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AIRDROP OF SUPPLIES AND EQUIPMENT: RIGGING TRACTORS AND TRACTOR-DOZERS

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PREFACE

SCOPE

This manual tells and shows how to prepare and rig the T-3 tractor-dozer for low-velocity or LAPE airdrop from a C-130 aircraft and low-velocity airdrop from a C-141 aircraft. The D-5B (Type I) and D-5BS (Type II) tractor-dozers are rigged for LV and LAPE airdrop from a C-130 aircraft and low-velocity airdrop from a C-141 aircraft. The D-5 full-tracked tractor and the D-5A full-tracked tractor with sectionalization kit are rigged for LV airdrop from a C-130. The D-5 full-tracked tractor is also rigged for LAPE airdrop from a C-130 aircraft. The D-5 and D-5A full-tracked tractors cannot be airdropped from a C-141 aircraft. The Case 1150 full-tracked crawler tractor can be rigged for LV and LAPE airdrops from only a C-130 with a tail numbers of 61-2358 and 62-1784 or higher. It is also rigged for LV airdrop from a C-141 aircraft. The M450 full-tracked crawler tractor is rigged for LV and LAPE airdrops from a C-130 aircraft. It is also rigged for LV airdrop from a C-141 aircraft. The D-6 tractor is rigged for LV airdrop from a C-130. It cannot be airdropped from a C-141 aircraft. The John Deere 450G LT full-tracked commercial bulldozer is rigged for LV airdrop from a C-130, C-141, C-5, and C-17 aircraft. The Deployable Universal Combat Earthmover is rigged for airdrop from a C-130, C-5, and C-17 aircraft.

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Unless this publication states otherwise, masculine nouns and pronouns do not refer exclusively to men

CHAPTER 1

INTRODUCTION

1-1. Description of Items

The description and unrigged data for the items covered in this manual are described below:

a. T-3 Tractor Dozer. The T-3 tractor-dozer weighs 16,620 pounds. This weight is reducible to 16,160 pounds with the ROPS removed. The tractor-dozer is 158 inches in length. Its width is 96 inches, and its height is 106 inches (reducible to 71 inches). The accompanying load is a swing fire heater. It is 35 inches long, 12 inches high, and 8 inches wide. The swing fire heater weighs 90 pounds when it is prepared.

b. D-5B and D-5BS Tractor-Dozers. The unrigged D-5B and D-5BS tractor-dozers are described below.

(1) D-5B, type I (nonsectionalized). The type I tractor-dozer weighs 31,350 pounds with 3/4 tank of fuel. The weight of the tractor-dozer is reducible to 30,105 pounds with the ROPS removed. The tractor-dozer is 225 inches in length. Its width is 104 inches with the blade angled, and its height is 121 inches (reducible to 82 inches).

(2) D-5BS, type II (sectionalized). The type II tractor-dozer weighs 33,310 pounds with 1/2 tank of fuel. The weight of the tractor-dozer is reducible to 30,570 pounds with the ROPS and the sectionalization kit removed. All other dimensions are the same as those of the type I tractor-dozer.

c. D-5 and D-5A Full-Tracked Tractors. The unrigged D-5 and D-5A full-tracked tractors are described below.

(1) D-5 (nonsectionalized). The D-5 tractor weighs 24,815 pounds. The tractor is 188 inches in length. Its width is 96 inches, and its height is 107 inches (reducible to 78 inches).

(2) D-5A (sectionalized). The dimensions for this tractor are the same as those of the D-5 (nonsectionalized) tractor.

d. Case 1150 Full-Tracked Crawler Tractor. The Case 1150 tractor weighs 22,760 pounds. The weight is reducible to 21,890 pounds. The tractor is 191 inches in length. Its width is 120 inches (reducible to 110 inches), and its height is 113 1/2 inches (reducible to 78 inches).

e. M450 Full-Tracked Crawler Tractor. The M450 tractor weighs 9,900 pounds. The tractor is 140 inches in length. Its width is 78 inches, and its height is 88 inches (reducible to 67 inches).

f. D-6 Tractor. The D-6 tractor weighs 15,975 pounds. The tractor is 179 inches in length. Its width is 96 inches, and its height is 77 inches.

g. John Deere 450G Lt Full-Tracked Commercial Bulldozer. The John Deere 450G Lt bulldozer weighs 18,080 pounds. The dozer is 180 1/3 inches in length. Its width is 97 inches and its height is 108 inches (reducible to 77 inches with ROPS removed and the seat back lowered).

h. Deployable Universal Combat Earthmover. The Deployable Universal Combat Earthmover weighs 35,000 pounds. The earthmover is 112 inches high (reducible to 90 inches in the kneeling position with the cab removed).

1-2. Special Considerations

Special considerations for this manual are given below.

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

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

CHAPTER 10

RIGGING THE DEPLOYABLE UNIVERSAL COMBAT EARTHMOVER (DEUCE) ON A 24-FOOT, TYPE V PLATFORM FOR LOW-VELOCITY AIRDROP

10-1. Description of Load

The Deployable Universal Combat Earthmover (DEUCE), Figure 10-1, is rigged on a 24-foot type V airdrop platform with eight G-11 cargo parachutes. The unrigged DEUCE weighs 35,000 pounds. It is 112 inches high reduced to 90 inches in the kneeling position for airdrop. The rigged load is 310 inches long, 101 1/2 inches high and 110 inches wide.

10-2. Preparing Platform

Prepare a 24-foot, type V airdrop platform as shown in Figure 10-2.

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

NOTE: Remove the cab for airdrop.

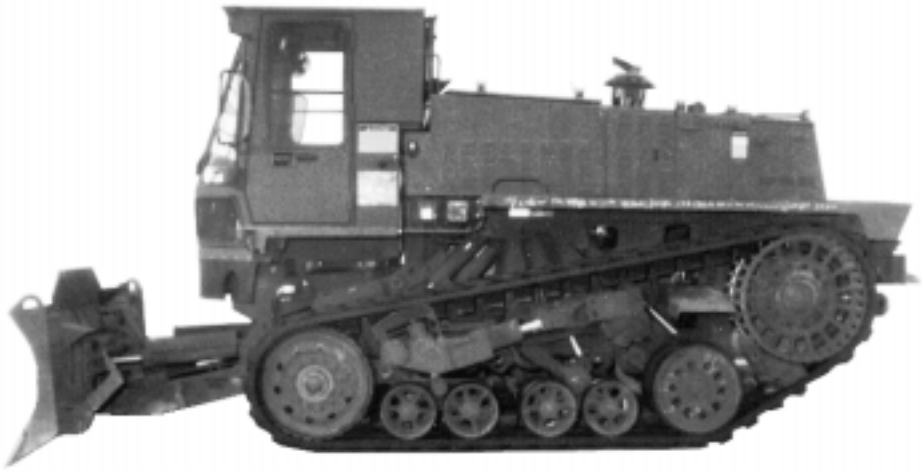
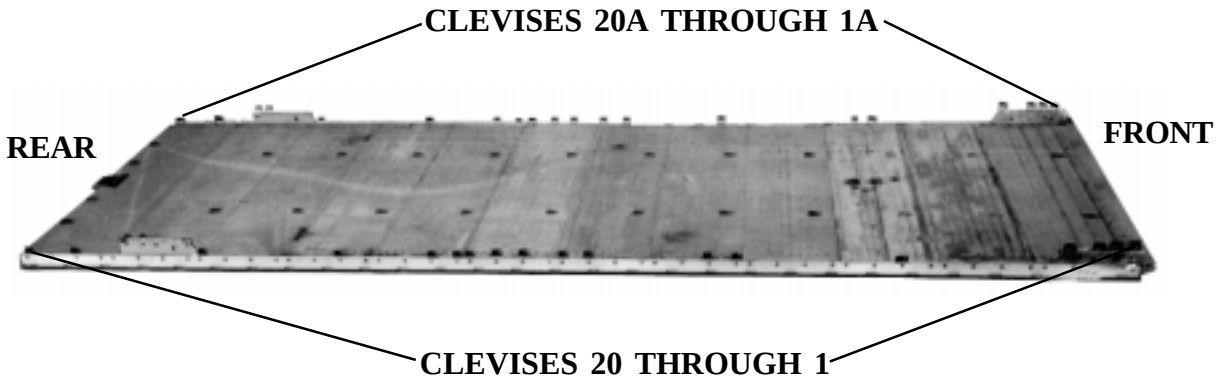


Figure 10-1. Deployable Universal Combat Earthmover



Step:

1. Inspect, or assemble and inspect, a 24-foot, type V airdrop platform as outlined in TM 10-1670-268-20&P/TO 13C7-52-22.

2. Install a tandem link to the front of each platform side rail using holes 1, 2, and 3.

3. Install a suspension link to the right and left platform side rails using holes 41, 42, and 43. The links are required to lift the load after rigging is completed.

4. Install a clevis on bushings 1, 2, 3, and 4 of each tandem link.

5. Install a clevis on bushing 3 and a doubled clevis on bushing 4 of each suspension link.

6. Starting at the front of the right platform side rail, install clevises on the bushings bolted to holes 10, **17**, 18, 23, 24, 26, 27, 28, 29, 30, 34, 40, 46, and 48.

7. Starting at the front of the left platform side rail, install clevises on the bushings bolted to holes 10, **11**, 18, 23, 24, 26, 27, 28, 29, 30, 34, 40, 46, and 48.

8. Starting at the front of the platform, number the clevises 1 through 20 on the right side, and 1A through 20A on the left side.

9. Label the tie-down rings according to FM 10-500-2/TO 13C7-1-5.

Figure 10-2. Platform prepared

10-3. Building and Positioning Honeycomb Stacks

Build the honeycomb stacks as shown in Figures 10-3 through 10-6. Position the honeycomb stacks as shown in Figure 10-7.

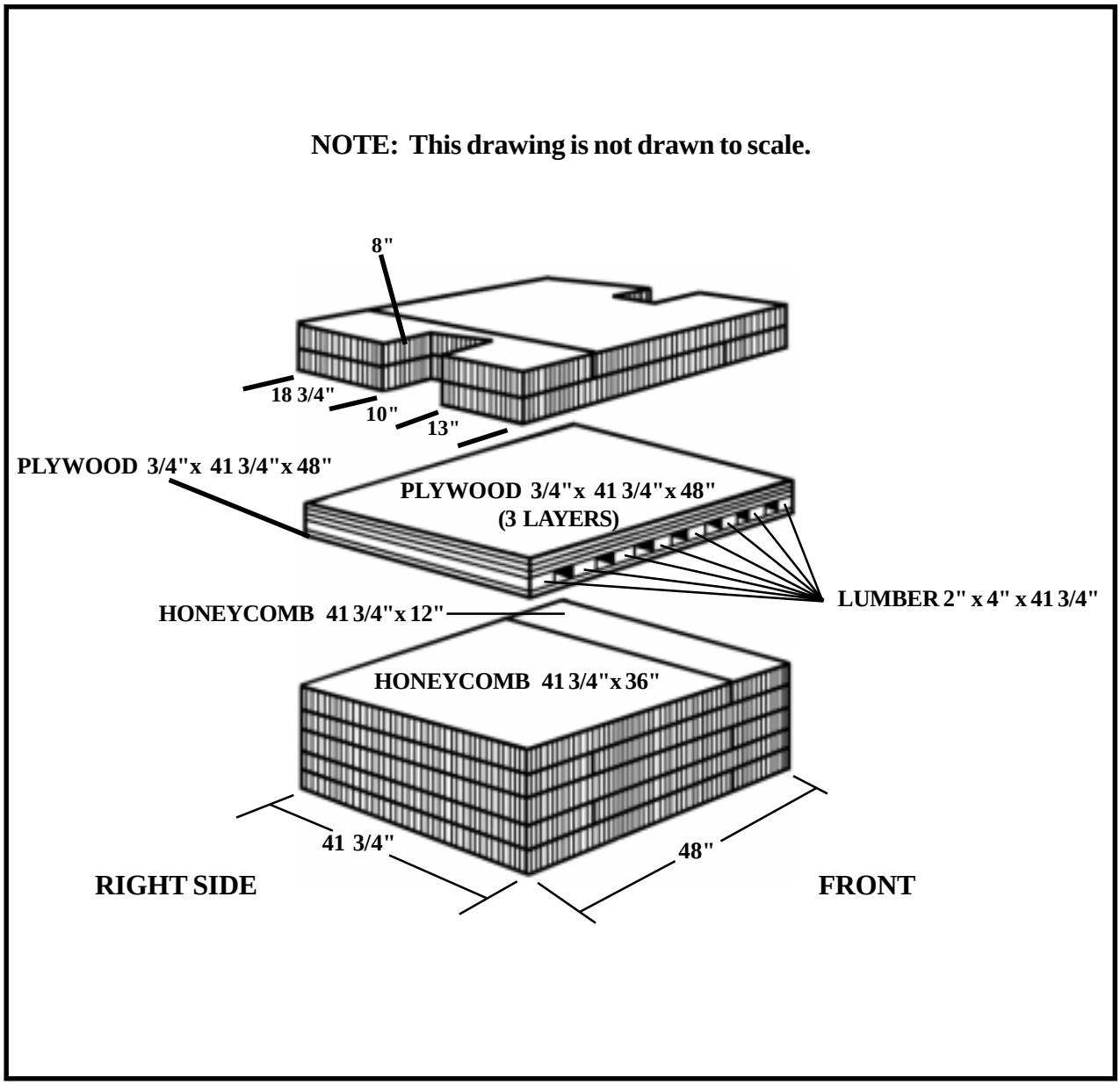


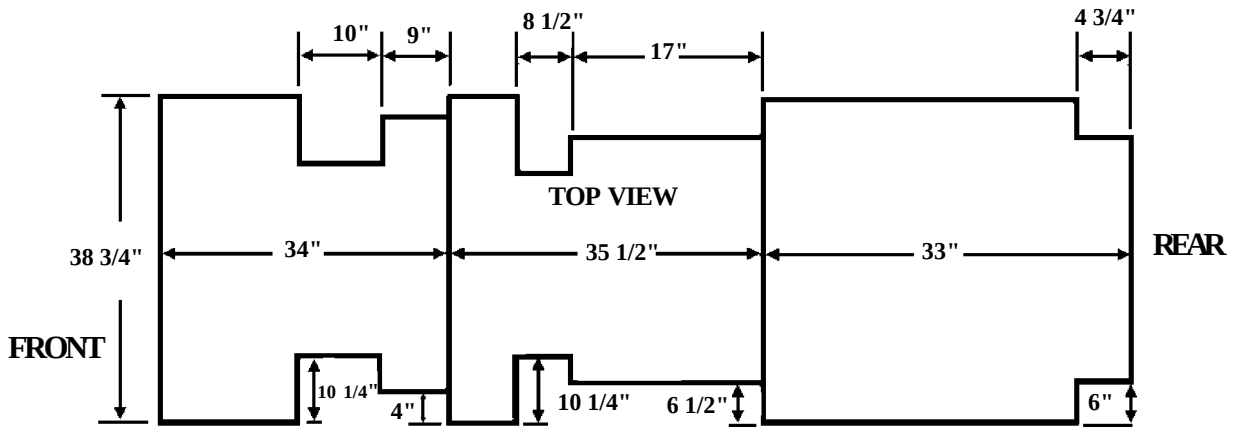
Figure 10-3. Stack 1 prepared

Stack Number	Pieces	Width (Inches)	Length (Inches)	Material	Instructions
1	5 5	36 12	41 3/4 41 3/4	Honeycomb Honeycomb	Alternate and glue the 41 3/4" x 36" piece with the 41 3/4" x 12" piece to form a base.
	4 8	48	41 3/4 41 3/4	3/4" Plywood 2" x 4" Lumber	Place and nail a 2" x 4" piece of lumber flush on each 41 3/4" side of a piece of plywood. Place and nail the remaining six pieces of 2" x 4" lumber, 3" apart from each other, to the plywood. Place and nail the remaining three pieces of plywood on top of and flush with the 2" x 4" pieces of lumber. Glue the plywood and lumber on top of the honeycomb base.
	2 2	36 12	41 3/4 41 3/4	Honeycomb Honeycomb	Alternate and glue the 41 3/4" x 36" pieces and the 41 3/4" x 12" pieces together. Make a 10" long by 8" deep cutout on each 41 3/4" side, 13" from the front edge. Glue the honeycomb on top of and flush with the plywood.

