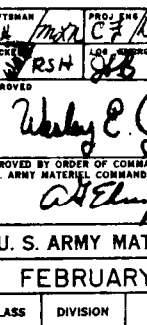



HAWK

LOADING AND BRACING ON EUROPEAN RAILCAR OF SHOP EQUIPMENT, GUIDED MISSILE, ORGANIZATIONAL MAINTENANCE, AN/MSM-43, TRAILER MOUNTED

DELINEATED LOADING AND BRACING PROCEDURES FOR THE TRAILER COMPLY WITH THE REQUIREMENTS OF APPENDIX C TO TM 55-601, AND THE PROCEDURES FOR THE OTHER ITEMS COMPLY WITH THE REGOLAMENTO INTERNAZIONALE VEICOLI (RIV): REGULATIONS GOVERNING THE RECIPROCAL USE OF WAGONS IN INTERNATIONALE TRAFFIC.

NOTICE: DEPICTED LOAD IS NOT OVERSIZE.

REVISIONS				DRAFTSMAN	PROJECT
				SMA	MMA CF/NEW
				CHECKED	LOC. OFFICE
				RS	RSH
				APPROVED	AMM-3P
				 Wesley C. Gilkland U. S. ARMY MISSILE COMMAND	
				APPROVED BY ORDER OF COMMANDING GENERAL U. S. ARMY MATERIEL COMMAND  U. S. ARMY MATERIEL COMMAND	
				FEBRUARY 1973 U. S. ARMY MATERIEL COMMAND	
				CLASS	DIVISION
				DRAWING	FILE
				19	48
				7804	GSE 5MA60

DO NOT SCALE

GENERAL NOTES

(GENERAL NOTES CONTINUED)

- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AR 740-1.
- B. THE OUTLOADING PROCEDURES SHOWN HEREIN ARE APPLICABLE TO EUROPEAN RAILCARS WHICH CONFORM TO THE RIV REQUIREMENTS.
- C. THE LOAD AS SHOWN IS BASED ON RIV RAILCARS (KBS 442/443 AND KLS 442/443) 41'-0-1/8" (12,500 MM) LONG BY 9'-1-3/64" (2,770 MM) WIDE WITH 18" (457 MM) CAR SIDES. ADDITIONAL UNITS OR OTHER ITEMS MAY BE LOADED ON THE CAR, WITH THE VIEW TOWARD FULL UTILIZATION OF CARRIER EQUIPMENT.
- D. LADING DATA:
 SHOP EQUIPMENT, AN/MSM-43, TRAILER MOUNTED.
 ITEM DIMENSIONS --- 14'-3" (4,343 MM) LONG BY 7'-10" (2,388 MM) WIDE BY 6'-11" (2,108 MM) HIGH.
 ITEM GROSS WEIGHT - 5,520 POUNDS (APPROX) (2,504 KG).
 BOX ① OF 2.
 ITEM DIMENSIONS --- 9'-6-1/4" (2,902 MM) LONG BY 13-1/2" (343 MM) WIDE BY 10" (254 MM) HIGH.
 ITEM GROSS WEIGHT - 200 POUNDS (APPROX) (91 KG).
 BOX ② OF 2.
 ITEM DIMENSIONS --- 31-1/4" (794 MM) LONG BY 29-3/4" (756 MM) WIDE BY 21-1/4" (540 MM) HIGH.
 ITEM GROSS WEIGHT - 100 POUNDS (APPROX) (45 KG).
- E. A LIST OF RAILCARS THAT MAY BE USED FOR SHIPMENTS OF THE DEPICTED LOAD IS SHOWN IN THE CHART ON THIS PAGE. OTHER TYPES OF RAILCARS CAN BE USED PROVIDING THESE OTHER CARS ARE PROPERLY EQUIPPED FOR THE APPLICATION OF THE PRESCRIBED LOAD-SECURING BLOCKING IN ACCORDANCE WITH THE SPECIFIED PROCEDURES. MINOR DEVIATIONS FROM THE LOCATIONS SHOWN IN THE LOAD VIEWS FOR INSTALLING BLOCKING AND TIE DOWN COMPONENTS ON A CAR ARE PERMITTED. HOWEVER, THE INTENT OF THE SPECIFIED BLOCKING PROCEDURES MUST BE ACHIEVED.
- F. REMOVE ALL POSTS FROM SIDE OF CAR AND PLACE IN RACKS UNDER CAR, IF APPLICABLE.
- G. THE NUMBER OF UNITS MAY BE ADJUSTED TO FIT THE RAILCAR CONCERNED, OR THE QUANTITY TO BE SHIPPED; HOWEVER, THE APPROVED METHODS CONTAINED HEREIN, FOR FULL OR PARTIAL CARLOAD, MUST BE FOLLOWED FOR BLOCKING, BRACING, AND STAYING OF THIS ITEM.
- H. **NOTICE:** A STAGGERED NAILING PATTERN WILL BE USED WHEREVER POSSIBLE WHEN NAILS ARE DRIVEN INTO JOINTS OF DUNNAGE ASSEMBLIES. ALSO, A STAGGERED NAILING PATTERN WILL BE USED WHEN DUNNAGE IS NAILED TO THE FLOOR OF THE RAILCAR, OR WHEN LAMINATING DUNNAGE. THE NAILING PATTERN WILL BE ADJUSTED AS REQUIRED SO THAT A NAIL DOES NOT PENETRATE INTO OR NEAR A CRACK BETWEEN FLOOR BOARDS. 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.
- J. NAILS USED FOR FLOOR LINE BLOCKING WILL HAVE A MINIMUM DIAMETER OF 5 MM. NAIL SIZES WILL BE SELECTED TO PROVIDE A MINIMUM OF 40 MM PENETRATION INTO THE CAR FLOOR. HOWEVER, THE LENGTH OF THE NAIL WILL BE SUCH THAT THE NAIL DOES NOT COMPLETELY PENETRATE THE CAR FLOOR. SEE THE "NAIL CHART" AND THE "TYPICAL NAILING OF FLOOR LINE BLOCKING TO CAR FLOOR" DETAIL ON PAGE 3. NAILS WHICH ARE OF OTHER SIZES OR WHICH HAVE A NOMENCLATURE DIFFERENT THAN THAT USED HEREIN, MAY ALSO BE USED PROVIDED THEY MEET THE MINIMUM REQUIREMENTS STIPULATED WITHIN THIS DOCUMENT.
- K. NAILS USED FOR FABRICATING DUNNAGE ASSEMBLIES SHALL BE OF THE MAXIMUM PRACTICAL LENGTH WHICH WILL PREVENT THE NAIL POINT FROM COMPLETELY PENETRATING THE DUNNAGE ASSEMBLY. THE NAIL POINT IS TO BE CONCEALED WITHIN THE DUNNAGE ASSEMBLY TO PREVENT DAMAGE TO THE LADING.

