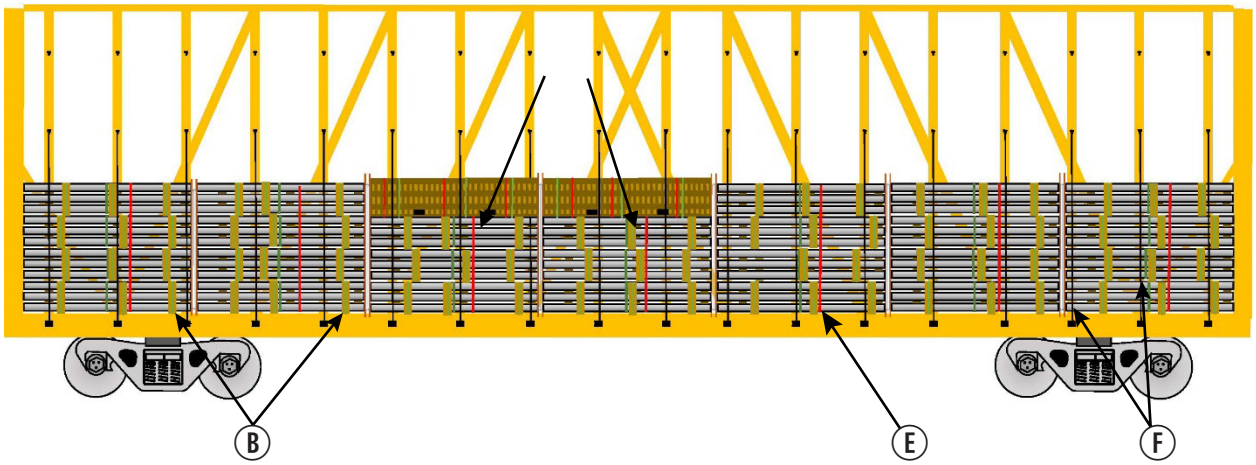
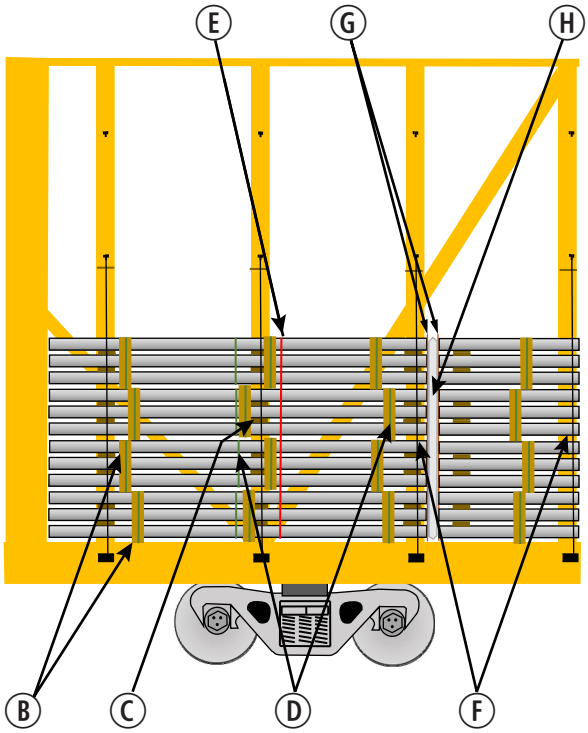
Fig. 144 (New 04/16)

PIPE, STEEL AND CAST IRON OR DUCTILE, 1 1/2 IN. TO 12 IN. O.D., 10 FT LONG OR OVER—RISERLESS FLATCARS, WITH CENTER A-FRAME, PERMANENT END BULKHEADS, AND CABLE TIE-DOWN ASSEMBLIES

CRATES (SEE SKETCH 2)

