

*J. M. L.*

DATE 5/22/05

# APPENDIX 46A

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

### SCL #46A - 105MM HE M1

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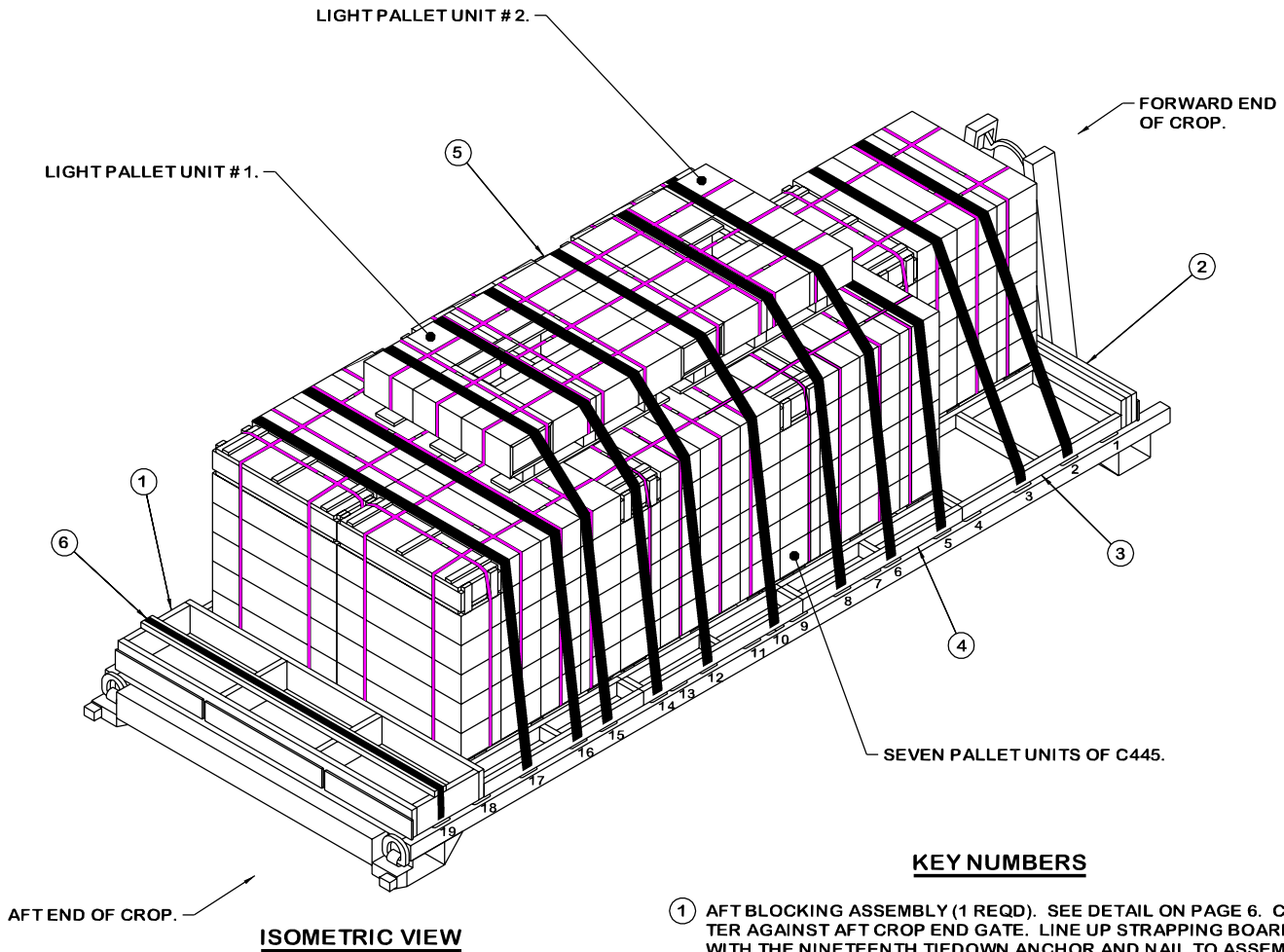
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**NOTICE: THIS APPENDIX CANNOT STAND ALONE BUT MUST BE USED IN CONJUNCTION WITH THE BASIC CROP OUTLOADING PROCEDURES DRAWING 19-48-4905-CA17Q6.**

