

Transportation and Travel

Blocking and Bracing for Motor Transport

For the Commander in Chief:

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Summary. This change changes the source of storage and outloading drawings for ammunition.

Suggested Improvements. The proponent of this change is the Office of the Deputy Chief of Staff, Logistics, HQ USAREUR/7A (AEAGD-PT, 370-6950/8914). Users may send suggestions to improve the basic regulation on DA Form 2028 (Recommended Changes to Publications and Blank Forms) to the Commander in Chief, USAREUR, ATTN: AEAGD-PT, Unit 29351, APO AE 09014.

Distribution. Distribute according to DA Form 12-88-E, block 0811, command level A.

1. USAREUR Regulation 55-48, 7 April 1994, is changed as follows:

Page 2, paragraph 3. Add the following abbreviation:

AMC United States Army Materiel Command

Page 5. Supersede paragraph 18 as follows:

18. AMMUNITION

Regardless of the size of loads, the shipper will ensure ammunition and explosives are either strapped or blocked and braced according the United States Army Materiel Command (AMC) drawings 19-48. The AMC 19-48 series drawings provide detailed storage and outloading procedures for every ammunition-load configuration. Requirements for ammunition are technical and the controls for blocking and bracing in the AMC drawings 19-48 are the only acceptable drawings. AMC drawing 19-48-75-5 is an index of the complete series. Local ammunition supply points or storage sites have these publications. USAREUR Regulation 55-4 pro-vides specific requirements for moving ammunition and explosives in Europe.

NOTE: The United States Army Defense Ammunition Center (USADAC) publishes the AMC 19-48, which provides an index of all USADAC utilization, storage, and outloading drawings for ammunition and components. The index includes drawing and file numbers necessary for ordering drawings. The index and the drawings may be ordered from the Director, USADAC, ATTN: SMCAC-DET, Savanna, IL 81074-9639.

Page A-1. Delete Technical Order 11A-1-61, Storage and Outloading Drawings for Conventional Ammunition.

Page A-1. Add the following references:

United States Army Materiel Command Drawings 19-48.

United States Army Materiel Command Drawing 19-48-75-5, Index of U.S. Army Unitization, Storage, and Outloading Drawings for Ammunition and Components.

2. Post these changes per DA Pamphlet 310-13.

3. File this change in front of the regulation for reference.

Transportation and Travel
Blocking and Bracing for Motor Transport

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the central trailer fleet controlled and operated by the 37th Transportation Command.

Supplementation. Commanders will not supplement this regulation without Commander in Chief, USAREUR (AEAGD-P), approval.

Interim Changes. Interim changes to this regulation are not official unless authenticated by the Deputy Chief of Staff, Information Management, USAREUR. Interim changes will be destroyed on their expiration dates unless sooner superseded or rescinded.

Suggested Improvements. The proponent of this regulation is the Office of the Deputy Chief of Staff, Logistics, HQ USAREUR/7A (AEAGD-P, 370-8914). Users may send suggestions to improve this regulation on DA Form 2028 (Recommended Changes to Publications and Blank Forms) to the Commander in Chief, USAREUR, ATTN: AEAGD-P, Unit 29351, APO AE 09014.

Summary. This regulation provides standards for proper blocking and bracing on military transport vehicles.

Applicability. This regulation applies to users and operators of U.S. Army transportation assets. It primarily addresses

Distribution. Distribute according to DA Form 12-88-E, block 0811, command level A.

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***This regulation supersedes USAREUR Regulation 55-48, 13 June 1977.**

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SECTION I INTRODUCTION

1. PURPOSE

This regulation prescribes policy on motor transport blocking and bracing, cargo loading, and weight limits.

2. REFERENCES

Appendix A lists references that users should be familiar with.

3. ABBREVIATIONS

37th TRANSCOM	37th Transportation Command
CONEX	container express
HEMTT	heavy expanded mobility tactical truck
HET	heavy equipment transporter
MCT	movement control team
MILVAN	military van (military-owned demountable container)
MMOB	military mode operating battalion
SEAVAN	commercial shipping container
TB	technical bulletin
TO	technical order

4. POLICY

Loads transported by 37th Transportation Command (37th TRANSCOM) units will not be pulled unless properly blocked and braced.

5. RESPONSIBILITIES

a. The U.S. Government, or agents of the U.S. Government found willfully negligent in the discharge of their duties, will be held liable for damage caused by improperly blocked and braced cargo.

b. Shippers will—

(1) Provide required blocking and bracing materials.

(2) Block and brace cargo loaded on theater transportation assets.

(3) Contact the servicing movement control team (MCT) and the military mode operating battalion (MMOB) to help solve blocking and bracing problems.

c. The consignee will remove blocking and bracing materials and return trailers to their organization configuration.

d. The military mode operator will—

(1) Inspect cargo for proper blocking and bracing.

(2) Work with the shipper and the MCT to solve blocking and bracing problems.

6. EXCEPTIONS

This regulation prescribes minimum requirements to ensure safe movement of cargo over highways. When this regulation does not cover a specific requirement, shippers will use common sense and the blocking and bracing principles in section II.

SECTION II PRINCIPLES OF BLOCKING AND BRACING

7. GENERAL

Proper blocking and bracing techniques must be used before transporting cargo. The failure to use these techniques may result in death, injury, and enormous property loss. Cargo to be loaded on semitrailer and other cargo vehicles should be placed on the center of balance of the vehicle and secured with blocking, bracing, and lashing (tiedowns), where required. Figures 1 and 2 show the center of balance for trailers and trucks, respectively. A partial row of cargo should be centered on the bed of the trailer or vehicle and blocked on the front, rear, and sides. Loads should be blocked, braced, and lashed to prevent upward, forward, rearward, and sideward movement. Empty space between boxes, crates, and barrels should be minimized and filled in with cribbing. Loads should be blocked to prevent shifting en route.

