

APPROVED BY U. S. COAST GUARD <i>K. DeLuca</i> DATE <i>7/12/71</i>	APPROVED BY BUREAU OF EXPLOSIVES <i>A. F. Brannock</i> MILITARY ASSISTANT DATE <i>7/12/71</i>
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LOADING AND BRACING[⊙] IN MILVAN CONTAINERS[⊕] OF AMMUNITION PACKED IN 40" BY 48" BY 37" (APPROX) RETROGRADE PALLET BOX

- ⊙ LOADING AND BRACING SPECIFICATIONS SET FORTH WITHIN THIS DRAWING ARE APPLICABLE TO LOADS THAT ARE TO BE SHIPPED BY MOTOR OR WATER OR AIR OR TRAILER/CONTAINER-ON-FLAT-CAR (T/COFC) RAIL CARRIER SERVICE. SEE GENERAL NOTE "M" ON PAGE 2.
- ⊕ ONLY MILVAN CONTAINERS WHICH HAVE BEEN MODIFIED TO INCLUDE A MECHANICAL LOAD-BRACING SYSTEM THAT SATISFIES THE REQUIREMENTS OF THE BUREAU OF EXPLOSIVES PAMPHLET 6C WILL BE USED FOR THE MOVEMENT OF AMMUNITION BY T/COFC SERVICE. CAUTION: OTHER REQUIREMENTS OF PAMPHLET 6C ALSO APPLY.

DO NOT SCALE

DRAFTSMAN <i>RPA</i>	PROJ. ENG. <i>RPA</i>	DATE <i>7/12/71</i>	SUBMITTED <i>NR Wilson</i>
CHECKED <i>RPA</i>	APPROVED <i>RPA</i>	DATE <i>7/12/71</i>	EXAMINED AND APPROVED <i>S. J. Seiermann</i>
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			U. S. ARMY MATERIEL COMMAND
			MARCH 1972
			CLASS DIVISION DRAWING FILE
			19 48 4099 15H1003

GENERAL NOTES

(GENERAL NOTES CONTINUED)

- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AMCR 740-13 AND AUGMENTS TM 743-200-1 (CHAPTER 5).
- B. THE SPECIFIED OUTLOADING PROCEDURES ARE APPLICABLE TO THE RETROGRADE PALLET BOX WHEN FILLED WITH AMMUNITION ITEMS. FOR DETAIL AND WEIGHTS OF THE RETROGRADE PALLET BOX SEE PAGE 3 AND PICATINNY ARSENAL DRAWING NO. 9251844. **CAUTION:** REGARDLESS OF THE QUANTITY OF PALLET BOXES TO BE SHIPPED, THE "MAXIMUM GROSS WEIGHT" OF 44,800 POUNDS MUST NOT BE EXCEEDED. SEE GENERAL NOTE "L".
- C. THE LOADS AS SHOWN ARE BASED ON A 20' LONG BY 8' WIDE BY 8' HIGH MILVAN CONTAINER WITH INSIDE DIMENSIONS OF 19'-4" LONG BY 92" WIDE BY 87" HIGH. THE LOADS ARE DESIGNED FOR TRAILER/CONTAINER-ON-FLAT-CAR (T/COFC) SHIPMENT.
- D. THE SPECIFIED OUTLOADING PROCEDURES ARE FOR CONTAINERS EQUIPPED WITH SELF-CONTAINED MECHANICAL BRACING DEVICES AS DESCRIBED WITHIN BUREAU OF EXPLOSIVES PAMPHLET 6C. CROSS MEMBER ATTACHMENT FACILITIES WITHIN THESE CONTAINERS MUST PROVIDE FOR THE INSTALLATION OF LOAD BLOCKING CROSS MEMBERS AT THE HEIGHTS SPECIFIED. THE HEIGHT DIMENSIONS SPECIFIED WITHIN THIS DRAWING FOR THE INSTALLATION OF CROSS MEMBERS CONFORM WITH BUREAU OF EXPLOSIVES PAMPHLET 6C, WITH THE EXCEPTION THAT TWO (2) ADDITIONAL BELT RAILS HAVE BEEN SHOWN; ONE AT 72" AND ONE AT 84" HEIGHT FROM THE CONTAINER FLOOR. VOIDS LENGTHWISE WITHIN THE LOAD MUST BE HELD TO A MINIMUM. CROSS MEMBERS MUST BE PLACED AGAINST THE LADING AS TIGHTLY AS THE HOLE SPACING IN THE CROSS MEMBER ATTACHMENT FACILITY PERMITS. EACH CROSS MEMBER WILL BE INSTALLED WITH THE ENDS ATTACHED AS NEARLY AS POSSIBLE IN "MATED" POSITIONS (AT EQUAL HEIGHTS, AND AT EQUAL DISTANCES FROM THE END OF THE CONTAINER). CROSS MEMBERS IN EMPTY CONTAINERS AND THOSE NOT USED IN LOADED CONTAINERS MUST BE FASTENED INTO BELT RAILS FOR SHIPMENT. COMPONENTS ASSIGNED TO EACH CONTAINER MUST REMAIN THEREWITH EVEN THOUGH UNUSED DURING SOME SHIPMENTS. SEE "FILL DETAIL" ON PAGE 9.
- E. WHEN ANY STRAP IS SEALED AT AN END-OVER-END LAP JOINT, TWO (2) SEALS, BUTTED TOGETHER, WITH TWO (2) PAIR OF CRIMPS PER SEAL MUST BE USED TO SEAL THE JOINT. WHEN ANY STRAP IS INSTALLED AROUND A BELT RAIL WITH A LAP-BACK-ON-SELF JOINT, ONE (1) SEAL WITH TWO (2) PAIR OF CRIMPS WILL BE USED. **CAUTION:** EXERCISE CARE DURING TENSIONING TO PREVENT DAMAGE TO THE LADING.
- F. DUNNAGE LUMBER SPECIFIED IS OF A NOMINAL SIZE. FOR EXAMPLE, 1" X 4" MATERIAL IS ACTUALLY 3/4" THICK BY 3-5/8" WIDE AND 2" X 4" MATERIAL IS ACTUALLY 1-5/8" THICK BY 3-5/8" WIDE.
- G. **CAUTION:** DO NOT NAIL DUNNAGE MATERIAL TO THE CONTAINER WALLS OR FLOOR. ALL NAILING WILL BE WITHIN THE DUNNAGE.
- H. A STAGGERED NAILING PATTERN WILL BE USED WHEREVER POSSIBLE WHEN NAILS ARE DRIVEN INTO JOINTS OF DUNNAGE ASSEMBLIES 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.
- J. PORTIONS OF THE CONTAINER DEPICTED WITHIN THIS DRAWING, SUCH AS ONE OF THE SIDE WALLS, HAVE NOT BEEN SHOWN IN THE LOAD VIEWS FOR CLARITY PURPOSES.
- K. REDUCED-LOAD PROVISIONS:
1. THE NUMBER OF UNITS TO BE SHIPPED AND/OR THE WEIGHT OF THE PALLET BOX WILL DETERMINE THE LOADING PATTERN TO BE USED. THE LOAD VIEWS SHOWN IN THIS DRAWING DEPICT VARIOUS METHODS WHICH MAY BE USED TO SHIP THE DESIRED NUMBER OF UNITS.
 2. THE LOAD SHOWN ON PAGE 10 DEPICTS AN EIGHTEEN (18) UNIT LOAD, WHICH IS THE MAXIMUM NUMBER OF UNITS THAT CAN BE LOADED IN A CONTAINER. IF A CONTAINER IS TO BE LOADED WITH LESS THAN EIGHTEEN (18) UNITS, PALLET UNITS SHOULD BE ELIMINATED FROM THE REAR OF THE LOAD.
 3. ANY NUMBER OF UNITS CAN BE LOADED BY EMPLOYING COMBINATIONS OF THE VARIOUS LOADING PATTERNS SHOWN IN THIS DRAWING.

(CONTINUED AT RIGHT)

L. MAXIMUM LOAD WEIGHT CRITERIA:

THE ITEMIZED LOAD WEIGHTS ARE CONTROLLED BY EQUIPMENT CAPABILITY FACTORS. ALSO, THESE LISTED LOAD WEIGHTS IDENTIFY THE MAXIMUM COMBINED WEIGHT OF AMMUNITION LADING UNITS AND DUNNAGE THAT CAN BE PLACED INTO ONE (1) MILVAN CONTAINER WITHOUT VIOLATING ONE OR MORE OF THE "CAPABILITY FACTORS". SEE NOTES 1 AND 2.

- 39,100 LBS IN 20-FT CONTAINER (W/O CHASSIS) ABOARD CONTAINERSHIP.
- 39,100 LBS IN CONTAINER ON 20-FT CHASSIS WITH DOUBLE BOGIE. SEE NOTE 3.
- 25,300 LBS IN CONTAINER ON 20-FT CHASSIS WITH SINGLE BOGIE. SEE NOTE 4.
- 21,300 LBS IN EACH CONTAINER ON 40-FT CHASSIS (COUPLED WITH DOUBLE BOGIE). SEE NOTE 3.
- 19,300 LBS IN 20-FT CONTAINER (W/O CHASSIS) ABOARD FIXED-WING AIRCRAFT.
- 39,100 LBS IN 20-FT CONTAINER (W/O CHASSIS) FOR ROTARY-WING AIRCRAFT. SEE NOTE 5.

