

APPROVED BY
 MECH DIV AAR, THEIR LETTER
 DATED 30 OCT 69 FILE LR 11.0
 SIGNED *[Signature]*
 DATE 7 NOV 1969
 TEA, MTMTS, FORT EUSTIS, VA.

NIKE-HERCULES

LOADING AND BRACING ON FLAT CAR OF LAUNCHER, MONORAIL, GUIDED MISSILE, M36E1

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			U. S. ARMY MATERIEL COMMAND
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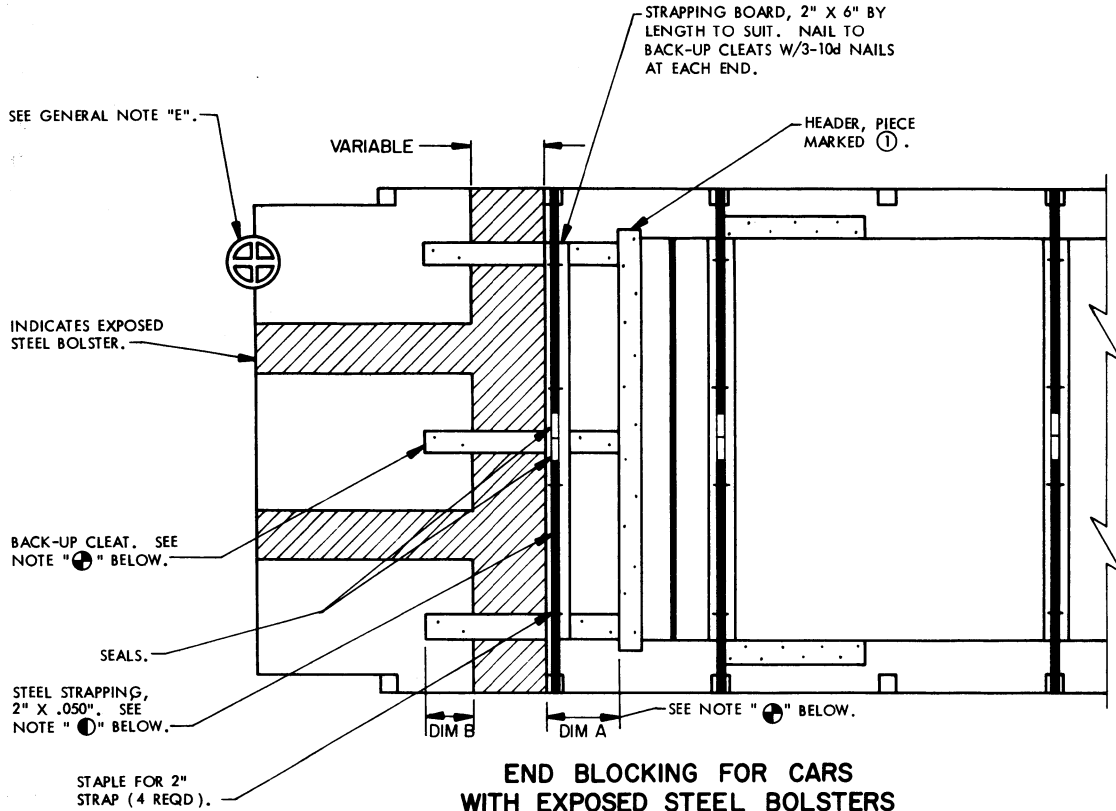
DO NOT SCALE

