APPROVED BY
BUREAU OF EXPLOSIVES

DATE 12/2/00

APPENDIX 49

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

SCL #49 - KIOWA WARRIOR

INDEX

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 OPERATIONS SUPPORT COMMAND	ENGINEER	BASIC	
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U.S. ARMY DEFENSE AMMUNITION CENTER	ENGINEERING DIRECTORATE		

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NOVEMBER 2000

CLASS	DIVISION	DRAWING	FILE
19	48	4905/ 49	CA17Q6

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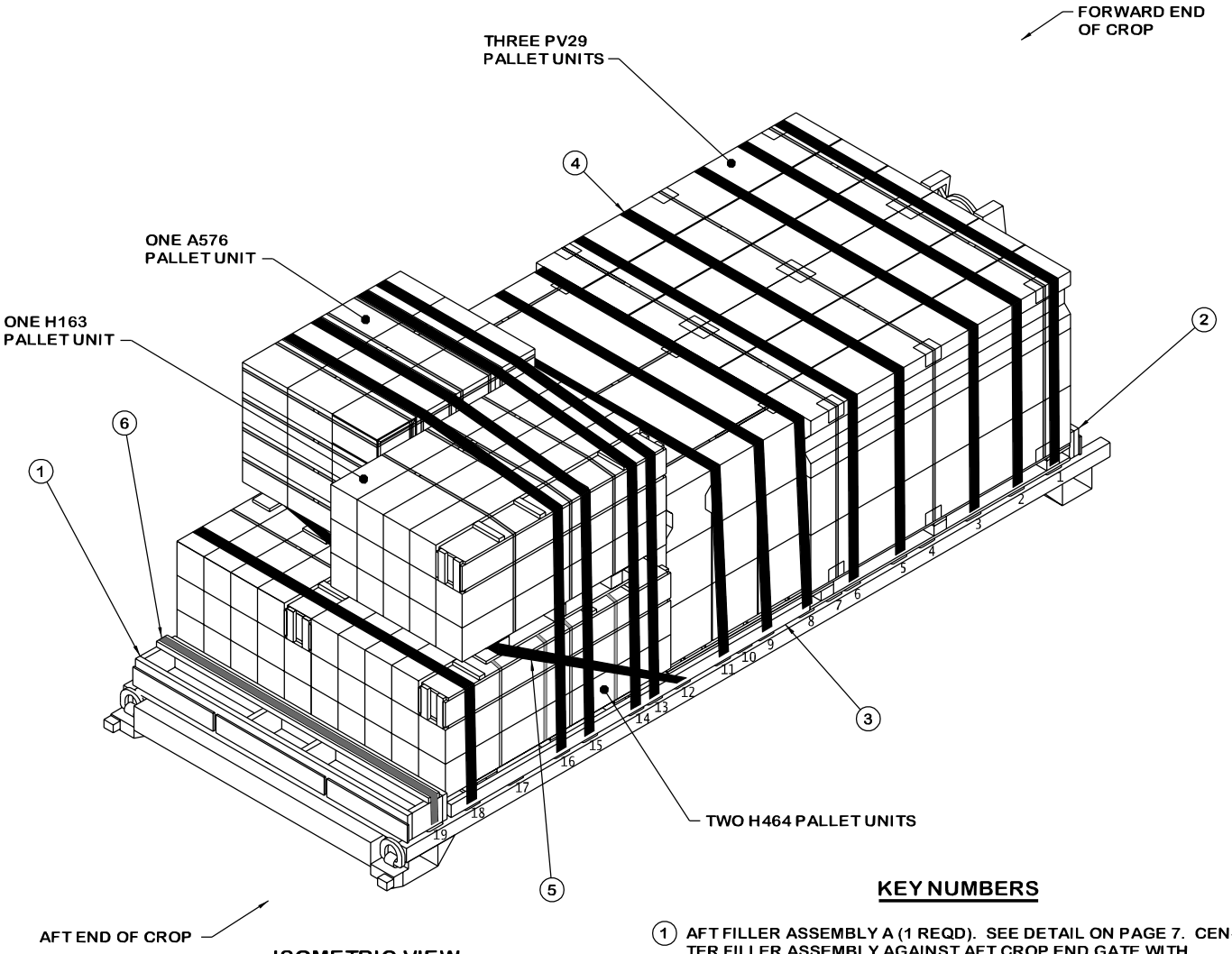


