

CHAPTER 14

SUITABLE DUAL-POINT RIGGING PROCEDURES

14-1. INTRODUCTION

This chapter contains rigging procedures for dual-point lift of loads that are suitable 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 suitable

loads. The dual-point rigging procedures for suitable loads are in this section. Paragraphs 14-2 through 14-6 give detailed instructions for rigging loads.

NOTE: Reach Pendants may be used on dual point loads. Place a Reach Pendant on each apex fitting. A static discharge person is not required when using a Reach Pendant.

14-2. M35A1/A2 2 1/2-Ton Cargo Truck

a. Applicability. The following item in Table 14-1 is suitable for sling loading by the helicopter(s) listed in the following table:

WARNING

DO NOT LIFT THIS LOAD WITH THE ORIGINAL VEHICLE LIFT PROVISIONS

Table 14-1. M35A1/A2 2 1/2-Ton Cargo Truck

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
M35A1/A2 2 1/2-Ton Cargo Truck	13,180	25K	35/3	CH-47	90

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

- (1) Sling set (25,000-pound capacity) with one additional apex fitting.
- (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.
- (5) Strap, cargo, tiedown, CGU-1/B (as required).

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 the cargo compartment canvas and bows. Secure the canvas and bows in the bed of the truck.
 - (b) Remove the cab top canvas, lower the windshield, fold the canvas over the windshield, and secure with Type III nylon cord.

(c) Secure the windshield in the down position with the CGU-1/B cargo tiedown strap.

(d) Safety tie the hood closed with Type III nylon cord around the hood latch and the grill.

(e) Ensure the fuel, oil filler, radiator, and battery caps are properly installed and secured. Ensure the battery compartment door is closed. Ensure the fuel tank is not over 3/4 full.

(f) Secure the seat cushions and doors with Type III nylon cord.

(g) Engage the emergency brake and place the transmission in neutral.

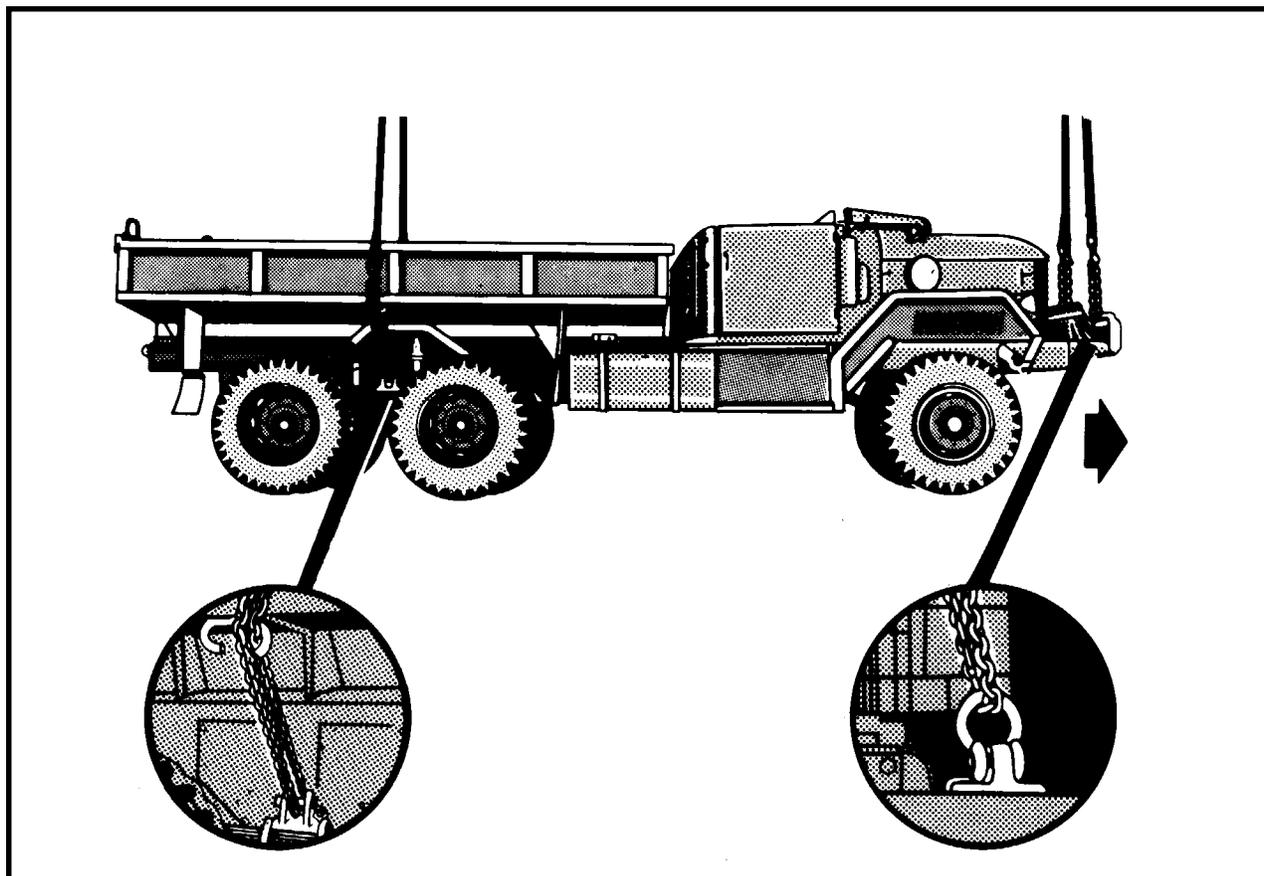
(h) Straighten the front wheels and secure the steering wheel with Type III nylon cord.