GENERAL NOTES

- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AMCR 740-13.
- B. THE LOAD AS SHOWN ON PAGE 4 IS BASED ON A 60'-0" LONG BY 10'-6" WIDE (PLATFORM) FLAT CAR. CARS 10'-0" WIDE MAY BE USED. SHORTER CARS CANNOT BE USED FOR THE SHIPMENT OF THE DEPICTED LOAD.
- C. THE LOADS AS SHOWN ON PAGES 5 AND 6 ARE BASED ON A 40'-6" LONG BY 10'-6" WIDE (PLATFORM) FLAT CAR. CARS 10'-0" WIDE MAY BE USED. LONGER CARS SHOULD NOT BE ORDERED FOR THE SHIPMENT OF THE DEPICTED LOADS. HOWEVER, MULTIPLES OF UNITS DISSIMILAR IN NATURE MAY BE LOADED ON A CAR. THE NUMBER OF UNITS TO BE LOADED ON A CAR 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.
- D. LADING DATA (CRATED):
ITEM DIMENSIONS ----- 23'-5" LONG X 8'-4-1/4" WIDE X 51-1/4" HIGH.
ITEM GROSS WEIGHT ----- 14,900 POUNDS (APPROX).
- LADING DATA (UNCRATED; SKID-MOUNTED):
ITEM DIMENSIONS ----- 23'-5" LONG X 8'-3-1/4" WIDE X 44-1/2" HIGH.
ITEM GROSS WEIGHT ----- 12,674 POUNDS (APPROX).
- E. REFER TO ASSOCIATION OF AMERICAN RAILROADS MANUAL, "GENERAL RULES GOVERNING THE LOADING OF COMMODITIES ON OPEN TOP CARS", FOR APPLICABLE LOADING RULES: PREFACE, 1-A, 2, 3, 4, 5, 9, 14 AND 15.
- F. ONLY CARS WITH "SOUND" FLOORS WILL BE USED. CARS WITH STEEL FLOOR ENDS AND/OR EXPOSED STEEL BOLSTERS WHICH INTERFERE WITH PROPER POSITIONING OR NAILING OF THE DUNNAGE WILL NOT BE USED. SEE "END BLOCKING FOR CARS WITH EXPOSED STEEL BOLSTERS" DETAIL ON PAGE 3 FOR APPLICATION-OF-DUNNAGE METHODS WHICH PERMIT THE USE OF SOME CARS THAT HAVE EXPOSED STEEL COMPONENTS.
- G. WHEN STEEL STRAPPING IS SEALED AT AN END-OVER-END LAP JOINT, OR AS SHOWN IN "DETAIL A" AND "DETAIL B" ON PAGE 3, A MINIMUM OF TWO (2) SEALS, BUTTED TOGETHER, WITH TWO (2) PAIR OF CRIMPS PER SEAL MUST BE USED TO SEAL THE JOINT.
- H. CAUTION: STAKE POCKETS WILL BE USED FOR ANCHORING TIEDOWN STRAPPING WHENEVER POSSIBLE. DO NOT USE SWIVEL RING TYPE ANCHOR DEVICES. IF OTHER TYPES ARE USED, THEY MUST BE OF SUFFICIENT WIDTH TO RECEIVE 2" STRAPPING, AND ALSO BE OF A DESIGN WHICH WILL PROVIDE A BEARING SURFACE ACROSS THE FULL WIDTH OF THE STRAPPING THAT WILL NOT DEFORM A STRAP, ESPECIALLY AT THE EDGES, WHEN IT IS TENSIONED.
- J. THE WORDS "ANTI-SKID PLATE" WILL BE STENCILED IN ONE INCH (1") HIGH LETTERS ON BOTH SIDES OF A CRATE JUST ABOVE THE LOCATIONS OF THE PLATES.
- K. 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.
- 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.

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.
- STRAPPING, STEEL ----- : TYPE I OR IV, CLASS A OR C. REF: FED SPEC QQ-S-781.
(FOR FSN SEE SB-38-100).
- STRAP SEAL; STRAP STAPLE;
ANTI-SKID PLATE; STAKE
POCKET PROTECTOR ----- : COMMERCIAL GRADE.

