

NIKE - HERCULES

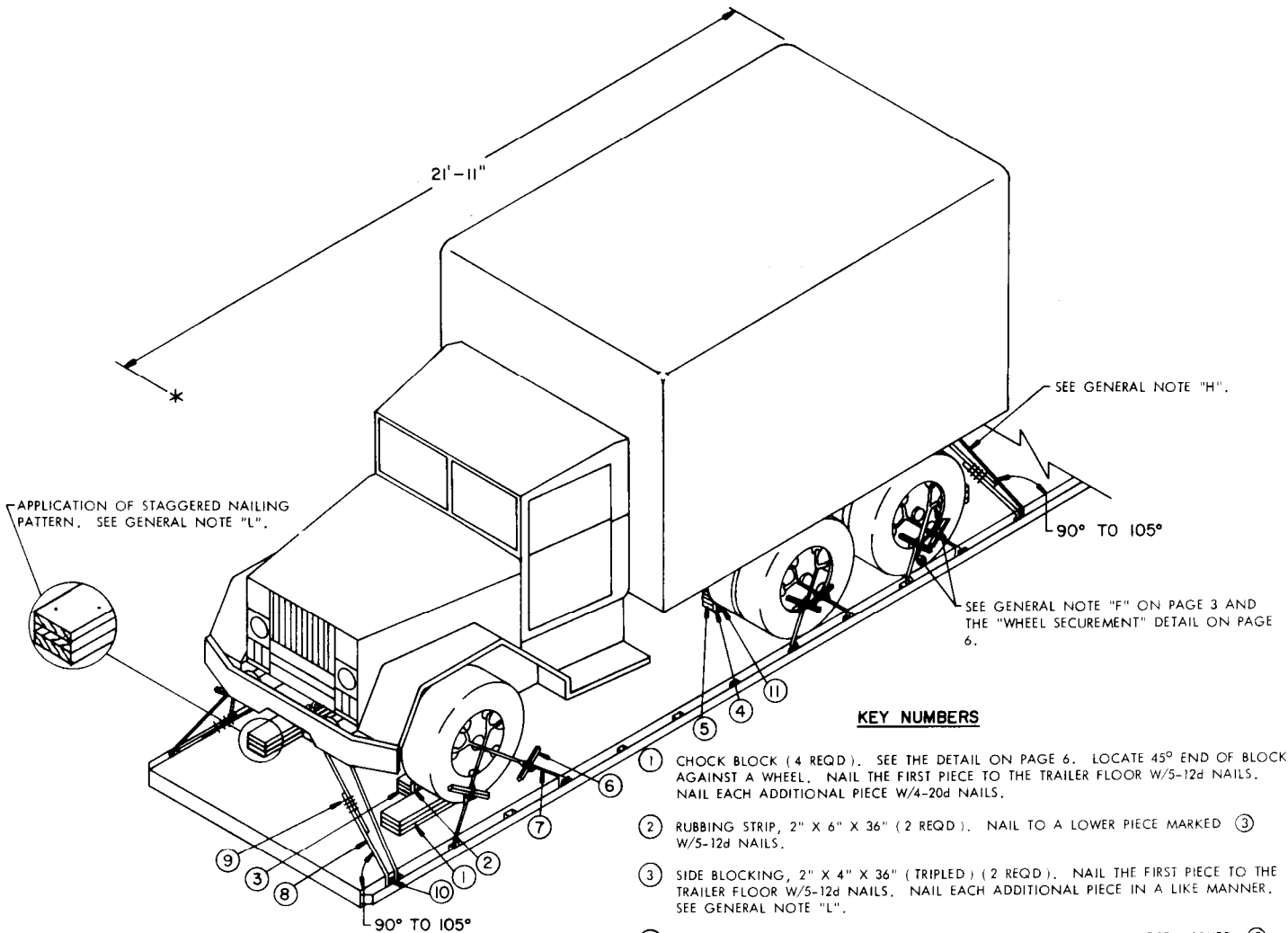
LOADING AND BRACING ON FLAT BED OR "LOW-BOY" TRAILER OF TEST STATION, TRUCK MOUNTED, AN/MSM- 79 (MIO9 VAN)

CAUTION
USE OF "WITH-WHEELS-ON" METHOD IS
RECOMMENDED FOR SHIPPING THIS
ITEM - ONLY PRECLUDED BY OVERALL
LOAD HEIGHT RESTRICTIONS.

