

Anexo 5

Análisis de piezas menos frecuentes en fallas

Máquina 1

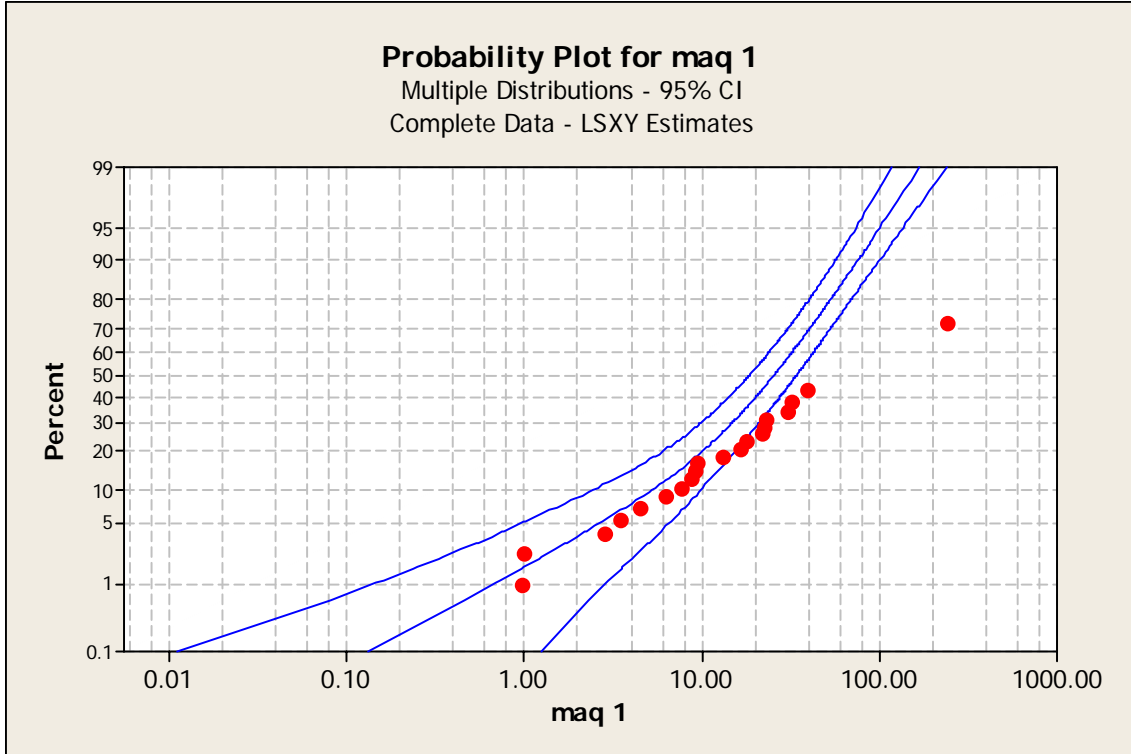


Figura 1 Gráfica de probabilidad de piezas menos frecuentes en máquina 1

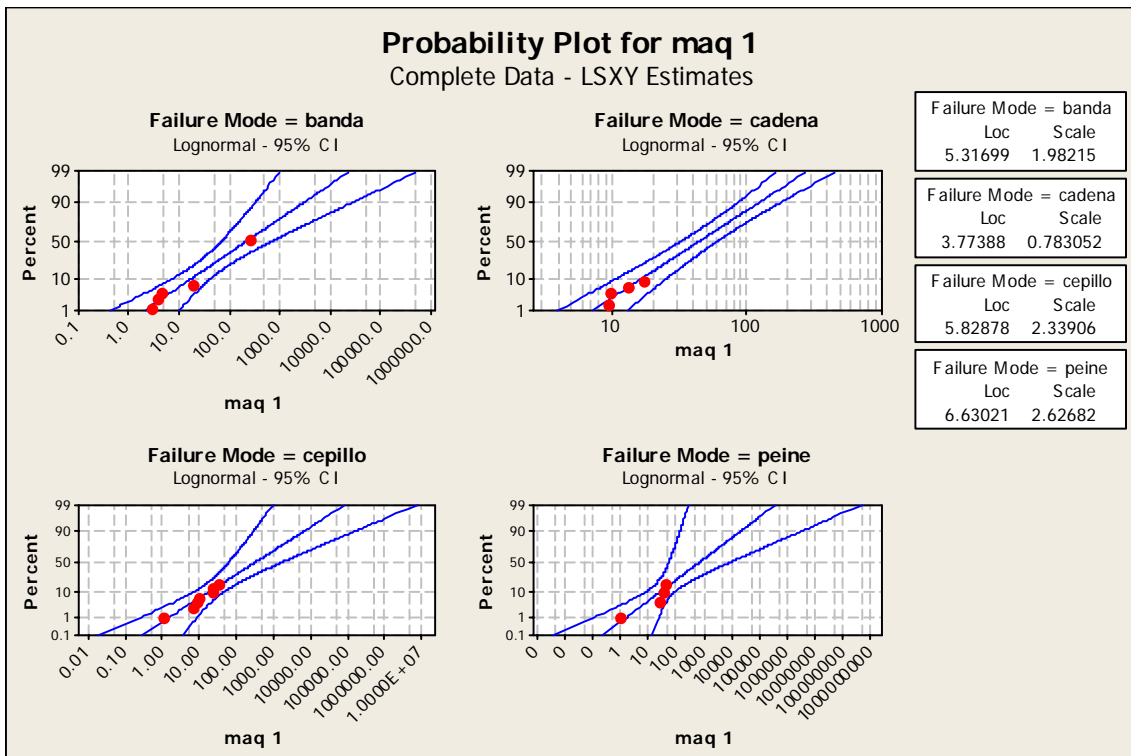


Figura 2 Gráfica de probabilidad por piezas menos frecuentes en máquina 1

Variable: maq 1

Failure Mode: pieza 1 = banda, cadena, cepillo, peine

Censoring Information Count
Uncensored value 20
Right censored value 53

Estimation Method: Least Squares (failure time(X) on rank(Y))

Distribution: Lognormal, Lognormal, Lognormal, Lognormal

Table of Percentiles

Percent	Percentile	95.0% Normal CI	
		Lower	Upper
1	0.696166	0.149208	2.90282
2	1.22001	0.332250	4.06857
3	1.72677	0.537134	5.04144
4	2.23155	0.761353	5.90368
5	2.73888	1.00391	6.68868
6	3.24972	1.26430	7.41552
7	3.76347	1.54207	8.09730
8	4.27889	1.83661	8.74400
9	4.79453	2.14701	9.36365
10	5.30905	2.47206	9.96278
20	10.2757	6.17570	15.5861
30	15.0531	10.0627	21.2979
40	20.0255	14.1109	27.4175
50	25.5765	18.6088	34.3087
60	32.1931	23.9281	42.5807
70	40.7126	30.6745	53.3763
80	53.0225	40.1582	69.3765
90	75.4923	56.6181	99.9675
91	79.0988	59.1650	105.041
92	83.1958	62.0295	110.856
93	87.9262	65.3004	117.636
94	93.5034	69.1091	125.719
95	100.265	73.6622	135.643
96	108.793	79.3106	148.343
97	120.212	86.7247	165.650
98	137.151	97.4466	191.914
99	168.534	116.584	242.227

