

REV NO. 2 APPROVED BY
 MECH DIV AAR, THEIR LETTER
 DATED 27 Oct 72 FILE LR-11.0
 SIGNED *Langith, M. H. M.T.S.D.*
 DATE 8 Nov 1972
 TEA, MTMTS, FT EUSTIS, VA.

LANCE

LOADING & BRACING ON FLAT CAR OF LOADER-TRANSPORTER, GUIDED MISSILE, XM688E1

THIS DRAWING, INCLUDING REVISION 2, SUPERSEDES
 DRAWING 19-48-7151-GSE 5LC2, DATED 9 FEBRUARY 1968,
 AND REVISION 1 THERETO, DATED NOVEMBER 1969.

DO NOT SCALE

REVISIONS				DRAFTSMAN	PROJ ENG	ANOPN-LEADER
				CBK/mx	MWD/MW	<i>[Signature]</i>
				CHECKER	LOG ENGRS OFFICE	AMSBI-SP
				LRS/ROK	<i>[Signature]</i>	<i>[Signature]</i>
2	JUL 72	<i>[Signature]</i>	<i>[Signature]</i>	APPROVED		
				<i>[Signature]</i>		
				APPROVED BY ORDER OF COMMANDING GENERAL, U. S. ARMY MATERIEL COMMAND		
				<i>[Signature]</i>		
				U.S. ARMY MATERIEL COMMAND		
				JULY 1972		
				CLASS	DIVISION	DRAWING
				19	48	7151
						FILE
						GSE 5 LC2

