

HAWK

LOADING AND BRACING ON FLAT BED
OR "LOW-BOY" TRAILER OF TRAILER,
GUIDED MISSILE, 2-WHEEL, XM502E2

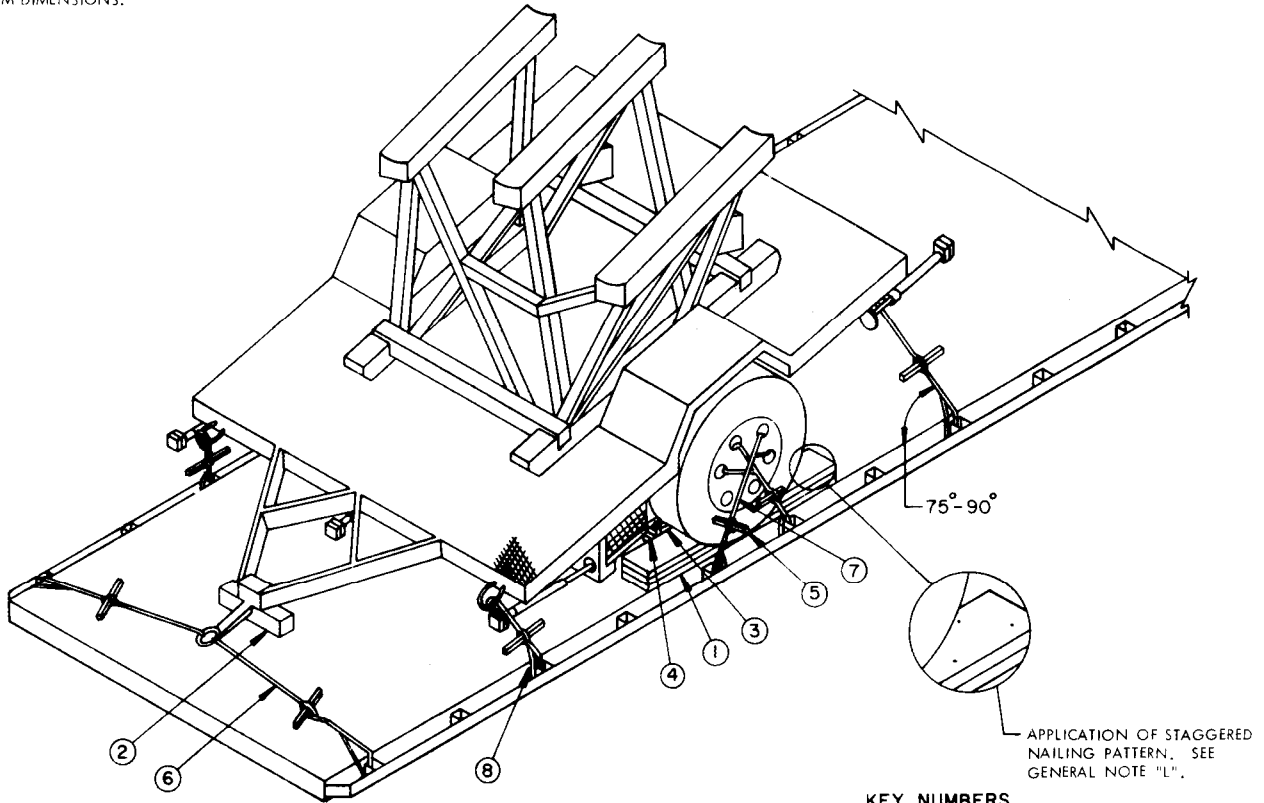
DRAFTSMAN <i>VAS</i>	TRACER	ENGINEER <i>DIW/DHW</i>	SUBMITTED
CHECKER <i>GWP</i>	CHECKER <i>PMW</i>	ENGINEER	<i>Ralph T. McHenry</i> COLONEL ORD. CORPS U.S.A.
REVISIONS			EXAMINED
1	MAR 72	<i>Walter E. Johnson</i>	<i>Arnold E. Nelson</i> ORD. CORPS U.S.A.
			APPROVED BY ORDER OF THE CHIEF OF ORDNANCE
			<i>General A. Blum</i> ORD. CORPS U.S.A.
			ORDNANCE CORPS U.S.A.
			12 JULY 1960
		CLASS	DIVISION
		DRAWING	FILE
		19	48
		7401	GSE 11HA18

