

THAAD

LOADING AND BRACING ON LOWBOY FLATBED TRAILER* OF TERMINAL HIGH ALTITUDE AREA DEFENSE (THAAD) MISSILE PACKED IN MISSILE ROUND (MR) CONTAINER ON MISSILE ROUND PALLET – TRANSPORTABLE (MRP-T)

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***CAUTION:** THE OUTLOADING PROCEDURES SHOWN HEREIN ARE ONLY APPLICABLE TO HIGHWAY MOVEMENTS, NOT TRAILER-ON-FLATCAR (TOFC) MOVEMENTS.

U.S. ARMY MATERIEL COMMAND DRAWING

<p style="text-align: center;">APPROVED, U.S. ARMY AVIATION AND MISSILE COMMAND</p> <p>DEGURSE.DANA.M ARLENE.13993885 00</p> <p><small>Digitally signed by DEGURSE.DANA.MARLENE.139 9388500 Date: 2018.04.11 07:40:13 -05'00'</small></p>	<p>CAUTION: VERIFY PRIOR TO USE AT HTTPS://MHP.REDSTONE.ARMY.MIL THAT THIS IS THE MOST CURRENT VERSION OF THIS DOCUMENT. THIS IS PAGE 1 OF 6.</p>										
<p style="text-align: center;">APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL COMMAND</p> <p>SHIMP.UPTON .R.1231257183</p> <p><small>Digitally signed by SHIMP.UPTON.R.1231257183 Date: 2018.04.16 15:16:25 -05'00'</small></p> <p style="text-align: center;">U.S. ARMY DEFENSE AMMUNITION CENTER</p>	<p>DO NOT SCALE</p>	<h2 style="margin: 0;">MARCH 2018</h2>									
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">DESIGN ENGINEER</td> <td style="width: 10%;">BASIC</td> <td colspan="2" style="text-align: center;">RICHARD GARSIDE</td> </tr> <tr> <td></td> <td>REV.</td> <td colspan="2"></td> </tr> </table>	DESIGN ENGINEER	BASIC	RICHARD GARSIDE			REV.				
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	REV.										
	<p>ENGINEERING DIVISON</p> <p>TEST ENGINEER</p> <p>TEST REPORT</p> <p>EXPLOSIVE SAFETY DIRECTORATE</p>	<p>FIEFFER.LAURA .A.1230375727</p> <p>FELICIANO.AD IN.1259200373</p> <p>THOMAS.CARL.ANT HONY.1104621372</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>CLASS</td> <td>DIVISION</td> <td>DRAWING</td> <td>FILE</td> </tr> <tr> <td>19</td> <td>48</td> <td>8249</td> <td>GM11TH5</td> </tr> </table>	CLASS	DIVISION	DRAWING	FILE	19	48	8249	GM11TH5
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GENERAL NOTES

(GENERAL NOTES CONTINUED)

