

POLE LINES
MINIMUM CIRCUMFERENCES AT CRITICAL SECTION
8000 POUND FIBER STRENGTH
ALL STORM LOADING AREAS
ALL POLE LENGTHS

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1. GENERAL

1.01 This section describes the use of the tables of minimum circumferences at the critical section for the several classes of lines for poles having an assigned fiber stress of 8000 psi.

1.02 The classes of pole lines are explained in Part 3 of 621-215-011. The Plant Engineer will furnish the class of the pole line being inspected. The fiber strength of commonly used poles is given in Part 5 of 621-215-011. The Plant Engineer will furnish the fiber strength of poles whose wood is not listed.

2. MINIMUM CIRCUMFERENCES

2.01 The dimensions shown in each table are minimum circumferences of sound wood at the critical section. (See Section 621-215-015.)

Any pole failing to meet the dimensions shown should normally be considered inadequate.

2.02 There are six tables, one for each class of line, with the exception that Table A covers both Class AA and Class JB lines. In calculating the minimum circumferences listed in the tables, the maximum percentage of fiber stress, which may be allowed before replacement is desirable was taken into account.

2.03 The tables show the required minimum circumferences in inches for bending moments ranging from 10 to 600 foot pounds per foot of span length, resulting from transverse storm loading on the attachments on a pole and aboveground portion of the pole itself. Minimum circumferences are given for spans of 100 to 600 feet in length.

2.04 The method for determining moments at the groundline per foot of span length is described in Section 621-215-011. Since storm loading is taken into account when computing groundline moments, the tables apply to all storm loading areas. Also, since the minimum circumferences are based on moments at the critical section, they apply to poles of all lengths.

2.05 For poles having such defects as hollow heart or decay pockets, actual measured circumferences of sound wood at groundline should be corrected as described in Section 621-215-015.

2.06 When referring to the tables, the attachment load should be taken as that existing at the time of inspection, together with any expected increase before the next inspection.

2.07 To determine which poles require attention, compare the corrected circumference measurements with the appropriate minimum circumferences shown in the tables, making due allowance for probable decay before the next inspection.

3. TABLES OF MINIMUM CIRCUMFERENCES AT CRITICAL SECTIONS

3.01 Tables A through F list the minimum circumferences at the critical sections for the fiber stress and various classes of lines.

TABLE A — 8000 POUND FIBER STRESS FOR CLASS AA AND CLASS JB LINES											
MOMENT AT CRITICAL SECTION PER FOOT OF SPAN LENGTH (LBS FT)	SPAN LENGTH (FEET)										
	100	150	200	250	300	350	400	450	500	550	600
	MINIMUM CIRCUMFERENCE AT CRITICAL SECTION (INCHES)										
10	13.0	14.0	15.0	16.0	17.0	17.0	18.5	18.5	19.5	19.5	20.5
20	15.0	16.0	18.5	19.5	20.5	21.5	22.5	23.5	23.5	25.0	26.0
30	16.0	18.5	20.5	21.5	22.5	23.5	26.0	26.0	27.0	28.0	29.0
40	18.5	20.5	22.5	23.5	26.0	27.0	28.0	29.0	30.0	31.0	32.5
50	19.5	21.5	23.5	26.0	27.0	29.0	30.0	31.0	32.5	33.5	34.5
60	20.5	22.5	26.0	27.0	29.0	30.0	31.0	33.5	34.5	35.5	36.5
70	21.5	23.5	27.0	29.0	30.0	32.5	33.5	34.5	35.5	36.5	37.5
80	22.5	25.0	28.0	30.0	32.5	33.5	34.5	36.5	37.5	39.0	40.0
90	23.5	26.0	29.0	31.0	33.5	34.5	36.5	37.5	39.0	40.0	42.0
100	25.0	27.0	30.0	32.5	34.5	35.5	37.5	39.0	40.0	42.0	43.0
125	26.0	29.0	32.5	34.5	36.5	39.0	41.0	42.0	43.0	45.0	46.5
150	27.0	31.0	34.5	36.5	39.0	41.0	43.0	44.0	46.5	47.5	48.5
175	29.0	32.5	35.5	39.0	41.0	43.0	45.0	47.5	48.5	50.5	51.5
200	30.0	34.5	37.5	41.0	43.0	45.0	47.5	48.5	50.5	52.5	54.0
225	31.0	35.5	39.0	42.0	44.0	47.5	49.5	50.5	52.5	55.0	56.0
250	32.5	36.5	40.0	43.0	46.5	48.5	50.5	52.5	55.0	56.0	58.0
275	33.5	37.5	42.0	45.0	47.5	50.5	52.5	55.0	56.0	58.0	59.0
300	34.5	39.0	43.0	46.5	48.5	51.5	54.0	56.0	58.0	59.0	61.5
325	35.5	40.0	44.0	47.5	50.5	52.5	55.0	57.0	59.0	61.5	63.5
350	36.5	41.0	45.0	48.5	51.5	54.0	57.0	59.0	61.5	62.5	
375	36.5	42.0	46.5	49.5	52.5	55.0	58.0	60.5	62.5		
400	37.5	43.0	47.5	50.5	54.0	57.0	59.0	61.5	63.5		
425	39.0	44.0	48.5	51.5	55.0	58.0	60.5	62.5			
450	39.0	44.0	48.5	52.5	56.0	59.0	61.5	63.5			
475	40.0	45.0	49.5	54.0	57.0	60.5	62.5				
500	40.0	46.5	50.5	55.0	58.0	61.5	63.5				
525	41.0	47.5	51.5	56.0	59.0	61.5					
550	42.0	47.5	52.5	56.0	59.0	62.5					
575	42.0	48.5	52.5	57.0	60.5	63.5					
600	43.0	49.5	54.0	58.0	61.5						