- L. STEEL WIRE USED FOR HOLD-DOWNS MUST HAVE A MINIMUM DIAMETER OF 3 MM. WHERE REQUIRED WITHIN THIS DOCUMENT, NO. 8 GAGE BLACK ANNEALED WIRE HAS BEEN SPECIFIED FOR WIRE HOLD-DOWNS. IF DESIRED, OR IF NO. 8 GAGE WIRE IS NOT AVAILABLE, WIRE OF A LARGER DIAMETER, OR 3/8" (OR LARGER) STEEL WIRE ROPE, MAY BE SUBSTITUTED.
- M. **CAUTION:** DURING WIRE ROPE INSTALLATION AVOID ALL CONTACT WITH ELECTRICAL WIRING, VEHICLE CONTROLS AND OTHER APPURTENANCES.
- N. THREE-EIGHTS INCH (3/8") STEEL WIRE ROPE IS SPECIFIED WHERE REQUIRED FOR TIEDOWNS TO SECURE THE ITEM. IF DESIRED, OR IF 3/8" STEEL WIRE ROPE IS NOT AVAILABLE, STEEL WIRE ROPE OF A LARGER DIAMETER MAY BE USED. 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.
- O. ALL HAND BRAKES MUST BE "SET" WITH THE HAND LEVERS WIRE TIED OR BLOCKED, AND TIRES WILL BE INFLATED TO 10 PSI ABOVE REGULAR OPERATING PRESSURE.
- P. WHEN ANY STRAP IS SEALED AT AN END-OVER-END LAP JOINT, A MINIMUM OF TWO (2) PAIR OF CRIMPS PER SEAL MUST BE USED.
- Q. THE PROCEDURES DEPICTED WITHIN THIS DRAWING ARE BASED ON THE USE OF DIMENSIONAL SIZED LUMBER. IN MOST CASES THE METRIC EQUIVALENT IS GIVEN IN PARENTHESIS FOLLOWING THE DIMENSION. HOWEVER, WHERE THE METRIC EQUIVALENT IS NOT SHOWN, IT MAY BE COMPUTED BY USING 1" EQUALS 25.4 MM. METRIC EQUIVALENTS FOR WEIGHTS ARE BASED ON 1 LB EQUALS 0.454 KG. METRIC EQUIVALENTS FOR TORQUE ARE BASED ON 1 FOOT-POUND EQUALS 0.7376 NEWTON-METERS.
- R. SOME STEEL STRAPPING DEPICTED IN THIS DRAWING HAS BEEN SPECIFIED AS 1-1/4" (32 MM) X .035" (.889 MM). HOWEVER, .031" (.787 MM) THICK STRAP MAY BE USED IN LIEU OF .035" THICK STRAP.

(GENERAL NOTES CONTINUED AT RIGHT)

MATERIAL SPECIFICATIONS

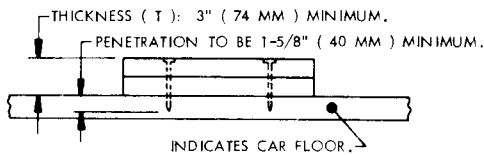
- LUMBER** ----- : DOUGLAS FIR OR COMPARABLE LUMBER WITH STRAIGHT GRAIN AND FREE FROM MATERIAL DEFECTS. REF: FED SPEC MM-L-751.
- NAILS** ----- : COMMON, CEMENT COATED OR CHEMICALLY ETCHED. REF: FED SPEC FF-N-105. ALT: ANNULAR-RING TYPE NAIL OF THE SAME SIZE.
- WIRE** ----- : ANNEALED, BLACK. REF: FED SPEC QQ-W-461.
- ROPE** ----- : STEEL WIRE, PLAIN, PREFORMED, REGULAR LAY. REF: FED SPEC RR-W-410.
- CLIP** ----- : "U" BOLT, CROSSBY, HEAVY DUTY (OR EQUAL) REF: FED SPEC FF-C-450, TYPE I, CLASS 1.
- ANTI-CHAFING MATERIAL** --- NEUTRAL BARRIER MATERIAL, MIL-B-121 (OR EQUAL).
- THIMBLE** ----- : COMMERCIAL GRADE.
- STRAP ANCHOR PLATE** ---- : NSN 5340-00-252-3015 (FORMERLY FSN 5340-252-3015).
- STRAP SEAL** ----- : TYPE D, STYLE I, II, OR IV, CLASS H, FED SPEC QQ-5-781.
- STRAPPING, STEEL** ----- : CLASS 1, TYPE I OR IV, HEAVY DUTY FINISH A OR B (GRADE 2), FOR 1-1/4" STRAPPING AND FINISH A, B (GRADE 2), OR C FOR 2" STRAPPING; FED SPEC QQ-5-781.