LOADS AS SHOWN MAY REQUIRE
"CLEARANCE" CONSIDERATION BECAUSE
OF EXCESSIVE LADING SIZE.

DO NOT SCALE

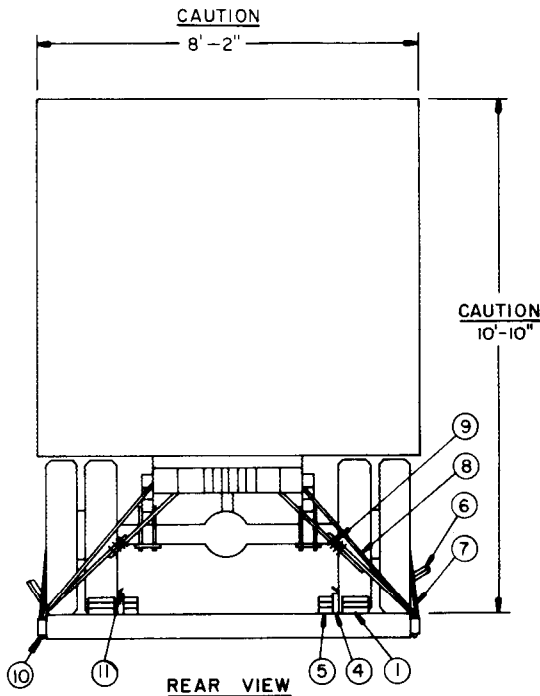
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			Paul R. ...
			U. S. ARMY MATERIEL COMMAND
			21 JUNE 1965
			CLASS DIVISION DRAWING FILE
			19 48 7531 GSE IINH-22



ISOMETRIC VIEW

KEY NUMBERS

- ① CHOCK BLOCK (4 REQD). SEE THE DETAIL ON PAGE 6. LOCATE 45° END OF BLOCK AGAINST A WHEEL. NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/5-12d NAILS. NAIL EACH ADDITIONAL PIECE W/4-20d NAILS.
- ② RUBBING STRIP, 2" X 6" X 36" (2 REQD). NAIL TO A LOWER PIECE MARKED ③ W/5-12d NAILS.
- ③ 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 IN A LIKE MANNER. SEE GENERAL NOTE "L".
- ④ RUBBING STRIP, 2" X 6" X 7'-6" (2 REQD). NAIL TO A LOWER PIECE MARKED ⑤ W/1-12d NAIL EVERY 8".
- ⑤ SIDE BLOCKING, 2" X 4" X 7'-6" (TRIPLED) (2 REQD). NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/1-12d NAIL EVERY 8". NAIL EACH ADDITIONAL PIECE IN A LIKE MANNER.
- ⑥ WIRE TWISTER, 2" X 2" BY LENGTH TO SUIT (12 REQD). SEE GENERAL NOTE "F".
- ⑦ EIGHT (8) STRANDS OF NO. 8 GAGE BLACK ANNEALED WIRE (12 REQD). PASS THRU THE UPPER HOLES IN A WHEEL AND A TRAILER TIE DOWN FACILITY TO FORM A COMPLETE LOOP. TWIST TAUT WITH PIECE MARKED ⑥. SEE THE "WHEEL SECUREMENT" DETAIL ON PAGE 6. SEE THE "SPECIAL PROVISIONS" ON PAGE 3.
- ⑧ STEEL WIRE ROPE, 1/2" DIA., 11.5 TONS (4 REQD). INSTALL CABLE TO APPROXIMATE THE ANGLE SHOWN AND TO FORM A COMPLETE LOOP FROM A TIE DOWN FACILITY ON THE TRAILER AROUND THE MAIN FRAME MEMBER OF THE LADING AND BACK TO THE TRAILER TIE DOWN FACILITY. NOTE: CABLE OF A LARGER SIZE MAY BE USED WHEN SPECIFIED CABLE IS NOT AVAILABLE. CAUTION: DO NOT TIE TO LADING LIFTING DEVICES OR BUMPERETTES. SEE GENERAL NOTE "H".
- ⑨ CLIP, SIZE 1/2" (20 REQD). USE FOUR (4) PER CABLE AND ONE (1) PER THIMBLE. SEE GENERAL NOTE "F" AND KEY NUMBER ⑩ GUIDANCE BELOW.
- ⑩ THIMBLE, STANDARD, SIZE 1/2" (4 REQD). USE ONE (1) PER TRAILER TIE DOWN FACILITY. SECURE TO WIRE ROPE, PIECE MARKED ⑧, W/1-CLIP PER THIMBLE. NOTE: A STANDARD THIMBLE AS SPECIFIED CAN BE SECURED TO A CABLE WITH A 1/2" CLIP. HOWEVER, IF DESIRED, OR IF THE 1/2" THIMBLE BEING USED IS OF A TYPE WHICH CANNOT BE SECURED TO A CABLE WITH A 1/2" CLIP, A 5/8" CLIP MAY BE USED.
- ⑪ WATERPROOF PAPER OR BURLAP OF A SUFFICIENT SIZE TO POSITION UNDER AND EXTEND 2" ABOVE PIECES MARKED ② AND ④.