NOTE 1: DUNNAGE INCLUDES MATERIALS, OTHER THAN COMPONENTS OF THE MECHANICAL LOAD-BRACING SYSTEM, USED TO BLOCK AND BRACE A LOAD.

NOTE 2: ALTHOUGH THE HEAVIEST MAXIMUM LOAD IS SPECIFIED IN GENERAL NOTE "B", PROVISIONS ARE INCLUDED WITHIN THIS DRAWING SO THAT THE BASIC LOADS CAN BE ADJUSTED TO SATISFY A LESSER QUANTITY OF LADING UNITS.

NOTE 3: DEPENDING ON TRANSPORTATION ROUTING, IT MAY BE NECESSARY TO REDUCE THE LOAD WEIGHT TO SATISFY "WEIGHT LAWS" OF CERTAIN STATES. ALSO, IT MAY BE NECESSARY TO REDUCE THE LOAD WEIGHT TO SATISFY OTHER WEIGHT RESTRICTIONS IMPOSED ON THE MILVAN SYSTEM.

NOTE 4: BY SPECIAL AUTHORITY, IT MAY BE POSSIBLE TO MOVE HEAVIER LOADS ON SINGLE BOGIE CHASSIS WITHIN AN INSTALLATION.

NOTE 5: IT WILL BE NECESSARY TO REDUCE WEIGHT OF SOME LOADS TO BE MOVED BY ROTARY-WING AIRCRAFT, DEPENDING ON "LIFT" CAPABILITY OF THE SCHEDULED AIRCRAFT.

M. SPECIAL T/COFC NOTES:

1. **CAUTION:** LOADED CONTAINERS MUST BE ON CHASSIS EQUIPPED WITH TWO BOGIE ASSEMBLIES WHEN BEING MOVED IN TOFC SERVICE, REGARDLESS OF LOAD WEIGHT WITHIN THE CONTAINER.
2. LOAD LIMITS OF T/COFC RAIL CARS MUST NOT BE EXCEEDED, NOR WILL A CAR BE LOADED SO THAT THE TRUCKS UNDER ONE END OF THE CAR CARRIES MORE THAN ONE-HALF OF THE LOAD LIMIT FOR THAT CAR.
3. CHASSIS/CONTAINERS COUPLED INTO A 40-FOOT TRAILER CONFIGURATION MUST BE PLACED AT THE B-END OF A TOFC RAIL CAR. THE REAR END OF THE 40-FOOT UNIT WILL OVER-HANG THE END OF THE CAR IF IT IS PLACED AT THE A-END. TWENTY-FOOT AND 40-FOOT UNITS CAN BE LOADED ON THE SAME CAR.

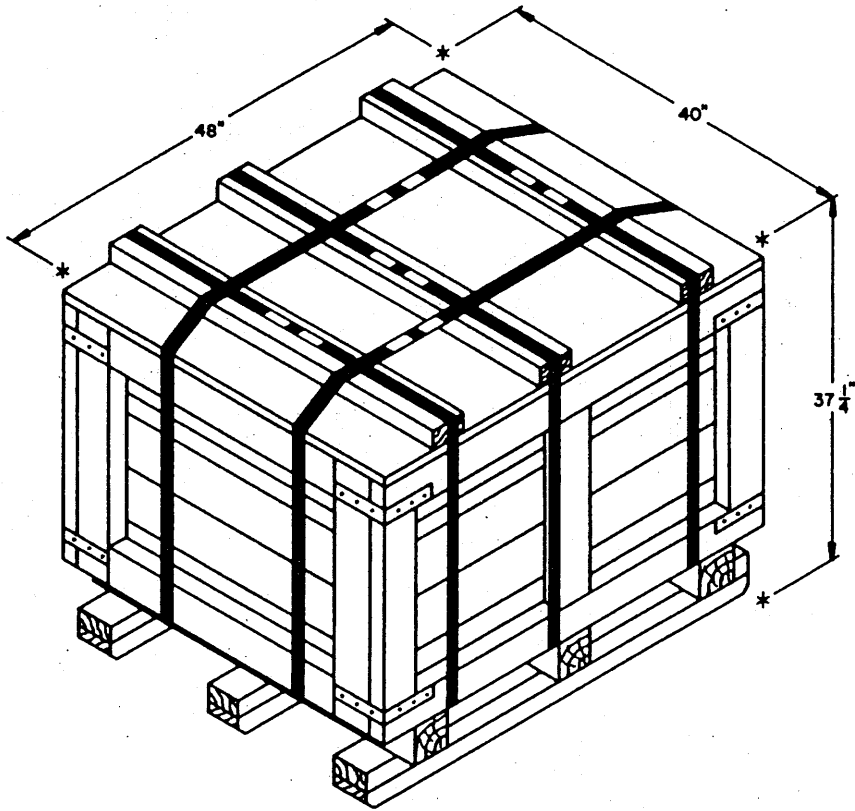
N. PALLET BOX WEIGHT VS RECOMMENDED LOADING PROCEDURE:

- 1,865 LBS OR LESS -- PROCEDURES ON PAGES 10 AND 11 RECOMMENDED.
- 1,866 - 2,000 LBS ---- PROCEDURES ON PAGES 8 AND 9 RECOMMENDED.
- 2,001 - 2,425 LBS ---- PROCEDURES ON PAGES 4 THRU 7 RECOMMENDED.

REGARDLESS OF THE WEIGHT OF THE UNIT TO BE LOADED, THE LOADING PROCEDURES SELECTED SHOULD BE THOSE WHICH WILL MOST EFFICIENTLY FULFILL THE BLOCKING AND BRACING REQUIREMENTS FOR THAT UNIT, AND BEST SATISFIES THE QUANTITY OF UNITS TO BE SHIPPED. ALTHOUGH CRITERIA OF THIS NOTE IS BASED ON THE OBJECTIVE OF ACHIEVING MAXIMUM SIZE LOADS, THE DATA OF GENERAL NOTES "B" AND "L" MUST ALSO BE OBSERVED DURING "LOAD PLANNING".

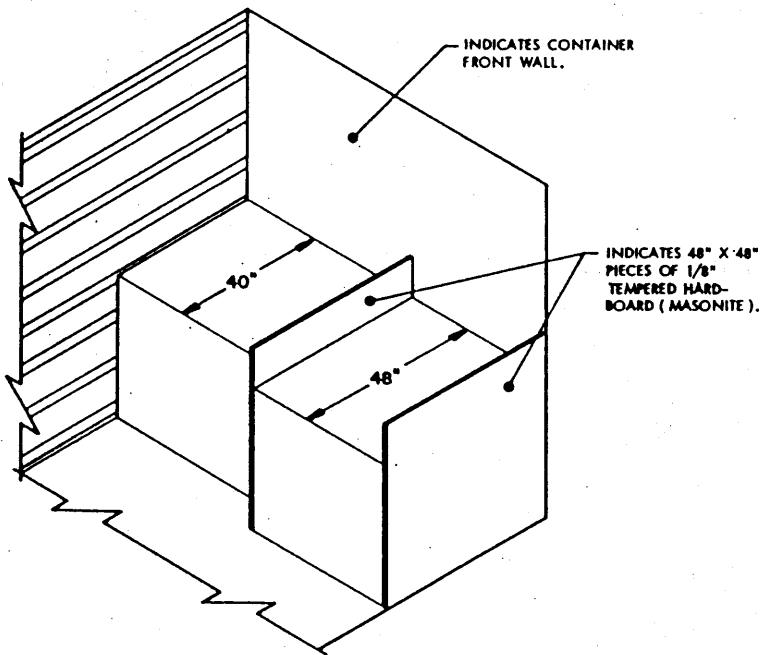
MATERIAL SPECIFICATIONS

- LUMBER** -----: SEE TM 743-200-1, DUNNAGE LUMBER; FED SPEC MM-L-751.
- NAILS** -----: COMMON, CEMENT COATED OR CHEMICALLY ETCHED;
FED SPEC FF-N-105.
ALT: ANNULAR-RING TYPE NAIL OF THE SAME SIZE.
- WIRE** -----: FED SPEC QQ-W-461.
- STRAPPING, STEEL** : TYPE I OR IV, CLASS A OR B, FED SPEC QQ-S-781.
- SEAL STRAP,
STAPLE STRAP** ----: COMMERCIAL GRADE.