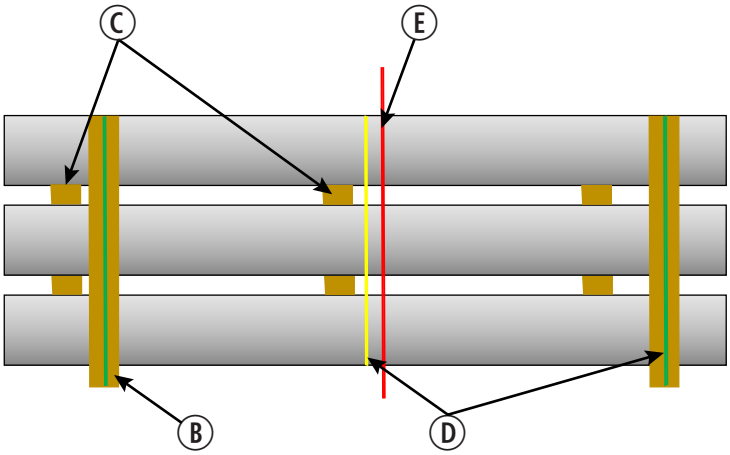




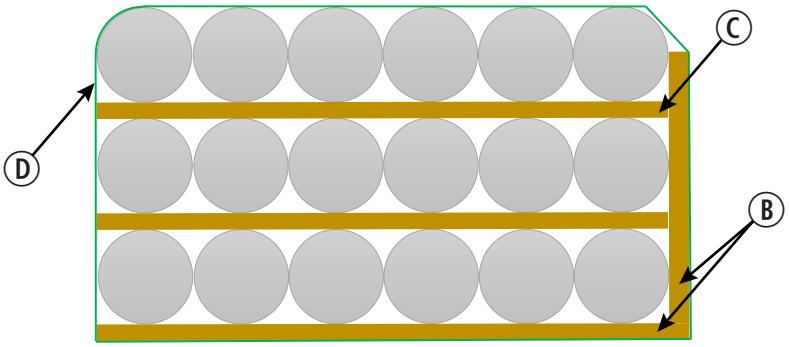
IMPLEMENTED 03/2016

Fig. 144 (New 04/16) (Continued)

PIPE, STEEL AND CAST IRON OR DUCTILE, 1 1/2 IN. TO 12 IN. O.D., 10 FT LONG OR OVER—RISERLESS FLATCARS, WITH CENTER A-FRAME, PERMANENT END BULKHEADS, AND CABLE TIE-DOWN ASSEMBLIES



SKETCH 1
ATTACHED DUNNAGE (SIDE VIEW)

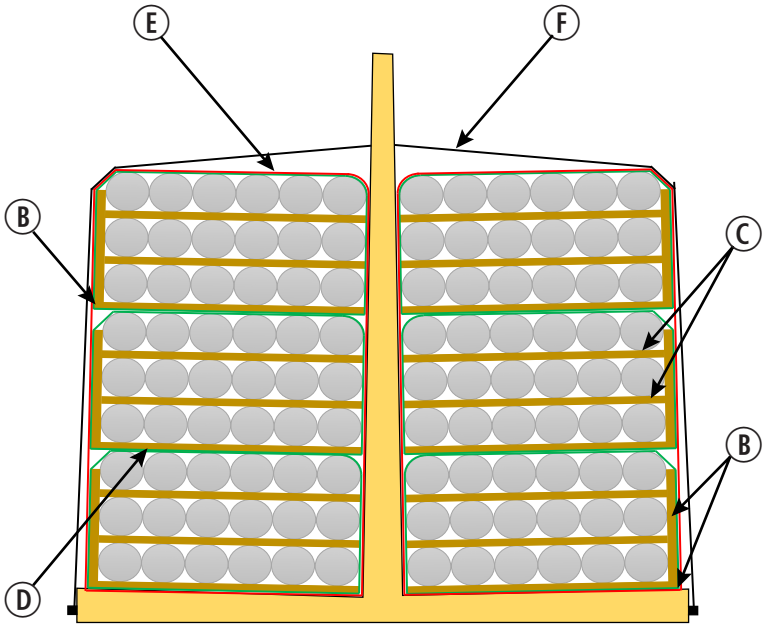


SKETCH 2
ATTACHED DUNNAGE (END VIEW)

