

[illegible]

SHEET INDEX NOTES		SUPPORTING INFORMATION	
		CATEGORY	NO.
1. WHEN CHANGES ARE MADE IN THIS DRAWING, ONLY THOSE SHEETS AFFECTED WILL BE REISSUED.		EQUIPMENT DRAWING	J86872A-(
2. THIS SHEET INDEX WILL BE REISSUED AND BROUGHT UP TO DATE EACH TIME ANY SHEET OF THE DRAWING IS REISSUED, OR A NEW SHEET IS ADDED.		EQUIPMENT DESIGNATION REOT	J87872
		MAINTENANCE SPECIFICATION	167-615-30
3. THE ISSUE NUMBER ASSIGNED TO A CHANGED OR NEW SHEET WILL BE THE SAME ISSUE NUMBER AS THAT OF THE SHEET INDEX.			
4. SHEETS THAT ARE NOT CHANGED WILL RETAIN THEIR EXISTING ISSUE NUMBER.			
5. THE LAST ISSUE NUMBER OF THE SHEET INDEX IS RECOGNIZED AS THE LATEST ISSUE NUMBER OF THE DRAWING AS A WHOLE.			

2B

AT&T CO
STANDARD

BELL TELEPHONE LABORATORIES
INCORPORATED

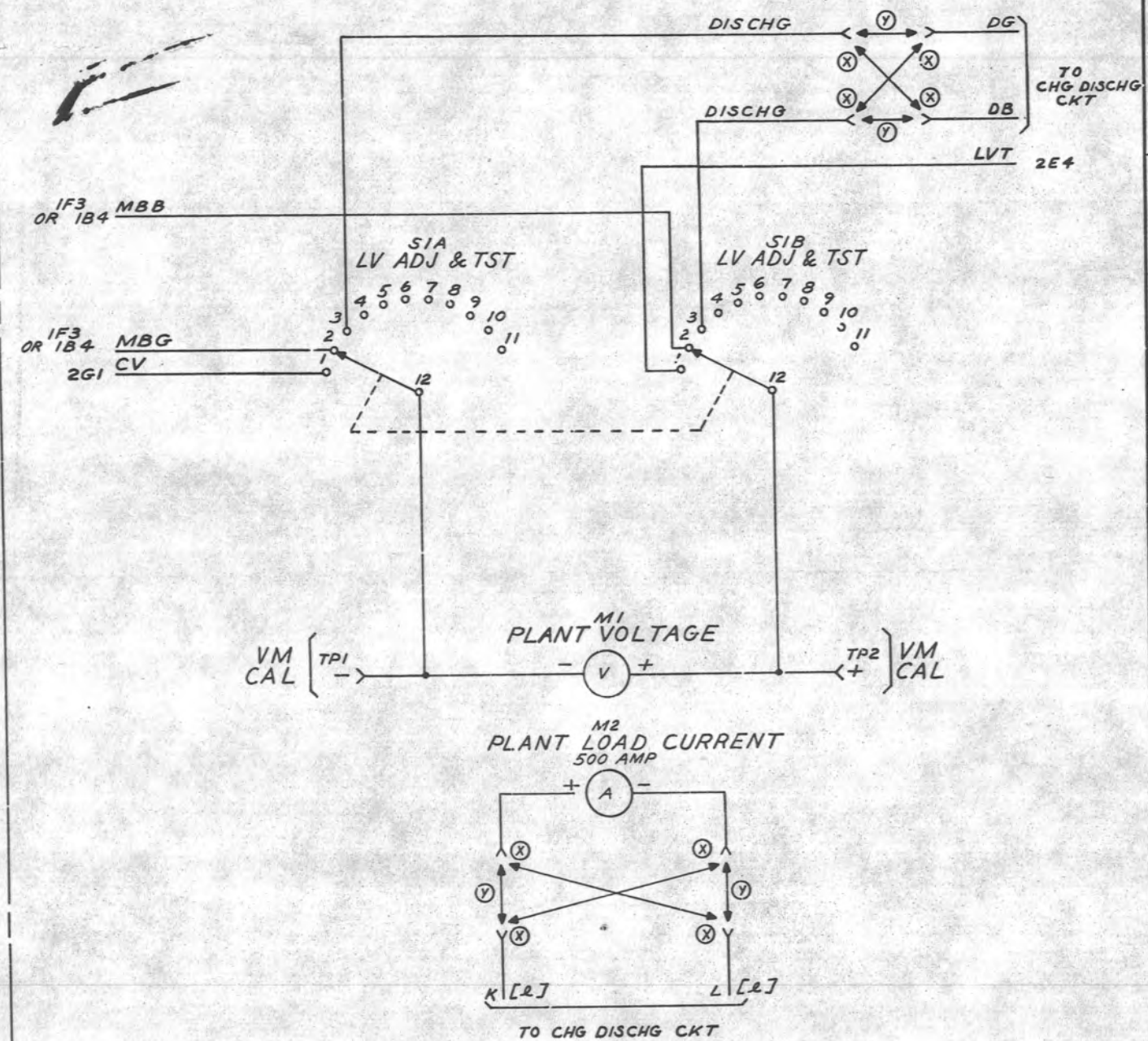
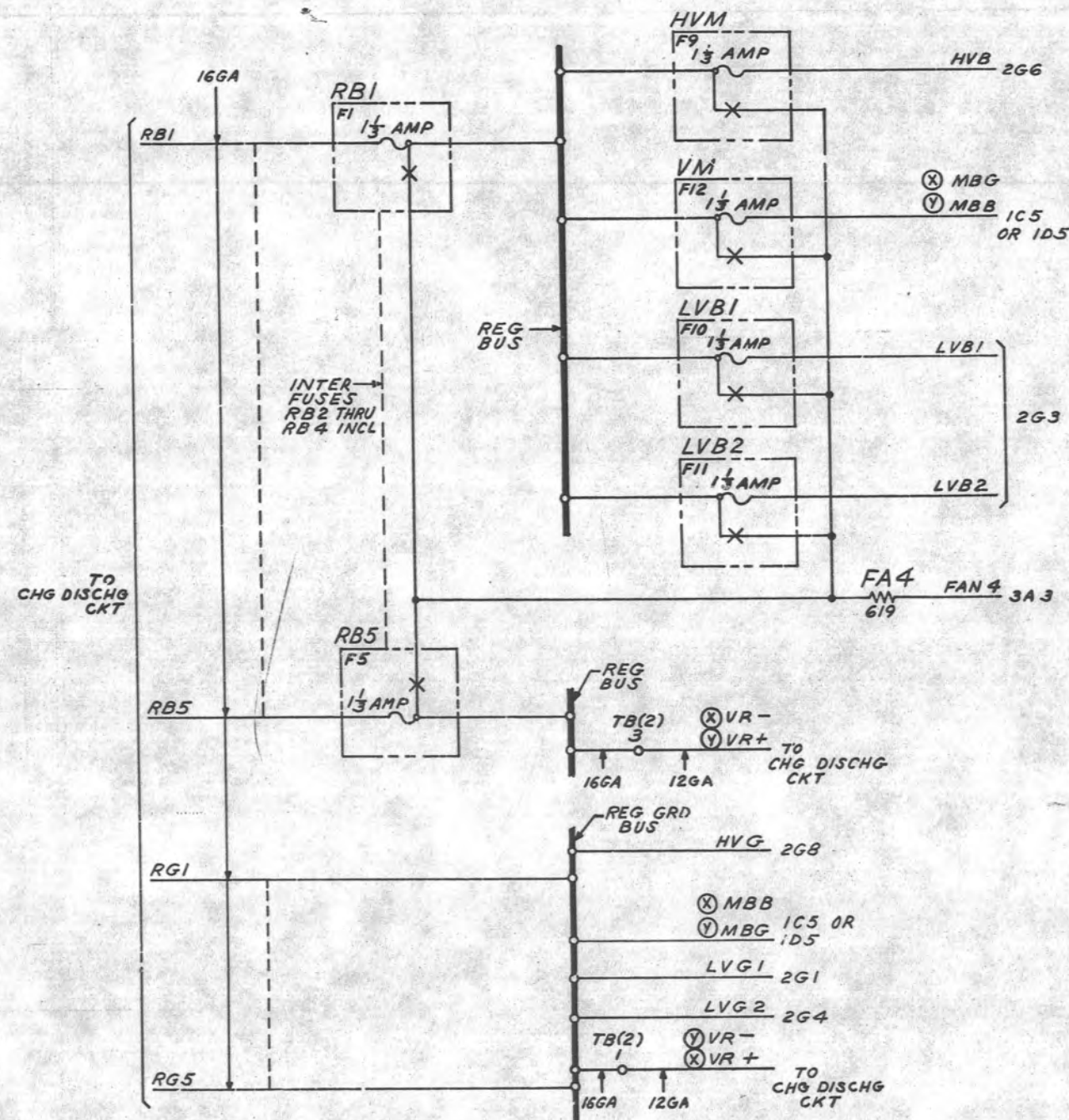
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6

