SHEET INDEX

CONTENTS	SHEET NO	SHEET ISSUE NO
SHEET INDEX SUPPORTING INFORMATION SYSTEM USED ON DESIGN CONTROL OPTION INDEX	A1	9AC
FS 1	B1,B5	9AC
FS 2 - OPTION BOARD	B2	7
FS 3	B3	3
FS4	B4	6
APP FIG. 1	C1	9AC
APP FIG. 2	C2	5
CIRCUIT NOTES EQUIPMENT NOTES	D1	9AC
INFORMATION NOTES	D2	9AC
CAD 1, 2, 3, 4,5	G1	5

OPTION INDEX

APP OR WRG	RATED ON ISSUE	REF NOTES	LOCATION
Z	1		1A6,1A7,1B6,1B7
Y	1		1A6,1A7,1B6,1B7
W	1		APP FIG. 1,2,1A4, 1B4,1E3,1F2,2D5, 2D6,2D8,2F2,2F8
V	1		APP FIG. 1,2,1A4, 1B4,1E3,1F2,2D5, 2D6,2D8,2F2,2F8
T	1		2D3,2F3
Q	1		2E3,2F3
N	1	203	APP FIG. 2,2F1
M	1		2F4
K	1	203	APP FIG. 2,2F0
F	1	203	APP FIG. 2,2F0
ZA	1		2F4,2F5
ZJ	1		2E2
ZM	3	317	
ZN	3	317	
ZP	5B		FS1, APP FIG. 1
ZQ	7AC		FS1
ZR	7AC		FS1, APP FIG.1
ZS	8M		FS1, APP FIG1
ZT	8M		
ZV	9AC		FS1, APP, FIG1
ZW	9AC		FS1

DWG ISSUE	CD ISSUE	DATE ISSUED	DRAWN	APPD
1	1	9-1-87		
2A	2A	12-14-89		
3B	2A APPX 1B	8-26-90		
4M				
5B		4-5-90		
6M		5-4-90		
7AC		6-2-92		JFB
8M		11-10-93		
9AC		8-25-94		

SYSTEM USED ON	DESIGN CONTROL
POWER	WH/PK

SUPPORTING INFORMATION

CATEGORY	NO
OPERATING AND MAINTENANCE	ATTP-169-790-106
PRODUCT MANUAL	~~115-014~~
MANUFACTURING TESTING REQUIREMENTS	X-80060 169-790-12

AM10

POWER SYSTEMS

"LINEAGE"® 2000 RECTIFIER CIRCUIT

INPUT: 208 OR 240 VOLTS, 60 Hz
OUTPUT: 24 VOLTS OR 48 VOLTS
125 AMPERES
J85502C

DWG SIZE 6S | ISSUE 9AC

AT & T | SD-82659-01 |

FS1

BAY FRAMEWORK

6GA

NOTE 313

AC SERVICE

NOTES 303, 309, 314

208/240V

208V

240V

TB1

NOTES 203,309

K1 L1 T1

K1 L2 T2

K1 L3 T3

FR GRD(STUD) AC EG

K1

K2

NOTE 203

TO SHT 83 SEE NOTE 317

1/0 GA

C1-C8 (V) 89000 (W) 30000

R1 (V) 180 (W) 560

L2 0.5

C13 .1mf

C14 1.5mf

CR3 CR4

R3

SEE NOTE 318

OUTPUT VOLTS ADJ CW

R4 1.0K

TP1 +REG TP2 -REG

FA1 V+ 1/2A

FA2 V- 1/2A

1/0 GA NOTE 203

CBA1 150A

1/0 GA NOTE 203

+V

-V

TO IFS

CM5 365A AC VOLTAGE MONITOR BOARD

RECT TEST S2

POWER

RFA DS1

POWER ON DS3

FA DS2

CR1

CR2

J2 P2

J3 P3

NC

PT

L1

C10 (V) 15 (W) 25

SEE NOTE 203

R6 1.3K

Q1

C11 (V) 15 (W) 25

C9 Q1

C12 Q1

K2 2 8

K2 4 8 472

J4

TO 188

J18 J17

E13 E14

P1A

J1A

W1

J1 64

P1 64

SEE SHEET 85

P8 P10 P13

J8 4K JP

J10 4K JN

TO LINEAGE® 2000 REMOTE ACCESS SYSTEM SD-82645-01

J13

EQUALIZE VOLTS ADJ R5 1.0K

EQUALIZE DS4

J4A

P4A

P3A

W2

J3A

J1B

P1B

CM3 207A DIGITAL METER NOTE 304 SERIES 3 OR HIGHER

CM2 205AI CONTROL MODULE SEE NOTE 310

FS2 CM1 ED-83158-30 OPTION BOARD, GRP 3 OR HIGHER NOTES 102, 306

P1 P12 P7 P9 P5

P6

J6

P2A

J2A (REF)

NOTE 307

E16

E17

(ZN) TO CONNECTOR P2A-1 (H9)

(ZM) TO PLANT CONTROL CIRCUIT

ACCESS TERMINALS FOR ALARM & CONTROL FUNCTION

CM4

CB CBR LOAR LOA RFAR RBA RG RB BAT GRD MAN EQL EQLR RS RSR TR48 HV48

(PART 846484509 MOUNTED ON ED-83211-30)

P2A-2 P2A-1 J2A-1

J2A-2

TO PLANT CONTROL CIRCUIT

H7

EQ24 EQ48 EQA EQAR CB CBR R+ R- HV24 HV48 TR24 TR48 RFA LOAR-OPEN SR SRR HVR PMNVR PMNV PMVR PM,LOA TRH RFAR VL VP MAN PMN TPO TP1 TP2 TP3 TRR APG BAT GRD RS RSR

