

**DATA COMPRESSION/
ERROR CORRECTION
DIGITAL TEST SYSTEM**

APPENDIX 3

MAINTENANCE

BOOK 1

**TRANSMITTER
ASSEMBLY DRAWINGS**

JANUARY 1972

TABLE OF CONTENTS

<u>Paragraph</u>	<u>Title</u>	<u>Page</u>
A3-1.0	INTRODUCTION	1
A3-2.0	SYSTEM DESCRIPTION AND REFERENCE DESIGNATIONS	1
A3-3	Transmitter Assembly Drawings	6

A3-1.0 INTRODUCTION

This appendix to the DC/EC Digital Test System final report contains assembly drawings, logic schematics, and circuit schematics useful in maintaining the equipment. The drawings are organized in accordance with the reference designations of the hardware and are bound in 3 books. Book 1 is devoted to the Transmitter subsystem assembly drawings, Book 2 the Receiver subsystem assembly drawings and Book 3 the Logic and Circuit Schematics for the system.

A3-2.0 SYSTEM DESCRIPTION AND REFERENCE DESIGNATIONS

The system is divided into two units: Unit 1 - Transmitter and Unit 2 - Receiver. The transmitter unit consists of one rack of equipment containing the assemblies shown in assembly drawing 123914. This drawing contains views and reference designations of the transmitter and subassemblies.

The receiver unit consists of two racks of equipment containing the assemblies shown in assembly drawing 123915. This drawing contains views and reference designations of the receiver unit.

Table A3-2-1 is a list by reference designation of the logic and circuits contained in the transmitter unit. Table A3-2-2 is a list by reference designation of the logic and circuit contained in the receiver unit.

Table A3-2-1. Transmitter

Location	Assembly Print No.	Circuit Print No.	Function
A3A1A1	123918	528726	Buffer Rate Control Logic
A3A1A3	123916	528724	Reducer Logic
A3A1A4	123917	528725	Buffer Control Logic
A3A2A1	123919	528735	Sync Separator
A3A2A1	123919	529727	Multiplexer
A3A2A2	123922	528730	Amplitude Shaper
A3A2A3	123920	528728	Analog Circuit of Sync Separator
A3A2A4	123953	-	Reducer Switch Panel
A3A2A5		528799	Encoder Switch Panel
A3A2A6	123923	528731	Information Rate Timing
A3A2A6	123923	528729	Logic of Delta Modulator
A3A2A6	123923	528739	Logic of Sample Rate Timing
A3A2A7	123931	528739	Analog Circuit of Sample Rate Timing
A3A3A1	123924	528732	Output Buffer Amplifier
A3A3A2	123955	-	Noise Source
A3A3A3	123966	528734	Convolution Encoder
A3A3A4	123921	528729	Analog Circuit of Delta Modulator
A3A5A1	124899	531022	Statistical Encoder
A3A5A2	124898	531023	Statistical Encoder Rate Buffer

Table A3-2-2. Receiver

Location	Assembly Print No.	Circuit Print No.	Function
A8A1A1	125100	531025	TV Input Buffer Register
A8A1A2	123928	528736	Group Sync and Demultiplexer
A8A1A2	123928	528745	Logic of Delta Demodulator
A8A1A2	123928	528744	Logic of Sample Timing
A8A1A3	123937	528745	Analog Circuit of Delta Demodulator
A8A1A4	123936	528744	Analog Circuit of Sample Timing
A8A1A5	123938	-	D/A and Demux Switches
A8A1A6	123934	528742	Amplitude Shaper and Output Buffer
A8A1A7	123932	528740	Reconstructor
A8A1A8	123933	528741	Receive-Buffer Control - Group A
A8A1A9	123964	528792	Fano Branch Sync and Syndrome Generator
A8A1A10	123929	528737	TV Sync Generator
A8A1A11	124258	528741	Receiver Buffer Control - Group B
A8A1A13	123963	528797	Fano Memory I/O Logic
A8A1A14	123927	528789	Fano Switch Panel
A8A1A15	123948	528757	Fano Error Shift Register
A8A1A16	123949	528758	Fano Syndrome and Delay Registers

Table A3-2-2. Receiver (Continued)

Location	Assembly Print No.	Circuit Print No.	Function
A8A1A17	123959	528786	Fano Scratch Pad Memory
A8A1A18	123950	528759	Fano Scratch Pad Memory and Driver
A8A1A19	123951	528760	Fano Scratch Pad Memory Address
A8A1A20	123926	528791	Fano Metric Logic
A8A1A21	123958	528785	Fano Parity Logic
A8A1A22	123960	528787	Fano Computation Register
A8A2A1	123945	528754	Register Exchange Logic
A8A2A2	123945	528754	Register Exchange Logic
A8A2A3	123945	528754	Register Exchange Logic
A8A2A4	123945	528754	Register Exchange Logic
A8A2A5	123945	528754	Register Exchange Logic
A8A2A6	123943	528752	Majority Bit Decision
A8A2A7	123944	528753	Branch Synch
A8A2A8	123940	528748	Incremental Correlation Calculator
A8A3A1	123957	528784	SC Comparator A
A8A3A2	123941	528749	SC Comparator B
A8A3A3	123956	528783	SC Storage A
A8A3A4	123942	528751	SC Storage B
A8A3A5	123956	528783	SC Storage A
A8A3A6	123942	528751	SC Storage B

Table A3-2-2. Receiver (Continued)

Location	Assembly Print No.	Circuit Print No.	Location
A8A3A7	123957	528784	SC Comparator A
A8A3A8	123939	528747	Patch Function
A8A3A9	123957	528784	SC Comparator A
A8A3A10	123947	-	Switch Panel
A8A3A11	123957	528784	SC Comparator A
A8A3A12	123946	528755	Rescale Control
A8A3A13	123956	528783	SC Storage A
A8A3A14	123942	528751	SC Storage B
A8A3A15	123957	528784	SC Comparator A
A8A3A16	123942	528751	SC Storage B
A8A6A1	124899	531024	Statistical Decoder
A8A6A2	124899	531024	Decoder Interface
A9A1	123930	528738	Bit Comparator
A9A2	125112	531086	Quad Phase Mux

A3-3

Transmitter Assembly Drawings

This section contains the assembly drawings of the transmitter unit. Table A3-3-1 is the list of drawings in this section.

Table A3-3-1. Transmitter Assemblies

Title	Assembly No.
Test System Data Compression and Error Correction	123913
Transmitter Set	123914
Buffer Rate Control	123918
Reducer	123916
Buffer Control	123917
Multiplexer and Sync Separator	123919
Amplitude Shaper	123922
TV Sync Separator (Circuit)	123920
Reducer Switch Panel	123953
Statistical Encoder Rate Buffer	124898
Information Rate Timing	123923
Sample Rate Timing	123931
Output Buffer Amplifier	123924
Noise Generator	123955
Convolution Encoder	123966
Delta Modulator	123921
Statistical Encoder	124897

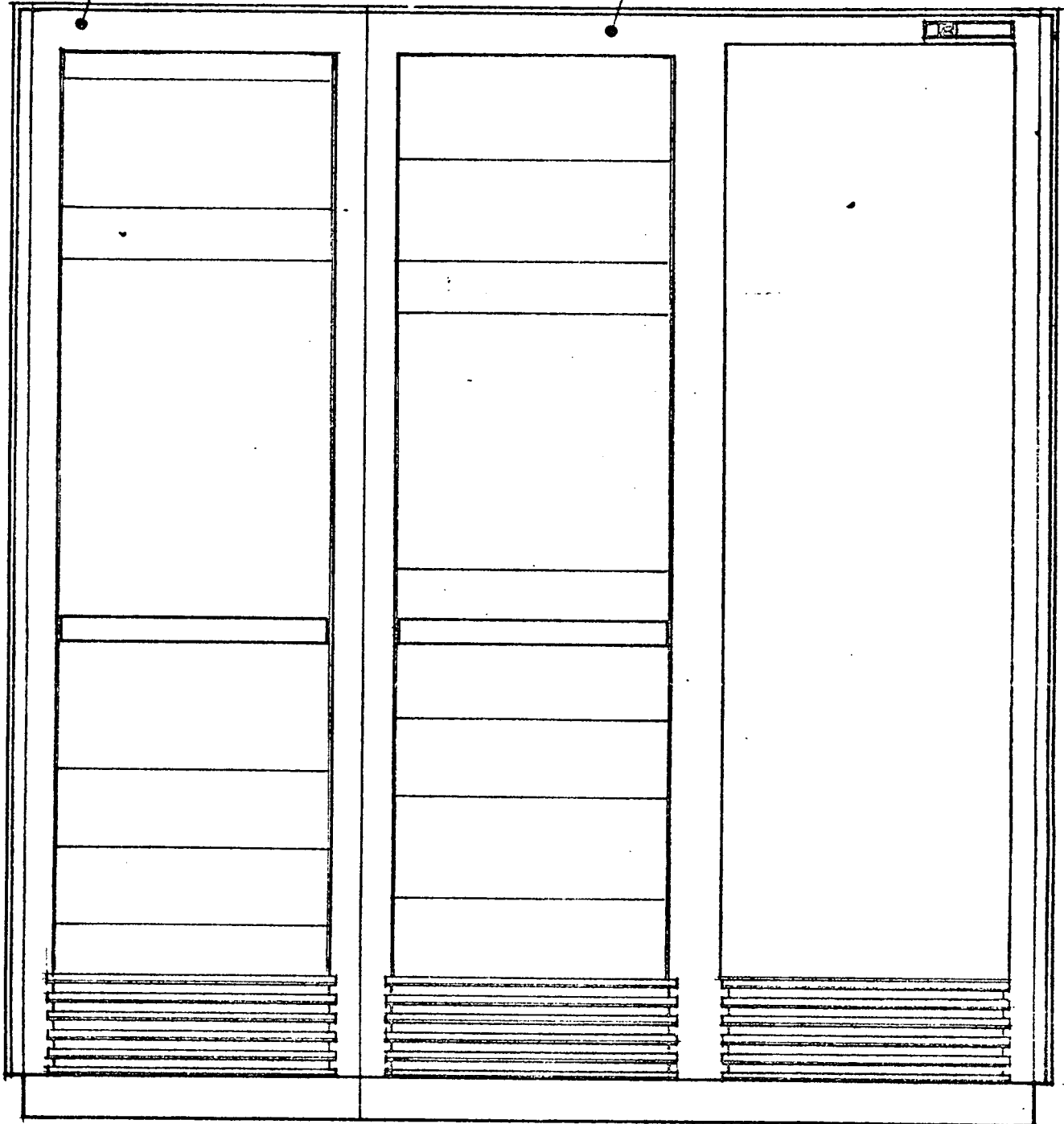
APPLICATION			REVISIONS				
DASH NO.	NEXT ASSY	USED ON	LTR	DESCRIPTION	DATE	APPROVED	
		1677-0304	A	CHG BY JRD 10/25/71	10/25/71		
				CHK BY	ECO NO.		
REV PER EDC							

ENGRG DEV

REVISION INDEX	SHEET /	REV																	
	2	A																	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE APPLIED FINISH TOLERANCES 2 PLACE 3 PLACE ANGLES ± ± ±			CONTRACT NO.		RADIATION INCORPORATED														
			DR BY JRD TO / F. BRIDGEMAN		CHK BY		SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA												
			ENGINEER C. Kaldenbach 12/7/70		PROJECT ENGINEER L. D. Howe 11/29/71		TITLE TEST SYSTEM, DATA COMPRESSION AND ERROR CORRECTION												
			APPROVAL		SIZE A		CODE IDENT NO. 91417		123913					REV A					
			APPROVAL		SCALE 3/32							SHEET 1 OF 2							

123914 G1
TRANSMITTER
SET - UNIT 1 - REF

123915 G1
RECEIVER
SET - UNIT 2 - REF



FRONT VIEW

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE CODE IDENT NO.

A

91417

123913

REV

SCALE 3/32

SHEET 2

REVISIONS

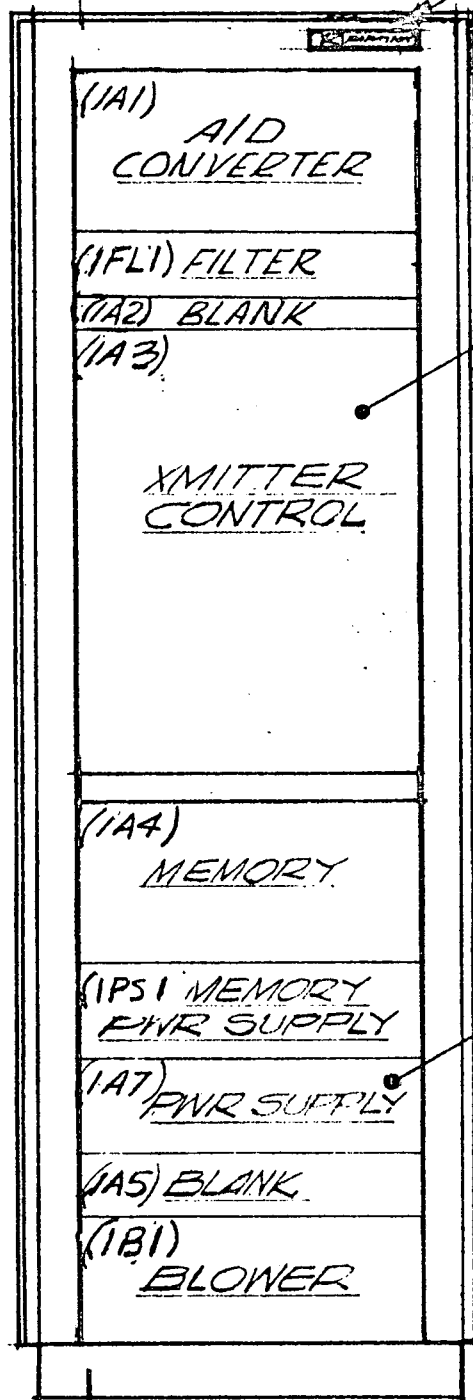
DASH NO.	NEXT ASSY	USED ON	LTR	DESCRIPTION	DATE	APPROVED
	123913	1677-0304	A	CHG BY: <i>see next</i>	10/24/71	<i>[Signature]</i>
				ECO NO.		
				REV PER EDC		

ENGRG DEV

[illegible]

SEE SHT ^A 3

BEZEL
106408-1
NAMEPLATE
106729-001



SEE VIEWS
A-D FOR
CONFIGURATION

SEE VIEW
E FOR
CONFIGURATION

FRONT VIEW

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE CODE IDENT NO.

A

91417

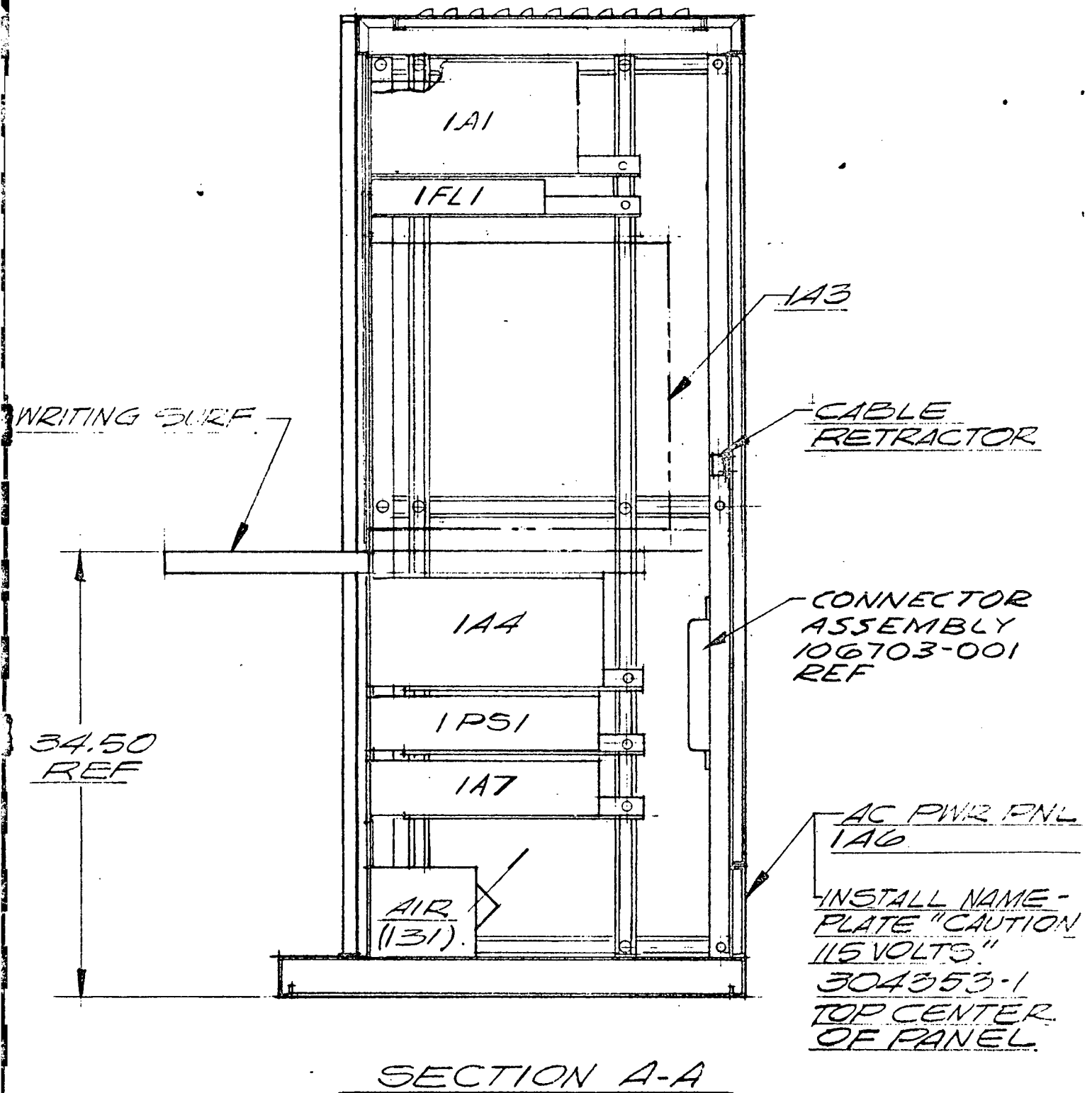
1239014

REV

H

SCALE 3/32

SHEET 2



RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE CODE IDENT NO.

A

91417

123914

REV

A

SCALE 3/32

SHEET 3

Reproduced from
best available copy.



