

THREAD CONSUMPTION

THREAD CONSUMPTION EQUATIONS COMPILED BY
UNION SPECIAL MACHINE COMPANY TO APPROX-
IMATE THE TOTAL THREAD CONSUMED IN A SEAM,
USING ANY OF THE MANY VARIETIES OF STITCH
TYPES.



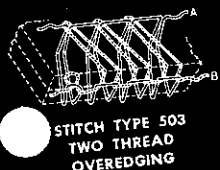
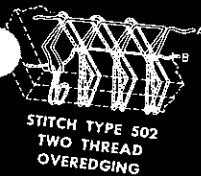
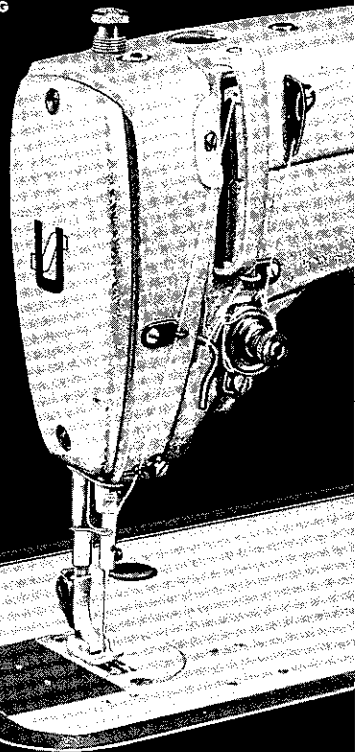
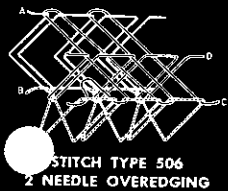
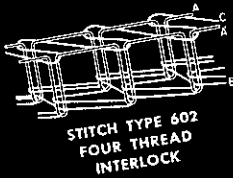
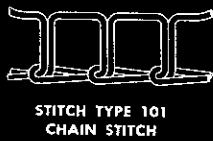
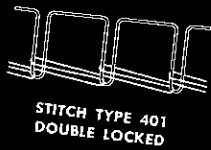
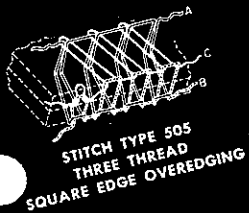
FINEST QUALITY

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INDUSTRIAL

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THREAD CONSUMPTION

The accompanying equations were compiled to approximate the total thread consumed in a seam, using any of the many varieties of stitch types. So that the equations might be flexible and applied to any given length of seam, they are shown for one inch of seam only, and may be multiplied by the length of the seam to determine the total thread consumed. When comparing the various equations with theoretical stitch types, there may appear to be an error. However, from actual thread consumption measurements, the equations have been proven to be reasonably close for general use. In developing the equations, simplifying assumptions were made which have been justified by actual test of thread lengths in many of the stitch types. Formulas for the amount of needle, looper, or cover thread in a particular stitch are impractical because the amount of these threads depends upon unknown factors, such as thread tensions, etc. It is possible, however, to approximate the total thread used, since changes in the amount of needle, bobbin and looper thread will change proportionately, leaving very little difference in the total thread used. Using the 301 stitch as an example, if the bobbin tension were set tighter than the needle thread tension, the thread loops would be pulled tight closer to the lower edge of the material. This would cause the use of more needle thread than bobbin thread. The total thread consumption, however, would remain the same. Of course, extreme changes in any of the tensions would destroy the stitch appearance and make the particular equation useless.

The second page of this booklet lists a complete summary of all the equations for each stitch type. The third and fourth pages have drawings which explain how a few of the equations were derived. Pages five through thirty-four contain graphs to show some of the more popular stitch types, with a reasonable range of stitch lengths and seam thicknesses.

As an example of the use of these graphs, let us take the 301 lockstitch on page 6. If the customer is sewing 10 stitches per inch, and across the stitching we measure an .060 inch thickness, the thread consumed every inch would be approximately 3.20 inches. This value can be multiplied by the seam length to determine the thread consumed on the full seam. The equations do not include thread used chaining off between garments.

It will be found when using the overedge stitches (the 500 series), that the percentage of error will be larger where there are fewer stitches per inch and smaller where there are more stitches per inch. This is due to the fact that the formula assumes the overedging to be practically paralleled, and when using few stitches per inch, say 3 or 4, the thread forms a diagonal and measures approximately 5 to 6% more than that calculated.

Prepared by: UNION SPECIAL CORPORATION
CHICAGO, ILLINOIS
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THREAD CONSUMPTION EQUATIONS

Where: C = Total thread consumed per inch of seam
W = Width of seam (overall)
D = Distance between nearest 2 of 3 combined rows of stitches
T = Thickness of material
S = Stitches per inch (S.P.I.)
N = Length of one stitch in inches
S = 1/N = Stitches per inch
If N = 1/8 then: S = 1/1/8 or S = 8 S.P.I.

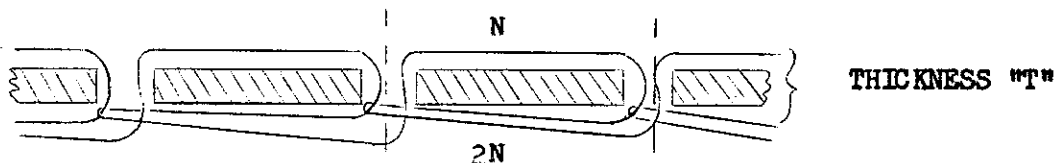
(*) Cover thread assumed to be 2W + N

(**) Cover thread assumed to be 2W + N + 2T

101 Stitch	$C = (3N + 2T)S = (3N + 2T)1/N = 3 + 2TS$
301 Stitch	$C = (2N + 2T)1/S = 2 + 2TS = (2N + 2T)N$
302 Stitch	$C = (3N + 4T + 2W)S = 3 + 4TS + 2WS = 3 + 2S(2T + W)$
303 Stitch	$C = (4N + 6T + 2W)S = 4 + 6TS + 2WS = 4 + 2S(3T + W)$
304 Stitch	$C = (2\sqrt{W^2 + N^2} + 2T)S = 2S(\sqrt{W^2 + N^2} + T)$
305 Stitch	$C = (3\sqrt{W^2 + N^2} + 4T + 2W)S$
401 Stitch	$C = (4N + 2T)S = (4N + 2T)1/N = 4 + 2TS$
402 Stitch	$C = (5N + 4T + 4W)S = 5 + 4TS + 4WS = 5 + 4S(T + W)$
403 Stitch	$C = (6N + 6T + 4W)S = 6 + 6TS + 4WS = 6 + 2S(3T + 2W)$
404 Stitch	$C = (4\sqrt{W^2 + N^2} + 2T)S = 2S(2\sqrt{W^2 + N^2} + T)$
405 Stitch	$C = (5\sqrt{W^2 + N^2} + 4T + 3W)S$
406 Stitch	$C = (7N + 4T + 2W)S = 7 + 4TS + 2WS = 7 + 2S(2T + W)$
407 Stitch	$C = (9N + 6T + 2W)S = 9 + 6TS + 2WS = 9 + 2S(3T + W)$
501 Stitch	$C = (\sqrt{N^2 + (2W + 2T)^2} + N)S$
502 Stitch	$C = (4W + 4T + 2N)S = 4W + 4T + 2N/N = 4WS + 4TS + 2 = 4S(W + T) + 2$
503 Stitch	$C = (4W + 4T + 2N)S = 4W + 4T + 2N/N = 4WS + 4TS + 2 = 4S(W + T) + 2$
504 Stitch	$C = (4W + 4T + 5N)S = 4W + 4T + 5N/N = 4WS + 4TS + 5 = 4S(W + T) + 5$
505 Stitch	$C = (4W + 4T + 5N)S = 4W + 4T + 5N/N = 4WS + 4TS + 5 = 4S(W + T) + 5$
506 Stitch	$C = (5N + 6T + 4W)S = 5 + 6TS + 4WS$
512 Stitch	$C = (5N + 6T + 4W - 2ns)S = 5N + 6T + 4W - 2ns/N = 5 + 6TS + 4WS + 2nsS$ $= 5 + 2S(3T + 2W - ns)$
**601 Stitch	$C = (7N + 4W + 4T)S = 7 + 4WS + 4TS = 7 + 4S(W + T)$
*602 Stitch	$C = (8N + 5W + 4T)S = 8 + 5WS + 4TS = 8 + S(5W + 4T)$
603 Stitch	$C = (9N + 4W + 4T)S = 9 + 4WS + 4TS = 9 + 4S(W + T)$
604 Stitch	$C = (11N + 4W + 6T)S = 11 + 4WS + 6TS = 11 + 2S(2W + 3T)$
*605 Stitch	$C = (10N + 4W + 6T)S = 10 + 4WS + 6TS = 10 + 2S(2W + 3T)$
606 Stitch	$C = (15N + 8D + 2W + 8T)S = 15 + 8DS + 2WS + 8TS = 15 + 2S(4D + W + 4T)$
607 Stitch	$C = 12 + 4S(W + 2T)$

THREAD CONSUMPTION DERIVATIONS

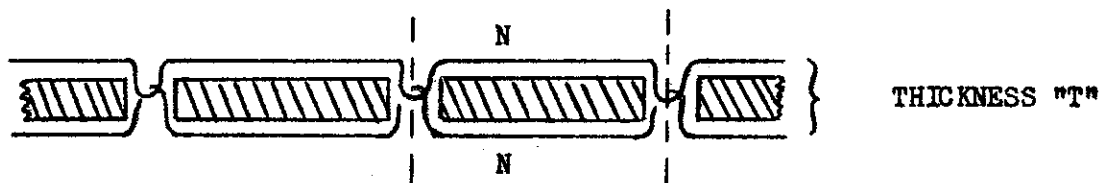
STITCH TYPE 101



Thread consumed per one stitch = 3 Stitch Length + 2 Thickness
 Thread consumed per 1" of seam = (3N+2T) Stitches Per Inch
 = (3N+2T)S = 3+2TS

Example: (8 S.P.I.)
 one stitch (1/8 inch)
 $C = (3N+2T)S = (3(1/8)+2T)8 = 3+2T(8)$

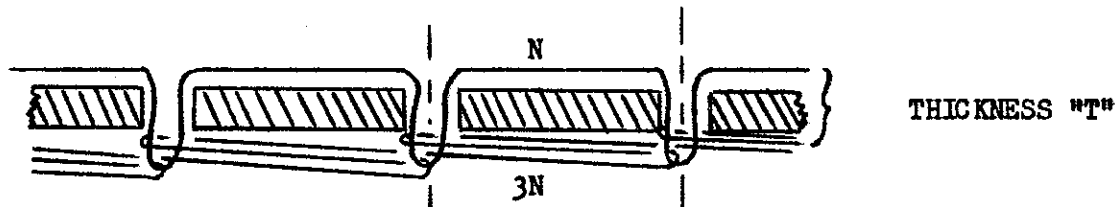
STITCH TYPE 301



Thread consumed per one stitch = 2 Stitch Length + 2 Thickness
 Thread consumed per 1" of seam = (2N+2T) Stitches Per Inch
 = (2N+2T)S = 2+2TS

Example: (8 S.P.I.)
 one stitch (1/8 inch)
 $C = (2N+2T)S = (2(1/8)+2T)8 = 2+2T(8)$

STITCH TYPE 401

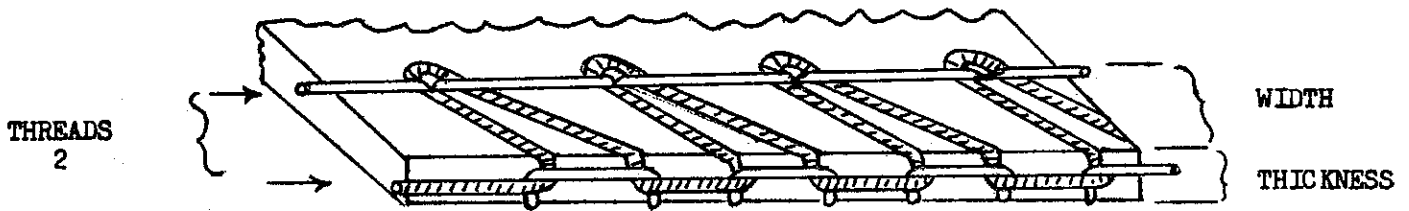


Thread consumed per one stitch = 4 Stitch Length + 2 Thickness
 Thread consumed per 1" of seam = (4N+2T) Stitches Per Inch
 = (4N+2T)S = 4+2TS

Example: (8 S.P.I.)
 one stitch (1/8 inch)
 $C = (4N+2T)S = (4(1/8)+2T)8 = 4+2T(8)$

THREAD CONSUMPTION DERIVATIONS

STITCH TYPE 503



Thread consumed per one stitch = 2 Stitch Length + 4 Width + 4 Thickness

Thread consumed per 1" of seam = (2N+4W+4T) Stitches Per Inch

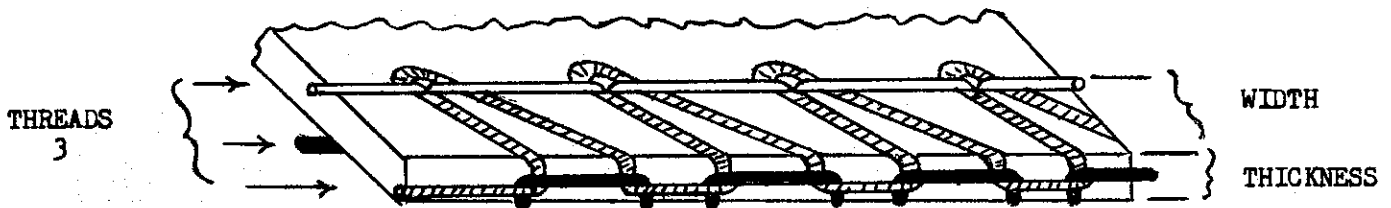
$$= (2N+4W+4T)S = 2+4WS+4TS$$

Example: (8 S.P.I.)