Figure 10-3. Stack 1 prepared (continued)

NOTE: This drawing is not drawn to scale.

TOP VIEW (TWO LAYERS OF HONEYCOMB)



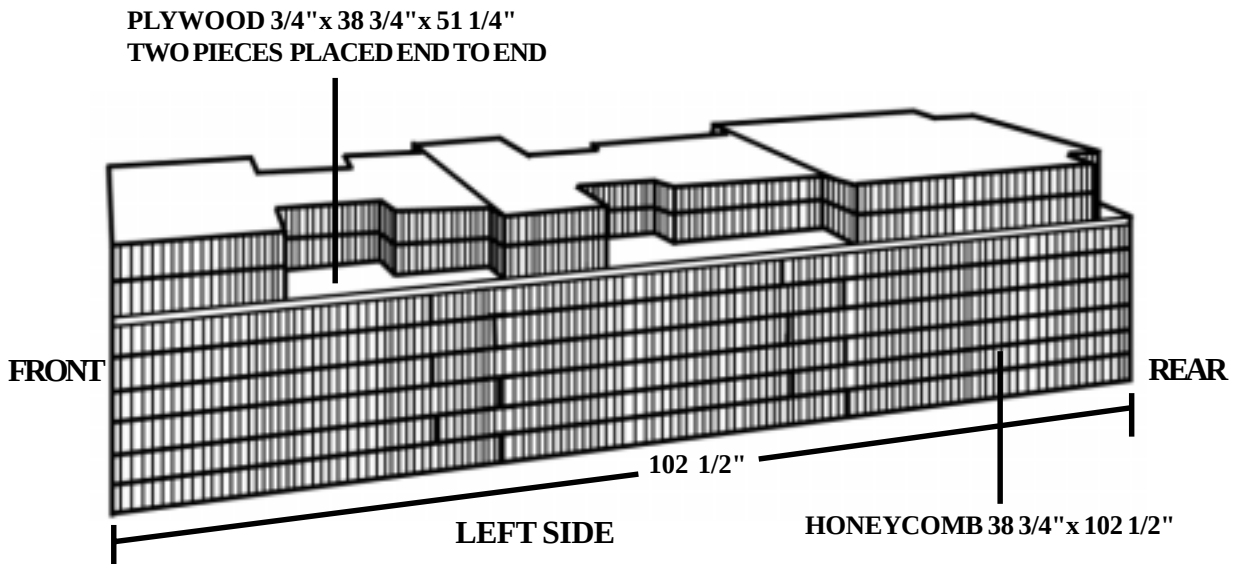


Figure 10-4. Stack 2 prepared

Stack Number	Pieces	Width (Inches)	Length (Inches)	Material	Instructions
2	12 6	38 3/4 38 3/4	36 30 1/2	Honeycomb Honeycomb	Place a 30 1/2" x 38 3/4" piece of honeycomb beside two pieces of 36" x 38 3/4" honeycomb forming a 38 3/4" x 102 1/2" layer. Alternate the pieces in the following layers to form a base six layers high. Glue all layers together.
	2	38 3/4	51 1/4	3/4" Plywood	Place and glue the plywood end to end on top of the honeycomb base.
	2	38 3/4	33	Honeycomb	Cut a notch 4 3/4" long by 6" deep on each corner of one 38 3/4" side of each piece of honeycomb. Align the notches and glue the layers together. Glue the honeycomb to the plywood with the notches facing rear.
	2	38 3/4	35 1/2	Honeycomb	Cut a notch 17" long by 6 1/2" deep along each 35 1/2" side of each piece of honeycomb measured from the rear. Cut a second notch 8 1/2" long by 10 1/4" deep on both sides of both pieces of honeycomb measured from the front of the first notch. Align the notches and glue the honeycomb pieces together. Glue the honeycomb to the plywood with the notches facing rear and against the previously placed stack.
	2	38 3/4	34	Honeycomb	Cut a notch 9" long by 4" deep along each 34" side of each piece of honeycomb measured from the rear. Cut a second notch 10" long by 10 1/4" deep on both sides of both pieces of honeycomb measured from the front of the first notch. Align thenotches and glue the honeycomb pieces together. Glue the honeycomb to the plywood with the notches facing rear and against the previously placed stack.

Figure 10-4. Stack 2 prepared (continued)

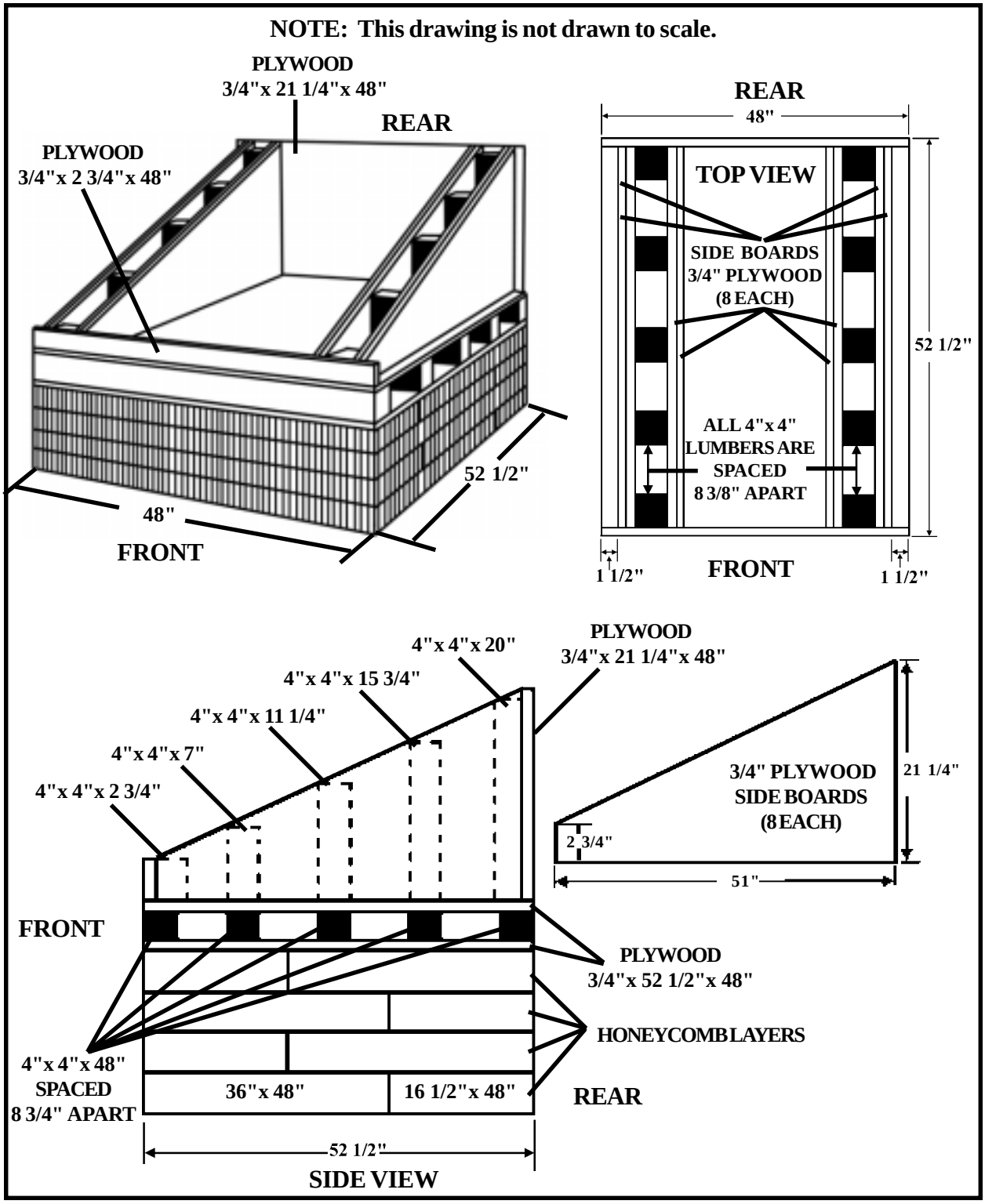
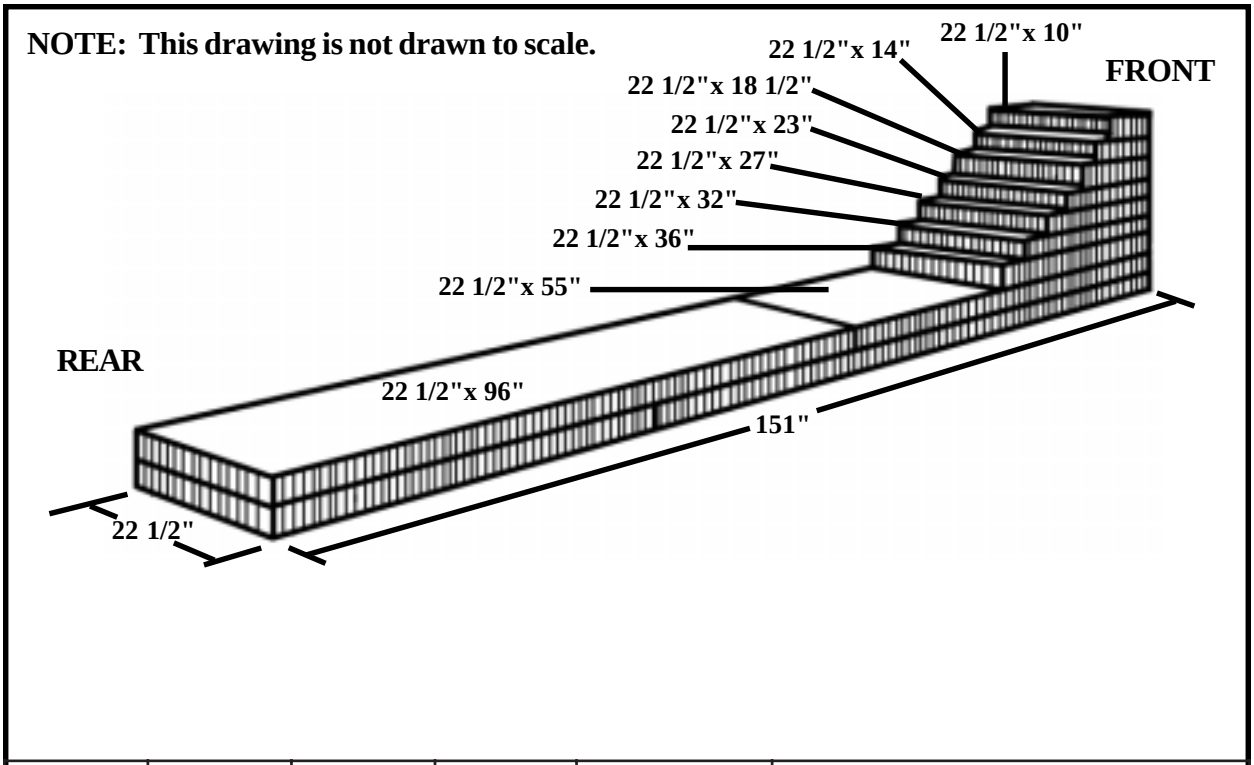


Figure 10-5. Stack 3 prepared

Stack Number	Pieces	Width (Inches)	Length (Inches)	Material	Instructions
3	4 4	48 48	16 1/2 36	Honeycomb Honeycomb	Alternate and glue the 48" x 36" piece with the 48" x 16 1/2" piece to form a 48" x 52 1/2" base.
	2 5	48 48	52 1/2	3/4" Plywood 4" x 4" Lumber	Place and nail a 4" x 4" piece of lumber flush on each 48" side of a piece of plywood. Place and nail to the plywood the remaining three pieces of 4" x 4" lumber, 8 3/4" apart.
	8	51	2 3/4 to 21 1/4	3/4" Plywood	Cut eight 3/4" plywood sideboards as shown in Figure 10-5.
	2 2 2 2 2		2 3/4 7 11 1/4 15 3/4 20	4" x 4" Lumber 4" x 4" Lumber 4" x 4" Lumber 4" x 4" Lumber 4" x 4" Lumber	Nail the 4" x 4" lumber to the sideboards using the dimensions shown in Figure 10-5. There are two layers of plywood on each side.
	1	48	21 1/4	3/4" Plywood	Nail to the sideboards and 4" x 4" lumber with a 1 1/2" overhang on each end.
	1	48	2 3/4	3/4" Plywood	Nail to the sideboards and 4" x 4" lumber with a 1 1/2" overhang on each end. Nail the remaining 48" x 52 1/2" piece of plywood to the sideboards and 4" x 4" lumber ensuring all sides are flush. Nail this assembly to the 3/4" plywood with five 4" x 4" pieces of lumber built above. Glue the wooden assembly to the 48" x 52 1/2" honeycomb base.