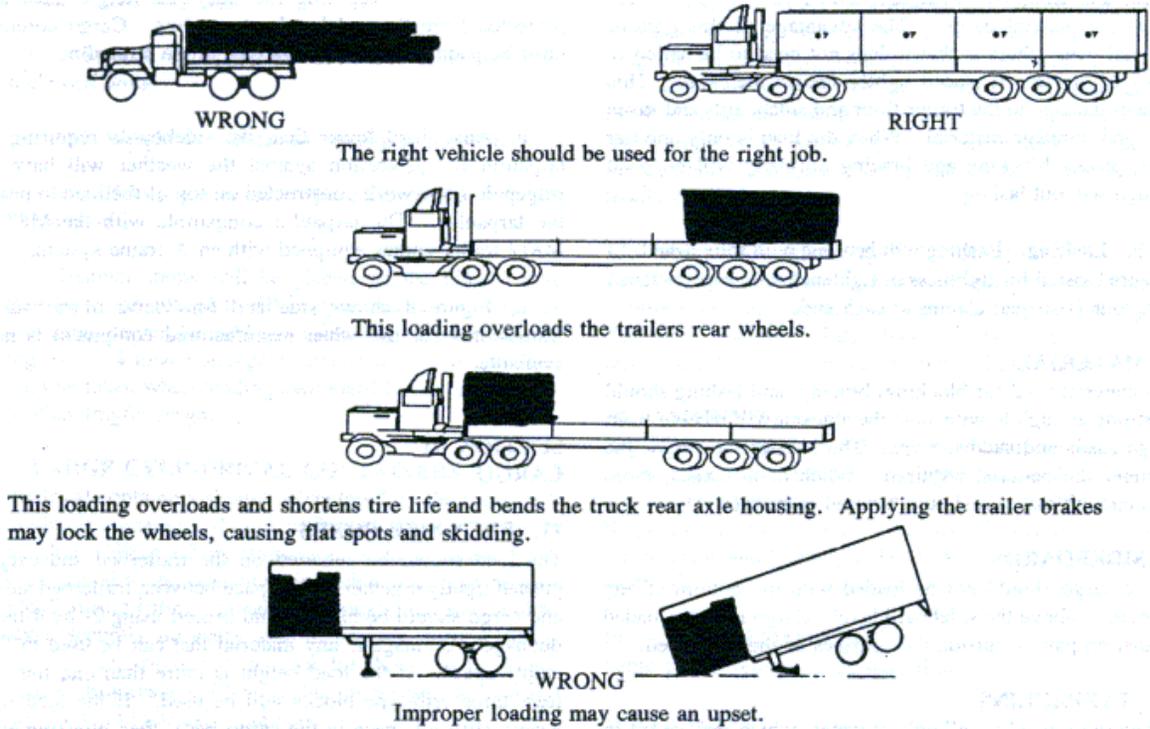


Figure 1. Center of Balance for Trailers

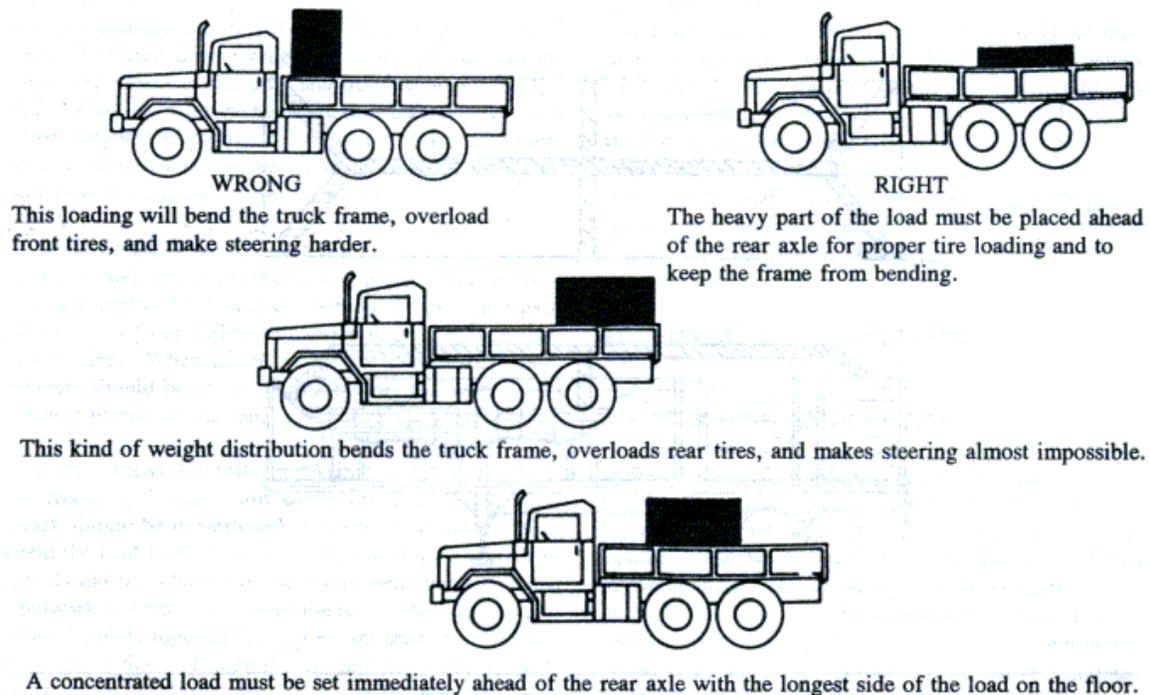


Figure 2. Center of Balance for Trucks (2½ Ton Through 5 Ton)

a. Blocking and Bracing. Crib-type blocking is preferred for general cargo. The advantage of this type of material over others is that it does not need to be nailed to the floor or sides if placed tightly against the cargo. This reduces damage to the trailer floor and sideboards and saves time and dunnage material. When the load is only one tier high, proper blocking and bracing normally will be good enough without lashing.

b. Lashing. Lashing will be done with four strands of #9 wire twisted for tightness or tightened wire rope fastened with four U-shaped clamps at each end.

8. MATERIAL

The material used for blocking, bracing, and lashing should be strong enough to withstand the abuse it will receive from rough roads and sudden stops. The heavier the cargo, the stronger the material required. When doubt exists, more than enough material should be used to be safe.

9. SIDEBOARDS

Loose cargo should not be loaded with the bottom of any item on or above the sideboard level. Cargo must be loaded so that no part is outside the confines of the cargo bed.

10. TARPAULINS

A sagging tarpaulin will collect water, which may result in cargo damage.

a. Any load exceeding the sideboard height must be protected from the weather by tarpaulins. Cargo corners must be padded to prevent damage to the tarpaulin.

b. Any load lower than the sideboards requiring a tarpaulin for protection against the weather will have a ridgepole framework constructed on top of the load to peak the tarpaulin. The tarpaulin compatible with the M871/M872 trailer comes equipped with an A-frame system.

c. Figure 3 shows side and top views of tarpaulin frameworks for use when manufactured equipment is not available.

SECTION III CARGO

11. EVEN-SIZE BOXES

The load should be centered on the trailerbed and cargo pushed tightly together. Any space between trailerbed sides and cargo should be blocked and braced using 2- by 4-inch dunnage. Dunnage is any material that can be used to fill empty space. If the load height is more than one tier, at least three crib-type blocks will be used. If the load fits evenly (fills all space in the cargo bed), then blocking and bracing is not necessary, nor is lashing normally required.

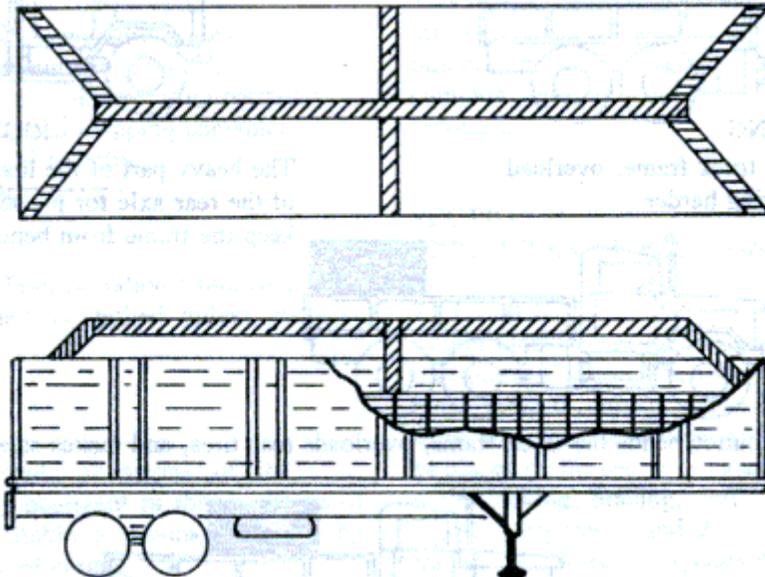


Figure 3. A-Frame Tarpaulin (Top and Side Views)

12. ODD-SIZE BOXES

a. A load of odd-size boxes should be centered on the vehicle bed with—

(1) Weight distributed as equally as possible.

(2) Heavy pieces of cargo forming the first tier (bottom layer).

b. Heavier items will be placed on the bottom with remaining cargo placed to fill in open spaces. For spaces where cargo cannot be used as a filler, blocking and bracing using 2- by 4-inch dunnage is required. Particular care should be taken when loading cardboard boxes, small cans, and other fragile cargo.

13. LARGE CYLINDRICAL CONTAINERS

Cylindrical containers should be centered on the trailerbed. Cylindrical containers should be lashed together using #9 wire rope. When lifting rings or lugs are available, they will be lashed to the containers in such a way as to balance the load during lifting. Large cylindrical containers will be blocked securely on every side to prevent shifting during transport. The preferred material for this is 4- by 4-inch dunnage. Figures 4 and 5 show the proper way to load and secure large cylindrical containers.

14. SMALL AND MEDIUM CYLINDRICAL CONTAINERS

Small and medium cylindrical containers should be placed towards the center of the trailer and to the rear against the tailgate. All spaces on the sides and front should be blocked with 2- by 4-inch crib-type blocking to at least two-thirds of the load height. When mixed loads are transported, heavy containers should never be placed on top of light containers. Figure 6 shows containers packed in even rows.

15. FIVE-GALLON FUEL CANS

Five-gallon fuel cans should be placed in the vehicle in rows of 13 each, and will not exceed 3 tiers in height. Any space on the sides or front will be blocked with 2- by 4-inch crib-type blocking. When mixed loads are transported, heavy containers should be placed on the bottom tier with lighter containers placed on the top.

16. TANK TRACKS OR TREADS

Tank tracks and treads are extremely heavy. A false bulwark should be constructed in the front of the trailer to prevent the load from shifting if a sudden stop occurs. The cargo should be centered in the trailer bed starting against the bulwark and working toward the rear. The cargo should be placed tightly together leaving vacant space on the sides and front. If the load is more than one tier high, 4- by 4-inch crib-type blocking will be used to fill vacant spaces. Any partial row must be placed on the trailer or vehicle center of balance and blocked on all sides where vacant

space exists. Crated tank tracks and treads should be distributed evenly in complete rows, four wide and four long, on the first tier, front to rear of the vehicle, and two wide and four long on the second tier. Loads should be blocked on all sides with 2- by 4-inch dunnage. Normally the limiting factor for transporting tank tracks or treads is the weight of each load. Figure 7 shows how tank track and treads should be loaded.

