

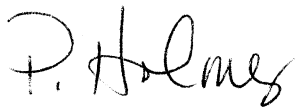



# ATACMS

## LOADING, TIEDOWN, AND UNLOADING PROCEDURES FOR THE MISSILE/ LAUNCH POD ASSEMBLY (M/LPA) FOR ARMY TACTICAL MISSILE SYSTEM IN/ON TACTICAL VEHICLES

### INDEX

<u>ITEM</u>	<u>PAGE(S)</u>
GENERAL NOTES AND MATERIAL SPECIFICATIONS - - - - -	2
M/LPA DETAILS - - - - -	3
LOAD GUIDANCE NOTES AND CHARTS - - - - -	4-5
TIEDOWN PROCEDURES FOR ONE M/LPA - - - - -	6
TIEDOWN PROCEDURES FOR TWO M/LPAS (METHOD I) - - - - -	7
TIEDOWN PROCEDURES FOR TWO M/LPAS (METHOD II) - - - - -	8
TIEDOWN PROCEDURES FOR THREE M/LPAS - - - - -	9
TIEDOWN PROCEDURES FOR EIGHT M/LPAS (METHOD I) - - - - -	10, 11
TIEDOWN PROCEDURES FOR EIGHT M/LPAS (METHOD II) - - - - -	12, 13
SPECIAL TIEDOWN PROCEDURES FOR LOADING ONE THROUGH FOUR M/LPAS ON THE 10-TON M977/M985 HEMTT - - - - -	14-18
SPECIAL TIEDOWN PROCEDURES FOR LOADING ONE AND TWO M/LPAS ON THE 11-TON M989 HEMAT - - - - -	19-20
SPECIAL TIEDOWN PROCEDURES FOR LOADING ONE THROUGH FOUR M/LPAS ON THE 11-TON M989A1 HEMAT - - - - -	21-24
DETAILS - - - - -	25-32

### U.S. ARMY MATERIEL COMMAND DRAWING

APPROVED, U.S. ARMY AVIATION AND MISSILE COMMAND  	<b>CAUTION: VERIFY PRIOR TO USE AT WWW.DAC.ARMY.MIL THAT THIS IS THE MOST CURRENT VERSION OF THIS DOCUMENT. THIS IS PAGE 1 OF 32.</b>			
APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL COMMAND    U.S. ARMY DEFENSE AMMUNITION CENTER	<b>DO NOT SCALE</b>	<b>AUGUST 2005</b>		
	ENGINEER OR TECHNICIAN	BASIC REV.	MICHAEL SARDONE	
	TRANSPORTATION ENGINEERING DIVISION			
VALIDATION ENGINEERING DIVISION	TESTED	CLASS	DIVISION	DRAWING
ENGINEERING DIRECTORATE		19	48	5991
		FILE	GM17AT1	

**GENERAL NOTES**

(GENERAL NOTES CONTINUED)

- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AR 740-1.
- B. THIS DRAWING COVERS PROCEDURES APPLICABLE TO THE TRANSPORT OF THE ARMY TACTICAL MISSILE SYSTEM (ATACMS) COMPLETE ROUND, WHEN PACKED IN THE MISSILE/LAUNCH POD ASSEMBLY (M/LPA) IN/ON TACTICAL TYPE VEHICLES. FOR DETAILS OF THE MISSILE/LAUNCH POD ASSEMBLY, SEE U.S. ARMY MISSILE COMMAND DRAWINGS NO. 13288205, 13283365, AND THE DETAIL ON PAGE 3.
- C. DEPICTED PROCEDURES APPLY TO TACTICAL VEHICLES HAVING FACTORY INSTALLED TIEDOWN ANCHORS AND/OR TACTICAL VEHICLES WHICH HAVE BEEN MODIFIED TO INCLUDE THE UNIVERSALLY APPLICABLE "TIEDOWN KIT" WHICH CONSISTS OF THE TIEDOWN FITTINGS OR ANCHOR DEVICES FOR INSTALLATION IN/ON CARGO BEDS, SIDEWALLS, AND/OR ENDWALLS, FOR USE WITH WEB STRAP TIEDOWN ASSEMBLIES. SEE PAGE 32 FOR GUIDANCE.
- D. WEB STRAP TIEDOWN ASSEMBLIES MUST BE SECURELY HOOKED INTO ANCHORING DEVICES ON THE TRANSPORTING VEHICLE AND FIRMLY TENSIONED. FIRMLY TENSIONED MEANS, WHEN THE OPERATOR PULLS ON THE RATCHET HANDLE BY HAND, THE RATCHET WILL NOT ADVANCE ANOTHER NOTCH. NO TYPE OF MECHANICAL EXTENSION OR LEVER WILL BE USED. EXERCISE CARE DURING STRAP APPLICATION. AVOID TWISTS IN THE STRAP TO THE EXTENT POSSIBLE (IF TIME PERMITS) BUT ENSURE THERE ARE NO KNOTS IN THE STRAP. ON THE TAKE-UP SPOOL OF THE RATCHET, ENSURE STRAIGHT LAY OF THE STRAP WHEN TENSIONING. AFTER INITIAL WEBBING-TO-WEBBING CONTACT HAS BEEN MADE, BY ROTATING THE TAKE-UP SPOOL UNTIL NO METAL ON THE SPOOL IS SHOWING AND THE STRAP HAS MADE CONTACT WITH ITSELF. THE TENSIONED STRAP MUST FORM AT LEAST 1/2 BUT NOT MORE THAN 1-1/2 WRAPS OF STRAP ON THE TAKE-UP SPOOL OF THE TENSIONING RATCHET. AFTER TENSIONING IS COMPLETED, ENSURE THAT THE SPOOL LOCKING LATCH IS FULLY SEATED AT BOTH ENDS OF THE SPOOL IN MATCHING LOCKING NOTCHES. TIE BACK THE LOOSE END OF THE STRAP AFTER TENSIONING IS COMPLETED (LOOSE ENDS MAY BE FOLDED AND TAPED OR TIED TO THE TENSIONING STRAP IF TIME PERMITS). FOR ADDITIONAL GUIDANCE, SEE "RATCHET/RATCHETING DETAILS" ON PAGES 30 AND 31.
- E. ADJUSTABLE SCUFF SLEEVES PROVIDED ON WEB STRAP ASSEMBLIES WILL BE LOCATED TO PROVIDE A PAD WHERE STRAPS PASS OVER SHARP EDGES, OR RATCHETS AND HOOKS ON PREVIOUSLY INSTALLED WEB STRAP TIEDOWN ASSEMBLIES. METAL PARTS OF A STRAP ASSEMBLY SHOULD BE LOCATED SO AS TO AVOID CONTACT WITH THE CARGO. IF CONTACT CANNOT BE AVOIDED, A SUITABLE ANTI-CHAFING MATERIAL, AS LISTED UNDER THE MATERIAL SPECIFICATIONS BELOW, MUST BE POSITIONED BETWEEN THE METAL PARTS OF A STRAP ASSEMBLY AND THE CARGO AND IF NECESSARY, TAPED OR TIED IN POSITION.
- F. ONLY THE CARGO BODIES OR BEDS OF THE TACTICAL VEHICLES HAVE BEEN SHOWN HEREIN TO PREVENT DISTRACTION FROM THE DELINEATED LOADING AND TIEDOWN PROCEDURES, AND ARE SHOWN IN OUTLINE FORM WITH THE STRUCTURAL PORTIONS OMITTED AS NECESSARY TO IMPROVE THE CLARITY OF THE DEPICTED PROCEDURES.
- G. WHENEVER POSSIBLE, A LOAD SHOULD BE CENTERED LATEROALLY IN/ON CARRYING VEHICLE TO PROVIDE FOR EQUAL ANGLE HOLD DOWN BY THE SECURING WEB STRAP ASSEMBLIES. WHENEVER POSSIBLE, LADING SHOULD BE CENTERED LONGITUDINALLY (IN/ON THE CARRYING VEHICLE) BETWEEN THE SELECTED TIEDOWN FITTINGS TO BE USED. HOWEVER, DUE TO LADING WEIGHT, LADING LENGTH, LADING CONFIGURATION, AND/OR LOCATION AND QUANTITY OF TIEDOWN ANCHORS WITHIN THE CARRYING VEHICLE, IT MAY BE NECESSARY TO LOCATE THE LADING LONGITUDINALLY IN/ON A VEHICLE AS SHOWN WITHIN THIS DRAWING TO PROVIDE FOR PROPER TIEDOWN AND TO ACHIEVE A MAXIMUM LOAD.
- H. OTHER ASSOCIATED CARGO MAY BE LOADED WITHIN THE AVAILABLE SPACE REMAINING IN/ON A LOADED VEHICLE, PROVIDING IT IS SECURED WITH WEB STRAP ASSEMBLIES SUFFICIENTLY TO PREVENT SIGNIFICANT MOVEMENT AND/OR LOSS DURING TRANSPORT.
- J. WHEN ONE WEB STRAP ASSEMBLY IS NOT LONG ENOUGH TO SPAN THE DISTANCE DEPICTED, TWO ASSEMBLIES MAY BE HOOKED TOGETHER TO GAIN THE NECESSARY LENGTH.

- K. THE SIDE RACKS FOR A SEMITRAILER ARE TO BE TRANSPORTED ON THE LOADED TRAILER, THEY WILL BE STACKED ON THE TRAILER AND SECURED WITH A SUFFICIENT QUANTITY OF WEB STRAP TIEDOWN ASSEMBLIES TO PREVENT LOSS DURING TRANSPORT. NOTE: IF DESIRED, THE SIDE RACKS FOR THE M871 AND M872 SEMITRAILERS MAY BE POSITIONED IN PLACE AFTER THE LOAD HAS BEEN SECURED. AFTER ALL SIDE PANELS AND REAR PANELS ARE IN POSITION, THE STAKES MUST BE SECURELY "PINNED" OR "WIRE-TIED" TO THE STAKE POCKETS TO PREVENT VERTICAL DISPLACEMENT DURING TRANSPORT. ALSO, THE SIDE PANELS MUST BE SECURED AT THE TOP WITH THE CROSS-CHAINS WHICH ARE PROVIDED WITH THE VEHICLE.
- L. ITEM LOCATION AND QUANTITIES OF THE DESIGNATED ITEM MAY BE VARIED TO SATISFY OPERATIONAL REQUIREMENTS, PROVIDED LOADING AND TIEDOWN PRINCIPLES SPECIFIED HEREIN ARE RETAINED AND A VEHICLE IS NOT OVERLOADED. CAUTION: CONTAINERS MUST NOT BE STACKED MORE THAN ONE HIGH ON THE 11-TON M989 HEAVY EXPANDED MOBILITY AMMUNITION TRAILER (HEMAT), DUE TO TRAILER STABILITY. IT IS PERMISSIBLE, HOWEVER, TO STACK CONTAINERS TWO HIGH ON THE M989A1 HEMAT. SEE PAGES 19 THROUGH 24.
- M. WHEN POSSIBLE, ALL OF THE HOLD-DOWN WEB STRAP ASSEMBLIES SHOULD BE POSITIONED WITH THE STRAP RATCHETS ON THE SAME SIDE OF THE LOAD. THIS METHOD WILL AID IN REDUCING THE TIME REQUIRED TO LOAD AND UNLOAD A VEHICLE, AND ALSO HELP REDUCE SLIDING AND/OR TWISTING THE M/LPAS OFF CENTER WHEN STRAPS ARE BEING RATCHETED TIGHT.
- N. THE LOADS ON PAGES 8, 9, AND 10 SHOW A "SPACER ASSEMBLY" POSITIONED BETWEEN LATEROALLY ADJACENT CONTAINERS. THE SPACER ASSEMBLY IS REQUIRED TO PROVIDE A SPACE BETWEEN THE CONTAINERS FOR THE LIFT/TIEDOWN FITTING BRACKET, WHICH PROJECTS 3/4" OUT FROM THE SIDE OF CONTAINER. NOTE: THE "SPACER ASSEMBLY" MAY BE OMITTED IF THE CONTAINERS ARE OFF-SET SO THE LIFT/TIEDOWN FITTING BRACKETS ARE NOT LATEROALLY ADJACENT TO ONE EACH OTHER.
- O. THE LOADING AND TIEDOWN PROCEDURES FOR THE M977/M985 10-TON TRUCK, THE M989 11-TON TRAILER, AND THE M989A1 11-TON TRAILER, AS SHOWN ON PAGES 15 THROUGH 24 ARE SPECIFICALLY APPLICABLE TO WEAPON SUPPORT/RESUPPLY OPERATIONS PROCEDURES, AS SPECIFIED FOR THESE VEHICLES, AND DEPEND ON THE USE OF "SHOE" TYPE RESTRAINING DEVICES TO SPECIFICALLY ENHANCE OPERATIONS. ALTHOUGH THE PROCEDURES ARE SPECIFICALLY APPLICABLE TO WEAPON SUPPORT/RESUPPLY OPERATIONS, THEY CAN ALSO BE USED WITH OTHER SEGMENTS OF M/LPA MOVEMENTS IF THESE SPECIFIC RESTRAINING DEVICES ARE INSTALLED. NOTE: IF THESE VEHICLES ARE NOT EQUIPPED WITH THE "SHOE" TYPE RESTRAINING DEVICES, USE THE PROCEDURES SHOWN ON PAGES 6 THROUGH 12 FOR LOADING ONE THROUGH FOUR M/LPAS.
- P. CAUTION: EXTRA CARE MUST BE TAKEN BY THE VEHICLE OPERATOR (DRIVER) WHEN A LOADED VEHICLE AND A LOAD UNIT (STACK) ON THE VEHICLE CONTAINS THREE ATACMS PODS, AS SHOWN ON PAGES 9, 17, AND 23. A 3-POD LOAD UNIT CAUSES THE TRANSPORTING VEHICLE TO BE HEAVIER ON ONE SIDE AND THUS, MORE UNSTABLE REGARDING VEHICLE TIP OVER. THE REQUIRED EXTRA CARE IS ESPECIALLY APPLICABLE TO THE LOADS DELINEATED ON PAGES 17 AND 23.
- Q. THE TIEDOWN METHODS WITHIN THIS DRAWING SHOW TWO HOOKS TO BE CONNECTED TO ONE TIEDOWN EYE. THIS IS AUTHORIZED AS SPECIFIED HEREIN AND MEETS THE INTENT OF THE REQUIREMENTS CITED IN TB 9-230-280-30.
- R. 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.

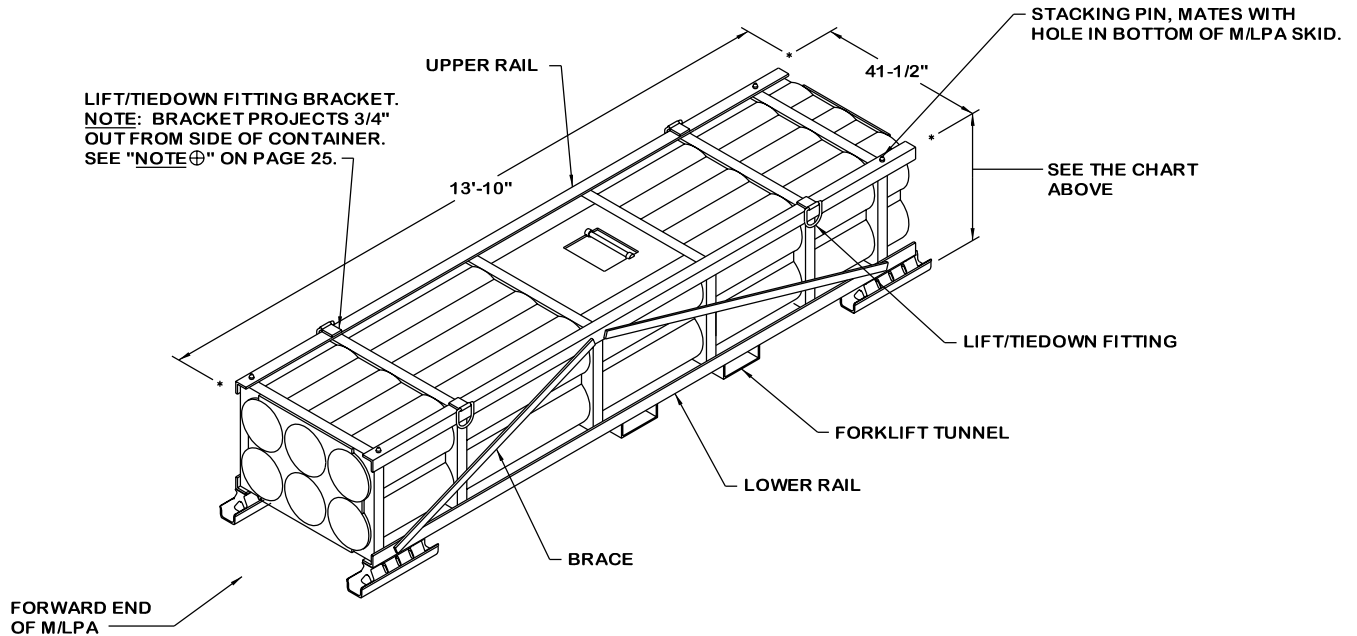
**MATERIAL SPECIFICATIONS**

- STRAP - - - - - : WEBBING, UNIVERSAL TIEDOWN, NSN 5340-00-980-9277, PN10900880, OR NSN 1670-00-725-1437, PN1376-013, OR NSN 5340-01-089-4997, PN11669588, OR NSN 5340-01-204-3009, PN9392419.
- ANTI-CHAFING MATERIAL - - - - - : CANVAS, BURLAP, TAPE OR ANY OTHER SUITABLE MATERIAL.
- LUMBER - - - - - : SEE TM 743-200-1 (DUNNAGE LUMBER) AND VOLUNTARY PRODUCT STANDARD PS 20.
- NAILS - - - - - : ASTM F1667; COMMON STEEL NAIL (NLCMS OR NLCMMS).

(CONTINUED AT RIGHT)

**GROSS WEIGHT, DIMENSIONS, AND CUBE OF  
GUIDED MISSILE LAUNCHING ASSEMBLIES**

NSN	DODIC	TYPE	LENGTH	WIDTH	HEIGHT	WEIGHT (LBS)	CUBE (CU FT)
1427-00-000-0195	PL81	BLOCK I	13' -10"	41-1/2"	32-5/8"	5, 105	129. 7
1427-01-274-3904	PL81	BLOCK I	13' -10"	41-1/2"	32-5/8"	4, 814	129. 7
1427-01-386-3113	PL81	BLOCK I	13' -10"	41-1/2"	32-5/8"	5, 111	129. 7
1427-01-398-6538	PL38	BLOCK IA	13' -10"	41-1/2"	33-3/4"	4, 640	134. 6
1427-01-463-0001	PL38	BLOCK IA	13' -10"	41-1/2"	33-3/4"	4, 640	134. 6
1427-01-439-8639	PL47	BLOCK II	13' -10"	41-1/2"	33-3/4"	4, 985	134. 6
1427-01-481-1620	N/A	TACMS 2K	13' -10"	41-1/2"	33-3/4"	4, 985	134. 6
1427-01-480-8516	PL65	IA UNITARY	13' -10"	41-1/2"	33-3/4"	4, 682	134. 6



**MISSILE/LAUNCH POD ASSEMBLY (M/LPA)**

**ATACMS STACKING AND HANDLING  
PROCEDURAL GUIDANCE**

1. M/LPA STACKING FOR OUTLOADING PURPOSES.
  - A. THE UPPER M/LPA SHOULD BE PLACED AS CLOSELY AS POSSIBLE IN VERTICAL ALIGNEMENT WITH THE LOWER M/LPA.
  - B. WHEN STACKING THESE M/LPAS, CARE MUST BE EXERCISED TO INSURE THAT THE INTERLOCKING HOLES IN THE BOTTOM OF THE M/LPA SKIDS ALIGN CORRECTLY WITH THE INTERLOCKING PINS ON THE TOP OF THE M/LPA FRAME. THIS WILL PRECLUDE DAMAGE TO THE SKIDS AND INSURE PROPER FUNCTIONING OF THE M/LPA INTERLOCKS.

2. M/LPA OR M/LPA STACK HANDLING.

- NOTES: (1) APPROVED MATERIALS HANDLING EQUIPMENT (MHE) IS SPECIFIED IN OTHER DOCUMENTS. MHE IS INTENDED TO MEAN SUCH EQUIPMENT AS FORKLIFT TRUCKS, CRANES, HAND TRUCKS, DOLLIES, ROLLER ASSEMBLIES, SLINGS AND SPREADER BARS.
- (2) PRECAUTIONARY HANDLING TECHNIQUES NORMALLY EMPLOYED OR AS SPECIFIED FOR THE TYPE OF COMMODITY INVOLVED WILL BE OBSERVED.

(CONTINUED AT RIGHT)

**(ATACMS STACKING AND HANDLING GUIDANCE CONTINUED)**

3. A. ONLY APPROVED AND APPROPRIATELY SIZED MATERIALS HANDLING EQUIPMENT WILL BE USED FOR HANDLING THE DEPICTED M/LPAS.
- B. IF HANDLING IS ACCOMPLISHED WITH A FORKLIFT TRUCK, THE M/LPAS MUST BE HANDLED FROM A SIDE POSITION. CARE MUST BE EXERCISED WHEN INSERTING FORKS UNDER AN M/LPA TO PREVENT DAMAGE TO THE M/LPA BY THE FORK TINES OR THE FORKLIFT PACKAGE GUARD. ADDITIONALLY, THE FORK TINES SHOULD BE PLACED UNDER THE AREA MARKED "FORKLIFT AREA ONLY" LOCATED NEAR THE LONGITUDINAL CENTER OF THE M/LPA, OR THEY SHOULD BE INSERTED INTO THE FORKLIFT TUNNELS IF THE M/LPA IS EQUIPPED WITH TUNNELS.
- C. WHEN M/LPAS WITHOUT FORKLIFT TUNNELS ARE HANDLED WITH A FORKLIFT TRUCK, A 1" X 4" MATERIAL BUFFER BOARD MUST BE PLACED ACROSS THE FORKLIFT TRUCK TINES SUCH THAT THE TINES DO NOT CONTACT THE BOTTOM SURFACE OF THE FRAME MEMBERS.