Máquina 3

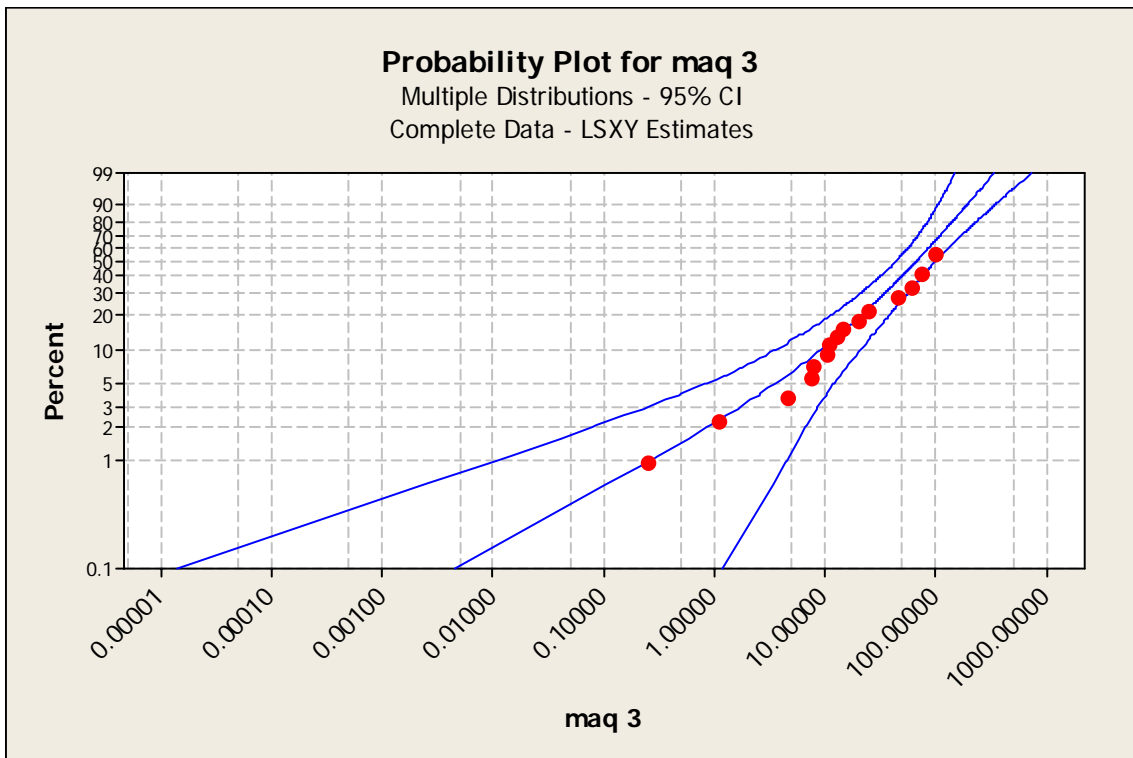


Figura 3 Gráfica de probabilidad de piezas menos frecuentes en máquina 3

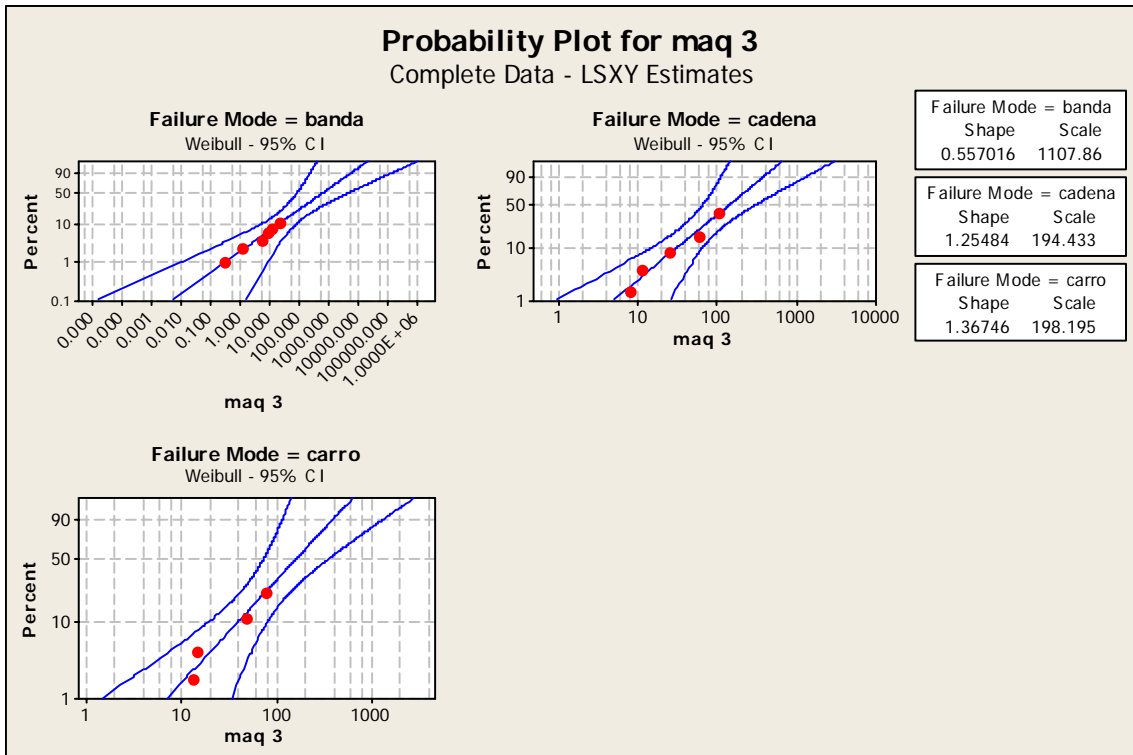


Figura 4 Gráfica de probabilidad por piezas menos frecuentes en máquina 3

Variable: maq 3

Failure Mode: pieza 3 = banda, cadena, carro

Censoring Information Count
Uncensored value 15
Right censored value 59

Estimation Method: Least Squares (failure time(X) on rank(Y))

Distribution: Weibull, Weibull, Weibull

Table of Percentiles

Percent	Percentile	95.0% Normal CI	
		Lower	Upper
0.1	0.0045444	0.0000142	1.20167
1	0.267958	0.0110159	4.54687
2	0.858744	0.0786391	6.67421
3	1.64031	0.235249	8.50713
4	2.54489	0.489196	10.2701
5	3.53303	0.834210	12.0237
6	4.58046	1.25853	13.7842
7	5.67165	1.75004	15.5534
8	6.79627	2.29828	17.3289
9	7.94731	2.89482	19.1073
10	9.11984	3.53309	20.8857
20	21.5861	11.4656	38.4622
30	35.1029	21.1965	56.2645
40	49.8850	32.0328	75.9171
50	66.4669	43.5945	99.4353
60	85.7380	55.7783	129.463
70	109.314	68.9009	170.265
80	140.723	84.0133	230.961
90	190.887	104.413	340.773
91	198.207	107.114	357.977
92	206.309	110.037	377.345
93	215.396	113.239	399.466
94	225.763	116.800	425.206
95	237.867	120.844	455.916
96	252.464	125.572	493.866
97	270.958	131.352	543.338
98	296.465	138.985	614.015
99	338.753	150.907	737.109

