

*Om / L*

DATE 5/21/05

# APPENDIX 48A

## LOADING AND BRACING PROCEDURES FOR STRATEGIC CONFIGURED LOAD (SCL) ON CONTAINER ROLL IN/OUT PLATFORM (CROP)

### SCL #48A - 105MM HERA M913

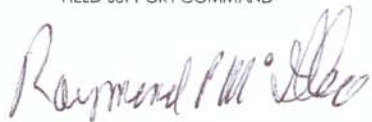



#### INDEX

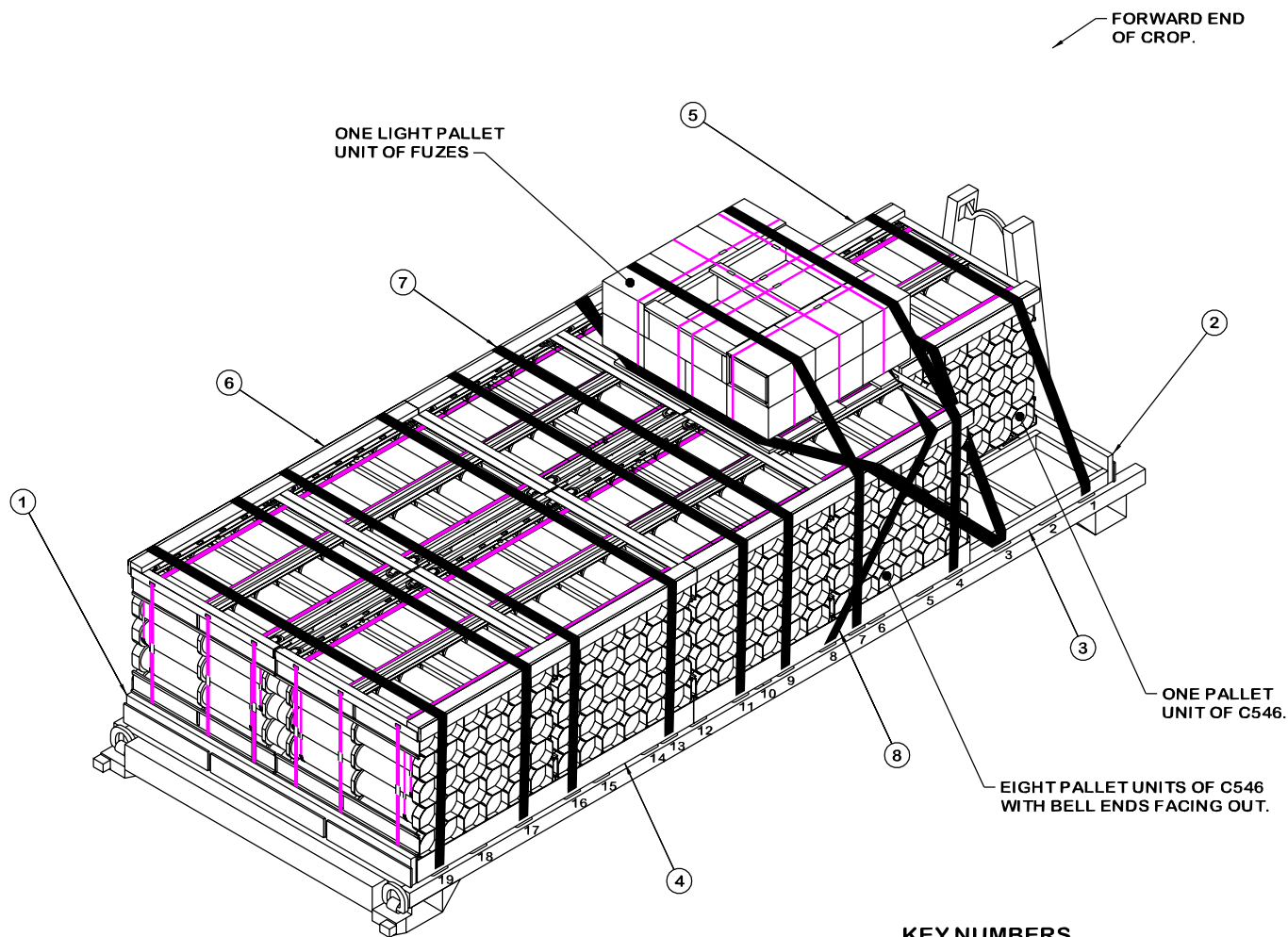
<u>ITEM</u>	<u>PAGE(S)</u>
TYPICAL LOADING PROCEDURES - - - - -	2
GENERAL NOTES AND SEQUENTIAL LOADING PROCEDURES - - - - -	3
PALLET UNIT DETAILS - - - - -	4-5
DETAILS - - - - -	6-7

