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AUTHOR R. F. Ling	SUBJECT CLASSIFICATION MC-890 Series Power Supply	NO. DF60XF49 DATE 9/28/60
TITLE EN-318 Evaluation of Slow Warm-up Through Special Test of MC-890 Type Power Supplies		
ABSTRACT ESE-171 This EN run was made to determine if there is any relationship between the H-5 transistor electrical characteristics, the assembly processes, and slow warm-up of the MC-890 Power Supply. Included is the test data on the H-5 transistors and the results of the High Temperature Life Test (185°F) of 380 MC-890 Power Supplies.		
G.E. CLASS. 4	REPRODUCIBLE COPY FILED AT Technical Data Center P. O. Box 11508 St. Petersburg, Florida	NO. PAGES 79
GOV CLASS. None		
CONCLUSIONS This EN run was made at the request* of Sandia to evaluate the slow warm-up problem, and the factors related to slow warm-up. The purpose of this report is to provide a clear consolidation of the test results from this EN run for the appropriate Sandia groups to analyze and form their conclusions. * TWX AX-3-8-60 F6 12 AE5		

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For list of contents—drawings, photos, etc. and for distribution see next page.

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EN-318 EVALUATION OF SLOW WARM-UP THROUGH
SPECIAL TEST OF MC-890 TYPE POWER SUPPLIES

I. INTRODUCTION

A basic requirement for the MC-890 type final unit is that it must function properly four seconds after power is applied to the unit. Tests made at GEXF have shown that approximately 4% of the MC-890 Type Units that have been stored for four months do not meet this requirement on the first application of power to the units -- (1) (slow warm-up). It has been found that slow warm-up of the MC-890 final unit is due to a malfunction of the unit power supply. Further investigation has indicated that this problem is related to a degradation of one of the H-5 oscillator transistors (Q-8 or Q-10, SA-493 made by Minneapolis Honeywell).

This EN run was requested by Sandia (2542) for these three (3) primary purposes:

- A. To confirm the results of the first High Temperature Life Test (185°F) of MC-890 Power Supplies made by Sandia. Test groups G and H were run to meet this requirement.
- B. To determine if there is any relation between the H-5 transistor electrical characteristics and slow warm-up. Test groups C, D and E were run for making this determination.
- C. To determine what effects, if any, the various assembly processes have on the electrical characteristics of the H-5 transistors. Test groups A and F were run to satisfy this requirement.

II. PILOT RUN

A. Construction

This pilot run consisted of 450 MC-890 power supplies built as follows: (Ref. EN-318 in the Appendix)

1. Group A - 50 Unpotted Power Supplies.

Of these fifty (50) unpotted power supplies thirty five (35) units were built using H-5 oscillator transistors which had collector leakage current I_{CEO} of less than 30 ma., an emitter leakage current I_{EEO} 1.0 ma. or less, and an emitter floating potential V_{EBF} of .35 volt or less. Fifteen (15) units were built using H-5 oscillator transistors that had a collector leakage current I_{CEO} of 125 ma. (Ref. 46A101302 and EN-318 Supplement I Par. 4.1.1).

(1) Reference: R60XF13 Pilot Run EN-262, Results of Special Screen Test on MC-890 Type Final Assembly, By I. W. Braun

2. Group B - 50 Unpotted Power Supplies.

These fifty (50) unpotted power supplies were manufactured using H-5 oscillator transistors with the same electrical characteristics and breakdown as those in Group A. (Ref. 46A101302 and EN-318 Supplement I Par. 4.1.2.)

3. Group C - 50 Potted Power Supplies.

These fifty (50) potted power supplies were manufactured using H-5 oscillator transistors that had been screened per 46A101302, but in addition, had a collector leakage current I_{CEO} of less than 30 ma. (Ref. EN-318 Par. 4.1.2.)

4. Group D - 50 Potted Power Supplies.

These fifty (50) potted power supplies were manufactured using H-5 oscillator transistors that had failed the transistor screen test (46A101302), and in addition, had a collector leakage current I_{CEO} of 125 ma. to 249 ma.

5. Group E - 50 Potted Power Supplies.

These fifty (50) potted power supplies were manufactured using H-5 oscillator transistors that had not been screened per 46A101302 but were good units as required by 124A1065 (transistor test requirements).

6. Group F - 100 Potted Power Supplies.

These one hundred (100) potted power supplies were manufactured using H-5 oscillator transistors that had passed the transistor screen test 46A101302. Fifty (50) of these power supplies were made with leads coming from the oscillator transistors suitable for measuring I_{CEO} during assembly (before RTV, after RTV, and after potting).

7. Group G - 50 Potted Power Supplies.

These fifty (50) potted power supplies had already been built using H-5 regulator and oscillator transistors that had not been screened per 46A10301 or 46A101302. These power supplies were in "C" (non-production) stock.

8. Group H - 50 Potted Power Supplies.

These fifty (50) potted power supplies had already been built using H-5 regulator and oscillator transistors that had been screened per 46A101301 and 46A101302. These power supplies were in "B" (production) stock.

Note: All the regulator transistors used in Groups A, B, C, D, E, and H were screened per 46A101301.

B. Tests

1. Normal Test

All 450 power supplies in the pilot run were given the normal power supply test 46A101004 Rev. 2 prior to receiving any special tests. There was no significant difference in normal test performance or yield between any of the groups.

2. Special Test

(a) High Temperature Life Test (185°F)

Groups A, C, D, E, F, G and H all received this test as outlined in EN-318 Supplement I Par. 4.1.9. A graphical comparison of the results of this test is shown in Figures 1 and 2. The detailed test data are compiled in the appendix in Table II. The appropriate transistor test data are included in the appendix in Table III.

(b) Operational Life Test

Group B received this test as outlined in EN-318 Par. 4.1.10. The results are tabulated in Table I.

(c) Transistor Test Results During the Assembly of the Power Supplies

This test was made in accordance with EN-318 Supplement I. The test data are tabulated in Table IV of the appendix.

III. CONCLUSIONS

This EN run was made at the request of Sandia to evaluate the slow warm-up problem and the factors related to slow warm-up. The purpose of this report is to provide a clear consolidation of the test results from this EN run for the appropriate Sandia groups to analyze and form their conclusions.

TABLE I
OPERATION LIFE TEST RESULTS
GROUP B

Cumulative Minutes of Load Test at 165°F	Fourteen Power Supplies Using H-5 Transistor with a ICEO of less than 30 ma.		Thirty Power Supplies using H-5 Transistors with ICEO of 125 to 249 ma.		Total	
	Cumulative Failures		Cumulative Failures		Cumulative	
	No.	%	No.	%	No.	%
30	1	7.1	1	2.9	2	2.5
60	1	7.1	4	11.5	5	10.2
90	4	29	6	17	10	20.4
120	4	29	6	17	10	20.4
150	4	29	7	20	11	22.5
180	5	36	10	29	15	30.6

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TABLE II
GROUP A
HIGH TEMPERATURE 185°F LIFE TEST OF

S/N	CT	ΔT	CT	ΔT	CT	ΔT	CT	ΔT	CT	ΔT	CT	ΔT	CT
	TEST	0 hrs. #1	TEST	48 hrs. #2	TEST	96 hrs. #3	TEST	168 hrs. #4	TEST	240 hrs. #5	TEST	TEST	TEST
013-1-038	1.00	0	0.97	-.02	0.98	+.01-.01	1.24	-.02+.02	0.89	-.02+.02	0.9		
-034	0.96	0	0.96	-.02	0.99	-.04	1.24	+.01-.03	0.89	-.03	0.9		
-194	0.91	0	0.93	+.01-.02	0.98	-.02	0.97	-.03	0.87	-.03	0.9		
014-1-061	0.96	0	0.94	-.01+.04	1.10	-.04	1.23	-.04	0.87	+.02	0.9		
-117	1.01	0	0.98	+.01	0.97	0	0.98	-.01	0.88	+.02-.01	0.9		
-005	1.02	-.01	1.00	-.02	0.99	0	1.29	-.02+.01	0.93	-.03	0.9		
-075	1.10	+.02	1.12	+.01	1.14	-.02	1.15	-.03	1.05	-.01	1.0		
013-1-150	0.96	0	0.98	-.04	0.98	-.02	0.99	-.04	0.89	+.01-.04	0.9		
-143	0.99	-.02	0.98	-.04	1.00	-.02	1.00	-.02	0.87	+.02-.02	0.9		
-122	0.96	0	1.00	-.03	1.10	-.04	1.00	-.01	0.91	-.03	0.9		
-073	1.03	-.02	1.00	-.03	1.00	0	1.01	0	0.89	+.01+.01	0.9		
-166	0.97	0	0.97	+.01-.01	1.00	+.01-.02	1.04	+.01-.04	0.98	+.01-.01	0.9		
-052	0.94	0	0.95	-.02	0.95	0	0.98	-.01	0.97	-.04	0.9		
014-1-019	0.95	-.02	0.97	-.02	1.06	-.01+.03	1.19	-.04	0.87	-.02	0.8		
013-1-115	0.96	0	0.96	-.03	0.96	-.01	1.20	-.01	0.87	0	0.9		
014-1-014	0.94	-.01	0.92	+.01	0.94	-.02+.01	0.97	-.01	0.87	-.02	0.8		
013-1-006	0.99	-.02	1.00	-.03	1.00	0	1.04	-.04	0.93	+.01-.03	0.9		
014-1-084	0.88	0	0.86	+.01	0.87	0	0.89	+.01-.01	0.76	+.05	0.8		
-131	0.98	+.02	1.02	-.02	1.04	-.01	1.07	-.01	0.98	-.03	1.0		
013-1-003	1.11	-.02	1.12	+.01-.02	1.16	-.04	1.17	-.02	1.01	+.02+.02	1.1		
-129	1.05	-.01	1.03	-.03	1.05	-.01	1.07	-.01	0.93	+.01-.02	0.9		
-059	1.00	-.01	0.97	+.02-.01	1.00	0	1.02	0	0.92	-.01	0.9		
-101	0.95	-.03	0.94	-.01-.01	1.04	-.01+.04	1.06	-.02	0.89	-.03	0.9		
-146	1.03	-.01	1.03	-.01	1.06	-.02	1.11	+.05	0.96	-.03	0.9		
-080	0.99	-.01	0.99	-.01+.01	1.11	-.02	1.04	+.01-.02	0.90	+.01-.03	0.9		
-157	1.01	-.01	1.04	+.01-.01	1.15	-.02+.02	1.14	-.01+.01	0.94	+.01-.01	1.0		
-118	1.02	-.01	1.03	-.01+.01	1.19	-.05	1.08	0	1.02	+.01	1.0		
-171	1.04	-.03	1.04	+.01	1.13	-.03	1.10	-.03	0.95	-.03	1.0		
-094	0.98	+.01-.01	0.99	-.03	1.12	-.05	1.02	-.02	0.91	-.02	0.9		
014-1-033	0.97	-.02	0.98	+.01-.01	0.98	+.02	1.04	-.04	0.89	+.03	0.9		
013-1-185	0.97	-.01	0.93	+.01	1.07	+.01-.02	1.02	+.03	0.86	+.02-.02	0.9		
-087	1.04	-.02	1.04	-.02	1.17	+.02	1.100	0	0.99	-.03	1.0		
-066	0.95	+.03	0.96	-.03	1.11	-.02	1.01	-.02	0.88	+.01	0.9		
-108	0.96	-.02	0.95	-.02	0.97	0	1.02	+.02-.02	0.88	-.02	0.9		
-042	0.95	-.03	0.97	-.04	1.00	-.01	1.04	-.02	0.88	-.02	0.9		
-104	0.84	-.02	0.87	-.03	0.89	0	0.94	+.01-.03	0.75	+.03	0.9		
014-1-070	1.01	+.01-.01	0.99	+.01-.03	1.01	-.01+.01	1.15	-.04	0.94	-.05	0.9		
013-1-136	0.98	-.03	0.97	-.03	0.97	0	1.00	0	0.88	-.02	0.9		
-024	1.06	0	1.12	-.01+.03	1.27	-.05	1.24	+.02	1.05	+.01-.01	1.1		
014-1-47	0.99	0	1.05	-.04	1.07	-.01+.01	1.12	+.03	0.97	-.05	0.9		
013-1-180	1.02	-.02	1.03	-.02	1.09	-.03	1.13	-.02+.01	0.92	-.03	0.9		
014-1-028	0.98	-.02	0.99	-.02	1.10	-.02	1.09	-.04	0.88	+.03-.01	0.9		
013-1-090	0.97	+.02	0.98	-.01+.03	1.11	+.04	1.04	-.01	0.93	-.02	1.0		
-045	0.99	-.02	1.00	-.02	1.06	-.02	1.15	+.01-.03	0.97	-.02	1.0		
-010	0.93	0	0.99	-.01	1.00	0	1.08	-.03	0.90	-.03	1.0		

10 MC-890 POWER SUPPLIES

	AT	CT	AT	CT	AT	CT	AT	Q 1	Q 2	Q 8	Q 10
	312 hrs		384 hrs		456 hrs		528 hrs				
	#6	TEST	#7	TEST	#8	TEST	#9	SER.	LOT	SER.	LOT
1	+04-.02	0.80	-.02-.03	0.86	+01	0.83	-.04	1-75	24	1-76	24
1	-.03	0.81	-.03	0.80	-.01+.02	0.81	-.02	1-67	24	1-68	24
4	-.08	0.80	-.03	0.76	-.03	0.75	+02	3-187	25	3-188	25
2	+01-.01	0.79	-.02	0.79	-.03	0.79	-.02	4-109	25	4-110	25
1	+03	0.79	-.02	0.76	+01	0.79	-.03	5-21	26	5-22	26
4	+02-.01	0.88	+02	0.83	-.02	0.84	-.03	3-197	25	3-198	25
9	-.02	1.00	+02	0.93	-.04	0.93	+02-.01	4-137	25	4-138	25
3	+01-.02	0.86	-.02	0.78	+01-.03	0.80	+01-.03	3-99	25	3-100	25
5	-.04	0.80	+01	0.79	-.05	0.82	-.03	3-85	25	3-86	25
8	-.04	0.83	-.01	0.79	+02	0.83	-.02	3-43	25	3-44	25
3	+03-.01	0.83	-.04	0.79	+01	0.83	-.02	2-45	25	2-46	25
9	-.03	0.87	-.05	0.83	-.04	0.86	-.03	3-131	25	3-132	25
4	-.04	0.81	-.03	0.78	+01-.02	0.79	-.03	2-3	25	2-4	25
9	-.02	0.80	-.03	0.74	-.03	0.73	+03-.01	4-25	25	4-26	25
3	-.04	0.79	+01+.01	0.77	-.01+.01	0.76	+01-.01	3-29	25	3-30	25
7	+04	0.77	+01-.02	0.77	-.02+.01	0.85	-.01	4-15	25	4-16	25
4	-.01	0.79	+04	0.83	-.03	0.84	-.03	1-11	24	1-12	24
13	+02+.01	0.71	+02-.02	0.69	+04	0.72	+01-.01	4-155	25	4-156	25
13	-.04	0.89	-.02	0.88	-.02+.02	0.89	+02	5-49	26	5-50	26
0	-.05	0.92	-.02	0.93	-.05	0.93	-.02	1-5	24	1-6	24
7	+01-.01	0.85	-.04	0.82	+01-.01	0.83	-.01+.01	3-57	25	3-58	25
6	+01-.03	0.86	+02	0.81	-.01	0.84	-.04	2-17	25	2-18	25
12	-.01	0.77	+04	0.78	-.03	0.79	-.03	3-1	25	3-2	25
19	-.03	0.85	+02-.02	0.85	-.03	0.83	+05-.01	3-91	25	3-92	25
15	+01-.01	0.81	0	0.80	-.01	0.81	-.03	2-59	25	2-60	25
10	+02+.01	0.89	-.06	0.85	-.04	0.86	-.03	3-113	25	3-114	25
12	-.02	0.86	-.03	0.84	-.02	0.85	-.03	3-35	25	3-36	25
12	-.03	0.85	-.04	0.85	+02-.02	0.88	-.01	3-141	25	3-142	25
15	-.03	0.68	+02	0.80	-.02	0.82	-.03	2-87	25	2-88	25
16	-.03	0.82	+03+.01	0.82	-.03	0.84	-.03	4-53	25	4-54	25
10	-.02	0.88	+02+.02	0.77	-.03	0.77	-.01+.02	3-169	25	3-170	25
11	+01-.02	0.79	-.04	0.85	-.03	0.87	+01-.01	2-73	25	2-74	25
11	+01-.02	0.80	-.01-.03	0.77	+01	0.81	-.03	2-31	25	2-32	25
10	+01-.01	0.78	-.01	0.76	-.01+.01	0.79	-.03	3-15	25	3-16	25
11	+02+.01	0.82	-.04	0.79	-.04	0.80	-.04	1-83	24	1-84	24
19	+01-.02	0.82	-.03-.01	0.64	-.02	0.66	-.03	3-7	25	3-8	25
18	-.05	0.77	-.01+.02	0.80	-.01	0.83	-.02	4-127	25	4-128	25
12	-.03	0.77	-.01-.02	0.75	+03	0.78	-.03	3-71	25	3-72	25
10	+01-.03	1.00	0	0.93	+02-.01	0.95	-.02+.01	1-47	24	1-48	24
17	+01-.02	0.81	+05	0.84	-.04	0.83	-.02+.01	4-81	25	4-82	25
15	-.01	0.79	+05	0.80	+01-.01	0.84	+01-.01	3-159	25	3-160	25
13	-.02	0.79	+02	0.78	-.02	0.81	+02-.01	4-43	25	4-44	25
12	-.02	0.84	+01+.02	0.81	-.02	0.83	-.02	2-79	25	2-80	25
50	-.20	0.87	-.04	0.86	-.02	0.87	-.03	1-89	24	1-90	24
68	+07	0.79	-.01	0.79	-.02	0.80	-.03	1-19	24	1-20	24

S/N	New	Old	TEST		0 hrs		TEST		48 hrs		TEST		96 hrs		TEST		168 hrs		2
	Q-8 & 10 Lot#	Q-8 & 10 Lot#	CH. T	Δ T	CH. T	Δ T	CH. T	Δ T	CH. T	Δ T	CH. T	Δ T	CH. T	Δ T	CH. T	Δ T	CH. T	Δ T	
014-1-040	21	110	1.09	-.01	1.06	-.02	1.06	-.04	.99	-.02	1.03								
-1054	21	110	.93	+.02	.94	-.02	.91	-.03	.84	-.01	.86								
013-1-192	21	110	1.03	-.03	1.04	-.01	1.01	+.01	1.00	+.02	1.01								
-145	21	110	1.10	-.02	1.06	-.03	1.02	+.02	.98	-.02	.99								
014-1-138	21	110	1.01	-.02	1.00	-.03	.97	-.02	.94	-.03	.96								
013-1-164	21	110	1.03	-.02	1.00	-.03	.92	+.02	.87										
013-1-019	21	110	.92	+.02	.88	+.01	2.01	-1.23	3.40	-2.67	3.45								
013-1-152	21	110	.95	-.01	.96	-.03	.93	-.03	.91	-.03	.90								
-131	21	110	1.09	-.01	1.11	-.03	1.07	-.01	1.08	-.02	1.07								
-193	21	110	1.00	-.01	1.00	-.02	.96	+.02	.95	+.02	.93								
-096	21	110	1.04	+.02	1.06	-.03	1.01	-.03	.99	-.04	1.01								
-068	21	110	.95	+.01	.91	-.01	.86	+.01	.79	-.01	.78								
-047	21	110	.93	-.02	.95	-.02	1.62	-.72	2.64	-1.75	4.03								
-005	21	110	.98	-.02	.99	-.03	.97	-.02	.94	-.02	.92								
-178	21	110	1.05	-.01	1.06	-.02	1.05	-.02	1.00	-.04	.99								
-165	21	110	1.04	-.03	1.03	-.02	1.03	-.03	1.00	-.02	.98								
-117	21	110	1.04	0	1.06	-.03	1.00	0	.98	+.01	.94								
-040	21	110	.96	-.01	.97	-.01	.96	-.04	.94	+.01	.92								
-026	21	110	.94	+.01	.94	-.01	.86	0	.83	+.01	.82								
-082	21	110	.91	-.01	.95	-.01	.93	-.03	.92	+.01	.86								
-033	21	110	.84	+.02	.82	+.01	3.73	-2.94	.89	-.11	.81								
-089	21	110	.95	+.01	.97	-.02	.89	-.02	.86	-.04	.85								
-012	21	110	.97	-.01	.96	-.01	.96	-.02	.93	0	.91								
-075	21	110	.99	-.03	.97	-.03	.90	0	.84	+.02	.79								
-110	21	110	.90	-.01	.87	-.02	.81	-.01	.83	-.04	.83								
014-1-041	21	110	1.09	-.01	1.08	-.02	1.05	-.02	1.04	+.02	1.00								
-013	21	110	1.02	-.01	1.02	-.01	.97	+.02	.94	+.01	.89								
014-1-068	21	110	.98	-.03	.96	-.02	.96	-.04	.95	-.03	.90								
-055	21	110	.85	-.02	.85	+.02	.87	+.02	.80	+.01	.76								
013-1-061	21	110	.95	+.01	.96	-.01	.93	+.02	.97	-.01	.93								
014-1-111	21	110	.83	+.01	.86	-.01	.88	-.03	.84	+.01	.82								
-152	21	110	1.03	+.01	1.08	-.02	1.10	-.04	1.07	-.03	1.02								
-139	21	110	.99	+.01	1.00	-.01	.96	-.02	.91	-.03	.87								
-069	21	110	.96	-.01	1.00	-.03	1.00	-.03	.97	-.01	.95								
-097	21	110	.97	-.01	.98	+.02	.88	+.01	.95	+.01	.91								
-027	21	110	.94	-.01	1.02	-.02	1.02	+.01	1.03	-.01	1.00								
-145	21	110	1.00	-.01	.99	+.01	1.00	0	.98	-.02	.93								
-096	21	110	.93	-.01	.93	-.02	1.01	-.03	.95	-.02	.76								
-026	21	110	.97	+.01	1.02	-.02	1.03	-.02	1.04	+.05	1.00								
-110	21	110	.93	-.03	.97	0	1.00	-.03	.96	+.02	.93								
-083	21	110	.99	-.01	.99	+.01	.99	-.02	.96	-.01	.90								
-082	21	110	1.01	-.01	1.05	0	1.06	-.02	1.05	+.04	1.00								
-125	21	110	.93	-.03	1.00	-.04	.98	-.05	.95	-.03	.91								
013-1-138	21		1.16	0	1.18	-.04	1.20	-.02	1.24	+.02	1.02								
-054	21		.96	0	.94	-.05	.96	+.02	.94	-.04	.78								
-179	21		1.16	-.01	1.03	-.04	1.04	-.02	.78	+.01	.94								
014-1-012	21		.95	-.03	.91	0	.93	-.02	.92	-.04	.94								

