

Change 2

**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. Change FM 10-450-5, 30 August 1999, as follows:

Remove old pages

iii through ix
2-1 through 2-6
2-17 through 2-22

2-67 through 2-70

3-1 and 3-2
3-19 and 3-20
3-35
5-1 and 5-2

9-1 and 9-2

13-1 and 13-2

Glossary 1 and Glossary 2

Insert new pages

iii through ix
2-1 through 2-6
2-17 through 2-22
2-53.5 through 2-53.8
2-67 through 2-70
2-85 through 2-97
3-1 and 3-2
3-19 and 3-20
3-35 through 3-39
5-1 and 5-2
5-59 through 5-61
9-1 and 9-2
9-7 and 9-8
13-1 and 13-2
13-9 and 13-10
Glossary 1 and Glossary 2

4. New or changed material is identified by a vertical bar in the margin opposite the changed material.
5. 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.

Paragraphs 2-2 through 2-39 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	7,600	10K	80/45	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).

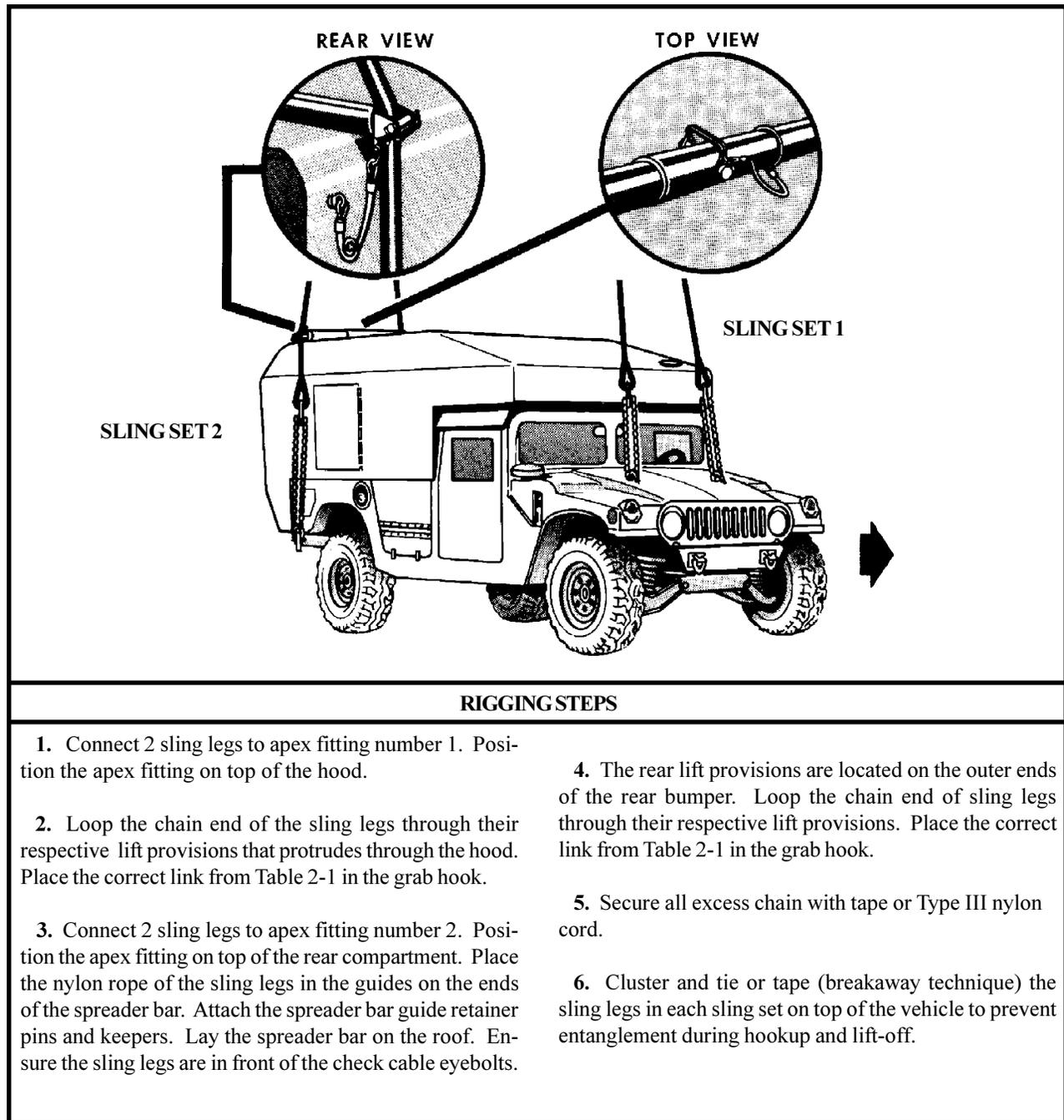


Figure 2-1. M996/M997/M997A1/M997A2 Ambulance (HMMWV)

CAUTION

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

**2-3. M966/M1036/M1045/M1045A2/M1046 TOW Missile Carrier (HMMWV)
M1025/M1025A2/M1026/M1043/M1043A2/M1044 Armament Carrier (HMMWV)
M1114 Up-Armored HMMWV**

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

Table 2-2. TOW Missile/Armament Carrier (HMMWV)

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
TOW Missile Carrier (HMMWV), M966/M1036/M1045/M1046	Varies by Model	10K 15K 40K	80/45 25/3 30/9	CH-47 CH-53 CH-53	130
TOW Missile Carrier, HMMWV, M1045A2	10,300	25K 15K 40K	65/36 25/3 30/9	CH-47 CH-53 CH-53	130
Armament Carrier, HMMWV, M1025/M1026	8,200	15K 40K 10K	25/3 40/9 80/45	CH-53 CH-53 CH-47	130
Armament Carrier, HMMWV, M1043/M1044	8,400	15K 40K 10K	25/3 40/9 80/45	CH-53 CH-53 CH-47	130
Armament Carrier, HMMWV, M1025A2/M1043A2	10,300	15K 40K 25K	25/3 40/9 65/36	CH-53 CH-53 CH-47	130
Up-Armored HMMWV, M1114	12,100	25K	60/30	CH-47	100

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.

(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 place 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.

CAUTION
DO NOT APPLY TAPE TO THE WINDOWS OR WINDSHIELD OF THE M1114 UP-ARMORED HMMWV. TAPE WILL DAMAGE THE WINDOWS.

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

(3) Hookup. The hookup team stands on the roof 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).

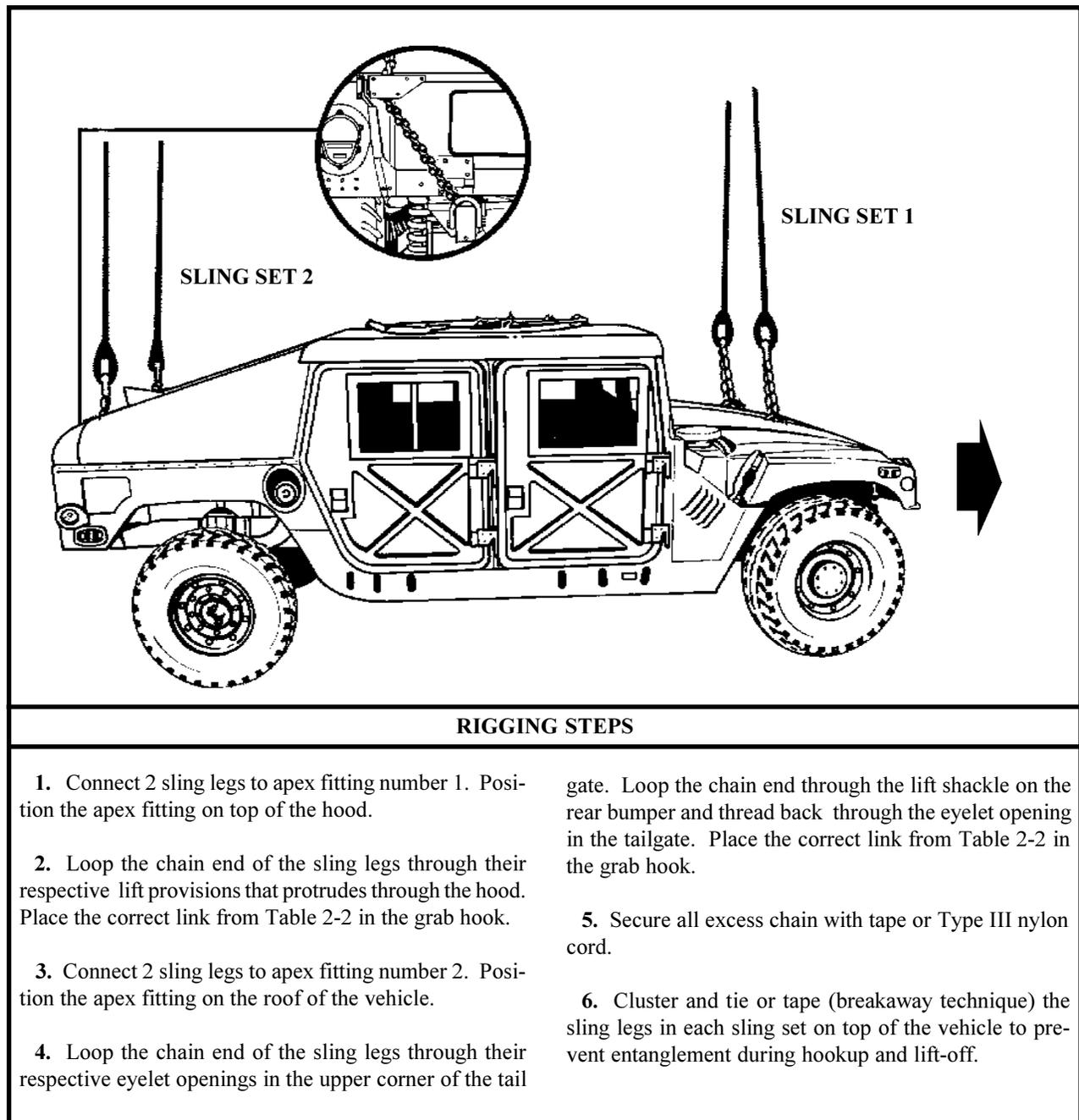


Figure 2-2. TOW Missile Carrier (HMMWV)

2-7. M1097/M1097A2 Shelter Carrier (HMMWV) With Lightweight Multipurpose Shelter (LMS) (USMC)

a. Applicability. The following items in Table 2-6 are certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 2-6. Lightweight Multipurpose Shelter (LMS)

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
High Mobility Downsized (HMD) Direct Air Support Central	8,420	15K	40/3	CH-53	120
Operations Central (OC) Group Firefinder AN/TPQ-36 (V) 8	8,620	15K	40/3	CH-53	120
Integrated Meteorological Systems (IMETS), Block I & II	9,050	15K	40/3	CH-53	120
Enhanced Position Location Reporting System (EPLRS) Downsized Net Control Station (NCS-E(D))	10,000	15K	40/3	CH-53	120
High Frequency Communications Central AN/TRC 120	8,765	15K	40/3	CH-53	150
Tactical Remote Sensor System (TRSS) Sensor Mobile Monitoring System (SMMS)	7,685	15K	40/3	CH-53	120
Meteorological Measuring Set AN/TMQ-41	7,770	15K	40/3	CH-53	110
Air Defense Communications Platform AN/MSQ-124	10,000	15K	40/3	CH-53	120
Marine Expeditionary Force Intelligence Analysis System S1	9,194	15K	40/3	CH-53	100
Marine Expeditionary Force Intelligence Analysis System S2	9,126	15K	40/3	CH-53	100
Tactical Control and Analysis Center	9,300	15K	40/3	CH-53	100

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

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

(a) Additional chain lengths from the multileg sling set (8 each).

(b) Additional coupling links from the multileg sling set (8 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) Felt sheet, cattle hair, Type IV, 1/2-inch or suitable padding.

(7) Padding, cellulose.

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 the 15,000-pound multileg sling set chain 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.