(2) **Rigging.** Rig the load according to the steps in Figure 14-1.

NOTE: Ensure the hook on the grab hook faces away from the vehicle.

(3) **Hookup.** Two hookup teams are used for this load. The static discharge person discharges the static electricity. The forward hookup person stands on the passenger seat and places apex fitting 1 onto the forward cargo hook. The aft hookup person stands in the truck bed and places apex fitting 2 onto the aft cargo hook. The hookup teams then carefully dismount the load and remain close to the load as the helicopter removes slack from the sling legs. When successful hookup is assured, the hookup teams quickly exit 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. Place two sling legs on apex fitting number 1. Position apex fitting number 1 on top of the hood.

2. Loop the chain end of the left and right sling legs through their respective lift provision located on the front bumper. Place the correct link from Table 14-1 in the grab hook. Secure the excess chain with tape or Type III nylon cord.

3. Place two sling legs on apex fitting number 2. Position apex fitting number 2 on the cargo bed.

4. Loop the chain end of the left and right sling legs

through their respective lift provision located on top of the spring housing between the rear wheels. Place the correct link from Table 14-1 in the grab hook.

5. Pull each grab hook up against the side of the truck and tie the chain in the chain guide bracket. Pull both grab hooks together over top of the bed and tie together with 1/4-inch cotton webbing.

6. Raise the apex fittings above the load. Cluster and tie or tape (breakaway technique) the sling legs in each sling set together to prevent entanglement during hookup and lift-off.

Figure 14-1. M35A1/A2 2 1/2-Ton Cargo Truck

14-3. M149-Series Water Trailer

a. Applicability. The following items in Table 14-2 are suitable for sling loading by the helicopter(s) listed in the following table:

Table 14-2. M149-Series Water Trailer

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Water Trailer, M149/M149A1	MIN: 2,540 MAX: 6,060	10K	3/3	CH-47	60
Water Trailer, M149A2	MIN: 2,800 MAX: 6,320	10K	3/3	CH-47	60

WARNING
THE M149, M149A1, AND M149A2 WATER TRAILERS, WITHOUT THE MODIFIED CLEVIS TYPE LIFT PROVISIONS, ARE NOT CERTIFIED FOR SLING LOADING BECAUSE OF INADEQUATE LIFT PROVISION STRENGTH WHEN THE TRAILER IS FULL