ISOMETRIC VIEW

KEY NUMBERS

(1) AFT FILLER ASSEMBLY A (1 REQD). SEE DETAIL ON PAGE 7. CENTER FILLER ASSEMBLY AGAINST AFT CROP END GATE WITH CLEATS POSITIONED IN THE FORWARD DIRECTION. AFTER THE PALLET UNITS ARE LOADED, 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 BOARDS W/8 NAILS OF SUITABLE SIZE (10d NAILS FOR 2" THICK MATERIAL). POSITION FILLER PIECE AGAINST THE FORWARD CROP END GATE AND CENTER ON THE CROP. AFTER THE PALLET UNITS ARE LOADED, NAIL THROUGH THE HOLES IN THE FORWARD CROP END GATE W/2-12d NAILS INTO THE FORWARD FILLER PIECE, LEAVING THE NAIL HEADS PROTRUDING THROUGH THE HOLES TO PROVIDE LATERAL AND VERTICAL RESTRAINT.

(3) SIDE BLOCKING, 2" X 4" X 9'-8" AND 1" X 4" X 44" (2 REQD). LAMINATE BY PLACING THE ENDS OF THE BOARDS FLUSH AND NAILING THROUGH THE 1" BOARD INTO THE 2" BOARD W/4-6d NAILS. POSITION AGAINST THE H464 AND PV29 PALLET UNITS ON BOTH SIDES OF THE CROP AS SHOWN WITH THE 1" BOARD AGAINST THE PV29 PALLET UNIT. NOTE: NAIL THROUGH THE STRAP ATTACHMENT SLOTS OF THE WEB STRAPS INTO THE SIDE BLOCKING ASSEMBLY AT TIEDOWN ANCHOR LOCATIONS 9, 13, AND 18 ON BOTH SIDES OF THE CROP W/1-10d PARTIALLY DRIVEN NAIL AND BEND OVER SIDE OF HOOK.

(4) HOLD-DOWN STRAP, 3-INCH WIDE WEB STRAP TIEDOWN ASSEMBLY FOR CROP (13 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 NOTE "F" ON PAGE 3.

(CONTINUED AT LEFT)

(KEY NUMBERS CONTINUED)

(5) AFT END RESTRAINT STRAP, 3-INCH WIDE WEB STRAP TIEDOWN ASSEMBLY FOR CROP (1 REQD). INSTALL STRAP AT AN ANGLE FROM THE TWELFTH TIEDOWN ANCHOR ON ONE SIDE OF THE CROP AROUND THE POST OF THE H163 PALLET UNIT AND THE POST OF THE A576 PALLET UNIT, AND BACK DOWN TO THE TENTH TIEDOWN ANCHOR ON THE OPPOSITE SIDE OF THE CROP. ALIGN SCUFF SLEEVES OVER ALL SHARP EDGES AND FIRMLY TENSION STRAP. SEE GENERAL NOTE "F" ON PAGE 3.

(6) AFT RETAINER STRAP, 2" WIDE WEB STRAP TIEDOWN ASSEMBLY (1 REQD). SECURE STRAP TO THE NINETEENTH TIEDOWN RING OVER THE AFT BLOCKING ASSEMBLY STRAPPING BOARD TO THE CORRESPONDING TIEDOWN RING ON THE OPPOSITE SIDE OF THE CROP. ALIGN SCUFF SLEEVES OVER ALL SHARP EDGES AND FIRMLY TENSION STRAP. SEE GENERAL NOTE "F" ON PAGE 3.