TABLE B — 8000 POUND STRESS FOR CLASS A LINES											
MOMENT AT CRITICAL SECTION PER FOOT OF SPAN LENGTH (LBS FT)	SPAN LENGTH (FEET)										
	100	150	200	250	300	350	400	450	500	550	600
	MINIMUM CIRCUMFERENCE AT CRITICAL SECTION (INCHES)										
10	11.0	12.0	13.0	14.0	15.0	15.0	15.5	15.5	16.5	16.5	17.5
20	13.0	14.0	15.5	16.5	17.5	18.5	19.5	20.5	20.5	21.5	22.0
30	14.0	15.5	17.5	18.5	19.5	20.5	22.0	22.0	23.0	24.0	25.0
40	15.5	17.5	19.5	20.5	22.0	23.0	24.0	25.0	26.0	27.0	27.5
50	16.5	18.5	20.5	22.0	23.0	25.0	26.0	27.0	27.5	28.5	29.5
60	17.5	19.5	22.0	23.0	25.0	26.0	27.0	28.5	29.5	30.5	31.5
70	18.5	20.5	23.0	25.0	26.0	27.5	28.5	29.5	30.5	31.5	32.5
80	19.5	21.5	24.0	26.0	27.5	28.5	29.5	31.5	32.5	33.5	34.0
90	20.5	22.0	25.0	27.0	28.5	29.5	31.5	32.5	33.5	34.0	36.0
100	21.5	23.0	26.0	27.5	29.5	30.5	32.5	33.5	34.0	36.0	37.0
125	22.0	25.0	27.5	29.5	31.5	33.5	35.0	36.0	37.0	39.0	39.5
150	23.0	27.0	29.5	31.5	33.5	35.0	37.0	38.0	39.5	40.5	41.5
175	25.0	27.5	30.5	33.5	35.0	37.0	39.0	40.5	41.5	43.5	44.5
200	26.0	29.5	32.5	35.0	37.0	39.0	40.5	41.5	43.5	45.5	46.0
225	27.0	30.5	33.5	36.0	38.0	40.5	42.5	43.5	45.5	47.5	48.0
250	27.5	31.5	34.0	37.0	39.5	41.5	43.5	45.5	47.0	48.0	50.0
275	28.5	32.5	36.0	39.0	40.5	43.5	45.5	47.0	48.0	50.0	51.0
300	29.5	33.5	37.0	39.5	41.5	44.5	46.0	48.0	50.0	51.0	52.5
325	30.5	34.0	38.0	40.5	43.5	45.5	47.0	49.0	51.0	52.5	54.5
350	31.5	35.0	39.0	41.5	44.5	46.0	49.0	51.0	52.5	53.5	55.5
375	31.5	36.0	39.5	42.5	45.5	47.0	50.0	52.0	53.5	55.5	56.5
400	32.5	37.0	40.5	43.5	46.0	49.0	51.0	52.5	54.5	56.5	58.0
425	33.5	38.0	41.5	44.5	47.0	50.0	52.0	53.5	55.5	57.5	59.0
450	33.5	38.0	41.5	45.5	48.0	51.0	52.5	54.5	56.5	58.0	60.0
475	34.0	39.0	42.5	46.0	49.0	52.0	53.5	55.5	57.5	59.0	61.0
500	34.0	39.5	43.5	47.0	50.0	52.5	54.5	56.5	58.0	60.0	62.0
525	35.0	40.5	44.5	48.0	51.0	52.5	55.5	57.5	59.0	61.0	63.0
550	36.0	40.5	45.5	48.0	51.0	53.5	56.5	58.0	60.0	62.0	
575	36.0	41.5	45.5	49.0	52.0	54.5	57.5	59.0	61.0	63.0	
600	37.0	42.5	46.0	50.0	52.5	55.5	58.0	60.0	62.0		