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FS 1 REG CKT

FS 2 METER CIRCUIT SEE NOTE 202



CONTROL CIRCUIT FOR THE
CHARGE DISCHARGE CIRCUIT

SD-82303-01-B1

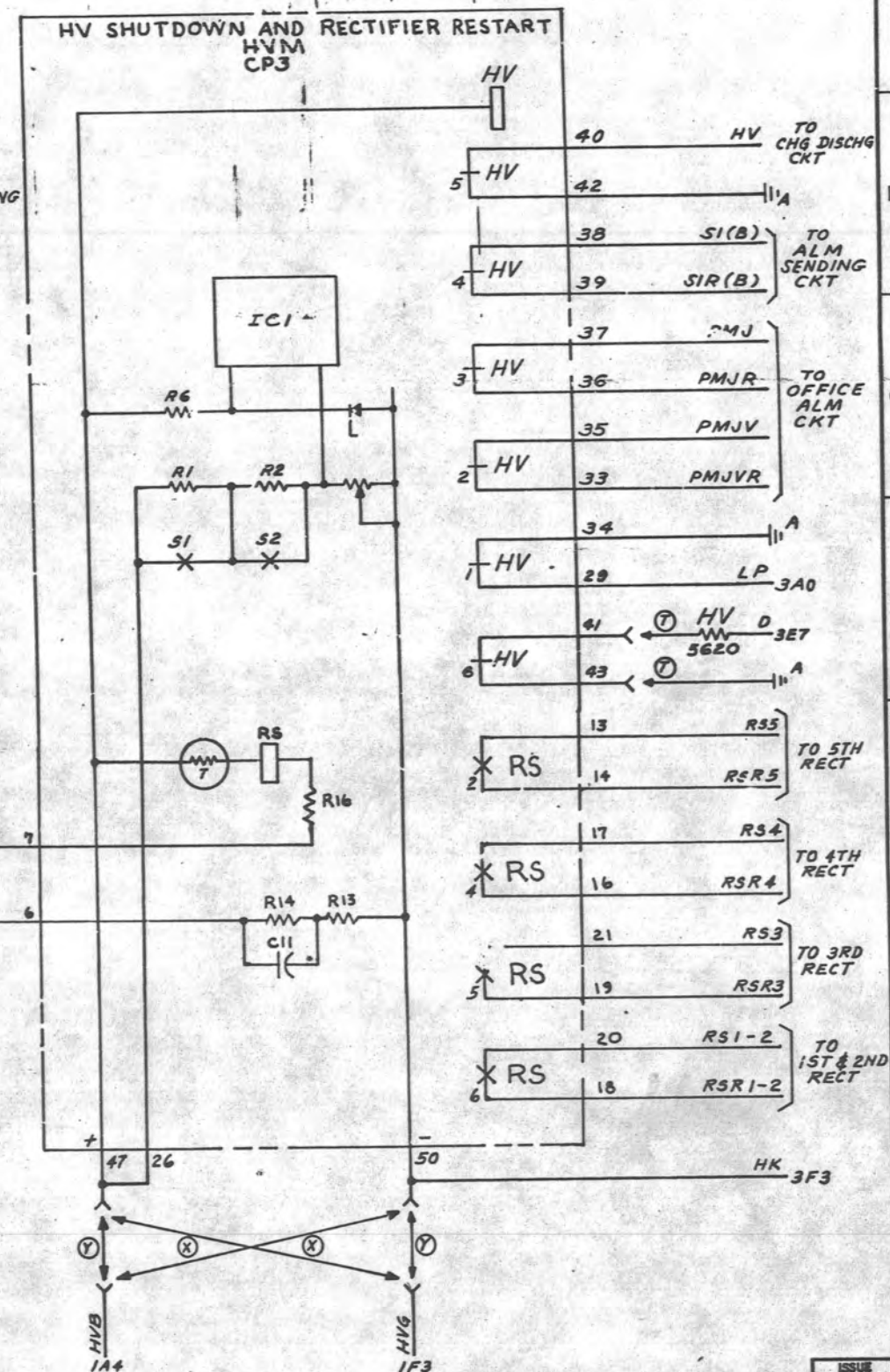
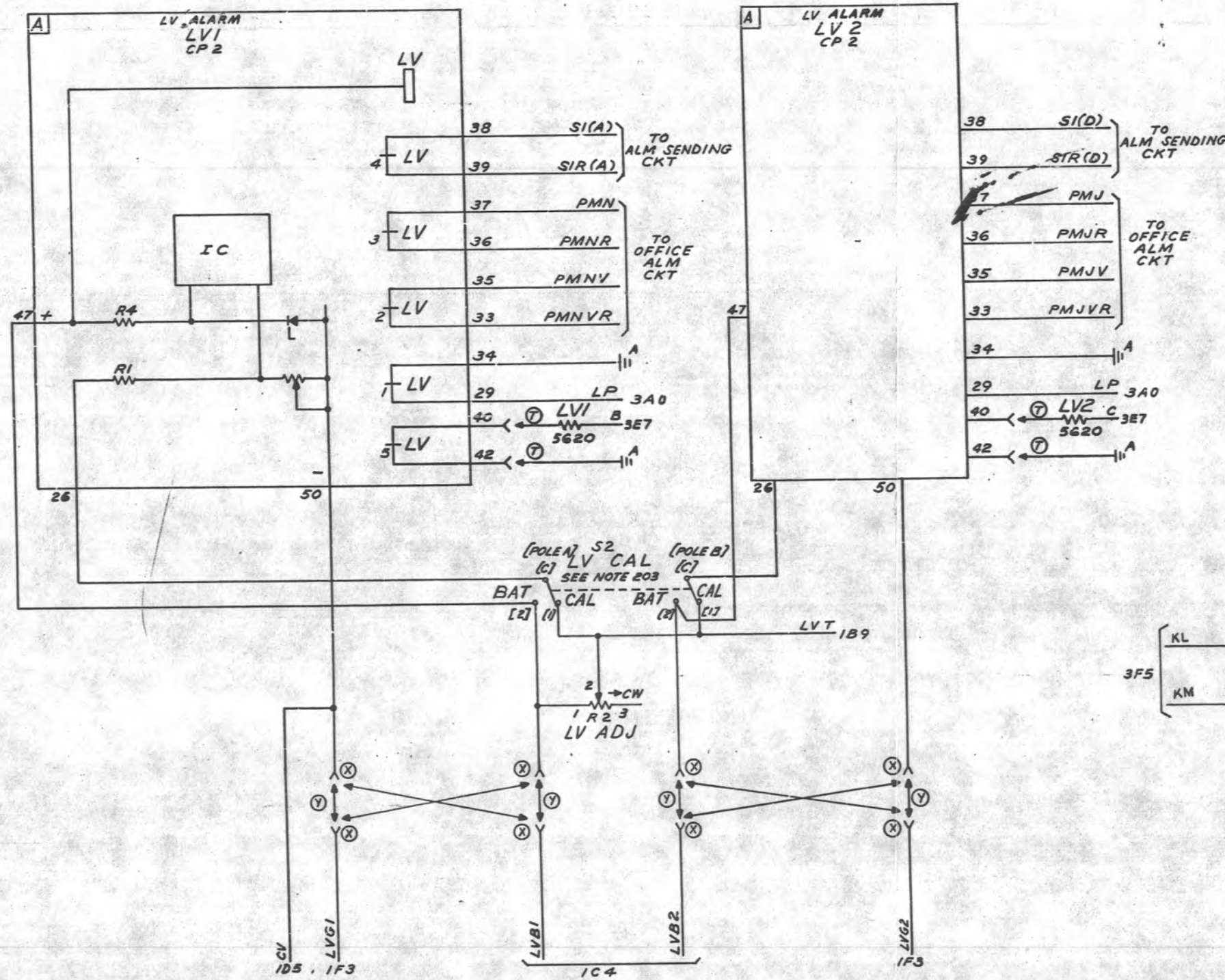
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FS 3 LOW VOLTAGE MONITOR

