HAWK

LOADING AND BRACING ON FLAT BED OR "LOW-BOY" TRAILER● OF HIGH POWER ILLUMINATOR RADAR SET, AN/MPQ-39 AND/OR AN/MPQ-46, TRAILER MOUNTED

● FOR TRAILERS EQUIPPED WITH A PNEUMATIC (AIR RIDE) SUSPENSION SYSTEM, SEE THE "ADDITIONAL SPECIAL PROVISIONS" ON PAGE 5.

THIS DRAWING, INCLUDING REVISION NO. 3, SUPERSEDES DRAWING 19-48-7486-GSE11HA37, DATED 7 JUNE 1962, AND ALL REVISIONS THERETO, THROUGH NO. 2 DATED MAY 1971.

DO NOT SCALE

REVISIONS				DRAFTSMAN		PROJ. ENG		
					DAK			
3	FEB 79		Wm J Hogwen John L Byrd Jr	CHECKER		LOG. ENGR. OFFICE		
				RSM				

APPROVED, U.S. ARMY MISSILE MATERIEL READINESS COMMAND
William J Hogwen

APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL DEVELOPMENT AND READINESS COMMAND (DARCOM)
John L Byrd Jr
U.S. ARMY DEFENSE AMMUNITION CENTER AND SCHOOL

U.S. ARMY DARCOM DRAWING

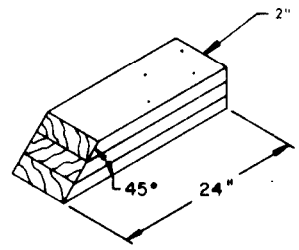
FEBRUARY 1979

CLASS	DIVISION	DRAWING	FILE
19	48	7486	GSE 11HA37

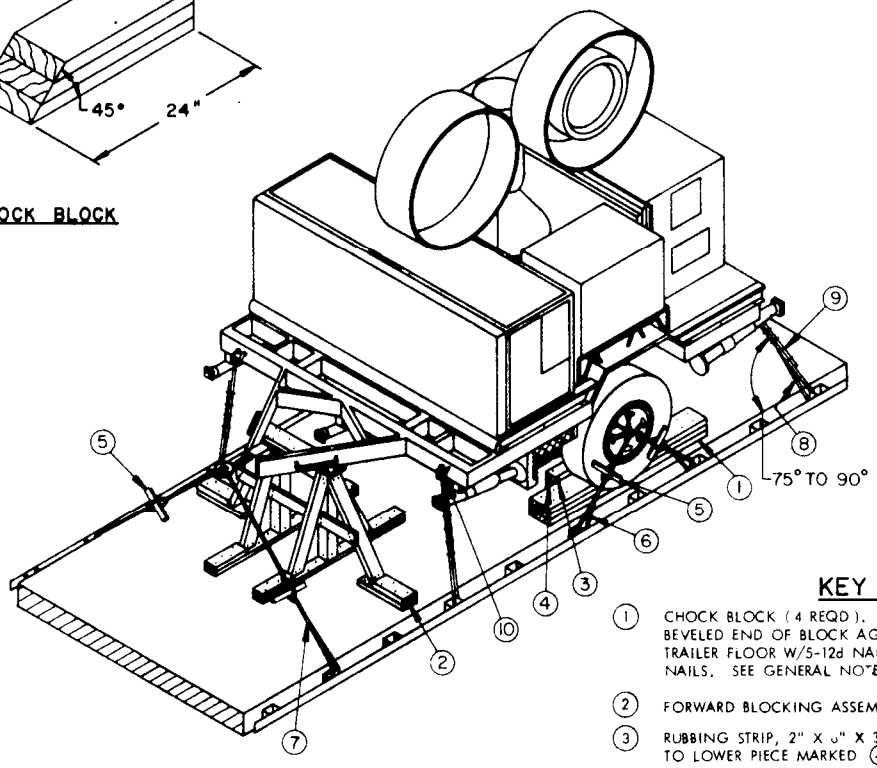
PROJECT GSE 242-62

NOTE ●:

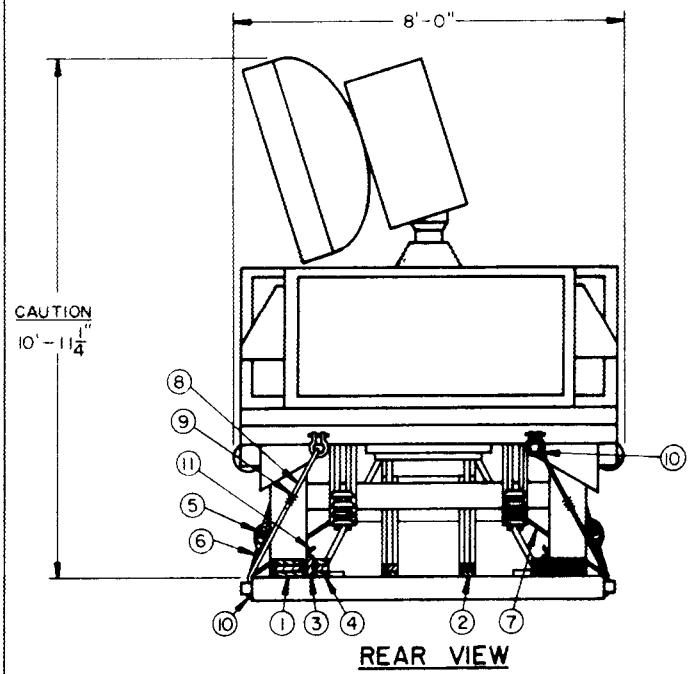
AN "OPEN PATTERN" THIMBLE IS RECOMMENDED. A STANDARD THIMBLE AS SPECIFIED CAN BE SECURED TO A CABLE WITH A 3/8" CLIP. HOWEVER, IF DESIRED, OR IF THE 3/8" THIMBLE BEING USED IS OF A TYPE WHICH CANNOT BE SECURED TO A CABLE WITH A 3/8" CLIP, A 1/2" CLIP MAY BE USED.



CHOCK BLOCK



ISOMETRIC VIEW



REAR VIEW

KEY NUMBERS

(1) CHOCK BLOCK (4 REQD). SEE THE DETAIL ABOVE. LOCATE BEVELED END OF BLOCK AGAINST WHEEL. NAIL FIRST PIECE TO THE TRAILER FLOOR W/5-12d NAILS. NAIL EACH ADDITIONAL PIECE W/4-20d NAILS. SEE GENERAL NOTE "L" BELOW.

(2) FORWARD BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL ON PAGE 4.

(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 FIRST PIECE TO TRAILER FLOOR W/6-12d NAILS. NAIL EACH ADDITIONAL PIECE IN A LIKE MANNER.

(5) WIRE TWISTER, 2" X 2" BY A LENGTH TO SUIT (6 REQD). SEE GENERAL NOTE "F".

(6) EIGHT (8) STRANDS OF NO. 8 GAGE BLACK ANNEALED WIRE (4 REQD). PASS THRU HOLES IN WHEEL AND TRAILER TIE DOWN FACILITY TO FORM A COMPLETE LOOP. TWIST TAUT WITH PIECE MARKED (5). SEE GENERAL NOTE "F" ON PAGE 3, THE "WHEEL SECUREMENT" DETAIL ON PAGE 4, AND THE "SPECIAL PROVISIONS" ON PAGES 4 AND 5.

(7) EIGHT (8) STRANDS OF NO. 8 GAGE BLACK ANNEALED WIRE (2 REQD). PASS THRU LADING LUNETTE AND TRAILER TIE DOWN FACILITY TO FORM A COMPLETE LOOP. TWIST TAUT WITH PIECE MARKED (5). SEE GENERAL NOTE "F", AND THE "SPECIAL PROVISIONS" ON PAGES 4 AND 5.

(8) STEEL WIRE ROPE, 3/8" DIAMETER, 6.56 TONS (4 REQD). INSTALL CABLE TO APPROXIMATE THE ANGLE SHOWN AND TO FORM A COMPLETE LOOP FROM TIE DOWN FACILITY ON TRAILER THRU LADING TIE DOWN DEVICE AND BACK TO TRAILER TIE DOWN FACILITY. SEE GENERAL NOTES "F", "H", AND "J". NOTE: CABLE OF A LARGER SIZE MAY BE USED IF THE SPECIFIED CABLE IS NOT AVAILABLE. ALSO, SEE THE "SPECIAL PROVISIONS" ON PAGES 4 AND 5.

