

SELF-SUPPORTING CABLE

STRINGING SAGS AND TENSIONS

1. GENERAL

1.01 This section covers the approximate sag and resulting stringing tensions of self-supporting cable.

1.02 This section is reissued to cover the approximate sag and resulting tension of newly introduced sizes of self-supporting cable. Tables A, B, and C have been revised. Since this is a general revision, arrows ordinarily used to indicate changes have been omitted.

1.03 The sags and stringing tensions shown in Tables A, B, and C apply to all storm loading areas with no wind or ice loads present at the time of placing. Wind loads alone under average conditions have little effect on sags and tensions.

1.04 Methods used to sag and tension self-supporting cable are covered in Section 627-200-201.

1.05 The weight (lbs/ft) of self-supporting cable is covered in Section 626-200-130.

1.06 The maximum span lengths for various weights of self-supporting cable are as follows:

CABLE WEIGHT (Lbs/Ft)	MAXIMUM SPAN LENGTH (Ft)
Up to .270	650
.271 to .320	600
.321 to .370	550
.371 to .420	500
.421 to .520	475
.521 to .620	425
.621 to .720	400
.721 to .820	375
.821 to .920	350

1.07 Sags less than or tensions greater than those shown in the tables are not to be used unless specified on the work print by the engineer.

2. SAG AND TENSION MEASUREMENTS

2.01 Points at which sag of self-supporting cable should be measured:

(1) Straight spans free from changes in grade.

(a) Less than ten spans: Measure the sag at a point one-half of the distance from the tensioning span.

(b) 10 to 20 spans: Measure the sag at a point two-thirds of the distance from the tensioning span and then at a point one-third from the tensioning span.

(c) Over 20 spans: Measure the sag at a point three-fourths of the distance from the tensioning span and then at points one-half the distance and finally at one-fourth the distance.

(2) Sections including changes in grade or corners:

(a) Measure the sag at the far side of the farthest corner or pole where change in grade occurs and then at each corner or change-in-grade pole toward the tensioning span.

(b) As the desired sag is obtained in each portion of the self-supporting cable, tighten the bolts of the clamps.

2.02 Determine the sag for intermediate spans selected as covered in 2.01, as follows: Measure length of the selected span to be sagged from the center of one pole to the center of the next pole. This measurement together with the known average span length, cable weight, and temperature will enable workmen to determine sag from appropriate table.

3. SAG AND TENSION TABLES

3.01 Self-supporting cable is placed at the approximate tensions and sags listed in Tables A, B, and C. Selections of tables is based upon average span length of cable run as follows:

AVERAGE SPAN LENGTH ¹	TABLE
100 ft to 250 ft	A
251 ft to 400 ft	B
401 ft to 650 ft	C

Note 1: Average span length is defined as the sum of the span lengths divided by the number of spans involved.

3.02 Selection of sag (in.) and tension (lbs) in the table is based upon three factors:

- (1) Cable Weight (lbs/ft)
- (2) Temperature (°F)
- (3) Span length of tensioning span

3.03 Due to corners, obstructions, etc, a tensioning span may be significantly longer or shorter than the average span length of a table. It should be noted that there is some overlapping of tables to accommodate these span lengths. In Tables A, B, and C these span lengths are referred to as minimum or maximum tensioning spans.

3.04 Individual span lengths that exceed the maximum tensioning span length of a selected table must be tensioned independently of adjacent span lengths with values determined from the next table. Refer to Example 3. Guying and false deadending must be added to compensate for differences in tension. This is covered in Section 627-240-213.

3.05 Three typical examples of the application of Tables A, B and C are as follows:

Example 1:

Average Span Length ¹	= 300 ft.
Span Length of Tensioning Span ^{1, 2}	= 300 ft.
Cable Weight (lbs./ft.) ³	= .55 lbs.
Temperature (°F) ³	= 80°F

Note 1: Indicates use of Table B

Note 2: Indicates vertical column used

Note 3: Indicates horizontal row used

- (a) Table B shows that 1350 lbs. tension is required resulting in about 62 inch sag in the tensioning span.
- (b) Obtain sag for intermediate measurements as directed in 2.02.

