SHEET INDEX

CONTENTS	SHEET NO.	ISSUE NO. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
SHEET INDEX SUPPORTING INFORMATION SHEET INDEX NOTES OPTION INDEX	A1	1	2	3	4	5	6	7	8	9	10	11	12	13												
FS 1 - STANDARD BACKPLANE(COMCODE 841768245)	B1	1	2	3	4	4	4	4	8	9	9	9	9	9												
FS 2 - KEY PAD	B2	1	2	2	4	4	4	7	7	9	9	9	9	9												
FS 3 - FUSE PANEL AND PLANT CONNECTION	B3	1	2	3	4	4	4	4	8	9	9	9	9	9												
FS 4 - OPTIONAL BACKPLANE(COMCODE-841768476)	B4	1	2	2	4	4	4	4	4	4	4	4	4	4												
FS 5 - CONVENTIONAL FRONT PANEL	B5	1	2	2	4	4	4	7	7	7	7	11	11	11												
FS 6 - FEEDER DRAIN MONITOR AND REMOTE INTERFACE	B6		2	2	4	4	6	6	8	8	8	8	8	8												
FS 7 - UNIVERSAL SHUNT MONITOR FS 8 - MCS DATA SWITCH	B7	-	-	-	4	4	6	7	8	8	10	10	10	10												
FS 9 - RECTIFIER SEQUENCE CONTROLLER FS 10 ROUND CELL RESERVE TIME PREDICTOR	B8	-	-	-	-	-	-	-	8	8	8	8	12	13												
APP FIG. 1 APP FIG. 2	C1	1	2	2	4	4	6	6	8	8	10	11	12	13												
APP FIG. 3	C2	-	-	-	-	-	-	-	8	8	8	8	8	8												
CIRCUIT NOTES EQUIPMENT NOTES INFORMATION NOTES	D1	1	2	3	4	4	6	7	8	8	10	11	12	13												
CIRCUIT NOTES (CONT) INFORMATION NOTES (CONT)	D2	1	2	2	4	4	6	7	8	9	10	10	12	12												
CIRCUIT NOTES (CONT)	D3	-	-	-	-	-	-	-	8	9	10	11	12	13												

CONTENTS	SHEET NO	ISSUE NO. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
CAD 1	G1	1	2	2	4	4	4	4	8	8	8	8	8	8												
	G2	1	2	2	4	4	4	4	8	8	8	8	8	8												
CAD 2	G3	1	2	3	4	4	4	4	8	9	10	10	10	10												
CAD 3	G4	1	2	2	4	4	4	4	4	4	4	4	4	4												
	G5	1	2	2	4	4	4	4	4	4	4	4	4	4												
CAD 4	G6	-	-	-	4	5	5	5	5	5	5	5	5	5												
CAD 5	G7	-	-	-	-	-	6	7	8	8	10	10	10	10												

DWG ISSUE	CO. ISSUE	DATE ISSUED	DRAWN	APPD
1	1	9-26-85	ZEM FCR	TJH TGG
2B	1 APP 1B	10-17-86	ZEM WF	EPM JWM
3A	1 APP 2A	12-19-86	ZEM WF	EPM JWM
4AC	1 APP 3AC	2-1-86	ZEM WF	EPM TWT JWM
5A	1 APP 4A	9-30-87		
6B	1 APP 5B	9-30-87		
7M	1 APP 6M	9-3-87		WH
8B	1 APP 7B	9-3-87		WH
9M	1 APP 8M	4-20-88		WH
10A	1 APP 9A	5-3-88		WH
11A	1 APP 10A	3-2-90		
12B	1 APP 11B	3-2-90		
13M	1 APP 12M	4-4-92	DC	

OPTION INDEX (CONT)

APP OR WRG	RATED ON ISSUE	REF NOTES	LOCATION
ZA	DA 8B		APP FIG.1,1C1
ZB	AVAIL 8B	123	APP FIG.1,1B1,1B2, 1C1,1G1,1G2,1G6, 3E2
ZC	AVAIL 8B		APP FIG.2,8A6,8A7
ZD	DA 3B		APP FIG.2,7B1
ZE	AVAIL 8B		APP FIG.2,7B1
ZF	DA 8B		APP FIG.2,6A6
ZG	DA 3B		APP FIG.2,6B6
ZH	AVAIL 8B		APP FIG.2,6B6
ZI	AVAIL 8B		APP FIG.1,3F5,3F6
ZJ	AVAIL 12B	115,121,126	APP FIG. 1, 8A1, 8A2
ZM	AVAIL 11A	125	APP FIG. 2, 5A2
ZL	AVAIL 11A	125	APP FIG. 2, 5A2

APP OR WRG	RATED ON ISSUE	REF NOTES	LOCATION
T	AVAIL 2B		APP FIG.2,6A6,7D4
S	AVAIL 10A	119	7B7,7C7,7C9
R	AVAIL 4AC		APP FIG.2,7B2
Q	DA 10A	119	7B7,7C7,7C9
P	AVAIL 8B	115,121	APP FIG.2,8A0,8B2
M	AVAIL 1		6C5,6D5
K	AVAIL 8B	120	1E1,3G2
J	AVAIL 4AC		3B0,3G0
H	DA 4AC		3B0,3G0
G	AVAIL 2B DA 8B	117	APP FIG.2,6A4
F	AVAIL 1	113	APP FIG.1,3,1C4, 1F4,3B1,5A6
E	AVAIL 1	113	APP FIG.1,1B2,1B8, 1B9,1C4,1F4,3B1
D	AVAIL 8B		APP FIG.1,1C8
B	DA 8B		APP FIG.1,1B8
A	DA 4AC		APP FIG.1,1B8

OPTION INDEX

APP OR WRG	RATED ON ISS	REF NOTES	LOCATION
Z	AVAIL 1		APP FIG.1,2,3,1D4, 1D8,5F7,5G7
Y	AVAIL 1		1B5,1D4,1F7,1F8,5B6, 5B7,5C7,5D7,5E7,5F7, 5F8
X	AVAIL 1		1B5,1D4,1F7,1F8, 5B6,5B6,5B7,5C7, 5D7,5E7,5F7,5G7,5G8
W	AVAIL 1		APP FIG.1,2,3,1D4, 1D8,5G7
V	AVAIL 1		APP FIG.2,1F7,5A1, 5A4,7A2,7A8,8A2,8A7
U	AVAIL 8B	118	APP FIG.2,6C5,6D5, 7A8,7B8

SUPPORTING INFORMATION

CATEGORY	NO.
MANUFACTURING TESTING REQUIREMENTS	X-79930

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.