DO NOT SCALE

REVISION

REVISION NO. 1, DATED MARCH 1972, CONSISTS OF:

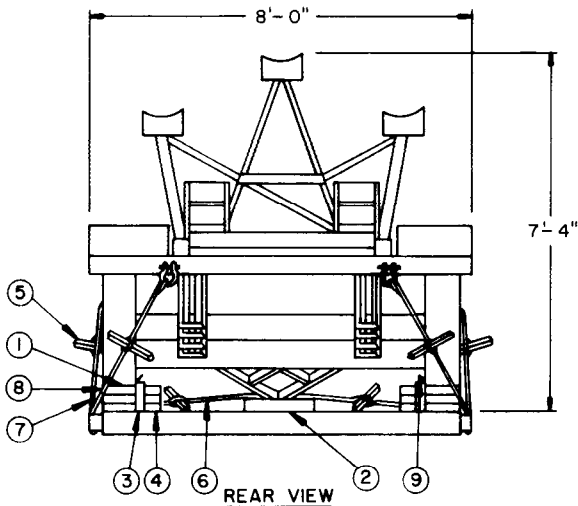
1. CHANGES AS NECESSARY TO UPDATE DRAWING FORMAT.
2. CHANGES AS NECESSARY TO UPDATE GENERAL NOTES.
3. ADDING "SPECIAL PROVISIONS" FOR USE OF CHAINS AND LOAD BINDERS.
4. CHANGING ITEM DIMENSIONS.



