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SJMAC-DEV (70-1pp)

6 February 2007

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SUBJECT: Report No. 06-04A, "Transportability Testing of the Joint Modular Intermodal Platform (JMIP)", TP-94-01, "Transportability Testing Procedures"

1. Enclosed please find subject report dated November 2006.

2. The POC is the undersigned, SJMAC-DEV, DSN 956-8908.

FOR THE DIRECTOR:

for JERRY W. BEAVER
Chief, Validation Engineering Division

Encl
as

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FINAL REPORT
NOVEMBER 2006

REPORT NO. 06-04A

TRANSPORTABILITY TESTING OF THE JOINT MODULAR INTERMODAL PLATFORM (JMIP) TP-94-01, "TRANSPORTABILITY TESTING PROCEDURES"

Prepared for:

TACOM/ ARDEC
Logistics Research and Development Activity
ATTN: AMSRD-AAR-AIL-F
Picatinny Arsenal, NJ 07806

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REPORT NO. 06-04A **NOVEMBER 2006**
TRANSPORTABILITY TESTING OF THE
JOINT MODULAR INTERMODAL PLATFORM (JMIP)
TP-94-01, REV. 2, JUNE 2004, "TRANSPORTABILITY TESTING PROCEDURES"

ABSTRACT

The U.S. Army Defense Ammunition Center (DAC), Validation Engineering Division (SJMAC-DEV), was tasked by the Logistics Research and Development Activity (AMSRD-AAR-AIL-F), Picatinny Arsenal, NJ to conduct evaluation transportability testing on the Joint Modular Intermodal Platform (JMIP) manufactured by SEA BOX Inc, East Riverton, NJ. The testing was conducted in accordance with TP-94-01, Revision 2, June 2004 "Transportability Testing Procedures."

The objective of the testing was to evaluate the Joint Modular Intermodal Platform (JMIP) when transportability tested in accordance with TP-94-01, Revision 2, June 2004.

The following observations resulted from the testing of JMIP:

1. Prior to the beginning of testing hydraulic fluid was leaking from the rear of the JMIP.
2. When loaded onto the PLS truck, the rails at the forward end of the JMIP did not rest on the support of the PLS truck (frog feet). The base of the JMIP, between the main rails, rested on the PLS load handling system.
3. The pin holding the roller wheel in position disengaged prior to the start of testing. The pins on the roller wheels need to be secured in position.
4. The wheels were not properly positioned. The main rails were approximately 0.5 inches from the floor of the trailer at the aft end of the JMIP.

5. The storage drawer only held 8 straps plus the box of tie-down rings. Storage space may not be adequate to hold the required straps for full payload securement.
6. When the A-frame is in "Transport Mode" inside the intermodal container, the A-frame contacts the inside of the container door.
7. The rear tie-down rings contact the container wall and during testing the rear tie-down rings damaged the container wall.
8. The plate and corner locking mechanisms are susceptible to damage when the JMIP is moved using a forklift at the A-frame end.
9. During rail impact testing, the corner locks disengaged from the shoring slots and did not prevent the JMIP from excessively moving in the longitudinal direction.
10. The corner lock on the PLS driver's side would not properly retract at the completion of testing. The lock had to be retracted using a hammer.
11. Final inspection of the container shoring slot showed that the point load from the corner locks caused permanent deformation and weld failure.
12. The weld around the nut holding the A-frame in the container transport position failed and the nut and bolt detached from the JMIP.
13. One of the pins that hold the A-frame in the PLS transport position disengaged when transported over the washboard course. The engagement handle (red handle) was in the open position following the completion of the course.
14. The JMIP could not successfully be loaded onto the PLS trailer. The rollers on the JMIP are too far outward to stay on the PLS trailer platform.

15. During the panic stops, the platform moved fore/aft on the main rails.

16. When secured to the M872 trailer, the main rails on the JMIP were not vertical. (Slightly skewed outward).

17. The nuts on the back of the tie-down rings were loose at the completion of testing when secured to the M872 trailer.

18. During the lifting test by the Rough Terrain Container Handler, the JMIP main deck bowed. The areas around the lifting rings deflected during lift. Deflection caused a rivet to pull loose on the plate at the aft end of the JMIP around the hydraulic lines.

19. The bracket holding the hydraulic line detached allowing the hydraulic line to interfere with forklift handling from the side.

20. The locks on the original Navy JMIC were difficult to unlock upon completion of testing. The locks on the Navy open framed JMIC were easier to unlock.

21. The BAE JMIC did not properly engage the interface locks. The locks had to be pried into position. Also, the BAE JMICs had to be loaded in proper order so that the locks could be visually inspected to make sure they had properly engaged. The BAE locks need to have some type of visual confirmation so that proper locking can be confirmed.

22. No damage or excessive movement occurred with the JMIC interface frames. The JMICs remained safely attached during testing.

23. All tie-down/lifting provisions on the JMIP must conform to MIL-STD- 209, "Interface Standard for Lifting and Tie-down Provisions."

24. All dimensions of the JMIP must conform to the NATO Interoperability Agreement, STANAG 2413.

The following conclusions resulted from the testing of JMIP:

1. The JMIP, as currently designed, is **not adequate**, for the transportation of ammunition.
2. The interface frames successfully completed the testing.

Prepared by:

PHILIP W. BARICKMAN
Lead Validation Engineer

Reviewed by:

JERRY W. BEAVER
Chief, Validation Engineering Division

U.S. ARMY DEFENSE AMMUNITION CENTER

VALIDATION ENGINEERING DIVISION
MCALESTER, OK 74501-9053

REPORT NO. 06-04A

Transportability Testing of the Joint Modular Intermodal Platform (JMIP)
TP-94-01, Revision 2, June 2004 "Transportability Testing Procedures"

TABLE OF CONTENTS

PART 1 – INTRODUCTION

A. BACKGROUND. The U.S. Army Defense Ammunition Center (DAC), Validation Engineering Division (SJMAC-DEV), was tasked by the Logistics Research and Development Activity (AMSRD-AAR-AIL-F), Picatinny Arsenal, NJ to conduct transportability testing on the Joint Modular Intermodal Platform (JMIP) manufactured by SEA BOX Inc, East Riverton, NJ. The testing was conducted in accordance with TP-94-01, Revision 2, June 2004 "Transportability Testing Procedures."

B. AUTHORITY. This test was conducted IAW mission responsibilities delegated by the U.S. Army Joint Munitions Command (JMC), Rock Island, IL. Reference is made to the following:

1. AR 740-1, 15 June 2001, Storage and Supply Activity Operation.

2. OSC-R, 10-23, Mission and Major Functions of U.S. Army Defense Ammunition Center (DAC) 21 Nov 2000.

C. OBJECTIVE. The objective of the testing was to evaluate the Joint Modular Intermodal Platform (JMIP) when transportability tested in accordance with TP-94-01, Revision 2, June 2004.

D. OBSERVATIONS.

1. Prior to the beginning of testing hydraulic fluid was leaking from the rear of the JMIP.

2. When loaded onto the PLS truck, the rails at the forward end of the JMIP did not rest on the support of the PLS truck (frog feet). The base of the JMIP, between the main rails, rested on the PLS load handling system.

3. The pin holding the roller wheel in position disengaged prior to the start of testing. The pins on the roller wheels need to be secured in position.

4. The wheels were not properly positioned. The main rails were approximately 0.5 inches from the floor of the trailer at the aft end of the JMIP.

5. The storage drawer only held 8 straps plus the box of tie-down rings. Storage space may not be adequate to hold the required straps for full payload securement.

6. When the A-frame is in "Transport Mode" inside the intermodal container, the A-frame contacts the inside of the container door.

7. The rear tie-down rings contact the container wall and during testing the rear tie-down rings damaged the container wall.

8. The plate and corner locking mechanisms are susceptible to damage when the JMIP is moved using a forklift at the A-frame end.

9. During rail impact testing, the corner locks disengaged from the shoring slots and did not prevent the JMIP from excessively moving in the longitudinal direction.

10. The corner lock on the PLS driver's side would not properly retract at the completion of testing. The lock had to be retracted using a hammer.

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12. The weld around the nut holding the A-frame in the container transport position failed and the nut and bolt detached from the JMIP.

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15. During the panic stops, the platform moved fore/aft on the main rails. When secured to the M872 trailer, the main rails on the JMIP were not vertical. (Slightly skewed outward).

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17. During the lifting test by the Rough Terrain Container Handler, the JMIP main deck bowed. The areas around the lifting rings deflected during lift. Deflection caused a rivet to pull loose on the plate at the aft end of the JMIP around the hydraulic lines.

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20. The BAE JMIC did not properly engage the interface locks. The locks had to be pried into position. Also, the BAE JMICs had to be loaded in proper order so that the locks could be visually inspected to make sure they had properly engaged. The BAE locks need to have some type of visual confirmation so that proper locking can be confirmed.

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23. All dimensions of the JMIP must conform to the NATO Interoperability Agreement, STANAG 2413.

E. CONCLUSIONS.

1. The JMIP, as currently designed, is **not adequate**, for the transportation of ammunition.

2. The interface frames successfully completed the testing.

PART 2 - ATTENDEES

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Jim Brennan
(856)303-1101

SEA BOX, INC.
802 Industrial Highway
East Riverton, NJ 08077

PART 3 - TEST EQUIPMENT

1. Joint Modular Intermodal Platform #1
   Manufactured by SEA BOX, East Riverton, NJ
   Model Number: J-MIP LN702
   Serial Number: 00002
   Date of Manufacture: 27 February 2006
   Tare Weight: 3,960 pounds

2. Joint Modular Intermodal Container
   Manufactured by British Aerospace Engineering
   Weight: 310 pounds
   Length: 51-3/4 inches
   Width: 43-3/4 inches
   Height: 43-1/4 inches

3. Joint Modular Intermodal Container
   Manufactured by Naval PHST Center - Earle, NJ
   Closed JMIC
   Weight: 325 pounds
   Length: 51-3/4 inches
   Width: 43-3/4 inches
   Height: 43 inches

4. Joint Modular Intermodal Container
   Manufactured by Naval PHST Center – Earle, NJ
   Open Framed JMIC
   Weight: 285 pounds
   Length: 51-3/4 inches
   Width: 43-3/4 inches
   Height: 43 inches

5. Palletized Load System Truck
   Model #: M1074
   Manufactured by Oshkosh Truck Corporation, Oshkosh, WI
   ID #: 10T2P1NH6N1044011
   NSN: 2320-01-304-2277
   Serial #: 44011
   Curb Weight: 55,000 pounds