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

- (1) Sling set (10,000-pound capacity) with one additional apex fitting.
- (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:

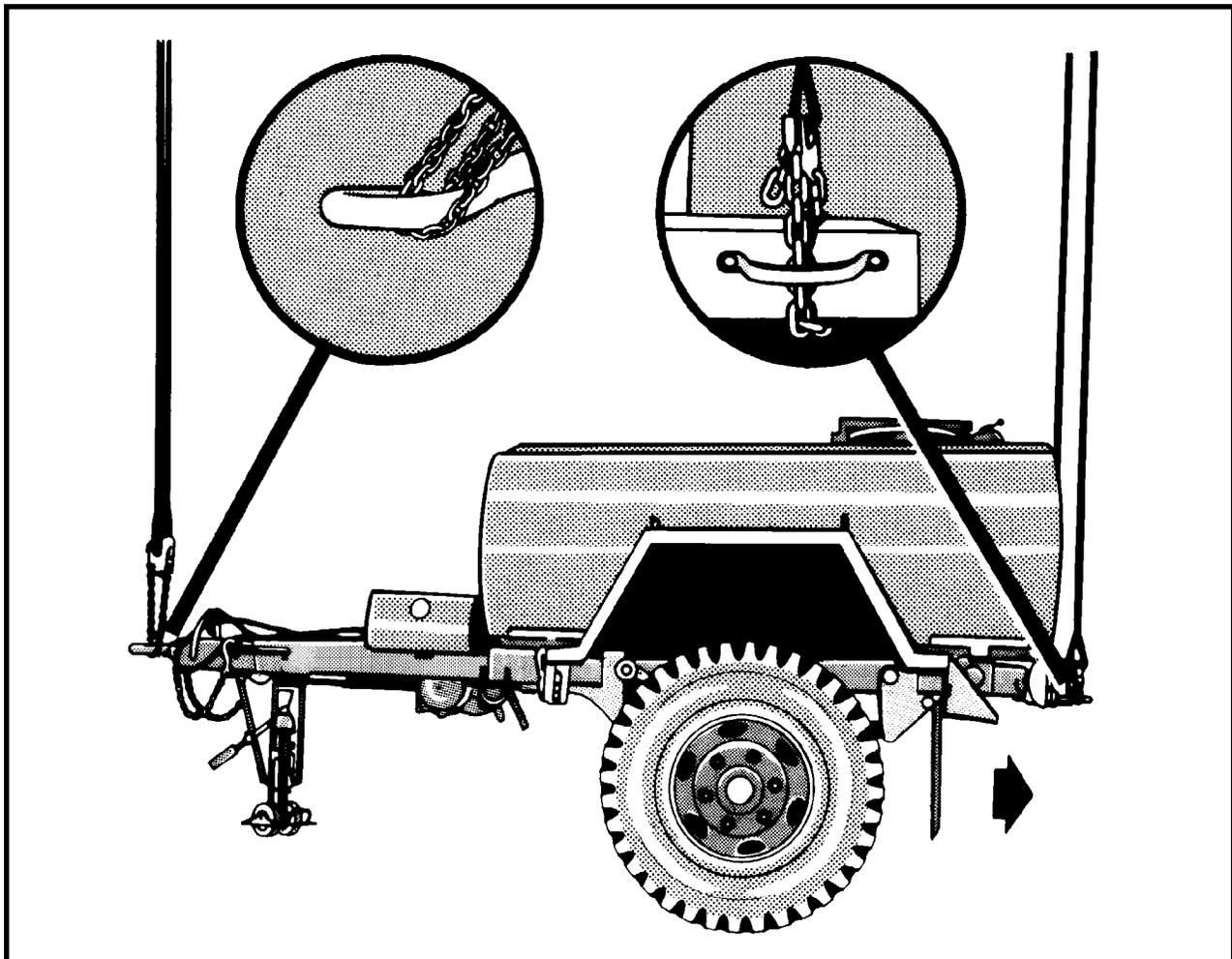
(1) Preparation. Prepare the load using the following steps:

- (a) Secure the light cable and air hoses to the drawbar with tape or Type III nylon cord.
- (b) Place the support leg and wheel in the down position.
- (c) Tape the top edge of the rear of the water tank.
- (d) Engage both hand brakes. Close and secure the fill port and tape if necessary.