17. NUCLEAR WEAPON CONTAINERS

The use of nuclear weapon containers is limited, requirements are technical, and controls are stringent. Technical Bulletin (TB) 9-1100-8807-15 provides the technical information needed to move these containers.

18. AMMUNITION

Regardless of the size of the loads, the shipper will ensure ammunition and explosives are either strapped or blocked and braced according to Technical Order (TO) 11A-1-61. Requirements for ammunition are technical and the controls for blocking and bracing in TO 11A-1-61 are the only ones accepted.

19. CARGO-LOAD LIMITS

Table 1 lists vehicle cargo-load limits.

SECTION IV CONTAINERS

20. STUFFING

The load should be distributed evenly throughout the container with heavier items on the bottom. When pallets are used, double tiers are permissible if space permits. If the vertical opening is insufficient, pallets should be placed on the bottom and be topped with loose cargo. No palletized unit should exceed the maximum gross weight of the container. Individual boxes or crates weighing 2,000 pounds or more should be fitted with skids. While maximum use of space is desired, ease of off-loading at destination also must be considered.

21. CONTAINER-LOAD LIMITS

Table 2 lists container-load limits.

22. BLOCKING AND BRACING

Containers are easily damaged. The cost of damaged containers to the Government is high. Special care must be taken to keep loads from shifting. All spaces not stuffed must be filled with dunnage. When cargo requires bracing against container walls, a 4- by 8-foot sheet of $\frac{3}{4}$ -inch plywood should be placed against the container wall and properly braced using 2- by 4-inch dunnage to at least $\frac{3}{4}$ the cargo height. Doing this will reduce to a minimum the chances of puncturing the container walls. When possible, the load should be braced at the back of the container to prevent the cargo from spilling when the container doors are opened at the destination.

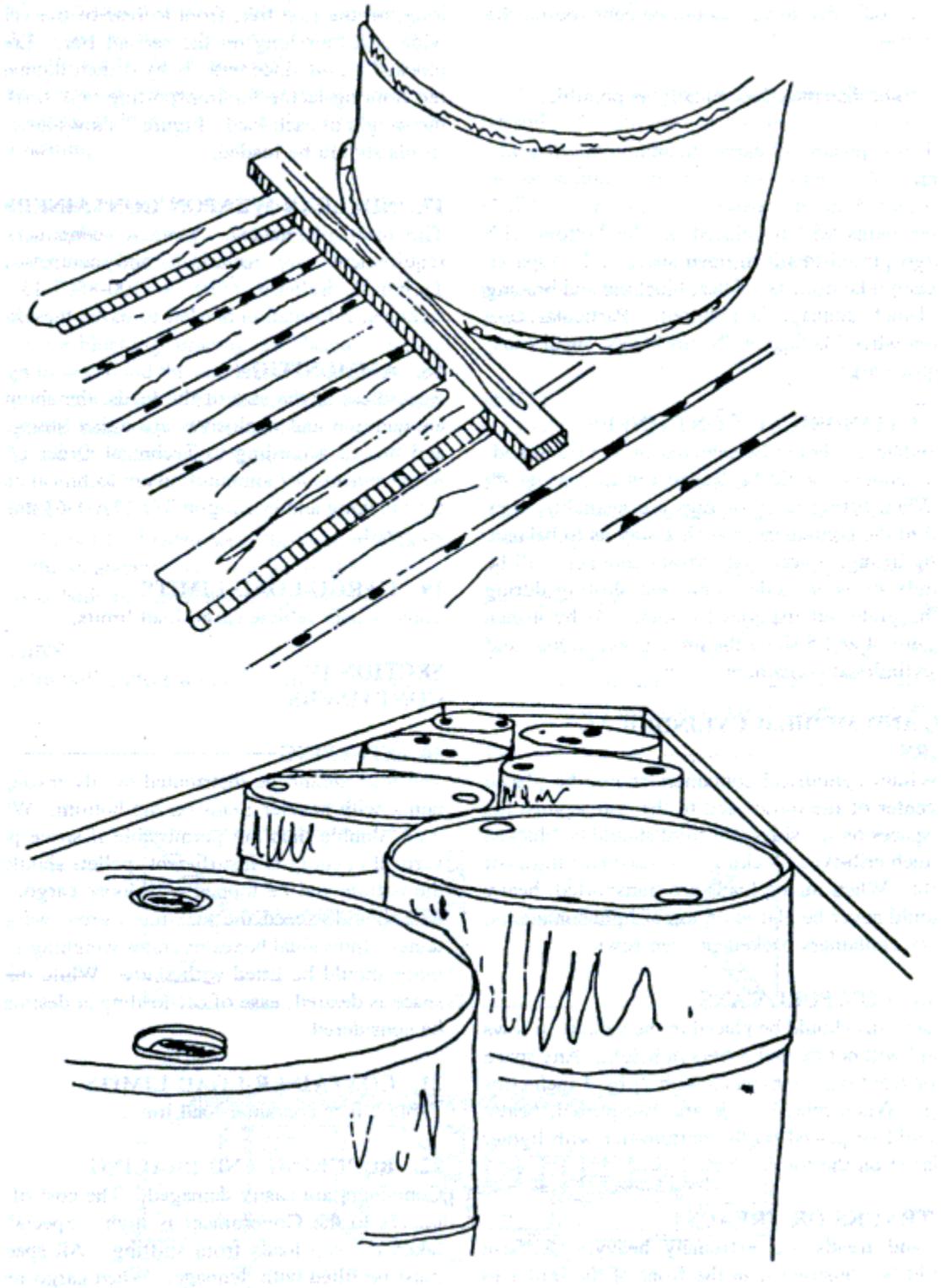


Figure 4. Loading and Securing Large Cylindrical Containers on M871 and M872 Trailers

