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Rack Inspection Report

Prepared for
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Introduction

This report is intended as a guide to allow the racking system user to assess noted deficiencies in their racking system in order to maintain the system's structural integrity, properly store pallets on the racks, and improve their forklift driver training procedures. It provides the user with insights on industry practices that will allow for an improved understanding on how to load and position pallets in a safe manner while at the same time minimizing damage to the rack components and minimizing the creation of unsafe conditions during the loading and unloading process. In order to provide this information a visual inspection was made of the pallet racking. The rack was inspected for damage, missing or broken safety components, and unsafe conditions.

It should not be assumed that this report identifies all potential structural or safety issues. It should only be used as an informational guide documenting potential problems observed at the time of the inspection. Based on this information the user should determine what corrective measures they will take to replace, repair, or otherwise mitigate any of the issues noted in the report.

This report breaks down the findings into the following four categories:

- Structural Deficiencies - According to RMI (Rack Manufacturers Institute) deficiencies reduce the ability of the rack to support the load and should be addressed by either repairing or replacing the racking components. A rack upright or beam that has been kinked or bent more than 1/2" is considered structurally deficient.
- Safety Issues - These issues, if not addressed, may lead to someone being injured, the rack becoming damaged, or the product stored on the rack being damaged.
- Other - These are miscellaneous issues noted during the inspection that should be reviewed and addressed as appropriate.
- Observations - These items were noted on the report for reference and do not require action.

The report uses a color-coded system to identify the level of importance that should be given to each identified structural deficiency or unsafe condition.

The meaning of each color is as follows:

- Red - The structural deficiency or unsafe condition should be immediately fixed. If it cannot be immediately addressed, the following actions should be taken:
 1. For a damaged upright the bays of rack on either side of the damaged upright should be completely unloaded, taped off, and placed out of service until the issue is resolved.
 2. For a damaged beam the beam level should be unloaded, taped off, and placed out of service until the issue is resolved.
 3. For other issues actions should be taken as noted.
- Orange - The structural deficiency or unsafe condition should be resolved in as timely a manner as is practical.
- Yellow - No action is required at this time. Be aware that a minor issue has been observed and should be inspected again at some point in the future.
- Green - No action required, simply a comment about a specific observation.

It is recommended that inspections be performed periodically in order to assess if the rack's structural integrity is compromised and if any safety issues are observed.

List of Areas Inspected

1. North warehouse
2. West warehouse
3. South warehouse

Below is a list of the issues found during the inspection and the recommendation to correct each issue. The rack locations where these issues were found are identified in the next two sections of the report.

Beam**• Bent**

Replace all beams that are color-coded as red or orange, as they are kinked and the capacity of the beam has been compromised. Yellow coded beams have slight denting.

Beam Clip**• Safety Spring Clip Bent**

Replace beam clips or install a nut & bolt or a J-pin to secure the beam to the upright. If a bolt or J-pin cannot be installed, replace the beam.

• Safety Spring Clip Missing

Replace beam clips or install a nut & bolt or a J-pin to secure the beam to the upright. If a bolt or J-pin cannot be installed, replace the beam.

• Studs Not Engaged In Upright

Immediately remove all material on the beam level and if the beam studs are not damaged reinstall the beam so the beam studs are properly seated down into the holes in the face of the upright. If the safety clip is missing, install a bolt & nut or a J-pin. Facility personnel were made aware of this highly dangerous situation, so corrective measures could be taken immediately.

Note: While the beam's safety clips help to keep beams from being dislodged, the only way to keep this dangerous situation from occurring again is to use a nut & bolt to secure every beam to the upright. Beams are dislocated by the pallet of material below the beam being raised and hitting the beam above it.

Other**• Damaged Crate with Loose Front Board**

Remove the damaged crate and place the material in a structurally sound crate.

Pallet Loading**• Loaded In Unsafe Manner**

It is an unsafe practice to place a pallet on the top beam level behind an upright. The pallet can catch on the upright when it is being loaded or unloaded causing an accident.