Máquina 4

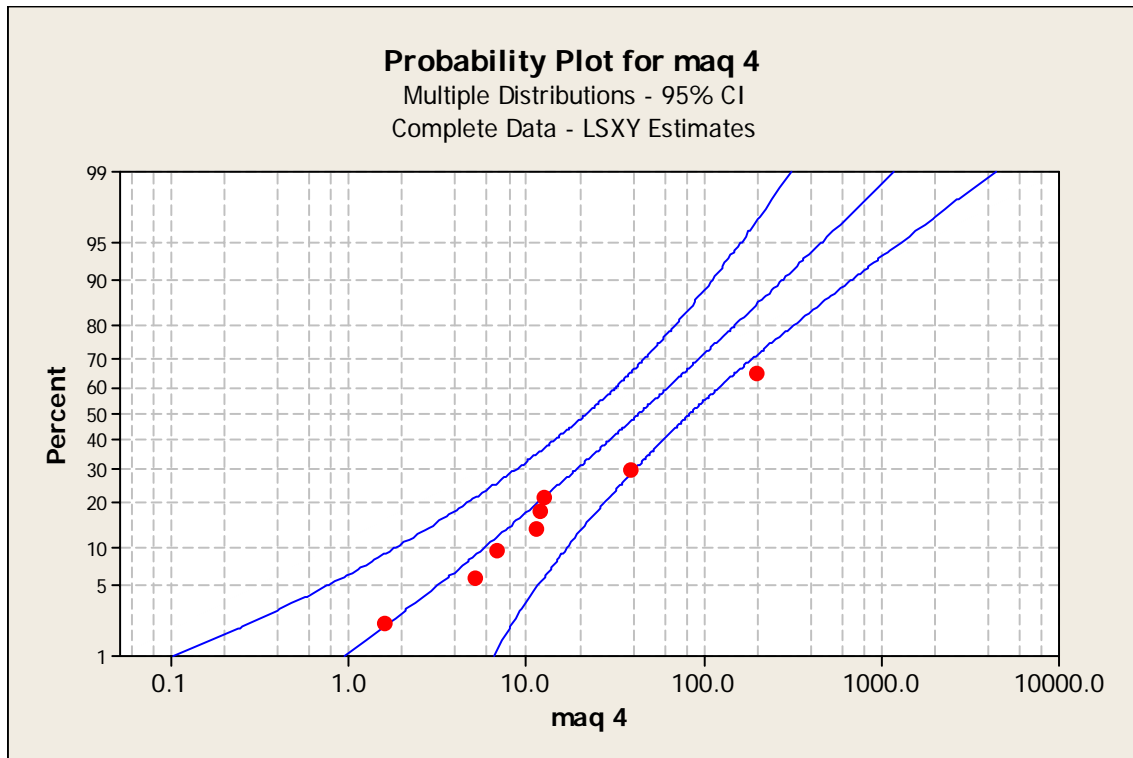


Figura 5 Gráfica de probabilidad de piezas menos frecuentes en máquina 4

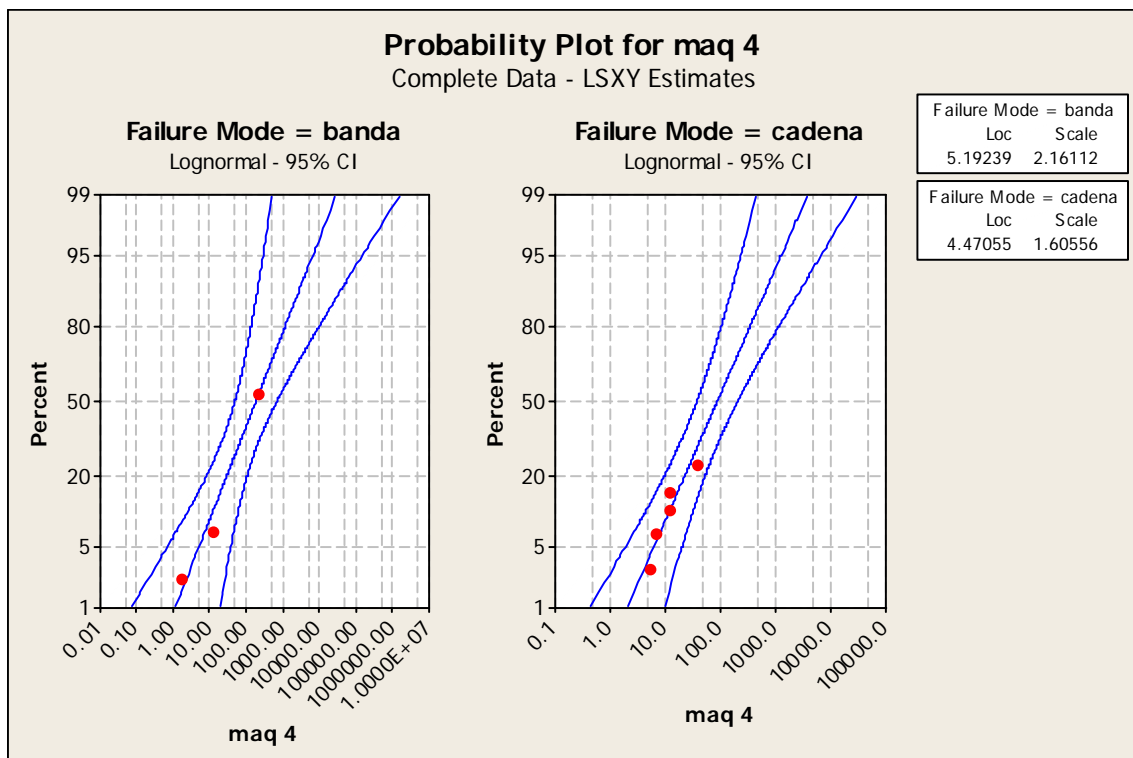


Figura 6 Gráfica de probabilidad por piezas menos frecuentes en máquina 4

Variable: maq 4

Failure Mode: pieza 4 = banda, cadena

Censoring Information Count
Uncensored value 8
Right censored value 23

Estimation Method: Least Squares (failure time(X) on rank(Y))

