

## 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 2-20 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 Natick Research, Development, and Engineering 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).

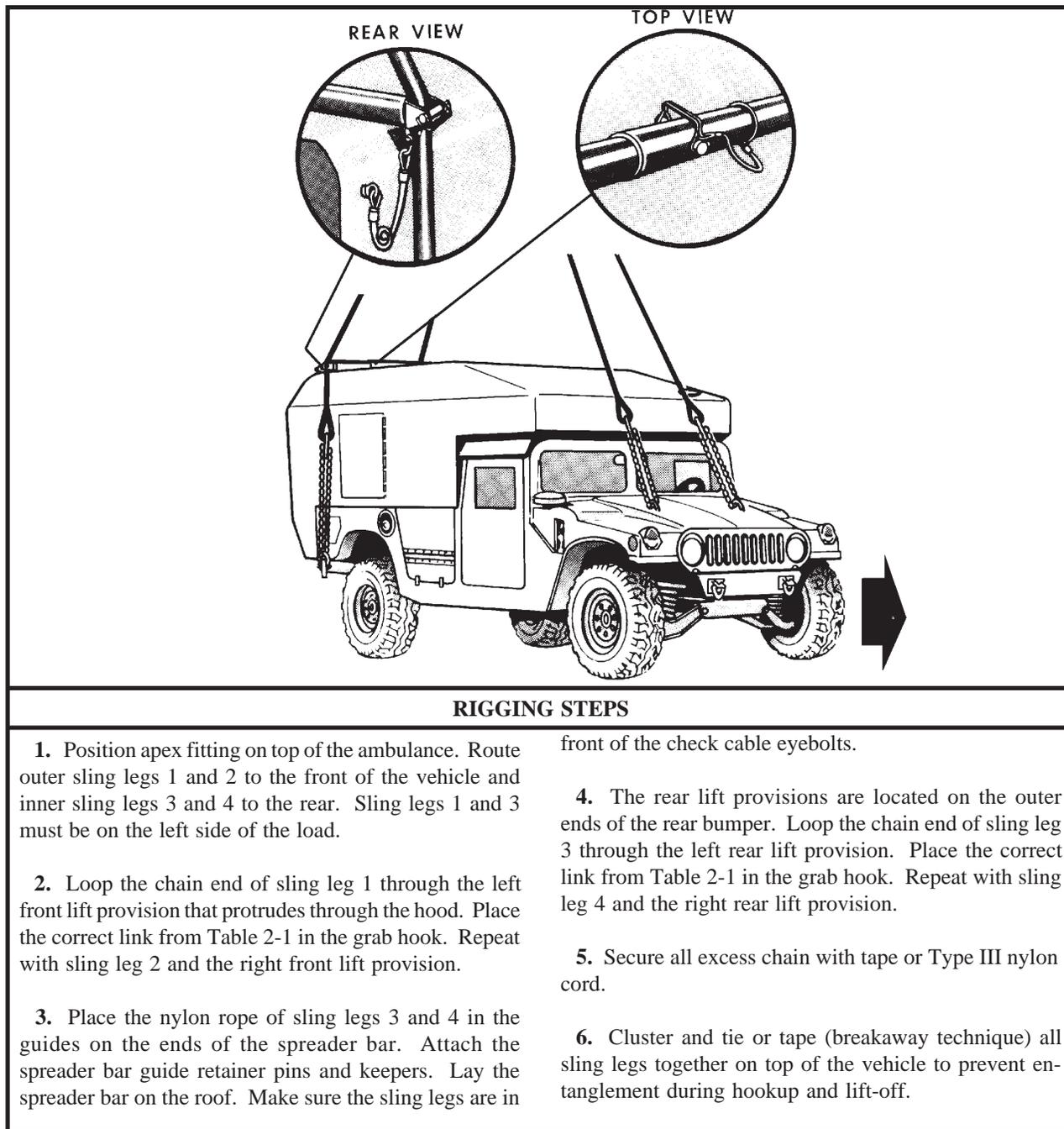


Figure 2-1. M996/M997/M997A2 Ambulance (HMMWV)

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

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

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

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

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
TOW Missile Carrier, HMMWV, M966/M1036/M1045/M1046	Varies by Model	10K 15K 40K	80/3 60/3 53/3	CH-47 / 90 CH-53 See Note 1 UH-60 See Note 2
TOW Missile Carrier, HMMWV, M1045A2	10,300	25K	65/5	CH-47 / 90 CH-53 See Note 1
Armament Carrier, HMMWV, M1025/M1026/M1043/M1044	Varies by Model	10K 15K 40K	80/3 60/3 53/3	CH-47 / 90 CH-53 See Note 1 UH-60 See Note 2
Armament Carrier, HMMWV, M1025A2/M1043A2	10,300	25K	65/5	CH-47 / 90 CH-53 See Note 1

**NOTES:**

**1. Recommended airspeed for CH-53E when using the 15,000-pound multileg sling set is 80 knots. Recommended airspeed for the CH-53E when using the 40,000-pound capacity sling set is 95 knots.**

**2. For vehicle weights up to 7,300 pounds, the recommended maximum airspeed for the UH-60 is 100 knots. For loads weighing above 7,300 pounds the recommended maximum airspeed is 70 knots. Coordinate closely with the aviation unit as to the vehicle weight including all gear carried on the vehicle.**

(2) Multileg sling set (15,000-pound capacity or 40,000-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) Felt sheet, cattle hair, Type IV, 1/2-inch or suitable padding.

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

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

**OR**

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

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

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

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

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

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

**(d)** Engage the vehicle parking brake and put the

transmission in neutral.

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

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

**(3) Hookup.** The hookup team stands on the roof of the vehicle. The static wand person discharges the static electricity with the static wand. The 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).

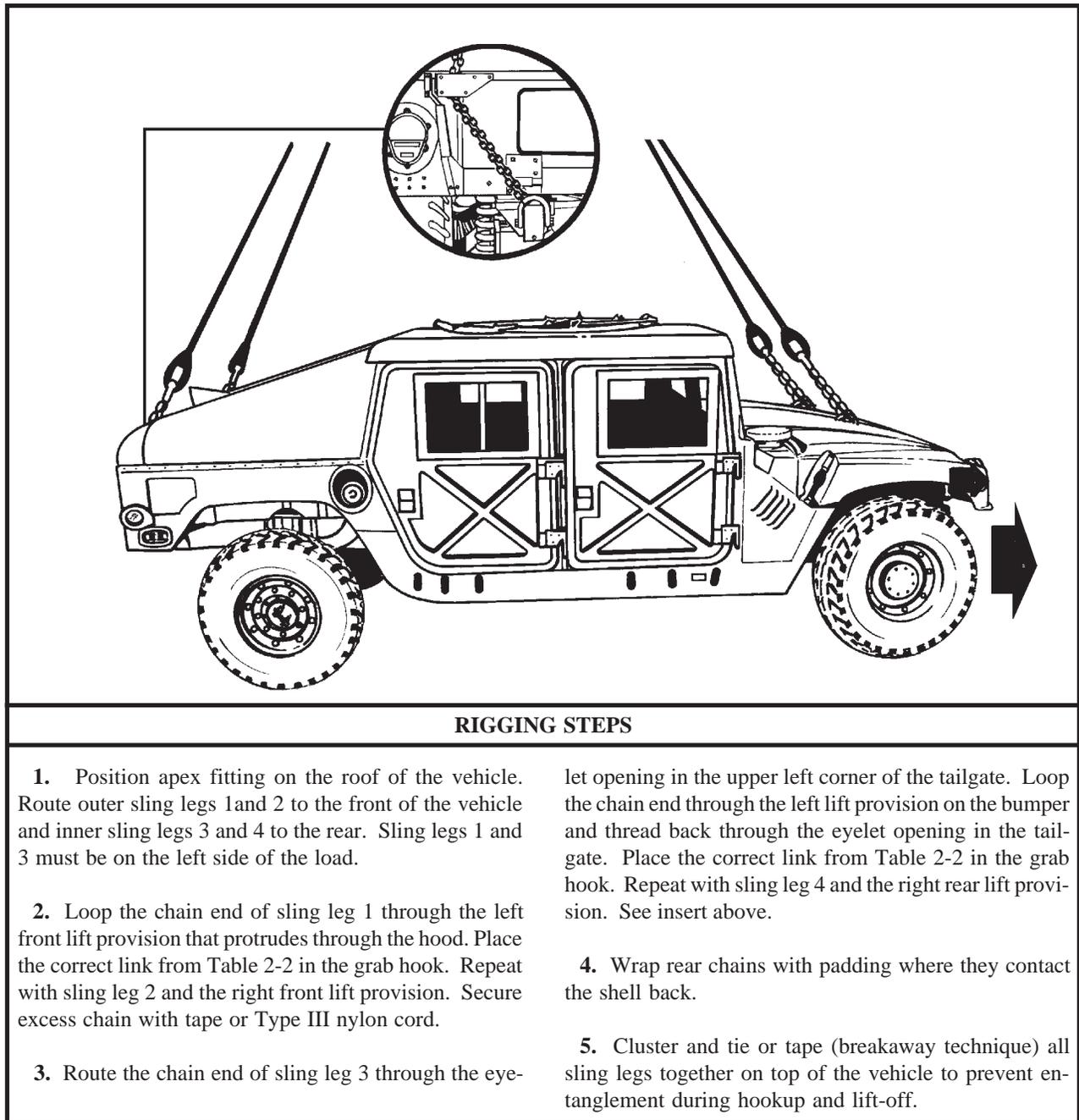


Figure 2-2. TOW Missile Carrier (HMMWV)

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

**a. Applicability.** The following items in Table 2-3 are certified for all helicopters with suitable lift capacity by the US Army Natick Research, Development, and Engineering Center:

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

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
Truck, 1 1/4-ton, HMMWV, M998/M1038	7,700	10K 15K 40K	80/3 60/3 53/3	CH-47 / 90 CH-53 See Note 1 UH-60 See Note 2
Truck, 1 1/4-ton, HMMWV, M998A1	7,500	10K	80/3	CH-47 / 90 CH-53 See Note 1 UH-60 See Note 2
Truck, 1 1/4-ton, HMMWV, M998 with AN/MRC-110A Radio Set	7,700	10K 15K 40K	80/3 60/3 53/3	CH-47 / 90 CH-53 See Note 1 UH-60 See Note 2
Truck, 1 1/4-ton, HMMWV, Modified, (GVW 9,400 lbs), M1037	9,400	10K 15K	80/3 60/3	90
Truck, 1 1/4-ton, Heavy HMMWV, Cargo Variant, M1097	10,001	25K	60/10	90
Truck, 1 1/4-ton, Heavy HMMWV, Cargo Variant, M1097A2	10,300	25K	60/10	90

**WARNING**

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

**NOTES:**

**1. Recommended airspeed for CH-53E when using the 15,000-pound multileg sling set is 100 knots. Recommended airspeed for the CH-53E when using the 40,000-pound capacity sling set is 105 knots.**

**2. For vehicle weights up to 7,300 pounds, the recommended maximum airspeed for the UH-60 is 100 knots. For loads weighing above 7,300 pounds the recommended maximum airspeed is 70 knots. Coordinate closely with the aviation unit as to the vehicle weight including all gear carried on the vehicle.**

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

(1) Sling set (10,000-pound capacity or 25,000-pound capacity for the UH-60 and CH-47).

