

*[Signature]*

DATE 9/05/2006

# APPENDIX 8

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

### STINGER MISSILES IN WIREBOUND BOXES AND ALUMINUM CONTAINERS PALLETIZED ON WOODEN PALLETS

#### INDEX

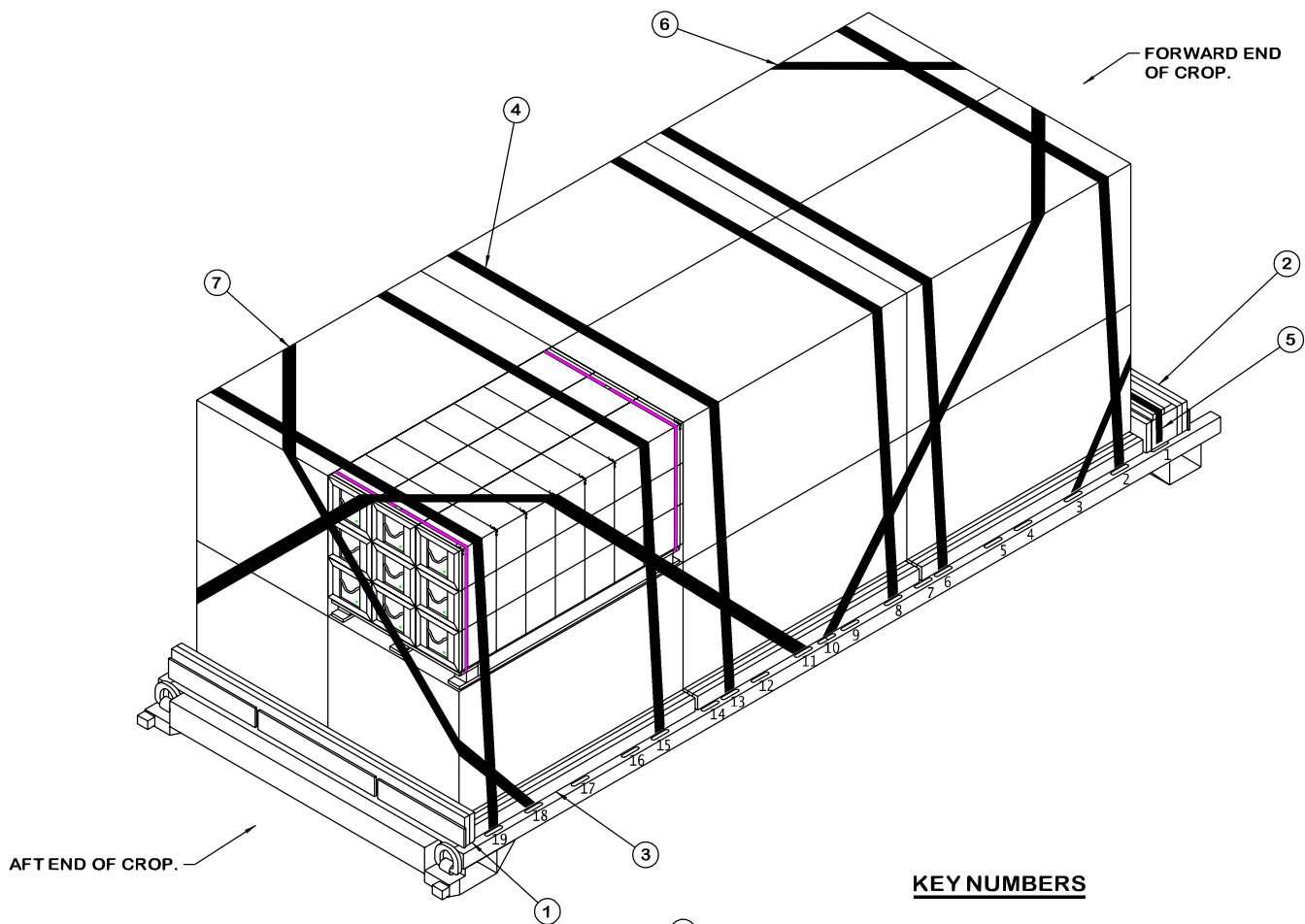
<u>ITEM</u>	<u>PAGE(S)</u>
12 UNIT LOAD (WIREBOUND BOXES) - - - - -	2
GENERAL NOTES AND MATERIAL SPECIFICATIONS - - - - -	3
6 UNIT LOAD (ALUMINUM CONTAINERS) - - - - -	4
PALLET UNIT DETAILS - - - - -	5
DETAILS - - - - -	6