## LOAD GUIDANCE NOTES

1. PRIOR TO LOADING AND/OR UNLOADING, SET BRAKES ON TACTICAL VEHICLE AND DROP TAILGATE. IF LOADING AND/OR UNLOADING TRUCK OR TRAILER, REMOVE SIDE RACKS FROM SEMITRAILERS, AND CANVAS COVER AND BOWS FROM TRUCK OR TRAILER.
2. PRIOR TO LOADING A TACTICAL VEHICLE, SELECT THE QUANTITY OF ITEMS TO BE LOADED. CAUTION: DO NOT EXCEED THE OFF-HIGHWAY WEIGHT LIMIT OF THE VEHICLE. SELECT A LOCATION AGAINST AN ENDWALL OR ANYWHERE WITHIN THE LENGTH OF THE CARGO BED THAT WILL PROVIDE AN ADEQUATE QUANTITY OF TIEDOWN ANCHORS TO SECURE THE LOAD USING THE TIEDOWN PROCEDURES SHOWN WITHIN THIS DOCUMENT.
3. AFTER ALL LOADING PROCEDURES ARE COMPLETE, CHECK ALL WEB STRAP TIEDOWN ASSEMBLIES FOR MAXIMUM TIGHTNESS AND RATCHET TIGHTER, IF REQUIRED, PRIOR TO FOLDING UP AND SECURING THE LOOSE ENDS OF STRAP. SEE GENERAL NOTE "D" ON PAGE 2.
4. WHEN TWO STRAPS ARE TO BE ATTACHED TO THE SAME TIEDOWN ANCHOR, ATTACH THE RATCHET END OF ONE STRAP AND THE NON-RATCHET END OF THE SECOND STRAP TO THE TIEDOWN ANCHOR, PRIOR TO RATCHETING STRAPS TIGHT.
5. IF THE WEB STRAP TIEDOWN ASSEMBLIES BEING USED DO NOT HAVE SWIVEL HOOKS ON EACH END, ASSURE THAT ALL TWISTS ARE OUT OF STRAP PRIOR TO ATTACHING HOOKS TO TIEDOWN ANCHORS.
6. THE M871 SEMITRAILER IS EQUIPPED WITH THREE DIFFERENT TYPES OF TIEDOWN FITTINGS. TYPE I IS A REMOVABLE TIEDOWN FITTING THAT HAS ONE RING AND IS POSITIONED BY REACHING UNDER THE FLOOR OF THE TRAILER, INSERTING IT UP THROUGH THE HOLE AND ROTATING IT INTO POSITION (NOTE THAT THIS REMOVABLE TIEDOWN FITTING IS ALSO USED ON THE M872 SEMITRAILER). THERE ARE 10 LOCATIONS FOR THESE TIEDOWN FITTINGS ON EACH SIDE OF THE M871 SEMITRAILER. TYPE II IS A REMOVABLE TIEDOWN FITTING THAT HAS TWO RINGS AND IS POSITIONED BY DEPRESSING A SPRING LOCK LEVER AND INSERTING IT INTO A 1-3/4" DIAMETER HOLE FROM THE TOP. ASSURE THAT THE TIEDOWN FITTING IS FIRMLY SEATED AND ROTATED SO THE SPRING LOCK LEVER IS POINTING AWAY FROM THE DIRECTION OF PULL ON THE ATTACHED WEB STRAP TIEDOWN ASSEMBLY. THERE ARE 10 LOCATIONS FOR THESE TIEDOWN FITTINGS ON EACH SIDE OF THE M871 SEMITRAILER. TYPE III IS A FIXED TIEDOWN FITTING THAT HAS ONE RING AND IS RECESSED INTO THE FLOOR. THERE ARE FIVE OF THESE TIEDOWN FITTINGS ON EACH SIDE OF THE M871 SEMITRAILER. SEE "TIEDOWN ANCHOR DETAILS" ON PAGE 32.
7. THE M872 SEMITRAILER IS EQUIPPED WITH TWO DIFFERENT TYPES OF TIEDOWN FITTINGS. TYPE I IS A REMOVABLE TIEDOWN FITTING THAT HAS ONE RING AND IS POSITIONED BY REACHING UNDER THE FLOOR OF THE TRAILER, INSERTING THE TIEDOWN FITTING UP THROUGH THE HOLE AND ROTATING IT INTO POSITION (NOTE THAT THIS REMOVABLE TIEDOWN FITTING MAY ALSO BE USED ON THE M871 SEMITRAILER). THERE ARE 28 LOCATIONS FOR THESE TIEDOWN FITTINGS ON EACH SIDE OF THE M872 SEMITRAILER. HOWEVER, THE QUANTITY AND LOCATION MAY VARY ON SOME M872 SEMITRAILERS. THE SECOND TYPE OF TIEDOWN FITTING IS THE "TEE-HOOK". THIS IS A REMOVABLE TIEDOWN FITTING EQUIPPED WITH ONE ELONGATED RING AND IS POSITIONED BY INSERTING IT INTO ONE OF THE ELONGATED SLOTTED HOLES WHICH ARE AT A 45° ANGLE TO THE SIDE OF THE TRAILER. THERE ARE FIVE LOCATIONS FOR THESE TIEDOWN FITTINGS ON EACH SIDE OF THE M872 TRAILER. HOWEVER, THE QUANTITY AND LOCATION MAY VARY ON SOME M872 SEMITRAILERS. ASSURE THAT THE TIEDOWN FITTING IS FIRMLY SEATED AND ROTATED APPROXIMATELY 45° TO ENGAGED POSITION BEFORE ATTACHING THE WEB STRAP TIEDOWN ASSEMBLY. SEE "TIEDOWN ANCHOR DETAILS" ON PAGE 32.
8. ASSURE THAT ALL UNITIZING STRAPS ARE IN VERTICAL ALIGNMENT.
9. PRIOR TO LOADING THE VEHICLE, DETERMINE THE QUANTITY OF M/LPAS TO BE LOADED IN/ON THE VEHICLE. SELECT THE BEST METHOD FROM THE METHODS SHOWN WITHIN THIS DRAWING. NOTE: A COMBINATION OF METHODS SHOWN WITHIN THIS DRAWING MAY BE USED IN/ON THE SAME TACTICAL VEHICLE.
10. THE M/LPAS MAY BE POSITIONED WITH THE FORWARD END POINTING TO THE FORWARD OR AFT END OF THE VEHICLE. HOWEVER, ALL THE CONTAINERS IN A STACK OF TWO THROUGH FOUR MUST BE POINTING IN THE SAME DIRECTION.

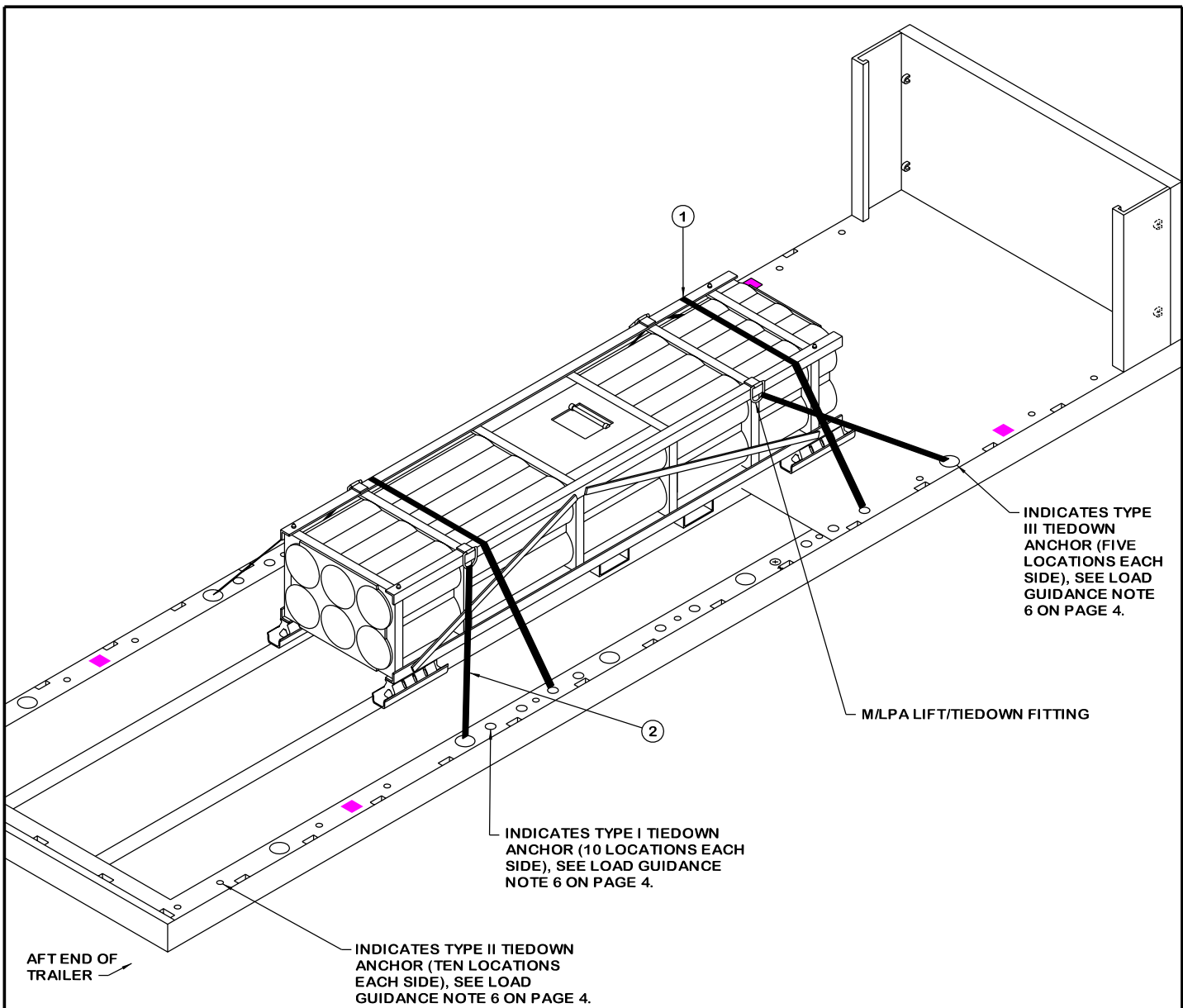
## TYPICAL TACTICAL VEHICLES AND MAXIMUM LOAD PER VEHICLE (SEE "NOTE ●" BELOW)

TYPICAL TACTICAL VEHICLE AND/OR TRAILER BEING LOADED (SEE "NOTE ●" BELOW)	MAX NUMBER OF M/LPAS IN A LOAD, (LIMITING FACTOR)	SEE THE LOAD(S) ON PAGE(S)
2-1/2-TON M36/M36C CARGO TRUCK	ONE (WEIGHT)	6
5-TON M41 CARGO TRUCK	TWO (WEIGHT)	8
5-TON M54 CARGO TRUCK	TWO (WEIGHT)	8
5-TON M55 CARGO TRUCK	TWO (WEIGHT)	8
5-TON M656 CARGO TRUCK	TWO (WEIGHT)	8
5-TON M813 CARGO TRUCK	TWO (WEIGHT)	8
5-TON M814 CARGO TRUCK	TWO (WEIGHT)	8
5-TON M925A1 CARGO TRUCK	TWO (WEIGHT)	8
5-TON M927A1 CARGO TRUCK	TWO (WEIGHT)	8
5-TON M939 CARGO TRUCK	TWO (WEIGHT)	8
5-TON M1083 CARGO TRUCK	TWO (WEIGHT)	8
5-TON M1084 CARGO TRUCK	TWO (WEIGHT)	8
5-TON M1085 CARGO TRUCK	TWO (WEIGHT)	8
5-TON M1086 CARGO TRUCK	TWO (WEIGHT)	8
5-TON M1095 CARGO TRAILER	TWO (WEIGHT)	8
8-TON M520 CARGO TRUCK	TWO (SIZE)	7
10-TON M125 CARGO TRUCK	FOUR (WEIGHT)	10 AND 12
10-TON M977/M985 HEMTT	FOUR (WEIGHT)	10, 12, 18
11-TON M989 HEMAT	TWO (STABILITY)	8 AND 20
11-TON M989A1 HEMAT	FOUR (WEIGHT)	10, 12, 24
12-TON M127 SEMITRAILER	FOUR (WEIGHT)	6, 8, 9, 10
14-3/8-TON M1 PLS		
16-1/2-TON M1077 PLS A-FRAME		SEE AMC DRAWING 19-48-8217-GM17MS1 FOR PLS LOADING
22-1/2-TON M871 SEMITRAILER	EIGHT (WEIGHT)	10 AND 12
34-TON M872 SEMITRAILER	EIGHT (SIZE)	10 AND 12

### NOTE ●:

THE TACTICAL VEHICLES LISTED IN THE CHART ABOVE AND/OR AS SHOWN WITHIN THIS DRAWING WERE SELECTED AS TYPICAL ONLY. OTHER TYPES OF VEHICLES MAY BE USED IN LIEU OF THOSE SHOWN, AS LONG AS THEY COMPLY WITH GENERAL NOTE "C" ON PAGE 2. SEE THE "LOAD PLANNING GUIDANCE FOR ONE THROUGH EIGHT CONTAINERS" CHART ON PAGE 5. FOR LOADING AND TIEDOWN PROCEDURES ON THE 10-TON M977/M985 HEMTT, 11-TON M989 HEMAT, AND M989A1 HEMAT, SEE PAGES 15 THROUGH 24.

<b>LOAD PLANNING GUIDANCE FOR ONE THROUGH EIGHT M/LPAS</b>		
<b>QUANTITY OF M/LPAS</b>	<b>SEE LOAD SHOWN ON PAGE(S) OR USE THE ALTERNATIVE METHOD LISTED IN COLUMN AT RIGHT</b>	<b>ALTERNATIVE METHOD OF LOADING THE QUANTITY OF M/LPAS LISTED IN THE FIRST COLUMN OF THIS CHART</b>
1	6, 15, 19, 21	NONE
2	7, 8, 16, 20 AND 22	TWO M/LPAS MAY BE POSITIONED END-TO-END AND EACH M/LPA SECURED AS SHOWN FOR THE ONE M/LPA LOAD ON PAGE 6.
3	9, 17, AND 23	TWO M/LPAS MAY BE POSITIONED SIDE-BY-SIDE AND SECURED AS SHOWN IN THE TWO M/LPA LOAD ON PAGE 8 AND ONE M/LPA MAY BE POSITIONED AND SECURED AS SHOWN IN THE ONE M/LPA LOAD ON PAGE 6.
4	10, 12, 18, AND 24	TWO M/LPAS MAY BE POSITIONED SIDE-BY-SIDE AND END-TO-END AND EACH GROUP OF TWO M/LPAS SECURED AS SHOWN IN THE TWO M/LPA LOAD ON PAGE 8.
5	NO LOAD SHOWN FOR FIVE CONTAINERS	TWO M/LPAS MAY BE POSITIONED SIDE-BY-SIDE AND SECURED AS SHOWN IN THE TWO M/LPA LOAD ON PAGE 8, AND THREE M/LPAS MAY BE POSITIONED AND SECURED AS SHOWN IN THE THREE M/LPA LOAD ON PAGE 9.
		FOUR M/LPAS MAY BE POSITIONED AND SECURED AS SHOWN IN THE EIGHT M/LPA LOAD ON PAGE 10, AND ONE M/LPA MAY BE POSITIONED AND SECURED AS SHOWN IN FOR THE ONE M/LPA LOAD SHOWN ON PAGE 6.
6	NO LOAD SHOWN FOR SIX CONTAINERS	FOUR M/LPAS MAY BE POSITIONED AND SECURED AS SHOWN IN THE EIGHT M/LPA LOAD ON PAGE 10 AND TWO M/LPAS MAY BE POSITIONED AND SECURED AS SHOWN IN THE TWO M/LPA LOAD ON PAGE 8.
		TWO GROUPS OF THREE M/LPAS EACH MAY BE POSITIONED AND SECURED AS SHOWN IN THE THREE M/LPA LOAD ON PAGE 9.
7	NO LOAD SHOWN FOR SEVEN CONTAINERS.	FOUR M/LPAS MAY BE POSITIONED AND SECURED AS SHOWN IN THE EIGHT M/LPA LOAD ON PAGE 10, AND THREE M/LPAS MAY BE POSITIONED AND SECURED AS SHOWN IN THE THREE M/LPAS LOAD ON PAGE 9.
8	10 AND 12	NONE



**ISOMETRIC VIEW**

**SPECIAL NOTES:**

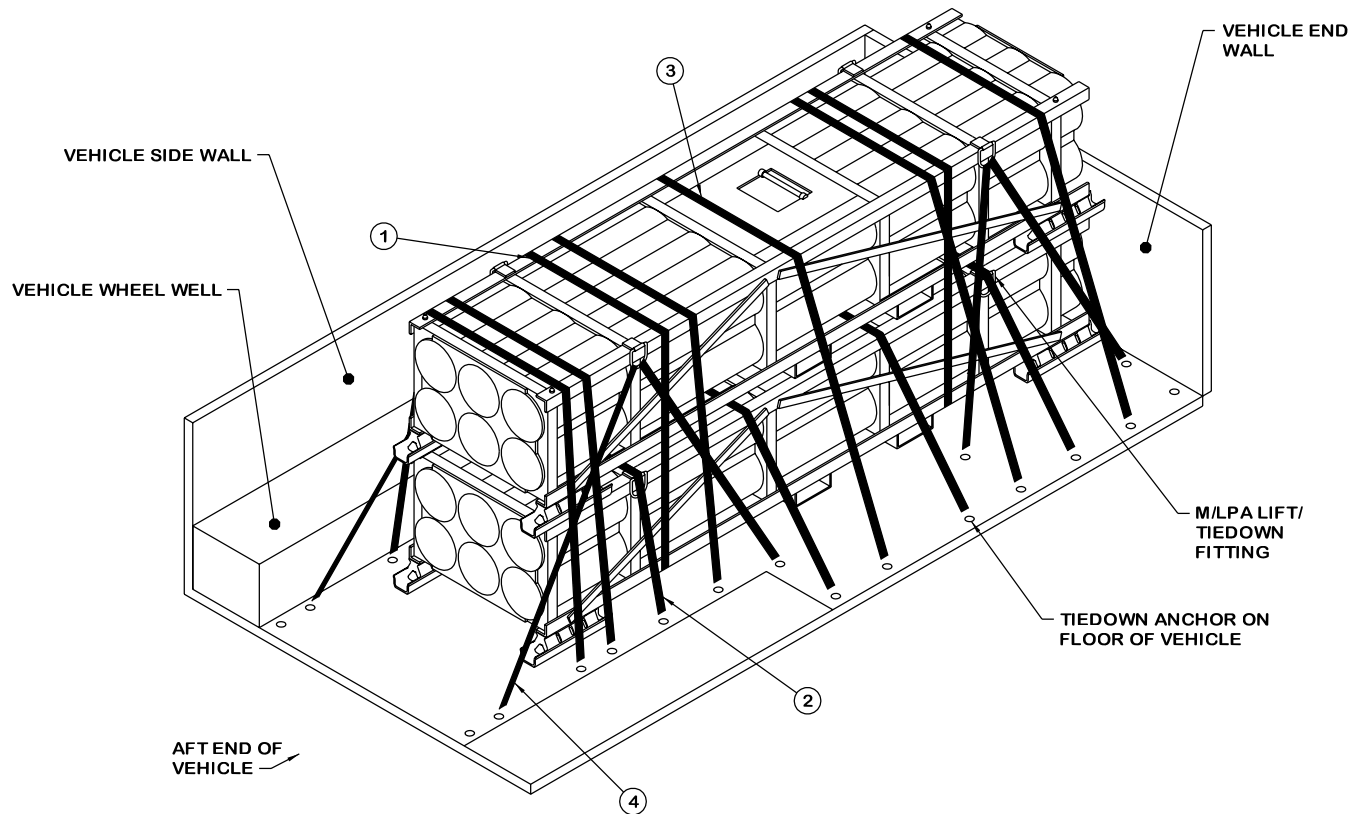
1. A TYPICAL LOAD OF ONE M/LPA IS SHOWN ON A 22-1/2-TON M871 SEMITRAILER, HAVING DIMENSIONS OF 354" LONG BY 95" WIDE.
2. THE SEMITRAILER SHOWN WAS SELECTED AS TYPICAL ONLY. TRAILERS AND/OR VEHICLES OF OTHER DIMENSIONS WHICH HAVE A SUFFICIENT QUANTITY OF TIEDOWN ANCHORS, LOCATED ON THE SIDEWALL OR ON THE FLOOR, MAY BE USED TO TRANSPORT THE LOAD SHOWN.
3. IF DESIRED, THE M/LPA MAY BE POSITIONED AGAINST THE FORWARD BULKHEAD ON THE SEMITRAILER OR AGAINST THE FORWARD END WALL OF A VEHICLE, AS SHOWN IN THE LOAD ON PAGE 7.
4. A TOTAL OF SIX WEB STRAP TIEDOWN ASSEMBLIES ARE REQUIRED FOR THE LOAD SHOWN ABOVE.

**KEY NUMBERS**

- ① WEB STRAP TIEDOWN ASSEMBLY (2 REQD). INSTALL EACH STRAP TO EXTEND FROM A TIEDOWN ANCHOR ON ONE SIDE OF VEHICLE, OVER TOP OF M/LPA TO A TIEDOWN ANCHOR ON OPPOSITE SIDE OF VEHICLE. POSITION STRAP SCUFF SLEEVES AT SHARP EDGES. TAKE UP EXCESS SLACK IN STRAP THEN RATCHET TIGHT.
- ② WEB STRAP TIEDOWN ASSEMBLY (4 REQD). INSTALL EACH STRAP TO EXTEND FROM A TIEDOWN ANCHOR ON SIDE OF VEHICLE TO A LIFT/TIEDOWN FITTING ON M/LPA AT APPROXIMATE ANGLE SHOWN. TAKE UP EXCESS SLACK IN STRAP AND THEN RATCHET TIGHT.

**LOAD AS SHOWN**

<u>ITEM</u>	<u>QUANTITY</u>	<u>WEIGHT (APPROX)</u>
M/LPA - - - - -	1 - - - - -	5, 111 LBS



**ISOMETRIC VIEW**

**SPECIAL NOTES:**

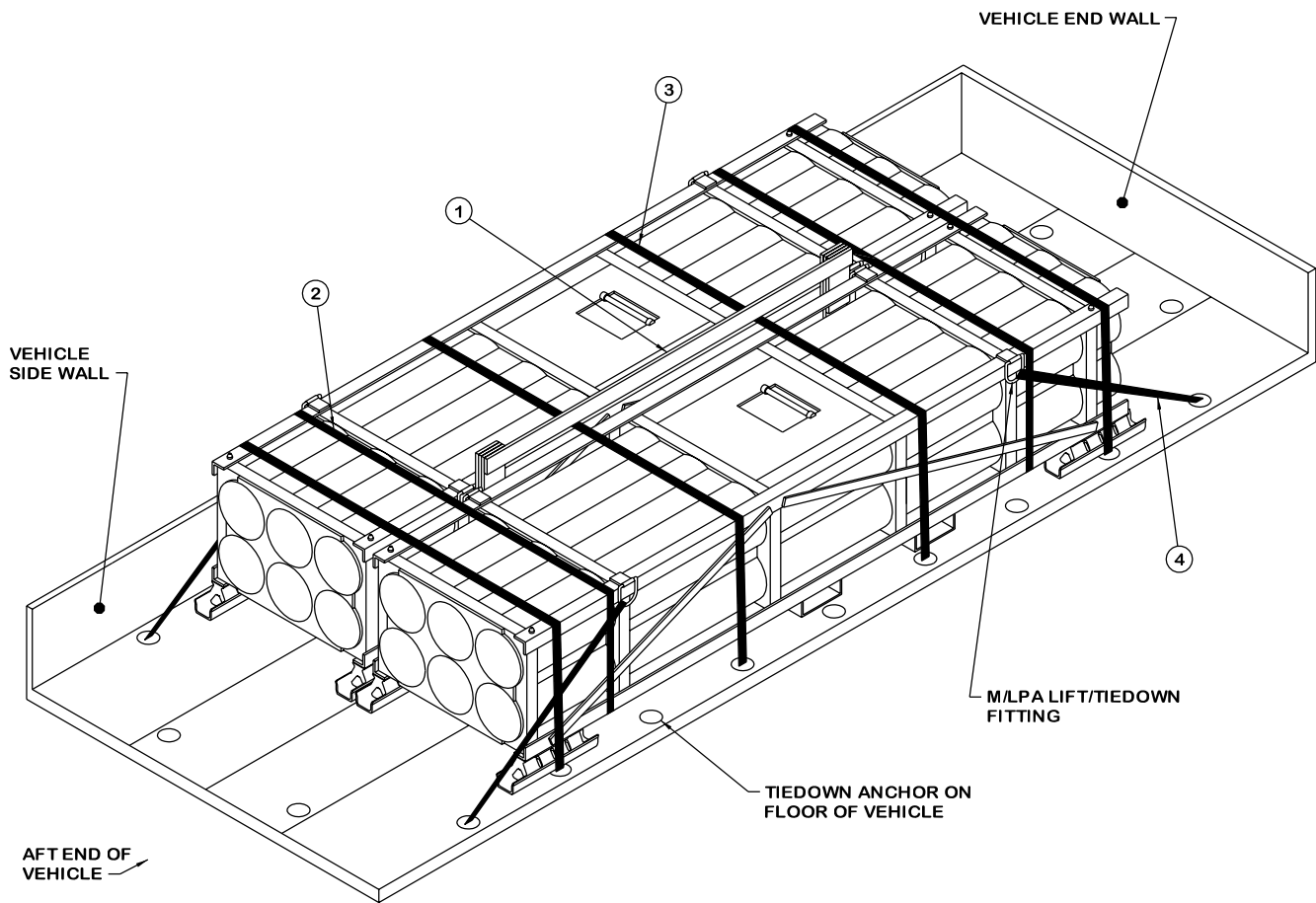
1. A LOAD OF TWO M/LPAS IS SHOWN IN AN 8-TON M520 CARGO TRUCK, HAVING INSIDE DIMENSIONS OF 196" LONG BY 98-1/2" WIDE (59" WIDE BETWEEN THE WHEEL WELLS).
2. THE TIEDOWN METHOD SHOWN ABOVE IS ONLY FOR USE IN THE M520 CARGO TRUCK. MORE WEB STRAP TIEDOWN ASSEMBLIES ARE REQUIRED TO SECURE THE LOAD IN THIS TRUCK BECAUSE THE TIEDOWN ANCHORS LOCATED ON THE FLOOR MUST NOT EXCEED A 2,000 PULL.
3. IF ONLY ONE M/LPA IS BEING LOADED, POSITION FIVE WEB STRAP TIEDOWN ASSEMBLIES MARKED ② OVER TOP OF M/LPA AND TWO WEB STRAP TIEDOWN ASSEMBLIES MARKED ④ AT EACH END. STRAPS MARKED ④ SHOULD BE POSITIONED AT AN ANGLE FROM THE LIFT/TIEDOWN FITTING ON THE M/LPA TO A VEHICLE TIEDOWN ANCHOR LOCATED NEAR THE FLOOR, TOWARD THE NEAR END WALL OF THE VEHICLE.
4. A TOTAL OF 20 WEB STRAP TIEDOWN ASSEMBLIES ARE REQUIRED FOR THE LOAD AS SHOWN ABOVE.

