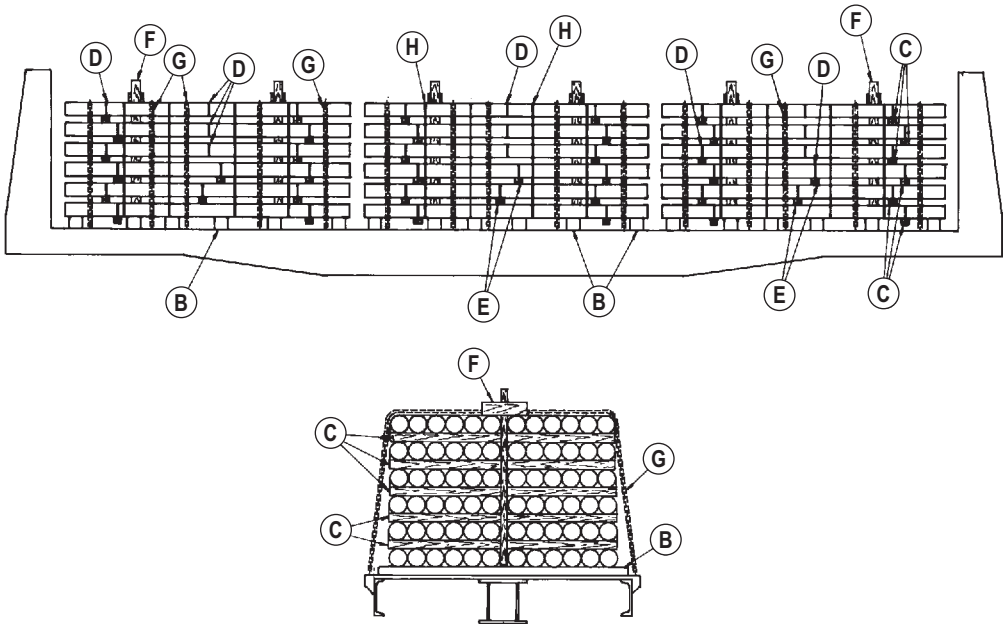
Fig. 43-P (New 09/94)

LOGS, ALUMINUM, 6 IN. TO 12 IN. O.D., 10 FT TO 20 FT LONG—BULKHEAD FLATCARS, WITH CHAIN TIE-DOWNS AND CUSHIONING DEVICES



Item	No. of Pcs.	Description
A		Vacant.
B	3 per pile 10 ft long., Add 1 for each additional 4 ft or less.	Bearing pieces: fabricated steel with wood bearing surface and tapered ends, permanently attached to car.
C	2 per each package.	Attached dunnage: hardwood, 3 1/2 in. × 3 1/2 in., length equal to width of package. Locate approximately 2 ft in from each end of package. Secure each with one Item D band.
D	3 per each package.	Package encircling band: 1 1/4 in. × .029 in. high tension band at each end of package around logs and Items C. Locate remaining band around logs in center of package.
E	1 between package 1 and 2 and between package 2 and 3.	Attached dunnage: hardwood, 3 1/2 in. × 3 1/2 in., length equal to width of package. Secure each with one Item D band.
F	2 per each side-by-side pile.	Vertical stabilizers: hardwood, 2 in. × 4 in., length to extend to bottom of package, but not below. Locate approximately one-fourth the distance from each end of pile. T-pieces, 2 in. × 4 in.× 16 in. Secure each piece with two 8-D nails.
G	3 per pile 10 ft long. Add 1 for each additional 4 ft or less.	Chains: 1/2 in. alloy, equipped with a device to maintain tension. Locate over top of load and secure to opposite side of car. Chains must be tight and free of kinks and tangles. When practical, all chains on car must be used.
H	4 per pile 16 ft long or less. Add 1 for piles over 16 ft.	Encircling bands: 1 1/4 in. × .029 in. high tension bands. Locate end bands approximately 2 ft in from each end of pile with others equally spaced between. Encircle all side-by-side piles binding them tight to Item F vertical stabilizers. Apply after Item G chains have been tensioned.