LIST OF RAILCARS THAT MAY BE USED FOR SHIPMENTS

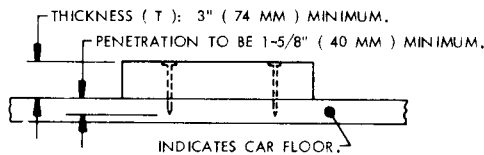
TYPE OF RAILCAR	LENGTH OF RAILCAR	NO. OF ITEMS	MAXIMUM TOTAL WEIGHT (APPROX) OF ITEMS
KLMS 440	34'-11-11/16" (10,660 MM)	2	11,040 LBS (5,008 KG)
KLM 505	30'-4-9/16" (9,260 MM)	1	5,520 LBS (2,504 KG)
KLM 506	34'-8-1/2" (10,580 MM)	2	11,040 LBS (5,008 KG)
KBS 442/443	41'-0-1/8" (12,500 MM)	2	11,040 LBS (5,008 KG)
KLS 442/443	41'-0-1/8" (12,500 MM)	2	11,040 LBS (5,008 KG)
RMMS 663/664	41'-5-51/64" (12,644 MM)	2	11,040 LBS (5,008 KG)
RS 680/681	60'-8-23/64" (18,500 MM)	3	16,560 LBS (7,512 KG)
RS 683/684	60'-8-23/64" (18,500 MM)	3	16,560 LBS (7,512 KG)
SAS 710	49'-2-9/16" (15,000 MM)	3	16,560 LBS (7,512 KG)

REVISIONS

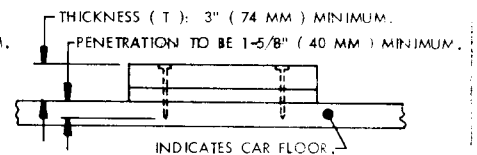
- REVISION NO. 1, DATED FEB 1976, CONSISTS OF:
- 1. UPDATING THE DRAWING FORMAT.
- 2. UPDATING THE GENERAL NOTES.



DOUBLED 2' X 6' LUMBER SHOWN



4' X 6' LUMBER SHOWN



MIXED THICKNESSES OF LUMBER SHOWN

TYPICAL NAILING OF FLOOR LINE BLOCKING TO CAR FLOOR

SPECIAL NOTES:

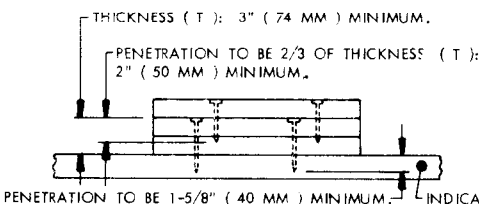
1. THE DETAILS ON THIS PAGE DEPICT POSSIBLE VARIATIONS THAT MAY RESULT FROM USING AVAILABLE LUMBER FOR FLOOR LINE BLOCKING. KEY NUMBERS THROUGHOUT THIS DOCUMENT SPECIFY DOUBLED OR TRIPLED PIECES OF LUMBER WHICH ARE 2" X 6" IN SIZE FOR HEADERS, BACK-UP CLEATS, AND SIDE-BLOCKING AS TYPICALLY SHOWN IN DETAIL A ABOVE AND DETAIL D BELOW. IT IS PERMISSIBLE TO USE 4" X 6" LUMBER, OR MIXED THICKNESSES OF LUMBER, AS TYPICALLY SHOWN IN DETAILS B AND C, IN LIEU OF THE SPECIFIED DOUBLED 2" X 6" LUMBER. WHERE TRIPLED 2" X 6" LUMBER IS SPECIFIED, AS TYPICALLY SHOWN IN DETAIL D BELOW, IT IS PERMISSIBLE TO USE MIXED THICKNESSES OF LUMBER AS TYPICALLY SHOWN IN DETAILS E AND F, IN LIEU OF THE SPECIFIED TRIPLED 2" X 6" LUMBER. THE INTENT OF THE SPECIFIED BLOCKING PROCEDURE MUST BE OBTAINED.
2. THE NUMBER OF NAILS USED TO SECURE EACH PIECE OF BLOCKING WILL BE AS SPECIFIED IN THE KEY NUMBERS FOR EACH SPECIFIC PROCEDURE. THE LENGTH OF THE NAILS SELECTED WILL BE ADEQUATE TO NAIL THROUGH THE BLOCKING AND ACHIEVE THE PENETRATION OF THE CAR FLOOR AS SPECIFIED. WHEN NAILING FLOOR LINE BLOCKING TO THE CAR FLOOR, AS DEPICTED IN DETAILS A, B, AND C, THE FOLLOWING APPLIES:

THICKNESS (T) OF BLOCKING		SIZE OF NAIL
MINIMUM	MAXIMUM	
3" (74 MM)	3" (74 MM)	30d (4-1/2") (114 MM)
3" (74 MM)	3-3/8" (87 MM)	40d (5") (127 MM)
3-3/8" (87 MM)	4" (100 MM)	50d (5-1/2") (140 MM)
4" (100 MM)	4-3/8" (112 MM)	60d (6") (152 MM)

3. WHEN NAILING AN ADDITIONAL LAMINATION TO FLOOR LINE BLOCKING, THE LENGTH OF THE NAIL WILL BE ADEQUATE TO PENETRATE THE ADDITIONAL LAMINATION AND PROVIDE THE PENETRATION OF THE FLOOR LINE BLOCKING AS SPECIFIED IN DETAILS D, E, AND F.
4. WHEN NAILING WHEEL BLOCKS TO THE CAR FLOOR, THE NAILING SHALL COMPLY WITH THE PENETRATION REQUIREMENTS, AS TYPICALLY SHOWN ON THIS PAGE AND AS SPECIFIED IN GENERAL NOTE "J" ON PAGE 2.