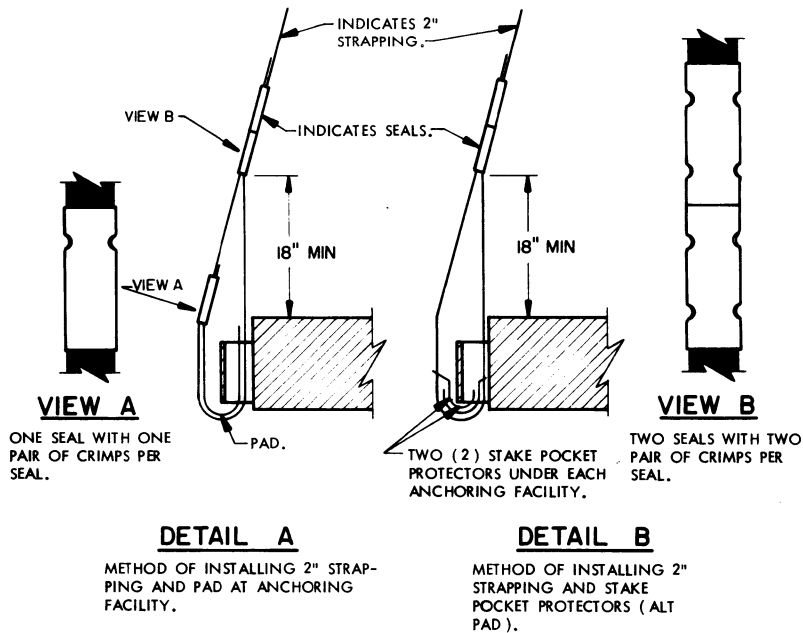


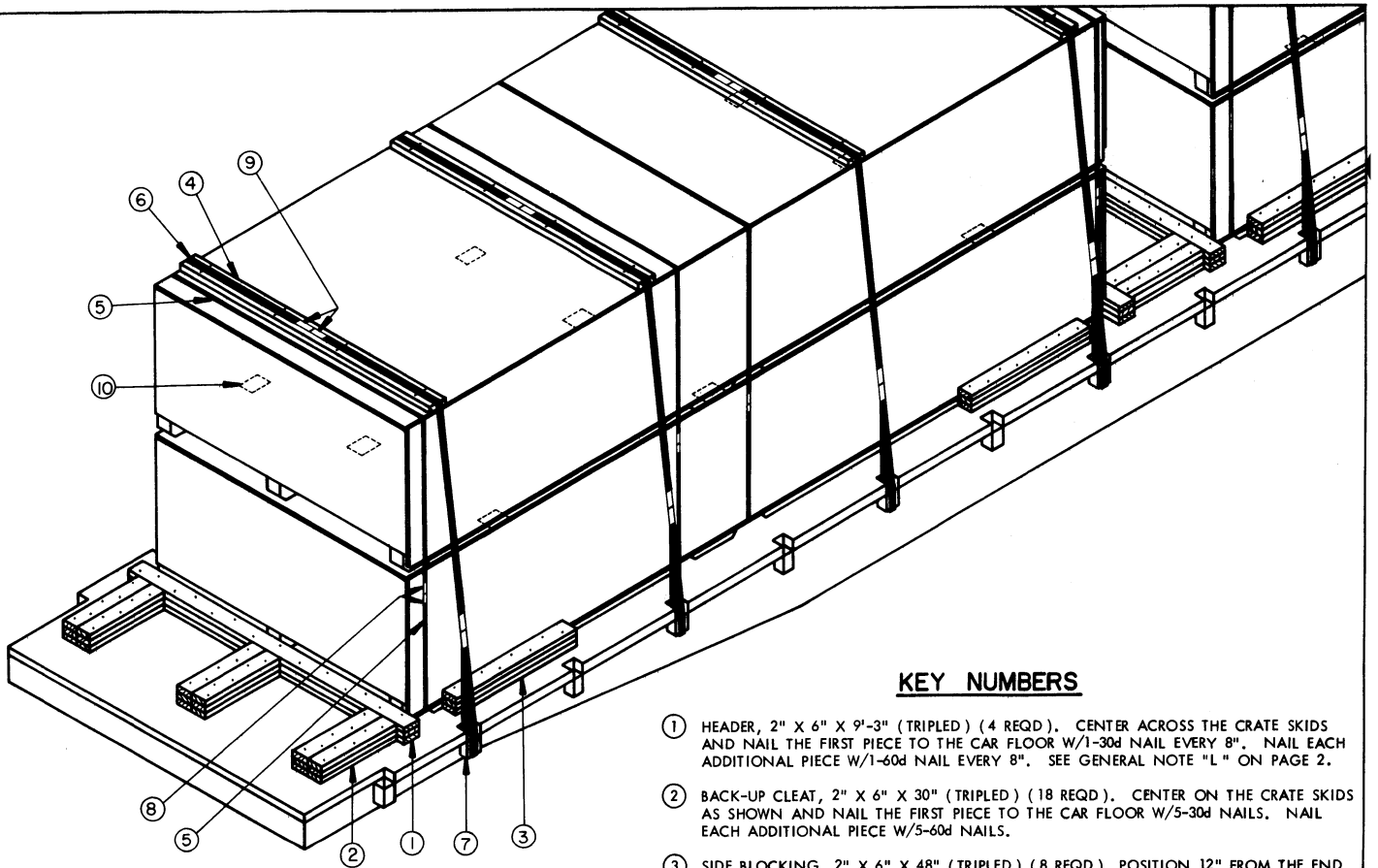
END BLOCKING FOR CARS WITH EXPOSED STEEL BOLSTERS

SEE GENERAL NOTE "F". THE BLOCKING AS SHOWN IS APPLICABLE FOR THE CRATED ITEM. ADJUST AS NECESSARY FOR THE UNCRATED LOAD ON PAGE 6.