one stitch (1/8 inch)

$$C = (2N+4W+4T)S = (2(1/8)+4W+4T)8 = 2+4W(8)+4T(8)$$

STITCH TYPE 504



Thread consumed per one stitch = 3 Stitch Length + 4 Width + 4 Thickness

Thread consumed per 1" of seam = (3N+4W+4T) Stitches Per Inch

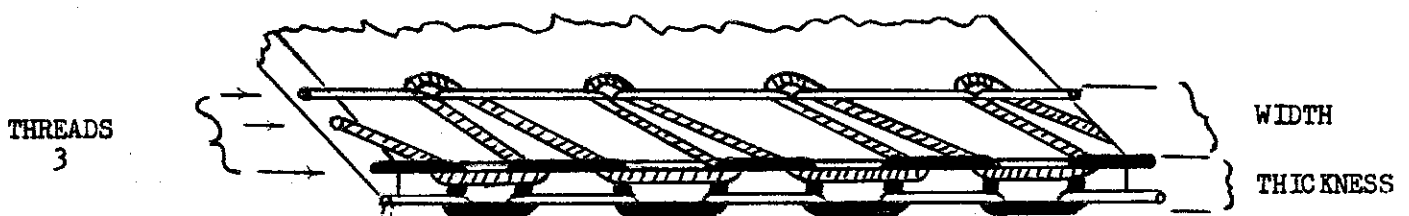
$$= (3N+4W+4T)S = 3+4WS+4TS$$

Example: (4 S.P.I.)

one stitch (1/4 inch)

$$C = (3N+4W+4T)S = (3(1/4)+4W+4T)4 = 3+4W(4)+4T(4)$$

STITCH TYPE 505



Thread consumed per one stitch = 3 Stitch Length + 4 Width + 4 Thickness

Thread consumed per 1" of seam = (3N+4W+4T) Stitches Per Inch.

$$= (3N+4W+4T)S = 3+4WS+4TS$$

Example: (5 S.P.I.)

one stitch (1/5 inch)

$$C = (3N+4W+4T)S = (3(1/5)+4W+4T)5 = 3+4W(5)+4T(5)$$

APPROXIMATE TOTAL THREAD CONSUMED PER INCH OF SEAM ON ONE GARMENT
USING STITCH TYPE 101

STITCHES PER INCH

SEAM THICKNESS		6	8	10	12	14	16	18	20
	.005	3.06	3.08	3.10	3.12	3.14	3.16	3.18	3.20
	.010	3.12	3.16	3.20	3.24	3.28	3.32	3.36	3.40
	.015	3.18	3.24	3.30	3.36	3.42	3.48	3.54	3.60
	.020	3.24	3.32	3.40	3.48	3.56	3.64	3.72	3.80
	.025	3.30	3.40	3.50	3.60	3.70	3.80	3.90	4.00
	.030	3.36	3.48	3.60	3.72	3.84	3.96	4.08	4.20
	.035	3.42	3.56	3.70	3.84	3.98	4.12	4.26	4.40
	.040	3.48	3.64	3.80	3.96	4.12	4.28	4.44	4.60
	.045	3.54	3.72	3.90	4.08	4.26	4.44	4.62	4.80
	.050	3.60	3.80	4.00	4.20	4.40	4.60	4.80	5.00
	.055	3.66	3.88	4.10	4.32	4.54	4.76	4.98	5.20
	.060	3.72	3.96	4.20	4.44	4.68	4.92	5.16	5.40
	.065	3.78	4.04	4.30	4.56	4.82	5.08	5.34	5.60
	.070	3.84	4.12	4.40	4.68	4.96	5.24	5.52	5.80
	.075	3.90	4.20	4.50	4.80	5.10	5.40	5.70	6.00
	.080	3.96	4.28	4.60	4.92	5.24	5.56	5.88	6.20
	.085	4.02	4.36	4.70	5.04	5.38	5.72	6.06	6.40
	.090	4.08	4.44	4.80	5.16	5.52	5.88	6.24	6.60
	.095	4.14	4.52	4.90	5.28	5.66	6.04	6.42	6.80
	.100	4.20	4.60	5.00	5.40	5.80	6.20	6.60	7.00

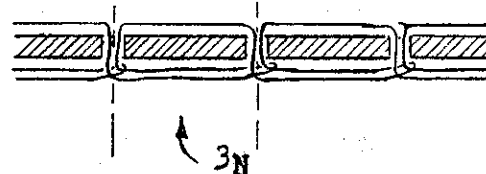
C = Total inches of thread consumed per inch of seam using 101 stitch

s = stitches per inch

N = length of one stitch in inches

T = thickness of material

s = 1/N



$$C = (3N + 2T)s = \frac{3N + 2T}{N} = 3 + 2Ts$$

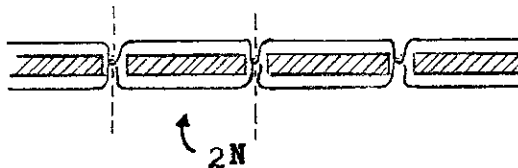
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APPROXIMATE TOTAL THREAD CONSUMED PER INCH OF SEAM ON ONE GARMENT
USING STITCH TYPE 301

STITCHES PER INCH

SEAM THICKNESS		6	8	10	12	14	16	18	20
	.005	2.06	2.08	2.10	2.12	2.14	2.16	2.18	2.20
	.010	2.12	2.16	2.20	2.24	2.28	2.32	2.36	2.40
	.015	2.18	2.24	2.30	2.36	2.42	2.48	2.54	2.60
	.020	2.24	2.32	2.40	2.48	2.56	2.64	2.72	2.80
	.025	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00
	.030	2.36	2.48	2.60	2.72	2.84	2.96	3.08	3.20
	.035	2.42	2.56	2.70	2.84	2.98	3.12	3.26	3.40
	.040	2.48	2.64	2.80	2.96	3.12	3.28	3.44	3.60
	.045	2.54	2.72	2.90	3.08	3.26	3.44	3.62	3.80
	.050	2.60	2.80	3.00	3.20	3.40	3.60	3.80	4.00
	.055	2.66	2.88	3.10	3.32	3.54	3.76	3.98	4.20
	.060	2.72	2.96	3.20	3.44	3.68	3.92	4.16	4.40
	.065	2.78	3.04	3.30	3.56	3.82	4.08	4.34	4.60
	.070	2.84	3.12	3.40	3.68	3.96	4.24	4.52	4.80
	.075	2.90	3.20	3.50	3.80	4.10	4.40	4.70	5.00
	.080	2.96	3.28	3.60	3.92	4.24	4.56	4.88	5.20
	.085	3.02	3.36	3.70	4.04	4.38	4.72	5.06	5.40
	.090	3.08	3.44	3.80	4.16	4.52	4.88	5.24	5.60
	.095	3.14	3.52	3.90	4.28	4.66	5.04	5.42	5.80
	.100	3.20	3.60	4.00	4.40	4.80	5.20	5.60	6.00

C = Total inches of thread consumed per inch of seam using 301 stitch
s = stitches per inch
N = length of one stitch in inches
T = thickness of material
 $s = 1/N$



$$C = (2N + 2T)s = \frac{2N + 2T}{N} = 2 + 2Ts$$

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APPROXIMATE TOTAL THREAD CONSUMED PER INCH OF SEAM ON ONE GARMENT
USING STITCH TYPE 304-1/16" NEEDLE TRAVEL

STITCHES PER INCH

SEAM THICKNESS	STITCHES PER INCH											
		3	4	5	6	8	10	12	14	16	18	20
	.005	2.06	2.10	2.14	2.20	2.32	2.46	2.62	2.80	2.98	3.20	3.40
	.010	2.09	2.14	2.19	2.26	2.40	2.56	2.74	2.94	3.14	3.38	3.60
	.015	2.12	2.18	2.24	2.32	2.48	2.66	2.86	3.08	3.30	3.56	3.80
	.020	2.15	2.22	2.29	2.38	2.56	2.76	2.98	3.22	3.46	3.74	4.00
	.025	2.18	2.26	2.34	2.44	2.64	2.86	3.10	3.36	3.62	3.92	4.20
	.030	2.21	2.30	2.39	2.50	2.72	2.96	3.22	3.50	3.78	4.10	4.40
	.035	2.24	2.34	2.44	2.56	2.80	3.06	3.34	3.64	3.94	4.28	4.60
	.040	2.27	2.38	2.49	2.62	2.88	3.16	3.46	3.78	4.10	4.46	4.80
	.045	2.30	2.42	2.54	2.68	2.96	3.26	3.58	3.92	4.26	4.64	5.00
	.050	2.33	2.46	2.59	2.74	3.04	3.36	3.70	4.06	4.42	4.82	5.20
	.055	2.36	2.50	2.64	2.80	3.12	3.46	3.82	4.20	4.58	5.00	5.40
	.060	2.39	2.54	2.69	2.86	3.20	3.56	3.94	4.34	4.74	5.18	5.60
	.065	2.42	2.58	2.74	2.92	3.28	3.66	4.06	4.48	4.90	5.36	5.80
	.070	2.45	2.62	2.79	2.98	3.36	3.76	4.18	4.62	5.06	5.54	6.00
	.075	2.48	2.66	2.84	3.04	3.44	3.86	4.30	4.76	5.22	5.72	6.20
	.080	2.51	2.70	2.89	3.10	3.52	3.96	4.42	4.90	5.38	5.90	6.40
	.085	2.54	2.74	2.94	3.16	3.60	4.06	4.54	5.04	5.54	6.08	6.60
	.090	2.57	2.78	2.99	3.22	3.68	4.16	4.66	5.18	5.70	6.26	6.80
	.095	2.60	2.82	3.04	3.28	3.76	4.26	4.78	5.32	5.86	6.44	7.00
	.100	2.63	2.86	3.09	3.34	3.84	4.36	4.90	5.46	6.02	6.62	7.20

C = Total inches of thread consumed per inch of seam

W = Width of stitch = 1/16" = .0625

T = Thickness of material

S = Stitches per inch

N = Length of one stitch

$S = 1/N$

$C = 2S (\sqrt{W^2 + N^2} + T)$

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APPROXIMATE TOTAL THREAD CONSUMED PER INCH OF SEAM ON ONE GARMENT
USING STITCH TYPE 304-1/8" NEEDLE TRAVEL

STITCHES PER INCH

SEAM THICKNESS	STITCHES PER INCH											
		3	4	5	6	8	10	12	14	16	18	20
.005	2.17	2.28	2.41	2.56	2.91	3.30	3.72	4.17	4.64	5.11	5.64	
.010	2.20	2.32	2.46	2.62	2.99	3.40	3.84	4.31	4.80	5.29	5.84	
.015	2.23	2.36	2.51	2.68	3.07	3.50	3.96	4.45	4.96	5.47	6.04	
.020	2.26	2.40	2.56	2.74	3.15	3.60	4.08	4.59	5.12	5.65	6.24	
.025	2.29	2.44	2.61	2.80	3.23	3.70	4.20	4.73	5.28	5.83	6.44	
.030	2.32	2.48	2.66	2.86	3.31	3.80	4.32	4.87	5.44	6.01	6.64	
.035	2.35	2.52	2.71	2.92	3.39	3.90	4.44	5.01	5.60	6.19	6.84	
.040	2.38	2.56	2.76	2.98	3.47	4.00	4.56	5.15	5.76	6.37	7.04	
.045	2.41	2.60	2.81	3.04	3.55	4.10	4.68	5.29	5.92	6.55	7.24	
.050	2.44	2.64	2.86	3.10	3.63	4.20	4.80	5.43	6.08	6.73	7.44	
.055	2.47	2.68	2.91	3.16	3.71	4.30	4.92	5.57	6.24	6.91	7.64	
.060	2.50	2.72	2.96	3.22	3.79	4.40	5.04	5.71	6.40	7.09	7.84	
.065	2.53	2.76	3.01	3.28	3.87	4.50	5.16	5.85	6.56	7.27	8.04	
.070	2.56	2.80	3.06	3.34	3.95	4.60	5.28	5.99	6.72	7.45	8.24	
.075	2.59	2.84	3.11	3.40	4.03	4.70	5.40	6.13	6.88	7.63	8.44	
.080	2.62	2.88	3.16	3.46	4.11	4.80	5.52	6.27	7.04	7.81	8.64	
.085	2.65	2.92	3.21	3.52	4.19	4.90	5.64	6.41	7.20	7.99	8.84	
.090	2.68	2.96	3.26	3.58	4.27	5.00	5.76	6.55	7.36	8.17	9.04	
.095	2.71	3.00	3.31	3.64	4.35	5.10	5.88	6.69	7.52	8.35	9.24	
.100	2.74	3.04	3.36	3.70	4.43	5.20	6.00	6.83	7.68	8.53	9.44	

