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AN/URC-78(XE-1)/V FINAL RELIABILITY PREDICTION
AND MATH MODELS REPORT

Cincinnati Electronics Corporation

Prepared for:

Army Electronics Command

29 March 1974

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FINAL RELIABILITY PREDICTION AND MATH MODELS REPORT

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PREPARED BY

CINCINNATI ELECTRONICS CORPORATION

FOR

UNITED STATES ARMY ELECTRONICS COMMAND

29 MARCH 1974

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AN/URC-78(XE-1)/V RELIABILITY PREDICTION

1.0 INTRODUCTION

This report presents the method, bases and results of the final reliability prediction performed on Cincinnati Electronics' URC-78 equipment design. The predicted MTBF for the three system configurations is 9,515 hours for the Manpack, 1,925 hours for the Vehicular and 1,925 hours for the Airborne.

This report updates the 17 July 1973 submittal. It reflects the anticipated design changes needed for the production model.

The description of equipment and operating conditions used are presented in paragraph 2.0, sources of failure rate data in paragraph 3.0, and the reliability model in paragraph 4.0.

2.0 EQUIPMENT AND OPERATING CONDITIONS

The reliability prediction was performed on three system configurations of the Ultra-Reliable VHF-FM equipment. Common to all three systems is the receiver-transmitter. The airborne system contains an additional applique unit and the vehicular system contains a 40 Watt power amplifier, a vehicular antenna, a vehicular applique and the receiver-transmitter. The prediction for the URC-78 system is based on the anticipated production model design.

Operating conditions used for the equipments for prediction purposes were as follows:

(a) Equipment ambient Temperature:

Manpack	- 50°C
Vehicular	- 50°C
Airborne	- 50°C

(b) Resulting part ambient temperature as determined by thermal analysis:

Manpack	- 65°C
Vehicular	- 65°C
Airborne	- 70°C

(c) Equipment operation-continuous with following functional duty cycles:

	<u>Manpack</u>	<u>Vehicular</u>	<u>Airborne</u>
Receive	90%	90%	90%
Transmit	10%	10%	10%
Tune Cycle	0.5%	N/A	N/A
Receive Band Operation	each 30%	each 30%	each 30%
Xmit Band Operation	each 5%	each 5%	each 5%
40 Watt Power Amplifier	N/A	9%	N/A
5 Watt Power Amplifier	N/A	1%	N/A
Guard Receiver	N/A	N/A	80%
Homing Receiver	N/A	N/A	10%

	<u>Manpack</u>	<u>Vehicular</u>	<u>Airborne</u>
Self Test	N/A	N/A	1%
Preset Switch	.5%	.5%	.5%
Secure Transmission	5%	5%	5%
Secure Retransmit	2%	2%	2%
Preset/Manual	75%/25%	75%/25%	75%/25%

The duty cycles shown in the stress analysis sheets were obtained from the above duty cycles. In some cases, duty cycles were combined when the same circuitry was used for two different functions, such as the secure functions operational modes. In these modes the IF crystal filter operational duty cycle is added to the normal operational duty cycle. Many parts have a 100% duty cycle. These are parts to which power is supplied continuously and, therefore, are continuously stressed regardless of the mode of operation. Therefore, the operational duty cycles are masked by the continuous power operation.

3.0 FAILURE RATE SOURCES

The following sources were used for the part failure rates shown on the detailed stress analysis forms in the appendices.

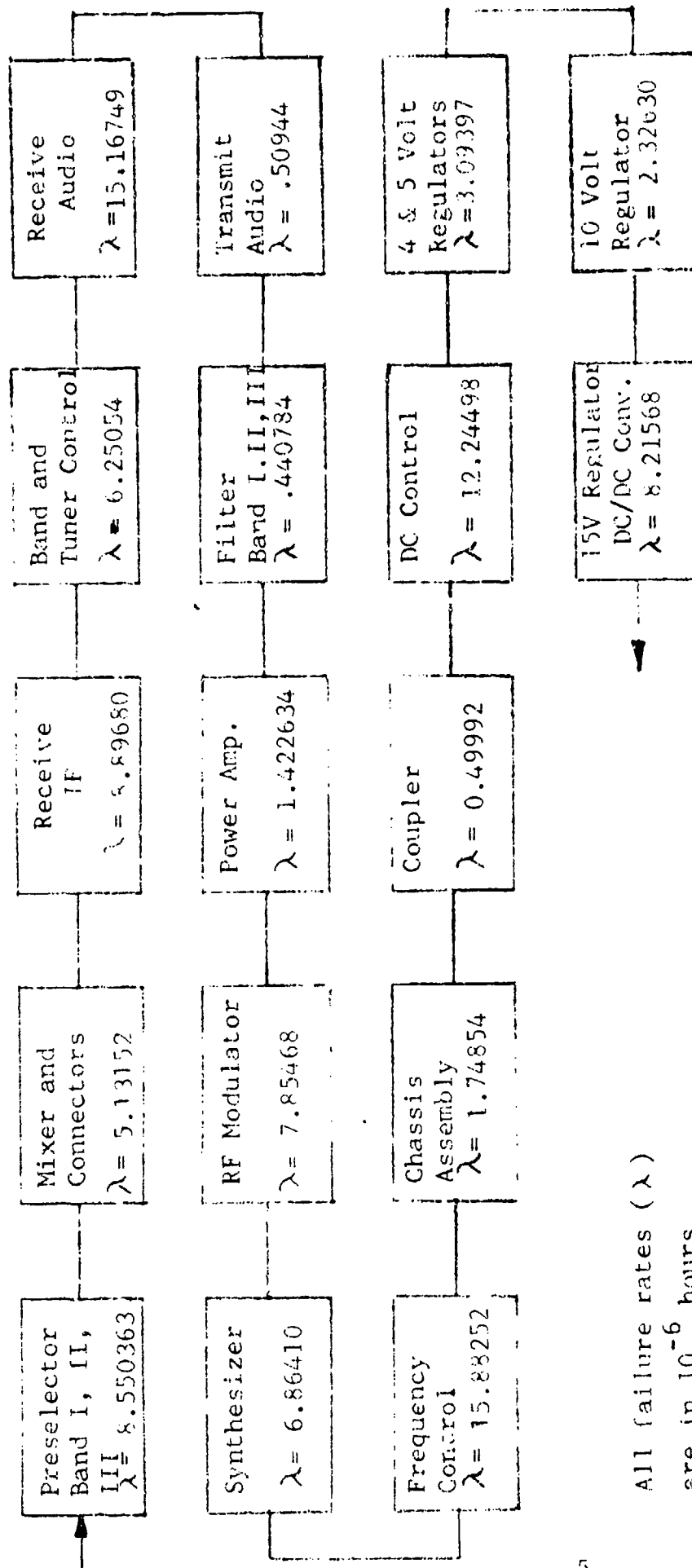
1. All discrete type parts except Established Reliability resistors and capacitors - MIL-HDBK-217A.
2. Varactor Diodes - Cincinnati Electronics Reliability Test Data

3. Hybrid Microcircuits Proposed MIL-HDBK-217B Hybrid Failure Rate Model as Supplied by USAECOM.
4. Monolithic Integrated Bipolar Microcircuits - RADC-TR-67-108, Volume II and RADC-TR-69-350 (Appendix V).
5. Established Reliability Resistors and Capacitors - MIL-STD-199 and MIL-STD-198, respectively.
6. MOS LSI, MSI and CMOS - USAECOM.

4.0

RELIABILITY MODELS

The reliability models for the three system configurations are shown in Figures II through IV. These models show the equipments as straight series models and assume any one part failure will cause a failure of the equipment to perform its intended function(s). Therefore, the individual functional usage is included in each block failure rate by the duty cycle which the parts associated with the function are stressed. These block failure rates are for the operational duty cycles given in paragraph 2.0. The duty cycle of each part in each block is shown in Appendix I through III to this report which contains the detailed back-up for failure rate determination of each part in the equipments. The blocks in the diagrams are directly related to this detailed back-up by block title.

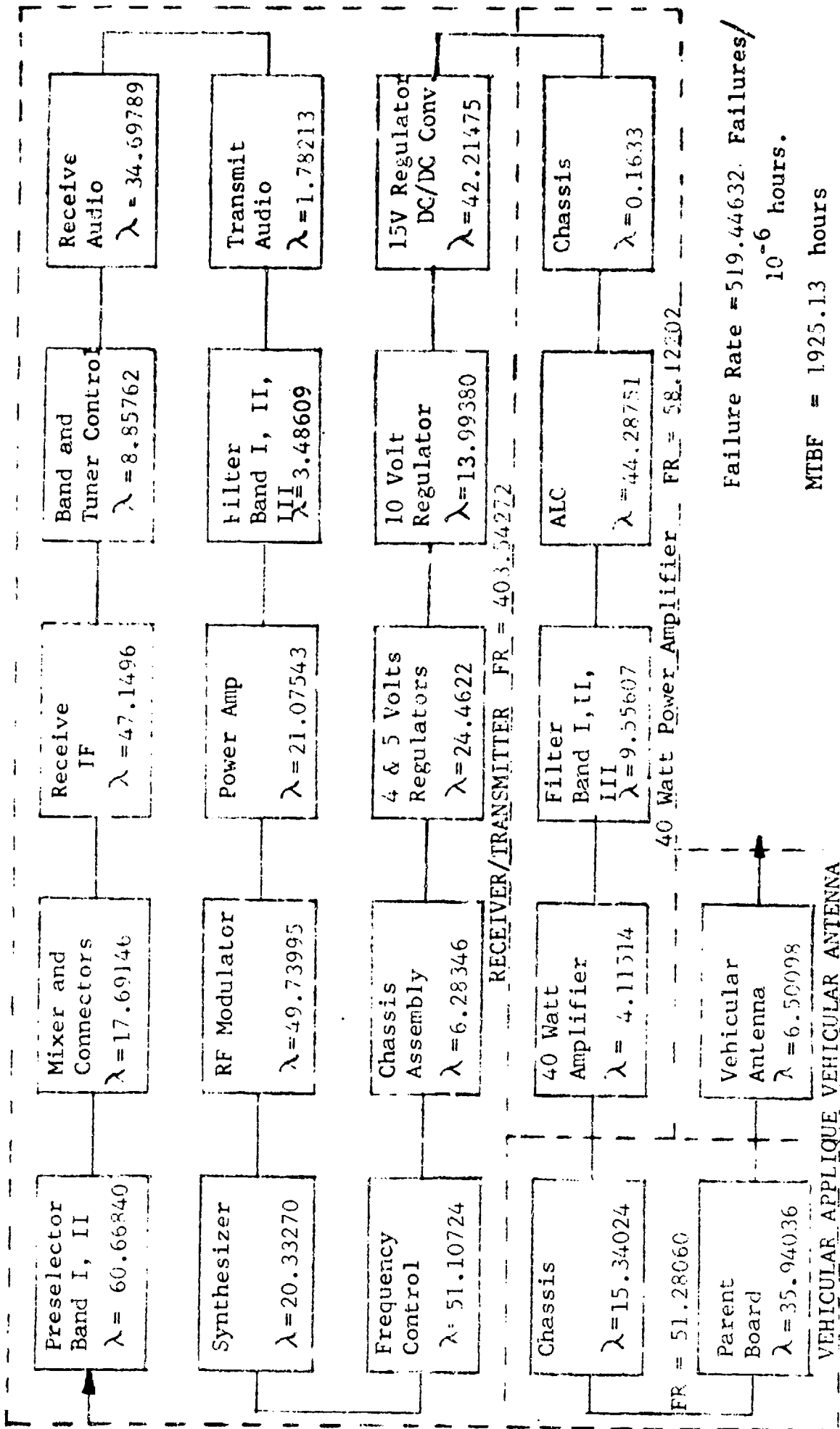


All failure rates (λ)
are in 10^{-6} hours

Failure Rate = 105.1003 failures/ 10^{-6} hours
MTBF = 9514.72 hours

Manpack Configuration

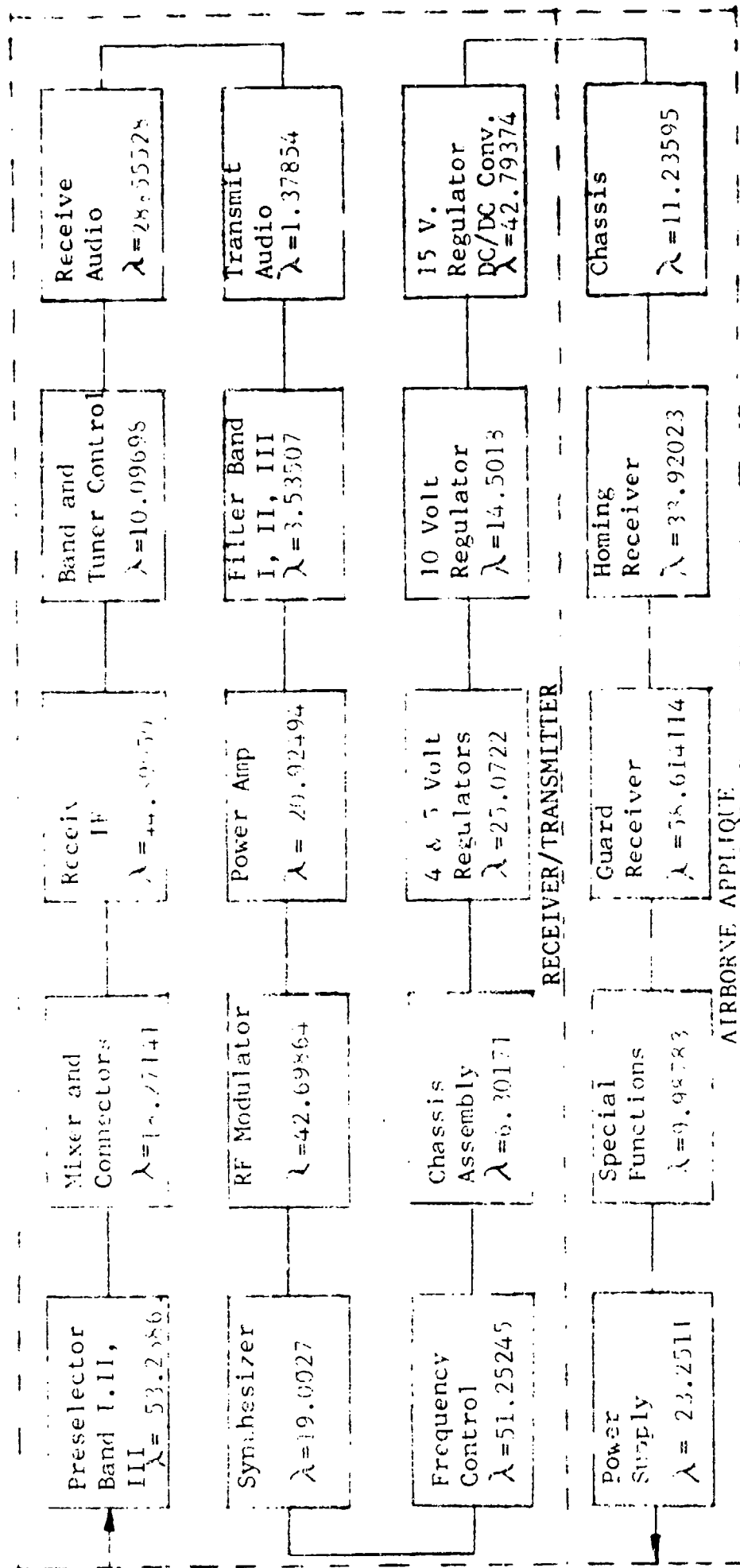
Figure II



All failure rates (λ) are in 10^{-6} hours.

Vehicular Configuration

Figure III



All failure rates (λ) are in 10^{-6} hours

Failure rate = 519.52285 failure/ 10^{-6} hours
MTBF = 1924.84 hours

Airborne Configuration

Figure IV

5.0

COMMENTS ON RELIABILITY PREDICTION

A comparison of this prediction as calculated in this report with that presented in the "Interim Reliability Prediction and Math Model Report", dated 3 August 1972, is tabulated below for each of the system configurations:

MTBF COMPARISON

	<u>3 August 1972</u>	<u>20 March 1974</u>
Manpack System	9,452 hrs	9,515 hrs
Vehicular System	1,233 hrs	1,925 hrs
Airborne System	1,433 hrs	1,925 hrs

As shown by this comparison, the present predicted reliability for all three of the system configurations exceeds the original predicted reliability which was based on an optimistic conceptual paper design. This is believed to be a noteworthy accomplishment since Cincinnati Electronics' experience in past radio developments has shown that the design concepts usually envisioned for an equipment at the start of a development program have a nasty habit of growing in complexity during development resulting in a lower MTBF than initially predicted. It is recognized that this predicted MTBF is not necessarily the "proof of the pudding"; however, the unique reliability program followed for this development, which maintained a constant awareness on the need for a highly reliable, low life cycle cost

equipment on all cognizant design and management personnel, has resulted in an equipment which exceeds its original design expectations.

Table I is a list of the major part types contained in the equipment versus the total failure rate per part type and the percentage of the total failure rate represented by that particular part type for each of the equipment configurations. For the manpack configuration of the equipment, the highest failure rate components are the hybrid circuits, which make up approximately 43% of the total failure rate. However, in the other two configurations of the equipment, this percentage is reduced to approximately 16% to 17%. As shown in the appendices to the report, hybrids and many other part failure rates are based on the use of screened or established reliability parts. However, for the vehicular and airborne configurations of the equipment examination of Table I shows other part categories, with failure rates that are not based on screened or established reliability type parts, are equal to or exceed the hybrid circuit failure rate. For example, the percentage of total failure rate in the vehicular and airborne configuration for inductors is 16.6% and 18.75% respectively. Both exceed the hybrid circuit failure rate percentage of 16.35% and 17.76%. This strongly suggests that selective screening of certain part types would be a valid method for reliability improvement. However, implementing this

TABLE I - PART TYPE FAILURE RATE PERCENTAGE OF TOTAL

Part Type	Minipack		Vehicular		Airborne	
	FR x 10 ⁻⁶	% Total	FR x 10 ⁻⁶	% Total	FR x 10 ⁻⁶	% Total
Diodes	7.796800	7.42	46.547250	8.96	65.152650	12.54
Varactors	5.880000	6.60	42.000000	8.09	30.240000	5.82
Hybrids	45.727150	43.51	89.934710	16.35	92.242820	17.76
Filters	1.224000	1.17	7.344000	1.41	15.504000	2.98
Resistors Car.	0.095460	0.09	0.310730	0.06	0.340832	0.07
Resistors W.W.	0.274095	0.26	2.180700	0.42	1.813800	0.35
Resistors Film	0.024840	0.02	0.240000	0.05	0.252000	0.05
Resistors Var.	1.169600	1.11	5.000000	0.96	15.000000	2.89
Capacitors Tant.	0.689895	0.66	0.881480	0.17	0.966120	0.19
Var. Caps. Cer.	0.032400	0.03	0.043110	0.01	0.067000	0.01
Mica Capacitors	0.000561	.01	0.009975	.01	0.005940	.01
(. NPO Caps.	0.020403	0.02	0.123200	0.02	0.140000	0.03
Var. Glass Caps.	0.00	0.00	0.930000	0.18	0.00	0.00
Capacitors Glass	0.00	0.00	0.000394	.01	0.00	0.00
Capacitors Cer.	0.055655	0.05	0.378415	0.07	0.453295	0.09
Inductors	9.299999	9.45	86.193199	16.60	97.441999	18.75
Transformers	4.200000	4.00	33.560000	6.48	37.020000	7.13
Transistors	1.672050	1.59	53.989120	10.39	37.010640	7.12
Relays	1.704920	1.62	64.850500	12.49	35.471500	6.33
Connectors	0.222582	0.21	0.672182	0.13	0.512910	0.10
Pinlites	0.175000	0.17	35.000000	6.74	35.000000	6.74
Switches	0.188880	0.18	6.866100	1.32	1.244880	0.24
Fuses	0.100000	0.10	0.300000	0.06	0.200000	0.04
Monolithic IC's	19.347664	18.41	33.958800	6.54	39.595080	7.62
Thermistors	0.00	0.00	0.027000	.01	0.300000	0.06
Mer	4.554000	4.33	12.948170	2.49	13.545000	2.61

improvement could adversely impact life cycle costs. Therefore, a complete analysis of screening versus life cycle cost is being conducted and the results of this analysis will be included in the Final Life Cycle Cost Analysis Report.

APPENDIX I

STRESS ANALYSIS - MANPACK

2712 STRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. of T _a	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C1	JFD	DV510H	217A/7.6-33	65	volts	100	0	.1	30%	< .1	.009	-	.0027
		C2		1501-36-55	217A/7.6-25	65	volts	100	0	.1	30%	< .1	.002	1	.0006
		C4	JFD	DV510H	217A/7.6-33	65	volts	100	0	.1	30%	< .1	.009	-	.0027
		C5		1501-36-55	217A/7.6-25	65	volts	100	0	.1	30%	< .1	.002	1	.0006
		C7	JFD	DV510H	217A/7.6-33	65	volts	100	0	.1	30%	< .1	.009	-	.0027
		C6		1501-36-55	217A/7.6-25	65	volts	100	0	.1	30%	< .1	.002	1	.0006
		C12		1501-36-53	217A/7.6-25	65	volts	100	0	.1	30%	< .1	.002	1	.0006
		C15	JFD	DV510H	217A/7.6-33	65	volts	100	0	.1	30%	< .1	.009	-	.0027
		C9		CKR05BX102K	198B/1001.2	65	volts	200	15	15	100%	.075	.0005	1	.0005
	Resistor	R1		RCR05G104JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0001	6	.0012
		R2		RCR05G302JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6	.0012
		R3		RCR05G104JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6	.0012
		R4		RCR05G302JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6	.0012
		R8		RCR05G104JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6	.0012
		R9		RCR05G202JS	199A/301.2	65	mW	125	0	10	30%	< .1	.0002	6	.00026
	Inductor RF	L1	Lenox Fugle	NR2.7	217A/7.7-9	65					30%		.2	1	.06
		L2	Lenox Fugle	NR3.3	217A/7.7-9	65					30%		.2	1	.06
		L3	Lenox Fugle	NR3.9	217A/7.7-9	65					30%		.2	1	.06
		L4	Lenox Fugle	NR1.8	217A/7.7-9	65					30%		.2	1	.06
		L5	Lenox Fugle	NR0.47	217A/7.7-9	65					30%		.2	1	.06

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Pres-selector, Band I Manpack

PAGE 1 OF 3

DRAWING NO. 377450, Tuner

TOTAL FAILURE RATE .032006 X10⁻⁵

AT _____ DEGREES CENTIGRADE

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC. TUNER	PART NUMBER	APPLICABLE SPEC.	Temp. or	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K FACT	Tot.
	Capacitor	C11		CKR05BX102KR	198B/1001.2	65	Volts	200	10	4	100%	< .1	.0005	1	.0005
		C3		CKR05BX102KR	198B/1001.2	65	Volts	200	90	90	100%	.45	.0011	1	.0011
	Transformer	T1	Cin. Elec.		217A/7.7-9	65					30%		.2	1.5	.09
		T2	Cin. Elec.		217A/7.7-9	65					30%		.2	1.5	.09
	Relay	K1	Teledyne	421D-26	217A/7.10-5	65					30%		.0093	2.5	.006975
	Diode Varac.	CR1	TRW	371256-1	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR2	TRW	371256-1	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR3	TRW	371256-1	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR4	TRW	371256-1	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR5	TRW	371256-1	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR6	TRW	371256-1	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR7	TRW	371256-1	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR8	TRW	371256-1	Cin. Elec.	65					100%	< .1	.14	-	.14
	Capacitor	C10		CKR05BX102KR	198B/1001.2	65	Volts	200	15	15	100%	< .1	.0005	1	.0005
		C14		CKR05BX102KR	198B/1001.2	65	Volts	200	0	5	30%	< .1	.0005	1	.0005
		C15		CKR05BX102KR	198B/1001.2	65	Volts	200	0	5	30%	< .1	.0005	1	.0005
		C23		CKR05BX102KR	198B/1001.2	65	Volts	200	90	90	100%	.45	.0011	1	.0011
		C24		CKR05BX102KR	198B/1001.2	65	Volts	200	15	15	100%	< .1	.0005	1	.0005
		C25		CKR05BX102KR	198B/1001.2	65	Volts	200	15	15	100%	< .1	.0005	1	.0005
		C26		CKR05BX102KR	198B/1001.2	65	Volts	200	0	5	30%	< .1	.0005	1	.0005

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Pres-selector, Band I Manpack

PAGE 2 OF 3

DRAWING NO. 37450-Tuner

TOTAL FAILURE RATE .1311625 X10⁻⁵
AT _____ DEGREES CENTIGRADE

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC. TUNER	PART NUMBER	APPL CABLE SPEC.	Temp. or	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor
	Capacitor	C63		CKR05BX102KR	198B/1001.2	65	volts	200	15	15	100%	< .1	.0005	1
		C35		1501-36-102	217A/7.6-25	65	volts	100	0	.1	30%	< .1	.0002	1
	Resistor	R5		RCR05G104JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6
		R6		RCR05G622JS	199A/301.2	65	mW	125	0	< 1	30%	< .1	.0002	6
		R7		RCR05G302JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6
		R11		RCR05G333JS	199A/301.2	65	mW	125	0	< 1	30%	< .1	.0002	6
		R12		RCR05G104JS	199A/301.2	65	mW	125	0	< 1	30%	< .1	.0002	6
		R13		RCR05G303JS	199A/301.2	65	mW	125	0	< 1	30%	< .1	.0002	6
		R14		RCR05G303JS	199A/301.2	65	mW	125	0	< 1	30%	< .1	.0002	6
	Inductor	L6	Lenox Engle	NR10	217A/7.7-9	65					30%		.2	1
		L7	Lenox Engle	NR10	217A/7.7-9	65					30%		.2	1
		L12	Lenox Engle	NR10	217A/7.6-25	65					90%		.2	1
	Transformer	T3	Cin. Elec.		217A/7.7-9	65					30%		.2	1.5
		T4	Cin. Elec.		217A/7.7-9	65					30%		.2	1.5
FET	Transistor	Q1	Siliconix	U320	217A/7.4-13	.37	watts	3	0	.15	30%	.05	.608	1
SIPNP	Transistor	Q2		JAN2N2907	217A/7.4-13	.228	mW	400	0	.6	30%	< .01	.511	1.5
	Diode, Pin	CR9	Hew. Pack.	HP5082-3168	217A/7.4-11	.32	mW	250	0	1.4	30%	< .01	.269	1.5

TEMP. _____ DATE 25 June 1973 TOTAL FAILURE RATE .101870 X10⁻⁵

FUNCTIONAL BLOCK Pres-selector, Band I Manpack

PAGE 3 OF 3

DRAWING NO. 377450, Tuner

AT _____ DEGREES CENTIGRADE

TEST ANALYSIS

12

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC-TURER	PART NUMBER	APPLICABLE SPEC.	Temp. or	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R
	Capacitor	C29		CKR05BX102KR	198B/1001.2	65	volts	200	90	90	100%	.45	.0011	1	.0011
		C27	JFD	DV510H	217A/7.6-33	65	volts	100	0	.1	30%	<.1	.009	-	.0027
		C28		1501-36-49	217A/7.6-25	65	volts	100	0	.1	30%	<.1	.002	1	.0006
		C30		DV501H	217A/7.6-33	65	volts	100	0	.1	30%	<.1	.009	-	.0027
		C31		1501-36-49	217A/7.6-25	65	volts	100	0	.1	30%	<.1	.002	1	.0006
		C33		DV510H	217A/7.6-33	65	volts	100	0	.1	30%	<.1	.009	-	.0027
		C32		1501-36-49	217A/7.6-25	65	volts	100	0	.1	30%	<.1	.002	1	.0006
		C34		1501-36-62	217A/7.6-25	65	volts	100	0	.1	30%	<.1	.002	1	.0006
		C40		DV510H	217A/7.6-33	65	volts	100	0	.1	30%	<.1	.009	-	.0027
		C36		CKR05BX102KR	198B/1001.2	65	volts	200	15	15	100%	.075	.0005	1	.0005
		C37		CKR05BX102KR	198B/1001.2	65	volts	200	0	.1	30%	<.1	.0005	1	.00015
	Resistor	R15		RCR05G303JS	199A/301.2	65	mW	125	<1	<1	100%	<.1	.0002	6	.0012
		R16		RCR05G204JS	199A/301.2	65	mW	125	<1	<1	100%	<.1	.0002	6	.0012
		R17		RCR05G302JS	199A/301.2	65	mW	125	<1	<1	100%	<.1	.0002	6	.0012
		R18		RCR05G204JS	199A/301.2	65	mW	125	<1	<1	100%	<.1	.0002	6	.0012
		R19		RCR05G302JS	199A/301.2	65	mW	125	<1	<1	100%	<.1	.0002	6	.0012
		R20		RCR05G204JS	199A/301.2	65	mW	125	<1	<1	100%	<.1	.0002	6	.0012
	Inductor RE	L13	Lenox Fugle	NR-3.9	217A/7.7-9	65					30%		.2	1	.06
		L14	Lenox Fugle	NR-2.7	217A/7.7-9	65					30%		.2	1	.06
		L15	Lenox Fugle	NR-3.9	217A/7.7-9	65					30%		.2	1	.06

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Presetector, Band II Manpack

PAGE 1 OF 4

DRAWING NO. 377.50, Tuner

TOTAL FAILURE RATE .0202150 X10⁻⁵

AT _____ DEGREES CENTIGRADE

2712

RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC. TURER	PART NUMBER	APPLICABLE SPEC.	Temp. or	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. P.
	Inductor RF	L16	Lenox Engle	NR2-2	217A/7.7-9	65					30%		.2	1	.06
		L17	Lenox Engle	NRQ-33	217A/7.7-9	65					30%		.2	1	.06
RF	Transformer	T5	Cin. Elec.		217A/7.7-9	65					30%		.2	1.5	.09
		T6	Cin. Elec.		217A/7.7-9	65					30%		.2	1.5	.09
	Relay	K2	Teledyne	421D-26	217A/7.10-5	65					30%		.0093	2.5	.0069
	Diode Varac.	CR10	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR11	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR12	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR13	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR14	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR15	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR16	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR17	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR18	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR19	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR20	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR21	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR22	TRW	371256-1	Cin. Elec.	55					100%	< .1	.14	-	.14
		CR23	TRW	371256-1	Cin. Elec.	65					100%	< .1	.14	-	.14
	Capacitor	C38		CRK05BX102KR	158B/1001.2	65	Volts	200	10	4	100%	< .1	.0005	1	.0005

TEMP.

DATE 25 June 1973

FUNCTIONAL BLOCK Pres-selector; Band II Manpack

PAGE 2 OF 4

DRAWING NO. 37745, TURER

TOTAL FAILURE RATE .226740 X10⁻⁵

AT DEGREES CENTIGRADE

2712

RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC. TUNER	PART NUMBER	APPLICABLE SPEC.	Temp. of	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	F Factor	Tot. F. B
	Capacitor	C39		1501-36-53	217A/7.6-25	65		100	0	.1	30%	<.1	.002	1	.0006
		C41		CR05BX102KR	198B/1001.2	65		200	0	5	30%	<.1	.0005	1	.0001
		C42		CR05BX102KR	198B/1001.2	65		200	0	5	30%	<.1	.0005	1	.0001
		C43		CR05BX102KR	198B/1001.2	65		200	90	90	100%	.45	.0011	1	.0011
		C44		CR05BX102KR	198B/1001.2	65		200	15	15	100%	<.1	.0005	1	.0005
		C45		CR05BX102KR	198B/1001.2	65		200	0	5	30%	<.1	.0005	1	.0001
		C62		CR05BX102KR	198B/1001.2	65		200	90	90	100%	.45	.0011	1	.0011
	Resistor	R21		RCR05G104JS	199A/301.2	65	mW	125	<1	<1	100%	<.1	.0002	6	.0012
		R22		RCR05G302JS	199A/301.2	65	mW	125	<1	<1	100%	<.1	.0002	6	.0012
		R23		RCR05G202JS	199A/301.2	65	mW	125	0	10	30%	<.1	.0002	6	.0003
		R24		RCR05G333JS	199A/301.2	65	mW	125	0	<1	30%	<.1	.0002	6	.0003
		R25		RCR05G104JS	199A/301.2	65	mW	125	0	<1	30%	<.1	.0002	6	.0003
		R26		RCR05G303JS	199A/301.2	65	mW	125	0	<1	30%	<.1	.0002	6	.0003
		R27		RCR05G303JS	199A/301.2	65	mW	125	0	<1	30%	<.1	.0002	6	.0003
	Inductor	L19	Lenox Fugle	NR10	217A/7.7-9	65					30%		.2	1	.06
		L18	Lenox Fugle	NR10	217A/7.7-9	65					30%		.2	1	.06
	Transformer	T7	Cin. Elec.		217A/7.7-9	65					30%		.2	1.5	.09
		T8	Cin. Elec.		217A/7.7-9	65					30%		.2	1.5	.09
	Diode Pin	CR24	Hew. Pac.	HP5082-3168	217A/7.4-11	.32	mW	250	0	1.4	30%	<.01	.269	1.5	.1210
	FET Transistor	Q3	Silliconix	U320	217A/7.4-13	.37	mW	400	0	.15	30%	.05	.608	1	.1824

TEMP.

DATE 25 June 1973

TOTAL FAILURE RATE .061140 X10⁻⁵

FUNCTIONAL BLOCK

Preselector, Band II Manpack

PAGE 3 OF 4

AT DEGREES CENTIGRADE

DRAWING NO. 377450, Tuner

2712

[illegible]

TOTAL FAILURE RATE .022995 $\times 10^{-5}$

AT _____ DEGREES CENTIGRADE

DATE 25 June 1973

FUNCTIONAL BLOCK Preselector, Band II Manpack

PAGE 4 OF 4

DRAWING NO. 377450, Tuner

712

RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC- TURER	PART NUMBER	APPL CABLE SPEC.	Temp. of	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Test. P. #
	Capacitor	C46	JED	DV510H	217A/7.6-33	65	volts	100	0	.1	30%	< .1	.009	-	.0027
		C48	JED	DV510H	217A/7.6-33	65	volts	100	0	.1	30%	< .1	.009	-	.0027
		C49	JED	DV510H	217A/7.6-33	65	volts	100	0	.1	30%	< .1	.009	-	.0027
		C56	JED	DV510H	217A/7.6-33	65	volts	100	0	.1	30%	< .1	.009	-	.0027
		C47		CKR05BX102XR	198B/1001.2	65	volts	200	90	.1	100%	< .1	.0011	-	.0011
		C50		1501-36-71	217A/7.6-25	65	volts	100	0	.1	30%	< .1	.00003	-	.00003
		C51		CKR05BX102UR	198B/1001.2	65	volts	200	90	.1	100%	< .1	.00003	-	.0011
		C52		CKR05BX102UR	198B/1001.2	65	volts	200	15	.15	100%	< .1	.0011	1	.0005
		C53		CKR05BX102UR	198B/1001.2	65	volts	200	0	.1	30%	< .1	.0005	-	.00015
	Resistor	R28		RCR05G204JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0005	1	.0012
		R29		RCR05G302JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6	.0012
		R30		RCR05G304JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6	.0012
		R31		RCR05G302JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6	.0012
		R32		RCR05G204JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6	.0012
		R33		RCR05G303JS	199A/301.2	65	mW	125	0	< 1	30%	< .1	.0002	6	.00036
	Inductor R ²	L20	Lenox Fugle	NR3.9	217A/7.7-9	65					30%		.2	1	.06
		L21	Lenox Fugle	NR2.2	217A/7.7-9	65					30%		.2	1	.06
		L22	Lenox Fugle	NR3.9	217A/7.7-9	65					30%		.2	1	.06
		L23	Lenox Fugle	NR2.2	217A/7.7-9	65					30%		.2	1	.06
		L24	Lenox Fugle	NR10	217A/7.7-9	65					30%		.2	1	.06

TEMP. _____ DATE 25 June 1973

TOTAL FAILURE RATE .0320013 X10⁻⁵

FUNCTIONAL BLOCK Presselector, Band III Manpack

AT _____ DEGREES CENTIGRADE

PAGE 1 OF 3

DRAWING NO. 377450, Tuner

ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC. TUNER	PART NUMBER	APPLICABLE SPEC.	Temp. or T _g	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Total F. R.
	Inductor RF	L25	Lenox Fugle	NR0-33	217A/7.7-9	65					30%		.2	1	.06
		L26	Lenox Fugle	NR10	217A/7.7-9	65					30%		.2	1	.06
	RF Transformer	T9	Cin. Elec.		217A/7.7-9	65					30%		.2	1	.06
		T10	Cin. Elec.		217A/7.7-9	65					30%		.2	1	.06
	Relay	K3	Teledyne	421D-26	217A/7.10-5	65					30%		.0093	2.5	.006975
	Diode Varac.	CR25	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR26	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR27	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR28	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR29	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR30	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR31	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	.14	-	.14
		CR32	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	.14	-	.14
	Diode Pin	CR33	Hew. Pac.	HP5082-3168	217A/7.4-11	.32	mW	250	0	1.4	30%	< .01	.269	1.5	.12105
	Capacitor	C54		1501-36-53	217A/7.6-25	65	volts	100	0	.1	30%	< .1	.002	1	.0006
		C55		CKR05BX102KR	198B/301.2	65	volts	200	10	4	100%	< .1	.0005	1	.0005
		C57		CKR05BX102KR	198B/301.2	65	volts	200	0	5	30%	< .1	.0005	1	.00015
		C58		CKR05BX102KR	198B/301.2	65	volts	200	0	5	30%	< .1	.0005	1	.00015
		C59		CKR05BX102KR	198B/1001.2	65	volts	200	0	5	30%	< .1	.0005	1	.00015
		C60		CKR05BX102KR	198B/1001.2	65	volts	200	15	15	100%	< .1	.0005	1	.0005

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Pres-selector, Band III Manpack

PAGE 2 OF 3

DRAWING NO. 377450, Tuner

TOTAL FAILURE RATE .1490075 X10⁻⁵

AT _____ DEGREES CENTIGRADE

[illegible]

TEMP. _____ DATE 25 June 1973
 FUNCTIONAL BLOCK Preselector, Band III Manpack
 PAGE 3 OF 3
 DRAWING NO. 377450, Tuner

TOTAL FAILURE RATE .077899 X10⁻⁵
AT DEGREES CENTIGRADE

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or T _a	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factors	Tot. F.
	Capacitor	C1		1501-36-60	217A/7.6-25	65	volts	100	0	1	90%	< .1	.002	1	.0018
		C2		1501-36-60	217A/7.6-25	65	volts	100	0	1	90%	< .1	.002	1	.0018
		C3		CKR05BX103KR	198B/1001.2	65	volts	100	1	1	100%	< .1	.0005	1	.0005
		C4		CKR05BX103KR	198B/1001.2	65	volts	100	.5	.5	100%	< .1	.0005	1	.0005
		C5		CKR05BX103KR	198B/1001.2	65	volts	100	5	5	100%	< .1	.0005	1	.0005
		C6		CKR05BX103KR	198B/1001.2	65	volts	100	5	5	100%	.05	.0005	1	.0005
	Resistor	R1		RCR05G123JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6	.0012
		R2		RCR05G393JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	6	.0012
		R3		RCR05G100JS	199A/301.2	65	mW	125	2.5	2.5	100%	< .1	.0002	5	.0012
	Inductor RF	L1	Lenox Fugle	NR3.3	217A/7.7-9	65					100%	.2		1	.2
		L2	Lenox Fugle	NR3.3	217A/7.7-9	65					100%	.2		1	.2
	Hybrid	HY1	Cin. Elec.	376259	USAECOM	65					100%	1.032		-	1.032
		HY2	Cin. Elec.	376259	USAECOM	65					100%	1.032		-	1.032
		HY3	Cin. Elec.	376259	USAECOM	65					100%	1.032		-	1.032
		HY4	Cin. Elec.	377668	USAECOM	65					100%	1.4385		-	1.4385
	Connector	P1	Microdot	141-1002-0001	RADC II/191	65					90%	.032		.5	.0144
		P2	Microdot	141-1002-0001	RADC II/191	65					0	.032		.5	0
	Crystal Fil.	FL1		376270	217A/7.12-3	65					89%	.68		-	.6052
		FL2		376252	217A/7.12-3	65					45%	.68		-	.306
	Hybrid	HY5	Cin. Elec.	376261	USAECOM	65					100%	1.532		-	1.532

TEMP. _____ DATE 25 June 1973

TOTAL FAILURE RATE .60225 X10⁻⁵

FUNCTIONAL BLOCK Receive IF Manpack

AT _____ DEGREES CENTIGRADE

PAGE 1 OF 3

DRAWING NO. 377400-13

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC-TURER	PART NUMBER	APPLICABLE SPEC.	Temp. or	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. P.
	Hybrid	HY6	Cin. Elec.	376261	USAECOM	65					100%		.1532	-	1532
	Crystal Fil.	FL3		376270	217A/7.12-3	65					44%		.68	-	2992
				376251	217A/7.12-3	65					1%		.68	-	3068
				376251	217A/7.12-3	65					1%		.68	-	3068
	Capacitor	C7		CKR05BX103KR	198B/1001.2	65	volts	200	0	0	0		.0003	1	0
	Resistor	R4		RCR05G911JS	199A/301.2	65	mW	125	<1	<1	100%	<.1	.0002	6	1012
		R5		RCR05G101JS	199A/301.2	65	mW	125	<1	<1	100%	<.1	.0002	6	1012
		R6		RCR05G274JS	199A/301.2	65			10	5	100%	<.1	.0002	6	1012
		R7		RCR05G274JS	199A/301.2	65			15	10	100%	<.1	.0002	6	1012
		R10		RCR05G151JS	199A/301.2	65			0	0	0	<.1	.0002	6	1012
	Inductor	L3	Cin. Elec.	377402	217A/7.7-9	65					100%		.2	1	2
		L4	Lenox Fugle	NR82	217A/7.7-9	65					100%		.2	1	2
		L5	Lenox Fugle	NR82	217A/7.7-9	65					100%		.2	1	2
		L6	Lenox Fugle	NR82	217A/7.7-9	65					100%		.2	1	2
		L7	Lenox Fugle	NR82	217A/7.7-9	65					100%		.2	1	2
		L8	Lenox Fugle	NR82	217A/7.7-9	65					100%		.2	1	2
		L9	Lenox Fugle	NR82	217A/7.7-9	65					100%		.2	1	2
		L10	Lenox Fugle	NR82	217A/7.7-9	65					100%		.2	1	2
		L11	Lenox Fugle	NR82	217A/7.7-9	65					100%		.2	1	2
		L12	Lenox Fugle	NR82	217A/7.7-9	65					100%		.2	1	2

TEMP. _____ DATE 25 June 1973

TOTAL FAILURE RATE .24708 X10⁻⁵

FUNCTIONAL BLOCK Receive IF Manpack

AT _____ DEGREES CENTIGRADE

PAGE 2 OF 3

DRAWING NO. 377400-1F

2713

2713

1

TEMP

TEMP

TEMP

ELIAC

ELIAC

334

338

Draw

Draw

Draw

ESS ANALYSIS

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ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC-TURER	PART NUMBER	APPLICABLE SPEC.	Temp. of T _a	PARAMETER	RATED	QUISCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C1		NP105A-10	217A/7.6-81	65	volts	4	0	.1	90%	.02	.0011	-	.00099
		C2		VK30BA472K	217A/7.6-57	65	volts	50	10	10	100%	.2	.0065	1	.0065
		C3		VK30BA103K	217A/7.6-57	65	volts	50	10	10	100%	.2	.0065	1	.0065
		C5		S685R-10	217A/7.6-81	65	volts	35	12	12	100%	.34	.0027	-	.0027
		C6		J226R-10	217A/7.6-81	65	volts	35	12	12	100%	.34	.0027	-	.0027
		C7		J226R-10	217A/7.6-81	65	volts	35	12	12	100%	.34	.0027	-	.0027
		C8		J226R-10	217A/7.6-81	65	volts	35	12	12	100%	.34	.0027	-	.0027
	Resistor	R1		RCR05G274JS	199A/301.2	65	mW	125	.1	.1	100%	<.1	.0002	6	.0012
		R2		RCR05G274JS	199A/301.2	65	mW	125	.1	.1	100%	<.1	.0002	6	.0012
		R3		RCR05G274JS	199A/301.2	65	mW	125	.1	.1	100%	<.1	.0002	6	.0012
		R4		RCR05G182JS	199A/301.2	65	mW	125	<.1	<.1	100%	<.1	.0002	6	.0012
		R5		RCR05G514JS	199A/301.2	65	mW	125	.5	.5	100%	<.1	.0002	6	.0001
		R6		RN55D	217A/7.5-27	65	mW	125	.5	.5	100%	<.1	.4	.03	.012
		R7		RCR05G514JS	199A/301.2	65	mW	125	.5	.5	100%	<.1	.0002	6	.0012
		R8		RN55D	217A/7.5-27	65	mW	125	.5	.5	100%	<.1	.4	.03	.012
		R11		RCR05GXXXJS	199A/301.2	65	mW	125	.1	.1	100%	<.1	.0002	6	.0012
		R12		RCR05GXXXJS	199A/301.2	65	mW	125	.1	.1	100%	<.1	.0002	6	.0012
		R13		RCR05GXXXJS	199A/301.2	65	mW	125	.1	.1	100%	<.1	.0002	6	.0012
		R14		RCR05GXXXJS	199A/301.2	65	mW	125	.1	.1	100%	<.1	.0002	6	.0012
		R15		RCR05GXXXJS	199A/301.2	65	mW	125	.1	.1	100%	<.1	.0002	6	.0012

TEMP. _____ DATE 25 June 1973 TOTAL FAILURE RATE .006199 X10⁻⁵

FUNCTIONAL BLOCK Receive Audio Manpack AT _____ DEGREES CENTIGRADE

PAGE 1 OF 2

DRAWING NO. 377500, Audio

STRESS ANALYSIS

[illegible]

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK	Receive Audio	Manpack
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PAGE 2 OF 2

DRAWING NO. 377500, Audio

TOTAL FAILURE RATE	1.51055	X10 ⁻⁵
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AT _____ DEGREES CENTIGRADE

STRESS ANALYSIS

[illegible]

TEMP. _____ DATE 25 June 1973

TOTAL FAILURE RATE .050944 X10⁻⁵

FUNCTIONAL BLOCK Transmit Audio Manpack

AT _____ DEGREES CENTIGRADE

PAGE 1 OF 1

DRAWING NO. 377500, Audio

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC. TOLER.	PART NUMBER	APPL. CABLE SPEC.	Temp. of	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Lot. F. R.
	Resistor	R10		RCR07G562JS	199A/301.2	65°	mW	250	0	<1	10%	<.1	.0002	6	.00012
		R11		RCR07G750JS	199A/301.2	65°	mW	250	0	<1	10%	<.1	.0002	6	.00012
		R12		RCR07G750JS	199A/301.2	65°	mW	250	0	<1	10%	<.1	.0002	6	.00012
		R13		RCR07G473JS	199A/301.2	65°	mW	250	0	<1	10%	<.1	.0002	6	.00012
		R14		RCR07G473JS	199A/301.2	65°	mW	250	0	<1	10%	<.1	.0002	6	.00012
	Capacitor	C45		DM5C050DP	217A/7.6-21	65°	volts	300	0	15	10%	<.1	.0003	1.4	.000042
		C46		DM5C390GP	217A/7.6-21	65°	volts	300	0	15	10%	<.1	.0003	1.4	.000042
		C47		CKR05EX102KR	198B/1001.2	65°	volts	200	0	7	10%	<.1	.0005	1	.00005
		C48		CKR05BX102KR	198B/1001.2	65°	volts	200	0	7	10%	<.1	.0005	1	.00005
		C49		CKR05BX102KR	198B/1001.2	65°	volts	200	0	7	10%	<.1	.0005	1	.00005
		C50		CKR05BX102KR	198B/1001.2	65°	volts	200	0	7	10%	<.1	.0005	1	.00005
	Inductor	L25	Cin. Elec.		217A/7.2-9	65°					10%		.2	1	.02
		L26	Cin. Elec.		217A/7.2-9	65°					10%		.2	1	.02
		L27	Delevan	1025-32	217A/7.2-9	65°					10%		.2	1	.02
		L28	Delevan	1025-32	217A/7.2-9	65°					10%		.2	1	.02
	Transformer	T4	Cin. Elec.		217A/7.2-9	65°					10%		.2	1.5	.03
	Diode S1	CR7	Hew. Pac.	HP5082-2800	217A/7.4-11	.228	mW	250	0	<1	10%	<.1	.21	1.5	.0315
		CR8	Hew. Pac.		217A/7.4-11	.228	mW	250	0	<1	10%	<.1	.21	1.5	.0315
	Connector	P1		51-728-000-2G	RADC II/191	65°					10%		.032	.5	.0016
		P2		51-728-000-2G	RADC II/191	65°					10%		.032	.5	.0016