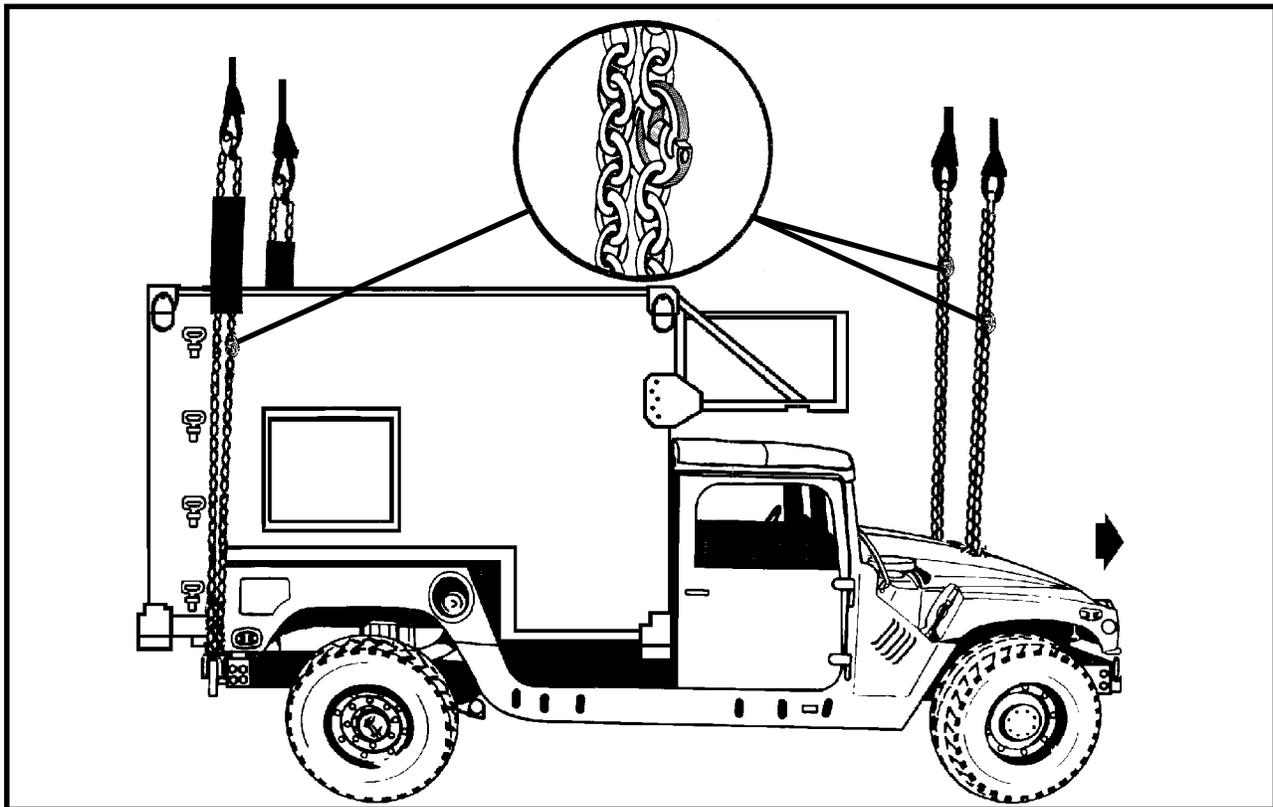
(k) Install the lift provisions on the outer ends of the rear bumper.

(l) Remove the upper antenna mounting bracket if installed.

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

(3) **Hookup.** The hookup team stands on top of the shelter. The static wand person discharges the static electricity with the static wand. The 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 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	7,770	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

Table 2-6.1 Lightweight Multipurpose Shelter (LMS) (Continued)

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Mobile Television (MT) Cargo Vehicle	9,637	10K	40/3	CH-47	120
Mission Vehicle for the Common Ground Station, Joint Surveillance Target Attack Radar (JSTAR) System	10,300	25K	32/5	CH-47	120
Advanced Field Artillery Tactical Data Systems (AFATADS), System #1, RWS with a CHS-2 AN/GYG-3(V)1	8,882	10K	40/3	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, part number 5779125, from a 10,000-pound 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) Extend the sling leg chains by connecting one additional chain length to each chain on a 10,000- or 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.

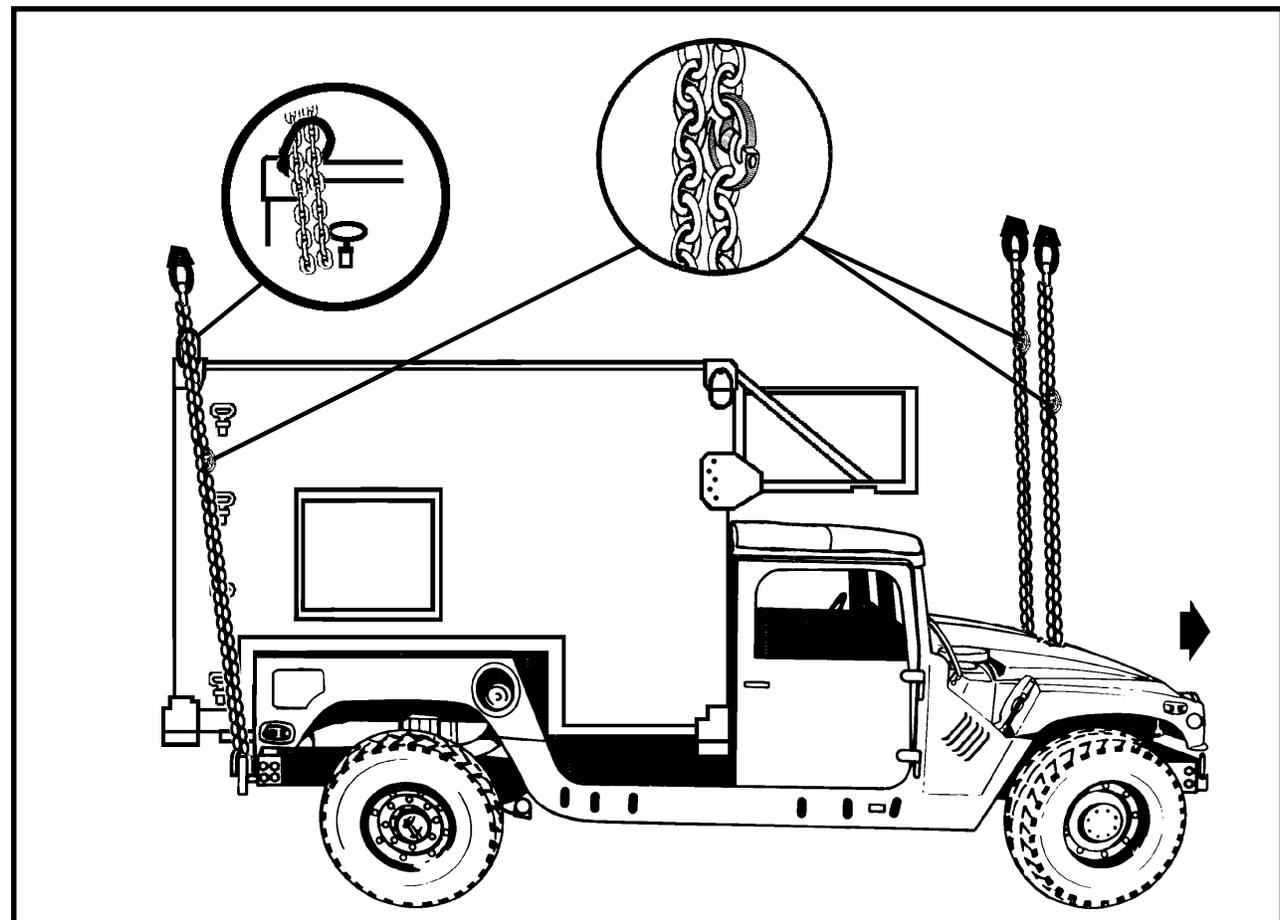
(l) Tie the shelter's rear lift rings together across the top of the shelter with Type III nylon cord. Place the rings in the up position facing the front of the vehicle.

(2) **Rigging.** Rig the load according to the steps in Figure 2-6.1.

NOTE: The procedures shown in Figure 2-6 may be used as alternate rigging procedures provided there is no interference between the sling leg chains and antenna mounts or other items on the vehicle. When using the procedures in Figure 2-6, use the link counts from Table 2-6.1.

(3) **Hookup.** The hookup team stands on top of the shelter. The static wand person discharges the static electricity with the static wand. The 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 2-6.1 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	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

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.

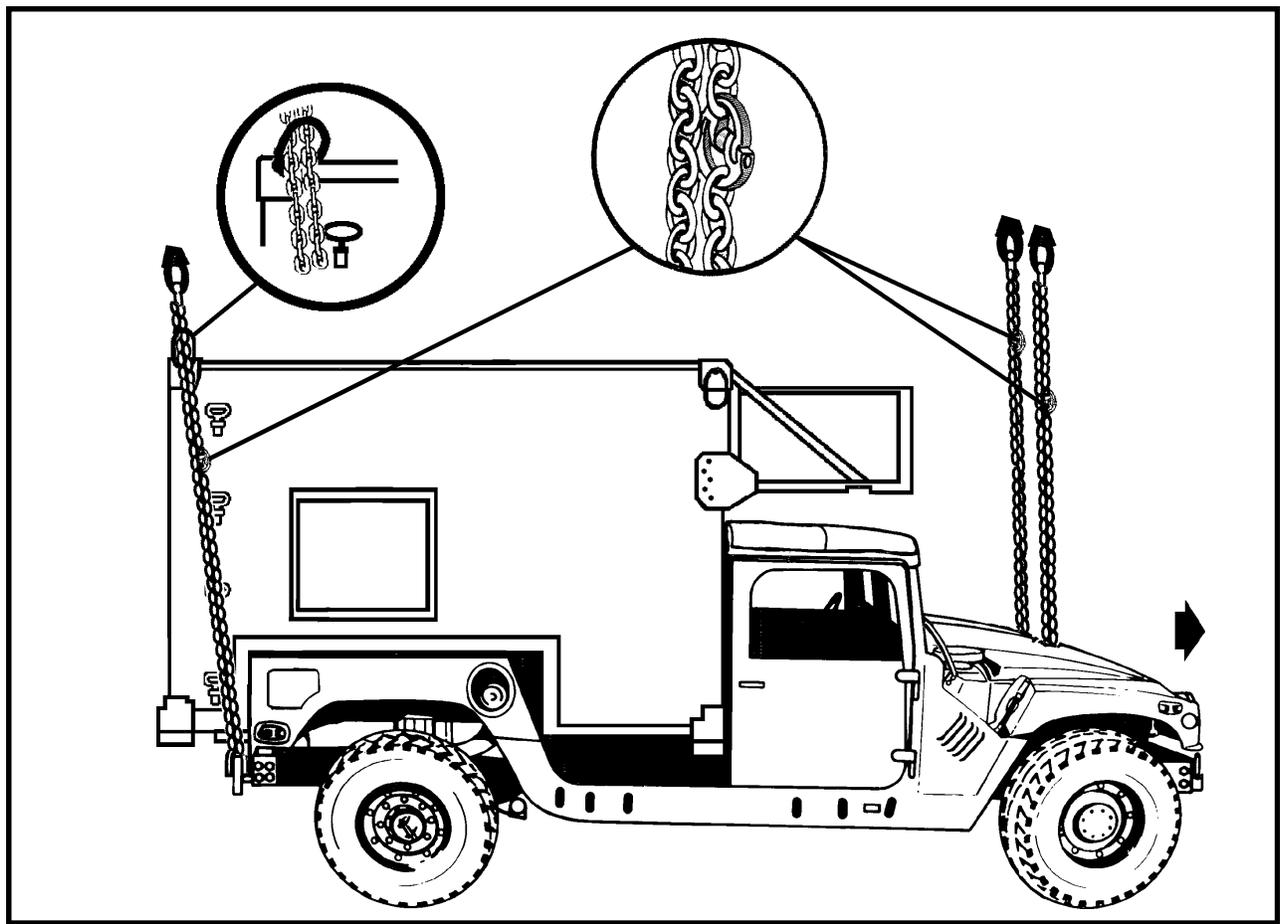
(k) Install the lift provisions on the outer ends of the rear bumper.

(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.

2-8. M1037/M1042 Shelter Carrier (HMMWV) With Lightweight Multipurpose Shelter (LMS)

a. Applicability. The following items in Table 2-7 are certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 2-7. Lightweight Multipurpose Shelter (LMS) on M1037/M1042

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Digital Group Multiplexer (DGM) AN/TRC-138C	9,020	10K	40/3	CH-47	120
High Frequency Communications Central AN/TRC 120	8,765	15K	40/3	CH-53	150

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 577-0615, from a 10,000-pound sling set (4 each).

OR

(2) Multileg sling set (15,000-pound capacity for the CH-53E only) with one additional web ring.

(a) Additional chain lengths from the multileg sling set (8 each).

(b) Additional coupling links from the multileg sling set (8 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) Felt sheet, cattle hair, Type IV, 1/2-inch or suitable padding.

(7) Padding, cellulose.

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-, 25,000- or 40,000-pound capacity sling set with coupling links. Connect two additional chain lengths to each chain on the 15,000-pound multileg sling set chain 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) Remove the upper antenna mounting bracket if installed.

(2) Rigging. (USMC - CH-53) Rig the load according to the steps in Figure 2-6 and using the link counts in Table 2-7.

(US ARMY - CH-47) Rig the load according to the steps in Figure 2-6.1 and using the link counts in Table 2-7.

(3) Hookup. The hookup team stands on top of the shelter. The static wand person discharges the static electricity with the static wand. The 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).

