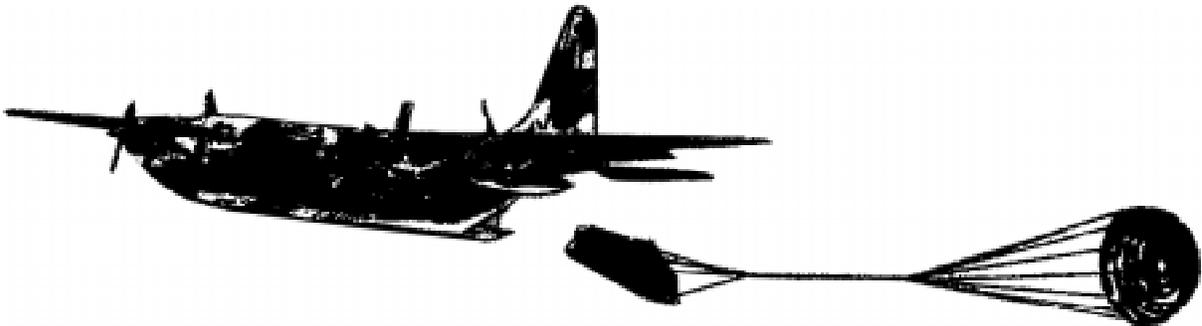
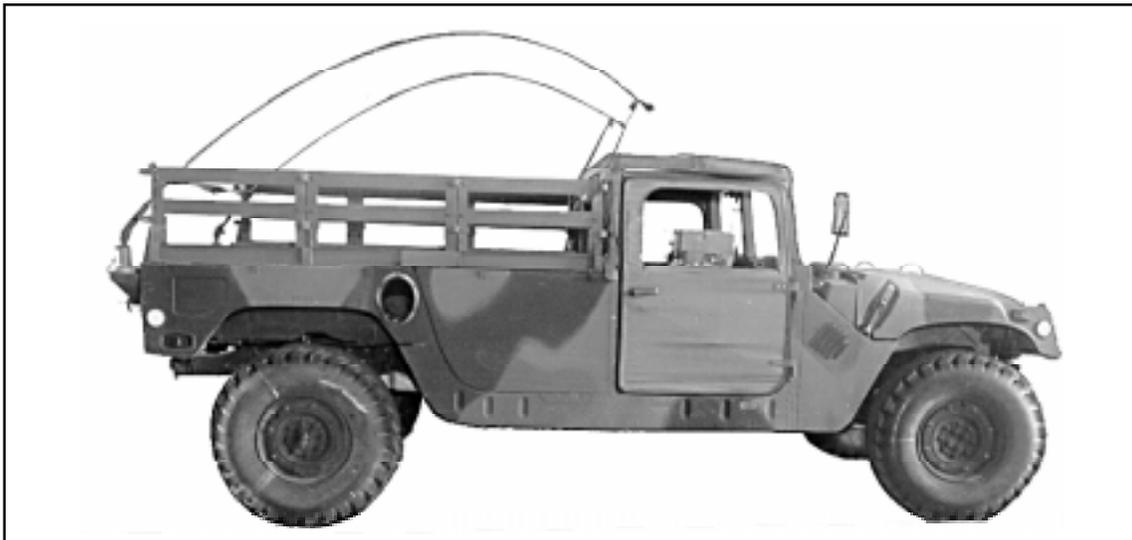


MCRP 4-11.3M w/ CH 1
ARMY FM 4-20.117 (FM 10-517)
AIR FORCE TO 13C7-1-111



AIRDROP OF SUPPLIES AND EQUIPMENT:

RIGGING HIGH-MOBILITY MULTIPURPOSE WHEELED VEHICLES



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Washington, DC, 22 July 2005

CHANGE NO. 1

**AIRDROP OF SUPPLIES AND EQUIPMENT:
RIGGING HIGH-MOBILITY MULTIPURPOSE WHEELED VEHICLES**

This change incorporates the rigging procedures for the M1151 Armament Carrier and the procedure to mount a driver vision enhancer model number AN/VAS-5 on specific HMMWV series vehicles.

This change also includes a Marine Corps designation. The designation is Marine Corps Reference Publication (MCRP) 4-11.3M. This change reflects the entire manual and not just the rigging procedure in this change.

FM 4-20.117/TO 13C7-1-111, 1 October 2002, is changed as follows:

1. New or changed material is identified by a vertical bar in the margin opposite the changed material.
2. File the transmittal sheet in front of the publication for reference purpose.
3. Remove old pages and insert new pages as indicated below:

Remove old pages

i through vii
1-1 through 1-4

References-1

Insert new pages

i through vi
1-1 through 1-3
4-53 through 4-75
5-103 through 5-107
References-1 and References-2

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DEPARTMENT OF THE ARMY
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DEPARTMENT OF THE AIR FORCE
Washington, DC, 22 July 2005

Airdrop of Supplies and Equipment: Rigging High-Mobility Multipurpose Wheeled Vehicles (HMMWV)

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Preface

SCOPE

The manual tells and shows how to rig HMMWV-series trucks in the Army inventory at the time of publication for low-velocity parachute airdrop. Some specialized truck configurations and loads are included.

USER INFORMATION

The proponent of this publication is HQ TRADOC. You are encouraged to report any errors or omissions and to suggest ways of making this a better manual.

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CHAPTER 1

INTRODUCTION

DESCRIPTION OF ITEMS

1-1. The HMMWV-series trucks that can be rigged using the procedures in this manual are listed below.

a. M998 Cargo/Troop Carriers. The M998 truck weighs 5,200 pounds. It is 180 inches long and 85 inches wide. The reduced height of the truck is 54 inches.

The M998A1 truck weighs 5,380 pounds. Its length is 180 inches and its width is 86 inches. The reduced height is 56 inches.

b. M1038 Cargo/Troop Carriers With Winch. The M1038 truck weighs 5,327 pounds. It is 186 inches long and 85 inches wide. The reduced height of the truck is 54 inches.

The M1038A1 truck weighs 5,507 pounds. Its length is 186 inches and its width is 86 inches. The reduced height is 56 inches.

c. M1025 Armament Carriers, Armored. The M1025 truck weighs 5,960 pounds. It is 180 inches long and 85 inches wide. The reduced height of the truck is 74 inches.

The M1025A1 truck weighs 6,140 pounds. Its length is 180 inches and its width is 86 inches. The reduced height is 74 inches.

The M1025A2 truck weighs 6,780 pounds. Its length is 191 inches and its width is 86 inches. The reduced height is 74 inches.

d. M1025A2 Armament Carrier (Modified), With Winch. This is NOT the same carrier as the M1025A2. External and internal modifications have been made to support special operations. The M1025A2 (modified) carrier weighs 7,020 pounds. It is 191 inches long and 86 inches wide.

e. M1026 Armament Carriers, Armored With Winch. The M1026 truck weighs 6,087 pounds. It is 186 inches long and 85 inches wide. The reduced height of the truck is 74 inches.

The M1026A1 truck weighs 6,267 pounds. Its length is 186 inches and its width is 86 inches. The reduced height is 74 inches.

f. M1026 Armament Carrier (Modified). This is NOT the same carrier as the M1026. External and internal modifications have been made to support special operations. The M1026 (modified) carrier weighs 6,087 pounds. It is 185 inches long and 85 inches wide. The reduced height of the truck is 69 inches.

g. M966 TOW Carriers, Armored. The M966 truck weighs 6,051 pounds. It is 180 inches long and 85 inches wide. The reduced height of the truck is 74 inches.

The M966A1 truck weighs 6,231 pounds. Its length is 180 inches and its width is 86 inches. The reduced height is 74 inches.

h. M1036 TOW Carrier, Armored With Winch. The M1036 truck weighs 6,178 pounds. It is 186 inches long and 85 inches wide. The reduced height of the truck is 74 inches.

i. M1121 TOW Carrier, Armored. The M1121 truck weighs 7,900 pounds. It is 180 inches long and 85 inches wide. The reduced height of the truck is 74 inches.

j. M1043 Armament Carriers, With Supplemental Armor. The M1043 truck weighs 6,411 pounds. It is 180 inches long and 85 inches wide. The reduced height of the truck is 74 inches.

The M1043A1 truck weighs 6,591 pounds. Its length is 180 inches and its width is 86 inches. The reduced height is 74 inches.

The M1043A2 truck weighs 7,230 pounds. Its length is 191 inches and its width is 86 inches. The reduced height is 74 inches.

k. M1044 Armament Carriers, With Supplemental Armor and Winch. The M1044 truck weighs 6,411 pounds. It is 186 inches long and 85 inches wide. The reduced height of the truck is 74 inches.

The M1044A1 truck weighs 6,718 pounds. Its length is 186 inches and its width is 86 inches. The reduced height is 74 inches.

l. M1045 Armament Carriers, With Supplemental Armor. The M1045 truck weighs 6,438 pounds. It is 180 inches long and 85 inches wide. The reduced height of the truck is 74 inches.

The M1045A1 truck weighs 6,618 pounds. Its length is 180 inches and its width is 86 inches. The reduced height is 74 inches.

The M1045A2 truck weighs 7,258 pounds. Its length is 191 inches and its width is 86 inches. The reduced height is 74 inches.

m. M1046 TOW Carriers, With Supplemental Armor and Winch. The M1046 truck weighs 6,565 pounds. It is 186 inches long and 85 inches wide. The reduced height of the truck is 74 inches.

The M1046A1 truck weighs 6,745 pounds. Its length is 186 inches and its width is 86 inches. The reduced height is 74 inches.

n. M1037 S250 Shelter Carrier. The M1037 truck weighs 5,425 pounds. It is 191 inches long and 85 inches wide. The reduced height, without the shelter, is 54 inches.

o. M1037 Cargo/Troop Carrier (Modified), With Winch. This is NOT the same carrier as the M1037. External and internal modifications have been made to support artillery operations. The M1037 (modified) is 185 inches long and 85 inches wide. The reduced height of the truck is 70 inches.

p. M1042 S250 Shelter Carrier, With Winch. The M1042 truck weighs 5,551 pounds. It is 197 inches long and 85 inches wide. The reduced height, without the shelter, is 54 inches.

q. M1097 Truck, Utility, Heavy Variant. The M1097 truck weighs 5,600 pounds. It is 191 inches long and 86 inches wide. The reduced height of the truck is 56 inches.

The M1097A1 truck weighs 5,600 pounds. Its length is 191 inches and its width is 86 inches. The reduced height is 56 inches.

The M1097A2 truck weighs 5,900 pounds. Its length is 191 inches and its width is 86 inches. The reduced height is 56 inches. This truck may have a winch.

r. M1113 Truck, Utility, Expanded Capacity. The M1113 truck weighs 6,190 pounds. It is 197 inches long and 86 inches wide. The reduced height of the truck is 56 inches. This truck may have a winch.

s. M1114 Armament Carrier, Expanded Capacity, Up-Armored, With Winch. The M1114 truck weighs 9,800 pounds. It is 197 inches long and 86 inches wide. The reduced height of the truck is 74 inches.

t. M1151 Armament Carrier, Expanded Capacity. The M1151 truck weighs 7,300 pounds. It is 193 1/2 inches long and 86 inches wide. The reduced height of the truck is 77 inches.

SPECIAL CONSIDERATIONS

1-2. Special considerations for this manual are listed below.

a. The loads covered in this manual may include hazardous materials as defined in AFMAN 24-204(I)/TM 38-250. If included, the hazardous material must be packaged, marked, and labeled as required by AFMAN 24-204(I)/TM 38-250.

b. A copy of this manual must be available to the joint airdrop inspectors during the before- and after-loading inspections.

CAUTION

Only ammunition listed in FM 4-20.153/MCRP 4-11.3B/TO 13C7-18-41 may be airdropped.

