LANCE

LOADING AND BRACING IN CLOSED OR OPEN TOP VAN TRAILERS OF MOBILITY KIT, GUIDED MISSILE LAUNCHER, XM234

INDEX

ITEM												<u> </u>	AGE	<u>(S)</u>
									FICATIONS					
									NAILABLE					_
I-UNIT	LOAD	IN	A	TRA	ILER	HAVI	NG A	N.	NON-NAILA	BLE	FLOOR			6-7

REVISIONS	CBK CHU C. F. / LLW CON / STO
	15 / VDS 22 / 77 / 77 / 77 / 77 / 77 / 77 / 77
	andrem Waid
	APPROPER BY CHARLE OF BOOM A BOLING GENERAL,
	WANNE ANNO CENTER
	U. S. ARMY MATERIEL COMMAND
	JUNE 1972
	CLASS DIVISION DRAWING FILE
	19 48 7533 GSE

DO NOT SCALE

GENERAL NOTES

- THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AMCR
- THE OUTLOADING PROCEDURES SPECIFIED IN THIS DRAWING ARE APPLICABLE TO THE LANCE MOBILITY KIT. ONLY ONE UNIT OF LADING IS SHOWN; HOWEVER, MULTIPLES OF UNITS, AS SHOWN OR DISSIMILAR IN NATURE, MAY BE LOADED IN A TRAILER. THE NUMBER OF UNITS TO BE LOADED IN A TRAILER WILL BE DEPEN-DENT ON THE SIZE OF THE TRAILER USED OR THE QUANTITIES OF UNITS TO BE SHIPPED WITH THE VIEW OF FULL UTILIZATION OF CARRIER EQUIPMENT.
- FOR DETAIL OF THE LANCE MOBILITY KIT SEE DRAWING NO. 10161700.

TEM DIMENSIONS -----9'-2" LONG BY 6'-6" WIDE BY 3'-10" HIGH. TEM GROSS WEIGHT ------1,970 POUNDS (APPROX).

- THE GROSS WEIGHT AND AXLE DISTRIBUTION OF WEIGHT FOR A LOAD WILL BE THE RESPONSIBILITY OF THE CARRIER. THE CARRIER WILL ADVISE THE SHIPPER OF THE APPLICABLE LOADING REQUIREMENTS, AND THE SHIPPER WILL LOAD ACCORD-
- THE NUMBER OF LADING UNITS MAY BE ADJUSTED TO FIT THE SIZE OF THE TRAILER TO BE LOADED OR THE QUANTITY TO BE SHIPPED AND COMBINATIONS OF THE OUTLOADING PROCEDURES SPECIFIED MAY BE USED. HOWEVER, THE APPROVED METHODS SHOWN MUST BE FOLLOWED AS CLOSELY AS POSSIBLE FOR BLOCKING, BRACING, AND STAYING OF THE DESIGNATED ITEMS.
- OTHER TYPES OF LADING ITEMS MAY BE LOADED IN A TRAILER WHICH IS PARTIALLY LOADED WITH THE DESIGNATED ITEM, PROVIDING THE TOTAL LOAD IS COMPATIBLE, EXISTING DIRECTIVES ARE NOT VIOLATED, AND THE OTHER LADING ITEMS ARE BLOCKED AND BRACED TO EQUAL THE BLOCKING AND BRACING CRITERIA SPECIFIED.
- A STAGGERED NAILING PATTERN WILL BE USED WHEREVER POSSIBLE WHEN NOTICE: NAILS ARE DRIVEN INTO JOINTS OF DUNNAGE ASSEMBLIES, ALSO, A STAGGERED NAILING PATTERN WILL BE USED WHEN DUNNAGE IS NAILED TO THE FLOOR OF THE TRANSPORTING VEHICLE, OR WHEN LAMINATING DUNNAGE. ADDITIONAL 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.
- Dunnage lumber specified throughout this procedural drawing is of Nominal size. For example, 2" x 4" material is actually 1-5/8" thick by 3-5/8" wide and 2" x 6" material is actually 1-5/8" thick by 5-5/8" wide.
- PORTIONS OF THE TRAILER BODIES DEPICTED WITHIN THIS PROCEDURAL DRAWING, SUCH AS ONE OF THE SIDE WALLS, HAVE NOT BEEN SHOWN IN THE LOAD VIEWS FOR CLARITY PURPOSES.
- WHEN ANY STRAP IS SEALED AT AN END-OVER-END LAP JOINT, A MINIMUM OF TWO (2) SEALS, BUTTED TOGETHER, WITH TWO (2) PAIRS OF CRIMPS PER SEAL MUST BE USED.
- FOR ADDITIONAL GUIDANCE, ATTENTION IS DIRECTED TO THE "SPECIAL NOTES" SECTIONS WHICH ARE IMMEDIATELY ADJACENT TO DEPICTED OUTLOADING METHODS.
- IF THE TRAILER FURNISHED FOR SHIPMENT OF THIS ITEM IS EQUIPPED WITH TIE DOWN
- IF THE TRAILER FURNISHED FOR SHIPMENT OF THIS ITEM IS EQUIPPED WITH TIE DOWN FACILITIES IN THE FLOOR, SEE "ALTERNATE TIE DOWN PROCEDURE" DETAILS ON PAGE 8. TO BE ACCEPTABLE THE TIE DOWN FACILITIES MUST BE EQUAL TO OR GREATER IN STRENGTH THAN THE TWISTED WIRE TIE DOWN ASSEMBLIES.
 REFER TO ORD DWG 19-48-C-ORDJU-58B, "WIRE ROPE AND ANNEALED WIRE APPLICATION METHODS FOR SECURING LADING ON RAIL AND MOTOR CARRIER EQUIP,"
 FOR PROPER TIE DOWN APPLICATION. CAUTION: DURING TWISTED WIRE INSTALLATION, AVOID CONTACT WITH ALL ELECTRICAL WIRING, VEHICLE CONTROLS AND OTHER APPURTENANCES. METAL FILLERS OR COMPARABLE CUSHIONING MATERIAL MUST BE USED BETWEEN TIE DOWN WIRES AND/OR CABLES AND ALL SHARP EDGES.
 ALL HAND BRAKES MUST BE "SET" WITH HAND LEVERS WIRE TIED OR BLOCKED.