C = Total inches of thread consumed per inch of seam

W = Width of stitch = 1/8" = .125

T = Thickness of material

S = Stitches per inch

N = Length of one stitch

S = 1/N

$$C = (2\sqrt{W^2 + N^2} + 2T)S = 2S (\sqrt{W^2 + N^2} + T)$$

APPROXIMATE TOTAL THREAD CONSUMED PER INCH OF SEAM ON ONE GARMENT
USING STITCH TYPE 304-3/16" NEEDLE THROW

STITCHES PER INCH

SEAM THICKNESS	STITCHES PER INCH											
		3	4	5	6	8	10	12	14	16	18	20
	.005	2.33	2.54	2.79	3.07	3.70	4.32	5.06	5.77	6.50	7.24	7.96
	.010	2.36	2.58	2.84	3.13	3.78	4.42	5.18	5.91	6.66	7.42	8.16
	.015	2.39	2.62	2.89	3.19	3.86	4.52	5.30	6.05	6.82	7.60	8.36
	.020	2.42	2.66	2.94	3.25	3.94	4.62	5.42	6.19	6.98	7.78	8.56
	.025	2.45	2.70	2.99	3.31	4.02	4.72	5.54	6.33	7.14	7.96	8.76
	.030	2.48	2.74	3.04	3.37	4.10	4.82	5.66	6.47	7.30	8.14	8.96
	.035	2.51	2.78	3.09	3.43	4.18	4.92	5.78	6.61	7.46	8.32	9.16
	.040	2.54	2.82	3.14	3.49	4.26	5.02	5.90	6.75	7.62	8.50	9.36
	.045	2.57	2.86	3.19	3.55	4.34	5.12	6.02	6.89	7.78	8.68	9.56
	.050	2.60	2.90	3.24	3.61	4.42	5.22	6.14	7.03	7.94	8.86	9.76
	.055	2.63	2.94	3.29	3.67	4.50	5.32	6.26	7.17	8.10	9.04	9.96
	.060	2.66	2.98	3.34	3.73	4.58	5.42	6.38	7.31	8.26	9.22	10.16
	.065	2.69	3.02	3.39	3.79	4.66	5.52	6.50	7.45	8.42	9.40	10.36
	.070	2.72	3.06	3.44	3.85	4.74	5.62	6.62	7.59	8.58	9.58	10.56
	.075	2.75	3.10	3.49	3.91	4.82	5.72	6.74	7.73	8.74	9.76	10.76
	.080	2.78	3.14	3.54	3.97	4.90	5.82	6.86	7.87	8.90	9.94	10.96
	.085	2.81	3.18	3.59	4.03	4.98	5.92	6.98	8.01	9.06	10.12	11.16
	.090	2.84	3.22	3.64	4.09	5.06	5.02	7.10	8.15	9.22	10.30	11.36
	.095	2.87	3.26	3.69	4.15	5.14	5.12	7.22	8.29	9.38	10.48	11.56
	.100	2.90	3.30	3.74	4.21	5.22	6.22	7.34	8.43	9.54	10.66	11.76

C = Total inches of thread consumed per inch of seam

W = Width of stitch = 3/16" = .188

T = Thickness of material

S = Stitches per inch

N = Length of one stitch

S = 1/N

$$C = (2\sqrt{W^2 + N^2} + 2T)S = 2S (\sqrt{W^2 + N^2} + T)$$

Union Special CORPORATION

APPROXIMATE TOTAL THREAD CONSUMED PER INCH OF SEAM ON ONE GARMENT
USING STITCH TYPE 304-1/4" NEEDLE TRAVEL

		STITCHES PER INCH										
SEAM THICKNESS		3	4	5	6	8	10	12	14	16	18	20
	.005	2.53	2.87	3.25	3.66	4.56	5.48	6.46	7.42	8.42	9.40	10.36
	.010	2.56	2.91	3.30	3.72	4.64	5.58	6.58	7.56	8.58	9.58	10.56
	.015	2.59	2.95	3.35	3.78	4.72	5.68	6.70	7.70	8.74	9.76	10.76
	.020	2.62	2.99	3.40	3.84	4.80	5.78	6.82	7.84	8.90	9.94	10.96
	.025	2.65	3.03	3.45	3.90	4.88	5.88	6.94	7.98	9.06	10.12	11.16
	.030	2.68	3.07	3.50	3.96	4.96	5.98	7.06	8.12	9.22	10.30	11.36
	.035	2.71	3.11	3.55	4.02	5.04	6.08	7.18	8.26	9.38	10.48	11.56
	.040	2.74	3.15	3.60	4.08	5.12	6.18	7.30	8.40	9.54	10.66	11.76
	.045	2.77	3.19	3.65	4.14	5.20	6.28	7.42	8.54	9.70	10.84	11.96
	.050	2.80	3.23	3.70	4.20	5.28	6.38	7.54	8.68	9.86	11.02	12.16
	.055	2.83	3.27	3.75	4.26	5.36	6.48	7.66	8.82	10.02	11.20	12.36
	.060	2.86	3.31	3.80	4.32	5.44	6.58	7.78	8.96	10.18	11.38	12.56
	.065	2.89	3.35	3.85	4.38	5.52	6.68	7.90	9.10	10.34	11.56	12.76
	.070	2.92	3.39	3.90	4.44	5.60	6.78	8.02	9.24	10.50	11.74	12.96
	.075	2.95	3.43	3.95	4.50	5.68	6.88	8.14	9.38	10.66	11.92	13.16
	.080	2.98	3.47	4.00	4.56	5.76	6.98	8.26	9.52	10.82	12.10	13.36
	.085	3.01	3.51	4.05	4.62	5.84	7.08	8.38	9.66	10.98	12.28	13.56
	.090	3.04	3.55	4.10	4.68	5.92	7.18	8.50	9.80	11.14	12.46	13.76
	.095	3.07	3.59	4.15	4.74	6.00	7.28	8.62	9.94	11.30	12.64	13.96
	.100	3.10	3.63	4.20	4.80	6.08	7.38	8.74	10.08	11.46	12.82	14.16

C = Total inches of thread consumed per inch of seam

W = Width of stitch = 1/4" = .25

T = Thickness of material

S = Stitches per inch

N = Length of one stitch

S = 1/N

$$C = (2\sqrt{W^2 + N^2} + 2T)S = 2S (\sqrt{W^2 + N^2} + T)$$

Union Special CORPORATION

APPROXIMATE TOTAL THREAD CONSUMED PER INCH OF SEAM ON ONE GARMENT
USING STITCH TYPE 401

		STITCHES PER INCH							
		6	8	10	12	14	16	18	20
SEAM THICKNESS	.005	4.06	4.08	4.10	4.12	4.14	4.16	4.18	4.20
	.010	4.12	4.16	4.20	4.24	4.28	4.32	4.36	4.40
	.015	4.18	4.24	4.30	4.36	4.42	4.48	4.54	4.60
	.020	4.24	4.32	4.40	4.48	4.56	4.64	4.72	4.80
	.025	4.30	4.40	4.50	4.60	4.70	4.80	4.90	5.00
	.030	4.36	4.48	4.60	4.72	4.84	4.96	5.08	5.20
	.035	4.42	4.56	4.70	4.84	4.98	5.12	5.26	5.40
	.040	4.48	4.64	4.80	4.96	5.12	5.28	5.44	5.60
	.045	4.54	4.72	4.90	5.08	5.26	5.44	5.62	5.80
	.050	4.60	4.80	5.00	5.20	5.40	5.60	5.80	6.00
	.055	4.66	4.88	5.10	5.32	5.54	5.76	5.98	6.20
	.060	4.72	4.96	5.20	5.44	5.68	5.92	6.16	6.40
	.065	4.78	5.04	5.30	5.56	5.82	6.08	6.34	6.60
	.070	4.84	5.12	5.40	5.68	5.96	6.24	6.52	6.80
	.075	4.90	5.20	5.50	5.80	6.10	6.40	6.70	7.00
	.080	4.96	5.28	5.60	5.92	6.24	6.56	6.88	7.20
	.085	5.02	5.36	5.70	6.04	6.38	6.72	7.06	7.40
	.090	5.08	5.44	5.80	6.16	6.52	6.88	7.24	7.60
	.095	5.14	5.52	5.90	6.28	6.66	7.04	7.42	7.80
	.100	5.20	5.60	6.00	6.40	6.80	7.20	7.60	8.00

C = Total inches of thread consumed per inch of seam using 401 stitch

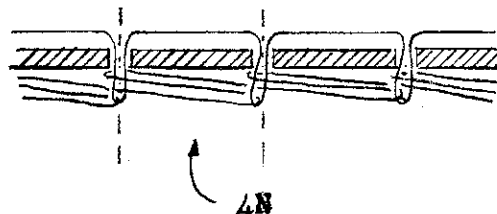
s = stitches per inch

N = length of one stitch in inches

T = thickness of material

s = 1/N

$$C = (4N + 2T)s = \frac{4N + 2T}{N} = 4 + 2Ts$$



Union Special CORPORATION

APPROXIMATE TOTAL THREAD CONSUMED PER INCH OF SEAM ON ONE GARMENT
USING STITCH TYPE 404-1/16" NEEDLE THROW

		STITCHES PER INCH										
		3	4	5	6	8	10	12	14	16	18	20
SEAM THICKNESS	.005	4.10	4.15	4.23	4.33	4.56	4.82	5.11	5.46	5.79	6.23	6.60
	.010	4.13	4.19	4.28	4.39	4.64	4.92	5.23	5.60	5.95	6.41	6.80
	.015	4.16	4.23	4.33	4.45	4.72	5.02	5.35	5.74	6.11	6.59	7.00
	.020	4.19	4.27	4.38	4.51	4.80	5.12	5.47	5.88	6.27	6.77	7.20
	.025	4.22	4.31	4.43	4.57	4.88	5.22	5.59	6.02	6.43	6.95	7.40
	.030	4.25	4.35	4.48	4.63	4.96	5.32	5.71	6.16	6.59	7.13	7.60
	.035	4.28	4.39	4.53	4.69	5.04	5.42	5.83	6.30	6.75	7.31	7.80
	.040	4.31	4.43	4.58	4.75	5.12	5.52	5.95	6.44	6.91	7.49	8.00
	.045	4.34	4.47	4.63	4.81	5.20	5.62	6.07	6.58	7.07	7.67	8.20
	.050	4.37	4.51	4.68	4.87	5.28	5.72	6.19	6.72	7.23	7.85	8.40
	.055	4.40	4.55	4.73	4.93	5.36	5.82	6.31	6.86	7.39	8.03	8.60
	.060	4.43	4.59	4.78	4.99	5.44	5.92	6.43	7.00	7.55	8.21	8.80
	.065	4.46	4.63	4.83	5.05	5.52	6.02	6.55	7.14	7.71	8.39	9.00
	.070	4.49	4.67	4.88	5.11	5.60	6.12	6.67	7.28	7.87	8.57	9.20
	.075	4.52	4.71	4.93	5.17	5.68	6.22	6.79	7.42	8.03	8.75	9.40
	.080	4.55	4.75	4.98	5.23	5.76	6.32	6.91	7.56	8.19	8.93	9.60
	.085	4.58	4.79	5.03	5.29	5.84	6.42	7.03	7.70	8.35	9.11	9.80
	.090	4.61	4.83	5.08	5.35	5.92	6.52	7.15	7.84	8.51	9.29	10.00
	.095	4.64	4.87	5.13	5.41	6.00	6.62	7.27	7.98	8.67	9.47	10.20
	.100	4.67	4.91	5.18	5.47	6.08	6.72	7.39	8.12	8.83	9.65	10.40

C = Total inches of thread consumed per inch of seam

W = Width of stitch = 1/16" = .0625

T = Thickness of material

S = Stitches per inch

N = Length of one stitch

S = 1/N

$$C = (4\sqrt{W^2 + N^2} + 2T)S = 2S (2\sqrt{W^2 + N^2} + T)$$

Union Special CORPORATION

APPROXIMATE TOTAL THREAD CONSUMED PER INCH OF SEAM ON ONE GARMENT
USING STITCH TYPE 404-1/8" NEEDLE THROW

STITCHES PER INCH

SEAM THICKNESS		3	4	5	6	8	10	12	14	16	18	20
	.005	4.30	4.52	4.77	5.05	5.74	6.50	7.32	8.20	9.12	10.04	11.08
	.010	4.33	4.56	4.82	5.11	5.82	6.60	7.44	8.34	9.28	10.22	11.28
	.015	4.36	4.60	4.87	5.17	5.90	6.70	7.56	8.48	9.44	10.40	11.48
	.020	4.39	4.64	4.92	5.23	5.98	6.80	7.68	8.62	9.60	10.58	11.68
	.025	4.42	4.68	4.97	5.29	6.06	6.90	7.80	8.76	9.76	10.76	11.88
	.030	4.45	4.72	5.02	5.35	6.14	7.00	7.92	8.90	9.92	10.94	12.08
	.035	4.48	4.76	5.07	5.41	6.22	7.10	8.04	9.04	10.08	11.12	12.28
	.040	4.51	4.80	5.12	5.47	6.30	7.20	8.16	9.18	10.24	11.30	12.48
	.045	4.54	4.84	5.17	5.53	6.38	7.30	8.28	9.32	10.40	11.48	12.68
	.050	4.57	4.88	5.22	5.59	6.46	7.40	8.40	9.46	10.56	11.66	12.88
	.055	4.60	4.92	5.27	5.65	6.54	7.50	8.52	9.60	10.72	11.84	13.08
	.060	4.63	4.96	5.32	5.71	6.62	7.60	8.64	9.74	10.88	12.02	13.28
	.065	4.66	5.00	5.37	5.77	6.70	7.70	8.76	9.88	11.04	12.20	13.48
	.070	4.69	5.04	5.42	5.83	6.78	7.80	8.88	10.02	11.20	12.38	13.68
	.075	4.72	5.08	5.47	5.89	6.86	7.90	9.00	10.16	11.36	12.56	13.88
	.080	4.75	5.12	5.52	5.95	6.94	8.00	9.12	10.30	11.52	12.74	14.08
	.085	4.78	5.16	5.57	6.01	7.02	8.10	9.24	10.44	11.68	12.92	14.28
	.090	4.81	5.20	5.62	6.07	7.10	8.20	9.36	10.58	11.84	13.10	14.48
	.095	4.84	5.24	5.67	6.13	7.18	8.30	9.48	10.72	12.00	13.28	14.68
	.100	4.87	5.28	5.72	6.19	7.26	8.40	9.60	10.86	12.16	13.46	14.88