**OR**

(2) Multileg sling set (15,000-pound or capacity or 40,000-pound capacity for the CH-53E only).

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

(b) Secure all equipment and cargo inside the vehicle

with tape, nylon cord, or lashings. Remove antennas and stow inside vehicle.

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

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

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

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

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

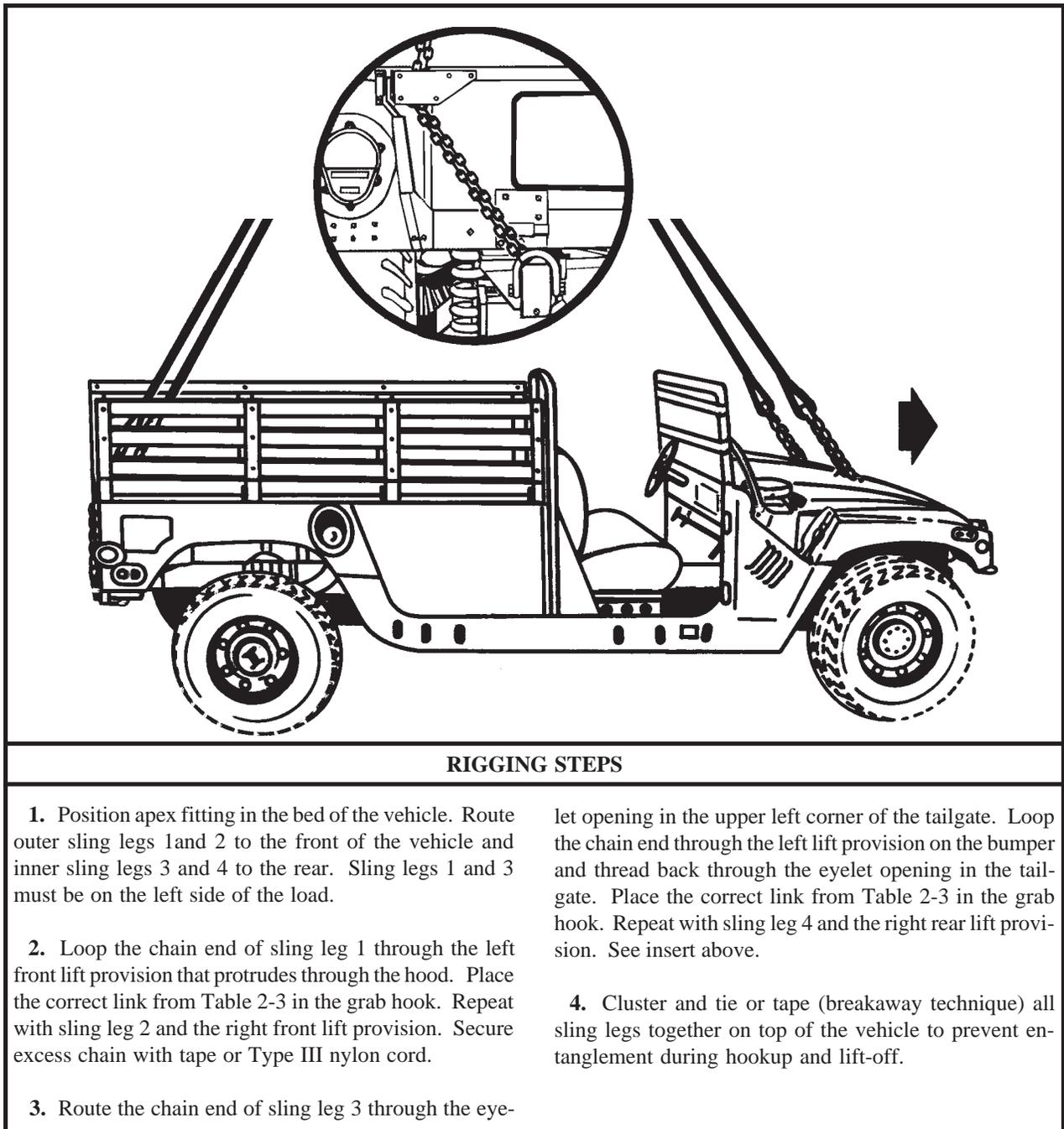


Figure 2-3. 1 1/4-Ton Cargo Truck (HMMWV)

## 2-5. M1037/M1042 Shelter Carrier (HMMWV) Without Shelter

**a. Applicability.** The following items in Table 2-4 are certified for all helicopters with suitable lift capacity by the US Army Natick Research, Development, and Engineering Center:

**Table 2-4. Shelter Carrier (HMMWV) Without Shelter**

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
Shelter Carriers, M1037/M1042	5,220	15K	60/3	100

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

- (1) Multileg sling set (15,000-pound capacity or 40,000-pound capacity for the CH-53E only).
- (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. Tape the windshield in an X formation from corner to corner.
  - (b) Secure all equipment and cargo inside the ve-

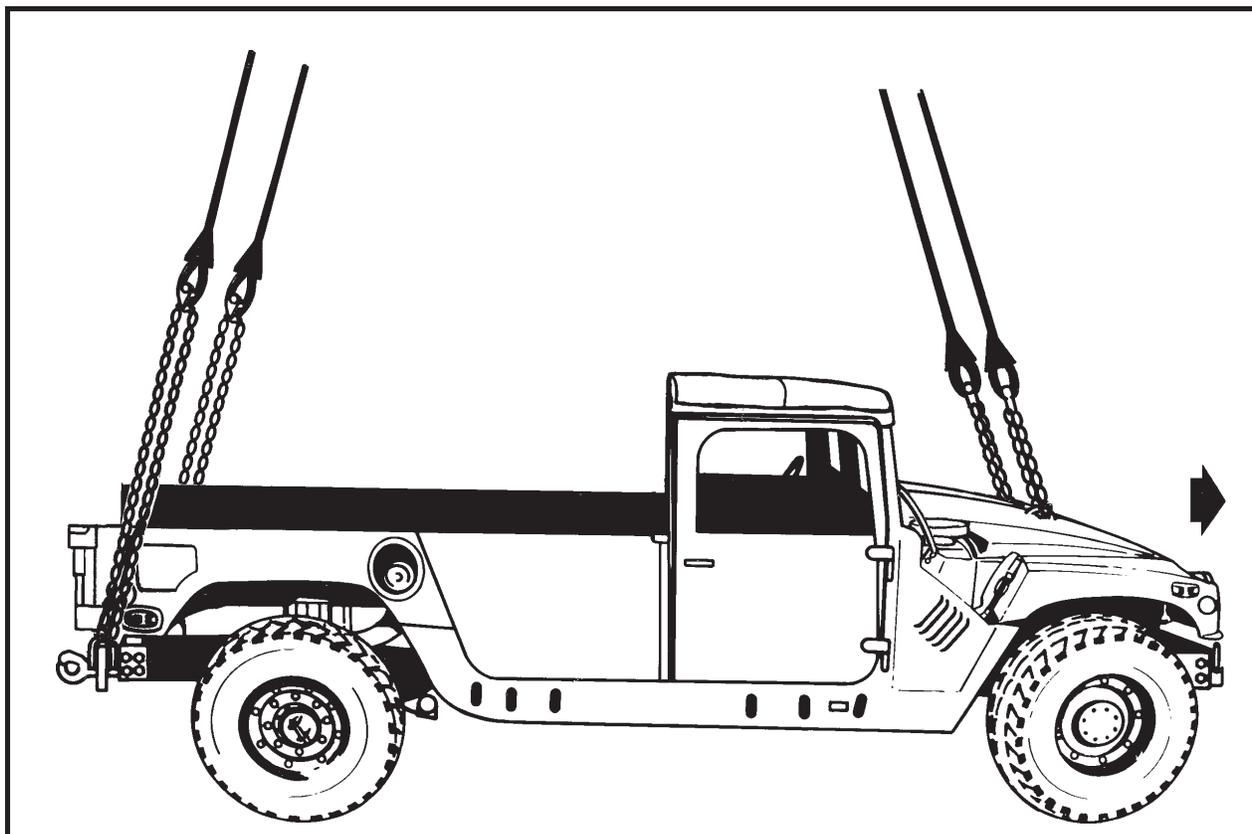
hicle with tape, nylon cord, or lashings. Secure the doors shut if installed.

- (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.

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

(3) **Hookup.** The hookup team stands in the bed of the vehicle. The static wand person discharges the static electricity with the static wand. The 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 bed of the vehicle. Route outer sling legs 1 and 2 to the front of the vehicle and inner sling legs 3 and 4 to the rear. Sling legs 1 and 3 must be on the left side of the load.

2. Loop the chain end of sling leg 1 through the left front lift provision that protrudes through the hood from inboard to outboard. Place the correct link from Table 2-4 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 2-4 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 rear chains with padding where they contact the shelter carrier.

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

Figure 2-4. M1037/1042 Shelter Carrier (HMMWV)

#### CAUTION

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

## 2-6. M1037/M1042 Shelter Carrier (HMMWV) With S-250 or S-250E Shelter

**a. Applicability.** The following items in Table 2-5 are certified for all helicopters with suitable lift capacity by the US Army Natick Research, Development, and Engineering Center:

**Table 2-5. Shelter Carrier (HMMWV) With S-250/S-250E Shelter**

SHELTER VARIANT NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
NC Operations	8,800	10K	80/30	100
NC Switch	8,513	10K	80/30	100
NC LOS (V3)	8,611	10K	80/30	100
NC Management	8,800	10K	80/30	100
NC Support Vehicle	8,400	10K	80/30	100
LEN Operations	8,800	10K	80/30	100
LEN Switch	8,800	10K	80/30	100
LEN LOS (V4)	8,800	10K	80/30	100
LEN Management	8,800	10K	80/30	100
LEN Cable Vehicle	8,180	10K	80/30	100
SCC Command	8,800	10K	80/30	100
SCC Planning	8,300	10K	80/30	100
SCC Technical	8,507	10K	80/30	100
LOS (V1)	8,800	10K	80/30	100
LOS (V2)	8,500	10K	80/30	100
Radio Access Unit	8,800	10K	80/30	100
SEN (V1)	8,800	10K	80/30	100
SEN (V2)	8,800	10K	80/30	100
Maintenance #1	8,084	10K	80/30	100
Maintenance #2	8,350	10K	80/30	100

Table 2-5. Shelter Carrier (HMMWV) With S-250/S-250E Shelter (Continued)

SHELTER VARIANT NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
Battalion Spares	8,800	10K	80/30	100
Company Spares	7,850	10K	80/30	100
AN/TLQ-17A (V3)	8,040	10K	80/30	100
Deployable Media Production Center	7,840	10K	80/30	120
Operational Control Group (OCG) / Firefinder AN/TPQ-36 (V) Block IIB	7,500	10K	80/30	100
TLQ-37 Intelligence and Electronic Warfare (IEW) System	8,200	10K	80/30	100