(9) CLIP, SIZE 3/8" (24 REQD). FOUR (4) PER CABLE JOINT AND ONE (1) PER THIMBLE. SEE GENERAL NOTE "F".

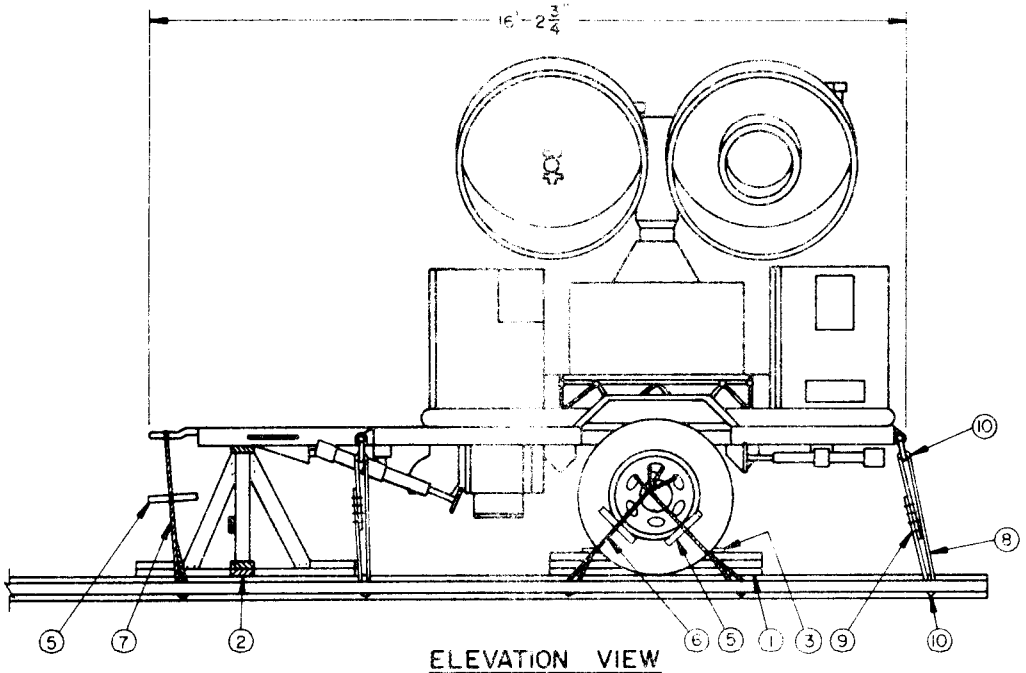
(10) THIMBLE, STANDARD, SIZE 3/8" (8 REQD). ONE (1) PER TRAILER TIE DOWN FACILITY AND ONE (1) PER LADING TIE DOWN DEVICE. SECURE TO WIRE ROPE MARKED (8) W/1-CLIP PER THIMBLE. SEE GENERAL NOTE "F". SEE "NOTE ● " ABOVE.

(11) WATERPROOF PAPER OR BURLAP OF A SUFFICIENT SIZE TO POSITION UNDER AND EXTEND 2" ABOVE PIECE MARKED (3).

(GENERAL NOTES CONTINUED FROM PAGE 3)

K. DUNNAGE LUMBER SPECIFIED THROUGHOUT THIS PROCEDURAL DRAWING IS OF NOMINAL SIZE. FOR EXAMPLE, 2" X 4" MATERIAL IS ACTUALLY 1-1/2" THICK BY 3-1/2" WIDE.

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.



ELEVATION VIEW

BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
2" X 2"	9	3
2" X 4"	53	36
2" X 6"	14	14
2" X 8"	22	30
4" X 4"	7	10
NAILS	**NO. REQD**	**POUNDS**
12d (3-1/4")	127	2-1/4
16d (3-1/2")	60	1-1/2
20d (4")	62	2-1/4

ROPE, STEEL WIRE, 3/8" DIA	48 FT	REQD	12 LBS
CLIP, 3/8"	24	REQD	8 LBS
THIMBLE, STANDARD, 3/8"	8	REQD	2 LBS
WIRE, NO. 8 GAGE	260 FT	REQD	24 LBS
WATERPROOF PAPER OR BURLAP	AS	REQD	NIL
CLIP, 1/2" (ALT FOR 3/8", 8 REQD)			4 LBS

MATERIAL SPECIFICATIONS

LUMBER: DOUGLAS FIR OR COMPARABLE LUMBER WITH STRAIGHT GRAIN AND FREE OF MATERIAL DEFECTS. REF: FED SPEC MM-L-751.