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CHAPTER 2

RIGGING 1 1/4-T ON HMMWV SOFT -TOP TRUCKS FOR LOW-VELOCITY AIRDROP

DESCRIPTION OF LOAD

2-1. The unrigged M998 cargo/troop carrier (Figure 2-1) is described in Chapter 1. The HMMWV truck is rigged on a 16-foot type V platform for low-velocity airdrop. An accompanying load weighing a minimum of 800 pounds and a maximum of 2,000 pounds (2,500 pounds for the M1037 modified HMMWV, M1042, M1097, M1097A1, and M1097A2) must be rigged in the truck. The load requires two G-11 cargo parachutes. The following trucks can be rigged using the procedures given in this chapter:

M998A1

M1038 and M1038A1

M1037 and M1037 modified

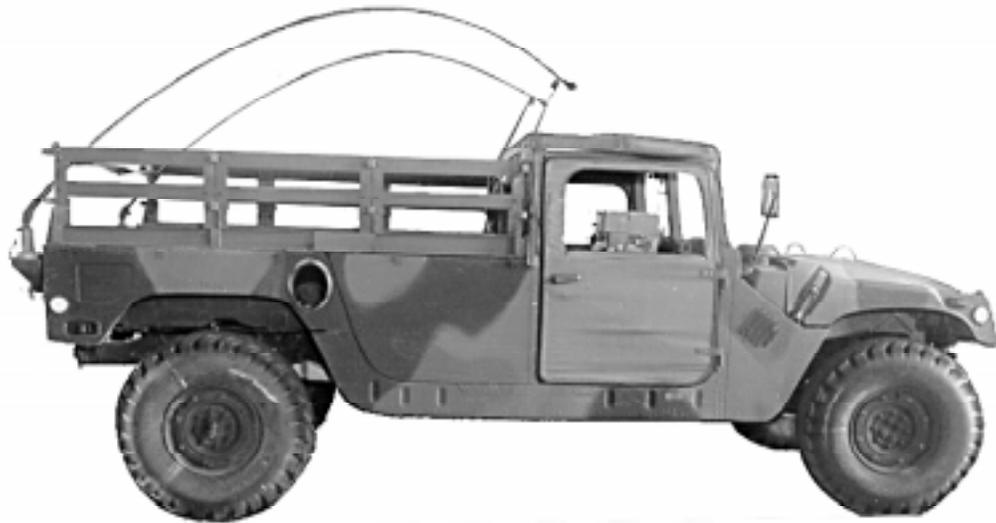
M1042

M1097, M1097A1, and M1097A2

PREPARING PLATFORM

2-2. Prepare a 16-foot, type V airdrop platform according to TM 10-1670-268-20&P/TO 13C7-52-22. Install four tandem links as shown in Figure 2-2. Attach and number 18 clevis assemblies as shown in Figure 2-2.

NOTES: 1. The nose bumper may or may not be installed.
2. Measurements given in this chapter are from the front edge of the platform, NOT from the front edge of the nose bumper.



TWO-DOOR CONFIGURATION



FOUR-DOOR CONFIGURATION

Figure 2-1. M998 Cargo/Troop Carrier

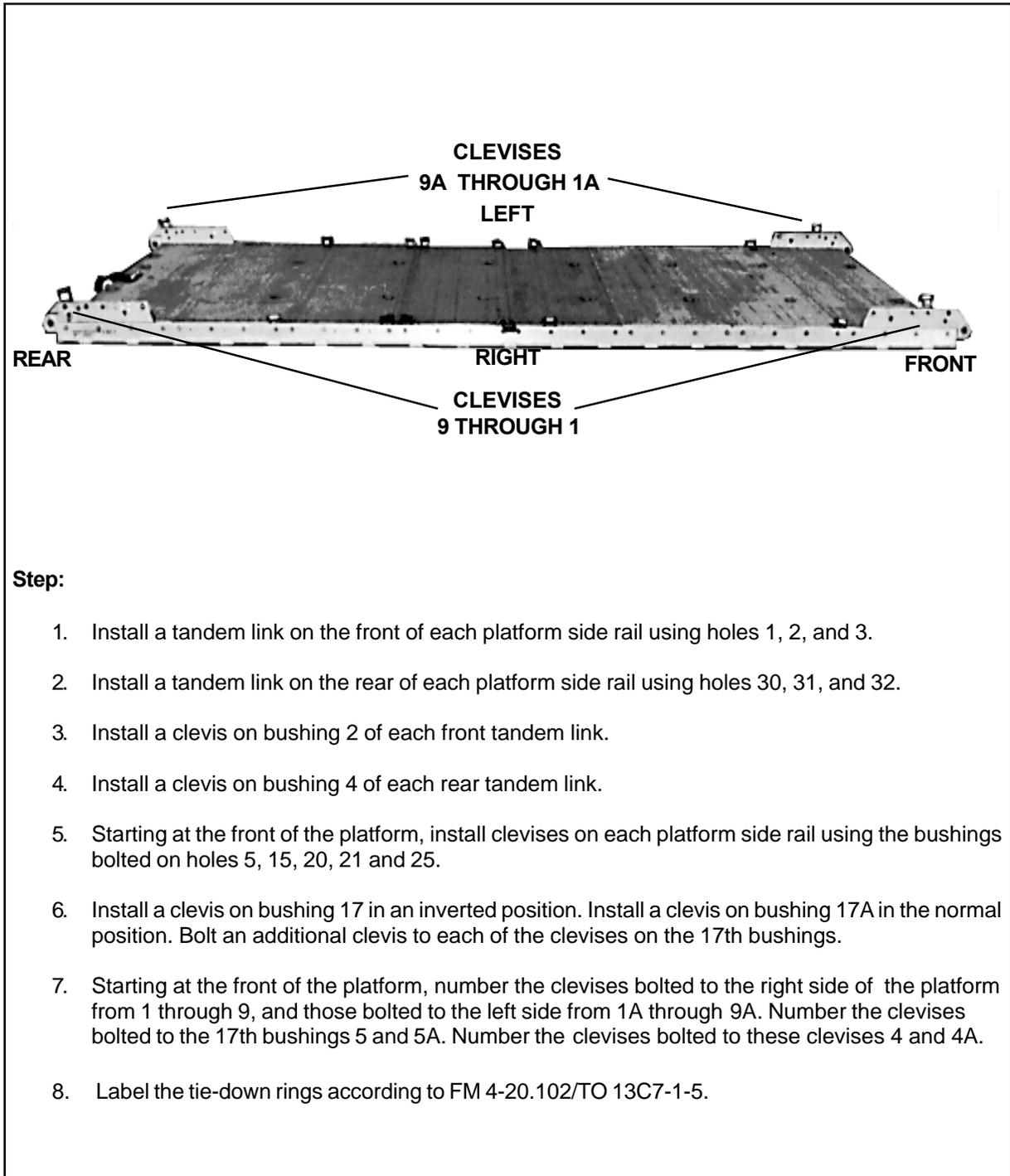
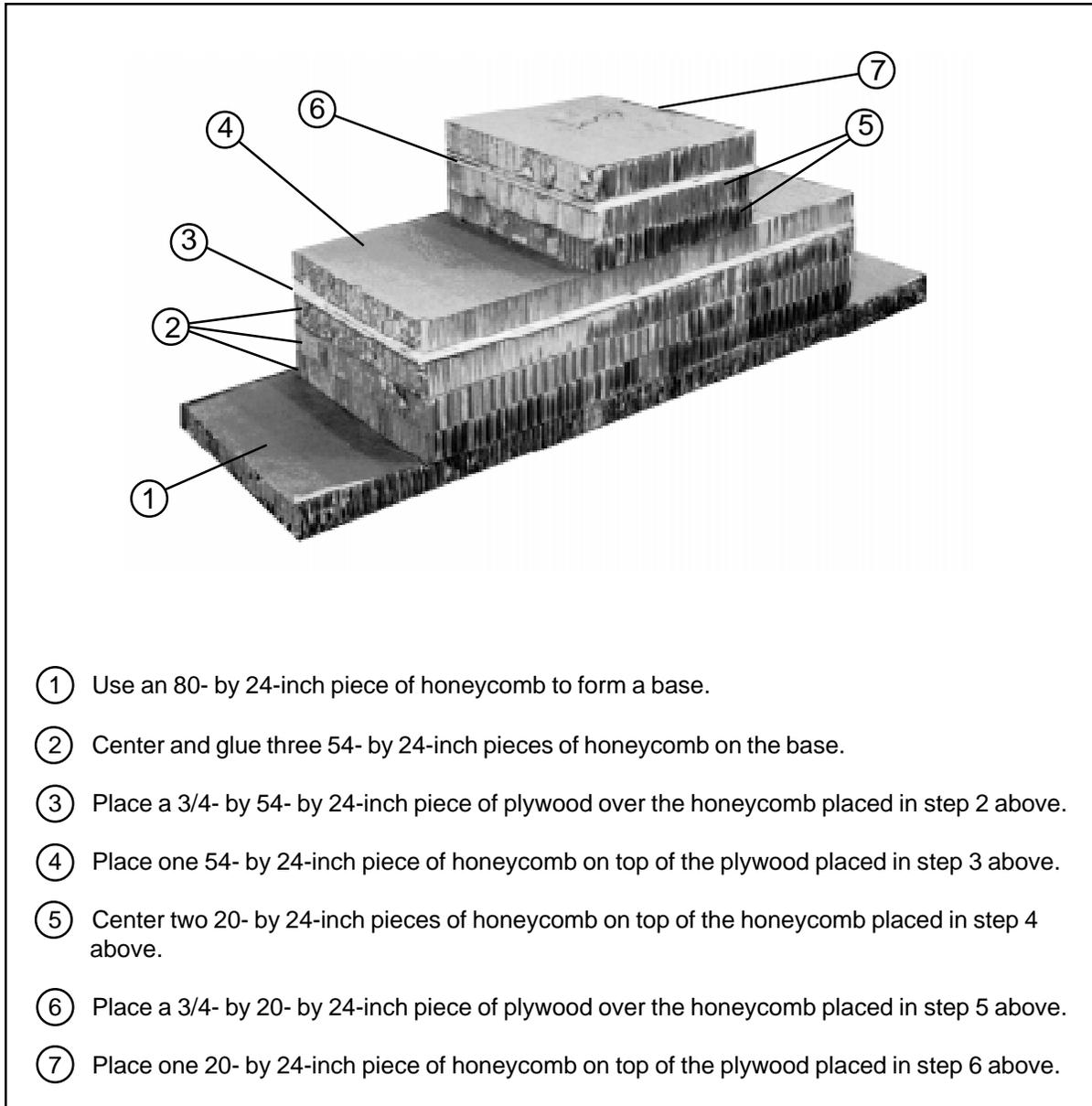


Figure 2-2. Platform Prepared

PREPARING AND POSITIONING HONEYCOMB STACKS

2.3. Prepare three honeycomb stacks as shown in Figures 2-3 and 2-4. Position the stacks on the platform as shown in Figure 2-5.



- ① Use an 80- by 24-inch piece of honeycomb to form a base.
- ② Center and glue three 54- by 24-inch pieces of honeycomb on the base.
- ③ Place a 3/4- by 54- by 24-inch piece of plywood over the honeycomb placed in step 2 above.
- ④ Place one 54- by 24-inch piece of honeycomb on top of the plywood placed in step 3 above.
- ⑤ Center two 20- by 24-inch pieces of honeycomb on top of the honeycomb placed in step 4 above.
- ⑥ Place a 3/4- by 20- by 24-inch piece of plywood over the honeycomb placed in step 5 above.
- ⑦ Place one 20- by 24-inch piece of honeycomb on top of the plywood placed in step 6 above.

