

*Q n 12*

DATE 11/11/01

# APPENDIX 52

## LOADING AND BRACING PROCEDURES FOR AMMUNITION LOADED ON CONTAINER ROLL IN/OUT PLATFORM (CROP)

**BOXED AMMUNITION PALLETIZED ON 35" X  
45-1/2" WOODEN PALLETS; TYPICAL PALLET  
UNIT SIZE 35" L X 46" W X 46-1/8" H (3,225 LBS  
MAXIMUM WEIGHT)**

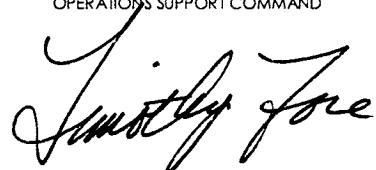

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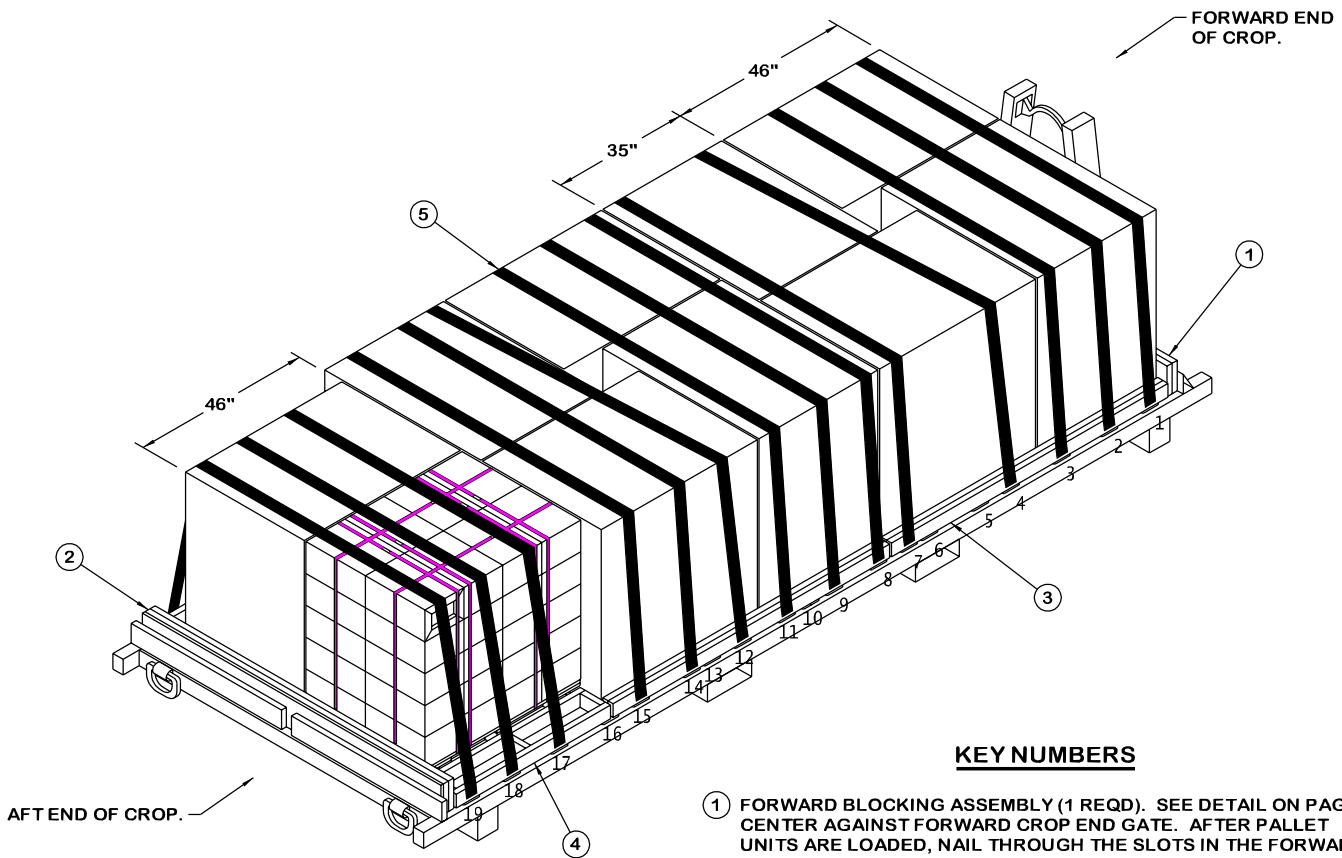
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**NOTICE: THIS APPENDIX CANNOT STAND ALONE BUT MUST BE USED IN CONJUNCTION WITH  
THE BASIC CROP OUTLOADING PROCEDURES DRAWING 19-48-4906-CA17Q7.**