NAILS-: COMMON. REF: FED SPEC FF-N-105.

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 1.

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 USED OR 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 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 LADING WEIGHT AND OVERALL DIMENSIONS MUST MEET STATE LAW REQUIREMENTS.

E. LADING DATA:
ITEM DIMENSIONS ------ 16'-2-3/4" LONG X 8'-0" WIDE X 10'-11-1/4" HIGH.
ITEM GROSS WEIGHT --- 9,130 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, EXCEPT THAT THE NUTS ON 3/8" CABLE CLIPS WILL BE TIGHTENED TO A TORQUE OF 35 TO 40 FOOT POUNDS. CAUTION: DURING WIRE ROPE 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" ON PAGE 4 AND ON PAGE 5 FOR SPECIFICATIONS WHICH MUST BE APPLIED IF CHAINS AND LOAD BINDERS ARE USED.

H. WIRE ROPE CABLE MUST BE TENSIONED SUFFICIENTLY TO CAUSE SLIGHT VEHICLE BODY DEPRESSION. TENSIONING CAN BE ACCOMPLISHED BY EMPLOYING TWO (2) CABLE "GRIPPERS" AND AN APPLICABLY SIZED "COME-A-LONG" TYPE MECHANICAL HOIST.

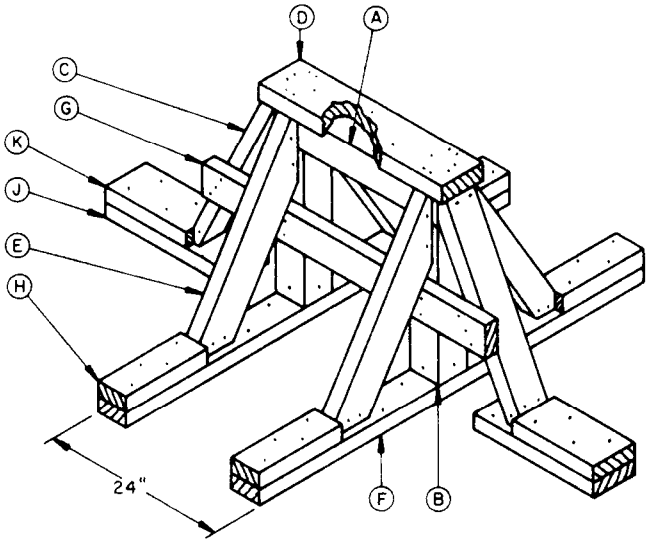
J. CAUTION: IT IS RECOMMENDED THAT CABLE TIE DOWNS BE INSTALLED TO APPROXIMATE ANGLE SHOWN; HOWEVER, IF PLACEMENT OF TRANSPORTER TIE DOWN FACILITIES PREVENTS THIS, CARE MUST BE EXERCISED TO ENSURE THAT CABLE TIE DOWNS ON THE SAME SIDE OF LADING ARE INSTALLED SO THEIR RETENTION FORCES ACT IN OPPOSITE LONGITUDINAL DIRECTIONS.

(GENERAL NOTES CONTINUED ON PAGE 2)

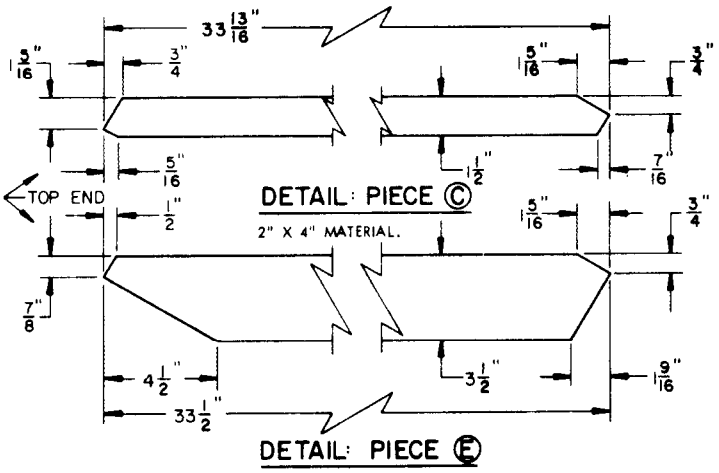
LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
HIGH POWER ILLUMINATOR RADAR SET	1	9,130 LBS
DUNNAGE		277 LBS

TOTAL WEIGHT ---- 9,407 LBS



FORWARD BLOCKING ASSEMBLY



DETAIL: PIECE (C)

2" X 4" MATERIAL.

