

**POLE LINES**  
**MINIMUM CIRCUMFERENCES AT CRITICAL SECTION**  
**3600 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 3600 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 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 circumference at the critical sections for the fiber stress and various classes of lines.

TABLE A — 3600 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	17.0	18.5	19.5	21.0	22.5	22.5	24.0	24.0	25.5	25.5	26.5
20	19.5	21.0	24.0	25.5	26.5	28.0	29.5	31.0	31.0	32.5	33.5
30	21.0	24.0	26.5	28.0	29.5	31.0	33.5	33.5	35.0	36.5	38.0
40	24.0	26.5	29.5	31.0	33.5	35.0	36.5	38.0	39.5	40.5	42.0
50	25.5	28.0	31.0	33.5	35.0	38.0	39.5	40.5	42.0	43.5	45.0
60	26.5	29.5	33.5	35.0	38.0	39.5	40.5	43.5	45.0	46.5	48.0
70	28.0	31.0	35.0	38.0	39.5	42.0	43.5	45.0	46.5	48.0	49.0
80	29.5	32.5	36.5	39.5	42.0	43.5	45.0	48.0	49.0	50.5	52.0
90	31.0	33.5	38.0	40.5	43.5	45.0	48.0	49.0	50.5	52.0	55.0
100	32.5	35.0	39.5	42.0	45.0	46.5	49.0	50.5	52.0	55.0	56.0
125	33.5	38.0	42.0	45.0	48.0	50.5	53.5	55.0	56.0	59.0	60.5
150	35.0	40.5	45.0	48.0	50.5	53.5	56.0	57.5	60.5		
175	38.0	42.0	46.5	50.5	53.5	56.0	59.0				
200	39.5	45.0	49.0	53.5	56.0	59.0					
225	40.5	46.5	50.5	55.0	57.5						
250	42.0	48.0	52.0	56.0	60.5						
275	43.5	49.0	55.0	59.0							
300	45.0	50.5	56.0	60.5							
325	46.5	52.0	57.5								
350	48.0	53.5	59.0								
375	48.0	55.0	60.5								
400	49.0	56.0									
425	50.5	57.5									
450	50.5	57.5									
475	52.0	59.0									
500	52.0	60.5									
525	53.5										
550	55.0										
575	55.0										
600	56.0										

TABLE B — 3600 POUND FIBER STRESS FOR CLASS A LINES											
MOMENT OF 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	14.5	15.5	17.0	18.0	19.5	19.5	20.5	20.5	21.5	21.5	23.0
20	17.0	18.0	20.5	21.5	23.0	24.0	25.5	26.5	26.5	27.5	29.0
30	18.0	20.5	23.0	24.0	25.5	26.5	29.0	29.0	30.0	31.5	32.5
40	20.5	23.0	25.5	26.5	29.0	30.0	31.5	32.5	34.0	35.0	36.0
50	21.5	24.0	26.5	29.0	30.0	32.5	34.0	35.0	36.0	37.5	38.5
60	23.0	25.5	29.0	30.0	32.5	34.0	35.0	37.5	38.5	40.0	41.0
70	24.0	26.5	30.0	32.5	34.0	36.0	37.5	38.5	40.0	41.0	42.0
80	25.5	27.5	31.5	34.0	36.0	37.5	38.5	41.0	42.0	43.5	44.5
90	26.5	29.0	32.5	35.0	37.5	38.5	41.0	42.0	43.5	44.5	47.0
100	27.5	30.0	34.0	36.0	38.5	40.0	42.0	43.5	44.5	47.0	48.0
125	29.0	32.5	36.0	38.5	41.0	43.5	46.0	47.0	48.0	50.5	52.0
150	30.0	35.0	38.5	41.0	43.5	46.0	48.0	49.5	52.0	53.0	54.5
175	32.5	36.0	40.0	43.5	46.0	48.0	50.5	53.0	54.5	56.5	58.0
200	34.0	38.5	42.0	46.0	48.0	50.5	53.0	54.5	56.5	59.0	60.5
225	35.0	40.0	43.5	47.0	49.5	53.0	55.5	56.5	59.0	61.5	
250	36.0	41.0	44.5	48.0	52.0	54.5	56.5	59.0	61.5		
275	37.5	42.0	47.0	50.5	53.0	56.5	59.0	61.5			
300	38.5	43.5	48.0	52.0	54.5	58.0	60.5				
325	40.0	44.5	49.5	53.0	56.5	59.0	61.5				
350	41.0	46.0	50.5	54.5	58.0	60.5					
375	41.0	47.0	52.0	55.5	59.0	61.5					
400	42.0	48.0	53.0	56.5	60.5						
425	43.5	49.5	54.5	58.0	61.5						
450	43.5	49.5	54.5	59.0							
475	44.5	50.5	55.5	60.5							
500	44.5	52.0	56.5	61.5							
525	46.0	53.0	58.0								
550	47.0	53.0	59.0								
575	47.0	54.5	59.0								
600	48.0	55.5	60.5								

