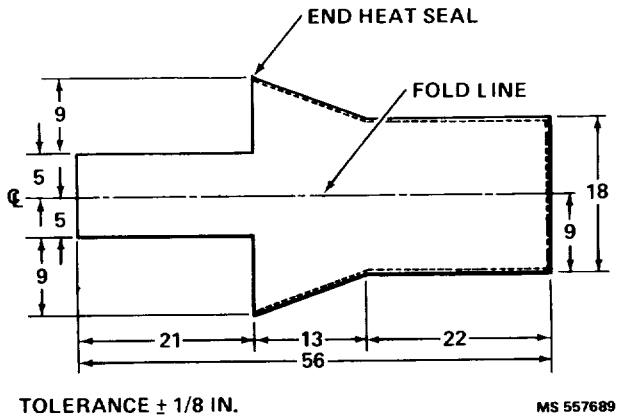
(3) Perform one of the following optional sealing methods:

- Cover air conditioner louvers and fan grille with preservation and sealing tape (item 126.2, appx D).
- Cover air conditioner louvers and fan grille with sheet of 6to 8-mil polyethylene film (item 42.2, appx D). Secure all film edges with preservation and sealing tape (item 126.2, appx D).

(4) Perform step (2) and select sealing method from step (3) to cover rear surface louver panel for heat exchanger fan.

(h) Launch Rails

(1) Fit launch rail cover, cut as shown from 6- to 8-mil polyethylene film (item 42.2, appx D), over the forward and aft ends of each launch rail.



NOTE

- Do not stretch tape when applying. Press tape firmly for maximum adhesion.

(2) Overlap covers at middle of rail and wrap with 3-inch width of preservation and sealing tape (item 126.2, appx D).

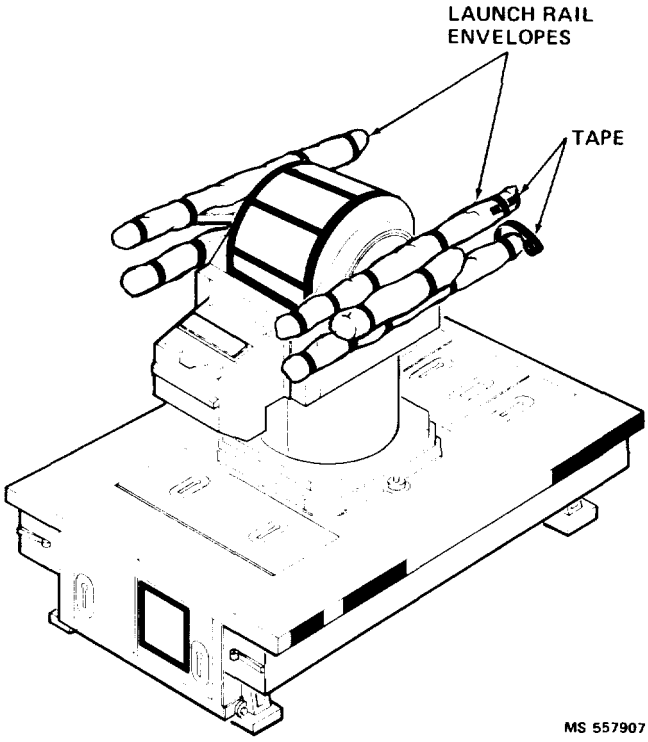
(3) Tape edges of covers to launch rails and launch rail mounts

(4) Fold over excess on forward cover ends and tape. Tape aft cover ends to prevent flapping

(5) After covers installation, cut 1-inch drain holes, 10 to 12 inches apart, in lowest portion of each launch rail cover.

5-1. LAUNCHING STATION M54A2 AND M48A2 PREPARATION (CONTINUED)

g. Level B Packaging (Continued)



(i) IR Receiver

(1) Cover IR receiver with 6to 8-mil polyethylene film (item 42.2, appx D). Secure with preservation and sealing tape (item 126.2, appx D).

(2) Fold over excess film and secure with preservation and sealing tape (item 126.2, appx D) to prevent flapping

(3) Cut 1-inch drain hole in lowest portion of cover.

(j) Exhaust Pipes. Cover exhaust pipe openings with preservation and sealing tape (item 126.2, appx D).

(k) Fire Extinguisher Handle. Cover fire extinguisher handle opening with preservation and sealing tape (item 126.2, appx D).

(l) Hydraulic Cooler. Perform one of the following optional sealing methods:

(1) Cover hydraulic cooler air opening with preservation and sealing tape (item 126.2, appx D).

or

2) Cover hydraulic cooler air opening with sheet of 6to 8-mil polyethylene film (item 42.2, appx D). Secure all film edges with preservation and sealing tape (item 126.2, appx D).

(m) Master Control Panel

(1) Position 18 x 18 x 8-mil clear polyethylene film (item 42.2, appx D) over master control panel.

(2) Tape film in place with 3-inch-wide preservation and sealing tape (item 126.2, appx D).

.

SUPPORT BLOCKS

(a) Fabricate four aluminum support blocks (4) from 7075 or 6061-T6 aluminum. Form all corners to be 90 degrees and machine finish as cut. See item 4 detail.

(b) Fabricate eight support block bushings (3) from 6061-T6 aluminum. Break sharp edges and machine finish as cut. See item 3 detail.

CAUTION

- Positioning launching station requires lifting device capable of lifting 10,000 pounds.

(c) Connect lifting cables to hoist rings (para 3-3).

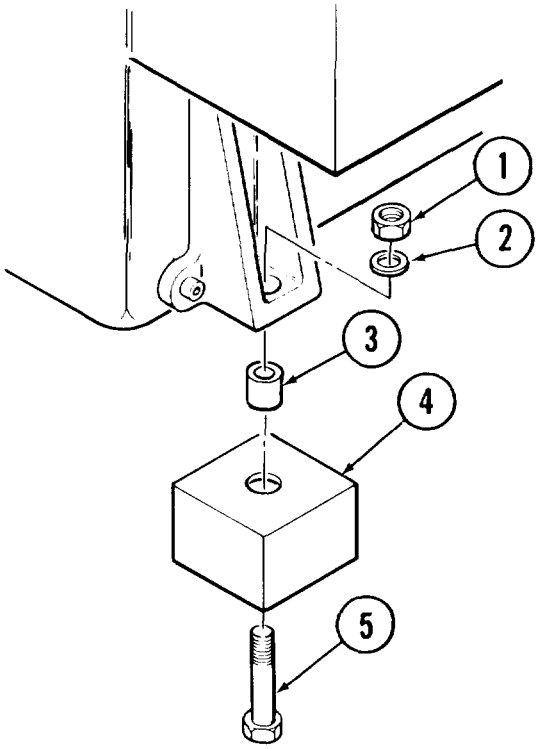
g. Level B Packaging (Continued)

2 (CONTINUED)

(d) Lift launching station approximately 8 inches above surface.

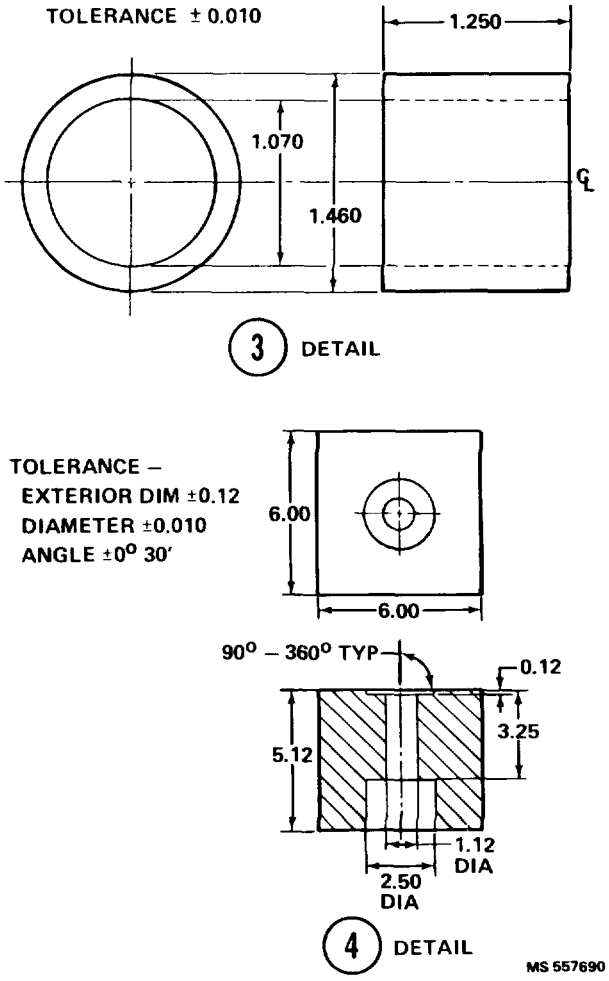
NOTE

- Aluminum support blocks are installed while launching station is suspended above surface.



(e) Install support block (4), bushing (3), 1 x 6inch hex head steel bolt (5), flat washer (2), and nut (1) at each of four mounting brackets.

(f) Tighten bolts to 550 +50 ft-lb.



3

Prepare the M730 vehicle in accordance with M48A2 Level A packaging requirements, except:

(a) No hutment or vehicle closure is required.

(b) Residual fuel drain from fuel tank is not required.

5-1. LAUNCHING STATION M54A2 AND M48A2 PREPARATION (CONTINUED)

h. Level B Driveaway

The M48A2, prepared to Level B packaging requirements (para g), requires no additional processing

i. M48A2 Loading for Shipment

1 RAIL SHIPMENT. Load equipment for rail shipment in accordance with AMCR drawing 19-48-7174-GSE-5CH1. If drawing is unavailable, use applicable loading rules of Association of American Railroads.

2 HIGHWAY SHIPMENT. Load equipment for highway shipment in accordance with AMCR drawing 1948-7556-GSE-11 CH1. If drawing is unavailable, use applicable publications of American Trucking Association.

3 AIRCRAFT SHIPMENT. Load equipment for aircraft shipment in accordance with requirements of loadmaster or authorized agent.

4 MARINE SHIPMENT. Load equipment for marine shipment in accordance with requirements of transportation officer or authorized agent. Minimum requirements are given in AMCR drawing 19`48-7256-GSE-18CH1.

5 HOISTING. Hoist M48A2 in accordance with AMCR drawing 19-48-7256-GSE-18CH1.

5-2. OMSS (AN/TSM-95A) and SMSS (AN/TSM-96A) Preparation.

a. Level B Packaging

1 OMSS AND SMSS COMMON PROCEDURES

NOTE

- The following steps are applicable to both OMSS and SMSS Level B Packaging requirements.
- Refer to appendix B for preservation and packaging specifications.
- Refer to TM 9-4935-1587-14 (OMSS) and to TM 9-4935-2585-14-1 (SMSS) for equipment and stowage locations.

(a) Shelter. Clean exterior and interior shelter surfaces of dirt, dust, grease, and other contaminants, then dry. Clean and dry by any method that will not damage shelter physically or electrically.

(b) Air Conditioners

NOTE

Air conditioners are base-mounted and self contained. Equipment operation and service instructions are contained in TM 5-4120-307-15.

5-2. OMSS (AN/TSM-95A) AND SMSS (AN/TSM-96A) PREPARATION - CONTINUED

a. Level B Packaginq (Continued)

1 CONTINUED

(1) Cover air conditioner exterior openings with vapor proof, waterproof barrier material (item 15.3, appx D).

(2) Secure barrier material with preservation and sealing tape (item 126.2, appx D).

(c) Blackout Curtain. Open blackout curtain and secure with provided straps.

(d) Fire Extinguisher

(1) Place fire extinguisher in stowage bracket on inside of access door.

(2) Engage bracket securing device.

(3) Secure and wire release pin.

(e) Tool Boxes (when provided)

(1) Wrap large items with noncorrosive wrapping paper (item 97.1, appx D).

(2) Immobilize items in box with water resistant, cellulosic cushioning material (item 40.1, appx D).

(3) Secure box fasteners and tape to prevent opening.

(4) Stow on equipment rack (step f).

(f) Equipment Rack Stowage. Place the following equipment (when provided) on polyethylene foam pad (item 79.1, appx D) with 2 lb/cu ft density (1/2-in. thick x equipment contact area dimensions). Secure items with provided webbing straps.

(1) Electrical space heaters (2)

(2) Test sets

(3) Tool kits (refer to step e)

(g) Stools

(1) Stack stools with cushioning material (item 40.1, appx D) between stools.

(2) Secure stools to floor with provided tiedown device.

