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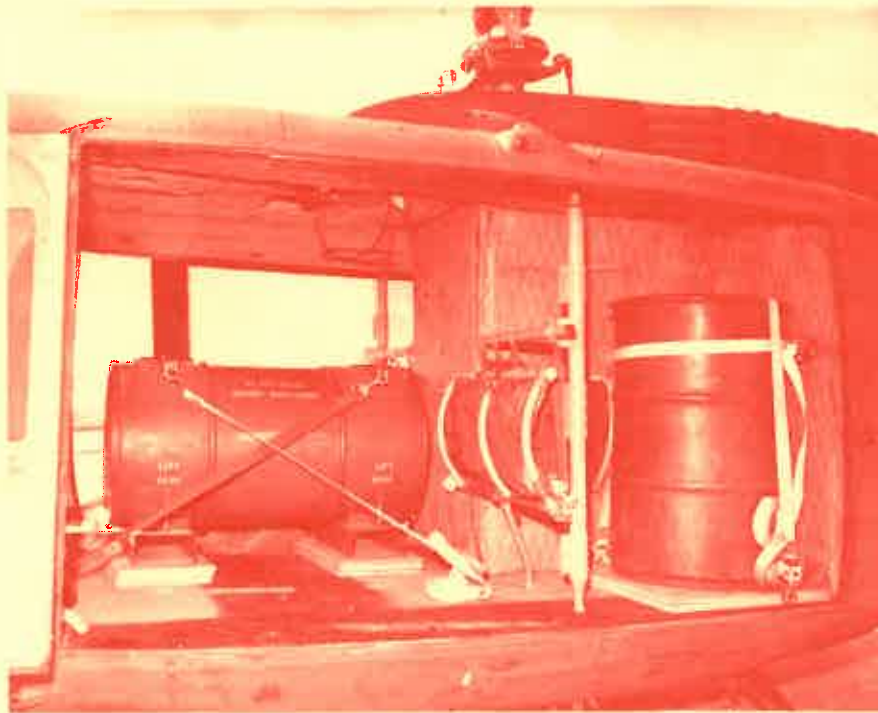
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FM 55-226

FIELD MANUAL

AIR TRANSPORT PROCEDURES

TRANSPORT OF THE W45-3 WARHEAD IN CONTAINER, H815,  
FOR MEDIUM ATOMIC DEMOLITION MUNITION (MADM)  
BY US ARMY HELICOPTERS



HEADQUARTERS, DEPARTMENT OF THE ARMY  
AUGUST 1983

## AIR TRANSPORT PROCEDURES

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\*This manual supersedes FM 55-226, 22 October 1979.

# CHAPTER 1

## INTRODUCTION

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### 1-1. Purpose and Scope

a. This manual presents Department of the Army approved procedures for transport of the W45-3 warhead in shipping and storage container, H815, by US Army helicopters. The W45-3 warhead in container, H815, is a component of atomic demolition charges (ADC) M167, M172, and M175 for the medium atomic demolition munition (MADM). Materials and qualified personnel needed to prepare, load, tie down, and unload, or to rig and derig, the container are prescribed here. Responsibilities of the consignor, consignee, and unit providing transportation are shown in chapter 4, AR 50-5. References are shown in the appendix.

b. The procedures in this manual provide for internal and external transport of one or more containers, H815, with W45-3 warheads, by UH-1-series, UH-60, CH-47, and CH-54 helicopters.

c. Internal transport may include other cargo, such as different types of nuclear weapons and/or personnel within helicopter load capacity and restrictions prescribed by AR 50-5 or FM 100-50, whichever is appropriate, and pertinent safety regulations (app). transported.

d. This manual also provides for emergency internal and external movement of the container, H815, with W45-3 warhead, by helicopter.

e. Times given to prepare, load, tie down, and unload, or to rig and derig, the loads described in this manual may vary according to existing conditions and the training of personnel involved.

### 1-2. Reporting of Publication Improvements

Users of this publication are encouraged to recommend changes and give comments for its improvement. Comments should be prepared on DA Form 2028 (Recommended Changes to Publications and Blank Forms) and forwarded to Commander, Military Traffic Management Command Transportation Engineering Agency, ATTN: MTT-TRC, PO Box 6276, Newport News, VA 23606 (electrically transmitted messages should be addressed to: CDRMTMCTEA FT EUSTIS VA //MTT-TRC//).

### 1-3. Warnings, Cautions, and Notes

a. *Warning.* Instructions that, if not followed, could result in injury to or death of personnel.

b. *Caution.* Instructions that, if not strictly observed, could result in damage to, or destruction of, equipment.

c. *Notes.* A brief statement for use as necessary to emphasize a particular operating procedure, condition, and so forth.

## CHAPTER 2

# GENERAL SAFETY AND SECURITY MATTERS

### WARNING

*During a logistical movement of nuclear weapons by US Army aircraft, jettisoning is not authorized. During emergency movements (external transport by helicopter, chap 5 and 6), the in-flight emergency procedures prescribed by the appropriate aircraft operator's manual will apply (para 4-3i and para 4-3l, AR 50-5).*

#### 2-1. Warnings

The following warnings will be observed by personnel performing operations, procedures, and practices that are included or implied in this manual. Disregard for these warnings could result in personal injury or loss of life.

a. Before each nuclear cargo mission, the helicopter commander will be familiar with AR 50-5, AR 50-5-1, AR 95-27, and FM 100-50 and insure compliance therewith. Also, the commander will become familiar with the security, safety, and technical peculiarities of the cargo that may affect air transport. Flight plans will include provisions for avoiding built-up and heavily populated areas. When transporting the container, H815, with W45-3 warhead in the universal military pod by CH-54 helicopter, the pod must be secured to the helicopter to prevent jettisoning the pod deliberately or inadvertently. Procedures for securing the pod to prevent jettisoning are prescribed in TM 55-1520-217-10/1 and TM 55-1520-217-10/2.

b. Ordnance support channels must be consulted for a determination of compatibility of any other nuclear weapons or other cargo (as authorized by chapter 4, AR 50-5; chapter 1, AR 55-203; and FM 100-50) for transport with W45-3 warhead. Information on compatibility is shown in TM 39-45-51C and TM 38-250, which are distributed to major headquarters and to direct support and general support levels. Restrictions listed in TM 39-20-7 will not be exceeded when other types of nuclear weapons are transported along with the warhead.

c. A maximum of nine W45-3 warheads in containers, H815, may be transported in a single group without waiver (TM 39-20-7, TM 39-45-51A, and TM 39-45-51C). Existing conditions and the allowable cargo load (ACL) may reduce the quantity.

d. Emergency-destruction procedures for the W45-3 warhead are shown in TM 39-50-8. Nor-

mally, emergency-destruction materials will not be carried on the same helicopter with nuclear weapons. However, the operational commander may authorize transport of emergency-destruction materials (including blasting caps or pre-capped charge lines) in the load-carrying helicopter. Such materials will be packaged as authorized for transport, isolated from weapons as far as possible, and tied down to prevent movement. Only the number of destruction charges and blasting caps or pre-capped charge lines necessary to destroy the warhead will be carried aboard. Blasting caps or pre-capped charge lines in their container (M2- and M19-series ammunition boxes are recommended) will be tied down separately and surrounded by a restrained sandbag barrier. Transport of electric blasting caps or pre-capped charge lines in helicopters is governed by paragraph C-26, TM 9-1300-206.

e. Containers, H815, with W45-3 warheads will be loaded and tied down in accordance with the procedures in this manual, except that they may be repositioned for helicopter operational reasons or when loading other nuclear weapons or other cargo and/or personnel. Mandatory requirements for minimum spacing, numerical limits, and type of array for transport of the warhead are prescribed by TM 39-20-7 and TM 39-45-51A. If a location other than that shown in the respective tiedown diagram is used, the helicopter commander must insure that:

(1) The number and load capacity of the tiedown devices are as prescribed in this manual.

(2) Tiedown devices restraining the container, H815, with W45-3 warhead, are secured to tiedown fittings in the same location relative to the container as those fittings used in the pertinent tiedown diagram. Required restraint will be provided when the depicted tiedown pattern is maintained.

(3) The requirements prescribed by TM 39-20-7 and TM 39-45-51A are fulfilled.

#### 2-2. Operational Precautions

The following operational precautions apply during loading, rigging, tying down, transporting, and unloading of the container, H815, with W45-3 warhead.

a. Web-strap tiedown assemblies used to secure the items described in this manual are limited to a maximum time of usage (useful life) of 36 months. The time of usage will start when the tiedowns are

unpacked for use by the using organization. At that time, they will be marked, with stencil ink TT-I-1795 (any contrasting color), to show the unpacking date (month and year), in at least 1/2-inch-high letters near the hook end of the strap. At the end of the 36-month useful life, the tiedowns will be marked with a 2-inch-wide band on both sides of the strap, near the previously marked date, with yellow (number 33538) stencil ink TT-I-1795 or enamel TT-E-516.

b. Before each use, tiedowns and cargo slings will be inspected for burns, tears, punctures, or cuts. Also, metal items will be inspected for improper operation, corrosion, cracks, or distortion. If any of these conditions are present, the tiedowns or slings must be replaced. No strength testing of tiedowns or slings will be made. Other storage, inspection, and maintenance criteria for tiedowns and slings are prescribed by 55-450-series technical manuals (app).

#### NOTE

The CGU-1/B is the tiedown strap identified in the tables throughout this manual. However, the strap, web, universal tiedown (NSN 5340-00-980-9277) or the strap, web, tiedown (NSN 5340-01-089-4997) may be used in place of the CGU-1/B tiedown strap (NSN 1670-00-725-1437). Each identified tiedown strap has a rated strength of 5,000 pounds.

c. Serviceable web-strap tiedown assemblies in use more than 36 months may be used to transport nuclear weapon trainers and training devices and other cargo (para 4-3h, AR 50-5). However, when the helicopter or pod is transporting the W45-3 warhead or other nuclear weapon or component, all tie downs, to include those used to secure weapon trainers, training devices, and other cargo, must meet the 36-month useful life criterion.

d. Inspect the nylon cargo nets to insure their serviceability. Cargo nets in questionable condition will not be used and will be appropriately marked.

e. When attaching tiedown devices to cargo and to tiedown fittings, about equal tension must be kept throughout tiedown arrangements. Tighten the tiedowns to prevent movement of cargo, and secure loose ends of straps. Tiedowns must be checked during flight and tightened as necessary.

f. Security and safety measures relative to guards, fire, or emergency destruction procedures, as established by pertinent publications (app), apply during all phases of air transport. All operations described here will be in strict compliance with AR 50-5, AR 50-5-1, AR 50-106, TM 9-1300-206, TM 9-1100-226-20, and FM 100-50.

g. The high noise level of helicopter engines and helicopter auxiliary power unit can cause permanent damage to hearing. All personnel working in the vicinity will wear hearing protectors and avoid entering engine noise danger area. Also, external cargo hookup personnel will wear goggles and protective headgear (hard hat, steel helmet, or flight helmet), and will use static electricity discharge probe, NSN 1670-00-574-8044, or a locally made probe.

h. Passenger seats must be available for the minimum-essential security personnel (courier officer and guard).

i. The W45-3 warhead must not be exposed to a temperature of less than  $-65^{\circ}\text{F}$  ( $-54^{\circ}\text{C}$ ).

j. Helicopters and universal military pods will be searched and inspected for unauthorized personnel and equipment and any possible sabotage. The search and inspection will be conducted by the helicopter commander. Entry controls will be established by the courier officer to maintain security integrity until completion of the nuclear mission.

