

REV NO. 1 APPROVED BY  
 MECH DIV AAR, THEIR LETTER  
 DATED 12 SEPT 1972 FILE LR-11-0  
 SIGNED *[Signature]* MTT-604  
 DATE 20 September 1972  
 TEA, MTMS, FT EUSTIS, VA.

# NIKE-HERCULES

## LOADING AND BRACING ON FLAT CAR OF ELECTRONIC SHOP NO. 3, TRAILER MOUNTED, AN/MPM-52A

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.

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

THIS DRAWING, INCLUDING REVISION 1, SUPERSEDES DRAWING 19-48-7173-GSE 5NH24, DATED NOVEMBER 1970.

**DO NOT SCALE**

REVISIONS			DRAFTSMAN PB	PROJ ENG [Signature]
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			U. S. ARMY MATERIEL COMMAND	
			MARCH 1972	
			CLASS	DIVISION
			DRAWING	FILE
			19	48
			7173	GSE 5NH24

## GENERAL NOTES

( GENERAL NOTES CONTINUED FROM LEFT )

- 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. SEE THE SPECIAL NOTES ON PAGE 7 FOR ADDITIONAL GUIDANCE.
- 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 HAS BEEN TURNED 180° AND BLOCKED AS SHOWN. IF SPACE IS AVAILABLE, THE TOWBAR MAY BE BLOCKED IN THE NORMAL POSITION.

### NOTICE TO TRANSPORTATION OFFICER:

EVERY EFFORT SHOULD BE MADE TO ACQUIRE AN FMS\* TYPE CUSHIONED 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. LADING DATA:
- ITEM DIMENSIONS ----- 21'-6" LONG X 8'-0" WIDE X 10'-8" HIGH.  
ITEM GROSS WEIGHT ----- 17,500 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 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 ( 2 ) 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.

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## MATERIAL SPECIFICATIONS

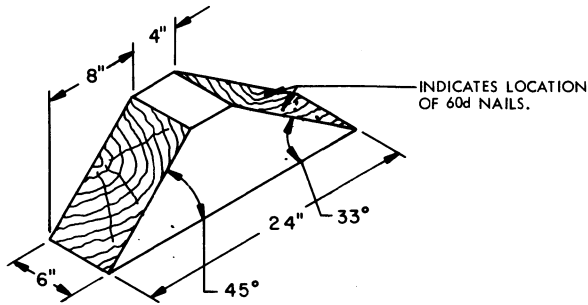
- LUMBER ----- : DOUGLAS FIR OR COMPARABLE LUMBER WITH STRAIGHT GRAIN AND FREE OF MATERIAL DEFECTS. REF: FED SPEC MM-L-751.
- NAILS ----- : COMMON, CEMENT COATED OR CHEMICALLY ETCHED.  
REF: FED SPEC FF-N-105.  
ALT: ANNULAR-RING TYPE NAIL OF SAME SIZE.
- ROPE ----- : STEEL WIRE, PLAIN, PRE-FORMED, REGULAR LAY, 6.55 TONS,  
6 X 19, FLEXIBLE IWRC, MACWHYTE WIRE ROPE CO ( OR EQUAL ).  
REF: FED SPEC RR-W-110.
- WIRE ----- : ANNEALED, BLACK. REF: FED SPEC QQ-5-461.
- CLIPS ----- : "U" BOLT, CROSBY, HEAVY DUTY ( OR EQUAL ). REF: FED SPEC FF-C-450, TYPE I, CLASS 1.
- STRAPPING, STEEL --- : TYPE II, CLASS B, FED SPEC QQ-5-781.
- STEEL ROOFING NAIL : TYPE II, STYLE 20, ZINC COATED, FED SPEC FF-N-105.
- PLYWOOD ----- : GROUP B OR C, GRADE C-C ( EXTERIOR ); FED SPEC NN-P-530.  
FSN 5530-051-1198.
- EDGE PROTECTOR --- : COMMERCIAL GRADE.

● IF SPECIFIED GRADE IS NOT AVAILABLE, A BETTER EXTERIOR GRADE MAY BE SUBSTITUTED.