• Pallet or Material Extends More Than 5" Beyond Front of Beam

Train warehouse personnel to correctly place pallets on the rack. Pallets should be positioned so the pallet overhangs both the front and back beams by about 3". Pallets that extend beyond 4" in front of the rack beam create a potential hazard for the forklift operator who is loading pallets on beam levels below or above the pallet that is sticking out too far. The load they are lifting may hit this pallet causing an accident. Also, when the front left to right board on the bottom of the pallet sits in front of the front beam the majority of the weight of the pallet is now supported by the center left to right bottom boards of the pallet, which causes damage to and bending of the wire decks.

• Pallets Not Positioned Properly on Wire Decks

Train forklift operators to always place pallets squarely on top of the wire decks with the left to right boards on the bottom of the pallet positioned over top of three or more of the wire deck's front to back channels. This will allow the pallet load to be uniformly distributed on the wire decks.

• Pallets Too Deep for Back to Back Racks

The rack's depth and the spacing between racks should allow for the pallets to be properly positioned on the racks and allow for a sufficient flue space between the pallets. Pallets that are too deep for the racks can push the material or boxes on the rack behind it off and onto the floor, the too deep pallet can be pushed off the rack when a pallet is loaded onto the rack behind it, or the material on the pallet can be damaged. These pallets can also cause damage to the wire decks. When the back or front left to right board on the bottom of the pallet sits in front of the front beam or behind the back beam the majority of the weight of the pallet is now supported by the center bottom boards of the pallet, which causes damage to the wire decks.

Pallet Support**• Not tek screwed to beam**

Pallet supports are not teked to the beams, as per manufacturer's recommendations. Install Tek screws to secure pallet supports to beams.

Upright**• First horizontal bracing is missing**

Bracing should be replaced.

• Bracing repair kits manufactured by Damotech, MacRak, or Worldwide Material Handling can be used to repair/replace the damaged braces.

• Left bracing damaged

Bracing should be repaired or the upright replaced.

• Bracing repair kits manufactured by Damotech, MacRak, or Worldwide Material Handling can be used to repair/replace the damaged braces.

• Left column kinked

Upright columns kinked should be repaired or the upright replaced. Upright repair kits manufactured by Damotech, MacRak, or Worldwide Material Handling can be used to repair damaged uprights.

• Right bracing damaged

Bracing should be repaired or the upright replaced.

• Bracing repair kits manufactured by Damotech, MacRak, or Worldwide Material Handling can be used to repair/replace the damaged braces.

- **Right column kinked**

Upright columns kinked should be repaired or the upright replaced. Upright repair kits manufactured by Damotech, MacRak, or Worldwide Material Handling can be used to repair damaged uprights.

Wire Deck

- **Bent or Broken Wires**

Wire decks with significant bending or broken wires should be replaced.

- **Line Loading**

Remove skids that create line loads and place them on the floor or purchase engineered decks designed to support line loads, such as Ohio Gratings' PressLock decks.

A line load is created when a crate, container, or skid's bottom runner boards do not sit on top of both the front and back beams or the wire deck's channels but rather sit on and are primarily supported only by the wire. A standard wire deck is designed support a uniform distributed load and not a concentrated load which can damage or cause the wire deck to fail.

- **Point Loading**

































Remove skids that create point loads and place them on the floor or purchase engineered decks designed to support point loads, such as Ohio Gratings' PressLock decks.

A point load is created when a pallet or container has feet which transfer all of the weight of the pallet or container to a small area of the wire deck. A standard wire deck is designed to support a uniform distributed load and not a concentrated load which can damage or cause the wire deck to fail.















Summary of Issues Found

Location	Column Anchors	Column Guard	Upright	Beam Clip	Beam	Capacity Labels	Wire Deck	Pallet Loading	Pallet Support	Back of Rack Guarding	Other
31BB-3-R							⚠ (1)				
31DD-3-C					⚠ (1)						
31K-3-L & R							⚠ (1)				
31N-R-Back column			⚠ (1)								
31S Back column			⚠ (1)								
31Q-R & Middle			⚠ (1)	⚠ (1)							
31W - 31L all levels				⚠ (1)							
32A to 32V all back				⚠ (1)							
32BB to 32GG all									⚠ (1)		
32-C-2-R							⚠ (1)				
32EE-3-L					⚠ (1)						
32H-R Front				⚠ (1)							
32L-L Back column			⚠ (1)								
32Q-middle			⚠ (1)								
32R-2-Left							⚠ (1)				
33B-7-C					⚠ (1)						
33E-6-C					⚠ (1)		⚠ (1)				
33G-2-L							⚠ (1)				
33G-5-C					⚠ (1)						
33G-6-C					⚠ (1)						
33G-7-C							⚠ (1)				
33I-2-L				⚠ (1)							
33K-6-C					⚠ (1)						
33K-7-C							⚠ (1)				
33M-2-R				⚠ (1)							
33N-7-C							⚠ (1)				
33AA - 33GG All									⚠ (1)		
33BB-3-R				⚠ (1)							
33CC-2-R					⚠ (1)						
33CC-5-C					⚠ (1)						
33DD - 33GG									⚠ (1)		
42C-4-C					⚠ (1)						
45F-2-C							⚠ (1)				
45J-4-C							⚠ (1)				

