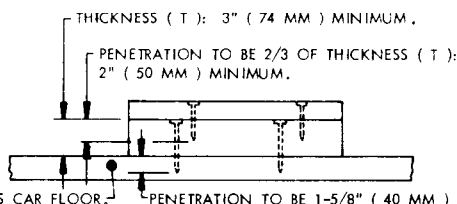
NAIL CHART		
SIZE	LENGTH	DIAMETER
10d	3" (76 MM)	0.1483" (3.77 MM)
12d	3-1/4" (84 MM)	0.1483" (3.77 MM)
16d	3-1/2" (83 MM)	0.1620" (4.11 MM)
20d	4" (102 MM)	0.1920" (4.88 MM)
30d **	4-1/2" (114 MM)	0.2070" (5.26 MM)
40d **	5" (127 MM)	0.2253" (5.72 MM)
50d **	5-1/2" (140 MM)	0.2437" (6.19 MM)
60d **	6" (152 MM)	0.2625" (6.67 MM)

** NAILS WHICH HAVE ADEQUATE DIAMETER FOR NAILING FLOOR LINE BLOCKING. THE LENGTH OF THE NAIL MUST MEET THE REQUIREMENTS OF GENERAL NOTE "J" ON PAGE 2.



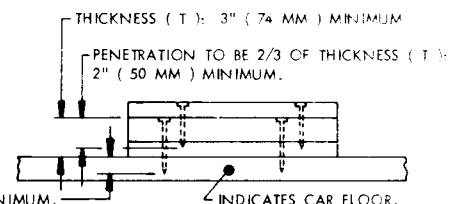
TRIPLED 2' X 6' LUMBER SHOWN

DETAIL D



2' X 6' AND 4' X 6' LUMBER SHOWN

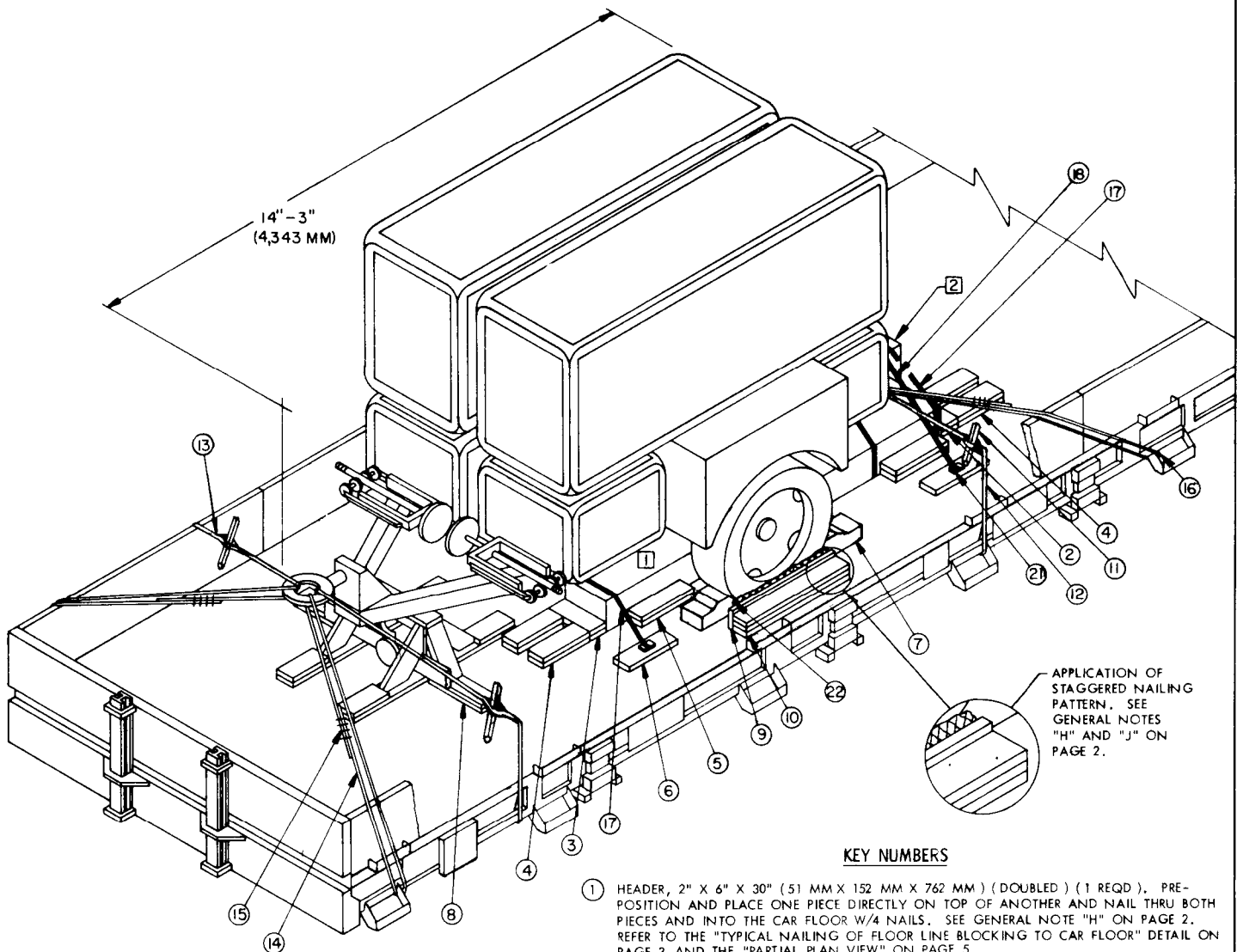
DETAIL E



MIXED THICKNESSES OF LUMBER SHOWN

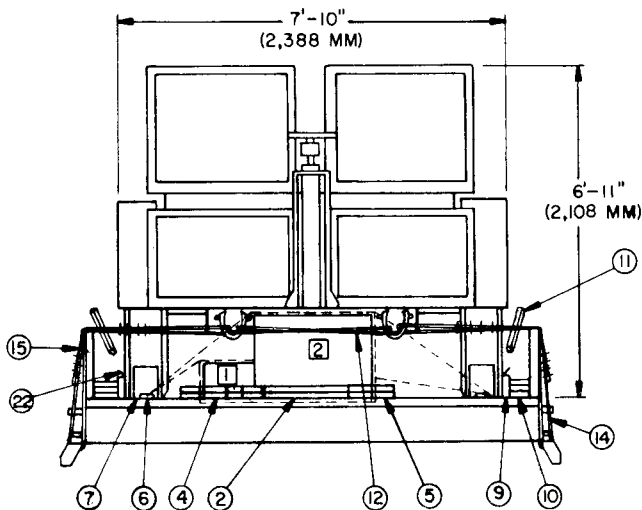
DETAIL F

TYPICAL NAILING OF ADDITIONAL LAMINATIONS TO FLOOR LINE BLOCKING



ISOMETRIC VIEW

NOTE: ACCESSORY ITEMS, BOXES 11 AND 12 WILL BE PRE-POSITIONED AND BLOCKED PRIOR TO LOADING THE TRAILER-MOUNTED SHOP EQUIPMENT.