**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 FIELD SUPPORT COMMAND  <i>[Signature]</i>	<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>			
	<b>DO NOT SCALE</b>		<b>MARCH 2006</b>	
APPROVED BY ORDER OF COMMANDING GENERAL, U.S. ARMY MATERIEL COMMAND  <i>[Signature]</i>  U.S. ARMY DEFENSE AMMUNITION CENTER	ENGINEER OR TECHNICIAN	BASIC REV.	RICHARD GARSIDE	
	TRANSPORTATION ENGINEERING DIVISION	<i>[Signature]</i>	TESTED	CLASS
	VALIDATION ENGINEERING DIVISION	<i>[Signature]</i>	DIVISION	DRAWING
ENGINEERING DIRECTORATE	<i>[Signature]</i>	19	48	4906/ 8
			FILE	CA17Q7



**ISOMETRIC VIEW**

**KEY NUMBERS**

- ① AFT BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL ON PAGE 6. CENTER AGAINST AFT CROP END GATE. NAIL W/2-12d NAILS THRU THE SLOTS IN THE AFT CROP END GATE INTO THE AFT BLOCKING ASSEMBLY, LEAVING THE NAIL HEADS PROTRUDING THRU THE SLOTS TO PROVIDE LATERAL AND VERTICAL RESTRAINT.
- ② FORWARD BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL ON PAGE 6. CENTER WITH FORWARD CROP END GATE AND PLACE TIGHT AGAINST THE PALLET UNITS. AFTER FILL PIECES ARE INSTALLED, LINE UP STRAPPING BOARD WITH THE FIRST TIEDOWN ANCHOR AND NAIL TO ASSEMBLY. NAIL W/2-12d NAILS THROUGH THE HOLES IN THE FORWARD CROP END GATE INTO THE FILL PIECES, LEAVING THE NAIL HEADS PROTRUDING THROUGH THE HOLES TO PROVIDE LATERAL RESTRAINT.
- ③ SIDE BLOCKING, 2" X 4" X 66-1/2" (TRIPLED) (6 REQD). LAMINATE EACH PIECE TO THE PREVIOUS PIECE W/6-10d NAILS. INSTALL THREE SIDE BLOCKING ASSEMBLIES ON EACH SIDE OF CROP ADJACENT TO THE PALLET UNITS. AFTER THE HOLD-DOWN STRAPS ARE INSTALLED, NAIL THROUGH THE STRAP ATTACHMENT SLOTS OF EACH HOLD-DOWN STRAP INTO THE SIDE BLOCKING ASSEMBLIES W/1-10d NAIL PARTIALLY DRIVEN AND BENT OVER SIDE OF HOOK.
- ④ HOLD-DOWN STRAP, 3-INCH WIDE WEB STRAP TIEDOWN ASSEMBLY (6 REQD). INSTALL EACH HOLD-DOWN STRAP TO EXTEND FROM THE DESIGNATED TIEDOWN ANCHOR ON ONE SIDE OF CROP, OVER THE TOP OF THE PALLET UNITS, 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 NOTES "F" AND "G" ON PAGE 3.
- ⑤ RETAINER STRAP, 2" WIDE WEB STRAP TIEDOWN ASSEMBLY (1 REQD). INSTALL TO EXTEND FROM THE FIRST TIEDOWN ANCHOR ON ONE SIDE OF THE CROP, OVER THE TOP OF THE STRAPPING BOARD OF THE FORWARD BLOCKING ASSEMBLY, TO THE FIRST TIEDOWN ANCHOR ON THE OPPOSITE SIDE OF THE CROP. POSITION SCUFF SLEEVES OVER ALL SHARP EDGES AND FIRMLY TENSION STRAP. SEE GENERAL NOTE "F" ON PAGE 3.