UNIT DETAIL

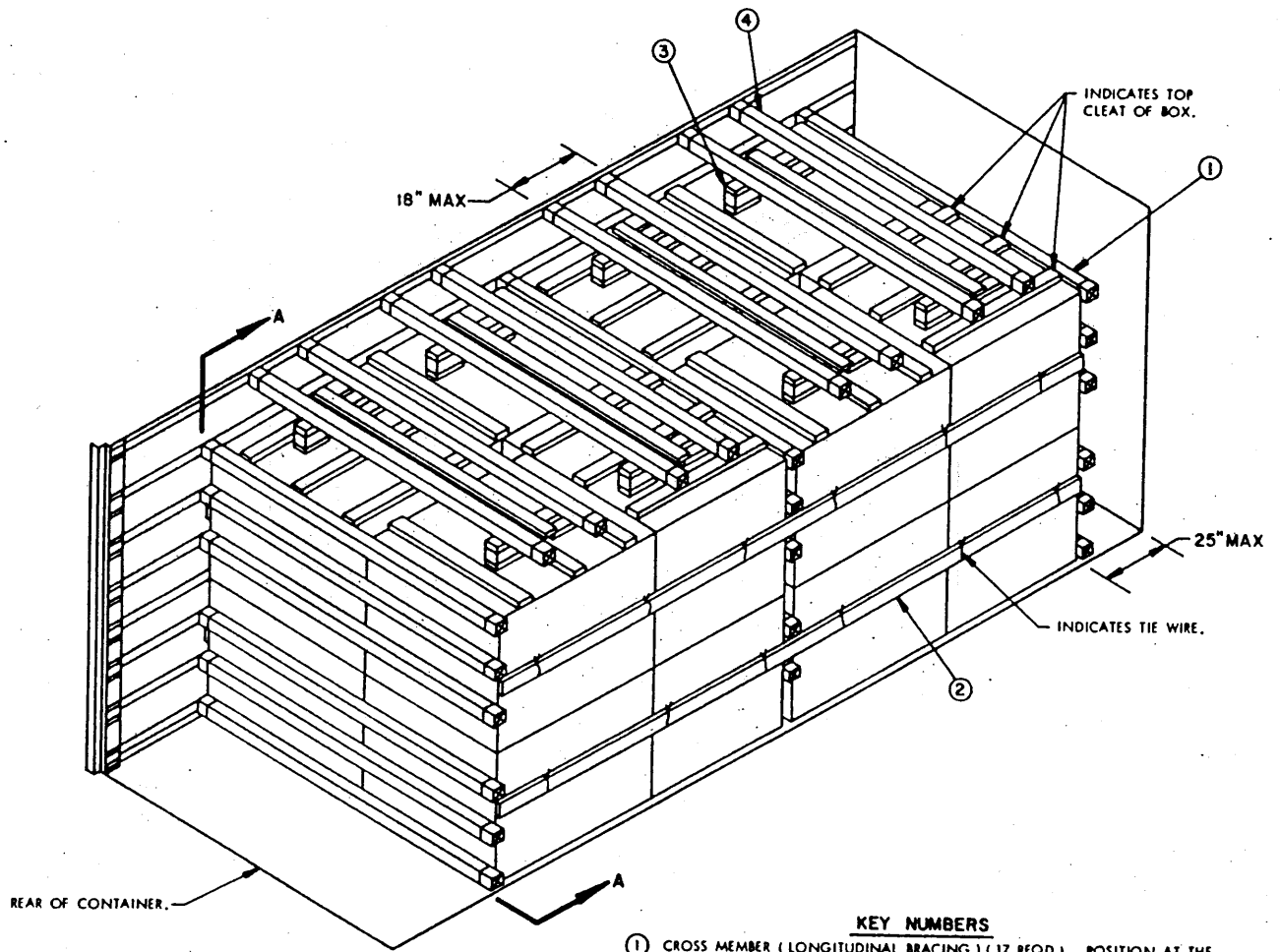
CUBE ----- 41.4 CUBIC FEET.



"SHOEHORN" LOADING METHOD

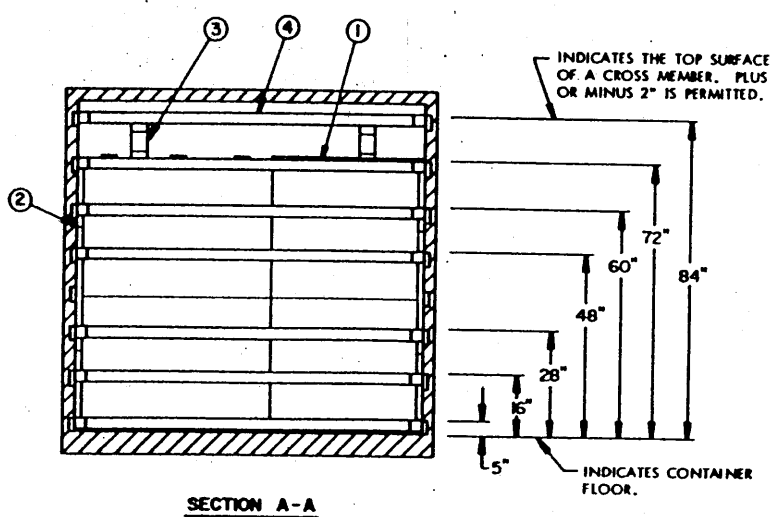
DURING LOADING OPERATIONS, A "SHOEHORN" TYPE DEVICE CAN BE USED TO PREVENT DAMAGE TO UNIT STRAPS AND/OR HOLD-DOWN STRAPS. THIS DEVICE WILL CONSIST OF TWO (2) 48" X 48" PIECES OF 1/8" TEMPERED HARDBOARD (MASONITE). AFTER ONE UNIT IS POSITIONED IN THE CONTAINER, POSITION ONE PIECE OF HARDBOARD AGAINST THE SIDE OF THE UNIT AND ONE PIECE AGAINST THE CONTAINER SIDE WALL. THIS WILL PROVIDE A SMOOTH SURFACE TO PREVENT STRAP "HANG-UP" WHEN POSITIONING THE LATERALLY ADJACENT PALLET UNIT IN PLACE. AFTER THE UNIT IS IN PLACE, THE HARDBOARD WILL BE REMOVED.

PALLET BOX WEIGHT CHART		
CALIBER CARTRIDGE	APPROX NUMBER OF CARTRIDGES PACKED/BOX	APPROX WEIGHT OF BOX WITH AMMUNITION ITEMS
37MM	375	1295 LBS
40MM	1850	1825 LBS
	1260	1932 LBS
57MM	154 TO 224	1985 TO 2105
60MM	280 TO 378	1965 TO 2315
75MM	48	1865 LBS
76MM	35	1475 LBS
81MM	82 TO 90	1409 TO 1505
90MM	16 TO 25	1225 TO 1675
105MM	20 TO 40	1435 TO 2425

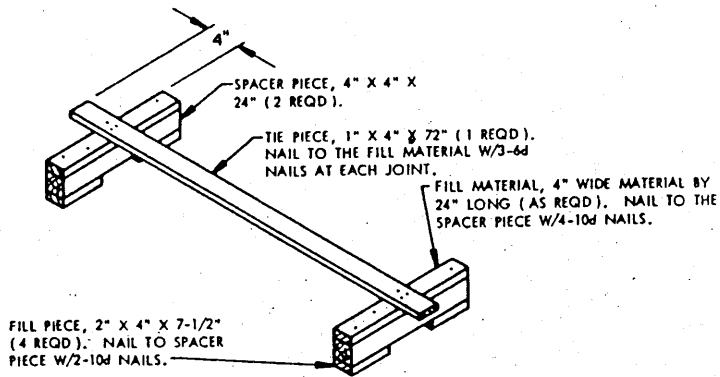


ISOMETRIC VIEW
SEE THE "LOADING PATTERN A" DETAIL ON PAGE 5 FOR UNIT POSITIONING GUIDANCE.

- KEY NUMBERS**
- ① CROSS MEMBER (LONGITUDINAL BRACING) (17 REQD). POSITION AT THE HEIGHTS AS SPECIFIED IN THE "SECTION A-A" VIEW.
 - ② SIDE FILL, 2" X 4" BY LADING LENGTH (4 REQD). INSTALL IN RANDOM LENGTH PIECES AND WIRE-TIE TO THE 28" AND 60" HIGH BELT RAILS ON EACH SIDE OF THE CONTAINER. SEE THE "SIDE FILL DETAIL" ON PAGE 5.
 - ③ HOLD-DOWN ASSEMBLY A (4 REQD). SEE THE DETAIL ON PAGE 5.
 - ④ CROSS MEMBER (HOLD DOWN) (8 REQD). POSITION AT THE HEIGHT SPECIFIED IN THE "SECTION A-A" VIEW.



SECTION A-A



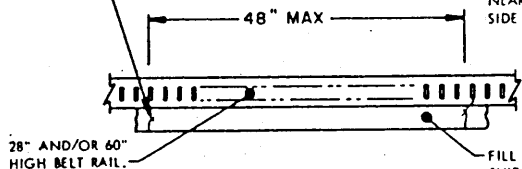
HOLD-DOWN ASSEMBLY A

SPECIAL NOTES:

1. THE LOAD AS SHOWN ON PAGE 4 DEPICTS A "CHIMNEY" LOADING PATTERN WHICH MAY BE USED FOR SHIPPING A 16-UNIT LOAD OF RETROGRADE BOXES WHICH HAVE A UNIT WEIGHT OF 2,425 POUNDS OR LESS.
2. IF DESIRED AND IF ITEMS WITH A UNIT WEIGHT OF 1,865 TO 2,000 POUNDS ARE TO BE LOADED, THE PROCEDURES SPECIFIED BY THE LOAD SHOWN ON PAGE 8 MAY BE IMPLEMENTED, THUS ACHIEVING A "STRAIGHT" LOADING PATTERN.
3. IF ITEMS WITH A UNIT WEIGHT OF 1,865 POUNDS OR LESS ARE TO BE LOADED, IT IS RECOMMENDED THAT THE PROCEDURES SPECIFIED BY THE LOAD SHOWN ON PAGE 10 BE IMPLEMENTED, THUS PROVIDING FOR AN 18-UNIT LOAD RATHER THAN A 16-UNIT LOAD.
4. SPECIFICATIONS FOR THE LOADS SHOWN ON PAGES 6 AND 8, AND FOR THE "ONE-LAYER HOLD-DOWN METHOD" SHOWN ON PAGE 9 WILL BE APPLIED, SEPARATELY OR IN COMBINATION, TO BLOCK AND BRACE OTHER THAN 16-UNIT LOADS. SEE GENERAL NOTE "N" ON PAGE 2.