Example 2:

Average Span Length ¹	= 225 ft.
Span Length of Tensioning Span ^{1, 2}	= 275 ft.
Cable Weight (lbs./ft.) ³	= .27 lbs.
Temperature (°F) ³	= 20°F

Note 1: Indicates use of Table A

Note 2: Indicates vertical column used.

Note 3: Indicates horizontal row used.

- (a) Table shows that 925 lbs. tension is required resulting in approximately 33 in. sag in the tensioning span.
- (b) Obtain sag for intermediate measurements as directed in 2.02.

Example 3:

Average Span Length ¹	= 250 ft.
Span Length of Tensioning Span ²	= 350 ft.
Cable Weight (lbs./ft.) ³	= .55 lbs.
Temperature (°F) ³	= 40°F

Note 1: Indicates use of Table A

Note 2: Indicates use of Table B

Note 3: Indicates horizontal row used.

Tensioning section exceeds maximum span length of Table A. Therefore it must be tensioned independently of adjacent spans. Both Tables A and B must be used to obtain tensioning values.

- (a) Table B reveals that 1450 lbs. tension is required resulting in approximately 79 in. sag for the 350 ft. span lengths.
- (b) Table A reveals that 1350 lbs. tension is required resulting in approximately 43 in. sag for 250 ft. tensioning span.
- (c) Obtain sag for intermediate measurements as directed in 2.02.

TABLE A — AVERAGE SPAN LENGTH 100 TO 250 FEET

SPAN LENGTH (FEET)

CABLE WEIGHT (Lbs./Ft)	TEMP. (°F)	100		125		150		175		200	
		SAG (In.)	TENSION (Lbs)	SAG (In.)	TENSION (Lbs)	SAG (In.)	TENSION (Lbs)	SAG (In.)	TENSION (Lbs)	SAG (In.)	TENSION (Lbs)
UP TO .270	0	4	1050	6	1050	9	1025	12	1025	16	1025
	20	4	975	7	950	9	950	13	950	17	950
	40	5	875	7	875	10	875	14	875	19	875
	60	5	800	8	800	11	800	16	800	20	800
	80	6	725	9	725	13	725	17	725	22	725
	100	6	650	10	650	14	650	19	675	24	675
.271 TO .320	0	4	1150	7	1150	10	1125	13	1125	17	1125
	20	5	1075	7	1050	10	1050	14	1050	18	1050
	40	5	975	8	975	11	975	15	975	20	975
	60	5	900	8	900	12	900	16	900	21	900
	80	6	800	9	825	13	825	18	825	23	825