Figure 2-3. Stacks 1 and 3 Prepared

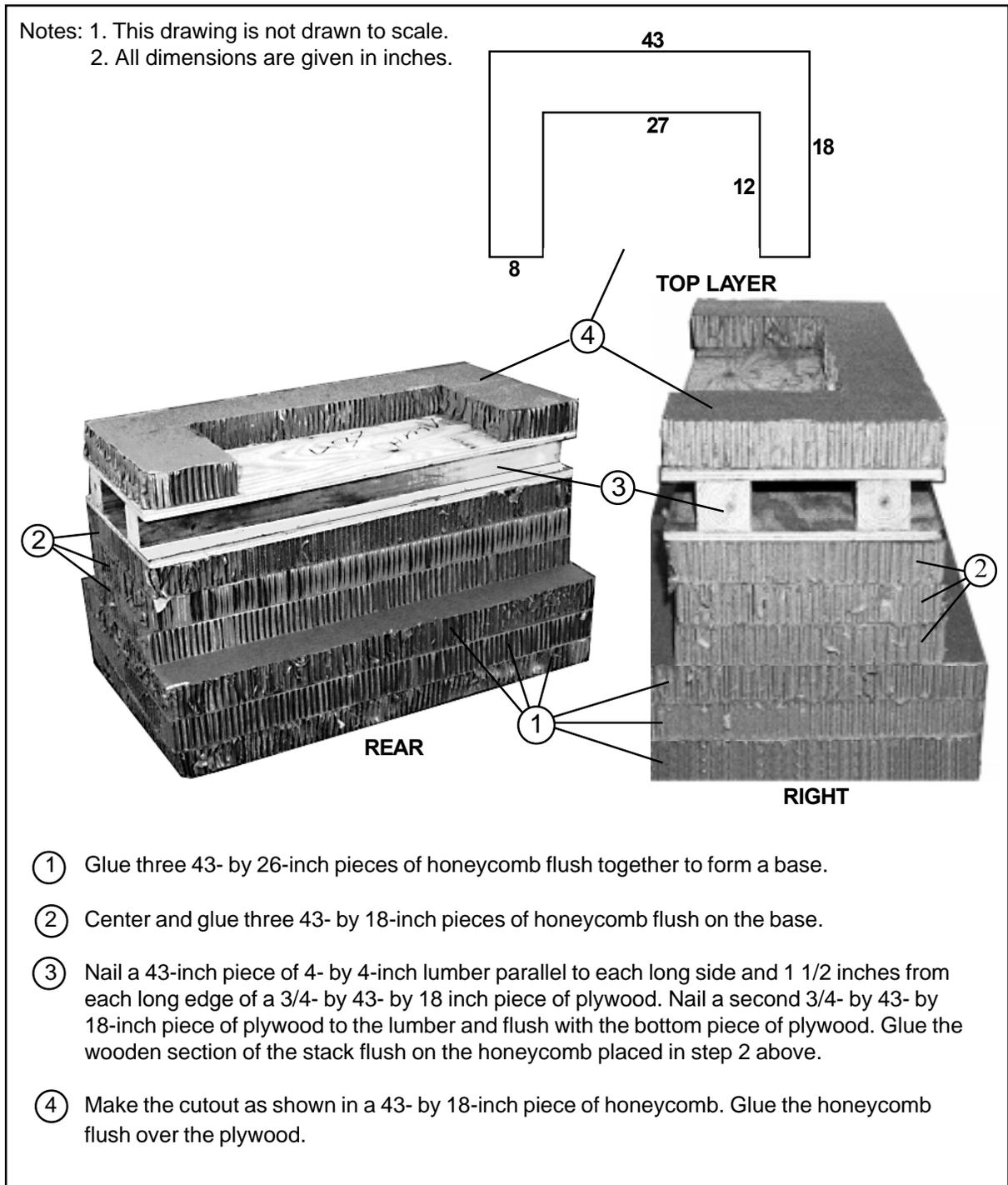


Figure 2-4. Stack 2 Prepared

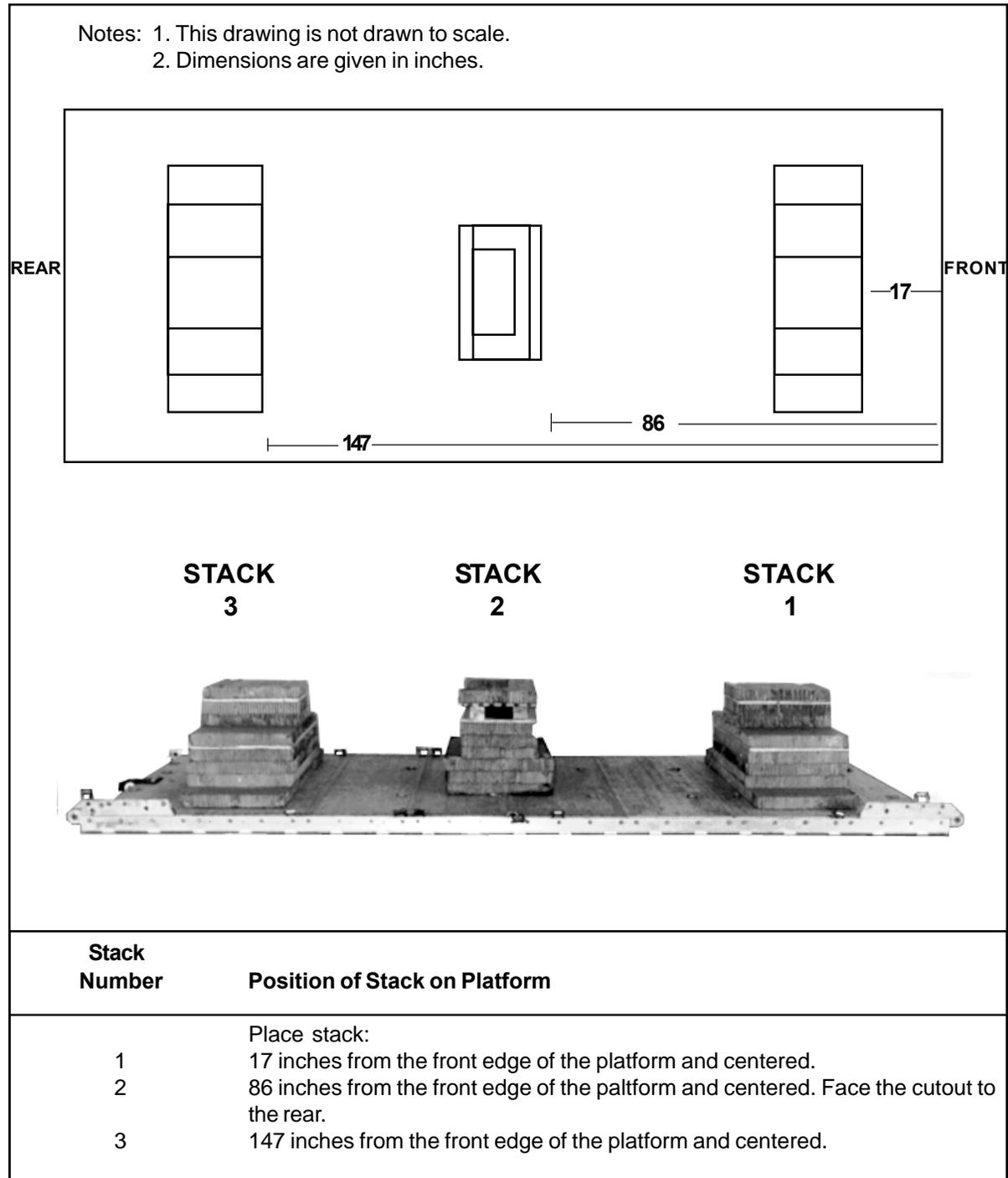


Figure 2-5. Honeycomb Stacks Positioned on Platform

PREPARING TRUCK

2-4. Prepare the truck as described below.

a. Make sure the fuel tank is no more than 3/4 full. Prepare the fuel tank filler cap and fuel filler opening as shown in Figure 2-6. Prepare the fuel tank drain plug as shown in Figure 2-7.

Note: Certain units may be authorized a waiver allowing 95% fuel. One way to verify the tank is 95% full is to fill the tank and withdraw 1 1/4 gallons with a hand pump.

CAUTION

A full tank does not allow for fuel expansion, and is a danger to aircraft and crew.

b. Make sure the batteries and battery compartment comply with AFJMAN 24-204/TM 38-250.

c. Stow the truck OVE according to TM 9-2320-280-10/TO 36A12-1A-2091-1/TM 2320-10/6.

d. Prepare the cab of the truck as shown in Figure 2-8.

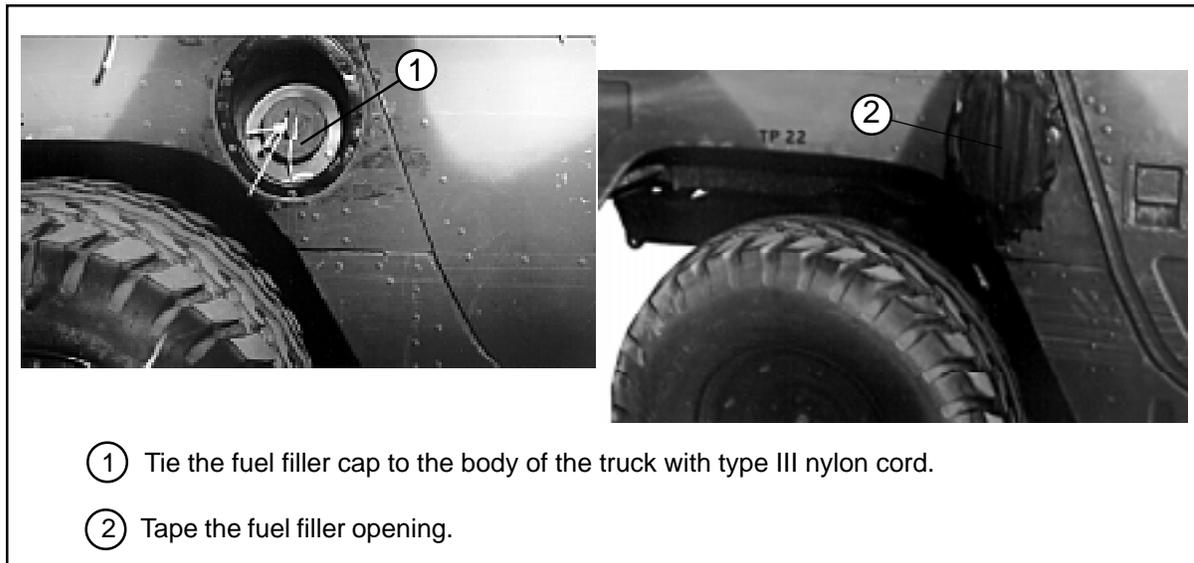
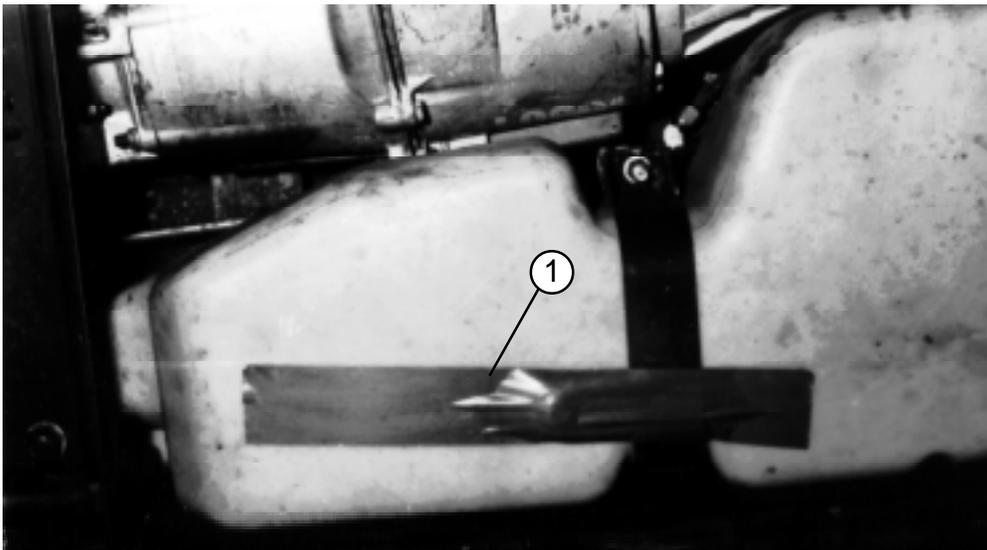
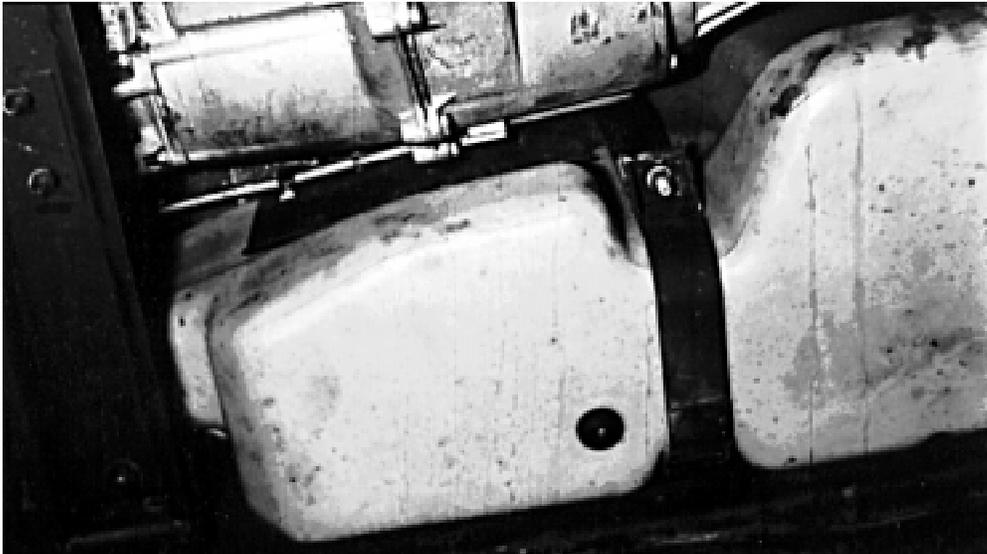
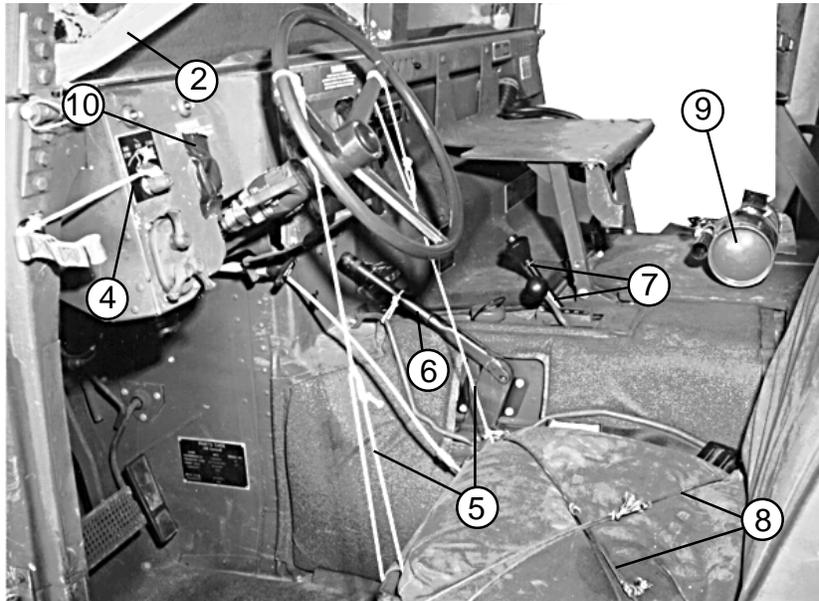


Figure 2-6. Fuel Tank Filler Cap and Opening Prepared



- ① Place a 12-inch length of cloth-backed tape over the fuel tank drain plug.