**NOTICE:** THIS APPENDIX CANNOT STAND ALONE BUT MUST BE USED IN CONJUNCTION WITH THE BASIC CROP OUTLOADING PROCEDURES DRAWING 19-48-4905-CA17Q6.

- LOADING AND BRACING SPECIFICATIONS SET FORTH WITHIN THIS DRAWING ARE APPLICABLE TO LOADS THAT ARE TO BE SHIPPED BY TRAILER/CONTAINER-ON-FLATCAR (T/COFC) RAIL CARRIER SERVICE. THESE SPECIFICATIONS MAY ALSO BE USED FOR LOADS THAT ARE TO BE MOVED BY MOTOR OR WATER CARRIERS.

### U.S. ARMY MATERIEL COMMAND DRAWING

APPROVED, U.S. ARMY FIELD SUPPORT COMMAND  	<b>CAUTION: VERIFY PRIOR TO USE AT WWW.DAC.ARMY.MIL THAT THIS IS THE MOST CURRENT VERSION OF THIS DOCUMENT. THIS IS PAGE 1 OF 8.</b>						
	<b>DO NOT SCALE</b>		<b>APRIL 2005</b>				
APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL COMMAND  	ENGINEER OR TECHNICIAN	BASIC REV.	RICHARD GARSIDE				
	TRANSPORTATION ENGINEERING DIVISION						
	VALIDATION ENGINEERING DIVISION	TESTED	CLASS	DIVISION	DRAWING		
U.S. ARMY DEFENSE AMMUNITION CENTER	ENGINEERING DIRECTORATE			19	48	4905/ 48A	CA17Q6



**ISOMETRIC VIEW**

(KEY NUMBERS CONTINUED)

- ⑦ HOLD-DOWN STRAP, 3-INCH WIDE WEB STRAP TIED-DOWN ASSEMBLY FOR CROP (10 REQD). INSTALL EACH HOLD-DOWN STRAP TO EXTEND FROM THE DESIGNATED TIED-DOWN ANCHOR ON ONE SIDE OF CROP, OVER THE TOP OF THE STRAPPING BOARD ASSEMBLIES AND PALLET UNITS AND BACK DOWN TO THE CORRESPONDING TIED-DOWN ANCHOR ON THE OPPOSITE SIDE OF THE CROP. ALIGN SCUFF SLEEVES OVER ALL SHARP EDGES AND FIRMLY TENSION STRAP. SEE GENERAL NOTE "G" ON PAGE 3.
- ⑧ END RESTRAINT STRAP, 3-INCH WIDE WEB STRAP TIED-DOWN ASSEMBLY FOR CROP (2 REQD). INSTALL ONE RESTRAINT STRAP TO EXTEND FROM THE THIRD TIED-DOWN ANCHOR ON ONE SIDE OF THE CROP, AROUND THE BASE OF THE LIGHT PALLET UNIT, AND BACK DOWN TO THE THIRD TIED-DOWN ANCHOR ON THE OPPOSITE SIDE OF THE CROP. INSTALL THE OTHER RESTRAINT STRAP TO EXTEND FROM THE EIGHTH TIED-DOWN ANCHOR ON ONE SIDE OF THE CROP, AROUND THE BASE OF THE LIGHT PALLET UNIT, AND BACK DOWN TO THE EIGHTH TIED-DOWN ANCHOR ON THE OPPOSITE SIDE OF THE CROP. ALIGN SCUFF SLEEVES OVER ALL SHARP EDGES AND FIRMLY TENSION STRAP. SEE GENERAL NOTE "G" ON PAGE 3.

