HEADQUARTERS
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Change 1

MULTISERVICE HELICOPTER SLING LOAD: SINGLE-POINT RIGGING PROCEDURES

1. In this change the name US Army Natick Research, Development, and Engineering Center has been replaced with US Army Soldiers System Center.

2. Change FM 10-450-4, 30 May 1998, as follows:

Remove old pages	**Insert new pages**
iii through x	iii through xi
2-1 and 2-2	2-1 and 2-2
2-21 through 2-26	2-21 through 2-26
	2-47 through 2-64
3-1 through 3-4	3-1 through 3-4
	3-41 through 3-52
5-1 through 5-7	5-1 through 5-7
6-13 through 6-18	6-13 through 6-18
8-1 and 8-2	8-1 and 8-2
8-77 and 8-78	8-77 through 8-82
11-1 and 11-2	11-1 and 11-2
11-5 through 11-8	11-5 through 11-8
	11-15 through 11-20
12-1 and 12-2	12-1 and 12-2
	12-23 and 12-24
Appendix A	Appendix A
Glossary-1 and Glossary-2	Glossary-1 and Glossary-2
References-1	References-1

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

4. File this transmittal sheet in the front of the publication.

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TABLE OF CONTENTS

CHAPTER 2

CERTIFIED SINGLE-POINT RIGGING PROCEDURES FOR WHEELED VEHICLES

2-1. INTRODUCTION

This chapter contains rigging procedures for single-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 single-point rigging procedures for wheeled vehicles are in this section. Paragraphs 2-2 through 2-28 give detailed instructions for rigging loads.

NOTES:

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

2. Canvas tops and doors should be removed and stowed inside the vehicle if time allows. These items may be damaged if the airspeed exceeds 100 knots.

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

a. Applicability. The following items in Table 2-1 are certified for all helicopters with suitable lift capacity by the US Army Soldier Systems Center:

Table 2-1. Truck, Ambulance, (HMMWV)

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
Truck, Ambulance, M996, HMMWV	7,400	10K	80/30	UH-60 / 60 CH-47 / 110
Truck, Ambulance, M997, HMMWV	7,400	10K	80/30	UH-60 / 80 CH-47 / 75
Truck, Ambulance, M997A2, HMMWV	10,300	25K	65/24	CH-47 / 75

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

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

OR

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

(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) Spreader bar assembly (component of vehicle).

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. Tape the windshield in an X formation from corner to corner.

(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) Make sure 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) Make sure that 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 by removing the tie-down provisions located inboard of the bumper ends and installing them on the outer ends of the rear bumper, if necessary.

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

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.

(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 hookup person places the apex fitting onto the aircraft 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).

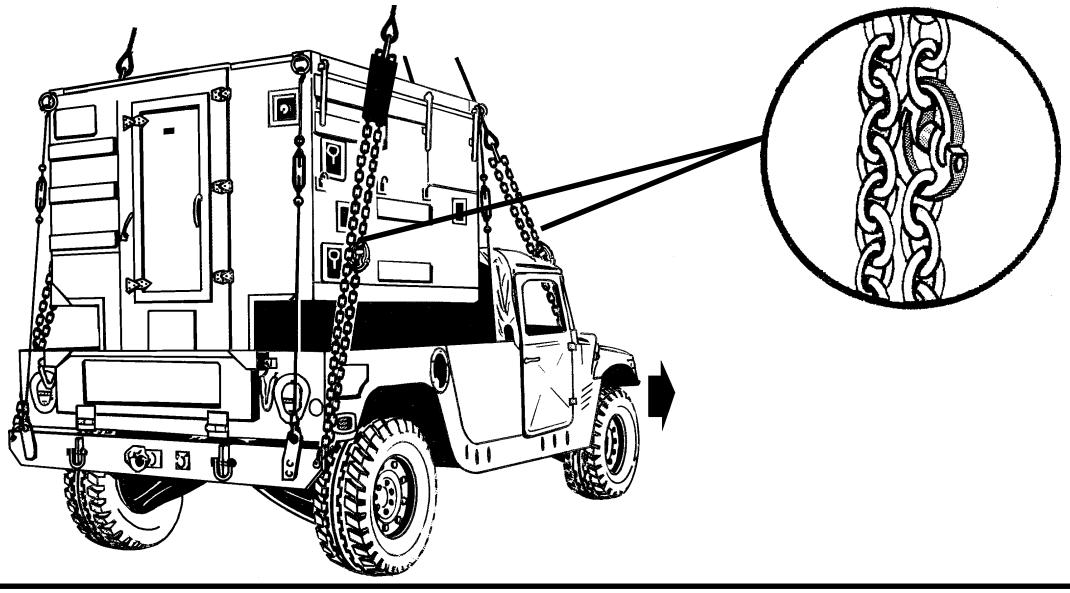
(g) Engage the vehicle parking brake and put the transmission in neutral.

(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 2-8.



RIGGING STEPS

1. Position apex fitting on top of the shelter. Route outer sling legs 1and 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 2-8 in the grab hook. Repeat with sling leg 2 and the right front lift provision. Secure excess chain with tape or Type III nylon cord.

3. Route the chain end of sling leg 3 through the lift provision located on the left end of the rear bumper from inboard to outboard. Place the correct link from Table 2-8 in the grab hook. Repeat with sling leg 4 and the right rear lift provision. Secure excess chain with tape or Type III nylon cord.

4. Wrap the rear slings with padding where they contact the shelter sides.

5. Raise the apex fitting above the shelter carrier keeping the slings to the side of the shelter.

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

Figure 2-8. S-318 Shelter Mounted on the M1037

CAUTION

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

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.

(3) Hookup. The hookup team stands on top of the shelter. The static wand person discharges the static electricity with the static wand. The hookup person places the apex fitting onto the aircraft cargo hook. The hookup team then 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).

2-10. M1097/M1097A2 Shelter Carrier (HMMWV) With Lightweight Multipurpose Shelter (LMS)

a. Applicability. The following items in Table 2-9 are certified for all helicopters with suitable lift capacity by the US Army Soldier Systems Center:

Table 2-9. Lightweight Multipurpose Shelter (LMS)

SHELTER VARIANT NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
High Mobility Downsized (HMD) Direct Air Support Central	8,420	15K	40/3	120
Operations Central (OC) Group Firefinder AN/TPQ-36 (V) 8	8,620	10K	50/3	120
Biological Integrated Detection System (BIDS)	9,000	10K	40/3	110
Integrated Meteorological Systems (IMETS), Block I & II	9,050	10K	70/3	120
Enhanced Position Location Reporting System (EPLRS) Downsized Net Control Station (NCS-E(D)	10,000	10K	70/3	120
Digital Group Multiplexer (DGM) AN/TRC-138C	9,020	10K	60/10	115
High Mobility Digital Group Multiplexer Assemblage (HMDA) AN/TRC-173B, AN/TRC-174B, AN/TRC-175B	9,100	10K	60/10	100
High Frequency Communications Central AN/TRC 120	8,765	15K	50/5	120
Marine Expeditionary Force Intelligence Analysis System (IAS)	9,220	15K	64/2	120

Table 2-9. Lightweight Multipurpose Shelter (LMS) (Continued)

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
Spare Equipment and Maintenance Shelter AN/TSQ-190 (V) 1	9,220	10K	40/3	120
Tactical Remote Sensor System (TRSS) Sensor Mobile Monitoring System (SMMS)	7,685	10K	40/3	120
Meteorological Measuring Set AN/TMQ-41	7,770	15K	40/3	120
Air Defense Communications Platform AN/MSQ-124	10,000	10K	40/3	120
Forward Area Air Defense Command Control System AN/TSQ-182	9,800	10K	40/3	100
Forward Area Air Defense Command Control System AN/TSQ-183	7,561	10K	40/3	100
Forward Area Air Defense Command Control System AN/TSQ-184	7,297	10K	40/3	100
Mobile Radio Broadcasting Subsystem (MRBS)	9,746	10K	40/3	120
Mobile Radio (MR) Cargo Vehicle	9,907	10K	40/3	120
Mobile Television Broadcasting Subsystem (MTBS)	9,295	10K	40/3	120
Mobile Television (MT) Cargo Vehicle	9,637	10K	40/3	120
Common Ground Station, Joint Surveillance Target Attack Radar (JSTAR) System	9,530	10K	40/3	120
Advanced Field Artillery Tactical Data Systems (AFATADS), System #1, RWS with a CHS-2 AN/GYG-3(V)1	8,882	10K	50/3	100
Marine Expeditionary Force Intelligence Analysis System S1	9,194	15K	40/3	100
Marine Expeditionary Force Intelligence Analysis System S2	9,126	15K	40/3	100
Tactical Control and Analysis Center	9,300	15K	40/3	100

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

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

(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).

(a) Additional chain lengths from 15,000-pound capacity sling sets (8 each).

(b) Additional coupling links from 15,000-pound capacity sling sets (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-, 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 the shelter to the truck using wire rope or tie-down assemblies.

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

(e) Secure environmental control unit cover with tape.

(f) 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.

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

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

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

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

(l) 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.

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

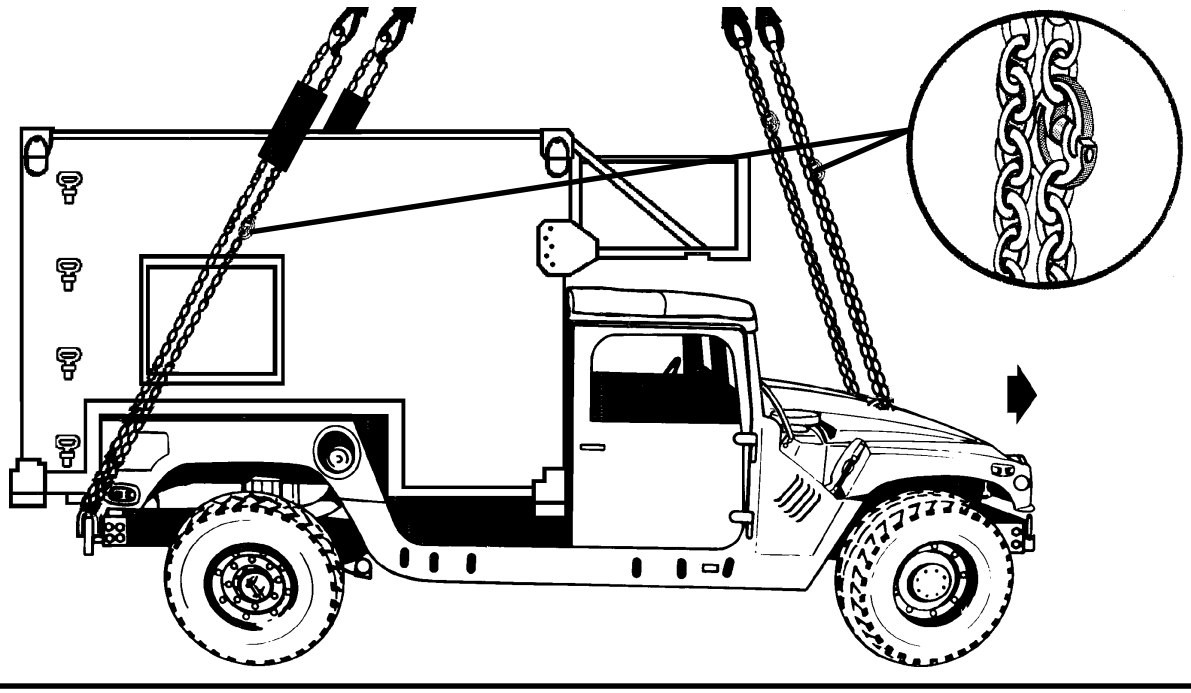
(2) Rigging. Rig the load according to the steps in Figure 2-9.

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.

(3) Hookup. The hookup team stands on top of the shelter. The static wand person discharges the static electricity with the static wand. The hookup person places the apex fitting onto the aircraft cargo hook. The hookup team then 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. Position apex fitting on top of the shelter. Route outer sling legs 1and 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 2-9 in the grab hook. Repeat with sling leg 2 and the right front lift provision. Secure excess chain with tape or Type III nylon cord.

3. Route the chain end of sling leg 3 through the lift provision located on the left end of the rear bumper from inboard to outboard. Place the correct link from Table 2-9 in the grab hook. Repeat with sling leg 4 and the right rear lift provision. Secure excess chain with tape or Type III nylon cord.

4. Wrap the rear slings with padding where they contact the shelter sides.

5. Raise the apex fitting above the shelter carrier keeping the slings to the side of the shelter.

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

Figure 2-9. 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.

2-11. M1037/M1042 Shelter Carrier (HMMWV) With Lightweight Multipurpose Shelter (LMS)

a. Applicability. The following item in Table 2-10 is certified for all helicopters with suitable lift capacity by the US Army Soldier Systems Center:

Table 2-10. Lightweight Multipurpose Shelter (LMS) on M1037/M1042

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
High Frequency Communications Central AN/TSC-120	8,365	15K	50/5	120

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

(1) Multileg sling set (15,000-pound capacity for the CH-53E only).

(a) Additional chain lengths from 15,000-pound capacity sling sets (8 each).

(b) Additional coupling links from 15,000-pound capacity sling sets (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) Felt sheet, cattle hair, Type IV, 1/2-inch or suitable padding.

(6) 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:

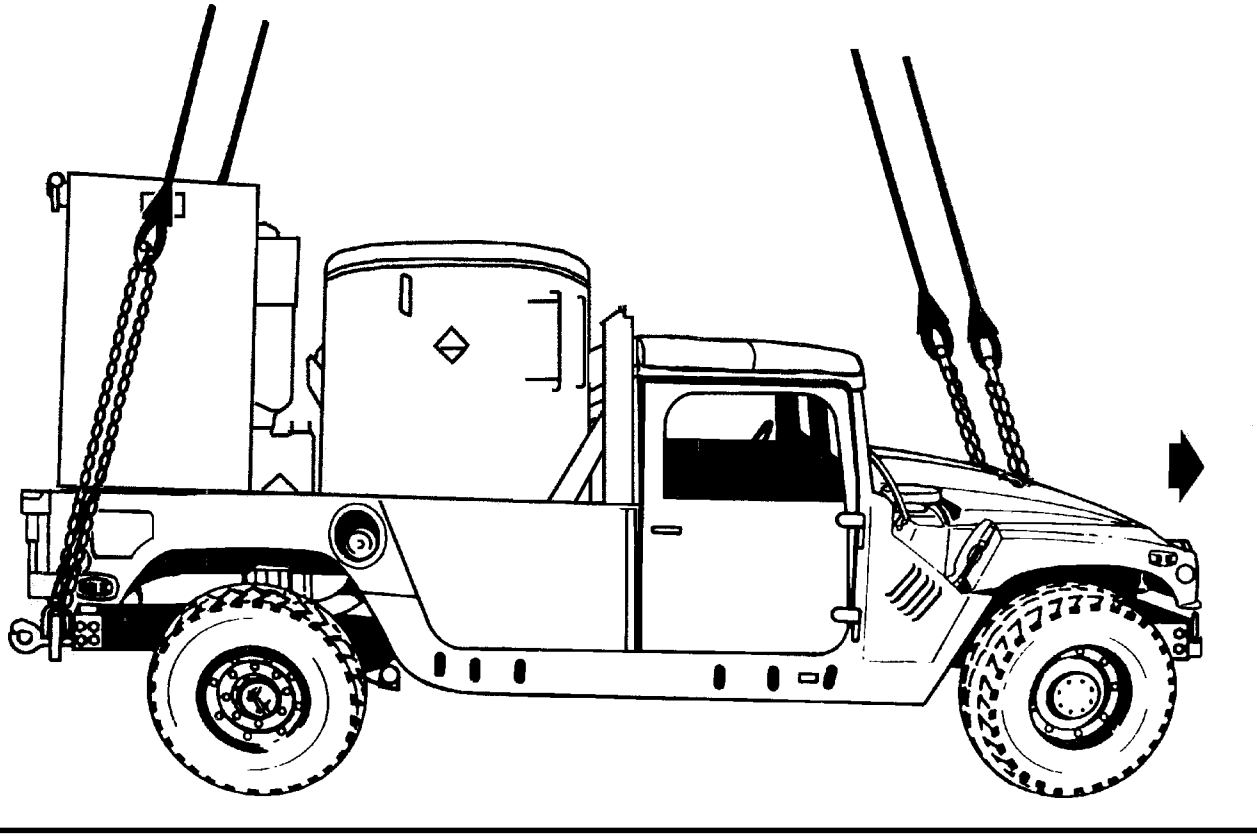
(a) Extend the sling leg chains by connecting one additional chain length to each chain on a 10,000-, 25,000- or 40,000-pound capacity sling set with coupling links. Connect two additional chain lengths to each chain on the 15,000-pound multileg sling set chain with coupling links.

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

(c) Secure the shelter to the truck using wire rope or tie-down assemblies.

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

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



RIGGING STEPS

1. Position apex fitting on top of the vehicle. Route outer sling legs 1and 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 2-19 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. Route the chain end of sling leg 3 through the lift provision located on the left end of the rear bumper from inboard to outboard. Place the correct link from Table 2-19 in the grab hook. Repeat with sling leg 4 and the right rear lift provision. Secure excess chain with tape or Type III nylon cord.

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

Figure 2-18. M1097 (H-HMMWV) With AN/TPQ-42, Meteorological Hydrogen Generator (MHG)

2-21. M1097/M1113 Shelter Carrier (HMMWV) With Gitchner Model 1497A Shelter

a. Applicability. The following items in Table 2-20 are certified for all helicopters with suitable lift capacity by the US Army Soldier Systems Center:

Table 2-20. M1097/M1113 Shelter Carrier (HMMWV) With Gitchner Model 1497A Shelter

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
Joint Tactical Information Distribution System (JTIDS), AN/TYQ-JTIDS Shelter on M1097 HMMWV	10,000	10K	30/3	120
AN/TSM-210 Electronic Shop on Enhanced Capacity Vehicle, M1113 HMMWV	10,360	25K	22/46	120

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

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

(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 capacity sling set (4 each).

OR

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

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

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

(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- 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 the shelter to the truck using wire rope or tie-down assemblies.

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

(e) Secure the environmental control unit cover with duct tape.

(f) 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 it.

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

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

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

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

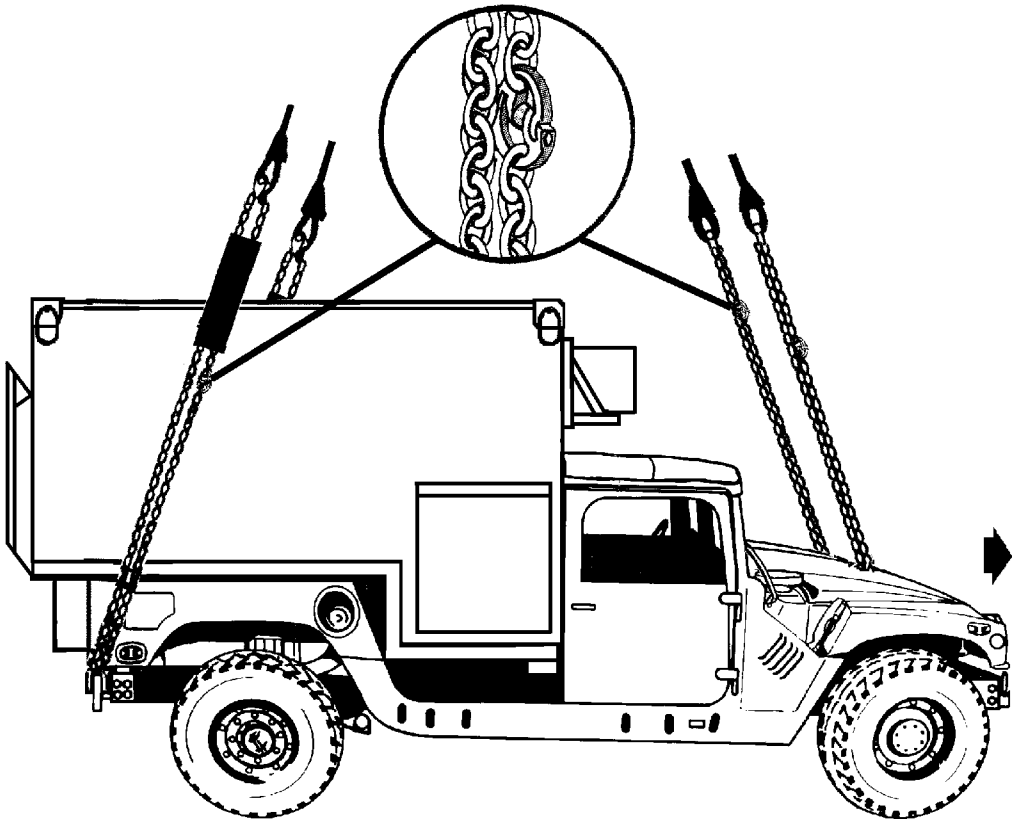
(l) Install the lift provisions on the outer ends of the rear bumper by removing the tiedown provisions located inboard of the bumper end and installing them on the outer ends of the rear bumper.

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

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.

(3) Hookup. The hookup team stands on top of the shelter. The static wand person discharges the static electricity with the static wand. The hookup person places the apex fitting onto the aircraft cargo hook. The hookup team then 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. Position apex fitting on top of the vehicle. Route outer sling legs 1and 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 2-20 in the grab hook. Repeat with sling leg 2 and the right front lift provision. Secure excess chain with tape or Type III nylon cord.

3. Route the chain end of sling leg 3 through the lift provision located on the left end of the rear bumper from inboard to outboard. Place the correct link from Table 2-20 in the grab hook. Repeat with sling leg 4 and the right rear lift provision.

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

Figure 2-19. M1097/M1113 Shelter Carrier (HMMWV) With Gitchner Model 1497A Shelter

2-22. M1097 (HMMWV) With Contact Maintenance Truck, Heavy (CMTH)

a. Applicability. The following item in Table 2-21 is certified for all helicopters with suitable lift capacity by the US Army Soldier Systems Center:

Table 2-21. M1097 (HMMWV) With Contact Maintenance Truck, Heavy (CMTH)

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
CMTH, Aviation Section (AS)	9,400	10K	80/30	120

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

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

(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 capacity sling set (4 each).

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

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

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

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

(6) Spreader bar assembly (component of the M996/M997 HMMWV Ambulance).

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 using the 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 shelter is properly attached to the truck.

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

(e) Secure the environmental control unit cover with duct tape.

(f) Secure all equipment and cargo inside the vehicle with tape, nylon cord, or lashings. Secure the doors in the shelter or in the cab of the vehicle.

(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.

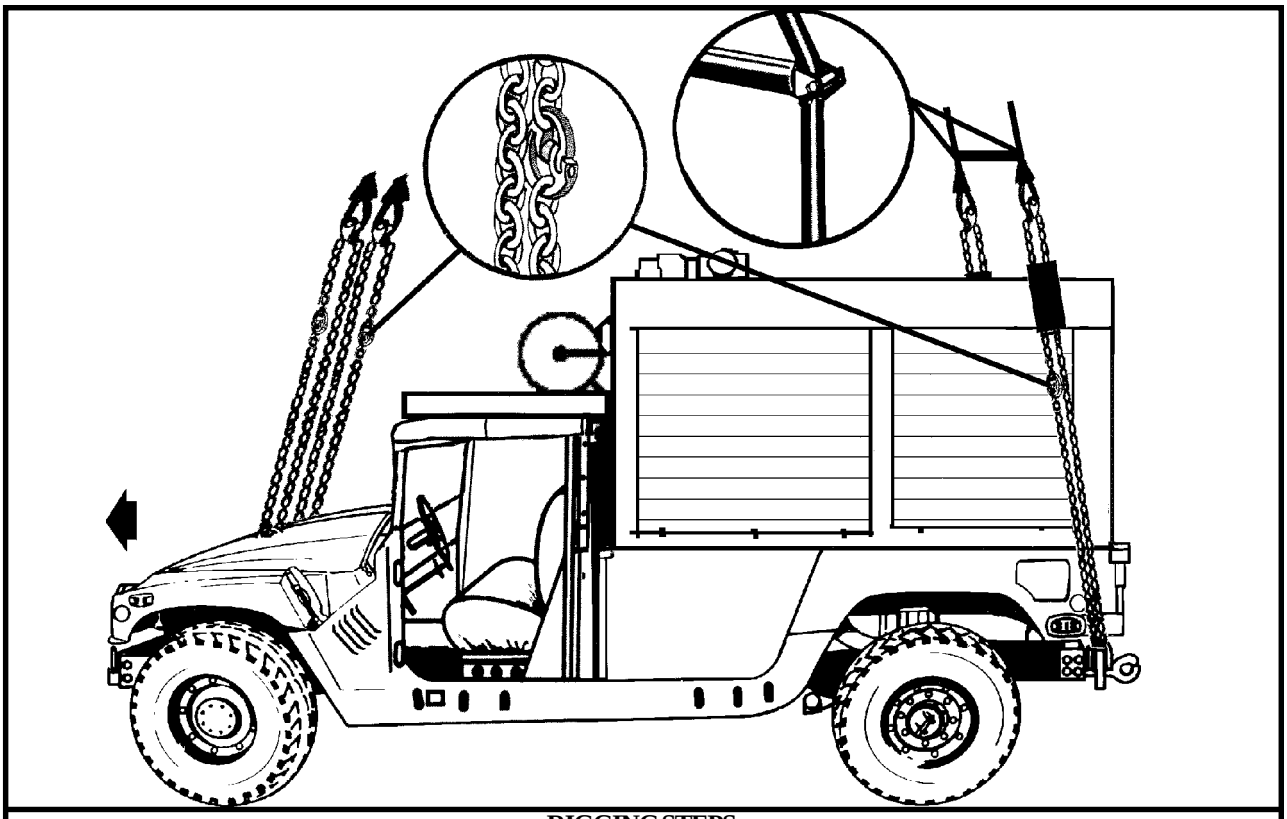
(j) Tape the windshield in an X formation from corner to corner.