2-21.2 Light Medium Tactical Vehicles (LMTV) M1078/M1078A1/M1081 With Type III Cargo Bed Cover and Medium Tactical Vehicles (MTV) M1083/M1083A1/M1093 With Type IV Cargo Bed Cover

a. **Applicability.** The following items in Table 2-20.2 are certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 2-20.2. LMTVs and MTVs With Cargo Bed Covers

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Type III Cargo Bed Cover (deployed or stowed) on Light Medium Tactical Vehicle, Cargo, M1078	23,200	25K	25/3	CH-47	110
Type III Cargo Bed Cover (deployed or stowed) on Light Medium Tactical Vehicle, Cargo, M1078A1	23,200	25K	25/3	CH-47	110
Type III Cargo Bed Cover (deployed or stowed) on Light Medium Tactical Vehicle, Cargo, Airdrop Variant, M1081	23,200	25K	25/3	CH-47	110
Type IV Cargo Bed Cover (deployed or stowed) on Medium Tactical Vehicle, Cargo, M1083	23,200	25K	20/3	CH-47	110
Type IV Cargo Bed Cover (deployed or stowed) on Medium Tactical Vehicle, Cargo, M1083A1	23,200	25K	20/3	CH-47	110
Type IV Cargo Bed Cover (deployed or stowed) on Medium Tactical Vehicle, Cargo, Airdrop Variant, M1093	23,200	25K	20/3	CH-47	110

WARNING
EXCEEDING THE RECOMMENDED AIRSPEED LISTED IN TABLE 2-20.2 MAY RESULT IN DAMAGE TO THE WINDSHIELDS OF THE VEHICLES.

NOTE: Certified Cargo Bed Cover NSNs are:
Type III Camouflage: 5411-01-472-7852
Type III Sand: 5411-01-479-1932
Type IV Camouflage: 5411-01-472-7857
Type IV Sand: 5411-01-479-1933

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 (6 each).

(b) Coupling link, part number 664241, from a 25,000-pound sling set (6 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) Fold the cab sides up and fasten the roof to the cab if the cab is in the stowed/airdrop position (airdrop variant only).

(b) Extend the front lift provisions and the rear load spreaders and lock in place using the attached pin and safety pin.

(c) Roll up the windows in the cab.

(d) Tape all windows, lights, and reflectors.

(e) Remove the air intake cowling by loosening the clamp and twisting off. Place the cowling on the floor board of the passenger's side.

(f) Ensure the front wheels are pointed straight ahead. Tie down the steering wheel using the driver's side seat belt.

(g) Fold the side view mirrors back and secure with tape or Type III nylon cord.

(h) Safety the cargo bed walls securing clips in the secured position with tape (only if the cargo bed walls are not stowed in the racks under the bed).

(i) Stow the mud flaps by bending and hooking on the mud flap hooks.

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

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

(l) Tape the filler pipes behind the cab on the driver's side to prevent the sling legs from becoming entangled.

(m) Secure any cargo that is stowed in the cargo bed cover with lashings, Type III nylon cord, or tape.

(2) Rigging. Rig the load according to the steps in Figure 2-19.2.

NOTE: Figure 2-19.2 shows an MTV. The LMTVs only have one rear axle.

(3) Hookup. The hookup team stands on the cargo bed cover. 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).

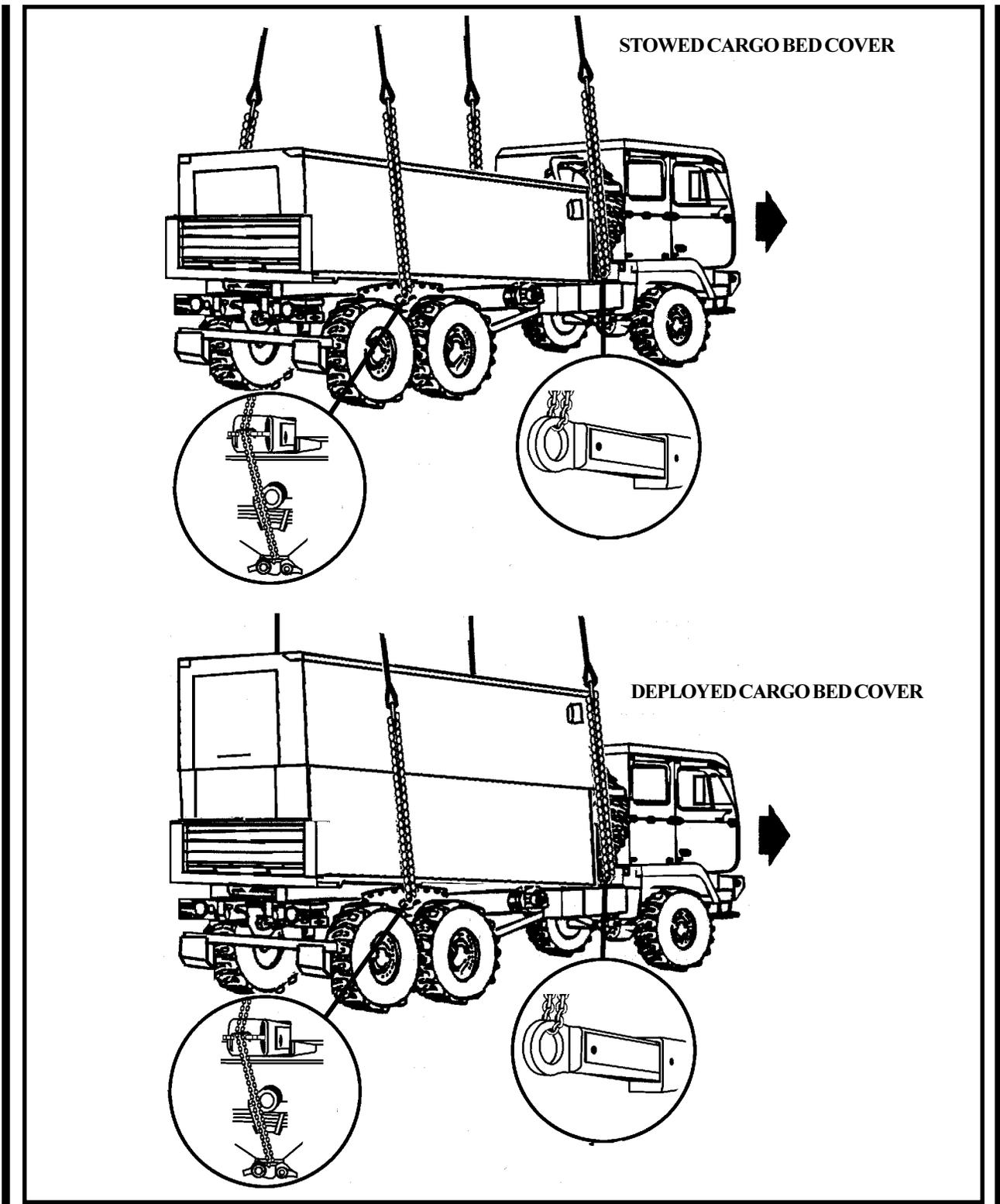


Figure 2-19.2. LMTVs and MTVs With Cargo Bed Covers

RIGGING STEPS

1. Connect 2 sling legs to apex fitting number 1. Attach one extra chain length to each existing chain on each sling leg using one coupling link. Position the apex fitting on the forward end of the cargo bed cover.

2. Loop the chain end of the sling legs through their respective lift provisions located behind the vehicle cab. Place the correct link from Table 2-20.2 in the grab hook and secure all excess chain with tape or Type III nylon cord.

3. Cluster and tie or tape (breakaway technique) the sling legs on top of the spare tire to prevent entanglement during hookup and lift-off.

4. Connect 2 sling legs to apex fitting number 2. Attach two extra chain lengths to each existing chain on each

sling leg using one coupling link for each additional chain length added. Position the apex fitting on the rear of the cargo cargo bed cover.

5. Route the left and right chains through their respective rear load spreader and loop the chain end of the sling legs through their respective lift ring, located on the chassis near the rear axle. Route the chains back through the rear load spreaders and place the correct link from Table 2-20.2 in the grab hook. Secure all excess chain with tape or Type III nylon cord. Close the safety gate on each of the rear load spreaders.

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

Figure 2-19.2. LMTVs and MTVs With Cargo Bed Covers (continued)

2-28. M1097A1 (H-HMMWV) with Fiberglass Cargo Bed Cover (CBC)

a. Applicability. The following items in Table 2-27 are certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 2-27. M1097A1 (H-HMMWV) with Fiberglass Cargo Bed Cover (CBC)

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Cargo Bed Cover, HMMWV, Type I, Camouflage, NSN 5411-01-647-3243	10,000	10K 15K	50/3 62/2	CH-47 CH-53	100
Cargo Bed Cover, HMMWV, Type I, Sand, NSN 5411-01-479-1928	10,000	10K 15K	50/3 62/2	CH-47 CH-53	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, part number 5779125, from a 10,000-pound sling set (4 each).

OR

(2) Multileg sling set (15,000-pound capacity for the CH-53E only) with one additional web ring.

(a) Additional chain lengths, part number 34080-4 (8 each).

(b) Additional coupling links, part number 31611 (8 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) Felt sheet, cattle hair, Type IV, 1/2-inch or suitable padding.

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. Connect two additional chain lengths to each chain on the 15,000-pound multileg sling set chain 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 the cargo bed cover to the truck using wire rope or tie-down assemblies. Remove the doors. Store and secure the doors in the cab or in the cargo bed cover.

(d) Secure all equipment inside the cargo bed cover with tape, nylon cord, or lashings. Close and secure shelter vents and door with nylon cord or tape.

(e) Secure all equipment and cargo inside the

vehicle with tape, nylon cord, or lashings.

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

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

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

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

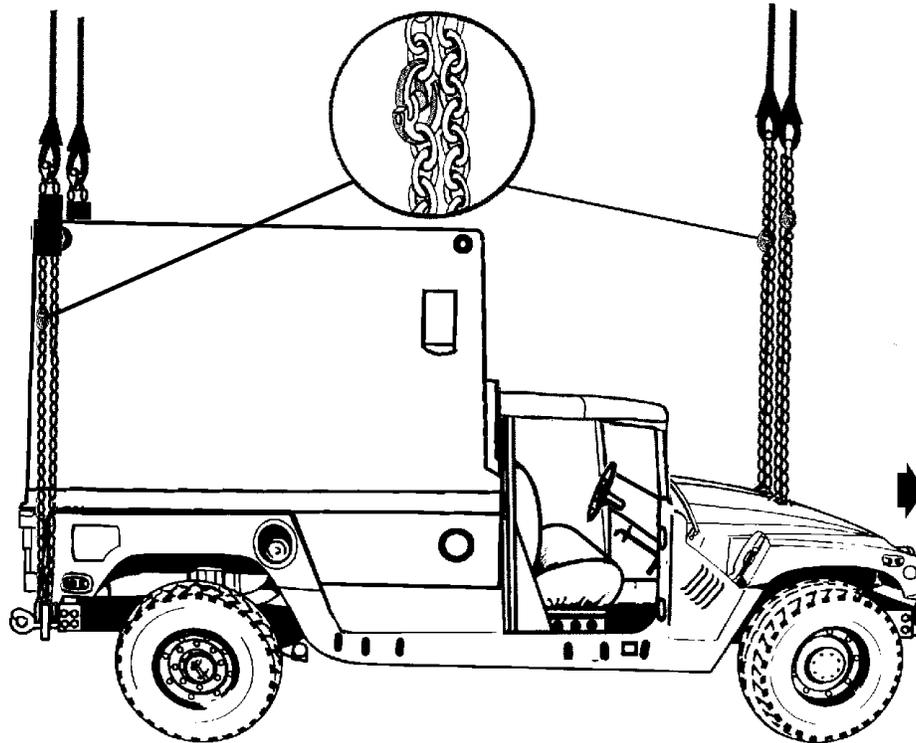
(j) Install the lift provisions on the outer ends of the rear bumper by removing the tiedown provisions located

inboard of the bumper end and installing them on the outer ends of the rear bumper.

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

(3) **Hookup.** The hookup team stands on top of the cargo bed cover. 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 hood 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 2-27 in the grab hook.
3. Connect 2 sling legs to apex fitting number 2. Position the apex fitting on top of the cargo bed cover.
4. Loop the chain end of the sling legs through their respective lift provisions located on the outside end of the bumper. Place the correct link from Table 2-27 in the grab hook.
5. Secure all excess chain with tape or Type III nylon cord.
6. Pad the chains where they contact the cargo bed cover.
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 2-26. M1097A1 (H-HMMWV) with Fiberglass Cargo Bed Cover (CBC)

2-29. M56 Smoke Generating System on M1113 (HMMWV)

a. Applicability. The following item in Table 2-28 is certified for the helicopter(s) listed in the following table by the Soldier Systems Center:

Table 2-28. M56 Smoke Generating System on M1113 (HMMWV)

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
M1113 With M56 Smoke Generating System without Graphite in Tank	9,400	10K	50/3	CH-47	120
M1113 With M56 Smoke Generating System with Graphite in Tank	9,400	10K	50-Front 14-Right Rear 3-Left Rear	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.
- (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) Spreader bar, ambulance, NSN 4910-01-313-8839.