(2) Rigging. Rig the load according to the steps in Figure 14-2.

(3) Hookup. Two hookup teams are used for this load. The static discharge person discharges the static electricity. The forward hookup person stands on the fender and places apex fitting 2 onto the forward cargo hook. The aft hookup person stands on the tongue and places apex fitting 1 onto the aft cargo hook. The hookup teams then carefully dismount the load and remain close to the load as the helicopter removes slack from the sling legs. When successful hookup is assured, the hookup teams quickly exit 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. Place two sling legs on apex fitting number 1. Position apex fitting number 1 on top of the water tank.
2. Loop the chain end of the left and right sling legs through the lunette. Place the correct link from Table 14-2 in the grab hook.
3. Place two sling legs on apex fitting number 2. Position apex fitting number 2 on top of the water tank.
4. Using the rear lift provisions as a guide to keep the

chains in place, route the chain end of the left sling leg down between the tank and the crossmember, under the rear crossmember, and back up through the lift provision. Place the correct link from Table 14-2 in the grab hook. Repeat the procedure with the right chain leg and the right rear lift provision.

5. Raise the apex fittings above the load. Cluster and tie or tape (breakaway technique) the sling legs in each sling set together to prevent entanglement during hookup and lift-off.

Figure 14-2. M149-Series Water Trailer

14-4. M114A1 155-mm Howitzer

a. Applicability. The following item in Table 14-3 is suitable for sling loading by the helicopter(s) listed in the following table:

Table 14-3. M114A1 155-mm Howitzer

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
M114A1 155-mm Howitzer	12,660	25K	55/3	CH-47	90

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

- (1) Sling set (25,000-pound capacity) with one additional apex fitting.
- (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.
- (5) Clevis assembly, large, MS 70087-3 (1 each).
- (6) Strap, cargo, tiedown, CGU-1/B (as required).

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) Stow all howitzer equipment, including sights, in their proper place except the spade key. Stow the spade key in the section chest. Secure all equipment with tape or Type III nylon cord.

- (b) Secure the section chest on the rear of the trails

by routing a CGU-1/B tiedown strap through the handles of the chest and both trail lifting handles. Secure the excess strap with tape.

- (c) Secure the spades to the brackets with Type III nylon cord. Secure all cables and hoses to the trail sides with tape or Type III nylon cord.

- (d) Secure the trail latching handle in the closed position with Type III nylon cord and insert the trail locking pin.