- 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 6.</b>			
<i>Richard Garside</i>		<b>DO NOT SCALE</b>		<b>APRIL 2005</b>	
		ENGINEER OR TECHNICIAN	BASIC REV.	RICHARD GARSIDE	
APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL COMMAND		TRANSPORTATION ENGINEERING DIVISION	<i>Richard Garside</i>	TESTED	
<i>Charles P. Snow</i>		VALIDATION ENGINEERING DIVISION	<i>Richard Garside</i>	CLASS	DIVISION
		ENGINEERING DIRECTORATE	<i>Richard Garside</i>	19	48
U.S. ARMY DEFENSE AMMUNITION CENTER				DRAWING	FILE
				4905/ 46A	CA17Q6



### KEY NUMBERS

- ① AFT BLOCKING ASSEMBLY (1 REQD). SEE DETAIL ON PAGE 6. CENTER AGAINST AFT CROP END GATE. LINE UP STRAPPING BOARD WITH THE NINETEENTH TIEDOWN ANCHOR AND NAIL TO ASSEMBLY. NAIL W/2-12d NAILS THROUGH THE HOLES IN THE AFT CROP END GATE INTO THE AFT BLOCKING ASSEMBLY, LEAVING THE NAIL HEADS PROTRUDING THROUGH THE HOLES TO PROVIDE LATERAL RESTRAINT.
- ② FORWARD FILLER ASSEMBLY (1 REQD). SEE DETAIL ON PAGE 6. CENTER AGAINST FORWARD CROP END GATE AND, AFTER THE PALLET UNITS ARE LOADED, NAIL W/2-12d NAILS THROUGH THE HOLES IN THE FORWARD CROP END GATE INTO THE FORWARD FILLER PIECES, LEAVING THE NAIL HEADS PROTRUDING THROUGH THE HOLES TO PROVIDE LATERAL AND VERTICAL RESTRAINT.
- ③ SPACER ASSEMBLY (2 REQD). SEE DETAIL ON PAGE 6. POSITION A SPACER ASSEMBLY ON EACH SIDE OF THE FORWARD PALLET UNIT.
- ④ SIDE BLOCKING ASSEMBLY (6 REQD). SEE DETAIL ON PAGE 6. POSITION AGAINST THE PALLETS OF THE PALLET UNITS ON BOTH SIDES OF THE CROP AS SHOWN.
- ⑤ HOLD-DOWN STRAP, 3-INCH WIDE WEB STRAP TIEDOWN ASSEMBLY FOR CROP (11 REQD). INSTALL EACH HOLD-DOWN STRAP TO EXTEND FROM THE DESIGNATED TIEDOWN ANCHOR ON ONE SIDE OF CROP, OVER THE TOP OF THE C445 PALLET UNIT(S) AND FUSE LIGHT PALLET UNIT, AND DOWN TO THE CORRESPONDING TIEDOWN ANCHOR ON THE OPPOSITE SIDE OF THE CROP. ALIGN SCUFF SLEEVES OVER ALL SHARP EDGES AND FIRMLY TENSION STRAP. SEE GENERAL NOTE "H" ON PAGE 3.
- ⑥ RETAINER STRAP, 2-INCH WIDE WEB STRAP ASSEMBLY (1 REQD). INSTALL TO EXTEND FROM THE NINETEENTH TIEDOWN ANCHOR ON ONE SIDE OF CROP, OVER TOP OF THE AFT BLOCKING ASSEMBLY STRAPPING BOARD, TO THE NINETEENTH TIEDOWN ANCHOR ON OPPOSITE SIDE OF CROP. ALIGN SCUFF SLEEVES OVER ALL SHARP EDGES AND FIRMLY TENSION STRAP. SEE GENERAL NOTE "H" ON PAGE 3.