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK RF Power Detector MANPACK

PAGE 1 OF 2

DRAWING NO. 377257, Filter Assembly

TOTAL FAILURE RATE .0177084 X10⁻⁵

AT _____ DEGREES CENTIGRADE

SS ANALYSIS

[illegible]

TEMP. _____ DATE 25 June 1973
FUNCTIONAL BLOCK RF Power Detector MANPACK
PAGE 2 OF 2
DRAWING NO. 377257, Filter Assembly

TOTAL FAILURE RATE .0000154 X10⁻⁵
AT DEGREES CENTIGRADE

2712 AESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC. TURER	PART NUMBER	APPL CABLE SPEC.	Temp. or	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C15		ATC100B4R3BRW	217A/7.6-59	65	volts	300	0	< 1	3%	< .1	.021	1	.00063
		C16		DM5C130DP	217A/7.6-21	65	volts	300	0	< 1	3%	< .1	.0003	1.4	.000013
		C17		DM5C330DP	217A/7.6-21	65	volts	300	0	< 1	3%	< .1	.0003	1.4	.000013
		C18		ATC10089R1BRW	217A/7.6-59	65	volts	300	0	< 1	3%	< .1	.021	1	.00063
		C19		DM5C430DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	1.4	.000013
		C20		DM5C101GP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	1.4	.000013
		C21		DM5C910GP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	1.4	.000013
		C22		DM5C910GP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	1.4	.000013
		C23		DM5C330DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	1.4	.000013
		C8		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	3%	.24	.0005	1	.000015
		C11		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	3%	.24	.0005	1	.000015
	Inductor	L5	Delevan	1025-32	217A/7.7-9	65					3%		.2	1	.006
		L6	Delevan	1025-32	217A/7.7-9	65					3%		.2	1	.006
		L7	Delevan	1025-32	217A/7.7-9	65					3%		.2	1	.006
		L8	Delevan	1025-32	217A/7.7-9	65					3%		.2	1	.006
		L9	Cin. Elec.		217A/7.7-9	65					3%		.2	1	.006
		L10	Cin. Elec.		217A/7.7-9	65					3%		.2	1	.006
	Relay	K1		GB-831C-5F	217A/7.10-5	65					3%		.101	2.5	.00757
		K2		GB-831C-5F	217A/7.10-5	65					3%		.101	2.5	.00757
		C14		CKR05BX103KR	198B/1001.2	65	volts	100	24	24	100%	.24	.0005	1	.0005

TEMP. _____ DATE 25 June 1973

TOTAL FAILURE RATE .0053021 X10⁻⁵

FUNCTIONAL BLOCK Filter, Band I Manpack

PAGE 1 OF 2

DRAWING NO. 377257 Filter Assembly

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[illegible]

TEMP. DATE 25 June 1973

TEST	TOTAL FAILURE RATE	$\times 10^{-5}$
1	0.0000	0.0000
2	0.0000	0.0000
3	0.0000	0.0000
4	0.0000	0.0000
5	0.0000	0.0000
6	0.0000	0.0000
7	0.0000	0.0000
8	0.0000	0.0000
9	0.0000	0.0000
10	0.0000	0.0000
11	0.0000	0.0000
12	0.0000	0.0000
13	0.0000	0.0000
14	0.0000	0.0000
15	0.0000	0.0000
16	0.0000	0.0000
17	0.0000	0.0000
18	0.0000	0.0000
19	0.0000	0.0000
20	0.0000	0.0000
21	0.0000	0.0000
22	0.0000	0.0000
23	0.0000	0.0000
24	0.0000	0.0000
25	0.0000	0.0000
26	0.0000	0.0000
27	0.0000	0.0000
28	0.0000	0.0000
29	0.0000	0.0000
30	0.0000	0.0000
31	0.0000	0.0000
32	0.0000	0.0000
33	0.0000	0.0000
34	0.0000	0.0000
35	0.0000	0.0000
36	0.0000	0.0000
37	0.0000	0.0000
38	0.0000	0.0000
39	0.0000	0.0000
40	0.0000	0.0000
41	0.0000	0.0000
42	0.0000	0.0000
43	0.0000	0.0000
44	0.0000	0.0000
45	0.0000	0.0000
46	0.0000	0.0000
47	0.0000	0.0000
48	0.0000	0.0000
49	0.0000	0.0000
50	0.0000	0.0000
51	0.0000	0.0000
52	0.0000	0.0000
53	0.0000	0.0000
54	0.0000	0.0000
55	0.0000	0.0000
56	0.0000	0.0000
57	0.0000	0.0000
58	0.0000	0.0000
59	0.0000	0.0000
60	0.0000	0.0000
61	0.0000	0.0000
62	0.0000	0.0000
63	0.0000	0.0000
64	0.0000	0.0000
65	0.0000	0.0000
66	0.0000	0.0000
67	0.0000	0.0000
68	0.0000	0.0000
69	0.0000	0.0000
70	0.0000	0.0000
71	0.0000	0.0000
72	0.0000	0.0000
73	0.0000	0.0000
74	0.0000	0.0000
75	0.0000	0.0000
76	0.0000	0.0000
77	0.0000	0.0000
78	0.0000	0.0000
79	0.0000	0.0000
80	0.0000	0.0000
81	0.0000	0.0000
82	0.0000	0.0000
83	0.0000	0.0000
84	0.0000	0.0000
85	0.0000	0.0000
86	0.0000	0.0000
87	0.0000	0.0000
88	0.0000	0.0000
89	0.0000	0.0000
90	0.0000	0.0000
91	0.0000	0.0000
92	0.0000	0.0000
93	0.0000	0.0000
94	0.0000	0.0000
95	0.0000	0.0000
96	0.0000	0.0000
97	0.0000	0.0000
98	0.0000	0.0000
99	0.0000	0.0000
100	0.0000	0.0000

FUNCTIONAL BLOCK Filter, Band I Manpack

PAGE 2 OF 2

DRAWING NO. 377257, Filter Assembly

2712 S. ESS ANALYSIS

ITEM # - 8.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C24		ATC100B3R0BRK	217A/7.6-59	65	volts	300	0	<1	3%	<.1	.021	1	.00063
		C25		DM5C180DP	217A/7.6-21	65	volts	300	0	<1	3%	<.1	.0003	1.4	.000013
		C26		DM5C240DP	217A/7.6-21	65	volts	300	0	<1	3%	<.1	.0003	1.4	.000013
		C27		DM5C130DP	217A/7.6-21	65	volts	300	0	<1	3%	<.1	.0003	1.4	.000013
		C28		DM5C300DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	1.4	.000013
		C29		DM5C360DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	1.4	.000013
		C30		DM5C330DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	1.4	.000013
		C31		DM5C330DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	1.4	.000013
		C32		DM5C130DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	1.4	.000013
		C9		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	3%	.24	.0005	1	.000015
		C12		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	3%	.24	.0005	1	.000015
	Inductor	L13	Delevan	1025-32	217A/7.7-9	65					3%		.2	1	.006
		L14	Cin. Elec.		217A/7.7-9	65					3%		.2	1	.006
		L15	Cin. Elec.		217A/7.7-9	65					3%		.2	1	.006
		L16	Cin. Elec.		217A/7.7-9	65					3%		.2	1	.006
		L17	Cin. Elec.		217A/7.7-9	65					3%		.2	1	.006
		L18	Delevan	1025-32	217A/7.7-9	65					3%		.2	1	.006
	Relay	K3	Teledyne	411D-26	217A/7.10-5	65					3%		.101	2.5	.00757
		K4	Teledyne	411D-26	217A/7.10-5	65					3%		.101	2.5	.00757
	Capacitor	C43		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	3%	.24	.0005	1	.000015

TEMP. _____ DATE 25 June 1973 TOTAL FAILURE RATE .0057919 X10⁻⁵

FUNCTIONAL BLOCK Filter, Band II Manpack

PAGE 1 OF 2

DRAWING NO. 371257, Filter Assembly

AT _____ DEGREES CENTIGRADE

SYSTEMS ANALYSIS

[illegible]

TEMP. DATE 25 June 1973

TOTAL FAILURE RATE 0020726 X10⁻⁵

FUNCTIONAL BLOCK Filter, Band II Manpack

PAGE 2 OF 2

DRAWING NO. 377257, Filter Assembly

712 ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC. TURER	PART NUMBER	APPLICABLE SPEC.	Temp. of	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Loc. F. R.
	Capacitor	C33		ATC100B2R0BRW	217A/7.6-59	65	volts	300	0	<1	3%	<.1	.021	1	.00063
		C34		DM5C130DP	217A/7.6-21	65	volts	300	0	<1	3%	<.1	.0003	1.4	.000013
		C35		ATC100B9R18RW	217A/7.6-59	65	volts	300	0	<1	3%	<.1	.021	1	.00063
		C36		ATC100B9R18RW	217A/7.6-59	65	volts	300	0	<1	3%	<.1	.021	1	.00063
		C37		DM5C100DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	1.4	.000013
		C38		DM5C510DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	1.4	.000013
		C39		DM5C470DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	1.4	.000013
		C40		DM5C470DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	1.4	.000013
		C41		ATC100B9R18RW	217A/7.6-59	65	volts	300	0	30	3%	.1	.021	1	.00063
		C10		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	3%	.24	.0005	1	.000015
		C13		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	3%	.24	.0005	1	.000015
	Inductor	L19	Delevan	1025-32	217A/7.7-9	65					3%		.2	1	.006
		L20	Cin. Elec.		217A/7.7-9	65					3%		.2	1	.006
		L21	Cin. Elec.		217A/7.7-9	65					3%		.2	1	.006
		L22	Cin. Elec.		217A/7.7-9	65					3%		.2	1	.006
		L23	Cin. Elec.		217A/7.7-9	65					3%		.2	1	.006
		L24	Delevan	1025-32	217A/7.7-9	65					3%		.2	1	.006
	Relay	K5	Teledyne	411D-26	217A/7.10-5	65					3%		.101	2.5	.00757
		K6	Teledyne	411D-26	217A/7.10-5	65					3%		.101	2.5	.00757
	Capacitor	C44		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	3%	.24	.0005	1	.000015

TEMP. _____ DATE 25 June 1973 TOTAL FAILURE RATE .005377 X10⁻⁵

FUNCTIONAL BLOCK Filter, Band III Manpack AT _____ DEGREES CENTIGRADE

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DRAWING NO. 37257, Filter Assembly

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[illegible]

DATE 25 June 1973

Manpack

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NO. 377257, Filter Assembly

X10-5

AT _____ DEGREES CENTIGRADE

2712 STRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC. TOLER	PART NUMBER	APPLICABLE SPEC.	Temp. or T _{in}	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. P.
	Capacitor	C1		CKR05BX103KR	198B/1001.2	65	volts	100	0	10	10%	.1	.0005	1	.00003
		C2		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	10%	.24	.0005	1	.00003
		C3		CKR06BX105KR	198B/1001.2	65	volts	50	0	12	10%	.24	.0005	1	.00003
		C4		CKR06BX105KR	198B/1001.2	65	volts	50	0	24	10%	.48	.0013	1	.00013
		C5		DM5C101JP	217A/7.6-21	65	volts	300	0	10	10%	<.1	.0003	1.4	.000042
		C6		CKR06BX334KR	198B/1001.2	65	volts	50	0	10	10%	.2	.0005	1	.00003
		C7		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	10%	.24	.0005	1	.00003
		C51		DM5C101GP	217A/7.6-21	65	volts	300	0	<.1	10%	<.1	.0003	1.4	.000042
		C52		DM5C181GP	217A/7.6-21	65	volts	300	0	<.1	10%	<.1	.0003	1.4	.000042
		C53		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	10%	.24	.0005	1	.00003
		C54		CKR05BX103KR	198B/1001.2	65	volts	100	0	0%	0	0	.0005	1	0
		C55		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	10%	.24	.0005	1	.00003
Resistor		R1		RCR07G104JS	199A/301.2	65	mW	250	0	1	10%	<.1	.0002	6	.00012
		R2		RCR07G300JS	199A/301.2	65	mW	250	0	12	10%	.1	.0002	6	.00012
		R3		.2 ohm 1/4W	217A/7.5-25	65	mW	500	0	130	10%	.26	.19	.03	.00057
		R4		RCR07G752JS	199A/301.2	65	mW	250	0	3	10%	<.1	.0002	6	.00012
		R5		RCR07G252JS	199A/301.2	65	mW	250	0	<.1	10%	<.1	.0002	6	.00012
Inductor		L1	Ferroxcube	VK200-20/4B	217A/7.7-9	65					10%		.2	1	.02
		L2	Cin, Elec.		217A/7.7-9	65					10%		.2	1	.02
		L3	Ferroxcube	VK200-20/4B	217A/7.7-9	65					10%		.2	1	.02

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Power Amplifier Manpack

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DRAWING NO. 37255, Power Amplifier

TOTAL FAILURE RATE .0061656 X10⁻⁵

AT _____ DEGREES CENTIGRADE

-122 ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC-TURER	PART NUMBER	APPLICABLE SPEC.	Temp. of In	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Inductor	L4	Ferroxcube	VK200-20/48	217A/7.7-9	65					10%	.2	1	.02	
		L29	Cin. Elec.		217A/7.7-9	65					10%	.2	1	.02	
		L30	Cin. Elec.		217A/7.7-9	65					10%	.2	1	.02	
		L31	Cin. Elec.		217A/7.7-9	65					10%	.2	1	.02	
		L32	Cin. Elec.		217A/7.7-9	65					10%	.2	1	.02	
	Transformer	T1	Cin. Elec.		217A/7.7-9	65					10%	.2	1.5	.03	
		T2	Cin. Elec.		217A/7.7-9	65					10%	.2	1.5	.03	
		T3	Cin. Elec.		217A/7.7-9	.428					10%	.347	1.5	.03	
	Diode S1	CR1		1N4148	217A/7.4-11	.428	mW	100	20	20	10%	.2	.347	1.5	.0520
		CR5		1N4148	217A/7.4-11	65		100	0	0	0%	0	.20233	1.5	0
	Hybrid	A1	Cin. Elec.	377686	217B	65					10%		.13961	-	.03338
		A2	Cin. Elec.	377687	217B	65					10%		.032	-	.09112
	Connector	P1	Microdot	141-1005-0001	RADC II/191	65					10%		.00516		
		P2	AMP	85930-4 20 pin	RADC II/191	65					10%		.032	.5	.000218
		P3	Microdot	141-1005-0001	RADC II/191	65					10%		.00308	.5	.00154
		P4		MCDD1-9P465-10 9 pins	RADC II/191	65					100%		.0001	-	.00001
	Resistor	R6		RCR07 JS	199A/301.2	65	mW	250	0	10	10%	<.1	.0002	6	.00012
		R7		RCR07 JS	199A/301.2	65	mW	250	0	10	10%	<.1	.0002	6	.00012
		R8		RCR07G122JS	199A/301.2	65	mW	250	0	10	10%	<.1	.0002	6	.00012
		R9		RCR07G472JS	199A/301.2	65	mW	250	0	10	10%	<.1	.0002	6	.00012

TEMP. _____ DATE 25 June 1973 TOTAL FAILURE RATE .0379438 X10⁻⁵

FUNCTIONAL BLOCK Power Amplifier Manpack AT _____ DEGREES CENTIGRADE

PAGE 2 OF 3

DRAWING NO. 377255, Power Amplifier

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. in	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Job. F. R.
	Resistor	R10		RCR07G103JS	199A/301.2	65	mW	250	0	4	10%	<.1	.0002	6	.00012
		R11		RCR07G513JS	199A/301.2	65	mW	250	0	1	10%	<.1	.0002	6	.00012
		R12		RCR07G513JS	199A/301.2	65	mW	250	0	2	10%	<.1	.0002	6	.00012
	Inductor	L33	Cin. Elec.		217A/7.7-9	65					10%		.2	1	.02
		L34	Delevan	1025-32	217A/7.7-9	65					10%		.2	1	.02
		L35		1025-32	217A/7.7-9	65					10%		.2	1	.02
		L37		1025-32	217A/7.7-9	65				0			.2	1	0
	SINEN Transistor	Q1		JAN2N222A	217A/7.4-13	.228	mW	500	0	.1	10%	<.1	.210	1.5	.0315
	Hybrid	A3	Cin. Elec.	377688	USAEOM	65					10%		.1972	-	.01972
	Connector	P5	Microdot	141-1005-0001	RADC II/191	65					10%		.032	.5	.0016
		P6	Microdot	141-1005-0001	RADC II/191	65					10%		.032	.5	.0016
		P7	Selectro	51-751-0000-25	RADC II/191	65					10%		.032	.5	.0016
		P8	Selectro	51-751-0000-20	RADC II/191	65					10%		.032	.5	.0016
	Resistor	R13		RCR07JS	199A/301.2	65	mW	250	0	<1	10%	<.1	.0002	6	.00012
		R14		RCR07JS	199A/301.2	65	mW	250	0	10	10%	<.1	.0002	6	.00012
		R15		RCR07JS	199A/301.2	65	mW	250	0	10	10%	<.1	.0002	6	.00012
	Relay	K7		GB-831C-SE	217A/7.10-5	65					100%		.301	2.5	.752
		K8		GB-831C-SE	217A/7.10-5	65					100%		.018	2.5	.045
		K9		GB-831C-SE	217A/7.10-5	65					10%		.301	2.5	.0752

TEMP. _____ DATE 25 June 1973 TOTAL FAILURE RATE .099054 X10⁻⁵

FUNCTIONAL BLOCK Power Amplifier Manpack

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DRAWING NO. 377255, Power Amplifier

AT _____ DEGREES CENTIGRADE

2712

STRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor
	Capacitor	C1		Y104A-20	217A/7.6-81	65	volts	20	10	10	100%	.5	.0065	.0065
		C2		Y102A-20	217A/7.6-81	65	volts	20	10	10	100%	.5	.0065	.0065
		C3		B155A-05	217A/7.6-81	65	volts	15	10	10	100%	.75	.03	.03
		C4		B155A-05	217A/7.6-81	65	volts	15	10	10	100%	.75	.03	.03
		C6		Y154A-05	217A/7.6-81	65	volts	20	10	10	100%	.5	.0065	.0065
	Resistor	R1		RCR05 JS	199A/301.2	65	mW	125	<1	<1	100%	<.1	.0002	6
		R2		RCR05 JS	199A/301.2	65	mW	125	<1	<1	100%	<.1	.0002	6
	Inductor	L1	Lenox Fugle	NR-22	217A/7.7-9	65					100%		.2	1
		L6	Lenox Fugle	NR-22	217A/7.7-9	65					100%		.2	1
		L7	Lenox Fugle	NR-3.9	217A/7.7-9	65					100%		.2	1
		L8	Lenox Fugle	NR-12	217A/7.7-9	65					100%		.2	1
		L9	Lenox Fugle	NR-22	217A/7.7-9	65					100%		.2	1
		L10	Lenox Fugle	NR-10	217A/7.7-9	65					10%		.2	1
		L11	Lenox Fugle	NR-3.3	217A/7.7-9	65					10%		.2	1
	Transformer	T1	Cin. Elec.	377354	217A/7.7-9	65					100%		.2	1.5
		T2	Cin. Elec.	377355	217A/7.7-9	65					100%		.2	1.5
		T3	Cin. Elec.	377353	217A/7.7-9	65					100%		.2	1.5
		T4	Cin. Elec.	377355	217A/7.7-9	65					100%		.2	1.5
		T5	Cin. Elec.	377352	217A/7.7-9	65					100%		.2	1.5
		T6	Cin. Elec.	377355	217A/7.7-9	65					100%		.2	1.5

TEMP.

DATE 25 June 1973

TOTAL FAILURE RATE .29219 X10⁻⁵

FUNCTIONAL BLOCK RF Modulator Manpack

AT DEGREES CENTIGRADE

PAGE 1 OF 4

DRAWING NO. 377350, Synth/RF Modulator

ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC. TYP	PART NUMBER	APPLICABLE SPEC.	Temp. °F	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Transformer	T7	Cin. Elec.	377356	217A/7.7-9	65					10%	.2	1.5	.03	
	Hybrid	HY2	Cin. Elec.	377677	USAECOM	65					100%	2.1994	2.1994	2.1994	
		HY4	Cin. Elec.	377675	USAECOM	65					33%	.1504	.1504	.0501	
		HY5	Cin. Elec.	377575	USAECOM	65					33%	.1504	.1504	.0501	
		HY6	Cin. Elec.	377675	USAECOM	65					33%	.1504	.1504	.0501	
		HY7	Cin. Elec.	377676	USAECOM	65					100%	.1932	.1932	.1932	
	Capacitor	C15		Y474A-20	217A/7.6-81	65	volts	10	5	5	100%	.5	.0065	.0065	
		C16		CKR05BX102KR	198B/1001.2	65	volts	200	5	5	100%	<.1	.0005	1	.0005
		C17		CKR05BX102KR	198B/1001.2	65	volts	200	5	5	100%	<.1	.0005	1	.0005
		C18		Y474A-20	217A/7.6-81	65	volts	10	5	5	33%	.5	.0065	.0022	
		C19		Y474A-20	217A/7.6-81	65	volts	10	5	5	33%	.5	.0065	.0022	
		Q20		Y474A-20	217A/7.6-81	65	volts	10	5	5	33%	.5	.0065	.0022	
	Resistor	R3		RCR05 JS	199A/301.2	65	mW	125	<1	<1	100%	<.1	.0002	6	.0012
		R7		RCR05102JS	199A/301.2	65	mW	125	<1	<1	100%	<.1	.0002	6	.0012
		R8		RCR05102JS	199A/301.2	65	mW	125	<1	<1	100%	<.1	.0002	6	.0012
		R9		RCR05103JS	199A/301.2	65	mW	125	<1	<1	100%	<.1	.0002	6	.0012
		R10		RCR05102JS	199A/301.2	65	mW	125	<1	<1	100%	<.1	.0002	6	.0012
		R11		RCR05103JS	199A/301.2	65	mW	125	<1	<1	100%	<.1	.0002	6	.0012
		R12		RCR05102JS	199A/301.2	65	mW	125	4	4	100%	<.1	.0002	6	.0012
		R13		RCR05102JS	199A/301.2	65	mW	125	4	4	100%	<.1	.0002	6	.0012

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK RF Modulator Manpack

PAGE 2 OF 4

DRAWING NO. 377350, Synth/RF Modulator

TOTAL FAILURE RATE .25966 X10⁻⁵

AT _____ DEGREES CENTIGRADE

(12) S - SS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or In	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Lot. F. R.
	Resistor	R16		RCR05104JS	199A/301.2	65	mW	125	<1	<1	100%	<.1	.0002	6	.0012
	Int. Circuit	IC1	Plessey	376152	RADC II/413	65					100%		.432		.432
	Hybrid	HY8		377679	USAECOM	65					100%		.1560		.1560
	Resistor	R18		RCR05 JS	199A/301.2	65	mW	125	<1	<1	100%	<.1	.0002	6	.0012
		R19		RCR05 JS	199A/301.2	65	mW	125	12	12	100%	.1	.0002	6	.0012
	Connector	P1	Amp	85930-4 20P	RADC II/191	65					100%		.00516	.5	.00258
		P2	Microdot	141-1005-0001	RADC II/191	65					100%		.032	.5	.016
		P3	Microdot		RADC II/191	65					100%		.032	.5	.016
	Transformer	T8		377357	217A/7.7-9	65					10%	.2	1.5	.03	
	Diode, Var.	CR1		DKV6523B	Cin. Elec.	65					100%		.14		.14
		CR2		DKV6523B	Cin. Elec.	65					100%		.14		.14
		CR3		DKV6524B	Cin. Elec.	65					100%		.14		.14
		CR4		DKV6524B	Cin. Elec.	65					100%		.14		.14
		CR5		DKV6524B	Cin. Elec.	65					100%		.14		.14
		CR6		DKV6524B	Cin. Elec.	65					100%		.14		.14
		CR7		DKV6524B	Cin. Elec.	65					100%		.14		.14
		CR8		DKV6524B	Cin. Elec.	65					100%		.14		.14
		CR9		DKV6524B	Cin. Elec.	65					100%		.14		.14
		CR10		DKV6524B	Cin. Elec.	65					100%		.14		.14
		CR11		DKV6524B	Cin. Elec.	65					100%		.14		.14

TEMP.

DATE 25 June 1973

FUNCTIONAL BLOCK RF Modulator Manpack

PAGE 3 OF 4

DRAWING NO. 377350, Synth/RF Modulator

TOTAL FAILURE RATE .219618 X10⁻⁵

AT DEGREES CENT: GRADE

RESS ANALYSIS

PART NAME	S Y M B O L	M A N U F A C - T U R E R	P A R T NUMBER	A P P L I C A B L E SPEC.	T e m p . o f I n	P A R A M E T E R	R A T E D	Q U I E S C E N T	O P E R A T I N G	D U T Y CYCLE	S T R E S S R A T I O	F A I L U R E RATE	K Factor	I t e m # - B.M.
CRL2			DKY6524B	Cin. Elec.	65					100%	.14	.14		

TEMP. DATE 25 June 1973

	TOTAL FAILURE RATE	.014	X10 ⁻⁵
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FUNCTIONAL BLOCK	RF Modulator	Manpack
1. Antenna	1. Antenna	1. Antenna
2. RF Amplifier	2. RF Amplifier	2. RF Amplifier
3. Mixer	3. Mixer	3. Mixer
4. IF Amplifier	4. IF Amplifier	4. IF Amplifier
5. Detector	5. Detector	5. Detector
6. AF Amplifier	6. AF Amplifier	6. AF Amplifier
7. Speaker	7. Speaker	7. Speaker
8. Power Supply	8. Power Supply	8. Power Supply
9. Control Panel	9. Control Panel	9. Control Panel
10. Battery	10. Battery	10. Battery

PAGE 4 OF 4

DRAWING NO. 377350, Synth/RF Modulator

-112 STRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC-TURER	PART NUMBER	APPLICABLE SPEC.	Temp. or T _a	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Lot. # - R.
	Capacitor	C7	Comp. Inc.	Y104A-20	217A/7.6-81	65	volts	20	10	10	100%	.5	.0065		.0065
		C8		Y104A-20	217A/7.6-81	65	volts	20	15	15	100%	.75	.03		.03
		C9		Y104A-20	217A/7.6-81	65	volts	20	15	15	100%	.75	.03		.03
		C10		Y104A-20	217A/7.6-81	65	volts	20	10	10	100%	.5	.0065		.0065
	Resistor	R4		RCR05G...JS	199A/301.2	65	mW	125	2	2	100%	<.1	.0002	6	.0012
		R5		RCR05G101JS	199A/301.2	65	mW	125	20	10	100%	<.1	.0002	6	.0012
		R6		RCR05G...JS	199A/301.2	65	mW	125	1	1	100%	<.1	.0002	6	.0012
				RCR05G104JS	199A/301.2	65	mW	125	<1	<1	100%	<.1	.0002	6	.0012
	Inductor	L2	Lenox Fugle	NR22	217A/7.7-9	65					100%		.2	1	.2
		L3	Lenox Fugle	NR22	217A/7.7-9	65					100%		.2	1	.2
	Int. Circu	IC1	CTS Knights	376153 TCXO	RADC II/413	65					100%		.3456		.3456
		IC2		Ref. 4/4 N	USAECOM	65					100%		3.7		3.7
	Resistor	R20		RCR05 JS	199A/301.2	65		125	1	1	100%	<.1	.0002	6	.0012
	Capacitor	C11		Y104A-20	217A/7.6-81	65	volts	20	10	10	100%	.5	.0065		.0065
		C12		G106A-20	217A/7.6-81	65	volts	15	5.6	5.6	100%	.37	.003		.003
		C13		S695A-20	217A/7.6-81	65	volts	35	20	20	100%	.57	.011		.011
		C14		Y104A-20	217A/7.6-81	65	volts	20	15	15	100%	.75	.03		.03
		C5		Y104A-20	217A/7.6-81	65	volts	20	10	10	100%	.5	.0065		.0065
		C22		Y104A-20	217A/7.6-81	65	volts	20	15	15	100%	.75	.03		.03

TEMP. _____ DATE 25 June 1973 TOTAL FAILURE RATE .46116 X10⁻⁵

FUNCTIONAL BLOCK Synthesizer Manpack A. _____ DEGREES CENTIGRADE

PAGE 1 OF 2

DRAWING NO. 377350, Synth/Rf Modulator

2712 LESS ANALYSIS

[illegible]

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK
PAGE 2 OF 2
Synthesizer
Manpack

DRAWING NO. 377350, Synth/RF Modulator

TOTAL FAILURE RATE .22525 X10⁻⁵
AT DEGREES CENTIGRADE

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or In	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	k Factor	Tot. F. R.
	Resistor, Var R1		Allen Bradley	GS1T048F103AA	217A/7.5-21	65	watts	0.5	.1	.1	100%	.2	.1	10	1.0
	Switch	S1		376027-1	RADC II-191	65					100%		.008	-	.008
		S2		376027-2	RADC II-191	65					100%		.0768	-	.0768
		S3		376029	RADC II-191	65					.5%		.168	-	.00084
		S4	Grayhill	30-251B	RADC II-191	65					100%		.024	-	.024
	Connector		Microdot	142-1002-0001	RADC II-191	65					100%		.032	.5	.016
			Microdot	142-1002-0001	RADC II-191	65					10%		.032	.5	.0016
			Microdot	142-1002-0001	RADC II-191	65					10%		.032	.5	.0016
			Microdot	142-1002-0001	RADC II-191	65					10%		.032	.5	.0016
			Microdot	142-1002-0001	RADC II-191	65					100%		.032	.5	.016
			Microdot	142-1002-0001	RADC II-191	65					90%		.032	.5	.0144
			Microdot	142-1002-0001	RADC II-191	65					10%		.032	.5	.0016
			Microdot	142-1002-0001	RADC II-191	65					90%		.032	.5	.0144
			Microdot	142-1002-0001	RADC II-191	65					90%		.032	.5	.0144
			Microdot	142-1002-0001	RADC II-191	65					10%		.032	.5	.0016
			Microdot	142-1002-0001	RADC II-191	65					10%		.032	.5	.0016
			Microdot	142-1002-0001	RADC II-191	65					10%		.032	.5	.0016
			Microdot	142-1002-0001	RADC II-191	65					10%		.032	.5	.0016
			Microdot	142-1002-0001	RADC II-191	65					100%		.00815	.5	.00408
			I.T.T. Can.	ES-C-211489 5p	RADC II-191	65					100%		.00238	.5	.00119
				377141 6p	RADC II-191	65					100%		.00258	.5	.00129

TEMP. _____ DATE 25 June 1973 TOTAL FAILURE RATE .12026 X10⁻⁵

FUNCTIONAL BLOCK Chassis Assembly Manpack

AT _____ DEGREES CENTIGRADE

PAGE 1 OF 2

DRAWING NO. 377100, Chassis Assembly

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[illegible]

TEMP. DATE 25 June 1973

TOTAL FAILURE RATE .054594 X10⁻⁵

FUNCTIONAL BLOCK Chassis Assembly Manpack

AT _____ DEGREES CENTIGRADE

PAGE 2 OF 2

DRAWING NO. 377161, Chassis Assembly

12 SS ANALYSIS

[illegible]TOTAL FAILURE RATE .3093974 $\times 10^{-5}$

TEMP. DATE 25 June 1973

FUNCTIONAL BLOCK 4 & 5 Volt Regulators Manpack

PAGE 1 OF 1

DRAWING NO. 377550, Power Supply

STRESS ANALYSIS

[illegible]

TEMP. DATE 25 June 1973

FUNCTIONAL BLOCK 10 Volt Regulator Manpack

PAGE 1 OF 1

DRAWING NO. 377550, Power SupplyTOTAL FAILURE RATE .232634 X10⁻⁵

AT _____ DEGREES CENTIGRADE

12 S SS ANALYSIS

ITEM # - B.M.	PART N.M.	SYMBOL	MANUFAC. TURER	PART NUMBER	APPLICABLE SPEC.	Temp. of	PARAMETER	RATED	QUISCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C1		CKR06PX104KR	198B/1001.2	65	volts	100	24	24	100%	.24	.0005	1	.0005
		C2		M39003/01-2379	217A/7.6-81	65	volts	50	24	24	100%	.48	.0059	-	.0059
		C11		L22612-20	217A/7.6-81	65	volts	10	5	5	100%	.5	.0065	-	.0065
		C12		L22612-20	217A/7.6-81	65	volts	10	5	5	100%	.5	.0065	-	.0065
		C13		F105R-20	217A/7.6-81	65	volts	20	15	15	100%	.75	.03	-	.03
		C14		F105R-20	217A/7.6-81	65	volts	20	15	15	100%	.75	.03	-	.03
		C15		L106R-20	217A/7.6-81	65	volts	20	15	15	100%	.75	.03	-	.03
		C16		L106R-20	217A/7.6-81	65	volts	20	15	15	100%	.75	.03	-	.03
		C17		M155R-20	217A/7.6-81	65	volts	35	20	6	100%	.57	.011	-	.011
		C18		CKR05BX104KR	198B/1001.2	65	volts	50	42	42	100%	.84	.006	1	.006
		C19		CKR05BX104KR	198B/1001.2	65	volts	50	42	42	100%	.84	.006	1	.006
	Inductor	L4	Cin. Elec.	377555-3	217A/7.7-9	65					100%		.2	1.5	.3
		L5	Cin. Elec.	377555-4	217A/7.7-9	65					100%		.2	1.5	.3
		L6	Cin. Elec.	377555-4	217A/7.7-9	65					100%		.2	1.5	.3
		L7	Cin. Elec.	377555-4	217A/7.7-9	65					100%		.2	1.5	.3
		L8	Cin. Elec.	377555-5	217A/7.7-9	65					100%		.2	1.5	.3
		L1	Cin. Elec.	377555-1	217A/7.7-9	65					100%		.2	1.5	.3
	Transformer	T4	Cin. Elec.	377554	217A/7.7-9	65					100%		.2	1.5	.3
	Diode S1	CR6		5R0	217A/7.4-11	.305 mW		500	34	34	100%	.03	.26	1.5	.39
		CR7		5R0	217A/7.4-11	.305 mW		500	34	34	100%	.03	.26	1.5	.39

TEMP. _____ DATE 25 June 1973 TOTAL FAILURE RATE .30424 X10⁻⁵

FUNCTIONAL BLOCK 15 Volt Regulator & DC/DC Converter Manpack AT _____ DEGREES CENTIGRADE

PAGE 1 OF 2

DRAWING NO. 377550, Power Supply

2712 PRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. of	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor
	Capacitor	C1		1506-04-4	217A/7.6-25	65	V	300 0	0	30	10%	1.1	.002	1
	Capacitor	C2		CKR05BX561KR	198B/1001.2	65	V	500 0	0	3	10%	1.1	.0005	1
	Capacitor	C3		CKR05BX561KR	198B/1001.2	65	V	200 0	0	4	10%	1.1	.0005	1
	Capacitor	C4		CKR05BX561KR	198B/1001.2	65	V	200 0	0	4	10%	1.1	.0005	1
	Capacitor	C5		1506-04-6	217A/7.6-25	65	V	300 0	0	3	10%	1.1	.002	1
	Capacitor	C6		CKR05BX561KR	198B/1001.2	65	V	200 0	0	4	10%	1.1	.0005	1
	Capacitor	C7		1506-04-2	217A/7.6-25	65	V	300 0	0	30	10%	1.1	.002	1
	Capacitor	C8		1506-04-19	217A/7.6-25	65	V	300 0	0	3	10%	1.1	.002	1
	Capacitor	C9		518-0000-20	217A/7.6-33	65	V	100 0	0	3	10%	1.1	.009	.0009
	Capacitor	C10		CKR05BX103KR	198B/1001.2	65	V	100 0	0	24	10%	.24	.0005	1
	Capacitor	C11		CKR05BX561KR	198B/1001.2	65	V	200 0	0	3	10%	1.1	.0005	1
	Capacitor	C12		CKR05BX561KR	198B/1002.2	65	V	200 0	0	3	10%	1.1	.0005	1
	Capacitor	C13		CKR05BX561KR	198B/1001.2	65	V	200 0	0	3	10%	1.1	.0005	1
	Capacitor	C14		CKR05BX561KR	198B/1001.2	65	V	200 0	0	1	10%	1.1	.0005	1
	Resistor	R1		RCR05G560JS	199A/301.2	65	mW	125 0	0	10	10%	1.1	.0002	6
	Resistor	R2		RCR05G560JS	199A/301.2	65	mW	125 0	0	10	10%	1.1	.0002	6
	Resistor	R3		RCR05G472JS	199A/301.2	65	mW	125 0	0	1	10%	1.1	.0002	6
	Resistor	R4		RCR05G472JS	199A/301.2	65	mW	125 0	0	1	10%	1.1	.0002	6
	Resistor	R5		RCR07G102JS	199A/301.2	65	mW	250 0	0	100	10%	.4	.0068	6
	Resistor	R6		RCR07G102JS	199A/301.2	65	mW	250 0	0	100	10%	.4	.0068	6

TEMP. _____ DATE 25 June 1973 TOTAL FAILURE RATE .000347 X10⁻⁵
 FUNCTIONAL BLOCK Coupler, Manpack AT _____ DEG CENTIGRADE
 PAGE 1 OF 4

DRAWING NO. 37200 Coupler & DC Control

STRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or	PARAMETER	RATED	QUANTITY	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor
	Capacitor	C15		CKR05BX561KR	198B/1001.2	65	V	200	0	1	10%	.1	.0005	1
	Capacitor	C16		CKR05BX103KR	198B/1001.2	65	V	100	0	24	10%	.24	.0005	1
	Capacitor	C17		CKR05BX562KR	198B/1001.2	65	V	200	0	24	5%	.12	.0005	1
	Capacitor	C18		CKR05BX562KR	198B/1001.2	65	V	200	0	24	5%	.12	.0005	1
	Capacitor	C19		CKR05BX562KR	198B/1001.2	65	V	200	0	24	10%	.12	.0005	1
	Capacitor	C20		CKR05BX562KR	198B/1001.2	65	V	200	0	24	10%	.12	.0005	1
	Capacitor	C21		CKR05BX562KR	198B/1001.2	65	V	200	0	24	5%	.12	.0005	1
	Capacitor	C22		CKR05BX562KR	198B/1001.2	65	V	200	0	24	5%	.12	.0005	1
	Capacitor	C23		CKR05BX562KR	198B/1001.2	65	V	200	0	24	5%	.12	.0005	1
	Capacitor	C24		CKR05BX562KR	198B/1001.2	65	V	200	0	24	5%	.12	.0005	1
	Capacitor	C25		CKR05BX562KR	198B/1001.2	65	V	200	0	24	5%	.12	.0005	1
	Capacitor	C26		CKR05BX562KR	198B/1001.2	65	V	200	0	24	5%	.12	.0005	1
	Capacitor	C27		CKR05BX562KR	198B/1001.2	65	V	200	0	24	5%	.12	.0005	1
	Capacitor	C28		CKR05BX562KR	198B/1001.2	65	V	200	0	24	5%	.12	.0005	1
	Capacitor	C29		CKR05BX562KR	198B/1001.2	65	V	200	0	24	5%	.12	.0005	1
	Capacitor	C30		CKR05BX562KR	198B/1001.2	65	V	200	0	24	10%	.12	.0005	1
	Capacitor	C31		CKR05BX103KR	198B/1001.2	65	V	100	0	24	10%	.24	.0005	1
	Capacitor	C32		CKR05BX103KR	198B/1001.2	65	V	100	0	24	10%	.24	.0005	1
	Capacitor	C33		1506-04-4	217A/7.6-25	65	V	300	0	30	10%	.1	.0002	1
		C34		1506-04-6	217A/7.6-25	65	V	300	0	30	5%	.1	.0002	1
		C35		1506-04-19	217A/7.6-25	65	V	300	0	30	5%	.1	.0002	1

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Coupler, Manpack

PAGE 2 OF 4

DRAWING NO. 1506-04-19, Coupler, Manpack

AT _____ DEGREES CENTIGRADE

TOTAL FAILURE RATE .000130 X10⁻⁵

STRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC-TURER	PART NUMBER	APPLICABLE SPEC.	Temp. or	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	R Factor	Tot. F. P
	Inductor	L10		1802-01-7	217A/7.7-9	65					10%	.2	1	.02	
	Inductor	L11		1802-01-7	217A/7.7-9	65					10%	.2	1	.02	
	Inductor	L12		1802-01-7	217A/7.7-9	65					10%	.2	1	.02	
	Relay	K1	Branson	LJ-7137	217A/7.10-5	65					10%	.0093	2.5	.002325	
	Relay	K2	Branson	LJ-7137	217A/7.10-5	65					10%	.0093	2.5	.002325	
	Relay	K3	Branson	LJ-7137	217A/7.10-5	65					10%	.0093	2.5	.002325	
	Relay	K4	Branson	LJ-7137	217A/7.10-5	65					10%	.0093	2.5	.002325	
	Relay	K5	Branson	LJ-7137	217A/7.10-5	65					10%	.0093	2.5	.002325	
	Relay	K6	Branson	LJ-7137	217A/7.10-5	65					10%	.0093	2.5	.002325	
	Connector	P1	Amphenol	85930-519P	RADCIL/191	65					100%	.00506	2.5	.00252	
	Connector	P3	Microdot	141-1005-000	RADCIL/191	65					100%	.032	.5	.016	
	Inductor	L13		VK20010/3B	217A/7.7-9	65					10%	.2	1	.02	
		L14		357230-10	217A/7.7-9	65					5%	.2	1	.01	
		L15		357230-10	217A/7.7-9	65					5%	.2	1	.01	
	Diode, S1	CR1		JANIN5711	217A/7.4-11	.228	mw	250	0	.21	10%	.210	1.5	.0315	
		CR2		JANIN5711	217A/7.4-11	.228	mw	250	0	.21	10%	.21	1.5	.0315	
		CR3		JANIN5711	217A/7.4-11	.228	mw	250	0	.21	10%	.21	1.5	.0315	
		CR4		JANIN5711	217A/7.4-11	.228	mw	250	0	.21	10%	.21	1.5	.0315	
		CR5		JANIN5711	217A/7.4-11	.228	mw	250	0	.21	10%	.21	1.5	.0315	
	Connector	P2		MM29-225D205	RADCIL/191	65					100%	.00716	.5	.00358	

Hybrid U1 CEC 376114 USAECOM 65 10% .2064 .02064

TEMP. DATE 25 June 1973

TOTAL FAILURE RATE .031419 X10⁻⁵

FUNCTIONAL BLOCK Coupler, Manpack

AT DEGREES CENTIGRADE

PAGE 4 OF 4

DRAWING NO. 377200, Coupler & DC Control

APPENDIX 11

STRESS ANALYSIS - VEHICULAR

RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC-TURER	PART NUMBER	APPLICABLE SPEC.	Temp. or T _a	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. P
	Capacitor	C1	JFD	DV510H	217A/7.6-33	65	volts	100	0	.1	30%	< .1	.009	-	.0027
		C2		1501-36-55	217A/7.6-25	65	volts	100	0	.1	30%	< .1	.002	5	.003
		C4	JFD	DV510H	217A/7.6-33	65	volts	100	0	.1	30%	< .1	.009	-	.0027
		C5		1501-36-55	217A/7.6-25	65	volts	100	0	.1	30%	< .1	.002	5	.003
		C7	JFD	DV510H	217A/7.6-33	65	volts	100	0	.1	30%	< .1	.009	-	.0027
		C6		1501-36-55	217A/7.6-25	65	volts	100	0	.1	30%	< .1	.002	5	.003
		C12		1501-36-55	217A/7.6-25	65	volts	100	0	.1	30%	< .1	.002	5	.003
		C13	JFD	DV510H	217A/7.6-33	65	volts	100	0	.1	30%	< .1	.009	-	.0027
		C9		CKR05BX102KR	198B/1001.2	65	volts	200	15	15	100%	.075	.0005	5	.0025
	Resistor	R1		RCR05G104JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R2		RCR05G302JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R3		RCR05G104JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R4		RCR05G302JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R8		RCR05G104JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R9		RCR05G202JS	199A/301.2	65	mW	125	0	10	30%	< .1	.0002	10	.0006
	Inductor RF	L1	Lenox Fugle	NR2.7	217A/7.7-9	65					30%		.2	8.6	.516
		L2	Lenox Fugle	NR3.3	217A/7.7-9	65					30%		.2	8.6	.516
		L3	Lenox Fugle	NR3.9	217A/7.7-9	65					30%		.2	8.6	.516
		L4	Lenox Fugle	NR1.8	217A/7.7-9	65					30%		.2	8.6	.516
		L5	Lenox Fugle	NR0.47	217A/7.7-9	65					30%		.2	8.6	.516

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Preselector, Band I Vehicular

PAGE 1 OF 3

DRAWING NO. 377450, Tuner

TOTAL FAILURE RATE 261590 X10⁻⁵

AT _____ DEGREES CENTIGRADE

2712 STRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC. TUNER	PART NUMBER	APPLICABLE SPEC.	Temp. °F	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Temp. °F
	Capacitor	C11		CKR05BX102KR	198B/1001.2	65	Volts	200	10	4	100%	< .1	.0005	5	.0025
		C3		CKR05BX102KR	198B/1001.2	65	Volts	200	90	90	100%	.45	.001	5	.005
	Transformer	T1	Cin. Elec.		217A/7.7-9	65					30%		.2	10	.6
		T2	Cin. Elec.		217A/7.7-9	65					30%		.2	10	.6
	Relay	K1	Teledyne	421D-26	217A/7.10-5	65					30%		.0093	50	.1425
	Diode Varac.	CR1	TRW	371256-1	Cin. Elec.	65					100%	< .1	1.0	-	1.0
		CR2	TRW	371256-1	Cin. Elec.	65					100%	< .1	1.0	-	1.0
		CR3	TRW	371256-1	Cin. Elec.	65					100%	< .1	1.0	-	1.0
		CR4	TRW	371256-1	Cin. Elec.	65					100%	< .1	1.0	-	1.0
		CR5	TRW	371256-1	Cin. Elec.	65					100%	< .1	1.0	-	1.0
		CR6	TRW	371256-1	Cin. Elec.	65					100%	< .1	1.0	-	1.0
		CR7	TRW	371256-1	Cin. Elec.	65					100%	< .1	1.0	-	1.0
		CR8	TRW	371256-1	Cin. Elec.	65					100%	< .1	1.0	-	1.0
	Capacitor	C10		CKR05BX102KR	198B/1001.2	65	Volts	200	15	15	100%	< .1	.0005	5	.0025
		C14		CKR05BX102KR	198B/1001.2	65	Volts	200	0	5	30%	< .1	.0005	5	.00075
		C15		CKR05BX102KR	198B/1001.2	65	Volts	200	0	5	30%	< .1	.0005	5	.00075
		C23		CKR05BX102KR	198B/1001.2	65	Volts	200	90	90	100%	.45	.0005	5	.005
		C24		CKR05BX102KR	198B/1001.2	65	Volts	200	15	15	100%	< .1	.0005	5	.0025
		C25		CKR05BX102KR	198B/1001.2	65	Volts	200	15	15	100%	< .1	.0005	5	.0025
		C26		CKR05BX102KR	198B/1001.2	65	Volts	200	0	5	30%	< .1	.0005	5	.00075

TEMP. _____ DATE 25 June 1973 TOTAL FAILURE RATE .936475 X10⁻⁵

FUNCTIONAL BLOCK Pres-selector, Band 1 Vehicular AT _____ DEGREES CENTIGRADE

PAGE 2 OF 3

DRAWING NO. 372450, Tuner

2712

PRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC. TUNER	PART NUMBER	APPLICABLE SPEC.	Temp. of T _a	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. P.
	Capacitor	C63		CKR05BX102KR	198B/1001.2	65	volts	200	15	15	100%	< .1	.0005	5	.0025
		C15		1501-36-102	217A/7.6-25	65	volts	100	0	.1	30%	< .1	.002	5	.003
	Resistor	R5		RCR05G104JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R6		RCR05G622JS	199A/301.2	65	mW	125	0	< 1	30%	< .1	.0002	10	.0006
		R7		RCR05G302JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R11		RCR05G333JS	199A/301.2	65	mW	125	0	< 1	30%	< .1	.0002	10	.0006
		R12		RCR05G104JS	199A/301.2	65	mW	125	0	< 1	30%	< .1	.0002	10	.0006
		R13		RCR05G303JS	199A/301.2	65	mW	125	0	< 1	30%	< .1	.0002	10	.0006
		R14		RCR05G303JS	199A/301.2	65	mW	125	0	< 1	30%	< .1	.0002	10	.0006
	Inductor	L6	Lenox Fugle	NR10	217A/7.7-9	65					30%		.2	8.6	.516
		L7	Lenox Fugle	NR10	217A/7.7-9	65					30%		.2	8.6	.516
		L12	Lenox Fugle	NR10	217A/7.6-25	65					90%		.2	8.6	1.548
	Transformer	T3	Cin. Elec.		217A/7.7-9	65					30%		.2	10	.6
		T4	Cin. Elec.		217A/7.7-9	65					30%		.2	10	.6
	PTT Translator	Q1	Siliconix	U320	217A/7.4-13	37	watts	3	0	.15	30%	.05	.608	8	1.4592
SiPnP	Translator	Q2		JAN2N2907	217A/7.4-13	228	mA	400	0	.6	30%	< .01	.511	8	1.2264
	Diode, Pin	CR9	Hew. Pack.	HP5082-3168	217A/7.4-11	32	mW	250	0	1.4	30%	< .01	.269	3.5	.28245

TEMP.