## CHAPTER 3

### AIR TRANSPORTABILITY AND HANDLING DATA

#### 3-1. General

*a.* This chapter identifies the container, H815 (fig. 3-1), for the W45-3 warhead and the limitations for its internal and external transport by helicopter.

*b.* Approximate dimensions and weight of the container, H815, with W45-3 warhead, are as follows:

Dimensions			Weight
Length	Width	Height	
42.0 in (1.07 m)	24.0 in. (0.61 m)	28.0 in. (0.71 m)	391 lb (177 kg)

Each of the two container skids is 20 inches (0.50 m) long and 8 inches (0.20 m) wide. The distance from center to center of the skids is 29 inches (0.74 m). The four tiedown and lift provisions are located 6 inches (0.15 m) from the ends of the container, near the top.

*c.* Personnel dosimetry (film badge) or special radiological handling procedures are not required, unless otherwise specified, for any personnel (including aircrew) engaged in operations described in this manual.

*d.* The container, H815, may be air transported

with its cover end facing forward, aft, right, or left in the cargo compartment. (Tiedown diagrams in this manual show the cover end facing aft.) The container center of balance is about 24 inches (0.61 m) from the cover end.

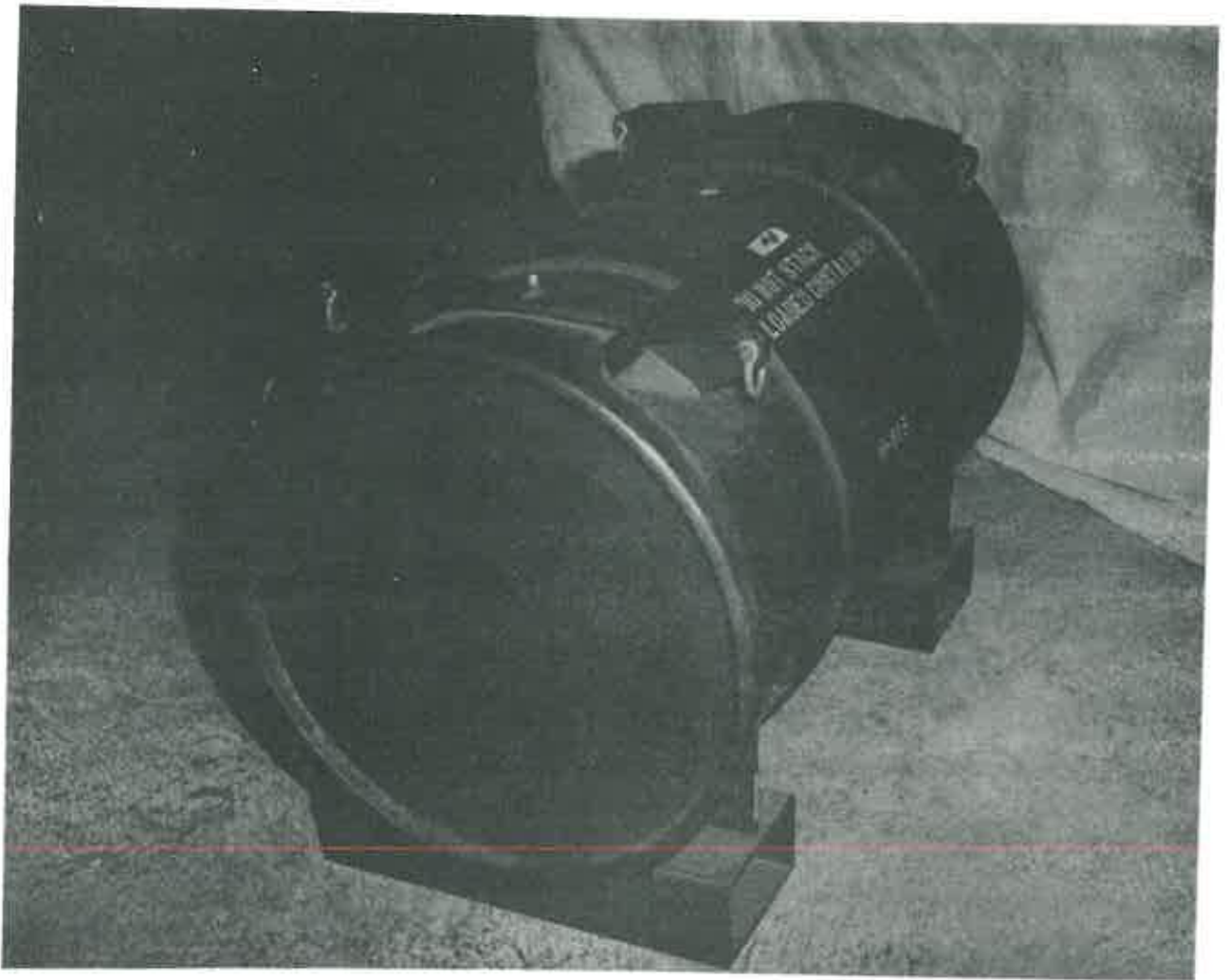
*e.* The cover on the container, H815, must be secured and the lead seal must be present.

*f.* The helicopter center of balance must be computed for all loads, to include number and location of nuclear-weapon security personnel (two-man concept).

#### 3-2. Air Transport Limitations

*a.* The container, H815, with W45-3 warhead, will normally be transported as an internal load (chap 4). However, under emergency conditions, it can also be transported as an external load (chap 5). The determination that external transport is justifiable will be approved by the commander authorizing the emergency evacuation.

*b.* Transport of the warhead in a single group when exceeding the limitations shown in paragraph 2-1c must be accomplished by waiver under the provisions of TM 39-45-51A and TM 39-20-7.



*Figure 3-1. Container, H815, for W 45-3 warhead.*

## CHAPTER 4

# INTERNAL TRANSPORT BY HELICOPTER

### WARNING

Insure that the universal military pod is secured to the CH-54 helicopter to prevent jettisoning the pod either deliberately or inadvertently (para 2-1a).

### NOTE

Materials, procedures, and times for transport of one container, H815, follow and are to be adjusted when transporting multiple containers.

#### 4-1. Materials and Procedures for Transport of Container, H815, With W45-3 Warhead (Handcarry Method)

### NOTE

Handcarry method is the primary method for all helicopters.

#### a. Materials.

(1) UH-60A helicopter. Parking shoring, plywood, one piece, 46- by 28- by 1/4-inch, or equivalent.

(2) CH-47 and UH-1D/H helicopters and CH-54 universal military pod. Parking shoring, plywood, one piece, 48- by 32- by 3/4-inch (may be used but is not required).

#### b. Loading.

(1) Handcarry container into helicopter or uni-

versal military pod and position at tiedown location (on parking shoring if used). (Four persons can prepare, load, and tie down the container in about 5 minutes.)

(2) Tie down the container in the respective helicopter or pod in accordance with the following figures and tables:

<i>Helicopter</i>	<i>Figure No.</i>	<i>Table No.</i>
CH-47	4-1	4-1
UH-1D/H	4-2	4-2
CH-54 (universal military pod)	4-3	4-3
UH-60A	4-4	4-4
	4-5	
	4-6	
	4-7	4-5
	4-8	

### NOTE

Single containers, H815, may be loaded in either of the two positions shown in figure 4-4.

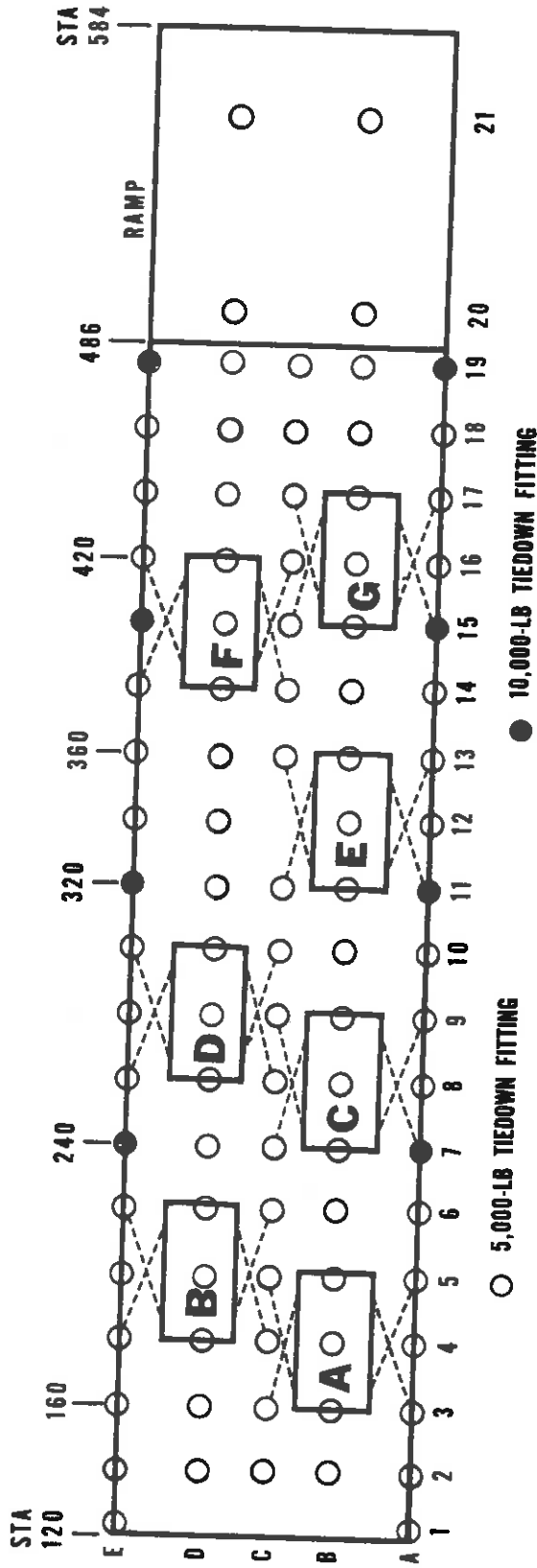
### NOTE

Containers, H815, may be repositioned from locations shown in figure 4-4 to accommodate other cargo or personnel, or for helicopter operational reasons. The required restraint will be provided if the depicted tiedown pattern is maintained.

c. Unloading. Four persons can unload the container in about 5 minutes.