MATERIAL SPECIFICATIONS

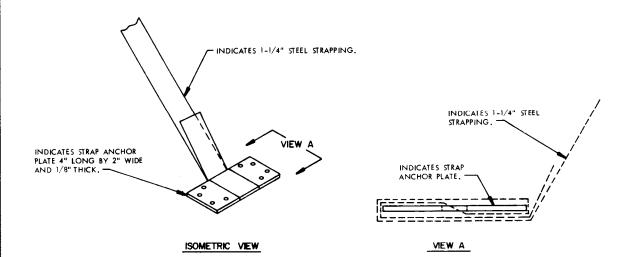
LUMBER:	DOUGLAS FIR OR COMPARABLE LUMBER WITH STRAIGHT GRAIN AND FREE FROM MATERIAL DEFECTS. REF: FED SPEC MM-L-751.
<u>NAILS</u> :	COMMON, CEMENT COATED OR CHEMICALLY ETCHED. REF: FED SPEC FF-N-105. ALT: ANNUAL-RING TYPE NAIL OF SAME SIZE.
STRAPPING, STEEL:	TYPE I, CLASS "A" OR "C". REF: FED SPEC @@-S-781. (FOR FSN SEE SB-38-100).
STRAP ANCHOR PLATE:	FSN 5340-252-3014
STRAP SEAL/STAPLE	COMMERCIAL GRADE.
<u>WIRE</u> :	ANNEALED, BLACK, REF: FED SPEC QQ-W-461.

DRIVE ALL NAILS PERPENDICULAR TO FLOOR AND IN A STAGGERED PATTERN AS SHOWN.