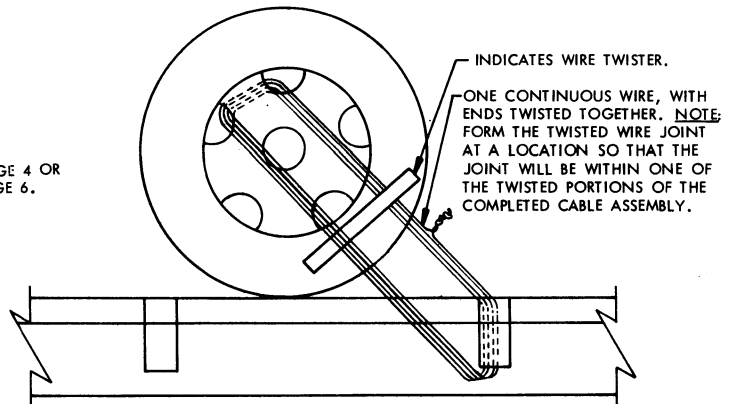
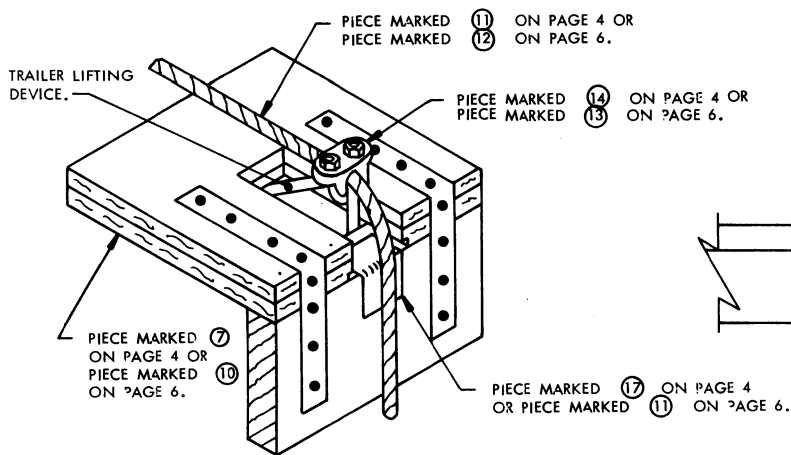
## REVISION

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

1. ADDING PROCEDURES FOR CARS EQUIPPED WITH MOVABLE ANCHOR AND CHAIN ASSEMBLY TIE DOWN DEVICES.



**CHOCK BLOCK**  
( 8 REQD )

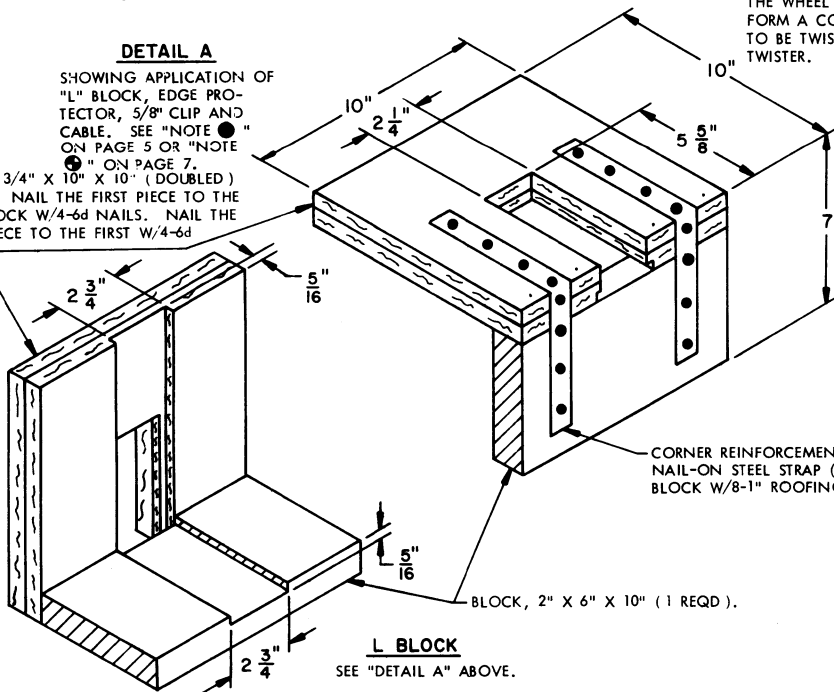


**WHEEL SECUREMENT**

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.