BASIC

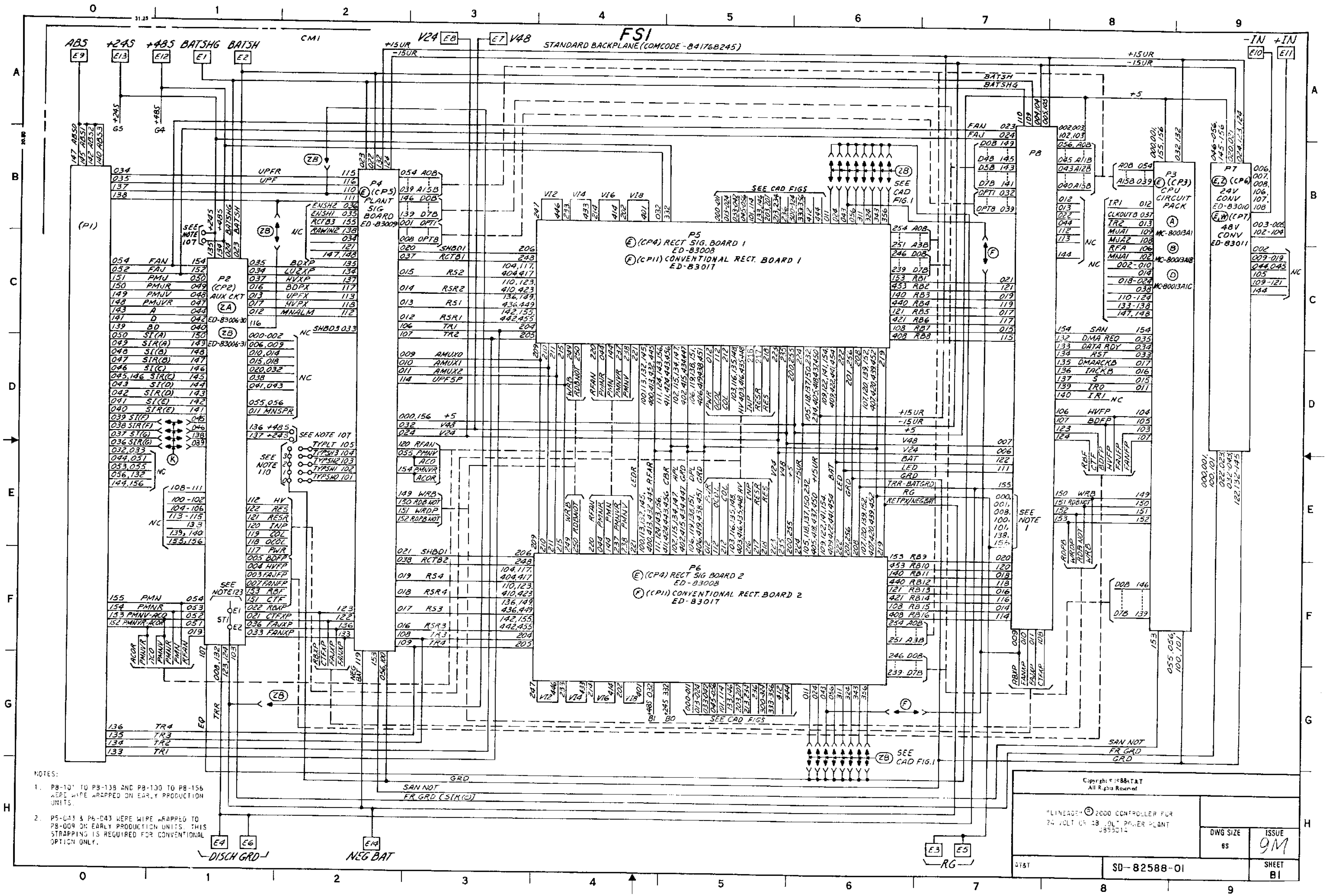
POWER SYSTEMS

"LINEAGE" ® 2000 CONTROLLER FOR 24 VOLT OR 48 VOLT POWER PLANT

J85501A

DWG SIZE	ISSUE
6S	13M

AT&T | SD-82588-01 | SHEET



NOTES:

1. P8-101 TO P8-138 AND P8-100 TO P8-156 WERE WIRE WRAPPED ON EARLY PRODUCTION UNITS.

2. P5-043 & P6-043 WERE WIRE WRAPPED TO P8-009 ON EARLY PRODUCTION UNITS. THIS STRAPPING IS REQUIRED FOR CONVENTIONAL OPTION ONLY.