1A3A1A1 ASSY: 123918 BUFFER CONTROL SCHEMATIC: 528726	1A3A1A2 (BLANK)
1A3A1A3 ASSY: 123916 REDUCER SCHEMATIC: 528724	
1A3A1A4 ASSY: 123917 TRANSMIT RATE BUFFER SCHEMATIC: 528725	

VIEW A
LEFT PLANE
1A3A1

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

123914

REV

1

SCALE

SHEET 4

(BLANK)	1A3A2A1 ASSY: 123919 SYNC SEPARATOR SCHEMATIC: 528735 MULTIPLEXER SCHEMATIC: 528727		
	1A3A2A2 ASSY: 123922 TRANSMIT VIDEO AMP SCHEMATIC: 528730	1A3A2A3 ASSY: 123920 SYNC SEP CKT SCH: 528728	1A3A2A4 ASSY: 123953 TV SWITCH PANEL
1A3A2A5 ASSY: 123954 ENCODER SW PANEL		1A3A2A6 ASSY: 123923 INFORMATION RATE TIMING SCHEMATIC: 528731 VOICE MODULATOR SCHEMATIC: 528729 SAMPLE RATE GENERATOR SCHEMATIC: 528739	
1A3A2A7 ASSY: 123931 SAMPLE RATE GENERATOR SCHEMATIC: 528739			

VIEW B
FRONT PLANE
1A3A2

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

REV

A

123914

SCALE

SHEET 5

1A3A3A1 ASSY: 123924 TRANSMIT OUTPUT BUFFER SCHEMATIC: 528732	1A3A3A2 ASSY: 123955 NOISE SOURCE SCHEMATIC:	(BLANK)
1A3A3A3 ASSY: 123966 CONVOLUTION ENCODER SCHEMATIC: 528734		(BLANK)
1A3A3A4 ASSY: 123921 VOICE MODULATOR CKT SCHEMATIC: 528729		(BLANK)

VIEW C
 RIGHT PLANE
 1A3A3

RADIATION INCORPORATED SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA	SIZE	CODE IDENT NO.	123914	REV
	A	91417		A
SCALE		SHEET 6		

<i>1A3A5A1</i>	<i>1A3A5A2</i>
<i>ASSY: 124899</i>	<i>ASSY: 124898</i>
<i>STATISTICAL</i>	<i>STATISTICAL</i>
<i>ENCODER</i>	<i>ENCODER</i>
	<i>RATE</i>
	<i>BUFFER</i>
<i>SCHEMATIC:</i>	<i>SCHEMATIC:</i>
<i>531022</i>	<i>531023</i>

VIEW D
BACK PLANE
1A3A5

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

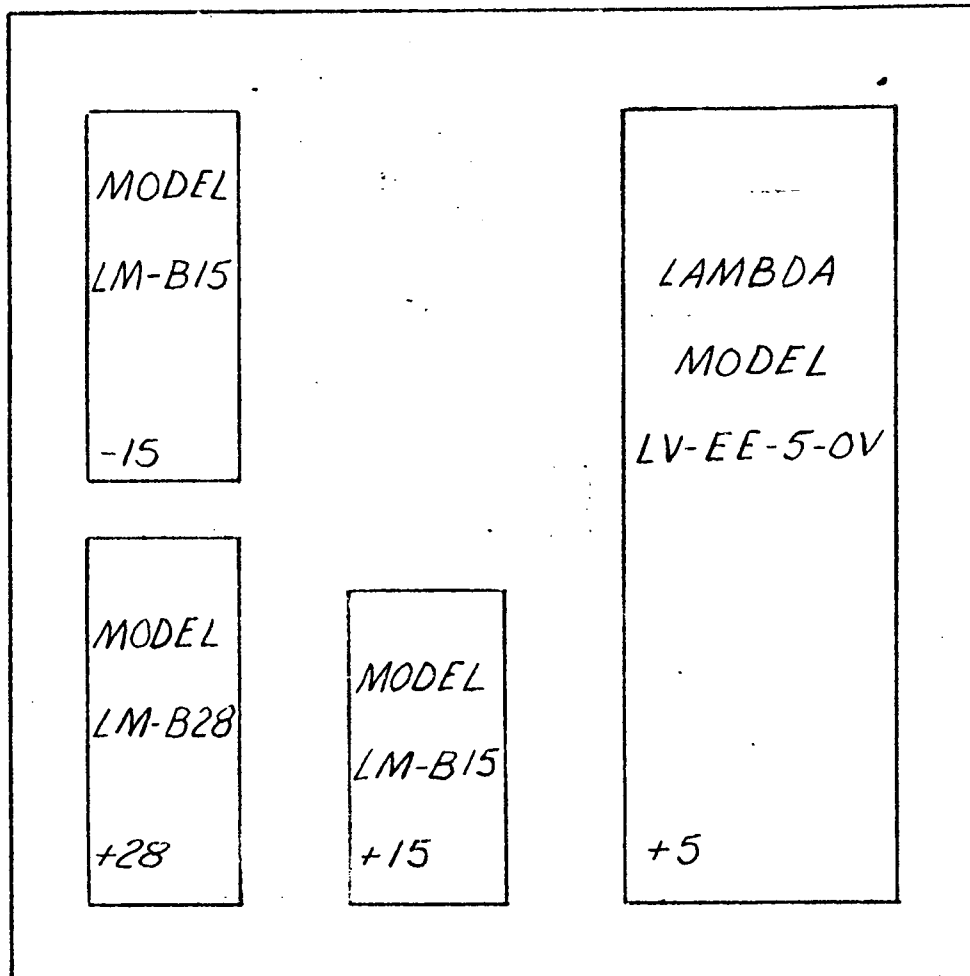
91417

REV

A**123914**

SCALE

SHEET **7**



VIEW E
POWER SUPPLY
AT

RADIATION INCORPORATED SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA	SIZE	CODE IDENT NO.	123914	REV
	A	91417		A
SCALE			SHEET 8	

ITEM	QTY PER ASSY LEVEL					DWG. SIZE	PART OR IDENTIFYING NO.	M P	NOMENCLATURE OR DESCRIPTION
	1	2	3	4	5				
1							1AD1206		A/D CONVERTER - MODEL 1AD1206 INTERCOMPUTER ELECTRONICS INC. 1A1
2	1								FILTER KROHN-HITE MODEL 3103R FL1
3	1						612925		TRANSMITTER CONTROL 1A3
									TRANSMITTER LOGIC DRAWER 1A3
									-LEFT PLANE-
5	1						123918		BUFFER CONTROL 1A3A1A1
6	1						123916		REDUCER 1A3A1A3
7	1						123917		TRANSMITTER RATE BUFFER 1A3A1A4
									-FRONT PLANE-
8	1						123919		SYNC SEPARATOR 1A3A2A1
9	1						123919		MULTIPLEXER 1A3A2A1
10	1						123922		TRANSMIT VIDEO AMP 1A3A2A2
11	1						123920		SYNC SEP CKT 1A3A2A3
12	1						123953		T.V. SWITCH PANEL 1A3A2A4
13	1						123954		ENCODER SW PANEL 1A3A2A5
14	1						123923		INFORMATION RATE TIMING 1A3A2A6
15	1						123923		VOICE MODULATOR 1A3A2A6
16	1						123923		SAMPLE RATE GENERATOR 1A3A2A6
17	1						123931		SAMPLE RATE GENERATOR 1A3A2A7
									-RIGHT PLANE-
18	1						123924		TRANSMITTER OUTPUT BUFFER 1A3A3A1
19	1						123955		NOISE SOURCE 1A3A3A2
20	1						123966		CONVOLUTION ENCODER 1A3A3A3
21	1						123921		VOICE MODULATOR 1A3A3A4
									-BACK PLANE-
22	1						124899		STATISTICAL ENCODER 1A3A5A1
23	1						124898		STATISTICAL ENCODER RATE BUFFER 1A3A5A2
24	1						MODEL 200		PLATED WIRE MEMORY SYSTEM MODEL 200, MEMORY SYSTEM, INC. 1A4
25	1						PS 200		MEMORY POWER SUPPLY MODEL PS 200 MEMORY SYSTEM, INC. PS1
26	1						306326		SYSTEM POWER SUPPLY 1A7
									+15 VDC MOD LM-B-15 LAMBDA 1A7
									-15 VDC MOD LM-B-15 LAMBDA 1A7

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

REV

A

SCALE

SHEET

9

123914

RADIATION INCORPORATED SUBSIDIARY OF HARRIS-INTERTECH CORPORATION, MELBOURNE, FLORIDA	SIZE A	CODE IDENT NO. 91417	123914	REV A
	SCALE		SHEET	10

NOTES:

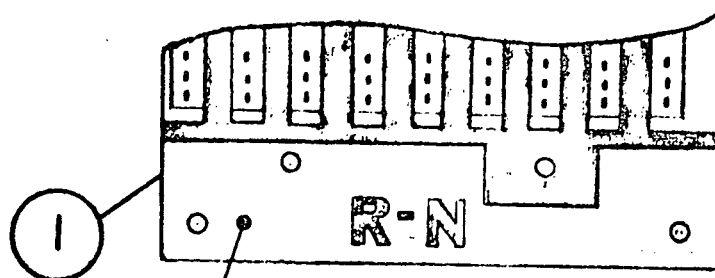
1. ALL MODULES ARE SHOWN WITH PIN 1 IN THE TOP LEFT CORNER IN ROWS A-J AND PIN 1 IN LOWER LEFT CORNER IN ROWS L AND K.
2. ITEMS NOT IDENTIFIED BY PART NUMBER OR FIND NUMBER IN FIELD OF DRAWING ARE IDENTIFIED BY REFERENCE DESIGNATION IN THE PARTS LIST.
3. ITEM 5, 22UF FILTER CAP, TO BE MOUNTED IN LOWER AREA ON WIRE-WRAP SIDE OF EACH GROUP BOARD. POSITIVE (+) LEAD OF CAP TO BE CONNECTED TO V-PIN, AND NEGATIVE (-) LEAD TO BE CONNECTED TO G-PIN. USE ITEMS 6 AND 7 TO INSTALL CAPACITOR.

RADIATION INCORPORATED SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA	SIZE	CODE IDENT NO.		REV
	A	91417	123918	6
SCALE		SHEET 2 of 11		

ITEM	ASSY LEVEL					DWG. SIZE	PART OR IDENTIFYING NO.	M P	NOMENCLATURE OR DESCRIPTION
	1	2	3	4	5				
1	1						WUB-36		PRINTED WIRING BOARD
2	PR						115235-003		WIRE, ELEC, SOLID, AWG 30 RED
3	PR						115235-001		WIRE, ELEC, SOLID, AWG 30 BLK
4	PR						115235-010		WIRE, ELEC, SOLID, AWG 30 WHT
5	3						150D226X005	B2	CAP FXD 22 μ f 15V $\pm$ 10% (M39003/0122)
6	PR						1M1422129-24		INSULATION TUBING, TEFLON 24 AWG
7	6						118203-001		CONTACT CRIMP COMPONENT
8	PR						SN60WRAP3		SOLDER Q.Q-S-571
9	RE						522726		LOGIC DIAGRAM
10	2						SN74H00		IC N4 H 01272
11	9						SN74S00		IC N4 S
12	6						SN74H01		IC N4 CC H
13	2						SN74H04		IC HEX INV. H
14	4						SN74S04		IC HEX INV. S
15	4						SN74H11		IC N3 H
16	7						SN74S20		IC N2 H
17	1						SN74H21		IC N2 H
18	3						SN74H30		IC N1 H
19	2						SN74S40		IC B2 S
20	3						SN74H51		IC DUAL, AC1-H
21	4						SN74H74		IC DD FF H
22	1						SN7486		IC XOR
23	3						SN74H103		IC DUAL JK FF H
24	4						SN74S112		IC DUAL JK FF S
25	1						SN7481		IC ALU
26	3						SN74193		IC 4 BIT UP/DOWN CNTR. 01192
27	32						117982-007		RES. 1K $\frac{1}{4}$ W $\pm$ 5% R1-R6, R8-R33
28	1						117982-004		RES. 150 Ω $\frac{1}{4}$ W $\pm$ 5% R7
29	9						117985-004		CAP. .028 μ f 50V $\pm$ 10% C-9
30	4								CAP. 22 μ f
31									CAP. .01 μ f
32	1								RES 100 Ω $\frac{1}{2}$ W $\pm$ 5%
33	1						RGR		RES 1K $\frac{1}{4}$ W $\pm$ 5%

Reproduced from
best available copy.

RADIATION INCORPORATED A SUBSIDIARY OF HALL'S STERILIZATION CORPORATION, MELBOURNE, FLORIDA	SIZE	CODE IDENT NO.	123918	REV
	A	91417		0
SCALE		SHEET 3 of 11		



MARK 91417 ASSY 12391861
PER MIL-STD-130

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

REV

123918

SCALE

SHEET 4 of 11

GROUP A

	A	B	C	D	E	F	G	H	J
1	74H04 U1		74H00 U2		74S112 U3		74193 U4		U5
10	R1	R2	74H74 U11		74H74 U12		R3	R4	U13
	74H21 U10						C1		
20	74193 U18		74500 U19		74H01 U20		74H01 U21		U22
			R15	R16	R17	R18	R8		R11
30			74H11 U27		74500 U28		74H01 U29		U30
							R19	R20	
40	74H11 U70						74H01 U35		U36
									C2
50	74H30 U71		74H00 U72		74S112 U74				

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

REV

C

123918

SCALE

SHEET 5 of 11

GROUP B

A	B	C	D	E	F	G	H	J
74520 U5	74H103 U6		74H103 U7		74H103 U8		74H04 U9	
10 74540 U13	R5 74H11 U14	R6	74540 U15		74500 U16		R7 74H11 U17	
74H74 20 U22			74520 U24		R9 74520 U25	R10		
R12	74520 U23		C4				74520 U26	
30 74H01 U30	R13 74500 U31	R14	74H04 U32		74H51 U33		74H51 U34	
74H01 40 U36	R21 C3	R22	74H51 U37		C5		C6	
C2								
50							74193 U73	

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

REV

0

123918

SCALE

SHEET

6 of 11

GROUP C

	A	E	C	D	E	F	G	H	J
1	SN 745'04 U51		SN 745'00 U52		SN 745'20 U53		SN 74H30 U54		
10	SN 7486 U55		SN 745'00 U56	R23		R24 R25		R26	
20				R31	SN 745'00 U57		SN 745'04 U58		
30	SN 741.81 U59				SN 745'20 U60	SN 745'00 U61	SN 74H30 U62		
40	SN 74520 U63		SN 745'00 U64		SN 745'20 U65		SN 745'112 U66		
50	SN 745'04 U67		R29	R30	C8	C9	SN 745'112 U68		

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

REV

0

SCALE

SHEET 7 of 11

GROUP D

	A	B	C	D	E	F	G	H	J
			- K -15V +15V + - NC - GND * - BIT 1 (MSB)						
10			* - BIT 2 * - BIT 3 * - BIT 4 - BIT 5			V69		+REF -REF - OUT (MSB) BIT 12 11 10	
20								- BIT 9 - NC - NC - BIT 8 - REF Supply - BIT 7 - BIT 6	
30									
40									
50									

7474

074

50

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

123918

REV

0

SCALE

SHEET

80-11

GROUP A

L 22 10 I

K

GROUP B

L 22 10 I

K

GROUP C

L 22 10 I

K

GROUP D

L 22 10 I

K 00000

R32
R33

GROUP E

L 22 10 I

K

GROUP F

L 22 10 I

K

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

123918

REV

SCALE

SHEET 9 of 11

GROUP C

REF
DESIG[illegible]REF
DESIG[illegible]

REF
DESIG

[illegible]REF
DESIG[illegible]

Reproduced from
best available copy.

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

123918

REV

C

SCALE

SHEET

11/5/11

LEGEND ☐ UNUSED CIRCUITRY ☒ USED CIRCUITRY ☐ NO CIRCUIT

APPLICATION

REVISIONS

DASH NO.	NEXT ASSY	USED ON	LTR	DESCRIPTION			DATE	APPROVED
	123914	1677-0200		CHG BY	CHK BY	ECO NO.		

ENGRG DEV

[illegible]

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
AND INCLUDE APPLIED FINISH
TOLERANCES

TOLERANCES		
2 PLACE	3 PLACE	ANGLES
+	+	+

CONTRACT NO.

DR BY

M.C. JRM

CHK BY

25

ENGINEER

PROJECT ENGINEER

HA Low 11/24/71

APPROVAL

APPROVAL

RADIATION INCORPORATED

SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

TITLE

REDUCER

A1A3

SIZE

A

CODE IDENT NO.

91417

123916

REV

C

SCALE

SHEET

lot 14

NOTES:

1. ALL MODULES ARE SHOWN WITH PIN 1 IN THE TOP LEFT CORNER IN ROWS A-J AND PIN 1 IN LOWER LEFT CORNER IN ROWS L AND K.
2. ITEMS NOT IDENTIFIED BY PART NUMBER OR FIND NUMBER IN FIELD OF DRAWING ARE IDENTIFIED BY REFERENCE DESIGNATION IN THE PARTS LIST.
3. ITEM 5, 22UF FILTER CAP, TO BE MOUNTED IN LOWER AREA ON WIRE-WRAP SIDE OF EACH GROUP BOARD. POSITIVE (+) LEAD OF CAP TO BE CONNECTED TO V-PIN, AND NEGATIVE (-) LEAD TO BE CONNECTED TO G-PIN. USE ITEMS 6 AND 7 TO INSTALL CAPACITOR.

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

123916

REV

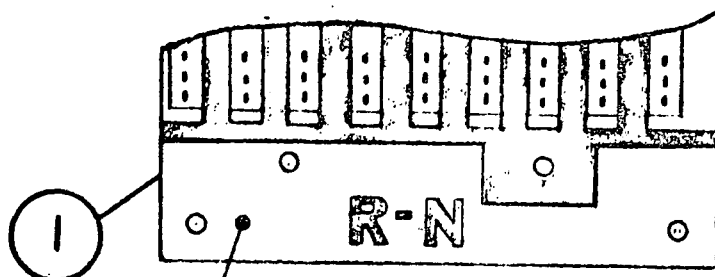
0

SCALE

SHEET

2 of 14

RADIATION INCORPORATED SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA	SIZE A	CODE IDENT NO. 91417	123916	REV 0
	SCALE		SHEET	3 of 14



MARK 91417 ASSY 123916 G1
PER MIL-STD-130

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE CODE IDENT NO.

A

91417

123916

REV

0

SCALE

SHEET

4 of 19

GROUP A

	A	B	C	D	E	F	G	H	J
10									
20									
30	74S40 U11		74S40 U12		74H103 U13		74H103 U14		U6 U15
	C1				C3				C5
40	74S40 U20		74S40 U21		74S40 U22		74H51 U23		U24
	C2				C4				C6
50	74S40 U29		74S40 U30		74S40 U31		74H51 U32		U33

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

123916

REV

0

SCALE

SHEET

5 of 14

GROUP B

A	B	C	D	E	F	G	H	J
			74H00 U1		74H04 U2		74S00 U3	
10	74H51 U128		R1	R2 R8	C9		74H30	
20	74H11 U6	74H11 U7	74H103 U8		74S20 U4		U5	
	74H103 U15 30	74H30 U16	74H40 U17		74H51 U9		74H20 U10	
	C5		C7		74H20 U18		74S20 U19	
	74H51 U24 40	74H51 U25	74H51 U26		74H51 U27		74H51 U28	
	C6		C8					
	74H51 U33 50	74H51 U34	74H51 U35		74S112 U36		74S112 U37	

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

123916

REV

0

SCALE

SHEET

6 of 14

GROUP C

	A	B	C	D	E	F	G	H	J
1		74181			74181			74181	
10	U51			U52			U53		
20	C11 74520 U57		74520 U58		C16 74520 U59		74520 U60		U61
30	C12 74H00 U65		74500 U66		74H103 U67		74181 U68		
40	C13 74520 U73		U74		C17 74504 U75		74520 U76		U77
50	74504 U82		745112 U83		745112 U84		74504 U85		U86

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

123916

REV

C

SCALE

SHEET

7 of 11

GROUP D

	A	B	C	D	E	F	G	H	J
		74181			74181			74181	
10									
		U54			U55			U56	
20		74504			74181			74181	
		U62							
		74181			U63			U64	
30									
		U69			74H30		74H04	745112	
					U70		U71	U72	
40		74H30			74H30		74H102	74H102	
		U78			U79		U80	U81	
		745112			74H102		74H102	74H102	
50		U87			U88		U89	U90	

* PINS CIRCLED ARE USED.

RAD.

SUBSIDIARY OF

ATION INCORPORATED

HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

REV

0

123916

SCALE

SHEET

8 of 14

GROUP E

	A	B	C	D	E	F	G	H	J
1	74500 U101			74181			74181		
10	74540 U104		U102			U103			R9 R10
	745112		745112		745112		74H04		R7
20	U109		U105		U106		U107		U108
	745112			74181			74181		
30	U110		U111			U112			U113 C30
	74H102		74H102		74H102		74H102		
40	U115		U116		U117		U118		U119
	74H102		74H102		74H102		74H04		
50	U121		U122		U123		U124		U125

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

REV

0

SCALE

SHEET

9 of 14

GROUP B

22 10 1

.....

GROUP A

22 10 1

.....

GROUP D

22 10 1
L K R3

22 10 1

GROUP C

GROUP F

22 10 1

.....