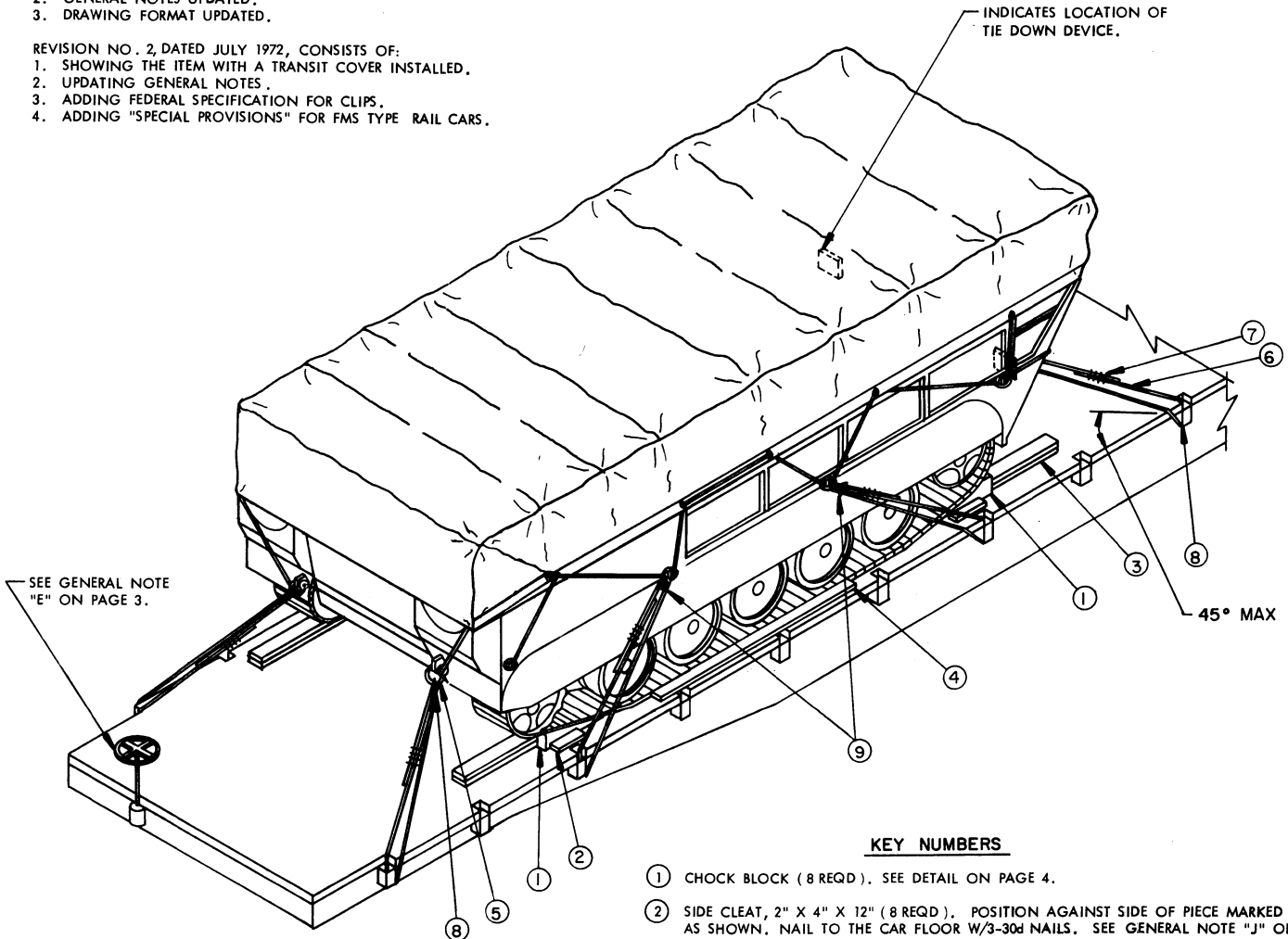
REVISIONS

REVISION NO. 1, DATED NOV 1969, CONSISTS OF:

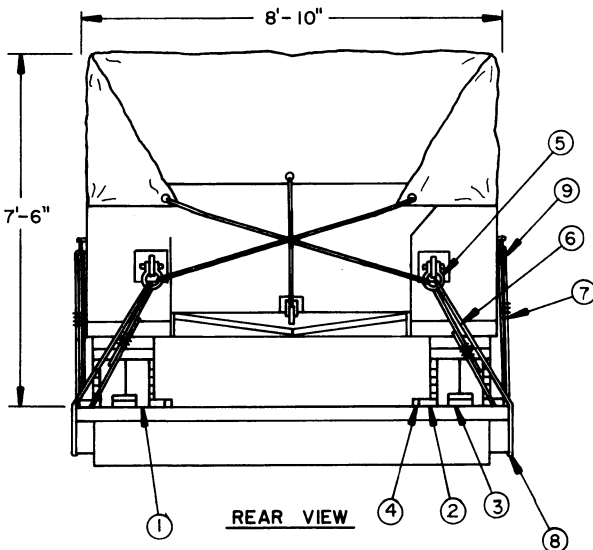
1. SHACKLE SIZE AND SPECIFICATIONS CHANGED.
2. GENERAL NOTES UPDATED.
3. DRAWING FORMAT UPDATED.

REVISION NO. 2, DATED JULY 1972, CONSISTS OF:

1. SHOWING THE ITEM WITH A TRANSIT COVER INSTALLED.
2. UPDATING GENERAL NOTES.
3. ADDING FEDERAL SPECIFICATION FOR CLIPS.
4. ADDING "SPECIAL PROVISIONS" FOR FMS TYPE RAIL CARS.