**KEY NUMBERS**

- ① WEB STRAP TIEDOWN ASSEMBLY (2 REQD). INSTALL EACH STRAP TO ENCIRCLE BOTH M/LPAS AT LOCATIONS SHOWN. POSITION STRAP SCUFF SLEEVES AT SHARP EDGES. TAKE UP EXCESS SLACK IN STRAP AND RATCHET TIGHT.
- ② WEB STRAP TIEDOWN ASSEMBLY (4 REQD). INSTALL EACH STRAP TO EXTEND FROM A TIEDOWN ANCHOR ON ONE SIDE OF VEHICLE, OVER TOP OF BOTTOM M/LPA, TO A TIEDOWN ANCHOR ON OPPOSITE SIDE OF VEHICLE. POSITION STRAP SCUFF SLEEVES AT SHARP EDGES. TAKE UP EXCESS SLACK IN STRAP AND RATCHET TIGHT.
- ③ WEB STRAP TIEDOWN ASSEMBLY (6 REQD). INSTALL EACH STRAP TO EXTEND FROM A TIEDOWN ANCHOR ON ONE SIDE OF VEHICLE, OVER TOP OF LOAD, TO A TIEDOWN ANCHOR ON OPPOSITE SIDE OF VEHICLE. POSITION STRAP SCUFF SLEEVES AT SHARP EDGES. TAKE UP EXCESS SLACK IN STRAP AND RATCHET TIGHT.
- ④ WEB STRAP TIEDOWN ASSEMBLY (8 REQD). INSTALL EACH STRAP TO EXTEND FROM A TIEDOWN ANCHOR OF THE VEHICLE TO A LIFT/TIEDOWN RING ON THE TOP M/LPA AT THE APPROXIMATE ANGLE SHOWN. TAKE UP EXCESS SLACK AND RATCHET TIGHT.

**LOAD AS SHOWN**

<u>ITEM</u>	<u>QUANTITY</u>	<u>WEIGHT (APPROX)</u>
M/LPA - - - - -	2 - - - - -	10, 222 LBS



**ISOMETRIC VIEW**

**SPECIAL NOTES:**

1. A TYPICAL LOAD OF TWO M/LPAS IS SHOWN ON A 5-TON M1085 CARGO TRUCK, HAVING DIMENSIONS OF 244" LONG BY 91" WIDE.
2. THE CARGO TRUCK SHOWN WAS SELECTED AS TYPICAL ONLY. TRAILERS AND/OR VEHICLES OF OTHER DIMENSIONS WHICH HAVE A SUFFICIENT QUANTITY OF TIEDOWN ANCHORS, LOCATED ON THE SIDEWALL OR ON THE FLOOR, MAY BE USED TO TRANSPORT THE LOAD SHOWN.
3. FOR AN ALTERNATIVE METHOD OF LOADING TWO M/LPAS, SEE THE "LOAD PLANNING GUIDANCE FOR ONE THROUGH EIGHT M/LPAS" CHART ON PAGE 5.
4. A TOTAL OF 10 WEB STRAP TIEDOWN ASSEMBLIES ARE REQUIRED FOR THE LOAD SHOWN ABOVE.

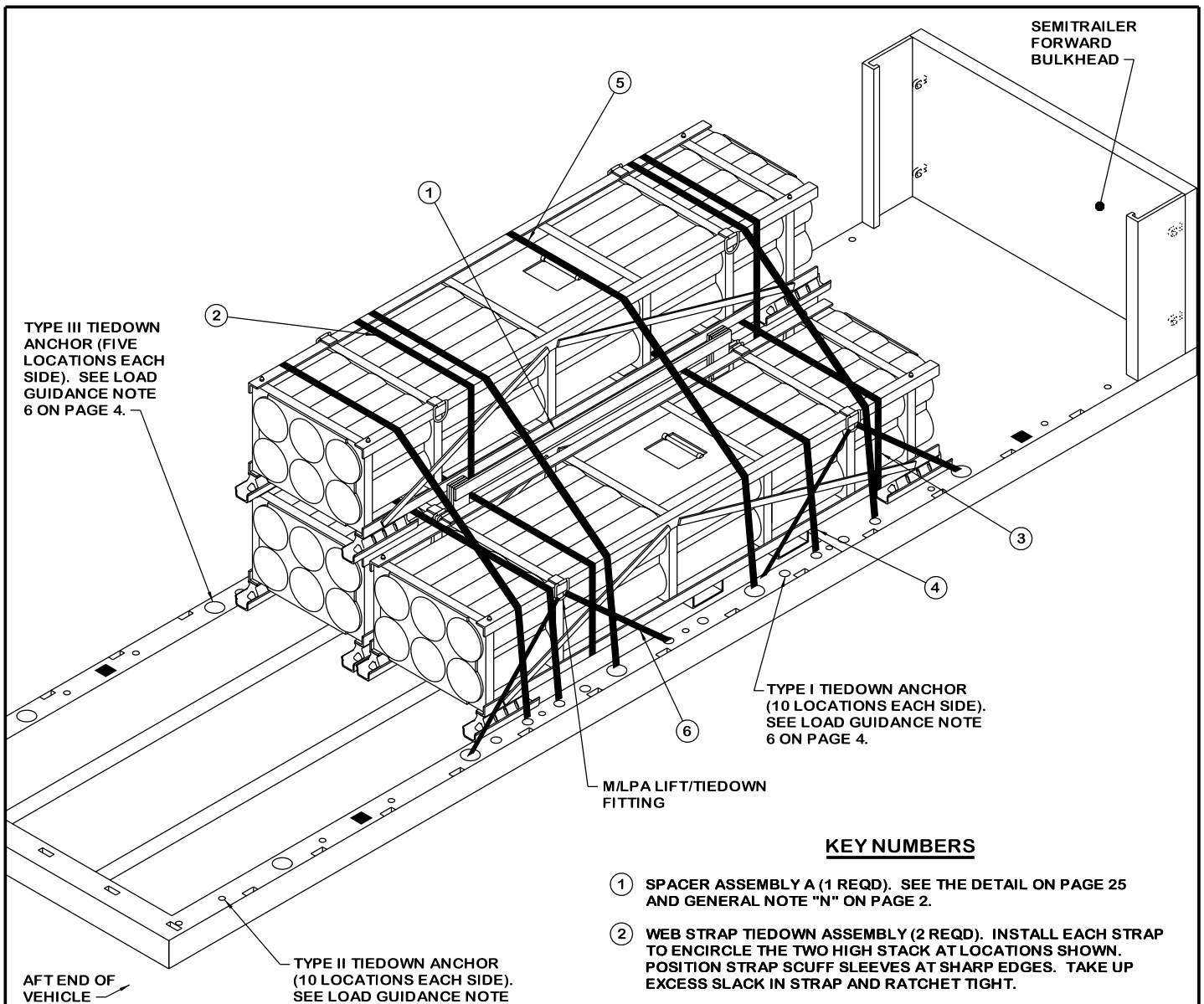
**KEY NUMBERS**

- ① SPACER ASSEMBLY A (1 REQD). SEE THE DETAIL ON PAGE 25 AND GENERAL NOTE "N" ON PAGE 2.
- ② WEB STRAP TIEDOWN ASSEMBLY (2 REQD). INSTALL EACH STRAP TO ENCIRCLE BOTH M/LPAS AT LOCATIONS SHOWN. POSITION STRAP SCUFF SLEEVES AT SHARP EDGES. TAKE UP SLACK IN STRAP AND RATCHET TIGHT.
- ③ WEB STRAP TIEDOWN ASSEMBLY (4 REQD). INSTALL EACH STRAP TO EXTEND FROM A TIEDOWN ANCHOR ON ONE SIDE OF VEHICLE, OVER TOP OF M/LPA, TO A TIEDOWN ANCHOR ON OPPOSITE SIDE OF VEHICLE. POSITION STRAP SCUFF SLEEVE AT SHARP EDGES.
- ④ WEB STRAP TIEDOWN ASSEMBLY (4 REQD). INSTALL EACH STRAP TO EXTEND FROM A TIEDOWN ANCHOR OF THE VEHICLE TO A LIFT/TIEDOWN FITTING ON THE M/LPA AT THE APPROXIMATE ANGLE SHOWN. TAKE UP EXCESS SLACK IN STRAP THEN RATCHET TIGHT.

**LOAD AS SHOWN**

<u>ITEM</u>	<u>QUANTITY</u>	<u>WEIGHT (APPROX)</u>
M/LPA - - - - -	2 - - - - -	10,222 LBS





**ISOMETRIC VIEW**

**SPECIAL NOTES:**

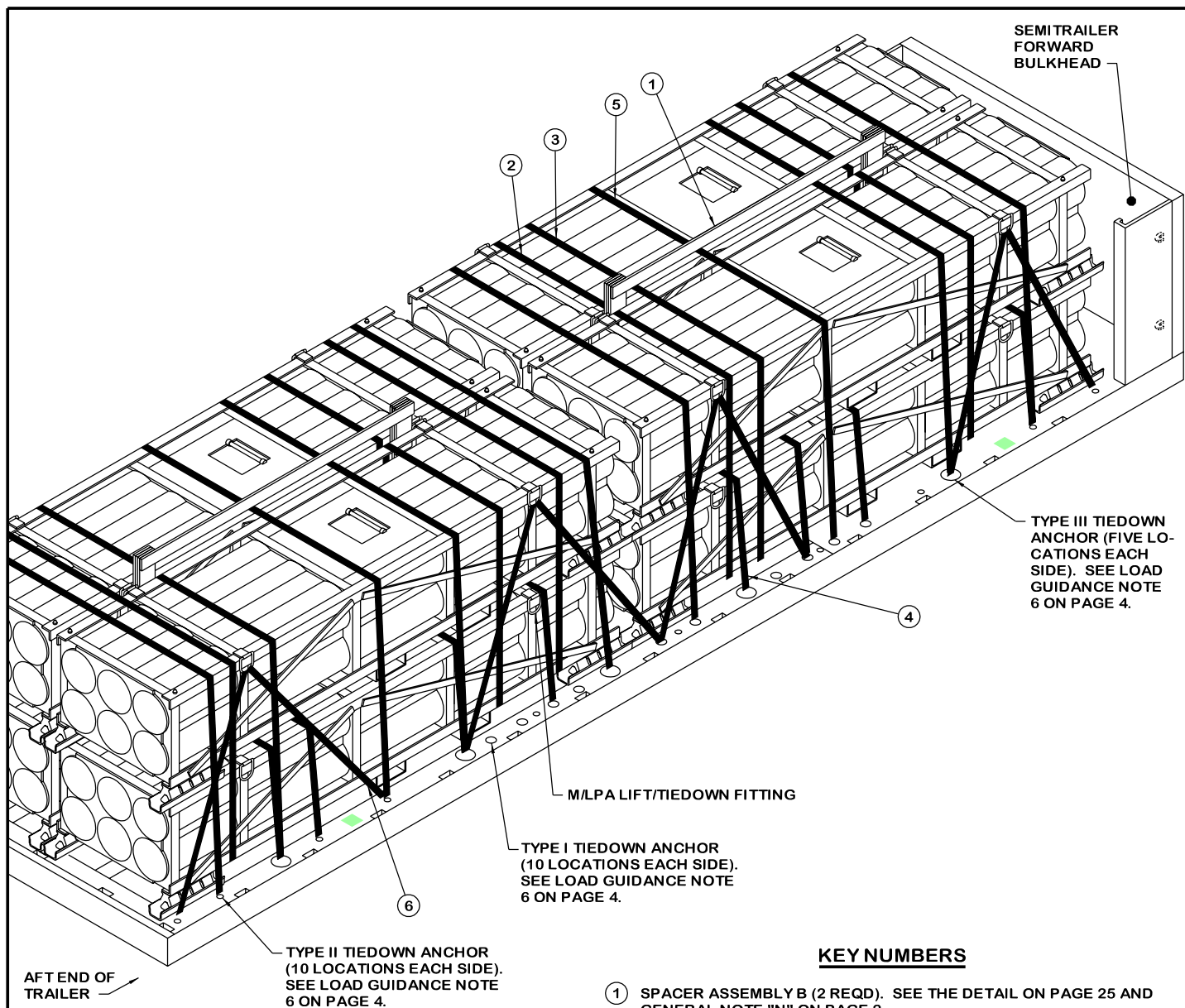
1. A TYPICAL LOAD OF THREE M/LPAS IS SHOWN ON A 22-1/2-TON M871 SEMITRAILER, HAVING DIMENSIONS OF 354" LONG BY 96" WIDE.
2. THE SEMITRAILER SHOWN WAS SELECTED AS TYPICAL ONLY. TRAILERS AND/OR VEHICLES OF OTHER DIMENSIONS WHICH HAVE A SUFFICIENT QUANTITY OF TIEDOWN ANCHORS, LOCATED ON THE SIDEWALL OR ON THE FLOOR, MAY BE USED TO TRANSPORT THE LOAD SHOWN.
3. FOR AN ALTERNATIVE METHOD OF LOADING THREE M/LPAS, SEE THE "LOAD PLANNING GUIDANCE FOR ONE THROUGH EIGHT M/LPAS" CHART ON PAGE 5.
4. A TOTAL OF 18 WEB STRAP TIEDOWN ASSEMBLIES ARE REQUIRED FOR THE LOAD SHOWN ABOVE.

**KEY NUMBERS**

- ① SPACER ASSEMBLY A (1 REQD). SEE THE DETAIL ON PAGE 25 AND GENERAL NOTE "N" ON PAGE 2.
- ② WEB STRAP TIEDOWN ASSEMBLY (2 REQD). INSTALL EACH STRAP TO ENCIRCLE THE TWO HIGH STACK AT LOCATIONS SHOWN. POSITION STRAP SCUFF SLEEVES AT SHARP EDGES. TAKE UP EXCESS SLACK IN STRAP AND RATCHET TIGHT.
- ③ WEB STRAP TIEDOWN ASSEMBLY (2 REQD). INSTALL EACH STRAP TO ENCIRCLE BOTH BOTTOM M/LPAS AT LOCATIONS SHOWN. POSITION STRAP SCUFF SLEEVES AT SHARP EDGES. TAKE UP EXCESS SLACK IN STRAP AND RATCHET TIGHT.
- ④ WEB STRAP TIEDOWN ASSEMBLY (2 REQD). INSTALL EACH STRAP TO EXTEND FROM A TIEDOWN ANCHOR ON ONE SIDE OF VEHICLE, OVER TOP OF BOTTOM M/LPAS, TO A TIEDOWN ANCHOR ON OPPOSITE SIDE OF VEHICLE. POSITION STRAP SCUFF SLEEVES AT SHARP EDGES. TAKE UP EXCESS SLACK IN STRAP AND RATCHET TIGHT.
- ⑤ WEB STRAP TIEDOWN ASSEMBLY (4 REQD). INSTALL EACH STRAP TO EXTEND FROM A TIEDOWN ANCHOR ON ONE SIDE OF VEHICLE, OVER TOP OF LOAD, TO A TIEDOWN ANCHOR ON OPPOSITE SIDE OF VEHICLE. POSITION STRAP SCUFF SLEEVES AT SHARP EDGES. TAKE UP EXCESS SLACK IN STRAP AND RATCHET TIGHT.
- ⑥ WEB STRAP TIEDOWN ASSEMBLY (8 REQD). INSTALL EACH STRAP TO EXTEND FROM A TIEDOWN ANCHOR OF THE VEHICLE TO A LIFT/TIEDOWN RING ON THE M/LPA AT THE APPROXIMATE ANGLE SHOWN. TAKE UP EXCESS SLACK AND RATCHET TIGHT. THESE STRAPS ARE ATTACHED TO THE LIFT/TIEDOWN FITTINGS ON THE TOP M/LPA IN THE TWO-HIGH STACK.

**LOAD AS SHOWN**

ITEM	QUANTITY	WEIGHT (APPROX)
M/LPA	3	15,333 LBS



**ISOMETRIC VIEW**

**KEY NUMBERS**

- ① SPACER ASSEMBLY B (2 REQD). SEE THE DETAIL ON PAGE 25 AND GENERAL NOTE "N" ON PAGE 2.
- ② WEB STRAP TIEDOWN ASSEMBLY (8 REQD). INSTALL EACH STRAP TO ENCIRCLE TWO HIGH STACKS AT LOCATIONS SHOWN. POSITION STRAP SCUFF SLEEVES AT SHARP EDGES. TAKE UP EXCESS SLACK IN STRAP AND RATCHET TIGHT.
- ③ WEB STRAP TIEDOWN ASSEMBLY (4 REQD). EACH ASSEMBLY WILL CONSIST OF TWO STRAPS HOOKED TOGETHER. INSTALL EACH ASSEMBLY TO ENCIRCLE ALL FOUR M/LPAS AT LOCATIONS SHOWN. POSITION STRAP SCUFF SLEEVES AT SHARP EDGES. TAKE UP EXCESS SLACK IN STRAP AND RATCHET TIGHT.
- ④ WEB STRAP TIEDOWN ASSEMBLY (8 REQD). INSTALL EACH STRAP TO EXTEND FROM A TIEDOWN ANCHOR ON ONE SIDE OF VEHICLE, OVER TOP OF BOTTOM M/LPAS, TO A TIEDOWN ANCHOR ON OPPOSITE SIDE OF VEHICLE. POSITION STRAP SCUFF SLEEVES AT SHARP EDGES. TAKE UP EXCESS SLACK IN STRAP AND RATCHET TIGHT.
- ⑤ WEB STRAP TIEDOWN ASSEMBLY (8 REQD). INSTALL EACH STRAP TO EXTEND FROM A TIEDOWN ANCHOR ON ONE SIDE OF VEHICLE, OVER TOP OF LOAD, TO A TIEDOWN ANCHOR ON OPPOSITE SIDE OF VEHICLE. POSITION STRAP SCUFF SLEEVES AT SHARP EDGES. TAKE UP EXCESS SLACK IN STRAP AND RATCHET TIGHT.
- ⑥ WEB STRAP TIEDOWN ASSEMBLY (16 REQD). INSTALL EACH STRAP TO EXTEND FROM A TIEDOWN ANCHOR OF THE VEHICLE TO A LIFT/TIEDOWN RING ON THE TOP M/LPA AT THE APPROXIMATE ANGLE SHOWN. TAKE UP EXCESS SLACK AND RATCHET TIGHT.

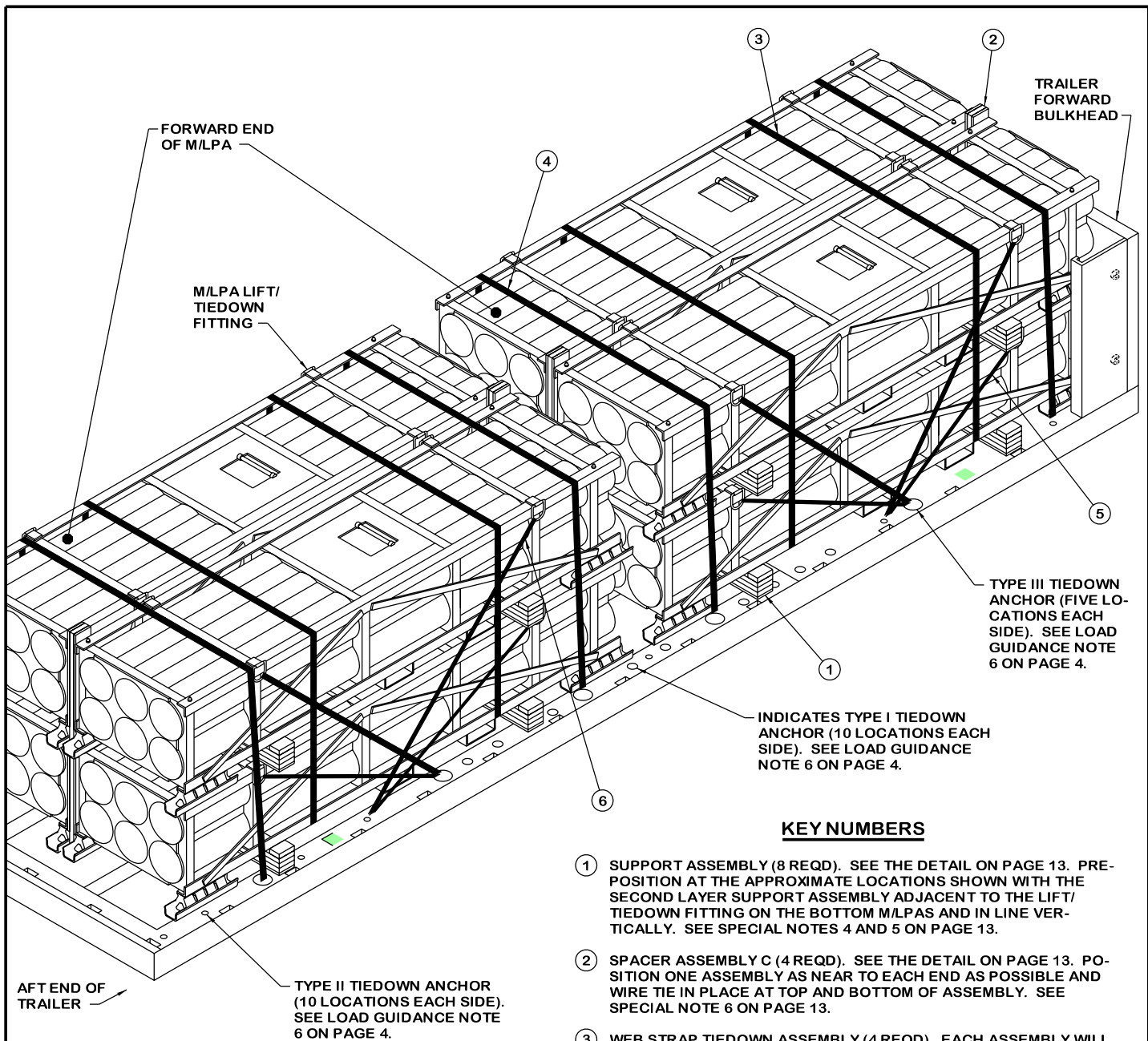
**SPECIAL NOTES:**

1. A TYPICAL LOAD OF EIGHT M/LPAS IS SHOWN ON A 22-1/2-TON M871 SEMITRAILER, HAVING DIMENSIONS OF 354" LONG BY 96" WIDE.
2. THE SEMITRAILER SHOWN WAS SELECTED AS TYPICAL ONLY. TRAILERS OF OTHER DIMENSIONS WHICH HAVE A SUFFICIENT QUANTITY OF TIEDOWN ANCHORS LOCATED ON THE FLOOR MAY BE USED TO TRANSPORT THE LOAD SHOWN.
3. THE EIGHT M/LPA LOAD SHOWN ON PAGE 10 IS APPLICABLE TO TRAILERS HAVING A MINIMUM LENGTH OF 28'-0" AND CAPABLE OF TRANSPORTING A LOAD WEIGHT OF AT LEAST 20-1/2 TONS.
4. FOR AN ALTERNATIVE METHOD OF LOADING EIGHT M/LPAS ON AN M871 AND/OR AN M872 SEMITRAILER, AND SECURING THE LOAD WITH 28 WEB STRAP TIEDOWN ASSEMBLIES IN LIEU OF 48, SEE THE PROCEDURES SHOWN ON PAGES 12 AND 13.
5. THE PROCEDURES SHOWN ON PAGES 12 AND 13 MAY ALSO BE USED FOR SECURING FOUR M/LPAS ON A TACTICAL VEHICLE.
6. A TOTAL OF 48 WEB STRAP TIEDOWN ASSEMBLIES ARE REQUIRED FOR THE LOAD SHOWN ON PAGE 10.