(h) Drawers

(1) Position equipment, technical manuals, log books, tools, spares, etc., designated for drawer storage, in proper stowage location.

(2) Wrap or package all items that do not have designed space or securing strap, clamp, etc.

(3) Immobilize items in drawer with cushioning material (item 40.1, appx D).

NOTE

- Steps (4) and (5) to be performed later for drawers to stow SMSS Cable Group No. 1 and Accessories.

(4) Close drawer and place securing device in locked position. Tape to prevent movement.

(5) Apply pressure sensitive tape (item 123.1. appx D) across drawer face and anchor to bench frame.

(i) Ground Rod

(1) Install ground rod sections in designated bracket.

(2) Secure rods to bracket with pressure sensitive tape (item 123.1, appx D).

(i) Sledge Hammer

(1) Install sledge hammer in designated bracket.

(2) Secure hammer with provided device.

(k) Air Inlet Control

(1) Set air inlet control lever to closed position.

(2) Secure lever with provided device.

5-2. OMSS (AN/TSM-95A) AND SMSS (AN/TSM-96A) PREPARATION (CONTINUED)

a. Level B Packaging (Continued)

1 CONTINUED

(l) Lifting and Tie down Sling

(1) Place sling assembly in fiberboard box.

(2) Cushion with water-resistant, cellulosic cushioning material (item 40.1, appx D).

(3) Secure box with paper sealing tape (item 126.1, appx D).

(4) Stow box on equipment rack and secure with provided webbing straps.

2 OMSS ONLY

(a) Compressor Assembly

(1) Tighten two capscrews on compressor mounting plate to allow contact of mounting plate bottom with rubber tips on top of shock isolators.

(2) Place warning tag on Pneumatic Supply Unit control indicator panel assembly that reads:

COMPRESSOR SECURED FOR SHIPMENT. LOOSEN CAPSCREWS ON COMPRESSOR MOUNTING PLATE PRIOR TO USE.

(b) Guided Missile Test Set, A N/DSM-79

(1) Install polyethylene foam pad (item 79.1, appx D), 1/2-in. thick x test set contact area dimensions, at test set stowage location on top of front workbench.

(2) Place test set on pad and secure with provided webbing straps.

(c) Guided Missile System Test Set, AN/TSM-85B.

(1) Install polyethylene foam pad (item 79.1, appx D), 1/2-in. thick x test set contact area dimensions at test set stowage location under workbench at right of door.

(2) Place test set on pad and secure with provided tiedown device.

(d) Missile GCG Handling Tray and Missile Assembly Stands

(1) Install tray and stands in wall stowage brackets.

(2) Secure items with provided tiedown devices.

(e) Cables

(1) Set LIGHTS and MAIN circuit breakers to OFF.

(2) Disconnect input power cable.

(3) Coil power cable and other large cables on floor and secure with provided tiedown devices.

(f) Doors. Close all doors and secure with door locking devices.

(m) Switches. Set panel switches and controls to OFF or CLOSED position, except MAIN and LIGHTS circuit breakers.

(n) Battle Lantern

(1) Remove and discard batteries.

(2) Place lantern in designated bracket.

(3) Secure lantern with provided tiedown device.

(o) OMSS procedure continues in step 2; SMSS procedure continues in step 3.

5-2. OMSS (AN/TSM-95A) AND SMSS (AN/TSM-96A) PREPARATION (CONTINUED)

a. Level B Packaging (Continued)

3 SMSS ONLY

(a) Video Monitor Assembly

(1) Remove video assembly from video monitor assembly.

(2) Secure video assembly on middle shelf with provided securing device.

(3) Secure cable to video monitor assembly.

(b) Collimator

(1) Install collimator on cover/bracket stowage assembly.

(2) Secure collimator with provided latches.

(3) Secure stowage assembly to shelter floor with provided bolts.

(c) Collimator Mounting Plate Assembly

(1) Stow assembly on forward end of equipment storage racks.

(2) Secure assembly with screws provided.

(d) Air Purifier Unit Secure unit with provided securing devices.

(e) Control Indicator Assemblies

(1) Stow assemblies not installed in console on shock-isolated shelves of equipment storage racks.

(2) Secure assembly with provided securing devices.

(f) Compressor

(1) Remove cable from compressor located between air conditioning units.

(2) Install protective cover on compressor connector.

(3) Cover compressor with barrier material (item 15.3, appx D) and seal with preservation and sealing tape (item 126.2, appx D).

(g) Cable Group No. 1 and Accessories

(1) Remove cables from test console

(2) Coil cables into smallest coil possible without risking cable damage.

(3) Wrap knee switch, extender board assemblies, and adapter connector accessories with water-resistant, cellulosic cushioning material (item 40.1, appx D).

(4) Line bench unit drawers with water-resistant, cellulosic cushioning material (item 40.1, appx D).

(5) Place coiled cables and accessories in drawers.

(6) Fill void drawer space with water-resistant, cellulosic cushioning material (item 40.1, appx D).

(7) Close drawers and place securing device in locked position. Tape to prevent movement.

(8) Apply pressure sensitive tape (item 123.1, U appx D) across drawer face and anchor to bench frame.

(h) Cable Group No. 2

(1) Coil cables and place in metal storage container.

(2) Stow container on floor under workbench.

(3) Secure container with provided tiedown straps.

(i) Power Cables

(1) Set LIGHTS and MAIN circuit breakers to OFF.

(2) Disconnect power cables and ground wire. Install protective covers on shelter connectors.

(3) Coil cables and wire to fit lower storage rack space.

(4) Secure cables and ground wire with twine and stow.

(j) Doors. Close all doors and secure with door locking devices.

5-2. OMSS (AN/TSM-95A) AND SMSS (AN/TSM-96A) PREPARATION (CONTINUED)

b. level A Packaging

NOTE

Level A packaging of the OMSS and SMSS differs from Level B only by the addition of humidity control devices.

1 COMMON PROCEDURES. Perform Level B packaging procedures (para 5-2a, steps 1 and 2(a) thru (d), OMSS; para 5-2a, steps 1 and 3(a) thru (h), SMSS).

2 RFI SCREEN BOX.

(a) Remove eight screws and RFI screen box covering breather vent on inside of shelter door.

(b) Place screws in bag and tape bag to screen box.

(c) Place screen box in corrugated fiberboard box (appx B). Seal box and stow inside shelter.

3 STATIC CHARGE.

(a) Install four standard desiccant retainers, each containing ten 16-unit, static-charge desiccant bags (item 41.2, appx D).

CAUTION

- Avoid suspending desiccant retainers in a manner that may cause damage to the shelter, equipment, or retainers.

(b) Suspend desiccant retainers from console table structural members or from racks.

4 FREE BREATHER ASSEMBLY.

(a) Install trivet (5), protector ring (4), and desiccant bag (3) in drum (6).

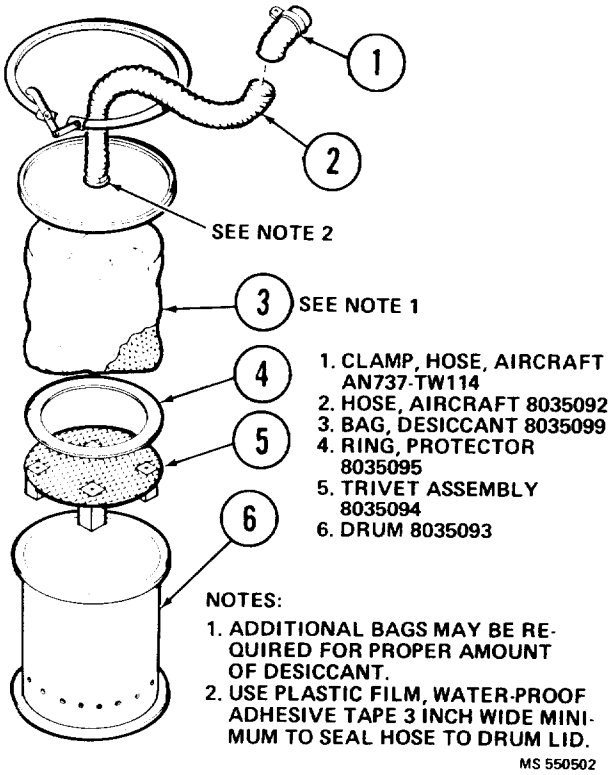
(b) Install 500 units of breather-type, dry desiccant item 40.2, appx D) in desiccant bag and tie bag closed.

(c) Install drum cover and clamping ring.

(d) Place drum on floor and secure to equipment rack with buckle and tiedown strap assembly.

(e) Attach hose (2) to shelter door breather vent and secure with hose clamp (1).

(f) Seal around both ends of hose (note 2) to provide airtight seal.



5 HUMIDITY INDICATOR. Install humidity indicator (item 54.1, appx D) on inside of shelter door as follows

a) Insulate indicator from metal door with noncorrosive wrapping paper (item 97.1, appx D).

(b) Secure indicator to door with paper sealing tape (item 126.1, appx D).

6 POWER SHUTDOWN. Disconnect and secure power cables (para a, step 2(e), OMSS; para a, step 3(i), SMSS).

7 DOORS AND SEAMS.

(a) Close exterior doors and secure with door locking devices.

(b) Seal all seams with preservation and sealing tape (item 126.2, appx D) to protect against entry of water and water vapor.

5-2. OMSS (AN/TSM-95A) AND SMSS (AN/TSM-96A) PREPARATION (CONTINUED)

b. Level A Packaging (Continued)

8 MARKING.

(a) Label main entry door, per military marking standards, that shelter is packaged to Level A requirements (Method II label).

(b) Attach label to door next to Method II label to read:

HUMIDITY INDICATOR ATTACHED TO INSIDE OF DOOR.

: *(c)* Attach tag or label to door to read

THIS EQUIPMENT PRESERVED WITH A 3-INCH FREE-BREATHER PORT THROUGH A DESICCANT BED. FOR STORAGE OR RESHIPMENT,THE HUMIDITY INDICATOR SHALL BE INSPECTED AND, IF NECESSARY, THE DESICCANT REPLACED.

c. Loading for Shipment.

1 RAIL SHIPMENT. Load equipment for rail shipment in accordance with AMCR drawing 19-48-7177-GSE5CH2 (OMSS) or 19-48-7178-GSE-5CH3 (SMSS). If drawing is unavailable, use applicable loading rules of Association of American Railroads.

2 HIGHWAY SHIPMENT. Load equipment for highway shipment in accordance with AMCR drawing 19-48-7560-GSE-11CH2 (OMSS) or 19-48-7561-GSE11CH3 (SMSS). If drawing is unavailable, use applicable publications of American Trucking Association.

3 AIRCRAFT SHIPMENT.

(a) Prepare shelter in accordance with applicable level (para 5-2a or 5-2b) and requirements of loadmaster or authorized agent.

NOTE

*** Step (*b*) is performed only if shelter is uncrated and 463L pallets are not available at air terminal.**

(b) Mount shelter on skid base in accordance with MIL-C-3774.

(a) Prepare shelter in accordance with Levels A and B requirements (para 5-2*a* and 5-2*b*).

MARINE SHIPMENT.

NOTE

*** Step (*b*) is performed for overseas shipment only.**

(b) Enclose unit in MIL-C-3774 crate (fig. 2-3). See table 5-3 for lading data.

TABLE 5-3.
OMSS AND SMSS (CRATED) LADING DATA

	OMSS	SMSS
Dimensions (in.)	204-1/2 x 113-3/4 x 104-7/8	204-1/2 x 113-3/4 x 104-7/8
Gross weight (lb)	7751	8074
Cube (ft)	1400C	1400C

(c) Cover shelter lift point markings with preservation and sealing tape (item 126.2, appx D

(d) Load shelter in accordance with requirements of transportation officer or authorized agent. Minimum requirements are given in AMCR drawing 19-48-7259-GSE-18CH4.

d. Storage Requirements. Observe humidity indicator upon unloading shelter at destination. If indicator shows a change of color, shelter may be represerved to applicable level requirements (para 5-2*a* or 5-2*b*).

5-3. PREPARATION FOR TACTICAL MOVEMENT

a. M54A2 Preparation

1 Recover and store all deployed communications equipment.

2 Rotate turret to STOW position (TM 9-1425-258610).

3 Retract turret (TM 9-1425-2586-10).

4 Set gunner's compartment controls to de-energized positions
.
5 Close and secure canopy
.
6 Set MASTER CONTROL panel controls to de-energized positions
.
7 Remove all missiles from launch rails and stow (TM 9-1425-2586-10).