Distribution: Lognormal, Lognormal

Table of Percentiles

Percent	Percentile	95.0% Normal CI	
		Lower	Upper
1	0.947657	0.103617	6.53924
2	1.55942	0.244884	8.05013
3	2.11968	0.405402	9.35455
4	2.65869	0.580246	10.5592
5	3.18844	0.767301	11.7054
6	3.71523	0.965493	12.8147
7	4.24293	1.17424	13.9003
8	4.77413	1.39320	14.9711
9	5.31073	1.62221	16.0335
10	5.85422	1.86119	17.0925
20	11.8749	4.81411	28.1362
30	19.4651	8.91508	41.3775
40	29.4369	14.4440	58.8042
50	43.0633	21.8412	83.5228
60	62.6706	31.8595	121.480
70	93.1593	45.9982	185.996
80	147.309	67.9397	314.616
90	275.716	110.883	673.709
91	299.783	118.047	747.835
92	328.260	126.264	837.945
93	362.636	135.854	949.990
94	405.207	147.293	1093.40
95	459.761	161.346	1284.21
96	533.111	179.342	1552.22
97	639.176	203.883	1960.86
98	812.845	241.157	2677.68
99	1185.09	312.661	4381.62

Máquina 5

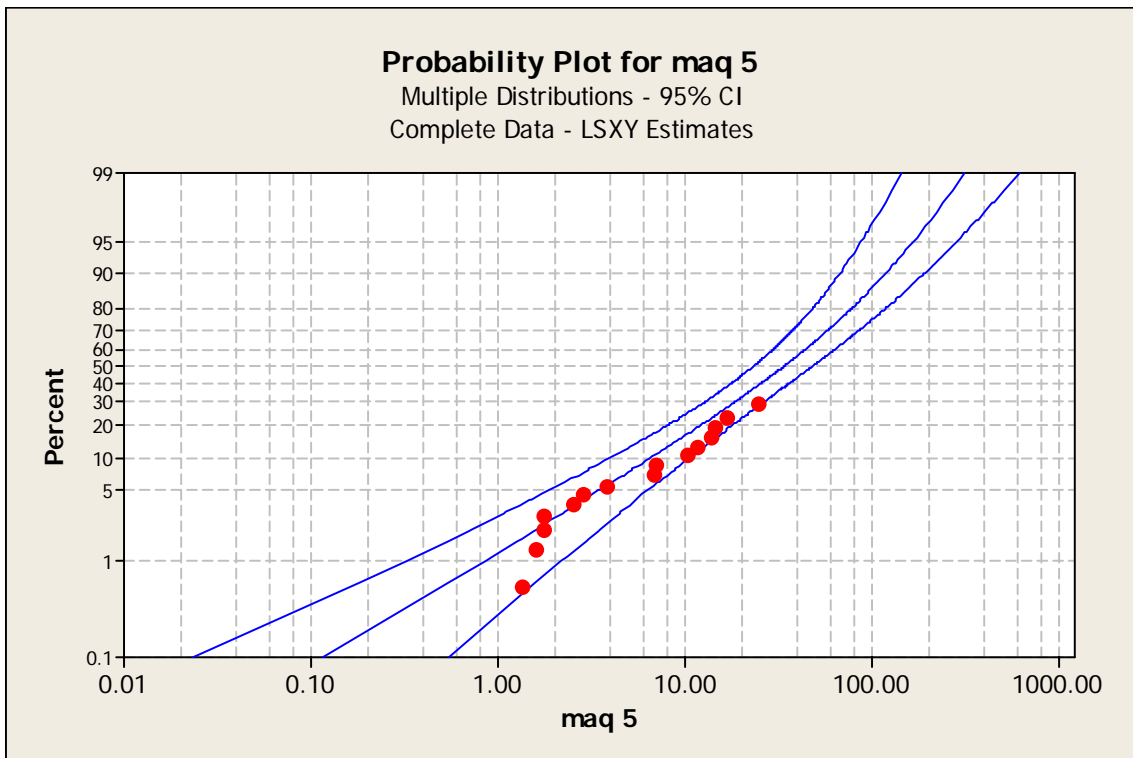


Figura 7 Gráfica de probabilidad de piezas menos frecuentes en máquina 5

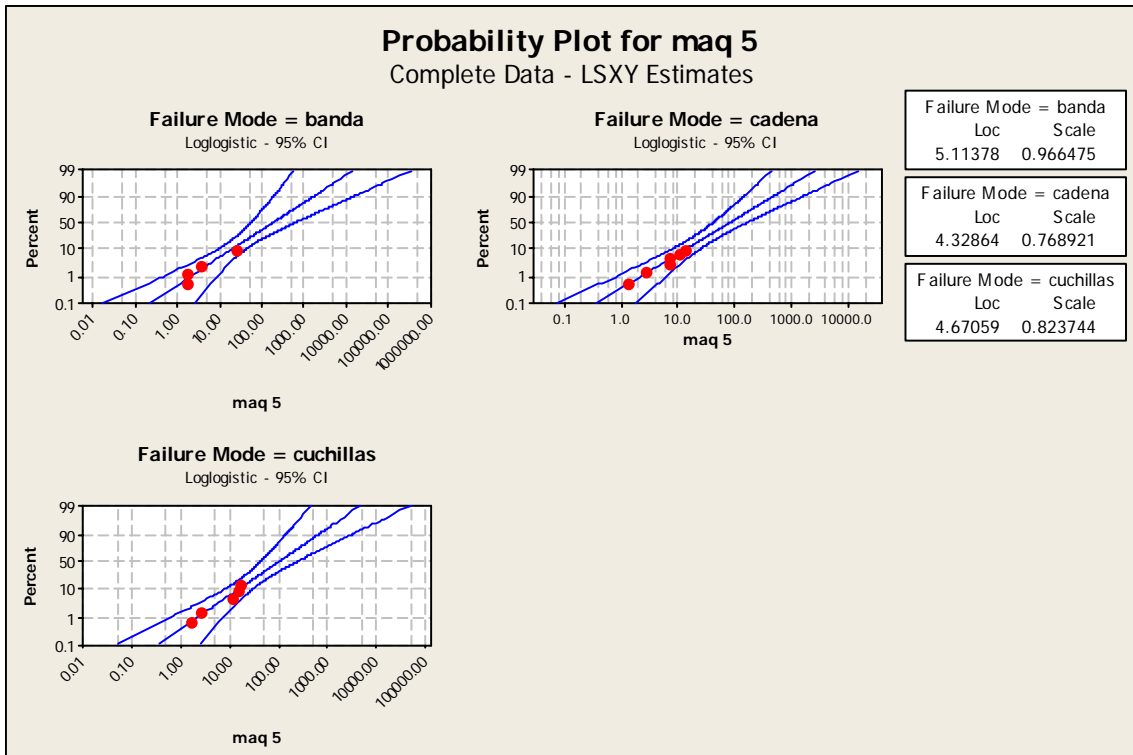


Figura 8 Gráfica de probabilidad por piezas menos frecuentes en máquina 5