Figure 2-7. Fuel Tank Drain Plug Prepared



- ① Remove all doors, covers, and supporting bows.
- ② Tape the windshield glass on both sides in an X.
- ③ Remove and pad the mirrors. Secure them under the driver's seat with type III nylon cord.
- ④ Tie the engine start switch in the engine stop position with type I, 1/4-inch cotton webbing.
- ⑤ Tie the steering wheel to the seat frame in two places with type III nylon cord, or use the retractable steering wheel locking cable. If the locking cable is used, secure it to the steering wheel with type III nylon cord, not a padlock.
- ⑥ Tie the emergency brake handle in the off position with type III nylon cord.
- ⑦ Place the transmission and four-wheel drive levers in the neutral position.
- ⑧ Tie the seat cushions to the seat frames with type III nylon cord. Fold the passenger seats in four-door trucks and secure them with the pins provided.
- ⑨ Tie the fire extinguisher in place with two lengths of type III nylon cord.
- ⑩ Tape all instrument panel gauges.

Figure 2-8. Cab Prepared

e. Secure and pad radio equipment in the cab section as shown in Figure 2-9.

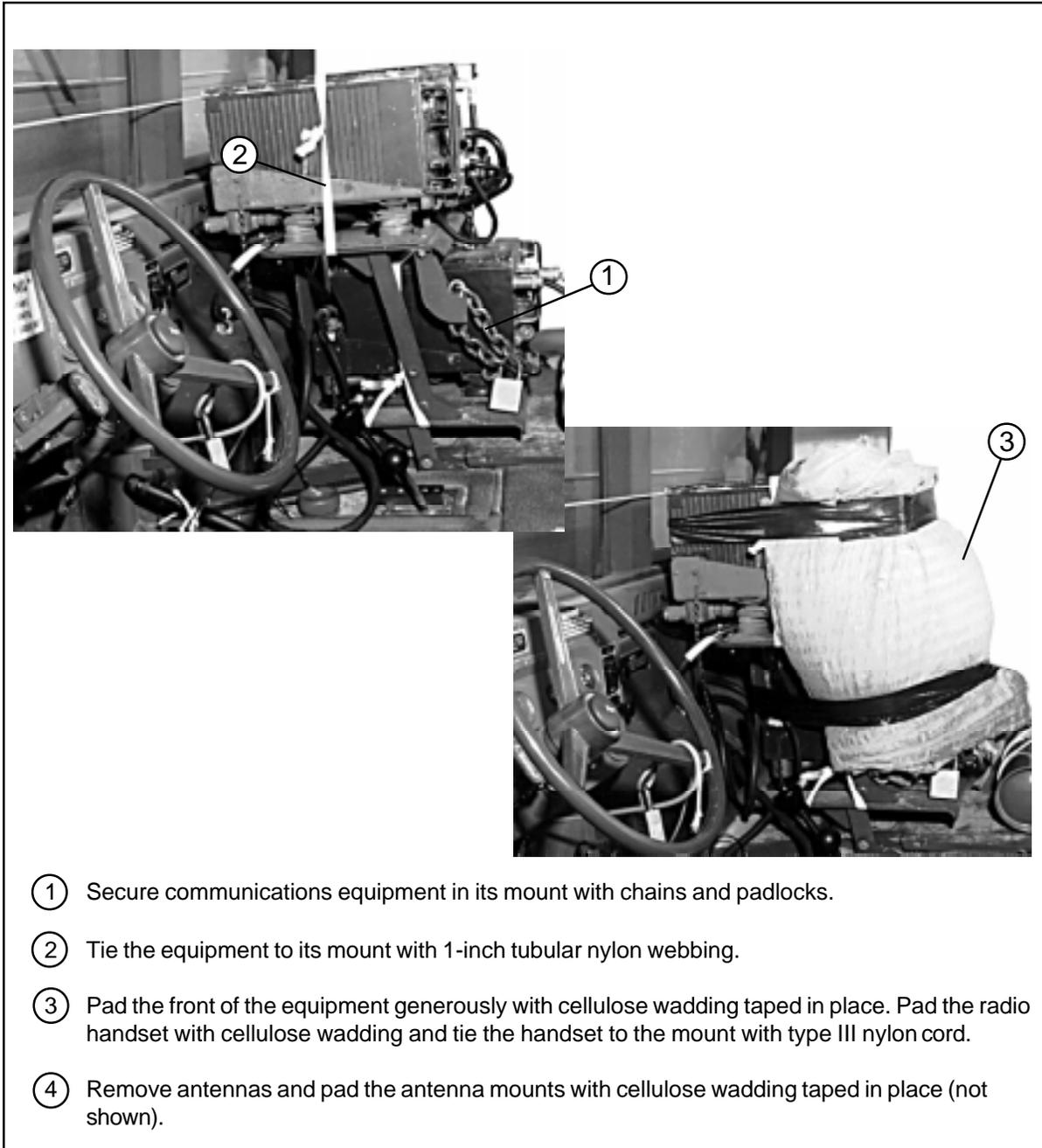


Figure 2-9. Communications Equipment Secured and Padded

f. Prepare the front of soft-top trucks with foldable windshields as shown in Figure 2-10.

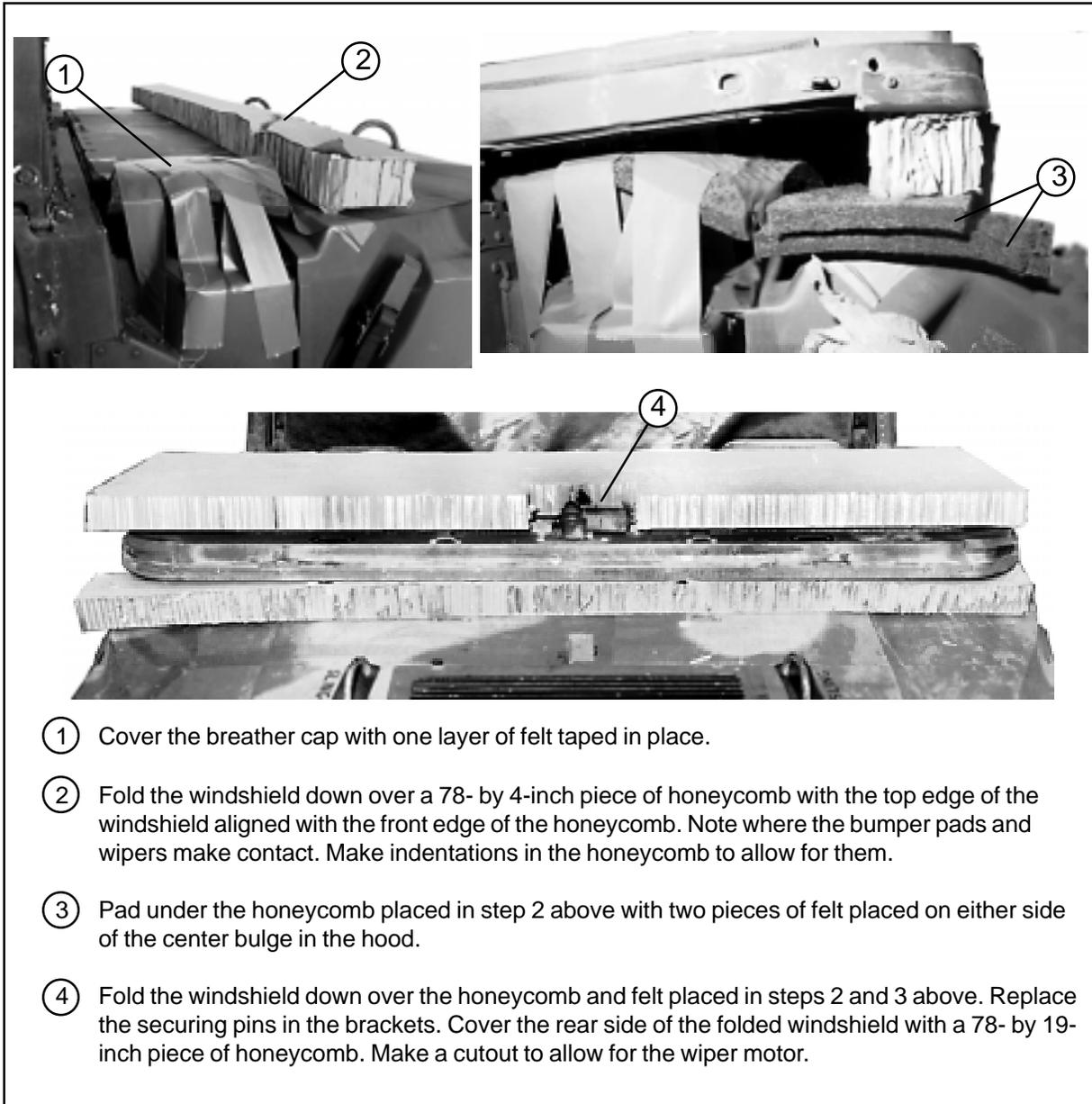
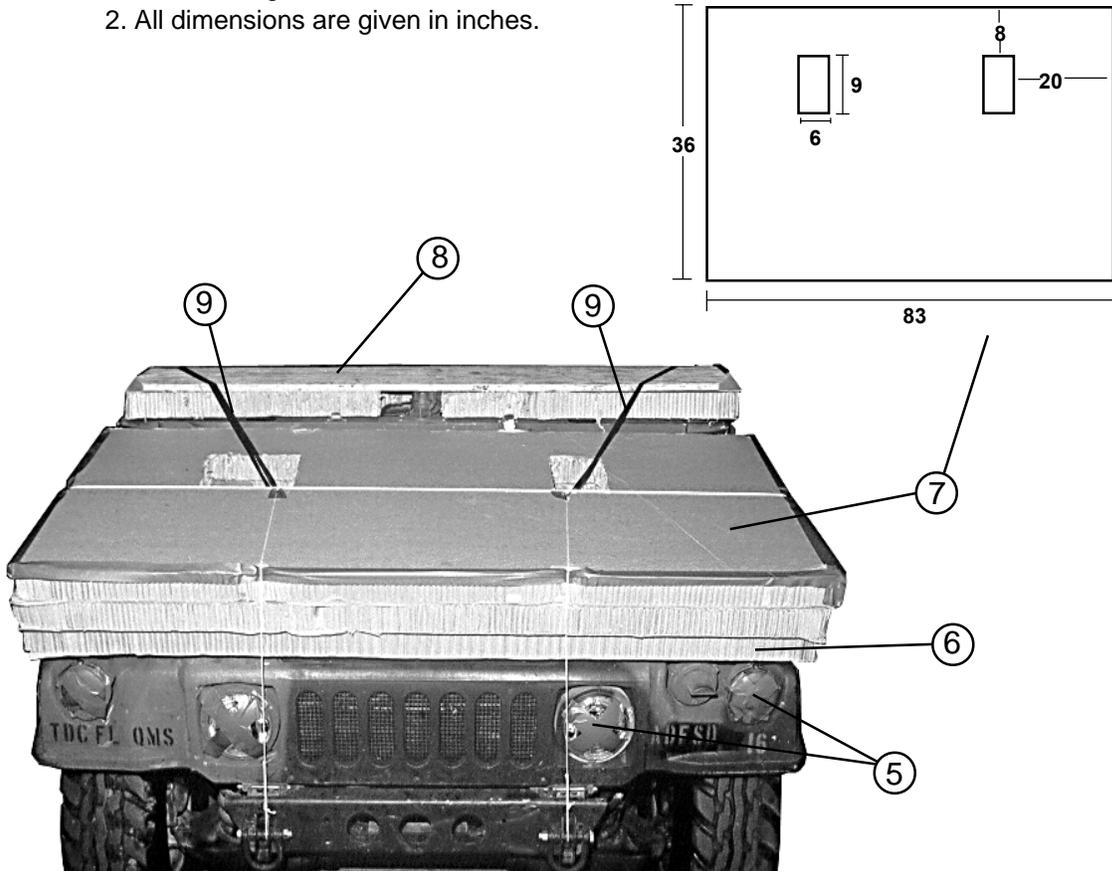


Figure 2-10. Front of Truck Prepared

Notes: 1. This drawing is not drawn to scale.
 2. All dimensions are given in inches.