IFE TEST OF 50 MC-890 POWER SUPPLIES

TABLE II
GROUP C

40 hrs #5	TEST	312 hrs #6	TEST	384 hrs #7	TEST	456 hrs #8	TEST	528 hrs #9	Q 1	Q 2	Q 8	Q 10				
ΔT	CH. T	ΔT	CH. T	ΔT	CH. T	ΔT	CH. T	ΔT	SER.	LOT	SER.	LOT	SER.	LOT	SER.	LOT
-.02	1.01	-.02	1.08	-.05	.90	-.02	.91	-.03+.01	4-67	25	4-68	25	3-177	21	3-178	21
-.02	.81	-.01	.82	-.04	.68	-.02	.66	-.04	4-95	25	4-96	25	3-185	21	3-186	21
0	.99	-.02	1.04	-.04	.88	-.02	.83	-.05	3-183	25	3-184	25	3-153	21	3-154	21
-.02	.94	+.01	1.04	-.05	.84	-.03+.01	.85	-.03	3-89	25	3-90	25	3-125	21	3-126	21
-.03	.90	-.03	1.00	+.02-.02	.84	-.04	.82	+.03-.01	5-63	26	5-64	26	3-233	21	3-234	21
-.01	.85	-.01	.94	-.02+.02	.80	-.04	.80	-.02	3-127	25	3-128	25	3-137	21	3-138	21
2.73	4.56	-3.70	6.64	-5.75	8.74	-7.76	10.57	-10.51	1-37	24	1-38	24	3-17	21	3-18	21
-.03	.91	-.01	.94	-.03	.78	-.02	.76	-.03	3-103	25	3-104	25	3-131	21	3-132	21
01-.01	1.72	-.05	1.12	-.05	.96	-.04	.96	-.03	3-61	25	3-62	25	3-113	21	3-114	21
-.01	.92	-.02	.98	-.02	.82	-.03	.81	-.04	3-185	25	3-186	25	3-155	21	3-156	21
-.04	1.01	-.04	1.10	-.04	.94	-.03	.93	+.05	2-91	25	2-92	25	3-83	21	3-84	21
-.03	1.52	-.77	16.32	-15.52	26.30	-25.62	34.85	-34.19	2-35	25	2-36	25	3-59	21	3-60	21
3.91	13.20	-12.29	51.20	-50.22	69.04	-68.38	60		1-93	24	1-94	24	3-41	21	3-42	21
-.03	.88	-.04	.92	-.04	.78	-.05	.76	-.02+.02	1-9	24	1-10	24	3-5	21	3-6	21
0	.98	+.03-.03	1.04	-.03	.84	-.05	.85	+.02	3-155	25	3-156	25	3-145	21	3-146	21
-.01	.95	+.01-.01	1.00	+.03-.02	.84	-.03	.82	-.03	3-129	25	3-130	25	3-139	21	3-140	21
-.02	.89	+.03	.92	+.01-.02	.76	-.03	.74	+.01+.01	3-33	25	3-34	25	3-101	21	3-102	21
-.02	.92	-.02	.96	-.03	.84	-.03	.81	+.01-.02	1-79	24	1-80	24	3-35	21	3-36	21
-.01	.81	-.02	.88	-.02	.74	-.02	.72	+.02-.02	1-51	24	1-52	24	3-23	21	3-24	21
+.01	.85	-.04	.92	+.02+.01	.76	-.03	.76	-.03	2-63	25	2-64	25	3-71	21	3-72	21
01-.02	.83	-.02	.84	+.03	1.04	+.16+.10	.69	+.60	1-65	24	1-66	24	3-29	21	3-30	21
-.03	.89	-.07	.95	+.01-.03	.78	+.01	.80	-.03	2-77	25	2-78	25	3-77	21	3-78	21
+.02	.91	-.02+.01	1.00	-.03	.82	+.02+.02	.84	-.03	1-23	24	1-24	24	3-11	21	3-12	21
+.03	.77	-.03	.84	+.01-.03	.72	+.01+.01	.68	-.02	2-49	25	2-50	25	3-65	21	3-66	21
-.03	.82	-.03	.88	+.01+.03	.74	-.02	.74	-.04	3-19	25	3-20	25	3-95	21	3-96	21
0	.98	+.02-.02	1.06	-.04	.88	+.02-.01	.88	-.04	4-69	25	4-70	25	3-179	21	3-180	21
-.03	.93	-.03	.84	+.04	.74	-.03	.84	-.02-.03	4-13	25	4-14	25	3-163	21	3-164	21
-.01		+.01-.03	.85	+.03-.01	.82	-.04	.86	-.03	4-123	25	4-124	25	3-193	21	3-194	21
02-.03		-.03	.72	-.03	.69	+.01+.01	.74	+.02-.02	4-97	25	4-98	25	3-187	21	3-188	21
02-.02		-.08	.79	-.02	.80	-.08	.78	+.01-.02	2-21	25	2-22	25	3-53	21	3-54	21
-.03		-.04	.74	-.03	.71	-.02	.72	-.02	5-9	26	5-10	26	3-219	21	3-220	21
-.01		-.06	.93	-.04	.90	-.01	.94	-.03	5-91	26	5-92	26	3-239	21	3-240	21
-.03		+.04	.79	-.04	.72	-.04	.80	-.03	5-65	26	5-66	26	3-235	21	3-236	21
-.02		-.04	.89	-.04	.86	-.02	.90	-.04	4-125	25	4-126	25	3-195	21	3-196	21
-.02		+.01-.01	.81	-.02	.79	+.01+.01	.84	+.02	4-181	25	4-182	25	3-211	21	3-212	21
02+.02		+.02-.01	.89	+.01-.01	.90	+.02	.94	-.04	4-41	25	4-42	25	3-171	21	3-172	21
-.02		-.06	.82	-.03	.78	+.02-.01	.84	+.03	5-77	26	5-78	26	3-237	21	3-238	21
-.02		+.04	.69	-.04	.66	-.01	.70	-.03	4-179	25	4-180	25	3-209	21	3-210	21
01+.03		-.03	.81	-.01	.87	+.01+.02	.90	+.01-.01	4-39	25	4-40	25	3-169	21	3-170	21
-.02		-.07	.83	-.04	.82	-.01	.84	+.02+.01	5-7	26	5-8	26	3-217	21	3-218	21
03-.01		+.02-.02	.81	-.03	.77	-.02	.80	-.01	4-153	25	4-154	25	3-203	21	3-204	21
03-.01		-.03	.89	+.02-.02	.89	+.02	.90	-.01	5-51	29	4-152	25	3-201	21	3-202	21
02-.05		-.05	.80	-.05	.76	-.05	.80	-.06	5-37	26	5-38	26	3-227	21	3-228	21
02-.02	1.10	-.02	1.04	-.04	1.10	-.02	1.08	+.04	3-75	25	3-76	25	3-119	21	3-120	21
-.04	.84	-.03	.76	-.02	.82	-.02	.80	+.02+.03	2-7	25	2-8	25	3-47	21	3-48	21
-.02	.98	+.01-.01	.98	-.03	1.04	-.03	1.02	+.01-.04	3-157	25	3-158	25	3-147	21	3-148	21
-.02	.74	-.03	.74	-.03	.80	-.03	.80	-.03	4-11	25	4-12	25	3-161	21	3-162	21

TABLE
GROUP
HIGH TEMPERATURE 185°F LIFE TEST

S/N	New Lot No.	Old Lot No.	TEST	0 hrs #1	TEST	48 hrs #2	TEST	96 hrs #3	TEST	168 hrs #4	TEST	240 hrs #5	TEST
			CH. T	ΔT	CH. T	ΔT	CH. T	ΔT	CH. T	ΔT	CH. T	ΔT	CH. T
014-1-035	20	109	1.10	-.04	1.05	-.02	1.00	+.04	.97	+.01	.98	-.01	1.04
21 -077	21	110	1.04	-.04	1.01	-.03	1.01	-.09	.89	-.05	.87	-.03	.94
013-1-153	20	109	1.05	+.02	.99	-.01	.96	-.01	.89	+.01	.90	-.03	.92
-097	20	109	.89	+.01	.87	+.01	.86	+.02	.73	+.01	.77	+.01	.7
014-1-092	21	110	1.05	-.04	1.01	-.01	1.03	-.04	.94	+.01	.94	-.02	.92
-064	21	110	1.02	-.03	.99	-.02	.99	-.05	.90	+.01	.93	+.01	.81
-063	21	110	.97	-.02	.95	-.01	.96	-.02	.89	-.03	.89	-.01	.81
-007	20	109	.97	-.02	.97	-.02	.96	+.01	.88	-.03	.88	-.02	.81
-022	20	109	.921	+.01	.93	-.01	.95	-.02	.85	+.01	.85	+.02	.81
013-1-173	20	109	.94	-.01	.94	-.03	.93	-.02	.81	+.01	.82	-.02	.81
-013	20	109	.93	+.02	.92	-.02	.91	0	.87	-.02	.86	-.02	.81
014-1-021	20	109	.99	-.04	.99	-.01	.97	-.02	.89	-.04	.89	-.02	.81
013-1-069	20	109	.98	-.04	.99	+.01	1.00	-.06	.93	-.03	.91	-.03	.81
014-1-106	21	110	.99	+.01	1.00	-.01	.99	-.01	.93	-.04	.93	-.03	.92
-036	20	109	.95	+.03	1.00	-.05	1.02	-.04	.96	-.03	.98	-.04	.92
013-1-187	20	109	.91	+.02	.87	0	.85	+.01	.78	+.05	.78	+.02	.81
014-1-050	20	109	.99	+.01	1.00	-.01	1.02	-.03	.95	-.01	.95	-.02	.92
014-1-147	21	110	.89	+.02	.92	-.02	.89	-.02	.83	-.01	.87	-.02	.81
-119	21	110	.94	+.01	.97	-.01	.96	-.02	.90	0	.90	+.01	.81
-148	21	110	1.00	-.01	1.01	+.01	1.02	-.02	.97	-.02	1.00	-.03	.91
-127	21	110	.83	+.02	.90	+.01	.92	-.03	.84	+.01	.83	+.01	.82
-140	21	110	.93	+.01	.97	-.01	.98	-.03	.90	+.02	.91	-.02	.81
013-1-125	20	109	.94	-.02	.95	-.02	.93	+.03	.84	-.02	.82	-.01	.81
014-1-098	22	111	.88	-.02	.90	-.01	.90	-.02	.83	-.01	.83	-.04	.71
-146	21	110	.90	-.01	.91	+.01	.92	-.03	.87	-.04	.87	-.04	.71
-141	21	110	.81	+.01	.85	-.03	.84	-.04	.77	0	.76	-.04	.61
-133	21	110	.86	+.01	.87	-.01	.87	-.05	.83	-.04	.83	-.04	.71
-134	21	110	.82	-.03	.86	-.03	.86	-.04	.78	-.02	.77	+.02	.71
-154	21	110	1.06	+.01	1.08	-.03	1.08	-.04	.98	+.01	.91	+.02	.81
013-1-174	20	109	.97	-.01	1.00	-.02	.95	0	.90	-.04	.86	-.04	.71
014-1-153	21	110	.95	+.02	.97	-.03	.96	-.05	.88	-.01	.88	-.04	.71
-113	21	110	.83	-.02	.85	-.02	.86	-.02	.79	-.02	.85	+.03	.71
-155	21	110	.85	-.01	.89	-.05	.83	+.01	.75	+.01	.77	-.03	.61
-078	21	110	.86	+.02	.89	-.02	.89	-.03	.83	-.02	.83	-.02	.71
-126	21	110	.99	+.01	1.03	-.01	1.04	+.01	.98	-.04	.97	-.01	.81
013-1-083	20	109	.82	-.01	.87	-.01	.89	-.03	.82	-.01	.82	-.01	.71
013-1-139			.78	-.05	.82	+.01	.83	+.03	.80	-.04	.66	-.05	.51
014-1-120			.83	0	.86	+.02	.88	-.03	.90	-.04	.70	+.04	.61
-105			.99	-.02	1.00	+.02	1.08	-.04	1.02	+.02	.88	-.04	.71
-112			.97	-.04	.90	0	.90	+.02	1.38	-.54	6.24	-5.56	.81
-099			.92	0	.92	-.04	.92	+.01	.92	-.04	.74	-.01	.61
-008			1.07	-.03	1.00	+.02	1.03	+.01	1.06	-.04	.84	-.03	.71
-091			.96	-.02	.88	-.02	.92	-.01	.88	0	.74	-.04	.61
013-1-188			1.02	-.02	1.00	-.01	1.04	-.04	1.00	-.01	.84	-.02	.71
-160			.90	0	.92	+.04	1.59	-.65	2.70	-1.82	1.30	-.52	1.11

II
D
OF 50 MC-890 POWER SUPPLIES

T	312 hrs #6	TEST	384 hrs #7	TEST	456 hrs #8	TEST	528 hrs #9	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
T	AT	CH. T	AT	CH. T	AT	CH. T	AT	SER.	LOT	SER.	LOT	SER.	LOT	SER.	LOT	SER.	LOT
2	-04	1.01	+.02	.88	+.02	.86	0	4-57	25	4-58	25	4-85	20	4-86	20		
2	-05	.87	-.04	.72	-.03	.74	4.02	4-141	25	4-142	25	4-109	21	4-110	21		
1	-02	.90	-.05	.76	-.02	.74	-.04	3-105	25	3-106	25	4-43	20	4-44	20		
7	-03	.81	-.03	.70	-.01	.72	-.01	2-93	25	2-94	25	4-27	20	4-28	20		
3	-03	.94	+.01	.82	4.04	.80	+.01	4-171	25	4-172	25	4-119	21	4-120	21		
7	-.02	.92	-.02	.78	-.01	.78	+.02	4-115	25	4-116	25	4-103	21	4-104	21		
3	+.03	.90	-.05	.80	4.04	.76	-.03	4-113	25	4-114	25	4-101	21	4-102	21		
7	-.01	.85	+.01	.76	4.03	.70	-.02	4-1	25	4-2	25	4-69	20	4-70	20		
4	+.02	.86	+.03	.74	+.03	.72	-.04	4-31	25	4-32	25	4-79	20	4-80	20		
0	+.03	.81	-.03	.70	+.03	.68	-.02	3-145	25	3-146	25	4-53	20	4-54	20		
4	-03	.84	-.03	.74	+.01	.72	-.02	1-25	24	1-26	24	4-3	20	4-4	20		
5	-.03	.86	-.02	.74	+.01	.72	-.02	4-29	25	4-30	25	4-77	20	4-78	20		
7	-03	.88	-.04	.78	-.05	.74	-.04	2-37	25	2-38	25	4-19	20	4-20	20		
1	-03	.92	-.05	.80	-.05	.80	+.02	4-199	25	4-200	25	4-127	21	4-128	21		
9	-02	.95	+.01	.78	-.04	.86	-.04	4-59	25	4-60	25	4-87	20	4-88	20		
2	+.01	.80	-.02	.86	-.03	.64	-.03	3-173	25	3-174	25	4-61	20	4-62	20		
5	+.02	.95	-.03	.70	+.02	.82	-.02	4-87	25	4-88	25	4-95	20	4-96	20		
	-06	.75	-.02	.74	+.02	.75	+.02	5-81	26	5-82	26	4-151	21	4-152	21		
	+.04	.80	+.02	.76	-.02	.80	-.04	5-25	26	5-26	26	4-133	21	4-134	21		
	+.03	.88	-.02	.86	+.02	.90	+.01	5-83	26	5-84	26	4-153	21	4-154	21		
	-03	.74	+.02	.70	-.03	.73	+.01	5-41	26	5-42	26	4-139	21	4-140	21		
	-02	.81	-.02	.78	-.04	.81	-.03	5-67	26	5-68	26	4-145	21	4-146	21		
	-02	.72	-.01	.68	+.01	.71	+.02	3-49	25	3-50	25	4-35	20	4-36	20		
	-05	.73	+.01	.72	+.01	.74	-.05	4-183	25	4-184	25	4-121	21	4-122	21		
	-05	.77	+.03	.74	-.02	.77	-.05	5-79	26	5-80	26	4-149	21	4-150	21		
	-04	.66	+.01	.64	+.02	.67	+.01	5-69	26	5-70	26	4-147	21	4-148	21		
0		.60		.60		.60		5-53	26	5-54	26	4-141	21	4-142	21		
	-05	.70	+.01	.68	-.03	.69	+.01	5-55	26	5-56	26	4-143	21	4-144	21		
	-05	.85	-.04	.80	-.02	.83	+.01	5-95	26	5-96	26	4-157	21	4-158	21		
	-7.86	8.73	-8.00	7.66	-6.96	7.41	-6.71	3-147	25	3-148	25	4-55	20	4-56	20		
	-04	.79	-.05	.72	-.03	.78	-.04	5-93	26	5-94	26	4-155	21	4-156	21		
	-05	.70	-.02	.68	-.03	.71	-.03	5-13	26	5-14	26	4-131	21	4-132	21		
	-05	.71	-.03	.68	+.02	.67	-.04	5-97	26	5-98	26	4-159	21	4-160	21		
	-05	.75	-.03	.72	+.02	.76	-.05	4-143	25	4-144	25	4-111	21	4-112	21		
	-05	.86	+.01	.78	-.04	.83	+.02	5-39	26	5-40	26	4-137	21	4-138	21		
	-04	.73	-.03	.68	-.03	.70	+.02	2-65	25	2-66	25	4-23	20	4-24	20		
4	-01	.68	-.04	.76	-.06	.74	-.01	3-77	25	3-78	25	4-39	20	4-40	20		
8	+.01	.72	-.02	.78	-.03	.76	-.04	5-27	26	5-28	26	4-135	21	4-136	21		
2	-04	.86	-.02	.90	-.06	.90	-.04	4-197	25	4-198	25	4-125	21	4-126	21		
10	-7.55	3.26	-12.48	9.06	-8.30	8.28	-7.54	5-11	26	5-12	26	4-129	21	4-130	21		
30	+.01	.74	-.02	.76	-.03	.76	-.03	4-185	25	4-186	25	4-123	21	4-124	21		
38	+.03	.84	-.01	.94	-.02	.90	4.02	4-3	25	4-4	25	4-71	20	4-72	20		
30	+.01	.74	-.05	.80	+.01	.78	-.03	4-169	25	4-170	25	4-117	21	4-118	21		
38	-04	.80	-.05	.88	-.04	.82	-.02	3-175	25	3-176	25	4-63	20	4-64	20		
50	-68	1.46	-.70	1.74	-.96	1.74	-.98	3-119	25	3-120	25	4-47	20	4-48	20		

TABLE II
GROUP I.E.

HIGH TEMPERATURE 185°F LIFE TEST OF

S/N	New Q-8&10 Lot No.	Old Q-8&10 Lot No.	TEST		0 hrs #1		TEST		48 hrs #2		TEST		96 hrs #3		TEST		168 hrs #4		TEST		240 hrs #5		TEST
			CH. T	Δ T	CH. T	Δ T	CH. T	Δ T	CH. T	Δ T	CH. T	Δ T	CH. T	Δ T	CH. T	Δ T	CH. T	Δ T	CH. T	Δ T	CH. T	Δ T	
014-1-009	22		1.05	-.02	1.04	+.01-.02	1.03	-.05	1.00	-.03	1.00	+.01	1.0										
-030	22		1.09	-.02+.01	1.02	-.01	.98	0	.94	+.02	.95	-.05	.9										
013-1-175	22		1.07	-.02	1.04	-.01	.99	0	.98	-.03	.96	-.02	.9										
-063	22		.98	+.01-.01	1.00	-.02	.95	+.01	.95	-.03	.94	0	.9										
-182	22		1.01	-.04	1.03	-.01	1.00	0	.98	+.04	.97	-.01	.9										
014-1-135a	22		.98	-.03	.98	-.02	.93	-.02	.88	-.02	.87	-.01	.8										
-128	22		.99	-.04	.95	+.01-.01	.92	.89	.88	-.03	.87	-.02	23.0										
-002	22		.96	+.01	.95	-.04	.90	-.04	.85	-.01	.84	-.02	.8										
013-1-021	22		1.06	+.01-.02	1.04	-.02	1.01	-.02	.96	0	.96	-.02	.9										
014-1-072	22		1.09	-.01	1.10	-.01	1.09	-.01+.01	1.10	-.05	1.11	-.01	1.1										
013-1-028	22		1.03	+.01	1.00	+.01	1.01	+.03	.99	-.01	.99	-.02	1.1										
013-1-133	22		1.05	-.01	.98	-.02	.87	-.01	.78	+.03	.86	+.02-.01	.9										
-042	22		.99	-.04	.92	+.01-.01	.89	-.01	.85	-.02	.81	-.01	.7										
-105	22		.99	-.03	.96	-.02	.91	-.02	.87	-.02	.86	+.01	.9										
-154	22		.98	+.02	.94	-.01	.91	-.03	.86	-.03+.02	.87	-.02	.8										
-161	22		.99	-.04	.94	-.01	.93	-.04	.90	-.02	.88	-.03	.8										
-014	22		.98	-.02	.99	-.03	.94	-.03	.92	-.03	.88	-.01+.01	.8										
-189	22		1.01	+.01-.01	.98	+.03	.97	-.03	.94	+.02	.94	-.04	.9										
014-1-107	22		1.01	-.02	.90	+.02	.82	-.02	.88	-.09	4.25	-3.48	41.0										
013-1-077	22		.97	-.02	.97	-.02	.95	-.03	.91	-.02	.91	-.03	.9										
013-1-098	22		.99	+.01	1.02	-.02	1.01	-.06	.96	-.01	.96	-.03	.9										
-035	22		.91	-.04	.90	+.01	.85	-.07	.83	+.01-.03	.85	-.03	.8										
-112	22		1.00	+.01	1.04	-.03	1.01	-.02	.99	-.02	.96	-.02	.9										
-091	22		1.03	-.03	1.05	-.04	.98	+.06	1.00	0	1.00	+.01-.02	1.0										
-147	22		1.08	-.03	1.08	-.01+.02	1.08	-.03	1.03	0	1.02	-.04	1.0										
-140	22		.97	-.02	1.03	-.04	1.01	-.04	.99	+.01	.99	-.02	.9										
-049	22		.94	-.01	.96	-.02	.95	-.05	.94	-.02	.96	-.04	.9										
014-1-079	22		.98	+.01	.90	-.02	.83	0	.80	0	1.11	-.30	3.5										
013-1-084			.98	+.02-.01	.94	-.02	.92	-.04	.89	-.02	.72	+.01-.02	4.1										
-119			.93	+.03	.98	+.03	1.00	-.02	1.00	+.02	.86	-.03+.01	.9										
-007			1.12	+.01	1.04	+.04	1.15	+.01-.03	.94	-.02	.98	+.02	1.0										
-056			.94	-.02	.94	+.03-.01	1.06	+.01-.03	.95	+.03	.80	+.01-.01	.8										
014-1-058			.93	+.02-.01	.98	-.03	1.00	-.02	1.00	-.02+.02	.84	-.02	.8										
-100			.94	-.02	.98	-.02	60+		1.00	-.04	.84	-.02	.9										
-016			.87	-.01	.92	-.04	.98	-.05	.93	+.01-.03	.76	-.03	.8										
-093			.89	+.01-.01	.94	-.04	.96	-.01	.97	-.02+.01	.84	-.05	.8										
-121			.96	+.01	.97	-.03	1.02	-.05	1.00	-.02	.84	-.04	.8										
-065			.97	-.04	1.04	-.02	1.06	-.02	1.04	-.05	.84	+.04	.8										
-023			.88	+.02	.88	-.02	.90	+.01	.89	-.04	.74	-.02+.02	.8										
-051			.97	-.03	.94	+.01	.95	-.03	.92	-.04	.80	-.05	.8										
-149			.91	-.03	.90	-.01	.92	-.03	.88	-.02	.76	+.02-.03	.8										
-037			.96	-.04	1.03	+.04	1.02	+.01-.03	1.01	-.03	.88	-.04	.8										
-086			1.00	-.01	1.02	+.02-.01	1.04	-.01+.02	1.00	+.01-.04	.86	-.04	.8										
-142			1.03	-.01	1.02	-.04	1.02	-.01+.02	1.00	+.01-.03	.84	-.02	.9										
-156			1.08	-.01	1.06	-.01+.02	1.08	-.03	1.07	-.03	.90	-.02	.9										
-044			.94	+.02	.94	+.05	.92	-.01	.91	-.06	.72	-.02	.8										
-114			.97	+.02	.94	+.02-.02	.96	+.01-.03	.96	-.03	.80	+.04	.8										
013-1-126			.95	+.01	.94	-.01+.01	.98	+.03	.88	-.03	.94	-.26	1.0										