NOTE ① :
THE OPTIONAL STRAP HOLD DOWN FOR END BLOCKING IS FOR CARS WITH OR WITHOUT EXPOSED STEEL BOLSTERS.

NOTE ② :
WHEN LOADING CARS WITH EXPOSED STEEL BOLSTERS, DIMENSION "B" MUST BE AT LEAST 12", AND THE TOTAL OF DIMENSIONS "A" AND "B" MUST BE EQUAL TO OR GREATER THAN THE LENGTH OF A BACK-UP CLEAT (PIECE MARKED ②) TO PROVIDE FOR PROPER NAILING TO THE CAR FLOOR. SEE PIECE MARKED ② FOR PROPER NAILING.



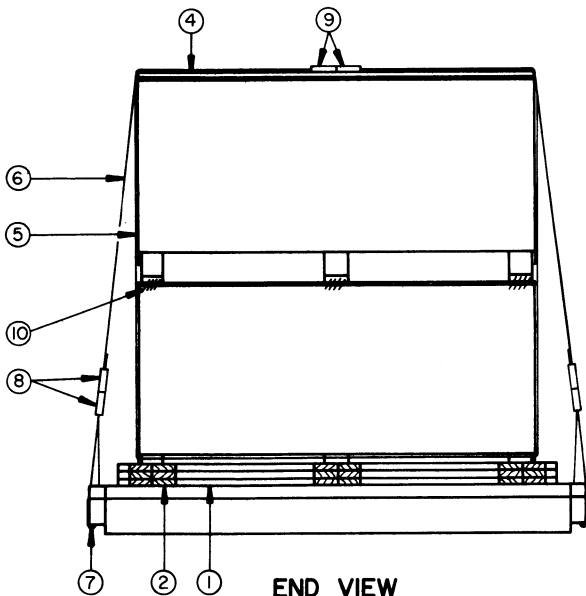


ISOMETRIC VIEW

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 6"	409	409
NAILS	NO. REQD	POUNDS
30d (4-1/2")	338	17
60d (6")	292	29
STEEL STRAPPING, 1-1/4" X .035"	280' REQD	40 LBS
STEEL STRAPPING, 2" X .050"	320' REQD	107 LBS
SEAL FOR 1-1/4" STRAPPING	16 REQD	1 LB
SEAL FOR 2" STRAPPING	64 REQD	13 LBS
ANTI-SKID PLATE (5" X 7")	18 REQD	5 LBS
STAPLES, 1-3/8" X 3/4"	32 REQD	NIL