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TABLE C — 3600 POUND FIBER STRESS FOR CLASS B LINES

MOMENT OF 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	12.5	13.5	15.0	16.0	17.0	17.0	18.0	18.0	19.0	19.0	20.0
20	15.0	16.0	18.0	19.0	20.0	21.0	22.0	23.0	23.0	24.0	25.5
30	16.0	18.0	20.0	21.0	22.0	23.0	25.5	25.5	26.5	27.5	28.5
40	18.0	20.0	22.0	23.0	25.5	26.5	27.5	28.5	29.5	30.5	31.5
50	19.0	21.0	23.0	25.5	26.5	28.5	29.5	30.5	31.5	32.5	33.5
60	20.0	22.0	25.5	26.5	28.5	29.5	30.5	32.5	33.5	35.0	36.0
70	21.0	23.0	26.5	28.5	29.5	31.5	32.5	33.5	35.0	36.0	37.0
80	22.0	24.0	27.5	29.5	31.5	32.5	33.5	36.0	37.0	38.0	39.0
90	23.0	25.5	28.5	30.5	32.5	33.5	36.0	37.0	38.0	39.0	41.0
100	24.0	26.5	29.5	31.5	33.5	35.0	37.0	38.0	39.0	41.0	42.0
125	25.5	28.5	31.5	33.5	36.0	38.0	40.0	41.0	42.0	44.5	45.5
150	26.5	30.5	33.5	36.0	38.0	40.0	42.0	43.0	45.5	46.5	47.5
175	28.5	31.5	35.0	38.0	40.0	42.0	44.5	46.5	47.5	49.5	50.5
200	29.5	33.5	37.0	40.0	42.0	44.5	46.5	47.5	49.5	51.5	52.5
225	30.5	35.0	38.0	41.0	43.0	46.5	48.5	49.5	51.5	53.5	55.0
250	31.5	36.0	39.0	42.0	45.5	47.5	49.5	51.5	53.5	55.0	57.0
275	32.5	37.0	41.0	44.5	46.5	49.5	51.5	53.5	55.0	57.0	58.0
300	33.5	38.0	42.0	45.5	47.5	50.5	52.5	55.0	57.0	58.0	60.0
325	35.0	39.0	43.0	46.5	49.5	51.5	53.5	56.0	58.0	60.0	
350	36.0	40.0	44.5	47.5	50.5	52.5	56.0	58.0	60.0	61.0	
375	36.0	41.0	45.5	48.5	51.5	53.5	57.0	59.0	61.0		
400	37.0	42.0	46.5	49.5	52.5	56.0	58.0	60.0			
425	38.0	43.0	47.5	50.5	53.5	57.0	59.0	61.0			
450	38.0	43.0	47.5	51.5	55.0	58.0	60.0				
475	39.0	44.5	48.5	52.5	56.0	59.0	61.0				
500	39.0	45.5	49.5	53.5	57.0	60.0					
525	40.0	46.5	50.5	55.0	58.0	60.0					
550	41.0	46.5	51.5	55.0	58.0	61.0					
575	41.0	47.5	51.5	56.0	59.0						
600	42.0	48.5	52.5	57.0	60.0						

