

POLE LINES
MINIMUM CIRCUMFERENCES AT CRITICAL SECTION
7400 POUND FIBER STRENGTH
ALL STORM LOADING AREAS
ALL POLE LENGTHS

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

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 7400 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.)

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 on the 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 — 7400 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	13.5	14.5	15.5	16.5	17.5	17.5	19.0	19.0	20.0	20.0	21.0
20	15.5	16.5	19.0	20.0	21.0	22.0	23.0	24.5	24.5	25.5	26.5
30	16.5	19.0	21.0	22.0	23.0	24.5	26.5	26.5	27.5	28.5	30.0
40	19.0	21.0	23.0	24.5	26.5	27.5	28.5	30.0	31.0	32.0	33.0
50	20.0	22.0	24.5	26.5	27.5	30.0	31.0	32.0	33.0	34.0	35.5
60	21.0	23.0	26.5	27.5	30.0	31.0	32.0	34.0	35.5	36.5	37.5
70	22.0	24.5	27.5	30.0	31.0	33.0	34.0	35.5	36.5	37.5	38.5
80	23.0	25.5	28.5	31.0	33.0	34.0	35.5	37.5	38.5	40.0	41.0
90	24.5	26.5	30.0	32.0	34.0	35.5	37.5	38.5	40.0	41.0	43.0
100	25.5	27.5	31.0	33.0	35.5	36.5	38.5	40.0	41.0	43.0	44.0
125	26.5	30.0	33.0	35.5	37.5	40.0	42.0	43.0	44.0	46.5	47.5
150	27.5	32.0	35.5	37.5	40.0	42.0	44.0	45.5	47.5	48.5	49.5
175	30.0	33.0	36.5	40.0	42.0	44.0	46.5	48.5	49.5	52.0	53.0
200	31.0	35.5	38.5	42.0	44.0	46.5	48.5	49.5	52.0	54.0	55.0
225	32.0	36.5	40.0	43.0	45.5	48.5	51.0	52.0	54.0	56.5	57.5
250	33.0	37.5	41.0	44.0	47.5	49.5	52.0	54.0	56.5	57.5	59.5
275	34.0	38.5	43.0	46.5	48.5	52.0	54.0	56.5	57.5	59.5	60.5
300	35.5	40.0	44.0	47.5	49.5	53.0	55.0	57.5	59.5	60.5	63.0
325	36.5	41.0	45.5	48.5	52.0	54.0	56.5	58.5	60.5	63.0	65.0
350	37.5	42.0	46.5	49.5	53.0	55.0	58.5	60.5	63.0	64.0	
375	37.5	43.0	47.5	51.0	54.0	56.5	59.5	62.0	64.0		
400	38.5	44.0	48.5	52.0	55.0	58.5	60.5	63.0	65.0		
425	40.0	45.5	49.5	53.0	56.5	59.5	62.0	64.0			
450	40.0	45.5	49.5	54.0	57.5	60.5	63.0	65.0			
475	41.0	46.5	51.0	55.0	58.5	62.0	64.0				
500	41.0	47.5	52.0	56.5	59.5	63.0	65.0				
525	42.0	48.5	53.0	57.5	60.5	63.0					
550	43.0	48.5	54.0	57.5	60.5	64.0					
575	43.0	49.5	54.0	58.5	62.0	65.0					
600	44.0	51.0	55.0	59.5	63.0						