FS 6 HV SHUTDOWN AND RECTIFIER RESTART



CONTROL CIRCUIT FOR THE
CHARGE DISCHARGE CIRCUIT

SD-82303-01-B2

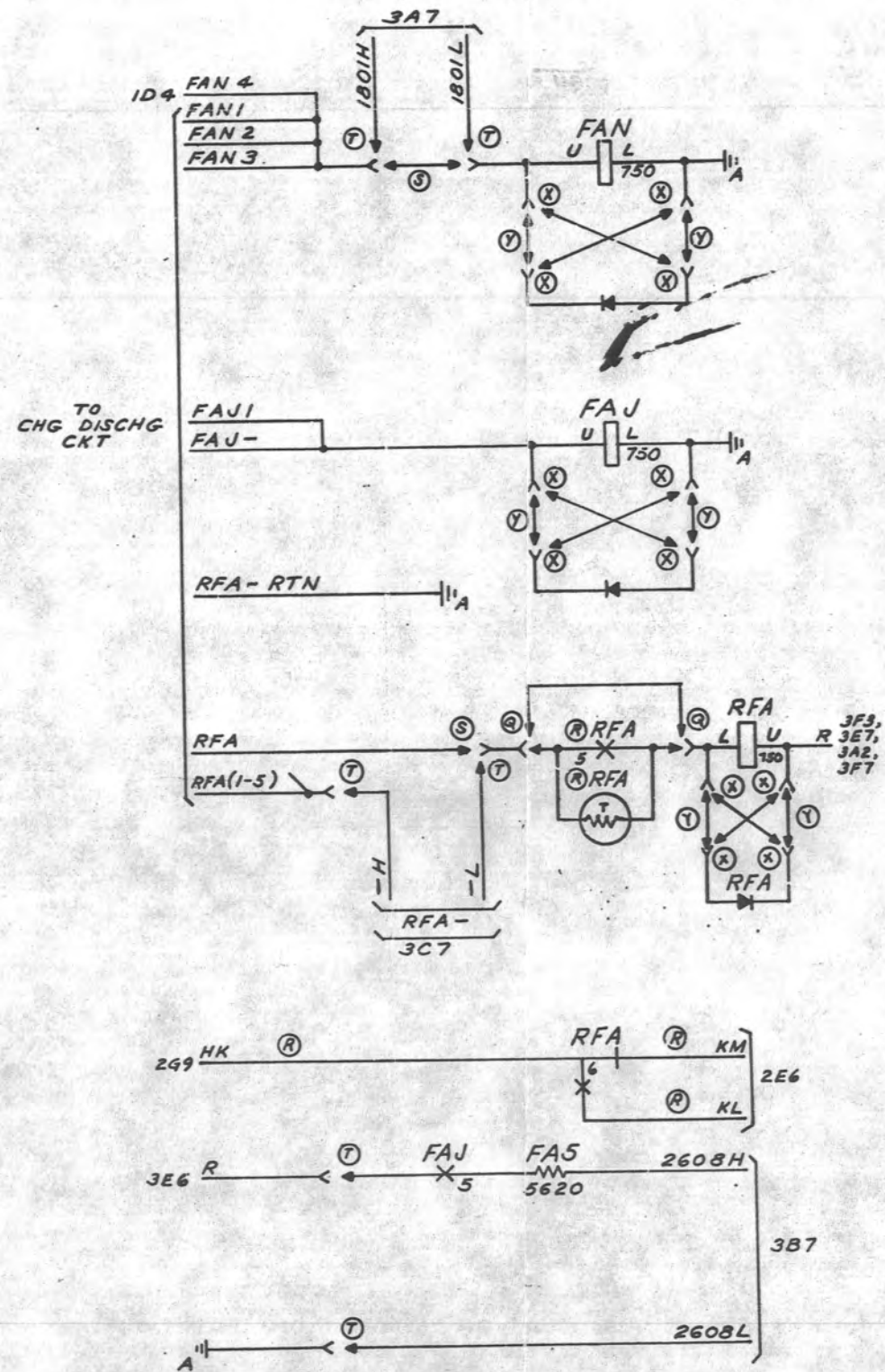
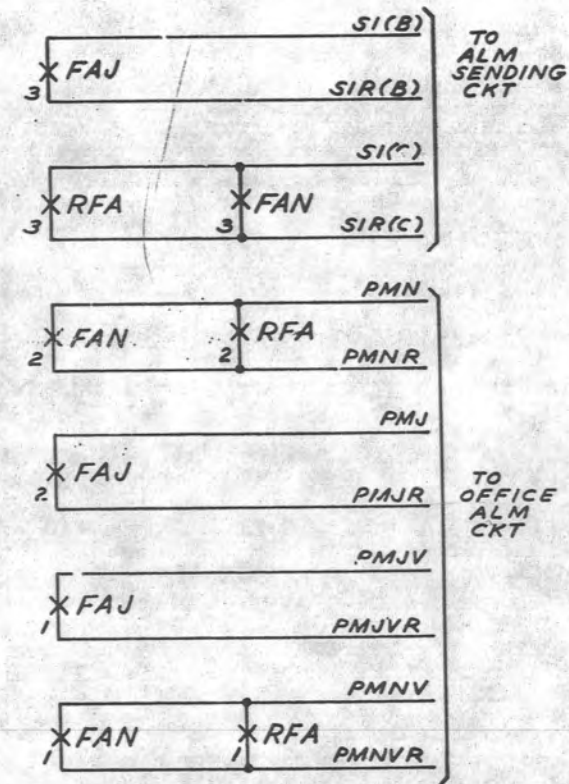
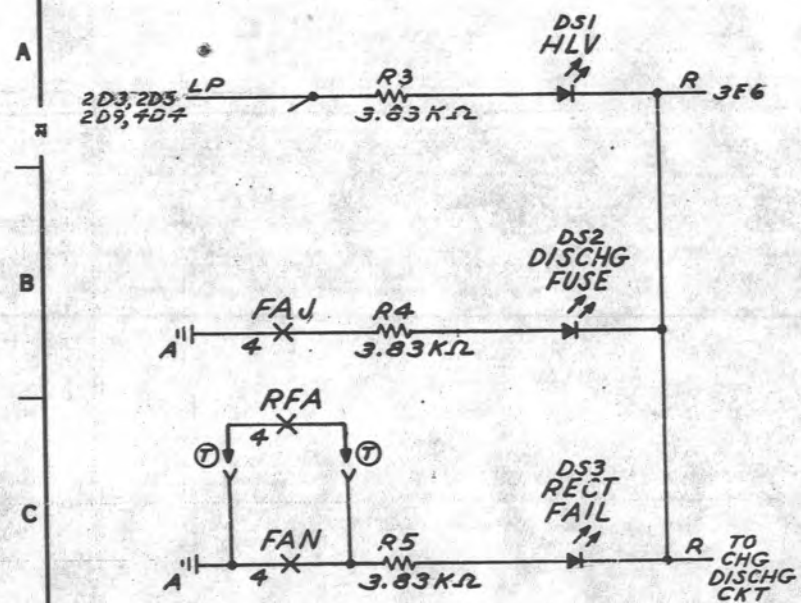
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ISSUE
2B