**KEY NUMBERS**

- ① AFT FILLER ASSEMBLY (1 REQD). SEE DETAIL ON PAGE 6. CENTER AGAINST AFT CROP END GATE AND NAIL W/2-12d NAILS THRU THE SLOTS IN THE AFT CROP END GATE INTO THE AFT FILLER ASSEMBLY, LEAVING THE NAIL HEADS PROTRUDING THRU THE SLOTS TO PROVIDE LATERAL RESTRAINT.
- ② FORWARD FILLER, 1" OR 2" X 8" X 7'-4" (AS REQD). LAMINATE EACH PIECE TO THE PREVIOUS PIECE W/8 NAILS OF SUITABLE SIZE. CENTER AGAINST THE FORWARD CROP END GATE AFTER THE PALLET UNITS ARE LOADED, AND NAIL THROUGH THE HOLES IN THE CROP END GATE W/2-12d NAILS INTO THE FORWARD FILLER ASSEMBLY, LEAVING THE NAIL HEADS PROTRUDING THROUGH THE HOLES TO PROVIDE LATERAL AND VERTICAL RESTRAINT.
- ③ SPACER ASSEMBLY (2 REQD). SEE DETAIL ON PAGE 7. INSTALL ONE ON EACH SIDE OF FORWARD PALLET UNIT.
- ④ SIDE BLOCKING ASSEMBLY (4 REQD). SEE DETAIL ON PAGE 7. INSTALL TWO ON EACH SIDE OF LOAD WITH RETAINER CLEATS RECESSED UNDER THE C546 PALLET UNITS.
- ⑤ STRAPPING BOARD ASSEMBLY A (2 REQD). SEE THE DETAIL ON PAGE 6. POSITION ON THE TOP EDGES OF THE PALLET UNIT AT THE FRONT OF THE CROP AS SHOWN.
- ⑥ STRAPPING BOARD ASSEMBLY B (4 REQD). SEE THE DETAIL ON PAGE 6. POSITION ON THE TOP EDGES OF THE PALLET UNITS AS SHOWN.

(CONTINUED AT LEFT)

**RECOMMENDED SEQUENTIAL PROCEDURES**

1. PREFABRICATE ONE AFT FILLER ASSEMBLY, TWO SPACER ASSEMBLIES, FOUR SIDE BLOCKING ASSEMBLIES, TWO STRAPPING BOARD ASSEMBLIES "A", FOUR STRAPPING BOARD ASSEMBLIES "B", AND ONE LIGHT PALLET UNIT OF FUZES.
2. INSTALL THE AFT FILLER ASSEMBLY AGAINST THE AFT CROP END GATE, AS INSTRUCTED IN KEY NUMBER ①. NAIL TWO 12d RESTRAINER NAILS INTO THE AFT FILLER ASSEMBLY, AS INSTRUCTED IN KEY NUMBER ①.
3. LOAD EIGHT C546 PALLET UNITS ON THE CROP, IN FOUR ROWS OF TWO. CENTER THE FIRST ROW OF PALLET UNITS AGAINST THE AFT FILLER ASSEMBLY AND PLACE EACH REMAINING ROW OF PALLET UNITS TIGHT AGAINST THE PREVIOUS ROW OF PALLET UNITS.
4. LOAD ONE C546 PALLET UNIT ON THE CROP, CENTERED AGAINST THE PREVIOUS ROW OF PALLET UNITS, ORIENTED LIKE THE PREVIOUS PALLET UNITS.
5. INSTALL THE FORWARD FILLER PIECE BETWEEN THE FORWARD PALLET UNIT AND THE FORWARD CROP END GATE AND CENTERED ON THE GATE, AS NOTED IN KEY NUMBER ②. NAIL TWO 12d RESTRAINER NAILS INTO THE FORWARD FILLER PIECE, AS INSTRUCTED IN KEY NUMBER ②.
6. INSTALL THE LIGHT PALLET UNIT OF FUZES ON TOP OF THE FOURTH ROW OF C546 PALLET UNITS, CENTERED Laterally ON THE C546 PALLET UNITS.
7. INSTALL TWO SPACER ASSEMBLIES, AS NOTED IN KEY NUMBER ③.
8. INSTALL FOUR SIDE BLOCKING ASSEMBLIES, AS NOTED IN KEY NUMBER ④.
9. INSTALL THE TWO STRAPPING BOARD ASSEMBLIES "A" AS NOTED IN KEY NUMBER ⑤.
10. INSTALL THE FOUR STRAPPING BOARD ASSEMBLIES "B" AS NOTED IN KEY NUMBER ⑥.
11. INSTALL 10 HOLD-DOWN STRAPS, AS NOTED IN KEY NUMBER ⑦.
12. INSTALL TWO END RESTRAINT STRAPS AROUND THE LIGHT PALLET UNIT, AS NOTED IN KEY NUMBER ⑧.
13. NAIL THROUGH THE HOOK ATTACHMENT SLOT OF EACH HOLD-DOWN AND RESTRAINT STRAP ATTACHED TO ONE OF THE FIRST THREE TIEDOWN ANCHORS INTO THE SPACER ASSEMBLIES W/1-10d PARTIALLY DRIVEN NAIL AND BEND OVER SIDE OF HOOK.

