

## CHAPTER 10

### CERTIFIED SINGLE-POINT RIGGING PROCEDURES FOR SHELTERS

#### 10-1. INTRODUCTION

This chapter contains rigging procedures for single-point lift of shelters that have been certified for sling load. Each rigging procedure is found in a paragraph that includes a description of the load, materials required for rigging, and steps to complete the procedure. An applicability paragraph is also a part of each paragraph and identifies the certified loads. The certified single-point rigging proce-

dures for shelters are in this section. Paragraphs 10-2 through 10-13 give detailed instructions for rigging loads.

**NOTE: Reach Pendants may be used on all single point loads. A static discharge person is not required when using a Reach Pendant.**

#### 10-2. AN/ASM-146 or AN/MSM-108 Electronic Shops

**a. Applicability.** The following items in Table 10-1 are certified for all helicopters with suitable lift capacity by the US Army Natick Research, Development, and Engineering Center:

**Table 10-1. Electronic Shops**

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
AN/ASM-146	3,940	10K	3/3	80
AN/MSM-108	3,940	10K	3/3	80

**b. Materials.** The following materials are required to rig this load:

- (1) Sling set (10,000-pound capacity).
- (2) Tape, adhesive, pressure-sensitive, 2-inch wide roll.
- (3) Cord, nylon, Type III, 550-pound breaking strength.
- (4) Webbing, cotton, 1/4-inch, 80-pound breaking strength.

**c. Personnel.** Two persons can prepare and rig this load in 20 minutes.

**d. Procedures.** The following procedures apply to this load:

(1) **Preparation.** Prepare the load using the following steps:

(a) Close and secure all doors, vents, caps, and engage the brakes.

(b) Secure the tongue in the up position with the safety chains.

(2) **Rigging.** Rig the load according to the steps in Figure 10-1.

(3) **Hookup.** The hookup team stands on top of the shelter. The static wand person discharges the static electricity with the static wand. The hookup person places the apex fitting onto the aircraft cargo hook. The hookup team then moves clear of the load but remains close to the load as the helicopter removes slack from the sling legs. When successful hookup is assured, the hookup team quickly exits the area underneath the helicopter to the designated rendezvous point.

(4) **Derigging.** Derigging is the reverse of the preparation and rigging procedures in steps d (1) and d (2).

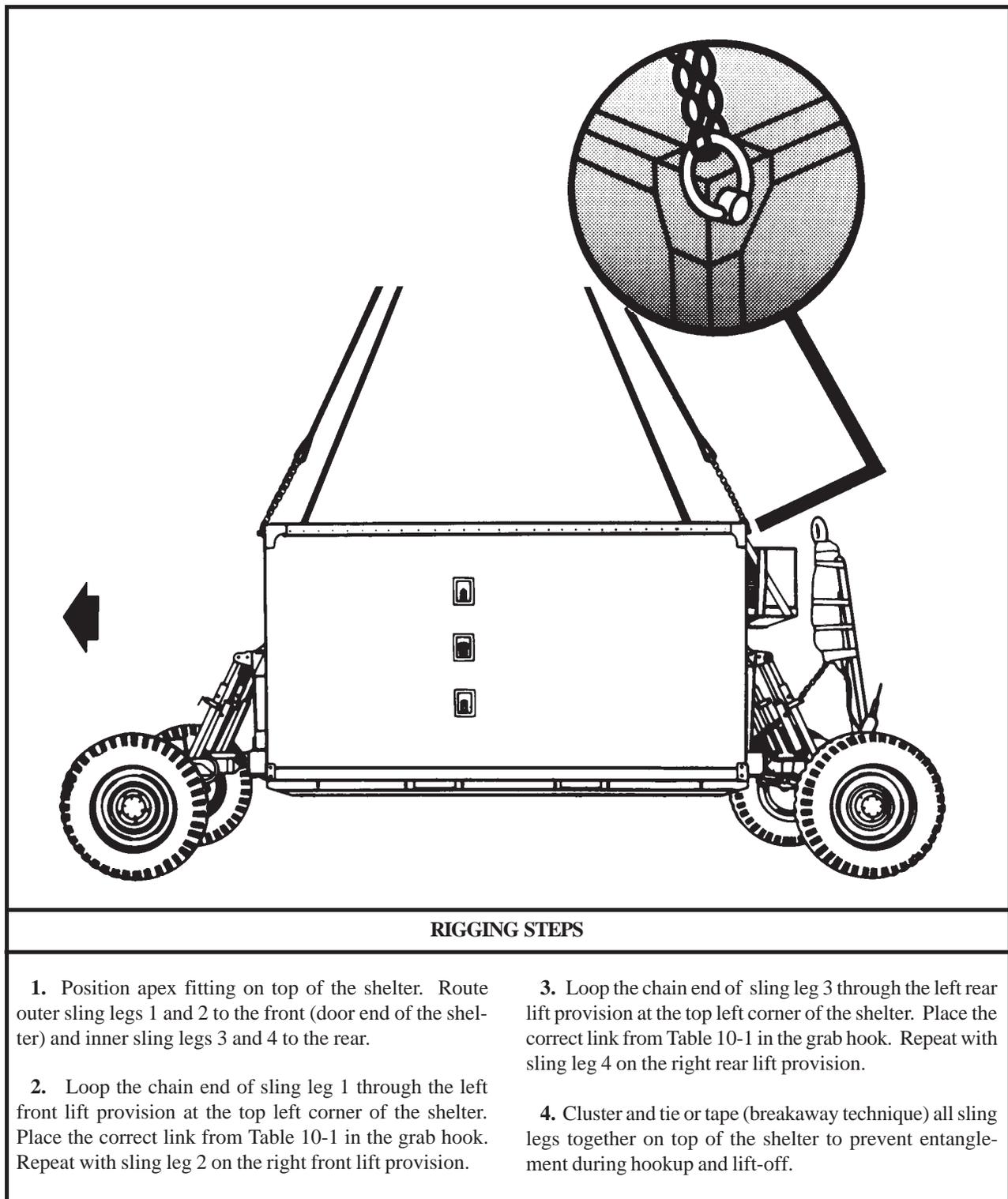


Figure 10-1. Electronic Shops

### 10-3. Communications or Electronic Systems Housed in S-250 Shelters

**a. Applicability.** The following items in Table 10-2 are certified for all helicopters with suitable lift capacity by the US Army Natick Research, Development, and Engineering Center:

**Table 10-2. S-250 Shelters**

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
AN/TRC-93B (V)1 or (V)2	3,250	10K	33/3	115
AN/TRC-93B (Reconfiguration)	3,660	10K	33/3	115
AN/TSC-124, Single Channel Objective Tactical Terminal (SCOTT)	2,100	10K	33/3	60

**b. Materials.** The following materials are required to rig this load:

- (1) Sling set (10,000-pound capacity).
- (2) Tape, adhesive, pressure-sensitive, 2-inch wide roll.
- (3) Cord, nylon, Type III, 550-pound breaking strength.
- (4) Webbing, cotton, 1/4-inch, 80-pound breaking strength.

**c. Personnel.** Two persons can prepare and rig this load in 15 minutes.

**d. Procedures.** The following procedures apply to this load:

**(1) Preparation.** Prepare the load using the following steps:

**(a)** Close and secure all doors, vents, and caps with tape or Type III nylon cord.

**(b)** Secure all loose equipment (antennas, electrical lines, hoses, etc.) with tape or Type III nylon cord.

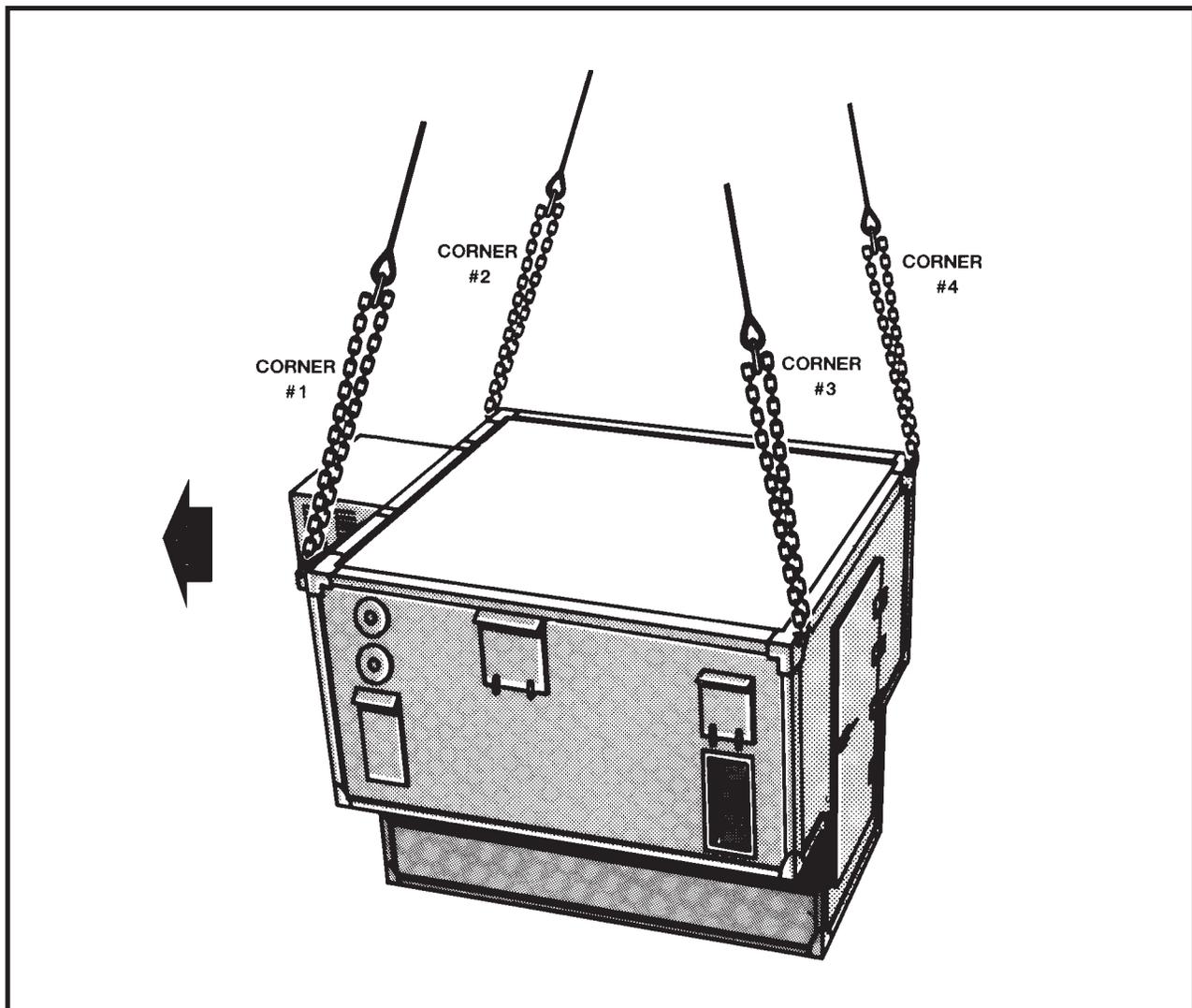
**(c)** Ensure all the bolts in the Environmental Control Unit's (ECU) mounting frame are present and tight.