— FS 4 —
ALARM CIRCUIT

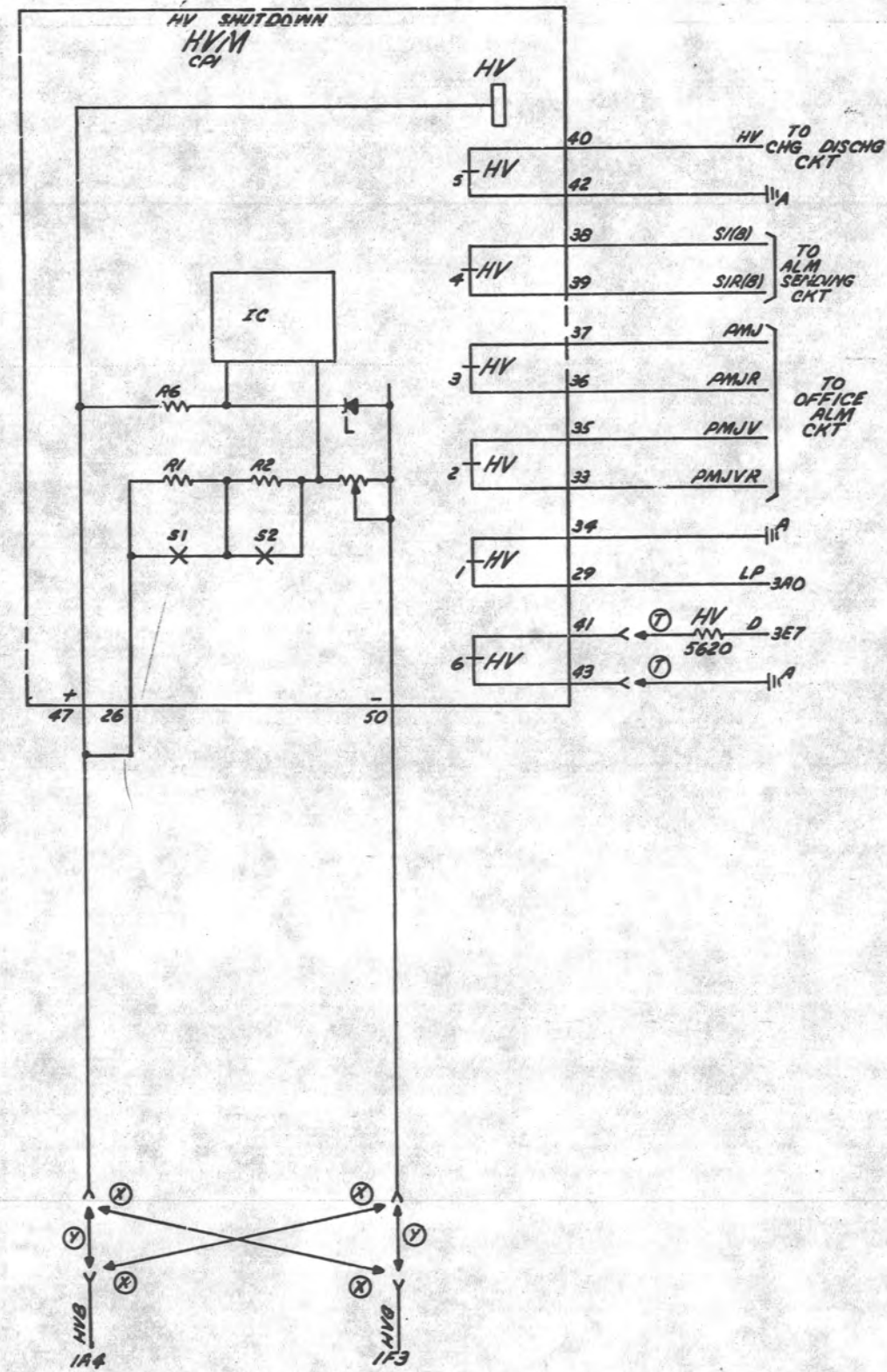


⑦ FS 5
ALARM CONNECTIONS TO NO. 3 ESS

3A4	1801H	1801H
	1801L	1801L
3G5	2608H	2608H
	2608L	2608L
RFA0	1600H	1600H
	1600L	1600L
RFA1	1601H	1601H
	1601L	1601L
3E4	1602H	1602H
	1602L	1602L
RFA2	1603H	1603H
	1603L	1603L
RFA3	1700H	1700H
	1700L	1700L
RFA4	1800H	1800H
	1800L	1800L
203	B 1800H	1800H
3E6	R 1800L	1800L
2D5	C 1702H	1702H
3E5	R 1702L	1702L
2D9, 4D3	D 1701H	1701H
3E6	R 1701L	1701L

TO
SCANNER
CKT
FOR
NO.3 ESS

© FS7
HIGH VOLTAGE SHUT DOWN



THESE LINES
ARE OF R1
WHICH WAS NOT SENT

CONTROL CIRCUIT FOR THE CHARGE DISCHARGE CIRCUIT		DWG SIZE 65	ISSUE 28
BELL LABORATORIES	SD-82303-01	B4	

APP FIG. 1

CIRCUIT PACK

EQPT LOC			
DESIG	[2] CP2	CP3	CP1
CODE	NJ2	NJ6	NJ5
OPTION		R	Q
ELEM IDENT			
TERM. FS LOC	39-2B2	42-2B9	39-4C2
TERM. FS LOC	39-2B5		

RELAY

DESIG	FAJ	FAN	RFA
CODE	MB17E	MB17E	MB17E
OPTION			
CONT ARR	LOC	CONT ARR	LOC
LOC	LOC	LOC	LOC
6	EMB	EMB	EMB 3F5(R)
5	EBM	3F4	EBM 3D5(R)
4	EBM	3B0	EBM 3C0
3	EBM	3D0	EBM 3E1
2	EBM	3F0	EBM 3E0
1	EMB	3G6	EMB 3G1
COIL	3B1	3A1	3D5

RELAY IS NOT ADJUSTABLE.
REPLACE WHEN THERE IS A MALFUNCTION.

CONNECTOR, TEST POINT

DESIG	LOC	CODE
TP1	1E6	KS-14523, L3
TP2	1E8	KS-14523, L2

DIODE

DESIG	LOC	CODE
DS1	3A1	534A
DS2	3B1	534A
DS3	3C1	534A
FAJ	3C5	446A, 533AA
FAN	3A5	446A, 533AA
RFA	3E5	446A, 533AA

FUSE (SEE NOTE 1)

DESIG	LOC	CODE
HVM	1A2	70A
LVB1	1C2	70A
LVB2	1C2	70A
RB1	1B1	70A
RB2	1C1	70A
RB3	1C1	70A
RB4	1C1	70A
RB5	1D1	70A
VM	1B2	70A

METER

DESIG	LOC	CODE
M1	1E7	KS-19654, L3
M2	1F7	KS-19563, L6

POTENTIOMETER

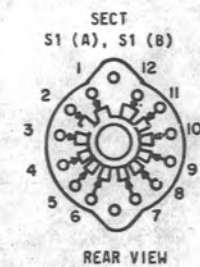
DESIG	LOC	CODE
R2	2F3	KS-19093, L4, 5KΩ

RESISTOR

DESIG	LOC	CODE
FA4	1D3	KS-8512, L3A, 619
FA5	3F5	KS-20289, L6C, 5620
R3	3A1	KS-20810, L1C, 3, 83KΩ
R4	3B1	KS-20810, L1C, 3, 83KΩ
R5	3C1	KS-20810, L1C, 3, 83KΩ
LV1	2D3	KS-20289, L6C, 5620
LV2	2D5	KS-20289, L6C, 5620
HV	2D9, 4D3	KS-20289, L6C, 5620

SWITCH

S1
OAK MFG CO., 210790-FX2



SWITCH (SEE NOTE 20)

DESIG	LOC	CODE
S2	2E3	KS-19963, L6

THERMISTOR

DESIG	LOC	CODE
RFA	3E5	8F

NOTES:

1. ADDITIONAL CONTROL FUSES SHOWN ON SD-82304-01.

CONTROL CIRCUIT FOR THE
CHARGE DISCHARGE CIRCUIT

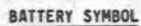
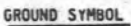
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INCORPORATED

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SD-82303-01-C1

ISSUE
2B

CIRCUIT NOTES:

DESIG	FUSE AMP	POTENTIAL	ONE PER
HV	1-1/3	48	PLANT & APP FIG. 1
VM	1-1/3	48	PLANT & APP FIG. 1
LVB1	1-1/3	48	PLANT & APP FIG. 1
LVB2	1-1/3	48	PLANT & APP FIG. 1
		GRD	
BATTERY SYMBOL GROUND SYMBOL VOLTAGE RANGE			
  44-52V			

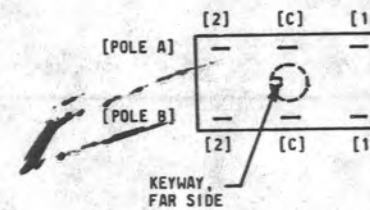
FEATURE OR OPTION	PROVIDE		
	APP FIG.	APP OR WRG	QUANTITY
POSITIVE PLANT CONTROL EQUIP (NEGATIVE GRD)	1	Y	
NEGATIVE PLANT CONTROL EQUIP (POSITIVE GRD)	1	X	
NO. 3 ESS APPLICATION		T	
GENERAL APPLICATION		S	

CIRCUIT NOTES: (CONT)

RECORD OF FIGURES, WIRING AND APPARATUS CHANGES						
CHANGED ON ISS	IF JOB RECORDS DO NOT SPECIFY	THIS OPTION WAS FURN	SEE NOTE	USE IN CIRCUIT		
				STD	A&M	MD
2B	R OR Q	Q	304	R		Q

EQUIPMENT NOTES:

201. UNLESS OTHERWISE SPECIFIED WIRE SHALL BE 22 GAUGE BH. WHEN STRANDED WIRE IS SPECIFIED USE KS-19195,L1 WIRE.
202. AMMETER LEADS DESIGNATED A ARE KS-19516,L3. THESE LEADS SHALL NOT BE CUT TO FIT, EXCESS LENGTH SHALL BE TIED AND STORED AS REQUIRED.
203. AS VIEWED FROM THE WIRING SIDE, THE (S2) SWITCH HAS THE FOLLOWING ORIENTATION AND WIRING TERMINAL ASSIGNMENT:



CONTACTS CLOSE IN DIRECTION OPPOSITE TO LEVER OPERATION.