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) Place the transmission in neutral and set the parking brake.
- (b) Ensure the fuel tank, the turbine fuel, and both

fog oil tanks are not over 3/4 full.

- (c) Set the three-way valve to the OFF position.
- (d) 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.
- (e) Secure all latches and doors with tape or Type III nylon cord.
- (f) Ensure the front wheels are pointed straight ahead. Tie down the steering wheel, using the securing device attached under the dashboard.
- (g) Fold the mirrors inward. Remove the doors and store and secure the doors in the cab with lashings or Type III nylon cord.
- (h) Ensure the fuel tank is not over 3/4 full. Inspect fuel tank cap, oil filler cap, and battery caps for proper installation.
- (i) Extend the spreader bar until the holes line up. Install the pin and engage the keeper.
- (j) Position the spreader bar across the rear of the vehicle, resting on the power module and the weapons case. Attach the two spreader bar check cables to the larger hole openings, footman's loop, on the vehicle fenders.

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

(3) Hookup. The hookup team stands on the IR hopper-loading platform on the left side of the vehicle. The static wand person discharges the static electricity with

2-35. M1097A2 Shelter Carrier (HMMWV) With Special Operations Media System (SOMS-B) in S-788G Shelter (LMS)

a. Applicability. The following item in Table 2-34 is certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 2-34. M1097A2 Shelter Carrier (HMMWV) With Special Operations Media System (SOMS-B) in S-788G Shelter (LMS)

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Special Operations Media System	9,080	10K	50/3	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.

(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 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 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) 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 2-33.

NOTE: Ensure the chains on the left rear sling leg are routed between the shelter and the 30 meter mast.

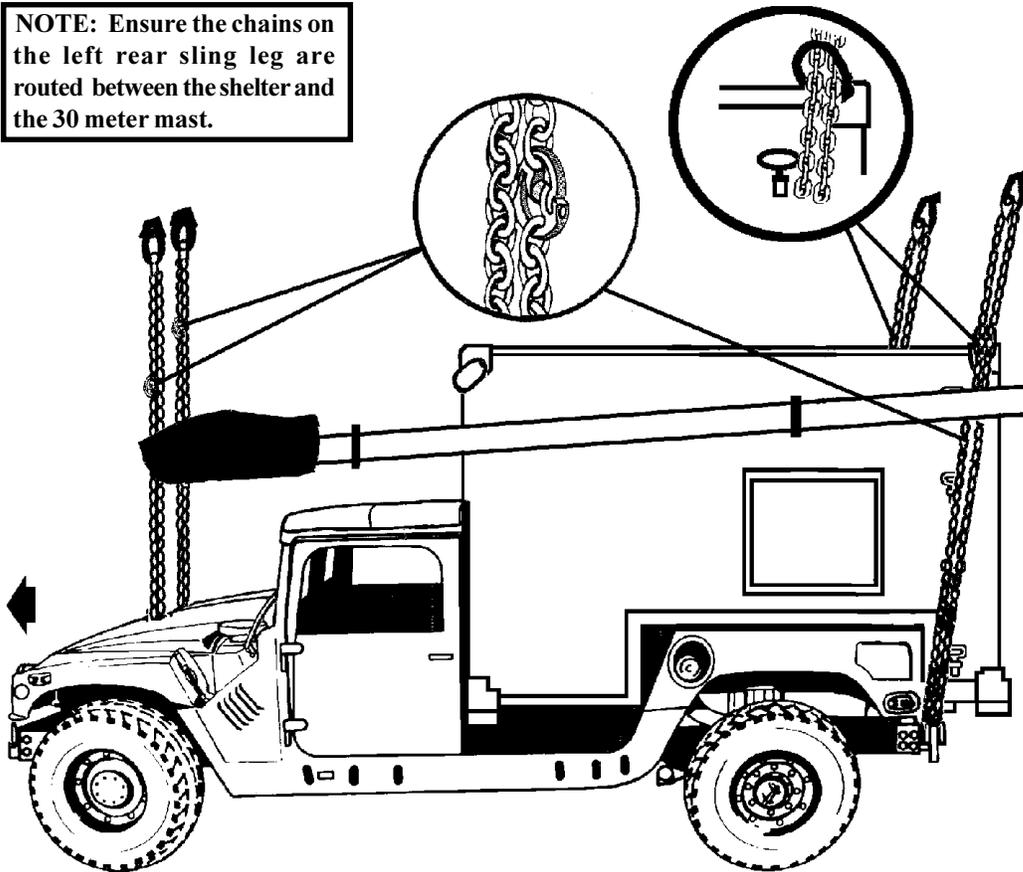
(3) **Hookup.** The hookup team stands on top of the shelter. The static wand person discharges the static electricity with the static wand. The forward hookup person

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.

NOTE: Hookup of this load presents substantial risk of damage to the load or injury to the hookup personnel. Use of a reach pendant is recommended for this load.

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

NOTE: Ensure the chains on the left rear sling leg are routed between the shelter and the 30 meter mast.



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 2-34 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 2-34 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 2-33. 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 item in Table 2-35 is 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)	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.

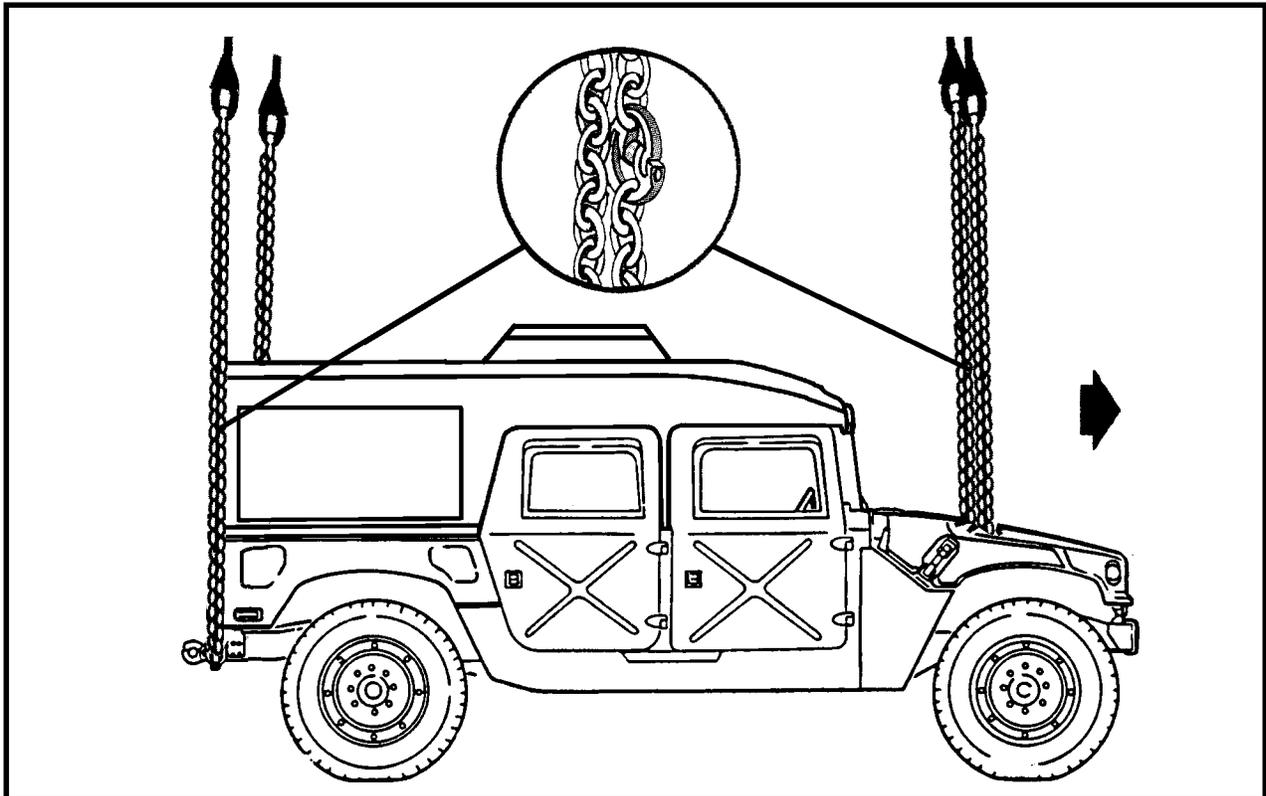
(i) Install the lift provisions on the outer ends of the rear bumper.

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

(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 2-35 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 lift provision located on the outer end of the rear bumper. Place the correct link from Table 2-35 in the grab hook.

Repeat the procedure using the left sling leg chain 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 2-34. Prophet AN/MLQ-40(V) on M1097 HMMWV

2-37. M998 Truck, Cargo, 1 1/4-Ton (HMMWV) With AMTECH Helmet Hardtop

a. Applicability. The following item in Table 2-36 is certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 2-36. M998 Truck, Cargo, 1 1/4-Ton (HMMWV) With AMTECH Helmet Hardtop

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Truck, 1 1/4-Ton, HMMWV, M998 with Helmet Hardtop, Basic, Models 1551/1551-0/1551-1/1551-3/1551-4/1551-5/1551-6/-1552/1552-0/1552-1/1552-3/1552-4/1552--5/1552-6	7,700	10K	50/3	CH-47	130

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 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 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.

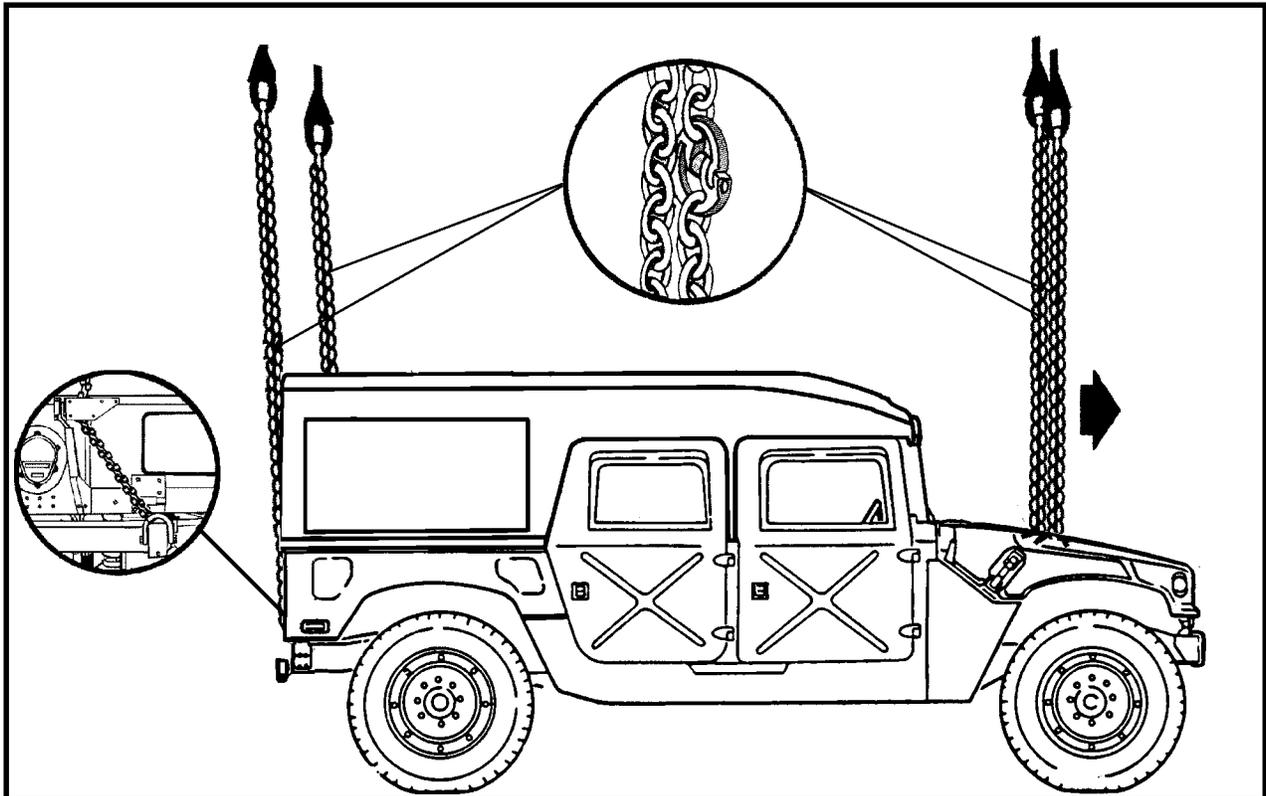
(h) Tape the windshield in an X formation from corner to corner.

(2) **Rigging.** Rig the load according to the steps in Figure 2-35.