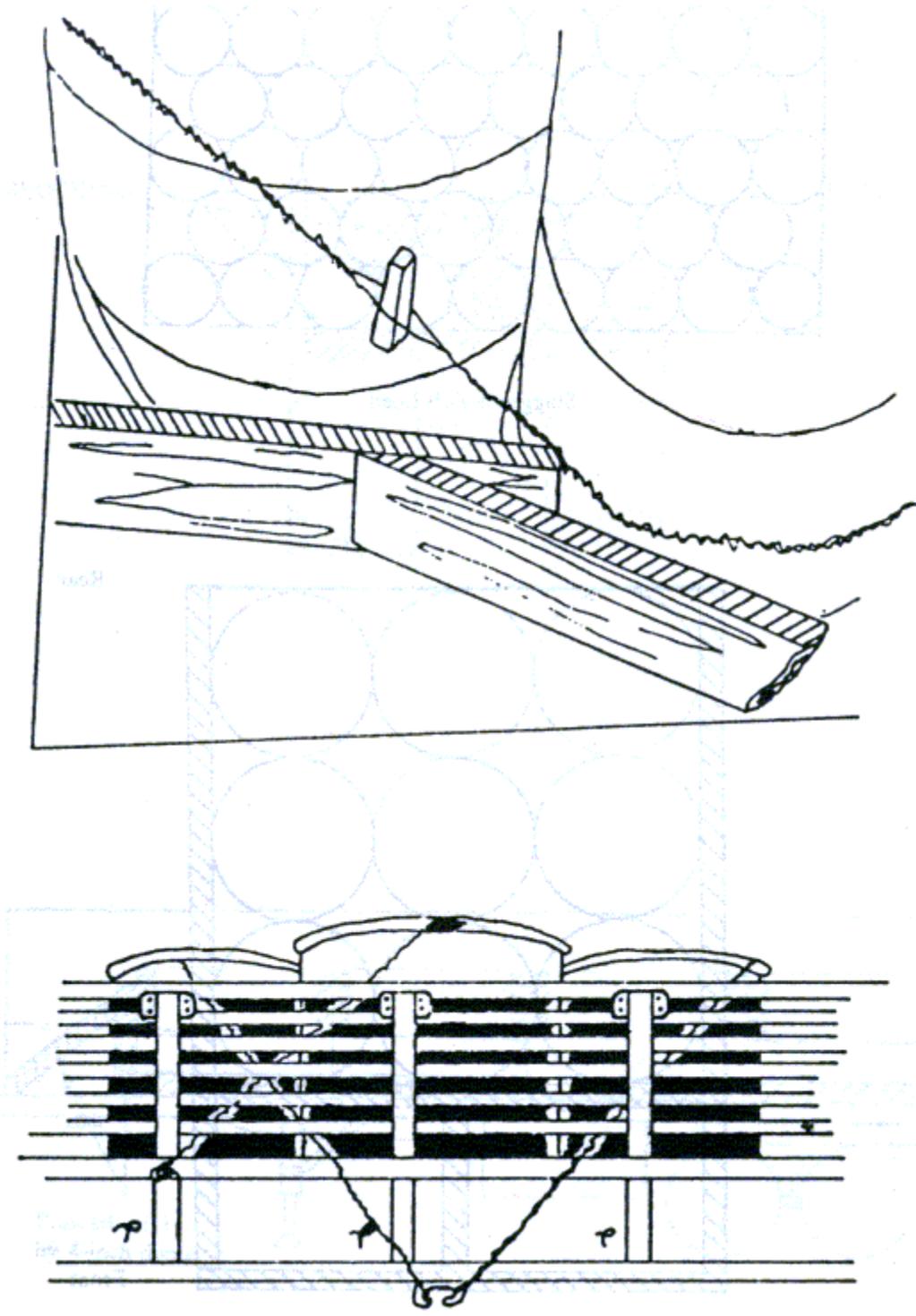
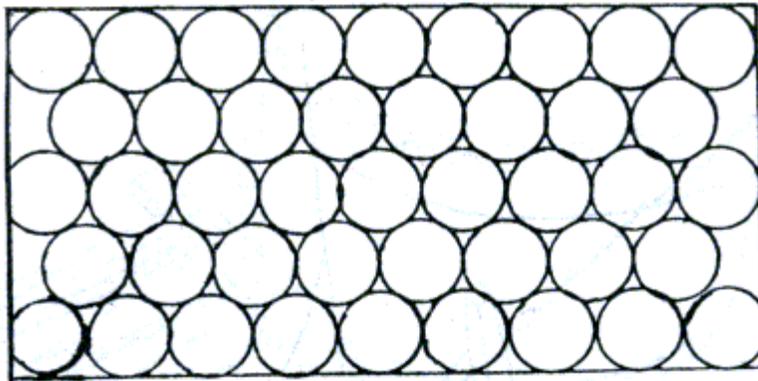
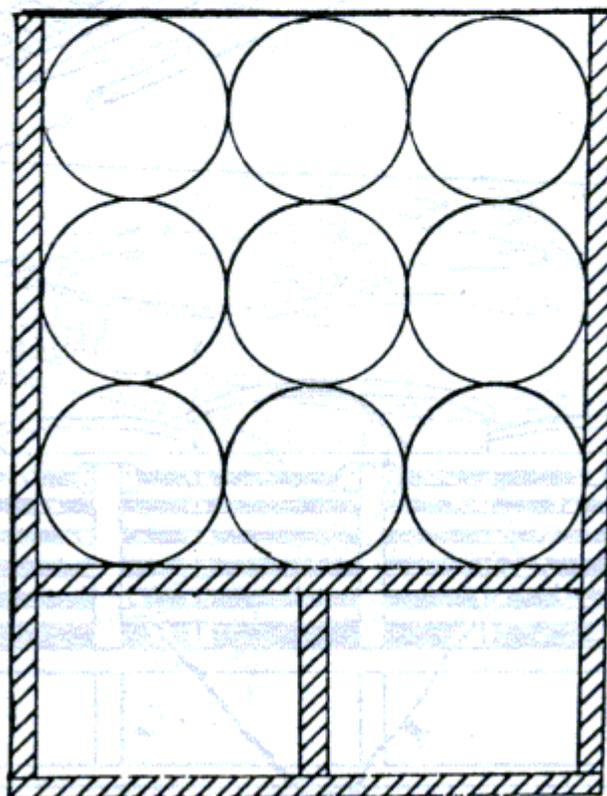


Figure 5. Large Cylindrical Containers on 2½-Ton and 5-Ton Truck Cargo Vehicles (Top and Side Views)



Staggered Full Load



Even Packing Partial Load

Figure 6. Medium Cylindrical Containers Packed in Even Rows (Top View)

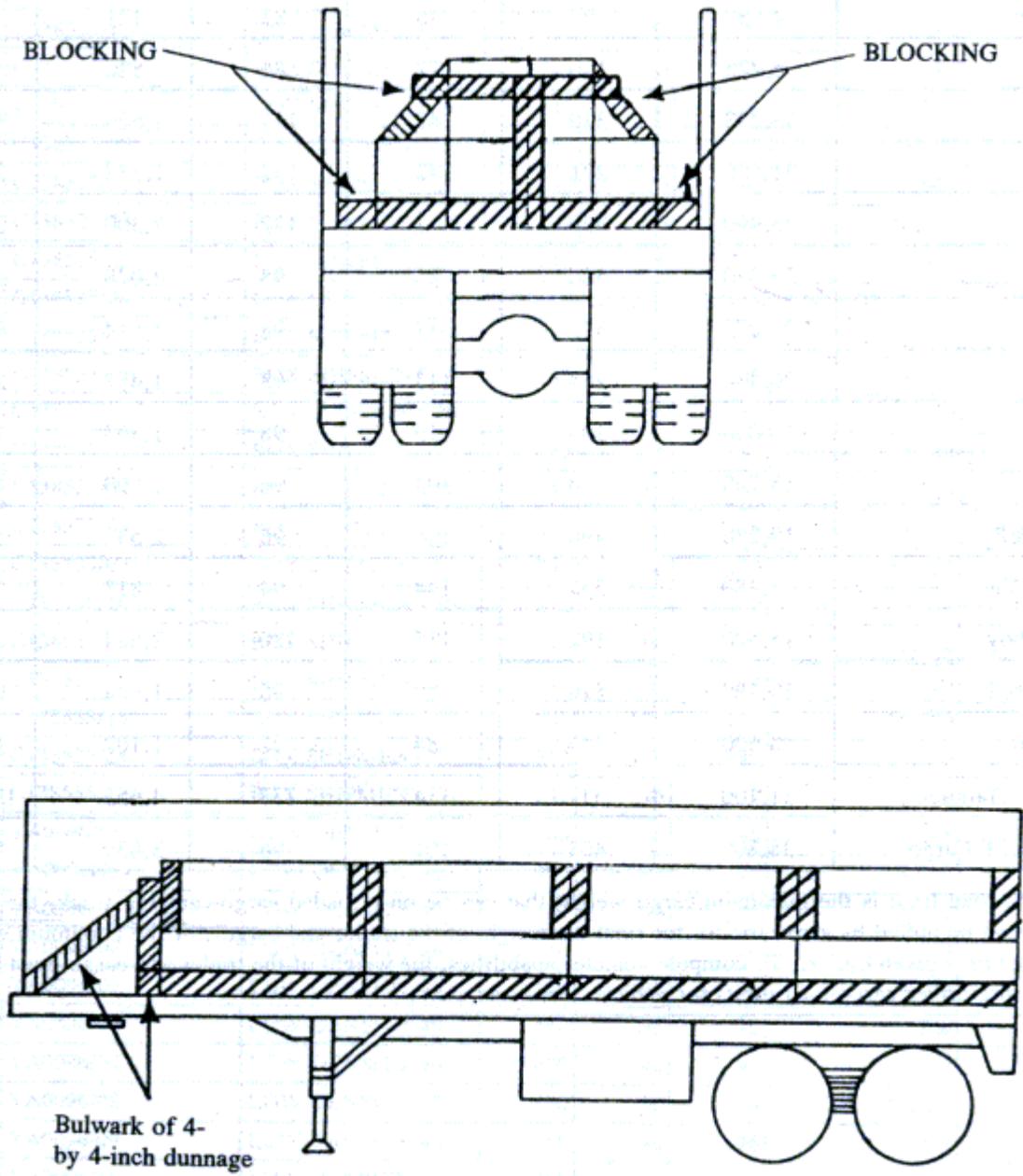


Figure 7. Tank Tracks or Treads on M871 and M872 Trailers (End and Side Views)

