

SHEET INDEX

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CONTENTS	SHEET NO.	ISSUE NO.																								
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CPS1 ALARM AND POWER CIRCUIT (SP1)	J1A	1																								
	J1B	1																								
CPS2 VOLTAGE REG AND CURR LIMIT CIRCUIT (SP2)	J2A	1																								
	J2B	1																								

CDG ISSUE	CD ISSUE	DATE ISSUED	DRW NO.	APP NO.
1	1	12-23-77	PCR	100

OPTION INDEX

APP OR WRG	RATED ON ISSUE	REF NOTES	LOCATION	APP OR WRG	RATED ON ISSUE	REF NOTES	LOCATION
Z			1B9, 1C9,	R			1A2, 1B0, 1B3, 1C0, 1C1, 1C5, 1E1, 1F4, 1G8, APP FIG. 5
Y			1B9, 1C9				
X			1B9, 1C9,				
W			1B9, 1C9, APP FIG. 4				
T			1A2, 1B0, 1B3, 1C0, 1C1, 1C5, 1E1, 1F4, 1G8, APP FIG. 3				
S			1A2, 1B0, 1B3, 1C0, 1C1, 1C5, 1E1, 1F4, 1G8, APP FIG. 2.				

SUPPORTING INFORMATION

CATEGORY	NO.
CONTROLLING DRAWING FOR SP1 AND SP2	SD-82399-01
EQUIPMENT DRAWING	J87437A
MANUFACTURING TESTING REQUIREMENTS	X-79215
CONN (J1) MATING WITH (P1) ON CIRCUIT PACK (CP1)	25026-16 SG05JKH-1-50 OR 25-26S- GDF-SKJH-1 CONT. CONN. CO.

SHEET INDEX NOTES

1. WHEN CHANGES ARE MADE IN THIS DRAWING ONLY THOSE SHEETS AFFECTED WILL BE REISSUED.
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.
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.

NOTICE - NOT FOR USE OR DISCLOSURE OUTSIDE THE BELL SYSTEM EXCEPT UNDER WRITTEN AGREEMENT.

POWER SYSTEMS RECTIFIER 208/240, 220/240 OR 480 VOLT 60 HZ INPUT 48 VOLT, 100 AMPERES OUTPUT J87437A		1H99	AT&TCO STANDARD
BELL LABORATORIES	SD-82398-01-A1	8 SHEETS	

APP FIG. 1

CIRCUIT PACK

DESIG	LOC	CODE
CP1	1F2	SP1(SD-82399-01)
CP2	1F7	SP2(SD-82399-01)

POTENTIOMETER

DESIG	LOC	CODE
R11	1E8	3540S-91-1C2, 1KΩ BOURNS

RESISTOR

DESIG	LOC	CODE
R1	1A1	KS-20616, L1A, 6040
R2	1A1	KS-20616, L1A, 6040
R3	1B3	KS-20616, L1A, 6040
R4	1B3	KS-20616, L1A, 6040
R5	1C5	KS-20616, L1A, 6040
R6	1C5	KS-20616, L1A, 6040
R7	1B1	KS-20289, L6C, 1KΩ
R8	1C3	KS-20289, L6C, 1KΩ
R9	1D4	KS-20289, L6C, 1KΩ
R10	1C9	KS-8512, L8A, 200
R12	1D6	KS-20616, L1A, 100
R13	1D6	KS-20616, L1A, 165
R14	1D7	KS-20616, L1A, 165
R15	1D7	KS-20616, L1A, 100
R16	1F9	KS-20616, L1A, 19.6
R17	1F9	KS-20616, L1A, 165
R19	1B8	KS-20289, L6C, 6980
R20	1D9	KS-20289, L6C, 12.1KΩ
R21	1D2	KS-20616, L1A, 178

