

Change 3

**MULTISERVICE HELICOPTER SLING LOAD:
DUAL-POINT RIGGING PROCEDURES**

1. This change adds several items that are certified for sling load in the dual-point configuration.
2. The United States Marine Corps has changed the Short Title of this manual to MCRP 4-11.3E, Vol III. This Short Title will be included in the next revision of this manual.
3. The United States Air Force has changed the Publication Number of this manual to AFMAN 11-223(I), Vol III. This Publication Number will be included in the next revision of this manual.
4. Change FM 10-450-5, 30 August 1999, as follows:

Remove old pages

iii through ix
2-1 and 2-2
2-7 and 2-8
2-19 and 2-20
2-20.3 through 2-20.6
2-71 through 2-74
2-87 and 2-88
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11-1 and 11-2

13-1 and 13-2

A1 and A2
Glossary 1 and Glossary 2

Insert new pages

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2-7 and 2-8
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A1 and A2
Glossary 1 and Glossary 2

5. New or changed material is identified by a vertical bar in the margin opposite the changed material.
6. File this transmittal sheet in the front of the publication.

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CHAPTER 2

CERTIFIED DUAL-POINT RIGGING PROCEDURES FOR WHEELED VEHICLES

2-1. INTRODUCTION

This chapter contains rigging procedures for dual-point wheeled vehicle loads 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 dual-point rigging procedures for wheeled vehicles are in this section. Para-

graphs 2-2 through 2-42 give detailed instructions for rigging loads. The paragraphs also contain a description of each load and the materials required for rigging it.

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.

2-2. M996/M997/M997A2 Truck, Ambulance (HMMWV)

a. Applicability. The following items in Table 2-1 are certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 2-1. Truck, Ambulance (HMMWV)

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Truck, Ambulance, M996, HMMWV	7,400	10K 25K	80/45 66/38	CH-47	130
Truck, Ambulance, M997, HMMWV	7,400	10K 25K	80/45 66/38	CH-47	130
Truck, Ambulance, M997A1, HMMWV, 4-Litter	7,600	15K 40K	25/3 30/9	CH-53	120
Truck, Ambulance, M997A2, HMMWV	10,300	25K	66/38	CH-47	130

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

(1) Sling set (see table) with one additional apex fitting or web ring for the sling set being used.

(2) Tape, adhesive, pressure-sensitive, 2-inch wide roll.

(3) Cord, nylon, Type III, 550-pound breaking strength.

(4) Spreader bar assembly (component of vehicle).

(5) 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) Fold the mirrors forward in front of the windshield and tie together with Type III nylon cord.

(b) Remove the spreader bar from under the right-hand seat inside the ambulance.

(c) Secure all equipment inside the rear compartment with tape, nylon cord, and/or lashings. Close and secure the door.

(d) Secure all other equipment inside the vehicle with tape, nylon cord, and/or lashings. Close and secure the doors.

(e) Ensure the fuel tank is not over 3/4 full. Inspect fuel tank cap, oil filler cap, and battery caps for proper installation.

(f) Engage the vehicle parking brake. Place the transmission in neutral.

(g) Ensure the front wheels are pointed straight

ahead. Tie down the steering wheel using the securing device attached under the dashboard.

(h) Secure the Red Cross insignia covers in the closed position.

(i) Remove the keeper from the spreader bar and extend the bar so the holes line up. Reinstall pin and engage keeper. Use the sighting hole in the tube to assist in aligning holes for the pin. See top view insert in Figure 2-1.

(j) Position the spreader bar across the rear end of the vehicle roof. Attach the spreader bar check cables to the eyebolts located on the aft exterior sidewall of the rear compartment. See rear view insert in Figure 2-1.

(k) Install lift provisions on the outer ends of the rear bumper.

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

(3) **Hookup.** The static wand person discharges the static electricity with the static wand. The forward hookup person stands on the hood and places apex fitting 1 onto the forward cargo hook. The aft hookup person stands on the roof and places apex fitting 2 onto the aft cargo hook. The hookup team then carefully dismounts the vehicle and 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).

2-4. M998/M1037 Modified (GVW 9,400 lbs)/M1038/M1097/M1097A1/M1097A2 Truck, Cargo, 1 1/4-ton (HMMWV)

a. **Applicability.** The following items in Table 2-3 are certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 2-3. 1 1/4-Ton Cargo Truck (HMMWV)

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Truck, 1 1/4-ton, HMMWV, M998/M1038	7,700	10K 15K 40K	80/45 25/3 30/9	CH-47 CH-53	125 130
Truck, 1 1/4-ton, HMMWV, M998 with AN/MRC-110A Radio Set	7,700	10K 15K 40K	80/45 25/3 30/9	CH-47 CH-53	125 130
Truck, 1 1/4-ton, HMMWV, M998A1, Joint Surveillance Target Attack Radar (JSTAR), Support Vehicle	7,500	10K	80/45	CH-47	125
Truck, 1 1/4-ton, HMMWV, Modified, (GVW 9,400 lbs), M1037	9,400	10K	80/25	CH-47	125
Truck, 1 1/4-ton, Heavy HMMWV, Cargo Variant, M1097	10,000	10K	80/45	CH-47	125
Truck, 1 1/4-ton, Heavy HMMWV, Cargo Variant, M1097	10,001	25K	60/10	CH-47	125
Truck, 1 1/4-ton, Heavy HMMWV, Cargo Variant, M1097A1	10,000	25K	80/45	CH-47	125
Truck, 1 1/4-ton, Heavy HMMWV, Cargo Variant, M1097A2	10,300	25K	60/10	CH-47	125
Truck, 1 1/4-ton, Heavy HMMWV, Cargo Variant, M1097/M1097A2, Integrated System Control (ISYSCON), Support Carrier/ Radio Vehicle	10,300	25K	60/10	CH-47	125
Truck, 1 1/4-ton, Heavy HMMWV, Cargo Variant, M1097/M1097A1/M1097A2, Tactical Messaging System, Transit Case Carrier	10,300	25K	60/10	CH-47	125

WARNING

THIS CARGO VEHICLE (M1037 MODIFIED, 9,400-LB GVW) SHOULD NOT BE CONFUSED WITH THE SHELTER CARRIER (M1037, 8,600-LB GVW). THE M1037 MODIFIED HAS IMPROVED LIFT PROVISIONS WHICH ALLOWS IT TO BE LIFTED AT HIGHER GROSS VEHICLE WEIGHTS.

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

(1) Sling set (10,000-pound capacity, 25,000-pound capacity, or 40,000-pound capacity) with one additional apex fitting for the sling set being used.

OR

(2) Multileg sling set (15,000-pound capacity) (2 each).

(3) Tape, adhesive, pressure-sensitive, 2-inch wide roll.

(4) Cord, nylon, Type III, 550-pound breaking strength.

(5) 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) Fold mirrors forward in front of the windshield for added protection and tie together with Type III nylon cord. If installed, remove canvas covering over the bed of the truck. Remove the doors. If time permits, fold canvas top and tie to windshield for added protection.

(b) Secure all equipment and cargo inside the vehicle with tape, nylon cord, or lashings. Remove antennas and stow inside vehicle.

(c) Ensure the fuel tank is not over 3/4 full. Inspect fuel tank cap, oil filler cap, and battery caps for proper installation.

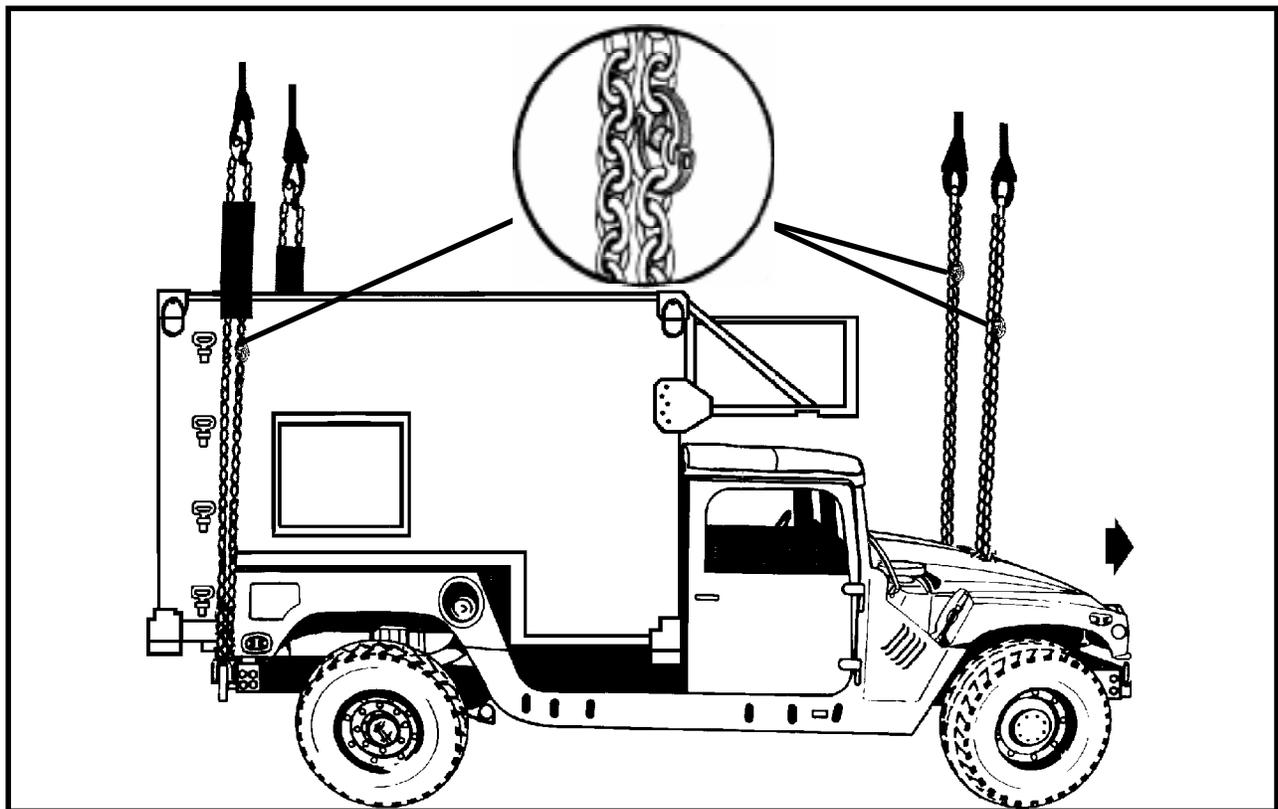
(d) Engage the vehicle parking brake and put the transmission in neutral.

(e) Ensure the front wheels are pointed straight ahead. Tie down the steering wheel, using the securing device attached under the dashboard.

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

(3) **Hookup.** The static wand person discharges the static electricity with the static wand. The forward hookup person stands in the drivers compartment and places apex fitting 1 onto the forward cargo hook. The aft hookup person stands in the bed of the truck and places apex fitting 2 onto the aft cargo hook. The hookup team then carefully dismounts the vehicle and 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. Connect 2 sling legs to apex fitting number 1. Position the apex fitting on top of the shelter.
2. Loop the chain end of the sling legs, inboard to outboard, through their respective lift provisions that protrude through the hood. Place the correct link from Table 2-6 in the grab hook.
3. Connect 2 sling legs to apex fitting number 2. Position the apex fitting on top of the shelter.
4. Loop the chain end of the sling legs through their respective lift provisions located on the outer ends of the rear bumper. Place the correct link from Table 2-6 in the grab hook.
5. Wrap the rear slings with padding where they contact the shelter sides.
6. Secure all excess chain with tape or Type III nylon cord.
7. Cluster and tie or tape (breakaway technique) the sling legs in each sling set on top of the vehicle to prevent entanglement during hookup and lift-off.

Figure 2-6. LMS Shelter Mounted on the M1097/M1097A2

CAUTION

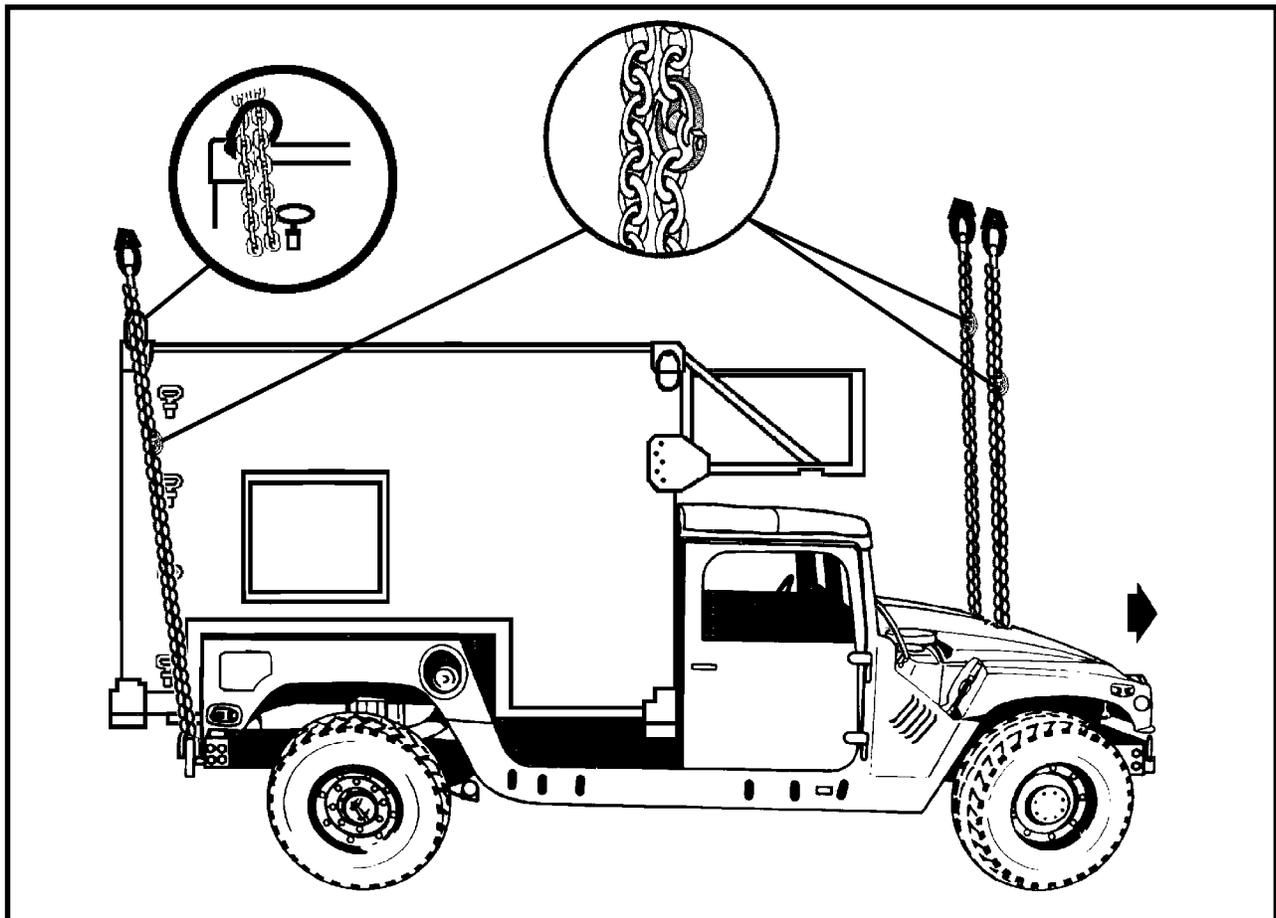
Do not use the lift shackles located near the center of the rear bumper for sling load lift provisions.

2-7.1 M1097/M1097A2 Shelter Carrier (HMMWV) With Lightweight Multipurpose Shelter (LMS) Using Shelter Lift Rings as Sling Guides

a. Applicability. The following items in Table 2-6.1 are certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 2-6.1 Lightweight Multipurpose Shelter (LMS)

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Operations Central (OC) Group Firefinder AN/TPQ-36 (V) 8	8,620	10K	40/3	CH-47	120
Integrated Meteorological Systems (IMETS), Block I & II	9,050	10K	40/3	CH-47	120
Digital Group Multiplexer (DGM) AN/TRC-138C	9,020	10K	40/3	CH-47	120
High Mobility Digital Group Multiplexer Assemblage (HMDA) AN/TRC-173B, AN/TRC-174B, AN/TRC-175B	9,100	10K	40/3	CH-47	120
Marine Expeditionary Force Intelligence Analysis System (IAS)	9,220	10K	40/3	CH-47	120
Spare Equipment and Maintenance Shelter AN/TSQ-190 (V) 1	9,220	10K	40/3	CH-47	120
Meteorological Measuring Set AN/TMQ-41	8,200	10K	40/3	CH-47	110
Forward Area Air Defense Command Control System AN/TSQ-183	7,561	10K	40/3	CH-47	90
Forward Area Air Defense Command Control System AN/TSQ-184	7,297	10K	40/3	CH-47	90
Mobile Radio Broadcasting Subsystem (MRBS)	9,746	10K	40/3	CH-47	120
Mobile Radio (MR) Cargo Vehicle	9,907	10K	40/3	CH-47	120
Mobile Television Broadcasting Subsystem (MTBS)	9,295	10K	40/3	CH-47	120



RIGGING STEPS

1. Connect 2 sling legs to apex fitting number 1. Position the apex fitting on top of the shelter.
2. Loop the chain end of the sling legs through their respective lift provisions that protrudes through the hood. Place the correct link from Table 2-6.1 in the grab hook.
3. Connect 2 sling legs to apex fitting number 2. Position the apex fitting on top of the shelter.
4. Route the right sling leg chain through the right rear shelter lift ring to the right rear lift provision located on the outer end of the rear bumper. Continue routing the chain back through the right rear shelter lift ring and back to the grab hook. Place the correct link from Table 2-6.1 in the grab hook. Repeat the procedure using the left sling leg chain, left rear shelter lift ring, and the left lift provision located on the end of the bumper.
5. Remove all the excess slack between the lift provisions and the shelter lift rings.
6. Secure all excess chain with tape or Type III nylon cord.
7. Cluster and tie or tape (breakaway technique) the sling legs in each sling set on top of the vehicle to prevent entanglement during hookup and lift-off.

Figure 2-6.1. LMS Shelter Mounted on the M1097/M1097A2 Using Shelter Lift Rings as Sling Guides

CAUTION

Do not use the lift shackles located near the center of the rear bumper for sling load lift provisions.

2-7.2 M1113 Truck, Utility, Expanded Capacity (HMMWV) With Lightweight Multipurpose Shelter (LMS) Using Shelter Lift Rings as Sling Guides

a. **Applicability.** The following items in Table 2-6.2 are certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 2-6.2 Lightweight Multipurpose Shelter (LMS) Using Shelter Lift Rings as Sling Guides

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
AN/TTC-56 Single Shelter Switch (SSS)	11,500	25K	32/5	CH-47	120
Digital Topographic Support System-Light (DTSS-L), AN/TYQ-67 (V)1	11,500	25K	32/5	CH-47	100
Integrated System Control (ISYSCON), AN/TYQ-76-B, (V)1, (V)2, and Degraded Configuration	11,500	25K	32/5	CH-47	100
Shadow Tactical Unmanned Aerial Vehicle (TUAV), Air Vehicle Transport (AVT)	11,500	25K	32/5	CH-47	100
Shadow Tactical Unmanned Aerial Vehicle (TUAV), Ground Control Station (GCS)	11,500	25K	32/5	CH-47	100
Shadow Tactical Unmanned Aerial Vehicle (TUAV), Maintenance Section Multifunctional (MSM)	11,500	25K	32/5	CH-47	100
Common Ground Station, Joint Surveillance Target Attack Radar (JSTAR) System (V)2	11,500	25K	32/5	CH-47	120
Trojan Spirit Lite (V)3 Support Vehicle, AN/TSQ-226(V)3	11,500	25K	35/3	CH-47	120

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

(1) Sling set (25,000-pound capacity) with one additional apex fitting.

(a) Chain length, part number 38850-00053-102, from a 25,000-pound capacity sling set (4 each).

(b) Coupling link, part number 664241, from a 25,000-pound sling set (4 each).

(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) Extend the sling leg chains by connecting one additional chain length to each chain on a 25,000-pound capacity sling set with coupling links.

(b) Fold mirrors forward in front of the windshield for added protection and tie together with Type III nylon cord.

(c) Secure all equipment inside the shelter with tape, nylon cord, or lashings; close and secure shelter vents and door with nylon cord or tape.

(d) Secure environmental control unit cover with duct tape.

(e) Disconnect the power cord from the rear panel and secure it to the rear platform with Type III nylon cord. Lower the power panel door and secure the door.

(f) Secure all equipment and cargo inside the vehicle with tape, nylon cord, or lashings. Secure the doors shut if installed.

(g) Ensure the fuel tank is not over 3/4 full. Inspect

fuel tank cap, oil filler cap, and battery caps for proper installation.

(h) Engage the vehicle parking brake and put the transmission in neutral.

(i) Ensure the front wheels are pointed straight ahead. Tie down the steering wheel, using the securing device attached under the dashboard.

(j) Tape the windshield in an X formation from corner to corner.

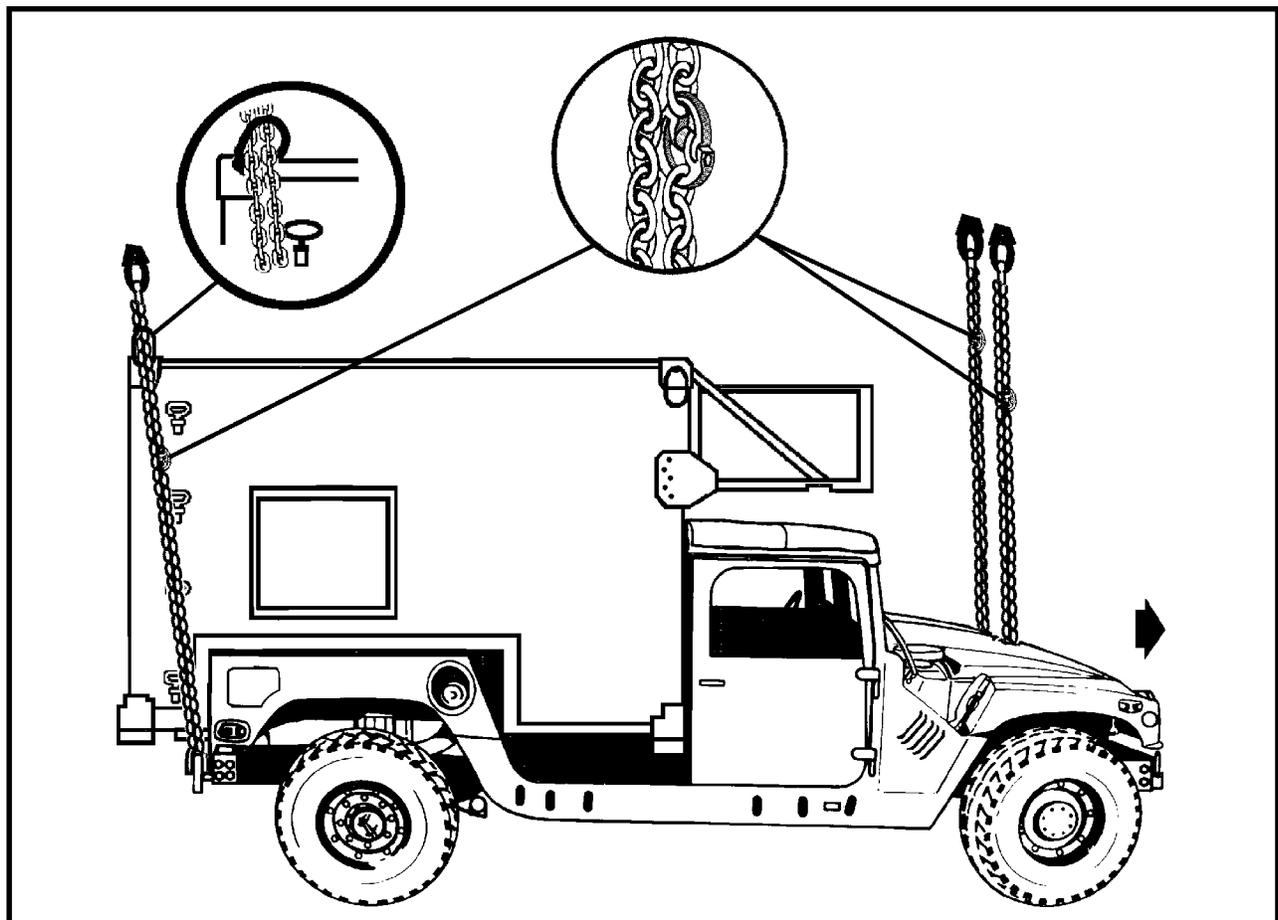
(k) Install the lift provisions on the outer ends of the rear bumper.

(l) Tie the shelter's rear lift rings together across the top of the shelter with Type III nylon cord. Place the rings in the up position facing the front of the vehicle.

(2) Rigging. Rig the load according to the steps in Figure 2-6.2.

(3) Hookup. The hookup team stands on top of the shelter. The static wand person discharges the static electricity with the static wand. The 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 team then carefully dismounts the vehicle and 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. Connect 2 sling legs to apex fitting number 1. Position the apex fitting on top of the shelter.
2. Loop the chain end of the sling legs through their respective lift provisions that protrudes through the hood. Place the correct link from Table 2-6.2 in the grab hook.
3. Connect 2 sling legs to apex fitting number 2. Position the apex fitting on top of the shelter.
4. Route the right sling leg chain through the right rear shelter lift ring to the right rear lift provision located on the outer end of the rear bumper. Continue routing the chain back through the right rear shelter lift ring and back to the grab hook. Place the correct link from Table 2-6.2 in the grab hook. Repeat the procedure using the left sling leg chain, left rear shelter lift ring, and the left lift provision located on the end of the bumper.
5. Remove all the excess slack between the lift provisions and the shelter lift rings.
6. Secure all excess chain with tape or Type III nylon cord.
7. Cluster and tie or tape (breakaway technique) the sling legs in each sling set on top of the vehicle to prevent entanglement during hookup and lift-off.

Figure 2-6.2. LMS Shelter Mounted on the M1113 Using Shelter Lift Rings as Sling Guides

CAUTION

Do not use the lift shackles located near the center of the rear bumper for sling load lift provisions.

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).

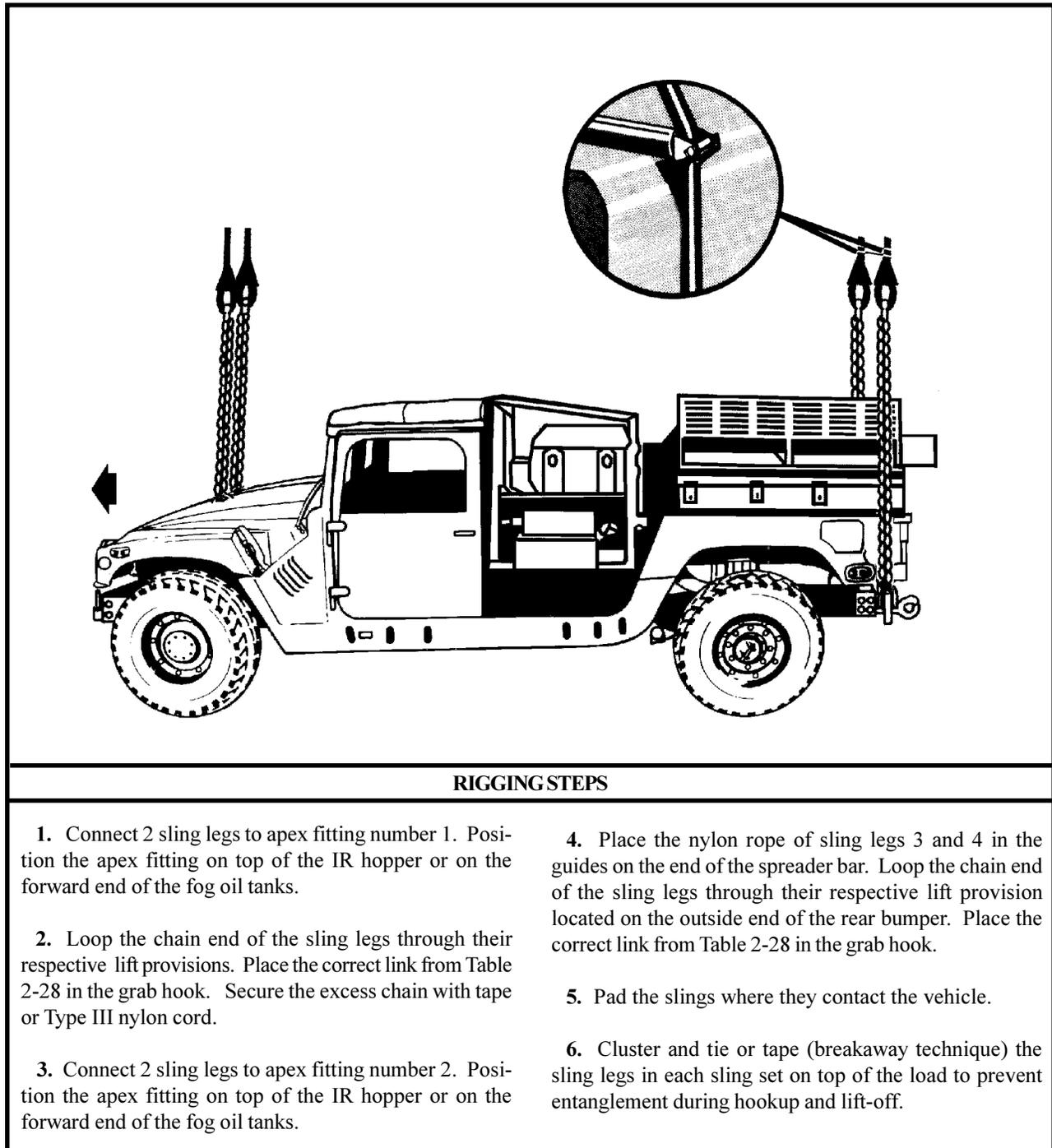


Figure 2-27. M56 Smoke Generating System on M1113

2-29.1. Dual M56 Smoke Generating Systems on M1113 HMMWV, Side by Side (Shotgun Method)

a. Applicability. The following item in Table 2-28.1 is certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 2-28.1. Dual M56 Smoke Generating Systems on M1113 HMMWV, Side by Side (Shotgun Method)

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT OUTER/ INNER	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
M56 Smoke Generating System on M1113 HMMWV	9,387 each	10K	Listed in Rigging Procedure	CH-47	100

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

- (1) Sling set (10,000-pound capacity) (2 each).
 - (a) Chain length, part number 38850-00053-101, from a 10,000-pound capacity sling set (8 each).
 - (b) Coupling link, part number 577-0615, from a 10,000-pound sling set (8 each).
- (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, tiedown, cargo, CGU-1/B (4 each).
- (6) Spreader bar assembly (component of the M996/ M997 HMMWV ambulance) (NSN 4910-01-313-8839) (2 each).

c. Personnel. Four 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) Fold mirrors inward and tie together with Type III nylon cord.
- (b) Secure all equipment and cargo inside the vehicles with tape, nylon cord, or lashings. Secure the doors shut, if installed.
- (c) Ensure the fuel tanks, turbine fuel, and both fog oil tanks are not over 3/4 full. Inspect the fuel tank caps, oil filler caps, and battery caps for proper installation.
- (d) Secure the vehicle camouflage net (in the bag) to each vehicle. Attach one camouflage net to the forward door post of one vehicle and the other camouflage net to the hard part of the body covering the fuel tank of the other vehicle.
- (e) Position the vehicles perpendicular to the direction of flight. The front of the vehicles face to the right side of the direction of flight. Position the vehicles, as close as possible, next to each other. Ensure both vehicles are facing in the same direction.
- (f) Engage the vehicle parking brakes and put the transmissions in neutral.
- (g) Ensure the front wheels are pointed straight ahead. Tie down the steering wheel, using the securing device attached under the dashboard or Type III nylon cord.