C = Total inches of thread consumed per inch of seam

W = Width of stitch = 1/8" = .125

T = Thickness of material

S = Stitches per inch

N = Length of one stitch

S = 1/N

$$C = (4\sqrt{W^2 + N^2} + 2T)S = 2S (2\sqrt{W^2 + N^2} + T)$$

Union Special CORPORATION

APPROXIMATE TOTAL THREAD CONSUMED PER INCH OF SEAM ON ONE GARMENT
USING STITCH TYPE 404-3/16" NEEDLE THROW

		STITCHES PER INCH										
		3	4	5	6	8	10	12	14	16	18	20
SEAM THICKNESS	.005	4.63	5.05	5.53	6.08	7.31	8.54	10.01	11.40	12.83	14.29	15.80
	.010	4.66	5.09	5.58	6.14	7.39	8.64	10.13	11.54	12.99	14.47	16.00
	.015	4.69	5.13	5.63	6.20	7.47	8.74	10.25	11.68	13.15	14.65	16.20
	.020	4.72	5.17	5.68	6.26	7.55	8.84	10.37	11.82	13.31	14.83	16.40
	.025	4.75	5.21	5.73	6.32	7.63	8.94	10.49	11.96	13.47	15.01	16.60
	.030	4.78	5.25	5.78	6.38	7.71	9.04	10.61	12.10	13.63	15.19	16.80
	.035	4.81	5.29	5.83	6.44	7.79	9.14	10.73	12.24	13.79	15.37	17.00
	.040	4.84	5.33	5.88	6.50	7.87	9.24	10.85	12.38	13.95	15.55	17.20
	.045	4.87	5.37	5.93	6.56	7.95	9.34	10.97	12.52	14.11	15.73	17.40
	.050	4.90	5.41	5.98	6.62	8.03	9.44	11.09	12.66	14.27	15.91	17.60
	.055	4.93	5.45	6.03	6.68	8.11	9.54	11.21	12.80	14.43	16.09	17.80
	.060	4.96	5.49	6.08	6.74	8.19	9.64	11.33	12.94	14.59	16.27	18.00
	.065	4.99	5.53	6.13	6.80	8.27	9.74	11.45	13.08	14.75	16.45	18.20
	.070	5.02	5.57	6.18	6.86	8.35	9.84	11.57	13.22	14.91	16.63	18.40
	.075	5.05	5.61	6.23	6.92	8.43	9.94	11.69	13.36	15.07	16.81	18.60
	.080	5.08	5.65	6.28	6.98	8.51	10.04	11.81	13.50	15.23	16.99	18.80
	.085	5.11	5.69	6.33	7.04	8.59	10.14	11.93	13.64	15.39	17.17	19.00
	.090	5.14	5.73	6.38	7.10	8.67	10.24	12.05	13.78	15.55	17.35	19.20
	.095	5.17	5.77	6.43	7.16	8.75	10.34	12.17	13.92	15.71	17.53	19.40
	.100	5.20	5.81	6.48	7.22	8.83	10.44	12.29	14.06	15.87	17.71	19.60

C = TOTAL INCHES OF THREAD CONSUMED PER INCH OF SEAM

W = WIDTH OF STITCH = 3/16 = .188

T = THICKNESS OF MATERIAL

S = STITCHES PER INCH

N = LENGTH OF ONE STITCH

S = 1/N

$$C = (4\sqrt{W^2 + N^2} + 2T)S = 2S(2\sqrt{W^2 + N^2} + T)$$

APPROXIMATE TOTAL THREAD CONSUMED PER INCH OF SEAM ON ONE GARMENT
USING STITCH TYPE 404-1/4" NEEDLE TRAVEL

STITCHES PER INCH

SEAM THICKNESS		3	4	5	6	8	10	12	14	16	18	20
	.005	5.03	5.70	6.45	7.26	9.04	10.86	12.79	14.70	16.67	18.61	20.60
	.010	5.06	5.74	6.50	7.32	9.12	10.96	12.91	14.84	16.83	18.79	20.80
	.015	5.09	5.78	6.55	7.38	9.20	11.06	13.03	14.98	16.99	18.97	21.00
	.020	5.12	5.82	6.60	7.44	9.28	11.16	13.15	15.12	17.15	19.15	21.20
	.025	5.15	5.86	6.65	7.50	9.36	11.26	13.27	15.26	17.31	19.33	21.40
	.030	5.18	5.90	6.70	7.56	9.44	11.36	13.39	15.40	17.47	19.51	21.60
	.035	5.21	5.94	6.75	7.62	9.52	11.46	13.51	15.54	17.63	19.69	21.80
	.040	5.24	5.98	6.80	7.68	9.60	11.56	13.63	15.68	17.79	19.87	22.00
	.045	5.27	6.02	6.85	7.74	9.68	11.66	13.75	15.82	17.95	20.05	22.20
	.050	5.30	6.06	6.90	7.80	9.76	11.76	13.87	15.96	18.11	20.23	22.40
	.055	5.33	6.10	6.95	7.86	9.84	11.86	13.99	16.10	18.27	20.41	22.60
	.060	5.36	6.14	7.00	7.92	9.92	11.96	14.11	16.24	18.43	20.59	22.80
	.065	5.39	6.18	7.05	7.98	10.00	12.06	14.23	16.38	18.59	20.77	23.00
	.070	5.42	6.22	7.10	8.04	10.08	12.16	14.35	16.52	18.75	20.95	23.20
	.075	5.45	6.26	7.15	8.10	10.16	12.26	14.47	16.66	18.91	21.13	23.40
	.080	5.48	6.30	7.20	8.16	10.24	12.36	14.59	16.80	19.07	21.31	23.60
	.085	5.51	6.34	7.25	8.22	10.32	12.46	14.71	16.94	19.23	21.49	23.80
	.090	5.54	6.38	7.30	8.28	10.40	12.56	14.83	17.08	19.39	21.67	24.00
	.095	5.57	6.42	7.35	8.34	10.48	12.66	14.95	17.22	19.55	21.85	24.20
	.100	5.60	6.46	7.40	8.40	10.56	12.76	15.07	17.36	19.71	22.03	24.40

C = TOTAL INCHES OF THREAD CONSUMED PER INCH OF SEAM

W = WIDTH OF STITCH = 1/4" = .25

T = THICKNESS OF MATERIAL

S = STITCHES PER INCH

N = LENGTH OF ONE STITCH

S = 1/N

$$C = (4 \sqrt{W^2 + N^2} + 2T) \quad S = (2 \sqrt{W^2 + N^2} + T)$$

APPROXIMATE TOTAL THREAD CONSUMED PER INCH OF SEAM ON ONE GARMENT
USING STITCH TYPE 406 - 12 GAUGE

- 16 -

SEAM THICKNESS	STITCHES PER INCH															
	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
.005	8.98	9.37	9.77	10.16	10.56	10.95	11.35	11.74	12.14	12.53	12.93	13.32	13.72	14.11	14.51	14.90
.010	9.08	9.49	9.91	10.32	10.74	11.15	11.57	11.98	12.40	12.81	13.23	13.64	14.06	14.47	14.89	15.30
.015	9.18	9.61	10.05	10.48	10.92	11.35	11.79	12.22	12.66	13.09	13.53	13.96	14.40	14.83	15.27	15.70
.020	9.28	9.73	10.19	10.64	11.10	11.55	12.01	12.46	12.92	13.37	13.83	14.28	14.74	15.19	15.65	16.10
.025	9.38	9.85	10.33	10.80	11.28	11.75	12.23	12.70	13.18	13.65	14.13	14.60	15.08	15.55	16.03	16.50
.030	9.48	9.97	10.47	10.96	11.46	11.95	12.45	12.94	13.44	13.93	14.43	14.92	15.42	15.91	16.41	16.90
.035	9.58	10.09	10.61	11.12	11.64	12.15	12.67	13.18	13.70	14.21	14.73	15.24	15.76	16.27	16.79	17.30
.040	9.68	10.21	10.75	11.28	11.82	12.35	12.89	13.42	13.96	14.49	15.03	15.56	16.10	16.63	17.17	17.70
.045	9.78	10.33	10.89	11.44	12.00	12.55	13.11	13.66	14.22	14.77	15.33	15.88	16.44	16.99	17.55	18.10
.050	9.88	10.45	11.03	11.60	12.18	12.75	13.33	13.90	14.48	15.05	15.63	16.20	16.78	17.35	17.93	18.50
.055	9.98	10.57	11.17	11.76	12.36	12.95	13.55	14.14	14.74	15.33	15.93	16.52	17.12	17.71	18.31	18.90
.060	10.08	10.69	11.31	11.92	12.54	13.15	13.77	14.38	15.00	15.61	16.23	16.84	17.46	18.07	18.69	19.30
.065	10.18	10.81	11.45	12.08	12.72	13.35	13.99	14.62	15.26	15.89	16.53	17.16	17.80	18.43	19.07	19.70
.070	10.28	10.93	11.59	12.24	12.90	13.55	14.21	14.86	15.52	16.17	16.83	17.48	18.14	18.79	19.45	20.10
.075	10.38	11.05	11.73	12.40	13.08	13.75	14.43	15.10	15.78	16.45	17.13	17.80	18.48	19.15	19.83	20.50
.080	10.48	11.17	11.87	12.56	13.26	13.95	14.65	15.34	16.04	16.73	17.43	18.12	18.82	19.51	20.21	20.90
.085	10.58	11.29	12.01	12.72	13.44	14.15	14.87	15.58	16.30	17.01	17.73	18.44	19.16	19.87	20.59	21.30
.090	10.68	11.41	12.15	12.88	13.62	14.35	15.09	15.82	16.56	17.29	18.03	18.76	19.50	20.23	20.97	21.70
.095	10.78	11.53	12.29	13.04	13.80	14.55	15.31	16.06	16.82	17.57	18.33	19.08	19.84	20.59	21.35	22.10
.100	10.88	11.65	12.43	13.20	13.98	14.75	15.53	16.30	17.08	17.85	18.63	19.40	20.18	20.95	21.73	22.50

C = Total inches of thread consumed per inch of seam

W = Overall width of seam = 3/16 inches

T = Thickness of material

S = Stitches per inch

N = Length of one stitch

S = 1/N

C = (7N+4T+2W)S=7+4TS+2WS=7+2S(2T+W)

Union Special CORPORATION

APPROXIMATE TOTAL THREAD CONSUMED PER INCH OF SEAM ON ONE GARMENT
USING STITCH TYPE 406 - 16 GAUGE

THICKNESS	STITCHES PER INCH															
	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
.005	9.60	10.12	10.64	11.16	11.68	12.20	12.72	13.24	13.76	14.28	14.80	15.32	15.84	16.36	16.88	17.40
.010	9.70	10.24	10.78	11.32	11.86	12.40	12.94	13.48	14.02	14.56	15.10	15.64	16.18	16.72	17.26	17.80
.015	9.80	10.36	10.92	11.48	12.04	12.60	13.16	13.72	14.28	14.84	15.40	15.96	16.52	17.08	17.64	18.20
.020	9.90	10.48	11.06	11.64	12.22	12.80	13.38	13.96	14.54	15.12	15.70	16.28	16.86	17.44	18.02	18.60
.025	10.00	10.60	11.20	11.80	12.40	13.00	13.60	14.20	14.80	15.40	16.00	16.60	17.20	17.80	18.40	19.00
.030	10.10	10.72	11.34	11.96	12.58	13.20	13.82	14.44	15.06	15.68	16.30	16.92	17.54	18.16	18.78	19.40
.035	10.20	10.84	11.48	12.12	12.76	13.40	14.04	14.68	15.32	15.96	16.60	17.24	17.88	18.52	19.16	19.80
.040	10.30	10.96	11.62	12.28	12.94	13.60	14.26	14.92	15.58	16.24	16.90	17.56	18.22	18.88	19.54	20.20
.045	10.40	11.08	11.76	12.44	13.12	13.80	14.48	15.16	15.84	16.52	17.20	17.88	18.56	19.24	19.92	20.60
.050	10.50	11.20	11.90	12.60	13.30	14.00	14.70	15.40	16.10	16.80	17.50	18.20	18.90	19.60	20.30	21.00
.055	10.60	11.32	12.04	12.76	13.48	14.20	14.92	15.64	16.36	17.08	17.80	18.52	19.24	19.96	20.68	21.40
.060	10.70	11.44	12.18	12.92	13.66	14.40	15.14	15.88	16.62	17.36	18.10	18.84	19.58	20.32	21.06	21.80
.065	10.80	11.56	12.32	13.08	13.84	14.60	15.36	16.12	16.88	17.64	18.40	19.16	19.92	20.68	21.44	22.20
.070	10.90	11.68	12.46	13.24	14.02	14.80	15.58	16.36	17.14	17.92	18.70	19.48	20.26	21.04	21.82	22.60
.075	11.00	11.80	12.60	13.40	14.20	15.00	15.80	16.60	17.40	18.20	19.00	19.80	20.60	21.40	22.20	23.00
.080	11.10	11.92	12.74	13.56	14.38	15.20	16.02	16.84	17.66	18.48	19.30	20.12	20.94	21.76	22.58	23.40
.085	11.20	12.04	12.88	13.72	14.56	15.40	16.24	17.08	17.92	18.76	19.60	20.44	21.28	22.12	22.96	23.80
.090	11.30	12.16	13.02	13.88	14.74	15.60	16.46	17.32	18.18	19.04	19.90	20.76	21.62	22.48	23.34	24.20
.095	11.40	12.28	13.16	14.04	14.92	15.80	16.68	17.56	18.44	19.32	20.20	21.08	21.96	22.84	23.72	24.60
.100	11.50	12.40	13.30	14.20	15.10	16.00	16.90	17.80	18.70	19.60	20.50	21.40	22.30	23.20	24.10	25.00

C = Total inches of thread consumed per inch of seam

W = Overall width of seam = 1/4" or .25

T = Thickness of material

S = Stitches per inch

N = Length of one stitch

S = 1/N

C = (7N+4T+2W)S = 7+4TS+2WS = 7+2S(2T+W)