204. ADDITIONAL WIRES EMPLOYED IN THIS PLANT SHALL BE:

SIZE	WIRE TYPE
16 GA	KS-19195,L1

INFORMATION NOTES:

301. UNLESS OTHERWISE SPECIFIED: RESISTANCE VALUES ARE IN OHMS. CAPACITANCE VALUES ARE IN MICROFARADS. VALUES PRECEDED BY THE SYMBOL + (PLUS) OR - (MINUS) ARE IN VOLTS.

LEAD DESIG	CONTROL UNIT T.S.	FUNCTION
FAN -	TB1	REG FUSE, RECT CKT BRKR
FAJ -	TB1	DISCHARGE FUSE
RB-, RFA-	TB1	RECTIFIER FAIL
SI(A),SIR(A)	TB1	LOW VOLTAGE
SI(B),SIR(B)	TB1	DISCHARGE FUSE, HIGH VOLTAGE VERY LOW VOLTAGE
SI(C),SIR(C) SI(D),SIR(D)	TB1	RECT FAIL, RECT FUSE
PMNV,PMNVR PMN,PMNR	TB1	RECT FAIL, REG FUSE LOW VOLTAGE
PMJ,PMJR	TB1	DISCHG FUSE VERY LOW VOLTAGE HIGH VOLTAGE

IT IS RECOGNIZED THAT ALARM LEADS DESIGNATED AS MAJOR MAYBE CONNECTED TO MINOR ALARMS AND VICE VERSA. HOWEVER, SUCH DEVIATIONS SHOULD NOT BE MADE UNLESS A CAREFUL EVALUATION OF LOCAL CONDITIONS HAS BEEN MADE IN LIGHT OF THE ALARM TABLE.

303. INFORMATION SHOWN IN BRACKETS [] ARE FOR REFERENCE ONLY.
304. ON ISSUE 2B (CP3) NJ6 CIRCUIT PACK REPLACED (CP1) NJ5 CIRCUIT PACK.

CONTROL CIRCUIT FOR THE
CHARGE DISCHARGE CIRCUIT

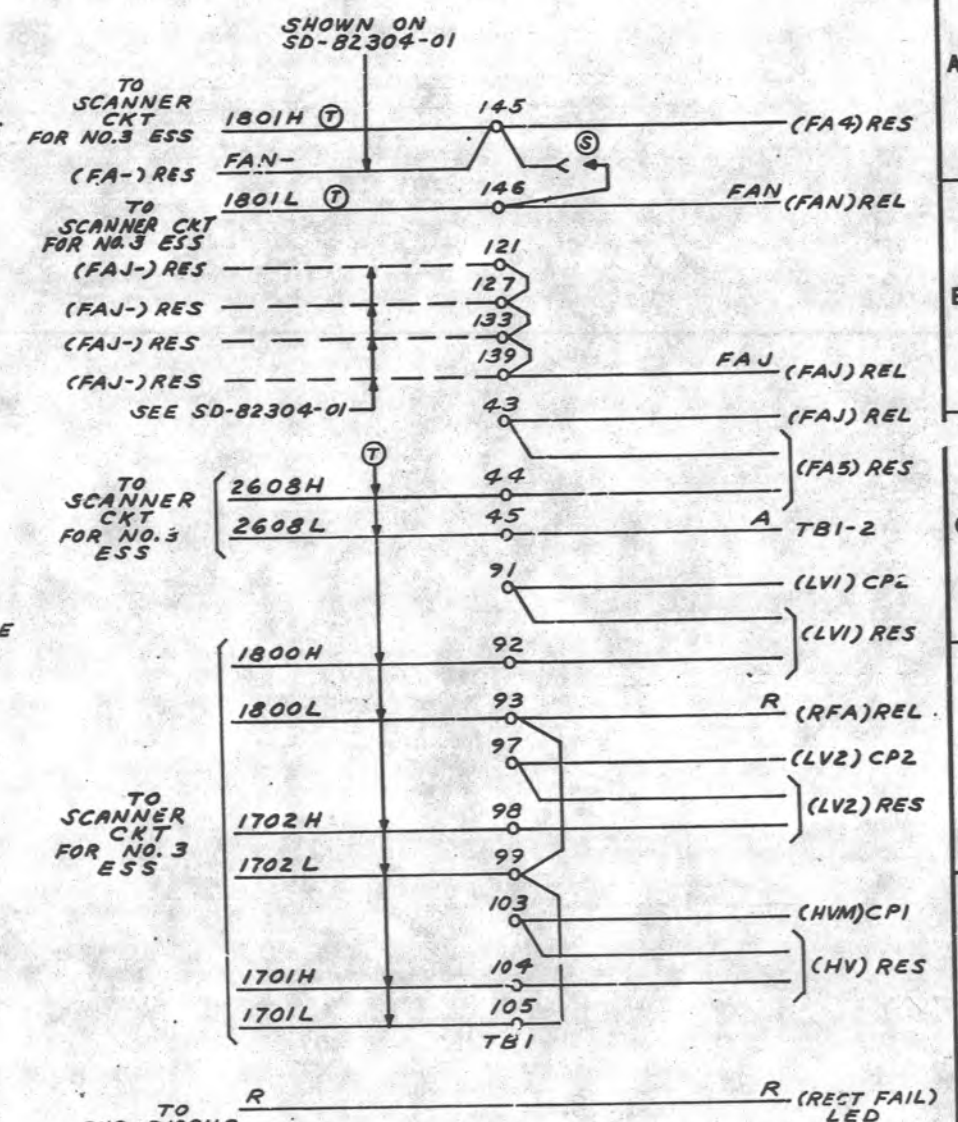
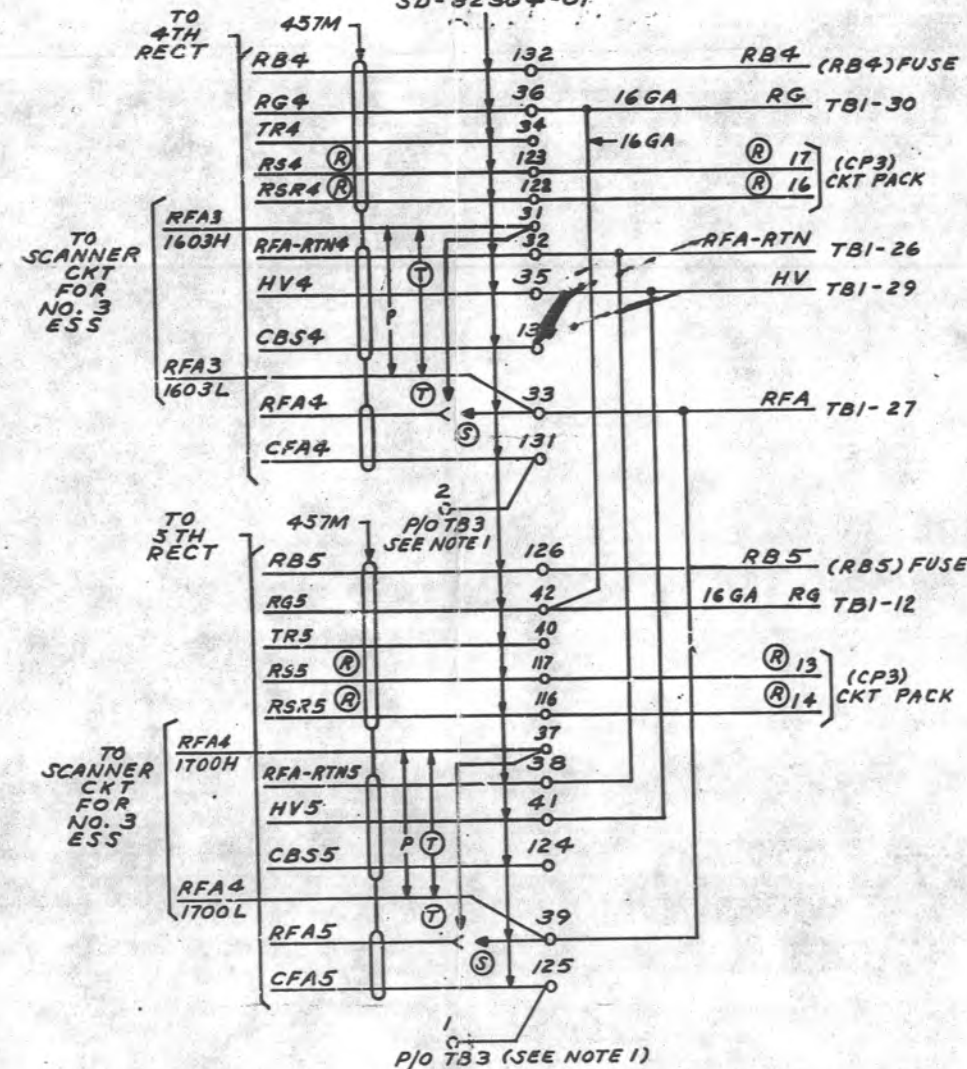
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SD-82303-01-D1