GROUP E

22 10 1
L K C24 C25 C26 C27 C28 C29

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

123916

REV

0

SCALE

SHEET

11 of 14

GROUP A-B

REF
DESIG

U1	U2	U3	U4	U5	U6	U7	U8	U9	U10	U11	U12	U13	U14	U15
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

REF
DESIG

U16	U17	U18	U19	U20	U21	U22	U23	U24	U25	U26	U27	U28	U29	U30
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

REF
DESIG

U31	U32	U33	U34	U35	U36	U37								
X	X	X	X	X	X	X								
X	X	X	X	X	X	X								
X	X	X	X	X	X	X								
X	X	X	X	X	X	X								
X	X	X	X	X	X	X								
X	X	X	X	X	X	X								
X	X	X	X	X	X	X								
X	X	X	X	X	X	X								
X	X	X	X	X	X	X								
X	X	X	X	X	X	X								

REF
DESIG

LEGEND ☐ UNUSED CIRCUITRY ☒ USED CIRCUITRY ☐ NO CIRCUIT

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

123916

REV

0

SCALE

SHEET

12 of 14

GROUP C-D

REF
DESIG

U51	U52	U53	U54	U55	U56	U57	U58	U59	U60	U61	U62	U63	U64	U65
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

REF
DESIG

U66	U67	U68	U69	U70	U71	U72	U73	U74	U75	U76	U77	U78	U79	U80
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

REF
DESIG

U81	U82	U83	U84	U85	U86	U87	U88	U89	U90					
X	X	X	X	X	X	X	X	X	X					
X	X	X	X	X	X	X	X	X	X					
X	X	X	X	X	X	X	X	X	X					
X	X	X	X	X	X	X	X	X	X					
X	X	X	X	X	X	X	X	X	X					
X	X	X	X	X	X	X	X	X	X					
X	X	X	X	X	X	X	X	X	X					
X	X	X	X	X	X	X	X	X	X					
X	X	X	X	X	X	X	X	X	X					
X	X	X	X	X	X	X	X	X	X					

REF
DESIG

LEGEND ☐ UNUSED CIRCUITRY ☒ USED CIRCUITRY ☐ NO CIRCUITRADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

123716

REV

0

SCALE

SHEET

13 of 14

GROUP E-F

REF
DESIG

U101	U102	U103	U104	U105	U106	U107	U108	U109	U110	U111	U112	U113	U114	U115
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

REF
DESIG

U116	U117	U118	U119	U120	U121	U122	U123	U124	U125	U126	U127	U128	U129	U130
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

REF
DESIG

U131	U132	U133	U134	U135										
X	X	X	X	X										
X	X	X	X	X										
X	X	X	X	X										
X	X	X	X	X										
X	X	X	X	X										
X	X	X	X	X										
X	X	X	X	X										
X	X	X	X	X										
X	X	X	X	X										

REF
DESIG

LEGEND ☐ UNUSED CIRCUITRY ☒ USED CIRCUITRY ☐ NO CIRCUITRADIATION INCORPORATED
MANUFACTURER OF NUCLEAR ALTERNATIVE OPERATING MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

123916

REV

1

SCALE

SHEET

17 of 17

APPLICATION			REVISIONS					
DASH NO.	NEXT ASSY	USED ON	LTR	DESCRIPTION			DATE	APPROVED
	123914	1677-0200		CHG BY	CHK BY	ECO NO.		

ENGRG DEV

REVISION INDEX	SHEET	REV													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE APPLIED FINISH TOLERANCES		CONTRACT NO.		RADIATION INCORPORATED											
2 PLACE ± 3 PLACE ± ANGLES ±		DR BY J.M.M.C. CHK BY Z.E.		SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA											
		ENGINEER		TITLE TRANS RATE BUFFER											
		PROJECT ENGINEER		A1A4											
		APPROVAL		SIZE A		CODE IDENT NO. 91417		123917		REV 0					
		APPROVAL		SCALE				SHEET 1 of 14							

NOTES:

1. ALL MODULES ARE SHOWN WITH PIN 1 IN THE TOP LEFT CORNER IN ROWS A-J AND PIN 1 IN LOWER LEFT CORNER IN ROWS L AND K.
2. ITEMS NOT IDENTIFIED BY PART NUMBER OR FIND NUMBER IN FIELD OF DRAWING ARE IDENTIFIED BY REFERENCE DESIGNATION IN THE PARTS LIST.
3. ITEM 5, 22UF FILTER CAP, TO BE MOUNTED IN LOWER AREA ON WIRE-WRAP SIDE OF EACH GROUP BOARD. POSITIVE (+) LEAD OF CAP TO BE CONNECTED TO V-PIN, AND NEGATIVE (-) LEAD TO BE CONNECTED TO G-PIN. USE ITEMS 6 AND 7 TO INSTALL CAPACITOR.

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

123917

REV

0

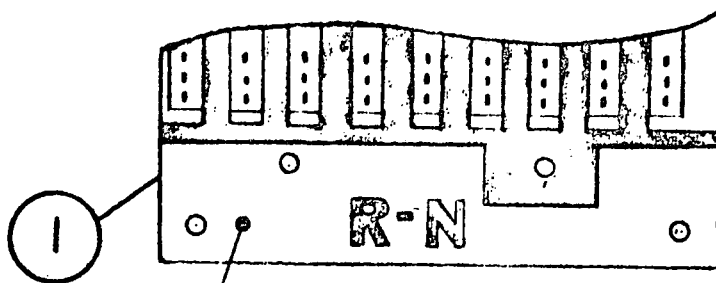
SCALE

SHEET

2 of 19

ITEM	QTY PER ASSY LEVEL					DWG SIZE	PART OR IDENTIFYING NO	M P	NOMENCLATURE OR DESCRIPTION
	1	2	3	4	5				
1	1						WUB-54		PRINTED WIRING BOARD
2	AR						115235-003		WIRE, ELEC, SOLID, AWG 30 RED
3	AR						115235-001		WIRE, ELEC, SOLID, AWG 30 BLK
4	AR						115235-010		WIRE, ELEC, SOLID AWG 30 WHT
5	6						150D226X905	B2	CAP FXD 22 μ f 15V $\pm$ 10%
6	AR						MIL-122129-24		INSULATION TUBING, TEFLON 24 AWG
7	12						118203-001		CONTACT CRIMP COMPONENT
8	AR						SN60WRAP3		SOLDER O.A.-S-571
9	REF						528725		LOGIC DIAGRAM
10	28						SN7475		IC BISTABLE LATCH
11	27						SN74S40		↑ B2 S
12	15						SN74H51		DUAL, AOI H
13	20						SN74H74		DD FF H
14	8						SN74S20		N2 S
15	15						SN74S112		DUAL JK FF S
16	4						SN74S00		N4 S
17	2						SN74H20		N2 H
18	4						SN74H00		N4 H
19	9						SN74H103		DUAL JK FF H
20	8						SN74H11		A3 H
21	2						SN74H21		DUAL A2 H
22	3						SN74S04		HEX INV. S
23	5						SN74H04		HEX INV. H
24	2						SN74193		4 BIT UP/DOWN CNTR.
25	2						SN7486		X OR
26	1						SN74H30		Y NI H
27	4						SN74181		IC ALU
28	40						117985-004		CAP .028 μ f 50V $\pm$ 10% C1-C40
29	20						117982-007		RES 1K $\frac{1}{4}$ W, $\pm$ 5% R1, R2, R4-R27
30	1						117982-004		RES 150 Ω $\frac{1}{4}$ W, $\pm$ 5% R3
31	1						SN74H40		IC B2 H

RADIATION INCORPORATED SUBSIDIARY OF HARRIS INTERTYPE CORPORATION, MELBOURNE, FLORIDA	SIZE	CODE IDENT NO.	REV
	A	91417	123717 0
SCALE	SHEET		3 of 14



MARK 91417 ASSY 123917 G1
PER MIL-STD-130

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

123917

REV

0

SCALE

SHEET

4 of 14

GROUP A

	A	B	C	D	E	F	G	H	J
1	7475 U1		7475 U2			C5 74540 U3	7475 U4		U5
10	7475 U10		7475 U11			C6 7475 U12	7475 U13		U14
20	7475 U19		74H51 U20			C7 74H51 U21	74H51 U22		U23
30	74540 U28		7475 U29			C8 74540 U37	74H74 U30		U31
40	74540 U35		74540 U36			C9 74540 U46	74H74 U38		U39
50	74540 U44		74540 U45			74540 U46	7475 U47		U48

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE CODE IDENT NO.

A 91417

123917

REV

0

SCALE

SHEET

5 of 14

GROUP B

A	B	C	D	E	F	G	H	J
7475 U5	7475 U6		7475 U7		7475 U8		7475 U9	
10 7475 U14	7475 U15		C10 74540 U16		74H51 U17		7475 U18	
20 74H51 U23	74H51 U24		C11 74H74 U25		74H51 U26		74H51 U27	
74H74 30 U31	74H74 U32		C12 74H74 U41		74H74 U33		74H74 U34	
74H74 40 U39	74H74 U40		C13 R26 R27		74H74 U42		74H74 U43	
7475 U48 50	7475 U49		7475 U50		7475 U51		74H74 U52	

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

123917

REV

0

SCALE

SHEET

6 of 14

GROUP C

	A	B	C	D	E	F	G	H	J
1	7475 U57		74540 U58	C16	74520 U59		74520 U60		U61
10	C14		C17	C	74520		74500		
	7475 U66		74540 U67		U68		U69		U70
20			C18		74520		C21		
	74540 U82		R1	R2	U75		U76		U77
30					74540		74540		
	C15		U83		U84		U85		U86
	74H74 U91		74540 U92		C20		745112		
40					U93		U94		U95
	R14	R15	C19						
	74H74 U99		74540 U100		74520 U101		74H11 U102		U103
50									

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

123917

REV

0

SCALE

SHEET

7 of 14

GROUP D

A	B	C	D	E	F	G	H	J
74S 112 U61	74H51 U62 C22		74H00 U63		74S112 U64		74S00 U65	
10 74S 112 U70	74H11 U71		74H21 U72		74H00 U73		74S00 U74	
20 74H 20 U77	74H20 U78		74H21 U79 C23		74H04 U80		74S20 U81	
74H 103 30 U86	74H103 U87		74H103 U88		74S04 U89		74S40 U90	
74H00 40 U95	74S00 U96		74S40 U97		74S40 U98		R3 C24 74H00	
74S 112 U103 50	74S112 U104		74S112 U105		74S112 U106		U107 C25	

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

123917

REV

0

SCALE

SHEET

8 of 14

GROUP E

	A	B	C	D	E	F	G	H	J
I	74H103 U110		74500 U111		74H04 U112		74H04 U113		U114
10	74S112 U119		74H11 U120		74H40 U160 C30		74181 U121		
20	74S112 U125		74H04 U158		74H51 U126		R4 R5	R6 R7	R8 R9
30	74S40 U127		74S40 U128 C29		74H51 U129		74H103 U130		U131
40	74S40 U136		74S40 U137		74H51 U138		74H11 U139		U140
50	74S40 U145		74H51 U146		74H51 U147		74S112 U148		U149

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

123917

REV

0

SCALE

SHEET

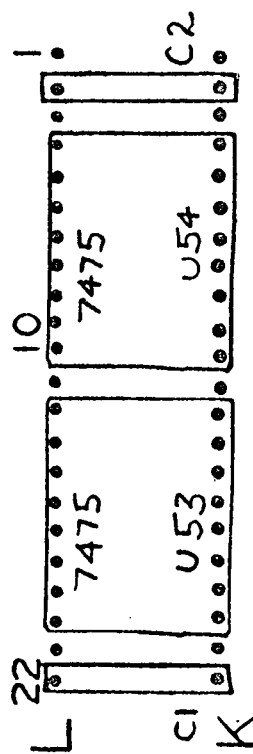
9 of 19

GROUP F

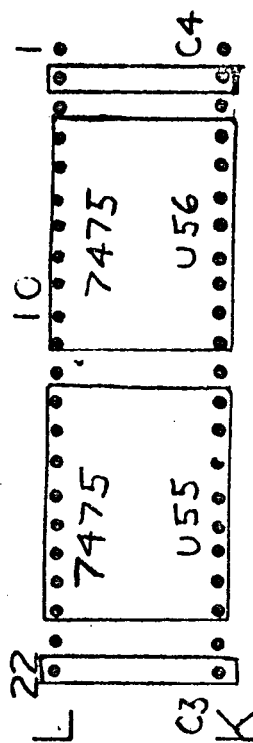
	A	B	C	D	E	F	G	H	J
	74H74 U114	74H74 U115		74H74 U116		74H74 U117		74H74 U118	
10	74181 U122			74181 U123			74181 U124		
	R10 R11	C34 74H103 U132		R12 74H103 U133	R13	C36 74H103 U134		C38 7486 U135	
30	74H103 U131	74H11 U141		74H11 U142		74H11 U143		74H51 U144	
40	74H11 U140		C35			C37		R16 74S112 U153	R17
	74S112 U149	74S04 U150		74S112 U151		74S112 U152			
50									

RADIATION INCORPORATED SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA	SIZE	CODE IDENT NO.	REV
	A	91417	123917
	SCALE	SHEET 10 of 14	

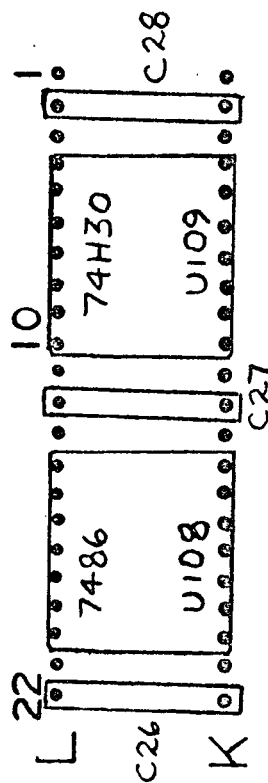
GROUP A



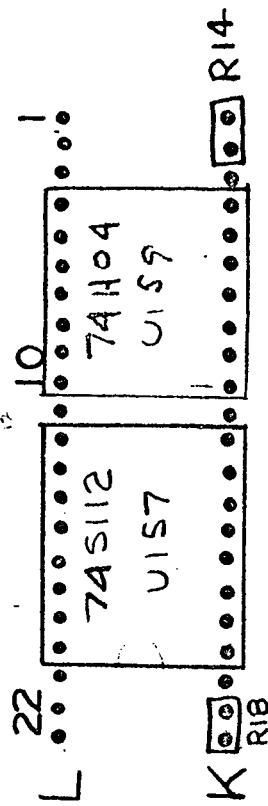
GROUP B



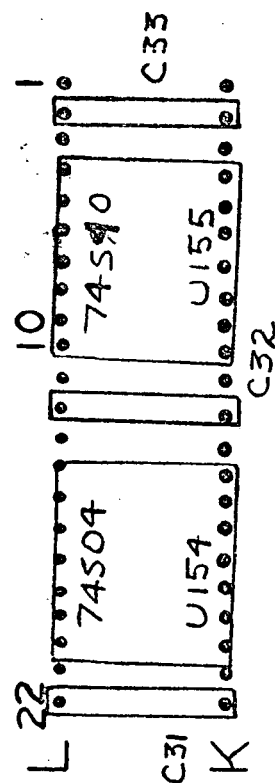
GROUP C



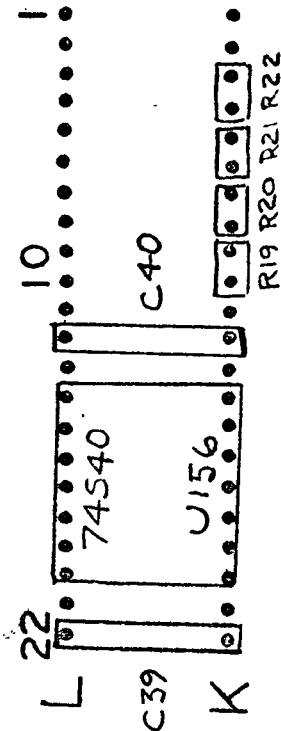
GROUP D



GROUP E



GROUP F



RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

123917

REV

0

SCALE

SHEET

11 of 14

REF
DESIG

U1	U2	U3	U4	U5	U6	U7	U8	U9	U10	U11	U12	U13	U14	U15
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

REF
DESIG

U16	U17	U18	U19	U20	U21	U22	U23	U24	U25	U26	U27	U28	U29	U30
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

REF
DESIG

U31	U32	U33	U34	U35	U36	U37	U38	U39	U40	U41	U42	U43	U44	U45
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

REF
DESIG

U46	U47	U48	U49	U50	U51	U52	U53	U54	U55	U56	U57	U58	U59	U60
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

LEGEND ☐ UNUSED CIRCUITRY ☒ USED CIRCUITRY ☐ NO CIRCUIT

Reproduced from
best available copy.

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

123917

REV

0

SCALE

SHEET

1205/19

[illegible][illegible][illegible][illegible]

13 of 14

U121	U122	U123	U124	U125	U126	U127	U128	U129	U130	U131	U132	U133	U134	U135
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

[illegible][illegible][illegible]

Reproduced from
best available copy.

LEGEND ☐ UNUSED CIRCUITRY ☒ USED CIRCUITRY ☐ NO CIRCUIT

SHEET 14 of 14

NOTES:

1. ALL MODULES ARE SHOWN WITH PIN 1 IN THE TOP LEFT CORNER IN ROWS A-J AND PIN 1 IN LOWER LEFT CORNER IN ROWS L AND K.
2. ITEMS NOT IDENTIFIED BY PART NUMBER OR FIND NUMBER IN FIELD OF DRAWING ARE IDENTIFIED BY REFERENCE DESIGNATION IN THE PARTS LIST.
3. ITEM 5, 22UF FILTER CAP, TO BE MOUNTED IN LOWER AREA ON WIRE-WRAP SIDE OF EACH GROUP BOARD. POSITIVE (+) LEAD OF CAP TO BE CONNECTED TO V-PIN, AND NEGATIVE (-) LEAD TO BE CONNECTED TO G-PIN. USE ITEMS 6 AND 7 TO INSTALL CAPACITOR.
4. ITEMS 18, 19, 20, 21 TO BE MOUNTED ON WIRE WRAP SIDE OF BOARD. USE ITEMS 6 & 7 TO INSTALL COMPONENTS, SEE WIRE LIST FOR PLACEMENTS.