50 MC-890 POWER SUPPLIES

TEST	312 hrs #6	TEST	384 hrs #7	TEST	456 hrs #8	TEST	528 hrs #9	Q 1	Q 2	Q 8	Q 10				
T	A T	CH. T	A T	CH. T	A T	CH. T	A T	SER.	LOT	SER.	LOT	SER.	LOT	SER.	LOT
5	-.04	1.08	-.04	.90	-.04	.90	-.03	4-5	25	4-6	25	5-57	22	5-58	22
8	-.04	.95	-.05	.81	-.02	.82	-.02	4-47	25	4-48	25	5-63	22	5-64	22
8	-.04	.99	-.04	.82	-.03	.82	0	3-149	25	3-150	25	5-49	22	5-50	22
4	+.04+.04	.96	+.01-.01	.82	-.04	.82	-.03	2-25	25	2-26	25	5-17	22	5-18	22
6	+.01+.01	.99	-.03	.83	-.05	.82	-.01+.02	3-163	25	3-164	25	5-51	22	5-52	22
8	+.05+.02	.93	+.02+.01	.79	-.04	.78	-.04	5-57	26	5-58	26	5-93	22	5-94	22
5	-22.19	60+		60+		60+		5-43	26	5-44	26	5-91	22	5-92	22
1	-.04	.83	-.03	.72	-.04	.70	-.08	3-191	25	3-192	25	5-55	22	5-56	22
6	-.03	.97	-.02	.80	+.01-.01	.80	-.04	1-41	24	1-42	24	5-5	22	5-6	22
4	-.04	1.15	-.03	.96	-.03	1.00	-.02	4-131	25	4-132	25	5-75	22	5-76	22
0	-.02	.98	-.05	.84	+.02+.01	.84	-.02	1-55	24	1-56	24	5-7	22	5-8	22
8	+.02-.02	2.28	-1.44	3.40	-2.78	7.64	-6.92	3-65	25	3-66	25	5-37	22	5-38	22
8	-.03	.81	-.04	.69	-.01	.68	+.02-.01	1-85	24	1-86	24	1-25	20	1-26	20
0	-.05	.92	-.04	.81	-.03	.80	-.03	3-9	25	3-10	25	5-29	22	5-30	22
8	-.04	.87	-.03	.75	-.02	.80	-.04	3-107	25	3-108	25	5-43	22	5-44	22
8	-.04	.89	-.02	.79	+.01+.03	.80	-.04	3-121	25	3-122	25	5-45	22	5-46	22
6	+.04-.01	.88	+.01-.04	.76	-.01	.76	-.03	1-27	24	1-28	24	5-3	22	5-4	22
2	-.04	.93	-.03	.80	-.02	.78	-.03	3-173	25	3-174	25	4-61	20	4-62	20
0	-40.23	60+		60+		60+		5-1	26	5-2	26	5-85	22	5-86	22
0	-.04	.91	-.04	.77	-.04	.76	-.05	2-53	25	2-54	25	5-21	22	5-22	22
6	-.04	.98	-.04	.85	-.02	.84	-.03	2-95	25	2-96	25	5-27	22	5-28	22
6	+.01-.03	.83	-.04	.76	-.03	.76	-.04	1-69	24	1-70	24	5-9	22	5-10	22
6	+.04+.01	.98	-.01	.87	-.05	.84	-.05	3-23	25	3-24	25	5-31	22	5-32	22
0	-.02+.01	1.03	-.01	.92	-.02	.88	-.03	2-81	25	2-82	25	5-25	22	5-26	22
0	-.05	1.05	-.04	.88	-.03	.90	-.02	3-93	25	3-94	25	5-41	22	5-42	22
8	-.04	1.00	+.04	.89	-.03	.88	-.02	3-79	25	3-80	25	5-39	22	5-40	22
4	-.04	.96	+.01-.02	.82	-.03	.82	+.01	1-97	24	1-98	24	5-13	22	5-14	22
3	-2.81	4.72	-3.90	1.25	-.57	10.62	-9.93	4-145	25	4-146	25	5-77	22	5-78	22
6	-3.40	9.20	-8.48	8.32	-7.54	24.90	-24.06	2-67	25	2-68	25	5-23	22	5-24	22
2	+.02	.88	-.02	.92	+.01-.01	.92	-.03	3-372	25	3-38	25	5-33	22	5-34	22
8	+.04-.01	1.00	-.02	1.08	-.03	1.06	-.02	1-13	24	1-14	24	5-1	22	5-2	22
4	-.02	.80	+.01-.02	.84	+.01+.02	.84	+.02	2-11	25	2-12	25	5-15	22	5-16	22
8	-.04	.84	-.02	.88	-.02	.88	+.01-.02	4-103	25	4-104	25	5-71	22	5-72	22
0	+.01-.04	.88	-.01	.90	+.03	.88	-.03	4-187	25	4-188	25	5-83	22	5-84	22
2	+.05+.01	.78	-.03	.82	-.02	.84	-.02	4-19	25	4-20	25	5-59	22	5-60	22
8	-.02	.82	+.01-.02	.90	+.03	.88	0	4-173	25	4-174	25	5-81	22	5-82	22
8	+.01	.84	-.03	.88	-.04	.86	+.01+.02	5-29	26	5-30	26	5-89	22	5-90	22
0	-.03	.84	+.01-.01	.90	-.04	.90	-.05	4-117	25	4-118	25	5-73	22	5-74	22
0	-.03	.76	-.02	5.18	-4.40	56.63	-55.85	4-33	25	4-34	25	5-61	22	5-62	22
2	-.03	.78	-.02	.82	+.01-.04	.82	-.01	4-89	25	4-90	25	5-69	22	5-70	22
4	-.05	.76	-.03	.80	-.02	.80	-.02	5-85	26	5-86	26	5-97	22	5-98	22
0	-.02	.84	-.05	.98	+.01+.01	.92	-.08	4-61	25	4-62	25	5-65	22	5-66	22
6	-.02	.82	-.03	.86	+.01-.02	.86	-.05	4-159	25	4-160	25	5-79	22	5-80	22
0	-.04	.84	-.05	.86	+.03+.01	.88	+.01-.03	5-71	26	5-72	26	5-95	22	5-96	22
6	-.04	.92	-.01	.94	+.02-.04	.96	+.01-.03	5-99	26	5-100	26	5-99	22	5-100	22
0	+.01-.03	.74	-.03	.80	-.04	.80	-.02	4-75	25	4-76	25	5-67	22	5-68	22
4	-.04	.78	-.02	.82	-.03	.84	-.03	5-15	26	5-16	26	5-87	22	5-88	22
8	-.36	.90	-.22	.98	-.26	1.88	-1.16	3-51	25	3-52	25	5-35	22	5-36	22

TABLE
GROUP

HIGH TEMPERATURE 185°F LIFE TEST

S/N	New	Old	TEST	0 hrs	TEST	48 hrs	TEST	96 hrs	TEST	168 hrs	TEST	240 hrs
	Q-8&10 Lot No.	Q-8&10 Lot No.		CH. T		CH. T		CH. T		CH. T		CH. T
013-1-078	20	109	.99	+0.01-.02	1.01	+0.01	.99	-.01	.98	-.02	.97	-.02
-036	20	109	.99	-.02	.95	-.01	.92	-.02	.86	+0.01-.04	.87	-.04
-106	20	109	.96	-.03	.98	-.03	.94	-.02	.85	+0.05	.84	-.01
-008	20	109	.94	-.02	.99	-.01	.97	-.03	.94	-.03	.95	-.03
-037	20	109	.96	-.03+.01	.95	+0.01	.87	-.01	.84	-.04	.82	-.01
-009	20	109	.98	-.02	1.02	+0.01-.01	.98	-.02	.95	-.01+.02	.96	-.03
-064	20	109	.97	+0.02-.01	.99	-.02	.93	-.01	.91	-.02	.93	-.02
-044	20	109	.96	-.02	.95	-.01	.90	-.02	.85	0	.85	-.01
-002	20	109	.97	-.03+.01	.94	0	.92	-.03	.89	+0.03	.87	-.01
-015	20	109	.94	+0.01	.98	-.01	.92	+0.03-.01	.87	-.01	.86	-.02
-107	20	109	.97	-.04	.97	-.03	.92	-.01	.89	+0.02-.01	.89	-.03
-051	20	109	1.00	-.02	1.05	-.03	1.01	-.03	.97	-.06	.93	-.03
-022	20	109	.90	+0.01-.01	.93	-.02	.85	+0.01-.01	.78	-.03	.82	-.05
-050	20	109	1.05	+0.02-.02	1.09	-.02	1.06	+0.04	1.01	-.02	1.02	-.01
-134	20	109	1.05	-.04	1.10	0	1.08	-.02	1.06	-.05	1.01	-.01
-162	20	109	.93	-.04	.97	-.02	.94	+0.01-.01	.89	-.02	.92	-.02
-030	20	109	1.02	-.04	1.05	-.02	1.02	-.03	.94	-.01	.93	-.03
-135	20	109	.91	-.04	.99	-.14	3.85	-3.06	4.08	-3.32	14.30	-13.54
-086	20	109	.97	+0.01-.02	1.01	+0.01-.01	.99	-.02	.93	+0.02	.91	-.03
-065	20	109	.95	+0.02	.91	0	.79	+0.01-.01	60+		60+	
-100	20	109	1.00	-.04	.99	-.01	.97	+0.01-.01	.94	+0.02-.03	.92	0
-149	20	109	.96	+0.01-.01	.99	-.01	.97	-.03	.96	-.02	.92	-.02
-169	20	109	1.06	-.02	1.04	-.03	1.00	+0.01-.01	.96	-.04	.97	-.01
-057	20	109	1.04	-.03	1.07	-.02	1.00	+0.04-.01	.93	-.04	.91	-.01
-099	20	109	.97	+0.01-.01	1.00	-.01	.99	-.02	.98	+0.02-.01	.96	-.03
-155	20	109	.97	-.04	.97	-.01	.94	+0.02	.92	-.02	.92	-.02
-029	20	109	.99	+0.03	1.00	0	1.01	-.03	.95	-.04	.96	-.03
-121	20	109	.96	+0.02	.95	-.01	.92	-.01	.86	+0.04	.85	-.03
013-1-016	20	109	1.00	-.02	1.06	-.01	1.06	-.04	1.02	+0.03	1.05	-.03
-142	20	109	.91	+0.01	.96	-.01	.91	-.02+.01	.87	-.02	.87	-.05
-071	20	109	1.07	-.02	1.12	-.02	1.09	-.03	1.09	-.05	1.08	+0.01-.04
-148	20	109	.94	+0.01	.98	-.01	.95	-.02	.91	+0.02	.92	+0.02
-120	20	109	.93	+0.01-.01	.97	-.03	.96	-.04	.94	-.04	.90	+0.01-.03
-085	20	109	.86	+0.01	.87	+0.01	.84	+0.05	.80	-.02	.80	-.03
-043	20	109	.88	-.03	.90	-.02	.88	+0.01-.03	.86	-.05	.82	-.05
-092	20	109	.91	+0.01	.93	-.01	.88	-.02	.86	-.05	7.63	-6.83
-001	20	109	.90	-.02	.94	-.03	.91	-.03	.88	-.03	.83	-.01
-170	20	109	.98	-.02	.99	+0.01	1.00	+0.01	.99	+0.01-.01	1.00	-.04
-072	20	109	.99	0	1.00	0	1.00	+0.01	.99	+0.04-.01	.95	-.03+.01
-113	20	109	.96	-.02	1.03	0	1.03	+0.04	1.01	-.03	.96	-.02
-156	20	109	.97	+0.01-.01	1.02	+0.02	1.03	-.02+.02	.99	+0.02-.01	.93	+0.02-.01
-141	20	109	.96	+0.01-.01	1.00	-.03	.98	-.01+.03	.96	-.02	.91	-.01
-093	20	109	.96	+0.01-.01	1.01	+0.01	1.02	+0.01-.02	1.00	+0.04	.97	-.02
-128	20	109	.85	+0.01	.93	-.01	.93	+0.01-.01	.91	-.01	.89	-.01+.02
-079	20	109	.95	-.01	1.00	-.01	1.00	+0.04	.95	+0.01-.01	.93	-.01+.01
-163	20	109	.90	+0.01	.94	-.01	.93	-.02+.01	.90	-.04	.84	+0.01-.02
-023	20	109	.91	-.02	.96	0	.97	-.03	.90	-.04	.85	-.03

II
F

OF 50 MC-890 POWER SUPPLIES

TEST	312 hrs #6	TEST	384 hrs #7	TEST	456 hrs #8	TEST	528 hrs #9	Q 1	Q 2	Q 8	Q 10
CH. T	Δ T	CH. T	Δ T	CH. T	Δ T	CH. T	Δ T	SER.	LOT	SER.	LOT
.97	+.02-.02	.92	-.03	.84	-.04	.81	-.04	2-55	25	2-56	25
.84	+.02-.01	.83	+.01-.01	.72	+.02	.72	-.01	1-71	24	1-72	24
.84	+.01-.03	.84	+.01-.03	.74	-.02	.75	-.04	3-11	25	3-12	25
.90	-.04	.92	-.06	.80	-.04	.81	-.05	1-15	24	1-16	24
.80	-.01	.80	-.02	.70	+.01-.03	.72	+.02-.03	1-73	24	1-74	24
.93	-.01	.92	-.02	.82	+.02	.83	+.02-.02	1-17	24	1-18	24
.91	-.03	.90	-.01+.02	.80	+.01+.02	.80	+.02	2-27	25	2-28	25
.84	-.03	.84	+.02-.02	.72	-.02	.76	-.03	1-87	24	1-88	24
.87	-.02	.82	-.02	.74	-.02	.73	+.01-.03	1-3	24	1-4	24
.86	-.03	.85	-.05	.76	-.03	.75	-.04	1-29	24	1-30	24
.88	-.01	.84	+.01-.03	.76	-.03	.77	-.02	3-13	25	3-14	25
.90	-.04	.88	-.05	.80	-.05	.78	-.04	2-1	25	2-2	25
.78	-.04	.80	-.05	.74	-.06	.66	+.02-.02	1-43	24	1-44	24
.96	+.01-.01	.96	+.01-.02	.84	0	.85	+.02-.02	1-99	24	1-100	24
.88	-.03	.96	-.04	.84	+.01-.01	.83	+.02-.02	3-67	25	3-68	25
.90	+.03	.88	-.02	.80	-.02	.80	+.03	3-123	25	3-124	25
.92	+.01-.01	.88	-.03	.80	+.01-.03	.79	-.03	1-59	24	1-60	24
10 ⁺		60 ⁺		60 ⁺		60 ⁺		3-69	25	3-70	25
.88	-.02	.86	-.05	.74	+.03	.74	+.02	2-71	25	2-72	25
10 ⁺		60 ⁺		60 ⁺		60 ⁺		2-29	25	2-30	25
.89	+.02+.01	.89	-.04	.76	+.01+.01	.79	-.03	2-99	25	2-100	25
.89	-.04	.86	-.04	.74	-.03	.75	+.01+.01	3-97	25	3-98	25
.95	-.04	.92	-.04	.80	-.05	.84	-.04	3-137	25	3-138	25
.89	-.02	.85	-.03	.76	-.03	.77	-.03	2-13	25	2-14	25
.93	-.02	.92	-.03	.80	-.03	.83	+.01+.02	2-97	25	2-98	25
.89	+.01	.88	-.05	.74	-.01+.01	.81	+.01-.03	3-109	25	3-110	25
.90	+.02-.01	.90	+.02	.78	+.01-.01	.78	-.02	1-57	24	1-58	24
.81	-.04	.82	-.01	.70	+.03+.01	.74	-.05	3-41	25	3-42	25
		.90	-.02+.02	.88	+.01	.90	+.02-.02	1-31	24	1-32	24
		.66	-.02	.68	+.02	.72	+.01-.02	3-83	25	3-84	25
	-.08	.86	-.03	.90	-.03	.95	-.03	2-41	25	2-42	25
	-.06	.72	-.02	.76	-.03	.82	-.02	3-95	25	3-96	25
	-.07	.70	-.02	.74	+.01-.02	.80	-.03	3-39	25	3-40	25
	-.09	.64	-.04	.66	-.05	.71	-.05	2-69	25	2-70	25
	-.04	.66	-.04	.68	+.01+.01	.73	-.04	1-85	24	1-86	24
	11.12	17.42	-16.68	23.74	-22.9	60 ⁺		2-83	25	2-84	25
	-.05	.66	-.04	.70	-.02	.72	+.02-.02	1-1	24	1-2	24
	+.01	.82	-.01+.02	.86	-.01	.90	+.01	3-139	25	3-140	25
	-.04	.86	-.02	.86	-.02	.88	-.01	2-43	25	2-44	25
	+.02-.02	.86	-.04	.82	-.03	.87	-.02	3-25	25	3-26	25
	-.02	.84	-.02	.80	-.02	.82	-.03	3-111	25	3-112	25
	-.05	.78	+.02-.01	.80	+.02-.02	.82	-.02	3-81	25	3-82	25
	-.05	.88	+.02+.01	.84	+.01	.89	-.02	2-85	25	2-86	25
	-.01	.80	+.02-.03	.78	-.02	.80	-.03	3-55	25	3-56	25
	+.01-.01	.84	0	.84	-.02	.87	+.02	2-57	25	2-58	25
	-.05	.74	+.02	.74	-.03	.77	-.03	3-125	25	3-126	25
	-.04	.76	+.01-.03	.74	+.02-.01	.77	+.01-.02	1-45	24	1-46	24

TABLE I
GROUP F
CONTINU

HIGH TEMPERATURE 185°F LIFE TEST

S/N	New	Old	TEST		0 hrs		TEST		48 hrs		TEST		96 hrs		TEST		168 hrs		TEST		240 hrs		T
	Q-8&10 Lot No.	Q-8&10 Lot No.	CH. T	Δ T	CH. T	Δ T	CH. T	Δ T	CH. T	Δ T	CH. T	Δ T	CH. T	Δ T	CH. T	Δ T	CH. T	Δ T	CH. T	Δ T	CH. T	Δ T	
013-1-177			1.04	-.02	1.09	-.05+.01	1.20	0	1.14	-.04	.93	+.01-.02											
-183			.98	+.01-.02	1.00	+.01-.02	1.10	+.01	1.04	-.05	.87	+.01-.02											
-184			.97	-.01	.94	+.02-.02	.98	+.02-.01	.90	-.01+.01	.75	+.04											
-190			1.01	+.02-.01	1.04	+.02+.01	1.16	+.01+.01	1.10	-.04	.91	+.01+.02											
014-1-122			.96	-.04	.97	-.01	1.08	+.03-.01	.96	-.02	.81	-.03											
-066			1.05	-.02	1.07	-.05	1.21	+.01+.01	1.14	-.04	.92	-.01											
-115			.97	+.02-.02	1.00	+.02	1.12	+.02-.02	1.04	-.05	.89	+.03											
-081			.95	-.01	.96	-.02	1.02	-.03	.94	+.01-.03	.79	+.03											
-108			.95	-.03	.98	+.02-.01	1.12	-.04	1.00	-.03	.86	+.03											
-080			1.05	-.03	1.10	-.02	1.18	-.03	1.10	-.01+.01	.89	-.06											
-003			1.04	-.05	1.06	+.01	1.16	+.01-.03	1.06	-.02	.88	+.02											
-123			1.03	+.01	1.06	-.02	60*		1.08	-.05	.93	-.03											
-067			.90	-.05	.94	+.01-.04	.98	-.04	.90	-.03	.75	-.02											
-032			1.01	+.07	1.02	+.04	1.04	+.01-.03	.96	-.02	.82	-.01											
-025			1.04	+.01-.02	1.10	+.03-.02	1.14	-.02	1.08	-.02	.91	+.02											
-038			.89	+.01-.01	.98	-.01	1.04	-.02	.94	+.01-.03	.80	+.02											
-045			1.00	-.01	1.04	-.04	1.10	-.01	1.04	-.02	.89	+.01											
-017			.97	+.01-.01	1.00	-.04	1.06	-.02	.98	-.02	.80	-.04											
-129			.90	-.03	.92	-.02	1.00	+.02-.01	.94	-.03	.76	+.03											
-073			.98	+.02-.01	.92	-.02	.98	+.10-.02	.88	+.03-.02	.73	-.04											
-024			.97	-.03	1.02	-.03	1.10	+.02	1.02	-.03	.81	+.04-.01											
-130			1.11	-.02	1.12	-.02	1.10	-.05	1.12	-.05	.92	-.04											
-059			.94	-.01	.96	-.05	.92	+.01	.90	+.01-.04	.65	-.01											
-031			1.05	-.03	1.11	+.01-.04	1.08	+.02	1.10	+.02-.01	.89	+.03+.01											
-010			.85	+.01-.03	.94	+.04+.01	.94	+.03	1.00	+.01-.01	.80	+.03-.01											
-039			.90	-.03	.93	-.03	.94	-.02	.94	-.05	.77	-.02											
-102			.94	+.01-.04	.94	-.03	.90	-.02	.90	-.04+.01	.71	-.04											
-087			.96	-.02	.97	+.03	.96	-.04	.96	-.06	.78	-.05											
-116			.91	+.02-.03	.94	+.01+.01	.94	-.03	.94	-.03	.75	-.02											
-074			1.00	-.02	1.02	-.04	.96	-.04	.94	-.04	.74	-.04											
-088			.97	+.01-.04	1.01	-.03	.96	+.01+.01	.90	-.02	.74	-.04											
-109			.98	-.04	1.02	+.01-.02	1.00	+.02	1.02	-.04	.85	+.01+.02											
-095			.98	-.03	1.02	+.01-.01	.96	-.02	.98	-.08	.79	-.02+.02											
-101			.93	+.01-.02	.96	+.01-.01	.92	-.04	.90	-.04	.74	-.02											
-018			1.01	-.03	1.04	+.01-.02	1.04	+.01+.01	1.04	-.04	.84	-.03											
-094			1.01	+.02-.04	1.05	-.04	1.08	-.01	1.10	+.02-.03	.93	-.02											
-004			1.01	+.05	1.00	+.01+.01	1.00	-.04	1.06	+.01-.01	.89	+.01-.02											
-046			.93	-.05	.96	0	.98	-.02	.90	+.03	.80	+.01											
-144			.99	+.01-.02	1.01	+.01-.01	1.00	-.03	1.06	-.02	.87	+.03											
-136			1.00	-.02	1.04	-.02	1.00	+.02-.01	1.08	+.01-.02	.89	+.01											
-143			.92	-.03	.96	+.01-.02	.98	+.04	1.00	-.03	.82	-.04											
-137			1.10	-.01	1.00	+.01-.04	1.18	-.04	1.16	-.05	.99	-.02	1										
-053			1.00	-.03	1.03	-.05	1.02	-.05	.98	-.02	.81	-.03											
013-1-058			.95	+.03	.92	-.04	.96	-.02	.94	+.01-.02	.77	+.02-.01											

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ED

OF 50 MC-890 POWER SUPPLIES

TEST	312 hrs #6	TEST	384 hrs #7	TEST	456 hrs #8	TEST	528 hrs #9	Q 1	Q 2	Q 3	Q 10		
. T	Δ T	CH. T	Δ T	CH. T	Δ T	CH. T	Δ T	SER.	LOT	SER.	LOT	SER.	LOT
.97	-.03	.88	+.03-.02	.98	-.02	1.00	-.04	3-153	25	3-154	25	2-3	20
.92	+.01-.02	.86	-.02	.89	+.01-.01	.90	-.05	3-165	25	3-166	25	2-5	20
.80	+.02+.01	.74	+.03-.01	.80	+.01-.02	.78	-.02	3-167	25	3-168	25	2-7	20
.96	+.03+.01	.90	-.03	.94	-.02	.96	+.02	3-179	25	3-180	25	2-9	20
.84	-.03	.76	+.01-.02	.82	-.03	.80	+.01	5-31	26	5-32	26	2-81	20
.94	+.01-.01	.88	-.02	.91	+.01-.01	.92	-.03	4-119	25	4-120	25	2-49	20
.92	-.02	.88	+.01	.93	-.04	.96	+.01+.02	5-17	26	5-18	26	2-77	20
.79	+.02-.01	.74	-.01	.80	+.01	.78	-.04	4-149	25	4-150	25	2-59	20
.90	-.02	.86	-.02	.91	-.02	.90	+.03	5-3	26	5-4	26	2-73	20
.92	-.03	.90	-.01	.96	-.03	.94	-.03	4-147	25	4-148	25	2-57	20
.90	+.02+.01	.86	-.04	.92	-.03	.90	-.03	3-193	25	3-194	25	2-13	20
.94	-.03	.90	-.03	.92	-.01	.96	-.05	5-33	26	5-34	26	2-83	20
.76	-.02	.74	+.01-.02	.78	+.04+.01	.78	+.02	4-121	25	4-122	25	2-51	20
.83	-.03	.78	-.03	.84	-.02	.84	+.02	4-51	25	4-52	25	2-31	20
.95	-.02	.90	-.02	.96	-.02	.98	-.02	4-37	25	4-38	25	2-27	20
.83	-.02	.78	+.01-.01	.80	+.01-.02	.82	-.03	4-63	25	4-64	25	2-33	20
.93	+.01-.01	.90	-.03	.94	+.01-.01	.96	-.04	4-77	25	4-78	25	2-37	20
.83	+.01-.01	.78	-.01	.85	-.04	.80	-.01	4-21	25	4-22	25	2-21	20
.80	+.01-.01	.76	-.03	.83	-.02	.80	-.03	5-45	26	5-46	26	2-85	20
.75	-.04	.70	-.03	.74	-.03	.76	+.01-.04	4-133	25	4-134	25	2-53	20
.86	-.02	.78	-.02	.84	-.02	.84	-.02	4-35	25	4-36	25	2-25	20
.94	+.01-.02	.82	+.01-.03	.92	+.02	.94	-.03	5-47	26	4-48	26	2-87	20
.70	-.04	.64	-.04	.68	-.02	2.16	-1.54	4-105	25	4-106	25	2-45	20
.94	-.03	.84	-.02	.89	+.01-.03	.88	+.02-.01	4-49	25	4-50	25	2-29	20
.82	-.03	.78	-.05	.80	+.01-.01	.82	-.06	4-7	25	4-8	25	2-17	20
.79	-.01	.74	-.01	.80	+.03	.78	-.02	4-65	25	4-66	25	2-35	20
.77	-.05	.74	-.03	.73	+.01	.76	-.02	4-191	25	4-192	25	2-71	20
.80	-.04	.74	+.03	.79	-.03	.78	+.02-.02	4-161	25	4-162	25	2-61	20
.78	+.01	.70	+.03	.75	-.02	.66	-.03	5-19	26	5-20	26	2-79	20
.77	-.04	.72	-.03	.75	-.04	.74	-.04	4-135	25	4-136	25	2-55	20
.80	-.01	.74	-.03	.76	-.05	.76	-.04	4-163	25	4-164	25	2-63	20
.90	-.03	.84	+.01-.02	.89	+.01-.01	.90	-.03	5-5	26	5-6	26	2-75	20
.84	-.04	.78	+.01-.02	.81	-.02	.84	-.04	4-177	25	4-178	25	2-67	20
.78	+.02-.02	.74	-.04	.77	-.02+.01	.76	+.01	4-189	25	4-190	25	2-69	20
.84	-.02	.84	-.02	.80	-.04	.80	-.03	4-23	25	4-24	25	2-23	20
.96	-.03	.92	-.03	.98	-.02	1.00	-.04	4-175	25	4-176	25	2-65	20
.92	-.03	.90	-.02	.95	-.01	.96	-.02	4-195	25	3-196	25	2-15	20
.84	-.03	.80	-.04	.83	-.02	.84	-.04	4-79	25	4-80	25	2-39	20
.88	-.01	.84	+.03	.88	-.04	.88	-.01	5-75	26	5-76	26	2-95	20
.92	-.03	.86	-.04	.94	-.01+.01	.98	-.01+.02	5-59	26	5-60	26	2-89	20
.82	+.01-.02	.78	-.04	.80	-.04	.78	0	5-73	26	5-74	26	2-93	20
.01	+.01	.98	-.04	1.00	-.02	1.04	-.03	4-93	25	4-94	25	2-43	20
.81	-.03	.78	-.05	.82	-.04	.84	-.06	2-15	25	2-16	25	1-35	20
.79	-.04	.76	-.04	.80	-.04	.80	-.04					1-36	20