SPECIAL PROVISIONS:

LADING MAY BE SECURED BY CARRIER-OWNED CHAINS AND LOAD BINDERS IN LIEU OF SPECIFIED WIRE ROPE CABLE AND/OR 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 OR DEFORMATION OF LADING TIE DOWN FACILITIES.
2. TWO (2) LINES OF 3/8" CHAIN, OR FOUR (4) LINES OF 1/4" CHAIN, MAY BE SUBSTITUTED FOR EACH WIRE ROPE CABLE TIE DOWN MARKED (B). CHAINS SHALL BE INSTALLED AT THE SAME LOCATIONS SHOWN FOR WIRE ROPE CABLES AND IN THE SAME MANNER AS DIRECTED IN GENERAL NOTE "K".
3. FOR WHEEL SECUREMENT FOR THE LOAD SHOWN ON PAGE 2, ONE (1) LINE OF 1/4" CHAIN MAY BE USED IN LIEU OF TWO (2) STRANDED WIRE TIE DOWNS MARKED (Z). 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.
4. FOR AXLE SECUREMENT FOR THE LOAD SHOWN ON PAGE 4, ONE (1) LINE OF 1/4" CHAIN MAY BE USED IN LIEU OF TWO (2) STRANDED WIRE TIE DOWNS MARKED (C). THE CHAIN SHALL BE INSTALLED TO EXTEND FROM A FORWARD TIE DOWN FACILITY AT THE SIDE OF THE TRANSPORTER, UP AND OVER THE AXLE BEHIND THE WHEEL HUB 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 THE CHAINS AND THE LADING AT ALL POINTS OF CONTACT, EXCEPT AT DEFINITIVE TIE DOWN POINTS.

GENERAL NOTES

- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AMCR 740-13.
- B. THE LOAD AS SHOWN IS BASED ON A FLAT BED OR "LOW-BOY" TRAILER 8'-0" WIDE WITH A WOOD OR A WOOD AND METAL FLOOR. TRAILERS WITH ALL METAL FLOORS WILL NOT BE USED. ONLY ONE UNIT OF LADING IS SHOWN; HOWEVER, MULTIPLES OF UNITS, AS SHOWN OR 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 CARRIER EQUIPMENT. **CAUTION:** THE LOAD AS SHOWN MAY REQUIRE "CLEARANCE" CONSIDERATION BECAUSE OF EXCESSIVE LADING SIZE.
- 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 OVER-ALL DIMENSIONS MUST MEET STATE LAW REQUIREMENTS.
- E. LADING DATA:
 ITEM DIMENSIONS ----- 21'-11" LONG X 8'-2" WIDE X 10'-10" HIGH.
 ITEM GROSS WEIGHT ----- 16,500 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 APPURTENANCES. METAL FILLERS OR COMPARABLE CUSHIONING MATERIAL MUST BE USED BETWEEN TIE DOWN WIRES AND/OR CABLES 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 THE "SPECIAL PROVISIONS" AT THE LEFT FOR SPECIFICATIONS WHICH MUST BE APPLIED IF CHAINS AND LOAD BINDERS ARE USED.
- H. WIRE ROPE CABLE MUST BE TENSIONED SUFFICIENTLY TO CAUSE A SLIGHT BODY DEPRESSION. TENSIONING CAN BE ACCOMPLISHED BY EMPLOYING TWO (2) CABLE "GRIPPERS" AND AN APPLICABLY SIZED "COME-A-LONG" TYPE MECHANICAL HOIST.
- 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 WIRE ROPE 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 THE LADING ARE INSTALLED SO THEIR RETENTION FORCES ACT IN OPPOSITE LONGITUDINAL DIRECTIONS.
- 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.
- M. PIECES MARKED (1) AND (2) ON PAGE 4 MUST BE OF A SUFFICIENT HEIGHT TO ALLOW ONE INCH (1") MINIMUM CLEARANCE BETWEEN LADING UNDERCARRIAGE AND TRAILER FLOOR.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 2"	18	6
2" X 4"	63	42
2" X 6"	21	21
2" X 8"	22	30
NAILS	NO. REQD	POUNDS
12d (3-1/4")	160	2-3/4
20d (4")	44	1-3/4
ROPE, STEEL WIRE, 1/2" DIA. -----	68' REQD -----	30 LBS
CLIP, 1/2" -----	20 REQD -----	9 LBS
CLIP, 5/8" (ALT FOR 1/2") -----	4 REQD -----	3 LBS
THIMBLE, STANDARD, 1/2" -----	4 REQD -----	1 LB
WIRE, NO. 8 GAGE -----	480' REQD -----	44 LBS
WATERPROOF PAPER OR BURLAP -----	AS REQD -----	NIL

