UNITIZATION PROCEDURES FOR SIGNAL FLARES PACKED IN SURE-PAK CONTAINERS FOR INTRA-THEATER GROUND MOVEMENT ONLY

NOTICE: THE PROCEDURES DELINEATD IN THIS DRAWING ARE FOR INTRA-THEATER GROUND MOVEMENT ONLY.

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U.S. ARMY MATERIEL COMMAND DRAWING

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GENERAL NOTES

- A. THIS DOCUMENT HAS BEEN PREPARED AND ISSUED IN ACCORDANCE WITH AR 740-1 AND AUGMENTS TM 743-200-1 (CHAPTER 5).
- B. THE SPECIFIED UNITIZATION PROCEDURES ARE APPLICABLE TO LOADS OF LOOSE AND PACKAGED SIGNAL FLARES LOADED IN SURE-PAK CONTAINERS. SUBSEQUENT REFERENCE TO PALLET UNIT HEREIN MEANS THE SURE-PAK WITH AMMUNITION ITEMS. <u>CAUTION</u>: REGARDLESS OF THE QUANTITY OF FLARES TO BE SHIPPED, THE "MAXIMUM GROSS WEIGHT" OF THE SURE-PAK MUST NOT BE EXCEEDED 2,000 POUNDS.
- C. THE LOAD SHOWN ON PAGES 4 THROUGH 6 ARE BASED ON A 48" LONG BY 40" WIDE BY 51-1/2" HIGH SURE-PAK CONTAINER WITH AN INSIDE HEIGHT OF 45", WHILE THE LOAD SHOWN ON PAGES 7 THROUGH 10 IS BASED ON A 48" LONG BY 40" WIDE BY 30-1/2" HIGH SURE-PAK CONTAINER WITH AN INSIDE HEIGHT OF 24", ALL WITH A MAXIMUM GROSS WEIGHT OF 2,000 POUNDS. ANY OF THE SURE-PAK CONTAINERS LISTED IN THE MATERIAL SPECIFICATIONS BELOW MAY BE USED, BUT MAY RESULT IN EITHER A REDUCTION IN THE QUANTITY SHIPPED OR THE USE OF MORE FILL MATERIAL TO OCCUPY THE VOID.
- D. THE FOLLOWING AMC DRAWINGS ARE APPLICABLE FOR OUTLOADING AND STORAGE OF THE ITEMS COVERED BY THIS DRAWING. THE DELINEATED PROCEDURES ARE INTENDED FOR INTRA-THEATER GROUND MOVEMENT ONLY.

STORAGE - - - - 19-48-4118-1-2-3-4-14-22PA1002 TACTI CAL VEHI CLE - 19-48-4901/4-CA1702 TRUCKLOADI NG - - 19-48-4117-11PA1003

