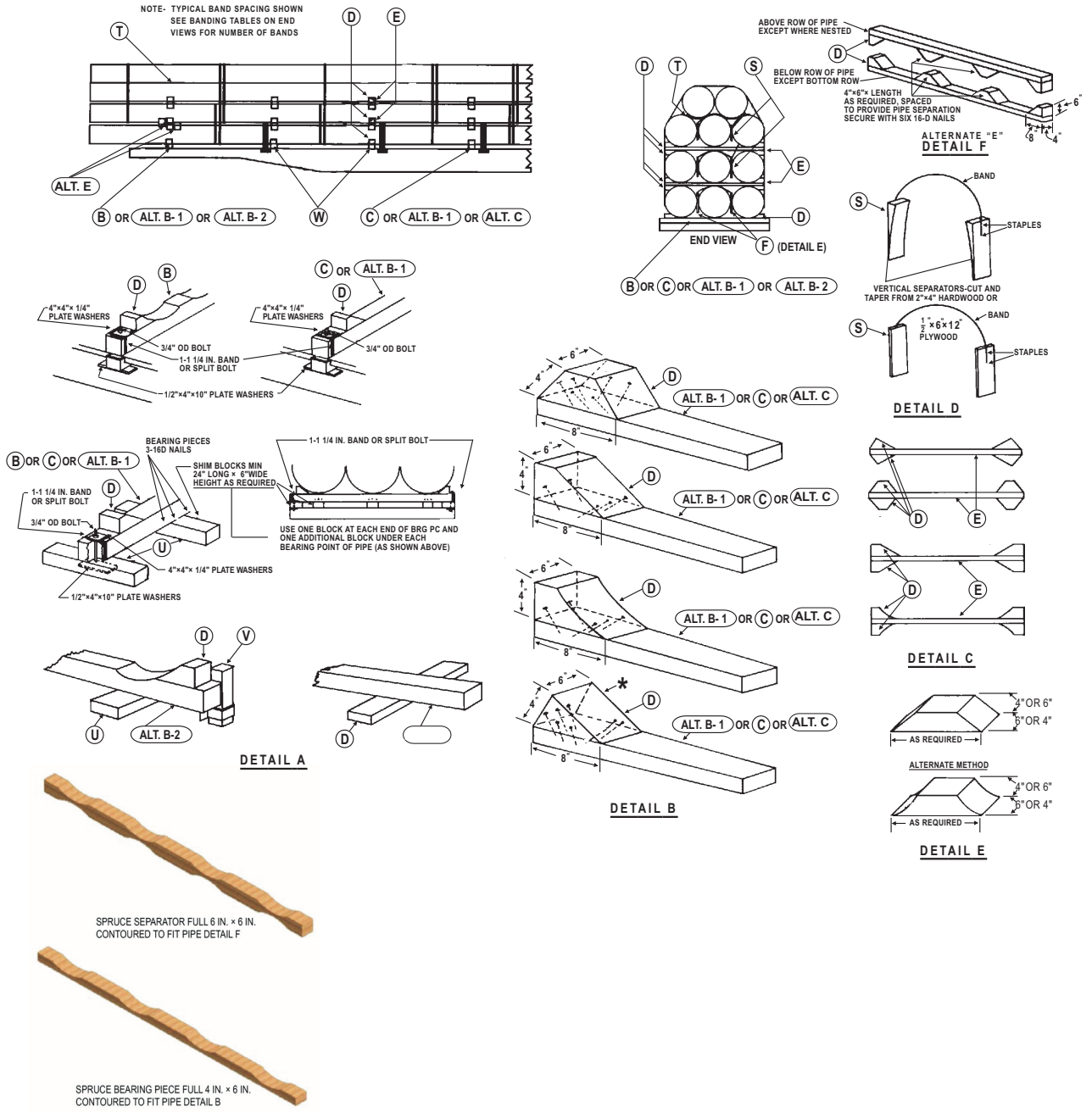
Fig. 280 (Rev. 10/15)
(New 10/73)

PIPE, STEEL, BARE, COATED, OR WRAPPED, 16 IN. TO 72 IN. O.D., 80 FT LONG, SINGLE PILE, DOUBLE-END OVERHANG—FLATCARS



IMPLEMENTED 10/2015

Fig. 280 (Rev. 10/15) (Continued)
(New 10/73)