- Figure 4-1. Tiedown diagram for container, H815, with W45-3 warhead, in CH-47 helicopter.*
- Figure 4-2. Tiedown diagram for container, H815, with W45-3 warhead, in UH-1D/H helicopters.*
- Figure 4-3. Tiedown diagram for container, H815, with W45-3 warhead, in CH-54 helicopter universal military pod.*
- Figure 4-4. Tiedown diagram for one container, H815, with W45-3 warhead, in UH-60A helicopter.*
- Figure 4-5. Right side view of a single container, H815, with W45-3 warhead, loaded into the UH-60A helicopter in position I as shown in tiedown diagram in figure 4-4.*
- Figure 4-6. Right side view of a single container, H815, with W45-3 warhead, loaded into the UH-60A helicopter in position II as shown in tiedown diagram in figure 4-4.*
- Figure 4-7. Tiedown diagram for two containers, H815, with W45-3 warheads, in UH-60A helicopter.*
- Figure 4-8. Right side view of two containers, H815, with W45-3 warheads, loaded into the UH-60A helicopter as shown in tiedown diagram in figure 4-7.*





NOTE: UTILITY HATCH DOOR IS LOCATED IN THE CENTER OF THE FLOOR BETWEEN STATIONS 320 AND 360.

Figure 4-1. Tiedown diagram for container, H815, with W45-S warhead, in CH-47 helicopter.

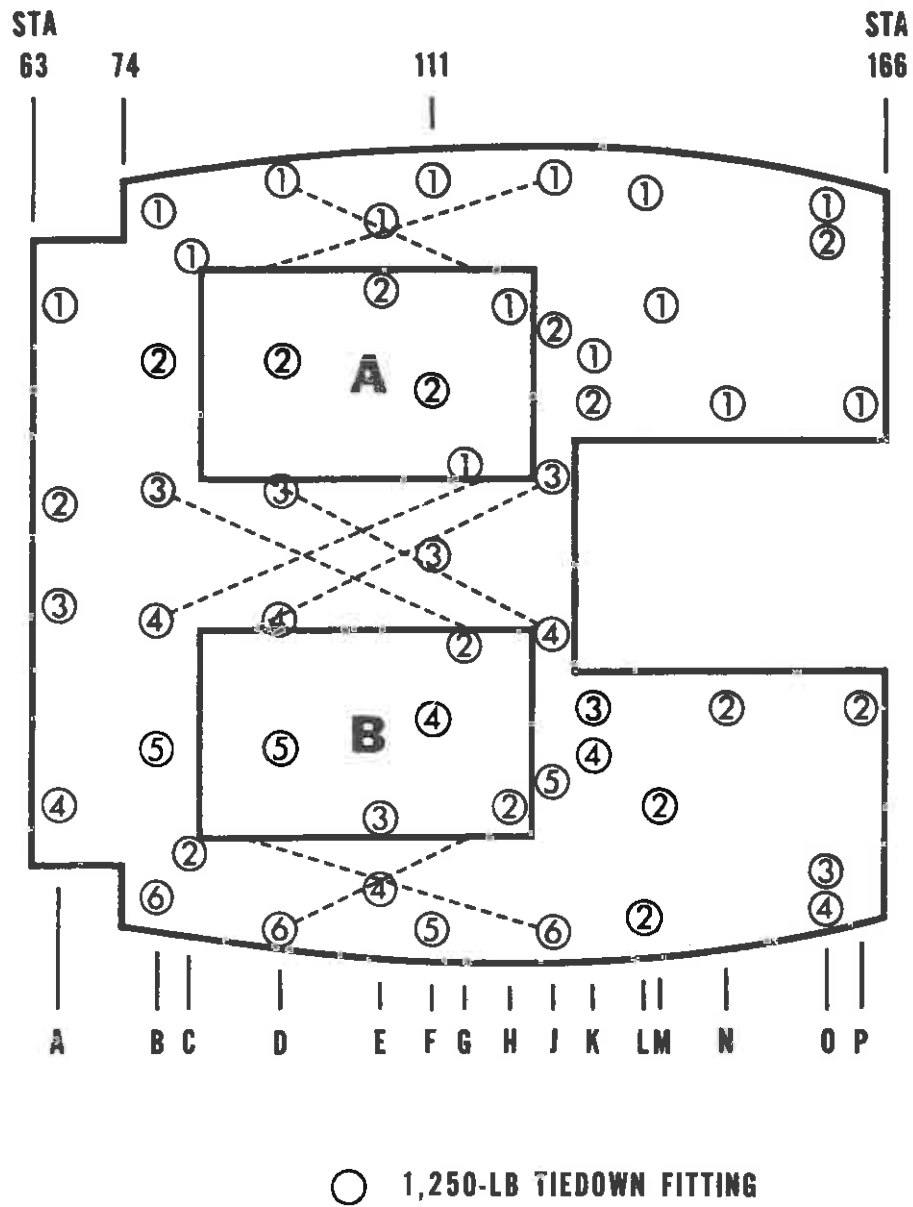


Figure 4-2. Tiedown diagram for container, H815, with W 45-3 warhead, in UH-1D/H helicopters.