- (h) Set the three-way valve to the OFF position.
- (i) Tape the windshield and side windows with an X formation from corner to corner.
- (j) Ensure the IR hopper cover latches are securely closed and the auxiliary hoses are attached to the mounting bracket at the forward end of the inboard fog oil tank.
- (k) Route a CGU-1/B cargo tiedown strap from the front inside tiedown on the front bumper of one vehicle, through the front inside tiedown of the other vehicle and connect the hooks together. Tighten the strap. Repeat the procedure with the front outer tiedowns.
- (l) Route a CGU-1/B cargo tiedown strap from the rear inside lift shackle of one vehicle, through the rear inside lift shackle of the other vehicle and connect the hooks together. Tighten the strap. Repeat the procedure between the vehicle pintles.
- (m) Extend the spreader bars until the holes line up. Install the pin and engage the keeper.
- (n) Position the spreader bar across the rear of each vehicle resting on the power module and the weapons case.

(o) Extend each of the sling leg chains by connecting one additional chain length to each chain on the 10,000-pound capacity sling sets with coupling links.

(2) **Rigging.** Rig the load according to the steps in Figure 2-27.1.

NOTE: The front of this load is the side of the forward vehicle. The front of the vehicles face to the right side of the direction of flight.

(3) **Hookup.** The hookup teams stand in the cargo bed and on the hood of the vehicles. The static wand person discharges the static electricity with the static wand. 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 team then carefully dismounts the vehicle and 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).

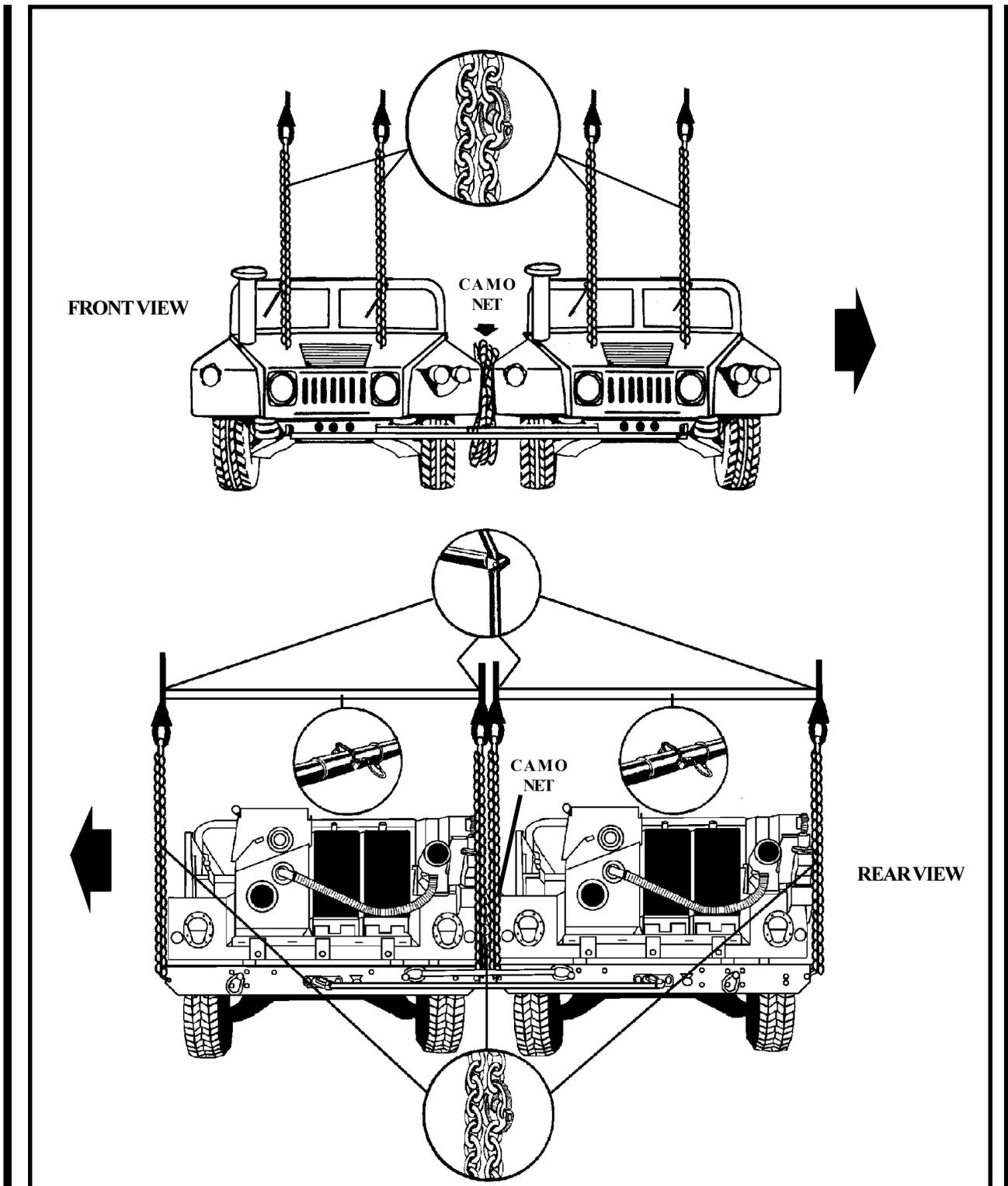
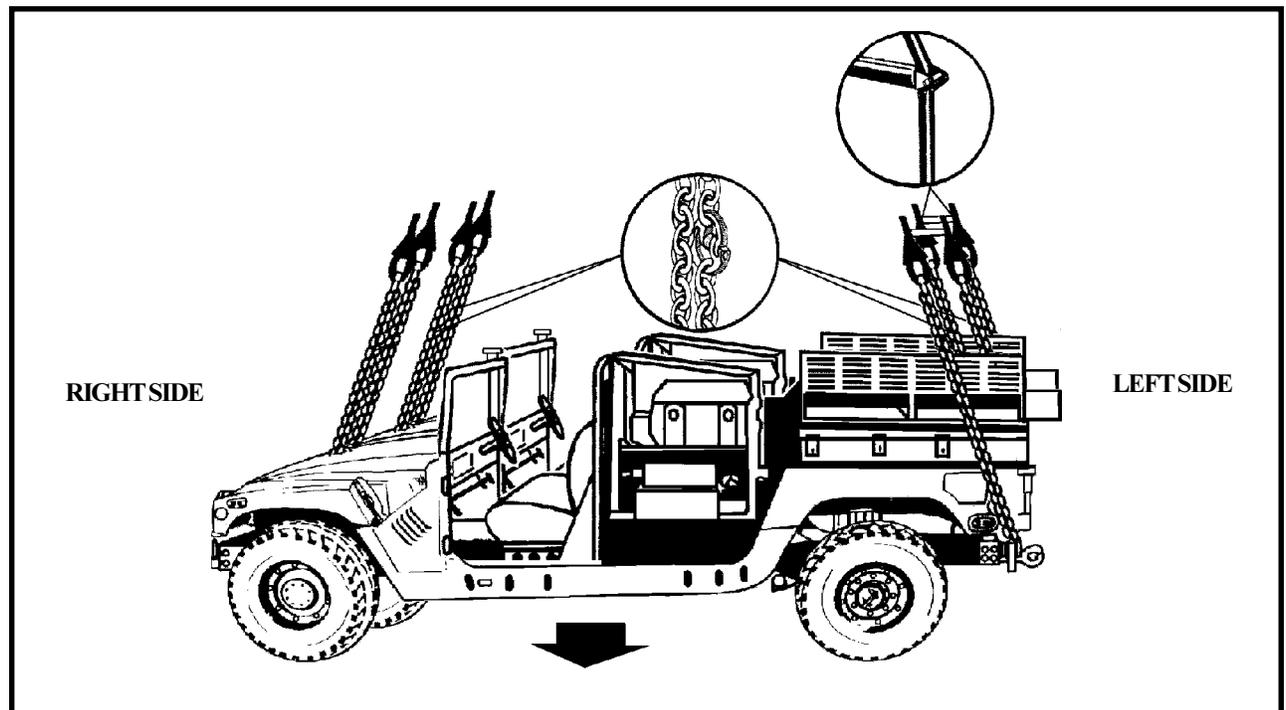


Figure 2-27.1. Dual M56 Smoke Generating Systems on M1113 HMMWV, Side by Side (Shotgun Method)



RIGGING STEPS

1. Position one sling set on top of the IR hopper of the forward vehicle (with respect to the direction of flight). Route outer sling legs 1 and 2 to the front of the vehicle and inner sling legs 3 and 4 to the rear. Sling legs 1 and 3 must be on the left side of the vehicle

2. Loop the chain end of sling leg 1 through the left front lift provision that protrudes through the hood from inboard to outboard. Place link 85 in the grab hook. Repeat with sling leg 2 and the right front lift provision. Place link 65 in the grab hook. Secure the excess chain with tape or Type III nylon cord.

3. Place the nylon rope portion of sling legs 3 and 4 in the guides on the end of the spreader bar. Loop the chain end of sling leg 3 through the lift provision located on the left end of the bumper from inboard to outboard. Place link 15 in the grab hook. Repeat with sling leg 4 and the right rear lift provision. Place link 15 in the grab hook. Secure the excess chain with tape or Type III nylon cord.

4. Position second sling set on top of the IR hopper of the rear vehicle (with respect to the direction of flight).

Route outer sling legs 1 and 2 to the front of the vehicle and inner sling legs 3 and 4 to the rear. Sling legs 1 and 3 must be on the left side of the vehicle.

5. Loop the chain end of sling leg 1 through the left front lift provision that protrudes through the hood from inboard to outboard. Place link 65 in the grab hook. Repeat with sling leg 2 and the right front lift provision. Place link 85 in the grab hook. Secure the excess chain with tape or Type III nylon cord.

6. Place the nylon rope portion of sling legs 3 and 4 in the guides on the end of the spreader bar. Loop the chain end of sling leg 3 through the lift provision located on the left end of the bumper from inboard to outboard. Place link 5 in the grab hook. Repeat with sling leg 4 and the right rear lift provision. Place link 25 in the grab hook. Secure the excess chain with tape or Type III nylon cord.

7. Cluster and tie or tape (breakaway technique) the sling legs in each sling set on top of the vehicle to prevent entanglement during hookup and lift-off.

*Figure 2-27.1. Dual M56 Smoke Generating Systems on M1113 HMMWV, Side by Side (Shotgun Method)
(continued)*

2-30. M35A3 2 1/2-Ton Cargo Truck

a. Applicability. The following item in Table 2-29 is certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 2-29. M35A3 2 1/2-Ton Cargo Truck

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Truck, Cargo, 2 1/2-Ton, M35A3	18,900	25K	3/50	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.

(a) Chain length, part number 38850-00053-102, from a 25,000-pound capacity sling set (4 each).

(b) Coupling link, part number 664241, from a 25,000-pound capacity sling set (4 each).

(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) Felt sheet, cattle hair, Type IV, 1/2-inch or suitable padding.

(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) 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 less than 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.

(i) Ensure the front lift provisions are in the transport position.

(j) Extend the sling leg chains by connecting one additional chain length to each chain on a 25,000-pound capacity sling set with coupling links.

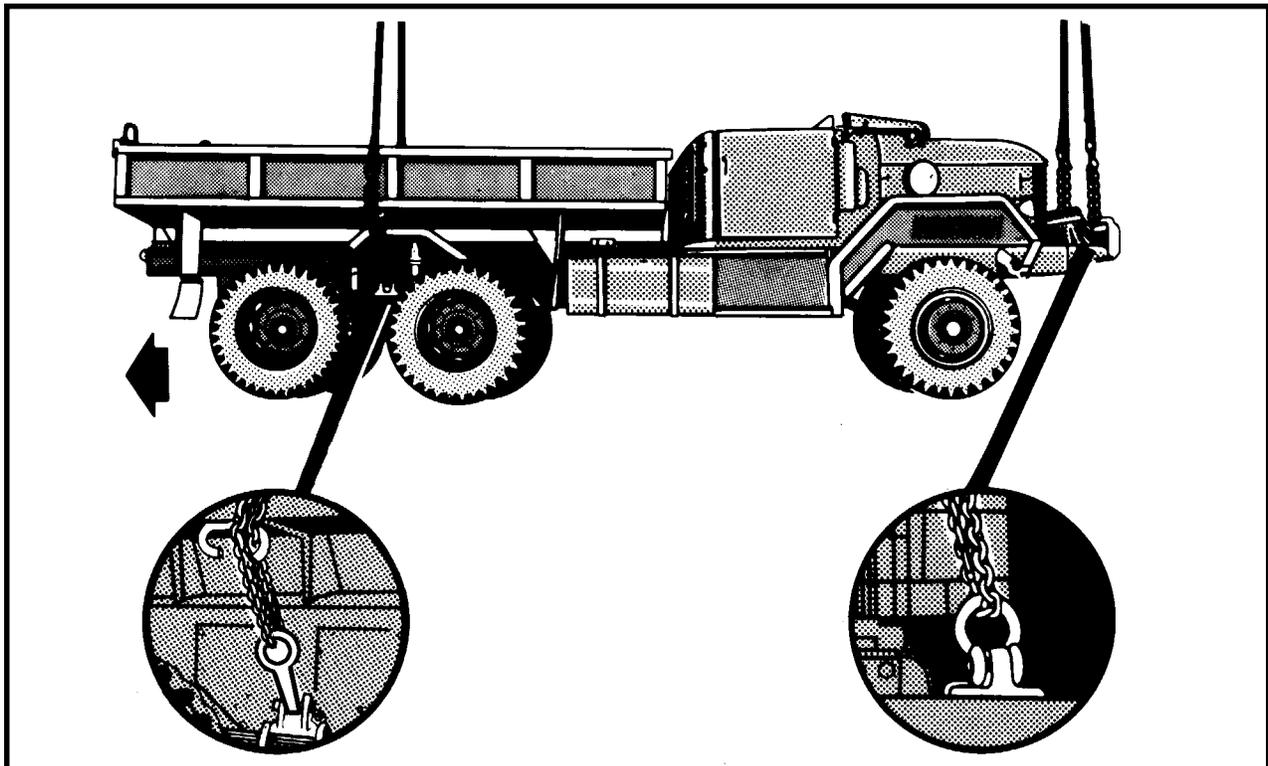
(2) **Rigging.** Rig the load according to the steps in Figure 2-28.

NOTE: This vehicle flies aft end forward.

(3) Hookup. Two hookup teams are used for this load. The static discharge person discharges the static electricity. The forward hookup person stands in the truck bed and places apex fitting 1 onto the forward cargo hook. The aft hookup person stands on the passenger seat 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 in the bed of the truck.

2. Loop the chain end of the left and right sling legs through their respective extended lift provision located between the rear wheels. Place the correct link from Table 2-29 in the grab hook.

3. 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.

4. Place two sling legs on apex fitting number 2. Position apex fitting number 2 on the hood.

5. 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 2-29 in the grab hook. Secure the excess chain with tape or Type III nylon cord.

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 2-28. M35A3 2 1/2-Ton Cargo Truck

2-31. M1097A2 (HMMWV) with Advanced Field Artillery Tactical Data System (AFATDS) Full Size or Partial Soft Top Installation Kit (STIK)

a. Applicability. The following items in Table 2-30 are certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 2-30. M1097A2 (HMMWV) with Advanced Field Artillery Tactical Data System (AFATDS) Full Size or Partial Soft Top Installation Kit (STIK)

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
System 2: CHS-2 AN/GYG-3(V)1, with SINGARS AN/VRC-90, AN/VRC-92 and EPLRS installed in the bed. AN/VRC-92 installed in cab.	8,103	10K	50/3	CH-47	100
System 3: CHS-2 AN/GYG-3(V)3, with SINGARS AN/VRC-90, AN/VRC-92 and EPLRS installed in the bed. AN/VRC-92 installed in cab.	8,366	10K	50/3	CH-47	100
System 4: 2 each AN/GYK-37(V)2, with SINGARS AN/VRC-89, AN/VRC-92 and EPLRS.	7,790	10K	50/3	CH-47	100

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

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

(a) Chain length, part number 38850-00053-101, from a 10,000-pound capacity sling set (4 each).

(b) Coupling link, NSN 4310-01-231-3388, from a 10,000-pound sling set (4 each).

(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) Padding, cellulose.

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) Extend the sling leg chains by connecting one additional chain length to each chain on a 10,000-pound capacity sling set with coupling links.

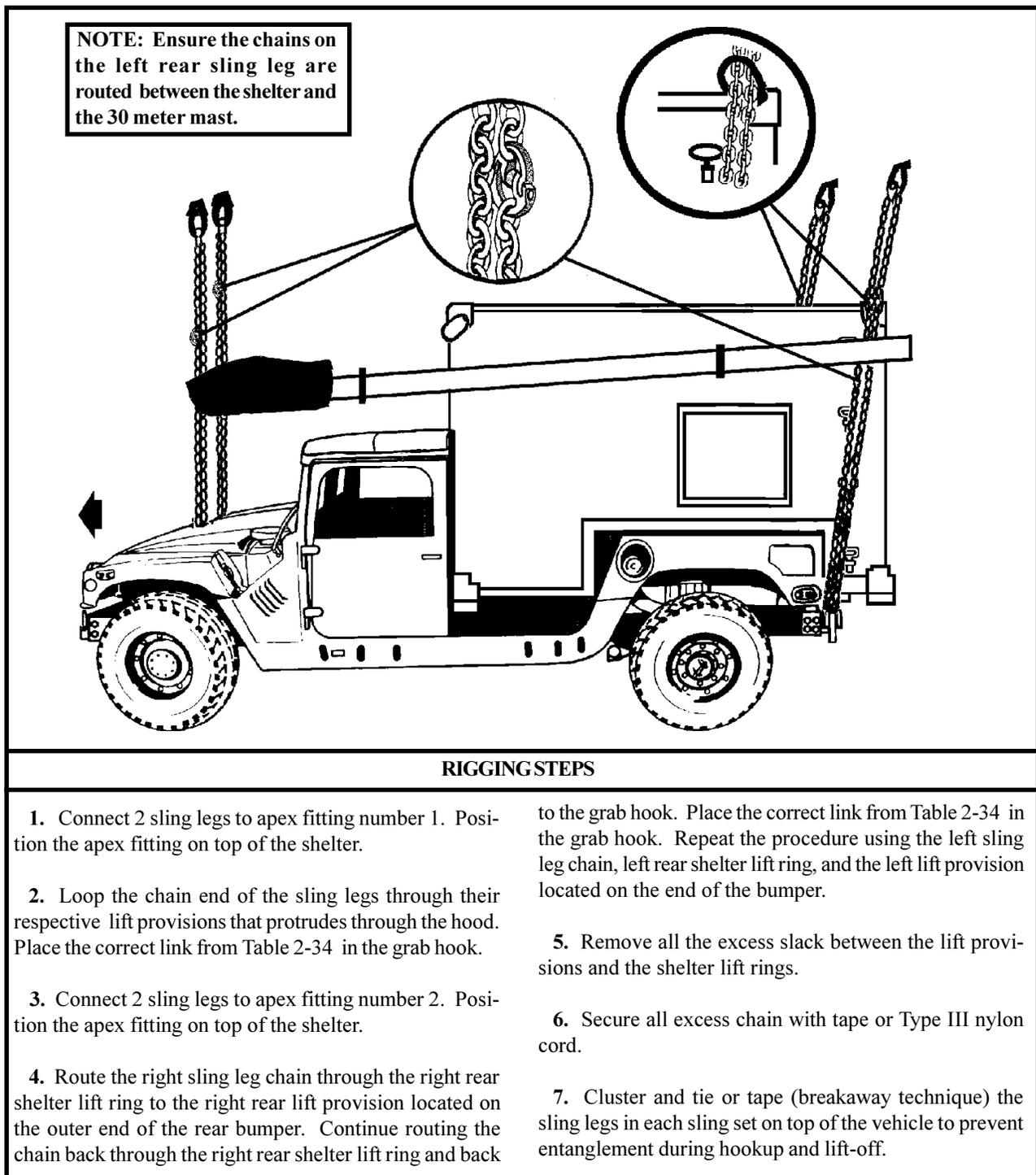


Figure 2-33. M1097A2 Shelter Carrier (HMMWV) With Special Operations Media System (SOMS-B) in S-788G Shelter (LMS) Using Shelter Lift Rings as Sling Guides

CAUTION

Do not use the lift shackles located near the center of the rear bumper for sling load lift provisions.

2-36. Prophet AN/MLQ-40(V) on M1097 HMMWV

a. Applicability. The following items in Table 2-35 are certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 2-35. Prophet AN/MLQ-40(V) on M 1097 HMMWV

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/-REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Prophet, AN/MLQ-40(V)1	10,000	10K	45/10	CH-47	90
Prophet, AN/MLQ-40(V)3	10,000	10K	45/10	CH-47	90

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

- (1) Sling set (10,000-pound capacity) with one additional apex fitting.
- (a) Chain length, part number 38850-00053-101, from a 10,000-pound capacity sling set (4 each).
- (b) Coupling link, part number 5779125, from a 10,000-pound sling set (4 each).
- (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) Extend the sling leg chains by connecting one additional chain length to each chain on a 10,000-pound capacity sling set with coupling links.

(b) Fold mirrors forward in front of the windshield for added protection and tie together with Type III nylon cord.

(c) Ensure the cargo bed cover is secured to the truck. Secure all equipment inside the shelter with tape, nylon cord, or lashings; close and secure shelter vents and door with nylon cord or tape.

(d) Secure all equipment and cargo inside the vehicle with tape, nylon cord, or lashings. Secure the doors shut if installed.

(e) Ensure the fuel tank is not over 3/4 full. Inspect fuel tank cap, oil filler cap, and battery caps for proper installation.

(f) Engage the vehicle parking brake and put the transmission in neutral.

(g) Ensure the front wheels are pointed straight ahead. Tie down the steering wheel, using the securing device attached under the dashboard.

(h) Tape the windshield in an X formation from corner to corner.

(i) Install the lift provisions on the outer ends of the rear bumper.

(2) **Rigging.** Rig the load according to the steps in Figure 2-34.

RIGGING STEPS	
<p>1. Position one sling set on the hood of one of the vehicles.</p> <p>2. Loop the chain end of the outside sling legs through their respective outside lift provisions that protrude through the hoods of the vehicles. Place link 35 in the grab hooks.</p> <p>3. Loop the chain end of the inside sling legs through their respective inside lift provisions that protrude through the hoods of the vehicles. Place link 50 in the grab hooks.</p> <p>4. Position the other sling set on the roof of one of the vehicles.</p> <p>5. Loop the chain end of the outside sling legs through their respective lift shackle on the outside end of the rear bumper. Place link 8 in the grab hooks.</p>	<p>7. Secure all excess chain with tape or Type III nylon cord.</p> <p>8. Direct the front sling legs from each vehicle to the inside front tiedown provision on the top of the helmet hardtop. Tie the sling legs to the tiedown provision with Type I, 1/4-inch cotton webbing. Ensure all the slack is removed from the chain.</p> <p>9. Remove the slack in the rear sling chains. Tie the sling legs from each vehicle to the inside rear tiedown provision on the helmet hardtop with Type I, 1/4-inch cotton webbing.</p> <p>10. Cluster and tie or tape (breakaway technique) the sling legs in each sling set on top of the vehicle to prevent entanglement during hookup and lift-off.</p> <p>11. Route a CGU-1/B cargo tiedown strap from the front inside tie down shackle of one vehicle, through the front inside tie down shackle of the other vehicle and connect the hooks together. Tighten the strap.</p> <p>12. Route a CGU-1/B cargo tiedown strap from the rear inside lift shackle of one vehicle, through the rear inside lift shackle of the other vehicle and connect the hooks together. Ensure the strap is positioned below the sling leg chains. Tighten the strap.</p>
<p>CAUTION DO NOT ROUTE THE OUTSIDE SLING LEGS THROUGH THE TAILGATE SLING GUIDES.</p>	
<p>6. Route the chain ends of the inside sling legs through their respective inside tailgate guides. Loop the chain ends through their respective lift provisions located on the inside of the rear bumpers and back through the tailgate guides. Place link 7 in the grab hooks.</p>	

Figure 2-36. Dual HMMWV, Side by Side (Shotgun Method), With AMTECH Helmet Hardtop Basic (continued)

2-39. Helmet Hardtop (AMTECH) Cargo Bed Cover on M1097A2 HMMWV

a. Applicability. The following item in Table 2-38 is certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 2-38. Helmet Hardtop (AMTECH) Cargo Bed Cover on M1097A2 HMMWV

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/-REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Measurement and Signature Intelligence (MASINT)	10,300	25K	36/10	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.

(a) Chain length, part number 38850-00053-102, from a 25,000-pound capacity sling set (4 each).

(b) Coupling link, part number 664241, from a 25,000-pound sling set (4 each).

(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) Extend the sling leg chains by connecting one additional chain length to each chain on a 25,000-pound capacity sling set with coupling links.

(b) Fold mirrors forward in front of the windshield for added protection and tie together with Type III nylon cord.

(c) Ensure the cargo bed cover is secured to the truck. Secure all equipment inside the shelter with tape, nylon cord, or lashings; close and secure shelter vents and door with nylon cord or tape.

(d) Secure all equipment and cargo inside the vehicle with tape, nylon cord, or lashings. Secure the doors shut if installed.

(e) Ensure the fuel tank is not over 3/4 full. Inspect fuel tank cap, oil filler cap, and battery caps for proper installation.

(f) Engage the vehicle parking brake and put the transmission in neutral.

(g) Ensure the front wheels are pointed straight ahead. Tie down the steering wheel, using the securing device attached under the dashboard.

(h) Tape the windshield in an X formation from corner to corner.