APPROXIMATE TOTAL THREAD CONSUMED PER INCH OF SEAM ON ONE GARMENT
USING STITCH TYPE 407 - 16 GAUGE

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THICKNESS	STITCHES PER INCH															
	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
.005	11.65	12.18	12.71	13.24	13.77	14.30	14.83	15.36	15.89	16.42	16.95	17.48	18.01	18.54	19.07	19.60
.010	11.80	12.36	12.92	13.48	14.04	14.60	15.16	15.72	16.28	16.84	17.40	17.96	18.52	19.08	19.64	20.20
.015	11.95	12.54	13.13	13.72	14.31	14.90	15.49	16.08	16.67	17.26	17.85	18.44	19.03	19.62	20.21	20.80
.020	12.10	12.72	13.34	13.96	14.58	15.20	15.82	16.44	17.06	17.68	18.20	18.92	19.54	20.16	20.78	21.40
.025	12.25	12.90	13.55	14.20	14.85	15.50	16.15	16.80	17.45	18.10	18.75	19.40	20.05	20.70	21.35	22.00
.030	12.40	13.08	13.76	14.44	15.12	15.80	16.48	17.16	17.84	18.52	19.20	19.88	20.56	21.24	21.92	22.60
.035	12.55	13.26	13.97	14.68	15.39	16.10	16.81	17.52	18.23	18.94	19.65	20.36	21.07	21.78	22.49	23.20
.040	12.70	13.44	14.18	14.92	15.66	16.40	17.14	17.88	18.62	19.36	20.10	20.84	21.58	22.32	23.06	23.80
.045	12.85	13.62	14.39	15.16	15.93	16.70	17.47	18.24	19.01	19.78	20.55	21.32	22.09	22.86	23.63	24.40
.050	13.00	13.80	14.60	15.40	16.20	17.00	17.80	18.60	19.40	20.20	21.00	21.80	22.60	23.40	24.20	25.00
.055	13.15	13.98	14.81	15.64	16.47	17.30	18.13	18.96	19.79	20.62	21.45	22.28	23.11	23.94	24.77	25.60
.060	13.30	14.16	15.02	15.88	16.74	17.60	18.46	19.32	20.18	21.04	21.90	22.76	23.62	24.48	25.34	26.20
.065	13.45	14.34	15.23	16.12	17.01	17.90	18.79	19.68	20.57	21.46	22.35	23.24	24.13	25.02	25.91	26.80
.070	13.60	14.52	15.44	16.36	17.28	18.20	19.12	20.04	20.96	21.88	22.80	23.72	24.64	25.56	26.48	27.40
.075	13.75	14.70	15.65	16.60	17.55	18.50	19.45	20.40	21.35	22.30	23.25	24.20	25.15	26.10	27.05	28.00
.080	14.90	14.88	15.86	16.84	17.82	18.80	19.78	20.76	21.74	22.72	23.70	24.68	25.66	26.64	27.62	28.60
.085	14.05	15.06	16.07	17.08	18.09	19.10	20.11	21.12	22.13	23.14	24.15	25.16	26.17	27.18	28.19	29.20
.090	14.20	15.24	16.28	17.32	18.36	19.40	20.44	21.48	22.52	23.56	24.60	25.64	26.68	27.72	28.76	29.80
.095	14.35	15.42	16.49	17.56	18.63	19.70	20.77	21.84	22.91	23.98	25.05	26.12	27.19	28.26	29.33	30.40
.100	14.50	15.60	16.70	17.80	18.90	20.00	21.10	22.20	23.30	24.40	25.50	26.60	27.70	28.80	29.90	31.00

C = Total inches of thread consumed per inch of seam

W = Overall width of seam = 1/4" or .25

T = Thickness of material

S = Stitches per inch

N = Length of one stitch

S = 1/N

C = (9N+6T+2W)S = 9+6TS+2WS = 9+2S(3T+W)

Union Special CORPORATION

APPROXIMATE TOTAL THREAD CONSUMED PER INCH OF SEAM ON ONE GARMENT
USING STITCH TYPES 502 AND 503-3/32 WIDTH OF SEAM

STITCHES PER INCH

SEAM THICKNESS		3	4	5	6	8	10	12	14	16	18	20
	.005	3.19	3.58	3.98	4.37	5.16	5.95	6.74	7.53	8.32	9.11	9.90
	.010	3.25	3.66	4.08	4.49	5.32	6.15	6.98	7.81	8.64	9.47	10.30
	.015	3.31	3.74	4.18	4.61	5.48	6.35	7.22	8.09	8.96	9.83	10.70
	.020	3.37	3.82	4.28	4.73	5.64	6.55	7.46	8.37	9.28	10.19	11.10
	.025	3.43	3.90	4.38	4.85	5.80	6.75	7.70	8.65	9.60	10.55	11.50
	.030	3.49	3.98	4.48	4.97	5.96	6.95	7.94	8.93	9.92	10.91	11.90
	.035	3.55	4.06	4.58	5.09	6.12	7.15	8.18	9.21	10.24	11.27	12.30
	.040	3.61	4.14	4.68	5.21	6.28	7.35	8.42	9.49	10.56	11.63	12.70
	.045	3.67	4.22	4.78	5.33	6.44	7.55	8.66	9.77	10.88	11.99	13.10
	.050	3.73	4.30	4.88	5.45	6.60	7.75	8.90	10.05	11.20	12.35	13.50
	.055	3.79	4.38	4.98	5.57	6.76	7.95	9.14	10.33	11.52	12.71	13.90
	.060	3.85	4.46	5.08	5.69	6.92	8.15	9.38	10.61	11.84	13.07	14.30
	.065	3.91	4.54	5.18	5.81	7.08	8.35	9.62	10.89	12.16	13.43	14.70
	.070	3.97	4.62	5.28	5.93	7.24	8.55	9.86	11.17	12.48	13.79	15.10
	.075	4.03	4.70	5.38	6.05	7.40	8.75	10.10	11.45	12.80	14.15	15.50
	.080	4.09	4.78	5.48	6.17	7.56	8.95	10.34	11.73	13.12	14.51	15.90
	.085	4.15	4.86	5.58	6.29	7.72	9.15	10.58	12.01	13.44	14.87	16.30
	.090	4.21	4.94	5.68	6.41	7.88	9.35	10.82	12.29	13.76	15.23	16.70
	.095	4.27	5.02	5.78	6.53	8.04	9.55	11.06	12.57	14.08	15.59	17.10
	.100	4.33	5.10	5.88	6.65	8.20	9.75	11.30	12.85	14.40	15.95	17.50

C = Total inches of thread consumed per inch of seam

W = Width of stitch = $3/32 = .0938$

T = Thickness of material

S = Stitches per inch

N = Length of one stitch

$S = 1/N$

$$C = (4W + 4T + 2N)S = \frac{4W + 4T + 2N}{N} = 4WS + 4TS + 2 = 4S(W+T) + 2$$

Union Special CORPORATION

APPROXIMATE TOTAL THREAD CONSUMED PER INCH OF SEAM ON ONE GARMENT
USING STITCH TYPE 502 AND 503 - 1/8" WIDTH OF SEAM

		STITCHES PER INCH										
		3	4	5	6	8	10	12	14	16	18	20
SEAM THICKNESS	.005	3.56	4.08	4.60	5.12	6.16	7.20	8.24	9.28	10.32	11.36	12.40
	.010	3.62	4.16	4.70	5.24	6.32	7.40	8.48	9.56	10.64	11.72	12.80
	.015	3.68	4.24	4.80	5.36	6.48	7.60	8.72	9.84	10.96	12.08	13.20
	.020	3.74	4.32	4.90	5.48	6.64	7.80	8.96	10.12	11.28	12.44	13.60
	.025	3.80	4.40	5.00	5.60	6.80	8.00	9.20	10.40	11.60	12.80	14.00
	.030	3.86	4.48	5.10	5.72	6.96	8.20	9.44	10.68	11.92	13.16	14.40
	.035	3.92	4.56	5.20	5.84	7.12	8.40	9.68	10.96	12.24	13.52	14.80
	.040	3.98	4.64	5.30	5.96	7.28	8.60	9.92	11.24	12.56	13.88	15.20
	.045	4.04	4.72	5.40	6.08	7.44	8.80	10.16	11.52	12.88	14.24	15.60
	.050	4.10	4.80	5.50	6.20	7.60	9.00	10.40	11.80	13.20	14.60	16.00
	.055	4.16	4.88	5.60	6.32	7.76	9.20	10.64	12.08	13.52	14.96	16.40
	.060	4.22	4.96	5.70	6.44	7.92	9.40	10.88	12.36	13.84	15.32	16.80
	.065	4.28	5.04	5.80	6.56	8.08	9.60	11.12	12.64	14.16	15.68	17.20
	.070	4.34	5.12	5.90	6.68	8.24	9.80	11.36	12.92	14.48	16.04	17.60
	.075	4.40	5.20	6.00	6.80	8.40	10.00	11.60	13.20	14.80	16.40	18.00
	.080	4.46	5.28	6.10	6.92	8.56	10.20	11.84	13.48	15.12	16.76	18.40
	.085	4.52	5.36	6.20	7.04	8.72	10.40	12.08	13.76	15.44	17.12	18.80
	.090	4.58	5.44	6.30	7.16	8.88	10.60	12.32	14.04	15.76	17.48	19.20
	.095	4.64	5.52	6.40	7.28	9.04	10.80	12.56	14.32	16.08	17.84	19.60
	.100	4.70	5.60	6.50	7.40	9.20	11.00	12.80	14.60	16.40	18.20	20.00

C = TOTAL INCHES OF THREAD CONSUMED PER INCH OF SEAM

W = WIDTH OF STITCH = 1/8 = .125

T = THICKNESS OF MATERIAL

S = STITCHES PER INCH

N = LENGTH OF ONE STITCH

S = 1/N

$$C = (4W+4T+2N)S = \frac{4W+4T+2N}{N} = 4WS+4TS+2 = 4S(W+T)+2$$

APPROXIMATE TOTAL THREAD CONSUMED PER INCH OF SEAM ON ONE GARMENT
USING STITCH TYPES 502 AND 503 - 3/16" WIDTH OF SEAM

STITCHES PER INCH

		3	4	5	6	8	10	12	14	16	18	20
SEAM THICKNESS	.005	4.32	5.09	5.86	6.63	8.18	9.72	11.26	12.81	14.35	15.90	17.44
	.010	4.38	5.17	5.96	6.75	8.34	9.92	11.50	13.09	14.67	16.26	17.84
	.015	4.44	5.25	6.06	6.87	8.50	10.12	11.74	13.37	14.99	16.62	18.24
	.020	4.50	5.33	6.16	6.99	8.66	10.32	11.98	13.65	15.31	16.98	18.64
	.025	4.56	5.41	6.26	7.11	8.82	10.52	12.22	13.93	15.63	17.34	19.04
	.030	4.62	5.49	6.36	7.23	8.98	10.72	12.46	14.21	15.95	17.70	19.44
	.035	4.68	5.57	6.46	7.35	9.14	10.92	12.70	14.49	16.27	18.06	19.84
	.040	4.74	5.65	6.56	7.47	9.30	11.12	12.94	14.77	16.59	18.42	20.24
	.045	4.80	5.73	6.66	7.59	9.46	11.32	13.18	15.05	16.91	18.78	20.64
	.050	4.86	5.81	6.76	7.71	9.62	11.52	13.42	15.33	17.23	19.14	21.04
	.055	4.92	5.89	6.86	7.83	9.78	11.72	13.66	15.61	17.55	19.50	21.44
	.060	4.98	5.97	6.96	7.95	9.94	11.92	13.90	15.89	17.87	19.86	21.84
	.065	5.04	6.05	7.06	8.07	10.10	12.12	14.14	16.17	18.19	20.22	22.24
	.070	5.10	6.13	7.16	8.19	10.26	12.32	14.38	16.45	18.51	20.58	22.64
	.075	5.16	6.21	7.26	8.31	10.42	12.52	14.62	16.73	18.83	20.94	23.04
	.080	5.22	6.29	7.36	8.43	10.58	12.72	14.86	17.01	19.15	21.30	23.44
	.085	5.28	6.37	7.46	8.55	10.74	12.92	15.10	17.29	19.47	21.66	23.84
	.090	5.34	6.45	7.56	8.67	10.90	13.12	15.34	17.57	19.79	22.02	24.24
	.095	5.40	6.53	7.66	8.79	11.06	13.32	15.58	17.85	20.11	22.38	24.64
	.100	5.46	6.61	7.76	8.91	11.22	13.52	15.82	18.13	20.43	22.74	25.04

C = Total inches of thread consumed per inch of seam

W = Width of stitch = 3/16" = .188

T = Thickness of material

S = Stitches per inch

N = Length of one stitch

S = 1/N

$$C = (4W + 4T + 2N)S = \frac{4W + 4T + 2N}{N} = 4WS + 4TS + 2 = 4S(W+T) + 2$$

Union Special CORPORATION

APPROXIMATE TOTAL THREAD CONSUMED PER INCH OF SEAM ON ONE GARMENT
USING STITCH TYPE 502 AND 503 - 1/4" WIDTH OF SEAM

STITCHES PER INCH

		3	4	5	6	8	10	12	14	16	18	20
SEAM THICKNESS	.005	5.06	6.08	7.10	8.12	10.16	12.20	14.24	16.28	18.32	20.36	22.40
	.010	5.12	6.16	7.20	8.24	10.32	12.40	14.48	16.56	18.64	20.72	22.80
	.015	5.18	6.24	7.30	8.36	10.48	12.60	14.72	16.84	18.96	21.08	23.20
	.020	5.24	6.32	7.40	8.48	10.64	12.80	14.96	17.12	19.28	21.44	23.60
	.025	5.30	6.40	7.50	8.60	10.80	13.00	15.20	17.40	19.60	21.80	24.00
	.030	5.36	6.48	7.60	8.72	10.96	13.20	15.44	17.68	19.92	22.16	24.40
	.035	5.42	6.56	7.70	8.84	11.12	13.40	15.68	17.96	20.24	22.52	24.80
	.040	5.48	6.64	7.80	8.96	11.28	13.60	15.82	18.24	20.56	22.88	25.20
	.045	5.54	6.72	7.90	9.08	11.44	13.80	16.16	18.52	20.88	23.24	25.60
	.050	5.60	6.80	8.00	9.20	11.60	14.00	16.40	18.80	21.20	23.60	26.00
	.055	5.66	6.88	8.10	9.32	11.76	14.20	16.64	19.08	21.52	23.96	26.40
	.060	5.72	6.96	8.20	9.44	11.92	14.40	16.88	19.36	21.84	24.32	26.80
	.065	5.78	7.04	8.30	9.56	12.08	14.60	17.12	19.64	22.16	24.68	27.20
	.070	5.84	7.12	8.40	9.68	12.24	14.80	17.36	19.92	22.48	25.04	27.60
	.075	5.90	7.20	8.50	9.80	12.40	15.00	17.60	20.20	22.80	25.40	28.00
	.080	5.96	7.28	8.60	9.92	12.56	15.20	17.84	20.48	23.12	25.76	28.40
	.085	6.02	7.36	8.70	10.04	12.72	15.40	18.08	20.76	23.44	26.12	28.80
	.090	6.08	7.44	8.80	10.16	12.88	15.60	18.33	21.04	23.76	26.48	29.20
	.095	6.14	7.52	8.90	10.28	13.04	15.80	18.56	21.32	24.08	26.84	29.60
	.100	6.20	7.60	9.00	10.40	13.20	16.00	18.80	21.60	24.40	27.20	30.00