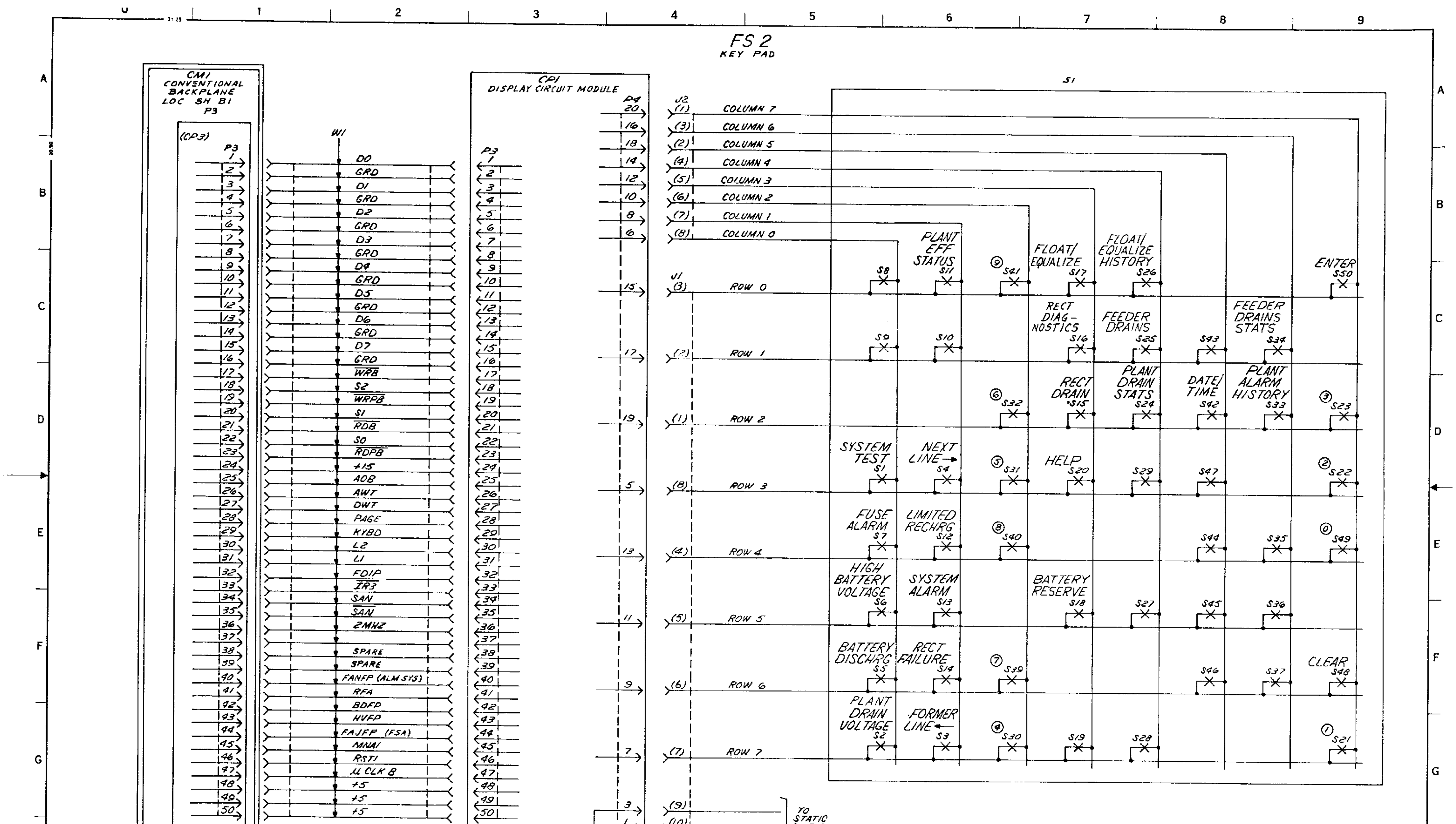
"LINEAGE" ® 2000 CONTROLLER FOR 24 VOLT OR 48 VOLT POWER PLANT J85501A

DWG SIZE	ISSUE
6S	9M

AT&T

SD-82588-01

SHEET B1



"LINEAGE" ® 2000 CONTROLLER FOR
24 VOLT OR 48 VOLT POWER PLANT
J85501A

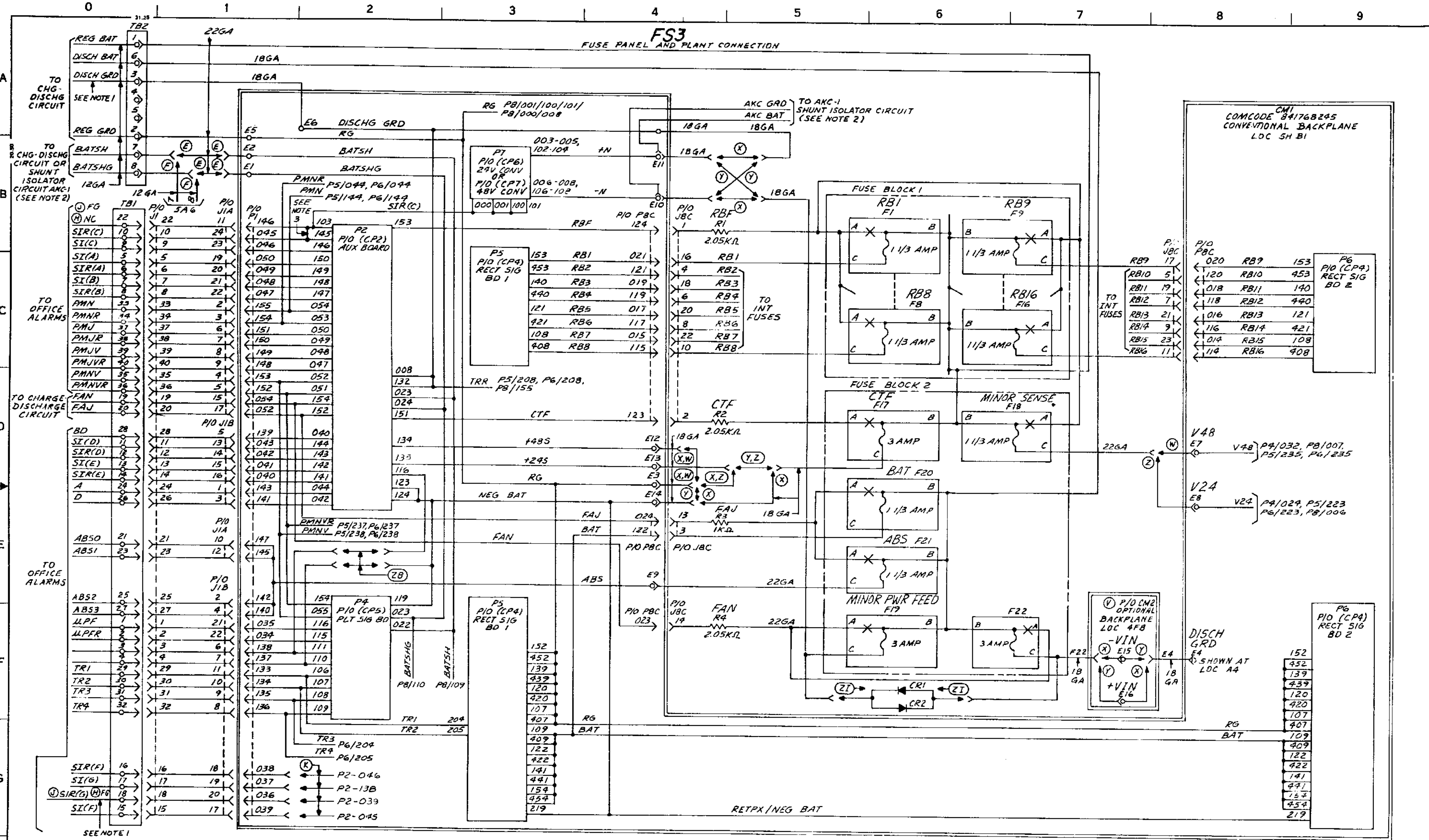
DWG SIZE	ISSUE
65	9M

AT&T

SD-82588-01

SHEET B2

PRINTED IN U.S.A.



NOTES:

1. A CONNECTION SHALL BE MADE USING 18GA WIRE FROM TB1-18 TO TB2-3, FOR (H) OPTION AND TB1-22 TO TB2-3 FOR (J) OPTION.
2. WHEN THE SHUNT ISOLATOR CIRCUIT IS APPLIED, REFER TO APPLICATIONS SCHEMATIC SD-83105-01.
3. THIS STRAP IS NOT FURNISHED ON UNITS EQUIPPED FOR (J) OPTION.

"LINEAGE" ® 2000 CONTROLLER FOR 24 VOLT OR 48 VOLT POWER PLANT J85531A	DWG SIZE 6S	ISSUE 3M
AT&T	SD-82588-01	SHEET B3

ⓨ PART OF FS 4

OPTIONAL BACKPLANE (CONTCODE-841768476)

CM1 CONVENTIONAL BACKPLANE LOC SH. B1

CM2

P2 SEE NOTE 104 | P3 SEE NOTE 104 | P4 SEE NOTE 104 | P5 SEE NOTE 104 | P6 SEE NOTE 104 | P7 SEE NOTE 104 | P8

P8 — P8A — J8A — J1A — P1A

P8A	J8A	J1A	P1A	P2	P3	P4	P5	P6	P7
				156 +5V	156	156	156	156 +5V	156
155	2 TRR	2	155 TRR	155	155	155	155	155	155
154	3 SAN	3	154 SAN	154	154	154	154	154 TRR	154
153	4 RQPB	4	153 RQPB	153	153	153	153	153 SAN	153
152	5 WRPB	5	152 WRPB	152	152	152	152	152 RQPB	152
151	6 RDB	6	151 RDB	151	151	151	151	151 WRPB	151
150	7 WRB	7	150 WRB	150	150	150	150	150 RDB	150
149	8 D0B	8	149 D0B	149	149	149	149	149 WRB	149
148	9 D1B	9	148 D1B	146	146	146	146	146 D0B	146
147	10 D2B	10	147 D2B	145	145	145	145	145 D1B	145
146	11 D3B	11	146 D3B	144	144	144	144	144 D2B	144
145	12 D4B	12	145 D4B	143	143	143	143	143 D3B	143
				142	142	142	142	142 D4B	142
156	1 GRD	1	156 GRD	056 GRD	056 GRD	056	056	056	056 GRD
			GRD	055	055	055	055	055	055
056	13 A0B	13	056 A0B	054	054	054	054	054 A0B	054
055	14 A1B	14	055 A1B	053	053	053	053	053 A1B	053
054	15 A2B	15	054 A2B	052	052	052	052	052 A2B	052
053	16 A3B	16	053 A3B	051	051	051	051	051 A3B	051
052	17 A4B	17	052 A4B	050	050	050	050	050 A4B	050
051	18 A5B	18	051 A5B	049	049	049	049	049 A5B	049
050	19 A6B	19	050 A6B	048	048	048	048	048 A6B	048
049	20 A7B	20	049 A7B	047	047	047	047	047 A7B	047
048	21 A8B	21	048 A8B	046	046	046	046	046 A8B	046
047	22 A9B	22	047 A9B	045	045	045	045	045 A9B	045
046	23 A10B	23	046 A10B	044	044	044	044	044 A10B	044
045	24 A11B	24	045 A11B	043	043	043	043	043 A11B	043
									038
P8B	J8B	J1B	P1B						
143	1 D5B	1	143 D5B	141	141	141	141	141	141 D5B
142	2 D6B	2	142 D6B	140	140	140	140	140	140 D6B
141	3 D7B	3	141 D7B	139	139	139	139	139	139 D7B
140	4	4	140 +15V	132	132	132	132	132	132 +15V
139	5 IRO	5	139						
138	6 GRD	6	138						
137	7 S	7	137 S	135	135	135	135	135	135 S
136	8 IACKB	8	136 IACKB	134	134	134	134	134	134 IACKB
135	9 DMA ACKB	9	135 DMA ACKB	133	133	133	133	133	133 DMA ACKB
134	10 RST	10	134 RST	035	035	035	035	035	035 RST
133	11 DATA RDY	11	133 DATA RDY	034	034	034	034	034	034 DATA RDY
132	12 DMA REQ	12	132 DMA REQ	033	033	033	033	033	033 DMA REQ
043	13 A12B	13	043 A12B	042	042	042	042	042	042 A12B
042	14 A13B	14	042 A13B	041	041	041	041	041	041 A13B
041	15 A14B	15	041 A14B	040	040	040	040	040	040 A14B
040	16 A15B	16	040 A15B	039	039	039	039	039	039 A15B
039	17	17	039 +15V	032	032	032	032	032	032 +15V
038	18	18	038						
			IRO	012	012	012	012	012	012 IRO
037	19 OPT6	19	037						
036	20 OPT5	20	036						
035	21 OPT4	21	035						
034	22 OPT3	22	034						
033	23 OPT2	23	033						
032	24 OPT1	24	032						
P8E	J8E (SEE NOTE 2)	J1C	P1C						
105	1 +5V	1	105	124	124	124	124	124	124 -15V
104	2 -15V	2	104	024	024	024	024	024	024
103	3 +5V	3	103						
102	4 +5V	4	102						
101	5 GRD	5	101	101	101	101	101	101	101 GRD
100	6 GRD	6	100	100	100	100	100	100	100
005	7 +15V	7	005						
004	8 -15V	8	004						
003	9 +5V	9	003						
002	10 +5V	10	002						
001	11 GRD	11	001						
000	12 GRD	12	000						
				OPT1 002	OPT2 002	OPT3 002	OPT4 002	OPT5 002	OPT6 002
				001	001	001	001	001	+5V 001
				000	000	000	000	000	000

P2A P2B P3A P3B P4A P4B P5A P5B P6A P6B P7A P7B

P8 ⓩ (CP6) 24V CONV ED-83010 ⓦ (CP7) 48V CONV ED-83011

+5V 145-156 | 096-056 | GRD 132-143 | 032-143 | 122 | 023 | 022 | 124 | 123 | 024 | 021 | 020 | 106-108 | 006-008 | 102-104 | 003-005 | 101 | 100 | 001 | 000

-VIN E15 — E4 — 3FT — F22 — +VIN E16

FR GRD

NOTES:

1. COMPONENT SIDE OF OPTIONAL BACKPLANE FUNCTIONS AS A GROUND PLANE.
2. WHEN A SECOND CONVERTER IS USED, REMOVE THE +5V, +15V AND -15V CONNECTIONS FROM J8E AND J1C. GROUND CONNECTIONS REMAIN.