	100	6	750	10	750	14	750	19	775	25	775
.321 TO .370	0	4	1250	7	1250	10	1225	14	1225	18	1225
	20	5	1175	7	1150	11	1150	15	1150	19	1150
	40	5	1075	8	1075	12	1075	16	1075	21	1075
	60	6	1000	9	1000	12	1000	17	1000	22	1000
	80	6	925	9	925	13	925	18	925	24	925
	100	7	850	10	850	15	850	20	875	25	875
.371 TO .420	0	5	1350	7	1350	11	1325	15	1325	19	1300
	20	5	1275	8	1250	11	1250	15	1250	20	1250
	40	5	1175	8	1175	12	1175	16	1175	22	1175
	60	6	1100	9	1100	13	1100	18	1100	23	1100
	80	6	1025	10	1025	14	1025	19	1025	24	1025
	100	7	950	10	950	15	950	20	975	26	975
.421 TO .520	0	5	1450	8	1450	12	1425	17	1425	22	1400
	20	6	1375	9	1350	13	1350	18	1350	23	1325
	40	6	1275	10	1275	14	1275	19	1275	25	1275
	60	6	1200	10	1200	15	1200	20	1200	26	1200
	80	7	1125	11	1125	16	1125	21	1125	27	1125
	100	7	1050	12	1050	17	1050	22	1075	29	1075
.521 TO .620	0	6	1550	9	1525	14	1525	19	1500	25	1500
	20	6	1450	10	1450	14	1450	20	1450	26	1425
	40	7	1375	11	1375	15	1375	21	1375	27	1375
	60	7	1300	11	1300	16	1300	22	1300	29	1300
	80	8	1225	12	1225	17	1225	23	1225	30	1250
	100	8	1150	13	1150	18	1150	24	1175	32	1175
.621 TO .720	0	7	1650	10	1625	15	1625	21	1600	27	1600
	20	7	1550	11	1550	16	1550	22	1525	28	1525
	40	7	1475	11	1475	17	1475	23	1475	30	1450
	60	8	1400	12	1400	17	1400	24	1400	31	1400
	80	8	1325	13	1325	18	1325	25	1325	32	1350
	100	9	1250	13	1250	19	1275	26	1275	34	1275
.721 TO .820	0	7	1625	12	1625	17	1600	24	1600	31	1575
	20	8	1550	12	1550	18	1525	25	1525	32	1525
	40	8	1475	13	1475	19	1475	26	1475	34	1450
	60	9	1400	14	1400	20	1400	27	1400	35	1400
	80	9	1325	14	1325	21	1325	28	1350	37	1350
	100	10	1250	15	1250	22	1275	29	1275	38	1300
.821 TO .920	0	8	1625	13	1625	19	1600	27	1575	35	1575
	20	9	1550	14	1550	20	1525	28	1525	37	1500
	40	9	1475	15	1475	21	1475	29	1450	38	1450
	60	10	1400	15	1400	22	1400	30	1400	39	1400
	80	10	1325	16	1325	23	1350	31	1350	41	1350
	100	11	1250	17	1275	24	1275	33	1300	42	1300