8 Secure all loose equipment, books, and manuals sufficiently to prevent any damage or loss.

9 Remove hoist ring access covers and attach hoist rings (para 3-2). Stow access covers.

10 Secure all doors and blast covers
.

CAUTION

*** Lifting launching station M54A2 requires device capable of supporting 10,000 pounds.**

11 Attach hoist cables and lift launching station (para 3-6).

NOTE

*** Steps 12 and 13 may be performed as tactical situations permit.**

12 Remove jack support assembly (para 3-6).

13 Install support blocks (para 5-1g).

14 Hoist launching station onto transporter vehicle and secure (para 5-1i).

b. M48A2 Preparation

Refer to TM 9-1425-2586-10 for instructions for tactical movement of carrier-mounted M48A2 launching station
.

c. OMSS and SMSS Preparation

NOTE

*** Available packaging materials, such as cushioning, cartons, tape, bags, etc., that perform the function may be used if specified materials are not available.**

*** Marking or labeling shelter entry door is not required.**

1 Prepare shelter for shutdown (TM 9-4935-1587-14, OMSS; TM 9-4935-2585-14-1, SMSS).

2 Perform Level B packaging procedures (para 5-2a).

5-4. Packaging of High Value Spares

High value spare parts for the launching station shall be packaged for shipment in accordance with Appendix C instructions.

Section II. LIMITED AND LONG-TERM STORAGE

5-5. Preparation for Storage

a. M54A2 and M48A2 Preparation

NOTE

*** Level B packaging provides adequate protection for launching station storage.**

1 Perform Level B Packaging procedures (para 5-1g), as required.

* Do not operate the launching station while removing fuel or while an external fuel supply is within 50 feet of launching station.

Do not permit open flames or smoking within 50 feet. Observe normal safety precautions.

2 For limited storage of 90 days or less, fill fuel cells to top with clean fuel.

3 For storage periods longer than 90 days and long-term storage is not planned, every 90 days open drain valve on right side of tailgate and drain all fuel from both cells (TM 9-1425-2586-10). Close drain valve and refill cells with clean fuel.

4 For long-term storage of one year or longer, prepare fuel cells according to paragraph 5-1e, step 5.

b. OMSS and SMSS Preparation

NOTE

*** Level B packaging provides adequate protection for shop set storage.**

Perform Level B packaging procedures (para 5-2*a*), as required.

5-6. Storage Requirements

a. M54A2 and M48A2 Storage

*** Limited storage is restricted to a period of 90 days. During this period, the launching station can be maintained for return to operational status within minimum delay.**

*** Steps 1 thru 4 provide limited storage procedures. Steps 5 thru 9 provide additional procedures required for storage periods exceeding 90 days.**

1 Prepare launching station for storage (para 5-5*a*).

2 Store launching station on level area in most favorable location available.

NOTE

3 Insure that canopy and all access doors are tightly sealed.

NOTE

*** If launching station is to remain in storage longer than 90 days, proceed to step 5.**

4 Tag launching station with storage date and the following statement:

NOTE

UNIT IS NOT TO BE OPERATED UNTIL PROCESSED ACCORDING TO INSTRUCTIONS FOR PREPARATION FOR USE AND INSPECTION AFTER LIMITED STORAGE IN TM 9-1425-2585-14.

5-6. STORAGE REQUIREMENTS (CONTINUED)

a. M54A2 and M48A2 Storage (Continued)

5 Connect external power to launching station.

6 Remove tape and plywood cover from master control panel and strapping from canopy.

7 Perform paragraph 5-1*e*, step 1.

8 Remove external power and remove batteries (para 5-l*e*, step 2).

9 Perform paragraph 5-1*g*, steps 1*h* thru *m*, as required.

10 Tag launching station as follows:

CAUTION
THIS UNIT PRESERVED TO LEVEL A REQUIREMENTS (DATE). DO NOT OPERATE UNTIL PROCESSED ACCORDING TO SERVICE UPON RECEIPT INSTRUCTIONS IN TM 9-1425-2585-14.

b. OMSS and SMSS Storage

NOTE

*** Limited storage for the shop sets is the same as for the launching station.**
*** Shop set reprocessing is not required during limited storage.**

1 Store shop set on level area in most favorable location available.

2 Insure that door and all vents are secured and sealed.

3 Immediately repair or replace damaged or missing protective covers.

4 Tap shop set to specify storage condition and that equipment must not be operated.

5 In areas subject to heavy rain or blowing sand, cover shop set with tarpaulin or black polyethylene plastic.

Section III. INSPECTION IN STORAGE

5-7. M54A2 and M48A2 Inspection

a. Limited Storage

1 Inspect launching station visually each month in storage and following severe weather conditions.

2 Remove covering and disassemble as required to determine extent of deterioration or damage.

3 Inspect for rust, cracks, chipped paint, corrosion, or crazing of canopy or instrument cover glass.

4 Repair damage promptly. Refinish with paint of same quality and color as original paint.

5 Record discrepancies found and repair action taken. Attach record to launching station exterior.

b. Long-Term Storage

NOTE

*** The following procedures are to be performed after the launching station has been in storage for one year.**

1 Unlatch and open air conditioner at rear of turret.
2 Release azimuth hand brake.
3 Close and latch air conditioner.

5-7. M54A2 AND M48A2 INSPECTION (CONTINUED)

b. Long Term Storage (Continued)

4 Rotate turret manually five times in clockwise direction, then five times in counterclockwise direction.

5 Unlatch and open air conditioner and set azimuth hand brake.

6 Release elevation hand brake.

7 Close and latch air conditioner.

8 Move launch rails all the way up, then all the way down. Repeat action ten times. Return launch rails to horizontal position.

9 Unlatch and open air conditioner and set elevation hand brake.

10 Close and latch air conditioner.

11 After two years of launching station storage, lubricate azimuth and elevation bearings (LO 9-1440585-12).

5-8. OMSS and SMSS Inspection

a. Inspect shop set visually each month in storage and following severe weather conditions.

b. Insure that doors and vents are properly secured. Apply light oil (item 78, appx D) coating to door hinges and latches.

c. Inspect painted surfaces for wear or damage. Clean, dry, and repaint surfaces showing evidence of deterioration.

Section IV. PREPARATION FOR USE AND INSPECTION AFTER LIMITED STORAGE

5-9. Preparation for Use

a. M54A2 and M48A2

1 Remove all tape, adhesive paper, and protective covers.

2 Connect lifting cables to hoist rings (para 3-2) and lift launching station approximately 8 inches above surface level.

NOTE * Aluminum support blocks are removed while launching station is suspended above surface level.

3 Remove aluminum support blocks (para 5-1g, step 2) from four mounting brackets.

4 Install launching station onto carrier (para 3-2) or prepare for stationary emplacement (para 3-4).

5 Unpack loose item storage container and antenna elements and mast section storage container.

6 Install antenna elements and mast sections (TM 91440-2585-20-3).

7 Open crew compartment and remove maintenance log, battery mounting brackets, cables, and thermostat.

8 Obtain and install four 6TN 12-volt batteries (TM 91440-2585-20-3) and fill with electrolyte.

9 Obtain and install six batteries (item 16, appx D) in remote control unit C-2328/GRA-29 and six batteries in local control unit C-2329A/GRA-29 (TM 11-5820477-12).

10 Close blowdown valve on air purifier unit.

5-9. PREPARATION FOR USE (CONTINUED)

a. M54A2 and M48A2 (Continued)

CAUTION
*** Backseat compressor service valves before energizing air conditioner.**

11 Backseat the two air conditioner compressor service valves as follows:

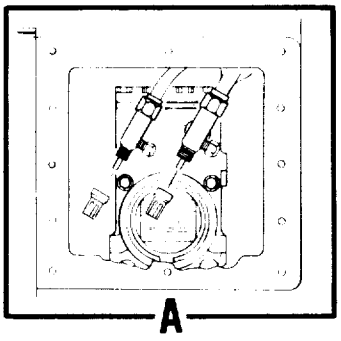
(*a*) Energize launching station and erect turret (TM 9-1425-2586-10).
(*b*) Unlatch and open air conditioner at rear of turret.
(*c*) Disconnect electrical connector from RFI filter.

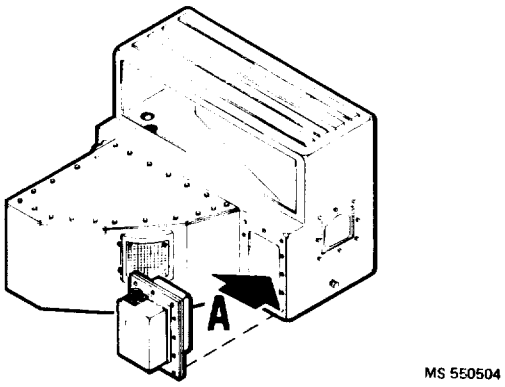
CAUTION
*** Do not damage RFI gasket or electrical terminals when removing filter.**

(*d*) Remove 12 attaching screws and RFI filter for access to service valves.
(e) Check that gage port caps are secure.
(*f*) Remove dust caps from service valve stems.
(*g*) Turn valve stem counterclockwise with 1/4-in.wrench to backseat position.

CAUTION
*** Do not tilt air conditioner more than 40 degrees after valves are opened.**

(*h*) Install dust caps.





(*i*) Install RFI filter.

(*j*) Tighten 12 attaching screws to a torque value of 100 ± 10 in. lb.

(k) Connect electrical connector to RFI filter.

(*l*) Close and latch air conditioner.

(m) Shut down launching station (TM 9-14252586-10).

b. OMSS and SMSS

1 Remove securing tape, safety wire, tiedowns, and coverings.

2 (OMSS only) Loosen two capscrews on compressor mounting plate and remove related warning tag.

3 Perform inspection procedures (para 5-10*b*).

5-10. Inspection After Limited Storage

a. M54A2 and M48A2

1 Perform the before, weekly, and monthly preventive maintenance checks and services (PMCS) in TM 9-1425-2586-10.

2 Perform the monthly and quarterly PMCS in TM 9-1440-2585-20-3.

3 Check MPU mounting bolts for 330 ±30 in. lb torque value.

4 Check generator and compressor holddowns for tightness (TM 9-1440-2585-20-3).

5 Preset controls and energize launching station (TM 9-1425-2586-10).

6 Visually inspect MPU during first hour of run-in time for evidence of loose hardware, fuel pump, fuel filter, or fuel line leaks, and oil seepage from oil drain connections or oil filler cap.

7 Check exhaust pipes and bellows for extreme overheating.

8 Momentarily open blowdown valve on air purifier when operating pressure is reached to expel condensed moisture.

9 Change engine oil (LO 9-1440-585-12).

10 Perform daily, weekly, and monthly functional checks in TM 9-1425-2586-10.

11 Inspect launching station maintenance log and perform periodic hourly PMCS (TM 9-1440-2585-20-1), as required.

b. OMSS and SMSS

1 Inspect the OMSS by performing PMCS (TM 9-49351587-14).

2 Inspect the SMSS by performing PMCS and quarterly maintenance checks and adjustments (TM 9-4935-2585-14-1).

CHAPTER 6

DEMOLITION OF MATERIAL TO PREVENT ENEMY USE

6-1. General. Procedures for destruction of the launching station, OMSS, and SMSS are given below.

NOTE

*** The demolition procedure requires use of demolition materials which normally may not be authorized items of issue to the using organization. The issue of these and related materials, and conditions under which destruction will be effected are command decisions in each case, according to the tactical situation.**

a. The most applicable means of destruction are:

(1) Burning. Destruction by burning requires gasoline, oil, incendiary grenades, or other flammables.

(2) Demolition. Destruction by demolition requires suitable explosives or ammunition. Under some circumstances hand grenades may be used.

(3) Gunfire. Destruction by gunfire includes artillery, rifles using grenades, or launchers using antitank rockets.

b. In general, destruction of essential parts, followed by burning, will usually be sufficient to render the items useless. However, selection of the particular method of destruction requires imagination and resourcefulness in the use of facilities at hand under the existing conditions. Time is usually critical.

c. Adequate destruction requires that all essential parts be destroyed or damaged beyond repair. However, when lack of time and personnel prevents destruction of all essential parts, priority is given to those parts most difficult to replace. Priority must be given to the destruction of the missiles, launching station, IFF interrogator, and FLIR subsystem.

d. If destruction is directed, due consideration should be given to:

(1) Selecting a point of destruction that will cause the greatest obstruction to enemy movement and not create a hazard to friendly troops.

(2) Observing appropriate safety precautions.