(KEY NUMBERS CONTINUED)

- ⑥ FORWARD END RESTRAINT STRAP, 3-INCH WIDE WEB STRAP TIEDOWN ASSEMBLY (2 REQD). INSTALL EACH STRAP TO EXTEND FROM THE TENTH TIEDOWN ANCHOR ON ONE SIDE OF THE CROP, OVER THE TOP AND ACROSS THE FRONT OF THE PALLET UNITS, TO THE THIRD TIEDOWN ANCHOR ON THE OPPOSITE SIDE OF THE CROP. ALIGN SCUFF SLEEVES OVER ALL SHARP EDGES AND FIRMLY TENSION STRAP. SEE GENERAL NOTES "F" AND "G" ON PAGE 3.
- ⑦ AFT END RESTRAINT STRAP, 3-INCH WIDE WEB STRAP TIEDOWN ASSEMBLY (2 REQD). INSTALL EACH STRAP TO EXTEND FROM THE ELEVENTH TIEDOWN ANCHOR ON ONE SIDE OF THE CROP, OVER THE TOP AND ACROSS THE REAR OF THE PALLET UNITS, TO THE EIGHTEENTH TIEDOWN ANCHOR ON THE OPPOSITE SIDE OF THE CROP. ALIGN SCUFF SLEEVES OVER ALL SHARP EDGES AND FIRMLY TENSION STRAP. SEE GENERAL NOTES "F" AND "G" ON PAGE 3.

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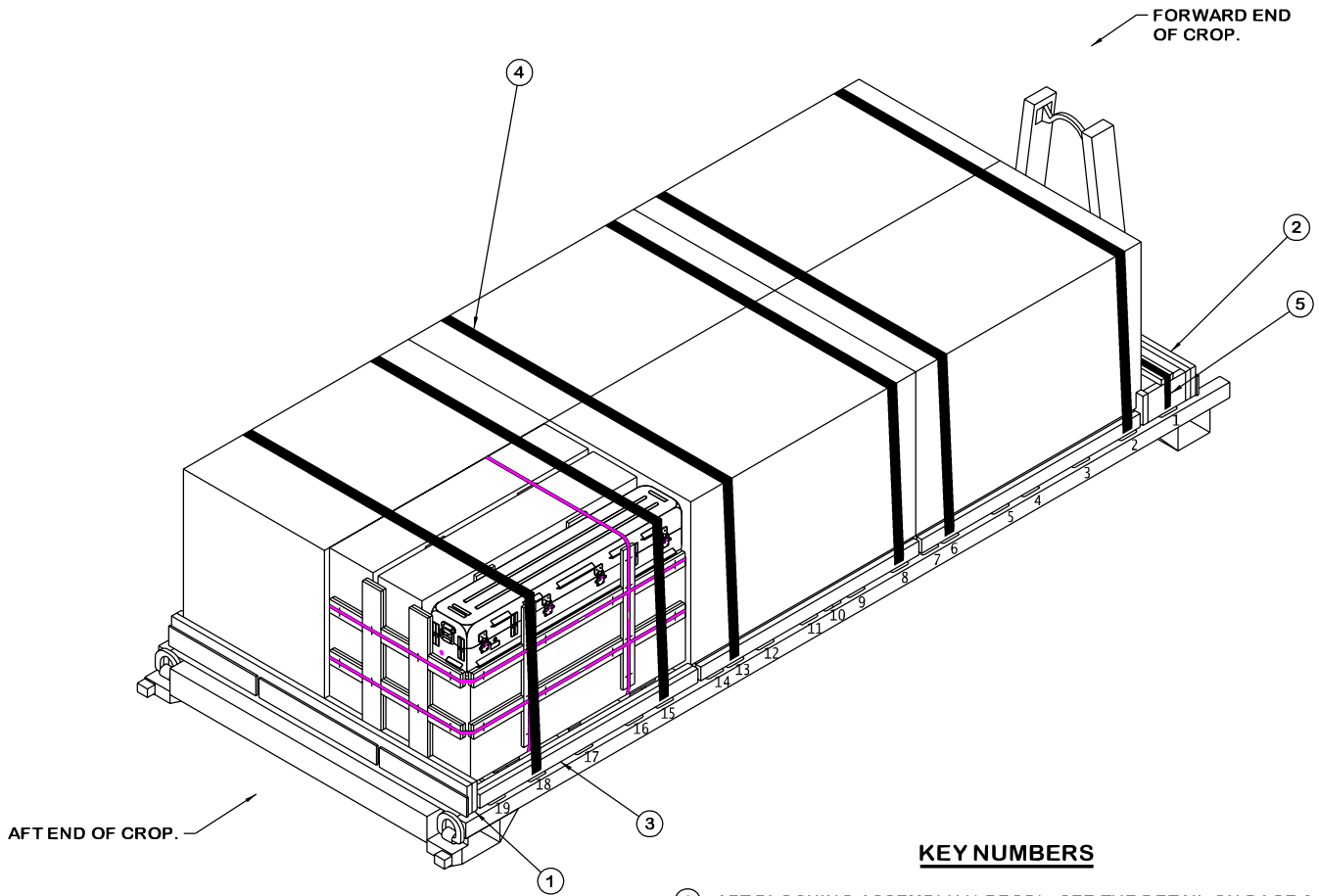
**GENERAL NOTES**