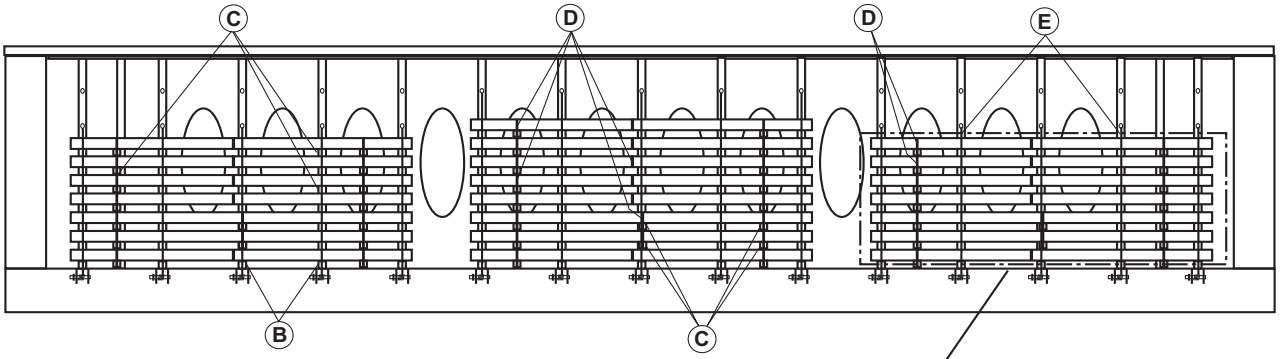
Notes and Additional Requirements:

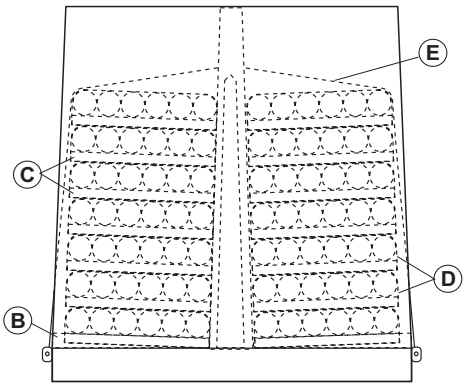
1. At origin, load must be equally distributed on car.
2. In this figure, a package is defined as all logs encircled by Item D bands.
3. All logs in a package must be of equal diameter.
4. Wider width packages must be located on bottom of load.
5. On bottom layer packages, attached dunnage is to be located as far as possible from bearing pieces.
6. Load must consist of two side-by-side piles.

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

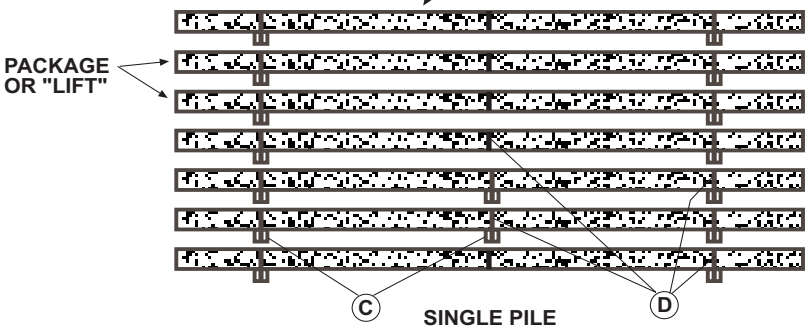
Fig. 43-R (Rev. 02/14)
(New 03/01)

LOGS OR INGOTS, ALUMINUM, 16 FT LONG AND OVER—CENTER A-FRAME FLATCARS, WITH CABLE TIE-DOWNS





END VIEW



SINGLE PILE
SKETCH 1

BRIDGING METHOD
SKETCH 2

Item	No. of Pcs.	Description
A		Vacant.
B	Minimum 4 per pile 16 ft long. Add 1 for each additional 4 ft of package length.	Bearing pieces: cars are to be equipped with permanent steel bearing pieces or floor risers positioned at a 90° angle to the A-frame and spaced nominally 48 in. on center.