6-2. Burning. Destroy the launching station, OMSS, and SMSS by burning as follows:

* The guided missiles create an extreme hazard to personnel when a weapon is destroyed by burning. If time permits, destroy missiles by firing them toward enemy locations.

a. Heap all material to be burned if time or conditions permit.

b. If available, place a sufficient number of incendiary grenades about the items.

* To prevent serious injury or burns to personnel, care must be taken in the handling of highly volatile liquids.

c. Douse the items with gasoline, oil, or other flammable liquids.

d. Ignite the equipment using incendiary grenades fired from a safe distance, bursts from a flame thrower, combustible train, or other appropriate means, and immediately take cover. Elapsed time: about 7 minutes.

6-3. Demolition. Destroy the launching station, OMSS and SMSS as follows:

NOTE

*** For successful destruction of the items by explosives, all concerned personnel will be thoroughly familiar with the pertinent provisions of FM 5-25. Training and careful planning are essential.**

a. If time permits, all guided missiles should be destroyed first by firing them at targets that will cause the greatest obstruction to enemy movement, but will not inflict damage upon friendly troops. Otherwise, the guided missiles may be destroyed by explosives.

b. Using sufficient amounts of TNT or equivalent, prepare and strategically place charges of explosives about the items.

c. Determine whether electrical blasting cap and wire, or nonelectric blasting caps and safety fuzes will be used for priming and detonating the explosive charges. If nonelectric caps are used, they must be crimped to at least 5 feet of safety fuze.

* Safety fuze burns at the rate of 1 foot in 30 to 40 seconds; cut off and test a portion of the fuze before using.

NOTE

*** Safety fuze and blasting caps must be protected from moisture at all times.**

d. Connect the charges with detonating cord as required to effect their simultaneous detonation. Dual-prime the charges to minimize the possibility of misfire.

* To prevent accidental detonation, the blasting caps, detonating cord, and safety fuzes must be kept separate from the charges until actually required for use.

e. If the charges are primed with nonelectric blasting caps, ignite the safety fuzes and take cover without delay. If the charges are primed with electric blasting caps, take cover before firing. Elapsed time: about 1 5 minutes.

6-4. Gunfire. This method cannot be relied upon to insure the proper degree of destruction. If conditions disallow destruction by burning and/or demolition, destroy the launching station, OMSS and SMSS by gunfire as follows:

* The guided missiles present an extreme hazard to personnel firing at them from a distance of less than 500 yards. If possible, the guided missiles should be destroyed by firing them toward enemy locations.

a. If possible, stack or pile the items and related equipment.

b. Fire on the equipment from a safe distance with rifles using rifle grenades, antitank rockets, or artillery. Although one well-placed hit may render the equipment temporarily useless, several hits are usually required for its complete destruction unless an intense fire is started in which case the material may be considered destroyed. Elapsed time: about 5 minutes.

CHAPTER 7

HELICOPTER LIFT-KIT INSTALLATION

7-1. Launching Station Preparation. Prepare the launching station as follows:

a. Missiles. Remove missiles from launch rails (TM 9-1425-2586-10).

b. Mount Position. Position launch rails parallel to the deck of the launching station and rotate mount 90° from launching station aft position.

c. Slings. The following slings are authorized for external transport by helicopter of the CHAPARRAL Air Defense Guided Missile System, M54A2 Launching Station (with eight MIM72 rounds in storage).

(1) 3-foot three loop aerial delivery cargo sling (NSN 16700-00-753-3788).

(2) 1 6-foot three loop aerial delivery cargo sling (NSN 1670-00-823-5042 alternate: NSN 1670-00-902-3080) used with type IV link assembly (NSN 1670-00-7835988).

NOTE

*** Refer to DATM 55-1425-585-15-1 for detailed instructions concerning helicopter transport of the launching station.**

d. Antennas. Remove and disassemble all antennas (TM 9-1425-2586-10). The antenna matching unit remains attached to the mount. Tape the disassembled antennas in a bundle(s) and place in a secure location inside of gunner's mount.

e. Launching Station Condition. Prepare the launching station as follows:

(1) Insure VDCP OFF/STBY/ON switch is set to OFF and IR receiver blast shield doors are closed.

(2) Set PRIME POWER, MASTER POWER, and COMM switches on MASTER CONTROL panel to OFF.

(3) Lock the azimuth and elevation brakes.

(4) Install hoist ring assemblies and remove the tiedown bolts in accordance with procedures in paragraph 3-3.

f. Canopy. Install and secure canopy cover assembly (P/N 10233581).

CAUTION

*** Insure that edge of cover is sufficiently sealed to prevent sand from penetrating to the glass surface area.**

7-2. Installation of Helicopter Lift Support Assembly. Install lift-kit (NSN 1440-00-176-2299) as follows:

7-2. INSTALLATION OF HELICOPTER LIFT SUPPORT ASSEMBLY

CAUTION

*** A crane or lifting hoist of at least 10,000 pounds capacity is required to transport the launching station onto the support assembly.**

a. Attach the four support bases (4) to the two support assemblies(1 and 2). Tighten ball socket nut (3) firmly with wrench (P/N 9033914).

b. Hoist the launching station (para 3-3) and hold suspended above the support assemblies.

NOTE

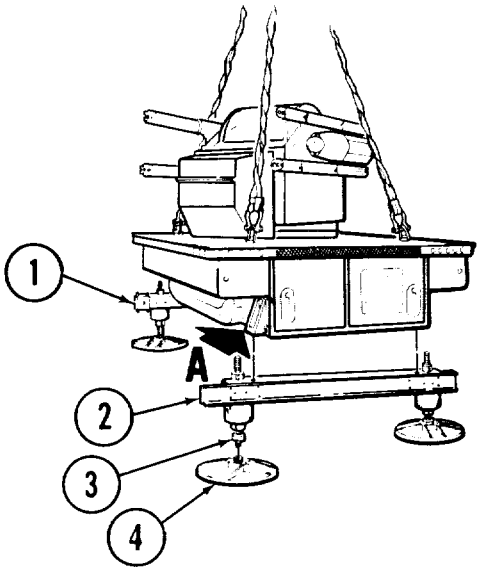
*** Tiedown bolts are packaged in the miscellaneous items container (NSN 493500-935-7364) located in the OMSS.**

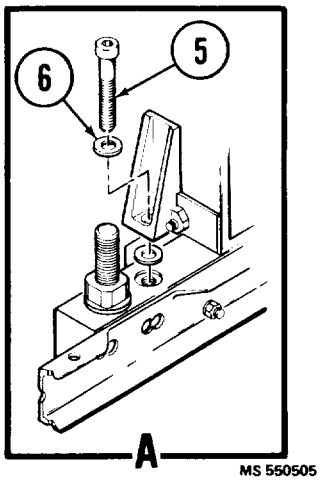
c. Paint tiedown bolts (5) with anti-seize compound TT-A-580 (NSN 8030-00-209-8005).

d. While anti-seize compound is still wet, install eight washers (6) and four tiedown bolts (5) and tighten to 780 + 50 ft-lb of torque.

e. Lower launching station until completely supported by support assembly.

f. Level launching station as described in paragraph 7-4.





END

7-3. Replacement of Energy Dissipating Pads. Replace energy dissipating pads as follows:

7-3. REPLACEMENT OF ENERGY DISSIPATING PADS

NOTE

*** Replace all energy dissipating pads (4 and 9) that have a thickness of 2 inches or less. Measure between the closest edges of pad retaining plates (3 and 8).**

a. Insert clevis assembly (1) over upper jack nut (11) and attach two pins (2).

b. Turn upper jack nut (11) clockwise with wrench (P/N 9033914) until support base (5) raises off the ground.

c. Turn lower jack nut (7) counterclockwise until distance between pad retaining plates (3) and (8) is sufficient to remove the crushed pad halves.

NOTE

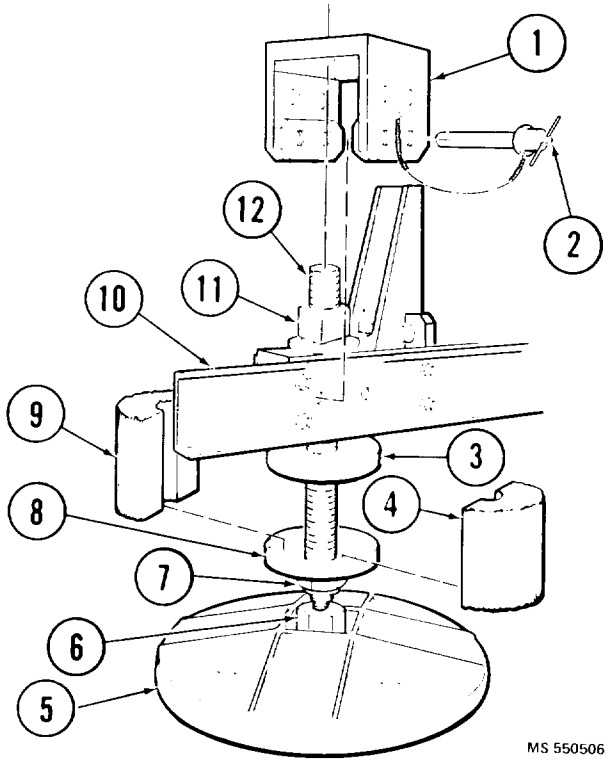
*** If sufficient thread is not available for lowering retaining plate, the upper jack nut must be raised to achieve plate separation necessary for a new pad.**

d. Position the new replacement pads (4 and 9) on the lower retaining plate (8) with the precrushed surfaces down.

e. Turn lower jack nut (7) until pad halves are firmly against upper retaining plate (3).

f. Wrap two turns of adhesive tape firmly around upper portion of pads.

g. Remove clevis assembly (1) and place in stowage location on support beam.



END

7-4. Support Assembly Jackscrew Adjustment. Level the launching station by raising or lowering the support base(s) as follows:

a. Thread the upper and lower jack nuts (7 and 11) alternately up or down until launching station is within 10 degrees of level.

b. Loosen ball socket nut (6) until support base (5) conforms to ground contour. Tighten ball socket nut.

APPENDIX A

REFERENCES

Refer to TM 9-1425-585-L-1 for publications applicable to the CHAPARRAL Air Defense Guided Missile System.

APPENDIX B

SPECIFICATIONS FOR PRESERVATION AND PACKAGING

Table B-1. Specification Usage Reference

Nomenclature	Specification No.	
Adhesive	MMM-A-121	Para 5-1c, steps 1, 2, 3 (item 12.1, appx D)
Adhesive, rubber base	MMM-A-1617	Para 4-16 (item 6, appx D)
Aluminum 6061-T6	QO-A-325	Para 5-1b, step 1; 5-1g, step 2
Bag	MIL-B-117 Class-C, Type I, Style 1 (Waterproof bag)	Para 5-1e, steps 7, 9; 5-1g, step 1 (item 15.1, appx D)
Bag	MIL-B-117 Class-F, Type I, Style 1 (Water, vapor proof bag)	Para C-1 thru C-5 (item 15.1A, appx D)
Barrier material, grease-proof, waterproof	MIL-B-121 Class-C, Type I	Para 5-1e, steps 7, 9; 5-19g, step 1 (item 15.2, appx D)
Barrier material, water-vapor proof	MIL-B-131 Class 1	Para 5-1e, step 9; 5-2a, steps 1, 3 item 15.3, appx D)
Box, cleated plywood	PPP-B-601	Reference
Box, metal stayed paperboard	PPP-B-665	
Box, single-wall corrugated, fiberboard	PPP-B-636	Para 5-1c, steps 1, 2,3 (item 12.1, appx D)
Cap plugs, plastic	MIL-C-5501/7, F13, F22	Para 5-1e, step 9 (item 23.1, appx D)
Compound, caulking	TT-C-598, Type 1 or equivalent	Para 5-1c, steps 4, 5, 6 (item 26.2, appx D)
Compound, plastic coating	MIL-C-6799 Type II, Class 1 and 5	Para 5-1g, step 1 (item 27.1, appx D)
Crate, marine shipment (OMSS, SMSS)	MIL-C-3774	Para 5-2c
Cushioning material, water resistant cellulosic	PPP-C-843 Type II, Class B	Para 5-1e, step 9; 5-2a, steps 1, 3 (item 40.1, appx D)
Cleaning	MIL-P-116	
Desiccant, static charge	MIL-D-3464	Para 5-2b, step 3 (item 41.2, appx D)
Desiccant, breather charge	MIL-D-3716	Para 5-2b, steps 3, 4 (item 40.2, appx D).
Felt, roofing (#45 lb)	ASTM D224	Para 5-1b, step 3 (item 42.1, appx D).