47
48
47
48
47
48

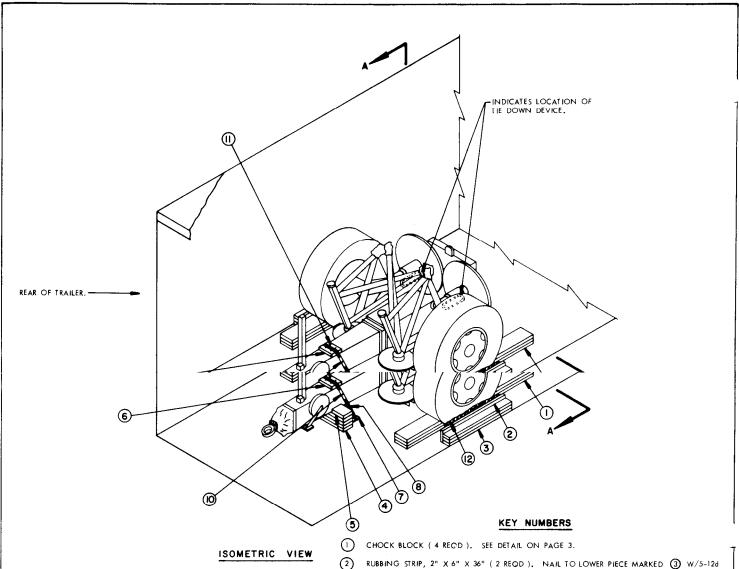
CHOCK BLOCK

POSITION THE BEVELED END AGAINST A WHEEL. NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/5-12d NAILS. NAIL EACH ADDITIONAL PIECE W/4-20d NAILS.

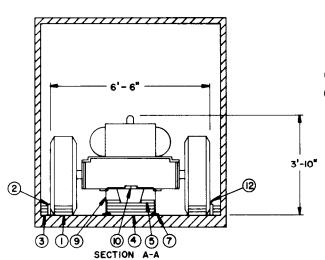


APPLICATION OF STRAPPING
TO STRAP ANCHOR PLATE

DETAILS



- 2 NAILS.
- SIDE BLOCKING, 2" X 4" X 36" (TRIPLED) (2 REQD). NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/5-12d NAILS. NAIL EACH ADDITIONAL PIECE TO THE FIRST IN A LIKE MANNER. SEE GENERAL NOTE "G" ON PAGE 2. ③
- SUPPORT ASSEMBLY, 2" X 6" X 24" (QUADRUPLED) (1 REGD). NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/5-12d NAILS. NAIL EACH ADDITIONAL PIECE TO THE FIRST IN A LIKE MANNER.
- ANTI-SWAY CLEAT, 2" X 6" BY CUT TO FIT (2 REQD). NAIL TO PIECE MARKED 4 W/3-12d NAILS.
- STRAPPING BOARD, 2" X 6" BY LENGTH TO SUIT (1 REOD).
- STRAP ANCHOR PLATES, 4" LONG BY 2" WIDE BY 1/8" THICK (4 REOD). NAIL W/8 SIGNODE MICROLOCK 2-1/4" NAILS (OR EQUAL). SEE GENERAL NOTE "M" ON PAGE 2
- STEEL STRAPPING, 1-1/4" \times .035" \times 8'-0" (1 REQD). INSTALL IN TWO (2) 4'-0" PIECES. SEE GENERAL NOTE "K" ON PAGE 2 AND SPÈCIAL NOTE 4 CN PAGE 5.
- STEEL STRAPPING, 1-1/4" X .035" X 8'-0" (1 REOD). INSTALL IN TWO 4'-0" LONG PIECES. THREAD STRAP THRU STRAP ANCHOR PLATE AND FASTEN ANCHOR PLATES TO THE TRAILER FLOOR. BRING ENDS OF STRAP UP THRU TIE DOWN DEVICE AND SEAL. SEE "SECTION A-A" ON THIS PAGE, GENERAL NOTE "K" ON PAGE 2 AND "APPLICATION OF STRAPPING TO STRAP ANCHOR PLATE" DETAIL ON PAGE 3.
- (II) SEAL FOR 1-1/4" STRAPPING (4 REGD).
- 11) STAPLE FOR 1-1/4" STRAPPING (2 REQD).
- (12)



I-UNIT LOAD IN A TRAILER HAVING NAILABLE Α FLOOR

SPECIAL NOTES:

- 1. A ONE (1) UNIT LOAD IS SHOWN IN A 7'-6" WIDE (INSIDE DIMENSION) TRAILER WHICH IS ECUIPPED WITH A NAILABLE FLOOR. A WIDER TRAILER MAY BE USED.
- 2. IF THE TRAILER BEING OUTLOADED HAS A NON-NAILABLE FLOOR SEE THE OUTLOADING PROCEDURES ON PAGES 6 AND 7.
- 3. FOUR (4) MOBILITY KITS CAN BE LOADED IN A 40'-0" LONG TRAILER.
- 4. STEEL STRAPPING, PIECE MARKED (B), SHOULD BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING GUIDANCE. THREAD ONE PIECE OF STRAP THRU AN ANCHOR PLATE, PIECE MARKED (7), AS SHOWN BY THE "APPLICATION OF STRAPPING TO STRAP ANCHOR PLATE" DETAIL ON PAGE 3 AND FASTEN THE ANCHOR PLATE TO THE FLOOR OF THE TRAILER. THREAD THE ADTER PIECE OF STRAP THRU AN ANCHOR PLATE AND FASTEN TO THE FLOOR ON THE OTHER SIDE OF THE LUNETTE. BRING THE STRAP OVER THE LUNETTE AND PIECE MARKED (6), TENSION AND SEAL TO THE OTHER STRAP. AFTER SEALING, STAPLE THE STRAP TO PIECE MARKED (6) WITH TWO (2) 1-1/4" STAPLES, PIECES MARKED (11).