KEY NUMBERS

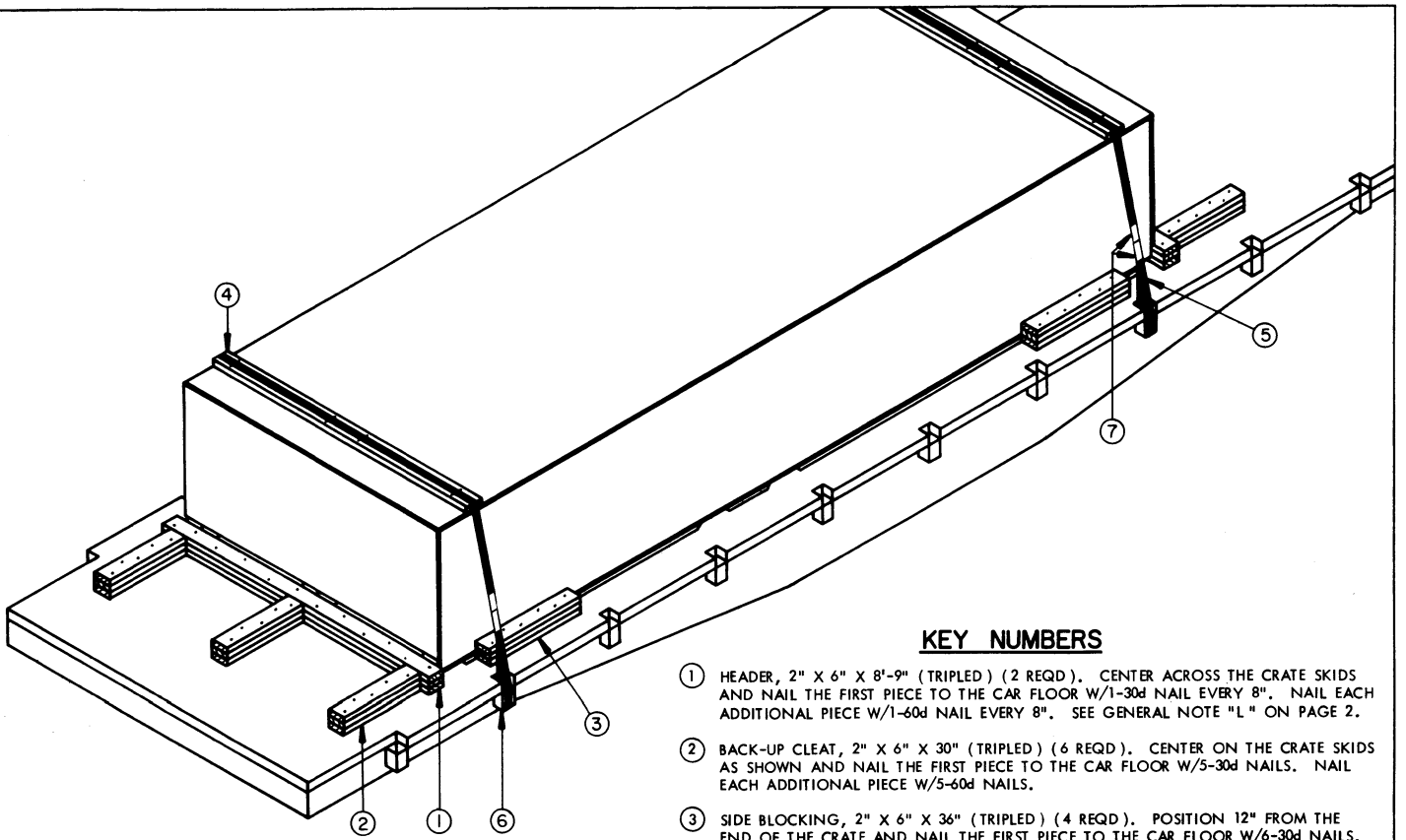
- ① HEADER, 2" X 6" X 9'-3" (TRIPLED) (4 REQD). CENTER ACROSS THE CRATE SKIDS AND NAIL THE FIRST PIECE TO THE CAR FLOOR W/1-30d NAIL EVERY 8". NAIL EACH ADDITIONAL PIECE W/1-60d NAIL EVERY 8". SEE GENERAL NOTE "L" ON PAGE 2.
- ② BACK-UP CLEAT, 2" X 6" X 30" (TRIPLED) (18 REQD). CENTER ON THE CRATE SKIDS AS SHOWN AND NAIL THE FIRST PIECE TO THE CAR FLOOR W/5-30d NAILS. NAIL EACH ADDITIONAL PIECE W/5-60d NAILS.
- ③ SIDE BLOCKING, 2" X 6" X 48" (TRIPLED) (8 REQD) POSITION 12" FROM THE END OF THE CRATE AND NAIL THE FIRST PIECE TO THE CAR FLOOR W/8-30d NAILS. NAIL EACH ADDITIONAL PIECE IN A LIKE MANNER.
- ④ STRAPPING BOARD, 2" X 6" X 8'-4" (8 REQD).
- ⑤ UNITIZING STRAP, 1-1/4" X .035" X 35'-0" STEEL STRAPPING (8 REQD, 4 EACH PILE). INSTALL EACH STRAP TO ENCIRCLE BOTH UNITS.
- ⑥ TIE DOWN STRAP, 2" X .050" X 36'-0" (8 REQD). INSTALL EACH STRAP FROM TWO (2) 18'-0" LONG PIECES. SEE GENERAL NOTE "H" ON PAGE 2.
- ⑦ PAD, 2" X .050" STEEL STRAPPING (16 REQD). POSITION UNDER AND SEAL TO A PIECE MARKED ⑥. SEE "DETAIL A" ON PAGE 3. ALTERNATIVE: STAKE POCKET PROTECTOR (32 REQD). USE TWO (2) UNDER EACH STAKE POCKET WITH PIECES MARKED ⑥. SEE "DETAIL B" ON PAGE 3.
- ⑧ SEAL FOR 1-1/4" STRAPPING (16 REQD, 2/STRAP). DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "G" ON PAGE 2.
- ⑨ SEAL FOR 2" STRAPPING (64 REQD, 8/STRAP). EXCEPT FOR SEALS USED TO SECURE PIECES MARKED ⑦, DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "G" ON PAGE 2.
- ⑩ ANTI-SKID PLATE (18 OF 5" X 7" PLATES OR 36 OF 3-3/4" X 5" PLATES REQD). POSITION ONE (1) 5" X 7" PLATE OR TWO (2) 3-3/4" X 5" PLATES UNDER EACH RUBBING STRIP OF THE TOP CRATES; NINE (9) OR EIGHTEEN (18), RESPECTIVELY, REQUIRED PER CRATE. SEE GENERAL NOTE "J" ON PAGE 2.