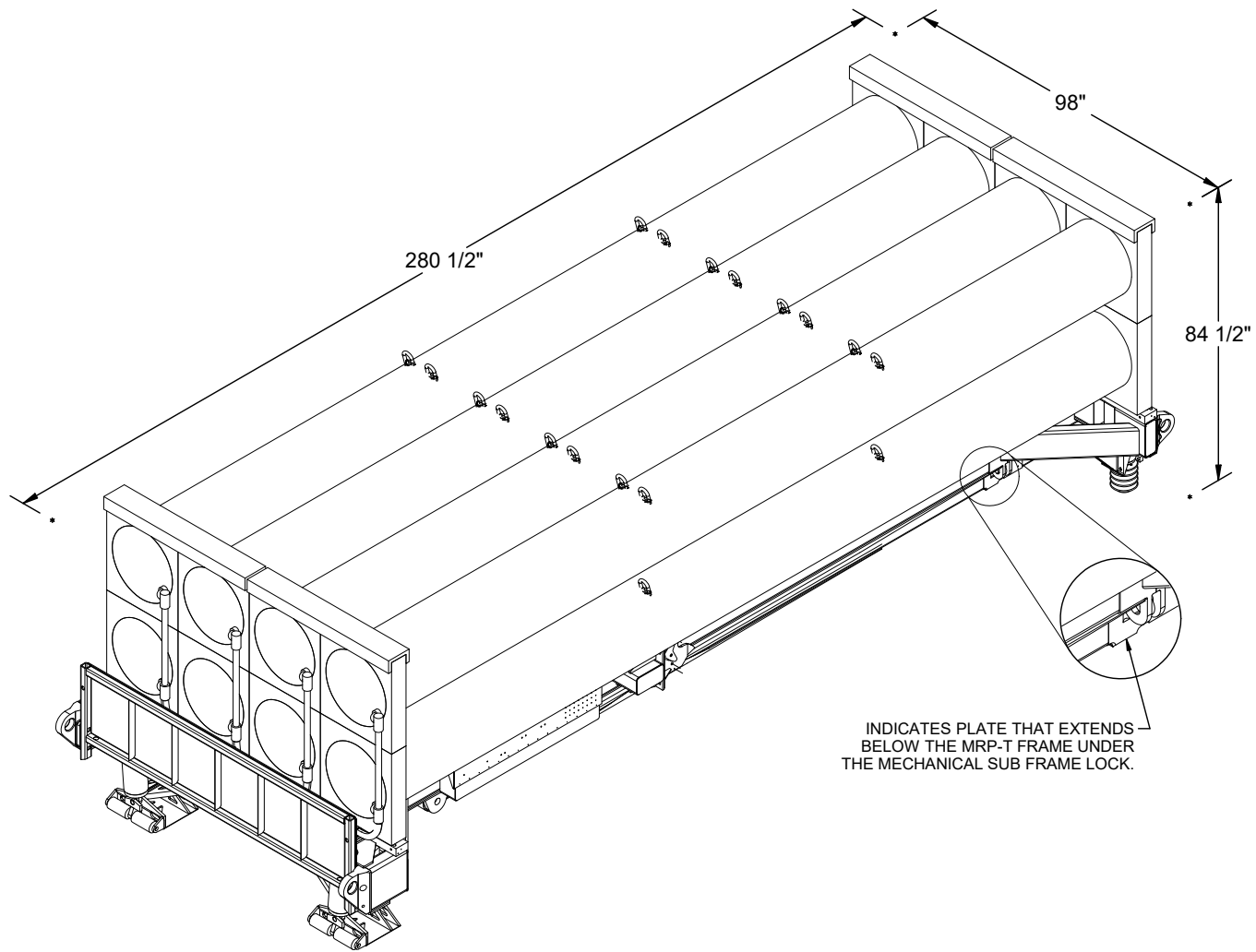
- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AR 740-1 AND AUGMENTS TM 743-200-1 (CHAPTER 5).
- B. THE OUTLOADING PROCEDURES SPECIFIED IN THIS DRAWING ARE APPLICABLE TO THAAD MISSILE PACKED IN MISSILE ROUND (MR) CONTAINER, PACKED ON MISSILE ROUND PALLET – TRANSPORTABLE (MRP-T). SUBSEQUENT REFERENCE TO CONTAINER MEANS THE CONTAINER WITH MISSILE ITEMS. SEE PAGE 3 AND TB 9-1427-610-50-1 SECTION VIII FOR DETAILS OF THE MRP-T AND THE HANDLING AND TRANSPORTATION PROCEDURES.
- C. THE LOAD AS SHOWN HEREIN IS BASED ON A 51'-4" LONG BY 8'-6" WIDE LOW-BOY FLATBED TRAILER, WITH DECK LENGTH OF 23'-8". TRAILERS OF OTHER LENGTHS AND WIDTHS MAY BE USED, PROVIDED THE DECK LENGTH ACCOMMODATES THE MRP-T.
- D. SELECTION OF A VEHICLE FOR THE TRANSPORT OF THE DESIGNATED ITEM IS THE RESPONSIBILITY OF THE ORIGINATING CARRIER AND THE SHIPPER. ONLY VEHICLES IN ACCORDANCE WITH THE REQUIREMENTS OF THE APPLICABLE REGULATORY DOCUMENTS WILL BE SELECTED FOR USE.