REVISIONS

REVISION NO. 1 DATED JANUARY 1972 CONSISTS OF:

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

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.

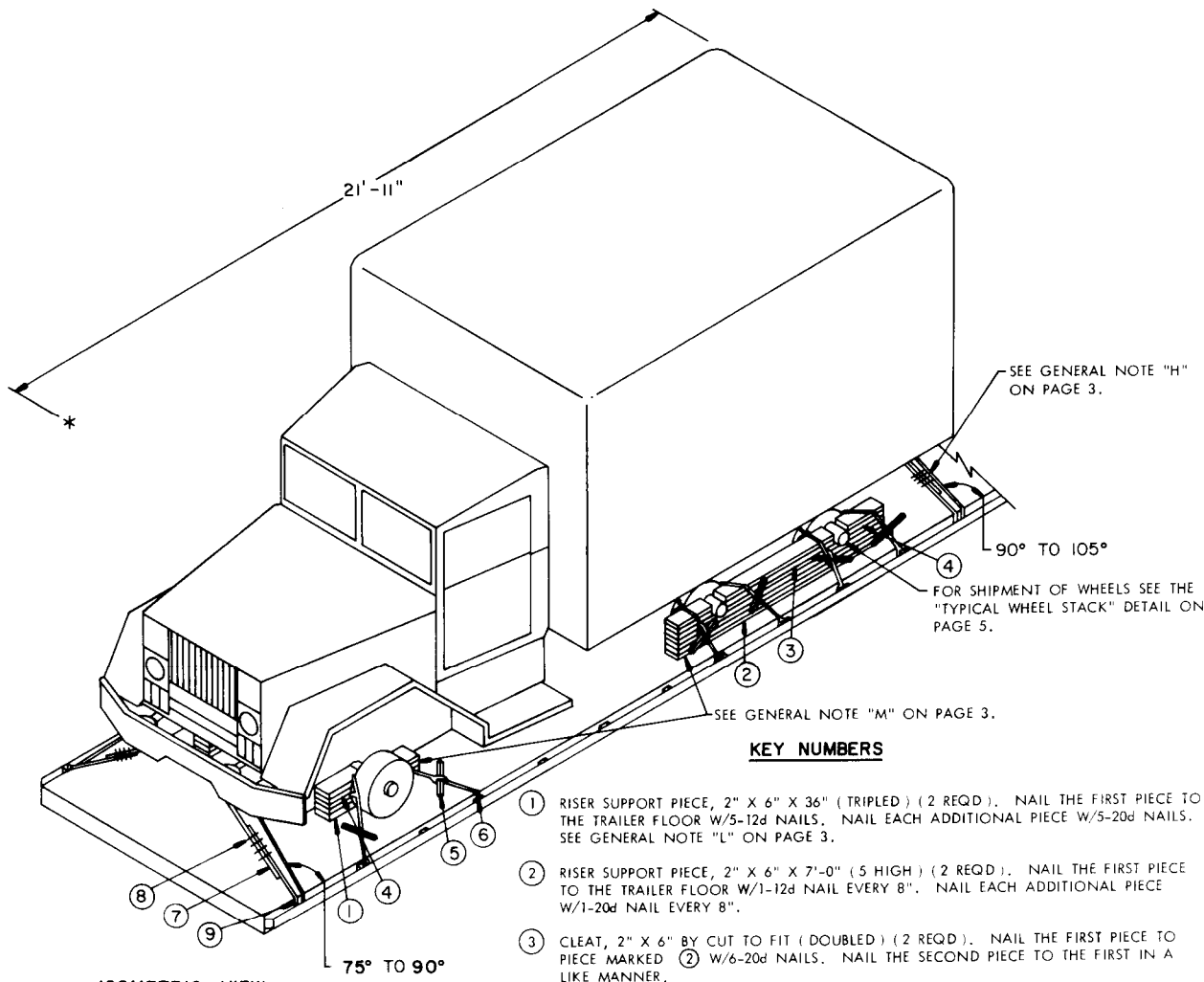
ROPE --: STEEL WIRE, PLAIN, PREFORMED, REGULAR LAY, 11.5 TONS, 6 X 19, FLEXIBLE IWRC, MACWHYTE WIRE ROPE CO (OR EQUAL). REF: FED SPEC RR-W-410.