- 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 OPERATIONS SUPPORT COMMAND  	ENGINEER	BASIC REV.	RICHARD GARSIDE	<b>DO NOT SCALE</b>			
	TECHNICIAN	BASIC REV.		WEBSITE: <a href="http://www.dac.army.mil">HTTP://WWW.DAC.ARMY.MIL</a>			
	DRAFTSMAN	BASIC REV.		<b>DECEMBER 2000</b>			
APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL COMMAND    U.S. ARMY DEFENSE AMMUNITION CENTER	TRANSPORTATION ENGINEERING DIVISION	<i>William R. French</i>		CLASS	DIVISION	DRAWING	FILE
	VALIDATION ENGINEERING DIVISION	<i>James W. [Signature]</i> TESTED		19	48	4906/ 52	CA17Q7
	ENGINEERING DIRECTORATE	<i>Johnnie J. Cook</i>					



**ISOMETRIC VIEW**

**KEY NUMBERS**

- ① FORWARD BLOCKING ASSEMBLY (1 REQD). SEE DETAIL ON PAGE 5. CENTER AGAINST FORWARD CROP END GATE. AFTER PALLET UNITS ARE LOADED, NAIL THROUGH THE SLOTS IN THE FORWARD CROP END GATE INTO THE FORWARD BLOCKING ASSEMBLY W/2-12d NAILS. LEAVE THE NAIL HEADS PROTRUDING THROUGH THE SLOTS TO PROVIDE LATERAL RESTRAINT.
- ② AFT FILLER, 1" OR 2" X 8" X 7'-4" (AS REQD). 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). CENTER AGAINST AFT CROP END GATE AND NAIL THROUGH THE SLOTS IN THE AFT CROP END GATE INTO THE AFT FILLER W/2-12d NAILS. LEAVE THE NAIL HEADS PROTRUDING THROUGH THE SLOTS TO PROVIDE LATERAL AND VERTICAL RESTRAINT.
- ③ SIDE BLOCKING ASSEMBLY (4 REQD). SEE DETAIL ON PAGE 5. INSTALL TWO ON EACH SIDE OF THE CROP ADJACENT TO THE FORWARD EIGHT PALLET UNITS. AFTER THE HOLD-DOWN STRAPS ARE INSTALLED, NAIL THROUGH THE SLOT OF THE STRAP HOOK INTO ASSEMBLY W/1-10d PARTIALLY DRIVEN NAIL AND BEND OVER SIDE OF HOOK.
- ④ AFT SIDE BLOCKING ASSEMBLY (2 REQD). SEE DETAIL ON PAGE 5. INSTALL ONE ON EACH SIDE OF THE CROP ADJACENT TO THE AFT TWO PALLET UNITS. AFTER THE HOLD-DOWN STRAPS ARE INSTALLED, NAIL THROUGH THE SLOT OF A STRAP HOOK AT EACH END OF THE ASSEMBLY INTO ASSEMBLY W/1-10d PARTIALLY DRIVEN NAIL AND BEND OVER SIDE OF HOOK.
- ⑤ HOLD-DOWN STRAP, 3-INCH WIDE CROP STRAP (14 REQD). INSTALL EACH STRAP TO EXTEND FROM THE DESIGNATED TIEDOWN ANCHOR ON ONE SIDE OF CROP, OVER THE TOP OF THE PALLET UNITS, TO THE CORRESPONDING OR DESIGNATED TIEDOWN ANCHOR ON THE OPPOSITE SIDE OF THE CROP. THE STRAP ATTACHED TO ANCHOR 4 WILL ATTACH TO ANCHOR 5 ON THE OTHER SIDE OF THE CROP. THE STRAP ATTACHED TO ANCHOR 12 WILL ATTACH TO ANCHOR 13 ON THE OTHER SIDE OF THE CROP. ALIGN SCUFF SLEEVES OVER ALL SHARP EDGES AND FIRMLY TENSION STRAP. SEE GENERAL NOTES "F" AND "G" ON PAGE 3.