TABLE B — 7400 POUND FIBER 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	11.5	12.5	13.5	14.0	15.0	15.0	16.0	16.0	17.0	17.0	18.0
20	13.5	14.0	16.0	17.0	18.0	19.0	20.0	21.0	21.0	22.0	23.0
30	14.0	16.0	18.0	19.0	20.0	21.0	23.0	23.0	23.5	24.5	25.5
40	16.0	18.0	20.0	21.0	23.0	23.5	24.5	25.5	26.5	27.5	28.5
50	17.0	19.0	21.0	23.0	23.5	25.5	26.5	27.5	28.5	29.5	30.5
60	18.0	20.0	23.0	23.5	25.5	26.5	27.5	29.5	30.5	31.5	32.0
70	19.0	21.0	23.5	25.5	26.5	28.5	29.5	30.5	31.5	32.0	33.0
80	20.0	22.0	24.5	26.5	28.5	29.5	30.5	32.0	33.0	34.0	35.0
90	21.0	23.0	25.5	27.5	29.5	30.5	32.0	33.0	34.0	35.0	37.0
100	22.0	23.5	26.5	28.5	30.5	31.5	33.0	34.0	35.0	37.0	38.0
125	23.0	25.5	28.5	30.5	32.0	34.0	36.0	37.0	38.0	40.0	41.0
150	23.5	27.5	30.5	32.0	34.0	36.0	38.0	39.0	41.0	41.5	42.5
175	25.5	28.5	31.5	34.0	36.0	38.0	40.0	41.5	42.5	44.5	45.5
200	26.5	30.5	33.0	36.0	38.0	40.0	41.5	42.5	44.5	46.5	47.5
225	27.5	31.5	34.0	37.0	39.0	41.5	43.5	44.5	46.5	48.5	49.5
250	28.5	32.0	35.0	38.0	41.0	42.5	44.5	46.5	48.5	49.5	51.0
275	29.5	33.0	37.0	40.0	41.5	44.5	46.5	48.5	49.5	51.0	52.0
300	30.5	34.0	38.0	41.0	42.5	45.5	47.5	49.5	51.0	52.0	54.0
325	31.5	35.0	39.0	41.5	44.5	46.5	48.5	50.5	52.0	54.0	56.0
350	32.0	36.0	40.0	42.5	45.5	47.5	50.5	52.0	54.0	55.0	57.0
375	32.0	37.0	41.0	43.5	46.5	48.5	51.0	53.0	55.0	57.0	58.0
400	33.0	38.0	41.5	44.5	47.5	50.5	52.0	54.0	56.0	58.0	60.0
425	34.0	39.0	42.5	45.5	48.5	51.0	53.0	55.0	57.0	59.0	60.5
450	34.0	39.0	42.5	46.5	49.5	52.0	54.0	56.0	58.0	60.0	61.5
475	35.0	40.0	43.5	47.5	50.5	53.0	55.0	57.0	59.0	60.5	62.0
500	35.0	41.0	44.5	48.5	51.0	54.0	56.0	58.0	60.0	61.5	63.5
525	36.0	41.5	45.5	49.5	52.0	54.0	57.0	59.0	60.5	62.5	64.5
550	37.0	41.5	46.5	49.5	52.0	55.0	58.0	60.0	61.5	63.5	65.5
575	37.0	42.5	46.5	50.5	53.0	56.0	59.0	60.5	62.5	64.5	66.5
600	38.0	43.5	47.5	51.0	54.0	57.0	60.0	61.5	63.5	65.5	68.5

