

APPROVED BY
 MECH DIV AAR, THEIR LETTER
 DATED 20 SEPT 1972 FILE LR-N.O
 SIGNED [Signature] MTT-60P
 DATE 20 September 1972
 TEA, MTMS, FT EUSTIS, VA.

NIKE-HERCULES

LOADING AND BRACING ON FLAT CAR OF ANTENNA-RECEIVER-TRANSMITTER GROUP, TARGET TRACKING, TARGET RANGING, AND MISSILE TRACKING, TRAILER MOUNTED

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


THIS DRAWING SUPERSEDES USAMC
 DRAWINGS 19-48-7075-GSE 5NH2
 AND 19-48-7076-GSE 5NH3.

THIS OUTLOADING PROCEDURAL DRAWING INCLUDES
 PROCEDURES FOR GENERAL SERVICE FLAT CARS (FM)
 AND FOR CUSHIONED FLAT CARS (FMS) EQUIPPED WITH
 SPECIAL CHAIN TIE DOWN DEVICES OF VARIOUS
 DESIGN AND MANUFACTURE.

DO NOT SCALE

REVISIONS				DRAFTSMAN	PROJ ENG	ANSHI PER
				OBR / CKW	JNW / [Signature]	[Signature]
				CHECKER	LDR ENGINE OFFICER	
				G.C. / RSN	[Signature]	
				APPROVED		
				<div style="font-size: large; font-family: cursive;">[Signature]</div> <small>U. S. ARMY MISSILE COMMAND</small>		
				<small>APPROVED BY ORDER OF COMMANDING GENERAL</small> <small>U. S. ARMY MATERIEL COMMAND</small> <div style="font-size: large; font-family: cursive;">[Signature]</div> <small>USAMC ARMO CENTER</small>		
				U. S. ARMY MATERIEL COMMAND		
				OCTOBER 1972		
				CLASS	DIVISION	DRAWING
				19	48	7201
						GSE 5NH30