CAPACITOR

DESIG	LOC	CODE
C1	1B1	26F6600F86, 35, G.E. CO.
C2	1C3	26F6600F86, 35, G.E. CO.
C3	1D5	26F6600F86, 35, G.E. CO.
C4	1B1	KS-14980, L26, .1
C5	1C3	KS-14980, L26, .1
C6	1D5	KS-14980, L26, .1
C7, C8, C9, C10	1C6	KS-20443, L28, 27,000
	1B1	542L, .1
	1C3	542L, .1
	1D4	542L, .1

DIODE

DESIG	LOC	CODE
CR1	1A6	KS-19400, L38
CR2	1A6	KS-19400, L38
CR3	1B6	KS-19400, L38
CR4	1B6	KS-19400, L38
CR5	1C6	KS-19400, L38
CR6	1C6	KS-19400, L38

DIODE (LIGHT - EMITTING)

DESIG	LOC	CODE
DS1	1F4	5490

FUSE

DESIG	LOC	CODE
F1	1B7	706
F2	1D8	706

INDUCTOR

DESIG	LOC	CODE
L1	1A1	1181B
L2	1B3	1181B
L3	1C5	1181B
L4	1C6	1125A

METER

DESIG	LOC	CODE
M1	1A7	MODEL 7531, TYPE 2, 125 AMP, 50 mV, WESTON

SHUNT

DESIG	LOC	CODE
R18	1B7	TYPE A-125-50 EMPRO CORP

SWITCH

DESIG	LOC	CODE
S1	1G4	8931K472, CUTLER-HAMMER
S2	1E9, 1G9	8931K473, CUTLER-HAMMER

TEST POINT

DESIG	LOC	CODE
TP1	1D9	KS-20687, L2 (RED)
TP2	1D9	KS-20687, L2 (RED)

TRANSISTOR

DESIG	LOC	CODE
Q1	1B1	SC245M3 (THYRISTOR)
Q2	1C3	SC245M3 G.E. CO.
Q3	1D4	SC245M3

APP FIG. 2

RELAY

DESIG	LOC	CODE
ST1	1C0, 1D0, 1E8	KS-21677, L1
ST2	1C0, 1G4	KS-21278, L2

TRANSFORMER

DESIG	LOC	CODE
T1	1A2	3044A
T2	1B4	3044A
T3	1C5	3044A
T4	1E1	2200B

APP FIG. 4

CIRCUIT BREAKER

DESIG	LOC	CODE
CB1	1C9	KS-21186, L37

APP FIG. 3

RELAY

DESIG	LOC	CODE
ST1	1C0, 1D0, 1E8	KS-21677, L3
ST2	1C0, 1G4	KS-21401, L3

TRANSFORMER

DESIG	LOC	CODE
T1	1A2	3044B
T2	1B4	3044B
T3	1C5	3044B
T4	1E1	2200C

APP FIG. 5

RELAY

DESIG	LOC	CODE
ST1	1C0, 1D0, 1E8	KS-21677, L1
ST2	1C0, 1G4	KS-21278, L2

TRANSFORMER

DESIG	LOC	CODE
T1	1A2	3044C
T2	1B4	3044C
T3	1C5	3044C
T4	1E1	2200E

RECTIFIER

BELL TELEPHONE LABORATORIES
INCORPORATED

6S

SD-82398-01-C1

CIRCUIT NOTES:

DESIG	FUSE AMP	POTENTIAL	THREE PER
25	240	J87437A,L1	
15	420	J87437A,L2	
25	208	J87437A,L1	
25	220	J87437A,L4	

FEATURE OR OPTION		PROVIDE		QUANTITY
	APP FIG.	APP OR WIR		
NEG. OUTPUT GROUND		Y		1 PER CKT
POS. OUTPUT GROUND		Z		1 PER CKT
208/240 VOLT INPUT	2	S		1 PER CKT
480 VOLT INPUT	3	T		1 PER CKT
LIST 1, POS OR NEG GRD	1,2	X		1 PER CKT
LIST 2, POS OR NEG GRD	1,3	X		1 PER CKT
LIST 1 & 3				
POS GRD	1,2,4	Z,W		1 PER CKT
NEG GRD	1,2,4	T,W		1 PER CKT
LIST 2 & 3				
POS GRD	1,3,4	Z,W		1 PER CKT
NEG GRD	1,3,4	T,W		1 PER CKT
220-240 VOLT INPUT	5	R		1 PER CKT
LIST 4, POS OR NEG GRD	1,5	X		1 PER CKT
LIST 3 & 4, POS GRD	1,4,5	R,Z,W		1 PER CKT
LIST 4 & 3, NEG GRD	1,4,5	R,T,W		1 PER CKT

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	M

CIRCUIT NOTES: (CONT)

TAPS	LINE VOLTAGE RANGE	NOMINAL VOLTAGE
S OPTION		
1 - 2	184 - 220	208
1 - 3	212 - 254	240
T OPTION		
1 - 3	424 - 508	480
R OPTION		
1 - 2	198 - 231	220
1 - 3	212 - 254	240

105. THE OUTSIDE FOIL OF CAPACITORS (C1.) THRU (C3) (RED DOT) SHALL BE CONNECTED TO TERM. 8 OF THE TRANSFORMERS.

AC INPUT	FUSE	KS-5482-01 (SEE NOTE 207) CABLE IN CONDUIT	KS-20785* ARMORED CABLE
208	25A FN	4-NO. 10	3-NO. 10
220	25A FN	4-NO. 10	3-NO. 10
240	25A FN	4-NO. 10	3-NO. 10
480	15A FN	4-NO. 14	3-NO. 14

*KS-20785 COMES EQUIPPED WITH A BARE GROUND CONDUCTOR.

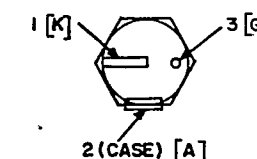
EQUIPMENT NOTES:

201. UNPROTECTED LEADS.
202. SLEEVING REQUIRED (R16) AND (R17).
203. PINS 18, 20, 22, 23, 24, 25, 43 AND 44 OF SP1 REQUIRE SLEEVING.
204. ALL WIRE SHALL BE KS-19195,L1 STRANDED UNLESS OTHERWISE SPECIFIED.
205. ALL WIRE SHALL BE 22 GAUGE UNLESS OTHERWISE SPECIFIED.
206. PROVIDE A NO. 6 AWG KS-5482-01 FRAME GROUNDING CONDUCTOR FROM THE BAY FRAMEWORK THAT MOUNTS THE RECTIFIER TO THE C.O. GROUND SYSTEM, IN ACCORDANCE WITH FRAME GROUNDING REQUIREMENTS PER BSP-802-001-180. WHEN THE C.O. GRD SYSTEM IS NOT INSTALLED IN THE OFFICE AND THE RECTIFIER IS ASSOCIATED WITH:
- A). AN ESS - DEDICATED POWER PLANT HAVING AN INSULATED DISCHARGE GROUND BUS, THE CONDUCTOR SHALL BE CONNECTED TO THE GROUND WINDOW, IF NEARER, OR TO THE SAME GROUND POINT (IE, WATER PIPE) THAT THE ESS GROUND WINDOW BUS IS GROUNDED TO, OR
- B). A NON - ESS POWER PLANT, THE CONDUCTOR SHALL BE CONNECTED TO THE POWER PLANT DISCHARGE GROUND BUS. WHEN MORE THAN ONE RECTIFIER BAY REQUIRES GROUNDING, A SINGLE CONDUCTOR MAY BE MULTIPLIED TO GROUND ALL RECTIFIER BAYS.
207. AC EQUIPMENT GROUND CONDUCTOR SHALL BE PROVIDED, IF REQUIRED, AS SPECIFIED IN BSP 802-001-180 (BSP 802-001-198).