TABLE C — 8000 POUND FIBER STRESS FOR CLASS B LINES

MOMENT AT CRITICAL SECTION PER FOOT OF SPAN LENGTH (LBS FT)	SPAN LENGTH (FEET)										
	100	150	200	250	300	350	400	450	500	550	600
	MINIMUM CIRCUMFERENCE AT CRITICAL SECTION (INCHES)										
10	9.5	10.5	11.5	12.0	13.0	13.0	13.5	13.5	14.5	14.5	15.5
20	11.5	12.0	13.5	14.5	15.5	16.0	17.0	18.0	18.0	18.5	19.5
30	12.0	13.5	15.5	16.0	17.0	18.0	19.5	19.5	20.0	21.0	22.0
40	13.5	15.5	17.0	18.0	19.5	20.0	21.0	22.0	22.5	23.5	24.0
50	14.5	16.0	18.0	19.5	20.0	22.0	22.5	23.5	24.0	25.0	26.0
60	15.5	17.0	19.5	20.0	22.0	22.5	23.5	25.0	26.0	26.5	27.5
70	16.0	18.0	20.0	22.0	22.5	24.0	25.0	26.0	26.5	27.5	28.5
80	17.0	18.5	21.0	22.5	24.0	25.0	26.0	27.5	28.5	29.0	30.0
90	18.0	19.5	22.0	23.5	25.0	26.0	27.5	28.5	29.0	30.0	31.5
100	18.5	20.0	22.5	24.0	26.0	26.5	28.5	29.0	30.0	31.5	32.5
125	19.5	22.0	24.0	26.0	27.5	29.0	30.5	31.5	32.5	34.0	34.5
150	20.0	23.5	26.0	27.5	29.0	30.5	32.5	33.0	34.5	35.5	36.5
175	22.0	24.0	26.5	29.0	30.5	32.5	34.0	35.5	36.5	38.0	39.0
200	22.5	26.0	28.5	30.5	32.5	34.0	35.5	36.5	38.0	39.5	40.5
225	23.5	26.5	29.0	31.5	33.0	35.5	37.0	38.0	39.5	41.0	42.0
250	24.0	27.5	30.0	32.5	34.5	36.5	38.0	39.5	41.0	42.0	43.5
275	25.0	28.5	31.5	34.0	35.5	38.0	39.5	41.0	42.0	43.5	44.5
300	26.0	29.0	32.5	34.5	36.5	39.0	40.5	42.0	43.5	44.5	46.0
325	26.5	30.5	33.0	35.5	38.0	39.5	41.0	43.0	44.5	46.0	47.5
350	27.5	30.5	34.0	36.5	39.0	40.5	43.0	44.5	46.0	47.0	48.5
375	27.5	31.5	34.5	37.0	39.5	41.0	43.5	45.0	47.0	48.5	49.5
400	28.5	32.5	35.5	38.0	40.5	43.0	44.5	46.0	47.5	49.5	51.0
425	29.0	33.0	36.5	39.0	41.0	43.5	45.0	47.0	48.5	50.0	51.5
450	29.0	33.0	36.5	39.5	42.0	44.5	46.0	47.5	49.5	51.0	52.5
475	30.0	34.0	37.0	40.5	43.0	45.0	47.0	48.5	50.0	51.5	53.5
500	30.0	34.5	38.0	41.0	43.5	46.0	47.5	49.5	51.0	52.5	54.0
525	30.5	35.5	39.0	42.0	44.5	46.0	48.5	50.0	51.5	53.5	55.0
550	31.5	35.5	39.5	42.0	44.5	47.0	49.5	51.0	52.5	54.0	55.5
575	31.5	36.5	39.5	43.0	45.0	47.5	50.0	51.5	53.5	55.0	56.5
600	32.5	37.0	40.5	43.5	46.0	48.5	51.0	52.5	54.0	55.5	58.0