REAR VIEW

KEY NUMBERS

- 1 HEADER, 2" X 6" X 30" (51 MM X 152 MM X 762 MM) (DOUBLED) (1 REQD). PRE-POSITION AND PLACE ONE PIECE DIRECTLY ON TOP OF ANOTHER AND NAIL THRU BOTH PIECES AND INTO THE CAR FLOOR W/4 NAILS. SEE GENERAL NOTE "H" ON PAGE 2. REFER TO THE "TYPICAL NAILING OF FLOOR LINE BLOCKING TO CAR FLOOR" DETAIL ON PAGE 3 AND THE "PARTIAL PLAN VIEW" ON PAGE 5.
- 2 HEADER, 2" X 6" X 44" (51 MM X 152 MM X 1,118 MM) (DOUBLED) (1 REQD). PLACE ONE PIECE DIRECTLY ON TOP OF ANOTHER AND NAIL THRU BOTH PIECES AND INTO THE CAR FLOOR W/5 NAILS.
- 3 HEADER, 2" X 6" X 14" (51 MM X 152 MM X 356 MM) (DOUBLED) (1 REQD). PRE-POSITION AND PLACE ONE PIECE DIRECTLY ON TOP OF ANOTHER AND NAIL THRU BOTH PIECES AND INTO THE CAR FLOOR W/3 NAILS.
- 4 BACK-UP CLEAT, 2" X 6" X 18" (51 MM X 152 MM X 457 MM) (DOUBLED) (7 REQD). PRE-POSITION THOSE BACK-UP CLEATS THAT LIE UNDER THE TRAILER BODY. PLACE ONE PIECE DIRECTLY ON TOP OF ANOTHER AND NAIL THRU BOTH PIECES AND INTO THE CAR FLOOR W/5 NAILS.
- 5 SIDE BLOCKING, 2" X 6" X 18" (51 MM X 152 MM X 457 MM) (DOUBLED) (4 REQD). PRE-POSITION THOSE SIDE BLOCKING PIECES THAT LIE UNDER THE TRAILER BODY. PLACE ONE PIECE DIRECTLY ON TOP OF ANOTHER AND NAIL THRU BOTH PIECES AND INTO THE CAR FLOOR W/3 NAILS.
- 6 CLEAT, 2" X 6" X 18" (51 MM X 152 MM X 457 MM) (4 REQD). NAIL TO THE CAR FLOOR W/4 NAILS. NOTE: NOT REQUIRED IF FLOOR OF CAR IS "SOUND".
- 7 WHEEL BLOCK (4 REQD). LOCATE THE 35° END OF A BLOCK AGAINST A WHEEL. NAIL THRU THE NAILING SHOULDER W/6 NAILS. SEE GENERAL NOTE "J" ON PAGE 2 AND THE "WHEEL BLOCK" DETAIL ON PAGE 5.
- 8 FORWARD BLOCKING (1 REQD). SEE THE "STANCHION" DETAIL ON PAGE 6. SEE GENERAL NOTES "H", "J" AND "K" ON PAGE 2. REFER TO THE "TYPICAL NAILING OF FLOOR LINE BLOCKING TO CAR FLOOR" DETAIL ON PAGE 3.
- 9 RUBBING STRIP, 2" X 6" X 36" (51 MM X 152 MM X 914 MM) (2 REQD). POSITION ON EDGE AND NAIL TO LOWER PIECE MARKED 13 W/5 NAILS.
- 10 SIDE BLOCKING, 2" X 6" X 36" (51 MM X 152 MM X 914 MM) (TRIPLED) (2 REQD). PLACE THE SECOND PIECE DIRECTLY ON TOP OF THE FIRST AND NAIL THRU BOTH PIECES AND INTO THE CAR FLOOR W/5 NAILS. PLACE THE THIRD PIECE DIRECTLY ON TOP OF THE FIRST TWO PIECES AND NAIL THRU PIECE THREE INTO PIECES ONE AND TWO W/5 NAILS. SEE SPECIAL NOTE 3 ON PAGE 5.

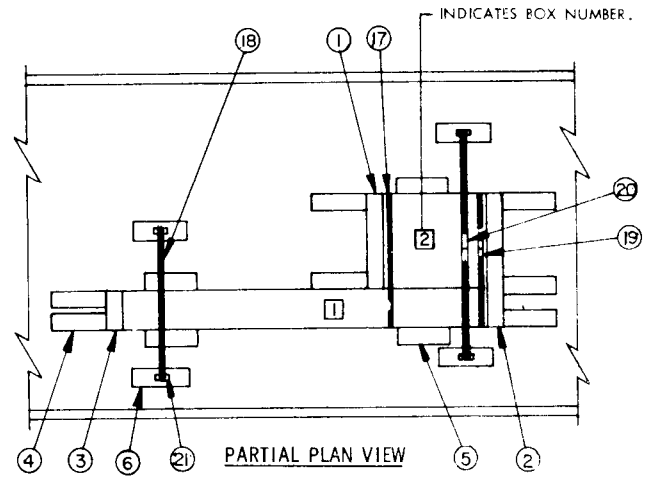
(KEY NUMBERS CONTINUED ON PAGE 5)

SPECIAL NOTES:

1. A ONE UNIT LOAD IS SHOWN ON A 9'-1-3/64" (2,770 MM) WIDE EUROPEAN RAILCAR. SEE GENERAL NOTE "E" ON PAGE 2 AND SPECIAL NOTE 3 BELOW.
2. STEEL WIRE ROPE WILL PASS THRU A RAILCAR TIEDOWN FACILITY, THROUGH AN ANCHOR ON THE LADING AS SHOWN, AND BACK TOWARD THE RAILCAR TIEDOWN FACILITY TO FORM A COMPLETE LOOP. FOUR CLIPS WILL BE USED TO SECURE EACH CABLE JOINT. SEE THE "CABLE JOINT" DETAIL ON PAGE 6. TENSIONING OF THE STEEL WIRE ROPE CAN BE ACCOMPLISHED BY EMPLOYING TWO CABLE GRIPPERS ON AN APPLICABLE SIZED COME-A-LONG TYPE MECHANICAL HOIST. THE STEEL WIRE ROPE SHALL BE TENSIONED SUFFICIENTLY SO AS TO BE TAUT, BUT NOT SO MUCH AS TO DAMAGE THE ANCHOR. THE NUTS ON THE CABLE CLIPS SHALL BE TIGHTENED TO A TORQUE OF APPROXIMATELY 40 FOOT-POUNDS. A PROPER TORQUE CAN BE ACHIEVED BY USING A WRENCH WHICH HAS A HANDLE THAT IS AT LEAST 12" LONG. PROVIDE A THIMBLE OR OTHER SUITABLE PROTECTION AT ANY POINT WHERE THE WIRE ROPE PASSES AROUND A SHARP CORNER. SECURE EACH THIMBLE WITH AN ADDITIONAL CLIP OR BY EQUIVALENT MEANS. WHEN USING A STEEL WIRE ROPE WHICH IS LARGER THAN 3/8", THE NUTS ON THE CABLE CLIPS SHALL BE TIGHTENED TO A TORQUE OF AT LEAST 60 FOOT-POUNDS. A WRENCH WHICH HAS A HANDLE THAT IS AT LEAST 15" LONG MAY BE USED TO OBTAIN THE 60 FOOT-POUND TORQUE. SEE GENERAL NOTE "Q" ON PAGE 2.
3. NARROWER CARS CAN BE USED FOR SHIPMENT OF THIS ITEM. THE TRIPLED SIDE BLOCKING PIECES AND RUBBING STRIPS MUST BE PRE-POSITIONED AND NAILED PRIOR TO LOADING THE TRAILER MOUNTED RADAR. THE ITEM WILL BE FIELD CHECKED AND THE SIDE BLOCKING MATERIAL, MARKED AS KEY NUMBERS ⑨, ⑩, AND ⑫, WILL BE POSITIONED SO AS TO BEAR AGAINST THE INSIDE SURFACE OF THE TIRES OF THE TRAILER.

(KEY NUMBERS CONTINUED FROM RIGHT)

- ⑮ CLIP, SIZE 3/8" (24 REQD). USE FOUR (4) PER CABLE JOINT AND ONE (1) PER THIMBLE. SEE SPECIAL NOTE 2 ON THIS PAGE.
- ⑯ THIMBLE, STANDARD, SIZE 3/8" (8 REQD). USE ONE (1) PER RAILCAR TIEDOWN FACILITY AND ONE (1) PER LADING TIEDOWN DEVICE. SECURE TO WIRE ROPE MARKED ⑭ W/1 CLIP PER THIMBLE. SEE SPECIAL NOTE 2 ON THIS PAGE.
- ⑰ UNITIZING STRAP, 1-1/4" X .035" X 12'-0" (32 MM X .889 MM X 3,658 MM) LONG STEEL STRAPPING (2 REQD). INSTALL SO AS TO ENIRCLE BOTH BOXES AS SHOWN.
- ⑱ HOLD-DOWN STRAP, 2" X .050" X 15'-0" (51 MM X 1.27 MM X 4,572 MM) LONG STEEL STRAPPING (2 REQD). INSTALL IN TWC (2) 7'-6" (2,286 MM) LONG PIECES. THREAD STRAP THRU STRAP ANCHOR PLATE AND FASTEN ANCHOR PLATES TO PIECE MARKED ⑮. BRING ENDS OF STRAP UP OVER THE BOXES AND SEAL W/2 SEALS. SEE THE "APPLICATION OF STRAPPING TO STRAP ANCHOR PLATE" DETAIL ON PAGE 6. SEE GENERAL NOTE "P" ON PAGE 2.
- ⑲ SEAL FOR 1-1/4" STRAPPING (4 REQD, 2 PER STRAP).
- ⑳ SEAL FOR 2" STRAPPING (4 REQD, 2 PER STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "P" ON PAGE 2.
- ㉑ STRAP ANCHOR PLATE, 6" (152 MM) LONG BY 3" (76 MM) WIDE BY 1/8" (3.2 MM) THICK. NAIL TO THE CLEAT, PIECE MARKED ⑮, W/8-SIGNODE MICROLOCK 2-1/4" (57 MM) NAILS (OR EQUAL). SEE PAGE 6 FOR "APPLICATION OF STRAPPING TO STRAP ANCHOR PLATE" DETAIL.
- ㉒ WATERPROOF PAPER OR BURLAP OF A SUFFICIENT SIZE TO POSITION UNDER AND EXTEND 2" (51 MM) ABOVE PIECE MARKED ⑨.

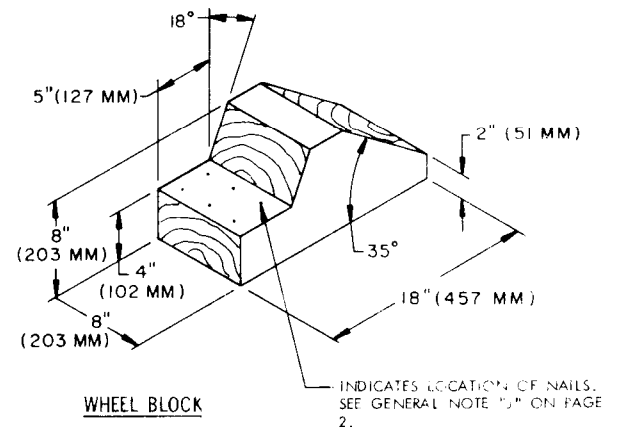


SECUREMENT OF BOX ① OF 2, AND ② OF 2 ARE SHOWN, THE BASIC ITEM, SHOP EQUIPMENT, AN/MSM-43, TRAILER MOUNTED, HAS BEEN OMITTED FOR CLARITY PURPOSES.