Table B-1 . Specification Usage Reference - Continued

Nomenclature	Specification No.	Reference
Film, polyethylene	L-P-378	Para 5-1g, step 1 (item 42.2 appx D)
Fluid, hydraulic	MIL-H-5606	LO 9-1440-585-12 (item 43, appx D)
Insulation, thermal, cellular	MIL-1-14511	Para 4-16, (item 55, appx D)
Marking	MIL-STD-129	
Nails	FF-N-105	
Oil, hydraulic preservation	MIL-H-6083	Para C-8 (item 76.1, appx D)
Pads, polyethylene foam	PPP-C-1752	Para 5-1c, steps 1, 2, 3; 5-2, steps 1, 2 (item 79.1, appx D)
Painting process	Refer to TM 43-0139	
Paper, noncorrosive	MIL-P-17667 Type II	Para 5-1e, step 9; 5-2a, step 1; 5-2b, step 5
wrapping		(item 97.1, appx D)
Plywood, standard interior with exterior glue	NN-P-530	Para 5-1e, step 9
Steel	FF-B-571	Para 5-1b, step 1
Steel	MIL-S-971	
Seal, strapping	QQ-S-781	Para 5-1b, step 2; 5-1e, step 9 (item 116.2, appx D)
Seal, strapping	PPP-S-760	Para 5-1g, step 1 (item 116.1, appx D)
Tape, pressure sensitive	PPP-T-97	Para 5-1e, step 7; 5-2a, steps 1, 3 (item 123.1, appx D)
Tape, masking	A-A-1586	Para 5-1e, step 1 (item 126, appx D)
Tape, paper sealing	PPP-T-76	Para 5-1e, steps 7, 9; 5-19g, step 1; 5-2a, step 1 (item 126.1, appx D)
Tape, preservation and	MIL-T-22085	Para 5-1e, step 9; 5-1g, step 1;5-2a, steps 1,
sealing		3; 5-2b, step 7 (item 126.2, appx D)
Tape, protective pressure	MIL-T-38727 Type I, Class 1	Para 5-1g, step 1 (item 127.1, appx D)
Wood	MIL-STD-731	

APPENDIX C

PACKAGING OF T CODED ITEMS

C-1. Submethod IA-8. The parts included in the following list are processed for preservation in accordance with submethod IA-8 of MIL-P-1 16. Submethod IA-8 requires that the part(s) be adequately wrapped and cushioned and then enclosed in a heat-sealed opaque or transparent, water-vaporproof bag fabricated from materials that will afford protection to the enclosed part(s).

a. 10231390-Preamplifier
b. 10232063-Drivers firing relay
c. 10232095-Power sequencer
d. 102321 25-Drivers squib relay
e. 10232424-Circuit card
f. 10232486-Square wave generator
g. 10233091--Switch driver
h. 102331 30-Preamplifier
i. 10233476-Preamplifier
j. 10233573-Variable power supply
k. 11069657-Switch driver
/. 11069666-Signal generator
m. 11069862-Missile selector memory
n. 11070253--Amplifier assembly
o. 11072275-Load selector
p. 11072401--Variable power supply
q. 11072404-Circuit card
r. 11072410--Delay network
s. 11072416-Variable oscillator
t. 11072419-Phase detection network
u. 11072473--Diode assembly
v. 11072494-Variable oscillator
w. 11072535-Diode assembly
x. 01422-61901--Time switch
y. 03439-66504-Polarity count
z. 03440-66505-Display and ramp
aa. 03444-62801--Filter chopper
ab. 03444-66501--Board master
ac. 03444-66502-Board amplifier
ad. 03444-66503-Board function
ae. 03445-61201--Feedback
af. 03445-66501--Board assembly
ag. 03445-66505-Circuit card
ah. 03445-66506-Circuit card
ai. 03445-66507-Circuit card
aj. 5212A65D-Gate control
ak. 5212A65E-Control assembly
al. 5212A65F-Oscillator assembly
am. 5212A65G-Power supply

C-2. Submethod IA-8 for Static-Sensitive Devices. The parts included in the following list are processed for preservation in accordance with submethod IA-8 of MIL-P-116 and also require electrostatic/ electromagnetic protection. The bag enclosing the part must conform to MIL-B-117, Type I, Class F, Style 1.

a. 13170862-Erasable local memory
b. 131 70858-Microprocessor
c. 13152209-Analog interface
d. 131 52380-Video digitizer
e. 13152388-Tracker interface
f. 13152581--Display controller
g. 13152610--Analog output
h. 131 52614-Video summer
i. 13152616-Video ASCII
j. 131 52619-Analog input
k. 13152384-Video integration processor
/. 13170866-Edge and centroid processor
m. 13152942-Edge and centroid timing
n. 13152205-Sync generator
o. 13144234-Sync generator
p. 13152325--Video processor
q. 13144419-Video processor
r. 131 52307-Focus assembly
s. 13144235-Video and BITE
t. 13152329-Horizontal deflection
u. 13152224-Vertical deflection
v. 13152306-Flyback assembly
w. 13152966-LED capacitor

x. 13152953-Automatic contract enhancement
y. 13144077-Receiver BIT and solenoid driver
z. 13144229-Switch multiplexer/camera sync interface
aa. 13144275-Boresight switch
ab. 13152516-Fan capacitor
ac. SM-D-773663-Preamplifier
ad. SM-D-773900-Postamplifier/control driver
ae. SM-D-773896-Auxiliary control
af. SM-D-773914-Bias regulator
ag. SM-D-773946-Scan and interlace
ah. 13152681 -Temperature controller
ai. 13170746-Buffer module, tracker test adapter
aj. 13152578-Discrete input
ak. 13152621 -Breakpoint/front panel interface
al. 131 52638-Interrupt/front panel interface
am. 13152650-Carrier
an. 13144336-Keyboard
ao. 13144428-Display
ap. 13152612-Relay matrix
aq. 13152618-Discrete output
ar. 1 3152626-Video amplifier
as. 13152643-Tracker interface
at. 13152636-Motherboard no. 1
au. 131 52640-Motherboard no. 2
av. 13170709-Buffer interface

C-3. Submethod IA-15. The parts included in the following list are processed for preservation in accordance with submethod IA-1 5 of MIL-P-116. Submethod IA-15 requires that the part(s) be adequately wrapped or cushioned, enclosed in a snug-fitting carton or box, which shall then be enclosed in a close-fitting, water-vaporproof, heat-sealed bag fabricated from materials that will afford protection to the enclosed part(s).

b. 10231387-No-Go tone generator
c. 10231604-GCG simulator
d. 10231810--Voltage regulator
e. 10232474-Amplifier logic
f. 10232480-Amplifier assembly
g. 11069623-Cage amplifier
h. 11069678-Gyro timer
i. 11069681 -Selector timer
j. 11069933-Regulator
k. 13007014-Comparator, hold fire indicator
/. 13007017-Network, hold fire indicator
m. 11072427-Envelope detector
n. 11072532-Diode assembly
o. 11072543-Resistor assembly
p. 11072546-Diode assembly
q. 11072575-Semiconductor device
r. 11072580-Semiconductor device
s. 11072583-Semiconductor device
t. 11072634-Diode assembly
u. 01422-61902-Trigger source

C-4. Submethod IIe. The parts included in the following list are processed for preservation in accordance with submethod lie of MIL-P-116. Submethod lie requires that the part(s) be adequately wrapped and cushioned, enclosed (together with activated desiccant) in a snug fitting carton or box, and then enclosed in a close fitting, heat-sealed, transparent, water-vaporproof bag fabricated from materials that will afford protection to the enclosed part(s). A color change humidity indicator shall be firmly secured within the closing edge of the bag.

a. 11031356-1--Decade counter
b. 11069601 -Elevation comparator
c. 11069604-Brake generator
d. 11069607-Dither generator
e. 11069610--Elevation angle generator
f. 11069613-Elevation command generator
g. 1106961 6-Tracking network
h. 11069626-Amplifier assembly
i. 11070423-Regulator assembly
j. 11070429-Meter conditioning assy
k. 11070432-Circuit ohmmeter
/. 11070435-Oscillator assembly
m. 03439-66505-Display and ramp
n. 03440-66503-Comparator board
o. 05212-6005-Trigger assembly
p. 05212-6016-Decade counter
q. 05214-6014-Amplifier
r. 05512-6003-Decade counter

C-5. Submethod IA-14. The parts included in the following list are processed for preservation in accordance with submethod IA-14 of MIL-P-116. Submethod IA-14 requires that the part be wrapped and cushioned, enclosed in a snug-fitting carton or box, and then enclosed in a close-fitting heat-sealed opaque water-vaporproof bag, which shall then be enclosed in a carton or box. The outer container shall be closed by adhesive, tape, or other practicable means which will not permit the possibility of damage to the barrier material.

a. 11069592-Elevation amplifier
b. 11069595-Azimuth amplifier
c. 11069598-Elevation position error amplifier
d. 13152424-Power supply
e. 13153211 -Tracking signal processor
f. 131 53340-Camera/video signal processor
g. 13152220-Power supply
h. 131 53177-Receiver power supply
i. 13153186-Power supply
j. 13153190-Fan inverter
k. 13153187-Electronic interconnect unit
l 13153172-Video display control panel
m. 13153176-Tube assembly
n. 13152507-Afocal assembly
o. 13152564-Sensor assembly
p. 13153005-Detector-dewar
q. 13152956-Scan optics
r. 131 52521--Camera
s. 13153168-Vidicon optics
t. 13170726-Tracker test adapter
u. 1305961 5-Power loads assembly
v. 13059614-IR test assembly
w. 13152646-Power supply
x. 13152686-Power supply

C-6. Submethod IIb. Part numbers 11069750 (24V power supply) and 11069751 (175V power supply) are processed for preservation in accordance with submethod lib. Submethod lib requires that the part be wrapped and cushioned, enclosed (together with activated desiccant) in a snug fitting carton or box and then enclosed in a close-fitting heat sealed, transparent, water-vaporproof bag, which shall then be enclosed in a carton or box. A color change humidity indicator shall be firmly secured within the closing edge of the bag. The outer container shall be closed by adhesive, tape, or other practicable means which will not permit the possibility of damage to the barrier material.

C-7. Submethod IC-1. Part number 5212A-65C (decade divider) is processed for preservation in accordance with submethod IC-1 of MIL-P-116. Submethod IC-1 requires that the part be adequately wrapped and cushioned, then enclosed in a heat sealed opaque or transparent, grease-proof, water-vaporproof bag fabricated from materials that will afford protection to the enclosed part.

C-8. Submethod IIa. Part numbers 10233673 (hydraulic pumping unit) and 11069413 (hydraulic pumping unit) are processed for preservation in accordance with the following steps:

a. Fill unit to capacity with hydraulic preservative oil MIL-H-6083.

b. Cap hydraulic fittings and electrical connectors.

c. Center 48 x 44-inch water-vaporproof barrier material over container base and cut four holes in barrier to match the four tiedown bolt holes (fig. C-1).

d. Install the four tiedown bolts through the container base and pad and form an airtight seal around the tiedown bolts with gasket material.

e. Install barrier on container base and seal two gaskets to the barrier, one on each side of the barrier, at each of the tiedown bolts.

f. Center a 44 x 42-inch piece of single face corrugated fiberboard over the tiedown bolt holes and cut matching holes. Sandwich the fiberboard between the barrier and 1/2 x 3 x 4-inch plywood pads, and bring the fiberboard up and around the part on all sides.

g. Center 44 x 42-inch intimate wrap on container pad and cut matching tiedown bolt holes.

4 x 3 x 1/2 PLYWOOD PAD
NN-P-530 2-REQ'D

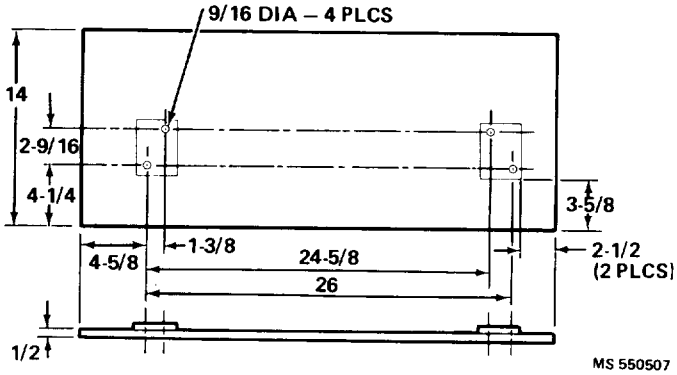


Figure C-1. HPU Packaging Mount Base

h. Place part over tiedown bolts with above items installed. Bolt down the part and bring intimate wrap and fiberboard up and around the part. Secure the wrap with tape.

i. Distribute and secure 24 units of desiccant around the part and install a plug type humidity indicator which will be visible through the container inspection port after the container is closed.

j. Bring barrier up and around part and heat seal all seams except for a small opening. Exhaust enough air to have the barrier lightly conform to the part, then completely heat seal the barrier.

k. Construct 34 x 14 x 12-inch overseas type container as follows:

(I) Make the base from 1/2-inch plywood (cleated on the bottom), and the sides, top, and ends from 5/16-inch plywood.

