



**Aerospace
Systems Division**

Parts Applications Analysis

RSST

NO.	REV. NO.
ATM 879	
PAGE <u>1</u>	OF <u>19</u>
DATE 5/28/70	

ATM 879 releases the Parts Applications Analysis for the Resettable Solid State Timer (RSST) into the Bendix documentation system. The major change between this document and corresponding documents as released by Gulston is the basic failure rate used in this ATM for the RCA CD4000 family of COS/MOS Fets. Bendix Reliability arrived at a more realistic failure rate in view of test data received from RCA from two separate tests. The major effect that this change has upon all related documentation is that the COS/MOS counters now have the highest probability of failure of any part used in the RSST.

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PARTS APPLICATION ANALYSIS

(SEMICONDUCTORS)

PROJECT: RSST
ASSEMBLY: _____

SUB ASSEMBLY: _____

DATE: 5/28/70
SCHEMATIC NO: CK 13877-001A

(Semiconductors)

CKT SYM NO.	TYPE DESIGNATION, SEMICONDUCTOR, POLARITY	M A N U F A C T U R E R	MAX. TEMP °C			AVG PWR DISSIPATION (mw)					POWER RATIO		MAXIMUM VOLTAGES				DIODE PIV		CIRCUIT FUNCTION or APPLI- CATION	PART SPECIAL ENVIRON- MENT (Define)	FOR RELIABILITY USE ONLY					
			A M B I E N T T _A	A C T U A L T _J	A C T U A L T _C	RATED AT					A C T U A L T _A	A C T U A L R A T E D T _A or T _C	V C B O R A T E D V	V C B A C T U A L V	V C R O R A T E D V	V C E A C T U A L V	R A T E D V	A C T U A L V			R A T E (%) / 1000 HRS	S O U R C E R A T E (%) / 1000 HRS (See below)	F A I L U R E R A T E (%) / 1000 HRS	T O T A L F A I L U R E R A T E (%) / 1000 HRS		
						25°C		A M B I E N T T _A	A C T U A L T _J	A C T U A L T _C															A C T U A L R A T E D T _A or T _C	
						A M B I E N T T _A	C A S E T _C																			
Q19	JAN TX 2N914		70	200	80	360	1200	247	521	3	.008	.012	40	10.5	15	4.5	5	4.5			A			.00009		
Q21														10.5		4.5		4.5			A			.00009		
Q18														0		0.6		0.6			A			.00009		
Q20														0		0.6		0.6			A			.00009		
Q16	JAN TX 2N2907A		70	200	80	400	1800	275	1234	24	.06	.09	60	3	60	3	5	0.6			A			.00009		
Q23										<1	.003	.004		8		8		0.6			A			.00009		
Q5										1	.003	.004		14		8		14		E-B Break Down	A			.00009		
Q17	JAN TX 2N2222A		70	175	80	500	1800	317	1140	1	.002	.003	75	14	40	14	6	0.6			A			.00009		
Q13											.002	.003		5		5		0.6			A			.00009		

18 FAILURE RATE SOURCE (See Column 23)
A Gulton C _____
B _____ D _____

19 NOTE: It is assumed the transient and peak power does not exceed the safe limit.

20 TOTAL FAILURE RATE _____ %/1000 HRS.

PARTS APPLICATION ANALYSIS

(SEMICONDUCTORS)

PROJECT: RSST
 ASSEMBLY: _____

SUB ASSEMBLY: _____

DATE: 5/28/70
 SCHEMATIC NO: CK 13877-001A

(Semiconductors)