PROJECT CAP-TV 6/49-00

RECOMMENDED SEQUENTIAL PROCEDURES

1. PREFABRICATE ONE AFT FILLER ASSEMBLY "A" AND TWO SIDE BLOCKING ASSEMBLIES.
2. POSITION THE AFT FILLER ASSEMBLY, PIECE MARKED ①, TIGHT AGAINST THE AFT CROP END GATE. CENTER THE FILLER ASSEMBLY ON THE GATE.
3. PLACE TWO H464 PALLET UNITS ON THE CROP AS SHOWN ON PAGE 2. PALLET UNITS SHALL BE CENTERED ON THE CROP AND TIGHT AGAINST THE AFT FILLER ASSEMBLY WITH THE CLEATS ON THE FILLER ASSEMBLY PROTRUDING UNDER THE TWO PALLET UNITS. NAIL TWO 12d RETAINER NAILS INTO THE AFT FILLER ASSEMBLY AS INSTRUCTED IN KEY NUMBER ①.
4. CENTER ONE PV29 PALLET UNIT LATERALLY ON THE CROP AS SHOWN ON PAGE 2.
5. PLACE TWO PV29 PALLET UNITS LONGITUDINALLY ON THE CROP AS SHOWN ON PAGE 2.
6. CENTER THE FORWARD FILLER AGAINST THE FRONT PALLET UNITS. LAMINATE FILLER PIECES AS REQUIRED. NAIL TWO 12d RETAINER NAILS INTO THE FORWARD FILLER AS INSTRUCTED IN KEY NUMBER ②.
7. PLACE ONE A576 PALLET UNIT AND ONE H163 PALLET UNIT SIDE BY SIDE ON TOP OF THE H464 PALLET UNITS, TIGHT AGAINST THE LATERAL PV29 PALLET UNIT. CENTER THE PALLET UNITS LATERALLY.
8. POSITION THE SIDE BLOCKING ASSEMBLIES, PIECE MARKED ③, AGAINST THE SIDES OF THE LATERAL PV29 PALLET UNIT AND THE H464 PALLET UNITS ON EACH SIDE OF THE CROP.
9. INSTALL THE 13 HOLD-DOWN STRAPS AS NOTED IN KEY NUMBER ④.
10. INSTALL THE ONE AFT END RESTRAINT STRAP AS NOTED IN KEY NUMBER ⑤.
11. INSTALL THE ONE AFT RETAINER STRAP AS NOTED IN KEY NUMBER ⑥.

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 #49. SEE PAGES 4 THRU 6 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 6 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. 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. NOTE: THE HELLFIRE MISSILES HAVE BEEN PACKED IN TWO DIFFERENT LENGTH PALLET UNITS (7'-0" FOR PV29 AND 6'-4" FOR THE ALTERNATE DODIC PD68). ENSURE THAT ALL PALLET UNITS ON EACH LOAD ARE THE SAME SIZE. THE PV29 PALLET UNIT IS SHOWN. WHEN USING THE ALTERNATE PD68 PALLET UNITS THE FOLLOWING CHANGES APPLY: USE THE AFT FILLER ASSEMBLY "B", REPLACE SIDE BLOCKING ASSEMBLIES WITH THE SPACER ASSEMBLIES AS SHOWN ON PAGE 8, AND CHANGE STRAP ANCHOR POSITIONS SO THAT THE STRAPS CONTACT THE PALLETS AT THE LOCATIONS AS SHOWN ON PAGE 2.

E. 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. NOTE: USE ONLY TWO PV29 OR TWO PD68 PALLET UNITS AT THE FORWARD END OF THE LOAD.

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 19-48-4905-CA17Q6.