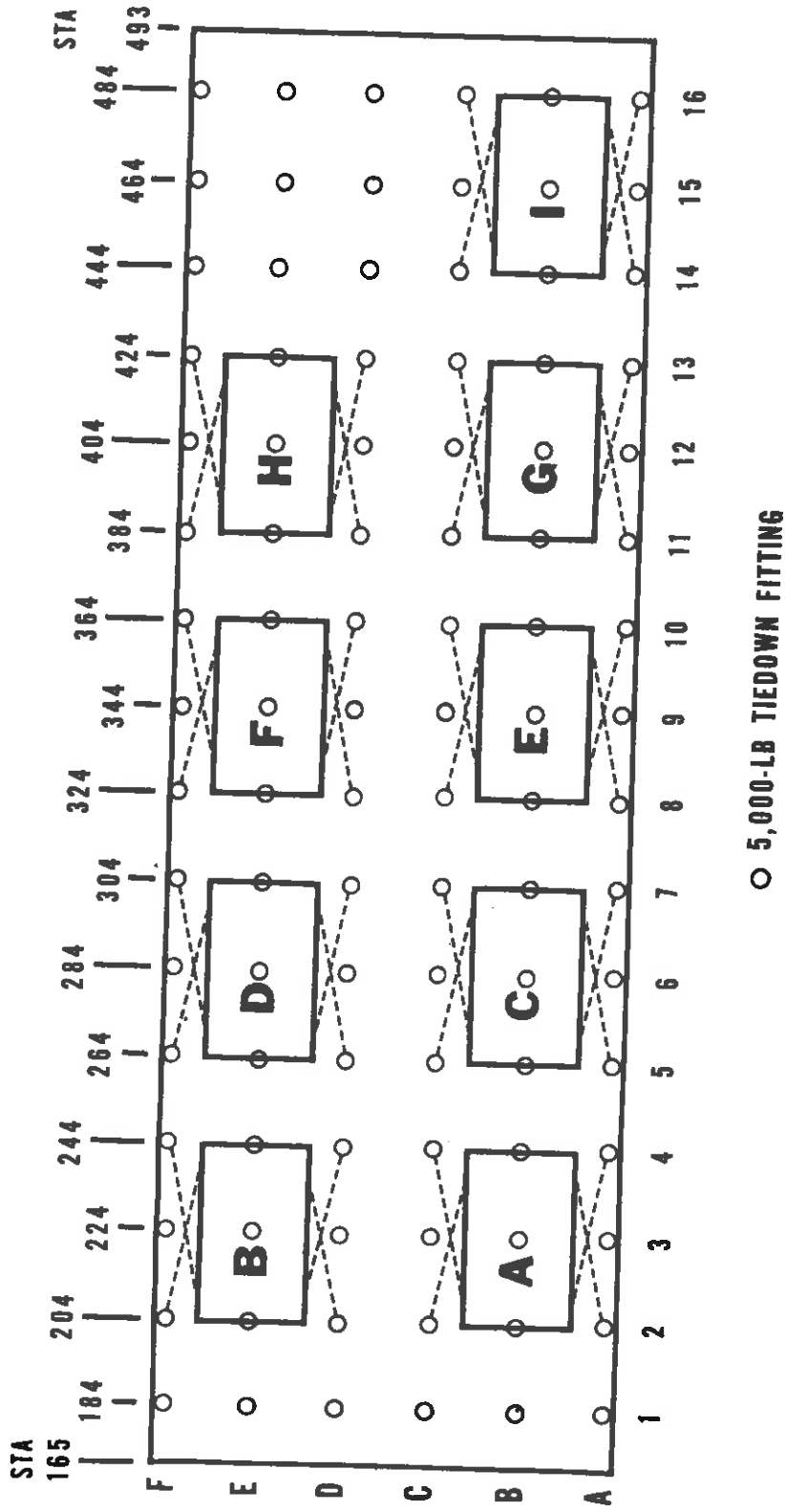
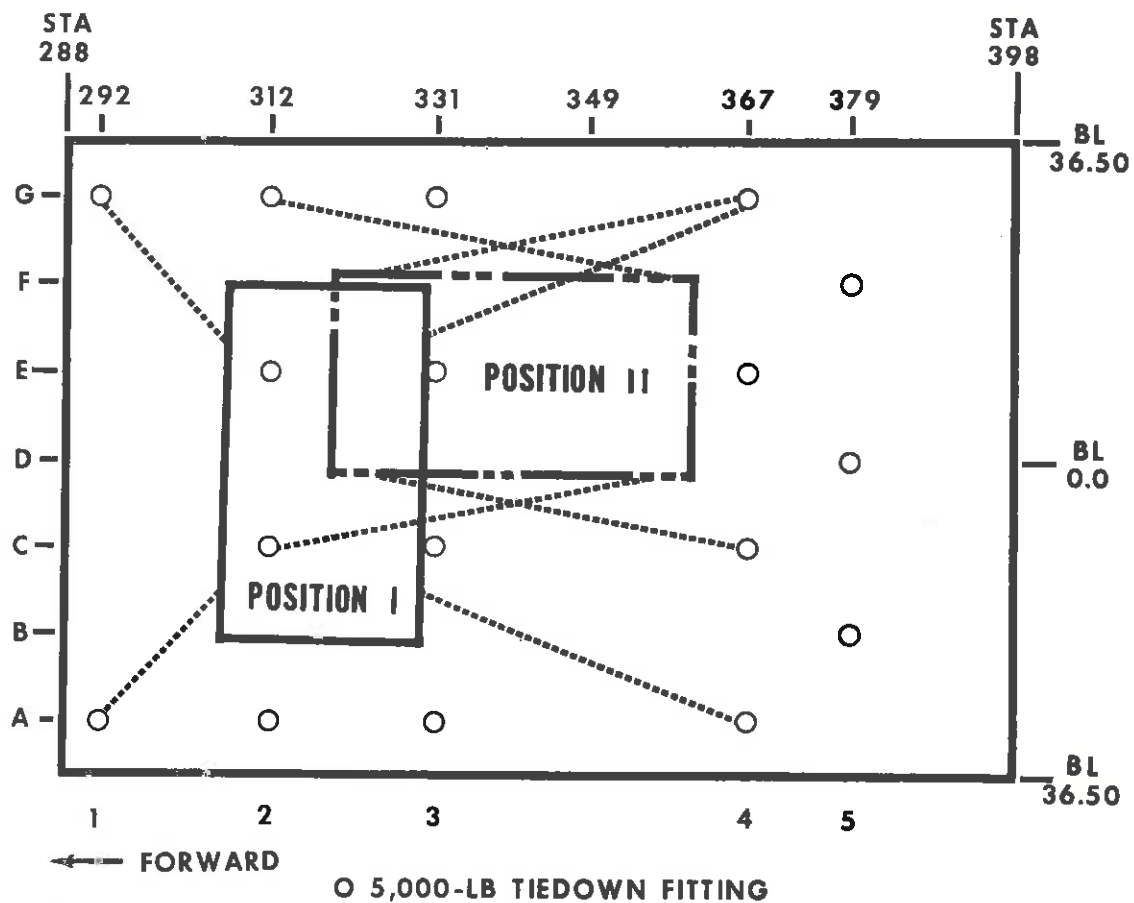
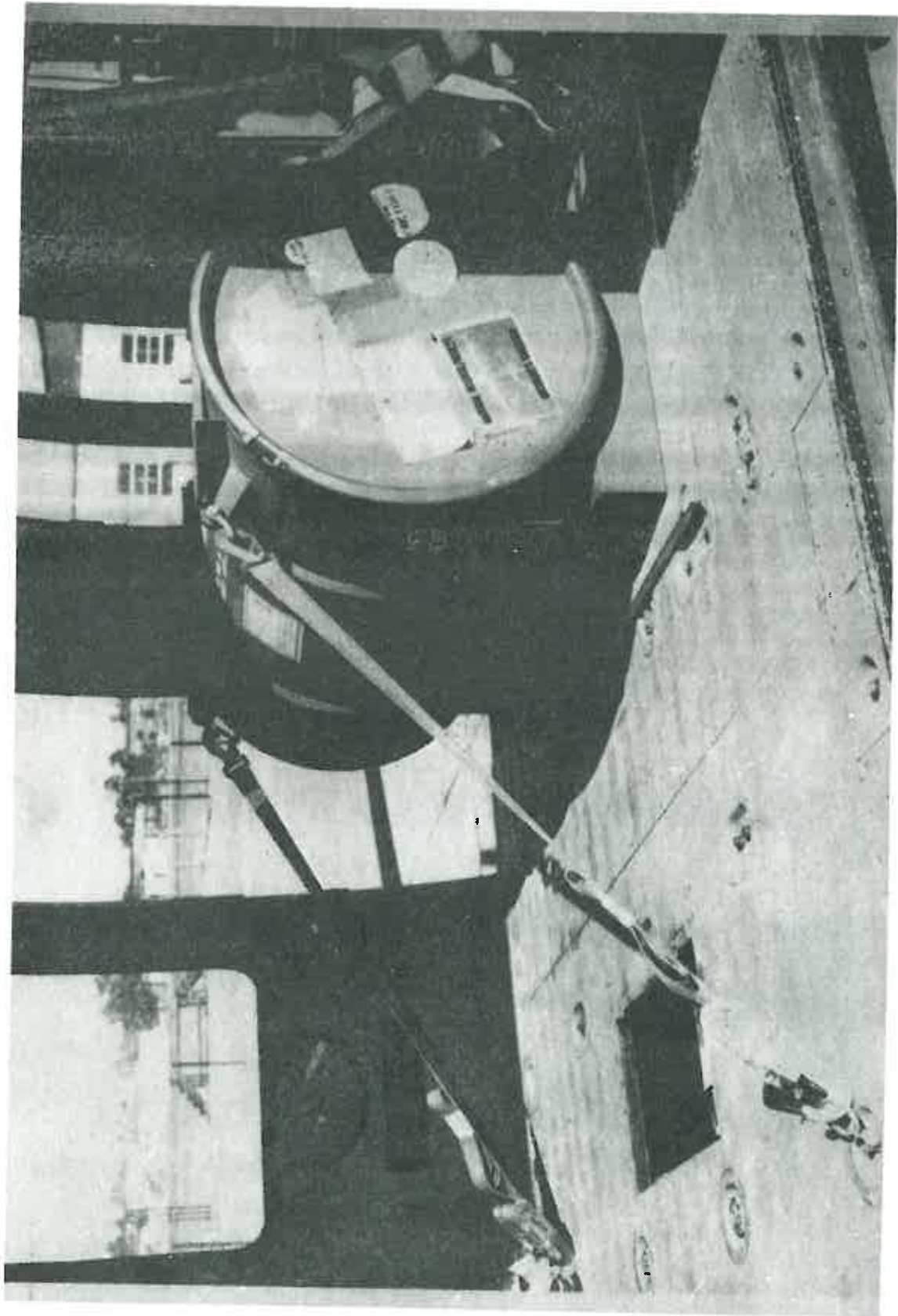


Figure 4-3. Tiedown diagram for container, H815, with W 45-3 warhead, in CH-54 helicopter universal military pod.



NOTE: CARGO HOOK ACCESS DOOR IS LOCATED IN THE CENTER OF THE FLOOR BETWEEN STATIONS 343 AND 363

Figure 4-4. Tiedown diagram for one container, H815, with W45-3 warhead, in UH-60A helicopter.



*Figure 44-5. Right side view of a single container, HBI5, with W45-3 warhead, loaded into the UH-60A helicopter in position I as shown in tiedown diagram in figure 4-4.*

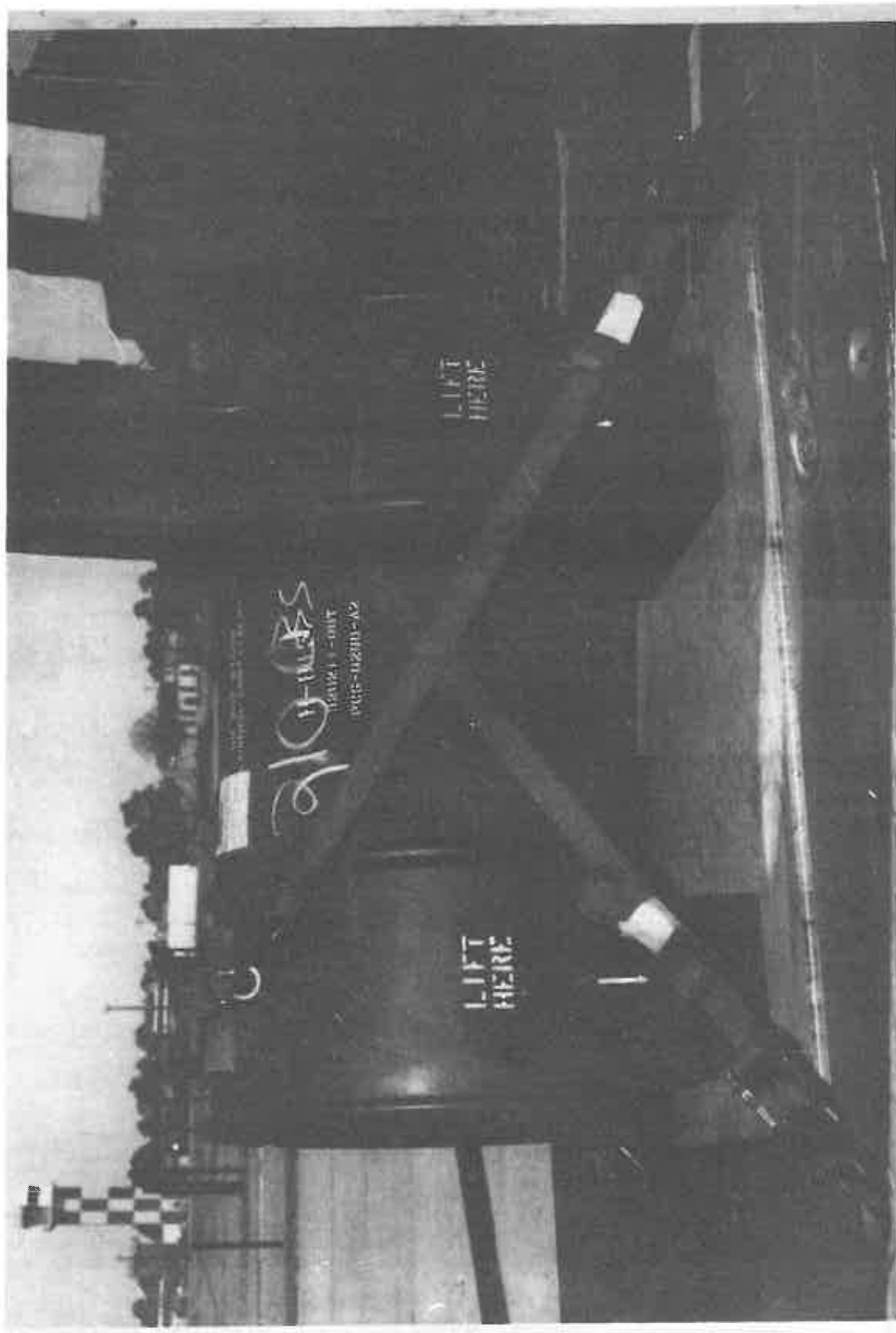
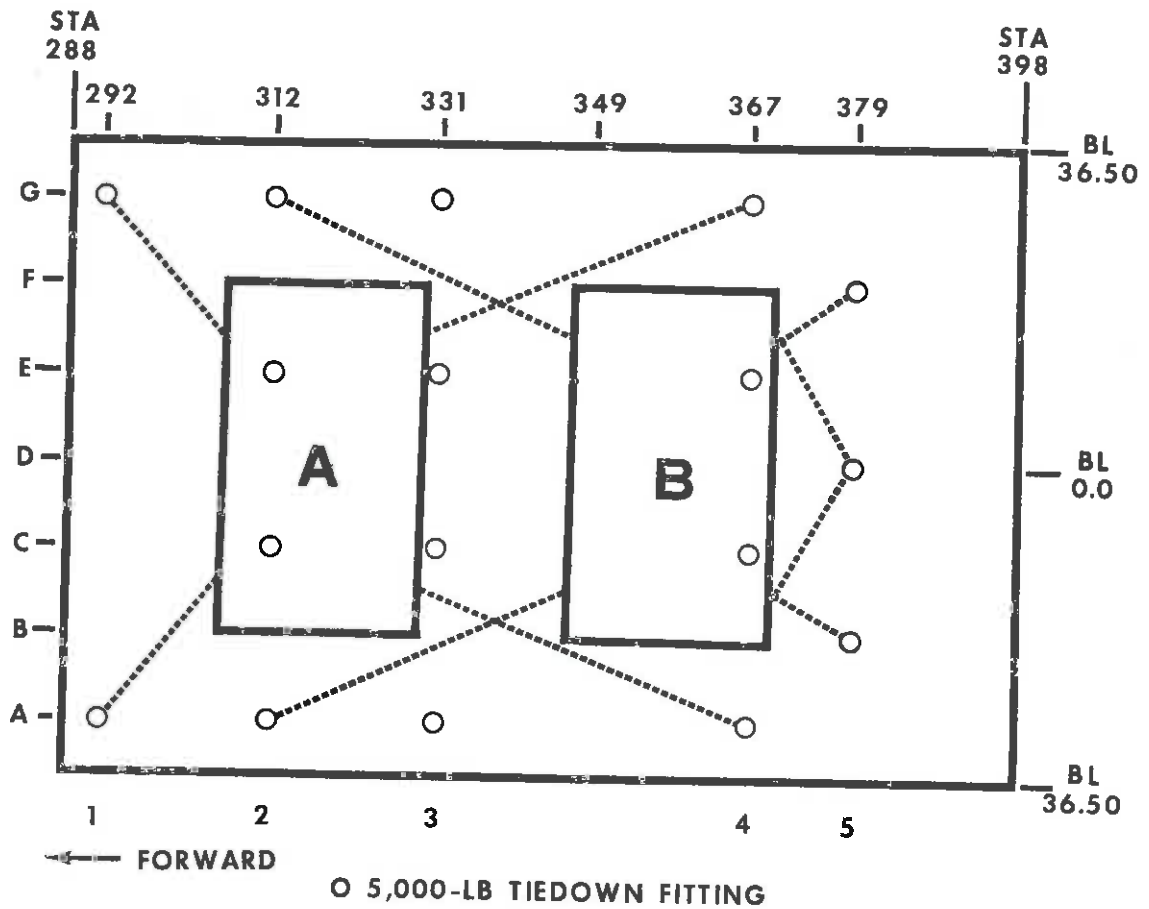