**RECOMMENDED SEQUENTIAL PROCEDURES**

1. PREFABRICATE THE FORWARD AND AFT BLOCKING ASSEMBLIES, TWO SPACER ASSEMBLIES, AND SIX SIDE BLOCKING ASSEMBLIES.
2. INSTALL THE AFT BLOCKING ASSEMBLY AGAINST THE AFT CROP END GATE, AS INSTRUCTED IN KEY NUMBER ①. SEE THE AFT BLOCKING ASSEMBLY DETAIL ON PAGE 5. NAIL TWO 12d RETAINER NAILS INTO THE AFT BLOCKING ASSEMBLY, AS INSTRUCTED IN KEY NUMBER ①.
3. LOAD SIX C445 PALLET UNITS ON THE CROP, IN THREE ROWS OF TWO. CENTER THE FIRST ROW OF PALLET UNITS AGAINST THE AFT BLOCKING ASSEMBLY AND PLACE EACH REMAINING ROW OF PALLET UNITS TIGHT AGAINST THE PREVIOUS ROW OF PALLET UNITS.
4. LOAD ONE C445 PALLET UNIT ON THE CROP, CENTERED AGAINST THE PREVIOUS ROW OF PALLET UNITS, ORIENTED LIKE THE PREVIOUS PALLET UNITS.
5. INSTALL THE FORWARD FILLER ASSEMBLY BETWEEN THE FORWARD PALLET UNIT AND THE FORWARD CROP END GATE AND CENTERED ON THE GATE, AS NOTED IN KEY NUMBER ②. THE CLEATS OF THE ASSEMBLY SHOULD PROTRUDE UNDER THE FORWARD PALLET UNIT. NAIL TWO 12d RETAINER NAILS INTO THE FORWARD FILLER ASSEMBLY, AS INSTRUCTED IN KEY NUMBER ②.
6. PLACE THE TWO LIGHT PALLET UNITS OF FUZES ON TOP OF THE LOAD AS SHOWN ON PAGE 2, WITH THE FIRST LIGHT PALLET UNIT POSITIONED IN THE CENTER AND THE FORWARD EDGE APPROXIMATELY ONE FOOT AFT OF THE FORWARD EDGE OF THE FIRST ROW OF TWO C445 PALLET UNITS.
7. INSTALL TWO SPACER ASSEMBLIES, AS NOTED IN KEY NUMBER ③.
8. INSTALL SIX SIDE BLOCKING ASSEMBLIES, AS NOTED IN KEY NUMBER ④.
9. INSTALL 11 HOLD-DOWN STRAPS, AS NOTED IN KEY NUMBER ⑤.
10. INSTALL AFT BLOCKING ASSEMBLY RESTRAINT STRAP, AS NOTED IN KEY NUMBER ⑥.
11. NAIL THROUGH THE HOOK ATTACHMENT SLOT OF EACH HOLD-DOWN AND RESTRAINT STRAP INTO THE BLOCKING 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 #46A. 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 UNLOADING 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 UNITS 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. ALTERNATE NSN/DODIC COMBINATIONS ARE SHOWN IN THE CHART ON PAGE 4. THESE ALTERNATES MAY BE SUBSTITUTED FOR SOME OR ALL THE DEPICTED NSN/DODICS IF NECESSARY DUE TO THE ITEMS OR QUANTITIES ON HAND.
- G. 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 UNLOADING OPERATION. ALSO, DUE TO VARIATION OF PALLET UNIT DIMENSIONS, ADJUSTMENTS MAY BE REQUIRED AS TO THE LOCATION OF CERTAIN PIECES ON DUNNAGE ASSEMBLIES.
- H. 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.
- J. UNUSED WEB STRAP TIEDOWN ASSEMBLIES MUST BE SECURED AS DELINEATED IN GENERAL NOTE "K.13" IN THE BASIC PROCEDURE DRAWING 19-48-4905-CA17Q6.
- K. 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"	7	3
1" x 8"	8	5
2" x 3"	2	2
2" x 4"	92	62
2" x 8"	55	74
NAILS	NO. REQD	POUNDS
6d (2")	28	1/4
10d (3")	186	3
12d (3-1/4")	4	NIL
2" WEB STRAP TIEDOWN ASSY - - - 1 REQD - - - 6 LBS		

**LOAD AS SHOWN**

ITEM	QUANTITY	WEIGHT (APPROX)
C445 PALLET UNIT - - - - -	7 - - - - -	20,664 LBS
LIGHT PALLET UNIT #1 - - - - -	1 - - - - -	555 LBS
LIGHT PALLET UNIT #2 - - - - -	1 - - - - -	583 LBS
DUNNAGE - - - - -	- - - - -	266 LBS
CROP - - - - -	- - - - -	3,800 LBS
TOTAL WEIGHT - - - - -		25,868 LBS (APPROX)