END VIEW

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
LAUNCHER MONORAIL	4	59,600 LBS
DUNNAGE		1,235 LBS
TOTAL WEIGHT		60,835 LBS



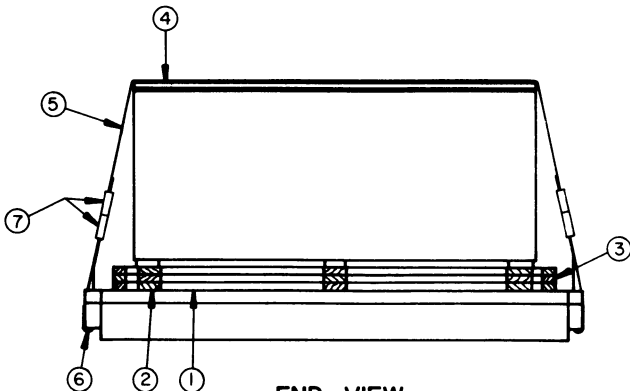
ISOMETRIC VIEW

KEY NUMBERS

- ① HEADER, 2" X 6" X 8'-9" (TRIPLED) (2 REQD). CENTER ACROSS THE CRATE SKIDS AND NAIL THE FIRST PIECE TO THE CAR FLOOR W/1-30d NAIL EVERY 8". NAIL EACH ADDITIONAL PIECE W/1-60d NAIL EVERY 8". SEE GENERAL NOTE "L" ON PAGE 2.
- ② BACK-UP CLEAT, 2" X 6" X 30" (TRIPLED) (6 REQD). CENTER ON THE CRATE SKIDS AS SHOWN AND NAIL THE FIRST PIECE TO THE CAR FLOOR W/5-30d NAILS. NAIL EACH ADDITIONAL PIECE W/5-60d NAILS.
- ③ SIDE BLOCKING, 2" X 6" X 36" (TRIPLED) (4 REQD). POSITION 12" FROM THE END OF THE CRATE AND NAIL THE FIRST PIECE TO THE CAR FLOOR W/6-30d NAILS. NAIL EACH ADDITIONAL PIECE IN A LIKE MANNER.
- ④ STRAPPING BOARD, 2" X 6" X 8'-4" (2 REQD).
- ⑤ TIE DOWN STRAP, 2" X .050" X 30'-0" (2 REQD). INSTALL EACH STRAP FROM ONE PIECE OF STRAPPING; ANCHOR IT TO A STAKE POCKET ON ONE SIDE OF THE CAR, RUN IT OVER THE LOAD, PASS IT THROUGH A STAKE POCKET ON THE OPPOSITE SIDE OF THE CAR, AND BRING IT BACK UP ABOVE THE POCKET WHERE IT CAN BE TENSIONED AND SEALED. SEE GENERAL NOTE "G" ON PAGE 2.
- ⑥ PAD, 2" X .050" STEEL STRAPPING 24" LONG (4 REQD). POSITION UNDER AND SEAL TO PIECE MARKED ⑤. SEE "DETAIL A" ON PAGE 3. ALTERNATIVE: STAKE POCKET PROTECTOR (8 REQD). USE TWO (2) UNDER EACH STAKE POCKET WITH PIECES MARKED ⑤. SEE "DETAIL B" ON PAGE 3.
- ⑦ SEAL FOR 2" STRAPPING (12 REQD, 2/STRAP). EXCEPT FOR THE SEALS USED TO SECURE PIECES MARKED ⑥, DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "G" ON PAGE 2.

BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
2" X 6"	150-1/2	150-1/2
NAILS	NO. REQD	POUNDS
30d (4-1/2")	106	5
60d (6")	140	14
STEEL STRAPPING, 2" X .050"	68' REQD	23 LBS
SEAL FOR 2" STRAPPING	12 REQD	2-1/2 LBS
STAPLES, 1-3/8" X 3/4"	8 REQD	NIL