BILL OF MATERIAL							
LUMBER	LINEAR FEET	BOARD FEET					
2" X 4" 2" X 6" 2" X 8"	18 15 22	12 15 28					
NAILS	NO. REOD	POUNDS					
12d (3-1/4") 20d (4") Microlock (2-1/4")	86 32 32	1-1/2 1-1/4 NIL					
STEEL STRAPPING, 1-1/4" X .035"							

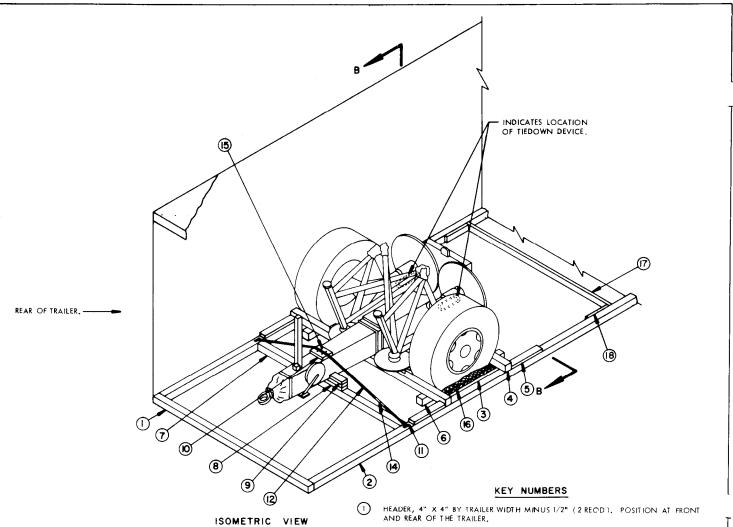
LOAD AS SHOWN

ПЕМ	QUANTITY	WEIGHT (APPROX)
MOBILITY KIT	11	1,970 LBS
DUNNAGE	TOTAL WEIGHT	

I-UNIT LOAD IN A TRAILER

HAVING A NAILABLE FLOOR

PAGE 5



(KEY NUMBERS CONTINUED)

- \bigcirc CROSS BRACING, 2" X 4" X CUT TO FIT (REQD FOR LTL SHIPMENTS) INSTALL ONE (1) ADDITIONAL PIECE FOR EVERY 7'-0" OF LENGTH OF PIECE MARKED (2) NAIL TO PIECES MARKED (2) AND (18) W/2-12d NAILS AT EACH END.
- CLEAT, 2" X 4" X 12" (2 REQD $)_{\star}$ Position as shown and nail to piece marked (2) W/3-12d nails .
- 3'-10" **(4) (3)** SECTION B-B