G. 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.

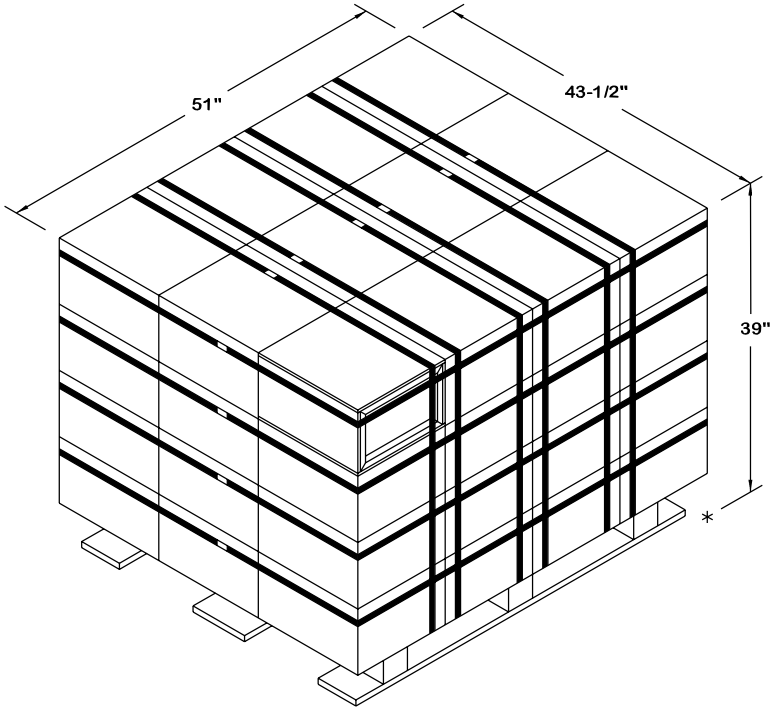
BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
1" X 4" 2" X 4" 2" X 8"	8 29 33	3 19 44
NAILS	NO. REQD	POUNDS
6d (2") 10d (3") 12d (3-1/4")	14 44 4	1/4 3/4 1/4
2" WEB STRAP TIEDOWN ASSY - - 1 REQD - - - - 6 LBS		

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
A576 PALLET UNIT	1	3,691 LBS
H163 PALLET UNIT	1	2,215 LBS
H464 PALLET UNIT	2	5,648 LBS
PV29 PALLET UNIT	3	5,763 LBS
DUNNAGE		140 LBS
CROP		3,800 LBS
TOTAL WEIGHT		21,257 LBS (APPROX)

SCL #49 COMPOSITION CHART

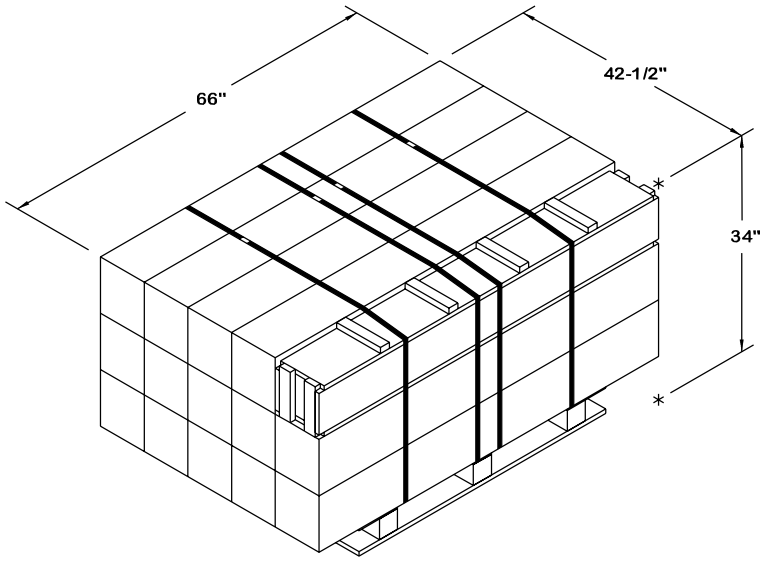
DODIC	NSN	NOMENCLATURE	UNIT DWG	REQD	UNITS REQD	HC
A576 ▲	1305-00-028-6603	CARTRIDGE, .50 CAL 4 API M8/1 API-T M20 LINKED	4116/14	9,600	1 PALLET	1.4G
H163	1340-01-108-8851	ROCKET, 2.75" HE W/WARHEAD M151 (HYDRA)	4116/80N	60	1 PALLET	1.1E
H464	1340-01-108-8850	ROCKET, 2.75" W/WARHEAD M261 (HYDRA)	4116/80D	120	2 PALLETS	1.2E
PV29 *	1410-01-332-2471	GUIDED MISSILE, AGM-114F IMPROVED HELLFIRE	5250	27	3 PALLETS	1.1E
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.						
A540 ▲	1305-00-935-2017	CARTRIDGE, .50 CAL API M8 API-T M17	4116/14			1.4G
PD68 *	1410-01-192-0293	GUIDED MISSILE, HELLFIRE MINIMUM SMOKE	5250			1.1E



