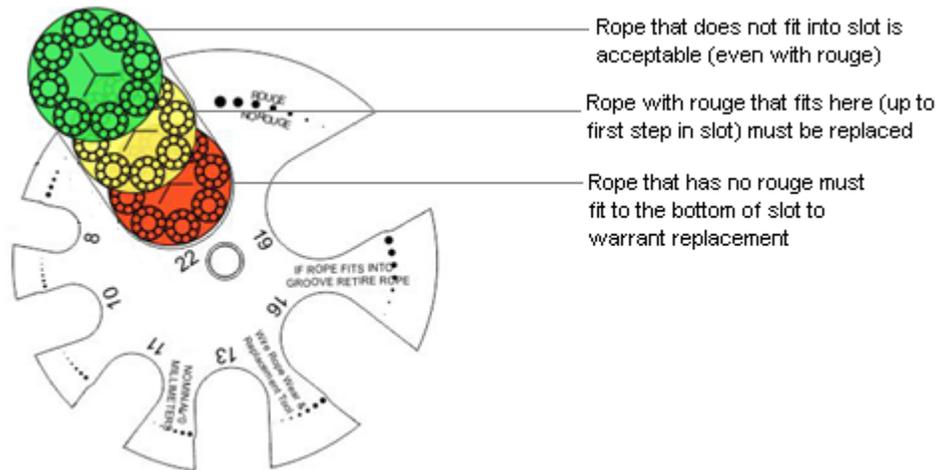


Steel Rope Replacement Criteria - Suspension, Governor, and Compensation Ropes (ASME A17.6-2010 Section 1.10)

A) Rope Replacement Criteria Due to Loss of Diameter (See Section 1.10.3)

1. Two measurements at the same location at right angles shall be taken. The ropes shall be replaced if both of these measurements are below the replacement value.
2. If only one of the measurements is below the replacement value, then the criteria for wire breaks under "Unfavorable Wear Conditions" shall apply. (See Table 1.10.1.2-1)



B) Rope Replacement Criteria Due to Wire Breaks (See Section 1.10.1.2)

Criteria for replacement to include at least one of the following (See Table 1.10.1.2-1):

1. If the broken crown wires are **equally distributed** among the strands, when the number of broken wires per rope lay in the worst section of rope exceeds the values shown in the "Normal Wear Conditions." (See 1.10.1.2 (a));
2. If the distribution of breaks is **unequal** and **broken crown wires predominate in one or two strands**, when the number of broken wires per rope lay in the worst section of rope or the minimum diameter exceeds the values shown in the "Normal Wear Conditions" (See 1.10.1.2 (b)).
3. If **four wires, side by side, are broken across the crown of any strand**, when the number of broken wires per rope lay in the worst section of rope exceeds the values shown in the "Normal Wear Conditions" (See 1.10.1.2 (c));
4. If an **unfavorable condition exists**, such as but not limited to corrosion due to external conditions, excessive wear of individual wires in the strands, unequal tension, poor sheave grooves; the criteria for broken crown wires shall be the values indicated in the "Unfavorable Wear Conditions," column of Table 1.10.1.2-1 for any of the conditions described above. (See 1.10.1.2 (d));
5. If **red dust or rouge exists**, the criteria for broken wires shall be the values indicated in the "Rope Showing Rouge," column of Table 1.10.1.2-1 for any of the conditions described above. (See 1.10.1.2 (e));
6. Valley Breaks - **More than one valley break per rope lay** (See 1.10.1.2 (f)); or
7. Valley Breaks - **Any valley breaks at any location where rouge exists** (See 1.10.1.2 (g)).

Table 1.10.1.2-1 Wire Breaks: Crown Wire Breaks Per Lay Length

	Normal Wear Conditions		Unfavorable Wear Conditions		Ropes Showing Rouge	
	6 Strand	8/9 Strand	6 Strand	8/9 Strand	6 Strand	8/9 Strand
Distributed Breaks (max.)	24	32	12	16	12	16
Unequal Breaks (max.)	8	10	4	5	4	5
4 Side-by-Side Breaks	12	16	6	8	6	8

C) Winding Drum Machines – Suspension Rope Replacement Criteria Due to Wire Breaks

Table 1.10.1.2-1 does not apply to suspension ropes on winding drum machines. Suspension ropes shall be replaced on winding drum machines if any of the following conditions are noted (See Section 1.10.2):

1. Number of broken crown wires per rope lay that are **equally distributed among strands** in worst section of rope **must exceed 12** (See Section 1.10.2(a));
2. Number of broken crown wires per rope lay that **predominate in only one or two strands** in worst section of rope **must exceed 6** (See Section 1.10.2(b));;
3. Valley breaks - **More than one valley break per rope lay** (See Section 1.10.2(c)); or
4. Valley Breaks - **Any valley breaks at any location where rouge exists** (See 1.10.1.2 (d)).

D) Additional Rope Replacement Criteria

1. Traction machine steel suspension ropes **less than 8 mm showing rouge must be replaced** (See 1.10.1.2.2), even if there is no diameter loss or breaks. This does not apply to governor ropes or compensation ropes.
2. Suspension, compensation and governor steel rope(s) shall be replaced if permanently kinked, bent, or deformed in any way (See 1.10.1.1(a).)
3. There is no 9.5 mm slot on the metric gauge. The 3/8" imperial gauge slot should be used for the measurement of 9.5 mm ropes.
4. Governor ropes shall not be lubricated after installation. If lubricants have been applied to governor ropes, they shall be replaced, or the lubricant removed, and the governor and safety shall be tested. (A17.1/B44 8.6.4.2.2)