INFORMATION NOTES:

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

302. THE TERMINAL NUMBER ASSIGNMENT OF THE SC245M3 G.E. CO THYRISTOR IS:



ISSUE

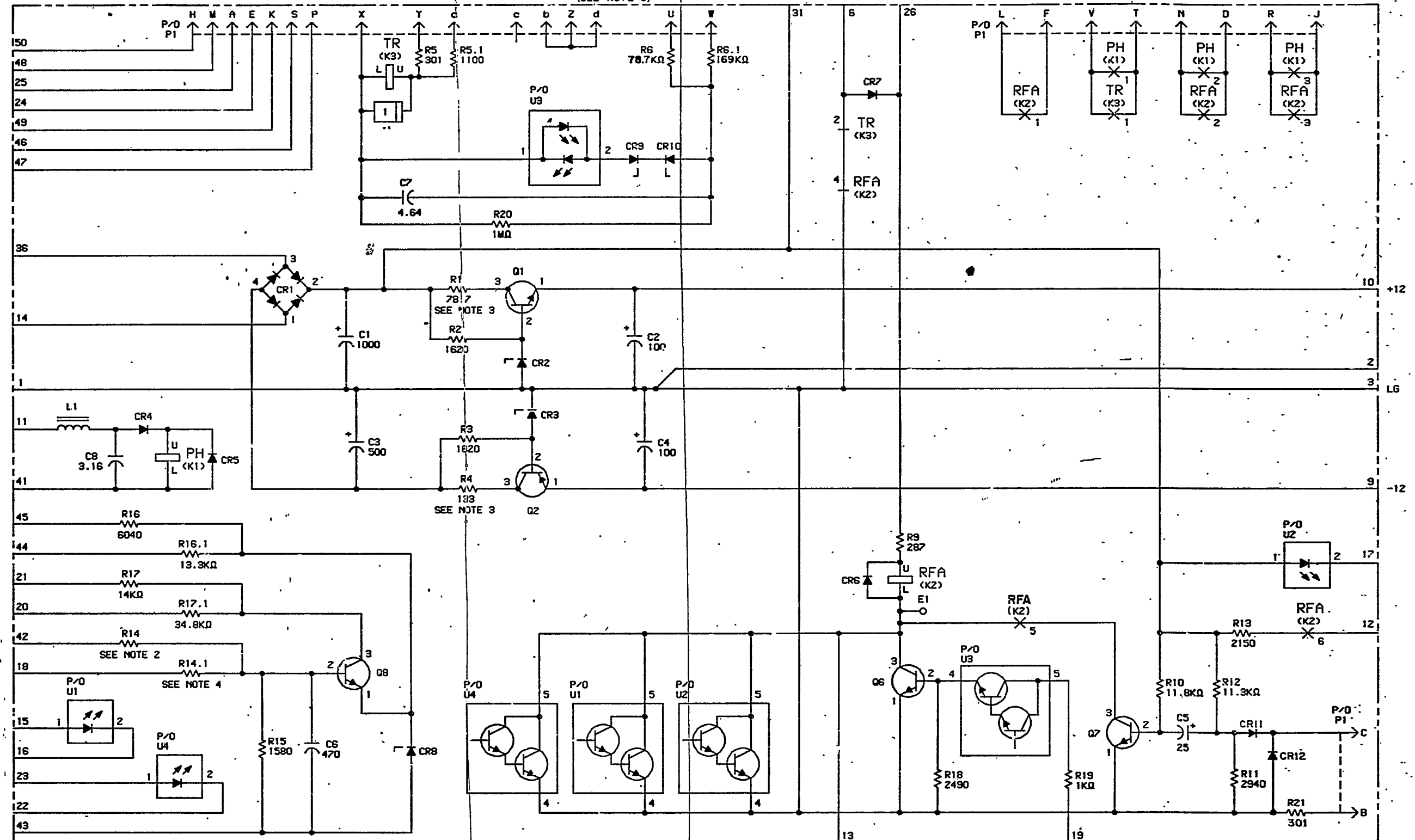
RECTIFIER

SD-82398-01-D1

BELL TELEPHONE LABORATORIES
INCORPORATEDDWG SIZE
6S

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PART OF CPS I
ALARM AND POWER CIRCUIT
(SEE NOTE 5)