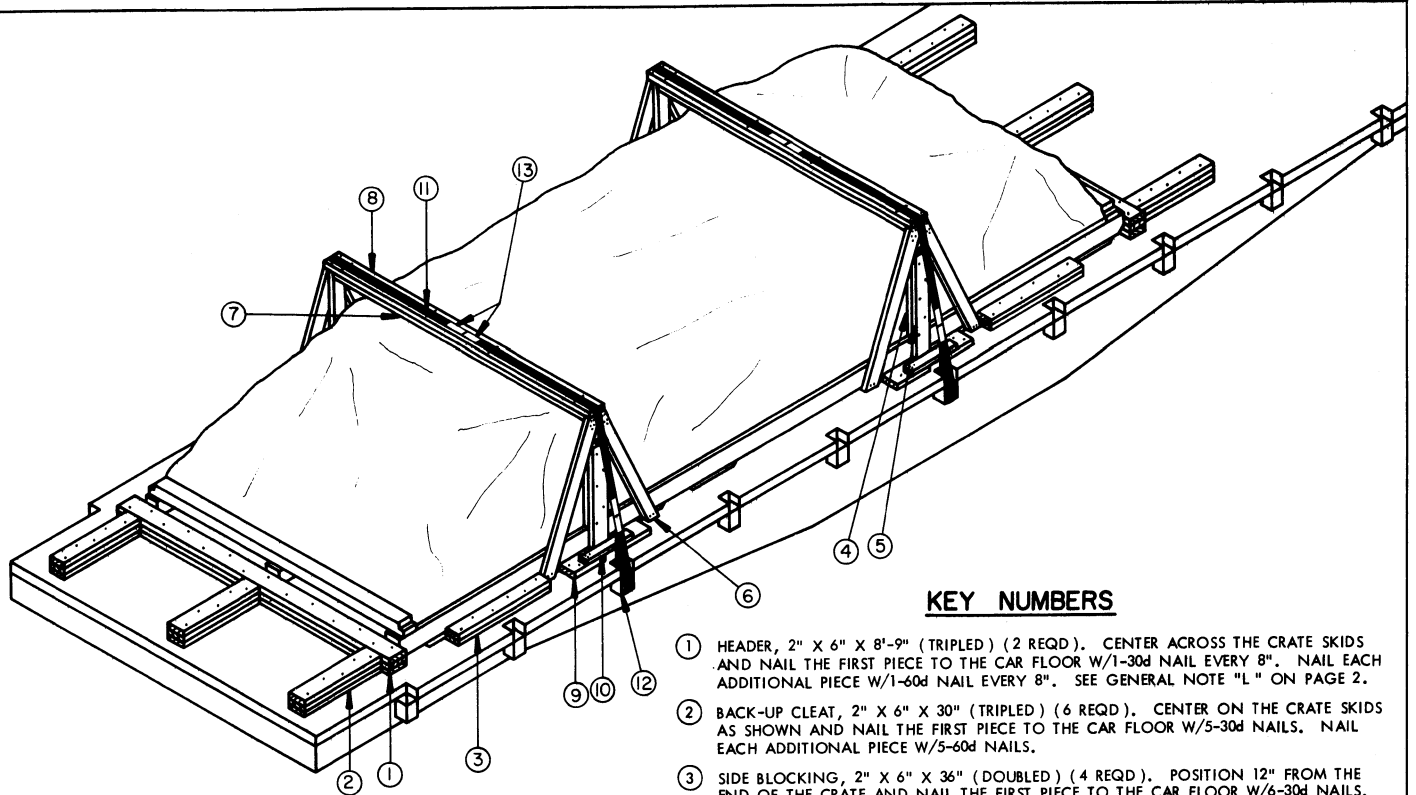


END VIEW

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
LAUNCHER MONORAIL	1	14,900 LBS
DUNNAGE		420 LBS
TOTAL WEIGHT		15,320 LBS