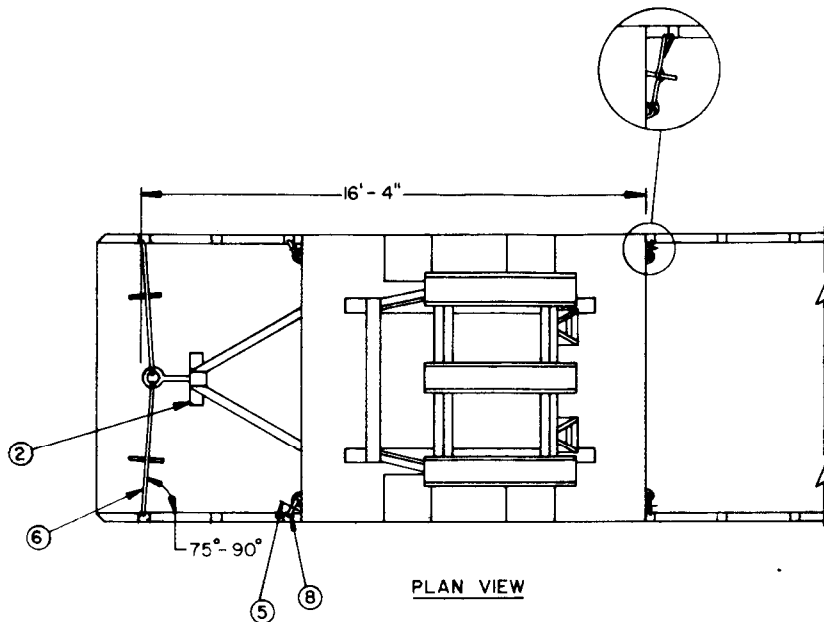
ISOMETRIC VIEW

KEY NUMBERS

- ① CHOCK BLOCK (4 REQD). SEE THE DETAIL ON PAGE 4. LOCATE BEVELLED END OF BLOCK AGAINST WHEEL. NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/5-12d NAILS. NAIL EACH ADDITIONAL PIECE W/4-20d NAILS. SEE GENERAL NOTE "L".
- ② LUNETTE SUPPORT PIECE, 4" X 4" X 18" (1 REQD). NAIL TO THE TRAILER FLOOR W/4-40d NAILS. NOTE THAT DOUBLED 2" X 4" MATERIAL MAY BE USED IN LIEU OF 4" X 4" MATERIAL.
- ③ RUBBING STRIP, 2" X 6" X 36" (2 REQD). POSITION ON EDGE AND NAIL TO LOWER PIECE MARKED ④ W/5-12d NAILS.
- ④ SIDE BLOCKING, 2" X 4" X 36" (TRIPLED) (2 REQD). PRE-POSITION AND NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/5-12d NAILS. NAIL EACH ADDITIONAL PIECE IN A LIKE MANNER.
- ⑤ WIRE TWISTER, 2" X 2" BY A LENGTH TO SUIT (10 REQD). SEE GENERAL NOTE "F".
- ⑥ EIGHT (8) STRANDS NO. 8 GAGE BLACK ANNEALED WIRE (2 REQD). PASS THRU LADING LUNETTE AND A TRANSPORTER TIE DOWN FACILITY TO FORM A COMPLETE LOOP. TWIST TAUT WITH PIECE MARKED ⑤. SEE GENERAL NOTE "F" ON PAGE 3 AND "SPECIAL PROVISIONS" ON PAGE 4.
- ⑦ SIX (6) STRANDS OF NO. 8 GAGE BLACK ANNEALED WIRE (4 REQD). PASS THRU HOLES IN A WHEEL AND A TRANSPORTER TIE DOWN FACILITY TO FORM A COMPLETE LOOP. TWIST TAUT WITH PIECE MARKED ⑤. SEE THE "WHEEL SECUREMENT" DETAIL ON PAGE 4.
- ⑧ TWELVE (12) STRANDS OF NO. 8 GAGE BLACK ANNEALED WIRE (4 REQD). INSTALL WIRE TO APPROXIMATE THE ANGLE SHOWN AND TO FORM A COMPLETE LOOP FROM A TIE DOWN FACILITY ON THE TRANSPORTER THRU THE LADING TIE DOWN FACILITY. TWIST TAUT WITH PIECE MARKED ⑤. NOTE: IF DESIRED, 3/8" STEEL WIRE ROPE (OR LARGER) MAY BE INSTALLED IN LIEU OF THE WIRE HOLD DOWNS. USE A THIMBLE ("OPEN PATTERN" RECOMMENDED) AT EACH TRANSPORTER TIE DOWN FACILITY AND AT EACH LADING TIE DOWN FACILITY. USE FOUR (4) CLIPS FOR EACH CABLE JOINT AND ONE (1) TO SECURE EACH THIMBLE. NOTE THAT NUTS ON 3/8" CABLE CLIPS WILL BE TIGHTENED TO A TORQUE OF 35 TO 40 FOOT POUNDS. SEE GENERAL NOTES "H" AND "K".
- ⑨ WATERPROOF PAPER OR BURLAP OF A SUFFICIENT SIZE TO POSITION UNDER AND EXTEND 2" ABOVE PIECE MARKED ③.



REAR VIEW



(GENERAL NOTES CONTINUED)

L. NOTICE: A STAGGERED NAILING PATTERN WILL BE USED WHEN DUNNAGE IS NAILED TO THE FLOOR OF THE TRANSPORTING VEHICLE, OR WHEN LAMINATING DUNNAGE. ADDITIONALLY, THE NAILING PATTERN FOR AN UPPER PIECE OF LAMINATED DUNNAGE WILL BE ADJUSTED AS REQUIRED SO THAT A NAIL FOR THAT PIECE WILL NOT BE DRIVEN THROUGH ONTO OR RIGHT BESIDE A NAIL IN A LOWER PIECE.