- E. AMMUNITION SHOULD BE RELOADED AND TRANSPORTED IN ORIGINAL FACTO-RY PACKAGING WHENEVER POSSIBLE; HOWEVER, THERE ARE SITUATIONS WHEN THIS IS NOT POSSIBLE. IN ORDER TO ENSURE THE HIGHEST LEVEL OF EXPLOSVIES SAFETY PRACTICABLE, USE THE FOLLOWING PACKAGING PRIORI-TIES WHEN PLANNING AMMUNITION TRANSPORT. FIRST, USE FACTORY PACK-AGING IF AT ALL POSSIBLE. SECOND CHOICE FOR PROTECTION IS TO LOAD AMMUNITION IN METAL CONTAINERS AS DEPICTED ON PAGE 3. THE THIRD METHOD OF SECURING AMMUNITION FOR TRANSPORT IS TO USE AVAILABLE PACKAGING AND CUSHIONING MATERIAL TO PACK LOOSE AMMUNITION DI-RECTLY INTO SURE-PAK CONTAINERS, AS DEPICTED ON PAGES 7 THROUGH 10.
- F. WHEN LOADING LOOSE SIGNAL FLARES OR M548 CONTAINERS LOADED WITH SIGNAL FLARES, THEY ARE TO BE POSITIONED SO AS TO ACHIEVE A TIGHT LOAD. THE UNBLOCKED SPACE ACROSS THE WIDTH OR LENGTH OF A SURE-PAK CONTAINER IS NOT TO EXCEED 1/2", AND UNBLOCKED SPACE IN THE HEIGHT OF THE SURE-PAK IS NOT TO EXCEED 1". EXCESSIVE SLACK CAN BE ELIMINATED FROM A LOAD BY ADDING FILLER MATERIAL.
- G. METAL BOXES THAT ARE USED FOR SHIPMENT OF AMMUNITION USING THE PROCEDURES HEREIN ARE LIMITED TO M548 CONTAINERS.
- H. FILLER MATERIAL IS DEFINED HEREIN AS FIBERBOARD MATERIAL, 0.25" TO 0.5" THICK, WITH SUFFICIENT CUSHIONING TO PROTECT THE AMMUNITION ITEMS. SOME POTENTIAL SOURCES OF FILLER MATERIAL INCLUDE BUT ARE NOT LIM-ITED TO FIBERBOARD SHEETS AND DISCARDED FIBERBOARD BOXES. <u>CAUTION</u>: ALL FILLER MATERIAL MUST BE NON-STATIC PRODUCING AND FREE FROM PROJECTIONS AND SHARP EDGES, AS WELL AS FREE FROM FOOD RESI-DUE AND EXCESS WATER OR LIQUID RESIDUE.
- J. CARE SHOULD BE TAKEN WHEN LOADING SURE-PAK CONTAINERS TO ENSURE AN EVENLY BALANCED LOAD. ARRANGE THE LOAD IN SUCH A MANNER THAT THE CENTER OF GRAVITY IS CLOSE TO THE PHYSICAL CENTER OF THE SURE-PAK.
- K. IF SURE-PAK CONTAINERS ARE TIGHTLY PACKED AND LOADED WITH AMMUNI-TION ITEMS TO WITHIN 1" OF THE TOP ON THE SIDEWALLS, THE SURE-PAKS MAY BE STACKED FOR SHORT TERM STORAGE UP TO THREE HIGH. IF, HOW-EVER, THE SURE-PAK CONTAINER LOAD CONSISTS OF MORE THAN ONE INCH OF FILL MATERIAL ON THE TOP OF THE LOAD, THE SURE-PAK CONTAINERS WILL NOT BE STACKED, AND SHOULD BE MARKED AS SUCH. THE ONLY EX-CEPTION TO THIS REQUIREMENT IS IF THE FILL MATERIAL IS AS STRONG AS OR STRONGER THAN THE ITEM BEING LOADED, SUCH AS THE USE OF EMPTY M548 CONTAINERS. IN THIS CASE, THE SURE-PAK CONTAINERS MAY BE STACKED AS OUTLINED ABOVE.
- L. EACH SURE-PAK CONTAINER MUST BE SECURED WITH A MINIMUM OF TWO WEB STRAPS ORIENTED AROUND THE 40° LENGTH AND THE HEIGHT OF THE LOAD. THE TWO STRAPS SHOULD BE EVENLY SPACED ACROSS THE LENGTH OF THE LOAD. CARE MUST BE TAKEN TO ENSURE THAT STRAP RATCHETS WILL NOT INTERFERE WITH EITHER STACKING OF THE SURE-PAK CONTAINERS OR LONGITUDINAL LOADING FOR TRANSPORT. IF WEB STRAPS ARE NOT AVAILABLE, SIMILAR STRENGTH PLASTIC STRAPPING IAW ASTM D3950 MAY BE USED.
- M. PORTIONS OF THE SURE-PAK CONTAINER DEPICTED WITHIN THIS DRAWING, SUCH AS THE TOP AND SIDEWALL, HAVE NOT BEEN SHOWN IN SOME LOAD VIEWS FOR CLARITY PURPOSES.
- N. THE QUANTITY OF SIGNAL FLARES SHOWN IN THE LOADS HEREIN MAY BE RE-DUCED FOR SHIPMENT, IF DESIRED. ADDITONAL FILL MATERIAL OR EMPTY M548 AMMO CANS MUST BE INSTALLED IN ORDER TO MEET THE REQUIRE-MENTS IN GENERAL NOTE "F".
- O. 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.