PAGE

6

- AND REAR OF THE TRAILER.
- 2
- SIDE STRUT, 4" X 4" BY RANDOM LENGTHS TO FIT BETWEEN PIECES MARKED () (2 REQD). TOENAIL TO PIECES MARKED () W/2-16d NAILS AT EACH END. SEE SPECIAL NOTE 4 ON PAGE 7. SCILID FILL, 4" WIDE MATERIAL BY 36" LONG BY THICKNESS TO SUIT (AS REQUIRED TO FILL VOID BETWEEN TIRES AND PIECES MARKED (2)). TOENAIL TO PIECE MARKED (2) W/3-12d NAILS, IF TWO PIECES OF FILL ARE REQUIRED, TOENAIL SECOND PIECE TO FIRST IN THE SAME MANNER.
- WHEEL CHOCK, 4" X 4" BY TRAILER WIDTH MINUS 1/2" (2 REOD), TOENAIL TO PIECE MARKED ② W/2-16d NAILS AT EACH END. TOENAIL TO PIECE MARKED ⑥ W/2-16d NAILS AT EACH JOINT.
- Back-up cleat, 2" x 4" x 18" (4 reod). Position against piece marked (4) nail to piece marked (2) W/4-12d nails.
- WHEEL CHOCK SUPPORT, 4" X 4" X 12" (4 REGD). POSITION ONE END AGAINST
- CROSS PIECE, 4" X 4" BY CUT TO FIT BETWEEN PIECES MARKED 2 (1 REQD). TOENAIL TO PIECE MARKED 2 W/4-16d Nails at EACH END.
- SUPPORT ASSEMBLY, 2" X 4" X 24" (DOUBLED) (1 REOD). NAIL THE FIRST PIECE TO PIECE MARKED (7) W/5-12d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN
- ANTI-SWAY CLEAT, 2" X 4" BY CUT TO FIT (2 REOD). NAIL TO PIECE MARKED (8) W/3-12d NAILS.
- STRAPPING BOARD, 2" X 6" BY LENGTH TO SUIT (1 REQD). (10)
- STRAP ANCHOR PLATES, 4" LONG BY 2" WIDE BY 1/8" THICK (4 REQD). NAIL W/8-SIGNODE MICROLOCK 2-1/4" NAILS (OR EQUAL). SEE PAGE 3 FOR "APPLICATION OF STRAPPING TO STRAP ANCHOR PLATE" DETAIL. SEE GENERAL NOTE "M" ON PAGE 2. STEEL STRAPPING, 1-1/4" X .035" X 12'-0" (1 REQD). INSTALL IN TWO (2) 6'-0" PIECES. SEE GENERAL NOTE "K" ON PAGE 2 AND SPECIAL NOTE 5 ON PAGE 7.
- (2)
- STEEL STRAPPING, 1-1/4" X .035" X B'-0" (1 REQD). INSTALL IN TWO 4'-0" LONG PIECES. THREAD STRAP THRU STRAP ANCHOR PLATE AND FASTEN ANCHOR PLATES TO PIECE MARKED (4). BRING ENDS OF STRAP UPTHRU TIEDOWN DEVICE AND SEAL. SEE "SECTION B-B" ON THIS PAGE, GENERAL NOTE "K" ON PAGE 2 AND "APPLICATION OF STRAPPING TO STRAP ANCHOR PLATE" DETAIL ON PAGE 3. SEAL FOR 1-1/4" STRAPPING (4 REOD). (13)
- 14
- (15) STAPLE FOR 1-1/4" STRAPPING (2 REOD).
- (b)

(CONTINUED AT LEFT)

I-UNIT LOAD IN A TRAILER HAVING A NON-NAILABLE FLOOR

SPECIAL NOTES:

- A ONE (1) UNIT LOAD IS SHOWN IN A 7"-6" WIDE (INSIDE DIMENSION)
 TRAILER WHICH HAS A NON-NAILABLE FLOOR. A WIDER TRAILER MAY BE USED.
- IF THE TRAILER BEING OUTLOADED HAS A NAILABLE FLOOR SEE THE OUTLOADING PROCEDURES ON PAGES 4 AND 5.
- 3. FOUR (4) MOBILITY KITS CAN BE LOADED IN A 40'-0" LONG TRAILER.
- 4. DEPENDING ON THE NUMBER OF UNITS BEING LOADED, EACH OF THE SIDE STRUTS, PIECES MARKED ②, MAY NEED TO BE FORMED FROM MORE THAN ONE PIECE OF MATERIAL. IF SUCH IS THE CASE, THE SIDE STRUTS MUST BE SPLICED. SPLICING CAN BE ACCOMPLISHED BY CENTERING A 2" X 4" X 24" PIECE ON THE JOINT OF THE SIDE STRUTS AND NAILING IT TO THE SIDE STRUTS W/4-10d NAILS AT EACH END. IF DESIRED, THE CROSS BRACING PIECE (S), PIECE MARKED ⑦ MAY BE NAILED TO THESE SPLICE PIECES IN LIEU OF USING ADDITIONAL CLEATS, PIECES MARKED ①
- 5. STEEL STRAPPING, PIECE MARKED (1), SHOULD BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING GUIDANCE. THREAD ONE PIECE OF STRAP THRU AN ANCHOR PLATE, PIECE MARKED (1), AS SHOWN BY THE "APPLICATION OF STRAPPING TO STRAP ANCHOR PLATE" DETAIL ON PAGE 3 AND FASTEN THE ANCHOR PLATE TO PIECE MARKED (2). THREAD THE OTHER PIECE OF STRAP THRU AN ANCHOR PLATE AND FASTEN TO PIECE MARKED (2) ON THE OPPOSITE SLOE OF THE TRAILER. BRING THE STRAP ENDS TOGETHER OVER PIECE MARKED (10), TENSION AND SEAL. AFTER SEALING, STAPLE THE STRAP TO PIECE MARKED (10) WITH TWO (2) 1-1/4" STAPLES, PIECES MARKED (12).