S/N	Q-8&10 Lot No.	CH. T. 0 hrs TEST #1	T	CH. T. 48 hrs TEST #2	T	CH. T. 96 hrs TEST #3	T	CH. T. 168 hrs TEST #4	T	CH. T. 240 hrs TEST #5	
939-1-137		.87	-.02	1.01	-.03	.98	-.02	.97	-.03	.97	+.0
938-1-002	83	.74	-.01	.83	-.03	.84	-.02	.84	+.01	.88	+.0
003	83	.79	+.01	.87	-.01	.88	-.03	.86	-.02	.88	
005	83	.72	-.03	.75	+.02	.77	+.01	.76	+.01	.78	+.0
006	83	.83	+.01	.92	+.01	.92	+.01	.91	-.02	.94	+.0
009	83	.82	+.01	.92	+.01	.94	-.04	.92	-.03	.89	+.0
010	83	.89	-.02	.95	+.04	.99	-.02	.98	+.01	1.02	
012	83	.98	+.02	1.05	+.01	1.09	-.03	1.09	-.03	1.11	
013	83	.87	-.02	.93	+.01	.93	-.02	.86	+.03	.89	
014	83	.95	-.02	1.08	-.03	1.08	-.02	1.09	-.02	1.14	
017	83	.81	-.01	.91	-.04	.92	-.03	.90	-.01	.93	+.0
019	83	.83	+.01	.91	-.01	.91	-.03	.90	+.02	.93	
044	72	.95	-.01	1.13	+.01	1.12	-.03	1.08	+.05	1.11	
055	83	.85	-.01	.96	-.01	.95	-.03	.92	+.02	.97	
051	83	.86	-.03	.97	-.03	.98	-.02	.97	+.01	1.00	
070	83	1.05	-.02	1.20	-.03	1.20	-.06	1.15	-.07	1.20	
072	83	.84	+.02	.93	-.02	.93	-.02	.94	-.02	.99	
073	83	.76	+.01	.89	+.01	.84	-.02	.88	+.04	.93	
076	83	.74	+.01	.81	-.07	.81	0	.81	+.01	.83	
077	83	.68	+.01	.76	+.01	.75	+.01	.75	+.01	.76	+.0
080	83	.88	+.01	1.04	-.03	1.02	-.01	1.02	+.02	1.08	
086	83	.87	-.03	.97	-.04	.96	-.02	.94	-.01	.95	
087	83	.79	-.02	.88	-.02	.90	-.04	.87	-.01	.89	+.0
094	83	.91	+.01	1.03	-.05	.97	-.04	.91	-.03	.92	
103	83	.75	-.02	.83	-.02	.84	-.03	.83	-.03	.84	+.0
106	83	.81	-.03	.90	-.01	.91	+.01	.92	+.02	.94	+.0
107	83	.85	+.02	.94	0	.95	-.02	.95	+.03	.99	
113	83	.82	-.03	.92	-.03	.93	-.04	.93	-.03	.96	
121	83	.76	-.03	.88	+.02	.90	-.03	.90	-.03	.92	+.0
122	83	.88	+.02	.98	+.01	.99	+.02	1.00	+.01	1.04	+.0
127	83	.82	+.02	.91	-.01	.90	+.02	.91	+.01	.94	+.0
128	83	.83	-.02	.93	-.03	.93	+.05	.94	-.01	.95	+.0
939-1-005	83	.80	-.02	.89	+.01	.91	-.05	.87	+.03	.90	+.0
016	83	.85	-.02	.90	-.06	.93	-.04	.92	-.03	.92	
025	83	.75	+.03	.84	-.02	.84	-.02	.82	+.01	.88	
041	83	.81	+.01	.94	-.02	.94	-.03	.93	+.01	.97	
055	86	1.04	-.02	1.12	+.05	1.16	-.02	1.18	-.02	1.21	
071	86	.83	-.03	.94	-.03	.94	-.05	.93	-.05	.93	
072	86	1.03	-.03	1.13	+.04	1.13	-.05	1.10	+.01	1.11	
073	86	.78	-.04	.85	+.05	.84	-.02	1.83	+.03	.86	
100	86	.89	+.03	1.03	+.04	1.03	-.02	1.01	+.01	1.06	+.0
113	86	.94	-.02	1.07	+.01	1.02	+.01	.96	-.02	.96	
115	86	.89	+.01	.95	+.03	.90	+.04	1.85	+.02	3.8	
122	86	.97	-.02	1.12	-.02	1.14	-.03	1.13	-.02	1.18	
940-1-105	86	.91	+.01	1.02	+.03	1.03	+.01	1.02	-.03	1.03	
115	86	.91	-.01	1.04	-.02	1.02	-.04	.99	-.05	.97	
941-1-028	86	.84	+.03	.96	+.02	.98	-.05	.94	-.03	.95	
064	86	.95	+.01	1.04	-.01	1.06	-.06	1.05	-.02	1.06	+.0
090	86	.79	+.19	.92	+.02	.92	-.02	.92	-.04	.92	
096	86	.80	+.02	.95	-.02	.95	-.05	.92	-.01	.91	+.0

REF TEST OF 50 MC-890 POWER SUPPLIES

[illegible]

TABL
GROU

HIGH TEMPERATURE 1850F LIFE TES

S/N	Q-8-10	Orig- inal	CH. T	Δ T	CH. T	Δ T	CH. T	Δ T	CH. T	Δ T	CH. T	Δ T
	Lot No.	Lot No.	TEST	0 hrs #1	TEST	48 hrs #2	TEST	96 hrs #3	TEST	168 hrs #4	TEST	240 hr #5
002-1-090	5	100	.93	-.03	.98	-.02	.98	-.01	.94	-.02	.92	+.04
147	5	100	1.07	-.02	1.17	-.03	1.16	-.15	1.17	-.04	1.18	+.02+0
158	5	100	1.00	-.02	.98	-.03	.93	+.01	.88	+.01	.95	-.02
003-1-224	6	94-99incl	.90	+.01	.95	-.03	.93	+.02	.95	-.09	.95	-.04
026	7	93	.93	-.02	.99	+.01	1.02	-.04	.96	+.02+02	.99	-.01
029	7	93	.92	+.03	.95	+.01+01	.98	-.02	.92	-.02	.95	+.02+0
051	7	93	.87	-.02	.88	-.02	.81	+.01	.77	-.04	.77	+.03
159	7	93	1.09	-.02	1.10	-.02	1.03	+.04			2.95	1.93
004-1-001	7	93	.90	-.01	1.05	-.14	1.07	-.10	1.05	-.18	.86	-.04
002	8	92	.75	-.03	.77	+.01+01	.77	+.01	.74	-.02	.79	-.04
006	7	93	.82	+.02+01	.84	-.01	.82	+.01	.77	-.02	.78	-.04
008	7	93	.92	-.03	.96	-.01	.95	-.02	.88	+.01	.90	+.02+0
009	7	93	.97	+.01	1.01	-.04	.98	+.01	.94	-.01	.97	-.03
022	7	93	.93	-.02	.94	-.04	.92	-.03	.90	-.05	.92	-.04
039	7	93	1.04	+.02+01	1.06	+.01	1.05	-.01	1.01	+.02+01	1.07	-.03
050	7	93	1.03	+.02+01	1.06	+.02	1.08	-.02	1.05	-.02	1.11	+.04
057	8	92	.92	-.02	.93	-.02	1.06	-.12	.94	+.08+01	3.0+	
112	8	92	.92	+.01+01	.94	+.02	.94	-.03	.90	-.02	.92	+.01+0
113	8	92	.90	-.02	.91	-.01	.92	+.04+03	.87	-.03	.88	-.02
116	8	92	.89	+.02+01	.91	+.01+01	.88	+.03	.79	+.04	.93	-.06
118	8	92	.91	+.02+02	.97	-.02	.96	+.01	.92	-.01	.98	+.02
124	8	92	.97	-.03	.98	-.02	.98	-.03	.95	-.03	.96	-.01
132	8	92	.86	+.01	.89	-.02	.86	+.17	.90	+.07+04	1.18	-.42
134	8	92	.91	+.02	.94	-.02	.91	-.02	.85	-.03	.91	-.04
175	8	92	.89	-.01	.89	-.02	.94	-.08	.99	-.19	.80	-.04
177	8	92	.96	+.02	1.00	-.03	.98	-.01	.96	-.02	.99	-.04
179	8	92	1.09	-.01	1.10	+.02	1.09	-.01	1.04	-.02	1.05	-.01
005-1-053	8	92	1.08	-.03	1.10	-.02	1.09	-.03	1.06	-.02	1.07	+.02+0
054	8	92	.99	-.01	1.03	-.02	1.10	-.05	1.09	+.04+02	1.03	-.03
065	8	92	.89	+.01	.95	-.02	1.09	-.13	1.04	-.1	.95	+.02+0
079	8	92	.87	+.01	.91	-.03	.89	-.01	.80	-.01+01	.81	+.02
080	8	92	.87	-.02	.88	-.03	.87	+.03+03	.81	+.01+02	.85	+.02
084	8	92	.97	-.02	.97	± 0	.95	-.01	.94	-.03	.93	+.02+0
093	8	92	.98	-.09	.92	-.02	.99	+.05	.93	+.07+02	.85	+.01+0
097	8	92	.98	-.02	1.02	-.02	1.02	-.02	1.01	-.07	1.03	+.02+0
100	8	92	.97	+.02	.95	-.01	.97	+.19	.93	+.08+05	.80	+.01+0
101	8	92	.97	+.01	1.02	-.03	1.08	+.11+09	.97	+.04+06	.95	+.04+0
110	8	92	1.04	-.01	1.05	+.02	1.07	-.03	1.04	-.03	1.09	-.04
122	8	92	1.00	-.02	1.00	+.01+01	.97	-.01	.92	-.04	.90	+.01+0
127	8	92	.95	-.02	.95	-.02	.92	-.02	.88	-.03	.93	-.04
006-1-007	8	92	.93	-.02	.95	-.01	.95	+.01+03	.92	+.03+05	.88	+.03+0
025	8	92	.98	+.03	1.04	+.02+01	1.02	+.01	.99	-.02	1.01	+.02+0
066	8	92	.99	-.01	1.10	-.10	.96	+.02	2.56	-1.67	1.39	-.31
007-1-005	9	91	1.01	+.02+01	1.04	-.03	1.00	+.01	.97	-.01	1.04	-.04
011	9	91	.99	+.02+01	.99	-.02	.93	-.03			4.76	-3.81
035	9	91	1.03	-.06	1.01	-.05	.96	-.02	1.74	-.95	.88	-.05
036	9	91	.95	-.02	.95	+.03	.96	-.04	.82	-.01	.84	+.01+0
040	9	91	.93	-.02	.93	-.02	.92	-.02	.88	+.01	.91	-.03
045	9	91	.99	+.01	.99	-.04	.95	-.03	.86	-.03	.91	-.05
067	9	91	.90	+.01+01	.96	-.03	.95	-.02	.90	-.03+01	.97	-.0

T OF 50 MC-890 POWER SUPPLIES

CH. T	ΔT	CH. T	ΔT	CH. T	ΔT	CH. T	ΔT
TEST	312 hrs #6	TEST	384 hrs #7	TEST	456 hrs #8	TEST	528 hrs #9
.95	-.04+.02	.93	-.02	.91	-.01	.93	-.05
1.16	+.01-.01	1.17	-.02	1.19	-.02	1.19	+.02-.01
.95	+.01-.04	1.23	-.32	5.20	-4.33	3.09	-2.17
.92	-.04	.91	-.05	.89	-.04	.92	-.05
.98	-.02	.95	-.02	.96	-.03	.89	-.05
.94	+.01-.03	.92	-.01	.91	+.01	.94	+.03
.76	+.02-.01	.76	+.02	.79	-.02	.80	+.02-.01
7.6	-6.62	6.76	-5.7	2.52	-9.99	8.01	-6.98
37.0	-37.17	60+		60+		60+	
.73	-0.02	.73	-.03	.74	-.03	.75	+.01-.04
.73	-.04	.75	-.03	.79	-.06	.79	-.05
.85	+.01+.01	.86	-.03	.88	-.03	.88	-.03
.89	+.04	.92	-.03	.92	-.01	.92	-.03
.91	-.02	.88	-.02	.89	-.02	.90	-.03
1.02	+.01-.02	1.02	-.02	1.01	-.02	1.06	-.02
1.06	-.03	1.07	-.02	1.07	+.01-.01	1.11	-.03
60+	-59.2	60+		60+		60+	
.92	-.02	.90	+.01-.01	.90	-.01	.92	-.03
.87	-.03	.84	-.03	.84	-.02	.86	-.03
2.02	-1.23	3.87	-3.02	5.58	-4.53	12.04	-11.19
.95	-.03	.96	-.02	.96	-.03	.95	-.03
.94	-.02	.92	+.02-.01	.94	-.03	.96	-.02
11.85	-11.03	34.0	-33.2	60+		60+	
.88	-.02	.88	+.02	.91	-.03	.95	-.04
.77	-.02+.01	.82	-.02	.80	-.01	.82	+.01-.01
.94	-.03+.01	.93	-.01	.97	-.04	.95	-.04
1.01	+.01	1.02	-.03	1.00	-.02	1.00	-.02
1.05	+.02	1.06	-.02	1.06	-.02	1.06	-.04
1.07	-.04	1.04	-.01	1.02	-.02	1.05	-.02
.91	-.03	.89	-.01	.92	-.02	.91	+.02
.82	+.01-.02	.82	-.01	.84	+.01	.86	-.04+.01
.86	-.03	.83	-.02	.85	-.03	.86	-.04
.91	+.03	.87	+.01	.92	-.02	.94	+.02-.01
.82	+.01+.03	.88	-.03	.86	-.04	.93	-.05
1.03	-.03	1.02	-.02	1.01	-.03	1.01	-.01
.80	-.01+.01	.82	+.01	.80	-.02	2.21	-1.40
1.00	-.05	.98	-.06	.96	-.04	.99	-.05
1.03	+.01-.02	1.05	-.04	1.03	-.02	1.04	-.03
.88	-.02+.02	.89	+.02	.89	+.02	.92	+.01
.91	-.02	.93	-.03	.94	-.03	.94	-.02
.88	-.02+.03	.87	-.04	.86	-.01	.87	+.01-.01
1.01	-.06	.95	-.02	.97	-.02	.94	-.01+.02
1.44	-0.22	1.67	-.41	1.35	+.05	60+	
.98	-.03	.97	-.03	.98	-.02	.98	-.01
60.00+	-59.01	60.0+		60+		60+	
10.9	-10.09	3.27	-2.48	8.00	-7.11	1.52	-.74
.81	-.03	.77	+.01	.79	-.01	.79	+.02
.87	+.01-.01	.89	+.03-.01	.88	-.02	.90	-.02
.90	-.05	.87	-.08	.85	-.06	.88	-.07
.85	-.02	.81	0	.82	-.02	.82	+.01

TABLE IIIH-5 Oscillator Transistor Test DataRoom Temperature

Serial No.	Lot No.	ICEO Ma.	IEBO Ma.	VEBF Volts	EFE	YFE umhos	ICO Ma.	RCS Ohms
4-1	20	141	.86	.18	34.0	.75	.32	.14
4-2	20	158	.34	.20	33.3	.93	.28	.13
4-3	20	138	.22	.14	34.8	.88	.08	.10
4-4	20	142	.70	.11	34.0	.93	.14	.12
4-5	20	149	.28	.11	41.6	.88	.10	.12
4-6	20	188	.16	.20	38.4	.83	.18	.13
4-7	20	212	.16	.12	37.5	.88	.12	.09
4-8	20	248	.12	.14	38.4	.78	.18	.13
4-9	20	130	.22	.20	34.8	.88	.14	.13
4-10	20	168	.22	.10	37.5	.88	.12	.10
4-11	20	186	.10	.10	38.4	.88	.20	.10
4-12	20	168	.24	.11	32.6	1.15	.04	.13
4-13	20	160	.64	.16	37.5	.78	.10	.14
4-14	20	135	.14	.12	30.0	.83	.06	.16
4-15	20	170	.64	.27	33.3	.93	.14	.13
4-16	20	192	.08	.10	34.0	1.15	.08	.10
4-17	20	138	.42	.11	34.8	1.15	.06	.10
4-18	20	152	.12	.12	38.4	2.0	.24	.13
4-19	20	148	.20	.18	34.8	1.25	.16	.10
4-20	20	188	.04	.12	39.4	.88	.10	.12
4-21	20	140	.12	.14	37.5	1.25	.06	.09
4-22	20	158	.30	.16	37.5	1.07	.08	.10
4-23	20	174	.06	.14	39.4	1.0	.10	.10

TABLE III
CONTINUED
Room Temperature

Serial No.	Lot No.	IC _{EO} Ma.	IE _{EO} Ma.	V _{ESP} Volts	HFE	YFE uA/hos	IC _O Ma.	RCS Ohms
4-24	20	192	.08	.32	41.6	1.25	.06	.09
4-25	20	152	.06	.11	38.4	1.25	.06	.10
4-26	20	209	.06	.14	31.2	.83	.16	.14
4-27	20	186	.06	.10	39.4	1.36	.04	.12
4-28	20	150	.22	.26	40.5	.93	.14	.10
4-29	20	194	.50	.22	29.4	.93	.10	.17
4-30	20	170	.20	.08	31.2	1.07	.10	.12
4-31	20	192	.82	.24	32.6	1.0	.20	.18
4-32	20	238	.36	.10	34.0	.88	.06	.14
4-33	20	176	.40	.13	38.4	.88	.06	.12
4-34	20	150	.12	.13	30.0	1.0	.06	.12
4-35	20	228	.52	.16	39.4	.75	.22	.13
4-36	20	197	.04	.10	34.8	.88	.06	.12
4-37	20	200	.08	.17	26.7	.75	.40	.14
4-38	20	204	.18	.18	39.4	.93	.36	.10
4-39	20	152	.08	.11	50.0	1.25	.06	.10
4-40	20	130	.30	.10	39.4	1.36	.04	.08
4-41	20	130	.04	.18	27.7	.93	.14	.14
4-42	20	244	.74	.10	37.5	1.0	.06	.10
4-43	20	244	.32	.12	39.4	.83	.44	.13
4-44	20	142	.28	.12	27.7	1.07	.10	.14
4-45	20	172	.06	.13	41.6	1.07	.10	.09
4-46	20	238	.86	.08	40.5	.88	.12	.14
4-47	20	230	.58	.20	41.6	1.07	.46	.12
4-48	20	132	.38	.11	38.4	.88	.06	.13

Room Temperature

Serial No.	Lot No.	ICEO Ma.	IEBO Ma.	V _{BEF} Volts	HFE	V _{FE} volts	ICO Ma.	R _{CS} Ohms
4-49	20	130	.60	.20	39.4	.88	.12	.10
4-50	20	129	.76	.22	30.	.93	.08	.14
4-51	20	132	.12	.12	41.6	1.25	.06	.09
4-52	20	136	.14	.20	36.5	.83	.10	.12
4-53	20	130	.30	.16	39.4	1.07	.06	.09
4-54	20	148	.16	.14	40.5	1.07	.08	.10
4-55	20	132	.44	.10	30.0	.93	.06	.13
4-56	20	148	.98	.14	35.7	.88	.14	.14
4-57	20	128	.60	.10	30.6	1.0	.04	.12
4-58	20	160	.10	.12	31.9	1.15	.04	.10
4-59	20	220	.20	.12	37.5	1.0	.08	.09
4-60	20	150	.14	.14	38.4	1.15	.04	.10
4-61	20	246	.20	.20	39.4	.88	.22	.10
4-62	20	150	.10	.09	35.7	.93	.12	.12
4-63	20	194	.40	.08	34.0	.75	.10	.18
4-64	20	155	.40	.11	38.4	.93	.04	.10
4-65	20	134	.46	.10	42.8	.88	.10	.10
4-66	20	152	.46	.12	35.7	.78	.06	.12
4-67	20	132	.14	.13	41.6	.88	.08	.10
4-68	20	146	.22	.23	38.4	1.15	.06	.10
4-69	20	212	.06	.12	36.5	.88	.12	.10
4-70	20	202	.46	.10	41.6	.88	.12	.12
4-71	20	164	.22	.28	33.3	.83	.18	.14
4-72	20	186	.72	.18	30.6	.75	.08	.14
4-73	20	146	.014	.16	34.0	.88	.12	.10

TABLE III
CONTINUED
Room Temperature

Serial No.	Lot No.	IGEO Ma.	IEEO Ma.	VEEF Volts	HFE	YFE v/mhos	IGO Ma.	RGS Ohms
4-74	20	207	.26	.11	38.4	.83	.16	.12
4-75	20	188	.03	.18	39.4	1.15	.04	.09
4-76	20	138	.70	.12	35.7	.78	.10	.12
4-77	20	132	.10	.14	34.0	.78	.14	.13
4-78	20	132	.20	.14	39.4	1.15	.12	.09
4-79	20	230	.44	.24	37.5	1.07	.12	.10
4-80	20	228	.58	.14	44.1	1.07	.12	.09
4-81	20	154	.30	.10	32.6	.83	.08	.13
4-82	20	140	.03	.14	40.5	1.25	.10	.10
4-83	20	210	.30	.14	33.3	.78	.28	.12
4-84	20	198	.52	.14	39.4	.75	.03	.12
4-85	20	200	.34	.11	34.0	.71	.10	.16
4-86	20	200	.20	.13	34.8	.83	.08	.14
4-87	20	130	.14	.18	35.7	.83	.04	.12
4-88	20	160	.14	.14	33.3	.93	.08	.10
4-89	20	190	.44	.26	35.7	.83	.08	.13
4-90	20	180	.16	.12	42.8	1.15	.10	.09
4-91	20	146	.28	.15	41.6	1.07	.06	.10
4-92	20	132	.14	.13	41.6	1.15	.06	.10
4-93	20	205	.24	.14	35.7	1.15	.08	.13
4-94	20	206	.03	.26	33.3	.75	.16	.16
4-95	20	190	.03	.20	44.1	1.07	.16	.09
4-96	20	165	.20	.12	36.5	.71	.10	.14
4-97	20	142	.24	.14	28.8	1.15	.04	.12
4-98	20	150	.92	.14	35.7	.78	.38	.13

TABLE III
CONTINUED
Room Temperature

Serial No.	Lot No.	ICEO Ma.	IEBO Ma.	V _{BEF} Volts	E _{FE}	V _{FE} volts	ICO Ma.	R _{CS} Ohms
4-99	20	210	.06	.12	29.4	.75	.10	.17
4-100	20	130	.98	.12	38.4	1.07	.06	.12
4-101	20	190	.18	.09	35.7	1.07	.04	.09
4-102	20	140	.72	.18	35.7	1.07	.06	.10
4-103	20	160	.24	.22	35.7	1.07	.06	.13
4-104	20	190	.20	.16	37.5	.83	.06	.12
4-105	20	150	.18	.16	34.8	1.15	.04	.10
4-106	20	135	.52	.78	29.4	.83	.08	.14
4-107	20	130	.72	.19	31.2	.78	.20	.16
4-108	20	130	.60	.12	35.7	1.0	.04	.12
4-109	20	165	.06	.18	36.5	1.07	.08	.10
4-110	20	140	.52	.25	36.5	.88	.16	.12
4-111	20	170	.16	.22	34.0	1.0	.20	.10
4-112	20	200	.12	.20	35.7	.93	.04	.10
4-113	20	205	.62	.12	38.4	1.15	.06	.10
4-114	20	230	.50	.16	37.5	1.15	.06	.10
4-115	20	190	.30	.14	34.8	.83	.18	.13
4-116	20	220	.30	.14	31.2	.88	.16	.12
4-117	20	180	.46	.11	31.9	.83	.22	.12
4-118	20	156	.30	.18	35.7	1.07	.16	.12
4-119	20	155	.52	.18	42.8	1.0	.20	.10
4-120	20	140	.38	.29	36.5	1.5	.20	.12
4-121	20	155	.12	.12	40.5	.83	.10	.10
4-122	20	190	.40	.13	36.5	1.07	.10	.09
4-123	20	130	.28	.14	38.4	.93	.10	.12

TABLE III
CONTINUED
Room Temperature

Serial No.	Lot No.	ICEO Ma.	IEBO Ma.	V _{BEF} Volts	HFE	V _{FE} umhos	ICO Ma.	RCS Ohms
4-124	20	130	.44	.14	46.8	.88	.10	.12
4-125	20	135	.70	.10	34.0	.88	.08	.12
4-126	20	140	.52	.30	34.8	.93	.08	.12
4-127	20	135	.30	.26	35.7	.88	.10	.13
4-128	20	142	.68	.18	35.7	.83	.11	.13
4-129	20	190	.28	.17	35.7	.83	.12	.09
4-130	20	126	.40	.13	34.0	.93	.04	.13
4-131	20	135	.12	.16	41.6	1.0	.08	.12
4-132	20	175	.12	.10	40.5	1.07	.08	.10
4-133	20	140	.62	.19	34.0	.83	.06	.14
4-134	20	130	.26	.14	41.6	1.25	.04	.09
4-135	20	139	.12	.26	36.5	1.0	.12	.12
4-136	20	141	.16	.22	36.5	1.0	.10	.12
4-137	20	139	.08	.26	37.5	1.0	.08	.12
4-138	20	152	.48	.12	36.5	1.0	.10	.13
4-139	20	137	.62	.12	37.5	.88	.08	.13
4-140	20	152	.84	.22	39.4	.88	.12	.10
4-141	20	159	.34	.14	35.7	.93	.10	.09
4-142	20	151	.24	.13	40.5	.83	.08	.13
4-143	20	148	.10	.14	48.3	16.66	.04	.09
4-144	20	214	.28	.12	33.3	.78	.06	.14
4-145	20	182	.24	.16	37.5	1.07	.18	.12
4-146	20	158	.08	.24	42.8	.88	.14	.12
4-147	20	128	.60	.12	41.6	.93	.08	.10
4-148	20	180	.08	.26	45.4	1.15	.08	.09