"LINEAGE" ⓩ 2000 CONTROLLER FOR
24 VOLT OR 48 VOLT POWER PLANT
J85501A

DWG SIZE	ISSUE
6S	4AC

AT&T SD-82588-01 SHEET B4

ⓥ PART OF FS 4
OPTIONAL BACKPLANE CONNECTION FOR Z1 NETWORK

P10 CM2 (SEE NOTE 3)

Z1 (SEE NOTE 2)

P10 P7 / P10 J7

P10 P7	P10 J7	
056	C13	GRD
055	C14	GRD
054	C15	A0B
151	C6	WRPB
152	C5	RDPB
155	C2	+5V
053	C16	A1B
052	C17	A2B
051	C18	A3B
150	C7	RDB
149	C8	WRB
050	C19	A4B
049	C20	A5B
098	C21	A6B
097	C22	A7B
096	C23	A8B
156	C1	+5V
042	D14	A12B
041	D15	A13B
040	D16	A14B
039	D17	A15B
038	D18	A10B
043	D13	A11B
045	C24	A9B

NC; 16 15 14 13 12 11 10 9; R1 330, R2 470

1 2 3 4 5 6 7 8

ALL CAPS = 660pF

ⓕ FS 5
CONVENTIONAL FRONT PANEL

P/O P8

HVFP	106
BDFP	107
RFA	111
CTFXP	108
FAUXP	011
RBXP	009
FANXP	010
RG	008
V24	006
V48	007

CM1 CONVENTIONAL BACKPLANE 1A2

18 GA SEE NOTE 113

381

PLANT LOAD CURRENT M2

J8D

6	E1	R1	HIGH VOLTS DS1	HIGH VOLTS DS1
5	E2	R2	BAT DISCH DS2	BAT DISCH DS2
1	E3	R3	RECT FAIL DS3	RECT FAIL DS3
4	E4	R4	FUSE ALARM MAJOR DS4	FUSE ALARM MAJOR DS4
9	E7	R7	FUSE ALARM MINOR DS5	FUSE ALARM MINOR DS5

R1–R4, R7: 3.83KΩ (W), 1.96KΩ (Z)

10	E6	R6 5KΩ	(+) VM CAL TP2
12		PLANT VOLTAGE M1 (W,Z)	
11	E5	R5 5KΩ	(-) VM CAL TP1

E8 (SEE NOTE 1)

NOTES:

1. E8 IS AN UNUSED MOUNTING SCREW ON (M2).
2. (Z1) RESISTOR NETWORK MUST BE CONNECTED TO OPTIONAL BACKPLANE ON (P7) FOR PROPER OPERATION OF OPTIONAL CARDS.
3. COMPONENT SIDE OF OPTIONAL BACKPLANE FUNCTIONS AS A GROUND PLANE.
4. UNLESS OTHERWISE STATED, ALL WIRE SHALL BE 26GA SOLID.

"LINEAGE" ® 2000 CONTROLLER FOR 24 VOLT OR 48 VOLT POWER PLANT
J85501A

DWG SIZE: 6S | ISSUE: 11A

AT&T | SD-82588-01 | SHEET: 85

ⓥFS 6

TO CM2

GRD	056
GRD	055
+5V	156
+5V	155
RDB	150
WRB	149
D0B	146
D1B	145
D2B	144
D3B	143
D4B	142
D5B	141
D6B	140
D7B	139

TO CHG DISCHG CKT SD-82603-01 (NEGATIVE INPUTS)

SH1.1	123
SH1.3	122
SH2.1	121
SH2.3	120
SH3.1	119
SH3.3	118
SH4.1	117
SH4.3	116
SH5.1	115
SH5.3	114
SH6.1	113
SH6.3	108
SH7.1	107
SH7.3	106
SH8.1	105
SH8.3	109

E16 20GA (2W) (2W) (48V) 103
(24V) 102
(Z) (Z)

GRD	101
GRD	100

TO CM2

ⓖX CP9
FEEDER DRAIN MONITOR BOARD MC-800136I SEE NOTE 1

054	A0B
053	A1B
052	A2B
051	A3B
050	A4B
049	A5B
048	A6B
047	A7B
046	A8B
045	A9B
044	A10B
043	A11B
042	A12B
041	A13B
040	A14B
039	A15B
035	RST
023	SH1.2
022	SH1.4
021	SH2.2
020	SH2.4
019	SH3.2
018	SH3.4
017	SH4.2
016	SH4.4
015	SH5.2
014	SH5.4
013	SH6.2
008	SH6.4
007	SH7.2
006	SH7.4
005	SH8.2
004	SH8.4
003	NEG BAT 20GA E15
002	BS
001	+5V
000	+5V
012	IRO

TO CM2

TO CHG DISCH CKT SD-82603-01 (POSITIVE INPUTS)

TO CM2

+5V	000
+5V	001
+5V	155
+5V	156
+15V	032
+15V	132
+15V	106
-15V	024
-15V	124
-15V	107
GRD	108
GRD	055
GRD	056

TO MCS DATA SWITCH (SEE NOTE 2)

GRD	Ⓢ
RXD	
TXD	Ⓜ Ⓤ 100
GRD	
RXD	Ⓜ Ⓤ 009
TXD	Ⓜ Ⓤ 109
GRD	101

TO MODEM OR REMOTE ACCESS SYSTEM (SEE CAD 2)

DTR	011
DSR	111
CTS	Ⓜ 110
	Ⓜ Ⓤ
RTS	010
WRB	149
RDE	150
RDBP	152
WRPB	151
RST	035
	002

TO CM2

ⓨ CP8 REMOTE INTERFACE
(ZF) MC-800138I
(2G) MC-800138IB
(ZH) MC-800138IC

046	A8B
045	A9B
044	A10B
043	A11B
042	A12B
041	A13B
040	A14B
039	A15B
054	A0B
053	A1B
052	A2B
051	A3B
050	A4B
049	A5B
048	A6B
047	A7B
146	D0B
145	D1B
144	D2B
143	D3B
142	D4B
141	D5B
140	D6B
139	D7B
012	IRO

TO CM2

NOTES:
1. EACH INPUT PORT (1ST SHUNT , 2ND SHUNT ETC.) CAN ACCEPT EITHER A 50MV OR 25MV SIGNAL. IT WILL NOT ACCEPT BOTH ON THE SAME PORT AT THE SAME TIME.

P2A → P7A

(124)
(+) FOR CIRCUIT BREAKERS-TO TERMINAL 13
50MV } 1ST SHUNT
25MV
50MV } 2ND SHUNT
25MV
50MV } 3RD SHUNT
25MV
50MV } 4TH SHUNT
25MV
50MV } 5TH SHUNT
25MV
50MV 6TH SHUNT
(113)

FOR CIRCUIT BREAKERS -TO TERMINAL 12 (-)

(111)
(+) FOR CIRCUIT BREAKERS-TO TERMINAL 12
(108)
25MV 6TH SHUNT
50MV } 7TH SHUNT
25MV
50MV } 8TH SHUNT
25MV
(TO E16) DISCHG GRD(-48V)
(TO E16) DISCHG GRD(-24V)
NEG DISCHG BAT(TO E15)
(100)

FOR CIRCUIT BREAKERS -TO TERMINAL 12 (-)