LOAD AS SHOWN

<u>ITEM</u>	<u>QUANTITY</u>	<u>WEIGHT (APPROX)</u>
M/LPA - - - - -	8 - - - - -	40,888 LBS

EIGHT M/LPAS (METHOD I)



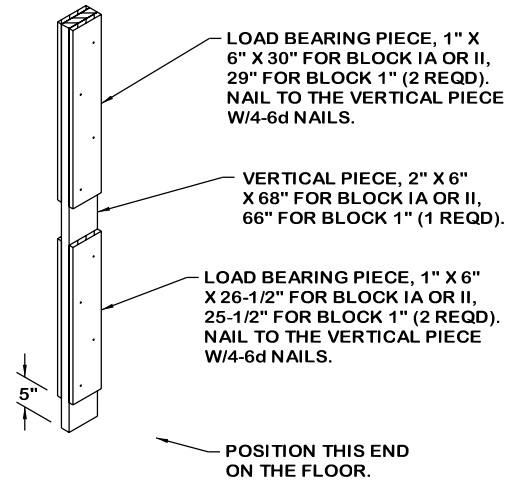
**ISOMETRIC VIEW**

**KEY NUMBERS**

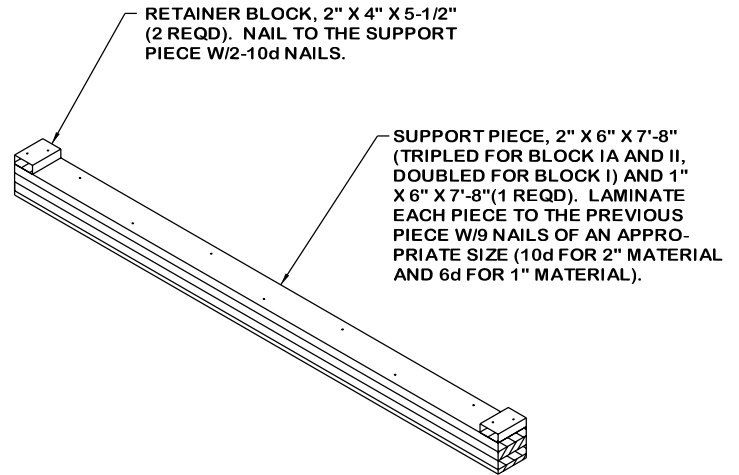
- ① SUPPORT ASSEMBLY (8 REQD). SEE THE DETAIL ON PAGE 13. PRE-POSITION AT THE APPROXIMATE LOCATIONS SHOWN WITH THE SECOND LAYER SUPPORT ASSEMBLY ADJACENT TO THE LIFT/TIEDOWN FITTING ON THE BOTTOM M/LPAS AND IN LINE VERTICALLY. SEE SPECIAL NOTES 4 AND 5 ON PAGE 13.
- ② SPACER ASSEMBLY C (4 REQD). SEE THE DETAIL ON PAGE 13. POSITION ONE ASSEMBLY AS NEAR TO EACH END AS POSSIBLE AND WIRE TIE IN PLACE AT TOP AND BOTTOM OF ASSEMBLY. SEE SPECIAL NOTE 6 ON PAGE 13.
- ③ WEB STRAP TIEDOWN ASSEMBLY (4 REQD). EACH ASSEMBLY WILL CONSIST OF TWO STRAPS HOOKED TOGETHER TO ENCIRCLE ALL FOUR M/LPAS AT THE APPROXIMATE LOCATIONS SHOWN, ADJACENT TO THE SUPPORT ASSEMBLIES. POSITION STRAP SCUFF SLEEVES AT SHARP EDGES. TAKE UP EXCESS SLACK IN STRAP AND RATCHET TIGHT. NOTE: ASSURE THAT THE SUPPORT ASSEMBLIES AND SPACER ASSEMBLIES "C" ARE IN POSITION PRIOR TO RATCHETING STRAPS TIGHT.
- ④ WEB STRAP TIEDOWN ASSEMBLY (4 REQD). INSTALL EACH STRAP TO EXTEND FROM A TIEDOWN ANCHOR ON ONE SIDE OF VEHICLE, OVER TOP OF LOAD AT APPROXIMATE LOCATIONS SHOWN, TO A TIEDOWN ANCHOR ON OPPOSITE SIDE OF VEHICLE. POSITION STRAP SCUFF SLEEVES AT SHARP EDGES. TAKE UP EXCESS SLACK IN STRAP AND RATCHET TIGHT.
- ⑤ WEB STRAP TIEDOWN ASSEMBLY (8 REQD). INSTALL EACH STRAP TO EXTEND FROM A TIEDOWN ANCHOR OF VEHICLE UP TO A LIFT/TIEDOWN FITTING ON THE BOTTOM M/LPA AT THE APPROXIMATE ANGLE SHOWN. HOOK THE NON-RATCHET END OF STRAP TO THE VEHICLE TIEDOWN ANCHOR. TAKE UP EXCESS SLACK IN STRAP AND RATCHET TIGHT.
- ⑥ WEB STRAP TIEDOWN ASSEMBLY (8 REQD). INSTALL EACH STRAP TO EXTEND FROM A TIEDOWN ANCHOR OF VEHICLE UP TO A LIFT/TIEDOWN FITTING ON THE TOP M/LPA AT THE APPROXIMATE ANGLE SHOWN. HOOK THE NON-RATCHET END OF STRAP TO THE VEHICLE TIEDOWN ANCHOR. TAKE UP EXCESS SLACK IN STRAP THEN RATCHET TIGHT.

**SPECIAL NOTES:**

1. A MAXIMUM LOAD OF EIGHT M/LPAS IS SHOWN LOADED ON A 22-1/2-TON M871 SEMITRAILER HAVING DIMENSIONS OF 96" WIDE BY 354" LONG.
2. THE VEHICLE SHOWN WAS SELECTED AS TYPICAL ONLY AND VEHICLES OF OTHER DIMENSIONS WHICH HAVE A SUFFICIENT QUANTITY OF TIEDOWN ANCHORS LOCATED ON THE FLOOR, MAY BE USED TO TRANSPORT THE LOAD SHOWN.
3. POSITION TWO STACKS OF FOUR M/LPAS EACH AT A LOCATION THAT WILL ALLOW STRAPS MARKED ④ TO BE POSITIONED AT THE APPROXIMATE LOCATIONS SHOWN. NOTE THAT THE AFT END OF THE M/LPAS ARE POINTING TOWARD THE FORWARD END OF THE VEHICLE.
4. POSITION THE SUPPORT ASSEMBLIES AND THE SPACER ASSEMBLIES "C" AS LOADING PROGRESSES.
5. THE SUPPORT ASSEMBLY PIECES ARE REQUIRED TO PREVENT THE SKIDS FROM DEFORMING AND TO PROVIDE STABILITY FOR THE M/LPAS DURING TRANSPORT. PRE-POSITION ON VEHICLE FLOOR AND/OR TOP OF A CONTAINER AS LOADING PROGRESSES.
6. THE SPACER ASSEMBLY "C" PIECES ARE REQUIRED TO PREVENT CONTACT OF THE LIFT/TIEDOWN FITTINGS ON LATERALLY ADJACENT M/LPAS. PRE-POSITION THESE PIECES AT THE LOCATIONS SHOWN AS LOADING PROGRESSES.
7. IF THE LOAD IS BEING TRANSPORTED ON AN M872 SEMITRAILER SEE NOTE 7 ON PAGE 4. NOTE THAT THE MAXIMUM LOAD ON THE M872 SEMITRAILER CONSISTS OF EIGHT M/LPAS, DUE TO M/LPA LENGTH.
8. A TOTAL OF 28 WEB STRAP TIEDOWN ASSEMBLIES ARE REQUIRED FOR THE LOAD SHOWN ON PAGE 12.



**SPACER ASSEMBLY C**



**SUPPORT ASSEMBLY**

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 6"	99	50
2" X 4"	8	5
2" X 6"	207	207
NAILS	NO. REQD	POUNDS
6d (2")	136	1
10d (3")	176	2-3/4
WIRE, .0800" DIA	24' REQD	1/2 LB

**LOAD AS SHOWN**

ITEM	QUANTITY	WEIGHT (APPROX)
M/LPA	8	40,888 LBS
DUNNAGE		526 LBS
<b>TOTAL WEIGHT</b>		<b>41,414 LBS (APPROX)</b>

**LOADING PROCEDURES FOR THE HEMTT  
AND HEMAT ONLY (PAGES 15 THROUGH 24)**

1. THE LOADS SHOWN ON PAGES 15 THROUGH 18 DEPICT THE 10-TON M977/M985 HEAVY EXPANDED MOBILITY TACTICAL TRUCK (HEMTT) HAVING INSIDE DIMENSIONS OF 216-3/8" LONG BY 90-3/4" WIDE, EQUIPPED WITH "SHOE" TYPE RESTRAINING DEVICES AS DETAILED ON PAGES 26 AND 27.
2. THE LOADS SHOWN ON PAGES 19 AND 20 DEPICT THE 11-TON M989 HEAVY EXPANDED MOBILITY AMMUNITION TRAILER (HEMAT) HAVING INSIDE DIMENSIONS OF 206" LONG BY 92-9/16" WIDE, EQUIPPED WITH "SHOE" TYPE RESTRAINING DEVICES AS DETAILED ON PAGES 26 AND 28. **CAUTION:** THIS IS THE OLDER TYPE TRAILER AND M/LPAS MUST NOT BE POSITIONED TWO HIGH DUE TO THE STABILITY OF THE TRAILER.
3. THE LOADS SHOWN ON PAGES 21 THROUGH 24 DEPICT THE 11-TON M989A1 HEAVY EXPANDED MOBILITY AMMUNITION TRAILER (HEMAT) HAVING INSIDE DIMENSIONS OF 175" LONG BY 92" WIDE, EQUIPPED WITH "SHOE" TYPE RESTRAINING DEVICES AS DETAILED ON PAGES 26 AND 27.
4. THE "SHOE" WILL BE BOLTED TO THE CARGO FLOOR WITH SIX HEXAGON SOCKET BUTTON HEAD CAP SCREWS. IF THE "SHOES" ARE REMOVED FROM THE CARGO BED, THE CAP SCREWS MUST BE PLACED IN THE HOLES OF THE CARGO BED SO AS TO SEAL THE HOLES.
5. PRIOR TO LOADING TWO M/LPAS SIDE-BY-SIDE ON A VEHICLE, THE M/LPA LIFTING RINGS LOCATED AT THE CENTER OF THE LOAD, TO WHICH THE WEB STRAP TIEDOWN ASSEMBLIES WILL BE ATTACHED, MUST BE POSITIONED ON TOP OF THE M/LPA OR HELD IN A HORIZONTAL POSITION WHILE THE M/LPAS ARE BEING POSITIONED AGAINST EACH OTHER. SEE THE LOADS ON PAGES 16, 17, 18, 20, 22, 23 AND 24.
6. FOR THE TIEDOWN PROCEDURES DELINEATED ON PAGES 15 THROUGH 24 INSTALLATION OF THE "SHOE" TYPE RESTRAINING DEVICES HAVE BEEN SPECIFIED AS A REQUIREMENT. HOWEVER, IN ALL LIKELIHOOD, THEY WILL BE ALREADY INSTALLED ON THE VEHICLES WHEN THEY ARE RECEIVED FOR LOADING.
7. IF THE 10-TON M977/M985 HEMTT, THE 11-TON M989 HEMAT, OR THE 11-TON M989A1 HEMAT IS NOT EQUIPPED WITH THE "SHOE" TYPE RESTRAINING DEVICES USE THE PROCEDURES SHOWN ON PAGES 6 THROUGH 11 FOR LOADING AND TIEDOWN OF ONE THROUGH FOUR M/LPAS, AS APPLICABLE.

**MATERIAL SPECIFICATIONS**

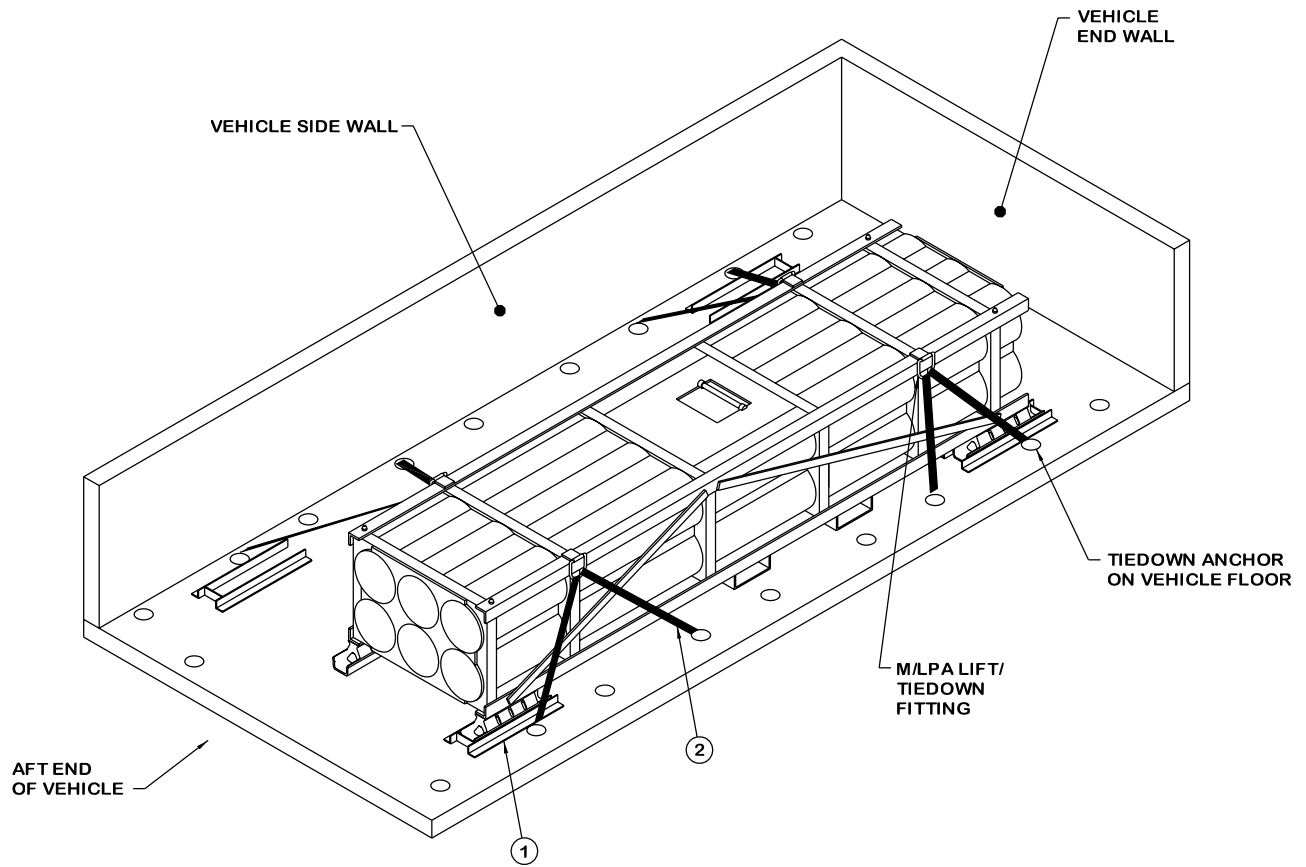
(PAGES 15 THROUGH 24 ONLY)

<u>STEEL, STRUCTURAL</u>	--:	ASTM A501, STEEL STRUCTURAL TUBING; AND ASTM A570, STEEL, STRIP, HOT-ROLLED, GRADE 36 (MINIMUM).
<u>CAPSCREW</u>	- - - - - --:	CAPSCREW, HEXAGON SOCKET, BUTTON HEAD, UNC-2A, FED SPEC FF-S-86, TYPE VIII.
<u>NUT</u>	- - - - - --:	HEXAGON FLANGE NUT, SELF LOCKING- PREVAILING TORQUE TYPE, FSC5310, PART NO. 91030A036

**FABRICATION NOTES**

(APPLICABLE TO SHOE ASSEMBLY)

1. FABRICATION TOLERANCES  $\pm 1/16"$
2. REMOVE BURRS, SHARP EDGES, AND SHARP CORNERS.
3. REMOVE LOOSE SCALE AND RUST BY WIRE BRUSHING.
4. PRIME AND PAINT WITH ONE COAT OF PRIMER AND A FINISH COAT TO MATCH THAT OF THE VEHICLE.



**ISOMETRIC VIEW**

**SPECIAL NOTES:**

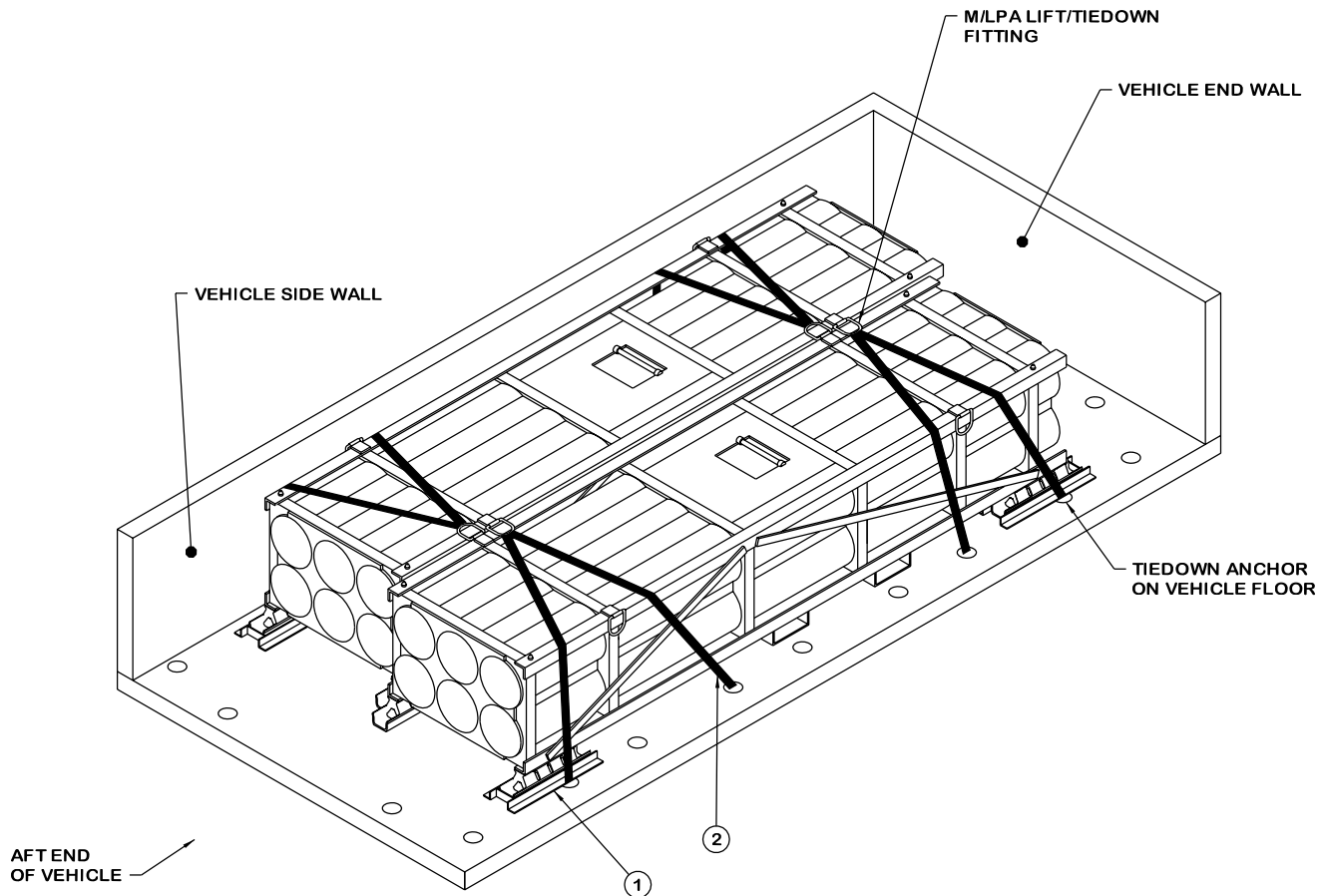
1. A LOAD OF ONE M/LPA IS SHOWN IN A 10-TON M977/M985 HEMTT, HAVING INSIDE DIMENSIONS OF 216-3/8" LONG BY 90-3/4" WIDE, EQUIPPED WITH "SHOE" TYPE RESTRAINING DEVICES, AS SHOWN ON PAGE 26.
2. IF THE 10-TON M977/M985 HEMTT IS NOT EQUIPPED WITH THE "SHOE" TYPE RESTRAINING DEVICES USE THE PROCEDURES SHOWN ON PAGE 6 FOR LOADING AND TIEDOWN OF ONE M/LPA.
3. A TOTAL OF FOUR WEB STRAP TIEDOWN ASSEMBLIES ARE REQUIRED FOR THE LOAD SHOWN ABOVE.

**KEY NUMBERS**

- ① SHOE ASSEMBLY (4 REQD). SEE THE DETAIL ON PAGE 26. PRE-POSITION EACH SHOE ASSEMBLY AS SHOWN IN THE "PLAN VIEW OF 10-TON M977/M985 HEMTT" DETAIL ON PAGE 27. SEE LOADING PROCEDURES NOTE 7 ON PAGE 14.
- ② WEB STRAP TIEDOWN ASSEMBLY (4 REQD). HOOK THE END OF THE STRAP THAT HAS THE RATCHET TO THE SECOND TIEDOWN ANCHOR FROM THE AFT AND FORWARD END OF THE CARGO DECK, THEN PASS THE HOOK ON THE LONG END OF THE STRAP ASSEMBLY UPWARD TO A LIFT/TIEDOWN FITTING ON THE M/LPA, THROUGH THE LIFTING RING FROM THE BOTTOM UP, AND BACK DOWN. ATTACH THE FORWARD STRAP HOOK TO THE THIRD TIEDOWN ANCHOR FROM THE FORWARD END OF THE CARGO DECK AND ATTACH THE AFT STRAP HOOK TO THE FOURTH TIEDOWN ANCHOR FROM THE AFT END OF THE CARGO DECK. POSITION STRAP SCUFF SLEEVES AT SHARP EDGES. TAKE UP EXCESS SLACK IN STRAP AND RATCHET TIGHT.

**LOAD AS SHOWN**

<u>ITEM</u>	<u>QUANTITY</u>	<u>WEIGHT (APPROX)</u>
M/LPA - - - - -	1 - - - - -	5,111 LBS



**ISOMETRIC VIEW**

**SPECIAL NOTES:**

1. A LOAD OF TWO M/LPAS IS SHOWN IN A 10-TON M977/M985 HEMTT, HAVING INSIDE DIMENSIONS OF 216-3/8" LONG BY 90-3/4" WIDE, EQUIPPED WITH "SHOE" TYPE RESTRAINING DEVICES, AS SHOWN ON PAGE 26.
2. IF THE 10-TON M977/M985 HEMTT IS NOT EQUIPPED WITH THE "SHOE" TYPE RESTRAINING DEVICES USE THE PROCEDURES SHOWN ON PAGE 8 FOR LOADING AND TIEDOWN OF TWO M/LPAS.
3. WHEN POSITIONING M/LPAS ON VEHICLES ASSURE THAT LIFTING RINGS ON M/LPAS ARE OFF-SET LONGITUDINALLY AND RESTING ON TOP OF ADJACENT M/LPA.
4. A TOTAL OF FOUR WEB STRAP TIEDOWN ASSEMBLIES ARE REQUIRED FOR THE LOAD SHOWN ABOVE.

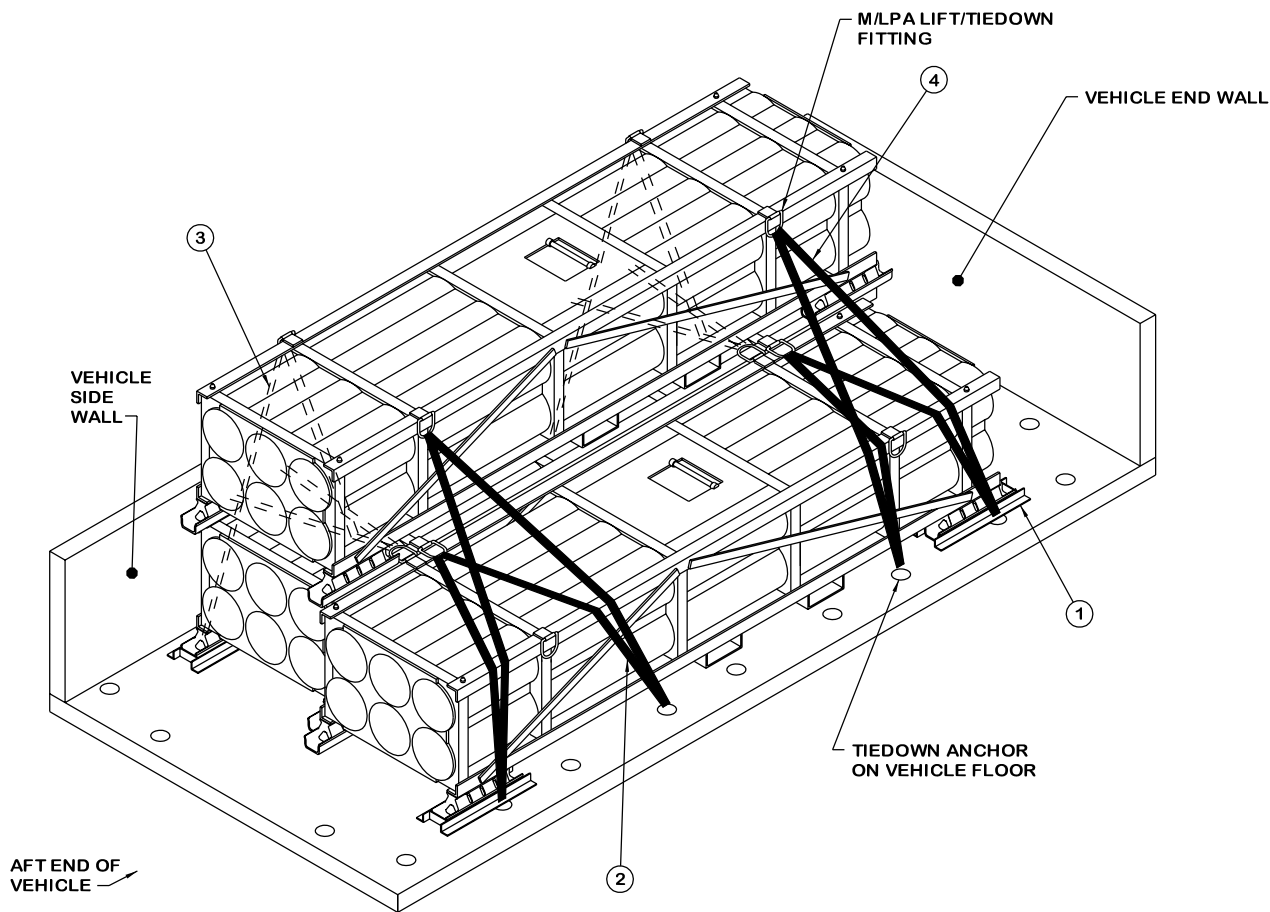
**KEY NUMBERS**

- ① SHOE ASSEMBLY (4 REQD). SEE THE DETAIL ON PAGE 26. PRE-POSITION EACH SHOE ASSEMBLY AS SHOWN IN THE THE "PLAN VIEW OF 10-TON M977/M985 HEMTT" DETAIL ON PAGE 27. SEE LOADING PROCEDURES NOTE 7 ON PAGE 14.
- ② WEB STRAP TIEDOWN ASSEMBLY (4 REQD). HOOK THE END OF THE STRAP THAT HAS THE RATCHET TO THE SECOND TIEDOWN ANCHOR FROM THE AFT AND FORWARD END OF THE CARGO DECK, THEN PASS THE HOOK ON THE LONG END OF THE STRAP ASSEMBLY UPWARD TO A LIFT/TIEDOWN FITTING ON THE OPPOSITE M/LPA, THROUGH THE LIFTING RING FROM THE BOTTOM UP, BACK OVER TOP OF NEAR M/LPA AND BACK DOWN. ATTACH THE FORWARD STRAP HOOK TO THE THIRD TIEDOWN ANCHOR FROM THE FORWARD END OF THE CARGO DECK AND ATTACH THE AFT STRAP HOOK TO THE FOURTH TIEDOWN ANCHOR FROM THE AFT END OF THE CARGO DECK. POSITION STRAP SCUFF SLEEVES AT SHARP EDGES. TAKE UP EXCESS SLACK IN STRAP AND RATCHET TIGHT.

