

LANCE

LOADING AND BRACING ON FLAT BED OR "LOW-BOY" TRAILER OF MOBILITY KIT, GUIDED MISSILE LAUNCHER, XM234

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REVISIONS			
1	MAY 71	<i>[Signature]</i>	<i>[Signature]</i>
			APPROVED BY ORDER OF COMMANDING GENERAL, U. S. ARMY MATERIEL COMMAND
			<i>[Signature]</i>
			U. S. ARMY MATERIEL COMMAND
			DECEMBER 70
			CLASS DIVISION DRAWING FILE
			19 48 7569 GSE IILC 4

DO NOT SCALE

GENERAL NOTES

REVISIONS

- 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 THE QUANTITIES OF UNITS TO BE SHIPPED WITH THE VIEW OF FULL UTILIZATION OF CARRIER EQUIPMENT.
- 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 ----- 9'-2" LONG BY 6'-6" WIDE BY 4'-0" HIGH.
ITEM GROSS WEIGHT ----- 1,970 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. **CAUTION:** DURING WIRE TIE DOWN 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 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 HIGH-WAY OPERATING PRESSURE, AND ALL HAND BRAKES MUST BE "SET" WITH THE HAND LEVERS WIRE TIED OR BLOCKED.
- G. SEE "SPECIAL PROVISIONS" ON THIS PAGE FOR SPECIFICATIONS WHICH MUST BE APPLIED IF CHAINS AND LOAD BINDERS ARE USED.
- H. **CAUTION:** IT IS RECOMMENDED THAT WIRE 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 WIRE TIE DOWNS ON THE SAME SIDE OF LADING ARE INSTALLED SO THEIR RETENTION FORCES ACT IN OPPOSITE LONGITUDINAL DIRECTIONS.
- J. 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.
- K. **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.
- L. WHEN ANY STRAP IS SEALED AT AN END-OVER-END LAP JOINT, A MINIMUM OF TWO (2) SEALS, BUTTED TOGETHER, WITH TWO (2) PAIR OF CRIMPS PER SEAL MUST BE USED TO SEAL THE JOINT.

REVISION NO. 1, DATED MAY 71, CONSISTS OF:

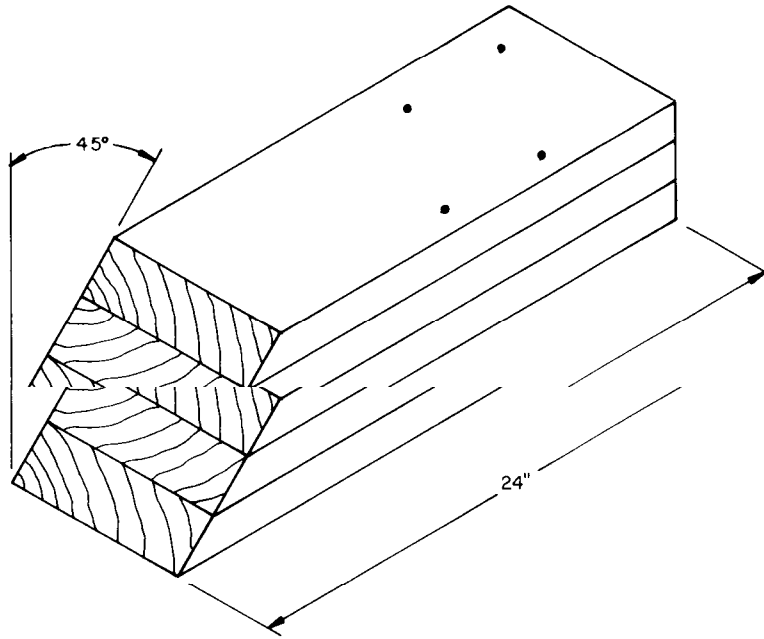
1. CHANGING GENERAL NOTE "G".
2. ADDING "SPECIAL PROVISIONS" FOR USE OF CHAINS AND LOAD BINDERS.