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

123919

REV

O

SCALE

SHEET

2 of 3

SY LEVEL 2 3 4 5					DWG. SIZE	PART OR IDENTIFYING NO.	M P	NOMENCLATURE OR DESCRIPTION	CODE IDENT
						WUB-54		PRINTED WIRING BOARD	06776
2	AR					115235-003		WIRE, ELEC, SOLID, AWG 30 RED	
3	AR					115235-001		WIRE, ELEC, SOLID, AWG 30 BLK	
4	AR					115235-010		WIRE, ELEC, SOLID, AWG 30 WHT	
5	4				3	50D226X905	B2	CAP FXD 22 μ f 15V $\pm$ 10% (H39003/012271)	
6	AR					MIL-122129-24		INSULATION TUBING, TEFLON 24 AWG	
7	1/8					118203-001		CONTACT CRIMP COMPONENT	
8	AR					SN60WRAP3		SOLDER Q.A.-S-571	
9	REF					528727		LOGIC DIAGRAM	
10	REF					528735		LOGIC DIAGRAM	
11	2	/				SN7496		IC 5 BIT SR	01295
12	2	/				SN7495		IC 4 BIT SR	
13	10	/				SN74151		IC 8 BIT MUX.	
14	1	/				SN74166		IC 8-BIT, SR	
15	2	/				SN7490		IC DECADE CTR	
16	2	/				SN74H103		IC DUAL J-K, FF H	
17	8	/				SN74H20		IC N2 H	
18	8	/				SN74H00		IC N4 H	
19	8	/				SN74H04		IC HEX INV H	
20	1	/				SN7486		IC EX. OR	
21	5	/				SN74H40		IC B2 H	
22	11	/				SN7474		IC DD-FF	
23	1	/				SN74H102		IC J-K, FF H	
24	2	/				SN74H51		IC DUAL AOI H	
25	7	/				SN74193		IC 4 BIT UP/DOWN CNTR.	
26	11	/				SN74H30		IC N1 H	01295
27	1	/				9601		IC MONOSTABLE MULTIVIB.	
28	14	/				117985-004		CAP FXD .028 μ f 50V $\pm$ 10% C1-C8, C11-C16	
29	1	/				M39014-02-0218		CAP FXD .01 μ f C9	
30	1	/				CM05FD101J		CAP FXD 100 μ f C10	
31	4	/				117982-004		RES. FXD 150 Ω 1/4W $\pm$ 5% R8 THRU R11	
32	8	/				117982-007		RES. FXD 1000 Ω 1/4W $\pm$ 5% R3-R7, R12-R14	
33	1	/				SN7454D		IC B2S	01295
34	1	/				RN60D5491FM		RES FXD 5.49 K Ω R1	
35	1	/				RN6D3242FM		RES FXD 32.4 K Ω R2	

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

123919

REV

O

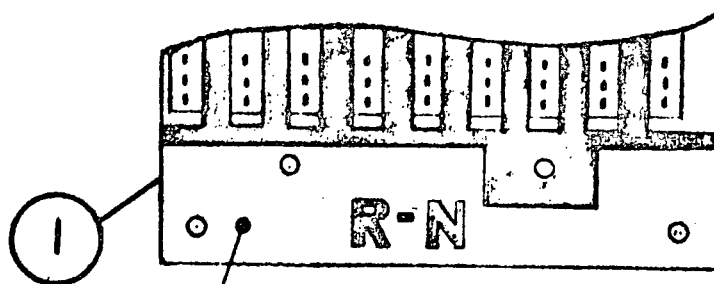
SCALE

SHEET

3 of 13



RAD FORM 459-2 (REV. 5-68)



MARK 91417 ASSY 12391961
PER MIL-STD-130

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417**123919**

REV

○

SCALE

SHEET **5 of 13**

GROUP A

	A	B	C	D	E	F	G	H	J
1		74161 U1		74161 U2		74161 U3		7442 U4	
10		7442 U9		74H04 U10		74504 U11		74H04 U12	
20		7442 U17		74H20 U18		74H20 U19		74H74 U20	
30		74H30 U25		74H74 U26		74H11 U27		74H74 U36	
40		74H20 U34		74193 U32		74H74 U35		74540 U39	
50				74193 U33					

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

123 919

REV

0

SCALE

SHEET

6 of 13

GROUP B

	A	B	C	D	E	F	G	H	J
1	R14	SN74193 U5		SN74193 U6		SN74193 U7		SN74H20 U8	
10		C5		9601		C6		SN74H04 U16	
20				C9		SN74H30 U15		SN74H04 U24	
30		SN74H04 U21		SN74H30 U22		SN7474 U23		74H30 U41	
40		C7		SN74H04 U30		C8			
		SN74H04 U29		74193 U38		SN74H30 U31			
						74H20 U39		74H24 U40	
50		74193 U37							

RADIATION INCORPORATED SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA	SIZE	CODE IDENT NO.	REV
	A	91417	123719
SCALE		SHEET 7 of 13	

GROUP C

	A	B	C	D	E	F	G	H	
1	U 51 7496		U 52 7496		U 53 7495		U 54 7495		R4
10	U 59 7490		U 60 7490		U 61 7490		C12		R5
20	U 67 7474		U 68 74H00		U 69 74H40		U 62 74H103		R6
30	U 75 7486		U 76 74H04		U 77 74H40		U 70 74H103		R7
40	U 83 74H51		U 84 74H04		U 85 74H00		U 78 7474		R8
50	U 87 7474		U 88 74H00		C15		U 86 74H00		R9
					U 59 74160				R10
									R11
									R12
									R13
									R14
									R15
									R16
									R17
									R18
									R19
									R20
									R21
									R22
									R23
									R24
									R25
									R26
									R27
									R28
									R29
									R30
									R31
									R32
									R33
									R34
									R35
									R36
									R37
									R38
									R39
									R40
									R41
									R42
									R43
									R44
									R45
									R46
									R47
									R48
									R49
									R50

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

123919

REV

○

SCALE

SHEET

8 of 13

GROUP D

	A	B	C	D	E	F	G	H	J
1	U 55 74151		U 56 74151		U 57 74151		U 58 74151		U 92 74 H21
10	U 63 74151		C13 U 64 74151		U 65 74151		U 66 74151		U 96 74 H21
20	C14 U 71 74H20		U 72 74166		U 73 74151		U 74 74151		U 100 74 H04
30	U 79 7474		U 80 7474		U 81 74H102		MC4044 U 43		U 104 74 H40
40	745140 U 45		74161 U 44		C16 MC4324 U 42				U 107 74 H40
50									U 110 74 H40

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

123919

REV

○

SCALE

SHEET

9 of 13

GROUP E

A	B	C	D	E	F	G	H	J
U 92 74H21	U 93 74H30		U 94 74H00		U 95 74H40			
U 96 74H21	U 97 74H30		U 98 74H00		U 99 7474			
U 100 20 74H04	U 101 74H30		U 102 7474		U 103 74H04			
U 104 74H40 30	U 105 74H30		U 106 7474					
U 107 74H40 40	U 108 74H04		U 109 7474		U 115 74540			
U 110 74H40	U 111 74H00		U 112 7474		U 113 74S20		U 114 74H20	
50								

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

REV

0

SCALE

SHEET

10 of 13

REF
DESIG[illegible]

Reproduced from
best available copy.

REF
DESIG

[illegible]

**REE
DESIG**

[illegible]

REF
DESIG

[illegible]

LEGEND ☐ UNUSED CIRCUITRY ☒ USED CIRCUITRY ☒ NO CIRCUIT

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

123919

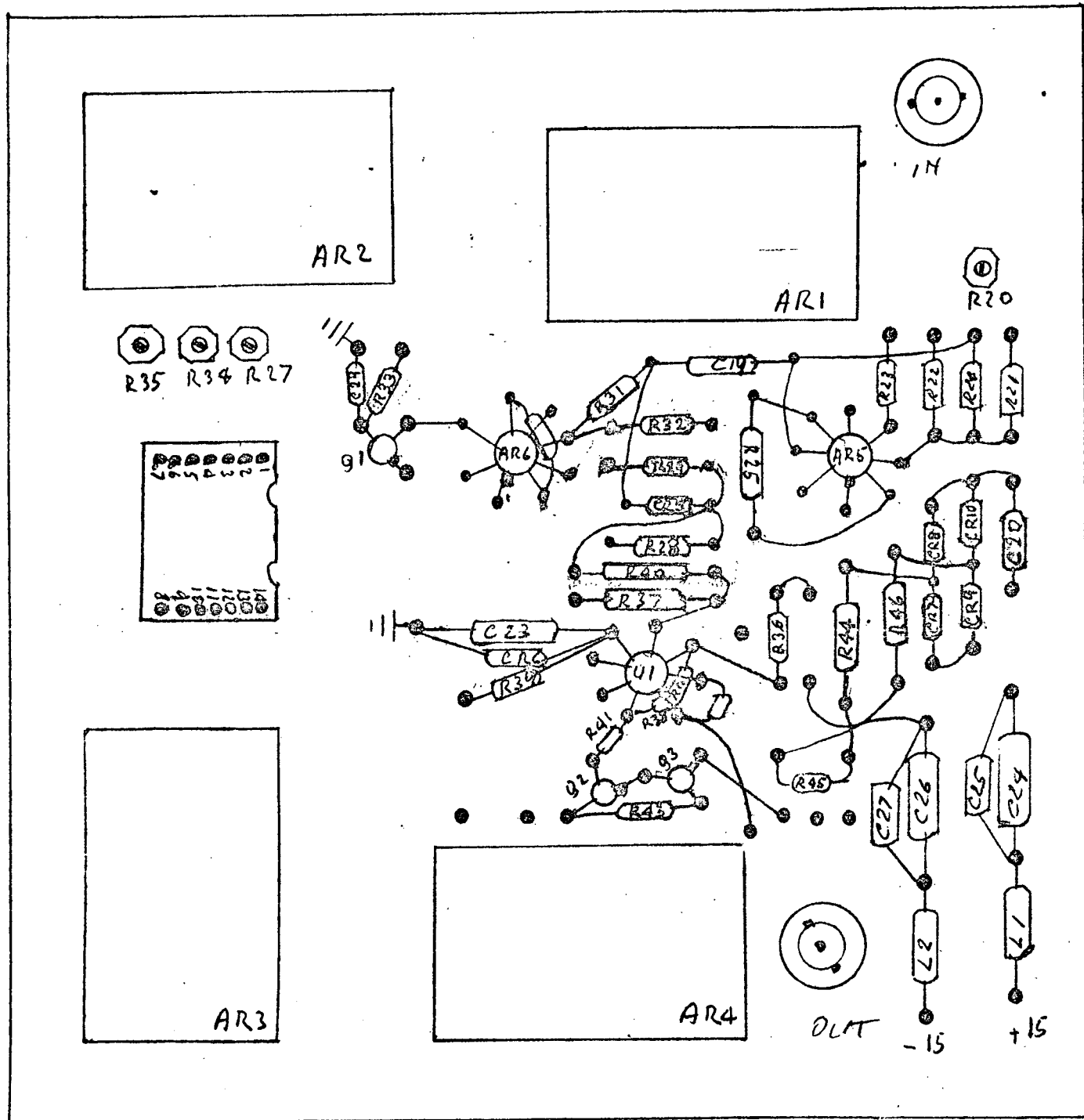
REV

SCALE

SHEET 13 of 13

APPLICATION			REVISIONS					
DASH NO.	NEXT ASSY	USED ON	LTR	DESCRIPTION			DATE	APPROVED
	123914			CHG BY	CHK BY	ECO NO.		

[illegible]



FRONT

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE CODE IDENT NO.

A

91417

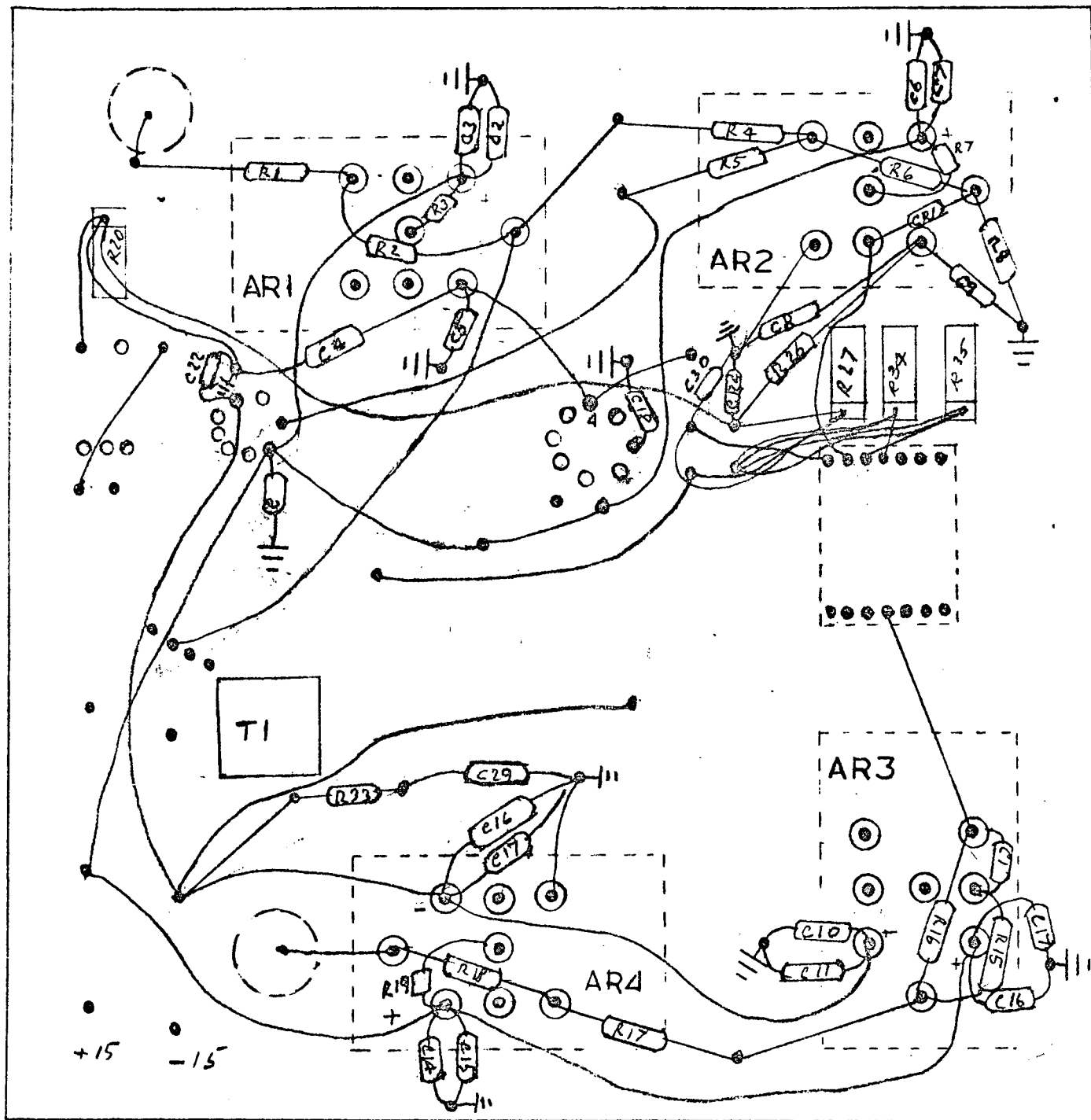
123922

REV

0

SCALE

SHEET 2 OF 7



BACK

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE CODE IDENT NO.

A

91417

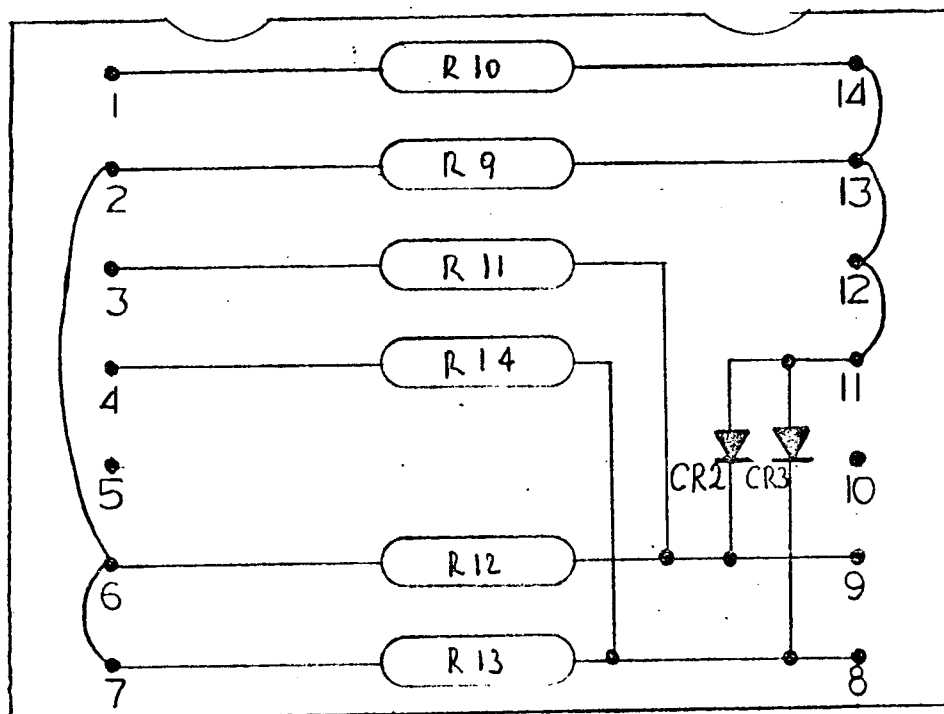
123922

REV

0

SCALE

SHEET 3 OF 7



LAY OUT OF PLUG IN FOR
TRANSFER FUNCTION

	$\times 2 \times 0.8$	$\times 10 \times 1 \times \frac{1}{3}$	$\times 4 \times 1 \times \frac{1}{3}$	$\times 1$
R 9	1.1 K	3.48 K	3.48 K	1 K
R 10	200 $\sim$	76.8 $\sim$	100 $\sim$	∞
R 11	1.43 K	1.8 K	0 $\sim$	∞
R 12	470 $\sim$	1.24 K	1.24 K	∞
R 13	∞	49.9 $\sim$	205 $\sim$	∞
R 14	∞	39.2 $\sim$	395 $\sim$	∞

TRANSFER FUNCTION
TABLE

ITEM	QTY PER ASSY LEVEL					DWG. SIZE	PART OR IDENTIFYING NO.	M P	NOMENCLATURE OR DESCRIPTION	CODE IDENT
	1	2	3	4	5					
1	1						RN60B4990F		R1 - 499~ 1% 1/8 W.	
2	1						RN60B4990F		R2 - 499~ 1% 1/8 W.	
3	1						RCR05G243JP		R3 - 24 K~ 5% 1/8 W.	
4	1						RN60H2000FM		R4 - 200~ 1% 1/8 W.	
5	1						RN60H2000FM		R5 - 200~ 1% 1/8 W.	
6	1						RN60B1001F		R6 - 1K~ 1% 1/8 W.	
7	1						RCR05G243JP		R7 - 24K~ 5% 1/8 W.	
8	1						RCR07G102JP		R8 - 1K~ 5% 1/4 W.	
9	1						RCR05G621JP		R15 - 620~ 5% 1/8 W.	
10	1						RN60D1001F		R16 - 1K 1% 1/8 W.	
11	1						RN60E4990F		R17 - 499 1% 1/8 W.	
12	1						RN60E4990F		R18 - 499 1% 1/8 W.	
13	1						RCR05G243JP		R19 - 24K 5% 1/8 W.	
14	1						RJ24CL203		R20 - 20K~ POT	
15	1						RN60C4993F		R21 - 499K~ 1% 1/8 W.	
16	1						RN60C4993F		R22 - 499K~ 1% 1/8 W.	
17	1						RCR05G244JP		R23 - 240K~ 5% 1/8 W.	
18	1						RN60C4993F		R24 - 499K~ 1% 1/8 W.	
19	1						RCR05G513JP		R25 - 51K~ 5% 1/8 W.	
20	1						RCR07G621JP		R26 - 620 5% 1/4 W.	
21	1						RJ24CL102		R27 - 1K~ POT	
22	1						RCR20G511JP		R28 - 510~ 5% 1/2 W.	
23	1						RN60H1001FM		R29 - 1K~ 1% 1/8 W.	
24	1						RCR05G511JP		R30 - 510~ 5% 1/8 W.	
25	1						RCR05G513JP		R31 - 51K 5% 1/8 W.	
26	1						RN60H1001FM		R32 - 1K 1% 1/8 W.	
27	1						RCR07G151JP		R33 - 150~ 5% 1/4 W.	
28	1						RJ24CL502		R34 - 5K~ POT	
29	1						RJ24CL202		R35 - 2K~ POT	
30	1						RN60D2870F		R36 - 287~ 1% 1/8 W.	
31	1						RCR07G751JP		R37 - 750~ 5% 1/4 W.	
32	1						RCR07G202JP		R38 - 2K~ 5% 1/4 W.	
33	1						RCR07G911JP		R39 - 910~ 5% 1/4 W.	
34	1						RCR07G751JP		R40 - 750~ 5% 1/4 W.	
35	1						RCR07G101JP		R41 - 100~ 5% 1/4 W.	

