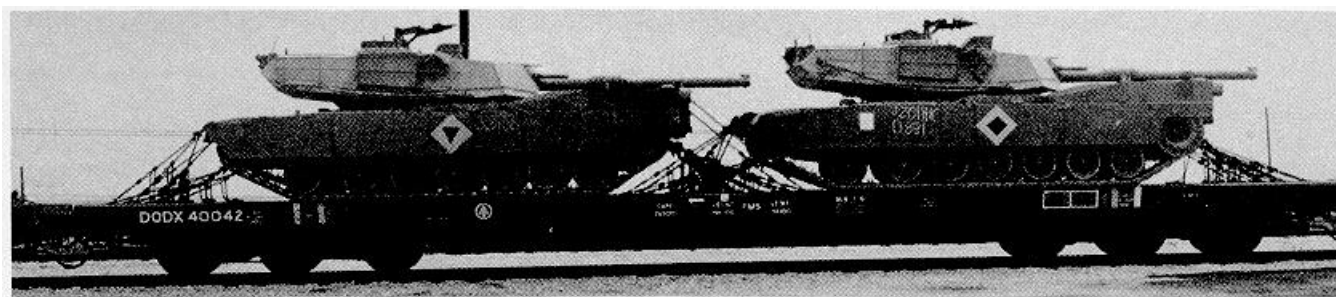


TECHNICAL MANUAL

TRANSPORTABILITY GUIDANCE
TRANSPORT OF CARGO ON THE RAILCAR
FLAT, 140-TON-CAPACITY
(NSN 2220-01-58-6377)



HEADQUARTERS, DEPARTMENT OF THE ARMY

9 JANUARY 1987

TECHNICAL MANUAL }
 No. 55-2220-058-14 }

HEADQUARTERS
 DEPARTMENT OF THE ARMY
 WASHINGTON, DC, 9 January 1987

**TRANSPORTABILITY GUIDANCE
 TRANSPORT OF CARGO ON THE RAILCAR,
 FLAT, 140-TON-CAPACITY
 (NSN 2220-01-058-6377)**

	<i>Paragraph</i>	<i>Page</i>
CHAPTER 1. INTRODUCTION		
Purpose and Scope	1-1	1-1
Reporting of Recommendations and Comments	1-2	1-1
Safety	1-3	1-1
Definitions of Warnings, Cautions, and Notes	1-4	1-1
2. TRANSPORTABILITY DATA		
Scope	2-1	2-1
Description	2-2	2-1
Preparation of the Flatcar	2-3	2-3
General Tiedown Instructions.....	2-4	2-3
Securing Tiedown Devices to Empty Cars	2-5	2-4
CHAPTER 3. SAFETY AND GENERAL INSTRUCTIONS		
SECTION I. SAFETY		
Chain Tiedown Inspection.....	3-1	3-1
Safety Instructions	3-2	3-1
II. GENERAL INSTRUCTIONS		
Hazardous and Dangerous Characteristics.....	3-3	3-1
Freight Classification	3-4	3-1
CHAPTER 4. TRANSPORT OF ONE OR TWO M1 (GENERAL ABRAMS) TANKS		
Scope	4-1	4-1
General	4-2	4-1
Loading M1 Tanks	4-3	4-1
5. TRANSPORT OF ONE OR TWO M60-SERIES TANKS OR M728 COMBAT ENGINEER VEHICLES		
Scope	5-1	5-1
General	5-2	5-1
Loading M60-Series Tanks	5-3	5-1
Loading M728 Combat Engineer Vehicles	5-4	5-7
6. TRANSPORT OF ONE OR TWO M88 RECOVERY VEHICLES		
Scope	6-1	6-1
General	6-2	6-1
Loading M88 Recovery Vehicles	6-3	6-1
7. TRANSPORT OF ONE OR TWO M109-SERIES SELF-PROPELLED HOWITZERS		
Scope	7-1	7-1
General	7-2	7-1
Loading M109-Series Self-Propelled Howitzers.....	7-3	7-1
8. TRANSPORT OF CONTAINERS		
Scope	8-1	8-1
General	8-2	8-1

*This manual supersedes TM 55-2220-058-14, 1 January 1984 and Interim. Change No. 101, 4 October 1985.