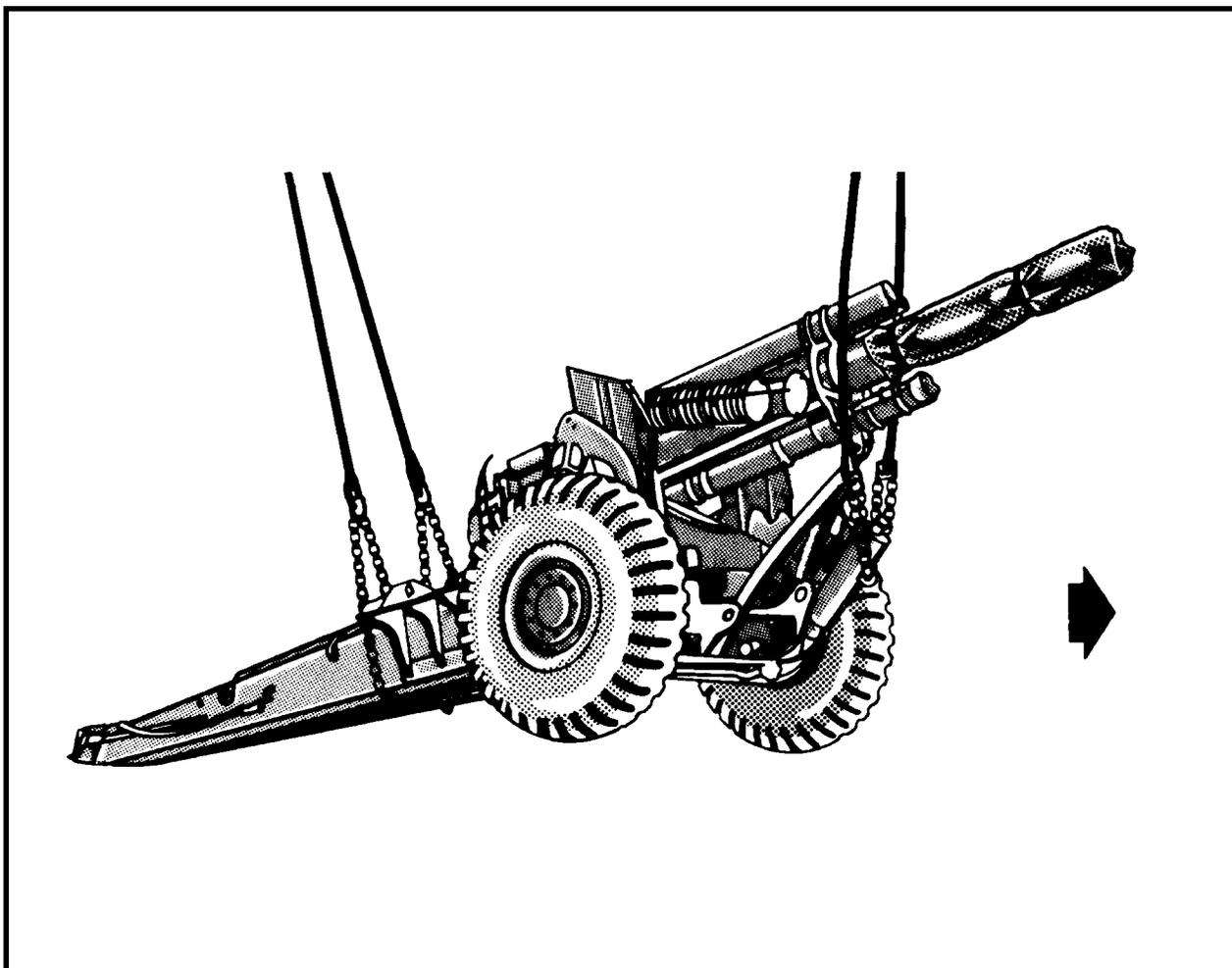
- (e) Position the ballistic shield in the raised position and remove and secure all gun covers.

- (f) Engage the hand brake.

(2) **Rigging.** Rig the load according to the steps in Figure 14-3.

(3) **Hookup.** Two hookup teams are used for this load. The static discharge person discharges the static electricity. The forward hookup person stands on the wheels and places apex fitting 1 onto the forward cargo hook. The aft hookup person stands on the trails and places apex fitting 2 onto the aft cargo hook. The hookup teams then carefully dismount the load and remain close to the load as the helicopter removes slack from the sling legs. When successful hookup is assured, the hookup teams quickly exit 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. Place two sling legs on apex fitting number 1. Position apex fitting number 1 on top of the barrel.

2. Loop the chain end of the left sling leg through the firing jack locking pin receiver. Place the correct link from Table 14-3 in the grab hook. Repeat the procedure with the right sling leg on the right side of the barrel. Secure the excess chain with tape or Type III nylon cord.

3. Place two sling legs on apex fitting number 2. Position apex fitting number 2 on top of the breech.

4. Route the chain end of the left sling leg through the large clevis, down through the center of the trails, under

the left trail, and up through the spade key bracket on the outside of the left trail. Place the correct link from Table 14-3 in the grab hook.

5. Route the chain end of the other sling leg through the large clevis, down through the center of the trails, under the right trail, and up through the aft spade key bracket on the outside of the right trail. Place the correct link from Table 14-3 in the grab hook.