(k) Install the lift provisions on the outer ends of the rear bumper 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 2-20.

(3) Hookup. The hookup team stands on top of the shelter. The static wand person discharges the static electricity with the static wand. The hookup person places the apex fitting onto the aircraft cargo hook. The hookup team then 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. Position apex fitting on top of the vehicle. Route outer sling legs 1and 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 2-21 in the grab hook. Repeat with sling leg 2 and the right front lift provision. Secure excess chain with tape or Type III nylon cord.

3. Position the spreader bar assembly 12 to18 inches forward of the rear of the shelter. Route the rear sling legs through guides on the end of the spreader bar and install the pins and keepers.

4. Route the chain end of sling leg 3 through the lift provision located on the left end of the rear bumper from inboard to outboard. Place the correct link from Table 2-21 in the grab hook. Repeat with sling leg 4 and the right rear lift provision.

5. Secure the spreader bar retainer cable to the sling leg chain.

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

Figure 2-20. M1097 (HMMWV) With Contact Maintenance Truck, Heavy (CMTH)

2-23. M1097 (HMMWV) With Enhanced Fiber Optic Guided Missile (EFOGM) Launcher

a. Applicability. The following item in Table 2-22 is certified for all helicopters with suitable lift capacity by the US Army Soldier Systems Center:

Table 2-22. M1097 (HMMWV) With Enhanced Fiber Optic Guided Missile (EFOGM) Launcher

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
Enhanced Fiber Optic Guided Missile (EFOGM) Launcher with Six Missiles	9,100	10K	55/3	90

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

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

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

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

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

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

(b) Ensure the launcher is properly attached to the truck. Secure all wiring and loose equipment with hold-down straps, tape, or Type III nylon cord.

(c) Secure all equipment and cargo inside the vehicle with tape, nylon cord, or lashings. Remove and secure the doors in the cab of the vehicle.

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

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

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

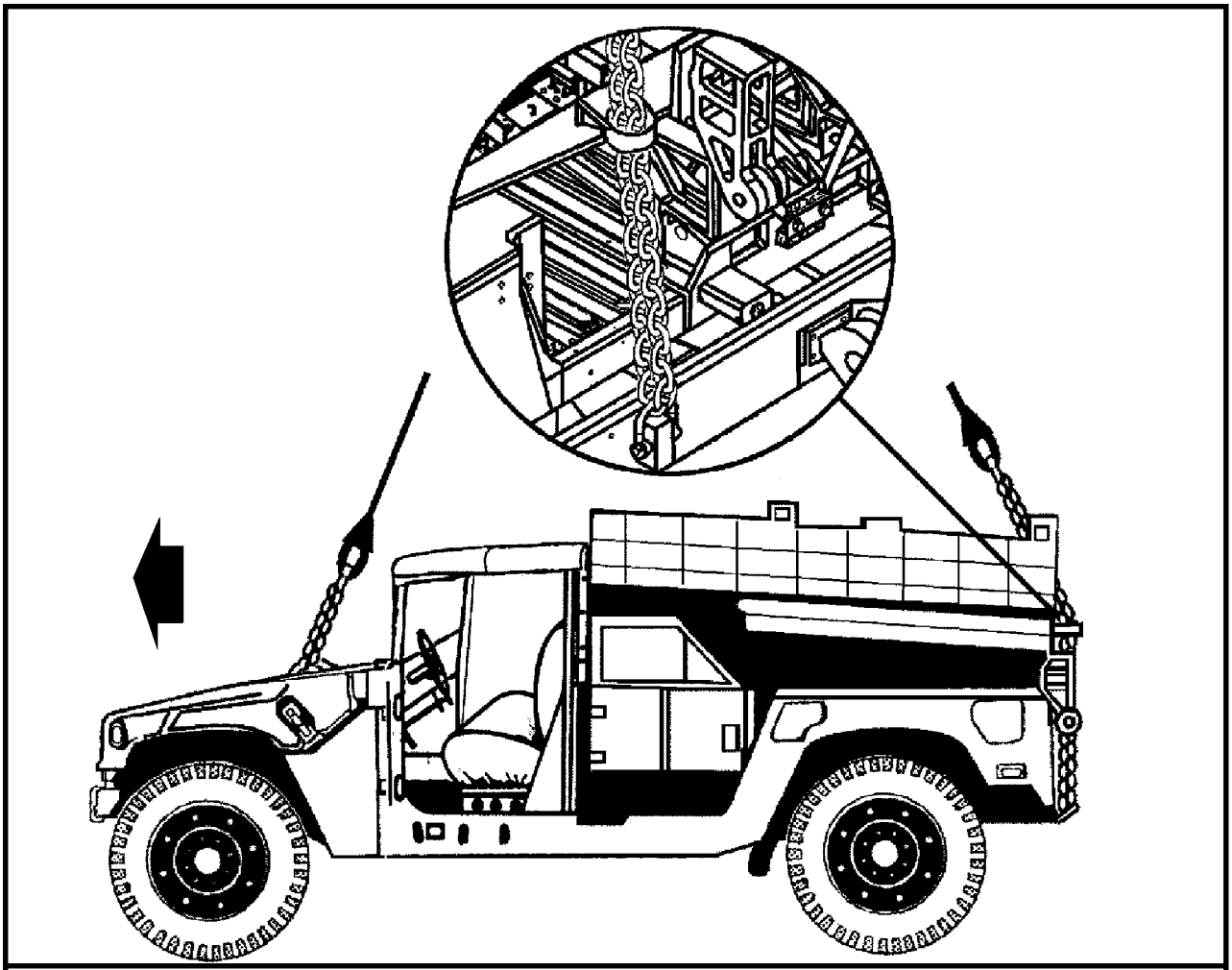
(g) Tape the windshield in an X formation from corner to corner. Tape all mirrors, lights and gauges.

(h) Remove the third missile from each side counting inwards from the outside edges.

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

(3) Hookup. The hookup team stands on EFOGM vehicle. The static wand person discharges the static electricity with the static wand. The hookup person places the apex fitting onto the aircraft cargo hook. The hookup team then 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. Position apex fitting on top of the vehicle. Route outer sling legs 1and 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 2-22 in the grab hook. Repeat with sling leg 2 and the right front lift provision. Secure excess chain with tape or Type III nylon cord.

3. Route the chain end of sling leg 3 through the sling guide located on the aft end of the launcher frame. Loop the chain end through the left lift provision on the bumper and thread back through the sling guide. Place the correct link from Table 2-22 in the grab hook. Repeat with sling leg 4 and the right rear lift provision. See insert above.

4. Pad the chains where they contact the sling guides and the missile sides.

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

Figure 2-21. M1097 (HMMWV) With Enhanced Fiber Optic Guided Missile (EFOGM) Launcher

2-24. M1097 (HMMWV) With Sentinel AN/MPQ-64 Tactical Quiet Generator (TQG)

a. Applicability. The following item in Table 2-23 is certified for all helicopters with suitable lift capacity by the US Army Soldier Systems Center:

Table 2-23. M1097 (HMMWV) With Sentinel AN/MPQ-64 Tactical Quiet Generator (TQG)

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
M1097 (HMMWV) With Sentinel AN/MPQ-64 Tactical Quiet Generator (TQG)	7,800	10K	80/3	120

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

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

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

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

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

c. Personnel. Two persons can prepare and rig this load in 10 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 and secure the doors in the cab of the vehicle.

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

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

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

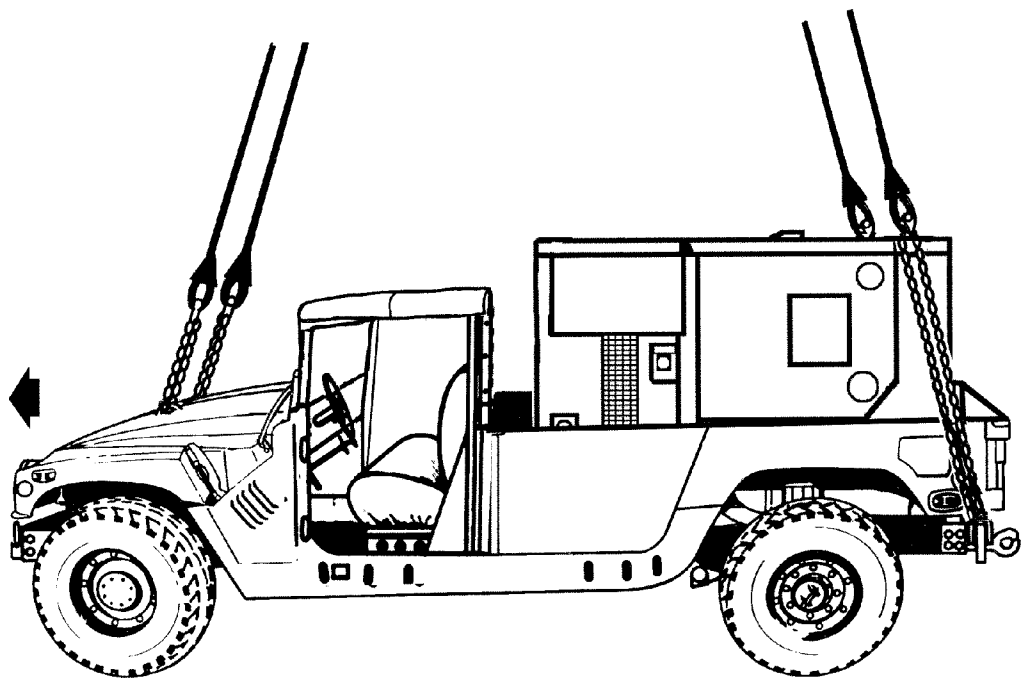
(f) Install the lift provisions on the outer ends of the rear bumper by removing the tiedown provisions located inboard of the bumper end and installing them on the outer ends of the rear bumper.

(g) Tape the windshield in an X formation from corner to corner. Tape all mirrors, lights and gauges. Remove and secure the rear cabin window.

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

(3) Hookup. The hookup team stands on the vehicle bed. The static wand person discharges the static electricity with the static wand. The hookup person places the apex fitting onto the aircraft cargo hook. The hookup team then 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. Position apex fitting on top of the vehicle. Route outer sling legs 1and 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 2-23 in the grab hook. Repeat with sling leg 2 and the right front lift provision. Secure excess chain with tape or Type III nylon cord.

3. Route the chain end of sling leg 3 through the lift provision located on the left end of the rear bumper from inboard to outboard. Place the correct link from Table 2-23 in the grab hook. Repeat with sling leg 4 and the right rear lift provision.

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

Figure 2-22. M1097 (HMMWV) With Sentinel AN/MPQ-64 Tactical Quiet Generator (TQG)

2-25. M1097A2 (HMMWV) With Secure Mobile Anti-Jam Tactical Terminal (SMART-T) Pallet

a. Applicability. The following item in Table 2-24 is certified for all helicopters with suitable lift capacity by the US Army Soldier Systems Center:

Table 2-24. M1097A2 (HMMWV) With Secure Mobile Anti-Jam Tactical Terminal (SMART-T) Pallet

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
M1097A2 (HMMWV) With Secure Mobile Anti-Jam Tactical Terminal (SMART-T) Pallet	8,540	10K	30/3	100

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

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

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

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

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

c. Personnel. Two persons can prepare and rig this load in 10 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 and secure the doors in the cab of the vehicle.

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

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

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

(f) Secure all loose equipment on the SMART-T with tape or Type III nylon cord.

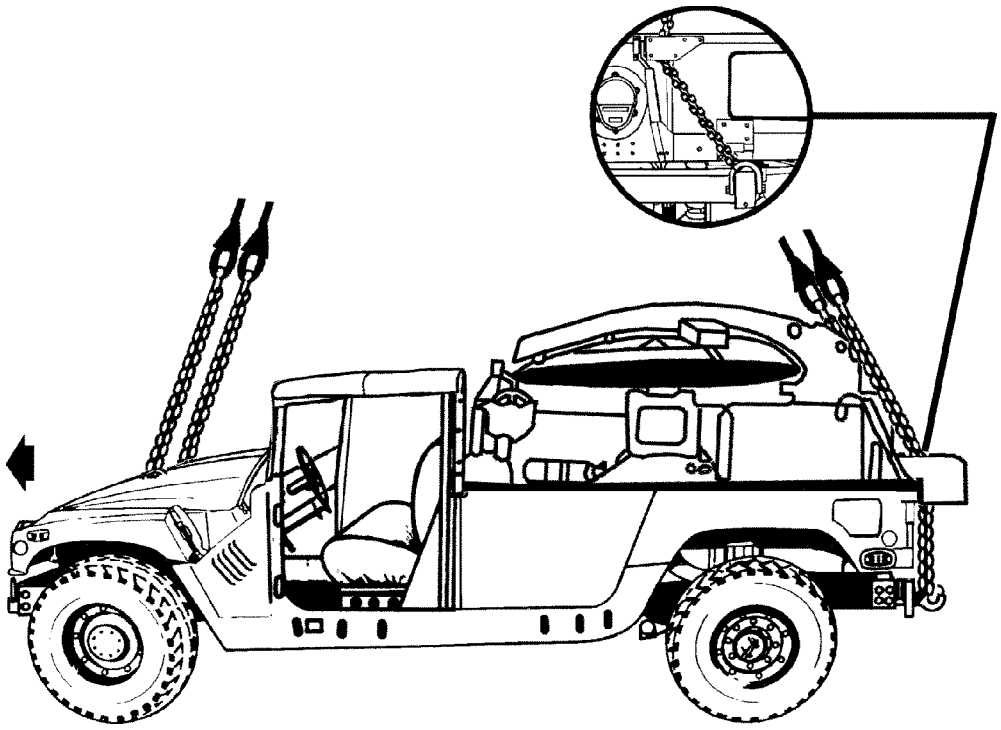
(g) Tape the windshield in an X formation from corner to corner. Tape all mirrors, lights and gauges. Remove and secure the rear cabin window.

(h) Secure the antenna dish.

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

(3) Hookup. The hookup team stands on the vehicle. The static wand person discharges the static electricity with the static wand. The hookup person places the apex fitting onto the aircraft cargo hook. The hookup team then 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. Position apex fitting on top of the vehicle. Route outer sling legs 1and 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 2-24 in the grab hook. Repeat with sling leg 2 and the right front lift provision. Secure excess chain with tape or Type III nylon cord.

3. Route the chain end of sling leg 3 through the sling guide located on the tailgate. Loop the chain end through the left lift provision on the bumper and thread back through the sling guide. Place the correct link from Table 2-24 in the grab hook. Repeat with sling leg 4 and the right rear lift provision. See insert above.

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

Figure 2-23. M1097A2 (HMMWV) With Secure Mobile Anti-Jam Tactical Terminal (SMART-T) Pallet

2-26. M1097A1 (HMMWV) With Remote Landing Site Tower (RLST)

a. Applicability. The following item in Table 2-25 is certified for all helicopters with suitable lift capacity by the US Army Soldier Systems Center:

Table 2-25. M1097A1 (HMMWV) With Remote Landing Site Tower (RLST)

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
M1097A1 (HMMWV) With Remote Landing Site Tower (RLST)	8,460	15K	60/3	120

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

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

(a) Chain length, part number 34080-4, from 15,000-pound capacity sling sets (8 each).

(b) Coupling link, part number 31611, from 15,000-pound capacity sling sets (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) 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) 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 and secure the doors in the cab of the vehicle.

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

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

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

(f) 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.

(g) Configure the RLST in the TRANSPORT mode in accordance with the operator's manual.

(h) Ensure the RLST is properly secured to the vehicle. Secure all equipment inside the RLST with the hold-down straps, tape, or Type III nylon cord.

(i) Secure the RLST cover with the straps provided. Secure the loose ends with tape.

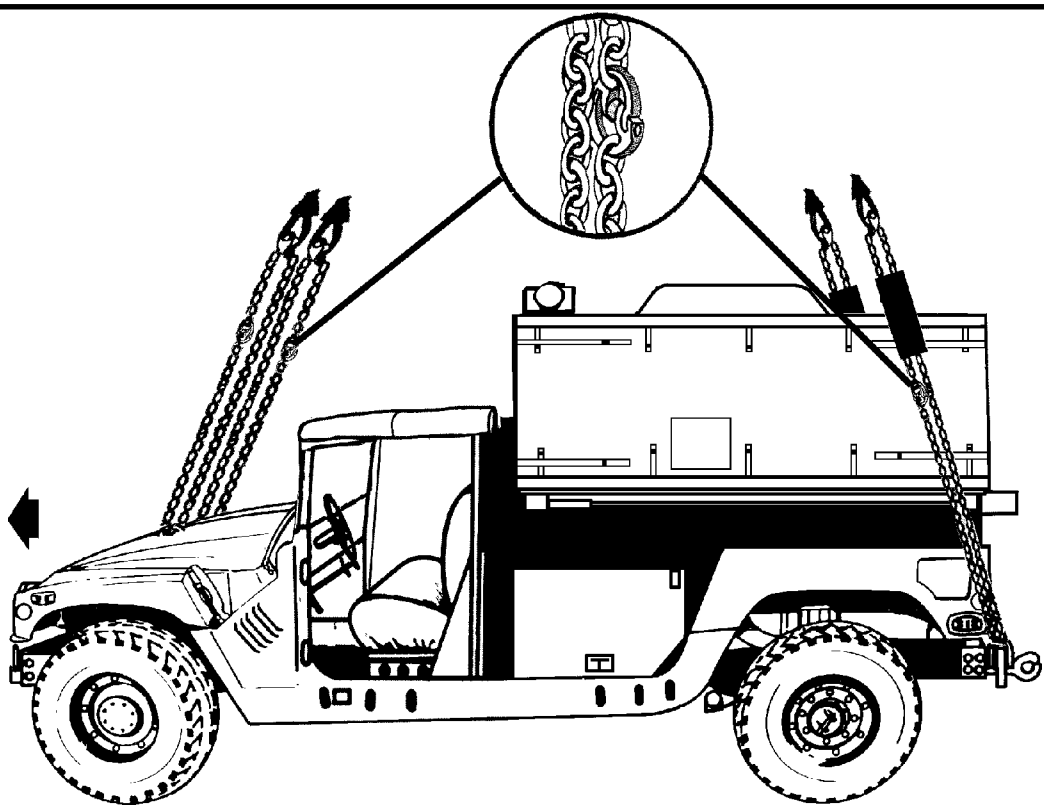
(j) Tape the windshield in an X formation from corner to corner.

(k) Extend the sling leg chains by connecting two additional chain lengths to each chain with coupling links.

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

(3) Hookup. The hookup team stands on the vehicle. The static wand person discharges the static electricity with the static wand. The hookup person places the apex fitting onto the aircraft cargo hook. The hookup team then 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. Position the web ring beside the RLST. Route outer sling legs 1and 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 2-25 in the grab hook. Repeat with sling leg 2 and the right front lift provision. Secure excess chain with tape or Type III nylon cord.

3. Route the chain end of sling leg 3 through the lift provision located on the left end of the rear bumper from inboard to outboard. Place the correct link from Table 2-25 in the grab hook. Repeat with sling leg 4 and the right rear lift provision.

4. Pad the sling legs in the area where they make contact with the RLST.

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

Figure 2-24. M1097A1 (HMMWV) With Remote Landing Site Tower (RLST)

2-27. M1113 (HMMWV) With M56 Smoke Generating System

a. Applicability. The following item in Table 2-26 is certified for all helicopters with suitable lift capacity by the US Army Soldier Systems Center:

Table 2-26. M1113 (HMMWV) With M56 Smoke Generating System

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
M1113 (HMMWV) With M56 Smoke Generating System	9,400	10K	60/3	120

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

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

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

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

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

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

(6) Spreader bar assembly(component of the M996/M997 HMMWV Ambulance).

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) 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 and secure the doors in the cab of the vehicle.

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

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

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

(f) Ensure the turbine fuel and both fog oil tanks are not over 3/4 full.

(g) Set the three-way valve to the OFF position.

(h) Ensure the IR hopper latches are securely closed and the auxiliary hoses are attached to the mounting bracket at the forward end of the inboard fog oil tank.

(i) Secure all latches and doors with tape or Type III nylon cord.

(j) Extend the spreader bar until the holes line up. Install the pin and engage the keeper.

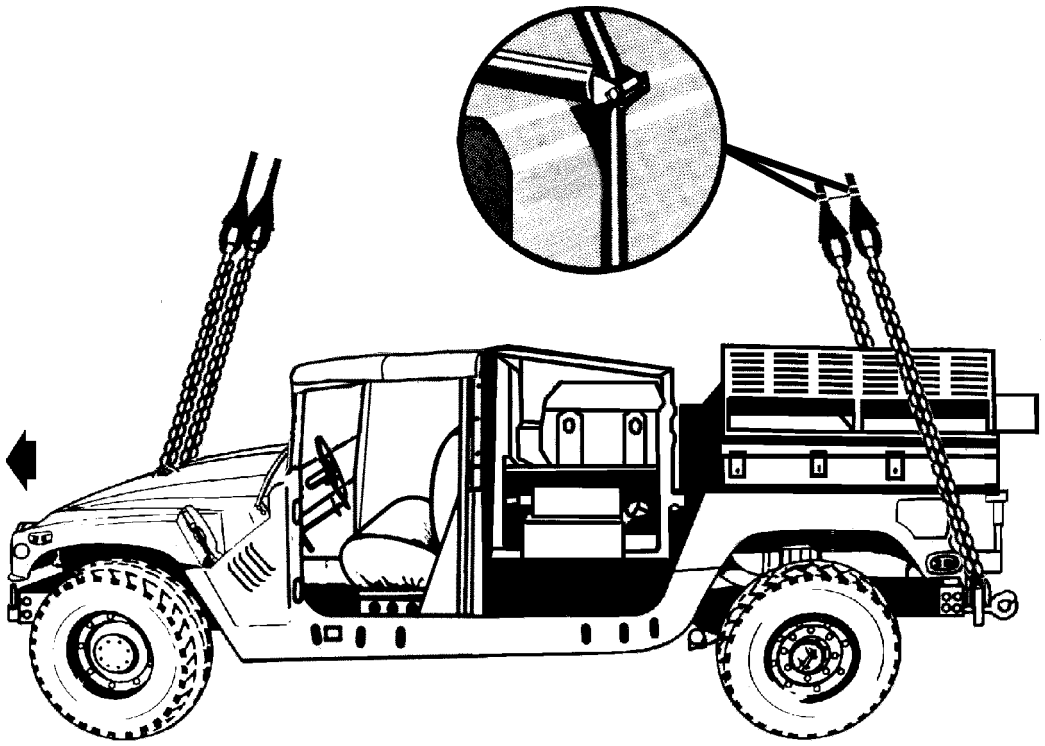
(k) Position the spreader bar across the rear of the vehicle, resting on the power module and the weapons case. Attach the two spreader bar check cables to the larger hole openings, footman's loop, on the vehicle fenders.