PART OF CPS I

ALARM AND POWER CIRCUIT
(SEE NOTE 5)

COMPONENT LIST

RELAY

DESIG	PH (K1)	RFA (K2)	TR (K3)
CODE	MA1A	MB14A	MA1A
OPTION			
	CONT ARR	LOC	CONT ARR
6	EMB	1A/F8	EMB
5	EMB	1A/F7	EMB
4	EMB	1A/C6	EMB
3	EMB	1A/B9	EMB
2	EMB	1A/B8	EMB
1	EMB	1A/B7	EMB
COIL	1A/D1	1A/E6	1A/A3

RELAY NOT ADJUSTABLE
REPLACE IF THERE IS
MALFUNCTION

CAPACITOR

DESIG	LOC	CODE
C1	1A/D2	KS-19658,L29,1000
C2	1A/D4	KS-19658,L22,100
C3	1A/D2	KS-19658,L17,500
C4	1A/D4	KS-19658,L22,100
C5	1A/G8	601C,25
C6	1A/G2	672D477H012DM2C,470, SPRAGUE
C7	1A/B3	705G,4.64
C8	1A/D0	705G,3.16

CONNECTOR

DESIG	LOC	CODE
P1	1A/A1, 1A/A6, 1A/G9	25026-16PGDIDS-50, CONTINENTAL CONN.

DIODE

DESIG	LOC	CODE
CR1	1A/C2	487C
CR2	1A/D3	459AA
CR3	1A/D4	459AA
CR4	1A/D1	458A
CR5	1A/E1	458A
CR6	1A/F6	458A
CR7	1A/B6	458A
CR8	1A/G3	459B
CR9	1A/B4	459E
CR10	1A/B4	459E
CR11	1A/G8	458A
CR12	1A/G9	458A

INDUCTOR

DESIG	LOC	CODE
L1	1A/D0	1592C,2.23 HENRIES

NETWORK

DESIG	LOC	CODE
Z1	1A/B3	185A

RESISTOR

DESIG	LOC	CODE
R1	1A/C3	KS-20289,L6C,79.7 (SEE NOTE 3)
R2	1A/D3	KS-20810,L1A,1620
R3	1A/D3	KS-20810,L1A,1620
R4	1A/E3	KS-20289,L6C,133 (SEE NOTE 3)
R5	1A/A3	KS-20289,L6C,301
R5.1	1A/A3	KS-20289,L6C,1100
R6	1A/A4	KS-20616,L1A,78.7KΩ
R6.1	1A/A5	KS-20616,L1A,169KΩ
R9	1A/E6	KS-20289,L6C,287
R10	1A/F8	KS-20616,L1A,11.8KΩ
R11	1A/G8	KS-20616,L1A,2940
R12	1A/F8	KS-20616,L1A,11.3KΩ
R13	1A/F8	KS-20289,L6C,2150
R14	1A/F1	SEE NOTE 2
R14.1	1A/F1	SEE NOTE 4
R15	1A/G2	KS-20616,L1,1580
R16	1A/E1	KS-20616,L1A,6040
R16.1	1A/E1	KS-20616,L1A,13.3KΩ
R17	1A/E1	KS-20616,L1A,14KΩ
R17.1	1A/F1	KS-20616,L1A,34.8KΩ
R18	1A/G6	KS-20616,L1A,2490
R19	1A/G7	KS-20616,L1A,1KΩ
R20	1A/C3	KS-20616,L1A,1MΩ
R21	1A/G9	KS-20289,L6C,301