Figure 10-5. Stack 3 prepared (continued)



Stack Number	Pieces	Width (Inches)	Length (Inches)	Material	Instructions
4	2	22 1/2	96	Honeycomb	Alternate and glue the 22 1/2" x 96"
	2	22 1/2	55	Honeycomb	piece with the 22 1/2" x 55" piece to form a 22 1/2" x 151" base.
	1	22 1/2	36	Honeycomb	Glue on top, flush with front edge.
	1	22 1/2	32	Honeycomb	Glue on top, flush with front edge.
	1	22 1/2	27	Honeycomb	Glue on top, flush with front edge.
	1	22 1/2	23	Honeycomb	Glue on top, flush with front edge.
	1	22 1/2	18 1/2	Honeycomb	Glue on top, flush with front edge.
	1	22 1/2	14	Honeycomb	Glue on top, flush with front edge.
	1	22 1/2	10	Honeycomb	Glue on top, flush with front edge.
5	2	22 1/2	96	Honeycomb	Same as stack 4.
	2	22 1/2	55	Honeycomb	
	1	22 1/2	36	Honeycomb	
	1	22 1/2	32	Honeycomb	
	1	22 1/2	27	Honeycomb	
	1	22 1/2	23	Honeycomb	
	1	22 1/2	18 1/2	Honeycomb	
	1	22 1/2	14	Honeycomb	
	1	22 1/2	10	Honeycomb	

Figure 10-6. Stacks 4 and 5 prepared

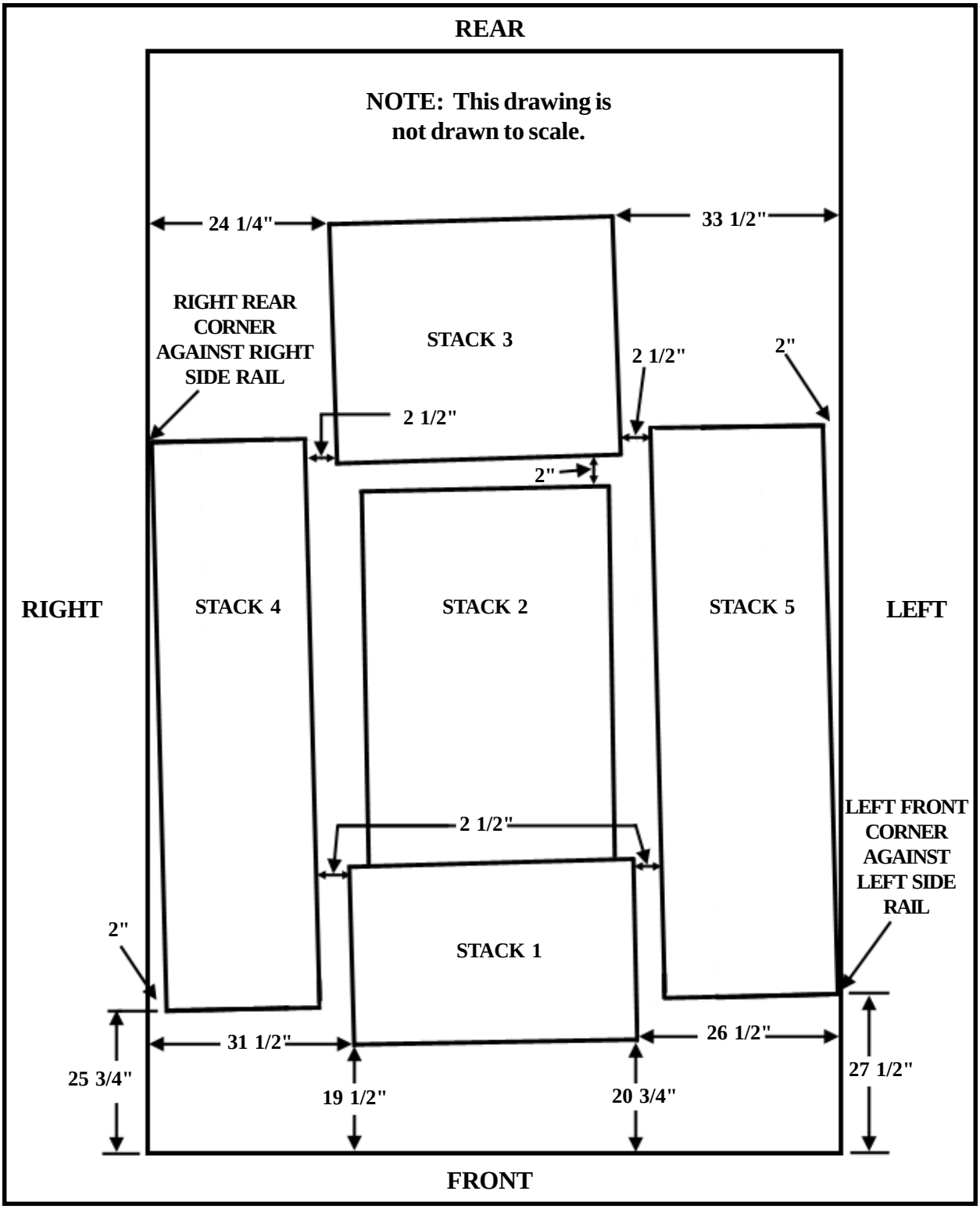


Figure 10-7. Honeycomb stacks positioned on platform

Step:

1. Position stack 1 with the right front corner 19 1/2 inches from the front edge of the platform and 31 1/2 inches from the right side rail. The left front corner is 20 3/4 inches from the front of the platform and 26 1/2 inches from the left side rail.

2. Position stack 2 centered on and flush with stack 1 maintaining the same angle as stack 1.

3. Position stack 3 with the front edge 2 inches from the rear edge of stack 2. The right rear corner is 24 1/2 inches from the right side rail and the left rear corner is 33 1/2 inches from the left side rail.

4. Position stack 4 with the right front corner 25 3/4 inches from the front edge of the platform and the right rear corner against the right side rail. Maintain the same angle as stacks 1 and 2.

5. Position stack 5 with the left front corner 27 1/2 inches from the front edge of the platform and against the left side rail. Maintain the same angle as stacks 1 and 2.

Figure 10-7. Honeycomb stacks positioned on platform (continued)

10-4. Preparing the DEUCE

Prepare the DEUCE as described below.

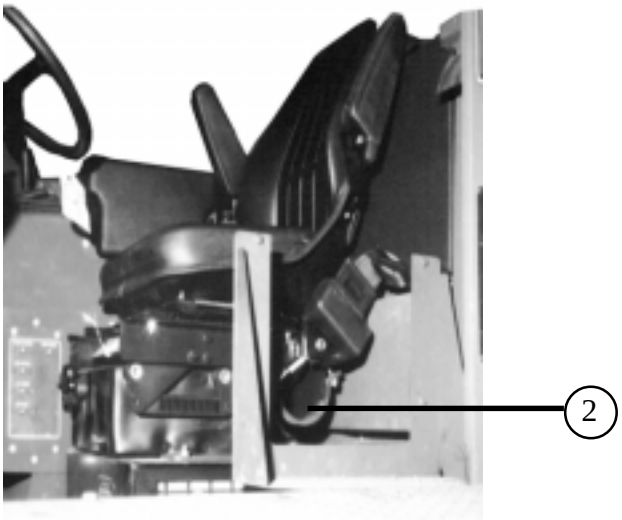
a. Check the fuel level. Ensure the fuel tank is not more than 3/4 full.

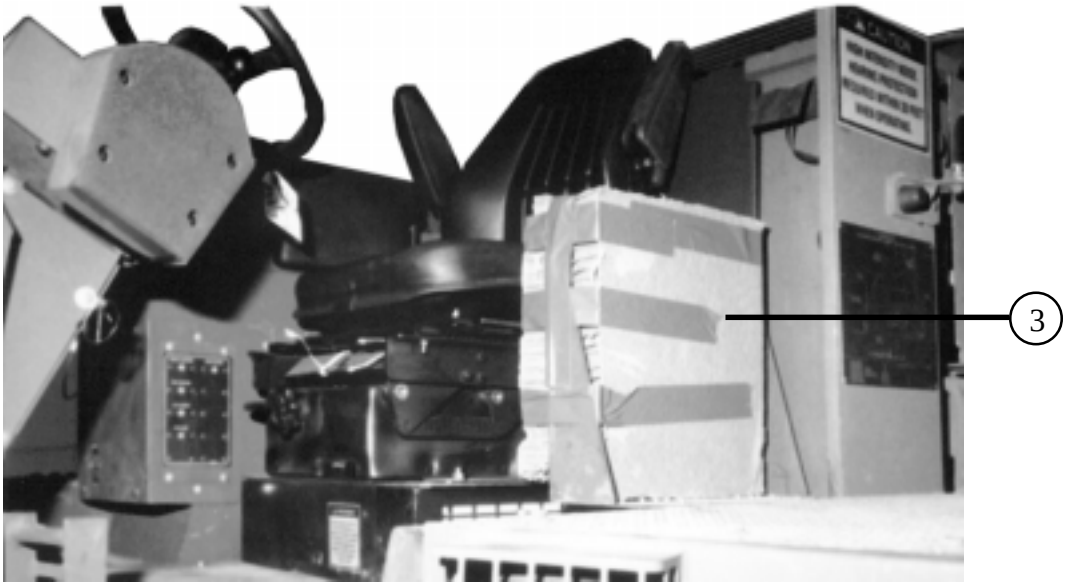
b. Prepare the DEUCE.

(1) Remove the cab.

(2) Prepare the DEUCE as shown in Figure 10-8.

Note: The owning unit must provide maintenance personnel/operators to remove components at the rigging site.



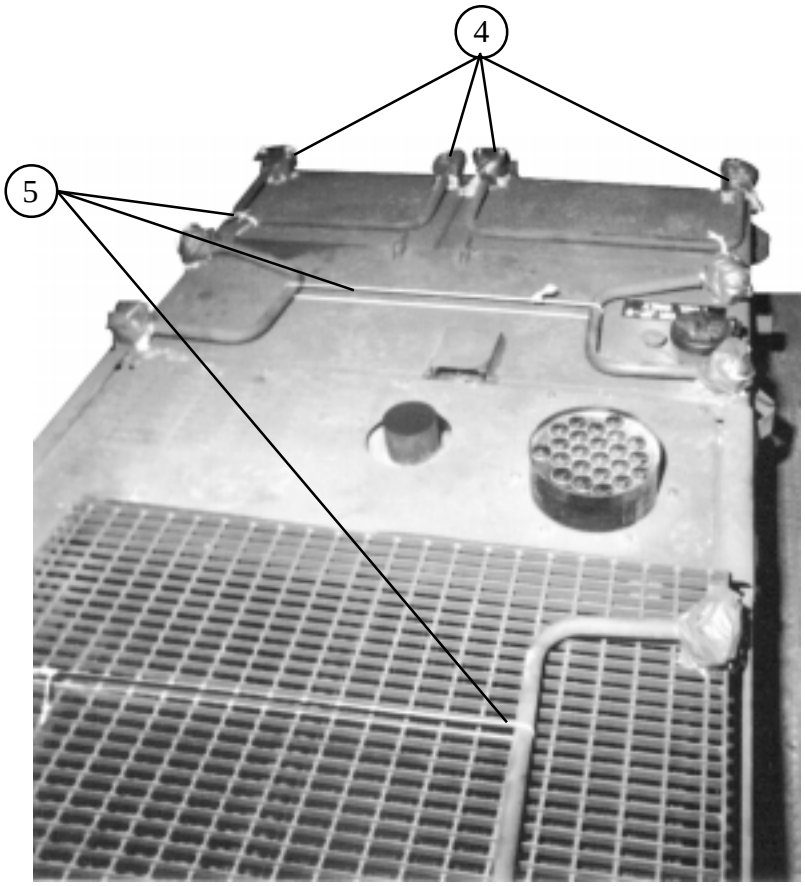


1 Tape all lights and reflectors (not shown).

2 Remove the exhaust stack and place behind the seat. Leave all clamps with the stack. Secure the exhaust stack with type III nylon cord.

3 Cut two 14" x 16" pieces of honeycomb . Place one piece on each side of the radio mount and secure the honeycomb with tape.

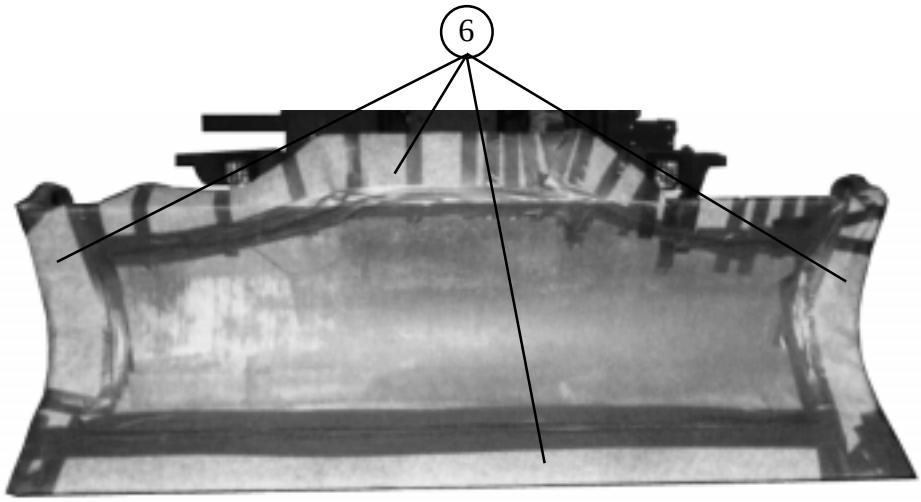
Figure 10-8. DEUCE prepared

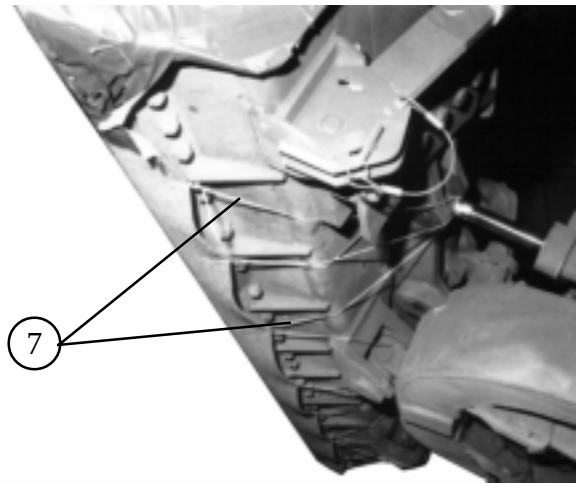


(4) Pad all brackets on the engine compartment with cellulose padding. Secure the padding with tape.

(5) Safety tie the grab rails together or to the body with type III nylon cord.

Figure 10-8. DEUCE prepared (continued)

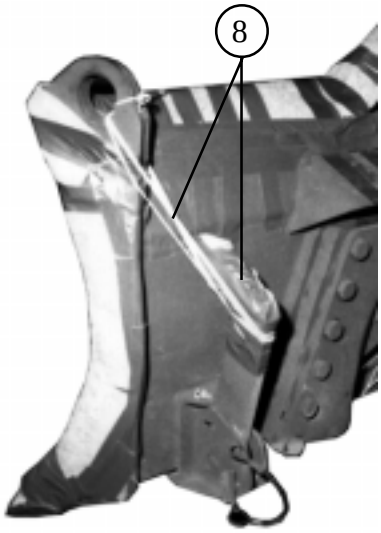


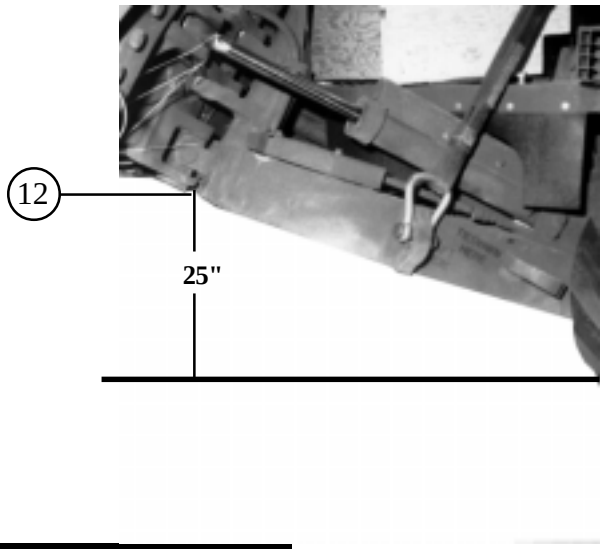


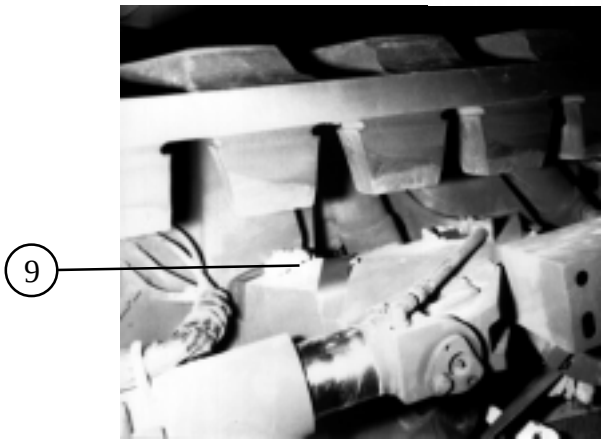
(6) Pad the blade edges with 1/2 inch thick felt . Secure the felt padding with tape.