GENERAL NOTES

- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AMCR 740-13.
- B. THE LOAD AS SHOWN IS BASED ON AN 8'-0" WIDE FLAT BED OR "LOW-BOY" TRAILER WITH A WOOD OR A WOOD AND METAL FLOOR. ONLY ONE UNIT OF LADING IS SHOWN; HOWEVER, MULTIPLES OF UNITS AS SHOWN OR UNITS DISSIMILAR IN NATURE MAY BE LOADED ON A TRAILER. THE NUMBER OF UNITS TO BE LOADED ON A TRAILER WILL BE DEPENDENT ON THE SIZE OF THE TRAILER TO BE USED OR THE QUANTITIES OF UNITS TO BE SHIPPED, WITH THE VIEW OF FULL UTILIZATION OF THE CARRIER EQUIPMENT.
- C. ONLY TRAILERS CAPABLE OF SAFELY TRANSPORTING THE LADING TO DESTINATION WITHOUT DAMAGE WILL BE SELECTED. TRAILERS SELECTED MUST HAVE "SOUND" FLOORS WHICH PROVIDE NAIL RETENTION PROPERTIES EQUAL TO OR BETTER THAN THE SPECIFIED DUNNAGE LUMBER, AND A SUFFICIENT NUMBER OF TIE DOWN FACILITIES OF A STRENGTH EQUAL TO OR BETTER THAN SPECIFIED LADING TIE DOWN ASSEMBLIES.
- D. SHIPMENT GROSS WEIGHT, AXLE DISTRIBUTION OF THE LADING WEIGHT AND OVERALL DIMENSIONS MUST MEET STATE LAW REQUIREMENTS.
- E. LADING DATA:
ITEM DIMENSIONS ----- 16'-4" LONG X 8'-0" WIDE X 7'-4" HIGH.
ITEM GROSS WEIGHT ----- 4,028 POUNDS (APPROX).
- F. REFER TO ORD DWG 19-48-C-ORDJU-588, "WIRE ROPE AND ANNEALED WIRE APPLICATION METHODS FOR SECURING LADING ON RAIL & MOTOR CARRIER EQUIP", FOR PROPER TIE DOWN APPLICATION. CAUTION: DURING DUNNAGE INSTALLATION AVOID CONTACT WITH ALL ELECTRICAL WIRING, VEHICLE CONTROLS AND OTHER EQUIPMENT. METAL FILLERS OR COMPARABLE CUSHIONING MATERIALS MUST BE USED BETWEEN TIE DOWN WIRES AND ALL SHARP EDGES, AND ANTI-CHAFING MATERIAL MUST BE USED BETWEEN CONTACTING TIE DOWN WIRES AND LADING TIRES. ADDITIONALLY, LADING TIRES WILL BE INFLATED TO HIGHWAY OPERATING PRESSURE AND ALL HAND BRAKES MUST BE "SET" WITH THE HAND LEVERS WIRE TIED OR BLOCKED.
- G. SEE "SPECIAL PROVISIONS" ON PAGE 4 FOR SPECIFICATIONS WHICH MUST BE APPLIED IF CHAINS AND LOAD BINDERS ARE USED.
- H. TWISTED WIRE CABLE MUST BE TENSIONED SUFFICIENTLY TO CAUSE SLIGHT VEHICLE BODY DEPRESSION.
- J. 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.
- K. CAUTION: IT IS RECOMMENDED THAT TWISTED WIRE CABLE BE INSTALLED TO APPROXIMATE THE ANGLE SHOWN; HOWEVER, IF PLACEMENT OF TRANSPORTER TIE DOWN FACILITIES PREVENTS THIS, CARE MUST BE EXERCISED TO ENSURE THAT CABLES ON THE SAME SIDE OF LADING ARE INSTALLED SO THEIR RETENTION FORCES ACT IN OPPOSITE LONGITUDINAL DIRECTIONS.