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

(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 the static wand. The hookup person places the apex fitting onto the aircraft 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. Position the apex fitting on top of the IR hopper or on the forward end of the fog oil tanks. Route outer sling legs 1and 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 2-26 in the grab hook. Repeat with sling leg 2 and the right front lift provision. Secure excess chain with tape or Type III nylon cord.

3. Place the nylon rope of sling legs 3 and 4 in the guides on the ends of the spreader bar. Route the chain end of sling leg 3 through the lift provision located on the left end of the rear bumper from inboard to outboard. Place the correct link from Table 2-26 in the grab hook. Repeat with sling leg 4 and the right rear lift provision.

4. Pad the sling legs in the area where they make contact with the structure.

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

Figure 2-25. M1113 (HMMWV) With M56 Smoke Generating System

2-28. M1097A2 (HMMWV) Soft Top Truck With Advanced Field Artillery Tactical Data Systems (AFATADS)

a. Applicability. The following items in Table 2-27 are certified for all helicopters with suitable lift capacity by the US Army Soldier Systems Center:

Table 2-27. M1097A2 (HMMWV) Soft Top Truck With Advanced Field Artillery Tactical Data Systems (AFATADS)

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

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

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

(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 capacity sling set (4 each).

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

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

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

(5) Padding, cellulose.

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

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

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

(a) 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 and secure the doors in the cab of the vehicle.

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

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

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

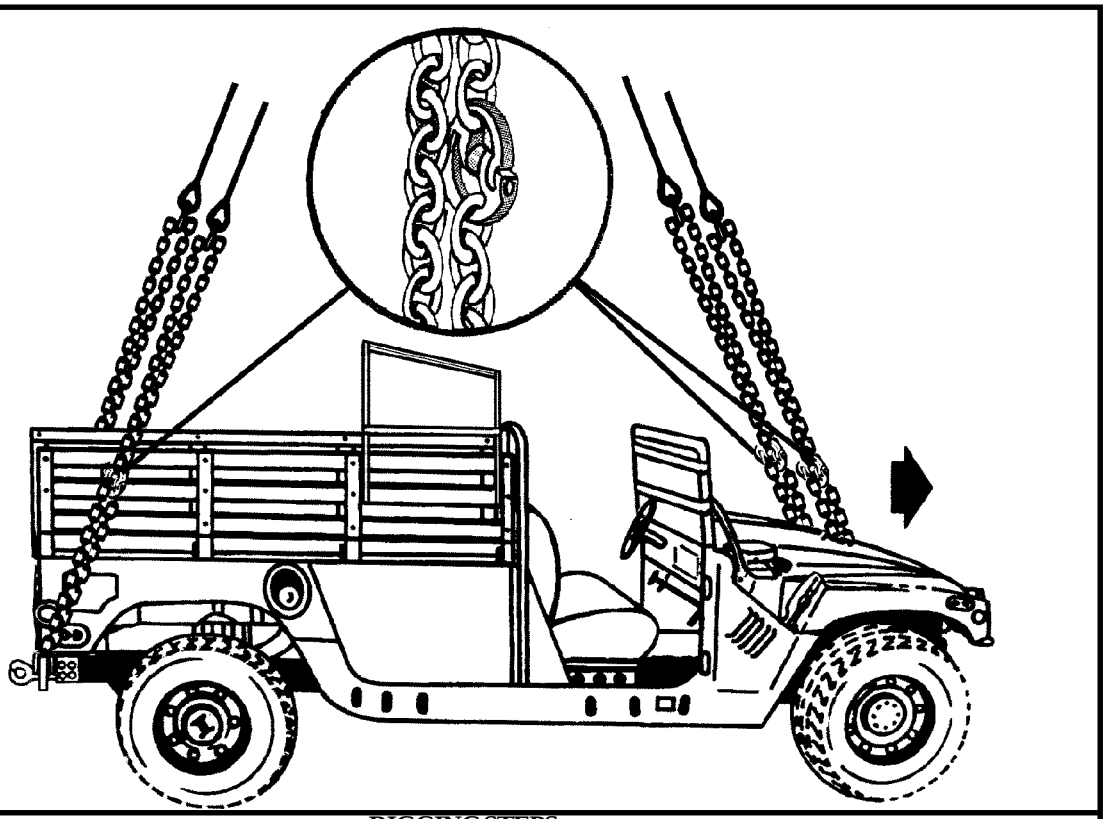
(f) Extend the sling leg chains by connecting one

additional chain length to each chain using the coupling links.

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

(3) Hookup. The hookup team stands on the shelter. The static wand person discharges the static electricity with the static wand. The hookup person places the apex fitting onto the aircraft cargo hook. The hookup team then 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. Position the apex fitting on top of the shelter. Route outer sling legs 1and 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 2-27 in the grab hook. Repeat with sling leg 2 and the right front lift provision. Secure excess chain with tape or Type III nylon cord.

3. Route the chain end of sling leg 3 through the lift provision located on the left end of the rear bumper from inboard to outboard. Place the correct link from Table 2-27 in the grab hook. Repeat with sling leg 4 and the right rear lift provision.

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

Figure 2-26. M1097A2 Soft Top Truck With Advanced Field Artillery Tactical Data Systems (AFATADS)

CHAPTER 3

CERTIFIED SINGLE-POINT RIGGING PROCEDURES FOR TRAILERS

3-1. INTRODUCTION

This chapter contains rigging procedures for single-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 single-point rigging procedures for trailers are in this section. Paragraphs 3-2 through 3-27 give detailed instructions for rigging loads.

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

3-2. M416 1/4 Ton Trailer

a. Applicability. The following item in Table 3-1 is certified for all helicopters with suitable lift capacity by the US Army Soldier Systems Center:

Table 3-1. M416 1/4-Ton Trailer

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
M416 1/4-Ton Trailer	1,080	10K	3/3	90

WARNING

THE M416 1/4-TON TRAILER MUST HAVE A GROSS WEIGHT OF 800 POUNDS OR MORE. ADD ADDITIONAL WEIGHT OR CARGO TO ANY TRAILER WHICH WEIGHS LESS THAN 800 POUNDS.

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

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

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

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

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

(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) Lower and lock the trailer support leg in the down position.

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

(c) Load and lash the cargo in the bed of the trailer.

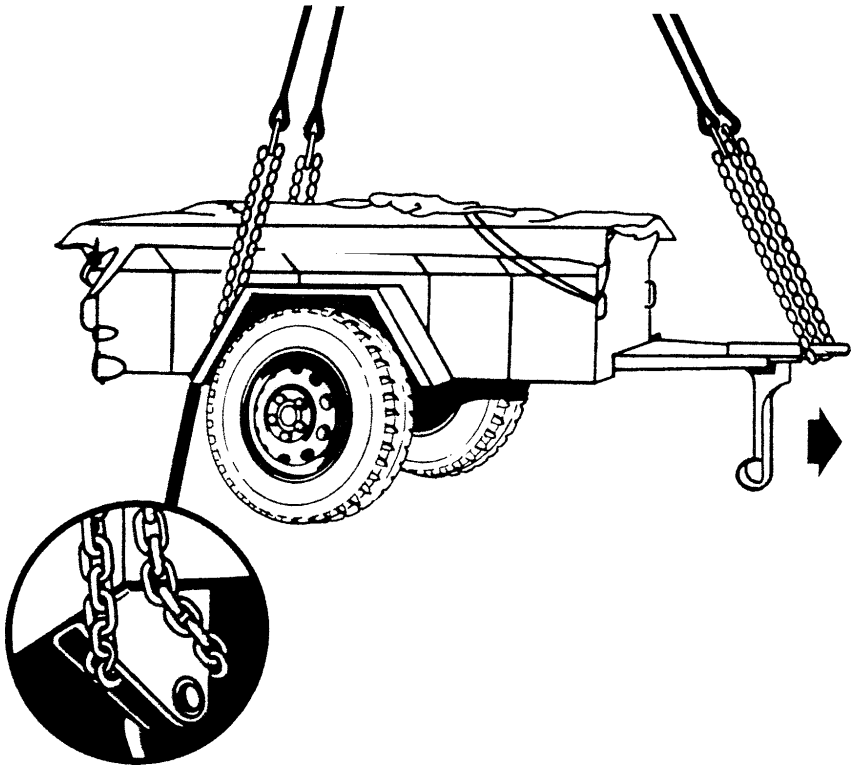
(d) Ensure the parking brake is set.

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

(3) Hookup. The hookup team stands in the bed of

the trailer. The static wand person discharges the static electricity with the static wand. The hookup person places the apex fitting onto the aircraft cargo hook. The hookup team then 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. Position apex fitting in the trailer bed. Route outer sling legs 1and 2 to the front of the trailer 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 lunette. Place the correct link from Table 3-1 in the grab hook. Repeat with sling leg 2 through the lunette.

3. Route the chain end of sling leg 3 around the left rear spring shackle mounting bracket. Place the correct link from Table 3-1 in the grab hook. Repeat with sling leg 4 around the right rear spring shackle mounting bracket.

4. Tape or tie (breakaway technique) the chains of legs 3 and 4 to the next-to-last tarpaulin hold-down hook on each side.

5. 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 3-1. M416 1/4 Ton Trailer

3-3. M101A2/A3 3/4-Ton Trailer

a. Applicability. The following items in Table 3-2 are certified for all helicopters with suitable lift capacity by the US Army Soldier Systems Center:

Table 3-2. M101A2/A3 3/4-Ton Trailer

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
M101A2 with Accompanying Load	3,000	10K	3/40	65
Command Version 1 Trailer	1,958	10K	3/40	65
Command Version 2 Trailer	1,981	10K	3/40	65
Len Cable Trailer	2,796	10K	3/40	65
NC Support Trailer	2,643	10K	3/40	65
Maintenance Trailer #2	1,430	10K	3/40	65
Battalion Spares Trailer #1	1,594	10K	3/40	65
Battalion Spares Trailer #2	2,206	10K	3/40	65
Marine Expeditionary Force Intelligence Analysis System M101A3 Trailer	3,000	10K	15/3	65
Technical Control and Analysis Center Production Improvement Program M101A3 Trailer	3,000	10K	15/3	65

WARNINGS

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.

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).

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

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

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

(5) Tie down, 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.

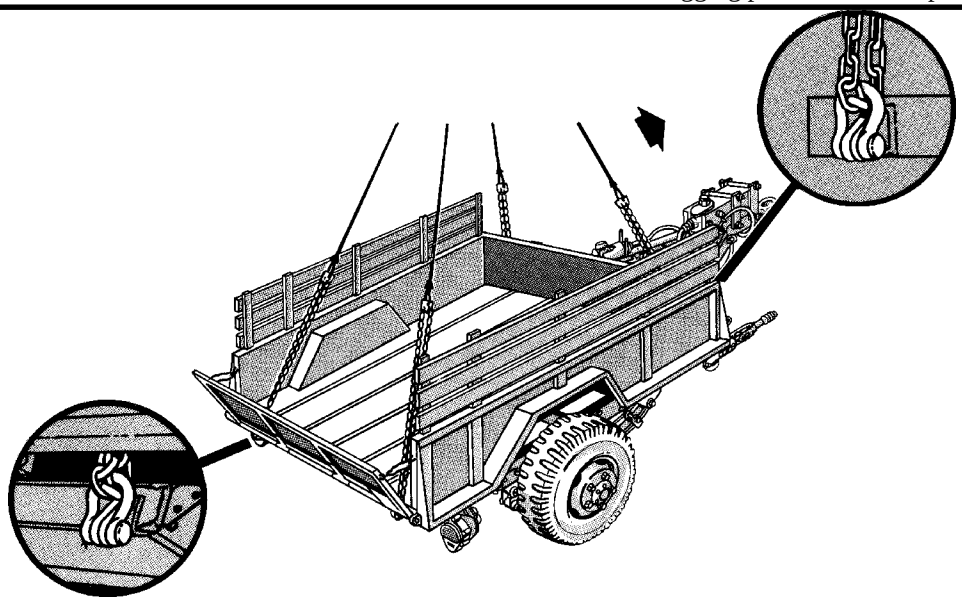
(c) Tape or tie the light cable firmly to the top of the drawbar.

(d) Ensure the tongue wheel is in the down and locked position and the parking brake is set..

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

(3) Hookup. The hookup team stands in the bed of the trailer. The static wand person discharges the static electricity with the static wand. The hookup person places the apex fitting onto the aircraft cargo hook. The hookup team then 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. Position apex fitting in the trailer bed. Route outer sling legs 1and 2 to the front of the trailer and inner sling legs 3 and 4 to the rear. Route the rear chains through the opening between the tailgate and the trailer bed. 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 located on the front of the trailer. Place the correct link from Table 3-2 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.

3. Route the chain end of sling leg 3 through the left rear lift provision. Place the correct link from Table 3-2 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.

4. Tape or tie (breakaway technique) the chains of legs 3 and 4 to the side racks to keep the chains from binding between the tailgate and trailer bed.

5. 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 3-2. M101A2/A3 3/4-Ton Trailer

3-22. HMT Trailer With Sentinel AN/MPQ-64 Antenna Transmitter Group (ATG)

a. Applicability. The following item in Table 3-21 is certified for all helicopters with suitable lift capacity by the US Army Soldier Systems Center:

Table 3-21. HMT Trailer With Sentinel AN/MPQ-64 Antenna Transmitter Group (ATG)

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
Sentinel AN/MPQ-64 Antenna Transmitter Group (ATG)	3,900	10K	3/20	80

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

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

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

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

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

(5) Plywood, 3/4-inch x 48-inches x 72-inches.

(6) Reach pendant, 11K or 25K.

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) Partially retract all landing legs. Secure in position and tie with Type III nylon cord.

(b) Engage the hand brakes.

(c) Tape or tie the light cable and brake hose to the top of the drawbar.

(d) Secure all loose equipment, lids, and caps with tape or Type III nylon cord.

(e) Cut pieces of plywood to cover the antenna boxes on top of the ATG. Drill holes in the plywood where necessary to secure the plywood with Type III nylon cord. Ensure the plywood is adequately secured.

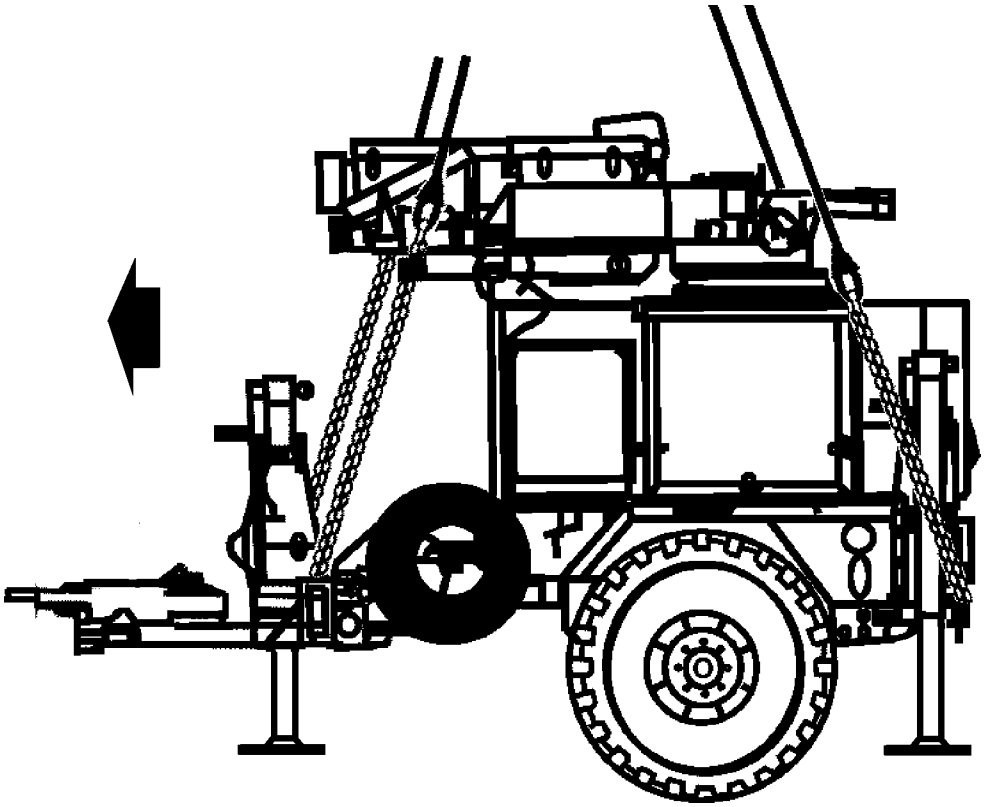
(f) Pad the slings where they make contact with the load.

(2) Rigging. Rig the load according to the steps in Figure 3-21.

(3) Hookup. The hookup team stands on the wheel well of the trailer. The static wand person discharges the static electricity with the static wand. The hookup person places the apex fitting onto the aircraft cargo hook. The hookup team then 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.

CAUTION
Advise the air crew to hover to the side of the load before releasing the apex to prevent damaging the load.

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



RIGGING STEPS

1. Attach a reach pendant to the apex fitting. Position the reach pendant and apex fitting on top of the ATG. Route outer sling legs 1and 2 to the front of the trailer 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 located on the front of the trailer. Place the correct link from Table 3-21 in the grab hook. Repeat with sling leg 2 through the right front lift provision.

3. Cluster and tie or tape (breakaway technique) sling legs 1 and 2 together at 3-foot intervals to prevent entanglement during hookup and lift-off.

4. Route the chain end of sling leg 3 through the left rear lift provision. Place the correct link from Table 3-21in the grab hook. Repeat with sling leg 4 through the right rear lift provision. Secure excess chain with tape or Type III nylon cord.

5. 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 3-21. HMT Trailer With Sentinel AN/MPQ-64 Antenna Transmitter Group (ATG)

3-23. HMT Trailer With Remote Landing Site Tower (RLST)

a. Applicability. The following item in Table 3-22 is certified for all helicopters with suitable lift capacity by the US Army Soldier Systems Center:

Table 3-22. HMT Trailer With Remote Landing Site Tower (RLST)

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
Remote Landing Site Tower (RLST)	3,600	15K	3/15	120

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

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

(a) Chain length, part number 34080-4, from 15,000-pound capacity sling sets (8 each).

(b) Coupling link, part number 31611, from 15,000-pound capacity sling sets (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) 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) Engage the hand brakes.

(b) Secure loose fittings, wires, and cables with tape or Type III nylon cord. Tape the trailer lights and the cable on the spool.

(c) Retract the jack wheel to the lowest position. Position the rear stabilizers in the highest position.

(d) Place the cover over the aft rack and secure the loose ends of the straps with tape.

(e) Extend the sling leg chains by connecting two additional chain lengths to each chain using the coupling links.

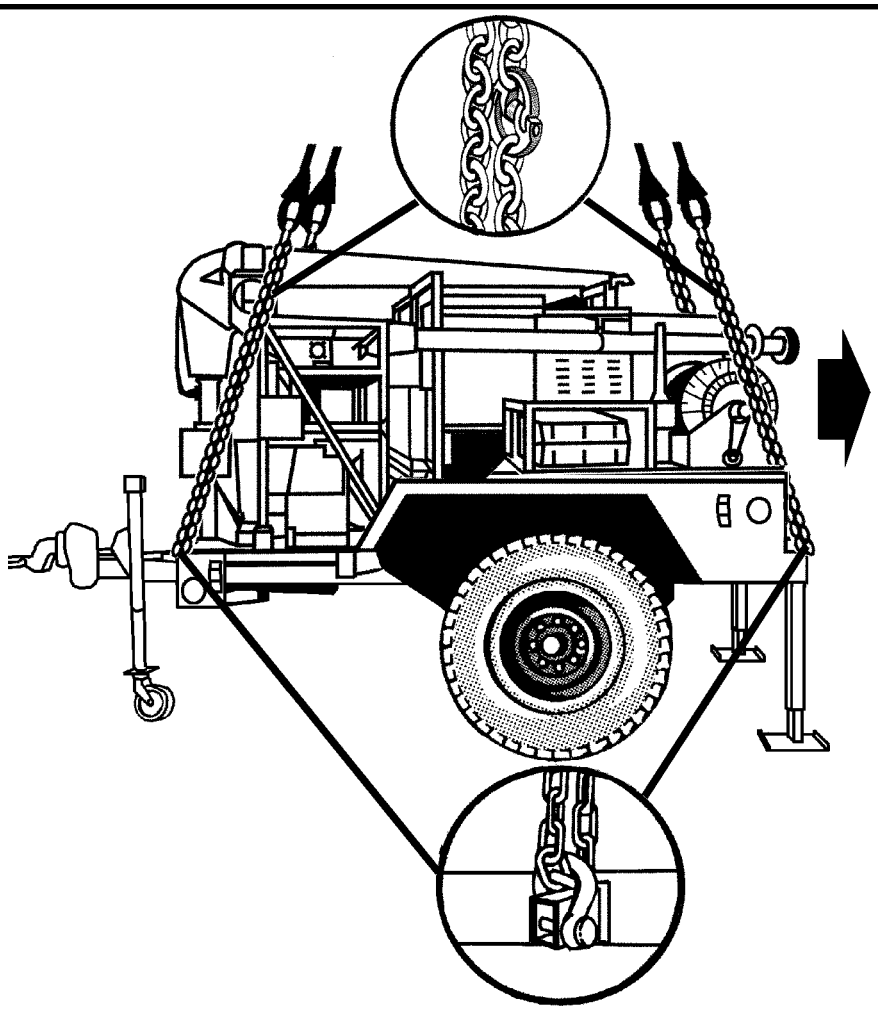
(2) Rigging. Rig the load according to the steps in Figure 3-22.

(3) Hookup. The hookup team stands beside the trailer. The static wand person discharges the static electricity with the static wand. The hookup person places the apex fitting onto the aircraft cargo hook. The hookup team then 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.

CAUTION

Ensure the sling legs do not snag on the antenna or the pole at the corner of the trailer.

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



RIGGING STEPS

1. Position the web ring beside the trailer. Route outer sling legs 1and 2 to the aft of the trailer and inner sling legs 3 and 4 to the front (lunette end). Sling legs 1 and 3 must be on the left side of the load.

2. Loop the chain end of sling leg 1 through the left front lift provision of the trailer. Place the correct link from Table 3-22 in the grab hook. Repeat with sling leg 2 through the right front lift provision.

3. Route the chain end of sling leg 3 through the left rear lift provision (lunette end). Place the correct link from Table 3-22 in the grab hook. Repeat with sling leg 4 through the right rear lift provision (lunette end). Secure excess chain with tape or Type III nylon cord.

4. Pad the sling legs or chains where they make contact with the load.

5. 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 3-22. HMT Trailer With Remote Landing Site Tower (RLST)

3-24. M105A3 Trailer

a. Applicability. The following item in Table 3-23 is certified for all helicopters with suitable lift capacity by the US Army Soldier Systems Center:

Table 3-23. M105A3 Trailer

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
M105A3 Trailer, Empty	2,600	10K	3/40	80
M105A3 Trailer, Loaded	5,580	10K	3/40	110

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

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

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

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

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

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

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

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

(a) Raise the trailer's jack stand so the pintle is on the ground.