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

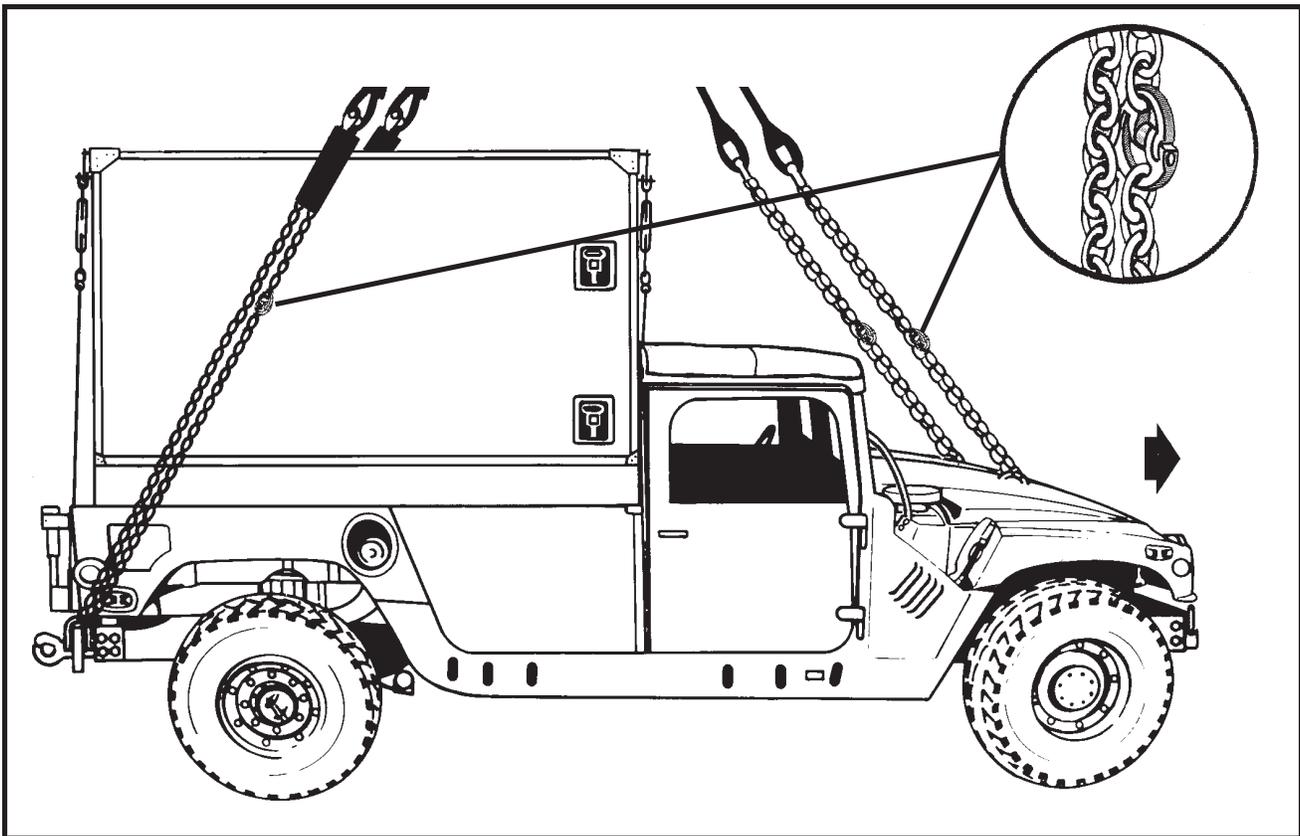
- (1) Sling set (10,000-pound capacity).
- (2) Chain length, part number 38850-00053-101, from a 10,000-pound capacity sling set (4 each).
- (3) Coupling link, part number 577-0615, from a 10,000-pound sling set (4 each).
- (4) Tape, adhesive, pressure-sensitive, 2-inch wide roll.
- (5) Cord, nylon, 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.
- (8) 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) Connect one additional chain length to each chain of the sling set with the coupling link.
- (b) Fold mirrors forward in front of the windshield for added protection and tie together with Type III nylon cord. Tape the windshield in an X formation from corner to corner.
- (c) Secure the shelter to the truck using wire rope or tie-down assemblies. Secure all equipment inside the shelter with tape, nylon cord, or lashings; close and secure the door.
- (d) Secure all equipment and cargo inside the vehicle with tape, nylon cord, or lashings. Secure the doors shut if installed.
- (e) Ensure the fuel tank is not over 3/4 full. Inspect fuel tank cap, oil filler cap, and battery caps for proper installation.
- (f) Engage the vehicle parking brake and put the transmission in neutral.
- (g) Ensure the front wheels are pointed straight ahead. Tie down the steering wheel, using the securing



#### RIGGING STEPS

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

2. Loop the chain end of sling leg 1 through the left front lift provision that protrudes through the hood from inboard to outboard. Place the correct link from Table 2-5 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 2-5 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 2-5. M1037/1042 Shelter Carrier with S-250/S-250E Shelter*

#### CAUTION

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

(h) 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 2-5.

**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).

## 2-7. M1097 Shelter Carrier, Heavy HMMWV, With S-250 or S-250E Shelter

a. **Applicability.** The following items in Table 2-6 are certified for all helicopters with suitable lift capacity by the US Army Natick Research, Development, and Engineering Center:

Table 2-6. Shelter Carrier, (Heavy HMMWV), With S-250/S-250E Shelter

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
S-250/S-250E	10,001	25K	60/10	100
AN/TRC-170 Communication Shelter	9,240	15K	40/3	100
Mobile Subscriber Equipment Contingency Communications Package/Light Forces Contingency Communications Package in S-250E	9,993	10K	80/30	100
Mobile Subscriber Equipment Contingency Communications Package/Light Forces Contingency Communications Package in S-250	8,913	10K	80/30	100
TRQ-32 Intelligence and Electronic Warfare (IEW) Systems	9,700	10K	80/30	100
Platoon Operations Center (POC), Intelligence and Electronic Warfare (IEW) Systems	9,700	10K	80/30	100

**NOTE: All certified shelters in paragraph 2-6 (M1037/M1042 Shelter Carrier, HMMWV, With S-250/S-250E Shelter) are certified for sling loading on the M1097 Shelter Carrier with an increased maximum weight of 300 pounds.**

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

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

**OR**

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

(a) Additional chain lengths from the sling set being used (4 each).

(b) Additional coupling links from the sling set being used (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 to 25 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 of the sling set with the coupling link.

(b) Fold mirrors forward in front of the windshield and tie together with Type III nylon cord. Tape the wind-

shield in an X formation from corner to corner.

(c) Secure the shelter to the truck using wire rope or tie-down assemblies. Secure all equipment inside the shelter with tape, nylon cord, or lashings; close and secure the door.

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

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

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

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

(h) 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.

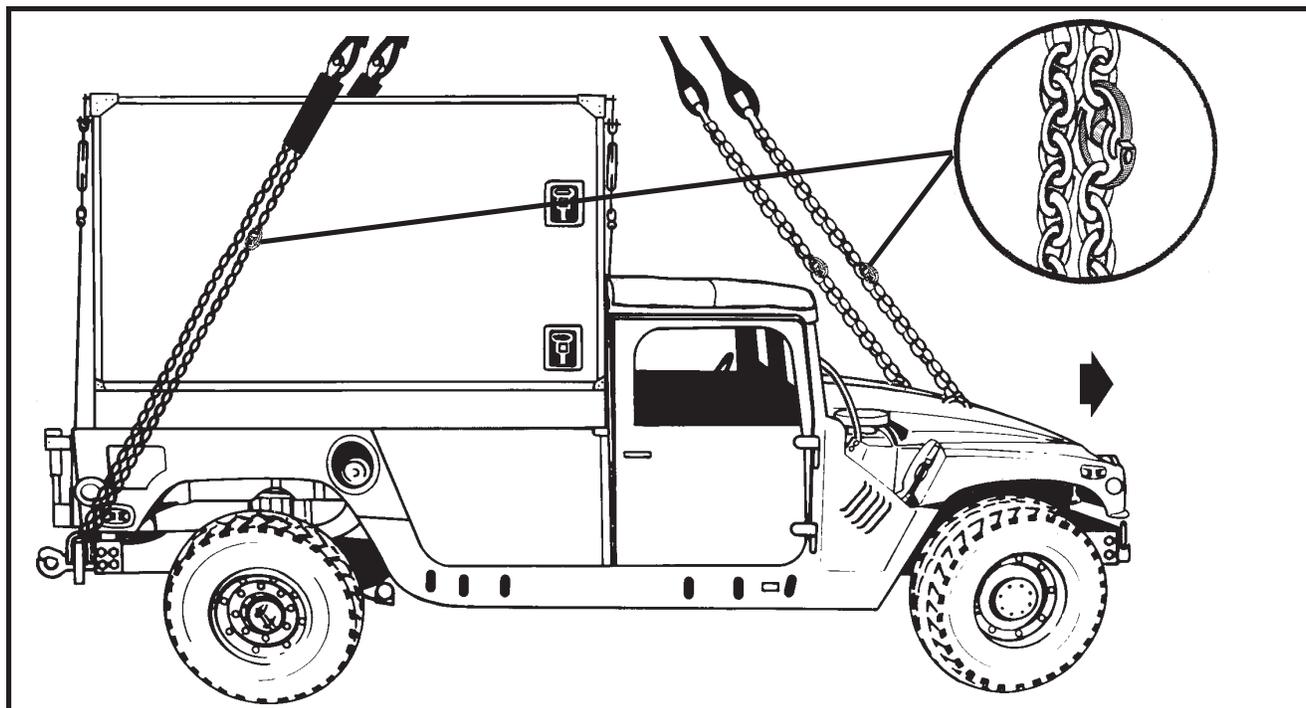
(i) When using the multileg sling set, attach an additional chain length to the end of the chain on each sling leg with the coupling link.

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

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

2. Loop the chain end of sling leg 1 through the left front lift provision that protrudes through the hood from inboard to outboard. Place the correct link from Table 2-6 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 2-6 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 2-6. M1097 Shelter Carrier with S-250/S-250E Shelter

#### CAUTION

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

## 2-8. M1037 Shelter Carrier (Heavy HMMWV) With Downsized Direct Support Section (DDSS) Shelter

**a. Applicability.** The following item in Table 2-7 is certified for all helicopters with suitable lift capacity by the US Army Natick Research, Development, and Engineering Center:

**Table 2-7. Downsized Direct Support Section Shelter**

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
Downsized Direct Support Section (DDSS)	8,030	10K	70/3	100

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

- (1) Sling set (10,000-pound capacity).
- (2) Chain length, part number 38850-00053-101, from a 10,000-pound capacity sling set (4 each).
- (3) Coupling link, part number 577-0615, from a 10,000-pound sling set (4 each).
- (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.
- (8) 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) Connect one additional chain length to each chain of the sling set with the coupling link.

(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) Remove the ladder from the rear of the shelter. Secure the ladder inside the shelter. 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 all equipment and cargo inside the vehicle with tape, nylon cord, or lashings. Secure the doors shut if installed.

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

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

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

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

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

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

Figure 2-7.