A576 PALLET UNIT DETAIL

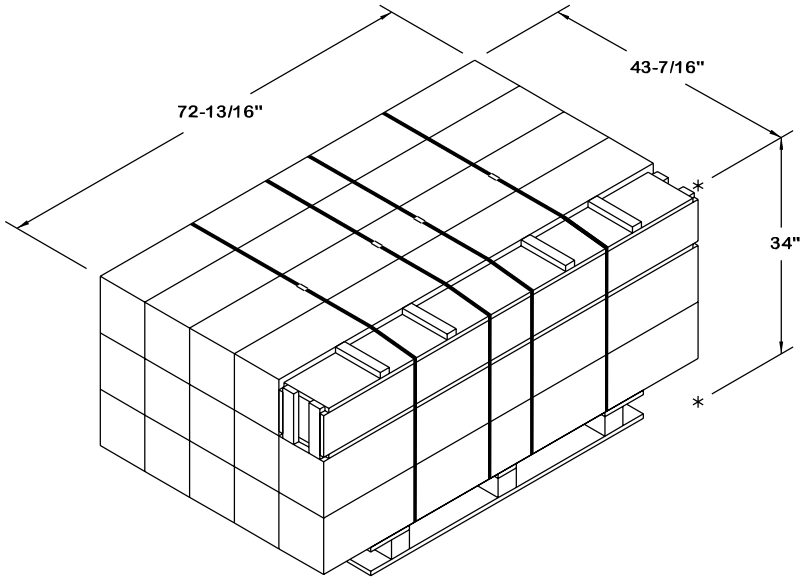
48 BOXES OF .50 CAL CTG (200 PER BOX) AT 75 LBS	3,600 LBS (APPROX)
DUNNAGE	11 LBS
PALLET	80 LBS
TOTAL WEIGHT	3,691 LBS (APPROX)
CUBE	50.1 CU FT (APPROX)