- E. GROSS WEIGHT AND AXLE DISTRIBUTION OF WEIGHT FOR A LOAD WILL BE THE RESPONSIBILITY OF THE CARRIER. THE CARRIER WILL ADVISE THE SHIPPER OF APPLICABLE LOADING REQUIREMENTS, AND THE SHIPPER WILL LOAD ACCORDINGLY.
- F. THE APPROVED METHODS SHOWN HEREIN MUST BE FOLLOWED AS CLOSELY AS POSSIBLE FOR BLOCKING, BRACING AND STAYING OF THE DESIGNATED ITEM. **NOTICE:** A SHIPMENT WILL BE POSITIONED ON A TRAILER CONSISTENT WITH STATE WEIGHT LAWS.
- G. SELECTION OF A VEHICLE USED TO TRANSPORT THE DESIGNATED ITEM MUST COMPLY WITH AR 55-355, CHAPTER 29, FOR EXPLOSIVES AND OTHER DANGEROUS ARTICLES, IN FULL.
- H. THESE PROCEDURES CAN ALSO BE UTILIZED FOR THE SHIPMENT OF THE CONTAINERS WHEN THEY ARE LOADED WITH AN ITEM WHICH IS IDENTIFIED DIFFERENTLY BY NOMENCLATURE THAN THE ITEM IDENTIFIED IN THE DRAWING TITLE, OR WHEN THEY ARE EMPTY.