**(d)** Secure the ECU cover with tape or Type III nylon cord.

**(2) Rigging.** Rig the load according to the steps in Figure 10-2.

**(3) Hookup.** The hookup team stands on top of the shelter. The static wand person discharges the static electricity with the static wand. The hookup person places the apex fitting onto the aircraft cargo hook. The hookup team then moves clear of the load but remains close to the load as the helicopter removes slack from the sling legs. When successful hookup is assured, the hookup team quickly exits the area underneath the helicopter to the designated rendezvous point.

**(4) Derigging.** Derigging is the reverse of the preparation and rigging procedures in steps d (1) and d (2).



#### RIGGING STEPS

**1.** Position apex fitting on top of the shelter. Route outer sling legs 1 and 2 to the front of the shelter and inner sling legs 3 and 4 to the rear (door end). Sling legs 1 and 3 must be on the left side of the load.

**2.** Loop the chain end of sling leg 1 through the left front lift provision at the top left corner of the shelter. Place the correct link from Table 10-2 in the grab hook. Repeat with sling leg 2 on the right front lift provision.

Secure the excess chain with tape or Type III nylon cord.

**3.** Loop the chain end of sling leg 3 through the left rear lift provision at the top left corner of the shelter. Place the correct link from Table 10-2 in the grab hook. Repeat with sling leg 4 on the right rear lift provision.

**4.** Cluster and tie or tape (breakaway technique) all sling legs together on top of the shelter to prevent entanglement during hookup and lift-off.

*Figure 10-2. S-250 Shelters*

## 10-4. Communications or Electronic Systems Housed in Lightweight Multipurpose Shelter (LMS)

**a. Applicability.** The following items in Table 10-3 are certified for all helicopters with suitable lift capacity by the US Army Natick Research, Development, and Engineering Center:

**Table 10-3. Lightweight Multipurpose Shelter (LMS)**

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
Operations Central Shelter, Firefinder AN/TPQ-36(V)8, S-788	2,869	10K	20/3	80
Biological Agent, Automatic: Integrated Detection System, S-788	3,300	10K	25/3	100
Downsized Direct Support Section, Standardized Integrated Command Post Systems (SICPS)	2,400	10K	10/20	90

**b. Materials.** The following materials are required to rig this load:

- (1) Sling set (10,000-pound capacity).
- (2) Tape, adhesive, pressure-sensitive, 2-inch wide roll.
- (3) Cord, nylon, Type III, 550-pound breaking strength.
- (4) Webbing, cotton, 1/4-inch, 80-pound breaking strength.

**c. Personnel.** Two persons can prepare and rig this load in 15 minutes.

**d. Procedures.** The following procedures apply to this load:

(1) **Preparation.** Prepare the load using the following steps:

- (a) Remove all antennas. Disassemble and securely stow inside the shelter.
- (b) Close and secure all doors, vents, and caps with

tape or Type III nylon cord.

(c) Secure all loose equipment (electrical lines, hoses, etc.) with tape or Type III nylon cord.

(d) Ensure all the bolts in the Environmental Control Unit's (ECU) mounting frame are present and tight.

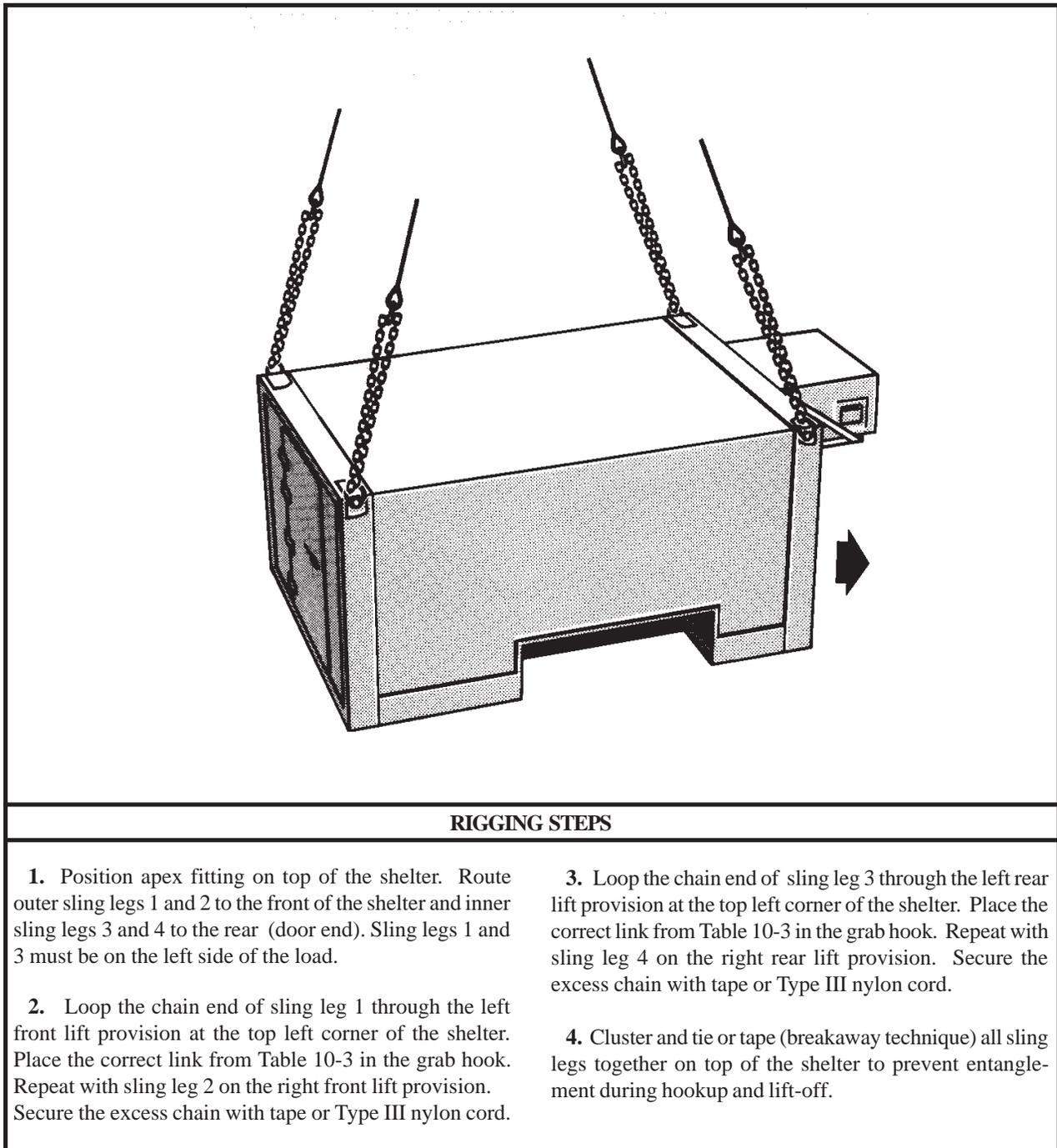
(e) Secure the ECU cover with tape or Type III nylon cord.

(f) Secure the lift rings in the vertical position with Type III nylon cord.

(2) **Rigging.** Rig the load according to the steps in Figure 10-3.

(3) **Hookup.** The hookup team stands on top of the shelter. The static wand person discharges the static electricity with the static wand. The hookup person places the apex fitting onto the aircraft cargo hook. The hookup team then moves clear of the load but remains close to the load as the helicopter removes slack from the sling legs. When successful hookup is assured, the hookup team quickly exits the area underneath the helicopter to the designated rendezvous point.

(4) **Derigging.** Derigging is the reverse of the preparation and rigging procedures in steps d (1) and d (2).