CKT SYM NO.	TYPE DESIGNATION, SEMICONDUCTOR, POLARITY	M A N U F A C T U R E R	MAX. TEMP °C			AVG PWR DISSIPATION (mw)					POWER RATIO		MAXIMUM VOLTAGES				DIODE PIV		CIRCUIT FUNCTION OR APPLI- CATION	PART SPECIAL ENVIRON- MENT (Define)	FOR RELIABILITY USE ONLY															
			A M B I E N T T A	A C T U A L T J	A C T U A L H O T S P O T T C	RATED AT					A C T U A L T A	A C T U A L T C	A C T U A L R A T E D 25°C (Amb.or case)	A C T U A L R A T E D T A O F T C	V C B O R A T E D V	V C B A C T U A L V	V C E O R A T E D V	V C E A C T U A L V			R A T E D V	A C T U A L V	R A T E (%) /1000 HRS	S O U R C E (See below)	F A I L U R E R A T E (%) /1000 HRS	M U L T I P L I C A T I O N F A C T O R	T O T A L F A I L U R E R A T E (%) /1000 HRS									
						A M B I E N T T A	C A S E T A	C A S E T C	A M B I E N T T A	C A S E T A																		C A S E T C	A C T U A L R A T E D 25°C (Amb.or case)	A C T U A L R A T E D T A O F T C	V C B O R A T E D V	V C B A C T U A L V	V C E O R A T E D V	V C E A C T U A L V	R A T E D V	A C T U A L V
Q8	U 2154	AMEL	70	200	80	300	-	190	-	1	.003	.005	30	14	30	14	30	14			A			.00009												
Q22	Changed*to 2N2222A Transistor																																			
Q15	U 2154	AMEL	70	200	80	300	-	190	-	1	.003	.005		14		14		14			A			.00009												
* FAILURE RATE SOURCE (See Column 23) A <u>Gulton</u> C _____ B _____ D _____										NOTE: It is assumed the transient and peak power does not exceed the safe limit.										TOTAL FAILURE RATE _____ %/1000 HRS.																

PARTS APPLICATION ANALYSIS

(SEMICONDUCTORS)

PROJECT: RSST
 ASSEMBLY: _____

SUB ASSEMBLY: _____

DATE: 5/28/70
 SCHEMATIC NO: CK 13877-001A

(Semiconductors)

CKT SYM NO.	TYPE DESIGNATION, SEMICONDUCTOR, POLARITY	M A N U F A C T U R E R	MAX. TEMP °C			AVG PWR DISSIPATION (mw)						POWER RATIO		MAXIMUM VOLTAGES				DIODE PIV		CIRCUIT FUNCTION or APPLI- CATION	PART SPECIAL ENVIRON- MENT (Define)	FOR RELIABILITY USE ONLY									
			A M B I E N T T _A	A C T U A L T _J	J U N C T I O N T _C	C A S E T _C	RATED AT						A C T U A L RATED 25°C Amb.or case)	A C T U A L RATED T _A or T _C	V C B O R A T E D V	V C B A C T U A L V	V C E O R A T E D V	V C E A C T U A L V	R A T E D V			A C T U A L V	R A T E	F A I L U R E R A T E (%/1000 HRS)	S O U R C E (See below)	F U L T I M E R R A T E (%/1000 HRS)	T O T A L F A I L U R E R A T E (%/1000 HRS)				
							25°C																					A C T U A L	A M B I E N T T _A	A C T U A L T _C	A C T U A L C A S E
							A M B I E N T T _A	A C T U A L T _J	J U N C T I O N T _C	C A S E T _C	A C T U A L	A M B I E N T T _A																			
CR4	JAN1N3595		70	150	80	500		280		1	.002	.004					125	14			A			.00005							
CR1										1											A			.00005							
CR26										1											A			.00005							
CR27										1											A			.00005							
CR28										1											A			.00005							
CR29										1											A			.00005							
CR30										1											A			.00005							
CR31										1											A			.00005							
CR32										1											A			.00005							

20 FAILURE RATE SOURCE (See Column 23)
 A Gulton C _____
 B _____ D _____

NOTE: It is assumed the transient and peak power does not exceed the safe limit.

20 TOTAL FAILURE RATE _____ %/1000 HRS.

PARTS APPLICATION ANALYSIS

(SEMICONDUCTORS)

PROJECT: _____
 ASSEMBLY: _____

SUB ASSEMBLY: _____

DATE: 5/28/70
 SCHEMATIC NO: CK 13877-001A

(Semiconductors)