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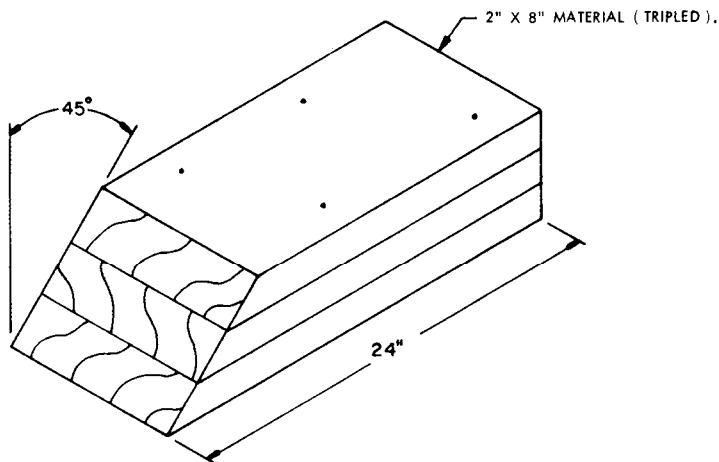
LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
TRAILER, XM502E2	1	4,028 LBS
DUNNAGE		181 LBS
TOTAL WEIGHT		4,209 LBS

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 2"	15	5
2" X 4"	18	12
2" X 6"	6	6
4" X 4"	2	3
2" X 8"	22	30
NAILS	NO. REQD	POUNDS
12d (3-1/4")	70	1-1/4
20d (4")	42	1-1/2
40d (5")	4	1/4
WIRE, NO. 8 GAGE ----- 420' REQD ----- 38 LBS		
WATERPROOF PAPER OR BURLAP ----- AS REQD ----- NIL		

MATERIAL SPECIFICATIONS

- LUMBER** ----- : DOUGLAS FIR OR COMPARABLE LUMBER WITH STRAIGHT GRAIN AND FREE OF MATERIAL DEFECTS. REF: FED SPEC MM-L-751.
- NAILS** ----- : COMMON, CEMENT COATED OR CHEMICALLY ETCHED. REF: FED SPEC FF-N-105. ALT: ANNULAR-RING TYPE NAIL OF SAME SIZE.
- WIRE** ----- : ANNEALED, BLACK. REF: FED SPEC QQ-W-461.
- ROPE** ----- : STEEL WIRE, PLAIN, PREFORMED, REGULAR LAY, 6.56 TONS, 6 X 19, FLEXIBLE IWRC, MACWHYTE WIRE ROPE CO (OR EQUAL). REF: FED SPEC RR-W-410.
- CLIP** ----- : "U" BOLT, CROSBY, HEAVY DUTY (OR EQUAL). REF: FED SPEC FF-C-450, TYPE I, CLASS I.



CHOCK BLOCK

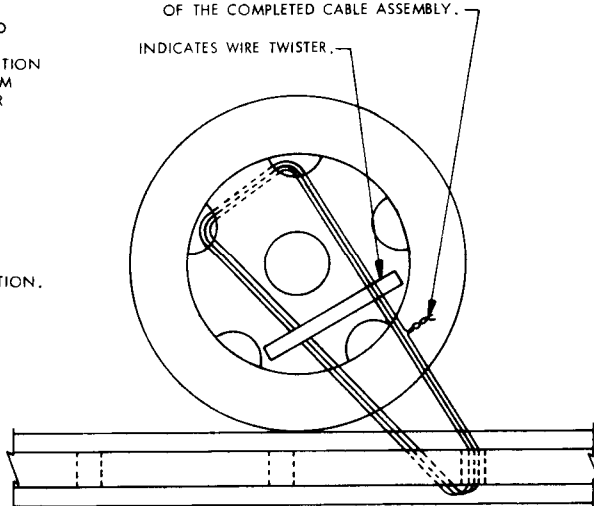
SPECIAL PROVISIONS:

LADING MAY BE SECURED BY CARRIER-OWNED CHAINS AND LOAD BINDERS IN LIEU OF SPECIFIED STRANDED ANNEALED WIRE TIE DOWN DUNNAGE MATERIALS, PROVIDING THE FOLLOWING CONDITIONS ARE MET.