TABLE D — 8000 POUND FIBER STRESS FOR CLASS C LINES											
MOMENT AT CRITICAL SECTION PER FOOT OF SPAN LENGTH (LBS FT)	SPAN LENGTH (FEET)										
	100	150	200	250	300	350	400	450	500	550	600
	MINIMUM CIRCUMFERENCE AT CRITICAL SECTION (INCHES)										
10	9.0	10.0	10.5	11.5	12.5	12.5	13.0	13.0	14.0	14.0	14.5
20	10.5	11.5	13.0	14.0	14.5	15.5	16.0	17.0	17.0	17.5	18.5
30	11.5	13.0	14.5	15.5	16.0	17.0	18.5	18.5	19.0	20.0	20.5
40	13.0	14.5	16.0	17.0	18.5	19.0	20.5	20.5	21.5	22.0	23.0
50	14.0	15.5	17.0	18.5	19.0	20.5	21.5	22.0	23.0	24.0	24.5
60	14.5	16.0	18.5	19.0	20.5	21.5	22.0	24.0	24.5	25.5	26.0
70	15.5	17.0	19.0	20.5	21.5	23.0	24.0	24.5	25.5	26.0	27.0
80	16.0	17.5	20.0	21.5	23.0	24.0	24.5	26.0	27.0	27.5	28.5
90	17.0	18.5	20.5	22.0	24.0	24.5	26.0	27.0	27.5	28.5	30.0
100	17.5	19.0	21.5	23.0	24.5	25.5	27.0	27.5	28.5	30.0	30.5
125	18.5	20.5	23.0	24.5	26.0	27.5	29.0	30.0	30.5	32.0	33.0
150	19.0	22.0	24.5	26.0	27.5	29.0	30.5	31.5	33.0	33.5	34.5
175	20.5	23.0	25.5	27.5	29.0	30.5	32.0	33.5	34.5	36.0	37.0
200	21.5	24.5	27.0	29.0	30.5	32.0	33.5	34.5	36.0	37.5	38.5
225	22.0	25.5	27.5	30.0	31.5	33.5	35.5	36.0	37.5	39.0	40.0
250	23.0	26.0	28.5	30.5	33.0	34.5	36.0	37.5	39.0	40.0	41.5
275	24.0	27.0	30.0	32.0	33.5	36.0	37.5	39.0	40.0	41.5	42.0
300	24.5	27.5	30.5	33.0	34.5	37.0	38.5	40.5	41.5	42.0	43.5
325	25.5	28.5	31.5	33.5	36.0	37.5	39.0	40.5	42.0	43.5	45.0
350	26.0	29.0	32.0	34.5	37.0	38.5	40.5	42.0	43.5	44.5	46.0
375	26.0	30.0	33.0	35.5	37.5	39.0	41.5	43.0	44.5	46.0	47.0
400	27.0	30.5	33.5	36.0	38.5	40.5	42.0	43.5	45.0	47.0	48.5
425	27.5	31.5	34.5	37.0	39.0	41.5	43.0	44.5	46.0	47.5	49.0
450	27.5	31.5	34.5	37.5	40.0	42.0	43.5	45.0	47.0	48.5	50.0
475	28.5	32.0	35.5	38.5	40.5	43.0	44.5	46.0	47.5	49.0	50.5
500	28.5	33.0	36.0	39.0	41.5	43.5	45.0	47.0	48.5	50.0	51.5
525	29.0	33.5	37.0	40.0	42.0	43.5	46.0	47.5	49.0	50.5	52.0
550	30.0	33.5	37.5	40.0	42.0	44.5	47.0	48.5	50.0	51.5	53.0
575	30.0	34.5	37.5	40.5	43.0	45.0	47.5	49.0	50.5	52.0	53.5
600	30.5	35.5	38.5	41.5	43.5	46.0	48.5	50.0	51.5	53.0	55.0