**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.**

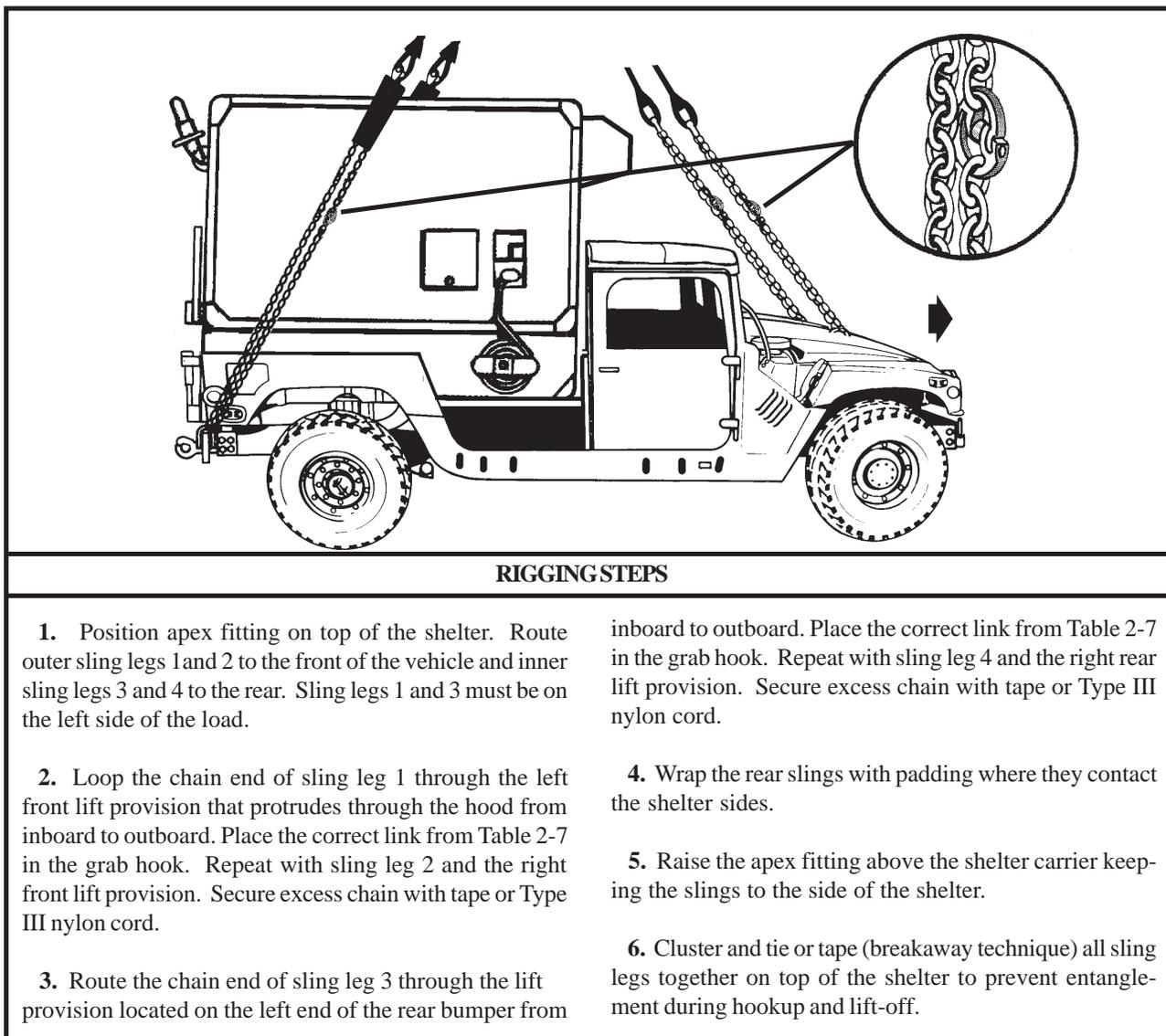


Figure 2-7. Downsized Direct Support Section Mounted on the M1037

**CAUTION**

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

(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).

## 2-9. M1037 Shelter Carrier (HMMWV) With S-318 Shelter

a. **Applicability.** The following item in Table 2-8 is certified for all helicopters with suitable lift capacity by the US Army Natick Research, Development, and Engineering Center:

Table 2-8. S-318 Shelter

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
S-318 Shelter Mounted on M1037	7,440	10K	80/30	100

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

- (1) Sling set (10,000-pound capacity).
- (2) Chain length, part number 38850-00053-101, from a 10,000-pound capacity sling set (4 each).
- (3) Coupling link, part number 577-0615, from a 10,000-pound sling set (4 each).
- (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.
- (8) 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) Connect one additional chain length to each chain of the sling set with the coupling link.

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

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

(g) Engage the vehicle parking brake and put the

transmission in neutral.

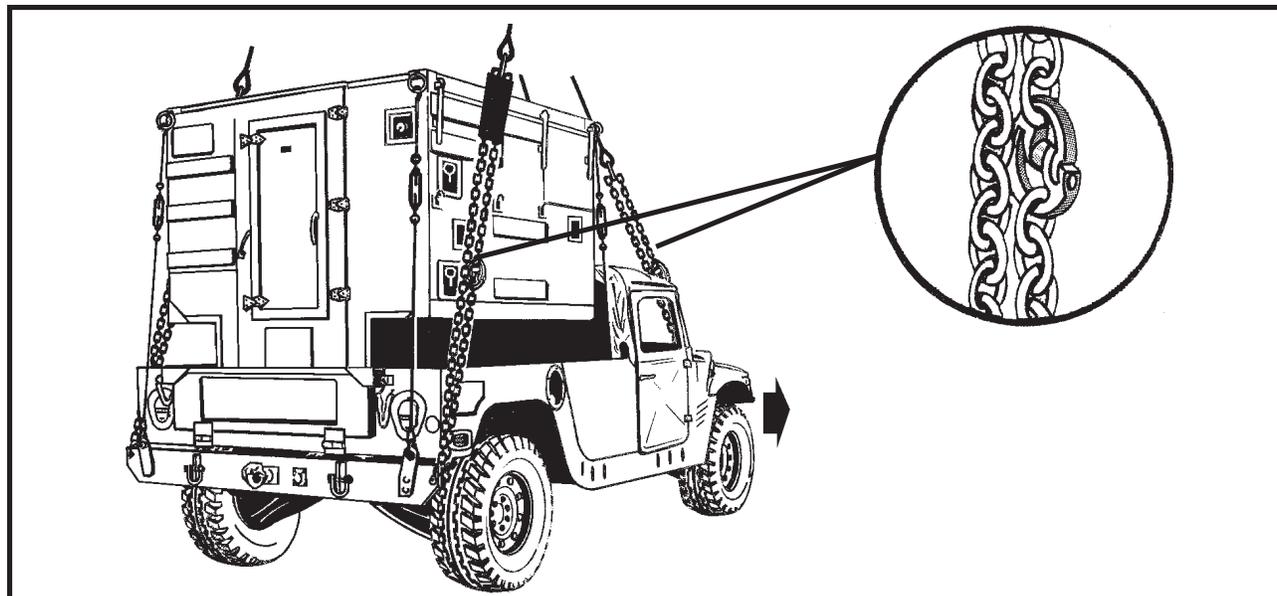
(h) Ensure the front wheels are pointed straight ahead. Tie down the steering wheel, using the securing device attached under the dashboard.

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

(j) Install the lift provisions on the outer ends of the

rear bumper by removing the tiedown provisions located inboard of the bumper end and installing them on the outer ends of the rear bumper.

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



**RIGGING STEPS**

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

2. Loop the chain end of sling leg 1 through the left front lift provision that protrudes through the hood from inboard to outboard. Place the correct link from Table 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 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 Natick Research, Development, and Engineering 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

**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 the sling set being used (8 each).

(b) Additional coupling links from the sling set being used (8 each).

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

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

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

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

(7) Padding, Cellulose.

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

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

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

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

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

(c) Secure 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.

(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.

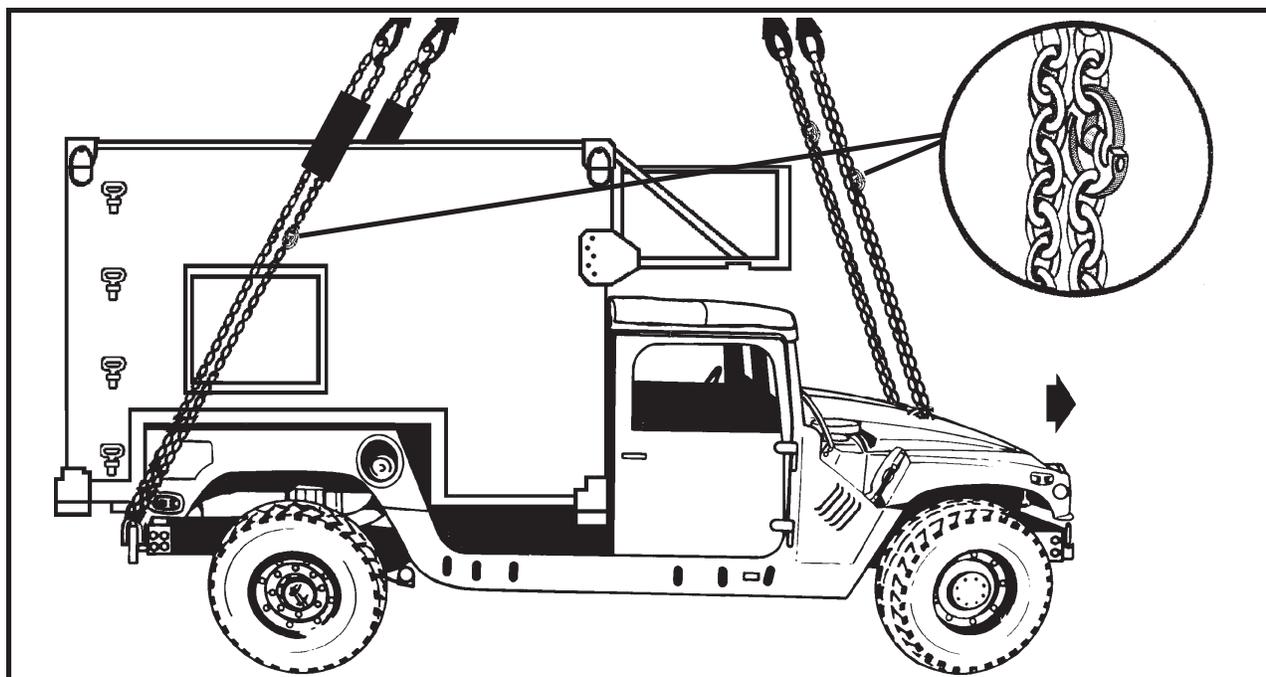
(m) Remove the upper antenna mounting bracket if installed.

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

2. Loop the chain end of sling leg 1 through the left front lift provision that protrudes through the hood from inboard to outboard. Place the correct link from Table 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*

**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 Natick Research, Development, and Engineering 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 the sling set being used (8 each).

(b) Additional coupling links from the sling set being used (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.

(7) Padding, Cellulose.

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

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

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

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

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

(c) Secure 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.

(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.