TABLE A — AVERAGE SPAN LENGTH 100 TO 250 FEET (Cont)

SPAN LENGTH (FEET)

CABLE WEIGHT (Lbs/Ft)	TEMP. (°F)	225		250		MAXIMUM TENSIONING SPANS			
		SAG (In.)	TENSION (Lbs)	SAG (In.)	TENSION (Lbs)	275		300	
						SAG (In.)	TENSION (Lbs)	SAG (In.)	TENSION (Lbs)
UP TO .270	0	20	1000	26	1000	31	975	38	975
	20	22	925	27	925	33	925	40	900
	40	24	875	29	850	36	850	43	850
	60	26	800	32	800	38	800	46	800
	80	28	750	34	750	41	750	49	750
	100	30	675	37	700	44	700	52	700
.271 TO .320	0	22	1100	27	1100	34	1075	40	1075
	20	24	1025	29	1025	36	1000	43	1000
	40	25	975	31	950	38	950	45	950
	60	27	900	33	900	40	900	48	900
	80	29	850	36	850	43	850	51	850
	100	31	775	38	800	45	800	54	800
.321 TO .370	0	23	1200	29	1200	36	1175	43	1175
	20	25	1125	31	1125	38	1100	45	1100
	40	26	1075	33	1050	40	1050	47	1050
	60	28	1000	35	1000	42	1000	50	1000
	80	30	950	37	950	44	950	53	950
	100	32	875	39	900	47	900	55	900
.371 TO .420	0	24	1300	30	1300	37	1275	45	1275
	20	26	1225	32	1225	39	1225	47	1200
	40	27	1175	34	1150	41	1150	49	1150
	60	29	1100	36	1100	43	1100	52	1100
	80	31	1050	38	1050	46	1050	54	1050
	100	33	975	40	975	48	1000	57	1000
.421 TO .520	0	28	1400	35	1375	43	1375	52	1350
	20	30	1325	37	1325	45	1300	54	1300
	40	31	1250	39	1250	47	1250	56	1250
	60	33	1200	41	1200	49	1200	59	1200
	80	35	1150	43	1150	51	1150	61	1150
	100	36	1075	45	1100	54	1100	63	1100
.521 TO .620	0	32	1475	39	1475	48	1450	58	1450
	20	33	1425	41	1425	50	1400	60	1400
	40	35	1350	43	1350	52	1350	62	1350
	60	36	1300	45	1300	54	1300	64	1300
	80	38	1250	47	1250	56	1250	67	1250
	100	40	1200	49	1200	58	1200	69	1200
.621 TO .720	0	35	1575	43	1575	53	1550	63	1550
	20	36	1525	45	1500	54	1500	65	1500
	40	38	1450	46	1450	56	1450	67	1450
	60	39	1400	48	1400	58	1400	69	1400
	80	41	1350	50	1350	60	1350	72	1350
	100	42	1300	52	1300	62	1300	74	1300
.721 TO .820	0	40	1575	50	1550	61	1525	73	1525
	20	41	1500	51	1500	62	1500	75	1475
	40	43	1450	53	1450	64	1450	77	1450
	60	44	1400	55	1400	66	1400	79	1400
	80	46	1350	57	1350	68	1350	81	1350
	100	48	1300	59	1300	71	1325	83	1325
.821 TO .920	0	45	1550	56	1525	69	1525	82	1500
	20	47	1500	58	1500	71	1475	84	1475
	40	48	1450	60	1450	73	1450	87	1450
	60	50	1400	62	1400	75	1400	89	1400
	80	52	1350	63	1350	77	1375	91	1375
	100	53	1300	65	1325	79	1325	93	1325