SPECIAL PROVISIONS:

- A. LADING MAY BE SECURED BY CARRIER-OWNED CHAINS AND LOAD BINDERS IN LIEU OF SPECIFIED STRANDED ANNEALED WIRE TIE DOWN AND/OR STEEL STRAPPING 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 THE LADING TIE DOWN FACILITIES.
 2. ONE (1) LINE OF 1/4" CHAIN MAY BE SUBSTITUTED FOR EACH STRANDED WIRE TIE DOWN CABLE MARKED ⑧. CHAINS SHALL BE INSTALLED AT THE SAME LOCATIONS SHOWN FOR THE STRANDED WIRE CABLES AND IN THE SAME MANNER AS DIRECTED IN GENERAL NOTE "H" AT LEFT.
 3. IN LIEU OF THE HOLD-DOWN STRAP MARKED ⑨, ONE (1) LINE OF 1/4" CHAIN MAY BE USED. THE STRAPPING BOARD MARKED ⑦ MUST BE DOUBLED AND LAMINATED W/3-10d NAILS. THE CHAIN SHALL BE SECURED TO THE LAMINATED BOARD W/2-20d NAILS BY DRIVING EACH NAIL INTO THE BOARD THROUGH AN OPENING IN A CHAIN LINK AND BENDING IT OVER THE LINK.
 4. IF DESIRED, CHAINS OF A LARGER SIZE THAN SPECIFIED ABOVE MAY BE USED.
 5. 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.
 6. THE TENSIONING DEVICE OF EACH LOAD BINDER MUST BE SAFETY-WIRE TIED TO PREVENT ACCIDENTAL OPENING OR LOOSENING IN TRANSIT.
 7. 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 AND/OR STRAPPING BOARDS.

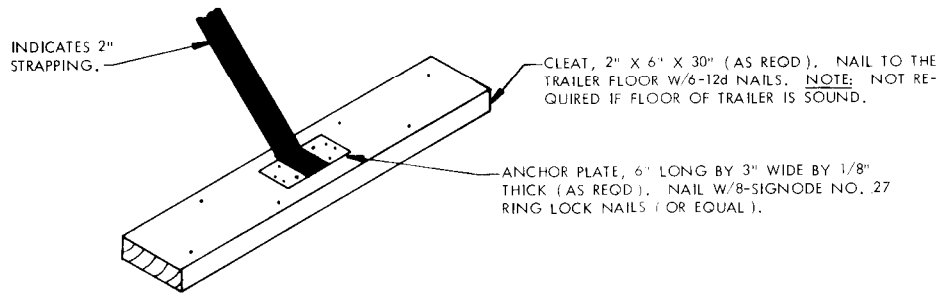
MATERIAL SPECIFICATIONS

- 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 SAME SIZE.
- WIRE** ----- : ANNEALED, BLACK. REF: FED SPEC QQ-W-461.
- STRAPPING, STEEL** : TYPE 1, CLASS "A" OR "C". REF: FED SPEC QQ-S-781.
(FOR FSN SEE SB-38-100).
- STRAP ANCHOR PLATE** ----- : FSN 5340-252-3015.
- 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 I.