"LINEAGE"® 2000 RECTIFIER CIRCUIT
JB5502C

DWG SIZE E6

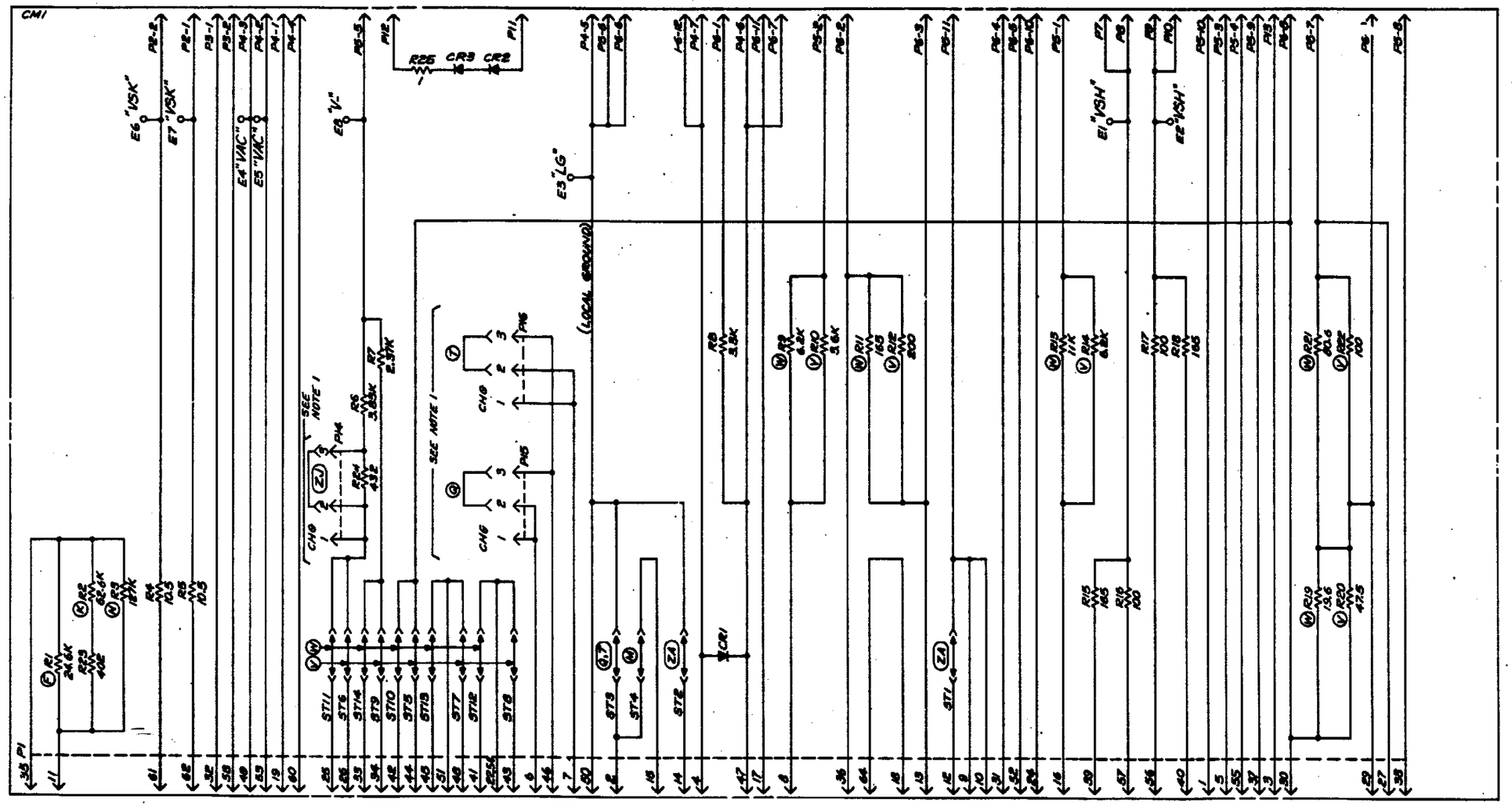
ISSUE 9AC

AT&T

SD-82659-01

SHEET B1

FS 2
OPTION BOARD
SEE NOTE 2



NOTES:

~~1. ON APPLICATIONS WHERE EXTERNAL HIGH VOLTAGE SHUTDOWN SIGNAL IS NOT AVAILABLE (OPTIONS 6 OR 17, TO RAISE LEVEL OF BACKUP HIGH-VOLTAGE SHUTDOWN VOLTAGE DURING INITIAL CHARGE, MOVE CONNECTORS P14, P15 & P16 TO CH6 POSITION. UNDER NORMAL OPERATION WHERE EXTERNAL HV SHUTDOWN SIGNAL IS AVAILABLE (OPTION H), P15 & P16 CONNECTORS ARE ALREADY IN CH6 POSITION. IN THIS CASE, INITIAL CHARGE CAN BE ACCOMPLISHED BY MOVING CONNECTOR P14 TO CH6 POSITION.~~
SEE INFORMATION NOTES 306 & 309 FOR INSTRUCTIONS ON REMOVAL OF OPTION STRAPS AND RESISTORS.

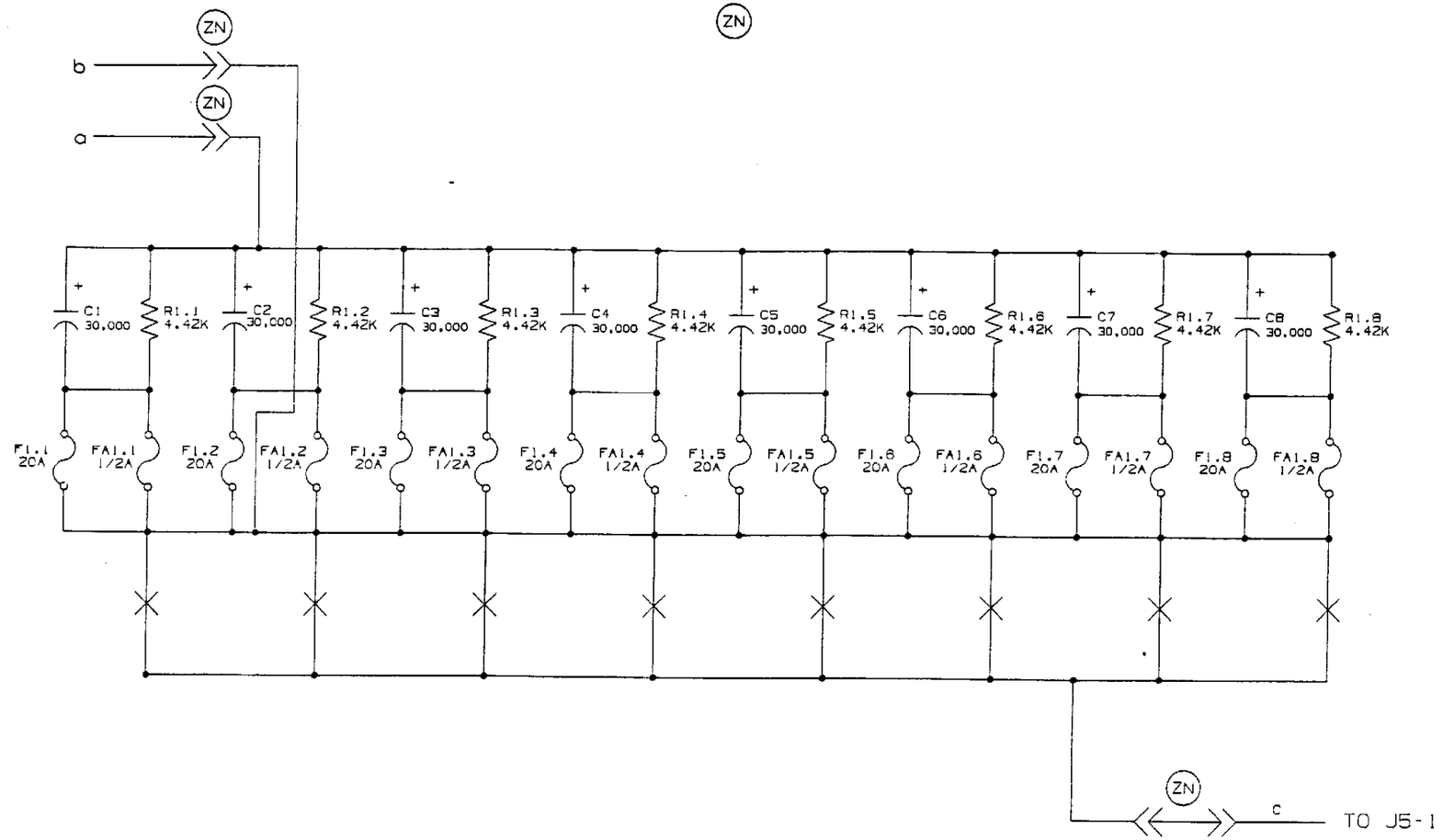
2. FOR RECORD ONLY. SD-82604-01 IS THE CONTROLLING DOCUMENT.
~~SEE FS4 & APP FIG. 2, OPTION ZQ OF SD-82604-01.~~
SEE SD-82604-01 FS4 / APP FIG. 2 OPTION ZQ