TIE WIRE, NO. 14 GAGE WIRE 18" LONG. WIRE TO FORM A COMPLETE LOOP THRU HOLE IN BELT RAIL AND AROUND FILL PIECE, BRINGS ENDS TOGETHER AND TWIST TAUT. REQD NEAR EACH END OF A FILL PIECE AND EVERY 48" OF FILL PIECE LENGTH AS SHOWN.

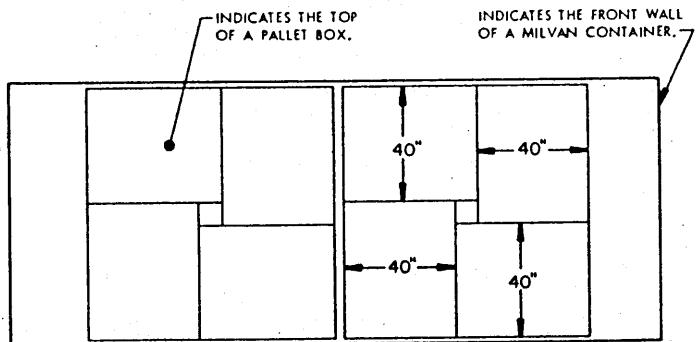
RETAINER NAIL, 10d NAIL BENT OVER THE WIRE TO PREVENT LONGITUDINAL MOVEMENT OF PIECE MARKED (2) (1 REQD NEAR EACH END OF EACH LENGTH OF SIDE FILL PIECES).



SIDE FILL DETAIL

FILL PIECE, 2" X 4" BY LENGTH-TO-SUIT. RANDOM LENGTH PIECES MAY BE USED (AS REQD). REQD AT THE 28" AND 60" HIGH BELT RAILS ON EACH SIDE WALL.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	24	8
2" X 4"	86	58
4" X 4"	16	20
NAILS	NO. REQD	POUNDS
6d (2")	24	1/2
10d (3")	64	1
WIRE, NO. 14 GAGE	36' REQD	1 LB
CROSS MEMBER	25 REQD	



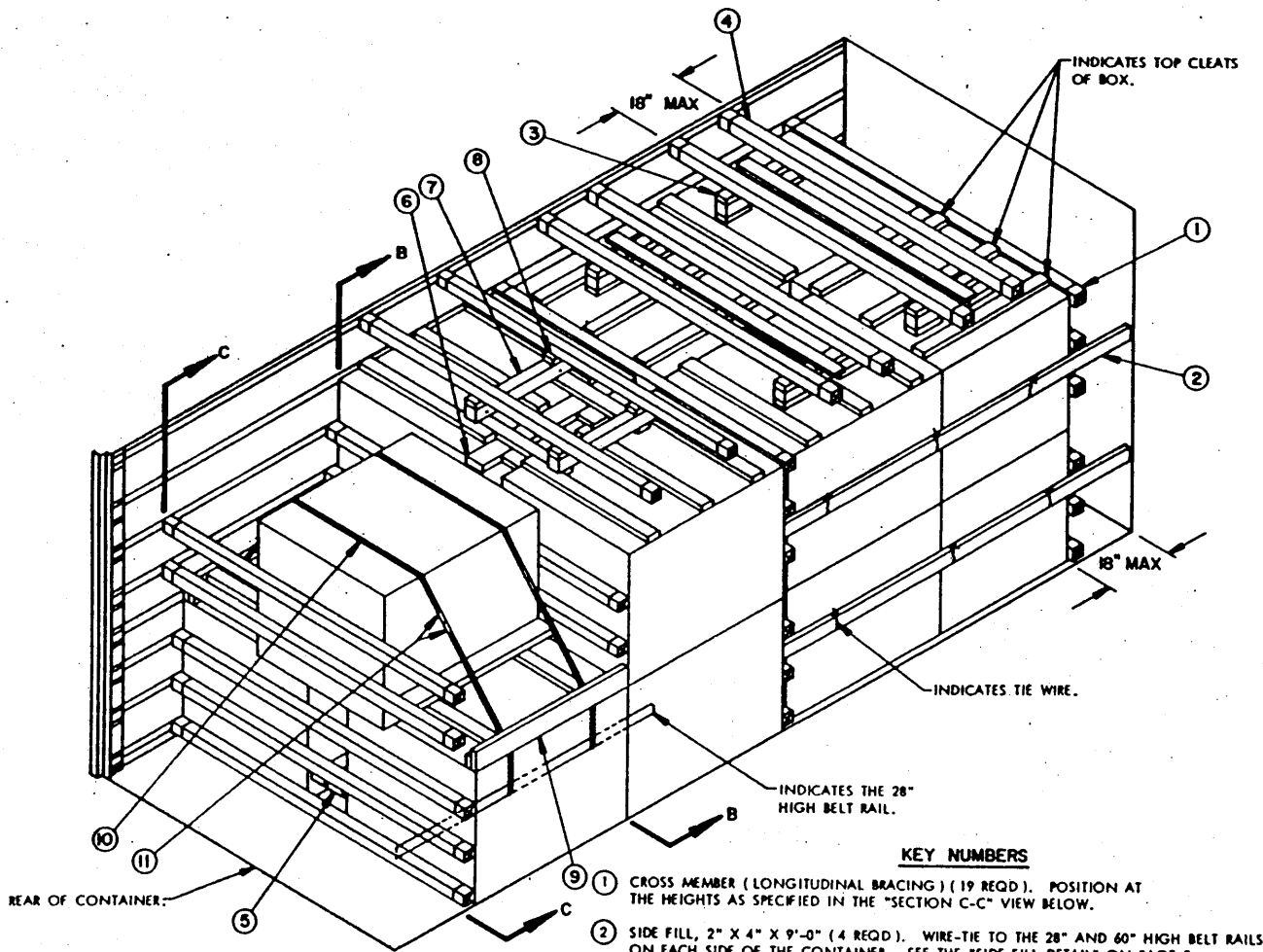
LOADING PATTERN A

THE DETAIL ABOVE SHOWS A PLAN VIEW OF THE "CHIMNEY" LOADING PATTERN SPECIFIED FOR THE LOAD DELINEATED ON PAGE 4. NOTE THAT LOAD-BRACING COMPONENTS/DUNNAGE HAVE BEEN OMITTED FOR CLARITY PURPOSES.

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET BOX	16	38,800 LBS*
DUNNAGE		217 LBS
CONTAINER		5,700 LBS
TOTAL GROSS WEIGHT		44,717 LBS

* WEIGHT IS BASED ON A UNIT WEIGHT OF 2,425 LBS PER PALLET BOX.



ISOMETRIC VIEW
(KEY NUMBERS CONTINUED)

⑨ SIDE BLOCKING (2 REQD). SEE THE DETAIL ON PAGE 7.

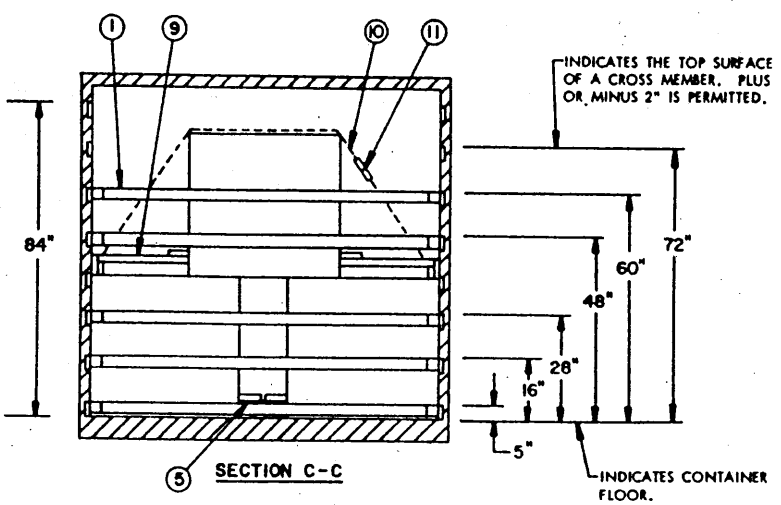
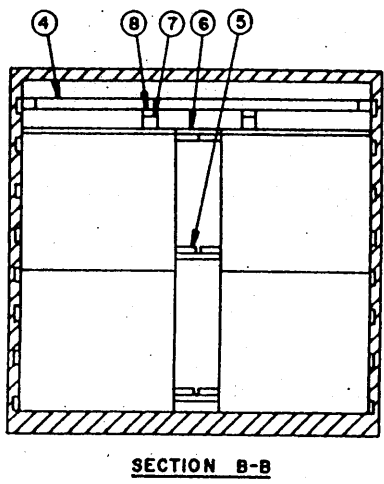
⑩ HOLD-DOWN STRAP, 1-1/4" X .035" X 16'-0" LONG STEEL STRAPPING (2 REQD). INSTALL EACH STRAP FROM TWO PIECES. ATTACH TO THE 28" HIGH BELT RAIL AT EACH SIDE OF THE CONTAINER.