- J. TRAILER SHOWN USES THE DECK AND FRAME EDGES AS CHAIN HOOK ATTACHMENT POINTS. **CAUTION:** IF TRAILERS WITH TIEDOWN ANCHORS ARE USED, ONLY THOSE TRAILERS HAVING TIEDOWN ANCHORING FACILITIES WHICH PROVIDE HOLDING STRENGTH EQUAL TO OR GREATER THAN THE STRENGTH OF THE CHAINS, AND WHICH ALIGN NEAR THE INDICATED LOCATIONS SHOULD BE USED.
- K. THE TRANSPORTING VEHICLE OPERATOR SHOULD BE INSTRUCTED TO PERIODICALLY INSPECT THE CHAINS AND LOAD BINDERS DURING TRANSIT AND TIGHTEN IF NECESSARY.
- L. DUNNAGE LUMBER SPECIFIED IS OF NOMINAL SIZE. FOR EXAMPLE, 1" X 4" MATERIAL IS ACTUALLY 3/4" THICK BY 3-1/2" WIDE AND 2" X 6" MATERIAL IS ACTUALLY 1-1/2" THICK BY 5-1/2" WIDE.
- M. CONVERSION TO METRIC EQUIVALENTS: DIMENSIONS WITHIN THIS DOCUMENT ARE EXPRESSED IN INCHES, AND WEIGHTS ARE EXPRESSED IN POUNDS. WHEN NECESSARY, THE METRIC EQUIVALENTS MAY BE COMPUTED ON THE BASIS OF ONE INCH EQUALS 25.4MM, AND ONE POUND EQUALS 0.454 KG.