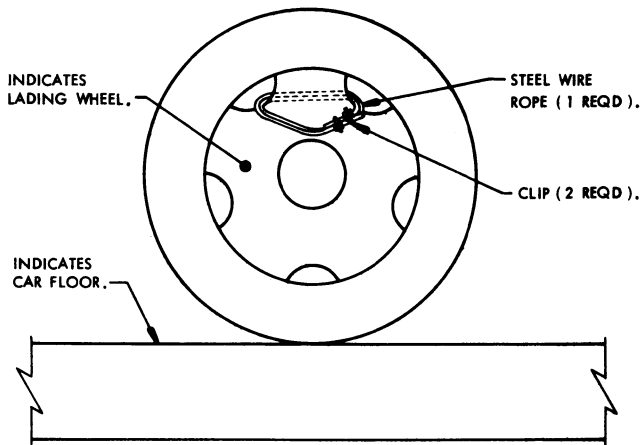
GENERAL NOTES

- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AMCR 740-13.
- B. THE LOAD AS SHOWN ON PAGES 4 AND 5 IS BASED ON A GENERAL SERVICE FM* TYPE FLAT CAR 9'-2" WIDE (PLATFORM). WIDER CARS CAN BE USED. **CAUTION:** THE LOAD MAY REQUIRE "CLEARANCE" CONSIDERATION BECAUSE OF EXCESSIVE LADING SIZE.
- C. THE LOAD AS SHOWN ON PAGES 6 AND 7 IS BASED ON A CUSHIONED FMS* TYPE FLAT CAR 10'-6" WIDE (DECK WIDTH) EQUIPPED WITH MOVABLE ANCHOR AND CHAIN ASSEMBLY TIE DOWN DEVICES. NARROWER CARS OF THIS TYPE MAY BE USED. **CAUTION:** THE LOAD MAY REQUIRE "CLEARANCE" CONSIDERATION BECAUSE OF EXCESSIVE LADING SIZE.
- NOTICE TO TRANSPORTATION OFFICER:**
- EVERY EFFORT SHOULD BE MADE TO ACQUIRE AN FMS* TYPE CUSHIONED FLAT CAR EQUIPPED WITH SPECIAL TIE DOWN CHANNELS AND MOVABLE ANCHOR AND CHAIN ASSEMBLY TIE DOWN DEVICES**, SUCH AS IS USED FOR TRANSPORTING AGRICULTURAL MACHINERY AND HEAVY, EARTH MOVING EQUIPMENT.
- * ASSOCIATION OF AMERICAN RAILROADS (AAR) MECHANICAL DESIGNATION FOR CAR TYPE. REFERENCE IS MADE TO THE "OFFICIAL RAILWAY EQUIPMENT REGISTER".
- ** A TYPICAL CAR OF THIS TYPE IS SHOWN BY FIGURE 88-B OF SECTION 6 IN PUBLICATION OF AAR TITLED "GENERAL RULES GOVERNING THE LOADING OF COMMODITIES ON OPEN TOP CARS".
- D. ONLY ONE UNIT OF LADING IS SHOWN ON EACH OF THE DEPICTED LOADS; HOWEVER, MULTIPLES OF UNITS, AS SHOWN OR DISSIMILAR IN NATURE, MAY BE LOADED ON A CAR IF SPACE PERMITS. THE NUMBER OF UNITS TO BE LOADED WILL BE DEPENDENT ON THE SIZE OF THE CAR USED OR THE QUANTITIES OF UNITS TO BE SHIPPED, WITH THE VIEW OF FULL UTILIZATION OF CARRIER EQUIPMENT.
- E. FOR LADING DATA, SEE THE "LADING DATA CHART" ON PAGE 3.
- 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 STEEL WIRE ROPE AND ANNEALED WIRE TIE DOWN APPLICATION, EXCEPT THAT NUTS ON 3/8" CABLE CLIPS WILL BE TIGHTENED TO A TORQUE OF 35 TO 40 FOOT POUNDS. **CAUTION:** DURING WIRE ROPE AND CHAIN ASSEMBLY 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/OR CHAINS AND LADING TIRES.
- G. REFER TO ASSOCIATION OF AMERICAN RAILROADS MANUAL, "GENERAL RULES GOVERNING THE LOADING OF COMMODITIES ON OPEN TOP CARS", FOR APPLICABLE LOADING RULES; PREFACE, 1A, 2, 3, 4, 5, 7, 9, 10, 14, 15, AND 19-B. ADDITIONALLY, LADING TIRES WILL BE INFLATED TO 10 PSI ABOVE HIGHWAY OPERATING PRESSURE, AND ALL HAND BRAKES MUST BE "SET" WITH THE HAND LEVERS WIRE TIED OR BLOCKED.
- H. WIRE ROPE CABLE, PIECE MARKED  ON PAGE 4, 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. **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.
- K. DUNNAGE LUMBER SPECIFIED THROUGHOUT THIS PROCEDURAL DRAWING IS OF NOMINAL SIZE UNLESS OTHERWISE DIMENSIONED. FOR EXAMPLE, 2" X 4" MATERIAL IS ACTUALLY 1-5/8" THICK BY 3-5/8" WIDE.
- L. TO CONSERVE SPACE ON A CAR, THE TOWBAR OF THE TRAILER MAY BE TURNED 180° AND BLOCKED, AS SHOWN FOR THE LOAD ON PAGES 6 AND 7. IF SPACE IS AVAILABLE, THE TOWBAR MAY BE BLOCKED IN THE NORMAL POSITION, AS SHOWN FOR THE LOAD ON PAGES 4 AND 6.

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

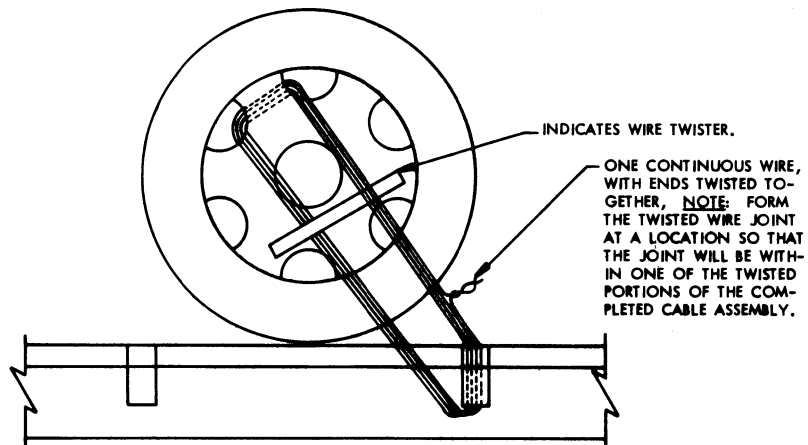
LOADING DATA CHART			
ANTENNA - RECEIVER - TRANSMITTER GROUP			
W/O HUTMENT	TARGET TRACKING	TARGET RANGING	MISSILE TRACKING
LENGTH	28'-1"	28'-1"	28'-1"
WIDTH	8'-0"	8'-0"	8'-0"
HEIGHT	11'-5"	11'-5"	11'-5"
GROSS WEIGHT	12,303 LBS	12,780 LBS	12,330 LBS
WITH HUTMENT			
LENGTH	28'-1"	28'-1"	28'-1"
WIDTH	8'-1"	8'-1"	8'-1"
HEIGHT	11'-10"	11'-10"	11'-10"
GROSS WEIGHT	13,453 LBS	13,930 LBS	13,480 LBS



AN INSTALLATION OF 1/2" DIAMETER STEEL WIRE ROPE IS SHOWN, PASSED THRU THE UPPER HOLES IN THE WHEEL TO FORM A COMPLETE DOUBLE LOOP WITH AN END-OVER-END LAP JOINT SECURED WITH TWO (2), SIZE 1/2", U-BOLT CLIPS. THE SIZE OF THE LOOP SHALL BE THE MINIMUM NECESSARY TO PERMIT ATTACHMENT OF TWO (2) CHAIN TIE DOWN ASSEMBLIES.