(2) Make the pad from 1/2-inch plywood with corners and edges rounded (fig. C-1).

(3) Cut inspection port (4 x 6 inches) in end panel to expose humidity indicator.

C-9. Method III. Part numbers 13007049 (mount drive control box), 13059206 (elevator/ retractor motor), 13153181 (IR receiver), and 11072125 (slipring assembly) are processed for mechanical and physical protection in accordance with method III of MIL-P-116. Detailed procedures for each of the parts are as follows:

a. Part No. 13007049, Mount Drive Control Box.

(1) Apply intimate wrap using two pieces of 24 x 24-inch, 4-mil polyethylene sheet placed between blocking and the part.

(2) Block using blocking as shown in figure C-2.

(3) Place in a fiberboard container (17-5/8 x 16-1/2 x 10 inches).

(4) Seal container using two pieces of 24 x 2-inch lengths of adhesive paper tape.

(5) Cushion, using corner blocking as shown in figure C-3.

(6) Enclose in plywood box (24 x 23 x 16-3/4 inches). Figure C-4 shows a cutaway view of the final package.

b. Part No. 13059206, Elevator/Retractor Motor.

(1) Place part in 24 x 16 x 0.004-inch polyethylene bag (intimate wrap).

(2) Cushion, using polyethylene foam blocks as shown in figure C-5.

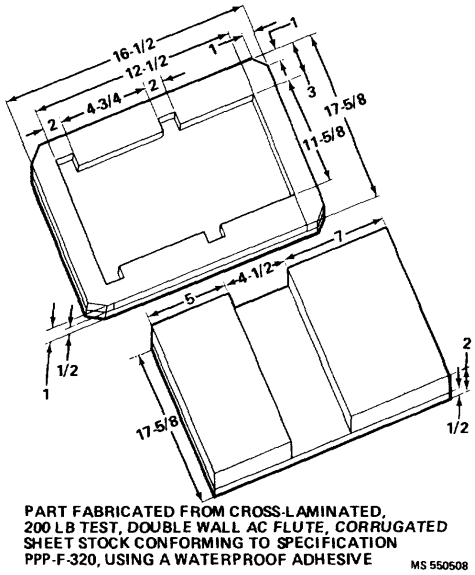


Figure C-2. Mount Drive Control Box Blocking Top and Bottom

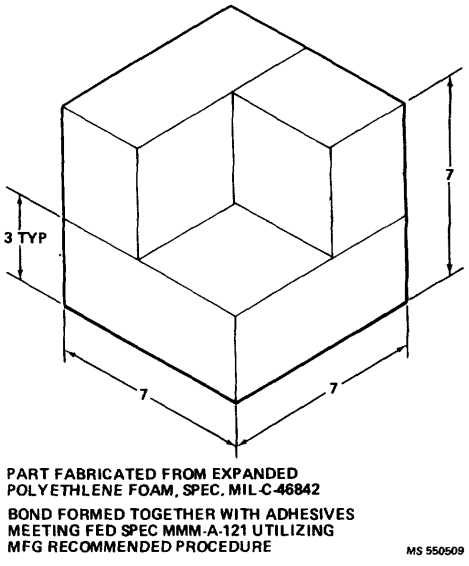


Figure C-3. Mount Drive Control Box Corner Block

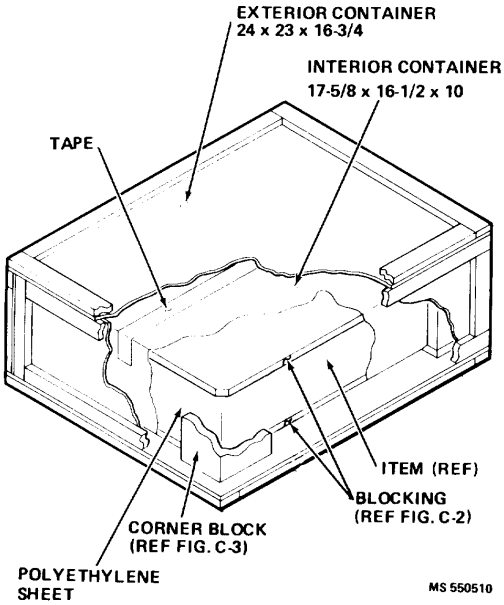


Figure C-4. Mount Drive Control Box Packaging

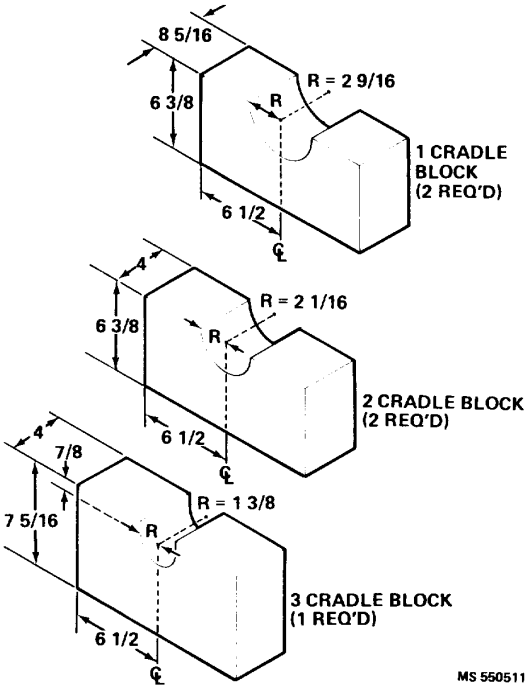


Figure C-5. Elevator and Retractor Motor Cradle Blocks

Figure C-6 shows an exploded view of the final packaging.

c Part No. 13153181, IR Receiver.

CAUTION

*** The IR receiver is a precision electro-optical instrument and must be handled carefully.**

(1) Construct a 2 x 2 x 2 feet support frame of 2 inch angle iron as shown in figure C-7.

(2) Bolt IR receiver to support frame with six mounting bolts, three through each support frame top cross-member.

(3) Construct the shipping crate base of 2 x 6 inches lumber as shown in figure C-7.

(4) Pad base with 3 inch thick urethane foam, covered with a three-fourths inch thick piece of plywood.

(5) IR receiver for preservation by enclosing IR receiver and support frame in Retractor Motor waterproof barrier material, MIL-B131F, type I, or equivalent. Evacuate and seal.

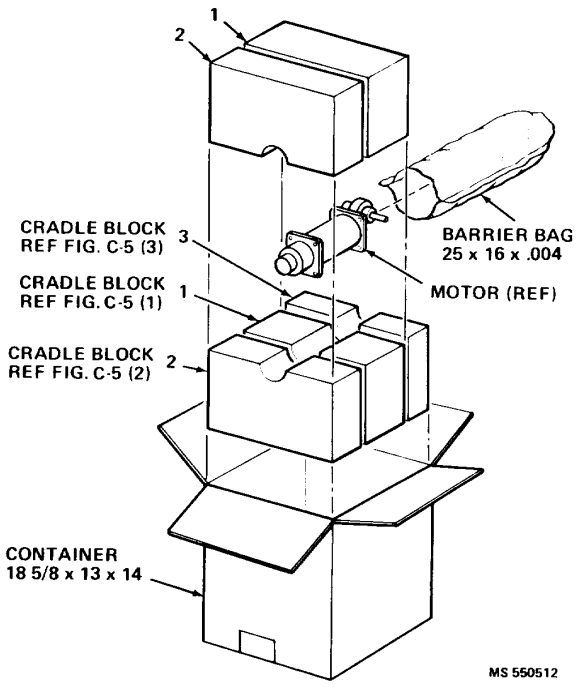


Figure C-6. Elevator and Retractor Motor Packaging

(3) Place in fiberboard container (18-5/8 x 13 x 14 inches).

(4) Seal container using two pieces of 25 x 2-inch lengths of adhesive paper tape.

(6) Place support frame on padded base and bolt into place as shown in figure C-7.

(7) Construct a three-eighths inch thick, plywood shell 3 x 3 x 3 feet square around support frame. Attach shell to base along all four edges.

(8) Using steel strap banding machine, band shell and base in three places as shown in figure C-7.

d. Part No. 11072125, Slipring Assembly.

(1) Line plywood container with barrier material and paper. (See figures C-8 through C-10.)

(2) Cushion all sharp edges and protrusions to prevent damage to barrier material. Use tape to attach cushioning material to assembly.

(3) Bolt slipring assembly into position between cradles and holddowns.

(4) Distribute eleven eight-unit bags of desiccant evenly around assembly and secure with tape or twine to prevent movement in transit.

(5) Fasten cover into place with nails.