**GENERAL NOTES**

- A. THIS APPENDIX CANNOT STAND ALONE BUT MUST BE USED IN CONJUNCTION WITH THE BASIC LOADING PROCEDURES DRAWING 19-48-4905-CA17Q6. TO PRODUCE AN APPROVED LOAD, ALL PERTINENT PROCEDURES, SPECIFICATIONS AND CRITERIA SET FORTH WITHIN THE BASIC DRAWING WILL APPLY TO THE PROCEDURES DELINEATED IN THIS APPENDIX. ANY EXCEPTIONS TO THE BASIC PROCEDURES ARE SPECIFIED IN THIS APPENDIX.
- B. THE OUTLOADING PROCEDURES DEPICTED IN THIS DRAWING ARE APPLICABLE TO LOADS OF SCL #48A. SEE PAGES 4 AND 5 FOR DETAILS OF THE PALLET UNITS. AN M3A1 (HYUNDAI) CROP IS SHOWN AS TYPICAL. OTHER MANUFACTURER'S CROPS CAN BE USED FOR THE LOAD SHOWN ON PAGE 2. THE SEQUENTIAL LOADING PROCEDURES DEPICTED AT LEFT DESCRIBE THE SEQUENCE USED TO LOAD AN M3A1 CROP. FOR AN M3 (SUMMA) CROP, SEQUENTIAL LOADING PROCEDURES 2 THROUGH 5 MUST BE REVERSED. ACTUAL CROP CONFIGURATION WILL DETERMINE WHETHER THE SEQUENTIAL LOADING STARTS AT THE AFT OR THE FORWARD END OF THE CROP.
- C. THE LOADING PROCEDURES DEPICTED HEREIN MAY ALSO BE USED FOR OUTLOADING SIMILAR SCL LOADS WHEN IDENTIFIED BY DIFFERENT NATIONAL STOCK NUMBERS (NSN) THAN WHAT IS SHOWN ON PAGE 4, PROVIDED THE OVERALL PALLET UNIT DIMENSIONS DO NOT VARY FROM WHAT IS DELINEATED HEREIN.
- D. LIGHT PALLET UNIT MUST BE CONSTRUCTED IN ACCORDANCE WITH THE GUIDELINES DELINEATED IN THE BASIC UNITIZATION PROCEDURES DRAWING APPLICABLE TO THAT PALLET UNIT.
- E. DIMENSIONS, CUBE AND WEIGHT OF THE PALLET UNITS WILL VARY SLIGHTLY DEPENDING UPON THE ACTUAL DIMENSIONS OF THE BOXES AND THE WEIGHT OF THE SPECIFIC ITEM BEING UNITIZED.
- F. DIMENSIONS GIVEN FOR DUNNAGE ASSEMBLIES WILL BE FIELD CHECKED PRIOR TO THEIR ASSEMBLY. PALLET UNITS MUST FIT SNUGLY AGAINST THE DUNNAGE ASSEMBLIES. THIS GUIDANCE MUST BE APPLIED PRIOR TO BEGINNING AN OUTLOADING OPERATION. ALSO, DUE TO VARIATION OF PALLET UNIT DIMENSIONS, ADJUSTMENTS MAY BE REQUIRED AS TO THE LOCATION OF CERTAIN PIECES ON DUNNAGE ASSEMBLIES.
- G. ALL WEB STRAP TIEDOWN ASSEMBLIES MUST HAVE THE EXCESS LENGTH OF THE STRAP SECURED. ROLL UP AND BUNDLE THE EXCESS LENGTH OF WEB STRAP, SECURING WITH CABLE TIES. SEE THE "STRAP END SECUREMENT" DETAIL AND GENERAL NOTE "K.12" IN THE BASIC PROCEDURE DRAWING 19-48-4905-CA17Q6.
- H. UNUSED WEB STRAP TIEDOWN ASSEMBLIES MUST BE SECURED AS DELINEATED IN GENERAL NOTE "K.13" IN THE BASIC PROCEDURE DRAWING 19-48-4905-CA17Q6.
- J. CONVERSION TO METRIC EQUIVALENTS: DIMENSIONS WITHIN THIS DOCUMENT ARE EXPRESSED IN INCHES, AND WEIGHTS ARE EXPRESSED IN POUNDS. WHEN NECESSARY, THE METRIC EQUIVALENTS MAY BE COMPUTED ON THE BASIS OF ONE INCH EQUALS 25.4MM AND ONE POUND EQUALS 0.454 KG.