6. Truck, Tractor, MTV, M1088 A1
   ID #: J0231
   NSN: 2320 01 447 3893
   VSN: NL1FR5
   MFG Serial #: T-018447EFJM
   Weight: 19,340 pounds

7. Semitrailer, flatbed, breakbulk/container transporter, 34 ton
   Model #: M872A1
   Manufactured by Heller Truck Body Corporation, Hillsdale, NJ
   ID #: 11-1505 NX05NZ
   NSN: 2330 01 109 8006
   Weight: 19,240 pounds

8. Intermodal Container
   ID # CMCU 200006-8
   Date of Manufacture: 06/99
   Manufactured by Charleston Marine Containers, Charleston, SC
   Tare Weight: 4,870 pounds
   Maximum Gross Weight: 67,200 pounds

PART 4 - TEST PROCEDURES

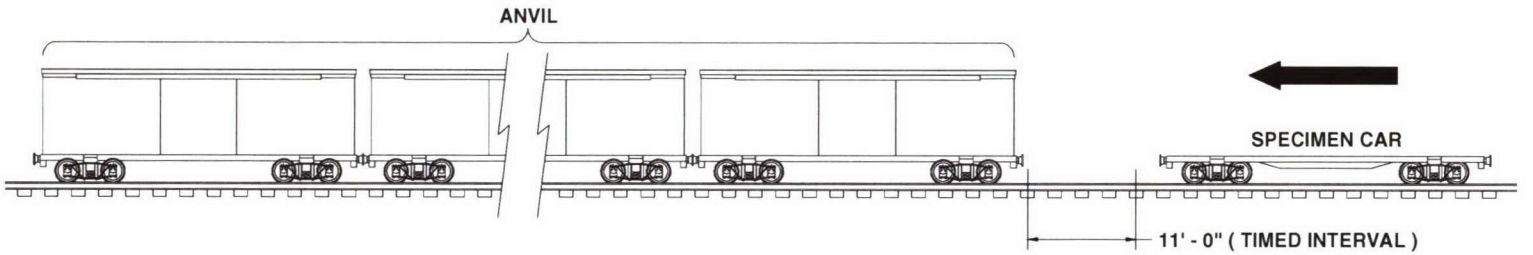
The test procedures outlined in this section were extracted from TP-94-01, "Transportability Testing Procedures," Revision 2, June 2004, for validating tactical vehicles and outloading procedures used for shipping munitions by tactical truck, railcar, and ocean-going vessel.

The rail impact will be conducted with the loaded intermodal container secured directly to the railcar. Inert (non-explosive) items were used to build the load. The test loads were prepared using the blocking and bracing procedures proposed for use with munitions (***see Part 6 – Drawings for procedures***). The weight and physical characteristics (weights, physical dimensions, center of gravity, etc.) of the test loads were similar to live (explosive) ammunition.

A. RAIL TEST. RAIL IMPACT TEST METHOD. The test load or vehicle will be secured to a flatcar. The equipment needed to perform the test will include the specimen (hammer) car, four empty railroad cars connected together to serve as the anvil, and a railroad locomotive. The anvil cars will be positioned on a level section of track with air and hand brakes set and with draft gears compressed. The locomotive unit will push the specimen car toward the anvil at a predetermined speed, then disconnect from the specimen car approximately 50 yards away from the anvil cars allowing the specimen car to roll freely along the track until it strikes the anvil. This will constitute an impact. Impacting will be accomplished at speeds of 4, 6, and 8.1 mph in one direction and at a speed of 8.1 mph in the reverse direction. The tolerance for the speeds is plus 0.5 mph, minus 0.5 mph for the 4 mph and 6 mph impacts, and plus 0.5 mph, minus 0 mph for the 8.1 mph impacts. The impact speeds will be determined by using an electronic counter to measure the time for the specimen car to traverse an 11-foot distance immediately prior to contact with the anvil cars (see Figure 1).

ASSOCIATION OF AMERICAN RAILROADS (AAR)

STANDARD TEST PLAN



4 BUFFER CARS (ANVIL)
WITH DRAFT GEAR
COMPRESSED AND AIR BRAKES IN A SET POSITION

ANVIL CAR TOTAL WT. 250,000 LBS (APPROX)

SPECIMEN CAR IS RELEASED BY SWITCH ENGINE TO
ATTAIN: IMPACT NO. 1 @ 4 MPH
IMPACT NO. 2 @ 6 MPH
IMPACT NO. 3 @ 8.1 MPH

THEN THE CAR IS REVERSED AND RELEASED BY SWITCH ENGINE TO ATTAIN:

IMPACT NO. 4 @ 8.1 MPH

Figure 1. Rail Impact Sketch

B. ON/OFF ROAD TEST.

1. **HAZARD COURSE**. The test load or vehicle will be transported over the 200-foot-long segment of concrete-paved road consisting of two series of railroad ties projecting 6 inches above the level of the road surface. The hazard course will be traversed two times (see Figure 2).

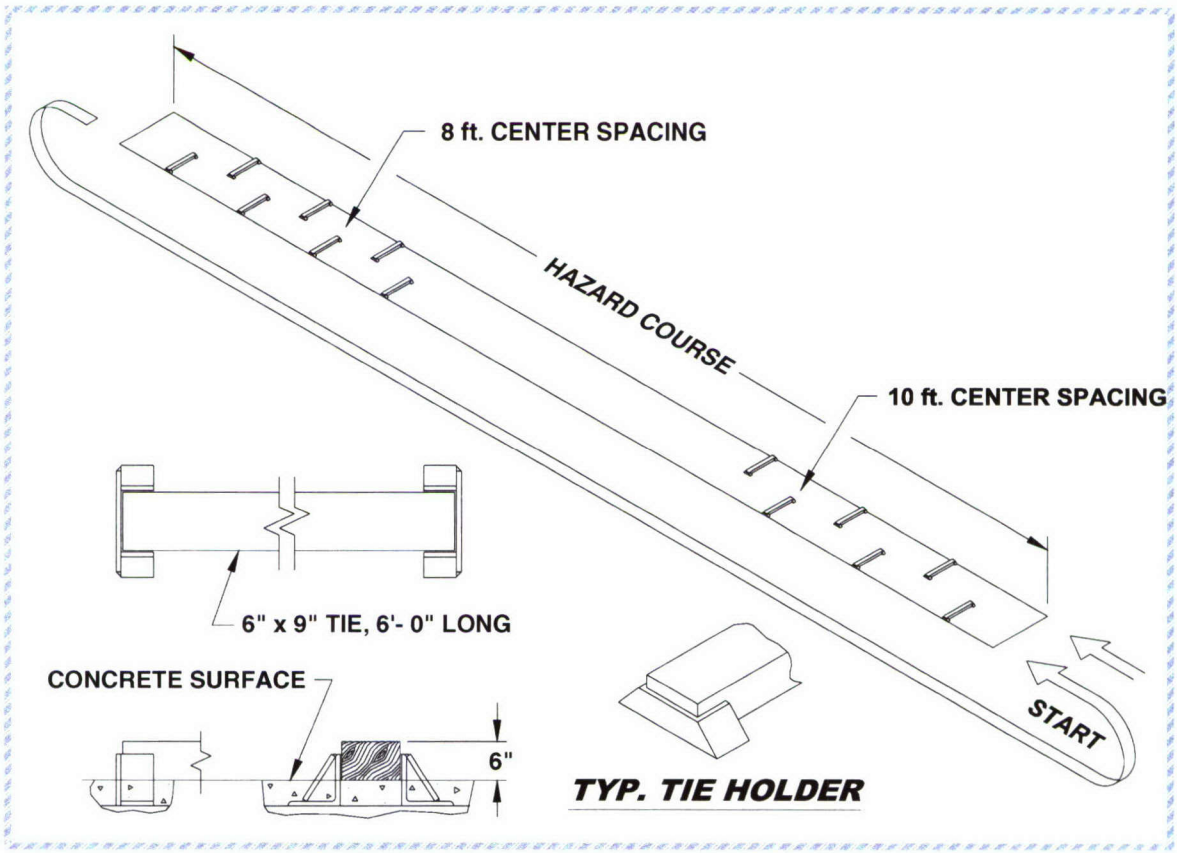


Figure 2. Hazard Course Sketch

a. The first series of 6 ties are spaced on 10-foot centers and alternately positioned on opposite sides of the road centerline for a distance of 50 feet.

b. Following the first series of ties, a paved roadway of 75 feet separates the first and second series of railroad ties.

c. The second series of 7 ties are spaced on 8-foot centers and alternately positioned on opposite sides of the road centerline for a distance of 48 feet.

d. The test load is driven across the hazard course at speeds that will produce the most violent vertical and side-to-side rolling reaction obtainable in traversing the hazard course (approximately 5 mph).

2. ROAD TRIP. The test load or vehicle will be transported for a distance of 30 miles over a combination of roads surfaced with gravel, concrete, and asphalt. The test route will include curves, corners, railroad crossings and stops and starts. The test load or vehicle will travel at the maximum speed for the particular road being traversed, except as limited by legal restrictions.

3. PANIC STOPS. During the road trip, the test load or vehicle will be subjected to three (3) full airbrake stops while traveling in the forward direction and one in the reverse direction while traveling down a 7 percent grade. The first three stops are at 5, 10, and 15 mph while the stop in the reverse direction is approximately 5 mph. This testing will not be required if the Rail Impact Test is performed.

4. WASHBOARD COURSE. The test load or vehicle will be driven over the washboard course at a speed that produces the most violent response in the vertical direction.

C. OCEAN-GOING VESSEL TEST. Shipboard Transportation Simulator (Test Method 5). The Shipboard Transportation Simulator (STS) is used for testing loads in 8-foot-wide by 20-foot-long intermodal freight containers. The specimen shall be positioned onto the STS and securely locked in place using the cam lock at each corner. Using the procedure detailed in the operating instructions, the STS shall begin oscillating at an angle of 30 degrees, plus or minus 2 degrees, either side of vertical center and a frequency of 2 cycles-per-

minute (30 seconds, plus or minus 2 seconds) for a duration of two (2) hours. This frequency shall be observed for apparent defects that could cause a safety hazard. The frequency of oscillation shall then be increased to 4 cycles-per-minute (15 seconds, plus or minus one second per cycle) and the apparatus operated for two (2) hours. If an inspection of the load does not indicate an impending failure, the frequency of oscillation shall be further increased to 5 cycles-per-minute (12 seconds, plus or minus one second per cycle), and the apparatus operated for four (4) hours. The operation does not necessarily have to be continuous; however, no changes or adjustments to the load or load restraints shall be permitted at any time during the test. After once being set in place, the test load (specimen) shall not be removed from the apparatus until the test has been completed or is terminated.