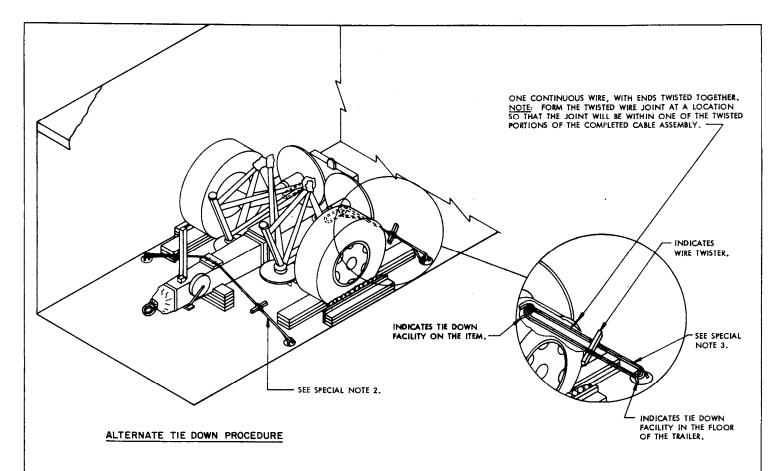
LUMBER	LINEAR FEET	BOARD FEET			
2" X 4"	18	12			
2" X 6"	1	1			
4" X 4"	119	159			
NAILS	NO. REQD	POUNDS			
12d (3-1/4")	42	3/4			
16d (3-1/2")	32	3/4 3/4			
Microlock (2-1/4")	32	NIL			

STEEL STRAPPING, 1-1/4" X .035"	20'-0"	REQD	 3 LBS
STRAP ANCHOR PLATES	4	REQD	 2 LBS
SEAL FOR 1-1/4" STRAPPING	4	REQD	 NIL
STAPLE FOR 1-1/4" STRAPPING	2	REQD	 NIL
ANTI-CHAFING MATERIAL	6'	REQD	 NiL

LOAD AS SHOWN

I-UNIT LOAD IN A TRAILER

HAVING A NON-NAILABLE FLOOR



SPECIAL NOTES:

- 1. THE ALTERNATE TIE DOWN PROCEDURE SHOWN ON THIS PAGE MAY BE USED IN LIEU OF STEEL STRAPPING PROCEDURE FOR BOTH NAILABLE AND NON-NAILABLE FLOOR PROCEDURES AS DEPICTED ON PAGES 4 AND 6. OTHER BLOCKING AND BRACING WILL BE PROVIDED AS SHOWN FOR EACH METHOD. SEE GENERAL NOTES "M" AND "N" ON PAGE 2.
- 2. A SIX (6) STRAND INSTALLATION OF NO. 8 GAGE BLACK ANNEALED WIRE IS SHOWN, PASSED THRU A FLOOR TIE DOWN ON ONE SIDE OF THE TRAILER, OVER THE LUNETTE AND STRAPPING BOARD AND THRU A FLOOR TIE DOWN ON THE OPPOSITE SIDE OF THE TRAILER FORMING A COMPLETE LOOP, AND TWISTED TAUT WITH THE WIRE TWISTERS. AFTER TWISTING TAUT, STAPLE WIRE TO STRAPPING BOARD W/2-1-1/4" STAPLES.
- 3. A SIX (6) STRAND INSTALLATION OF NO, 8 GAGE BLACK ANNEALED WIRE IS SHOWN, PASSED THRU THE TIE DOWN FACILITY ON THE ITEM AND TIE DOWN IN THE FLOOR OF THE TRAILER TO FORM A COMPLETE LOOP, AND READY TO BE TWISTED TAUT WITH A WIRE TWISTER, TWO (2) REQUIRED AT THE REAR OF EACH GM LAUNCHER SHIPPED.