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MATERIAL SPECIFICATIONS

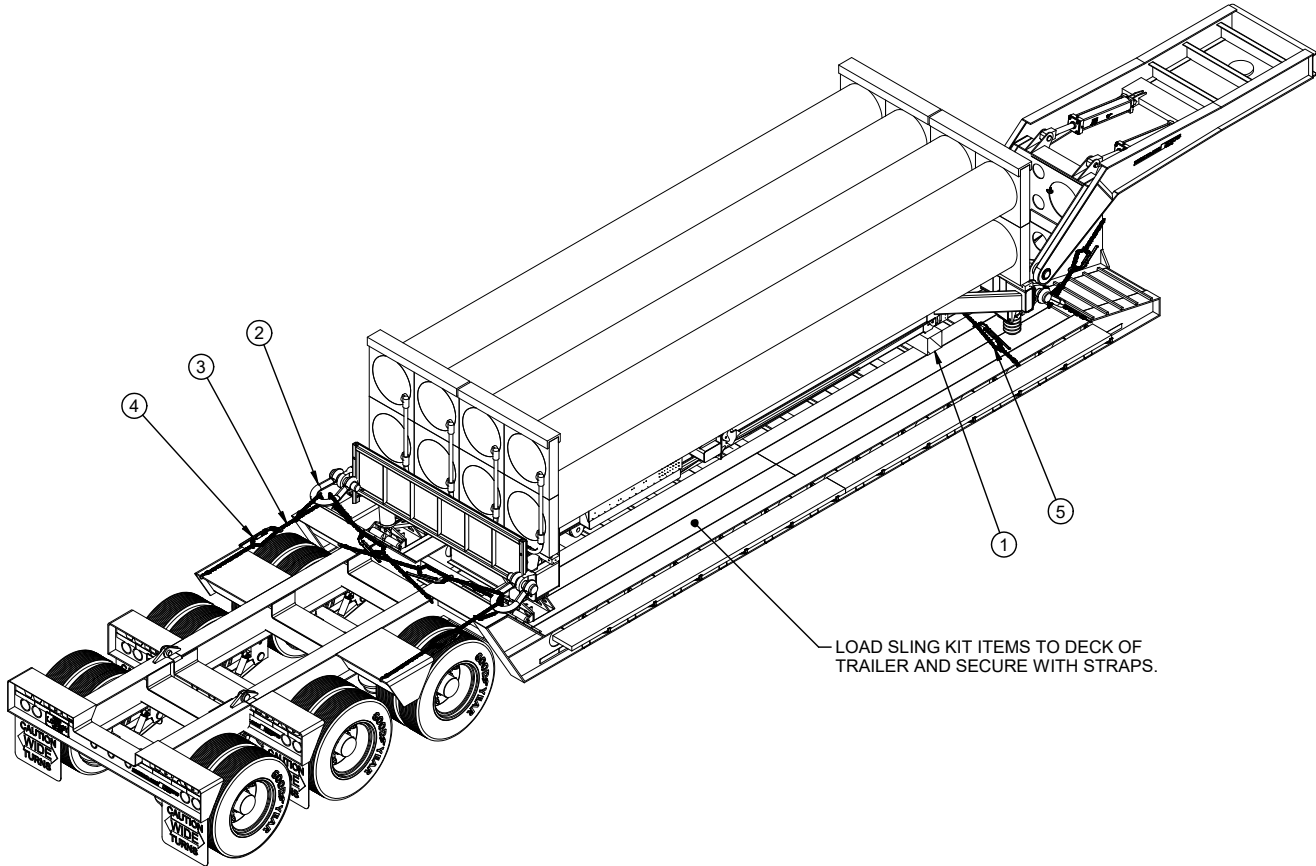
- LUMBER - - - - - : SEE TM 743-200-1 (DUNNAGE LUMBER) AND VOLUNTARY PRODUCT STANDARD PS 20.
- CHAIN - - - - - : NATIONAL ASSOCIATION OF CHAIN MANUFACTURER'S WELDED CHAIN SPECIFICATIONS ADOPTED NOVEMBER 2010.
- LOAD BINDER - - - - : FED SPEC GG-BG325.
- TIEDOWN SHACKLE - - : FED SPEC RR-C-271.
- WIRE CARBON STEEL - : ASTM A853; ANNEALED AT FINISH, BLACK OXIDE FINISH, 0.0800" DIA, GRADE 1006 OR BETTER.



