

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66

RANK-ORDERED TEST-TO-FAILURE DATA (TTFTEST.BAS)

ORIGINAL DATE: Circa 1986
REVISION DATE: November 10, 2020
AUTHOR: Phil Rutherford (www.philrutherford.com)
RUN DATE: 10-11-2020 (DD-MM-YYYY)
RUN TIME: 15:50:49
RUN WITH MMBASIC.EXE (www.mmbasic.com)

COMPUTES FAILURE RATE FROM A BATCH OF UNITS ALL RUN UNTIL FAILURE
(E.G. LIGHT BULBS)

TEST ITEM TIMES-TO-FAILURE (HR)

44	67	23	90	99
23	1	24	13	34
91	87	74	35	56
13	35	2	45	67
16	74	93	63	63
6	74	48	20	64
17	83	65	37	92
53	64	59	26	100
16	38	42	92	53
54	37	53	19	20
74	3	9	45	24
23	5	66	44	22
34	89	33	22	11
77	99	24	45	58
76	39	10	82	63
56	34	13	11	45
59	33	22	56	73
95	45	24	67	56
93	74	64	75	38
29	92	74	86	64

TOTAL ITEMS = 100

FAILURE TIMES (HR) FOR PERIOD 1
1 2 6 3 9 5 10

FAILURE TIMES (HR) FOR PERIOD 2
13 13 16 20 17 16 19 20 11 13 11

FAILURE TIMES (HR) FOR PERIOD 3
23 23 24 26 24 23 22 22 24 22 24 29

FAILURE TIMES (HR) FOR PERIOD 4
34 35 35 37 38 37 34 33 39 34 33 38

FAILURE TIMES (HR) FOR PERIOD 5
44 45 48 42 45 44 45 45 45

FAILURE TIMES (HR) FOR PERIOD 6
56 53 59 53 54 53 58 56 59 56 56

FAILURE TIMES (HR) FOR PERIOD 7
67 67 63 63 64 65 64 66 63 67 64 64

FAILURE TIMES (HR) FOR PERIOD 8
74 74 74 74 77 76 73 74 75 74

FAILURE TIMES (HR) FOR PERIOD 9

67 90 87 83 89 82 86
68
69 FAILURE TIMES (HR) FOR PERIOD 10
70 99 91 93 92 100 92 99 95 93 92
71

72

73	LIFE (HRS)	# FAILURES	FAILURE RATE	SURVIVERS	RELIABILITY
74					
75	0 - 10	7	0.007	93	0.93
76	10 - 20	11	0.01182795699	82	0.82
77	20 - 30	12	0.01463414634	70	0.7
78	30 - 40	12	0.01714285714	58	0.58
79	40 - 50	9	0.01551724138	49	0.49
80	50 - 60	11	0.02244897959	38	0.38
81	60 - 70	12	0.03157894737	26	0.26
82	70 - 80	10	0.03846153846	16	0.16
83	80 - 90	6	0.0375	10	0.1
84	90 - 100	10	0.1	0	0

85
86 AVERAGE PERIOD FAILURE RATE (/HR) 0.02961116673

87
88 TOTAL NO. OF FAILURES 100
89 TOTAL TIME ON TEST (HRS) 4919
90 CUMULATIVE FAILURE RATE (/HR) 0.02032933523

91
92
93 >