*Figure 10-3. Lightweight Multipurpose Shelter (LMS)*

## 10-5. Communications or Electronic Systems Housed in S-280 Shelters

**a. Applicability.** The following items in Table 10-4 are certified for all helicopters with suitable lift capacity by the US Army Natick Research, Development, and Engineering Center:

**Table 10-4. S-280 Shelters**

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
Shelter, Battery Servicing, AN/TSM-133	5,240	10K	Door is the Front 30/3	65
Facility, Improved Message, AN/TSC-58A	5,368	10K	Door is the Front 37/3	55
Facility, Improved Message, AN/MS-29A	5,368	10K	Door is the Front 37/3	55
Station, System Master, Reporting, Position Location, AN/TSQ-129	6,050	15K	ECU is the Front 10/4	75
Station, Enhanced Position Location Reporting System Net AN/TSQ-158	6,289	15K	ECU is the Front 10/4	75
Terminal, Regency Net Force, AN/TRC-179(V)1	8,200	10K	Door is the Front 30/3	70
Communications Nodal Control Element, AN/TSQ-111	10,000	25K	Door is the Front 3/24	80
Multiplexer Terminal Set, AN/TSQ-146(V)	6,190	10K	Door is the Front 5/50	90
IFTE Base Shop Test Facility (BSTF), Basic, S-280C/G Shelter, AN/TSM-191(V)3	7,806	10K	ECU is the Front 3/3	50
IFTE BSTF, Hawk, S-280C/G Shelter, AN/TSM-191(V)2	7,748	10K	ECU is the Front 3/3	50
IFTE 60 Hz Storage Shelter, S-280C/G Shelter, S-744/TSM-191(V)	6,365	10K	ECU is the Front 3/3	70
IFTE 400 Hz Storage Shelter, S-280C/G Shelter, S-175/TSM-191(V)	5,119	10K	ECU is the Front 3/3	70
Tactical Satellite Terminal, AN/TSC-85B	6,200	10K	ECU is the Front 33/3	70
E1045 Bottle Cleaning and Charging Station	6,400	15K	Door is the Front 3/15	70
E1022 Maintenance Facility Night Sight	6,400	15K	Door is the Front 3/3	70

Table 10-4. S-280 Shelters (continued)

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
AN/TYA-16B, TAMCN A0294	3,325	15K	Door is the Front 3/3	65
Airborne Reconnaissance Low-Imagery (ARL-I) and Airborne Reconnaissance Low-Comint (ARL-C) Fly Away Kit, Type A-1	8,500	10K	ECU is the Front 3/10	80
ARL-I and ARL-C Fly Away Kit, Type B-1	8,500	10K	ECU is the Front 3/10	80
ARL-I and ARL-C Fly Away Kit, Type C-1	8,500	10K	ECU is the Front 3/10	80

**NOTES:**

1. Do not allow the sling legs to become entangled with the rope lashing points located near the lift points.
2. The CH-47 is not recommended for single point sling loading of the Integrated Family of Test Equipment Shelters.

**b. Materials.** The following materials are required to rig this load:

- (1) Sling set (as listed in table 10-4).
- (2) Tape, adhesive, pressure-sensitive, 2-inch wide roll.
- (3) Cord, nylon, Type III, 550-pound breaking strength.
- (4) Webbing, cotton, 1/4-inch, 80-pound breaking strength.

**c. Personnel.** Two persons can prepare and rig this load in 15 minutes.

**d. Procedures.** The following procedures apply to this load:

- (1) **Preparation.** Prepare the load using the following steps:
  - (a) Remove all antennas. Disassemble and securely stow inside the shelter.
  - (b) Close and secure all doors, vents, and caps with

tape or Type III nylon cord.

(c) Secure all loose equipment (electrical lines, hoses, etc.) with tape or Type III nylon cord.

(d) Ensure all the bolts in the Environmental Control Unit's (ECU) mounting frame are present and tight.

(e) Secure the ECU cover with tape or Type III nylon cord.

(f) Secure the lift rings in the vertical position with Type III nylon cord.

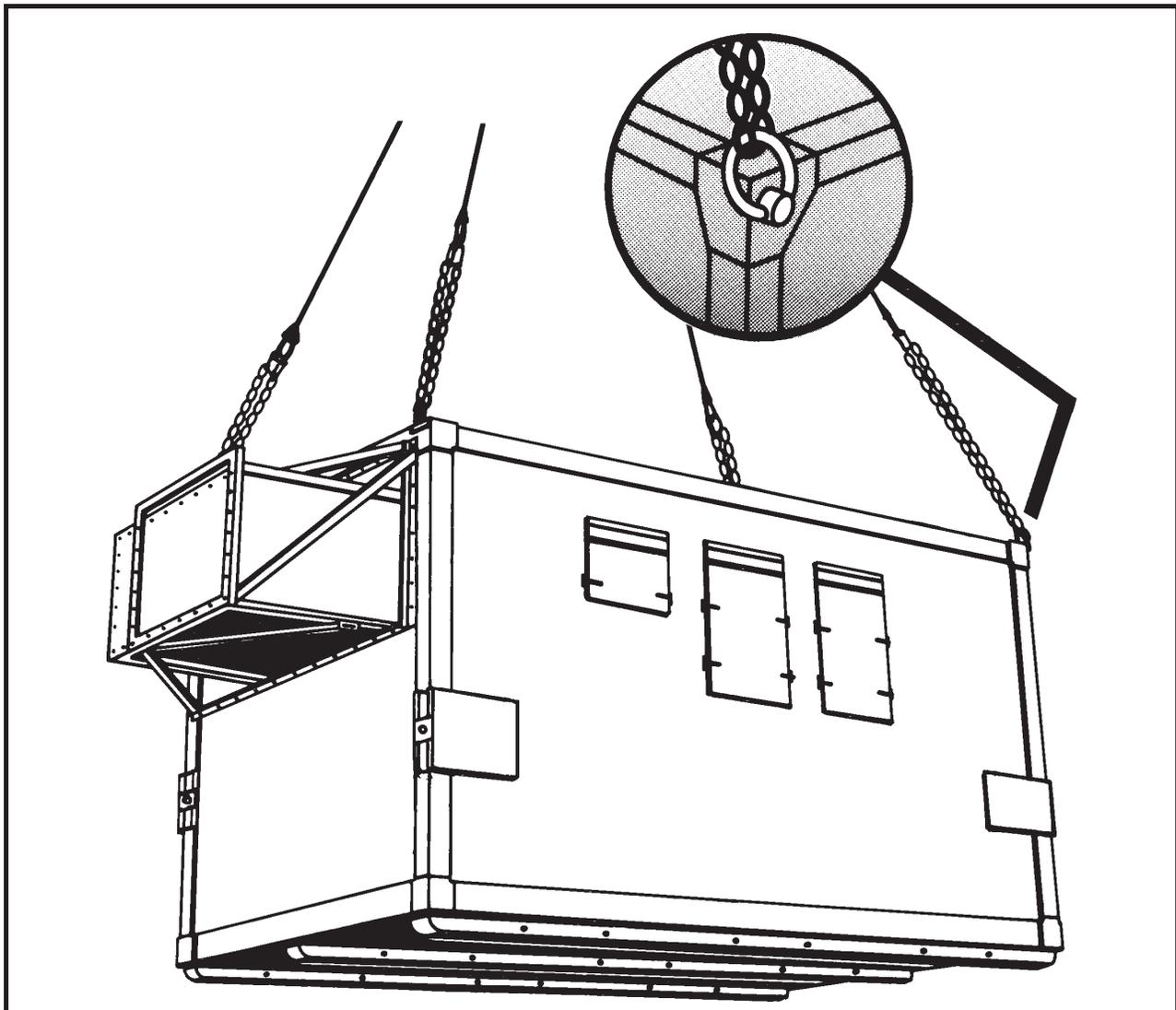
(2) **Rigging.** Rig the load according to the steps in Figure 10-4.

(3) **Hookup.** The hookup team stands on top of the shelter. The static wand person discharges the static electricity with the static wand. The hookup person places the apex fitting onto the aircraft cargo hook. The hookup team then moves clear of the load but remains close to the load as the helicopter removes slack from the sling legs. When successful hookup is assured, the hookup team quickly exits the area underneath the helicopter to the designated rendezvous point.

**CAUTION**

**Brief the helicopter crew to relax the sling leg tension and hover to the side of the load when releasing the apex fitting to prevent damage to the roof of the shelter.**

(4) **Derigging.** Derigging is the reverse of the preparation and rigging procedures in steps d (1) and d (2).



#### RIGGING STEPS

1. Position apex fitting on top of the shelter. Route outer sling legs 1 and 2 to the front of the shelter and inner sling legs 3 and 4 to the rear. Sling legs 1 and 3 must be on the left side of the load.

2. Loop the chain end of sling leg 1 through the left front lift provision at the top left corner of the shelter. Place the correct link from Table 10-4 in the grab hook. Repeat with sling leg 2 on the right front lift provision. Secure the excess chain with tape or Type III nylon cord.

3. Loop the chain end of sling leg 3 through the left rear lift provision at the top left corner of the shelter. Place the correct link from Table 10-4 in the grab hook. Repeat with sling leg 4 on the right rear lift provision. Secure the excess chain with tape or Type III nylon cord.

4. Cluster and tie or tape (breakaway technique) all sling legs together on top of the shelter to prevent entanglement during hookup and lift-off.

*Figure 10-4. S-280 Shelters*

## 10-6. 8- x 8- x 10-Foot Shelter Systems

**a. Applicability.** The following items in Table 10-5 are certified for all helicopters with suitable lift capacity by the US Army Natick Research, Development, and Engineering Center:

**Table 10-5. 8- x 8- x 10-Foot Shelter Systems**

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
Shelter, Electromechanical Induction (EMI), TAMCN C6110	7,700	15K	Door is the Front 5/5	70
S-715/T, Reproduction/Distribution-Facility Shelter	4,826	15K	Door is the Front 3/3	50
Electronic EMI HSOP Shelter	4,140	15K	Door is the Front 3/3	60
Shelter, Radar Set, Precision Approach, AN/TPN-22, TAMCN Q2115	7,200	15K	Door is the Front 3/3	80
Shelter, Communications Central, AN/MSC-63A, TAMCN A0258	6,619	15K	Door is the Aft 5/5	85
Air Radar Shelter, AN/TPS-73	14,500	40K	Door is the Front 5/8	80
Radar Shelter, AN/TPS-63B	7,360	15K	Door is the Front 3/10	70
10-Foot Rigid EMD Communications Shelter	7,000 (Minimum Weight)	15K	Door is the Front 3/3	70

**b. Materials.** The following materials are required to rig this load:

- (1) Sling set (15,000 or 40,000-pound capacity).
- (2) Tape, adhesive, pressure-sensitive, 2-inch wide roll.
- (3) Cord, nylon, Type III, 550-pound breaking strength.
- (4) Webbing, cotton, 1/4-inch, 80-pound breaking strength.

**c. Personnel.** Two persons can prepare and rig this load in 15 minutes.

**d. Procedures.** The following procedures apply to this load:

**(1) Preparation.** Prepare the load using the following steps:

(a) Remove all antennas. Disassemble and securely stow inside the shelter.

(b) Close and secure all doors, vents, and caps with tape or Type III nylon cord.