**Table 1
Cargo-Load Limits**

Type	Weight (Pounds)	Length (Inches)	Height (Inches)	Width (Inches)	Cargo (Cubic Feet)	Load (Pounds)
Panel Truck	4,250	97	46	87	121	6,250
Light Van	5,275	140	72	86	520	11,000
M911	38,233	370	142	115	2,629	38,233
M915	21,600	271	142	132	1,732	21,600
M920	25,490	320	142	132	2,300	25,490
M923	22,020	320	87	98	2,078	32,020
M925	22,070	327	87	98	1,614	32,070
M931	20,480	264	113	98	1,452	20,480
M878	16,030	193	119	98	1,303	16,030
M871 S&P	15,760	358	103	96	1,890	40,750
M872A3 S&P	19,280	490	106	96	2,532	87,280
M129A3 S-Van	15,480	336	144	94	813	24,000
M172 Lowboy	15,500	192	115	120	2,684	30,000
M870 Lowbed	19,180	510	70	96	1,984	99,180
SC209 Reefer	8,600	244	84	72	1,102	15,000
M747 HET Trailer	31,100	317	114	137	4,655	137,000
M977 HEMTT Cargo	38,800	401	101	96	3,639	58,800

NOTE: The load limit is the maximum cargo weight that can be on a loaded cargo-carrying truck, the maximum weight that can be pulled by a specific tractor (incl the weight of the trailer and cargo), or the maximum weight that can be loaded on a given trailer. To compute vehicle capabilities, the weight of the trailer and cargo must be known. TB 55-46-1 prescribes cargo-load limits for vehicles not listed above.

**Table 2
Container-Load Limits**

Item	Line Item Number	Description (in feet)	Length	Width (in inches)	Height	Empty Weight	Loaded Weight (in pounds)
MILVAN	C138525/15	BOX SHIPMENT 20	242	96	149	4,710	8,750
MILVAN	C138525/16	BOX SHIPMENT 20	242	96	149	5,740	13,750
MILVAN	C138525/17	BOX SHIPMENT 20	242	96	149	8,750	18,750
MILVAN	C138525/18	BOX SHIPMENT 20	242	96	149	9,780	13,750
MILVAN	C138525/19	BOX SHIPMENT 20	242	96	149	13,750	28,750
MILVAN	C138525/20	BOX SHIPMENT 20	242	96	149	13,750	33,750
MILVAN	C138525/21	BOX SHIPMENT 20	242	96	149	16,900	38,750
MILVAN	C138525/22	BOX SHIPMENT 20	242	96	149	16,900	43,750
MILVAN	C138525/23	BOX SHIPMENT 20	242	96	149	16,900	48,750
MILVAN	C138525/24	BOX/CHASSIS AND SINGLE AXLE (MILVAN ON CHASSIS)					
MILVAN	C138525/25	BOX SHIPMENT 20	242	96	149	1,275	5,740
MILVAN	C138525/26	BOX SHIPMENT 20	242	96	149	4,710	10,740
MILVAN	C138535/15	BOX SHIPMENT 20	242	96	149	5,770	15,740
MILVAN	C138535/01	BOX SHIPMENT 20	242	96	149	8,740	20,740
MILVAN	C138535/07	BOX SHIPMENT 20	242	96	149	9,780	25,740
MILVAN	C138535/08	BOX SHIPMENT 20	242	96	149	13,750	30,740
MILVAN	C138535/09	BOX SHIPMENT 20	242	96	149	13,750	35,740
MILVAN	C138535/10	BOX SHIPMENT 20	242	96	149	13,750	40,740
MILVAN	C138535/11	BOX SHIPMENT 20	242	96	149	16,900	45,740
MILVAN	C138535/12	BOX SHIPMENT 20	242	96	149	2,720	9,780
MILVAN	C138535/13	BOX SHIPMENT 20	242	96	149	16,900	41,900
MILVAN	C138535/24	BOX SHIPMENT 20	242	96	149	21,900	46,900
MILVAN	C138535/12	BOX SHIPMENT 20	242	96	149	21,900	51,900
SEAVAN	YA0096/01	LOW DENSITY 40	480	96	96	1,275	6,900
SEAVAN	YA0096/02	LOW DENSITY 40	480	96	96	4,600	12,800
SEAVAN	YA0096/03	LOW DENSITY 40	480	96	96	5,770	17,800
SEAVAN	YA0096/04	LOW DENSITY 40	480	96	96	8,740	22,800
SEAVAN	YA0096/05	LOW DENSITY 40	480	96	96	9,780	27,800
SEAVAN	YA0096/06	LOW DENSITY 40	480	96	96	13,720	32,800
SEAVAN	YA0096/07	LOW DENSITY 40	480	96	96	14,100	42,800
SEAVAN	YA0096/08	LOW DENSITY 40	480	96	96	16,220	47,800
SEAVAN	YA0096/09	LOW DENSITY 40	480	96	96	17,050	52,800
SEAVAN	YA0096/10	LOW DENSITY 40	480	96	96	18,900	57,800
SEAVAN	YA0096/11	LOW DENSITY 40	480	96	96	21,720	67,200
SEAVAN	YA0096/12	LOW DENSITY 40	480	96	96	2,250	13,300
SEAVAN	YA0096/13	LOW DENSITY 40	480	96	137	2,350	17,800
SEAVAN	YA0096/14	LOW DENSITY 40	480	96	137	5,740	22,800

23. CONTAINER EXPRESS

a. When more than one container express (CONEX) container is moved on a semitrailer, they should be lashed together at the corners using at least #9 wire. CONEX containers should be centered over the axle of the front wheel of the rear duals on an M871 trailer, and over the center dual of the M872 trailer. They should then be lashed to the trailer using chains and binders or $\frac{1}{2}$ -inch wire rope. This lashing should be done at 45° angles. Figure 8 shows the proper way to lash containers to M871 and M872 trailers.

b. CONEX containers may be loaded on the M35-series ($2\frac{1}{2}$ -ton) and the M923-series (5-ton) trucks. The CONEX container should be centered over the axle of the front wheel of the rear dual wheels and lashed to the lashing rings with at least 5,000-pound chain-and-load binder or $\frac{1}{2}$ -inch wire rope. These containers also may be loaded into the M988-series heavy expanded mobility tactical truck (HEMTT). The CONEX should be centered in the bed of the vehicle and lashed down. As with all cargo vehicles, crib-type dunnage of 4- by 4-inch dunnage should be placed on the cargo floor to block-in the bottom of the CONEX. Figure 9 shows the proper way to load CONEX containers on M35- and M923-series vehicles. Figure 10 shows the proper way to load CONEX containers on M988 HEMTT-series vehicles.

SECTION V VEHICLES

24. LOADING

The limiting factor in loading vehicles is the vehicle's length and width. Height and weight usually will fall within allowable limits. Table 3 shows how many vehicles can be loaded on each type of 37th TRANSCOM equipment based on dimensions.

25. BLOCKING AND BRACING M113 OR M577 VEHICLES ON M871/M872 SEMITRAILERS

The M-2 Bradley fighting vehicle may be loaded only on an M870 lowbed or M747 heavy equipment transporter (HET) trailer.

a. General Instructions.

(1) Loading M577 vehicles is similar to loading M113 vehicles except for the overhang on the sides.

(2) Handbrakes on M113 and M577 vehicles will be set. Gearshift levers for automatic or conventional transmissions will be placed and wired in neutral positions.

(3) Wire rope will be made taut enough to cause a slight vehicle body depression.