CKT SYM NO.	TYPE DESIGNATION, SEMICONDUCTOR, POLARITY	M A N U F A C T U R E R	MAX. TEMP °C			AVG PWR DISSIPATION (mw)				POWER RATIO		MAXIMUM VOLTAGES				DIODE PIV		CIRCUIT FUNCTION or APPLI- CATION	PART SPECIAL ENVIRON- MENT (Define)	FOR RELIABILITY USE ONLY					
			A M B I E N T T _A	J U N C T I O N T _J	C A S E H O T S P O T T _C	RATED AT				A C T U A L R A T E D 25°C <small>(Amb. or case)</small>	A C T U A L R A T E D T _A or T _C	V C B O R A T E D V	V C B A C T U A L V	V C E O R A T E D V	V C E A C T U A L V	R A T E D V	A C T U A L V			R A T E 	F A I L U R E R A T E (%/1000 HRS)	S O U R C E <small>(See below)</small>	F A I L U R E R A T E (%/1000 HRS)	P E R T Y P E	T O T A L F A I L U R E R A T E (%/1000 HRS)
						35°C	A M B I E N T T _A	C A S E T _C	A C T U A L T _A																
CR33	JAN 1N3595		70	150	80	500	280	1	.022	.004					125	14			A			.00005			
CR34								1											A			.00005			
CR35								1											A			.00005			
CR36								1											A			.00005			
CR37								1											A			.00005			
CR38								1											A			.00005			
CR39								1											A			.00005			
CR40								1											A			.00005			
CR41								1											A			.00005			

22 FAILURE RATE SOURCE (See Column 23)
 A Gulton C _____
 B _____ D _____

23 NOTE: It is assumed the transient and peak power does not exceed the safe limit.

24 TOTAL FAILURE RATE _____ %/1000 HRS.

PARTS APPLICATION ANALYSIS

(SEMICONDUCTORS)

PROJECT: RSST
 ASSEMBLY: _____

SUB ASSEMBLY: _____

DATE: 5/28/70
 SCHEMATIC NO: CK13877-001A

(Semiconductors)

CKT SYM NO.	TYPE DESIGNATION, SEMICONDUCTOR, POLARITY	MANUFACTURER	MAX. TEMP °C			AVG PWR DISSIPATION (mw)					POWER RATIO		MAXIMUM VOLTAGES				DIODE PIV		CIRCUIT FUNCTION or APPLICATION	PART SPECIAL ENVIRONMENT (Define)	FOR RELIABILITY USE ONLY						
			AMBIENT TA	JUNCTION TJ	CASE TC	RATED AT					ACTUAL RATED 35°C Amb. or case	ACTUAL RATED TA or TC	VCBO RATED	VCB ACTUAL	VCEO RATED	VCE ACTUAL	RATED	ACTUAL			RATE (%/1000 HRS)	SOURCE	MULTIPLIER	FAILURE RATE (%/1000 HRS)	TOTAL COUNT	TOTAL FAILURE RATE (%/1000 HRS)	
						35°C		AMBIENT TA	CASE TC	ACTUAL																	CASE TC
						A	C																				
CR12	JAN TX 1N914		70	175	80	250		168	5	.004	.006					75	14			A				.00005			
CR18									1								0.6			A				.00005			
CR19									1								0.6			A				.00005			
CR20									2.5	.01	.015						0.6			A				.00005			
CR21									1	.004	.006						0.6			A				.00005			
CR22									1								0.6			A				.00005			
CR23									2.5	.01	.015						0.6			A				.00005			
CR2									1	.004	.006						0.6			A				.00005			
																				A				.00005			

23 FAILURE RATE SOURCE (See Column 23)
 A Gulton C _____
 B _____ D _____

24 NOTE: It is assumed the transient and peak power does not exceed the safe limit.

25 TOTAL FAILURE RATE _____ %/1000 HRS.

PARTS APPLICATION ANALYSIS

(SEMICONDUCTORS)

PROJECT: RSST
 ASSEMBLY: _____

SUB ASSEMBLY: _____

DATE: 5/28/70
 SCHEMATIC NO: CK13877-001A

(Semiconductors)