(c) Secure all loose equipment (electrical lines, hoses, etc.) with tape or Type III nylon cord.

**(2) Rigging.** Rig the load according to the steps in Figure 10-5.

(3) **Hookup.** The hookup team stands on top of the shelter. The static wand person discharges the static electricity with the static wand. The hookup person places the apex fitting onto the aircraft cargo hook. The hookup team then moves clear of the load but remains close to the load as the helicopter removes slack from the sling legs.

When successful hookup is assured, the hookup team quickly exits the area underneath the helicopter to the designated rendezvous point.

(4) **Derigging.** Derigging is the reverse of the preparation and rigging procedures in steps d (1) and d (2).

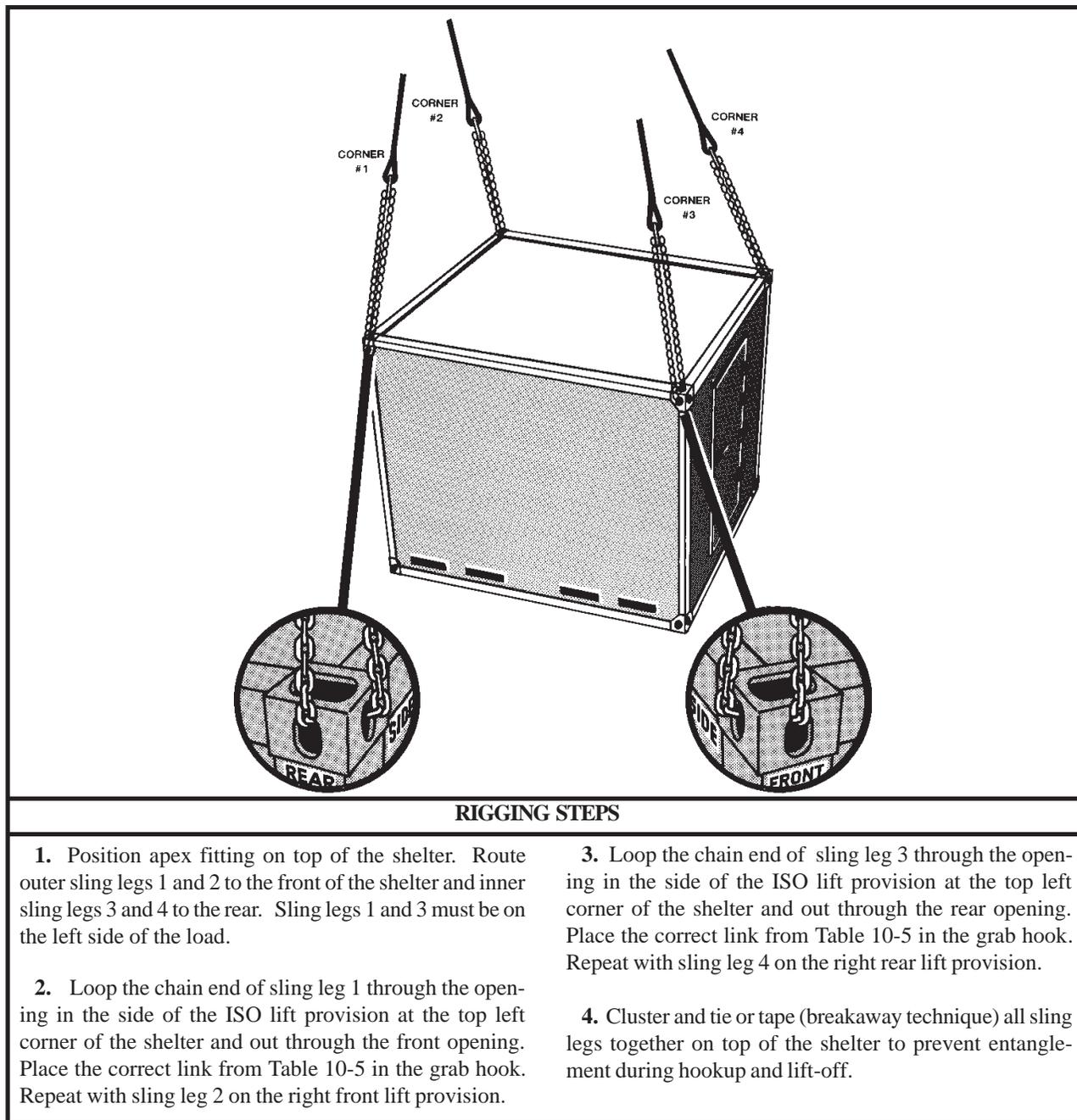


Figure 10-5. 8- x 8- x 10-Foot Shelter Systems

## 10-7. Downsized Digital Group Multiplexer (DDGM) Shelter Assemblages

**a. Applicability.** The following items in Table 10-6 are certified for all helicopters with suitable lift capacity by the US Army Natick Research, Development, and Engineering Center:

**Table 10-6. Downsized Digital Group Multiplexer (DDGM) Shelter Assemblages**

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
AN/TRC-173A	3,500	10K	3/3	80
AN/TRC-174A	3,425	10K	3/3	80
AN/TRC-175A	3,350	10K	3/3	80
AN/TRC-138B	3,525	10K	3/3	80
AN/TRC-138C	3,430	10K	3/3	80

**b. Materials.** The following materials are required to rig this load:

- (1) Sling set (10,000-pound capacity).
- (2) Tape, adhesive, pressure-sensitive, 2-inch wide roll.
- (3) Cord, nylon, Type III, 550-pound breaking strength.
- (4) Webbing, cotton, 1/4-inch, 80-pound breaking strength.

**c. Personnel.** Two persons can prepare and rig this load in 20 minutes.

**d. Procedures.** The following procedures apply to this load:

(1) **Preparation.** Prepare the load using the following steps:

- (a) Secure all drawers and internal equipment with

tape or Type III nylon cord.

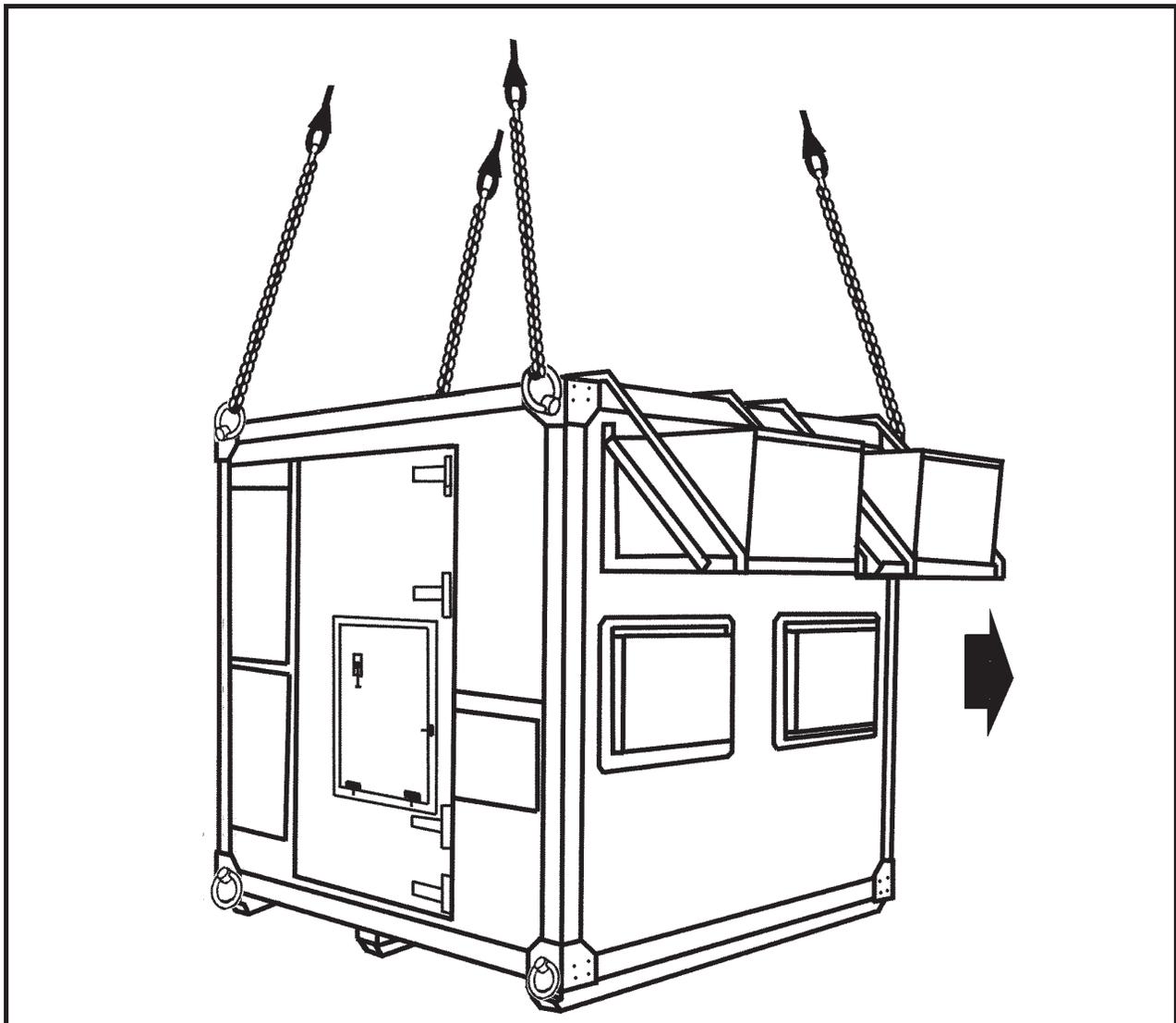
(b) Close and secure all doors, vents, and caps with tape or Type III nylon cord.

(c) Secure the air conditioner cover with Type III nylon cord.

(2) **Rigging.** Rig the load according to the steps in Figure 10-6.