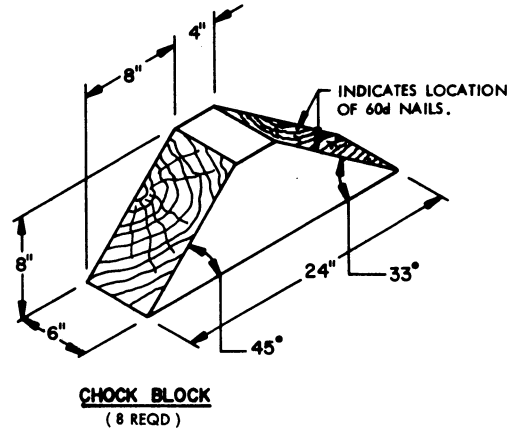
ALTERNATIVE WHEEL SECUREMENT

(FOR USE WITH CHAIN TIE DOWNS)



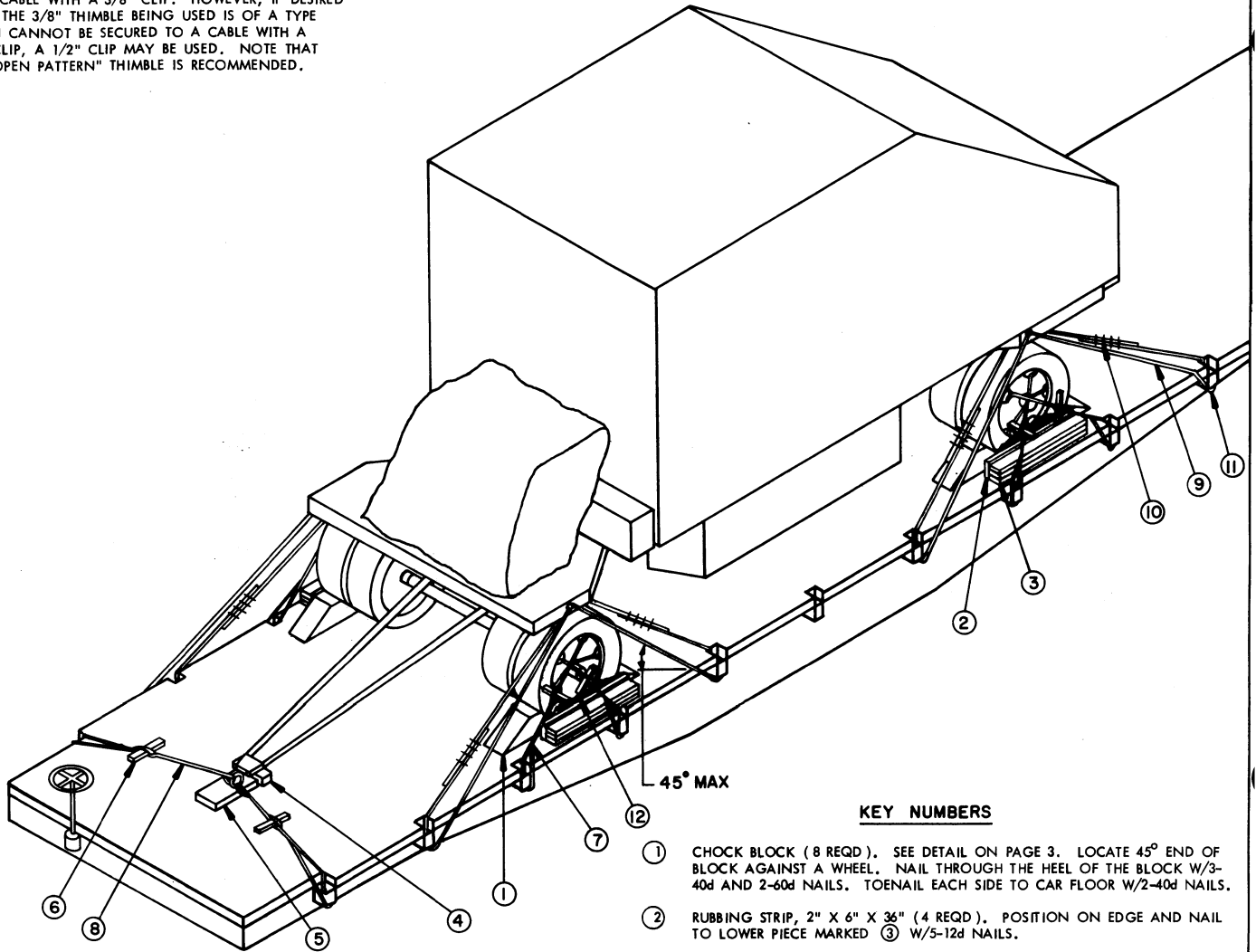
WHEEL SECUREMENT

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



NOTE ● :