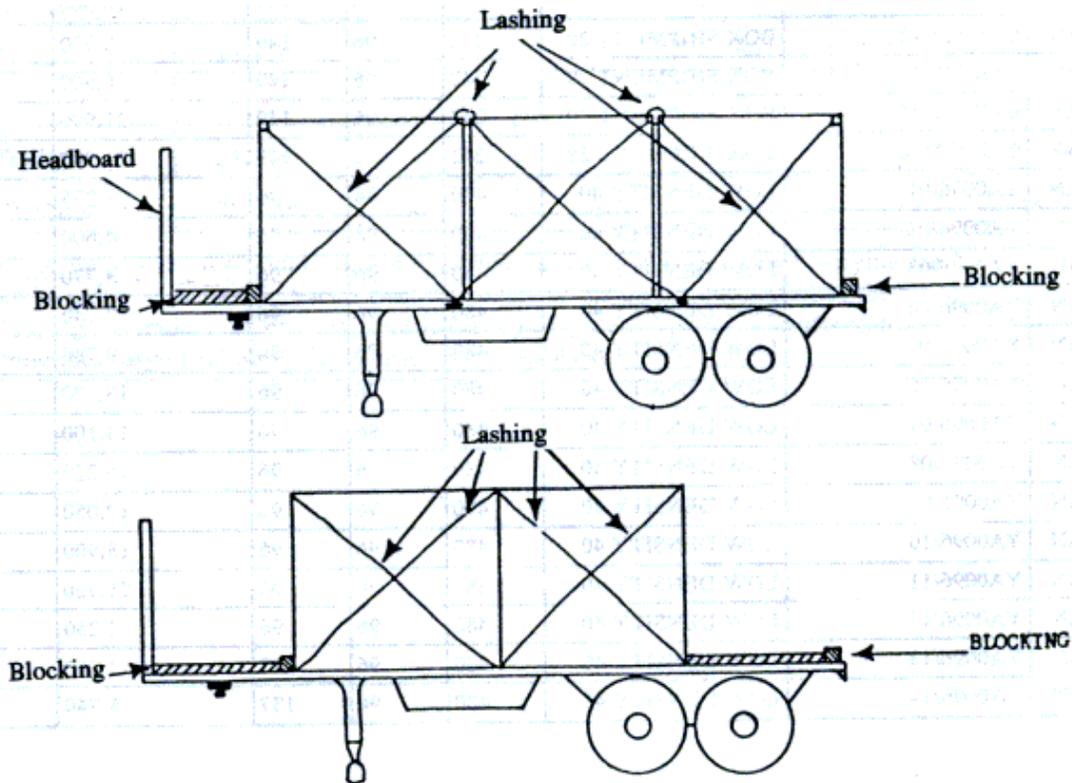


Figure 8. Lashing CONEX Containers on M871 and M872 Trailers

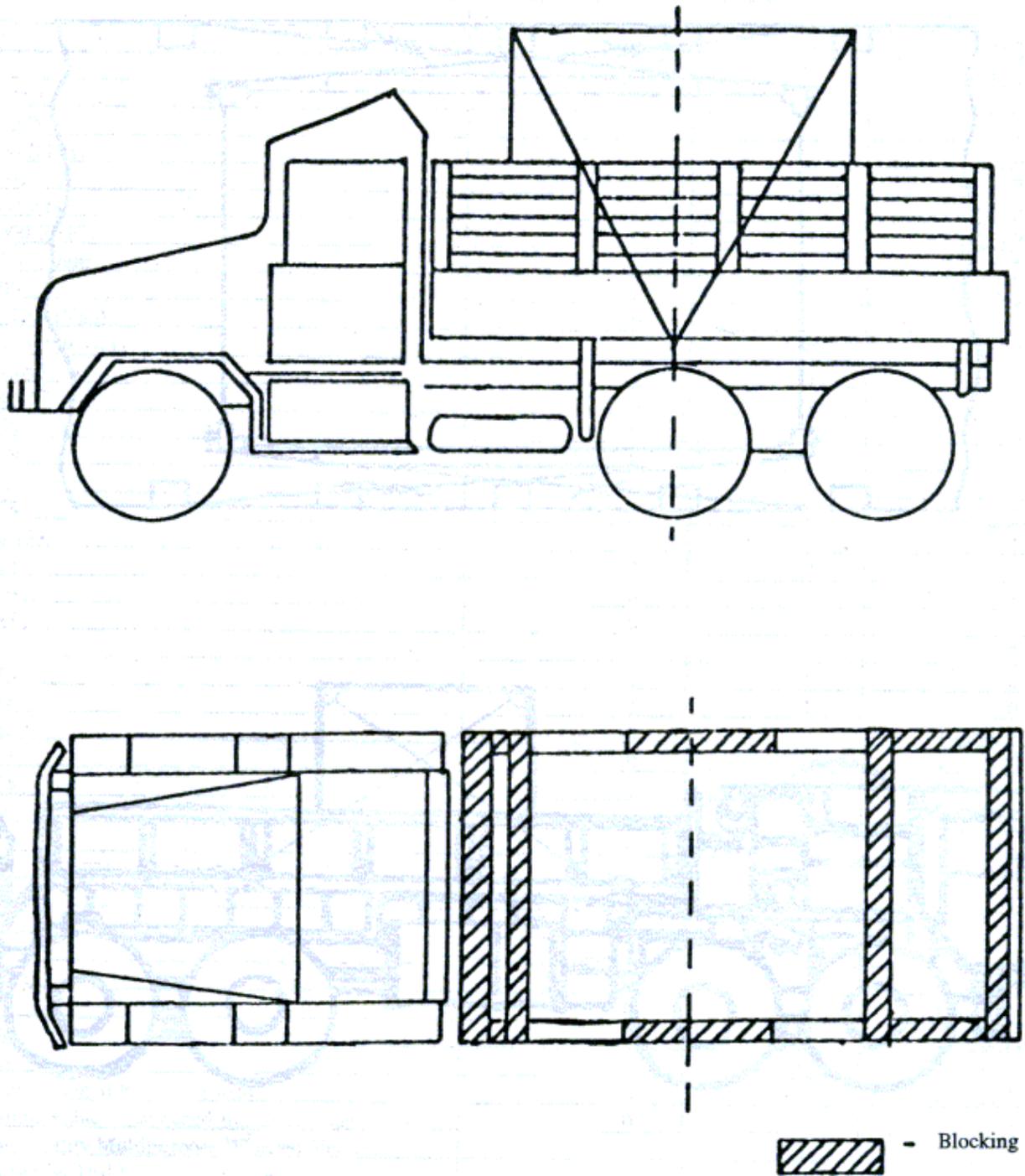


Figure 9. CONEX Containers on M35- and M923-Series Vehicles

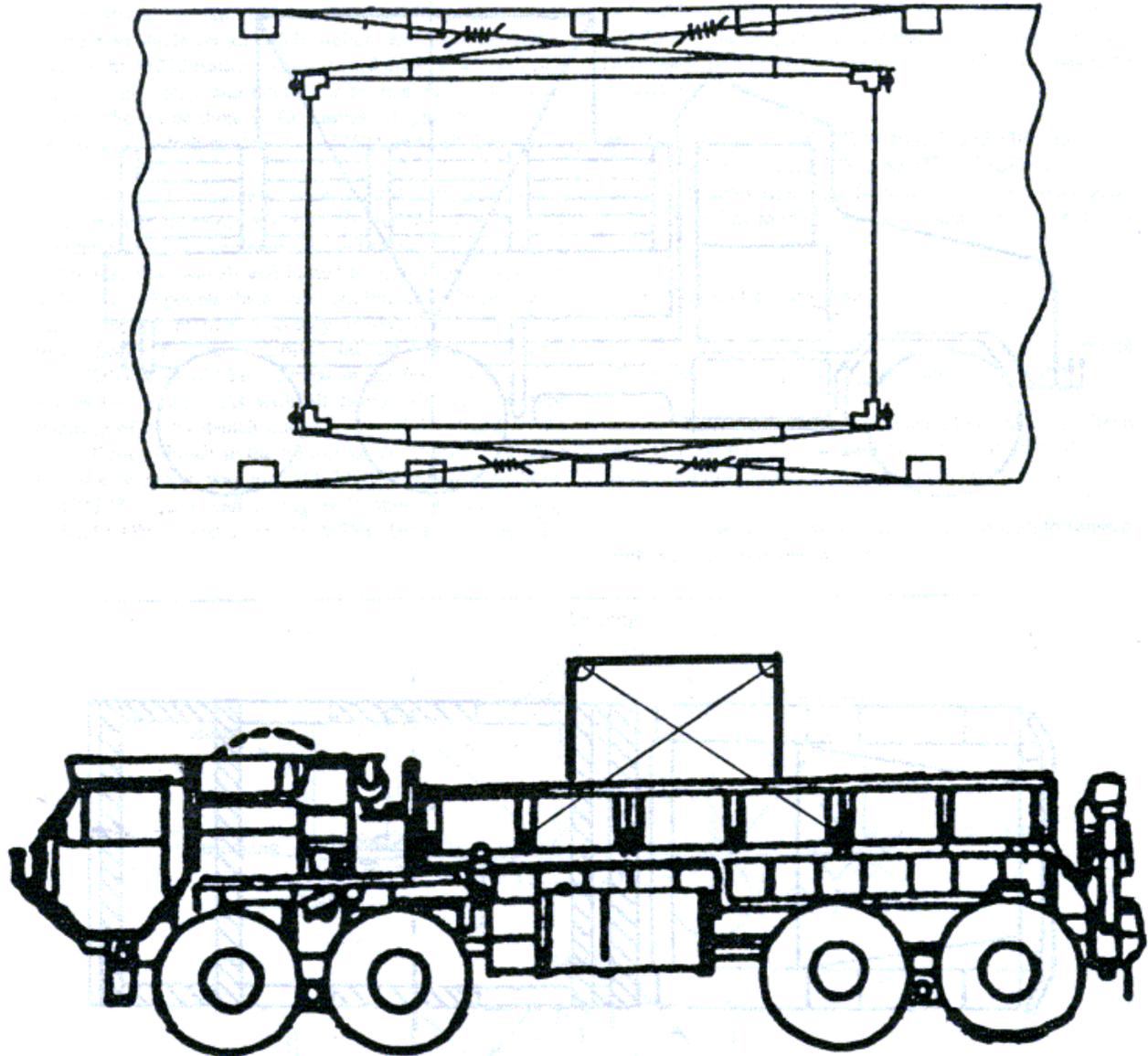


Figure 10. CONEX Containers on M988 HEMTT-Series Vehicle

Table 3
Load Limits for 37th TRANSCOM Trailers

Type Vehicle (note 1)	Stake-and-Platform Series (M871/M872)	Lowbed M172, 25 Ton	Heavy Equipment Transporter
M-1	0	0	1 (note 2)
M-2	0	1	1 (note 2)
M-3	0	1	1 (note 2)
M9 ACE	0	1	1
M35A2C	1	1	0
4,000 RTFL	2	2	0
M10A	0	1	1 (note 2)
6,000 RTFL	1	1	1 (note 2)
10,000 RTFL	0	1	1 (note 2)
40-Ton Crane	0	0	1 (note 2)
M106	2	1	1 (note 2)
M109A3 (Van)	0	1	0
M109 (Howitzer)	0	0	1 (note 2)
M113A3	2	1	0
M54A2C	0	1	0
M548	0	1	0
M559	0	0	1 (note 2)
M577	1	1	1
M578	0	0	1 (note 2)
M60A3	0	0	1
M728	0	0	1
M746	0	0	1
M747	0	0	1
M754	0	1	1
M813	1	1	0
M818	1	1	0
M88A1	0	0	1 (note 2)
M911	0	0	1 (note 2)
M915	0	1	0
M916	0	1	0
M920	0	1	1
M923	1 (note 2)	1	1
M925	1 (note 2)	1	1
M929	0	1	1
M931	1 (note 2)	1	1
M935A2	0	0	1 (note 2)
M977	0	0	1 (note 2)
M978	0	0	1 (note 2)
M984	0	0	1 (note 2)
Multiple-Launch Rocket System	0	1	1 (note 2)
Armored Vehicle Launched Bridge (Bridge only)	0	1	0
High-Mobility Multipurpose Wheeled Vehicle	2	1	0
Commercial Utility Cargo Vehicle	2	1	0
M1009	2	1	0
M1008	2	1	0
M149 (½-ton)	4	2	3

NOTES: 1. TB 55-46-1 lists dimensions of military wheeled, tracked, towed, and containerized equipment for vehicles not listed in this table.
2. Special routing is required for M911/M747 HETs caused by load height.

b. The 1/2-Inch Wire Rope Tiedown Method. Figure 11 shows items needed to block and tie down M113 and M577 vehicles on M871/M872 semitrailers.

(1) The M113 or M577 vehicle will be centered length-wise on the M871/M872 semitrailer.