Summary of Issues Found

Location	Column Anchors	Column Guard	Upright	Beam Clip	Beam	Capacity Labels	Wire Deck	Pallet Loading	Pallet Support	Back of Rack Guarding	Other
46F-2-R				 (1)							
46J-R			 (1)								
47A-L-Front column			 (1)								
47E-R			 (1)								
47F-5-L					 (1)						
47G-R			 (1)								
47H-5-L							 (1)				
47N-2-L					 (1)		 (1)				
48D-R			 (1)								
48F-4-L								 (1)			
48I-4-R							 (1)				
48L-2-R					 (1)						
48N-1-Rear column			 (1)								
48O-4-L							 (1)				
49D-2-C								 (1)			
49F-4-R								 (1)			
49I-5-R				 (1)							
49K-R-Front column			 (1)								
50G-6-L								 (1)			
50K-5-L					 (1)						
50N-5-L							 (1)				
50P-5-L											 (1)
50R-5-L								 (1)			
50S-3-L				 (1)							
51B-2-R							 (1)				
All row 33 Back				 (1)							
All row 34			 (1)	 (1)							
All row 35			 (1)	 (1)							
52D-6-R								 (1)			









Details of Issues Found

Location	Issue	Action to be Taken	Details/Comments
Area: 1. North warehouse			
31BB-3-R	Wire Deck	 Issue To Be Addressed	• Point Loading
31DD-3-C	Beam	 Minor Issue	• Bent
31K-3-L & R	Wire Deck	 Minor Issue	• Bent or Broken Wires
31N-R-Back column	Upright	 Issue To Be Addressed	• Right column kinked Back upright
31Q-R & Middle	Beam Clip	 Issue To Be Addressed	• Safety Spring Clip Missing
	Upright	 Issue To Be Addressed	• Right bracing damaged Right side, middle diagonal
31S Back column	Upright	 Issue To Be Addressed	• Right column kinked Back upright damaged
31W - 31L all levels	Beam Clip	 Issue To Be Addressed	• Safety Spring Clip Missing
32-C-2-R	Wire Deck	 Issue To Be Addressed	• Bent or Broken Wires
32A to 32V all back	Beam Clip	 Issue To Be Addressed	• Safety Spring Clip Missing
32BB to 32GG all Levels	Pallet Support	 Issue To Be Addressed	• Not tec screwed to beam
32EE-3-L	Beam	 Issue To Be Addressed	• Bent
32H-R Front	Beam Clip	 Issue To Be Addressed	• Safety Spring Clip Missing
32L-L Back column	Upright	 Issue To Be Addressed	• Left column kinked Back of upright
















Details of Issues Found

Location	Issue	Action to be Taken	Details/Comments
32Q-middle	Upright	 Issue To Be Addressed	• Left bracing damaged
32R-2-Left	Wire Deck	 Minor Issue	• Bent or Broken Wires
33AA - 33GG All Levels	Pallet Support	 Issue To Be Addressed	• Not tec screwed to beam
33B-7-C	Beam	 Issue To Be Addressed	• Bent
33BB-3-R	Beam Clip	 Address Immediately	• Studs Not Engaged In Upright
33CC-2-R	Beam	 Issue To Be Addressed	• Bent
33CC-5-C	Beam	 Issue To Be Addressed	• Bent
33DD - 33GG	Pallet Support	 Issue To Be Addressed	• Not tec screwed to beam
33E-6-C	Beam	 Minor Issue	• Bent
	Wire Deck	 Minor Issue	• Bent or Broken Wires
33G-2-L	Wire Deck	 Minor Issue	• Bent or Broken Wires
33G-5-C	Beam	 Minor Issue	• Bent
33G-6-C	Beam	 Minor Issue	• Bent
33G-7-C	Wire Deck	 Issue To Be Addressed	• Point Loading
33I-2-L	Beam Clip	 Issue To Be Addressed	• Safety Spring Clip Missing
33K-6-C	Beam	 Issue To Be Addressed	• Bent