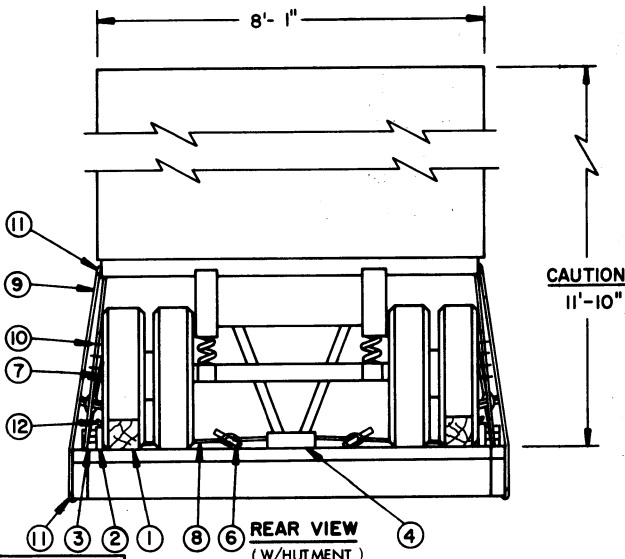
A STANDARD THIMBLE AS SPECIFIED CAN BE SECURED TO A CABLE WITH A 3/8" CLIP. HOWEVER, IF DESIRED OR IF THE 3/8" THIMBLE BEING USED IS OF A TYPE WHICH CANNOT BE SECURED TO A CABLE WITH A 3/8" CLIP, A 1/2" CLIP MAY BE USED. NOTE THAT AN "OPEN PATTERN" THIMBLE IS RECOMMENDED.

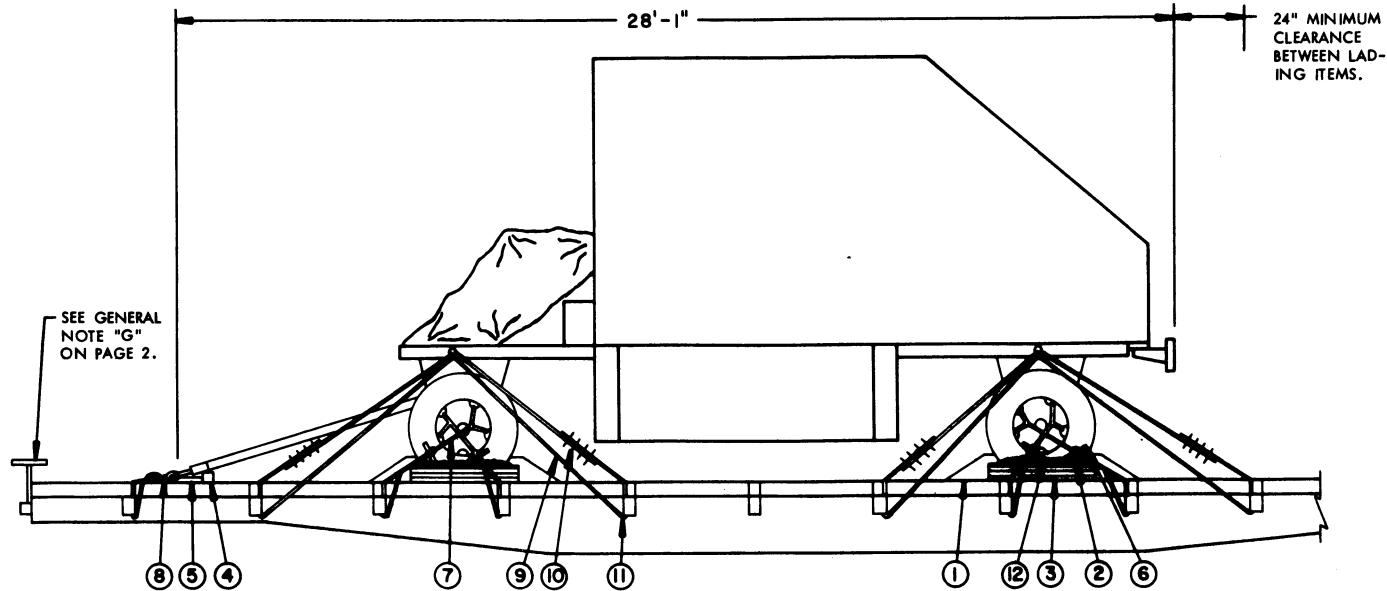


ISOMETRIC VIEW
(W/HUTMENT)