(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 2-36 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 2-36 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 2-35. M998 Truck, Cargo, 1 1/4-Ton (HMMWV) With AMTECH Helmet Hardtop

2-38. Dual HMMWV, Side by Side (Shotgun Method), With AMTECH Helmet Hardtop Basic

a. Applicability. The following items in Table 2-37 are certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 2-37. Dual HMMWV, Side by Side (Shotgun Method), With AMTECH Helmet Hardtop Basic

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/-REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Truck, 1 1/4-Ton, HMMWV, M998 with Helmet Hardtop, Basic, Models 1551/1551-0/1551-1/1551-3/1551-4/1551-5/1551-6/-1552/1552-0/1552-1/1552-3/1552-4/1552--5/1552-6	7,700 each	10K	Listed in rigging steps	CH-47	130

WARNING
ONLY HMMWVs WITH THE 3/4-INCH FRONT LIFT PROVISIONS ARE CERTIFIED FOR SLING LOADING IN THE SIDE BY SIDE (SHOTGUN METHOD).

WARNING
HMMWVs WITH A MANUFACTURER'S SERIAL NUMBER OF LESS THAN 100000 ARE EQUIPPED WITH THE 5/8-INCH FRONT LIFT PROVISIONS BY THE MANUFACTURER, BUT CAN BE CHANGED TO THE 3/4-INCH FRONT LIFT PROVISIONS BY QUALIFIED MAINTENANCE PERSONNEL. HMMWVs WITH A MANUFACTURER'S SERIAL NUMBER OF 100000 OR GREATER ARE EQUIPPED WITH THE 3/4-INCH FRONT LIFT PROVISIONS BY THE MANUFACTURER. PRIOR TO SLING LOADING HMMWVs IN THE SIDE BY SIDE (SHOTGUN) METHOD, VERIFY THAT THE HMMWVs ARE EQUIPPED WITH 3/4-INCH FRONT LIFT PROVISIONS BY CHECKING THE MANUFACTURER'S SERIAL NUMBER OR MEASURING THE DIAMETER OF THE FRONT LIFT PROVISION. THE HMMWV MANUFACTURER'S SERIAL NUMBER IS LOCATED ON A DATA PLATE ON THE LOWER RIGHT CORNER OF THE DRIVER'S SIDE DOOR OPENING.

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 5779125, 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 (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) 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) Secure the vehicle camouflage net (in the bag) to each vehicle. Secure one net to the forward doorpost of

one vehicle and the other net to the hard part of the body covering the fuel tank opening of the other vehicle.

(g) Position the vehicles next to each other, as close as possible. Both vehicles must face the same direction.

(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) Remove and stow the fuel can holders from the tailgates.

(2) **Rigging.** Rig the load according to the steps in Figure 2-36.

(3) **Hookup.** The hookup teams stand on the cargo bed cover 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).

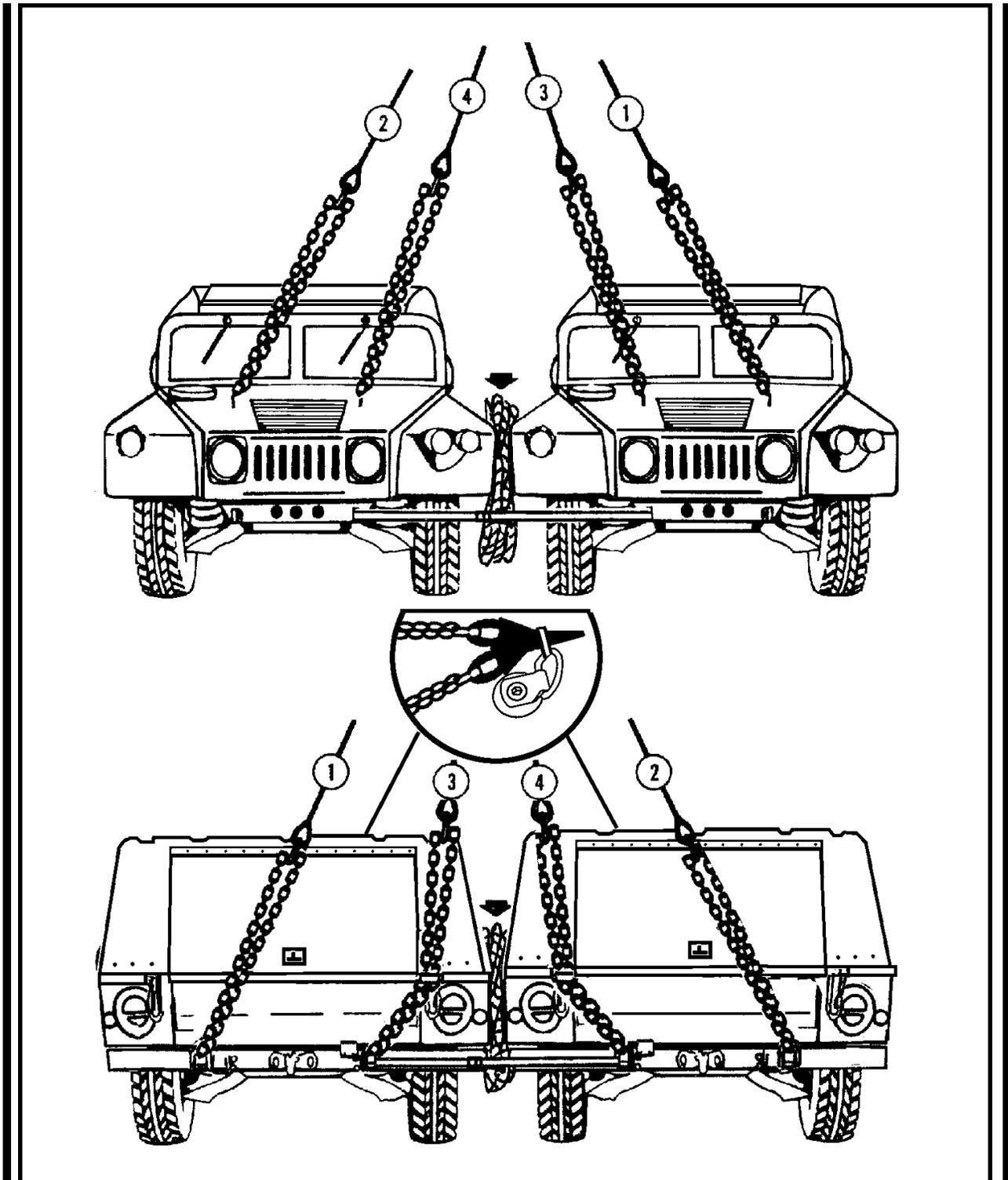


Figure 2-36. Dual HMMWV, Side by Side (Shotgun Method), With AMTECH Helmet Hardtop Basic

RIGGING STEPS

1. Position one sling set on the hood of one of the vehicles.
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.
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.
4. Position the other sling set on the roof of one of the vehicles.
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.
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.
7. Secure all excess chain with tape or Type III nylon cord.
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.
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.
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.
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.
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.

CAUTION
DO NOT ROUTE THE OUTSIDE SLING LEGS THROUGH THE TAILGATE SLING GUIDES.

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 2-36 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.

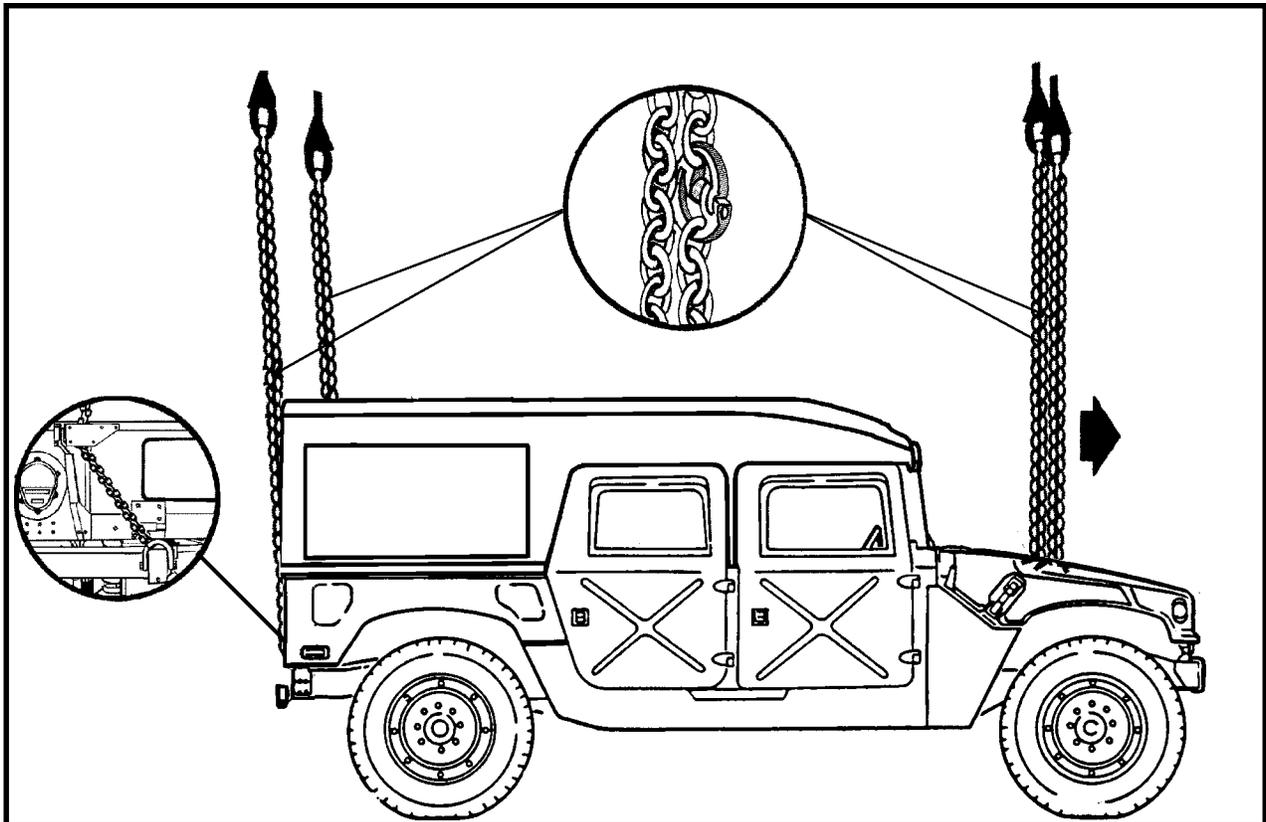
(2) **Rigging.** Rig the load according to the steps in Figure 2-35.

(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 2-36 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 2-36 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 2-35. *Helmet Hardtop (Amtech Corp) Cargo Bed Cover on M1097A2 HMMWV*

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 3-20 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.

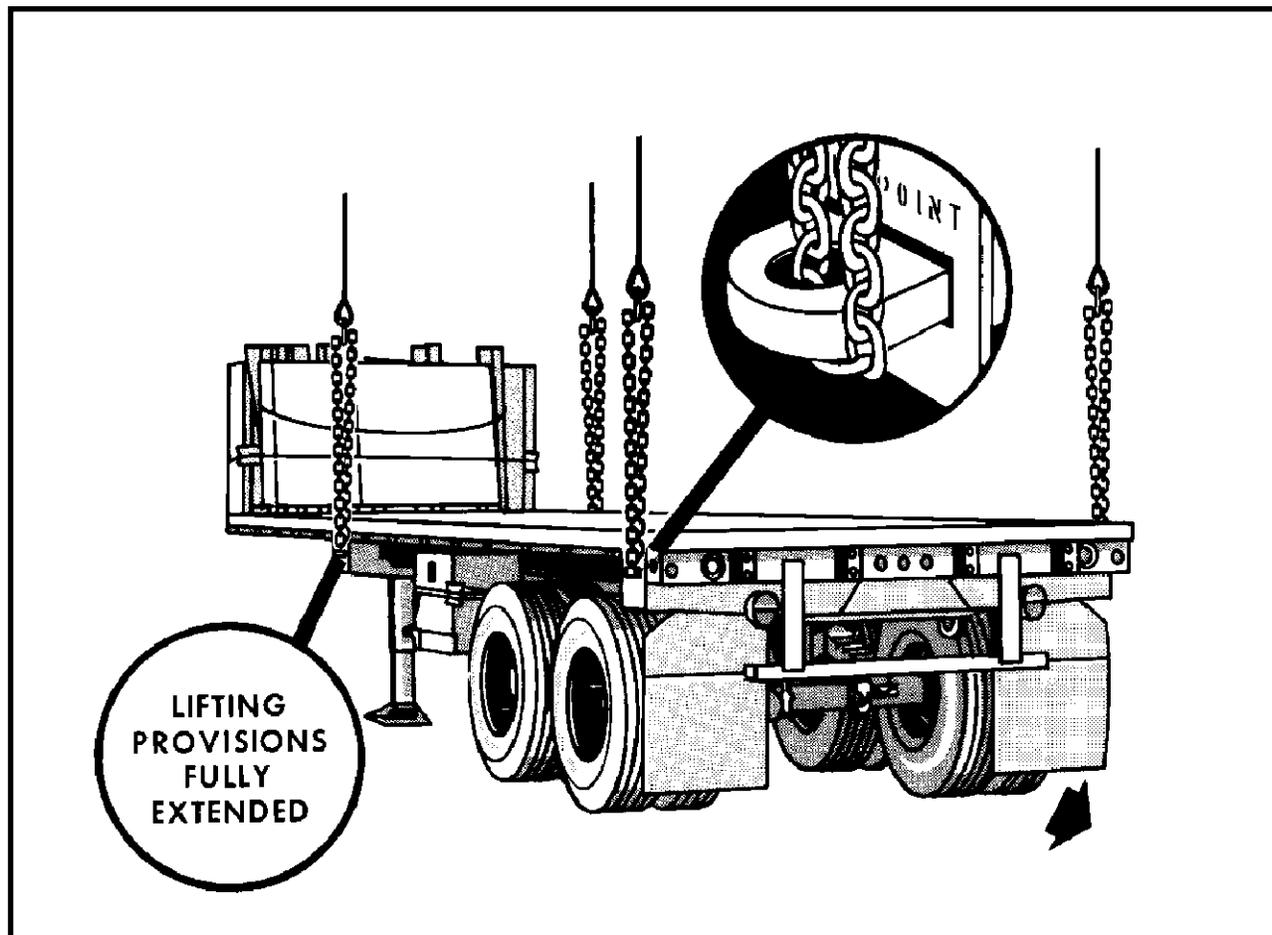
(c) Tape or tie the light cable firmly to the top of the drawbar.