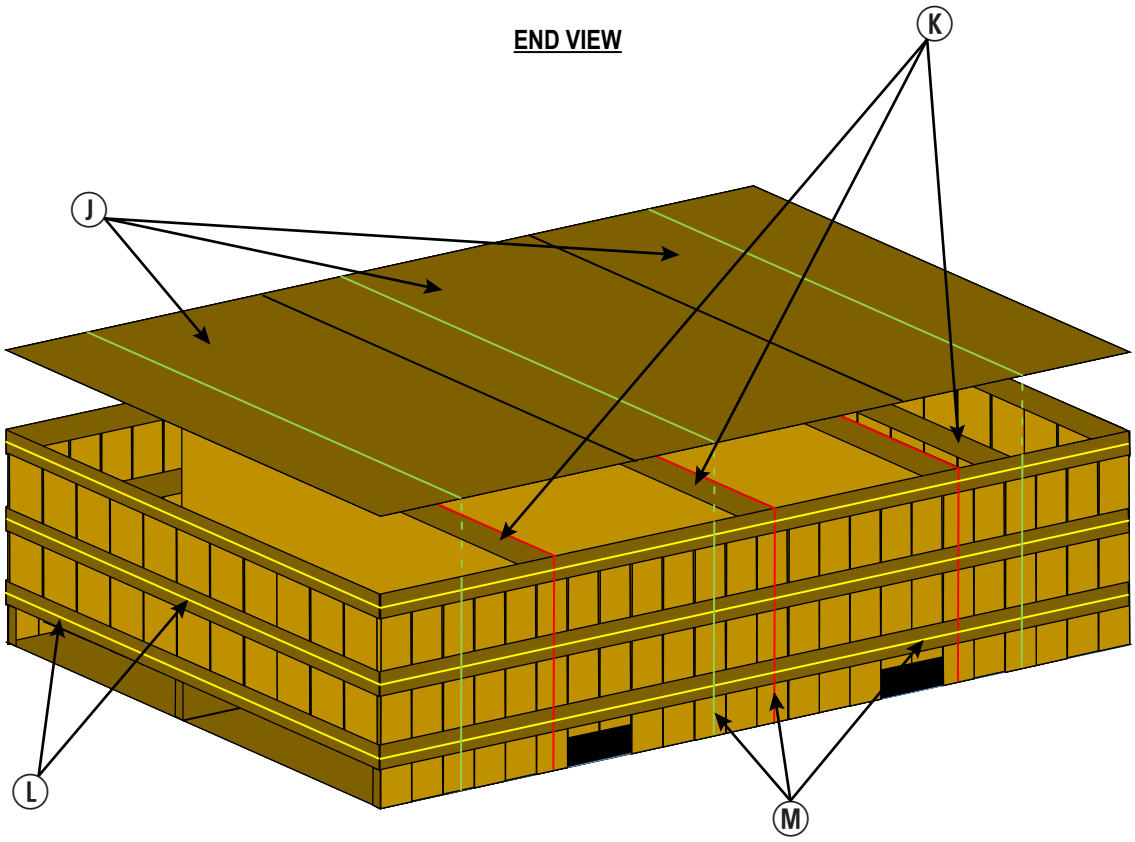
IMPLEMENTED 03/2016

Fig. 144 (New 04/16) (Continued)

PIPE, STEEL AND CAST IRON OR DUCTILE, 1 1/2 IN. TO 12 IN. O.D., 10 FT LONG OR OVER—RISERLESS FLATCARS, WITH CENTER A-FRAME, PERMANENT END BULKHEADS, AND CABLE TIE-DOWN ASSEMBLIES



END VIEW



SKETCH 3
4 FT × 10 FT CRATE FOR FITTINGS

IMPLEMENTED 03/2016

Fig. 144 (New 04/16) (Concluded)