Variable: maq 5

Failure Mode: pieza 5 = banda, cadena, cuchillas

Censoring Information Count
Uncensored value 15
Right censored value 137

Estimation Method: Least Squares (failure time(X) on rank(Y))

Distribution: Loglogistic, Loglogistic, Loglogistic

Table of Percentiles

Percent	Percentile	95.0% Normal CI	
		Lower	Upper
0.1	0.114824	0.0232249	0.551237
1	0.855439	0.328947	2.19343
2	1.55844	0.700869	3.42291
3	2.21473	1.08377	4.47287
4	2.84451	1.47313	5.42910
5	3.45700	1.86722	6.32651
6	4.05748	2.26518	7.18368
7	4.64941	2.66654	8.01201
8	5.23519	3.07100	8.81914
9	5.81664	3.47838	9.61056
10	6.39516	3.88856	10.3904
20	12.2038	8.13776	18.0457
30	18.4059	12.6785	26.2727
40	25.3931	17.6038	35.8669
50	33.6318	23.0935	47.6807
60	43.8670	29.4713	63.0498
70	57.5304	37.3618	84.5836
80	78.0478	48.2139	118.728
90	117.639	66.9618	189.622
91	124.249	69.8973	202.025
92	131.847	73.2182	216.463
93	140.735	77.0389	233.598
94	151.377	81.5316	254.446
95	164.517	86.9712	280.671
96	181.468	93.8359	315.249
97	204.835	103.064	364.224
98	240.948	116.894	442.670
99	312.571	143.174	607.039