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

**NOTE: Use the link count from Table 2-10.**

**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).

## 2-12. M1037/M1097 Shelter Carrier (HMMWV) With G15840 Smoke Generator Set, M157/M157A1E1

**a. Applicability.** The following items in Table 2-11 are certified for all helicopters with suitable lift capacity by the US Army Natick Research, Development, and Engineering Center:

**Table 2-11. G15840 Smoke Generator Set, M157, on M1037/M1097**

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
Smoke Generator Set, M157, on M1037 HMMWV	7,400	10K	80/30	100
Smoke Generator Set, M157, on M1097 HMMWV	8,025	10K	80/30	120
Smoke Generator Set, M157A1E1, on M1097 HMMWV	8,035	10K	80/30	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.

**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. Secure the

doors shut if installed.

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

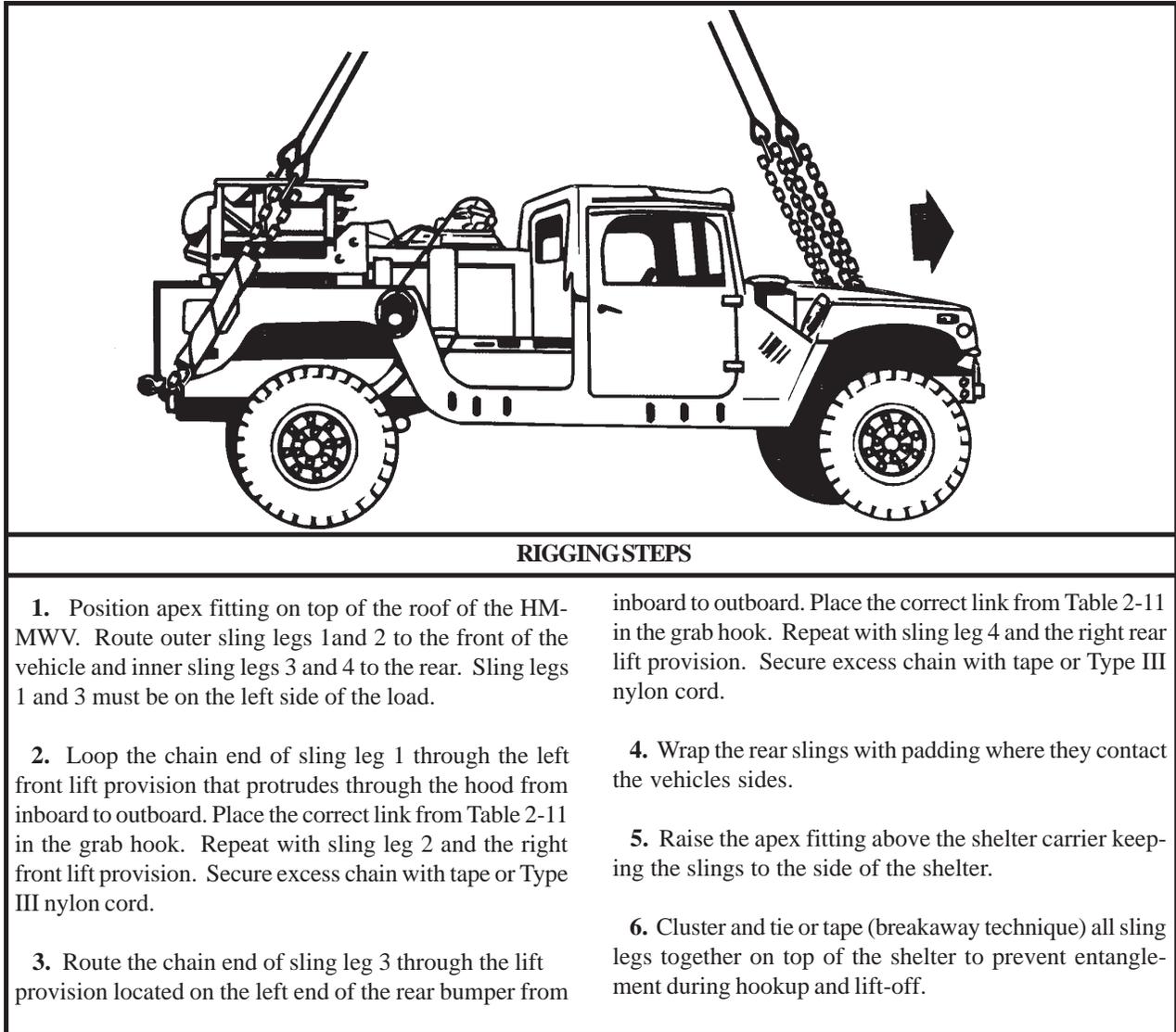
(g) Install the lift provisions on the outer ends of the rear bumper by removing the tiedown provisions located inboard of the bumper end and installing them on the outer ends of the rear bumper.

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

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

team then carefully dismounts the vehicle and remains close to the load as the helicopter removes slack from the sling legs. When successful hookup is assured, the hookup team quickly exits the area underneath the helicopter to the designated rendezvous point.

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



*Figure 2-10. M157/M157A1E1 Smoke Generator Set Mounted on the M1037/M1097*

**CAUTION**

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

## 2-13. M998 (HMMWV) With Two MRC-127 Stacks

**a. Applicability.** The following item in Table 2-12 is certified for all helicopters with suitable lift capacity by the US Army Natick Research, Development, and Engineering Center:

**Table 2-12. M998 (HMMWV) With Two MRC-127 Stacks**

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
MRC-127 Stacks (Two) on M998 HMMWV	8,010	10K	80/3	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.
- (5) Felt sheet, cattle hair, Type IV, 1/2-inch or suitable padding.

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

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

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

(a) Fold mirrors forward in front of the windshield for added protection and tie together with Type III nylon cord. If installed, remove canvas covering over the bed of the truck. Remove the doors. Tape the windshield in an X formation from corner to corner. If time permits, fold can-

vas top and tie to windshield for added protection.

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

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

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

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

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

(3) **Hookup.** The hookup team stands in the bed of the vehicle. The static wand person discharges the static electricity with the static wand. The 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).

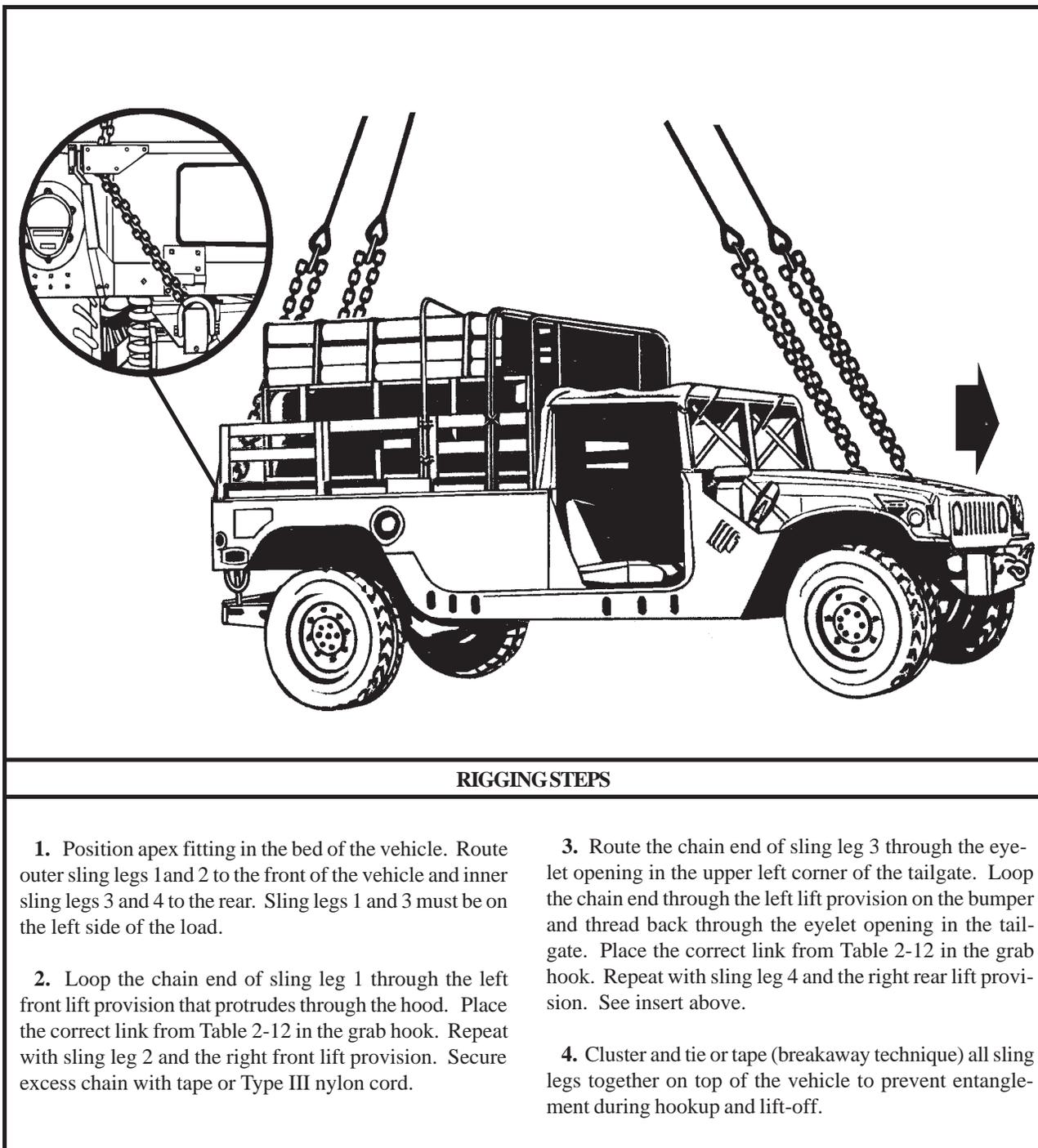


Figure 2-11. M998 (HMMWV) With Two MRC-127 Stacks

## 2-14. M998/M1038 (HMMWV) With Lightweight Tactical Fire Control Systems (LTACFIRE)/Tactical Terminal Control System (TTCS)

**a. Applicability.** The following items in Table 2-13 are certified for all helicopters with suitable lift capacity by the US Army Natick Research, Development, and Engineering Center:

Table 2-13. M998/M1038 With LTACFIRE or TTCS

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
LTACFIRE, Single Station	5,927	10K	80/45	90
LTACFIRE, Dual Station	6,215	10K	80/45	90
AN/TSQ-198 TTCS	6,015	10K	80/3	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 20 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. Remove the canvas cab top and the doors. Fold the canvas top and stow securely inside the driver's compartment sandwiched between the doors.