6. Raise the apex fittings above the load. Cluster and tie or tape (breakaway technique) the sling legs in each sling set together to prevent entanglement during hookup and lift-off.

Figure 14-3. M114A1 155-mm Howitzer

14-5. One Conex Container

a. Applicability. The following item in Table 14-4 is suitable for sling loading by the helicopter(s) listed in the following table:

Table 14-4. One Conex Container

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
One Conex Container	1,578	10K	Listed in Rigging Steps	CH-47	60

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

- (1) Sling set (10,000-pound capacity) with one additional apex fitting.
- (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.
- (5) Strap, cargo, tiedown, CGU-1/B (4 each).

c. Personnel. Two persons can prepare and rig this load in 5 minutes.

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

- (1) **Preparation.** Prepare the load using the following

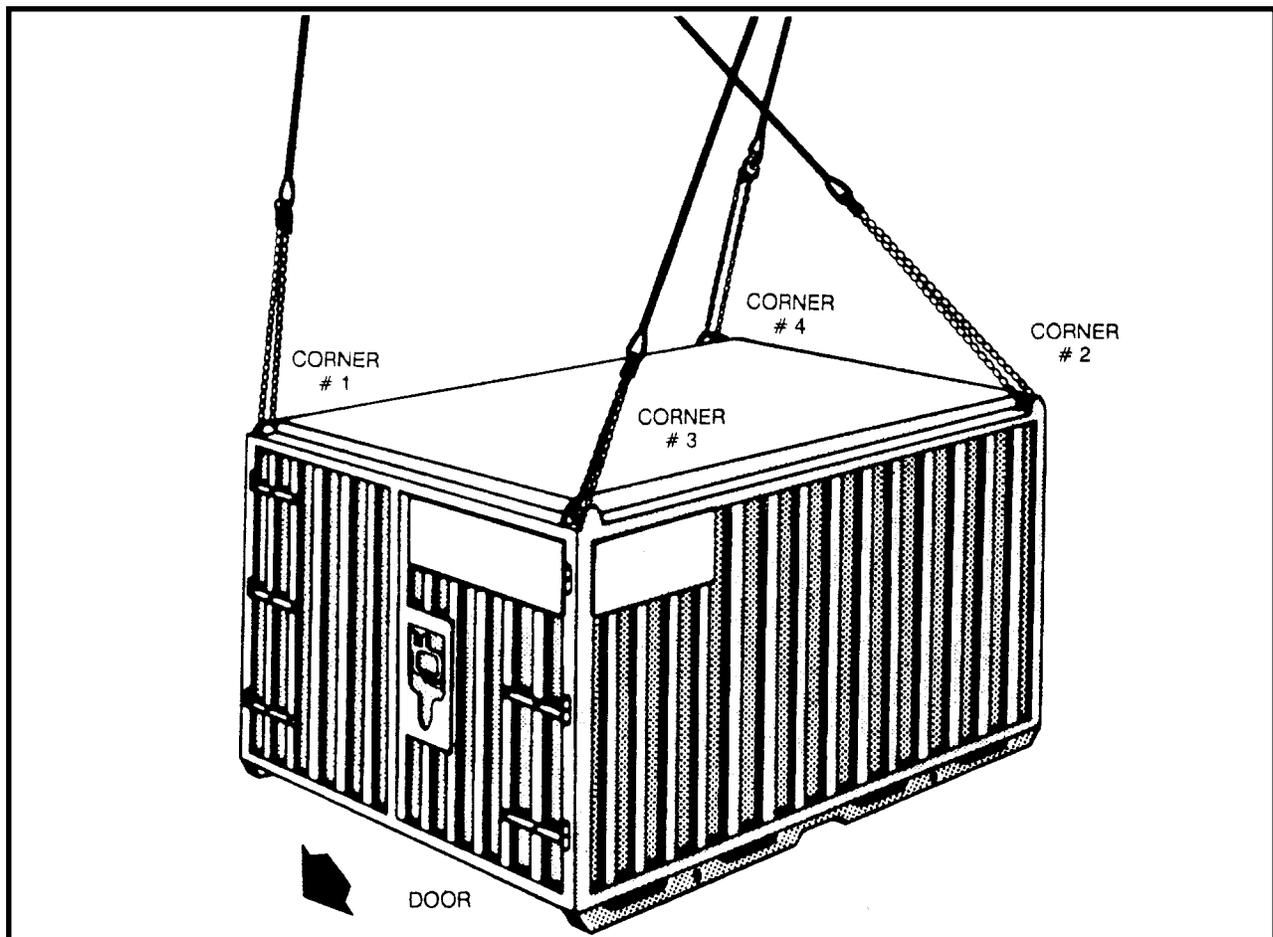
steps:

- (a) Close the conex doors.
- (b) Secure the doors with CGU-1/B tiedown straps.

(2) **Rigging.** Rig the load according to the steps in Figure 14-4.

(3) **Hookup.** Two hookup teams stand on top of the container. The static discharge person discharges the static electricity. The forward hookup person places apex fitting 1 onto the forward cargo hook. The aft hookup person places apex fitting 2 onto the aft cargo hook. The hookup teams then carefully dismount the load and remain close to the load as the helicopter removes slack from the sling legs. When successful hookup is assured, the hookup teams quickly exit 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. Place two sling legs on apex fitting number 1. Position apex fitting number 1 on top of the door end of the container.
2. Loop the chain end of one sling leg through the lift provision on the top of corner one and insert link 86 in the grab hook. Secure the excess chain with tape or Type III nylon cord.
3. Loop the chain end of the other sling leg through the lift provision on the top of corner 2 and insert link 3 in the grab hook.
4. Place two sling legs on apex fitting number 2. Position apex fitting number 2 on top of the container.
5. Route one sling leg to the outside of sling leg 2 and loop the chain end through the lift provision on the top of corner 3. Insert link 51 in the grab hook. Secure the excess chain with tape or Type III nylon cord.
6. Route the other sling leg to the outside of sling leg 2 and loop the chain end through the lift provision on the top of corner 4. Insert link 86 in the grab hook. Secure the excess chain with tape or Type III nylon cord.
7. Raise the apex fittings above the load. Cluster and tie or tape (breakaway technique) the sling legs in each sling set together to prevent entanglement during hookup and lift-off.

Figure 14-4. One Conex Container

14-6. One MILVAN Container

a. Applicability. The following item in Table 14-5 is suitable for sling loading by the helicopter(s) listed in the following table:

Table 14-5. One MILVAN Container

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
One MILVAN Container	4,710	10K	3/33	CH-47	60

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

- (1) Sling set (10,000-pound capacity) with one additional apex fitting.
- (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.