KEY NUMBERS

- ① CHOCK BLOCK (8 REQD). SEE DETAIL ON PAGE 3. LOCATE 45° END OF BLOCK AGAINST A WHEEL. NAIL THROUGH THE HEEL OF THE BLOCK W/3-40d AND 2-60d NAILS. TOENAIL EACH SIDE TO CAR FLOOR W/2-40d NAILS.
- ② RUBBING STRIP, 2" X 6" X 36" (4 REQD). POSITION ON EDGE AND NAIL TO LOWER PIECE MARKED ③ W/5-12d NAILS.
- ③ SIDE BLOCKING, 2" X 4" X 36" (TRIPLED) (4 REQD). NAIL FIRST PIECE TO CAR FLOOR W/5-30d NAILS. NAIL EACH ADDITIONAL PIECE IN A LIKE MANNER. SEE GENERAL NOTE "J" ON PAGE 2.
- ④ DRAWBAR SUPPORT PIECE, 4" X 4" X 12" (1 REQD). NAIL TO CAR FLOOR W/2-40d NAILS.
- ⑤ LUNETTE SUPPORT PIECE, 2" X 8" X 18" (1 REQD). NAIL TO THE CAR FLOOR W/4-20d NAILS.
- ⑥ WIRE TWISTER, 2" X 2" BY A LENGTH TO SUIT (10 REQD). SEE GENERAL NOTE "F" ON PAGE 2.
- ⑦ EIGHT (8) STRANDS NO. 8 GAGE BLACK ANNEALED WIRE (8 REQD). PASS THROUGH HOLES IN WHEEL AND CAR STAKE POCKET TO FORM A COMPLETE LOOP. TWIST TAUT WITH PIECE MARKED ⑥ . SEE GENERAL NOTES "F" AND "G" ON PAGE 2, AND "WHEEL SECUREMENT" DETAIL ON PAGE 3.
- ⑧ FOUR (4) STRANDS NO. 8 GAGE BLACK ANNEALED WIRE (2 REQD). PASS THROUGH LADING LUNETTE AND CAR STAKE POCKET TO FORM A COMPLETE LOOP. TWIST TAUT WITH PIECE MARKED ⑥ .
- ⑨ STEEL WIRE ROPE, 3/8" DIA., 6.56 TONS (8 REQD). INSTALL CABLE ANGULARLY AS SHOWN AND TO FORM A COMPLETE LOOP FROM STAKE POCKET ON CAR THROUGH TIE DOWN DEVICE ON TRAILER AND BACK TO STAKE POCKET. SEE GENERAL NOTES "F", "G" AND "H" ON PAGE 2. NOTE: CABLE OF A LARGER SIZE MAY BE USED IF AVAILABLE WHEN SPECIFIED CABLE IS NOT AVAILABLE.
- ⑩ CLIP, WIRE ROPE, SIZE 3/8" (48 REQD). USE FOUR (4) PER CABLE JOINT OF PIECE MARKED ⑨ AND ONE (1) PER THIMBLE. SEE "NOTE ● " ABOVE.
- ⑪ THIMBLE, STANDARD, SIZE 3/8" (16 REQD). USE ONE (1) PER STAKE POCKET AND ONE (1) PER TIE DOWN DEVICE. SECURE TO CABLE, PIECE MARKED ⑨, W/1-CLIP PER THIMBLE.
- ⑫ WATERPROOF PAPER OR BURLAP OF A SUFFICIENT SIZE TO POSITION UNDER AND EXTEND 2" ABOVE PIECE MARKED ② .

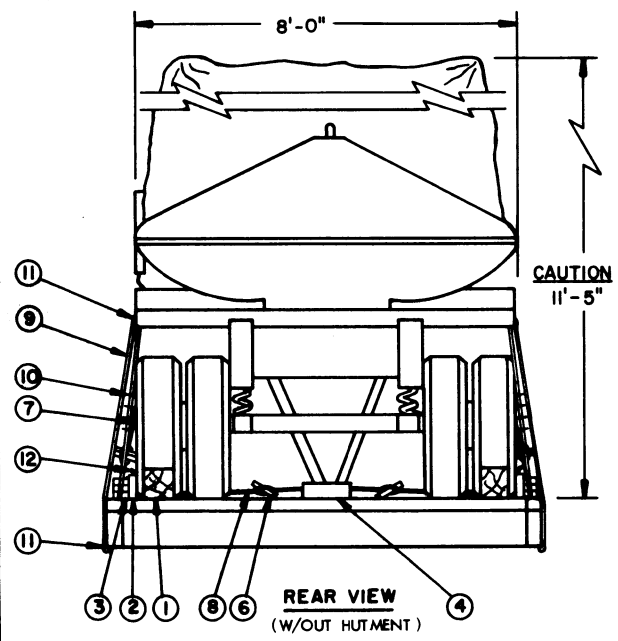




ELEVATION VIEW

(W/HUTMENT)

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 2"	15	5
2" X 4"	36	24
2" X 6"	12	12
2" X 8"	1-1/2	2
4" X 4"	1	1-1/3
6" X 8"	11	44
NAILS	NO. REQD	POUNDS
12d (3-1/4")	20	1/2
20d (4")	4	1/4
30d (4-1/2")	60	3
40d (5")	42	2-1/2
60d (6")	16	1-3/4
ROPE, STEEL WIRE, 3/8" DIA	144' REQD	36 LBS
CLIPS, 3/8"	48 REQD	15 LBS
THIMBLE, STANDARD, 3/8"	16 REQD	3 LBS
WIRE, NO. 8 GAGE	330' REQD	30 LBS
WATERPROOF PAPER OR BURLAP	AS REQD	NIL
CLIPS, 1/2" (ALT FOR 3/8")	16 REQD	7 LBS