Figure 4-6. Right side view of single container, H815, with W45-3 warhead, loaded into the UH-60A helicopter in position II as shown in tiedown diagram in figure 4-4.



NOTE: CARGO HOOK ACCESS DOOR IS LOCATED IN THE CENTER OF THE FLOOR BETWEEN STATIONS 343 AND 363

Figure 4-7 Tiedown diagram for two containers, H815, with W45-3 warheads, in UH-60A helicopter.

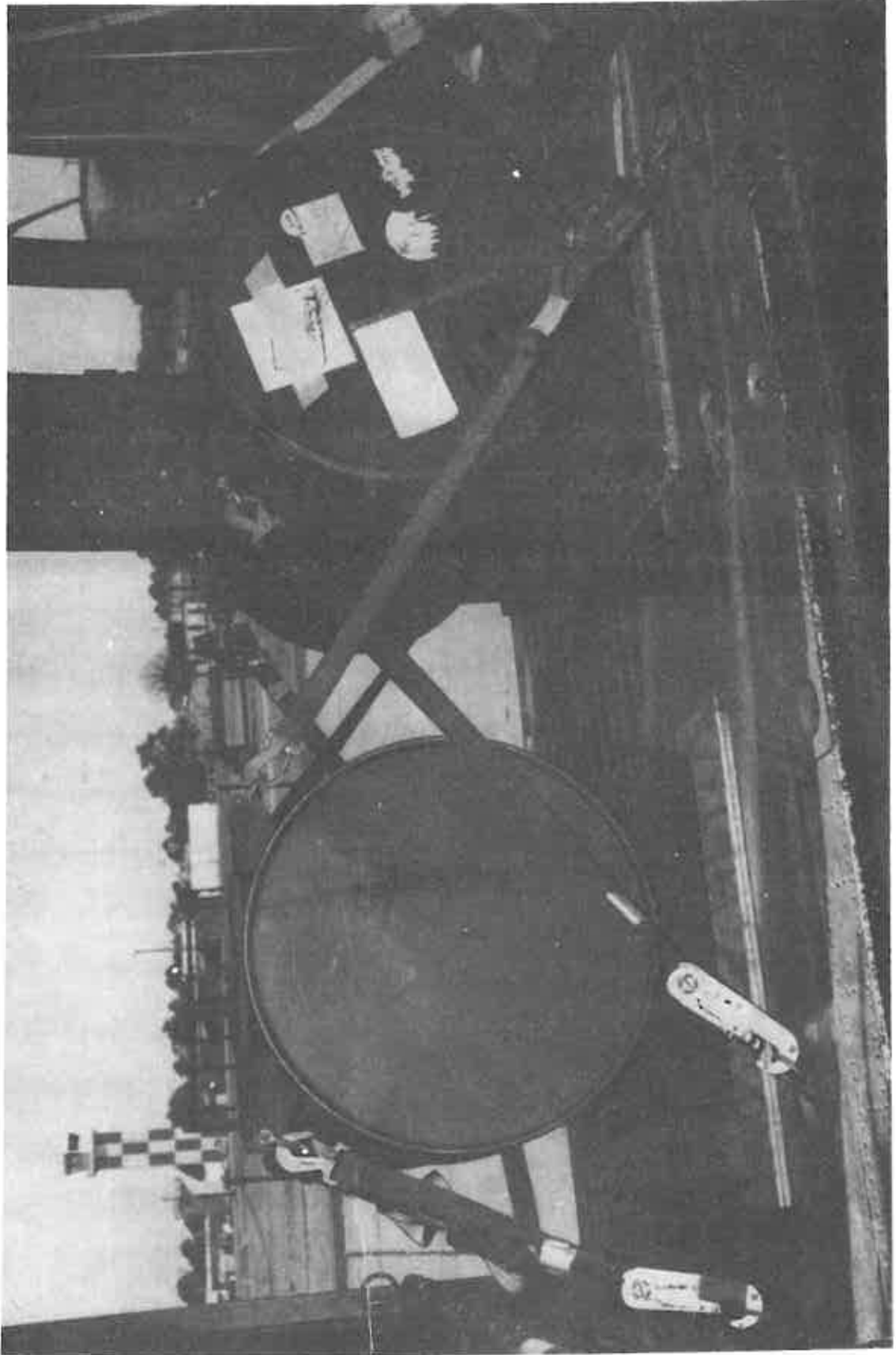


Figure 4-8. Right side view of two containers, H815, with W45-3 warheads, loaded into the UH-60A helicopter as shown in tiedown diagram in figure 4-7.



**4-2. Materials and Procedures for Transport of Container, H815, With W45-3 Warhead (Roller Conveyor Method)**

**NOTE**

Roller conveyor method is the alternate method for the CH-47 helicopter and for the CH-54 helicopter universal military pod.

*a. Materials.*

- (1) Parking shoring. Plywood, one piece, 48- by 32- by 3/4-inch.
- (2) Bridge shoring. Plywood, one piece, 48- by 32- by 3/4-inch (may be used but is not required).
- (3) Rolling shoring. Plywood or lumber as required.
- (4) Wheeled or roller conveyor. Two sections, 4-foot (NSN 3910-00-926-1054), or equivalent.
- (5) Blocking shoring as required.

*b. Loading.*

- (1) Position rolling shoring and two auxiliary loading ramps (CH-47) to align with skids of container. (Four persons can prepare, load, and tie down the container in about 5 minutes.)
- (2) Position parking shoring at container

and extend rolling shoring from ground level into the cargo compartment to provide surface for conveyors.

(3) Place blocking shoring under loading ramps to decrease angle of entry.

(4) Position conveyors (wheels down) on rolling shoring and place bridge shoring (may be used but is not required) on conveyors.

(5) Position container on bridge shoring (if used) or on conveyors.

(6) Push container on conveyors into cargo compartment to tiedown position, and apply temporary restraint to prevent movement. Leapfrog shoring to decrease material requirements.

(7) Tie down the container (on the conveyors) in accordance with paragraph 4-1b(2).

(8) Reposition materials required during unloading, and tie down as directed by the helicopter commander.

*c. Unloading.* Unloading procedures are essentially the reverse of loading procedures. Care must be used when container center of balance passes over ramp hinge. Four persons can unload the container from the helicopter or the pod in about 5 minutes.

*Table 4-1. Tiedown Data for Container, H815, With W45-3 Warhead, in CH-47 Helicopter*

Item	Tiedown fitting		Tiedown device*		Attach to item
	Designation	Capacity in 1,000 lb	Type	Capacity in 1,000 lb	
A.....	A3	5	CGU-1/B	5	Left rear tiedown clevis
	C3	5	CGU-1/B	5	Right rear tiedown clevis
	A5	5	CGU-1/B	5	Left front tiedown clevis
	C5	5	CGU-1/B	5	Right front tiedown clevis

B through G—Restrain each item in position shown in figure 4-1 and in manner prescribed for item A above.

\*The strap, web, universal tiedown (NSN 5340-00-980-9277) or the strap, web, tiedown (NSN 5340-01-089-4997) may be used in place of the CGU-1/B tiedown devices (NSN 1670-00-725-1437). Each identified tiedown has a rated strength of 5,000 pounds.

*Table 4-2. Tiedown Data for Container, H815, With W45-3 Warhead, in UH-1D/H Helicopters*

Item	Tiedown fitting		Tiedown device*		Attach to item
	Designation	Capacity in 1,000 lb	Type	Capacity in 1,000 lb	
A.....	B4	1.25	CGU-1/B	5	Left rear tiedown clevis
	D1	1.25	CGU-1/B	5	Right rear tiedown clevis
	J1	1.25	CGU-1/B	5	Right front tiedown clevis
	J4	1.25	CGU-1/B	5	Left front tiedown clevis
B.....	B3	1.25	CGU-1/B	5	Right rear tiedown clevis
	D6	1.25	CGU-1/B	5	Left rear tiedown clevis
	J3	1.25	CGU-1/B	5	Right front tiedown clevis
	J6	1.25	CGU-1/B	5	Left front tiedown clevis

\*The strap, web, universal tiedown (NSN 5340-00-980-9277) or the strap, web, tiedown (NSN 5340-01-089-4997) may be used in place of the CGU-1/B tiedown devices (NSN 1670-00-725-1437). Each identified tiedown has a rated strength of 5,000 pounds.