- ⑤ Tape all lights and reflectors. Tape the hood latches.
- ⑥ Center a 78- by 4-inch piece of honeycomb along the front edge of the hood.
- ⑦ Place two 83- by 36-inch pieces of honeycomb, with cutouts as shown, on the hood. Tie one length of type III nylon cord over the honeycomb to the front coil springs on each side. Tie two lengths of type III nylon cord from the airlift bracket to the front tie-down bracket on each side. Tape the honeycomb where the cord passes over the edges.
- ⑧ Place a 3/4- by 78- by 19-inch piece of plywood over the honeycomb placed in step 4. Round the front corners, and drill a 1/2-inch hole 6 inches from the bottom and 1 inch from each end.
- ⑨ Secure the plywood with two lengths of 1/2-inch tubular nylon webbing tied from the airlift bracket to the windshield securing pin on each side.

Figure 2-10. Front of Truck Prepared (continued)

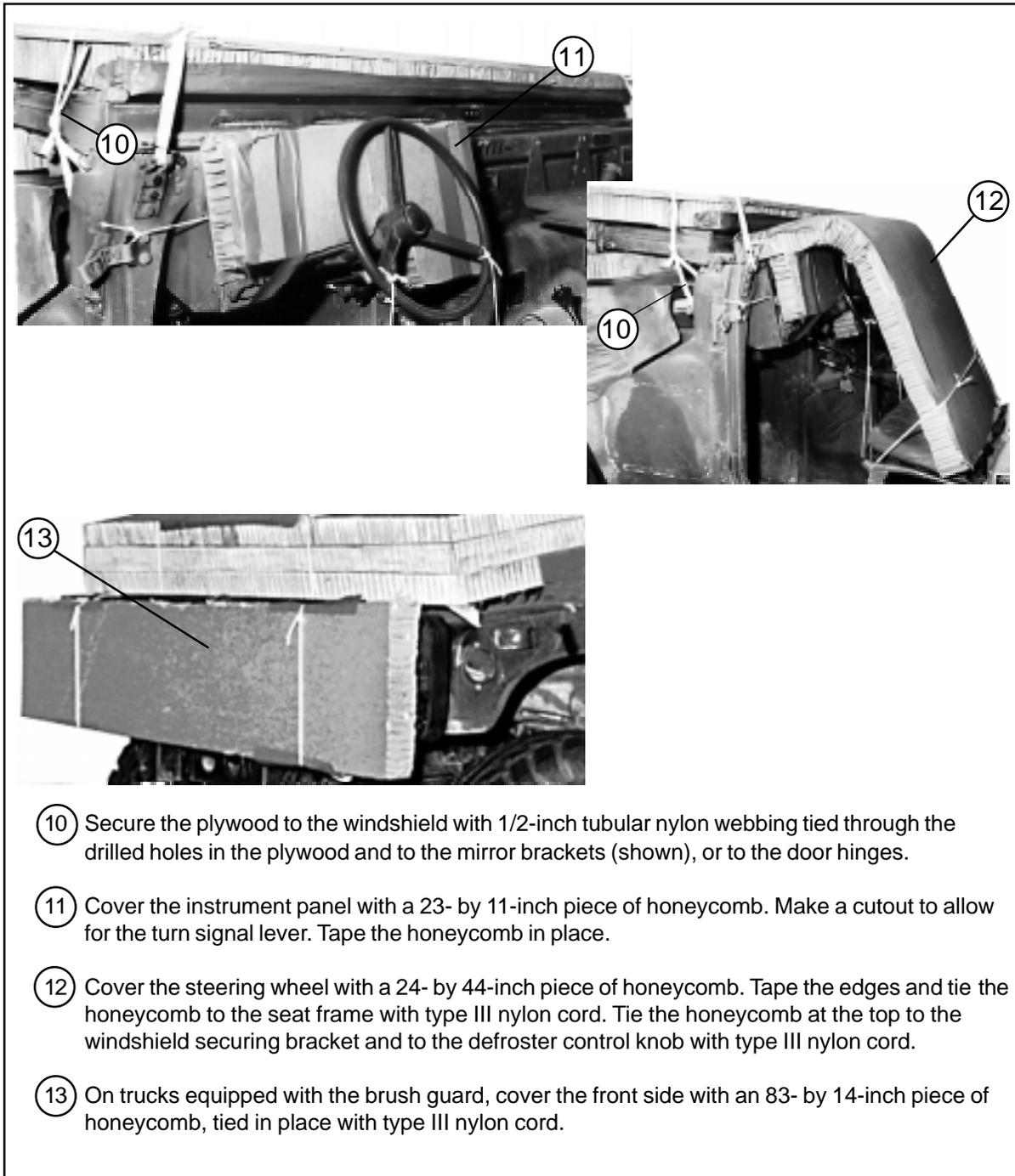


Figure 2-10. Front of Truck Prepared (continued)

g. Prepare and secure the pioneer tool kit according to TM 9-2320-280-10/TO 36A12-1A-2091-1/TM 2320-10/6, and as shown in Figure 2-11.

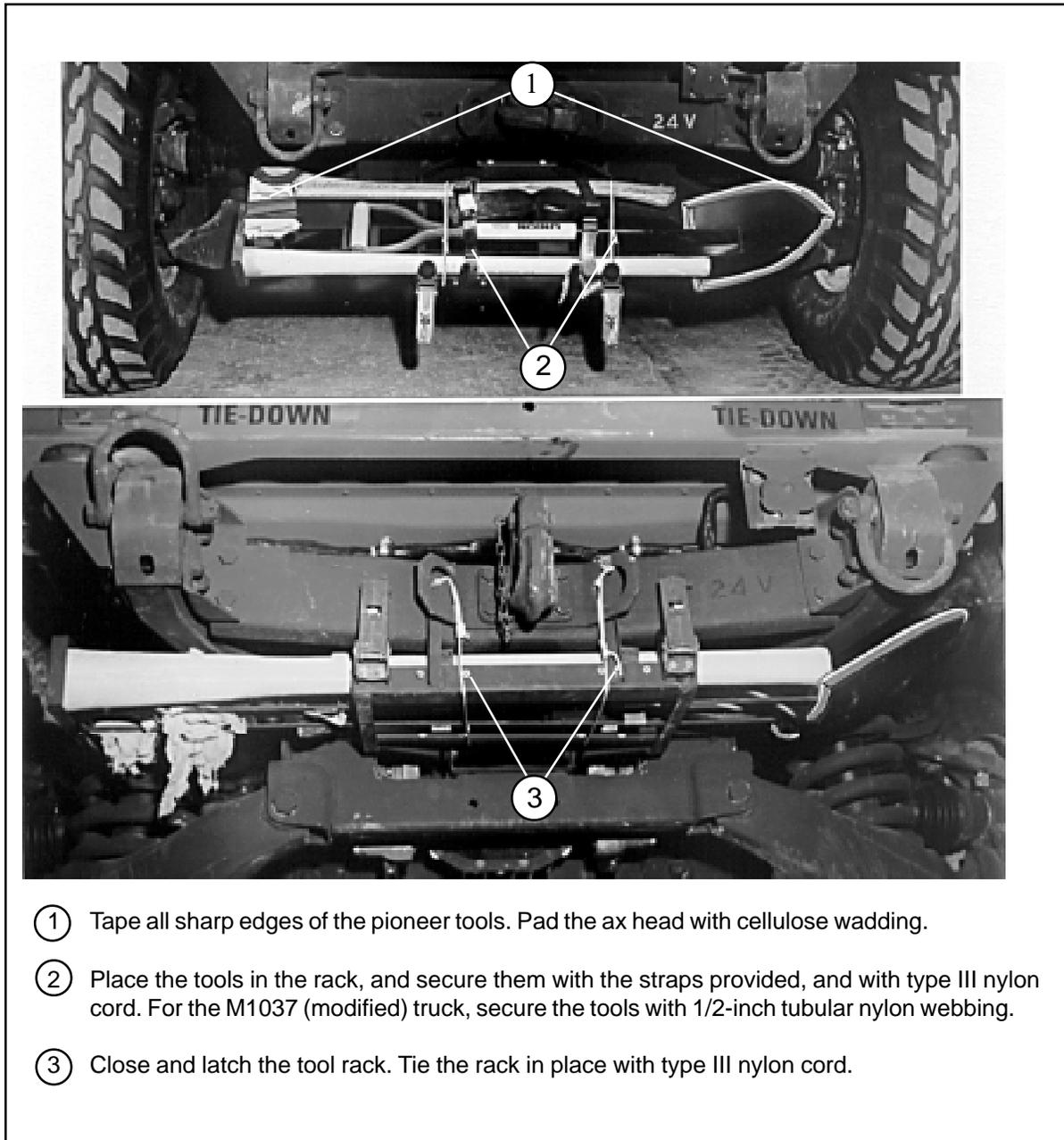
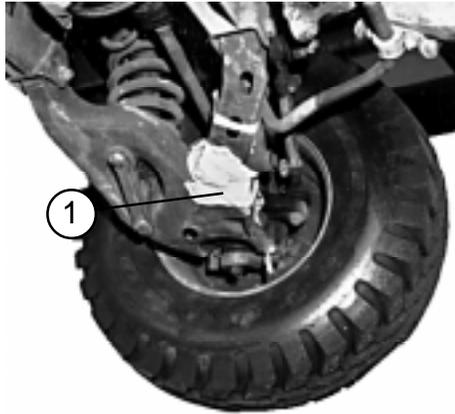


Figure 2-11. Pioneer Tool Kit Secured

h. Prepare the underside of the truck as shown in Figure 2-12.