**GENERAL NOTES**

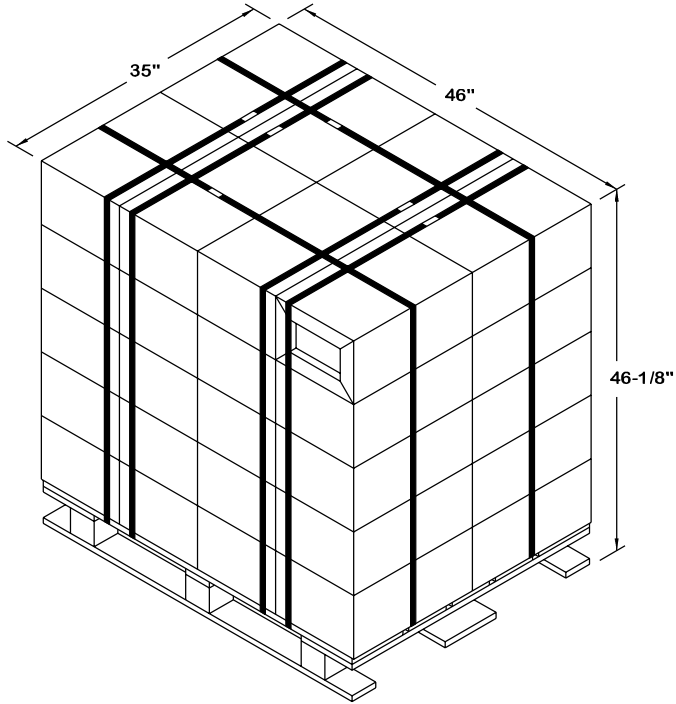
- A. THIS APPENDIX CANNOT STAND ALONE BUT MUST BE USED IN CONJUNCTION WITH THE BASIC LOADING PROCEDURES DRAWING 19-48-4906-CA17Q7. TO PRODUCE AN APPROVED LOAD, ALL PERTINENT PROCEDURES, SPECIFICATIONS AND CRITERIA SET FORTH WITHIN THE BASIC DRAWING WILL APPLY TO THE PROCEDURES DELINEATED IN THIS APPENDIX. ANY EXCEPTIONS TO THE BASIC PROCEDURES ARE SPECIFIED IN THIS APPENDIX.
- B. THE OUTLOADING PROCEDURES DEPICTED IN THIS DRAWING ARE APPLICABLE TO LOADS OF TEN PALLET UNITS OF THIS CONFIGURATION. SEE PAGE 4 FOR DETAIL OF THE TYPICAL PALLET UNIT. AN M3 (SUMMA) CROP IS SHOWN AS TYPICAL. OTHER MANUFACTURER'S CROPS CAN BE USED FOR THE LOAD SHOWN ON PAGE 2. ACTUAL CROP CONFIGURATION WILL DETERMINE WHETHER THE LOADING STARTS AT THE AFT OR THE FORWARD END OF THE CROP. THE AFT AND FORWARD BLOCKING ASSEMBLIES OR FILLER PIECES MUST BE RESTRAINED FROM MOVING IN BOTH THE LATERAL AND VERTICAL DIRECTIONS. THIS IS ACCOMPLISHED IN THE LOAD SHOWN ON PAGE 2 WITH RETAINER CLEATS (FORWARD BLOCKING ASSEMBLY) AND RETAINING NAILS (FORWARD BLOCKING ASSEMBLY AND AFT FILLERS). IF THE CONFIGURATION OF A CROP IS SUCH THAT VERTICAL OR LATERAL RESTRAINT CANNOT BE PROVIDED, ADDITIONAL RESTRAINT METHODS, TO INCLUDE RETAINER CLEATS, RETAINING NAILS, AND/OR 2" WIDE WEB STRAP TIEDOWN ASSEMBLIES MUST BE INSTALLED.
- C. THE LOADING PROCEDURES DEPICTED HEREIN MAY BE USED FOR OUTLOADING PALLET UNITS WITH DIMENSIONS OTHER THAN WHAT IS SHOWN ON PAGE 4, PROVIDED THE OVERALL PALLET UNIT DIMENSIONS ARE WITHIN THE TOLERANCES IDENTIFIED IN THE UNIT SIZE CHART ON THIS PAGE.
- D. 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.
- E. 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.
- F. 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 19-48-4906-CA17Q7.
- G. UNUSED WEB STRAP TIEDOWN ASSEMBLIES MUST BE SECURED AS DELINEATED IN GENERAL NOTE "K.13" IN THE BASIC PROCEDURE DRAWING 19-48-4906-CA17Q7.
- H. 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.

