Railway Association of Canada

WIRE ROPE/CABLE:

Corresponding AAR Open Top Loading Rule 22

Where wire rope/cable is specified under detailed figures, the ends must be overlapped a minimum of 12 inches and must be secured with the number of "U" bolt cable clips as shown in the tables.

The wire rope/cable must be protected at all sharp corners and/or sharp edges. Where thimbles are used to prevent sharp turns and protect wire rope/cable from sharp edges, they must be secured with a "U" bolt cable clip. Tighten wire rope/cable with turnbuckle or suitable tensioning device or twist taut with rod, bolt or pipe and secure to prevent unwinding.

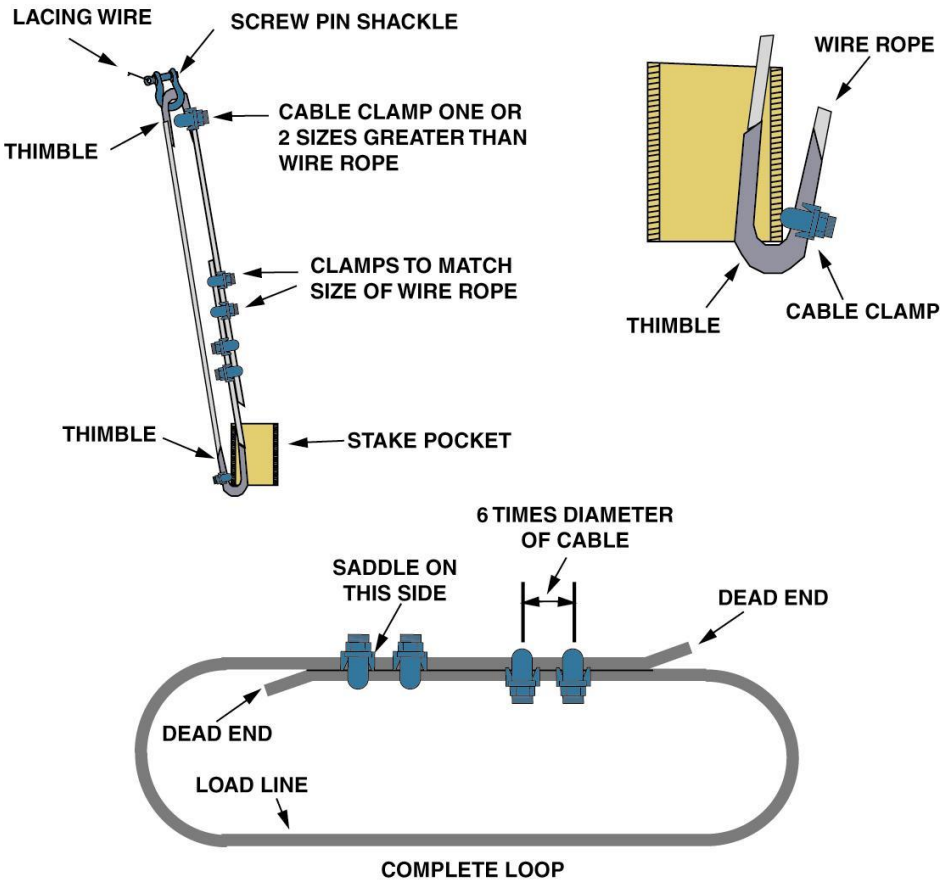
Wire rope/cable, when used, should be located so that they are not in contact with each other. When cables do contact each other, suitable means to prevent chafing or wear of these items must be provided.

Band and/or wire protectors sufficient to provide a suitable radius must be used to protect bands and wires at stake pockets, slotted holes in car sides and at all points having sharp edges on either equipment or lading. Protectors must be applied so as to prevent dislodgement. High-tension bands, when used as protectors, must be secured to tie bands by sealing.

WIRE ROPE /CABLE			
Plow Steel (6X7) Hemp Centre			
Diameter (in.)	Minimum Strength (lb)	Minimum Joint Strength (lb)	Minimum Number Clips or Clamps
3/8	8,800	7,400	2
1/2	15,500	13,100	3
5/8	24,100	20,400	3
3/4	34,400	29,200	4
7/8	46,400	39,400	4
1	60,000	51,000	4
Plow Steel (6X19) Hemp Centre			
3/8	9,200	7,800	2
1/2	16,200	13,800	3
5/8	25,200	21,400	3
3/4	36,000	30,600	4
7/8	48,700	41,400	4
1	63,000	53,800	4

Note (a). Values shown under “Minimum Breaking Strength” in the above tables are based on 87% of the breaking strength of the wire rope and/or cable as supplied by the manufacturers. The minimum numbers of clips and/or clamps shown are based on manufacturer’s recommendations.

Note (b). Cable, 3/8-in. diameter (6X19), may be substituted by 5/16-in galvanized aircraft cable (7X19) strand, using tools designed for securing cable with the following approved aluminium connector using a minimum of two mechanical machined broad crimps; or one 3-in. open sided aluminium connector using a minimum of four mechanical machined crimps



Band protectors made of formed treated hardboard and/or composition material must not be used under load securement bands and/or unitising bands on loads of steel sheets or plates. Metal protectors only are acceptable for this purpose.

Where reference is made to "Protection angles, 20 gauge, 4 inches wide applied so as to prevent displacement" in the specifications of any figure in Section No. 2 of the AAR Loading Manuals, the use of manufactured edge protectors giving equivalent band protection is permissible except for circumstances described in General Rule 18.4, Section 1 of the AAR Loading Manuals, which states “Unless otherwise specified, only metal edge protectors are to be used under load securement bands and /or unitising bands on loads of steel products”.

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Description of components in a wire rope

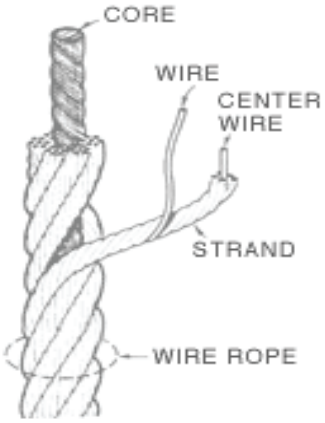
Wire rope components

1- Any cable with more than 13 wires broken at any one location or with one broken strand.

2- Cable with flattened cross-section or a kink greater than 60°

3- Cable whose size is reduced by 1/64 in. (0.4 mm) per each 1/4 in. (8 mm) diameter of cable (e.g., a 1 in. cable worn down more than 1/16 in.)

4- Cable with clamp bolts that cannot be tightened (the clamp bolts must be replaced in kind.



Damaged cable

Note: Every wire rope has three basic components:

1. The wires that form the strands and collectively provide rope strength.
2. The strands, which are helically around the core
3. The core, which forms a foundation for the strands