C = TOTAL INCHES OF THREAD CONSUMED PER INCH OF SEAM

W = WIDTH OF STITCH = 1/4 = .25

T = THICKNESS OF MATERIAL

S = STITCHES PER INCH

N = LENGTH OF ONE STITCH

S = 1/N

$$C = (4W+4T+2N)S = \frac{4W+4T+2N}{N} = 4WS+4TS+2 = 4S(W+T)+2$$

Union Special CORPORATION

APPROXIMATE TOTAL THREAD CONSUMED PER INCH OF SEAM ON ONE GARMENT
USING STITCH TYPES 504 AND 505 - 3/32" WIDTH OF SEAM

STITCHES PER INCH

		3	4	5	6	8	10	12	14	16	18	20
SEAM THICKNESS	.005	6.19	6.58	6.98	7.37	8.16	8.95	9.74	10.53	11.32	12.11	12.90
	.010	6.25	6.66	7.08	7.49	8.32	9.15	9.98	10.81	11.64	12.47	13.30
	.015	6.31	6.74	7.18	7.61	8.48	9.35	10.22	11.09	11.96	12.83	13.70
	.020	6.37	6.82	7.28	7.73	8.64	9.55	10.46	11.37	12.28	13.19	14.10
	.025	6.43	6.90	7.38	7.85	8.80	9.75	10.70	11.65	12.60	13.55	14.50
	.030	6.49	6.98	7.48	7.97	8.96	9.95	10.94	11.93	12.92	13.91	14.90
	.035	6.55	7.06	7.58	8.09	9.12	10.15	11.18	12.21	13.24	14.27	15.30
	.040	6.61	7.14	7.68	8.21	9.28	10.35	11.42	12.49	13.56	14.63	15.70
	.045	6.67	7.22	7.78	8.33	9.44	10.55	11.66	12.77	13.88	14.99	16.10
	.050	6.73	7.30	7.88	8.45	9.60	10.75	11.90	13.05	14.20	15.35	16.50
	.055	6.79	7.38	7.98	8.57	9.76	10.95	12.14	13.33	14.52	15.71	16.90
	.060	6.85	7.46	8.08	8.69	9.92	11.15	12.38	13.61	14.84	16.07	17.30
	.065	6.91	7.54	8.18	8.81	10.08	11.35	12.62	13.89	15.16	16.43	17.70
	.070	6.97	7.62	8.28	8.93	10.24	11.55	12.86	14.17	15.48	16.79	18.10
	.075	7.03	7.70	8.38	9.05	10.40	11.75	13.10	14.45	15.80	17.15	18.50
	.080	7.09	7.78	8.48	9.17	10.56	11.95	13.34	14.73	16.12	17.51	18.90
	.085	7.15	7.86	8.58	9.29	10.72	12.15	13.58	15.01	16.44	17.87	19.30
	.090	7.21	7.94	8.68	9.41	10.88	12.35	13.82	15.29	16.76	18.23	19.70
	.095	7.27	8.02	8.78	9.53	11.04	12.55	14.06	15.57	17.08	18.59	20.10
	.100	7.33	8.10	8.88	9.65	11.20	12.75	14.30	15.85	17.40	18.95	20.50

C = Total inches of thread consumed per inch of seam

W = Width of stitch = 3/32" = .0938

T = Thickness of material

S = Stitches per inch

N = Length of one stitch

S = 1/N

$$C = (4W + 4T + 5N)S = \frac{4W + 4T + 5N}{N} = 4WS + 4TS + 5 = 4S(W + T) + 5$$

Union Special CORPORATION

APPROXIMATE TOTAL THREAD CONSUMED PER INCH OF SEAM ON ONE GARMENT
USING STITCH TYPES 504 AND 505 - 1/8" WIDTH SEAM

		STITCHES PER INCH											
		3	4	5	6	8	10	12	14	16	18	20	
THICKNESS	SEAM	.005	6.56	7.08	7.60	8.12	9.16	10.20	11.24	12.28	13.32	14.36	15.40
		.010	6.62	7.16	7.70	8.24	9.32	10.40	11.48	12.56	13.64	14.72	15.80
		.015	6.68	7.24	7.80	8.36	9.48	10.60	11.72	12.84	13.96	15.08	16.20
		.020	6.74	7.32	7.90	8.48	9.64	10.80	11.96	13.12	14.28	15.44	16.60
		.025	6.80	7.40	8.00	8.60	9.80	11.00	12.20	13.40	14.60	15.80	17.00
		.030	6.86	7.48	8.10	8.72	9.96	11.20	12.44	13.68	14.92	16.16	17.40
		.035	6.92	7.56	8.20	8.84	10.12	11.40	12.68	13.96	15.24	16.52	17.80
		.040	6.98	7.64	8.30	8.96	10.28	11.60	12.92	14.24	15.56	16.88	18.20
		.045	7.04	7.72	8.40	9.08	10.44	11.80	13.16	14.52	15.88	17.24	18.60
		.050	7.10	7.80	8.50	9.20	10.60	12.00	13.40	14.80	16.20	17.60	19.00
.055		7.16	7.88	8.60	9.32	10.76	12.20	13.64	15.08	16.52	17.96	19.40	
.060		7.22	7.96	8.70	9.44	10.92	12.40	13.88	15.36	16.84	18.32	19.80	
.065		7.28	8.04	8.80	9.56	11.08	12.60	14.12	15.64	17.16	18.68	20.20	
.070		7.34	8.12	8.90	9.68	11.24	12.80	14.36	15.92	17.48	19.04	20.60	
.075		7.40	8.20	9.00	9.80	11.40	13.00	14.60	16.20	17.80	19.40	21.00	
.080		7.46	8.28	9.10	9.92	11.56	13.20	14.84	16.48	18.12	19.76	21.40	
.085		7.52	8.36	9.20	10.04	11.72	13.40	15.08	16.76	18.44	20.12	21.80	
.090		7.58	8.44	9.30	10.16	11.88	13.60	15.32	17.04	18.76	20.48	22.20	
.095		7.64	8.52	9.40	10.28	12.04	13.80	15.56	17.32	19.08	20.84	22.60	
.100		7.70	8.60	9.50	10.40	12.20	14.00	15.80	17.60	19.40	21.20	23.00	

C = Total inches of thread consumed per inch of seam

W = Width of seam = 1/8" = .125

T = Thickness of material

S = Stitches per inch

N = Length of one stitch

S = 1/N

$$C = (4W + 4T + 5N) = \frac{4W + 4T + 5N}{N} = 4WS + 4TS + 5 = 4S(W + T) + 5$$

Union Special CORPORATION

APPROXIMATE TOTAL THREAD CONSUMED PER INCH OF SEAM ON ONE GARMENT
USING STITCH TYPES 504 AND 505 - 3/16" WIDTH OF SEAM

STITCHES PER INCH

		3	4	5	6	8	10	12	14	16	18	20
SEAM THICKNESS	.005	7.32	8.09	8.86	9.63	11.18	12.72	14.26	15.81	17.35	18.90	20.44
	.010	7.38	8.17	8.96	9.75	11.34	12.92	14.50	16.09	17.67	19.26	20.84
	.015	7.44	8.25	9.06	9.87	11.50	13.12	14.74	16.37	17.99	19.62	21.24
	.020	7.50	8.33	9.16	9.99	11.66	13.32	14.08	16.65	18.31	19.98	21.64
	.025	7.56	8.41	9.26	10.11	11.82	13.52	15.22	16.93	18.63	20.34	22.04
	.030	7.62	8.49	9.36	10.23	11.98	13.72	15.46	17.21	18.95	20.70	22.44
	.035	7.68	8.57	9.46	10.35	12.14	13.92	15.70	17.49	19.27	21.06	22.84
	.040	7.74	8.65	9.56	10.47	12.30	14.12	15.94	17.77	19.59	21.42	23.24
	.045	7.80	8.73	9.66	10.59	12.46	14.32	16.18	18.05	19.91	21.78	23.64
	.050	7.86	8.81	9.76	10.71	12.62	14.52	16.42	18.33	20.23	22.14	24.04
	.055	7.92	8.89	9.86	10.83	12.78	14.72	16.66	18.61	20.55	22.50	24.44
	.060	7.98	8.97	9.96	10.95	12.94	14.92	16.90	18.89	20.87	22.86	24.84
	.065	8.04	9.05	10.06	11.07	13.10	15.12	17.14	19.17	21.19	23.22	25.24
	.070	8.10	9.13	10.16	11.19	13.26	15.32	17.38	19.45	21.51	23.58	25.64
	.075	8.16	9.21	10.26	11.31	13.42	15.52	17.62	19.73	21.83	23.94	26.04
	.080	8.22	9.29	10.36	11.43	13.58	15.72	17.86	20.01	22.15	24.30	26.44
	.085	8.28	9.37	10.46	11.55	13.74	15.92	18.10	20.29	22.47	24.66	26.84
	.090	8.34	9.45	10.56	11.67	13.90	16.12	18.34	20.57	22.79	25.02	27.24
	.095	8.40	9.53	10.66	11.79	14.06	16.32	18.58	20.85	23.11	25.38	27.64
	.100	8.46	9.61	10.76	11.91	14.22	16.52	18.82	21.13	23.43	25.74	28.04

C = Total inches of thread consumed per inch of seam

W = Width of stitch = 3/16" = .188

T = Thickness of material

S = Stitches per inch

N = Length of one stitch

S = 1/N

$$C = (4W + 4T + 5N)S = \frac{4W + 4T + 5N}{N} = 4WS + 4TS + 5 = 4S(W + T) + 5$$

Union Special CORPORATION

APPROXIMATE TOTAL THREAD CONSUMED PER INCH OF SEAM ON ONE GARMENT
USING STITCH TYPES 504 AND 505 - 1/4" WIDTH OF SEAM

		STITCHES PER INCH										
		3	4	5	6	8	10	12	14	16	18	20
SEAM THICKNESS	.005	8.06	9.08	10.10	11.12	13.16	15.20	17.24	19.28	21.32	23.36	25.40
	.010	8.12	9.16	10.20	11.24	13.32	15.40	17.48	19.56	21.64	23.72	25.80
	.015	8.18	9.24	10.30	11.36	13.48	15.60	17.72	19.84	21.96	24.08	26.20
	.020	8.24	9.32	10.40	11.48	13.64	15.80	17.96	20.12	22.28	24.44	26.60
	.025	8.30	9.40	10.50	11.60	13.80	16.00	18.20	20.40	22.60	24.80	27.00
	.030	8.36	9.48	10.60	11.72	13.96	16.20	18.44	20.68	22.92	25.16	27.40
	.035	8.42	9.56	10.70	11.84	14.12	16.40	18.68	20.96	23.24	25.52	27.80
	.040	8.48	9.64	10.80	11.96	14.28	16.60	18.92	21.24	23.56	25.88	28.20
	.045	8.54	9.72	10.90	12.08	14.44	16.80	19.16	21.52	23.88	26.24	28.60
	.050	8.60	9.80	11.00	12.20	14.60	17.00	19.40	21.80	24.20	26.60	29.00
	.055	8.66	9.88	11.10	12.32	14.76	17.20	19.64	22.08	24.52	26.96	29.40
	.060	8.72	9.96	11.20	12.44	14.92	17.40	19.88	22.36	24.84	27.32	29.80
	.065	8.78	10.04	11.30	12.56	15.08	17.60	20.12	22.64	25.16	27.68	30.20
	.070	8.84	10.12	11.40	12.68	15.24	17.80	20.36	22.92	25.48	28.04	30.60
	.075	8.90	10.20	11.50	12.80	15.40	18.00	20.60	23.20	25.80	28.40	31.00
	.080	8.96	10.28	11.60	12.92	15.56	18.20	20.84	23.48	26.12	28.76	31.40
	.085	9.02	10.36	11.70	13.04	15.72	18.40	21.08	23.76	26.44	29.12	31.80
	.090	9.08	10.44	11.80	13.16	15.88	18.60	21.32	24.04	26.76	29.48	32.20
	.095	9.14	10.52	11.90	13.28	16.04	18.80	21.56	24.32	27.08	29.84	32.60
	.100	9.20	10.60	12.00	13.40	16.20	19.00	21.80	24.60	27.40	30.20	33.00