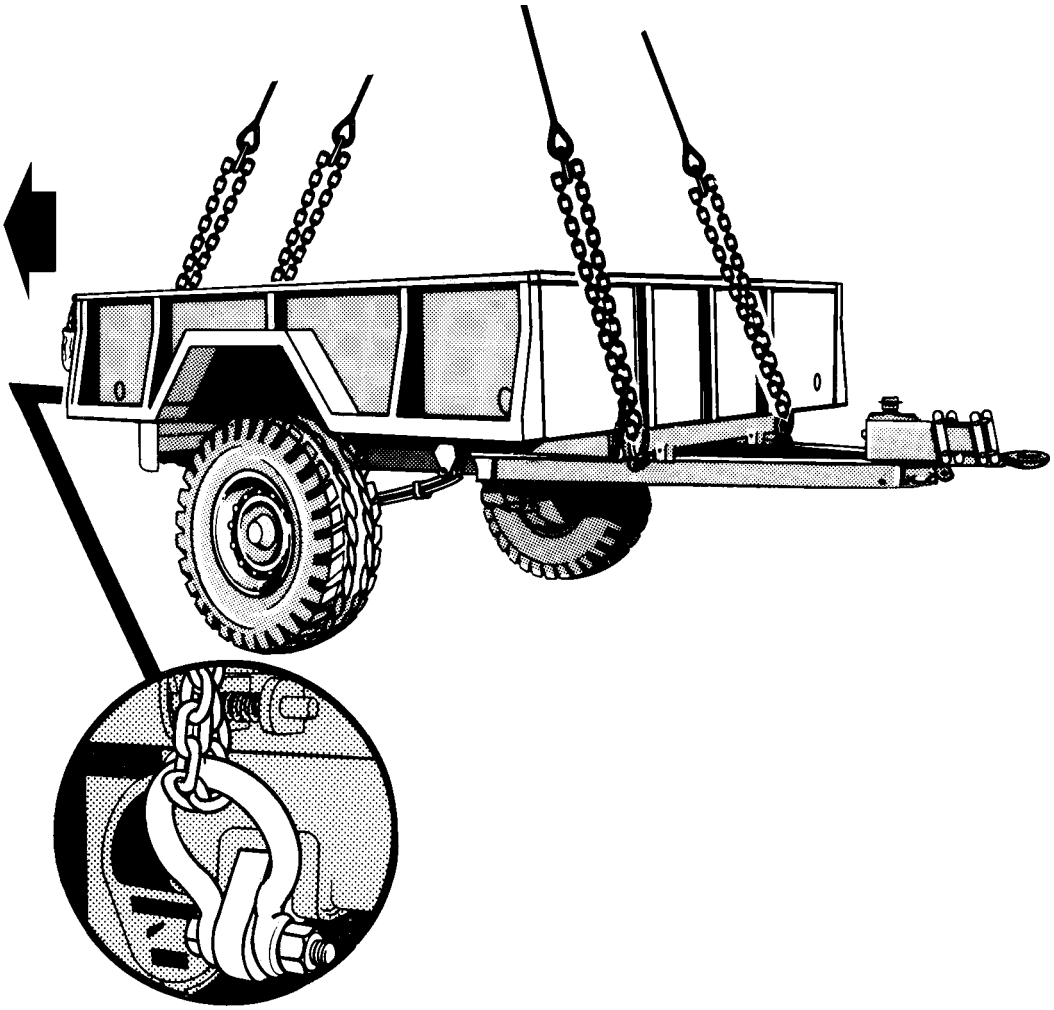
(b) Engage the hand brakes.

(c) Tape or tie the light cable, safety chains, and brake hose to the top of the drawbar.

(2) Rigging. Rig the load according to the steps in Figure 3-23.

(3) Hookup. The hookup team stands on the trailer bed. The static wand person discharges the static electricity with the static wand. The hookup person places the apex fitting onto the aircraft cargo hook. The hookup team then 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. Position the apex fitting beside the trailer. Route outer sling legs 1and 2 to the front of the trailer (tailgate end) and inner sling legs 3 and 4 to the rear (lunette end). Sling legs 1 and 3 must be on the left side of the load.

2. Loop the chain end of sling leg 1 through the left front lift provision of the trailer. Place the correct link from Table 3-23 in the grab hook. Repeat with sling leg 2 through the right front lift provision.

3. Route the chain end of sling leg 3 through the left rear lift provision (lunette end). Place the correct link from Table 3-23 in the grab hook. Repeat with sling leg 4 through the right rear lift provision (lunette end). Secure excess chain with tape or Type III nylon cord.

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

Figure 3-23. M105A3 Trailer

3-25. M332 Ammunition Trailer, 1 1/2-Ton

a. Applicability. The following item in Table 3-24 is certified for all helicopters with suitable lift capacity by the US Army Soldier Systems Center:

Table 3-24. M332 Ammunition Trailer, 1 1/2-Ton

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
M332 Ammunition Trailer, 1 1/2-Ton	5,780	10K	10/3	120

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

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

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

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

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

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

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

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

(a) Secure all loose items, lids, and caps with tape or Type III nylon cord.

(b) Engage the hand brakes.

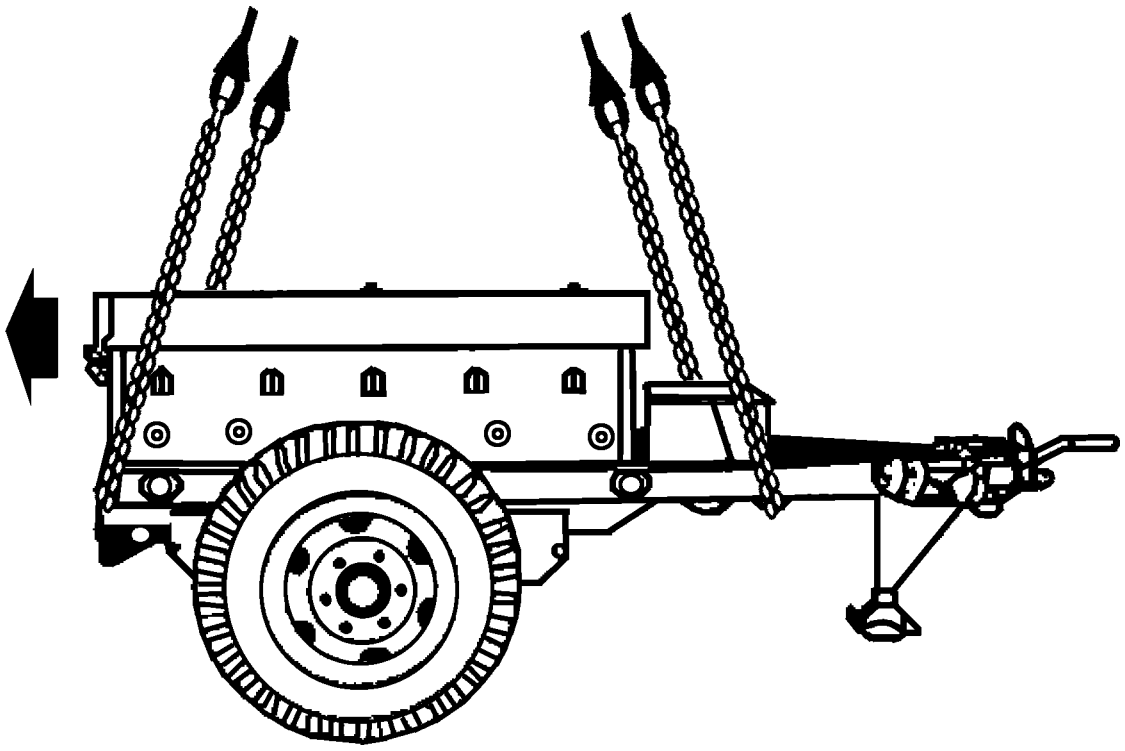
(c) Tape or tie the light cable, safety chains, and brake hose to the top of the drawbar.

(d) Place the telescoping leg in the down position.

(2) Rigging. Rig the load according to the steps in Figure 3-24.

(3) Hookup. The hookup team stands on the trailer bed. The static wand person discharges the static electricity with the static wand. The hookup person places the apex fitting onto the aircraft cargo hook. The hookup team then 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. Position the apex fitting in the trailer bed. Route outer sling legs 1and 2 to the front of the trailer (lunette end) and inner sling legs 3 and 4 to the rear (tailgate end). Sling legs 1 and 3 must be on the left side of the load.

2. Loop the chain end of sling leg 1 through the left front lift provision located on the left side of the A-frame drawbar. Place the correct link from Table 3-24 in the grab hook. Repeat with sling leg 2 through the right front lift provision. Secure excess chain with tape or Type III nylon cord.

3. Route the chain end of sling leg 3 through the left rear lift provision (tailgate end). Place the correct link from Table 3-24 in the grab hook. Repeat with sling leg 4 through the right rear lift provision.

4. 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 3-23. M332 Ammunition Trailer, 1 1/2-Ton

3-26. AS-4492/TSC, Lightweight, High Gain, X-band Antenna (LHGXA) Trailer

a. Applicability. The following item in Table 3-25 is certified for all helicopters with suitable lift capacity by the US Army Soldier Systems Center:

Table 3-25. AS-4492/TSC, Lightweight, High Gain, X-band Antenna (LHGXA) Trailer

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
AS-4492/TSC, Lightweight, High Gain, X-band Antenna (LHGXA) Trailer	3,820	10K	60/10	90

WARNING

DO NOT SLING LOAD THE LHGXA IN THE DUAL POINT CONFIGURATION AS STRUCTURAL DAMAGE MAY OCCUR TO THE LOAD.

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

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

(2) Additional apex fitting (10,000-pound capacity).

(3) Polyester round sling, green, 17-foot (4,200-pound capacity) used as a vertical pendant.

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

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

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

(7) Felt sheet, cattle hair, Type IV, 1/2-inch or suitable 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) Prepare the LHGXA for sling loading in accordance with the operator's manual.

(b) Install the shackles and lift cables in accordance with the operator's manual.

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

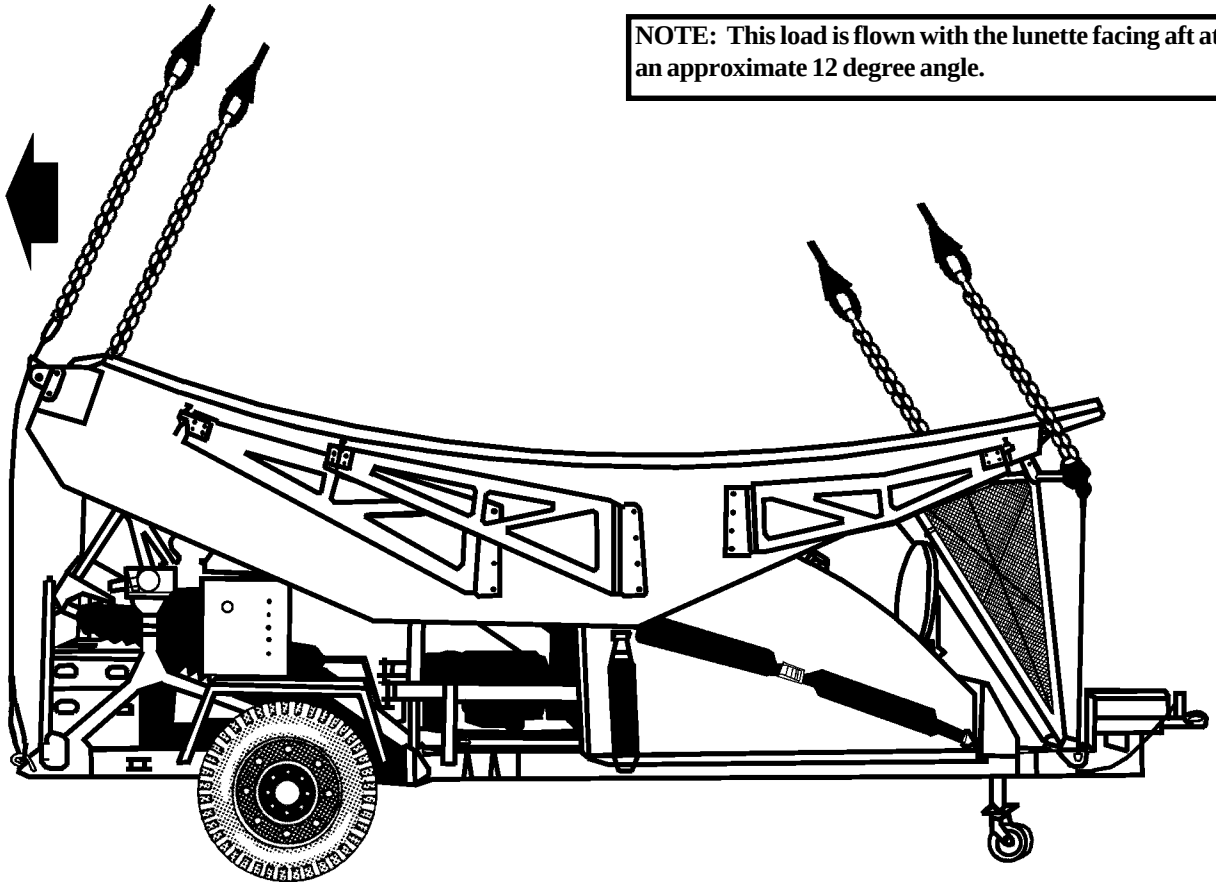
(d) Fully retract the rear trailer jacks. Lower the tongue jack to the position nearest the ground.

(e) Engage the parking brake.

(2) Rigging. Rig the load according to the steps in Figure 3-25.

(3) Hookup. The hookup team stands beside the trailer. The static wand person discharges the static electricity with the static wand. The hookup person places the apex fitting onto the aircraft cargo hook. The hookup team 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).



NOTE: This load is flown with the lunette facing aft at an approximate 12 degree angle.

RIGGING STEPS

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

2. Loop the chain end of sling leg 1 through the left front lift provision. Place the correct link from Table 3-25 in the grab hook. Repeat with sling leg 2 through the right front lift provision. Secure excess chain with tape or Type III nylon cord.

3. Route the chain end of sling leg 3 through the left rear lift provision. Place the correct link from Table 3-25 in the grab hook. Repeat with sling leg 4 through the right rear lift provision. Secure excess chain with tape or Type III nylon cord.

4. Pad each chain with felt padding. Secure the padding with tape.

5. Install a 17-foot polyester round sling on the bolt end of the apex fitting on the sling set. Tape the eye of the sling to prevent the apex fitting from rotating through the eye.

6. Place the free end of the 17-foot polyester round sling on the bell portion of the additional apex fitting. Tape the eye of the sling to prevent the apex fitting from rotating through the eye.

7. 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 3-25. AS-4492/TSC, Lightweight, High Gain, X-band Antenna (LHGXA) Trailer

3-27. XM1112 400 Gallon Water Trailer

a. Applicability. The following item in Table 3-26 is certified for all helicopters with suitable lift capacity by the US Army Soldier Systems Center:

Table 3-26. XM1112 400 Gallon Water Trailer

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
XM1112 400 Gallon Water Trailer, Empty	3,860	10K	3/3	80

CAUTION
This load is certified only when empty. Do not lift the trailer loaded.

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

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

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

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

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

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

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

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

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

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

(b) Ensure the tongue wheel is in the down and locked position.

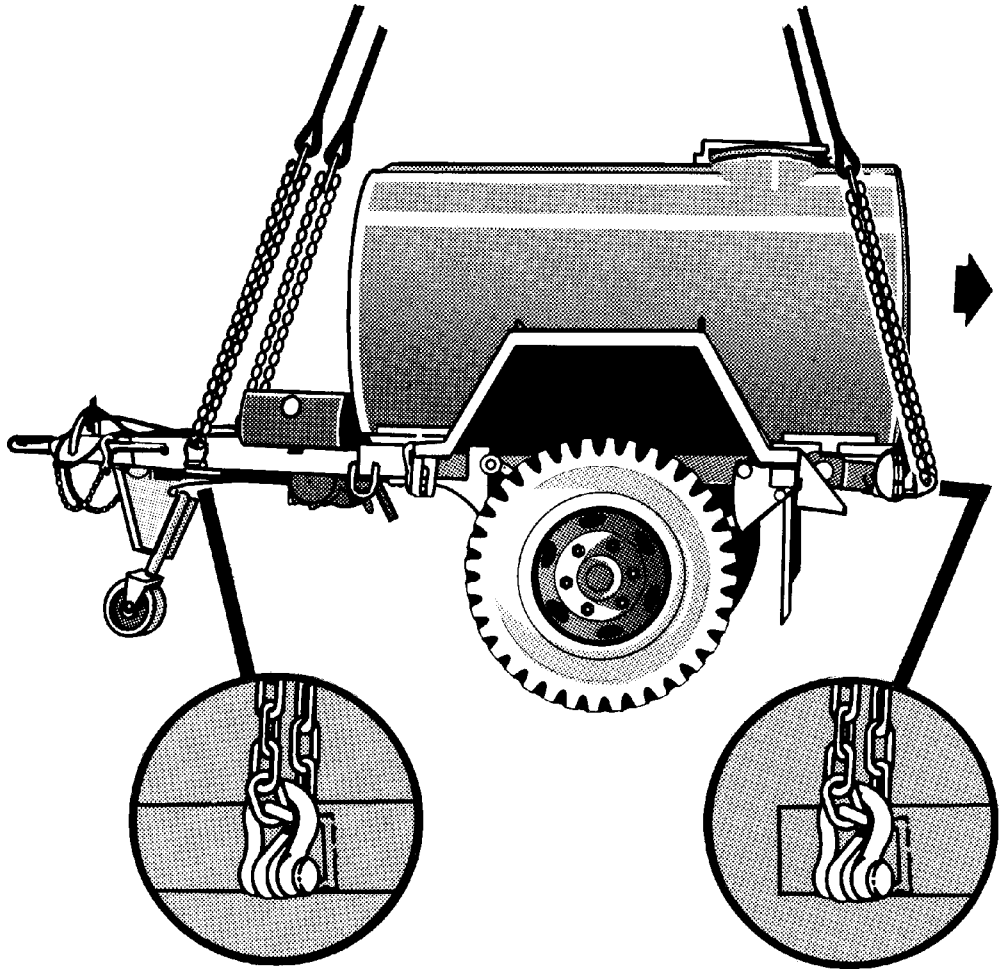
(c) Close and secure the tank lid.

(d) Engage the parking brake.

(2) Rigging. Rig the load according to the steps in Figure 3-26.

(3) Hookup. The hookup team stands on the trailer fenders or the front of the trailer. The static wand person discharges the static electricity with the static wand. The hookup person places the apex fitting onto the aircraft cargo hook. The hookup team then carefully dismounts the trailer and remains close to the load as the helicopter removes slack from the sling legs. When successful hookup is assured, the hookup team quickly exits the area underneath the helicopter to the designated rendezvous point.

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



RIGGING STEPS

1. Position the apex fitting on top of the water tank. Route outer sling legs 1and 2 to the front of the trailer 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 located on the left front corner of the trailer. Place the correct link from Table 3-26 in the grab hook. Repeat with sling leg 2 through the right front lift provision.

3. Route the chain end of sling leg 3 through the left rear lift provision. Place the correct link from Table 3-26 in the grab hook. Repeat with sling leg 4 through the right rear lift provision.

4. Pad the chains where they make contact with the trailer.

5. 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 3-26. XM1112 400 Gallon Water Trailer

CHAPTER 5

CERTIFIED SINGLE-POINT RIGGING PROCEDURES FOR TRUCK AND TOWED COMBINATIONS

5-1. INTRODUCTION

This chapter contains rigging procedures for single-point truck and towed combination loads that have been certified for sling load. Each rigging procedure is found in a paragraph that includes a description of the load, materials required for rigging, and steps to complete the procedure. An applicability paragraph is also a part of each paragraph and identifies the certified loads. The certified single-point rigging procedures for truck and towed combination loads are in this section. Paragraphs 5-2 and 5-3 give detailed instructions for rigging loads.

5-2. M973/M973E1/M1065/M1066 Small Unit Support Vehicle (SUSV)

a. Applicability. The following items in Table 5-1 are certified for all helicopters with suitable lift capacity by the US Army Soldier Systems Center:

Table 5-1. Small Unit Support Vehicle (SUSV)

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
M973, Cargo, Tracked	Front-6,380 Rear-6,600 Total-12,980	25K	Listed in Rigging Instructions	80
M973E1, Cargo, Tracked	Front-6,380 Rear-6,600 Total-12,980	25K	Listed in Rigging Instructions	80
M1065, Command Post, Tracked	Front-6,380 Rear-6,600 Total-12,980	25K	Listed in Rigging Instructions	80
M1066, Ambulance, Tracked	Front-6,380 Rear-6,600 Total-12,980	25K	Listed in Rigging Instructions	80

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

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

(2) Additional chain length, part number 38850-00053-102, from 25,000-pound capacity sling sets (8 each).

(3) Additional coupling links, part number 664241, from 25,000-pound capacity sling sets (8 each).

(4) Aerial delivery slings, Type XXVI nylon, 4 loop, 20 foot length (2 each) (Used to form 40 foot vertical pendant) (For CH-47 use only).

(5) Apex fitting (25,000-pound capacity) (2 each) (For CH-47 use only).

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

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

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

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

c. Personnel. Two persons can prepare and rig this load in 30 minutes.

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

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

(a) Secure all internal cargo and loose items with Type III nylon cord or tie-down straps.

(b) Lock the articulated steering unit with the steering cylinder locks.

(c) Secure all doors, windows, and roof hatches in the closed position.

(d) Tape all lights and glass fixtures including the windshield.

(e) Fold side mirrors inboard and tie or tape as required.

(f) Tape windshield wipers to windshield.

(g) Secure all hoses and cables located between the two cars with tape or nylon cord to avoid entanglement with sling legs.

(h) Screw the lifting eyes in as far as possible while ensuring that they are pointing towards the middle of each car. Tie diagonally opposing rings of each car together (for example, the front right ring to the left rear ring) with Type III nylon cord.

(i) Place the mud flaps in the up position and tape them in place.

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

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

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

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

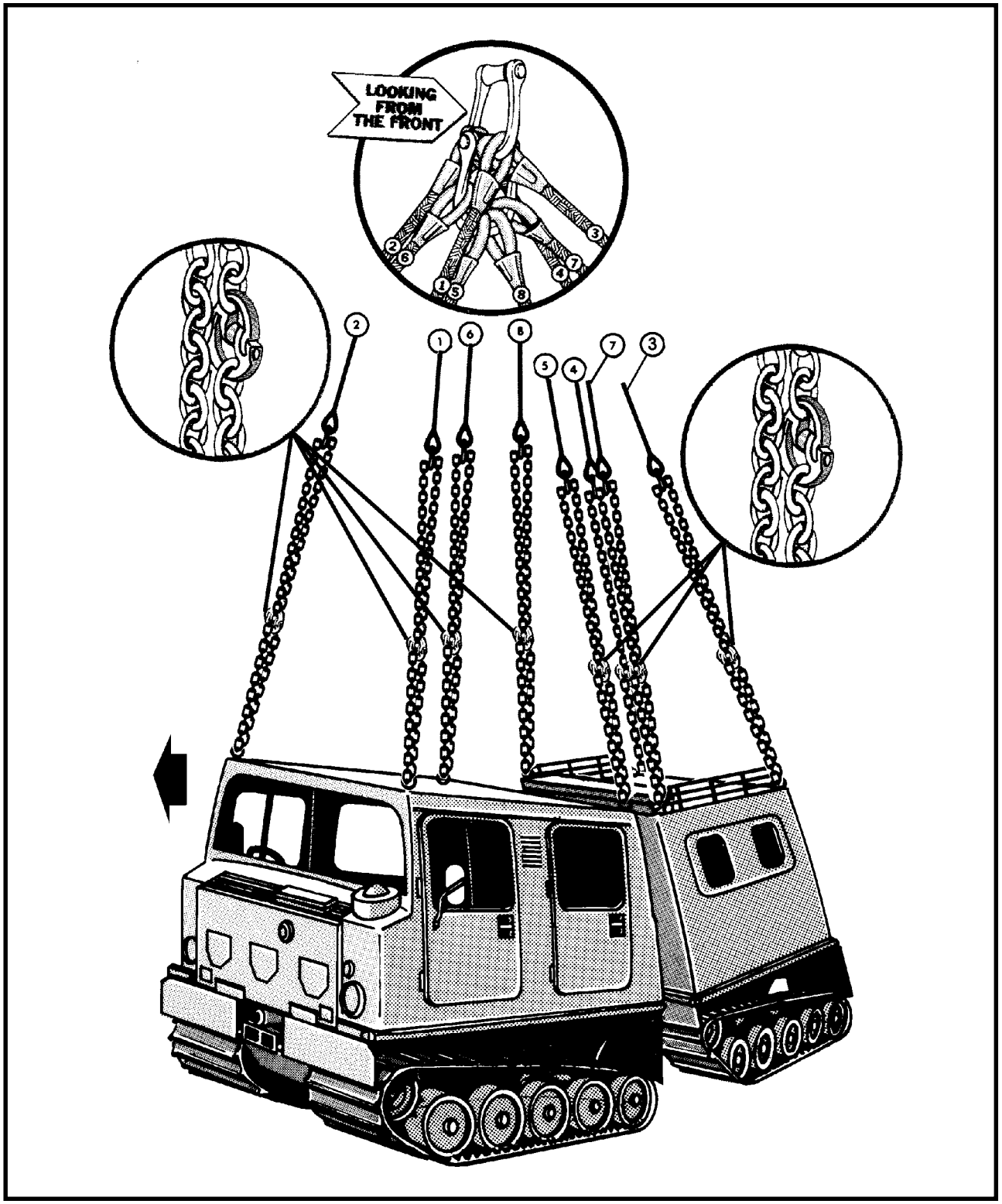


Figure 5-1. Small Unit Support Vehicle (SUSV)

RIGGING STEPS

1. Assemble the two sling sets as shown in the insert on page 5-3. Note the sling numbering sequences.

2. Route outer sling legs 1and 2 to the front of the front provisions of the front car. Route inner sling legs 3 and 4 under the roof rack and to the rear provisions of the rear car. Sling legs 1 and 3 must be on the left side of the load.