INDICATES AFT
END OF CONTAINERS

MRP-T LOADED DETAIL

GROSS WEIGHT - - - - - 27,783 LBS (APPROX)
 CUBE - - - - - 1,337 CU FT (APPROX)



ISOMETRIC VIEW

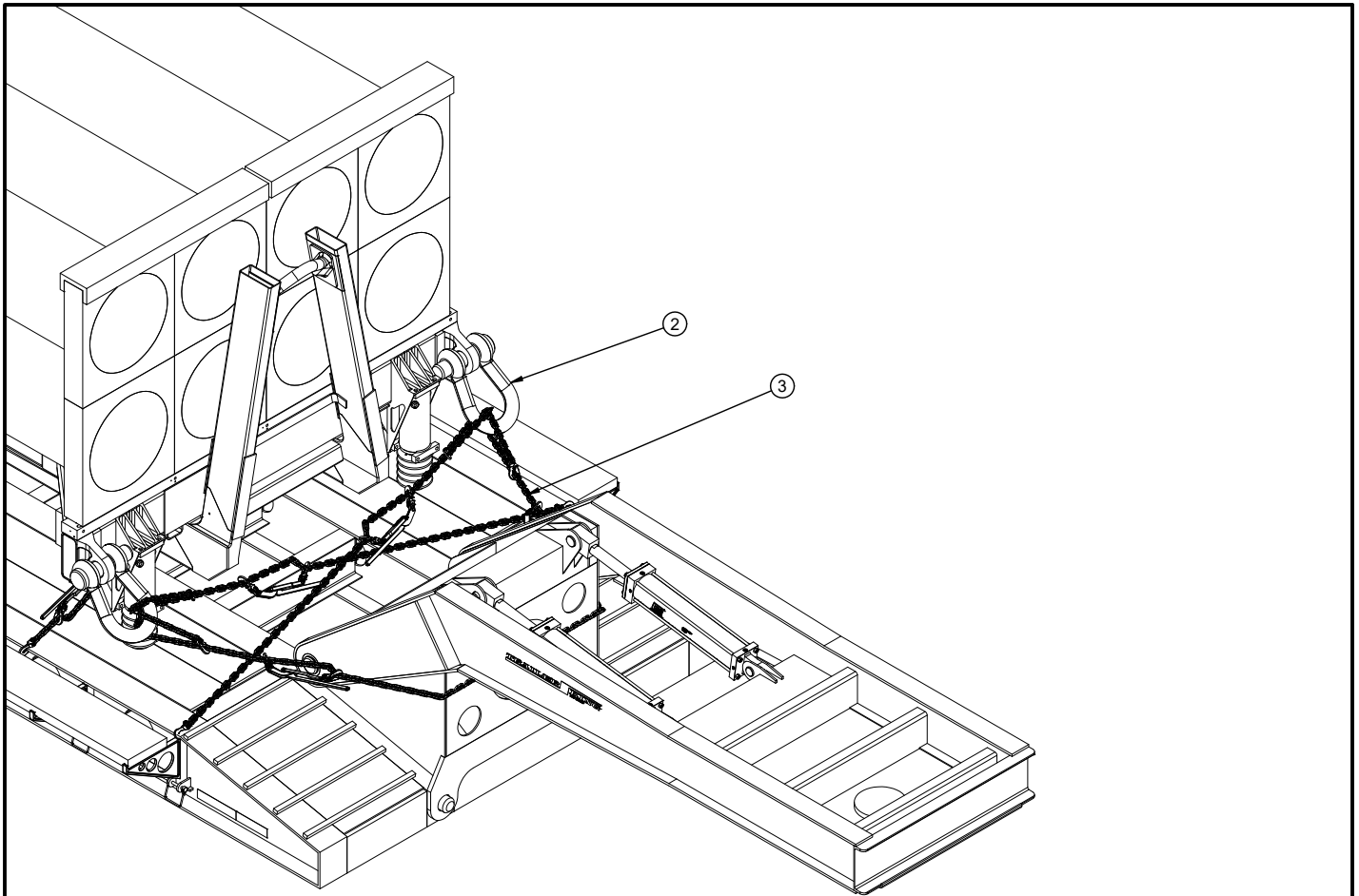
KEY NUMBERS

- ① BLOCKING, 8" X 8" X 48" (1 REQD). POSITION UNDER THE FRAME CENTERED ON THE PLATE THAT EXTENDS BELOW THE MRP-T FRAME UNDER THE MECHANICAL SUB FRAME LOCK AS THE MRP-T IS PLACED ON TRAILER.
- ② MRP-T TIEDOWN SHACKLE (4 REQD). INSTALL THE MRP-T SLING KIT SHACKLE TO THE MRP-T TIEDOWN POINTS. SEE TB 9-1427-810-50-1 FOR FURTHER DETAILS.
- ③ CHAIN, BINDING, 3/8" BY A LENGTH TO SUIT (8 REQD). POSITION AS SHOWN ABOVE AND ON PAGE 5, FASTENING GRABHOOKS TO MRP-T SHACKLE AND EDGE OF LOWBOY TRAILER BED. SEE THE "SPECIAL PROVISIONS FOR CHAIN TIEDOWN" ON PAGE 6.
- ④ LOAD BINDER, 3/8" (9 REQD, 1 PER CHAIN). WIRE TIE HANDLE TO PREVENT OPENING DURING TRANSPORT. SEE THE "SPECIAL PROVISIONS FOR CHAIN TIEDOWN" ON PAGE 6.
- ⑤ CHAIN, BINDING, 3/8" BY A LENGTH TO SUIT (1 REQD). POSITION AS SHOWN ABOVE AND ON PAGE 5, PASSING CHAIN THRU THE HOLE IN THE MRP-T FRAME AND FASTENING GRABHOOKS TO EDGE OF LOWBOY TRAILER BED. SEE THE "SPECIAL PROVISIONS FOR CHAIN TIEDOWN" ON PAGE 6.