**DETAIL A**

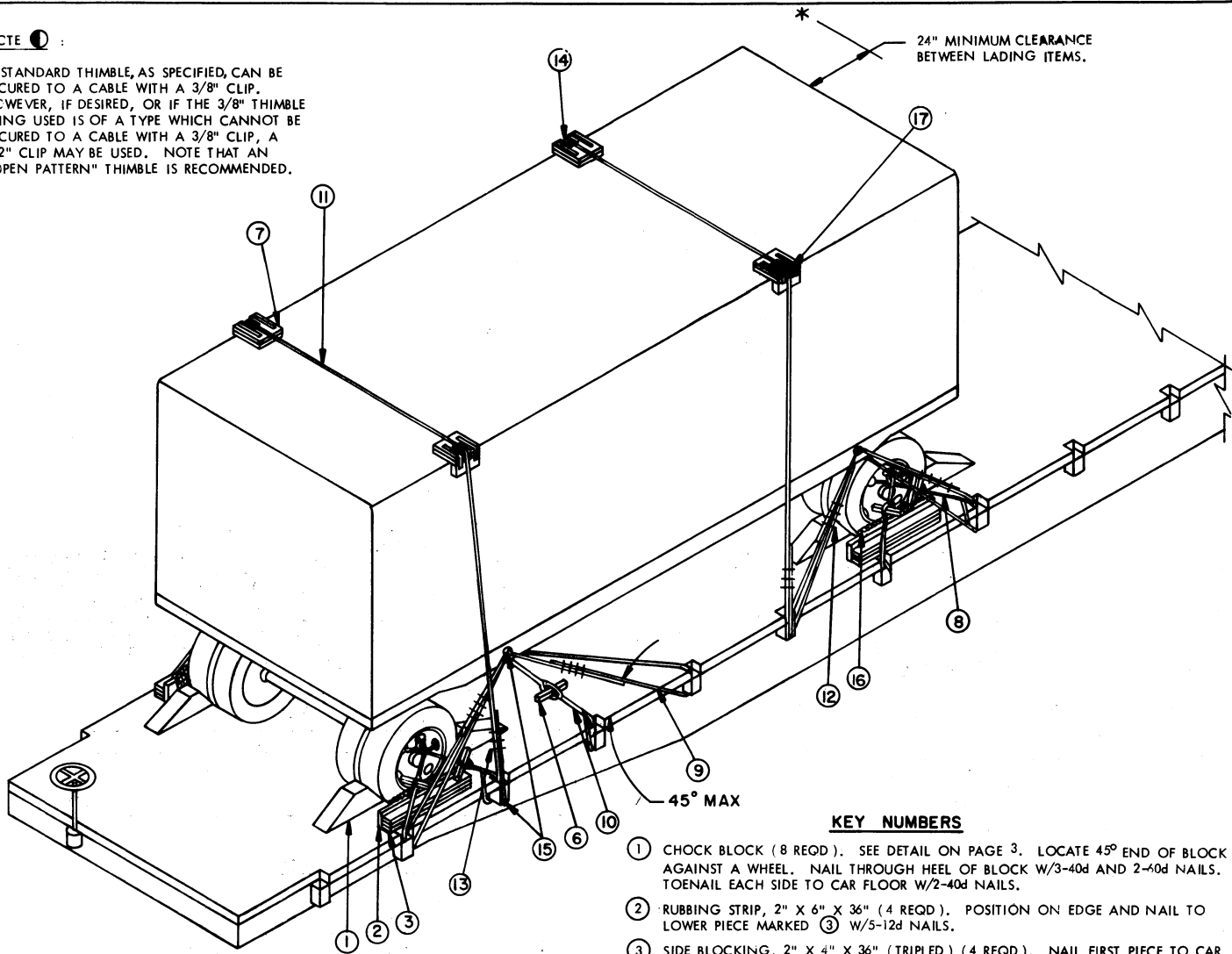
SHOWING APPLICATION OF "L" BLOCK, EDGE PROTECTOR, 5/8" CLIP AND CABLE. SEE "NOTE ●" ON PAGE 5 OR "NOTE ●" ON PAGE 7.  
PLYWOOD, 3/4" X 10" X 10" ( DOUBLED ) ( 1 REQD ). NAIL THE FIRST PIECE TO THE 2" X 6" BLOCK W/4-6d NAILS. NAIL THE SECOND PIECE TO THE FIRST W/4-6d NAILS.



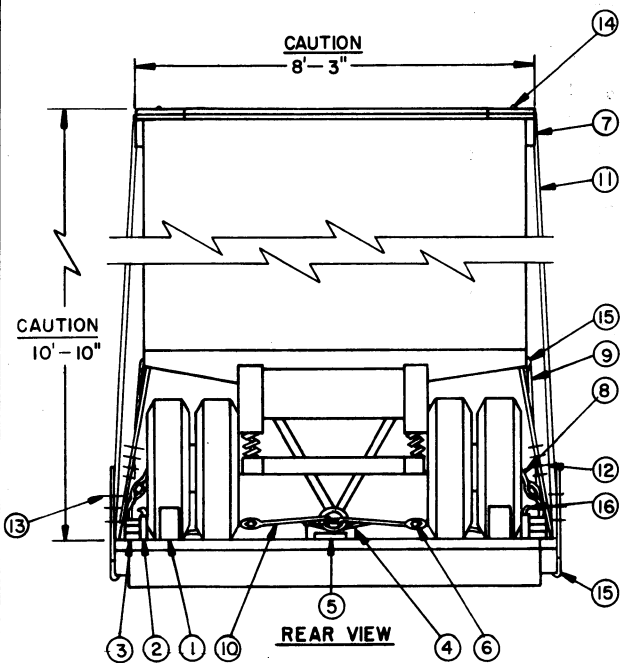
**L BLOCK**  
SEE "DETAIL A" ABOVE.