UNIT SIZE CHART	
UNIT LENGTH	CORRESPONDING MAXIMUM UNIT WIDTH
35"	48 1/2"
35 1/2"	48 1/8"
36"	47 3/4"
36 1/2"	47 1/2"
37"	47 1/8"
37 1/2"	46 3/4"
38"	46 1/2"
38 1/2"	46 1/8"
39"	45 3/4"
39 1/2"	45 1/2"
MAXIMUM HEIGHT OF 54"	
MAXIMUM WEIGHT OF 3,225 LBS	

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" x 4"	78	52
1" x 8"	8	6
2" x 8"	30	40
NAILS	NO. REQD	POUNDS
6d (2")	8	NIL
10d (3")	81	1-1/4
12d (3-1/4")	4	NIL

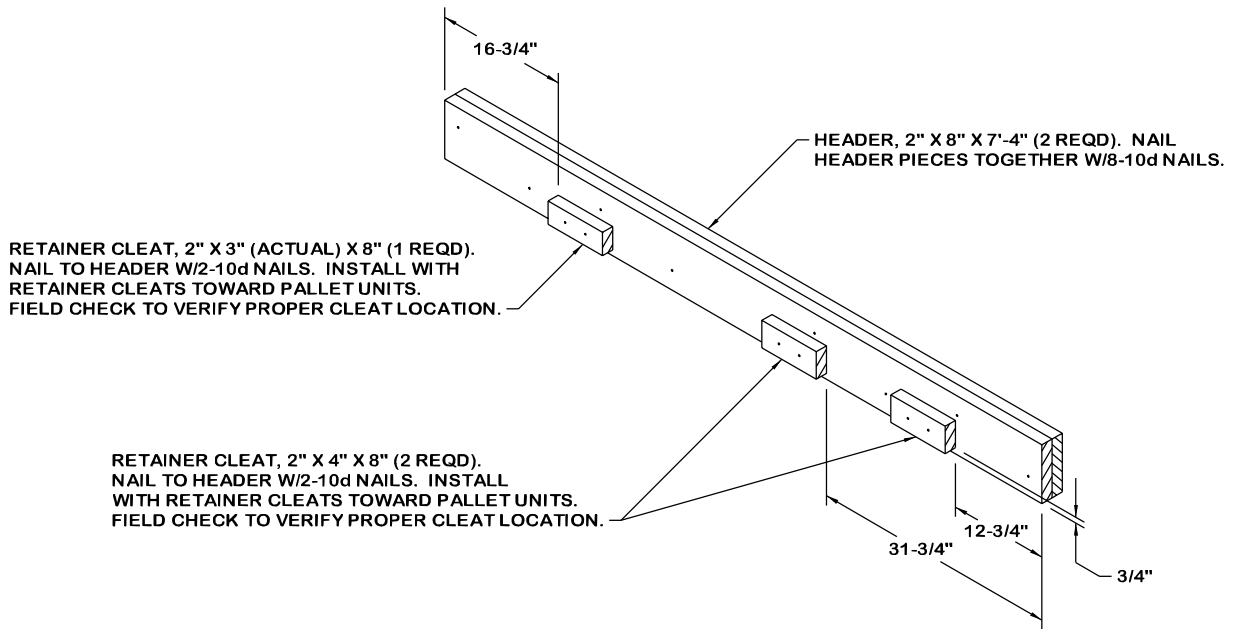
**LOAD AS SHOWN**

ITEM	QUANTITY	WEIGHT (APPROX)
PALLET UNIT - - - - -	10 - - - - -	31,520 LBS