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

**(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.

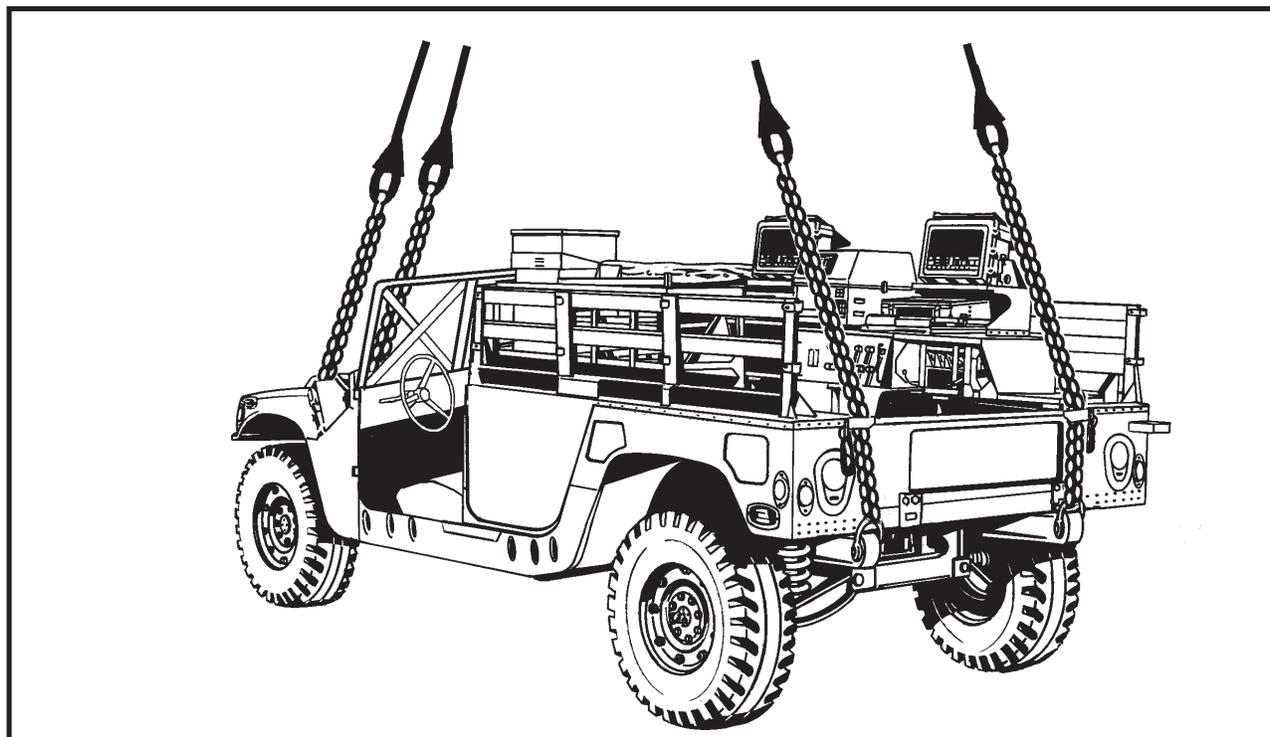
**(e)** Ensure the front wheels are pointed straight ahead. Tie down the steering wheel, using the securing device attached under the dashboard.

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

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

**(3) Hookup.** The hookup team stands in the bed of the vehicle. The static wand person discharges the static electricity with the static wand. The 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 bed of the vehicle. Route outer sling legs 1 and 2 to the front of the vehicle and inner sling legs 3 and 4 to the rear. Sling legs 1 and 3 must be on the left side of the load.

2. Loop the chain end of sling leg 1 through the left front lift provision that protrudes through the hood. Place the correct link from Table 2-13 in the grab hook. Repeat with sling leg 2 and the right front lift provision. Secure excess chain with tape or Type III nylon cord.

3. Route the chain end of sling leg 3 through the eyelet opening in the upper left corner of the tailgate. Loop the chain end through the left lift provision on the bumper and thread back through the eyelet opening in the tailgate. Place the correct link from Table 2-13 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 vehicle to prevent entanglement during hookup and lift-off.

*Figure 2-12. M998/M1038 (HMMWV) With Two Lightweight Tactical Fire Control Systems*

## 2-15. M1037 (HMMWV) With AN/TPQ-36 Firefinder Generator Pallet

**a. Applicability.** The following item in Table 2-14 is certified for all helicopters with suitable lift capacity by the US Army Natick Research, Development, and Engineering Center:

**Table 2-14. M1037 (HMMWV) With AN/TPQ-36 Firefinder Generator Pallet**

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
AN/TPQ-36 Firefinder Generator Pallet	7,700	10K	50/3	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.
- (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. Remove the cab doors.

**(b)** Ensure the generator is secured to the truck. Secure all lids, doors, and vents on the generator with tape or nylon Type III nylon cord. Safety tie all chains and hoses with 1/4-inch cotton webbing or tape.

**(c)** Secure all equipment and cargo inside the vehicle with tape, nylon cord, or lashings.

**(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.

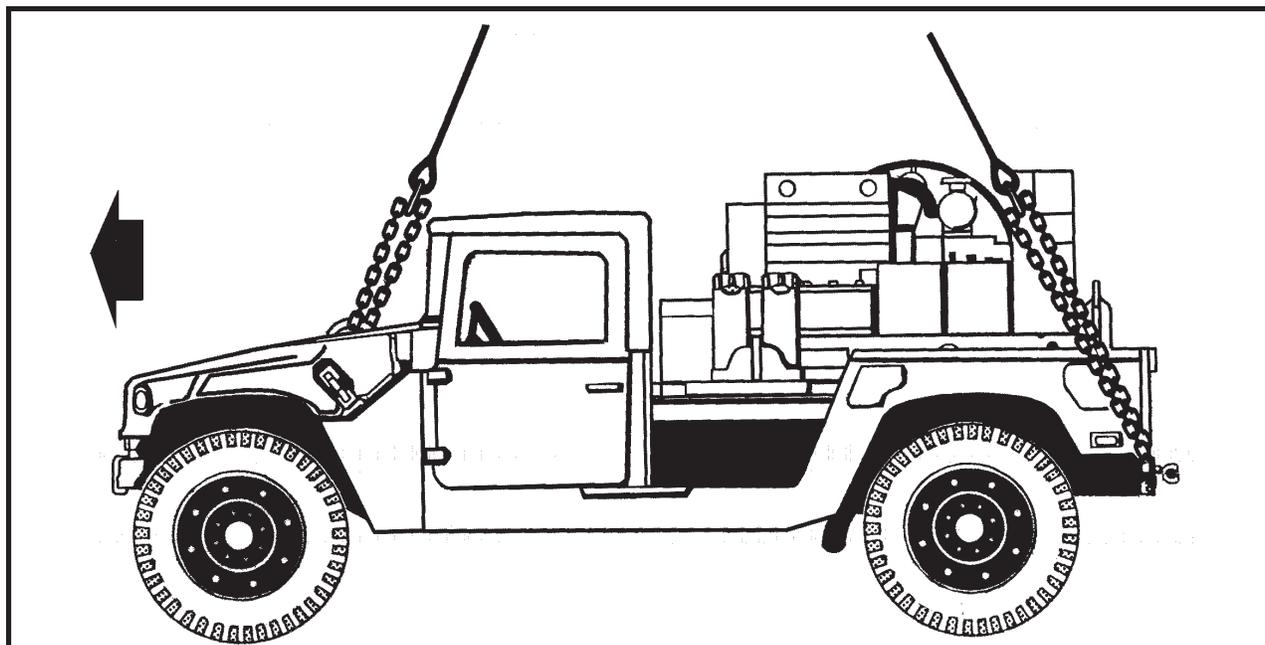
**(g)** Tape the windshield in an X formation from corner to corner.

**(h)** 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 2-13.

**(3) Hookup.** The hookup team stands in the bed of the vehicle. The static wand person discharges the static electricity with the static wand. The 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 1 and 2 to the front of the vehicle and inner sling legs 3 and 4 to the rear. Sling legs 1 and 3 must be on the left side of the load.

2. Loop the chain end of sling leg 1 through the left front lift provision that protrudes through the hood from inboard to outboard. Place the correct link from Table 2-14 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 2-14 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 vehicles 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 2-13. M1037 (HMMWV) With AN/TPQ-36 Firefinder Generator Pallet*

#### CAUTION

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

## 2-16. M1097 (H-HMMWV) With Antenna AS-3036/TSC on OA-9134/TSC Pallet Group

**a. Applicability.** The following item in Table 2-15 is certified for all helicopters with suitable lift capacity by the US Army Natick Research, Development, and Engineering Center:

**Table 2-15. M1097 (H-HMMWV) With Antenna AS-3036/TSC on OA-9134/TSC Pallet Group**

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
OA-9134/TSC Pallet Group, Antenna AS-3036/TSC on M1097	7,120	10K	46/8	110

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

- (1) Sling set (10,000-pound capacity).
- (2) Reach pendant (11,000-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) Felt sheet, cattle hair, Type IV, 1/2-inch or suitable padding.
- (7) Spreader bar assembly (component of the M996/M997 HMMWV Ambulance).

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

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

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

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

Remove the cab doors.

(b) Ensure the antenna support structure is secured to the truck. Secure all loose equipment within the antenna support structure with Type III nylon cord, tape, or lashings.

(c) Secure all equipment and cargo inside the vehicle with tape, nylon cord, or lashings.

(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.

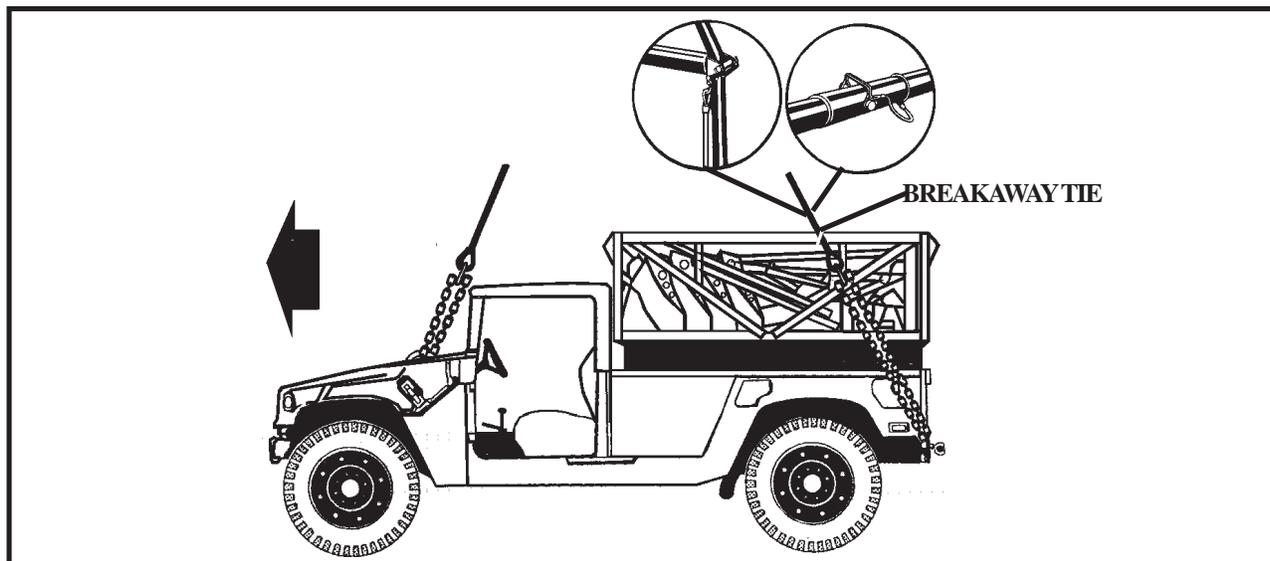
(f) Ensure the front wheels are pointed straight ahead. Tie down the steering wheel, using the securing device attached under the dashboard.

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

(h) 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 2-14.