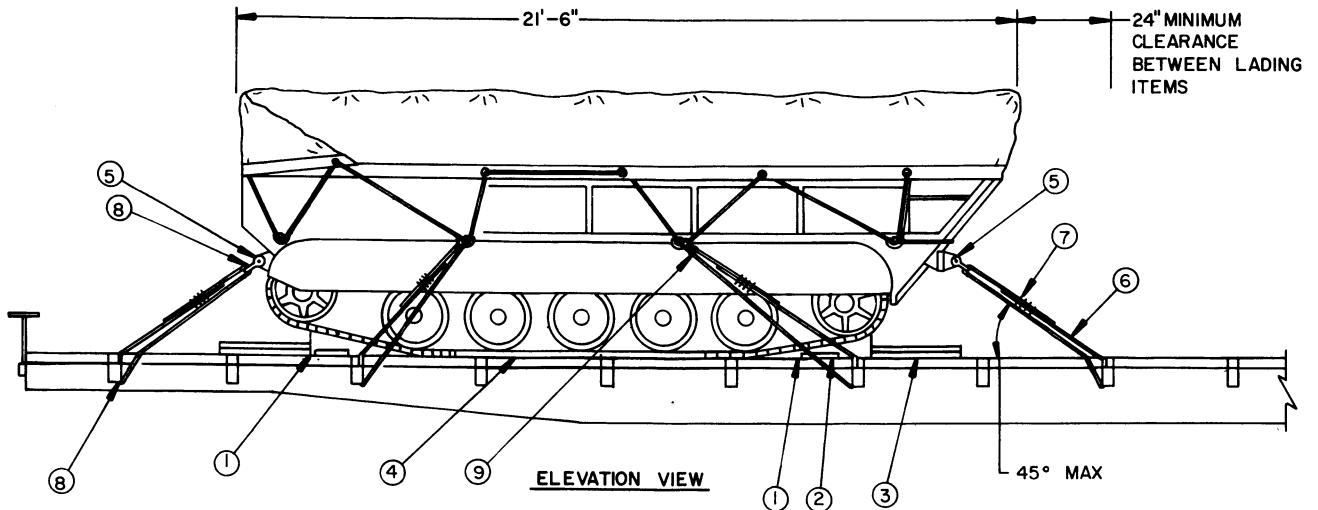
ISOMETRIC VIEW



REAR VIEW

KEY NUMBERS

- ① CHOCK BLOCK (8 REQD). SEE DETAIL ON PAGE 4.
- ② SIDE CLEAT, 2" X 4" X 12" (8 REQD). POSITION AGAINST SIDE OF PIECE MARKED ① AS SHOWN. NAIL TO THE CAR FLOOR W/3-30d NAILS. SEE GENERAL NOTE "J" ON PAGE 3.
- ③ BACK-UP CLEAT, 2" X 6" X 30" (DOUBLED) (4 REQD). CENTER AGAINST ENDS OF PIECES MARKED ①. NAIL THE FIRST PIECE TO THE CAR FLOOR W/4-30d NAILS. NAIL THE SECOND PIECE TO THE FIRST W/4-60d NAILS.
- ④ SIDE BLOCKING, 2" X 4" X 7'-0" (4 REQD). POSITION ON OUTSIDE AND INSIDE OF EACH TRACK. NAIL TO THE CAR FLOOR W/1-30d NAIL EVERY 8". PREPOSITION INSIDE BLOCKING.
- ⑤ SHACKLE, SIZE 7/8" (4 REQD). POSITION ONE EACH AT TWO FRONT AND TWO REAR TIE DOWN POINTS ON VEHICLE. NOTE: NOT REQUIRED IF VEHICLE IS ALREADY EQUIPPED WITH SHACKLES WHEN OFFERED FOR SHIPMENT. IF THE VEHICLE HAS TOW HOOKS ATTACHED TO THE TIE DOWN POINTS, THESE SHALL BE REMOVED AND STORED IN THE DRIVERS COMPARTMENT. SEE GENERAL NOTE "G" ON PAGE 3.
- ⑥ STEEL WIRE ROPE, 1/2" DIAMETER, 11.5 TONS (8 REQD). INSTALL CABLE AT 45° MAXIMUM ANGLES AS SHOWN AND TO FORM A COMPLETE LOOP FROM STAKE POCKET ON CAR THRU LADING TIE DOWN DEVICE AND BACK TO STAKE POCKET. SEE GENERAL NOTES "D" AND "F" ON PAGE 3. NOTE: CABLE OF A LARGER SIZE MAY BE USED IF AVAILABLE WHEN SPECIFIED CABLE IS NOT AVAILABLE, OR IF A LARGER SIZE IS BEING USED FOR TIE DOWN OF OTHER ITEMS BEING SHIPPED.
- ⑦ CLIP, SIZE 1/2" (48 REQD). USE FOUR (4) PER CABLE AND ONE (1) PER THIMBLE. SEE GENERAL NOTE "D" ON PAGE 3, AND KEY NUMBER ⑧ GUIDANCE BELOW.
- ⑧ THIMBLE, STANDARD, SIZE 1/2" (16 REQD). USE ONE (1) PER STAKE POCKET AND ONE (1) PER LADING TIE DOWN DEVICE. SECURE TO WIRE ROPE MARKED ⑥ W/1-CLIP PER THIMBLE. A STANDARD THIMBLE AS SPECIFIED CAN BE SECURED TO A CABLE WITH A 1/2" CLIP. HOWEVER, IF DESIRED, OR IF THE 1/2" THIMBLE BEING USED IS OF A TYPE WHICH CANNOT BE SECURED TO A CABLE WITH A 1/2" CLIP, A 5/8" CLIP MAY BE USED. SEE GENERAL NOTE "D" ON PAGE 3.
- ⑨ ANTI-CHAFING, NEUTRAL BARRIER MATERIAL. PLACE UNDER CABLE MARKED ⑥ AT POINTS OF CONTACT WITH VEHICLE.