- 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 12 PALLET UNITS (WIREBOUND BOX) OR SIX PALLET UNITS (ALUMINUM CONTAINERS). SEE PAGE 5 FOR DETAIL OF THE TYPICAL PALLET UNIT. A M3A1 (HYUNDAI) CROP IS SHOWN AS TYPICAL. OTHER MANUFACTURER'S CROPS CAN BE USED FOR THE LOADS SHOWN ON PAGE 2 AND PAGE 4. ACTUAL CROP CONFIGURATION WILL DETERMINE WHETHER THE LOADING STARTS AT THE AFT OR THE FORWARD END OF THE CROP. THE AFT AND FORWARD END FILLER ASSEMBLIES OR PIECES MUST BE RESTRAINED FROM MOVING IN BOTH THE LATERAL AND VERTICAL DIRECTIONS. THIS IS ACCOMPLISHED IN THE LOADS SHOWN ON PAGE 2 AND PAGE 4 WITH HOLD DOWN PIECES, RETAINING NAILS, AND RETAINER STRAP (FORWARD BLOCKING ASSEMBLY AND AFT FILLER ASSEMBLY). IF THE CONFIGURATION OF A CROP IS SUCH THAT VERTICAL OR LATERAL RESTRAINT CANNOT BE PROVIDED, ADDITIONAL RESTRAINT METHODS, TO INCLUDE HOLD DOWN PIECES, 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 6, PROVIDED THE OVERALL PALLET UNIT DIMENSIONS RESULT IN A LOAD THAT IS CONTAINED WITHIN AN ENVELOPE OF 211" L X 89" W X 73-1/2" H.
- 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.

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	109	73
2" X 8"	39	52
NAILS	NO. REQD	POUNDS
10d (3")	146	2-1/4
12d (3-1/4")	4	NIL

**LOAD AS SHOWN**

ITEM	QUANTITY	WEIGHT (APPROX)
WIREBOUND PALLET UNIT	- 12	8,988 LBS
DUNNAGE	- - - - -	257 LBS
CROP	- - - - -	3,800 LBS
TOTAL WEIGHT		13,045 LBS (APPROX)