⑪ SEALS FOR 1-1/4" STRAPPING (8 REQD, 4 PER STRAP). SEE GENERAL NOTE "E" ON PAGE 2.

(SEE THE "LOADING PATTERN B" DETAIL ON PAGE 7 FOR UNIT POSITIONING GUIDANCE).

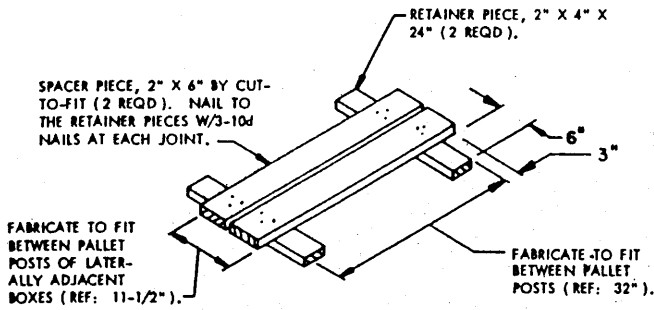
- KEY NUMBERS**
- ① CROSS MEMBER (LONGITUDINAL BRACING) (19 REQD). POSITION AT THE HEIGHTS AS SPECIFIED IN THE "SECTION C-C" VIEW BELOW.
 - ② SIDE FILL, 2" X 4" X 9'-0" (4 REQD). WIRE-TIE TO THE 28" AND 60" HIGH BELT RAILS ON EACH SIDE OF THE CONTAINER. SEE THE "SIDE FILL DETAIL" ON PAGE 5.
 - ③ HOLD-DOWN ASSEMBLY A (2 REQD). SEE THE DETAIL ON PAGE 5.
 - ④ CROSS MEMBER (HOLD DOWN) (6 REQD). POSITION AT THE HEIGHT AS SPECIFIED IN THE "SECTION B-B" DETAIL BELOW.
 - ⑤ ANTI-SWAY ASSEMBLY (3 REQD). SEE THE DETAIL ON PAGE 7.
 - ⑥ TOP ANTI-SWAY/HOLD-DOWN ASSEMBLY (1 REQD). SEE THE DETAIL ON PAGE 7.
 - ⑦ SPACER PIECE, 4" X 4" X 30" (2 REQD). TOENAIL TO PIECE MARKED ⑥ W/1-10d NAIL AT EACH JOINT.
 - ⑧ FILL MATERIAL, 1" X 4" X 6" AND/OR 2" X 4" X 6", AS REQUIRED TO FILL THE VOID BETWEEN THE SPACER PIECE AND THE CROSS MEMBER (REQD AT FOUR LOCATIONS). NAIL TO THE SPACER PIECE W/2-10d NAILS.

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SPECIAL NOTES:

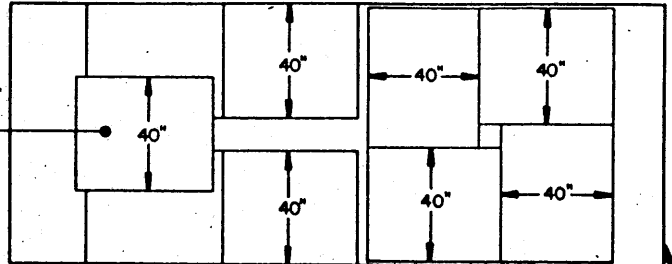
1. THE LOAD AS SHOWN ON PAGE 6 DEPICTS A LOADING PATTERN WHICH MAY BE USED FOR SHIPPING A 15-UNIT LOAD OF RETROGRADE BOXES WHICH HAVE A UNIT WEIGHT OF 2,425 POUNDS OR LESS.
2. TO SHIP A 16-UNIT LOAD OF THESE UNITS, THE PROCEDURES SPECIFIED BY THE LOAD SHOWN ON PAGE 4 MUST BE USED.
3. IF DESIRED AND IF ITEMS WITH A UNIT WEIGHT OF 1,865 TO 2,000 POUNDS ARE TO BE LOADED, THE PROCEDURES SPECIFIED BY THE LOAD SHOWN ON PAGE 8 MAY BE IMPLEMENTED, THUS ACHIEVING A "STRAIGHT" LOADING PATTERN THROUGHOUT THE FULL LENGTH OF A CONTAINER.
4. SPECIFICATIONS FOR THE LOADS SHOWN ON PAGE 4, 6 AND 8, AND FOR THE "ONE-LAYER HOLD-DOWN METHOD" SHOWN ON PAGE 9 WILL BE APPLIED, SEPARATELY OR IN COMBINATION, TO BLOCK AND BRACE OTHER THAN 15-UNIT LOADS. SEE GENERAL NOTE "N" ON PAGE 2.



ANTI-SWAY ASSEMBLY

THIS ASSEMBLY MUST BE FABRICATED IN PLACE, BETWEEN THE PALLETS.

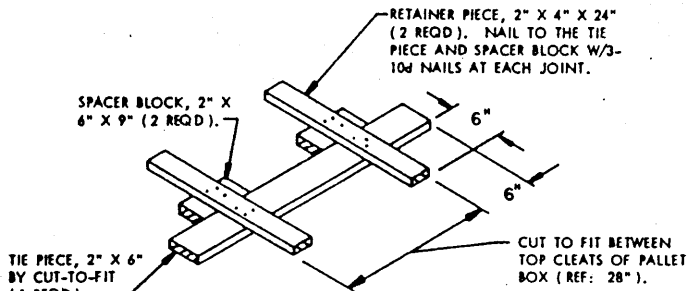
INDICATES THE TOP OF A PALLET BOX.



LOADING PATTERN B

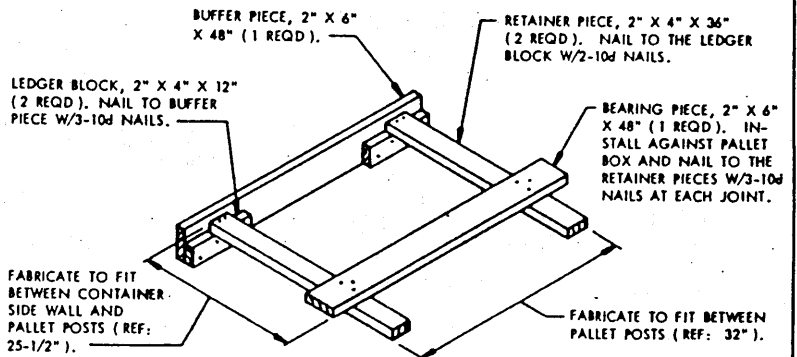
INDICATES THE FRONT WALL OF A MILVAN CONTAINER.

THE DETAIL ABOVE SHOWS A PLAN VIEW OF THE LOADING PATTERN SPECIFIED FOR THE LOAD DELINEATED ON PAGE 4. NOTE THAT LOAD-BRACING COMPONENTS/DUNNAGE HAVE BEEN OMITTED FOR CLARITY PURPOSES.



TOP ANTI-SWAY/HOLD DOWN ASSEMBLY

THIS ASSEMBLY MUST BE FABRICATED AND INSTALLED AS A UNIT.



SIDE BLOCKING

(2 REQD).