TABLE B — AVERAGE SPAN LENGTH 251 TO 400 FEET

SPAN LENGTH (FEET)

CABLE WEIGHT (Lbs/Ft)	TEMP. (°F)	MINIMUM TENSIONING SPANS						275		300		325	
		200		225		250		SAG (In.)	TENSION (Lbs)	SAG (In.)	TENSION (Lbs)	SAG (In.)	TENSION (Lbs)
		SAG (In.)	TENSION (Lbs)	SAG (In.)	TENSION (Lbs)	SAG (In.)	TENSION (Lbs)						
UP TO .270	0	13	1225	17	1225	21	1225	25	1200	30	1200	36	1200
	20	14	1150	18	1150	22	1150	27	1150	32	1125	38	1125
	40	15	1075	19	1075	24	1075	29	1075	34	1075	40	1075
	60	16	1000	21	1000	25	1000	31	1000	36	1000	43	1000
	80	17	925	22	925	27	925	33	925	39	950	45	950
	100	19	850	24	850	29	875	35	875	41	875	48	875
.271 TO .320	0	14	1325	18	1325	23	1325	28	1300	33	1300	39	1300
	20	15	1250	19	1250	24	1250	29	1225	35	1225	41	1225
	40	16	1175	21	1175	26	1175	31	1175	37	1175	44	1150
	60	17	1100	22	1100	27	1100	33	1100	39	1100	46	1100
	80	19	1025	24	1025	29	1025	35	1025	42	1050	49	1050
	100	20	950	25	950	31	975	37	975	44	975	51	975
.321 TO .370	0	16	1425	20	1425	25	1425	30	1400	36	1400	42	1400
	20	16	1350	21	1350	26	1350	31	1325	38	1325	44	1325
	40	17	1275	22	1275	27	1275	33	1275	40	1275	46	1250
	60	18	1200	23	1200	29	1200	35	1200	42	1200	49	1200
	80	20	1125	25	1125	31	1125	37	1125	44	1150	51	1150
	100	21	1050	26	1075	32	1075	39	1075	46	1075	54	1075
.371 TO .420	0	16	1525	21	1525	26	1525	32	1500	38	1500	45	1500
	20	17	1450	22	1450	27	1450	33	1425	40	1425	47	1425
	40	18	1375	23	1375	29	1375	35	1375	42	1375	49	1350
	60	19	1300	25	1300	30	1300	37	1300	44	1300	51	1300
	80	21	1225	26	1225	32	1225	39	1225	46	1250	54	1250
	100	22	1150	27	1175	34	1175	41	1175	48	1175	56	1175
.421 TO .520	0	19	1625	24	1625	30	1600	37	1600	44	1575	52	1575
	20	20	1550	26	1550	32	1525	39	1525	46	1525	54	1500
	40	21	1475	27	1475	33	1475	40	1475	48	1450	57	1450
	60	22	1400	28	1400	35	1400	42	1400	50	1400	59	1400
	80	23	1325	30	1325	36	1325	44	1350	52	1350	61	1350
	100	25	1250	31	1275	38	1275	46	1275	54	1300	64	1300
.521 TO .620	0	23	1600	29	1600	37	1575	45	1575	54	1575	63	1550
	20	24	1525	31	1525	38	1525	46	1525	56	1500	66	1500
	40	25	1475	32	1475	40	1450	48	1450	58	1450	68	1450
	60	27	1400	34	1400	42	1400	50	1400	60	1400	70	1400
	80	28	1325	35	1350	43	1350	52	1350	62	1350	73	1350
	100	29	1275	37	1275	45	1300	54	1300	64	1300	75	1300
.621 TO .720	0	27	1600	35	1575	43	1575	53	1550	63	1550	74	1525
	20	28	1525	36	1525	45	1500	54	1500	65	1500	77	1475
	40	30	1475	38	1450	46	1450	56	1450	67	1450	79	1450
	60	31	1400	39	1400	48	1400	58	1400	69	1400	81	1400
	80	32	1350	41	1350	50	1350	60	1350	72	1350	84	1350
	100	34	1275	42	1300	52	1300	62	1300	74	1325	86	1325
.721 TO .820	0	31	1575	40	1575	50	1550	61	1525	73	1525	86	1525
	20	32	1525	41	1500	51	1500	62	1500	75	1475	88	1475
	40	34	1450	43	1450	53	1450	64	1450	77	1450	90	1425
	60	35	1400	44	1400	55	1400	66	1400	79	1400	93	1400
	80	37	1350	46	1350	57	1350	68	1350	81	1350	95	1375
	100	38	1300	48	1300	59	1300	71	1325	83	1325	98	1325
.821 TO .920	0	35	1575	45	1550	56	1525	69	1525	82	1500	97	1500
	20	37	1500	47	1500	58	1500	71	1475	84	1475	100	1475
	40	38	1450	48	1450	60	1450	73	1450	87	1450	102	1425
	60	39	1400	50	1400	62	1400	75	1400	89	1400	104	1400
	80	41	1350	52	1350	63	1350	77	1375	91	1375	106	1375
	100	42	1300	53	1350	65	1325	79	1325	93	1350	109	1350