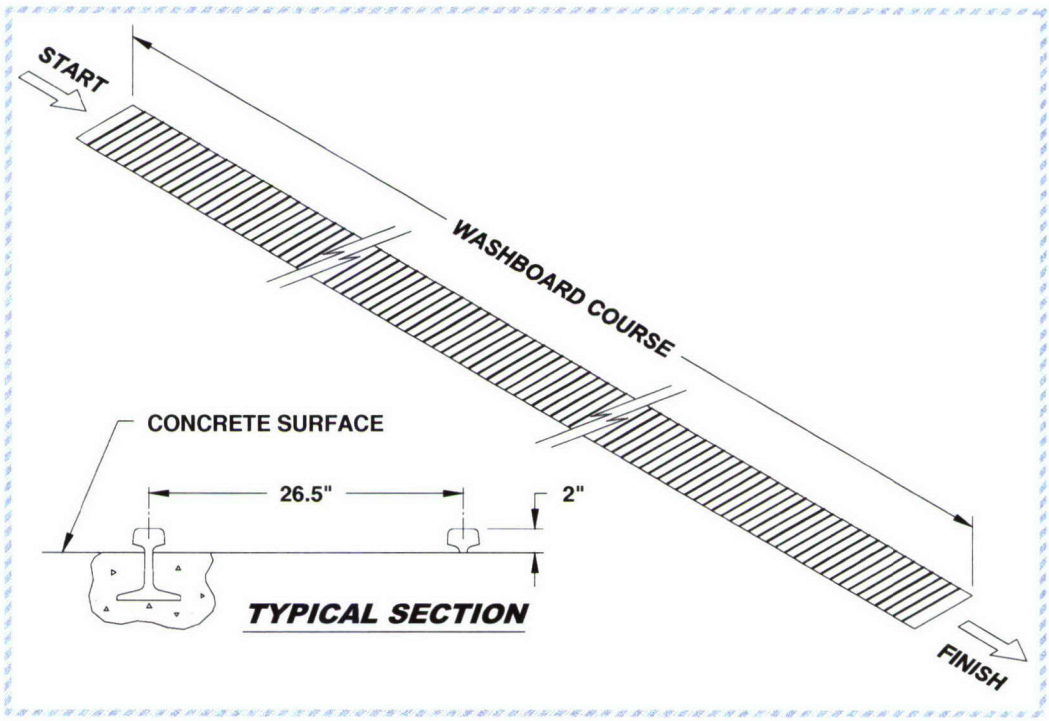


Figure 3. Washboard Course Sketch

PART 5 - TEST RESULTS

5.1

Test Specimen: SEA BOX JMIP in an Intermodal Container

Payload: 4 BAE JMICs and 2 Navy JMICs.

Testing Date: 18-20 July 2006

Gross Weight:: 20, 390 pounds (Including JMIP, interface frames, JMICs and intermodal container).

Notes:

1. Prior to the start of testing the hydraulic fluid was leaking from the rear of the JMIP.
2. The pin holding one of the roller wheels in position disengaged prior to the start of testing.
3. The BAE JMICs did not properly lock onto the interface locks. The locks had to be pried into position. Also, the BAE JMICs had to be loaded in proper order so that the locks could be visually inspected to make sure they had properly locked. The BAE locks need to have a visual confirmation of proper lock engagement.

A. RAIL TEST.

Photo 1. Rail Impact Testing of the JMIP (Prior to Testing)

Description	Weight
Flatcar Number: DODX 42353	85,000 lbs.
Intermodal Container with JMIP	20,390 lbs.
M1 Flatrack with MLRS Pods	28,265 lbs.
Total Specimen Wt.	133,655 lbs.
Buffer Car (four cars)	257,900 lbs.

Figure 4.

Remarks: Figure 4 lists the test components and weights of the items used during the Rail Impact Tests.

Impact Number	Avg. Velocity (mph)
1	4.4
2	6.0
3	7.9
4	8.2
5	8.2

Figure 5.

Remarks:

1. Figure 5 lists the average speeds of the specimen car immediately prior to impact with the anvil. Impact #5 is the reverse impact.
2. Impact #3 was determined to be a "no test" due to the insufficient velocity at impact. The test was repeated.
3. Following Impact #1 the JMIP moved forward 0.25-0.5 inches in the direction of impact. The JMIP corner locks were now tight in the container shoring slots.
4. Following Impact #5 the JMIP moved 1.5 inches in the direction of impact. The rubber bumpers at the aft end of the JMIP compressed on impact and allowed the JMIP to move. The JMIP corner locks moved and were no longer properly engaging the container shoring slot. (See Photos 2 and 3).

Photo 2. Movement of Corner Lock in Shoring Slot.

Photo 3. Disengaged Corner Lock.

B. ON/OFF ROAD TESTS.

1. HAZARD COURSE.

Photo 4. Hazard Course Testing of the SEA BOX JMIP

Pass No.	Elapsed Time	Avg. Velocity (mph)
1	24 Seconds	6
2	24 Seconds	6

Figure 6.

Remarks:

1. Figure 6 lists the average speeds of the test load through the Hazard Course.
2. Inspection following Pass #1 revealed that the JMIP had moved toward the container door 0.25 inches.
3. Inspection did not reveal any damage to the JMIP.

2. **ROAD TRIP:**

Remarks:

1. The Road Trip was conducted between the Road Hazard Course Passes #2 and #3.
2. Inspection following the Road Trip revealed no damage or movement of the JMIP.

3. **PANIC STOPS:** Testing was not required since the load was rail impact tested.

4. **HAZARD COURSE:**

Pass No.	Elapsed Time	Avg. Velocity (mph)
3	18 Seconds	8
4	21 Seconds	7

Figure 7.

Remarks:

1. Figure 7 lists the average speeds of the test load through the Hazard Course.
2. Inspection following Pass #3 revealed that the weld around one of the nuts that restrained the bolts holding the A-frame in the container transport position cracked.
3. Inspection following Pass #4 revealed that the weld around the nut failed and the bolt holding the A-frame in the container transport position disengaged and fell off of the JMIP. (See Photo 5).
4. The corner locks moved vertically during each pass of the hazard course. The corner locks remained engaged in the shoring slots.

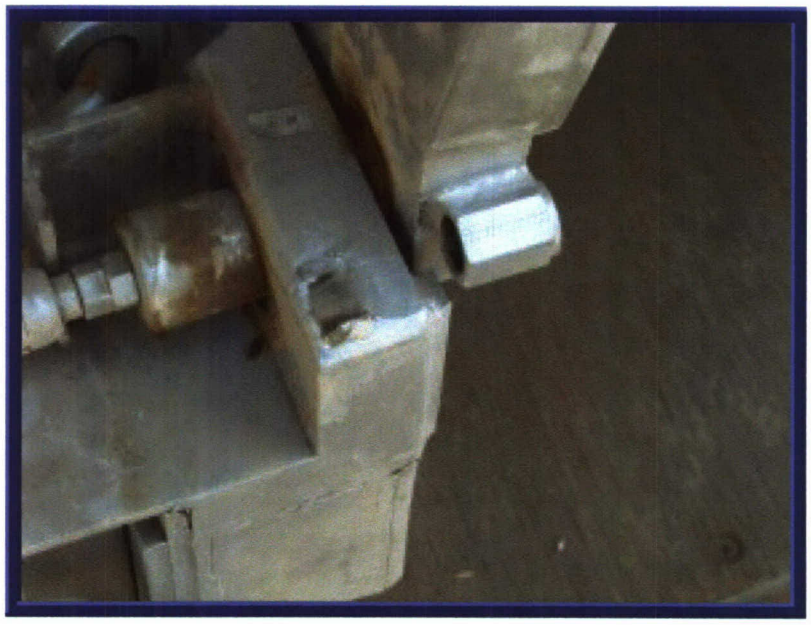


Photo 5. Location of Failed Weld and Missing Bolt.

5. WASHBOARD COURSE:

Remarks:

Inspection following the Washboard Course revealed no additional damage or movement to the JMIP.

Photo 6. Washboard Course Testing JMIP.

C. SHIPBOARD TRANSPORTATION SIMULATION (STS).

Remarks:

1. Following completion of the STS testing one of the JMIP corner locks would not disengage properly. A hammer and pry bar had to be used to disengage the corner lock from the shoring slot.
2. Final inspection revealed that the end of the JMIP corner lock had permanently deformed the container shoring slot and damaged the weld.

Photo 7. Disengagement of Corner Lock of JMIP with Tools.

D. OBSERVATIONS:

1. When inside the intermodal container, the JMIP A-frame contacts the inside of the container door.
2. The JMIP rear tie-down rings contact the container wall and during testing damaged the container wall. (See Photos 8 and 9).

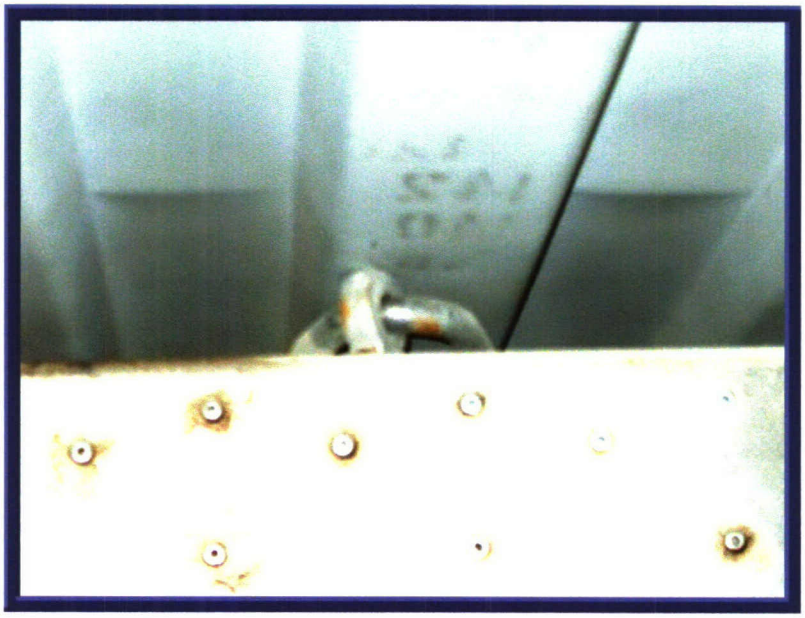


Photo 8. Contact of Tiedowns with Container Wall.

Photo 9. Damage to Container Wall from Rear Tiedowns.