(2) The front right and left sides will be blocked with blocks cut from 8- by 8-inch material. The longest angle end (45°) will be placed under the right and left tracks at the front (fig 12). Nails will be toed to the semitrailer floor with thirty penny (30D) nails (four nails on the front, two nails on the rear, and two nails on each side of each block.)

(3) The rear right and left sides will be blocked the same way as the front.

(4) Cleats will be cut from one piece of 2- by 4-inch lumber the same length as the tracks bearing on the semitrailer floor with 16D nails.

(5) Spreaders will be cut from one piece of 2- by 4-inch lumber. Spreaders will be placed crosswise between the end and center of the cleats. Each piece will be nailed to the semitrailer floor with four 16D nails.

(6) One shackle will be secured to each towing lug (two at the front of the vehicle and two at the rear.)

(7) One thimble will be placed under each stake pocket used.

(8) One side of the turnbuckle will be secured through each shackle and the wire rope attached to the opposite side.

(9) Wire rope ends will be secured with four clamps after passing the wire rope ends through the stake pocket and thimble.

26. BLOCKING AND BRACING VEHICLES ON LOWBED TRAILERS

a. Under the 1/2-inch wire rope method in paragraph 25b, the vehicle to be loaded must be placed as far forward as possible until flush with the trailer.

b. Wheeled and tracked vehicles will be blocked as if they were being loaded on a semitrailer. If there is enough space after the vehicle being transported is flush with the trailer front, blocking will be done as prescribed in paragraph 25.

c. Wire rope (1/2-inch) will be looped through the towing shackles to the closest trailer stake pocket.

d. Transmissions will be put in neutral positions. Handbrakes will be set.

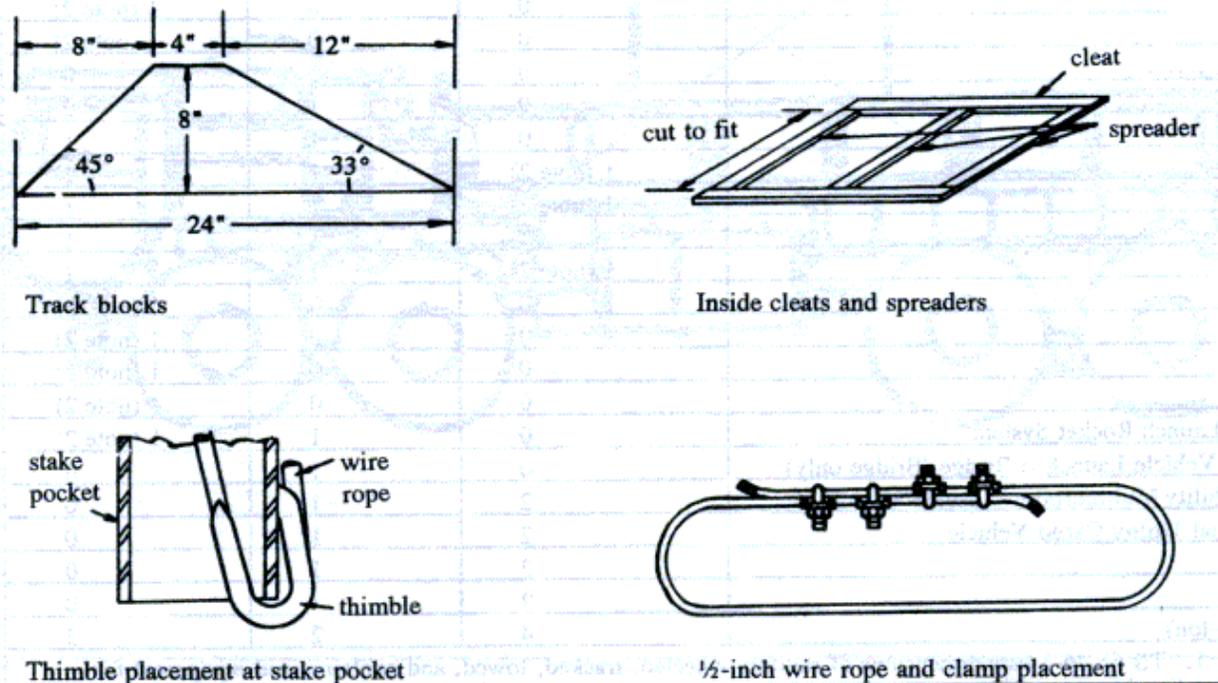
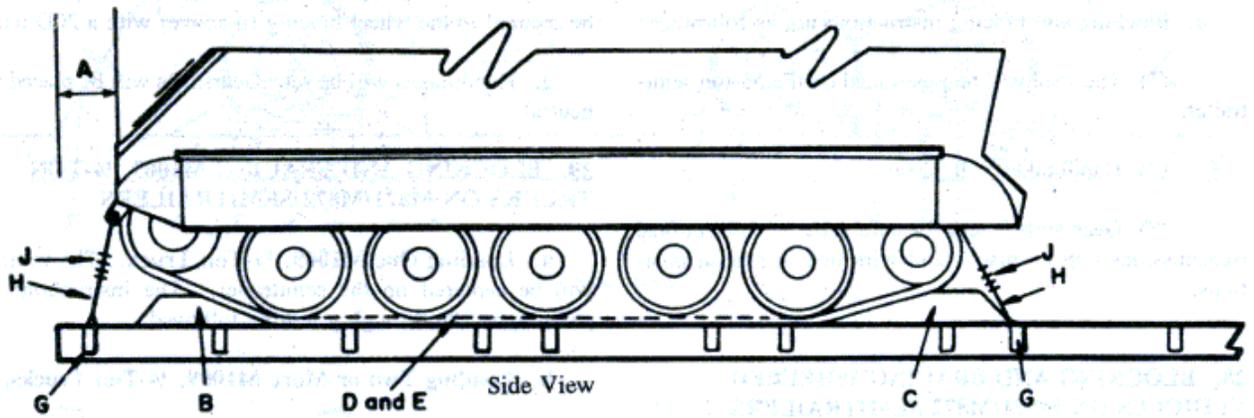