PIPE, STEEL, BARE, COATED, OR WRAPPED, 16 IN. TO 72 IN. O.D., 80 FT LONG, SINGLE PILE, DOUBLE-END OVERHANG—FLATCARS

Item	No. of Pcs.	Description
A		Brake wheel clearance: see General Rule 2 in Section 1.
B	2 per pile. (Not used with Alternate Item B-1 or Alternate Item B-2.)	End bearing piece: 6 in. × 6 in. hardwood, length equal to width of car. Contour to fit pipe diameter. Increase height as required to provide minimum 4-in. clearance over idler cars. Secure through stake pockets or car floor with 3/4-in.-diameter bolts. Bolts are also to pass through end Items U when used. Use a 1/2 in. × 4 in. × 10 in. plate at bottom of stake pocket or 1/2 in × 4 in. × 18 in. plate under floor and a 1/4 in. × 4 in. × 4 in. plate washer on top of Item B. Where bolts are applied through stake pockets, they must be placed as close as possible to the inside face of the stake pockets (Detail A).
C	Minimum 3 per pile. (Not used with Alternate Item B-1 or Alternate Item C.)	Intermediate bearing piece. 4 in. × 6 in. hardwood, length equal to width of car. Secure with three 3/4-in.-diameter bolts, one at each end and one as close as possible to center line of car. Hardwood, 6 in. × 6 in. or heavier, to be secured with two 3/4-in.-diameter bolts, one at each end of Item C. Bolts are also to pass through end Items U when used. Use a 1/2 in. × 4 in. × 10 in. plate at bottom of stake pocket or 1/2 in. × 4 in. × 18 in. plate under floor and a 1/4 in. × 4 in. × 4 in. plate washer on top of Item B. Where bolts are applied through stake pockets, they must be placed as close as possible to the inside face of the stake pocket (Detail A).
D	2 each Item B. 2 each Item C 2 each Alternate Item B-1. 2 each Alternate Item B-2. 2 each Alternate Item C. 4 each Alternate Item E.	Wood chock blocks: 4 in. × 6 in. × 8 in., cut to fit contour of pipe or wedge-shaped. Locate to contact pipe and nail to Items B, C, E, Alternate B-1, Alternate B-2, Alternate C, and/or Alternate E with five or six 16-D nails (Details A, B, C, and F). Alternate 6 in. × 4 in. × 8 in. wood chock blocks may be used. *Secure with seven 16-D power-driven nails.
E	Minimum of 7 between tiers not nested.	Separator: 2 in. × 6 in. hardwood, length about equal to width of load and sufficient to apply Items D (Detail C). Separator: 6 in. × 6 in., hardwood or spruce, contoured to a maximum of 2 in. top and bottom may be used as an alternate.
F	As required on end Alternate Item B and 4 outer Items E, each end of car, between 1st and 2nd tiers that are not nested.	Wood intermediate chock blocks: 4 in. × 6 in. or 6 in. × 4 in., cut to fit contour of pipe or wedge-shaped, length as required by pipe diameter. Locate to contact pipe and nail to Alternate Item B with six 16-D nails (Detail E and End View)
G thru R	See banding tables on sketches.	High tension bands: 2 in. × .044 in. All bands passing around bottom of load must be placed close together to allow maximum free space between Items B, C, or Alternate Items B.
G	"	To encircle bottom two tiers.
H	"	To encircle bottom three tiers.
J	"	To encircle bottom four tiers.
K	"	To encircle tiers 2 and 3.
L	"	To encircle tiers 2, 3, and 4.
M	"	To encircle top tier only.
N	"	To encircle top two tiers.
O	"	To encircle top three tiers.
P	"	To encircle top four tiers.
Q	"	To encircle top five tiers.
R	"	To encircle all tiers.
S	As required.	Vertical separators: consisting of material such as plywood, hardwood, or hard rubber that will not easily compress. Use optional (Detail D).