3. The plate and corner locking mechanisms are susceptible to damage when the JMIP is moved using a forklift at the A-frame end. (See Photo 10).

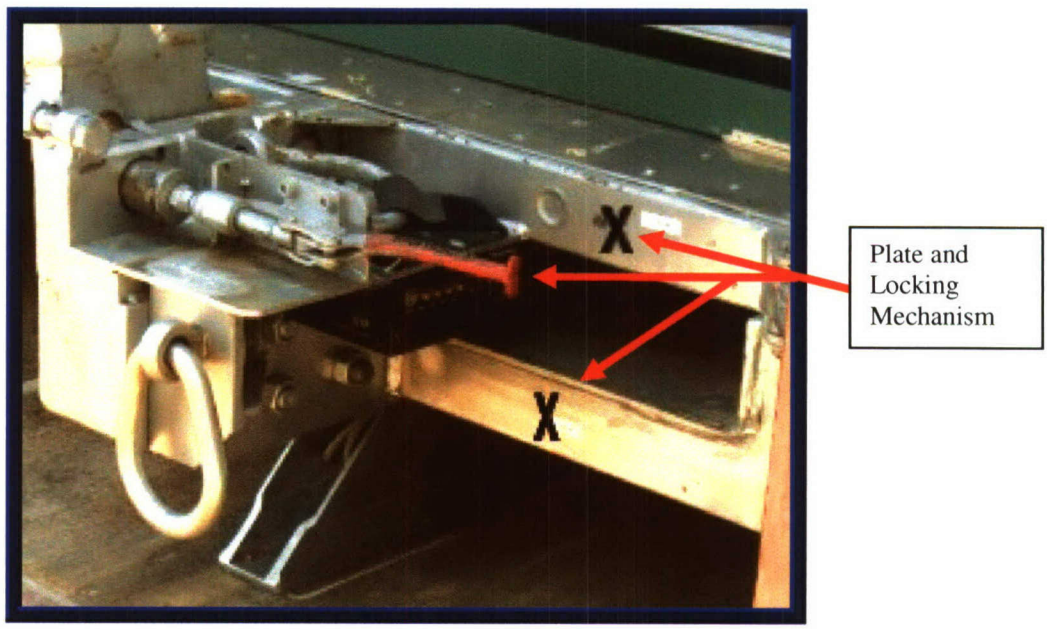


Photo 10. Area of Potential Forklift Damage.

4. All tie-down/lifting provisions on the JMIP must conform to MIL-STD 209, "Interface Standard for Lifting and Tie-down Provisions."

E. CONCLUSION:

1. The JMIP, as currently designed, is **not adequate**, for the transportation of ammunition.

2. The interface frames successfully completed the testing.

5.2

Test Specimen: SEA BOX JMIP on the PLS Truck

Payload: 4 BAE JMICs and 2 Navy JMICs.

Testing Date: 25 July 2006

Gross Weight: 15,520 pounds (Including JMIP, interface frames and JMICs).

Note: When on the PLS truck, the rails at the front of the JMIP did not rest on the support (frog feet) of the PLS truck. The base of the JMIP, between the main rails, rested on the PLS load handling system. (See Photo 12).

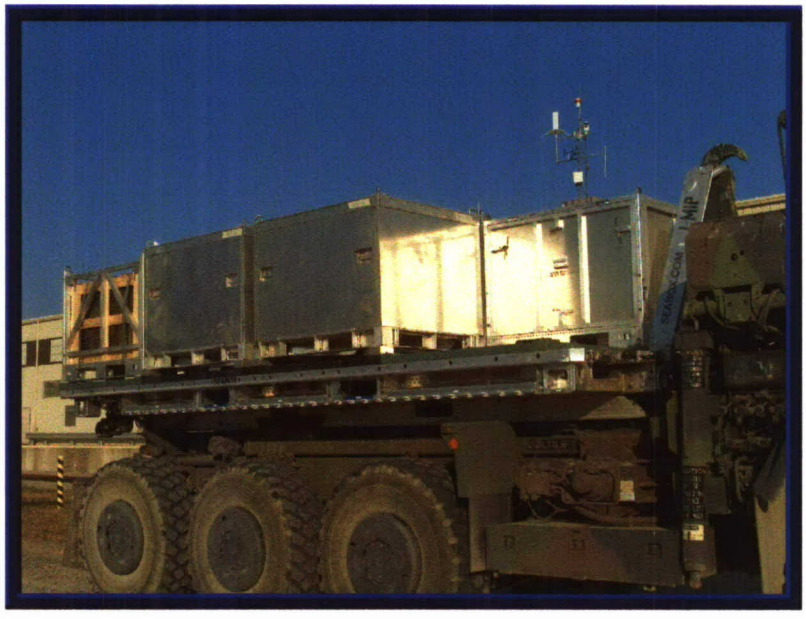


Photo 11. JMIP on the PLS Truck

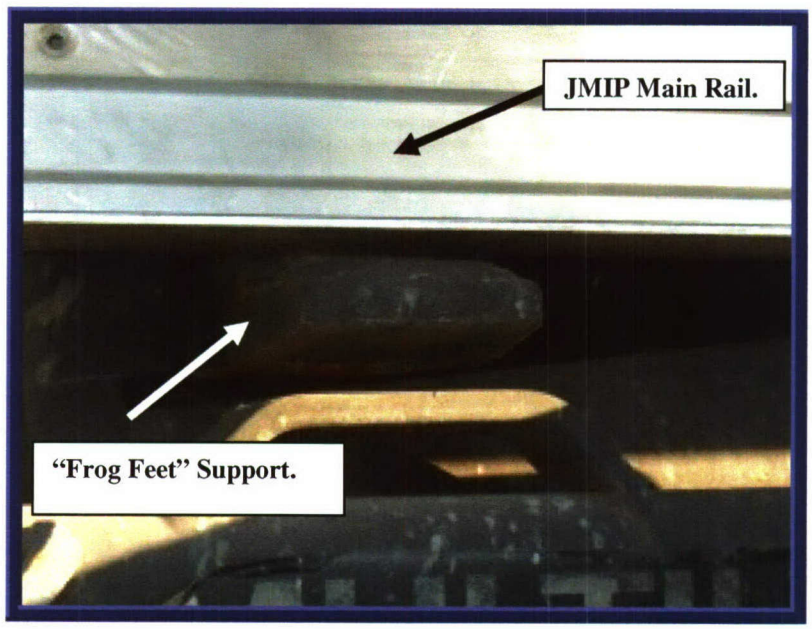


Photo 12. JMIP not Resting on PLS Support.

A. ON/OFF ROAD TESTS.

1. HAZARD COURSE.

Photo 13. Hazard Course Testing of the JMIP on the PLS Truck

Pass No.	Elapsed Time	Avg. Velocity (mph)
1	20 Seconds	7
2	19 Seconds	7

Figure 8.

Remarks:

1. Figure 8 lists the average speeds of the test load through the Hazard Course.
2. Inspection following the completion of Pass #2 revealed that the main rails of the JMIP retracted 0.125-0.25 inches.

2. ROAD TRIP:

Remarks:

1. The Road Trip was conducted between the Road Hazard Course Passes #2 and #3.
2. Inspection following the Road Trip revealed no damage or movement of the JMIP.

3. PANIC STOPS:

Remark:

Inspection following the completion of the Panic Stops revealed no damage or movement of the JMIP.

4. HAZARD COURSE:

Pass No.	Elapsed Time	Avg. Velocity (mph)
3	19 Seconds	7
4	17 Seconds	8

Figure 9.

Remarks:

1. Figure 9 lists the average speeds of the test load through the Hazard Course.
2. Inspection following the Hazard Course revealed no damage to the JMIP.

5. WASHBOARD COURSE:

Photo 14. Washboard Course Testing of the JMIP on the PLS Truck.

Remark:

Inspection following the Washboard Course revealed no damage to JMIP.

B. OBSERVATION: The locks on the original Navy JMIC (closed container) were difficult to unlock upon the completion of testing. The locks on the Navy open framed JMIC were easier to unlock.

C. CONCLUSION:

1. The JMIP, as currently designed, is **not adequate**, for the transportation of ammunition.
2. The interface frames successfully completed the testing.

5.3

Test Specimen: SEA BOX JMIP on the M872 trailer

Payload: 4 BAE JMICs and 2 Navy JMICs.

Testing Date: 25 July 2006

Gross Weight: 15,520 pounds (Including JMIP, interface frames and JMICs).

Note: The main rails of the JMIP were not vertical when secured to the M872 trailer. Rails were skewed slightly outward.

A. ON/OFF ROAD TESTS.

1. HAZARD COURSE.

Photo 15. Hazard Course Testing of the JMIP on the M872 Trailer

Pass No.	Elapsed Time	Avg. Velocity (mph)
1	No Time	----
2	24 Seconds	6

Figure 11.

Remarks:

1. Figure 11 lists the average speeds of the test load through the Hazard Course. The proper elapsed time was not recorded for Pass #1.
2. Inspection following the Hazard Course revealed no damage or movement to the JMIP.

2. ROAD TRIP:

Remarks:

1. The Road Trip was conducted between the Road Hazard Course Passes #2 and #3.
2. Inspection following the Road Trip revealed no damage or movement of the JMIP.

3. PANIC STOPS:

Remark:

Inspection during the panic stops revealed that the platform of the JMIP moved fore and aft.

4. HAZARD COURSE:

Pass No.	Elapsed Time	Avg. Velocity (mph)
3	22 Seconds	7
4	22 Seconds	7

Figure 9.

Remarks:

1. Figure 9 lists the average speeds of the test load through the Hazard Course.
2. Inspection following the Hazard Course revealed no damage to the JMIP.

5. WASHBOARD COURSE:

Photo 16. Washboard Course Testing of the JMIP on the M872 Trailer.