Table 4-3. Tiedown Data for Container, H815, With W45-3 Warhead, in CH-54 Helicopter Universal Military Pod

Item	Tiedown fitting		Tiedown device*		Attach to item
	Designation	Capacity in 1,000 lb	Type	Capacity in 1,000 lb	
A.....	A2	5	CGU-1/B	5	Left rear tiedown clevis
	C2	5	CGU-1/B	5	Right rear tiedown clevis
	A4	5	CGU-1/B	5	Left front tiedown clevis
	C4	5	CGU-1/B	5	Right front tiedown clevis

B through I—Restrain each item in position shown in figure 4-3 and in manner prescribed for item A above.

\*The strap, web, universal tiedown (NSN 5340-00-980-9277), or the strap, web, tiedown (NSN 5340-01-089-4997), may be used in place of the CGU-1/B tiedown devices (NSN 1670-00-725-1437). Each identified tiedown has a rated strength of 5,000 pounds.

Table 4-4. Tiedown Data for One Container, H815, With W45-3 Warhead, in UH-60A Helicopter

Designation	Tiedown fitting		Tiedown device*		Attach to item
	Capacity in 1,000 lb	Type	Capacity in 1,000 lb	Type	
<i>Position I</i>					
A1	5	CGU-1/B	5	CGU-1/B	Lift front tiedown clevis
G1	5	CGU-1/B	5	CGU-1/B	Right front tiedown clevis
A4	5	CGU-1/B	5	CGU-1/B	Left rear tiedown clevis
G4	5	CGU-1/B	5	CGU-1/B	Right rear tiedown clevis
<i>Position II</i>					
C2	5	CGU-1/B	5	CGU-1/B	Left rear tiedown clevis
G2	5	CGU-1/B	5	CGU-1/B	Right rear tiedown clevis
C4	5	CGU-1/B	5	CGU-1/B	Left front tiedown clevis
G4	5	CGU-1/B	5	CGU-1/B	Right front tiedown clevis

\*The strap, web, universal tiedown (NSN 5340-00-980-9277) or the strap, web, tiedown (NSN 5340-01-089-4997) may be used in place of the CGU-1/B tiedown devices (NSN 1670-00-725-1437). Each identified tiedown has a rated strength of 5,000 pounds.

Table 4-5. Tiedown Data for Two Containers, H815, With W45-3 Warheads, in UH-60A Helicopter

Item	Tiedown fitting		Tiedown device*		Attach to item
	Designation	Capacity in 1,000 lb	Type	Capacity in 1,000 lb	
A.....	A1	5	CGU-1/B	5	Left front tiedown clevis
	G1	5	CGU-1/B	5	Right front tiedown clevis
	A4	5	CGU-1/B	5	Left rear tiedown clevis
	G4	5	CGU-1/B	5	Right rear tiedown clevis
B.....	A2	5	CGU-1/B	5	Left front tiedown clevis
	G2	5	CGU-1/B	5	Right front tiedown clevis
	B5	5	CGU-1/B	5	Left rear tiedown clevis
	D5	5	CGU-1/B	5	Left rear tiedown clevis
	D5	5	CGU-1/B	5	Right rear tiedown clevis
	F5	5	CGU-1/B	5	Right rear tiedown clevis

\*The strap, web, universal tiedown (NSN 5340-00-980-9277) or the strap, web, tiedown (NSN 5340-01-089-4997) may be used in place of the CGU-1/B tiedown devices (NSN 1670-00-725-1437). Each identified tiedown has a rated strength of 5,000 pounds.

## CHAPTER 5

# EXTERNAL TRANSPORT BY HELICOPTER

### (Emergency Procedure)

#### 5-1. General

This chapter prescribes procedures for external transport of the container, H815, with W45-3 warhead, by use of cargo slings and cargo nets. Information pertaining to the container is shown in chapter 3.

#### WARNING

*The contents of chapter 5 are for information and training purposes only and are not to be construed as authority for external transport, by helicopter, of the container, H815, with W45-3 warhead. Only dummy loads may be used for practice and/or training exercises. Nuclear weapons will not be moved by external helicopter transport except in emergency conditions (such as an emergency evacuation to maintain US custody or to prevent loss because of fire or flood) and only when the situation does not allow time to prepare and move the nuclear weapons by internal transport (chap 4).*

#### WARNING

Always assume that a charge of static electricity is present on the helicopter. Use some type of discharge apparatus (static probe) (see fig 2-3, FM 55-413) to ground the hook and discharge electricity to prevent shock when the hook is touched. After discharge of electricity, grasp the hook quickly and firmly and hold it, if possible, until the hookup is completed. If contact with the hook is lost after initial grounding, ground the hook again before it is touched. Do not use the load as a ground contact. After air delivery and before handling, ground the load again to discharge any accumulated/retained static electricity.

#### WARNING

Do not exceed 110 knots indicated air-speed (KIAS) when flying H815 containers as a sling load by UH-60A helicopter. (Airspeeds in excess of 110 KIAS may cause the load to strike the helicopter.)

#### CAUTION

When external air transport by CH-54 helicopter is performed, a metal apex fitting or a large metal clevis must be used to attach the load to the cargo hook. A nylon sling ring will tend to adhere to the cargo hook beam and prevent release of the load.)

#### CAUTION

Multiple containers, H815, within limitations (para 2-1c), may be transported in either the 5,000- or the 10,000-pound-capacity nylon cargo net. However, the containers must be positioned so as not to exceed the array restrictions imposed by TM 39-20-7 and TM 39-45-51A.

#### 5-2. Materials and Procedures for Transport of Container, H815, With W45-3 Warhead, by Use of Air Delivery Cargo Slings

##### a. Materials.

- (1) Four 8-foot, two-loop, air-delivery cargo slings (NSN 1670-00-753-3789) (each has rated capacity of 6,500 pounds).
- (2) One 3-foot, three-loop, air-delivery cargo sling ring (NSN 1670-00-753-3788) (has rated capacity of 10,000 pounds), with link assembly, type IV (NSN 1670-00-783-5988).
- (3) Tape, adhesive, 2-inch-wide (NSN 7510-00-266-5016), or equivalent.
- (4) One large clevis assembly, air-delivery, type I (NSN 1670-00-090-5354), for use with CH-54 helicopter.

##### b. Preparation and Rigging.

- (1) Choker-hitch one 8-foot sling to each shackle fitted in the lifting brackets on top of the container. (Four persons can rig the container for external transport in about 10 minutes.)
- (2) Twist each sling leg one turn for each 3 feet of sling.
- (3) Combine the free ends of the sling legs to form a single loop, and attach loop to the 3-foot sling. Connect the free ends of the 3-foot sling with the link assembly. (The 3-foot sling forms the apex for attachment to the helicopter cargo hook.)

(4) Cluster and tape sling legs (breakaway technique) to prevent fouling during lift-off.

(5) Attach apex to the helicopter cargo hook. (Helicopter must be centered over load before tension is placed on the slings.)

*c. Derigging.* Four persons can derig the container in about 5 minutes.

**5-3. Materials and Procedures for Transport of Container, H815, With W45-3 Warhead, by Use of Nylon and Chain, Four-Leg Sling**

*a. Materials.*

(1) One 23-foot, nylon and chain, four-leg sling (NSN 1670-00-902-3080) (has rated capacity of 15,000 pounds).

(2) Items shown in 5-2a(3) and 5-2a(4) above.

*b. Preparation and Rigging.*

**NOTE**

Each leg of the nylon and chain, four-leg sling is constructed of a 15-foot nylon web sling with a metal grab link on its lower end. The grab link is about 10 inches long and is equipped with a spring-loaded keeper. Attached to the lower or small end of the grab link is a hammer lock, which connects the chain leg to the grab link. The chain leg is about 6 feet long and has 64 links. The link at the free end is referred to as link number 1.

(1) Pass one sling chain leg through each shackle fitted in the lifting brackets on top of the container. (Four persons can rig the container for external transport in about 10 minutes.)

(2) Form a hitch at each shackle by passing the chain through the upper part of the grab link that attaches the chain to the nylon sling. Adjust chain length by forcing the selected link past the spring keeper into the lower part of the grab link to complete hitch.

(3) Cluster and tape sling legs (breakaway technique) to prevent fouling during lift-off.

(4) Attach 12-inch ring of the sling (sling apex) to the helicopter cargo hook. (Helicopter must be centered over load before tension is placed on the sling.)

*c. Derigging.* Four persons can derig the container in about 5 minutes.

**5-4. Materials and Procedures for Transport of Container, H815, With W45-3 Warhead, by Use of Sling, Helicopter, Cargo-Carrying, External, Four-Leg**

*a. Materials.*

(1) One sling, helicopter, cargo-carrying, exter-

nal, four-leg, either NSN 1670-01-027-2902 (has rated capacity of 10,000 pounds) or NSN 1670-01-027-2900 (has rated capacity of 25,000 pounds).

(2) Tape, adhesive, 2-inch-wide (NSN 7510-00-266-5016), or equivalent.

*b. Preparation and Rigging.*

**NOTE**

Each leg of the sling, helicopter, cargo carrying external, four-leg, either 10,000- or 25,000-pound capacity, is constructed of a 12-foot antiabrasive nylon braided rope and an 8-foot chain. The rope and chain are connected by a grab hook that is equipped with a spring-loaded keeper. The chain leg of the 10,000-pound-capacity sling consists of about 111 links. The chain leg of the 25,000-pound-capacity sling consists of about 88 links. On each sling, the link at the free end of the chain is referred to as link number 1.

(1) Pass one sling chain leg through each shackle fitted in the lifting brackets on top of the container. (Four persons can rig the container for external transport in about 10 minutes.)

(2) Form a hitch at each shackle by inserting link number 3 of each chain into the grab hook.

(3) Cluster and tape sling legs (breakaway technique) to prevent fouling during lift-off.

(4) Attach metal clevis of the sling (sling apex) to the helicopter cargo hook. (Helicopter must be centered over load before tension is placed on the sling.)

*c. Derigging.* Four persons can derig the container in about 5 minutes.