"LINEAGE"® 2000 RECTIFIER CIRCUIT
J85502C

DWG SIZE	ISSUE
8S	7AC

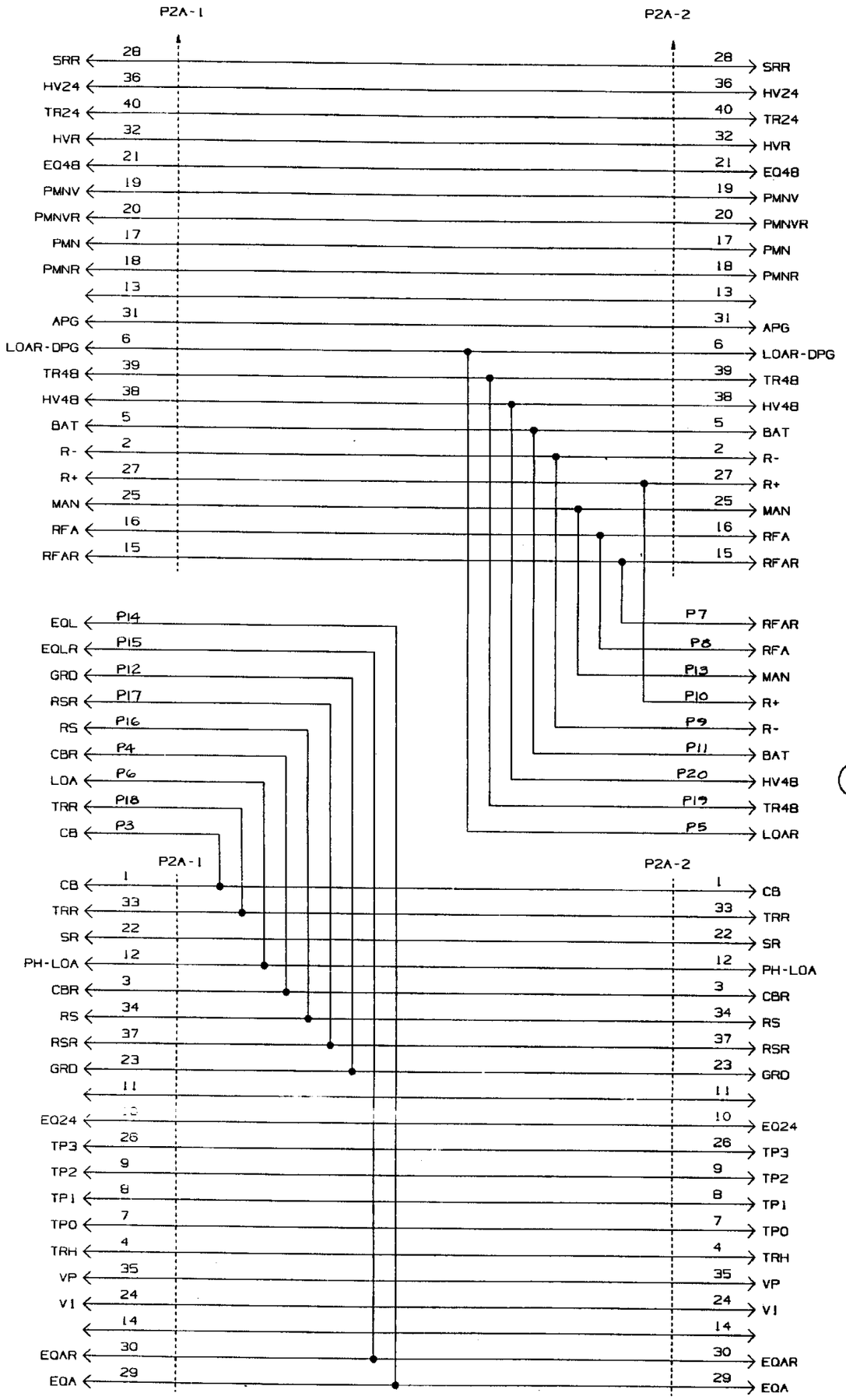
AT&T | SD-82659-01 | SHEET B2

FS 3
BATTERYLESS OPTION BOARD



"LINEAGE" © 2000 RECTIFIER CIRCUIT
J85502C

DWG. SIZE: B9 ISSUE: 3B



FS4

PWB 8464845O9 ~~[illegible]~~ BOARD

(ZN)

AT&T - PROPRIETARY

USE, DISCLOSURE AND COMPANY INSTRUCTIONS

"LINEAGE" @ 2000 RECTIFIER CIRCUIT
855502C

AT&T

SD-82659-01

DWG. SIZE 6S

ISSUE GM

SHEET 84

PART OF FS1

(PART OF CM1)
ED83158-30 OPTION BOARD

P1 1 64

PB1 1 64

CM6
434A (ZV)
434B (ZW)

AC VOLTAGE MONITOR & ALARM BOARD

JA1 1 64

P15 1 2 3 4 5

W5

P1A 1 64

E2 E1 E9 E4 E3

(PART OF CM2)
205A1
AS SHOWN ON SHB1

LINEAGE 2000 RECTIFIER CIRCUIT

			SHEET	ISSUE	DWG SIZE
AT&T	DJ	SD8265901	B5	9AC	C2

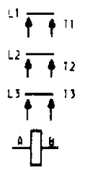
PRINTED IN U.S.A.