Remarks:

1. The A-frame pin and handle disengaged.

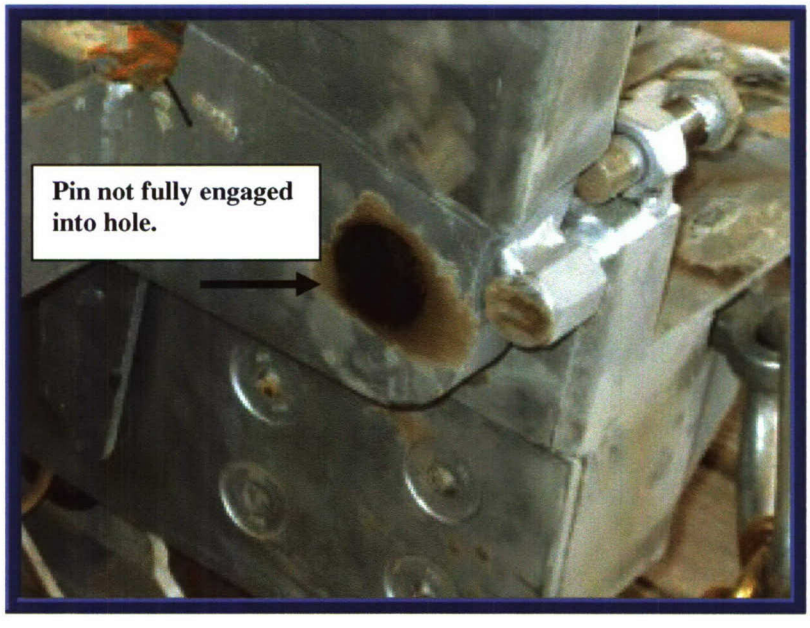


Photo 17. Disengaged A-frame Pin.

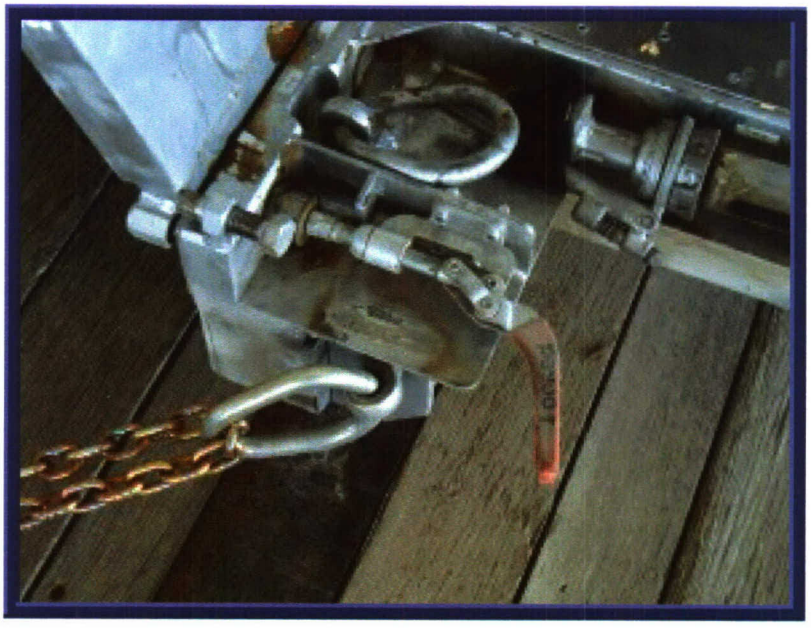


Photo 18. Disengaged Handle.

2. The securement nuts for the tie-down provisions were loose following testing.

B. <u>OBSERVATION</u>: The JMIP wheels were not pinned at the proper position. The main rails in the vicinity of the wheels did not rest on the trailer deck.

Photo 19. Main Rail not Resting on Trailer Deck.

C. CONCLUSION:

1. The JMIP, as currently designed, is **not adequate**, for the transportation of ammunition.

2. The interface frames successfully completed the testing.

5.4

Test Specimen: SEA BOX JMIP Lifted by the Rough Terrain Container Handler

Payload: 4 BAE JMICs and 2 Navy JMICs.

Testing Date: 26 July 2006

Gross Weight: 15,520 pounds (Including JMIP, interface frames and JMICs).

A. <u>TEST DESCRIPTION.</u> The JMIP was lifted using the Rough Terrain Container Handler and held for 10 minutes. The JMIP was first lifted using a four-point lift and then the test was repeated using a two-point lift.

Photo 20. Four-Point Lift of the JMIP.

Photo 21. Two-Point Lift of the JMIP.

B. <u>OBSERVATION</u>:

1. During the lifting test, the JMIP main deck bowed.

2. The areas around the lifting rings deflected during the test and caused one rivet to pull loose on the plate at the aft end of the JMIP around the hydraulics.

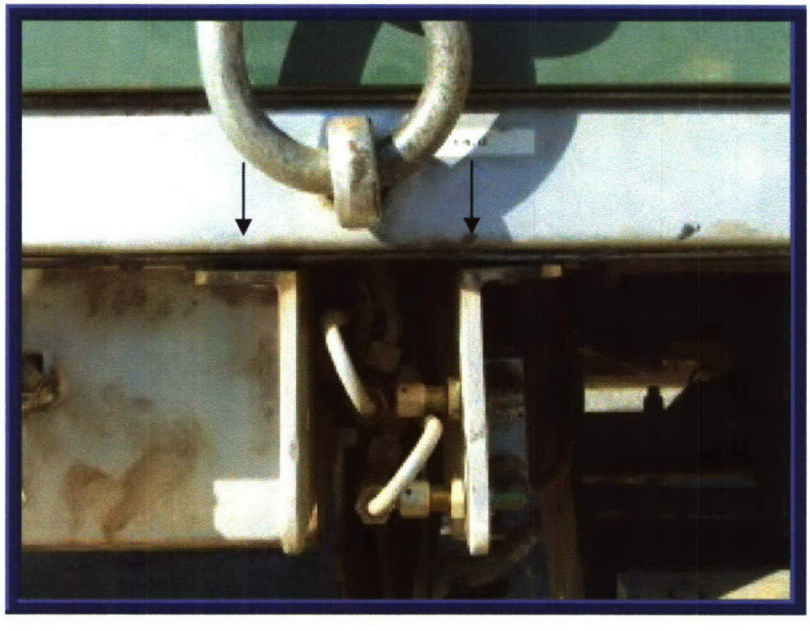


Photo 22. Deflection around the Lifting Rings.

Photo 23. Loose Rivet from the Lifting Test.

3. During the two-point lift, the shackles and cable contacted the JMIP A-frame.

Photo 24. Contact of A-frame During the Lifting Test.

4. The bracket holding the hydraulic line detached allowing the hydraulic line to interfere with forklift handling from the side.

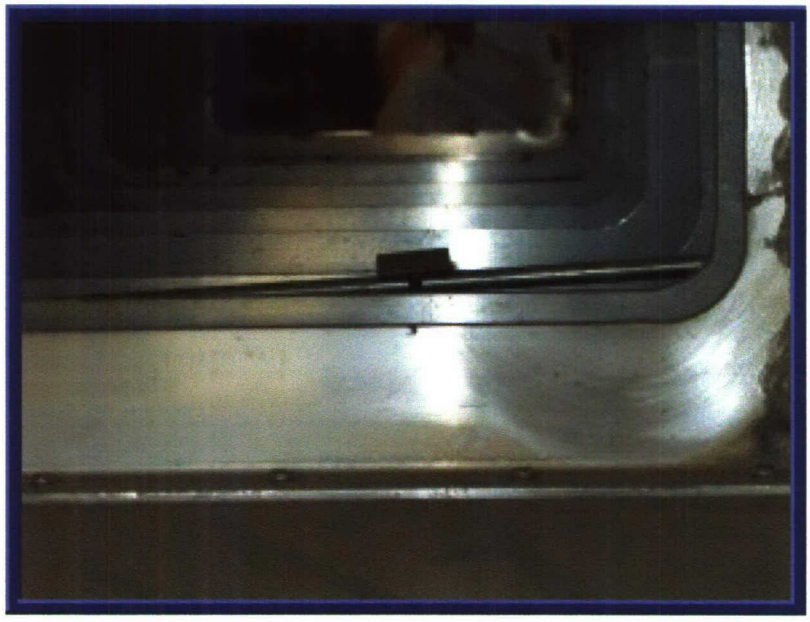


Photo 25. Detached Hydraulic Line Bracket.

C. <u>CONCLUSION</u>:

1. The JMIP, as currently designed, is **<u>not adequate</u>**, for the transportation of ammunition.

2. This lifting test **<u>does not replicate external helicopter lift.</u>**

3. The interface frames successfully completed the testing.

5.5

Test Specimen: SEA BOX JMIP Lifted by the Rough Terrain Container Handler

Payload: 4 BAE JMICs and 2 Navy JMICs.

Testing Date: 26 July 2006

Gross Weight: 15,520 pounds (Including JMIP, interface frames and JMICs).

A. <u>TEST DESCRIPTION</u>: The JMIP was lifted using the PLS truck and an attempt to transfer to the JMIP to the PLS trailer was made.

B. <u>OBSERVATIONS</u>: The JMIP could not be successfully loaded onto the PLS trailer. The rollers on the JMIP are too far outward to stay on the PLS trailer platform during loading. The main rails of the JMIP also are spaced outward enough that the guide on the PLS trailer is ineffective.

Photo 26. Overhang of the Roller Wheel during Loading on the PLS Trailer.

C. **CONCLUSION**:

1. The JMIP, as currently designed, is **not adequate**, for the transportation of ammunition.

2. All dimensions of the JMIP must conform to the NATO Interoperability Agreement, STANAG 2413.

PART 6 – DRAWINGS

The following drawing represents the load configuration that was subjected to the test criteria.