**5-5. Materials and Procedures for Transport of Container, H815, With W45-3 Warhead, by Use of the 5,000-Pound-Capacity Nylon Cargo Net**

*a. Materials.*

(1) Net, cargo, nylon, 5,000-pound-capacity (NSN 1670-01-058-3811).

(2) Cord, nylon, 1/16-inch nominal diameter, 330-pound breaking strength (NSN 4020-00-903-8594), or equivalent.

*b. Preparation and Rigging.*

(1) Spread cargo net and center container(s) on net inside area marked by gold cord. (Four persons can prepare the container and rig the net for external transport in about 10 minutes.)

(2) Draw the net up around the load, and secure the four corner hooks in the net apex stirrup.

(3) Lace nylon cord through the net above the load.

(4) Attach the cargo net apex stirrup to the helicopter cargo hook. (Helicopter must be centered over load before tension is placed on the net.)

*c. Derigging.* Four persons can derig the container in about 5 minutes.

**5-6. Materials and Procedures for Transport of Container, H815, With W45-3 Warhead, by Use of the 10,000-Pound-Capacity Nylon Cargo Net**

*a. Materials*

(1) One net, cargo, nylon, 10,000-pound capacity (NSN 1670-01-058-3810) (for use in combination with slings described below in (2), (4), (5), or (6)).

(2) Two 16-foot, two-loop, air-delivery cargo slings (NSN 1670-00-753-3793) (each has rated capacity of 6,500 pounds).

(3) One 3-foot, three-loop, air-delivery cargo sling ring (NSN 1670-00-753-3788) (has rated capacity of 10,000 pounds), with link assembly, type IV (NSN 1670-00-783-5988).

(4) One 23-foot, nylon and chain, four-leg sling (NSN 1670-00-902-3080) (has rated capacity of 15,000 pounds).

(5) One sling, helicopter, cargo-carrying, external, four-leg (NSN 1670-01-027-2902) (has rated capacity of 10,000 pounds).

(6) One sling, helicopter, cargo-carrying, external, four-leg (NSN 1670-01-027-2900) (has rated capacity of 25,000 pounds).

(7) Cord, nylon, 1/16-inch nominal diameter, 330-pound breaking strength (NSN 4020-00-903-8594), or equivalent.

(8) Tape, adhesive, 2-inch wide (NSN 7510-00-266-5016), or equivalent.

*b. Preparation and rigging using two, 16-foot air delivery cargo slings to rig nylon cargo net.*

(1) Spread cargo net and center container(s) on net. (Four persons can prepare the container and rig the net for external transport in about 10 minutes.)

(2) Pass the first cargo sling end through two adjoining hoist links on cargo net. Pass the second cargo sling end through the other two hoist links on cargo net.

(3) Combine the four ends of the cargo slings to form a single loop, and attach loop to the 3-foot sling. Connect free ends of the 3-foot sling. Connect free ends of the 3-foot sling with the link assembly. (The 3-foot sling forms the apex for attachment to the helicopter (UH-1H, CH-47, and UH-60) cargo hook.) Use a large clevis to attach the 3-foot sling to the CH-54 helicopter cargo hook.

(4) Lace nylon cord through the cargo net above the load.

(5) Cluster and tape or tie sling legs (break-away technique) to prevent fouling during lift-off.

(6) Attach apex to the helicopter cargo hook. (Helicopter must be centered over load before tension is placed on the net.)

*c. Preparation and rigging using the 23-foot, nylon and chain, four-leg sling; or the sling, helicopter, cargo carrying external, four-leg (either the 10,000- or 25,000-pound-capacity sling), to rig nylon cargo net.*

(1) Spread cargo net and center container(s) on net. (Four persons can prepare the container and rig the net for external transport in about 10 minutes.)

(2) Pass each of the sling chain legs through a single hoist link on cargo net, then insert link number 3 of each chain into the grab link or hook to form hitch.

(3) The 12-inch ring of the nylon and chain, four-leg sling forms the apex for attachment to the helicopter cargo hook.

(4) The metal clevis of the sling, helicopter, cargo-carrying, external, four-leg, forms the apex for attachment to the helicopter cargo hook.

(5) Observe procedures in *b(4)* through *b(6)* above.

*d. Derigging.* Four persons can derig the cargo net in about 5 minutes.

**5-7. Materials and Procedures for Transport of Two Containers, H815, with W45-3 Warhead, by Use of Nylon and Chain Sling**

*a. Materials.*

(1) One 23-foot nylon and chain, four-leg sling (NSN 1670-00-902-3080), plus two legs from an identical sling (six-leg sling has a rated capacity of 15,000 pounds).

(2) Tape, adhesive, 2-inch wide (NSN 7510-00-266-5016), or equivalent.

*b. Preparation and Rigging.*

(1) Insure that covers on containers, H815, are secure and that lead seals are intact. (Four persons can rig the containers for external transport in about 10 minutes.)

(2) Place containers so that sides touch and matching ends face opposite directions. (This placement will balance weight of the containers for sling transport.)

(3) Construct sling with six legs. (Sling legs are numbered 1, 3, 5, 6, 4, 2 as they hang from web ring or apex fitting (app C, FM 55-450-19).)

(4) Attach sling legs to adjacent containers as follows:

**NOTE**

“Forward” and “rear” directions for attaching sling legs refer to the two containers as a unit. “Forward” may be either end of the load.

Leg 1 to forward—left outside lift point clevis

- Leg 2 to rear—left outside lift point clevis
- Leg 3 to forward—right outside lift point clevis
- Leg 4 to rear—right outside lift point clevis
- Leg 5 through inside lift point clevis of both containers at forward end
- Leg 6 through inside lift point clevis of both containers at rear end

(5) Form a hitch at each attachment by passing the chain through the upper part of the grab link that attaches the chain to the nylon sling. Adjust chain length by forcing the selected link past the spring keeper into the lower part of the grab link to complete hitch. Do not use link number one to complete hitch. Rig the load so that it will be about level when suspended from the helicopter.

(6) Cluster and tape sling legs (breakaway technique) to prevent fouling during lift-off.

(7) Attach web ring of sling (sling apex) to the helicopter cargo hook. Center helicopter over load before placing tension on the sling.

*c. Derigging.* Four persons can derig the containers in about 5 minutes.

**5-8. Materials and Procedures for Transport of Two Containers, H815, With W45-3 Warhead, By Use of Sling, Helicopter, Cargo-Carrying, External**

*a. Materials.*

(1) One helicopter external cargo-carrying, four-leg sling, (NSN 1670-01-027-2902), plus two legs from an identical sling (six-leg sling has a rated capacity of 10,000 pounds); or one helicopter external cargo-carrying four-leg sling (NSN 1670-01-027-2900), plus two legs from an identical sling (six-leg sling has a rated capacity of 25,000 pounds).

(2) Tape, adhesive, 2- inch-wide (NSN 7510-00-266-5016), or equivalent.

*b. Preparation and Rigging.*

(1) Follow procedures in paragraph 5-7b(1) through b(6).

(2) Attach metal clevis of sling (sling apex) to the helicopter cargo hook. Center helicopter over load before placing tension in the sling.

*c. Derigging.* Four persons can derig the containers in about 5 minutes.

## CHAPTER 6

### EMERGENCY MOVEMENT BY HELICOPTER

#### 6-1. General

a. This chapter provides for emergency logistic movement (para 2-11, TM 39-45-51C) of the container, H815, with W45-3 warhead for military contingency or logistic supply during periods of tension. It also provides for emergency evacuation under political or military conditions of such nature that non-compliance with portions of the nuclear and flight safety regulations is the only alternative to destruction of weapons.

b. Exercise of emergency movement authority is restricted to situations wherein the security of nuclear assets is endangered or when emergency logistic movement is dictated by a pending regional or world crisis. The determination that emergency movement is justifiable will be approved by the theater commander.

c. Minimum spacing and numerical limits for nuclear weapons and class II nuclear components are necessary to prevent the possibility of nuclear material interaction and to minimize sympathetic detonation of high explosive components in the event of an accident. The minimum spacing requirements between nuclear weapons and/or class II nuclear components, provided in section 4, TM 39-45-51A, must be scrupulously observed to prevent the possibility of nuclear material interaction.

d. If emergency logistic movement is directed, there may be an operational necessity to airlift dangerous items that should not be mixed, as indicated in table 2-1, TM 39-45-51C. Should this occur, the

commander who ordered the emergency movement may waive the requirements of table 2-1.

#### NOTE

Table and tiedown diagrams have not been developed for mixed loads of nuclear weapons or class II nuclear components. This, however, does not prevent the shipment of mixed loads if the limitations specified in TM 39-45-51A and TM 39-20-7 are adhered to.

#### 6-2. Emergency Movement of Container, H815, With W45-3 Warhead, as Helicopter Internal Loads

a. Materials and procedures for transport of the container, H815, are prescribed by paragraphs 4-1 and 4-2.

b. A waiver is required (TM 39-20-7 and TM 39-45-51A) before more than nine containers, H815, with W45-3 warheads, may be transported in a single group.

c. The container, H815, must be tied down in the respective helicopter or pod in accordance with the following figures and tables:

<i>Helicopter</i>	<i>Figure No.</i>	<i>Table No.</i>
UH-1D/H.....	4-2	4-2
UH-60A.....	4-7	4-5
CH-47.....	6-1	6-1
CH-54 (universal military pod).....	6-2	6-2

*Table 6-1. Tiedown Data for Maximum Load of 11 Containers, H815, With W45-3 Warheads, in CH-47 Helicopter*

Item	Tiedown fitting		Tiedown device		Attach to item
	Designation	Capacity in 1,000 lb	Type	Capacity in 1,000 lb	
A.....	C2	5	CGU-1/B	5	Left rear tiedown clevis
	E2	5	CGU-1/B	5	Right rear tiedown clevis
	C4	5	CGU-1/B	5	Left front tiedown clevis
	E4	5	CGU-1/B	5	Right front tiedown clevis

B through K—Restrain each item in position shown in figure 6-1 and in manner prescribed for item A above.