CKT SYM NO.	TYPE DESIGNATION, SEMICONDUCTOR, POLARITY	M A N U F A C T U R E R	MAX. TEMP °C			AVG PWR DISSIPATION (mw)					POWER RATIO		MAXIMUM VOLTAGES				DIODE PIV		CIRCUIT FUNCTION OR APPLI- CATION	PART SPECIAL ENVIRON- MENT (Define)	FOR RELIABILITY USE ONLY																				
			A M B I E N T T _A	J U N C T I O N T _J	C A S E H O T S P O T T _C	RATED AT					A C T U A L R A T E D 25°C (Ambior case)	A C T U A L R A T E D T _A OR T _C	V C B O R A T E D V	V C B A C T U A L V	V C E O R A T E D V	V C E A C T U A L V	R A T E D V	A C T U A L V			R A T E D %	S O U R C E R A T E (See below)	F A I L U R E R A T E (%/1000 HRS)	F I L T R A L R A T E (%/1000 HRS)	P E R T O U R N A L R A T E (%/1000 HRS)	T O T A L F A I L U R E R A T E (%/1000 HRS)															
						A M B I E N T T _A	C A S E T _C	A M B I E N T T _A	A C T U A L T _A	C A S E T _C																	A C T U A L T _C	A C T U A L	A C T U A L	A C T U A L	A C T U A L	A C T U A L	A C T U A L	A C T U A L	A C T U A L	A C T U A L	A C T U A L	A C T U A L	A C T U A L	A C T U A L	A C T U A L
CR51	JAN 1N3595		70	150	80	500	280	1	.002	.004						125	14			A				.00005																	
CR40								1												A				.00005																	
CR5								1												A				.00005																	
CR50				175		250	168	1	.004	.006						75	0.6			A				.00005																	
CR9								1									0.6			A				.00005																	
CR10								1									0.6			A				.00005																	
CR11								1									0.6			A				.00005																	
CR15								1									14			A				.00005																	
CR16								1									14			A				.00005																	

20 FAILURE RATE SOURCE (See Column 23)
 A Gulton C _____
 B _____ D _____

20 NOTE: It is assumed the transient and peak power does not exceed the safe limit.

20 TOTAL FAILURE RATE _____ %/1000 HRS.

PARTS APPLICATION ANALYSIS

CAPACITORS

PROJECT: RSST
 ASSEMBLY: _____

SUBASSEMBLY: _____

DATE: 5/28/70
 SCHEMATIC NO: CK-13877-001A

(Capacitors)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
CIRCUIT SYMBOL NUMBER	TYPE DESIGNATION (MIL OR MFR) CONSTRUCTION	MANUFACTURER	CAPACITANCE VALUE MFD	TOLERANCE %	MANUFACTURER'S RATED VOLTAGE	OPERATING VOLTAGE	VOLTAGE RATED/OPERATING RATED	MAXIMUM DUTY CYCLE	BULK AIR TEMPERATURE (°C)	CIRCUIT FUNCTION OR APPLICATION	BASIC FAILURE RATE (R/1000 HRS)	FAILURE RATE SOURCE	SPECIAL ENVIRONMENT (DEFINE)	FAILURE RATE MULTIPLIER	FINAL FAILURE RATE	TOTAL CAPACITOR COUNT PER TYPE	TOTAL FAILURE RATE (R/1000 HRS)		
C1	CSR13E107M		100	20	20	14	14	0.7	100	80		A					.000008		
C2	↓		100			14	14	0.7				A					.000008		
C3	CSR13E106M		10			1.2	1.2	0.6				A					.000008		
C4	↓		10			6	6	0.3				A					.000008		
C5	HRDM-10-62F	ELMEN	62PF	5	300	14	14	0.47				A					.000023		
C7	HRDM-20-332F		.0033			12	12	0.4				A					.000023		
C8	HRDM-20-332F		.0033			12	12	0.4				A					.000023		
C9	CAR06BX103K	ABRO	.01	10	200	14	14	0.7				A					.000005		
C10	CKR12BX471K		470PF	10	100	1	1	0.1				A					.000005		
C11	↓		470PF			1	1	0.1				A					.000005		
C12	CKR12BX102K		.001			14	14	14				A					.000005		
											FOR USE OF RELIABILITY ENGINEER								
20											21					22			
FAILURE RATE SOURCES (FOR COLUMN #14)											CALCULATED MTBF _____ HRS					TOTAL FAILURE RATE _____ R/1000 HRS			
A <u>Gulton</u> B _____																			
C _____ D _____																			

PARTS APPLICATION ANALYSIS

RESISTORS

PROJECT: RSST

DATE: 5/28/70

ASSEMBLY: _____

SUB ASSEMBLY: _____

SCHEMATIC NO: CK-13877-001A

(Resistor(s))