TABLE C — 7400 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	10.0	11.0	11.5	12.5	13.5	13.5	14.0	14.0	15.0	15.0	15.5
20	11.5	12.5	14.0	15.0	15.5	16.5	17.5	18.0	18.0	19.0	20.0
30	12.5	14.0	15.5	16.5	17.5	18.0	20.0	20.0	20.5	21.5	22.5
40	14.0	15.0	17.5	18.0	20.0	20.5	21.5	22.5	23.0	24.0	25.0
50	15.0	16.5	18.0	20.0	20.5	22.5	23.0	24.0	25.0	25.5	26.5
60	15.5	17.5	20.0	20.5	22.5	23.0	24.0	25.5	26.5	27.5	28.0
70	16.5	18.0	20.5	22.5	23.0	25.0	25.5	26.5	27.5	28.0	29.0
80	17.5	19.0	21.5	23.0	25.0	25.5	26.5	28.0	29.0	30.0	30.5
90	18.0	20.0	22.5	24.0	25.5	26.5	28.0	29.0	30.0	30.5	32.5
100	19.0	20.5	23.0	25.0	26.5	27.5	29.0	30.0	30.5	32.5	33.0
125	20.0	22.5	25.0	26.5	28.0	30.0	31.5	32.5	33.0	35.0	35.5
150	20.5	24.0	26.5	28.0	30.0	31.5	33.0	34.0	35.5	36.5	37.5
175	22.5	25.0	27.5	30.0	31.5	33.0	35.0	36.5	37.5	39.0	40.0
200	23.0	26.5	29.0	31.5	33.0	35.0	36.5	37.5	39.0	40.5	41.5
225	24.0	27.5	30.0	32.5	34.0	36.5	38.0	39.0	40.5	42.5	43.0
250	25.0	28.0	30.5	33.0	35.5	37.5	39.0	40.5	42.5	43.0	44.5
275	25.5	29.0	32.5	35.0	36.5	39.0	40.5	42.5	43.0	44.5	45.5
300	26.5	30.0	33.0	35.5	37.5	40.0	41.5	43.0	44.5	45.5	47.0
325	27.5	30.5	34.0	36.5	39.0	40.5	42.5	44.0	45.5	47.0	49.0
350	28.0	31.5	35.0	37.5	40.0	41.5	44.0	45.5	47.0	48.0	49.5
375	28.0	32.5	35.5	38.0	40.5	42.5	44.5	46.5	48.0	49.5	50.5
400	29.0	33.0	36.5	39.0	41.5	44.0	45.5	47.0	49.0	50.5	52.0
425	30.0	34.0	37.5	40.0	42.5	44.5	46.5	48.0	49.5	51.5	53.0
450	30.0	34.0	37.5	40.5	43.0	45.5	47.0	49.0	50.5	52.0	54.0
475	30.5	35.0	38.0	41.5	44.0	46.5	48.0	49.5	51.5	53.0	54.5
500	30.5	35.5	39.0	42.5	44.5	47.0	49.0	50.5	52.0	54.0	55.5
525	31.5	36.5	40.0	43.0	45.5	47.0	49.5	51.5	53.0	54.5	56.5
550	32.5	36.5	40.5	43.0	45.5	48.0	50.5	52.0	54.0	55.5	57.0
575	32.5	37.5	40.5	44.0	46.5	49.0	51.5	53.0	54.5	56.5	58.0
600	33.0	38.0	41.5	44.5	47.0	49.5	52.0	54.0	55.5	57.0	59.5

TABLE D — 7400 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	9.5	10.0	11.0	12.0	12.5	12.5	13.5	13.5	14.0	14.0	15.0
20	11.0	12.0	13.5	14.0	15.0	15.5	16.5	17.5	17.5	18.0	19.0
30	12.0	13.5	15.0	15.5	16.5	17.5	19.0	19.0	19.5	20.5	21.5
40	13.5	15.0	16.5	17.5	19.0	19.5	20.5	21.5	22.0	23.0	23.5
50	14.0	15.5	17.5	19.0	19.5	21.5	22.0	23.0	23.5	24.5	25.0
60	15.0	16.5	19.0	19.5	21.5	22.0	23.0	24.5	25.0	26.0	27.0
70	15.5	17.5	19.5	21.5	22.0	23.5	24.5	25.0	26.0	27.0	27.5
80	16.5	18.0	20.5	22.0	23.5	24.5	25.0	27.0	27.5	28.5	29.0
90	17.5	19.0	21.5	23.0	24.5	25.0	27.0	27.5	28.5	29.0	30.5
100	18.0	19.5	22.0	23.5	25.0	26.0	27.5	28.5	29.0	30.5	31.5
125	19.0	21.5	23.5	25.0	27.0	28.5	30.0	30.5	31.5	33.0	34.0
150	19.5	23.0	25.0	27.0	28.5	30.0	31.5	32.5	34.0	34.5	35.5
175	21.5	23.5	26.0	28.5	30.0	31.5	33.0	34.5	35.5	37.0	38.0
200	22.0	25.0	27.5	30.0	31.5	33.0	34.5	35.5	37.0	38.5	39.5
225	23.0	26.0	28.5	30.5	32.5	34.5	36.0	37.0	38.5	40.0	41.0
250	23.5	27.0	29.0	31.5	34.0	35.5	37.0	38.5	40.0	41.0	42.5
275	24.5	27.5	30.5	33.0	34.5	37.0	38.5	40.0	41.0	42.5	43.5
300	25.0	28.5	31.5	34.0	35.5	38.0	39.5	41.0	42.5	43.5	45.0
325	26.0	29.0	32.5	34.5	37.0	38.5	40.0	41.5	43.5	45.0	46.5
350	27.0	30.0	33.0	35.5	38.0	39.5	41.5	43.5	45.0	45.5	47.0
375	27.0	30.5	34.0	36.0	38.5	40.0	42.5	44.0	45.5	47.0	48.0
400	27.5	31.5	34.5	37.0	39.5	41.5	43.5	45.0	46.5	48.0	49.5
425	28.5	32.5	35.5	38.0	40.0	42.5	44.0	45.5	47.0	49.0	50.5
450	28.5	32.5	35.5	38.5	41.0	43.5	45.0	46.5	48.0	49.5	51.0
475	29.0	33.0	36.0	39.5	41.5	44.0	45.5	47.0	49.0	50.5	52.0
500	29.0	34.0	37.0	40.0	42.5	45.0	46.5	48.0	49.5	51.0	52.5
525	30.0	34.5	38.0	41.0	43.5	45.0	47.0	49.0	50.5	52.0	53.5
550	30.5	34.5	38.5	41.0	43.5	45.5	48.0	49.5	51.0	52.5	54.5
575	30.5	35.5	38.5	41.5	44.0	46.5	49.0	50.5	52.0	53.5	55.0
600	31.5	36.0	39.5	42.5	45.0	47.0	49.5	51.0	52.5	54.5	56.5