BOXES ① AND ② SHALL BE SECURED TO THE TRANSPORTING VEHICLE PRIOR TO LOADING AND BRACING THE TRAILER.

(KEY NUMBERS CONTINUED)

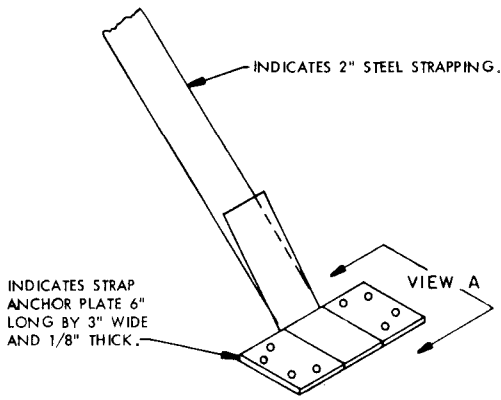
- ⑪ WIRE TWISTER, 2" X 2" (51 MM X 51 MM) BY LENGTH TO SUIT (4 REQD).
- ⑫ SIX (6) STRANDS OF NO. 8 GAGE BLACK ANNEALED WIRE (2 REQD). INSTALL WIRE TO FORM A COMPLETE LOOP FROM A LADING TIEDOWN DEVICE ON ONE SIDE TO A RAILCAR TIEDOWN FACILITY ON THE OPPOSITE SIDE. TWIST TAUT WITH PIECE MARKED ⑪. SEE GENERAL NOTE "L" ON PAGE 2.
- ⑬ SIX (6) STRANDS OF NO. 8 GAGE BLACK ANNEALED WIRE (2 REQD). PASS THRU THE LADING LUNETTE AND A RAILCAR TIEDOWN FACILITY TO FORM A COMPLETE LOOP. TWIST TAUT WITH PIECE MARKED ⑪. SEE GENERAL NOTE "L" ON PAGE 2.
- ⑭ STEEL WIRE ROPE, 3/8" (9,525 MM) DIAMETER, 6.56 TONS (5,938 KG) (4 REQD). INSTALL CABLE AS SHOWN TO FORM A COMPLETE LOOP FROM A TIEDOWN FACILITY ON THE RAILCAR THRU THE LADING TIEDOWN DEVICE AND BACK TO THE RAILCAR TIEDOWN FACILITY. SEE GENERAL NOTES "M" AND "N" ON PAGE 2, AND SPECIAL NOTE 2 ON THIS PAGE.



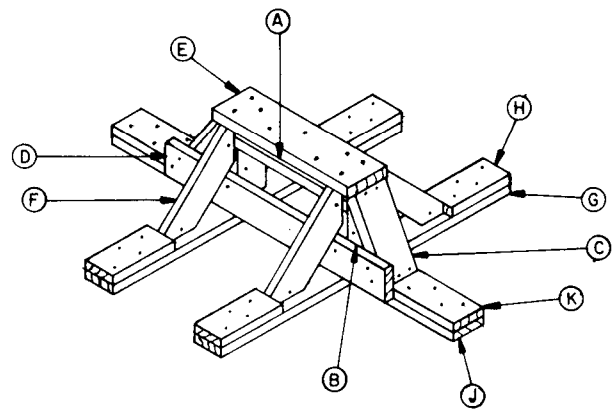
LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
SHOP EQUIPMENT,		
AN/MSM-43	1	5,520 LBS (2,504 KG)
BOX ① OF 2	1	200 LBS (91 KG)
BOX ② OF 2	1	100 LBS (45 KG)
DUNNAGE		412 LBS (187 KG)
TOTAL WEIGHT		6,232 LBS (2,827 KG)

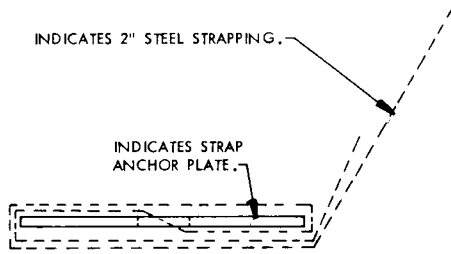
BILL OF MATERIAL		
LUMBER	LENGTH	BOARD FEET
2" X 2" (51 MM X 51 MM)	6 FT (1,829 MM)	2
2" X 4" (51 MM X 102 MM)	4 FT (1,219 MM)	3
2" X 6" (51 MM X 152 MM)	117 FT (35,662 MM)	117
2" X 8" (51 MM X 203 MM)	3 FT (914 MM)	4
8" X 8" (203 MM X 203 MM)	6 FT (1,829 MM)	32
NAILS	NO. REQD	WEIGHT
SIZE AS REQD	272	14 LBS
ROPE, STEEL WIRE, 3/8" DIA	50' REQD	13 LBS
CLIP, 3/8"	24 REQD	6 LBS
THIMBLE, STANDARD, 3/8"	8 REQD	1 LB
STEEL STRAPPING, 1-1/4" X .035"	24' REQD	4 LBS
STEEL STRAPPING, 2" X .050"	30' REQD	10 LBS
SEAL FOR 1-1/4" STRAPPING	4 REQD	NIL
SEAL FOR 2" STRAPPING	4 REQD	NIL
STRAP ANCHOR PLATE	4 REQD	2 LBS
MICROLOCK NAILS, 2-1/4"	32 REQD	NIL
WIRE, NO. 8 GAGE (3 MM DIA)	100' REQD	9 LBS
WATERPROOF PAPER OR BURLAP	AS REQD	NIL