**LOAD AS SHOWN**

<u>ITEM</u>	<u>QUANTITY</u>	<u>WEIGHT (APPROX)</u>
M/LPA - - - - -	2 - - - - -	10,222 LBS





**ISOMETRIC VIEW**

**KEY NUMBERS**

**SPECIAL NOTES:**

1. A LOAD OF THREE M/LPAS IS SHOWN IN A 10-TON M977/M985 HEMTT, HAVING INSIDE DIMENSIONS OF 216-3/8" LONG BY 90-3/4" WIDE, EQUIPPED WITH "SHOE" TYPE RESTRAINING DEVICES, AS SHOWN ON PAGE 26.
2. IF THE 10-TON M977/M985 HEMTT IS NOT EQUIPPED WITH THE "SHOE" TYPE RESTRAINING DEVICES USE THE PROCEDURES SHOWN ON PAGE 9 FOR LOADING AND TIEDOWN OF THREE M/LPAS.
3. WHEN POSITIONING M/LPAS ON VEHICLES ASSURE THAT LIFTING RINGS ON M/LPAS ARE OFF-SET LONGITUDINALLY AND RESTING ON TOP OF ADJACENT CONTAINER.
4. A TOTAL OF EIGHT WEB STRAP TIEDOWN ASSEMBLIES ARE REQUIRED FOR THE LOAD SHOWN ABOVE.

- ① SHOE ASSEMBLY (4 REQD). SEE THE DETAIL ON PAGE 26. PRE-POSITION EACH SHOE ASSEMBLY AS SHOWN IN THE THE "PLAN VIEW OF 10-TON M977/M985 HEMTT" DETAIL ON PAGE 27. SEE LOADING PROCEDURES NOTE 7 ON PAGE 14.
- ② WEB STRAP TIEDOWN ASSEMBLY (4 REQD). HOOK THE END OF THE STRAP THAT HAS THE RATCHET TO THE SECOND TIEDOWN ANCHOR FROM THE AFT AND FORWARD END OF THE CARGO DECK, THEN PASS THE HOOK ON THE LONG END OF THE STRAP ASSEMBLY UPWARD TO A LIFT/TIEDOWN FITTING ON THE OPPOSITE M/LPA, THROUGH THE LIFTING RING FROM THE BOTTOM UP, BACK OVER TOP OF NEAR M/LPA AND BACK DOWN. ATTACH THE FORWARD STRAP HOOK TO THE THIRD TIEDOWN ANCHOR FROM THE FORWARD END OF THE CARGO DECK AND ATTACH THE AFT STRAP HOOK TO THE FOURTH TIEDOWN ANCHOR FROM THE AFT END OF THE CARGO DECK. POSITION STRAP SCUFF SLEEVES AT SHARP EDGES. TAKE UP EXCESS SLACK IN STRAP AND RATCHET TIGHT.
- ③ WEB STRAP TIEDOWN ASSEMBLY (2 REQD). HOOK THE END OF THE STRAP THAT HAS THE RATCHET TO THE SECOND TIEDOWN ANCHOR FROM THE AFT AND FORWARD END OF THE CARGO DECK, THEN PASS THE HOOK ON THE LONG END OF THE STRAP ASSEMBLY UPWARD TO THE LIFT/TIEDOWN FITTING ON THE TOP M/LPA THROUGH THE LIFTING RING FROM THE BOTTOM UP, BACK DOWN. ATTACH THE FORWARD STRAP HOOK TO THE THIRD TIEDOWN ANCHOR FROM THE FORWARD END OF THE CARGO DECK AND ATTACH THE AFT STRAP HOOK TO THE FOURTH TIEDOWN ANCHOR FROM THE AFT END OF THE CARGO DECK. POSITION STRAP SCUFF SLEEVES AT SHARP EDGES. TAKE UP EXCESS SLACK IN STRAP AND RATCHET TIGHT.

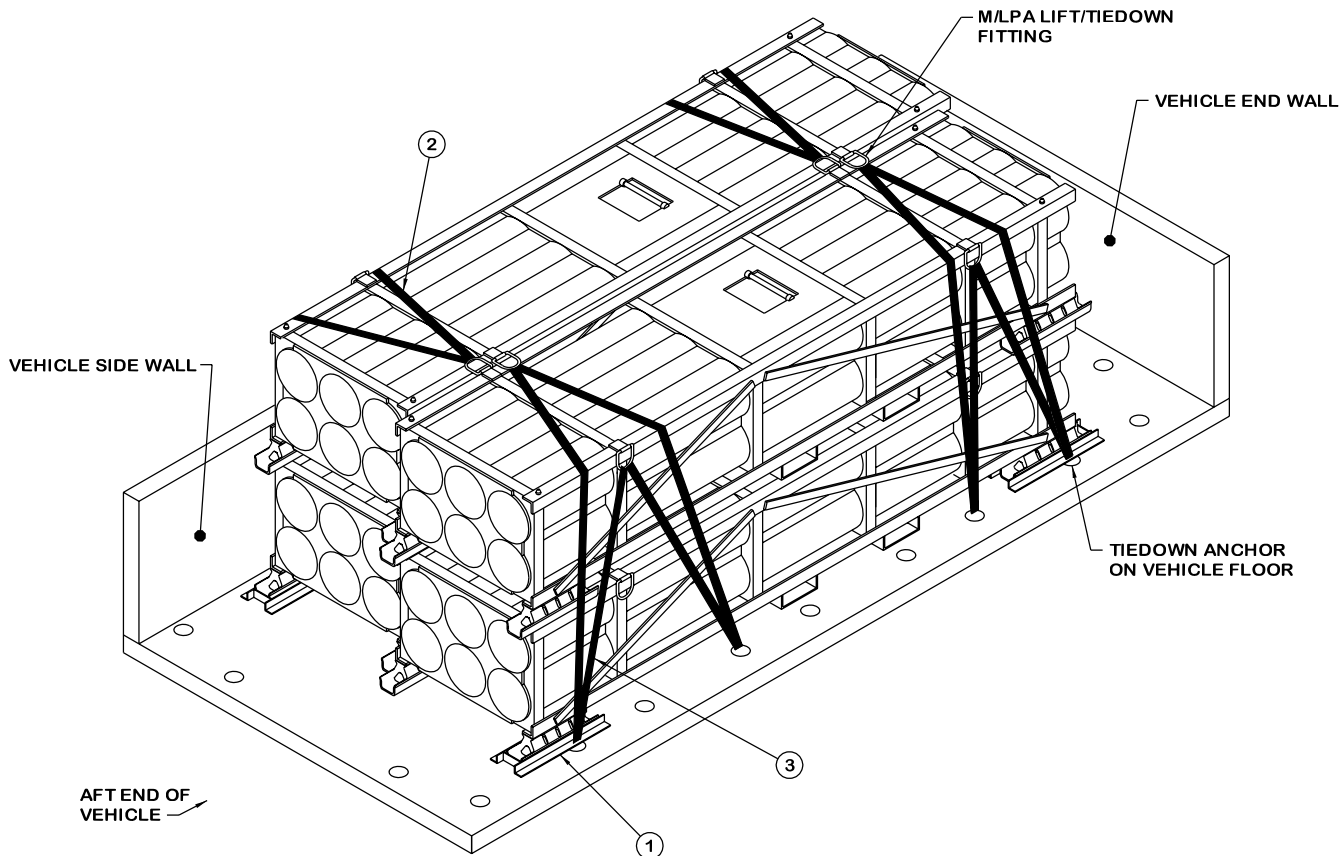
**(KEY NUMBERS CONTINUED)**

- ④ WEB STRAP TIEDOWN ASSEMBLY (2 REQD). HOOK THE END OF THE STRAP THAT HAS THE RATCHET TO THE SECOND TIEDOWN ANCHOR FROM THE AFT AND FORWARD END OF THE CARGO DECK, THEN PASS THE HOOK ON THE LONG END OF THE STRAP ASSEMBLY UPWARD OVER TOP OF NEAR M/LPA TO THE LIFT/TIEDOWN FITTING ON THE TOP CONTAINER, THROUGH THE LIFTING RING FROM THE BOTTOM UP, BACK ACROSS TOP OF NEAR M/LPA AND BACK DOWN. ATTACH THE FORWARD STRAP HOOK TO THE THIRD TIEDOWN ANCHOR FROM THE FORWARD END OF THE CARGO DECK AND ATTACH THE AFT STRAP HOOK TO THE FOURTH TIEDOWN ANCHOR FROM THE AFT END OF THE CARGO DECK. POSITION STRAP SCUFF SLEEVES AT SHARP EDGES, TAKE UP EXCESS SLACK IN STRAP AND RATCHET TIGHT.

(CONTINUED AT LEFT)

**LOAD AS SHOWN**

<u>ITEM</u>	<u>QUANTITY</u>	<u>WEIGHT (APPROX)</u>
M/LPA - - - - -	3 - - - - -	15,333 LBS



**ISOMETRIC VIEW**

**SPECIAL NOTES:**

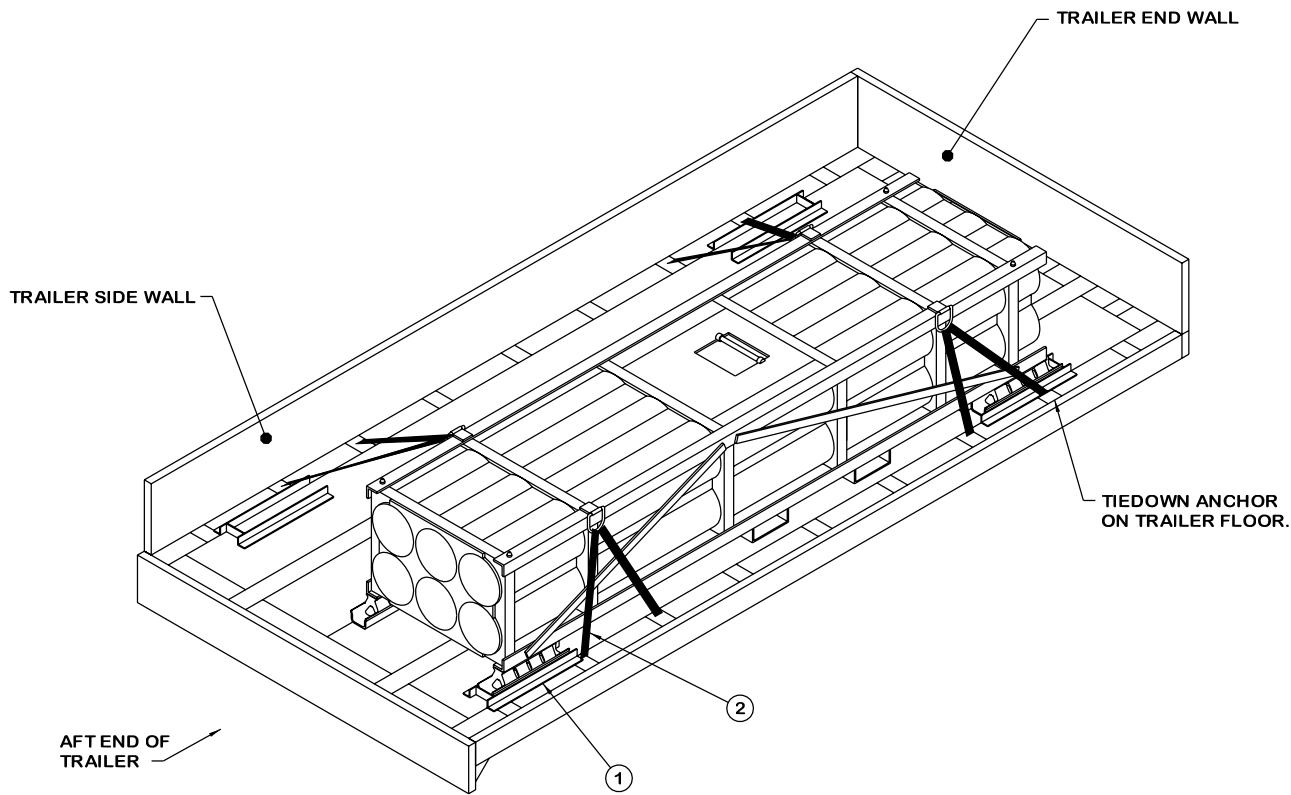
1. A LOAD OF FOUR M/LPAS IS SHOWN IN A 10-TON M977/M985 HEMTT, HAVING INSIDE DIMENSIONS OF 216-3/8" LONG BY 90-3/4" WIDE, EQUIPPED WITH "SHOE" TYPE RESTRAINING DEVICES, AS SHOWN ON PAGE 26.
2. IF THE 10-TON M977/M985 HEMTT IS NOT EQUIPPED WITH THE "SHOE" TYPE RESTRAINING DEVICES USE THE PROCEDURES SHOWN ON PAGE 10 FOR LOADING AND TIEDOWN OF THREE M/LPAS.
3. WHEN POSITIONING M/LPAS ON VEHICLES ASSURE THAT LIFTING RINGS ON M/LPAS ARE OFF-SET LONGITUDINALLY AND RESTING ON TOP OF ADJACENT CONTAINER.
4. A TOTAL OF EIGHT WEB STRAP TIEDOWN ASSEMBLIES ARE REQUIRED FOR THE LOAD SHOWN ABOVE.

**KEY NUMBERS**

- ① SHOE ASSEMBLY (4 REQD). SEE THE DETAIL ON PAGE 26. PRE-POSITION EACH SHOE ASSEMBLY AS SHOWN IN THE THE "PLAN VIEW OF 11-TON M9895 HEMTT" DETAIL ON PAGE 27. SEE LOADING PROCEDURES NOTE 7 ON PAGE 14.
- ② WEB STRAP TIEDOWN ASSEMBLY (4 REQD). HOOK THE END OF THE STRAP THAT HAS THE RATCHET TO THE SECOND TIEDOWN ANCHOR FROM THE AFT AND FORWARD END OF THE CARGO DECK, THEN PASS THE HOOK ON THE LONG END OF THE STRAP ASSEMBLY UPWARD TO A LIFT/TIEDOWN FITTING THAT IS LOCATED ON THE OPPOSITE SIDE OF THE LOAD, THROUGH THE LIFTING RING FROM THE BOTTOM UP, BACK OVER TOP OF NEAR SIDE M/LPA, AND BACK DOWN. ATTACH THE FORWARD STRAP HOOK TO THE THIRD TIEDOWN ANCHOR FROM THE FORWARD END OF THE CARGO DECK AND ATTACH THE AFT STRAP HOOK TO THE FOURTH TIEDOWN ANCHOR FROM THE AFT END OF THE CARGO DECK. POSITION STRAP SCUFF SLEEVES AT SHARP EDGES. TAKE UP EXCESS SLACK IN STRAP AND RATCHET TIGHT.
- ③ WEB STRAP TIEDOWN ASSEMBLY (4 REQD). HOOK THE END OF THE STRAP THAT HAS THE RATCHET TO THE SECOND TIEDOWN ANCHOR FROM THE AFT AND FORWARD END OF THE CARGO DECK, THEN PASS THE HOOK ON THE LONG END OF THE STRAP ASSEMBLY UPWARD TO A LIFT/TIEDOWN FITTING ON THE UPPER NEAR-SIDE M/LPA, THROUGH THE LIFTING RING FROM THE BOTTOM UP, AND BACK DOWN. ATTACH THE FORWARD STRAP HOOK TO THE THIRD TIEDOWN ANCHOR FROM THE FORWARD END OF THE CARGO DECK AND ATTACH THE AFT STRAP HOOK TO THE FOURTH TIEDOWN ANCHOR FROM THE AFT END OF THE CARGO DECK. POSITION STRAP SCUFF SLEEVES AT SHARP EDGES. TAKE UP EXCESS SLACK IN STRAP AND RATCHET TIGHT.

**LOAD AS SHOWN**

<u>ITEM</u>	<u>QUANTITY</u>	<u>WEIGHT (APPROX)</u>
M/LPA - - - - -	4 - - - - -	20, 444 LBS



**ISOMETRIC VIEW**

**SPECIAL NOTES:**

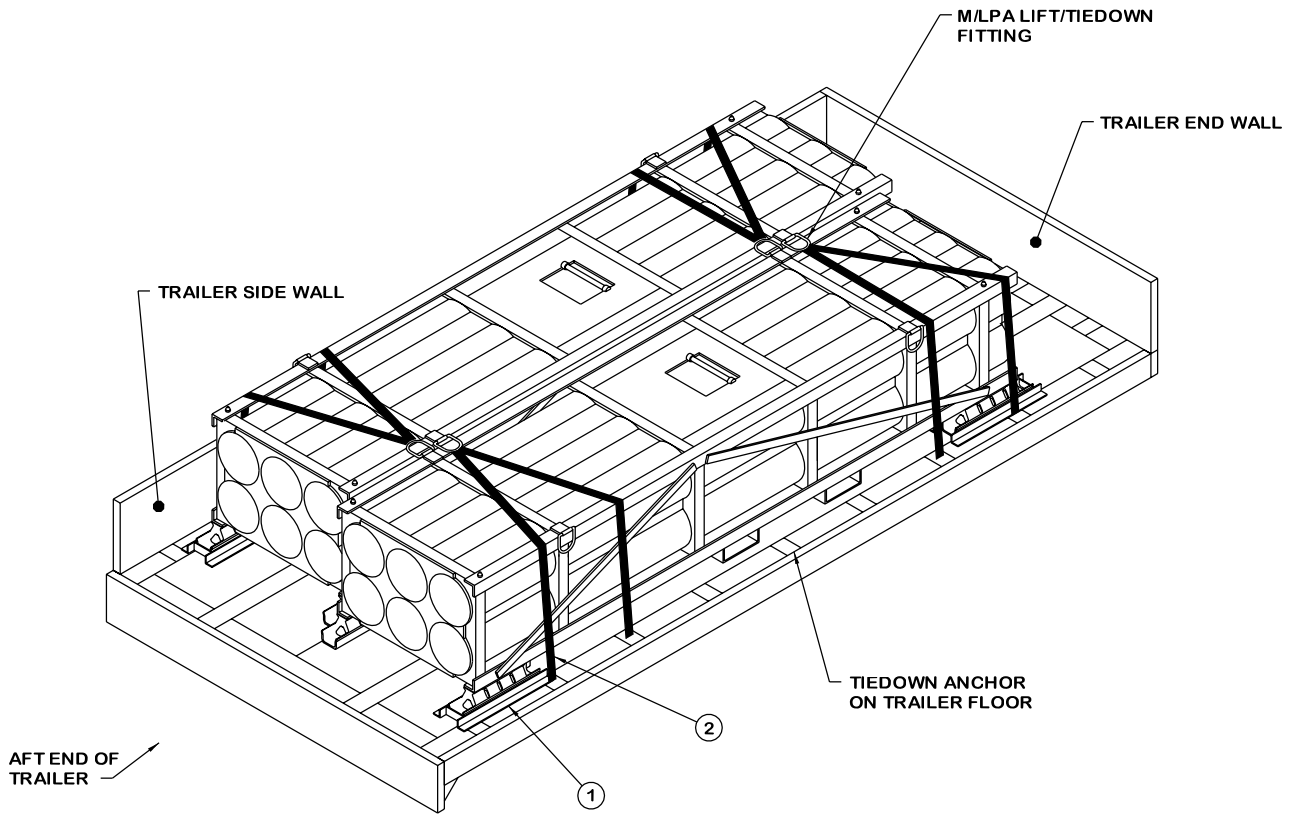
1. A LOAD OF ONE M/LPA IS SHOWN IN AN 11-TON M989 HEMAT, HAVING INSIDE DIMENSIONS OF 206" LONG BY 92-9/16" WIDE, EQUIPPED WITH "SHOE" TYPE RESTRAINING DEVICES AS SHOWN ON PAGE 26.
2. CAUTION: M/LPAS MUST NOT BE POSITIONED TWO HIGH ON THIS TYPE TRAILER DUE TO THE STABILITY OF THE TRAILER.
3. IF THE 11-TON M989 HEMAT IS NOT EQUIPPED WITH THE "SHOE" TYPE RESTRAINING DEVICES USE THE PROCEDURES SHOWN ON PAGE 6 FOR LOADING AND TIEDOWN OF ONE M/LPA.
4. A TOTAL OF FOUR WEB STRAP TIEDOWN ASSEMBLIES ARE REQUIRED FOR THE LOAD SHOWN ABOVE.

**KEY NUMBERS**

- ① SHOE ASSEMBLY (4 REQD). SEE THE DETAIL ON PAGE 26. PRE-POSITION EACH SHOE ASSEMBLY AS SHOWN IN THE "PLAN VIEW OF 11-TON M989 HEMAT" DETAIL ON PAGE 28. SEE LOADING PROCEDURE NOTE 7 ON PAGE 14.
- ② WEB STRAP TIEDOWN ASSEMBLY (4 REQD). HOOK THE END OF THE STRAP THAT HAS THE RATCHET TO THE SECOND TIEDOWN ANCHOR FROM THE END OF THE TRAILER, THEN PASS THE HOOK ON THE LONG END OF THE STRAP ASSEMBLY UPWARD TO A LIFT/TIEDOWN FITTING ON THE M/LPA, THROUGH THE LIFTING RING FROM THE BOTTOM UP, BACK DOWN AND ATTACH THE HOOK TO THE THIRD TIEDOWN ANCHOR FROM THE END OF THE TRAILER. POSITION STRAP SCUFF SLEEVES AT SHARP EDGES. TAKE UP EXCESS SLACK IN STRAP AND RATCHET TIGHT.