TABLE E — 8000 POUND FIBER STRESS FOR CLASS R LINES

MOMENT AT CRITICAL SECTION PER FOOT OF SPAN LENGTH (LBS FT)	SPAN LENGTH (FEET)										
	100	150	200	250	300	350	400	450	500	550	600
	MINIMUM CIRCUMFERENCE AT CRITICAL SECTION (INCHES)										
10	9.0	9.5	10.5	11.0	11.5	11.5	12.5	12.5	13.0	13.0	14.0
20	10.5	11.0	12.5	13.0	14.0	14.5	15.5	16.0	16.0	17.0	17.5
30	11.0	12.5	14.0	14.5	15.5	16.0	17.5	17.5	18.5	19.0	20.0
40	12.5	14.0	15.5	16.0	17.5	18.5	19.0	20.0	20.5	21.5	22.0
50	13.0	14.5	16.0	17.5	18.5	20.0	20.5	21.5	22.0	22.5	23.5
60	14.0	15.5	17.5	18.5	20.0	20.5	21.5	22.5	23.5	24.0	25.0
70	14.5	16.0	18.5	20.0	20.5	22.0	22.5	23.5	24.0	25.0	25.5
80	15.5	17.0	19.0	20.5	22.0	22.5	23.5	25.0	25.5	26.5	27.0
90	16.0	17.5	20.0	21.5	22.5	23.5	25.0	25.5	26.5	27.0	28.5
100	17.0	18.5	20.5	22.0	23.5	24.0	25.5	26.5	27.0	28.5	29.5
125	17.5	20.0	22.0	23.5	25.0	26.5	28.0	28.5	29.5	31.0	31.5
150	18.5	21.5	23.5	25.0	26.5	28.0	29.5	30.0	31.5	32.5	33.0
175	20.0	22.0	24.0	26.5	28.0	29.5	31.0	32.5	33.0	34.5	35.0
200	20.5	23.5	25.5	28.0	29.5	31.0	32.5	33.0	34.5	36.0	36.5
225	21.5	24.0	26.5	28.5	30.0	32.5	33.5	34.5	36.0	37.5	38.0
250	22.0	25.0	27.0	29.5	31.5	33.0	34.5	36.0	37.5	38.0	39.5
275	22.5	25.5	28.5	31.0	32.5	34.5	36.0	37.5	38.0	39.5	40.5
300	23.5	26.5	29.5	31.5	33.0	35.0	36.5	38.0	39.5	40.5	42.0
325	24.0	27.0	30.0	32.5	34.5	36.0	37.5	39.0	40.5	42.0	43.5
350	25.0	28.0	31.0	33.0	35.0	36.5	39.0	40.5	42.0	42.5	44.0
375	25.0	28.5	31.5	33.5	36.0	37.5	39.5	41.0	42.5	44.0	44.5
400	25.5	29.5	32.5	34.5	36.5	39.0	40.5	42.0	43.5	44.5	46.0
425	26.5	30.0	33.0	35.0	37.5	39.5	41.0	42.5	44.0	45.5	47.0
450	26.5	30.0	33.0	36.0	38.0	40.5	42.0	43.5	44.5	46.0	47.5
475	27.0	31.0	33.5	36.5	39.0	41.0	42.5	44.0	45.5	47.0	48.5
500	27.0	31.5	34.5	37.5	39.5	42.0	43.5	44.5	46.0	47.5	49.0
525	28.0	32.5	35.0	38.0	40.5	42.0	44.0	45.5	47.0	48.5	50.0
550	28.5	32.5	36.0	38.0	40.5	42.5	44.5	46.0	47.5	49.0	50.5
575	28.5	33.0	36.0	39.0	41.0	43.5	45.5	47.0	48.5	50.0	51.5
600	29.5	33.5	36.5	39.5	42.0	44.0	46.0	47.5	49.0	50.5	53.0