MATERIAL SPECIFICATIONS

SURE-PAK CONTAINER -:	SHIPPING AND STORAGE SYSTEM; SURE-PAK KIT INCLUDING TOP, BASE, SLEEVE AND & LOCKING CLIPS; 8115-01-556-2579 (30-1/2" HIGH), 8115-01-556-2580 (36-1/2" HIGH), OR 8115- 01-556-2581 (51-1/2" HIGH).
<u>Strapping, web</u> :	TIE DOWN, CARGO, VEHICLE, 2" NOMINAL STRAP, 2,000 POUND MINIMUM WORKING LOAD LIMIT, 3990-01-204-3009 OR EQUIVALENT.
HARDBOARD:	ANSI/AHA A135.4, CLASS 1.
FIBERBOARD:	ASTM D4727.
TAPE, DUCT:	COMMERCIAL GRADE.
HONEYCOMB FILLER:	FIBERBOARD, FACING PAPER WEIGHT 69 POUNDS/1,000 SQUARE FEET, SORE PAPER WEIGHT 33 POUNDS/1,000 SQUARE FEET, ½" CORE CELL CENTERS, INTERNATIONAL HONEYCOMB CORPORA- TION (OR EQUAL).
FOAM CUSHIONING MATERIAL:	COMMERCIAL ITEM DESCRIPTION A-A-59136, CLASS 1, TYPE III, GRADE A, OR COMMERCIAL EQUIVALENT.
WATER BOTTLE:	COMMERCIAL GRADE, 20 OUNCE OR 0.5 LITER.

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SURE-PAK CONTAINER LOADING PROCEDURES

- 1. SET UP THE SURE-PAK BASE AND SLEEVE, ENGAGING THE FOUR BOTTOM LOCKING DEVICES.
- 2. INSTALL CARDBOARD IN THE BOTTOM OF THE SURE-PAK TO FILL VOID ARE-AS. SEE DETAIL ON PAGE 10.
- 3. INSTALL FLOOR IN THE BOTTOM OF THE SURE-PAK. SEE DETAILS ON PAGE 5.
- 4. LOAD THE FIRST LAYER OF FULL M548 CONTAINERS, BEGINNING WITH THE CENTER ROW OF CONTAINERS AND WORKING OUTWARD. THE CENTER ROW SHOULD BE ORIENTED OVER THE CENTER POSTS OF THE SURE-PAK BASE. PLACE SIDE FILLER AND END FILLER PIECES BETWEEN THE CONTAINERS AS THEY ARE LOADED. A CORNER FILLER PIECE SHOULD BE POSITIONED ON THE FLOOR BEFORE AN OUTER ROW OF CONTAINERS IS PLACED, SO THAT THE DISTANCE BETWEEN THE UPRIGHT PARTS OF THE TWO CORNER FILLER PIECES IS APPROXIMATELY 46". PLACE SIDE FILLER IN THE SPACE BETWEEN THE CORNER FILLERS AND THE M548 CONTAINERS. SEE DETAILS ON PAGES 4 AND 5.
- 5. REPEAT LOADING PROCEDURE WITH SECOND LAYER OF FULL M548 CON-TAINERS (CORNER FILLER PIECES ARE NOT REQUIRED ON THE SECOND LAY-ER). START AS BEFORE WITH THE CENTER ROW AND WORK OUTWARD. A FLOOR OF FIBERBOARD SHOULD BE PLACED BETWEEN THE LAYERS BEFORE LOADING THE SECOND LAYER. WAIT TO ADD THE OUTER SIDE FILLER PIECES UNTIL THE SURE-PAK SLEEVE IS IN PLACE.
- 6. PULL THE SURE-PAK SLEEVE OVER THE LOAD AND ENGAGE THE FOUR BOT-TOM LOCKING DEVICES. CARE SHOULD BE TAKEN WHEN SLIDING THE SLEEVE OVER THE CORNER FILLER PIECES.
- 7. PLACE THE SIDE FILLER AS NEEDED BETWEEN THE M548 CONTAINERS AND THE SURE-PAK INSIDE WALLS ON THE SECOND LAYER, ENSURING THAT THE SURE-PAK LOAD IS RELATIVELY TIGHT.
- 8. DO NOT EXCEED 2,000 POUNDS GROSS WEIGHT FOR THE SURE-PAK AND CONTENTS.
- 9. WHEN THE SURE-PAK IS FILLED, ADD FIBERBOARD, EMPTY M548 CONTAIN-ERS, AND/OR OTHER VOID FILLER AS NEEDED TO FILL OUT THE TOP OF THE SURE-PAK. SEE DETAIL ON PAGE 4.
- 10. INSTALL THE SURE-PAK TOP AND ENGAGE THE FOUR TOP LOCKING DEVICES.
- 11. INSTALL TWO WEB STRAPS (MINIMUM) AROUND THE SHORT DIMENSION OF THE SURE-PAK. SEE DETAIL ON PAGE 4.