ISOMETRIC VIEW

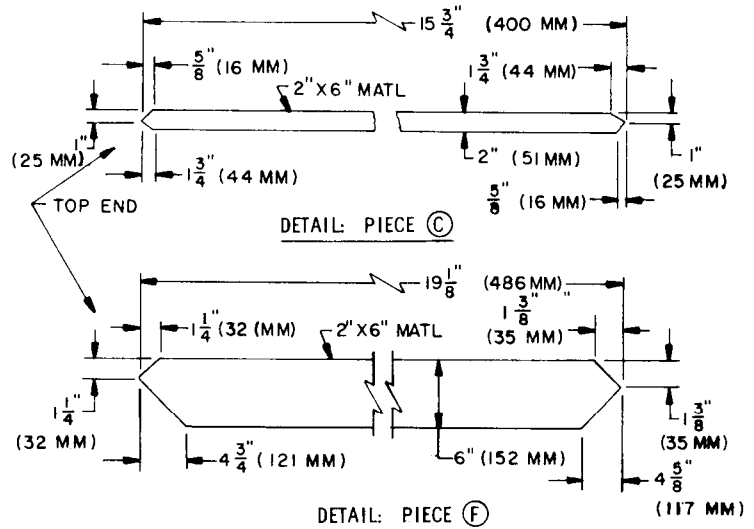


STANCHION



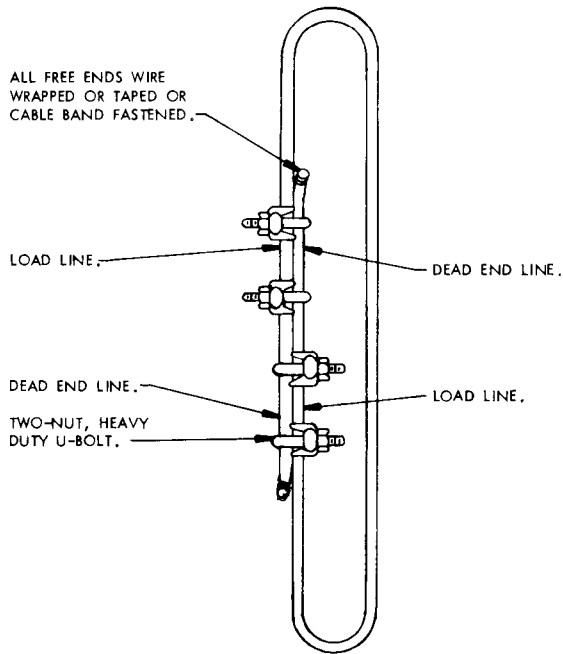
VIEW A

APPLICATION OF STRAPPING TO STRAP ANCHOR PLATE



KEY LETTERS

- (A) 2" X 6" X 24" (51 MM X 152 MM X 686 MM) (DOUBLED) (1 REQD). LAMINATE W/5 NAILS.
- (B) 2" X 6" X 9-5/8" (51 MM X 152 MM X 244 MM) (DOUBLED) (2 REQD). LAMINATE W/2 NAILS. CENTER ON (C) AND TOENAIL TO (A) AND (C) W/6 NAILS AT EACH END.
- (C) 2" X 6" X 15-3/4" (51 MM X 152 MM X 400 MM) (2 REQD). DOUBLE BEVEL EACH END AS PER "DETAIL: PIECE (C)". NAIL TO (A) AND (J) W/2 NAILS EACH AFTER ASSEMBLY ((A) THRU (G)) HAS BEEN LOCATED ON TRANSPORTING VEHICLE AND (J) HAS BEEN NAILED TO THE CAR FLOOR.
- (D) 2" X 4" X 42" (51 MM X 102 MM X 1,067 MM) (1 REQD). NAIL TO EACH (C) W/2 NAILS AND TO EACH LAMINATION OF (B) W/1 NAIL.
- (E) 2" X 8" X 27" (51 MM X 203 MM X 696 MM) (1 REQD). NAIL TO (A) W/5 NAILS AND TO EACH LAMINATION OF (F) W/1 NAIL.
- (F) 2" X 6" X 19-1/8" (51 MM X 152 MM X 486 MM) (4 REQD). DOUBLE BEVEL EACH END AS PER "DETAIL: PIECE (F)". TOE NAIL TO (A) AND (C) W/2 NAILS/EACH.
- (G) 2" X 6" X 56" (51 MM X 152 MM X 1,800 MM) (2 REQD). LOCATE BLOCKING ASSEMBLY ((A) THRU (C)) UNDER ITEM AND NAIL TO FLOOR OF TRANSPORTING VEHICLE W/2 NAILS NEAR (A) AND W/2 NAILS NEAR EACH END.
- (H) 2" X 6" X 12" (51 MM X 152 MM X 305 MM) (4 REQD). POSITION AGAINST (F) AND NAIL TO (C) W/4 NAILS.
- (J) 2" X 6" X 18" (51 MM X 152 MM X 457 MM) (2 REQD). POSITION UNDER (C) AS SHOWN AND NAIL TO THE CAR FLOOR W/3 NAILS.
- (K) 2" X 6" X 12" (51 MM X 152 MM X 457 MM) (2 REQD). POSITION AGAINST (C) AND NAIL TO (J) W/4 NAILS.



CABLE JOINT

PROPER TIGHTENING OF THE WIRE ROPE CLIP NUTS CAN BE ACCOMPLISHED BY UTILIZING A PROPER SIZED TORQUE WRENCH. AFTER THE NUTS HAVE BEEN INITIALLY TIGHTENED, THE "U" SIDE OF EACH CLIP MUST BE STRUCK SEVERAL TIMES WITH A HAMMER TO INSURE PROPER SEATING INTO THE DEAD END LINE. FINAL TORQUE WILL BE ACQUIRED BY REPEATEDLY AND ALTERNATELY TIGHTENING EACH CLIP NUT.