UG11 V4.1 (02-22-88)

APP FIG. 1

RELAY	COMCODE
(V) 2200EB3308A-63-11-9, TELEMECHANIQUE, ACC430-8070C, ARROW HART (SEE NOTE 2)	405589433
(W) 2200EB530BA-9, TELEMECHANIQUE, ACC430-8076C, ARROW HART (SEE NOTE 2)	405577305

K1



1B1
1C1
1C1
1D1

A283XCX252, STRUTHERS-DUNN **K2** (SEE NOTE 1)

1G8
1F4
1D4
1F5

CAPACITOR

DESIG	LOC	CODE
C1 THRU C8	1A4	(V) 36DE893G030BF2B, SPRAGUE (W) 36DE303G060BF2B, SPRAGUE
C9	1F3	KS-14980,L26,0.1
C10	1E3	(V) ~~61L801.15, GE-C0~~ H26R5515S, AEROVOX (W) ~~61L804.25, GE-C0~~ H26R5525S, AEROVOX
C11	1F2	(V) ~~61L801.15, GE-C0~~ H26R5515S, AEROVOX (W) ~~61L804.25, GE-C0~~ H26R5525S, AEROVOX
C12	1F3	WP90505, L11, 0.1
C13	1B4	(ZP) WP90505, L11, 0.1
C14	1B4	(ZP) WP90678, L107B, 1.5 KS19774, L9, 1.5

CIRCUIT BREAKER

DESIG	LOC	CODE
CBA1	1A7	KS-22012,L75,150A

CIRCUIT MODULE

DESIG	LOC	CODE
CM2	1G6	205A1
CM3	1G9	207A, SERIES 3 OR HIGHER
FS2(CM1)	1D5	ED-83158-30, GRP 3 OR HIGHER
(ZM) FS4 (CM4)	1G2	846484509 (ED-83211-30)
(ZR) CM5	1B9	365A
(ZV) ~~CM6~~	~~5E6~~	~~434A~~
(ZW) ~~CM6~~	~~5E6~~	~~434B~~

CONNECTOR

DESIG	LOC	CODE
J2	1D4	640250-2,AMP
J3	1E4	102241-1,AMP
J4	1E5	102241-6,AMP
J4A	1F7	102241-4,AMP
J5	1F5	102241-9,AMP
J6	1C7	1-102241-0,AMP
J7	1C5	2-520263-2,AMP
J8	1E6	
J9	1C5	2-520263-2,AMP
J10	1E7	
J13	1E7	2-520183-2,AMP
(ZR) J14	1B8,1C9	102241-4,AMP WITH CONTACT 86492-2,AMP

DIODE

DESIG	LOC	CODE
CR1	1C3	WP91147,L88S (NOTE 315)
CR2	1D3	WP91147,L88S (NOTE 315)
CR3	1B4	D75N4008-MOD 1,AEG (NOTE 316)
CR4	1B4	D75NR4008-MOD 1,AEG (NOTE 316)

DIODE (LIGHT EMITTING)

DESIG	LOC	CODE
DS1	1E8	531D
DS2	1E9	531D
DS3	1E9	531E
DS4	1F8	531N

FUSE

DESIG	LOC	CODE
FA1	1B6	70G, 1/2A
FA2	1B7	70G, 1/2A
(ZN) FI.1 THRU FI.8	3DI-3D8	KS19780,L24 (20A)
(ZN) FAI.1 THRU FAI.8	3DI-3D8	70G, 1/2A

INDUCTOR

DESIG	LOC	CODE
L1	1E3	(V) 1126H (W) 1384A
L2	1B4	1410A

POTENTIOMETER

DESIG	LOC	CODE
R4	1B5	M22S10, 1KΩ, 405591082 } MEPCO/COPAL
R5	1F9	M22S10, 1KΩ, 405591082 } MEPCO/COPAL

RESISTOR

DESIG	LOC	CODE
R1	1B4	(V) KS-14603,L2A0,18Ω (ZM)(W) KS-14603,L2A0,56Ω
(W),(ZN) R1.1 THRU R1.8	3CI-3C8	KS-20289,L8C,4.42K
R3	1A4	~~MLA156, 25-50, EMPRO CORP.~~
R6	1E3	KS-14603,L2A0, 1.3K

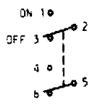
SWITCH

DESIG	LOC	CODE
S1	1D8	U21-J21-ZQE-3-2 WITH RED LEVER, C&K
S2	1C8	U21S-J21-ZQE-1-2 WITH WHITE LEVER, C&K

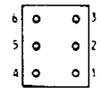
S2 RECT TEST

SW POS	TERMS CONN
NL (CENTER)	2-3, 5-6
FL	1-2, 4-5

S1 POWER



S1 & S2 TOP



TEST POINT

DESIG	LOC	CODE
TP1	1B5	KS-20667,L2
TP2	1B5	KS-20667,L2

THYRISTOR

DESIG	LOC	CODE
(ZS) Q1	1F3	~~MAC25A-10,MOTOROLA, NOTE 3~~
(ZT) Q1	1F3	BTA40-800B SGS THOMPSON

TRANSFORMER

DESIG	LOC	CODE
T1	1B2	(V) 3337A (W) 3338A
T2	1F2	2291E

CABLE ASSEMBLY

DESIG	LOC	COMCODE
W1	1F6	845369875

E/W

DESIG	LOC	CODE
J1	1E6	1-499571-4,AMP
J1A	1F6	1-499571-4,AMP

DESIG	LOC	COMCODE
W2	1F8	845369867

E/W

DESIG	LOC	CODE
J1B	1G8	1-6400441-5,AMP
J3A	1G8	1-6400441-5, MP

DESIG	LOC	COMCODE
~~W5~~	~~5E4~~	~~847381050~~

E/W

DESIG	LOC	CODE
~~P15~~		

NOTES:

1. EARLY PRODUCTION MAY BE 283XCX252.
2. THE PREFERRED CONTACTOR IS THE TELEMECHANIQUE BUT THE ARROW HART IS AN APPROVED SUBSTITUTE.
3. ~~MAC25-10 IS AN APPROVED SUBSTITUTE.~~

"LINEAGE"® 2000 RECTIFIER CIRCUIT
J85502C

DWG SIZE	ISSUE
8S	9AC

AT&T	SD-82659-01	SHEET
		C1

APP FIG. 2

SEE NOTE 1

CIRCUIT MODULE

DESIG	LOC	CODE
CM1	105,2B0	ED-83158-30, GRP 3

E/W

CONNECTOR

DESIG	LOC	CODE
P1	2G0	1-499460-2,AMP
P2-1	2B1	641119-2,AMP
P2-2	2B1	641119-2,AMP
P3-1	2B1	3-102202-4,AMP
P3-2	2B1	3-102202-4,AMP
P4-1	2B2	102202-5,AMP
P4-2	2B1	102202-5,AMP
P4-3	2B1	102202-5,AMP
P4-4	2B2	102202-5,AMP
P4-5	2B3	102202-5,AMP
P4-6	2B4	102202-5,AMP
P4-7	2B4	102202-5,AMP
P5-1	2B6	102202-8,AMP
P5-2	2B5	102202-8,AMP
P5-3	2B7	102202-8,AMP
P5-4	2B7	102202-8,AMP
P5-5	2B2	102202-8,AMP
P5-6	2B3	102202-8,AMP
P5-7	2B8	102202-8,AMP
P5-8	2B8	102202-8,AMP
P5-9	2B7	102202-8,AMP
P5-10	2B7	102202-8,AMP
P5-11	2B5	102202-8,AMP
P6-1	2B4	102202-9,AMP
P6-2	2B5	102202-9,AMP
P6-3	2B5	102202-9,AMP
P6-4	2B6	102202-9,AMP
P6-5	2B6	102202-9,AMP
P6-6	2B6	102202-9,AMP
P6-7	2B4	102202-9,AMP
P6-8	2B7	102202-9,AMP
P6-9	2B8	102202-9,AMP
P6-10	2B6	102202-9,AMP
P6-11	2B4	102202-9,AMP
P6-12	2B4	102202-9,AMP
P7	2B6	#836, ZIERICK
P8	2B7	#836, ZIERICK
P9	2B7	#836, ZIERICK
P10	2B7	#836, ZIERICK
P11	2B2	#836, ZIERICK
P12	2B3	#836, ZIERICK
P13	2B7	#836, ZIERICK
P14	2D2	65568-103, BERG
P15	2E3	65568-103, BERG
P16	2D3	65568-103, BERG

RESISTOR

	DESIG	LOC	CODE
(F)	R1	2F0	KS-16311,L4F,24.6K
(K)	R2	2F0	KS-16311,L4F,62.6K
(N)	R3	2F1	KS-16311,L4F,127K
	R4	2F1	WP90033,L1,10.5
	R5	2F1	WP90033,L1,10.5
	R6	2D2	WP90033,L1,3.83K
	R7	2D2	WP90033,L1,2.37K
	R8	2D4	KS-13490,L1,3.3K
(W)	R9	2D5	KS-13490,L1,6.2K
(V)	R10	2D5	KS-13490,L1,3.6K
(W)	R11	2D5	WP90033,L1,165
(V)	R12	2D5	WP90033,L1,200
(W)	R13	2D6	KS-13490,L1,11K
(V)	R14	2D6	KS-13490,L1,6.2K
	R15	2F6	WP90033,L1,165
	R16	2F6	KS-16311,L4F,100
	R17	2D7	KS-16311,L4F,100
	R18	2D7	WP90033,L1,165
(W)	R19	2F8	WP90033,L1,19.6
(V)	R20	2F8	WP90033,L1,47.5
(W)	R21	2D8	WP90033,L1,80.6
(V)	R22	2D8	WP90033,L1,100
	R23	2F0	WP90033,L1,402
	R24	2E2	WP90033,L1,432
	R25	2B2	KS-14603,L1AD, 1

TERMINAL

DESIG	LOC	CODE
E1	2C6	640967-2,AMP
E2	2C7	640967-2,AMP
E3	2C3	640967-2,AMP
E4	2B1	640967-2,AMP
E5	2B1	640967-2,AMP
E6	2B1	640967-2,AMP
E7	2B1	640967-2,AMP
E8	2B2	640967-2,AMP

DIODE

DESIG	LOC	CODE
CR1	2F4	WP90015,L3
CR2	2B3	6051, MICROSEMI CORP.
CR3	2B3	6051, MICROSEMI CORP.

NOTES:

1. FOR RECORD ONLY, SD-82604-01 IS THE CONTROLLING DOCUMENT.
~~SEE FS4 & APP FIG. 2, OPTION ZQ OF SD-82604-01.~~
SEE SD-82604-01 FS4 & APP FIG.2, OPTION ZQ

APP FIG. 3

CIRCUIT MODULE

DESIG	LOC	CODE
CM4	1 H2,4B0	ED-83211-30

E/W

CONNECTOR

DESIGN	LOC	CODE
P2A-1	1H3	499920-9 AMP
P2A-2	1G1	499917-9 AMP
P3	4	836 ZIERICK
P4	4	836 ZIERICK
P5	4	836 ZIERICK
P6	4	836 ZIERICK
P7	4	836 ZIERICK
P8	6	836 ZIERICK
P9	4	836 ZIERICK
P10	4	836 ZIERICK
P11	4	836 ZIERICK
P12	4	836 ZIERICK
P13	4	836 ZIERICK
P14	4	836 ZIERICK
P15	4	836 ZIERICK
P16	4	836 ZIERICK
P17	4	836 ZIERICK
P18	4	836 ZIERICK
P19	4	836 ZIERICK
P20	4	836 ZIERICK

CABLE ASSY

DESIG.	LOC	CODE
W3	1H3	846487924

E/W

DESIG	LOC	CODE
J2A-1	1H3	60598-9
J2A-2	1H2	60598-9

LINEAGE (R) 2000 RECTIFIER CIRCUIT
J85502C

DWG SIZE	ISSUE
8S	5B

AT&T | SD-82659-01 | SHEET C2

CIRCUIT NOTES:

101.