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Fig. 280 (Rev. 10/15) (Continued)
(New 10/73)

PIPE, STEEL, BARE, COATED, OR WRAPPED, 16 IN. TO 72 IN. O.D., 80 FT LONG, SINGLE PILE, DOUBLE-END OVERHANG—FLATCARS

Item	No. of Pcs.	Description
T	4 per nested tier.	Protective material: use optional.
U	As required.	Shim blocks: minimum 6 in. wide × 24 in. long, height as required. Use one at each end of Item B, C, or Alternate B-1 and one for each row of pipe. Secure end Items U with bolts used to secure Items B, C, or Alternate B-1. Secure intermediate Items U to Items B, C, or Alternate B-1 with six 16-D nails. When used with Alternate B-2 or Alternate C, use one for each row of pipe. Nail to car floor with a minimum of four nails with a minimum penetration of 2 in. into car floor (Detail A).
V	4. (Use only when Alternate Item B-2 is used.)	Stub stakes: 4 in. × 5 in. minimum, hardwood. Locate outside of Alternate Items B-2 at both ends of car. Secure to prevent dislodgement (Detail A).
W	6 per pile.	Tie-down assemblies: consisting of a ratchet and polyester woven straps 4 in. wide with 5,335-lb working load limit. Locate near bearing pieces where practical. Place over bottom layer of pipe and anchor to opposite side of car, securing to prevent displacement. Winch taut using a minimum 30-in. bar. Maintain as much clearance from steel bands as possible to avoid damage to straps. Not required for uncoated pipe. Note: This application may be used only on sketches utilizing Item E separators between the bottom and second layers.
Alternate securement items		
Alt B-1	Minimum 5 per pile. (Not used with Alternate Items B-2 and C.)	All bearing pieces: 4 in. × 6 in. hardwood, length equal to width of car. Secure with three 3/4-in.-diameter bolts, one at each end and one as close as possible to center line of car. Hardwood, 6 in. × 6 in. or heavier, to be secured with two 3/4-in. bolts, one at each end. Bolts are also to pass through end Items U when used and must be applied according to Item B (Detail A).
Alt B-1A	Minimum 7 per pile. (Not used with Alternate Items B-2 and C.)	All bearing pieces: 4 in. × 6 in., spruce, contoured 2 in. deep to fit radius of pipe, length equal to width of car. Secure with ten 7-in. nails or with three 3/4-in.-diameter bolts, one at each end and one as close as possible to centerline of car. Item D chocks optional (Detail A).
Alt B-2	2 per pile. (Use with Alternate Item C.)	End bearing piece: 6 in. × 6 in. hardwood, length equal to width of car, contoured to fit pipe diameter. Secure to each Item U with minimum of two 8-in. spikes (Detail A). May be substituted with 2 in. × 6 in. hardwood, noncontoured, with Item D chock blocks applied on each side of each piece of pipe. Secure each bearing piece to car floor with eight 40-D nails.
Alt C	Minimum 3 per pile. (Use with Alternate Item B-2.)	Intermediate bearing piece: 4 in. × 6 in. hardwood, length equal to width of car. Secure to each Item U with two 8-in. spikes (Detail A). 2 in. × 6 in. hardwood intermediate bearing pieces may be used when noncontoured end bearing are used for Alternate B-2.
Alt E	Minimum 3 pair per tier not nested.	Separators: a pair is two pieces as shown in Detail F. Place at three locations throughout length of load, one pair adjacent to each end Item E and one pair adjacent to Item E nearest center of load. Use optional.

IMPLEMENTED 10/2015

Fig. 280 (Rev. 10/15) (Continued)
(New 10/73)

PIPE, STEEL, BARE, COATED, OR WRAPPED, 16 IN. TO 72 IN. O.D., 80 FT LONG, SINGLE PILE, DOUBLE-END OVERHANG—FLATCARS

Notes and Additional Requirements:

1. This figure is designed and intended for nominal pipe lengths of 80 ft (–15 ft). Random-length variations are acceptable provided all other criteria of this figure are met (see Note 2).
2. Longer length pipe must be located on the bottom layer of the load. Place pipe shorter than 65 ft on the top two tiers, unless complying with Note 14. Length of pipe to be no less than 20 ft.
3. Bands are sufficient for loads up to 140,000 lb. Add one band of each designation on load sketch used, for each additional 20,000 lb or less of load weight.
4. When short pipe lengths are loaded on the top two tiers (see Note 2), place two extra bands that encircle the top 2/3 of pile to include the shortest pipe length. A short length of pipe is defined as 15 ft less than the longest pipe.
5. Bearing pieces and separators, as shown, are sufficient for loads up to 140,000 lb. Add one additional bearing piece and separator for each additional 20,000 lb or less of load weight.
6. Bearing pieces may be extended beyond width of car deck to accommodate the application of Item D chock blocks. When this application is necessary, extended portion must be supported or the bearing piece size increased to 4 in. × 6 in.
7. When pipe is coated and/or wrapped, adequate padding or protection must be used to prevent chafing at bearing points. (Shipper's discretion to use as optional requirement.)
8. When obtaining clearance from the rail carriers for the movements of these loads, overhang length measurements must be reported to be 4 ft longer than the actual overhang measurements to allow for clearance when the load shifts.
9. More pieces per tier (width of load) may be loaded if the same end configuration and number of bands required by all sketches are applied as indicated.
10. Sketch Nos. 20, 31, and 36 must be prepared with contoured chocks or bearing pieces.
11. Center line of pipe must be within inside edge of car side sills.
12. All banding should be equally spaced throughout the entire pile.
13. Maximum two pipe lengths can be loaded end to end (double-ended) on the top two tiers. The distance between the pipe must be a minimum of 12 in. and a maximum of 24 in. Pipe that is double-ended can be no longer than the pieces directly beneath it.
14. Maximum two pipe lengths can be loaded end to end (double-ended) on the bottom layer and must be equal to the length of pipes above it. The distance between the pipe must be a minimum of 12 in. and a maximum of 24 in. Outside pipe must be a single piece and be the full length of the load.
15. Sweet gum is an acceptable substitute for hardwood in this figure.

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

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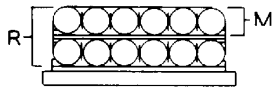
Fig. 280 (Rev. 10/15) (Continued)
(New 10/73)

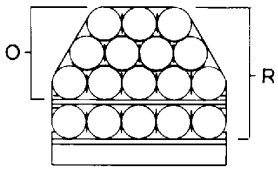
PIPE, STEEL, BARE, COATED, OR WRAPPED, 16 IN. TO 72 IN. O.D., 80 FT LONG, SINGLE PILE, DOUBLE-END OVERHANG—FLATCARS



OUSIDE DIAMETER (S) 16"– 20"
NUMBER OF PIECES 12

G	H	J	K	L	M	N	O	P	Q	R
					9				9	

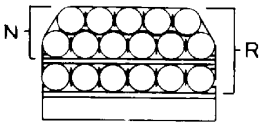
SKETCH NO. 1



OUTSIDE DIAMETER(S) 16"– 20"
NUMBER OF PIECES 17

G	H	J	K	L	M	N	O	P	Q	R
							9			9

SKETCH NO. 2



OUTSIDE DIAMETER(S) 16"– 20"
NUMBER OF PIECES 17

G	H	J	K	L	M	N	O	P	Q	R
						9				9

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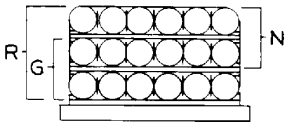
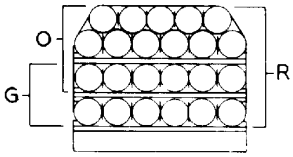