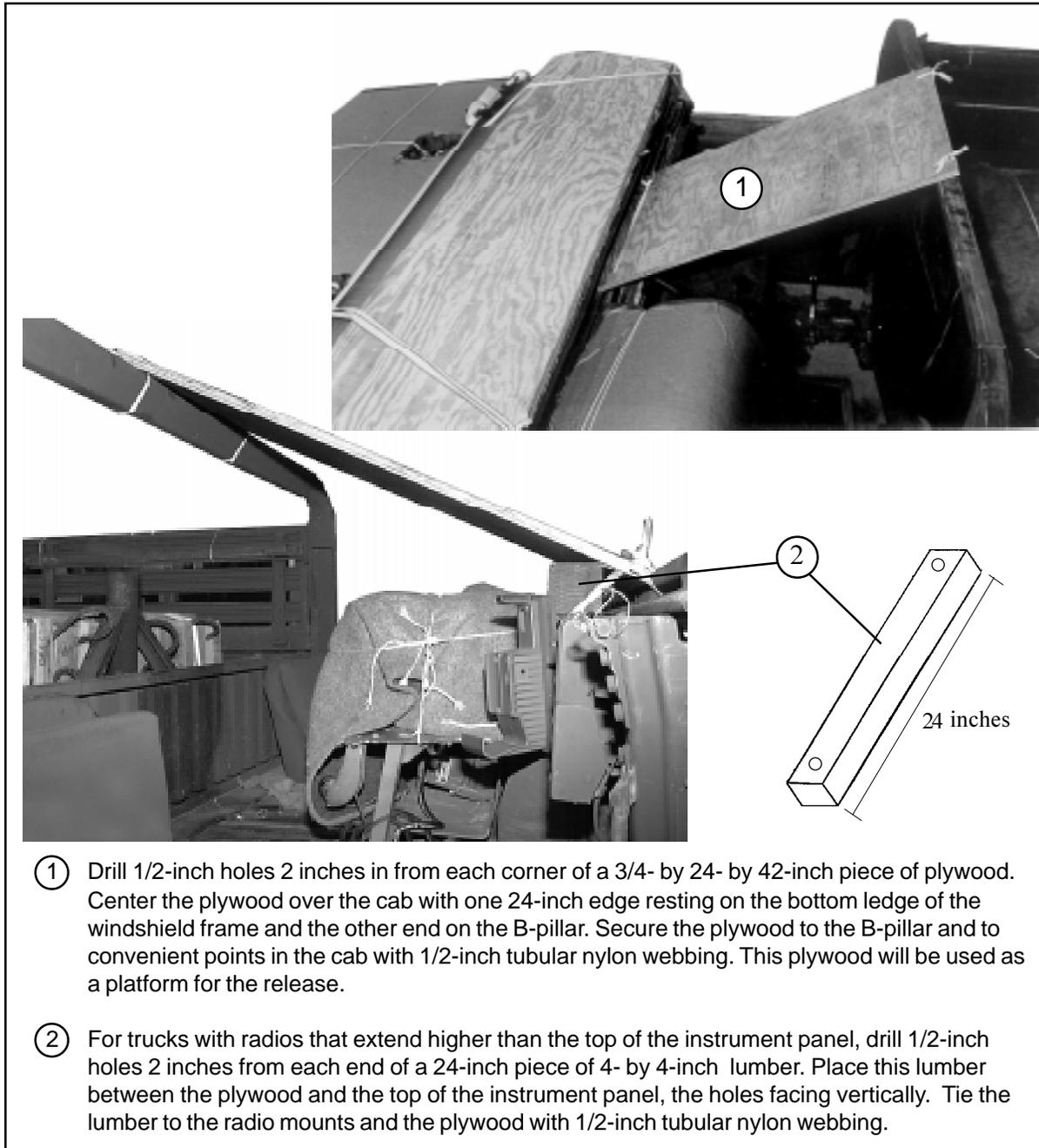
- ① Pad the lower control arms on the front and rear of the truck with cellulose wadding taped in place.



- ② Pass a 15-foot lashing over the right frame rail, under the oil pan, and over the left frame rail. Make sure the lashing goes over the exhaust pipe and then under it. Make sure the wires running along the frame rail are to the outside of the lashing. Place a 12- by 12-inch piece of honeycomb and a 2- by 6- by 16-inch piece of lumber between the lashing and the oil pan. Fasten the lashing with a D-ring and a load binder.
- ③ Install another lashing just to the rear of the lashing installed in step 2 above. Route the lashing in the same way.

Figure 2-12. Underside of Truck Prepared

i. Prepare the truck body as shown in Figure 2-13.



- ① Drill 1/2-inch holes 2 inches in from each corner of a 3/4- by 24- by 42-inch piece of plywood. Center the plywood over the cab with one 24-inch edge resting on the bottom ledge of the windshield frame and the other end on the B-pillar. Secure the plywood to the B-pillar and to convenient points in the cab with 1/2-inch tubular nylon webbing. This plywood will be used as a platform for the release.
- ② For trucks with radios that extend higher than the top of the instrument panel, drill 1/2-inch holes 2 inches from each end of a 24-inch piece of 4- by 4-inch lumber. Place this lumber between the plywood and the top of the instrument panel, the holes facing vertically. Tie the lumber to the radio mounts and the plywood with 1/2-inch tubular nylon webbing.

Figure 2-13. Truck Body Prepared

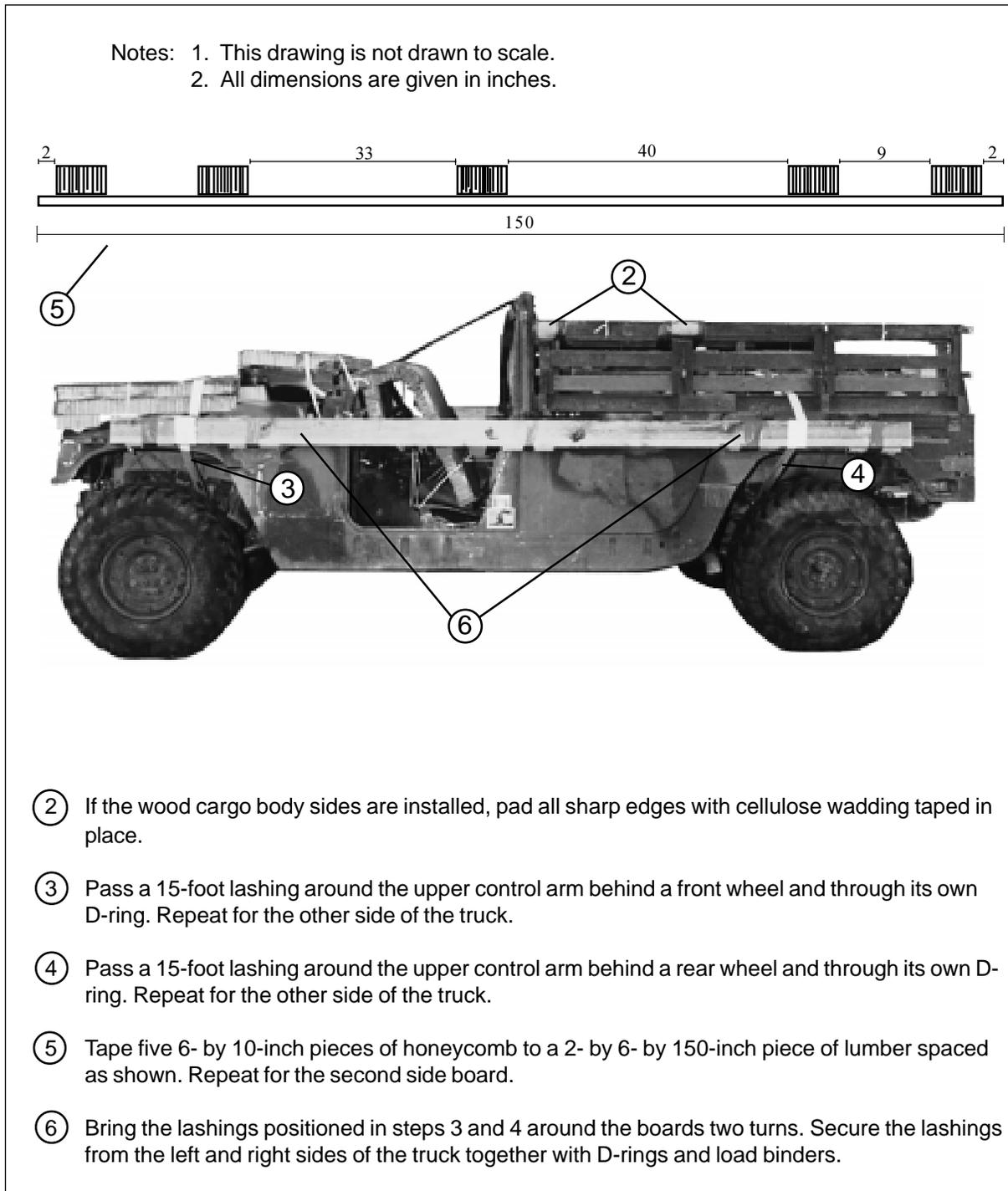


Figure 2-13. Truck Body Prepared (continued)

STOWING ACCOMPANYING LOAD

2-5. Use or adapt the procedures shown in Figure 2-14 to stow ammunition and truck equipment. The accompanying load shown is 16 boxes of ammunition and truck equipment weighing 1,800 pounds.