DATE 25 June 1973

TOTAL FAILURE RATE .676055 X10⁻⁵

FUNCTIONAL BLOCK

Preselector, Band I

Vehicular

AT _____ DEGREES CENTIGRADE

PAGE 3 OF 3

DRAWING NO. 377450, Tuner

2712 TRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC. TUNER	PART NUMBER	APPLICABLE SPEC.	Temp. of	PARAMETER	RATED	QUISCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F
	Capacitor	C29		CKR05BX102KR	198B/1001.2	65	volts	200	90	90	100%	.45	.001	5	.005
		C27	JFD	DV510H	217A/7.6-33	65	volts	100	0	.1	30%	<.1	.009	-	.0027
		C28		1501-36-49	217A/7.6-25	65	volts	100	0	.1	30%	<.1	.002	5	.003
		C30		DV501H	217A/7.6-33	65	volts	100	0	.1	30%	<.1	.009	-	.0027
		C31		1501-36-49	217A/7.6-25	65	volts	100	0	.1	30%	<.1	.002	5	.003
		C33		DV510H	217A/7.6-33	65	volts	100	0	.1	30%	<.1	.009	-	.0027
		C32		1501-36-49	217A/7.6-25	65	volts	100	0	.1	30%	<.1	.002	5	.003
		C34		1501-36-62	217A/7.6-25	65	volts	100	0	.1	30%	<.1	.002	5	.003
		C40		DV510H	217A/7.6-33	65	volts	100	0	.1	30%	<.1	.009	-	.0027
		C36		CKR05BX102KR	198B/1001.2	65	volts	200	15	15	100%	.075	.0005	5	.0025
		C37		CKR05BX102KR	198B/1001.2	65	volts	200	0	.1	30%	<.1	.0005	5	.00075
	Resistor	R15		RCR05G303JS	199A/301.2	65	mW	125	<1	<1	100%	<.1	.0002	10	.002
		R16		RCR05G204JS	199A/301.2	65	mW	125	<1	<1	100%	<.1	.0002	10	.002
		R17		RCR05G302JS	199A/301.2	65	mW	125	<1	<1	100%	<.1	.0002	10	.002
		R18		RCR05G204JS	199A/301.2	65	mW	125	<1	<1	100%	<.1	.0002	10	.002
		R19		RCR05G302JS	199A/301.2	65	mW	125	<1	<1	100%	<.1	.0002	10	.002
		R20		RCR05G204JS	199A/301.2	5	mW	125	<1	<1	100%	<.1	.0002	10	.002
	Inductor RF	L13	Lenox Fugle	NR-3,9	217A/7.7-9	65					30%		.2	8.6	.516
		L14	Lenox Fugle	NR-2,7	217A/7.7-9	65					30%		.2	8.6	.516
		L15	Lenox Fugle	NR-3,9	217A/7.7-9	65					30%		.2	8.6	.516

TEMP. .159105 TOTAL FAILURE RATE X10⁻⁵

DATE 25 June 1973

FUNCTIONAL BLOCK Preselector, Band II Vehicular

PAGE 1 OF 4

DRAWING NO. 377450, Tuner

STRESS ANALYSIS

ITEM # - D.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. in	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	F Factor	Tot. F.
	Inductor RF	L16	Lenox Fugle	NR2-2	217A/7.7-9	65					30%		.2	8.6	.516
		L17	Lenox Fugle	NR0-33	217A/7.7-9	65					30%		.2	8.6	.516
RF	Transformer	T5	Cin. Elec.		217A/7.7-9	65					30%		.2	10	.6
		T6	Cin. Elec.		217A/7.7-9	65					30%		.2	10	.6
	Relay	K2	Teledyne	421D-26	217A/7.10-5	65					30%		.2	10	.6
	Diode Varac.	CR10	C.D. Co.	3215	RADC II/369	65					100%	< .1	1.0	50	.1425
		CR11	C.D. Co.	3215	RADC II/369	65					100%	< .1	1.0	-	1.0
		CR12	C.D. Co.	3215	RADC II/369	65					100%	< .1	1.0	-	1.0
		CR13	E.D. Co.	3215	RADC II/369	65					100%	< .1	1.0	-	1.0
		CR14	C.D. Co.	3215	RADC II/369	65					100%	< .1	1.0	-	1.0
		CR15	C.D. Co.	3215	RADC II/369	65					100%	< .1	1.0	-	1.0
		CR16	C.D. Co.	3215	RADC II/369	65					100%	< .1	1.0	-	1.0
		CR17	C.D. Co.	3215	RADC II/369	65					100%	< .1	1.0	-	1.0
		CR18	C.D. Co.	3215	RADC II/369	65					100%	< .1	1.0	-	1.0
		CR19	C.D. Co.	3215	RADC II/369	65					100%	< .1	1.0	-	1.0
		CR20	C.D. Co.	3215	RADC II/369	65					100%	< .1	1.0	-	1.0
		CR21	C.D. Co.	3215	RADC II/369	65					100%	< .1	1.0	-	1.0
		CR22	TRW	371256-1	RADC II/369	65					100%	< .1	1.0	-	1.0
		CR23	TRW	371256-1	RADC II/369	65					100%	< .1	1.0	-	1.0
	Capacitor	C35		CR205EX102KR	1982/1001.2	65	voltage	200	10	4	100%	< .1	1.0005	5	.0025

TEMP. _____ DATE 25 June 1973 TOTAL FAILURE RATE 1.63770 X10⁻⁵
 FUNCTIONAL BLOCK Pres-selector, Band II Vehicular AT _____ DEGREES CENTIGRADE
 PAGE 2 OF 4
 DRAWING NO. 327450, Tuner

2712 RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC. TUNER	PART NUMBER	APPL. CABLE SPEC.	Temp. of T_p	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. P
	Capacitor	C39		1501-36-53	217A/7.6-25	65		100	0	.1	30%	<.1	.002	5	.003
		C41		CR05BX102KK	198B/1001.2	65		200	0	5	30%	<.1	.0005	5	.00075
		C42		CR05BX102KK	198B/1001.2	65		200	0	5	30%	<.1	.0005	5	.00075
		C43		CR05BX102KK	198B/1001.2	65		200	90	90	100%	.45	.001	5	.005
		C44		CR05BX102KK	198B/1001.2	65		200	15	15	100%	<.1	.0005	5	.0025
		C45		CR05BX102KK	198B/1001.2	65		200	0	5	30%	<.1	.0005	5	.00075
		C62		CR05BX102KK	198B/1001.2	65		200	90	90	100%	.45	.001	5	.005
	Resistor	R21		RCR05G104JS	199A/301.2	65	mW	125	<1	<1	100%	<.1	.0002	10	.002
		R22		RCR05G302JS	199A/301.2	65	mW	125	<1	<1	100%	<.1	.0002	10	.002
		R23		RCR05G202JS	199A/301.2	65	mW	125	9	10	30%	<.1	.0002	10	.0006
		R24		RCR05G333JS	199A/301.2	65	mW	125	0	<1	30%	<.1	.0002	10	.0006
		R25		RCR05G104JS	199A/301.2	65	mW	125	0	<1	30%	<.1	.0002	10	.0006
		R26		RCR05G303JS	199A/301.2	65	mW	125	0	<1	30%	<.1	.0002	10	.0006
		R27		RCR05G303JS	199A/301.2	65	mW	125	0	<1	30%	<.1	.0002	10	.0006
	Inductor	L19	Lenox Fugle	FR10	217A/7.7-9	65					30%		.2	8.6	.516
		L18	Lenox Fugle	FR10	217A/7.7-9	65					30%		.2	8.6	.516
	Transformer	T7	Cin. Elec.		217A/7.7-9	65					30%		.2	10	.6
		T8	Cin. Elec.		217A/7.7-9	65					30%		.2	10	.6
	Diode Pin	CR24	Hew. Pac.	RP2082-3168	217A/7.4-11	.32	mW	250	0	1.4	30%	<.01	.269	3.5	.28245
	FET Transistor	Q3	Silliconix	Q320	217A/7.4-13	.37	mW	400	0	.15	30%	.05	.608	8	1.4592

.39984

TEMP. _____ DATE 25 June 1973 TOTAL FAILURE RATE _____ X10⁻⁵

FUNCTIONAL BLOCK Pres-selector, Band II Vehicular

PAGE 3 OF 4

DRAWING NO. 377450, Tuner

-112
ESS ANALYSIS[illegible]

TOTAL FAILURE RATE .12264 $\times 10^{-5}$

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Preselector, Band II Vehicular

PAGE 4 OF 4
DRAWING NO. 377450, Tuner

STRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC-TURER	PART NUMBER	APPL CABLE SPEC.	Temp. °F	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor
	Capacitor	C46	JFD	DV510H	217A/7.6-33	65	volts	100	0	.1	30%	< .1	.009	.0027
		C48	JFD	DV510H	217A/7.6-33	65	volts	100	0	.1	30%	< .1	.009	.0027
		C49	JFD	DV510H	217A/7.6-33	65	volts	100	0	.1	30%	< .1	.009	.0027
		C56	JFD	DV510H	217A/7.6-33	65	volts	100	0	.1	30%	< .1	.009	.0027
		C47		CKR05BX102XR	198B/1001.2	65	volts	200	90	90	100%	.4	.001	.005
		C50		1501-36-71	217A/7.6-25	65	volts	100	0	.1	30%	< .1	.002	.0030
		C51		CKR05BX102UR	198B/1001.2	65	volts	200	90	90	100%	.4	.001	.005
		C52		CKR05BX102UR	198B/1001.2	65	volts	200	15	15	100%	< .1	.0005	.0026
		C53		CKR05BX102UR	198B/1001.2	65	volts	200	0	.1	30%	< .1	.0005	.00073
Resistor		R28		RCR05G204JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	.002
		R29		RCR05G302JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	.002
		R30		RCR05G304JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	.002
		R31		RCR05G302JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	.002
		R32		RCR05G204JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0003	.002
		R33		RCR05G303JS	199A/301.2	65	mW	125	0	< 1	30%	< .1	.0002	.0006
Inductor RF		L20	Lenox Fugle	NR3.9	217A/7.7-9	65					30%		.2	8.6 .516
		L21	Lenox Fugle	NR2.2	217A/7.7-9	65					30%		.2	8.6 .516
		L22	Lenox Fugle	NR3.9	217A/7.7-9	65					30%		.2	8.6 .516
		L23	Lenox Fugle	NR2.2	217A/7.7-9	65					30%		.2	8.6 .516
		L24	Lenox Fugle	NR10	217A/7.7-9	65					30%		.2	8.6 .516

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Preselector, Band III Vehicular

PAGE 1 OF 3

DRAWING NO. 377450, Tuner

TOTAL FAILURE RATE .261765 X10⁻⁵

AT _____ DEGREES CENTIGRADE

2712

TRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC-TURER	PART NUMBER	APPL CABLE SPEC.	Temp. or	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor
	Inductor RP	L25	Lenox Fugle	NR0-33	217A/7.7-9	65					30%		2	8.6 515
		L26	Lenox Fugle	NR10	217A/7.7-9	65					30%		2	8.6 516
	RF Transformer	T9	Cin. Elec.		217A/7.7-9	65					30%		2	10 6
		T10	Cin. Elec.		217A/7.7-9	65					30%		2	10 6
	Relay	K3	Teledyne	421D-26	217A/7.10-5	65					30%		0093	50 1425
	Diode Varac.	CR25	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	1.0	1.0
		CR26	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	1.0	1.0
		CR27	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	1.0	1.0
		CR28	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	1.0	1.0
		CR29	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	1.0	1.0
		CR30	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	1.0	1.0
		CR31	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	1.0	1.0
		CR32	C.D. Co.	3215	Cin. Elec.	65					100%	< .1	1.0	1.0
	Diode Pin	CR33	Hew. Pac.	HP5082-3168	217A/7.4-11	.32	mW	250	0	1.4	30%	< .01	269	3.5 28245
	Capacitor	C54		1501-36-53	217A/1.6-25	65	volts	100	0	.1	30%	< .1	002	5 .003
		C55		CKR05BX102KR	198B/301.2	65	volts	200	10	4	100%	< .1	0005	5 .0025
		C57		CKR05BX102KR	198B/301.2	65	volts	200	0	5	30%	< .1	0005	5 .00075
		C58		CKR05BX102KR	198B/301.2	65	volts	200	0	5	30%	< .1	0005	5 .00075
		C59		CKR05BX102KR	198B/1001.2	65	volts	200	0	5	30%	< .1	0005	5 .00075
		C60		CKR05BX102KR	198B/1001.2	65	volts	200	15	15	100%	< .1	0005	5 .0025

TEMP.

DATE 25 June 1973

TOTAL FAILURE RATE 1.06672 X10⁻⁵

FUNCTIONAL BLOCK

Preselector, Band III

Vehicular

PAGE 2 OF 3

AT DEGREES CENTIGRADE

DRAWING NO. 377450, Tuner

272

[illegible]

TEMP. DATE 25 June 1973

TOTAL FAILURE RATE .544950

FUNCTIONAL BLOCK Preselector, Band III Vehicular

AT _____ DEGREES CENTIGRADE

PAGE 3 OF 3

DRAWING NO. 377450 T 1221

PRESS ANALYSIS

ITEM # - B.M.	PART NAME	SMBOL	MANUFAC- TURER	PART NUMBER	APPLICABLE SPEC.	Temp. °F.	PARAMETER	RATED	QUISCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. P.
	Capacitor	C16		CKR05BX102KR	198B/1001.2	65	volts	200	0	5	90%	<.1	.0005	-	.00225
		C17		CKR05BX102KR	198B/1001.2	65	volts	200	0	2.5	90%	<.1	.0005	5	.00225
		C18		1501-36-58	217A/7.6-25	65	volts	100	0	2.5	90%	<.1	.002	5	.009
		C19		1501-36-55	217A/7.6-25	65	volts	100	0	.1	90%	<.1	.002	5	.009
		C20		1501-36-60	217A/7.6-25	65	volts	100	0	2.5	90%	<.1	.002	5	.009
		C21		1501-36-71	217A/7.6-25	65	volts	100	0	.1	90%	<.1	.002	5	.009
		C22		1501-36-53	217A/7.6-53	65	volts	100	0	2.5	90%	<.1	.002	5	.009
	Resistor	R10		RCR05G202JS	199A/301.2	65	mW	125	0	10	90%	<.1	.0002	10	.0018
	Inductor	L8	Lenox Fugete	NR10	217A/7.7-9	65					90%	.2		8.6	1.548
		L9	Cin. Elec.		217A/7.7-9	65					90%	.2		8.6	1.548
		L10	Cin. Elec.		217A/7.7-9	65					90%	.2		8.6	1.548
	Mixer	U1	Ralcom	M6D	217A/7.4.11 7.7-9	65					90%		14.38	-	12.942
	Connector	P1	Microdot	141-1005-0001	RADC II/191	65					90%	.064	.5	.0288	
		P2	Amp	85930-4 8p	RADC II/191	65					100%	.0058	.5	.0029	
		P3	Amp	85930-4 10p	RADC II/191	65					100%	.00652	.5	.00326	
		P4	Microdot	141-1005-0001	RADC II/191	65					30%	.064	.5	.0096	
		P5	Microdot	141-1005-0001	RADC II/191	65					30%	.064	.5	.0096	

TEMP.

DATE 25 June 1973

FUNCTIONAL BLOCK	Mixer and Connectors	Vehicular
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PAGE 1 OF 1

DRAWING NO. 377450 TUNER

TOTAL FAILURE RATE		$\times 10^{-5}$
	1.769146	

AT _____ DEGREES CENTIGRADE

STRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC-TURER	PART NUMBER	APPLICABLE SPEC.	Temp. or In	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C1		1501-36-60	217A/7.6-25	65	volts	100	0	1	90%	< .1	.002	5	.009
		C2		1501-36-60	217A/7.6-25	65	volts	100	0	1	90%	< .1	.002	5	.009
		C3		CKR05BX103KR	198B/1001.2	65	volts	100	1	1	100%	< .1	.0003	5	.0023
		C4		CKR05BX103KR	198B/1001.2	65	volts	100	.5	.5	100%	< .1	.0003	5	.0023
		C5		CKR05BX103KR	198B/1001.2	65	volts	100	5	5	100%	< .1	.0003	5	.0023
		C6		CKR05BX103KR	198B/1001.2	65	volts	100	5	5	100%	.03	.0003	5	.0023
	Resistor	R1		RCR05G123JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R2		RCR05G393JS	199A/301.2	65	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R3		RCR05G100JS	199A/301.2	65	mW	125	2.5	2.5	100%	< .1	.0002	10	.002
	Inductor RF	L1	Lenox Fugle	NR3.3	217A/7.7-9	65					100%		.2	8.6	1.72
		L2	Lenox Fugle	NR3.3	217A/7.7-9	65					100%		.2	8.6	1.72
	Hybrid	HY1	Cin. Elec.	376259	USAECOM	65					100%		3.6120	-	3.6120
		HY2	Cin. Elec.	376259	USAECOM	65					100%		3.6120	-	3.6120
		HY3	Cin. Elec.	376259	USAECOM	65					100%		3.6120	-	3.6120
		HY4	Cin. Elec.	377668	USAECOM	65					100%		5.0344	-	5.0344
	Connector	P1	Microdot	141-1002-0001	RADC II/191	65					90%		.064	.5	.0288
		P2	Microdot	141-1002-0001	RADC II/191	65					0		.064	.5	0
	Crystal Fil.	FL1		376270	217A/7.12-3	65					89%		4.08	-	3.6312
		FL2		376252	217A/7.12-3	65					45%		4.08	-	1.836
	Hybrid	HY5	Cin. Elec.	376261	USAECOM	65					100%		.5362	-	.5362

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Receive IF Vehicular

PAGE 1 OF 3

DRAWING NO. 377400, IF

TOTAL FAILURE RATE 2.53766 X10⁻⁵

AT _____ DEGREES CENTIGRADE

ESS ANALYSIS

ITEM # - B.M.

PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or In	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
Hybrid	HY6	Cin. Elec.	376261	USAECON	65					100%		5362	-	5362
Crystal Fil.	FL3		376270	217A/7.12-3	65					44%		4.08	-	1.7952
			376251	217A/7.12-3	65					1%		4.08	-	.0408
			376251	217A/7.12-3	65					1%		4.08	-	.0408
Capacitor	C7		CR05BX103KR	198B/1001.2	65	volts	200	0	0	0		.0005	5	0
Resistor	R4		RCR05G911JS	199A/301.2	65	mW	125	<1	<1	100%	<.1	.0002	10	.002
	R5		RCR05G101JS	199A/301.2	65	mW	125	<1	<1	100%	<.1	.0002	10	.002
	R6		RCR05G274JS	199A/301.2	65			10	5	100%	<.1	.0002	10	.002
	R7		RCR05G274JS	199A/301.2	65			15	10	100%	<.1	.0002	10	.002
	R10		RCR05G151JS	199A/301.2	65			0	0	0	<.1	.0002	10	0
Inductor	L3	Cin. Elec.	377402	217A/7.7-9	65					100%		.2	8.6	1.72
	L4	Lenox Fugle	NR82	217A/7.7-9	65					100%		.2	8.6	1.72
	L5	Lenox Fugle	NR82	217A/7.7-9	65					100%		.2	8.6	1.72
	L6	Lenox Fugle	NR82	217A/7.7-9	65					100%		.2	8.6	1.72
	L7	Lenox Fugle	NR82	217A/7.7-9	65					100%		.2	8.6	1.72
	L8	Lenox Fugle	NR82	217A/7.7-9	65					100%		.2	8.6	1.72
	L9	Lenox Fugle	NR82	217A/7.7-9	65					100%		.2	8.6	1.72
	L10	Lenox Fugle	NR82	217A/7.7-9	65					100%		.2	8.6	1.72
	L11	Lenox Fugle	NR82	217A/7.7-9	65					100%		.2	8.6	1.72
	L12	Lenox Fugle	NR81	217A/7.7-9	65					100%		.2	8.6	1.72

TEMP. _____ DATE 25 June 1973 TOTAL FAILURE RATE 1.9621 X10⁻⁵

FUNCTIONAL BLOCK Receive IF Vehicular AT _____ DEGREES CENTIGRADE

PAGE 2 OF 3

DRAWING NO. 377400, IF

4722

[illegible]

TEMP. _____ DATE 25 June 1973

TOTAL FAILURE RATE	.2152	X10 ⁻⁵
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FUNCTIONAL BLOCK Receive IF Vehicular

AT _____ DEGREES CENTIGRADE

PAGE 3 OF 3

DRAWING NO. 3774.00 IF

[illegible]

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Band and Tuner Control Vehicular

PAGE 1 OF 1

DRAWING NO. 377400, IF

TOTAL FAILURE RATE .885762 X10⁻⁵
AT _____ DEGREES CENTIGRADE

2732 STRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. °F	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C1		NP105A-10	217A/7.6-81	65	volts	4	0	.1	90%	.02	.0011	-	.00099
		C2		VK30BA472K	217A/7.6-57	65	volts	50	10	10	100%	.2	.0065	5	.0325
		C3		VK30BA103K	217A/7.6-57	65	volts	50	10	10	100%	.2	.0015	5	.0325
		C5		S685R-10	217A/7.6-81	65	volts	35	12	12	100%	.34	.0027	-	.0027
		C6		J226R-10	217A/7.6-81	65	volts	35	12	12	100%	.34	.0027	-	.0027
		C7		J226R-10	217A/7.6-81	65	volts	35	12	12	100%	.34	.0027	-	.0027
		C8		J226R-10	217A/7.6-81	65	volts	35	12	12	100%	.34	.0027	-	.0027
	Resistor	R1		RCR05G274JS	199A/301.2	65	mW	125	.1	.1	100%	<.1	.0002	10	.002
		R2		RCR05G274JS	199A/301.2	65	mW	125	.1	.1	100%	<.1	.0002	10	.002
		R3		RCR05G274JS	199A/301.2	65	mW	125	.1	.1	100%	<.1	.0002	10	.002
		R4		RCR05G182JS	199A/301.2	65	mW	125	<.1	<.1	100%	<.1	.0002	10	.002
		R5		RCR05G514JS	199A/301.2	65	mW	125	.5	.5	100%	<.1	.0002	10	.002
		R6		RN55D	217A/7.5-27	65	mW	125	.5	.5	100%	<.1	.4	.3	.12
		R7		RCR05G514JS	199A/301.2	65	mW	125	.5	.5	100%	<.1	.0002	10	.002
		R8		RN55D	217A/7.5-27	65	mW	125	.5	.5	100%	<.1	.4	.3	.12
		R11		RCR05GXXXJS	199A/301.2	65	mW	125	.1	.1	100%	<.1	.0002	10	.002
		R12		RCR05GXXXJS	199A/301.2	65	mW	125	.1	.1	100%	<.1	.0002	10	.002
		R13		RCR05GXXXJS	199A/301.2	65	mW	125	.1	.1	100%	<.1	.0002	10	.002
		R14		RCR05GXXXJS	199A/301.2	65	mW	125	.1	.1	100%	<.1	.0002	10	.002
		R15		RCR05GXXXJS	199A/301.2	65	mW	125	.1	.1	100%	<.1	.0002	10	.002

TEMP. DATE 25 June 1973 TOTAL FAILURE RATE .033879 X10⁻⁵

FUNCTIONAL BLOCK Receive Audio Vehicular

PAGE 1 OF 2

DRAWING NO. 377500, Audio

AT DEGREES CENTIGRADE

2712 PRESS ANALYSIS

[illegible]

TEMP. DATE 25 June 1973

FUNCTIONAL BLOCK Receive Audio Vehicular

PAGE 2 OF 2

DRAWING NO. 377500, Audio

TOTAL FAILURE RATE 3.43591 X10⁻⁵

AT _____ DEGREES CENTIGRADE

712
LESS ANALYSIS

[illegible]

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Transmit Audio Vehicular

PAGE 1 OF 2

DRAWING NO. 377500, Audio

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or T _a	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	10 ⁶ F. R
	Resistor	R10		RCR07G562JS	199A/301.2	65	mW	250	0	<1	10%	<.1	.0002	10	.0002
		R11		RCR07G750JS	199A/301.2	65	mW	250	0	<1	10%	<.1	.0002	10	.0002
		R12		RCR07G750JS	199A/301.2	65	mW	250	0	<1	10%	<.1	.0002	10	.0002
		R13		RCR07G473JS	199A/301.2	65	mW	250	0	<1	10%	<.1	.0002	10	.0002
		R14		RCR07G473JS	199A/301.2	65	mW	250	0	<1	10%	<.1	.0002	10	.0002
	Capacitor	C45		DM5C050DP	217A/7.6-21	65	volts	300	0	15	10%	<.1	.0003	15	.0004
		C46		DM5C390GP	217A/7.6-21	65	volts	300	0	15	10%	<.1	.0003	15	.0004
		C47		CKR05BX102KR	198B/1001.2	65	volts	200	0	7	10%	<.1	.0005	5	.0002
		C48		CKR05BX102KR	198B/1001.2	65	volts	200	0	7	10%	<.1	.0005	5	.0002
		C49		CKR05BX102KR	198B/1001.2	65	volts	200	0	7	10%	<.1	.0005	5	.0002
		C50		CKR05BX102KR	198B/1001.2	65	volts	200	0	7	10%	<.1	.0005	5	.0002
	Inductor	L25	Cin. Elec.		217A/7.2-9	65					10%		.2	8.6	.172
		L26	Cin. Elec.		217A/7.2-9	65					10%		.2	8.6	.172
		L27	Delevan	1025-32	217A/7.2-9	65					10%		.2	8.6	.172
		L28	Delevan	1025-32	217A/7.2-9	65					10%		.2	8.6	.172
	Transformer	T4	Cin. Elec.		217A/7.2-9	65					10%		.2	10	.2
	Diode SI	CR7	Hew. Pac.	HP5082-2800	217A/7.4-11	.228	mW	250	0	<1	10%	<.1	.21	3.5	.0735
		CR8	Hew. Pac.		217A/7.4-11	.228	mW	250	0	<1	10%	<.1	.21	3.5	.0735
	Connector	P1		51-728-000-2G	RADC II/191	65					10%		.064	.5	.0032
		P2		51-728-000-2G	RADC II/191	65					10%		.064	.5	.0032

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK RF Power Detector Vehicular

PAGE 1 OF 2

DRAWING NO. 377257, Filter Assembly

TOTAL FAILURE RATE .104430 X10⁻⁵

AT _____ DEGREES CENTIGRADE

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[illegible]

TOTAL FAILURE RATE .0000308 X10⁻⁵

AT _____ DEGREES CENTIGRADE

TEMP. DATE 25 June 1973

FUNCTIONAL BLOCK **RF power Detector** **Vehicular**

PAGE 2 OF 2

DRAWING NO. 377257, Filter Assembly

RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. #
	Capacitor	C15		ATC100B4R3BRW	217A/7.6-59	65	volts	300	0	< 1	3%	< .1	.021	18	.01134
		C16		DM5C130DP	217A/7.6-21	65	volts	300	0	< 1	3%	< .1	.0003	15	.000135
		C17		DM5C330DP	217A/7.6-21	65	volts	300	0	< 1	3%	< .1	.0003	15	.000135
		C18		ATC10089R1BRW	217A/7.6-59	65	volts	300	0	< 1	3%	< .1	.021	18	.01134
		C19		DM5C430DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	15	.000135
		C20		DM5C101GP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	15	.000135
		C21		DM5C910GP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	15	.000135
		C22		DM5C910GP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	15	.000135
		C23		DM5C330DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	15	.000135
		C8		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	3%	.24	.0005	5	.00008
		C11		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	3%	.24	.0005	5	.00008
	Inductor	L5	Delevan	1025-32	217A/7.7-9	65					3%		.2	8.6	.0516
		L6	Delevan	1025-32	217A/7.7-9	65					3%		.2	8.6	.0516
		L7	Delevan	1025-32	217A/7.7-9	65					3%		.2	8.6	.0516
		L8	Delevan	1025-32	217A/7.7-9	65					3%		.2	8.6	.0516
		L9	Cin. Elec.		217A/7.7-9	65					3%		.2	8.6	.0516
		L10	Cin. Elec.		217A/7.7-9	65					3%		.2	8.6	.0516
	Pelay	K1		GB-831C-5F	217A/7.10-5	65					3%		.101	50	.1515
		K2		GB-831C-5F	217A/7.10-5	65					3%		.101	50	.1515
		C14		CKR05BX103KR	198B/1001.2	65	volts	200	24	24	100%	.24	.0005	5	.00025

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Filter, Band I Vehicular

PAGE 1 OF 2

DRAWING NO. 372257 Filter Assembly

TOTAL FAILURE RATE .0038885 X10⁻⁵

AT _____ DEGREES CENTIGRADE

2712
S. RES ANALYSIS[illegible]

TEMP. DATE 25 June 1973

FUNCTIONAL BLOCK Filter, Band I Vehicular

PAGE 2 OF 2

DRAWING NO. 377257, Filter Assembly

TOTAL FAILURE RATE .0151715 X10⁻⁵

AT _____ DEGREES CENTIGRADE

LESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or T _a	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C24		ATC100B3R0BRW	217A/7.6-59	65	volts	300	0	<1	3%	<.1	.021	18	.01134
		C25		DM5C180DP	217A/7.6-21	65	volts	300	0	<1	3%	<.1	.0003	15	.000135
		C26		DM5C240DP	217A/7.6-21	65	volts	300	0	<1	3%	<.1	.0003	15	.000135
		C27		DM5C130DP	217A/7.6-21	65	volts	300	0	<1	3%	<.1	.0003	15	.000135
		C28		DM5C300DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	15	.000135
		C29		DM5C360DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	15	.000135
		C30		DM5C110DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	15	.000135
		C31		DM5C330DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	15	.000135
		C32		DM5C130DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	15	.000135
		C9		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	3%	.24	.0005	5	.00008
		C12		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	3%	.24	.0005	5	.00008
	Inductor	L13	Delevan	1025-32	217A/7.7-9	65					3%		2	8.6	.0516
		L14	Cin. Elec.		217A/7.7-9	65					3%		2	8.6	.0516
		L15	Cin. Elec.		217A/7.7-9	65					3%		2	8.6	.0516
		L16	Cin. Elec.		217A/7.7-9	65					3%		2	8.6	.0516
		L17	Cin. Elec.		217A/7.7-9	65					3%		2	8.6	.0516
		L18	Delevan	1025-32	217A/7.7-9	65					3%		2	8.6	.0516
	Relay	K3	Teledyne	411D-26	217A/7.10-5	65					3%		.101	50	.1515
		K4	Teledyne	411D-26	217A/7.10-5	65					3%		.101	50	.1515
	Capacitor	C43		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	3%	.24	.0005	5	.00008

TEMP. _____ DATE 25 June 1973 TOTAL FAILURE RATE .062526 X10⁻⁵

FUNCTIONAL BLOCK Filter, Band II Vehicular

PAGE 1 OF 2

DRAWING NO. 37257, Filter Assembly

AT _____ DEGREES CENTIGRADE

ESS ANALYSIS

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TOTAL FAILURE RATE	.004857	X10 ⁻⁵
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AT _____ DEGREES CENTIGRADE

TEMP. DATE 25 June 1973

FUNCTIONAL BLOCK Filter, Band II Vehicular

PAGE 2 OF 2

DRAWING NO. 377257, Fuller Assembly

2712 TRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. in	PARAMETER	PATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F
	Capacitor	C33		ATC100B2RQBW	217A/7.6-59	65	volts	300	0	<1	3%	<.1	.021	18	.01134
		C34		DM5C130DP	217A/7.6-21	65	volts	300	0	<1	3%	<.1	.0003	15	.00013
		C35		ATC100B9R18RW	217A/7.6-59	65	volts	300	0	<1	3%	<.1	.021	18	.01134
		C36		ATC100B9R18RW	217A/7.6-59	65	volts	300	0	<1	3%	<.1	.021	18	.01134
		C37		DM5C100DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	15	.00013
		C38		DM5C510DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	15	.00013
		C39		DM5C470DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	15	.00013
		C40		DM5C470DP	217A/7.6-21	65	volts	300	0	30	3%	.1	.0003	15	.00013
		C41		ATC100B9R18RW	217A/7.6-59	65	volts	300	2	30	3%	.1	.021	18	.01134
		C10		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	3%	.24	.0005	5	.00008
		C13		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	3%	.24	.0005	5	.00008
	Inductor	L19	Delevan	1025-32	217A/7.7-9	65					3%		2	8.6	.0516
		L20	Cin. Elec.		217A/7.7-9	65					3%		2	8.6	.0516
		L21	Cin. Elec.		217A/7.7-9	65					3%		2	8.6	.0516
		L22	Cin. Elec.		217A/7.7-9	65					3%		2	8.6	.0516
		L23	Cin. Elec.		217A/7.7-9	65					3%		2	8.6	.0516
		L24	Delevan	1025-32	217A/7.7-9	65					3%		2	8.6	.0516
	Relay	K5	Teledyne	411D-26	217A/7.10-5	65					3%		101	50	.1515
		K6	Teledyne	411D-26	217A/7.10-5	65					3%		101	50	.1515
	Capacitor	C44		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	3%	.24	.0005	5	.00008

TEMP. _____ DATE 25 June 1973 TOTAL FAILURE RATE .0058875 X10⁻⁵

FUNCTIONAL BLOCK Filter, Band III Vehicular AT _____ DEGREES CENTIGRADE

PAGE 1 OF 2

DRAWING NO. 377257 Filter Assembly

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RESS ANALYSIS

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DATE 25 June 1973

FUNCTIONAL BLOCK Filter, Band III Vehicular

PAGE 2 OF 2

DRAWING NO. 377257, Filter Assembly

TOTAL FAILURE RATE	.031818	X10 ⁻⁵
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AT _____ DEGREES CENTIGRADE

2712 PRESS ANALYSIS

ITEM # - R.M.	PART NAME	SYMBOL	MANUFAC. TOLER	PART NUMBER	APPLICABLE SPEC.	Temp. or	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor
	Capacitor	C1		CKR05BX103KR	198B/1001.2	65	volts	100	0	10	10%	.1	.0005	5
		C2		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	10%	.24	.0005	5
		C3		CKR06BX105KR	198B/1001.2	65	volts	50	0	12	10%	.24	.0005	5
		C4		CKR06BX105KR	198B/1001.2	65	volts	50	0	24	10%	.48	.0015	5
		C5		DM5C101JP	217A/7.6-21	65	volts	300	0	10	10%	<.1	.0003	15
		C6		CKR06BX334KR	198B/1001.2	65	volts	50	0	10	10%	.2	.0005	5
		C7		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	10%	.24	.0005	5
		C51		DM5C101GP	217A/7.6-21	65	volts	300	0	< 1	10%	<.1	.0003	15
		C52		DM5C181GP	217A/7.6-21	65	volts	300	0	< 1	10%	<.1	.0003	15
		C53		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	10%	.24	.0005	5
		C54		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	100%	.24	.0005	5
		C55		CKR05BX103KR	198B/1001.2	65	volts	100	0	24	10%	.24	.0005	5
	Resistor	R1		RCR07G104JS	199A/301.2	65	mW	250	0	1	10%	<.1	.0002	10
		R2		RCR07G100JS	199A/301.2	65	mW	250	0	12	10%	.1	.0002	10
		R3		2 ohm 1/4W	217A/7.5-25	65	mW	500	0	130	10%	.26	.19	.3
		R4		RCR07G752JS	199A/301.2	65	mW	250	0	3	10%	<.1	.0002	10
		R5		RCR07G252JS	199A/301.2	65	mW	250	0	< 1	10%	<.1	.0002	10
	Inductor	L1	Ferroxcube	VK200-20/4B	217A/7.7-9	65					10%		.2	8.6
		L2	Cin. Elec.		217A/7.7-9	65					10%		.2	8.6
		L3	Ferroxcube	VK200-20/4B	217A/7.7-9	65					10%		.2	8.6

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Power Amplifier Vehicular

PAGE 1 OF 3

DRAWING NO. 377255, Power Amplifier

TOTAL FAILURE RATE .052855 X10⁻⁵

AT _____ DEGREES CENTIGRADE

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STRESS ANALYSIS

ITEM # - R.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. of In	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Total
	Inductor	L4	Ferroxcube	VK200-20/48	217A/7.7-9	65					10%	.2	8.6	.172	
		L29	Cin. Elec.		217A/7.7-9	65					10%	.2	8.6	.172	
		L30	Cin. Elec.		217A/7.7-9	65					10%	.2	8.6	.172	
		L31	Cin. Elec.		217A/7.7-9	65					10%	.2	8.6	.172	
		L32	Cin. Elec.		217A/7.7-9	65					10%	.2	8.6	.172	
	Transformer	T1	Cin. Elec.		217A/7.7-9	65					10%	.2	8.6	.172	
		T2	Cin. Elec.		217A/7.7-9	65					10%	.2	10	.2	
		T3	Cin. Elec.		217A/7.7-9	65					10%	.2	10	.2	
	Diode S1	CR1		1N4145	217A/7.4-11	65					10%	.2	10	.2	
		CR5		1N4145	217A/7.4-11	65					10%	.2	3.5	.123	
	Hybrid	A1	Cin. Elec.	377686	USAECOM	65					10%	.2	3.5	.123	
		A2	Cin. Elec.	377687	USAECOM	65					10%	.2	3.5	.123	
	Connector	P1	Microdot	141-1005-0001	RADC II/191	65					10%	.2	3.5	.123	
		P2	Amp	85930-4 20 pin	RADC II/191	65					10%	.2	3.5	.123	
		P3	Microdot	141-1005-0001	RADC II/191	65					10%	.2	3.5	.123	
		P4		MCDD1-92465-10	RADC II/191	65					10%	.2	3.5	.123	
	Resistor	R6		RCR07 JS	199A/301.2	65					10%	.2	3.5	.123	
		R7		RCR07 JS	199A/301.2	65					10%	.2	3.5	.123	
		R8		RCR07G122JS	199A/301.2	65					10%	.2	3.5	.123	
		R9		RCR07G432JS	199A/301.2	65					10%	.2	3.5	.123	

TEMP.

DATE 25 June 1973

TOTAL FAILURE RATE .215256 X10⁻⁵

FUNCTIONAL BLOCK Power Amplifier Vehicular

PAGE 2 OF 3

AT DEGREES CENTIGRADE

DRAWING NO. 377255, Power Amplifier

RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC. TURE	PART NUMBER	APPL CABLE SPEC.	Temp. in	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. P
	Resistor	R10		RCR07G103JS	199A/301.2	65	mW	250	0	4	10%	.1	.0002	10	.0002
		R11		RCR07G513JS	199A/301.2	65	mW	250	0	1	10%	<.1	.0002	10	.0002
		R12		RCR07G513JS	199A/301.2	65	mW	250	0	2	10%	<.1	.0002	10	.0002
	Inductor	L33	Cig. Elec.		217A/7.7-9	65					10%	.2		8.6	.172
		L34	Delevan	1025-32	217A/7.7-9	65					10%	.2		8.6	.172
		L35		1025-32	217A/7.7-9	65					10%	.2		8.6	.172
		L37		1025-32	217A/7.7-9	65					10%	.2		8.6	.172
	SINEM Transistor	Q1		JAN2N2222A	217A/7.4-13	.228	mW	500	0	.1	10%	<.1	.210	8	.168
	Hybrid	A3	Cig. Elec.	377688	USAECOM	65					10%	.6902			.06902
	Cap. Resistor	P5	Microdot	141-1005-0001	RADC II/191	65					10%	.064	.5	.0032	
		P6	Microdot	141-1005-0001	RADC II/191	65					10%	.064	.5	.0032	
		77	Selectro	51-751-0000-20	RADC II/191	65					10%	.064	.5	.0032	
		P8	Selectro	51-751-0000-20	RADC II/191	65					10%	.064	.5	.0032	
	Resistor	R13		RCR07JS	199A/301.2	65	mW	250	0	< 1	10%	<.1	.0002	10	.0002
		R14		RCR07JS	199A/301.2	65	mW	250	0	10	10%	<.1	.0002	10	.0002
		R15		RCR07JS	199A/301.2	65	mW	250	0	10	10%	<.1	.0002	10	.0002
	Relay	K7		GB-831C-5E	217A/7.10-5	65					100%	.301	50	15.05	
		K8		GB-831C-5E	217A/7.10-5	65					100%	.018	50	.9	
		K9		GB-831C-5E	217A/7.10-5	65					10%	.301	50	1.505	

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Power Amplifier Vehicular

PAGE 3 OF 3

DRAWING NO. 377255, Power Amplifier

TOTAL FAILURE RATE 1.539402 X10⁻⁵

AT _____ DEGREES CENTIGRADE

PART NAME	SYMBOL	MANUFAC. TYP	PART NUMBER	APPL. CABLE SPEC.	Temp. of	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. #
Capacitor	C1		Y104A-20	217A/7.6-81	65	volts	20	10	10	100%	.5	.0065	-	.0065
	C2		Y803A-20	217A/7.6-81	65	volts	20	10	10	100%	.5	.0065	-	.0065
	C3		B155A-05	217A/7.6-81	65	volts	15	10	10	100%	.75	.03	-	.03
	C4		B155A-05	217A/7.6-81	65	volts	15	10	10	100%	.75	.03	-	.03
	C6		Y154A-05	217A/7.6-81	65	volts	20	10	10	100%	.5	.0065	-	.0065
Resistor	R1		RCR05 JS	199A/301.2	65	ohm	125	<1	<1	100%	<.1	.0002	10	.002
	R2		RCR05 JS	199A/301.2	65	ohm	125	<1	<1	100%	<.1	.0002	10	.002
Inductor	L1	Lenox Fugle	NR-22	217A/7.7-9	65					100%		.2	8.6	1.72
	L6	Lenox Fugle	NR-22	217A/7.7-9	65					100%		.2	8.6	1.72
	L7	Lenox Fugle	NR-3.9	217A/7.7-9	65					100%		.2	8.6	1.72
	L8	Lenox Fugle	NR-12	217A/7.7-9	65					100%		.2	8.6	1.72
	L9	Lenox Fugle	NR-22	217A/7.7-9	65					100%		.2	8.6	1.72
	L10	Lenox Fugle	NR-10	217A/7.7-9	65					10%		.2	8.6	1.72
	L11	Lenox Fugle	NR-3.3	217A/7.7-9	65					10%		.2	8.6	1.72
Transformer	T1	Cin. Elec.	377354	217A/7.7-9	65					100%		.2	10	2
	T2	Cin. Elec.	377355	217A/7.7-9	65					100%		.2	10	2
	T3	Cin. Elec.	377353	217A/7.7-9	65					100%		.2	10	2
	T4	Cin. Elec.	377355	217A/7.7-9	65					100%		.2	10	2
	T5	Cin. Elec.	377352	217A/7.7-9	65					100%		.2	10	2
	T6	Cin. Elec.	377355	217A/7.7-9	65					100%		.2	10	2

TEMP. _____ DATE 25 June 1973 TOTAL FAILURE RATE 2.10275 X10⁻⁵

FUNCTIONAL BLOCK RF Modulator Vehicular AT _____ DEGREES CENTIGRADE

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DRAWING NO. 377350, Synth/RF Modulator

2712 PRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC. TURER	PART NUMBER	APPLICABLE SPEC.	Temp. of	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor
	Transformer	T7	Cin. Elec.	377356	217A/7.7-9	65					10%	2	10	2
	Hybrid	HY2	Cin. Elec.	377677	USAEOM	65					100%	12.9479	-	12.9479
		HY4	Cin. Elec.	377675	USAEOM	65					33%	.5264	-	.1737
		HY5	Cin. Elec.	377675	USAEOM	65					33%	.5264	-	.1737
		HY6	Cin. Elec.	377675	USAEOM	65					33%	.5264	-	.1737
		HY7	Cin. Elec.	377676	USAEOM	65					100%	.6762	-	.5762
	Capacitor	C15		Y474A-20	217A/7.6-81	65	volts	10	5	5	100%	.5	.0065	.0065
		C16		CKR05BX102KR	198B/1001.2	65	volts	200	5	5	100%	<.1	.0005	5 .0025
		C17		CKR05BX102KR	198B/1001.2	65	volts	200	5	5	100%	<.1	.0005	5 .0025
		C18		Y474A-20	217A/7.6-81	65	volts	10	5	5	33%	.5	.0065	- .0022
		C19		Y474A-20	217A/7.6-81	65	volts	10	5	5	33%	.5	.0065	- .0022
		C20		Y474A-20	217A/7.6-81	65	volts	10	5	5	33%	.5	.0065	- .0022
	Resistor	R3		RCR05 JS	199A/301.2	65	mW	125	<1	<1	100%	<.1	.0002	10 .002
		R7		RCR05102JS	199A/301.2	65	mW	125	<1	<1	100%	<.1	.002	10 .002
		R8		RCR05102JS	199A/301.2	65	mW	125	<1	<1	100%	<.1	.002	10 .002
		R9		RCR05103JS	199A/301.2	65	mW	125	<1	<1	100%	<.1	.002	10 .002
		R10		RCR05103JS	199A/301.2	65	mW	125	<1	<1	100%	<.1	.002	10 .002
		R11		RCR05103JS	199A/301.2	65	mW	125	<1	<1	100%	<.1	.002	10 .002
		R12		RCR05102JS	199A/301.2	65	mW	125	4	4	100%	<.1	.002	10 .002
		R13		RCR05102JS	199A/301.2	65	mW	125	4	4	100%	<.1	.002	10 .002

TEMP. _____ DATE 25 June 1973 TOTAL FAILURE RATE 1.437934 X10⁻⁵
 FUNCTIONAL BLOCK RF Modulator Vehicular AT _____ DEGREES CENTIGRADE
 PAGE 2 OF 4

DRAWING NO. 127350, Synth/RF Modulator.

RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. o. p
	Resistor	R16		RCR05104JS	199A/301.2	65	FW	125	<1	<1	100%	<1	.0002	10	.002
	Int. Circuit	IC1	Plessey	576152	RADC II/413	65					100%		1.512	-	1.512
	Hybrid	HY5		377079	LSAFECOM	65					100%		.3460	-	.3460
	Resistor	R18		RCR05 JS	199A/301.2	65	FW	125	<1	<1	100%	<1	.0002	10	.002
		R19		RCR05 JS	199A/301.2	65	FW	125	12	12	100%	1	.0002	10	.002
	Connector	P1	Amp	85930-4 20p	RADC II/191	65					100%		.0103	.5	.00515
		P2	Microdot	141-1005-0001	RADC II/191	65					100%		.064	.5	.032
		P3	Microdot		RADC II/191	65					100%		.964	.5	.032
	Transformer	T5		377357	217A/7.7-9	65					10%		.2	10	.2
	Diode, Var.	CR1		DKV6522B	Cin. Elec.	65					100%		.2	-	.2
		CR2		DKV6522B	Cin. Elec.	55					100%		1.0	-	1.0
		CR3		DKV6524B	Cin. Elec.	65					100%		1.0	-	1.0
		CR4		DKV6524B	Cin. Elec.	65					100%		1.0	-	1.0
		CS5		DKV6524B	Cin. Elec.	65					100%		1.0	-	1.0
		CR6		DKV6524B	Cin. Elec.	65					100%		1.0	-	1.0
		CR7		DKV6524B	Cin. Elec.	55					100%		1.0	-	1.0
		CP8		DKV6524B	Cin. Elec.	65					100%		1.0	-	1.0
		CR9		DKV6524B	Cin. Elec.	65					100%		1.0	-	1.0
		CR10		DKV6524B	Cin. Elec.	65					100%		1.0	-	1.0
		CR11		DKV6524B	Cin. Elec.	65					100%		1.0	-	1.0

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK RF Modulator Vehicular

PAGE 1 OF 4

DRAWING NO. 377350, Synch/SE Modulator

TOTAL FAILURE RATE 1.33315 X10⁻⁵

AT _____ DEGREES CENTIGRADE

五洲大藥房 總經理 盧元平 謹啟

[illegible]

TEMP. _____ DATE 25 June 1973

TOTAL FAILURE RATE $\frac{.10}{\times 10^{-5}}$

FUNCTIONAL BLOCK RF Modulator Vehicular

PAGE 4 OF 4

DRAWING NO. 377350, Synth/RF Modulator

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. of In	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R
	Capacitor	C7	Comp. Inc.	Y104A-20	217A/7.6-81	65	volts	20	10	10	100%	.5	.0065	-	.0065
		C8		Y104A-20	217A/7.6-81	65	volts	20	15	15	100%	.75	.03	-	.03
		C9		Y104A-20	217A/7.6-81	65	volts	20	15	15	100%	.75	.03	-	.03
		C10		Y104A-20	217A/7.6-81	65	volts	20	10	10	100%	.5	.0065	-	.0065
	Resistor	R4		RCR05G	199A/301.2	65	mW	125	2	2	100%	<.1	.0002	10	.002
		R5		RCR05G101JS	199A/301.2	65	mW	125	10	10	100%	<.1	.0002	10	.002
		R6		RCR05G	199A/301.2	65	mW	125	1	1	100%	<.1	.0002	10	.002
		R17		RCR05G14JS	199A/301.2	65	mW	125	<1	<1	100%	<.1	.0002	10	.002
	Inductor	L2	Lenox Fugle	NR22	217A/7.7-9	65					100%		.2	8.6	1.72
		L3	Lenox Fugle	NR22	217A/7.7-9	65					100%		.2	8.6	1.72
	Int. Circuit	IC1	CTS Knights	376153 TCXO	RADC II/413	65					100%		1.2098	-	1.2098
		IC2		Ref. 4/4 N	USAECOM	65					100%		3.7	-	3.7
	Resistor	R20		RCR05 JS	199A/301.2	65	volts	125	1	1	100%	<.1	.0002	10	.002
	Capacitor	C11		Y104A-20	217A/7.6-81	65	volts	20	10	10	100%	.5	.0065	-	.0065
		C12		G106A-20	217A/7.6-81	65	volts	15	5.6	5.6	100%	.37	.003	-	.003
		C13		S695A-20	217A/7.6-81	65	volts	35	20	20	100%	.57	.011	-	.011
		C14		Y104A-20	217A/7.6-81	65	volts	20	15	15	100%	.75	.03	-	.03
		C5		Y104A-20	217A/7.6-81	65	volts	20	10	10	100%	.5	.0065	-	.0065
		C22		Y104A-20	217A/7.6-81	65	volts	20	15	15	100%	.75	.03	-	.03

TEMP.

DATE 25 June 1973

TOTAL FAILURE RATE .85106 X10⁻⁵

FUNCTIONAL BLOCK Synthesizer Vehicular

AT DEGREES CENTIGRADE

PAGE 1 OF 2

DRAWING NO. 377350, Synth/RP Modulator

PRESS ANALYSIS

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Synthesizer Vehicular

PAGE 2 OF 2

DRAWING NO. 377350, Synth/RF Modulator

TOTAL FAILURE RATE 1.12E-11 X10⁻⁵
AT DEGREES CENTIGRADE

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[illegible]

TEMP. _____ DATE 25 June 1973
FUNCTIONAL BLOCK Frequency Control Vehicular
PAGE 1 OF 1
DRAWING NO. 372100- Chassis Assembly

TOTAL FAILURE RATE 5.110724 X10⁻⁵
AT DEGREES CENTIGRADE

RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC-TURER	PART NUMBER	APPLCABLE SPEC.	Temp. of	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor
	Resistor, Var	R1	Allen Bradley	GS1T048F103AA	217A/7.5-21	65	watts	0.5	.1	.1	100%	.2	.1	50 5.0
	Switch	S1		376027-1	RADC II/217	65							.01	.096
		S2		376027-2	RADC II/217	65				100%			.01	.21
		S3		376029	RADC II/217	65				.5%			.21	.0010
		S4	Grayhill	30-251B	RADC II/217	65				100%			.03	.03
	Connector		Microdot	142-1002-0001	RADC II-191	65				100%			.064	.5 .032
			Microdot	142-1002-0001	RADC II-191	65				10%			.064	.5 .0032
			Microdot	142-1002-0001	RADC II-191	65				10%			.064	.5 .0032
			Microdot	142-1002-0001	RADC II-191	65				10%			.064	.5 .0032
			Microdot	142-1002-0001	RADC II-191	65				10%			.064	.5 .0032
			Microdot	142-1002-0001	RADC II-191	65				100%			.064	.5 .032
			Microdot	142-1002-0001	RADC II-191	65				90%			.064	.5 .0258
			Microdot	142-1002-0001	RADC II-191	65				10%			.064	.5 .0032
			Microdot	142-1002-0001	RADC II-191	65				90%			.064	.5 .0288
			Microdot	142-1002-0001	RADC II-191	65				90%			.064	.5 .0258
			Microdot	142-1002-0001	RADC II-191	65				10%			.064	.5 .0032
			Microdot	142-1002-0001	RADC II-191	65				10%			.064	.5 .0032
			Microdot	142-1002-0001	RADC II-191	65				10%			.064	.5 .0032
			Microdot	142-1002-0001	RADC II-191	65				10%			.064	.5 .0032
			Microdot	142-1002-0001	RADC II-191	65				10%			.064	.5 .0032
			Microdot	142-1002-0001	RADC II-191	65				100%			.0214	.5 .0109
			I.T.T. Can.	ES-C-2114995	RADC II-191	65				100%			.0031	.5 .00158
				377141 6p	RADC II-191	65				100%			.00516	.5 .00258

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Chassis Assembly Vehicular

PAGE 1 OF 2

DRAWING NO. 377100, Chassis Assembly

TOTAL FAILURE RATE .552491 X10⁻⁵

AT _____ DEGREES CENTIGRADE

21

[illegible]

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK	Chassis Assembly	Vehicular
DATE		

PAGE 2 OF 2

DRAWING NO. 377100, Chassis Assembly

TOTAL FAILURE RATE .075855 X10⁻⁵

AT _____ DEGREES CENTIGRADE

[illegible]

TEMP. _____ DATE 25 June 1973

TOTAL FAILURE RATE 2.44622 X10⁻⁵

FUNCTIONAL BLOCK 4 & 5 Volt Regulators Vehicular

AT _____ DEGREES CENTIGRADE

DRAWING NO. 377550, Power Supply

712

[illegible]

TOTAL FAILURE RATE 1.39533 X10⁻⁵

AT _____ DEGREES CENTIGRADE

TEMP. DATE 25 June 1973

FUNCTIONAL BLOCK 10 volt Regulator Vehicular

PAGE 1 OF 1

DRAWING NO. 377550, Power Supply

2712 STRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. OF	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tcc. F. B.
	Capacitor	C1		CKR06BX104KR	198B/1001.2	65	volts	100	24	24	100%	.24	.0005	5	.0025
		C2		M39003/01-2379	217A/7.6-81	65	volts	50	24	24	100%	.48	.0059	-	.0059
		C11		L22612-20	217A/7.6-81	65	volts	10	5	5	100%	.5	.0065	-	.0065
		C12		L22612-20	217A/7.6-81	65	volts	10	5	5	100%	.5	.0065	-	.0065
		C13		F105R-20	217A/7.6-81	65	volts	20	15	15	100%	.75	.03	-	.03
		C14		F105R-20	217A/7.6-81	65	volts	20	15	15	100%	.75	.03	-	.03
		C15		L106R-20	217A/7.6-81	65	volts	20	15	15	100%	.75	.03	-	.03
		C16		L106R-20	217A/7.6-81	65	volts	20	15	15	100%	.75	.03	-	.03
		C17		M155R-20	217A/7.6-81	65	volts	35	20	0	100%	.57	.011	-	.011
		C18		CKR05BX104KR	198B/1001.2	65	volts	50	42	42	100%	.84	.006	5	.006
		C19		CKR05BX104KR	198B/1001.2	65	volts	50	42	42	100%	.84	.006	5	.006
	Inductor	L4	Cin. Elec.	377555-3	217A/7.7-9	65					100%		.2	10	2
		L5	Cin. Elec.	377555-4	217A/7.7-9	65					100%		.2	10	2
		L6	Cin. Elec.	377555-4	217A/7.7-9	65					100%		.2	10	2
		L7	Cin. Elec.	377555-4	217A/7.7-9	65					100%		.2	10	2
		L8	Cin. Elec.	377555-5	217A/7.7-9	65					100%		.2	10	2
		L1	Cin. Elec.	377555-1	217A/7.7-9	65					100%		.2	10	2
	Transformer	T4	Cin. Elec.	377554	217A/7.7-9	65					100%		.2	10	2
	Diode S1	CR6		5R0	217A/7.4-11	.305	mW	500	34	34	100%	.038	.26	3.5	.91
		CR7		5R0	217A/7.4-11	.305	mW	500	34	34	100%	.038	.26	3.5	.91

TEMP. _____ DATE 25 June 1973 TOTAL FAILURE RATE 1.6034 X10⁻⁵

FUNCTIONAL BLOCK 15 Volt Regulator & DC/DC Converter Vehicular AT _____ DEGREES CENTIGRADE

PAGE J OF 2

DRAWING NO. 377550, Power Supply

STRESS ANALYSIS

[illegible]

TEMP. _____ DATE 25 June 1973

TOTAL FAILURE RATE 2.618235 $\times 10^{-5}$

FUNCTIONAL BLOCK: 15 Volt Regulator & DC/DC Converter Vehicular

AT _____ DEGREES CENTIGRADE

PAGE 2 OF 2

DRAWING NO. 377550, Power Supply

2712 STRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	TEMP. OF	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Int. F.
Q1	NPN Transistor	Q9		2N2219A	217A/7.4-13	.353	mW	800	100	100	100%	.125	.29	8	2.32
	Fuse	F1	Littlefuse	275-007	217A/7.12-3	65	amps	7			100%		.1		.1
	Fuse	F2	Littlefuse	275-004	217A/7.12-3	65	amps	4			100%		.1		.1
	Capacitor	C3		CKR05BX104KR	198B/1001.2	65	volts	50	10	10	100%	.2	.0005	5	.0025
		C4		M39003/01	217A/7.6-81	65	volts	50	25	25	100%	.5	.0065	10	.0650
	Resistor	R1		RCR05G682JS	199A/301.2	65	mW	125	0	0	100%	.1	.0002	10	.002
		R2		RCR05G302JS	199A/301.2	65	mW	125	0	0	100%	.1	.0002	10	.002
		R13		RCR07G180JS	199A/301.2	65	mW	250	25	25	100%	.1	.0002	10	.002
		R14		RCR07G180JS	199A/301.2	65	mW	250	25	25	100%	.1	.0002	10	.002
		R15		RCR05G751JS	199A/301.2	65	mW	125	0	.2	50%	.1	.0002	10	.002
		R16		RCR05J751JS	199A/301.2	65	mW	125	0	.2	50%	.1	.0002	10	.002
		R17		RCR05G433JS	199A/301.2	65	mW	125	1	1	5%	.1	.0002	10	.002
		R18		RCR05G103JS	199A/301.2	65	mW	125	.14	.14	9%	.1	.0002	10	.002
		R19		RCR05G105JS	199A/301.2	65	mW	125	0	.2	100%	.1	.0002	10	.002
		R20		RCR05G105JS	199A/301.2	65	mW	125	0	.2	100%	.1	.0002	10	.002
		R21		RCR05G206JS	199A/301.2	65	mW	125	0	.2	100%	.1	.0002	10	.002
	Diode, Si ZEN	CR7		1N965A	217A/7.4-11	.228	mW	400	15	15	100%	.1	.63	1	1.86
	Diode, Si ZEN	CR16		1N4145	217A/7.4-11	.228	mW	400	0	1	50%	.1	.21	1.5	.167
	Diode, Si	CR18		1N4145	217A/7.4-11	.228	mW	75	0	1	50%	.1	.21	1.5	.167
SL 2001	Resistor	G10		282007A	217A/7.4-13	.228	mW	400	0	10	50%	.1	.52	8	2.05

TEMP. _____ DATE _____ 15 June 1974

FUNCTIONAL BLOCK Parent Board

PAGE 2 OF 3

DRAWING NO. _____ Vehicular Applications (77786)

TOTAL FAILURE RATE .727786 $\times 10^{-5}$

AT _____ DEGREES CENTIGRADE

(12) PRESS ANALYSIS

[illegible]

TEMP. DATE

	TOTAL FAILURE RATE	X 10 ⁻⁵
1.00	0.00	0.00
1.01	0.00	0.00
1.02	0.00	0.00
1.03	0.00	0.00
1.04	0.00	0.00
1.05	0.00	0.00
1.06	0.00	0.00
1.07	0.00	0.00
1.08	0.00	0.00
1.09	0.00	0.00
1.10	0.00	0.00
1.11	0.00	0.00
1.12	0.00	0.00
1.13	0.00	0.00
1.14	0.00	0.00
1.15	0.00	0.00
1.16	0.00	0.00
1.17	0.00	0.00
1.18	0.00	0.00
1.19	0.00	0.00
1.20	0.00	0.00
1.21	0.00	0.00
1.22	0.00	0.00
1.23	0.00	0.00
1.24	0.00	0.00
1.25	0.00	0.00
1.26	0.00	0.00
1.27	0.00	0.00
1.28	0.00	0.00
1.29	0.00	0.00
1.30	0.00	0.00
1.31	0.00	0.00
1.32	0.00	0.00
1.33	0.00	0.00
1.34	0.00	0.00
1.35	0.00	0.00
1.36	0.00	0.00
1.37	0.00	0.00
1.38	0.00	0.00
1.39	0.00	0.00
1.40	0.00	0.00
1.41	0.00	0.00
1.42	0.00	0.00
1.43	0.00	0.00
1.44	0.00	0.00
1.45	0.00	0.00
1.46	0.00	0.00
1.47	0.00	0.00
1.48	0.00	0.00
1.49	0.00	0.00
1.50	0.00	0.00
1.51	0.00	0.00
1.52	0.00	0.00
1.53	0.00	0.00
1.54	0.00	0.00
1.55	0.00	0.00
1.56	0.00	0.00
1.57	0.00	0.00
1.58	0.00	0.00
1.59	0.00	0.00
1.60	0.00	0.00
1.61	0.00	0.00
1.62	0.00	0.00
1.63	0.00	0.00
1.64	0.00	0.00
1.65	0.00	0.00
1.66	0.00	0.00
1.67	0.00	0.00
1.68	0.00	0.00
1.69	0.00	0.00
1.70	0.00	0.00
1.71	0.00	0.00
1.72	0.00	0.00
1.73	0.00	0.00
1.74	0.00	0.00
1.75	0.00	0.00
1.76	0.00	0.00
1.77	0.00	0.00
1.78	0.00	0.00
1.79	0.00	0.00
1.80	0.00	0.00
1.81	0.00	0.00
1.82	0.00	0.00
1.83	0.00	0.00
1.84	0.00	0.00
1.85	0.00	0.00
1.86	0.00	0.00
1.87	0.00	0.00
1.88	0.00	0.00
1.89	0.00	0.00
1.90	0.00	0.00
1.91	0.00	0.00
1.92	0.00	0.00
1.93	0.00	0.00
1.94	0.00	0.00
1.95	0.00	0.00
1.96	0.00	0.00
1.97	0.00	0.00
1.98	0.00	0.00
1.99	0.00	0.00
2.00	0.00	0.00

FUNCTIONAL BLOCK

PAGE 3 OF 3

AT _____ DEGREES CENTIGRADE

DRAWING NO. Vehicle Applique 36700

2712 RESS ANALYSIS

ITEM # - R.M.	PART NAME	SYMBOL	MANUFAC-TURER	PART NUMBER	APPLICABLE SPEC.	Temp. °F	PARAMETER	RATED	QUISCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. R. #
	Capacitor	C1		DM10F510GP	217A/7.6-21	65	V	300	0	< 1	9%	< .1	.0003 15	.0004	
		C2		DM05F910GP	217A/7.6-21	65	V	300	0	< 1	9%	< .1	.0003 15	.0004	
		C3		F423	217A/7.6-33	65	V	430	0	30	9%	< .1	.009	.0081	
		C4		DM10F101JP	217A/7.6-21	65	V	300	0	15	9%	< .1	.0003 15	.0004	
		C5		DM10F131JP	217A/7.6-21	65	V	300	0	15	9%	< .1	.0003 15	.0004	
		C6		DM10F101JP	217A/7.6-21	65	V	300	0	15	9%	< .1	.0003 15	.0004	
		C7		DM10F101JP	217A/7.6-21	65	V	300	0	30	9%	< .1	.0003 15	.0004	
		C8		DM10F101JP	217A/7.6-21	65	V	300	0	15	9%	< .1	.0003 15	.0004	
		C9		DM10F131JP	217A/7.6-21	65	V	300	0	15	9%	< .1	.0003 15	.0004	
		C10		DM10F101JP	217A/7.6-21	65	V	300	0	15	9%	< .1	.0003 15	.0004	
		C11		DM10F101JP	217A/7.6-21	65	V	300	0	15	9%	< .1	.0002 15	.0004	
		C12		CKR05BX103KR	198B/1001.2	65	V	100	0	24	9%	.24	.0005 5	.00023	
		C13		CKR05BX103KR	198B/1001.2	65	V	100	0	24	9%	.24	.0005 5	.00023	
		C14		CKR06BX105KR	198B/1001.2	65	V	50	0	24	9%	.48	.0013 5	.00059	
		C15		CKR06BX105KR	198B/1001.2	65	V	50	0	24	9%	.48	.00013 5	.00059	
		C16		F423	217A/7.6-33	65	V	500	0	60	9%	.12	.011	.0099	
	Connector	P1		51-051-0000	RADCII/191	65					9%		.064 .5	.00255	
		P2		51-028-3196	RADCII/191	65					9%		.064 .5	.00288	
		P3		SM3-20PGD20P	RADCII/191	65					9%		.0102 .5	.000459	

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK 40 Watt Amplifier

PAGE 1 OF 4

DRAWING NO. 376800. 40 Watt P.A.

TOTAL FAILURE RATE .0022569 X10⁻⁵

AT _____ DEGREES CENTIGRADE

2722 PRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. of	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor
	Inductor	L1	CEC		217A/7.7-9	65					9%		.2	8.6 .1548
		L2	CEC		217A/7.7-9	65					9%		.2	8.6 .1548
		L3	CEC		217A/7.7-9	65					9%		.2	8.6 .1548
		L4	CEC		217A/7.7-9	65					9%		.2	8.6 .1548
		L5	CEC		217A/7.7-9	65					9%			8.6 .1548
		L6		VK200-20/4B	217A/7.7-9	65					9%		.2	8.6 .1548
		L7		VK200-20/4B	217A/7.7-9	65					9%		.2	8.6 .1548
		L8		VK200-20/4B	217A/7.7-9	65					9%		.2	8.6 .1548
		L9		VK200-20-4B	217A/7.7-9	65					9%		.2	8.6 .1548
	Transformer	T1	CEC		217A/7.7-9	65					9%		.2	10 .18
		T2	CEC		217A/7.7-9	65					9%		.2	10 .18
		T3	CEC		217A/7.7-9	65					9%		.2	10 .18
		T4	CEC		217A/7.7-9	65					9%		.2	10 .18
		T5	CEC		217A/7.7-9	65					9%		.2	10 .18
		T6	CEC		217A/7.7-9	65					9%		.2	10 .18
	Transistor, Si NPN	Q1		SD1219	217A/7.4-13	.327	w	75	0	7	9%	.1	.55	8 .396
		Q2		SD1219	217A/7.4-13	.327	w	75	0	7	9%	.1	.55	8 .396
		Q3		SD1219	217A/7.4-13	.327	w	75	0	7	9%	.1	.55	8 .396
		Q4		SD1219	217A/7.4-13	.327	w	75	0	7	9%	.1	.55	8 .396
	Resistor	R1		RCR32G510JS	199A/301.2	65	w	1	0	.2	9%	.2	.0003	.00027

TEMP. _____ DATE 25 June 1973 TOTAL FAILURE RATE .405747 X10⁻⁵

FUNCTIONAL BLOCK 40 Watt Amplifier AT _____ DEGREES CENTIGRADE

PAGE 2 OF 4

DRAWING NO. 2722-0010-01 Watt PA

RESS ANALYSIS

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ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC-TURER	PART NUMBER	APPL CABLE SPEC.	Temp. or	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Temp. F.
	Resistor	R3		RCR20G100KS	199A/301.2	65	w	4	0	.1	9%	.2	.0003	10	.00027
		R4		RCR20G100KS	199A/301.2	65	w	4	0	.1	9%	.2	.0003	10	.00027
		R5		RCR20G100KS	199A/301.2	65	w	4	0	.1	9%	.2	.0003	10	.00027
		R6		RCR20G100KS	199A/301.2	65	w	4	0	.1	9%	.2	.0003	10	.00027
		R15		106-7046	199A/301.2	65	w	4	0	.1	9%	.2	.0003	10	.00027
		R16		106-7046	199A/301.2	65	w	4	0	.1	9%	.2	.0003	10	.00027
		R17		106-7046	199A/301.2	65	w	4	0	.1	9%	.2	.0003	10	.00027
		R18		106-7046	199A/301.2	65	w	4	0	.1	9%	.2	.0003	10	.00027
		R23		RCR42G240JS	199A/301.2	65	w	2	0	.4	9%	.2	.0003	10	.00027
		R11		RCR42G240JS	199A/301.2	65	w	2	0	.4	9%	.2	.0003	10	.00027
		R31		RCR42G121JS	199A/301.2	65	w	2	0	.4	9%	.2	.0003	10	.00027
	Thermistor	R24		GA52J16	217A/7.12-3	65	w				9%		.3		.027
	Resistor	R2		RCR32G510JS	199A/301.2	65	w	1	0	.2	9%	.2	.0003	10	.00027
		R7		RCR20G100KS	199A/301.2	65	w	4	0	.1	9%	.2	.0003	10	.00027
		R8		RCR20G100KS	189A/301.2	65	w	4	0	.1	9%	.2	.0003	10	.00027
		R9		RCR20G100KS	199A/301.2	65	w	4	0	.1	9%	.2	.0003	10	.00027
		R10		RCR20G100KS	199A/301.2	65	w	4	0	.1	9%	.2	.0003	10	.00027
		R11		RCR20G100KS	199A/301.2	65	w	4	0	.1	9%	.2	.0003	10	.00027
		R12		RCR20G100KS	199A/301.2	65	w	4	0	.1	9%	.2	.0003	10	.00027
		R13		RCR20G100KS	199A/301.2	65	w	4	0	.1	9%	.2	.0003	10	.00027

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK 40 Watt Amplifier

PAGE 3 OF 4

DRAWING NO. 376800-40 Watt P.A.

TOTAL FAILURE RATE .003213 X10⁻⁵

AT _____ DEGREES CENTIGRADE

2712

[illegible]

TEMP. _____ DATE 25 June 1973

TOTAL FAILURE RATE .000297 X10⁻⁵

FUNCTIONAL BLOCK 40 Watt Amplifier

PAGE 7 of 7

DRAWING NO. 376800-40 West P A

ITEM # - S.M.	PART NAME	SYMBOL	MANUFAC-TURER	PART NUMBER	APPL CABLE SPEC.	Temp. or 50	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	R. Factor
	Capacitor	C5		CYR10C4R3R	198B/701.2 65	V	300	0	<1	37	4.1	.000018	5.4x10 ⁻⁶	
		C6		CYR10C130CR	198B/701.2 65	V	300	0	<1	37	4.1	.000018	5.4x10 ⁻⁶	
		C7		GYR10C120 CR	198B/701.2 65	V	300	0	<1	37	4.1	.000018	5.4x10 ⁻⁶	
		C8		CYR10C160 CR	198B/701.2 65	V	300	0	<1	37	4.1	.000018	5.4x10 ⁻⁶	
		C9		CYR10C180 CR	198B/701.2 65	V	300	0	<1	37	4.1	.000018	5.4x10 ⁻⁶	
		C10		CYR10C180 CR	198B/701.2 65	V	300	0	<1	37	4.1	.000018	5.4x10 ⁻⁶	
		C11		CYR10C150 CR	198B/701.2 65	V	300	0	<1	37	4.1	.000018	5.4x10 ⁻⁶	
		C12		CYR10C220 DR	198B/701.2 65	V	300	0	60	37	2	.000002	18 10.8x10 ⁻⁶	
		C13		CYR10C220 DR	198B/701.2 65	V	300	0	60	37	2	.000002	18 10.8x10 ⁻⁶	
		C14		CYR10C101GR	198B/701.2 65	V	300	0	60	37	2	.000002	18 10.8x10 ⁻⁶	
		C15		CYR10C910GR	198B/701.2 65	V	300	0	60	37	2	.000002	18 10.8x10 ⁻⁶	
		C16		CYR10C910GR	198B/701.2 65	V	300	0	60	37	2	.000002	18 10.8x10 ⁻⁶	
		C17		CYR10C100CR	198B/701.2 65	V	300	0	60	37	2	.000002	18 10.8x10 ⁻⁶	
		C18		CYR10C330GR	198B/701.2 65	V	300	0	60	37	2	.000002	18 10.8x10 ⁻⁶	
		C56		CKR05BX103UR	198B/1001.2 65	V	100	0	24	37	24	.00005	5 .000075	
		C57		CKR05BX103UR	198B/1001.2 65	V	100	0	24	37	24	.00005	5 .000075	
		C58		CKR05BX103UR	198B/1001.2 65	V	100	0	24	37	24	.00005	5 .000075	
		C68		CKR05BX102UR	198B/1001.2 65	V	200	0	6	97	4.1	.00005	5 .0024	
		C69		CKR05BX102UR	217A/7.7-9 65	V	200	0	6	100	4.1	.00005	5 .0025	
	Inductor	L5	CEC		217A/7.7-9 65				6	37		2	8.6 .0516	

TEMP.

DATE 25 June 1973

FUNCTIONAL BLOCK

PAGE 1 OF 2 Filter, Band 1

DRAWING NO. 376800 40 Watt PA

TOTAL FAILURE RATE .00568438 X10⁻⁵

AT DEGREES CENTIGRADE

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC-TURER	PART NUMBER	APPLI-CABLE SPEC.	Temp. OF	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	L6	REC			217A/7.7-9	65					3%		.2	8.6	.0516
	L7	REC			217A/7.7-9	65					3%		.2	8.6	.0516
	L8	REC			217A/7.7-9	65					3%		.2	8.6	.0516
	L21	Delevan		1025-32	217A/7.7-9	65					3%		.2	8.6	.0516
	L22	Delevan		1025-32	217A/7.7-9	65					3%		.2	8.6	.0516
	L23	Delevan		1025-32	217A/7.7-9	65					3%		.2	8.6	.0516
	L24	Delevan		1025-32	217A/7.7-9	65					3%		.2	8.6	.0516
INPN	Transistor	Q1		JAN2N2222A	217A/7.4-13	.227	mW	500	0	1.5	97%	<.01	.210	8	1.63
	Q2			JAN2N22219A	217A/7.4-13	.247	mW	800	0	15	3%	.02	.220	8	.0528
	Diode, S1	CR7		JAN1N4148	217A/7.4-11	.227	ma	75	0	<1	3%	<.01	.210	3.5	.021
	CR8			JAN1N4148	217A/7.4-11	.227	ma	75	0	<1	3%	<.01	.210	3.5	.021
	CR16			JAN1N4148	217A/7.4-11	.227	ma	75	0	1	3%	<.01	.21	3.5	.021
	CR17			JAN1N4148	217A/7.4-11	.227	ma	75	0	1	97%	<.01	.21	3.5	.713
	Relay	K5	HI-G	2K-2A-126	217A/7.10-5	65					3%		.101	50	.1515
	K8	HI-G		2K-2A-126	217A/7.10-5	65					3%		.101	50	.1515
	Resistor	R9		RCR07G223KS	199A/301.2	65	mW	250	22	22	100%	<.1	.0002	10	.002
	R10			RCR20G472JS	199A/301.2	65	mW	500	122	122	100%	.24	.00035	10	.0035

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK

Filter, Band 1

PAGE 2 OF 2

DRAWING NO. 374000, subject RA

TOTAL FAILURE RATE .31285G X10⁻⁵

AT _____ DEGREES CENTIGRADE

2712

STRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC. TURER	PART NUMBER	APPLICABLE SPEC.	Temp. of T_a	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	R Factor	Tot. F.
	Capacitor	C19		CYR10C3ROR	198B/701.2	65	V	300	0	<1	3%	<1	.000018	5.4x10 ⁻¹	
		C20		CYR10C18OCR	198B/701.2	65	V	300	0	<1	3%	<1	.000018	5.4x10 ⁻¹	
		C21		CYR10C240DR	198B/701.2	65	V	300	0	<1	3%	<1	.000018	5.4x10 ⁻¹	
		C22		CYR10C130CR	198B/701.2	65	V	300	0	<1	3%	<1	.000018	5.4x10 ⁻¹	
		C23		CYR10C200DR	198B/701.2	65	V	300	0	<1	3%	<1	.000018	5.4x10 ⁻¹	
		C24		CYR10C150CR	198B/701.2	65	V	300	0	60	3%	.2	.0000218	10.8x10 ⁻¹	
		C25		CYR10C160CR	198B/701.2	65	V	300	0	60	3%	.2	.0000218	10.8x10 ⁻¹	
		C26		CYR10C360GR	198B/701.2	65	V	300	0	60	3%	.2	.0000218	10.8x10 ⁻¹	
		C27		CYR10C330GR	198B/701.2	65	V	300	0	60	3%	.2	.0000218	10.8x10 ⁻¹	
		C28		CYR10C330CR	198B/701.2	65	V	300	0	60	3%	.2	.0000218	10.8x10 ⁻¹	
		C29		CYR10C330CR	198B/701.2	65	V	300	0	60	3%	.2	.0000218	10.8x10 ⁻¹	
		C30		CYR10C220DR	198B/701.2	65	V	300	0	60	3%	.2	.0000218	10.8x10 ⁻¹	
		C31		CYR10C430GR	198B/701.2	65	V	300	0	60	3%	.2	.0000218	10.8x10 ⁻¹	
		C32		CYR10C100CR	198B/701.2	65	V	300	0	60	3%	.2	.0000218	10.8x10 ⁻¹	
		C33		CYR10C130CR	198B/701.2	65	V	300	0	60	3%	.2	.0000218	10.8x10 ⁻¹	
		C34		CYR10C5ROR	198B/701.2	65	V	300	0	60	3%	.2	.0000218	10.8x10 ⁻¹	
		C39		CKR05BX103KR	198B/1001.2	65	V	100	0	24	3%	.24	.000055	.0000075	
		C40		CKR05BX103KR	198B/1001.2	65	V	100	0	24	3%	.24	.000055	.0000075	
		C61		CKR05BX103KR	198B/1001.2	65	V	100	0	24	3%	.24	.000055	.0000075	
		C70		CKR05BX102KR	198B/1001.2	65	V	200	0	6	97%	<1	.000055	.0000075	

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Filter, Band 11

PAGE 1 OF 2

DRAWING NO. 1-112-40 Watt RA

TOTAL FAILURE RATE .00004512 X10⁻⁵

AT _____ DEGREES CENTIGRADE

ESS ANALYSIS

12

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
		C71		CKR05BX102NR	198B/1001.2	65	V	200	.6	.6	100%	<.1	.0005	5	.0025
	Inductor	L9	CEC		217A/7.7-9	65					3%		.2	8.6	.0516
		L10	CEC		217A/7.7-9	65					3%		.2	8.6	.0516
		L11	CEC		217A/7.7-9	65					3%		.2	8.6	.0516
		L12	CEC		217A/7.7-9	65					3%		.2	8.6	.0516
		L25	Delevan	1025-28	217A/7.7-9	65					3%		.2	8.6	.0516
		L26	Delevan	1025-28	217A/7.7-9	65					3%		.2	8.6	.0516
		L27	Delevan	1025-28	217A/7.7-9	65					3%		.2	8.6	.0516
		L28	Delevan	1025-28	217A/7.7-9	65					3%		.2	8.6	.0516
SINPN	Transistor	Q3		JAN2N2222A	217A/7.4-1	22	mW	500	0	1.5	97%	<.01	.21	8	1.63
		Q4		JAN2N2219A	217A/7.4-1	24	mW	800	0	1.5	3%	.02	.22	8	.0528
	Diode S1	CR9		JAN4148	217A/7.4-1	22	ma	75	0	<.1	3%	<.01	.21	3.5	.021
		CR10		JAN4148	217A/7.4-1	22	ma	75	0	<.1	3%	<.01	.21	3.5	.021
		CR18		JAN4148	217A/7.4-1	22	ma	75	0	1	3%	<.01	.21	3.5	.021
		CR19		JAN4148	217A/7.4-1	22	ma	75	0	1	9%	<.01	.21	3.5	.021
	Resistor	R11		RCR07G223KS	199A/301.2	65	mW	250	22	22	100%	<.1	.0001	10	.002
		R12		RCR20G472JS	199A/301.2	65	mW	500	122	122	100%	.24	.00035	10	.0035
	Relay	K	HI-G	2K-2A-126	217A/7.10-1	65					3%		.101	50	1515
		K0	HI-G	2K-2A-126	217A/7.10-1	65					3%		.101	50	1515

TEMP.

DATE 25 June 1973

FUNCTIONAL BLOCK Filter, Band II

PAGE 2 OF 2

DRAWING NO.

TOTAL FAILURE RATE .31626 X10⁻⁵

AT DEGREES CENTIGRADE

4712

STRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC-TURER	PART NUMBER	APPLICABLE SPEC.	Temp. In	PARAMETER	RATED	DISSIPANT	OPERATING	DUTY CYLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F.
	Capacitor	C35		CRY10C2R2R	198B/701.2	65	V	300	0	41	3%	<1	.0000	18	5.4x10 ⁻¹
		C36		CRY10C130CR	198B/701.2	65	V	300	0	41	3%	<1	.0000	18	5.4x10 ⁻¹
		C37		CRY10C6R2R	198B/701.2	65	V	300	0	41	3%	<1	.0000	18	5.4x10 ⁻¹
		C38		CRY10C110CR	198B/701.2	65	V	300	0	41	3%	<1	.0000	18	5.4x10 ⁻¹
		C39		CRY10C9R1CR	198B/701.2	65	V	300	0	41	3%	<1	.0000	18	5.4x10 ⁻¹
		C40		CRY10C100CR	198B/701.2	65	V	300	0	41	3%	<1	.0000	18	5.4x10 ⁻¹
		C41		CRY10C100CR	198B/701.2	65	V	300	0	60	3%	2	.0000	18	10.8x10 ⁻¹
		C42		CRY10C130CR	198B/701.2	65	V	300	0	60	3%	2	.0000	18	10.8x10 ⁻¹
		C43		CRY10C510CR	198B/701.2	65	V	300	0	60	3%	2	.0000	18	10.8x10 ⁻¹
		C44		CRY10C470CR	198B/701.2	65	V	300	0	60	3%	2	.0000	18	10.8x10 ⁻¹
		C45		CRY10C470CR	198B/701.2	65	V	300	0	60	3%	2	.0000	18	10.8x10 ⁻¹
		C46		CRY10C6R9R	198B/701.2	65	V	300	0	60	3%	2	.0000	18	10.8x10 ⁻¹
		C47		CRY10C100CR	198B/701.2	65	V	300	0	60	3%	2	.0000	18	10.8x10 ⁻¹
		C48		CRY10C5R0R	198B/701.2	65	V	300	0	60	3%	2	.0000	18	10.8x10 ⁻¹
		C62		CKR02BX104KR	198B/1001.2	65	V	100	0	24	3%	.24	.0005	5	.000075
		C63		CKR02BX103KR	198B/1001.2	65	V	100	0	24	3%	.24	.0005	5	.000075
		C64		CKR02BX104KR	198B/1001.2	65	V	100	0	24	3%	.24	.0005	5	.000075
		C72		CKR02BX102KR	198B/1001.2	65	V	200	0	36	3%	.1	.0005	5	.0024
		C73		CKR02BX102KR	198B/1001.2	65	V	200	0	36	3%	.1	.0005	5	.0024

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DATE 75 June 1973

FUNCTIONAL BLOCK

PAGE 1 OF 1

DRAWING NO.

TOTAL FAILURE RATE .00052492 X10⁻⁵

AT _____ DEGREES CENTIGRADE

ITEM # - B.M.

LESS ANALYSIS

PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. in	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R
Inductor	L13	CEC		217A/7.7-9	65					3%		.2	8.6	.0516
	L14	CEC		217A/7.7-9	65					3%		.2	8.6	.0516
	L15	CEC		217A/7.7-9	65					3%		.2	8.6	.0516
	L16	CEC		217A/7.7-9	65					3%		.2	8.6	.0516
	L29	Delevan	1025-26	217A/7.7-9	65					3%		.2	8.6	.0516
	L30	Delevan	1025-26	217A/7.7-9	65					3%		.2	8.6	.0516
	L31	Delevan	1025-26	217A/7.7-9	65					3%		.2	8.6	.0516
	L32	Delevan	1025-26	217A/7.7-9	65					3%		.2	8.6	.0516
SINPN Transistor	Q5		JAN2N2222A	217A/7.4-13	.22	max	500	0	1.5	97%	<.01	.21	8	1.63
	Q6		JAN2N2219A	217A/7.4-13	.22	max	800	0	1.5	3%	.02	.22	8	.0528
Diode	CR11		JAN1N4148	217A/7.4-13	.22	max	75	0	<.1	3%	<.01	.21	3.5	.021
	CR12		JAN1N4148	217A/7.4-13	.22	max	75	0	<.1	3%	<.01	.21	3.5	.021
	CR20		JAN1N4148	217A/7.4-13	.22	max	75	0	1	3%	<.01	.21	3.5	.021
	CR21		JAN1N4148	217A/7.4-13	.22	max	75	0	1	97%	<.01	.21	3.5	.13
Relay	K6	HTG	2K-2A-126	217A/7.10-5	55					3%		.101	50	.1515
	K10		2K-2A-125	217A/7.10-5	65					3%		.101	50	.1515
Resistor	R13		RCR270223RS	199A/301.2	65	max	250	22	22	100%	<.1	.0002	10	.002
	R14		RCR270472JS	199A/301.2	65	max	500	122	122	100%	.24	.00035	10	.0035

TEMP. DATE 25 June 1973

TOTAL FAILURE RATE .318010 X10⁻⁵

FUNCTIONAL BLOCK Filter Band III

AT DEGREES CENTIGRADE

PAGE 2 OF 2

DRAWING NO. 174806 - 40 Watt PA

122 ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. °C	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor
	Capacitor	C1		CKR05BX103KR	198B/1001.2	65	U	100	0	24	10%	74	.0005	5
		C4		CKR05BX103KR	198B/1001.2	65	U	100	0	24	10%	74	.0005	5
		C49		DM10	217A/7.6-21	65	U	500	0	30	9%	5.1	.00003	15
		C50		DM10	217A/7.6-21	65	U	500	0	30	9%	5.1	.00003	15
		C51		CKR05BX102UR	198B/1001.2	65	U	100	0	8	9%	5.1	.00003	15
		C52		CKR05BX102UR	198B/1001.2	65	U	200	0	8	9%	5.1	.00003	15
		C53		CKR05BX102UR	198B/1001.2	65	U	200	0	8	9%	5.1	.00003	15
		C54		CKR05BX102UR	198B/1001.2	65	U	200	0	8	9%	5.1	.00003	15
		C55		CKR05BX102UR	198B/1001.2	65	U	200	0	8	9%	5.1	.00003	15
		C66		CKR06BX105KR	198B/1001.2	65	U	50	20	20	100%	74	.0005	5
		C67		CKR06BX104KR	198B/1001.2	65	U	100	24	24	100%	74	.0005	5
Resistor		R1		RCR05G562JS	199A/301.2	65	mm	125	0	12	9%	1	.0002	10
		R2		RCR05G510JS	199A/301.2	65	mm	125	0	12	9%	1	.0002	10
		R3		RCR05G510JS	199A/301.2	65	mm	125	0	12	9%	1	.0002	10
		R4		RCR05G472JS	199A/301.2	65	mm	125	0	12	9%	1	.0002	10
		R5		RCR05G472JS	199A/301.2	65	mm	125	0	12	9%	1	.0002	10
		R15		RCR05G472JS	199A/301.2	65	mm	250	9	9	100%	5.1	.0002	10
		R16		RCR05G472JS	199A/301.2	65	mm	1000	150	150	100%	15	.0002	10
		R17		RCR05G472JS	199A/301.2	65	mm	250	9	9	100%	5.1	.0002	10

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK _____

PAGE 1 OF 3

DRAWING NO. 170000 40 Watt PA

TOTAL FAILURE RATE .0014105 X10⁻⁵

AT _____ DEGREES CENTIGRADE

RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. °C	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Int. F. °C
	Resistor	R18		RCR07G241JS	199A/301.2	65	mW	250	3.8	3.8	100%	< 1	0.002	10	002
		R19		RCR07G JS	199A/301.2	65	mW	250	10	10	10%	< 1	0.002	10	002
		R20		RCR07G192JS	199A/301.2	65	mW	250	62	62	100%	1.55	0.0035	10	0035
		R21		RCR07G192JS	199A/301.2	65	mW	250	10	10	100%	< 1	0.002	10	002
		R22		RCR07G222JS	199A/301.2	65	mW	250	8	8	100%	< 1	0.002	10	002
		R23		RCR07G222JS	199A/301.2	65	mW	250	40	40	100%	12	0.0022	10	0024
		R24		RCR07G123JS	199A/301.2	65	mW	250	20	20	100%	< 1	0.002	10	002
		R25		RCR07G103JS	199A/301.2	65	mW	250	40	40	100%	12	0.0022	10	0024
		R26		RCR07G103JS	199A/301.2	65	mW	250	58	58	100%	26	0.0035	10	0035
		R27		PM81UR100F	217A/7.7-9	65	mW	1000	100	100	100%	1	0.027	50	415
		R28		RCR07G100JS	199A/301.2	65	mW	250	0.36	0.36	100%	< 1	0.002	10	002
		R29		RCR07G512	199A/301.2	65	mW	250	0.07	0.07	100%	< 1	0.002	10	002
		R30		RCR07G202	199A/301.2	65	mW	250	1	1	100%	< 1	0.002	10	002
	Inductor	L1	Delevan	100-122K	217A/7.7-9	65					97			5.6	1544
		L2		100-122K	217A/7.7-9	65					97			5.6	1544
		L17	CEC		217A/7.7-9	65					97			5.6	1544
		L14	CEC		217A/7.7-9	65					97			5.6	1544
		L19	Delevan	1025-32	217A/7.7-9	65					97			5.6	1544
		L20	Delevan	1025-32	217A/7.7-9	65					97			5.6	1544
		L33		VK200-20-WB	217A/7.7-9	65					97			5.6	1544

TEMP. _____ DATE 25 June 1973

TOTAL FAILURE RATE .154460 X10⁻⁵

FUNCTIONAL BLOCK ALC

AT _____ DEGREES CENTIGRADE

PAGE 2 OF 3

DRAWING NO. 376300 40 Watt PA

12 .SS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or T ₂	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Diode, Si	CR1		JAN1N914	217A/7.4-13	227	ma	75	0	1	97	4.01	.21	3.5	.066
		CR2		JAN1N914	217A/7.4-13	227	ma	75	0	1	97	4.01	.21	3.5	.066
		CR4		JAN1N914	217A/7.4-13	227	ma	75	0	1	97	4.01	.21	3.5	.066
		CR6		HP5082-2800	217A/7.4-13	227	ma	250	0	1	97	4.01	.21	3.5	.066
	Zen	CR13		1N750A	217A/7.4-13	156	ma	400	40	40	100	1	.87	3	3.4
		CR14		JAN1N4148	217A/7.4-13	327	ma	75	8	8	100	1	.274	3.5	.06
		CR15		JAN914	217A/7.4-13	227	ma	75	3	3	100	4.01	.21	3.5	.735
	Transistor, Si PNP	Q7		JAN2N2907A	217A/7.4-13	287	ma	400	24	24	100	.06	.246	8	1.068
		Q8		JAN2N2907A	217A/7.4-13	287	ma	400	24	24	100	.06	.246	8	1.068
		Q9		JAN2N2907A	217A/7.4-13	287	ma	400	24	24	100	.06	.246	8	1.068
		Q10		JAN2N2907A	217A/7.4-13	287	ma	400	24	24	100	.06	.246	8	1.068
	Transformer	T1	CRG		217A/7.4-13	65					97		.2	10	1.6
	Relay	K1	HI-G	2K-2A-126	217A/7.10-5	65					97		.301	50	15.05
		K4	HI-G	2K-2A-126	217A/7.10-5	65					100		.301	50	15.05
	Connector	P2	Continental	SM11-20SGDD	RADC11/191	65					100		.0072	.5	.0016
		P6	Continental	SM5-20SGDD	RADC11/191	65					100		.0048	.5	.002
		P4	Sealecpro	51-051-0000	RADC11/191	65					100		.0064	.5	.0016
		P5	Sealecpro	51-051-0000	RADC11/191	65					100		.0064	.5	.0016
		P3	Sealecpro	51-051-0000	RADC11/191	65					100		.0064	.5	.0016
		P1	Sealecpro	51-024-3196	RADC11/191	65					100		.0064	.5	.0016

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK VLC

PAGE 3 OF 3

DRAWING NO. 17-5000-60-1005-PA

TOTAL FAILURE RATE 4.27298 X10⁻⁵

AT _____ DEGREES CENTIGRADE

[illegible]

TEMP. DATE 25 June 1973

TOTAL FAILURE RATE 0.1633 X10⁻⁵

AT _____ DEGREES CENTIGRADE

FUNCTIONAL BLOCK Chassis

PAGE 1 OF 1

DRAWING NO. 376800, 40 Watt PA

RESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC. NUMBER	PART NUMBER	APPLICABLE SPEC.	Temp. of	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. #
	Capacitor	C1		B012501G2P	217A/7.6-57	65	y	200	0	24	17	.12	.0057	5	.000285
		C2		CC32CG680G	217A/7.6-25	65	y	500	0	60	10%	.12	.0022	5	.0011
		C4		CC30CH470G	217A/7.6-25	65	y	500	0	60	10%	.12	.0022	5	.0011
		C5		CC20CK270G	217A/7.6-25	65	y	500	0	60	10%	.12	.0022	5	.0011
		C7-1		CC30CH390G	217A/7.6-25	65	y	500	0	60	20%	.12	.0022	5	.0022
		C7-2		CC20CH180G	217A/7.6-25	65	y	500	0	60	20%	.12	.0022	5	.0022
		C8-1		CC20CK220G	217A/7.6-25	65	y	500	0	60	10%	.12	.0022	5	.0011
		C8-2		6.8 pf CER	217A/7.6-57	65	y	200	0	60	10%	.3	.0084	5	.0042
		C9-1		12pf Cer.	217A/7.6-57	65	y	200	0	60	10%	.3	.0084	5	.0042
		C9-2		PC40H180	217A/7.6-69	65	y	200	0	60	10%	.3	.0084	5	.0042
		C10-1		15pf Cer.	217A/7.6-57	65	y	200	0	60	10%	.3	.0084	5	.0042
		C10-2		PC40H180	217A/7.6-69	65	y	200	0	60	10%	.3	.0084	5	.0042
		C11		CC30CH390G	217A/7.6-25	65	y	500	0	60	10%	.12	.0022	5	.0011
		C12		CC32CG680G	217A/7.6-25	65	y	500	0	60	10%	.12	.0022	5	.0011
		C13-1		CC30CH390G	217A/7.6-25	65	y	500	0	60	10%	.12	.0022	5	.0011
		C13-2		CC20CH180G	217A/7.6-25	65	y	500	0	60	10%	.12	.0022	5	.0011
		C14-1		CC32CG101G	217A/7.6-25	65	y	500	0	60	10%	.12	.0022	5	.0011
		C14-2		CC32CG101G	217A/7.6-25	65	y	500	0	60	10%	.12	.0022	5	.0011
		C15-1		CC32CG101G	217A/7.6-25	65	y	500	0	60	10%	.12	.0022	5	.0011
		C15-2		CC32CG680G	217A/7.6-25	65	y	500	0	60	10%	.12	.0022	5	.0011

C16-1

CC20CH180G

217A/7.6-25

65

y

500

0

60

10%

.12

.0022

5

.0011

TEMP.