Figure 11. Blocking and Tie-Down Items



- A. Distance from front of semitrailer to front of load
- B. Front track block
- C. Rear track blocks
- D. Inside cleat
- E. Inside cleat spreader
- F. Shackle
- G. Thimble
- H. 1/2-inch wire rope, double, or 1/2 inch chain
- J. Clamp or binder
- K. Turnbuckle

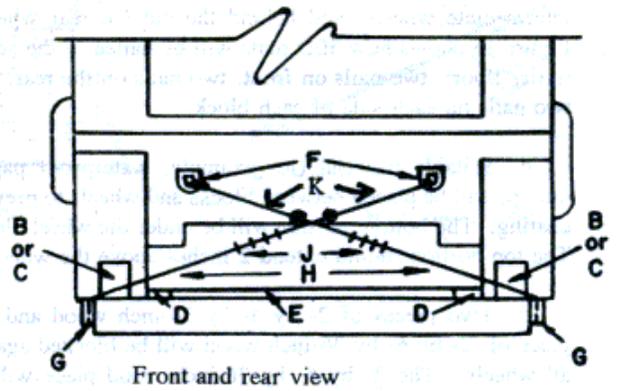


Figure 12. Blocking and Tie-Down Diagram and Rear Views

27. BLOCKING AND BRACING TRACKED VEHICLES ON 55-TON SEMITRAILERS

a. Although the HET is compatible with most vehicles, it is not economical to use HETs to move vehicles smaller than class 50.

b. Blocking and bracing instructions are as follows:

(1) The load will be positioned on the 55-ton semitrailer.

(2) Handbrakes will be set.

(3) Gear shift levers for automatic or conventional transmissions will be placed and wire tied in neutral positions.

28. BLOCKING AND BRACING WHEELED VEHICLES ON M871/M872 SEMITRAILERS

a. Figure 13 shows a six-wheeled vehicle blocked and braced on an M871/M872 trailer.

b. Wheel blocks will be cut from 8- by 8-inch material with 45° angles. The 45° portions of the blocks will be placed against front and rear wheels, in front of the outside intermediate wheels, and behind the outside rear wheels. Figure 13 shows how 30D nails will be nailed to the semitrailer floor: two nails on front, two nails on the rear, and two nails on each side of each block.

c. Suitable material (for example, waterproof paper, burlap) will be placed between blocks and wheels to prevent chafing. The bottom portion will be under the wheel block. The top portion should extend 2 inches above the wheel.

d. Two pieces of 2- by 4- by 36-inch wood and one piece of 2- by 6- by 36-inch wood will be blocked against all wheels. The 2- by 6- by 36-inch wood piece will be blocked against the semitrailer floor and secured with 30D nails. The two pieces of 2- by 4- by 36-inch wood will be nailed on the top of the 2- by 6- by 36-inch wood piece (fig 13c). Vehicles too wide to have blocks placed against the outside will be blocked with wood against the inside of the wheels.

e. At each towing shackle, four strands of #9 gauge twisted wire will be attached from the towing shackle to tie-down points on the trailer. A 2- by 2-inch wood piece will be inserted between wires and twisted for tightness. One

end of the wood piece will be secured to the semitrailer floor with a 20D nail.

f. The #9 gauge wire will be passed through the front and rear wheels and looped through the stake pocket. The wires will be crossed and tightened with a 2- by 2-inch wood piece as in e above. One end of the wood piece will be secured to the wheel bracing (d above) with a 20D nail.

g. Handbrakes will be set. Gearshifts will be placed in neutral.

29. BLOCKING AND BRACING M1009, ¼-TON TRUCKS ON M871/M872 SEMITRAILERS

a. **Loading One M1009, ¼-Ton Truck.** The vehicle will be centered on the semitrailer. The instructions in paragraphs 28b through g will be followed.

b. **Loading Two or More M1009, ¼-Ton Trucks.**

(1) When two or more vehicles are loaded on a semitrailer, each will be centered on the trailerbed with approximately 2 feet between vehicles. The instructions in paragraphs 28b through g will be followed.

(2) When three or more trailers are loaded on a trailer, blocking and bracing will be similar to loading two vehicles. Specific instructions for loading three or more trailers are as follows:

(a) Spare tires will be removed, placed on the trailer bed, lashed, and secured using either 5,000-pound ratchet devices or 1-inch rope.

(b) The tongue of the first trailer will be placed flush against the headboard and blocked and braced against trailerbed.

(c) The second trailer will be loaded by placing the tongue under the first trailer, lashing to the trailerbed, and blocking as in (b) above.

(d) The third trailer will be loaded using the same method as (c) above.

(e) Each trailer will be tied down at each corner by running #9 gauge wire or ¼-inch cable from the tie-down on each wheel hub to the tiedown on the trailer floor.

(f) Figure 14 shows the proper loading of three or more trailers on the M871/M872 trailer.

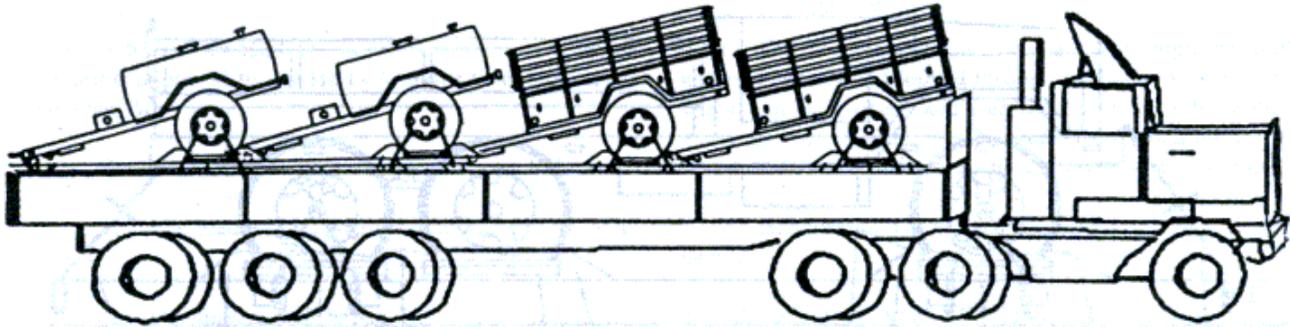


Figure 14. Three or More Trailers on M871/M872 Trailer

**APPENDIX A
REFERENCES**

Department of Transportation Regulation, 49CR, Georges
Tariff No 19

European Agreement Concerning the Transportation of
Hazardous Goods by Highway

German Ordinance Concerning the Transportation of
Hazardous Material by Road

Field Manual 55-15, Transportation Reference Data

Technical Manual 9-1300-206, Ammunition and Explosive
Standards

Technical Manual 3-250, Storage, Shipment, Handling, and
Disposal of Chemical Agents and Hazardous Chemicals

Technical Bulletin 55-46-1, Standard Characteristics
(Dimensions, Weight, and Cube) for Transportability of
Military Vehicles and Other Outsize/Overweight Equipment

Technical Order 11A-1-61, Storage and Outloading
Drawings for Conventional Ammunition

USAREUR Regulation 55-1, United States Army Motor
Vehicle Operations on Public Roads

USAREUR Regulation 55-3, USAREUR Movements
Control System Handbook

USAREUR Regulation 55-4, Joint Transportation of
Hazardous Materials

USAREUR Regulation 55-40, USAREUR Wartime
Movement Program

USAREUR Regulation 55-355, Joint Transportation and
Traffic Management Regulation, Central Europe

37th Transportation Command Regulation 55-108, Highway
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