TEST SKETCH

LOADING AND BRACING OF JOINT MODULAR INTERMODAL CONTAINERS (JMICS) ON THE JOINT MODULAR INTERMODAL PLATFORM (JMIP)

THIS TEN PAGE DOCUMENT DEPICTS NAVY AND BAE JMIC PROTOTYPES ON A SEABOX PROTOTYPE JMIP FOR INTEGRATION TRANSPORTABILITY TESTING AT AN APPROXIMATE 15,000 LBS GROSS LOAD

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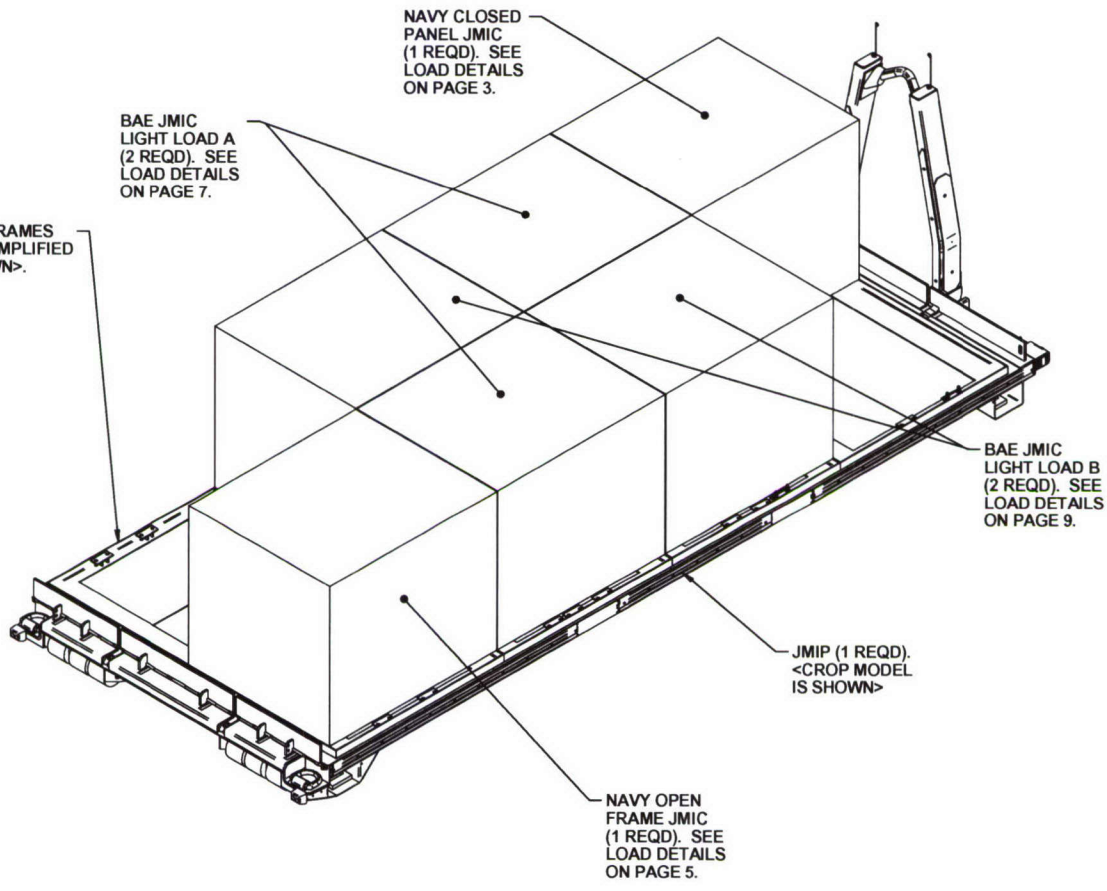
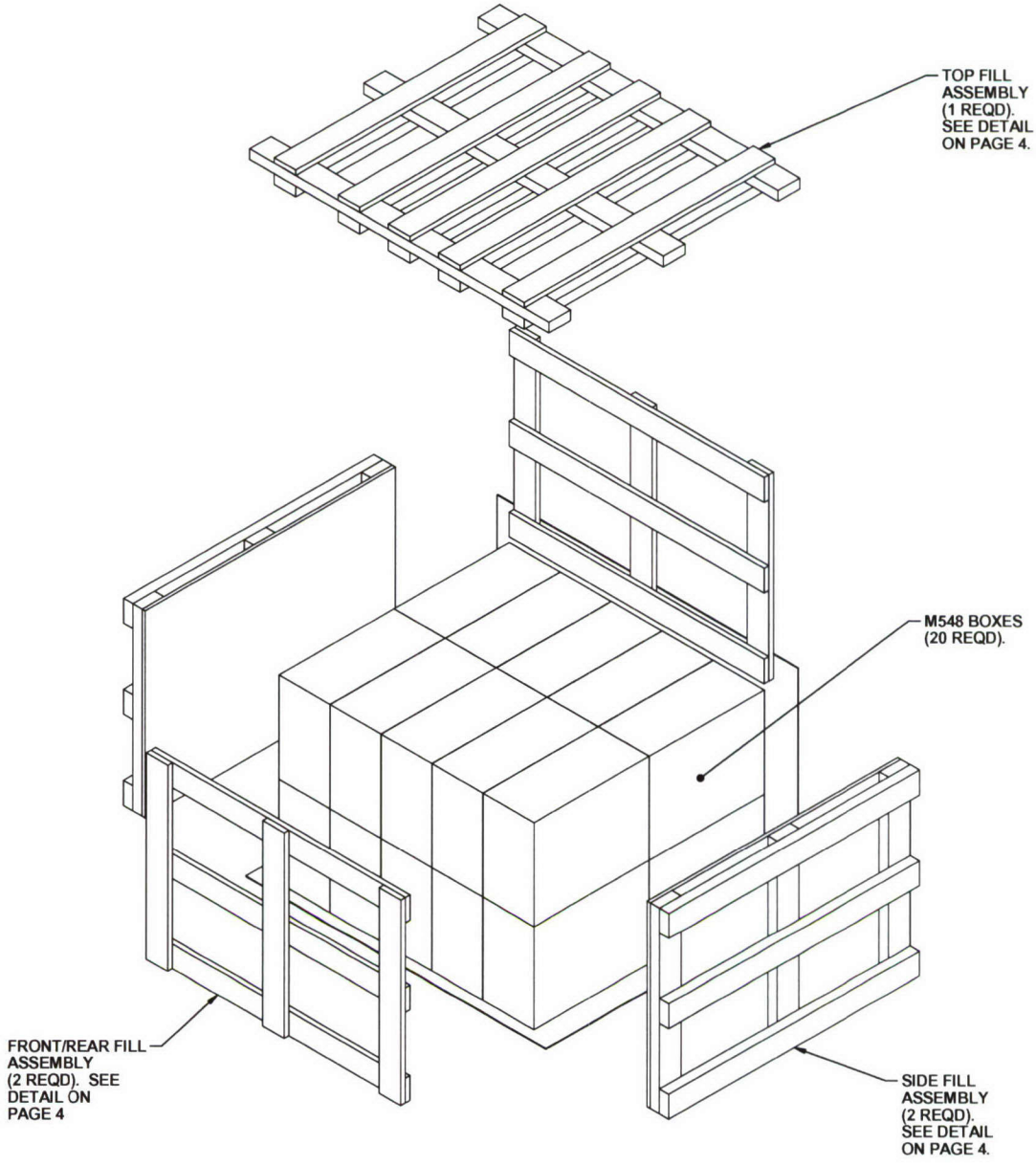


ISOMETRIC VIEW

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
NAVY PANEL JMIC	1	2,971 LBS
NAVY FRAME JMIC	1	2,916 LBS
BAE JMIC (4 BOXES)	2	1,832 LBS
BAE JMIC (8 BOXES)	2	2,792 LBS
INTERFACE FRAMES	4	580 LBS
JMIP		3,800 LBS
TOTAL WEIGHT		14,891 LBS (APPROX)

6 JMIC UNIT LOAD ON JOINT MODULAR INTERMODAL PLATFORM (JMIP)

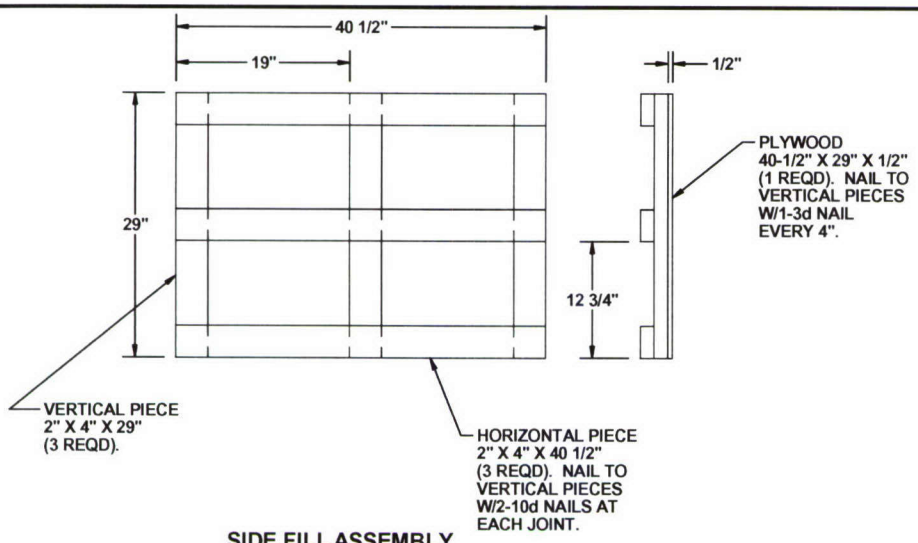


NAVY CLOSED PANEL JMIC UNIT

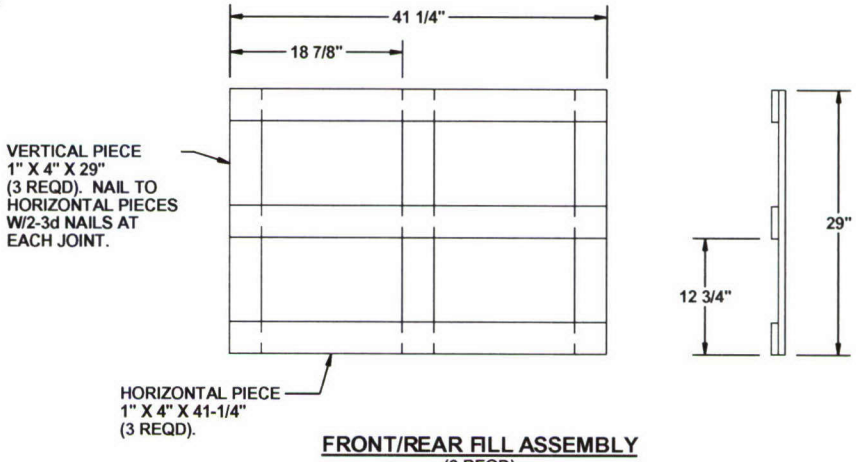
20 M548 BOXES @ 125 LBS	2,500 LBS
DUNNAGE	146 LBS
CLOSED PANEL NAVY JMIC	325 LBS
TOTAL WEIGHT	2,971 LBS (APPROX)
CUBE	56.4 CU FT (APPROX)