**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**

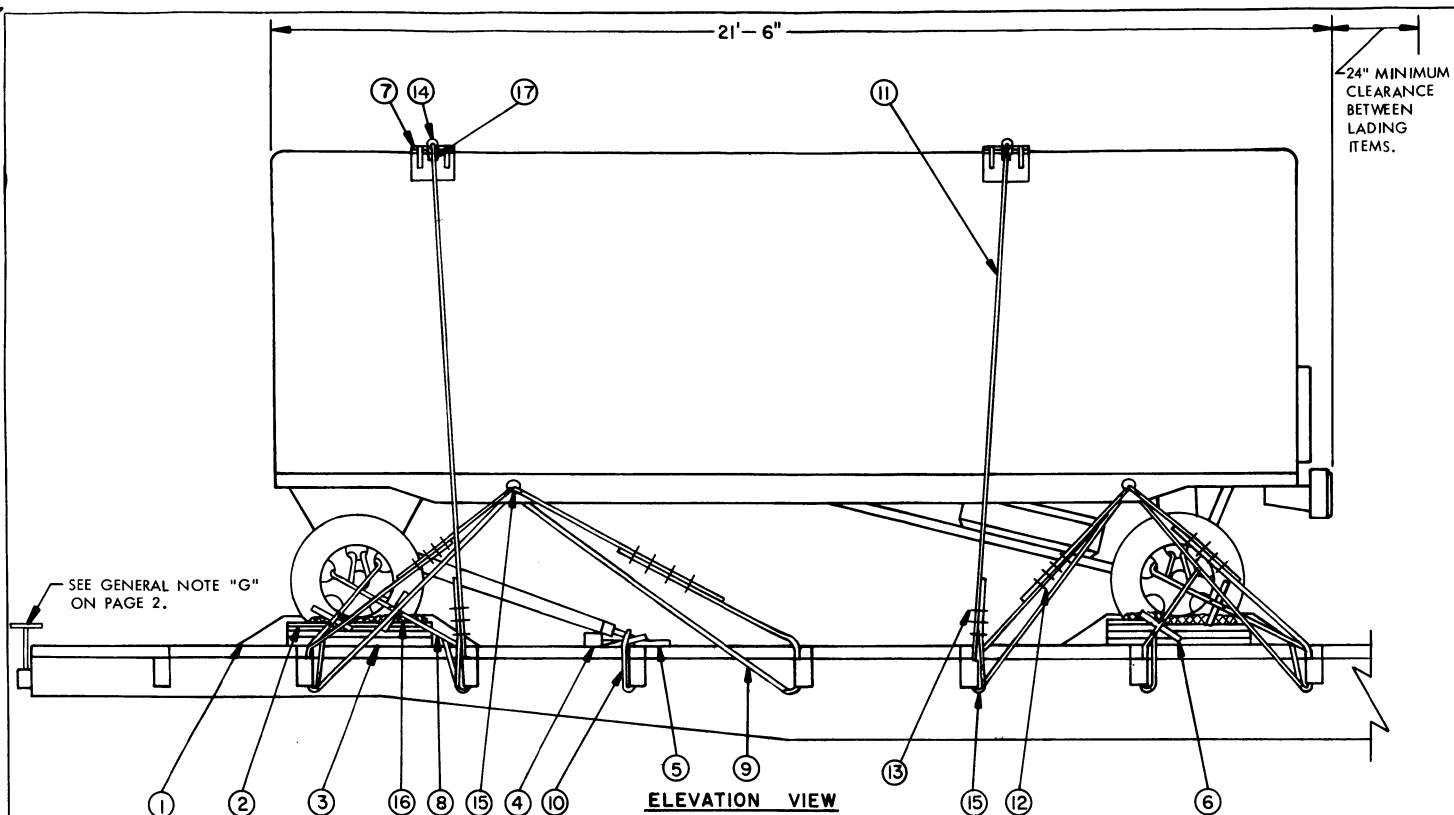


**REAR VIEW**

**KEY NUMBERS**

- ① CHOCK BLOCK (8 REQD). SEE DETAIL ON PAGE 3. LOCATE 45° END OF BLOCK AGAINST A WHEEL. NAIL THROUGH HEEL OF 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 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 "L" BLOCK (4 REQD). SEE "L" BLOCK DETAIL ON PAGE 3. POSITION THE CUT OUT PORTION OVER THE LIFTING EYE OF THE TRAILER SO THAT THE CABLE, PIECE MARKED ①, AND THE 5/8" CLIP, PIECE MARKED ⑭, MAY BE INSTALLED TO THE LIFTING EYE. SEE "DETAIL A" ON PAGE 3.
- ⑧ EIGHT (8) STRANDS NO. 8 GAGE BLACK ANNEALED WIRE (8 REQD). PASS THROUGH HOLES IN WHEEL AND STAKE POCKET TO FORM A COMPLETE LOOP. TWIST TAUT WITH PIECE MARKED ⑥. SEE THE "WHEEL SECUREMENT" DETAIL ON PAGE 3 AND GENERAL NOTES "F" AND "G" ON PAGE 2.
- 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. NOTE: CABLE OF A LARGER SIZE MAY BE USED, IF AVAILABLE, WHEN SPECIFIED CABLE IS NOT AVAILABLE. SEE GENERAL NOTES "F", "G", AND "H" ON PAGE 2.
- ⑩ 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.
- ⑪ STEEL WIRE ROPE, 3/8" DIA., 6.56 TONS (2 REQD). INSTALL CABLE THROUGH STAKE POCKET, OVER TOP OF THE TRAILER AND PIECES MARKED ⑦ AND ⑬ AND THROUGH STAKE POCKET ON OTHER SIDE OF CAR. SEE "NOTE ●" ON PAGE 5.
- ⑫ CLIP, WIRE ROPE, SIZE 3/8" (52 REQD). FOUR (4) PER CABLE JOINT OF PIECE MARKED ⑨, AND ONE (1) PER THIMBLE. SEE "NOTE ●" ABOVE.
- ⑬ CLIP, WIRE ROPE, SIZE 3/8" (12 REQD). THREE (3) PER CABLE JOINT OF PIECE MARKED ①.
- ⑭ CLIP, WIRE ROPE, SIZE 5/8" (4 REQD). ONE (1) PER TRAILER LIFTING EYE.
- ⑮ THIMBLE, STANDARD, SIZE 3/8" (20 REQD). ONE (1) PER STAKE POCKET AND ONE (1) PER TIE DOWN DEVICE. SECURE TO CABLES, PIECES MARKED ⑨ AND ⑩ W/1-CLIP PER THIMBLE.