DESIG	FUSE AMP	POTENTIAL	ONE PER
BATTERY SYMBOL		VOLTAGE RANGE	

FOR INPUT FUSING, SEE NOTE 309.

102. CM1 IS MANUFACTURED WITH ALL OPTION STRAPS AND RESISTORS IN PLACE. REMOVE UNNECESSARY STRAPS AND EXTRA RESISTORS. REFER TO NOTE 306 & 319.

FEATURE OR OPTION			PROVIDE APP FIG.	PROVIDE APP OR ARG	PROVIDE QUANTITY
208/240 VAC INPUT	125 AMP 24V OUTPUT		1,2	V	1
	125 AMP 48V OUTPUT		1,2	W	1
OUTPUT GROUND	NEGATIVE		1	Y	
	POSITIVE		1	Z	
EXTERNAL HIGH VOLTAGE SHUTDOWN SIGNAL	~~NOT AVAILABLE NOTES 1 & 2~~	24 VOLTS	2	Q,ZJ,ZP	
		48 VOLTS		T,ZJ	
	AVAILABLE			M	
EXTERNAL SENSING	NOT AVAILABLE			ZA	
	AVAILABLE			-	
PROVIDE LOCAL ACCESS TO CONTROL AND ALARM FUNCTIONS			1,3	ZN	
PROVIDE AC VOLTAGE MONITOR CIRCUIT			1	ZR	
PROVIDE AC/DC VOLTAGE MONITOR AND SHUTDOWN CIRCUIT			1	ZV	
PROVIDE AC/DC VOLTAGE MONITOR AND SHUTDOWN CIRCUIT WITH AC VOLTAGE ALARM			1	ZW	

NOTES:

~~1. FOR INITIAL CHARGE, THE CONNECTION P14(Z1), P15(Q) AND P16(T) ON THE OPTION BOARD SHOULD BE IN THE CHARGE POSITION.~~
~~2. OPTION (Q,T) IS AN OPTION THAT IS STRAPPED WHENEVER EXTERNAL HIGH VOLTAGE SHUTDOWN IS NOT AVAILABLE.~~

103.

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 AMAIL	LA	DA
38	ZM,ZN	ZM	317, 318	ZM,ZN		NONE
TAC	ZQ,ZR	ZQ		ZR		NONE
BM	ZS,ZT	ZS		ZT		ZS
SAC	ZR,ZV ZW	ZR		ZV,ZW ZQ		ZA

EQUIPMENT NOTES:

201. ALL WIRING SHALL BE KS-22247,L4 STRANDED UNLESS OTHERWISE SPECIFIED.

202. ALL WIRING OF UNSPECIFIED SIZE SHALL BE 22 GA.

203. WIRING SHALL BE KS-22247,L5 STRANDED FOR WIRING UP TO 6 GA. THE 1/0 GA WIRING SHALL BE KS-20921,L1.

"LINEAGE"® 2000 RECTIFIER CIRCUIT
365502C

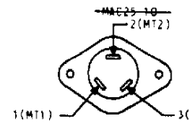
DWG SIZE: 8S
ISSUE: SAC

AT&T | SD-82659-01 | SHEET D1

INFORMATION NOTES:

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

302. THE TERMINAL NUMBER ASSIGNMENT OF THE TYPE ~~MAC 25-10~~ THYRISTOR IS:



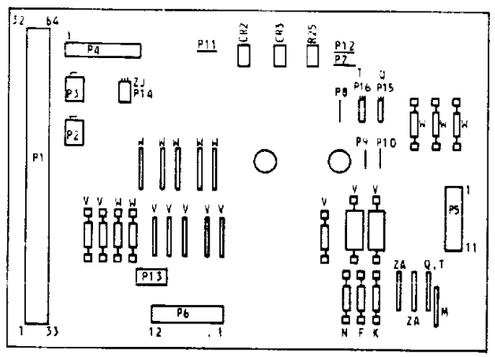
303.

OPTION	INPUT VOLTAGE	
	NOMINAL	RANGE
S	208	184-220
R	240	[illegible]-254

304. 207A MUST BE SERIES 3 OR HIGHER.

305. DO NOT PARALLEL WITH THE RS LEADS OF THE J87434 OR J87435 RECTIFIERS.

306. THE OPTIONS ON CM1 ARE LOCATED AS FOLLOWS:



307. THE PLANT CONNECTION IS MADE WITH H285-224,L1( ) CABLE ASSEMBLY PER SD-82588-01.

308. THIS CAD FIGURE SHOULD BE USED FOR INFORMATION ONLY. CABLE ASSEMBLY AND PLANT INTERCONNECTIONS WILL BE SPECIFIED BY PLANT SCHEMATIC.

INFORMATION NOTES: (CONT)

309.

AC POTENTIAL	OUTPUT VOLTS	OUTPUT AMPS	LINE FUSES ** TYPE FN	LINE FUSES ** UL APPD BUSSMANN	INPUT CONDUCTORS KS-5482-01	INPUT CONDUCTORS KS-20785 *
208	24	125	30	FRN-R-30	3-#10	2-#10
240	24	125	25	FRN-R-25	3-#10	2-#10
208	48	125	50	FRN-R-50	2-#8,1-#10	2-#8
240	48	125	50	FRN-R-50	2-#8,1-#10	2-#8

* KS-20785 COMES WITH A BARE GROUND WIRE.
** TWO PER RECTIFIER OR AN EQUIVALENT CIRCUIT BREAKER.

310. THE ISOLATED CURRENT MEASURING CIRCUIT ON THE 205A1 CONTROL MODULE CAN BE ADJUSTED IN AN OPERATING RECTIFIER BY FOLLOWING THE PROCEDURE OUTLINED BELOW:

1. THE "E" TEST POINTS SHALL ALWAYS BE POSITIVE WITH RESPECT TO EITHER E15 OR E14 TERMINALS FOR ALL VOLTAGE MEASUREMENTS.
2. WITH THE RECTIFIER TURNED ON AND DELIVERING CURRENT, ADJUST THE OUTPUT VOLTS ADJ POTENTIOMETER SO THAT THE OUTPUT AMMETER INDICATES ZERO CURRENT.
3. USING A DVM, MEASURE THE VOLTAGE APPEARING BETWEEN TEST POINT E5 AND E14, THIS VOLTAGE SHALL BE LESS THAN 0.5 VOLTS.
4. CONNECT THE DVM ACROSS E7 AND E15 AND ADJUST POTENTIOMETER R35 SO THAT THIS VOLTAGE IS 2.0 VOLTS. IF THIS ADJUSTMENT IS NOT POSSIBLE, THEN IT WILL BE NECESSARY TO REPEAT THIS PROCEDURE STARTING WITH STEP 2.
5. ADJUST THE OUTPUT VOLTS ADJ POTENTIOMETER SO THAT THE RECTIFIER IS DELIVERING APPROXIMATELY 25% OF RATED CURRENT AS READ ON THE OUTPUT AMMETER. MEASURE THE MILLIVOLT DROP ACROSS THE SHUNT. THE AMMETER READING SHOULD BE:
   0.625 x SHUNT mV FOR 25A RECTIFIER
   1.25 x SHUNT mV FOR 50A RECTIFIER
   3.125 x SHUNT mV FOR 125A RECTIFIER
6. BASED ON THE READING OBTAINED IN STEP 7, MEASURE THE VOLTAGE APPEARING ACROSS E7 AND WITH RESPECT TO E15 THIS VOLTAGE SHALL BE: V7 = 2V + (V SHUNT x 160). THE TABLE BELOW SHOWS SAMPLE MEASUREMENTS.

SHUNT VOLTAGE MILLIVOLTS	OUTPUT CURRENT 25A	OUTPUT CURRENT 50A	OUTPUT CURRENT 125A	VOLTAGE ACROSS E5 TO E14	VOLTAGE ACROSS E7 TO E15
10.0	6.25A	12.5A	31.25	800MV±1%	3.60V±1%
20.0	12.5A	25A	62.5	1.60V±1%	5.20V±1%
30.0	18.75A	37.5A	93.75	2.40V±1%	6.80V±1%
40.0	25A	50A	125	3.20V±1%	8.40V±1%

NOTES:

1. THE FOLLOWING EQUIPMENT IS NEEDED TO PERFORM THE TESTS SHOWN ABOVE:
   (a) DIGITAL METER KS-22861,L1
   (b) TRIMPOT SCREWDRIVER
2. THE VOLTAGE APPEARING ACROSS E5 TO E14 IS 80 TIMES THE MILLIVOLT READING OBTAINED ACROSS THE SHUNT, ±1%.

INFORMATION NOTES: (CONT)

311. OPERATION AND MAINTENANCE AT&TP-790-106.

312. THE CHASSIS OF THE RECTIFIER SHALL BE GROUNDED PER REQUIREMENTS OF ATTP-802-001-180.

313. PROVIDE A NO. 6 AWG KS-5482-01 FRAME GROUNDING CONDUCTOR FROM THE BAY FRAMEWORK THAT MOUNTS THE RECTIFIER TO THE CO. GRD SYSTEM IN ACCORDANCE WITH FRAME GROUNDING REQUIREMENTS PER ATTP-802-001-180. WHEN THE CO. 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, CONDUCTOR SHALL BE CONNECTED TO THE POWER PLANT DISCHARGE GROUND BUS.

   WHEN MORE THAN ONE RECTIFIER BAY REQUIRES GROUNDING, A SINGLE CONDUCTOR MAY BE MULTIPLED TO GROUND ALL RECTIFIER BIAS.

314. AC EQUIPMENT GROUND CONDUCTOR SHALL BE PROVIDED AS SPECIFIED IN ATTP-802-001-180.

315. EARLY PRODUCTION MAY USE 1N-2057, 1N4047 OR 1N2066.

316. EARLY PRODUCTION MAY USE 85HFR20 (CR3) AND 85HF20 (CR4) OR 72HFR20 (CR3) AND 72HF20 (CR4).

317. **FOR J85502C, LC RECTIFIER, OPTION (ZN), THE OUTPUT FILTER CAPACITORS ARE INDIVIDUALLY FUSED TO PROVIDE AN ALARM AS DOCUMENTED ON SHEET B3. ALSO, INDIVIDUAL RESISTORS ARE USED TO DISCHARGE EACH CAPACITOR. OPTION (ZN) APPLIES TO 48 VOLT OUTPUT RECTIFIER (OPTION W) ONLY.**

FOR J85502C, LC RECTIFIER APPLICATIONS, OPTION (ZN), THE RECTIFIER IS FURNISHED WITH AUXILLIARY TERMINALS (FROM E16 AND E17 OF THE 205A1 BOARD) TO GAIN ACCESS TO THE EQUALIZE FEATURE MANUALLY AND A TERMINAL STRIP TO PROVIDE LOCAL ACCESS TO THE CONTROL AND ALARM FUNCTIONS OF THE RECTIFIER.

318. **FOR J85502C, LC RECTIFIER APPLICATIONS FOR GTE, THE OUTPUT VOLTAGE OF THE RECTIFIER IS SET TO FLOAT THE BATTERIES AT 52.08 VOLTS AT NO LOAD WITH THE RECTIFIER AND THE EXTERNAL SENSED LEADS CONNECTED TO THE BATTERY.**

319. **REMOVE STRAPS OR RESISTORS ON ED83158-30 GROUP 3 (CM1 OPTION BOARD) PER THE FOLLOWING TABLE:**

ED83158-30 GROUP 3 (CM1) BOARD OPTIONS

OPTION		KEEP straps or resistors marked with	REMOVE straps or resistors marked with
125-Ampere Output (J85502C-1)		F	N,K
24 VDC Output		V	W
48 VDC Output		W	V
External HV Shutdown Signal	Available, 24V or 48V	M, ZJ (see note 1)	Q,T, & "Q,T" (see note 1)
	Not Available, 24V	Q, ZJ (see note 1)	T,M (see note 1)
	Not Available, 48V	T, ZJ (see note 1)	Q,M
External Sensing Leads	Not Available	ZA, ZJ (see note 1)	-
	Available	ZJ (see note 1)	ZA
Note 1: Option Q,T, (not "Q,T") and ZJ are movable straps. To remove the option, move the strap to "CHG" position. Note 2: To initial charge batteries, move straps to "CHG" positions as shown below. When completed, restore the options to the proper positions listed above.			
Initial Battery Charging	E/W 205A1 or 205B	Q,T (not "Q,T") in "CHG" pos; ZJ in "NORM" pos.	
	E/W 205A	Q,T (not "Q,T"), ZJ in "CHG" pos.	

"LINEAGE" (R) 2000 RECTIFIER CIRCUIT
J85502C

DWG SIZE: B3
ISSUE: 9AC

AT&T | SD-82659-01 | SHEET D2

THE FOLLOWING TABLE DOCUMENTS THE CONNECTIONS REQUIRED FROM P2A OF THE CM2 CIRCUIT PACK OF J85502 RECTIFIERS TO SELECTED CONTROL UNITS.