DATE 25 June 1973

FUNCTIONAL BLOCK Vehicular Antenna

PAGE 1 OF 3

DRAWING NO. 176000

TOTAL FAILURE RATE .000355 X10⁻⁵

AT DEGREES CENTIGRADE

ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC-TURER	PART NUMBER	APPLICABLE SPEC.	Temp. of	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
		C16-2		CC20CH240G	217A/7.6-25	65	/	500 0	60	10%	.12	.0022	5	.0011	
		C16-3		CC20CH390G	217A/7.6-25	65	v	500 0	60	10%	.12	.0022	5	.0011	
		C16-4		PC40H180	217A/7.6-69	65	v	200 0	60	10%	.3	.093	20	.186	
		C17-1		PC40H180	217A/7.6-69	65	v	200 0	60	10%	.3	.093	20	.186	
		C17-2		CC20CH180G	217A/7.6-25	65	v	500 0	60	10%	.12	.0022	5	.0011	
		C18		CC20CH240G	217A/7.6-25	65	v	500 0	60	10%	.12	.0022	5	.0011	
		C19		CC20CH100G	217A/7.6-25	65	v	500 0	60	10%	.12	.0022	5	.0011	
		C20		5pf Cer.	217A/7.6-57	65	v	200 0	60	10%	.3	.0084	5	.0042	
		C21		PC40H180	217A/7.6-69	65	v	200 0	60	10%	.3	.0093	20	.186	
	Inductor	L1	CEC		217A/7.7-9	65				10%		.2	8.6	.172	
		L2	CEC		217A/7.7-9	65				10%		.2	8.6	.172	
		L3	CEC		217A/7.7-9	65				10%		.2	8.6	.172	
		L5	CEC		217A/7.7-9	65						.2	8.6	.172	
		L6	CEC		217A/7.7-9	65				10%		.2	8.6	.172	
		L7	CEC		217A/7.7-9	65				10%		.2	8.6	.172	
		L8	CEC		217A/7.7-9	65				10%		.2	8.6	.172	
		L9	CEC		217A/7.7-9	65				10%		.2	8.6	.172	
		L10	CEC		217A/7.7-9	65				10%		.2	8.6	.172	
		L11	CEC		217A/7.7-9	65				10%		.2	8.6	.172	
		L12	CEC		217A/7.7-9	65				10%		.2	8.6	.172	

TEMP. _____ DATE 25 June 1973 TOTAL FAILURE RATE .22877 X10⁻⁵

FUNCTIONAL BLOCK Vehicular Antenna

PAGE 2 OF 3 AT _____ DEGREES CENTIGRADE

DRAWING NO. 376900

2

[illegible]

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK

PAGE 3 OF 3

DRAWING NO. 3-6900

TOTAL FAILURE RATE .380969 X10⁻⁵

AT _____ DEGREES CENTIGRADE

APPENDIX III

STRESS ANALYSIS - AIRBORNE

ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC. TUNER	PART NUMBER	APPLICABLE SPEC.	Temp. or T _a	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C1	JFD	DV510H	217A/7.6-33	70	volts	100	0	.1	30%	< .1	.01	-	.003
		C2		1501-36-55	217A/7.6-25	70	volts	100	0	.1	30%	< .1	.002	5	.003
		C4	JFD	DV510H	217A/7.6-33	70	volts	100	0	.1	30%	< .1	.01	-	.003
		C5		1501-36-55	217A/7.6-25	70	volts	100	0	.1	30%	< .1	.002	5	.003
		C7	JFD	DV510H	217A/7.6-33	70	volts	100	0	.1	30%	< .1	.01	-	.003
		C6		1501-36-55	217A/7.6-25	70	volts	100	0	.1	30%	< .1	.002	5	.003
		C12		1501-36-53	217A/7.6-25	70	volts	100	0	.1	30%	< .1	.002	5	.003
		C13	JFD	DV510H	217A/7.6-33	70	volts	100	0	.1	30%	< .1	.01	-	.003
		C9		GKR05BX102KR	198B/1001.2	70	volts	200	15	15	100%	.075	.0005	5	.0025
	Resistor	R1		RCR05G104JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R2		RCR05G302JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R3		RCR05G104JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R4		RCR05G302JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R8		RCR05G104JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R9		RCR05G202JS	199A/301.2	70	mW	125	0	10	30%	< .1	.0002	10	.0006
	Inductor RF	L1	Lenox Fugle	NR2.7	217A/7.7-9	70					30%		.2	8.6	.516
		L2	Lenox Fugle	NR3.3	217A/7.7-9	70					30%		.2	8.6	.516
		L3	Lenox Fugle	NR3.9	217A/7.7-9	70					30%		.2	8.6	.516
		L4	Lenox Fugle	NR1.8	217A/7.7-9	70					30%		.2	8.6	.516
		L5	Lenox Fugle	NR0.47	217A/7.7-9	70					30%		.2	8.6	.516

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Pres-selector, Band I Airborne

PAGE 1 OF 3

DRAWING NO. 377450, Tuner

TOTAL FAILURE RATE .261710 X10⁻⁵

AT _____ DEGREES CENTIGRADE

-112 STRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC. TUNER	PART NUMBER	APPLICABLE SPEC.	Temp. or T_a	PARAMETER	RATED	CHESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C11		CKR05BX102KR	198B/1001.2	70	Volts	200	10	4	100%	< .1	.0005	5	.0025
		C3		CKR05BX102KR	198B/1001.2	70	Volts	200	90	90	100%	.45	.001	5	.005
	Transformer	T1	7. Elec.		217A/7.7-9	70					30%		.1	10	.6
		T2	Cin. Elec.		217A/7.7-9	70					30%		.2	10	.6
	Relay	K1	Teledyne	421D-26	217A/7.10-5	70					30%		.0093	50	.1425
	Diode Varac.	CP1	TRW	371256-1	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR2	TRW	371256-1	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR3	TRW	371256-1	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR4	TRW	371256-1	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR5	TRW	371256-1	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR6	TRW	371256-1	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR7	TRW	371256-1	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR8	TRW	371256-1	Cin. Elec.	70					100%	< .1	.72	-	.72
	Capacitor	C10		CKR05BX102KR	198B/1001.2	70	Volts	200	15	15	100%	< .1	.0005	5	.0025
		C14		CKR05BX102KR	198B/1001.2	70	Volts	200	0	5	30%	< .1	.0005	5	.00075
		C15		CKR05BX102KR	198B/1001.2	70	Volts	200	0	5	30%	< .1	.0005	5	.00075
		C23		CKR05BX102KR	198B/1001.2	70	Volts	200	90	90	100%	.45	.001	5	.005
		C24		CKR05BX102KR	198B/1001.2	70	Volts	200	15	15	100%	< .1	.0005	-	.0025
		C25		CKR05BX102KR	198B/1001.2	70	Volts	200	15	15	100%	< .1	.0005	-	.0025
		C26		CKR05BX102KR	198B/1001.2	70	Volts	200	0	5	30%	< .1	.0005	-	.00075

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Preselector, Band I Airborne

PAGE 2 OF 3

DRAWING NO. 377450, Tuner

TOTAL FAILURE RATE .712475 X10⁻⁵

AT _____ DEGREES CENTIGRADE

(12)

IESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC-TURER	PART NUMBER	APPL CABLE SPEC.	Temp. or	PARAMETER	RATED	QUISCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Temp. F. R
	Capacitor	C63		CKR05BX102KR	198B/1001.2	70	volts	200	15	15	100%	< .1	.0005	5	.0025
		C35		1501-36-102	217A/7.6-25	70	volts	100	0	.1	30%	< .1	.002	5	.003
	Resistor	R5		RCR05G104JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	-	.002
		R6		RCR05G622JS	199A/301.2	70	mW	125	0	< 1	30%	< .1	.0002	10	.0006
		R7		RCR05G302JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R11		RCR05G333JS	199A/301.2	70	mW	125	0	< 1	30%	< .1	.0002	10	.0006
		R12		RCR05G104JS	199A/301.2	70	mW	125	0	< 1	30%	< .1	.0002	10	.0006
		R13		RCR05G303JS	199A/301.2	70	mW	125	0	< 1	30%	< .1	.0002	10	.0006
		R14		RCR05G303JS	199A/301.2	70	mW	125	0	< 1	30%	< .1	.0002	10	.0006
	Inductor	L6	Lenox Fugle	NR19	217A/7.7-9	70					30%		.2	8.6	.516
		L7	Lenox Fugle	NR10	217A/7.7-9	70					30%		.2	8.6	.516
		L12	Lenox Fugle	NR10	217A/7.6-25	70					90%		.2	8.6	1.548
	Transformer	T3	Cin. Elec.		217A/7.7-9	70					30%		.2	10	.6
		T4	Cin. Elec.		217A/7.7-9	70					30%		.2	10	.6
	PTT Transistor	Q1	Siliconix	U320	217A/7.4-13	.42	watts	3	0	.15	30%	.05	.666	8	1.5984
	SPENP Transistor	Q2		JAN2N2907	217A/7.4-13	.257	mW	400	0	.6	30%	< .01	.575	8	1.38
	Diode, Pin	CR9	Haw. Pack.	HP5082-3168	217A/7.4-11	.36	mW	250	0	1.4	30%	< .01	.297	3.5	.3118

TEMP.

DATE 25 June 1973

TOTAL FAILURE RATE .70827 X10⁻⁵

FUNCTIONAL BLOCK

Preselector, Band I Airborne

PAGE 3 OF 3

AT _____ DEGREES CENTIGRADE

DRAWING NO. 377450, Tuner

STRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC. TUNER	PART NUMBER	APPLICABLE SPEC.	Temp. of T_a	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. P
	Capacitor	C29		CKR05BX102KR	198B/1001.2	70	volts	200	90	90	100%	.45	.001	5	.005
		C27	JFD	DV510H	217A/7.6-33	70	volts	100	0	.1	30%	<.1	.01	-	.003
		C28		1501-36-49	217A/7.6-25	70	volts	100	0	.1	30%	<.1	.002	5	.003
		C30		DV501H	217A/7.6-33	70	volts	100	0	.1	30%	<.1	.01	-	.003
		C31		1501-36-49	217A/7.6-25	70	volts	100	0	.1	30%	<.1	.002	5	.003
		C33		DV510H	217A/7.6-33	70	volts	100	0	.1	30%	<.1	.01	-	.003
		C32		1501-36-49	217A/7.6-25	70	volts	100	0	.1	30%	<.1	.002	5	.003
		C34		1501-36-62	217A/7.6-25	70	volts	100	0	.1	30%	<.1	.002	5	.003
		C40		DV510H	217A/7.6-33	70	volts	100	0	.1	30%	<.1	.01	-	.003
		C36		CKR05BX102KR	198B/1001.2	70	volts	200	15	15	100%	.075	.0005	5	.0025
		C37		CKR05BX102KR	198B/1001.2	70	volts	200	0	.1	30%	<.1	.0005	5	.0007
	Resistor	F15		RCR05G303JS	199A/301.2	70	mW	125	<1	<1	100%	<.1	.0002	10	.002
		R16		RCR05G204JS	199A/301.2	70	mW	125	<1	<1	100%	<.1	.0002	10	.002
		R17		RCR05G302JS	199A/301.2	70	mW	125	<1	<1	100%	<.1	.0002	10	.002
		R18		RCR05G204JS	199A/301.2	70	mW	125	<1	<1	100%	<.1	.0002	10	.002
		R19		RCR05G302JS	199A/301.2	70	mW	125	<1	<1	100%	<.1	.0002	10	.002
		R20		RCR05G204JS	199A/301.2	70	mW	125	<1	<1	100%	<.1	.0002	10	.002
	Inductor RF	L13	Lenox Fugle	NR-3.9	217A/7.7-9	70					30%			8.6	.516
		L14	Lenox Fugle	NR-2.7	217A/7.7-9	70					30%			8.6	.516
		L15	Lenox Fugle	NR-3.9	217A/7.7-9	70					30%			8.6	.516

TEMP.

DATE 25 June 1973

FUNCTIONAL BLOCK Pres-selector, Band II Airborne

PAGE 1 OF 4

DRAWING NO. 377450, Tuner

TOTAL FAILURE RATE .159225 X10⁻⁵

AT DEGREES CENTIGRADE

STRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC. TUNER	PART NUMBER	APPLICABLE SPEC.	Temp. or In	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Job. R. R.
	Inductor RF	L16	Lenox Egle	UR2.2	217A/7.7-9	70					30%		.2	8.6	.516
		L17	Lenox Egle	NR0.33	217A/7.7-9	70					30%		.2	8.6	.516
RF	Transformer	T5	Cin. Elec.		217A/7.7-9	70					30%		.2	10	.6
		T6	Cin. Elec.		217A/7.7-9	70					30%		.2	10	.6
	Relay	K2	Teledyne	421D-26	217A/7.10-5	70					30%		.2	10	.6
	Diode Varac.	CR10	C.D. Co.	3215	Cin. Elec.	70					100%	< .1	.72	50	.1425
		CR11	C.D. Co.	3215	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR12	C.D. Co.	3215	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR13	C.D. Co.	3215	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR14	C.D. Co.	3215	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR15	C.D. Co.	3215	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR16	C.D. Co.	3215	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR17	C.D. Co.	3215	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR18	C.D. Co.	3215	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR19	C.D. Co.	3215	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR20	C.D. Co.	3215	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR21	C.D. Co.	3215	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR22	TRW	371256-1	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR23	TRW	371256-1	Cin. Elec.	70					100%	< .1	.72	-	.72
	Capacitor	C38		CKR05BX102KR	1985/1001.2	70	volts	200	10	4	100%	< .1	.0005	5	.0025

TEMP.

DATE 25 June 1973

FUNCTIONAL BLOCK Presselector, Band II Airborne

PAGE 2 OF 4

DRAWING NO. 377450, Tuner

TOTAL FAILURE RATE 1.24570 X10⁻⁵

AT DEGREES CENTIGRADE

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ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC-TURER	PART NUMBER	APPLICABLE SPEC.	Temp. of In	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C39		501-36-53	217A/7.6-25	70		100	0	.1	30%	<.1	.002	5	.003
		C41		CKR05BX102KR	198B/1001.2	70		200	0	5	30%	<.1	.0005	5	.00075
		C42		CKR05BX102KR	198B/1001.2	70		200	0	5	30%	<.1	.0005	5	.00075
		C43		CKR05BX102KR	198B/1001.2	70		200	90	90	100%	.45	.001	5	.005
		C44		CKR05BX102KR	198B/1001.2	70		200	15	15	100%	<.1	.0005	5	.0025
		C45		CKR05BX102KR	198B/1001.2	70		200	0	5	30%	<.1	.0005	5	.00075
		C62		CKR05BX102KR	198B/1001.2	70		200	90	90	100%	.45	.001	5	.005
	Resistor	R21		RCR05G104JS	199A/301.2	70	mW	125	<1	<1	100%	<.1	.0002	10	.002
		R22		RCR05G302JS	199A/301.2	70	mW	125	<1	<1	100%	<.1	.0002	10	.002
		R23		RCR05G202JS	199A/301.2	70	mW	125	0	10	30%	<.1	.0002	10	.0006
		R24		RCR05G233JS	199A/301.2	70	mW	125	0	<1	30%	<.1	.0002	10	.0006
		R25		RCR05G104JS	199A/301.2	70	mW	125	0	<1	30%	<.1	.0002	10	.0006
		R26		RCR05G303JS	199A/301.2	70	mW	125	0	<1	30%	<.1	.0002	10	.0006
		R27		RCR05G303JS	199A/301.2	70	mW	125	0	<1	30%	<.1	.0002	10	.0006
	Inductor	L19	Lenox Fugle	NR10	217A/7.7-9	70					30%		2	8.6	.516
		L18	Lenox Fugle	NR10	217A/7.7-9	70					30%		2	8.6	.516
	Transformer	T7	Cin. Elec.		217A/7.7-9	70					30%		2	10	.6
		T8	Cin. Elec.		217A/7.7-9	70					30%		2	10	.6
	Diode Pin	CR24	Hew. Pac.	HP5082-3168	217A/7.4-11	.36	mW	250	0	1.4	30%	<.01	.297	3.5	.31135
FET	Transistor	Q3	Siliconix	0320	217A/7.4-13	.42	mW	400	0	.15	30%	.05	.666	8	1.5984

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Pres-selector, Band II Airborne

PAGE 3 OF 4

DRAWING NO. 377450, Tuner

TOTAL FAILURE RATE .41670 X10⁻⁵

AT _____ DEGREES CENTIGRADE

722 PRESS ANALYSIS

[illegible]

TOTAL FAILURE RATE	.138	$\times 10^{-5}$
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TEMP. _____ DATE 25 June 1973 _____

FUNCTIONAL BLOCK Preselector, Band II Airborne

PAGE 4 OF 4

DRAWING NO. 377450, Tuner

RESS ANALYSIS

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ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC-TURER	PART NUMBER	APPLICABLE SPEC.	Temp. of T _a	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor
	Capacitor	C46	JFD	DV510H	217A/7.6-33	70	volts	100	0	.1	30%	< .1	.01	.003
		C48	JFD	DV510H	217A/7.6-33	70	volts	100	0	.1	30%	< .1	.01	.003
		C49	JFD	DV510H	217A/7.6-33	70	volts	100	0	.1	30%	< .1	.01	.003
		C56	JFD	DV510H	217A/7.6-33	70	volts	100	0	.1	30%	< .1	.01	.003
		C47		CKR05BX102XR	198B/1001.2	70	volts	200	90	90	100%	.4	.001	.005
		C50		1501-36-71	217A/7.6-25	70	volts	100	0	.1	30%	< .1	.002	.0030
		C51		CKR05BX102UR	198B/1001.2	70	volts	200	90	90	100%	.4	.001	.005
		C52		CKR05BX102UR	198B/1001.2	70	volts	200	15	15	100%	< .1	.0005	.0025
		C53		CKR05BX102UR	198B/1001.2	70	volts	200	0	.1	30%	< .1	.0005	.00075
	Resistor	R28		RCR05G204JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	.002
		R29		RCR05G302JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	.002
		R30		RCR05G304JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	.002
		R31		RCR05G302JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	.002
		R32		RCR05G204JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	.002
		R33		RCR05G303JS	199A/301.2	70	mW	125	0	< 1	30%	< .1	.0002	.0006
	Inductor RF	L20	Lenox Fugle	NR3.9	217A/7.7-9	70					30%		.2	8.6 .516
		L21	Lenox Fugle	NR2.2	217A/7.7-9	70					30%		.2	8.6 .516
		L22	Lenox Fugle	NR3.9	217A/7.7-9	70					30%		.2	8.6 .516
		L23	Lenox Fugle	NR2.2	217A/7.7-9	70					30%		.2	8.6 .516
		L24	Lenox Fugle	NR10	217A/7.7-9	70					30%		.2	8.6 .516

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Presclector, Band III Airborne

PAGE 1 OF 3

DRAWING NO. 377450, TUNER

TOTAL FAILURE RATE .261885 X10⁻⁵

AT _____ DEGREES CENTIGRADE

12 STRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. °F	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Inductor RF	L25	Lenox Fugie	NRO.33	217A/7.7-9	70					30%		.2	8.6	.516
		L26	Lenox Fugie	NR10	217A/7.7-9	70					30%		.2	8.6	.516
	RF Transformer	T9	Cin. Elec.		217A/7.7-9	70					30%		.2	10	.6
		T10	Cin. Elec.		217A/7.7-9	70					30%		.2	10	.6
	Relay	K3	Teledyne	421D-26	217A/7.10-5	70					30%		.2	10	.6
	Diode Varac.	CR25	C.D. Co.	3215	Cin. Elec.	70					30%		.0093	50	.1425
		CR26	C.D. Co.	3215	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR27	C.D. Co.	3215	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR28	C.D. Co.	3215	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR29	C.D. Co.	3215	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR30	C.D. Co.	3215	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR31	C.D. Co.	3215	Cin. Elec.	70					100%	< .1	.72	-	.72
		CR32	C.D. Co.	3215	Cin. Elec.	70					100%	< .1	.72	-	.72
	Diode Pin	CR33	Hew. Pac.	HP5082-3168	217A/7.4-11	.36	mW	250	0	1.4	30%	< .01	.297	3.5	.3118
	Capacitor	C54		150i-36-53	217A/7.6-25	70	volts	100	0	.1	30%	< .1	.002		.003
		C55		CKR05BX102KR	198B/301.2	70	volts	200	10	4	100%	< .1	.0005	5	.0025
		C57		CKR05BX102KR	198B/301.2	70	volts	200	7	5	30%	< .1	.0005	5	.00075
		C58		CKR05BX102KR	198B/301.2	70	volts	200	3	5	30%	< .1	.0005	5	.00075
		C59		CKR05BX102KR	198B/1001.2	70	volts	200	0	5	30%	< .1	.0005	5	.00075
		C60		CKR05BX102KR	198B/1001.2		volts	200	15	15	100%	< .1	.0005	5	.0025

TEMP.

DATE 25 June 1973

FUNCTIONAL BLOCK Pres-selector, Band III Airborne

PAGE 2 OF 3

DRAWING NO. 377450, Tuner

TOTAL FAILURE RATE .845660 X10⁻⁵

AT DEGREES CENTIGRADE

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[illegible]

TEMP. DATE 25 June 1973

TOTAL FAILURE RATE 1.827141 X10-5

AT _____ DEGREES CENTIGRADE

FUNCTIONAL BLOCK Mixer and Connectors Airborne

PAGE i OF 1

DRAWING NO. 377450. Tuner

STRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Temp. R. R.
	Capacitor	C1		1501-36-60	217A/7.6-25	70	volts	100	0	1	90%	< .1	.002	5	.009
		C2		1501-36-60	217A/7.6-25	70	volts	100	0	1	90%	< .1	.002	5	.009
		C3		CR05BX103KR	198B/1001.2	70	volts	100	1	1	100%	< .1	.0005	5	.0025
		C4		CR05BX103KR	198B/1001.2	70	volts	100	.5	.5	100%	< .1	.0005	5	.0025
		C5		CR05BX103KR	198B/1001.2	70	volts	100	5	5	100%	< .1	.0005	5	.0025
		C6		CR05BX103KR	198B/1001.2	70	volts	100	5	5	100%	< .1	.0005	5	.0025
	Resistor	R1		RCR05G123JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R2		RCR05G393JS	199A/301.2	70	mW	125	< 1	< 1	100%	< .1	.0002	10	.002
		R3		RCR05G100JS	199A/301.2	70	mW	125	2.5	2.5	100%	< .1	.0002	10	.002
	Inductor RF	L1	Lenox Fugle	NR3.3	217A/7.7-9	70					100%		.2	8.6	1.72
		L2	Lenox Fugle	NR3.3	217A/7.7-9	70					100%		.2	8.6	1.72
	Hybrid	HY1	Cin. Elec.	376259	USAECOM	70					100%		2.7864	-	2.7864
		HY2	Cin. Elec.	376259	USAECOM	70					100%		2.7864	-	2.7864
		HY3	Cin. Elec.	376259	USAECOM	70					100%		2.7864	-	2.7864
		HY4	Cin. Elec.	377668	USAECOM	70					100%		5.0344	-	5.0344
	Connector	P1	Microdot	141-1002-0001	RADC II/191	70					90%		.036	.5	.0162
		P2	Microdot	141-1002-0001	RADC II/191	70					10%		.036	.5	.0018
	Crystal FIL	FL1		376270	217A/7.12-3	70					89%		4.08	-	3.6312
		FL2		376252	217A/7.12-3	70					45%		4.08	-	1.836
	Hybrid	HY5	Cin. Elec.	376261	USAECOM	70					100%		.5362	-	.5362

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Receive IF Airborne

PAGE 1 OF 3

DRAWING NO. 377400 IF

TOTAL FAILURE RATE 2.2889 X10⁻⁵

AT _____ DEGREES CENTIGRADE

12 ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or T _a	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Hybrid	HY6	Cin. Elec.	376261	USASCOM	70					100%		5362	-	5362
	Cryстал Fil.	FL3		376270	217A/7.12-3	70					44%		4.08	-	1.7952
				376251	217A/7.12-3	70					1%		4.08	-	0.408
				376251	217A/7.12-3	70					1%		4.08	-	0.408
	Capacitor	C7		CKR05BX103KR	198B/1001.2	70	volts	200	0	1	10%	<.1	0.0005	5	0.0025
	Resistor	R4		RCR05G911JS	199A/301.2	70	mW	125	<1	<1	100%	<.1	0.0002	10	0.002
		R5		RCR05G101JS	199A/301.2	70	mW	125	<1	<1	100%	<.1	0.0002	10	0.002
		R6		RCR05G274JS	199A/301.2	70			10	5	100%	<.1	0.0002	10	0.002
		R7		RCR05G274JS	199A/301.2	70			15	10	100%	<.1	0.0002	10	0.002
		R10		RCR05G151JS	199A/301.2	70			0	1	10%	<.1	0.0002	10	0.002
	Inductor	L3	Cin. Elec.	377402	217A/7.7-9	70					100%		2	8.6	1.72
		L4	Lenox Fugle	NR82	217A/7.7-9	70					100%		2	8.6	1.72
		L5	Lenox Fugle	NR82	217A/7.7-9	70					100%		2	8.6	1.72
		L6	Lenox Fugle	NR82	217A/7.7-9	70					100%		2	8.6	1.72
		L7	Lenox Fugle	NR82	217A/7.7-9	70					100%		2	8.6	1.72
		L8	Lenox Fugle	NR82	217A/7.7-9	70					100%		2	8.6	1.72
		L9	Lenox Fugle	NR82	217A/7.7-9	70					100%		2	8.6	1.72
		L10	Lenox Fugle	NR82	217A/7.7-9	70					100%		2	8.6	1.72
		L11	Lenox Fugle	NR82	217A/7.7-9	70					100%		2	8.6	1.72
		L12	Lenox Fugle	NR82	217A/7.7-9	70					100%		2	8.6	1.72

TEMP. _____ DATE 25 June 1973 TOTAL FAILURE RATE 1.96255 X10⁻⁵

FUNCTIONAL BLOCK Receive IF Airborne AT _____ DEGREES CENTIGRADE

PAGE 2 OF 3

DRAWING NO. 377400, IF

[illegible]

TOTAL FAILURE RATE	.2376
	X10 ⁻⁵

AT _____ DEGREES CENTIGRADE

PAGE 3 OF 3

DRAWING NO. 377400 IF

[illegible]

DATE 25 June 1973

FUNCTIONAL BLOCK Band and Tuner Control Airborne

PAGE 1 OF 1

DRAWING NO. 377400, IF

TOTAL FAILURE RATE 1.009698 K10-5

AT _____ DEGREES CENTIGRADE

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. °F	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor
	Capacitor	C1		NP105A-10	217A/7.6-81	70	volts	4	0	.1	90%	.02	.0012	.00108
		C2		VK30BA472K	217A/7.6-57	70	volts	50	10	10	100%	.2	.0071	.0355
		C3		VE30BA103K	217A/7.6-57	70	volts	50	10	10	100%	.2	.0071	.0355
		C5		S685R-10	217A/7.6-81	70	volts	35	12	12	100%	.34	.003	.003
		C6		J226R-10	217A/7.6-81	70	volts	35	12	12	100%	.34	.003	.003
		C7		J226R-10	217A/7.6-81	70	volts	35	12	12	100%	.34	.003	.003
		C8		J226R-10	217A/7.6-81	70	volts	35	12	12	100%	.34	.003	.003
	Resistor	R1		RCR05G274JS	199A/301.2	70	mW	125	.1	.1	100%	<.1	.0002	.002
		R2		RCR05G274JS	199A/301.2	70	mW	125	.1	.1	100%	<.1	.0002	.002
		R3		RCR05G274JS	199A/301.2	70	mW	125	.1	.1	100%	<.1	.0002	.002
		R4		RCR05G182JS	199A/301.2	70	mW	125	<.1	.1	100%	<.1	.0002	.002
		R5		RCR05G514JS	199A/301.2	70	mW	125	.5	.5	100%	<.1	.0002	.002
		R6		RN55D	217A/7.5-27	70	mW	125	.5	.5	100%	<.1	.42	.126
		R7		RCR05G514JS	199A/301.2	70	mW	125	.5	.5	100%	<.1	.0002	.002
		R8		RN55D	217A/7.5-27	70	mW	125	.5	.5	100%	<.1	.42	.126
		R11		RCR05GXXXJS	199A/301.2	70	mW	125	.1	.1	100%	<.1	.0002	.002
		R12		RCR05GXXXJS	199A/301.2	70	mW	125	.1	.1	100%	<.1	.0002	.002
		R13		RCR05GXXXJS	199A/301.2	70	mW	125	.1	.1	100%	<.1	.0002	.002
		R14		RCR05GXXXJS	199A/301.2	70	mW	125	.1	.1	100%	<.1	.0002	.002
		R15		RCR05GXXXJS	199A/301.2	70	mW	125	.1	.1	100%	<.1	.0002	.002

TEMP.

DATE 25 June 1973

TOTAL FAILURE RATE .035803 X10⁻⁵

FUNCTIONAL BLOCK

Receive Audio Airborne

PAGE 1 OF 2

AT DEGREES CENTIGRADE

DRAWING NO. 377500, Audio

12

[illegible]

TEMP. DATE 25 June 1973

TOTAL FAILURE RATE	2.81972	X10 ⁻⁵
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FUNCTIONAL BLOCK Receive Audio Airborne

AT _____ DEGREES CENTIGRADE

PAGE 2 OF 2

DRAWING NO. 377500-Audio

STRESS ANALYSIS

[illegible]

DATE 25 June 1973

Transmit Audio Airborne

PAGE 1 OF 1

DRAWING NO. 377500, Audio

TOTAL FAILURE RATE .137854 X12-5

AT _____ DEGREES CENTIGRADE

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC. TURNER	PART NUMBER	APPLICABLE SPEC.	Temp. of	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Resistor	R10		RCR07G562JS	199A/301.2	70	mW	250	0	<1	10%	<.1	.0002	10	.0002
		R11		RCR07G750JS	159A/301.2	70	mW	250	0	<1	10%	<.1	.0002	10	.0002
		R12		RCR07G750JS	199A/301.2	70	mW	250	0	<1	10%	<.1	.0002	10	.0002
		R13		RCR07G473JS	199A/301.2	70	mW	250	0	<1	10%	<.1	.0002	10	.0002
		R14		RCR07G473JS	199A/301.2	70	mW	250	0	<1	10%	<.1	.0002	10	.0002
	Capacitor	C45		DM5C050DP	217A/7.6-21	70	volts	300	0	15	10%	<.1	.0003	15	.00045
		C46		DM5C390CP	217A/7.6-21	70	volts	300	0	15	10%	<.1	.0003	15	.00045
		C47		CKR05BX102KR	198B/1001.2	70	volts	200	0	7	10%	<.1	.0005	5	.00025
		C48		CKR05BX102KR	198B/1001.2	70	volts	200	0	7	10%	<.1	.0005	5	.00025
		C49		CKR05BX102KR	198B/1001.2	70	volts	200	0	7	10%	<.1	.0005	5	.00025
		C50		CKR05BX102KR	198B/1001.2	70	volts	200	0	7	10%	<.1	.0005	5	.00025
	Inductor	L25	Cin. Elec.		217A/7.2-9	70					10%		.2	8.6	.172
		L26	Cin. Elec.		217A/7.2-9	70					10%		.2	8.6	.172
		L27	Delevar	1025-32	217A/7.2-9	70					10%		.2	8.6	.172
		L28	Delevar	1025-32	217A/7.2-9	70					10%		.2	8.6	.172
	Transformer	T4	Cin. Elec.		217A/7.2-9	70					10%		.2	10	.2
	Diode S1	CR7	Hew. Pac.	HP5082-2800	217A/7.4-11	.257	mW	250	0	<1	10%	<.1	.227	3.5	.0795
		CR8	Hew. Pac.		217A/7.4-11	.257	mW	250	0	<1	10%	<.1	.227	3.5	.0795
	Connector	F1		51-728-000-2G	RADC II/191	70					10%		.036	.5	.0013
		F2		51-728-000-2G	RADC II/191	70					10%		.036	.5	.0018

TEMP.

DATE 25 June 1973

TOTAL FAILURE RATE .10535 X10⁻⁵

FUNCTIONAL BLOCK RF Power Meter Airborne

AT _____ DEGREES CENTIGRADE

PAGE 1 OF 2

DRAWING NO. 377257, Filter Assembly

[illegible]

TOTAL FAILURE RATE.0000206 $\times 10^{-5}$

FUNCTIONAL BLOCK RF Power Meter Airborne
PAGE 2 OF 2

DRAWING NO. 377257, Filter Assembly

ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC-TURER	PART NUMBER	APPLICABLE SPEC.	Temp. OF In	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C15		ATC100B4R3BRW	217A/7.6-59	70	volts	300	0	< 1	3%	< .1	.026	18	.01404
		C16		DM5C130DP	217A/7.6-21	70	volts	300	0	< 1	3%	< .1	.0003	15	.000135
		C17		DM5C330DP	217A/7.6-21	70	volts	300	0	< 1	3%	< .1	.0003	15	.000135
		C18		ATC100B9R1BRW	217A/7.6-59	70	volts	300	0	< 1	3%	< .1	.026	18	.01404
		C19		DM5C430DP	217A/7.6-21	70	volts	300	0	30	3%	.1	.0003	15	.000135
		C20		DM5C101GP	217A/7.6-21	70	volts	300	0	30	3%	.1	.0003	15	.000135
		C21		DM5C910GP	217A/7.6-21	70	volts	300	0	30	3%	.1	.0003	15	.000135
		C22		DM5C910GP	217A/7.6-21	70	volts	300	0	30	3%	.1	.0003	15	.000135
		C23		DM5C330DP	217A/7.6-21	70	volts	300	0	30	3%	.1	.0003	15	.000135
		C8		CKR05BX103KR	198B/1001.2	70	volts	100	0	24	3%	.24	.0005	5	.000075
		C11		CKR05BX103KR	198B/1001.2	70	volts	100	0	24	3%	.24	.0005	5	.000075
	Inductor	L5	Delevan	1025-32	217A/7.7-9	70					3%		.2	8.6	.0516
		L6	Delevan	1025-32	217A/7.7-9	70					3%		.2	8.6	.0516
		L7	Delevan	1025-32	217A/7.7-9	70					3%		.2	8.6	.0516
		L8	Delevan	1025-32	217A/7.7-9	70					3%		.2	8.6	.0516
		L9	Cin. Elec.		217A/7.7-9	70					3%		.2	8.6	.0516
		L10	Cin. Elec.		217A/7.7-9	70					3%		.2	8.6	.0516
	Relay	K1		GB-831C-5F	217A/7.10-5	70					3%		.101	50	.1515
		K2		GB-831C-5F	217A/7.10-5	70					3%		.101	50	.1515
		C14		CKR05BX103KR	198B/1001.2	70	volts	100	24	24	100%	.24	.0005	5	.00025

TEMP.

DATE 25 June 1973

TOTAL FAILURE RATE .0644275 X10⁻⁵

FUNCTIONAL BLOCK Filter, Band I Airborne

PAGE 1 OF 2

AT DEGREES CENTIGRADE

DRAWING NO. 372257, Filter Assembly

[illegible]

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Filter, Band I Airborne

PAGE 2 OF 2

DRAWING NO. 377257, Filter Assembly

TOTAL FAILURE RATE 0.01570100 X10⁻⁵

AT _____ DEGREES CENTIGRADE

12 ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. in	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	Filter	Tot. F. R.
	Capacitor	C24		ATC100B3R0BRW	217A/7.6-59	70	volts	300	0	<1	3%	<.1	.026	18	.01404
		C25		DM5C180DP	217A/7.6-21	70	volts	300	0	<1	3%	<.1	.0003	15	.000135
		C26		DM5C240DP	217A/7.6-21	70	volts	300	0	<1	3%	<.1	.0003	15	.000135
		C27		DM5C130DP	217A/7.6-21	70	volts	300	0	<1	3%	<.1	.0003	15	.000135
		C28		DM5C300DP	217A/7.6-21	70	volts	300	0	30	3%	.1	.0003	15	.000135
		C29		DM5C360DP	217A/7.6-21	70	volts	300	0	30	3%	.1	.0003	15	.000135
		C30		DM5C330DP	217A/7.6-21	70	volts	300	0	30	3%	.1	.0003	15	.000135
		C31		DM5C330DP	217A/7.6-21	70	volts	300	0	30	3%	.1	.0003	15	.000135
		C32		DM5C130DP	217A/7.6-21	70	volts	300	0	30	3%	.1	.0003	15	.000135
		C9		CKR05BX103KR	198B/1001.2	70	volts	100	0	24	3%	.24	.0005	5	.000075
		C12		CKR05BX103KR	198B/1001.2	70	volts	100	0	24	3%	.24	.0005	5	.000075
	Inductor	L13	Delevan	2025-32	217A/7.7-9	70					3%		.2	8.6	.0516
		L14	Cin. Elec.		217A/7.7-9	70					3%		.2	8.6	.0516
		L15	Cin. Elec.		217A/7.7-9	70					3%		.2	8.6	.0516
		L16	Cin. Elec.		217A/7.7-9	70					3%		.2	8.6	.0516
		L17	Cin. Elec.		217A/7.7-9	70					3%		.2	8.6	.0516
		L18	Delevan	1025-32	217A/7.7-9	70					3%		.2	8.6	.0516
	Relay	K3	Teledyne	411D-26	217A/7.10-5	70					3%		.101	50	.1515
		K4	Teledyne	411D-26	217A/7.10-5	70					3%		.101	50	.1515
	Capacitor	C43		CKR05BX103KR	198B/1001.2	70	volts	100	0	24	3%	.24	.0005	5	.000075

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Filter, Band II Airborne

PAGE 1 OF 2

DRAWING NO. 377257, Filter Assembly

TOTAL FAILURE RATE .0627045 X10⁻⁵
AT _____ DEGREES CENTIGRADE

(12) PRESS ANALYSIS

[illegible]

TEMP. DATE 25 June 1973

FUNCTIONAL BLOCK Filter, Band II Airborne

PAGE 2 OF 2

DRAWING NO. 377257 Filter Assembly

TOTAL FAILURE RATE .005387 X10⁻⁵

AT _____ DEGREES CENTIGRADE

712 STRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. P.
	Capacitor	C33		ATC100B2R0BRW	217A/7.6-59	70	volts	300	0	<1	3%	<.1	.026	18	.01404
		C34		DM5C130DP	217A/7.6-21	70	volts	300	0	<1	3%	<.1	.0003	15	.000135
		C35		ATC100B9R18RW	217A/7.6-59	70	volts	300	0	<1	3%	<.1	.026	18	.01404
		C36		ATC100B9R18RW	217A/7.6-59	70	volts	300	0	<1	3%	<.1	.026	18	.01404
		C37		DM5C100DP	217A/7.6-21	70	volts	300	0	30	3%	.1	.0003	15	.000135
		C38		DM5C510DP	217A/7.6-21	70	volts	300	0	30	3%	.1	.0003	15	.000135
		C39		DM5C470DP	217A/7.6-21	70	volts	300	0	30	3%	.1	.0003	15	.000135
		C40		DM5C470DP	217A/7.6-21	70	volts	300	0	30	3%	.1	.0003	15	.000135
		C41		ATC100B9R18RW	217A/7.6-59	70	volts	300	0	30	3%	.1	.026	18	.01404
		C10		CKR05BX103KR	198B/1001.2	70	volts	100	0	24	3%	.24	.0005	5	.000075
		C13		CKR05BX103KR	198B/1001.2	70	volts	100	0	24	3%	.24	.0005	5	.000075
	Inductor	L19	Delevan	1025-32	217A/7.7-9	70					3%		.2	8.6	.0516
		L20	Cin. Elec.		217A/7.7-9	70					3%		.2	8.6	.0516
		L21	Cin. Elec.		217A/7.7-9	70					3%		.2	8.6	.0516
		L22	Cin. Elec.		217A/7.7-9	70					3%		.2	8.6	.0516
		L23	Cin. Elec.		217A/7.7-9	70					3%		.2	8.6	.0516
		L24	Delevan	1025-32	217A/7.7-9	70					3%		.2	8.6	.0516
	Relay	K5	Teledyne	411D-26	217A/7.10-5	70					3%		.101	50	.1515
		K6	Teledyne	411D-26	217A/7.10-5	70					3%		.101	50	.1515
	Capacitor	C44		CKR05BX103KR	198B/1001.2	70	volts	100	0	24	3%	.24	.0005	5	.000075

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Filter, Band IXX Airborne

PAGE 1 OF 2

DRAWING NO. 377257, Filter Assembly

TOTAL FAILURE RATE .0672085 X10⁻⁵

AT _____ DEGREES CENTIGRADE

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ITEM #.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. of Test	PARAMETER	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	Factor	Total P.F.
	Capacitor	C53		DM5C560DP	217A/7.6-21	70	volts	0	<1	3%	<.1	.0003	15	.000135
		C54		DM5C510DP	217A/7.6-21	70	volts	0	<1	3%	<.1	.0003	15	.000135
	Inductor	L34	Cin. Elec.		217A/7.7-9	70				3%		.2	8.6	.0516
		L35	Cin. Elec.		217A/7.7-9	70				3%		.2	8.6	.0516
		L36	Cin. Elec.		217A/7.7-9	70				3%		.2	8.6	.0516
		L37	Cin. Elec.		217A/7.7-9	70				3%		.2	8.6	.0516
		L38	Cin. Elec.		217A/7.7-9	70				3%		.2	8.6	.0516
	Diode S1	CR3		JAN1N4148	217A/7.4-11	30	mA	0	5	3%	<.1	.255	3.5	.0268
		CR6		JAN1N4148	217A/7.4-11	30	mA	0	5	3%	<.1	.255	3.5	.0268
	Capacitor	C35'		ATC100B80BRW	217A/7.6-59	70	volts	0	1	3%	.1	.026	18	.01404
		C37'		DM5C130DP	217A/7.6-21	70	volts	0	30	3%	.1	.0003	15	.000135
		C41'		DM5C100DP	217A/7.6-25	70	volts	0	30	3%	.1	.0003	15	.000135

TOTAL FAILURE RATE 0.032618 X10⁻⁵
AT DEGREES CENTIGRADE

TEMP. _____ DATE 25 June 1973
FUNCTIONAL BLOCK Filter, Band III Airborne
PAGE 2 OF 2
DRAWING NO. 377257, Filter Assembly

12 ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPL CABLE SPEC.	TEMP. OF	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C1		CKR05BX103KR	198B/1001.2	70	volts	100	0	10	10%	.1	.0005	5	.00025
		C2		CKR05BX103KR	198B/1001.2	70	volts	100	0	24	10%	.24	.0005	5	.00025
		C3		CKR06BX105KR	198B/1001.2	70	volts	50	0	12	10%	.24	.0005	5	.00025
		C4		CKR06BX105KR	198B/1001.2	70	volts	50	0	24	10%	.48	.0015	5	.00075
		C5		DM5C101JP	217A/7.6-21	70	volts	300	0	10	10%	<.1	.0003	15	.00045
		C6		CKR06BX334KR	198B/1001.2	70	volts	50	0	10	10%	.2	.0005	5	.00025
		C7		CKR05BX103KR	198B/1001.2	70	volts	100	0	24	10%	.24	.0005	5	.00025
		C51		DM5C101GP	217A/7.6-21	70	volts	300	0	< 1	10%	<.1	.0003	15	.00045
		C52		DM5C181GP	217A/7.6-21	70	volts	300	0	< 1	10%	<.1	.0003	15	.00045
		C53		CKR05BX103KR	198B/1001.2	70	volts	100	0	24	10%	.24	.0005	5	.00025
		C54		CKR05BX103KR	198B/1001.2	70	volts	100	0	24	100%	.24	.0005	5	.00025
		C55		CKR05BX103KR	198B/1001.2	70	volts	100	0	24	10%	.24	.0005	5	.00025
	Resistor	R1		RCR07G104JS	199A/301.2	70	mW	250	0	1	10%	<.1	.0002	10	.0002
		R2		RCR07G300JS	199A/301.2	70	mW	250	0	12	10%	.1	.0002	10	.0002
		R3		.2 ohm 1/4W	217A/7.5-25	70	mW	500	0	130	10%	.26	.21	.3	.0063
		R4		RCR07G752JS	199A/301.2	70	mW	250	0	3	10%	<.1	.0002	10	.0002
		R5		RCR07G252JS	199A/301.2	70	mW	250	0	< 1	10%	<.1	.0002	10	.0002
	Inductor	L1	Ferroxcube	VK200-20/4B	217A/7.7-9	70					10%		.2	8.6	.172
		L2	Cin. Elec.		217A/7.7-9	70					10%		.2	8.6	.172
		L3	Ferroxcube	VK200-20/4B	217A/7.7-9	70					10%		.2	8.6	.172