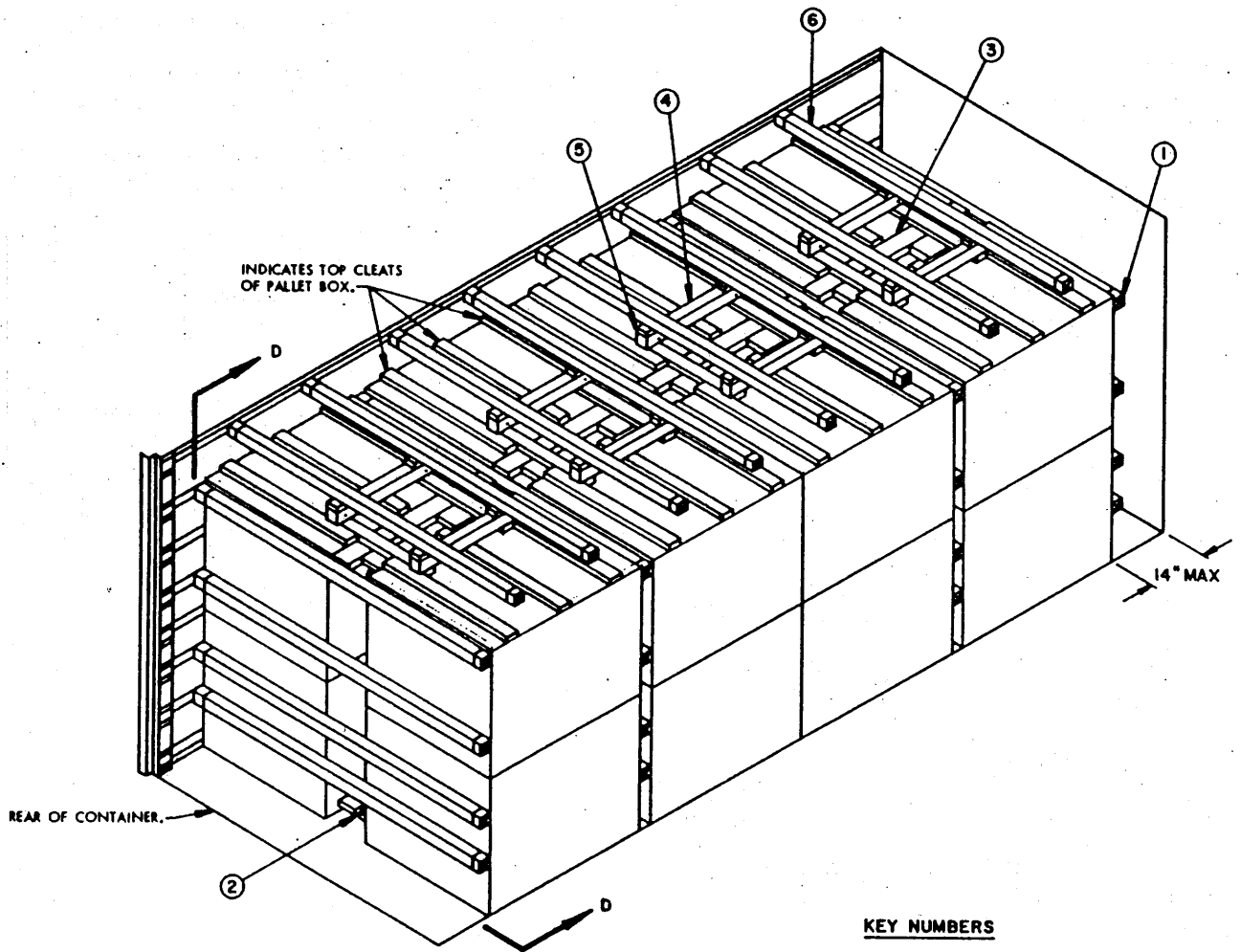
BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	12	4
2" X 4"	75	50
2" X 6"	40	40
4" X 4"	5	7
NAILS	NO. REQD	POUNDS
6d (2")	12	NIL
10d (3")	112	2
STEEL STRAPPING, 1-1/4" X .035"	32' REQD	5 LBS
SEALS FOR 1-1/4" STRAPPING	8 REQD	NIL
WIRE, NO. 14 GAGE	18' REQD	1 LB
CROSS MEMBER		25 REQD

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET BOX	15	36,375 LBS *
DUNNAGE		261 LBS
CONTAINER		5,700 LBS

TOTAL GROSS WEIGHT --- 42,336 LBS

* WEIGHT IS BASED ON A UNIT WEIGHT OF 2,425 LBS PER PALLET BOX.

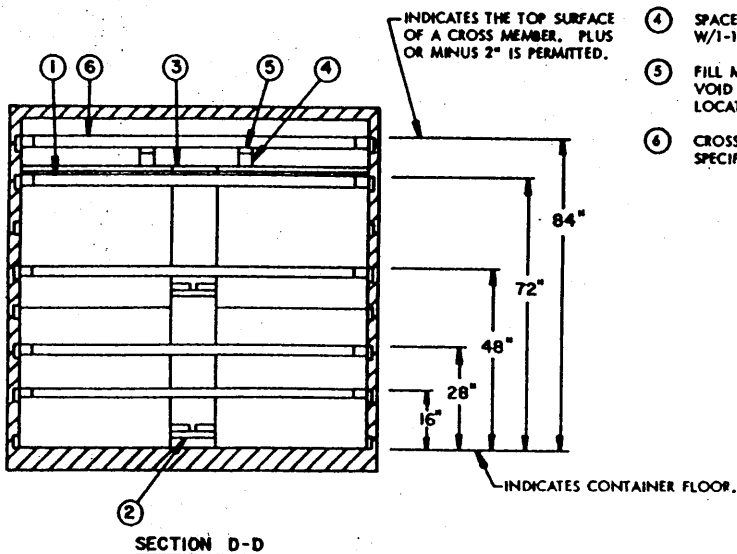


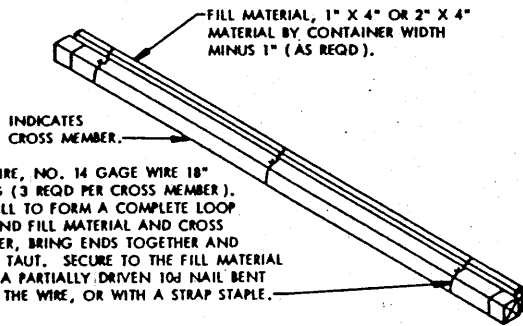
ISOMETRIC VIEW

SEE THE "LOADING PATTERN C" DETAIL ON PAGE 9 FOR UNIT POSITIONING GUIDANCE.

KEY NUMBERS

- ① CROSS MEMBER (LONGITUDINAL BRACING) (16 REQ). POSITION AT THE HEIGHTS AS SPECIFIED IN THE "SECTION D-D" VIEW BELOW.
- ② ANTI-SWAY ASSEMBLY (8 REQ). SEE THE DETAIL ON PAGE 7.
- ③ TOP ANTI-SWAY/HOLD DOWN ASSEMBLY (4 REQ). SEE THE DETAIL ON PAGE 7.
- ④ SPACER PIECE, 4" X 4" X 30" (8 REQ). TOENAIL TO PIECE MARKED ③ W/1-10d NAIL AT EACH JOINT.
- ⑤ FILL MATERIAL, 1" X 4" X 6" AND/OR 2" X 4" X 6", AS REQ TO FILL THE VOID BETWEEN THE SPACER PIECE AND THE CROSS MEMBER (REQD AT 16 LOCATIONS). NAIL TO THE SPACER PIECE W/2-10d NAILS.
- ⑥ CROSS MEMBER (HOLD-DOWN) (8 REQ). POSITION AT THE HEIGHT AS SPECIFIED IN THE "SECTION D-D" VIEW.





FILL DETAIL

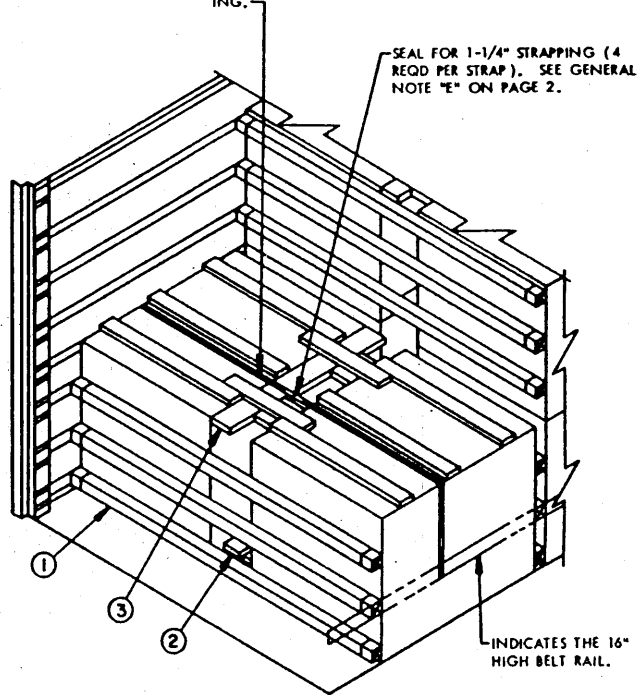
THIS DETAIL DEPICTS METHOD OF POSITIONING FILL MATERIAL BETWEEN CROSS MEMBER AND LADING, WHEN THE VOID BETWEEN THE TWO IS GREATER THAN ONE INCH (1") FOR LONGITUDINAL BRACING.

SPECIAL NOTES:

1. THE LOAD AS SHOWN ON PAGE 8 DEPICTS A "STRAIGHT" LOADING PATTERN WHICH MAY BE USED FOR SHIPPING A 16-UNIT LOAD OF RETROGRADE BOXES WHICH HAVE A UNIT WEIGHT OF 2,000 POUNDS OR LESS.
2. IF HEAVIER ITEMS ARE TO BE LOADED, THE PROCEDURES SPECIFIED BY THE LOADS ON PAGES 4 AND/OR 6 MUST BE USED.
3. IF ITEMS WITH A UNIT WEIGHT OF 1,865 POUNDS OR LESS ARE TO BE LOADED, IT IS RECOMMENDED THAT THE PROCEDURES SPECIFIED BY THE LOAD SHOWN ON PAGE 10 BE IMPLEMENTED, THUS PROVIDING FOR AN 18-UNIT LOAD RATHER THAN A 16-UNIT LOAD.
4. SPECIFICATIONS FOR THE LOADS SHOWN ON PAGES 6 AND 10, AND FOR THE "ONE-LAYER HOLD-DOWN METHOD" SHOWN ON THIS PAGE WILL BE APPLIED, SEPARATELY OR IN COMBINATION, TO BLOCK AND BRACE OTHER THAN 16-UNIT LOADS. SEE GENERAL NOTE "N" ON PAGE 2.
5. ALSO, THE "ONE-LAYER HOLD-DOWN METHOD" SHOWN AT RIGHT MAY BE USED FOR A 1-WIDE BAY; HOWEVER, THE STRAP MUST THEN BE ANCHORED AT THE 28" HIGH BELT RAIL AND THREADED DOWN BEHIND THE 16" HIGH BELT RAIL BEFORE PASSING UP AND OVER THE LADING.