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

REV

0

123922

SCALE

SHEET 6 OF 7

ITEM	QTY PER ASSY LEVEL					DWG. SIZE	PART OR IDENTIFYING NO.	M P	NOMENCLATURE OR DESCRIPTION	CODE IDENT
	1	2	3	4	5					
36							RCR07G201JP		R42-200 ~ 5% 1/4w	
							RCR07G100JP		R43-10 ~ 5% 1/4w	
38							RCR07G511JP		R44-510 ~ 5% 1/4w	
39							RCR07G510JP		R45-51 ~ 5% 1/4w	
40							RCR07G511JP		R46-510 ~ 5% 1/4w	
41									C1-17 PF	
42	12						M39003/01-2306		C2, C4, C6, C8, C10, C12, C14, C16, C18, C20, C22, C24, C26, C28, C30	
43	12						CK06DX104		C3, C5, C7, C9, C11, C13, C15, C17, C19, C21, C23, C25, C27 - .1 μ F	
44	2						CM05ED510J03		C18, C19 - 51 PF	
45	1						M39003/01-2283		C20 - 2.2 μ F	
46	2						CK06BX103		C23, C29 - .01 μ F	
47	1						M39003/01-2368		C30 - 4.7 μ F	
48	2						MS18130-20		L1, L2 - 10 μ h	
49	2						VA-23		AR1, AR2	
50	1						FS-23		AR3	} DDC OPERATIONAL AMPL.
51	1						CD-23		AR4	
52	2						HA2-2605		AR5, AR6	
53	1						N710		U1 N710 FAIRCHILD COMPARATOR	
54	1						2N1132		Q1	} TRANSISTORS
55	1						2N2222		Q2	
56	1						2N3501		Q3	
57	5						HP2810		CR1, CR7, CR8, CR9, CR10	
58	2						1N5226		CR4, CR5	
59	1						1N754		CR6	
60	1						50600H		T1 Z-MATCH	
									NOTE, FOR R9, R10, R11, R12, R13, R14, CR2, CR3 SEE TRANSFER FUNCTION TABLE	

 RADIATION INCORPORATED
 SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

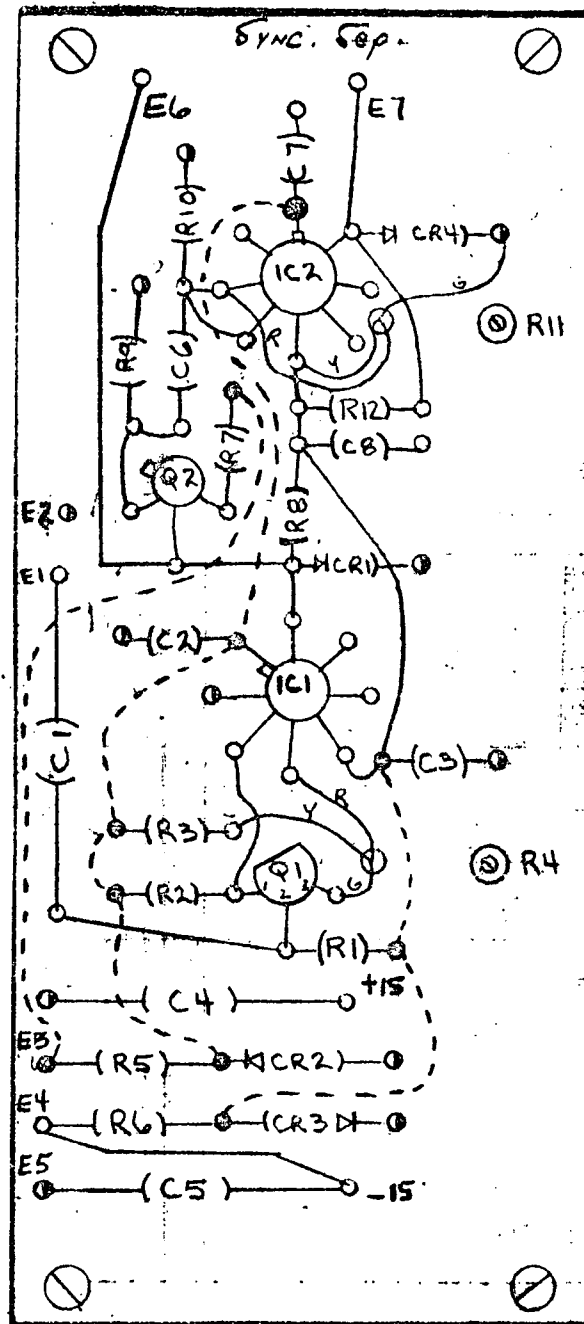
REV

0

SCALE

SHEET 7 OF 7

TV SYNC SEPERATOR



- INSULATED STANDOFF (115179-002)
- ① GROUND TYPE STANDOFF (1091-2)
- FEEDTHROUGH STANDOFF (115179-001)

--- WIRING ON REVERSE OF BOARD
 — WIRING ON FRONT OF BOARD

RADIATION INCORPORATED
 SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE CODE IDENT NO.

A

91417

123920

REV

0

SCALE

SHEET **2 of 3**

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

123920

SHEET 3 OF 3

REDUCER SWITCH PANEL

2^3 2^2 2^1 2^0 + + + + 0 0 0 0					AT + TOL MODE FT
TOLERANCE					
2^4 2^3 2^2 2^1 2^0 + + + + + 0 0 0 0 0					
NRS COUNTER BIAS					
	MULT		1		
PLUS	+		+	2	
	DIV		4		
	MULT		1		
MINUS	+		+	2	
	DIV		4		
2^8 2^7 2^6 2^5 + + + + 0 0 0 0					
2^4 2^3 2^2 2^1 + + + + 0 0 0 0					
MAX BUFFER SIZE					

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

123953

REV

0

SCALE

SHEET 2 of 3

ENGRG DEV

IRM 400923-1-G

NOTES:

1. ALL MODULES ARE SHOWN WITH PIN 1 IN THE TOP LEFT CORNER IN ROWS A-J AND PIN 1 IN LOWER LEFT CORNER IN ROWS L AND K.
2. ITEMS NOT IDENTIFIED BY PART NUMBER OR FIND NUMBER IN FIELD OF DRAWING ARE IDENTIFIED BY REFERENCE DESIGNATION IN THE PARTS LIST.

3. ITEM 5, 22UF FILTER CAP, TO BE MOUNTED IN LOWER AREA ON WIRE-WRAP SIDE OF EACH GROUP BOARD. POSITIVE (+) LEAD OF CAP TO BE CONNECTED TO V-PIN, AND NEGATIVE (-) LEAD TO BE CONNECTED TO G-PIN. USE ITEMS 6 AND 7 TO INSTALL CAPACITOR.

4. ITEM 30, & 31 TO BE MOUNTED ON WIRE-WRAP SIDE OF CIRCUIT BOARD, PER WIRE LIST CALL-OUT. USE ITEMS 6 AND 7 TO INSTALL COMPONENTS.

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

123923

REV

0

SCALE

SHEET 2 of 12

ITEM	QTY PER ASSY LEVEL					DWG. SIZE	PART OR IDENTIFYING NO.	M P	NOMENCLATURE OR DESCRIPTION	CODE IDENT
	1	2	3	4	5					
1	1						W4B-36		PRINTED WIRING BOARD	06776
2	AR						115235-003		WIRE, ELEC, SOLID, AWG 30 RED	
3	AR						115235-001		WIRE, ELEC, SOLID, AWG 30 BLK	
4	AR						115235-010		WIRE, ELEC, SOLID, AWG 30 WHT	
5	4					3	150D226X905	B2	CAP FXD 22 μ f 15V $\pm$ 10% (1139003/012271)	
6	AR						MIL-122129-24		INSULATION TUBING, TEFLON 24 AWG	
7	12						118203-001		CONTACT CRIMP COMPONENT	
8	AR						SN60WRAP3		SOLDER Q.A.-S-571	
9	REF						528729		LOGIC DIAGRAM	
10	REF						528731		LOGIC DIAGRAM	
11	REF						528739		LOGIC DIAGRAM	
12	10	-				-	SN74S112		IC DUAL JK FFS	01295
13	11	-				-	SN74S00		IC N4S	↑
14	5					-	SN74H40		IC B2H	
15	2	-				-	SN74H30		IC N1H	
16	3	-				-	SN7490		IC DECADE CTR.	
17	2	-				-	SN74160		IC 4BIT BINARY CTR.	
18	2	-				-	SN7442		IC BCD-UNI. DEC.	
19	9	-				-	SN7474		IC DDFF	
20	9	-				-	SN74H00		IC N4 H	
21	4	-				-	SN74H20		IC N2 H	
22	5	-				-	SN7486		IC EXCLUSIVE-OR	
23	7	-				-	SN74H04		IC HEX INV H	
24	2	-				-	SN7495		IC 4 BIT S REG.	↓
25	1	-				-	SN74H102		IC JK FF H	01295
26	1	-				-	SG80		IC GATED SCHMITT TRIGGER	93332
27	2	-				-	DM8283		IC 4BIT BF ADDER	27014
28	16	-				-	117985-004		CAP. .028 μ F, 50 V. $\pm$ 10% C2-C8, C10-C18	
29	21	-				-	117982-007		RES 1K, 1/4 W, $\pm$ 5% R1-R21	
30	1					-	RN60D3001F		RES 3K, 1/4 W R-22	
31	1					-	CM05CD150K		CAP. 15 PF C-1	
32	5					-	GB-811A-6B		RELAY GRIGSBY-BARTON, INC	
33										
34						-	Y-891-F5		OSC1 - 54 MHz (GREENRAY)	
35						-	Y-891-F4		OSC2 - 48 MHz "	

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

123923

REV

0

SCALE

SHEET 3 of 12

ITEM	QTY PER ASSY LEVEL					DWG SIZE	PART OR IDENTIFYING NO.	M P	NOMENCLATURE OR DESCRIPTION	CODE IDENT
	1	2	3	4	5					
36	1					✓	Y-891-F3		OSC3-42MHz (GREENRAY)	
37	1					✓	Y-891-F2		OSC4-36MHz	"
38	1					✓	Y-891-F1		OSC5-30MHz	"
39	3	-					SN74S40A2		IC B25	01295
40	REF						528739		LOGIC DIAGRAM	
41	REF						528731		LOGIC DIAGRAM	
42	1						SN74H11		IC A3H	
43	1						RCR07G101W		100Ω, 1/2W Carbon Resistor	

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

123923

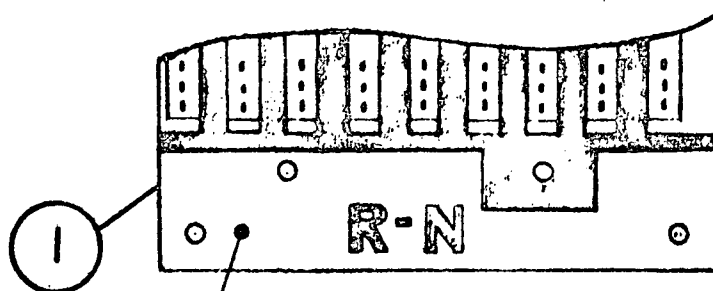
REV

0

SCALE

SHEET

4 of 12



MARK 91417 ASSY 123923 G1
PER MIL-STD-130

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

123923

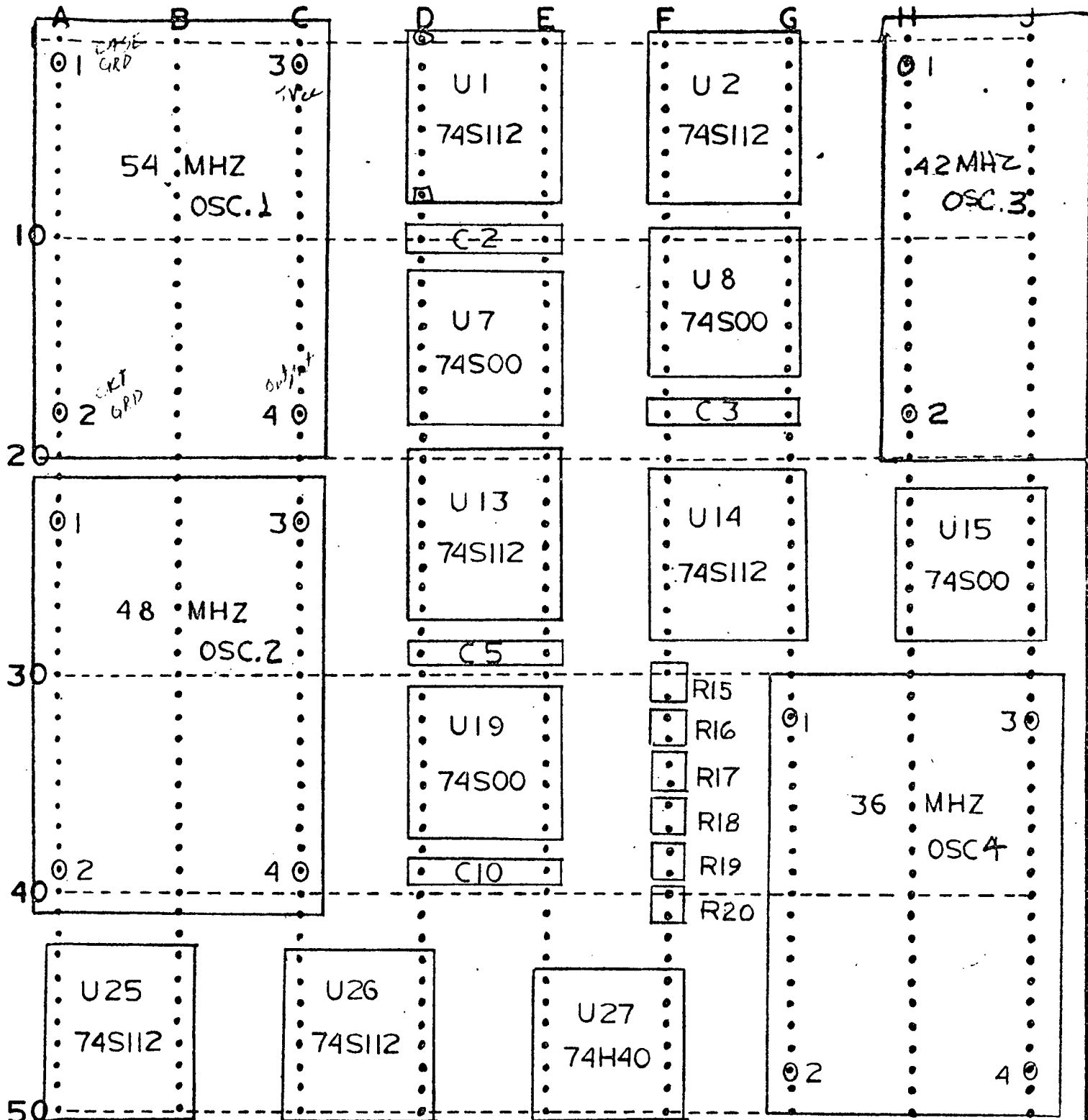
REV

0

SCALE

SHEET 5 of 12

GROUP A



RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

123923

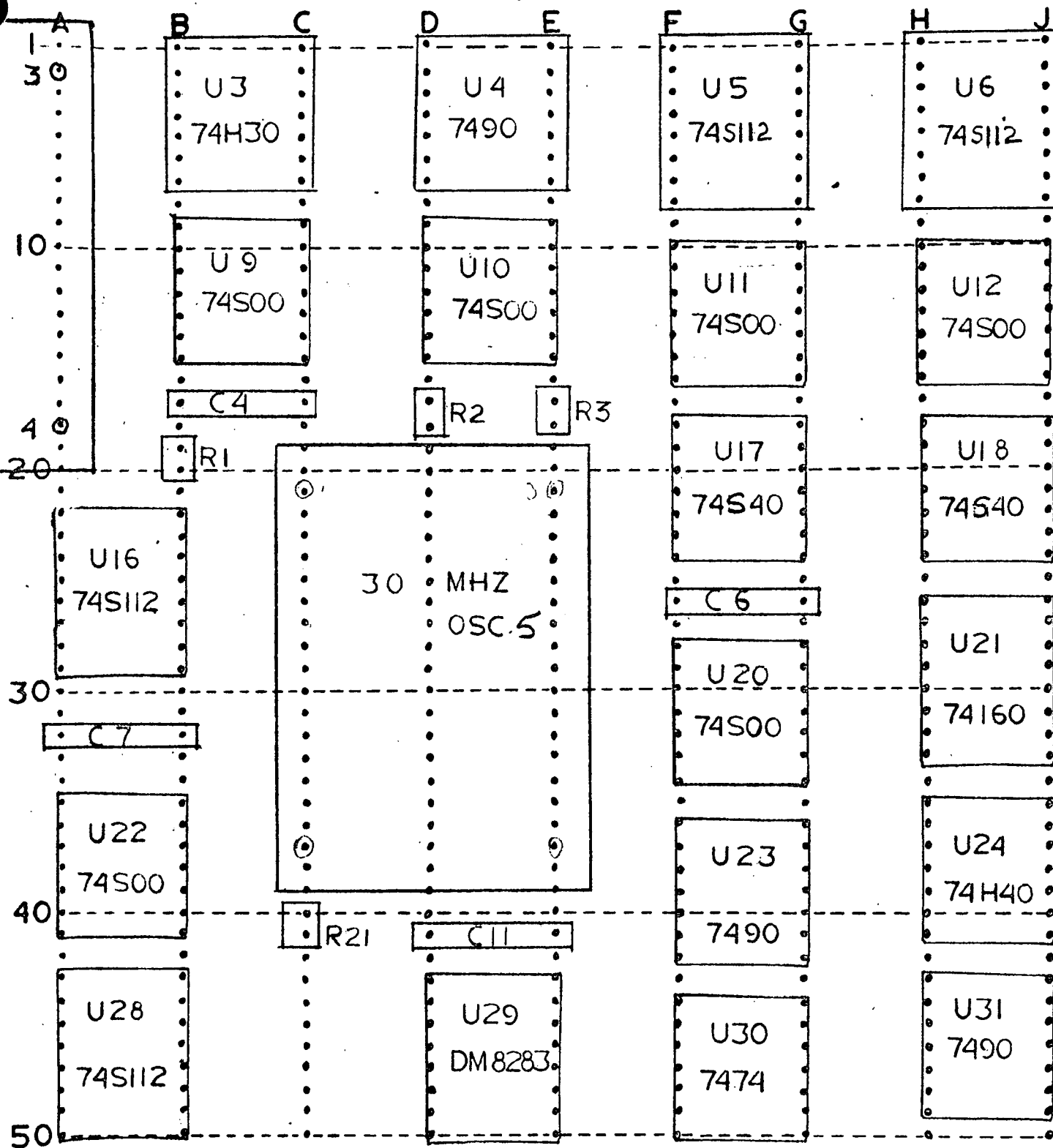
REV

0

SCALE

SHEET 6 of 12

GROUP B



RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

123923

REV

0

SCALE

SHEET **7 of 12**

GROUP C

	A	B	C	D	E	F	G	H	J
1	U51 74H00N		U52 74H20		U53 7474N		U54 74H00		U55
10	C15						C16		
	U60 74H00		U61 74H00N		U62 7486		U63 74H04		U64
20	U69 74H04		U70 7442		R4 R6 R8	R5 R7	U71 7486		U72
30	U77 74H04		U78 74H30		U89 74500			R9 R10	
							C8		
40	U79 74H04		U80 74H20		U90 74H20		U91 74H74		U81
			C14						
50	U86 74H04		U87 74H40		U92 74H00		RELAY XK4		XK5