IMPLEMENTED 02/2014

Fig. 43-R (Rev. 02/14) (Concluded)
(New 03/01)
LOGS OR INGOTS, ALUMINUM, 16 FT LONG AND OVER—CENTER A-FRAME FLATCARS, WITH CABLE TIE-DOWNS

Item	No. of Pcs.	Description
C	Minimum 3 per package 16 ft long for layers two and three. 2 per package in all other layers. Add 1 for each additional 4 ft or less of package length.	Separators: hardwood, minimum 3 1/2 in. × 3 1/2 in., height must not exceed width. Length to equal width of package. Secure each to layer with one Item D band. Locate end pieces 2 ft to 3 ft from end of package. Position additional separator, when required, near the center of the package and in line with the floor bearing piece when possible. When car is equipped with permanent bearing pieces, positioning of separators on bottom layer packages must be planned so as to avoid fouling the bearing pieces.
D	Minimum 3 per package 16 ft long. Add 1 for each additional 4 ft or less of package length.	Package bands: 1 1/4 in. × .029 in. high tension band. Locate one band at each end of the package, encircling logs, including Items C, with additional bands equally distributed between.
E	Minimum 4 per top package 16 ft long. Add 1 for each additional 4 ft of package length.	Cables: 3/8-in. diameter, 8,800-lb minimum breaking strength. Cable 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 3/4-in. ratchet. Cables are to be secured to A-frame in slot nearest to top package.
Alternate Item B—For cars not equipped with permanent bearing pieces		
Alt B	Minimum 5 per pile 16 ft long. Add 1 for each additional 4 ft of package length.	Bearing pieces: hardwood, minimum 3 1/2 in. × 3 1/2 in., length equal to width of package. Locate one approximately 2 ft from each end of package with others equally spaced between. Secure each with one Item D band. When Alt. B is used, the existing Items C on the bottom layer packages may be considered bearing pieces.

Notes and Additional Requirements:

1. Weight on either side of center beam needs to be as close to equal as possible. End piles should be as close to the bulkheads as is practical and remain in compliance with the positioning of Items B and C.
2. Load must be placed tight against the A-frame prior to tensioning Item E cables.
3. A package is defined as a single "lift" and is comprised of logs positioned side by side in the same layer.
4. All logs in the same package must be of the same diameter and must be 6 in. to 18 in. OD.
5. All packages in the same pile or layer must be of the same width.
6. Corner protectors attached to Item E cables are not to be used and must be positioned on the cable above the load.
7. A single piece of high-density, fiber-reinforced rubber, no thicker than 1/2 in. and at least the width of the bearing piece, may be used on each permanent bearing piece in contact with the lading.
8. Loads must be evenly distributed on the car and void, if any, kept to a minimum.
9. The packages of logs in second row (top) that bridge over bottom void must overlap piles in bottom layer by at least 50%. (e.g., a package 16 ft long can only bridge a void in the bottom row 8 ft long or less).
10. When a pile is lower than the bottom chain slot in the center partition, all log packages or ingots must be secured by two encircling high tension steel bands 2 in. × .044 or approved Type 1A Grade 7 non-metallic strapping. Banding must encircle piles on both sides of center partition. When items are more than 16 ft long, add one band for each additional 4 ft or less of package length.
11. All cables must be used.
12. Any load exceeding the width of the car deck must have a dimensional clearance from originating carrier prior to moving railcar.
13. Bearing pieces must extend from side sill to center sill.
14. Load weight distribution must be in accordance with AAR General Rule 3.4, indicating the percentage of deck length utilized versus correspondent permissible percentage of load limit for that length; see table below.