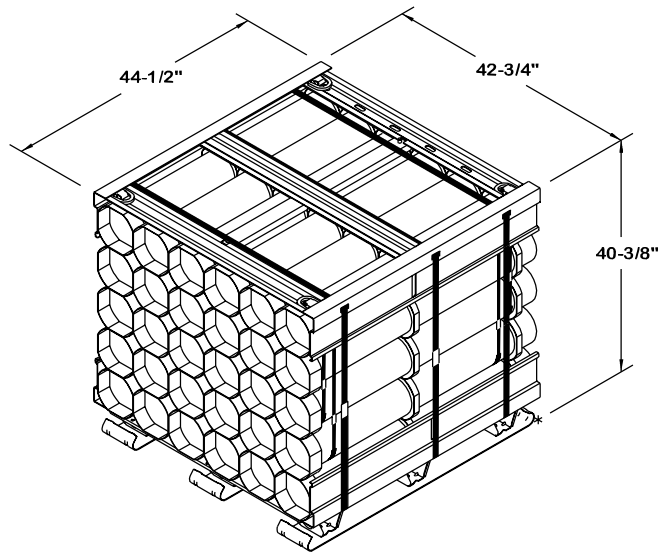
BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" x 4"	36	12
2" x 3"	2	1
2" x 4"	57	38
2" x 8"	15	20
NAILS	NO. REQD	POUNDS
6d (2")	54	1/4
10d (3")	28	1/2
12d (3-1/4")	4	1/4
HARDBOARD, 1/8" - - - 14.17 SQ FT REQD - - - - 7 LBS		

**LOAD AS SHOWN**

ITEM	QUANTITY	WEIGHT (APPROX)
C546 PALLET UNIT	9	20,322 LBS
LIGHT PALLET UNIT	1	931 LBS
DUNNAGE		150 LBS
CROP		3,800 LBS
TOTAL WEIGHT		25,203 LBS (APPROX)