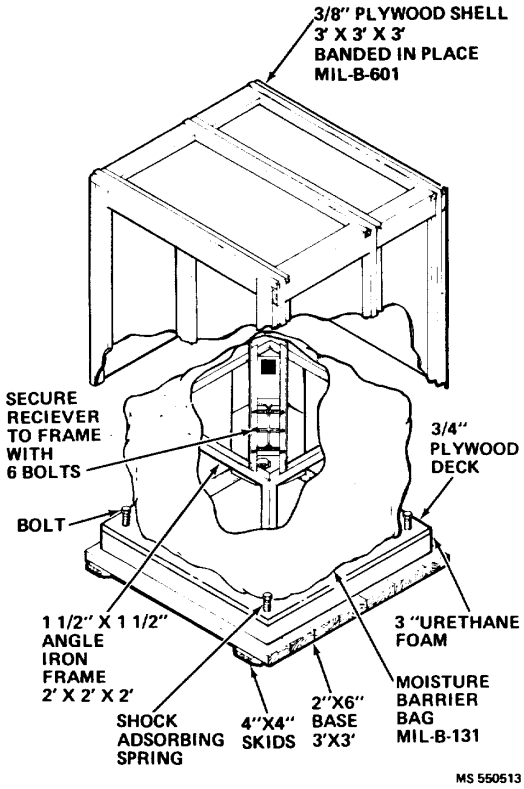


Figure C-7. IR Receiver Packaging

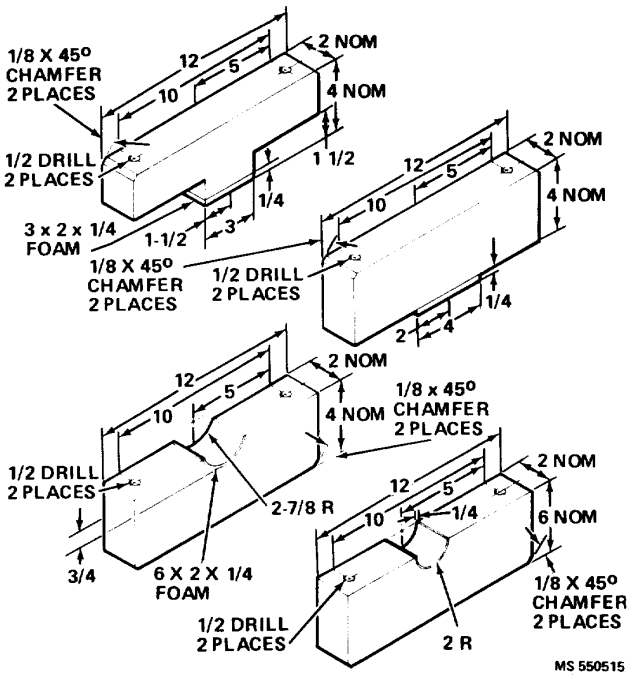


Figure C-8. Slipring Packaging

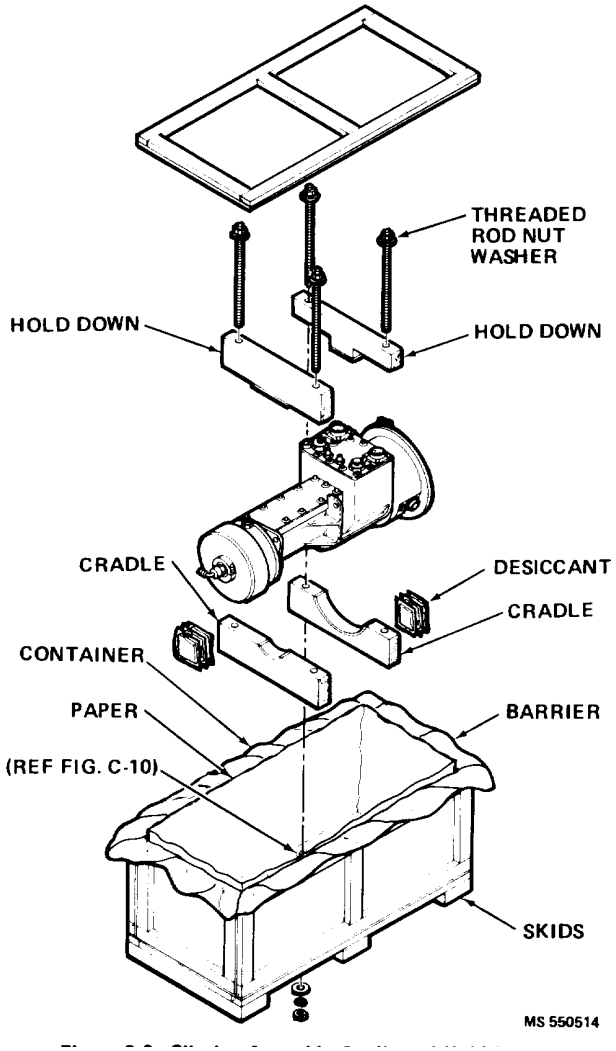


Figure C-9. Slipring Assembly Cradle and Hold Down

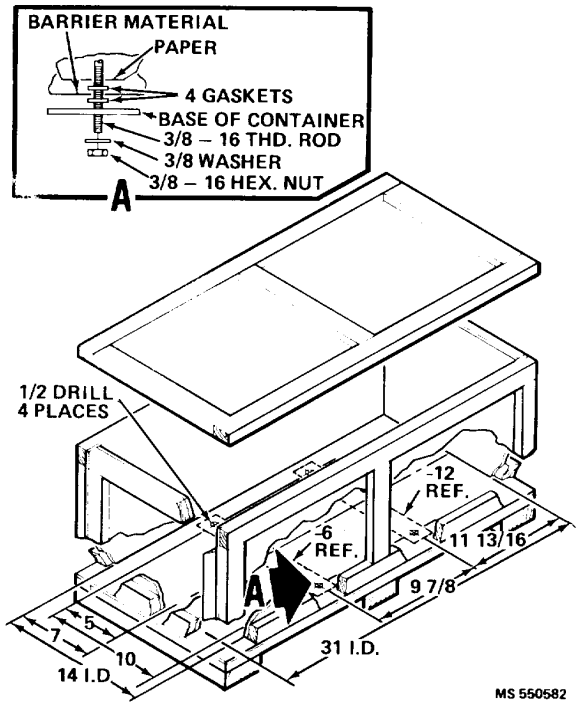


Figure C-10. Slipring Container Base Hole Layout

APPENDIX D

EXPENDABLE SUPPLIES AND MATERIALS LIST

Section I. INTRODUCTION

D-1. Scope. This appendix lists expendable supplies and materials you will need to operate and maintain the CHAPARRAL Launching Station. These items are authorized to you by CTA 50-970, Expendable Items (Except Medical, Class V, Repair Parts, and Heraldic Items).

D-2. Explanation of Columns

a. Column 1 Item Number. This number is assigned to the entry in the listing and is referenced to the narrative instructions to identify the material (e.g., Use cleaning compound, item 5, appx D).

b. Column 2 Level. This column identifies the lowest level of maintenance that requires the listed item.

C Operator/Crew
O Organizational Maintenance
F Direct Support Maintenance
H General Support Maintenance

c. Column 3 National Stock Number. This is the National Stock Number (NSN) assigned to the item; use it to request or requisition the item.

d. Column 4 Description. Indicates the Federal name and, if required, a description to identify the item.

The last line for each item indicates the part number followed by the Federal Supply Code for Manufacturer (FSCM) in parentheses, if applicable.

e. Column 5 Unit Of Issue. Indicates the measure delineated by the NSN. This measure is expressed by a two-character alphabetical abbreviation (e.g. EA IN. PR). Non-definitive units of issue are followed by quantities in parentheses (e.g., TU (4 OZ)).

Section II. EXPENDABLE SUPPLIES AND MATERIALS

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/I
1	F	8030-01-333-5880	KIT, PARTS, FOREST GREEN, ABLATIVE COATING REPAIR E943RK-1 (14439)	KT
1.1	F	8030-01-333-5879	KIT, PARTS, DESERT SAND, ABLATIVE COATING REPAIR E943RK-2 (14439)	KT
2			DELETED (USE ITEM 1 OR 1.1)	
3	F	6830-00-292-0138	ACETYLENE, TECHNICAL BBA106 (81348)	CY (10 CU FT)
4	F	8040-00-118-2695	ADHESIVE, SILICONE MIL-A-46146, TYPE 1 (81349)	TU (3 OZ)
5			DELETED (USE ITEM 4)	
6	O	8040-00-290-4301	ADHESIVE, RUBBER MMM-A-1617, TYPE 2 (80244)	CN (QT)
7	F	8040-01-036-3771	ADHESIVE, EPOXY MMM-A-134, TYPE 1 (80244)	KT
8	F	8040-00-270-8136	ADHESIVE, EPOXY MMM-A-134, TYPE 2 (80244)	KT
9			DELETED (USE ITEM 7)	
10	F	8040-00-127-5340	ADHESIVE, EPOXY FLEXIBLE MIS-16066 (18876)	KT
11	O	8030-00-264-3886	SEALING COMPOUND MIL-D-17951 (81349)	TU (5 OZ)
12	O	8040-00-270-8150	ADHESIVE 6244P (18873)	TU (1.75 OZ)
12.1	F	8040-00-165-8614	ADHESIVE, RUBBER MMM-A-121 (81348)	CN (OT)
13	O	8040-00-262-9025	ADHESIVE, RUBBER MMM-A-1617, TYPE 1 (80244)	TU (4 OZ)
14	C	6810-00-543-7415	ALCOHOL, DENATURED OE760 (81348)	CN (GL)
15	C	6505-00-261-7256	ALCOHOL, ISOPROPYL MIL-I-37443 (81349)	CN (QT)
15.1	F	8105-01-086-0450	BAG, WATERPROOF MIL-B-117, TYPE 1, CLB ST1	EA (80244)
15.1A	F	8105-01-235-2688	BAG, WATERPROOF MIL-B-117, TYPE 1, CLASS F, STYLE 1 (80244)	EA

Section II. EXPENDABLE SUPPLIES AND MATERIALS - Continued

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/I
15.2	F	8135-01-183-9804	BARRIER MATERIAL MIL-B-121, TYPE 1, GRACL1	EA (80244)
15.3	F	8135-01-261-2051	BARRIER MATERIAL MIL-B-131 CL1 (80244)	RO (300 FT)
16	C	6135-00-120-1020	BATTERY, DRY, 1-1/2V ELECTRIC FLASHLIGHT MIL-B-18-9 (81349)	PG (24 EA)
17	O	7920-00-223-8005	BRUSH, ACID HB643 TYPE 2, CLASS I	GR (80244)
18	H	8020-00-224-8026	BRUSH, ARTISTS H-B-1 18, TYPE II, SZ15/128	EA (81348)
19			DELETED (USE ITEM 21)	
20	O	7920-00-205-2401	BRUSH, CLEANING TOOL MIL-S-43871 (81349)	EA
21	C	8020-00-260-1306	BRUSH, VARNISH H-B-695, CLIGRB (80244)	EA
22	H	8020-00-597-5301	BRUSH, PAINT H-B-491 (81348)	EA
22.1	O	7920-00-269-1259	BRUSH, WIRE SCRATCH H-B-178 (81348)	EA
23	C	7920-00-291-5815	BRUSH, WIRE H-B-178 (81348)	EA
23.1	F	5340-01-043-7077	CAP PLUGS, PROTECTIVE MIL-C-5501/7 F13, F22 (81349)	EA
24	F	5350-00-192-5047	CLOTH, ABRASIVE (58536) A-A-1048	PG (50 EA)
25	C	7920-00-401-8034	CLOTH, LINT FREE A-A-162 (58536)	BL (50 LB)
26			DELETED (USE ITEM 1)	
26.1	F		COMPOUND, ASPHALT MASTIC	
26.2	F	8030-00-162-0602	COMPOUND, CAULKING A-A-272 TY1 (58536)	CN (5 LB)

Section II. EXPENDABLE SUPPLIES AND MATERIALS - Continued

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/I
27	C	6850-00-224-6657	COMPOUND, CLEANING, RIFLE BORE MIL-C-372 (81349)	CN (8 OZ)
27.1	F	8030-00-297-0189	COMPOUND, PLASTIC COATING MIL-C-6799, TYPE 2 CLASS 5 (80244)	CN (5 GL)
28	C	7930-00-935-3794	COMPOUND, POLISHING PP560TY1 (80244)	PT
29	F	8030-00-081-2339	COMPOUND, SEALING MIL-S-22473, GRADE A (80244)	BT (10CC)
30	F	8030-00-081-2341	COMPOUND, SEALING MIL-S-22473, GRADE AA (80244)	BT (10OCC)
31	F	8030-00-081-2337	COMPOUND, SEALING MIL-S-22473, GRADE AV (80244)	BT (10CC)
32	F	8030-00-823-7917	COMPOUND, SEALING MIL-S-22473, GRADE C (80244)	BT (50CC)
33	O	8030-00-081-2325	COMPOUND, SEALING MIL-S-22473, GRADE H (80244)	BT (50CC)
34	O	8030-00-247-2525	COMPOUND, SEALING MIL-S-45180 (81349)	TU (11 OZ)
35	O	8030-00-753-5007	COMPOUND, SEALING MIL-S-8802, TYPE 2, CLASS B-1/2 (80244)	CA (2.5 OZ)
36	O	6850-00-880-7616	COMPOUND, SILICONE MIL-S-8660 (81349)	TU (8 OZ)
37	O	6850-00-105-3084	CONTACT CLEANER, FREON MIL-C-81302 (81349)	CN (16 OZ)
38	F	9535-00-004-3529	COPPER, SHEET QQC-576 (81348)	SH (36 IN X 36 IN X 0.030)
39	F	9535-00-042-7885	COPPER, SHEET QQC-576 (81348)	SH (36 IN X 36 IN X 0.063)
40	F	9535-00-596-3306	COPPER, SHEET QQC-576 (81348)	SH (24 IN X 48 IN X 0.032)
40.1	F	8135-00-043-1729	CUSHIONING MATERIAL PPP-C-843, TYPE II, CLASS A (80244)	RO (6 IN X 35 FT)
40.1A	F	8135-01-057-3607	CUSHIONING MATERIAL PPP-C-1842 (80244)	RO (500 FT)

Section II. EXPENDABLE SUPPLIES AND MATERIALS - Continued

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/I
40.2	F	6850-00-270-3270	DESSICANT, BREATHER MIL-D-3716 (81349)	CN (5 LB)
41	C	4440-01-256-6928	DEHUMIDIFIER PACK 13238638 (18876)	EA
41.1	C	1430-01-104-9729	DESICCANT, CARTRIDGE 13059368 (18876)	EA
41.2	F	6850-00-264-6562	DESICCANT, STATIC MIL-D-3464 (81349)	CN
42	C	7930-00-282-9699	DETERGENT - GP MIL-D-1679 TYPE 1 (80244)	GL
42.1	F	5650-00-171-4725	FELT, ROOFING, 45 LB ASTM D224 TYPE 2 (81346)	RO (108 SQ FT)
42.2	F	8135-00-058-6196	FILM, POLYETHYLENE L-P-378 (81348)	RO (500 FT)
43	O	9150-00-223-4134	FLUID, HYDRAULIC MIL-H-5606 (81349)	GL
44	F	3439-00-914-8390	FLUX, BRAZING OF499 (81348)	LB
45	O	6830-00-264-9089	FREON 12 BBF1421 (81348)	CY (10 LB)
46	D	6830-00-292-0147	FREON 12 BBF1421 (81348)	CY (25 LB)
47			DELETED (USE ITEM 66)	
47.1	O	4240-00-269-7912	GOGGLES, SAFETY 5023A (30760)	EA
48	C	9150-00-961-8995	GREASE, PLUG VALVE (KRYTOX) MIL-G-27617, TYPE III (81349)	TU (8 OZ)
49	C	9150-00-985-7245	GREASE, AIRCRAFT & INSTRUMENT MIL-G-23827 (81349)	TU (8 OZ)
50	O	9150-00-190-0904	GREASE, AUTOMOTIVE & ARTILLERY MIL-G-10924 (81349)	CN (1.75 LB)
51	C	9150-00-754-2760	GREASE, GENERAL PURPOSE MIL-G-47219 (81349)	CN (1 LB)
52			DELETED (USE ITEM 51)	