(KEY NUMBERS CONTINUED ON PAGE 5)



(KEY NUMBERS CONTINUED FROM PAGE 4)

- ① WATERPROOF PAPER OR BURLAP OF A SUFFICIENT SIZE TO POSITION UNDER AND EXTEND 2" ABOVE PIECE MARKED ②.
- ② EDGE PROTECTOR FOR 3/4" STEEL STRAPPING (4 REQD). POSITION UNDER CABLE, PIECE MARKED ①, ON "L" BLOCK, PIECE MARKED ⑦.

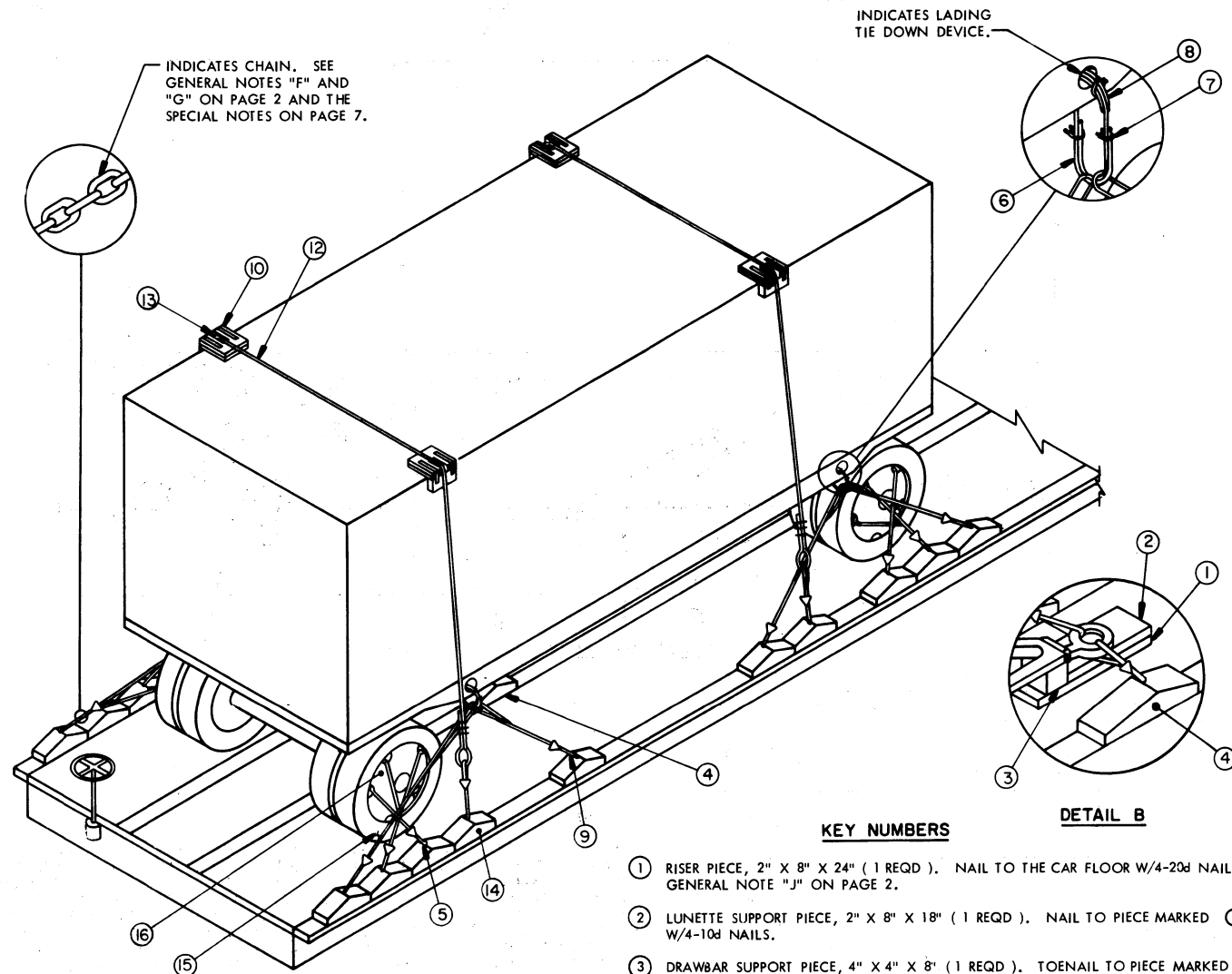
BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 2"	15	5
2" X 4"	36	24
2" X 6"	16	16
2" X 8"	1-1/2	2
4" X 4"	1	1-1/3
6" X 8"	10	40
NAILS	NO. REQD	POUNDS
6d (2")	32	1/4
12d (3-1/4")	30	1/2
20d (4")	14	1/2
30d (4-1/2")	60	3
40d (5")	58	3-1/2
60d (6")	16	1-1/2
ROPE, STEEL WIRE, 3/8" DIA	160' REQD	40 LBS
CLIP, 3/8"	64 REQD	20 LBS
CLIP, 5/8"	4 REQD	3 LBS
CLIP, 1/2" (ALT FOR 3/8", 20 REQD)		9 LBS
THIMBLE, STANDARD, 3/8"	20 REQD	4 LBS
WIRE, NO. 8 GAGE	352' REQD	31 LBS
EDGE PROTECTOR	4 REQD	NIL
STEEL STRAPPING, 1" X .018"	8' REQD	NIL
ROOFING NAIL, 1"	64 REQD	NIL
WATERPROOF PAPER OR BURLAP	AS REQD	NIL
PLYWOOD, 3/4"	6 SQ FT REQD	6-1/2 LBS