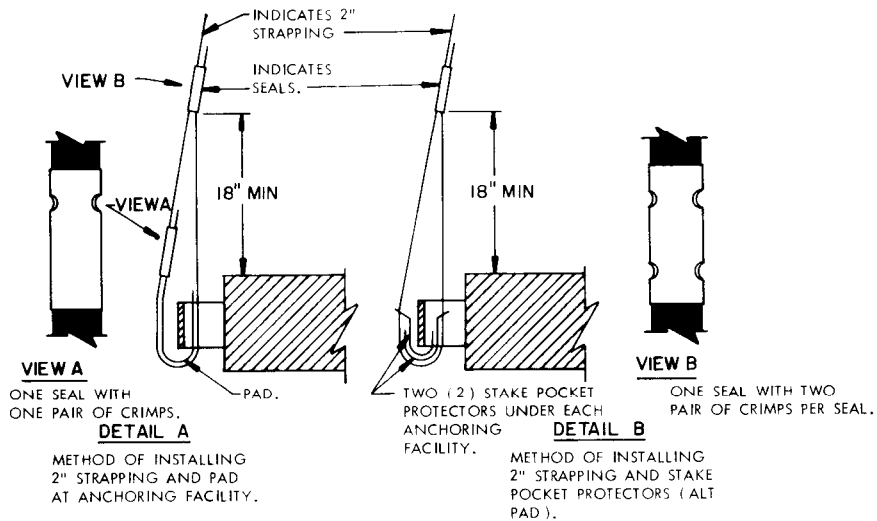
CHOCK BLOCK

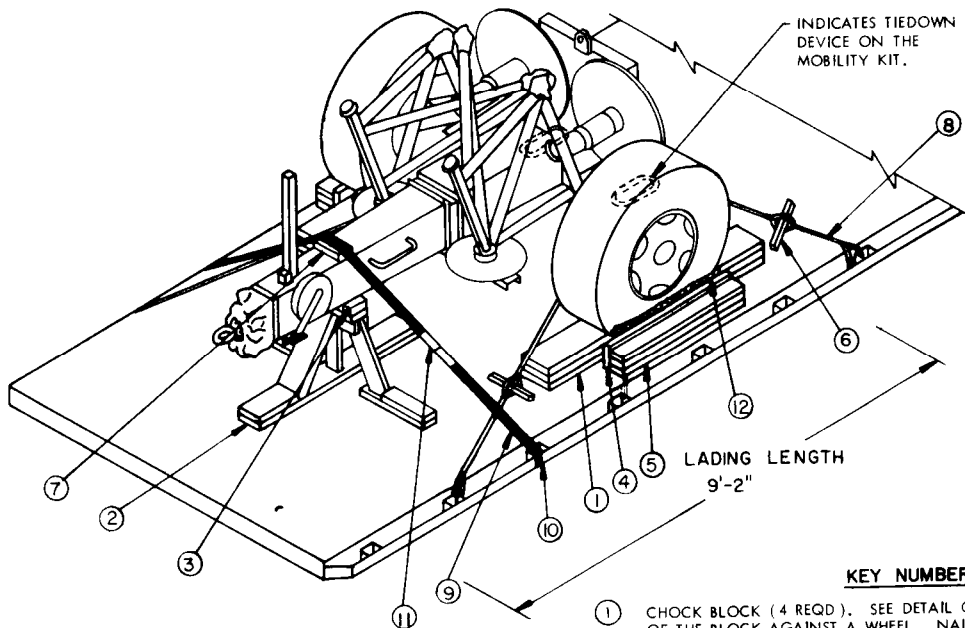
2" X 8" MATERIAL (TRIPLED)



DETAIL C

AN ALTERNATIVE STRAP ANCHORING METHOD IS SHOWN WHICH MAY BE USED TO SECURE THE SPECIFIED 2" X .050" STEEL STRAPPING IN LIEU OF ANCHORING TO STAKE POCKETS ON THE TRAILER.