(GENERAL NOTES CONTINUED)

- J. **NOTICE:** A STAGGERED NAILING PATTERN WILL BE USED WHEN DUNNAGE IS NAILED TO THE FLOOR OF THE TRANSPORTING VEHICLE, OR WHEN LAMINATING DUNNAGE. ADDITIONALLY, THE NAILING PATTERN FOR AN UPPER PIECE OF LAMINATED DUNNAGE WILL BE ADJUSTED AS REQUIRED SO THAT A NAIL FOR THAT PIECE WILL NOT BE DRIVEN THROUGH ONTO OR RIGHT BESIDE A NAIL IN A LOWER PIECE.
- K. **CAUTION:** PRIOR TO SHIPPING THE DESIGNATED ITEM, THE TACTICAL COVER WILL BE PROPERLY STORED ON THE VEHICLE. THE VEHICLE TRANSIT COVER (PART NUMBER 10162360) WILL BE INSTALLED, AS SHOWN IN THE LOAD VIEWS, TO PROVIDE WEATHER PROTECTION; THE TACTICAL COVER WILL NOT BE USED FOR THIS PURPOSE. IF A SLING IS USED FOR HANDLING THE LOADER TRANSPORTER, AND THE TRANSIT COVER IS INSTALLED, THE ENDS OF THE COVER WILL BE TURNED BACK TO EXPOSE THE LIFTING LOOPS FOR ATTACHMENT OF THE SLING. THE COVER WILL BE RESECURED AS SHOWN PRIOR TO MOVEMENT OF THE LOAD.

GENERAL NOTES

- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AMCR 740-13.
- B. THE LOAD AS SHOWN IS BASED ON A FLAT CAR 9'-2" WIDE (PLATFORM); WIDER CARS CAN BE USED. ONLY ONE UNIT OF LADING SHOWN; HOWEVER, MULTIPLES OF UNITS AS SHOWN OR DISSIMILAR IN NATURE, MAY BE LOADED ON A CAR. THE NUMBER OF UNITS TO BE LOADED ON A CAR WILL BE DEPENDENT ON THE SIZE OF THE CAR USED OR THE QUANTITIES OF UNITS TO BE SHIPPED WITH THE VIEW OF FULL UTILIZATION OF CARRIER EQUIPMENT.

NOTICE TO TRANSPORTATION OFFICER:

IN LIEU REQUISITIONING A GENERAL SERVICE FM* FLAT CAR AS DEPICTED HEREIN, EVERY EFFORT SHOULD BE MADE TO ACQUIRE AS FMS* TYPE CAR. THIS IS A CUSHIONED CAR EQUIPPED WITH SPECIAL TIE DOWN CHANNELS AND MOVEABLE ANCHOR AND CHAIN ASSEMBLY TIE DOWN DEVICES*, SUCH AS IS USED FOR TRANSPORTING AGRICULTURAL MACHINERY AND HEAVY, EARTH MOVING EQUIPMENT. SEE THE "SPECIAL PROVISIONS" ON PAGE 4 FOR GUIDANCE.

* ASSOCIATION OF AMERICAN RAILROADS (AAR) MECHANICAL DESIGNATION FOR CAR TYPE. REFERENCE IS MADE TO THE "OFFICIAL RAILWAY EQUIPMENT REGISTER".