1-UNIT LOAD (CRATED) ON A 40'-6" LONG BY 10'-6" WIDE FLAT CAR

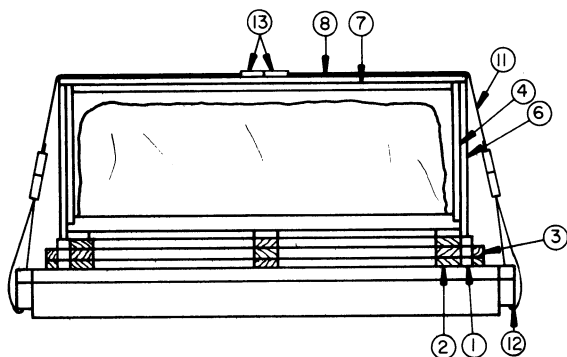


ISOMETRIC VIEW

KEY NUMBERS

- ① HEADER, 2" X 6" X 8'-9" (TRIPLED) (2 REQD). CENTER ACROSS THE CRATE SKIDS AND NAIL THE FIRST PIECE TO THE CAR FLOOR W/1-30d NAIL EVERY 8". NAIL EACH ADDITIONAL PIECE W/1-60d NAIL EVERY 8". SEE GENERAL NOTE "L" ON PAGE 2.
- ② BACK-UP CLEAT, 2" X 6" X 30" (TRIPLED) (6 REQD). CENTER ON THE CRATE SKIDS AS SHOWN AND NAIL THE FIRST PIECE TO THE CAR FLOOR W/5-30d NAILS. NAIL EACH ADDITIONAL PIECE W/5-60d NAILS.
- ③ SIDE BLOCKING, 2" X 6" X 36" (DOUBLED) (4 REQD). POSITION 12" FROM THE END OF THE CRATE AND NAIL THE FIRST PIECE TO THE CAR FLOOR W/6-30d NAILS. NAIL EACH ADDITIONAL PIECE IN A LIKE MANNER.
- ④ VERTICAL PIECE, 2" X 6" X 37-1/2" (4 REQD).
- ⑤ SUPPORT PIECE, 2" X 6" X 35" (4 REQD). NAIL TO THE VERTICAL PIECE MARKED ④ W/5-10d NAILS.
- ⑥ BRACE, 2" X 6" BY CUT TO FIT (8 REQD). NAIL TO THE VERTICAL PIECE MARKED ④ AT THE TOP W/5-10d NAILS. TOENAIL TO THE CAR FLOOR W/2-16d NAILS. SEE THE "BRACE" DETAIL ABOVE.
- ⑦ SEPARATOR PIECE, 2" X 6" X 8'-0" (2 REQD). NAIL TO THE STRAPPING BOARD MARKED ⑧ W/1-10d NAIL EVERY 12".
- ⑧ STRAPPING BOARD, 2" X 6" X 8'-6-1/2" (2 REQD). NAIL TO THE VERTICAL PIECE MARKED ④ W/3-12d NAILS AT EACH END.
- ⑨ LONGITUDINAL RETAINER PIECE, 2" X 6" X 12" (8 REQD). POSITION AGAINST THE SUPPORT PIECE MARKED ⑤ ON BOTH SIDES AND NAIL TO THE CAR FLOOR W/3-20d NAILS.
- ⑩ LATERAL RETAINER PIECE, 2" X 4" X 18" (4 REQD). POSITION AGAINST THE SUPPORT PIECE MARKED ⑤ AS SHOWN AND NAIL TO THE LONGITUDINAL SUPPORT PIECES MARKED ⑨ W/3-10d NAILS EACH.
- ⑪ TIE DOWN STRAP, 2" X .050" X 30'-0" (2 REQD). INSTALL EACH STRAP FROM TWO (2) 15'-0" LONG PIECES. SEE GENERAL NOTE "H" ON PAGE 2. STAPLE TO THE STRAPPING BOARD MARKED ⑧ W/4 STAPLES.
- ⑫ PAD, 2" X .050" STEEL STRAPPING (4 REQD). POSITION UNDER AND SEAL TO A PIECE MARKED ⑪. SEE "DETAIL A" ON PAGE 3. ALTERNATIVE: STAKE POCKET PROTECTOR (8 REQD). USE TWO (2) UNDER EACH STAKE POCKET WITH PIECES MARKED ⑪. SEE "DETAIL B" ON PAGE 3.
- ⑬ SEAL FOR 2" STRAPPING (16 REQD, 8/STRAP). EXCEPT FOR SEALS USED TO SECURE PIECES MARKED ⑬, DOUBLE CRIMP EACH SEAL. SEE GENERAL NOTE "G" ON PAGE 2.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	6	4
2" X 6"	222	222
NAILS	NO. REQD	POUNDS
10d (3")	80	1-1/4
12d (3-1/4")	12	1/4
16d (3-1/2")	8	1/4
20d (4")	24	1
30d (4-1/2")	104	5
60d (6")	112	11
STEEL STRAPPING, 2" X .050"	68' REQD	23 LBS
SEALS FOR 2" STRAPPING	16 REQD	3 LBS
STAPLES, 1-3/8" X 3/4"	8 REQD	NIL



END VIEW

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
LAUNCHER MONORAIL (UNCRATED)	1	12,674 LBS
DUNNAGE		610 LBS

TOTAL WEIGHT --- 13,284 LBS

**1-UNIT LOAD (UNCRATED, SKID-MOUNTED)
ON A 40'-6" LONG BY 10'-6" WIDE FLAT CAR**