C = Total inches of thread consumed per inch of seam

W = Width of stitch = 1/4" = .25

T = Thickness of material

S = Stitches per inch

N = Length of one stitch

S = 1/N

$$C = (4W + 4T + 5N)S = \frac{4W + 4T + 5N}{N} = 4WS + 4TS + 5 = 4S(W + T) + 5$$

APPROXIMATE TOTAL THREAD CONSUMED PER INCH OF SEAM ON ONE GARMENT
USING STITCH TYPE 506 - 16 GAUGE

THICKNESS	STITCHES PER INCH															
	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
.005	10.15	11.18	12.21	13.24	14.27	15.30	16.33	17.36	18.39	19.42	20.45	21.48	22.51	23.54	24.57	25.60
.010	10.30	11.36	12.42	13.48	14.54	15.60	16.66	17.72	18.78	19.84	20.90	21.96	23.02	24.08	25.14	26.20
.015	10.45	11.54	12.63	13.72	14.81	15.90	16.99	18.08	19.17	20.26	21.35	22.44	23.53	24.62	25.71	26.80
.020	10.60	11.72	12.84	13.96	15.08	16.20	17.32	18.44	19.56	20.68	21.80	22.92	24.04	25.16	26.28	27.40
.025	10.75	11.90	13.05	14.20	15.35	16.50	17.65	18.80	19.95	21.10	22.25	23.40	24.55	25.70	26.85	28.00
.030	10.90	12.08	13.26	14.44	15.62	16.80	17.98	19.16	20.34	21.52	22.70	23.88	25.06	26.24	27.42	28.60
.035	11.05	12.26	13.47	14.68	15.89	17.10	18.31	19.52	20.73	21.94	23.15	24.36	25.57	26.78	27.99	29.20
.040	11.20	12.44	13.68	14.92	16.16	17.40	18.64	19.88	21.12	22.36	23.60	24.84	26.08	27.32	28.56	29.80
.045	11.35	12.62	13.89	15.16	16.43	17.70	18.97	20.24	21.51	22.78	24.05	25.32	26.59	27.86	29.13	30.40
.050	11.50	12.80	14.10	15.40	16.70	18.00	19.30	20.60	21.90	23.20	24.50	25.80	27.10	28.40	29.70	31.00
.055	11.65	12.98	14.31	15.64	16.97	18.30	19.63	20.96	22.29	23.62	24.95	26.28	27.61	28.94	30.27	31.60
.060	11.80	13.16	14.52	15.88	17.24	18.60	19.96	21.32	22.68	24.04	25.40	26.76	28.12	29.48	30.84	32.20
.065	11.95	13.34	14.73	16.12	17.51	18.90	20.29	21.68	23.07	24.46	25.85	27.24	28.63	30.02	31.41	32.80
.070	12.10	13.52	14.94	16.36	17.78	19.20	20.62	22.04	23.46	24.88	26.30	27.72	29.14	30.56	31.98	33.40
.075	12.25	13.70	15.15	16.60	18.05	19.50	20.95	22.40	23.85	25.30	26.75	28.20	29.65	31.10	32.55	34.00
.080	12.40	13.88	15.36	16.84	18.32	19.80	21.28	22.76	24.24	25.72	27.20	28.68	30.16	31.64	33.12	34.60
.085	12.55	14.06	15.57	17.08	18.59	20.10	21.61	23.12	24.63	26.14	27.65	29.16	30.67	32.18	33.69	35.20
.090	12.70	14.24	15.78	17.32	18.86	20.40	21.94	23.48	25.02	26.56	28.10	29.64	31.18	32.72	34.26	35.80
.095	12.85	14.42	15.99	17.56	19.13	20.70	22.27	23.84	25.41	26.98	28.55	30.12	31.69	33.26	34.83	36.40
.100	13.00	14.60	16.20	17.80	19.40	21.00	22.60	24.20	25.80	27.40	29.00	30.60	32.20	33.80	35.40	37.00

C = Total inches of thread consumed per inch of seam

W = Overall width of seam = 1/4" or .25

T = Thickness of material

S = Stitches per inch

N = Length of one stitch

S = 1/N

C = (5N+6T+4W)S = 5+6TS+4WS = 5+2S(3T+2W)

APPROXIMATE TOTAL THREAD CONSUMED PER INCH OF SEAM ON ONE GARMENT
USING STITCH TYPE 512 - 17/64 WIDTH OF SEAM

STITCHES PER INCH

		6	7	8	9	10	11	12	14	16	18	20
Seam Thickness	.005	10.24	11.1	11.97	12.84	13.72	14.58	15.45	17.2	18.9	20.7	22.4
	.010	10.41	11.32	12.22	13.11	14.02	14.92	15.82	17.62	19.42	21.22	23.02
	.015	10.58	11.54	12.47	13.38	14.32	15.26	16.19	18.04	19.94	21.74	23.64
	.020	10.75	11.76	12.72	13.65	14.62	15.6	16.56	18.46	20.46	22.26	24.26
	.025	10.92	11.98	12.97	13.92	14.92	15.94	16.93	18.88	20.98	22.78	23.88
	.030	11.09	12.2	13.22	14.19	15.22	16.28	17.3	19.3	21.5	23.3	25.5
	.035	11.26	12.42	13.47	14.46	15.52	16.62	17.67	19.72	22.02	23.82	26.12
	.040	11.43	12.64	13.72	14.73	15.82	16.96	18.04	20.14	22.54	24.34	26.74
	.045	11.6	12.86	13.97	15.0	16.12	17.3	18.41	20.56	23.06	24.86	27.36
	.050	11.77	13.08	14.22	15.27	16.42	17.64	18.78	20.98	23.58	25.38	27.98
	.055	11.94	13.3	14.47	15.54	16.72	17.98	19.15	21.4	24.1	25.9	28.6
	.060	12.11	13.52	14.72	15.81	17.02	18.36	19.52	21.82	24.62	26.42	29.22
	.065	12.28	13.74	14.97	16.08	17.32	18.66	19.89	22.24	25.14	26.94	29.84
	.070	12.45	13.96	15.22	16.35	17.62	19.0	20.26	22.66	25.66	27.46	30.46
	.075	12.62	14.18	15.47	16.62	17.92	19.34	20.63	23.08	26.18	27.98	31.08
	.080	12.79	14.4	15.72	16.89	18.22	19.68	21.0	23.5	26.7	28.5	31.7
	.085	12.96	14.62	15.97	17.16	18.52	20.02	21.37	23.92	27.22	29.02	32.32
	.090	13.13	14.84	16.22	17.43	18.82	20.36	21.74	24.34	27.74	29.54	32.94
	.095	13.3	15.06	16.47	17.7	19.12	20.7	22.11	24.76	28.26	30.06	33.56
	.100	13.47	15.28	16.72	17.97	19.42	21.04	22.48	25.18	28.78	30.58	34.18

C = Total inches of thread consumed per inch of seam

W = Width of stitch 17/64 = .265

T = Thickness of material

S = Stitches per inch

N = Length of one stitch

ns = Needle spacing = .109

S = 1/N

C = $(5N+6T+4W-2ns)S = \frac{5N+6T+4W-2ns}{N} = 5+6TS+4WS-2nsS = 5+2S(3T+2W-ns)$

APPROXIMATE TOTAL THREAD CONSUMED PER INCH OF SEAM ON ONE GARMENT
USING STITCH TYPE 602 - 8 GAUGE

SEAM THICKNESS ↓	STITCHES PER INCH															
	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
.020	11.53	12.23	12.94	13.64	14.35	15.05	15.76	16.46	17.17	17.87	18.58	19.28	19.99	20.69	21.40	22.10
.025	11.63	12.35	13.08	13.80	14.53	15.25	15.98	16.70	17.43	18.15	18.88	19.60	20.33	21.05	21.78	22.50
.030	11.73	12.47	13.22	13.96	14.71	15.45	16.20	16.94	17.69	18.43	19.18	19.92	20.67	21.41	22.16	22.90
.035	11.83	12.59	13.36	14.12	14.89	15.65	16.42	17.18	17.95	18.71	19.48	20.24	21.01	21.77	22.54	23.30
.040	11.93	12.71	13.50	14.28	15.07	15.85	16.64	17.42	18.21	18.99	19.78	20.56	21.35	22.13	22.94	23.70
.045	12.03	12.83	13.64	14.44	15.25	16.05	16.86	17.66	18.47	19.27	20.08	20.88	21.69	22.49	23.30	24.10
.050	12.13	12.95	13.78	14.60	15.43	16.25	17.08	17.90	18.73	19.55	20.38	21.20	22.03	22.85	23.68	24.50
.055	12.23	13.07	13.92	14.76	15.61	16.45	17.30	18.14	18.99	19.83	20.68	21.52	22.37	23.21	24.06	24.90
.060	12.33	13.19	14.06	14.92	15.79	16.65	17.52	18.38	19.25	20.11	20.98	21.84	22.71	23.57	24.44	25.30
.065	12.43	13.31	14.20	15.08	15.97	16.85	17.74	18.62	19.51	20.39	21.28	22.16	23.05	23.93	24.82	25.70
.070	12.53	13.43	14.34	15.24	16.15	17.05	17.96	18.86	19.77	20.67	21.58	22.48	23.39	24.29	25.20	26.10
.075	12.63	13.55	14.48	15.40	16.33	17.25	18.18	19.10	20.03	20.95	21.88	22.80	23.73	24.65	25.58	26.50
.080	12.73	13.67	14.62	15.56	16.51	17.45	18.40	19.34	20.29	21.23	22.18	23.12	24.07	25.01	25.96	26.90
.085	12.83	13.79	14.76	15.72	16.69	17.65	18.62	19.58	20.55	21.51	22.48	23.44	24.41	25.37	26.34	27.30
.090	12.93	13.91	14.90	15.88	16.87	17.85	18.84	19.82	20.81	21.79	22.78	23.76	24.75	25.73	26.72	27.70
.095	13.03	14.03	15.04	16.04	17.05	18.05	19.06	20.06	21.07	22.07	23.08	24.08	25.09	26.09	27.10	28.10
.100	13.13	14.15	15.18	16.20	17.23	18.25	19.28	20.30	21.33	22.35	23.38	24.40	25.43	26.45	27.48	28.50
.105	13.23	14.27	15.32	16.36	17.41	18.45	19.50	20.54	21.59	22.63	23.68	24.72	25.77	26.81	27.86	28.90
.110	13.33	14.39	15.46	16.52	17.59	18.65	19.72	20.78	21.85	22.91	23.98	25.04	26.11	27.17	28.24	29.30
.115	13.43	14.51	15.60	16.68	17.77	18.85	19.94	21.02	22.11	23.19	24.28	25.36	26.45	27.53	28.62	29.70
.120	13.53	14.63	15.74	16.84	17.95	19.05	20.16	21.26	22.37	23.47	24.58	25.68	26.79	27.89	29.00	30.10

C = Total inches of thread consumed per inch of seam

W = Width of stitch = .125 or 8 gauge

T = Thickness of material

S = Stitches per inch

N = Length of one stitch

S = 1/N

$$C = (8N + 5W + 4T)S = 8 + 5WS + 4TS = 8 + S(5W + 4T)$$

Union Special CORPORATION

APPROXIMATE TOTAL THREAD CONSUMED PER INCH OF SEAM ON ONE GARMENT
USING STITCH TYPE 602 - 12 GAUGE

SEAM THICKNESS ↓	STITCHES PER INCH															
	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
.020	13.09	14.11	15.12	16.14	17.16	18.18	19.19	20.21	21.23	22.25	23.26	24.28	25.30	26.32	27.33	28.35
.025	13.19	14.23	15.26	16.30	17.34	18.38	19.41	20.45	21.49	22.53	23.56	24.60	25.64	26.68	27.71	28.75
.030	13.29	14.35	15.40	16.46	17.52	18.58	19.63	20.69	21.75	22.81	23.86	24.92	25.98	27.04	28.09	29.15
.035	13.39	14.47	15.54	16.62	17.70	18.78	19.85	20.93	22.01	23.09	24.16	25.24	26.32	27.40	28.47	29.55
.040	13.49	14.59	15.68	16.78	17.88	18.98	20.07	21.17	22.27	23.37	24.46	25.56	26.66	27.76	28.85	29.95
.045	13.59	14.71	15.82	16.94	18.06	19.18	20.29	21.41	22.53	23.65	24.76	25.88	27.00	28.12	29.23	30.35
.050	13.69	14.83	15.96	17.10	18.24	19.38	20.51	21.65	22.79	23.93	25.06	26.20	27.34	28.48	29.61	30.75
.055	13.79	14.95	16.10	17.26	18.42	19.58	20.73	21.89	23.05	24.21	25.36	26.52	27.68	28.84	29.99	31.15
.060	13.89	15.07	16.24	17.42	18.60	19.78	20.95	22.13	23.31	24.49	25.66	26.84	28.02	29.20	30.37	31.55
.065	13.99	15.19	16.38	17.58	18.78	19.98	21.17	22.37	23.57	24.77	25.96	27.16	28.36	29.56	30.75	31.95
.070	14.09	15.31	16.52	17.74	18.96	20.18	21.39	22.61	23.83	25.05	26.26	27.48	28.70	29.92	31.13	32.35
.075	14.19	15.43	16.66	17.90	19.14	20.38	21.61	22.85	24.09	25.33	26.56	27.80	29.04	30.28	31.51	32.75
.080	14.29	15.55	16.80	18.06	19.32	20.58	21.83	23.09	24.35	25.61	26.86	28.12	29.38	30.64	31.89	33.15
.085	14.39	15.67	16.94	18.22	19.50	20.78	22.05	23.33	24.61	25.89	27.16	28.44	29.72	31.00	32.27	33.55
.090	14.49	15.79	17.08	18.38	19.68	20.98	22.27	23.57	24.87	26.17	27.46	28.76	30.06	31.36	32.65	33.95
.095	14.59	15.91	17.22	18.54	19.86	21.18	22.49	23.81	25.13	26.45	27.76	29.08	30.40	31.72	33.03	34.35
.100	14.69	16.03	17.36	18.70	20.04	21.38	22.71	24.05	25.39	26.73	28.06	29.40	30.74	32.08	33.41	34.75
.105	14.79	16.15	17.50	18.86	20.22	21.58	22.93	24.29	25.65	27.01	28.36	29.72	31.08	32.44	33.79	35.15
.110	14.89	16.27	17.64	19.02	20.40	21.78	23.15	24.53	25.91	27.29	28.66	30.04	31.42	32.80	34.17	35.55
.115	14.99	16.39	17.78	19.18	20.58	21.98	23.37	24.77	26.17	27.57	28.96	30.36	31.76	33.16	34.55	35.95
.120	15.09	16.51	17.92	19.34	20.76	22.18	23.59	25.01	26.43	27.85	29.26	30.68	32.10	33.52	34.93	36.35

C = Total inches of thread consumed per inch of seam

W = Width of stitch = .1875 or 12 gauge

T = Thickness of material

S = Stitches per inch

N = Length of one stitch

S = 1/N

C = (8N + 5W + 4T)S = 8 + 5WS + 4TS = 8 + S(5W + 4T)