**ISOMETRIC VIEW**

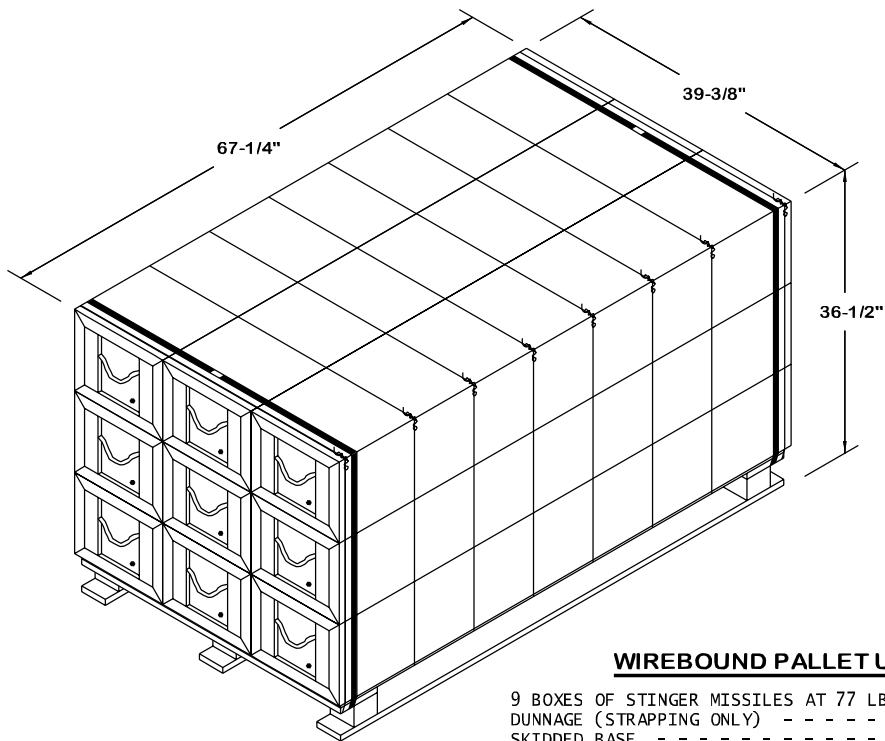
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- ② FORWARD BLOCKING ASSEMBLY (1 REQD). SEE THE DETAIL ON PAGE 6. CENTER WITH FORWARD CROP END GATE AND PLACE TIGHT AGAINST THE PALLET UNITS. AFTER FILL PIECES ARE INSTALLED, LINE UP STRAPPING BOARD WITH THE FIRST TIEDOWN ANCHOR AND NAIL TO ASSEMBLY. NAIL W/2-12d NAILS THROUGH THE HOLES IN THE FORWARD CROP END GATE INTO THE FILL PIECES, LEAVING THE NAIL HEADS PROTRUDING THROUGH THE HOLES TO PROVIDE LATERAL RESTRAINT.
- ③ SIDE BLOCKING, 2" X 4" X 65" (DOUBLED) (6 REQD). LAMINATE EACH PIECE TO THE PREVIOUS PIECE W/6-10d NAILS. INSTALL THREE SIDE BLOCKING ASSEMBLIES ON EACH SIDE OF CROP ADJACENT TO THE PALLET UNITS. AFTER THE HOLD-DOWN STRAPS ARE INSTALLED, NAIL THROUGH THE STRAP ATTACHMENT SLOTS OF EACH HOLD-DOWN STRAP INTO THE SIDE BLOCKING ASSEMBLIES W/1-10d NAIL PARTIALLY DRIVEN AND BENT OVER SIDE OF HOOK.
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BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	74	49
2" X 8"	40	54
NAILS	NO. REQD	POUNDS
10d (3")	102	1-3/4
12d (3-1/4")	4	NIL