TABLE F — 8000 POUND FIBER STRESS FOR CLASS JC LINES											
MOMENT AT CRITICAL SECTION PER FOOT OF SPAN LENGTH (LBS FT)	SPAN LENGTH (FEET)										
	100	150	200	250	300	350	400	450	500	550	600
	MINIMUM CIRCUMFERENCE AT CRITICAL SECTION (INCHES)										
10	10.5	11.0	12.0	13.0	13.5	13.5	14.5	14.5	15.5	15.5	16.5
20	12.0	13.0	14.5	15.5	16.5	17.0	18.0	19.0	19.0	19.5	20.5
30	13.0	14.5	16.5	17.0	18.0	19.0	20.5	20.5	21.5	22.5	23.0
40	14.5	16.5	18.0	19.0	20.5	21.5	22.5	23.0	24.0	25.0	25.5
50	15.5	17.0	19.0	20.5	21.5	23.0	24.0	25.0	25.5	26.5	27.5
60	16.5	18.0	20.5	21.5	23.0	24.0	25.0	26.5	27.5	28.5	29.0
70	17.0	19.0	21.5	23.0	24.0	25.5	26.5	27.5	28.5	29.0	30.0
80	18.0	19.5	22.5	24.0	25.5	26.5	27.5	29.0	30.0	31.0	31.5
90	19.0	20.5	23.0	25.0	26.5	27.5	29.0	30.0	31.0	31.5	33.5
100	19.5	21.5	24.0	25.5	27.5	28.5	30.0	31.0	31.5	33.5	34.5
125	20.5	23.0	25.5	27.5	29.0	31.0	32.5	33.5	34.5	36.0	37.0
150	21.5	25.0	27.5	29.0	31.0	32.5	34.5	35.0	37.0	38.0	38.5
175	23.0	25.5	28.5	31.0	32.5	34.5	36.0	38.0	38.5	40.5	41.0
200	24.0	27.5	30.0	32.5	34.5	36.0	38.0	38.5	40.5	42.0	43.0
225	25.0	28.5	31.0	33.5	35.0	38.0	39.5	40.5	42.0	44.0	44.5
250	25.5	29.0	31.5	34.5	37.0	38.5	40.5	42.0	44.0	44.5	46.5
275	26.5	30.0	33.5	36.0	38.0	40.5	42.0	44.0	44.5	46.5	47.0
300	27.5	31.0	34.5	37.0	38.5	41.0	43.0	44.5	46.5	47.0	49.0
325	28.5	31.5	35.0	38.0	40.5	42.0	44.0	45.5	47.0	49.0	50.5
350	29.0	32.5	36.0	38.5	41.0	43.0	45.5	47.0	49.0	50.0	51.5
375	29.0	33.5	37.0	39.5	42.0	44.0	46.5	48.0	50.0	51.5	52.5
400	30.0	34.5	38.0	40.5	43.0	45.5	47.0	49.0	50.5	52.5	54.0
425	31.0	35.0	38.5	41.0	44.0	46.5	48.0	50.0	51.5	53.0	55.0
450	31.0	35.0	38.5	42.0	44.5	47.0	49.0	50.5	52.5	54.0	56.0
475	31.5	36.0	39.5	43.0	45.5	48.0	50.0	51.5	53.0	55.0	56.5
500	31.5	37.0	40.5	44.0	46.5	49.0	50.5	52.5	54.0	56.0	57.5
525	32.5	38.0	41.0	44.5	47.0	49.0	51.5	53.0	55.0	56.5	58.5
550	33.5	38.0	42.0	44.5	47.0	50.0	52.5	54.0	56.0	57.5	59.0
575	33.5	38.5	42.0	45.5	48.0	50.5	53.0	55.0	56.5	58.5	60.0
600	34.5	39.5	43.0	46.5	49.0	51.5	54.0	56.0	57.5	59.0	62.0