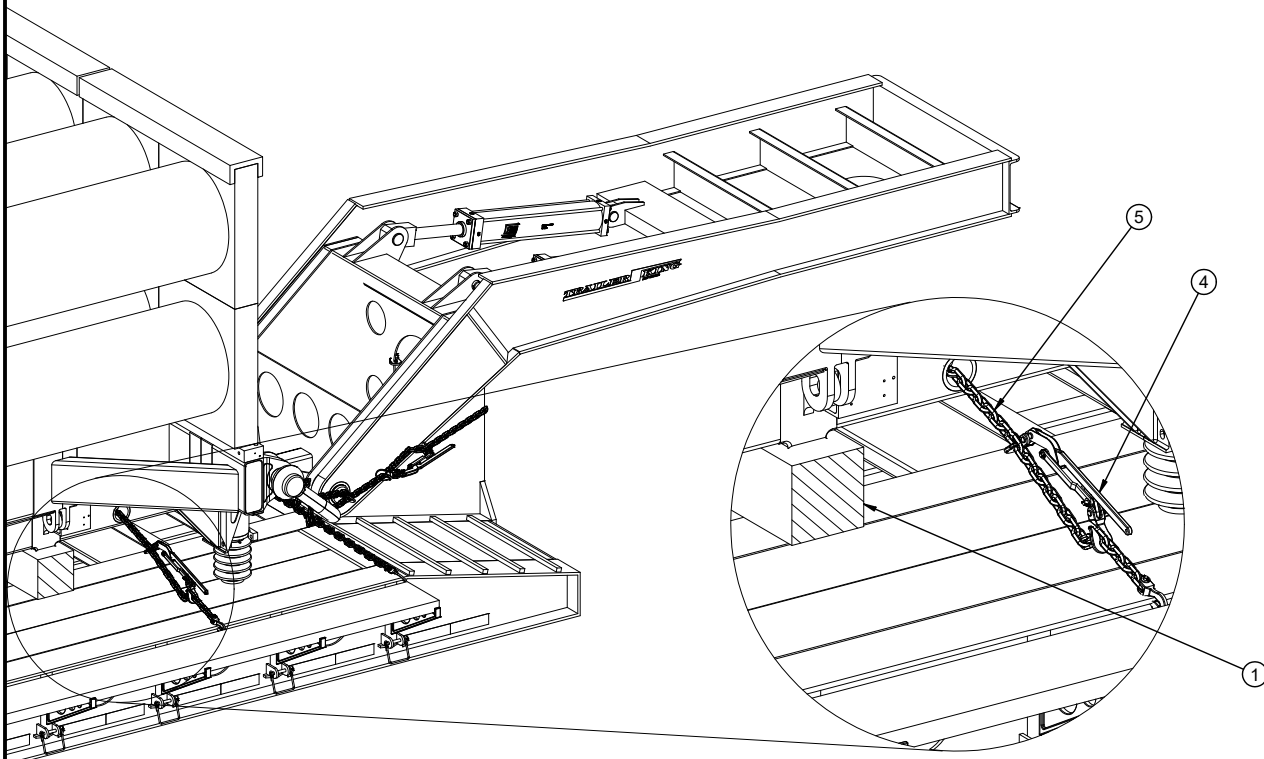
BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
8" X 8"	4	21
CHAIN, BINDING, 3/8" - - -	90' REQD - - -	159 LBS
LOAD BINDER, 3/8" - - - - -	9 REQD - - -	54 LBS
SHACKLE, MRP-T TIEDOWN - - -	4 REQD - - -	334 LBS
WIRE, .0800" DIA - - - - -	AS REQD - - -	NIL

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
MRP-T LOADED - - - - -	1 - - - - -	27,783 LBS
SLING KIT - - - - -	- - - - -	1,200 LBS
DUNNAGE - - - - -	- - - - -	589 LBS
TOTAL WEIGHT - - - - -		29,572 LBS (APPROX)



NOTE: KEY NUMBERS REFER TO KEY NUMBERS ON PAGE 4.



CHAIN POSITIONING FOR MRP-T ON TYPICAL LOWBOY FLATBED TRAILER (FORWARD)

SPECIAL PROVISIONS FOR CHAIN TIEDOWN

LADING MAY BE SECURED TO THE TRAILER BY CARRIER-OWNED CHAINS AND LOAD BINDERS, PROVIDED THE FOLLOWING CONDITIONS ARE MET AND THE PROCEDURES CONTAINED ON PAGES 4 AND 5 ARE FOLLOWED.