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21									
CIRCUIT SYMBOL NUMBER	TYPE DESIGNATION (ALL OR PART OF CONSTRUCTION)	MANUFACTURER	RESISTANCE VALUE (OHMS)	TOLERANCE (%)	POWER RATING (WATTS)	MAXIMUM OPERATING POWER (WATTS)	POWER RATIO OPERATING RATED	MAXIMUM DUTY CYCLE	BULK AIR TEMPERATURE °C	CIRCUIT FUNCTION OR APPLICATION	BASIC FAILURE RATE (%/1000 HRS) AT 25°C (SEE BELOW)	SPECIAL ENVIRONMENTS (DIPPING)	FAILURE RATE MULTIPLIER	FINAL FAILURE RATE (%/1000 HRS)	TOTAL RESISTOR COUNT PER TYPE	TOTAL FAILURE RATE (%/1000 HRS)													
R51	RNR55C2001F	MEPCO	2K	1	0.1	.013	.13	100	80		A						.000008												
R58	↓		2K			.013	.13				A						.000008												
R52	RNR55C1212F		12.1K			.016	.16				A						.000008												
R54	↓		12.1K			.016	.16				A						.000008												
R1	RER60FS6R2F	DALE	56.2	1	4.0	.008	.002				A						.000007												
R42	RCR07G-J	A. B.	6.2K	5	0.2	.008	.04				A						.000005												
R43			6.2K			.008	.04				A						.000005												
R44			75			.005	.025				A						.000005												
R47			3K			.003	.015				A						.000005												
R48			3K			.003	.015				A						.000005												
R49			510			.033	.165				A						.000005												
R59			9.1K			.001	.005				A						.000005												
R60			100K			.002	.01				A						.000005												
R53			SEL			.001	.005				A						.000005												
R55			SEL			.001	.005				A						.000005												
R62			510			.001	.005				A						.000005												
R57			24K			.013	.065				A						.000005												
R6	↓		510			.001	.005				A						.000005												
19. FAILURE RATE SOURCES (FOR COLUMN #14) A <u>Gulton</u> B _____ C _____ D _____										20. CALCULATED MTBF _____ HRS										21. TOTAL FAILURE RATE _____ %/1000 HRS									

PARTS APPLICATION ANALYSIS

RESISTORS

PROJECT: RSST
 ASSEMBLY: _____

SUB ASSEMBLY: _____

DATE: 5/28/70
 SCHEMATIC NO: CK-13877-001A

(Resistors)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
CIRCUIT SYMBOL NUMBER	TYPE DESIGNATION (MIL OR MFR) AND CONSTRUCTION	MANUFACTURER	RESISTANCE VALUE (OHMS)	TOLERANCE (%)	POWER RATING (WATTS)	MAXIMUM OPERATING POWER (WATTS)	POWER RATIO OPERATING/ RATED	MAXIMUM DUTY CYCLE	BULK AIR TEMPERATURE °C	CIRCUIT FUNCTION OR APPLICATION	BASIC FAILURE RATE (%/1000 HRS) AT 70°C (SEE BELOW)	SPECIAL ENVIRONMENTS (DEFINE)	FAILURE RATE MULTIPLIER	FINAL FAILURE RATE (%/1000 HRS)	TOTAL FAILURE COUNT PER TYPE	TOTAL FAILURE RATE (%/1000 HRS)	
R7	RCR07G-J	A. B.	12K	5	0.2	.003	.015	100	80		A					.000005	
R9			75K			.001	.005				A					.000005	
R10			75K			.001					A					.000005	
R18			51K			.001					A					.000005	
R19			51K			.001					A					.000005	
R11			150K			.001					A					.000005	
R12			150K			.001					A					.000005	
R17			51K			.001					A					.000005	
R20			200K			.001					A					.000005	
R21			200K			.001					A					.000005	
R22			5.1K			.010	.05				A					.000005	
R23			5.1K			.010	.05				A					.000005	
R24			100K			.002	.01				A					.000005	
R25			100K			.002	.01				A					.000005	
R26			51K			.001	.005				A					.000005	
R27			100K			.002	.01				A					.000005	
R28			51K			.001	.005				A					.000005	
R29	✓		75K			.001	.005				A					.000005	