TABLE III
CONTINUED
Room Temperature

Serial No.	Lot No.	ICEO Ma.	IESO Ma.	V _{BEF} Volts	V _{FE}	V _{FE} volts	ICO Ma.	R _{CS} Ohms
4-149	20	211	.40	.20	36.5	1.0	.06	.10
4-150	20	149	.72	.13	42.8	1.15	.04	.08
4-151	20	144	.22	.16	38.4	1.0	.08	.13
4-152	20	175	.28	.22	37.5	1.0	.24	.10
4-153	20	133	.12	.10	38.4	.93	.08	.10
4-154	20	139	.80	.20	28.3	.88	.14	.14
4-155	20	164	.60	.32	38.4	1.0	.12	.10
4-156	20	214	.32	.12	34.8	.93	.08	.12
4-157	20	148	.40	.12	28.3	1.0	.04	.14
4-158	20	130	.22	.13	34.8	.83	.08	.13
4-159	20	182	.26	.26	36.5	.93	.12	.12
4-160	20	160	.16	.14	30.6	.93	.04	.14

TABLE III
CONTINUED
Room Temperature

Serial No.	Lot No.	I _{CEO} Ma.	I _{EB0} Ma.	V _{BEF} Volts	Serial No.	Lot No.	I _{CEO} Ma.	I _{EB0} Ma.	V _{BEF} Volts
1-1	20	40	.22	.11	1-25	20	42	.28	.11
1-2	20	51	.52	.12	1-26	20	33	.08	.12
1-3	20	70	.12	.11	1-27	20	10	.18	.10
1-4	20	10	.14	.10	1-28	20	60	.08	.16
1-5	20	40	.06	.12	1-29	20	40	.38	.10
1-6	20	65	.50	.13	1-30	20	5.0	.30	.12
1-7	20	40	.16	.10	1-31	20	30	.06	.12
1-8	20	40	.92	.10	1-32	20	40	.06	.11
1-9	20	45	.36	.12	1-33	20	62	.52	.12
1-10	20	40	.34	.10	1-34	20	25	.18	.11
1-11	20	55	.10	.14	1-35	20	35	.34	.12
1-12	20	30	.22	.08	1-36	20	55	.20	.13
1-13	20	45	.18	.12	1-37	20	20	.40	.10
1-14	20	30	.22	.12	1-38	20	65	.50	.16
1-15	20	20	.24	.12	1-39	20	55	.86	.14
1-16	20	40	.08	.12	1-40	20	25	.06	.10
1-17	20	20	.24	.12	1-41	20	35	.76	.10
1-18	20	70	.06	.20	1-42	20	35	.24	.13
1-19	20	20	.08	.12	1-43	20	48	.78	.10
1-20	20	35	.30	.12	1-44	20	25	.10	.12
1-21	20	25	.12	.13	1-45	20	37	.12	.12
1-22	20	35	.20	.10	1-46	20	5.0	.14	.10
1-23	20	15	.24	.10	1-47	20	19	.18	.13
1-24	20	45	.18	.10	1-48	20	18	.08	.08

TABLE III
CONTINUED
Room Temperature

Serial No.	Lot No.	ICEO Ma.	IEEC Ma.	VREF Volts	Serial No.	Lot No.	ICEO Ma.	IEEC Ma.	VREF Volts
1-49	20	40	.44	.12	1-74	20	19	.98	.12
1-50	20	60	.62	.12	1-75	20	17	.30	.12
1-51	20	15	.18	.10	1-76	20	39	.08	.11
1-52	20	65	.68	.10	1-77	20	10	.62	.10
1-53	20	20	.42	.10	1-78	20	9.0	.12	.10
1-54	20	10	.22	.10	1-79	20	5.0	.14	.10
1-55	20	10	.08	.12	1-80	20	52	.42	.12
1-56	20	20	.24	.10	1-81	20	25	.10	.10
1-57	20	20	.14	.12	1-82	20	59	.10	.10
1-58	20	65	.10	.14	1-83	20	15	.08	.10
1-59	20	5.0	.16	.10	1-84	20	15	.06	.10
1-60	20	34	.10	.11	1-85	20	10	.42	.10
1-61	20	56	.60	.14	1-86	20	18	.10	.10
1-62	20	50	.26	.12	1-87	20	40	.16	.11
1-63	20	10	.46	.11	1-88	20	9.0	.44	.10
1-64	20	17	.28	.11	1-89	20	45	.22	.12
1-65	20	68	.28	.15	1-90	20	20	.14	.10
1-66	20	19	.52	.10	1-91	20	53	.14	.10
1-67	20	34	.14	.12	1-92	20	35	.94	.12
1-68	20	55	.10	.14	1-93	20	18	.44	.11
1-69	20	20	.82	.16	1-94	20	15	.32	.12
1-70	20	23	.08	.11	1-95	20	48	.08	.13
1-71	20	20	.10	.12	1-96	20	32	.22	.11
1-72	20	7.0	.06	.10	1-97	20	35	.20	.11
1-73	20	14	.16	.13	1-98	20	71	.12	.13
					1-99	20	31	.08	.12
					1-100	20	25	.10	.13

TABLE III
CONTINUED
Room Temperature

Serial No.	Lot No.	I _{CEO} Ma.	I _{EB0} Ma.	V _{BEF} Volts	Serial No.	Lot No.	I _{CEO} Ma.	I _{EB0} Ma.	V _{BEF} Volts
2-1	20	20	.42	.10	2-26	20	19	.16	.11
2-2	20	11	.52	.10	2-27	20	10	.30	.10
2-3	20	9.0	.24	.10	2-28	20	21	.88	.10
2-4	20	4.0	.80	.10	2-29	20	17	.28	.10
2-5	20	10	.44	.10	2-30	20	71	.20	.13
2-6	20	50	.30	.12	2-31	20	10	.34	.11
2-7	20	8.0	.12	.10	2-32	20	21	.32	.12
2-8	20	10	.10	.11	2-33	20	30	.08	.11
2-9	20	58	.52	.12	2-34	20	25	.10	.12
2-10	20	21	.50	.11	2-35	20	60	.98	.13
2-11	20	65	.14	.14	2-36	20	12	.18	.10
2-12	20	15	.26	.08	2-37	20	38	.44	.11
2-13	20	17	.50	.10	2-38	20	75	.04	.14
2-14	20	32	.14	.10	2-39	20	12	.16	.11
2-15	20	16	.68	.10	2-40	20	65	.20	.12
2-16	20	20	.60	.10	2-41	20	12	.28	.11
2-17	20	20	.50	.10	2-42	20	55	.18	.14
2-18	20	10	.08	.10	2-43	20	10	.40	.10
2-19	20	8.0	.50	.12	2-44	20	10	.24	.10
2-20	20	34	.16	.11	2-45	20	75	.08	.11
2-21	20	50	.32	.12	2-46	20	10	.52	.11
2-22	20	18	.20	.10	2-47	20	38	.22	.11
2-23	20	12	.22	.10	2-48	20	15	.30	.11
2-24	20	55	.78	.10	2-49	20	33	.18	.12
2-25	20	30	.12	.10	2-50	20	36	.70	.11

TABLE III
CONTINUED
Room Temperature

Serial No.	Lot No.	I _{CEO} Ma.	I _{EBO} Ma.	V _{EBF} Volts	Serial No.	Lot No.	I _{CEO} Ma.	I _{EBO} Ma.	V _{EBF} Volts
2-51	20	17	.54	.10	2-76	20	45	.04	.10
2-52	20	32	.28	.13	2-77	20	70	.34	.11
2-53	20	51	.20	.13	2-78	20	19	.34	.12
2-54	20	17	.12	.11	2-79	20	50	.18	.09
2-55	20	46	.38	.14	2-80	20	57	.92	.12
2-56	20	29	.60	.10	2-81	20	44	.10	.11
2-57	20	32	.70	.11	2-82	20	25	.24	.10
2-58	20	45	.04	.11	2-83	20	5.0	.24	.10
2-59	20	15	.22	.12	2-84	20	19	.30	.10
2-60	20	20	.74	.12	2-85	20	65	.08	.11
2-61	20	30	.04	.11	2-86	20	15	.26	.10
2-62	20	44	.10	.13	2-87	20	19	.82	.10
2-63	20	26	.32	.10	2-88	20	32	.84	.10
2-64	20	25	.14	.10	2-89	20	18	.48	.10
2-65	20	55	.24	.12	2-90	20	38	.42	.12
2-66	20	45	.10	.10	2-91	20	26	.14	.10
2-67	20	63	.12	.08	2-92	20	40	.30	.11
2-68	20	32	.20	.10	2-93	20	68	.62	.12
2-69	20	18	.34	.10	2-94	20	75	.52	.11
2-70	20	49	.08	.12	2-95	20	50	.06	.10
2-71	20	34	.08	.12	2-96	20	68	.82	.09
2-72	20	55	.44	.14	2-97	20	65	.20	.11
2-73	20	25	.06	.11	2-98	20	26	.28	.13
2-74	20	68	.28	.11	2-99	20	15	.10	.12
2-75	20	40	.16	.12	2-100	20	30	.28	.10

TABLE III
CONTINUED
Room Temperature

Serial No.	Lot No.	I CEO Ma.	I _{EBO} Ma.	V _{BEF} Volts	H _{FE}	V _{FE} umhos	I _{CO} Ma.	R _{CS} Ohms
3-1	21	15	.10	.10	32	.83	.08	.16
3-2	21	25	.22	.10	29.4	.93	.06	.13
3-3	21	25	.58	.12	38.4	.83	.06	.13
3-4	21	25	.05	.10	36.5	.88	.08	.12
3-5	21	10	.08	.10	42.8	.83	.08	.13
3-6	21	30	.16	.12	39.4	.83	.08	.10
3-7	21	16	.20	.10	40.5	1.07	.06	.10
3-8	21	7	.18	.09	35.7	.88	.08	.09
3-9	21	30	.24	.12	31.9	.78	.08	.13
3-10	21	25	.18	.12	37.5	.78	.06	.10
3-11	21	20	.42	.12	34.8	.88	.08	.12
3-12	21	11	.14	.10	36.5	.83	.08	.10
3-13	21	13	.07	.10	39.4	1.07	.06	.10
3-14	21	27	.38	.11	37.5	1.0	.06	.10
3-15	21	13	.20	.10	34.8	.83	.08	.13
3-16	21	20	.12	.10	36.5	.78	.06	.14
3-17	21	13	.20	.10	37.5	1.0	.06	.10
3-18	21	13	.54	.11	35.7	.83	.06	.12
3-19	21	21	.68	.10	28.3	.83	.08	.13
3-20	21	11	.06	.10	37.5	.78	.08	.13
3-21	21	15	.14	.10	34.0	.83	.08	.13
3-22	21	16	.06	.12	39.4	.88	.08	.10
3-23	21	10	.16	.10	38.4	1.0	.06	.12
3-24	21	18	.08	.12	31.2	.83	.08	.13
3-25	21	6.0	.37	.10	31.9	.83	.08	.12

TABLE III
CONTINUED
Room Temperature

Serial No.	Lot No.	I _{CEO}	I _{EBO}	V _{BEF}	H _{FE}	Y _{FE}	I _{CO}	R _{CS}
3-26	21	18	.10	.13	42.8	.93	.06	.10
3-27	21	26	.22	.12	39.4	.83	.06	.12
3-28	21	25	.22	.13	36.5	.88	.06	.12
3-29	21	17	.18	.10	42.8	1.25	.06	.09
3-30	21	27	.92	.09	42.8	1.07	.04	.10
3-31	21	30	.14	.12	38.4	.93	.06	.10
3-32	21	18	.06	.11	30.6	.78	.06	.14
3-33	21	12	.30	.10	39.4	.78	.06	.09
3-34	21	30	.14	.14	34.0	.78	.04	.12
3-35	21	20	.40	.12	36.5	.78	.06	.12
3-36	21	19	.06	.13	40.5	1.0	.04	.09
3-37	21	20	.67	.12	34.8	.75	.08	.14
3-38	21	13	.80	.10	39.4	.88	.08	.10
3-39	21	21	.06	.09	38.4	.93	.08	.10
3-40	21	11	.22	.10	39.4	.78	.10	.12
3-41	21	11	.10	.10	37.5	.78	.10	.12
3-42	21	26	.38	.14	34.8	.93	.06	.09
3-43	21	6.0	.40	.08	39.4	1.15	.06	.09
3-44	21	25	.20	.12	35.7	.93	.06	.12
3-45	21	21	.26	.12	41.6	.10	.06	.09
3-46	21	22	.24	.11	36.5	.88	.06	.12
3-47	21	18	.04	.12	35.7	.78	.06	.12
3-48	21	8.0	.40	.10	34.0	.88	.06	.12
3-49	21	13	.69	.11	36.5	.83	.08	.13
3-50	21	16	.20	.11	34.0	.93	.06	.12

TABLE III
CONTINUED
Room Temperature

Serial No.	Lot No.	I _{CEO} Ma.	I _{EBO} Ma	V _{EEF} Volts	H _{FE}	Y _{FE} μmhos	I _{CO} Ma.	R _{CS} Ohms
3-51	21	20	.10	.10	38.4	.88	.06	.10
3-52	21	18	.24	.13	38.4	.78	.08	.12
3-53	21	18	.50	.10	39.4	1.07	.06	.10
3-54	21	30	1.0	.12	32.6	.47	.12	.13
3-55	21	23	.32	.11	37.5	.93	.08	.10
3-56	21	18	.12	.10	34.0	.75	.06	.12
3-57	21	17	.38	.11	37.5	.88	.06	.10
3-58	21	29	.36	.11	36.5	.88	.08	.12
3-59	21	28	.46	.10	41.6	.83	.10	.13
3-60	21	27	.14	.12	41.6	.83	.08	.10
3-61	21	25	.06	.11	34.0	.88	.06	.10
3-62	21	23	.12	.11	38.4	.83	.04	.12
3-63	21	7.0	.06	.09	34.0	.78	.10	.13
3-64	21	30	.20	.12	34.8	.93	.06	.12
3-65	21	16	.04	.10	35.7	.93	.06	.10
3-66	21	19	.10	.12	36.5	.88	.08	.10
3-67	21	25	.50	.10	33.3	.83	.06	.12
3-68	21	28	.30	.12	37.5	.83	.06	.13
3-69	21	16	.10	.10	40.5	.88	.08	.12
3-70	21	17	.18	.11	31.9	.83	.06	.13
3-71	21	15	.06	.10	37.5	.93	.08	.09
3-72	21	25	.04	.10	41.6	1.0	.06	.12
3-73	21	16	.18	.12	33.3	.75	.06	.13
3-74	21	13	.70	.10	34.0	.83	.10	.13
3-75	21	16	.18	.12	39.4	.93	.06	.10

TABLE III
CONTINUED
Room Temperature

Serial No.	Lot No.	I _{CEO}	I _{EBO}	V _{BEF}	H _{FE}	Y _{FE}	I _{CO}	R _{CS}
3-76	21	24	.21	.12	38.4	.88	.08	.12
3-77	21	25	.05	.10	35.7	1.0	.06	.10
3-78	21	20	.08	.10	42.8	.93	.08	.10
3-79	21	26	.18	.12	37.5	.93	.06	.12
3-80	21	11	.32	.09	36.5	.88	.08	.12
3-81	21	20	.14	.10	34.8	.75	.14	.12
3-82	21	14	.30	.10	37.5	.78	.10	.14
3-83	21	19	.08	.08	35.7	1.07	.06	.10
3-84	21	25	.06	.09	32.6	.78	.08	.13
3-85	21	12	.19	.10	37.5	.83	.06	.10
3-86	21	21	.12	.10	42.8	1.07	.06	.09
3-87	21	21	.27	.12	37.5	.83	.06	.10
3-88	21	30	.08	.12	38.4	.88	.08	.12
3-89	21	15	.22	.10	37.5	.93	.06	.10
3-90	21	20	.64	.10	35.7	.93	.06	.10
3-91	21	19	.25	.11	32.6	.93	.06	.10
3-92	21	24	.32	.11	36.5	.88	.06	.10
3-93	21	13	.10	.11	40.5	.83	.06	.10
3-94	21	27	.38	.12	32.6	.75	.08	.13
3-95	21	15	.20	.12	36.5	.93	.06	.10
3-96	21	17	.10	.13	39.4	.83	.06	.12
3-97	21	16	.10	.10	39.4	1.07	.06	.10
3-98	21	30	.08	.12	35.7	1.0	.08	.10
3-99	21	20	.32	.12	37.5	.88	.08	.12
3-100	21	11	.70	.12	38.4	1.0	.06	.10

TABLE III
CONTINUED
Room Temperature

Serial No.	Lot No.	ICEO Ma.	IEBO Ma.	VBEF Volts	HFE	YFE umhos	ICO Ma.	RCS Ohms
3-101	21	30	.20	.10	30.6	.78	.08	.13
3-102	21	29	.06	.11	35.7	1.07	.08	.10
3-103	21	14	.62	.10	37.5	.93	.10	.12
3-104	21	9.0	.70	.11	37.5	.83	.06	.12
3-105	21	27	.12	.12	39.4	.83	.10	.12
3-106	21	26	.62	.12	32.6	1.07	.06	.10
3-107	21	17	.26	.11	36.5	.83	.10	.14
3-108	21	6.0	.06	.09	34.8	.88	.08	.13
3-109	21	17	.08	.09	35.7	1.07	.10	.10
3-110	21	18	.12	.12	38.4	.93	.08	.10
3-111	21	15	.86	.12	36.5	1.0	.06	.10
3-112	21	16	.14	.11	32.6	.83	.08	.13
3-113	21	8.0	.06	.09	33.3	.83	.08	.12
3-114	21	30	.14	.12	39.4	.93	.10	.10
3-115	21	17	.62	.12	31.9	.83	.08	.13
3-116	21	15	.16	.12	39.4	.93	.08	.10
3-117	21	27	.58	.11	31.2	.93	.06	.12
3-118	21	15	.14	.12	37.5	.88	.08	.10
3-119	21	15	.42	.10	30.6	.75	.12	.13
3-120	21	13	.22	.08	36.5	.93	.10	.13
3-121	21	27	.92	.10	34.8	.83	.10	.16
3-122	21	15	.48	.10	34.8	1.0	.06	.10
3-123	21	15	1.0	.10	39.4	1.07	.08	.10
3-124	21	25	.16	.12	36.5	.83	.06	.10
3-125	21	18	.18	.09	26.3	.83	.08	.13

TABLE III
CONTINUED
Room Temperature

Serial No.	Lot No.	ICEO	IEBO	VEBF	HFE	VFE	ICO	RCS
3-126	21	20	.30	.11	34.8	.93	.06	.10
3-127	21	12	.04	.10	33.3	.75	.10	.13
3-128	21	10	.52	.10	40.5	.93	.10	.12
3-129	21	28	.36	.12	32.6	.83	.08	.12
3-130	21	23	.36	.11	34.8	.78	.10	.13
3-131	21	26	.30	.12	38.4	.93	.06	.12
3-132	21	30	.16	.11	35.7	.93	.06	.10
3-133	21	15	.06	.10	37.5	.78	.12	.12
3-134	21	28	.06	.11	33.3	.83	.10	.13
3-135	21	11	.42	.10	41.6	.93	.08	.10
3-136	21	14	.54	.08	41.6	1.15	.08	.09
3-137	21	24	.24	.10	39.4	1.07	.08	.09
3-138	21	29	.22	.08	35.7	.78	.12	.14
3-139	21	25	.30	.12	32.6	.78	.06	.10
3-140	21	12	.06	.11	36.5	.93	.08	.10
3-141	21	19	.14	.10	32.6	.88	.08	.12
3-142	21	13	.78	.10	39.4	.83	.10	.12
3-143	21	27	.18	.12	36.5	.93	.06	.10
3-144	21	30	.06	.12	36.5	.83	.10	.12
3-145	21	22	.74	.09	32.6	.88	.10	.12
3-146	21	23	.08	.10	37.5	.88	.10	.10
3-147	21	5.0	.42	.08	28.8	.88	.10	.13
3-148	21	28	.18	.10	33.3	.93	.08	.12
3-149	21	15	.24	.12	36.5	.88	.08	.12
3-150	21	20	.58	.11	38.4	.88	.08	.14

TABLE III
CONTINUED
Room Temperature

Serial No.	Lot No.	I _{CEO} Ma.	I _{EBO} Ma.	V _{BEF} Volts	H _{FE}	Y _{FE} umhos	I _{CO} Ma.	R _{CS} Ohms
3-151	21	17	.64	.12	38.4	1.0	.08	.10
3-152	21	22	.06	.10	34.0	.83	.10	.12
3-153	21	25	.60	.08	31.2	.83	.10	.14
3-154	21	10	.24	.11	35.7	.75	.08	.12
3-155	21	21	.70	.12	34.8	.88	.06	.10
3-156	21	27	1.0	.10	35.7	.88	.10	.12
3-157	21	11	.12	.10	38.4	.83	.08	.10
3-158	21	25	.04	.10	29.4	.78	.08	.13
3-159	21	22	.09	.12	33.3	.78	.08	.12
3-160	21	17	.10	.11	34.0	.93	.06	.10
3-161	21	14	.44	.11	37.5	.93	.08	.14
3-162	21	25	.96	.10	39.4	.83	.08	.12
3-163	21	28	.06	.12	36.5	1.0	.06	.10
3-164	21	25	.48	.10	31.9	.88	.08	.10
3-165	21	13	.06	.12	39.4	.88	.10	.12
3-166	21	15	.71	.10	39.4	.83	.08	.10
3-167	21	21	.18	.12	40.5	.88	.08	.10
3-168	21	16	.14	.12	30.0	.71	.08	.16
3-169	21	23	.34	.09	33.3	.93	.08	.12
3-170	21	14	.38	.10	38.4	.83	.12	.12
3-171	21	30	.14	.10	34.8	.83	.12	.12
3-172	21	24	.64	.10	31.2	.93	.10	.12
3-173	21	20	.09	.12	34.0	.83	.06	.10
3-174	21	30	.60	.10	41.6	.93	.10	.12
3-175	21	14	.06	.10	39.4	.93	.10	.10

TABLE III
CONTINUED
Room Temperature

Serial No.	Lot No.	I_{CEO}	I_{EBO}	V_{EBF}	H_{FE}	V_{FE}	I_{CO}	R_{CS}
3-176	21	26	.71	.11	37.5	.83	.06	.13
3-177	21	11	.85	.12	36.5	.83	.06	.12
3-178	21	27	.13	.09	32.6	.93	.10	.12
3-179	21	23	.12	.09	33.3	.78	.16	.16
3-180	21	27	.09	.12	39.4	.78	.12	.13
3-181	21	10	.24	.10	41.6	1.0	.06	.09
3-182	21	15	.76	.10	32.6	.93	.08	.12
3-183	21	14	.20	.10	31.9	.88	.08	.14
3-184	21	23	.14	.08	39.4	.88	.10	.10
3-185	21	16	.40	.10	40.5	.88	.10	.14
3-186	21	24	.14	.12	41.6	.83	.10	.10
3-187	21	22	.72	.10	44.1	.83	.12	.12
3-188	21	28	.12	.12	45.4	1.07	.06	.09
3-189	21	22	.06	.10	38.4	.88	.08	.10
3-190	21	29	.32	.12	36.5	.88	.10	.10
3-191	21	27	.24	.10	40.5	.93	.08	.10
3-192	21	20	.52	.10	40.5	.93	.08	.13
3-193	21	17	.14	.08	34.8	.83	.08	.12
3-194	21	9.0	.96	.10	34.8	.78	.08	.12
3-195	21	15	.10	.09	35.7	.83	.12	.13
3-196	21	24	.10	.12	35.7	.93	.08	.10
3-197	21	9.0	.34	.09	36.5	.78	.10	.12
3-198	21	17	.10	.09	30.	.78	.10	.16
3-199	21	14	.46	.10	34.	.78	.08	.14
3-200	21	23	.10	.10	32.6	.93	.08	.12