HOLD-DOWN STRAP, 1-1/4" X .035" BY LENGTH-TO-SUIT (1 REQD). ATTACH TO THE 16" HIGH BELT RAIL AT EACH SIDE OF THE CONTAINER. EACH OF THE "HOLD-DOWN STRAP" ASSEMBLIES SHOULD BE FORMED FROM TWO PIECES OF STRAPPING SO THAT THE TWO PIECES CAN BE BROUGHT TOGETHER ABOVE THE LOAD FOR TENSIONING AND SEALING.

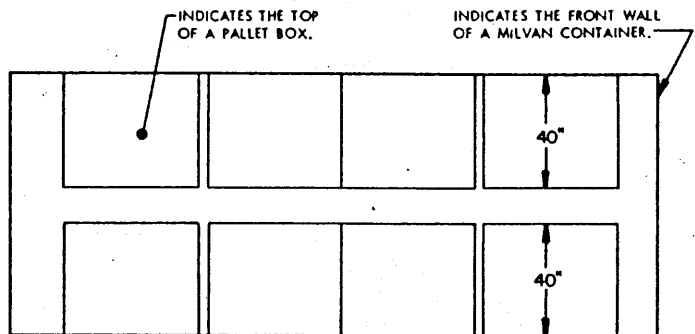
SEAL FOR 1-1/4" STRAPPING (4 REQD PER STRAP). SEE GENERAL NOTE "E" ON PAGE 2.



ONE-LAYER HOLD-DOWN METHOD

THE DETAIL ABOVE SPECIFIES A HOLD-DOWN METHOD TO BE USED IN A "REDUCED-LOAD" CONTAINER LOAD. THIS DETAIL IS SHOWN FOR THE LOAD ON PAGE 8, BUT MAY BE USED WITH ANY LOADING PATTERN. THIS "STRAP HOLD-DOWN" METHOD MAY BE USED THROUGHOUT AN ENTIRE LOAD OF 2-WIDE, 1-HIGH UNITS, IF DESIRED.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	24	8
2" X 4"	58	38
2" X 6"	51	51
4" X 4"	16	20
NAILS	NO. REQD	POUNDS
6d (2")	24	1/2
10d (3")	160	2-3/4
CROSS MEMBER -----		24 REQD



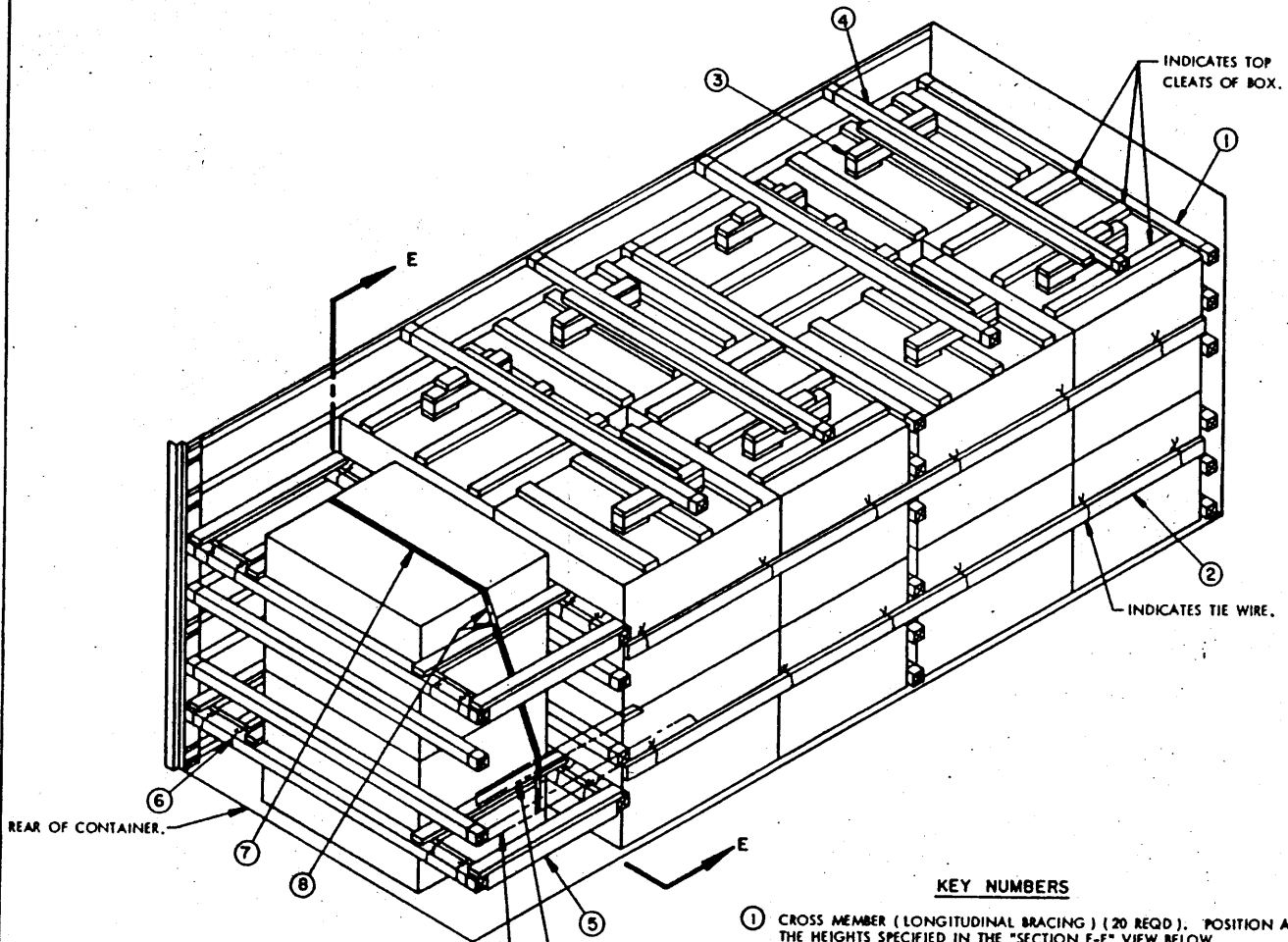
LOADING PATTERN C

THE DETAIL ABOVE SHOWS A PLAN VIEW OF THE "STRAIGHT" LOADING PATTERN SPECIFIED FOR THE LOAD DELINEATED ON PAGE 8. NOTE THAT LOAD-BRACING COMPONENTS/DUNNAGE HAVE BEEN OMITTED FOR CLARITY PURPOSES.

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET BOX -----	16 -----	32,000 LBS *
DUNNAGE -----		296 LBS
CONTAINER -----		5,700 LBS
TOTAL GROSS WEIGHT ----		37,996 LBS

* WEIGHT IS BASED ON A UNIT WEIGHT OF 2,000 LBS PER PALLET BOX.



ISOMETRIC VIEW

SEE THE "LOAD PATTERN D" DETAIL ON PAGE 11 FOR UNIT POSITIONING GUIDANCE.

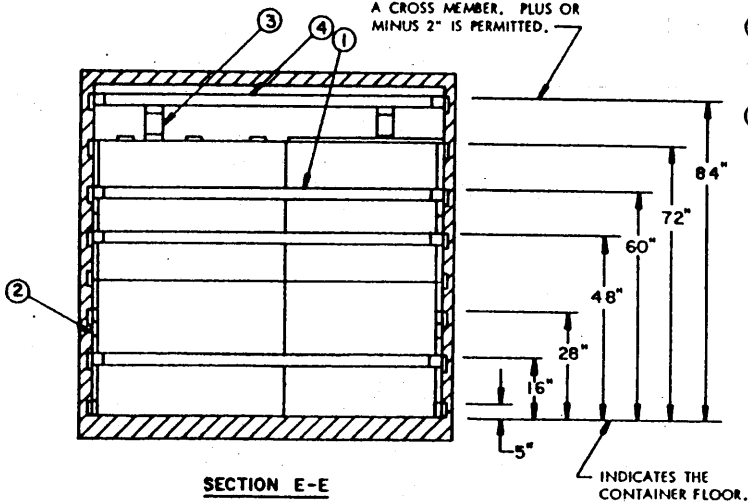
INDICATES THE 38" HIGH BELT RAIL.

INDICATES THE 28" HIGH BELT RAIL.