BILL OF MATERIAL

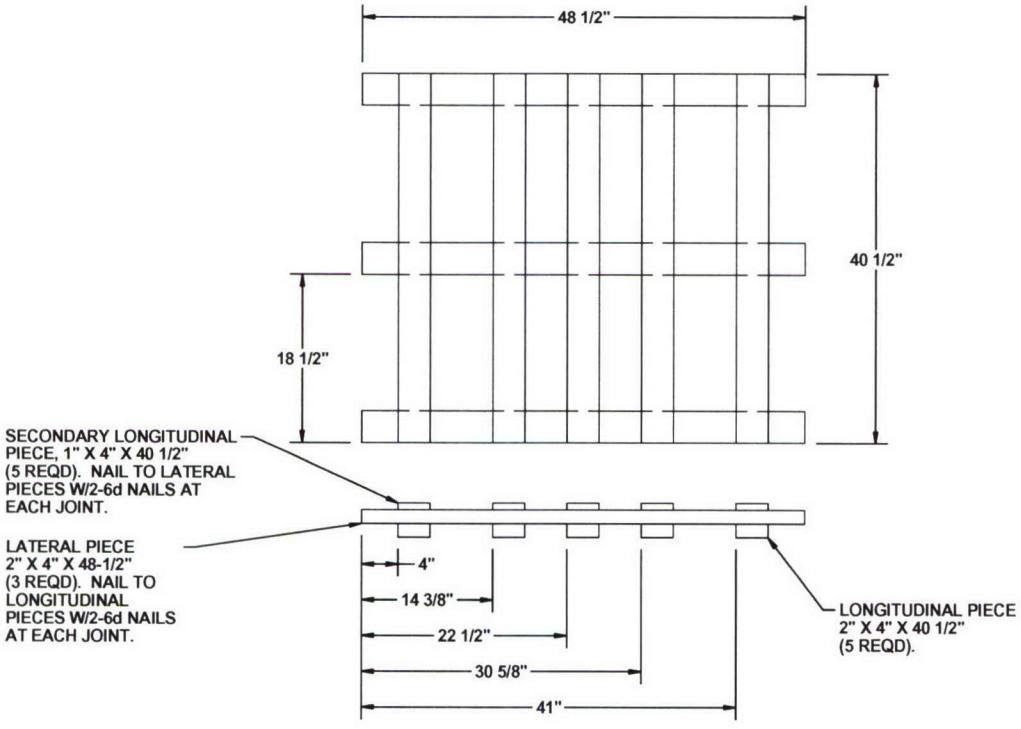
LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	52	18
2" X 4"	64	43
NAILS	**NO. REQD**	**POUNDS**
3d (1-1/4")	84	.16
6d (2")	60	.35
10d (3")	36	.54
NAVY PANEL JMIC	1 REQD	325 LBS
1/2 PLYWOOD	17 SQ FT	23 LBS



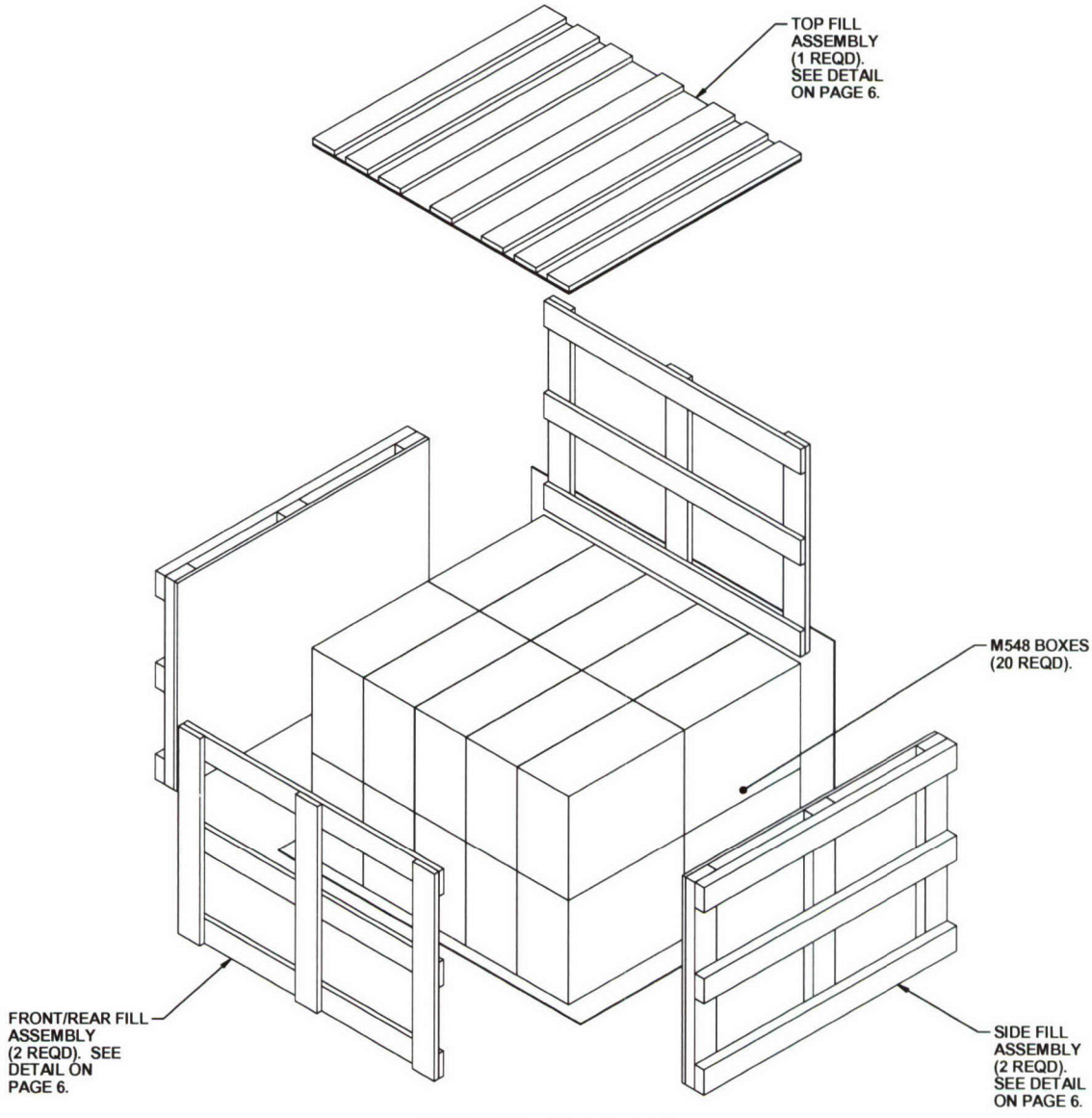
SIDE FILL ASSEMBLY
(2 REQD)



FRONT/REAR FILL ASSEMBLY
(2 REQD)



TOP FILL ASSEMBLY
(1 REQD)



NAVY OPEN FRAME JMIC UNIT

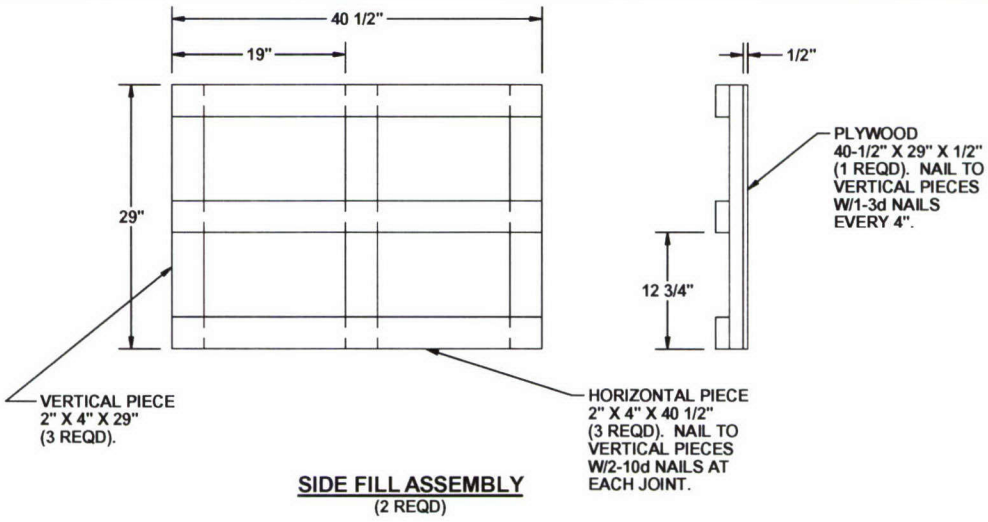
STRAPPING NOT SHOWN, SEE STRAPPING DETAIL 1 & 2 ON PAGE 7 FOR FURTHER INFORMATION.

20 M548 BOXES @ 125 LBS	2,500 LBS
DUNNAGE	127 LBS
OPEN FRAME NAVY JMIC	285 LBS
TOTAL WEIGHT	2,912 LBS (APPROX)
CUBE	56.4 CU FT (APPROX)

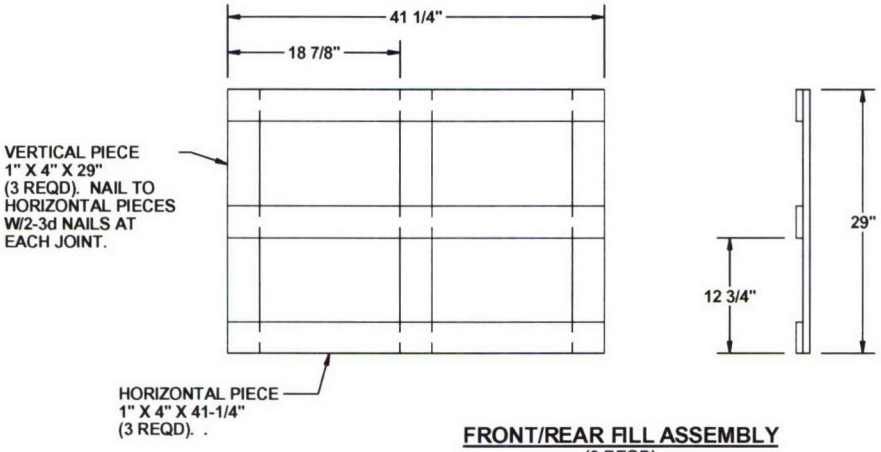
BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	57	19
2" X 4"	35	24
NAILS	**NO. REQD**	**POUNDS**
3d (1-1/4")	126	.23
10d (3")	36	.55