NOTE ●:

AFTER THE "L" BLOCK, PIECE MARKED ⑦, IS POSITIONED OVER THE LIFTING EYE, INSTALL AN EDGE PROTECTOR, PIECE MARKED ②, AS SHOWN BY DETAILS. POSITION CABLE, PIECE MARKED ①, FROM STAKE POCKET, OVER TRAILER, TO STAKE POCKET ON THE OTHER SIDE OF THE CAR. AFTER THE CABLE, PIECE MARKED ①, IS POSITIONED, AND PRIOR TO TENSIONING, ATTACH A 5/8" WIRE ROPE CLIP TO THE TRAILER LIFTING EYE AND PIECE MARKED ①. AFTER THE CABLE HAS BEEN TENSIONED, TIGHTEN THE 5/8" CLIP. DO NOT TIGHTEN THESE CLIPS UNTIL CABLE HAS BEEN TENSIONED. THIS CLIP WILL PREVENT THE CABLE FROM BECOMING DISLODGED. CAUTION: CARE MUST BE EXERCISED WHEN TENSIONING THIS CABLE TO PREVENT DAMAGE TO THE TRAILER BODY, OR LOOSENING OF OTHER CABLES MARKED ⑨.

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
SHOP EQUIPMENT (REMOTE CONTROL SYSTEM)	1	17,550 LBS
DUNNAGE		334 LBS
TOTAL WEIGHT		17,884 LBS

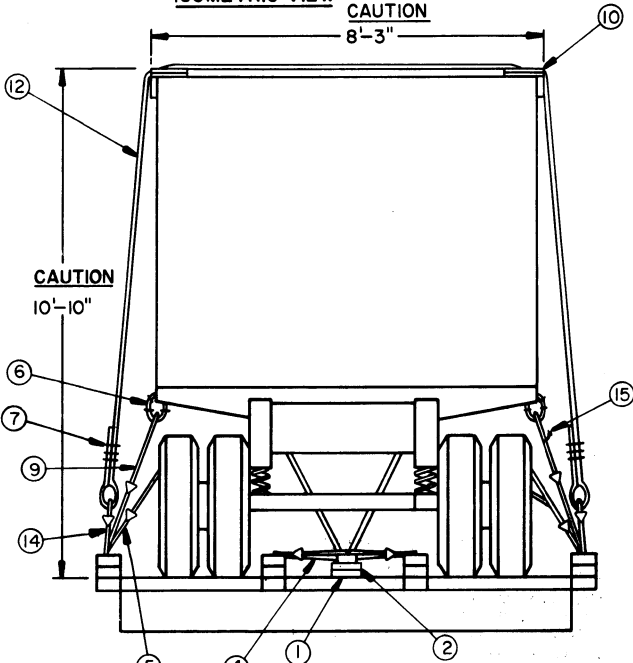


INDICATES CHAIN. SEE GENERAL NOTES "F" AND "G" ON PAGE 2 AND THE SPECIAL NOTES ON PAGE 7.

INDICATES LADING TIE DOWN DEVICE.