(3) **Hookup.** The hookup team stands in the bed of the vehicle. The static wand person discharges the static electricity with the static wand. The hookup person places



**RIGGING STEPS**

1. Install the reach pendant on the apex fitting of the sling set.
2. Position apex fitting and reach pendant on top of the antenna support structure assembly. Route outer sling legs 1 and 2 to the front of the vehicle and inner sling legs 3 and 4 to the rear. Sling legs 1 and 3 must be on the left side of the load.
3. 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 2-15 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.
4. Position the spreader bar assembly 12 inches from the rear of the antenna support structure. Route the rear sling ropes through the guides on the end of the spreader bar. Secure the sling ropes in the guides with the retainer pins and keepers.

5. 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 2-15 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.

6. Remove all slack from sling legs 3 and 4. Install a breakaway tie using 1/4-inch cotton webbing around each leg and around the top bar of the antenna support structure.

**CAUTION**  
Do not use Type III nylon cord to make the breakaway ties.

7. Extend the spreader bar retainer cable down the length of the sling leg and secure to the chain with Type III nylon cord.

8. 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 2-14. M1097 (H-HMMWV) With AS-3036/TSC Antenna on OA-9134/TSC Pallet Group*

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

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.

**An aircrew member must monitor the spreader bar at all times. If there is any evidence of the spreader bar bending the load should be set down at the nearest suitable landing area.**

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

## 2-17. M1097 (H-HMMWV) With High Mobility Digital Group Multiplexer (DGM) Auxiliary Equipment Transportation Container (AETC) in 2 and 3 Mast Configurations

**a. Applicability.** The following items in Table 2-16 are certified for all helicopters with suitable lift capacity by the US Army Natick Research, Development, and Engineering Center:

**Table 2-16. M1097 (H-HMMWV) With High Mobility Digital Group Multiplexer (DGM) Auxiliary Equipment Transportation Container (AETC) in 2 and 3 Mast Configurations**

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
2 Mast AETC Configuration	8,500	10K	55/3	110
3 Mast AETC Configuration	9,500	10K	55/3	110

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

- (1) Sling set (10,000-pound capacity).
- (2) Chain length, part number 38850-00053-101, from a 10,000-pound capacity sling set (4 each).
- (3) Coupling link, part number 577-0615, from a 10,000-pound sling set (4 each).
- (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 20 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. Remove the cab doors.

**(b)** Remove, fold, stow, and secure the canvas cover for the AETC using Type III nylon cord.

(c) Ensure the AETC is secured to the truck with wire rope or tie-down assemblies. Secure all equipment and cargo inside the AETC with tape, Type III nylon cord, and lashings.

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

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

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

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

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

(i) Install the lift provisions on the outer ends of the

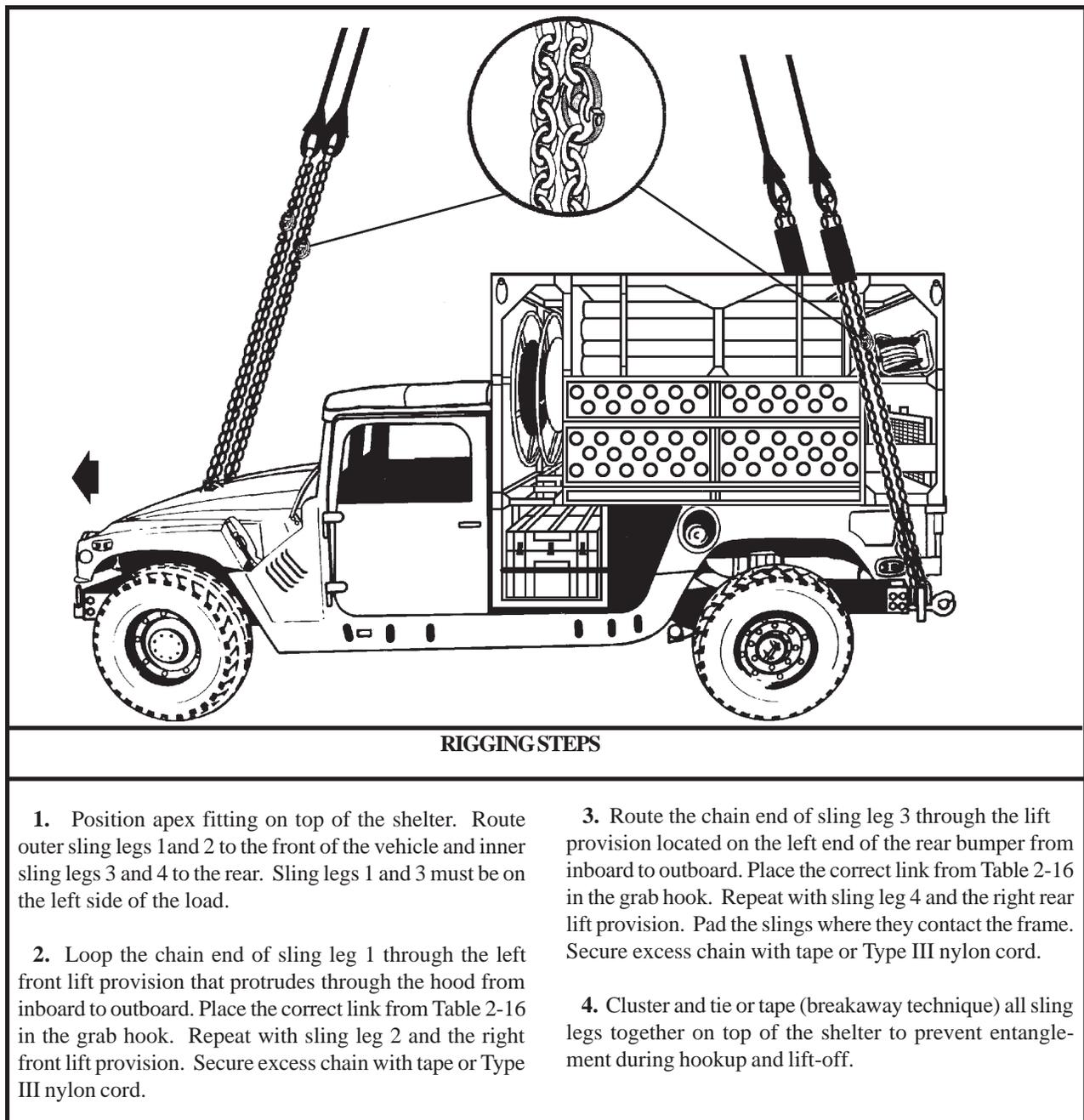
rear bumper by removing the tiedown provisions located inboard of the bumper end and installing them on the outer ends of the rear bumper.

(j) Connect one additional chain length to each chain of the sling set with the coupling link.

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

**(3) Hookup.** The hookup team stands in the bed of the vehicle. The static wand person discharges the static electricity with the static wand. The 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).



*Figure 2-15. M1097 (H-HMMWV) With 2 or 3 Mast AETC Configuration*

**CAUTION**

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

**2-18. M1097 (H-HMMWV) With Cargo Bed Cover (CBC) Aluminum or Fiberglass**

**a. Applicability.** The following items in Table 2-17 are certified for all helicopters with suitable lift capacity by the US Army Natick Research, Development, and Engineering Center:

**Table 2-17. M1097 (H-HMMWV) Cargo Bed Cover (CBC) Aluminum or Fiberglass**

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
Aluminum Cover	10,000	10K	50/3	90
Fiberglass Cover	10,000	10K	50/3	90
Aluminum Cover	10,000	15K	62/2	90
Fiberglass Cover	10,000	15K	62/2	90

**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 the sling set being used (8 each).

(b) Additional coupling links from the sling set being used (8 each).

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

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

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

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

padding.

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

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

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

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

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

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

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

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

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

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

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

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

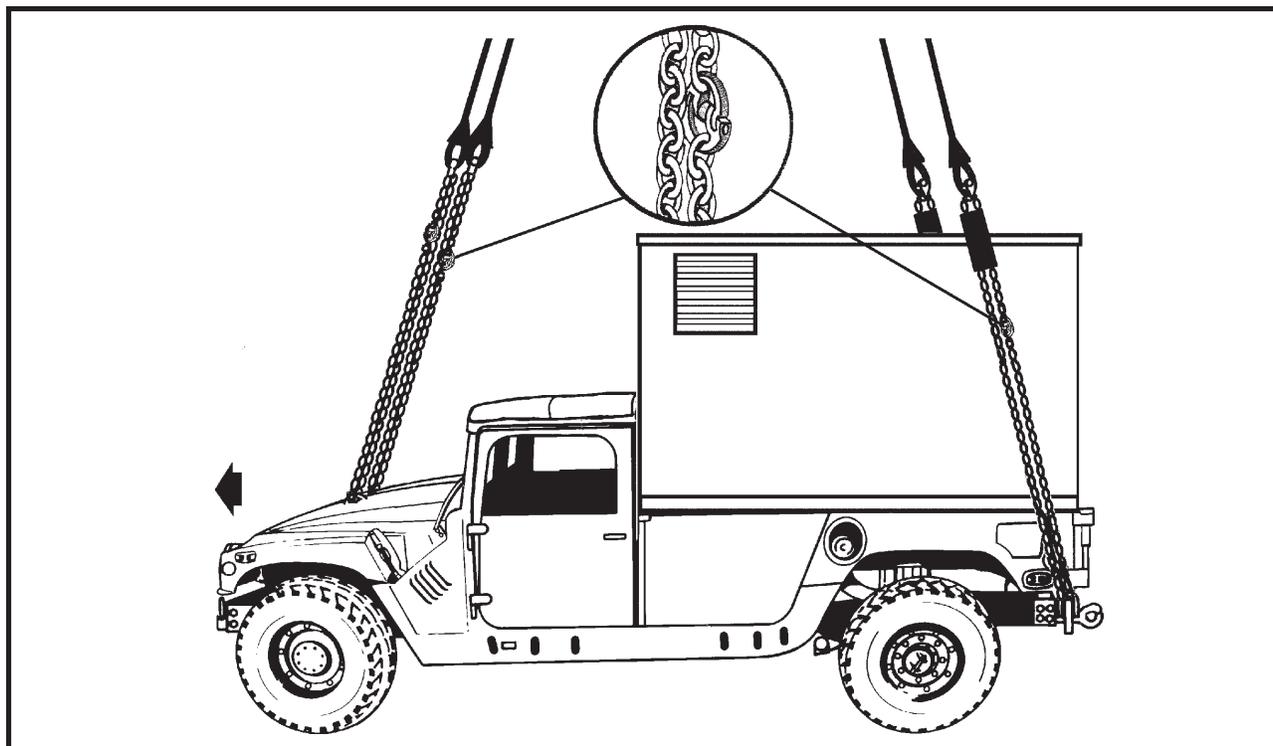
(j) Install the lift provisions on the outer ends of the

rear bumper by removing the tiedown provisions located inboard of the bumper end and installing them on the outer ends of the rear bumper.

(2) **Rigging.** Rig the load according to the steps in Figure 2-16.

(3) **Hookup.** The hookup team stands on top of the cargo bed cover. The static wand person discharges the static electricity with the static wand. The 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 cargo bed cover. Route outer sling legs 1 and 2 to the front of the vehicle and inner sling legs 3 and 4 to the rear. Sling legs 1 and 3 must be on the left side of the load.