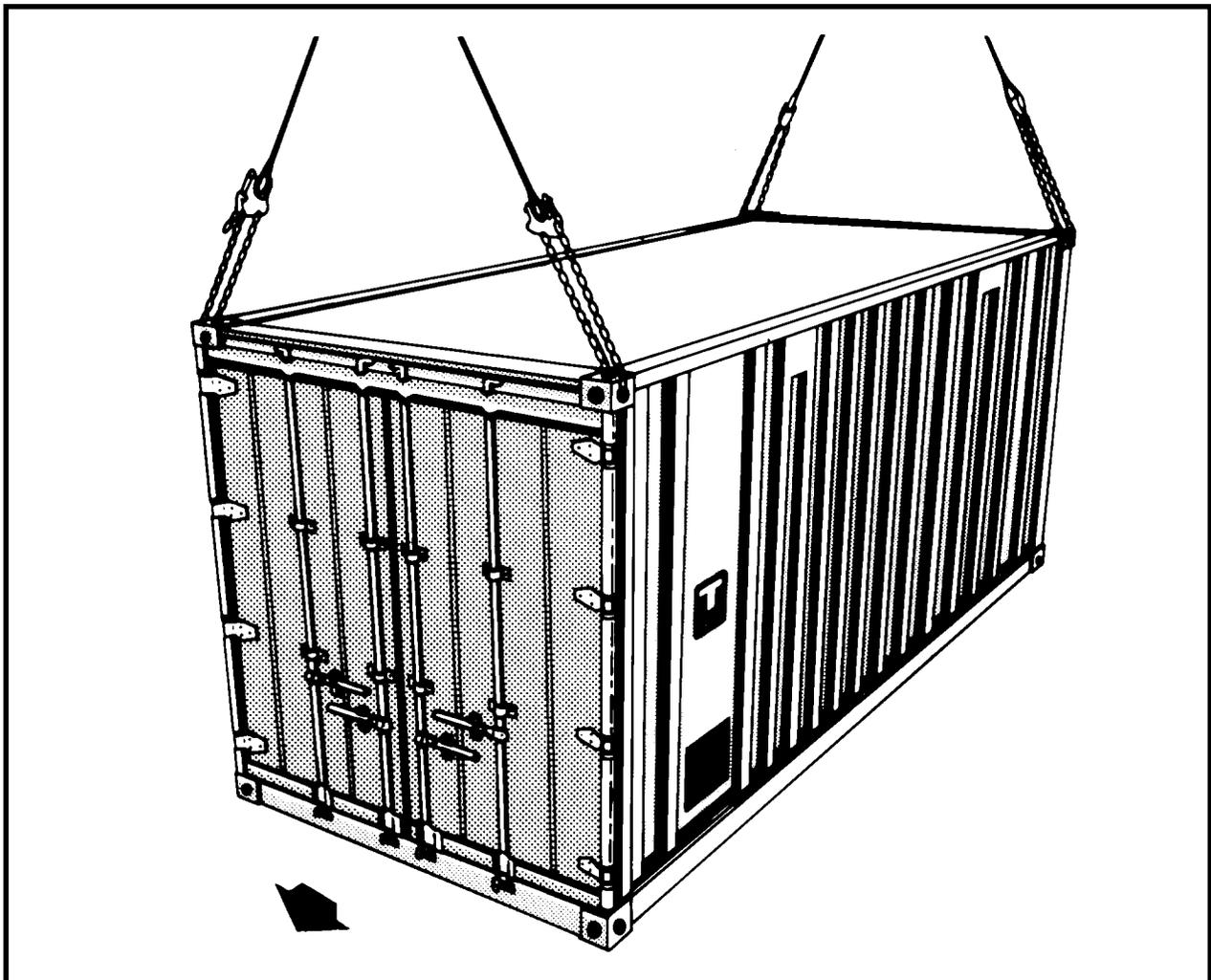
d. Procedures. The following procedures apply to this load:

(1) Preparation. Prepare the load by closing and securing the container doors.

(2) Rigging. Rig the load according to the steps in Figure 14-5.

(3) Hookup. Two hookup teams stand on top of the container. The static discharge person discharges the static electricity. The forward hookup person (door end) places apex fitting 1 onto the forward cargo hook. The aft hookup person places apex fitting 2 onto the aft cargo hook. The hookup teams then carefully dismount the load and remain close to the load as the helicopter removes slack from the sling legs. When successful hookup is assured, the hookup teams quickly exit 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. Place two sling legs on apex fitting number 1. Position apex fitting number 1 on top of the container (door end).
2. Loop the chain end of the left and right sling legs through their respective openings on the side of the corner lift provision. Place the correct link from Table 14-5 in the grab hook.
3. Place two sling legs on apex fitting number 2. Position apex fitting number 2 on the container.
4. Loop the chain end of the left and right sling legs through their respective openings on the side of the corner lift provision. Place the correct link from Table 14-5 in the grab hook. Secure the excess chain with tape or Type III nylon cord.
5. Raise the apex fittings above the load. Cluster and tie or tape (breakaway technique) the sling legs in each sling set together to prevent entanglement during hookup and lift-off.

Figure 14-4. One MILVAN Container