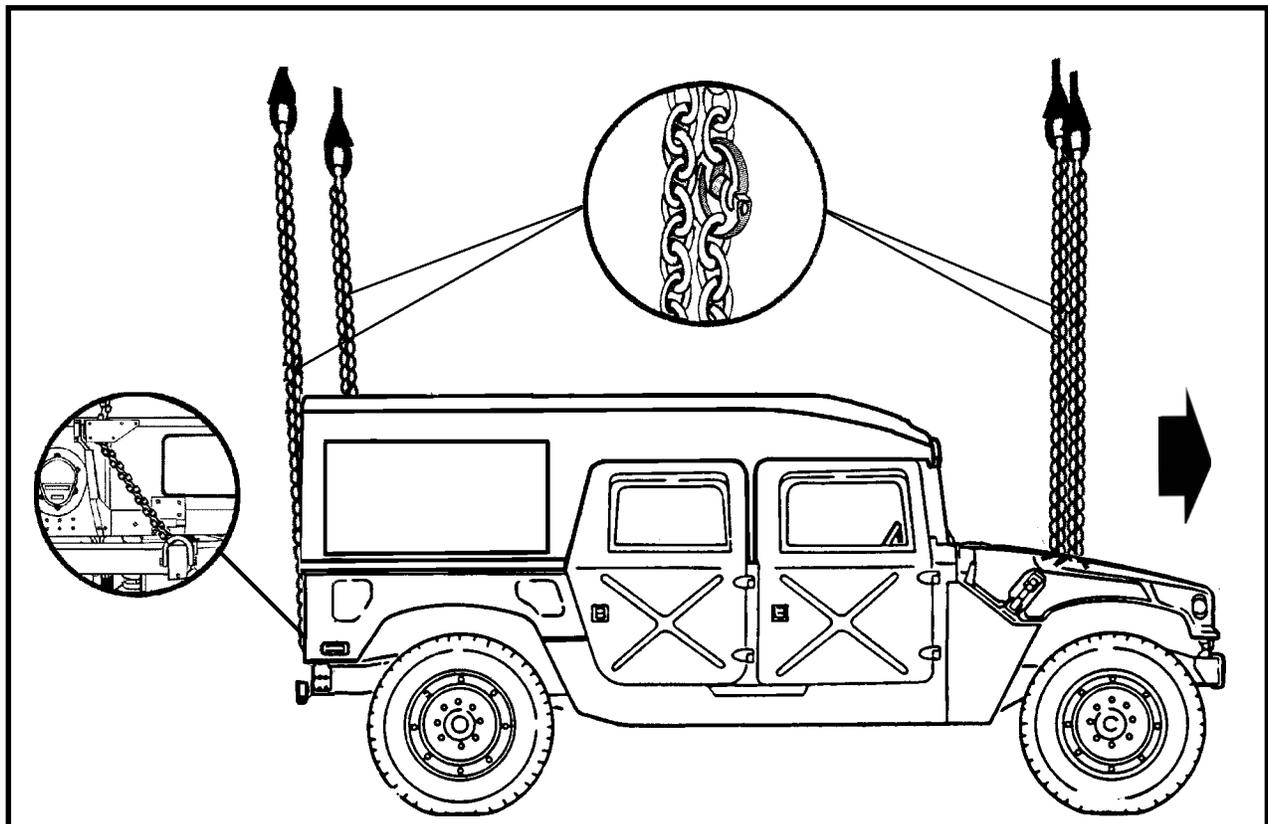
(2) **Rigging.** Rig the load according to the steps in Figure 2-37.

(3) **Hookup.** The hookup team stands on top of the shelter. The static wand person discharges the static electricity with the static wand. 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 team then carefully dismounts the vehicle and 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. Connect 2 sling legs to apex fitting number 1. Position the apex fitting on top of the shelter.
2. Loop the chain end of the sling legs through their respective lift provisions that protrudes through the hood. Place the correct link from Table 2-38 in the grab hook.
3. Connect 2 sling legs to apex fitting number 2. Position the apex fitting on top of the shelter.
4. Route the chain end of the sling legs through their

respective eyelet openings in the upper corner of the tailgate. Loop the chain end through the respective lift provision and back through the tailgate eyelets. Place the correct links from Table 2-38 in the grab hooks.

5. Secure all excess chain with tape or Type III nylon cord.

6. Cluster and tie or tape (breakaway technique) the sling legs in each sling set on top of the vehicle to prevent entanglement during hookup and lift-off.

Figure 2-37. *Helmet Hardtop (Amtech Corp) Cargo Bed Cover on M1097A2 HMMWV*

2-40. Trojan Spirit Lite (V)2 Central Communications, AN/TSQ-226 (V)2 on M1113 HMMWV

a. Applicability. The following item in Table 2-39 is certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 2-39. Trojan Spirit Lite (V)2 Central Communications, AN/TSQ-226 (V)2 on M1113 HMMWV

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/-REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Trojan Spirit Lite (V)2 Central Communications, AN/TSQ-226 on M1113 HMMWV	11,500	25K	35/3	CH-47	130

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

(1) Sling set (25,000-pound capacity) with one additional apex fitting.

(a) Chain length, part number 38850-00053-102, from a 25,000-pound capacity sling set (4 each).

(b) Coupling link, part number 664241, from a 25,000-pound sling set (4 each).

(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) Extend the sling leg chains by connecting one additional chain length to each chain on a 25,000-pound capacity sling set with coupling links.

(b) Fold mirrors forward inward and tie together with Type III nylon cord.

(c) Secure all equipment on the pallet with tape, Type III nylon cord, or tiedown straps. Close and secure all latches and handles with tape or Type III nylon cord.

(d) Secure all equipment and cargo inside the vehicle with tape, nylon cord, or lashings. Secure the doors shut if installed.

(e) Ensure the fuel tank is not over 3/4 full. Inspect fuel tank cap, oil filler cap, and battery caps for proper installation.

(f) Engage the vehicle parking brake and put the transmission in neutral.

(g) Ensure the front wheels are pointed straight ahead. Tie down the steering wheel, using the securing device attached under the dashboard.

(h) Tape the windshield in an X formation from corner to corner.

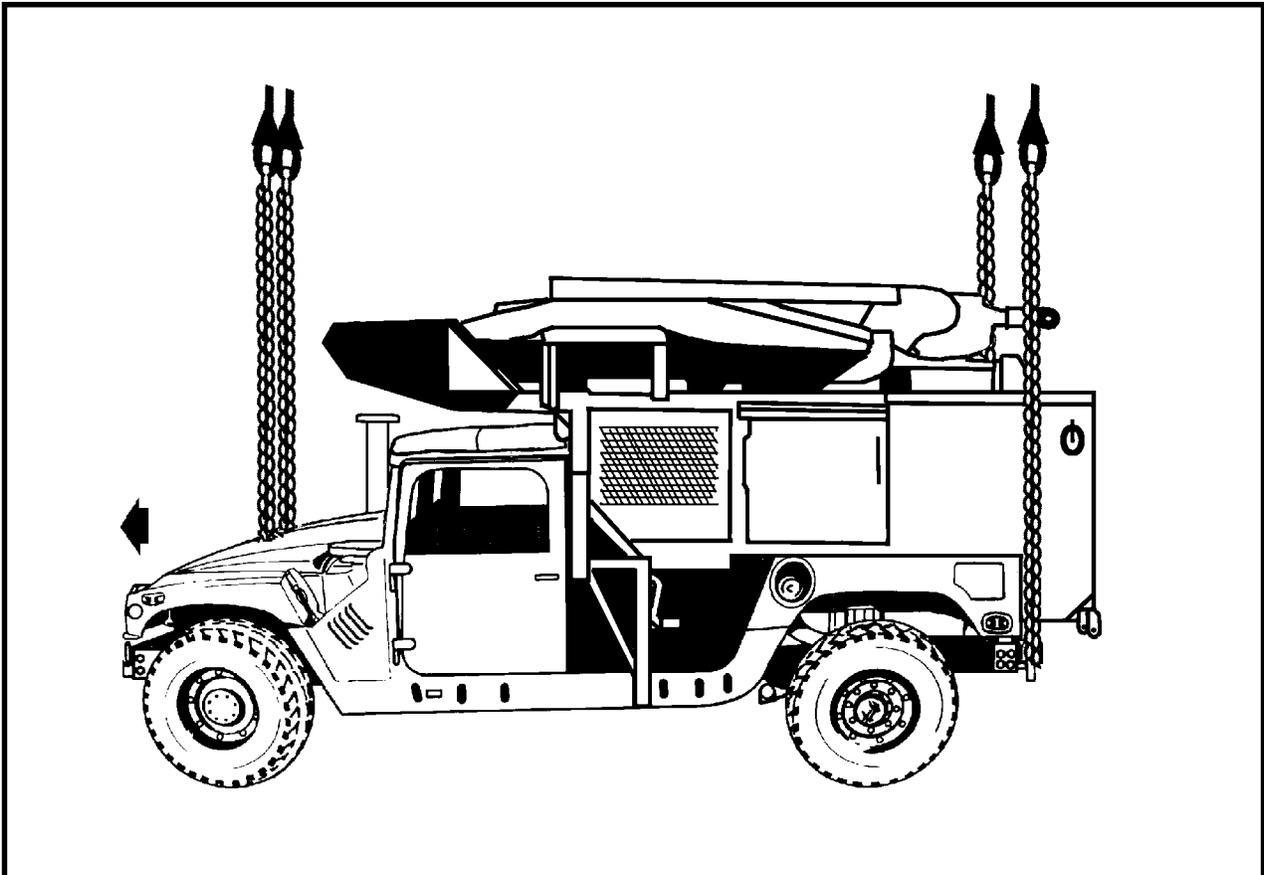
(i) Secure the rear lift provisions in the up position with Type III nylon cord.

(2) **Rigging.** Rig the load according to the steps in Figure 2-38.

(3) **Hookup.** The hookup team stands on top of the vehicle. The static wand person discharges the static electricity with the static wand. 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 team then carefully dismounts the vehicle and 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. Connect 2 sling legs to apex fitting number 1. Position the apex fitting on top of the vehicle.
2. Loop the chain end of the sling legs through their respective lift provisions that protrudes through the hood. Place the correct link from Table 2-39 in the grab hook. Secure all excess chain with tape or Type III nylon cord.
3. Connect 2 sling legs to apex fitting number 2. Position the apex fitting on top of the pallet.

4. Loop the chain end through the respective lift provision located on the outside end of the bumper. Place the correct links from Table 2-39 in the grab hooks. Secure all excess chain with tape or Type III nylon cord.
5. Remove all slack from the rear sling legs and secure the sling legs on top of the pallet with breakaway ties.
6. Cluster and tie or tape (breakaway technique) the sling legs in each sling set on top of the vehicle to prevent entanglement during hookup and lift-off.

Figure 2-38. Trojan Spirit Lite (V)2 Central Communications, AN/TSQ-226 (V)2 on M1113 HMMWV

2-41. M1097A1 (HMMWV) with Tactical Data Network (TDN) Gateway Shelter (USMC)

a. Applicability. The following item in Table 2-40 is certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 2-40. M1097A1 (HMMWV) with Tactical Data Network (TDN) Gateway Shelter

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/-REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
M1097A1 (HMMWV) with Tactical Data Network (TDN) Gateway Shelter	9,580	15K	30/3	CH-53	120

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

- (1) Sling set (15,000-pound capacity) with one additional web ring.
 - (a) Chain length, from a 15,000-pound capacity sling set (8 each).
 - (b) Coupling link, from a 15,000-pound sling set (8 each).
- (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) Extend the sling leg chains by connecting two additional chain lengths to each chain on a 15,000-pound capacity sling set with coupling links.

(b) Fold mirrors forward inward and tie together with Type III nylon cord.

(c) Secure all equipment inside the shelter with tape, Type III nylon cord, or tiedown straps. Close and secure all doors and vents with tape or Type III nylon cord.

(d) Secure all equipment and cargo inside the vehicle with tape, nylon cord, or lashings. Secure the doors shut if installed.

(e) Ensure the fuel tank is not over 3/4 full. Inspect fuel tank cap, oil filler cap, and battery caps for proper installation.

(f) Engage the vehicle parking brake and put the transmission in neutral.

(g) Ensure the front wheels are pointed straight ahead. Tie down the steering wheel, using the securing device attached under the dashboard.

(h) Tape the windshield in an X formation from corner to corner.

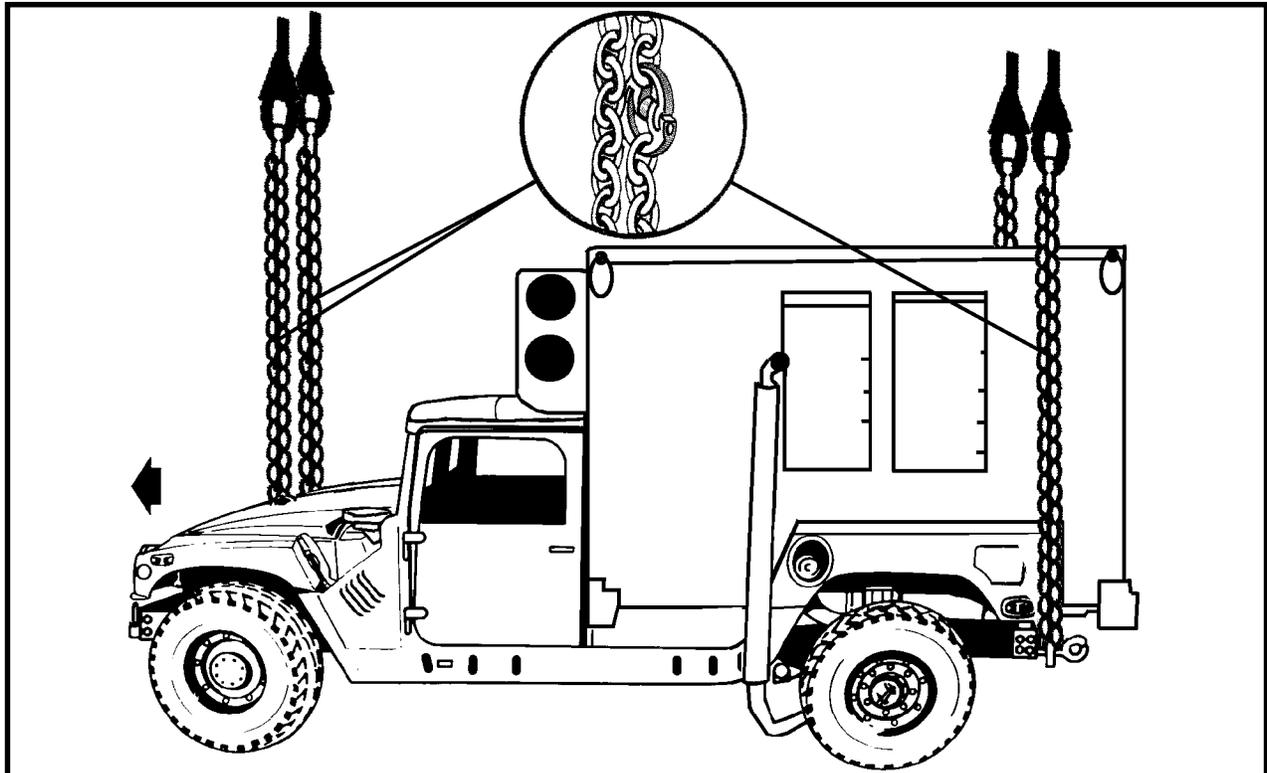
(i) Secure the rear lift provisions in the up position with Type III nylon cord.

(2) **Rigging.** Rig the load according to the steps in Figure 2-39.

(3) **Hookup.** The hookup team stands on top of the vehicle. The static wand person discharges the static electricity with the static wand. 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 team then carefully dismounts the vehicle and 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. Connect 2 sling legs to web ring number 1. Position the web ring on top of the vehicle.

2. Loop the chain end of the sling legs through their respective lift provisions that protrudes through the hood. Place the correct link from Table 2-40 in the grab hook. Secure all excess chain with tape or Type III nylon cord.

3. Connect 2 sling legs to web ring number 2. Position

the web ring on top of the shelter.

4. Loop the chain end through the respective lift provision located on the outside end of the bumper. Place the correct links from Table 2-40 in the grab hooks. Secure all excess chain with tape or Type III nylon cord.

5. Cluster and tie or tape (breakaway technique) the sling legs in each sling set on top of the vehicle to prevent entanglement during hookup and lift-off.

CAUTION

Do not use the lift shackles located near the center of the rear bumper for sling load lift provisions.

Figure 2-39. M1097A1 (HMMWV) with Tactical Data Network (TDN) Gateway Shelter

2-42. Medium Tactical Vehicle Replacement (MTVR) (USMC)

a. Applicability. The following item in Table 2-41 is certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 2-41. Medium Tactical Vehicle Replacement (MTVR)

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/-REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Truck, Cargo, MK-23, Medium Tactical Vehicle Replacement (MTVR)	27,800	40K	30/10	CH-53	100

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

(1) Sling set (40,000-pound capacity) with one additional apex fitting.

(a) Chain length, from a 40,000-pound capacity sling set (2 each).

(b) Coupling link, from a 40,000-pound sling set (2 each).

(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) Padding, cellulose.

c. Personnel. Four 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) Fold mirrors forward/inward and tie together with Type III nylon cord.

(b) Secure all equipment and cargo inside the vehicle

with tape, nylon cord, or hold down straps.

(c) Ensure the fuel tank is not over 3/4 full. Place the fuel tank cap in the vent position. Inspect the oil filler cap and battery caps for proper installation.

(d) Engage the vehicle parking brake and put the transmission in neutral.

(e) Ensure the front wheels are pointed straight ahead. Tie down the steering wheel using Type III nylon cord.

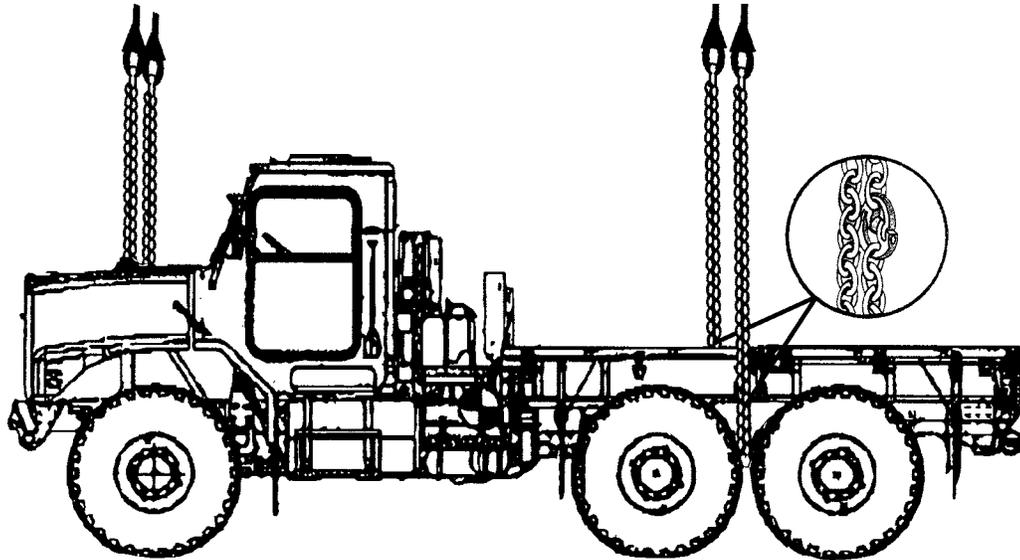
(f) Remove the upper sections of the exhaust stack and the breather and secure in the vehicle.

(g) Remove and secure the sideboards, tarp, and bows.

(2) **Rigging.** Rig the load according to the steps in Figure 2-40.

(3) **Hookup.** The hookup team stands in the bed of the vehicle. The static wand person discharges the static electricity with the static wand. 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 team then carefully dismounts the vehicle and 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. Connect 2 sling legs to apex fitting number 1. Position the apex fitting on top of the roof.
2. Loop the chain end of the sling legs through their respective lift provisions that protrudes through the hood. Place the correct link from Table 2-41 in the grab hook. Secure all excess chain with tape or Type III nylon cord.
3. Connect 2 sling legs to apex fitting number 2. Position the apex fitting on bed of the truck.
4. Route the chain end of sling leg 3 through the left sling guide located near the center of the truck bed. Loop the chain around the left lift provision located between the rear axles. Add an additional chain length to the chain with a coupling link and route the chain end back through the sling guide. Place the correct links from Table 2-41 in the grab hooks. Repeat with sling leg 4 and right sling guide and right lift provision. Secure all excess chain with tape or Type III nylon cord.
5. Cluster and tie or tape (breakaway technique) the sling legs in each sling set on top of the vehicle to prevent entanglement during hookup and lift-off.

CAUTION

Attach the sling leg chain extensions to the rear legs after passing the sling leg chain through the rear lift provisions.

Figure 2-40. Medium Tactical Vehicle Replacement (MTVR)

CHAPTER 3

CERTIFIED DUAL-POINT RIGGING PROCEDURES FOR TRAILERS

3-1. INTRODUCTION

This chapter contains rigging procedures for dual-point trailer loads 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 dual-point rigging procedures for trailers are in this section. Paragraphs 3-2 through 3-21 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.

3-2. M101A2 3/4-Ton Trailer

a. Applicability. The following items in Table 3-1 are certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 3-1. M101A2 3/4-Ton Trailer

NOMENCLATURE	CURB WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
M101A2 with Accompanying Load	3,000	10K	3/20	CH-47	100
Command Version 1 Trailer	1,958	10K	3/20	CH-47	100
Command Version 2 Trailer	1,981	10K	3/20	CH-47	100
Len Cable Trailer	2,796	10K	3/20	CH-47	100
NC Support Trailer	2,643	10K	3/20	CH-47	100
Maintenance Trailer #2	1,430	10K	3/20	CH-47	100
Battalion Spares Trailer #1	1,594	10K	3/20	CH-47	100
Battalion Spares Trailer #2	2,206	10K	3/20	CH-47	100
Downsized Direct Support Section Trailer	2,700	10K	3/20	CH-47	100

WARNING

THE M101A2 3/4-TON TRAILER MUST HAVE A GROSS WEIGHT OF 1,575 POUNDS OR MORE. ADD ADDITIONAL WEIGHT OR CARGO TO ANY TRAILER WHICH WEIGHS LESS THAN 1,575 POUNDS. PLACE THE WEIGHT NEAR THE CENTER OF THE TRAILER.

WARNING

MAXIMUM WEIGHT DURING SLING LOAD OPERATIONS FOR ANY VARIANT OF THE M101A2 3/4-TON TRAILER IS 3,000 POUNDS.

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.

(4) Webbing, cotton, 1/4-inch.

(5) Tie down, CGU-1B or dacron lashing and load binder.

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) Fasten the tailgate in the open position with the chains on each side hooked through the keeper.

(b) Remove the front rack and place it in the bed of the trailer. Place the accompanying load on top of the front rack. Secure the accompanying load to the trailer using tie-down straps. Route the straps diagonally across the load from the tailgate hinge to the front lifting shackles.

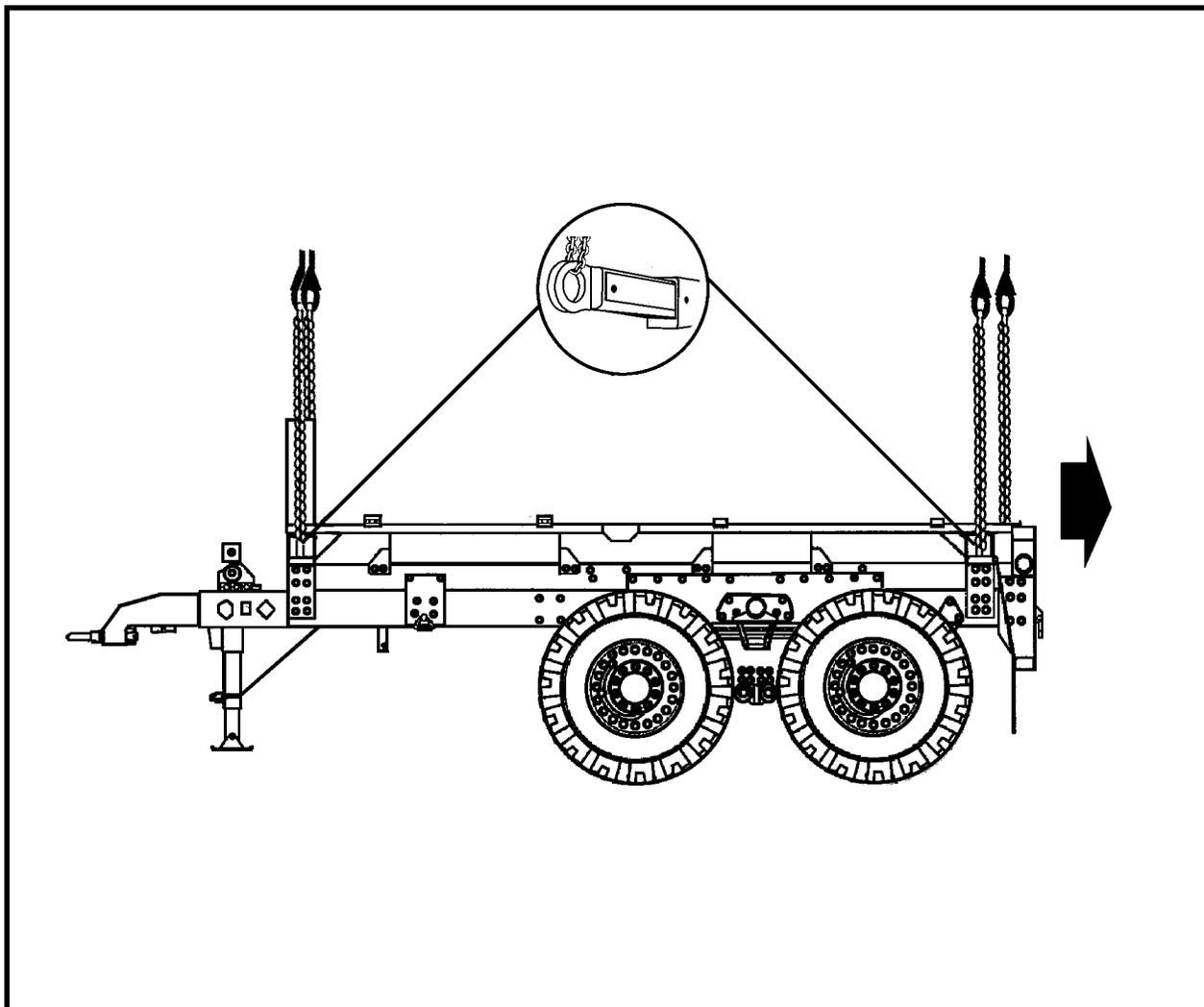
(c) Tape or tie the light cable firmly to the top of the drawbar.

(d) Ensure the parking brake is set.

(2) **Rigging.** Rig the load according to the steps in Figure 3-1.

(3) **Hookup.** The hookup teams stand in the bed of the trailer. The static wand person discharges the static electricity with the static wand. 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 team then carefully dismounts the vehicle and 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. Connect 2 sling legs to apex fitting number 1. Position the apex fitting on top of the forward end (lunette end) of the trailer.
2. Loop the chain end of the sling legs through their respective lift provision bar located on the front end (lunette end) of the trailer. Place the correct link from Table 3-17 in the grab hook.
3. Connect 2 sling legs to apex fitting number 2. Position the apex fitting on top of the aft end of the trailer.
4. Loop the chain end of the sling legs through their respective lift provision bar located on the aft end of the trailer. Place the correct link from Table 3-17 in the grab hook.
5. Secure all excess chain with tape or Type III nylon cord.
6. Cluster and tie or tape (breakaway technique) the sling legs in each sling set together to prevent entanglement during hookup and lift-off.

Figure 3-17. M1082 Light Medium Tactical Vehicle (LMTV) and M1095 Medium Tactical Vehicle (MTV) Trailers

3-19. Assault Command Post With High Mobility Wheel Set

a. Applicability. The following item in Table 3-18 is certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 3-18. Assault Command Post With High Mobility Wheel Set

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Assault Command Post (ACP), Housed in Expandable Light Airmobile Shelter (ELAMS), with High Mobility Wheel Set	13,240	25K	ECU is Front 20/3	CH-47	100
Upgraded Assault Command Post (ACP), Housed in Expandable Light Airmobile Shelter (ELAMS), with High Mobility Wheel Set	14,600	25K	ECU is Front 20/3	CH-47	100

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.

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) Ensure manufacturer approved tiedown assemblies (2 each) are in place between the shelter and each wheel set.

(b) Remove all antennas and secure inside the shelter.

(c) Secure all lids, doors, and caps with tape or Type III nylon cord.

(d) Secure all loose equipment inside the shelter with tape, lashings, or Type III nylon cord.

(e) Secure the tow bar in the up position with Type III nylon cord.

(2) Rigging. Rig the load according to the steps in Figure 3-18.

(3) Hookup. The hookup teams stand on the roof of the shelter. The static wand person discharges the static electricity with the static wand. 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 team then carefully dismounts the vehicle and 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).

3-21. M31 Expeditionary Arresting Gear System (EAGS)

a. Applicability. The following item in Table 3-20 is certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 3-20. M31 Expeditionary Arresting Gear System (EAGS)

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
M31 Expeditionary Arresting Gear System (EAGS)	17,466	40K	Right: 3/21 Left: 5/22	CH-53	100

NOTE: The front of the EAGS is the end with the large towbar.

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

(1) Sling set (40,000-pound capacity) with one additional apex fitting.

(a) Chain length, part number 607050, from a 40,000-pound capacity sling set (4 each).

(b) Coupling link, NSN 4010-01-081-5114, from a 40,000-pound sling set (4 each).

(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, tiedown, 5,000-pound capacity (included with system) (as required).

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

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

NOTE: The EAGS must be in the transport mode.

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

(a) Secure the drawbar in the up position with the included tie rod.

(b) Secure the safety chains and brake cables to the drawbar with Type III nylon cord.

(c) Secure all lids, doors, and caps with tape or Type III nylon cord.

(d) Ensure the stabilizing legs are retracted and stowed.