3. Route sling legs 5 and 6 to the rear provisions of the front car. Route sling legs 7 and 8 to the front provisions of the rear car. Sling legs 5 and 7 must be on the left side of the load.

4. Loop the chain end of sling leg 1 through the left front lift provision of the front car. Add an additional chain length using the coupling links. The chain must be looped through the lifting provision prior to attaching the additional chain. Place link **40** in the grab hook. Repeat with sling leg 2 through the right front lift provision of the front car. Secure the excess chain with Type III nylon cord.

5. Route the chain end of sling leg 5 through the left rear lift provision of the front car. Add an additional chain length using the coupling links. The chain must be looped through the lifting provision prior to attaching the additional chain. Place link **67** in the grab hook. Repeat with sling leg 6 through the right rear lift provision of the front car. Secure the excess chain with Type III nylon cord.

6. Route the chain end of sling leg 7 through the left front lift provision of the rear car. Add an additional chain length using the coupling links. The chain must be looped through the lifting provision prior to attaching the additional chain. Place link **67** in the grab hook. Repeat with sling leg 8 through the right front lift provision of the rear car. Secure the excess chain with Type III nylon cord.

7. Route the chain end of sling leg 3 through the left rear lift provision of the rear car. Add an additional chain length using the coupling links. The chain must be looped through the lifting provision prior to attaching the additional chain. Place link **40** in the grab hook. Repeat with sling leg 4 through the right rear lift provision of the rear car. Ensure sling legs 3 and 4 are routed under the roof rack. Secure the excess chain with Type III nylon cord.

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

9. When using a CH-47 helicopter, assemble a 40-foot vertical pendant using two 20-foot aerial delivery slings and two 25,000-pound capacity apex fittings. Attach the end of the 40-foot vertical pendant to the top apex fitting of the sling set by removing the bolt from the apex fitting. Insert the looped end of the vertical pendant into the apex fitting and replace the bolt.

Figure 5-1. Small Unit Support Vehicle (SUSV) (continued)

5-3. M1067 Flatbed Small Unit Support Vehicle (SUSV)

a. Applicability. The following item in Table 5-2 is certified for the **CH-47 HELICOPTER ONLY** by the US Army Soldier Systems Center:

Table 5-2. Flatbed Small Unit Support Vehicle (SUSV)

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
M1067, Flatbed, Tracked	Front-6,600 Rear-7,150 Total-12,980	25K	Listed in Rigging Instructions	70

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

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

(2) Additional chain length, part number 38850-00053-102, from 25,000-pound capacity sling sets (12 each).

(3) Additional coupling links, part number 664241, from 25,000-pound capacity sling sets (12 each).

(4) Aerial delivery slings, Type XXVI nylon, 4 loop, 20 foot length (2 each) (Used to form 40 foot vertical pendant) (For CH-47 use only).

(5) Apex fitting (25,000-pound capacity) (2 each) (For CH-47 use only).

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

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

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

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

c. Personnel. Two persons can prepare and rig this load in 30 minutes.

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

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

(a) Secure all internal cargo and loose items with Type III nylon cord or tie-down straps.

(b) Lock the articulated steering unit with the steering cylinder locks.

(c) Secure all doors, windows, and roof hatches in the closed position.

(d) Tape all lights and glass fixtures including the windshield.

(e) Fold side mirrors inboard and tie or tape as required.

(f) Tape windshield wipers to windshield.

(g) Secure all hoses and cables located between the two cars with tape or nylon cord to avoid entanglement with sling legs.

(h) Screw the lifting eyes in as far as possible while ensuring that they are pointing towards the middle of each car. Tie diagonally opposing rings of each car together (for example, the front right ring to the left rear ring) with Type III nylon cord.

(i) Place the mud flaps in the up position and tape them in place.

(j) Cargo in the rear car must be loaded so that it will not make contact with the sling legs and that it is not higher than the sides of the rear car.

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

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

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

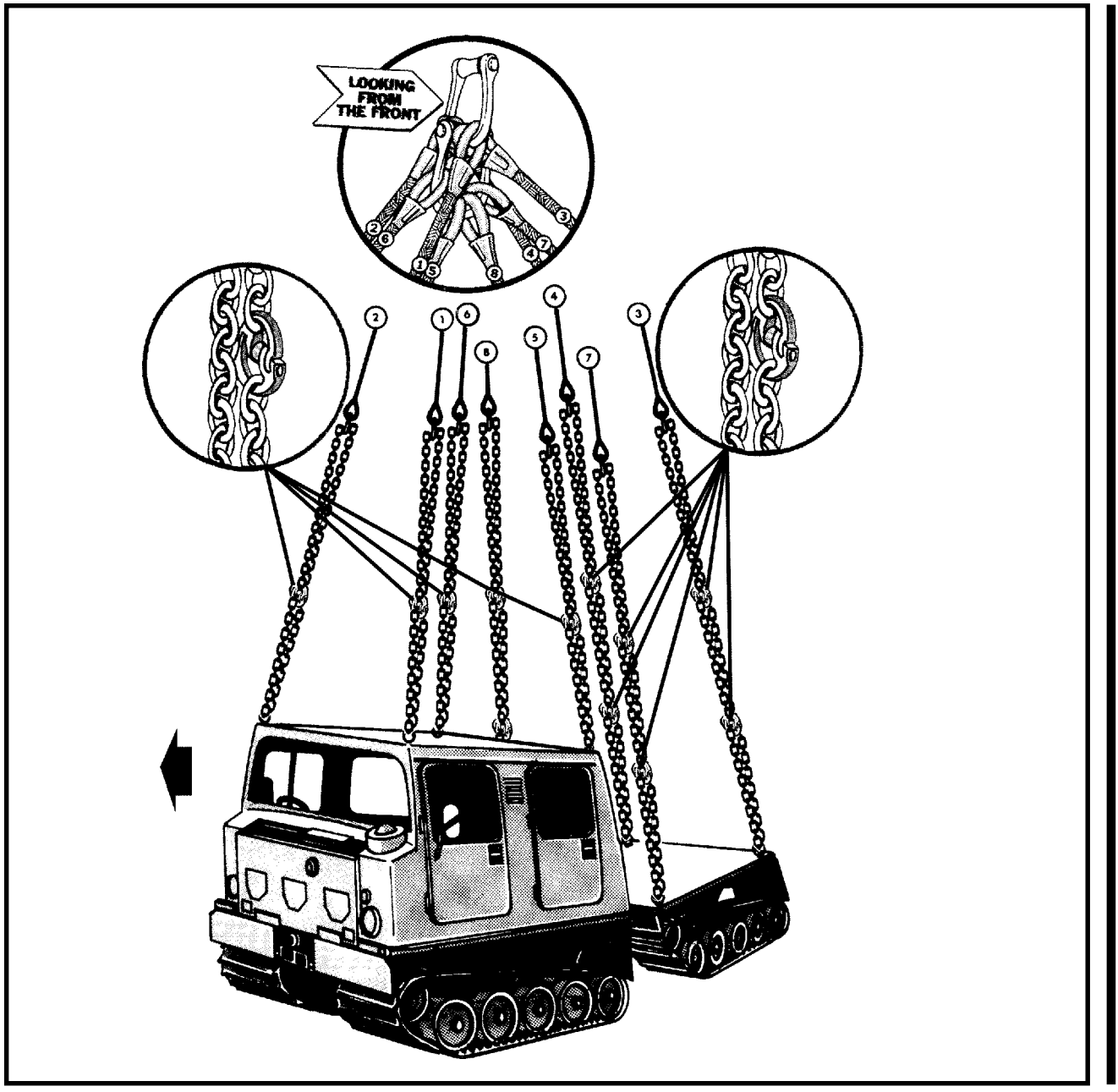


Figure 5-2. Flatbed Small Unit Support Vehicle (SUSV)

RIGGING STEPS

1. Assemble the two sling sets as shown on page 5-6. Note the sling numbering sequences.

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

3. Route sling legs 5and 6 to the rear provisions of the front car. Route sling legs 7 and 8 to the front provisions of the rear car. Sling legs 5 and 7 must be on the left side of the load.

4. Loop the chain end of sling leg 1 through the left front lift provision of the front car. Attach an additional chain length using the coupling links. The chain must be looped through the lifting provision prior to attaching the additional chain. Place link **40** in the grab hook. Repeat with sling leg 2 through the right front lift provision of the front car. Secure the excess chain with Type III nylon cord.

5. Route the chain end of sling leg 5 through the left rear lift provision of the front car. Attach an additional chain length using the coupling links. The chain must be looped through the lifting provision prior to attaching the additional chain. Place link **67** in the grab hook. Repeat with sling leg 6 through the right rear lift provision of the front car. Secure the excess chain with Type III nylon cord.

6. Route the chain end of sling leg 7 through the left front lift provision of the rear car. Attach two additional chain lengths using the coupling links. The chain must be looped through the lifting provision prior to attaching the additional chains. Place link **67** in the grab hook. Repeat with sling leg 8 through the right front lift provision of the rear car. Secure the excess chain with Type III nylon cord.

7. Route the chain end of sling leg 3 through the left rear lift provision of the rear car. Attach two additional chain lengths using the coupling links. The chain must be looped through the lifting provision prior to attaching the additional chains. Place link **40** in the grab hook. Repeat with sling leg 4 through the right rear lift provision of the rear car.

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

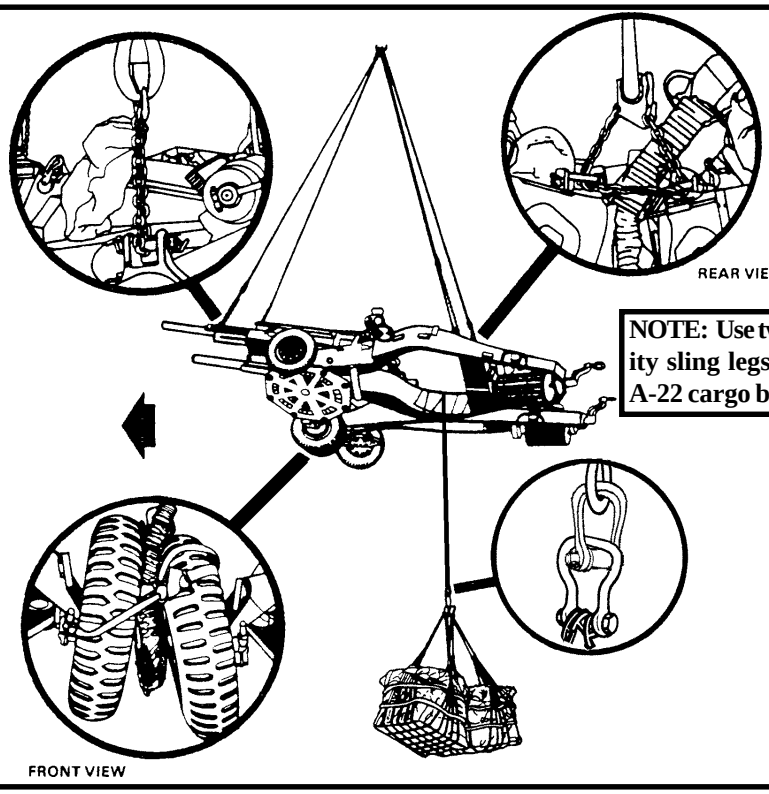
9. Secure legs 7 and 8 to the outside supports of the spare fuel can racks using 1/4-inch cotton webbing to prevent damage to the racks during lift-off.

10. Assemble a 40-foot vertical pendant using two 20-foot aerial delivery slings and two 25,000-pound capacity apex fittings. Attach the end of the 40-foot vertical pendant to the top apex fitting of the sling set by removing the bolt from the apex fitting, inserting the looped end of the vertical pendant into the apex fitting and replacing the bolt.

Figure 5-2. Flatbed Small Unit Support Vehicle (SUSV) (continued)

ter 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).



NOTE: Use two 25,000-pound capacity sling legs when carrying three A-22 cargo bags

RIGGING STEPS

1. Add the additional sling leg to the sling set. The outer sling legs are numbers 1 and 2, the inner sling legs are numbers 3 and 4, and the center sling leg is number 5.

2. Position the apex fitting on top of the inner wheels at the center of the load. Route outer sling legs 1and 2 to the barrels. Route inner sling legs 3 and 4 to the outside trails, and center sling leg 5 to the inside trails of both howitzers. Sling legs 1 and 3 must be connected to the left howitzer.

3. Route the chain end of sling leg 1 through the lift provision on the barrel of the left howitzer. Place the correct link from Table 6-6 in the grab hook. Repeat with sling leg 2 on the right howitzer. Secure the excess chain with Type III nylon cord

4. Route the chain end of sling leg 3 through the lift provision on the outside trail of the left howitzer. Place the correct link from Table 6-6 in the grab hook. Repeat with sling leg 4 on the right howitzer. Secure the excess chain with Type III nylon cord.

5. Route the chain end of sling leg 5 through the lift provisions on the inside trails of both howitzers. Place the correct link from Table 6-6 in the grab hook. Secure the excess chain with Type III nylon cord.

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

7. Wrap the chain end of the sling leg(s) around both inboard trails over the felt sheets and insert link 60 in the grab hook. Secure the excess chain with Type III nylon cord.

8. Route the other end of the sling leg(s) under the outside trail of the howitzers and attach the additional apex fitting. Place the medium clevis of the A-22s on the bolt of the apex fitting.

Figure 6-6. Two M102 105-MM Howitzers with One, Two, or Three A-22 Cargo Bags

6-8. M119 105-MM Howitzer, Folded/Towed Position

a. Applicability. The following items in Table 6-7 are certified for all helicopters with suitable lift capacity by the US Army Soldier Systems Center:

Table 6-7. M119 105-MM Howitzer, Folded/Towed Position

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
M119 Howitzer	4,400	10K	50/10	120
M119 Howitzer with accompanying load	7,400	25K	40/10	120

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

(1) Sling set (10,000-pound capacity) (when moving the howitzer without accompanying load).

(2) Sling set (25,000-pound capacity) (when moving the howitzer with an accompanying load).

(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) Sling set chain safety clamp.

(7) Webbing, nylon, tubular, 1/2-inch (as required).

(8) Line, multiloop, Type XXVI, 4-loop, 3-foot.

(9) Clevis, suspension, medium (2 each).

(10) Bag, cargo A-22 or net, cargo (5,000- or 10,000-pound capacity).

(11) Apex fitting (10,000- or 25,000-pound capacity) (1 each).

c. Personnel. Two persons can prepare and rig this load in 30 minutes.

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

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

(a) Place the howitzer in the folded/towed position. Ensure the wheel knock-off hub is horizontal. Engage the right wheel parking brake (wheel with the knock-off hub).

(b) Secure the sight cover to the dial sight with tape or Type III nylon cord.

(c) Secure the firing platform, hand spike, and jack to the trail assembly with Type III nylon cord.

(d) Ensure the lunette is in the extended position. Install the towing eye stop (C-clamp) on the lunette and secure in place with its retaining pins, when applicable.

(e) The sling set chain safety clamp is an additional authorized item. Refer to TM 9-1015-252-10 for NSN and installation information.

(f) When the detachable field spade is attached, ensure the two locking pins are installed and locked. Route and tie a length of Type III nylon cord through the key ring of the cable and around the end of the locking pin.

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

NOTE: When an accompanying load requires a sling leg, you may remove and use one of the inner sling legs from the sling set, leaving one sling leg attached to the lunette of the howitzer.

(3) Hookup. The hookup team stands beside the howitzer on the trails. The static wand person discharges the

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

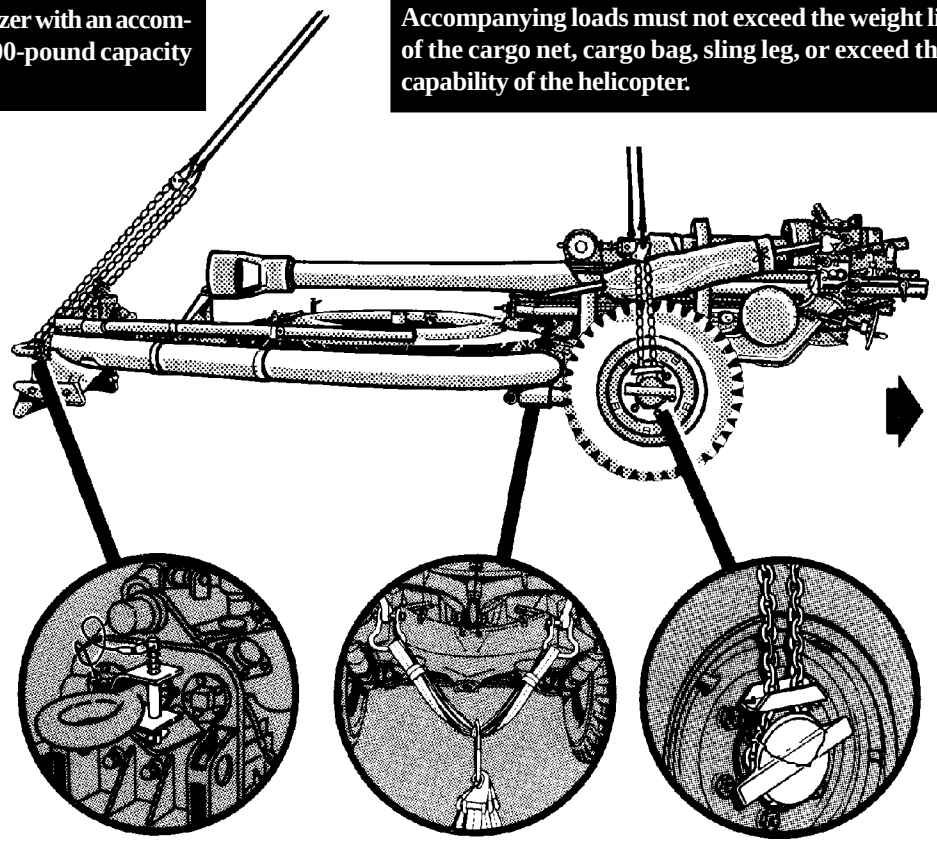
(4) Derigging. Derigging is the reverse of the preparation and rigging procedures in steps d (1) and d (2).

WARNING

When moving the howitzer with an accompanying load, the 25,000-pound capacity sling set must be used.

WARNING

Accompanying loads must not exceed the weight limits of the cargo net, cargo bag, sling leg, or exceed the lift capability of the helicopter.



RIGGING STEPS

1. Position the apex fitting on the barrel over the firing platform. Route outer sling legs 1and 2 to the wheel hubs. Route inner sling legs 3 and 4 to the lunette. Sling legs 1 and 3 must be on the left side of the load.

2. Route the chain end of sling leg 1 around the left wheel hub. Place the link from Table 6-7 in the grab hook. Pull the chain taut and ensure the chain is centered on the hub. Install the sling set chain safety clamp on the two chain links closest to the top of the wheel hub. If using the 25,000-pound capacity sling set, tie the two chain links together with 1/2-inch tubular nylon webbing. Repeat with sling leg 2 on the right wheel hub. Secure the excess chain with Type III nylon cord.

3. Route the chain end of sling legs 3 and 4 through the lunette. Place the correct link from Table 6-7 in the grab hook.

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

5. Attach the accompanying load by routing the 3-foot, 4-loop, Type XXVI multiloop line through the eye of the sling leg attached to an A-22 or the apex fitting of a cargo net. Place a medium suspension clevis through the loop on each end of the multiloop line and attach to the provisions located under the howitzer carriage and inboard of the wheels.

Figure 6-7. M119 105-MM Howitzer, Folded/Towed Position

6-9. M119 105-MM Howitzer, Forward/Firing Position

a. Applicability. The following items in Table 6-8 are certified for all helicopters with suitable lift capacity by the US Army Soldier Systems Center:

Table 6-8. M119 105-MM Howitzer, Forward/Firing Position

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
M119 Howitzer	4,400	10K	Listed in rigging steps	110
M119 Howitzer with accompanying load	7,400	25K	Listed in rigging steps	110

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

(1) Sling set (10,000-pound capacity) (when moving the howitzer without accompanying load).

(2) Sling set (25,000-pound capacity) (when moving the howitzer with an accompanying load).

(3) Reach Pendant (11,000 or 25,000-pound capacity).

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

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

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

(7) Sling set chain safety clamp.

(8) Webbing, nylon, tubular, 1/2-inch (as required).

(9) Line, multiloop, Type XXVI, 4-loop, 3-foot (for accompanying load).

(10) Clevis, suspension, medium (2 each) (for accompanying load).

(11) Bag, cargo A-22 or net, cargo (5,000- or 10,000-pound capacity).

(12) Chain length, part number 38850-00053-102, from a 25,000-pound capacity sling set (1 each) (for accompanying load).

(13) Coupling link, part number 664241, from a 25,000-pound capacity sling set (1 each) (for accompanying load).

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

c. Personnel. Two persons can prepare and rig this load in 30 minutes.

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

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

(a) Place the howitzer in the forward/firing position. If the firing platform is to be carried in the down position, follow these steps:

1 Mark the wheel hubs at the center of gravity (CG) with tape. The CG is located 6-inches behind (towards the lunette) the center of the hub.

2 Mark the center of the firing platform with tape. Roll the howitzer onto the firing platform aligning the tape strips. The wheel knock-off hub must be horizontal. Engage both parking brakes.

3 Connect the firing platform to the weapon and add an additional CGU-1/B tiedown strap.

(b) When the firing platform is carried on top of the trails ensure the wheel knock-off hub is horizontal. Engage the right wheel parking brakes.

(c) Secure the sight cover to the dial sight with tape

or Type III nylon cord.

(d) Secure the firing platform (if carried), hand spike, and jack to the trail assembly with Type III nylon cord.

(e) Ensure the lunette is in the extended position. Install the towing eye stop (C-clamp) on the lunette and secure in place with its retaining pins, when applicable.

(f) The sling set chain safety clamp is an additional authorized item. Refer to TM 9-1015-252-10 for NSN and installation information.

(g) When the detachable field spade is attached to the permanent spades, ensure the two locking pins are installed and locked. Route and tie a length of Type III nylon cord through the key ring of the cable and around the end of the locking pin.

(h) When moving the howitzer without an accompanying load, extend the chain on sling leg 3 by removing the chain length and coupling link from sling leg 4 and attaching them to the end of the chain on sling leg 3.

(i) When moving the howitzer with an accompanying load and using sling leg 4 on the accompanying load, extend the chain on sling leg 3 by adding an additional length of chain with a coupling link from a 25,000-pound capacity sling set.

(2) Rigging. Rig the load according to the steps in Figure 6-8.

NOTE: When an accompanying load requires a sling leg, you may remove and use one of the inner sling legs from the sling set, leaving one sling leg attached to the lunette of the howitzer.

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

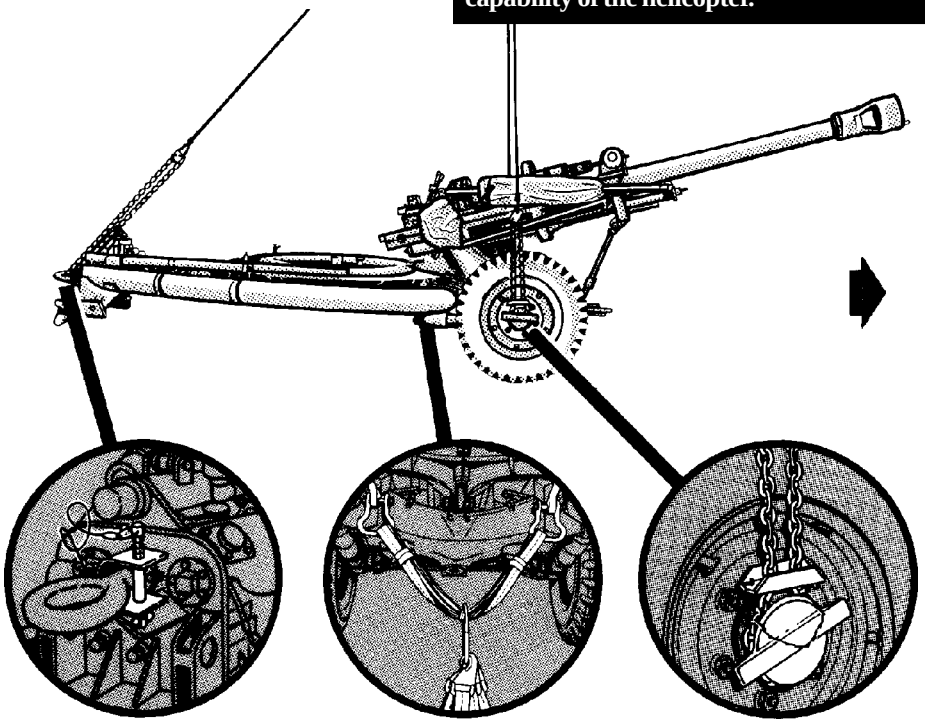
(4) Derigging. Derigging is the reverse of the preparation and rigging procedures in steps d (1) and d (2).