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SHOWN ON
SD-82304-01



1. SEE CHARGE AND DISCHARGE CKT SD-82304-01 FOR (TB3) INFORMATION.

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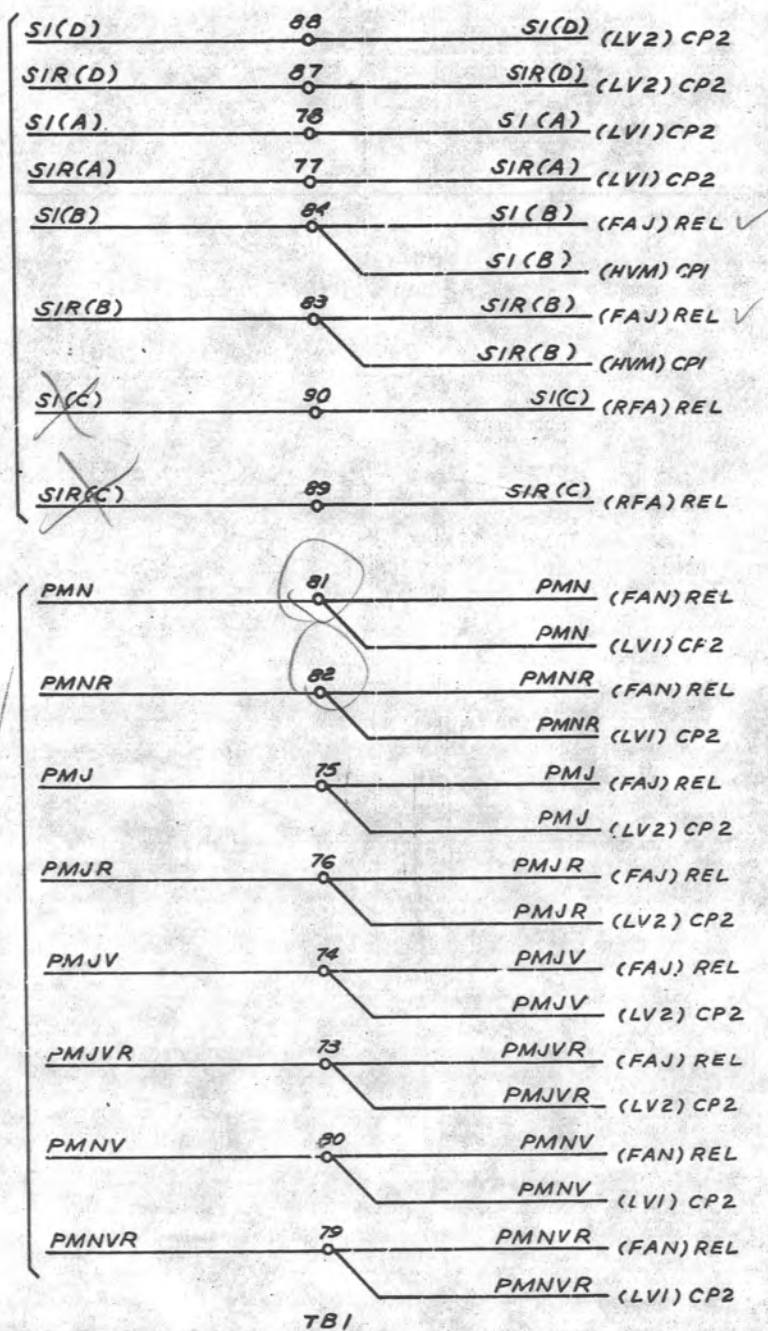
SD-82303-01-G1

2B

P/O CAD 1

TO
ALARM
SENDING
CKT

TO
OFFICE
ALARM
CKT



CONTROL CIRCUIT FOR THE
CHARGE DISCHARGE CIRCUIT

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6S

SD-82303-01-G2

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ISSUE

1

COMPONENT LIST

RELAY

DESIG	IN
CODE	MB17A
OPTION	
6	EMB 1E3
5	EBM 1E3
4	EBM 1F3
3	EBM 1G3
2	EBM 1G3
1	EMB 1H3
COIL	1H5

RELAY IS NOT ADJUSTABLE.
REPLACE WHEN THERE IS A
MALFUNCTION.

CAPACITOR

DESIG	CODE
C1	604C
C2	596G

DIODE

DESIG	CODE
CR1	446AD
CR2	446F

INTEGRATED CIRCUIT

DESIG	CODE
IC1	555A

POTENTIOMETER

DESIG	CODE
R5	KS-19646, L2A, 1KΩ

RESISTOR

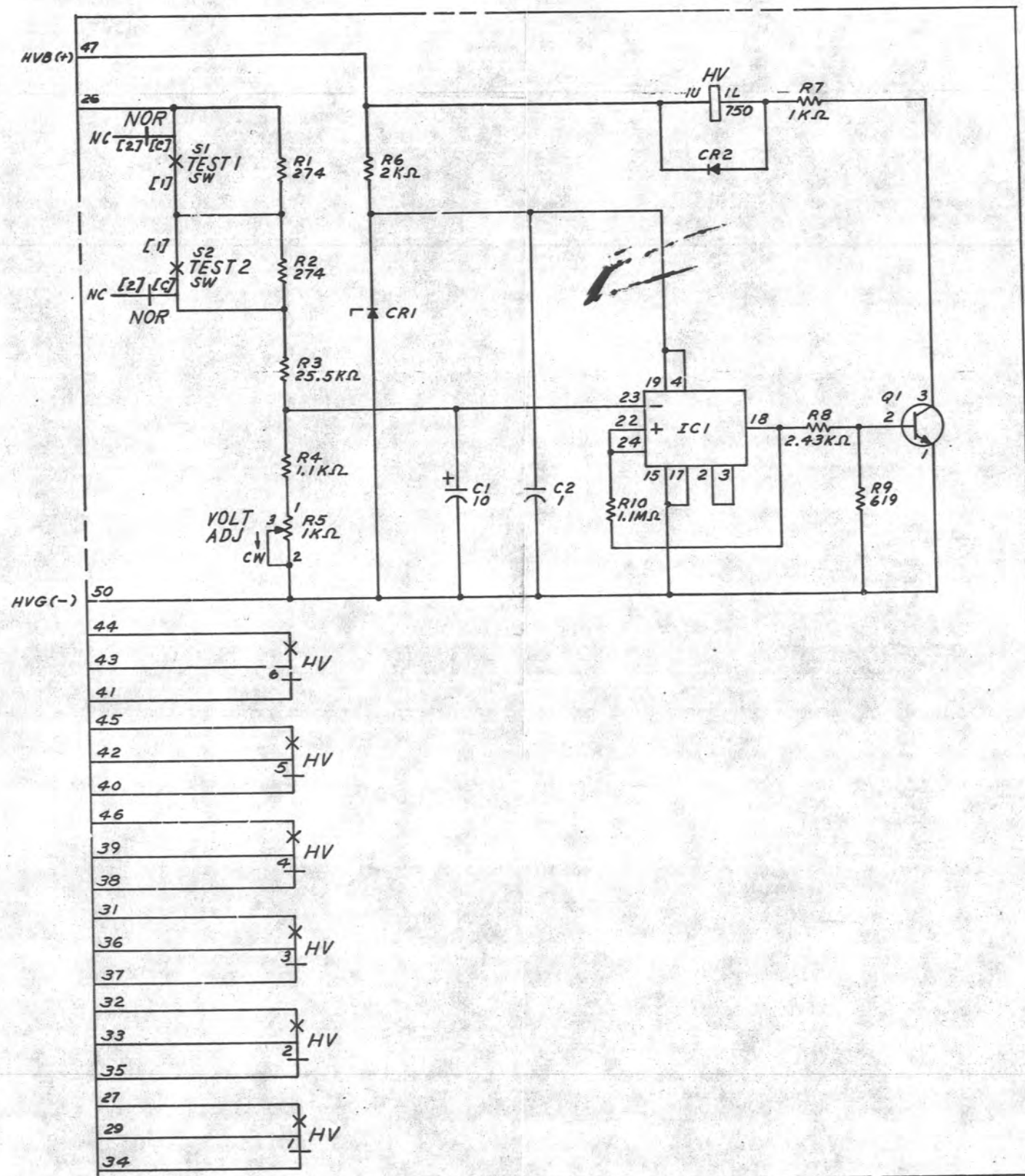
DESIG	CODE
R1	KS-16312, L4D, 274
R2	KS-16312, L4D, 274
R3	KS-16312, L4D, 25.5KΩ
R4	KS-16312, L4D, 1.1KΩ
R6	KS-20289, L6C, 2KΩ
R7	KS-20289, L6C, 1KΩ
R8	KS-20810, L1A, 2.43KΩ
R9	KS-20810, L1A, 619
R10	KS-16645, L1, 1.1MΩ