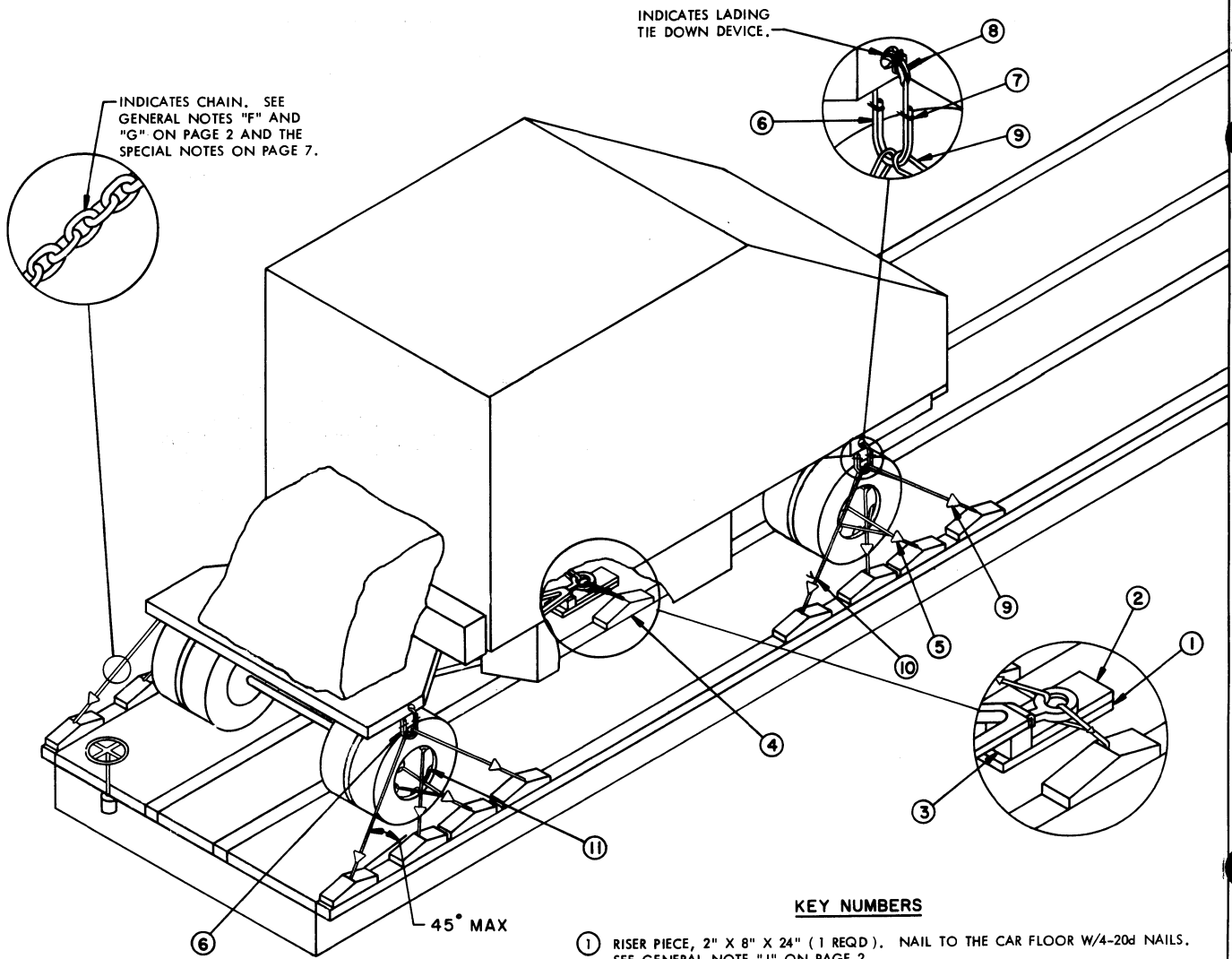


REAR VIEW
(W/OUT HUTMENT)

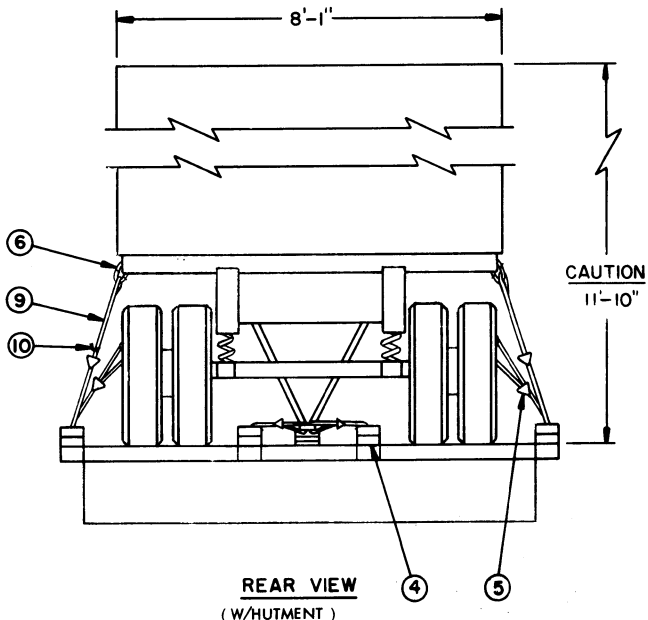
LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
* TARGET RANGING --- 1	---	13,930 LBS
(WITH HUTMENT)		
DUNNAGE		315 LBS
TOTAL WEIGHT		14,245 LBS

* SEE GENERAL NOTE "E" ON PAGE 2.