WARNING

When moving the howitzer with an accompanying load, the 25,000-pound capacity sling set must be used.

WARNING

Accompanying loads must not exceed the weight limits of the cargo net, cargo bag, sling leg, or exceed the lift capability of the helicopter.



RIGGING STEPS

1. Attach a reach pendant on the sling set apex fitting.

2. Position the apex fitting and the reach pendant on the breech assembly. Route outer sling legs 1and 2 to the wheel hubs. Route inner sling leg 3 to the lunette.

3. Route the chain end of sling leg 1 around the left wheel hub. Place link **55** (when using the 10,000-pound capacity sling set) or link **45** (when using the 25,000-pound capaclity sling set) in the grab hook. Pull the chain taut and ensure the chain is centered on the hub. Install the sling set chain safety clamp on the two chain links closest to the top of the wheel hub. If the sling set chain safety clamp is unavailable or if the 25,000-pound capacity sling set is being used, tie the two chain links together with 1/2-inch tubular nylon webbing. Repeat with sling leg 2 on the right wheel hub. Place link **50** (when using the 10,000-pound capacity sling set) or link **40** (when using the 25,000-pound capaclity sling set) in the grabhook. Secure the excess chain with Type III nylon cord

4. Route the chain end of the extended sling leg 3 through the lunette. Place link **35** (when using the 10,000-pound capacity sling set) or link **28** (when using the 25,000-pound capaclity sling set) in the grab hook. Secure the excess chain with Type III nylon cord

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

6. Attach the accompanying load (if required) by routing the 3-foot, 4-loop, Type XXVI multiloop line through the eye of the sling leg attached to an A-22 or the apex fitting of a cargo net. Place a medium suspension clevis through the loop on each end of the multiloop line and attach to the provisions located under the howitzer carriage and inboard of the wheels.

Figure 6-8. M119 105-MM Howitzer, Forward/Firing Position

CHAPTER 8

CERTIFIED SINGLE-POINT RIGGING PROCEDURES FOR ENGINEER EQUIPMENT

8-1. INTRODUCTION

This chapter contains rigging procedures for single-point lift of engineer 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 single-point rigging procedures for engineer equipment are in this section. Paragraphs 8-2 through 8-40 give detailed instructions for rigging loads.

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

8-2. T-3 Tractor, Crawler

a. Applicability. The following items in Table 8-1 are certified for all helicopters with suitable lift capacity by the US Army Soldier Systems Center:

Table 8-1. T-3 Tractor, Crawler

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	RECOMMENDED AIRSPEED (KNOTS)
Tractor, Full-Tracked, JD550 with Roll Over Protection System (ROPS), Towing Winch and Hydraulic Angle Blade	16,662	25K	10/20	90

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

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

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

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

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

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

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

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

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

(a) Secure the operator's seat cushion to the seat frame with tape or Type III nylon cord.

(b) Remove both canopy lights, wrap in padding, and store in the toolbox.

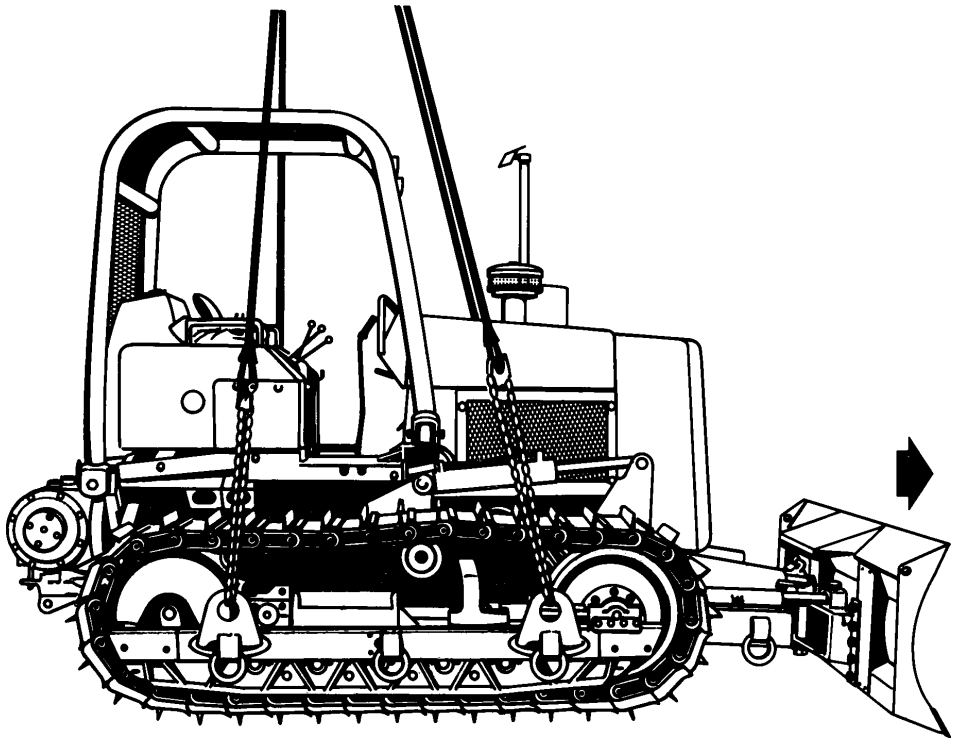
(c) Secure all loose covers and panels with tape.

(d) Place the transmission in neutral and start the engine. Raise the blade 12 inches above the ground and align the blade at a 90 degree angle to the tractor. Turn the engine off and tape the ignition key in place.

(2) Rigging. Rig the load according to the steps in Figure 8-1.

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

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



RIGGING STEPS

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

2. Route the chain end of sling leg 1 through the left front lift provision located just aft of the front of the left track. Place the correct link from Table 8-1 in the grab hook. Repeat with sling leg 2 and the right front lift provision located on the right track. Secure the excess chain with Type III nylon cord.

3. Route the chain end of sling leg 3 through the left rear lift provision located forward of the left track rear wheel. Place the correct link from Table 8-1 in the grab hook. Repeat with sling leg 4 on the right rear lift provision located on the right track.

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

Figure 8-1. T-3 Tractor, Crawler

8-38. Tractor (Dozer), Full-Tracked, Type III, JD450G

a. Applicability. The following items in Table 8-37 are certified for all helicopters with suitable lift capacity by the US Army Soldier Systems Center:

Table 8-37. Tractor (Dozer), Full-Tracked, Type III, JD450G

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/ REAR	RECOMMENDED AIRSPEED (KNOTS)
Tractor (Dozer), Full-Tracked, Type III, JD450G	18,400	25K	3/10	100
Tractor (Dozer), Full-Tracked, Type III, JD450G,without ROPS	17,700	25K	3/10	100
Tractor (Dozer), Full-Tracked, Type III, JD450G,without ROPS and Winch	16,160	25K	3/10	100

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

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

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

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

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

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

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

(5) Heavy padding (1/4 section of a steel-belted tire or a length of fire hose or equivalent) (2 each).

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

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

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

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

(b) Prepare the tractor for mission needs using the operator's manual. Special tools may be required to remove the ROPS or winch.

(c) Secure all loose equipment with tape or Type III nylon cord.

(d) Place the transmission in neutral and set the parking brake.

(e) Tape the front sling guides on the ROPS. Tape all lights and gauges.

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

(2) Rigging. Rig the load according to the steps in Figure 8-37.

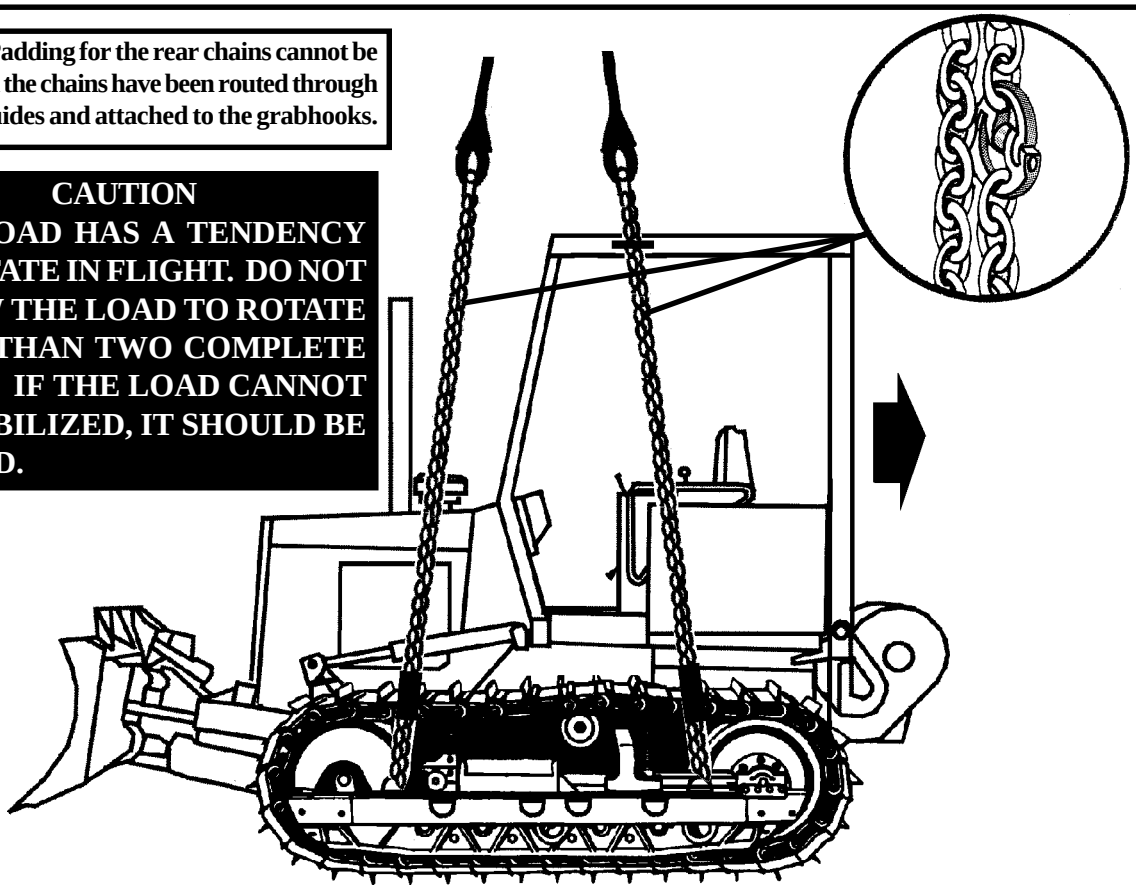
(3) Hookup. The hookup team stands on top of the dozer. The static wand person discharges the static elec-

tricity with the static wand. The hookup person places the apex fitting onto the aircraft cargo hook. The hookup team then moves clear of the load but remains close to the load as the helicopter removes slack from the sling legs. When successful hookup is assured, the hookup team quickly exits the area underneath the helicopter to the designated rendezvous point.

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

NOTES: Padding for the rear chains cannot be added until the chains have been routed through the sling guides and attached to the grabhooks.

CAUTION
THIS LOAD HAS A TENDENCY TO ROTATE IN FLIGHT. DO NOT ALLOW THE LOAD TO ROTATE MORE THAN TWO COMPLETE TURNS. IF THE LOAD CANNOT BE STABILIZED, IT SHOULD BE LANDED.



RIGGING STEPS

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

2. Route the chain end of sling leg 1 through the left front lift provision. Place the correct link from Table 8-37 in the grab hook. Repeat with sling leg 2 and the right front lift provision.

3. Route the chain end of sling leg 3 through the left front sling guide on the ROPS, down through the left rear lift provision, and back through the same sling guide. Place the correct link from Table 8-37 in the grab hook. Repeat with sling leg 4 on the right rear lift provision. Secure the excess chain with tape or Type III nylon cord.

4. Heavy pad the sling legs where they make contact with the tracks.

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

Figure 8-37. Tractor (Dozer), Full-Tracked, Type III, JD450G

8-39. Vibrating Roller, Caterpillar, RO-33

a. Applicability. The following item in Table 8-38 is certified for all helicopters with suitable lift capacity by the US Army Soldier Systems Center:

Table 8-38. Vibrating Roller, Caterpillar, RO-33

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
Vibrating Roller, Caterpillar, RO-33	16,425	25K	30/3	120

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

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

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

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

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

(5) Lumber, 2-inch x 4-inch (as required).

(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) Place the transmission in neutral and set the parking brake.

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

(c) Secure the seat cushion to the frame with tape or Type III nylon cord.

(d) Remove and secure the exhaust stack.

(e) Tape all lights and gauges. Secure all loose covers and panels with tape or Type III nylon cord.

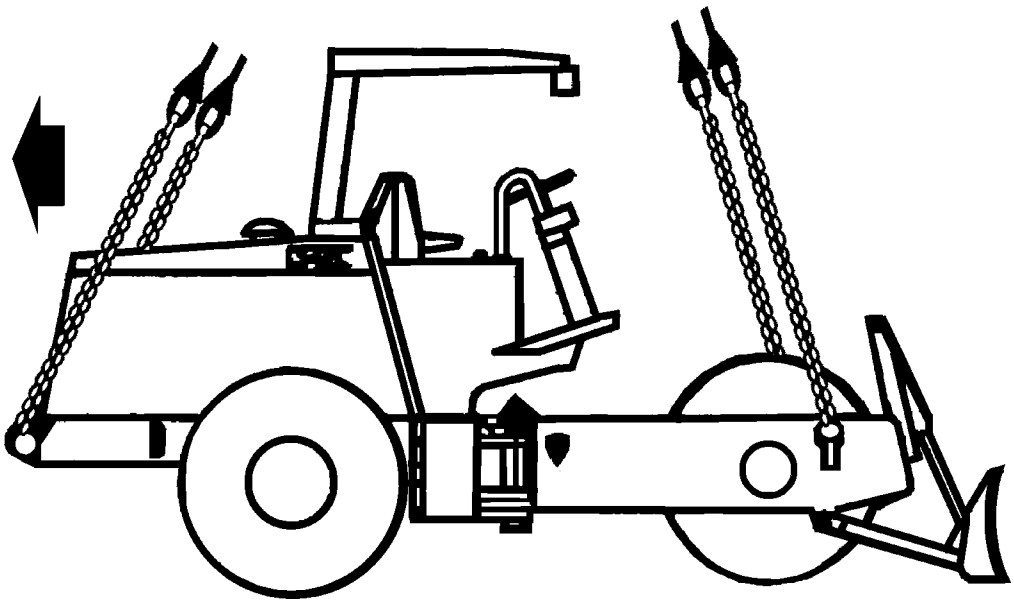
(f) Tie down the steering wheel with Type III nylon cord.

(g) Place the wooden block in the pivot point at the center of the roller to prevent the two halves from flexing during flight.

(2) Rigging. Rig the load according to the steps in Figure 8-38.

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

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



RIGGING STEPS

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

2. Route the chain end of sling leg 1 through the left front lift provision. Place the correct link from Table 8-38 in the grab hook. Repeat with sling leg 2 and the right front lift provision. Secure the excess chain with tape or Type III nylon cord.

3. Route the chain end of sling leg 3 through the left rear lift provision. Place the correct link from Table 8-38 in the grab hook. Repeat with sling leg 4 on the right rear lift provision.

4. Pad the sling legs/chains in the area where they make contact with the vehicle.

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

Figure 8-38. Vibrating Roller, Caterpillar, RO-33

8-40. Countermine Mini-Flail

a. Applicability. The following item in Table 8-39 is certified for all helicopters with suitable lift capacity by the US Army Soldier Systems Center:

Table 8-39. Countermine Mini-Flail

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
Countermine Mini-Flail	2,420	10K	35/3	100

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

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

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

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

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

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

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

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

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

(a) Tape the flail headspring mechanism to the lift/tie crossmember.

(b) Ensure the engine compartment door securing pin is present and safety the pin with tape.

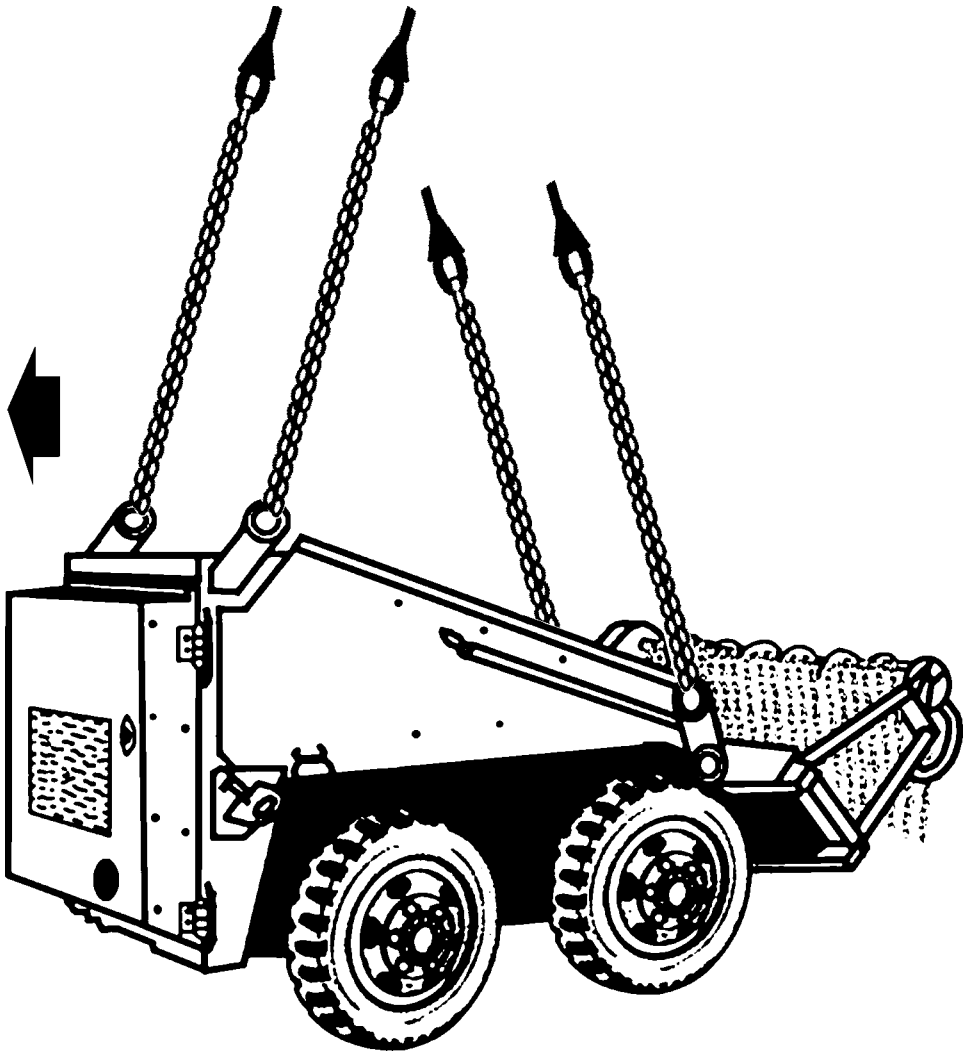
(c) Secure loose cables, safety cables, and safety chains with tape or Type III nylon cord.

(d) Engage the brakes.

(2) Rigging. Rig the load according to the steps in Figure 8-39.

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

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



RIGGING STEPS

1. Position the apex fitting near the mini-flail. Route outer sling legs 1and 2 to the front of the load (engine end). Route inner sling legs 3 and 4 to the rear of the load (flail head). Sling legs 1 and 3 must be on the left side of the load.

2. Route the chain end of sling leg 1 through the left front lift provision (engine end). Place the correct link from Table 8-39 in the grab hook. Repeat with sling leg 2 and the right front lift provision. Secure the excess chain with tape or Type III nylon cord.

3. Route the chain end of sling leg 3 through the left rear lift provision (flail head end). Place the correct link from Table 8-39 in the grab hook. Repeat with sling leg 4 on the right rear lift provision.

4. Pad the sling legs/chains in the area where they make contact with the vehicle.

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

Figure 8-39. Countermine Mini-Flail

CHAPTER 11

CERTIFIED SINGLE-POINT RIGGING PROCEDURES FOR CONTAINERS

11-1. Introduction

This chapter contains rigging procedures for single-point lift of containers that have been certified for sling load. Each rigging procedure is found in a paragraph that includes a description of the load, materials required for rigging, and steps to complete the procedure. An applicability paragraph is also a part of each paragraph and identifies the certified loads. The certified single-point rigging procedures for containers are in this section. Paragraphs 11-2 through 11-11 give detailed instructions for rigging loads.

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

11-2. Pershing II in Container

a. Applicability. The following items in Table 11-1 are certified for all helicopters with suitable lift capacity by the US Army Soldier Systems Center:

Table 11-1. Pershing II in Container

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
Pershing II First Stage Section	14,410	25K	3/20	90
Pershing II Second Stage Section	10,158	25K	3/13	110
Pershing II Guidance and Contro/l Adapter Section	3,500	10K	3/14	100
Pershing II Radar Section	1,708	10K	3/3	70

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

(1) Sling set (10,000- or 25,000-pound capacity) (as required).

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

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

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

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

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

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

(a) Ensure the container cover is securely fastened.

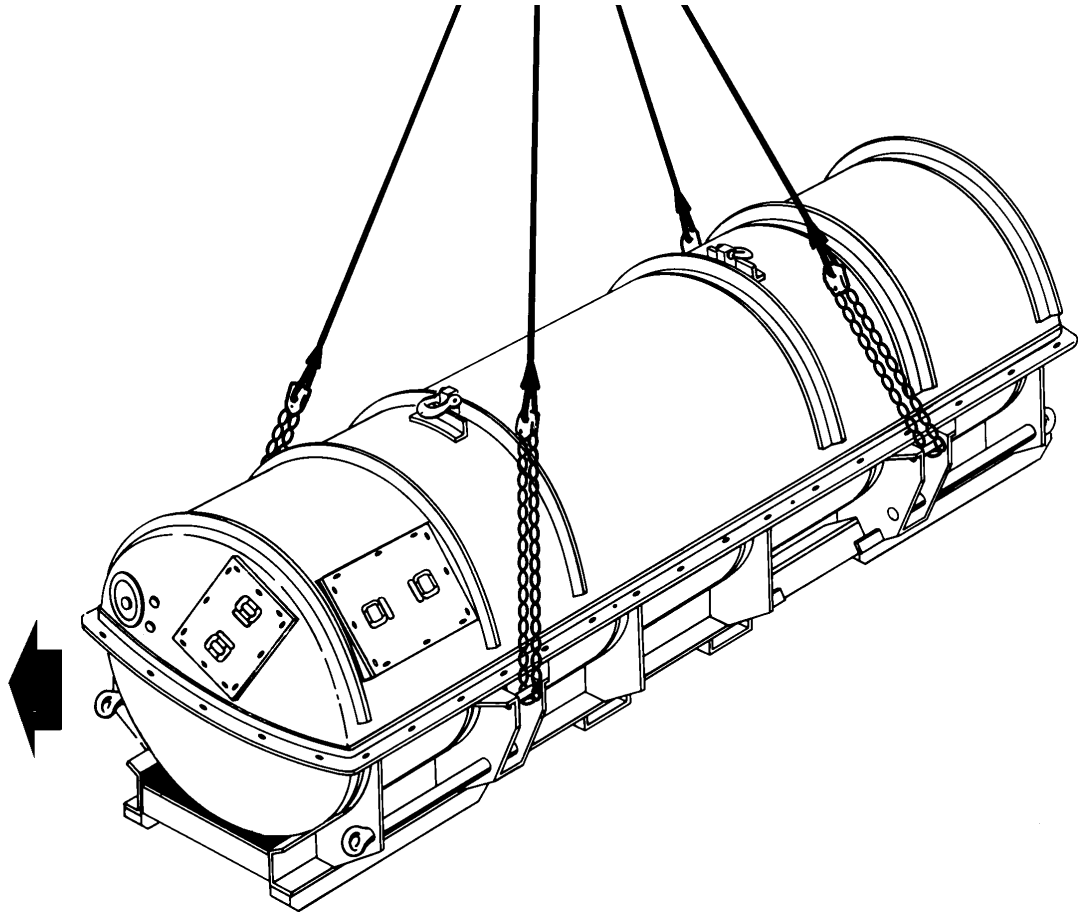
(b) Ensure the container skids and lift handles are serviceable.