**LOAD AS SHOWN**

<u>ITEM</u>	<u>QUANTITY</u>	<u>WEIGHT (APPROX)</u>
M/LPA - - - - -	1 - - - - -	5,111 LBS



**ISOMETRIC VIEW**

**SPECIAL NOTES:**

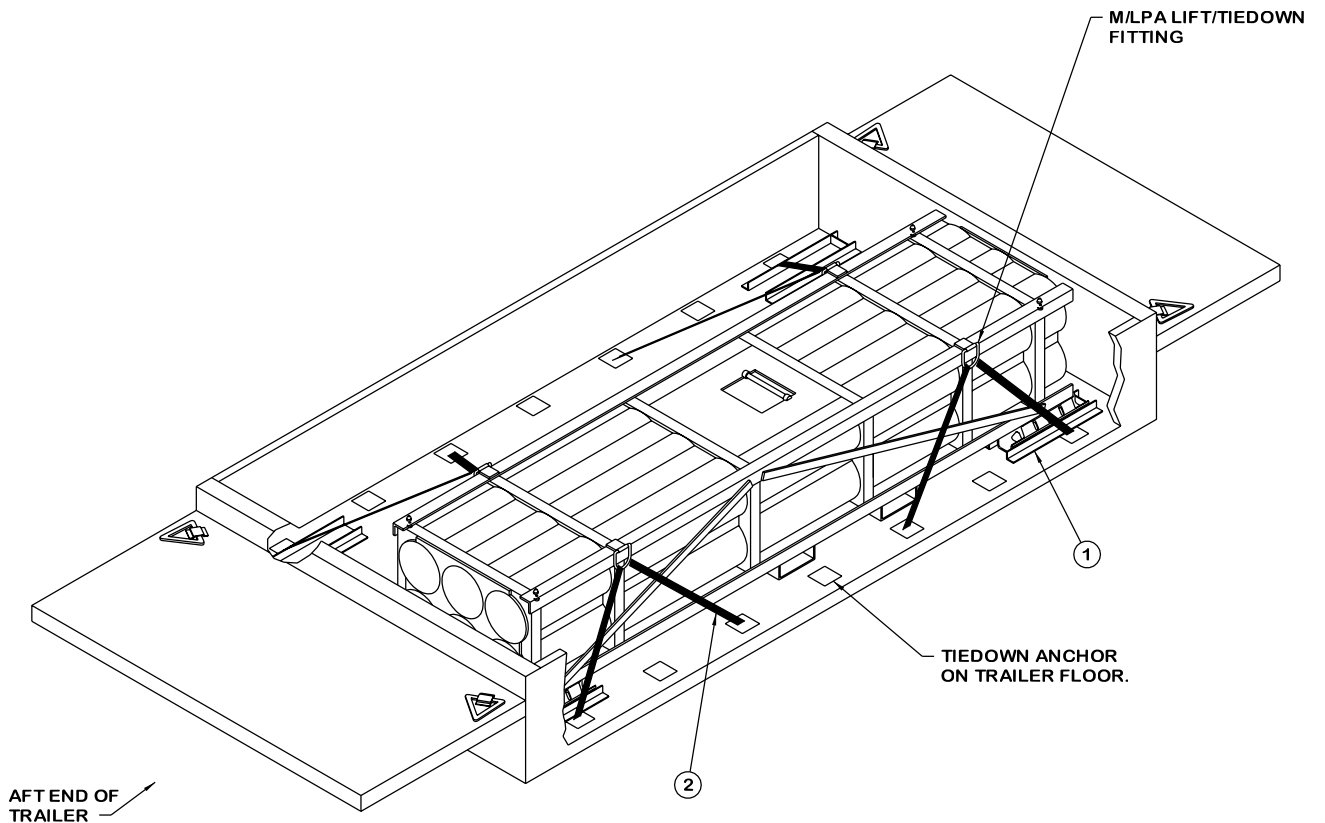
1. A LOAD OF TWO M/LPAS IS SHOWN IN AN 11-TON M989 HEMAT, HAVING INSIDE DIMENSIONS OF 206" LONG BY 92-9/16" WIDE, EQUIPPED WITH "SHOE" TYPE RESTRAINING DEVICES AS SHOWN ON PAGE 26.
2. CAUTION: M/LPAS MUST NOT BE POSITIONED TWO HIGH ON THIS TYPE TRAILER DUE TO THE STABILITY OF THE TRAILER.
3. IF THE 11-TON M989 HEMAT IS NOT EQUIPPED WITH THE "SHOE" TYPE RESTRAINING DEVICES USE THE PROCEDURES SHOWN ON PAGE 8 FOR LOADING AND TIEDOWN OF TWO M/LPAS.
4. WHEN POSITIONING M/LPAS ON VEHICLES ASSURE THAT LIFTING RINGS ON M/LPAS ARE OFF-SET LONGITUDINALLY AND RESTING ON TOP OF ADJACENT M/LPA.
5. A TOTAL OF FOUR WEB STRAP TIEDOWN ASSEMBLIES ARE REQUIRED FOR THE LOAD SHOWN ABOVE.

**KEY NUMBERS**

- ① SHOE ASSEMBLY (4 REQD). SEE THE DETAIL ON PAGE 26. PRE-POSITION EACH SHOE ASSEMBLY AS SHOWN IN THE "PLAN VIEW OF 11-TON M989 HEMAT" DETAIL ON PAGE 28. SEE LOADING PROCEDURE NOTE 7 ON PAGE 14.
- ② WEB STRAP TIEDOWN ASSEMBLY (4 REQD). HOOK THE END OF THE STRAP THAT HAS THE RATCHET TO THE SECOND TIEDOWN ANCHOR FROM THE END OF THE TRAILER, THEN PASS THE HOOK ON THE LONG END OF THE STRAP ASSEMBLY UPWARD AND OVER THE TOP OF THE NEAR-SIDE M/LPA TO A LIFT/TIEDOWN FITTING ON THE M/LPA THAT IS LOCATED ON THE OPPOSITE SIDE OF THE TRAILER, THROUGH THE LIFTING RING FROM THE BOTTOM UP, AND BACK DOWN. ATTACH THE HOOK TO THE THIRD TIEDOWN ANCHOR FROM THE END OF THE TRAILER. POSITION STRAP SCUFF SLEEVES AT SHARP EDGES. TAKE UP EXCESS SLACK IN STRAP AND RATCHET TIGHT.

**LOAD AS SHOWN**

<u>ITEM</u>	<u>QUANTITY</u>	<u>WEIGHT (APPROX)</u>
M/LPA - - - - -	2 - - - - -	10,222 LBS



**ISOMETRIC VIEW**

**SPECIAL NOTES:**

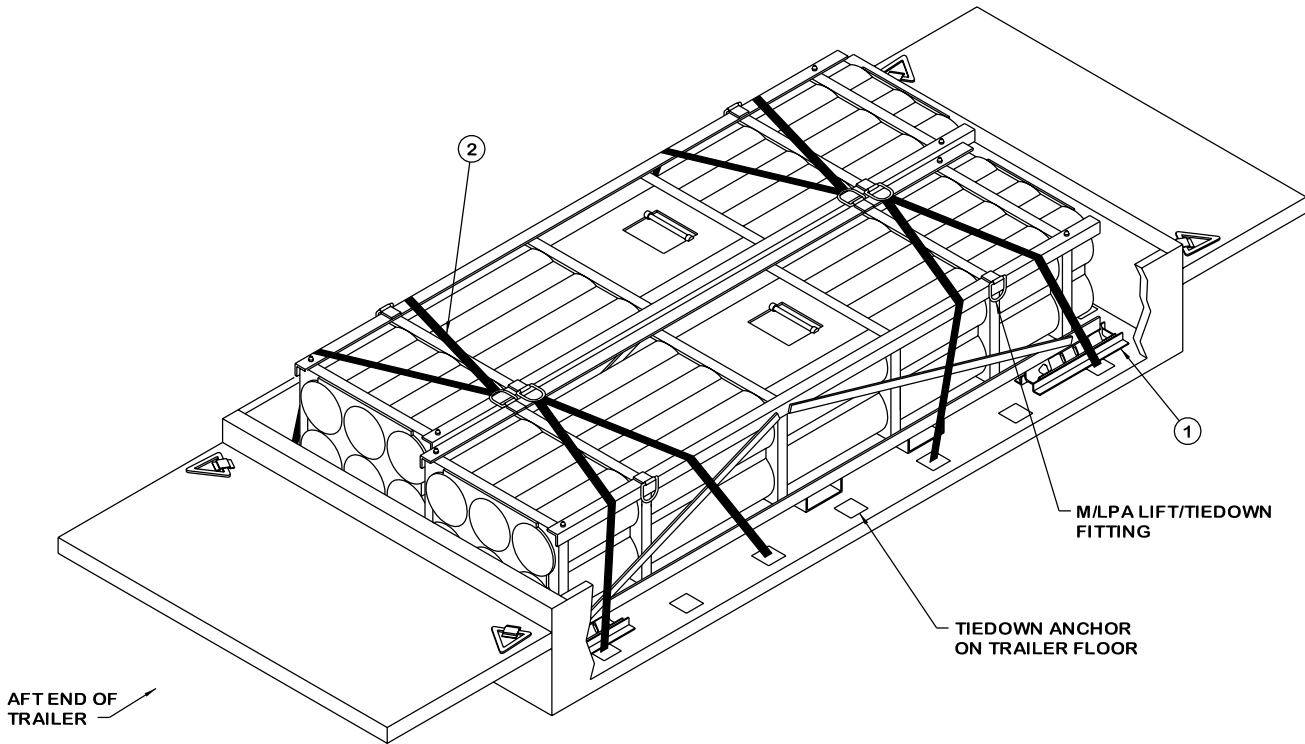
1. A LOAD OF ONE M/LPA IS SHOWN IN AN 11-TON M989A1 HEMAT HAVING INSIDE DIMENSIONS OF 175" LONG BY 92" WIDE, EQUIPPED WITH "SHOE" TYPE RESTRAINING DEVICES AS SHOWN ON PAGE 26.
2. IF THE 11-TON M989A1 HEMAT IS NOT EQUIPPED WITH THE "SHOE" TYPE RESTRAINING DEVICES USE THE PROCEDURES SHOWN ON PAGE 6 FOR LOADING AND TIEDOWN OF ONE M/LPA.
3. A TOTAL OF FOUR WEB STRAP TIEDOWN ASSEMBLIES ARE REQUIRED FOR THE LOAD SHOWN ABOVE.

**KEY NUMBERS**

- ① SHOE ASSEMBLY (4 REQD). SEE THE DETAIL ON PAGE 26. PRE-POSITION EACH SHOE ASSEMBLY AS SHOWN IN THE "PLAN VIEW OF 11-TON M989A1 HEMAT" DETAIL ON PAGE 27. SEE LOADING PROCEDURE NOTE 7 ON PAGE 14.
- ② WEB STRAP TIEDOWN ASSEMBLY (4 REQD). HOOK THE END OF THE STRAP THAT HAS THE RATCHET TO THE FIRST TIEDOWN ANCHOR FROM THE END OF THE TRAILER, THEN PASS THE HOOK ON THE LONG END OF THE STRAP ASSEMBLY UPWARD TO A LIFT/TIEDOWN FITTING ON THE M/LPA, THROUGH THE LIFTING RING FROM THE BOTTOM UP, AND BACK DOWN. ATTACH THE HOOK TO THE THIRD TIEDOWN ANCHOR FROM THE END OF THE TRAILER. POSITION STRAP SCUFF SLEEVES AT SHARP EDGES. TAKE UP EXCESS SLACK IN STRAP AND RATCHET TIGHT.

**LOAD AS SHOWN**

<u>ITEM</u>	<u>QUANTITY</u>	<u>WEIGHT (APPROX)</u>
M/LPA - - - - -	1 - - - - -	5,111 LBS



**ISOMETRIC VIEW**

**SPECIAL NOTES:**

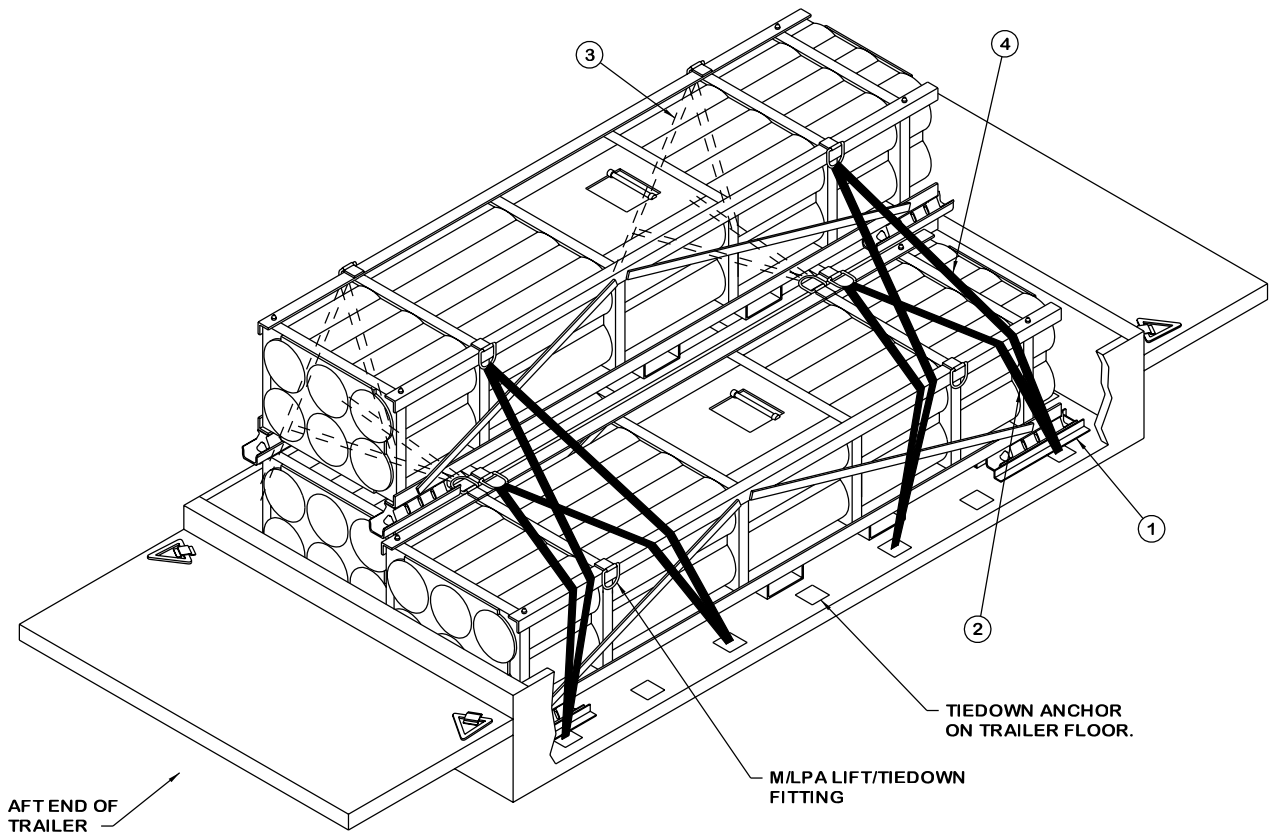
1. A LOAD OF TWO M/LPAS IS SHOWN IN AN 11-TON M989A1 HEMAT HAVING INSIDE DIMENSIONS OF 175" LONG BY 92" WIDE, EQUIPPED WITH "SHOE" TYPE RESTRAINING DEVICES AS SHOWN ON PAGE 26.
2. IF THE 11-TON M989A1 HEMAT IS NOT EQUIPPED WITH THE "SHOE" TYPE RESTRAINING DEVICES USE THE PROCEDURES SHOWN ON PAGE 8 FOR LOADING AND TIEDOWN OF TWO M/LPAS.
3. WHEN POSITIONING M/LPAS ON VEHICLES ASSURE THAT LIFTING RINGS ON M/LPAS ARE OFF-SET LONGITUDINALLY AND RESTING ON TOP OF ADJACENT M/LPA.
4. A TOTAL OF FOUR WEB STRAP TIEDOWN ASSEMBLIES ARE REQUIRED FOR THE LOAD SHOWN ABOVE.

**KEY NUMBERS**

- ① SHOE ASSEMBLY (4 REQD). SEE THE DETAIL ON PAGE 26. PRE-POSITION EACH SHOE ASSEMBLY AS SHOWN IN THE "PLAN VIEW OF 11-TON M989A1 HEMAT" DETAIL ON PAGE 27. SEE LOADING PROCEDURE NOTE 7 ON PAGE 14.
- ② WEB STRAP TIEDOWN ASSEMBLY (4 REQD). HOOK THE END OF THE STRAP THAT HAS THE RATCHET TO THE FIRST TIEDOWN ANCHOR FROM THE END OF THE TRAILER, THEN PASS THE HOOK ON THE LONG END OF THE STRAP ASSEMBLY UPWARD AND OVER THE TOP OF THE NEAR-SIDE M/LPA TO A LIFT/TIEDOWN FITTING ON THE M/LPA THAT IS LOCATED ON THE OPPOSITE SIDE OF THE TRAILER, THROUGH THE LIFTING RING FROM THE BOTTOM UP, BACK OVER THE TOP OF THE NEARSIDE CONTAINER, AND DOWN THE SIDE OF THAT M/LPA. ATTACH THE HOOK TO THE THIRD TIEDOWN ANCHOR FROM THE END OF THE TRAILER. POSITION STRAP SCUFF SLEEVES AT SHARP EDGES. TAKE UP EXCESS SLACK IN STRAP AND RATCHET TIGHT.

**LOAD AS SHOWN**

<u>ITEM</u>	<u>QUANTITY</u>	<u>WEIGHT (APPROX)</u>
M/LPA - - - - -	2 - - - - -	10, 222 LBS



**ISOMETRIC VIEW**

**KEY NUMBERS**

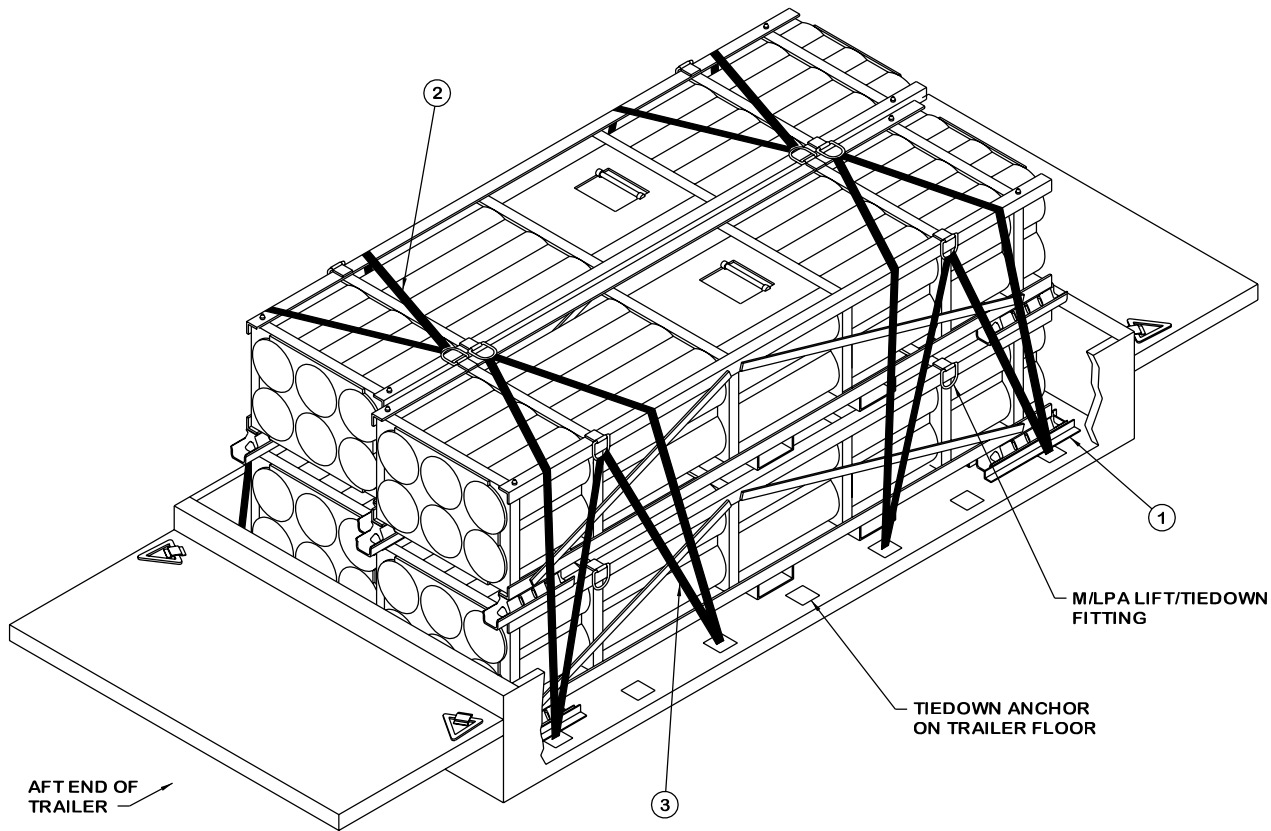
**SPECIAL NOTES:**

1. A LOAD OF THREE M/LPAS IS SHOWN IN AN 11-TON M989A1 HEMAT HAVING INSIDE DIMENSIONS OF 175" LONG BY 92" WIDE, EQUIPPED WITH "SHOE" TYPE RESTRAINING DEVICES AS SHOWN ON PAGE 26.
2. IF THE 11-TON M989A1 HEMAT IS NOT EQUIPPED WITH THE "SHOE" TYPE RESTRAINING DEVICES USE THE PROCEDURES SHOWN ON PAGE 9 FOR LOADING AND TIEDOWN OF THREE M/LPAS.
3. WHEN POSITIONING M/LPAS ON VEHICLES ASSURE THAT LIFTING RINGS ON M/LPAS ARE OFF-SET LONGITUDINALLY AND RESTING ON TOP OF ADJACENT M/LPAS.
4. A TOTAL OF EIGHT WEB STRAP TIEDOWN ASSEMBLIES ARE REQUIRED FOR THE LOAD SHOWN ABOVE.

- ① SHOE ASSEMBLY (4 REQD). SEE THE DETAIL ON PAGE 26. PRE-POSITION EACH SHOE ASSEMBLY AS SHOWN IN THE "PLAN VIEW OF 11-TON M989A1 HEMAT" DETAIL ON PAGE 27. SEE LOADING PROCEDURE NOTE 7 ON PAGE 14.
- ② WEB STRAP TIEDOWN ASSEMBLY (4 REQD). HOOK THE END OF THE STRAP THAT HAS THE RATCHET TO THE FIRST TIEDOWN ANCHOR FROM THE END OF THE TRAILER, THEN PASS THE HOOK ON THE LONG END OF THE STRAP ASSEMBLY UPWARD AND OVER THE TOP OF THE NEAR-SIDE M/LPA TO A LIFT/TIEDOWN FITTING ON THE M/LPA THAT IS LOCATED ON THE OPPOSITE SIDE OF THE TRAILER, THROUGH THE LIFTING RING FROM THE BOTTOM UP, BACK OVER THE TOP OF THE NEARSIDE M/LPA, AND DOWN THE SIDE OF THAT M/LPA. ATTACH THE HOOK TO THE THIRD TIEDOWN ANCHOR FROM THE END OF THE TRAILER. POSITION STRAP SCUFF SLEEVES AT SHARP EDGES. TAKE UP EXCESS SLACK IN STRAP AND RATCHET TIGHT.
- ③ WEB STRAP TIEDOWN ASSEMBLY (2 REQD). HOOK THE END OF THE STRAP THAT HAS THE RATCHET TO THE FIRST TIEDOWN ANCHOR FROM THE END OF THE TRAILER, THEN PASS THE HOOK ON THE LONG END OF THE STRAP ASSEMBLY UPWARD TO A LIFT/TIEDOWN FITTING ON THE UPPER M/LPA, THROUGH THE LIFTING RING FROM THE BOTTOM UP, AND BACK DOWN. ATTACH THE HOOK TO THE THIRD TIEDOWN ANCHOR FROM END OF TRAILER. POSITION STRAP SCUFF SLEEVES AT SHARP EDGES. TAKE UP EXCESS SLACK IN STRAP AND RATCHET TIGHT.
- ④ WEB STRAP TIEDOWN ASSEMBLY (2 REQD). HOOK THE END OF THE STRAP THAT HAS THE RATCHET TO THE FIRST TIEDOWN ANCHOR FROM THE END OF THE TRAILER, THEN PASS THE HOOK ON THE LONG END OF THE STRAP ASSEMBLY UPWARD AND OVER THE TOP OF THE NEAR SIDE M/LPA TO A LIFT/TIEDOWN FITTING ON THE TOP M/LPA ON THE OPPOSITE SIDE OF THE TRAILER, THROUGH THE LIFTING RING FROM THE BOTTOM UP, BACK OVER THE TOP OF THE NEAR-SIDE M/LPA, AND DOWN THE SIDE OF THAT M/LPA. ATTACH HOOK TO THE FIRST TIEDOWN ANCHOR FROM END OF TRAILER. POSITION STRAP SCUFF SLEEVES AT SHARP EDGES. TAKE UP EXCESS SLACK IN STRAP AND RATCHET TIGHT.

**LOAD AS SHOWN**

ITEM	QUANTITY	WEIGHT (APPROX)
M/LPA	3	15,333 LBS



**ISOMETRIC VIEW**

**KEY NUMBERS**

**SPECIAL NOTES:**

1. A LOAD OF FOUR M/LPAS IS SHOWN IN AN 11-TON M989A1 HEMAT HAVING INSIDE DIMENSIONS OF 175" LONG BY 92" WIDE, EQUIPPED WITH "SHOE" TYPE RESTRAINING DEVICES AS SHOWN ON PAGE 26.
2. IF THE 11-TON M989A1 HEMAT IS NOT EQUIPPED WITH THE "SHOE" TYPE RESTRAINING DEVICES USE THE PROCEDURES SHOWN ON PAGE 10 FOR LOADING AND TIEDOWN OF FOUR M/LPAS.
3. WHEN POSITIONING M/LPAS ON VEHICLES ASSURE THAT LIFTING RINGS ON M/LPAS ARE OFF-SET LONGITUDINALLY AND RESTING ON TOP OF ADJACENT M/LPAS.
4. A TOTAL OF EIGHT WEB STRAP TIEDOWN ASSEMBLIES ARE REQUIRED FOR THE LOAD SHOWN ABOVE.