TABLE B — AVERAGE SPAN LENGTH 251 TO 400 FEET (Cont)											
SPAN LENGTH (FEET)											
CABLE WEIGHT (Lbs/Ft)	TEMP. (°F)	350		375		400		MAXIMUM TENSIONING SPANS			
								425		450	
		SAG (In.)	TENSION (Lbs)	SAG (In.)	TENSION (Lbs)	SAG (In.)	TENSION (Lbs)	SAG (In.)	TENSION (Lbs)	SAG (In.)	TENSION (Lbs)
UP TO .270	0	42	1200	48	1175	55	1175	63	1175	71	1150
	20	44	1125	51	1100	58	1100	66	1100	74	1100
	40	47	1050	54	1050	61	1050	70	1050	78	1050
	60	50	1000	57	1000	65	1000	73	1000	82	1000
	80	53	950	60	950	68	950	77	950	86	950
100	56	900	64	900	72	900	81	900	90	900	
.271 TO .320	0	46	1275	53	1275	61	1275	69	1250	78	1250
	20	48	1225	56	1225	64	1200	72	1200	81	1200
	40	51	1150	58	1150	67	1150	75	1150	85	1150
	60	53	1100	61	1100	70	1100	79	1100	88	1100
	80	56	1050	64	1050	73	1050	82	1050	92	1050
100	59	1000	68	1000	77	1000	86	1000	96	1000	
.321 TO .370	0	49	1375	57	1375	65	1375	74	1350	83	1350
	20	52	1325	59	1325	68	1300	77	1300	87	1300
	40	54	1250	62	1250	71	1250	80	1250	90	1250
	60	57	1200	65	1200	74	1200	84	1200	94	1200
	80	59	1150	68	1150	77	1150	87	1150	97	1150
100	62	1100	71	1100	80	1100	90	1100	101	1125	
.371 TO .420	0	52	1475	60	1475	69	1475	78	1450	88	1450
	20	54	1425	63	1400	72	1400	81	1400	91	1400
	40	57	1350	65	1350	75	1350	84	1350	95	1350
	60	59	1300	68	1300	78	1300	88	1300	98	1300
	80	62	1250	71	1250	81	1250	91	1250	102	1250
100	65	1200	74	1200	84	1200	94	1200	105	1200	
.421 TO .520	0	61	1575	70	1550	81	1550	92	1550	103	1525
	20	63	1500	73	1500	83	1500	94	1500	106	1475
	40	66	1450	76	1450	86	1450	98	1450	110	1450
	60	68	1400	78	1400	89	1400	101	1400	113	1400
	80	71	1350	81	1350	92	1350	104	1350	116	1350
100	73	1300	84	1300	95	1300	107	1325	119	1325	
.521 TO .620	0	74	1550	85	1525	98	1525	111	1525	—	—
	20	76	1500	88	1475	101	1475	114	1475	—	—
	40	79	1450	91	1450	103	1450	117	1425	—	—
	60	81	1400	93	1400	106	1400	120	1400	—	—
	80	84	1350	96	1350	109	1350	123	1375	—	—
100	87	1325	99	1325	112	1325	126	1325	—	—	
.621 TO .720	0	87	1525	100	1500	115	1500	—	—	—	—
	20	89	1475	103	1475	118	1475	—	—	—	—
	40	92	1450	106	1425	121	1425	—	—	—	—
	60	95	1400	108	1400	123	1400	—	—	—	—
	80	97	1375	111	1375	126	1375	—	—	—	—
100	100	1325	114	1325	129	1350	—	—	—	—	
.721 TO .820	0	100	1500	116	1500	—	—	—	—	—	—
	20	103	1475	118	1450	—	—	—	—	—	—
	40	105	1425	121	1425	—	—	—	—	—	—
	60	108	1400	124	1400	—	—	—	—	—	—
	80	110	1375	126	1375	—	—	—	—	—	—
100	113	1350	129	1350	—	—	—	—	—	—	
.821 TO .920	0	114	1500	—	—	—	—	—	—	—	—
	20	116	1450	—	—	—	—	—	—	—	—
	40	118	1425	—	—	—	—	—	—	—	—
	60	121	1400	—	—	—	—	—	—	—	—
	80	123	1375	—	—	—	—	—	—	—	—
100	126	1350	—	—	—	—	—	—	—	—	

TABLE C — AVERAGE SPAN LENGTH 401 TO 650 FEET

SPAN LENGTH (FEET)