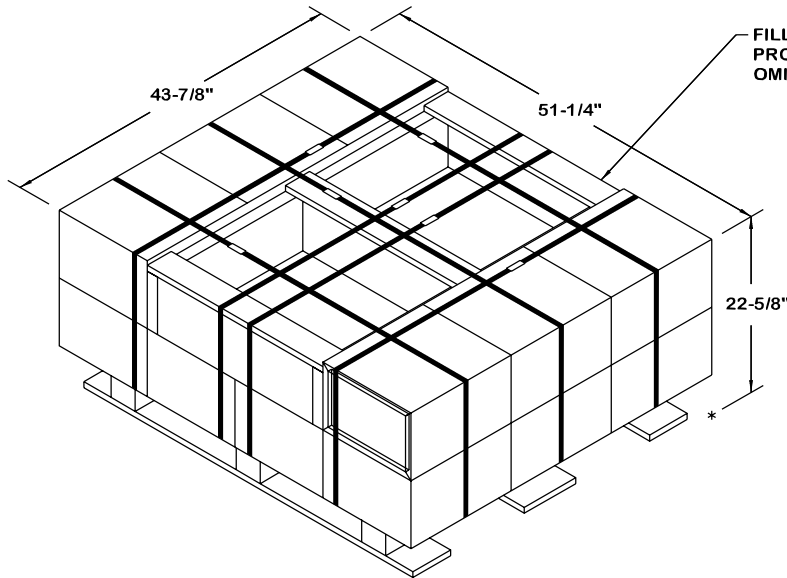
## SCL #48A COMPOSITION CHART

DODIC	NSN	NOMENCLATURE	UNIT DWG	REQD	UNITS REQD	HC
C546	1315-01-250-2857	CARTRIDGE, 105MM HERA M913	4231/45	270	9 PALLETS	1. 2E
N290	1390-01-283-6532	FUZE, ARTILLERY ELECTRONIC TIME M767 W/BOOSTER	4116/156S	144	9 BOXES	1. 2D
N340	1390-01-132-7481	FUZE, POINT DETONATING M739A1	4116/156	80	5 BOXES	1. 2D
N464	1390-01-202-1710	FUZE, PROXIMITY M732	4116/156G	64	4 BOXES	1. 2D



### C546 PALLET UNIT DETAIL

30 CONTAINERS OF 105MM CARTRIDGES	
(1 PER CONTAINER) @ 68 LBS	2,040 LBS (APPROX)
DUNNAGE	113 LBS
PALLET	105 LBS
<hr/>	
TOTAL WEIGHT	2,258 LBS (APPROX)
CUBE	44.5 CU FT (APPROX)



FILL ASSEMBLY (1 REQD). ASSEMBLY PROVIDES FILLER SPACE FOR THE SIX OMITTED BOXES. SEE THE DETAIL BELOW.

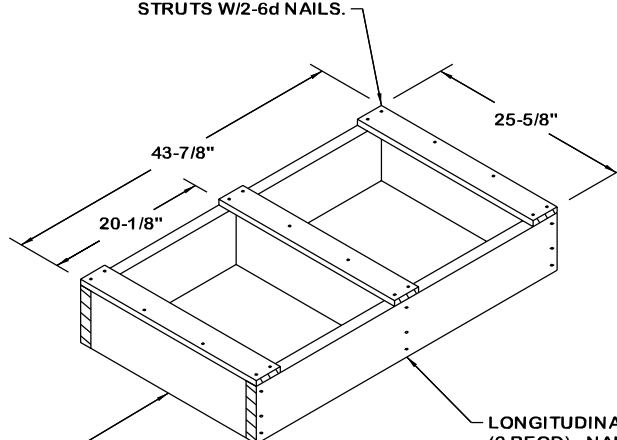
THE LIGHT PALLET UNIT DEPICTED AT LEFT SHOULD BE CONSTRUCTED IAW THE AMC DRAWING LISTED ON PAGE 4 (4116/156) WITH THE FOLLOWING CHANGES:

1. ELIMINATE TWO LAYERS OF BOXES (24 BOXES).
2. ELIMINATE SEVEN BOXES FROM LOWER LAYER.
3. ADD NINE BOXES OF N290 AND FOUR BOXES OF N464.
4. ADD FILL ASSEMBLY.
5. REDUCE THE LOAD STRAP LENGTH TO 12'-6".
6. REDUCE THE TIEDOWN STRAP LENGTH TO 11'-3".