TRANSISTOR

DESIG	LOC	CODE
Q1	1A/C3	92A
Q2	1A/E3	58A
Q6	1A/F6	66J
Q7	1A/G7	66J
Q8	1A/G2	68AK

OPTO-ISOLATOR

DESIG	LOC	CODE
U1	1A/F0, 1A/F4	4B
U2	1A/E9, 1A/F4	4B
U3	1A/F6, 1A/B3	4E
U4	1A/G1 1A/F3	4B

SUPPORTING INFORMATION

CATEGORY	NO.
CIRCUIT PACK CODE	SPI
CONNECTOR ON UNIT	940A
CONTROLLING DRAWING (SEE NOTE 5)	SD-82399-01

NOTES:

- UNLESS OTHERWISE SPECIFIED:
RESISTANCE VALUES ARE IN OHMS.
CAPACITANCE VALUES ARE IN MICROFARADS.
INDUCTANCE VALUES ARE IN MICROHENRIES.
VALUES PRECEDED BY THE SYMBOL + (PLUS)
OR - (MINUS) ARE IN VOLTS.
- SELECT FROM 4640,4870,5110,5360,5620,
5900,KS-20616,L1A.
- RESISTOR MUST BE RAISED OFF BOARD 1/8 IN.
- SELECT FROM 10.7KΩ,11.3KΩ,11.8KΩ,12.4KΩ
13KΩ,13.7KΩ,KS-20289,L6C.
- SCHEMATIC FOR SPI IS FOR REFERENCE
ONLY AND IS DRAWN TO MATCH
SD-82399-01-J,ISSUE 2A.