(7) Make holes in the bottom piece of felt and secure to points on the frame with type III nylon cord.

Figure 10-8. DEUCE prepared (continued)







(8) Pin the blade back rippers in the upright position. Pad the blade back rippers with 1/2 inch thick felt and secure with tape. Safety tie the rippers with type III nylon cord.

(9) Pad all rough or sharp lashing point edges with cellulose padding and secure with tape.

(10) Tie the winch hook to the pintle with type III nylon cord (not shown).

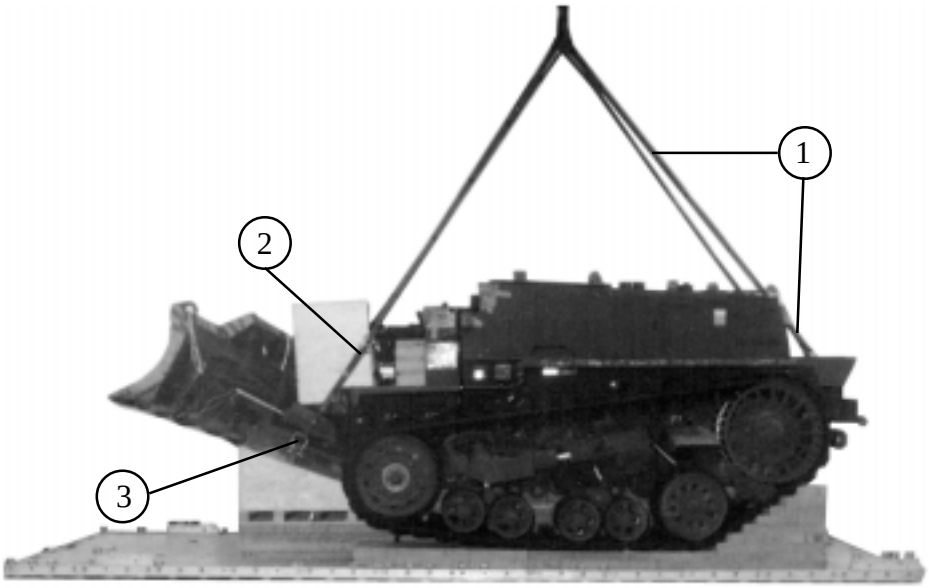
(11) Raise the blade to it's limit. Level, and angle the blade all the way to the right (not shown).

(12) Kneel the DEUCE until the front bottom center of the C-frame is 25 inches above the ground.

Figure 10-8. DEUCE prepared (continued)

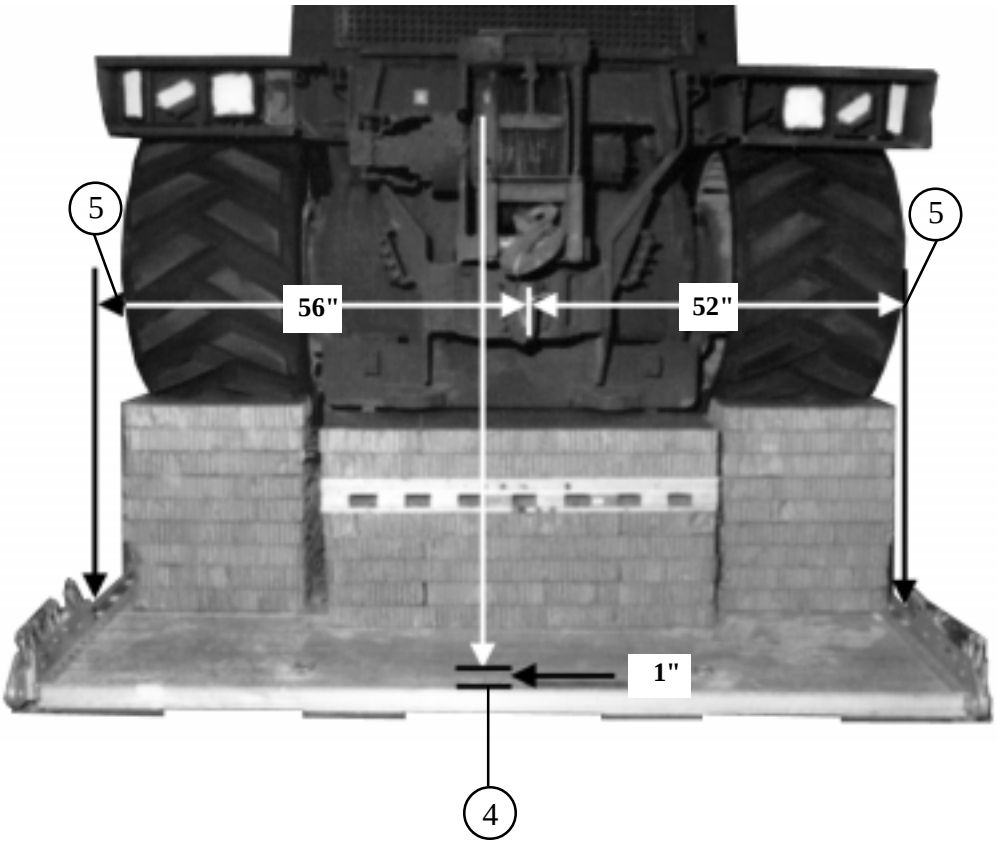
10-5. Lifting and Positioning the DEUCE

Lift and position the DEUCE as shown in Figure 10-9.



1. Attach a 12-foot (4-loop), type XXVI nylon sling to each lift point on the rear of the vehicle with a screw pin clevis.
2. Form the front lift slings by connecting a 3-foot (4-loop), type XXVI nylon sling to an 11-foot (4-loop), type XXVI nylon sling with a 5 1/2-inch link .
3. Attach the front lift slings to the front lift points with large clevises.

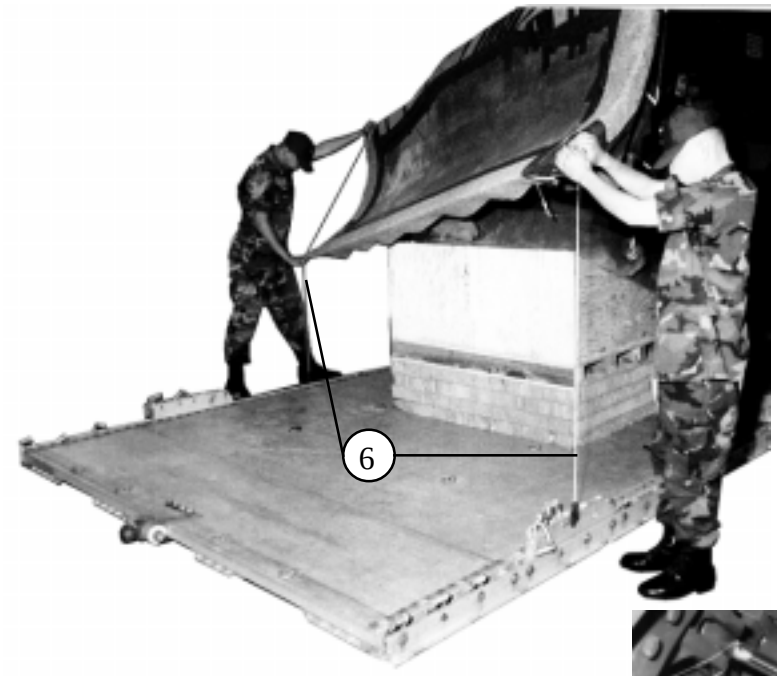
Figure 10-9. DEUCE lifted and positioned on platform



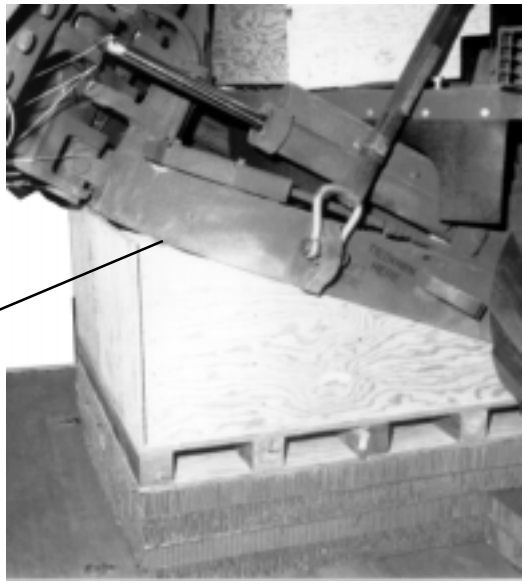
4 Position the rear edge of the winch roller 1-inch back from the front edge of the platform.

5 Align the center of the pintle 52-inches from the outside edge of the left side rail and 56-inches from the outside edge of the right side rail.

Figure 10-9. DEUCE lifted and positioned on platform (continued)



CAUTION
The blade overhang on each side must not exceed 1 inch beyond the platform.

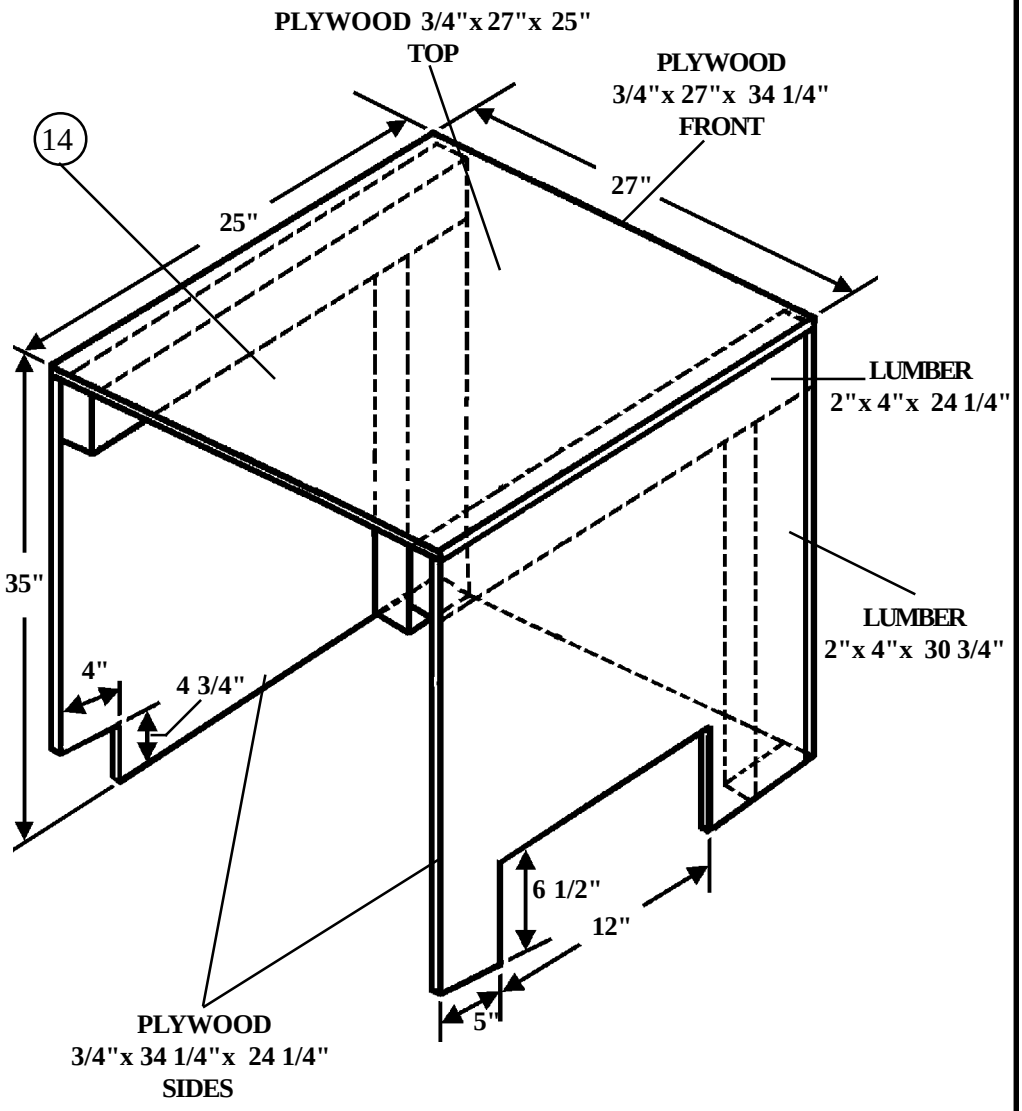


(6) Position two plumb bobs, one on each outside bottom point of the blade. Ensure the outside points do not extend more than 1-inch beyond the outside edge of the side rails.

(7) Ensure the blade C-frame sits squarely on honeycomb stack 3.

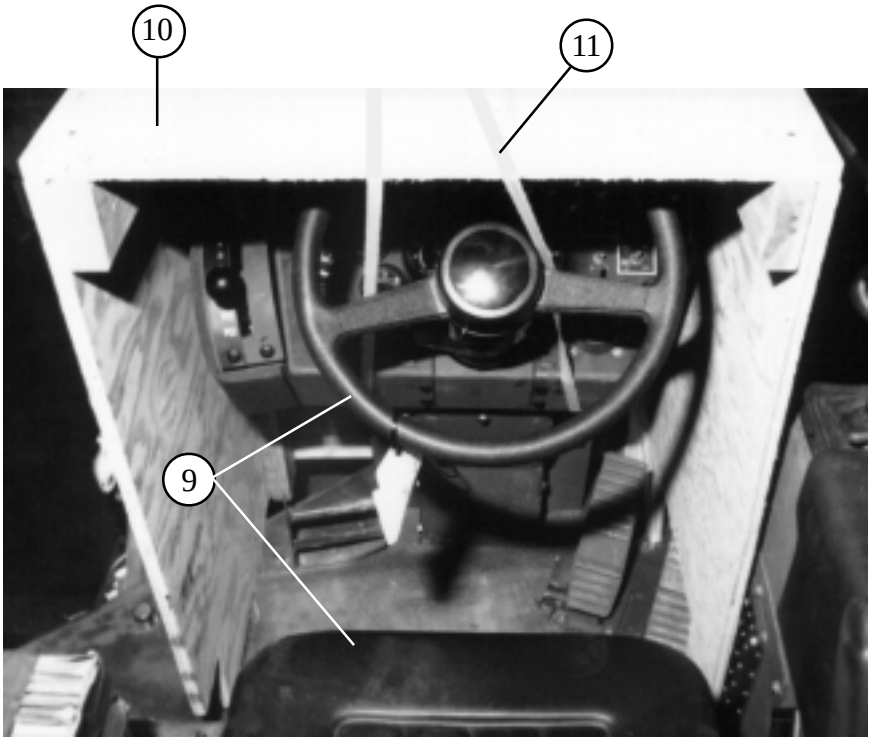
Figure 10-9. DEUCE lifted and positioned on platform (continued)

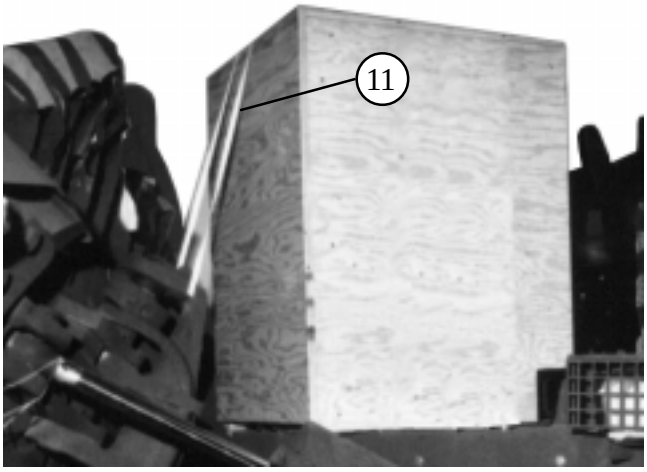
NOTE: This drawing is not drawn to scale.