DUNNAGE - - - - -	- - - - -	198 LBS
CROP - - - - -	- - - - -	3,800 LBS
TOTAL WEIGHT - - - - -		35,518 LBS (APPROX)

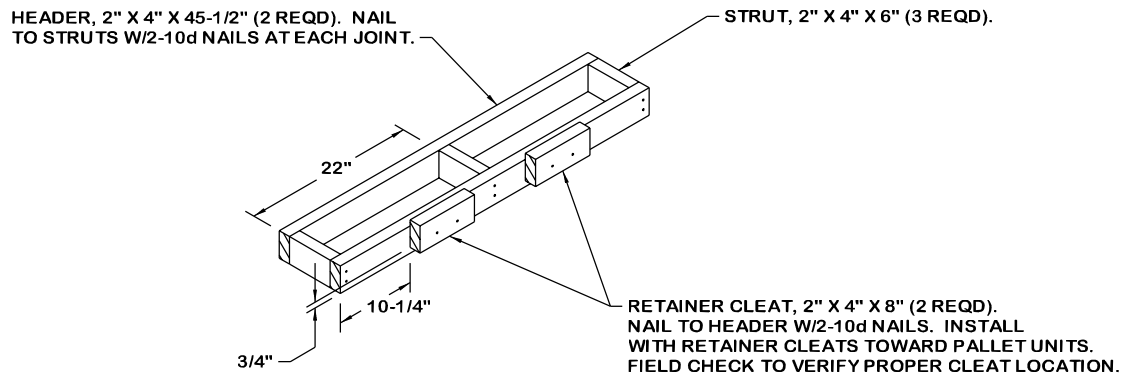


**PALLET UNIT DETAIL**

GROSS WEIGHT - - - - - 3152 LBS (APPROX)  
CUBE - - - - - 43.0 CU FT (APPROX)

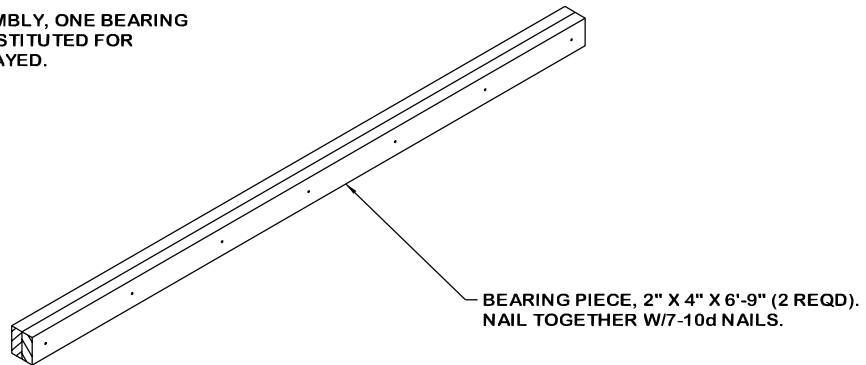


**FORWARD BLOCKING ASSEMBLY**



**AFT SIDE BLOCKING ASSEMBLY**

NOTE: FOR SIDE BLOCKING ASSEMBLY, ONE BEARING PIECE, 4" X 4" X 6'-9", CAN BE SUBSTITUTED FOR THE TWO BEARING PIECES DISPLAYED.



**SIDE BLOCKING ASSEMBLY**