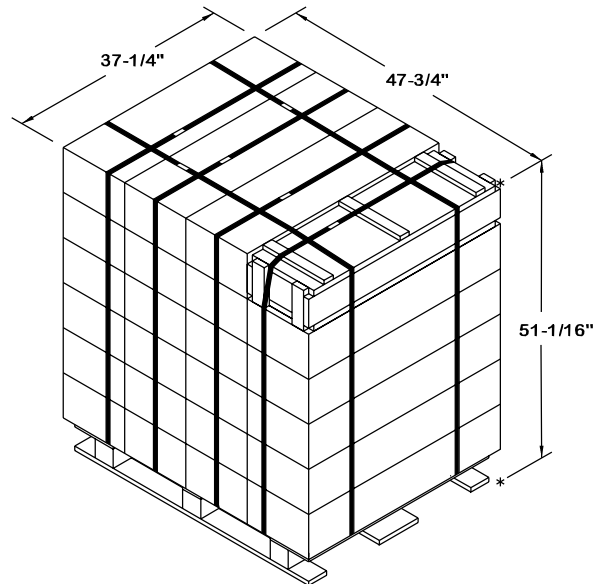
## SCL #46A COMPOSITION CHART

DODIC	NSN	NOMENCLATURE	UNIT DWG	REQD	UNITS REQD	HC
C445 *	1315-00-028-4857	CARTRIDGE, 105MM HE M1 W/PLASTIC CLOSING PLUG	4116/45	336	7 PALLETS	1. 2E
N290	1390-01-283-6532	FUZE, ARTILLERY ELECTRONIC TIME M767 W/BOOSTER	4116/156S	176	11 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	80	5 BOXES	1. 2D

**NOTE: THE DODICS LISTED BELOW MAY BE USED AS ALTERNATES FOR THE DODICS WITH MATCHING SYMBOLS SHOWN ABOVE IF THE QUANTITY OF THE DODICS SHOWN ABOVE IS INSUFFICIENT.**

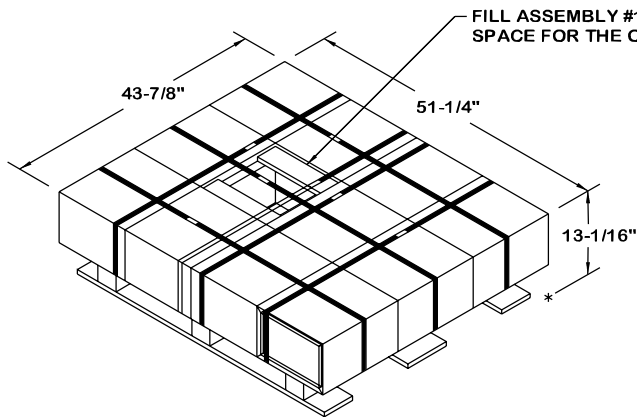
C445 *	1315-00-028-4861	CARTRIDGE, 105MM HE M1 W/PLASTIC CLOSING PLUG	4116/45			1. 2E
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\* USE OF ALTERNATE STOCK NUMBER IS CONTINGENT UPON UNITIZING IN ACCORDANCE WITH THE PROVISIONS OF AMC UNITIZING DRAWING 19-48-4116/45-20PA1002.



### C445 PALLET UNIT DETAIL

24 BOXES OF 105MM CARTRIDGES	
(2 PER BOX) @ 120 LBS	2,880 LBS (APPROX)
DUNNAGE	7 LBS
PALLET	65 LBS
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TOTAL WEIGHT	2,952 LBS (APPROX)
CUBE	52.6 CU FT (APPROX)



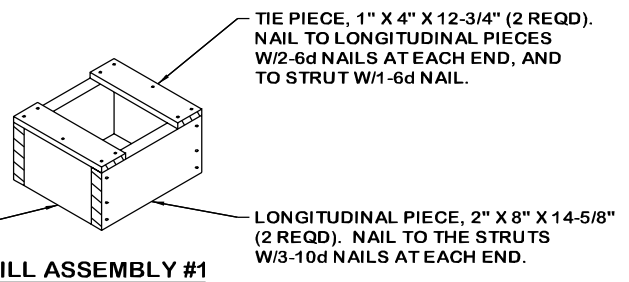
FILL ASSEMBLY #1 (1 REQD). ASSEMBLY PROVIDES FILLER SPACE FOR THE OMITTED BOX. SEE THE DETAIL BELOW.

THE LIGHT N290 PALLET UNIT DEPICTED AT LEFT SHOULD BE CONSTRUCTED IAW THE AMC DRAWING LISTED ON PAGE 4 WITH THE FOLLOWING CHANGES:

1. ELIMINATE TWO LAYERS OF BOXES (24 BOXES).
2. REDUCE THE LOAD STRAP LENGTH TO 11'-3".
3. REDUCE THE TIEDOWN STRAP LENGTH TO 10'-1".
4. ELIMINATE ONE BOX AND REPLACE WITH FILL ASSEMBLY #1.