P2B → P7B

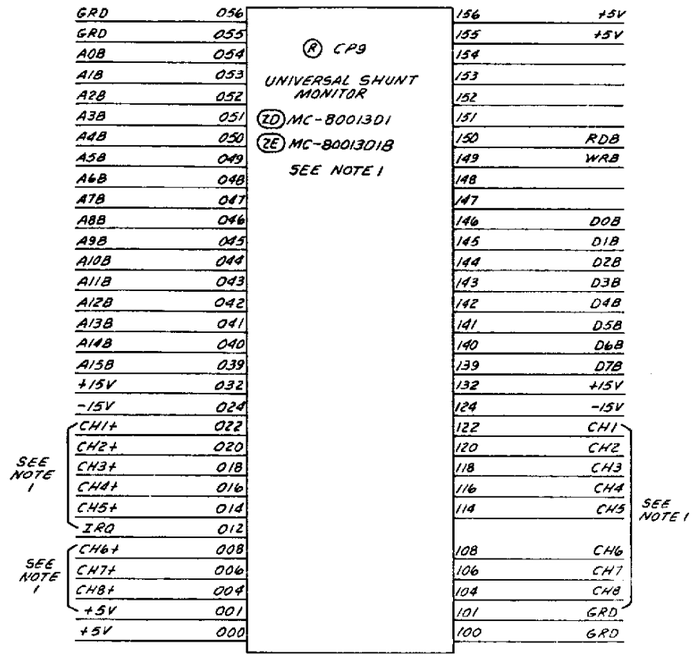
OPTIONAL BACKPLANE VIEWED FROM REAR OF CONTROL UNIT

2. DETAILS OF CONNECTIONS BETWEEN MCS DATA SWITCH AND REMOTE INTERFACE BOARD ARE SHOWN IN CAD 4.

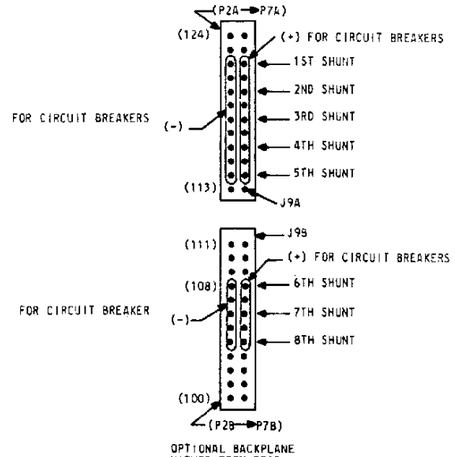
"LINEAGE" ③ 2000 CONTROLLER FOR 24 VOLT OR 48 VOLT POWER PLANT
J85501A

AT&T	SD-82588-01	DWG SIZE 8S / ISSUE 8B / SHEET 86

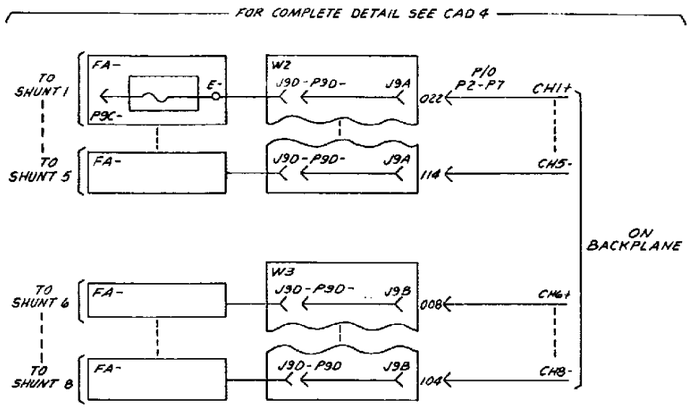
(R,V) FS7
UNIVERSAL SHUNT MONITOR



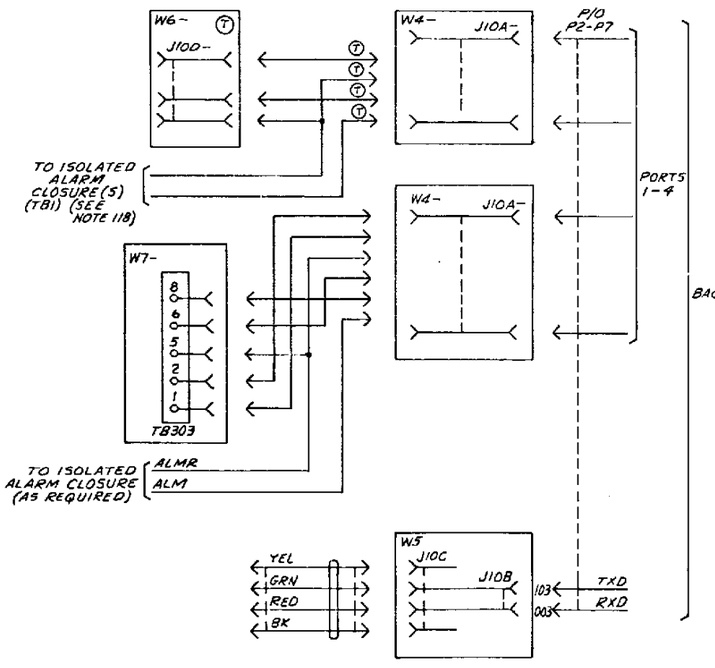
NOTES 1. CONNECTIONS SHALL BE MADE TO THE UNIVERSAL SHUNT MONITOR THROUGH CABLE ASSEMBLIES LISTED IN APP FIG 2. DETAILED CONNECTIONS SHOWN IN CAD FIG 4.



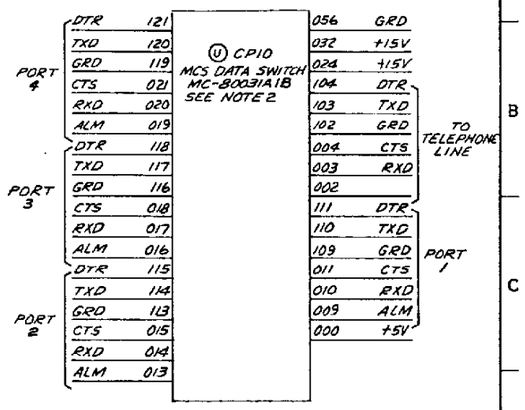
FOR COMPLETE DETAIL SEE CAD 4



FOR COMPLETE DETAIL SEE CAD 4



(U,V) FS8
MCS DATA SWITCH
SEE NOTE 119

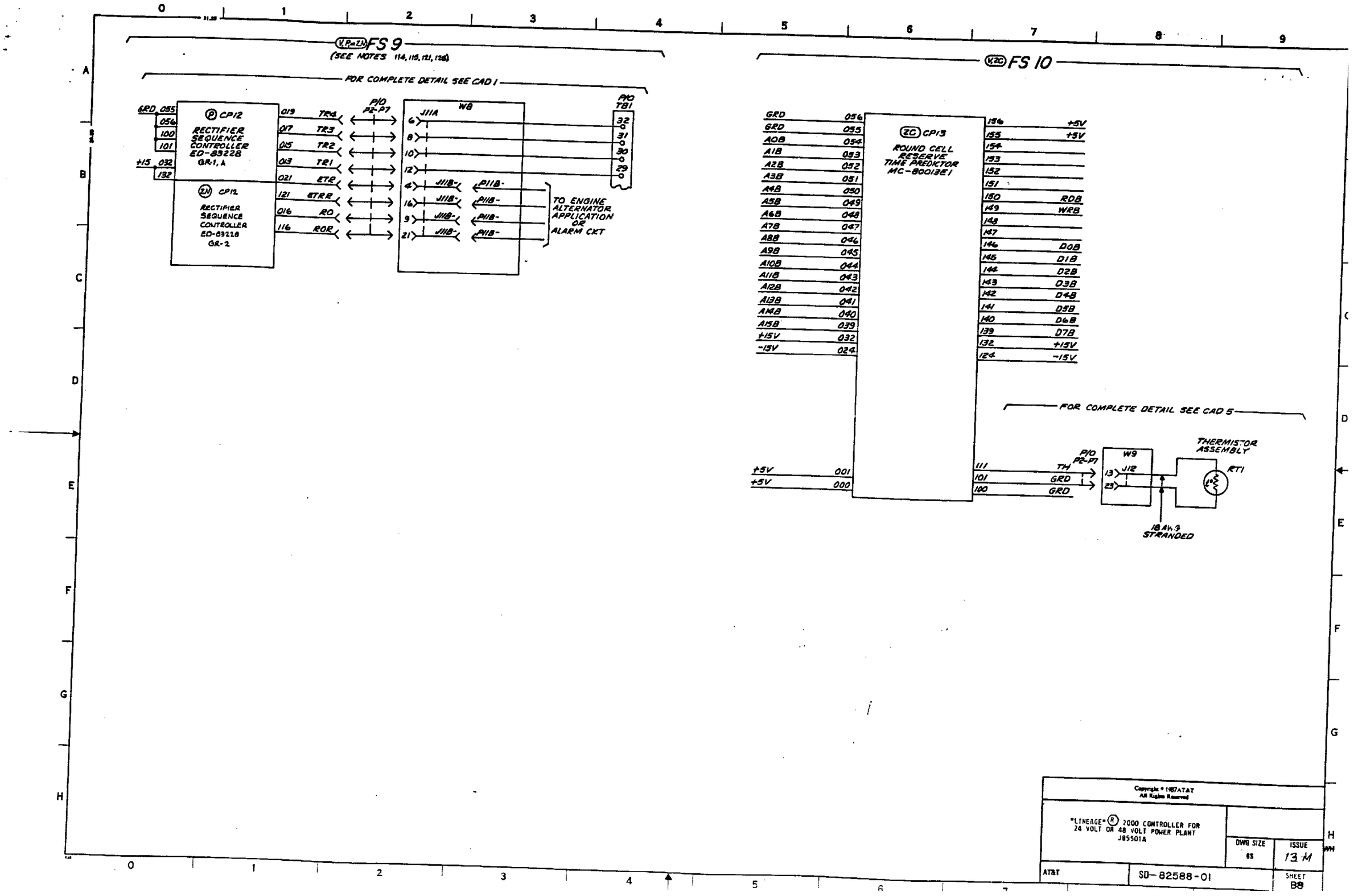


NOTES: (CONT)