TABLE III
CONTINUED
Room Temperature

Serial No.	Lot No.	I _{CEO}	I _{EBO}	V _{BEF}	H _{FE}	V _{FE}	I _{CO}	R _{CS}
3-201	21	28	.88	.10	27.2	.78	.08	.16
3-202	21	23	.74	.10	38.4	.88	.08	.12
3-203	21	25	.26	.10	37.5	.83	.08	.16
3-204	21	27	.62	.10	35.7	.93	.08	.12
3-205	21	22	.08	.10	34.8	.93	.08	.12
3-206	21	17	.04	.11	44.1	1.15	.04	.10
3-207	21	20	.54	.11	32.6	.88	.08	.13
3-208	21	16	.30	.11	32.6	.83	.06	.12
3-209	21	14	.32	.10	40.5	.88	.06	.10
3-210	21	22	.26	.09	38.4	.88	.08	.13
3-211	21	23	.70	.10	38.4	.83	.10	.13
3-212	21	20	.08	.09	41.6	.88	.10	.12
3-213	21	27	.18	.10	38.4	1.0	.08	.10
3-214	21	11	.80	.08	34.8	.78	.08	.14
3-215	21	29	.08	.10	33.3	.75	.10	.12
3-216	21	7	.98	.08	39.4	1.15	.06	.09
3-217	21	14	.74	.10	41.6	.93	.06	.12
3-218	21	25	.36	.09	34.8	.88	.10	.16
3-219	21	10	.24	.10	34.8	.93	.06	.12
3-220	21	13	.22	.10	41.6	1.07	.08	.09
3-221	21	15	.14	.08	36.5	.78	.08	.12
3-222	21	18	.58	.10	31.9	.78	.06	.13
3-223	21	8.0	.18	.11	41.6	.83	.06	.10
3-224	21	25	.50	.10	36.5	.93	.10	.12
3-225	21	20	.54	.08	35.7	.78	.06	.12

TABLE III
CONTINUED
Room Temperature

Serial No.	Lot No.	I_{CEO}	I_{EBO}	V_{EBF}	H_{FE}	Y_{FE}	I_{CO}	R_{CS}
3-226	21	13	.30	.11	34.8	.93	.10	.10
3-227	21	15	.26	.06	38.4	.88	.06	.10
3-228	21	22	.08	.12	36.5	.93	.08	.10
3-229	21	11	.18	.08	37.5	.88	.08	.10
3-230	21	20	.72	.10	37.5	1.0	.10	.10
3-231	21	28	.32	.11	39.4	.93	.08	.12
3-232	21	13	.38	.10	37.5	1.07	.06	.10
3-233	21	7.0	.28	.10	32.6	.78	.08	.13
3-234	21	24	.20	.12	35.7	.88	.08	.13
3-235	21	6.0	.20	.09	30.0	.78	.10	.13
3-236	21	25	.30	.09	34.8	1.0	.12	.12
3-237	21	18	.24	.09	31.9	.78	.08	.12
3-238	21	17	.66	.09	34.0	.83	.08	.14
3-239	21	16	.48	.07	33.3	.88	.08	.14
3-240	21	27	.48	.09	33.3	.93	.06	.13
3-241	21	15	.10	.09	34.0	.78	.10	.12
3-242	21	25	.92	.09	41.6	.83	.08	.12
3-243	21	22	.14	.12	42.8	.88	.06	.10
3-244	21	25	.06	.08	36.5	1.0	.08	.10
3-245	21	25	.20	.10	37.5	.78	.08	.10
3-246	21	8.0	.23	.09	36.5	.83	.10	.12
3-247	21	16	.18	.09	42.8	1.07	.06	.09
3-248	21	10	.24	.10	34.0	.78	.06	.13
3-249	21	20	.26	.10	34.0	.78	.10	.14
3-250	21	30	.08	.11	30.6	.93	.06	.13

TABLE III
CONTINUED
Room Temperature

Serial No.	Lot No.	ICEO Ma.	IEBO Ma.	VEBF Volts	H _{FE}	Y _{FE} w/hos	ICO Ma.	R _{CS} Ohms
3-251	21	17	.42	.08	38.4	.88	.08	.12
3-252	21	22	.82	.10	34.0	.83	.08	.13
3-253	21	19	.22	.10	34.0	.93	.06	.10
3-254	21	23	.30	.10	36.5	.93	.08	.12
3-255	21	10	1.0	.08	37.5	.93	.08	.13
3-256	21	15	.18	.10	34.0	.78	.08	.12
3-257	21	13	.12	.10	41.6	.83	.10	.12
3-258	21	20	.42	.10	39.4	.93	.06	.12
3-259	21	25	.22	.11	42.8	1.07	.04	.10
3-260	21	12	.14	.08	39.4	.83	.10	.12
3-261	21	17	.18	.12	34.0	.78	.08	.12
3-262	21	12	.16	.08	32.6	.83	.08	.13
3-263	21	25	.10	.10	33.3	.93	.06	.12
3-264	21	20	.22	.08	34.8	.88	.10	.12
3-265	21	15	.20	.10	34.8	.78	.08	.12
3-266	21	12	.36	.10	35.7	.78	.08	.12
3-267	21	20	.44	.10	38.4	.78	.06	.10
3-268	21	27	.48	.10	34.0	.93	.06	.12
3-269	21	9.0	.28	.11	40.5	.88	.08	.09
3-270	21	11	.06	.10	41.6	.83	.10	.10
3-271	21	20	.18	.12	37.5	.83	.08	.12
3-272	21	18	.22	.11	37.5	.75	.10	.12
3-273	21	25	.08	.11	38.4	.83	.08	.12
3-274	21	5.0	1.0	.08	36.5	.83	.08	.14
3-275	21	14	.30	.11	45.4	1.07	.06	.10

TABLE III
CONTINUED
Room Temperature

Serial No.	Lot No.	I_{CEO}	I_{EBO}	V_{EBF}	H_{FE}	V_{FE}	I_{CO}	R_{CS}
3-276	21	17	.08	.10	33.3	.75	.10	.13
3-277	21	22	.10	.13	38.4	1.0	.08	.10
3-278	21	14	.16	.10	37.5	.75	.08	.10
3-279	21	20	.20	.12	36.5	.88	.08	.12
3-280	21	27	.18	.11	33.3	.75	.10	.13
3-281	21	17	.10	.11	36.5	1.0	.08	.10
3-282	21	5.0	.38	.10	39.4	.93	.08	.12
3-283	21	10	.42	.10	29.4	1.36	.08	.14
3-284	21	17	.30	.10	37.5	.88	.10	.10
3-285	21	20	.32	.12	33.3	.88	.06	.10
3-286	21	17	.36	.12	34.0	.75	.12	.14
3-287	21	10	.12	.10	38.4	.88	.08	.10
3-288	21	15	.26	.11	35.7	.88	.10	.12
3-289	21	12	.18	.12	34.8	1.07	.06	.10
3-290	21	28	.56	.09	30.0	.88	.08	.13
3-291	21	22	.16	.12	38.4	.93	.08	.10
3-292	21	7.0	.18	.11	33.3	.88	.10	.12
3-293	21	17	.74	.11	38.4	.75	.10	.12
3-294	21	21	.06	.12	30.6	.88	.06	.12
3-295	21	11	.26	.11	38.4	.93	.08	.12
3-296	21	28	.16	.12	38.4	.75	.10	.13
3-297	21	29	.10	.12	36.5	1.0	.08	.10
3-298	21	22	.16	.11	39.4	1.0	.06	.13
3-299	21	25	.20	.10	34.0	1.0	.08	.12
3-300	21	13	.14	.09	35.7	.83	.18	.13

TABLE III
CONTINUED
Room Temperature

Serial No.	Lot No.	ICEO Ma.	IEBO Ma.	VEBF Volts	E _{FE}	Y _{FE} unhos	ICO Ma.	RCS Ohms
5-26	22	.10	.06	.12	32.6	.93	3.4	.13
5-27	22	.08	.10	.14	34.8	.93	3.2	.12
5-28	22	.06	.04	.12	41.6	1.07	2.4	.10
5-29	22	.08	.08	.10	34.8	.88	3.0	.13
5-30	22	.06	.08	.13	40.5	.93	2.6	.13
5-31	22	.08	.06	.15	34.8	.93	4.0	.29
5-32	22	.12	.06	.18	40.5	.93	3.4	.12
5-33	22	.10	.06	.16	36.5	1.07	4.4	.12
5-34	22	.06	.04	.14	37.5	1.07	2.8	.09
5-35	22	.06	.06	.12	44.1	1.07	2.8	.10
5-36	22	.06	.08	.10	39.4	1.07	2.4	0.0
5-37	22	.24	.06	.18	32.6	.83	6.6	.10
5-38	22	.08	.08	.14	37.5	.88	3.4	.12
5-39	22	.06	.04	.12	37.5	.88	2.2	.12
5-40	22	.10	.08	.10	35.7	.93	3.4	.12
5-41	22	.10	.06	.10	38.4	.93	4.0	.12
5-42	22	.06	.06	.11	28.8	.88	3.4	.14
5-43	22	.18	.10	.20	34.8	1.07	3.2	.10
5-44	22	.06	.08	.12	37.5	.88	2.4	.10
5-45	22	.06	.08	.12	39.4	1.0	2.6	.13
5-46	22	.06	.04	.13	39.4	.93	2.8	.10
5-47	22	.08	.16	.13	34.0	.93	4.0	.14
5-48	22	.12	.08	.20	39.4	1.0	2.6	.10
5-49	22	.06	.06	.18	32.6	.83	3.6	.10
5-50	22	.08	.06	.11	38.4	.88	2.8	.09

TABLE III
CONTINUED
Room Temperature

Serial No.	Lot No.	I _{CEO} Ma.	I _{EB0} Ma.	V _{BEF} Volts	H _{FE}	Y _{FE} umhos	I _{CO} Ma.	R _{CS} Ohms
5-51	22	.08	.04	.11	34.0	.93	2.2	.12
5-52	22	.04	.22	.12	46.8	1.0	1.8	.09
5-53	22	.06	.06	.12	34.8	.83	3.2	.13
5-54	22	.06	.04	.16	36.5	1.07	4.6	.09
5-55	22	.06	.46	.13	38.4	1.0	2.6	.10
5-56	22	.06	.34	.12	40.5	1.07	2.4	.09
5-57	22	.10	.10	.20	37.5	1.0	2.6	.12
5-58	22	.06	.08	.12	35.7	.78	2.2	.13
5-59	22	.06	.08	.14	40.5	.93	3.0	.10
5-60	22	.14	.06	.16	44.1	1.15	5.2	.10
5-61	22	.06	.12	.12	42.8	1.07	2.6	.09
5-62	22	.06	.16	.12	46.8	1.07	2.6	.09
5-63	22	.06	.14	.11	37.5	.88	2.4	.12
5-64	22	.10	.08	.12	34.8	.88	5.0	.14
5-65	22	.10	.04	.12	42.8	1.25	2.4	.09
5-66	22	.10	.10	.10	34.8	.83	3.8	.14
5-67	22	.06	.14	.10	40.5	.88	2.8	.12
5-68	22	.08	.86	.10	44.1	1.07	2.4	.08
5-69	22	.06	.08	.12	41.6	.88	2.6	.12
5-70	22	.06	.18	.11	40.5	1.07	2.8	.12
5-71	22	.04	.04	.12	35.7	.88	2.0	.10
5-72	22	.06	.06	.14	35.7	.88	2.8	.10
5-73	22	.08	.10	.12	40.5	.83	6.0	.12
5-74	22	.04	.06	.10	38.4	1.15	2.2	.10
5-75	22	.04	.06	.12	28.3	.83	3.4	.14

TABLE III
CONTINUED
Room Temperature

Serial No.	Lot No.	IC _{EO} Ma.	IE _{EO} Ma.	V _{BEF} Volts	BFE	V _{FE} umhos	IC _O Ma.	RCS Ohms
5-76	22	.06	.12	.10	41.6	1.0	2.8	.10
5-77	22	.08	.16	.10	44.1	1.25	1.8	.08
5-78	22	.10	.16	.26	34.0	1.0	6.4	.12
5-79	22	.06	.80	.10	38.4	1.0	2.8	.09
5-80	22	.06	.06	.12	37.5	1.0	3.6	.10
5-81	22	.04	.06	.10	38.4	1.07	2.0	.10
5-82	22	.10	.04	.13	41.6	1.0	2.6	.10
5-83	22	.08	.06	.15	38.4	1.15	3.2	.10
5-84	22	.04	.20	.10	41.6	1.25	2.4	.09
5-85	22	.06	.04	.22	34.0	.88	5.0	.12
5-86	22	.08	.30	.14	38.4	.93	3.8	.10
5-87	22	.04	.08	.14	36.5	1.07	3.4	.10
5-88	22	.10	.16	.30	41.6	.93	10.4	.12
5-89	22	.04	.04	.14	38.4	1.07	2.6	.09
5-90	22	.06	.06	.10	32.6	.88	2.8	.13
5-91	22	.04	.04	.16	40.5	1.07	2.6	.09
5-92	22	.10	.18	.32	38.4	.93	5.0	.12
5-93	22	.06	.04	.12	46.8	1.15	2.4	.09
5-94	22	.08	.06	.12	36.5	.93	3.2	.12
5-95	22	.08	.12	.18	31.2	1.07	5.2	.10
5-96	22	.06	.04	.12	41.6	1.0	2.2	.10
5-97	22	.06	.06	.13	41.6	1.0	2.0	.10
5-98	22	.08	.06	.11	37.5	.93	4.4	.10
5-99	22	.04	.04	.10	31.9	1.07	3.0	.12
5-100	22	.06	.04	.11	35.7	1.0	2.4	.12

TABLE III
CONTINUED
-55°C

Serial No.	Lot No.	HFE	YFE	Serial No.	Lot No.	HFE	YFE	Serial No.	Lot No.	HFE	YFE
5-1	22	28.8	1.07	5-26	22	35.7	1.15	5-51	22	34.8	1.15
5-2	22	33.3	1.07	5-27	22	32.6	1.07	5-52	22	46.8	1.15
5-3	22	34.8	1.15	5-28	22	44.1	1.36	5-53	22	39.4	1.07
5-4	22	37.5	1.25	5-29	22	31.2	1.07	5-54	22	42.8	1.5
5-5	22	36.5	1.15	5-30	22	37.5	1.07	5-55	22	39.4	1.15
5-6	22	35.7	1.07	5-31	22	35.7	1.15	5-56	22	41.6	1.36
5-7	22	32.6	0.93	5-32	22	36.5	1.07	5-57	22	34.0	1.15
5-8	22	39.4	1.07	5-33	22	32.6	1.15	5-58	22	35.7	0.93
5-9	22	46.8	1.25	5-34	22	45.4	1.25	5-59	22	40.5	1.07
5-10	22	41.6	1.36	5-35	22	40.5	1.15	5-60	22	45.4	1.36
5-11	22	40.5	1.15	5-36	22	38.4	1.25	5-61	22	40.5	1.25
5-12	22	39.4	1.07	5-37	22	30.0	1.25	5-62	22	45.4	1.15
5-13	22	35.7	1.15	5-38	22	40.5	1.15	5-63	22	45.4	1.15
5-14	22	41.6	1.25	5-39	22	40.5	1.07	5-64	22	35.7	1.07
5-15	22	36.5	1.07	5-40	22	38.4	1.15	5-65	22	41.6	1.36
5-16	22	34.8	1.0	5-41	22	39.4	1.15	5-66	22	31.2	1.0
5-17	22	41.6	1.15	5-42	22	26.3	1.0	5-67	22	40.5	1.0
5-18	22	34.0	1.07	5-43	22	34.0	1.15	5-68	22	37.5	1.15
5-19	22	36.5	1.15	5-44	22	42.8	1.15	5-69	22	41.6	1.07
5-20	22	36.5	1.07	5-45	22	42.8	1.07	5-70	22	45.4	1.36
5-21	22	42.8	1.25	5-46	22	42.8	1.15	5-71	22	38.4	1.07
5-22	22	44.1	1.15	5-47	22	34.0	1.15	5-72	22	34.8	1.0
5-23	22	37.5	1.15	5-48	22	41.6	1.15	5-73	22	35.7	0.93
5-24	22	34.0	1.07	5-49	22	33.3	1.0	5-74	22	39.4	1.36
5-25	22	39.4	1.07	5-50	22	39.4	1.07	5-75	22	25.4	1.07

TABLE III
CONTINUED
-55°C

Serial No.	Lot No.	H _{FT}	Y _{FE}
5-76	22	39.4	1.15
5-77	22	42.8	1.50
5-78	22	34.0	1.25
5-79	22	35.7	1.07
5-80	22	36.5	1.15
5-81	22	41.6	1.36
5-82	22	38.4	1.07
5-83	22	36.5	1.36
5-84	22	39.4	1.25
5-85	22	34.0	1.0
5-86	22	41.6	1.15
5-87	22	37.5	1.25
5-88	22	38.4	1.15
5-89	22	35.7	1.15
5-90	22	32.6	1.07
5-91	22	35.7	1.15
5-92	22	39.4	1.25
5-93	22	48.3	1.36
5-94	22	40.5	1.25
5-95	22	27.7	1.07
5-96	22	44.1	1.25
5-97	22	48.3	1.25
5-98	22	41.6	1.15
5-99	22	27.2	1.15
5-100	22	35.7	1.25

TABLE III
CONTINUED
Room Temperature

Serial No.	Lot No.	I CBO Ma.	I EBO Ma.	Serial No.	Lot No.	I CBO Ma.	I EBO Ma.	Serial No.	Lot No.	I CBO Ma.	I EBO Ma.
1-1	24	.20	.10	1-26	24	.12	.12	1-51	24	.84	.20
1-2	24	.94	.90	1-27	24	.60	.34	1-52	24	.18	.82
1-3	24	.54	.22	1-28	24	.82	.40	1-53	24	.26	.28
1-4	24	.74	.12	1-29	24	.48	.70	1-54	24	.14	.30
1-5	24	.34	.80	1-30	24	.18	.12	1-55	24	.24	.28
1-6	24	.08	.06	1-31	24	.12	.84	1-56	24	.24	.42
1-7	24	.16	.10	1-32	24	.26	.84	1-57	24	.20	.58
1-8	24	.18	.14	1-33	24	.56	.06	1-58	24	.30	.12
1-9	24	.42	.24	1-34	24	.18	.16	1-59	24	.40	.14
1-10	24	.22	.42	1-35	24	.48	.08	1-60	24	.56	.70
1-11	24	.18	.06	1-36	24	.12	.48	1-61	24	.28	.76
1-12	24	.88	.08	1-37	24	.56	.08	1-62	24	.18	.08
1-13	24	.34	.18	1-38	24	.52	.60	1-63	24	.36	.24
1-14	24	.60	.06	1-39	24	.46	.12	1-64	24	.36	.28
1-15	24	.30	.22	1-40	24	.16	.20	1-65	24	.22	.14
1-16	24	.38	.18	1-41	24	.18	.08	1-66	24	.20	.72
1-17	24	.14	.22	1-42	24	.34	.50	1-67	24	.20	.14
1-18	24	.40	.06	1-43	24	.16	.60	1-68	24	.16	.32
1-19	24	.18	.22	1-44	24	.42	.16	1-69	24	.52	.46
1-20	24	.12	.08	1-45	24	.18	.16	1-70	24	.32	.32
1-21	24	.14	.14	1-46	24	.12	.22	1-71	24	.20	.08
1-22	24	.44	.24	1-47	24	.22	.06	1-72	24	.38	.36
1-23	24	.10	.10	1-48	24	.18	.58	1-73	24	.10	.16
1-24	24	.14	.10	1-49	24	.76	.08	1-74	24	.96	.08
1-25	24	.90	.12	1-50	24	.18	.14	1-75	24	.76	.20

TABLE III
CONTINUED
Room Temperature

Serial No.	Lot No.	Test No.	Room Temperature
1-76	24	14	.80
1-77	24	20	.32
1-78	24	18	.10
1-79	24	50	.14
1-80	24	48	.24
1-81	24	32	.10
1-82	24	16	.14
1-83	24	08	.14
1-84	24	60	.20
1-85	24	52	.52
1-86	24	26	.08
1-87	24	08	.34
1-88	24	48	.22
1-89	24	12	.14
1-90	24	28	.06
1-91	24	14	.66
1-92	24	42	.08
1-93	24	10	.08
1-94	24	44	.24
1-95	24	70	.14
1-96	24	16	.88
1-97	24	24	.14
1-98	24	14	.16
1-99	24	10	.34
1-100	24	46	.06

TABLE III
CONTINUED
Room Temperature

Serial No.	Lot No.	ICBO	IEBO	Serial No.	Lot No.	ICBO	IEBO	Serial No.	Lot No.	ICBO	IEBO
2-1	25	.22	.14	2-26	25	.10	.06	2-51	25	.06	.24
2-2	25	.14	.32	2-27	25	.40	.08	2-52	25	.26	.18
2-3	25	.44	.14	2-28	25	.26	.20	2-53	25	.14	.44
2-4	25	.34	.44	2-29	25	.46	.0	2-54	25	.16	.72
2-5	25	.12	.44	2-30	25	.16	.24	2-55	25	.76	.90
2-6	25	.36	.34	2-31	25	.12	.10	2-56	25	.14	.06
2-7	25	.14	.26	2-32	25	.38	.50	2-57	25	.40	.04
2-8	25	.34	.38	2-33	25	.52	.48	2-58	25	.42	.08
2-9	25	.30	.46	2-34	25	.44	.16	2-59	25	.18	.04
2-10	25	.36	.34	2-35	25	.40	.12	2-60	25	.32	.32
2-11	25	.40	.26	2-36	25	.14	.08	2-61	25	.14	.08
2-12	25	.12	.12	2-37	25	.18	.16	2-62	25	.22	.12
2-13	25	.62	.58	2-38	25	.34	.22	2-63	25	.58	.30
2-14	25	.62	.60	2-39	25	.18	.32	2-64	25	.44	.06
2-15	25	.38	.42	2-40	25	.12	.08	2-65	25	.20	.34
2-16	25	.16	.60	2-41	25	.28	.78	2-66	25	.72	.34
2-17	25	.32	.38	2-42	25	.58	.50	2-67	25	.24	.38
2-18	25	.20	.06	2-43	25	.20	.56	2-68	25	.14	.16
2-19	25	.14	.32	2-44	25	.16	.32	2-69	25	.48	.78
2-20	25	.20	.28	2-45	25	.60	.52	2-70	25	.24	.58
2-21	25	.24	.22	2-46	25	.24	.10	2-71	25	.32	.48
2-22	25	.20	.18	2-47	25	.38	.44	2-72	25	.26	.18
2-23	25	.42	.28	2-48	25	.18	.52	2-73	25	.12	.32
2-24	25	.56	.68	2-49	25	.18	.32	2-74	25	.10	.30
2-25	25	.08	.08	2-50	25	.08	.16	2-75	25	.32	.10

TABLE III
CONTINUED
Room Temperature

Serial No.	Lot No.	ICBO	IEBO
2-76	25	.20	.22
2-77	25	.16	.10
2-78	25	.18	.82
2-79	25	.30	.30
2-80	25	.40	.24
2-81	25	.14	.06
2-82	25	.64	.18
2-83	25	.64	.68
2-84	25	.70	.72
2-85	25	.14	.06
2-86	25	.08	.22
2-87	25	.62	.14
2-88	25	.20	.14
2-89	25	.18	.12
2-90	25	.68	.26
2-91	25	.22	.16
2-92	25	.12	.10
2-93	25	.22	.34
2-94	25	.62	.12
2-95	25	.44	.12
2-96	25	.62	.26
2-97	25	.62	.18
2-98	25	.18	.22
2-99	25	.28	.72
2-100	25	.20	.18

TABLE III
CONTINUED
Room Temperature

Serial No.	Lot No.	I _{CBO}	I _{EB0}	Serial No	Lot No.	I _{CBO}	I _{EB0}	Serial No.	Lot No.	I _{CBO}	I _{EB0}
3-1	25	.08	.10	3-26	25	.50	.12	3-51	25	.24	.08
3-2	25	.36	.24	3-27	25	.32	.80	3-52	25	.24	.08
3-3	25	.26	.98	3-28	25	.40	.32	3-53	25	.06	.32
3-4	25	.48	.62	3-29	25	.40	.20	3-54	25	.12	.22
3-5	25	.32	.20	3-30	25	.10	.50	3-55	25	.40	.28
3-6	25	.16	.34	3-31	25	.10	.32	3-56	25	.10	.76
3-7	25	.40	.14	3-32	25	.34	.08	3-57	25	.12	.40
3-8	25	.42	.06	3-33	25	.64	.20	3-58	25	.18	.10
3-9	25	.52	.08	3-34	25	.20	.08	3-59	25	.38	.72
3-10	25	.42	.44	3-35	25	.82	.08	3-60	25	.24	.32
3-11	25	.12	.06	3-36	25	.16	.06	3-61	25	.70	.06
3-12	25	.16	.08	3-37	25	.34	.20	3-62	25	.26	.06
3-13	25	.12	.26	3-38	25	.50	.04	3-63	25	.46	.92
3-14	25	.14	.34	3-39	25	.32	.68	3-64	25	.74	.42
3-15	25	.86	.30	3-40	25	.12	.50	3-65	25	.32	.08
3-16	25	.08	.06	3-41	25	.32	.08	3-66	25	.24	.40
3-17	25	.46	.10	3-42	25	.16	.26	3-67	25	.82	.16
3-18	25	.94	.06	3-43	25	.16	.12	3-68	25	.32	.58
3-19	25	.46	.12	3-44	25	.44	.10	3-69	25	.10	.16
3-20	25	.80	.96	3-45	25	.42	.14	3-70	25	.36	.22
3-21	25	.22	.48	3-46	25	.68	.08	3-71	25	.16	.10
3-22	25	.32	.08	3-47	25	.16	.60	3-72	25	.06	.16
3-23	25	.50	.16	3-48	25	.16	.52	3-73	25	.08	.10
3-24	25	.14	.40	3-49	25	.10	.22	3-74	25	.26	.56
3-25	25	.20	.14	3-50	25	.22	.40	3-75	25	.10	.40