TEMP. _____ DATE 25 June 1973 TOTAL FAILURE RATE .052945 X10⁻⁵

FUNCTIONAL BLOCK Power Amplifier Airborne

PAGE 1 OF 3

DRAWING NO. 377255, Power Amplifier

STRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or T _{amb}	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R
	Inductor	L4	Ferroxcube	VK200-20/4B	217A/7.7-9	70					10%		.2	8.6	.172
		L29	Cin. Elec.		217A/7.7-9	70					10%		.2	8.6	.172
		L30	Cin. Elec.		217A/7.7-9	70					10%		.2	8.6	.172
		L31	Cin. Elec.		217A/7.7-9	70					10%		.2	8.6	.172
		L32	Cin. Elec.		217A/7.7-9	70					10%		.2	8.6	.172
	Transformer	T1	Cin. Elec.		217A/7.7-9	70					10%		.2	8.6	.172
		T2	Cin. Elec.		217A/7.7-9	70					10%		.2	10	.2
		T3	Cin. Elec.		217A/7.7-9	70					10%		.2	10	.2
	Diode S1	CR1		1N4148	217A/7.7-9	70					10%		.2	10	.2
		CR5		1N4148	217A/7.4-11	457 mW		100	20	20	10%	.2	.371	3.5	.1295
	Hybrid	A1	Cin. Elec.	377686	217A/7.4-11	457 mW		100	20	20	10%	.2	.371	3.5	.1295
		A2	Cin. Elec.	377687	USAECOM	70					10%		.5013	-	.05013
	Connector	P1	Microdot	141-1005-0001	USAECOM	70					10%		2.4602	-	.24602
		P2	Amp	85930-4 20 pins	RADC II/191	70					10%		.036	.5	.0018
		P3	Microdot	141-1005-0001	RADC II/191	70					10%		.00688	.5	.000344
		P4		MCDD1-9P465-10 pins	RADC II/191	70					10%		.036	.5	.0018
	Resistor	R6		RCR07 JS	RADC II/191	70					100%		.00412	.5	.00206
		R7		RCR07 JS	199A/301.2	70 mW	250	250	0	10	10%	<.1	.0002	10	.0002
		R8		RCR07G122JS	199A/301.2	70 mW	250	250	0	10	10%	<.1	.0002	10	.0002
		R9		RCR07G492JS	199A/301.2	70 mW	250	250	0	10	10%	<.1	.0002	10	.0002

TEMP. _____ DATE 25 June 1973 TOTAL FAILURE RATE .2021954 X10⁻⁵
 FUNCTIONAL BLOCK Power Amplifier Airborne AT _____ DEGREES CENTIGRADE
 PAGE 2 OF 3
 DRAWING NO. 377255, Power Amplifier

12 LESS ANALYSIS

ITEM # - R.M.	PART NAME	SYMBOL	MANUFAC. TYP	PART NUMBER	APPL CABLE SPEC.	Temp. OF	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Resistor	R10		RCR07G103JS	199A/301.2	70	mW	250	0	4	10%	<.1	.0002	10	.0002
		R11		RCR07G513JS	199A/301.2	70	mW	250	0	1	10%	<.1	.0002	10	.0002
		R12		RCR07G513JS	199A/301.2	70	mW	250	0	2	10%	<.1	.0002	10	.0002
	Inductor	L33	Cin. Elec.		217A/7.7-9	70					10%	.2	8.6.172		
		L34	Delevan	1025-32	217A/7.7-9	70					10%	.2	8.6.172		
		L35		1025-32	217A/7.7-9	70					10%	.2	8.6.172		
		L37		1025-32	217A/7.7-9	70					10%	.2	8.6.172		
	SIREN Transistor	Q1		JAN2N2222A	217A/7.4-13	.257	mW	500	0	.1	10%	<.1	.227	8	.168
	Hybrid	A3	Cin. Elec.	377688	217B	70					10%	.5324		.0532	
	Connector	P5	Microdot	141-1005-0001	RADC II/191	70					10%	.036	.5	.0018	
		P6	Microdot	141-1005-0001	RADC II/191	70					10%	.036	.5	.0018	
		P7	Selectro	51-751-G000-28	RADC II/191	70					10%	.036	.5	.0018	
		P8	Selectro	51-751-G000-20	RADC II/191	70					10%	.036	.5	.0018	
	Resistor	R13		RCR07JS	199A/301.2	70	mW	250	0	< 1	10%	<.1	.0002	10	.0002
		R14		RCR07JS	199A/301.2	70	mW	250	0	10	10%	<.1	.0002	10	.0002
		R15		RCR07JS	199A/301.2	70	mW	250	0	10	10%	<.1	.0002	10	.0002
	Relay	K7		GB-831C-SE	217A/7.10-5	70					100%	.301	50	15.05	
		K8		GB-831C-3E	217A/7.10-5	70					100%	.018	50	.9	
		K9		GB-831C-SE	217A/7.10-5	70					10%	.301	50	1.505	

TEMP. _____ DATE 25 June 1973 TOTAL FAILURE RATE 1.837264 X10⁻⁵
 FUNCTIONAL BLOCK Power Amplifier Airborne AT _____ DEGREES CENTIGRADE
 PAGE 3 OF 3

DRAWING NO. 377255, Power Amplifier

12 5.55 ANALYSIS

PART NAME	SYMBOL	MANUFAC. TYP	PART NUMBER	APPL. CABLE SPEC.	Temp. °F	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
Capacitor	C1		Y104A-20	217A/7.6-81	70	volts	20	10	10	100%	.5	.0072	-	.0072
	C2		Y203A-20	217A/7.6-81	70	volts	20	10	10	100%	.5	.0072	-	.0072
	C3		B155A-05	217A/7.6-81	70	volts	15	10	10	100%	.75	.034	-	.034
	C4		B155A-05	217A/7.6-81	70	volts	15	10	10	100%	.75	.034	-	.034
	C6		Y154A-05	217A/7.6-81	70	volts	20	10	10	100%	.5	.0072	-	.0072
Resistor	R1		RCR05 JS	199A/301.2	70	mW	125	<1	<1	100%	<.1	.0002	10	.002
	R2		RCR05 JS	199A/301.2	70	mW	125	<1	<1	100%	<.1	.0002	10	.002
Inductor	L1	Lenox Fugle	NR-22	217A/7.7-9	70					100%			8.6	1.72
	L6	Lenox Fugle	NR-22	217A/7.7-9	70					100%			8.6	1.72
	L7	Lenox Fugle	NR-3.9	217A/7.7-9	70					100%			8.6	1.72
	L8	Lenox Fugle	NR-12	217A/7.7-9	70					100%			8.6	1.72
	L9	Lenox Fugle	NR-22	217A/7.7-9	70					100%			8.6	1.72
	L10	Lenox Fugle	NR-10	217A/7.7-9	70					10%			8.6	1.72
	L11	Lenox Fugle	NR-3.3	217A/7.7-9	70					10%			8.6	1.72
Transformer	T1	Cin. Elec.	377354	217A/7.7-9	70					100%			10	2
	T2	Cin. Elec.	377355	217A/7.7-9	70					100%			10	2
	T3	Cin. Elec.	377353	217A/7.7-9	70					100%			10	2
	T4	Cin. Elec.	377355	217A/7.7-9	70					100%			10	2
	T5	Cin. Elec.	377352	217A/7.7-9	70					100%			10	2
	T6	Cin. Elec.	377355	217A/7.7-9	70					100%			10	2

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK RF Modulator Airborne

PAGE 1 OF 4

DRAWING NO. 377350, Synth/RF Modulator

TOTAL FAILURE RATE 2.10376 X10⁻⁵

AT _____ DEGREES CENTIGRADE

(12)

PRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. of	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F.
	Transformer	T7	Cin. Elec.	377356	217A/7.7-9	70					10%		1.2	10	1.2
	Hybrid	HY2	Cin. Elec.	377677	USAECOM	70					100%		0.9882	-	0.9882
		HY4	Cin. Elec.	377675	USAECOM	70					33%		0.4061	-	0.1340
		HY5	Cin. Elec.	377675	USAECOM	70					33%		0.4061	-	0.1340
		HY6	Cin. Elec.	377675	USAECOM	70					33%		0.4061	-	0.1340
		HY7	Cin. Elec.	377676	USAECOM	70					100%		0.5216	-	0.5216
	Capacitor	C15		Y474A-20	217A/7.6-81	70	volts	10	5	5	100%	0.5	0.0072	-	0.0072
		C16		CKR05BX162KR	198B/1001.2	70	volts	200	5	5	100%	0.1	0.0005	5	0.0025
		C17		CKR05BX102KR	198B/1001.2	70	volts	200	5	5	100%	0.1	0.0005	5	0.0025
		C18		Y474A-20	217A/7.6-81	70	volts	10	5	5	33%	0.5	0.0072	-	0.0024
		C19		Y474A-20	217A/7.6-81	70	volts	10	5	5	33%	0.5	0.0072	-	0.0024
		C20		Y474A-20	217A/7.6-81	70	volts	10	5	5	33%	0.5	0.0072	-	0.0024
	Resistor	R3		RCR05 JS	199A/301.2	70	mW	125	0.1	0.1	100%	0.1	0.0002	10	0.002
		R7		RCR05102JS	199A/301.2	70	mW	125	0.1	0.1	100%	0.1	0.0002	10	0.002
		R8		RCR05102JS	199A/301.2	70	mW	125	0.1	0.1	100%	0.1	0.0002	10	0.002
		R9		RCR05103JS	199A/301.2	70	mW	125	0.1	0.1	100%	0.1	0.0002	10	0.002
		R10		RCR05103JS	199A/301.2	70	mW	125	0.1	0.1	100%	0.1	0.0002	10	0.002
		R11		RCR05103JS	199A/301.2	70	mW	125	0.1	0.1	100%	0.1	0.0002	10	0.002
		R12		RCR05102JS	199A/301.2	70	mW	125	4	4	100%	0.1	0.0002	10	0.002
		R13		RCR05102JS	199A/301.2	70	mW	125	4	4	100%	0.1	0.0002	10	0.002

TEMP.

DATE 25 June 1973

TOTAL FAILURE RATE 1.11474 $\times 10^{-5}$

FUNCTIONAL BLOCK RF Modulator Airborne

AT DEGREES CENTIGRADE

PAGE 2 OF 4

DRAWING NO. 377350-Synth/RF Modulator

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STRESS ANALYSIS																
ITEM # - B.M.		PART NAME	SYMBOL	MANUFAC. TURER	PART NUMBER	APPLICABLE SPEC.	Temp. or P. In	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. S
		Resistor	R16		RCR05104JS	199A/301.2	70	mW	125	<1	<1	100%	<1	0.002	10	0.002
		Int. Circuit	IC1	Plessey	376152	RADC II/413	70					100%		1.207	-	1.207
		Hybrid	HY8		377679	U5A100M	70					100%		0.4212	-	0.4212
			R18		RCR05 JS	199A/301.2	70	mW	125	<1	<1	100%	<1	0.002	10	0.002
			R19		RCR05 JS	199A/301.2	70	mW	125	12	12	100%	1	0.002	10	0.002
		Connector	P1	Amp	85930-4 20p	RADC II/191	70					100%		0.00688	5	0.03344
			P2	Microdot	141-1005-0001	RADC II/191	70					100%		0.036	5	0.018
			P3	Microdot		RADC II/191	70					100%		0.036	5	0.018
		Transformer	T8		377357	217A/7.7-9	70					10%	2	10	2	
		Diode, Var.	CR1		DKV6523B	Cin. Elec.	70					100%		72	-	72
			CR2		DKV6523B	Cin. Elec.	70					100%		72	-	72
			CR3		DKV6524B	Cin. Elec.	70					100%		72	-	72
			CR4		DKV6524B	Cin. Elec.	70					100%		72	-	72
			CR5		DKV6524B	Cin. Elec.	70					100%		72	-	72
			CR6		DKV6524B	Cin. Elec.	70					100%		72	-	72
			CR7		DKV6524B	Cin. Elec.	70					100%		72	-	72
			CR8		DKV6524B	Cin. Elec.	70					100%		72	-	72
			CR9		DKV6524B	Cin. Elec.	70					100%		72	-	72
			CR10		DKV6524B	Cin. Elec.	70					100%		72	-	72
			CR11		DKV6524B	Cin. Elec.	70					100%		72	-	72

TEMP. _____ DATE 25 June 1973 TOTAL FAILURE RATE .979364 X10⁻⁵

FUNCTIONAL BLOCK RF Modulator Airborne

PAGE 3 OF 4

AT _____ DEGREES CENTIGRADE

DRAWING NO. 377350 Synch/RF Modulator

12 STRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or T ₉₀	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Capacitor	C7	Comp. Inc.	Y104A-20	217A/7.6-81	70	volts	20	10	10	100%	.5	.0072	-	.0072
		C8		Y104A-20	217A/7.6-81	70	volts	20	15	15	100%	.75	.034	-	.034
		C9		Y104A-20	217A/7.6-81	70	volts	20	15	15	100%	.75	.034	-	.034
		C10		Y104A-20	217A/7.6-81	70	volts	20	10	10	100%	.5	.0072	-	.0072
	Resistor	R4		RCR05G	199A/301.2	70	mW	125	2	2	100%	<.1	.0002	10	.002
		R5		RCR05G101JS	199A/301.2	70	mW	125	20	10	100%	<.1	.0002	10	.002
		R6		RCR05G	199A/301.2	70	mW	125	1	1	100%	<.1	.0002	10	.002
		R17		RCR05G104JS	199A/301.2	70	mW	125	<1	<1	100%	<.1	.0002	10	.002
	Inductor	L2	Lenox Fugle	NR22	217A/7.7-9	70					100%		.2	8.6	1.72
		L3	Lenox Fugle	NR22	217A/7.7-9	70					100%		.2	8.6	1.72
	Int. Circuit	IC1	CTS Knight	376153 TCXO	RADC II/413	70					100%		.9656	-	.9656
		IC2		Ref. #4 N	USAECON	70					100%		3.7	-	3.7
						70									
	Resistor	R20		RCR05 JS	199A/301.2	70	volts	125	1	1	100%	<.1	.0002	10	.002
	Capacitor	C11		Y104A-20	217A/7.6-81	70	volts	20	10	10	100%	.5	.0065	-	.0072
		C12		G106A-20	217A/7.6-81	70	volts	15	5.6	5.6	100%	.37	.0035	-	.0035
		C13		S695A-20	217A/7.6-81	70	volts	35	20	20	100%	.57	.0127	-	.0127
		C14		Y104A-20	217A/7.6-81	70	volts	20	15	15	100%	.75	.034	-	.034
		C5		Y104A-20	217A/7.6-81	70	volts	20	10	10	100%	.5	.0072	-	.0072
		C22		Y104A-20	217A/7.6-81	70	volts	20	15	15	100%	.75	.034	-	.034

TEMP. _____ DATE 25 June 1973 TOTAL FAILURE RATE .82066 X10⁻⁵

FUNCTIONAL BLOCK Synthesizer Airborne AT _____ DEGREES CENTIGRADE

PAGE 1 OF 2

DRAWING NO. 377350, Synth/Rf Modulator

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[illegible]

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK	Synthesizer	Airborne
1. Navigation	1. Navigation	1. Navigation
2. Targeting	2. Targeting	2. Targeting
3. Weapon Control	3. Weapon Control	3. Weapon Control
4. Communication	4. Communication	4. Communication
5. Self-Defense	5. Self-Defense	5. Self-Defense
6. Identification	6. Identification	6. Identification
7. Threat Detection	7. Threat Detection	7. Threat Detection
8. Weapon Status	8. Weapon Status	8. Weapon Status
9. Target Status	9. Target Status	9. Target Status
10. Weapon Readiness	10. Weapon Readiness	10. Weapon Readiness
11. Target Readiness	11. Target Readiness	11. Target Readiness
12. Weapon Capability	12. Weapon Capability	12. Weapon Capability
13. Target Capability	13. Target Capability	13. Target Capability
14. Weapon Effectiveness	14. Weapon Effectiveness	14. Weapon Effectiveness
15. Target Effectiveness	15. Target Effectiveness	15. Target Effectiveness
16. Weapon Reliability	16. Weapon Reliability	16. Weapon Reliability
17. Target Reliability	17. Target Reliability	17. Target Reliability
18. Weapon Accuracy	18. Weapon Accuracy	18. Weapon Accuracy
19. Target Accuracy	19. Target Accuracy	19. Target Accuracy
20. Weapon Precision	20. Weapon Precision	20. Weapon Precision
21. Target Precision	21. Target Precision	21. Target Precision
22. Weapon Range	22. Weapon Range	22. Weapon Range
23. Target Range	23. Target Range	23. Target Range
24. Weapon Altitude	24. Weapon Altitude	24. Weapon Altitude
25. Target Altitude	25. Target Altitude	25. Target Altitude
26. Weapon Speed	26. Weapon Speed	26. Weapon Speed
27. Target Speed	27. Target Speed	27. Target Speed
28. Weapon Acceleration	28. Weapon Acceleration	28. Weapon Acceleration
29. Target Acceleration	29. Target Acceleration	29. Target Acceleration
30. Weapon Deceleration	30. Weapon Deceleration	30. Weapon Deceleration
31. Target Deceleration	31. Target Deceleration	31. Target Deceleration
32. Weapon Orientation	32. Weapon Orientation	32. Weapon Orientation
33. Target Orientation	33. Target Orientation	33. Target Orientation
34. Weapon Roll	34. Weapon Roll	34. Weapon Roll
35. Target Roll	35. Target Roll	35. Target Roll
36. Weapon Pitch	36. Weapon Pitch	36. Weapon Pitch
37. Target Pitch	37. Target Pitch	37. Target Pitch
38. Weapon Yaw	38. Weapon Yaw	38. Weapon Yaw
39. Target Yaw	39. Target Yaw	39. Target Yaw
40. Weapon Heading	40. Weapon Heading	40. Weapon Heading
41. Target Heading	41. Target Heading	41. Target Heading
42. Weapon Altitude	42. Weapon Altitude	42. Weapon Altitude
43. Target Altitude	43. Target Altitude	43. Target Altitude
44. Weapon Speed	44. Weapon Speed	44. Weapon Speed
45. Target Speed	45. Target Speed	45. Target Speed
46. Weapon Acceleration	46. Weapon Acceleration	46. Weapon Acceleration
47. Target Acceleration	47. Target Acceleration	47. Target Acceleration
48. Weapon Deceleration	48. Weapon Deceleration	48. Weapon Deceleration
49. Target Deceleration	49. Target Deceleration	49. Target Deceleration
50. Weapon Orientation	50. Weapon Orientation	50. Weapon Orientation
51. Target Orientation	51. Target Orientation	51. Target Orientation
52. Weapon Roll	52. Weapon Roll	52. Weapon Roll
53. Target Roll	53. Target Roll	53. Target Roll
54. Weapon Pitch	54. Weapon Pitch	54. Weapon Pitch
55. Target Pitch	55. Target Pitch	55. Target Pitch
56. Weapon Yaw	56. Weapon Yaw	56. Weapon Yaw
57. Target Yaw	57. Target Yaw	57. Target Yaw
58. Weapon Heading	58. Weapon Heading	58. Weapon Heading
59. Target Heading	59. Target Heading	59. Target Heading
60. Weapon Altitude	60. Weapon Altitude	60. Weapon Altitude
61. Target Altitude	61. Target Altitude	61. Target Altitude
62. Weapon Speed	62. Weapon Speed	62. Weapon Speed
63. Target Speed	63. Target Speed	63. Target Speed
64. Weapon Acceleration	64. Weapon Acceleration	64. Weapon Acceleration
65. Target Acceleration	65. Target Acceleration	65. Target Acceleration
66. Weapon Deceleration	66. Weapon Deceleration	66. Weapon Deceleration
67. Target Deceleration	67. Target Deceleration	67. Target Deceleration
68. Weapon Orientation	68. Weapon Orientation	68. Weapon Orientation
69. Target Orientation	69. Target Orientation	69. Target Orientation
70. Weapon Roll	70. Weapon Roll	70. Weapon Roll
71. Target Roll	71. Target Roll	71. Target Roll
72. Weapon Pitch	72. Weapon Pitch	72. Weapon Pitch
73. Target Pitch		

PAGE 2 OF 2

DRAWING NO. 377350, Synth/RF Modulator

TOTAL FAILURE RATE 1.07061 $\times 10^{-5}$

AT _____ DEGREES CENTIGRADE

4

[illegible]

ITEM	QTY	UNIT PRICE	TOTAL
1.0000	1.0000	5.125245	5.125245
2.0000	2.0000	5.125245	10.250490
3.0000	3.0000	5.125245	15.375735
4.0000	4.0000	5.125245	20.500980
5.0000	5.0000	5.125245	25.626225
6.0000	6.0000	5.125245	30.751470
7.0000	7.0000	5.125245	35.876715
8.0000	8.0000	5.125245	40.996960
9.0000	9.0000	5.125245	46.117205
10.0000	10.0000	5.125245	51.237450
11.0000	11.0000	5.125245	56.357695
12.0000	12.0000	5.125245	61.477940
13.0000	13.0000	5.125245	66.598185
14.0000	14.0000	5.125245	71.718430
15.0000	15.0000	5.125245	76.838675
16.0000	16.0000	5.125245	81.958920
17.0000	17.0000	5.125245	87.079165
18.0000	18.0000	5.125245	92.199410
19.0000	19.0000	5.125245	97.319655
20.0000	20.0000	5.125245	102.439900
21.0000	21.0000	5.125245	107.560145
22.0000	22.0000	5.125245	112.680390
23.0000	23.0000	5.125245	117.800635
24.0000	24.0000	5.125245	122.920880
25.0000	25.0000	5.125245	128.041125
26.0000	26.0000	5.125245	133.161370
27.0000	27.0000	5.125245	138.281615
28.0000	28.0000	5.125245	143.401860
29.0000	29.0000	5.125245	148.522105
30.0000	30.0000	5.125245	153.642350
31.0000	31.0000	5.125245	158.762595
32.0000	32.0000	5.125245	163.882840
33.0000	33.0000	5.125245	169.003085
34.0000	34.0000	5.125245	174.123330
35.0000	35.0000	5.125245	179.243575
36.0000	36.0000	5.125245	184.363820
37.0000	37.0000	5.125245	189.484065
38.0000	38.0000	5.125245	194.604310
39.0000	39.0000	5.125245	199.724555
40.0000	40.0000	5.125245	204.844800
41.0000	41.0000	5.125245	209.965045
42.0000	42.0000	5.125245	215.085290
43.0000	43.0000	5.125245	220.205535
44.0000	44.0000	5.125245	225.325780
45.0000	45.0000	5.125245	230.446025
46.0000	46.0000	5.125245	235.566270
47.0000	47.0000	5.125245	240.686515
48.0000	48.0000	5.125245	245.806760
49.0000	49.0000	5.125245	250.927005
50.0000	50.0000	5.125245	256.047250
51.0000	51.0000	5.125245	261.167495
52.0000	52.0000	5.125245	266.287740
53.0000	53.0000	5.125245	271.407985
54.0000	54.0000	5.125245	276.528230
55.0000	55.0000	5.125245	281.648475
56.0000	56.0000	5.125245	286.768720
57.0000	57.0000	5.125245	291.888965
58.0000	58.0000	5.125245	297.009210
59.0000	59.0000	5.125245	302.129455
60.0000	60.0000	5.125245	307.249700
61.0000	61.0000	5.125245	312.369945
62.0000	62.0000	5.125245	317.490190
63.0000	63.0000	5.125245	322.610435
64.0000	64.0000	5.125245	327.730680
65.0000	65.0000	5.125245	332.

AT _____ DEGREES CENTIGRADE

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Frequency Control Airborne

Airborne

PAGE 1 OF 1

DRAWING NO. 377100, Chassis Assembly

(12) STRESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC-TURER	PART NUMBER	APPL CABLE SPEC.	Temp. of	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tot. F. R.
	Regulator, Var RI		Allen Bradley	GS1T048F103AA	217A/7.5-21	70	wette	0.5	.1	.1	100%	.2	.1	.50	.50
	Switch	S1		376027-1	RADC II/217	70					100%		.008	-	.008
		S2		376027-2	RADC II/217	70					100%		.0768	-	.0768
		S3		376029	RADC II/217	70					.5%		.168	-	.00084
		S4	Grayhill	30-251B	RADC II/217	70					100%		.024	-	.024
	Connector		Microdot	142-1002-0001	RADC II-191	70					100%		.036	.5	.018
			Microdot	142-1002-0001	RADC II-191	70					10%		.036	.5	.0018
			Microdot	142-1002-0001	RADC II-191	70					10%		.036	.5	.0018
			Microdot	142-1002-0001	RADC II-191	70					10%		.036	.5	.0018
			Microdot	142-1002-0001	RADC II-191	70					100%		.036	.5	.018
			Microdot	142-1002-0001	RADC II-191	70					90%		.036	.5	.0138
			Microdot	142-1002-0001	RADC II-191	70					10%		.036	.5	.0018
			Microdot	142-1002-0001	RADC II-191	70					90%		.036	.5	.0138
			Microdot	142-1002-0001	RADC II-191	70					90%		.036	.5	.0138
			Microdot	142-1002-0001	RADC II-191	70					10%		.036	.5	.0018
			Microdot	142-1002-0001	RADC II-191	70					10%		.036	.5	.0018
			Microdot	142-1002-0001	RADC II-191	70					10%		.036	.5	.0018
			Microdot	142-1002-0001	RADC II-191	70					10%		.036	.5	.0018
			Microdot	142-1002-0001	RADC II-191	70					10%		.036	.5	.0018
			Microdot	142-1002-0001	RADC II-191	70					100%		.0109	.5	.00545
			L.T.T. Can.	ES-C-2114895p	RADC II-191	70					100%		.00633	.5	.00316
				377141 6p	RADC II-191	70					100%		.00344	.5	.00172

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Chassis Assembly Airborne

PAGE 1 OF 2

DRAWING NO. 377100, Chassis Assembly

TOTAL FAILURE RATE .520797 X10⁻⁵

AT _____ DEGREES CENTIGRADE

12

[illegible]

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Chassis Assembly Airborne

PAGE 2 OF 2

DRAWING NO. 377100 Chassis Assembly

TOTAL FAILURE RATE .109174 X10⁻⁵

AT _____ DEGREES CENTIGRADE

4

[illegible]

TEMP.

DATE 25 June 1973

FUNCTIONAL BLOCK **10 Volt Regulator** **Airborne**

PAGE 1 OF 1

DRAWING NO. 377550. POWER SUPPLY

TOTAL FAILURE RATE 1.45018 X10-5

AT _____ DEGREES CENTIGRADE

ESS ANALYSIS

ITEM # - B.M.	PART NAME	SMBOL	MANUFAC- TURER	PART NUMBER	APPLICABLE SPEC.	Temp. of T ₂	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Lot. F. R.
	Capacitor	C1		CKR06BX104KR	198B/1001.2	70	volts	100	24	24	100%	.24	.0005	5	.0025
		C2		M39003/01-2379	217A/7.6-81	70	volts	50	24	24	100%	.48	.0065	-	.0065
		C11		L22612-20	217A/7.6-81	70	volts	10	5	5	100%	.5	.0072	-	.0072
		C12		L22612-20	217A/7.6-81	70	volts	10	5	5	100%	.5	.0072	-	.0072
		C13		F105R-20	217A/7.6-81	70	volts	20	15	15	100%	.75	.034	-	.034
		C14		F105R-20	217A/7.6-81	70	volts	20	15	15	100%	.75	.034	-	.034
		C15		L106R-20	217A/7.6-81	70	volts	20	15	15	100%	.75	.034	-	.034
		C16		L106R-20	217A/7.6-81	70	volts	20	15	15	100%	.75	.034	-	.034
		C17		M155R-20	217A/7.6-81	70	volts	35	20	0	100%	.57	.0127	-	.0127
		C18		CKR05BX104KR	198B/1001.2	70	volts	50	42	42	100%	.84	.0090	5	.045
		C19		CKR05BX104KR	198B/1001.2	70	volts	50	42	42	100%	.84	.0090	5	.045
	Inductor	L4	Cin. Elec.	377555-3	217A/7.7-9	70					100%	.2	.10	2	
		L5	Cin. Elec.	377555-4	217A/7.7-9	70					100%	.2	.10	2	
		L6	Cin. Elec.	377555-4	217A/7.7-9	70					100%	.2	.10	2	
		L7	Cin. Elec.	377555-4	217A/7.7-9	70					100%	.2	.10	2	
		L8	Cin. Elec.	377555-5	217A/7.7-9	70					100%	.2	.10	2	
		L1	Cin. Elec.	377555-1	217A/7.7-9	70					100%	.2	.10	2	
	Transformer	T4	Cin. Elec.	3775554	217A/7.7-9	70					100%	.2	.10	2	
	Diode S1	CR6		5R0	217A/7.4-11	.338 mW		500	34	34	100%	.038	.282	3.5	.987
		CR7		5R0	217A/7.4-11	.336 mW		500	34	34	100%	.038	.282	3.5	.987

TEMP. _____ DATE 25 June 1973 TOTAL FAILURE RATE 1.62361 X10⁻⁵

FUNCTIONAL BLOCK 15 Volt Regulator & DC/DC Converter Airborne AT _____ DEGREES CENTIGRADE

PAGE 1 OF 2

DRAWING NO. 377550, Power Supply

4

[illegible]

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK 15 Volt Regulator & DC/DC Converter Airborne
PAGE 2 OF 2

PAGE 2 OF 2

TOTAL FAILURE RATE 2.655764 $\times 10^{-5}$
AT DEGREES CENTIGRADE

DRAWING NO. 377550, Power Supply

RESS ANALYSIS

ITEM # - B.M.

PART NAME	SOURCE	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. or	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	Factor
Switch	S1	Grayhill	30-1285	RADCII/217	70					100%		32	32
Resistor	S2	Grayhill	5000-35-01-2	RADCII/217	70					100%		736	736
	R1		RU6NAVSL-203A	217A/7.5-21	70	mm	500	10		100%	4.1	1	50
	R2		RU6NAVSL-103A	217A/7.5-21	70	mm	500	10		100%	5.1	1	50
Connector	P1	Rendix	21-248-218-322P	RADCII/191	70					100%		0074	5
	P2	Dage	7180-1	RADCII/191	70					100%		036	5
	P3	Dage	7180-1	RADCII/191	70					100%		036	5
	P4	Dage	7180-1	RADCII/191	70					100%		036	5
	P5	Costal Dyn	108	RADCII/191	70					100%		0025	5
	P6	Sealectro	51-724-0000	RADCII/191	70					100%		036	5
	P7	Sealectro	51-724-0000	RADCII/191	70					100%		036	5
	P8	Sealectro	51-724-0000	RADCII/191	70					100%		036	5
	P9	Sealectro	51-724-0000	RADCII/191	70					100%		036	5
	P10	Sealectro	51-724-0000	RADCII/191	70					100%		036	5
	P11	Sealectro	51-724-0000	RADCII/191	70					100%		036	5
	P12		37710433P	RADCII/191	70					100%		0109	5
	P13		34-21-000014P	RADCII/191	70					100%		0051	5
	P14		34-14-000034P	RADCII/191	70					100%		011	5

TEMP. DATE 25 June 1973

FUNCTIONAL BLOCK Chassis

PAGE 1 OF 1

DRAWING NO. Airborne Applique 176500

TOTAL FAILURE RATE 1.123595 X10⁻⁵

AT DEGREES CENTIGRADE

ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC. TOLER	PART NUMBER	APPLICABLE SPEC.	Temp. of	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	% Failure	Test. No. B
	Capacitor														
	C402			CKR05BX103KR	198B/1001.2	70	Volts	100	.02	.02	100%	<.1	.0005		.0025
	C403			CKR05BX103KR	198B/1001.2	70	Volts	100	.02	.02	100%	<.1	.0005		.0025
	C404			CKR05BX103KR	198B/1001.2	70	Volts	100	.02	.02	100%	<.1	.0005		.0025
	C405			CKR05BX103KR	198B/1001.2	70	Volts	100	.02	.02	100%	<.1	.0005		.0025
	C406			CKR05BX104KR	198B/1001.2	70	Volts	50	.02	.02	100%	<.1	.0005		.0025
	C407			CKR05BX104KR	198B/1001.2	70	Volts	50	.02	.02	100%	<.1	.0005		.0025
	C408		Comp.. Inc.	L156R-20	217A/7.6-81	70	Volts	15	0	2	10%	<.1	.0013		.0013
	C409			CKR05BX103KR	198B/1001.2	70	Volts	100	0	.06	10%	<.1	.0005	5	.00025
	C410			CKR05BX103KR	198B/1001.2	70	Volts	100	0	.06	10%	<.1	.0005	5	.00025
	C411			CKR05BX103KR	198B/1001.2	70	Volts	100	0	.06	10%	<.1	.0005	5	.00025
	C412			CKR05BX103KR	198B/1001.2	70	Volts	100	0	.06	10%	<.1	.0005	5	.00025
	C413	JFD		DV510H	217A/7.6-33	70	Volts	100	0	.02	10%	<.1	.01		.001
	C414			1501-36-101	217A/7.6-25	70	Volts	100	0	2	10%	<.1	.002	5	.001
	C415			CKR05BX102KR	198B/1001.2	70	Volts	200	0	.2	10%	<.1	.0005	5	.00025
	C416			CKR05BX102KR	198B/1001.2	70	Volts	200	0	.2	10%	<.1	.0005	5	.00025
	C417			CKR05BX104KR	198B/1001.2	70	Volts	50	0	2	10%	<.1	.0005	5	.00025
	C418			CKR05BX104KR	198B/1001.2	70	Volts	50	0	2	10%	<.1	.0005	5	.00025
	C419			CKR05BX103KR	198B/1001.2	70	Volts	100	0	10	100%	<.1	.0005	5	.0025
	Resistor			R401	199A/301.2	70	W	125	0	9	100%	<.1	.00024	10	.0024

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Homing Receiver

PAGE 1 OF 6

DRAWING NO. Airborne Applique, 376600

TOTAL FAILURE RATE .002403 X10⁻⁵

AT _____ DEGREES CENTIGRADE

12 LESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC. TUBER	PART NUMBER	APPLICABLE SPEC.	Temp. in	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Temp. F. B
		R402		RCR05G101JS	199A/301.2	70	mW	125	10	10	100%	.1	.00024	10	.0024
		R403		RCR05G470JS	199A/301.2	70	mW	125	21	10	100%	.1	.00024	10	.0024
		R404		RCR05G101JS	199A/301.2	70	mW	125	10	10	100%	.1	.00024	10	.0024
		R405		RCR05G392JS	199A/301.2	70	mW	125	4	4	100%	.1	.00024	10	.0024
		R407		RCR05 JS	199A/301.2	70	mW	125	5	5	100%	.1	.00024	10	.0024
		R408		RCR05G104JS	199A/301.2	70	mW	125	10	10	100%	.1	.00024	10	.0024
		R409		RCR05G102JS	199A/301.2	70	mW	125	25	25	100%	.2	.0004	10	.004
		R410		RCR05G222JS	199A/301.2	70	mW	125	0	40	90%	.32	.0006	10	.0054
		R411		RCR05G102JS	199A/301.2	70	mW	125	25	25	100%	.2	.0004	10	.004
		R412		RCR05G432JS	199A/301.2	70	mW	125	0	5	10%	.1	.00024	10	.00024
		R413		RCR05 JS	199A/301.2	70	mW	125	0	10	10%	.1	.00024	10	.00024
		R414		RCR05G513JS	199A/301.2	70	mW	125	0	1	10%	.1	.00024	10	.00024
		R415		RCR05G204JS	199A/301.2	70	mW	125	0	1	10%	.1	.00024	10	.00024
		R416		RCR05G682JS	199A/301.2	70	mW	125	0	1	10%	.1	.00024	10	.00024
		R417		RCR05G103JS	199A/301.2	70	mW	125	0	1	10%	.1	.00024	10	.00024
		R418		RCR05G273JS	199A/301.2	70	mW	125	0	1	10%	.1	.00024	10	.00024
		R419		RCR05G273JS	199A/301.2	70	mW	125	0	4	10%	.1	.00024	10	.00024
		R420		RCR05G392JS	199A/301.2	70	mW	125	1	1	100%	.1	.00024	10	.0024
		R421		RCR05G392JS	199A/301.2	70	mW	125	1	1	100%	.1	.00024	10	.0024
								125	1	1	100%	.1	.00024	10	.0024

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Homing Receiver

PAGE 2 OF 6

DRAWING NO. Airborne Applique. 776600

TOTAL FAILURE RATE .003236 X10⁻⁵

AT _____ DEGREES CENTIGRADE

5 SS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFACTURER	PART NUMBER	APPLICABLE SPEC.	Temp. of Test	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	R. Factor	Tot. F. No.
		R422		RCR05G512JS	199A/301.2	70	125	125	0	5	100%	<.1	.00024	10	.00024
		R424		RCR05G512JS	199A/301.2	70	125	125	5	5	100%	<.1	.00024	10	.00024
		R425		RCR05G204JS	199A/301.2	70	125	125	<.1	<.1	100%	<.1	.00024	10	.00024
		R426		RCR05G473JS	199A/301.2	70	125	125	<.1	<.1	100%	<.1	.00024	10	.00024
		R427		RCR05G124JS	199A/301.2	70	125	125	<.1	<.1	100%	<.1	.00024	10	.00024
		R428		RCR05G274JS	199A/301.2	70	125	125	<.1	<.1	100%	<.1	.00024	10	.00024
		R429		RCR05G512JS	199A/301.2	70	125	125	4	4	100%	<.1	.00024	10	.00024
		R430		RCR05G182JS	199A/301.2	70	125	125	2	2	100%	<.1	.00024	10	.00024
		R431		RCR05G222JS	199A/301.2	70	125	125	1	1	100%	<.1	.00024	10	.00024
		R432		RCR05G472JS	199A/301.2	70	125	125	0	1	100%	<.1	.00024	10	.00024
		R433		RCR05G473JS	199A/301.2	70	125	125	0	1	100%	<.1	.00024	10	.00024
		R434		RCR05G163JS	199A/301.2	70	125	125	0	1	100%	<.1	.00024	10	.00024
		R435		RCR05G823JS	199A/301.2	70	125	125	0	3	100%	<.1	.00024	10	.00024
		R436		RCR05G522JS	199A/301.2	70	125	125	0	1	100%	<.1	.00024	10	.00024
		R437		RCR05G202JS	199A/301.2	70	125	125	0	12	100%	.1	.00024	10	.00024
		R438		RCR05G202JS	199A/301.2	70	125	125	0	12	100%	.1	.00024	10	.00024
		R439		RCR05G823JS	199A/301.2	70	125	125	0	3	100%	<.1	.00024	10	.00024
		R440		RCR05G622JS	199A/301.2	70	125	125	0	1	100%	<.1	.00024	10	.00024
		R441		RCR05G101JS	199A/301.2	70	125	125	0	22	50%	.2	.0004	10	.002

TEMP. _____ DATE 25 June 1973 TOTAL FAILURE RATE .00236 X10⁻⁵
 FUNCTIONAL BLOCK Homing Receiver AT _____ DEGREES CENTIGRADE
 PAGE 3 OF 6
 DRAWING NO. Airborne Applique. 176600

ESS ANALYSIS

2

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC. TURER	PART NUMBER	APPLICABLE SPEC.	Temp. °C	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	R Factor	Tot. F. R.
		R442		KCR05G331JS	199A/301-2	70	mW	125	12	12	100%	< 1	.0002	10	.0024
		R443		KCR05G222JS	199A/301-2	70	mW	125	0	2	50%	< 1	.0002	10	.0012
		R444		KCR05G184JS	199A/301-2	70	mW	125	5	5	100%	< 1	.0002	10	.0024
		R445		KCR05G222JS	199A/301-2	70	mW	125	0	2	50%	< 1	.0002	10	.0012
		R446		KCR05G331JS	199A/301-2	70	mW	125	12	12	100%	< 1	.0002	10	.0024
		R447		KCR05G101JS	199A/301-2	70	mW	125	0	22	50%	< 1	.0002	10	.0012
		R448		KCR05G332JS	199A/301-2	70	mW	125	0	5	50%	< 1	.0002	10	.0012
		R449		KCR05G332JS	199A/301-2	70	mW	125	0	5	50%	< 1	.0002	10	.0012
		R450		KCR05G222JS	199A/301-2	70	mW	125	2	2	100%	< 1	.0002	10	.0024
		R451		KCR05G102JS	199A/301-2	70	mW	125	0	< 1	10%	< 1	.0002	10	.0024
	Inductor	L401	Lenox Fugle	NR10	217A/7.7-9	70					10%		.2	8.6	.172
		L402	Lenox Fugle	NR10	217A/7.7-9	70					50%		.2	8.6	.86
		L403	Lenox Fugle	NR10	217A/7.7-9	70					10%		.2	8.6	.172
		L404	Lenox Fugle	NR10	217A/7.7-9	70					100%		.2	8.6	.172
		L405	Lenox Fugle	NR10	217A/7.7-9	70					100%		.2	8.6	.172
		L406	Lenox Fugle	NR10	217A/7.7-9	70					100%		.2	8.6	.172
		L407	Delevan	1025-68	217A/7.7-9	70					10%		.2	8.6	.172
	Transformer	T401	CEC	376634	217A/7.7-9	70					10%		.2	10	.2
		T402	CEC	376633	217A/7.7-9	70					10%		.2	10	.2
	Diode Pin	CR401		HP5082-3168	217A/7.4-11	37	mW	250	2	2	100%	.01	.304	3.5	.055

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Horing Receiver

PAGE 4 OF 6

DRAWING NO. Airborne Applique 176600

TOTAL FAILURE RATE .801684 X10⁻⁵

AT _____ DEGREES CENTIGRADE

ESS ANALYSIS

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC. TYPEN	PART NUMBER	APPLICABLE SPEC.	Temp. T _a	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Tab. P. 8
		CR402		HP5082-3185	217A/7.4-11	.37	mW	250	2	2	100%	.01	.304	3.5	1.065
		CR403		HP5082-3188	217A/7.4-11	.37	mW	250	2	2	100%	.01	.304	3.5	1.065
	Diode - Pin	CR404	Unitrode	UM6601B	217A/7.4-11	.34	mW	250	10	10	100%	.04	.283	3.5	.99
		CR405		UM6601B	217A/7.4-11	.34	mW	250	10	10	100%	.04	.283	3.5	.99
		CR406		UM6601B	217A/7.4-11	.34	mW	250	10	10	100%	.04	.283	3.5	.99
		CR407		UM6601B	217A/7.4-11	.34	mW	250	10	10	100%	.04	.283	3.5	.99
	Diode - Pin	CR408		JAN1N4148	217A/7.4-11	.257	mA	75	0	.4	10%	<.01	.227	3.5	.0795
		CR409			217A/7.4-11	.257	mA	75	0	.01	10%	<.01	.227	3.5	.0795
		CR410			217A/7.4-11	.517	mA	75	0	20	10%	.26	.427	3.5	.1493
		CR411		1N5711	217A/7.4-11	.297	mW	250	0	10	10%	.04	.255	3.5	.0892
SINPN	Transistor	Q401		JAN2N2222A	217A/7.4-13	.257	mW	500	1.5	1.5	100%	<.01	.227	8	1.816
		Q402		JAN2N2222A	217A/7.4-13	.261	mW	500	12	12	100%	.024	.243	8	1.946
		Q403		JAN2N2222A	217A/7.4-13	.257	mW	500	1.5	1.5	100%	<.01	.227	8	1.816
		Q404		JAN2N2222A	217A/7.4-13	.257	mW	500	1.5	1.5	100%	<.01	.227	8	1.816
		Q405		JAN2N2222A	217A/7.4-13	.257	mW	500	3	3	100%	<.01	.227	8	1.816
		Q406		JAN2N2222A	217A/7.4-13	.257	mW	500	3	3	100%	<.01	.227	8	1.816
	Thermistor	RT401	Victory	302D20BJC	217A/7.12-3	70					100%		.3		.3
	Int. Cir.	Z401	Fairchild	USF7747312	RADCII/416	70					100%		2.56		2.56
		Z402	Fairchild	USF7747312	RADCII/416	70					100%		2.56		2.56
		Z403	Motorola	MC15906	RADCII/416	70					10%		1.629		1.629

TEMP.