ISOMETRIC VIEW
(W/HUTMENT)



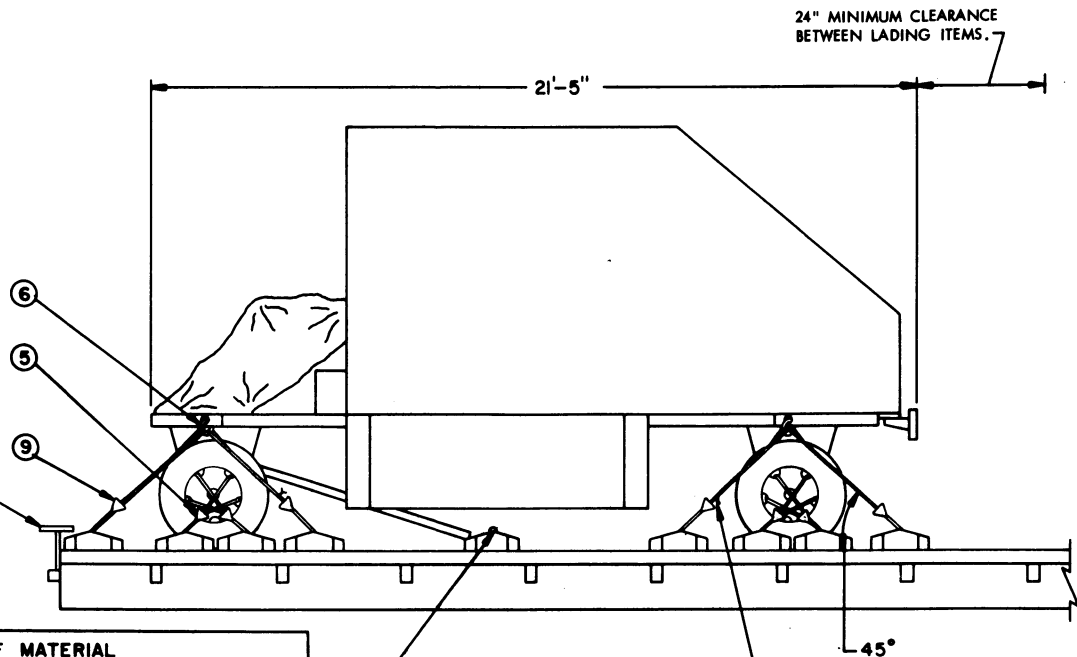
REAR VIEW
(W/HUTMENT)

INDICATES LADING
TIE DOWN DEVICE.

INDICATES CHAIN. SEE
GENERAL NOTES "F" AND
"G". ON PAGE 2 AND THE
SPECIAL NOTES ON PAGE 7.

KEY NUMBERS

- ① RISER PIECE, 2" X 8" X 24" (1 REQD). NAIL TO THE CAR FLOOR W/4-20d NAILS. SEE GENERAL NOTE "J" ON PAGE 2.
- ② LUNETTE SUPPORT PIECE, 2" X 8" X 18" (1 REQD). NAIL TO PIECE MARKED ① W/4-10d NAILS.
- ③ DRAWBAR SUPPORT PIECE, 4" X 4" X 8" (1 REQD). TOENAIL TO PIECE MARKED ② W/2-20d NAILS.
- ④ MOVABLE ANCHOR WITH CHAIN ASSEMBLY TIE DOWN DEVICE (2 REQD). ATTACH CHAIN TO THE LADING LUNETTE. SEE SPECIAL NOTE 5 ON PAGE 7 AND KEY NUMBER ⑩ GUIDANCE BELOW.
- ⑤ MOVABLE ANCHOR WITH CHAIN ASSEMBLY TIE DOWN DEVICE (8 REQD). ATTACH CHAIN TO THE LIGHTENING HOLES IN THE WHEELS. IF THE LIGHTENING HOLES ARE NOT LARGE ENOUGH TO RECEIVE THE CHAINS, A STEEL WIRE ROPE (CABLE) LOOP MUST BE PROVIDED FOR ATTACHMENT OF THE CHAINS. SEE THE "ALTERNATIVE WHEEL SECUREMENT" DETAIL ON PAGE 3 FOR METHOD OF APPLYING CABLE.
- ⑥ HOLD-DOWN LOOP, STEEL WIRE ROPE, 3/8" DIA, 6.56 TONS, BY 36" LONG (4 REQD). FORM A LOOP AS SHOWN BY THE ENLARGED VIEW ABOVE THE LOAD. THE SIZE OF THE LOOP SHALL BE THE MINIMUM NECESSARY TO PERMIT ATTACHMENT OF TWO (2) CHAIN TIE DOWN ASSEMBLIES. SEE SPECIAL NOTE 6 ON PAGE 7.
- ⑦ CLIP, SIZE 3/8" (12 REQD). USE TWO (2) PER CABLE JOINT OF PIECE MARKED ⑥ AND ONE (1) PER THIMBLE.
- ⑧ THIMBLE, STANDARD, SIZE 3/8" (4 REQD). USE ONE (1) PER LADING TIE DOWN DEVICE. SECURE TO PIECE MARKED ⑥ W/1-CLIP PER THIMBLE. NOTE: A STANDARD THIMBLE, AS SPECIFIED, CAN BE SECURED TO A WIRE ROPE 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. NOTE THAT AN "OPEN PATTERN" THIMBLE IS RECOMMENDED. SEE GENERAL NOTE "F" ON PAGE 2.
- ⑨ MOVABLE ANCHOR WITH CHAIN ASSEMBLY TIE DOWN DEVICE (8 REQD). LOCATE THE MOVABLE ANCHOR SO AS TO POSITION THE CHAIN WITHIN THE ANGULAR TOLERANCE SPECIFIED. THREAD CHAIN THRU THE HOLD-DOWN LOOP, PIECE MARKED ⑥. INTERLOCK HOOK AND CHAIN FOR TENSIONING.
- ⑩ TIE WIRE, NO. 14 GAGE WIRE 12" LONG (18 REQD). PASS THRU AN OPENING IN A CHAIN LINK AND AROUND A HOOK TO FORM A COMPLETE LOOP. BRING ENDS TOGETHER AND TWIST TAUT.
- ⑪ WATERPROOF PAPER, BURLAP OR OTHER SUITABLE ANTI-CHAFING MATERIAL OF A SUFFICIENT SIZE TO POSITION UNDER THE CHAINS AT ALL POINTS OF CONTACT WITH THE LADING.