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

123923

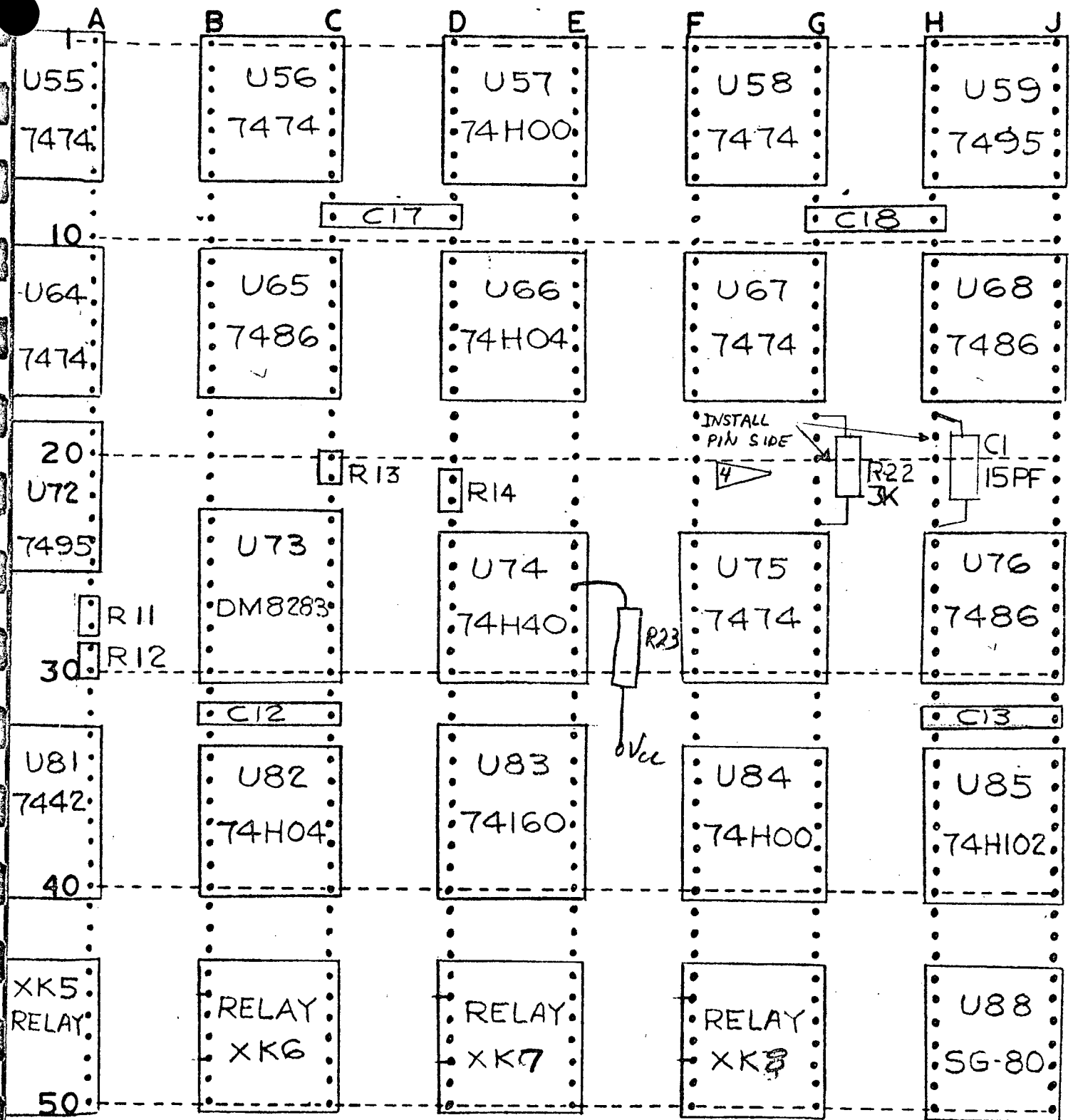
REV

0

SCALE

SHEET 8 of 12

GROUP D



RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

123923

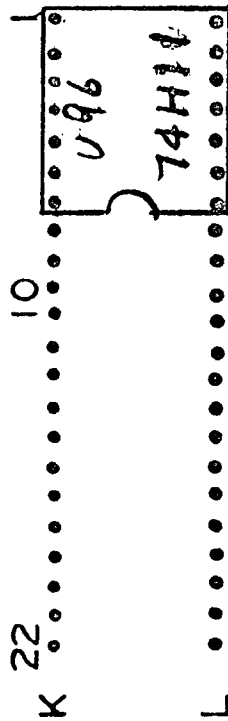
REV

0

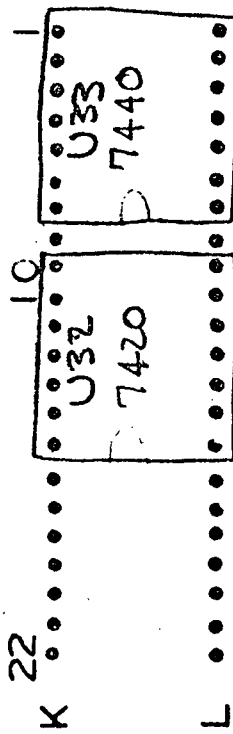
SCALE

SHEET 9 of 12

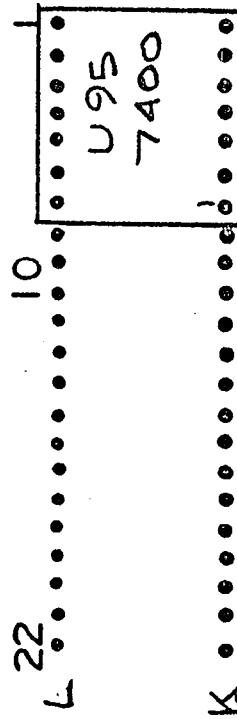
GROUP A



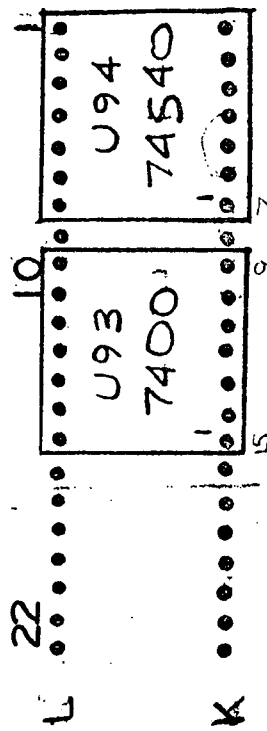
GROUP B



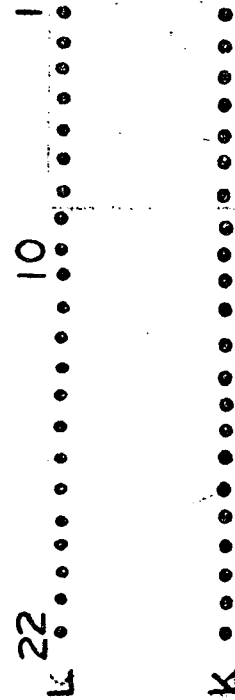
GROUP C



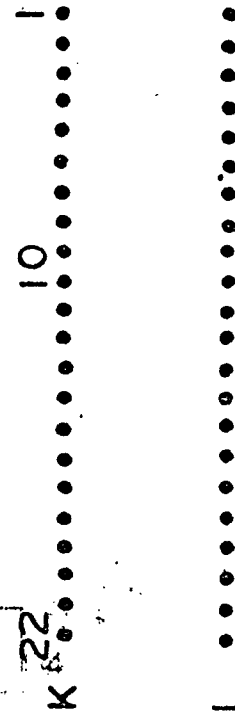
GROUP D



GROUP E



GROUP F



RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

123923

REV

0

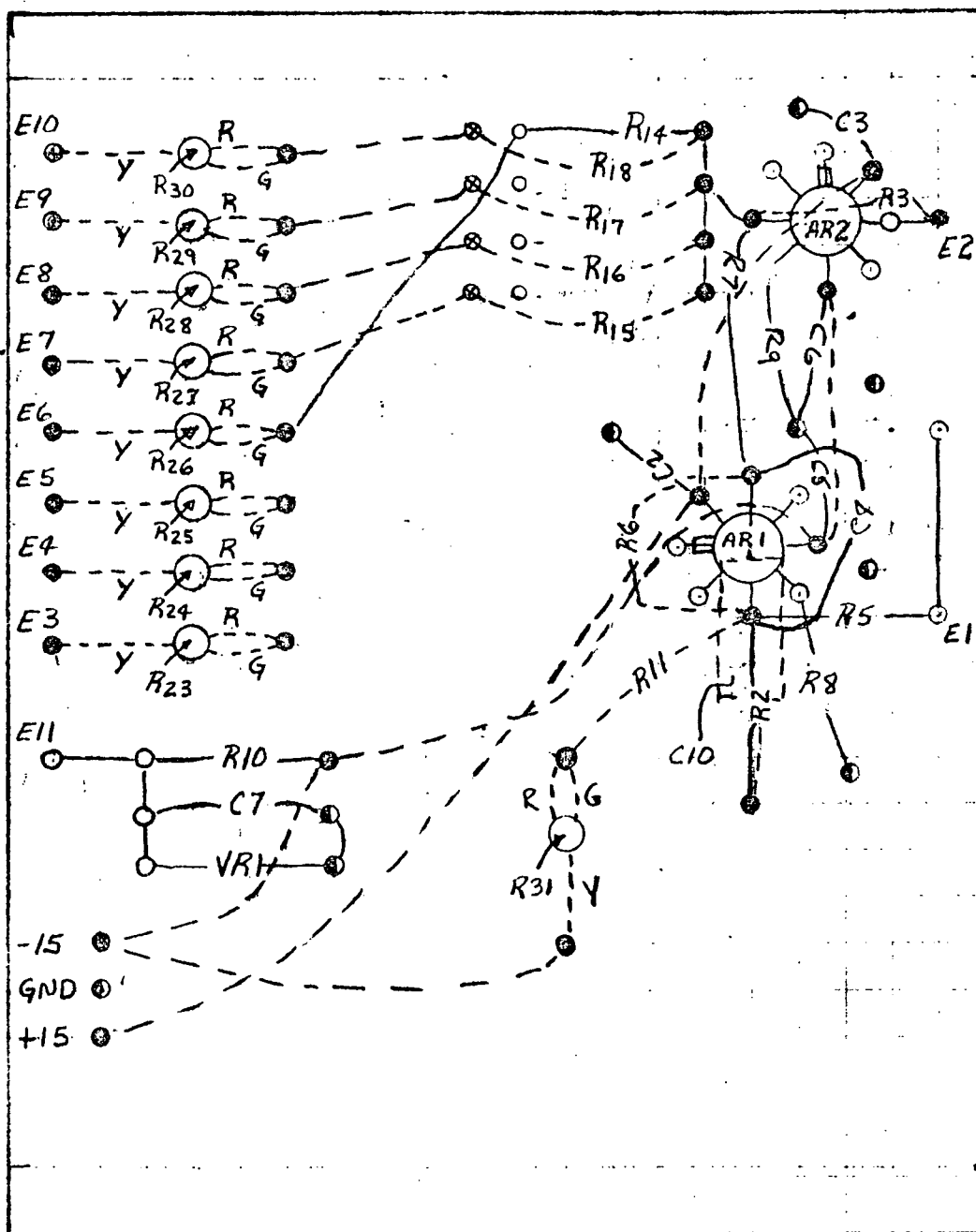
SCALE

SHEET 10 of 12

APPLICATION			REVISIONS					
DASH NO.	NEXT ASSY	USED ON	LTR	DESCRIPTION			DATE	APPROVED
	123917	1677-0200		CHG BY	CHK BY	ECO NO.		

REVISION INDEX	SHEET																					
	REV																					
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE APPLIED FINISH TOLERANCES 2 PLACE 3 PLACE ANGLES ± ± ±	CONTRACT NO.		RADIATION INCORPORATED SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA																			
	DR BY		CHK BY		TITLE																	
	ENGINEER				SAMPLE RATE TIMING TRANSMITTER																	
	PROJECT ENGINEER				SIZE CODE IDENT NO. REV A 91417 123931 0																	
	APPROVAL				SCALE SHEET 1 OF 3																	
	APPROVAL																					

SAMPLE RATE TIMING



- INSULATED STANDOFF (115179-002)
- ① GROUND TYPE STANDOFF (1091-2)
- ⊙ FEEDTHROUGH STANDOFF (115179-001)
- ⊗ INSULATED STANDOFF ON BACK (115179-002)
- WIRE ON BACK
- WIRE ON FRONT

DIATION INCORPORATED
OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE CODE IDENT NO.

A

91417

123931

REV

0

SCALE

SHEET 2 of 3

ITEM	QTY PER ASSY LEVEL					DWG. SIZE	PART OR IDENTIFYING NO.	M P	NOMENCLATURE OR DESCRIPTION
	1	2	3	4	5				
1	2	-					U5B7741393		OP AMP (AR1, AR2)
2	1						255-60(1K)		POT. 1K (R30)
3	1						255-60(1K)		POT. 1K (R29)
4	1						255-60(2K)		POT. 2K (R28)
5	1						255-60(2K)		POT. 2K (R27)
6	1						255-60(2K)		POT. 2K (R26)
7	1						255-60(5K)		POT. 5K (R23)
8	1						RN60D4990F		RESISTOR 499 ohms (R10)
9	1						RN60D4871F		" 4.87 K (R14)
10	1						RN60D3741F		" 3.74 K (R15)
11	1						RN60D2941F		" 2.94 K (R16)
12	1						RN60D2801F		" 2.80 K (R17)
13	1						RN60D2371F		" 2.37 K (R18)
14	1						RN60D8062F		" 80.6 K (R11)
15	1						RC07G472J		" 4.7 K (R2)
16	2						RN60D1002F		" 10 K (R8, R5)
17	2						RN60D2501F		" 2.5 K (R1, R9)
18	1						RC07G563J		" 56 K (R6)
19	2						RN60D4991F		" 4.99 K (R3, R4)
20									
21									
22									
23	17						CK06 BX103M		CAPACITOR .01 μ F (C10, C2, C3, C5, C6, C7)
24									(C11)
25	1						DM-15-151J		" 150 pF (C4)
26	2						DM-15-680J		CAPACITOR 68 pF (C1, C9)
27	1						DM-15-330J		" 33 pF (C8)
28									
29									
30	1						1N752A		ZENER DIODE (UR1)
31	22						115179-002		INSULATED TERMINAL
32	37						115179-001		FEEDTHROUGH TERMINAL
33	9						1091-2		GROUND TERMINAL
34									
35									

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

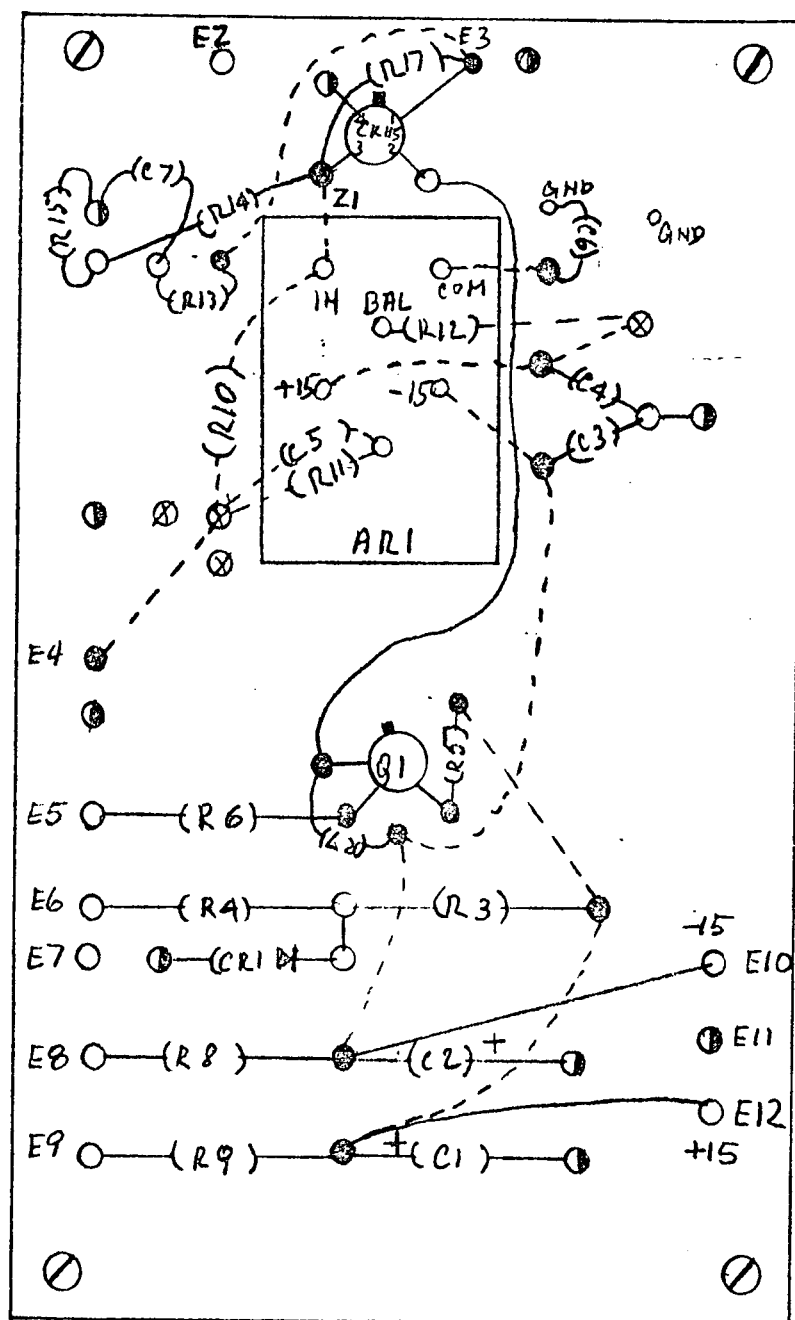
REV

0

SCALE

SHEET 3 OF 3

TRANSMITTER OUTPUT BUFFER



- INSULATED STAND OFF (115179-002)
- ⊙ GROUND TYPE STAND OFF (1091-2)
- FEED THROUGH STAND OFF (115179-001)
- ⊗ INSULATED STAND OFF ON BACK (115179-002)
- WIRE ON BACK OF BOARD
- WIRE ON FRONT OF BOARD

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE CODE IDENT NO.