TABLE E — 7400 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	10.0	10.5	11.5	12.0	12.0	13.0	13.0	13.5	13.5	14.5
20	10.5	11.5	13.0	13.5	14.5	15.0	16.0	16.5	16.5	17.5	18.0
30	11.5	13.0	14.5	15.0	16.0	16.5	18.0	18.0	19.0	19.5	20.5
40	13.0	14.5	16.0	16.5	18.0	19.0	19.5	20.5	21.0	22.0	22.5
50	13.5	15.0	16.5	18.0	19.0	20.5	21.0	22.0	22.5	23.5	24.0
60	14.5	16.0	18.0	19.0	20.5	21.0	22.0	23.5	24.0	25.0	25.5
70	15.0	16.5	19.0	20.5	21.0	22.5	23.5	24.0	25.0	25.5	26.5
80	16.0	17.5	19.5	21.0	22.5	23.5	24.0	25.5	26.5	27.0	28.0
90	16.5	18.0	20.5	22.0	23.5	24.0	25.5	26.5	27.0	28.0	29.5
100	17.5	19.0	21.0	22.5	24.0	25.0	26.5	27.0	28.0	29.5	30.0
125	18.0	20.5	22.5	24.0	25.5	27.0	28.5	29.5	30.0	31.5	32.5
150	19.0	22.0	24.0	25.5	27.0	28.5	30.0	31.0	32.5	33.0	34.0
175	20.5	22.5	25.0	27.0	28.5	30.0	31.5	33.0	34.0	35.5	36.0
200	21.0	24.0	26.5	28.5	30.0	31.5	33.0	34.0	35.5	37.0	37.5
225	22.0	25.0	27.0	29.5	31.0	33.0	34.5	35.5	37.0	38.5	39.0
250	22.5	25.5	28.0	30.0	32.5	34.0	35.5	37.0	38.5	39.0	40.5
275	23.5	26.5	29.5	31.5	33.0	35.5	37.0	38.5	39.0	40.5	41.5
300	24.0	27.0	30.0	32.5	34.0	36.0	37.5	39.0	40.5	41.5	43.0
325	25.0	28.0	31.0	33.0	35.5	37.0	38.5	40.0	41.5	43.0	44.5
350	25.5	28.5	31.5	34.0	36.0	37.5	40.0	41.5	43.0	43.5	45.0
375	25.5	29.5	32.5	34.5	37.0	38.5	40.5	42.0	43.5	45.0	46.0
400	26.5	30.0	33.0	35.5	37.5	40.0	41.5	43.0	44.5	46.0	47.5
425	27.0	31.0	34.0	36.0	38.5	40.5	42.0	43.5	45.0	46.5	48.0
450	27.0	31.0	34.0	37.0	39.0	41.5	43.0	44.5	46.0	47.5	49.0
475	28.0	31.5	34.5	37.5	40.0	42.0	43.5	45.0	46.5	48.0	49.5
500	28.0	32.5	35.5	38.5	40.5	43.0	44.5	46.0	47.5	49.0	50.5
525	28.5	33.0	36.0	39.0	41.5	43.0	45.0	46.5	48.0	49.5	51.0
550	29.5	33.0	37.0	39.0	41.5	43.5	46.0	47.5	49.0	50.5	52.0
575	29.5	34.0	37.0	40.0	42.0	44.5	46.5	48.0	49.5	51.0	52.5
600	30.0	34.5	37.5	40.5	43.0	45.0	47.5	49.0	50.5	52.0	54.0