TABLE D — 3600 POUND FIBER STRESS FOR CLASS C LINES											
MOMENT OF 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	12.0	13.0	14.0	15.0	16.0	16.0	17.0	17.0	18.0	18.0	19.0
20	14.0	15.0	17.0	18.0	19.0	20.0	21.0	22.0	22.0	23.0	24.0
30	15.0	17.0	19.0	20.0	21.0	22.0	24.0	24.0	25.0	26.0	27.0
40	17.0	19.0	21.0	22.0	24.0	25.0	26.0	27.0	28.0	29.0	30.0
50	18.0	20.0	22.0	24.0	25.0	27.0	28.0	29.0	30.0	31.0	32.0
60	19.0	21.0	24.0	25.0	27.0	28.0	29.0	31.0	32.0	33.0	34.0
70	20.0	22.0	25.0	27.0	28.0	30.0	31.0	32.0	33.0	34.0	35.0
80	21.0	23.0	26.0	28.0	30.0	31.0	32.0	34.0	35.0	36.0	37.0
90	22.0	24.0	27.0	29.0	31.0	32.0	34.0	35.0	36.0	37.0	39.0
100	23.0	25.0	28.0	30.0	32.0	33.0	35.0	36.0	37.0	39.0	40.0
125	24.0	27.0	30.0	32.0	34.0	36.0	38.0	39.0	40.0	42.0	43.0
150	25.0	29.0	32.0	34.0	36.0	38.0	40.0	41.0	43.0	44.0	45.0
175	27.0	30.0	33.0	36.0	38.0	40.0	42.0	44.0	45.0	47.0	48.0
200	28.0	32.0	35.0	38.0	40.0	42.0	44.0	45.0	47.0	49.0	50.0
225	29.0	33.0	36.0	39.0	41.0	44.0	46.0	47.0	49.0	51.0	52.0
250	30.0	34.0	37.0	40.0	43.0	45.0	47.0	49.0	51.0	52.0	54.0
275	31.0	35.0	39.0	42.0	44.0	47.0	49.0	51.0	52.0	54.0	55.0
300	32.0	36.0	40.0	43.0	45.0	48.0	50.0	52.0	54.0	55.0	57.0
325	33.0	37.0	41.0	44.0	47.0	49.0	51.0	53.0	55.0	57.0	59.0
350	34.0	38.0	42.0	45.0	48.0	50.0	53.0	55.0	57.0	58.0	60.0
375	34.0	39.0	43.0	46.0	49.0	51.0	54.0	56.0	58.0	60.0	61.0
400	35.0	40.0	44.0	47.0	50.0	53.0	55.0	57.0	59.0	61.0	
425	36.0	41.0	45.0	48.0	51.0	54.0	56.0	58.0	60.0		
450	36.0	41.0	45.0	49.0	52.0	55.0	57.0	59.0	61.0		
475	37.0	42.0	46.0	50.0	53.0	56.0	58.0	60.0			
500	37.0	43.0	47.0	51.0	54.0	57.0	59.0	61.0			
525	38.0	44.0	48.0	52.0	55.0	57.0	60.0				
550	39.0	44.0	49.0	52.0	55.0	58.0	61.0				
575	39.0	45.0	49.0	53.0	56.0	59.0					
600	40.0	46.0	50.0	54.0	57.0	60.0					

TABLE E — 3600 POUND FIBER STRESS FOR CLASS R LINES

MOMENT OF 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	14.5	15.5	15.5	16.5	16.5	17.5	17.5	18.5
20	13.5	14.5	16.5	17.5	18.5	19.5	20.5	21.0	21.0	22.0	23.0
30	14.5	16.5	18.5	19.5	20.5	21.0	23.0	23.0	24.0	25.0	26.0
40	16.5	18.5	20.5	21.0	23.0	24.0	25.0	26.0	27.0	28.0	29.0
50	17.5	19.5	21.0	23.0	24.0	26.0	27.0	28.0	29.0	30.0	31.0
60	18.5	20.5	23.0	24.0	26.0	27.0	28.0	30.0	31.0	32.0	33.0
70	19.5	21.0	24.0	26.0	27.0	29.0	30.0	31.0	32.0	33.0	34.0
80	20.5	22.0	25.0	27.0	29.0	30.0	31.0	33.0	34.0	34.5	35.5
90	21.0	23.0	26.0	28.0	30.0	31.0	33.0	34.0	34.5	35.5	37.5
100	22.0	24.0	27.0	29.0	31.0	32.0	34.0	34.5	35.5	37.5	38.5
125	23.0	26.0	29.0	31.0	33.0	34.5	36.5	37.5	38.5	40.5	41.5
150	24.0	28.0	31.0	33.0	34.5	36.5	38.5	39.5	41.5	42.5	43.5
175	26.0	29.0	32.0	34.5	36.5	38.5	40.5	42.5	43.5	45.5	46.5
200	27.0	31.0	34.0	36.5	38.5	40.5	42.5	43.5	45.5	47.5	48.0
225	28.0	32.0	34.5	37.5	39.5	42.5	44.5	45.5	47.5	49.0	50.0
250	29.0	33.0	35.5	38.5	41.5	43.5	45.5	47.5	49.0	50.0	52.0
275	30.0	34.0	37.5	40.5	42.5	45.5	47.5	49.0	50.0	52.0	53.0
300	31.0	34.5	38.5	41.5	43.5	46.5	48.0	50.0	52.0	53.0	55.0
325	32.0	35.5	39.5	42.5	45.5	47.5	49.0	51.0	53.0	55.0	57.0
350	33.0	36.5	40.5	43.5	46.5	48.0	51.0	53.0	55.0	56.0	58.0
375	33.0	37.5	41.5	44.5	47.5	49.0	52.0	54.0	56.0	58.0	59.0
400	34.0	38.5	42.5	45.5	48.0	51.0	53.0	55.0	57.0	59.0	61.0
425	34.5	39.5	43.5	46.5	49.0	52.0	54.0	56.0	58.0	60.0	
450	34.5	39.5	43.5	47.5	50.0	53.0	55.0	57.0	59.0	61.0	
475	35.5	40.5	44.5	48.0	51.0	54.0	56.0	58.0	60.0		
500	35.5	41.5	45.5	49.0	52.0	55.0	57.0	59.0	61.0		
525	36.5	42.5	46.5	50.0	53.0	55.0	58.0	60.0			
550	37.5	42.5	47.5	50.0	53.0	56.0	59.0	61.0			
575	37.5	43.5	47.5	51.0	54.0	57.0	60.0				
600	38.5	44.5	48.0	52.0	55.0	58.0	61.0				