RECTIFIER

BELL TELEPHONE LABORATORIES
INCORPORATED

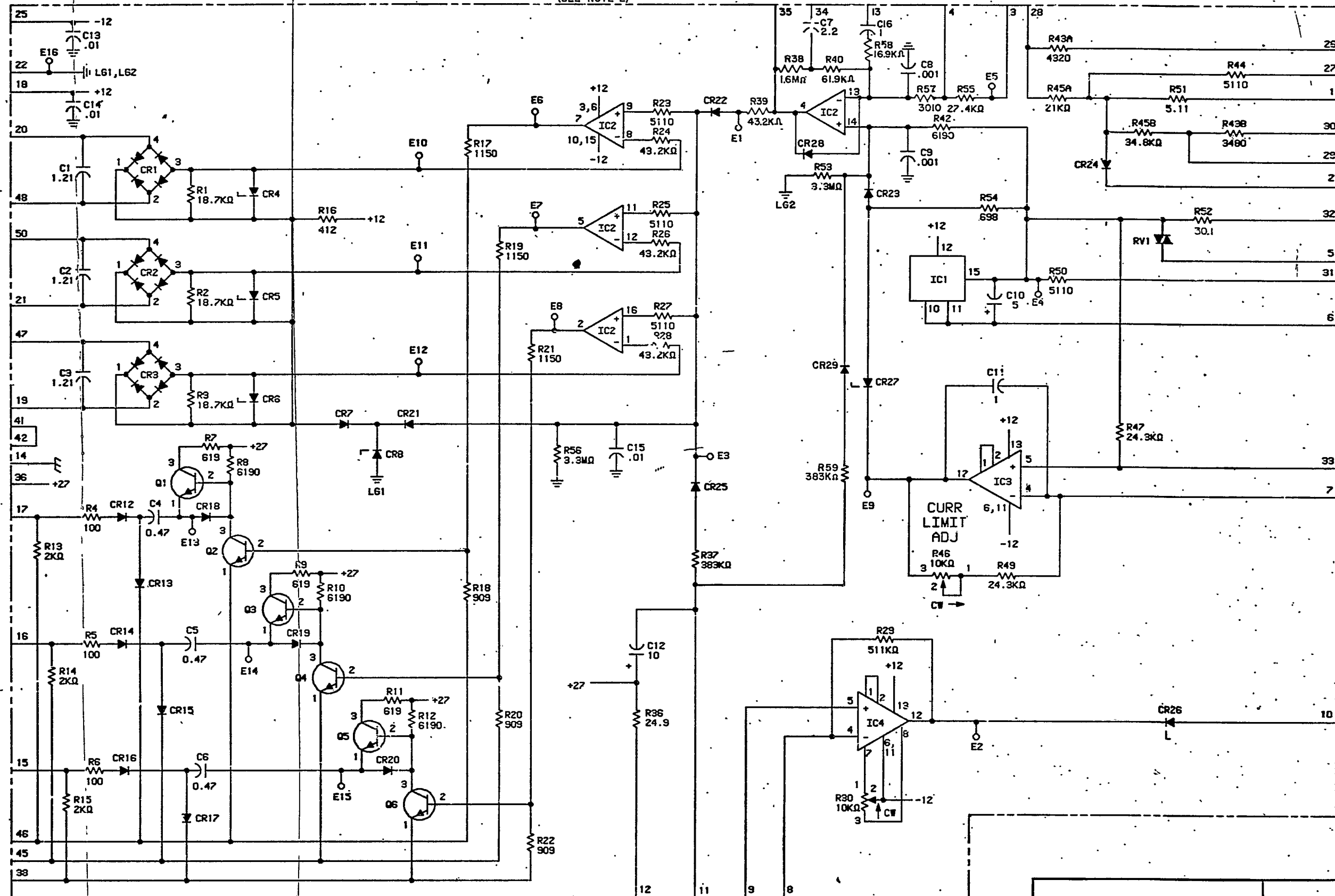
6S

SD-82398-01-JIB

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PART OF CPS2

VOLTAGE REG AND CURR LIMIT CIRCUIT
(SEE NOTE 2)



RECTIFIER

BELL TELEPHONE LABORATORIES
INCORPORATED

6S

SD-82398-01-J2A

PART OF CPS 2 VOLTAGE REG AND CURR LIMIT CIRCUIT (SEE NOTE 2)

SUPPORTING INFORMATION

CATEGORY	NO.
CIRCUIT PACK CODE	SP2
CONNECTOR ON UNIT	940A
CONTROLLING DRAWING (SEE NOTE 2)	SD-82399-G1

CAPACITOR

DESIG	LOC	CODE
C1	2A/B0	596C, 1.21
C2	2A/C0	596C, 1.21
C3	2A/D0	596C, 1.21
C4	2A/E1	KS-20736, L1, 0.47
C5	2A/F1	KS-20736, L1, 0.47
C6	2A/G1	KS-20736, L1, 0.47
C7	2A/H5	KS-19774, L9, 2.2
C8	2A/A6	KS-19774, L1, .001
C9	2A/B6	KS-19774, L1, .001
C10	2A/C7	60JA, 5
C11	2A/D7	KS-19774, L9, 1
C12	2A/F4	601B, 10
C13	2A/A0	KS-19774, L1, .01
C14	2A/B0	KS-19774, L1, .01
C15	2A/E4	KS-19774, L1, .01
C16	2A/A6	KS-19774, L9, 1

DIODE

DESIG	LOC	CODE
CR1	2A/B1	460M
CR2	2A/C1	460M
CR3	2A/D1	460M
CR4	2A/B2	459B
CR5	2A/C2	459B
CR6	2A/D2	459B
CR7	2A/D2	458B
CR8	2A/E3	459B
CR12	2A/E1	458A
CR13	2A/F1	458A
CR14	2A/F1	458A
CR15	2A/G1	458A
CR16	2A/G1	458A
CR17	2A/H1	458A
CR18	2A/E1	458A
CR19	2A/F2	458A
CR20	2A/G3	458A
CR21	2A/D3	458A
CR22	2A/B5	458A
CR23	2A/C6	458C
CR24	2A/B7	449A
CR25	2A/E5	458A
CR26	2A/G8	459B
CR27	2A/D6	459B
CR28	2A/B5	458A
CR29	2A/D6	458A