DATE 25 June 1973

TOTAL FAILURE RATE 2.30944 X10⁻⁵

FUNCTIONAL BLOCK Homing Receiver

AT DEGREES CENTIGRADE

PAGE 5 OF 6

DRAWING NO. Airborne Applique 376600

9

[illegible]

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK

PAGE 6 OF 6

DRAWING NO. Airborne Applique 176600

TOTAL FAILURE RATE .2729

AT _____ DEGREES CENTIGRADE

RESS ANALYSIS															
ITEM # - R.M.	PART NAME	SYMBOL	MANUFAC-TURER	PART NUMBER	APPL CABLE SPEC.	Temp. or	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	I Factor	Tot. F.
	Capacitor	C201		CKR05BX102KR	198B/1001.2	70	V	200	0	10	10%	<.1	.0005	5	.00025
		C202		CKR05BX104KR	198B/1001.2	70	V	50	0	10	17%	.2	.0005	5	.00002
		C203		CKR05BX104KR	198B/1001.2	70	V	50	0	1	17%	<.1	.0005	5	.00002
		C204		DH102D201J03	217A/7.6-21	70	V	500	0	1	17%	<.1	.0003	15	.00004
		C205		CKR05BX102KR	198B/1001.2	70	V	200	5	3	100%	<.1	.0005	5	.00025
		C206		CKR05BX102KR	198B/1001.2	70	V	200	1	1	100%	<.1	.0005	5	.00025
		C207		CKR05BX102KR	198B/1001.2	70	V	200	5	5	100%	<.1	.0005	5	.00025
		C208		CKR05BX102KR	198B/1001.2	70	V	200	1	1	100%	<.1	.0005	5	.00025
Resistor		R201		RCR05G473JS	199A/301.2	70	mv	125	0	2	12%	<.1	.00024	10	.000024
		R202		RCR05G510JS	199A/301.2	70	mv	125	0	1	17%	<.1	.00024	10	.000024
		R203		RCR05G433JS	199A/301.2	70	mv	125	25	25	100%	.2	.0004	10	.0004
		R204		RCR05G432JS	199A/301.2	70	mv	125	8	8	100%	<.1	.00024	10	.00024
		R205		RCR05G432JS	199A/301.2	70	mv	125	8	8	100%	<.1	.00024	10	.00024
		R206		RCR05G432JS	199A/301.2	70	mv	125	25	25	100%	.2	.0004	10	.0004
		R207		RCR05G622JS	199A/301.2	70	mv	125	1	1	100%	<.1	.00024	10	.00024
		R208		RCR05G512JS	199A/301.2	70	mv	125	0	20	10%	.16	.00025	10	.00025
		R209		RCR05G102JS	199A/301.2	70	mv	125	0	1	27%	<.1	.00024	10	.00005
		R210		RCR05G304JS	199A/301.2	70	mv	125	<.1	<.1	100%	<.1	.00024	10	.00024
		R211		RCR05G432JS	199A/301.2	70	mv	125	0	5	27%	<.1	.00024	10	.00005

TEMP. _____ DATE 25 June 1973

TOTAL FAILURE RATE .002533 X 10⁻⁵

AT _____ DEGREES CENTIGRADE

FUNCTIONAL BLOCK _____ Special Functions

PAGE 1 OF 1

DRAWING NO. _____ AIRBORNE APPLICATION 1766311

RESS ANALYSIS

ITEM # - R.M.	PART NAME	SYMBOL	MUNIFAC. TUNER	PART NUMBER	APPLICABLE SPEC.	Temp. °C	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	E Factor
		R212		RCR05G304JS	199A/301.2	70	ma	125	<1	<1	100%	4.1	.0002	10
		R213		RCR05G103JS	199A/301.2	70	ma	125	<1	<1	100%	4.1	.0002	10
		R214		RCR05G134JS	199A/301.2	70	ma	125	12	12	100%	1	.0002	10
		R219		RCR05G151JS	199A/301.2	70	ma	125	0	12	10%	1	.0002	10
		R220		RCR05G203JS	199A/301.2	70	ma	125	0	12	10%	1	.0002	10
		R221		RCR05G151JS	199A/301.2	70	ma	125	0	5	10%	4.1	.0002	10
	Inductor	L201	Lenox Fugle	NR10	217A/7.7-9	70				100%			.2	8.6
		L202	Lenox Fugle	NR3.3	217A/7.7-9	70				10%			.2	8.6
		L203	Lenox Fugle	NR3.3	217A/7.7-9	70				10%			.2	8.6
	Transformer	T201	CEC	376636	217A/7.7-9	70				1%			.2	10
		T203	CEC	376628	217A/7.7-9	70				10%			.2	10
	Diode SI	CR201		JAN1N4148	217A/7.4-11	257	ma	75	0	.5	1%	4.01	.227	3.5
		CR202		JAN1N4148	217A/7.4-11	257	ma	75	0	.5	1%	4.01	.227	3.5
	Pin	CR203		HP5082-3188	217A/7.4-11	337	ma	250	2	2	100%	.01	.304	3.5
		CR204		HP5082-3188	217A/7.4-11	337	ma	250	2	2	100%	.01	.304	3.5
		CR205		HP5082-3188	217A/7.4-11	337	ma	250	2	2	100%	.01	.304	3.5
		CR206		HP5082-3188	217A/7.4-11	337	ma	250	2	2	100%	.01	.304	3.5
	SI	CR207		JAN1N4148	217A/7.4-11	257	ma	75	0	<1	2%	4.01	.227	3.5
		CR208		JAN1N4148	217A/7.4-11	257	ma	75	0	4.1	10%	4.01	.227	3.5
		CR209		JAN1N4148	217A/7.4-11	257	ma	75	<1	<1	100%	4.01	.227	3.5

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Special Functions
PAGE OF 1

DRAWING NO. A-100-100-100-100

TOTAL FAILURE RATE .745822 X10⁻⁵

AT _____ DEGREES CENTIGRADE

[illegible]

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Special Functions

PAGE 3 OF 3

DRAWING NO. Airborne Applique. 376600

TOTAL FAILURE RATE	.2 50124	X10 ⁻⁵
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AT _____ DEGREES CENTIGRADE

12 RESC ANALYSIS

ITEM # - R.M.	PART NAME	SYMBOL	MANUFAC. TUNER	PART NUMBER	APPLICABLE SPEC.	Temp. or Td	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor	Total F. Rate
	Capacitor	C102		1501-36-101	217A/7.6-25	70	V	300	0	.1	10%	.1	.002	5	.01
	Capacitor	C101	JFD	DY105H	217A/7.6-33	70	V	100	0	.1	10%	.1	.01		.01
	Capacitor	C103	Centralab	C12C1R0D	217A/7.6-25	70	V	100	0	.1	10%	.1	.002	5	.01
	Capacitor	C105	JFD	DY105H	217A/7.6-33	70	V	100	0	.1	10%	.1	.01		.01
	Capacitor	C106		1501-36-101	217A/7.6-25	70	V	300	0	.1	10%	.1	.002	5	.01
	Capacitor	C108	JFD	DY105H	217A/7.6-33	70	V	100	0	.1	10%	.1	.01		.01
	Capacitor	C106		1501-36-101 198B/100L2	198B/100L2	70	V	200	0	.1	10%	.1	.0005	5	.00025
	Capacitor	C107		1501-36-101	217A/7.6-25	70	V	100	0	.1	10%	.1	.002	5	.01
	Capacitor	C109		PCR05EX102KR	198B/100L2	70	V	200	0	.1	10%	.1	.0005	5	.00025
	Capacitor	C110		CKR05EX104KR	198B/100L2	70	V	50	0	.1	10%	.1	.0005	5	.00025
	Resistor	R101		RCR05G131JS	199A/301.2	70	mw	125	0	52	100%	.417	.001	10	.01
	Resistor	R102		RCR05G430JS	199A/301.2	70	mw	125	0	1	100%	.1	.00024	10	.0024
	Resistor	R103		RCR05G100JS	199A/301.2	70	mw	125	0	1	100%	.1	.00024	10	.0024
	Resistor	R104		RCR05G100JS	199A/301.2	70	mw	125	0	1	100%	.1	.00024	10	.0024
	Resistor	R105		RCR05G100JS	199A/301.2	70	mw	125	0	1	100%	.1	.00024	10	.0024
	Resistor	R115		PCR05G430JS	199A/301.2	70	mw	125	0	1	100%	.1	.00024	10	.0024
	Inductor	L101	Lenox Fugle	NR10	217A/7.7-9	70					10%	.2	8.6	1.72	
	Inductor	L102	Lenox Fugle	NR10	217A/7.7-9	70					10%	.2	8.6	1.72	
	Inductor	L103	Lenox Fugle	NR10	217A/7.7-9	70					10%	.2	8.6	1.72	
	Inductor	L104	Lenox Fugle	NR10	217A/7.7-9	70					10%	.2	8.6	1.72	

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Guard Receiver

PAGE 1 OF 1

DRAWING NO. Airborne Applique, 176600

TOTAL FAILURE RATE .697275 $\times 10^{-5}$

AT _____ DEGREES CENTIGRADE

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[illegible]

TEMP. _____ DATE 25 June 1973
FUNCTIONAL BLOCK Guard Receiver
PAGE 2 OF 2

ITEM # - S.M.	PART NAME	SYMBOL	MANUFAC. TURER	PART NUMBER	APPL. CABLE SPEC.	Temp. of	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	E Factor	Total F. R.
	Capacitor	C111		CKR05BX104KR	198B/1001.2	70	V	50	0	10	100%	.2	.0005	5	.0025
	Capacitor	C112		M475R-20	217A/7.6-81	70	V	20	0	12	100%	.6	.015		.0150
	Capacitor	C113		M475R-20	217A/7.6-81	70	V	20	0	12	100%	.6	.015		.0150
	Capacitor	C114		CKR05BX105KR	198B/1001.2	70	V	50	0	12	100%	.24	.0005	5	.0025
	Capacitor	C115		CKR05BX105KR	198B/1001.2	70	V	100	0	12	10%	.12	.0005	5	.0025
	Resistor	R106		RCR05G1045E	199A/301.2	70	mw	125	0	1	100%	.1	.0002	10	.0024
	Resistor	R109		RCR05G163JS	199A/301.2	70	mw	125	0	6	100%	.1	.0002	10	.0024
	Resistor	R110		RCR05G163JS	199A/301.2	70	mw	125	0	1	100%	.1	.0002	10	.0024
	Resistor	R111		RCR05G163JS	199A/301.2	70	mw	125	0	1	100%	.1	.0002	10	.0024
	Resistor	R112		RCR05G182JS	199A/301.2	70	mw	125	0	1	100%	.1	.0002	10	.0024
	Resistor	R113		RCR05G150JS	199A/301.2	70	mw	125	0	20	100%	.1	.0002	10	.0024
	Resistor	R114		RCR05G150JS	199A/301.2	70	mw	125	0	20	100%	.16	.0003	10	.0032
	Resistor	R115		RCR05G150JS	199A/301.2	70	mw	125	0	1	100%	.16	.0003	10	.0032
	Transformer	T106	CEC		217A/7.7-9	70	V			2	100%		.2	10	2.0
	Diode SIZEN	CR101	RCA	2N4742	217A/7.4-11	70	V	1	0	3	100%	.3	1.42	3	4.26
	IC	U106	RCA	CA3020	198B/413	70					100%		1.0863		1.6853
	Hybrid	H107		377663	USAECOM	70					100%		4.6742		4.6742
	LSI	H107		377664	USAECOM	70					100%		1.2		1.2
	Hybrid	U109		377662*	USAECOM	70					100%		3.0364		3.0364

TEMP. _____ DATE 25 June 1973

FUNCTIONAL BLOCK Guard Audio

PAGE 1 OF 2

DRAWING NO. Airborne App'ique 376600

TOTAL FAILURE RATE 18.81528 X10⁻⁵

AT _____ DEGREES CENTIGRADE

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[illegible]

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DATE 25 June 1973

FUNCTIONAL BLOCK Guard Audio

PAGE 1 OF 2

DRAWING NO. Airborne Applique, 376600

TOTAL FAILURE RATE .0015184 X10⁻⁵

AT _____ DEGREES CENTIGRADE

ITEM # - B.M.	PART NAME	SYMBOL	MANUFAC. TYPEN	PART NUMBER	APPLICABLE SPEC.	Temp. °C	PARAMETER	RATED	QUIESCENT	OPERATING	DUTY CYCLE	STRESS RATIO	FAILURE RATE	K Factor
	Capacitor	C303		S685R-20	217A/7.6-81	70	V	35	24	24	100%	.7	.028	.028
	Capacitor	C301		CR05BX103KR	198B/100L-2	70	V	100	27.5	27.5	100%	.275	.0005	5
	Resistor	R301		RW20H30R1F	199A/304-2	70	W	2	0	0	100%	<.1	.0025	.0025
	Resistor	R302		RCR07G101JS	199A/301-2	70	W	250	0	0	100%	<.1	.000024	10
	Resistor	R303		RCR05G102JS	199A/301-2	70	W	198	5	5	100%	<.1	.00024	10
	Resistor	R304		RCR07G101JS	199A/301-2	70	W	250	20	20	100%	<.1	.00024	10
	Resistor	R305		RCR07G392JS	199A/301-2	70	W	125	25	25	100%	.2	.0004	10
	Resistor	R306		RCR05G622JS	199A/301-2	70	W	125	40	40	100%	.32	.0006	10
	Fuse	F301	Littelfuse	4A	217A/7.12-3	70					100%		.1	.1
	Relay	K301	HI-G	RR-2A-126	217A/7.10-5	70					100%	.0175	.8750	.8750
	Diode 51ZEN	CR301		1N5634	217A/7.4-11	257	W	1	0	0	100%	<.1	.684	5
	Diode Si	CR302		1N4148	217A/7.4-11	.3	W	75	0	0	100%	<.1	.255	5
	Diode SiZEN	CR304		1N955A	217A/7.4-11	.44	W	400	56	56	100%	.14	1.09	3
	Diode SiZEN	CR305		1N5644	217A/7.4-11	.3	W	1	0	0	100%	<.1	.77	3
INPN	Transistor	Q301		2N3716	217A/7.4-13	257	W	150	2	2	100%	<.1	.453	6
	Transistor	Q302		2N2219A	217A/7.4-13	257	W	800	2	2	100%	<.1	.3515	8
	Transistor	Q303		2N2222A	217A/7.4-13	257	W	500	6.25	6.25	100%	<.1	.3515	8
		C302		CR06EX105KR	198B/100L-2	70	V	50	24.5	24.5	100%	.48	.0035	5
		R307		RCR05G203JS	199A/301-2	70	W	225	0	20	100%	.16	.00036	10
		R308		RCR05G203JS	199A/301-2	70	W	125	<.1	<.1	100%	<.1	.00024	10

TEMP. _____ DATE 25 June 1972

FUNCTIONAL BLOCK Power Supply

PAGE 1 OF 2

DRAWING NO. AIRBORNE Applique, V6600

TOTAL FAILURE RATE 1.58261 X10⁻⁵

AT _____ DEGREES CENTIGRADE

APPENDIX IV
HYBRID CIRCUIT AND λ_{DS} COMPUTATIONS

HYBRID MICROCIRCUIT FAILURE RATE MODEL DEFINITIONS

- ① $\sum_{SP}$ Failure rate due to substrate and film processing.
- ② A_S Area of the substrate.
- ③ N_C Number of conductor paths.
- ④ N_R Number of resistors.
- ⑤ N_L Number of flying leads.
- ⑥ N_T Number of lead terminations
- ⑦ N_E Total complexity
- ⑧ λ_C Complexity Term.
- ⑨ λ_{PF} Package base failure rate.
- ⑩ η_{PF} Package failure rate adjustment factor.
- ⑪ λ_{RT} Film resistor failure rate.
- ⑫ N_{RT} Number of film resistors of a given tolerance.
- ⑬ N_Z Number of monolithic integrated circuits of a given type.
- ⑭ λ_Z Monolithic integrated circuit failure rate.
- ⑮ N_Q Number of transistors of a given type.
- ⑯ λ_Q Transistor failure rate.
- ⑰ N_{CR} Number of diodes of a given type.
- ⑱ λ_{CR} Diode failure rate.
- ⑲ N_{CC} Number of chip capacitors.
- ⑳ λ_{CC} Failure rate for chip capacitors.
- ㉑ $\sum \lambda_{DC}$ N_{DC} Sum of discrete chip device failure rates.
- ㉒ N_{PR} Number of conventionally packaged resistors of a given type.
- ㉓ λ_{PR} Packaged resistor failure rate.
- ㉔ N_{PC} Number of coils of a given type.
- ㉕ λ_{PC} Coil failure rate.
- ㉖ $\sum \lambda_{CP}$ N_{CP} Sum of conventionally packaged device failure rates.

- ②7 λ_b Base failure rate.
- ②8 λ_H Hybrid failure rate.
- ②9 π_T Temperature factor.
- ③0 π_Q Quality factor.
- ③1 π_E Environmental factor.
- ③2 π_S Screening factor.
- ③3 λ_b Base failure rate.
- ③4 λ_H Hybrid failure rate.

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

376112

COIL DRIVER

$$\sum_{SP} \dots\dots\dots .0200$$

$$N_E = N_R + N_C + N_L + N_T/2$$

$$= 34 + 64 + 25 + 68.5 = 191.5$$

$$\lambda_C = .012$$

$$A_S = .5$$

$$A_S \lambda_C = \dots\dots\dots .0060$$

$$\lambda_{PF} \pi_{PF} = \dots\dots\dots .0390$$

$$\sum_{N_{RT}} \lambda_{RT} = \dots\dots\dots .0068$$

$$\sum_{N_Z} \lambda_Z = \dots\dots\dots 0$$

$$\sum_{N_Q} \lambda_Q = \dots\dots\dots .3210$$

$$\sum_{N_{CR}} \lambda_{CR} = \dots\dots\dots .0630$$

$$\sum_{N_{CC}} \lambda_{CC} = \dots\dots\dots 0$$

$$\sum_{\lambda_{DC}} N_{DC} = \sum N_Z \lambda_Z + \sum N_{CR} \lambda_{CR} + \sum N_{CC} \lambda_{CC} \dots\dots .3840$$

$$\sum_{N_{PR}} \lambda_{PR} \dots\dots\dots 0$$

$$\sum_{N_{PC}} \lambda_{PC} \dots\dots\dots 0$$

$$\sum_{\lambda_{CP}} N_{CP} = \sum_{N_{PR}} \lambda_{PR} + \sum_{N_{PC}} \lambda_{PC} \dots\dots\dots 0$$

$$\lambda_b = \sum_{SP} + A_S \lambda_C + \lambda_{PF} \pi_{PF} + \sum_{N_{RT}} \lambda_{RT} + \sum_{\lambda_{DC}} N_{DC} + \sum_{\lambda_{CP}} N_{CP} \dots\dots .4558$$

$$\lambda_H = \lambda_b (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6}$$

$$\lambda_H = \frac{.4558}{\left\{ \begin{matrix} M - 2.5 \\ W - 2.5 \\ A - 2.7 \end{matrix} \right\}} = \frac{1.1395}{1.2307} \left\{ \begin{matrix} M - 2 \\ V - 7 \\ A - 5 \end{matrix} \right\} = \frac{2.2790}{6.1523} \times .4 = \frac{3.1400}{2.4613}$$

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

376114

RELAY DRIVER

$$\sum_{SP} \dots\dots\dots .0200$$

$$N_E = N_R + N_C + N_L + N_T/2$$

$$= 19 + 31 + 16 + 22 = 88$$

$$\lambda_C = .0105$$

$$A_S = .516$$

$$A_S \lambda_C = \dots\dots\dots .0054$$

$$\lambda_{PF} \pi_{PF} = \dots\dots\dots .0270$$

$$\sum_{N_{RT} \lambda_{RT}} = \dots\dots\dots .0034$$

$$\sum_{N_Z \lambda_Z} = \dots\dots\dots 0$$

$$\sum_{N_Q \lambda_Q} = \dots\dots\dots .0420$$

$$\sum_{N_{CR} \lambda_{CR}} = \dots\dots\dots 0$$

$$\sum_{N_{CC} \lambda_{CC}} = \dots\dots\dots .005$$

$$\sum_{\lambda_{DC} N_{DC}} = \sum N_Z \lambda_Z + \sum_{N_{CR} \lambda_{CR}} + \sum_{N_{CC} \lambda_{CC}} \dots\dots\dots .0470$$

$$\sum_{N_{PR} \lambda_{PR}} \dots\dots\dots 0$$

$$\sum_{N_{PC} \lambda_{PC}} \dots\dots\dots 0$$

$$\sum_{\lambda_{CP} N_{CP}} = \sum_{N_{IR} \lambda_{PT}} + N_{PC} \lambda_{PC} \dots\dots\dots 0$$

$$\lambda_b = \sum_{SP} + A_S \lambda_C + \lambda_{PF} \pi_{PF} + \sum_{N_{RT}} \times \lambda_{RT} + \sum_{\lambda_{DC} N_{DC}} + \sum_{\lambda_{CP} N_{CP}} \dots\dots\dots .072$$

$$\lambda_H = \lambda_b (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6}$$

$$\lambda_H = \frac{.1032}{\left\{ \begin{matrix} M - 2.5 \\ W - 2.5 \\ A - 2.7 \end{matrix} \right\}} = \frac{.2540}{.2746} \left\{ \begin{matrix} M - 2 \\ V - 7 \\ A - 5 \end{matrix} \right\} = \frac{1.5100}{11.2132} \times .4 = \frac{2064}{5573}$$

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

376216

TRANSMIT INPUT CONTROL

$$\sum_{SP} \dots\dots\dots .0200$$

$$N_E = N_R + N_C + N_L + N_T/2$$

$$= 29 + 37 + 26 + 37 = 131$$

$$\lambda_C = .0115$$

$$A_S = 390$$

$$A_S \lambda_C = \dots\dots\dots .0045$$

$$\lambda_{PF} \pi_{PF} = \dots\dots\dots .0300$$

$$\sum_{N_{RT} \lambda_{RT}} = \dots\dots\dots .0127$$

$$\sum_{N_Z \lambda_Z} = \dots\dots\dots 1.5540$$

$$\sum_{N_Q \lambda_Q} = \dots\dots\dots .0120$$

$$\sum_{N_{CR} \lambda_{CR}} = \dots\dots\dots .0045$$

$$\sum_{N_{CC} \lambda_{CC}} = \dots\dots\dots .0500$$

$$\sum_{\lambda_{DC} N_{DC}} = \sum N_Z \lambda_Z + \sum_{N_{CR} \lambda_{CR}} + \sum_{N_{CC} \lambda_{CC}} \dots\dots\dots 1.6205$$

$$\sum_{N_{PR} \lambda_{PR}} \dots\dots\dots 0$$

$$\sum_{N_{PC} \lambda_{PC}} \dots\dots\dots 0$$

$$\sum_{\lambda_{CP} N_{CP}} = \sum_{N_{PR} \lambda_{PR}} + N_{PC} \lambda_{PC} \dots\dots\dots 0$$

$$\lambda_b = \sum_{SP} + A_S \lambda_C + \lambda_{PF} \pi_{PF} + \sum_{N_{RT}} \times \lambda_{RT} + \sum_{\lambda_{DC} N_{DC}} + \sum_{\lambda_{CP} N_{CP}} \dots\dots\dots 1.6777$$

$$\lambda_H = \lambda_b (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6}$$

$$\lambda_H = \frac{.777}{\left\{ \begin{matrix} M = 2.5 \\ W = 2.5 \\ A = 2.7 \end{matrix} \right\}} \times \frac{\left\{ \begin{matrix} 4.1542 \\ 4.1542 \\ 4.5298 \end{matrix} \right\}}{\left(\begin{matrix} M = 2 \\ W = 7 \\ A = 5 \end{matrix} \right)} \times \frac{8.1225}{(22.640)} \times \frac{3.1557}{(1.7430)} = 1.7430$$

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

376261

IF Mode Switch

$$\sum_{SP} \dots\dots\dots .0200$$

$$N_E = N_R + N_C + N_L + N_T/2$$

$$= \underline{7} + \underline{16} + \underline{10} + \underline{7} = \underline{40}$$

$$\lambda_C = .0105$$

$$A_S = .3074$$

$$A_S \lambda_C = \dots\dots\dots .0032$$

$$\lambda_{PF} \pi_{PF} = \dots\dots\dots .0240$$

$$\sum N_{RT} \lambda_{RT} = \dots\dots\dots .0014$$

$$\sum N_Z \lambda_Z = \dots\dots\dots 0$$

$$\sum N_Q \lambda_Q = \dots\dots\dots 0$$

$$\sum N_{CR} \lambda_{CR} = \dots\dots\dots .0030$$

$$\sum N_{CC} \lambda_{CC} = \dots\dots\dots .0250$$

$$\sum \lambda_{DC} N_{DC} = \sum N_Z \lambda_Z + \sum N_{CR} \lambda_{CR} + \sum N_{CC} \lambda_{CC} \dots\dots .0280$$

$$\sum N_{PR} \lambda_{PR} \dots\dots\dots 0$$

$$\sum N_{PC} \lambda_{PC} \dots\dots\dots 0$$

$$\sum \lambda_{CP} N_{CP} = \sum N_{PR} \lambda_{PT} + N_{PC} \lambda_{PC} \dots\dots\dots 0$$

$$\lambda_b = \sum_{SP} + A_S \lambda_C + \lambda_{PF} \pi_{PF} + \sum N_{RT} \lambda_{RT} + \sum \lambda_{DC} N_{DC} + \sum \lambda_{CP} N_{CP} \dots\dots .0766$$

$$\lambda_H = \lambda_b (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6}$$

$$\lambda_H = \underline{0766} \left\{ \begin{array}{l} M - 2.5 \\ W - 2.5 \\ A - 2.7 \end{array} \right\} \left\{ \begin{array}{l} .1915 \\ .1915 \\ .2068 \end{array} \right\} \left\{ \begin{array}{l} M - 2 \\ V - 7 \\ A - 5 \end{array} \right\} \left\{ \begin{array}{l} .3430 \\ .3405 \\ .1234 \end{array} \right\} \times .4 = \underline{.522}$$

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

376259

12.5 MHz IF AMP

$$\sum_{SP} \dots\dots\dots .0200$$

$$N_E = N_R + N_C + N_L + N_T/2$$

$$= \underline{10} + \underline{13} + \underline{7} + \underline{18} = \underline{48}$$

$$\lambda_C = .0105$$

$$A_S = .2815$$

$$A_S \lambda_C \dots\dots\dots .0030$$

$$\lambda_{PF} \pi_{PF} \dots\dots\dots .0300$$

$$\sum_{N_{RT}} \lambda_{RT} \dots\dots\dots .0020$$

$$\sum_{N_Z} \lambda_Z \dots\dots\dots 0$$

$$\sum_{N_Q} \lambda_Q \dots\dots\dots .2100$$

$$\sum_{N_{CR}} \lambda_{CR} \dots\dots\dots .0000$$

$$\sum_{N_{CC}} \lambda_{CC} \dots\dots\dots .0450$$

$$\sum_{\lambda_{DC}} N_{DC} = \sum N_Z \lambda_Z + \sum N_{CR} \lambda_{CR} + \sum N_{CC} \lambda_{CC} \dots\dots .0610$$

$$\sum_{N_{PR}} \lambda_{PR} \dots\dots\dots 0$$

$$\sum_{N_{PC}} \lambda_{PC} \dots\dots\dots .4000$$

$$\sum_{\lambda_{CP}} N_{CP} = \sum_{N_{PR}} \lambda_{PR} + N_{PC} \lambda_{PC} \dots\dots\dots .7000$$

$$\lambda_b = \sum_{SP} + A_S \lambda_C + \lambda_{PF} \pi_{PF} + \sum_{N_{RT}} \lambda_{RT} + \sum_{\lambda_{DC}} N_{DC} + \sum_{\lambda_{CP}} N_{CP} \dots\dots .5100$$

$$\lambda_H = \lambda_b (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6}$$

$$\lambda_H = \frac{5100}{\left\{ \begin{matrix} M = 2.5 \\ W = 2.5 \\ A = 2.7 \end{matrix} \right\}} \times \frac{\left\{ \begin{matrix} 1.2300 \\ 1.3400 \\ 1.3432 \end{matrix} \right\}}{\left\{ \begin{matrix} M = 2 \\ V = 7 \\ A = 5 \end{matrix} \right\}} \times \frac{25000}{9.0100} \times .4 = \frac{1.0220}{2.7000}$$

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

377651

R DETECTOR INTERFACE

$$\sum_{SP} \dots\dots\dots .0200$$

$$N_E = N_R + N_C + N_L + N_T/2$$

$$= \underline{21} + \underline{27} + \underline{16} + \underline{26} = \underline{90}$$

$$\lambda_C = .0105$$

$$A_S = .380$$

$$A_S \lambda_C = \dots\dots\dots .0040$$

$$\lambda_{PF} \pi_{PF} = \dots\dots\dots .0200$$

$$\sum_{N_{RT}} \lambda_{RT} = \dots\dots\dots .0062$$

$$\sum_{N_Z} \lambda_Z = \dots\dots\dots 0$$

$$\sum_{N_Q} \lambda_Q = \dots\dots\dots .0940$$

$$\sum_{N_{CR}} \lambda_{CR} = \dots\dots\dots 0$$

$$\sum_{N_{CC}} \lambda_{CC} = \dots\dots\dots .0100$$

$$\sum_{\lambda_{DC}} N_{DC} = \sum N_Z \lambda_Z + \sum N_{CR} \lambda_{CR} + \sum N_{CC} \lambda_{CC} \dots\dots .1040$$

$$\sum_{N_{PR}} \lambda_{PR} \dots\dots\dots 0$$

$$\sum_{N_{PC}} \lambda_{PC} \dots\dots\dots 0$$

$$\sum_{\lambda_{CP}} N_{CP} = \sum_{N_{PR}} \lambda_{PR} + \sum_{N_{PC}} \lambda_{PC} \dots\dots\dots 0$$

$$\lambda_b = \sum_{SP} + A_S \lambda_C + \lambda_{PF} \pi_{PF} + \sum_{N_{RT}} \lambda_{RT} + \sum_{\lambda_{DC}} N_{DC} + \sum_{\lambda_{CP}} N_{CP} \dots\dots .1543$$

$$\lambda_H = \lambda_b (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6}$$

$$\lambda_H = \frac{.1543}{\begin{Bmatrix} M - 2.5 \\ W - 2.5 \\ A - 2.7 \end{Bmatrix}} = \frac{\begin{Bmatrix} .3458 \\ .3458 \\ .4166 \end{Bmatrix}}{\begin{Bmatrix} M - 2 \\ V - 1 \\ A - 5 \end{Bmatrix}} = \frac{\begin{Bmatrix} .7715 \\ 2.7002 \\ 2.0430 \end{Bmatrix} \times .4}{\begin{Bmatrix} .2046 \\ 1.0401 \\ .8322 \end{Bmatrix}}$$

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

377652

Ø DETECTOR INTERFACE

$$\sum_{SP} \dots\dots\dots .0200$$

$$N_E = N_R + N_C + N_L + N_T/2$$

$$= \underline{\hspace{1cm}} + \underline{\hspace{1cm}} + \underline{\hspace{1cm}} + \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$$

$$\lambda_C =$$

$$A_S =$$

$$A_S \lambda_C = \dots\dots\dots .0040$$

$$\lambda_{PF} \pi_{PF} = \dots\dots\dots .0200$$

$$\sum_{RT} N_{RT} \lambda_{RT} = \dots\dots\dots .0063$$

$$\sum_{Z} N_Z \lambda_Z = \dots\dots\dots 0$$

$$\sum_{Q} N_Q \lambda_Q = \dots\dots\dots .0940$$

$$\sum_{CR} N_{CR} \lambda_{CR} = \dots\dots\dots 0$$

$$\sum_{CC} N_{CC} \lambda_{CC} = \dots\dots\dots .0100$$

$$\sum_{\lambda_{DC}} N_{DC} = \sum N_Z \lambda_Z + \sum N_{CR} \lambda_{CR} + \sum N_{CC} \lambda_{CC} \dots\dots .1040$$

$$\sum_{PR} N_{PR} \lambda_{PR} \dots\dots\dots 0$$

$$\sum_{PC} N_{PC} \lambda_{PC} \dots\dots\dots 0$$

$$\sum_{\lambda_{CP}} N_{CP} = \sum N_{PR} \lambda_{PT} + N_{PC} \lambda_{PC} \dots\dots\dots 0$$

$$\lambda_b = \sum_{SP} + A_S \lambda_C + \lambda_{PF} \pi_{PF} + \sum_{RT} N_{RT} \times \lambda_{RT} + \sum_{\lambda_{DC}} N_{DC} + \sum_{\lambda_{CP}} N_{CP} \dots\dots .1543$$

$$\lambda_H = \lambda_b (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6}$$

$$\lambda_H = \frac{.1543}{\left\{ \begin{matrix} M - 2.5 \\ W - 2.5 \\ A - 2.7 \end{matrix} \right\}} = \frac{\left\{ \begin{matrix} .3858 \\ .3858 \\ .4166 \end{matrix} \right\} \left\{ \begin{matrix} M - 2 \\ V - T \\ A - 5 \end{matrix} \right\}}{\left\{ \begin{matrix} .7715 \\ 2.7002 \\ 2.0930 \end{matrix} \right\}} \times .4 = \frac{\left\{ \begin{matrix} .3026 \\ 1.080 \\ .8332 \end{matrix} \right\}}{\left\{ \begin{matrix} .7715 \\ 2.7002 \\ 2.0930 \end{matrix} \right\}}$$

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

377653

CURRENT CONTROL

$$\sum_{SP} \dots\dots\dots .0200$$

$$N_E = N_R + N_C + N_L + N_T/2$$

$$= 45 + 122 + 26 + 455 = 238.5$$

$$\lambda_C = .0105$$

$$A_S = 1.35$$

$$A_S \lambda_C = \dots\dots\dots .0142$$

$$\lambda_{PF} \pi_{PF} = \dots\dots\dots .0300$$

$$\sum_{N_{RT} \lambda_{RT}} = \dots\dots\dots 0$$

$$\sum_{N_Z \lambda_Z} = \dots\dots\dots 1.2000$$

$$\sum_{N_Q \lambda_Q} = \dots\dots\dots .0270$$

$$\sum_{N_{CR} \lambda_{CR}} = \dots\dots\dots .0090$$

$$\sum_{N_{CC} \lambda_{CC}} = \dots\dots\dots 0$$

$$\sum_{\lambda_{DC} N_{DC}} = \sum_{N_Z \lambda_Z} + \sum_{N_{CR} \lambda_{CR}} + \sum_{N_{CC} \lambda_{CC}} \dots\dots\dots 1.2360$$

$$\sum_{N_{PR} \lambda_{PR}} \dots\dots\dots 1.2410$$

$$\sum_{N_{PC} \lambda_{PC}} \dots\dots\dots 0$$

$$\sum_{\lambda_{CP} N_{CP}} = \sum_{N_{PR} \lambda_{PT}} + N_{PC} \lambda_{PC} \dots\dots\dots 1.2410$$

$$\lambda_b = \sum_{SP} + A_S \lambda_C + \lambda_{PF} \pi_{PF} + \sum_{N_{RT}} \times \lambda_{RT} + \sum_{\lambda_{DC} N_{DC}} + \sum_{\lambda_{CP} N_{CP}} \dots\dots\dots 3.1412$$

$$\lambda_H = \lambda_b (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6}$$

$$\lambda_H = \frac{3.1412}{\begin{Bmatrix} M - 2.5 \\ W - 2.5 \\ A - 2.7 \end{Bmatrix}} = \frac{7.8530}{8.4212} \begin{Bmatrix} M - 2 \\ V - T \\ A - 5 \end{Bmatrix} = \frac{15.7060}{42.4062} \times .4 = \frac{6.2824}{16.9625}$$

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

377661

W I D E B A N D F I L T E R / D E T E C T O R

$$\sum_{SP} \dots\dots\dots .0200$$

$$N_E = N_R + N_C + N_L + N_T/2$$

$$= \underline{15} + \underline{29} + \underline{17} + \underline{22} = \underline{P3}$$

$$\lambda_C = .0120$$

$$A_S = .212$$

$$A_S \lambda_C = \dots\dots\dots .0025$$

$$\lambda_{PF} \pi_{PF} = \dots\dots\dots .0300$$

$$\sum N_{RT} \lambda_{RT} = \dots\dots\dots .0072$$

$$\sum N_Z \lambda_Z = \dots\dots\dots .5340$$

$$\sum N_Q \lambda_Q = \dots\dots\dots .0030$$

$$\sum N_{CR} \lambda_{CR} = \dots\dots\dots .0045$$

$$\sum N_{CC} \lambda_{CC} = \dots\dots\dots .0500$$

$$\sum \lambda_{DC} N_{DC} = \sum N_Z \lambda_Z + \sum N_{CR} \lambda_{CR} + \sum N_{CC} \lambda_{CC} \dots\dots .5915$$

$$\sum N_{PR} \lambda_{PR} \dots\dots\dots 0$$

$$\sum N_{PC} \lambda_{PC} \dots\dots\dots 0$$

$$\sum \lambda_{CP} N_{CP} = \sum N_{PR} \lambda_{PT} + N_{PC} \lambda_{PC} \dots\dots\dots 0$$

$$\lambda_b = \sum_{SP} + A_S \lambda_C + \lambda_{PF} \pi_{PF} + \sum N_{RT} \times \lambda_{RT} + \sum \lambda_{DC} N_{DC} + \sum \lambda_{CP} N_{CP} \dots\dots .6440$$

$$\lambda_H = \lambda_b (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6}$$

$$\lambda_H = \underline{.6440} \left\{ \begin{matrix} M - 2.5 \\ W - 2.5 \\ A - 2.7 \end{matrix} \right\} = \left\{ \begin{matrix} 1.6100 \\ 1.6100 \\ 1.7388 \end{matrix} \right\} \left\{ \begin{matrix} M - 2 \\ V - 7 \\ A - 5 \end{matrix} \right\} = \left\{ \begin{matrix} 3.2200 \\ 11.2700 \\ 8.6540 \end{matrix} \right\} \times .4 = \left\{ \begin{matrix} 1.2880 \\ 4.5080 \\ 3.4776 \end{matrix} \right\}$$

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

3 7 7 6 6 2

A M P L I F I E R D E T E C T O R

$$\sum_{SP} \dots\dots\dots .0200$$

$$N_E = N_R + N_C + N_L + N_T/2$$

$$= \underline{19} + \underline{35} + \underline{18} + \underline{21} = \underline{93}$$

$$\lambda_C = .0140$$

$$A_S = .215$$

$$A_S \lambda_C = \dots\dots\dots .0030$$

$$\lambda_{PF} \pi_{PF} = \dots\dots\dots .0300$$

$$\sum_{N_{RT}} \lambda_{RT} = \dots\dots\dots .0095$$

$$\sum_{N_Z} \lambda_Z = \dots\dots\dots .8194$$

$$\sum_{N_Q} \lambda_Q = \dots\dots\dots 0$$

$$\sum_{N_{CR}} \lambda_{CR} = \dots\dots\dots .0060$$

$$\sum_{N_{CC}} \lambda_{CC} = \dots\dots\dots .0100$$

$$\sum_{\lambda_{DC}} N_{DC} = \sum N_Z \lambda_Z + \sum N_{CR} \lambda_{CR} + \sum N_{CC} \lambda_{CC} \dots\dots .8354$$

$$\sum_{N_{PR}} \lambda_{PR} \dots\dots\dots 0$$

$$\sum_{N_{PC}} \lambda_{PC} \dots\dots\dots 0$$

$$\sum_{\lambda_{CP}} N_{CP} = \sum_{N_{PR}} \lambda_{PR} + \sum_{N_{PC}} \lambda_{PC} \dots\dots\dots 0$$

$$\lambda_b = \sum_{SP} + A_S \lambda_C + \lambda_{PF} \pi_{PF} + \sum_{N_{RT}} \lambda_{RT} + \sum_{\lambda_{DC}} N_{DC} + \sum_{\lambda_{CP}} N_{CP} \dots\dots .2979$$

$$\lambda_H = \lambda_b (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6}$$

$$\lambda_H = \frac{.2979}{\left\{ \begin{matrix} M - 2.5 \\ W - 2.5 \\ A - 2.7 \end{matrix} \right\}} = \frac{\left\{ \begin{matrix} 2.2448 \\ 2.2448 \\ 2.4243 \end{matrix} \right\}}{\left\{ \begin{matrix} M - 2 \\ V - 7 \\ A - 5 \end{matrix} \right\}} = \frac{4.4295}{15.7132 \times .4} = \frac{1.7958}{4.8487}$$

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

377662*

GUARD AMPLIFIER DETECTOR

$$\sum_{SP} \dots\dots\dots .0200$$

$$N_E = N_R + N_C + N_L + N_T/2$$

$$= \underline{12} + \underline{24} + \underline{13} + \underline{12} = \underline{61}$$

$$\lambda_C = .0105$$

$$A_S = .215$$

$$A_S \lambda_C = \dots\dots\dots .0023$$

$$\lambda_{PF} \pi_{PF} = \dots\dots\dots .0300$$

$$\sum_{N_{RT} \lambda_{RT}} = \dots\dots\dots .0060$$

$$\sum_{N_Z \lambda_Z} = \dots\dots\dots .4960$$

$$\sum_{N_Q \lambda_Q} = \dots\dots\dots 0$$

$$\sum_{N_{CR} \lambda_{CR}} = \dots\dots\dots .0030$$

$$\sum_{N_{CC} \lambda_{CC}} = \dots\dots\dots .0050$$

$$\sum_{\lambda_{DC} N_{DC}} = \sum_{N_Z \lambda_Z} + \sum_{N_{CR} \lambda_{CR}} + \sum_{N_{CC} \lambda_{CC}} \dots\dots .5040$$

$$\sum_{N_{PR} \lambda_{PR}} \dots\dots\dots 0$$

$$\sum_{N_{PC} \lambda_{PC}} \dots\dots\dots 0$$

$$\sum_{\lambda_{CP} N_{CP}} = \sum_{N_{PR} \lambda_{PT}} + \sum_{N_{PC} \lambda_{PC}} \dots\dots\dots 0$$

$$\lambda_b = \sum_{SP} + A_S \lambda_C + \lambda_{PF} \pi_{PF} + \sum_{N_{RT}} \times \lambda_{RT} + \sum_{\lambda_{DC} N_{DC}} + \sum_{\lambda_{CP} N_{CP}} \dots\dots .5623$$

$$\lambda_H = \lambda_b (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6}$$

$$\lambda_H = \frac{.5623}{\left\{ \begin{matrix} M - 2.5 \\ W - 2.5 \\ A - 2.7 \end{matrix} \right\}} = \frac{\left\{ \begin{matrix} 1.4058 \\ 1.4058 \\ 1.5142 \end{matrix} \right\}}{\left\{ \begin{matrix} M - 2 \\ V - 7 \\ A - 5 \end{matrix} \right\}} = \frac{\left\{ \begin{matrix} 2.8115 \\ 9.8402 \\ 7.5910 \end{matrix} \right\}}{X.4} = \frac{\left\{ \begin{matrix} 1.1240 \\ 3.9301 \\ 3.03-7 \end{matrix} \right\}}{}$$

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

377663

AUDIO FILTER

$$\sum_{SP} \dots\dots\dots .0200$$

$$N_E = N_R + N_C + N_L + N_T/2$$

$$= 14 + 31 + 12 + 22 = 79$$

$$\lambda_C = .012$$

$$A_S = .220$$

$$A_S \lambda_C = \dots\dots\dots .0026$$

$$\lambda_{PF} \pi_{PF} = \dots\dots\dots .0300$$

$$\sum_{N_{RT} \lambda_{RT}} = \dots\dots\dots .0070$$

$$\sum_{N_Z \lambda_Z} = \dots\dots\dots .7560$$

$$\sum_{N_Q \lambda_Q} = \dots\dots\dots 0$$

$$\sum_{N_{CR} \lambda_{CR}} = \dots\dots\dots 0$$

$$\sum_{N_{CC} \lambda_{CC}} = \dots\dots\dots .0500$$

$$\sum_{\lambda_{DC} N_{DC}} = \sum N_Z \lambda_Z + \sum_{N_{CR} \lambda_{CR}} + \sum_{N_{CC} \lambda_{CC}} \dots\dots .8060$$

$$\sum_{N_{PR} \lambda_{PR}} \dots\dots\dots 0$$

$$\sum_{N_{PC} \lambda_{PC}} \dots\dots\dots 0$$

$$\sum_{\lambda_{CP} N_{CP}} = \sum_{N_{PR} \lambda_{PT}} + N_{PC} \lambda_{PC} \dots\dots\dots 0$$

$$\lambda_b = \sum_{SP} + A_S \lambda_C + \lambda_{PF} \pi_{PF} + \sum_{N_{RT}} \times \lambda_{RT} + \sum_{\lambda_{DC} N_{DC}} + \sum_{\lambda_{CP} N_{CP}} \dots\dots .8656$$

$$\lambda_H = \lambda_b (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6}$$

$$\lambda_H = \frac{.8656}{\begin{Bmatrix} M - 2.5 \\ W - 2.5 \\ A - 2.7 \end{Bmatrix}} = \frac{\begin{Bmatrix} 2.1640 \\ 2.1640 \\ 2.3371 \end{Bmatrix}}{\begin{Bmatrix} M - 2 \\ V - T \\ A - 5 \end{Bmatrix}} = \frac{\begin{Bmatrix} 4.3280 \\ 15.1420 \\ 11.6756 \end{Bmatrix} \times .4}{\begin{Bmatrix} 1.732 \\ 5.052 \\ 4.6742 \end{Bmatrix}}$$

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

377666

OUTPUT AMPLIFIER

$$\sum_{SP} \dots\dots\dots .0200$$

$$N_E = N_R + N_C + N_L + N_T/2$$

$$= \underline{31} + \underline{61} + \underline{33} + \underline{30.5} = \underline{155.5}$$

$$\lambda_C = .0105$$

$$A_S = .504$$

$$A_S \lambda_C = \dots\dots\dots .5145$$

$$\lambda_{PF} \pi_{PF} = \dots\dots\dots .0390$$

$$\sum_{N_{RT}} \lambda_{RT} = \dots\dots\dots .0093$$

$$\sum_{N_Z} \lambda_Z = \dots\dots\dots .7843$$

$$\sum_{N_Q} \lambda_Q = \dots\dots\dots .0420$$

$$\sum_{N_{CR}} \lambda_{CR} = \dots\dots\dots .0030$$

$$\sum_{N_{CC}} \lambda_{CC} = \dots\dots\dots .0400$$

$$\sum_{\lambda_{DC}} N_{DC} = \sum N_Z \lambda_Z + \sum_{N_{CR}} \lambda_{CR} + \sum_{N_{CC}} \lambda_{CC} \dots\dots .8693$$

$$\sum_{N_{PR}} \lambda_{PR} \dots\dots\dots 0$$

$$\sum_{N_{PC}} \lambda_{PC} \dots\dots\dots 0$$

$$\sum_{\lambda_{CP}} N_{CP} = \sum_{N_{PR}} \lambda_{PT} + N_{PC} \lambda_{PC} \dots\dots\dots 0$$

$$\lambda_b = \sum_{SP} + A_S \lambda_C + \lambda_{PF} \pi_{PF} + \sum_{N_{RT}} \lambda_{RT} + \sum_{\lambda_{DC}} N_{DC} + \sum_{\lambda_{CP}} N_{CP} \dots\dots 1.4422$$

$$\lambda_H = \lambda_b (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6}$$

$$\lambda_H = \underline{1.4422} \left\{ \begin{array}{l} M - 2.5 \\ W - 2.5 \\ A - 2.7 \end{array} \right\} = \left\{ \begin{array}{l} 3.6055 \\ 3.6055 \\ 3.8939 \end{array} \right\} \left\{ \begin{array}{l} M - 2 \\ V - T \\ A - 5 \end{array} \right\} = \left\{ \begin{array}{l} 7.2110 \\ 25.2525 \\ 19.4657 \end{array} \right\} \times .4 = \left\{ \begin{array}{l} 2.8844 \\ 10.0954 \\ 7.7879 \end{array} \right\}$$

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

377667

MODULATION AMP

$$\sum_{SP} \dots\dots\dots .0200$$

$$N_E = N_R + N_C + N_L + N_T/2$$

$$= 16 + 29 + 16 + 13 = 74$$

$$\lambda_C = .011$$

$$A_S = .2135$$

$$A_S \lambda_C = \dots\dots\dots .0024$$

$$\lambda_{PF} \pi_{PF} = \dots\dots\dots .0300$$

$$\sum N_{RT} \lambda_{RT} = \dots\dots\dots .0000$$

$$\sum N_Z \lambda_Z = \dots\dots\dots .7920$$

$$\sum N_Q \lambda_Q = \dots\dots\dots 0$$

$$\sum N_{CR} \lambda_{CR} = \dots\dots\dots 0$$

$$\sum N_{CC} \lambda_{CC} = \dots\dots\dots .0150$$

$$\sum \lambda_{DC} N_{DC} = \sum N_Z \lambda_Z + \sum N_{CR} \lambda_{CR} + \sum N_{CC} \lambda_{CC} \dots\dots .8070$$

$$\sum N_{PR} \lambda_{PR} \dots\dots\dots 0$$

$$\sum N_{PC} \lambda_{PC} \dots\dots\dots 0$$

$$\sum \lambda_{CP} N_{CP} = \sum N_{PR} \lambda_{PT} + N_{PC} \lambda_{PC} \dots\dots\dots 0$$

$$\lambda_b = \sum_{SP} + A_S \lambda_C + \lambda_{PF} \pi_{PF} + \sum N_{RT} \times \lambda_{RT} + \sum \lambda_{DC} N_{DC} + \sum \lambda_{CP} N_{CP} \dots\dots .8674$$

$$\lambda_H = \lambda_b (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6}$$

$$\lambda_H = \frac{.8674}{1} \left\{ \begin{matrix} M - 2.5 \\ W - 2.5 \\ A - 2.7 \end{matrix} \right\} = \frac{2.1625}{2.3420} \left\{ \begin{matrix} M - 2 \\ V - 1 \\ A - 5 \end{matrix} \right\} = \frac{4.3270}{11.7099} \times .4 = \frac{1.7308}{4.6837}$$