OUTSIDE DIAMETER(S) 16"– 20"
NUMBER OF PIECES 18

G	H	J	K	L	M	N	O	P	Q	R
6						6				7

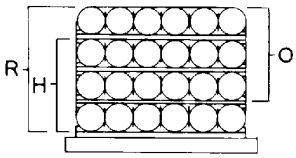
SKETCH NO. 4



OUTSIDE DIAMETER (S) 16"– 20"
NUMBER OF PIECES 23

G	H	J	K	L	M	N	O	P	Q	R
6							6			7

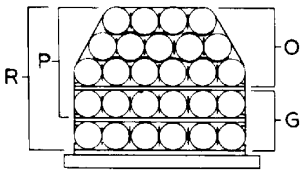
SKETCH NO. 5



OUTSIDE DIAMETER (S) 16"– 20"
NUMBER OF PIECES 24

G	H	J	K	L	M	N	O	P	Q	R
	6						6			7

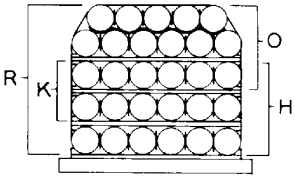
SKETCH NO. 6



OUTSIDE DIAMETER (S) 16"– 20"
NUMBER OF PIECES 27

G	H	J	K	L	M	N	O	P	Q	R
4							4	4		7

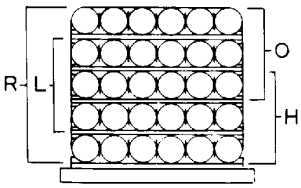
SKETCH NO. 7



OUTSIDE DIAMETER (S) 16"– 20"
NUMBER OF PIECES 29

G	H	J	K	L	M	N	O	P	Q	R
	4		4				4			7

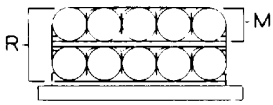
SKETCH NO. 8



OUTSIDE DIAMETER (S) 16"– 20"
NUMBER OF PIECES 30

G	H	J	K	L	M	N	O	P	Q	R
	4			4			4			7

SKETCH NO. 9



OUTSIDE DIAMETER (S) 16"– 24"
NUMBER OF PIECES 10

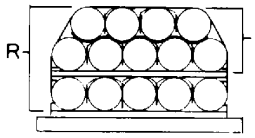
G	H	J	K	L	M	N	O	P	Q	R
					9					9

SKETCH NO. 10

IMPLEMENTED 10/2015

Fig. 280 (Rev. 10/15) (Continued)
(New 10/73)

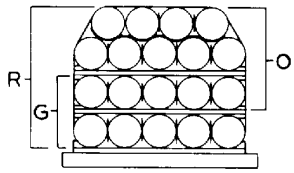
PIPE, STEEL, BARE, COATED, OR WRAPPED, 16 IN. TO 72 IN. O.D., 80 FT LONG, SINGLE PILE, DOUBLE-END OVERHANG—FLATCARS