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

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

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

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



RIGGING STEPS

1. Position apex fitting on top of the container. Route outer sling legs 1 and 2 to the front of the container 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 handle. Place the correct link from Table 11-1 in the grab hook. Repeat with sling leg 2 on the right front lift provision.

3. Loop the chain end of sling leg 3 through the left rear lift handle. Place the correct link from Table 11-1 in the grab hook. Repeat with sling leg 4 on the right rear lift provision. Secure the excess chain with tape or Type III nylon cord.

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

Figure 11-1. Pershing II in Container

11-4. Army Missile Systems Enclosure Assembly Launch Pods (EALP), One Container

a. Applicability. The following items in Table 11-3 are certified for all helicopters with suitable lift capacity by the US Army Soldier Systems Center:

Table 11-3. Army Missile Systems Enclosure Assembly Launch Pods, One Container

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
Multiple Launch Rocket System with Rocket Pod/Container (with Six Rockets)	5,005	10K	3/3	90
Guided Missile Launch Assembly (GMLA)	5,071	10K	3/3	90

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

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

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

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

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

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

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

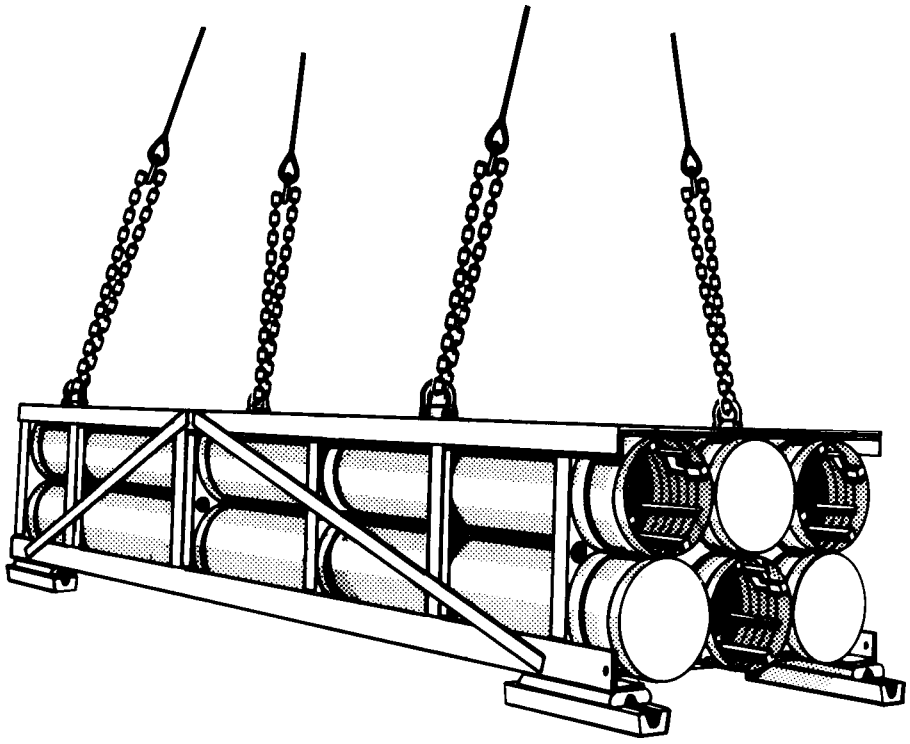
(1) Preparation. Prepare the EALP for travel in accordance with standard procedures.

(2) Rigging. Rig the load according to the steps in Figure 11-3.

NOTE: The firing end is considered to be the front of the load.

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

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



RIGGING STEPS

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

2. Loop the chain end of sling leg 1 through the left front lift provision. Place the correct link from Table 11-3 in the grab hook. Repeat with sling leg 2 on the right front lift provision.

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

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

Figure 11-3. Army Missile Systems Enclosure Assembly Launch Pods, One Container

11-5. Army Missile Systems Enclosure Assembly Launch Pods (EALP), Two Containers

a. Applicability. The following items in Table 11-4 are certified for all helicopters with suitable lift capacity by the US Army Soldier Systems Center:

Table 11-4. Army Missile Systems Enclosure Assembly Launch Pods (EALP), Two Containers

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
Multiple Launch Rocket System with Two Rocket Pods/Containers (with Six Rockets)	10,010	25K	3/3	85
Two Enclosure Assembly Launch Pods, Guided Missile Launch Assembly	10,142	25K	3/3	85

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

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

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

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

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

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

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

c. Personnel. Four persons can prepare and rig this load in 30 minutes.

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

(a) Prepare the EALPs for travel in accordance with standard procedures.

(b) Stack the EALPs one on top of the other, with both EALPs facing the same direction.

CAUTION
Do not mix the MLRS and the GMLA in the same load.

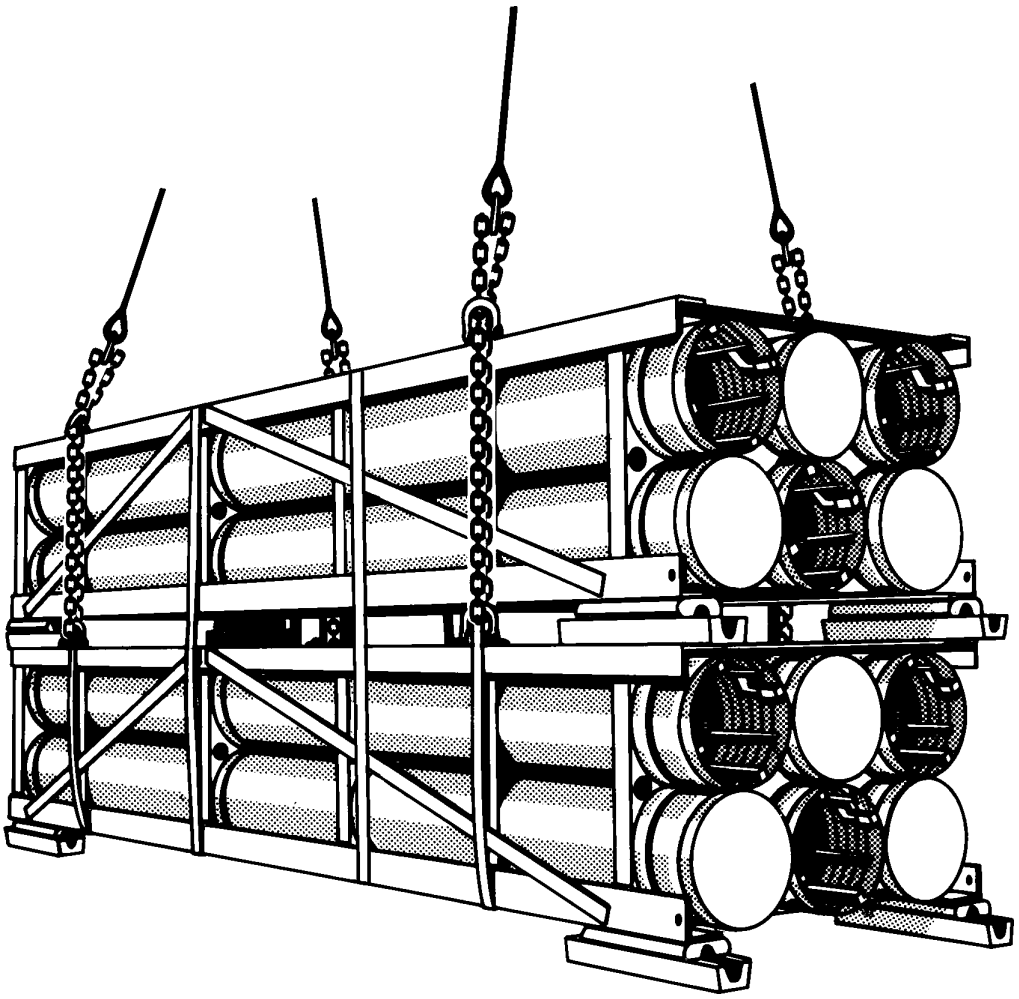
(c) Lash the stack of EALPs together using the CGU-1/B tie-down straps. Two of the straps should run through both sets of lifting provisions on each end of the EALPs, to keep them aligned during flight. Evenly space the remaining two straps between the lifting provisions, running them around the EALPs. **DO NOT ROUTE THE STRAPS OVER THE ROCKET TUBES**. Pad all straps in the area where they contact the edges of the EALPs.

(2) Rigging. Rig the load according to the steps in Figure 11-4.

NOTE: The firing end is considered the front of the load.

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

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



RIGGING STEPS

1. Position apex fitting on top of the EALPs. Route outer sling legs 1 and 2 to the front of the EALPs 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 on the top EALP and through the front lift provision on the bottom EALP. Thread it back through the front lift provision on the top EALP. Place the correct link from Table 11-4 in the grab hook. Repeat with sling leg 2 on the right front lift provision.

3. Loop the chain end of sling leg 3 through the left rear lift provision on the top EALP and through the rear lift provision on the bottom EALP. Thread it back through the rear lift provision on the top EALP. Place the correct link from Table 11-4 in the grab hook. Repeat with sling leg 4 on the right rear lift provision.

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

Figure 11-4. Army Missile Systems Enclosure Assembly Launch Pods (EALP), Two Containers

11-9. Distributed Explosive Technology (DET) System, Array Container

a. Applicability. The following item in Table 11-8 is certified for all helicopters with suitable lift capacity by the US Army Soldier Systems Center:

Table 11-8. Distributed Explosive Technology (DET) System, Array Container

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
Distributed Explosive Technology (DET) System, Array Container	4,000	Navy MK105 O Sling Assembly	N/A	90

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

(1) Sling set, Navy MK105 O Sling Assembly with 91-inch or longer leg assembly.

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

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

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

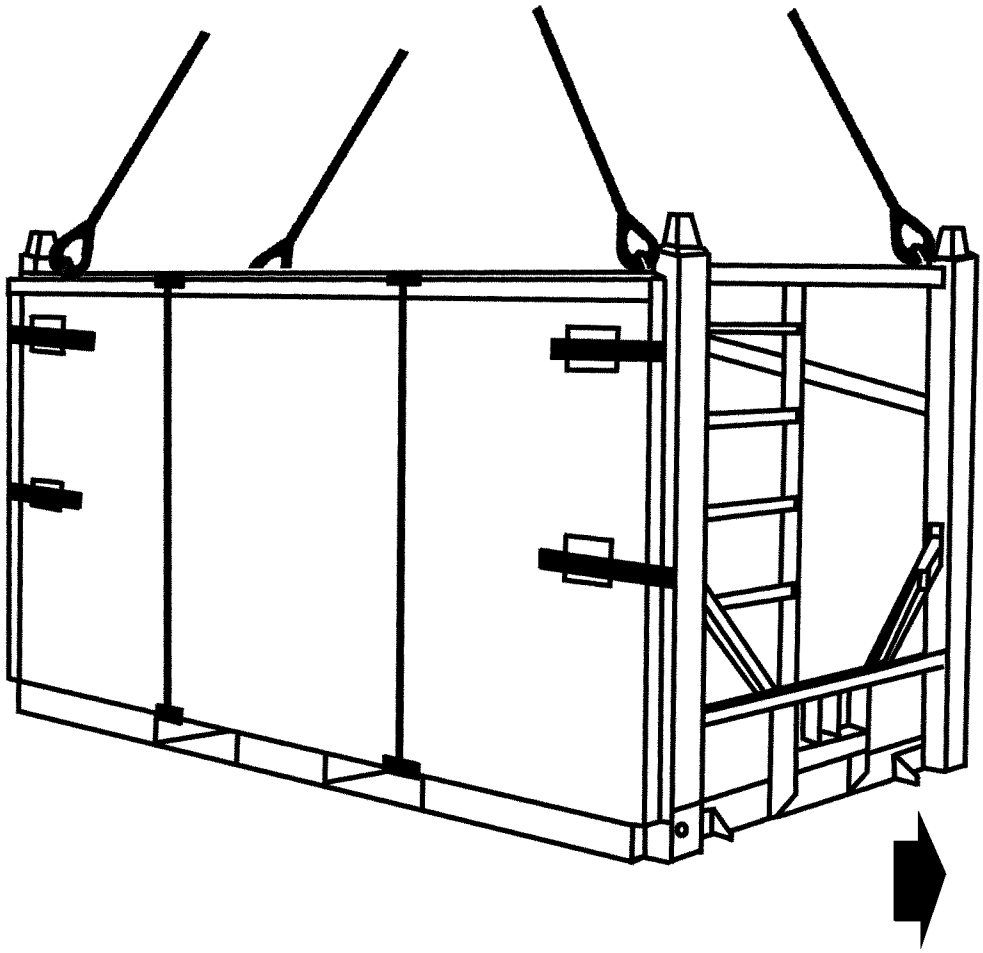
d. Procedures. The following procedures apply to this load:

(1) Preparation. Prepare the load by taping the handles on the sides of the container.

(2) Rigging. Rig the load according to the steps in Figure 11-8.

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

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



RIGGING STEPS

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

2. Attach the hook on the end of each sling leg to the respective lift provision located at the top corners of the container.

3. Secure the sling leg hooks in the closed position with Type III nylon cord.

Figure 11-8. Distributed Explosive Technology (DET) System, Array Container

11-10. Distributed Explosive Technology (DET) System, Landing Craft, Air Cushioned (LCAC), Landing Interface Kit (LIK) Container, Single

a. Applicability. The following item in Table 11-9 is certified for all helicopters with suitable lift capacity by the US Army Soldier Systems Center:

Table 11-9. Distributed Explosive Technology (DET) System, Landing Craft, Air Cushioned (LCAC), Landing Interface Kit (LIK) Container, Single

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
Distributed Explosive Technology (DET) System, Landing Craft, Air Cushioned (LCAC), Landing Interface Kit (LIK) Container	1,200	Navy MK105 O Sling Assembly	N/A	80

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

(1) Sling set, Navy MK105 O Sling Assembly with 91-inch or longer leg assembly.

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

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

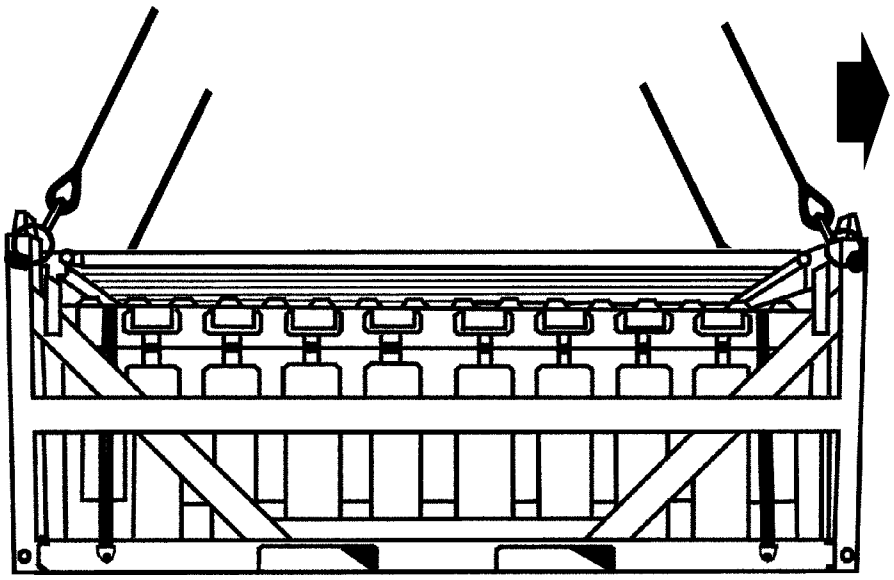
d. Procedures. The following procedures apply to this load:

(1) Preparation. Prepare the load by placing a strap over each end of the LIK container and attaching it to the platform in accordance with manufacturer's instructions.

(2) Rigging. Rig the load according to the steps in Figure 11-9.

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

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



RIGGING STEPS

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

2. Attach the hook on the end of each sling leg to the respective lift provision located at the top corners of the container.

3. Secure the sling leg hooks in the closed position with Type III nylon cord.

Figure 11-9. Distributed Explosive Technology (DET) System, Landing Craft, Air Cushioned (LCAC), Landing Interface Kit (LIK) Container, Single

11-11. Distributed Explosive Technology (DET) System, Landing Craft, Air Cushioned (LCAC), Landing Interface Kit (LIK) Container, Doubled, Stacked

a. Applicability. The following item in Table 11-10 is certified for all helicopters with suitable lift capacity by the US Army Soldier Systems Center:

Table 11-10. Distributed Explosive Technology (DET) System, Landing Craft, Air Cushioned (LCAC), Landing Interface Kit (LIK) Container, Doubled, Stacked

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
Distributed Explosive Technology (DET) System, Landing Craft, Air Cushioned (LCAC), Landing Interface Kit (LIK) Container, Doubled, Stacked	2,400	Navy MK105 O Sling Assembly	N/A	85

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

(1) Sling set, Navy MK105 O Sling Assembly with 91-inch or longer leg assembly.

(2) Cord, nylon, Type III, 550-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) Place a strap over each end of the LIK container and attach it to the platform in accordance with manufacturer's instructions.

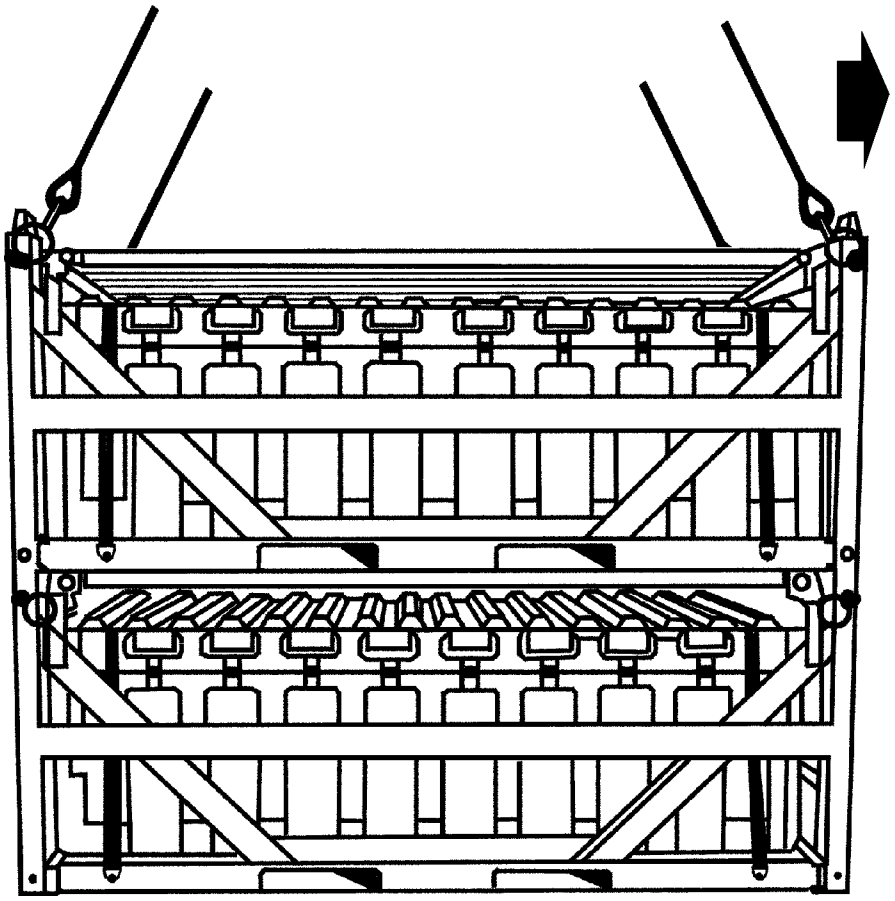
(b) Ensure the containers are secured together one on top of the other according to the manufacturer's instructions.

(c) Tie the bottom container lift provisions down to a point on the load with Type III nylon cord.

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

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

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



RIGGING STEPS

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

2. Attach the hook on the end of each sling leg to the respective lift provision located at the top corners of the container.

3. Secure the sling leg hooks in the closed position with Type III nylon cord.

Figure 11-10. Distributed Explosive Technology (DET) System, Landing Craft, Air Cushioned (LCAC), Landing Interface Kit (LIK) Container, Double Stacked

CHAPTER 12

CERTIFIED SINGLE-POINT RIGGING PROCEDURES FOR RADAR AND SATELLITE EQUIPMENT

12-1. Introduction

This chapter contains rigging procedures for single-point lift of radar and satelite 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 single-point rigging procedures for radar and satellite equipment are in this section. Paragraphs 12-2 through 12-12 give detailed instructions for rigging loads.

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

12-2. AN/TPQ-37 Artillery-Loading Radar Set (Firefinder)

a. Applicability. The following item in Table 12-1 is certified for all helicopters with suitable lift capacity by the US Army Soldier Systems Center:

Table 12-1. AN/TPQ-37 Artillery-Loading Radar Set (Firefinder)

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
AN/TPQ-37 Artillery-Loading Radar Set (Firefinder)	10,800	24K	68/5	90

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

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

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

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

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

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

(6) Ladder.

c. Personnel. Two persons can prepare and rig this load in 30 minutes.

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

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

(a) Antenna unit should be configured for march order. If the antenna unit is mounted on its transport trailer, it must be removed for sling loading. If the trailer is to accompany the unit, it must be rigged and moved as a separate load.

(b) Ensure the maintenance tent frame and cover are stowed and secured in their proper position.

(c) Ensure all cover panels, cabinet doors, and vents are installed and secured.

(d) Secure all loose items with Type III nylon cord.

(e) Ensure the rear door is closed and secured with the locking handle. Door rods must be secured in their clips.

(f) Ensure the antenna transport cover is secured tightly to the lacing brackets with bungee cord. If necessary, secure the antenna with additional nylon cord.

(2) Rigging. Rig the load according to the steps in Figure 12-1.

CAUTION
Do not stand on top of the load. Use the ladder to connect the sling legs to the load.

(3) Hookup. The hookup team 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 is accomplished by the flight engineer using a cargo-hook loading pole (Shepard's Hook). Ensure the helicopter crew is informed of this in advance.

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

NOTE: Advise the pilot to hover to one side before releasing the apex fitting from the cargo hook .

12-12. Secure Mobile Anti-Jam Reliable Tactical Terminal (SMART-T) Pallet

a. Applicability. The following item in Table 12-11 is certified for all helicopters with suitable lift capacity by the US Army Soldier Systems Center:

Table 12-11. Secure Mobile Anti-Jam Reliable Tactical Terminal (SMART-T) Pallet

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
Secure Mobile Anti-Jam Reliable Tactical Terminal (SMART-T) Pallet	2,440	10K	3/30	100

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

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

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

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

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

c. Personnel. Four 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 equipment with tape or Type III nylon cord. Ensure the fuel cans at the end of the pallet are locked in position.