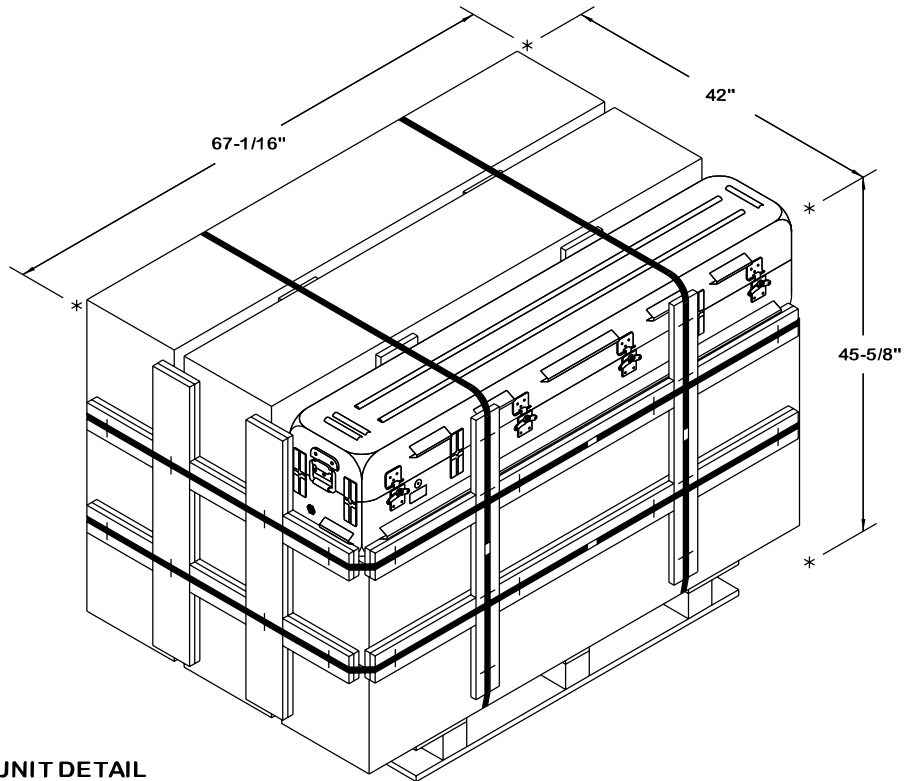
**LOAD AS SHOWN**

ITEM	QUANTITY	WEIGHT (APPROX)
ALUMINUM PALLET UNIT	6	5,712 LBS
DUNNAGE		214 LBS
CROP		3,800 LBS
TOTAL WEIGHT		9,726 LBS (APPROX)



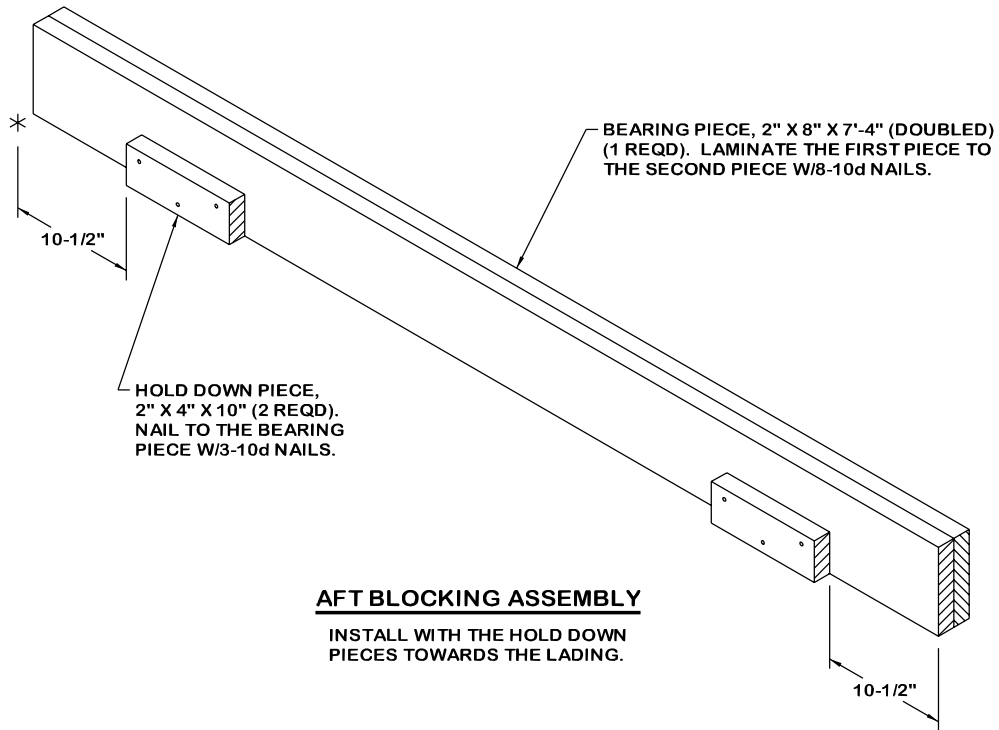
**WIREBOUND PALLET UNIT DETAIL**

9 BOXES OF STINGER MISSILES AT 77 LBS - - - - -	693 LBS (APPROX)
DUNNAGE (STRAPPING ONLY) - - - - -	2 LBS
SKIDDED BASE - - - - -	54 LBS
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TOTAL WEIGHT - - - - -	749 LBS (APPROX)
CUBE - - - - -	55.9 CU FT (APPROX)