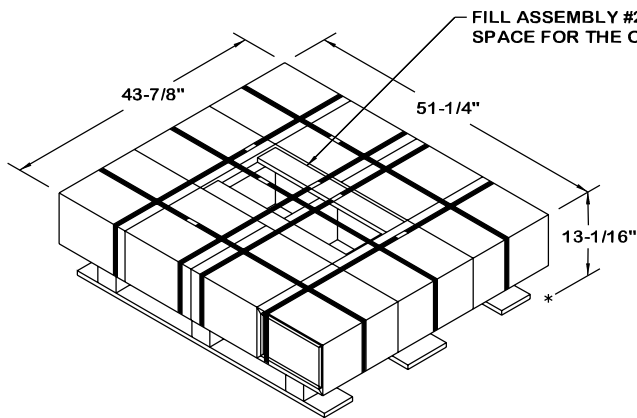
**LIGHT PALLET UNIT # 1**

11 BOXES OF N290 FUZES (16 PER BOX) @ 42 LBS	-----	462 LBS (APPROX)
DUNNAGE	-----	13 LBS
PALLET	-----	80 LBS
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TOTAL WEIGHT	-----	555 LBS (APPROX)
CUBE	-----	17.0 CU FT (APPROX)



STRUT, 2" X 8" X 9-3/4" (2 REQD).

**FILL ASSEMBLY #1**



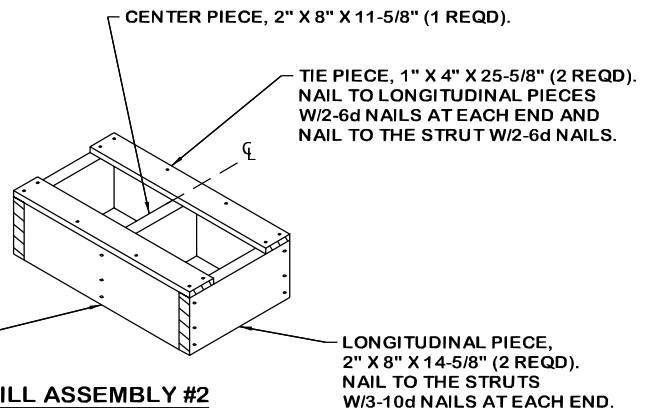
FILL ASSEMBLY #2 (1 REQD). ASSEMBLY PROVIDES FILLER SPACE FOR THE OMITTED BOXES. SEE THE DETAIL BELOW.

THE LIGHT N340/N464 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. REMOVE SEVEN BOXES OF N340.
3. ADD FILL ASSEMBLY #2.
4. ADD FIVE BOXES OF N464.
5. REDUCE THE LOAD STRAP LENGTH TO 11'-3".
6. REDUCE THE TIEDOWN STRAP LENGTH TO 10'-1".

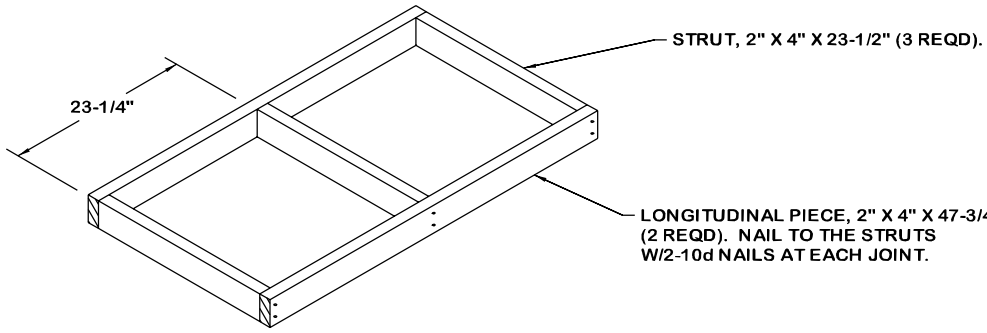
**LIGHT PALLET UNIT # 2**

5 BOXES OF N340 FUZES (16 PER BOX) @ 46 LBS	-----	230 LBS (APPROX)
5 BOXES OF N464 FUZES (16 PER BOX) @ 50 LBS	-----	250 LBS (APPROX)
DUNNAGE	-----	23 LBS
PALLET	-----	80 LBS
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TOTAL WEIGHT	-----	583 LBS (APPROX)
CUBE	-----	17.0 CU FT (APPROX)