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

377668

12.5 MHz LIM.-DISC.

$$\sum_{SP} \dots\dots\dots .0200$$

$$N_E = N_R + N_C + N_L + N_T/2$$

$$= \underline{13} + \underline{21} + \underline{9} + \underline{23.5} = \underline{66.5}$$

$$\lambda_C = .0105$$

$$A_S = .204$$

$$A_S \lambda_C = \dots\dots\dots .0021$$

$$\lambda_{PF} \pi_{PF} = \dots\dots\dots .0200$$

$$\sum N_{RT} \lambda_{RT} = \dots\dots\dots .0026$$

$$\sum N_Z \lambda_Z = \dots\dots\dots .1920$$

$$\sum N_Q \lambda_Q = \dots\dots\dots .0050$$

$$\sum N_{CR} \lambda_{CR} = \dots\dots\dots .0075$$

$$\sum N_{CC} \lambda_{CC} = \dots\dots\dots .0600$$

$$\sum \lambda_{DC} N_{DC} = \sum N_Z \lambda_Z + \sum N_{CR} \lambda_{CR} + \sum N_{CC} \lambda_{CC} \dots\dots .2645$$

$$\sum N_{PR} \lambda_{PR} \dots\dots\dots 0$$

$$\sum N_{PC} \lambda_{PC} \dots\dots\dots .4000$$

$$\sum \lambda_{CP} N_{CP} = \sum N_{PR} \lambda_{PR} + \sum N_{PC} \lambda_{PC} \dots\dots\dots .4000$$

$$\lambda_b = \sum_{SP} + A_S \lambda_C + \lambda_{PF} \pi_{PF} + \sum N_{RT} \times \lambda_{RT} + \sum \lambda_{DC} N_{DC} + \sum \lambda_{CP} N_{CP} \dots\dots .7192$$

$$\lambda_H = \lambda_b (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6}$$

$$\lambda_H = \frac{.7192}{\left\{ \begin{matrix} M - 2.5 \\ W - 2.5 \\ A - 2.7 \end{matrix} \right\}} = \frac{\left\{ \begin{matrix} 1.7980 \\ 1.7980 \\ 1.9418 \end{matrix} \right\}}{\left\{ \begin{matrix} M - 2 \\ V - 7 \\ A - 5 \end{matrix} \right\}} = \frac{\left\{ \begin{matrix} 3.5960 \\ 12.5860 \times .4 \\ 9.7092 \end{matrix} \right\}}{\left\{ \begin{matrix} 1.41374 \\ 5.0344 \\ 3.2227 \end{matrix} \right\}}$$

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

377671

D/A CONVERTER

$$\sum_{SP} \dots\dots\dots .0200$$

$$N_E = N_R + N_C + N_L + N_T/2$$

$$= \underline{9 + 26 + 16 + 15.5} = \underline{66.5}$$

$$\lambda_C = .0105$$

$$A_S = .450$$

$$A_S \lambda_C = \dots\dots\dots .0047$$

$$\lambda_{PF} \pi_{PF} = \dots\dots\dots .0240$$

$$\sum_{N_{RT} \lambda_{RT}} = \dots\dots\dots .0020$$

$$\sum_{N_Z \lambda_Z} = \dots\dots\dots .4476$$

$$\sum_{N_Q \lambda_Q} = \dots\dots\dots .0150$$

$$\sum_{N_{CR} \lambda_{CR}} = \dots\dots\dots 0$$

$$\sum_{N_{CC} \lambda_{CC}} = \dots\dots\dots .0050$$

$$\sum_{\lambda_{DC} N_{DC}} = \sum N_Z \lambda_Z + \sum_{N_{CR} \lambda_{CR}} + \sum_{N_{CC} \lambda_{CC}} \dots\dots\dots .4676$$

$$\sum_{N_{PR} \lambda_{PR}} \dots\dots\dots .0001$$

$$\sum_{N_{PC} \lambda_{PC}} \dots\dots\dots 0$$

$$\sum_{\lambda_{CP} N_{CP}} = \sum_{N_{PR} \lambda_{PT}} + N_{PC} \lambda_{PC} \dots\dots\dots .0001$$

$$\lambda_b = \sum_{SP} + A_S \lambda_C + \lambda_{PF} \pi_{PF} + \sum_{N_{RT}} \times \lambda_{RT} + \sum_{\lambda_{DC} N_{DC}} + \sum_{\lambda_{CP} N_{CP}} \dots\dots\dots .5184$$

$$\lambda_H = \lambda_b (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6}$$

$$\lambda_H = \frac{.5184}{\left\{ \begin{matrix} M - 2.5 \\ W - 2.5 \\ A - 2.7 \end{matrix} \right\}} = \frac{\left\{ \begin{matrix} 1.2960 \\ 1.2960 \\ 1.3997 \end{matrix} \right\}}{\left\{ \begin{matrix} M - 2 \\ V - 7 \\ A - 5 \end{matrix} \right\}} = \frac{\left\{ \begin{matrix} 2.5920 \\ 9.0720 \times .4 \\ 6.9984 \end{matrix} \right\}}{\left\{ \begin{matrix} 1.0302 \\ 3.6222 \\ 2.7994 \end{matrix} \right\}} =$$

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

377675

O S C I L L A T O R

$$\sum_{SP} \dots\dots\dots .0200$$

$$N_E = N_R + N_C + N_L + N_T/2$$

$$= \underline{3} + \underline{10} + \underline{7} + \underline{7} = \underline{27}$$

$$\lambda_C = .014$$

$$A_S = .063$$

$$A_S \lambda_C = \dots\dots\dots .0009$$

$$\lambda_{PF} \pi_{PF} = \dots\dots\dots .0200$$

$$\sum N_{RT} \lambda_{RT} = \dots\dots\dots 0$$

$$\sum N_Z \lambda_Z = \dots\dots\dots 0$$

$$\sum N_Q \lambda_Q = \dots\dots\dots .0240$$

$$\sum N_{CR} \lambda_{CR} = \dots\dots\dots 0$$

$$\sum N_{CC} \lambda_{CC} = \dots\dots\dots .0100$$

$$\sum \lambda_{DC} N_{DC} = \sum N_Z \lambda_Z + \sum N_{CR} \lambda_{CR} + \sum N_{CC} \lambda_{CC} \dots\dots .0340$$

$$\sum N_{PR} \lambda_{PR} \dots\dots\dots .0003$$

$$\sum N_{PC} \lambda_{PC} \dots\dots\dots 0$$

$$\sum \lambda_{CP} N_{CP} = \sum N_{PR} \lambda_{PT} + N_{PC} \lambda_{FC} \dots\dots\dots .0003$$

$$\lambda_b = \sum_{SP} + A_S \lambda_C + \lambda_{PF} \pi_{PF} + \sum N_{RT} \times \lambda_{RT} + \sum \lambda_{DC} N_{DC} + \sum \lambda_{CP} N_{CP} \dots\dots .0752$$

$$\lambda_H = \lambda_b (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6}$$

$$\lambda_H = \underline{.0752} \left\{ \begin{matrix} M - 2.5 \\ W - 2.5 \\ A - 2.7 \end{matrix} \right\} = \left\{ \begin{matrix} .1220 \\ .1220 \\ .2030 \end{matrix} \right\} \left\{ \begin{matrix} M - 2 \\ V - 7 \\ A - 5 \end{matrix} \right\} = \left\{ \begin{matrix} .3760 \\ .3160 \\ 1.0152 \end{matrix} \right\} \times .4 = \left\{ \begin{matrix} .1504 \\ .5224 \\ .4061 \end{matrix} \right\}$$

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

377676

V F C R F S W I T C H

$$\sum_{SP} \dots\dots\dots .0200$$

$$N_E = N_R + N_C + N_L + N_T/2$$

$$= \underline{7} + \underline{20} + \underline{14} + \underline{12} = \underline{53}$$

$$\lambda_C = .0105$$

$$A_S = .191$$

$$A_S \lambda_C = \dots\dots\dots .0020$$

$$\lambda_{PF} \pi_{PF} = \dots\dots\dots .0300$$

$$\sum_{RT} \lambda_{RT} = \dots\dots\dots .0021$$

$$\sum N_Z \lambda_Z = \dots\dots\dots 0$$

$$\sum N_Q \lambda_Q = \dots\dots\dots 0$$

$$\sum N_{CR} \lambda_{CR} = \dots\dots\dots .0075$$

$$\sum N_{CC} \lambda_{CC} = \dots\dots\dots .0350$$

$$\sum \lambda_{DC} N_{DC} = \sum N_Z \lambda_Z + \sum N_{CR} \lambda_{CR} + \sum N_{CC} \lambda_{CC} \dots\dots .0425$$

$$\sum N_{PR} \lambda_{PR} \dots\dots\dots 0$$

$$\sum N_{PC} \lambda_{PC} \dots\dots\dots 0$$

$$\sum \lambda_{CP} N_{CP} = \sum N_{PR} \lambda_{PR} + \sum N_{PC} \lambda_{PC} \dots\dots\dots 0$$

$$\lambda_b = \sum_{SP} + A_S \lambda_C + \lambda_{PF} \pi_{PF} + \sum_{RT} \lambda_{RT} + \sum \lambda_{DC} N_{DC} + \sum \lambda_{CP} N_{CP} \dots\dots .0966$$

$$\lambda_H = \lambda_b (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6}$$

$$\lambda_H = \frac{.0966}{\left\{ \begin{matrix} M - 2.5 \\ W - 2.5 \\ A - 2.7 \end{matrix} \right\}} = \frac{\left\{ \begin{matrix} .2415 \\ .2415 \\ .2608 \end{matrix} \right\}}{\left\{ \begin{matrix} M - 2 \\ V - 1 \\ A - 5 \end{matrix} \right\}} = \frac{\left\{ \begin{matrix} .4830 \\ 1.6905 \\ 1.3041 \end{matrix} \right\} \times .4}{\left\{ \begin{matrix} .1932 \\ .6762 \\ .5216 \end{matrix} \right\}}$$

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

377677

VFO CONTROL

$$\sum_{SP} \dots\dots\dots .0200$$

$$N_E = N_R + N_C + N_L + N_T/2$$

$$= 17 + 55 + 27 + 28 = 127$$

$$\lambda_C = .0105$$

$$A_S = .871$$

$$A_S \lambda_C = \dots\dots\dots .0091$$

$$\lambda_{PF} \pi_{PF} = \dots\dots\dots .0300$$

$$\sum_{N_{RT} \lambda_{RT}} = \dots\dots\dots .0051$$

$$\sum_{N_Z \lambda_Z} = \dots\dots\dots .0500$$

$$\sum_{N_Q \lambda_Q} = \dots\dots\dots .0540$$

$$\sum_{N_{CR} \lambda_{CR}} = \dots\dots\dots .0015$$

$$\sum_{N_{CC} \lambda_{CC}} = \dots\dots\dots .0500$$

$$\sum_{\lambda_{DC} N_{DC}} = \sum_{N_Z \lambda_Z} + \sum_{N_{CR} \lambda_{CR}} + \sum_{N_{CC} \lambda_{CC}} \dots\dots .2155$$

$$\sum_{N_{PR} \lambda_{PR}} \dots\dots\dots 0$$

$$\sum_{N_{PC} \lambda_{PC}} \dots\dots\dots 0$$

$$\sum_{\lambda_{CP} N_{CP}} = \sum_{N_{PR} \lambda_{PR}} + \sum_{N_{PC} \lambda_{PC}} \dots\dots\dots$$

$$\lambda_b = \sum_{SP} + A_S \lambda_C + \lambda_{PF} \pi_{PF} + \sum_{N_{RT} \lambda_{RT}} + \sum_{\lambda_{DC} N_{DC}} + \sum_{\lambda_{CP} N_{CP}} \dots\dots\dots$$

$$\lambda_H = \lambda_b (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6} + CMOS \text{ MSE}$$

$$\lambda_H = \frac{M - 2.5}{W - 2.5} \left\{ \frac{.8743}{A - 2.7} \right\} \frac{M - 2}{V - 1} \left\{ \frac{.899}{A - 5} \right\} \times .4 = \frac{.4479 + 1.5}{1.8854 + 1.5}$$

$$= \frac{2.1774}{3.3854} = .6435$$

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

377678

PHASE DETECTOR

$$\sum_{SP} \dots\dots\dots .0200$$

$$N_E = N_R + N_C + N_L + N_T/2$$

$$= 8 + 65 + 10 + 32.5 = 115.5$$

$$\lambda_C = .0105$$

$$A_S = .375$$

$$A_S \lambda_C = \dots\dots\dots .0039$$

$$\lambda_{PF} \pi_{PF} = \dots\dots\dots .0300$$

$$\sum_{N_{RT}} \lambda_{RT} = \dots\dots\dots 0$$

$$\sum_{N_Z} \lambda_Z = \dots\dots\dots .5736$$

$$\sum_{N_Q} \lambda_Q = \dots\dots\dots .0330$$

$$\sum_{N_{CR}} \lambda_{CR} = \dots\dots\dots .0045$$

$$\sum_{N_{CC}} \lambda_{CC} = \dots\dots\dots .0300$$

$$\sum_{\lambda_{DC}} N_{DC} = \sum N_Z \lambda_Z + \sum N_{CR} \lambda_{CR} + \sum N_{CC} \lambda_{CC} \dots\dots .6411$$

$$\sum_{N_{PR}} \lambda_{PR} \dots\dots\dots .0008$$

$$\sum_{N_{PC}} \lambda_{PC} \dots\dots\dots 0$$

$$\sum_{\lambda_{CP}} N_{CP} = \sum_{N_{PR}} \lambda_{PR} + N_{PC} \lambda_{PC} \dots\dots\dots .0008$$

$$\lambda_b = \sum_{SP} + A_S \lambda_C + \lambda_{PF} \pi_{PF} + \sum_{N_{RT}} \lambda_{RT} + \sum_{\lambda_{DC}} N_{DC} + \sum_{\lambda_{CP}} N_{CP} \dots\dots .6454$$

$$\lambda_H = \lambda_b (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6}$$

$$\lambda_H = \frac{.6454}{\left\{ \begin{matrix} M - 2.5 \\ W - 2.5 \\ A - 2.7 \end{matrix} \right\}} = \frac{\left\{ \begin{matrix} 1.7395 \\ 1.7395 \\ 1.2707 \end{matrix} \right\}}{\left\{ \begin{matrix} M - 2 \\ V - T \\ A - 5 \end{matrix} \right\}} = \frac{3.4700}{12.155} \times .4 = \frac{1.3880}{3.2572}$$

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

377679

VFO BUFFER

$$\sum_{SP} \dots\dots\dots .0200$$

$$N_E = N_R + N_C + N_L + N_T/2$$

$$= 8 + 24 + 18 + 8 = 58$$

$$\lambda_C = .0105$$

$$A_S = .210$$

$$A_S \lambda_C = \dots\dots\dots .0022$$

$$\lambda_{PF} \pi_{PF} = \dots\dots\dots .0200$$

$$\sum N_{RT} \lambda_{RT} = \dots\dots\dots 0$$

$$\sum N_Z \lambda_Z = \dots\dots\dots 0$$

$$\sum N_Q \lambda_Q = \dots\dots\dots .0100$$

$$\sum N_{CR} \lambda_{CR} = \dots\dots\dots 0$$

$$\sum N_{CC} \lambda_{CC} = \dots\dots\dots .0250$$

$$\sum \lambda_{DC} N_{DC} = \sum N_Z \lambda_Z + \sum N_{CR} \lambda_{CR} + \sum N_{CC} \lambda_{CC} \dots\dots .0250$$

$$\sum N_{PR} \lambda_{PR} \dots\dots\dots .0000$$

$$\sum N_{PC} \lambda_{PC} \dots\dots\dots 0$$

$$\sum \lambda_{CP} N_{CP} = \sum N_{PR} \lambda_{PT} + N_{PC} \lambda_{PC} \dots\dots\dots .0000$$

$$\lambda_b = \sum_{SP} + A_S \lambda_C + \lambda_{PF} \pi_{PF} + \sum N_{RT} \times \lambda_{RT} + \sum \lambda_{DC} N_{DC} + \sum \lambda_{CP} N_{CP} \dots\dots .720$$

$$\lambda_H = \lambda_b (\pi_1 \times \pi_E \times \pi_Q) \times 10^{-6}$$

$$\lambda_H = \frac{.0780}{\left\{ \begin{matrix} M - 2.5 \\ W - 2.5 \\ A - 2.7 \end{matrix} \right\}} \times \left\{ \begin{matrix} .1950 \\ .1450 \\ .2106 \end{matrix} \right\} \times \left\{ \begin{matrix} M - 2 \\ V - 7 \\ A - 5 \end{matrix} \right\} \times \left\{ \begin{matrix} .3900 \\ .1500 \\ .1550 \end{matrix} \right\} \times .4 = \frac{.1500}{.1722}$$

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

377686

P A D R I V E R

$$\sum_{SP} \dots\dots\dots .0200$$

$$N_E = N_R + N_C + N_L + N_T/2$$

$$= \underline{7} + \underline{22} + \underline{26} + \underline{19.5} = \underline{74.5}$$

$$\lambda_C = .0105$$

$$A_S = .266$$

$$A_S \lambda_C = \dots\dots\dots .0030$$

$$\lambda_{PF} \pi_{PF} = \dots\dots\dots .0300$$

$$\sum_{RT} N_{RT} \lambda_{RT} = \dots\dots\dots .0014$$

$$\sum_{Z} N_Z \lambda_Z = \dots\dots\dots 0$$

$$\sum_{Q} N_Q \lambda_Q = \dots\dots\dots .0720$$

$$\sum_{CR} N_{CR} \lambda_{CR} = \dots\dots\dots .0320$$

$$\sum_{CC} N_{CC} \lambda_{CC} = \dots\dots\dots 0$$

$$\sum_{DC} \lambda_{DC} N_{DC} = \sum N_Z \lambda_Z + \sum N_{CR} \lambda_{CR} + \sum N_{CC} \lambda_{CC} \dots\dots .1100$$

$$\sum_{PR} N_{PR} \lambda_{PR} \dots\dots\dots 0$$

$$\sum_{PC} N_{PC} \lambda_{PC} \dots\dots\dots .0027$$

$$\sum_{CP} \lambda_{CP} N_{CP} = \sum_{PR} N_{PR} \lambda_{PR} + N_{PC} \lambda_{PC} \dots\dots\dots .0027$$

$$\lambda_b = \sum_{SP} + A_S \lambda_C + \lambda_{PF} \pi_{PF} + \sum_{RT} N_{RT} \lambda_{RT} + \sum_{DC} \lambda_{DC} N_{DC} + \sum_{CP} \lambda_{CP} N_{CP} \dots\dots\dots .009$$

$$\lambda_H = \lambda_b (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6}$$

$$\lambda_H = \frac{.1669}{\left\{ \begin{matrix} M - 2.5 \\ W - 2.5 \\ A - 2.7 \end{matrix} \right\}} \times \frac{\left\{ \begin{matrix} .4172 \\ .4172 \\ .4506 \end{matrix} \right\}}{\left\{ \begin{matrix} M - 2 \\ V - 2 \\ A - 5 \end{matrix} \right\}} \times \frac{\left\{ \begin{matrix} .2345 \\ .2320 \\ .2252 \end{matrix} \right\}}{\left\{ \begin{matrix} .3332 \\ .1623 \\ .501 \end{matrix} \right\}} \times .4 = \frac{.1669}{.4506} \times \frac{.2320}{.2252} \times \frac{.3332}{.1623} \times .4 = .1623$$

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

377687

PA FINAL

$$\sum_{SP} \dots\dots\dots .0200$$

$$N_E = N_R + N_C + N_L + N_T/2$$

$$= 8 + 12 + 16 + 13 = 49$$

$$\lambda_C = .0105$$

$$A_S = .301$$

$$A_S \lambda_C = \dots\dots\dots .0032$$

$$\lambda_{PF} \pi_{PF} = \dots\dots\dots .0300$$

$$\sum N_{RT} \lambda_{RT} = \dots\dots\dots .0014$$

$$\sum N_Z \lambda_Z = \dots\dots\dots 0$$

$$\sum N_Q \lambda_Q = \dots\dots\dots .0660$$

$$\sum N_{CR} \lambda_{CR} = \dots\dots\dots 0$$

$$\sum N_{CC} \lambda_{CC} = \dots\dots\dots .0350$$

$$\sum \lambda_{DC} N_{DC} = \sum N_Z \lambda_Z + \sum N_{CR} \lambda_{CR} + \sum N_{CC} \lambda_{CC} \dots\dots .1010$$

$$\sum N_{PR} \lambda_{PR} \dots\dots\dots .3000$$

$$\sum N_{PC} \lambda_{PC} \dots\dots\dots 0$$

$$\sum \lambda_{CP} N_{CP} = \sum N_{PR} \lambda_{PR} + \sum N_{PC} \lambda_{PC} \dots\dots\dots .3000$$

$$\lambda_b = \sum_{SP} + A_S \lambda_C + \lambda_{PF} \pi_{PF} + \sum N_{RT} \times \lambda_{RT} + \sum \lambda_{DC} N_{DC} + \sum \lambda_{CP} N_{CP} \dots\dots .4556$$

$$\lambda_H = \lambda_b (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6}$$

$$\lambda_H = \frac{.4556}{\left\{ \begin{matrix} M - 2.5 \\ W - 2.5 \\ A - 2.7 \end{matrix} \right\}} \times \left\{ \begin{matrix} 1.1390 \\ 1.1390 \\ 1.2301 \end{matrix} \right\} \times \left\{ \begin{matrix} M - 2 \\ V - 1 \\ A - 5 \end{matrix} \right\} \times \left\{ \begin{matrix} 2.0720 \\ 2.9730 \\ 6.1500 \end{matrix} \right\} \times .4 = \left\{ \begin{matrix} .912 \\ 3.12-2 \\ 2.4602 \end{matrix} \right\}$$

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

377688

ALC

$$\sum_{SP} \dots\dots\dots .0200$$

$$N_E = N_R + N_C + N_L + N_T/2$$

$$= \underline{19} + \underline{31} + \underline{24} + \underline{20.5} = \underline{94.5}$$

$$\lambda_C = .0105$$

$$A_S = .3925$$

$$A_S \lambda_C = \dots\dots\dots .0041$$

$$\lambda_{PF} \pi_{PF} = \dots\dots\dots .0300$$

$$\sum_{N_{RT} \lambda_{RT}} = \dots\dots\dots .0032$$

$$\sum_{N_Z \lambda_Z} = \dots\dots\dots 0$$

$$\sum_{N_Q \lambda_Q} = \dots\dots\dots .0330$$

$$\sum_{N_{CR} \lambda_{CR}} = \dots\dots\dots 0$$

$$\sum_{N_{CC} \lambda_{CC}} = \dots\dots\dots .0050$$

$$\sum_{\lambda_{DC} N_{DC}} = \sum N_Z \lambda_Z + \sum_{N_{CR} \lambda_{CR}} + \sum_{N_{CC} \lambda_{CC}} \dots\dots .0320$$

$$\sum_{N_{PR} \lambda_{PR}} \dots\dots\dots 0$$

$$\sum_{N_{PC} \lambda_{PC}} \dots\dots\dots .0027$$

$$\sum_{\lambda_{CP} N_{CP}} = \sum_{N_{PR} \lambda_{PT}} + N_{PC} \lambda_{PC} \dots\dots\dots .0027$$

$$\lambda_b = \sum_{SP} + A_S \lambda_C + \lambda_{PF} \pi_{PF} + \sum_{N_{RT}} \times \lambda_{RT} + \sum_{\lambda_{DC} N_{DC}} + \sum_{\lambda_{CP} N_{CP}} \dots\dots .0026$$

$$\lambda_H = \lambda_b (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6}$$

$$\lambda_H = \frac{.0986}{\left\{ \begin{matrix} M - 2.5 \\ W - 2.5 \\ A - 2.7 \end{matrix} \right\}} = \frac{\left\{ \begin{matrix} .2465 & M - 2 \\ .2465 & V - 7 \\ .2662 & A - 5 \end{matrix} \right\}}{.2662} = \frac{.4930}{1.334} \times .4 = \frac{.1972}{.5336}$$

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

377648

40.5 MHz IF AMP

$$\sum_{SP} \dots\dots\dots .0200$$

$$N_E = N_R + N_C + N_L + N_T/2$$

$$= \underline{10} + \underline{13} + \underline{7} + \underline{18} = \underline{48}$$

$$\lambda_C = .0105$$

$$A_C = .2815$$

$$A_S \lambda_C = \dots\dots\dots .0030$$

$$\lambda_{PF} \pi_{PF} = \dots\dots\dots .0300$$

$$\sum N_{RT} \lambda_{RT} = \dots\dots\dots .0020$$

$$\sum N_Z \lambda_Z = \dots\dots\dots 0$$

$$\sum N_Q \lambda_Q = \dots\dots\dots .0100$$

$$\sum N_{CR} \lambda_{CR} = \dots\dots\dots .0060$$

$$\sum N_{CC} \lambda_{CC} = \dots\dots\dots .0450$$

$$\sum \lambda_{DC} N_{DC} = \sum N_Z \lambda_Z + \sum N_{CR} \lambda_{CR} + \sum N_{CC} \lambda_{CC} \dots\dots .0610$$

$$\sum N_{PR} \lambda_{PR} \dots\dots\dots 0$$

$$\sum N_{PC} \lambda_{PC} \dots\dots\dots .4000$$

$$\sum \lambda_{CP} N_{CP} = \sum N_{PR} \lambda_{PT} + N_{PC} \lambda_{PC} \dots\dots\dots .4000$$

$$\lambda_b = \sum_{SP} + A_S \lambda_C + \lambda_{PF} \pi_{PF} + \sum N_{RT} \times \lambda_{RT} + \sum \lambda_{DC} N_{DC} + \sum \lambda_{CP} N_{CP} \dots\dots .5160$$

$$\lambda_H = \lambda_b (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6}$$

$$\lambda_H = \frac{.5160}{\left\{ \begin{matrix} M - 2.5 \\ W - 2.5 \\ A - 2.7 \end{matrix} \right\}} \times \frac{\left\{ \begin{matrix} 1.2400 & M - 2 \\ 1.2500 & V - T \\ 1.3932 & A - 5 \end{matrix} \right\}}{1.0000} \times \frac{1.0000}{2.7000} \times .4 = \frac{.5160}{2.7000} = .1911$$

HYBRID MICROCIRCUIT FAILURE RATE PREDICTION

3 7 7 6 9 9

40.5 MHz LIM. - 0.100

$$\sum SP \dots\dots\dots 0.200$$

$$N_E = N_R + N_C + N_L + N_T/2$$

$$= 13 + 21 + 9 + 23.5 = 66.5$$

$$\lambda_C = .0105$$

$$A_S = .204$$

$$A_S \lambda_C = \dots\dots\dots .0021$$

$$\lambda_{PF} \pi_{PF} = \dots\dots\dots .0007$$

$$\sum N_{RT} \lambda_{RT} = \dots\dots\dots .0026$$

$$\sum N_Z \lambda_Z = \dots\dots\dots .1920$$

$$\sum N_Q \lambda_Q = \dots\dots\dots .0050$$

$$\sum N_{CR} \lambda_{CR} = \dots\dots\dots .0075$$

$$\sum N_{CC} \lambda_{CC} = \dots\dots\dots .0600$$

$$\sum \lambda_{DC} N_{DC} = \sum N_Z \lambda_Z + \sum N_{CR} \lambda_{CR} + \sum N_{CC} \lambda_{CC} \dots\dots .2645$$

$$\sum N_{PR} \lambda_{PR} \dots\dots\dots$$

$$\sum N_{PC} \lambda_{PC} \dots\dots\dots .4000$$

$$\sum \lambda_{CP} N_{CP} = \sum N_{PR} \lambda_{PT} + N_{PC} \lambda_{PC} \dots\dots\dots .4000$$

$$\lambda_h = \sum SP + A_S \lambda_C + \lambda_{PF} \pi_{PF} + \sum N_{RT} \times \lambda_{RT} + \sum \lambda_{DC} N_{DC} + \sum \lambda_{CP} N_{CP} \dots\dots .7152$$

$$\lambda_H = \lambda_h (\pi_T \times \pi_E \times \pi_Q) \times 10^{-6}$$

$$\lambda_H = \frac{.7152}{\left(\frac{M - 2.5}{W - 2.5} \right)^{.17100} \left(\frac{M - 2}{V - T} \right)^{.3511} \left(\frac{A - 2.7}{A - 5} \right)^{.17100} \times .4} = \frac{.7152}{(1.7540)(1.7540)(1.7540)} \times .4 = \frac{.7152}{5.4000} = .1324$$

APPENDIX V

RADC AND MIL-HDBK-217B COMPUTATIONS

MIXER FAILURE RATE - MD6 ($\times 10^{-6}$)
 217A (7.4.11, 7.7.9)

8 SI Diodes $T_N = .457$ (MP, V) , .486 (A)

2 Transformers

MP	(8)	(.371)	(1.5)	+	(.2)	(1.5)	(2)	=	5.06
V	(8)	(.371)	(3.5)	+	(.2)	(10)	(2)	=	14.38
A	(8)	(.395)	(3.5)	+	(.2)	(10)	(2)	=	15.05

CRYSTAL FILTER FAILURE RATE ($\times 10^{-6}$)
 217A (7.12-3, 7.7.9)

376252, 376251, 376652

4 Crystals

2 Transformers

MP	(4)	(.02)	+	(2)	(.2)	(1.5)	=	.68
V	(4)	(.02)	+	(2)	(.2)	(10)	=	4.08
A	(4)	(.02)	+	(2)	(.2)	(10)	=	4.08

INTEGRATED MICROCIRCUIT FAILURE RATE PREDICTION

MICROCIRCUIT TCXO - 376153

- 1 A_S (Area of Circuit in Square Mils)
- 2 Number of Layers of Metalization
- 3 N (Number of Package Leads)
- 4 π_b (Base Failure Rate)
- 5 π_C (Complexity Factor)
- 6 π_Q (Quality Factor)
- 7 π_E (Environmental Factor)

$$\Sigma_M = \left\{ .023 \right\} \left\{ \right\}_1 \left\{ \right\}_2 / 2500 = \quad , A_S \geq 2500$$

$$= 0, A_S < 2500$$

$$\pi_{PC} = 2 + \left\{ \right\}_3 - 14 \left\{ \right\} \left\{ .04 \right\} = \quad , N > 14$$

$$= 2, N \leq 14$$

$$\lambda_{MCX} = \left\{ \begin{array}{l} (M) .0106 \\ (V) .0108 \\ (A) .0109 \end{array} \right\} \left\{ \right\}_4 \left\{ \right\}_5 \cdot \pi_{PC} \left\{ \right\}_6 \left\{ \right\}_7 \left\{ \begin{array}{l} (M) 2 \\ (V) 7 \\ (A) 5 \end{array} \right\} + \left\{ \right\}_7 (\Sigma_M) = \left\{ \begin{array}{l} (M) .3456 \\ (V) 1.2096 \\ (A) .9656 \end{array} \right\}$$

INTEGRATED MICROCIRCUIT FAILURE RATE PREDICTION

MICROCIRCUIT Divide By 20 - 376152

- 1 A_S (Area of Circuit in Square Mils)
- 2 Number of Layers of Metalization
- 3 N (Number of Package Leads)
- 4 π_b (Base Failure Rate)
- 5 π_C (Complexity Factor)
- 6 π_Q (Quality Factor)
- 7 π_E (Environmental Factor)

$$\Sigma_M = \left\{ .023 \right\} \left\{ \right\} \left\{ \right\} / 2500 = \quad , A_S \geq 2500$$

$$= 0, A_S < 2500$$

$$\pi_{PC} = 2 + \left\{ \right\} - 14 \left\{ \right\} \left\{ .04 \right\} = \quad , N > 14$$

$$= 2, N \leq 14$$

$$\lambda_{MCX} = \left\{ \begin{matrix} (M) \\ (V) \\ (A) \end{matrix} \right\} \left\{ \begin{matrix} 5 \\ 5 \end{matrix} \right\} \left\{ \begin{matrix} 2 \\ 2 \end{matrix} \right\} \left\{ \begin{matrix} (M) \\ (V) \\ (A) \end{matrix} \right\} \left\{ \begin{matrix} 2 \\ 7 \\ 5 \end{matrix} \right\} + \frac{C}{(\Sigma_M)} = \left\{ \begin{matrix} (M) \\ (V) \\ (A) \end{matrix} \right\} \left\{ \begin{matrix} .4 \\ 1 \\ 1.2 \end{matrix} \right\}$$

INTEGRATED MICROCIRCUIT FAILURE RATE PREDICTION

MICROCIRCUIT 377656

- 1 A_S (Area of Circuit in Square Mils)
- 2 Number of Layers of Metalization
- 3 N (Number of Package Leads)
- 4 π_b (Base Failure Rate)
- 5 π_C (Complexity Factor)
- 6 π_Q (Quality Factor)
- 7 π_E (Environmental Factor)

$$\Sigma_M = \{ .023 \} \{ \}_{1} \{ \}_{2} / 2500 = \quad , A_S \geq 2500$$

$$= 0, A_S < 2500$$

$$\pi_{PC} = 2 + \{ \}_{3} - 14 \{ \{ .04 \} \} = \quad , N > 14$$

$$= 2, N \leq 14$$

$$\lambda_{MCX} = \left\{ \begin{array}{l} (M) .0108 \\ (V) .0108 \\ (A) .01207 \end{array} \right\} \{ \{ 7 \} \{ \}_{5} \{ \}_{2} \{ \{ 2 \} \{ \}_{6} \} \left\{ \begin{array}{l} (M) 2 \\ (V) 7 \\ (A) 5 \end{array} \right\} \right\} + \frac{0}{(\Sigma_M)} = \left\{ \begin{array}{l} (M) .6048 \\ (V) 2.1168 \\ (A) 1.6898 \end{array} \right\}$$

INTEGRATED MICROCIRCUIT FAILURE RATE PREDICTION

MICROCIRCUIT 377657

- 1 A_S (Area of Circuit in Square Mils)
- 2 Number of Layers of Metalization
- 3 N (Number of Package Leads)
- 4 π_b (Base Failure Rate)
- 5 π_C (Complexity Factor)
- 6 π_Q (Quality Factor)
- 7 π_E (Environmental Factor)

$$\Sigma_M = \{ .023 \} \{ \{ \quad \} \} / 2500 = \quad , A_S \geq 2500$$

$$= 0, A_S < 2500$$

$$\pi_{PC} = 2 + \{ \quad - 14 \} \{ .04 \} = \quad , N > 14$$

$$= 2, N \leq 14$$

$$\lambda_{MC_X} = \left\{ \begin{matrix} (M) .0108 \\ (V) .0108 \\ (A) .01207 \end{matrix} \right\} \{ \{ \quad \} \} \{ \{ \quad \} \} \{ \{ \quad \} \} \left\{ \begin{matrix} (M) 2 \\ (V) 7 \\ (A) 5 \end{matrix} \right\} + \frac{0}{(\Sigma_M)} = \left\{ \begin{matrix} (M) .9504 \\ (V) 3.3264 \\ (A) 2.6554 \end{matrix} \right\}$$

INTEGRATED MICROCIRCUIT FAILURE RATE PREDICTION

MICROCIRCUIT 377658

- 1 A_S (Area of Circuit in Square Mils)
- 2 Number of Layers of Metalization
- 3 N (Number of Package Leads)
- 4 π_b (Base Failure Rate)
- 5 π_C (Complexity Factor)
- 6 π_Q (Quality Factor)
- 7 π_E (Environmental Factor)

$$\pi_M = \left\{ .023 \right\} \left\{ \right\} \left\{ \right\} / 2500 = \quad , A_S \geq 2500$$

$$= 0, A_S < 2500$$

$$\pi_{PC} = 2 + \left\{ \right\} - 14 \left\{ \right\} \left\{ .04 \right\} = \quad , N > 14$$

$$= 2, N \leq 14$$

$$\lambda_{MCX} = \left(\begin{array}{l} (M) .0108 \\ (V) .0108 \\ (A) .01207 \end{array} \right) \left\{ \right\} \left\{ 7 \right\} \left\{ \right\} \left\{ 2 \right\} \left\{ \right\} \left\{ 2 \right\} \left\{ \right\} \left(\begin{array}{l} (M) 2 \\ (V) 7 \\ (A) 5 \end{array} \right) + \left(\begin{array}{l} (M) .6048 \\ (V) 2.1168 \\ (A) 1.6898 \end{array} \right) = \left(\begin{array}{l} (M) .6048 \\ (V) 2.1168 \\ (A) 1.6898 \end{array} \right)$$

INTEGRATED MICROCIRCUIT FAILURE RATE PREDICTION

MICROCIRCUIT 377659

- 1 A_S (Area of Circuit in Square Mils)
- 2 Number of Layers of Metalization
- 3 N (Number of Package Leads)
- 4 π_b (Base Failure Rate)
- 5 π_C (Complexity Factor)
- 6 π_Q (Quality Factor)
- 7 π_E (Environmental Factor)

$$\Sigma_M = \left\{ .023 \right\} \left\{ \right\}_1 \left\{ \right\}_2 / 2500 = \quad , A_S \geq 2500$$

$$= 0, A_S < 2500$$

$$\pi_{PC} = 2 + \left\{ \right\}_3 \cdot 14 \left\{ .04 \right\} = \quad , N > 14$$

$$= 2, N \leq 14$$

$$\lambda_{MCX} = \left\{ \begin{matrix} (M) .0108 \\ (V) .0108 \\ (A) .01207 \end{matrix} \right\} \left\{ \right\}_4 \left\{ \right\}_5 \cdot \pi_{PC} \left\{ \right\}_6 \left\{ \right\}_7 \left\{ \begin{matrix} (M) 2 \\ (V) 7 \\ (A) 5 \end{matrix} \right\} + \frac{0}{(\Sigma_M)} = \left\{ \begin{matrix} (M) .6912 \\ (V) 2.4192 \\ (A) 1.9312 \end{matrix} \right\}$$

INTEGRATED MICROCIRCUIT FAILURE RATE PREDICTION

MICROCIRCUIT MC 14528AL

- 1 A_S (Area of Circuit in Square Mils)
- 2 Number of Layers of Metalization
- 3 N (Number of Package Leads)
- 4 π_b (Base Failure Rate)
- 5 π_C (Complexity Factor)
- 6 π_Q (Quality Factor)
- 7 π_E (Environmental Factor)

$$\Sigma_M = \left\{ .023 \right\} \left\{ \begin{matrix} 1 \\ 2 \end{matrix} \right\} / 2500 = \quad , A_S \geq 2500$$

$$= 0, A_S < 2500$$

$$\pi_{PC} = 2 + \left\{ \begin{matrix} 16 \\ 3 \end{matrix} - 14 \right\} \left\{ .04 \right\} = 2.08 , N > 14$$

$$= 2, N \leq 14$$

$$\lambda_{MCX} = \left\{ \begin{matrix} (M) \\ (V) .0108 \\ (A) \end{matrix} \right\} \left\{ \begin{matrix} 4 \\ 5 \end{matrix} \right\} \left\{ \begin{matrix} 2.08 \\ \pi_{PC} \end{matrix} \right\} \left\{ \begin{matrix} 2 \\ 6 \end{matrix} \right\} \left\{ \begin{matrix} (M) \\ (V) \\ (A) \end{matrix} \right\} \left\{ \begin{matrix} 7 \\ 7 \end{matrix} \right\} + \left\{ \begin{matrix} 0 \\ \Sigma_M \end{matrix} \right\} = \left\{ \begin{matrix} (M) \\ (V) 1.258 \\ (A) \end{matrix} \right\}$$

INTEGRATED MICROCIRCUIT FAILURE RATE PREDICTION

MICROCIRCUIT CA3020

- 1 A_S (Area of Circuit in Square Mils)
- 2 Number of Layers of Metalization.
- 3 N (Number of Package Leads)
- 4 π_b (Base Failure Rate)
- 5 π_C (Complexity Factor)
- 6 π_Q (Quality Factor)
- 7 π_E (Environmental Factor)

$$\Sigma_M = \left\{ .023 \right\} \left\{ \begin{matrix} 1 \\ 2 \end{matrix} \right\} / 2500 = \quad , A_S \geq 2500$$

$$= 0, A_S < 2500$$

$$\pi_{PC} = 2 + \left\{ \begin{matrix} 3 \\ -14 \end{matrix} \right\} \left\{ .04 \right\} = \quad , N > 14$$

$$= 2, N \leq 14$$

$$\lambda_{MC_X} = \left\{ \begin{matrix} (M) \\ (V) \\ (A) .0125 \end{matrix} \right\} \left\{ \begin{matrix} 4 \\ 5 \end{matrix} \right\} \cdot \pi_{PC} \left\{ \begin{matrix} 2 \\ 6 \end{matrix} \right\} \left\{ \begin{matrix} (M) \\ (V) \\ (A) \end{matrix} \right\} + \left(\Sigma_M \right) = \left\{ \begin{matrix} (M) \\ (V) \\ (A) .086 \end{matrix} \right\}$$

INTEGRATED MICROCIRCUIT FAILURE RATE PREDICTION

MICROCIRCUIT MC1590G1 A_S (Area of Circuit in Square Mils)

2 Number of Layers of Metalization

3 N (Number of Package Leads)4 π_b (Base Failure Rate)5 π_C (Complexity Factor)6 π_Q (Quality Factor)7 π_E (Environmental Factor)

$$\pi_M = \left\{ .023 \right\} \left\{ \begin{matrix} 1 \\ 2 \end{matrix} \right\} / 2500 = \quad , A_S \geq 2500$$

$$= 0, A_S < 2500$$

$$\pi_{PC} = 2 + \left\{ \begin{matrix} 3 \\ -14 \end{matrix} \right\} \left\{ .04 \right\} = \quad , N > 14$$

$$= 2, N \leq 14$$

$$\lambda_{MCX} = \left\{ \begin{matrix} (M) \\ (V) \\ (A) .01257 \end{matrix} \right\} \left\{ \begin{matrix} 4 \\ 5 \end{matrix} \right\} \left\{ .15 \right\} \left\{ \begin{matrix} 6 \\ 7 \end{matrix} \right\} \left\{ \begin{matrix} (M) \\ (V) \\ (A) \end{matrix} \right\} + \frac{\pi_C}{\pi_M} = \left\{ \begin{matrix} (M) \\ (V) \\ (A) 1.6254 \end{matrix} \right\}$$

INTEGRATED MICROCIRCUIT FAILURE RATE PREDICTION

MICROCIRCUIT

uc 749

- 1 A_S (Area of Circuit in Square Mils)
- 2 Number of Layers of Metalization
- 3 N (Number of Package Leads)
- 4 π_b (Base Failure Rate)
- 5 π_C (Complexity Factor)
- 6 π_Q (Quality Factor)
- 7 π_E (Environmental Factor)

$$\pi_M = \left\{ \begin{matrix} .023 \\ 1 \end{matrix} \right\} \left\{ \begin{matrix} \\ 2 \end{matrix} \right\} / 2500 = \quad , A_S \geq 2500$$

$$= 0, A_S < 2500$$

$$\pi_{PC} = 2 + \left\{ \begin{matrix} \\ 3 \end{matrix} \right\} - 14 \left\{ \begin{matrix} .04 \\ 4 \end{matrix} \right\} = \quad , N > 14$$

$$= 2, N \leq 14$$

$$\lambda_{MCX} = \left\{ \begin{matrix} (M) \\ (V) \\ (A) \end{matrix} \right\} .0044 \left\{ \begin{matrix} 9.4 \\ 5 \end{matrix} \right\} \pi_{PC} \left\{ \begin{matrix} 15 \\ 6 \end{matrix} \right\} \left\{ \begin{matrix} (M) \\ (V) \\ (A) \end{matrix} \right\} + \frac{\pi_M}{\pi_M} = \left\{ \begin{matrix} (M) \\ (V) \\ (A) \end{matrix} \right\} .0044$$

INTEGRATED MICROCIRCUIT FAILURE RATE PREDICTION

MICROCIRCUIT CA3026 And 30181 A_S (Area of Circuit in Square Mils)

2 Number of Layers of Metalization

3 N (Number of Package Leads)4 π_b (Base Failure Rate)5 π_C (Complexity Factor)6 π_Q (Quality Factor)7 π_E (Environmental Factor)

$$\pi_M = \left\{ \begin{matrix} .023 \\ 1 \end{matrix} \right\} \left\{ \begin{matrix} 2 \\ 2 \end{matrix} \right\} / 2500 = \quad , A_S \geq 2500$$

$$= 0, A_S < 2500$$

$$\pi_{PC} = 2 + \left\{ \begin{matrix} 3 \\ -14 \end{matrix} \right\} \left\{ \begin{matrix} .04 \end{matrix} \right\} = \quad , N > 14$$

$$= 2, N \leq 14$$

$$\lambda_{MCX} = \left\{ \begin{matrix} (M) \\ (V) .0044 \\ (A) \end{matrix} \right\} \left\{ \begin{matrix} 4 \\ 5 \end{matrix} \right\} \cdot 2 \cdot \left\{ \begin{matrix} 15 \\ 6 \end{matrix} \right\} \left\{ \begin{matrix} (M) \\ (V) .5 \\ (A) \end{matrix} \right\} + (\pi_M) = \left\{ \begin{matrix} (M) \\ (V) .26 - \\ (A) \end{matrix} \right\}$$

Form 2625

INTEGRATED MICROCIRCUIT FAILURE RATE PREDICTION

MICROCIRCUIT μ A 722

- 1 A_S (Area of Circuit in Square Mils)
- 2 Number of Layers of Metalization
- 3 N (Number of Package Leads)
- 4 π_b (Base Failure Rate)
- 5 π_C (Complexity Factor)
- 6 π_Q (Quality Factor)
- 7 π_E (Environmental Factor)

$$\Sigma_M = \left\{ \begin{matrix} .023 \\ 1 \end{matrix} \right\} \left\{ \begin{matrix} 2 \\ 2 \end{matrix} \right\} / 2500 = \quad , A_S \geq 2500$$

$$= 0, A_S < 2500$$

$$\pi_{PC} = 2 + \left\{ \begin{matrix} 2.4 - 14 \\ 3 \end{matrix} \right\} \left\{ \begin{matrix} .04 \\ 6 \end{matrix} \right\} = 2.4, N > 14$$

$$= 2, N \leq 14$$

$$\lambda_{MC_X} = \left\{ \begin{matrix} (M) \\ (V) \\ (A) \end{matrix} \right\} \left\{ \begin{matrix} .0044 \\ 4 \end{matrix} \right\} \left\{ \begin{matrix} 6 \\ 5 \end{matrix} \right\} \left\{ \begin{matrix} 2.4 \\ \pi_{PC} \end{matrix} \right\} \left\{ \begin{matrix} 15 \\ 6 \end{matrix} \right\} \left\{ \begin{matrix} (M) \\ (V) \\ (A) \end{matrix} \right\} \left\{ \begin{matrix} .5 \\ 7 \end{matrix} \right\} + \begin{matrix} 0 \\ (\Sigma_M) \end{matrix} = \left\{ \begin{matrix} (M) \\ (V) \\ (A) \end{matrix} \right\} \left\{ \begin{matrix} .4752 \\ \end{matrix} \right\}$$