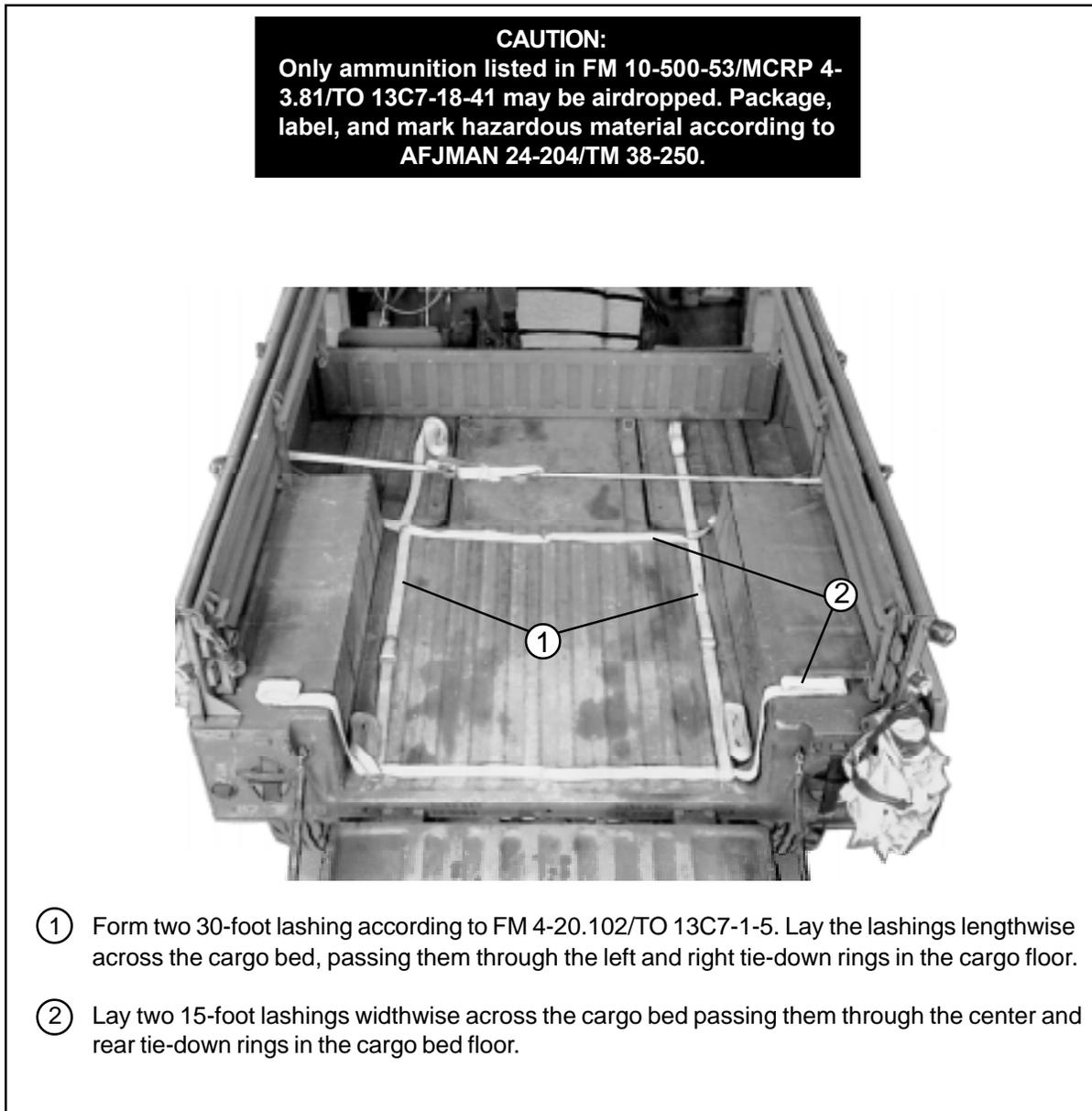


Figure 2-14. Ammunition and Truck Equipment Stowed

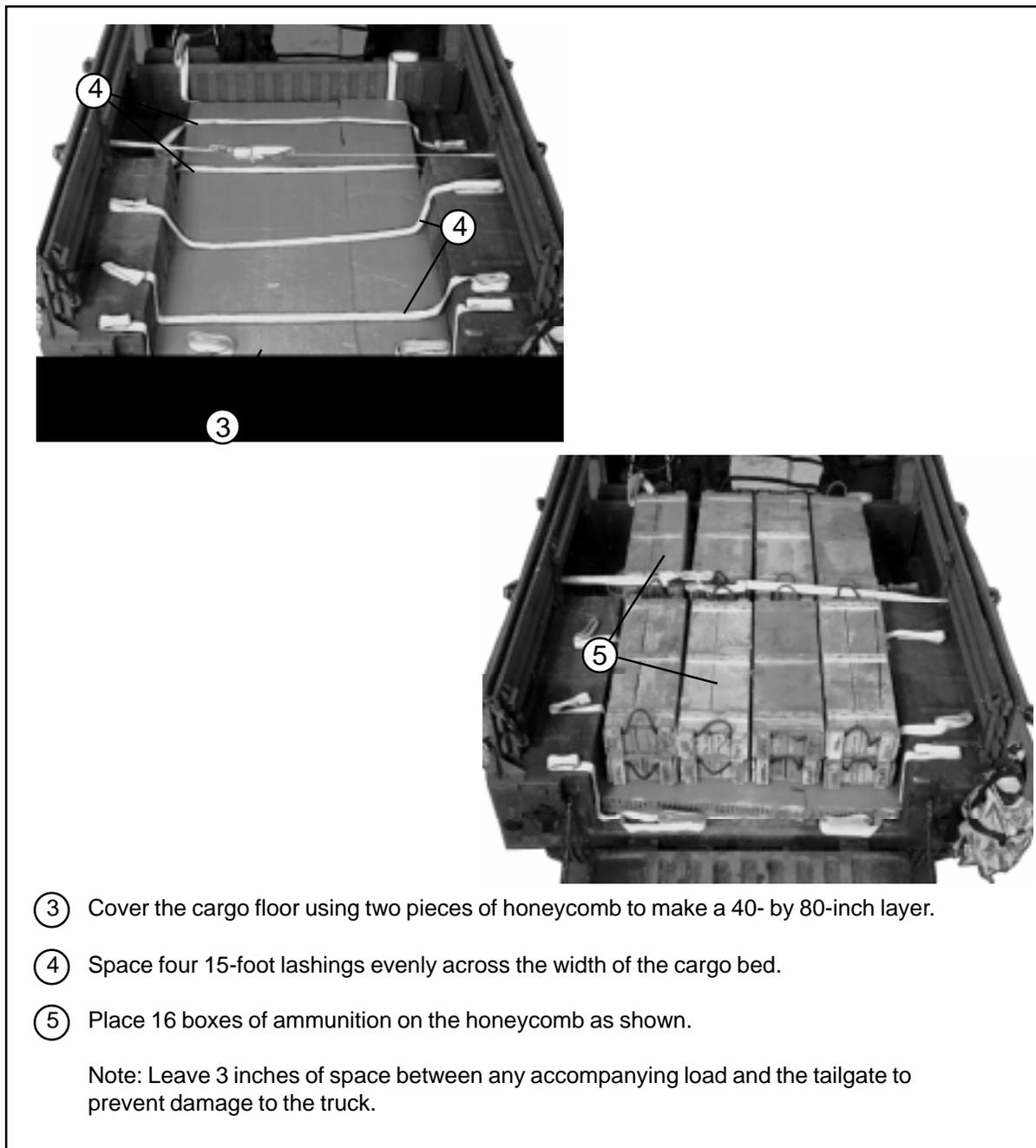


Figure 2-14. Ammunition and Truck Equipment Stowed (continued)

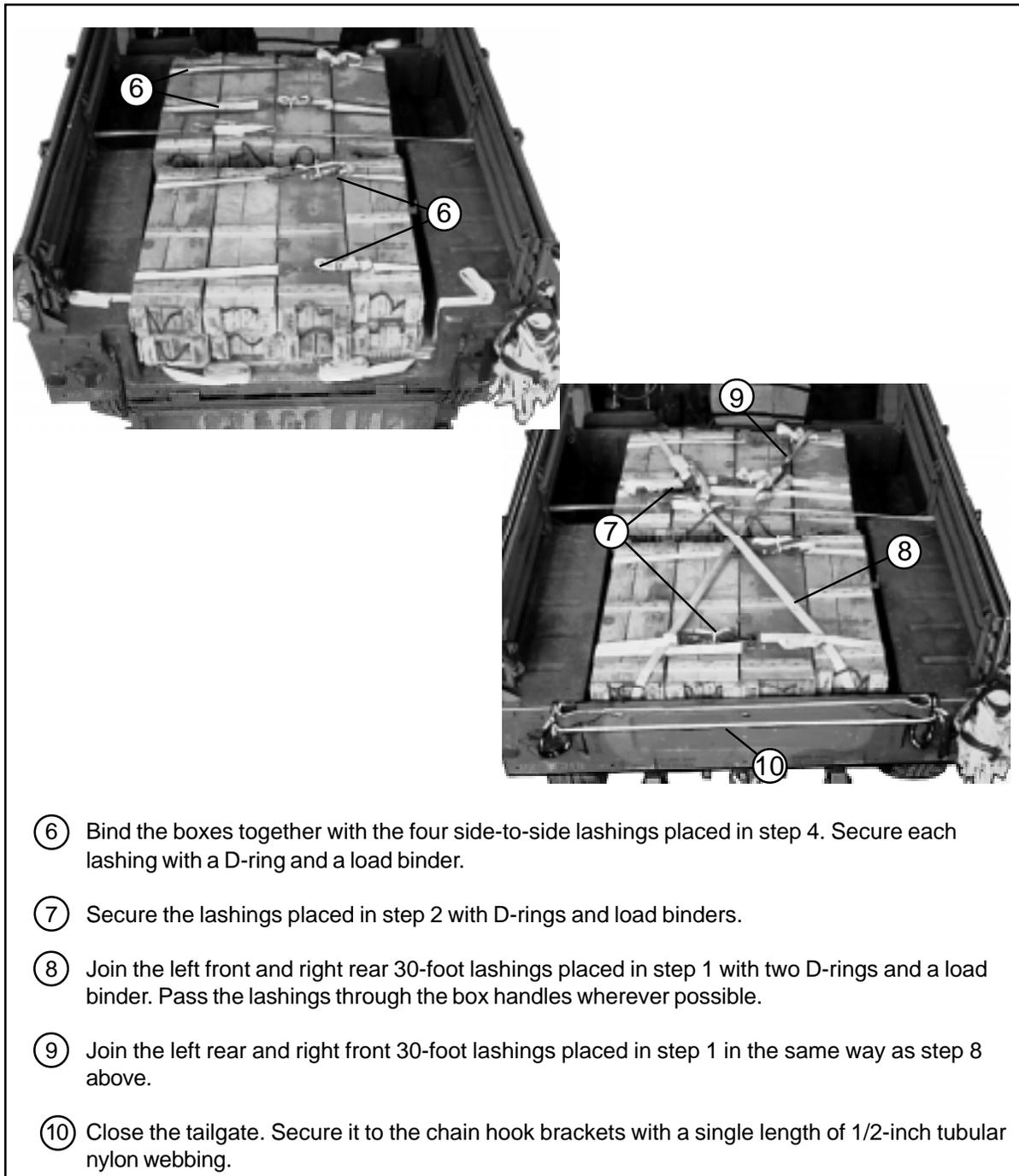


Figure 2-14. Ammunition and Truck Equipment Stowed (continued)

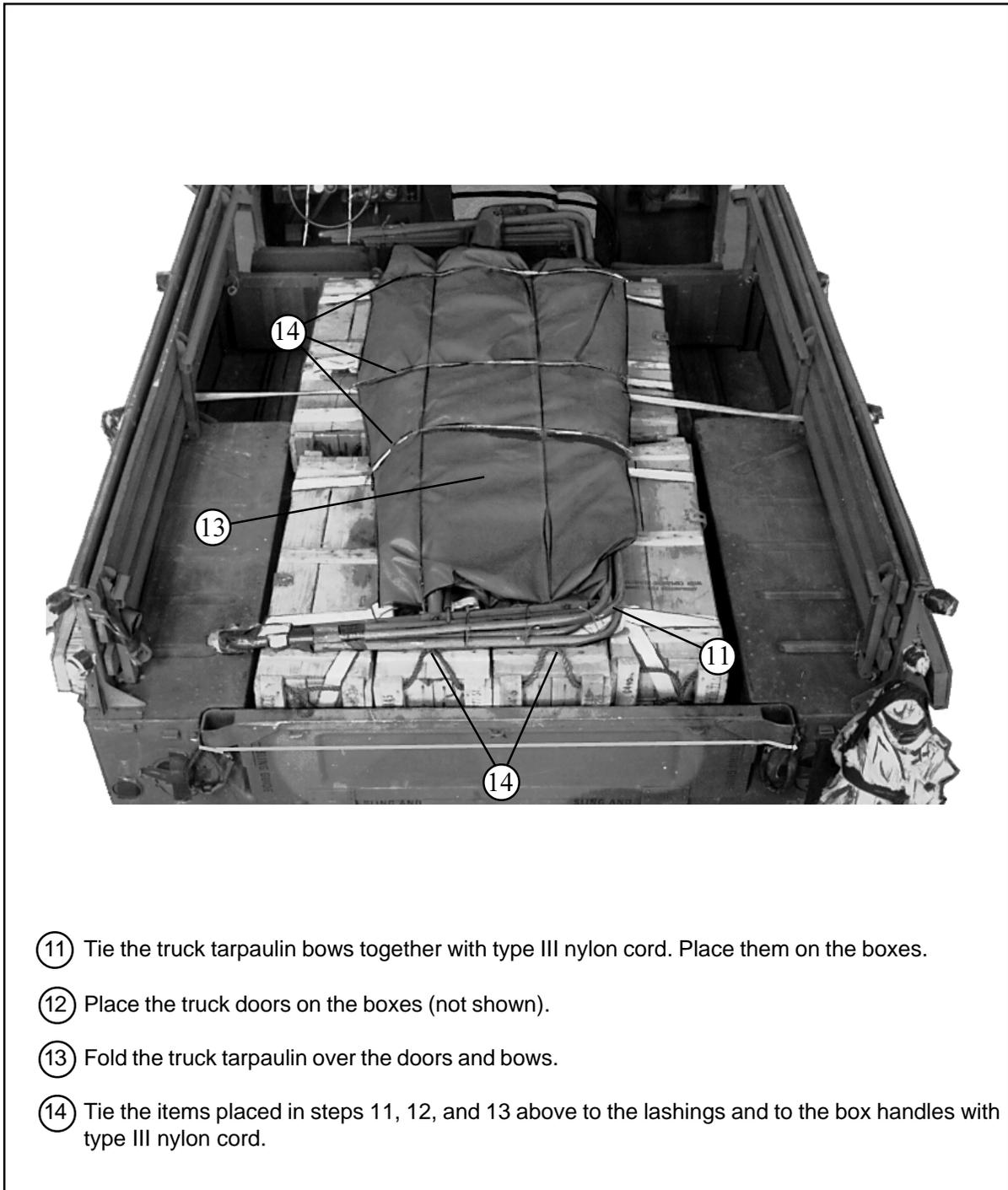


Figure 2-14. Ammunition and Truck Equipment Stowed (continued)

INSTALLING OPTIONAL DRIVE-OFF AIDS ON PLATFORM

2-6. Install the drive-off aids on the platform as shown in Figure 2-15.

Note : The use of drive-off aids is optional.