2. CONNECTIONS SHALL BE MADE TO THE MCS DATA SWITCH THROUGH CABLE ASSEMBLIES LISTED IN APP FIG. 2 DETAILED CONNECTIONS SHOWN IN CAD 4.

"LINEAGE" 2000 CONTROLLER FOR 24 VOLT OR 48 VOLT POWER PLANT
J85501A

AT&T	SD-82588-01	OWG SIZE: B5	ISSUE: 10A	SHEET: B7


V.P=Z.N FS 9
(SEE NOTES 114, 115, 121, 126)
FOR COMPLETE DETAIL SEE CAD 1
P CP12
RECTIFIER SEQUENCE CONTROLLER ED-83228 GR-1, A
ZN CP12
RECTIFIER SEQUENCE CONTROLLER ED-83228 GR-2
GRD 055
056
100
101
+15 032
132
019 TR4
017 TR3
015 TR2
013 TR1
021 ETR
121 ETRR
016 RO
116 ROR
P/O P2-P7
W8
J11A
6
8
10
12
4 J118-
16 J118-
9 J118-
21 J118-
P118-
TO ENGINE ALTERNATOR APPLICATION OR ALARM CKT
P/O T81
32
31
30
29
V.2C FS 10
ZC CP13
ROUND CELL RESERVE TIME PREDICTOR MC-80013E1
GRD 056
GRD 055
A0B 054
A1B 053
A2B 052
A3B 051
A4B 050
A5B 049
A6B 048
A7B 047
A8B 046
A9B 045
A10B 044
A11B 043
A12B 042
A13B 041
AMB 040
A15B 039
+15V 032
-15V 024
+5V 001
+5V 000
156 +5V
155 +5V
154
153
152
151
150 RDB
149 WRB
148
147
146 D0B
145 D1B
144 D2B
143 D3B
142 D4B
141 D5B
140 D6B
139 D7B
132 +15V
124 -15V
FOR COMPLETE DETAIL SEE CAD 5
111 TH
101 GRD
100 GRD
P/O P2-P7
W9
J12
13
25
THERMISTOR ASSEMBLY
RT1
18 AWG STRANDED
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"LINEAGE" 2000 CONTROLLER FOR 24 VOLT OR 48 VOLT POWER PLANT
J85501A
DWG SIZE
03
ISSUE
13-M
AT&T
SD-82588-01
SHEET
88

APP FIG. 1
STANDARD CARD CAGE

CIRCUIT MODULE

DESIG	LOC	CODE
CM1	1A2	841768245

E/W

CIRCUIT PACK

DESIG	LOC	CODE
CP2	1C1	(ZA) ED-83006-30, (ZB) ED-83006-31
CP3	1B8	(A) MC-80013A1, (B) MC-80013A18, (C) MC-80013A1C
[2] CP4, CP5 (E)	1C5,1F5 1B2	ED-83008(AS REQUIRED) ED-83009
(Z) CP6	1B9	ED-83010
(W) CP7	1B9	ED-83011
(F) [2] CP11	1C5,1F5	ED-83017(AS REQUIRED)

SHORTING STRAP

DESIG	LOC	CODE
[6] SS	1E2	963E-2

CABLE ASSEMBLY

DESIG	LOC	CODE
(E) W1	2A2	50 STRAND RIBBON CABLE 15 INCHES LONG E/W 88478-8 CONNECTORS, ON BOTH ENDS.

CIRCUIT PACK

DESIG	LOC	CODE
(E) CP1	2A3	ED-83005

CONNECTOR

DESIG	LOC	CODE
J1, J2, J4	2C4, 2A4	10 PIN, BERG
J3	3B1	1-102398-8, CONNR, AMP
J1A	3B1,3E1	963N-24
J1B	3D1,3F1	963N-24
J8C	3B4,3B8,3D4, 3E4,3F4	963N-24

DIODE

DESIG	LOC	CODE
(ZJ) CR1,CR2	3F6	WP-90062,L2

FUSE

DESIG	LOC	CODE
[16] F1-F16(RBT-RB16)	3B6-3C6	70A,1 1/3 AMP
F17(CTF)	3D6	70C, 3 AMP
F18(MINOR SENSE)	3D6	70A,1 1/3 AMP
F19(MINOR PWR FEED)	3F6	70C,3 AMP
F20(BAT)	3E6	70A,1 1/3 AMP
F21(ABS)	3E6	70A,1 1/3 AMP
F22(SPARE)	3F6	70C,3 AMP

FUSE BLOCK

DESIG	LOC	CODE
FUSE BLOCK 1	3B6	22A
FUSE BLOCK 2	3D6	29A

RESISTOR

DESIG	LOC	CODE
R1(RBF)	3B5	KS-20289,L6C,2.05KΩ
R2(CTF)	3D5	KS-20289,L6C,2.05KΩ
R3(FAJ)	3E5	KS-14603,L1C,1KΩ
R4(FAN)	3F5	KS-20289,L6C,2.05KΩ

SWITCH

DESIG	LOC	CODE
(E) S1	2A7	ML50241-502 DURALITH CORP. 525 ORANGE ST. MILLVILLE, N.J. 08332

TERMINAL BLOCK

DESIG	LOC	CODE
TB1	3B0.8A4	722140, MAGNUM E/W (J1)1-102398-8 CONNR,AMP 8319308, MAGNUM
TB2	3A0	

(V) P/O APP FIG. 2
OPTIONAL CARD CAGE

CABLE ASSEMBLY

DESIG	LOC	CODE
(R) W2	7B5	845653286

E/W

CONNECTOR

DESIG	LOC	CODE
J9A	7B5	KS-21302,L10 E/W KS-21302,L51 CONTACTS
J9D- P9D-	7B5 7B5	2-520183-2 (AMP) 2-520102-2 (AMP)

DESIG	LOC	CODE
(R) W3	7C5	845653294

E/W

CONNECTOR

DESIG	LOC	CODE
J9B	7D5	KS-21302,L10 E/W KS-21302,L51 CONTACTS
J9D- P9D-	7D5 7D5	2-520183-2 RECEPTACLE (AMP) 2-520102-2 TAB (AMP)

DESIG	LOC	CODE
(U) W4-	7D5	H-285-224,L-195

E/W

CONNECTOR

DESIG	LOC	CODE
J10A-	7D5	KS-21302,L26 E/W KS-21302,L51 CONTACTS

CABLE ASSEMBLY (CONT)

DESIG	LOC	CODE
(U) W5	7G5	845805001

E/W

CONNECTOR

DESIG	LOC	CODE
J10B	7G5	KS-21302,L26 E/W KS-21302,L51 CONTACTS
J10C	7G6	90319-0002 (MOLEX)

DESIG	LOC	CODE
(T,U) W6-	7D4	H-285-224,L-196

E/W

CONNECTOR

DESIG	LOC	CODE
J10D-	7D4	KS-21302,L10 E/W KS-21302,L51 CONTACTS

DESIG	LOC	CODE
(U) W7-	7F4	H-285-224,L-197

E/W

TERMINAL BLOCK

DESIG	LOC	CODE
TB3D3	7G4	SS84P08511 (BUCHANAN)

DESIG	LOC	CODE
(P) W8	8A2	H-285-226,L1

E/W

CONNECTOR

DESIG	LOC	CODE
J11A	8A2	KS-21302,L10 E/W KS-21302,L51 CONTACTS
J11B- P11B-	8C7,8B2 8B3,8C7	2-520183-2 RECEPTACLE (AMP) 2-520102-2 TAB (AMP)