FOR USE OF RELIABILITY DEPT

19. FAILURE RATE SOURCES (FOR COLUMN #14)
 A Gulton B _____
 C _____ D _____

20. CALCULATED MTBF _____ HRS

21. TOTAL FAILURE RATE _____ %/1000 HRS

PARTS APPLICATION ANALYSIS

RESISTORS

PROJECT: RSST
ASSEMBLY: _____

SUB ASSEMBLY: _____

DATE: 5/28/70
SCHEMATIC NO: CK-13877-001A

(Resistors)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
CIRCUIT SYMBOL NUMBER	TYPE DESIGNATION (MFR OR MFR) AND CONSTRUCTION	MANUFACTURER	RESISTANCE VALUE (OHMS)	TOLERANCE (%)	POWER RATING (WATTS)	MAXIMUM OPERATING POWER (WATTS)	POWER RATIO OPERATING/ RATED	MAXIMUM DUTY CYCLE	BULK AIR TEMPERATURE °C	CIRCUIT FUNCTION OR APPLICATION	BASIC FAILURE RATE (%/1000 HRS) AT 70°C (SEE BELOW)	SPECIAL ENVIRONMENTS (DEFINE)	FAILURE RATE MULTIPLIER	FINAL FAILURE RATE (%/1000 HRS)	TOTAL RESISTOR COUNT PER TYPE	TOTAL FAILURE RATE (%/1000 HRS)	
R30	RCR07E-J	A. B.	75K	5	0.2	.001	.005	100	80		A					.000005	
R31			150K			.001	.005				A					.000005	
R32			150K			.001	.005				A					.000005	
R33			100K			.002	.01				A					.000005	
R34			100K			.002	.01				A					.000005	
R35			51K			.001	.005				A					.000005	
R38			75K			.001	.005				A					.000005	
R39			75K			.001	.08				A					.000005	
R40			150K			.001	.005				A					.000005	
R41			150K			.001	.005				A					.000005	
R2			51K			.001	.005				A					.000005	
R3			100K			.001	.005				A					.000005	
R13			5.1K			.007	.035				A					.000005	
R14			3K			.065*	.325		*During Test		A					.000005	
R4			51K			.001	.005				A					.000005	
R5			100K			.001	.005				A					.000005	
R15			5.1K			.007	.035				A					.000005	
R16	↓		3K			.065*	.325		*During Test		A					.000005	
19. FAILURE RATE SOURCES (FOR COLUMN #14)										20. CALCULATED MTBF _____ HRS				21. TOTAL FAILURE RATE _____ %/1000 HRS			
A. <u>Gulton</u> B. _____																	
C. _____ D. _____																	

PARTS APPLICATION ANALYSIS

(CONNECTORS)

PROJECT: RSST
ASSEMBLY: _____

SUB ASSEMBLY: _____

DATE: 5/28/70
SCHEMATIC NO: CK-13877-001A

Connectors

CIRCUIT, REF. DESIGNATION	TYPE DESIGNATION (C/C, MIL OR MFR) AND CONSTRUCTION	MANUFACTURER	PINS											AMEN- ENT TEMP °C	INSERT MATL	GUIDE	NO. OF INSERTIONS DURING LIFE	MISCELLANEOUS REMARKS	F.A.I.L.U.R.E RATE %/1000 Hours (See 24)	S.O.U.R.C.E OF F.R. (See 24)	F.R. MODIFIER	TOTAL FAILURE RATE (%/1000 Hours)								
			NUMBER		CURRENT		VOLTAGE						TEMP °C										INSERT MATL	GUIDE	NO. OF INSERTIONS DURING LIFE	MISCELLANEOUS REMARKS	F.A.I.L.U.R.E RATE %/1000 Hours (See 24)	S.O.U.R.C.E OF F.R. (See 24)	F.R. MODIFIER	TOTAL FAILURE RATE (%/1000 Hours)
			TOTAL	ACTIVE	RATED	ACTUAL		BETWEEN PINS		ACROSS THE CONTACT																				
4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22												
J1	MD53-00E-12-37P	MICRODOT	37	23	2	230	0.0	300	14	14	.1	.1	80		ALUM	50			A	.00001										
23	REQUIRED LIFE HOURS	24 FAILURE RATE SOURCES (FOR COLUMN 20) A _____ B _____ C _____ D _____											25 CALCULATED MTDZ _____ HOURS			26	TOTAL FAILURE RATE _____ %/1000 HOURS													

PARTS APPLICATION ANALYSIS

(RELAYS)

PROJECT: RSST

DATE: 5/28/70

ASSEMBLY: _____ SUB ASSEMBLY: _____

SCHEMATIC NO: CK-13877-001A

(Relays)