**ISOMETRIC VIEW**

**CAUTION**  
8'-3"



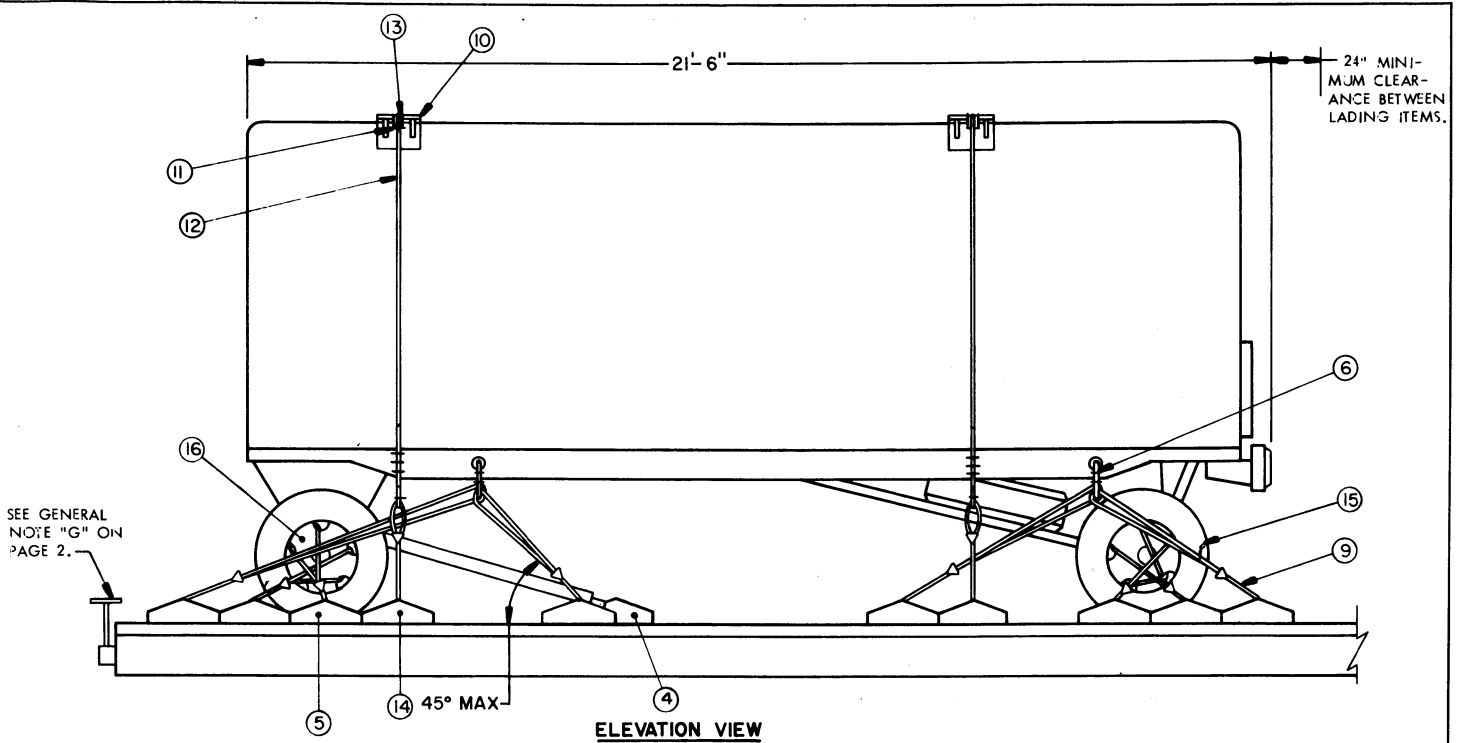
**REAR VIEW**

**KEY NUMBERS**

**DETAIL B**

- 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. SEE "DETAIL B" ABOVE.
- 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 ⑮ GUIDANCE ON PAGE 7.
- 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 8 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" ( 24 REQD ). USE TWO ( 2 ) PER CABLE JOINT OF PIECE MARKED ⑥, THREE ( 3 ) PER CABLE JOINT OF PIECE MARKED ⑫, 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 ⑤ 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 ④. INTER-LOCK HOOK AND CHAIN FOR TENSIONING.
- ⑩ "L-BLOCK" ( 4 REQD ). SEE THE "L-BLOCK DETAIL" ON PAGE 3. POSITION THE CUT OUT PORTION OVER THE LIFTING EYE OF THE TRAILER SO THAT THE CABLE, PIECE MARKED ⑫, AND THE CLIP, PIECE MARKED ⑬, MAY BE INSTALLED TO THE LIFTING EYE. SEE "DETAIL A" ON PAGE 3 AND "NOTE ④" ON PAGE 7.
- ⑪ EDGE PROTECTOR FOR 3/4" STEEL STRAPPING ( 4 REQD ). POSITION UNDER CABLE, PIECE MARKED ⑫, ON "L-BLOCK", PIECE MARKED ⑩. SEE "DETAIL A" ON PAGE 3.

(KEY NUMBERS CONTINUED ON PAGE 7)



SEE GENERAL NOTE "G" ON PAGE 2.