CLIPS --: "U" BOLT, CROSBY, HEAVY DUTY (OR EQUAL). REF: FED SPEC FF-C-450, TYPE 1, CLASS 1.

WIRE --: ANNEALED, BLACK. REF: FED SPEC QQ-W-461.

LOAD AS SHOWN

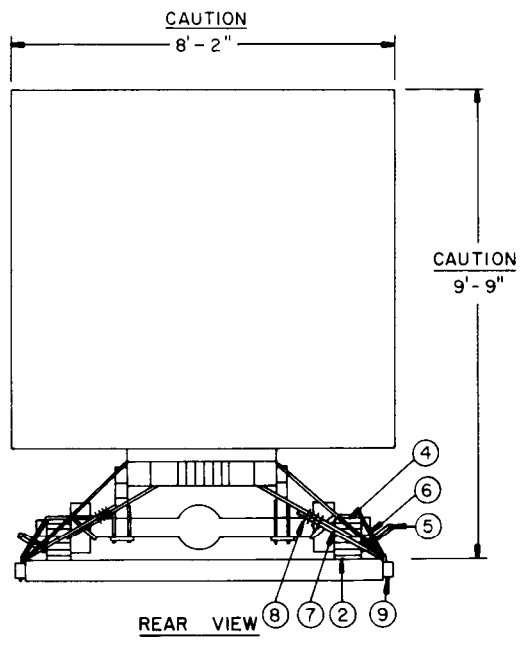
ITEM	QUANTITY	WEIGHT (APPROX)
TEST STATION -----	1 -----	16,500 LBS
DUNNAGE -----	-----	358 LBS
TOTAL WEIGHT -----		16,858 LBS