**LIGHT PALLET UNIT**

9 BOXES OF N290 FUZES (16 PER BOX) @ 42 LBS	-----	378 LBS (APPROX)
5 BOXES OF N340 FUZES (16 PER BOX) @ 46 LBS	-----	230 LBS (APPROX)
4 BOXES OF N464 FUZES (16 PER BOX) @ 50 LBS	-----	200 LBS (APPROX)
DUNNAGE	-----	43 LBS
PALLET	-----	80 LBS
<hr/>		
TOTAL WEIGHT	-----	931 LBS (APPROX)
CUBE	-----	29.4 CU FT (APPROX)

TIE PIECE, 1" X 4" X 25-5/8" (3 REQD).  
NAIL TO LONGITUDINAL PIECES W/2-6d  
NAILS AT EACH END AND NAIL TO THE  
STRUTS W/2-6d NAILS.

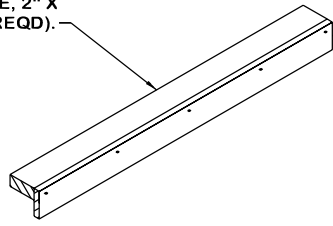


STRUT, 2" X 8" X 22-5/8" (3 REQD).

LONGITUDINAL PIECE, 2" X 8" X 43-7/8"  
(2 REQD). NAIL TO THE STRUTS  
W/3-10d NAILS AT EACH JOINT.

**FILL ASSEMBLY**

SUPPORT PIECE, 2" X 4" X 42-3/4" (1 REQD).

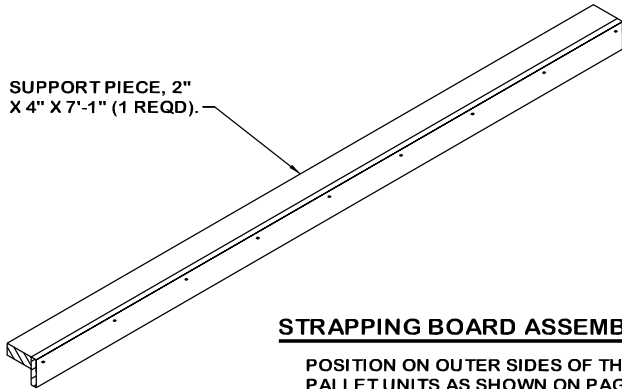


BEARING PIECE, 1" X 4" X 42-3/4" (1 REQD). NAIL TO THE SUPPORT PIECE W/5-6d NAILS.

**STRAPPING BOARD ASSEMBLY A**

POSITION ON OUTER SIDES OF THE FRONT PALLET UNIT AS SHOWN ON PAGE 2.

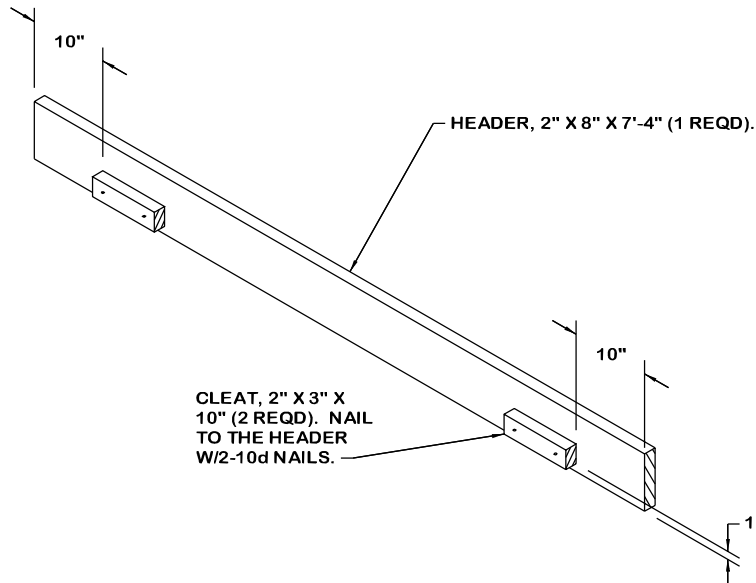
SUPPORT PIECE, 2" X 4" X 7'-1" (1 REQD).