TABLE III
CONTINUED
Room Temperature

Serial No.	Lot No.	I _{CBO}	I _{EBO}	Serial No.	Lot No.	I _{CBO}	I _{EBO}	Serial No.	Lot No.	I _{CBO}	I _{EBO}
3-76	25	.32	.06	3-101	25	.08	.30	3-126	25	.24	.40
3-77	25	.18	.30	3-102	25	.26	.84	3-127	25	.60	.22
3-78	25	.22	.40	3-103	25	.52	.78	3-128	25	.60	.16
3-79	25	.10	.04	3-104	25	.78	.32	3-129	25	.86	.38
3-80	25	.52	.16	3-105	25	.44	.18	3-130	25	.34	.52
3-81	25	.36	.24	3-106	25	.18	.66	3-131	25	.32	.20
3-82	25	.12	.12	3-107	25	.34	.48	3-132	25	.72	.76
3-83	25	.08	.24	3-108	25	.20	.20	3-133	25	.18	.92
3-84	25	.22	.10	3-109	25	.30	.08	3-134	25	.08	.06
3-85	25	.28	.88	3-110	25	.74	.70	3-135	25	.34	.26
3-86	25	.34	.14	3-111	25	.48	.44	3-136	25	.40	.18
3-87	25	.24	.04	3-112	25	.52	.40	3-137	25	.20	.10
3-88	25	.82	.22	3-113	25	.14	.06	3-138	25	.44	.08
3-89	25	.72	.10	3-114	25	.90	.78	3-139	25	.42	.78
3-90	25	.70	.24	3-115	25	.60	.06	3-140	25	.34	.20
3-91	25	.82	.04	3-116	25	.14	.10	3-141	25	.16	.06
3-92	25	.46	.30	3-117	25	.24	.30	3-142	25	.46	.72
3-93	25	.18	.36	3-118	25	.36	.20	3-143	25	.34	.62
3-94	25	.20	.90	3-119	25	.08	.88	3-144	25	.30	.32
3-95	25	.16	.28	3-120	25	.24	.18	3-145	25	.14	.38
3-96	25	.10	.20	3-121	25	.56	.12	3-146	25	.10	.26
3-97	25	.30	.60	3-122	25	.48	.08	3-147	25	.90	.50
3-98	25	.08	.26	3-123	25	.14	.92	3-148	25	.90	.70
3-99	25	.40	.10	3-124	25	.20	.32	3-149	25	.10	.26
3-100	25	.32	.10	3-125	25	.20	.18	3-150	25	.34	.16

TABLE III
CONTINUED
Room Temperature

Serial No.	Lot No.	ICBO	IEBO	Serial No.	Lot No.	ICBO	IEBO
3-151	25	.68	.40	3-176	25	.64	.42
3-152	25	.12	.30	3-177	25	.92	.34
3-153	25	.34	.54	3-178	25	.42	.10
3-154	25	.10	.82	3-179	25	.24	.22
3-155	25	.20	.12	3-180	25	.88	.62
3-156	25	.08	.72	3-181	25	.84	.64
3-157	25	.10	.06	3-182	25	.16	.10
3-158	25	.84	.04	3-183	25	.18	.30
3-159	25	.72	.22	3-184	25	.72	.14
3-160	25	.54	.16	3-185	25	.66	.72
3-161	25	.66	.10	3-186	25	.20	.24
3-162	25	.12	.26	3-187	25	.32	.42
3-163	25	.64	.12	3-188	25	.10	.30
3-164	25	.26	.34	3-189	25	.14	.92
3-165	25	.28	.26	3-190	25	.20	.06
3-166	25	.14	.08	3-191	25	.22	.62
3-167	25	.24	.34	3-192	25	.12	.12
3-168	25	.12	.52	3-193	25	.40	.18
3-169	25	.58	.32	3-194	25	.30	.52
3-170	25	.40	.10	3-195	25	.44	.48
3-171	25	.20	.14	3-196	25	.10	.20
3-172	25	.90	.08	3-197	25	.16	.10
3-173	25	.18	.32	3-198	25	.10	.14
3-174	25	.34	.08	3-199	25	.08	.38
3-175	25	.36	.16	3-200	25	.94	.20

TABLE III
CONTINUED

Room Temperature

Serial No.	Lot No.	I _{CB0}	I _{EB0}	Serial No.	Lot No.	I _{CB0}	I _{EB0}	Serial No.	Lot No.	I _{CB0}	I _{EB0}
4-1	25	.06	.06	4-26	25	.50	.28	4-51	25	.24	.20
4-2	25	.50	.50	4-27	25	.78	.08	4-52	25	.30	.38
4-3	25	.24	.20	4-28	25	.16	.16	4-53	25	.12	.10
4-4	25	.20	.26	4-29	25	.10	.44	4-54	25	.14	.16
4-5	25	.30	.92	4-30	25	.10	.18	4-55	25	.40	.18
4-6	25	.38	.08	4-31	25	.10	.56	4-56	25	.38	.12
4-7	25	.16	.38	4-32	25	.22	.68	4-57	25	.42	.18
4-8	25	.70	.36	4-33	25	.36	.42	4-58	25	.32	.12
4-9	25	.14	.34	4-34	25	.34	.92	4-59	25	.80	.34
4-10	25	.84	.06	4-35	25	.10	.48	4-60	25	.22	.32
4-11	25	.20	.30	4-36	25	.18	.10	4-61	25	.24	.34
4-12	25	.20	.20	4-37	25	.48	.12	4-62	25	.32	.80
4-13	25	.32	.08	4-38	25	.46	.22	4-63	25	.90	.08
4-14	25	.16	.10	4-39	25	.22	.18	4-64	25	.06	.08
4-15	25	.14	.40	4-40	25	.14	.32	4-65	25	.60	.32
4-16	25	.22	.40	4-41	25	.26	.54	4-66	25	.22	.16
4-17	25	.16	.64	4-42	25	.70	.52	4-67	25	.86	.28
4-18	25	.40	.06	4-43	25	.64	.90	4-68	25	.16	.62
4-19	25	.40	.88	4-44	25	.58	.10	4-69	25	.14	.08
4-20	25	.48	.12	4-45	25	.12	.06	4-70	25	.74	.34
4-21	25	.44	.50	4-46	25	.12	.10	4-71	25	.08	.24
4-22	25	.28	.88	4-47	25	.64	.50	4-72	25	.26	.12
4-23	25	.14	.08	4-48	25	.40	.22	4-73	25	.32	.12
4-24	25	.92	.16	4-49	25	.10	.36	4-74	25	.12	.14
4-25	25	.28	.18	4-50	25	.48	.40	4-75	25	.54	.26

TABLE III
CONTINUED
Room Temperature

Serial No.	Lot No.	I _{CBO}	I _{EBO}	Serial No.	Lot No.	I _{CBO}	I _{EBO}	Serial No.	Lot No.	I _{CBO}	I _{EBO}
4-76	25	.34	.34	4-101	25	.36	.18	4-126	25	.36	.08
4-77	25	.72	.60	4-102	25	.56	.12	4-127	25	.36	.32
4-78	25	.52	.22	4-103	25	.22	.22	4-128	25	.24	.20
4-79	25	.20	.16	4-104	25	.44	.30	4-129	25	.64	.12
4-80	25	.60	.62	4-105	25	.94	.18	4-130	25	.18	.22
4-81	25	.12	.16	4-106	25	.40	.40	4-131	25	.20	.08
4-82	25	.12	.72	4-107	25	.84	.28	4-132	25	.16	.24
4-83	25	.14	.50	4-108	25	.44	.50	4-133	25	.50	.14
4-84	25	.74	.18	4-109	25	.16	.18	4-134	25	.12	.16
4-85	25	.30	.54	4-110	25	.12	.26	4-135	25	.90	.52
4-86	25	.16	.08	4-111	25	.72	.08	4-136	25	.34	.06
4-87	25	.14	.10	4-112	25	.70	.22	4-137	25	.22	.70
4-88	25	.42	.20	4-113	25	.60	.40	4-138	25	.54	.20
4-89	25	.50	.12	4-114	25	.22	.16	4-139	25	.60	.88
4-90	25	.86	.12	4-115	25	.14	.10	4-140	25	.10	.20
4-91	25	.10	.20	4-116	25	.42	.48	4-141	25	.24	.12
4-92	25	.22	.08	4-117	25	.42	.16	4-142	25	.32	.14
4-93	25	.46	.16	4-118	25	.16	.32	4-143	25	.20	.06
4-94	25	.30	.62	4-119	25	.22	.56	4-144	25	.40	.40
4-95	25	.36	.28	4-120	25	.22	.42	4-145	25	.22	.58
4-96	25	.22	.18	4-121	25	.18	.24	4-146	25	.10	.36
4-97	25	.78	.32	4-122	25	.22	.08	4-147	25	.40	.20
4-98	25	.14	.14	4-123	25	.74	.32	4-148	25	.18	.56
4-99	25	.20	.34	4-124	25	.22	.92	4-149	25	.90	.08
4-100	25	.30	.16	4-125	25	.34	.14	4-150	25	.42	.06

TABLE III
CONTINUED
Room Temperature

Serial No.	Lot No.	I _{CBO}	I _{EBO}	Serial No.	Lot No.	I _{CBO}	I _{EBO}
4-151	25	.10	.16	4-176	25	.32	.30
4-152	25	.18	.22	4-177	25	.38	.28
4-153	25	.64	.10	4-178	25	.20	.42
4-154	25	.16	.14	4-179	25	.18	.20
4-155	25	.36	.14	4-180	25	.32	.44
4-156	25	.16	.60	4-181	25	.10	.08
4-157	25	.12	.32	4-182	25	.28	.30
4-158	25	.82	.68	4-183	25	.46	.72
4-159	25	.52	.18	4-184	25	.22	.40
4-160	25	.28	.08	4-185	25	.08	.22
4-161	25	.54	.14	4-186	25	.46	.28
4-162	25	.40	.48	4-187	25	.36	.16
4-163	25	.96	.50	4-188	25	.30	.26
4-164	25	.34	.42	4-189	25	.36	.40
4-165	25	.40	.46	4-190	25	.36	.44
4-166	25	.52	.30	4-191	25	.40	.14
4-167	25	.24	.30	4-192	25	.08	.10
4-168	25	.60	.42	4-193	25	.12	.44
4-169	25	.18	.76	4-194	25	.52	.16
4-170	25	.18	.20	4-195	25	.52	.20
4-171	25	.22	.06	4-196	25	.62	.20
4-172	25	.42	.30	4-197	25	.22	.12
4-173	25	.10	.08	4-198	25	.42	.52
4-174	25	.10	.32	4-199	25	.10	.70
4-175	25	.12	.10	4-200	25	.88	.30

TABLE III
CONTINUED
Room Temperature

Serial No.	Lot No.	I _{CB0}	I _{EB0}	Serial No.	Lot No.	I _{CB0}	I _{EB0}	Serial No.	Lot No.	I _{CB0}	I _{EB0}
5-1	26	.44	.12	5-26	26	.56	.06	5-51	26	.46	.46
5-2	26	.14	.18	5-27	26	.14	.50	5-52	26	.30	.28
5-3	26	.14	.50	5-28	26	.08	.08	5-53	26	.98	.64
5-4	26	.38	.62	5-29	26	.08	.60	5-54	26	.14	.26
5-5	26	.14	.14	5-30	26	.36	.72	5-55	26	.34	.28
5-6	26	.60	.64	5-31	26	.22	.06	5-56	26	.72	.10
5-7	26	.12	.32	5-32	26	.24	.06	5-57	26	.88	.08
5-8	26	.10	.14	5-33	26	.48	.06	5-58	26	.28	.92
5-9	26	.70	.88	5-34	26	.30	.28	5-59	26	.48	.26
5-10	26	.16	.14	5-35	26	.24	.12	5-60	26	.26	.74
5-11	26	.18	.16	5-36	26	.78	.34	5-61	26	.36	.26
5-12	26	.24	.06	5-37	26	.28	.32	5-62	26	.22	.34
5-13	26	.24	.52	5-38	26	.74	.42	5-63	26	.10	.20
5-14	26	.50	.68	5-39	26	.40	.14	5-64	26	.24	.26
5-15	26	.14	.42	5-40	26	.24	.10	5-65	26	.16	.28
5-16	26	.08	.76	5-41	26	.24	.26	5-66	26	.20	.10
5-17	26	.16	.36	5-42	26	.14	.64	5-67	26	.46	.30
5-18	26	.32	.72	5-43	26	.20	.48	5-68	26	.16	.58
5-19	26	.48	.22	5-44	26	.24	.74	5-69	26	.22	.10
5-20	26			5-45	26	.32	.08	5-70	26	.44	.12
5-21	26	.62	.32	5-46	26	.60	.04	5-71	26	.18	.12
5-22	26	.86	.08	5-47	26	.20	.14	5-72	26	.90	.42
5-23	26	.82	.28	5-48	26	.34	.26	5-73	26	.42	.28
5-24	26	.44	.44	5-49	26	.28	.60	5-74	26	.20	.18
5-25	26	.24	.22	5-50	26	.14	.20	5-75	26	.50	.10

TABLE III
CONTINUED
Room Temperature

Serial. No.	Lot No.	ICBO	IEBO
5-76	26	.46	.06
5-77	26	.22	.50
5-78	26	.14	.52
5-79	26	.50	.42
5-80	26	.26	.12
5-81	26	.06	.54
5-82	26	.26	.22
5-83	26	.12	.52
5-84	26	.08	.30
5-85	26	.18	.10
5-86	26	.52	.30
5-87	26	.26	.14
5-88	26	.14	.14
5-89	26	.78	.10
5-90	26	.46	.40
5-91	26	.14	.90
5-92	26	.20	.20
5-93	26	.08	.30
5-94	26	.38	.40
5-95	26	.92	.14
5-96	26	.20	.42
5-97	26	.58	.32
5-98	26	.46	.04
5-99	26	.40	.08
5-100	26	.24	.10

TABLE IVRESULTS OF TEST OF H-5 OSCILLATOR
TRANSISTORS IN POWER SUPPLIES (GROUP F)

S/N	ICEO BEFORE RTV (MA)		ICEO AFTER RTV (MA)		ICEO AFTER POTTING (MA)	
	Q8	Q10	Q8	Q10	Q8	Q10
013-1-176	33	17	33	17	26	16
013-1-177	13	7	15	6	11	5
013-1-183	11	65	14	67	11	57
013-1-184	13	9	10	8	10	8
013-1-190	30	30	68	36	66	33
013-1-191	79	26	125	20		
014-1-003	14	42	16	41	17	42
014-1-004	8	19	16	20	15	20
014-1-010	18	19	16	17	16	15
014-1-017	30	19	53	13	52	11
014-1-018	13	53	6	51	12	50
014-1-024	34	27	33	25	37	24
014-1-025	10	28	16	32	10	25
014-1-031	42	83	44	70	45	72
014-1-032	15	25	15	26	12	24
014-1-038	25	40	28	39	26	31
014-1-039	65	10	66	9	70	10
014-1-045	49	75.5	53	82	46	75
014-1-046	13	68	12	68	14	67
014-1-052	39	17	13	50	11	50
014-1-053	10	8	11	10	12	7
014-1-059	75	17	78	15	77	15

TABLE IV
(CONTINUED)

S/N	ICEO BEFORE RTV (MA)		ICEO AFTER RTV (MA)		ICEO AFTER POTTING (MA)	
	Q8	Q10	Q8	Q10	Q8	Q10
014-1-060	46	15	41	15	44	17
014-1-066	35	40	39	45	40	42
014-1-067	19	37	18	36	14	39
014-1-073	23	51	55	21	55	20
014-1-074	45	31	42	38	39	35
014-1-080	37	44	39	36	37	49
014-1-081	19	15	20	18	11	18
014-1-087	38	33	34	30	35	30
014-1-088	18	32	17	24	20	24
014-1-094	52	39	56	49	50	69
014-1-095	82	29	80	28	69	27
014-1-101	10	52	11	52	14	51
014-1-102	38	63	40	63	39	61
014-1-108	25	72	22	70	20	68
014-1-109	36	54	48	63	39	54
014-1-115	76	29	74	26	70	25
014-1-116	65	50	56	50	50	45
014-1-122	52	38	51	31	45	28
014-1-123	15	25	6	20	6	22
014-1-129	72	18	69	18	68	18
014-1-130	24	31	27	26	28	32
014-1-136	37	49	36	45	36	43
014-1-137	18	41	17	41	18	42
014-1-143	70	80	65	78	70	125
014-1-144	52	42	51	45	50	50
014-1-151	40	19	20	43	21	43
014-1-150	65	55	69	57	59	32

ENGINEERING NOTICE
PINELLAS PENINSULA PLANT

EN-318
March 16, 1960

SUBJECT: Evaluation of Slow Warm-Up Problem Through Special Tests of MC-890
Type Power Supplies

REFERENCES: (1) AX-3-8-60 F6 M2 AE5
(2) Meeting in Mr. A. F. Persons Office (3-10-60) on the above
subject.

Purpose:

To determine the relationship between transistor testing and assembly processing
to the MC-890 Type Slow Warm-Up Power Supplies.

I. Description:

The following groups of transistors are required. All Q-1 and Q-2 transistors will be screened: (46A101301P1) Seven hundred of these transistors are required.

There will be four groups of Q-8 and Q-10 transistors with quantities as shown below:

Variables data on 46A101302 and variables data on H_{FE} , Y_{FE} , I_{CBO} and R_{GS} (room temperature only) on 124A1065 drawing must be recorded and identified with transistor serial number.

1. 200 transistors screened per 46A101302
 2. 300 transistors screened per 46A101302 and in addition have I_{ceo} less than 30 m.a.
 3. 100 transistors rejected per 46A101302 having I_{ceo} in the range of 125 through 249 m.a.
 4. 100 transistors not screened to 46A101302 otherwise being good units.
 - 4.1. The following groups of power supplies are described and must be separately identified with transistor serial numbers and tested as indicated. Assembly must be done using alternating transistor groups shown above. A control log of p.s. serial numbers will be used.
 - 4.1.1. Group A - Fifty (50) unpotted units having transistors from group 2. These units are for high temperature life testing (see below for description).
 - 4.1.2. Group B - Fifty (50) unpotted units having transistors from group 2. These units are for operational life testing (see below for description). The following groups C through H will be for H. T. Life as described below.
 - Group C - Fifty (50) potted units having transistors from group 2.
 - 4.1.3. Group D - Fifty (50) potted units having transistors from group 3.
 - 4.1.5. Group E - Fifty (50) potted units using transistors from group 4.
 - 4.1.6. Group F - Fifty (100) potted units having transistors from group 1.
- On 50 units only, leads must be brought out from the Q-8 and Q-10 transistor base and emitter terminals. Leads must also be brought out from the splice connections of the leads normally fastened to the base and emitter terminals of Q-8 and Q-10.

4.1.7. Group G - Fifty (50) potted units from "C" stock. These will be unscreened transistor power supplies. Use the power supply serial numbers listed below:

<u>Group G</u>				
939-1-137	938-1-017	938-1-080	938-1-127	939-1-100
938-1-002	019	086	128	113
003	044	087	939-1-005	115
005	055	094	016	122
006	061	103	025	940-1-105
009	070	106	041	115
010	072	107	055	941-1-023
012	073	113	071	064
013	076	121	072	090
014	077	122	073	096

4.1.8. Group H - Fifty (50) potted units from "B" stock having screened transistors. Use power supply serial numbers listed below:

002-1-090	004-1-006	004-1-118	005-1-079	006-1-007
147	008	124	080	025
158	009	132	084	066
003-1-224	022	134	093	007-1-005
026	039	175	097	011
029	050	177	100	035
051	057	179	101	036
159	112	005-1-053	110	040
004-1-001	113	054	122	045
002	116	065	127	067

4.1.9. High temperature life. Temperature cycle and test in the sequence shown by the table below. The $77 \pm 5^{\circ}\text{F}$ temperature soak must be done in a chamber using thermal sinks against power supplies. (Sinks not necessary at 185°F .) Testing is to be done initially and after each 16 hour minimum period at 77°F . Test in the following manner: Operate each power supply five (5) times at one (1) minute plus or minus 15 second intervals. Using 32 ± 1 volt input, record the charge time to the 3000 volt level on each operation. (The accuracy of the 3000 volt setting is not important but once set, it should remain unchanged throughout all tests.) The charge time should be measured within an accuracy of .05 second.

Sequence Table

(Test and cycling to continue with the 72 hour H. T. period until a total of 500 hours has been accumulated at H.T.)

<u>Test</u>	Soak at	Soak at	<u>Test</u>	Soak at	Soak at	<u>Test</u>	Soak at
	$185^{\circ} \pm 5^{\circ}\text{F}$	$77^{\circ} \pm 5^{\circ}\text{F}$		$185^{\circ} \pm 5^{\circ}\text{F}$	$77^{\circ} \pm 5^{\circ}\text{F}$		185°F for
	for 48 ± 1 hr.	for 16 hr. minimum		for 48 ± 1 hour	for 16 hr. minimum		72 ± 1 hour

($\frac{1}{2}$ hour maximum transfer time between 185° and 77°F chamber.)

- 4.1.10 Operational Life. Operate the power supplies in accordance with the load test specified in 46A101004, Rev. 2, para. 3.3.2.2 except the test should be repeated for 3 consecutive times. After completion of test, hold for sixteen (16) hours minimum at room temperature and perform the charge time test described in 4.1.9 above. The above test sequence should be repeated for a total of three (3) times or until 10 to 20% of the power supplies show erratic charge times.

II. Responsibilities:

A. Production Control: (W. S. McEwen)

1. Schedule and control the manufacture of Groups A through F in a manner to reduce a minimum any variations due to processing. Use alternating groups of transistors with sequential P.S. serial numbers. Groups C through F should be intermixed as much as possible when going through the encapsulation process.
2. Deliver groups G and H to the test area immediately.

B. Manufacturing: (W.J. Stapleton)

1. Manufacture in accordance with the above description 100 unpotted units and 250 potted units. Group F has special wiring and must be handled carefully.
2. It is imperative that the Q-1, Q-2, Q-8, and Q-10 serial numbers be associated with the proper power supply serial numbers.

C. Manufacturing Engineering: (E. Peebles)

1. Co-ordinate with the production foreman as necessary to manufacture in accordance with the described assemblies.
2. Use drawing 613D706, Rev. 14, and 613D707, Rev. 9. Specific instructions will be necessary for group F units. Use 895B727, Rev. 4, resistor assembly in all units.

D. Test and Inspection: (J. S. Caven - F. Robinson)

1. Power supply groups A through F should be tested in accordance with 46A101004, revision 2, except charge time is measured at 3000 volt, previous to either the operational life or high temperature life testing. Fifty (50) power supplies with leads brought out must be returned to receiving inspection for I_{ceo} check on Q-8 and Q-10 transistors immediately before RTV, after RTV cure, and after potting. Record data all 3 times.
2. Group G and H units are available and high temperature life test and temperature cycling should commence immediately.
3. Every effort should be made to conduct all testing in a manner to reduce variables between groups to a minimum.

E. Test Equipment Planning and Engineering: (N. Weems - G. Torrance)

1. Provide the necessary test equipment and instructions to produce the special testing.

F. Quality Control Engineering: (F. E. Steele)

1. Co-ordinate with the inspection and test foreman in the process of testing, accumulation and summarizing of data.
2. Work with Production Engineering and J. D. Reese on analysis of data.
3. Provide surveillance to assure that the transistor - P.S. serial number log is accurate and transistor assembly agrees.

March 16, 1960

G. Production Engineering: (W. Ellis - F. Upthagrove)

1. Follow progress of assembly and test.
2. Analyze test data with CC Engineering and J. D. Reese.

III. Schedule:

- A. Completion of manufacturing April 8, 1960.
- B. Completion of groups G and H tests May 2, 1960.
- C. Completion of groups C and D tests May 16, 1960.
- D. Completion of groups A, B, E and F tests June 3, 1960.

IV. Disposition:

The operational and high temperature life tests are destructive. The units must be held in a QCR area after completion of all testing. A supplement to this EN will be written giving final disposition. Sandia Corporation may require the use of some of the power supplies.

W R Ellis

W. R. Ellis - Sub-Assembly Area
Production Engineering

WRE:klp

Approved:

H R Sine

H. R. Sine, Manager
Production Engineering

ENGINEERING NOTICE
PINELLAS PENINSULA PLANT

EN-318 Supplement I
March 31, 1960

SUBJECT: Evaluation of Slow Warm-Up Problem Through Special Tests
of MC-890 Type Power Supplies

REFERENCE: EN-318 Original

Purpose of This Supplement:

- (1) To add Group 3 transistors to a portion of Group A and B power supplies.
- (2) Describe color code of leads used on Group F power supplies.
- (3) Indicate use of strip recorder for charge time measurement on high temperature life test.
- (4) Show 16-hour soak in room temperature air outside of chamber and add requirement to check heat sink temperatures.
- (5) Show method of grouping power supply for high temperature life testing.

Change description of transistor and power supply groups to read as follows:

1. (200) transistors screened per 46A101302.
2. (240) transistors screened per 46A101302 and in addition having I_{ceo} less than 30 ma.
3. (160) transistors rejected per 46A101302 and in addition having I_{ceo} values in the range of 125 through 249 ma.
4. (100) transistors not screened to 46A101302 otherwise being good units.

4.1.1 Group A

A total of fifty (50) unpotted power supplies; thirty-five (35) units using Group 2 transistors and fifteen (15) using Group 3. These are for high temperature life testing.