(3) **Hookup.** The hookup team stands on top of the shelter. The static wand person discharges the static electricity with the static wand. The hookup person places the apex fitting onto the aircraft cargo hook. The hookup team then moves clear of the load but remains close to the load as the helicopter removes slack from the sling legs. When successful hookup is assured, the hookup team quickly exits the area underneath the helicopter to the designated rendezvous point.

(4) **Derigging.** Derigging is the reverse of the preparation and rigging procedures in steps d (1) and d (2).



#### RIGGING STEPS

1. Position apex fitting on top of the shelter. Route outer sling legs 1 and 2 to the front of the shelter (ECU end) and inner sling legs 3 and 4 to the rear. Sling legs 1 and 3 must be on the left side of the load.
2. Loop the chain end of sling leg 1 through the left front lift provision. Place the correct link from Table 10-6 in the grab hook. Repeat with sling leg 2 on the right front lift provision.
3. Loop the chain end of sling leg 3 through the left rear lift provision. Place the correct link from Table 10-6 in the grab hook. Repeat with sling leg 4 on the right rear lift provision.
4. Cluster and tie or tape (breakaway technique) all sling legs together on top of the shelter to prevent entanglement during hookup and lift-off.

*Figure 10-6. Downsized Digital Group Multiplexer (DDGM) Shelter Assemblages*

## 10-8. AN/TYC-5A Data Communications Terminal

**a. Applicability.** The following item in Table 10-7 is certified for all helicopters with suitable lift capacity by the US Army Natick Research, Development, and Engineering Center:

**Table 10-7. AN/TYC-5A Data Communications Terminal**

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
AN/TYC-5A Data Communications Terminal	7,451	15K	5/5	70

**b. Materials.** The following materials are required to rig this load:

- (1) Sling set (15,000-pound capacity).
- (2) Tape, adhesive, pressure-sensitive, 2-inch wide roll.
- (3) Cord, nylon, Type III, 550-pound breaking strength.
- (4) Webbing, cotton, 1/4-inch, 80-pound breaking strength.

**c. Personnel.** Two persons can prepare and rig this load in 15 minutes.

**d. Procedures.** The following procedures apply to this load:

(1) **Preparation.** Prepare the load using the following steps:

- (a) Secure all internal equipment with tape or Type

III nylon cord.

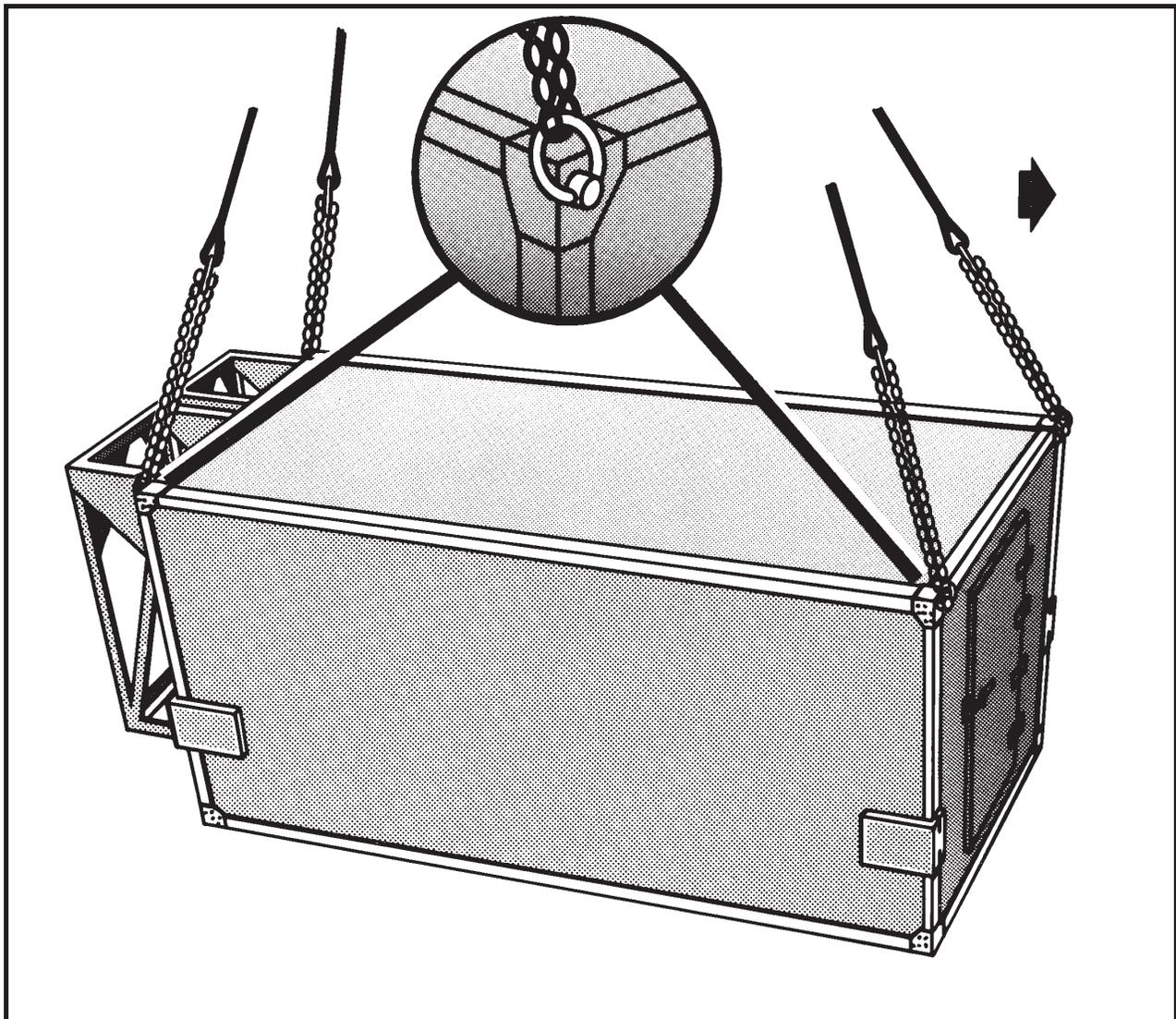
(b) Close and secure all doors, vents, and caps with tape or Type III nylon cord.

(c) Remove the transporter dolly lift sets if attached to the shelter.

(2) **Rigging.** Rig the load according to the steps in Figure 10-7.

(3) **Hookup.** The hookup team stands on top of the shelter. The static wand person discharges the static electricity with the static wand. The hookup person places the apex fitting onto the aircraft cargo hook. The hookup team then moves clear of the load but remains close to the load as the helicopter removes slack from the sling legs. When successful hookup is assured, the hookup team quickly exits the area underneath the helicopter to the designated rendezvous point.

(4) **Derigging.** Derigging is the reverse of the preparation and rigging procedures in steps d (1) and d (2).



#### RIGGING STEPS

1. Position apex fitting on top of the shelter. Route outer sling legs 1 and 2 to the front of the shelter (door end) and inner sling legs 3 and 4 to the rear. Sling legs 1 and 3 must be on the left side of the load.

2. Loop the chain end of sling leg 1 through the left front lift provision. Place the correct link from Table 10-7 in the grab hook. Repeat with sling leg 2 on the right front lift provision.

3. Loop the chain end of sling leg 3 through the left rear lift provision. Place the correct link from Table 10-7 in the grab hook. Repeat with sling leg 4 on the right rear lift provision.

4. Cluster and tie or tape (breakaway technique) all sling legs together on top of the shelter to prevent entanglement during hookup and lift-off.

*Figure 10-7. AN/TYC-5A Data Communications Terminal*

## 10-9. AN/TRN-44 Tactical Air Navigation Shelter

**a. Applicability.** The following item in Table 10-8 is certified for all helicopters with suitable lift capacity by the US Army Natick Research, Development, and Engineering Center:

**Table 10-8. AN/TRN-44 Tactical Air Navigation Shelter**

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
AN/TRN-44 Tactical Air Navigation Shelter	6,800	15K	3/3	75

**b. Materials.** The following materials are required to rig this load:

- (1) Sling set (15,000-pound capacity).
- (2) Tape, adhesive, pressure-sensitive, 2-inch wide roll.
- (3) Cord, nylon, Type III, 550-pound breaking strength.
- (4) Webbing, cotton, 1/4-inch, 80-pound breaking strength.

**c. Personnel.** Two persons can prepare and rig this load in 15 minutes.

**d. Procedures.** The following procedures apply to this load:

(1) **Preparation.** Prepare the load using the following steps:

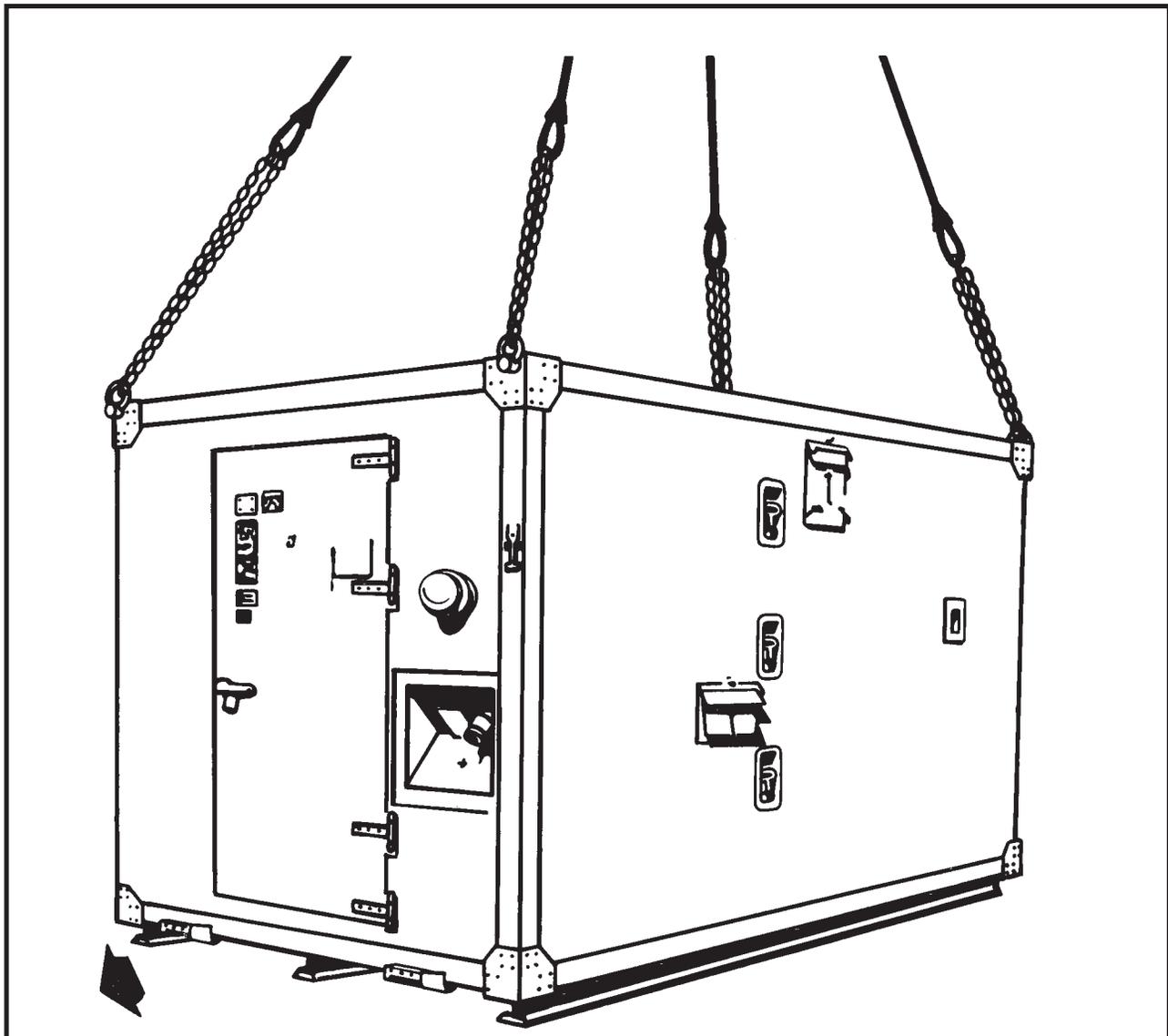
(a) Secure all internal equipment with tape or Type III nylon cord.

(b) Close and secure all doors, vents, and caps with tape or Type III nylon cord.

(2) **Rigging.** Rig the load according to the steps in Figure 10-8.

(3) **Hookup.** The hookup team stands on top of the shelter. The static wand person discharges the static electricity with the static wand. The hookup person places the apex fitting onto the aircraft cargo hook. The hookup team then moves clear of the load but remains close to the load as the helicopter removes slack from the sling legs. When successful hookup is assured, the hookup team quickly exits the area underneath the helicopter to the designated rendezvous point.

(4) **Derigging.** Derigging is the reverse of the preparation and rigging procedures in steps d (1) and d (2).



#### RIGGING STEPS

1. Position apex fitting on top of the shelter. Route outer sling legs 1 and 2 to the front of the shelter (door end) and inner sling legs 3 and 4 to the rear. Sling legs 1 and 3 must be on the left side of the load.
2. Loop the chain end of sling leg 1 through the left front lift provision. Place the correct link from Table 10-8 in the grab hook. Repeat with sling leg 2 on the right front lift provision.
3. Loop the chain end of sling leg 3 through the left rear lift provision. Place the correct link from Table 10-8 in the grab hook. Repeat with sling leg 4 on the right rear lift provision.
4. Cluster and tie or tape (breakaway technique) all sling legs together on top of the shelter to prevent entanglement during hookup and lift-off.

*Figure 10-8. AN/TRN-44 Tactical Air Navigation Shelter*

## 10-10. Hardened Army Tactical Shelter (HATS)

**a. Applicability.** The following item in Table 10-9 is certified for all helicopters with suitable lift capacity by the US Army Natick Research, Development, and Engineering Center:

**Table 10-9. Hardened Army Tactical Shelter (HATS)**

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
Hardened Army Tactical Shelter, S-658G	8,160	10K	3/30	70

**b. Materials.** The following materials are required to rig this load:

- (1) Sling set (10,000-pound capacity).
- (2) Tape, adhesive, pressure-sensitive, 2-inch wide roll.
- (3) Cord, nylon, Type III, 550-pound breaking strength.
- (4) Webbing, cotton, 1/4-inch, 80-pound breaking strength.

**c. Personnel.** Two persons can prepare and rig this load in 15 minutes.

**d. Procedures.** The following procedures apply to this load:

(1) **Preparation.** Prepare the load using the following steps:

- (a) Secure all internal equipment with tape or Type

III nylon cord.

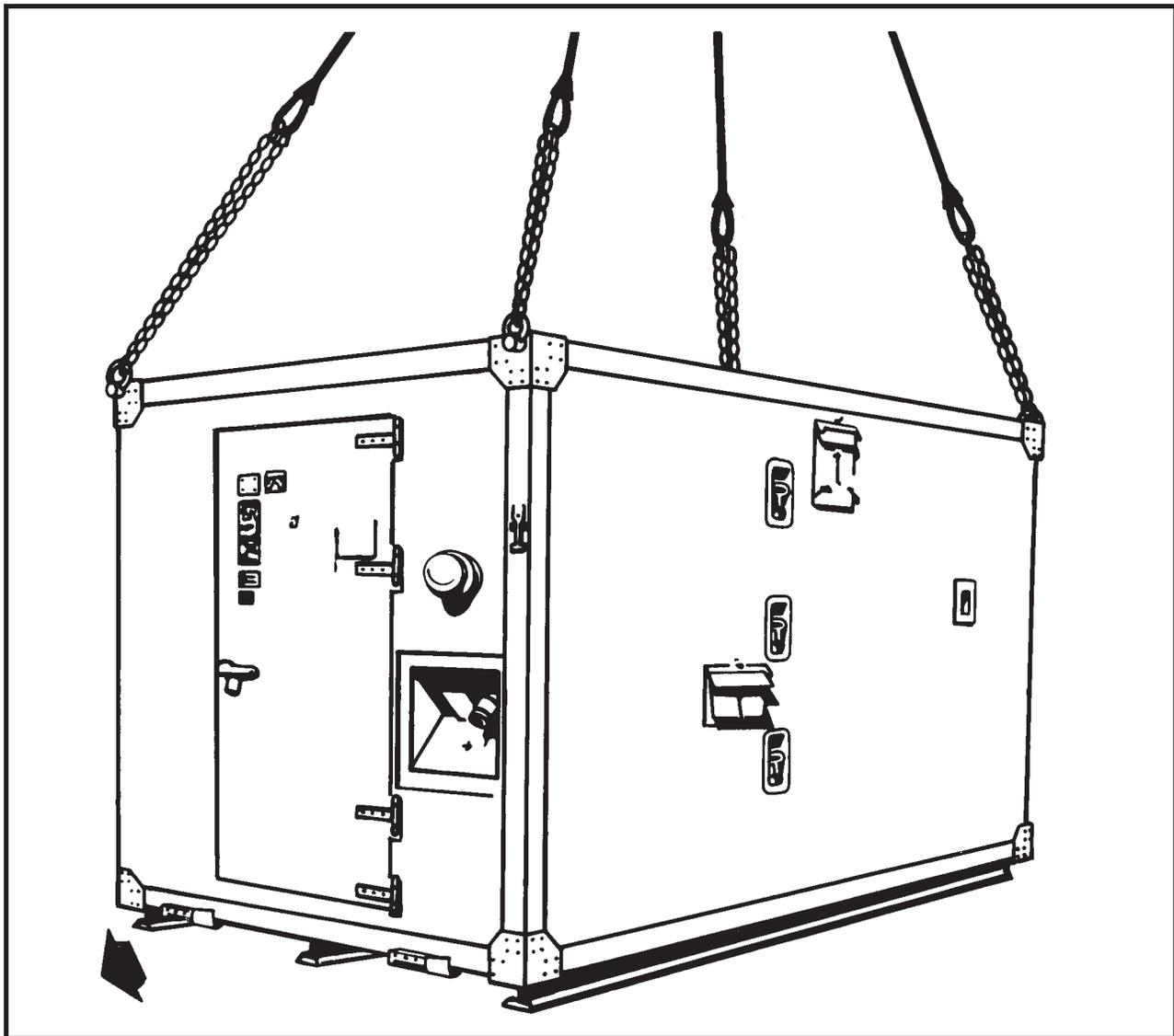
(b) Close and secure all doors, vents, and caps with tape or Type III nylon cord.

(c) Secure the air conditioner panels with tape.

(2) **Rigging.** Rig the load according to the steps in Figure 10-9.

(3) **Hookup.** The hookup team stands on top of the shelter. The static wand person discharges the static electricity with the static wand. The hookup person places the apex fitting onto the aircraft cargo hook. The hookup team then moves clear of the load but remains close to the load as the helicopter removes slack from the sling legs. When successful hookup is assured, the hookup team quickly exits the area underneath the helicopter to the designated rendezvous point.

(4) **Derigging.** Derigging is the reverse of the preparation and rigging procedures in steps d (1) and d (2).



#### RIGGING STEPS

1. Position apex fitting on top of the shelter. Route outer sling legs 1 and 2 to the front of the shelter (door end) and inner sling legs 3 and 4 to the rear. Sling legs 1 and 3 must be on the left side of the load.
2. Loop the chain end of sling leg 1 through the left front lift provision. Place the correct link from Table 10-9 in the grab hook. Repeat with sling leg 2 on the right front lift provision.
3. Loop the chain end of sling leg 3 through the left rear lift provision. Place the correct link from Table 10-9 in the grab hook. Repeat with sling leg 4 on the right rear lift provision.
4. Cluster and tie or tape (breakaway technique) all sling legs together on top of the shelter to prevent entanglement during hookup and lift-off.