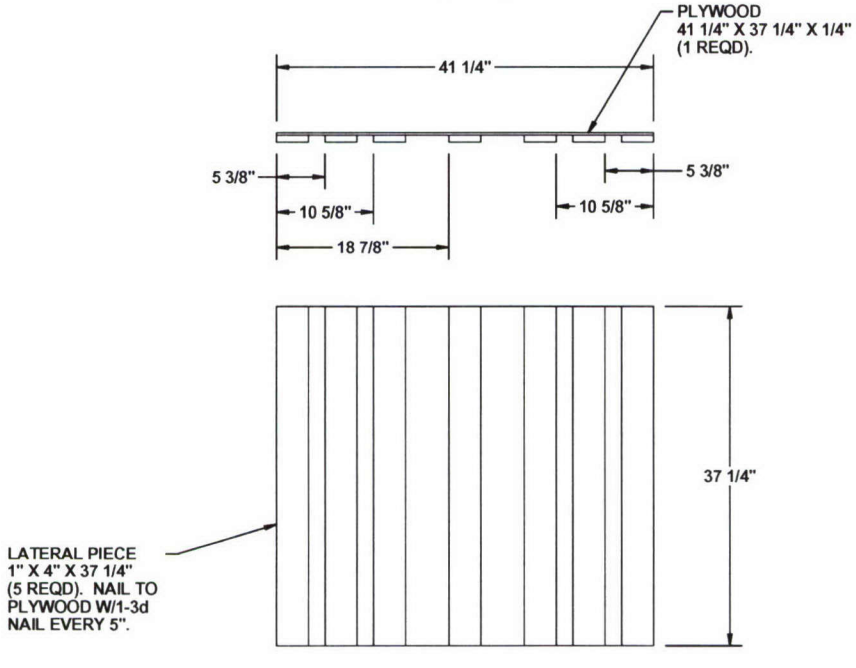
NAVY OPEN FRAME JMIC	1 REQD	285 LBS
PLYWOOD, 1/4	11 SQ FT	8 LBS
PLYWOOD, 1/2	17 SQ FT	23 LBS
STEEL STRAPPING, 1-1/4"	56' REQD	9 LBS
SEAL FOR 1-1/4" STRAPPING	4 REQD	NIL



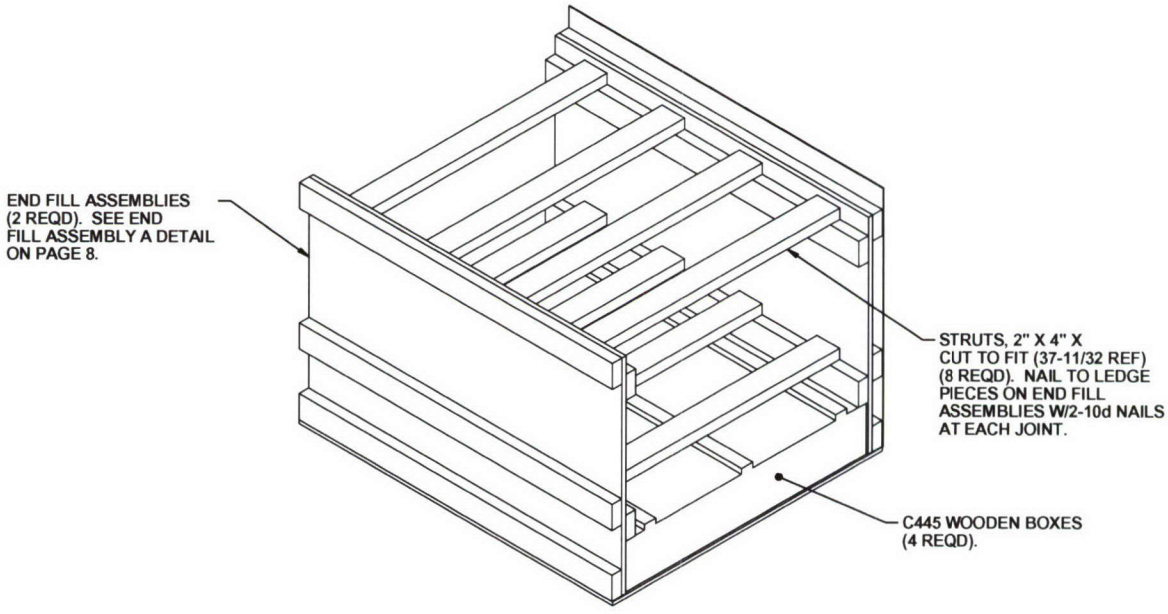
SIDE FILL ASSEMBLY
(2 REQD)



FRONT/REAR FILL ASSEMBLY
(2 REQD)



TOP FILL ASSEMBLY
(1 REQD)

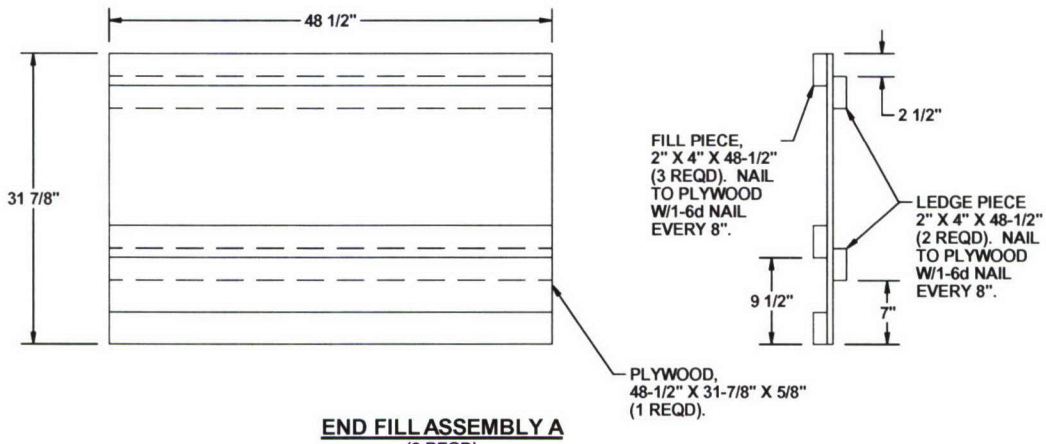


BAE JMIC UNIT - LIGHT LOAD A

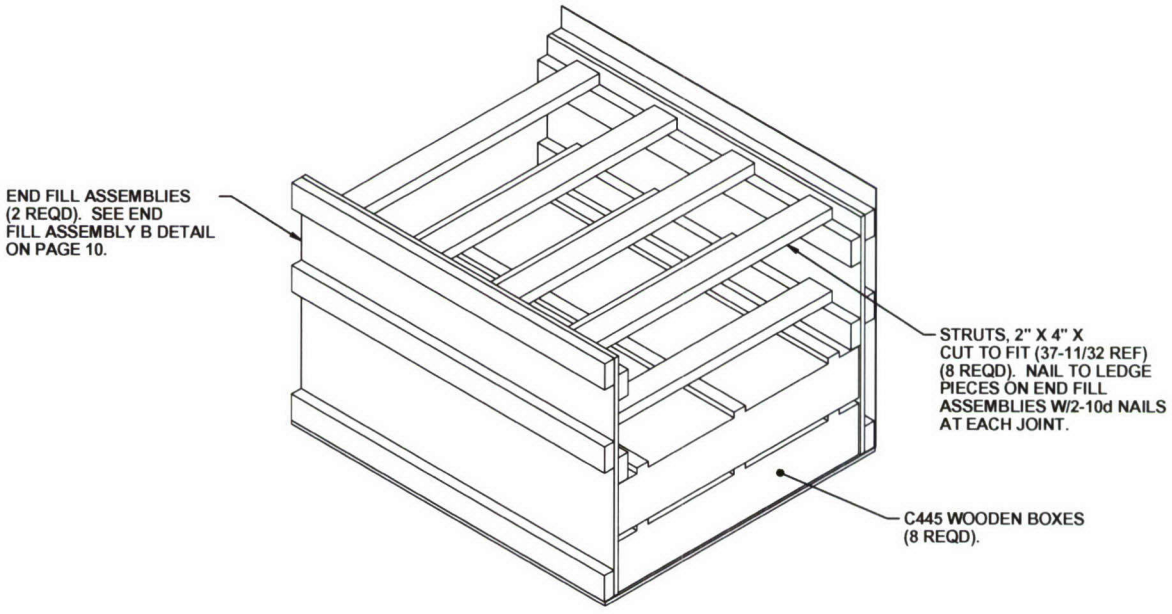
(2 REQD)

4 C445 BOXES @ 120 LBS	480 LBS
DUNNAGE	126 LBS
BAE JMIC	310 LBS
TOTAL WEIGHT	916 LBS (APPROX)
CUBE	56.7 CU FT (APPROX)

BILL OF MATERIAL		
LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	66	44
NAILS	NO. REQD	POUNDS
6d (2") 10d (3")	60 32	.35 .48
BAE JMIC - - - - - - - - 1 REQD - - - - - - - - 310 LBS		
5/8 PLYWOOD - - - - - - - 22 SQ FT - - - - - - - 37 LBS		



END FILL ASSEMBLY A
(2 REQD)



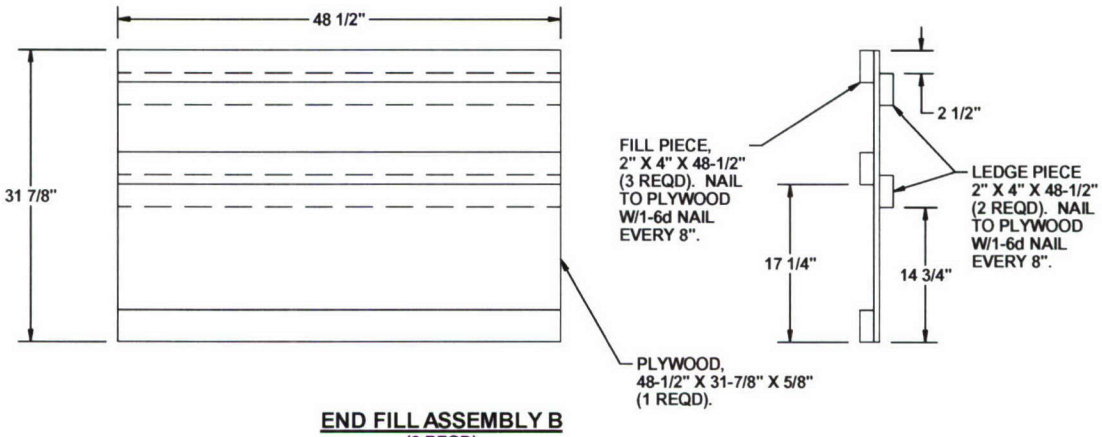
BAE JMIC UNIT - LIGHT LOAD B

(2 REQD)

8 C445 BOXES @ 120 LBS	960 LBS
DUNNAGE	126 LBS
BAE JMIC	310 LBS
TOTAL WEIGHT	1,396 LBS (APPROX)
CUBE	56.7 CU FT (APPROX)

BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	66	44
NAILS	**NO. REQD**	**POUNDS**
6d (2")	60	.35
10d (3")	32	.48
BAE JMIC	1 REQD	310 LBS
5/8 PLYWOOD	22 SQ FT	37 LBS



END FILL ASSEMBLY B
(2 REQD)