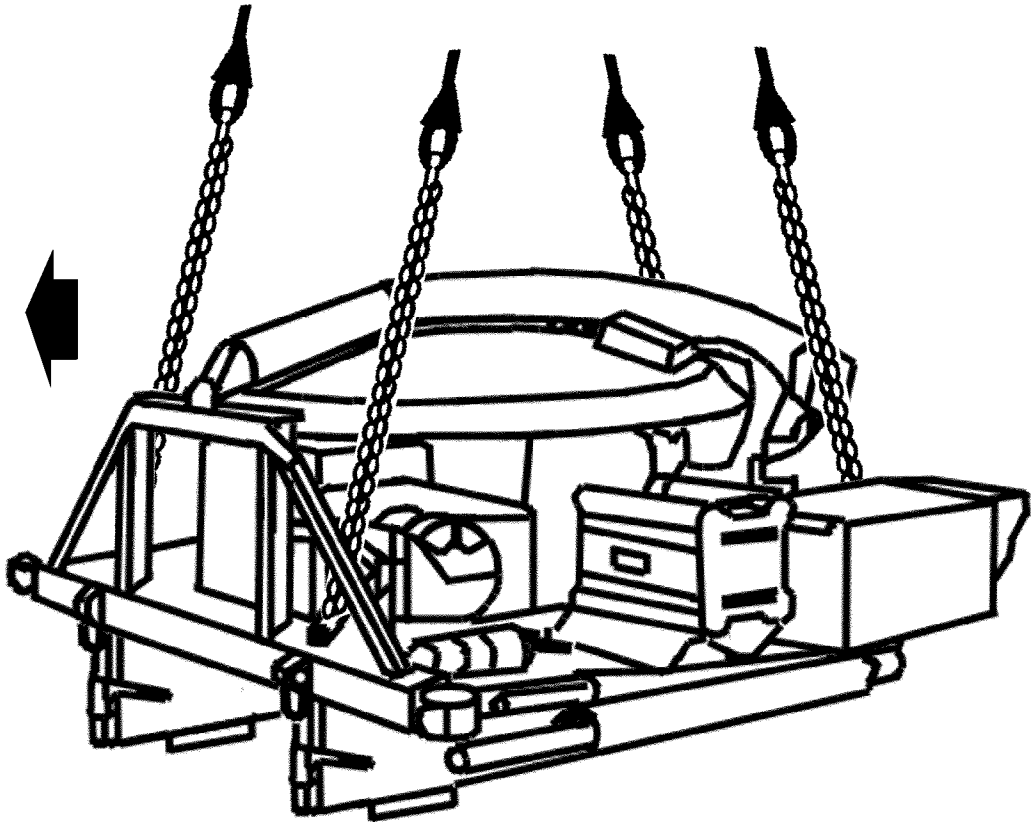
(b) Secure the antenna dish.

(2) Rigging. Rig the load according to the steps in Figure 12-11.

NOTE: The fuel can brackets are on the rear of the load.

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

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



RIGGING STEPS

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

2. Loop the chain end of sling leg 1 through the left front lift provision. Place the correct link from Table 12-11 in the grab hook. Repeat with sling leg 2 on the top right corner of the frame.

3. Loop the chain end of sling leg 3 through the left rear lift provision. Place the correct link from Table 12-11 in the grab hook. Repeat with sling leg 4 on the right rear lift provision. Secure excess chain with tape or Type III nylon cord.

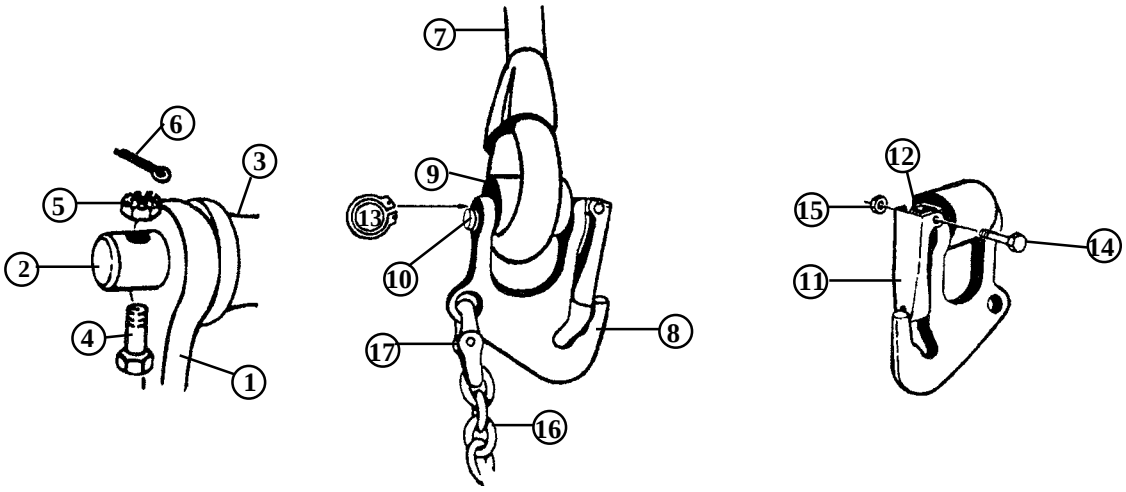
4. Cluster and tie or tape (breakaway technique) all sling legs together on top of the load to prevent entanglement during hookup and lift-off.

Figure 12-11. Secure Mobile Anti-Jam Reliable Tactical Terminal (SMART-T) Pallet

APPENDIX A

NATIONAL STOCK NUMBERS FOR SLINGS, NETS, AND SPARE PARTS

10,000-POUND CAPACITY SLING SET AND COMPONENTS



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

	NSN	PART NUMBER	DESCRIPTION	Qty
	1670-01-027-2902	38850-00001-043	Sling Set Assembly Complete LIN T79003	1 ea
1	4030-01-048-4045	38850-00004-045	Apex Fitting Assembly	1 ea
2	5315-01-115-3482	38850-00008-101	Pin, Apex Fitting	1 ea
3	5365-01-235-0908	38850-00015-104	Spacer, Apex	1 ea
4	5306-00-944-1536	NAS1306-16D	Bolt	1 ea
5	5310-00-207-9274	AN 320C6	Nut, Castellated	1 ea
6	5315-00-2341864	MS 24665-302	Cotter Pin	1 ea
7	4020-01-047-6814	38850-00009-055	Rope Assembly, Black	4 ea
8	4030-01-048-4046	38850-00011-041	Grabhook Assembly	4 ea
9	5364-01-109-2543	38850-00015-101	Spacer, Grabhook	4 ea
10	5315-01-121-0497	38850-00008-103	Pin, Spacer	4 ea
11	4030-01-100-1684	38850-00017-101	Keeper, Grabhook	4 ea
12	5360-01-115-6833	38850-00019-101	Keeper, Spring	4 ea
13	5365-01-046-3670	MS 3217-1050	Snap Ring	4 ea
14	5306-00-771-7621	NAS 1303-21	Bolt, Shear	4 ea
15	5310-00-807-1467	MS 21042-3	Nut, Lock	4 ea
16	4010-01-058-4772	38850-00053-101	Chain, 8-foot Length	4 ea
17	4010-01-193-9331	577-0615	Link, Coupling	4 ea
18	8460-00-606-8366	Mil-41835	Kit Bag, Flyer's	1 ea

25,000-POUND CAPACITY SLING SET AND COMPONENTS

	NSN	PART NUMBER	DESCRIPTION	Qty
	1670-01-027-2900	38850-00001-044	Sling Set Assembly Complete LIN T79009	1 ea
1	4030-01-048-4044	38850-00004-046	ShackleAssembly	1 ea
2	5315-01-119-9065	38850-00008-102	Pin, Apex Fitting	1 ea
3	1670-01-235-0907	38850-00015-105	Spacer, Apex	1 ea
4	5306-00-944-2659	NAS1306-22D	Bolt	1 ea
5	5310-00-207-9274	AN 320C6	Nut, Castellated	1 ea
6	5315-00-234-1864	MS 24665-302	Cotter Pin	1 ea
7	1670-01-047-6815	38850-00009-056	Rope Assembly	4 ea
8	4030-01-048-4047	38850-00011-046	Grabhook Assembly	4 ea
9	1670-01-109-2544	38850-00015-102	Spacer, Grabhook	4 ea
10	5315-01-121-2874	38850-00008-104	Pin, Spacer	4 ea
11	4030-01-100-1685	38850-00017-102	Latch, Safety Hook	4 ea
12	5360-01-115-6833	38850-00019-101	Keeper, Spring	4 ea
13	5365-00-261-3918	MS 3217-1075	Snap Ring	4 ea
14	5306-00-771-7621	NAS 1303-21	Bolt, Shear	4 ea
15	5310-00-807-1467	MS 21042-3	Expanded Washer	4 ea
16	4010-01-058-4771	38850-00053-102	Chain, 8-foot Length	4 ea
17	4010-01-041-9751	664241	Link, Coupling	4 ea
18	8460-00-606-8366	Mil-41835	Kit Bag, Flyer’s	1 ea

15,000-POUND CAPACITY MULTILEG SLING ASSEMBLY

NSN	PART NUMBER	DESCRIPTION	Qty
1670-00-902-3080	3900061	Sling , multi-leg assembly, LIN T780571 TAMCN B2030	1 ea
5365-00-946-8719	AC6000292	Web Ring assembly	1 ea
1670-00-719-6243	MS24553-1	Link Assembly, Web Ring	1 ea
1670-00-946-8631	3110167	Sling leg assembly	4 ea
NA	3910112-5	Keeper, 5-inch, leg assembly	4 ea
NA	391011-1	Keeper, 6 1/4-inch, leg assembly	4 ea
1670-00-719-6343	MS 24553-1	Link assembly, sling leg	1 ea
NA	31610	Grab link	4 ea
NA	FE7623-3	Keeper, grab link	4 ea
NA	34012-18	Spring keeper, grab link	4 ea
5310-00-167-0818	NAS1145f0363f	Washer keeper, grab link	4 ea
5315-00-812-3765	MS20392-2033	Pin, keeper, grab link	4 ea
5315-00-839-2325	MS24665-132	Cotter pin, keeper, grab link	4 ea
NA	31611	Coupling link	4 ea
NA	34080-4	Chain	4 ea

40,000-POUND CAPACITY SLING SET AND COMPONENTS

NSN	PART NUMBER	DESCRIPTION	Qty
3940-01-183-2118	TAMCN	Sling Set Assembly Complete	1 ea
4030-01-199-9562	FE8109-1	Apex shackle assembly	1 ea
NA	FE8109-5	Shackle	1 ea
NA	FE8109-3	Pin, shackle, apex	1 ea
NA	FE8109-2	Spacer, shackle, apex	1 ea
5306-00-763-7931	NAS1306-21D	Bolt, shear	1 ea
5310-00-176-8110	AN320-6	Nut, castellated, plain, hex	1 ea
5315-00-234-1864	MS24665-302	Cotter Pin	1 ea
3940-01-194-9364	JETSWMC-2000	Sling leg	4 ea
4030-01-197-1629	FE8103-1	Shackle assembly	4 ea
NA	FE8103-4	Spacer, grab link	4 ea
5306-00-151-1482	AN12-42	Bolt, grablink	4 ea
5310-00-167-1292	AN310-12	Nut, plain, castellated, plain, hex	4 ea
5315-00-285-7161	MS20392-2033	Pin, cotter	4 ea
NA	34012-18	Spring, keeper, grab link	4 ea
5310-00-167-0818	AN960-10	Washer, keeper, grab link	4 ea
5315-00-839-2325	MS24665-132	Cotter pin, keeper, grab link	4 ea
4010-01-081-5114	577-0815	Link, Coupling	4 ea
NA	607050	Chain, 8-foot	4 ea

FLAT WEB NYLON SLINGS

TYPE X NYLON AERIAL DELIVERY SLING

NSN	Description
3940-00-675-5001	Sling, endless donut, 10-inch
1670-00-393-0460	Ring assembly, 25,000-pound capacity

TYPE XXVI NYLON MULTILOOP LINE

NSN	Description
1670-01-062-6301	2-loop, 3 foot
1670-01-062-6306	4-loop, 3 foot
1670-01-062-6304	2-loop, 9 foot
1670-01-062-6305	4-loop, 9 foot
1670-01-063-7760	2-loop, 11 foot
1670-01-062-6310	4-loop, 11 foot
1670-01-062-6303	2-loop, 12 foot
1670-01-062-6307	4-loop, 12 foot
1670-01-063-7761	2-loop, 16 foot
1670-01-062-6308	4-loop, 16 foot
1670-01-062-6302	2-loop, 20 foot
1670-01-064-4453	4-loop, 20 foot
1670-01-062-6309	4-loop, 28 foot
1670-01-062-6313	3-loop, 60 foot
1670-01-064-4454	6-loop, 60 foot
1670-01-062-6311	2-loop, 120 foot
1670-01-062-6312	6-loop, 120 foot
1670-01-107-7651	3-loop, 140 foot

ROUNDSLINGS

NSN	CAPACITY	LENGTH
1670-01-388-6789	5,300-pound	8 foot
1670-01-388-8480	8,400-pound	8 foot
1670-01-388-3845	5,300-pound	17 foot
1670-01-388-8479	8,400-pound	17 foot
1670-01-388-3917	13,200-pound	30 foot
1670-01-388-3901	21,200-pound	65 foot
1670-01-388-3965	21,200-pound	70 foot

5,000- AND 10.000-POUND CAPACITY CARGO NETS AND COMPONENTS

NSN	Part Number	Description	Qty
1670-01-058-3811	6018-5	Net, 5,000-pound capacity, LIN N02776, TAMCN J3121	1 ea
1670-01-058-3810	6018-10	Net, 10,000-pound capacity, LIN N02708, TAMCN J3120	1 ea
1670-01-070-5276	6019	Apex fitting	1 ea
1670-01-067-9989	6020	Hook	4 ea
4020-01-118-5826	M7515-7N	Repair cord, used on part no. 6018-5	As req
4020-01-119-5994	6018-20	Repair cord, used on part no. 6018-10	As req
8030-01-152-2286	WB460-23	Antiabrasion compound, olive drab	As req
8030-01-154-2327	WB460-7012	Antiabrasion compound, black	As req
1080-00-108-1155	13226EO964-2	Transportease	1 ea*
8460-00-606-8366	MIL-K-41835	Kit bag, flyers	1 ea*

* Alternate NSN is 1080-00-107-8580. These cases are designed and marked for use with the camouflage screen. Camouflage system markings should be replaced with “Helicopter External Cargo Net, 10,000-pound capacity.”

PROTECTIVE EQUIPMENT

NSN	Description
4240-00-052-3776	Eye goggles
8415-01-158-9445	Gloves, electrical workers, size 9
8415-01-158-9446	Gloves, electrical workers, size 10
8415-01-158-9447	Gloves, electrical workers, size 11
8415-01-158-9448	Gloves, electrical workers, size 12
8415-00-268-7859	Gloves, leather
4240-00-759-3290	Headset (USAF)
4240-00-762-2582	Headset (USAF)
8415-00-071-8786	Helmet, flight deck (USN/USMC/USAF)
6515-00-137-6345	Plugs, ear, hearing protection

MISCELLANEOUS EQUIPMENT AND MATERIAL

NSN	Description
4030-00-360-0304	Clevis assembly, small, MS 70087-1
5305-00-726-2553	Bolt, Screw Cap, Hexagon Head
5310-00-835-2037	Nut, Plain, Hexagon
4030-00-678-8562	Clevis assembly, medium, MS 70087-2, Shackle
5305-00-940-8069	Bolt, Screw Cap, Hexagon Head
5310-00-842-1190	Nut, Plain, Hexagon
4030-00-090-5354	Clevis assembly, large, MS 70087-3, Shackle
5305-00-177-5617	Bolt, Screw Cap, Hexagon Head
5310-00-891-3428	Nut, Plain, Hexagon
4020-00-240-2146	Cord, nylon, Type III, 550-pound breaking strength
8305-00-958-3685	Felt sheeting, 1/2-inch thick, 30-inch wide
8305-00-191-1101	Felt sheeting, 1/2-inch thick, 60-inch wide
7510-00-079-0286	Ink, marking, parachute, orange-yellow, marker
7520-00-634-6583	Ink, marking, parachute, orange-yellow, liquid
7510-00-230-2734	Ink, marking, parachute, strata-blue, marker
7520-00-286-5362	Ink, marking, parachute, strata-blue, liquid
5825-00-917-3738	Light, beacon, beanbag
6260-01-074-4230	Light, chemical wand, 30-minute glow time, Yellow
6260-00-106-7478	Light, chemical wand, 6-hour glow time, Green
6260-01-074-4229	Light, chemical wand, 12-hour glow time, Green
1670-00-783-5988	Link assembly, Type IV
1670-00-212-1149	Rachet, Adjustable, Assembly, Tiedown
1670-00-516-8405	Tiedown, Cargo, Aircraft, 10,000-pound capacity
1670-00-753-3928	Pad, energy-dissipating, honeycomb
8135-00-664-6958	Padding, cellulose, 20-inch by 60-foot
8135-00-808-6446	Padding, cellulose, 24-inch by 125-foot
8345-00-174-6865	Panel, marker, red-yellow, VS-17, orange
4020-00-231-2581	Rope, 3/8-inch, TR605, Natural
4020-00-968-1357	Rope, fibrous, 1/2-inch, MIL-R-17343
6850-00-264-9038	Solvent, dry cleaning, PD-680
7510-00-266-5016	Tape, adhesive, pressure-sensitive, 2-inch wide roll, green

MISCELLANEOUS EQUIPMENT AND MATERIAL (CONTINUED)

7510-00-074-4969	Tape, adhesive, pressure-sensitive, 2-inch wide roll, red
1670-00-725-1437	Tie-down strap, CGU-l/B, 5,000-pound capacity
5340-01-204-3009	Tie-down strap, web nylon, 5,000-pound capacity
1670-00-937-0271	Tie-down strap, web nylon, 10,000-pound capacity
5365-00-937-0147	D-Ring, aerial delivery
3990-00-937-0272	Load binder assembly
1670-00-986-1139	Quick-fit strap fastener

Two-point link assembly components:

5306-00-435-8994	Bolt, 1-inch diameter, 4-inch long (2 each)
5310-00-232-5165	Nut, 1-inch diameter (2 each)
1670-00-003-1954	Plate, side, 5 1/2-inch long (2 each)
5365-00-007-3414	Spacer, large

1670-00-574-8044	Wand, static discharge
5920-01-192-5535	Wand, static discharge, 3-foot, PN 1610AS100-1, TAMCN C6254
5920-01-347-0728	Wand, static discharge, 5-foot, PN 1610AS100-2, TAMCN C6252

8305-00-082-5752	Webbing, nylon, tubular, 1/2-inch, 1,000-pound breaking strength
8305-00-268-2411	Webbing, cotton, 1/4-inch, 80-pound breaking strength

EXTERNAL LIFT DEVICES

1670-00-587-3421	Bag, cargo, A-22, LIN B 14181, TAMCN C4070
3940-00-892-4380	Cargo net, 14-foot square, 10-inch mesh
3940-00-892-4374	Cargo net, 14-foot square, 8-inch mesh
1450-01-219-4360	Mk105 pendant
1450-00-414-7172	Mk105 hoisting sling assembly, 6,000-pound capacity
4020-00-881-8736	Mk105 sling leg assembly
4020-01-365-3115	Pendant, reach, 11,000-pound capacity
4020-01-337-3185	Pendant, reach, 25,000-pound capacity
1670-01-003-0803	Releasable swivel hook pendant sling AC6000500 Mod 1
1450-00-169-6927	Sling, pallet, Mk86, LIN S80670
1398-00-004-9175	Sling, pallet, Mk100, LIN S80738
1670-00-103-6617	Swivel hook sling leg, AC6000153 (USMC, USN)

GLOSSARY

ACRONYMS AND ABBREVIATIONS

ADCGS	aviation direct current generator set
AETC	auxiliary equipment transportation container
AFATADS	advanced field artillery tactical data systems
AGPU	aviation ground power unit
ARL-C	airborne reconnaissance low-comint
ARL-I	airborne reconnaissance low-imagery
ASK	acoustic suppression kit
AS	aviation section
ATG	antenna transceiver group
BIDS	biological integrated detection system
bn	battalion
BSTF	base shop test facility
BTU	British Thermal Unit
CBC	cargo bed cover
CFM	cubic feet per minute/cylinder filling module
CLFFK	company level field feeding kit
CMTH	contact maintenance truck, heavy
CONEX	container express
CWAR	continuous wave acquisition radar
DASC	direct air support central
DAMP	digital antenna mast program
DDSS	downsized direct support section
DDGM	downsized digital group multiplexer
DET	distributed explosive technology
DGM	digital group multiplexer
DOD	Department of Defense
DOM	desert operation motorcycle
DOT	desert operation trailer
EALP	enclosure assembly launch pods
EBFL	extendable boom forklift
ECU	environmental control unit
EFOGM	enhanced fiber optic guided missile
EMI	electromechanical induction
EPLRS	enhanced position location reporting system
FAAR	forward area alerting radar
FARE	forward area refueling equipment
FMOGDS	field medical oxygen generation/distribution system
FOPS	falling objects protection system
FUPP	full-up power pack
GMLA	guided missile launch assembly
GPH	gallons per hour
GPM	gallons per minute
HATS	hardened army tactical shelter
HEMAT	heavy expanded mobility ammunition trailer
HMD	high mobility downsized
HMDA	high mobility digital group multiplexer assemblage
HMMH	high mobility materiel handler
HMMWV	high-mobility multipurpose wheeled vehicle
HMT	high mobility trailers
HSTRU	hydraulic system test and repair unit
HZ	hertz
IAS	intelligence analysis system
IEW	intelligence and electronic warfare
IMETS	integrated meteorological systems
ISO	International Organization of Standardization
JSTAR	joint surveillance target attack radar
JTIDS	joint tactical information distribution system
KW	kilowatt(s)
LAV	light armored vehicle
LCAC	landing craft air cushioned
LHGXA	lightweight high gain x-band antenna
LIK	landing interface kit
LIN	line number
LMS	lightweight multipurpose shelter
LTACFIRE	lightweight tactical fire control system
LTR	light tactical floating raft bridge
LVAD	low velocity airdrop
MGB	medium girder bridge
MHG	meterological hydrogen generator
MICLIC	mine clearing line charge
MIL STD	military standard
MLRS	multiple launch rocket system
mm	millimeter
MOST	mobile oversnow transport
MR	mobile radio
MRBS	mobile radio broadcasting subsystem
MSFDCS	multiservice flight data collection sheet
MT	mobile television
MTBS	mobile television broadcasting subsystem
MTMCTEA	Military Traffic Management Command Transportation Engineering Agency
MTS	mobile-track system
NABS	NATO airbase satcom
NATO	North Atlantic Treaty Organization
NAVAIR	Naval Air Systems Command
NCS-E(D)	downsized net control system
NRDEC	Natick Research, Development, and Engineering Center

NSN	national stock number
OC	operations central
OCG	operational control group
OGDM	oxygen generation/distribution module
OVE	operator vehicle equipment
PN	part number
POC	platoon operations center
PTO	pioneer tool outfit
QRSA	quick reaction satellite antenna
RIE	required individual equipment
RLST	remote landing site tower
ROPS	roll-over protection system
ROWPU	reverse osmosis water purification unit
RP/C	rocket pod/container
RT	rough terrain
SCAMP	self-propelled crane for Army aircraft maintenance and positioning
SCOTT	single channel objective tactical terminal
SDASS	special diver's air support system
SEE	small emplacement excavator
SICPS	standardized integrated command post systems
SIXCON	six-compartment container
SMART-T	secure mobile anti-jam tactical terminal
SMMS	sensor mobile monitoring system
SPAM	shop, portable aircraft maintenance
SUSV	small unit support vehicle
TAFDS	tactical airfield fuel dispensing system
TAMCN	Table of Authorized Material Control Number
TM	technical manual
TOW	tube launched, optically tracked, wireguided
TQG	tactical quiet generator
TRSS	tactical remote sensor system
TSS	tracked suspension system
TTCS	tactical terminal control system
US	United States
USA	United States Army
USMC	United States Marine Corps

REFERENCES

REQUIRED PUBLICATIONS

Required publications are sources that users must read in order to understand or to comply with this publication.

MULTISERVICE PUBLICATION

AFJMAN 24-204/TM 38-250/NAVSUP PUB 505/MCO P 4030.19F/DLAM 4145.3, Packaging and Materials Handling: Preparing Hazardous Materials for Military Air Shipment. November 1994.

FM 10-450-3/MCRP4-23E, Vol I/NWP 3-04.11/AFJMAN 11-223, VOL I/COMDTINST M13482.2A
Multiservice Helicopter Sling Load: Basic Operations and Equipment. April 1997.

MIL STD 913 - Requirements for the Certification of Sling Loaded Equipment for External Transportation by Department of Defense Helicopters. February 1997.

TM 9-2320-285-24&P - Unit, Direct Support, and General Support Maintenance Repair Parts and Special Tools Lists, Truck, Tractor, Yard-type: 43,500 GVW, DED, 4 x 2 (Army Model M878A1). June 1992.

TM 9-1015-252-10 - Operator's Manual for Howitzer, Light, Towed: 105-MM, M119A1. October 1992.

TM 9-1425-2585-10-1 - System Description of M48A2 (Chaparral Air Defense Guided Missile System). June 1984.

TM 9-1430-588-10 - Operator's Manual for Radar Set, AN/MPQ-49 (Forward Area Alerting Radar System). February 1986.

C1, FM 10-450-4
MCRP 4-23E, VOL II
NWP 3-04.12
AFJMAN 11-223, VOL II
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By Order of the Secretary of the Army:

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