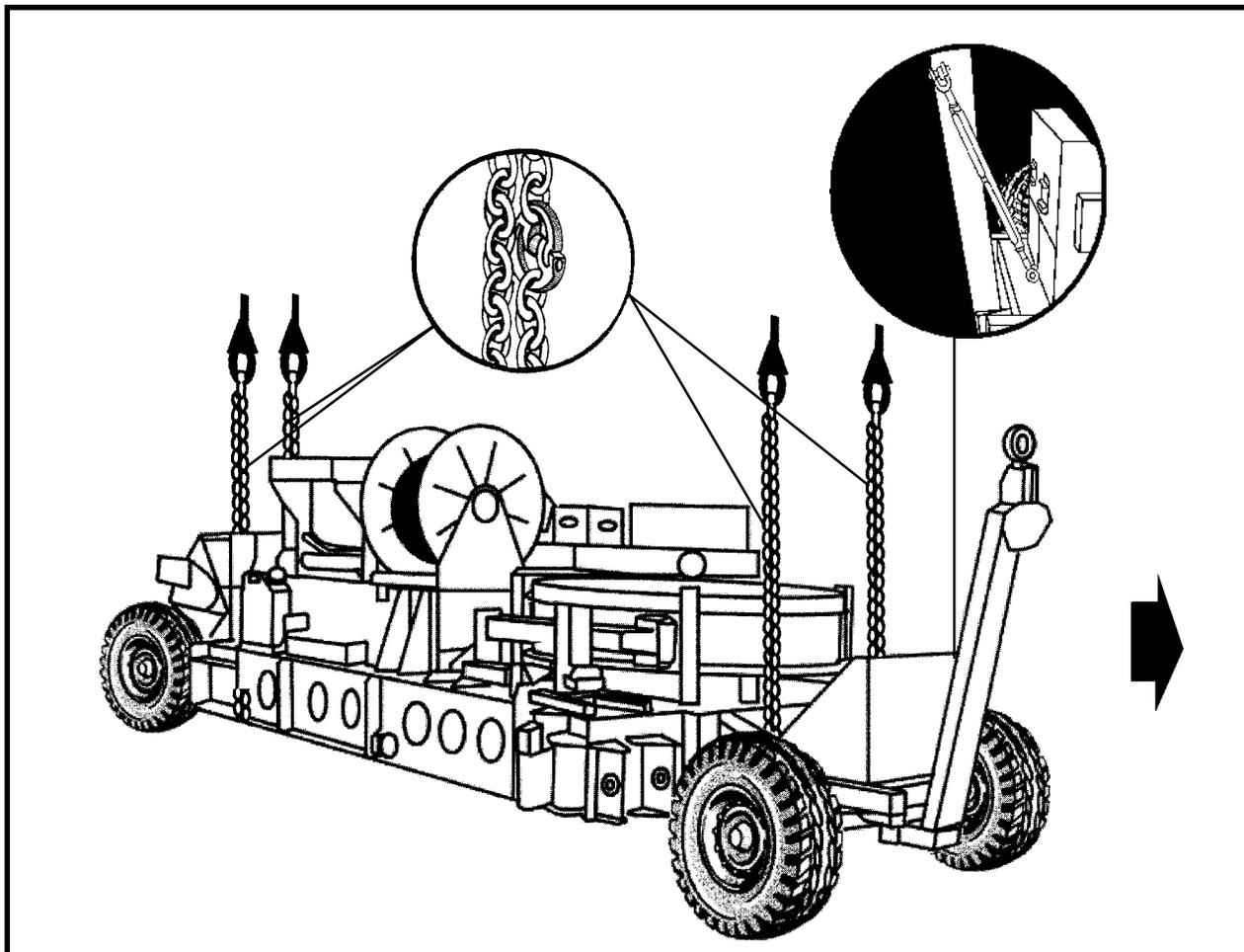
(e) Secure all stowed equipment with the provided tiedown straps.

(f) Connect one additional chain length to each chain on each sling set with a coupling link.

(2) **Rigging.** Rig the load according to the steps in Figure 3-20.

(3) **Hookup.** The hookup teams stand on top of the trailer. The static wand person discharges the static electricity with the static wand. 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 team then carefully dismantles the trailer and 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. Connect 2 sling legs to apex fitting number 1. Position the apex fitting on top of the forward end (tow bar end) of the trailer.
2. Loop the chain end of the sling legs through their respective lift provisions located on the front end (tow bar end) of the trailer. Place the correct link from Table 3-20 in the grab hook. Tape the slings to the radiator.
3. Connect 2 sling legs to apex fitting number 2. Position the apex fitting on top of the aft end of the trailer.
4. Loop the chain end of the sling legs through their respective lift provisions located on the aft end of the trailer. Place the correct link from Table 3-20 in the grab hook.
5. Secure all excess chain with tape or Type III nylon cord.
6. Cluster and tie or tape (breakaway technique) the sling legs in each sling set together on top of the spindle to prevent entanglement during hookup and lift-off.

Figure 3-20. M31 Expeditionary Arresting Gear System (EAGS)

CHAPTER 5

CERTIFIED DUAL-POINT RIGGING PROCEDURES FOR TANDEM LOADS

5-1. INTRODUCTION

This chapter contains rigging procedures for dual-point tandem loads 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 dual-point rigging procedures for tandem loads are in this section. Paragraphs 5-2 through 5-29 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.

5-2. M998/M1038 Truck, Utility, 1-1/4 Ton (HMMWV) with M101A1/A2 Trailer, Cargo

a. Applicability. The following items in Table 5-1 are certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

NOTE:

Field commanders should note that minor bending of the front wall of the M101A1/M101A2 trailer may occur as a result of sling loading due to the compression from the slings. The possibility of bending does not pose a safety threat to flight or ground personnel and will not affect the operation of the trailer.

Table 5-1. M998/M1038 Truck, Utility, 1-1/4 Ton with M101A1/A2 Trailer, Cargo

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Truck, 1-1/4 Ton, HMMWV, M998, Empty	5,200	10K	76/3	CH-47	100
Truck, 1-1/4 Ton, HMMWV, M998, Loaded	7,700	10K	76/3	CH-47	110
Truck, 1-1/4 Ton, HMMWV, M1038, Empty	5,327	10K	76/3	CH-47	100
Truck, 1-1/4 Ton, HMMWV, M1038, Loaded	7,700	10K	76/3	CH-47	110
Trailer, Cargo, M101A1/M101A2, Empty	1,280	10K	59/36	CH-47	100
Trailer, Cargo, M101A1/M101A2, Loaded	2,780	10K	59/36	CH-47	110

NOTES:

- 1. The maximum certified combined load weight is 10,480 pounds.**
- 2. The recommended airspeed for combined loads weighing 6,607 pounds or less is 100 knots.**
- 3. The recommended airspeed for combined loads weighing between 6,607 and 10,480 pounds or less is 110 knots.**

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

- (1) Sling set (10,000-pound capacity) (2 each).
- (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, tie-down, CGU-1/B (2 each, or more as required to secure cargo).
- (6) Reach Pendant, 11K or 25K, OPTIONAL EQUIPMENT.

c. Personnel. Two persons can prepare and rig the M998/M1038 HMMWVs in 15 minutes. Two persons can prepare and rig the M101A1/M101A2 trailer in 10 minutes.

d. Procedures. Attach the trailer to the truck by placing the lunette on the pintle hook and securing the latch. Secure the safety chains, cables, and hoses to the trailer. Position the vehicle on level ground so both the truck and trailer are in a straight line. The following procedures apply to this load:

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

(a) Fold mirrors forward in front of the windshield and tie together with Type III nylon cord. Remove the doors and secure to the seats with Type III nylon cord.

(b) Secure all equipment and cargo inside the truck with tie-down straps, tape, or Type III nylon cord.

(c) Ensure the fuel tank is not over 3/4 full. Inspect

fuel tank cap, oil filler cap, and battery caps for proper installation.

(d) Engage the vehicle parking brake and put the transmission in neutral.

(e) Ensure the front wheels are pointed straight ahead. Tie down the steering wheel, using the securing device attached under the dashboard.

(f) Secure all equipment and cargo inside the trailer with tie-down straps, tape, or Type III nylon cord.

(g) Place the tailgate in the open position.

(h) Remove the tarp and front rack and place it in the bed of the trailer. Place the accompanying load on top of the front rack. Secure the accompanying load to the trailer using tie-down straps. Route the straps diagonally across the load from the tailgate hinge to the front lifting shackles.

(i) Ensure the parking brake is set.

(j) Attach the hook portion of a CGU-1/B tie-down strap down to the left front lift provision on the trailer. Connect the ratchet to the left inside tie-down provision located near the pintle.

(k) Repeat the above procedure on the right side of the load.

(l) Tighten both CGU-1/B tie-down straps at the same time. Safety the ratchet handles in the closed position with tape.

(2) **Rigging.** Rig the load according to the steps in Figure 5-1.

(3) **Hookup.** Two hookup teams are required for this load. The static wand person stands in the bed of the HMMWV and discharges the static electricity with the static wand. The forward hookup person stands in the bed of the HMMWV and places apex fitting 1 onto the forward cargo hook. The aft hookup person stands in the bed of the trailer and places apex fitting 2 onto the aft cargo hook. The hookup team then carefully dismounts the trailer and 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

5-16. M998/M1038/M1097A1, 1 1/4-Ton Truck, Cargo (HMMWV) and M102, 105-mm Howitzer

a. Applicability. The following items in Table 5-15 are certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 5-15. M998/M1038/M1097A1 1 1/4-Ton Cargo Truck (HMMWV) and M102, 105-mm Howitzer

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Truck, Cargo, 1 1/4-Ton, M998/M1038 without Accompanying Load	7,700	10K	36/8	CH-47	90
Truck, Cargo, 1 1/4-Ton, M998/M1038 with Accompanying Load	7,700	10K	40/8	CH-47	90
Howitzer, M102, without Accompanying Load	3,160	10K	83/9	CH-47	90
Howitzer, M102, with Accompanying Load	3,160	10K	58/6	CH-47	90
Accompanying Load	2,860	5K or 10K Net	N/A	CH-47	90
Truck, Cargo, 1 1/4-Ton, M1097A1 and M102 Howitzer, without Accompanying Load	HMMWV - 7,840 M102 - 3,160	10K 10K	40/10 80/10	CH-47	120

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

- (1) Sling set (10,000-pound capacity) (2 each).
- (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 (2 each).
- (6) Felt sheet, cattle hair, Type IV, 1/2-inch or suitable substitute.

(7) Clevis assembly, Type V platform, NSN 1670-01-162-2372, (2 each, 5 each if using a 25,000-pound capacity sling set). Three medium clevis assemblies may be substituted for the three Type V platform clevises used on the howitzer when using 25,000-pound capacity sling sets.

(8) 5,000- or 10,000-pound capacity net (used for accompanying load).

(9) Clevis assembly, large, or apex fitting (10,000-pound capacity).

c. Personnel. Two persons can prepare and rig the M998/M1038 HMMWV in 15 minutes. Two persons can prepare and rig the howitzer in 10 minutes.

d. Procedures. Attach the howitzer to the truck by placing the lunette on the pintle hook and securing the

latch with tape or Type III nylon cord. Secure the safety chains. Position the vehicle on level ground so both the truck and howitzer are in a straight line. The following procedures apply to this load:

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

(a) Fold mirrors inward and tie together with Type III nylon cord. Remove the doors and secure to the seats with Type III nylon cord.

(b) Secure all equipment and cargo inside the truck with tiedown straps, tape, or Type III nylon cord.

(c) Ensure the fuel tank is not over 3/4 full. Inspect the fuel tank cap, oil filler cap, and battery caps for proper installation.

(d) Engage the vehicle parking brake and put the transmission in neutral.

(e) Ensure the front wheels are pointed straight ahead. Tie down the steering wheel, using the securing device attached under the dashboard.

(f) Secure the brake light cable to the howitzer trail with tape or Type III nylon cord.

(g) Secure the cover over the howitzer sights.

(h) Place the section equipment chest on the end of the trails and secure with tiedown straps.

(i) Engage the howitzer hand brake.

(j) Position a Type V platform clevis assembly in the tiedown provision located on the outboard side of the truck frame above the left rear wheel. Ensure the bolt end of the clevis is facing toward the howitzer. Route the free end of one tiedown strap under the howitzer left trail, up over the trail box cross member support, through the Type V platform clevis, and connect it to the hook on the ratchet.

(k) Repeat the above procedure on the right side of the load.

(l) Position padding between the strap and the angled bracket (gusset) located forward of the rear lift provision on the truck.

(m) Tighten both CGU-1/B tiedown straps at the same time. Secure the excess strap and safety the ratchet handles in the closed position with tape.

CAUTION

Do not attach the tiedown straps to the rear wheels. The wheels may rotate in flight and the straps may become loose.

(n) Prepare and rig the cargo net, if used, in accordance with FM 10-450-3. Position the cargo net close enough to the howitzer so the lifting legs and apex fitting can be routed under the howitzer trails. Connect the large clevis or 10,000-pound capacity apex fitting to the cargo net apex fitting.

(2) Rigging. Rig the load according to the steps in Figure 5-15.

(3) Hookup. Two hookup teams are required for this load. The static wand person discharges the static electricity with the static wand. The forward hookup person stands in the bed of the vehicle and places apex fitting 1 onto the forward cargo hook. The aft hookup person stands on the trails of the howitzer and places apex fitting 2 onto the aft cargo hook. The hookup team then carefully dismounts the load and 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.

NOTE: Advise the aircraft commander to release the sling set apex fitting on the side of the howitzer away from the gun sights to prevent damage.

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

5-20. M1113 Shelter Carrier (HMMWV) with LMS Shelter and PU-798 Generator on M116A3 Trailer

a. Applicability. The following items in Table 5-19 are certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 5-19. M1113 Shelter Carrier (HMMWV) with LMS Shelter and PU-798 Generator on M116A3 Trailer

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
M1113 Shelter Carrier, HMMWV, with Digital Topographic Support System-Light, (DTSS-L), AN/TYQ-67 (V)1	10,100	25K	35/5	CH-47	70
M1113 Shelter Carrier, HMMWV, with Integrated System Control (ISYSCON) (V)1, (V)2	9,982	25K	35/5	CH-47	70
PU-798 Generator on M116A3 Trailer	2,457	25K	55/40	CH-47	70

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

(1) Sling set (25,000-pound capacity) (2 each).

(a) Chain length, part number 38850-00053-102, from a 25,000-pound capacity sling set (8 each).

(b) Coupling link, part number 664241, from a 25,000-pound sling set (8 each).

(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 (2 each).

(6) Felt sheet, cattle hair, Type IV, 1/2-inch or suitable substitute.

c. Personnel. Two persons can prepare and rig the truck in 15 minutes. Two persons can prepare and rig the generator set in 15 minutes.

d. Procedures. Attach the generator set to the truck by placing the lunette on the pintle hook and securing the latch with tape or Type III nylon cord. Secure the safety chains, cables, and hoses. Position the vehicle on level ground so both the truck and generator set are in a straight line. Tie the front lift provisions on the trailer in the up position with Type I 1/4-inch cotton webbing. The following procedures apply to this load:

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

(a) Fold mirrors inward and tie together with Type III nylon cord. Remove the doors and secure to the seats with Type III nylon cord. Tape the windshield with in an X formation from corner to corner.

(b) Secure all loose equipment inside the shelter with tape, Type III nylon cord, or tie-down straps. Close and secure the door.

(c) Secure all equipment and cargo inside the truck with tiedown straps, tape, or Type III nylon cord.

(d) Ensure the fuel tanks are not over 3/4 full. Inspect the fuel tank cap, oil filler cap, and battery caps for proper installation.

(e) Engage the vehicle parking brake and put the transmission in neutral.

(f) Ensure the front wheels are pointed straight ahead. Tie down the steering wheel, using the securing device attached under the dashboard.

(g) Install the lift provisions on the outer ends of the rear bumper by removing the tiedown provisions located on the front bumper and installing them on the outer ends of the rear bumper.

(h) Partially retract all landing legs and secure in position with Type III nylon cord.

(i) Retract the lunette leg and secure with Type III nylon cord.

(j) Secure all lids, doors, and caps with tape or Type III nylon cord.

(k) Ensure the trailer parking brake is set.

(l) Route the hook portion of a CGU-1/B tiedown strap through the left rear inboard tiedown provision located near the pintle on the rear bumper of the truck and through the left front lift provision of the trailer. Connect the hook to the ratchet of the CGU-1/B.

(m) Repeat the above procedure on the right side of the load.

(n) Tighten both CGU-1/B tie-down straps at the same time. Secure the excess strap and safety the ratchet handles in the closed position with tape.

CAUTION

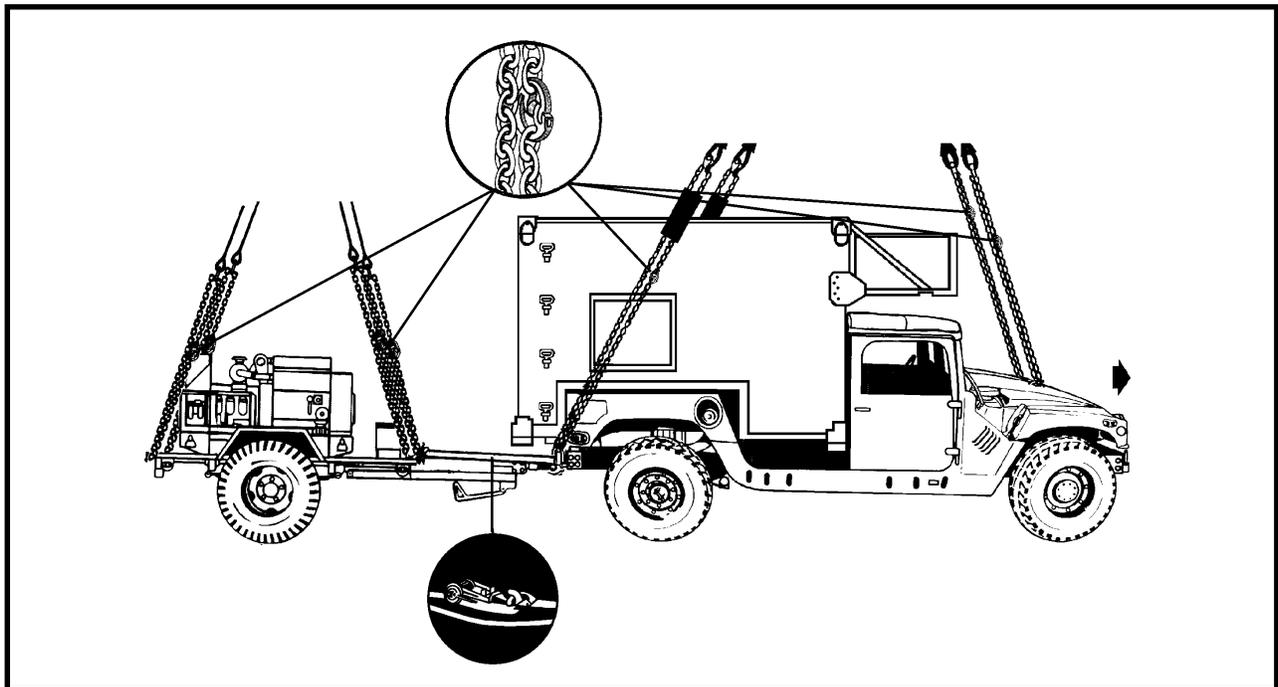
Do Not connect the CGU-1/B tiedown strap around the truck's rear axle or wheel.

(o) Connect one additional chain length to each chain on each sling set with a coupling link.

(2) Rigging. Rig the load according to the steps in Figure 5-19.

(3) Hookup. Two hookup teams are required for this load. The static wand person discharges the static electricity with the static wand. The forward hookup person kneels on top of the shelter and places apex fitting 1 onto the forward cargo hook. The aft hookup person stands on the generator fender and places apex fitting 2 onto the aft cargo hook. The hookup team then carefully dismounts the vehicle and the trailer and 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 vehicle 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 that protrudes through the hood from inboard to outboard. Place the correct link from Table 5-19 in the grab hook. Repeat with sling leg 2 and the right front lift provision. Secure excess chain with tape or Type III nylon cord.
3. Loop the chain end of the sling legs through their respective lift provisions located on the outer ends of the rear bumper. Place the correct link from Table 5-19 in the grab hook. Secure excess chain with tape or Type III nylon cord.
4. Pad the chain where it contacts the shelter sides.
5. Cluster and tie or tape (breakaway technique) all sling legs together on top of the vehicle to prevent entanglement during hookup and lift-off.
6. Position the apex fitting of sling set 2 on top of the generator set. Route outer sling legs 1 and 2 to the front of the generator and inner sling legs 3 and 4 to the rear of the generator. Sling legs 1 and 3 must be on the left side of the load.
7. Loop the chain end of sling leg 1 through the left front lift provision located on the front of the trailer. Place the correct link from Table 5-19 in the grab hook. Repeat with sling leg 2 through the right front lift provision. Secure excess chain with tape or Type III nylon cord.
8. Loop the chain end of sling leg 3 through the left rear lift provision. Place the correct link from Table 5-19 in the grab hook. Repeat with sling leg 4 through the right rear lift provision. Secure excess chain with tape or Type III nylon cord.
9. Cluster and tie or tape (breakaway technique) all sling legs together on top of the trailer to prevent entanglement during hookup and lift-off.

Figure 5-19. M1113 Shelter Carrier (HMMWV) with LMS Shelter and PU-798 Generator on M116A3 Trailer

5-21. M1097A2 Shelter Carrier (HMMWV) with S-250 Shelter and Trailer Generator Sets on M116A3 Trailer

a. Applicability. The following items in Table 5-20 are certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 5-20. M1097A2 Shelter Carrier (HMMWV) with S-250 Shelter and Trailer Generator Sets on M116A3 Trailer

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Truck, (HMMWV) M1097A2 with LOS (V1) in S-250 Shelter	8,246	10K	80/30	CH-47	110
Truck, (HMMWV) M1097A2 with Small Extension Node Switch, AN/TTC-48E(V)2	8,354	10K	80/30	CH-47	110
PU-797 Generator Set on M116A3 Trailer	2,320	10K	10/15	CH-47	110
PU-798 Generator Set on M116A3 Trailer	2,457	10K	10/15	CH-47	110

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

(1) Sling set (10,000-pound capacity) (2 each).

(a) Chain length, part number 38850-00053-101, from a 10,000-pound capacity sling set (8 each).

(b) Coupling link, NSN 4010-01-231-3388, from a 10,000-pound sling set (8 each).

(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 (2 each).

(6) Felt sheet, cattle hair, Type IV, 1/2-inch or suitable substitute.

c. Personnel. Two persons can prepare and rig the M1097A2 HMMWV in 15 minutes. Two persons can prepare and rig the generator set in 10 minutes.

d. Procedures. Attach the generator set to the truck by placing the lunette on the pintle hook and securing the latch with tape or Type III nylon cord. Secure the safety chains, cables, and hoses. Position the vehicle on level ground so both the truck and generator set are in a straight line. The following procedures apply to this load:

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

(a) Fold mirrors inward and tie together with Type III nylon cord. Remove the doors and secure to the seats with Type III nylon cord.

(b) Secure all loose equipment inside the shelter with tape, Type III nylon cord, or tiedown straps. Close and secure the door.

(c) Secure all equipment and cargo inside the truck with tiedown straps, tape, or Type III nylon cord. Secure the doors shut if installed.

(d) Ensure the fuel tanks are not over 3/4 full. Inspect the fuel tank cap, oil filler cap, and battery caps for proper installation.

(e) Engage the vehicle parking brake and put the transmission in neutral.

(f) Ensure the front wheels are pointed straight ahead. Tie down the steering wheel, using the securing device attached under the dashboard.

(g) Partially retract all landing legs and secure in position with Type III nylon cord.

(h) Retract the lunette leg and secure with Type III nylon cord.

(i) Secure all lids, doors, and caps with tape or Type III nylon cord.

(j) Ensure the parking brakes are set.

(k) Route the hook portion of a CGU-1/B tiedown strap through the left rear inboard tiedown provision located near the pintle on the rear bumper of the truck and

through the mounting bracket on the front of the trailer A-frame. Connect the hook to the ratchet of the CGU-1/B.

(l) Repeat the above procedure on the right side of the load.

(m) Tighten both CGU-1/B tie-down straps at the same time. Secure the excess strap and safety the ratchet handles in the closed position with tape.

(n) Connect one additional chain length to each chain on each sling set with a coupling link.

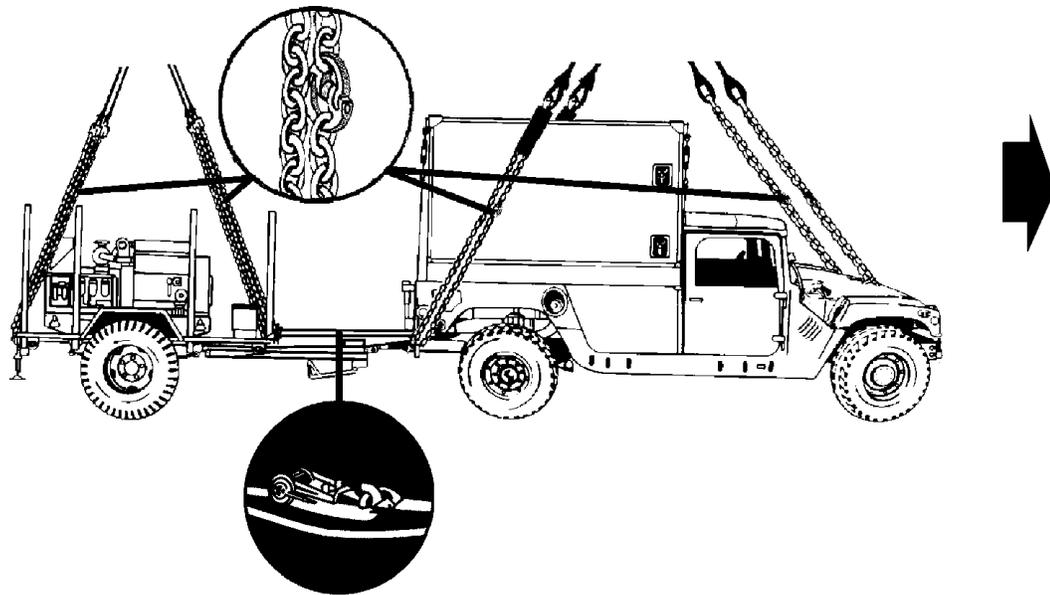
CAUTION

Do not connect the CGU-1/B tiedown strap around the truck's rear axle or wheel.

(2) **Rigging.** Rig the load according to the steps in Figure 5-20.

(3) **Hookup.** Two hookup teams are required for this load. The static wand person discharges the static electricity with the static wand. The forward hookup person kneels on top of the shelter and places apex fitting 1 onto the forward cargo hook. The aft hookup person stands on the generator fender and places apex fitting 2 onto the aft cargo hook. The hookup team then carefully dismounts the trailer and 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 vehicle 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 that protrudes through the hood from inboard to outboard. Place the correct link from Table 5-20 in the grab hook. Repeat with sling leg 2 and the right front lift provision. Secure excess chain with tape or Type III nylon cord.
3. Loop the chain end of the sling legs through their respective lift provisions located on the outer ends of the rear bumper. Place the correct link from Table 5-20 in the grab hook. Secure excess chain with tape or Type III nylon cord.
4. Pad the chain where it contacts the shelter sides.
5. Cluster and tie or tape (breakaway technique) all sling legs together on top of the vehicle to prevent entanglement during hookup and lift-off.
6. Position the apex fitting of sling set 2 on top of the generator set. Route outer sling legs 1 and 2 to the front of the generator and inner sling legs 3 and 4 to the rear of the generator. Sling legs 1 and 3 must be on the left side of the load.
7. Loop the chain end of sling leg 1 through the left front lift provision located on the front of the trailer. Place the correct link from Table 5-20 in the grab hook. Repeat with sling leg 2 through the right front lift provision. Secure excess chain with tape or Type III nylon cord.
8. Loop the chain end of sling leg 3 through the left rear lift provision. Place the correct link from Table 5-20 in the grab hook. Repeat with sling leg 4 through the right rear lift provision. Secure excess chain with tape or Type III nylon cord.
9. Cluster and tie or tape (breakaway technique) all sling legs together on top of the trailer to prevent entanglement during hookup and lift-off.

Figure 5-20. M1097A2 Shelter Carrier (HMMWV) with S-250 Shelter and Trailer Generator Sets on M116A3 Trailer

5-22. M1097A2 (HMMWV) with Advanced Field Artillery Tactical Data System (AFATDS) Soft Top Installation Kit (STIK) and PU-797 Generator Set on M116A3 Trailer

a. Applicability. The following items in Table 5-21 are certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 5-21. M1097A2 (HMMWV) with Advanced Field Artillery Tactical Data System (AFATDS) Soft Top Installation Kit (STIK) and PU-797 Generator Set on M116A3 Trailer

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
System 2: CHS-2 AN/GYG-3(V)1, with SINGARS AN/VRC-90, AN/VRC-92 and EPLRS installed in the bed. AN/VRC-92 installed in cab.	8,103	25K	50/3	CH-47	120
System 3: CHS-2 AN/GYG-3(V)3, with SINGARS AN/VRC-90, AN/VRC-92 and EPLRS installed in the bed. AN/VRC-92 installed in cab.	8,366	25K	50/3	CH-47	120
System 4: 2 each AN/GYK-37(V)2, with SINGARS AN/VRC-89, AN/VRC-92 and EPLRS.	7,790	25K	50/3	CH-47	120
PU-797 Generator Set on M116A3 Trailer	1,800	25K	15/20	CH-47	120

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

- (1) Sling set (25,000-pound capacity) (2 each).
 - (a) Chain length, part number 38850-00053-102, from a 25,000-pound capacity sling set (8 each).
 - (b) Coupling link, NSN 4010-01-041-9751, from a 25,000-pound sling set (8 each).
- (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 (2 each).
- (6) Sling guides (included as part of the HMMWV STIK) (2 each).
- (7) Reach pendant (25,000-pound capacity) (2 each).

c. Personnel. Two persons can prepare and rig the M1097A2 HMMWV in 15 minutes. Two persons can

prepare and rig the generator set in 10 minutes.

d. Procedures. Attach the generator set to the truck by placing the lunette on the pintle hook and securing the latch with tape or Type III nylon cord. Secure the safety chains, cables, and hoses. Position the vehicle on level ground so both the truck and generator set are in a straight line. The following procedures apply to this load:

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

(a) Fold mirrors inward and tie together with Type III nylon cord. Remove the doors and secure to the seats with Type III nylon cord.