1. ONLY CHAINS AND LOAD BINDERS OF GOOD QUALITY SHOULD BE USED. CAUTION: EXTREME CARE MUST BE USED IN TENSIONING CHAINS TO PREVENT DAMAGE TO THE LADING.
2. ONE (1) LINE OF 1/4" CHAIN MAY BE SUBSTITUTED FOR EACH STRANDED WIRE TIE DOWN CABLE MARKED ⑧. CHAINS SHALL BE INSTALLED AT THE SAME LOCATIONS SHOWN FOR STRANDED WIRE CABLES AND IN THE SAME MANNER AS DIRECTED IN GENERAL NOTE "K" ON PAGE 3, EXCEPT THAT EACH CHAIN MUST BE INSTALLED FROM A TIE DOWN FACILITY OF THE TRANSPORTER AND TO LOOP AROUND A FRAME MEMBER OF THE LADING IN LIEU OF SECURING TO A LADING TIE DOWN DEVICE.
3. FOR SECURING THE LADING LUNETTE, IN LIEU OF THE STRANDED WIRE TIE DOWNS, PIECE MARKED ④, TWO LINES OF 1/4" CHAIN MAY BE SUBSTITUTED.
4. FOR WHEEL SECUREMENT, IN LIEU OF TWO (2) STRANDED WIRE TIE DOWNS MARKED ⑦, ONE (1) LINE OF 1/4" CHAIN MAY BE USED TO PREVENT DAMAGE TO THE LIGHTENING HOLES AND WHEELS OF THE LADING, AND TO FACILITATE THE APPLICATION OF CHAINS AND LOAD BINDERS, THE CHAIN SHALL BE INSTALLED TO EXTEND FROM A FORWARD TIE DOWN FACILITY AT THE SIDE OF THE TRANSPORTER, THRU AN UPPER LIGHTENING HOLE OF THE WHEEL, BACK THRU AN ADJACENT LIGHTENING HOLE AND THEN DOWN TO A REARWARD TIE DOWN FACILITY ON THE SAME SIDE OF THE TRANSPORTER.
5. IF DESIRED, CHAINS OF A LARGER SIZE THAN SPECIFIED ABOVE MAY BE USED.
6. BEFORE AND DURING INSTALLATION, THE CHAINS AND LOAD BINDERS SHALL BE INSPECTED FOR BENT HOOKS, STRETCH, GOUGES, BENT LINKS, WEAR AND ANY OTHER NOTICEABLE DEFECTS. ANY DEFICIENCY SHALL BE CAUSE FOR REJECTION OF A CHAIN OR LOAD BINDER. CHAINS MUST NOT BE TWISTED DURING INSTALLATION.
7. THE TENSIONING DEVICE OF EACH LOAD BINDER MUST BE SAFETY WIRE TIED TO PREVENT ACCIDENTAL OPENING OR LOOSENING IN TRANSIT.
8. ANTI-CHAFING MATERIAL MUST BE PLACED AND SECURED BETWEEN CHAINS AND LADING AT ALL POINTS OF CONTACT, EXCEPT AT DEFINITIVE TIE DOWN POINTS.

ONE CONTINUOUS WIRE, WITH ENDS TWISTED TOGETHER. NOTE: FORM THE TWISTED WIRE JOINT AT A LOCATION SO THAT THE JOINT WILL BE WITHIN ONE OF THE TWISTED PORTIONS OF THE COMPLETED CABLE ASSEMBLY.

INDICATES WIRE TWISTER.



WHEEL SECUREMENT

A SIX (6) STRAND INSTALLATION OF NO. 8 GAGE BLACK ANNEALED WIRE IS SHOWN, PASSED THRU THE HOLES IN THE WHEEL AND TRAILER TIE DOWN FACILITY TO FORM A COMPLETE LOOP, AND READY TO BE TWISTED TAUT WITH THE WIRE TWISTER.