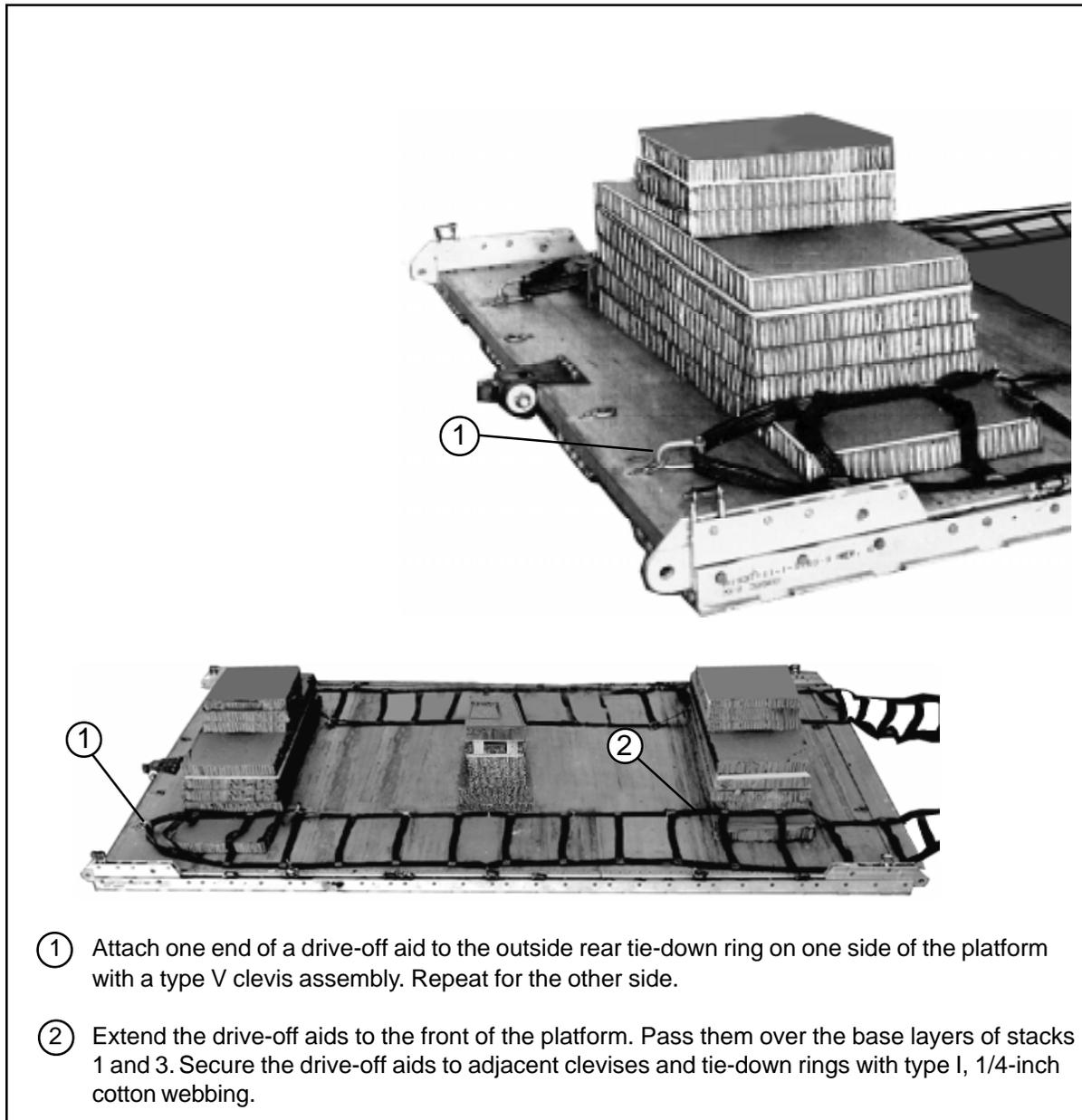


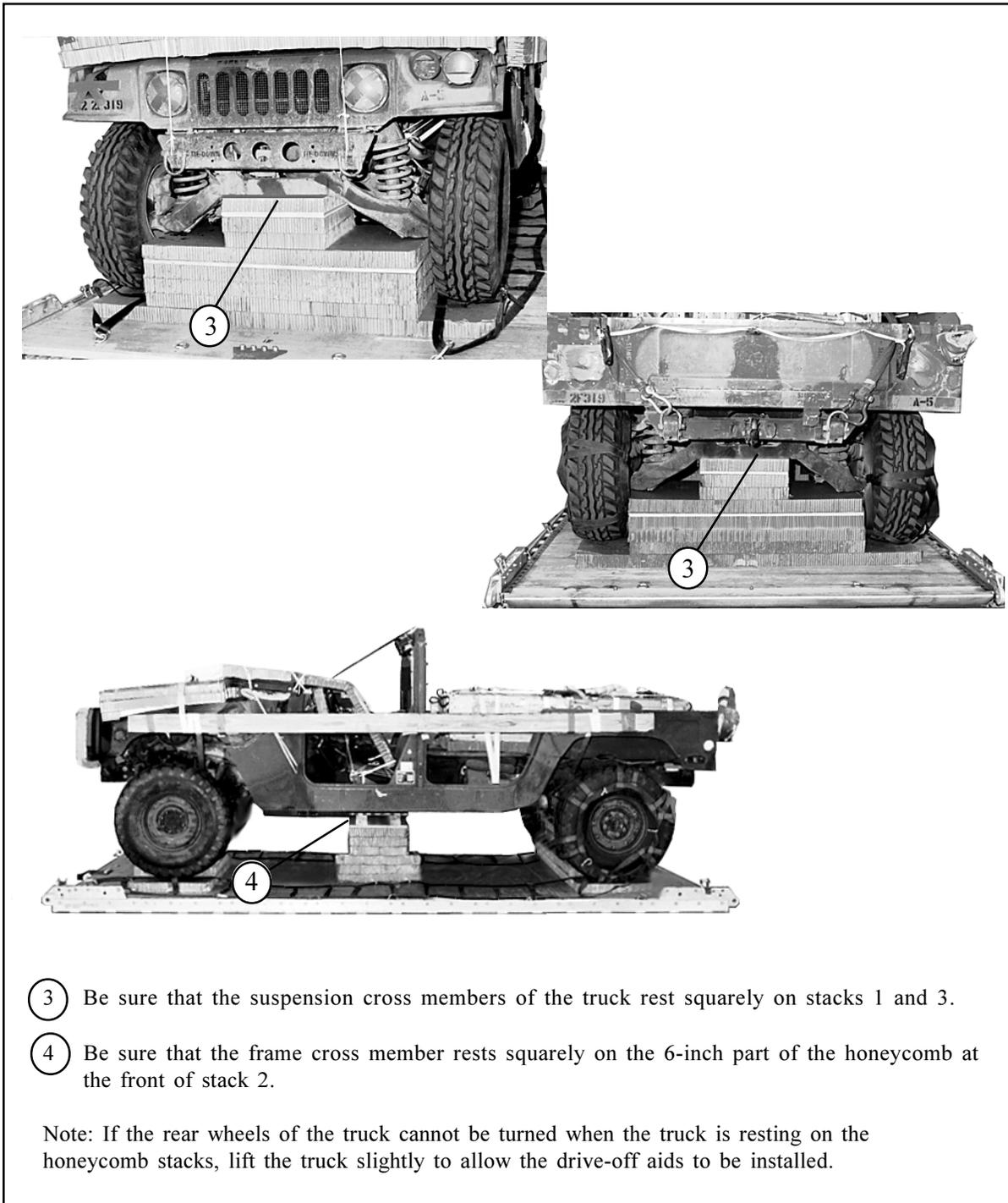
Figure 2-15. Drive-off Aids Installed on Platform

LIFTING AND POSITIONING TRUCK AND INSTALLING OPTIONAL DRIVE-OFF AIDS

2-7. Install the lifting slings and position the truck on the honeycomb stacks as shown in Figure 2-16. Attach the drive-off aids to the wheels of the truck as shown in Figure 2-17, and according to FM 4-20.102/TO 13C7-1-5.



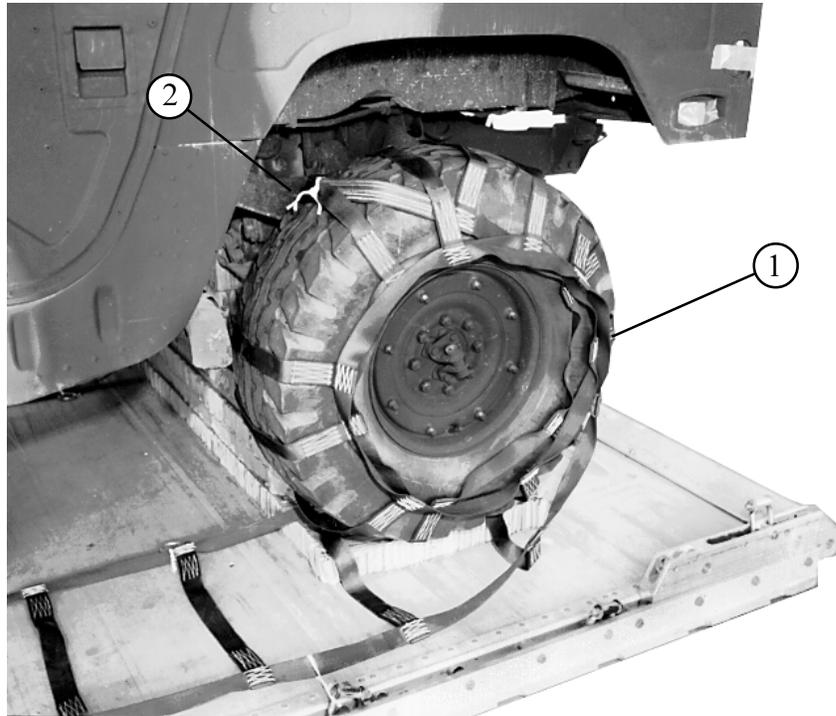
Figure 2-16. Lifting Slings Installed and Tuck Positioned



- ③ Be sure that the suspension cross members of the truck rest squarely on stacks 1 and 3.
- ④ Be sure that the frame cross member rests squarely on the 6-inch part of the honeycomb at the front of stack 2.

Note: If the rear wheels of the truck cannot be turned when the truck is resting on the honeycomb stacks, lift the truck slightly to allow the drive-off aids to be installed.

Figure 2-16. Lifting Slings Installed and Truck Positioned (continued)

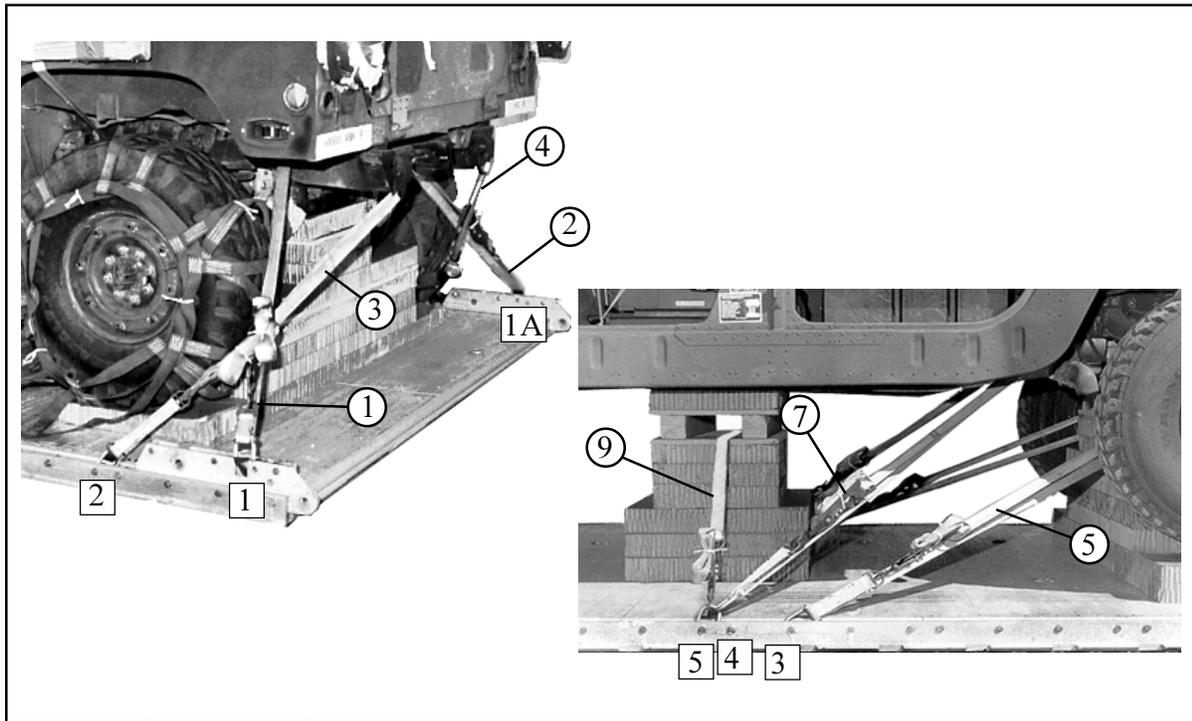


- ① Place a drive-off aid under the right wheel. Holding the drive-off aid against the wheel, turn the wheel counter-clockwise until the drive-off aid is under slight tension. Repeat for the other side, but turn the wheel clockwise.
- ② Tie the end loop of each drive-off aid to the nearest cross-piece with a double length of type I, 1/4-inch cotton webbing.

Figure 2-17. Drive-off Aids Attached to Wheels

LASHING TRUCK

2-8. Lash the truck to the platform with fifteen 15-foot tie-down assemblies. Install the lashings according to FM 4-20.102/TO 13C7-1-5, and as shown in Figures 2-18 and 2-19.



Lashing Number	Tie-down Clevis Number	Instructions
1	1	Pass lashing: Through tie-down bracket behind left rear coil spring.
2	1A	Through tie-down bracket behind right rear coil spring.
3	2	Through left rear lifting shackle.
4	2A	Through right rear lifting shackle.
5	3	Around left rear lower control arm.
6	3A	Around right rear lower control arm.
7	4	Through tie-down bracket in front of left rear coil spring.
8	4A	Through tie-down bracket in front of right rear coil spring.
9	5 and 5A	Pass a 15-foot lashing through clevis 5A and through its own D-ring. Pass the lashing through the hole in stack 2. Attach the lashing to clevis 5 with a load binder.

Figure 2-18. Lashings 1 through 9 Installed