A

91417

123924

REV

0

SCALE

SHEET 2 OF 3

U. S. BLUEPRINT PAPER CO. CLEARPRINT 1000H										V	
ITEM	QTY PER ASSY LEVEL					DWG. SIZE	PART OR IDENTIFYING NO.	M P	NOMENCLATURE OR DESCRIPTION		
	1	2	3	4	5						
1	1						CD-23		AR1	O.P. AMPL.	
2	1						2N-2222		Q1	TRANSISTOR	
	1						1N752A		CR1	GENERAL DIODE	
4	1						CK1115		RAYSTOR	RAYTHEON	
5	1						RN65D4320F		R3	432 ~ 1% 1/4 W	
6	1						RCR07G102JP		R4	1K 5% 1/4 W	
7	1						RN60D3010F		R5	300 ~ 1% 1/8 W	
8	1						RN60D100IF		R6	100 ~ 1% 1/8 W	
9	1						RCR07G103JP		R7	10K 5% 1/4 W	
10	1						RNR60H266IFM		R8	366 ~ 1% 1/8 W	
11	1						RNR60H366IFM		R9	"	
12	1						RCR20G221JP		R10	220 ~ 5% 1/2 W	
13	1						RCR20G51JP		R11	50 ~ 5% 1/2 W	
14	1						RNR60H249LFR		R12	24.9K 1% 1/8 W	
15	1						RCR07G101JP		R13	100 ~ 5% 1/4 W	
16	1						RNR60H3010F		R14	300 ~ 1% 1/8 W	
17	1						RN60D53R6F		R15	1% 1/8 W	
18	1						RN60D3320F		R16	332 ~ 1% 1/8 W	
19	1						RCR07G102JP		R17	5% 1/4 W	
20	1						CL21CH4R5TP3		C1	4.5 μF.	
21	1						"		C2	4.5 μF.	
22	1						CK06CW103M		C3		
23	1						"		C4		
24	1						CK06BX103K		C5		
25	1						CK06BX103M		C6		

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

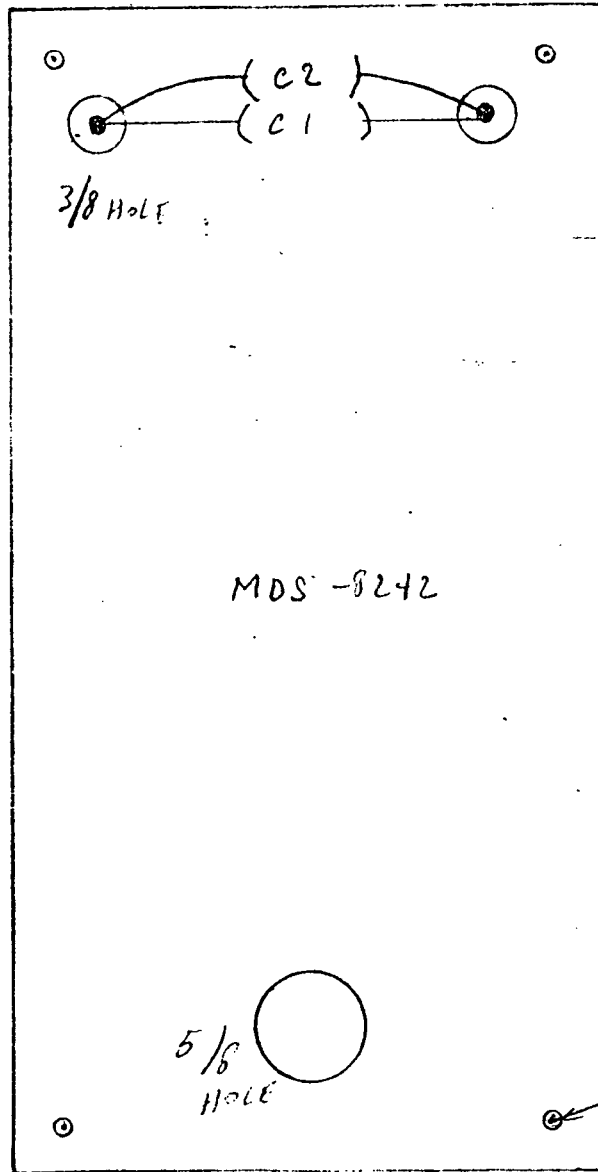
91417

REV

SCALE

SHEET 30F3

[illegible]



CLEARANCE HOLE
FOR 11/4-10 SCREW
(4 PLACES)

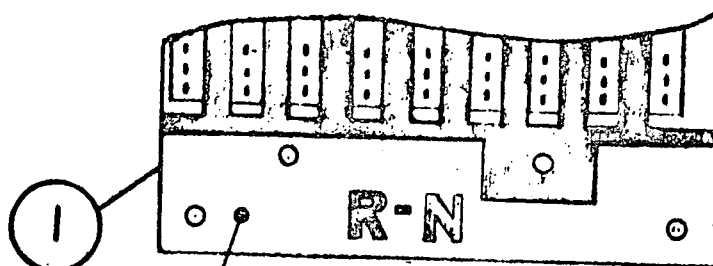
NOTES:

1. ALL MODULES ARE SHOWN WITH PIN 1 IN THE TOP LEFT CORNER IN ROWS A-J AND PIN 1 IN LOWER LEFT CORNER IN ROWS L AND K.
2. ITEMS NOT IDENTIFIED BY PART NUMBER OR FIND NUMBER IN FIELD OF DRAWING ARE IDENTIFIED BY REFERENCE DESIGNATION IN THE PARTS LIST.
3. ITEM 5, 22UF FILTER CAP, TO BE MOUNTED IN LOWER AREA ON WIRE-WRAP SIDE OF EACH GROUP BOARD. POSITIVE (+) LEAD OF CAP TO BE CONNECTED TO V-PIN, AND NEGATIVE (-) LEAD TO BE CONNECTED TO G-PIN. USE ITEMS 6 AND 7 TO INSTALL CAPACITOR.

RADIATION INCORPORATED SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA	SIZE A	CODE IDENT NO. 91417	1 2 3 9 6 6	REV 0
	SCALE		SHEET 2 OF 11	

 RADIATION INCORPORATED SUBSIDIARY OF HARPIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA	SIZE A	CODE IDENT NO. 91417	123966	REV 0
	SCALE			SHEET 3 OF 7

RAD FORM 150-3 (REV. 9-68)



MARK 91417 ASSY 123966 G1
PER MIL-STD-130

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

REV

0

123966

SCALE

SHEET 4 OF 11

GROUP "A"

	A	B	C	D	E	F	G	H	J
1	74S112 U48		74S112 U47		74S112 U46		74S112 U45		
10	R77	R76	C22		C21		C20		
20			74S00 U54		74180 U53		74S00 U52		
30					74S112 U58		74S40 U57		
40									
50	74S40 U74								

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

123 966

REV

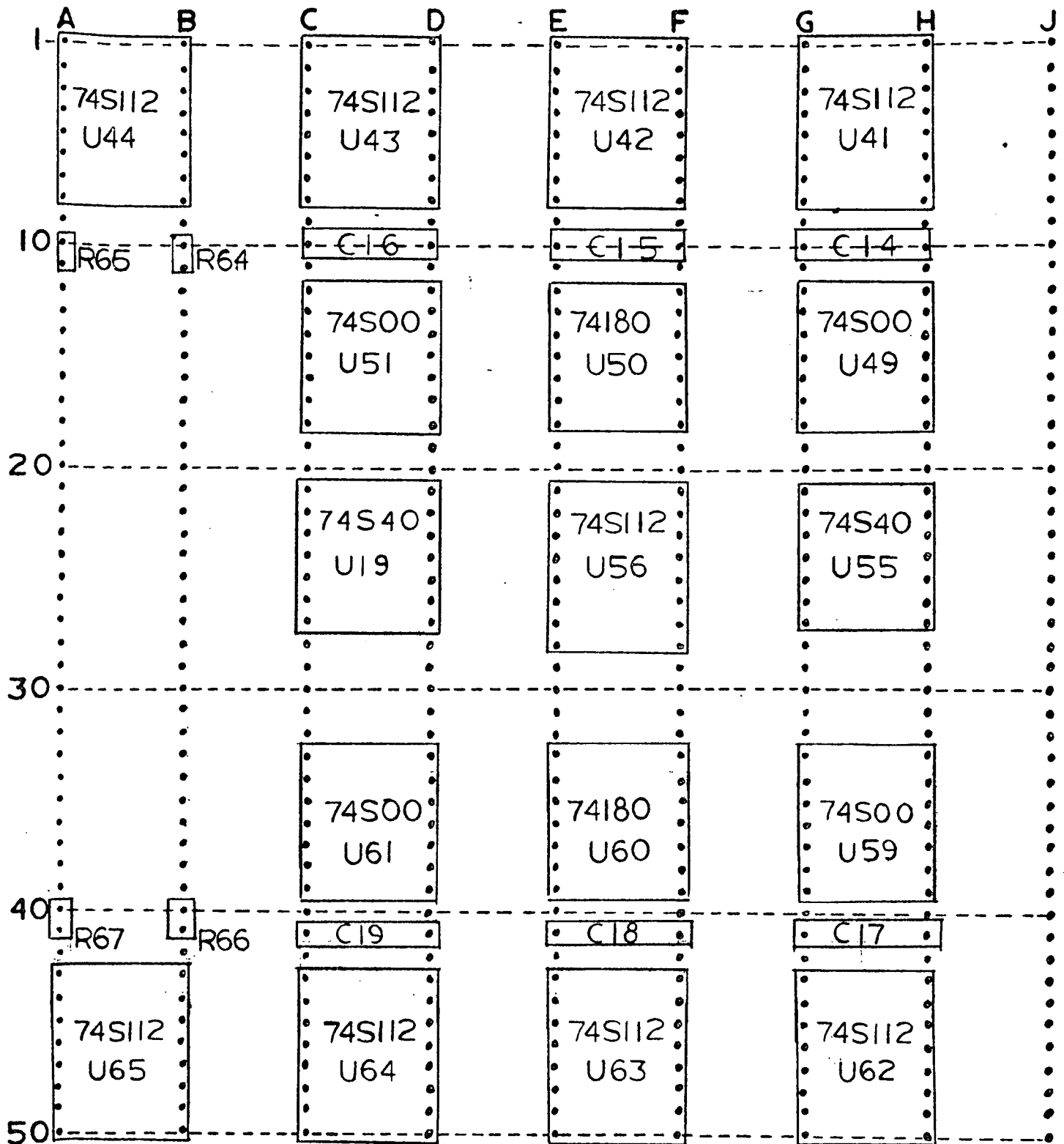
0

SCALE

GROUP A

SHEET 5 OF 11

GROUP "B"



RADIATION INCORPORATED SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA	SIZE	CODE IDENT NO.	REV
	A	91417	123966
	SCALE	GROUP B	SHEET 6 OF 11

GROUP "C"

	A	B	C	D	E	F	G	H	J
1	74S112 U9		74S112 U8		74S112 U7		74S112 U6		U5
10	R61	R60	C6		C5		C4		U12
	74H74 U67		74S00 U15		74180 U14		74S00 U13		C3
20			74S40 U66		74S112 U21		74S40 U20		
30	74H30 U69		74S00 U32		74180 U31		74S00 U30		U25
40	R63	R62	C13		C12		C11		R42 R43
	74S112 U40		74S112 U39		74S112 U38		74S112 U37		U73
50									

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

123966

REV

0

SCALE

GROUP C

SHEET 7 OF 11

GROUP "D"

A	B	C	D	E	F	G	H	J
74 S00 U5	74180 U4		74S00 U3		74S00 U2		74S00 U1	
10 74 S00 U12	74180 U11		C 2		C 1		74180 U10	
C 3	74S112 U71		74S112 U18		74S112 U17		74180 U16	
20 74 H51 U70								
74 S22 30 U25	74H20 U24		74S40 U23		74S112 U22		74S112 U72	
	C 10		74S00 U28		74S04 U27		74S140 U26	
R40 40 R41	74H20 U29		C 9		C 8		C 7	
74S 140 U73 50	74H20 U36		74S112 U35		74S112 U34			

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

-123966

REV

0

SCALE

GROUP D

SHEET 8 OF 11

GROUP A

K 22 10
R75 R74 R73 R72 R71 R70 R69 R68

L 10
R59 R58 R57 R56 R55 R54 R53 R52

GROUP C

K 22 10
R29 R28 R27 R26 R25 R24 R23 R22

L 10
R37 R36 R35 R34 R33 R32 R31 R30

GROUP E

K 22 10
R20 R19 R18 R17 R16 R15 R14 R13 R12 R11 R10

L 10
R51 R50 R49 R48 R47 R46 R45 R44

GROUP B

K 22 10
R59 R58 R57 R56 R55 R54 R53 R52

L 10
R20 R19 R18 R17 R16 R15 R14 R13 R12 R11 R10

GROUP D

K 22 10
R20 R19 R18 R17 R16 R15 R14 R13 R12 R11 R10

L 10
R51 R50 R49 R48 R47 R46 R45 R44

GROUP F

K 22 10
R20 R19 R18 R17 R16 R15 R14 R13 R12 R11 R10

L 10
R51 R50 R49 R48 R47 R46 R45 R44

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

123966

REV

0

SCALE

SHEET 9 OF 11

[illegible][illegible][illegible][illegible]

LEGEND ☐ UNUSED CIRCUITRY ☒ USED CIRCUITRY ☐ NO CIRCUIT

①

SHEET 10 OF 11

REF
DESIG

U61	U62	U63	U64	U65	U66	U67		U69	U70	U71	U72	U73	U74	
X	X	X	X	X	X	X		X	X	X	X	X	X	
X	X	X	X	X	X	X		X	X	X	X	X	X	
X	X	X	X	X	X	X		X	X	X	X	X	X	
X	X	X	X	X	X	X		X	X	X	X	X	X	
X	X	X	X	X	X	X		X	X	X	X	X	X	
X	X	X	X	X	X	X		X	X	X	X	X	X	
X	X	X	X	X	X	X		X	X	X	X	X	X	
X	X	X	X	X	X	X		X	X	X	X	X	X	
X	X	X	X	X	X	X		X	X	X	X	X	X	
X	X	X	X	X	X	X		X	X	X	X	X	X	

REF
DESIG

REF
DESIG

REF
DESIG

LEGEND ☐ UNUSED CIRCUITRY ☒ USED CIRCUITRY ☐ NO CIRCUIT

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

123 966

REV

0

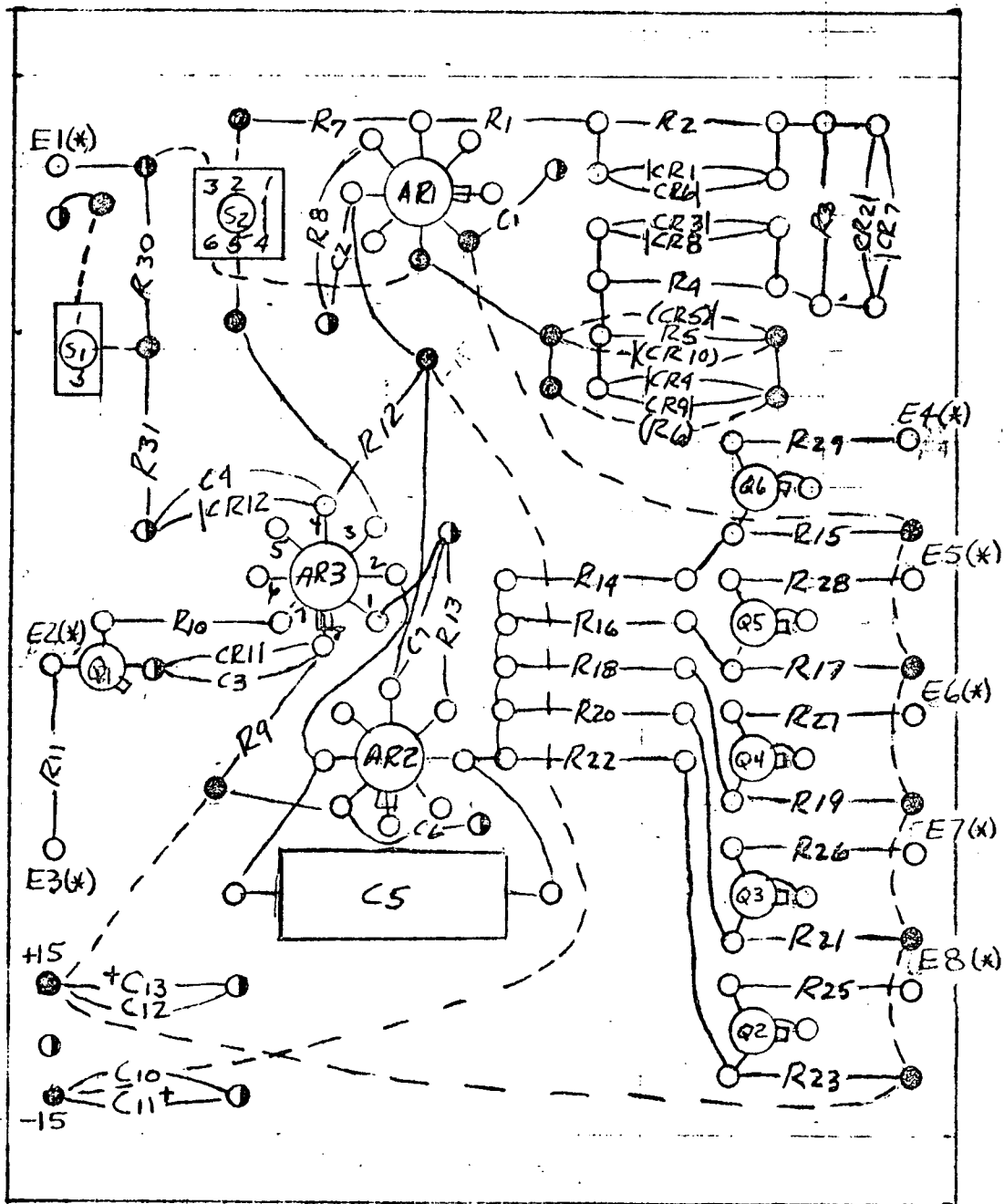
SCALE

SHEET 11 OF 11

APPLICATION			REVISIONS				
DASH NO.	NEXT ASSY	USED ON	LTR	DESCRIPTION		DATE	APPROVED
	123914			CHG BY	CHK BY	ECO NO.	

REVISION INDEX	SHEET																					
	REV																					
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND INCLUDE APPLIED FINISH TOLERANCES			CONTRACT NO.		RADIATION INCORPORATED SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA																	
2 PLACE ± 3 PLACE ± ANGLES ±			DR BY																		CHK BY	
			ENGINEER		TITLE		DELTA MODULATOR TRANSMITTER															
			PROJECT ENGINEER																			
			APPROVAL		SIZE		CODE IDENT NO.		123921								REV 0					
			APPROVAL		A		91417															
					SCALE				SHEET 1 OF 3													

1/2 OF ASSEMBLY OTHER 1/2 IDENTICAL



(1/2) Δ MODULATOR LAYOUT

- C INSULATED STANDOFF (115119-002)
- ⊙ GROUND TYPE STANDOFF (1091-2) --- WIRING ON REVERSE OF BOARD
- FEEDTHROUGH STANDOFF (115119-001) --(R6)-- COMPONENT ON REVERSE OF BOARD
- (*) A FOR Δ-MOD BOARD A --- WIRING ON FRONT OF BOARD
- or B FOR Δ-MOD BOARD B --- R6 --- COMPONENT ON FRONT OF BOARD

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE CODE IDENT NO.

A

91417

123921

SCALE

SHEET 2 of 3

ITEM	QTY PER ASSY LEVEL					DWG. SIZE	PART OR IDENTIFYING NO.	M P	NOMENCLATURE OR DESCRIPTION
	1	2	3	4	5				
1	16						CK06CW103M		CAP. - C1, C2, C3, C4, C6, C7, C10, C12
2	2						CS		CAP. - 0.47MF $\pm 10\%$ 200DC
4	4						CSR13D226KM		CAP. - C11, C13
4	2						C4K 7101		SWITCH - S1
5	2						C4K 7201		SWITCH - S2
6	4						U5B77A1393		OP. AMP. - AR1, AR2
7	2						U5B771039X		COMPARATOR - AR3
8	20						1N914		DIODE: CR1 THRU CR10
9	2						1N759A		DIODE: CR11
10	2						1N753A		DIODE: CR12
11	12						2N2222		TRANSISTOR: Q1 THRU Q6
12	1						RN60D5490F		RESISTOR: R1
13	1						RN60D7150F		R2
14	11						RN60D1001F		R3, R7, R8, R10, R11, R13, R25-R29
15	1						RN60D1651F		R4
16	1						RN60D6651F		R5
17	1						RN60D2002F		R6
18	1						RN60DB8R7F		R9
19	1						RN60D1740F		R12
20	1						RN60D1401F		R14
21	1						RN60D1541F		R15
22	1						RN60D3091F		R16
23	2						RN60D3161F		R17, R24
24	1						RN60D6191F		R18
25	1						RN60D6341F		R19
26	1						RN60D12442F		R20
27	1						RN60D1272F		R21
28	2						RN60D2492F		R22, R23
29	1						RN60D52R3F		R30
30	1						RN60D1431F		RESISTOR R31
31	21						115179-001		FEEDTHROUGH SOLDER TERMINALS
32	78						115179-002		REG
33	9						1091-2		GROUND (CAMBION)

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

123921

REV

0

SCALE

SHEET 3 OF 3

NOTES:

1. ALL MODULES ARE SHOWN WITH PIN 1 IN THE TOP LEFT CORNER IN ROWS A-J AND PIN 1 IN LOWER LEFT CORNER IN ROWS L AND K.
2. ITEMS NOT IDENTIFIED BY PART NUMBER OR FIND NUMBER IN FIELD OF DRAWING ARE IDENTIFIED BY REFERENCE DESIGNATION IN THE PARTS LIST.
3. ITEM 5, 22UF FILTER CAP, TO BE MOUNTED IN LOWER AREA ON WIRE-WRAP SIDE OF EACH GROUP BOARD. POSITIVE (+) LEAD OF CAP TO BE CONNECTED TO V-PIN, AND NEGATIVE (-) LEAD TO BE CONNECTED TO G-PIN. USE ITEMS 6 AND 7 TO INSTALL CAPACITOR.