(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 kingpin end of the trailer.
2. Loop the chain end of the sling legs through their respective lift provisions located outboard from the landing gear. Place the correct link from Table 3-9 in the grab hook.
3. Connect 2 sling legs to apex fitting number 2. Position the apex fitting on top of the wheel end of the trailer.
4. Loop the chain end of the sling legs through their respective lift provisions located aft of the rear wheels. Place the correct link from Table 3-9 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 3-9. M871A1 Semitrailer

3-11. High Mobility Trailers (HMT), M1101/M1102

a. Applicability. The following items in Table 3-10 are certified for the helicopter(s) listed in the following table by the Soldier Systems Center:

Table 3-10. High Mobility Trailers

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
High Mobility Trailer (light), M1101	3,400	10K	20/3	CH-47	120
High Mobility Trailer (heavy), M1102	4,200	10K	20/3	CH-47	120
Tactical Messaging System (TMS), Cargo Carrier, M1102	4,200	10K	20/3	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.
- (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 substitute.
- (6) Tie-down strap, cargo, 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 two stabilizer legs from their storage location on the front of the trailer. Place the lower support section in the fully retracted position. Install the stabilizer

legs on the rear of the trailer.

(b) Install the front jack and lower the lunette as close to the ground as possible.

(c) Remove the canvas cover and racks from the trailer. Place these items in the bed of the trailer. Place the accompanying load on top of the canvas cover and secure it with the tie-down straps.

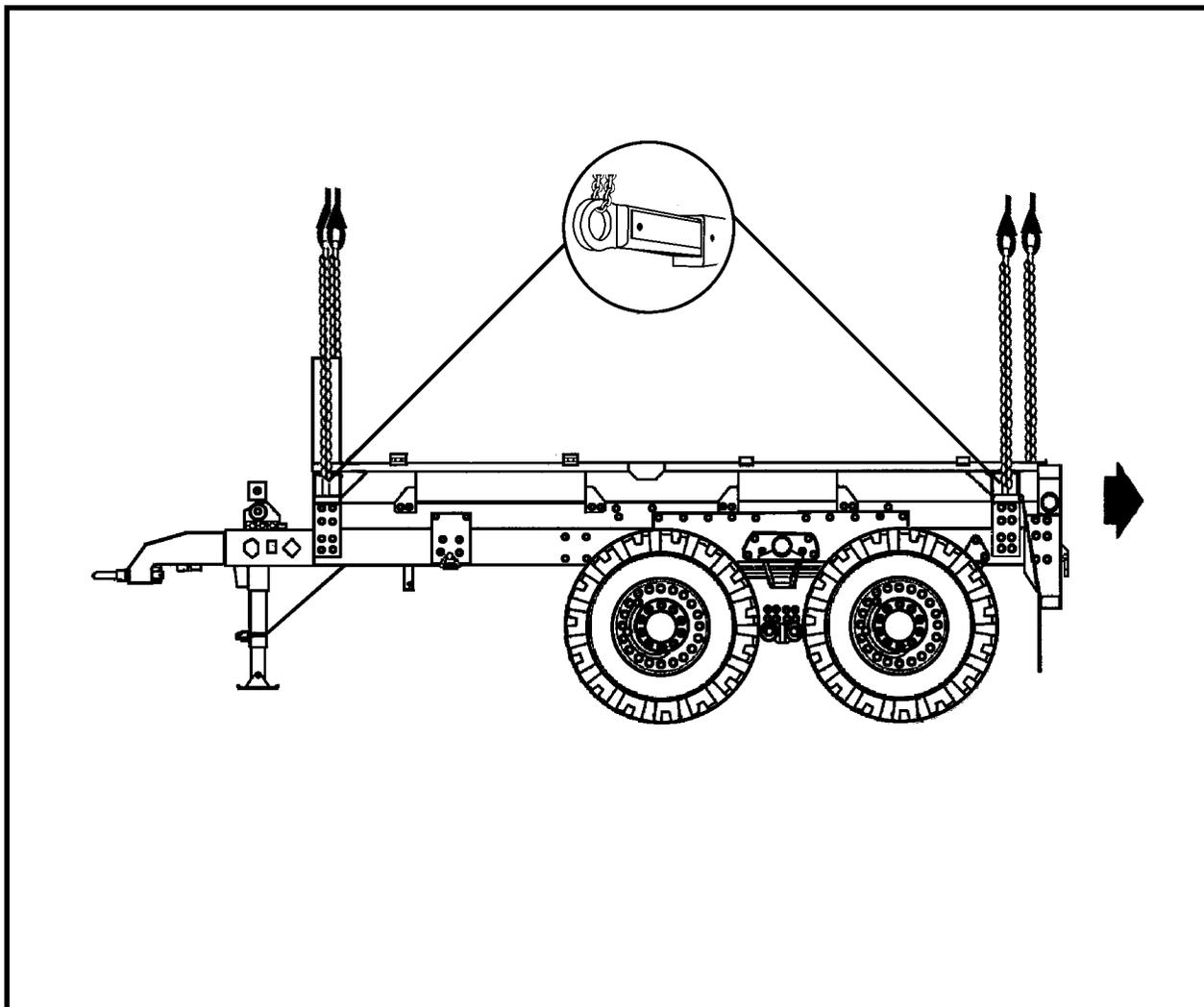
(d) Secure the light cable to the top of the drawbar with tape or Type III nylon cord.

(e) Engage the parking brake.

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

(3) Hookup. The hookup teams stand in the bed of the trailer and on the drawbar. 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 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

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.

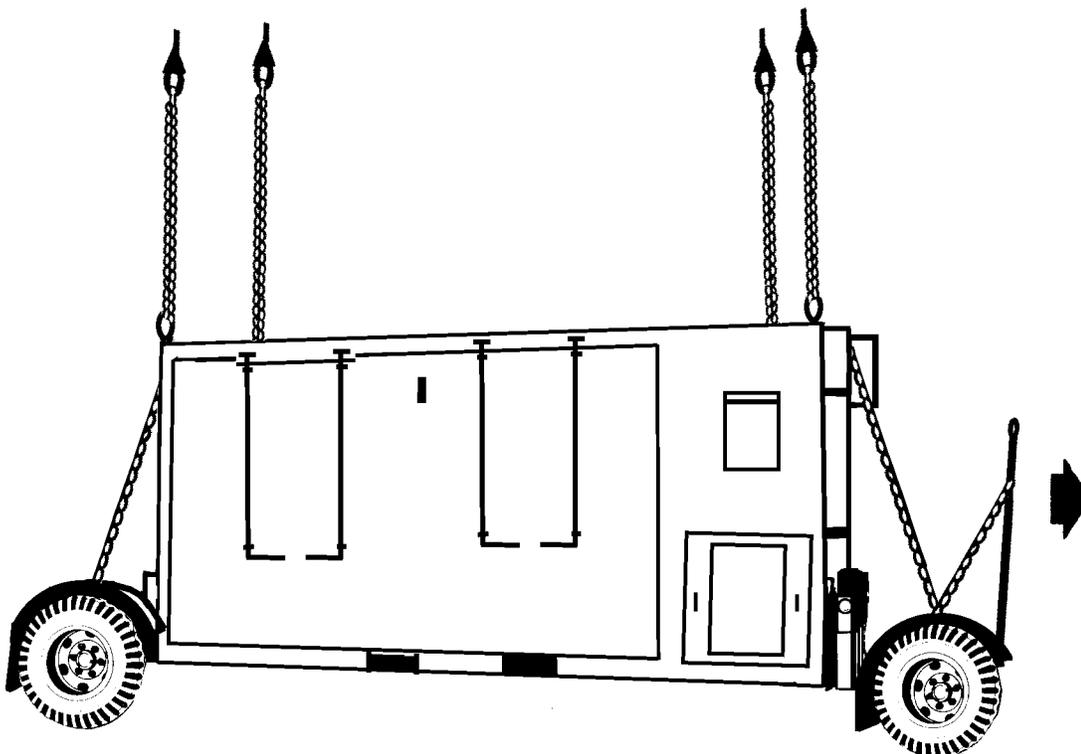
(d) Secure all loose equipment inside the shelter with tape, lashings, or Type III nylon cord.

(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).



RIGGING STEPS

1. Connect 2 sling legs to apex fitting number 1. Position the apex fitting on the roof of the shelter.
2. Loop the chain end of the sling legs through their respective lift provisions located on the top front corners of the shelter. Place the correct link from Table 3-18 in the grab hook.
3. Connect 2 sling legs to apex fitting number 2. Position the apex fitting on the roof of the shelter.
4. Loop the chain end of the sling legs through their respective lift provisions located on the top rear corners of the shelter. Place the correct link from Table 3-18 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 3-18. Assault Command Post With High Mobility Wheel Set

3-20. Containerized Kitchen Mounted on the Containerized Kitchen Trailer

a. Applicability. The following item in Table 3-19 is certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 3-19. Containerized Kitchen Mounted on the Containerized Kitchen Trailer

NOMENCLATURE	MAX RANGE (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Containerized Kitchen on Containerized Kitchen Trailer	18,900-20,840	25K	3/50	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) Chain length, part number 38850-00053-102, from a 25,000-pound capacity sling set (8 each).
- (3) Coupling link, part number 664241, from a 25,000-pound capacity sling set.
- (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.

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 all loose chains, hoses, and cables to the trailer drawbar with tape or Type III nylon cord.

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

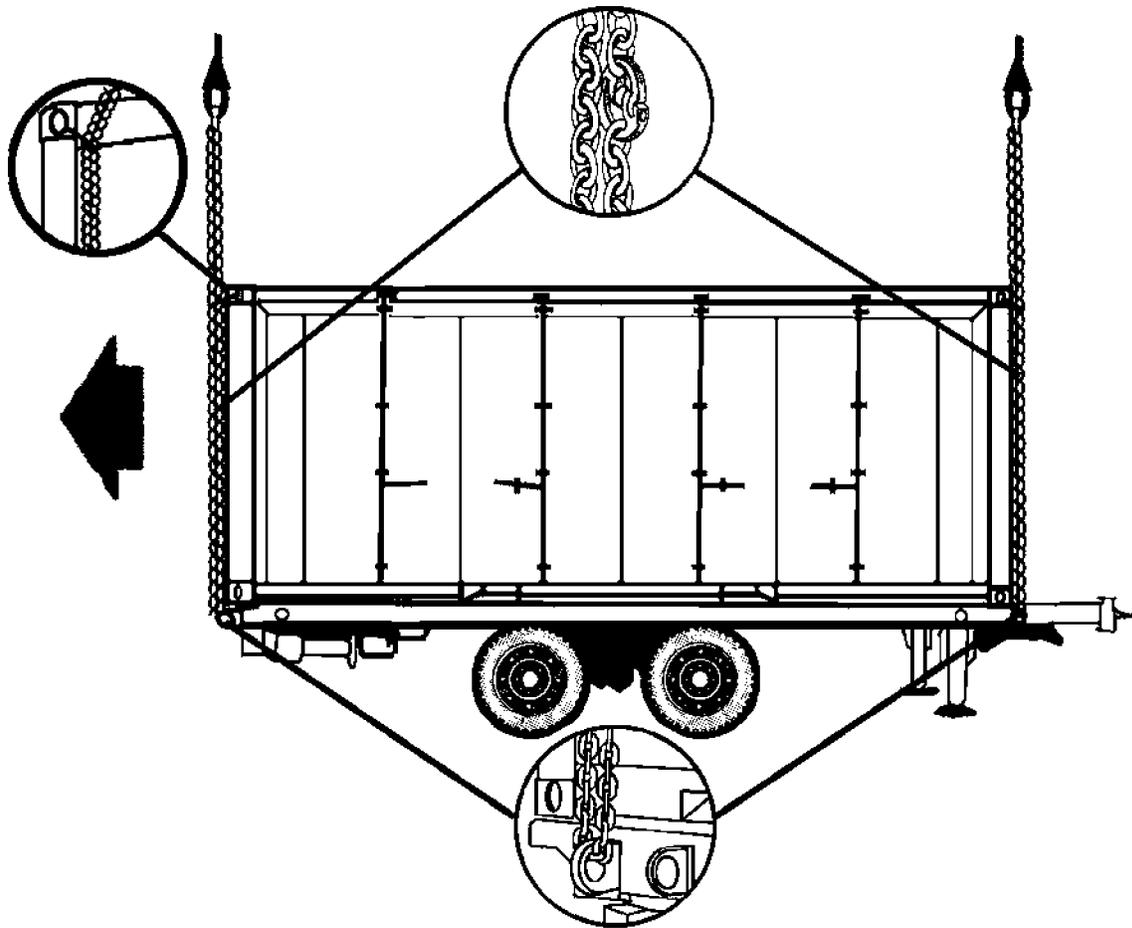
(c) Ensure the front stabilizer legs are extended and in the down position and the rear stabilizer legs are in the up and stowed position.