*Figure 10-9. Hardened Army Tactical Shelter (HATS)*

## 10-11. Cradle Mounted AN/TPQ-32A Radar Set, Component of the AN/MPQ-49A Forward Area Alerting Radar (FAAR) System

**a. Applicability.** The following item in Table 10-10 is certified for all helicopters with suitable lift capacity by the US Army Natick Research, Development, and Engineering Center:

**Table 10-10. Cradle Mounted AN/TPQ-32A Radar Set**

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
AN/TPQ-32A Cradle Mounted Radar Set (Cradle, S-250/G Shelter, and a Generator)	7,100	10K	3/20	90

**NOTE: The AN/TPQ-32A must be removed from the truck prior to sling loading.**

**b. Materials.** The following materials are required to rig this load:

- (1) Sling set (10,000-pound capacity).
- (2) Additional chain lengths with couplings (4 each).
- (3) Tape, adhesive, pressure-sensitive, 2-inch wide roll.
- (3) Cord, nylon, Type III, 550-pound breaking strength.
- (4) Webbing, cotton, 1/4-inch, 80-pound breaking strength.
- (6) Tie-down strap, cargo, CGU-1/B (as required).
- (7) Wrench, box end, 9/16-inch.

**c. Personnel.** Two persons can prepare and rig this load in 25 minutes.

**d. Procedures.** The following procedures apply to this load:

**(1) Preparation.** Prepare the load using the following steps:

**(a)** Remove the cradle from the modified M35A2 truck and remount the mast in the vertical position in ac-

cordance with TM 9-1430-588-10.

**(b)** Remount the antenna reflectors from over the generator assembly to the front of the cradle by removing and replacing the quick release pins.

**(c)** Remove the two turnbuckles located between the front (shelter door end) cradle tie-down provision and the shelter lifting provision using a 9/16-inch box wrench. Store them inside the shelter or in a cradle cabinet.

**(d)** Pin the mud flaps in the up position.

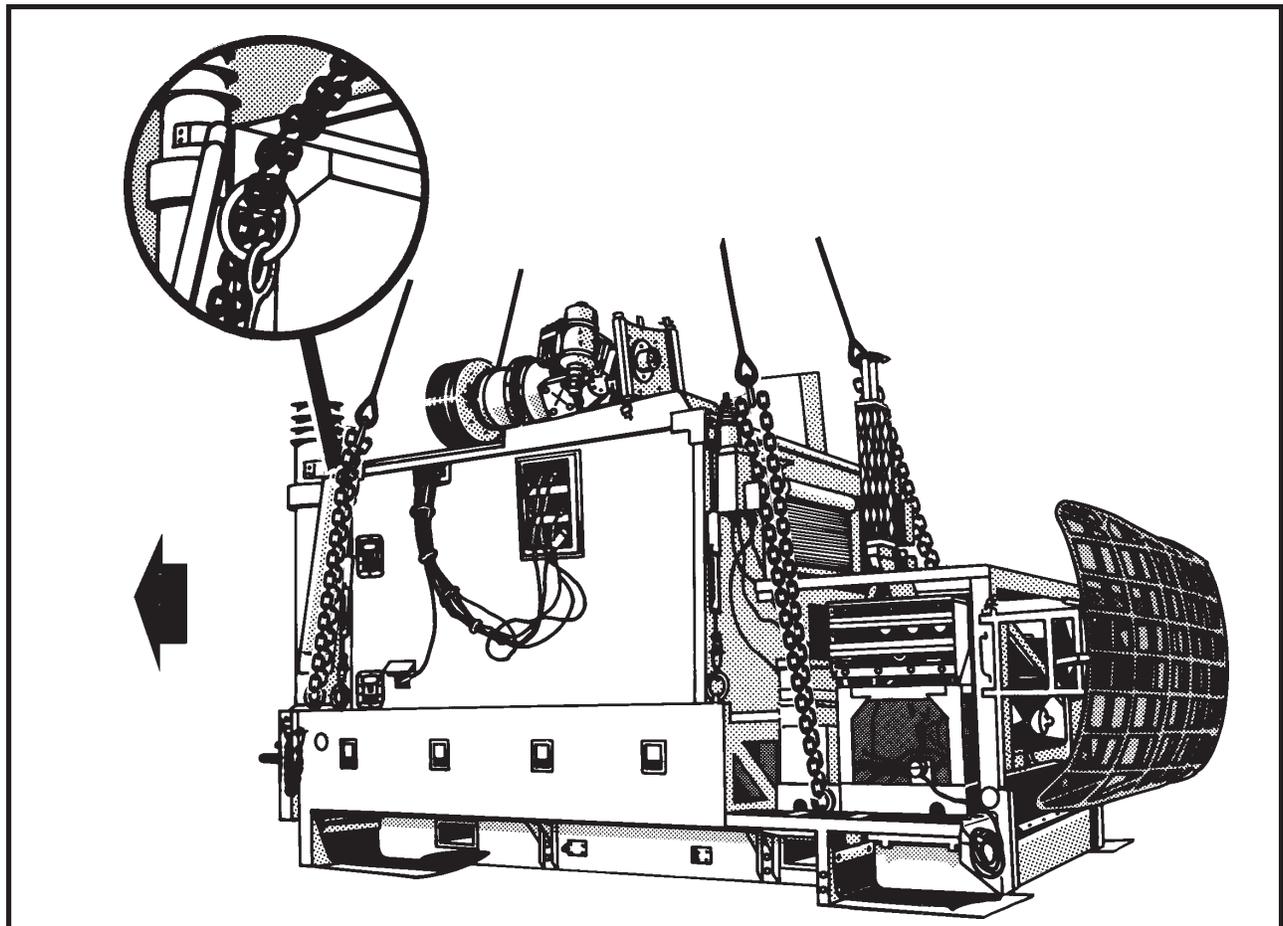
**(e)** Secure all loose equipment inside the shelter and between the cradle and the shelter with Type III nylon cord, tape, or tie-down straps.

**(f)** Close and secure all doors, vents, and caps with tape or Type III nylon cord.

**(2) Rigging.** Rig the load according to the steps in Figure 10-10.

**(3) Hookup.** The hookup team stands on top of the shelter. The static wand person discharges the static electricity with the static wand. The hookup person places the apex fitting onto the aircraft cargo hook. The hookup team then moves clear of the load but remains close to the load as the helicopter removes slack from the sling legs. When successful hookup is assured, the hookup team quickly exits the area underneath the helicopter to the designated rendezvous point.

**(4) Derigging.** Derigging is the reverse of the preparation and rigging procedures in steps d (1) and d (2).



#### RIGGING STEPS

1. Attach an additional chain leg to each sling leg using the coupling links.

2. Position the apex fitting on top of the shelter. Route outer sling legs 1 and 2 to the front of the shelter (door end) and inner sling legs 3 and 4 to the rear. Sling legs 1 and 3 must be on the left side of the load.

3. Loop the chain end of sling leg 1 through the left front lift provision of the shelter and through the left front lift provision of the cradle. Be sure to use the cradle lift provision, not the tie-down provision. Place the correct

link from Table 10-10 in the grab hook. Repeat with sling leg 2 and the right front lift provision of the shelter and cradle. Secure excess chain with tape or nylon cord.

4. Loop the chain end of sling leg 3 through the left rear lift provision of the cradle. Place the correct link from Table 10-10 in the grab hook. Repeat with sling leg 4 and the right rear lift provision of the cradle.

5. Cluster and tie or tape (breakaway technique) all sling legs together on top of the shelter to prevent entanglement during hookup and lift-off.

*Figure 10-10. Cradle Mounted AN/TPQ-32A Radar Set*

## 10-12. NATO Air Base Satcom (NABS) Shelter Pallet, AN/TSC-93B (V) 2

**a. Applicability.** The following item in Table 10-11 is certified for all helicopters with suitable lift capacity by the US Army Natick Research, Development, and Engineering Center:

**Table 10-11. NATO Air Base Satcom (NABS) Shelter Pallet, AN/TSC-93B (V) 2**

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
AN/TSC-93B (V) 2 Shelter Pallet	5,751	10K	3/3	90

**b. Materials.** The following materials are required to rig this load:

- (1) Sling set (10,000-pound capacity).
- (2) Tape, adhesive, pressure-sensitive, 2-inch wide roll.
- (3) Cord, nylon, Type III, 550-pound breaking strength.
- (4) Webbing, cotton, 1/4-inch, 80-pound breaking strength.

**c. Personnel.** Two persons can prepare and rig this load in 20 minutes.

**d. Procedures.** The following procedures apply to this load:

(1) **Preparation.** Prepare the load using the following steps:

- (a) Secure all loose cables and equipment on the

shelter pallet with tape or Type III nylon cord.