8 Construct and nail a box according to the diagram shown above.

Figure 10-9. DEUCE lifted and positioned on platform (continued)



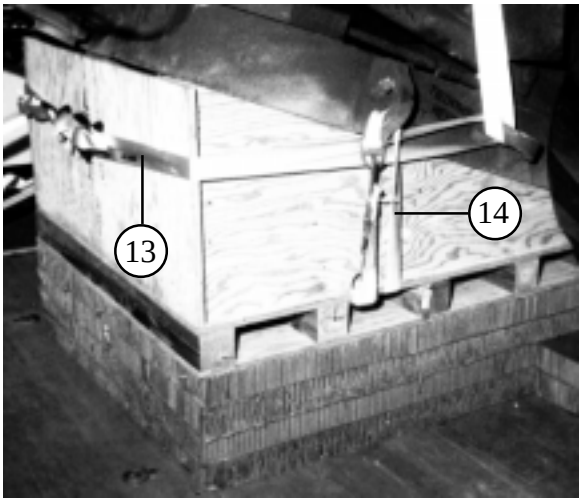


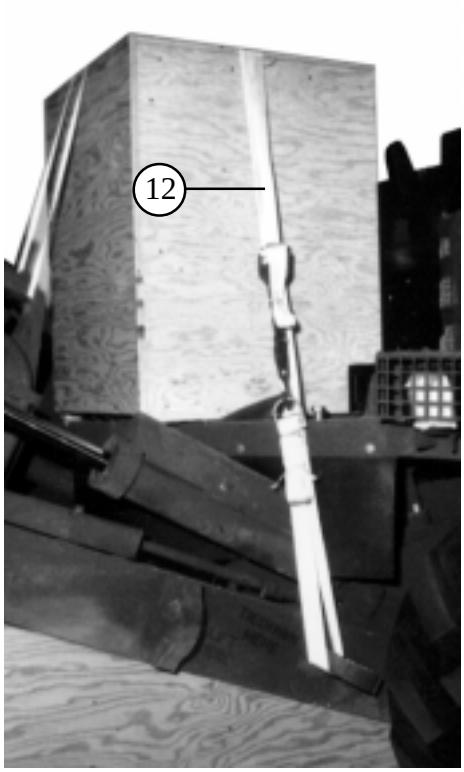
9 Tilt and lock the steering wheel and compress the seat in the down position.

10 Place the box over the steering wheel and column.

11 Secure the box with 1/2-inch tubular nylon routed around the steering wheel column, over the box, and tied to the blade pivot point.

Figure 10-9. DEUCE lifted and positioned on platform (continued)





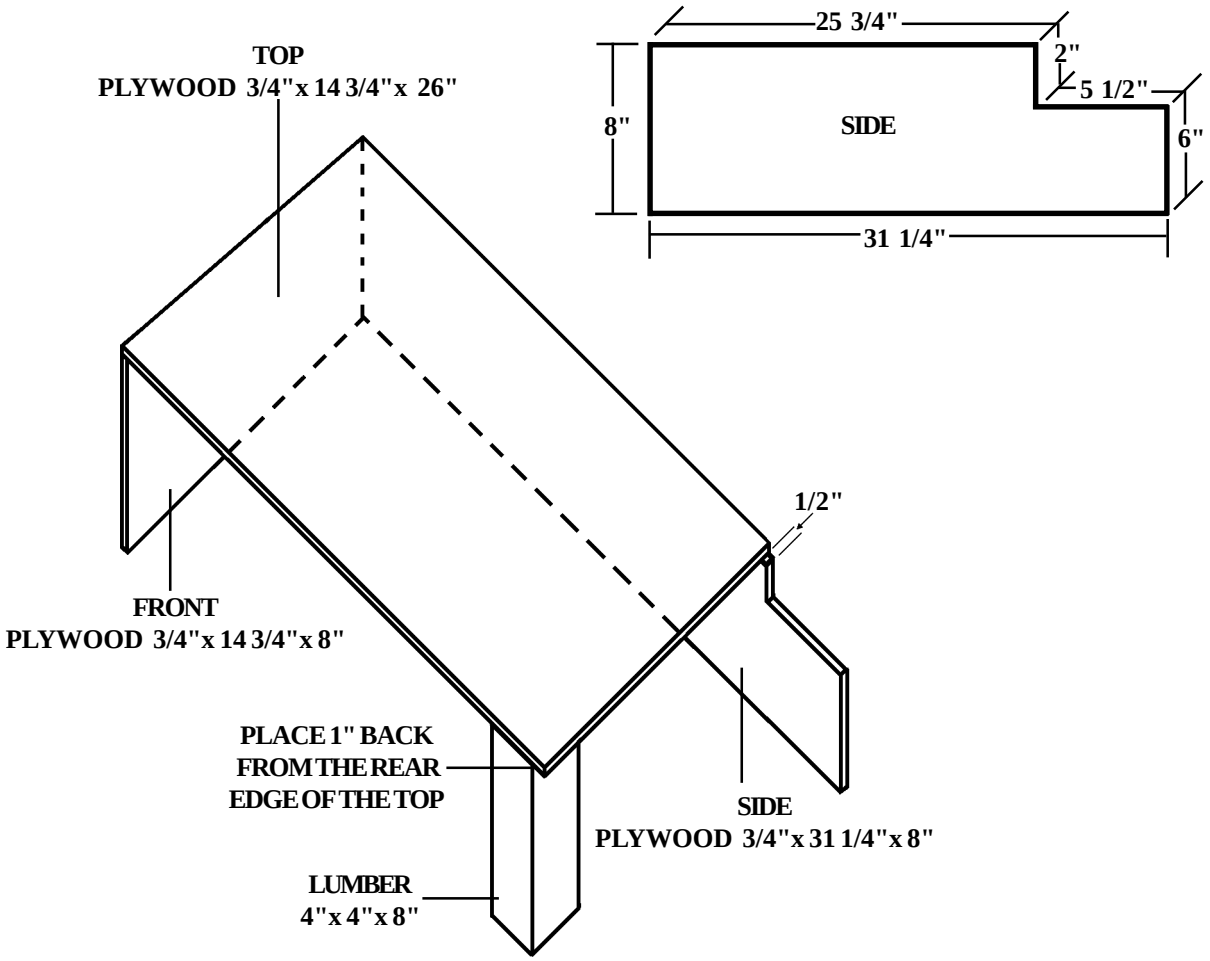
(12) Route a 30-foot lashing through the right C-frame tiedown, over the steering column box, down through the left C-frame tiedown, and back over the steering column box. Close the load binder on the right side of the steering column box.

(13) Route a 30-foot lashing through the right C-frame tiedown point, around the rear of stack 3, through the left C-frame tiedown point, and back around the rear of stack 3. Close the load binder on the rear of stack 3.

(14) Route a lashing through the right C-frame lift point, through the third hole from the front of honeycomb stack 3, through the left C-frame lift point, and back through the third hole of honeycomb stack 3. Close the load binder on the right side of stack 3.

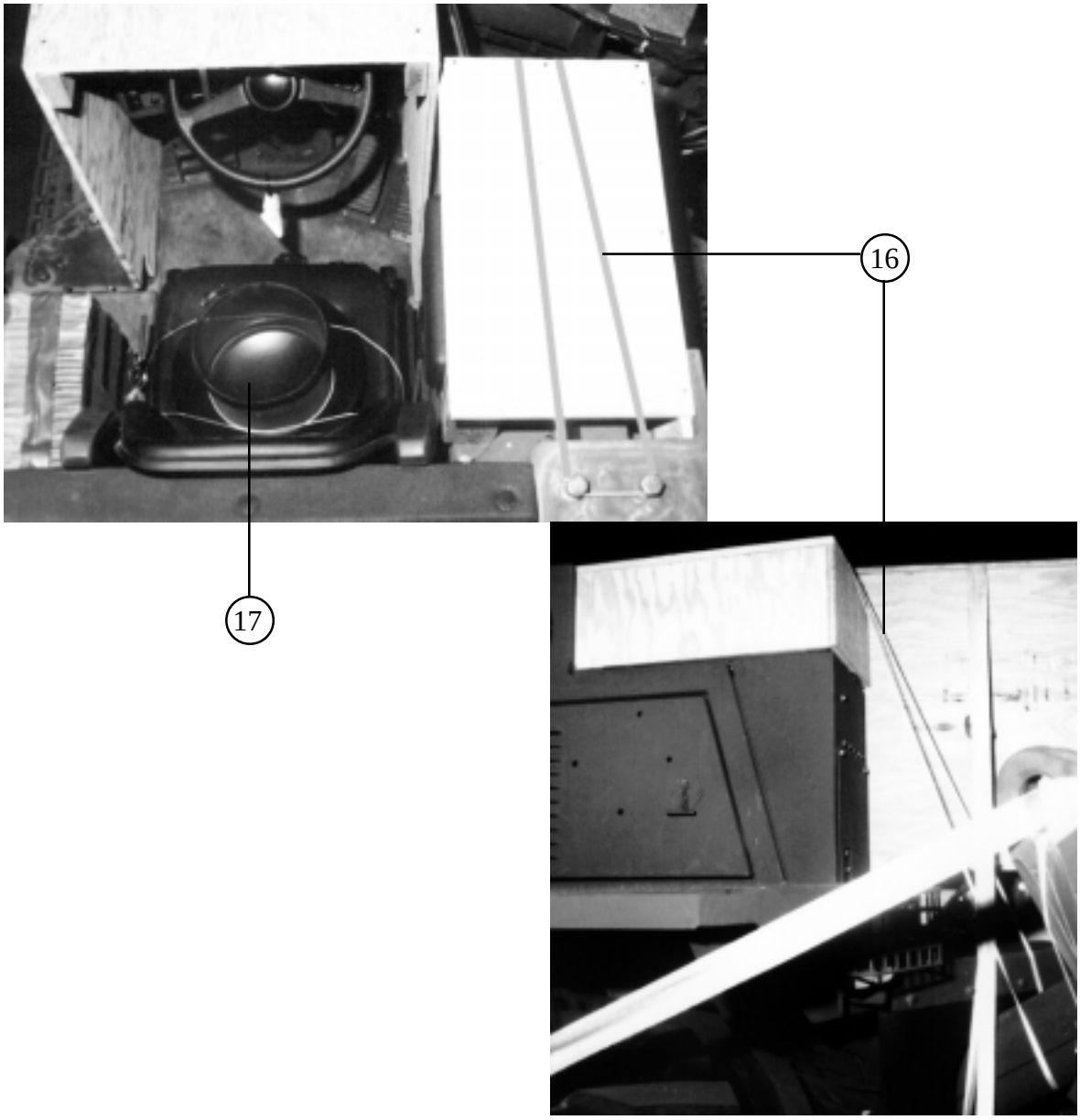
Figure 10-9. DEUCE lifted and positioned on platform (continued)

NOTE: This drawing is not drawn to scale.



(15) Construct and nail the blade control lever box as shown above.

Figure 10-9. DEUCE lifted and positioned on platform (continued)



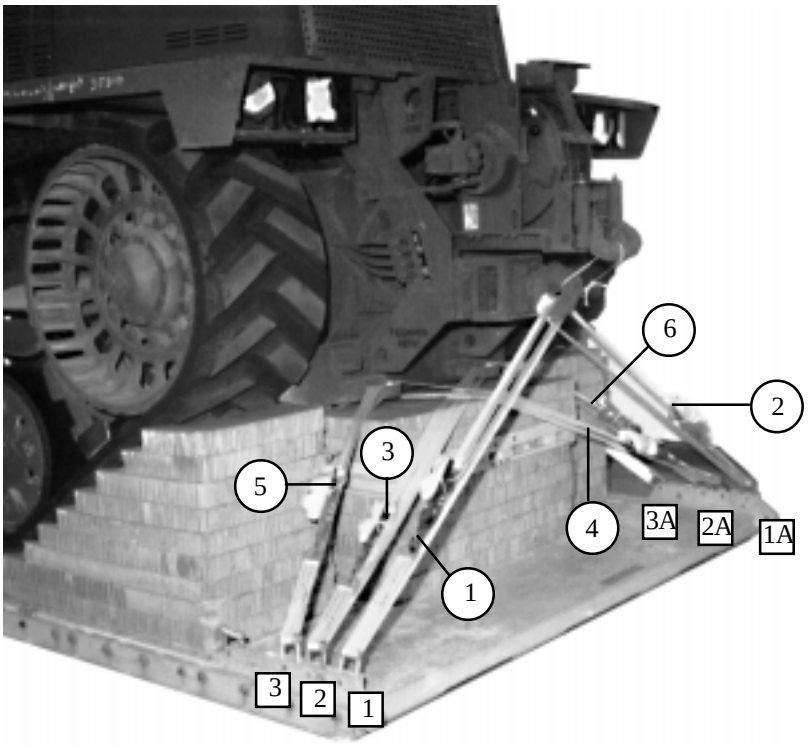
(16) Place the blade control lever box over the blade control lever and secure it with 1/2-inch tubular nylon webbing to convenient points on the load.

(17) Remove the air intake stack and secure it on the seat with type III nylon cord.

Figure 10-9. DEUCE lifted and positioned on platform (continued)

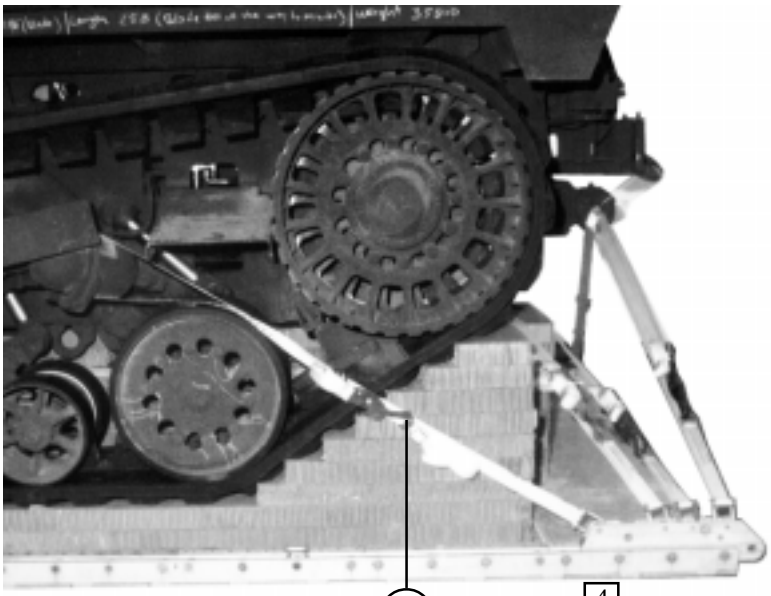
10-6. Lashing Load to Platform

Lash the DEUCE to the platform as shown in Figure 10-10.



Lashing Number	**Tiedown Clevis** Number	**Instructions**
		Pass lashing:
1	1	To tow pintle, left side.
2	1A	To tow pintle, right side.
3	2	To right rear tiedown.
4	2A	To left rear tiedown.
5	3	To left rear tiedown.
6	3A	To right rear tiedown.