RADIATION INCORPORATED SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA	SIZE A	CODE IDENT NO. 91417	124897	REV 0
	SCALE		SHEET 2 OF 13	

ITEM	QTY PER ASSY LEVEL					DWG. SIZE	PART OR IDENTIFYING NO.	M P	NOMENCLATURE OR DESCRIPTION
	1	2	3	4	5				
1	1						8136-UG1-54		PRINTED WIRING BOARD
2	AR						115235-003		WIRE, ELEC, SOLID, AWG 30 RED
	AR						115235-001		WIRE, ELEC, SOLID, AWG 30 BLK
4	AR						115235-010		WIRE, ELEC, SOLID AWG 30 WHT
5	6						150D226X905	B2	CAP FXD 22 μ f 15V $\pm$ 10%
6	AR						MIL-122129-24		INSULATION TUBING, TEFLON 24 AWG
7	12						118203-001		CONTACT CRIMP COMPONENT
8	AR						SN60WRAP3		SOLDER $\alpha\alpha$ -S-571
9	1						531022		LOGIC DIAGRAM
10	37						117985-004		CAP FXD .028 μ f 50V $\pm$ 10%
11	6						117982-007		RESISTOR, 1K Ω , 1/8W
12	14						SN74S00N		IC
13	8						SN74S04N		
14	3						SN74S10N		
15	6						SN74S11N		
16	5						SN74S20N		
17	14						SN74H30N		
18	1						SN7442N		
19	2						SN7483N		
20	2						SN74H87N		
21	2						SN7485N		
22	6						SN74H74N		
23	4						SN74S112N		
24	17						SN74S40N		
25	1						Y891-F10		OSCILLATOR, 50MHZ
26	10						8136-29G1		ADAPTER PLUG, 14 PIN
27	6						SN74H00		
28	1						SN7440		
29	1						SN74S140		
30	1						SN7490		
31	1						SN7495		

RADIATION INCORPORATED SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA	SIZE	CODE IDENT NO.	REV
	A	91417	124897
SCALE		SHEET 3 of 12	

GROUP A

	A	B	C	D	E	F	G	H	J
1	74\$00 U1	IN IN OUT IN IN OUT	74\$10 U6		74\$40		74\$04 U24		74\$112 U23
10	74\$00 U2		74\$10 U7		IK R93 IK R94 C2		74H74 U123 C3		74\$112 U22
20	74\$00 U3		74\$10 U8		74\$112 U15		74H87 U19		74\$112 U21
30	74\$00 U4		74\$04 U9		74\$112 U14		74H87 U18		74\$112 U20
40	74\$04 U5 C1		74\$112 U10		74\$112 U13		74H83 U17		74\$112 U25
50	74\$20 U124		74\$112 U11		74\$112 U12		74H83 U16		74\$04 U25

INPUT SELECT, REG A REG B SUBTRACTOR & STORAGE

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

STATISTICAL ENCODER

124897

REV

C

SCALE

SHEET 4 OF 13

REP FORM 400923-2-0

GROUP C

	A	B	C	D	E	F	G	H	J
1				74H00 U39		74H30 U44		74H30 U49	
10				74H00 U40		74H30 U45		74S04 U50	
20				74H00 U41		74H30 U46		74H30 U51	
30				74H00 U42		74H30 U47		74H30 U52	
40				74H00 U43		74H30 U48		74S20 U53	
50				C8 1X R22 1X R21 1X R20 1X R29		C9 74S112		C10 1X 74H30 U88	

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

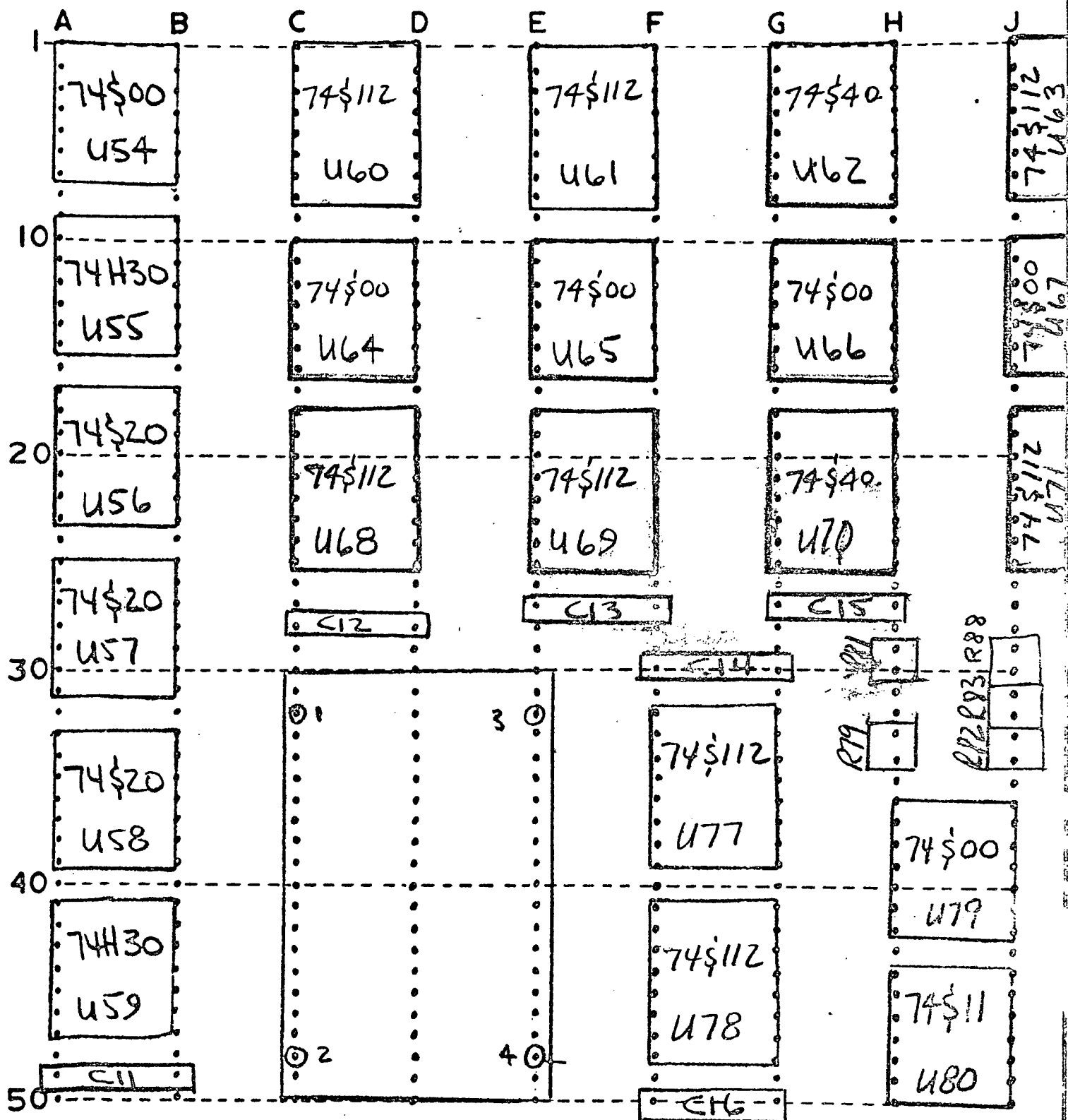
124897

SCALE

SHEET

60513

GROUP D



RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

124897

SCALE

SHEET

70

GROUP E

	A	B	C	D	E	F	G	H	J
	74\$112 U63	74\$112 U72 C17		74\$40 U73 C18		74\$112 U89		74\$112 U92	
	74\$00 U67	74\$04 U75		74\$40 U74 C19		74\$112 U90 C20		74\$112 U91	
	74\$112 20 U71	74\$112 U76		74\$00		74\$00		74\$112	
					C21				
30	74\$112 U81	74\$112 U82		74\$112 U84		74\$00 U86			
		74\$40 U83 C22		74\$74 U85 C23		74\$11 U87 C24			
40	74\$40								
	1K 74\$95 74\$80 1K								
50									

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

124897

SCALE

SHEET

5 OF 13

GROUP F

	A	B	C	D	E	F	G	H	J
1	74\$112 U93 C 25		74\$112 U100 C 25		74\$112 U101 C 26		74\$112 U102		128 884 815 896 887
10	74\$112 U94 C 27		74\$40 U99 C 28		74\$40 U98 C 29		74\$112 U103 C 30		
20	74\$112 U95 C 31		74\$112 U96 C 32		74\$112 U97 C 33		74\$112 U104 C 34		
30	74\$40 U107 C 35		74\$112 U108 C 36		74\$112 U107 C 37		74\$112 U105 C 38		
40	74\$112 U109 C 39		74\$04 U128 C 40		74\$40 U110 C 41		74\$40 U106 C 42		
50									

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE CODE IDENT NO.

A

91417

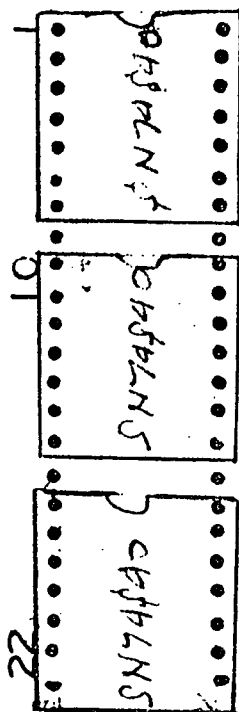
124897

SCALE

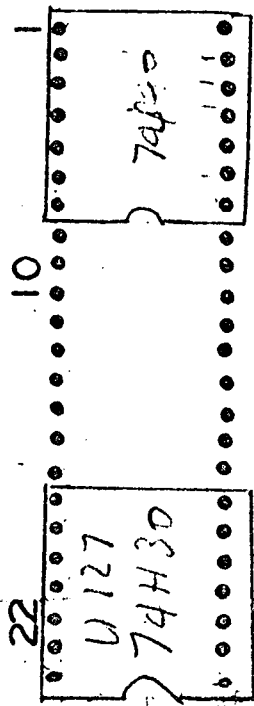
SHEET

9 of 12

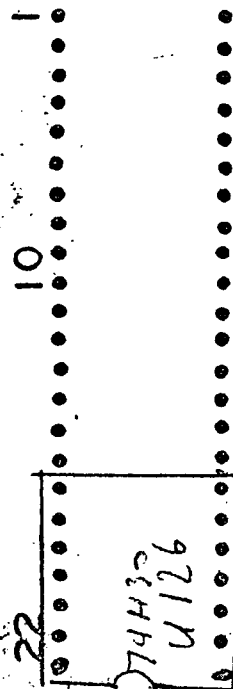
GROUP B



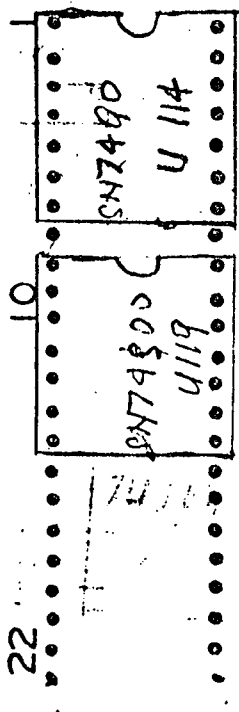
GROUP D



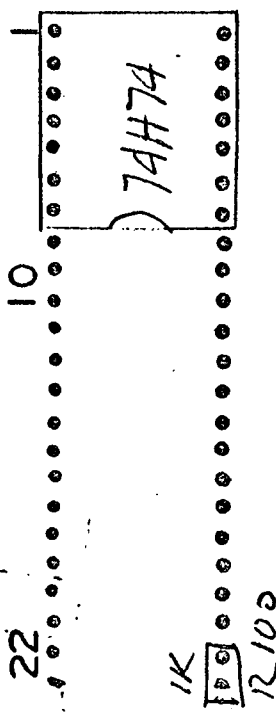
GROUP F



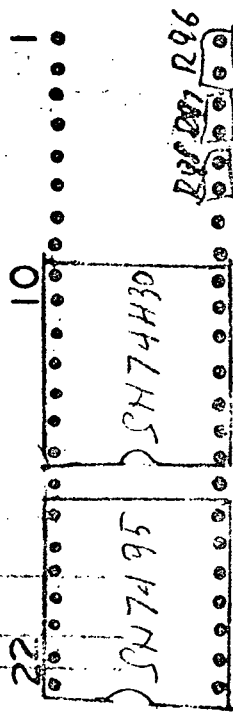
GROUP A



GROUP C



GROUP E



RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

SCALE

SHEET

10 of 3

[illegible][illegible][illegible][illegible]

LEGEND ☐ UNUSED CIRCUITRY ☒ USED CIRCUITRY ☒ NO CIRCUIT

RAD FORM 400043.2-0

[illegible][illegible][illegible][illegible]

SHEET 12 of 13

LEGEND ☐ UNUSED CIRCUITRY ☒ USED CIRCUITRY ☐ NO CIRCUIT

[illegible]

Reproduced from
best available copy.

[illegible][illegible][illegible]

LEGEND ☐ UNUSED CIRCUITRY ☒ USED CIRCUITRY ☐ NO CIRCUIT

A

91417

124897

SCALE

SHEET 13 of 18

APPLICATION			REVISIONS					
DASH NO.	NEXT ASSY	USED ON	LTR	DESCRIPTION			DATE	APPROVED
	123914	1677-0100		CHG BY	CHK BY	ECO NO.		

[illegible]

NOTES:

1. ALL MODULES ARE SHOWN WITH PIN 1 IN THE TOP LEFT CORNER IN ROWS A-J AND PIN 1 IN LOWER LEFT CORNER IN ROWS L AND K.
2. ITEMS NOT IDENTIFIED BY PART NUMBER OR FIND NUMBER IN FIELD OF DRAWING ARE IDENTIFIED BY REFERENCE DESIGNATION IN THE PARTS LIST.
3. ITEM 5, 22UF FILTER CAP, TO BE MOUNTED IN LOWER AREA ON WIRE-WRAP SIDE OF EACH GROUP BOARD. POSITIVE (+) LEAD OF CAP TO BE CONNECTED TO V-PIN, AND NEGATIVE (-) LEAD TO BE CONNECTED TO G-PIN. USE ITEMS 6 AND 7 TO INSTALL CAPACITOR.

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

124898

SCALE

SHEET 2 of 2

ROOT LEVEL						SIZE	IDENTIFYING NO.	P	DESCRIPTION
1	1								PRINTED WIRING BOARD
2	AR						115235-003		WIRE, ELEC, SOLID, AWG 30 RED
3	AK						115235-001		WIRE, ELEC, SOLID, AWG 30 BLK
4	AR						115235-010		WIRE, ELEC, SOLID AWG 30 WHT
5							150D226X905	B2	CAP FXD 22 μ f 15V $\pm$ 10%
6	AR						MIL-22129-24		INSULATION TUBING, TEFLON 24 AWG
7							118203-001		CONTACT CRIMP COMPONENT
8	AR						SN60WRAP3		SOLDER Q.Q.-S-571
9	REF						531023		LOGIC DIAGRAM
10	31						117985-004		CAP .028 μ f 50V $\pm$ 10%
11	13						117982-007		RES 1K 1/4W $\pm$ 5%
12	8						SN7485		IC, 4BIT MAGNITUDE COMP.
13	23						SN74H51		IC AO1
14	2						SN74193		IC 4BIT CTR
15	2						SN74S10		IC N3 S
16	5						SN74S04		IC N6 S
17	3						SN74H74		IC DD ff.
18	2						SN74S10		IC B2 S
19	2						SN74175		IC Quid D ff
20	2						SN74S00		IC N4 S
21	1						SN7474		IC DD ff
22	6						SN74H30		IC N1
23	25						SN74S112		IC DUAL JK
24	1						SN74S03		IC N4 (O.C)
25	1						SN74S11		IC A3

 HARRIS CORPORATION SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA	SIZE	CODE IDENT NO.	REV
	A	91417	124898
SCALE		SHEET	3 of 12

GROUP A

	A	B	C	D	E	F	G	H	J
1	7485 U1		74193 U10		74510 U7		74H74 U8		74504 U26
10	7485 U2		74193 U11		74504 U18		7485 U19		74504 U27
20	74H51 U3		7485 U12		74H74 U9		7485 U20		
30	74H51 U4		7485 U13		74H51 U15		74540 U21		
40	74H51 U5		74H51 U14		74H51 U16		74510 U22		
50	74H51 U6				74H51 U17				

R2 ☐ R1 ☐ C3 ☐ C2 ☐ C4 ☐ C1 ☐

ASA2

SECTION 'A'

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

ENCODER RATE BUFFER

124898

REV

C

SCALE

SHEET 4 OF 12

GROUP B

	A	B	C	D	E	F	G	H	J
1	74\$04 U26	7485 U23		74175 U29		74175 U30		7474 U31	
10	74\$04 U27	7485 U24		74500 U28					
20		74174 U25							
30									
40									
50									

RADIATION INCORPORATED SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA	<i>ASAZ</i>		<i>SECTION 'B'</i>	
	SIZE A	CODE IDENT NO. 91417	ENCODER RATE BUFFER 124898	
	SCALE		SHEET <i>5 OF 12</i>	

GROUP C

	A	B	C	D	E	F	G	H	J
10	74H30 U32				74H51 U36		74\$40 U41		
20	74H30 U33				74H51 U37		74\$40 U42		
30	74H36 U34				74H51 U38		74\$40 U43		
40					74H51 U39		74\$40 U44		
50			74\$40 U35		74H51 U40		74\$40 U45		

Labels: C7, C8, C9, C10

A5A2

SECTION C

RADIATION INCORPORATED
 SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

ENCODER RATE BUFFER

124898

SCALE

SHEET 6 OF 12

GROUP D

Reproduced from
best available copy.

A	B	C	D	E	F	G	H	J
1 74540 U98	74H51 U47		74\$40 U52		74H51 U57		74\$40 U62	
10 745112 U99	74H51 U48	C11	74\$40 U53		74H51 U52		74\$40 U63	C14
20 745112 U100	74H51 U49		74\$40 U54		74H51 U59	C13	74\$40 U64	
30 74511 U101	74H51 U50		74\$40 U55		74H51 U60		74\$40 U65	
40	74H51 U51		74\$40 U56	C12	74H51 U61		74\$40 U66	
50						C15		

115112

SECTION D

RADIATION INCORPORATED SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA	SIZE	CODE IDENT NO.	ENCODER RATE BUFFER	RE.
	A	91417	124898	
SCALE		SHEET 7 OF 12		

V
G R O U P E

	A	B	C	D	E	F	G	H	J
1	74\$112 U67		74\$112 U68		74\$112 U69		74\$112 U70		R4 R3
10	EH6		G18		E21		E24		R6 R5
	74\$112 U74		74\$112 U73		74\$112 U72		74\$112 U71		
20			C19		C22		C25		R11
	74\$112 U86		74\$40 U83		74\$40 U84		74\$04 U85		
30									R8 R7
	74\$112 U75		74\$112 U76		74\$112 U77		74\$112 U78		
40	EH7		C20		E23		E26		R10 R9
	74H30 U98		74\$112 U81		74\$112 U80		74\$112 U79		
50									

A5A2

SECTION E

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417

ENCODER RATE BUFFER

124898

SCALE

SHEET 8 OF 12

GROUP F

	A	B	C	D	E	F	G	H	J
1	74H30 U90		74S40 U94						
10	74S112 U91		74S112 U95						
20	74S112 U92		74S03 U96						
30	74S04 U93		74H30 U97						
40									
50									

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE

A

CODE IDENT NO.

91417**124898**

RFV

SCALE

SHEET

9 of 12

GROUP A

20 10 1

..... 40 30 25 1

GROUP C

20 10 1

..... 40 30 25 1

GROUP E

20 10 1

74500
U86

..... 40 30 25 1

GROUP B

20 10 1

..... 40 30 25 1

GROUP D

20 10 1

745112
U87

..... 30 25 1

GROUP F

20 10 1

..... 40 30 25 1

RADIATION INCORPORATED
SUBSIDIARY OF HARRIS-INTERTYPE CORPORATION, MELBOURNE, FLORIDA

SIZE
A

CODE IDENT NO.
91417

124898

FE

SCALE

SHEET 1004

[illegible][illegible][illegible][illegible]

R

SHEET 12

LEGEND ☐ UNUSED CIRCUITRY ☒ USED CIRCUITRY ☒ NO CIRCUIT