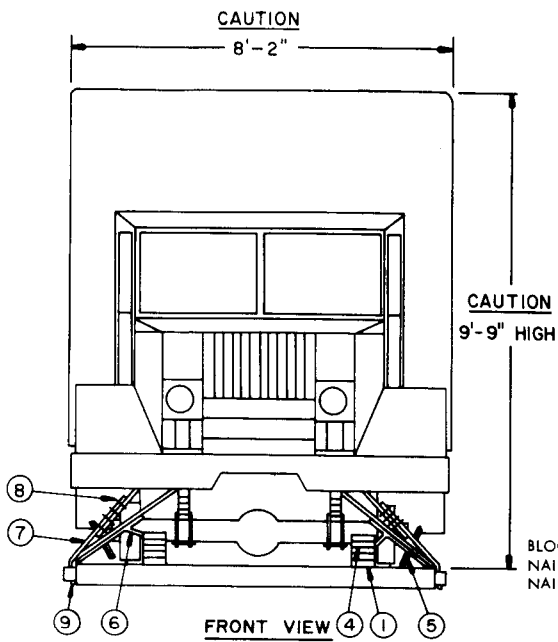
ISOMETRIC VIEW

KEY NUMBERS

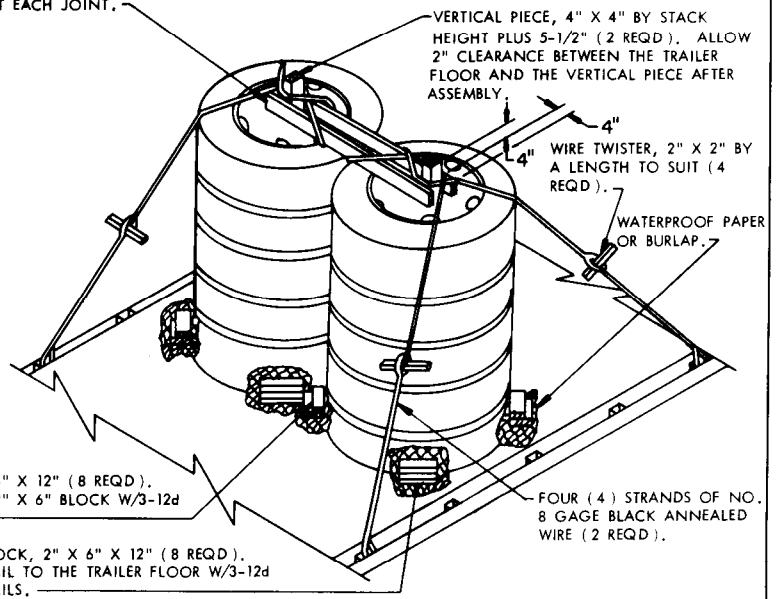
- ① RISER SUPPORT PIECE, 2" X 6" X 36" (TRIPLED) (2 REQD). NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/5-12d NAILS. NAIL EACH ADDITIONAL PIECE W/5-20d NAILS. SEE GENERAL NOTE "L" ON PAGE 3.
- ② RISER SUPPORT PIECE, 2" X 6" X 7'-0" (5 HIGH) (2 REQD). NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/1-12d NAIL EVERY 8". NAIL EACH ADDITIONAL PIECE W/1-20d NAIL EVERY 8".
- ③ CLEAT, 2" X 6" BY CUT TO FIT (DOUBLED) (2 REQD). NAIL THE FIRST PIECE TO PIECE MARKED ② W/6-20d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER.
- ④ CLEAT, 2" X 6" X 15" (DOUBLED) (6 REQD). NAIL THE FIRST PIECE TO PIECE MARKED ① AND/OR ② W/4-20d NAILS. NAIL THE SECOND PIECE TO THE FIRST IN A LIKE MANNER. SEE GENERAL NOTE "F" ON PAGE 3.
- ⑤ WIRE TWISLER, 2" X 2" BY LENGTH TO SUIT (12 REQD). SEE GENERAL NOTE "F" ON PAGE 3.
- ⑥ EIGHT (8) STRANDS OF NO. 8 GAGE BLACK ANNEALED WIRE (12 REQD). PASS AROUND AXLE AND THRU A TRAILER TIE DOWN FACILITY TO FORM A COMPLETE LOOP. TWIST TAUT WITH PIECE MARKED ③.
- ⑦ STEEL WIRE ROPE, 1/2" DIA, 11.5 TONS (4 REQD). INSTALL CABLE TO APPROXIMATE THE ANGLE SHOWN AND TO FORM A COMPLETE LOOP FROM A TIE DOWN FACILITY ON THE TRAILER, AROUND A MAIN FRAME MEMBER OF THE LADING AND BACK TO THE TRAILER TIE DOWN FACILITY. **CAUTION:** DO NOT TIE TO LADING LIFTING DEVICES OR BUMPERETTES. **NOTE:** CABLE OF A LARGER SIZE MAY BE USED WHEN SPECIFIED CABLE IS NOT AVAILABLE. SEE GENERAL NOTES "F", "H", AND "K" ON PAGE 3.
- ⑧ CLIP, SIZE 1/2" (20 REQD). USE FOUR (4) PER CABLE AND ONE (1) PER THIMBLE. SEE GENERAL NOTE "F" ON PAGE 3 AND THE KEY NUMBER ⑨ GUIDANCE BELOW.
- ⑨ THIMBLE, STANDARD, SIZE 1/2" (4 REQD). USE (1) PER TRAILER TIE DOWN FACILITY SECURE TO WIRE ROPE, PIECE MARKED ⑦, W/1-CLIP PER THIMBLE. **NOTE:** A STANDARD THIMBLE AS SPECIFIED CAN BE SECURED TO A CABLE WITH A 1/2" CLIP. HOWEVER, IF DESIRED, OR IF THE 1/2" THIMBLE BEING USED IS OF A TYPE WHICH CANNOT BE SECURED TO A CABLE WITH A 1/2" CLIP, A 5/8" CLIP MAY BE USED.