Table 6-2. Tiedown Data for Maximum Load of 10 Containers, H815, With W45-3 Warheads, in CH-54 Helicopter Universal Military Pod

Item	Tiedown fitting		Tiedown device		Attach to item
	Designation	Capacity in 1,000 lb	Type	Capacity in 1,000 lb	
A.....	A1	5	CGU-1/B	5	Left rear tiedown clevis
	C1	5	CGU-1/B	5	Right rear tiedown clevis
	A3	5	CGU-1/B	5	Left front tiedown clevis
	C3	5	CGU-1/B	5	Right front tiedown celvis

**6-3. Emergency Movement of Container, H815, With W45-3 Warhead, as Helicopter External Loads**

**NOTE**

External loads have not been developed for maximum loads of individual or mixed nuclear weapons or class II nuclear components. This, however, does not prevent such external loads if the limitations specified in TM 39-45-51A and TM 39-20-7 are adhered to and if the loads are justifiable and directed. Also applicable are the

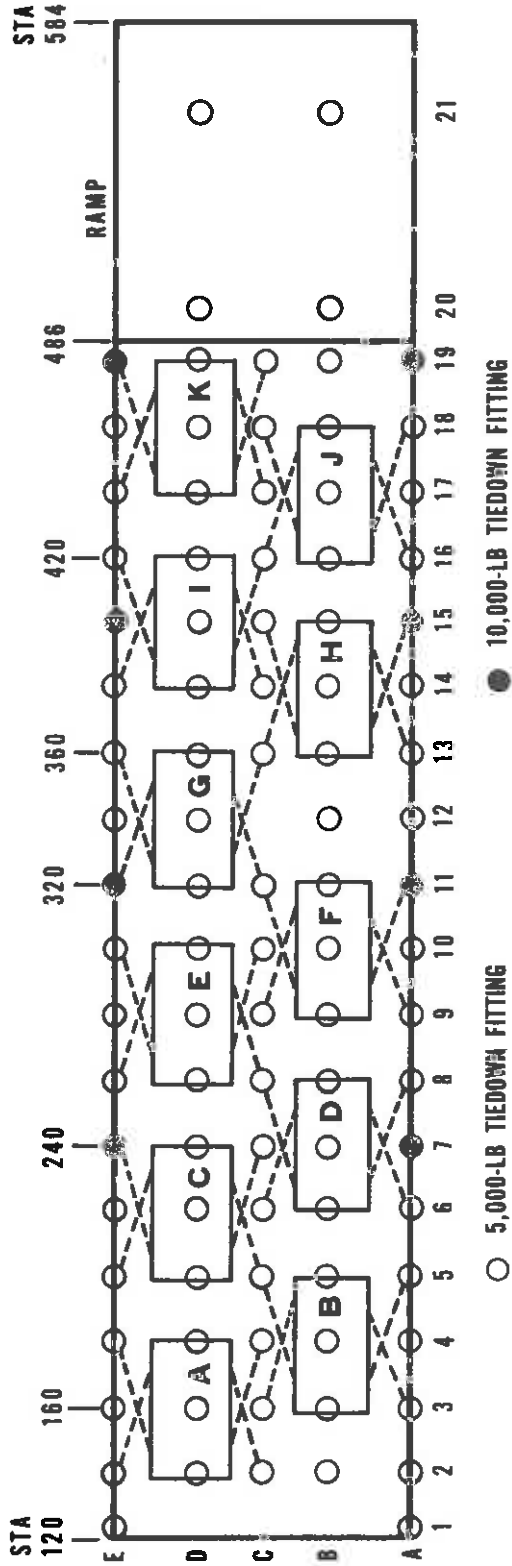
limitations for external transport by helicopter (chap 5).

a. Materials and procedures for transport of the container, H815, are prescribed by paragraphs 5-2 through 5-6.

b. External loads of the container, H815, must not exceed the rigging materials capacities shown in chapter 5 or the helicopter capability.

c. A waiver is required (TM 39-20-7 and TM 39-45-51A) before more than nine containers, H815, with W45-3 warheads, may be transported in a single group.





NOTE: UTILITY HATCH DOOR IS LOCATED IN THE CENTER OF THE FLOOR BETWEEN STATIONS 320 AND 360.

Figure 6-1. Tiedown diagram for maximum load of 11 containers, H815, with W45-3 warheads, in CH-47 helicopter.

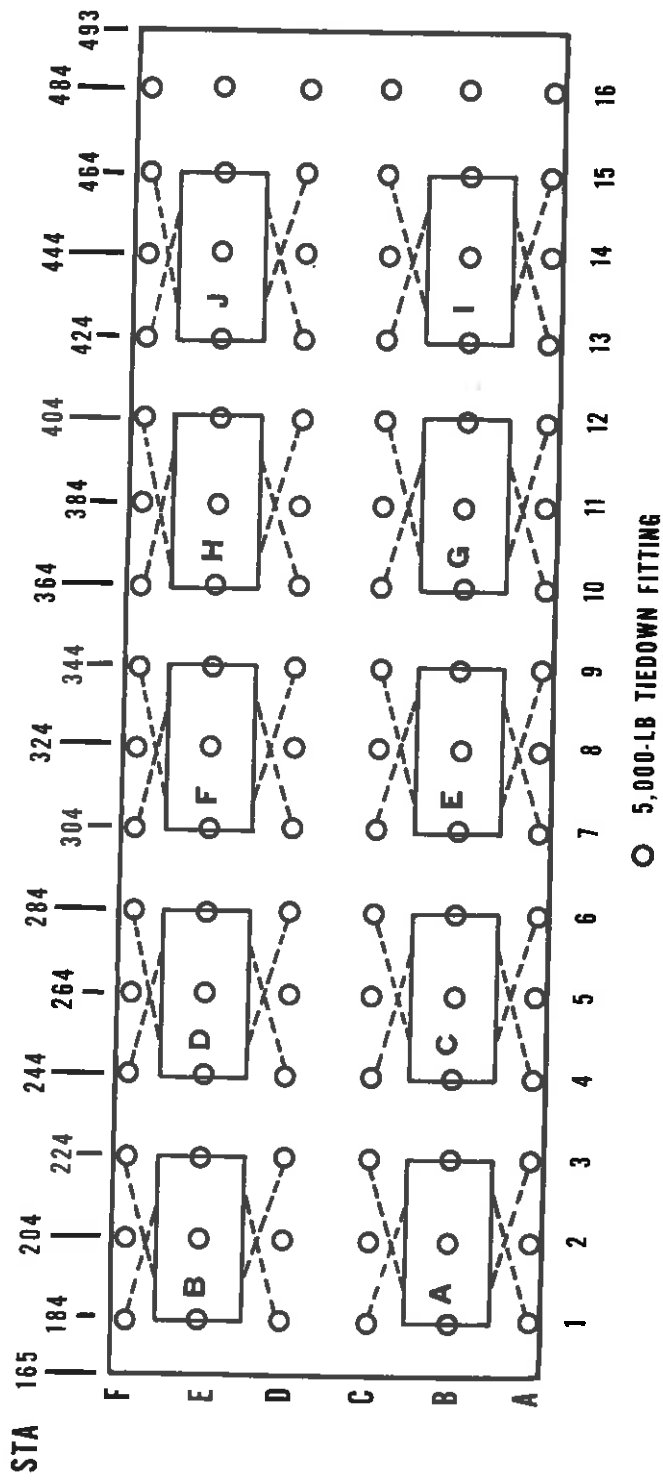


Figure 6-2. Tiedown diagram for maximum load of 10 containers, HB15, with W45-3 warheads, in CH-54 helicopter universal military pod.

# APPENDIX

## REFERENCES

### 1. Army Regulations (AR)

10-16	US Army Nuclear and Chemical Agency
40-14	Control and Recording Procedures: Occupational Exposure to Ionizing Radiation
50-5	Nuclear and Chemical Weapons and Materiel: Nuclear Surety
(C) 50-5-1	Nuclear and Chemical Weapons and Materiel: Nuclear Surety (U)
(C) 50-106	Safety Rules for Operations With the Medium Atomic Demolition Munition (MADM) (W45-3) (U)
55-203	Movement of Nuclear Weapons, Nuclear Components, and Related Classified Non-nuclear Materiel
95-1	Army Aviation: General Provisions and Flight Regulations
95-27	Operational Procedures for Aircraft Carrying Dangerous Materials
360-5	Army Information: Public Information Policies
385-40	Accident Reporting and Records
700-65	Nuclear Weapons and Nuclear Weapons Materiel

### 2. Army Field Manuals (FM)

55-9	Unit Air Movement Plan
55-413	Aerial Recovery of US Army and Air Force Aircraft
55-450-1	Army Helicopter External Load Operations
101-20	US Army Aviation Planning Manual
100-50	Operations for Nuclear-Capable Units
101-20	US Army Aviation Planning Manual

### 3. Army Technical Bulletins (TB)

(SRD) 9-1100-811-40	Security Classification of Nuclear Weapons Information (U)
385-2	Nuclear Weapons Firefighting Procedures

### 4. Army Technical Manuals (TM)

5-315	Fire Fighting and Rescue Procedures in Theaters of Operations
9-1100-226-10	Operator's Manual: M167, M172, and M175 Atomic Demolition Charges, XM3 and XM4 Coder-Transmitters
(C) 9-1100-226-20	Organizational Maintenance: M167, M172, and M175 Atomic Demolition Charges, XM3 and XM4 Coder-Transmitters (U)
9-1100-227-2	Operator and Organizational Maintenance (Prefire Procedures for Employment), XM15 Atomic Demolition Charge Training Equipment
9-1300-206	Ammunition and Explosives Standards
38-250	Packaging and Materials Handling: Preparation of Hazardous Materials for Military Air Shipment
(CRD) 39-0-1A	Numerical Index to Joint Atomic Weapons Publications (Including Related Publications) (Army Supplement) (U)
(SRD) 39-20-7	Nuclear Safety Criteria (U)

(CRD) 39-20-11	General Firefighting Guidance for Nuclear Weapons (U)
39-45-51	Transportation of Nuclear Weapons Materiel
(SRD) 39-45-51A	Transportation of Nuclear Weapons Materiel (Supplement): Shipping and Identification Date for Stockpile Major Assemblies (U)
39-45-51C	Transportation of Nuclear Weapons Materiel (Supplement): Military Criteria for Shipment
(CRD) 39-50-8	Emergency Destruction of Nuclear Weapons (U)
55-450-8	Air Transport of Supplies and Equipment: External Transport Procedures
55-450-11	Air Transport of Supplies and Equipment: Helicopter External Loads Rigged with Air-Delivery Equipment
55-450-12	Air Transport of Supplies and Equipment: Helicopter External Loads for Sling, Nylon and Chain, Multiple Leg
55-450-18	Air Transport of Supplies and Equipment: Internal and External Loads, CH-47 Helicopter
55-450-19	Air Transport of Supplies and Equipment: Helicopter External Lift Rigging Materiel, Techniques and Procedures
55-1520-209-10	Operator's Manual: Army Model CH-47A Helicopter
55-1520-210-10	Operator's Manual: Army Model, UH-1D/H Helicopter
55-1520-217-10-1	Operator's Manual: Army Model, CH-54A Helicopters
55-1520-217-10-2	Operator's Manual: Army Model, CH-54B Helicopters
55-1520-227-10	Operator's Manual: Army Model, CH-47B and CH-47C Helicopters
55-1520-237-10	Operator's Manual: UH-60A Helicopter

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