1 CIRCUIT REFER- ENCE DESIG- NATION	2 TYPE DESIGNATION (CEC, MIL OR MFR) AND CONSTRUCTION	3 MANUFACTURER	CONTACT LOAD							10 TYPE OF LOAD	RELAY COIL						19 MISCELLA- NEOUS REMARKS	20 B F A I L U R E R E M A R K (%/1000 HRS)	21 S O F T W A R E (SEE BE- LOW)	22 F M O D I F I E R	23 TOTAL FAILURE RATE (%/1000 HOURS)	
			RATED		ACTUAL				11 T O T A L		12 A C T I V E	POWER		VOLTAGE		17 R A T E O F O P E R A T I O N S P E R H O U R O R S E C O N D						18 R E Q D L I F E O P E R A T I O N S
			4 V O L T A G E	5 C U R R E N T	VOLTAGE		CURRENT					13 M A X R A T E D	14 A C T U A L	15 M A X M I N I M U M	16 O P E R A T I O N S							
					6 S T E A D Y S T A T E	7 P E A K	8 S T E A D Y S T A T E	9 S U R G E														
K1	421-3104	TELE	2.8	0.5	---	---	---	---	---	1	1	57.44	47.8	9	0	1	LATCH		A	.0002		
24 DEVICE AVERAGE AMBIENT TEMPERATURE °C	25 FAILURE RATE SOURCES (FOR COLUMN NO. 21)		26 CALCULATED MTBF _____ HOURS									27 TOTAL FAILURE RATE _____ %/1000 HRS										
	A <u>Gulton</u> B _____																					
	C _____ D _____																					

BS-321 A

PARTS APPLICATION ANALYSIS

(MISC. PARTS)

PROJECT: RSST
 ASSEMBLY: _____

SUB ASSEMBLY: _____

DATE: 5/28/70
 SCHEMATIC NO: CK-13877-001A

(Misc. Parts)

CIRCUIT SYMBOL NUMBER	TYPE DESIGNATION (CEC, MIL OR MFR) and CONSTRUCTION	M A N U F A C T U R E R	TEMPERATURE RANGE		ELECTRICAL STRESS		PERCENT DUTY CYCLE	MAJOR CHARACTERISTICS and APPLICATION	FOR RELIABILITY USE ONLY				
			MAX	MIN	RATED	USE			BASIC FAILURE RATE	SPECIAL ENVIRONMENT	FAILURE RATE	TOTAL FAILURE RATE	
			4°C	5°C	6 V	7 V			(%/1000 HOURS) at °C	(DEFINE)	MULTIPLIER	(%/1000 HOURS)	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
A2	E0078 DC4004	RCA	125	-55	15.0	13.4	100			B			.0048
A3										B			.0048
A4										B			.0048
A5										B			.0048
A6										B			.0048
A7										B			.0048
A8										B			.0048
A9										B			.0048
A10										B			.0048
15 FAILURE RATE SOURCES (FOR COLUMN 11) A. <u>Gulton</u> B. <u>RCA</u> C. _____ D. <u>MIL Std 217 Chart XXIV</u>								16 CALCULATED MTBF _____ HOURS		17 TOTAL FAILURE RATE _____ %/1000 HOURS			

DWG Form 9256

PARTS APPLICATION ANALYSIS

(MISC. PARTS)

PROJECT: RSST
ASSEMBLY: _____

SUB ASSEMBLY: _____

DATE: 5/28/70
SCHEMATIC NO: CK-13877-001A

(Misc. Parts)

CIRCUIT SYMBOL NUMBER	TYPE DESIGNATION (CEC, MIL OR MFR) and CONSTRUCTION	MANUFACTURER	TEMPERATURE RANGE		ELECTRICAL STRESS		PERCENT DUTY CYCLE	MAJOR CHARACTERISTICS and APPLICATION	FOR RELIABILITY USE ONLY				
			MAX	MIN	RATED	USE			BASIC FAILURE RATE (%/1000 HOURS) at _____ °C (#18)	CORRECTION FACTOR (SEE #19)	PART SPECIAL ENVIRONMENT (DEFINE)	FAILURE RATE MULTIPLIER	TOTAL FAILURE RATE (%/1000 HOURS)
			4 °C	5 °C	6 V	7 V							
A11	E0078 CD4004†	RCA	125	-55	15.0	13.4	100			B			.0048
A1	CD4003												.0048
15 FAILURE RATE SOURCES (FOR COLUMN 11) A. <u>Gulton</u> B. <u>RCA</u> C. _____ D. <u>MIL Std 217 Chart XXIV</u>								16 CALCULATED MTBF _____ HOURS	17 TOTAL FAILURE RATE _____ %/1000 HOURS				

DPO Form 9258