(d) Lower the tongue support leg so the lunette is lower than the rear of the trailer.

(2) **Rigging.** Rig the load according to the steps in Figure 3-19.

(3) **Hookup.** The hookup teams stand on the trailer roof. 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 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. Attach two extra chain lengths to each existing chain on each sling leg using coupling links (for 25,000-pound capacity sling sets only). Position the apex fitting on top of the aft end of the trailer.

2. Loop the chain end of the sling legs through their respective lift provisions located on the frame of the trailer. Place the correct link from Table 3-19 in the grab hook.

3. Connect 2 sling legs to apex fitting number 2. Attach two extra chain lengths to each existing chain on each sling leg using coupling links (for 25,000-pound capacity sling sets only). Position the apex fitting on top of

the front (lunette end) of the trailer.

4. Loop the chain end of the sling legs through their respective lift provisions located on the frame of the trailer. Place the correct link from Table 3-19 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. Safety tie each chain to the respective ISO provision with Type I 1/4-inch cotton webbing.

Figure 3-19. Containerized Kitchen Mounted on the Containerized Kitchen Trailer

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 5-20 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

5-20. M1113 Shelter Carrier (HMMWV) with Digital Topographic Support System-Light (DTSS-L), AN/TYQ-67 (V)1 in 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 Digital Topographic Support System-Light (DTSS-L), AN/TYQ-67 (V)1 in 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, AN/TYQ-67 (V)1	10,100	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 DTSS-L 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

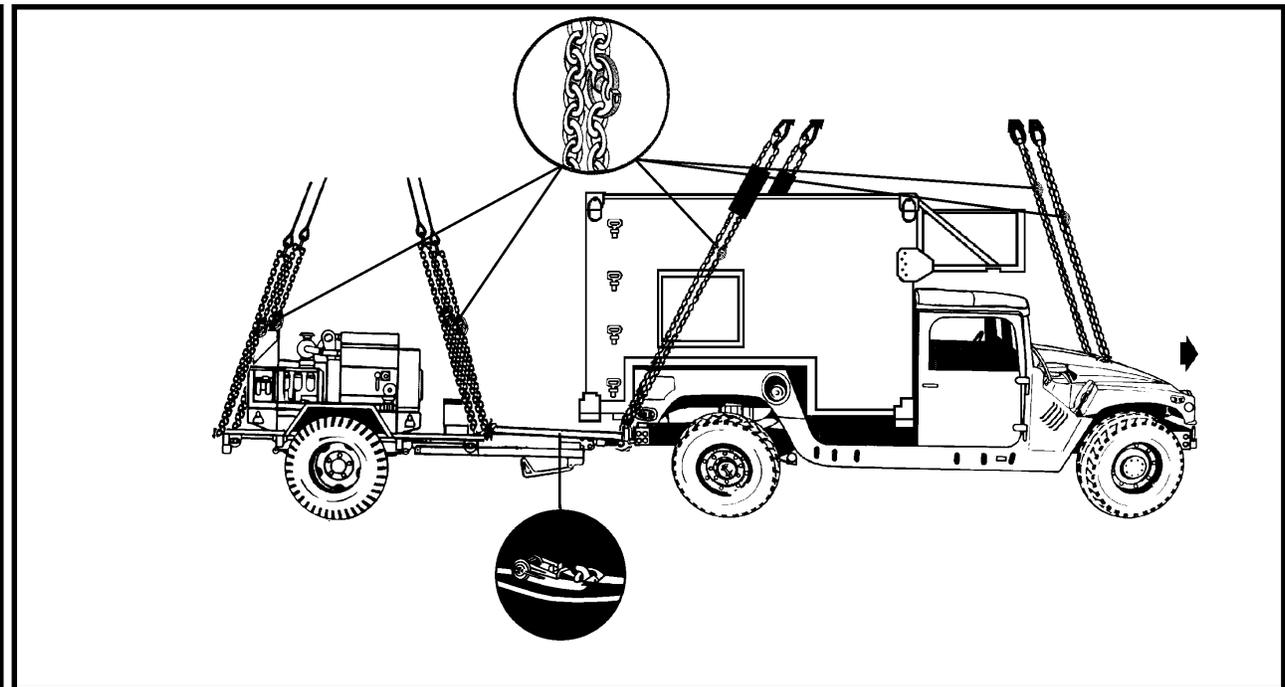
Do Not connect the CGU-1/B tiedown strap around the truck's rear axle or wheel.

(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 Digital Topographic Support System-Light (DTSS-L), AN/TYQ-67 (V)1 in LMS Shelter and PU-798 Generator on M116A3 Trailer

CHAPTER 9

CERTIFIED DUAL-POINT RIGGING PROCEDURES FOR LIQUID CONTAINERS

9-1. INTRODUCTION

This chapter contains rigging procedures for dual-point lift of liquid 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 liquid containers are in this section. Paragraphs 9-2 through 9-4 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.

9-2. Two Storage Modules, Fuel/Water (Side by Side)

a. Applicability. The following items in Table 9-1 are certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 9-1. Two Storage Modules, Fuel/Water (Side by Side)

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Two Sixcon Storage Modules, Fuel/Water, TAMCN B2085/B2086 (Empty), Side by Side	5,500	15K	3/3	CH-53	120
Two Sixcon Storage Modules, Fuel/Water, TAMCN B2085/B2086 (Full), Side by Side	20,100	40K	3/3	CH-53	120
One Sixcon, Storage Module, Fuel/Water, TAMCN B2085/B2086 (Empty) and One Sixcon Pump Module, Fuel/Water, TAMCN B1580/B1581, Side by Side	5,100	15K	3/3	CH-53	120
Two Sixcon Pump Modules, Fuel/Water, TAMCN B1580/B1581, Side by Side	4,700	15K	3/3	CH-53	120

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

(1) Sling set (15,000-pound capacity) (2 each).

OR

(2) Sling set (40,000-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.

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:

CAUTION
The Tandemloc horizontal connector, MFR Part NO. 712946-M-PZN, NSN 5410-01-363-7086, must be used to secure the Sixcons together. DO NOT USE ANY OTHER TYPE OF CONNECTOR.

(a) Connect the two modules together side by side using the horizontal connectors. Ensure the connectors are properly secured.

(b) Ensure the modules are in one of the configurations shown in Table 9-1.

(c) Secure all hatches, hose valves, and loose equipment with tape or Type III nylon cord.

(2) **Rigging.** Rig the load according to the steps in Figure 9-1.

NOTE: When using the 15,000-pound capacity multileg sling set, tie or tape the inner sling legs to the outer sling legs.

(3) **Hookup.** Two hookup teams are required for this load. The static discharge person discharges the static electricity. The forward hookup person stands on top of the front module and places apex fitting 1 onto the forward cargo hook. The aft hookup person stands on the top of the rear module 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).

9-4. Five 500-Gallon Fuel Drums

a. Applicability. The following item in Table 9-3 is certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 9-3. Five 500-Gallon Fuel Drums

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/- REAR	OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Drum, Fabric, Fuel, 500-Gallon	18,825	25K	3/3/3/3	CH-47	100

CAUTION

The Maximum weight listed is based on fuel drums filled to capacity with JP-8. Filling drums to capacity with other fluids of higher density, such as water, will result in higher weights that may overload the aircraft.

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.

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) Align the drums side by side in a row.

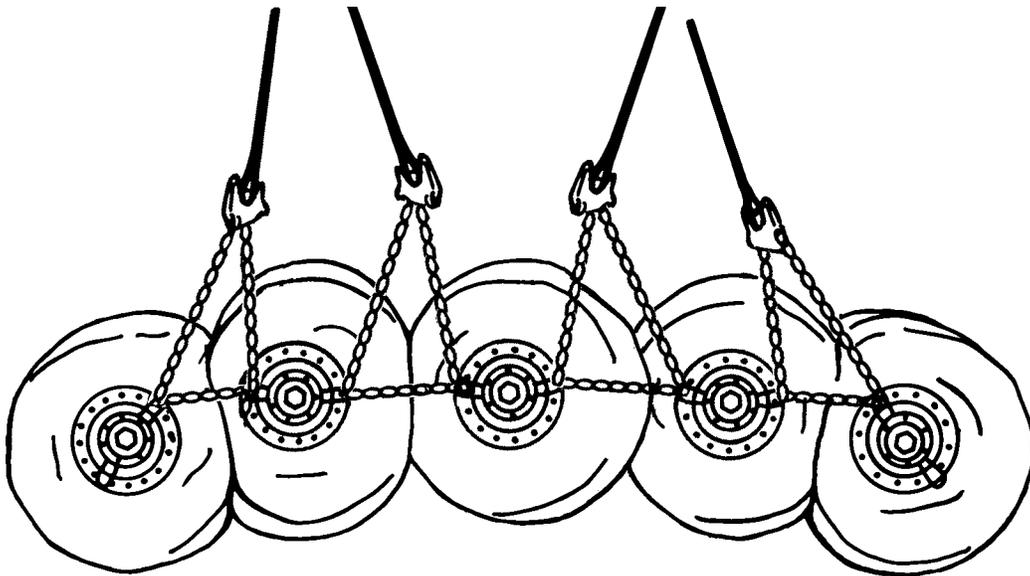
(b) Ensure lifting clevises are serviceable.

(c) Rotate the drum hub so a clevis is on top.

(2) **Rigging.** Rig the load according to the steps in Figure 9-3.

(3) **Hookup.** Two hookup teams are required for this load. The hookup teams stand beside 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 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. Position apex fitting number 1 on top of the second drum.
2. Route outer sling legs 1 and 2 to the first and second drums. Loop the chain end of sling leg 1 through the clevis on the left hub of the first drum, over and through the clevis of the second drum. Place the correct link from Table 9-3 in the grab hook. Repeat with sling leg 2 on the other side of the drums.
3. Route inner sling legs 3 and 4 of the first sling set to the second and third drums. Loop the chain end of sling leg 3 through the clevis on the left hub of the second drum, over and through the clevis of the third drum. Place the correct link from Table 9-3 in the grab hook. Repeat with sling leg 4 on the other side of the drums.
4. Position apex fitting number 2 on top of the fourth drum.
5. Route outer sling legs 1 and 2 to the third and fourth drums. Loop the chain end of sling leg 1 through the clevis on the left hub of the third drum, over and through the clevis of the fourth drum. Place the correct link from Table 9-3 in the grab hook. Repeat with sling leg 2 on the other side of the drums.
6. Route inner sling legs 3 and 4 of the second sling set to the fourth and fifth drums. Loop the chain end of sling leg 3 through the clevis on the left hub of the fourth drum, over and through the clevis of the fifth drum. Place the correct link from Table 9-3 in the grab hook. Repeat with sling leg 4 on the other side of the drums.
7. Raise the apex fittings above the drums. Cluster and tie or tape (breakaway technique) the sling legs in each sling set together to prevent entanglement during hookup and lift-off.

Figure 9-3. Five 500-Gallon Fuel Drums

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 13-6 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.

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.