BEARING PIECE, 1" X 4" X 7'-1" (1 REQD). NAIL TO THE SUPPORT PIECE W/9-6d NAILS.

**STRAPPING BOARD ASSEMBLY B**

POSITION ON OUTER SIDES OF THE PALLET UNITS AS SHOWN ON PAGE 2.

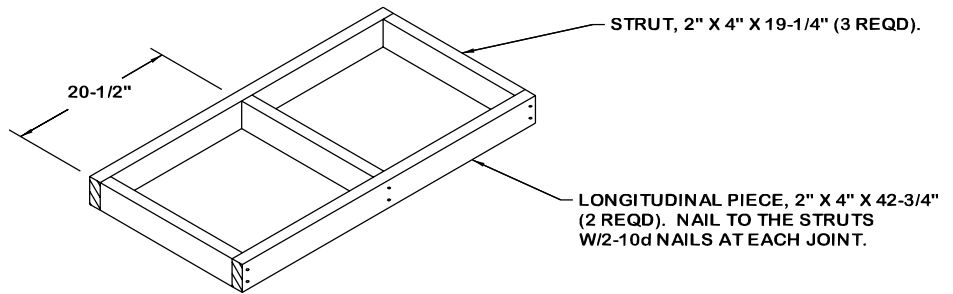


CLEAT, 2" X 3" X 10" (2 REQD). NAIL TO THE HEADER W/2-10d NAILS.

HEADER, 2" X 8" X 7'-4" (1 REQD).

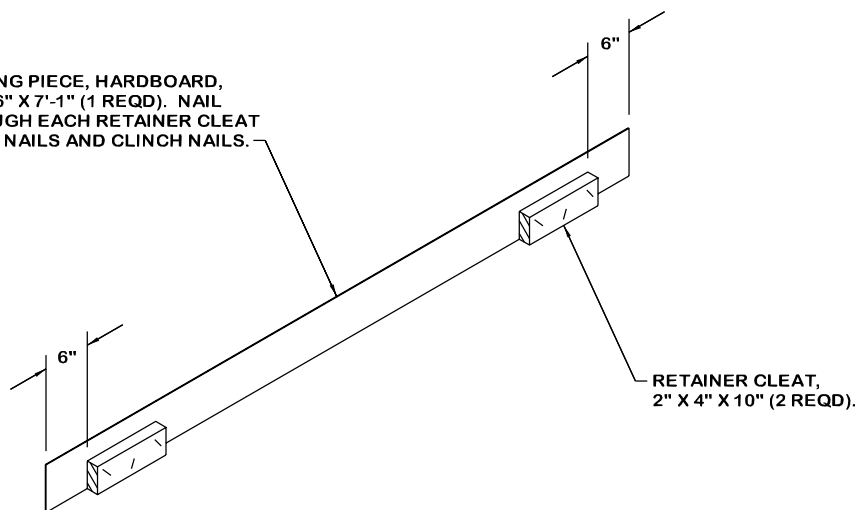
**AFT FILLER ASSEMBLY**

THIS ASSEMBLY WILL BE PLACED AT THE REAR OF THE LOAD WITH THE CLEATS RECESSED UNDER THE PALLET UNITS. FIELD CHECK PALLET UNITS TO VERIFY PROPER CLEAT LOCATIONS.



**SPACER ASSEMBLY**

BEARING PIECE, HARDBOARD,  
1/8" X 6" X 7'-1" (1 REQD). NAIL  
THROUGH EACH RETAINER CLEAT  
W/3-6d NAILS AND CLINCH NAILS.



**SIDE BLOCKING ASSEMBLY**

POSITION ASSEMBLY WITH CLEATS  
RECESSED UNDER THE PALLET UNITS.