PROJECT CAP-TV 6/49-00



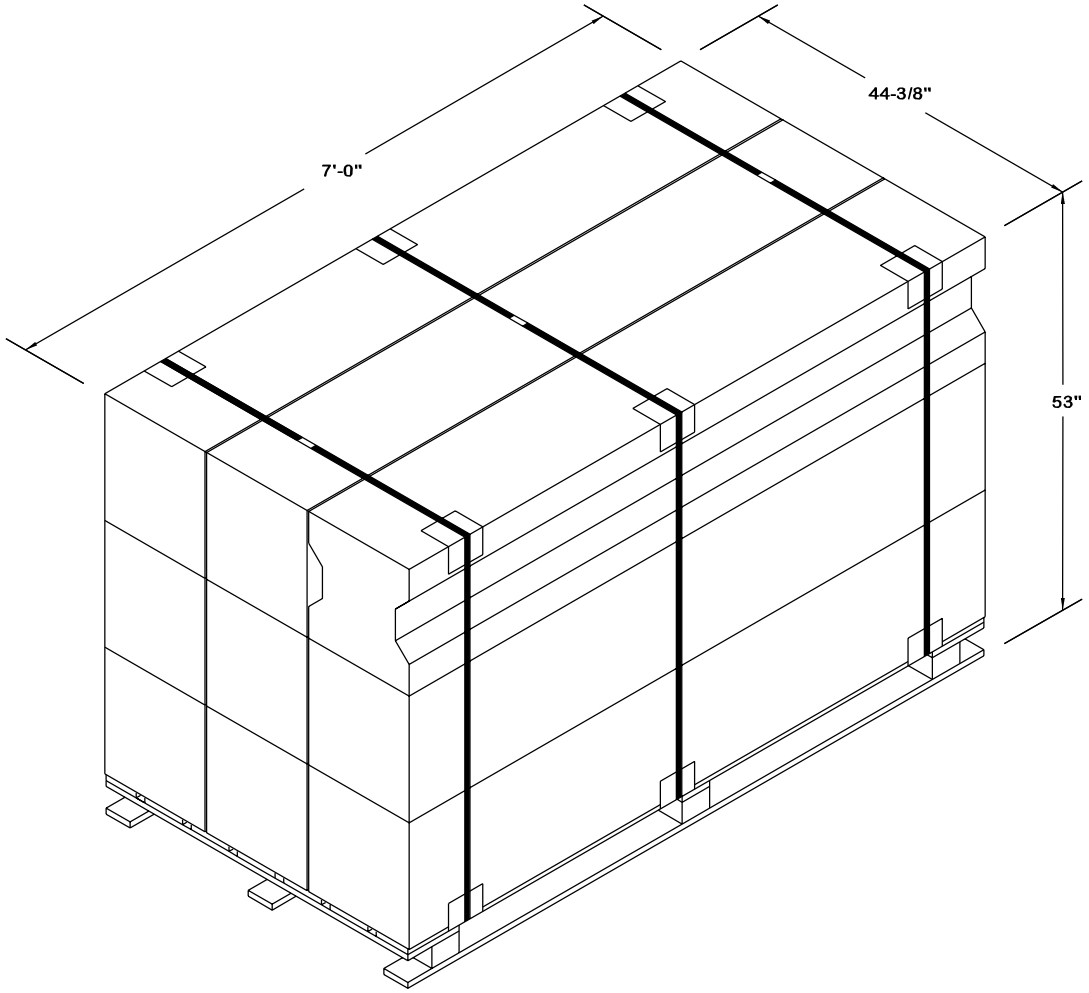
H163 PALLET UNIT DETAIL

15 BOXES OF 2.75" ROCKETS AT 142 LBS	2,130 LBS (APPROX)
DUNNAGE	5 LBS
PALLET	80 LBS
TOTAL WEIGHT	2,215 LBS (APPROX)
CUBE	55.2 CU FT (APPROX)