**BILL OF MATERIAL**

LUMBER	LINEAR FEET	BOARD FEET
2" X 6"	3-1/3	3-1/3
2" X 8"	3-1/2	4-2/3
4" X 4"	1	1-1/3
NAILS	NO. REQD	POUNDS
6d ( 2" )	32	1/4
10d ( 3" )	4	NIL
20d ( 4" )	6	1/4
ROPE, STEEL WIRE, 3/8" DIA	58 REQD	17 LBS
CLIP, 3/8"	24 REQD	8 LBS
THIMBLE, STANDARD, 3/8"	4 REQD	1 LB
CLIP, 5/8"	4 REQD	3 LBS
EDGE PROTECTOR	4 REQD	NIL
STEEL STRAPPING, 1" X .018"	8 REQD	NIL
ROOFING NAIL, 1"	64 REQD	N.L
PLYWOOD, 3/4	6 SQ FT REQD	6-1/2 LBS
WIRE, NO. 14 GAGE	22 REQD	NIL
WATERPROOF PAPER OR BURLAP	AS REQD	N.L
CLIP, 1/2" ( ALT FOR 3/8" )	4 REQD	2 LBS
MOVABLE ANCHOR WITH CHAIN ASSEMBLY TIE DOWN DEVICE	22 REQD	

**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 ⑩ .
- 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 THE CHAIN TIE DOWNS MAY BE USED IN LIEU OF THE HOLD-DOWN LOOP, PIECE MARKED ⑥ . IF A SHACKLE IS USED, PIECES MARKED ⑥ AND ⑧ , AND TWELVE ( 12 ) PIECES MARKED ⑦ 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.

( KEY NUMBERS CONTINUED FROM PAGE 6 )

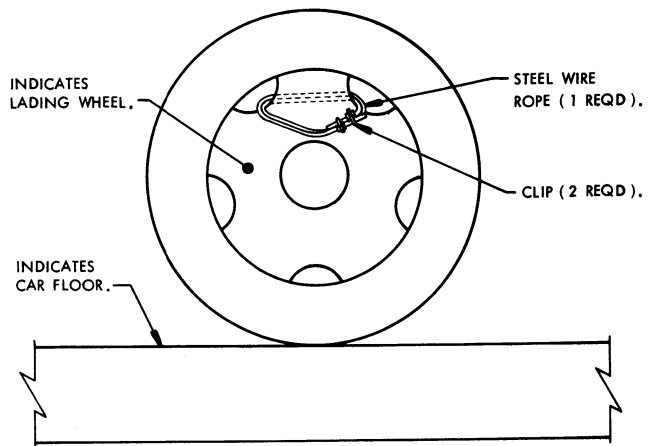
- STEEL WIRE ROPE: 3/8" DIA, 6.56 TONS ( 2 REQD ). INSTALL THE CABLE OVER PIECES MARKED ⑩ AND ⑪ ON TOP OF THE TRAILER AND SECURE WITH THREE ( 3 ) CLIPS, PIECE MARKED ⑦ , AT EACH END. SECURE TO LIFTING EYE WITH A CLIP, PIECE MARKED ⑬ . SEE "NOTE ④ " ON PAGE 7. NOTE: CABLE OF A LARGER SIZE MAY BE USED. SEE GENERAL NOTES "F" AND "G" ON PAGE 2.
- CLIP, SIZE 5/8" ( 4 REQD ). USE ONE ( 1 ) PER TRAILER LIFTING EYE.
- MOVABLE ANCHOR WITH CHAIN ASSEMBLY TIE DOWN DEVICE ( 4 REQD ). ATTACH CHAIN TO A CABLE LOOP IN THE END OF A PIECE MARKED ⑫ .
- TIE WIRE, NO. 14 GAGE WIRE 12" LONG ( 22 REQD ). PASS THRU AN OPENING IN A CHAIN LINK AND AROUND A HOOK TO FORM A COMPLETE LOOP. BRING ENDS TOGETHER AND TWIST TAUT.
- 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.

**NOTE ④ :**

AFTER THE "L" BLOCK, PIECE MARKED ⑩ , IS POSITIONED OVER THE LIFTING EYE, INSTALL AN EDGE PROTECTOR, PIECE MARKED ⑪ , AS SHOWN BY "DETAIL A" ON PAGE 3. POSITION CABLE, PIECE MARKED ⑫ , FROM ANCHOR AND CHAIN ASSEMBLY TIE DOWN DEVICE, OVER TRAILER, TO ANCHOR AND CHAIN ASSEMBLY TIE DOWN DEVICE ON THE OTHER SIDE OF THE CAR. AFTER THE CABLE, PIECE MARKED ⑫ , IS POSITIONED, AND PRIOR TO TENSIONING, ATTACH A 5/8" WIRE ROPE CLIP TO THE TRAILER LIFTING EYE AND PIECE MARKED ⑬ . AFTER THE CABLE HAS BEEN TENSIONED, TIGHTEN THE 5/8" CLIP. DO NOT TIGHTEN THESE CLIPS UNTIL CABLE HAS BEEN TENSIONED. THIS CLIP WILL PREVENT THE CABLE FROM BECOMING DISLODGED. CAUTION: CARE MUST BE EXERCISED WHEN TENSIONING THIS CABLE TO PREVENT DAMAGE TO THE TRAILER BODY, OR LOOSENING OF CHAIN TIE DOWN ASSEMBLIES MARKED ⑨ .

**LOAD AS SHOWN**

ITEM	QUANTITY	WEIGHT ( APPROX )
SHOP EQUIPMENT ( REMOTE CONTROL SYSTEM )	1	17,550 LBS
DUNNAGE		60 LBS
<b>TOTAL WEIGHT</b>		<b>17,610 LBS</b>



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)