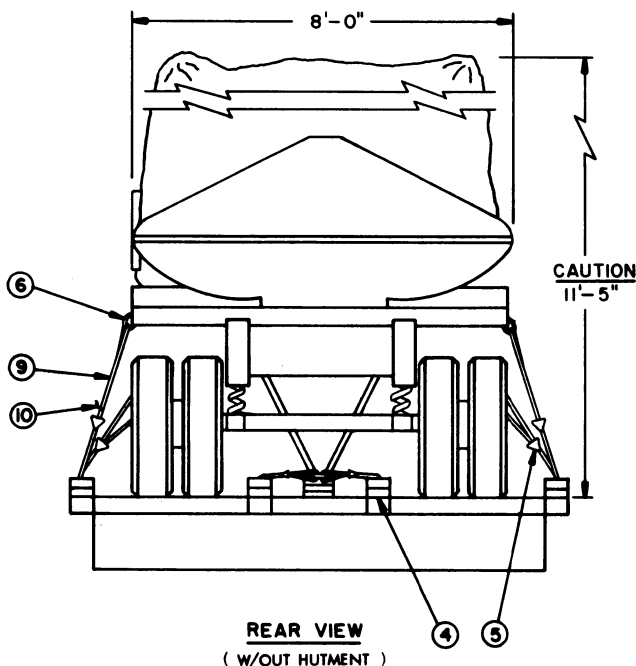
SEE GENERAL NOTE "G" ON PAGE 2.

④ **ELEVATION VIEW**
(W/HUTMENT)

SPECIAL NOTES:

- ONE UNIT OF LADING IS SHOWN ON AN FMS TYPE CAR 10'-6" WIDE (DECK WIDTH). NARROWER CARS OF THIS TYPE MAY BE USED. NOTE THAT THE CAR MUST HAVE A NAILABLE FLOOR AREA BETWEEN THE CENTER CHANNELS FOR THE SECUREMENT OF PIECE MARKED ①.
- BEFORE AND DURING** INSTALLATION, THE ANCHOR DEVICES SHALL BE INSPECTED FOR BENT HOOKS, STRETCH, GOUGES, BENT LINKS, AND WEAR IN THE CHAINS, AND FOR DAMAGED LOAD BINDERS OR WINCHES, OR ANY OTHER NOTICEABLE DEFECTS. ANY DEFICIENCY SHALL BE CAUSE FOR NOT USING A MOVABLE ANCHOR WITH CHAIN ASSEMBLY TIE DOWN DEVICE.
- CHAINS MUST NOT BE TWISTED DURING INSTALLATION.
- AS APPLICABLE, THE CHAIN ASSEMBLY TIE DOWN DEVICES MUST BE TENSIONED SUFFICIENTLY TO CAUSE SLIGHT VEHICLE BODY DEPRESSION.
- EACH INSTALLED CHAIN ASSEMBLY TIE DOWN DEVICE SHALL HAVE THE HOOK WIRE-TIED TO PREVENT DISPLACEMENT.
- IF DESIRED, OR IF THE SPECIFIED CABLE IS NOT AVAILABLE, A SHACKLE OF SUITABLE SIZE TO RECEIVE A CHAIN TIE DOWN MAY BE USED IN LIEU OF THE HOLD-DOWN LOOP, PIECE MARKED ⑥. IF A SHACKLE IS USED, PIECES MARKED ⑥, ⑦ AND ⑧ WILL NOT BE REQUIRED.
- 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.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 8"	3-1/2	4-2/3
4" X 4"	2/3	1
NAILS	NO. REQD	POUNDS
10d (3")	4	NIL
20d (4")	6	1/4
ROPE, STEEL WIRE, 3/8" DIA	12' REQD	3 LBS
CLIP, 3/8"	12 REQD	4 LBS
THIMBLE, STANDARD, 3/8"	4 REQD	1 LB
WIRE, NO. 14 GAGE	18' REQD	NIL
WATERPROOF PAPER OR BURLAP	AS REQD	NIL
CLIP, 1/2" (ALT FOR 3/8")	4 REQD	2 LBS
MOVABLE ANCHOR WITH CHAIN ASSEMBLY TIE DOWN DEVICE	18 REQD	



④ **REAR VIEW**
(W/OUT HUTMENT)

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
* TARGET RANGING (WITH HUTMENT)	1	13,930 LBS
DUNNAGE		22 LBS
TOTAL WEIGHT		13,952 LBS

* SEE GENERAL NOTE "E" ON PAGE 2.