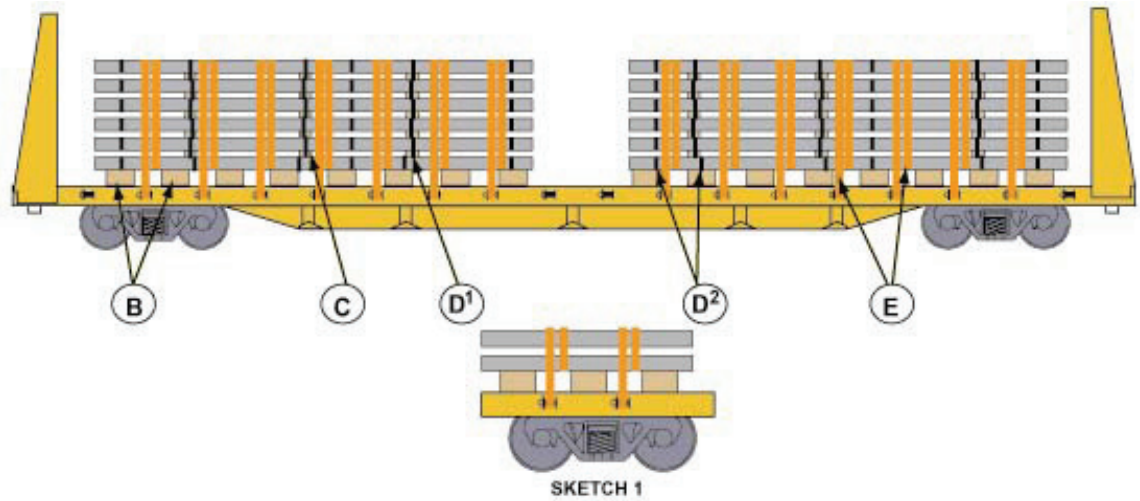
Allowable load limit on reduced deck length utilized			
Percentage of deck length utilized	100	75	50	25
Percentage of load limit permitted	100	75	50	25

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

IMPLEMENTED 02/2014

Fig. 43-S (New 05/10)

LOGS, EXTRUSION, ALUMINUM, 3 IN. TO 20 IN. O.D., 8 FT LONG AND OVER—BULKHEAD FLATCARS, WITH CUSHIONING DEVICES AND WEB TIE-DOWN SYSTEM



Item	No. of Pcs.	Description
A		Vacant.
B	As required.	Bearing pieces: hardwood, 8 in. × 8 in. length equal to width of the car. Space every 3 ft or 4 ft, stagger location with winches. Each bearing piece must be bolted or otherwise permanently secured to the car deck to prevent displacement.
C	2 per package 12 ft long or less. Add 1 for each additional 8 ft or less.	Attached separators: hardwood, 3 in. × 3 in. length sufficient to support all logs in a package but no wider than the package. Each separator must be attached with Item D1.
D1	1 per each Item C.	Attached separator package bands: 3/4 in. × .029 in. high tension steel band. One band to encircle each Item C and all logs in package.
D2	2 per each package12 ft or less. Add 1 for each additional 8 ft or less.	Package bands: 3/4 in. × .029 in. high tension steel band to encircle all logs in a package. Locate one band near each end; place the other(s) intermediately between attached separators.
E	As required per Note 4.	Web tie-down straps: polyester webbing, 4 in. wide, 20,000 lb minimum breaking strength (MBS). Pass strapping over all logs in a pile. Pass under load and back across the top of the load and secure to the winch on each side of car. Tension straps from both sides of car using a 30 in. to 40 in. winch bar or equivalent.

Notes and Additional Requirements:

1. At origin, load must be equally distributed on car.
2. Load can consist of two or more piles.
3. Pile height may not exceed 125% of its width.
4. The weight of a pile must not exceed 75% of the combined rated MBS of all the Item E straps restraining that pile.
   Example: Five Item E straps each with a 20,000 lb MBS have a combined restraint rated at 100,000 lb. The total weight of all ingots in that pile must not exceed 75% of the combined rated restraint of the five straps, which is 75,000 lb in this case.
5. All packages must be comprised of a single layer of logs. Nesting is not permitted. All logs in a layer must be of equal diameter and length.
6. All layers in the pile must be of equal width; except for the top layer in each pile, which can be narrower by no more than one log.
7. To avoid contact between Items C attached separators and Items B bearing pieces in the event of longitudinal shift, Item C may be omitted in the bottom layers. When Item C is not applied to the bottom layer packages, each Item C omitted must be replaced by an Item D2 package band.
8. To the extent possible, Item B should be located between ratchets on each side of car to prevent premature web wear (see Sketch 1).

Reference General Rules 1, 3, 10, 11, 17, and 20 in Section No. 1 of the Open Top Loading Rules Manual for additional details.