4.1.2 Group B

A total of fifty (50) unpotted power supplies; thirty-five (35) units using Group 2 transistors, and fifteen (15) using Group 3. These are for operational life testing.

4.1.6 Group F

The word 'fifty' should be 'one hundred'; the lead color code is as follows:

Q8 Base - White lead
Q8 Emitter - Black
Q10 Base - Brown
Q10 Emitter - Blue
R30 - Violet
R31 - Yellow
R20 & R27 Spliced Connection - Red
R21 & R28 Spliced Connection - Grey

March 31, 1960

Change 4.1.9 - High Temperature Life - to read as follows:

4.1.9 High Temperature Life

Temperature cycle and test in the sequence shown by the table below. The $77 \pm 5^{\circ}\text{F}$ temperature soak may be done on a bench using thermal sinks against power supplies. Measure the temperature of the heat sinks on a sample of twelve (12) power supplies for two 16-hour soak periods for information data.

Heat sinks are not necessary for the $185^{\circ} \pm 5^{\circ}\text{F}$ soak. Testing is to be done initially and after each 16-hour minimum period at 77°F . Test in the following manner: Operate each power supply five times at one-minute plus or minus 15-second intervals. Using $32 \pm 1\text{v}$ input, record the charge time to the 3000v level on each operation. (The accuracy of the 3000v setting is not important but once set, it should remain unchanged throughout all tests.) The charge time should be measured within an accuracy of .05 second. Use a strip recorder as well as the digital charge time read-out. The recording speed should be sufficient for good time axis definition.

SEQUENCE TABLE

(Test and cycling to continue with the 72 hour H.T. period until a total of 500 hours has been accumulated at H.T.)

<u>Test</u>	Soak at $185^{\circ} \pm 5^{\circ}\text{F}$ for 48 ± 1 hour	Soak at $77^{\circ} \pm 5^{\circ}\text{F}$ for 16 hr. min.	<u>Test</u>	Soak at $185^{\circ} \pm 5^{\circ}\text{F}$ for 48 ± 1 hour	Soak at $77^{\circ} \pm 5^{\circ}\text{F}$ for 16 hr. min.	<u>Test</u>	Soak at 185°F for 72 ± 1 hour
-------------	--	---	-------------	--	---	-------------	--

$\frac{1}{2}$ hour maximum transfer time between 185° and 77°F chamber.

Under Responsibilities, change "B" and "D" to read as follows:

B. Manufacturing: (W. J. Stapleton)

1. Manufacture in accordance with the above description (100) unpotted units and (250) potted units. Group F has special wiring and must be handled carefully.
2. It is imperative that the Q1, Q2, Q8, and Q10 serial numbers be associated with the proper power supply serial numbers.
3. Group A, B, and C power supplies should be selected in an alternating power supply serial number fashion from the assembly sequence serial number log to retain the objective

of "variables" dispersion.

D. Test and Inspection: (J. S. Caven - L. F. Robinson)

1. Power supply Groups A thru F should be tested in accordance with 46A101004, Rev. 2, previous to either the operational life or high temperature life testing. When testing Group F power supplies, the following lead connections should be made:
white to red, black to violet, brown to grey and blue to yellow
Fifty (50) power supplies with leads brought out must be returned to Receiving Inspection for I_{ceo} check on Q8 and Q10 transistors immediately before RTV, after RTV cure, and after potting; record data all three times.
2. Group G and H units are available and high temperature life test and temperature cycling should commence immediately.
3. Every effort should be made to conduct all testing in a manner to reduce variables between groups to a minimum.

WR Ellis

WR Ellis, Sub-Assembly Area
Production Engineering

WRE:ap

Approved:

HR Sine

HR Sine, Manager
Production Engineering

ENGINEERING NOTICE
PINELLAS PENINSULA PLANT

EN-318 Supplement II
June 10, 1960

SUBJECT: Evaluation of Slow Warm-Up Problem Through Special Tests of MC-890
Type Power Supplies

REFERENCES: (1) TWX F-6-6-60 AX-5
(2) EN-318 Supplement I
(3) Letter JT Wheelis/RE McCoy (dated June 6, 1960) RE: EN-318

Purpose:

To describe additional operational life testing to be performed on Group B, at the request of Sandia Corporation per reference 1 and 3 above.

I. Description:

Route the following thirty-nine (39) power supplies (previously tested on EN-318) from QCR hold crib to power supply test, sub-assembly, and perform the following tests:

- 1) With the sub-assembly stabilized at 160°F perform load test three (3) times in accordance with paragraph 2.5 of Drawing 46A101004.
- 2) After completing load test, hold for 16 hours at room temperature, then perform charge time test per paragraph 4.1.9 of EN-318, Supplement I.
- 3) Repeat steps 1 and 2 above two (2) times for each power supply. Power supplies to be subjected to tests in Items 1, 2, and 3 above are the following:

0131004	0131076	0131158	0141034
011	095	159	043
018	102	167	048
020	109	172	062
025	116	186	071
046	123	076	
048	130	0141006	085
053	137	015	089
060	144	020	090
067	151	029	132

II. Responsibility:

Responsibility for tests and data analysis is the same as stated in EN-318.

III. Schedule:

Start testing Group B June 6, 1960.

Completion of testing Group B June 17, 1960.

IV. Disposition:

Upon completion of testing, the power supplies are to be held until further supplement to this EN is written in which final disposition will be given.

R.E. McCoy

RE McCoy, Sub-Assembly
Production Engineering

REM:ap

Approved: *HR Sine*

HR Sine, Manager
Production Engineering

REV
NO. 2

TITLE

CONT ON SHEET

REV. NO.

46A101004

POWER SUPPLY TEST

CONT ON SHEET

2

SH NO.

FIRST MADE FOR 692C578G1

REVISIONS

1. GENERAL: ALL REQUIREMENTS OF THIS DRAWING ARE C*

1.1 TEST FACILITIES

THE TEST EQUIPMENT SHALL HAVE SUFFICIENT ACCURACY TO INSURE QUALITY OF THE MEASUREMENTS INDICATED BY THE SPECIFIED TOLERANCES. ALL TESTS SHALL BE MADE AT ROOM ATMOSPHERIC CONDITIONS UNLESS OTHERWISE SPECIFIED.

2. PERFORMANCE REQUIREMENTS

2.1 OUTPUT VOLTAGES AND INPUT CURRENT

HIGH VOLTAGE	6000 VOLTS DC $\pm 5\%$
TAP VOLTAGE	750 VOLTS DC $\pm 3\%$
TELEMETERING VOLTAGE	30 VOLTS DC $\pm 20\%$
INPUT CURRENT	0.4 AMPERES MAXIMUM

2.2 REGULATION

WITH A DC INPUT TO THE SUB-ASSEMBLY OF 24 AND 32 VOLTS THE OUTPUT VOLTAGES AND INPUT CURRENT SHALL BE AS SPECIFIED IN 2.1. THE OUTPUT VOLTAGES AND INPUT CURRENT SHALL NOT DRIFT OUT OF SPECIFICATION DURING THIS TEST.

2.3 CHARGE TIME

WITH 24 VOLTS DC APPLIED TO THE INPUT OF THE SUB-ASSEMBLY AS A STEP FUNCTION, THE TIME REQUIRED FOR THE HIGH VOLTAGE OUTPUT TO REACH 5700 VOLTS SHALL BE A MAX. OF 3 SECONDS.

2.4 STARTING VOLTAGE

WITH THE INPUT VOLTAGE TO THE SUB-ASSEMBLY APPLIED LINEARLY, STARTING AT 0 VOLTS, AT THE RATE OF 28 VOLTS PER 9 ± 1 SECONDS, THE VOLTAGE AT WHICH OSCILLATION STARTS SHALL BE A MAXIMUM OF 20 VOLTS.

2.5 LOAD TEST

THE SUB-ASSEMBLY SHALL BE OPERATED FOR A PERIOD OF 10 MINUTES WITH AN INPUT OF 32 VOLTS DC AS SHOWN IN FIGURE 3. AFTER IT HAS BEEN OPERATING FOR 6 MINUTES OF THIS PERIOD THE SUB-ASSEMBLY SHALL WITHSTAND 4 OPERATIONS SPACED 1 MINUTE APART AS SHOWN IN FIGURE 4.

3. TEST

EACH SUB-ASSEMBLY SHALL MEET THE REQUIREMENTS OF THE FOLLOWING TEST. ALL VOLTAGES, CURRENTS AND TIME VALUES SPECIFIED ARE ABSOLUTE AND DO NOT ALLOW FOR METER OR INSTRUMENT TOLERANCES. THE TEST SHALL BE PERFORMED IN THE ORDER LISTED.

PRINTS TO

MADE BY

K. K. K. 1-12-59

APPROVALS

R. J. J. 3/1/59

INTELLECT PROPERTY

ST. PETERSBURG, FLORIDA

46A101004

CONT ON SHEET

2

SH NO.

INACTIVE

PER

BY

DATE 3-17-60

REV. 1.135508 P3923
CHG. PAR. 2.3 JHP/DC
REV. 1.135508 P3923
CHG. PAR. 2.3 JHP/DC

NOTATION IS FOR DESIGN
AGENCY INFORMATION ONLY

MADE BY: *John*
 1-12-59

APPROVALS

PHILAS PENNINGTON, JR.
 ST. PETERSBURG, FLORIDA

46A101004
 2 SH NO. 3

WITH THE SUB-ASSEMBLY STABILIZED AT -65°F $\pm 5^{\circ}\text{F}$ IT SHALL MEET THE REQUIREMENTS OF CHARGE TIME 2.3, STARTING VOLTAGE 2.4, AND REGULATION 2.2.

3.1.3.2 LOW TEMPERATURE

WITH THE SUB-ASSEMBLY STABILIZED AT ROOM TEMPERATURE IT SHALL MEET THE REQUIREMENT OF REGULATION 2.2.

3.1.3.1 ROOM TEMPERATURE

WITH THE SUB-ASSEMBLY CONNECTED AS SHOWN IN FIGURE 2 THE UNIT SHALL BE TESTED AS FOLLOWS.

ENVIRONMENTAL TEST

WITH THE SUB-ASSEMBLY CONNECTED AS SHOWN IN FIGURE 2 AND WITH AN INPUT OF 28 VOLTS DC, ADJUST R 18 TO OBTAIN AN OUTPUT TAP VOLTAGE OF 750 VOLTS DC $\pm 2\%$.

3.1.2 OPERATIONAL TEST

12-11	580 - 650 K OHMS
6-11	580 - 650 K OHMS
6-9	150 - 750 OHMS
10-7	2.0 - 3.5 K OHMS
8-7	175 - 225 OHMS
6-1	100 - 250 OHMS
1-5	75 - 92 OHMS
1-4	75 - 92 OHMS
3-1	2.0 - 2.5 OHMS
2-1	2.0 - 2.5 OHMS

POINTS RESISTANCE

THE CONTINUITY BETWEEN THE FOLLOWING POINTS SHALL BE CHECKED AND THE RESISTANCE BETWEEN THESE POINTS SHALL BE WITHIN THE SPECIFIED LIMITS. THE RESISTANCE MEASUREMENTS SHALL BE MADE WITH THE NEGATIVE VOLTAGE PROBE CONNECTED TO THE FIRST POINT SHOWN FOR EACH TEST (SEE FIG. 1). THE TEST SHOULD BE MADE WITH A SIMPSON VOLT-OHM METER, MODEL 262.

3.1.1 CONTINUITY TEST

3.1 BEFORE RTV

POWER SUPPLY TEST

FIRST MADE FOR 692C576 G1

46A101004
 2 SH NO. 3

GENERAL ELECTRIC

46A101004
 2 SH NO. 3

REVISIONS

PRINTS TO

GENERAL ELECTRIC

46A101004

REV. 2

TITLE

CONT ON SHEET 4

SH NO. 3

46A101004

POWER SUPPLY TEST

CONT ON SHEET 4

SH NO. 3

FIRST MADE FOR 692C576 G1

3.1.3.3 HIGH TEMPERATURE

WITH THE SUB-ASSEMBLY STABILIZED AT $160^{\circ}\text{F} \pm 5^{\circ}\text{F}$ IT SHALL MEET THE REQUIREMENT OF CHARGE TIME 2.3 AND REGULATION 2.2.

3.2 AFTER RTV

3.2.1 OPERATIONAL TEST

WITH THE SUB-ASSEMBLY CONNECTED AS SHOWN IN FIG. 2 PERFORM THE CHARGE TIME TEST 2.3. THEN ADJUST THE INPUT VOLTAGE TO 28 VOLTS DC. THE TAP VOLTAGE SHALL BE 750 VOLTS DC $\pm 2\%$. IF IT IS NOT 750 VOLTS DC $\pm 2\%$, AND THE SUB-ASSEMBLY FAILED THE CHARGE TIME TEST 2.3, ADJUST R-18 TO OBTAIN AN OUTPUT TAP VOLTAGE OF 750 VOLTS DC $\pm 2\%$. THEN HOLD THE SUB-ASSEMBLY FOR A MINIMUM OF 24 HOURS AND REPEAT THE CHARGE TIME TEST 2.3.

3.3 AFTER POTTING

3.3.1 OPERATIONAL TEST

WITH THE SUB-ASSEMBLY CONNECTED AS SHOWN IN FIG. 2 AND WITH AN INPUT OF 28 VOLTS DC, ADJUST R-18 TO OBTAIN AN OUTPUT TAP VOLTAGE OF 750 VOLTS DC $\pm 2\%$.

3.3.2 ENVIRONMENTAL TEST

WITH THE SUB-ASSEMBLY CONNECTED AS SHOWN IN FIGURE 2 THE UNIT SHALL BE TESTED AS FOLLOWS:

3.3.2.1 ROOM TEMPERATURE

WITH THE SUB-ASSEMBLY STABILIZED AT ROOM TEMPERATURE IT SHALL MEET THE REQUIREMENT OF CHARGE TIME 2.3 AND REGULATION 2.2.

3.3.2.2 LOW TEMPERATURE

WITH THE SUB-ASSEMBLY STABILIZED AT $-65^{\circ}\text{F} \pm 5^{\circ}\text{F}$ IT SHALL MEET THE REQUIREMENTS OF CHARGE TIME 2.3, STARTING VOLTAGE 2.4, AND REGULATION 2.2.

3.3.2.3 HIGH TEMPERATURE

WITH THE SUB-ASSEMBLY STABILIZED AT $160^{\circ}\text{F} \pm 5^{\circ}\text{F}$ IT SHALL MEET THE REQUIREMENTS OF THE LOAD TEST 2.5, CHARGE TIME 2.3 AND REGULATION 2.2.

REVISIONS

PRINTS 30

MADE BY

ISSUED

1-12-59

APPROVED BY

4/1/59

4/1/59

46A101004

CONT ON SHEET 4

SH NO. 3

46A101004

POWER SUPPLY TEST

CONT ON SHEET 5 SH NO. 4

FIRST MADE FOR 692C576 G1

REVISIONS

FIGURE 1

PRINTS TO

MADE BY *J. J. Lusk* 1-12-59
ISSUED

APPROVALS

46A101004

46A101004

REV. NO. 2

TITLE

CONT. ON SHEET 6

SH. NO. 5

46A101004

POWER SUPPLY TEST

CONT. ON SHEET 6

SH. NO. 5

FIRST MADE FOR 6920576 G

REVISIONS

FIGURE 2

MADE BY *J. Zonak* 1-12-59
 DRAWD

APPROVALS

[Signature]
 SPECIAL INSTRUCTIONS

46A101004
 CONT. ON SHEET 6 SH. NO. 5

REV 2

TITLE

POWER SUPPLY TEST

46A101004

CONT ON SHEET FINAL SH NO. 6

FIRST MADE FOR 692C575 G1

TIME MINUTES ± 1/2 MINUTE
TELETYPE VOLTAGE OF THE UNIT
FIG. 4

REVISIONS

PRINTS TO

MADE BY J. Romak 1-12-59

APPROVALS

46A101004

CONT ON SHEET FINAL SH NO. 6

GENERAL ELECTRIC

46A101301

CONT ON SHEET

SH NO.

REV NO. 0

TITLE

TRANSISTOR

46A101301

CONT ON SHEET

SH NO.

FIRST MADE FOR

1

46C101299 PI (DO NOT PROCURE PARTS TO THIS DRAWING)

REVISIONS

1. SOAK ALL TRANSISTORS AT 85 PLUS OR MINUS 3 DEGREES C FOR 48 HOURS. $\pm$ 1 HOUR.
2. REMOVE THE TRANSISTORS FROM THE OVEN AND IMMEDIATELY ATTACH THEM TO A HEAT SINK AT 25 PLUS OR MINUS 3 DEGREES C. LEAVE THE TRANSISTORS AT 25 PLUS OR MINUS 3 DEGREES C FOR A MINIMUM OF 16 HOURS.
3. MEASURE ICBO AT VCB EQUAL 60V, TM EQUAL 25 EQUAL PLUS OR MINUS 3 DEGREES C. REJECT ALL UNITS WHOSE ICBO EXCEEDS 1.0 MA.
4. MEASURE IEBO AT VEB EQUAL 30V, TM EQUAL 25 PLUS OR MINUS 3 DEGREES C. REJECT ALL UNITS WHOSE IEBO EXCEEDS 1.0 MA.
5. IDENTIFY UNITS PASSING THE ABOVE ADDITIONAL OPERATIONS BY A WHITE DOT, COVERING "SA-492". (INDUSTRIAL INK, TYPE SS-4, WHITE).
6. TESTS ARE TO BE PERFORMED IN THE ORDER GIVEN.

INACTIVE
PER 5087
BY D.C. DATE 7-5-60

R
B.

PRINTS TO

MADE BY

11-25-59

APPROVALS

RJ Koss

12-28-59

R Kimb

PINELLAS PENINSULA PLANT

ST. PETERSBURG, FLORIDA

LOCATION

46A101301

CONT ON SHEET

SH NO.

REV NO. 2	TITLE TRANSISTOR	CONT ON SHEET	SH NO.
46A101302	FIRST MADE FOR		

1	46C101300 P1 (DO NOT PROCURE PARTS TO THIS DRAWING)	REVISIONS
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1. SOAK ALL TRANSISTORS AT 85 PLUS OR MINUS 3 DEGREES C FOR 48 HOURS $\pm$ 1 HOUR.
2. REMOVE THE TRANSISTORS FROM THE OVEN AND IMMEDIATELY ATTACH THEM TO A HEAT SINK AT 25 PLUS OR MINUS 3 DEGREES C. LEAVE THE TRANSISTORS AT 25 PLUS OR MINUS 3 DEGREES C FOR A MINIMUM OF 16 HOURS.
3. RECORD I_{CEO} ON A STRIP RECORDER FOR 30 SECONDS AT VCE EQUAL 50V, I_M EQUAL 25 PLUS OR MINUS 3C. REJECT ALL UNITS WHOSE I_{CEO} EXCEEDS 75 MA AT ANY TIME.
4. MEASURE I_{EBO} AT VEB EQUAL 30V, I_M EQUAL 25 PLUS OR MINUS 3 DEGREES C. REJECT ALL UNITS WHOSE I_{EBO} EXCEEDS 1.0 MA.
5. MEASURE V_{EBF} AT VCB EQUAL 60V, I_M EQUAL 25 PLUS OR MINUS 3 DEGREES C. REJECT ALL UNITS WHOSE V_{EBF} EXCEEDS .35V.
6. IDENTIFY UNITS PASSING THE ABOVE ADDITIONAL OPERATIONS BY A RED DOT, COVERING "SA-493" (INDUSTRIAL INK, TYPE SS-4, RED).
7. TESTS ARE TO BE PERFORMED IN THE ORDER GIVEN.

MADE BY <i>Konak</i> 11-25-59	APPROVALS <i>RJKoss</i> <i>R. Koss</i>	PINELLAS PENINSULA PLANT ST. PETERSBURG, FLORIDA	46A101302
ISSUED P4066	12/26/59	LOCATION	PRINTS TO

GENERAL ELECTRIC

124A1065

REV NO. 0	TITLE TRANSISTOR TEST REQUIREMENTS	CONT ON SHEET 2	SH NO. 1
124A1065	FIRST MADE FOR 692C609 GI		

QUALIFICATION TESTS REQUIRED FOR 118A1339 P2
 SEE DRAWING 118A1185 FOR NOTE REF.
 TEST TEMPERATURE $25^{\circ} \pm 2^{\circ}\text{C}$ UNLESS OTHERWISE SPECIFIED

TEST NO.	MIL REF.	TEST	CONDITIONS	NOTES	SYMBOL	MIN.	MAX.	UNITS
1		DC FORWARD CURRENT TRANSFER RATIO	$V_{CE} = -2V_{dc}$ $I_C = -1.5A_{dc}$	10	HFE		40	
2		DC FORWARD CURRENT TRANSFER RATIO	$V_{CE} = -2V_{dc}$ $I_C = -1.5A_{dc}$ $T_B = -55^{\circ}\text{C}$	10	HFE		15	
3		DC TRANSCONDUCTANCE	$V_{CE} = -2V_{dc}$ $I_C = -1.5A_{dc}$	11	YFE		7	MHOS
4		DC TRANSCONDUCTANCE	$V_{CE} = -2V_{dc}$ $I_C = 1.5A_{dc}$ $T_B = -55^{\circ}\text{C}$	11	YFE		55	MHOS
5		EMITTER FOLLOWING POTENTIAL	$V_{CB} = -60V$ $I_E = 0$		VFL		3	VDC
6		COLLECTOR JUNCTION LEAKAGE CURRENT	$V_{CB} = -60V$ $I_E = 0$ $T_B = +85^{\circ}\text{C}$		I_{CO}		-20	MA DC
7		COLLECTOR JUNCTION LEAKAGE CURRENT	$V_{CB} = -12V_{dc}$ $I_E = 0$		I_{CO}		-15	MA DC
8		EMITTER JUNCTION LEAKAGE CURRENT	$V_{EB} = -12V_{dc}$ $I_C = 0$		I_{EO}		-80	MA DC
9		SATURATION RESISTANCE	$I_C = -1.5A_{dc}$ $I_B = -100MA_{dc}$	55	R_{cs}		5	OHMS
10		THERMAL RESISTANCE	$V_{CB} = -30V_{dc}$ $I_C = -450MA_{dc}$	21	θ		3	$^{\circ}\text{C/W}$
11		PULSE RESPONSE	$V_{CC} = -28V_{dc}$ $R_L = 14\text{ OHMS}$					

REVISIONS

PRINTS TO

MADE BY <i>M. Royske</i> 7-22-57	APPROVED <i>L. D. 8/19/57</i>	DIV OR PINELLAS PENINSULA PLANT DEPT	124A1065
DATE <i>8/23/57</i>	<i>SH 27</i>	ST. PETERSBURG, FLORIDA	CONT ON SHEET 2 SH NO. 1

STANDARD REF. 350611

REV. 1	TITLE: TRANSISTOR	CONT. ON SHEET: FINAL SH. NO. 2
124A1065	TEST REQUIREMENTS	
CONT. ON SHEET: SH. NO. 2	FIRST MADE FOR: 692C609 G1	

QUALIFICATION TESTS REQUIRED FOR 118A1339 P2

SEE DRAWING 118A1185 FOR NOTE REF.

TEST TEMPERATURE 25° ± 2°C UNLESS OTHERWISE SPECIFIED

TEST No.	MIL Ref.	TEST	CONDITIONS	NOTES	SYMBOL	MIN.	MAX.	UNITS
11	3.3.2.2	RISE TIME	$I_C = 10 \text{ mA}$	27	T_R	55		μSEC
13	3.10.1	FALL TIME	$I_B = 0$	27	T_F	140		μSEC
12	4.6.36	LEAD FATIGUE		22, 3				
13		MOUNTING STUD TORQUE STRENGTH		23		125		IN. OZ.
14	4.6.31	VIBRATION	$V_{CC} = -30 \text{ VDC}$ $I_C = -200 \text{ MADc}$ $R_L = 75 \text{ OHMS}$	24, 3, 15				
15	4.6.28	MECHANICAL SHOCK	$V_{CC} = -30 \text{ VDC}$ $I_C = -200 \text{ MADc}$ $R_L = 75 \text{ OHMS}$	24, 3, 15				
16		HERMETIC SEAL		26, 9, 15				
		POST MECHANICAL & LIFE TEST END POINTS	TEST No. 1 TEST No. 2 TEST No. 3 TEST No. 7		h_{FE} h_{FE} Y_{FE} I_{CO}	50 40 55 -0.3		MHOS MADC
17	4.6.37	STORAGE LIFE	$T_A = 100^\circ\text{C}$ $t = 48 \text{ HRS.}$	9				
18	4.6.38	OPERATION LIFE	$V_{CB} = -12 \text{ VDC}$ $I_C = 1 \text{ ADC}$ $T_B = 45^\circ \text{ to } 57^\circ\text{C}$ $t = 200 \text{ HRS.}$	7				

REVISIONS

PRINTS TO

MADE BY: <i>R. K. Roper</i> 7-22-57	APPROVED: <i>Paul 8/2/57</i>	DIV. DR. PINELLAS PENINSULA PLANT DEPT.	124A1065
ISSUED: <i>R. K. Roper 8/23/57</i>	<i>9/2/57</i>	ST. PETERSBURG, FLORIDA	CONT. ON SHEET: SH. NO. 2