OUSIDE DIAMETER (S) 16"– 24"
NUMBER OF PIECES 14

G	H	J	K	L	M	N	O	P	Q	R
						9			9	

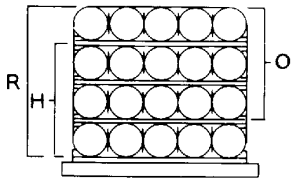
SKETCH NO. 11



OUTSIDE DIAMETER(S) 16"– 24"
NUMBER OF PIECES 19

G	H	J	K	L	M	N	O	P	Q	R
6							6		7	

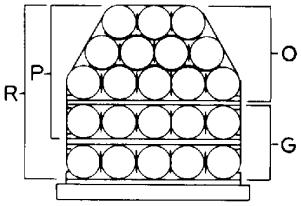
SKETCH NO. 12



OUTSIDE DIAMETER(S) 16"– 24"
NUMBER OF PIECES 20

G	H	J	K	L	M	N	O	P	Q	R
	6					6			7	

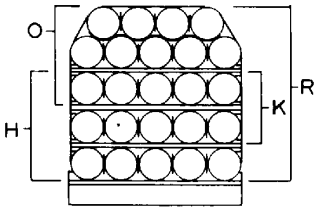
SKETCH NO. 13



OUTSIDE DIAMETER(S) 16"– 24"
NUMBER OF PIECES 22

G	H	J	K	L	M	N	O	P	Q	R
4							4	4	7	

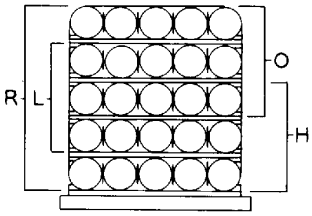
SKETCH NO. 14



OUTSIDE DIAMETER(S) 16"– 24"
NUMBER OF PIECES 24

G	H	J	K	L	M	N	O	P	Q	R
	4		4				4		7	

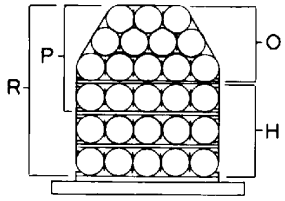
SKETCH NO 15



OUTSIDE DIAMETER(S) 16"– 24"
NUMBER OF PIECES 25

G	H	J	K	L	M	N	O	P	Q	R
	4			4			4		7	

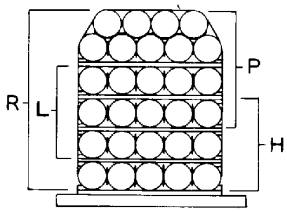
SKETCH NO. 16



OUTSIDE DIAMETER(S) 16"– 24"
NUMBER OF PIECES 27

G	H	J	K	L	M	N	O	P	Q	R
	4						4	4	7	

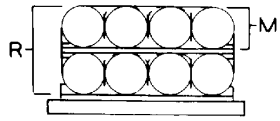
SKETCH NO 17



OUTSIDE DIAMETER(S) 16"– 24"
NUMBER OF PIECES 29

G	H	J	K	L	M	N	O	P	Q	R
	4			4				4	7	

SKETCH NO. 18

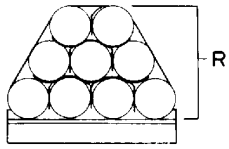


OUTSIDE DIAMETER(S) 16"– 32"
NUMBER OF PIECES 8

G	H	J	K	L	M	N	O	P	Q	R
					9				9	

SKETCH NO 19

SEE NOTE 9



OUTSIDE DIAMETER(S) 16"– 32"
NUMBER OF PIECES 9

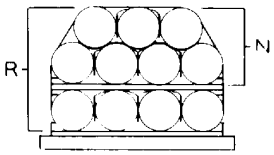
G	H	J	K	L	M	N	O	P	Q	R
									14	

SKETCH NO. 20

IMPLEMENTED 10/2015

Fig. 280 (Rev. 10/15) (Continued)
(New 10/73)

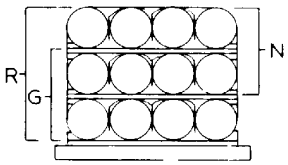
PIPE, STEEL, BARE, COATED, OR WRAPPED, 16 IN. TO 72 IN. O.D., 80 FT LONG, SINGLE PILE, DOUBLE-END OVERHANG—FLATCARS