REAR VIEW



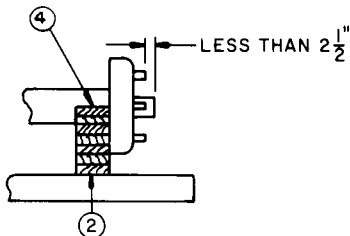
TIE PIECE, 2" X 4" BY CUT TO FIT (2 REQD). NAIL TO THE VERTICAL PIECES W/3-12d NAILS AT EACH JOINT.



TYPICAL WHEEL STACK

NOTE:

FOR LOADING VEHICLES "WITH-WHEELS-OFF" METHOD, SEE PAGE 4. REMOVE WHEEL MOUNTING LUGS AND/OR LOCK NUTS FROM VEHICLE, BOX AND SECURE FOR TRANSPORT.



ALTERNATIVE REAR AXLE BLOCKING

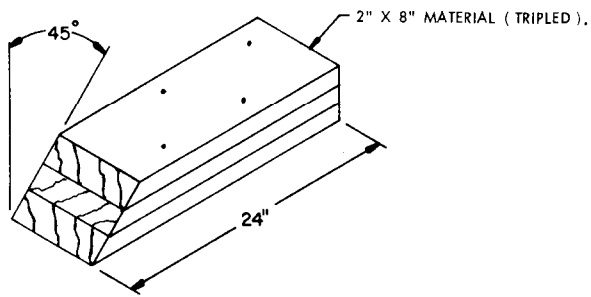
SEE GENERAL NOTE "M" ON PAGE 3.

BILL OF MATERIAL *		
LUMBER	LINEAR FEET	BOARD FEET
2" X 2"	24	8
2" X 4"	18	12
2" X 6"	125	125
4" X 4"	11	15
NAILS	NO. REQD	POUNDS
12d (3-1/4")	110	2
20d (4")	204	7-1/4
ROPE, STEEL WIRE, 1/2" DIA	60' REQD	27 LBS
CLIP, 1/2"	20 REQD	9 LBS
CLIP, 5/8" (ALT FOR 1/2")	4 REQD	3 LBS
THIMBLE, STANDARD, 1/2"	4 REQD	1 LB
WIRE, NO. 8 GAGE	480' REQD	44 LBS
WATERPROOF PAPER OR BURLAP	AS REQD	NIL

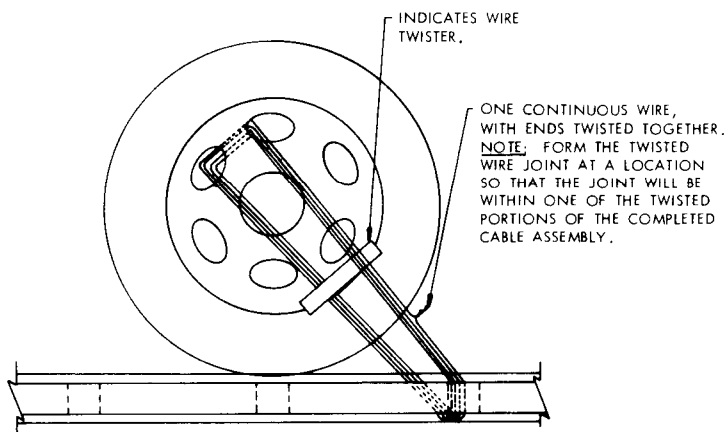
* DUNNAGE FOR "TYPICAL WHEEL STACK" IS INCLUDED IN BILL OF MATERIAL.

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
TEST STATION	1	16,500 LBS
DUNNAGE		491 LBS
TOTAL WEIGHT		16,991 LBS



CHOCK BLOCK



WHEEL SECUREMENT

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