2. Loop the chain end of sling leg 1 through the left front lift provision that protrudes through the hood from inboard to outboard. Place the correct link from Table 2-17 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 2-17 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 cover 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 2-16. M1097 (H-HMMWV) With Aluminum or Fiberglass Cargo Bed Cover*

#### CAUTION

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

## 2-19. Light Armored Vehicle (LAV) (USMC)

**a. Applicability.** The following items in Table 2-18 are certified for all helicopters with suitable lift capacity by the US Army Natick Research, Development, and Engineering Center:

**Table 2-18. Light Armored Vehicle (LAV)**

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
Command and Control TAMCN E0946	27,060	40K	3/20	95
25-MM, TAMCN E0947	28,200	40K	25/3	85
Logistics, TAMCN E0948	28,200	40K	3/10	90
Mortar, TAMCN E0949	27,400	40K	25/3	95
Recovery Unit, TAMCN E0950	28,400	40K	3/10	90
Tow Anti-Tank, TAMCN E0942	27,650	40K	10/3	90

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

- (1) Sling set (40,000-pound capacity).
- (2) Tape, adhesive, pressure-sensitive, 2-inch wide roll.
- (3) Cord, nylon, Type III, 550-pound breaking strength.
- (4) Webbing, cotton, 1/4-inch, 80-pound breaking strength.
- (5) 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) Secure all loose items inside the LAV.

(b) Remove all antennae.

(c) Ensure the parking brake is set.

(d) Pad and tape all vision blocks, mirrors, and lights.

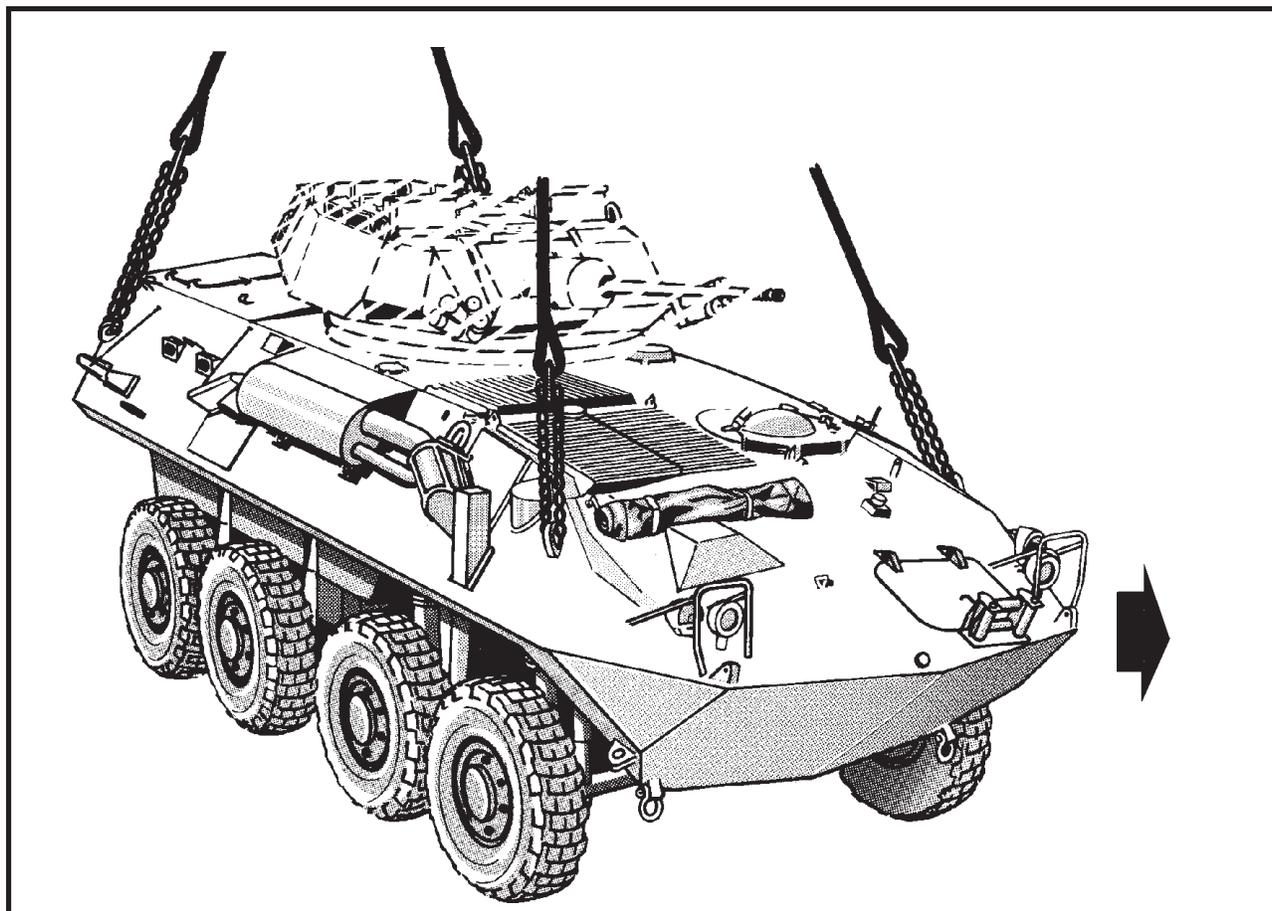
(e) Secure all hatches and panels.

(f) Ensure the boom is pinned down and tape the hydraulic cables. (Recovery Unit)

(2) **Rigging.** Rig the load according to the steps in Figure 2-17.

(3) **Hookup.** The hookup team stands on top 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 apex fitting on top of the vehicle. Route outer sling legs 1 and 2 to the front of the vehicle and inner sling legs 3 and 4 to the rear. Sling legs 1 and 3 must be on the left side of the load.

2. Loop the chain end of sling leg 1 through the left front lift provision. Place the correct link from Table 2-18 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 2-18 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 LAV to prevent entanglement during hookup and lift-off.

*Figure 2-17. Light Armored Vehicle (LAV)*

## 2-20. M1097 (H-HMMWV) With AN/TPQ-42, Meteorological Hydrogen Generator (MHG)

**a. Applicability.** The following items in Table 2-19 are certified for all helicopters with suitable lift capacity by the US Army Natick Research, Development, and Engineering Center:

**Table 2-19. M1097 (H-HMMWV) With AN/TPQ-42, Meteorological Hydrogen Generator (MHG)**

NOMENCLATURE	MAX WEIGHT (POUNDS)	SLING SET	LINK COUNT FRONT/REAR	RECOMMENDED AIRSPEED (KNOTS)
AN/TPQ-42, Meteorological Hydrogen Generator (MHG)	10,000	10K	80/45	120
AN/TPQ-42, Meteorological Hydrogen Generator (MHG)	10,000	15K	25/3	120

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

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

**OR**

- (2) Multileg sling set (15,000-pound capacity or for the CH-53E only).
- (3) Tape, adhesive, pressure-sensitive, 2-inch wide roll.
- (4) Cord, nylon, Type III, 550-pound breaking strength.
- (5) Webbing, cotton, 1/4-inch, 80-pound breaking strength.

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

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

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

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

(b) Secure all equipment and cargo inside the

vehicle with tape, nylon cord, or lashings. Secure the doors shut if installed.

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

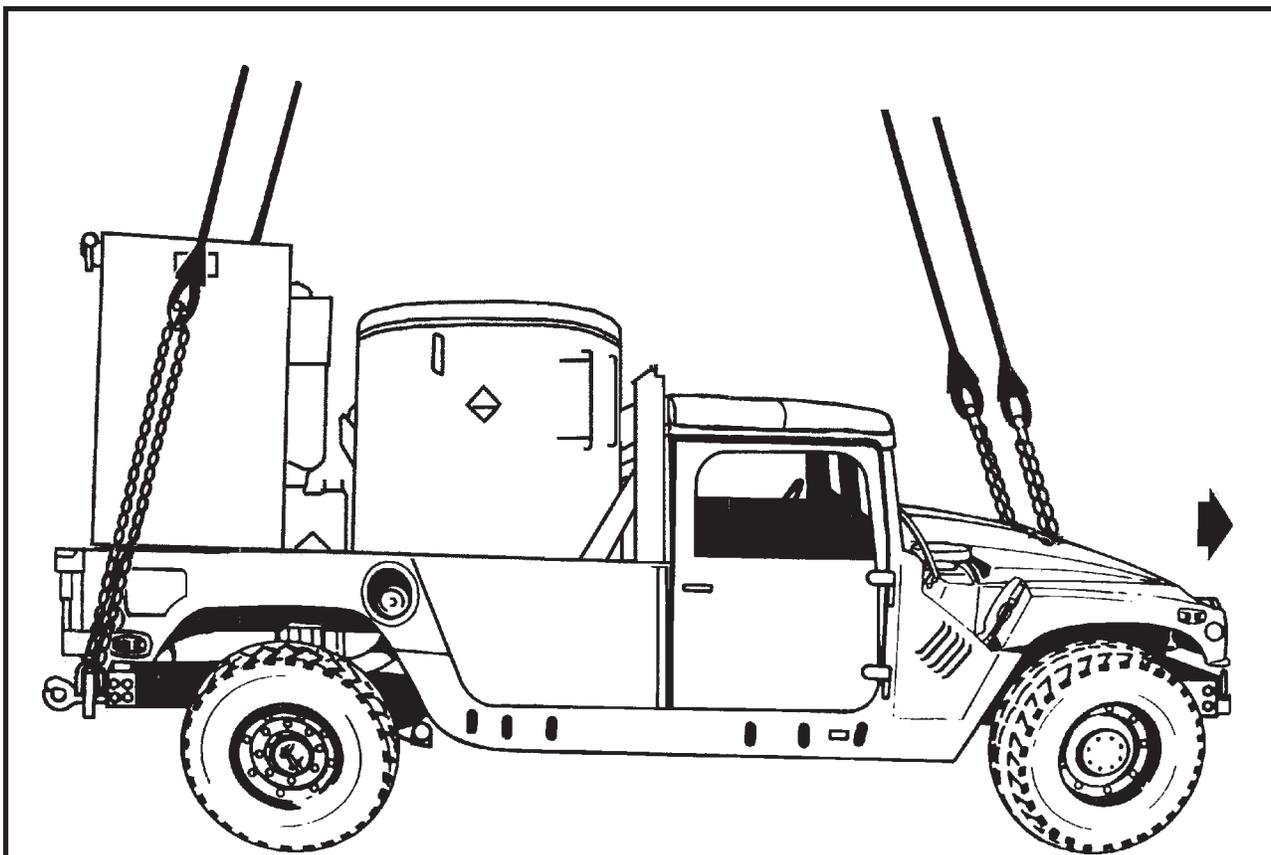
(d) Engage the vehicle parking brake and put the transmission in neutral.

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

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

(3) **Hookup.** The hookup team stands in the cargo 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 1 and 2 to the front of the vehicle and inner sling legs 3 and 4 to the rear. Sling legs 1 and 3 must be on the left side of the load.

2. Loop the chain end of sling leg 1 through the left front lift provision that protrudes through the hood from inboard to outboard. Place the correct link from Table 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)

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