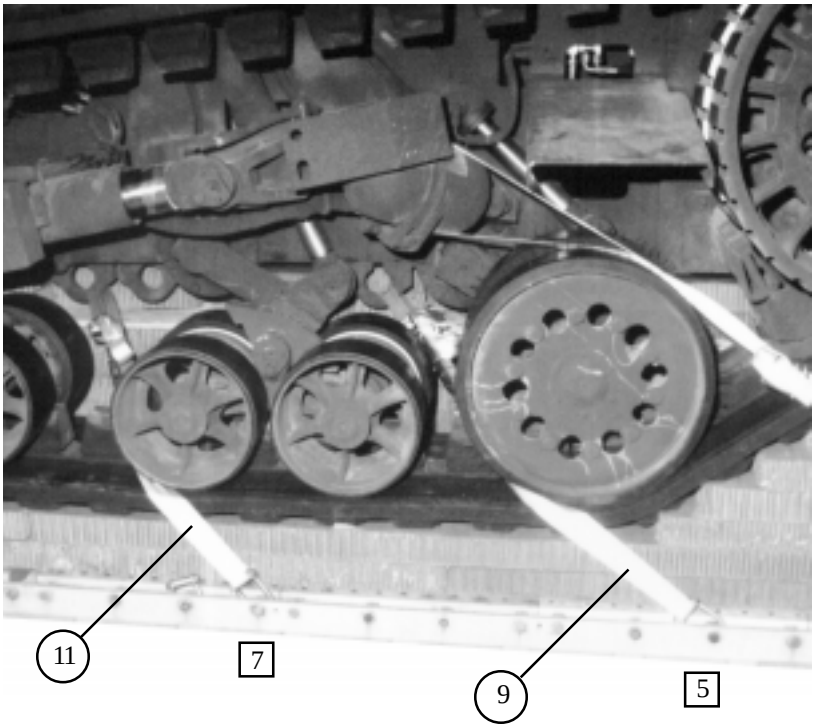
Figure 10-10. DEUCE lashed to platform



NOTE: Ensure the lashings are routed under all hoses.

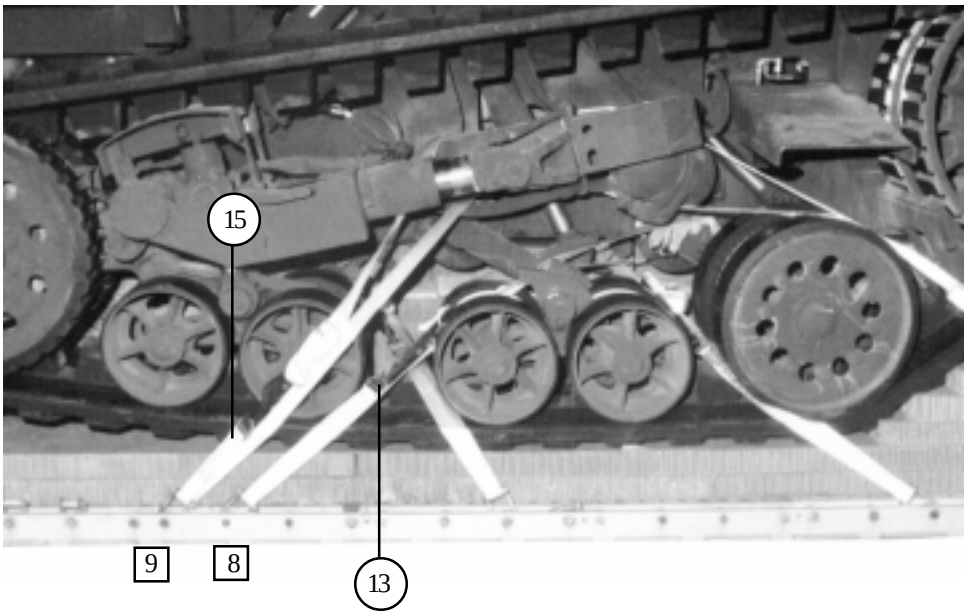
Lashing Number	Tiedown Clevis Number	Instructions
7	4	Route a 30-foot lashing over the left rear idler wheel, through the left rear portion of the recoil cylinder mount.
8	4A	Route a 30-foot lashing over the right rear idler wheel, through the right rear portion of the recoil cylinder mount.

Figure 10-10. DEUCE lashed to platform (continued)



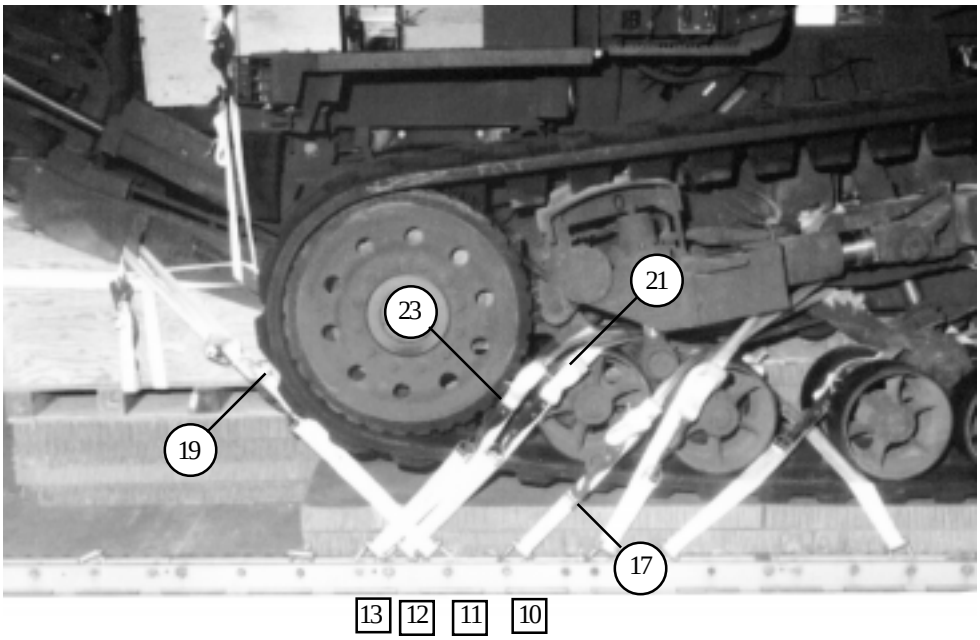
Lashing Number	**Tiedown Clevis** Number	**Instructions**
		Pass lashing:
9	5	To rear frame tiedown, left side.
10	5A	To rear frame tiedown, right side.
11	7	To front frame tiedown, left side.
12	7A	To front frame tiedown, right side.

Figure 10-10. DEUCE lashed to platform (continued)



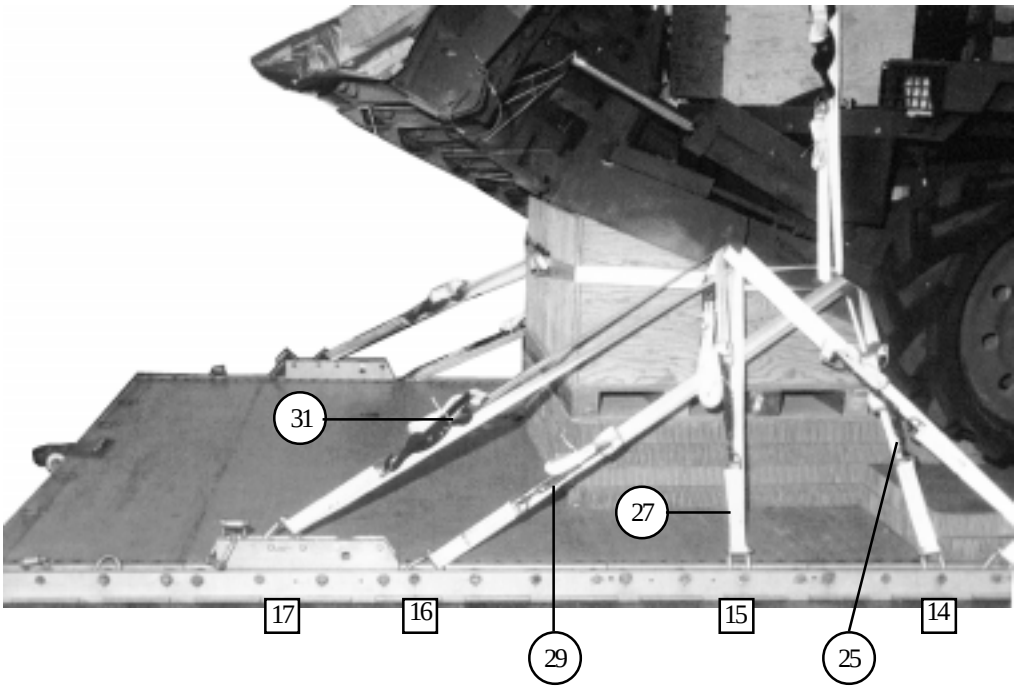
Lashing Number	**Tiedown Clevis** Number	**Instructions**
		Pass Lashing:
13	8	To rear axle mount, left side.
14	8A	To rear axle mount, right side.
15	9	To front portion of the recoil cylinder mount, left side.
16	9A	To front portion of the recoil cylinder mount, right side.

Figure 10-10. DEUCE lashed to platform (continued)



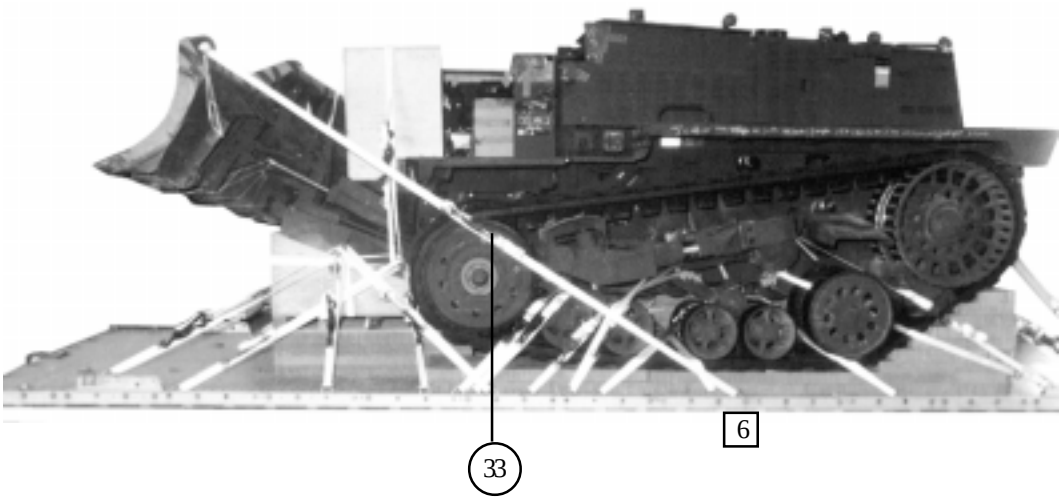
Lashing Number	**Tiedown Clevis** Number	**Instructions**
		Pass lashing:
17	10	To center axle mount, left side.
18	10A	To center axle mount, right side.
19	11	To C-frame lift point, left side.
20	11A	To C-frame lift point, right side.
21	12	To center frame tiedown, left side.
22	12A	To center frame tiedown, right side.
23	13	To front frame tiedown, left side.
24	13A	To front frame tiedown, right side.

Figure 10-10. DEUCE lashed to platform (continued)



Lashing Number	**Tiedown Clevis** Number	**Instructions**
		Pass lashing:
25	14	To C-frame tiedown, left side.
26	14A	To C-frame tiedown, right side.
27	15	To C-frame lift point, left side.
28	15A	To C-frame lift point, right side.
29	16	To C-frame tiedown, left side
30	16A	To C-frame tiedown, right side.
31	17	To C-frame lift point, left side.
32	17A	To C-frame lift point, right side.

Figure 10-10. DEUCE lashed to platform (continued)

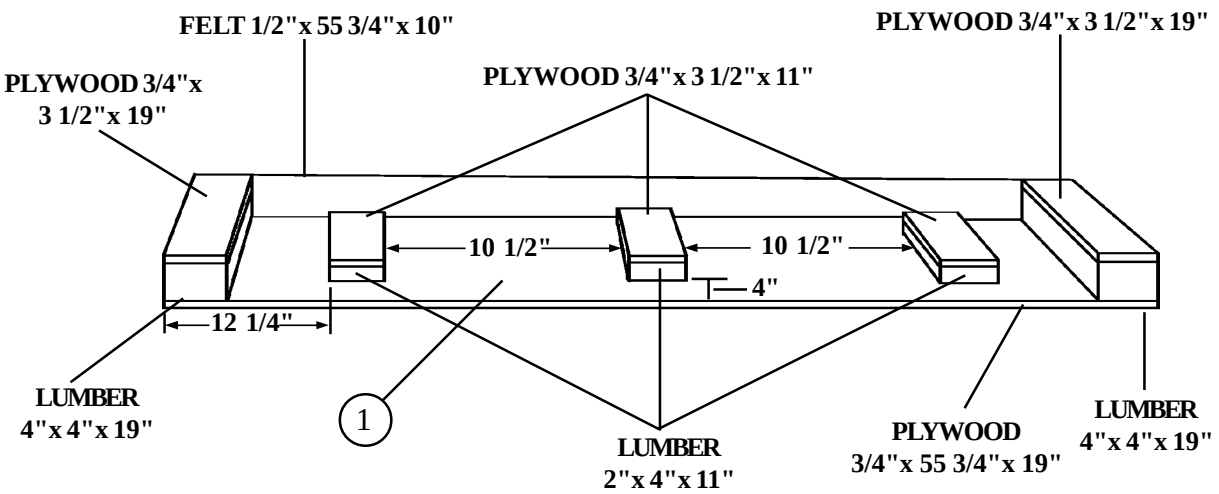


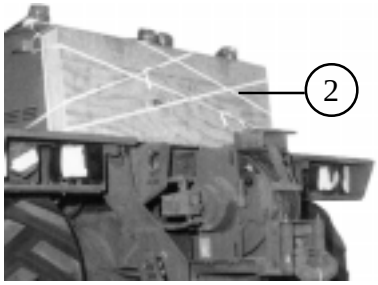
Lashing Number	**Tiedown Clevis** Number	**Instructions**
33	6	Route a 30-foot lashing to the blade lift point, left side.
34	6A	Route a 30-foot lashing to the blade lift point, right side.

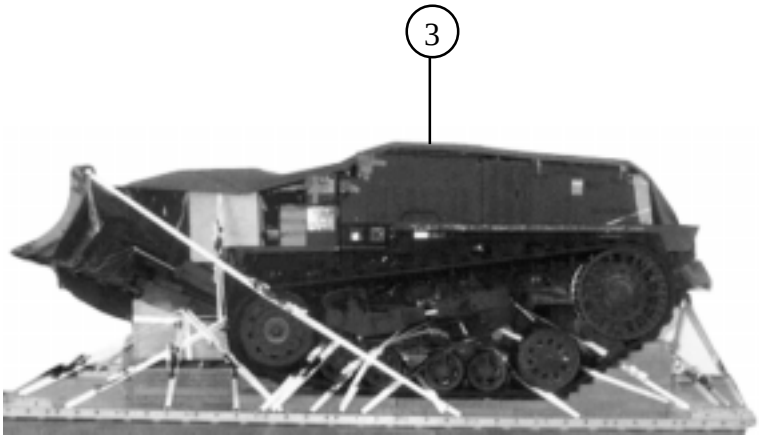
Figure 10-10. DEUCE lashed to platform (continued)

10-7. Installing the Rear Step Box and Load Cover

Install the rear step box and load cover as shown in Figure 10-11.