TABLE F — 7400 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	11.5	12.5	13.0	14.0	14.0	15.0	15.0	16.0	16.0	16.5
20	12.5	13.0	15.0	16.0	16.5	17.5	18.5	19.5	19.5	20.5	21.0
30	13.0	15.0	16.5	17.5	18.5	19.5	21.0	21.0	22.0	23.0	24.0
40	15.0	16.5	18.5	19.5	21.0	22.0	23.0	24.0	24.5	25.5	26.5
50	16.0	17.5	19.5	21.0	22.0	24.0	24.5	25.5	26.5	27.5	28.0
60	16.5	18.5	21.0	22.0	24.0	24.5	25.5	27.5	28.0	29.0	30.0
70	17.5	19.5	22.0	24.0	24.5	26.5	27.5	28.0	29.0	30.0	31.0
80	18.5	20.5	23.0	24.5	26.5	27.5	28.0	30.0	31.0	31.5	32.5
90	19.5	21.0	24.0	25.5	27.5	28.0	30.0	31.0	31.5	32.5	34.5
100	20.5	22.0	24.5	26.5	28.0	29.0	31.0	31.5	32.5	34.5	35.0
125	21.0	24.0	26.5	28.0	30.0	31.5	33.5	34.5	35.0	37.0	38.0
150	22.0	25.5	28.0	30.0	31.5	33.5	35.0	36.0	38.0	39.0	39.5
175	24.0	26.5	29.0	31.5	33.5	35.0	37.0	39.0	39.5	41.5	42.5
200	24.5	28.0	31.0	33.5	35.0	37.0	39.0	39.5	41.5	43.0	44.0
225	25.5	29.0	31.5	34.5	36.0	39.0	40.5	41.5	43.0	45.0	46.0
250	26.5	30.0	32.5	35.0	38.0	39.5	41.5	43.0	45.0	46.0	47.5
275	27.5	31.0	34.5	37.0	39.0	41.5	43.0	45.0	46.0	47.5	48.5
300	28.0	31.5	35.0	38.0	39.5	42.5	44.0	46.0	47.5	48.5	50.0
325	29.0	32.5	36.0	39.0	41.5	43.0	45.0	46.5	48.5	50.0	52.0
350	30.0	33.5	37.0	39.5	42.5	44.0	46.5	48.5	50.0	51.0	53.0
375	30.0	34.5	38.0	40.5	43.0	45.0	47.5	49.5	51.0	53.0	53.5
400	31.0	35.0	39.0	41.5	44.0	46.5	48.5	50.0	52.0	53.5	55.5
425	31.5	36.0	39.5	42.5	45.0	47.5	49.5	51.0	53.0	54.5	56.5
450	31.5	36.0	39.5	43.0	46.0	48.5	50.0	52.0	53.5	55.5	57.0
475	32.5	37.0	40.5	44.0	46.5	49.5	51.0	53.0	54.5	56.5	58.0
500	32.5	38.0	41.5	45.0	47.5	50.0	52.0	53.5	55.5	57.0	59.0
525	33.5	39.0	42.5	46.0	48.5	50.0	53.0	54.5	56.5	58.0	60.0
550	34.5	39.0	43.0	46.0	48.5	51.0	53.5	55.5	57.0	59.0	61.0
575	34.5	39.5	43.0	46.5	49.5	52.0	54.5	56.5	58.0	60.0	61.5
600	35.0	40.5	44.0	47.5	50.0	53.0	55.5	57.0	59.0	61.0	63.5