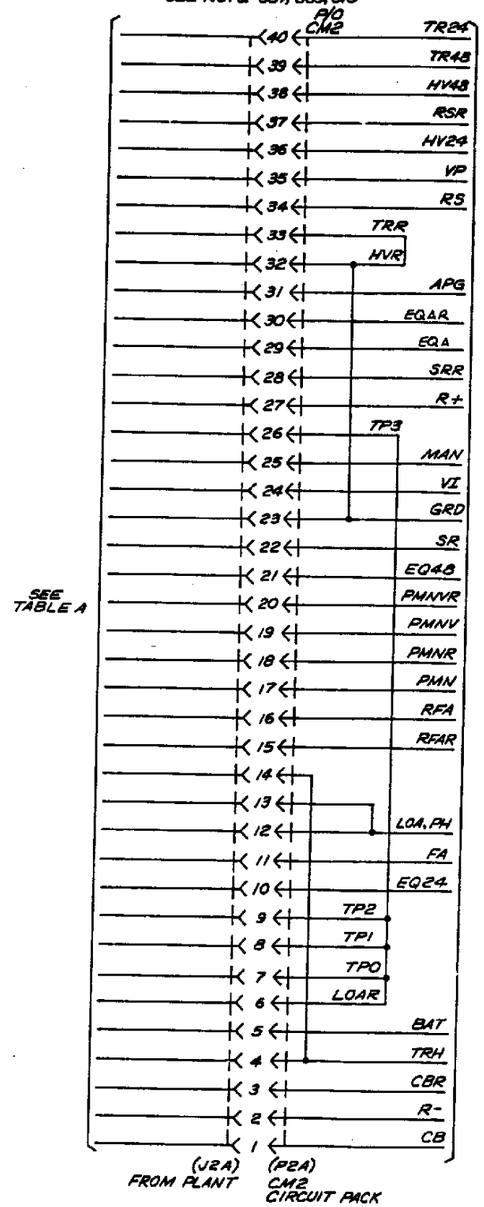
TABLE A

RECTIFIER CM2 CARD	CONTROL UNITS				
	MCS LINEAGE J85501A	CONVENTIONAL LINEAGE AND J85516 A,B,C	111A PLANT	326 PLANT	XCS LINEAGE J85501B
1	CB	CB	RFA	RFA	CB
2 NOTE 1	RG(RB)	RG(RB)	RG(RC)	RG(RB)	RG(RB)
3	CBR	CBR	(PLANT)GRD	(PLANT)GRD	CBR
4	TRH				
5	BAT	BAT	CBS	COMT	BAT
6	DPG	LOAR			LOAR
7	TPO				
8	TP1				
9	TP2				
10	EQ24				
11					
12	PH	LOA			LOA
13		STRAP TO 14	STRAP TO 14	STRAP TO 14	STRAP TO 14
14		STRAP TO 13	STRAP TO 13	STRAP TO 13	STRAP TO 13
15	RFAR	RFAR			RFAR
16	RFA	RFA			RFA
17		PMN	RFA	RFA	
18		PMNR	(PLANT)GRD	(PLANT)GRD	
19		PMNV			
20		PMNVR			
21	EQ48				
22	STRAP TO 28	STRAP TO 28	STRAP TO 28	STRAP TO 28	STRAP TO 28
23		GRD			
24	VI				
25	MAN				
26	TP3				
27 NOTE 1	RB(RG)	RB(RG)	RC(RG)	RB(RG)	RB(RG)
28	STRAP TO 22	STRAP TO 22	STRAP TO 22	STRAP TO 22	STRAP TO 22
29					
30					
31	APG				
32		HVR			
33		TRR			TRR
34 NOTE 305	RS	RS		RS	RS
35	VP				
36 (24V PLANT)	HV24	HV24	HV24	HV24	HV24
37 NOTE 305	RSR	RSR		RSR	RSR
38 (48V PLANT)	HV48	HV48	HV48	HV48	HV48
39 (48V PLANT)	TR48	TR48	TR48	TR48	TR48
40 (24V PLANT)	TR24	TR24	TR24	TR24	TR24

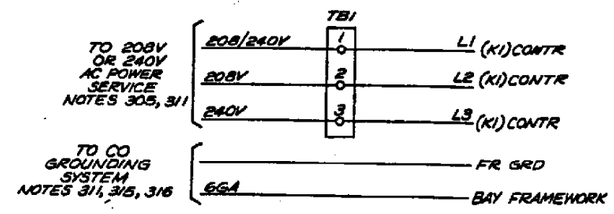
NOTE:- 1. THE R-LEAD, PIN 2 OF P2A, MUST BE CONNECTED TO A NEGATIVE VOLTAGE FROM THE POINT OF REGULATION. THE R+LEAD, PIN 27 OF P2A, MUST BE CONNECTED TO A POSITIVE VOLTAGE FROM THE POINT OF REGULATION. THE PLANT LEAD DESIGNATIONS SHOWN WITHOUT BRACKETS ARE FOR A POSITIVE PLANT (NEGATIVE GROUND). THE PLANT LEAD DESIGNATIONS SHWON IN BRACKETS ARE FOR A NEGATIVE PLANT (POSITIVE GROUND).

CAD 1

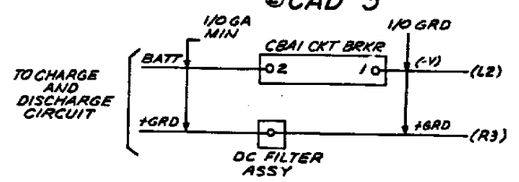
POWER PLANT CONNECTIONS
SEE NOTE 307, 309, 310



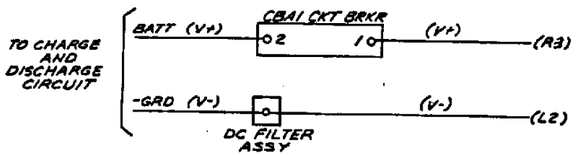
② CAD 2



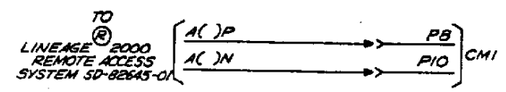
② CAD 3



ⓥ CAD 4



CAD 5



"LINEAGE" ® 2000 RECTIFIER CIRCUIT J85502C

DWG SIZE	ISSUE
6S	5B

AT&T | SD-82659-01 | SHEET G1