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SURE-PAK CONTAINER LOADING PROCEDURES

- 1. SET UP THE SURE-PAK BASE AND SLEEVE, ENGAGING THE FOUR BOTTOM LOCKING DEVICES.
- 2. INSTALL CARDBOARD IN THE BOTTOM OF THE SURE-PAK TO FILL VOID ARE-AS. SEE DETAIL ON PAGE 10.
- 3. INSTALL THE FIRST LAYER OF FLOOR SECTIONS IN THE BOTTOM OF THE SURE-PAK. SEE DETAILS ON PAGE 8.
- 4. LOAD THE FIRST LAYER OF SIGNAL FLARES. THE LONG INSERTS CAN NOW BE PLACED BETWEEN EVERY ROW OF SIGNAL FLARES. EXTRA PIECES CAN BE USED AS REQUIRED TO MAKE A TIGHT LOAD. THE SHORT INSERTS ARE THEN PLACED BETWEEN EVERY COLUMN OF SIGNAL FLARES. THE SHORT INSERTS ARE TO BE USED TO PUSH THE LONG INSERTS INTO PLACE. AGAIN, EXTRA PIECES CAN BE USED TO TIGHTEN THE LOAD. SEE DETAILS ON PAGE 9.
- 5. REPEAT LOADING PROCEDURE IN STEP 3 AND 4 WITH SECOND LAYER OF SIGNAL FLARES.
- 6. DO NOT EXCEED 2,000 POUNDS GROSS WEIGHT FOR THE SURE-PAK AND CONTENTS.
- 7. WHEN THE SURE-PAK IS FILLED WITH BOTH LAYERS OF SIGNAL FLARES, ADD FIBERBOARD AND/OR OTHER VOID FILLER AS NEEDED TO FILL OUT THE TOP OF THE SURE-PAK. SEE DETAIL ON PAGE 7.
- 8. INSTALL THE SURE-PAK TOP AND ENGAGE THE FOUR TOP LOCKING DEVICES.
- 9. INSTALL TWO WEB STRAPS (MINIMUM) AROUND THE SHORT DIMENSION OF THE SURE-PAK. SEE DETAIL ON PAGE 7.







PROJECT <u>CA 384/6-13</u>

DRAWING 19-48-4362/6