**A TYPICAL CAR OF THIS TYPE IS SHOWN BY FIGURE 88-B OF SECTION 6 IN PUBLICATION OF AAR TITLED "GENERAL RULES GOVERNING THE LOADING OF COMMODITIES ON OPEN TOP CARS".

- C. **LADING DATA:**
 ITEM DIMENSIONS-----21'-6" LONG BY 8'-10" WIDE BY 7'-6" HIGH.
 ITEM GROSS WEIGHT----- 15,479 POUNDS (APPROX).
- D. REFER TO ORD DWG. 19-48-C-ORDJU-588, "WIRE ROPE AND ANNEALED WIRE APPLICATION METHODS FOR SECURING LADING ON RAIL AND MOTOR CARRIER EQUIPMENT", FOR PROPER TIE DOWN APPLICATION.
- E. REFER TO ASSOCIATION OF AMERICAN RAILROADS MANUAL, "GENERAL RULES GOVERNING THE LOADING OF COMMODITIES ON OPEN TOP CARS", FOR APPLICABLE LOADING RULES: PREFACE, 1-A, 2, 3, 4, 5, 9, 14, AND 15.
- F. TO ACHIEVE PROPER CABLE TENSION, EMPLOY TWO (2) CABLE "GRIPPERS" AND AN APPLICABLY SIZED "COME-A-LONG" TYPE MECHANICAL HOIST. **NOTE:** CABLES WILL BE TENSIONED SUFFICIENTLY TO CAUSE THE BODY OF THE TRACK VEHICLE TO DEPRESS APPROXIMATELY ONE INCH (1").
- G. MORE DISTANCE MAY BE REQUIRED BETWEEN THE DRILLED PADS AT THE OPEN END OF A SHACKLE SO THAT IT WILL FIT PROPERLY OVER THE THICKNESS OF THE TOWING/TIE DOWN BRACKET ON THE VEHICLE. TO PROVIDE THE NEEDED CLEARANCE, EQUAL AMOUNTS OF MATERIAL MAY BE REMOVED FROM THE SHACKLE PADS BY GRINDING OR MACHINING.
- H. DUNNAGE LUMBER SPECIFIED THROUGHOUT THIS PROCEDURAL DRAWING IS OF NOMINAL SIZE UNLESS OTHERWISE DIMENSIONED. FOR EXAMPLE, 2" X 4" MATERIAL IS ACTUALLY 1-1/2" THICK BY 3-1/2" WIDE OR 1-5/8" THICK BY 3-5/8" WIDE AND 2" X 6" MATERIAL IS ACTUALLY 1-1/2" THICK BY 5-1/2" WIDE OR 1-5/8" THICK BY 5-5/8" WIDE.

(GENERAL NOTES CONTINUED AT LEFT)

BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	36	24
2" X 6"	20	20
6" X 12"	10	60
NAILS	NO. REQD	POUNDS
30d (4-1/2")	80	4
40d (5")	32	2
60d (6")	20	2
ROPE, STEEL WIRE, 1/2" DIA -----	128' REQD -----	56 LBS
CLIP, 1/2" -----	48 REQD -----	21 LBS
THIMBLE, STANDARD, 1/2" -----	16 REQD -----	4 LBS
SHACKLE, 7/8" -----	4 REQD -----	14 LBS
ANTI-CHAFING MATERIAL -----	AS REQD -----	NIL
CLIP, 5/8" (ALT FOR 1/2", 16 REQD) -----		10 LBS

MATERIAL SPECIFICATION

- LUMBER**----: DOUGLAS FIR OR COMPARABLE LUMBER WITH STRAIGHT GRAIN AND FREE FROM MATERIAL DEFECTS. REF: FED SPEC MM-L-751.
- NAILS**----: COMMON, CEMENT COATED OR CHEMICALLY ETCHED. REF: FED SPEC FF-N-105.
 ALT: ANNULAR-RING TYPE NAIL OF SAME SIZE.
- ROPE**----: STEEL WIRE, PLAIN, PREFORMED, REGULAR LAY, 11.5 TONS, 6 X 19, FLEXIBLE IWRC, MACWHYTE WIRE ROPE CO. (OR EQUAL).
 REF: FED SPEC RR-W-410.
- CLIPS**----: "U" BOLT, CROSBY, HEAVY DUTY, OR EQUAL.
 REF: FED SPEC FF-C-450, TYPE I, CLASS 1.
- SHACKLE**---: TYPE IV, CLASS 4; FED SPEC RR-C-271.