TABLE F — 3600 POUND FIBER STRESS FOR CLASS JC LINES											
MOMENT OF 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	17.0	18.0	18.0	19.0	19.0	20.0	20.0	21.5
20	15.5	17.0	19.0	20.0	21.5	22.5	23.5	24.5	24.5	25.5	27.0
30	17.0	19.0	21.5	22.5	23.5	24.5	27.0	27.0	28.0	29.0	30.0
40	19.0	21.5	23.5	24.5	27.0	28.0	29.0	30.0	31.5	32.5	33.5
50	20.0	22.5	24.5	27.0	28.0	30.0	31.5	32.5	33.5	34.5	36.0
60	21.5	23.5	27.0	28.0	30.0	31.5	32.5	34.5	36.0	37.0	38.0
70	22.5	24.5	28.0	30.0	31.5	33.5	34.5	36.0	37.0	38.0	39.0
80	23.5	25.5	29.0	31.5	33.5	34.5	36.0	38.0	39.0	40.5	41.5
90	24.5	27.0	30.0	32.5	34.5	36.0	38.0	39.0	40.5	41.5	43.5
100	25.5	28.0	31.5	33.5	36.0	37.0	39.0	40.5	41.5	43.5	45.0
125	27.0	30.0	33.5	36.0	38.0	40.5	42.5	43.5	45.0	47.0	48.0
150	28.0	32.5	36.0	38.0	40.5	42.5	45.0	46.0	48.0	49.0	50.5
175	30.0	33.5	37.0	40.5	42.5	45.0	47.0	49.0	50.5	52.5	53.5
200	31.5	36.0	39.0	42.5	45.0	47.0	49.0	50.5	52.5	55.0	56.0
225	32.5	37.0	40.5	43.5	46.0	49.0	51.5	52.5	55.0	57.0	58.0
250	33.5	38.0	41.5	45.0	48.0	50.5	52.5	55.0	57.0	58.0	60.5
275	34.5	39.0	43.5	47.0	49.0	52.5	55.0	57.0	58.0	60.5	61.5
300	36.0	40.5	45.0	48.0	50.5	53.5	56.0	58.0	60.5	61.5	
325	37.0	41.5	46.0	49.0	52.5	55.0	57.0	59.5	61.5		
350	38.0	42.5	47.0	50.5	53.5	56.0	59.5	61.5			
375	38.0	43.5	48.0	51.5	55.0	57.0	60.5				
400	39.0	45.0	49.0	52.5	56.0	59.5	61.5				
425	40.5	46.0	50.5	53.5	57.0	60.5					
450	40.5	46.0	50.5	55.0	58.0	61.5					
475	41.5	47.0	51.5	56.0	59.5						
500	41.5	48.0	52.5	57.0	60.5						
525	42.5	49.0	53.5	58.0	61.5						
550	43.5	49.0	55.0	58.0	61.5						
575	43.5	50.5	55.0	59.5							
600	45.0	51.5	56.0	60.5							