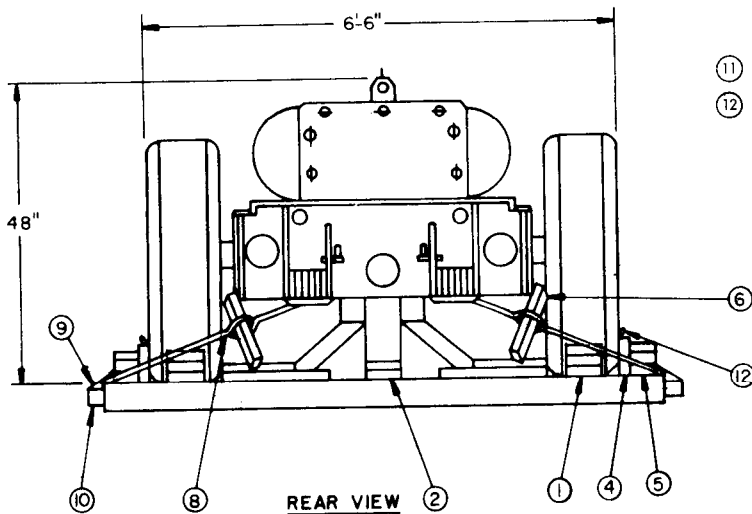




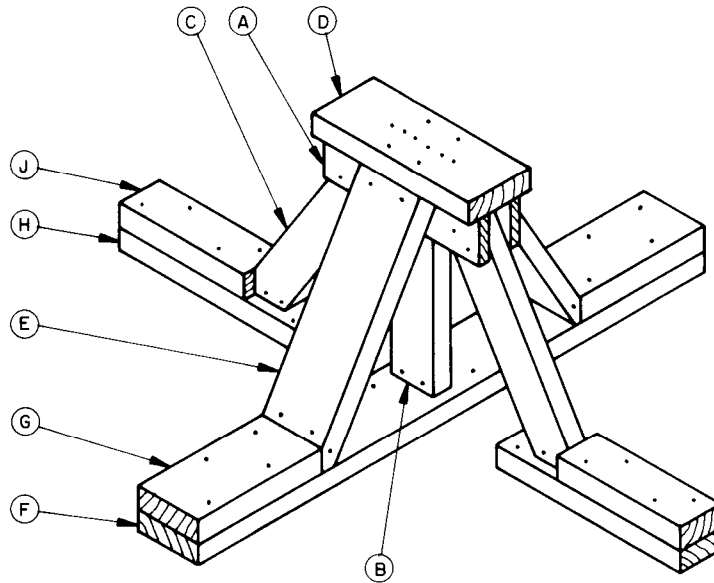
ISOMETRIC VIEW

KEY NUMBERS

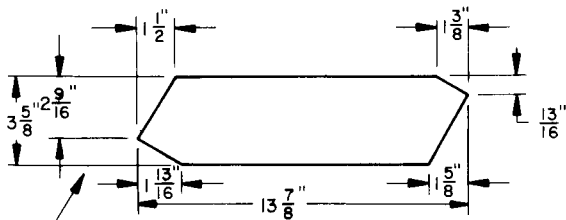
- ① CHOCK BLOCK (4 REQD). SEE DETAIL ON PAGE 3. LOCATE THE BEVELED END OF THE BLOCK AGAINST A WHEEL. NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/5-12d NAILS. NAIL EACH ADDITIONAL PIECE W/4-20d NAILS.
- ② FORWARD BLOCKING (1 REQD). SEE "FORWARD BLOCKING ASSEMBLY" ON PAGE 5. SEE GENERAL NOTE "K" ON PAGE 2.
- ③ ANTI-SWAY CLEAT, 2" X 4" X 6" (2 REQD). POSITION AGAINST THE TOWBAR AND NAIL TO PIECE MARKED ② W/2-12d NAILS.
- ④ RUBBING STRIP, 2" X 6" X 36" (2 REQD). POSITION ON EDGE AND NAIL TO THE LOWER PIECE MARKED ⑤ W/5-12d NAILS.
- ⑤ SIDE BLOCKING, 2" X 4" X 36" (TRIPLED) (2 REQD). NAIL THE FIRST PIECE TO THE TRAILER FLOOR W/5-12d NAILS. NAIL EACH ADDITIONAL PIECE IN A LIKE MANNER.
- ⑥ WIRE TWISTER, 2" X 2" BY LENGTH TO SUIT (4 REQD).
- ⑦ STRAPPING BOARD, 2" X 4" BY LENGTH TO SUIT (1 REQD). POSITION AS SHOWN.
- ⑧ EIGHT (8) STRANDS OF NO. 8 GAGE BLACK ANNEALED WIRE (4 REQD). INSTALL WIRE TO APPROXIMATE ANGLE SHOWN AND TO FORM A COMPLETE LOOP FROM A TIE DOWN FACILITY ON THE TRANSPORTER THROUGH A TIE DOWN DEVICE ON THE MOBILITY KIT AND BACK TO THE TIE DOWN FACILITY. TWIST TAUT WITH PIECE MARKED ⑥. NOTE: IF DESIRED, 3/8" STEEL WIRE ROPE (OR LARGER) MAY BE INSTALLED IN LIEU OF THE WIRE HOLD DOWNS. SECURE A THIMBLE W/1-CLIP AT THE END OF THE COMPLETE LOOP WHICH IS ATTACHED TO THE TRANSPORTER TIE DOWN FACILITY. SEE GENERAL NOTES "F" AND "H" AND THE "SPECIAL PROVISIONS" ON PAGE 2.
- ⑨ STEEL STRAPPING, 2" X .050" X 20'-0" (1 REQD). STAPLE TO PIECE MARKED ⑦ W/2-2" STAPLES. SEE "DETAIL C" ON PAGE 3 FOR ALTERNATIVE STRAP ANCHORING METHOD.
- ⑩ PAD, 2" X .050" STRAP 18" LONG (2 REQD). POSITION UNDER AND SEAL TO PIECE MARKED ⑨. SEE "DETAIL A" ON PAGE 3. ALT: STAKE POCKET PROJECTOR (4 REQD). USE TWO (2) UNDER EACH TIE DOWN FACILITY WITH PIECE MARKED ⑨. SEE "DETAIL B" ON PAGE 3.
- ⑪ SEAL FOR 2" STRAPPING (6 REQD). SEE GENERAL NOTE "L" ON PAGE 2.
- ⑫ WATERPROOF PAPER OR BURLAP OF A SUFFICIENT SIZE TO POSITION UNDER AND EXTEND 2" ABOVE PIECE MARKED ④.