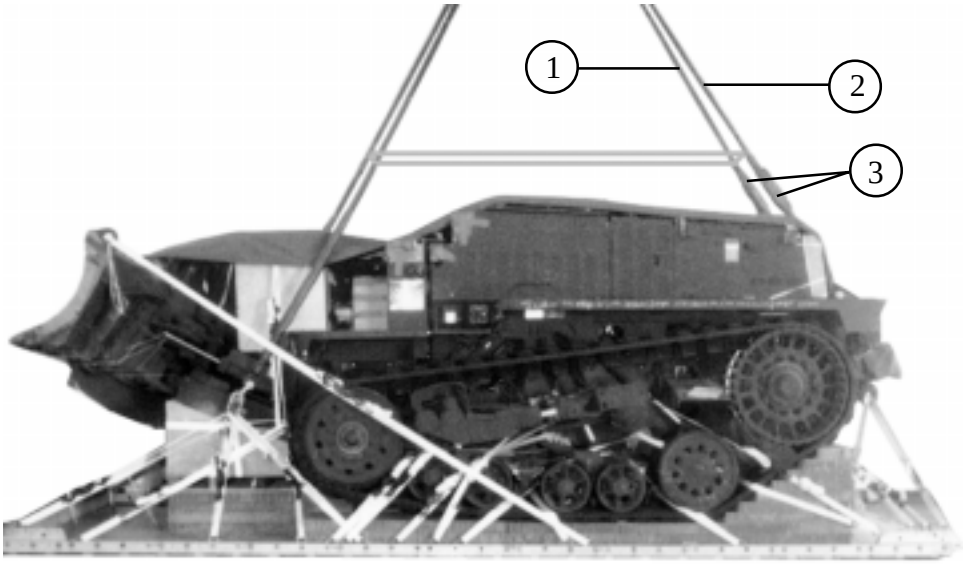


1. Build the rear step box as shown above. Nail all components together.
2. Raise the rear step and place the step box over the step. Secure the step box with 1/2-inch tubular nylon webbing.
3. Cover the load with a 60-inch by 25-foot piece of canvas. Secure the canvas with type III nylon cord.

Figure 10-11. Rear step box placed and load covered

10-8. Installing Suspension Slings and Deadman's Tie

Install the suspension slings and deadman's tie as shown in Figure 10-12.

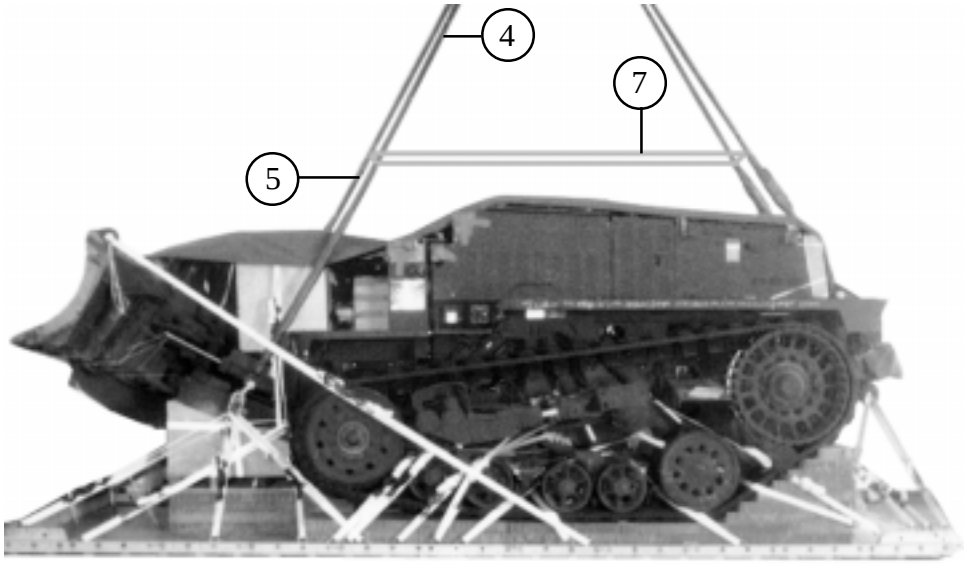


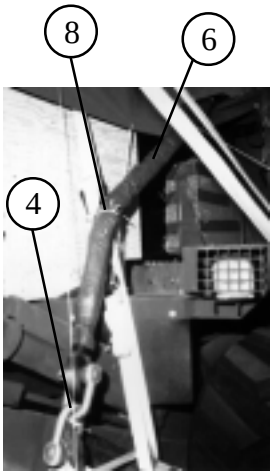
1. Make the left front suspension sling by connecting an 11-foot (4-loop), type XXVI nylon suspension sling to a 3-foot (4-loop), type XXVI nylon suspension sling with a 5 1/2-inch link. Route a 9 1/2-ton screw pin clevis through the end of the 3-foot suspension sling and attach the clevis to the right rear lift point on the DEUCE.

2. Repeat the procedures in step 1 for the right front suspension sling and attach it to the left rear lift point on the DEUCE.

3. Pad the 5 1/2-inch links with 1/2-inch felt padding. Secure the padding with tape.

Figure 10-12. Suspension slings and deadman's tie installed





(4) Make the right rear suspension sling by attaching a 9 1/2-ton screw pin clevis to the left C-frame lift point. Route a second 9 1/2-ton screw pin clevis through the bell portion of the first clevis and attach a 16-foot (4-loop), type XXVI nylon suspension sling.

(5) Repeat the procedures in step 4 for the left rear suspension sling and attach it to the right C-frame lift provision.

(6) Pad the rear suspension slings with 1/2-inch felt padding from the 9 1/2-ton screw pin clevises to a point 5-inches above the steering column box. Secure the padding with tape.

(7) Raise the slings and install the deadman's tie according to FM 10-500-2/TO 13C7-1-5.

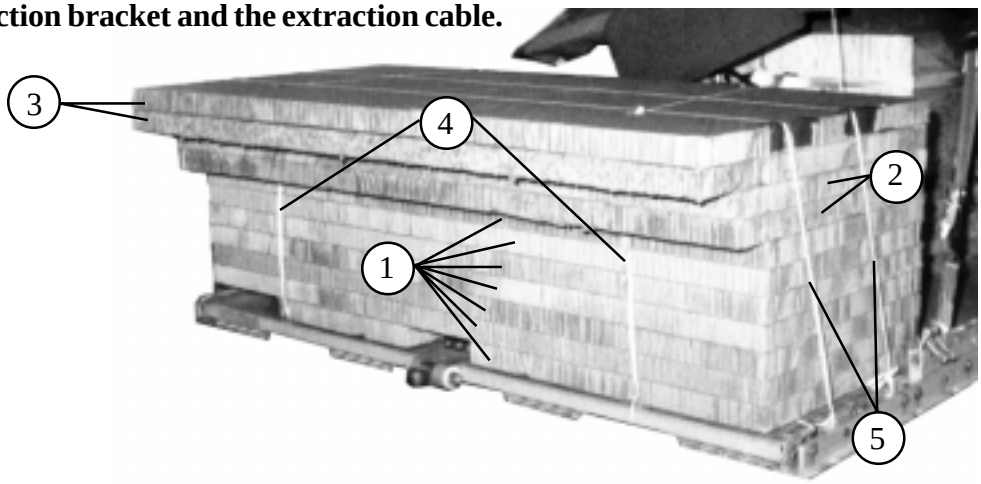
(8) Safety tie each rear suspension sling to the lashing securing the steering column box with one turn of type I, 1/4-inch cotton webbing.

Figure 10-12. Suspension slings and deadman's tie installed (continued)

10-9. Building and Positioning Parachute Stowage Platform

Build and position the parachute stowage platform as shown in Figure 10-13.

NOTE: Cut channels in the bottom layer for the extraction bracket and the extraction cable.



1. Glue seven pieces of 96-inch by 36-inch honeycomb together to form a base. Center the base 2-inches forward of the rear edge of the platform. Cut channels in the bottom layer for the extraction bracket and the extraction cable.

2. Cut two pieces of 96-inch by 5- inch honeycomb and two pieces of 96-inch by 36-inch honeycomb. Position and glue the pieces on top of the honeycomb base, flush with the front of the base, forming two 96-inch by 41-inch layers.

3. Cut two pieces of 96-inch by 11- inch honeycomb and two pieces of 96-inch by 36-inch honeycomb. Position and glue the pieces on top of the 96-inch by 41-inch layers, flush with the front of the base, forming two 96-inch by 47-inch layers.

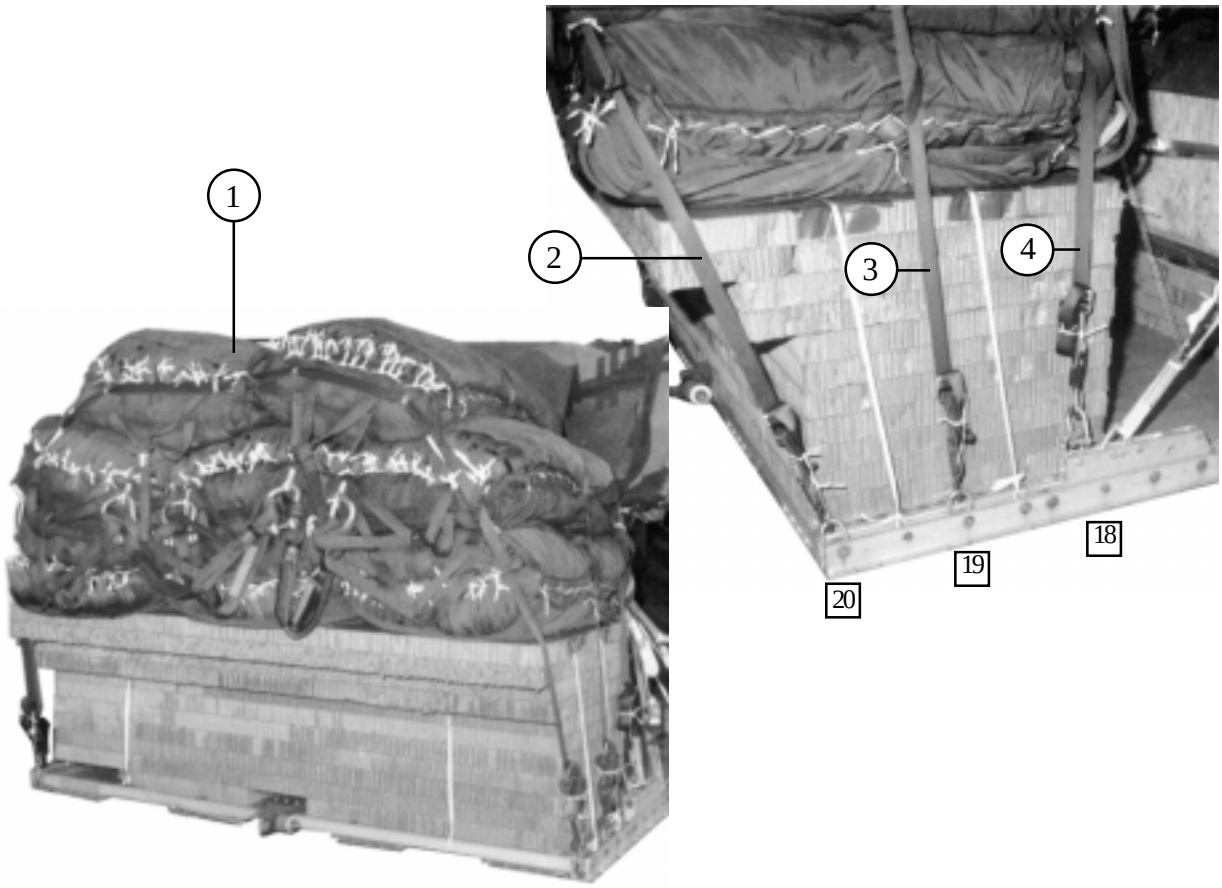
4. Make a hole through the top four layers of honeycomb directly above deck rings 12A and 12D. Tie one end of a length of 1/2-inch tubular nylon webbing to deck 11A. Route the running end over the top of the stowage platform, down through the hole and secure the webbing to deck ring 12A. Repeat the procedure with a second length of 1/2-inch tubular nylon webbing using deck rings 11B and 12D. Tape the edges of the holes and the front edge of the top layer of honeycomb.

5. Tape the side edges of the top layer of honeycomb. Route a length of 1/2-inch tubular nylon webbing from bushing 45 over the top of the platform and secure on bushing 45A. Repeat the procedure with another length of 1/2-inch tubular nylon and bushings 47 and 47A.

Figure 10-13. Parachute stowage platform built and positioned

10-10. Preparing and Stowing Cargo Parachutes

Install the extraction system as shown in Figure 10-14.

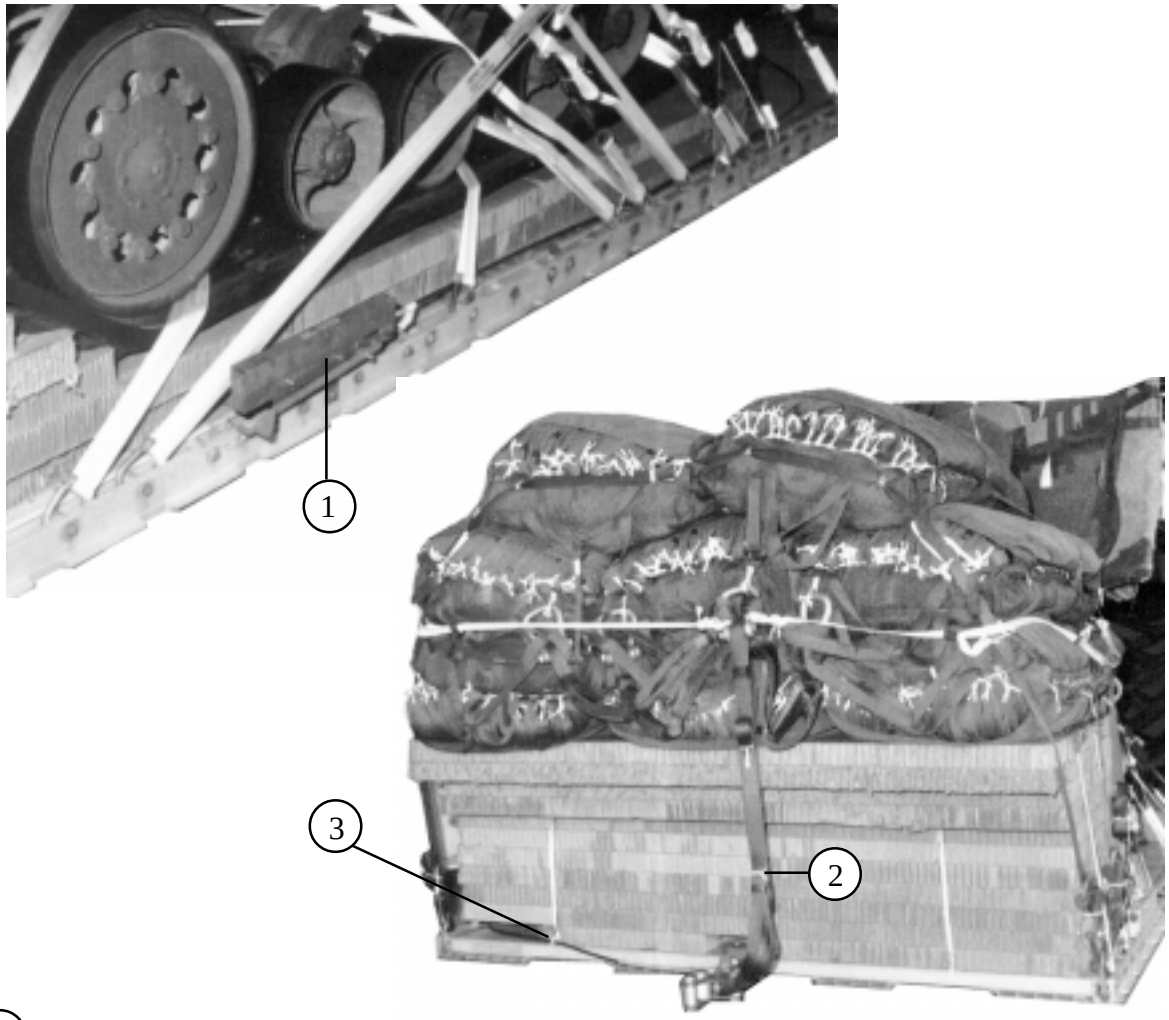


1. Prepare, position, and stow eight G-11 cargo parachutes according to FM 10-500-2/TO13C7-1-5.
2. Install the rear cargo parachute restraint strap according to FM 10-500-2/TO13C7-1-5 using tiedown clevises 20 and 20A.
3. Install the center cargo parachute restraint strap according to FM 10-500-2/TO13C7-1-5 using tiedown clevises 19 and 19A.
4. Install the front cargo parachute restraint strap according to FM 10-500-2/TO13C7-1-5 using tiedown clevises 18 and 18A.
5. Install a multicut parachute release knife according to FM 10-500-2/TO13C7-1-5 (not shown).