INTEGRATED CIRCUIT

DESIG	LOC	CODE
IC1	2A/C6	502AC
IC2	2A/B6, 2A/C4, 2A/D4, 2A/B4	559C
IC3	2A/E7	502A
IC4	2A/G6	502A

POTENTIOMETER

DESIG	LOC	CODE
R30	2A/G6	KS-19069, L1B, 10KΩ
R46	2A/E6	KS-19069, L1B, 10KΩ

RESISTOR

DESIG	LOC	CODE
R1	2A/B1	18.7KΩ
R2	2A/C1	18.7KΩ
R3	2A/D1	18.7KΩ
R4	2A/E1	100
R5	2A/F1	100
R6	2A/G1	100
R7	2A/D1	619
R8	2A/E2	6190
R9	2A/E2	619
R10	2A/F2	6190
R11	2A/F3	619
R12	2A/G3	6190
R13	2A/E0	2KΩ
R14	2A/F0	2KΩ
R15	2A/G0	2KΩ
R16	2A/C2	412
R17	2A/B3	1150
R18	2A/F3	909
R19	2A/C3	1150
R20	2A/G3	909
R21	2A/D4	1150
R22	2A/H4	909
R23	2A/B4	5110
R24	2A/B4	43.2KΩ
R25	2A/C4	5110
R26	2A/C4	43.2KΩ
R27	2A/C4	5110
R28	2A/D4	43.2KΩ
R29	2A/F6	511KΩ
R36	2A/G4	24.9
R37	2A/F4	383KΩ
R38	2A/A5	KS-16645, L1, 1.6MΩ
R39	2A/B5	KS-20616, L1A, 43.2KΩ
R40	2A/A6	KS-20616, L1A, 61.9KΩ
R42	2A/B6	KS-20616, L1A, 61.9Ω
R43A	2A/A7	KS-20616, L1A, 4320
R43B	2A/B8	KS-20616, L1A, 3480
R44	2A/A8	KS-20616, L1A, 5110
R45A	2A/B7	KS-20616, L1A, 21KΩ
R45B	2A/B8	KS-20616, L1A, 34.8KΩ
R47	2A/D8	KS-20616, L1A, 24.3KΩ
R49	2A/E7	KS-20616, L1A, 24.3KΩ
R50	2A/C7	KS-20616, L1A, 5110
R51	2A/B8	KS-14603, L3CB, 5.11
R52	2A/C8	KS-14603, L2C, 30.1 (SEE NOTE 3)
R53	2A/B6	KS-16645, L1, 3.3MΩ
R54	2A/C7	KS-20616, L1A, 698
R55	2A/B7	KS-20616, L1A, 27.4KΩ
R56	2A/D4	KS-16645, L1, 3.3MΩ
R57	2A/B6	KS-20616, L1A, 3010
R58	2A/A6	KS-20616, L1A, 16.9KΩ
R59	2A/E6	KS-20616, L1A, 383KΩ

TRANSISTOR

DESIG	LOC	CODE
Q1	2A/E1	66J
Q2	2A/E1	92A
Q3	2A/F2	66J
Q4	2A/F2	92A
Q5	2A/G2	66J
Q6	2A/G3	92A

VARISTOR

DESIG	LOC	CODE
RV1	2A/C8	100J

NOTES:

- UNLESS OTHERWISE SPECIFIED:
RESISTANCE VALUES ARE IN OHMS.
CAPACITANCE VALUES ARE IN MICROFARADS.
INDUCTANCE VALUES ARE IN MICROHENRIES.
VALUES PRECEDED BY THE SYMBOL + (PLUS)
OR - (MINUS) ARE IN VOLTS.
- SCHEMATIC FOR SP2 IS FOR REFERENCE ONLY
AND IS DRAWN TO MATCH SD-82399-01-J2,
ISSUE 2.
- ON SOME PRODUCTION UNITS, (R52) MAY
BE OHMITE CATALOG NUMBER 4773, 30
OHMS.

RECTIFI.

BELL TELEPHONE LABORATORIES
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6S

SD-82398-01-J2B

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