DESIG	LOC	CODE
(ZC) W9	8D8	H-285-226,L2

E/W

CONNECTOR

DESIG	LOC	CODE
J12	8E8	KS-21302,L10 E/W KS-21302,L51 CONTACTS

CIRCUIT MODULE

DESIG	LOC	CODE
CM2	4A1	841768476

E/W

CIRCUIT PACK

DESIG	LOC	CODE
(Z) CP6	4A7	ED-83010
(W) CP7	4A7	ED-83011
(T) CP8	6A6	(ZF) MC-80013B1 SEE NOTES 104 & 105 (ZG) MC-80013B1B (SEE NOTE 1) (ZH) MC-80013B1C
(X,G) CP9	6A2	MC-80013C1
(R) CP9	7B2	(ZD) MC-80013D1 (ZE) MC-80013D1B
(U) CP10	7B8	MC-80031A18
(P) CP12	8A1	ED83218, GR-1
(ZC) CP13	8A6	MC-80013E1
(ZN) CP12	6A1	ED83218, GR-2

CIRCUIT MODULE (CONT)

DESIG	LOC	CODE
CM2 (CONT)	4A1	841768476

E/W (CONT)

NETWORK, RESISTOR

DESIG	LOC	CODE
(ZK) Z1	5A2	9820F
(ZL) Z1	5A2	9820F2 (SEE NOTE 12.5)

FUSE ASSEMBLY

DESIG	LOC	CODE
(R) FA-	7B4	845693674

E/W

CONNECTOR

DESIG	LOC	CODE
P9C-	7B4	~~03-08-1011 HOUSING (MOLEX) E/W~~ ~~03-08-2101 PIN (MOLEX)~~ 770063-1 RECEPTACLE (AMP) E/W 350416-1 PIN (AMP)

FUSE

DESIG	LOC	CODE
FB-	7B4	~~HLR~~ HLR-1K0692 FUSE HOLDER (BUSSMAN) E/W GLR-1/2 FUSE (BUSSMAN)

TERMINAL

DESIG	LOC	CODE
E-	7B5	~~2-340674-1~~ 2-320559-4 BUTT SPLICE (AMP)

CONNECTOR

DESIG	LOC	CODE
J1	3B1	1-102398-8 CONNR, AMP
J1A	4A1	963N-24
J1B	4D1	963N-24
J1C	4G1	963N-12
J8A	4A0	963N-24
J8B	4D0	963N-24
J8E	4G0	963N-12

THERMISTOR ASSEMBLY

DESIG	LOC	CODE
(ZC)	8D9	845957404

E/W

THERMISTOR

DESIG	LOC	CODE
RT1	8E9	ON-950-44008,30KΩ (OMEGA)

NOTES:

1. EARLY PRODUCTION UNITS MAY USE MC-83001381.

"LINEAGE" (R) 2000 CONTROLLER FOR 24 VOLT OR 48 VOLT POWER PLANT
J85501A

DWG SIZE	ISSUE
8S	13 M

AT&T | SD-82588-01 | SHEET C1

ⓕAPP FIG. 3

CONVENTIONAL FRONT PANEL

CONNECTOR

DESIG	LOC	CODE
J80	5A6	963N-12

DIODE (LIGHT EMITTING)

DESIG	LOC	CODE	
DS1	5B8	534A	MTD IN KS-21320,L105 SLEEVE
DS2	5C8	534A	
DS3	5C8,5D8	534C	
DS4	5D8,5E8	534A	
DS5	5E8	534C	

METER

DESIG	LOC	CODE
M1	5F8	(Z) KS-19654,L2 (W) KS-19654,L3
M2	5B7	KS-19516,LIST 11 WITH 400A SHUNT LIST 12 WITH 600A SHUNT LIST 6 WITH 800A SHUNT LIST 13 WITH 1200A SHUNT LIST 2 WITH 2000A SHUNT LIST 14 WITH 2600A SHUNT LIST 15 WITH 50A SHUNT LIST 16 WITH 100A SHUNT LIST 17 WITH 200A SHUNT LIST 18 WITH 4000A SHUNT LIST 19 WITH 6000A SHUNT

RESISTOR

DESIG	LOC	CODE
R1	5B7	KS-20810,L1A,
R2	5C7	(Z) 1.96KΩ
R3	5D7	
R4	5D7	(W) 3.83KΩ
R5	5G8	KS-20810,L1A,5KΩ
R6	5F8	KS-20810,L1A,5KΩ
R7	5F7	KS-20810,L1A,(Z) 1.96KΩ, (W) 3.83KΩ

TEST POINT

DESIG	LOC	CODE
TP1(-)	5G8	KS-14523,L3(BLK)
TP2(+)	5F8	KS-14523,L2(RED)

"LINEAGER" Ⓡ 2000 CONTROLLER FOR 24 VOLT OR 48 VOLT POWER PLANT
J85501A

DWG SIZE	ISSUE
8S	8B

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CIRCUIT NOTES:

101.

DESIG	FUSE AMP	POTENTIAL	ONE PER

102.

FEATURE OR OPTION	PROVIDE		
	APP FIG.	APP OR WRG	QUANTITY
48 VOLT PLANT		W	SEE NOTE 107
24 VOLT PLANT		Z	SEE NOTE 107
NEGATIVE PLANT		X	
POSITIVE PLANT		Y	
OPTIONAL CARD CAGE	2	V	SEE NOTE 104
REMOTE INTERFACE	2	T	
MODEM		M	
MCS CONTROLLER	1	E	SEE NOTE 108
CONVENTIONAL CONTROLLER	3	F	SEE NOTE 108
FEEDER DRAIN MONITOR	2	G	
UNIVERSAL SHUNT MONITOR	2	R	
MC-80013A1	1	A	
MC-80013A1B	1	B	
MCS DATA SWITCH	2	U	
MC-80013A1C	1	D	
RECTIFIER SEQUENCE CONTROL	2	P	
ROUND CELL RESERVE TIME PREDICTOR	2	ZC	
AUXILIARY CIRCUIT E/N FLOAT EQUALIZE	1	ZB	
RECTIFIER SEQUENCE CONTROLLER 1 SEC. DELAY	2	P	1 PER SEE NOTES 114, 119, 121
RECTIFIER SEQUENCE CONTROLLER 10 SEC. DELAY	2	ZN	1 PER SEE NOTES 114, 119, 121, 125

CIRCUIT NOTES (CONT):

103.

RECORD OF APP FIGURES, WIRING AND APPARATUS CHANGES								
CHANGED ON ISS	IF JOB RECORDS DO NOT SPECIFY	THIS OPTION WAS FURN	SEE NOTE	USE IN CIRCUIT				
				AVAIL		DA		
2B				G,T				
4AC	H OR J	H		J		H		
	A OR B	A		B		A		
	R	NONE		R				
6B	U	NONE		U				
7M	S OR Q	Q	119	Q		S		
8B	ZC	NONE		ZC				
	G	NONE				G		
	B OR D	B		D		B		
	K	NONE	120	K				
	P	NONE	115	P				
	ZA OR ZB	ZA	123	ZB		ZA		
	ZD OR ZE	ZD		ZE		ZD		
	ZH	ZF OR ZG		ZH		ZF,ZG		
	ZI	NONE		ZI				
10A	S	Q	124	S		Q		
11A	ZM or ZL	ZK	125	ZL		ZM		
12B	ZN	P	126	ZN				

104. (P2) THROUGH (P7) ON OPTIONAL BACKPLANE, V OPTION, CAN ACCEPT CP8,CP9,CP10,CP12 OR CP13 IN ANY POSITION AS REQUIRED. IF A BOARD IS PLUGGED INTO P2, THEN THE CONNECTOR FOR ACCESS TO THAT BOARD MUST BE PLUGGED INTO THE REAR OF P2. THIS SAME PROCEDURE MUST BE APPLIED FOR P3 THROUGH P7.

105. DEPENDING ON THE POSITION THE (CP8) BOARD IS PLUGGED INTO PIN 002 MAY HAVE DESIGNATION "OPT1" OR "OPT2" OR "OPT3" OR "OPT4" OR "OPT5" OR "OPT6".