Figure 10-14. Cargo parachutes prepared and stowed

10-11. Installing Extraction System

Prepare and stow eight G-11 cargo parachutes as shown in Figure 10-15.

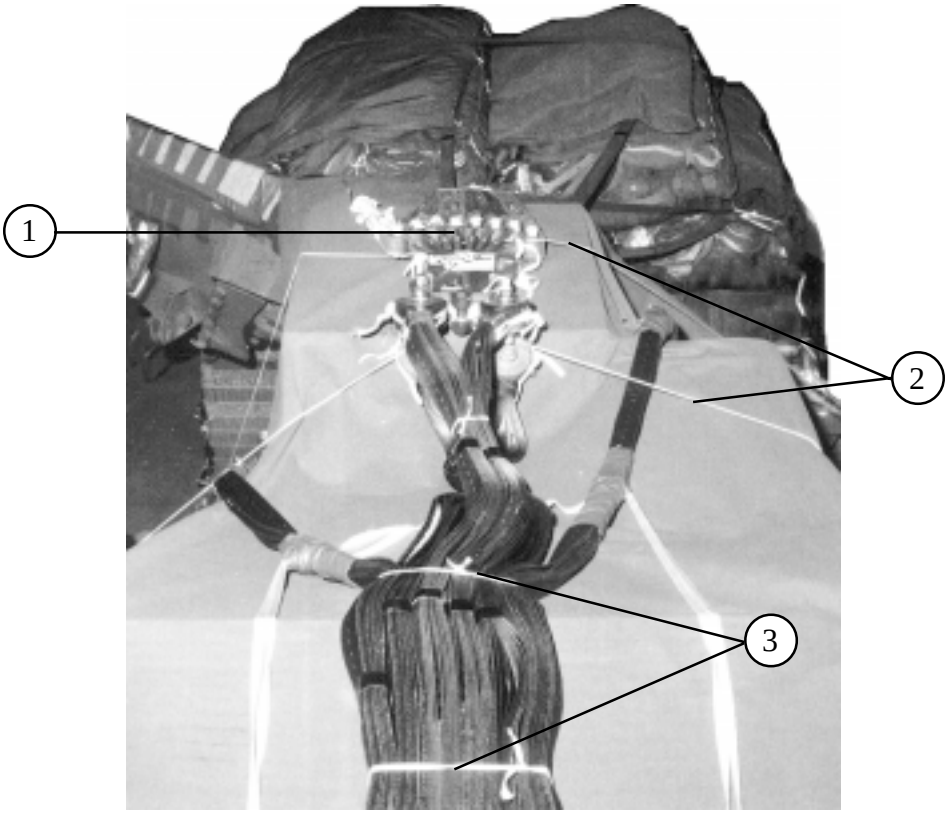


1. Install the components of the EFTC according to FM 10-500-2/TO13C7-1-5. Use the rear mounting holes for the EFTC brackets.
2. Attach a 9-foot (2-loop) type XXVI nylon sling to be used as a deployment line.
3. Use a 20-foot EFTC cable and safety the cable to convenient places on the platform with one turn of type I, 1/4-inch cotton webbing.

Figure 10-15. Extraction system installed

10-12. Installing Parachute Release

Prepare, attach, and safety an M-2 cargo parachute release according to FM 10-500-2/ TO 13C7-1-5 and as shown in Figure 10-16.



1. Place the M-2 cargo parachute release on top of the steering column box and attach the suspension slings and riser extentions.
2. Safety the top and bottom of the release to convenient places on the load with type III nylon cord according to FM 10-500-2/TO 13C7-1-5.
3. S-fold and tie any excess suspension slings with one turn of type I, 1/4-inch cotton webbing.

Figure 10-16. M-2 cargo parachute release installed

10-13. Placing Extraction Parachute

Select the extraction parachute and extraction line needed using the extraction line requirements table in FM 10-500-2/TO 13C7-1-5. Place the extraction parachute and extraction line on the load for installation in the aircraft.

10-14. Installing Provisions for Emergency Restraint

Select and install the provisions for the emergency aft restraints according to the emergency aft restraint requirements table in FM 10-500-2/ TO 13C7-1-5.

10-15. Marking Rigged Load

Mark the rigged load according to FM 10-500-2/TO 13C7-1-5 and as shown in Figure 10-17. Complete Shipper's Declaration for Dangerous Goods and affix to the load. If the load varies from the one shown, the weight, height, CB, tipoff curve, and parachute requirements must be recomputed.

10-16. Equipment Required

Use the equipment list in Table 10-1 to rig the load shown in Figure 10-17.

CAUTIONS

1. **Make the final rigger inspection required by FM 10-500-2/TO 13C7-1-5 before the load leaves the rigging site.**

2. **Remeasure the width of the load after the load is placed on the 60K-Loader. Ensure the load has not shifted.**

RIGGED LOAD DATA

Weight.....40,340 pounds

Maximum Weight.....40,800 pounds

Height.....101 1/2 inches

Width.....110 inches

Length .....310 inches

Overhang: Front.....0 inches
Rear.....22 inches

Center of Balance (CB)
(from front edge of the platform) .....122 inches

Extraction System .....EFTC

Figure 10-17. Deployable Universal Combat Earthmover (DEUCE), rigged on a 24-foot type V platform for low-velocity airdrop

Table 10-1. Equipment required for rigging the Deployable Universal Combat Earthmover on a 24-foot type V platform for low-velocity airdrop

National Stock Number	Item	Quantity
1670-00-162-4982	Adapter, latch assembly, side plates,11-inch (modified) (C-5 only)	2
8040-00-273-8713	Adhesive paste, 1-gal.	As required
4030-00-432-2516	Clevis, screw-pin, large	6
4030-00-090-5354	Clevis, suspension, 1-inch (large)	6
8305-00-242-3593	Cloth, cotton duck, 60-inches	As required
4020-00-240-2146	Cord, nylon, type III, 550-lb.	As required
1670-00-434-5787	Coupling, airdrop extraction force transfer, w/20-ft. cable	1
1670-00-360-0328	Cover, clevis	9
8135-00-664-6958	Cushioning material (Cellulose paddding)	As required
8305-00-958-3685	Felt, 1/2-inch thick	As required
1670-01-183-2678	Leaf, extraction line (line bag) (add 2 for C-17)	2
	Line extraction:	
1670-01-064-4454	60-foot (6-loop), type XXVI (for C-130)	1
1670-01-062-6312	120-foot (6-loop), type XXVI, (for C-5 between fuselage stations 1667-1971)	1
1670-01-062-6312	120-foot (6-loop), type XXVI and	1
1670-01-064-4454	60-foot (6-loop), type XXVI, (for C-5 between fuselage stations 947-1666)	1
1670-01-062-6312	120-foot (6-loop), type XXVI, (for C-5 between fuselage stations 574-947)	2
1670-01-468-9178	140-foot (6-loop), type XXVI (for C-17)	1
1670-01-064-4452	60-foot (1-loop), type XXVI (for C-17), (drogue line)	1
1670-00-783-5988	Link assembly, type IV (C-17 only)	1
	Link assembly, two-point:	
5306-00-435-8994	Bolt, 1-inch diameter, 4-inches long (add 4 for C-5)	4
5310-00-232-5165	Nut, 1-inch (add 4 for C-5)	4
1670-00-003-1954	Plate, side, 5 1/2-inch	4
5365-00-007-3414	Spacer, large (add 4 for C-5)	4
1670-00-006-2752	Link, four-point	1
	Lumber:	
5510-00-220-6146	2- by 4- by 11-inch	3
	2- by 4- by 24 1/4-inch	2
	2- by 4- by 30 3/4-inch	2
	2- by 4- by 41 3/4-inch	8

Table 10-1. Equipment required for rigging the Deployable Universal Combat Earthmover on a 24-foot type V platform for low-velocity airdrop (continued)

National Stock Number	Item	Quantity
	Lumber:	
5510-00-220-6274	4- by 4- by 2 3/4-inch	2
	4- by 4- by 7-inch	2
	4- by 4- by 8-inch	1
	4- by 4- by 11 1/4-inch	2
	4- by 4- by 15 3/4-inch	2
	4- by 4- by 19-inch	2
	4- by 4- by 20-inch	2
	4- by 4- by 48-inch	5
5315-00-010-4659	Nail, steel, common, 8D	As required
5315-00-753-3885	Nail, steel, common, 16D	As required
1670-00-753-3928	Pad, energy-dissipating (honeycomb)	
	3- by 36- by 96-inches	35 sheets
	5- by 96-inch	(2)
	11- by 96-inch	(2)
	12- by 41 3/4-inch	(7)
	14- by 16-inch	(2)
	16 1/2- by 48-inch	(4)
	22 1/2- by 10-inch	(2)
	22 1/2- by 14-inch	(2)
	22 1/2- by 18 1/2-inch	(2)
	22 1/2- by 23-inch	(2)
	22 1/2- by 27-inch	(2)
	22 1/2- by 32-inch	(2)
	22 1/2- by 36-inch	(2)
	22 1/2- by 55-inch	(4)
	22 1/2- by 96-inch	(4)
	30 1/2- by 38 3/4-inch	(6)
	33- by 38 3/4-inch	(2)
	34- by 38 3/4-inch	(2)
	35 1/2- by 38 3/4-inch	(2)
	36- by 38 3/4-inch	(12)
	36- by 41 3/4-inch	(7)
	36- by 48-inch	(4)

Table 10-1. Equipment required for rigging the Deployable Universal Combat Earthmover on a 24-foot type V platform for low-velocity airdrop (continued)

National Stock Number	Item	Quantity
1670-01-016-7841	Parachute, cargo, G-11C	8
	Parachute, cargo, extraction:	
1670-00-040-8135	28-ft.	2
1670-01-063-3715	15-ft. (C-17 only)	1
	Platform, airdrop, type V, 24-ft:	
1670-01-162-2372	Clevis assembly (type V)	(42)
1670-01-162-2376	Extraction bracket assembly	(1)
1670-01-247-2389	Link, suspension bracket, type V	(2)
1670-01-162-2381	Tandem link assembly (Multipurpose link)	(2)
5530-00-128-4981	Plywood, 3/4-inch:	9 sheets
	2 3/4- by 48-inch	(1)
	3 1/2- by 11-inch	(3)
	3 1/2- by 19-inch	(2)
	14 3/4- by 8-inch	(1)
	14 3/4- by 26-inch	(1)
	21 1/4- by 48-inch	(1)
	24- by 51-inch	(4)
	2 7- by 25-inch	(1)
	2 7- by 34 1/4-inch	(1)
	32- by 8-inch	(1)
	34 1/4- by 24 1/4-inch	(2)
	38 3/4- by 51 1/4-inch	(2)
	41 3/4- by 48-inch	(4)
	48- by 52 1/2-inch	(1)
	55 3/4- by 19-inch	(1)
1670-01-097-8817	Release, cargo parachute, M-2	1
	Sling, cargo, airdrop:	
1670-01-062-6306	3-ft. (4-loop), type XXVI	5
1670-01-062-6304	9-ft. (2-loop), type XXVI	1
1670-01-062-6310	11-ft. (4-loop), type XXVI	2
1670-01-062-6307	12-ft. (4-loop), type XXVI	2
1670-01-062-6308	16-ft. (4-loop), type XXVI	6
1670-01-062-6311	120-ft. (2-loop), type XXVI	8

Table 10-1. Equipment required for rigging the Deployable Universal Combat Earthmover on a 24-foot type V platform for low-velocity airdrop (continued)

National Stock Number	Item	Quantity
5340-00-040-8219	Strap, parachute, release, multi-knife	2
7501-00-266-5016	Tape, adhesive, 2-inch	As required
1670-00-937-0271	Tiedown assembly, 15-ft.	49
TBD	Towplate release mechanism (H-block) (C-17 only)	1
	Webbing:	
8305-00-268-2411	Cotton, 1/4-inch, type I	As required
8305-00-082-5752	Nylon, tubular, 1/2-inch	As required
8305-00-260-6890	Nylon, type X	As required
8305-00-268-2455	Nylon, tubular, 1-inch, OD 7	As required

GLOSSARY

ACB	attitude control bar
AD	airdrop
AFB	Air Force base
AFR	Air Force regulation
AFTO	Air Force technical order
attn	attention
CB	center of balance
d	penny
DA	Department of the Army
DC	District of Columbia
DD	Department of Defense
diam	diameter
DEUCE	Deployable Universal Combat Earthmover
EFTA	extraction force transfer actuator
EFTC	extraction force transfer coupling
FM	field manual
ft	foot
gal	gallon
HQ	headquarters
in	inch
LAPE	low-altitude parachute-extraction
lb	pound
LV	low-velocity
no	number
NSN	national stock number
OVM	operator vehicle maintenance
psi	pounds per square inch
ROPS	roll-over protection structure
SL/CS	static line/connector strap
TBD	to be determined
TM	technical manual
TO	technical order
TRADOC	United States Army Training and Doctrine Command
US	United States
w	with

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***AFJMAN24-204/TM38-250 has superseded AFR 71-4/TM 38-250 (15 January 1988). Change 3 reflects this change. The basic manual still references the superseded publication. You may wish to make pen and ink changes to update the old reference citations accordingly.**

****FM 10-500-2/TO 13C7-1-5 has superseded FM 10-500/TO 13C7-1-5 (15 January 1988). Change 3 reflects this change. The basic manual still references the superseded publication. You may wish to make pen and ink changes to update the old reference citations accordingly.**

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****Shippers Declaration for Dangerous Goods has superseded DD Form 1387-2 (February 1982). Change 3 reflects this change. The basic manual still references the superseded publication. You may wish to make pen and ink changes to update the old reference citations accordingly.**