1. ONLY CHAINS AND LOAD BINDERS OF GOOD QUALITY WILL BE USED. ALL CHAINS AND LOAD BINDERS SHALL CONFORM TO THE NATIONAL ASSOCIATION OF CHAIN MANUFACTURER'S WELDED CHAIN SPECIFICATION ADOPTED NOVEMBER 2010.
2. ALL CHAINS SHALL BE MARKED AS PRESCRIBED BY THE NATIONAL ASSOCIATION OF CHAIN MANUFACTURER'S WELDED CHAIN SPECIFICATION ADOPTED NOVEMBER 2010. AT LEAST ONE LINK IN EVERY 36 LINKS SHALL CARRY THE MANUFACTURER'S PERMANENT AND DISTINCTIVE MARK IDENTIFYING THE GRADE OF CHAIN. CHAINS NOT MARKED IN THIS MANNER SHALL NOT BE USED. IN ADDITION TO THE GRADE MARKING, THE CHAIN MAY ALSO CARRY LETTER MARKINGS OR SYMBOLS IDENTIFYING THE CHAIN MANUFACTURER. THE PRESENCE OF THE MANUFACTURER'S IDENTIFICATION MARKING IS NOT MANDATORY.
3. BEFORE AND DURING INSTALLATION, THE CHAINS AND LOAD BINDERS SHALL BE INSPECTED FOR BENT HOOKS, STRETCH, GOUGES, BENT LINKS, WEAR, OR ANY OTHER NOTICEABLE DEFECTS. ANY DEFICIENCY SHALL BE CAUSE FOR REJECTION OF A CHAIN OR LOAD BINDER. CHAINS MUST NOT BE TWISTED DURING INSTALLATION. **CAUTION:** EXTREME CARE MUST BE EXERCISED WHEN TENSIONING CHAINS TO PREVENT DAMAGE OR PERMANENT DEFORMATION TO THE LADING.
4. CHAIN SIZES AND GRADES APPROVED FOR USE WITH FLATBED TRAILER LOADS ARE AS FOLLOWS:
 - A. 3/8", GRADE 43 HIGH TEST CHAIN
 - B. 5/16", GRADE 70 TRANSPORT CHAIN
 - C. 3/8", GRADE 70 TRANSPORT CHAIN
 - D. 5/16", GRADE 80 ALLOY STEEL CHAIN
 - E. 3/8", GRADE 80 ALLOY STEEL CHAIN

(CONTINUED AT RIGHT)

(SPECIAL PROVISIONS FOR CHAIN TIEDOWN CONTINUED)

5. THE GRABHOOKS ON THE ENDS OF THE CHAIN MAY BE OF THE FOLLOWING TYPES WITH GRADE MARKINGS AS INDICATED.
 - A. CLEVIS GRABHOOKS, 3/8" SIZE, DO NOT REQUIRE GRADE MARKING. ALLOY GRABHOOKS, 5/16" SIZE, SHALL CARRY THE MANUFACTURER'S GRADE MARK OF 7, 70, OR 700. THE HOOKS SHALL BE USED ON THE APPROPRIATE SIZE CHAIN.
 - B. CLOSED EYE GRABHOOKS, 3/8" AND 5/16" SIZE, MAY BE USED ON THE APPROPRIATE SIZE CHAIN IF THEY ARE A PART OF A CHAIN ASSEMBLY WHICH WAS PROVIDED BY A CHAIN MANUFACTURER, AND THE CHAIN ASSEMBLY CARRIES THE CORRECT GRADE IDENTIFICATION MARKING AS PREVIOUSLY STATED. CLOSED EYE GRABHOOKS THAT FORM A PART OF THE CHAIN ASSEMBLY ARE EXEMPT FROM GRADE MARKINGS.
6. CONNECTING LINKS USED FOR CHAIN REPAIR MUST BE CORRECTLY MARKED AND BE EQUAL TO OR GREATER IN STRENGTH THAN THE CHAIN THEY ARE REPAIRING. CHAINS WITH UNMARKED CONNECTING LINKS SHALL NOT BE USED.
7. CHAIN AND FITTING OF A HIGHER GRADE MAY BE SUBSTITUTED FOR THE GRADES SPECIFIED IN NOTE 4 ABOVE.
8. LOAD BINDERS SHALL BE 5/16" TO 3/8" SIZE AND HAVE A MINIMUM BREAKING STRENGTH OF 16,200 POUNDS (WORKING LOAD LIMIT OF 5,400 POUNDS). OVERCENTER TYPE LOAD BINDERS SHALL BE SAFETY WIRED TO PREVENT ACCIDENTAL OPENING DURING TRANSPORT. LOAD BINDER SIZE SHALL BE COMPATIBLE WITH THE SIZE OF THE CHAIN BEING USED.