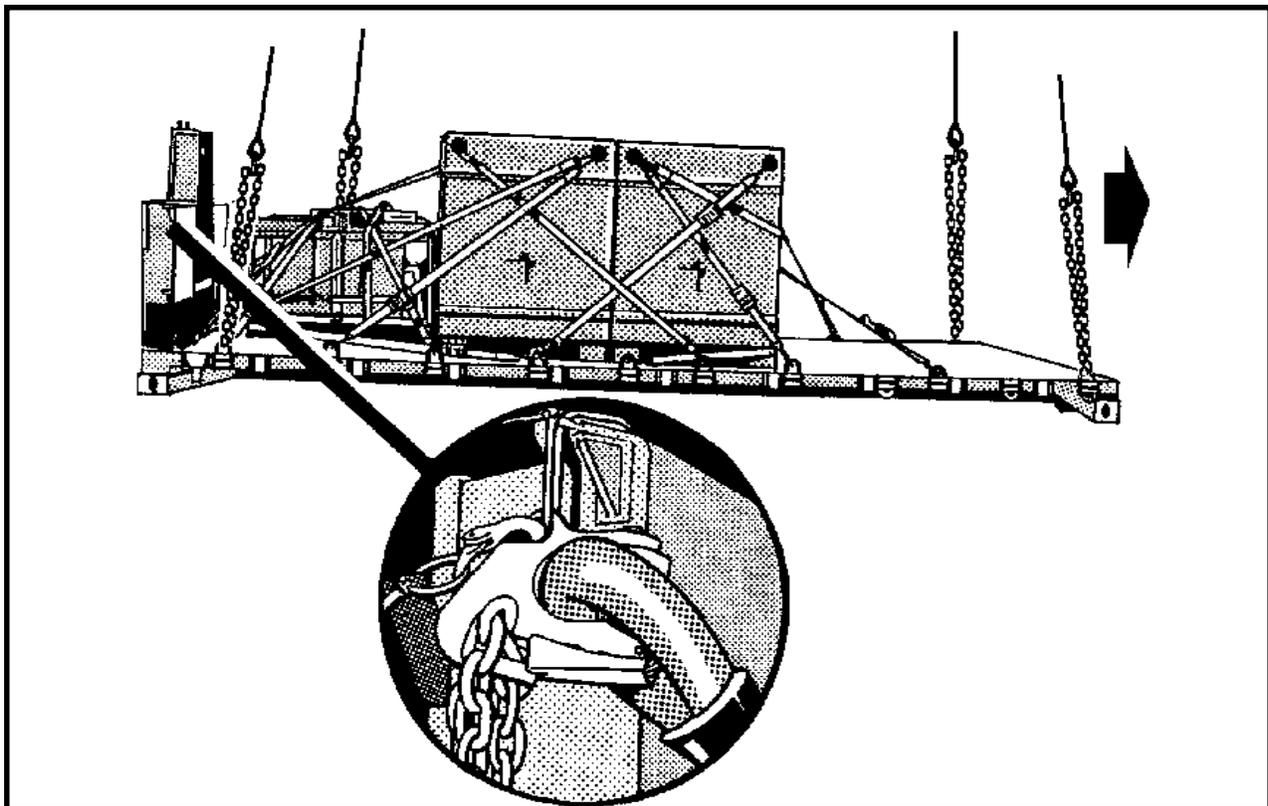
(2) **Rigging.** Rig the load according to the steps in Figure 13-1.

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

13-6. Naval Special Warfare Rigid Inflatable Boat (NSWRIB) with or without Trailer

a. Applicability. The following items in Table 13-5 are certified for the helicopter(s) listed in the following table by the US Army Soldier Systems Center:

Table 13-5. Naval Special Warfare Rigid Inflatable Boat (NSWRIB) with or without Trailer

NOMENCLATURE	WEIGHT RANGE (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	TYPE OF AIRCRAFT	RECOMMENDED AIRSPEED (KNOTS)
Naval Special Warfare Rigid Inflatable Boat without Trailer	15,070-18,230	25K 40K	7/61 3/45	CH-47 CH-53	70
Naval Special Warfare Rigid Inflatable Boat with Trailer	19,240-22,400	25K 40K	7/61 3/45	CH-47 CH-53	70

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

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

OR

(2) Sling set (40,000-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.

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:

NOTE: These loads may be flown with the sponsons inflated or deflated.

(a) Rotate the aft seat rack forward and secure it to the aft engine hand rail with Type III nylon cord.

(b) Secure the aft engine hand rail, lids, doors, and caps with tape or Type III nylon cord.

NOTE: When sling loading the NSWRIB off the trailer, ensure all the straps as well as the hard point connection that connects the boat to the trailer are disconnected.

NOTE: When sling loading the NSWRIB with trailer add the following procedures.

(c) Ensure the NSWRIB is properly secured to the trailer with the straps provided with the trailer.

1. There are five connection points on the boat (two on each side and one in the front) and nine connection points on the trailer (four on each side and one in the front).

2. The straps provided with the trailer should be 12,000-pound nylon webbing with 10,000-pound hooks on each end. An 11,000-pound load binder should also be used with the strap.

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

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

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

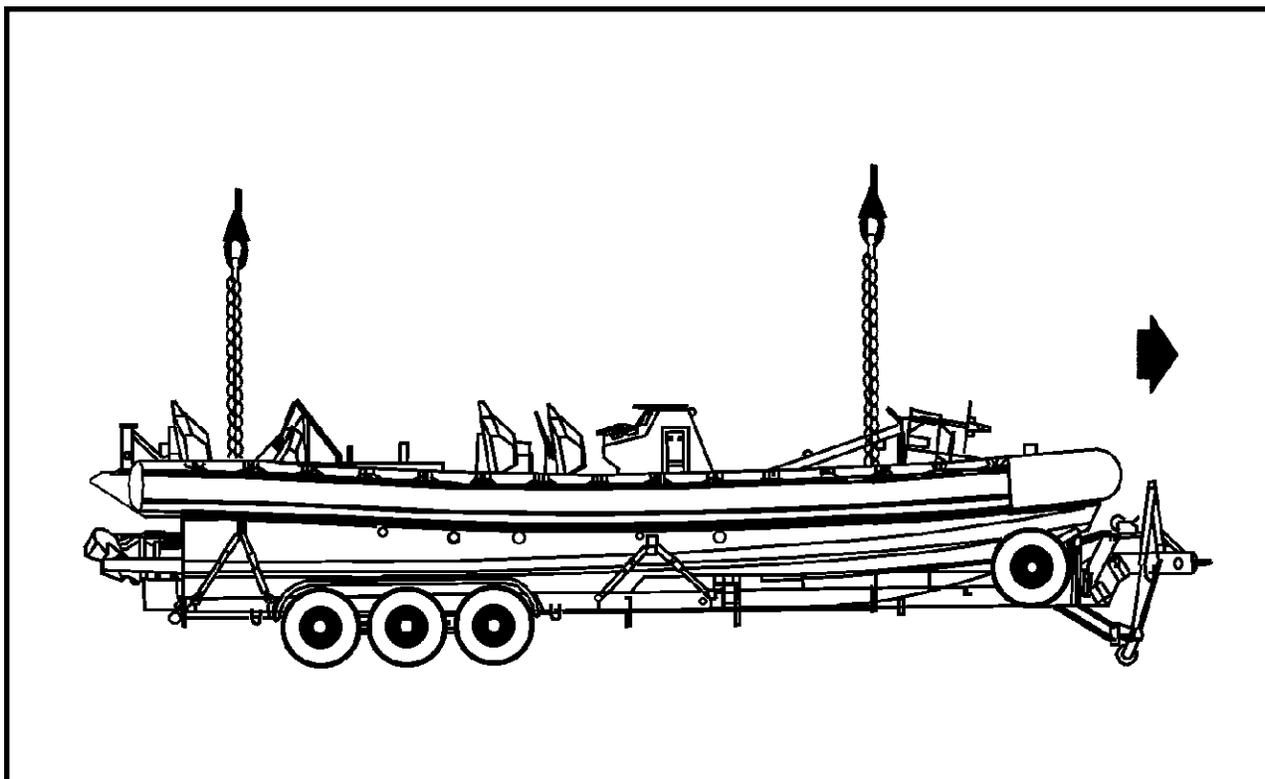
(2) **Rigging.** Rig the load according to the steps in Figure 13-5.

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

(3) **Hookup.** Two hookup teams stand on 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 per-

son 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 of the boat.

2. Loop the chain end of the left and right sling legs through their respective lift provisions on the front of the deck. Place the correct link from Table 13-5 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 deck at the stern of the boat.

4. Loop the chain end of the left and right sling legs through their respective lift provision on the stern of the boat. Place the correct link from Table 13-5 in the grab hook. Secure the excess chain with tape or Type III nylon cord.

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

Figure 13-5. Naval Special Warfare Rigid Boat (NSWRIB) with or without Trailer

GLOSSARY

ACRONYMS AND ABBREVIATIONS

ACP	assault command post	HMD	high mobility downsized
AETC	auxiliary equipment transportation container	HMDA	high mobility digital group multiplexer assemblage
AFATADS	advanced field artillery tactical data systems	HMMH	high mobility materiel handler
ARL-C	airborne reconnaissance low-comint	HMMWV	high-mobility multipurpose wheeled vehicle
ARL-I	airborne reconnaissance low-imagery	HMT	high mobility trailers
AS	aviation section	HZ	hertz
ASK	acoustic suppression kit	IAS	intelligence analysis system
ATG	antenna transceiver group	IEW	intelligence and electronic warfare
BCP	battery command post	IFAV	interim fast attack vehicle
bn	battalion	IMETS	integrated meteorological systems
BSTF	base shop test facility	IPDS	inland petroleum distribution system
CAFSM	compressed air-foam system, mobile	JRSC	jam-resistant secure communications
CBC	cargo bed cover	JSTAR	joint surveillance target attack radar
CHIPS	common hardware intelligence processing subsystem	JTIDS	joint tactical information distribution system
CMTH	contact maintenance truck, heavy	KW	kilowatt(s)
CNCE	communications nodal control element	LAV	light armored vehicle
CONEX	container express	lbs	pounds
COPS	crash-out package system	LIN	line number
CS	containerized shower	LMS	lightweight multipurpose shelter
DASC	direct air support central	LMTV	light medium tactical vehicle
DAMP	digital antenna mast program	LTACFIRE	lightweight tactical fire control system
DGM	digital group multiplexer	LVAD	low velocity airdrop
DOD	Department of Defense	MANPADS	man portable air defense system
DPPC	deployable print production center	MASINT	measurement and signal intelligence
DTSS-L	digital topographic support system-light	MDS	meteorological data system
EALP	enclosure assembly launch pods	MGB	medium girder bridge
EBFL	extendable boom forklift	MHG	meteorological hydrogen generator
ECU	environmental control unit	MILSTD	military standard
EFOGM	enhanced fiber optic guided missile	MLRS	multiple launch rocket system
ELAMS	expandable light airmobile shelter	mm	millimeter
EMI	electromechanical induction	MR	mobile radio
EPLRS	enhanced position location reporting system	MRBS	mobile radio broadcasting subsystem
FAAR	forward area alerting radar	MSFDCS	multiservice flight data collection sheet
FME	field maintenance equipment	MT	mobile television
FOPS	falling objects protection system	MTBS	mobile television broadcasting subsystem
FUPP	full-up power pack	MTMCTEA	Military Traffic Management Command Transportation Engineering Agency
GMLA	guided missile launch assembly	MTV	medium tactical vehicle
GPH	gallons per hour	NABS	NATO airbase satcom
GPM	gallons per minute	NATO	North Atlantic Treaty Organization
GVW	gross vehicle weight	NAVAIR	Naval Air Systems Command
HEMAT	heavy expanded mobility ammunition trailer	NCS-E(D)	downsized net control station
HGAG	high gain antenna group	NSN	national stock number
H-HMMWV	heavy high-mobility multipurpose wheeled vehicle	NSWRIB	Naval Special Warfare Rigid Inflatable Boat
HIPIR	high-power illuminator radar	OC	operations central
		OCG	operational control group

PCP	platoon command post	SMMS	sensor mobile monitoring system
PEELS	primary electrical equipment life support	SOMS	special operations media systems
PLS	palletized loading system	SSC	US Army Soldier Systems Center
PN	part number	SSS	single shelter switch
POC	platoon operations center	TAMCN	Table of Authorized Material Control Number
PPU	primary power unit	TAOM	tactical air operations module
PSV/MC	platoon support van/maintenance center	TATERS	trojan air transportable electronic reconnaissance system
PTO	pioneer tool outfit	TERPES	tactical reconnaissance processing evaluation system
QRSA	quick reaction satellite antenna	TM	technical manual
RAC	riverine assault craft	TMS	tactical messaging system
RIE	required individual equipment	TOTS	temporary occupancy troop shelter
RLST	remote landing site tower	TOW	tube launched, optically tracked, wireguided
ROPS	roll-over protection system	TQG	tactical quiet generator
ROWPU	reverse osmosis water purification unit	TRSS	tactical remote sensor system
RP/C	rocket pod/container	TSS	tracked suspension system
SCINS	satellite communications intelsat nodal subsystem	TTCS	tactical terminal control system
SE	shop equipment	TTMS	trojan transportable miniswitch
SEE	small emplacement excavator	US	United States
SICPS	standardized integrated command post systems	USA	United States Army
SIU	sensor interface unit	USMC	United States Marine Corps
SIXCON	six-compartment container	W/WO	with/without
SMART-T	secure mobile anti-jam radar tactical terminal		