SWITCH

DESIG	CODE
S1	KS-19963, L26 (SEE NOTE 3)
S2	KS-19963, L26 (SEE NOTE 3)

TRANSISTOR

DESIG	CODE
Q1	66J



INPUT/OUTPUT INFORMATION

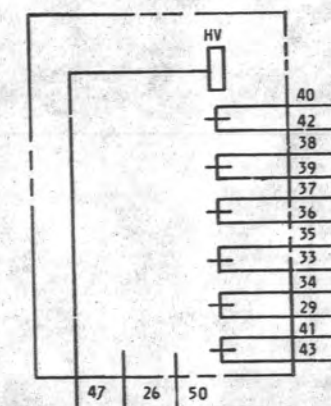
SEE CD-82303-01

CIRCUIT DESCRIPTION

SEE CD-82303-01

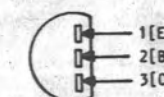
MANUFACTURING REFERENCE	NO.
CATEGORY	
CIRCUIT PACK CODE	NJ5
CONNECTOR ON FRAME (J3)	940A

SYMBOL

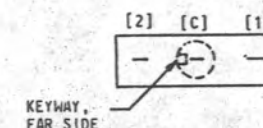


NOTES:

- UNLESS OTHERWISE SPECIFIED:
RESISTANCE VALUES ARE IN OHMS,
CAPACITANCE VALUES ARE IN MICROFARADS,
VALUES PRECEDED BY THE SYMBOL + (PLUS) OR
- (MINUS) ARE IN VOLTS.
- THE TERMINAL NUMBER ARRANGEMENT OF THE 66J
TRANSISTOR IS:



- AS VIEWED FROM THE WIRING SIDE, THE (S1) AND (S2)
SWITCHES HAVE THE FOLLOWING ORIENTATION AND WIRING
TERMINAL ASSIGNMENT.



CONTACTS CLOSE IN DIRECTION OPPOSITE TO LEVER OPERATION.

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CONTROL CIRCUIT FOR THE
CHARGE DISCHARGE CIRCUIT

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SD-82303-01-J1

ISSUE

1

CPS 2 LV ALARM

COMPONENT LIST

RELAY		
DESIG	LV	
CODE	MB17A	
OPTION		
CONT	ARR	LOC
6	EMB	1E3
5	EBM	1E3
4	EBM	1F3
3	EBM	1G3
2	EBM	1G3
1	EMB	1H3
COIL	1H5	

RELAY IS NOT ADJUSTABLE.
REPLACE WHEN THERE IS A
MALFUNCTION.

CAPACITOR

DESIG	CODE
C1	604C
C2	596G

DIODE

DESIG	CODE
CR1	446AD
CR2	446F

INTEGRATED CIRCUIT

DESIG	CODE
IC1	555A

POTENTIOMETER

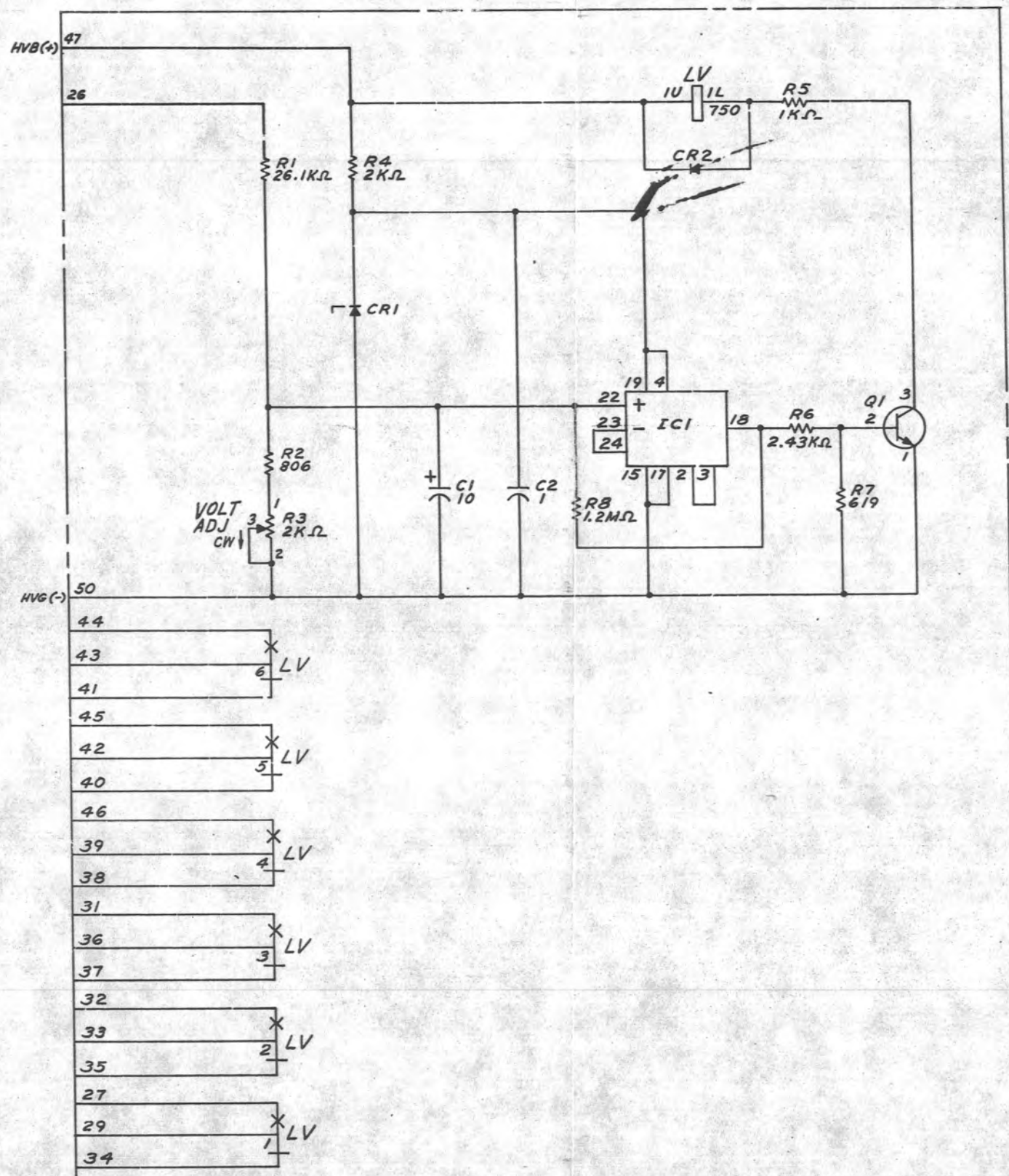
DESIG	CODE
R3	KS-19646, L2A, 2KΩ

RESISTOR

DESIG	CODE
R1	KS-16312, L4D, 26.1KΩ
R2	KS-16312, L4D, 806
R4	KS-20289, L6C, 2KΩ
R5	KS-20289, L6C, 1KΩ
R6	KS-20810, L1A, 2.43KΩ
R7	KS-20810, L1A, 619
R8	KS-16645, L1, 1.2MΩ

TRANSISTOR

DESIG	CODE
Q1	66J



INPUT/OUTPUT INFORMATION

SEE CD-82303-01

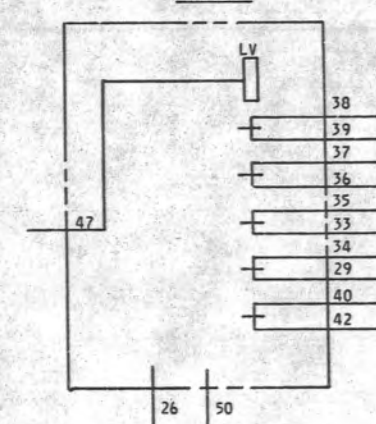
CIRCUIT DESCRIPTION

SEE CD-82303-01

MANUFACTURING REFERENCE

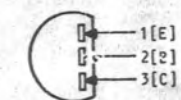
CATEGORY	NO.
CIRCUIT PACK CODE	NJ2
CONNECTOR ON FRAME (J1)	940A
CONNECTOR ON FRAME (J2)	940A