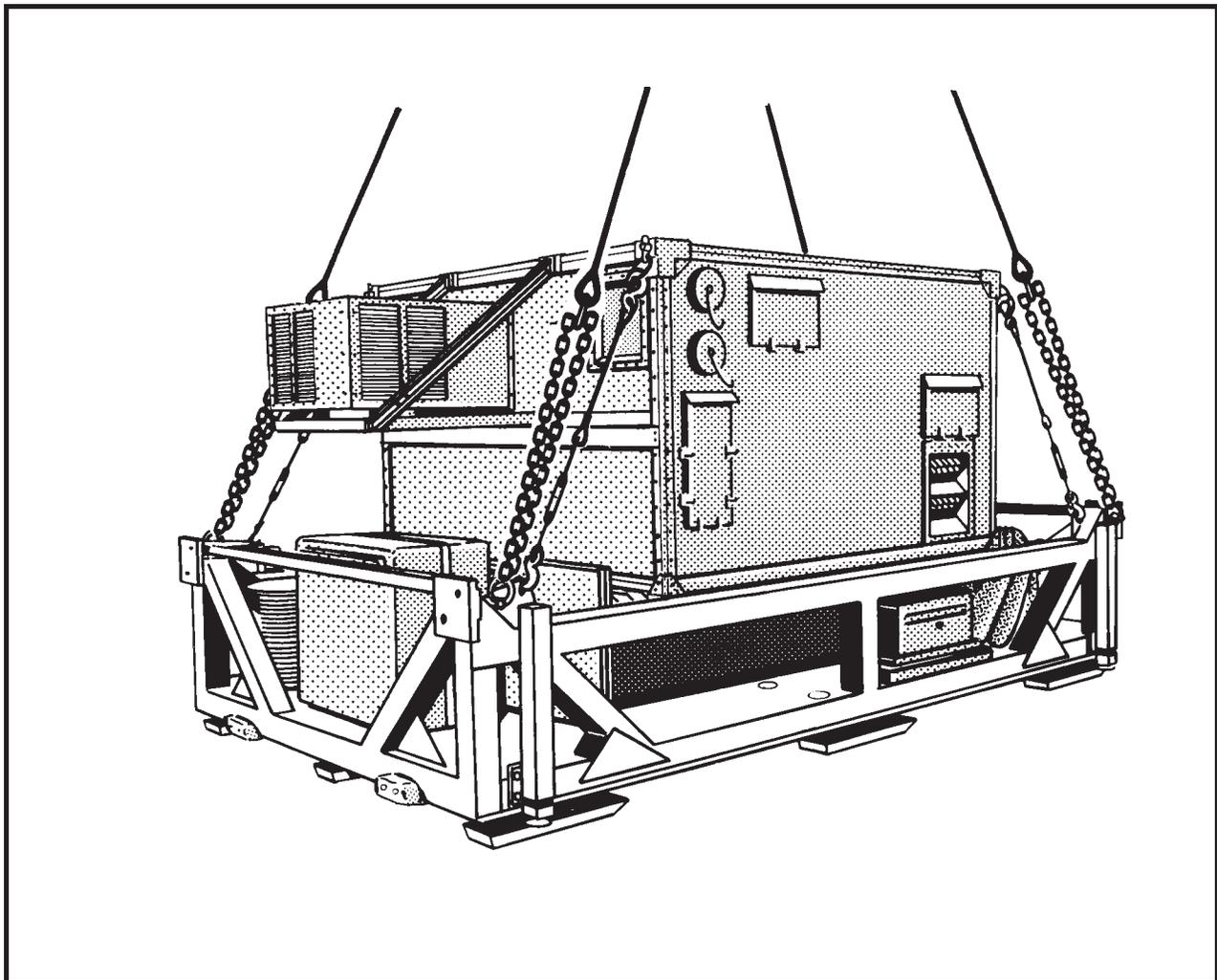
(b) Remove the cargo cover and stow it inside the shelter.

(c) Close and secure all doors, vents, and caps with tape or Type III nylon cord. All exhaust vents must be taped.

(2) **Rigging.** Rig the load according to the steps in Figure 10-11.

(3) **Hookup.** The hookup team stands on top of the shelter. The static wand person discharges the static electricity with the static wand. The hookup person places the apex fitting onto the aircraft cargo hook. The hookup team then moves clear of the load but remains close to the load as the helicopter removes slack from the sling legs. When successful hookup is assured, the hookup team quickly exits the area underneath the helicopter to the designated rendezvous point.

(4) **Derigging.** Derigging is the reverse of the preparation and rigging procedures in steps d (1) and d (2).



#### RIGGING STEPS

1. Position the apex fitting on top of the shelter. Route outer sling legs 1 and 2 to the front of the pallet (ECU end) and inner sling legs 3 and 4 to the rear. Sling legs 1 and 3 must be on the left side of the load.

**CAUTION**  
Do not use the lift provisions on the shelter.

2. Loop the chain end of sling leg 1 through the left front lift provision located on the pallet. Place the correct

link from Table 10-11 in the grab hook. Repeat with sling leg 2 and the right front lift provision.

3. Loop the chain end of sling leg 3 through the left rear lift provision located on the pallet. Place the correct link from Table 10-11 in the grab hook. Repeat with sling leg 4 and the right rear lift provision.

4. Cluster and tie or tape (breakaway technique) all sling legs together on top of the shelter to prevent entanglement during hookup and lift-off.

Figure 10-11. NATO Air Base Satcom (NABS) Shelter Pallet, AN/TSC-93B (V) 2

### 10-13. Refrigerator, Rigid Box without Refrigerator Unit

**a. Applicability.** The following item in Table 10-12 is certified for all helicopters with suitable lift capacity by the US Army Natick Research, Development, and Engineering Center:

**Table 10-12. Refrigerator, Rigid Box without Refrigerator Unit**

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
Refrigerator, Rigid Box, TAMCN B1710, without Refrigerator Unit	3,500	15K	5/5	90

**b. Materials.** The following materials are required to rig this load:

- (1) Sling set (15,000-pound capacity).
- (2) Tape, adhesive, pressure-sensitive, 2-inch wide roll.
- (3) Cord, nylon, Type III, 550-pound breaking strength.
- (4) Webbing, cotton, 1/4-inch, 80-pound breaking strength.

**c. Personnel.** Two persons can prepare and rig this load in 10 minutes.

**d. Procedures.** The following procedures apply to this load:

(1) **Preparation.** Prepare the load using the following steps:

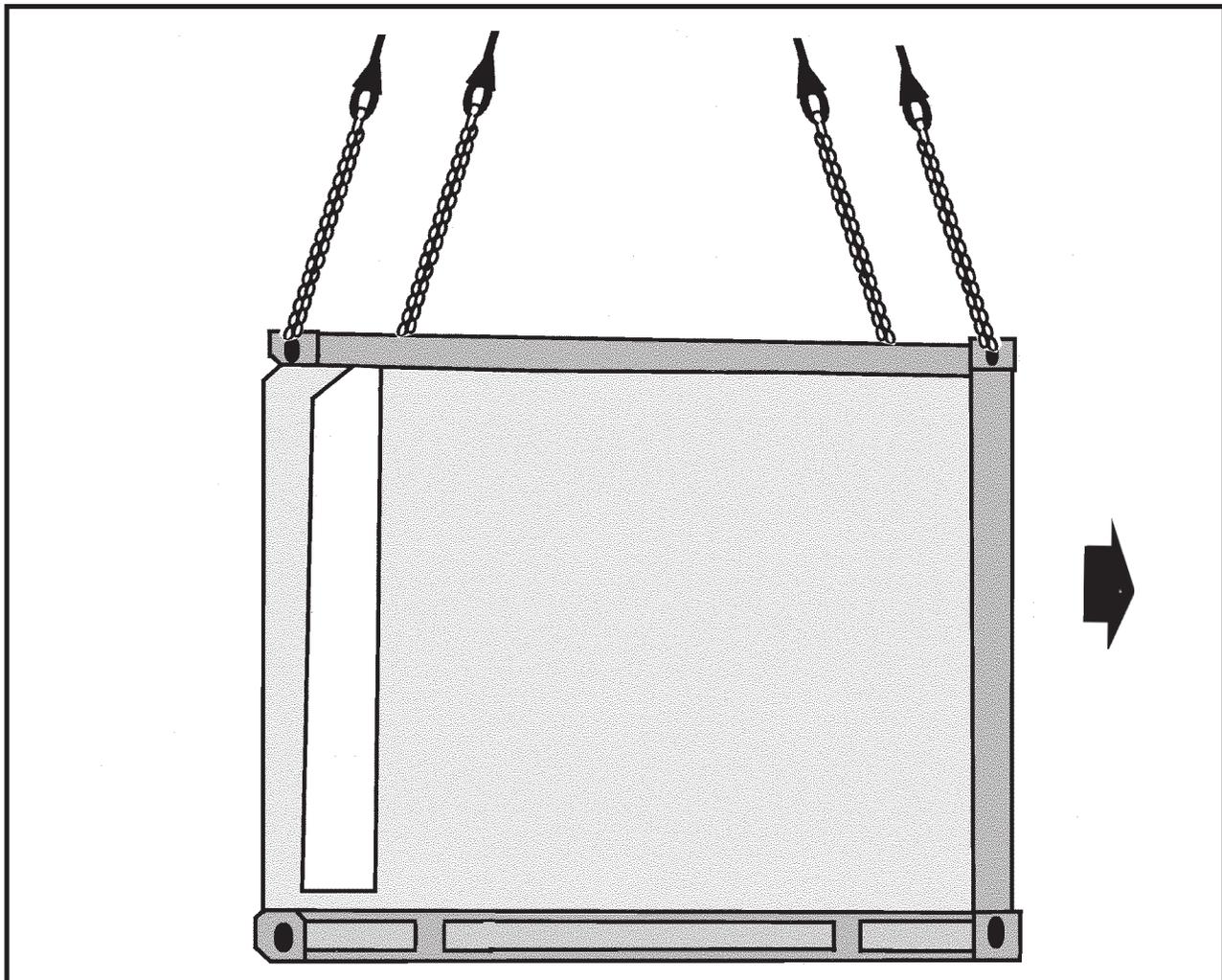
(a) Remove the refrigerator unit from inside the refrigerator box.

(b) Secure all equipment inside the box with tape or Type III nylon cord. Close and secure the door latch.

(2) **Rigging.** Rig the load according to the steps in Figure 10-12.

(3) **Hookup.** The hookup team stands on top of the shelter. The static wand person discharges the static electricity with the static wand. The hookup person places the apex fitting onto the aircraft cargo hook. The hookup team then moves clear of the load but remains close to the load as the helicopter removes slack from the sling legs. When successful hookup is assured, the hookup team quickly exits the area underneath the helicopter to the designated rendezvous point.

(4) **Derigging.** Derigging is the reverse of the preparation and rigging procedures in steps d (1) and d (2).



**RIGGING STEPS**

**1.** Position the web ring on top of the refrigerator box. Route outer sling legs 1 and 2 to the front of the box and inner sling legs 3 and 4 to the rear. Sling legs 1 and 3 must be on the left side of the load.

**2.** Loop the chain end of sling leg 1 through the left front lift provision. Place the correct link from Table 10-12 in the grab hook. Repeat with sling leg 2 and the right front lift provision.

**3.** Loop the chain end of sling leg 3 through the left rear lift provision. Place the correct link from Table 10-12 in the grab hook. Repeat with sling leg 4 and the right rear lift provision.

**4.** Cluster and tie or tape (breakaway technique) all sling legs together on top of the box to prevent entanglement during hookup and lift-off.

*Figure 10-12. Refrigerator, Rigid Box without Refrigerator Unit*

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