DETAIL: PIECE (E)

2" X 4" MATERIAL.

KEY LETTERS

(A) 4" X 4" X 24" (1 REQD). POSITION ACROSS TOP OF PIECES MARKED (B).

(B) 4" X 4" X 25-1/2" (2 REQD). TOENAIL TO PIECES MARKED (A) AND (F) W/4-16d NAILS AT EACH END.

(C) 2" X 4" X 33-13/16" (2 REQD). DOUBLE BEVEL EACH END. SEE "DETAIL: PIECE (C)" FOR BEVEL CUTS REQUIRED. TOENAIL TO PIECE MARKED (A) W/2-16d NAILS AND TO PIECE MARKED (J) W/4-16d NAILS AFTER PARTIAL ASSEMBLY (PIECES MARKED (A) THROUGH (G)) HAS BEEN LOCATED ON THE TRAILER AND PIECE MARKED (J) HAS BEEN NAILED TO THE TRAILER FLOOR.

(D) 2" X 6" X 27" (1 REQD). NAIL TO PIECE MARKED (A) W/5-12d NAILS AND TO PIECES MARKED (C) AND (E) W/2-12d NAILS EACH.

(E) 2" X 4" X 33-1/2" (4 REQD). DOUBLE BEVEL EACH END. SEE "DETAIL: PIECE (E)" FOR BEVEL CUTS REQUIRED. TOENAIL TO PIECES MARKED (A) AND (F) W/4-16d NAILS AT EACH END.

(F) 2" X 4" X 61-1/4" (2 REQD). LOCATE PARTIAL ASSEMBLY (PIECES MARKED (A) THROUGH (G)) UNDER ITEM AND NAIL TO THE TRAILER FLOOR W/1-12d NAIL EVERY 8".

(G) 2" X 4" X 42" (1 REQD). NAIL TO PIECES MARKED (B) AND (C) W/3-12d NAILS AT EACH JOINT.

(H) 2" X 4" X 12" (4 REQD). POSITION AGAINST PIECE MARKED (E) AND NAIL TO PIECE MARKED (F) W/4-20d NAILS.

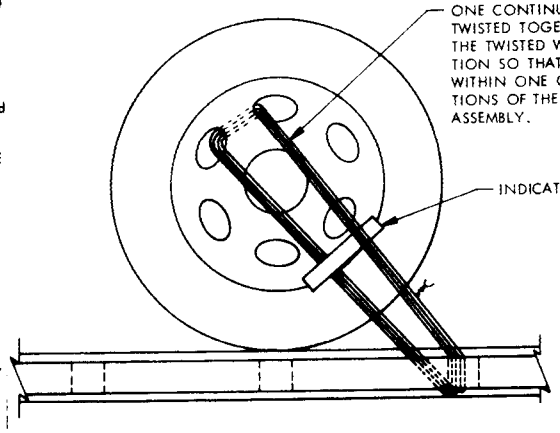
(J) 2" X 6" X 18" (2 REQD). NAIL TO THE TRAILER FLOOR W/5-12d NAILS.

(K) 2" X 6" X 12" (2 REQD). POSITION AGAINST PIECE MARKED (C) AND NAIL TO PIECE MARKED (J) W/4-20d NAILS.

SPECIAL PROVISIONS: (SEE CONDITION NO. 9 BELOW)