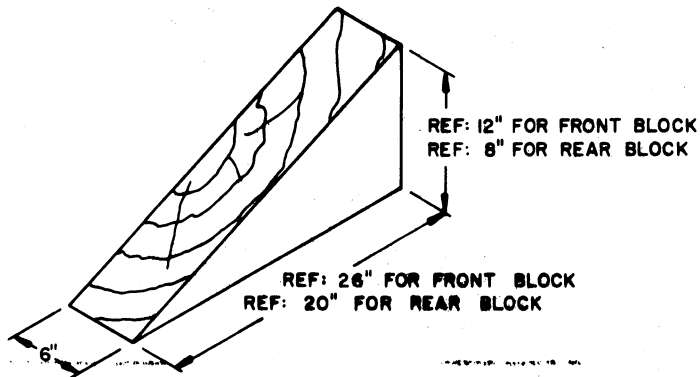
LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
LOADER-TRANSPORTER,		
XM688 E1-----	1 -----	15,479 LBS
DUNNAGE-----		363 LBS
TOTAL WEIGHT -----		15,842 LBS

SPECIAL PROVISIONS:

LADING MAY BE SECURED ON A CUSHIONED FMS TYPE FLAT CAR WITH CHAIN TIE DOWN ASSEMBLIES IN LIEU OF USING THE DEPICTED GENERAL SERVICE FM TYPE CAR AND THE SPECIFIED TIE DOWN MATERIALS, PROVIDING THE FOLLOWING CONDITIONS ARE MET:

1. PIECES MARKED ① THRU ④ MAY BE OMITTED IF THE FLOOR IS NOT NAILABLE.
2. ONE (1) MOVABLE ANCHOR WITH CHAIN ASSEMBLY TIE DOWN DEVICE MUST BE SUBSTITUTED FOR EACH WIRE ROPE CABLE TIE DOWN MARKED ⑤. CHAINS WILL BE ATTACHED TO THE LADING AT THE SAME LOCATIONS SHOWN FOR THE WIRE ROPE. NOTE THAT IF THE LADING TIE DOWN DEVICE IS NOT LARGE ENOUGH TO PERMIT PASSAGE OF THE HOOK ON THE CHAIN ASSEMBLY, A 5/8" (OR LARGER) SHACKLE MAY BE USED FOR ATTACHMENT OF THE CHAIN EXCEPT WHERE A LARGER SHACKLE IS SPECIFIED. ANCHOR DEVICES WILL BE LOCATED SO AS TO POSITION THE CHAINS WITHIN THE ANGULAR TOLERANCES SPECIFIED ON THE LOAD VIEWS.
3. BEFORE AND DURING INSTALLATION, THE ANCHOR DEVICES SHALL BE INSPECTED FOR BENT HOOKS, STRETCH, GOUGES, BENT LINKS, AND WEAR IN THE CHAINS, AND FOR DAMAGED LOAD BINDERS OR WINCHES, OR ANY OTHER NOTICEABLE DEFECTS. ANY DEFICIENCY SHALL BE CAUSE FOR NOT USING AN ANCHOR AND CHAIN ASSEMBLY.
4. CHAINS MUST NOT BE TWISTED DURING INSTALLATION.



CHOCK BLOCK

USE TWO (2) EACH SIDE-BY-SIDE AT EACH BLOCKING LOCATION. LOCATE BEVELED END OF EACH BLOCK AGAINST TRACK. TOENAIL THRU HEEL OF A BLOCK TO THE CAR FLOOR W/2-40d NAILS. TOENAIL ONE (1) SIDE OF A BLOCK TO THE CAR FLOOR W/2-40d NAILS.