(b) Secure all equipment and cargo inside the truck with tiedown straps, tape, or Type III nylon cord.

(c) Ensure the fuel tanks are not over 3/4 full. Inspect the fuel tank cap, oil filler cap, and battery caps for proper installation.

(d) Engage the vehicle parking brake and put the transmission in neutral.

(e) Ensure the front wheels are pointed straight ahead. Tie down the steering wheel, using the securing device attached under the dashboard.

(f) Partially retract all landing legs and secure in position with Type III nylon cord.

(g) Retract the lunette leg and secure with Type III nylon cord.

(h) Secure all lids, doors, and caps with tape or Type III nylon cord.

(i) Ensure the parking brakes are set.

(j) Route the hook portion of a CGU-1/B tiedown strap through the left rear inboard tiedown provision lo-

cated near the pintle on the rear bumper of the truck and through the mounting bracket on the front of the trailer A-frame. Connect the hook to the ratchet of the CGU-1/B.

(k) Repeat the above procedure on the right side of the load.

(l) Tighten both CGU-1/B tie-down straps at the same time. Secure the excess strap and safety ratchet handles in the closed position with tape.

(m) Install a reach pendant on each apex fitting.

(n) Connect one additional chain length to each chain on each sling set with a coupling link.

(o) Ensure the STIK sling guides are properly installed.

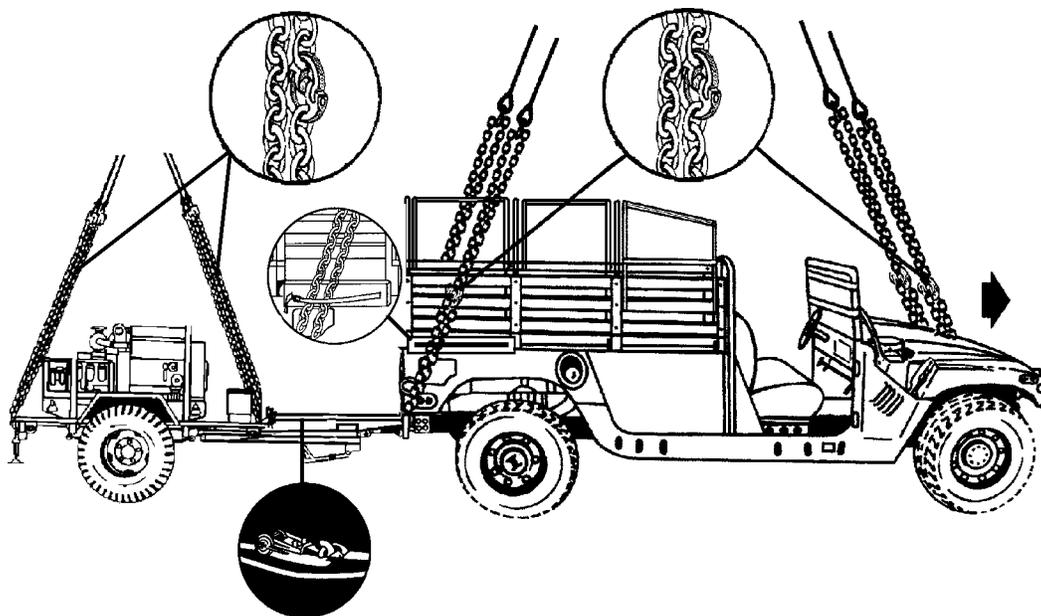
CAUTION

Do Not connect the CGU-1/B tiedown strap around the truck's rear axle or wheel.

(2) Rigging. Rig the load according to the steps in Figure 5-21.

(3) Hookup. Two hookup teams are required for this load. The static wand person discharges the static electricity with the static wand. The forward hookup person kneels on top of the truck and places apex fitting 1 onto the forward cargo hook. The aft hookup person stands on the generator fender and places apex fitting 2 onto the aft cargo hook. The hookup team then carefully dismounts the trailer and 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 truck. Route outer sling legs 1 and 2 to the front of the vehicle 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 that protrudes through the hood from inboard to outboard. Place the correct link from Table 5-21 in the grab hook. Repeat with sling leg 2 and the right front lift provision. Secure excess chain with tape or Type III nylon cord.
3. Loop the chain end of sling leg 3 through the left guide, through the left rear lift provision located on the outer ends of the rear bumper, and back through the left sling guide. Place the correct link from Table 5-21 in the grab hook. Repeat with sling leg 4 and the right sling guide and right rear lift provision. Secure 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 vehicle to prevent entanglement during hookup and lift-off.
5. Position the apex fitting of sling set 2 on top of the generator set. Route outer sling legs 1 and 2 to the front of the generator and inner sling legs 3 and 4 to the rear of the generator. Sling legs 1 and 3 must be on the left side of the load.
6. Loop the chain end of sling leg 1 through the left front lift provision located on the front of the trailer. Place the correct link from Table 5-21 in the grab hook. Repeat with sling leg 2 through the right front lift provision. Secure excess chain with tape or Type III nylon cord.
7. Loop the chain end of sling leg 3 through the left rear lift provision. Place the correct link from Table 5-21 in the grab hook. Repeat with sling leg 4 through the right rear lift provision. Secure excess chain with tape or Type III nylon cord.
8. Cluster and tie or tape (breakaway technique) all sling legs together on top of the trailer to prevent entanglement during hookup and lift-off.

Figure 5-21. M1097A2 (HMMWV) with Advanced Field Artillery Tactical Data System (AFATDS) Soft Top Installation Kit (STIK) and PU-797 Generator Set on M116A3 Trailer

5-23. M1097A2 (HMMWV) with Advanced Field Artillery Tactical Data System (AFATDS) Full Size Soft Top Installation Kit (STIK) and M101A1 Trailer

a. Applicability. The following items in Table 5-22 are certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 5-22. M1097A2 (HMMWV) with Advanced Field Artillery Tactical Data System (AFATDS) Full Size Soft Top Installation Kit (STIK) and M101A1 Trailer

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
System 2: CHS-2 AN/GYG-3(V)1, with SINGARS AN/VRC-90, AN/VRC-92 and EPLRS installed in the bed. AN/VRC-92 installed in cab.	8,103	25K	50/3	CH-47	120
System 3: CHS-2 AN/GYG-3(V)3, with SINGARS AN/VRC-90, AN/VRC-92 and EPLRS installed in the bed. AN/VRC-92 installed in cab.	8,366	25K	50/3	CH-47	120
System 4: 2 each AN/GYK-37(V)2, with SINGARS AN/VRC-89, AN/VRC-92 and EPLRS.	7,790	25K	50/3	CH-47	120
Trailer, M101A1	3,200	25K	15/20	CH-47	120

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

- (1) Sling set (25,000-pound capacity) (2 each).
 - (a) Chain length, part number 38850-00053-102, from a 25,000-pound capacity sling set (8 each).
 - (b) Coupling link, NSN 4010-01-041-9751, from a 25,000-pound sling set (8 each).
- (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 (2 each).
- (6) Sling guides (included as part of the HMMWV STIK) (2 each).
- (7) Reach pendant (25,000-pound capacity) (2 each).

c. Personnel. Two persons can prepare and rig the M1097A2 HMMWV in 15 minutes. Two persons can

prepare and rig the generator set in 10 minutes.

d. Procedures. Attach the trailer to the truck by placing the lunette on the pintle hook and securing the latch with tape or Type III nylon cord. Secure the safety chains, cables, and hoses. Position the vehicle on level ground so both the truck and trailer are in a straight line. The following procedures apply to this load:

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

(a) Fold mirrors inward and tie together with Type III nylon cord. Remove the doors and secure to the seats with Type III nylon cord.

(b) Secure all equipment and cargo inside the truck and trailer with tiedown straps, tape, or Type III nylon cord.

(c) Ensure the fuel tank is not over 3/4 full. Inspect the fuel tank cap, oil filler cap, and battery caps for proper installation.

(d) Engage the vehicle parking brake and put the transmission in neutral.

(e) Ensure the front wheels are pointed straight ahead. Tie down the steering wheel, using the securing device attached under the dashboard.

(f) Retract the lunette leg and secure with Type III nylon cord.

(g) Ensure the trailer parking brakes are set.

(h) Route the hook portion of a CGU-1/B tiedown strap through the left rear inboard tiedown provision located near the pintle on the rear bumper of the truck and through the mounting bracket on the front of the trailer A-

frame. Connect the hook to the ratchet of the CGU-1/B.

(i) Repeat the above procedure on the right side of the load.

(j) Tighten both CGU-1/B tie-down straps at the same time. Secure the excess strap and safety the ratchet handles in the closed position with tape.

(k) Install a reach pendant on each apex fitting.

(l) Connect one additional chain length to each chain on each sling set with a coupling link.

(m) Ensure the STIK sling guides are properly installed.

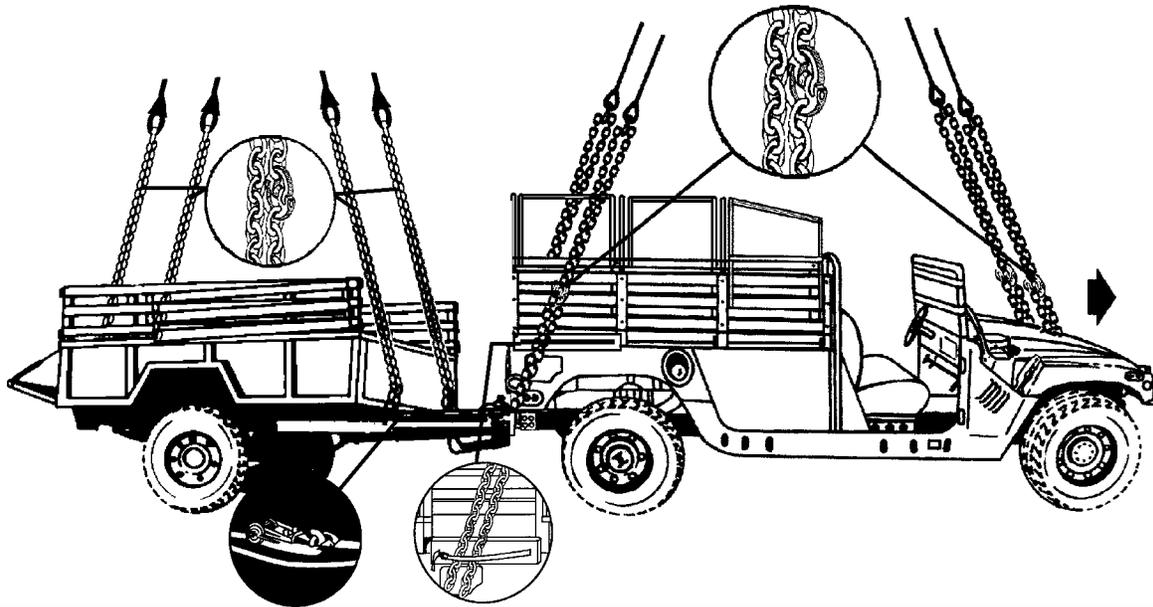
CAUTION

Do not connect the CGU-1/B tiedown strap around the truck's rear axle or wheel.

(2) Rigging. Rig the load according to the steps in Figure 5-22.

(3) Hookup. Two hookup teams are required for this load. The static wand person discharges the static electricity with the static wand. The forward hookup person kneels on top of the truck and places apex fitting 1 onto the forward cargo hook. The aft hookup person stands in the trailer and places apex fitting 2 onto the aft cargo hook. The hookup team then carefully dismounts the load and 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 truck. Route outer sling legs 1 and 2 to the front of the vehicle 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 that protrudes through the hood from inboard to outboard. Place the correct link from Table 5-22 in the grab hook. Repeat with sling leg 2 and the right front lift provision. Secure excess chain with tape or Type III nylon cord.
3. Loop the chain end of sling leg 3 through the left guide, through the left rear lift provision located on the outer ends of the rear bumper, and back through the left sling guide. Place the correct link from Table 5-22 in the grab hook. Repeat with sling leg 4 and the right sling guide and right rear lift provision. Secure 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 vehicle to prevent entanglement during hookup and lift-off.
5. Position the apex fitting of sling set 2 in the bed of the trailer. Route outer sling legs 1 and 2 to the front of the trailer and inner sling legs 3 and 4 to the rear of the trailer. Route the rear chains through the opening between the tailgate and the trailer bed and inside the trailer hinges. Sling legs 1 and 3 must be on the left side of the load.
6. Loop the chain end of sling leg 1 through the left front lift provision located on the front of the trailer. Place the correct link from Table 5-22 in the grab hook. Repeat with sling leg 2 through the right front lift provision. Secure excess chain with tape or Type III nylon cord.
7. Loop the chain end of sling leg 3 through the left rear lift provision. Place the correct link from Table 5-22 in the grab hook. Repeat with sling leg 4 through the right rear lift provision. Secure excess chain with tape or Type III nylon cord.
8. Cluster and tie or tape (breakaway technique) all sling legs together on top of the trailer to prevent entanglement during hookup and lift-off.

Figure 5-22. M1097A2 (HMMWV) with Advanced Field Artillery Tactical Data System (AFATDS) Full Size Soft Top Installation Kit (STIK) and M101A1 Trailer

5-24. M1097 (HMMWV) and High Mobility Trailer (HMT)

a. Applicability. The following items in Table 5-23 are certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 5-23. M1097 (HMMWV) and High Mobility Trailer (HMT)

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Shadow Tactical Unmanned Aerial Vehicle (TUAV) Troop Carrier	7,085	25K	40/10	CH-47	100
Shadow Tactical Unmanned Aerial Vehicle (TUAV) Equipment Trailer	3,950	25K	40/50	CH-47	100

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

- (1) Sling set (25,000-pound capacity) (2 each).
- (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 (2 each).

c. Personnel. Two persons can prepare and rig the M1097 HMMWV in 15 minutes. Two persons can prepare and rig the trailer set in 15 minutes.

d. Procedures. Attach the trailer to the truck by placing the lunette on the pintle hook and securing the latch with tape or Type III nylon cord. Secure the safety chains, cables, and hoses. Position the vehicle on level ground so both the truck and trailer are in a straight line. The following procedures apply to this load:

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

(a) Fold mirrors inward and tie together with Type III nylon cord.

(b) Secure all equipment and cargo inside the truck and trailer with tiedown straps, tape, or Type III nylon cord.

(c) Ensure the fuel tank is not over 3/4 full. Inspect the fuel tank cap, oil filler cap, and battery caps for proper installation.

(d) Engage the vehicle parking brake and put the transmission in neutral.

(e) Ensure the front wheels are pointed straight ahead. Tie down the steering wheel, using the securing device attached under the dashboard.

(f) Retract the lunette leg and secure with Type III nylon cord.

(g) Ensure the trailer parking brakes are set.

(h) Route the hook portion of a CGU-1/B tiedown strap through the left rear inboard tiedown provision located near the pintle on the rear bumper of the truck and through the mounting bracket on the front of the trailer A-frame. Connect the hook to the ratchet of the CGU-1/B.

(i) Repeat the above procedure on the right side of the load.

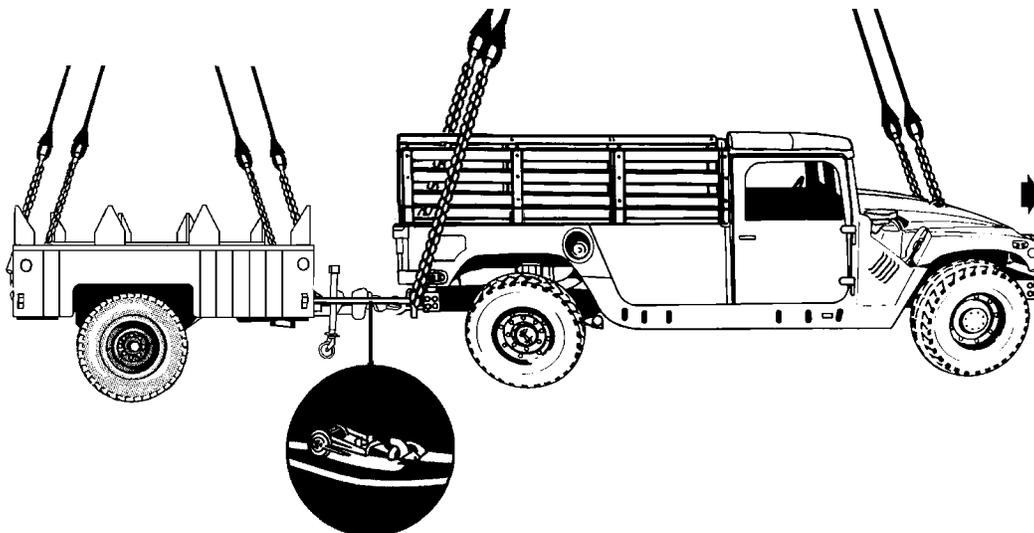
(j) Tighten both CGU-1/B tiedown straps at the same time. Secure the excess strap and safety the ratchet handles in the closed position with tape.

CAUTION
Do Not connect the CGU-1/B tiedown strap around the truck's rear axle or wheel.

(2) **Rigging.** Rig the load according to the steps in Figure 5-23.

(3) **Hookup.** Two hookup teams are required for this load. The static wand person discharges the static electricity with the static wand. The forward hookup person kneels on the hood of the truck and places apex fitting 1 onto the forward cargo hook. The aft hookup person stands in the trailer and places apex fitting 2 onto the aft cargo hook. The hookup team then carefully dismounts the load and 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 in bed of the truck. Route outer sling legs 1 and 2 to the front of the vehicle 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 that protrudes through the hood from inboard to outboard. Place the correct link from Table 5-23 in the grab hook. Repeat with sling leg 2 and the right front lift provision. Secure excess chain with tape or Type III nylon cord.
3. Route the chain end of sling leg 3 through the eyelet opening in the upper left corner of the tailgate. Loop the chain end through the left lift provision on the bumper and thread back through the eyelet opening in the tailgate. Place the correct link from Table 5-23 in the grab hook. Repeat with sling leg 4 through the right rear lift provision. See insert above.
4. Cluster and tie or tape (breakaway technique) all sling legs together on top of the vehicle to prevent entanglement during hookup and lift-off.
5. Position the apex fitting of sling set 2 in the bed of the trailer. Route outer sling legs 1 and 2 to the front of the trailer and inner sling legs 3 and 4 to the rear of the trailer. Sling legs 1 and 3 must be on the left side of the load.
6. Loop the chain end of sling leg 1 through the left front lift provision located on the front of the trailer. Place the correct link from Table 5-23 in the grab hook. Repeat with sling leg 2 through the right front lift provision. Secure excess chain with tape or Type III nylon cord.
7. Loop the chain end of sling leg 3 through the left rear lift provision. Place the correct link from Table 5-23 in the grab hook. Repeat with sling leg 4 through the right rear lift provision. Secure excess chain with tape or Type III nylon cord.
8. Cluster and tie or tape (breakaway technique) all sling legs together on top of the trailer to prevent entanglement during hookup and lift-off.

Figure 5-23. M1097 (HMMWV) and High Mobility Trailer (HMT)

5-25. M1113 (HMMWV) with LMS Shelter and High Mobility Trailer (HMT)

a. Applicability. The following items in Table 5-24 are certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 5-24. M1113 (HMMWV) with LMS Shelter and High Mobility Trailer (HMT)

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Shadow Tactical Unmanned Aerial Vehicle (TUAV) Maintenance Section Multifunctional (MSM)	9,774	25K	25/10	CH-47	100
Shadow Tactical Unmanned Aerial Vehicle (TUAV) Equipment Maintenance Section Multifunctional (MSM)Trailer	3,737	25K	20/30	CH-47	100

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

(1) Sling set (25,000-pound capacity) (2 each).

(a) Chain length, part number 38850-00053-102, from a 25,000-pound capacity sling set (8 each).

(b) Coupling link, NSN 4010-01-041-9751, from a 25,000-pound sling set (8 each).

(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 (2 each).

(6) Felt sheet, cattle hair, Type IV, 1/2-inch or suitable substitute.

c. Personnel. Two persons can prepare and rig the M1113 HMMWV in 15 minutes. Two persons can prepare and rig the trailer set in 15 minutes.

d. Procedures. Attach the trailer to the truck by placing the lunette on the pintle hook and securing the latch with tape or Type III nylon cord. Secure the safety chains, cables, and hoses. Position the vehicle on level ground so both the truck and trailer are in a straight line. The following procedures apply to this load:

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

(a) Fold mirrors inward and tie together with Type III nylon cord.

(b) Secure all equipment and cargo inside the truck and trailer with tiedown straps, tape, or Type III nylon cord.

(c) Secure all loose equipment inside the shelter with tape, Type III nylon cord, or tie-down straps. Close and secure the door.

(d) Ensure the fuel tank is not over 3/4 full. Inspect the fuel tank cap, oil filler cap, and battery caps for proper installation.

(e) Engage the vehicle parking brake and put the transmission in neutral.

(f) Ensure the front wheels are pointed straight ahead. Tie down the steering wheel, using the securing device attached under the dashboard.

(g) Secure the generator release handle with Type III nylon cord.

(h) Retract the lunette leg and secure with Type III nylon cord.

(i) Ensure all equipment in the trailer is secured with the supplied cargo net and CGU-1/B cargo tiedown straps or Type III nylon cord.

(j) Ensure the trailer parking brakes are set.

(k) Route the hook portion of a CGU-1/B tiedown strap through the left rear inboard tiedown provision located near the pintle on the rear bumper of the truck and through the mounting bracket on the front of the trailer A-frame. Connect the hook to the ratchet of the CGU-1/B.

(l) Repeat the above procedure on the right side of the load.

(m) Tighten both CGU-1/B tiedown straps at the same time. Secure the excess strap and safety the ratchet handles in the closed position with tape.

(n) Connect one additional chain length to each chain on each sling set with a coupling link.

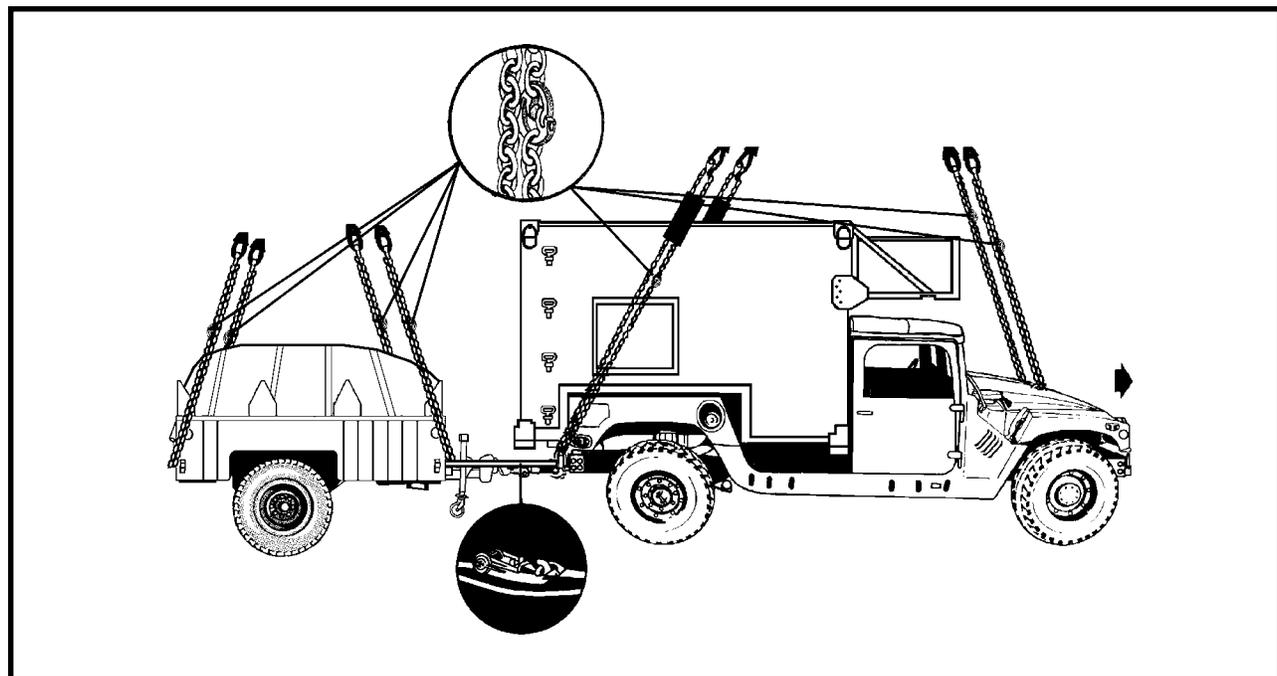
CAUTION

Do not connect the CGU-1/B tiedown strap around the truck's rear axle or wheel.

(2) **Rigging.** Rig the load according to the steps in Figure 5-24.

(3) **Hookup.** Two hookup teams are required for this load. The static wand person discharges the static electricity with the static wand. The forward hookup person kneels on the top of the shelter and places apex fitting 1 onto the forward cargo hook. The aft hookup person stands in the trailer and places apex fitting 2 onto the aft cargo hook. The hookup team then carefully dismounts the load and 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 the roof of the truck. Route outer sling legs 1 and 2 to the front of the vehicle 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 that protrudes through the hood from inboard to outboard. Place the correct link from Table 5-24 in the grab hook. Repeat with sling leg 2 and the right front lift provision. Secure excess chain with tape or Type III nylon cord.
3. Loop the chain end of the sling legs through their respective lift provisions located on the outer ends of the rear bumper. Place the correct link from Table 5-24 in the grab hook. Secure 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 vehicle to prevent entanglement during hookup and lift-off.
5. Position the apex fitting of sling set 2 in the bed of the trailer. Route outer sling legs 1 and 2 to the front of the trailer and inner sling legs 3 and 4 to the rear of the trailer. Sling legs 1 and 3 must be on the left side of the load.
6. Loop the chain end of sling leg 1 through the left front lift provision located on the front of the trailer. Place the correct link from Table 5-24 in the grab hook. Repeat with sling leg 2 through the right front lift provision. Secure excess chain with tape or Type III nylon cord.
7. Loop the chain end of sling leg 3 through the left rear lift provision. Place the correct link from Table 5-24 in the grab hook. Repeat with sling leg 4 through the right rear lift provision. Secure excess chain with tape or Type III nylon cord.
8. Cluster and tie or tape (breakaway technique) all sling legs together on top of the trailer to prevent entanglement during hookup and lift-off.

Figure 5-24. M1113 (HMMWV) with LMS Shelter and High Mobility Trailer (HMT)

5-26. M1113 (HMMWV) with LMS Shelter and Shadow Unmanned Aerial Vehicle (TUAV) Launch Recovery Trailer

a. Applicability. The following items in Table 5-25 are certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 5-25. M1113 (HMMWV) with LMS Shelter and Shadow Unmanned Aerial Vehicle (TUAV) Launch Recovery Trailer

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Shadow Tactical Unmanned Aerial Vehicle (TUAV) Air Vehicle Transport (AVT)	10,320	25K	30/10	CH-47	100
Shadow Tactical Unmanned Aerial Vehicle (TUAV) Launch/Recovery Trailer	3,737	25K	40/60	CH-47	100

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

(1) Sling set (25,000-pound capacity) (2 each).

(a) Chain length, part number 38850-00053-102, from a 25,000-pound capacity sling set (8 each).

(b) Coupling link, NSN 4010-01-041-9751, from a 25,000-pound sling set (8 each).

(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 (2 each).

(6) Felt sheet, cattle hair, Type IV, 1/2-inch or suitable substitute.

c. Personnel. Two persons can prepare and rig the M1113 HMMWV in 15 minutes. Two persons can prepare and rig the trailer set in 20 minutes.

d. Procedures. Attach the trailer to the truck by placing the lunette on the pintle hook and securing the latch with tape or Type III nylon cord. Secure the safety chains, cables, and hoses. Position the vehicle on level ground so both the truck and trailer are in a straight line. The following procedures apply to this load:

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

(a) Fold mirrors inward and tie together with Type III nylon cord.

(b) Secure all equipment and cargo inside the truck and trailer with tiedown straps, tape, or Type III nylon cord.

(c) Secure all loose equipment inside the shelter with tape, Type III nylon cord, or tiedown straps. Close and secure the door.

(d) Ensure the fuel tank is not over 3/4 full. Inspect the fuel tank cap, oil filler cap, and battery caps for proper installation.

(e) Engage the vehicle parking brake and put the transmission in neutral.

(f) Ensure the front wheels are pointed straight ahead. Tie down the steering wheel, using the securing device attached under the dashboard.

(g) Deploy the trailer rear landing legs and place in the fully retracted position. Secure the stowage straps with tape or Type III nylon cord.

(h) Ensure the rear lift provisions are oriented above the rear landing legs.

(i) Retract the lunette leg and secure with Type III nylon cord.

(j) Secure all lids, doors, and caps with tape or Type III nylon cord.

(k) Secure the beam support segments to the rails with Type III nylon cord.

(l) Ensure the shuttle is secured in the stowed position.

(m) Ensure the trailer parking brakes are set.

(n) Connect the hook portion of a CGU-1/B tiedown strap to the left rear inboard tiedown provision located near the pintle on the rear bumper of the truck. Connect the other side to the underside of the trailer frame.