- ① SHOE ASSEMBLY (4 REQD). SEE THE DETAIL ON PAGE 26. PRE-POSITION EACH SHOE ASSEMBLY AS SHOWN IN THE "PLAN VIEW OF 11-TON M989A1 HEMAT" DETAIL ON PAGE 27. SEE LOADING PROCEDURE NOTE 7 ON PAGE 14.
- ② WEB STRAP TIEDOWN ASSEMBLY (4 REQD). HOOK THE END OF THE STRAP THAT HAS THE RATCHET TO THE FIRST TIEDOWN ANCHOR FROM THE END OF THE TRAILER, THEN PASS THE HOOK ON THE LONG END OF THE STRAP ASSEMBLY IS PASSED UPWARD AND OVER THE TOP OF THE NEAR-SIDE M/LPA TO A LIFT/TIEDOWN FITTING ON THE M/LPA THAT IS LOCATED ON THE OPPOSITE SIDE OF THE LOAD, THROUGH THE LIFTING RING FROM THE BOTTOM UP, BACK OVER THE TOP OF THE NEARSIDE M/LPA, AND DOWN THE SIDE OF THAT M/LPA. ATTACH THE HOOK TO THE THIRD TIEDOWN ANCHOR FROM THE END OF THE TRAILER. POSITION STRAP SCUFF SLEEVES AT SHARP EDGES. TAKE UP EXCESS SLACK IN STRAP AND RATCHET TIGHT.
- ③ WEB STRAP TIEDOWN ASSEMBLY (4 REQD). HOOK THE END OF THE STRAP THAT HAS THE RATCHET TO THE THIRD TIEDOWN ANCHOR FROM THE END OF THE TRAILER, THEN PASS THE HOOK ON THE LONG END OF THE STRAP ASSEMBLY UPWARD TO A LIFT/TIEDOWN FITTING ON THE UPPER NEARSIDE M/LPA, THROUGH THE LIFTING RING FROM THE BOTTOM UP, AND BACK DOWN. ATTACH THE HOOK TO THE FIRST TIEDOWN ANCHOR FROM END OF TRAILER. POSITION STRAP SCUFF SLEEVES AT SHARP EDGES. TAKE UP EXCESS SLACK IN STRAP AND RATCHET TIGHT.

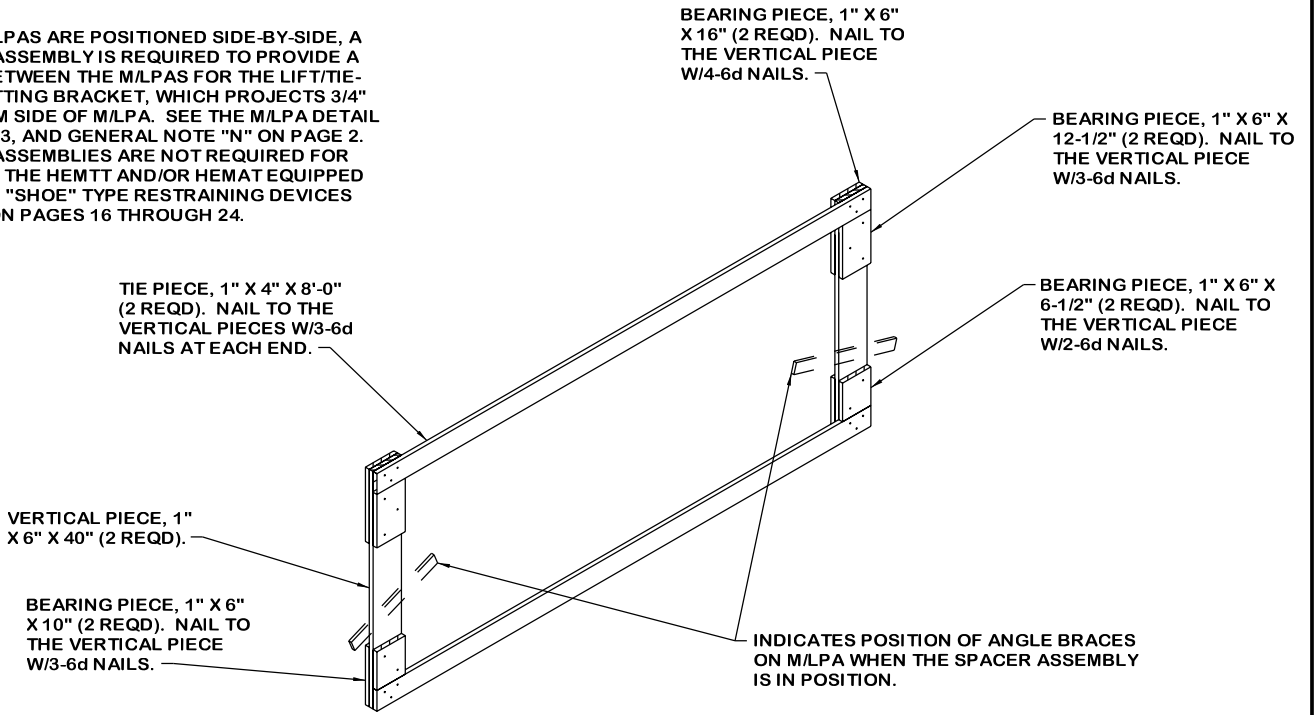
**LOAD AS SHOWN**

<u>ITEM</u>	<u>QUANTITY</u>	<u>WEIGHT (APPROX)</u>
M/LPA - - - - -	4 - - - - -	20, 444 LBS



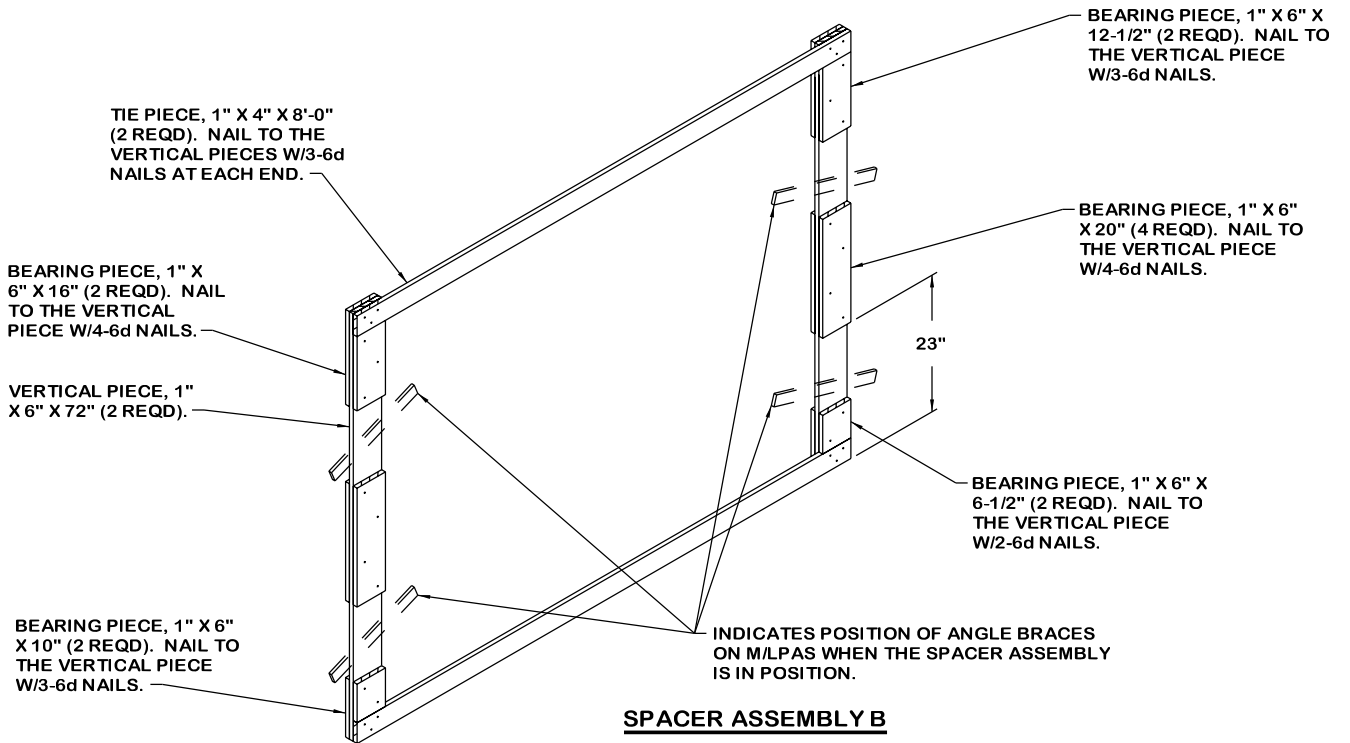
**NOTE ⊕:**

WHEN M/LPAS ARE POSITIONED SIDE-BY-SIDE, A SPACER ASSEMBLY IS REQUIRED TO PROVIDE A SPACE BETWEEN THE M/LPAS FOR THE LIFT/TIE-DOWN FITTING BRACKET, WHICH PROJECTS 3/4" OUT FROM SIDE OF M/LPA. SEE THE M/LPA DETAIL ON PAGE 3, AND GENERAL NOTE "N" ON PAGE 2. SPACER ASSEMBLIES ARE NOT REQUIRED FOR LOADS IN THE HEMTT AND/OR HEMAT EQUIPPED WITH THE "SHOE" TYPE RESTRAINING DEVICES SHOWN ON PAGES 16 THROUGH 24.



**SPACER ASSEMBLY A**

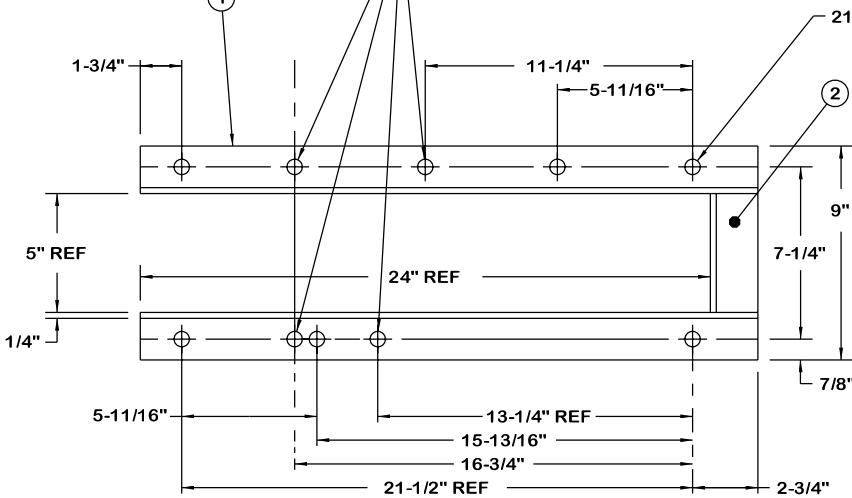
THIS ASSEMBLY IS FOR USE BETWEEN ONE M/LPA HIGH LOADS. WHEN FABRICATING THIS ASSEMBLY FIELD CHECK DIMENSIONS TO ASSURE THAT THE ANGLE BRACES ON THE M/LPAS WILL FIT AS SHOWN ABOVE AND THE BEARING PIECES ON THE SPACER ASSEMBLY WILL CONTACT THE LOWER AND UPPER RAILS ON THE M/LPA. SEE THE M/LPA DETAIL ON PAGE 3 AND "NOTE ⊕" ON THIS PAGE. THIS ASSEMBLY IS USED IN THE LOADS ON PAGES 8 AND 9.



**SPACER ASSEMBLY B**

THIS ASSEMBLY IS FOR USE BETWEEN TWO-HIGH M/LPA LOADS. WHEN FABRICATING THIS ASSEMBLY FIELD CHECK DIMENSIONS TO ASSURE THAT THE ANGLE BRACES ON THE M/LPAS WILL FIT AS SHOWN ABOVE AND THE BEARING PIECES ON THE SPACER ASSEMBLY WILL CONTACT THE LOWER AND UPPER RAILS ON THE M/LPA. SEE THE M/LPA DETAIL ON PAGE 3 AND "NOTE ⊕" ON THIS PAGE. THIS ASSEMBLY IS USED IN THE LOAD ON PAGE 10.

THESE FOUR HOLES ARE REQUIRED ONLY WHEN INSTALLING THE SHOE ASSEMBLY IN THE 11-TON M989 HEMAT. SHOWN ON PAGES 19 AND 20.

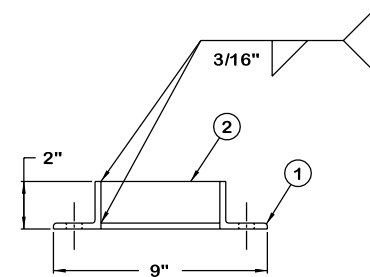


**TOP VIEW**

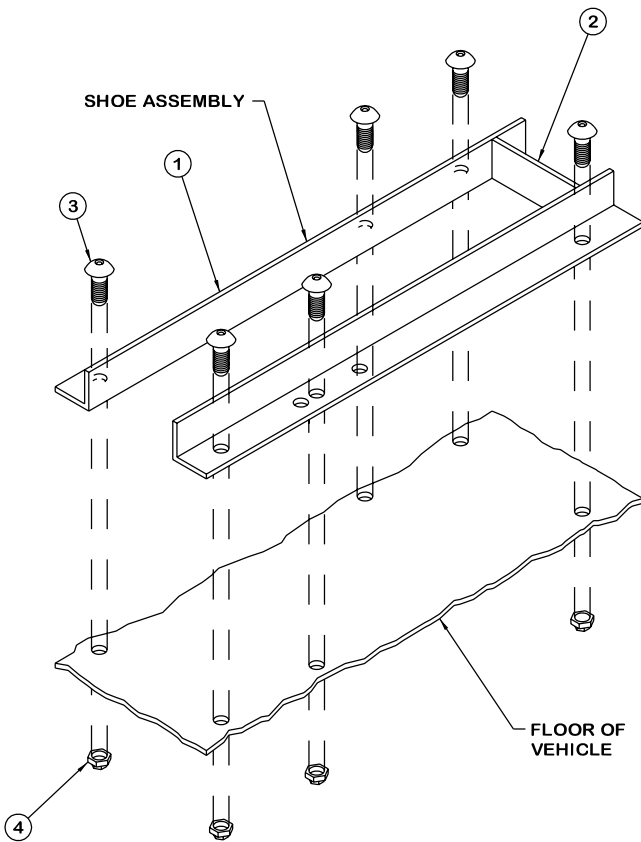
**SIDE VIEW**

**SHOE ASSEMBLY**

FOUR REQUIRED PER VEHICLE. FOR LOCATION OF "SHOES" SEE THE PLAN VIEWS ON PAGES 27 AND 28.



**END VIEW**



**TYPICAL SHOE ASSEMBLY INSTALLATION**

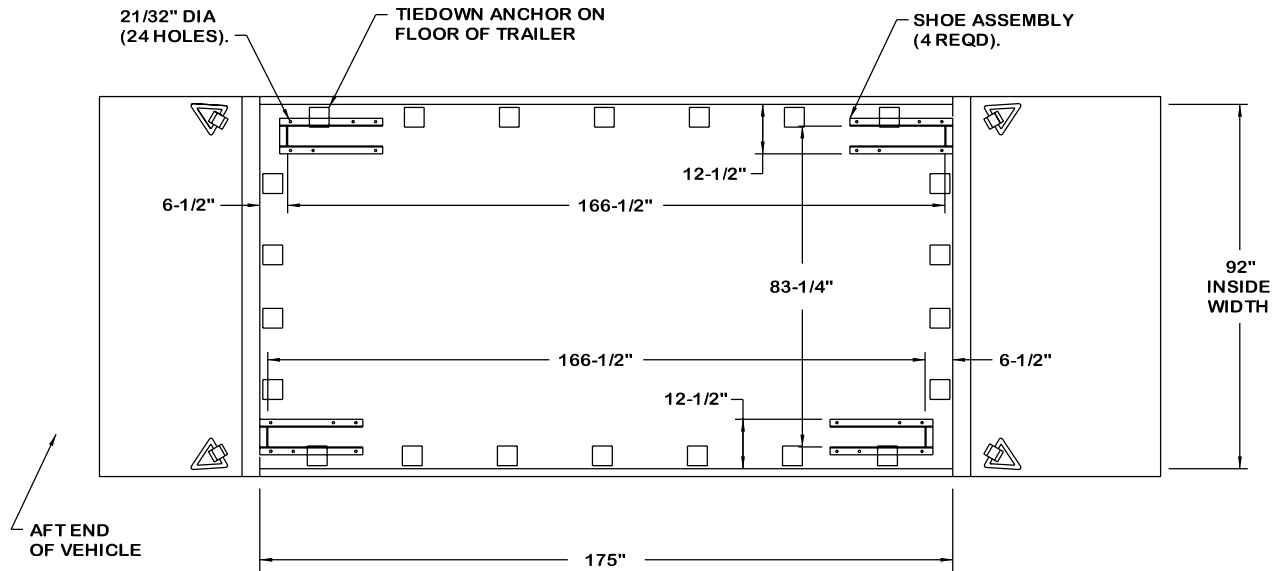
THE VIEW ABOVE DEPICTS THE INSTALLATION OF A SHOE ASSEMBLY IN THE 10-TON M977/M985 HEMTT. SEE THE "PLAN VIEW OF 10-TON M977/M985 HEMTT" ON PAGE 27.

**BILL OF MATERIAL FOR ONE SHOE ASSEMBLY** (SEE NOTE "3" BELOW)

KEY NO.	NOMENCLATURE	QTY. REQD
1	SIDE, STEEL, ANGLE, 2" X 2" X 1/4", 26" LONG, A36	2
2	END, STEEL, ANGLE, 2" X 2" X 1/4", 5" LONG, A36	1
3	SCREW, CAP, BUTTON HEAD, 5/8-11 UNC-2A (SEE NOTE "2" BELOW)	6
4	FLANGE NUT, HEXAGON, SELF-LOCKING, 5/8-11 UNC-2A	6

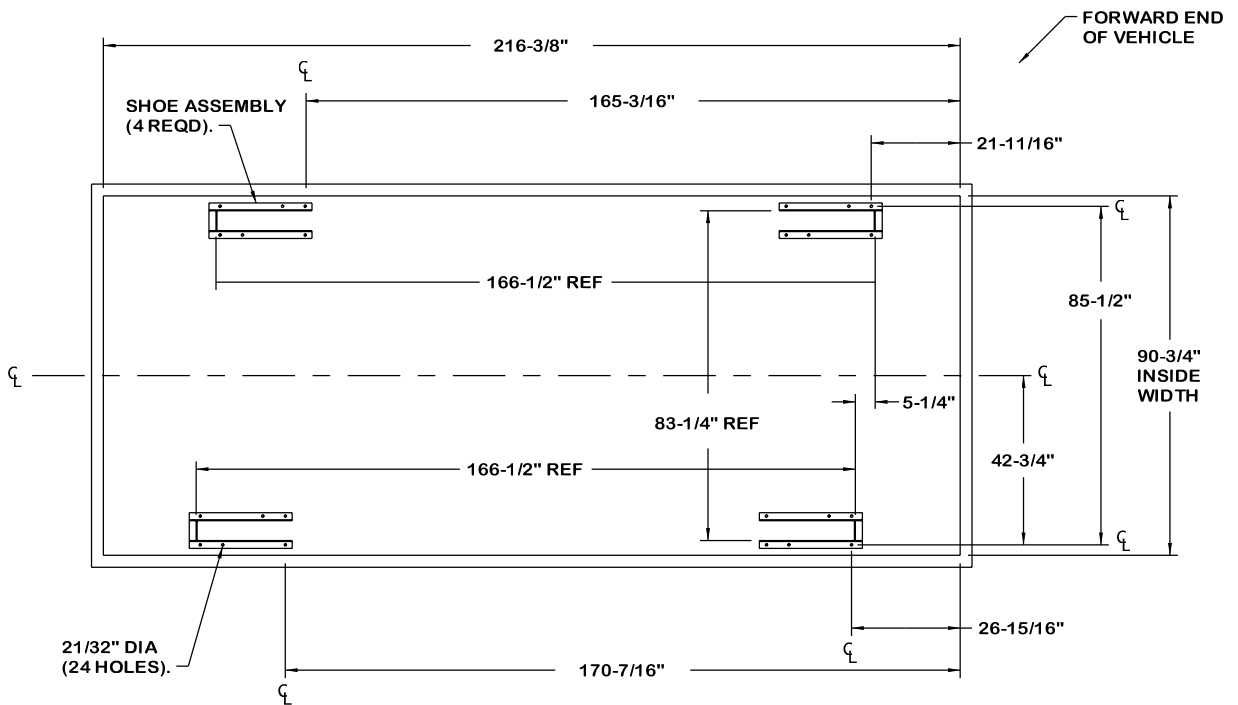
**NOTES:**

1. THE "SHOE ASSEMBLY" SHOWN ON THIS PAGE MUST BE FABRICATED AND INSTALLED BY THE USER IN THE 10-TON M977/M985 HEMTT, THE 11-TON M989 HEMAT, AND THE 11-TON M989A1 HEMAT.
2. WHEN POSITIONING THE "SHOE" IN THE 10-TON M977/M985 HEMTT, ALL SIX CAP SCREWS WILL BE 2" LONG. WHEN POSITIONING THE "SHOE" IN THE 11-TON M989 HEMAT, THE THREE CAP SCREWS THAT PASS THROUGH THE WOODEN PORTION OF THE TRAILER FLOOR MUST BE 3" LONG AND THE REMAINING THREE CAP SCREWS WILL BE 2" LONG.
3. WHEN "SHOES" ARE POSITIONED IN THE 11-TON M989 HEMAT, REINFORCEMENT PLATES ARE REQUIRED, SEE THE "REINFORCEMENT PLATE" DETAIL ON PAGE 29 AND THE "PLAN VIEW OF 11-TON M989 HEMAT" DETAIL ON PAGE 28.



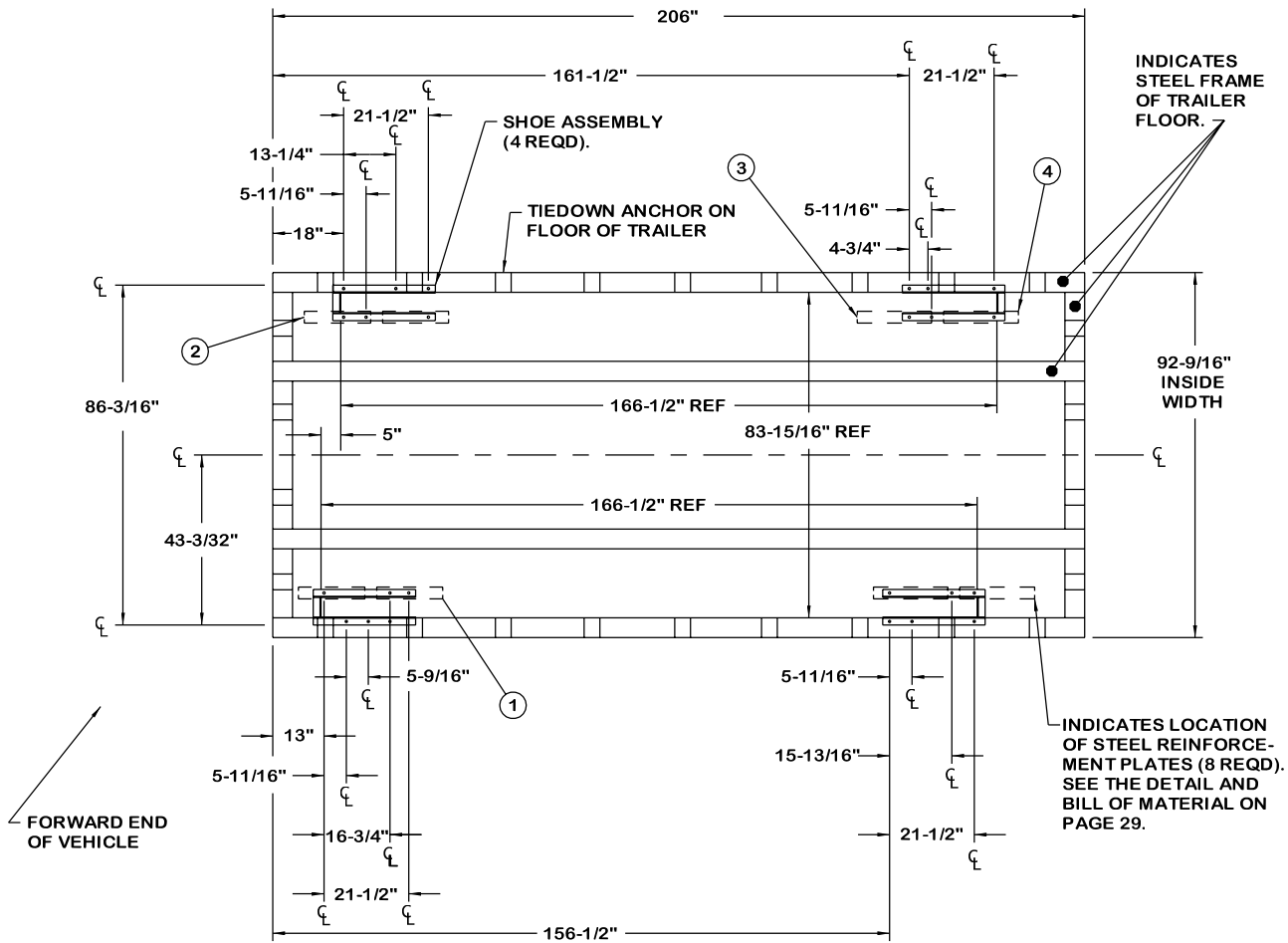
**PLAN VIEW OF 11-TON M989A1 HEMAT**

THE PLAN VIEW ABOVE DEPICTS THE LOCATIONS OF THE FLOOR SHOE ASSEMBLIES IN THE 11-TON M989A1 TRAILER. SEE THE "SHOE ASSEMBLY" DETAIL ON PAGE 26. POSITION EACH SHOE ASSEMBLY IN THE TRAILER AT THE LOCATIONS SHOWN, AND USING THE HOLES IN THE SHOE ASSEMBLY AS A GUIDE, DRILL TWENTY-FOUR 21/32" DIAMETER HOLES THROUGH THE FLOOR OF THE TRAILER. PRIOR TO INSTALLING THE SHOE ASSEMBLIES ASSURE THAT THE RING IN THE TIEDOWN ANCHOR AT EACH SIDE LOCATION IS IN THE "UP" POSITION. SEE "NOTE" ON PAGE 28.



