BELL SYSTEM PRACTICES
Outside Plant Construction and Maintenance

SECTION G51.305.1
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AT&TCo Standard

INSPECTION OF CORRODED STRAND

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1. GENERAL

1.01 This section describes a procedure to be followed in making inspections and measuring the diameter of corroded strand for the purpose of determining its remaining strength. Section G51.305 is replaced.

1.02 When making strand inspections any unsatisfactory conditions associated with the cable, such as ring cuts, tree contacts, etc., should be repaired, or noted and reported.

2. INSPECTION OF STRAND

2.01 Before working on strand to be inspected for corrosion, it should be given a mechanical test as outlined in the section covering the testing of suspension strand.

2.02 Measure the diameter of the strand at a sufficient number of locations to determine the condition of the entire length of strand being examined. Measurements should be made particularly at railroad crossings, where the strand is exposed to corrosive fumes from industrial and chemical plants, where the strand has been enclosed by tree guards, wire ties, etc., and at any other locations where it is evident that severe corrosive conditions exist.

2.03 Measure the diameter of the strand accurately by means of a dial gauge micrometer in accordance with the following:

(1) Clean outside wires of corroded strand carefully with emery cloth or by filing with a flat file. The surfaces on which the contact edges of the dial micrometer rest should be substantially clean, bright steel. Corrosion products ex-

tending over a considerable area should be removed. It is not essential to remove corrosion products from all small distributed pits where such removal would necessitate substantial diameter reduction and where the pits are so small that their effect on cross-sectional areas may be disregarded. No attempt should be made to remove corrosion products that lie between adjacent wires.

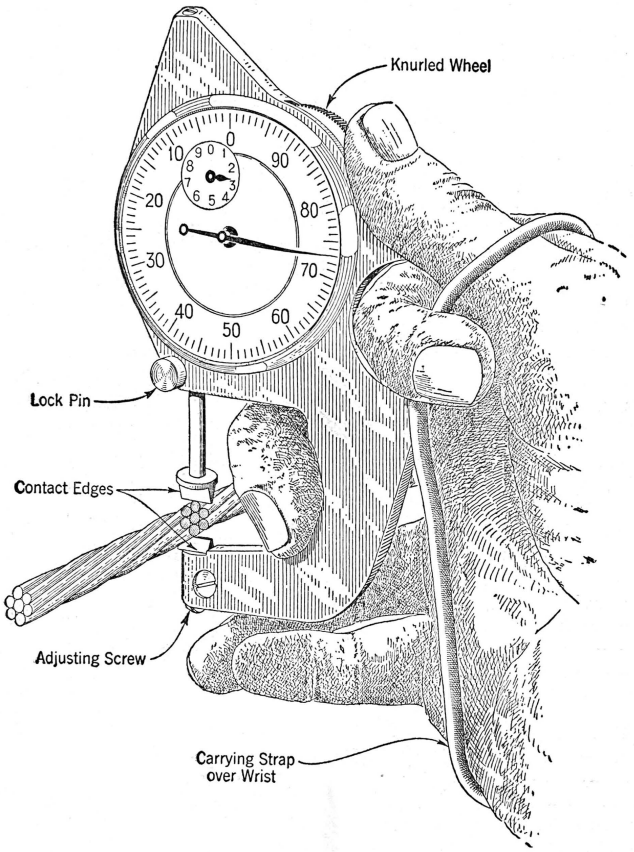
(2) Place the contact edges of the micrometer on diametrically opposite wires of the strand. Turn the micrometer around on the strand so as to determine the minimum reading with the micrometer resting on diametrically opposite wires as shown below. In all cases the strand should be rated on the smallest dimension found at any test location.

(3) The contact edges are opened by operating the Knurled Wheel. Pressing the Lock Pin on the side illustrated locks the indicator. Pressing on the opposite side releases the indicator. The micrometer reads in thousandths of an inch. A complete revolution of the large hand indicates one-tenth of an inch. The number of revolutions of the large hand is indicated by the small hand. In the position shown the diameter reading is .273 inch.

(4) After taking the measurement paint the cleaned section of the strand with a metal paint that is suitable for outdoor exposures.

(5) Measure the strand tension by means of a strand dynamometer in the usual manner. Place the dynamometer on uncleaned portions of the strand.

DIAL MICROMETER



2.04 If the minimum strand diameter is equal to or less than the values indicated in the following table for the measured strand tension, the strand should be reported as requiring **immediate replacement.**

REDUCED DIAMETER OF STRAND AT WHICH REPLACEMENT SHOULD BE CONSIDERED FOR SPANS AVERAGING 150 FT. OR LESS*

Strand Tension with cable in place Pounds	Minimum Diameter at Replacement (inches)		
	6M	10M	16M
500	.240		
750	.240		
1000	.256		
1250	.263		
1500	.270		
1750	.277		
2000	.284	.256	
2250	.291	.256	
2500	.301	.256	
2750	.308	.256	
3000	.314	.261	
3250	.320	.268	
3500	.325	.273	
3750		.277	
4000		.281	
4250		.287	.292
4500		.291	.292
4750		.295	.292
5000		.300	.296
5250		.304	.300
5500		.307	.304
5750		.312	.308
6000		.315	.312
6250		.321	.316
6500		.326	.320
6750		.329	.323
7000		.335	.327
7250		.340	.333
7500		.345	.336
7750			.340
8000			.343
8500			.352
9000			.359
9500			.366
10000			.373
10500			.381
11000			.387
11500			.395
12000			.402

***Note:** For spans averaging over 150 ft. in length add .015 inch to the diameters indicated in the table.

2.05 Where the diameter measurements are greater than those shown in the table, they also should be reported for consideration in future inspection scheduling and cable relief engineering.

3. MAINTENANCE AND REPAIR

3.01 Conditions found during the inspection which may necessitate repairs include:

(a) Shifted protecting guards.

(b) Loosened suspension clamps, grade clamps, cable lashing clamps, ground clamps, etc.

(c) Shifted or corroded cable rings.

(d) Loose or broken lashing wire.

(e) Loose or shifted aerial or lashed cable supports or broken wire ties.

(f) Broken wire in the strand.

3.02 Where corrosion of the strand is not serious, but one broken wire is found, the strand should be spliced with a strandlink or reinforced by placing a piece of strand of the same size across the broken portion. This piece of strand should be of sufficient length to permit placing one guy clamp each side of the break for 6,000 and 10,000 pound strands and two clamps each side for 16,000 pound strand. Where two wires or more are broken at one cross-section and the general condition of the strand is such that it is to be continued in service, the broken section should be spliced with a strandlink or removed by cutting in a new piece of strand at that point.