

KODAK 3A 120 Conversion Winding Pattern Calculations (untested)							
a)	11.6	mm 120 Empty Reel Core Size					
b)	0.115	mm Backing Paper Thickness (probably can vary)					
c)	0.11	mm Film Stock Thickness (varies .1 to .15)					
d)	170	mm Distance from start of exposure frame to takeup roll					
e)	220	mm Film Leader Prior to guide arrow					
f)	180	mm Length from guide arrow to start of film stock					
g)	250	mm Backing Length after end of film stock					
h)	810	mm Total length of film stock (this can vary a bit)					
i)	139.7	mm Exposure frame size					
j)	24	mm Length from takeup spool to frame					
1) Insert paper leader into takeup spool and do a revolution or two until it is secure							
2) Continue winding until the large guide arrow appears and just enters the exposure frame							
3) Use the following table to figure out how many 1/2 revolutions it takes to advance to the next frame							
4) Wind pattern... is 17 turns - Shoot #1 - 7 turns - Shoot #2 - 6 turns - Shoot #3 - 6 turns - Shoot #4 - 5 turns - Shoot #5 - 5 turns - Attempt #6 - wind at least 14 times to fully load takeup							
--- TAKEUP SPOOL ---							
1/2 Revolution	Layers of	Layers of	Takeup	Next 1/2 Rev Turn	Distance into backing	1/2 Rev	
Turn #	Backing Paper	Film Stock	Diameter (mm)	Will Advance(mm)	at frame window	Turns Needed	Comment
0.00	0.00	0.00	11.60	18.23	170.00		
1.00	0.50	0.00	11.72	18.41	188.41		
2.72	1.36	0.00	11.91	18.72	220.00	<--	Guide arrow at start of frame
3.72	1.86	0.00	12.03	18.90	238.72		(need to get to minimum backing position 539.7 for exposure 1)
4.72	2.36	0.00	12.14	19.08	257.62		(Film stock will reach takeup at backing position 563.7)
5.72	2.86	0.00	12.26	19.26	276.70		
6.72	3.36	0.00	12.37	19.44	295.97		
7.72	3.86	0.00	12.49	19.62	315.41		
8.72	4.36	0.00	12.60	19.80	335.03		
9.72	4.86	0.00	12.72	19.99	354.84		
10.72	5.36	0.00	12.83	20.17	374.82		
11.72	5.86	0.00	12.95	20.35	394.99		
12.72	6.36	0.00	13.06	20.53	415.33		
13.72	6.86	0.00	13.18	20.71	435.86		
14.72	7.36	0.00	13.29	20.89	456.57		
15.72	7.86	0.00	13.41	21.07	477.46		
16.72	8.36	0.00	13.52	21.25	498.53		
17.72	8.86	0.00	13.64	21.43	519.78		
18.72	9.36	0.00	13.75	21.61	541.21		
19.72	9.86	0.00	13.87	21.79	562.82	17	Safe (by 23.12mm) position for exposure 1
20.72	10.36	0.46	14.08	22.13	584.61		(minimum start for next frame is 702.52mm)
21.72	10.86	0.96	14.31	22.49	606.75		
22.72	11.36	1.46	14.53	22.84	629.23		
23.72	11.86	1.96	14.76	23.19	652.07		
24.72	12.36	2.46	14.98	23.55	675.26		
25.72	12.86	2.96	15.21	23.90	698.81		
26.72	13.36	3.46	15.43	24.25	722.71	7	Positioned for exposure 2

	27.72	13.86	3.96	15.66	24.61	746.97		(minimum start for next frame is 862.41mm)
	28.72	14.36	4.46	15.88	24.96	771.57		
	29.72	14.86	4.96	16.11	25.31	796.53		
	30.72	15.36	5.46	16.33	25.67	821.85		
	31.72	15.86	5.96	16.56	26.02	847.52		
	32.72	16.36	6.46	16.78	26.38	873.54	6	Positioned for exposure 3
	33.72	16.86	6.96	17.01	26.73	899.91		(minimum start for next frame is 1013.24mm)
	34.72	17.36	7.46	17.23	27.08	926.64		
	35.72	17.86	7.96	17.46	27.44	953.72		
	36.72	18.36	8.46	17.68	27.79	981.16		
	37.72	18.86	8.96	17.91	28.14	1008.95		
	38.72	19.36	9.46	18.13	28.50	1037.09	6	Positioned for exposure 4
	39.72	19.86	9.96	18.36	28.85	1065.59		(minimum start for next frame is 1176.79mm)
	40.72	20.36	10.46	18.58	29.20	1094.44		
	41.72	20.86	10.96	18.81	29.56	1123.64		
	42.72	21.36	11.46	19.03	29.91	1153.20		
	43.72	21.86	11.96	19.26	30.26	1183.11	5	Positioned for exposure 5
	44.72	22.36	12.46	19.48	30.62	1213.38		(minimum start for next frame is 1322.81mm)
	45.72	22.86	12.96	19.71	30.97	1243.99		
	46.72	23.36	13.46	19.93	31.33	1274.97		
	47.72	23.86	13.96	20.16	31.68	1306.29		
	48.72	24.36	14.46	20.38	32.03	1337.97	5	Positioned for exposure 6 - probably will be a partial frame)
	49.72	24.86	14.96	20.61	32.39	1370.00		(try another here if you want...might as well...)
	50.72	25.36	15.46	20.83	32.74	1402.39		(film stock likely ends about 1380mm into backing, but this can vary)
	51.72	25.86	15.96	21.06	33.09	1435.13		
	52.72	26.36	16.46	21.28	33.45	1468.22		
	53.72	26.86	16.96	21.51	33.80	1501.67		
	54.72	27.36	17.46	21.73	34.15	1535.47		
	55.72	27.86	17.96	21.96	34.51	1569.62		
	56.72	28.36	18.46	22.18	34.86	1604.13		
	57.72	28.86	18.96	22.41	35.21	1638.99		
	58.72	29.36	19.46	22.63	35.57	1674.21		