**PLAN VIEW OF 10-TON M977/M985 HEMTT**

THE PLAN VIEW ABOVE DEPICTS THE LOCATIONS OF THE FLOOR SHOE ASSEMBLIES IN THE 10-TON M977/M985 TRUCK. SEE THE "SHOE ASSEMBLY" DETAIL ON PAGE 26. POSITION EACH SHOE ASSEMBLY IN THE TRUCK AT THE LOCATIONS SHOWN ABOVE, AND USING THE HOLES IN THE ASSEMBLY AS A GUIDE, DRILL TWENTY-FOUR 21/32" DIAMETER HOLES THROUGH THE FLOOR IN THE TRUCK. SEE "NOTE" ON PAGE 28.



**PLAN VIEW OF 11-TON M989 HEMAT**

SEE KEY NUMBERS ON PAGE 29. THE PLAN VIEW ABOVE DEPICTS THE LOCATIONS OF THE FOUR SHOE ASSEMBLIES IN THE 11-TON M989 TRAILER. SEE THE "SHOE ASSEMBLY" DETAIL ON PAGE 26. POSITION EACH SHOE ASSEMBLY IN THE TRAILER AT THE LOCATIONS SHOWN, AND USING THE HOLES IN THE SHOE ASSEMBLY AS A GUIDE, DRILL TWENTY-FOUR 21/32" DIAMETER HOLES THROUGH THE FLOOR OF THE TRAILER. PRIOR TO INSTALLING THE SHOE ASSEMBLIES ASSURE THAT THE RING IN THE TIEDOWN ANCHOR AT EACH SIDE LOCATION IS IN THE "UP" POSITION. SEE "NOTE ■" BELOW.

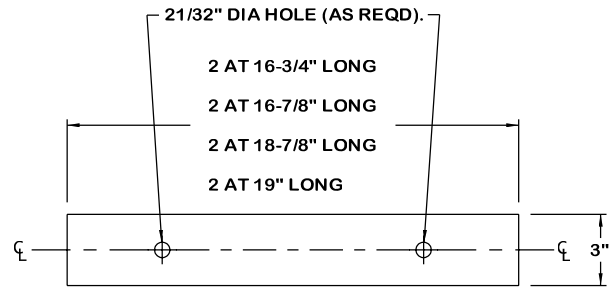
**NOTE ■:**

THE 83-1/4" REFERENCE DIMENSION ON THE M977/M985 HEMTT AND THE M989A1 HEMAT, AND THE 83-5/16" REFERENCE DIMENSION ON THE M989 HEMAT ARE THE APPROXIMATE LATERAL DIMENSIONS BETWEEN THE INSIDE SURFACE OF THE SHOE ASSEMBLIES ON EACH SIDE OF THE VEHICLE FLOOR. THE 166-1/2" REFERENCE DIMENSION ON THE M977/M985 HEMTT, THE M989A1 HEMAT, AND THE M989 HEMAT ARE THE APPROXIMATE LONGITUDINAL DIMENSIONS BETWEEN THE INSIDE END SURFACE OF THE SHOE ASSEMBLIES ON EACH END OF THE VEHICLE. THE LENGTH OF THE M/LPA BETWEEN FORE AND AFT END-OF-SKIDS IS 166". THE WIDTH OF THE TWO M/LPAS POSITIONED SIDE-BY-SIDE AND OFFSET LONGITUDINALLY SO THE LIFT/TIEDOWN RINGS ON ADJACENT M/LPAS DO NOT CONTACT EACH OTHER IS 82-1/4".

BILL OF MATERIAL FOR REINFORCEMENT PLATES (SEE "NOTE ①" BELOW)		
KEY NO.	NOMENCLATURE	QTY. REQD
1	REINFORCEMENT PLATE, STEEL, 1/4" X 3" X 16-3/4"	2
2	REINFORCEMENT PLATE, STEEL, 1/4" X 3" X 16-7/8"	2
3	REINFORCEMENT PLATE, STEEL, 1/4" X 3" X 18-7/8"	2
4	REINFORCEMENT PLATE, STEEL, 1/4" X 3 X 19"	2

**NOTE ① :**

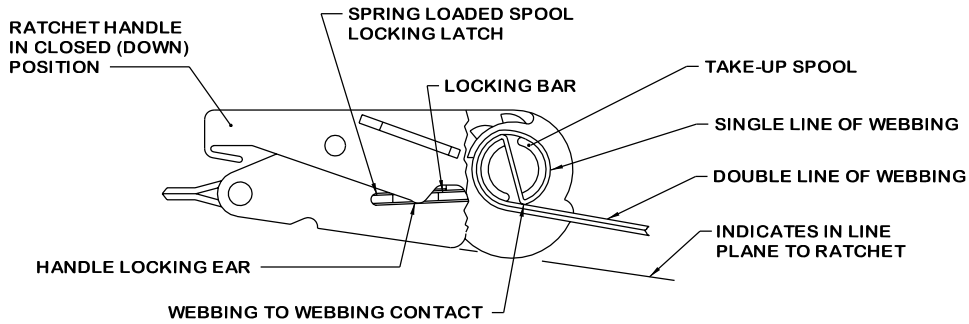
SEE THE "PLAN VIEW OF 11-TON M989 HEMAT" ON PAGE 28 FOR THE LOCATION OF THE KEY NUMBERS.



**REINFORCEMENT PLATE FOR THE 11-TON M989 HEMAT**

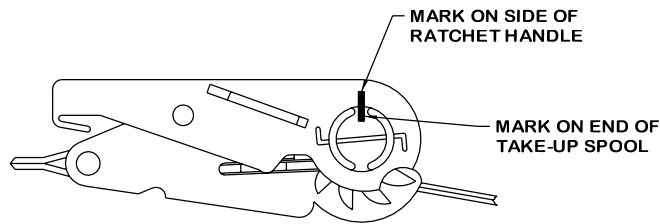
(8 REQUIRED PER TRAILER)

1/4" THICK BY 3" WIDE STEEL PLATE. WELD TO CROSS MEMBERS OF TRAILER (AT EACH END). TO BE LOCATED SO THAT WHEN THE 21/32" HOLES ARE DRILLED THROUGH THE TRAILER DECK, THEY WILL ALSO GO THROUGH THE PLATE AS SHOWN ABOVE. THE TWO 16-7/8" LONG PIECES MARKED ② WILL BE LOCATED BETWEEN THE FIRST AND SECOND CROSS MEMBERS FROM THE FORWARD END. THE TWO 16-3/4" LONG PIECES MARKED ① WILL BE LOCATED BETWEEN THE SECOND AND THE THIRD CROSS MEMBERS FROM THE FORWARD END. THE TWO 18-7/8" LONG PIECES MARKED ③ WILL BE LOCATED BETWEEN THE SIXTH AND SEVENTH CROSS MEMBERS FROM THE FORWARD END AND THE TWO 19" LONG PIECES MARKED ④ WILL BE LOCATED BETWEEN THE SEVENTH AND EIGHTH CROSS MEMBERS FROM THE FORWARD END. SEE THE "PLAN VIEW OF 11-TON M989 HEMAT" ON PAGE 28 FOR LOCATION OF REINFORCEMENT PLATES.



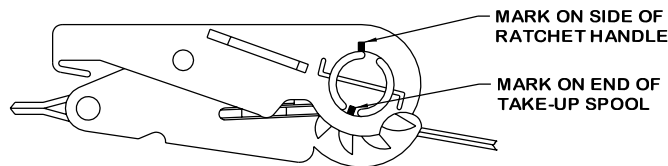
**STEP 1**

IN THIS VIEW PART OF THE RATCHET HOUSING IS SHOWN BROKEN AWAY TO DEPICT WEBBING-TO-WEBBING CONTACT ON THE TAKE-UP SPOOL OF THE RATCHET. WEBBING-TO-WEBBING CONTACT IS ACHIEVED WHEN THE OPERATOR HOLDS THE DOUBLE LINE OF WEBBING IN AN "IN LINE PLANE TO THE RATCHET" AND IT MAKES CONTACT WITH THE SINGLE LINE OF WEBBING.



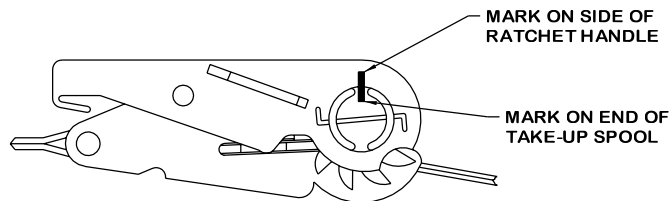
**STEP 2**

THIS VIEW DEPICTS THE LOCATION OF THE FIXED MARK ON THE RATCHETING HANDLE, WITH ANOTHER MATCHING MARK ON THE TAKE-UP SPOOL, AFTER WEBBING-TO-WEBBING CONTACT HAS BEEN MADE.



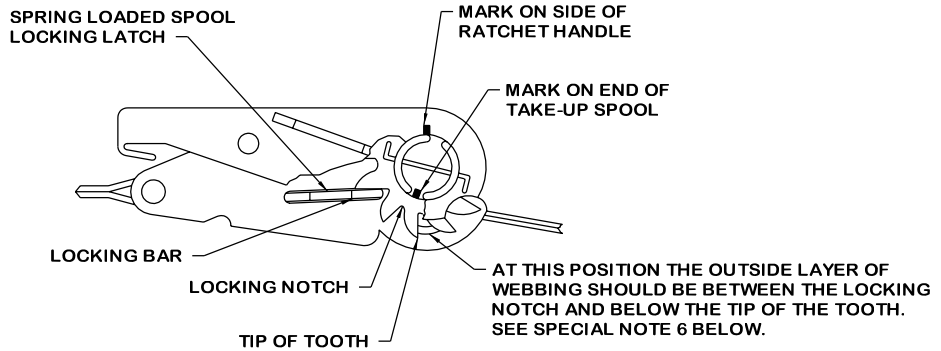
**STEP 3**

THIS VIEW DEPICTS THE LOCATION OF THE MARK ON THE END OF THE TAKE-UP SPOOL AFTER THE SPOOL HAS BEEN ROTATED ONE-HALF TURN, AFTER WEBBING-TO-WEBBING CONTACT HAS BEEN MADE.



**STEP 4**

THIS VIEW DEPICTS THE LOCATION OF THE MARK ON THE END OF THE TAKE-UP SPOOL AFTER THE SPOOL HAS BEEN ROTATED ONE FULL TURN, AFTER WEBBING-TO-WEBBING CONTACT HAS BEEN MADE.



### STEP 5

THIS VIEW DEPICTS THE LOCATION OF THE MARK ON THE END OF THE TAKE-UP SPOOL AFTER THE SPOOL HAS BEEN ROTATED ONE AND ONE-HALF TURNS, AFTER WEBBING-TO-WEBBING CONTACT HAS BEEN MADE. ALSO IN THIS VIEW, PART OF THE RATCHET HANDLE IS BROKEN AWAY TO SHOW THE LOCKING BAR FULLY SEATED IN THE MATCHING LOCKING NOTCH (SPROCKET GEAR TEETH).

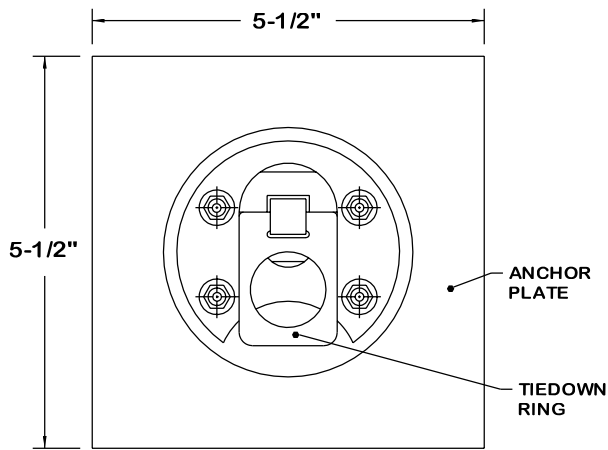
#### SPECIAL NOTES:

1. THE PURPOSE OF THE RATCHET DETAILS ON PAGE 30 AND THE DETAIL AND NOTES ON THIS PAGE ARE TO AUGMENT THE GUIDANCE SET FORTH WITHIN GENERAL NOTE "D" ON PAGE 2.
2. THE REQUIREMENTS FOR 1/2 BUT NOT MORE THAN 1-1/2 WRAPS OF STRAP ON THE TAKE-UP SPOOL OF THE TENSIONING RATCHET, AS SPECIFIED WITHIN GENERAL NOTE "D" ON PAGE 2, ACTUALLY MEANS 1/2 TO 1-1/2 WRAPS OF DOUBLE WEBBING. ALSO, THE 1/2 TO 1-1/2 WRAPS (TURNS) ARE TO BE ACCOMPLISHED ONLY AFTER ENOUGH WEBBING HAS BEEN WOUND ONTO THE SPOOL TO ACHIEVE A WEBBING-TO-WEBBING CONTACT CONFIGURATION, AS SHOWN IN THE "STEP 1" DETAIL ON PAGE 30.
3. ONE METHOD THAT CAN BE USED TO ENSURE THAT THE 1/2 TO 1-1/2 WRAPS ARE WOUND ONTO THE TAKE-UP SPOOL, AFTER WEBBING-TO-WEBBING CONTACT HAS BEEN MADE, IS TO PLACE A FIXED MARK (PAINT OR SIMILAR MATERIAL) ON THE SIDE OF THE RATCHETING HANDLE, WITH THE HANDLE IN ITS CLOSED (DOWN) POSITION, AND ANOTHER SHORT MATCHING MARK ON THE END OF THE SPOOL, AS SHOWN IN THE "STEP 2" DETAIL ON PAGE 30. AS THE SPOOL IS ROTATED TO TENSION A TIEDOWN STRAP ASSEMBLY, THE NUMBER OF WRAPS (TURNS) CAN BE DETERMINED VISUALLY BY COMPARING THE "MARK" LOCATION ON THE SPOOL TO THE "MARK" LOCATION ON THE RATCHETING HANDLE WITH THE HANDLE IN CLOSED POSITION. SEE THE "STEP 3" AND "STEP 4" DETAILS ON PAGE 30, AND "STEP 5" ABOVE.
4. ANOTHER METHOD THAT CAN BE USED TO ENSURE THAT THE 1/2 TO 1-1/2 WRAPS ARE ACHIEVED, AFTER WEBBING-TO-WEBBING CONTACT HAS BEEN MADE, IS TO COUNT THE AUDIBLE CLICKS MADE BY THE RATCHET ASSEMBLY AS A WEB STRAP ASSEMBLY IS BEING TENSIONED. THE RATCHET ASSEMBLY ON MOST WEB STRAP ASSEMBLIES HAVE 11 TEETH ON THE GEARLIKE DEVICE ON EACH END OF THE TAKE-UP SPOOL; SOME OTHER STRAP ASSEMBLIES HAVE ONLY 9 TEETH. THEREFORE, AFTER INITIAL WEBBING-TO-WEBBING CONTACT HAS BEEN MADE, ROTATE (TURN) THE SPOOL THROUGH A MINIMUM OF 6 TO A MAXIMUM OF 16 CLICKS (1/2 TO 1-1/2 WRAPS) WHEN THE GEAR HAS 11 TEETH, AND ROTATE (TURN) THE SPOOL THROUGH A MINIMUM OF 5 TO A MAXIMUM OF 13 CLICKS (1/2 TO 1-1/2 WRAPS) IF THE GEAR HAS 9 TEETH.

(CONTINUED AT RIGHT)

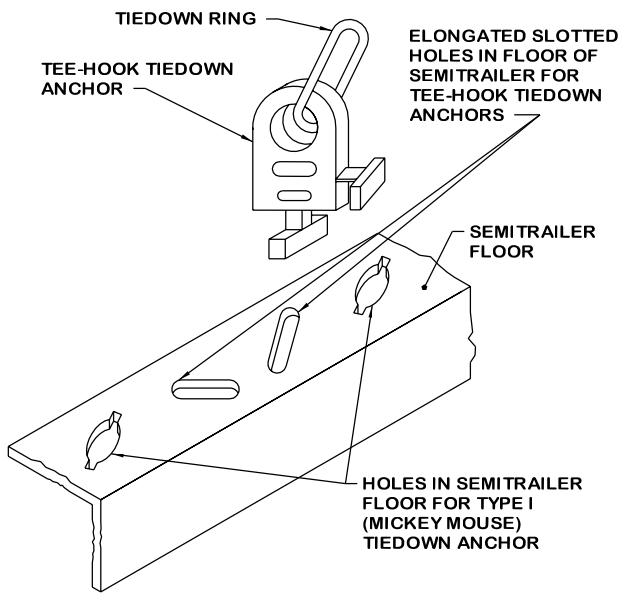
#### SPECIAL NOTES CONTINUED

5. AFTER A STRAP ASSEMBLY HAS BEEN PROPERLY TENSIONED, CARE MUST BE EXERCISED TO ASSURE THAT THE TAKE-UP SPOOL LOCKING LATCH (SPRING LOADED DEVICE WITH A LOCKING BAR ON EACH SIDE OF THE RATCHET ASSEMBLY) IS FULLY SEATED ON BOTH SIDES IN MATCHING LOCKING NOTCHES, WHICH ARE SIMILAR TO SPROCKET GEAR TEETH, THAT ARE LOCATED ON EACH END OF THE TAKE-UP SPOOL. SEE "STEP 5" DETAIL ABOVE. THE LOCKING LATCH IS "FULLY SEATED" WHEN THE HANDLE WILL CLOSE AND THE LOCKING EAR, OR SIMILAR DEVICE ON THE HANDLE, PREVENTS THE ACCIDENTAL WITHDRAWAL OF THE LOCKING LATCH. SEE "STEP 1" DETAIL ON PAGE 30. IF THE FULLY SEATED CONDITION CANNOT BE ACHIEVED, THE STRAP MUST BE RELEASED AND HAND RETENSIONED AS TIGHT AS POSSIBLE TO ACHIEVE THE FULLY SEATED CONDITION.
6. ANOTHER VISUAL METHOD OF DETERMINING WHEN THERE IS 1/2 TO 1-1/2 WRAPS OF WEBBING ON THE TAKE-UP SPOOL, AFTER INITIAL WEBBING-TO-WEBBING CONTACT HAS BEEN MADE, IS TO LOOK AT THE SPOOL. WHEN A TIEDOWN IS COMPLETE, THE STRAP WEBBING ON THE SPOOL OF THE RATCHET SHOULD BE ABOVE THE LOWER CURVE OF THE LOCKING NOTCH, AND SHOULD BE BELOW THE TIPS OF THE TEETH OF THE RATCHET AS IDENTIFIED IN "STEP 5" ABOVE. IT SHOULD BE NOTED THAT ANY PROCEDURES THAT ENSURE PROPER TENSIONING ARE ACCEPTABLE AND METHODS ON THE DRAWING ONLY PROVIDE SOME METHODS.



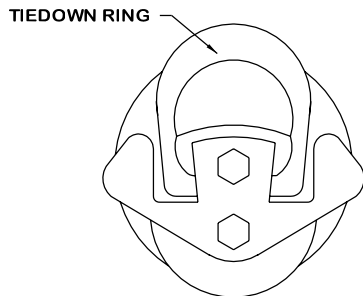
**UNIVERSAL TIEDOWN ANCHOR (FRONT VIEW)**

SEE SPECIAL NOTE 1



**TEE-HOOK TIEDOWN ANCHOR (ISOMETRIC VIEW)**

SEE SPECIAL NOTE 2

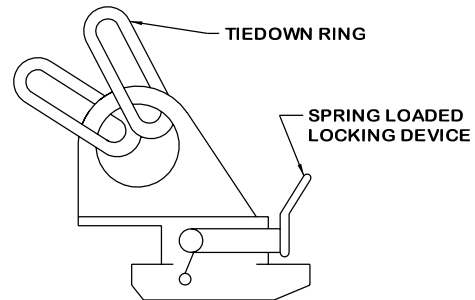


**REMOVABLE TIEDOWN ANCHOR (TOP VIEW)**

SEE SPECIAL NOTE 3

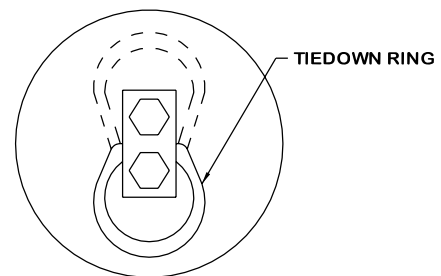
**SPECIAL NOTES:**

1. IF THE TACTICAL VEHICLES BEING USED ARE NOT EQUIPPED WITH THE 5,000 POUND UNIVERSAL TIEDOWN ANCHOR SHOWN AT LEFT, SEE TB 9-2300-280-30 FOR VEHICLE MODIFICATION PROCEDURES AND INSTALLATION OF THE TIEDOWN ANCHOR. WITH THE EXCEPTION OF THE HEAVY EXPANDED MOBILITY TACTICAL TRUCK (HEMTT), M977 AND/OR M985, WHICH HAS THE TIEDOWN ANCHORS INSTALLED IN THE FLOOR, THESE TIEDOWN ANCHORS ARE TO BE INSTALLED IN THE SIDEWALLS AND ENDWALLS OF CARGO TRUCKS AND CARGO TRAILERS. IF AN M127, 12-TON SEMITRAILER IS BEING USED, SEE INFORMATION IN TB 9-2300-280-30. THE M127 SEMITRAILER REQUIRES A DIFFERENT TYPE OF TIEDOWN ANCHOR.
2. THIS TIEDOWN ANCHOR IS RATED AT 5,000 POUNDS AND IS ONLY INSTALLED ON THE M872 SEMITRAILER. THERE ARE FIVE TIEDOWN ANCHOR LOCATIONS ON EACH SIDE OF THE M872 SEMITRAILER. THIS TIEDOWN ANCHOR IS POSITIONED BY INSERTING IT FROM THE TOP INTO ONE OF THE ELONGATED SLOTTED HOLES LOCATED IN THE SIDE RAILS OF THE SEMITRAILER. THIS TIEDOWN ANCHOR IS FURTHER IDENTIFIED AS NSN 2540-01-113-9285.
3. THIS TIEDOWN ANCHOR IS RATED AT 10,000 POUNDS AND IS INSTALLED ON THE M871 AND M872 SEMITRAILERS. IT IS COMMONLY REFERRED TO AS THE "MICKEY MOUSE" TIEDOWN ANCHOR. THERE ARE 10 LOCATIONS IN EACH SIDE RAIL OF THE M871 SEMITRAILER AND APPROXIMATELY 28 IN EACH SIDE RAIL OF THE M872 SEMITRAILER. FOR INSTALLATION OF THIS TIEDOWN ANCHOR, IT IS POSITIONED BY REACHING UNDER THE FLOOR OF THE SEMITRAILER, INSERTING IT UP THROUGH THE HOLE AND ROTATING IT INTO POSITION. THIS TIEDOWN ANCHOR IS FURTHER IDENTIFIED AS NSN 2540-01-112-1732.
4. THIS TIEDOWN ANCHOR IS RATED AT 10,000 POUNDS AND IS ONLY FOR USE ON THE M871 SEMITRAILER. IT IS COMMONLY REFERRED TO AS THE "BIG FOOT" TIEDOWN ANCHOR. THERE ARE 10 LOCATIONS IN EACH SIDE RAIL OF THE SEMITRAILER FOR INSTALLATION OF THIS TIEDOWN ANCHOR. IT HAS A SPRING/LOADED LOCKING DEVICE TO HOLD IT IN PLACE, IS INSERTED FROM THE TOP INTO A 1-3/4" DIAMETER HOLE, AND IT SWIVELS. THIS TIEDOWN IS FURTHER IDENTIFIED AS NSN 2540-01-117-3043.
5. THIS TIEDOWN ANCHOR IS RATED AT 10,000 POUNDS, IS NOT REMOVABLE AND IS ONLY INSTALLED ON THE M871 SEMITRAILER. THERE ARE FIVE IN EACH SIDE RAIL OF THE M871 SEMITRAILER AND THEY DO NOT SWIVEL.



**REMOVABLE TIEDOWN ANCHOR (SIDE VIEW)**

SEE SPECIAL NOTE 4



**FIXED TIEDOWN ANCHOR (TOP VIEW)**

SEE SPECIAL NOTE 5