SYMBOL



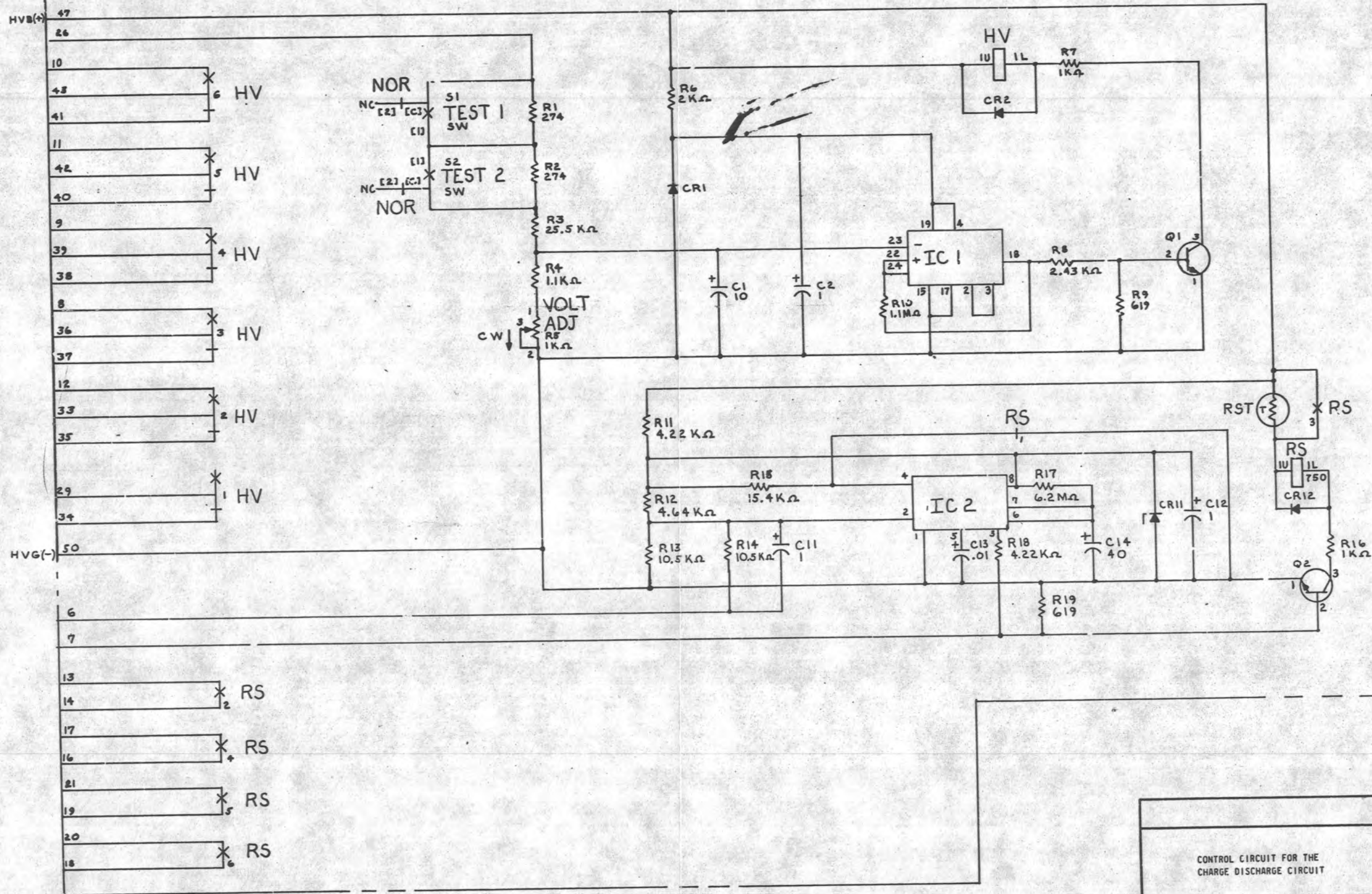
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TRANSISTOR IS:



CONTROL CIRCUIT FOR THE CHARGE DISCHARGE CIRCUIT		SD-82303-01-J2
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PART OF CPS 3 HV SHUTDOWN AND RECTIFIER RESTART



CONTROL CIRCUIT FOR THE
CHARGE DISCHARGE CIRCUIT

DWG SIZE
6S

ISSUE
2B

BELL LABORATORIES

SD-82303-01-J3A

U.S.A.

PART OF CPS 3

HV SHUTDOWN AND RECTIFIER RESTART

COMPONENT LIST

RELAY

DESIG	HV		RS	
CODE	MB17A		MB17A	
OPTION				
☒	CONT ARR	LOC	CONT ARR	LOC
6	EMB	3A/B2	EMB	3A/H2
5	EBM	3A/C2	EBM	3A/G2
4	EBM	3A/C2	EBM	3A/G2
3	EBM	3A/D3	EBM	3A/E8
2	EBM	3A/E2	EBM	3A/E7
1	EMB	3A/B7	EMB	3A/E8
COIL	☒	3A/B7	☒	3A/E8

RELAY IS NOT ADJUSTABLE. REPLACE WHEN THERE IS A MALFUNCTION.

CAPACITOR

DESIG	LOC	CODE
C1	3A/D5	601M, 10
C2	3A/D5	596G, 1
C11	3A/F5	600A, 1
C12	3A/E8	600A, 1
C13	3A/F6	542S OR KS-20977, L4, .01
C14	3A/F7	602A, 40

DIODE

DESIG	LOC	CODE
CR1	3A/C5	446R, 808J
CR2	3A/B7	446F, 533F
CR11	3A/E7	446L, 808G
CR12	3A/E8	446F, 533F

INTEGRATED CIRCUIT

DESIG	LOC	CODE
IC1	3A/C6	555A
IC2	3A/E6	MC1555

POTENTIOMETER

DESIG	LOC	CODE
R5	3A/D4	KS-19646, L2A, 1KΩ

RESISTOR

DESIG	LOC	CODE
R1	3A/B4	KS-16312, L4D, 274
R2	3A/C4	KS-16312, L4D, 274
R3	3A/C4	KS-16312, L4D, 25.5KΩ
R4	3A/D4	KS-16312, L4D, 1.1KΩ
R6	3A/B5	KS-20289, L6C, 2KΩ
R7	3A/B7	KS-20289, L6C, 1KΩ
R8	3A/C7	KS-20810, L1A, 2.43KΩ
R9	3A/D7	KS-20810, L1A, 619
R10	3A/D6	KS-16645, L1, 1.1MΩ
R11	3A/E4	KS-20289, L6C, 4.22KΩ
R12	3A/E4	KS-20810, L1A, 4.64KΩ
R13	3A/F4	KS-20810, L1A, 10.5KΩ
R14	3A/F5	KS-20810, L1A, 10.5KΩ
R15	3A/E5	KS-20810, L1A, 15.4KΩ
R16	3A/F9	KS-20289, L6C, 1KΩ
R17	3A/E7	KS-13490, L1, 6.2MΩ
R18	3A/F7	KS-20810, L1A, 4.22KΩ
R19	3A/F7	KS-20810, L1A, 619

SWITCH

DESIG	LOC	CODE
S1	3A/B3	KS-19963, L26 (SEE NOTE 3)
S2	3A/C3	KS-19963, L26 (SEE NOTE 3)

THERMISTOR

DESIG	LOC	CODE
RST	3A/E8	8E

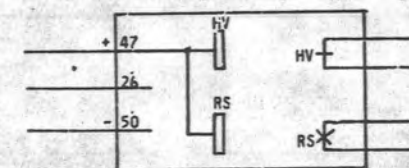
TRANSISTOR

DESIG	LOC	CODE
Q1	3A/C8	66J
Q2	3A/F8	66J

MANUFACTURING REFERENCES

CATEGORY	NO.
CIRCUIT PACK CODE	NJ6
CONNECTOR ON FRAME (J3)	940A

SYMBOL

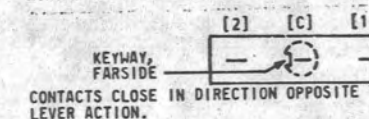


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INPUT/OUTPUT INFORMATION

SEE CD-82303-01

CIRCUIT DESCRIPTION

SEE CD-82303-01

CONTROL CIRCUIT FOR THE
CHARGE DISCHARGE CIRCUITDWG SIZE
6S
ISSUE
2B

BELL LABORATORIES

SD-82303-01-J3B

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