(o) Repeat the above procedure on the right side of the load.

(p) Tighten both CGU-1/B tiedown straps at the same time. Secure the excess strap and safety the ratchet handles in the closed position with tape.

(q) Connect one additional chain length to each chain on each sling set with a coupling link.

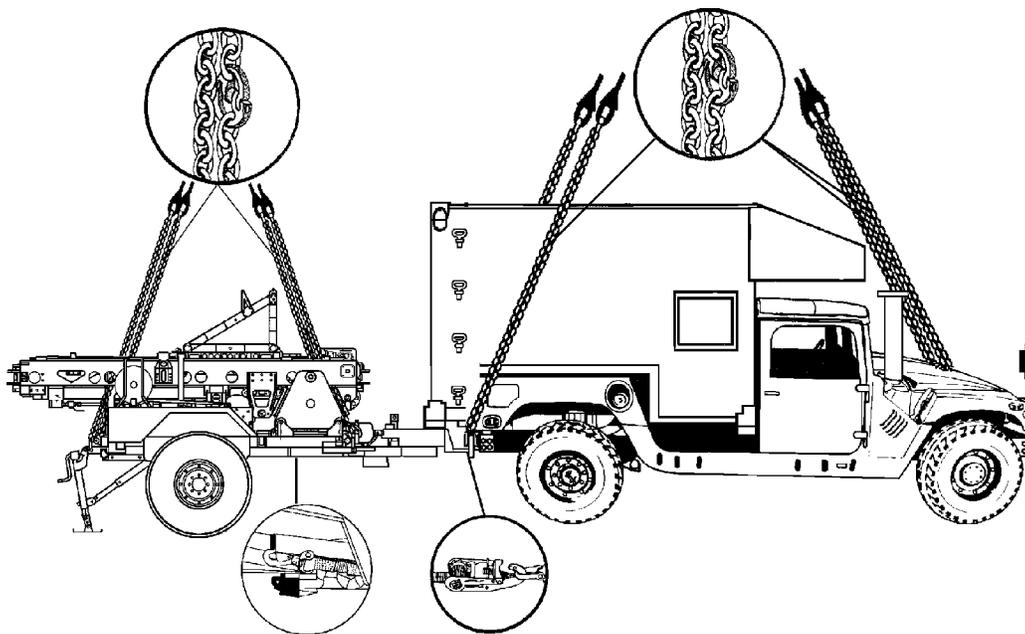
CAUTION

Do not connect the CGU-1/B tiedown strap around the truck's rear axle, wheel, or front lift provisions on the trailer.

(2) **Rigging.** Rig the load according to the steps in Figure 5-25.

(3) **Hookup.** Two hookup teams are required for this load. The static wand person discharges the static electricity with the static wand. The forward hookup person kneels on the top of the shelter and places apex fitting 1 onto the forward cargo hook. The aft hookup person stands on the trailer and places apex fitting 2 onto the aft cargo hook. The hookup team then carefully dismounts the load and 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 the roof of the shelter. Route outer sling legs 1 and 2 to the front of the vehicle 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 that protrudes through the hood from inboard to outboard. Place the correct link from Table 5-25 in the grab hook. Repeat with sling leg 2 and the right front lift provision. Secure excess chain with tape or Type III nylon cord.
3. Loop the chain end of the sling legs through their respective lift provisions located on the outer ends of the rear bumper. Place the correct link from Table 5-25 in the grab hook. Secure 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 vehicle to prevent entanglement during hookup and lift-off.
5. Position the apex fitting of sling set 2 on top of the trailer. Route outer sling legs 1 and 2 to the front of the trailer and inner sling legs 3 and 4 to the rear of the trailer. Sling legs 1 and 3 must be on the left side of the load.
6. Loop the chain end of sling leg 1 through the left front lift provision located on the front of the trailer. Place the correct link from Table 5-25 in the grab hook. Repeat with sling leg 2 through the right front lift provision. Secure excess chain with tape or Type III nylon cord.
7. Loop the chain end of sling leg 3 through the left rear lift provision. Place the correct link from Table 5-25 in the grab hook. Repeat with sling leg 4 through the right rear lift provision. Secure excess chain with tape or Type III nylon cord.
8. Raise each chain on the trailer until tight and tie the chain to the rail with 1/4-inch cotton webbing.
9. Cluster and tie or tape (breakaway technique) all sling legs together on top of the trailer to prevent entanglement during hookup and lift-off.

Figure 5-25. M1113 (HMMWV) with LMS Shelter and Shadow Unmanned Aerial Vehicle (TUAV) Launch Recovery Trailer

5-27. M1097 (HMMWV) with Meteorological Measuring Set in LMS Shelter and AN/MJQ-35 Power Plant on M116A3 Trailer

a. Applicability. The following items in Table 5-26 are certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 5-26. M1097 (HMMWV) with Meteorological Measuring Set in LMS Shelter and AN/MJQ-35 Power Plant on M116A3 Trailer

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Meteorological Measuring Set , AN/TMQ-41 in LMS Shelter on M1097 HMMWV	8,200	25K	40/3	CH-47	140
AN/MJQ-35 Power Plant with two (2) MEP-802A, 5 kW, 60 Hz Generator Sets on M116A3 Trailer	3,737	25K	40/60	CH-47	100

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

(1) Sling set (25,000-pound capacity) (2 each).

(a) Chain length, part number 38850-00053-102, from a 25,000-pound capacity sling set (8 each).

(b) Coupling link, NSN 4010-01-041-9751, from a 25,000-pound sling set (8 each).

(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 (2 each).

(6) Felt sheet, cattle hair, Type IV, 1/2-inch or suitable substitute.

c. Personnel. Two persons can prepare and rig the M1097 HMMWV in 15 minutes. Two persons can prepare and rig the generator trailer in 15 minutes.

d. Procedures. Attach the trailer to the truck by placing the lunette on the pintle hook and securing the latch with tape or Type III nylon cord. Secure the safety chains, cables, and hoses. Position the vehicle on level ground so both the truck and trailer are in a straight line. The following procedures apply to this load:

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

(a) Fold mirrors inward and tie together with Type III nylon cord.

(b) Secure all equipment and cargo inside the truck and trailer with tiedown straps, tape, or Type III nylon cord.

(c) Secure all loose equipment inside the shelter with tape, Type III nylon cord, or tiedown straps. Close and secure the door.

(d) Ensure the fuel tank is not over 3/4 full. Inspect the fuel tank cap, oil filler cap, and battery caps for proper installation.

(e) Engage the vehicle parking brake and put the transmission in neutral.

(f) Ensure the front wheels are pointed straight ahead. Tie down the steering wheel, using the securing device attached under the dashboard.

(g) Partially retract all landing legs and secure with Type III nylon cord.

(h) Retract the lunette leg and secure with Type III nylon cord.

(i) Secure all lids, doors, and caps with tape or Type III nylon cord.

(j) Ensure the trailer parking brakes are set.

(k) Route the hook portion of a CGU-1/B tiedown strap through the left rear inboard tiedown provision located near the pintle on the rear bumper of the truck and through the mounting bracket on the front of the trailer A-frame. Connect the hook to the ratchet of the CGU-1/B.

(l) Repeat the above procedure on the right side of the load.

(m) Tighten both CGU-1/B tiedown straps at the same time. Secure the excess strap and safety the ratchet handles in the closed position with tape.

(n) Connect one additional chain length to each chain on each sling set with a coupling link.

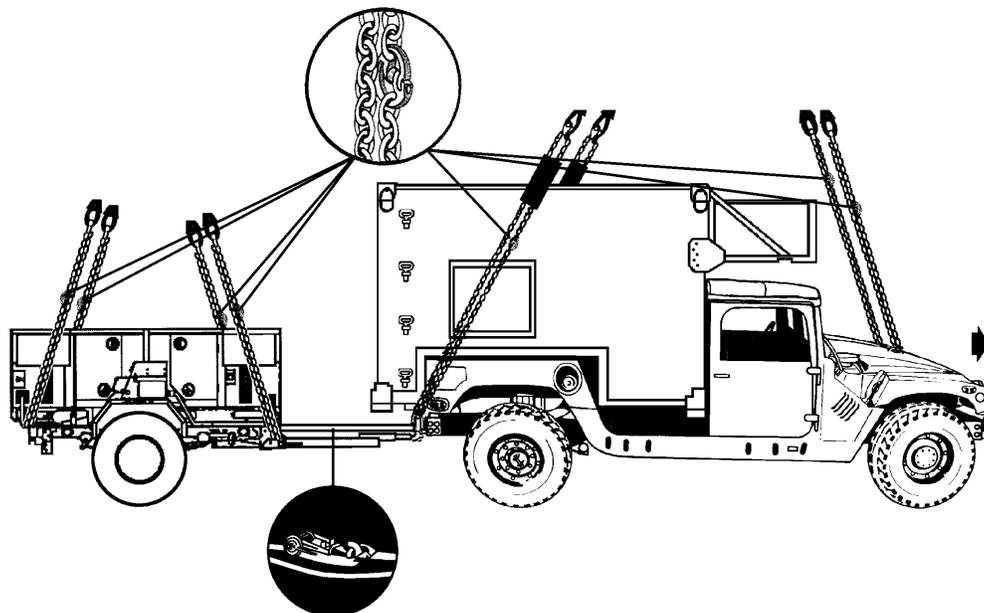
CAUTION

Do not connect the CGU-1/B tiedown strap around the truck's rear axle, wheel, or front lift provisions on the trailer.

(2) **Rigging.** Rig the load according to the steps in Figure 5-26.

(3) **Hookup.** Two hookup teams are required for this load. The static wand person discharges the static electricity with the static wand. The forward hookup person kneels on the top of the shelter and places apex fitting 1 onto the forward cargo hook. The aft hookup person stands on the generator fender and places apex fitting 2 onto the aft cargo hook. The hookup team then carefully dismounts the load and 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 the roof of the shelter. Route outer sling legs 1 and 2 to the front of the vehicle 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 that protrudes through the hood from inboard to outboard. Place the correct link from Table 5-26 in the grab hook. Repeat with sling leg 2 and the right front lift provision. Secure excess chain with tape or Type III nylon cord.
3. Loop the chain end of the sling legs through their respective lift provisions located on the outer ends of the rear bumper. Place the correct link from Table 5-26 in the grab hook. Secure 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 vehicle to prevent entanglement during hookup and lift-off.
5. Position the apex fitting of sling set 2 on top of the generator. Route outer sling legs 1 and 2 to the front of the generator and inner sling legs 3 and 4 to the rear of the generator. Sling legs 1 and 3 must be on the left side of the load.
6. Loop the chain end of sling leg 1 through the left front lift provision located on the front of the trailer. Place the correct link from Table 5-26 in the grab hook. Repeat with sling leg 2 through the right front lift provision. Secure excess chain with tape or Type III nylon cord.
7. Loop the chain end of sling leg 3 through the left rear lift provision. Place the correct link from Table 5-26 in the grab hook. Repeat with sling leg 4 through the right rear lift provision. Secure excess chain with tape or Type III nylon cord.
8. Cluster and tie or tape (breakaway technique) all sling legs together on top of the trailer to prevent entanglement during hookup and lift-off.

Figure 5-26. M1097 (HMMWV) with Meteorological Measuring Set in LMS Shelter and AN/MJQ-35 Power Plant on M116A3 Trailer

5-28. Trojan Spirit Lite (V)2 Central Communications, AN/TSQ-226 (V)2 on M1113 (HMMWV) and M1102 Cargo Trailer

a. Applicability. The following items in Table 5-27 are certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 5-27. Trojan Spirit Lite (V)2 Central Communications, AN/TSQ-226 (V)2 on M1113 HMMWV and M1102 Cargo Trailer

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/-REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Trojan Spirit Lite (V)2 Central Communications, AN/TSQ-226 on M1113 HMMWV	10,180	25K	35/3	CH-47	120
M1102 Trailer, Cargo, Trojan Spirit Lite (V)2	3,260	10K	40/30	CH-47	120

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

(1) Sling set (25,000-pound capacity) with one additional apex fitting.

(a) Chain length, part number 38850-00053-102, from a 25,000-pound capacity sling set (4 each).

(b) Coupling link, part number 664241, from a 25,000-pound sling set (4 each).

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

(a) Chain length, part number 38850-00053-101, from a 10,000-pound capacity sling set (4 each).

(b) Coupling link, part number 577-0615, from a 10,000-pound sling set (4 each).

(3) Tape, adhesive, pressure-sensitive, 2-inch wide roll.

(4) Cord, nylon, Type III, 550-pound breaking strength.

(5) Webbing, cotton, 1/4-inch, 80-pound breaking strength.

(6) Strap, cargo, tiedown, CGU-1/B (2 each).

c. Personnel. Two persons can prepare and rig the HMMWV in 15 minutes. Two persons can prepare and rig the trailer in 15 minutes.

d. Procedures. Attach the trailer to the truck by placing the lunette on the pintle hook and securing the latch with tape or Type III nylon cord. Secure the safety chains, cables, and hoses. Position the vehicle on level ground so both the truck and trailer are in a straight line. The following procedures apply to this load:

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

(a) Fold mirrors inward and tie together with Type III nylon cord.

(b) Secure all equipment and cargo inside the truck and trailer with tiedown straps, tape, or Type III nylon cord. Secure the doors shut if installed.

(c) Secure all loose equipment on the pallet with tape, Type III nylon cord, or tiedown straps. Close and secure latches and handles with tape or Type III nylon cord.

(d) Ensure the fuel tank is not over 3/4 full. Inspect the fuel tank cap, oil filler cap, and battery caps for proper installation.

(e) Engage the vehicle parking brake and put the transmission in neutral.

(f) Ensure the front wheels are pointed straight ahead. Tie down the steering wheel, using the securing device attached under the dashboard.

(g) Tape the windshield in an X formation from corner to corner.

(h) Secure the rear lift provisions in the up position with Type III nylon cord.

(i) Retract the lunette leg and secure with Type III nylon cord.

(j) Secure all equipment in the trailer with the supplied cargo net, cargo tiedown straps, Type III nylon cord, and tape

(k) Ensure the trailer parking brakes are set.

(l) Route the hook portion of a CGU-1/B tiedown strap through the left rear inboard tiedown provision located near the pintle on the rear bumper of the truck and through the mounting bracket on the front of the trailer A-frame. Connect the hook to the ratchet of the CGU-1/B.

(m) Repeat the above procedure on the right side of the load.

(n) Tighten both CGU-1/B tie-down straps at the same time. Secure the excess strap and safety the ratchet handles in the closed position with tape.

(o) Connect one additional chain length to each chain on the 25,000-pound capacity sling set with a coupling link.

(p) Connect one additional chain length to each chain on the 10,000-pound capacity sling set with a coupling link.

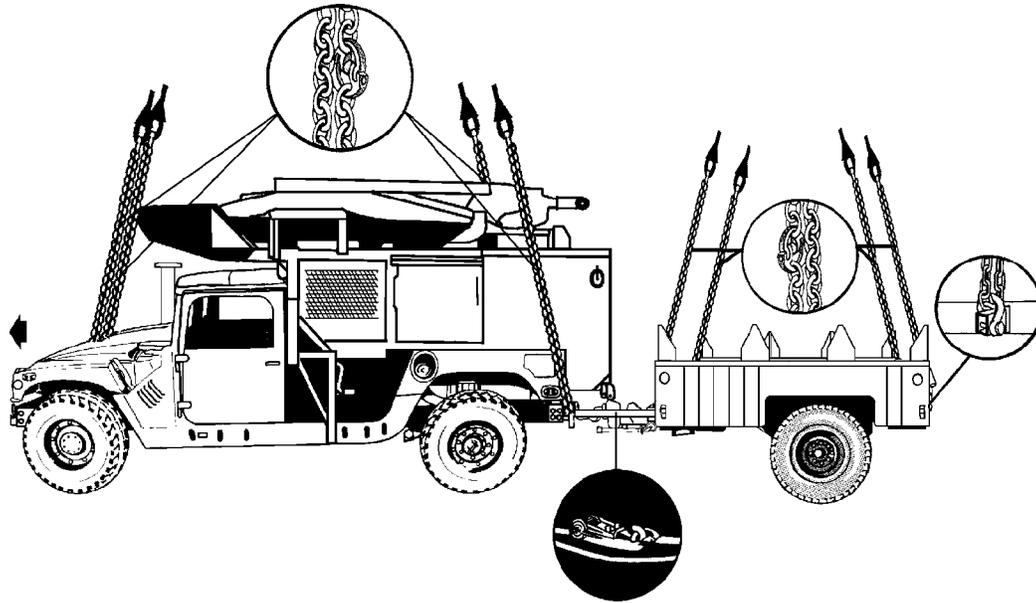
CAUTION

Do not connect the CGU-1/B tiedown strap around the truck's rear axle, wheel, or front lift provisions on the trailer.

(2) **Rigging.** Rig the load according to the steps in Figure 5-27.

(3) **Hookup.** Two hookup teams are required for this load. The static wand person discharges the static electricity with the static wand. The forward hookup person kneels on the top of the vehicle and places apex fitting 1 onto the forward cargo hook. The aft hookup person stands on the trailer and places apex fitting 2 onto the aft cargo hook. The hookup team then carefully dismounts the load and 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 of the 25,000-pound capacity sling set on the roof of the shelter. Route outer sling legs 1 and 2 to the front of the vehicle 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 that protrudes through the hood from inboard to outboard. Place the correct link from Table 5-27 in the grab hook. Repeat with sling leg 2 and the right front lift provision. Secure excess chain with tape or Type III nylon cord.
3. Loop the chain end of sling leg 3 through the left rear lift provision located on the outer end of the rear bumper. Place the correct link from Table 5-27 in the grab hook. Repeat with sling leg 4 and the right rear lift provision located on the outer end of the rear bumper ensuring the sling leg is routed between the handholds on the right side of the system. Remove the slack and secure sling leg 4 to the front handhold with a breakaway tie.
4. Position the apex fitting of the 10,000-pound sling set on top of the trailer. Route outer sling legs 1 and 2 to the front of the trailer and inner sling legs 3 and 4 to the rear of the trailer. Sling legs 1 and 3 must be on the left side of the load.
5. Loop the chain end of sling leg 1 through the left front lift provision located on the front of the trailer. Place the correct link from Table 5-27 in the grab hook. Repeat with sling leg 2 through the right front lift provision. Secure excess chain with tape or Type III nylon cord.
6. Loop the chain end of sling leg 3 through the left rear lift provision. Place the correct link from Table 5-27 in the grab hook. Repeat with sling leg 4 through the right rear lift provision. Secure excess chain with tape or Type III nylon cord.
7. Cluster and tie or tape (breakaway technique) all sling legs together on top of the vehicle and the trailer to prevent entanglement during hookup and lift-off.

Figure 5-27. Trojan Spirit Lite (V)2 Central Communications, AN/TSQ-226 (V)2 on M1113 HMMWV and M1102 Cargo Trailer

5-29. M1097 Truck, Utility, 1 1/4-Ton (HMMWV) and High Mobility Trailer (HMT)

a. Applicability. The following items in Table 5-28 are certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 5-28. M1097 HMMWV and M1102 HMT

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
M1097 Truck, Utility, 1 1/4-Ton HMMWV ISYSCON Radio Vehicle	8,093	10K	27/3	CH-47	100
M1102 HMT	Min - 2,477 Max - 3,033	10K	6/25	CH-47	100

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

- (1) Sling set (10,000-pound capacity) (2 each).
- (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 (2 each).
- (6) Reach pendants (2 each).

c. Personnel. Two persons can prepare and rig the M1097 HMMWV in 10 minutes. Two persons can prepare and rig the trailer set in 10 minutes.

d. Procedures. Attach the trailer to the truck by placing the lunette on the pintle hook and securing the latch with tape or Type III nylon cord. Secure the safety chains, cables, and hoses. Position the vehicle on level ground so both the truck and trailer are in a straight line. The following procedures apply to this load:

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

(a) Fold mirrors inward and tie together with Type III nylon cord. Remove the doors and the rear window. Secure the doors and window to the seats with Type III nylon cord.

(b) Ensure all vents are closed and secured. Secure all loose equipment inside the vehicle with tape, Type III nylon cord, or tiedown straps.

(c) Ensure the fuel tanks are not over 3/4 full. Inspect the fuel tank cap, oil filler cap, and battery caps for proper installation.

(d) Engage the vehicle parking brake and put the transmission in neutral.

(e) Ensure the front wheels are pointed straight ahead. Tie down the steering wheel, using the securing device attached under the dashboard.

(f) Install the lift provisions on the outer ends of the rear bumper by removing the tiedown provisions located on the front bumper and installing on the outer ends of the rear bumper.

(g) Partially retract all landing legs and secure with Type III nylon cord.

(h) Secure all equipment inside the trailer with tiedown straps or Type III nylon cord.

(i) Ensure the parking brake is set.

(j) Route the hook portion of a CGU-1/B tiedown strap through the left rear inboard tiedown provision located near the pintle on the rear bumper of the truck. Loop the tiedown through the left front trailer lift provision located on the left front of the trailer. Attach the hook portion of the tiedown strap to the ratchet.

NOTE: Do not attach the tiedown strap to the rear wheels of the vehicle. The rear wheels may rotate during flight causing slack in the straps.

(k) Repeat the above procedure on the right side of the load.

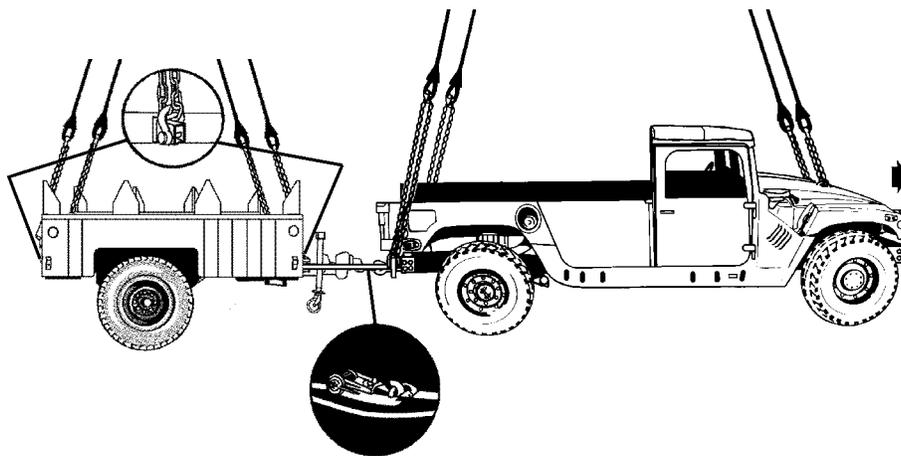
(l) Tighten both CGU-1/B tiedown straps at the same time. Secure the excess strap and safety the ratchet handles in the closed position with tape.

(m) Attach a reach pendant on each sling set in accordance with FM 10-450-3.

(2) **Rigging.** Rig the load according to the steps in Figure 5-28.

(3) **Hookup.** Two hookup teams are required for this load. The forward hookup person stands on top of the HMMWV wheel well and places the reach pendant with apex fitting 1 onto the forward cargo hook. The aft hookup person stands on top of the trailer wheel well and places the reach pendant with apex fitting 2 onto the aft cargo hook. The hookup team then carefully dismounts the load and remains close to the load as the helicopter removes slack from the sling legs. If the CGU-1/B tiedown straps loosen up, the load should be set down and the tiedown straps retightened. 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 reach pendant and apex fitting 1 on top of the roof of the vehicle. Route outer sling legs 1 and 2 to the front of the vehicle 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 that protrudes through the hood. Place the correct link from Table 5-28 in the grab hook. Repeat with sling leg 2 and the right front lift provision. Secure excess chain with tape or Type III nylon cord.
3. Loop the chain end of sling legs 3 and 4 through their respective lift provisions located on the outer ends of the rear bumper. Place the correct link from Table 5-28 in the grab hook.
4. Cluster and tie or tape (breakaway technique) all sling legs together on top of the vehicle to prevent entanglement during hookup and lift-off.
5. Position the reach pendant and apex fitting of sling set 2 on top of the trailer. Route outer sling legs 1 and 2 to the front of the trailer and inner sling legs 3 and 4 to the rear of the trailer. Sling legs 1 and 3 must be on the left side of the load.
6. Route the chain end of sling leg 1 through the left front lift provision located on the front of the trailer. Place the correct link from Table 5-28 in the grab hook. Repeat with sling leg 2 through the right front lift provision.
7. Loop the chain end of sling leg 3 through the left rear lift provision located on the rear of the trailer. Place the correct link from Table 5-28 in the grab hook. Repeat with sling leg 4 through the right rear lift provision. Secure excess chain with tape or Type III nylon cord.
8. Cluster and tie or tape (breakaway technique) all sling legs together on top of the vehicle to prevent entanglement during hookup and lift-off.

Figure 5-28. M1097 HMMWV and M1102 HMT

CHAPTER 6

CERTIFIED SINGLE-POINT RIGGING PROCEDURES FOR HOWITZERS AND WEAPONS SYSTEMS

6-1. INTRODUCTION

This chapter contains rigging procedures for single-point howitzer and weapon system loads 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 procedures for truck and towed combination loads are in this section. Paragraphs 6-2 through 6-8 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.

6-2. M101A1 105-MM Howitzer, with or without A-22 Cargo Bags

a. Applicability. The following item in Table 6-7 is certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 6-1. M101A1 105-MM Howitzer

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
M101A1 Howitzer	4,980	10K 15K 25K 40K	30/30 33/3 12/12 22/3	95
M101A1 Howitzer with one A-22 Cargo Bag	7,180	10K 15K 25K 40K	30/30 33/3 12/12 22/3	75
M101A1 Howitzer with two A-22 Cargo Bags	9,380	10K 15K 25K 40K	30/30 33/3 12/12 22/3	80
M101A1 Howitzer with three A-22 Cargo Bags	11,580	10K 15K 25K 40K	30/30 33/3 12/12 22/3	75

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

- (1) Sling set (10,000 or 25,000-pound capacity) (USA).
- (2) Sling set (15,000 or 40,000-pound capacity) (USMC).

(3) Sling leg assembly (2,500-pound capacity) from a 10,000-pound sling set, one per A-22 container.

(4) Tape, adhesive, pressure-sensitive, 2-inch wide roll.

(5) Cord, nylon, Type III, 550-pound breaking strength.

(6) Webbing, cotton, 1/4-inch, 80-pound breaking strength.

(7) Felt sheet, cattle hair, Type IV, 1/2-inch or suitable substitute.

(8) Tie-down strap, CGU/1B (as required).

(9) Bag, Cargo, A-22, as required.

(10) Apex fitting (10,000-pound capacity), one per A-22 container.

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 lock the breech.

(b) Close and secure the trails. Rotate the lunette to the down position. Secure the trail closing lock handle with Type III nylon cord or tape.

(c) Remove and secure the muzzle, breech, and tube covers.

(d) Pad or remove all sight mounts.

(e) Place the gun section equipment chest and other equipment on the trails and secure it with tie-down straps.

(f) Engage one hand brake.

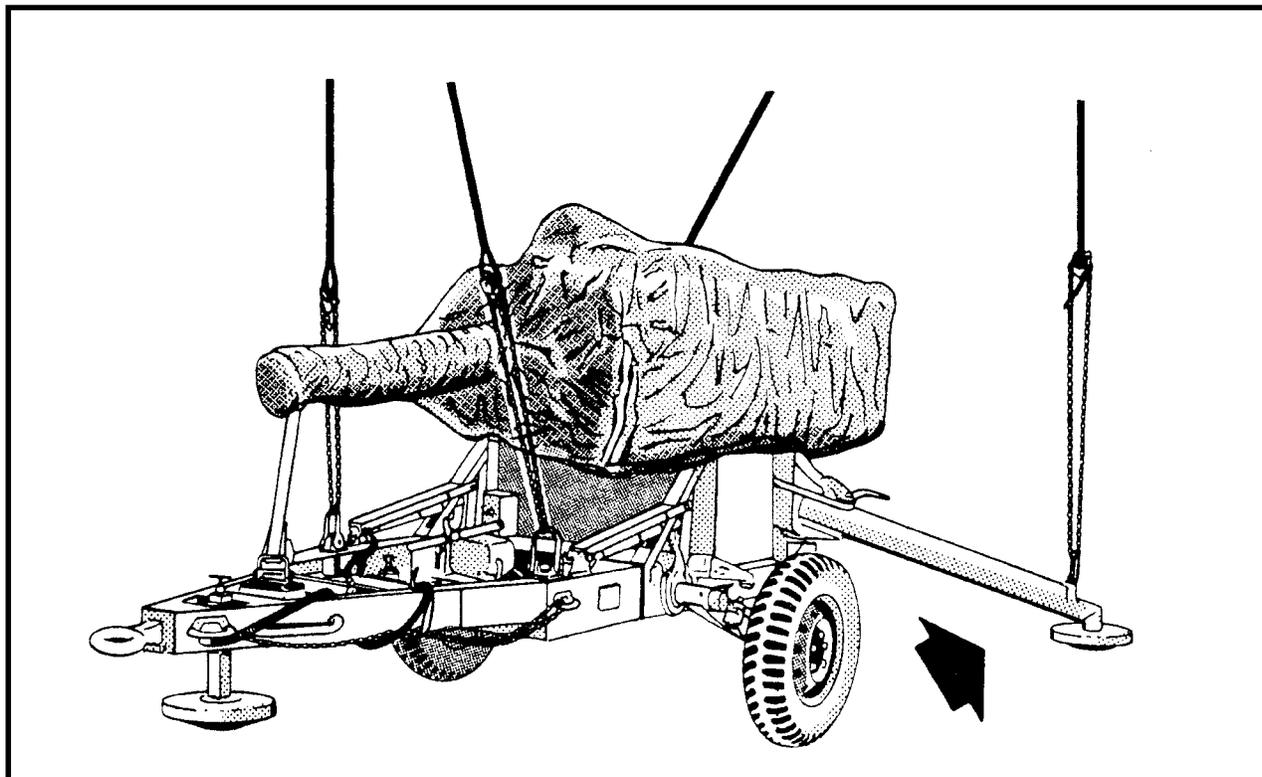
(g) Pad the gun tube above the cradle and around the forward edge of the recoil damper assembly. Secure the padding with tape or 1/4-inch cotton webbing.