Section II. EXPENDABLE SUPPLIES AND MATERIALS - Continued

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/I
53	C	9150-00-190-0926	GREASE, PLUG VALVE MIL-G-6032 (81349)	CN (8 OZ)
54	F	6850-00-177-5094	GREASE, SILICONE MIL-S-8660 (81349)	TU (12 OZ)
54.1	F	6685-00-752-8240	INDICATOR, HUMIDITY MS 20003-2 (96906)	CN
55	O	5640-00-198-7255	INSULATION, SHEET MIL-1-14511 (81349)	SH (0.312 IN X 36 IN X 36 IN)
56	F	3433-00-255-8953	KIT, BRAZING & SOLDERING 18A-189 (17941)	SE
57			DELETED	
58	C	1560-00-624-0175	KIT, POLISHING, PLEXIGLASS EAB20 (81996)	EA
59			DELETED	
60	O	8010-00-145-0299	LACQUER, RED FED-STD-595, NO. 21158 MIL-L-52043 (81349)	CN (OT)
61	O	8010-00-145-0307	LACQUER, BLACK FED-STD-595, NO. 27038 MIL-L-52043 (81349)	CN (QT)
62			DELETED (USE ITEM 63)	
63	O	6850-00-935-4068	LEAK DETECTOR 372-E (03530)	BX (12 4 OZ BTLS)
64			DELETED (USE ITEM 49)	
65	C	9150-00-168-2000	LUBRICANT, SOLID FILM MIL-L-46147 (81349)	CN (16 OZ)
66	F	9150-00-754-0064	LUBRICANT, SOLID FILM MIL-L-23398 (81349)	CN (12 OZ)
67			DELETED	
68	C	6810-00-281-2785	METHYL-ETHYL KETONE TECHNICAL TTM261 (81348)	GL

Section II. EXPENDABLE SUPPLIES AND MATERIALS - Continued

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/I
69	C	8010-00-558-7026	THINNER, PAINT, MINERAL SPIRITS TT-T-291 TYPE 1 (80244)	PL (5 GL)
70	F	6810-00-264-6715	MOLYBDENUM DISULFIDE MIL-M-7866 (81349)	LB
71	O	6810-00-223-9067	NAPTHA TT-N-97 (81348)	CN (GL)
72	C	9150-00-753-4667	OIL, LUBRICATING, AIRCRAFT AND AIR COMPRESSOR BMS 3-7A (81205)	CN (QT)
73	C	9150-00-186-6681	OIL, ENGINE LUBRICATING (ABOVE 32°F) GRADE 30 MIL-L-2104 (81349)	CN (QT)
74	C	9150-00-189-6727	OIL, ENGINE LUBRICATING (BELOW +40°F to -10°F) GRADE 10 MIL-L-2104 (81349)	CN (QT)
75	C	9150-00-255-3929	OIL, ENGINE LUBE (ABOVE 32°F) GRADE 1065 MIL-L-22851 (81349)	CN (5 GL)
76	C	9150-00-402-4478	OIL, ENGINE LUBRICATING (BELOW 0°F to -65°F) APG-1 (52195)	OT
76.1	C	9150-01-290-2943	OIL, HYDRAULIC, PRESERVATIVE MIL-H-6083 (81349)	CN (PT)
77	C	9150-00-108-5359	OIL, LUBRICATING AIRCRAFT TURBINE ENGINE MIL-L-7808 (81349)	CN (8 OZ)
78	C	9150-00-273-2389	OIL, GENERAL PURPOSE LUBRICATING VV-L-800 (81348)	CN (4 OZ)
78.1	O	9150-00-111-3199	OIL, LUBRICATING, ENGINE MIL-L-21260 (81349)	CN (GL)
79	F	9150-00-598-2911	OIL, REFRIGERANT LUBRICATING COMPRESSOR VV-L-825 (81348)	CN (QT)
79.1	F	8135-01-086-4632	PAD, POLYETHYLENE PPP-C-1 752	EA

Section II. EXPENDABLE SUPPLIES AND MATERIALS - Continued

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/I
80	C	7920-00-659-9175	PAD, SCOURING LP0050 TYPE 1, SIZE 1 (80244)	EA
81	C	8030-00-290-5141	COATING, BATTERY BOX BITUMINOUS COMPOUND MIL-C-450 (81349)	GL
82 THRU 96			REFER TO TM 43-0139	
97	O	5350-00-721-8117	PAPER, EMERY A-A-1047 (58536)	PG (50 EA)
97.1	F	8135-00-558-1242	PAPER, NON-CORROSIVE MIL-P-17667 (81349)	RO (600 FT)
98	O	8040-00-777-0631	PATCH KIT, EPOXY SM-A-597838-2 (80063)	KT
99			DELETED (USE ITEM 33)	
100	O	8010-00-899-8825	PRIMER TTP-1757 (81349)	CN (PT)
101			DELETED (USE ITEM 1)	
102			DELETED (USE ITEM 1)	
103	O	8040-00-485-9578	PRIMER, ADHESIVE MIS-16067 (18876)	CN (16 OZ)
104	O	8010-00-082-2450	PRIMER COATING MIL-P-23377 (81349)	KT (1 GL)
105	O	8010-00-582-5318	PRIMER, ZINC CHROMATE TT-P-1757 (81348)	GL
106	C	7920-00-205-1711	RAG, WIPING DDD-R-30 GRADE B (81348)	BE (50 LB)
106.1	O	4240-00-022-2524	RESPIRATOR MASK GGG-M-125/6 (81348)	KT
107	F	9320-00-104-2456	RUBBER, SILICONE ZZR765 (81348)	SH (0.062 IN X 36 IN X 36 IN)
108	O	9320-00-059-6504	RUBBER, SYNTHETIC MIL-R-6855 (81349)	SH (0.125 IN)

Section II. EXPENDABLE SUPPLIES AND MATERIALS - Continued

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/I
108.1	F	7240-00-240-6957	SAFETY CAN, LIQUID, 1 GAL. A-A-1702 (58536)	EA
109	O	8040-00-225-4548	ADHESIVE MIL-A-46106 (81349)	CN (12 OZ)
110			DELETED	
111	F	5970-00-812-2967	SLEEVE, INSULATION, HEAT SHRINK 1/2 IN. FIT 221 1-2 BLACK (92194)	FT
112	F	5970-00-724-1916	SLEEVING, INSULATION, HEAT SHRINK 1/4 IN. SMD663650-3 (80063)	FT
113	F	5970-00-809-9134	SLEEVING, VINYL 0.12 ID MIL-1-7444 (81349)	FT
114	C	6810-00-264-6618	SODIUM BICARBONATE OS 576 (81348)	LB
115	F	3439-00-896-8746	SOLDER, LEAD-TIN ALLOY QQ-S-571 (81348)	LB
116	O	3439-00-184-8952	BRAZING ALLOY, SILWIRE OOQQ-S-561-CLASS 4 (81348)	TO
116.1	F	8135-00-956-2146	SEAL, STRAPPING PPP-S-760 (81348)	BX
116.2	F	8135-00-239-5291	SEAL, STRAPPING QQ-S-781 (81348)	BX
117	C	6810-00-281-2001	ETHYLENE GLYCOL TTE776 (81348)	GL
118	O	6850-00-110-4498	SOLVENT, DRY CLEANING PP680 (81348)	CN (PT)
119	C	6810-00-290-0048	SOLVENT, TOLUENE TT-T-548 (81348)	CN (5 GL)
120	F	5940-01-079-1647	SPLICE, SOLDERLESS MS25181-1 (96906)	EA
121			DELETED	
122	F	6810-00-270-9989	TALC, TECHNICAL MIL-STD-1444 (96906)	LB

Section II. EXPENDABLE SUPPLIES AND MATERIALS - Continued

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/I
123	F	7510-00-472-4021	TAPE, PRESSURE SEN MIL-T-23142 (81349)	RO (72 YD)
123.1	F	7510-00-053-0942	TAPE, PRESSURE SEN PPP-T-97 (81348)	RO (60 YD)
124	F	5970-00-877-8591	TAPE INSULATION, ELECTRICAL MIL-I-19166 (81349)	RO (108 FT)
125	C	5970-00-543-1154	TAPE, INSULATING, ELECTRICAL MIL-1-15126, TYG FT (80244)	RO (60 YD)
126	C	7510-00-663-0199	TAPE, MASKING A-A-1586 (58536)	RO (60 YD)
126.1	F	7510-00-656-0467	TAPE, PAPER SEALING A-A-1683 (58536)	RO (60 YD)
126.2	F	7510-00-059-9062	TAPE, PRESERVATION MIL-T-22085 (81349)	RO (36 YD)
127	C	7510-00-110-4060	TAPE, PRESSURE SENSITIVE MIS-16260 (18876)	RO (60 YD)
127.1	C	7510-01-054-4067	TAPE, PROTECTIVE, PRESSURE SENSITIVE MIL-T-38727 (81349)	RO (30 YD)
128	C	8030-00-889-3535	TAPE, ANTISEIZING MIL-T-27730 (81349)	EA
129	C	8010-00-162-5289	THINNER, PAINT MIL-T-6095 (81349)	GL
130	O	6810-00-924-7107	TRICHLOROETHYLENE O-T-634 (81348)	GL
131			DELETED (USE ITEM 130)	
132	F	4020-00-656-1125	TAPE, LACING AND TYING MIL-T-43435 (81349)	SL (500 YD)
133	C	9505-00-293-4208	WIRE, SAFETY LOCK MS20995C32 (96906)	LB
134	F	9505-00-062-4175	WIRE, SAFETY LOCK ASTM A580 (81346)	LB
135	C	6810-00-584-4070	XYLENE, TECHNICAL 809847 (19203)	CN (5 GL)

Section II. EXPENDABLE SUPPLIES AND MATERIALS - Continued

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/I
121			DELETED	
122	F	6810-00-270-9989	TALC, TECHNICAL MIL-STD-1444 (96906)	LB
123	F	7510-00-472-4021	TAPE, DISSIMILAR METAL SEPARATION MIL-T-23142 (81349)	RO (72 YD)
123.1	F	7510-00-053-0942	TAPE, FILAMENT 1-IN. PPP-T-97 (80244)	RO (60 YD)
124	F	5970-00-877-8591	TAPE INSULATION, ELECTRICAL MIL-1-1966 (81349)	RO (108 FT)
125	C	5970-00-543-1154	TAPE, INSULATING, ELECTRICAL MIL-I-15126, TYG (81349)	RO (60 YD)
126	C	8135-00-663-0199	TAPE, MASKING PPP-T-60 (81348)	RO (60 YD)
126.1	F	7510-00-656-0467	TAPE, PAPER SEALING PPP-T-76 (81348)	RO (60 YD)
126.2	F	7510-00-059-9062	TAPE, PRESERVATION M I L-T-22085 (81348)	RO (36 YD)
127	C	7510-00-110-4060	TAPE, PRESSURE SENSITIVE MIS-16260 (18876)	RO (60 YD)
128	C	8030-00-889-3535	TAPE, ANTISEIZING M I L-T-27730 (81349)	RO (30 YD)
129	C	8010-00-162-5289	THINNER, DOPE AND LACQUER M I L-T-6095 (81349)	GL
130	0	6810-00-924-7107	TRICHLORETHANE O-T-634 (81348)	GL
131			DELETED (USE ITEM 130)	
132	F	4020-00-656-1125	TAPE, LACING AND TYING M I L-T-43435 (81349)	SL (500 YD)
133	C	9505-00-293-4208	WIRE, SAFETY LOCK MS20995C32 (96096)	LB
134	F	9505-00-062-4175	WIRE, SAFETY LOCK QQW423 (81348)	LB
135	C	5810-00-584-4070	XYLENE TTX916 (81348)	CN (5 GL)

By Order of the Secretary of the Army:

JOHN A. WICKHAM, JR.
General, United States Army
Chief of Staff

Official:
ROBERT M. JOYCE
Major General, United States Army
The Adjutant General

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