KEY NUMBERS

- ① CROSS MEMBER (LONGITUDINAL BRACING) (20 REQD.). POSITION AT THE HEIGHTS SPECIFIED IN THE "SECTION E-E" VIEW BELOW.
- ② SIDE FILL, 2" X 4" BY LADING LENGTH (4 REQD.). INSTALL IN RANDOM LENGTH PIECES AND WIRE-TIE TO THE 28" AND 60" HIGH BELT RAILS ON EACH SIDE OF THE CONTAINER. SEE THE "SIDE FILL" DETAIL ON PAGE 5.
- ③ HOLD-DOWN ASSEMBLY B (4 REQD.). SEE THE DETAIL ON PAGE 11.
- ④ CROSS MEMBER (HOLD-DOWN) (4 REQD.). POSITION AT THE HEIGHT AS SPECIFIED IN THE "SECTION E-E" VIEW BELOW.
- ⑤ SPACER ASSEMBLY (4 REQD.). SEE THE DETAIL ON PAGE 11.
- ⑥ TIE WIRE, NO. 14 GAGE WIRE 18" LONG (16 REQD.). INSTALL TO FORM A COMPLETE LOOP AROUND SPACER ASSEMBLY AND CROSS MEMBER, BRING ENDS TOGETHER AND TWIST TAUT. SECURE TO THE SPACER ASSEMBLY WITH A PARTIALLY DRIVEN 10d NAIL BENT OVER THE WIRE, OR WITH A STRAP STAPLE.
- ⑦ HOLD-DOWN STRAP, 1-1/4" X .035" X 16'-0" LONG STEEL STRAPPING (1 REQD.). INSTALL FROM TWO 8'-0" LONG PIECES. ATTACH TO THE 28" HIGH BELT RAIL ON EACH SIDE OF THE CONTAINER, THREAD BEHIND THE 38" HIGH BELT RAIL AND OVER THE LADING.
- ⑧ SEALS FOR 1-1/4" STRAPPING (4 REQD.). SEE GENERAL NOTE "E" ON PAGE 2.

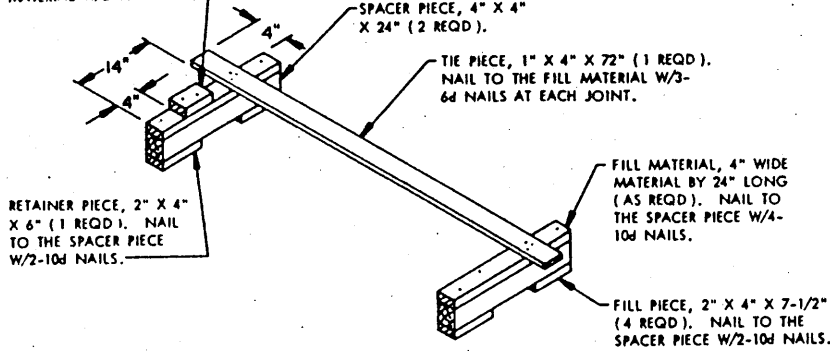
INDICATES THE TOP SURFACE OF A CROSS MEMBER. PLUS OR MINUS 2" IS PERMITTED.



SECTION E-E

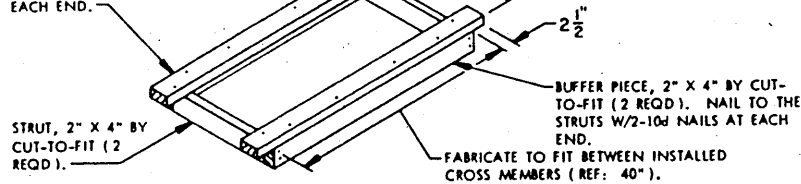
INDICATES THE CONTAINER FLOOR.

RETAINER BLOCK, 2" X 4" X 6"
(1 REQD.). NAIL TO THE FILL
MATERIAL W/2-10d NAILS.



HOLD DOWN ASSEMBLY B

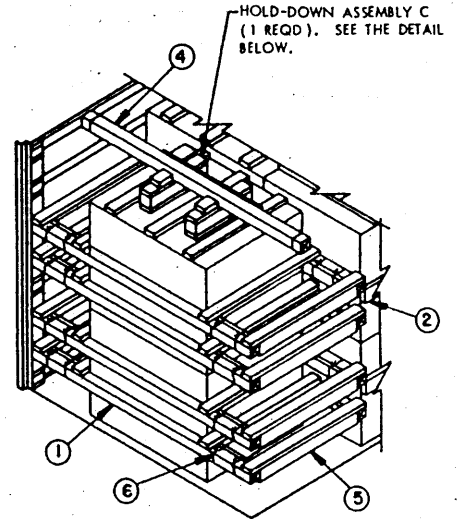
RETAINER PIECE, 2" X 4" BY CUT-
TO-FIT (2 REQD.). NAIL TO THE
BUFFER PIECE W/4-10d NAILS AND
TO THE STRUTS W/1-10d NAIL AT
EACH END.



SPACER ASSEMBLY

SPECIAL NOTES:

1. THE LOAD AS SHOWN ON PAGE 10 DEPICTS A LOADING PATTERN WHICH MAY BE USED FOR SHIPPING AN 18-UNIT LOAD OF RETROGRADE BOXES WHICH HAVE A UNIT WEIGHT OF 1,865 POUNDS OR LESS.
2. IF HEAVIER ITEMS ARE TO BE LOADED, THE PROCEDURES SPECIFIED BY THE LOADS ON PAGES 4, 6, AND 8 MUST BE USED.
3. SPECIFICATIONS FOR THE LOADS SHOWN ON PAGES 4, 6, AND 8, AND FOR THE "ONE-LAYER HOLD-DOWN METHOD" SHOWN ON PAGE 9 WILL BE APPLIED, SEPARATELY OR IN COMBINATION, TO BLOCK AND BRACE OTHER THAN 18-UNIT LOADS. SEE GENERAL NOTE "N" ON PAGE 2.
4. ALSO, THE "STRAPPING HOLD-DOWN METHOD" SHOWN ON PAGE 10 MAY BE USED FOR A 1-UNIT BAY; HOWEVER, THE STRAP MUST THEN BE ANCHORED AT THE 28" HIGH BELT RAIL AND PASSED DOWN BEHIND THE 16" HIGH BELT RAIL BEFORE BEING PASSED UP AND OVER THE LADING.

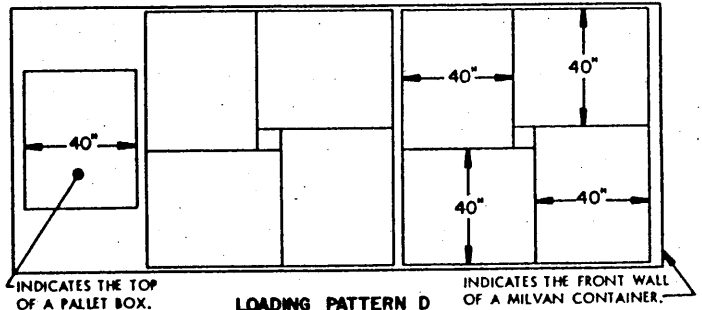


**ALTERNATIVE REAR STACK
HOLD DOWN METHOD (CROSS MEMBER)**

THE DETAIL ABOVE SPECIFIES AN ALTERNATIVE METHOD FOR RESTRAINING A 1-WIDE BAY IN A VERTICAL DIRECTION. THIS DETAIL DELINEATES THE LOAD SHOWN ON PAGE 10.

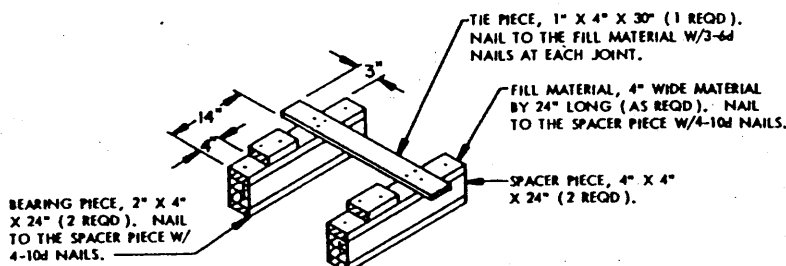
BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	24	8
2" X 4"	157	103
4" X 4"	16	20
NAILS	NO. REQD	POUNDS
6d (2")	24	1/2
10d (3")	152	3
STEEL STRAPPING, 1-1/4" X .035" -----	16' REQD -----	3 LBS
SEALS FOR 1-1/4" STRAPPING -----	4 REQD -----	NIL
WIRE, NO. 14 GAGE -----	36' REQD -----	1 LB
CROSS MEMBER -----	24 REQD	



LOADING PATTERN D

THE DETAIL ABOVE SHOWS A PLAN VIEW OF THE LOADING PATTERN SPECIFIED FOR THE LOAD DELINEATED ON PAGE 10. NOTE THAT LOAD-BRACING COMPONENTS/DUNNAGE HAVE BEEN OMITTED FOR CLARITY PURPOSES.



HOLD DOWN ASSEMBLY C

THIS ASSEMBLY IS TO BE USED UNDER A CROSS MEMBER IN A 1-WIDE LOAD BAY AS SHOWN IN THE "ALTERNATIVE REAR STACK HOLD DOWN METHOD (CROSS MEMBER)" DETAIL ABOVE.

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET BOX	18	33,570 LBS *
DUNNAGE		334 LBS
CONTAINER		5,700 LBS
TOTAL GROSS WEIGHT		39,604 LBS

* WEIGHT IS BASED ON A UNIT WEIGHT OF 1,865 LBS PER PALLET BOX.