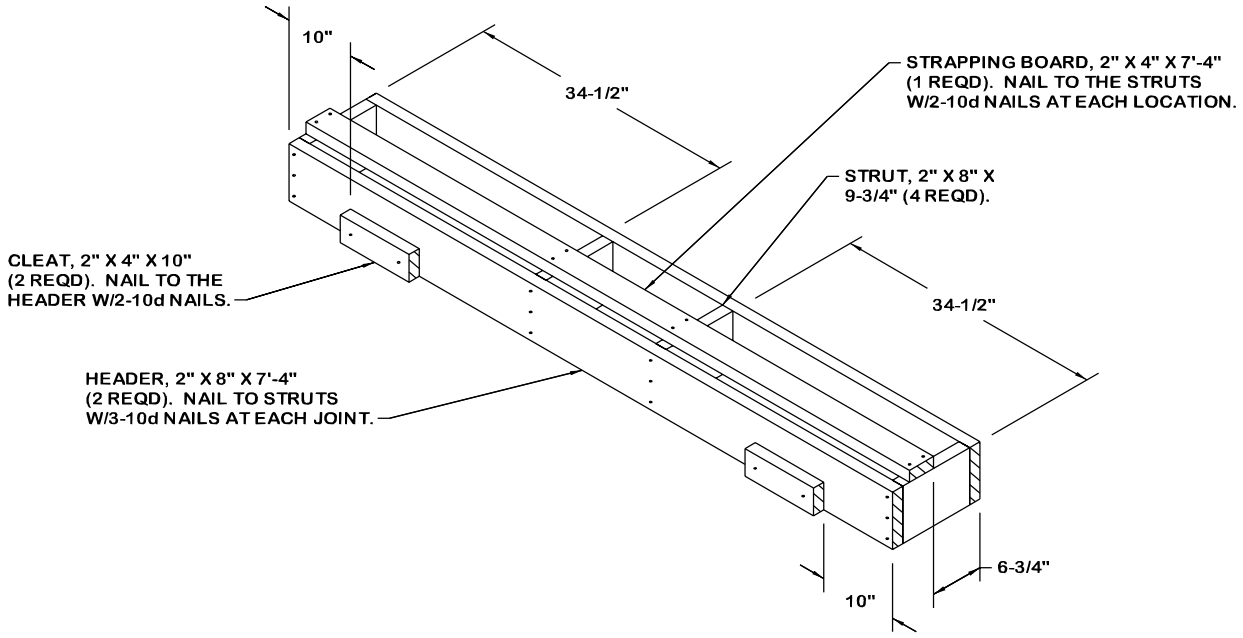
H464 PALLET UNIT DETAIL

15 BOXES OF 2.75" ROCKETS AT 182 LBS	2,730 LBS (APPROX)
DUNNAGE	4 LBS
PALLET	90 LBS
TOTAL WEIGHT	2,824 LBS (APPROX)
CUBE	62.2 CU FT (APPROX)



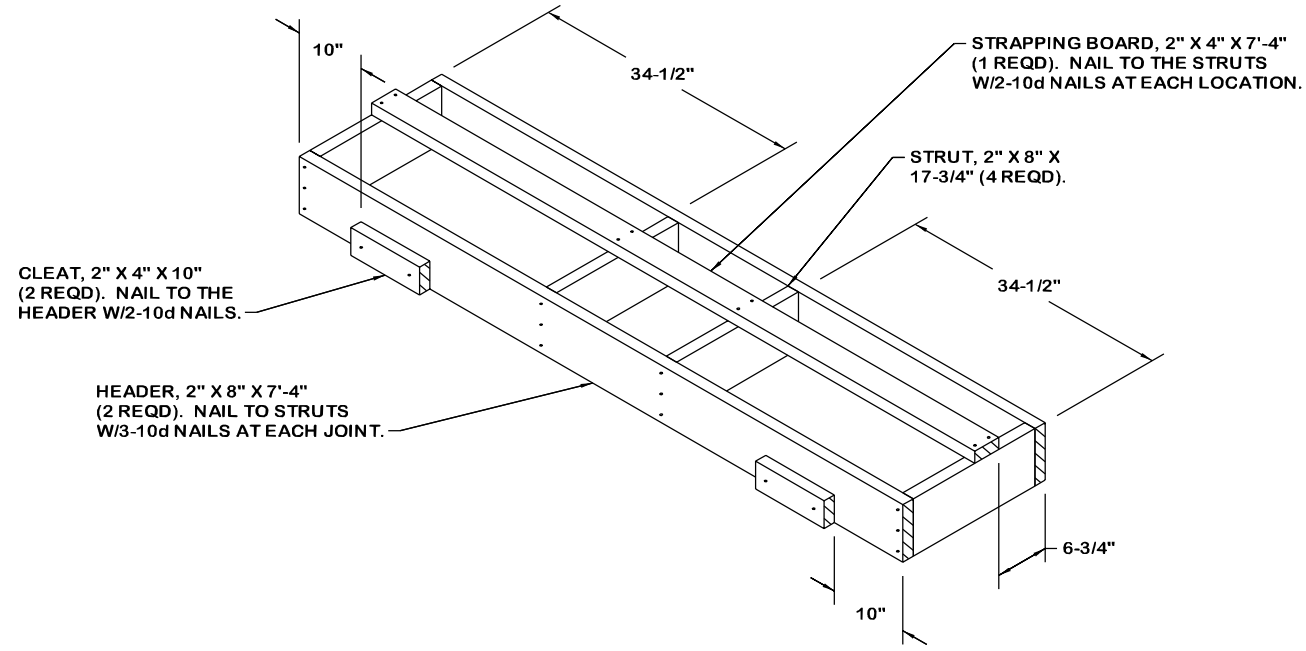
PV29 PALLET UNIT DETAIL

9 CONTAINERS OF HELLFIRE MISSILES AT 203 LBS	1,827 LBS (APPROX)
DUNNAGE	4 LBS
PALLET	90 LBS
TOTAL WEIGHT	1,921 LBS (APPROX)
CUBE	114.3 CU FT (APPROX)