(h) Pad the left and right trails aft of the traveling lock shaft area. Secure the padding with tape or 1/4-inch cotton webbing.

(2) **Rigging.** Rig the load according to the steps in Figure 6-1.

(3) **Hookup.** The hookup team stands on top of the trails or alongside the howitzer. 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 helicopter 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. 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 and right sling legs through their respective lift provision on the tongue of the gun. Place the correct link from Table 6-6 in the grab hook. Secure excess chain with tape or Type III nylon cord.

3. Place two sling legs on apex fitting number 2. Posi-

tion apex fitting number 2 between the two rear trails.

4. Loop the chain end of the left and right sling legs through their respective lift provision on the lower end of each rear trail. Place the correct link from Table 6-6 in the grab hook.

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

Figure 6-6. M167 20-mm AA Gun (Vulcan)

6-8. XM777, 155-mm Lightweight Howitzer

a. Applicability. The following item in Table 6-7 is certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 6-7. XM777, 155-mm Lightweight Howitzer

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/- REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
XM777, 155-mm, Lightweight Howitzer	9,300	15K 25K	80/3	CH-53 CH-47	120

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

(1) Sling set (15,000-pound capacity) with one additional web ring.

(a) Chain length, part number 34080-4, from a 15,000-pound capacity sling set (4 each).

(b) Coupling link, part number 31611, from a 15,000-pound capacity sling set (4 each).

OR

(2) Sling set (25,000-pound capacity) with one additional apex fitting.

(a) Chain length, part number 38850-00053-102, from a 25,000-pound capacity sling set (4 each).

(b) Coupling link, part number 664241, from a 25,000-pound sling set (4 each).

(3) Tape, adhesive, pressure-sensitive, 2-inch wide roll.

(4) Cord, nylon, Type III, 550-pound breaking strength.

(5) 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) Ensure the stabilizers are in the firing position.

(b) The spades may be in the up (stowed position) or down (firing position).

(c) Secure the air hoses and electrical cable to the supporting structure with Type III nylon cord.

(d) Stow and secure all equipment with tape or Type III nylon cord.

(e) Ensure the barrel is in the firing position.

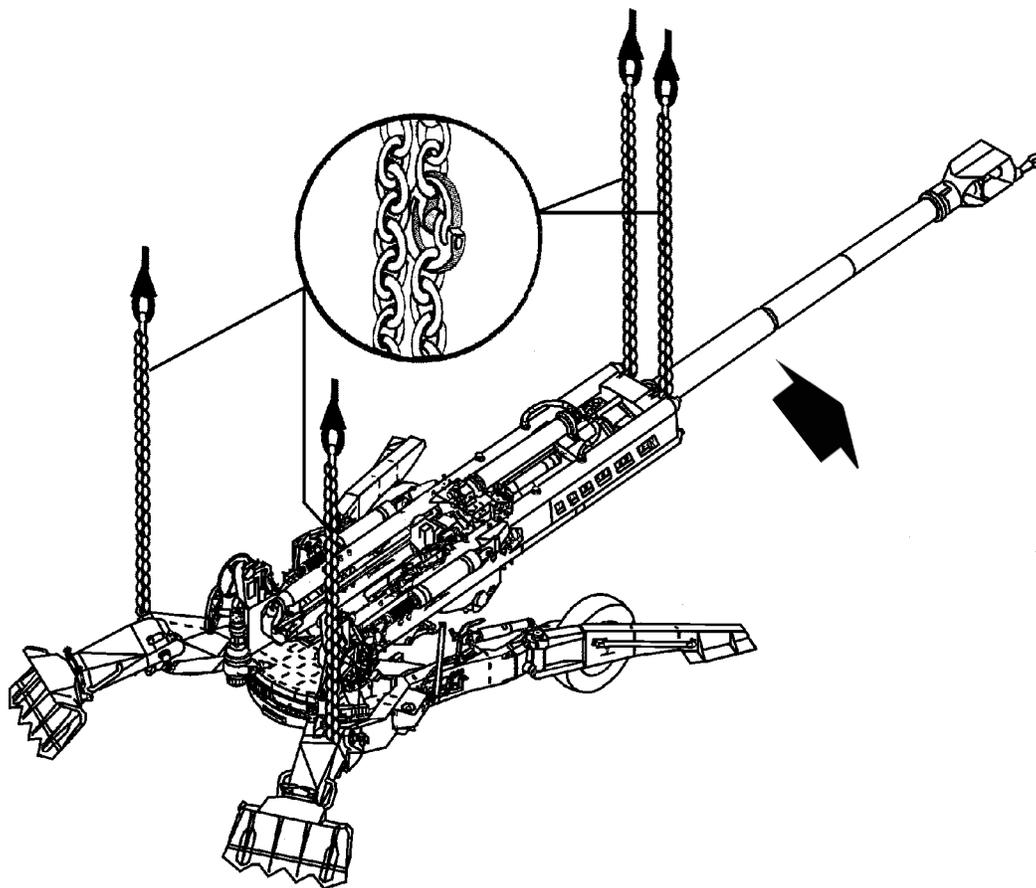
(f) Extend the sling leg chains by connecting one additional chain length to each chain on a 15,000-pound capacity sling set with coupling links.

(2) **Rigging.** Rig the load according to the steps in Figure 6-7.

(3) **Hookup.** Two hookup teams are required for this load. The static wand person discharges the static electricity with the static wand. One hookup person stands on the tongue and places web ring 1 onto the forward cargo hook. The other hookup person stands on the firing base plate and places web ring 2 onto the aft cargo hook. The hookup teams then carefully dismount the howitzer and remain 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.

NOTE: The helicopter must approach the howitzer over the spades.

(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 web ring number 1. Position apex fitting number 1 on top of the forward end of the breech.

2. Loop the chain end of the left and right sling legs through their respective lift provision located on both sides of the barrel. Place the correct link from Table 6-7 in the grab hook. Secure excess chain with tape or Type III nylon cord.

3. Place two sling legs on web ring number 2. Posi-

tion apex fitting number 2 on top of the baseplate between the spades.

4. Loop the chain end of the left and right sling legs through their respective lift provision located near the spades. Place the correct link from Table 6-7 in the grab hook.

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

Figure 6-7. XM777, 155-mm Lightweight Howitzer

8-25.1. Extendable Boom Forklift (EBFL)(New Version)(USMC)

a. Applicability. The following item in Table 8-24.1 is certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 8-24.1. Extendable Boom Forklift (New Version)(USMC)

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Extendble Boom Forklift (EBFL)	28,400	40K	3/48 Cab Side 3/50 Boom Side	CH-53	120

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

- (1) Sling set (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.
- (5) Tiedown strap, cargo, CGU-1/B (as required).

c. Personnel. Two persons can prepare and rig each 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 forks against the carriage using the CGU-1/Bs.
- (b) Set the parking brake.
- (c) Place the gear selector lever in neutral.
- (d) Tape the exhaust pipe end.
- (e) Lower the boom and tilt the forks all the way

back.

(f) Secure all latches on the windows with tape or Type III nylon cord.

(g) Tape the windshield wipers to the windshield.

(h) Tape all lights and mirrors.

(i) Secure all equipment in the cab with tape or Type III nylon cord.

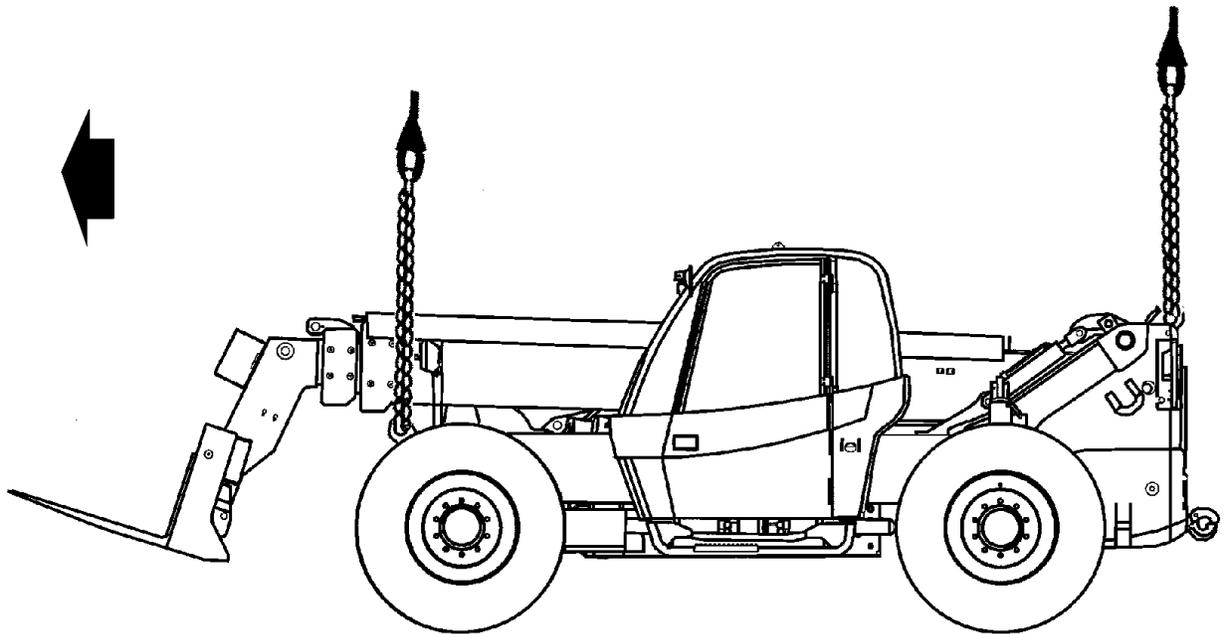
(j) Ensure the wheels are pointed straight ahead and secure the steering wheel with Type III nylon cord.

(k) Secure the engine cover with Type III nylon cord.

(2) Rigging. Rig the load according to the steps in Figure 8-24.1.

(3) Hookup. Two hookup teams stand on the side of the load. 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 container 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. Connect 2 sling legs to apex fitting number 1. Position the apex fitting on the boom in front of the cab.
2. Loop the chain end of the sling legs through their respective lift provisions on the front of the vehicle. Place the correct link from Table 8-24.1 in the grab hook.
3. Connect 2 sling legs to apex fitting number 2. Position the apex fitting on the boom behind the cab.
4. Loop the chain end of the sling legs through their respective lift provisions on the rear of the vehicle. Place the correct link from Table 8-24.1 in the grab hook.
5. Secure all excess chain with tape or Type III nylon cord.
6. Cluster and tie or tape (breakaway technique) the sling legs in each sling set on top of the vehicle to prevent entanglement during hookup and lift-off.

Figure 8-24.1. Extendable Boom Forklift (EBFL)(New Version)(USMC)

8-25.2. Light Rough Terrain Forklift (LRTF) (USMC)

a. Applicability. The following item in Table 8-24.2 is certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 8-24.2. Light Rough Terrain Forklift (LRTF) (USMC)

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Light Rough Terrain Forklift (LRTF)	13,700	15K	3/25 Cab Side 3/30 Boom Side	CH-53	120

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.
- (5) Tie-down strap, cargo, CGU-1/B (as required).

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

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

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

- (a) Slide and secure the forks together in the middle of the carriage using CGU-1/Bs.
- (b) Set the parking brake.
- (c) Place the gear selector lever in neutral.
- (d) Tape the exhaust pipe end.

(e) Secure all latches on the windows with tape or Type III nylon cord.

(f) Tape the windshield wipers to the windshield.

(g) Tape all lights and mirrors.

(h) Secure all equipment in the cab with tape or Type III nylon cord.

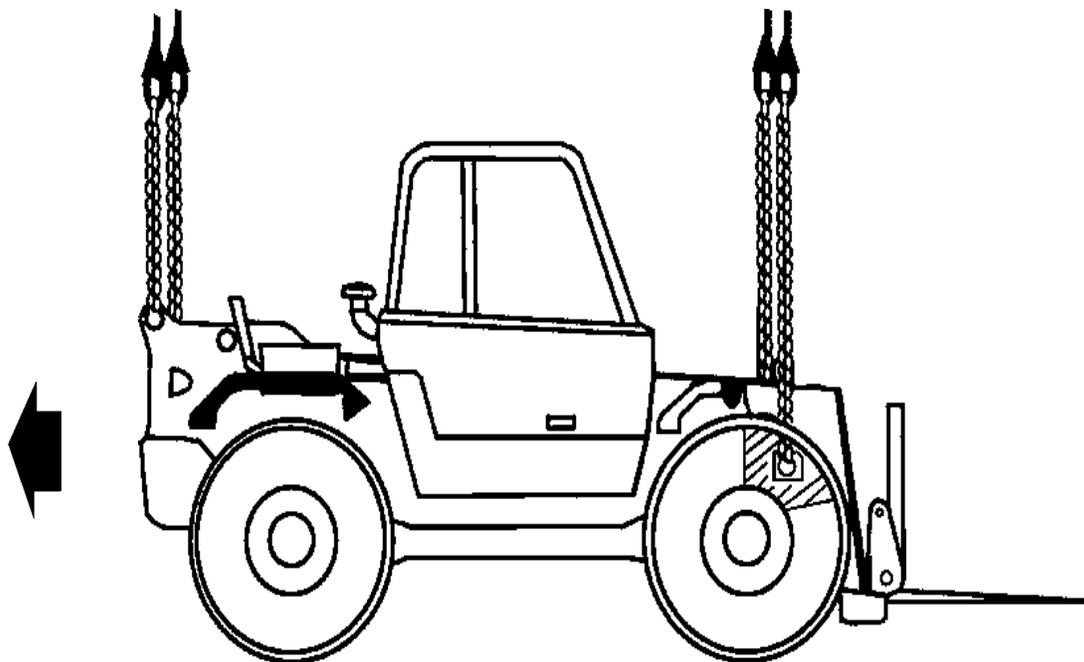
(i) Ensure the wheels are pointed straight ahead and secure the steering wheel with Type III nylon cord.

(j) Secure the engine cover with Type III nylon cord.

(2) Rigging. Rig the load according to the steps in Figure 8-24.2.

(3) Hookup. Two hookup teams stand on the side of the load. 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 container 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. Connect 2 sling legs to apex fitting number 1. Position the apex fitting on the boom in front of the cab.
2. Loop the chain end of the sling legs through their respective lift provisions on the front of the vehicle. Place the correct link from Table 8-24.2 in the grab hook.
3. Connect 2 sling legs to apex fitting number 2. Position the apex fitting on the boom behind the cab.
4. Loop the chain end of the sling legs through their respective lift provisions on the rear of the vehicle. Place the correct link from Table 8-24.2 in the grab hook.
5. Secure all excess chain with tape or Type III nylon cord.
6. Cluster and tie or tape (breakaway technique) the sling legs in each sling set on top of the vehicle to prevent entanglement during hookup and lift-off.

Figure 8-24.2. Light Rough Terrain Forklift (LRTF) (USMC)

CHAPTER 11

CERTIFIED DUAL-POINT RIGGING PROCEDURES FOR CONTAINERS

11-1. INTRODUCTION

This chapter contains rigging procedures for dual-point lift of containers 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 dual-point rigging

procedures for containers are in this section. Paragraphs 11-2 through 11-6 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.

11-2. Full-Up Power Pack (FUPP) Container, M1A1

a. Applicability. The following item in Table 11-1 is certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 11-1. Full-Up Power Pack (FUPP) Container, M1A1

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Full-Up Power Pack (FUPP) Container, M1A1, Metal or Fiberglass	13,620	25K	3/10	CH-47	120

NOTE: This container is only certified with the M1A1 FUPP and is NOT certified empty.

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) Secure all equipment inside the container with tape, Type III nylon cord, or tiedown straps.

(b) Ensure all container doors and vents are closed and secured with tape or Type III nylon cord.

(2) Rigging. Rig the load according to the steps in Figure 11-1.

(3) Hookup. Two hookup teams stand on top of the

container. The static discharge person discharges the static electricity. The forward hookup person (transmission 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 container and remain close to the load as the helicopter removes slack from the sling legs. When suc-

cessful 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).

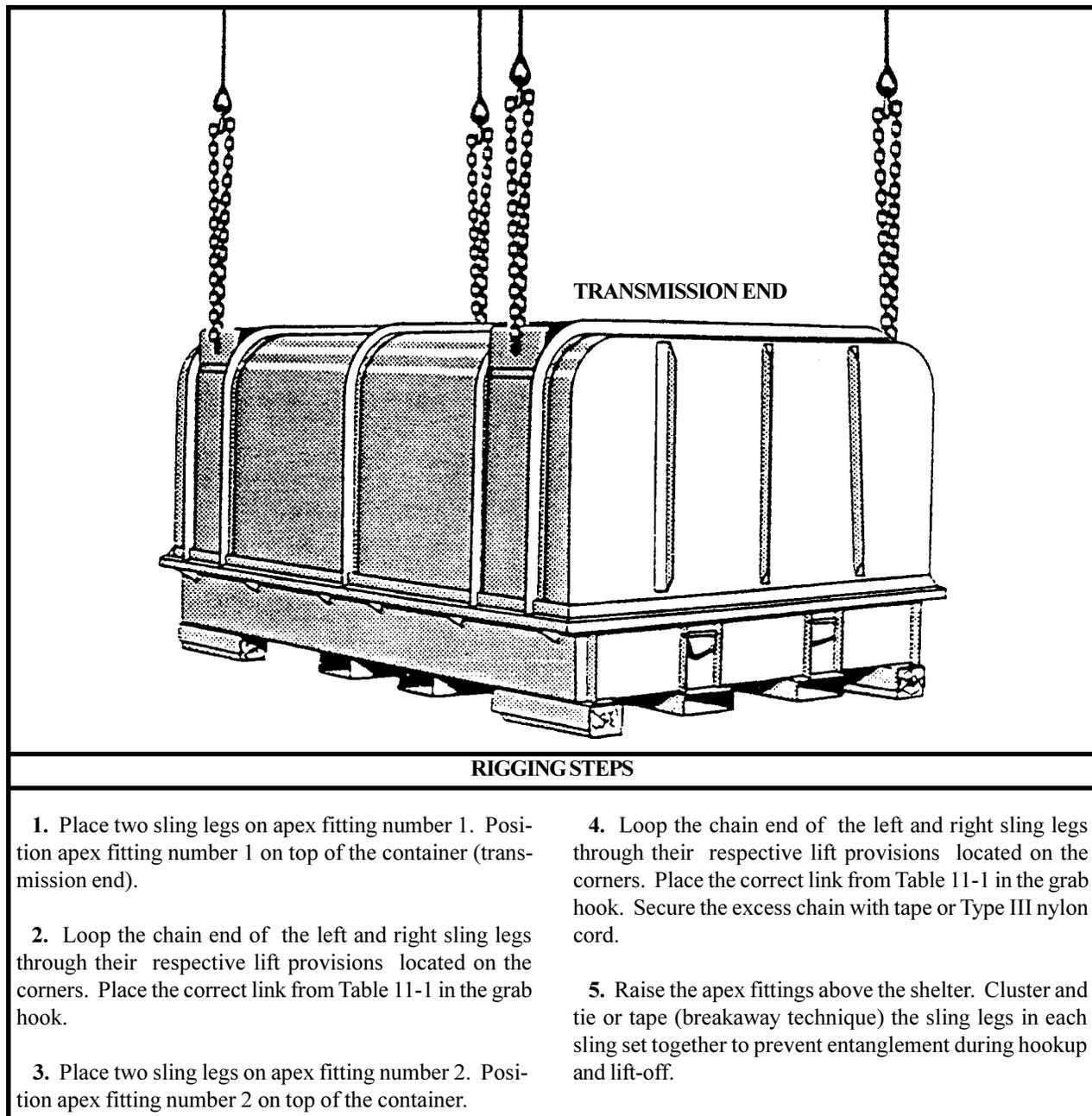


Figure 11-1. Full-Up Power Pack (FUPP) Container, MIA1

11-6. Quadcons

a. Applicability. The following items in Table 11-5 are certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 11-5. Quadcons

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT OUTER/ INNER	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Three Quadcons (3), Empty	5,292	10K	3/3	CH-47	100
Three Quadcons (3), Loaded	16,000	25K	5/5	CH-47	110
Four Quadcons (4), Empty	7,056	10K	3/3	CH-47	130
Four Quadcons (4), Loaded	16,000	25K	5/5	CH-47	130

WARNING

WEIGHT IS RESTRICTED TO 7,000 POUNDS IN EACH QUADCON FOR SLING LOAD OPERATIONS. QUADCONS MUST BE CENTRALLY LOADED. ENSURE QUADCONS ARE LOADED TO SIMILAR WEIGHTS FOR MULTIPLE QUADCON CONFIGURATIONS. OFF-CENTER LOADING OR OVERLOADING MAY RESULT IN ADVERSE FLIGHT CONDITIONS OR DAMAGE TO THE LOAD.

NOTE: Recommended airspeed will vary based on load configuration and the weight of the load inside the Quadcons.

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

- (1) Sling set (10,000- or 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.

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:

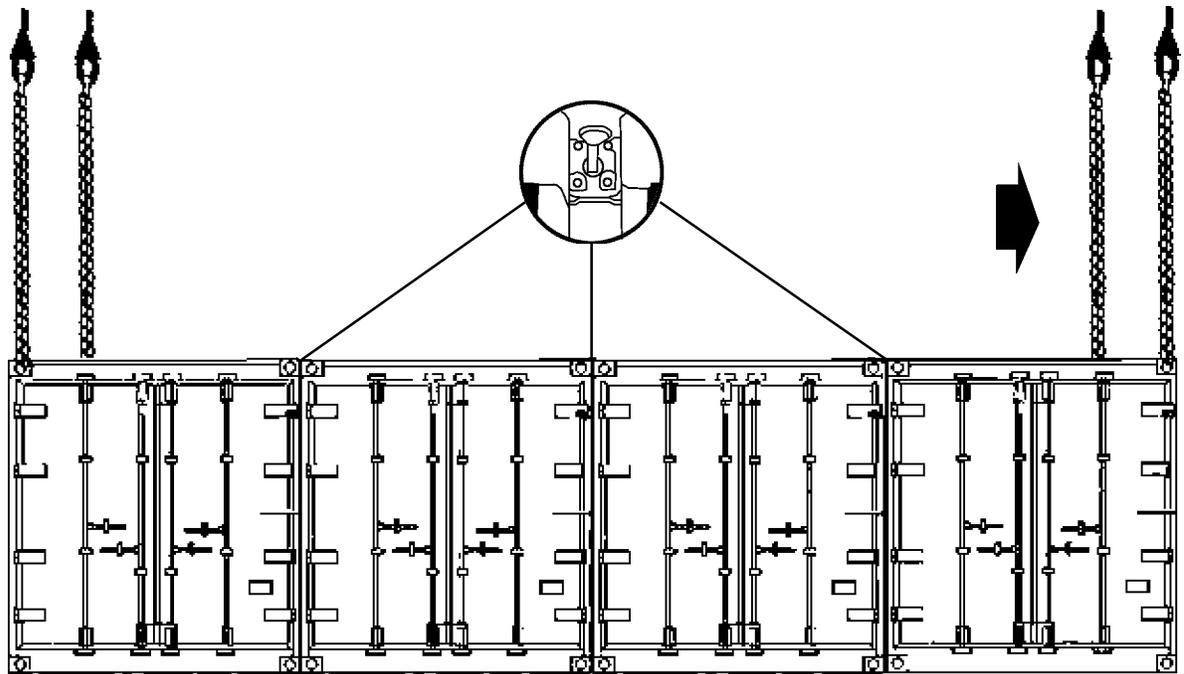
(a) Connect the Quadcons together using the manufacturer's approved rigid connecting link (Part No. Sealock 1046). Lock all connecting links and wrap with tape.

(b) Secure all cargo inside the container. Close and secure all doors in the locked position.

(2) **Rigging.** Rig the load according to the steps in Figure 11-5.

(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 container 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. Connect 2 sling legs to apex fitting number 1. Position the apex fitting on top of the first connected container.
2. Loop the chain end of the sling legs through their respective lift provisions on the top front corner of the container. Place the correct link from Table 11-5 in the grab hook.
3. Connect 2 sling legs to apex fitting number 2. Position the apex fitting on top of the last connected container.
4. Loop the chain end of the sling legs through their respective lift provisions on the top rear corner of the container. Place the correct link from Table 11-5 in the grab hook.
5. Secure all excess chain with tape or Type III nylon cord.
6. Cluster and tie or tape (breakaway technique) the sling legs in each sling set on top of the container to prevent entanglement during hookup and lift-off.

Figure 11-5. Quadcons

CHAPTER 13

CERTIFIED DUAL-POINT RIGGING PROCEDURES FOR MISCELLANEOUS EQUIPMENT

13-1. INTRODUCTION

This chapter contains rigging procedures for dual-point lift of miscellaneous equipment that has 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 dual-

point rigging procedures for miscellaneous equipment are in this section. Paragraphs 13-2 through 13-9 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.

13-2. Palletized Loading System (PLS), M1077 Flatrack, Loaded

a. Applicability. The following item in Table 13-1 is certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 13-1. Palletized Loading System (PLS), M1077 Flatrack, Loaded

NOMENCLATURE	WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Palletized Loading System (PLS), M1077 Flatrack, Loaded	MIN: 6,500 MAX: 20,000	10K 25K	3/10 5/10	CH-47	120

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

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

OR

(2) Sling set (25,000-pound capacity) with one additional apex fitting.

(3) Tape, adhesive, pressure-sensitive, 2-inch wide roll.

(4) Cord, nylon, Type III, 550-pound breaking strength.

(5) Webbing, cotton, 1/4-inch, 80-pound breaking strength.

(6) PLS operating manual.

(7) Strap, cargo, tiedown, CGU-1/B (as required).

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:

NOTE: During the following steps, observe all CAUTIONS and WARNINGS noted in the Operating Manual.

(a) Position the load on the Flatrack, distributing the weight as evenly as possible.

(b) Restrain the cargo with CGU-1/B cargo tiedown straps.

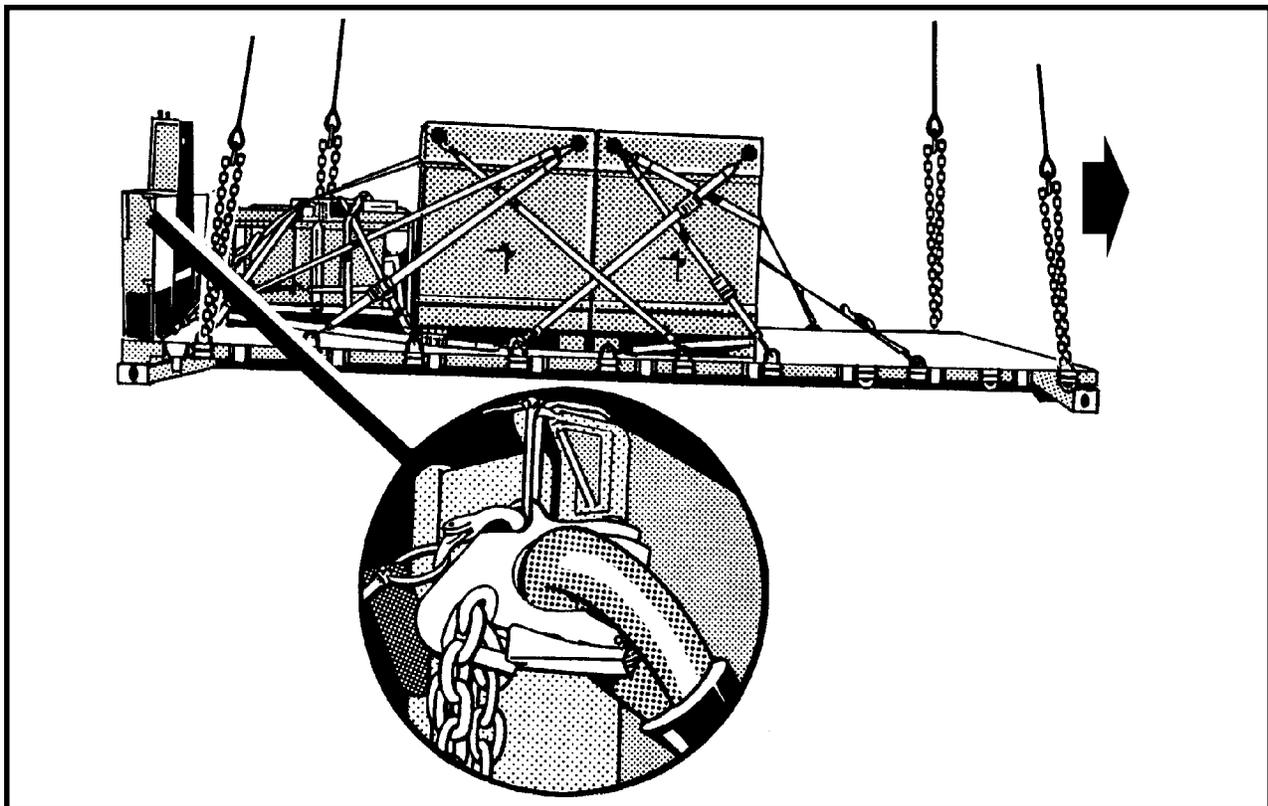
(2) **Rigging.** Rig the load according to the steps in Figure 13-1.