Details of Issues Found

Location	Issue	Action to be Taken	Details/Comments
33K-7-C	Wire Deck	 Issue To Be Addressed	• Point Loading
33M-2-R	Beam Clip	 Issue To Be Addressed	• Safety Spring Clip Missing
33N-7-C	Wire Deck	 Issue To Be Addressed	• Point Loading
All row 33 Back Beams	Beam Clip	 Issue To Be Addressed	• Safety Spring Clip Missing
All row 34	Beam Clip	 Issue To Be Addressed	• Safety Spring Clip Missing
	Upright	 Issue To Be Addressed	• First horizontal bracing is missing
All row 35	Beam Clip	 Issue To Be Addressed	• Safety Spring Clip Missing
	Upright	 Issue To Be Addressed	• First horizontal bracing is missing









Details of Issues Found

Location	Issue	Action to be Taken	Details/Comments
Area: 2. West warehouse			
42C-4-C	Beam	 Issue To Be Addressed	• Bent
45F-2-C	Wire Deck	 Issue To Be Addressed	• Point Loading
45J-4-C	Wire Deck	 Issue To Be Addressed	• Point Loading
46F-2-R	Beam Clip	 Address Immediately	• Studs Not Engaged In Upright
46J-R	Upright	 Issue To Be Addressed	• Right bracing damaged
47A-L-Front column	Upright	 Issue To Be Addressed	• Left column kinked
47E-R	Upright	 Issue To Be Addressed	• Right bracing damaged
47F-5-L	Beam	 Issue To Be Addressed	• Bent
47G-R	Upright	 Issue To Be Addressed	• Right bracing damaged
47H-5-L	Wire Deck	 Issue To Be Addressed	• Point Loading
47N-2-L	Beam	 Issue To Be Addressed	• Bent
	Wire Deck	 Issue To Be Addressed	• Bent or Broken Wires
48D-R	Upright	 Issue To Be Addressed	• Right bracing damaged
48F-4-L	Pallet Loading	 Issue To Be Addressed	• Pallets Too Deep for Back to Back Racks
48I-4-R	Wire Deck	 Issue To Be Addressed	• Point Loading

Details of Issues Found

Location	Issue	Action to be Taken	Details/Comments
48L-2-R	Beam	 Issue To Be Addressed	• Bent
48N-1-Rear column	Upright	 Issue To Be Addressed	• Left column kinked Rear upright
48O-4-L	Wire Deck	 Address Immediately	• Line Loading
49D-2-C	Pallet Loading	 Issue To Be Addressed	• Pallets Too Deep for Back to Back Racks
49F-4-R	Pallet Loading	 Issue To Be Addressed	• Pallets Too Deep for Back to Back Racks
49I-5-R	Beam Clip	 Issue To Be Addressed	• Safety Spring Clip Missing
49K-R-Front column	Upright	 Issue To Be Addressed	• Left column kinked

Details of Issues Found

Location	Issue	Action to be Taken	Details/Comments
Area: 3. South warehouse			
50G-6-L	Pallet Loading	 Issue To Be Addressed	• Pallet or Material Extends More Than 5" Beyond
50K-5-L	Beam	 Minor Issue	• Bent
50N-5-L	Wire Deck	 Issue To Be Addressed	• Line Loading
50P-5-L	Other	 Issue To Be Addressed	• Damaged Crate with Loose Front Board
50R-5-L	Pallet Loading	 Issue To Be Addressed	• Loaded In Unsafe Manner
50S-3-L	Beam Clip	 Issue To Be Addressed	• Safety Spring Clip Bent
51B-2-R	Wire Deck	 Minor Issue	• Bent or Broken Wires
52D-6-R	Pallet Loading	 Issue To Be Addressed	• Pallets Not Positioned Properly on Wire Decks