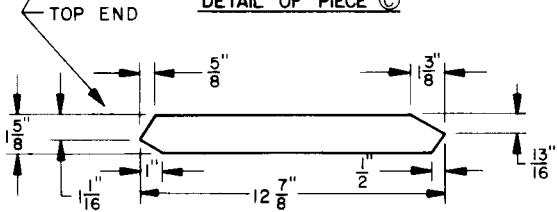
REAR VIEW



FORWARD BLOCKING ASSEMBLY



DETAIL OF PIECE C



DETAIL OF PIECE E

KEY LETTERS

- (A) 1" X 4" X 15" (2 REQD). NAIL TO PIECES MARKED (B) AND (C) W/3-6d NAILS AT EACH JOINT.
- (B) 2" X 4" X 10-3/4" (1 REQD). CENTER ON AND TOENAIL TO PIECE MARKED (F) W/4-16d NAILS.
- (C) 2" X 4" X 13-7/8" (2 REQD). DOUBLE BEVEL EACH END. SEE DETAIL OF PIECE FOR BEVEL CUTS REQUIRED. TOENAIL TO PIECE MARKED (H) W/4-16d NAILS AFTER PARTIAL ASSEMBLY (PIECES MARKED (A) THRU (F)) HAS BEEN LOCATED ON THE TRAILER AND PIECE MARKED (H) HAS BEEN NAILED TO THE TRAILER FLOOR.
- (D) 2" X 6" X 15" (1 REQD). NAIL TO PIECES MARKED (B), (C) AND (E) W/2-12d NAILS AT EACH JOINT.
- (E) 2" X 6" X 12-7/8" (2 REQD). DOUBLE BEVEL EACH END. SEE DETAIL OF PIECE FOR BEVEL CUTS REQUIRED. TOENAIL TO PIECE MARKED (A) W/2-12d NAILS AND TOENAIL TO PIECE MARKED (F) W/4-16d NAILS.
- (F) 2" X 6" X 45-3/4" (1 REQD). LOCATE THE PARTIAL ASSEMBLY (PIECES MARKED (A) THRU (F)) UNDER THE ITEM AND NAIL PIECE MARKED (F) TO THE TRAILER FLOOR W/1-12d NAIL EVERY 8".
- (G) 2" X 6" X 12" (2 REQD). POSITION AGAINST PIECE MARKED (E) AND NAIL TO PIECE MARKED (F) W/4-20d NAILS.
- (H) 2" X 4" X 18" (2 REQD). LOCATE UNDER PIECE MARKED (C) AS SHOWN AND NAIL TO THE TRAILER FLOOR W/5-12d NAILS.
- (J) 2" X 4" X 12" (2 REQD). POSITION AGAINST PIECE MARKED (C) AND NAIL TO PIECE MARKED (H) W/4-20d NAILS.

BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	3	1
2" X 2"	6	2
2" X 4"	29	20
2" X 6"	17	17
2" X 8"	24	32
NAILS	NO. REQD	POUNDS
6d (2")	18	1/4
12d (3-1/4")	98	1-3/4
16d (3-1/2")	20	1/2
20d (4")	52	2

STEEL STRAPPING, 2" X .050"	20' REQD	7 LBS
WIRE, NO. 8 GAGE	256' REQD	24 LBS
SEAL FOR 2" STRAPPING	6 REQD	1 LB
STAPLE FOR 2" STRAPPING	2 REQD	NIL
WATERPROOF PAPER OR BURLAP	AS REQD	NIL

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
MOBILITY KIT	1	1,970 LBS
DUNNAGE		217 LBS

TOTAL WEIGHT ----- 2,187 LBS