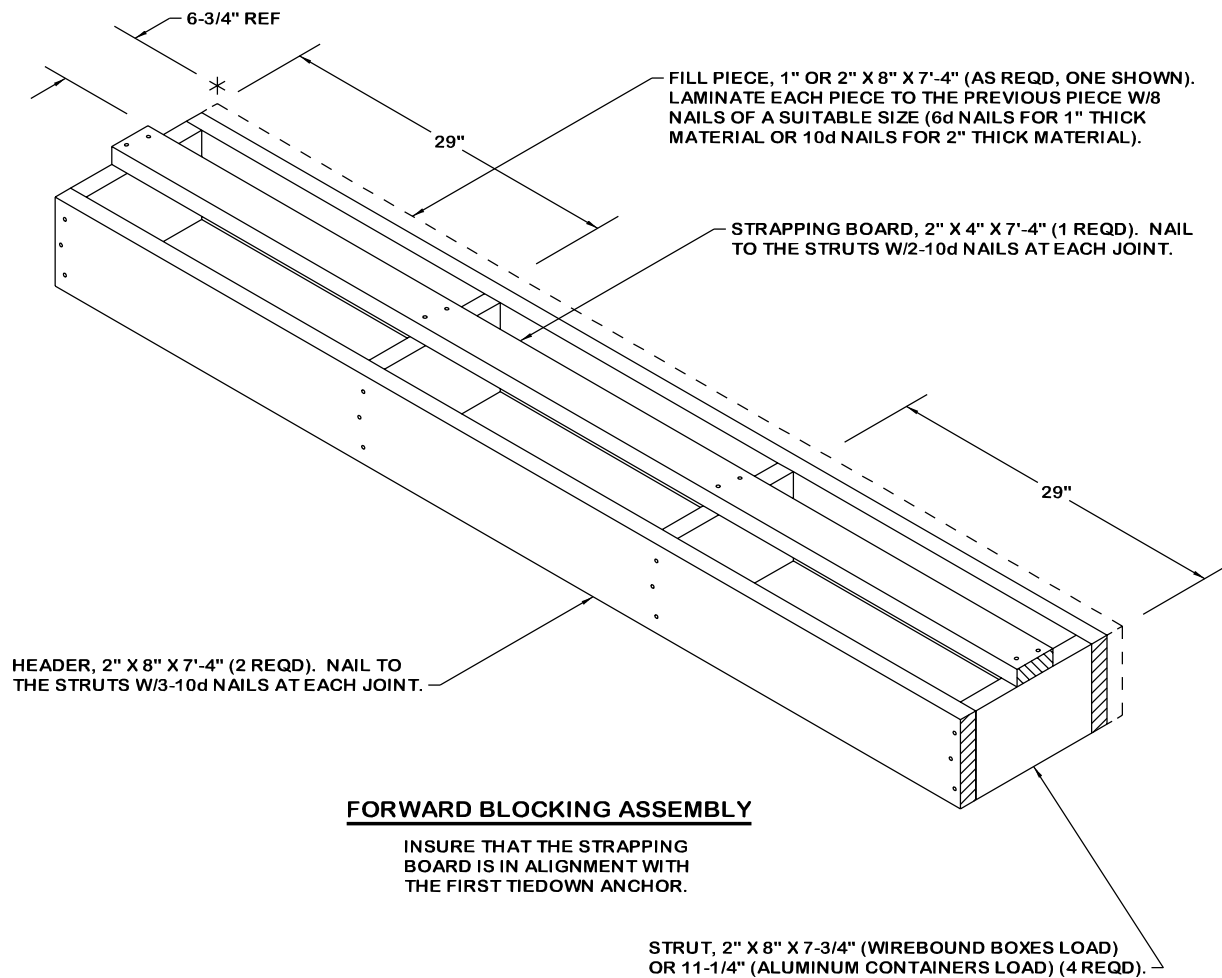
**ALUMINUM PALLET UNIT DETAIL**

9 CONTAINERS OF STINGER MISSILES AT 86 LBS - - -	774 LBS (APPROX)
DUNNAGE - - - - -	98 LBS
PALLET - - - - -	80 LBS
<hr/>	
TOTAL WEIGHT - - - - -	952 LBS (APPROX)
CUBE - - - - -	73.8 CU FT (APPROX)



**AFT BLOCKING ASSEMBLY**

INSTALL WITH THE HOLD DOWN  
PIECES TOWARDS THE LADING.



**FORWARD BLOCKING ASSEMBLY**

INSURE THAT THE STRAPPING  
BOARD IS IN ALIGNMENT WITH  
THE FIRST TIEDOWN ANCHOR.