CABLE WEIGHT (Lbs/Ft)	TEMP. (°F)	MINIMUM TENSIONING SPANS						425		450		475		500	
		350		375		400		SAG (In.)	TENSION (Lbs)	SAG (In.)	TENSION (Lbs)	SAG (In.)	TENSION (Lbs)	SAG (In.)	TENSION (Lbs)
		SAG (In.)	TENSION (Lbs)	SAG (In.)	TENSION (Lbs)	SAG (In.)	TENSION (Lbs)								
UP TO .270	0	30	1625	35	1625	40	1625	45	1625	51	1600	57	1600	63	1600
	20	32	1550	37	1550	42	1550	47	1550	53	1550	60	1525	66	1525
	40	34	1475	39	1475	44	1475	50	1475	56	1475	62	1475	69	1475
	60	35	1400	41	1400	46	1400	52	1400	59	1400	65	1400	72	1400
	80	37	1325	43	1325	49	1325	55	1325	61	1325	68	1325	76	1350
100	39	1250	45	1250	51	1275	58	1275	65	1275	72	1275	79	1275	
.271 TO .320	0	36	1625	42	1600	48	1600	54	1600	61	1600	68	1600	76	1575
	20	38	1550	44	1550	50	1525	57	1525	64	1525	71	1525	79	1525
	40	40	1475	46	1475	52	1475	59	1475	66	1450	74	1450	82	1450
	60	42	1400	48	1400	55	1400	62	1400	69	1400	77	1400	86	1400
	80	44	1325	51	1325	57	1325	65	1350	73	1350	81	1350	89	1350
100	46	1275	53	1275	60	1275	68	1275	76	1275	84	1275	93	1300	
.321 TO .370	0	42	1600	49	1600	56	1600	63	1575	71	1575	80	1575	89	1575
	20	44	1525	51	1525	58	1525	66	1525	74	1525	83	1500	92	1500
	40	46	1475	53	1475	61	1450	69	1450	77	1450	86	1450	96	1450
	60	49	1400	56	1400	63	1400	72	1400	80	1400	89	1400	99	1400
	80	51	1325	58	1350	66	1350	75	1350	84	1350	93	1350	103	1350
100	53	1275	61	1275	69	1275	78	1300	87	1300	96	1300	107	1300	

TABLE C — AVERAGE SPAN LENGTH 401 TO 650 FEET (Cont)

SPAN LENGTH (FEET)

CABLE WEIGHT (Lbs/Ft)	TEMP. (°F)	525		550		575		600		625		650	
		SAG (In.)	TENSION (Lbs)	SAG (In.)	TENSION (Lbs)	SAG (In.)	TENSION (Lbs)	SAG (In.)	TENSION (Lbs)	SAG (In.)	TENSION (Lbs)	SAG (In.)	TENSION (Lbs)
UP TO .270	0	70	1600	77	1600	84	1575	92	1575	100	1575	109	1575
	20	73	1525	80	1525	88	1525	96	1525	104	1525	113	1500
	40	76	1475	84	1450	92	1450	100	1450	109	1450	118	1450
	60	80	1400	88	1400	96	1400	104	1400	113	1400	122	1400
	80	83	1350	91	1350	100	1350	108	1350	118	1350	127	1350
100	87	1275	95	1275	104	1300	113	1300	122	1300	132	1300	
.271 TO .320	0	84	1575	92	1575	101	1550	111	1550	—	—	—	—
	20	87	1525	96	1500	105	1500	115	1500	—	—	—	—
	40	91	1450	100	1450	109	1450	119	1450	—	—	—	—
	60	95	1400	104	1400	113	1400	123	1400	—	—	—	—
	80	98	1350	108	1350	118	1350	128	1350	—	—	—	—
100	102	1300	112	1300	122	1300	132	1300	—	—	—	—	
.321 TO .370	0	98	1550	108	1550	—	—	—	—	—	—	—	—
	20	102	1500	112	1500	—	—	—	—	—	—	—	—
	40	105	1450	116	1450	—	—	—	—	—	—	—	—
	60	109	1400	120	1400	—	—	—	—	—	—	—	—
	80	113	1350	124	1350	—	—	—	—	—	—	—	—
100	117	1300	128	1300	—	—	—	—	—	—	—	—	