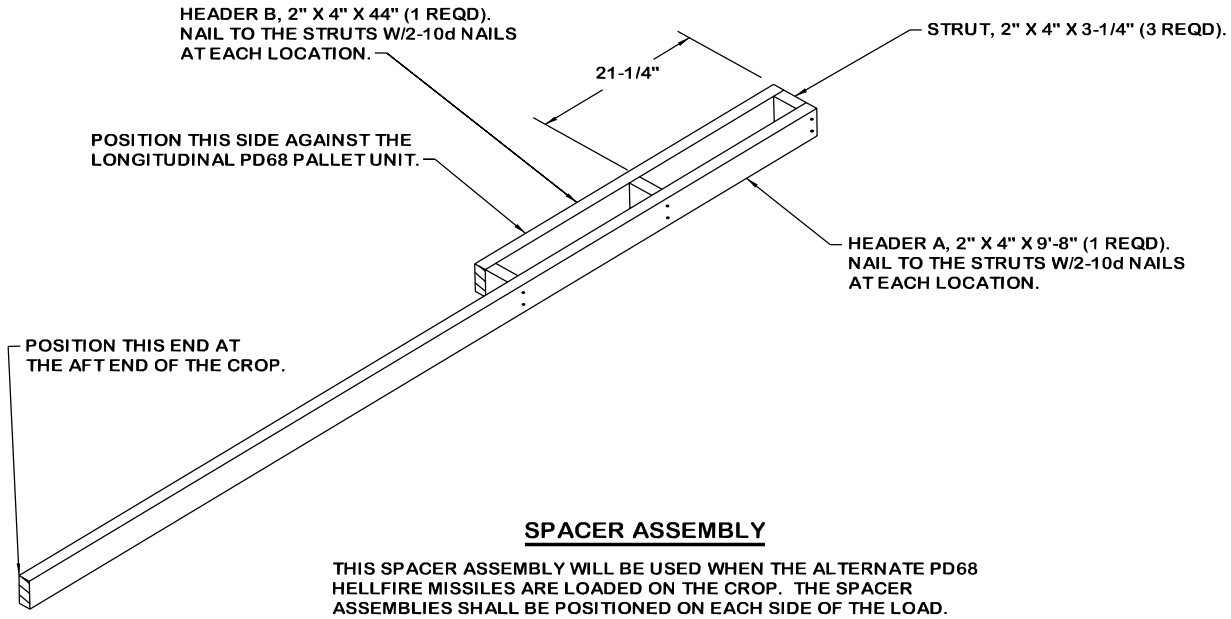
AFT FILLER ASSEMBLY A

THIS AFT FILLER ASSEMBLY WILL BE USED WITH THE PV29 HELLFIRE MISSILES PACKED IN THE LONG (7'-0") CONTAINERS. PLACE THE AFT FILLER ASSEMBLY AT THE REAR OF THE LOAD WITH THE CLEATS RECESSED UNDER THE PALLET UNITS. FIELD CHECK PALLET UNITS TO VERIFY PROPER CLEAT LOCATIONS.



AFT FILLER ASSEMBLY B

THIS AFT FILLER ASSEMBLY WILL USED BE WITH THE ALTERNATE PD68 HELLFIRE MISSILES PACKED IN THE SHORT (6'-4") CONTAINERS. PLACE THE AFT FILLER ASSEMBLY 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

THIS SPACER ASSEMBLY WILL BE USED WHEN THE ALTERNATE PD68 HELLFIRE MISSILES ARE LOADED ON THE CROP. THE SPACER ASSEMBLIES SHALL BE POSITIONED ON EACH SIDE OF THE LOAD.