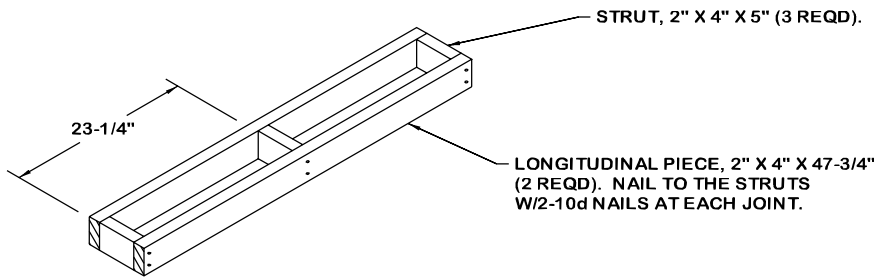


STRUT, 2" X 8" X 22-5/8" (2 REQD). NAIL TO THE CENTER PIECE W/3-10d NAILS.

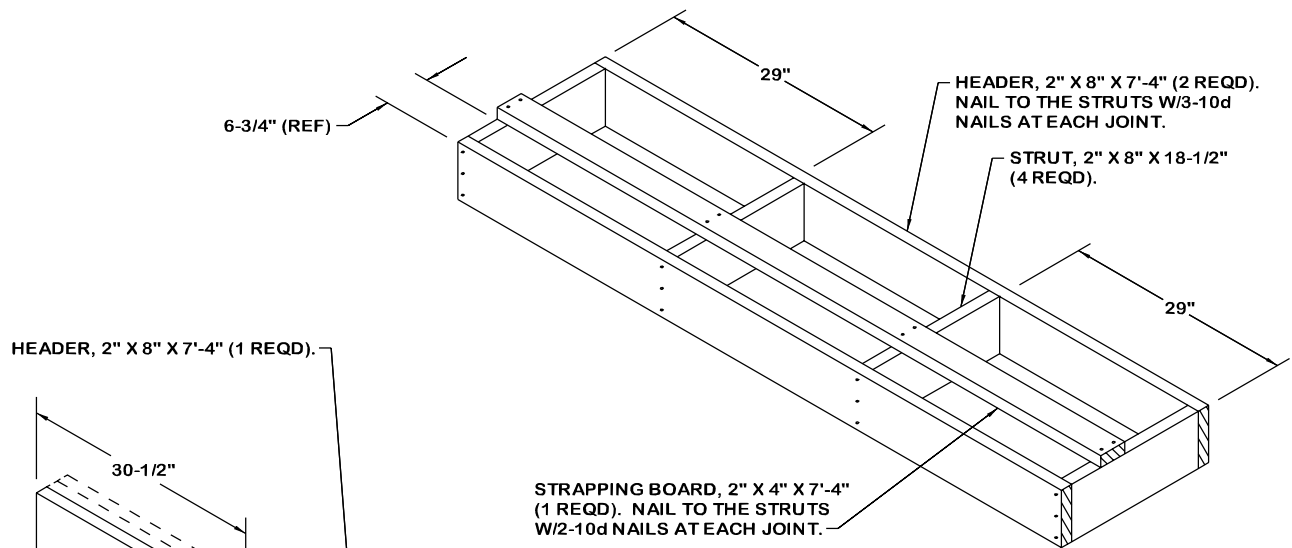
**FILL ASSEMBLY #2**



**SPACER ASSEMBLY**



**SIDE BLOCKING ASSEMBLY**



**AFT BLOCKING ASSEMBLY**

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

**FORWARD FILLER ASSEMBLY**

THIS FORWARD FILLER ASSEMBLY WILL BE PLACED AT THE FRONT OF THE LOAD WITH THE CLEATS RECESSED UNDER THE FRONT PALLET UNIT. FIELD CHECK PALLET UNIT TO VERIFY PROPER CLEAT LOCATIONS.

FILL PIECE, 1" OR 2" X 8" X 7'-4" (AS REQD, TWO SHOWN). LAMINATE EACH PIECE TO THE PREVIOUS PIECE W/8 NAILS OF A SUITABLE SIZE (6d NAILS FOR 1" THICK MATERIAL OR 10d NAILS FOR 2" THICK MATERIAL).