NOTE: The A-frame end is considered the Aft end of the load.

(3) **Hookup.** Two hookup teams stand on top of the load. The static discharge person discharges the static electricity. The forward hookup person, (non-A-frame 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 pallet 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 load (non A-frame end).
2. Loop the chain end of the left and right sling legs through their respective lift provision (tiedown ring closest to the end). Place the correct link from Table 13-1 in the grab hook.
3. Place two sling legs on apex fitting number 2. Position apex fitting number 2 on top of the load (A-frame end).

4. Loop the chain end of the left and right sling legs through their respective lift provision (tiedown ring closest to the end). Place the correct link from Table 13-1 in the grab hook. Secure the excess chain with tape or Type III nylon cord.
5. Tie (breakaway technique) the rear grab hooks to the A-frame.
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 13-1. Palletized Loading System (PLS), M1077 Flatrack, Loaded

13-4.1. Container Roll-In/Out Platform (CROP), Loaded

a. Applicability. The following item in Table 13-3.1 is certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 13-3.1. Container Roll-In/Out Platform, Loaded

NOMENCLATURE	WEIGHT RANGE (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Container Roll-In/Out Platform, Loaded	Min: 6,500 Max: 20,000	25K	3/25	CH-47	120

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) Padding, felt or suitable substitute (as required).

(6) Strap, cargo, tiedown, 15,000-pound capacity (supplied with platform) or CGU-1/B (as required).

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 load restraints from the stowed position and install on the platform.

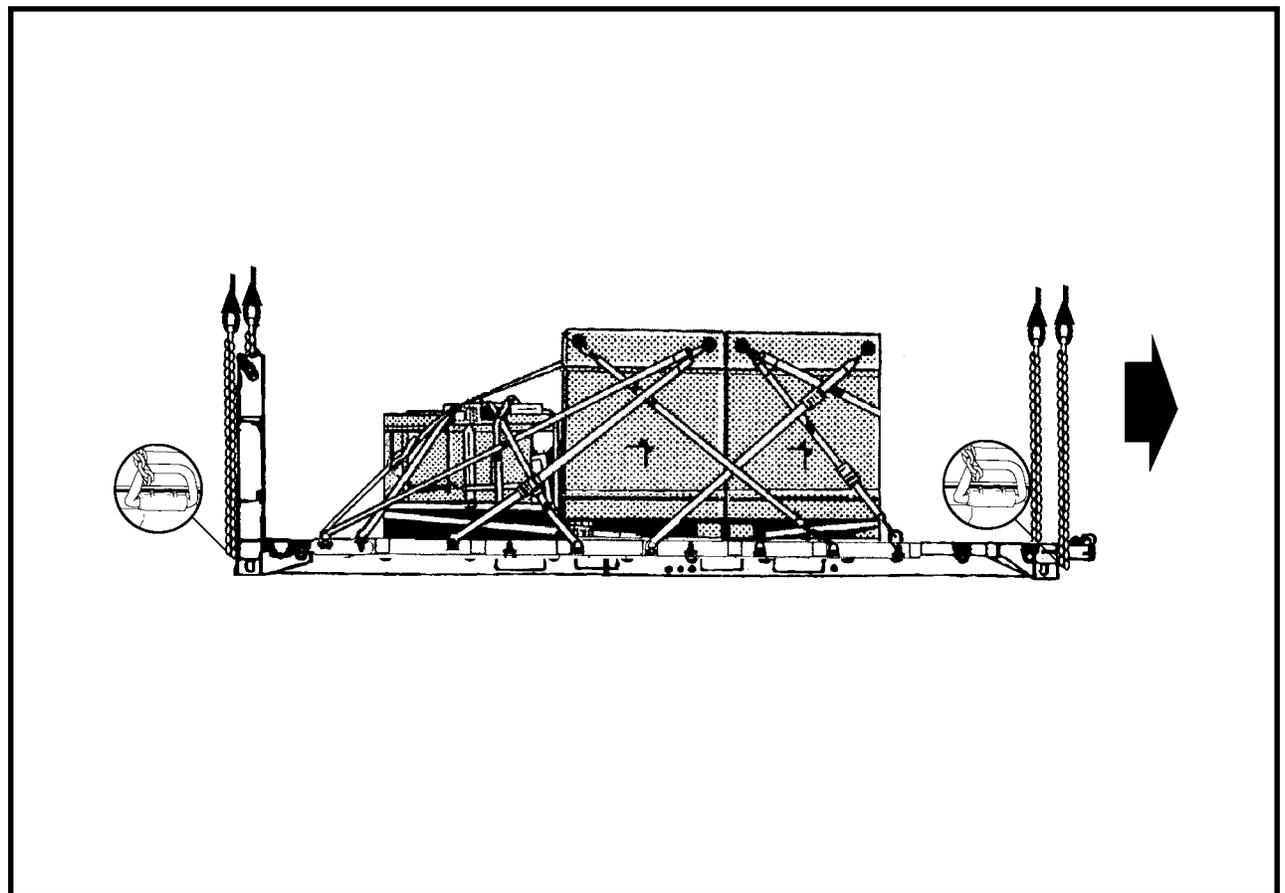
(b) Secure the load on the platform with tiedown straps. Secure the running end of the straps with tape or Type I 1/4-inch cotton webbing.

(2) **Rigging.** Rig the load according to the steps in Figure 13-3.1.

NOTE: The A-Frame is the rear of the platform.

(3) **Hookup.** Two hookup teams stand on top of the load. 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 pallet 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 the front of the platform
2. Loop the chain end of the sling legs through their respective front lift provisions on the bottom platform. Place the correct link from Table 13-3.1 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 rear (A-Frame end) of the platform.
4. Loop the chain end of the sling legs through their respective rear lift provisions on the bottom platform. Place the correct link from Table 13-3.1 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 13-3.1. Container Roll-In/Out Platform, Loaded

13-5.1. Container Roll-In/Out Platform (CROP), Empty, Stacked

a. Applicability. The following item in Table 13-4.1 is certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 13-4.1. Container Roll-In/Out Platform, Empty, Stacked

NOMENCLATURE	WEIGHT RANGE (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Two Through Five Containers Roll-In/Out Platforms, Empty, Stacked	Min: 7,300 Max: 20,000	25K	3/25	CH-47	130

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) Padding, felt or suitable substitute (as required).
- (6) Strap, cargo, tiedown, 15,000-pound capacity (supplied with platform) (2 per stacked platform).

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) Ensure the load restraints are in the stowed position.

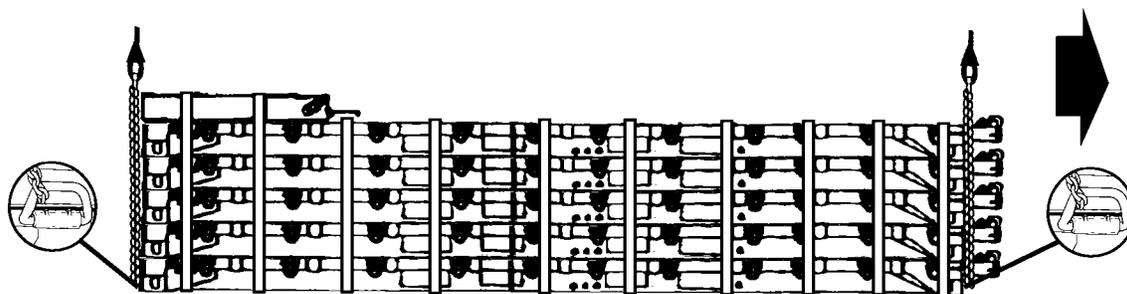
(b) Secure the A-frames in the down position.

(c) Stack the platforms with the A-frames at the same end and secure the platforms together with the straps provided with the platform (a minimum of two straps per platform are required). Ensure the straps have operational keepers on the hook ends. Secure the loose strap ends with tape or 1/4-inch cotton webbing.

(2) **Rigging.** Rig the load according to the steps in Figure 13-4.1.

(3) **Hookup.** Two hookup teams stand on top of the load. 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 pallet 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 the front of the platform
2. Loop the chain end of the sling legs through their respective front lift provisions on the bottom platform. Place the correct link from Table 13-4.1 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 rear (A-Frame end) of the platform.
4. Loop the chain end of the sling legs through their respective rear lift provisions on the bottom platform. Place the correct link from Table 13-4.1 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 13-4.1. Container Roll-In/Out Platform, Empty, Stacked

13-7. Special Operations Craft-Riverine (SOC-R) and Naval Special Warfare Rigid Inflatable Boat (NSWRIB) Trailer

a. Applicability. The following items in Table 13-6 are certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 13-6. Special Operations Craft-Riverine (SOC-R) and Naval Special Warfare Rigid Inflatable Boat (NSWRIB) Trailer

NOMENCLATURE	WEIGHT RANGE (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Naval Special Warfare Rigid Inflatable Boat Trailer	3,716	15K	5/20	CH-53	80
Special Operations Craft-Riverine Trailer	4,300	15K	5/20	CH-53	80

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

- (1) Sling set (15,000-pound capacity) with one additional web ring.
- (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 utility box lid with Type III nylon cord.
- (b) Lower the lunette close to the ground and secure it in place with a 5,000-pound tiedown strap and load binder.
- (c) Secure safety chains, intervehicular electrical cables, and brake cables on top of the drawbar tape or

Type III nylon cord.

(d) Engage the parking brake and secure it in the engaged position.

(e) Tape the rails on the trailer together to ensure the slings do not become entangled.

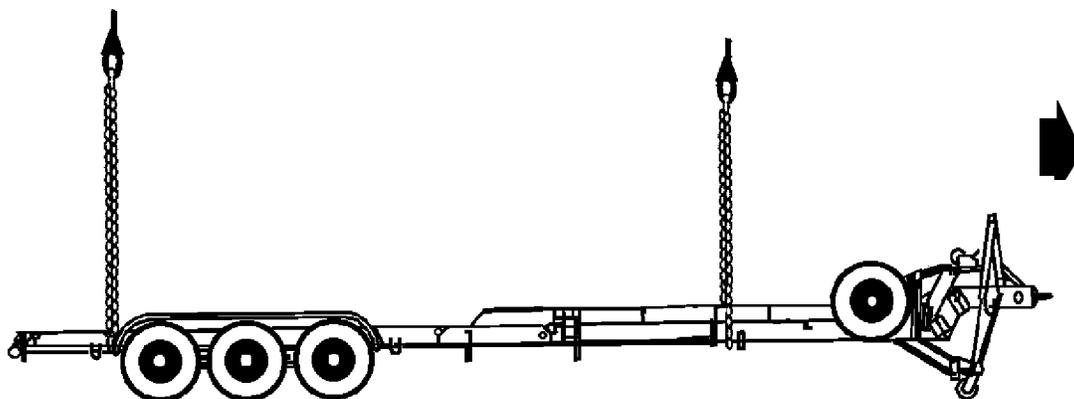
(f) Tape all lights.

(2) Rigging. Rig the load according to the steps in Figure 13-6.

NOTE: This load is flown with the lunette in front.

(3) Hookup. Two hookup teams stand next to the trailer. 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 trailer 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 the front of the trailer.
2. Loop the chain end of sling leg 1 around the main support frame in front of the tiedown provision on the left side of the trailer. Place the correct link from Table 13-6 in the grab hook. Repeat this step with sling leg 2 on the right side of the trailer.
3. Place two sling legs on apex fitting number 2. Position apex fitting number 2 on the rear of the trailer.
4. Loop the chain end of the left and right sling legs around the frame and through their respective lift provision on the rear of the trailer. Place the correct link from Table 13-6 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 13-6. Special Operations Craft-Riverine (SOC-R) and Naval Special Warfare Rigid Inflatable Boat (NSWRIB) Trailer

13-8. Special Operations Craft-Riverine (SOC-R)

a. Applicability. The following item in Table 13-7 is certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 13-7. Special Operations Craft-Riverine (SOC-R)

NOMENCLATURE	WEIGHT RANGE (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Special Operations Craft-Riverine	20,400	25K 40K	7/36 3/22	CH-47 CH-53	100

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

- (1) Sling set (25,000- or 40,000-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) Rotate the communications module to the deck and secure for travel.

(b) Secure all lids, doors, and caps with tape or Type III nylon cord.

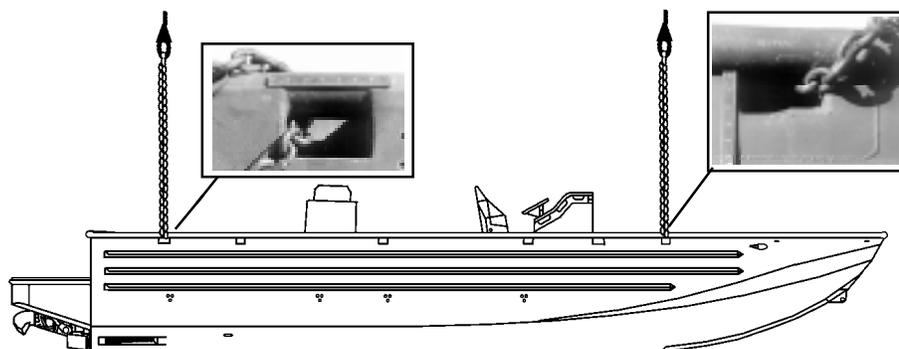
(c) Secure all control knobs, control gauges, and lights with tape.

(2) Rigging. Rig the load according to the steps in Figure 13-7.

NOTES: 1. This load is flown with the bow of the boat forward.
2. When lifting the SOC-R off the trailer ensure all tiedown straps and hard points are disconnected

(3) Hookup. Two hookup teams stand on the deck of the boat. 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 boat 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 the bow deck.
2. Loop the chain end of the sling legs through their respective front lift provisions. Place the correct link from Table 13-7 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 stern deck.
4. Loop the chain end of the sling legs through their respective rear lift provisions. Place the correct link from Table 13-7 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 13-7. Special Operations Craft-Riverine (SOC-R)

13-9. Special Operations Craft-Riverine (SOC-R) with SCO-R Trailer

a. Applicability. The following item in Table 13-8 is certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 13-8. Special Operations Craft-Riverine (SOC-R) with SCO-R Trailer

NOMENCLATURE	WEIGHT RANGE (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Special Operations Craft-Riverine with SOC-R Trailer	24,000	25K 40K	7/36 3/27	CH-47 CH-53	100

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

- (1) Sling set (25,000- or 40,000-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) 5,000-pound capacity cargo strap with load binder (as required).
- (6) 12,000-pound capacity nylon tiedown straps and 11,000-pound capacity load binders (provided with the boat) (4 each).
- (7) Felt sheet, cattle hair, Type IV, 1/2-inch or suitable padding.

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 boat to the trailer starting from the bow using the following steps:

1. Route the first 12,000-pound capacity tiedown strap around the boat and trailer just aft of the gun mounts and secure with an 11,000-pound capacity load binder.
2. Route the second 12,000-pound capacity tiedown strap around the boat and trailer in-between the control console and the driver's seat and secure with an 11,000-pound capacity load binder.
3. Route the third 12,000-pound capacity tiedown strap around the boat and trailer just aft of the driver's seat, through the tiedown provisions on the trailer and secure with an 11,000-pound capacity load binder.
4. Route the fourth 12,000-pound capacity tiedown strap around the boat and trailer just aft of the antenna mounts, through the tiedown provisions on the trailer and secure with an 11,000-pound capacity load binder.
5. Pad all the tiedown straps where the straps contact the bottom of the hull.

(b) Rotate the communications module to the deck and secure for travel.

(c) Secure all lids, doors, and caps with tape or Type III nylon cord.

(d) Secure all control knobs, control gauges, and lights with tape.

(e) Cover the water jets with tape.

(f) Lower the lunette close to the ground and secure it in place with a 5,000-pound tiedown strap and load binder.

(g) Secure safety chains, intervehicular electrical cables, and brake cables on top of the drawbar tape or Type III nylon cord.

(h) Engage the parking brake and secure it in the engaged position.

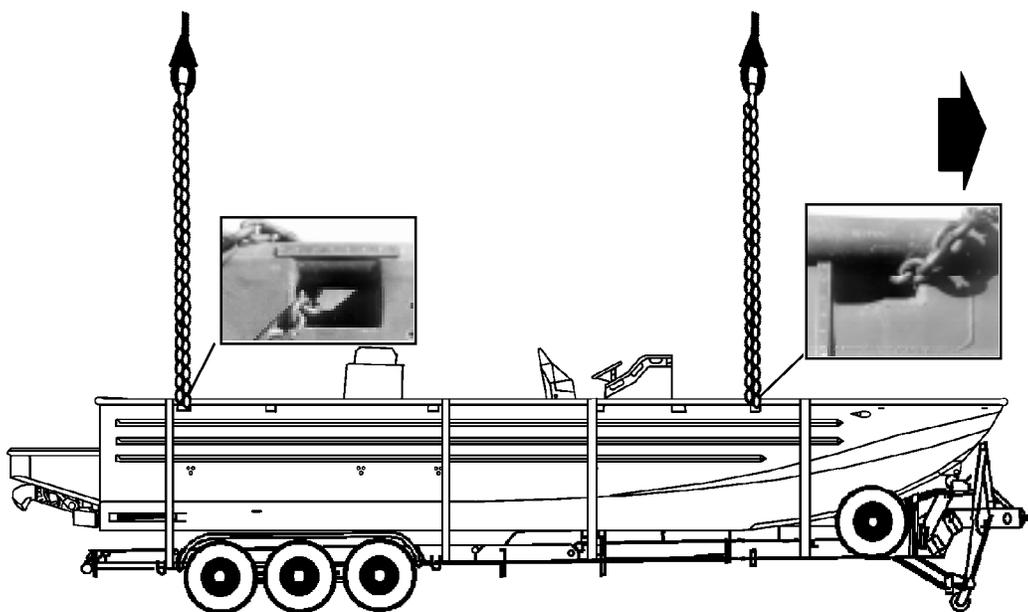
(i) Tape all lights.

(2) **Rigging.** Rig the load according to the steps in Figure 13-8.

NOTE: This load is flown with the bow of the boat forward.

(3) **Hookup.** Two hookup teams stand on the deck of the boat. 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 boat 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

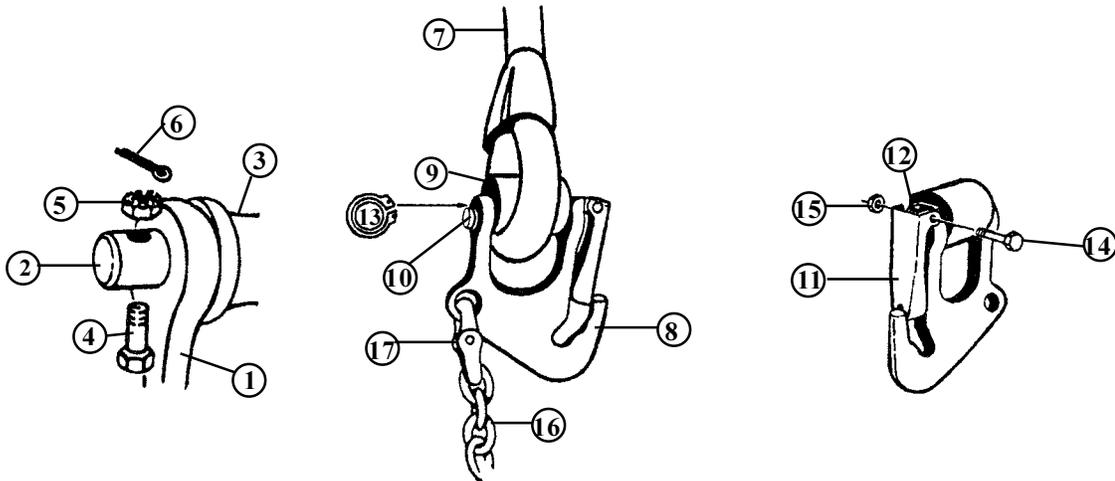
1. Place two sling legs on apex fitting number 1. Position apex fitting number 1 on the bow deck.
2. Loop the chain end of the sling legs through their respective front lift provisions. Place the correct link from Table 13-8 in the grab hook. Secure the excess chain with tape or Type III nylon cord.
3. Place two sling legs on apex fitting number 2. Position apex fitting number 2 on the stern deck.
4. Loop the chain end of the sling legs through their respective rear lift provisions. Place the correct link from Table 13-8 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 13-8. Special Operations Craft-Riverine (SOC-R) with SOC-R Trailer

APPENDIX A

NATIONAL STOCK NUMBERS FOR SLINGS,
NETS, AND SPARE PARTS

10,000-POUND CAPACITY SLING SET AND COMPONENTS



10,000- or 25,000-Pound Capacity Sling Set (Circled Numbers Correspond with NSNs of Identified Part)

	NSN	PART NUMBER	DESCRIPTION	Qty
	1670-01-027-2902	38850-00001-043	Sling Set Assembly Complete LIN T79003	1 ea
1	4030-01-048-4045	38850-00004-045	Apex Fitting Assembly	1 ea
2	5315-01-115-3482	38850-00008-101	Pin, Apex Fitting	1 ea
3	5365-01-235-0908	38850-00015-104	Spacer, Apex	1 ea
4	5306-00-944-1536	NAS1306-16D	Bolt	1 ea
5	5310-00-207-9274	AN 320C6	Nut, Castellated	1 ea
6	5315-00-2341864	MS 24665-302	Cotter Pin	1 ea
7	1670-01-047-6814	38850-00009-055	Rope Assembly, Black	4 ea
8	4030-01-048-4046	38850-00011-041	Grabhook Assembly	4 ea
9	5364-01-109-2543	38850-00015-101	Spacer, Grabhook	4 ea
10	5315-01-121-0497	38850-00008-103	Pin, Spacer	4 ea
11	4030-01-100-1684	38850-00017-101	Keeper, Grabhook	4 ea
12	5360-01-115-6833	38850-00019-101	Keeper, Spring	4 ea
13	5365-01-046-3670	MS 3217-1050	Snap Ring	4 ea
14	5306-00-771-7621	NAS 1303-21	Bolt, Shear	4 ea
15	5310-00-807-1467	MS 21042-3	Nut, Lock	4 ea
16	4010-01-058-4772	38850-00053-101	Chain, 8-foot Length	4 ea
17	4010-01-231-3388	5770415	Link, Coupling	4 ea
18	8460-00-606-8366	Mil-41835	Kit Bag, Flyer's	1 ea

25,000-POUND CAPACITY SLING SET AND COMPONENTS

	NSN	PART NUMBER	DESCRIPTION	Qty
	1670-01-027-2900	38850-00001-044	Sling Set Assembly Complete LIN T79009	1 ea
1	4030-01-048-4044	38850-00004-046	Shackle Assembly	1 ea
2	5315-01-119-9065	38850-00008-102	Pin, Apex Fitting	1 ea
3	1670-01-235-0907	38850-00015-105	Spacer, Apex	1 ea
4	5306-00-944-2659	NAS1306-22D	Bolt	1 ea
5	5310-00-207-9274	AN 320C6	Nut, Castellated	1 ea
6	5315-00-234-1864	MS 24665-302	Cotter Pin	1 ea
7	1670-01-047-6815	38850-00009-056	Rope Assembly	4 ea
8	4030-01-048-4047	38850-00011-046	Grabhook Assembly	4 ea
9	1670-01-109-2544	38850-00015-102	Spacer, Grabhook	4 ea
10	5315-01-121-2874	38850-00008-104	Pin, Spacer	4 ea
11	4030-01-100-1685	38850-00017-102	Latch, Safety Hook	4 ea
12	5360-01-115-6833	38850-00019-101	Keeper, Spring	4 ea
13	5365-00-261-3918	MS 3217-1075	Snap Ring	4 ea
14	5306-00-771-7621	NAS 1303-21	Bolt, Shear	4 ea
15	5310-00-807-1467	MS 21042-3	Expanded Washer	4 ea
16	4010-01-058-4771	38850-00053-102	Chain, 8-foot Length	4 ea
17	4010-01-041-9751	664241	Link, Coupling	4 ea
18	8460-00-606-8366	Mil-41835	Kit Bag, Flyer's	1 ea

GLOSSARY

ACRONYMS AND ABBREVIATIONS

ACP	assault command post	H-HMMWV	heavy high-mobility multipurpose wheeled vehicle
AETC	auxiliary equipment transportation container	HIPIR	high-power illuminator radar
AFATADS	advanced field artillery tactical data systems	HMD	high mobility downsized
ARL-C	airborne reconnaissance low-comint	HMDA	high mobility digital group multiplexer assemblage
ARL-I	airborne reconnaissance low-imagery	HMMH	high mobility materiel handler
AS	aviation section	HMMWV	high-mobility multipurpose wheeled vehicle
ASK	acoustic suppression kit	HMT	high mobility trailers
ATG	antenna transceiver group	HZ	hertz
AVT	air vehicle transport	IAS	intelligence analysis system
BCP	battery command post	IEW	intelligence and electronic warfare
bn	battalion	IFAV	interim fast attack vehicle
BSTF	base shop test facility	IMETS	integrated meteorological systems
CAFSM	compressed air-foam system, mobile	IPDS	inland petroleum distribution system
CBC	cargo bed cover	ISYSCON	integrated system control
CHIPS	common hardware intelligence processing subsystem	JRSC	jam-resistant secure communications
CMTH	contact maintenance truck, heavy	JSTAR	joint surveillance target attack radar
CNCE	communications nodal control element	JTIDS	joint tactical information distribution system
CONEX	container express	KW	kilowatt(s)
COPS	crash-out package system	LAV	light armored vehicle
CS	containerized shower	lbs	pounds
DASC	direct air support central	LIN	line number
DAMP	digital antenna mast program	LMS	lightweight multipurpose shelter
DGM	digital group multiplexer	LMTV	light medium tactical vehicle
DOD	Department of Defense	LRTF	light rough terrain forklift
DPPC	deployable print production center	LTACFIRE	lightweight tactical fire control system
DTSS-L	digital topographic support system-light	LVAD	low velocity airdrop
EAGS	expeditionary arresting gear system	MANPADS	man portable air defense system
EALP	enclosure assembly launch pods	MASINT	measurement and signal intelligence
EBFL	extendable boom forklift	MDS	meteorological data system
ECU	environmental control unit	MGB	medium girder bridge
EFOGM	enhanced fiber optic guided missile	MHG	meteorological hydrogen generator
ELAMS	expandable light airmobile shelter	MILSTD	military standard
EMI	electromechanical induction	MLRS	multiple launch rocket system
EPLRS	enhanced position location reporting system	mm	millimeter
FAAR	forward area alerting radar	MR	mobile radio
FME	field maintenance equipment	MRBS	mobile radio broadcasting subsystem
FOPS	falling objects protection system	MSFDCS	multiservice flight data collection sheet
FUPP	full-up power pack	MSM	maintenance section multifunctional
GCS	ground control station	MT	mobile television
GMLA	guided missile launch assembly	MTBS	mobile television broadcasting subsystem
GPH	gallons per hour	MTMCTEA	Military Traffic Management Command Transportation Engineering Agency
GPM	gallons per minute	MTV	medium tactical vehicle
GVW	gross vehicle weight	MTVR	medium tactical vehicle replacement
HEMAT	heavy expanded mobility ammunition trailer	NABS	NATO airbase satcom
HGAG	high gain antenna group	NATO	North Atlantic Treaty Organization

NAVAIR	Naval Air Systems Command	SMART-T	secure mobile anti-jam radar tactical terminal
NCS-E(D)	downsized net control station	SMMS	sensor mobile monitoring system
NSN	national stock number	SOC-R	special operations craft-riverine
NSWRIB	Naval Special Warfare Rigid Inflatable Boat	SOMS	special operations media systems
OC	operations central	SSC	US Army Soldier Systems Center
OCG	operational control group	SSS	single shelter switch
PCP	platoon command post	STIK	soft top installation kit
PEELS	primary electrical equipment life support	TAMCN	Table of Authorized Material Control Number
PLS	palletized loading system	TAOM	tactical air operations module
PN	part number	TATERS	trojan air transportable electronic reconnaissance system
POC	platoon operations center	TDN	tactical data network
PPU	primary power unit	TERPES	tactical reconnaissance processing evaluation system
PSV/MC	platoon support van/maintenance center	TM	technical manual
PTO	pioneer tool outfit	TMS	tactical messaging system
QRSA	quick reaction satellite antenna	TOTS	temporary occupancy troop shelter
RAC	riverine assault craft	TOW	tube launched, optically tracked, wireguided
RIE	required individual equipment	TQG	tactical quiet generator
RLST	remote landing site tower	TRSS	tactical remote sensor system
ROPS	roll-over protection system	TSS	tracked suspension system
ROWPU	reverse osmosis water purification unit	TTCS	tactical terminal control system
RP/C	rocket pod/container	TTMS	trojan transportable miniswitch
SCINS	satellite communications intelsat nodal subsystem	TUAV	tactical unmanned aerial vehicle
SE	shop equipment	US	United States
SEE	small emplacement excavator	USA	United States Army
SICPS	standardized integrated command post systems	USMC	United States Marine Corps
SIU	sensor interface unit	W/VO	with/without
SIXCON	six-compartment container		