APPENDIX

A.	REFERENCE S	A-1
B.	MANUFACTURER PARTS LIST	B-1

LIST OF ILLUSTRATIONS

Figure No.	Title	Page
2-1	Plan and side view of 140-ton flatcar	2-2
2-2	Diagram for securing tiedown devices empty cars.....	2-7
2-3	Assembly A	2-8
2-4	Assemblies B and C	2-9
2-5	Assembly D	2-10
4-1	Chain tiedown arrangement for one M1 tank	4-2
4-2	Chain tiedown arrangement for two M1 tanks facing the same direction	4-4
4-3	Wire rope securement of M1 gun tube (suggested)	4-5
4-4	Front view of M1 tanks loaded and restrained on 140-ton DODX flatcar	4-6
4-5	Rear view of M1 tank loaded and restrained on 140-ton DODX flatcar	4-7
4-6	Between tank arrangements of chain tiedown devices.....	4-8
5-1	Chain tiedown arrangement for one M60 tank	5-2
5-2	Front view of M60 tank loaded and restrained on 140-ton DODX flatcar	5-3
5-3	Rear view of M60 tank loaded and restrained on 140-ton DODX flatcar	5-4
5-4	Chain tiedown arrangement for two M60 tanks facing the same direction	5-6
5-5	Chain tiedown arrangement for one M728 combat engineer vehicle and one M60 tank	5-8
6-1	Chain tiedown arrangement for one M88 recovery vehicle	6-2
6-2	Chain tiedown arrangement for two M88 recovery vehicles	6-4
6-3	Front view of M88 recovery vehicle loaded and restrained on 140-ton DODX flatcar.....	6-5
6-4	Closeup of alternating hook placement on center-front ring of M88	6-6
6-5	Rear view of M88 recovery vehicle loaded and restrained on 140-ton DODX flatcar	6-7
6-6	Three shackle arrangement for center-front tiedown of M88	6-8
7-1	Chain tiedown arrangement for One M109 self-propelled howitzer	7-2
7-2	Chain tiedown arrangement for two M109 howitzers.....	7-4
8-1	Three 20-foot ISO containers secured in pedestals	8-2
8-2	One 40-foot ISO container and one 20-foot ISO container secured in pedestals.....	8-3
B-1	Ratchet handle	B-2
B-2	Anchor/chain assembly	B-3
B-3	Alloy shackle	B-4
B-4	Alloy master ring	B-5

Table No.	Title	Page
4-1	Bill of Materials for Loading and Securing One M1 Tank	4-9
4-2	Application of Materials for Securing One M1 Tank	4-9
4-3	Application of Materials for Securing Two M1 Tanks Loaded Front to Tail	4-10
4-4	Application of Materials for Securing One M1 Tank Facing the Opposite Direction from that Shown in Figure 4-1 (For location of "items" refer to fig 4-1).....	4-11
4-5	Application of Materials for Securing Two M1 Tanks Facing the Opposite Direction from that Shown in Figure 4-2 (For location of "items" refer to fig 4-2)	4-11
5-1	Bill of Materials for Loading and Restraining One M60 Series Tank	5-9
5-2	Application of Materials for Loading and Securing One M60 Tank (Fig 5-1).....	5-9
5-3	Application of Materials for Loading and Securing Two M60 Tanks (Fig 5-2).....	5-10
5-4	Application of Materials for Loading and Securing One M60 Series Tank Facing the Opposite Direction from that Shown in Figure 5-1	5-10
5-5	Application of Materials for Securing Two M60 Series Tanks Facing the Opposite Direction from that Shown in Figure 5-2	5-11
5-6	Bill of Materials for Loading and Securing One M728 Combat Engineer Vehicle and One M60 Tank	5-12
5-7	Application of Materials for Loading and Securing One M728 Combat Engineer Vehicle and One M60 Tank (Fig 5-5)	5-12
5-8	Application of Materials for Loading and Securing One M728 Combat Engineer Vehicle and One M60 Series Tank Facing the Opposite Direction from that Shown in Figure 5-3	5-14
6-1	Bill of Materials for Loading and Securing One M88 Recovery Vehicle	6-9
6-2	Application of Materials for Securing One M88 Recovery Vehicle (Fig 6-1)	6-9
6-3	Application of Materials for Securing Two M88 Recovery Vehicles (Fig 6-2)	6-9