Union Special CORPORATION

APPROXIMATE TOTAL THREAD CONSUMED PER INCH OF SEAM ON ONE GARMENT
USING STITCH TYPE 602 - 16 GAUGE

SEAM THICKNESS ↓	STITCHES PER INCH															
	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
.020	14.65	15.98	17.31	18.64	19.97	21.30	22.63	23.96	25.29	26.62	27.95	29.28	30.61	31.94	33.27	34.60
.025	14.75	16.10	17.45	18.80	20.15	21.50	22.85	24.20	25.55	26.90	28.25	29.60	30.95	32.30	33.65	35.00
.030	14.85	16.22	17.59	18.96	20.33	21.70	23.07	24.44	25.81	27.18	28.55	29.92	31.29	32.66	34.03	35.40
.035	14.95	16.34	17.73	19.12	20.51	21.90	23.29	24.68	26.07	27.46	28.85	30.24	31.63	33.02	34.41	35.80
.040	15.05	16.46	17.87	19.28	20.69	22.10	23.51	24.92	26.33	27.74	29.15	30.56	31.97	33.38	34.79	36.20
.045	15.15	16.58	18.01	19.44	20.87	22.30	23.73	25.16	26.59	28.02	29.45	30.88	32.31	33.74	35.17	36.60
.050	15.25	16.70	18.15	19.60	21.05	22.50	23.95	25.40	26.85	28.30	29.75	31.20	32.65	34.10	35.55	37.00
.055	15.35	16.82	18.29	19.76	21.23	22.70	24.17	25.64	27.11	28.58	30.05	31.52	32.99	34.46	35.93	37.40
.060	15.45	16.94	18.43	19.92	21.41	22.90	24.39	25.88	27.37	28.86	30.35	31.84	33.33	34.82	36.31	37.80
.065	15.55	17.06	18.57	20.08	21.59	23.10	24.61	26.12	27.63	29.14	30.65	32.16	33.67	35.18	36.69	38.20
.070	15.65	17.18	18.71	20.24	21.77	23.30	24.83	26.36	27.89	29.42	30.95	32.48	34.01	35.54	37.07	38.60
.075	15.75	17.30	18.85	20.40	21.95	23.50	25.05	26.60	28.15	29.70	31.25	32.80	34.35	35.90	37.45	39.00
.080	15.85	17.42	18.99	20.56	22.13	23.70	25.27	26.84	28.41	29.98	31.55	33.12	34.69	36.26	37.83	39.40
.085	15.95	17.54	19.13	20.72	22.31	23.90	25.49	27.08	28.67	30.26	31.85	33.44	35.03	36.62	38.21	39.80
.090	16.05	17.66	19.27	20.88	22.49	24.10	25.71	27.32	28.93	30.54	32.15	33.76	35.37	36.98	38.59	40.20
.095	16.15	17.78	19.41	21.04	22.67	24.30	25.93	27.56	29.19	30.82	32.45	34.08	35.71	37.34	38.97	40.60
.100	16.25	17.90	19.55	21.20	22.85	24.50	26.15	27.80	29.45	31.10	32.75	34.40	36.05	37.70	39.35	41.00
.105	16.35	18.02	19.69	21.36	23.03	24.70	26.37	28.04	29.71	31.38	33.05	34.72	36.39	38.06	39.73	41.40
.110	16.45	18.14	19.83	21.52	23.21	24.90	26.59	28.28	29.97	31.66	33.35	35.04	36.73	38.42	40.11	41.80
.115	16.55	18.26	19.97	21.68	23.39	25.10	26.81	28.52	30.23	31.94	33.65	35.36	37.07	38.78	40.49	42.20
.120	16.65	18.38	20.11	21.84	23.57	25.30	27.03	28.76	30.40	32.22	33.95	35.68	37.41	39.14	40.87	42.60

C = Total inches of thread consumed per inch of seam

W = Width of stitch = .250 or 16 gauge

T = Thickness of material

S = Stitches per inch

N = Length of one stitch

S = 1/N

C = (8N + 5W + 4T)S = 8 + 5WS + 4TS = 8 + S(5W + 4T)

Union Special CORPORATION

APPROXIMATE TOTAL THREAD CONSUMED PER INCH OF SEAM ON ONE GARMENT
USING STITCH TYPE 605 - 16 GAUGE

SEAM THICKNESS ↓	STITCHES PER INCH															
	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
.020	15.60	16.72	17.84	18.96	20.08	21.20	22.32	23.44	24.56	25.68	26.80	27.92	29.04	30.16	31.28	32.40
.025	15.75	16.90	18.05	19.20	20.35	21.50	22.65	23.80	24.95	26.10	27.25	28.40	29.55	30.70	31.85	33.00
.030	15.90	17.08	18.26	19.44	20.62	21.80	22.98	24.16	25.34	26.52	27.70	28.88	30.06	31.24	32.42	33.60
.035	16.05	17.26	18.47	19.68	20.89	22.10	23.31	24.52	25.73	26.94	28.15	29.36	30.57	31.78	32.99	34.20
.040	16.20	17.44	18.68	19.92	21.16	22.40	23.64	24.88	26.12	27.36	28.60	29.84	31.08	32.32	33.56	34.80
.045	16.35	17.62	18.89	20.16	21.43	22.70	23.97	25.24	26.51	27.78	29.05	30.32	31.59	32.86	34.13	35.40
.050	16.50	17.80	19.10	20.40	21.70	23.00	24.30	25.60	26.90	28.20	29.50	30.80	32.10	33.40	34.70	36.00
.055	16.65	17.98	19.31	20.64	21.97	23.30	24.63	25.96	27.29	28.62	29.95	31.28	32.61	33.94	35.27	36.60
.060	16.80	18.16	19.52	20.88	22.24	23.60	24.96	26.32	27.68	29.04	30.40	31.76	33.12	34.48	35.84	37.20
.065	16.95	18.34	19.73	21.12	22.51	23.90	25.29	26.68	28.07	29.46	30.85	32.24	33.63	35.02	36.41	37.80
.070	17.10	18.52	19.94	21.36	22.78	24.20	25.62	27.04	28.46	29.88	31.30	32.72	34.14	35.56	36.98	38.40
.075	17.25	18.70	20.15	21.60	23.05	24.50	25.95	27.40	28.85	30.30	31.75	33.20	34.65	36.10	37.55	39.00
.080	17.40	18.88	20.36	21.84	23.32	24.80	26.28	27.76	29.24	30.72	32.20	33.68	35.16	36.64	38.12	39.60
.085	17.55	19.06	20.57	22.08	23.59	25.10	26.61	28.12	29.63	31.14	32.65	34.16	35.67	37.18	38.69	40.20
.090	17.70	19.24	20.78	22.32	23.86	25.40	26.94	28.48	30.02	31.56	33.10	34.64	36.18	37.72	39.26	40.80
.095	17.85	19.42	20.99	22.56	24.13	25.70	27.27	28.84	30.41	31.98	33.55	35.12	36.69	38.26	39.83	41.40
.100	18.00	19.60	21.20	22.80	24.40	26.00	27.60	29.20	30.80	32.40	34.00	35.60	37.20	38.80	40.40	42.00
.105	18.15	19.78	21.41	23.04	24.67	26.30	27.93	29.56	31.19	32.82	34.45	36.08	37.71	39.34	40.97	42.60
.110	18.30	19.96	21.62	23.28	24.94	26.60	28.26	29.92	31.58	33.24	34.90	36.56	38.22	39.88	41.54	43.20
.115	18.45	20.14	21.83	23.52	25.21	26.90	28.59	30.28	31.97	33.66	35.35	37.04	38.73	40.42	42.11	43.80
.120	18.60	20.32	22.04	23.76	25.48	27.20	28.92	30.64	32.36	34.08	35.80	37.52	39.24	40.96	42.68	44.40

C = Total inches of thread consumed per inch of seam

W = Width of seam = .25 or 16 gauge

T = Thickness of material

S = Stitches per inch

N = Length of one stitch

S = 1/N

C = (10N+4W+6T)S = 10+4WS+6TS = 10+2S(2W+3T)

Union Special CORPORATION

APPROXIMATE TOTAL THREAD CONSUMED PER INCH OF SEAM ON ONE GARMENT
USING STITCH TYPE 606

-33-

SEAM THICKNESS ↓	STITCHES PER INCH															
	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
.020	20.56	21.67	22.78	23.90	25.01	26.12	27.23	28.34	29.46	30.57	31.68	32.79	33.90	35.02	36.13	37.24
.025	20.76	21.91	23.06	24.22	25.37	26.52	27.67	28.82	29.98	31.13	32.28	33.43	34.58	35.74	36.89	38.04
.030	20.96	22.15	23.34	24.54	25.73	26.92	28.11	29.30	30.50	31.69	32.88	34.07	35.26	36.46	37.65	38.84
.035	21.16	22.39	23.62	24.86	26.09	27.32	28.55	29.78	31.02	32.25	33.48	34.71	35.94	37.18	38.41	39.64
.040	21.36	22.63	23.90	25.18	26.45	27.72	28.99	30.26	31.54	32.81	34.08	35.35	36.62	37.90	39.17	40.44
.045	21.56	22.87	24.18	25.50	26.81	28.12	29.43	30.74	32.06	33.37	34.68	35.99	37.30	38.62	39.93	41.24
.050	21.76	23.11	24.46	25.82	27.17	28.52	29.87	31.22	32.58	33.93	35.28	36.63	37.98	39.34	40.69	42.04
.055	21.96	23.35	24.74	26.14	27.53	28.92	30.31	31.70	33.10	34.49	35.88	37.27	38.66	40.06	41.45	42.84
.060	22.16	23.59	25.02	26.46	27.89	29.32	30.75	32.18	33.62	35.05	36.48	37.91	39.34	40.78	42.21	43.64
.065	22.36	23.83	25.30	26.78	28.25	29.72	31.19	32.66	34.14	35.61	37.08	38.55	40.02	41.50	42.97	44.44
.070	22.56	24.07	25.58	27.10	28.61	30.12	31.63	33.14	34.66	36.17	37.68	39.19	40.70	42.22	43.73	45.24
.075	22.76	24.31	25.86	27.42	28.97	30.52	32.07	33.62	35.18	36.73	38.28	39.83	41.38	42.94	44.49	46.04
.080	22.96	24.55	26.14	27.74	29.33	30.92	32.51	34.10	35.70	37.29	38.88	40.47	42.06	43.66	45.25	46.84
.085	23.16	24.79	26.42	28.06	29.67	31.32	32.95	34.58	36.22	37.85	39.48	41.11	42.74	44.38	46.01	47.64
.090	23.36	25.03	26.70	28.38	30.05	31.72	33.39	35.06	36.74	38.41	40.08	41.75	43.42	45.10	46.77	48.44
.095	23.56	25.27	26.98	28.70	30.41	32.12	33.83	35.54	37.26	38.97	40.68	42.39	44.10	45.82	47.53	49.24
.100	23.76	25.51	27.26	29.02	30.77	32.52	34.27	36.02	37.78	39.53	41.28	43.03	44.78	46.54	48.29	50.04
.105	23.96	25.75	27.54	29.34	31.13	32.92	34.71	36.50	38.30	40.09	41.88	43.67	45.46	47.26	49.05	50.84
.110	24.16	25.99	27.82	29.66	31.49	33.32	35.15	36.98	38.82	40.65	42.48	44.31	46.14	47.98	49.81	51.64
.115	24.36	26.23	28.10	29.98	31.85	33.72	35.59	37.46	39.34	41.21	43.08	44.95	46.82	48.70	50.57	52.44
.120	24.56	26.47	28.38	30.30	32.21	34.12	36.03	37.94	39.86	41.77	43.68	45.59	47.50	49.42	51.33	53.24

C = Total inches of thread consumed per inch of seam

W = Overall width of seam = .204

D = Distance between nearest two needles = .068

T = Thickness of material

S = Stitches per inch

N = Length of one stitch

S = 1/N

C = (15N+8D+2W+8T)S = 15+8DS+2WS+8TS = 15+2S(4D+W+4T)

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APPROXIMATE TOTAL THREAD CONSUMED PER INCH OF SEAM ON ONE GARMENT
USING STITCH TYPE 607 - 13 GAUGE

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		STITCHES PER INCH						
		10	11	12	13	14	15	16
Seam Thickness	.020	21.76	22.74	23.71	24.69	25.66	26.64	27.62
	.025	22.16	23.18	24.19	25.21	26.22	27.24	28.26
	.030	22.56	23.62	24.67	25.73	26.78	27.84	28.90
	.035	22.96	24.06	25.15	26.25	27.34	28.44	29.54
	.040	23.36	24.50	25.63	26.77	27.90	29.04	30.18
	.045	23.76	24.94	26.11	27.29	28.46	29.64	30.82
	.050	24.16	25.38	26.59	27.81	29.02	30.24	31.46
	.055	24.56	25.82	27.07	28.33	29.58	30.84	32.10
	.060	24.96	26.26	27.55	28.85	30.14	31.44	32.74
	.065	25.36	26.70	28.03	29.37	30.70	32.04	33.38
	.070	25.76	27.14	28.51	29.89	31.26	32.64	34.02
	.075	26.16	27.58	28.99	30.41	31.82	33.24	34.66
	.080	26.56	28.02	29.47	30.93	32.38	33.84	35.30
	.085	26.96	28.46	29.95	31.45	32.94	34.44	35.94
	.090	27.36	28.90	30.43	31.97	33.50	35.04	36.58
	.095	27.76	29.34	30.91	32.49	34.06	35.64	37.22
	.100	28.16	29.78	31.39	33.01	34.62	36.24	37.86
	.105	28.56	30.22	31.87	33.53	35.18	36.84	38.50
	.110	28.96	30.67	32.05	34.05	35.74	37.44	39.14
	.115	29.36	31.10	32.83	34.57	36.30	38.04	39.78
	.120	29.76	31.54	33.31	35.09	36.86	38.64	40.42

C = Total inches of thread consumed per inch of seam
W = Overall width of seam (.204) 13 gauge

T = Thickness of material
S = Stitches per inch
N = Length of one stitch
S = 1/N
C = $12 + 4S(W + 2T)$

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