OUSIDE DIAMETER (S) 16"–32"
NUMBER OF PIECES 11

G	H	J	K	L	M	N	O	P	Q	R
						9			9	

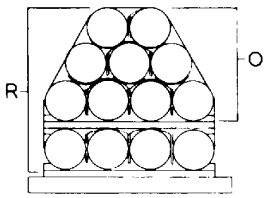
SKETCH NO 21



OUTSIDE DIAMETER(S) 16"–32"
NUMBER OF PIECES 12

G	H	J	K	L	M	N	O	P	Q	R
6						6			7	

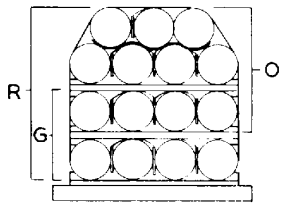
SKETCH NO 22



OUTSIDE DIAMETER(S) 16"–32"
NUMBER OF PIECES 13

G	H	J	K	L	M	N	O	P	Q	R
							9		9	

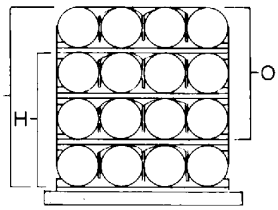
SKETCH NO 23



OUTSIDE DIAMETER(S) 16"–32"
NUMBER OF PIECES 15

G	H	J	K	L	M	N	O	P	Q	R
6							6			7

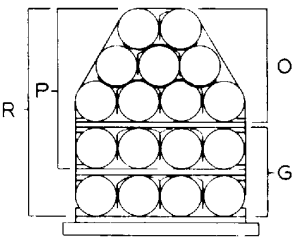
SKETCH NO. 24



OUTSIDE DIAMETER (S) 16"–32"
NUMBER OF PIECES 16

G	H	J	K	L	M	N	O	P	Q	R
6							6			7

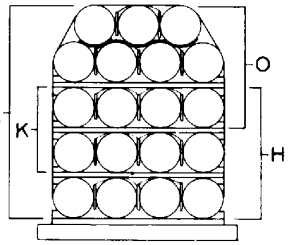
SKETCH NO 25



OUTSIDE DIAMETER (S) 16"–32"
NUMBER OF PIECES 17

G	H	J	K	L	M	N	O	P	Q	R
4							4	4		7

SKETCH NO. 26



OUTSIDE DIAMETER (S) 16"–32"
NUMBER OF PIECES 19

G	H	J	K	L	M	N	O	P	Q	R
	4		4				4			7

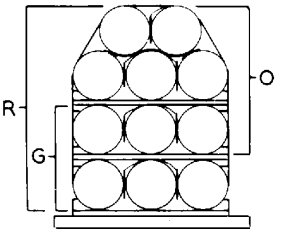
SKETCH NO 27

Sketch Omitted Intentionally

OUTSIDE DIAMETER (S)
NUMBER OF PIECES

G	H	J	K	L	M	N	O	P	Q	R

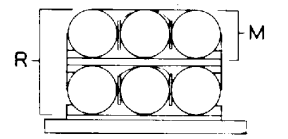
SKETCH NO 28



OUTSIDE DIAMETER (S) 16"–42"
NUMBER OF PIECES 11

G	H	J	K	L	M	N	O	P	Q	R
6							6			7

SKETCH NO 29



OUTSIDE DIAMETER (S) 16"–48"
NUMBER OF PIECES 6

G	H	J	K	L	M	N	O	P	Q	R
					9				9	

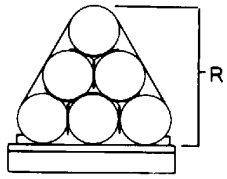
SKETCH NO. 30

IMPLEMENTED 10/2015

Fig. 280 (Rev. 10/15) (Concluded)
(New 10/73)

PIPE, STEEL, BARE, COATED, OR WRAPPED, 16 IN. TO 72 IN. O.D., 80 FT LONG, SINGLE PILE, DOUBLE-END OVERHANG—FLATCARS

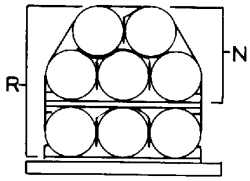
SEE NOTE 9



OUSIDE DIAMETER (S) 16"– 48"
NUMBER OF PIECES 6
NUMBER OF BANDS

G	H	J	K	L	M	N	O	P	Q	R
										14

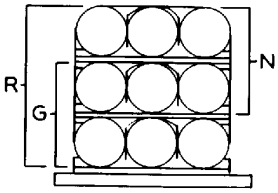
SKETCH NO. 31



OUTSIDE DIAMETER(S) 16"–48"
NUMBER OF PIECES 8
NUMBER OF BANDS

G	H	J	K	L	M	N	O	P	Q	R
						9				9

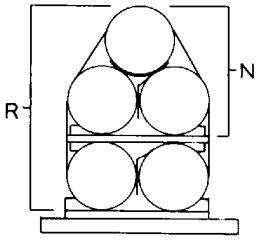
SKETCH NO. 32



OUTSIDE DIAMETER(S) 16"– 48"
NUMBER OF PIECES 9
NUMBER OF BANDS

G	H	J	K	L	M	N	O	P	Q	R
6						6				7

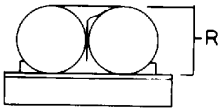
SKETCH NO. 33



OUTSIDE DIAMETER(S) 16"– 56"
NUMBER OF PIECES 5
NUMBER OF BANDS

G	H	J	K	L	M	N	O	P	Q	R
						9				9

SKETCH NO. 34

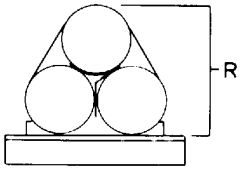


OUTSIDE DIAMETER(S) 16"– 72"
NUMBER OF PIECES 2
NUMBER OF BANDS

G	H	J	K	L	M	N	O	P	Q	R
										8

SKETCH NO. 35

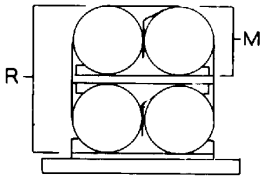
SEE NOTE 9



OUTSIDE DIAMETER(S) 16"– 72"
NUMBER OF PIECES 3
NUMBER OF BANDS

G	H	J	K	L	M	N	O	P	Q	R
										10

SKETCH NO. 36



OUTSIDE DIAMETER(S) 16"– 72"
NUMBER OF PIECES 4
NUMBER OF BANDS

G	H	J	K	L	M	N	O	P	Q	R
					9					9

SKETCH NO. 37

OUTSIDE DIAMETER(S)
NUMBER OF PIECES
NUMBER OF BANDS

G	H	J	K	L	M	N	O	P	Q	R

OUTSIDE DIAMETER(S)
NUMBER OF PIECES
NUMBER OF BANDS

G	H	J	K	L	M	N	O	P	Q	R

OUTSIDE DIAMETER(S)
NUMBER OF PIECES
NUMBER OF BANDS

G	H	J	K	L	M	N	O	P	Q	R

OUTSIDE DIAMETER(S)
NUMBER OF PIECES
NUMBER OF BANDS

G	H	J	K	L	M	N	O	P	Q	R

IMPLEMENTED 10/2015