Table No.	Title	Page
6-4	Application of Materials for Securing One M88 Recovery Vehicle Facing the Opposite Direction from that Shown in Figure 6-1 (For location of "items" refer to fig 6-1).....	6-10
6-5	Application of Materials for Securing Two M88 Recovery Vehicles Facing the Opposite Direction from that Shown in Figure 6-2 (For location of "items" refer to fig 6-2).....	6-11
7-1	Bill of Materials for Loading and Securing One M109 Self-Propelled Howitzer	7-5
7-2	Application of Materials for Securing One M109 Self-Propelled Howitzer (Fig 7-1).....	7-5
7-3	Application of Materials for Securing Two M109 Self-Propelled Howitzers (Fig 7-2)	7-6
7-4	Application of Materials for Securing One M109 Howitzer Facing the Opposite Direction from that Shown in Figure 7-1 (For location of "items" refer to fig 7-1)	7-6
7-5	Application of Materials for Securing Two M109 Howitzers Facing the Opposite Direction from that Shown in Figure 7-2 (For location of "items" refer to fig 7-2)	7-7

CHAPTER 1 INTRODUCTION

1-1. Purpose and Scope

a. This manual provides guidance for transporting certain military cargo and containers on the 68-foot, 140-ton, chain-tiedown DODX flatcar. Included are procedures for loading, tying down, and unloading items of military equipment and containers that are likely to be transported on the 140-ton flatcar. This manual is intended for use by transportation officers or other persons responsible for shipping or receiving military cargo in CONUS.

b. In special situations, other tracked vehicles may be transported on the 140-ton flatcar. However, before a new loading procedure can be adopted, detailed drawings and photographs must be submitted to MTMCTEA for analysis. Write to the address in paragraph 1-2 or call commercial (804) 599-1107, AUTOVON 927-4646, or FTS 988-4646 for specifics.

c. Where appropriate, metric equivalents are shown in parentheses following dimensions or other measurements. References are cited in the appendix.

1-2. Reporting of Recommendations and Comments

Users of this manual are asked to submit comments and recommended changes for its improvement. Comments and recommendations should be listed on DA Form 2028, Recommended Changes to Publications and Blank Forms, and sent to Commander, Military Traffic Management Command Transportation Engineering Agency, ATTN: MTTTR (F. Mika), PO Box 6276, Newport News, Virginia 23606-0276. Electrically transmitted messages should be addressed to CDR MTMCTEA FT EUSTIS VA/MTT-TR//.

1-1

1-3. Safety

Safety measures are prescribed in chapter 3 and in other chapters as required.

1-4. Definitions of Warnings, Cautions, and Notes

When used in this manual, warnings, cautions, and notes emphasize important or critical guidance. They are used for the following conditions:

- a. *Warning.* Instructions that, if not followed, could result in injury to or death of personnel.
- b. *Caution.* Instructions that, if not strictly observed, could result in damage to, or destruction of, equipment.
- c. *Note.* An operating procedure that must be emphasized.

CHAPTER 2

TRANSPORTABILITY DATA

2-1 Scope

This chapter contains the description, characteristics, and other data pertaining to the 68-foot, 140ton, chain-tiedown DODX flatcar, which will be referred to throughout this manual as either "the flatcar" or "the car." This chapter also provides necessary data for proper loading and use of the flatcar.

2-2. Description

a. *General.* The 140-ton flatcar is a heavy-duty, six-axle flatcar, with end-of-car cushioning to reduce impact loads on the cargo. Its metal deck has four lengthwise channels that holds 50 chain-tiedown assemblies, two of which are spares. Each chain tiedown assembly consists of an anchor that is movable in the channels, two coupling links, a loadbinder (turnbuckle), a compression unit, and another coupling link, which is attached to a ½ inch-wide alloy-steel chain, about 6 ½ feet (1.98 m) long, with a sling hook on the load attachment end and a claw hook on the loadbinder end. Twelve 4inch-diameter shackles and two 7-inch-diameter rings are furnished loose with each car. (See app B, figs B-1 through B-3.) One additional ring or shackle is required per M88.

b. *Dimension.* The flatcar, including the couplers, is about 874 inches (22.20 m) long. Its cargo deck is 816 inches (20.73 m) long. The deck width of flatcars with serial numbers 40000 through 40100 is 123 inches (3.12 m); the deck width of flatcars with serial numbers 40101 and up is 125 inches (3.17 m). The ends of all flatcars taper to about 117 inches (2.97 m). The cargo deck is 48 inches (1.22 m) high, measured from the top of the rail. Plan and side views are shown in figure 2-1.