PIPE, STEEL AND CAST IRON OR DUCTILE, 1 1/2 IN. TO 12 IN. O.D., 10 FT LONG OR OVER—RISERLESS FLATCARS, WITH CENTER A-FRAME, PERMANENT END BULKHEADS, AND CABLE TIE-DOWN ASSEMBLIES

Item	No. of Pcs.	Description
A		Vacant
B	Minimum 2 per package 12 ft long or less. Add 1 for each additional 4 ft.	Attached dunnage: hardwood, minimum, 2 in. × 4 in., height must not exceed width. Length must be equal to width of package, in one piece, and preferably rough. All attached dunnage in same layer separation must be of equal height. Secure attached dunnage to bottom and sides (Sketches 1 and 2) of package with one 3/4 in. package band. Locate approximately 18 in. from each end of package.
C	3 per package.	Stickers: lumber minimum 3/4 in.× 2 in., length must be equal to width of package and must be uniform thickness throughout.
D	Minimum 3 per package 10 ft long, including 2 Item C.	Package bands: 3/4 in. × .029 in. high tension steel bands to encircle each bundle of pipe. Locate one band near each end of package with third band in between.
E	1 per pile.	Encircling band: 1 1/4 in. × .029 in. high tension steel bands to encircle all packages in a pile. Locate one band near the center of each pile.
F	Minimum 2 per each top package 12 ft long or less. 3 per each top package over 12 ft long.	Cables: 3/8 in. diameter, 8,800 lb minimum breaking strength. Winch assemblies must be equipped with a device to maintain tension. Prior to tightening, there must be a minimum of 2 1/2 wraps of cable around the winch drum. When practical, all cables must be used and must be free of kinks and tangles. Tension to be applied with the use of an 18 in. bar or 3/8 in. ratchet. Cables must be secured to A-frame in slot nearest to top of package.
G	As required.	Buffer sheets: plywood, minimum 1/2 in. thick, width and height to equal width and height of adjoining tiers. Position plywood sheet between ends of adjacent tiers of pipe. Secure in place with wire or banding sufficient to prevent displacement (not shown in drawings).
H	As required.	Void filler: inflatable dunnage bag as required. Position one Item H buffer sheet on each side of filler bag(s). Place bag(s) near the center of the load to keep the void to a minimum and located near the center of the load.
J	3 sheets 48 in. × 42 in.	Crate top: 5/8 in. plywood
K	3	Crate reinforcement, longitudinal: lumber 2 in. × 4 in.
L	3 per each end.	Side wall reinforcement: lumber 1 in. × 3 1/2 in. See Sketch 3.
M	9	Encircling bands: 5/8 in. high tension steel bands. See Sketch 3.

Notes and Additional Requirements:

1. Load must be equally balanced on both sides of center partition.
2. All longitudinal void space must be packed out using Items H and J as indicated above. No void at any location may be greater than 8 in. If total lengthwise void space is greater than 8 in., the void must be distributed between pipe stacks beginning from the center of the load then toward the ends of the car.
3. Pipes must be packaged as shown, with maximum package height of 24 in.
4. All pipes in a package must be of the same diameter and type.
5. All packages in a layer must be of equal height.
6. All pipes in a stack must be of equal length.
7. Pipes in adjacent packages may be of different diameter, but all packages in a layer must be of equal height.
8. Application of filler:
   - 8.1. Make the height and width dimensions of the faces of the filler material as near as practicable to the dimensions of the faces of the units they will be separating.
   - 8.2. Load voids greater than 8 in. may be spread equally over length of load with no more than 8 in. of void space at any one location and subsequently filled with this material.
   - 8.3. Filler must be secured to prevent displacement.
   - 8.4. Filler material may not be reused if it has been damaged or subjected to water infiltration or is otherwise no longer capable of filling the void.

Reference the General Rules in Section No. 1 of the *Open Top Loading Rules Manual* for additional details.

IMPLEMENTED 03/2016