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. ONE (1) LINE OF 3/8" CHAIN, OR TWO (2) LINES OF 1/4" CHAIN, MAY BE SUBSTITUTED FOR EACH WIRE ROPE CABLE TIE DOWN MARKED (8). CHAINS SHALL BE INSTALLED AT THE SAME LOCATIONS SHOWN FOR WIRE ROPE CABLES AND IN THE SAME MANNER AS DIRECTED IN GENERAL NOTE "J" ON PAGE 3.
3. IN LIEU OF THE STRANDED WIRE TIE DOWNS MARKED (7), TWO (2) LINES OF 1/4" CHAIN MAY BE SUBSTITUTED FOR SECURING THE LADING LUNETTE.
4. FOR WHEEL SECUREMENT, IN LIEU OF TWO (2) STRANDED WIRE TIE DOWNS MARKED (6), 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, A CHAIN MAY BE INSTALLED FROM A FORWARD TIE DOWN FACILITY AT THE SIDE OF THE TRANSPORTER, PASSED BEHIND THE WHEEL AND OVER THE AXLE OF THE LADING, AND THEN 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.
9. FOR TRAILERS EQUIPPED WITH A PNEUMATIC (AIR RIDE) SUSPENSION SYSTEM, SEE THE "ADDITIONAL SPECIAL PROVISIONS" ON PAGE 5, WHICH WILL APPLY.



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.

ADDITIONAL SPECIAL PROVISIONS:

FOR TRAILERS EQUIPPED WITH A PNEUMATIC (AIR RIDE) SUSPENSION SYSTEM, THE LADING MAY BE SECURED BY CARRIER-OWNED CHAINS AND LOAD BINDERS IN ACCORDANCE WITH NOTES 1, 5, 6, 7 AND 8 OF THE "SPECIAL PROVISIONS" ON PAGE 4, AND THE FOLLOWING CONDITIONS, WHICH WILL BE MET INSTEAD OF THOSE CONDITIONS SPECIFIED BY NOTES 2, 3 AND 4 ON PAGE 4:

1. IN LIEU OF THE TWO (2) STRANDED WIRE TIE DOWNS MARKED (7) ON PAGE 2, ONE (1) LINE OF 1/4" CHAIN MAY BE SUBSTITUTED FOR SECURING THE LADING LUNETTE. WHEN THE CHAIN IS INSTALLED IT SHALL BE THREADED TO ENCIRCLE ONE SIDE OF THE LUNETTE RING. THE ENDS OF THE CHAIN WILL BE SECURELY FASTENED AT OPPOSITE SIDES OF THE TRANSPORTER.

2. FOR WHEEL AND LADING SECUREMENT ON ONE SIDE, IN LIEU OF THE TWO (2) STRANDED WIRE TIE DOWNS MARKED (6) ON PAGE 2 AND THE TWO (2) STEEL WIRE ROPE CABLES MARKED (8) ON PAGE 2, ONE (1) LINE OF 3/8" CHAIN MAY BE SUBSTITUTED. THE CHAIN MAY BE INSTALLED IN ONE OF THE FOLLOWING TWO WAYS. IT MAY RUN FROM A TRANSPORTER TIE DOWN FACILITY REAR OF THE LADING WHEEL, THRU A LIGHTENING HOLE WITHIN THE UPPER AND FORWARD PART OF THE LADING WHEEL, REARWARD AND BACK THRU AN ADJACENT LIGHTENING HOLE OF THE LADING WHEEL, AND FORWARD AND DOWN TO A TRANSPORTER TIE DOWN FACILITY IN FRONT OF THE LADING WHEEL. TO PREVENT DAMAGE TO THE LIGHTENING HOLES AND WHEELS OF THE LADING, A CHAIN MAY BE INSTALLED FROM A REARWARD TIE DOWN FACILITY AT THE SIDE OF THE TRANSPORTER, PASSED BEHIND THE LADING WHEEL AND OVER THE LADING AXLE, AND DOWN TO A FORWARD TIE DOWN FACILITY ON THE SAME SIDE OF THE TRANSPORTER.

REVISIONS

REVISION NO. 1, DATED 9 AUG 1968, CONSISTS OF:
1. CHANGES AS NECESSARY TO UPDATE DRAWING FORMAT.
2. CHANGES AS NECESSARY TO UPDATE "GENERAL NOTES".

REVISION NO. 2, DATED MAY 1971, CONSISTS OF:
1. INCLUDING THE AN/MPQ-46 RADAR SET.
2. CHANGING GENERAL NOTE "G".
3. ADDING "SPECIAL PROVISIONS" FOR USE OF CHAINS AND LOAD BINDERS.

REVISION NO. 3, DATED FEBRUARY 1979, CONSISTS OF:
1. CHANGES AS NECESSARY TO UPDATE DRAWING FORMAT.
2. ADDITION OF "ADDITIONAL SPECIAL PROVISIONS" FOR THE USE OF CHAINS AND LOAD BINDERS.