106. UNASSIGNED.

107. WHEN THE CONTROLLER IS USED WITH A 24 VOLT PLANT, STRAP .THE A TERMINALS (INFORMATION NOTE 302) TOGETHER WITH A 963E-2 CONNECTOR. FOR A 48 VOLT PLANT, STRAP TERMINALS B TOGETHER WITH A 963E-2 CONNECTOR. THE A AND B DESIGNATIONS ARE FOR REFERENCE ONLY AND DO NOT APPEAR ON THE BACKPLANE.

(CIRCUIT NOTES CONTINUED ON D2)

EQUIPMENT NOTES:

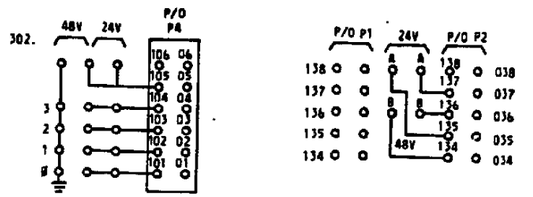
201. ALL WIRE SHALL BE 26GA SOLID UNLESS OTHERWISE NOTED.

202. WHEN THE 963 TYPE CONNECTORS ARE INSERTED ON THE CONTROLLER, THE BLACK SEGMENT OF THE CONNECTOR MUST BE ON THE LEFT.

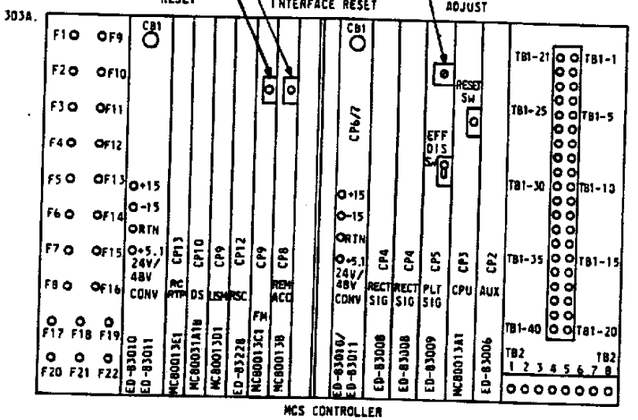
INFORMATION NOTES:

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.

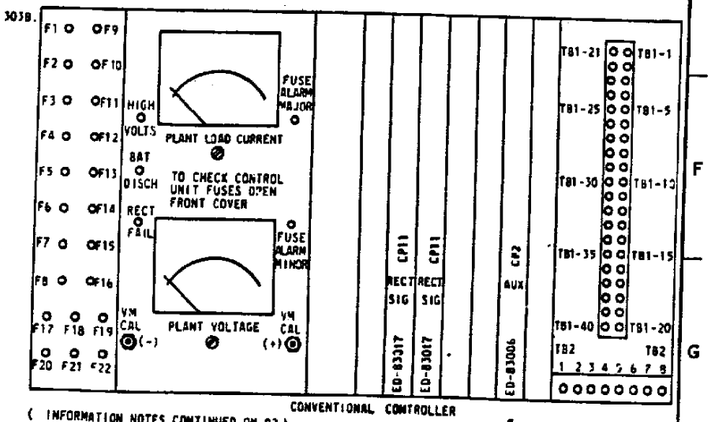
302.



303A.



303B.



(INFORMATION NOTES CONTINUED ON D2)

"LINEAGE" 2000 CONTROLLER FOR 24 VOLT OR 48 VOLT POWER PLANT
J85501A

DWG SIZE	ISSUE
03	13.M

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CIRCUIT NOTES: (CONT)

108. THE FOLLOWING CABLE ASSEMBLY SHALL BE USED FOR EACH RECTIFIER.

RECTIFIER		CABLE ASSEMBLY H-285-224 LIST (ZA,E)	H-285-224 LIST (F)	H-285-226 LIST (E,ZA) OR (E,ZB)	CABLE LEGEND
J87436A	+24V	5	30		c
J87436A	+24V	6	31		d
J87438A	+24V	6	31		e
J87437A	-48V	7	34		c
J87437A	-48V	8	35		d
J87439A&B	-48V	8	35		e
J87436A	-24V	13	32		c
J87436A	-24V	14	33		d
J87438A	-24V	14	33		e
J85502A,B	-48V	41	47	3	a
J85502A,B,C & -03A	-48V	130	131	12	c
J85502A,B	+24V	53	65	6	a
J85502A,B,C & -03A	+24V	133	134	13	c
J85502A,B	-24V	59	71	9	a
J85502A,B,C & -03A	-24V	136	137	14	c
J85502A,B,C & -03A	-48B	153	156	15	d
J85502A,B,C & -03A	+24V	154	157	16	d
J85502A,B,C & -03A	-24V	155	158	17	d
J85503B,C	-48V	45	51	5	e
J85503B,C	+24V	57	69	8	e
J85503B,C	-24V	63	75	11	e
J85502A,B	-48V	42		4	b
J85502A,B	+24V	54		7	c
J85502A,B	-24V	60		10	b

LEGEND:

(a) INITIAL BAY: 6' LENGTH
(b) INITIAL BAY: 8'6" LENGTH
(c) INITIAL BAY: 11' LENGTH
(d) 2ND BAY: 18' LENGTH
(e) OTHER BAY/FREE-STANDING: ANY SPECIFIED LENGTH.

RECTIFIER TYPE IS IDENTIFIED BY CUTTING THE APPROPRIATE "TP"-LEADS IN THE ABOVE LISTED CABLE ASSEMBLIES FOR MCS OPTION E. AS FOLLOWS:

TP0	TP1	TP2	TP3	RECTIFIER
0	0	0	0	NONE
0	0	0	X	200A J87433A,9A - J85503B
0	0	X	0	100A J87436A,7A - J85503A
0	0	X	X	50A J85502B
0	X	0	0	35A J87434A,5A
0	X	0	X	25A J85502A
0	X	X	0	125A J85502C
X	X	X	X	100A SCR-TYPE
X	0	X	X	180A J87438B,9B
0	X	X	X	100A SINGLE PHASE
X	X	X	0	400A J85603C

0 = CUT, X = NOT CUT

109. A CONNECTION BETWEEN THE FR GRD STUD ON THE FRAMEWORK AND THE FRONT PANEL STUD MUST BE MADE USING 18GA STRANDED WIRE.

110. SHUNT SIZES ARE DETERMINED BY BACKPLANE STRAPPING. THE SHUNT SIZES ARE IDENTIFIED BY STRAPPING THE FOLLOWING PINS TO GROUND USING A 963E-2 CONNECTOR. SEE INFORMATION NOTE 302.

P4 CONNECTOR PINS STRAPPED TO GROUND	SHUNT SIZE
101,104	50A
104	100A
101,102,103	150A
102,103	200A
101,102,103,104	400A
102,103,104	600A
101,103,104	800A
103,104	1200A
101,103	1500A
101,102,104	2000A
102,104	2600A
103	3000A
101,102	4000A
102	5000A
101	6000A

111. THE SPARING RECOMMENDATION FOR THE CONTROLLER IS AS FOLLOWS:

CP2-ED-83006 = 1 PER CONTROLLER
ALL OTHER CP'S = 1 SET PER EVERY FOUR CONTROLLERS.

CIRCUIT NOTES: (CONT)

112. RECTIFIERS ARE CONNECTED IN GROUPS OF 4, FOR EXAMPLE 1-4, 5-8, 9-12 AND 13-16. WHEN APPLYING A 35 AMPERE RECTIFIER TO A PLANT, THE 35 AMPERE CANNOT BE CONNECTED TO A GROUP CONTAINING 100 AND/OR 200 AMPERE RECTIFIERS.

113. THE SHUNT LEADS COMING FROM THE SHUNT SHALL BE 12GA AND SHALL RUN DIRECTLY FROM (TB2) TO THE METER WHEN F OPTION IS APPLIED. SHOULD THE DISTANCE FROM THE SHUNT TO THE METER EXCEED 30 FEET THEN THE SIZE OF THE SHUNT LEADS MUST BE INCREASED SO THAT THEIR RESISTANCE DOES NOT EXCEED 58 MILLIOHMS. THIS RESTRICTION APPLIES FOR BOTH THE E AND F OPTION (FOR E OPTION, THE 58 MILLIOHMS IS MEASURED BETWEEN (TB2) AND THE SHUNT).

114. A TR SIGNAL FROM THE ENGINE CONTROLLER OR SEQUENCE CONTROL UNIT WILL SHUT RECTIFIERS OFF IN THE FOLLOWING GROUPS:

GROUP	SIGNAL	RECTIFIERS (E)	RECTIFIERS (F)
1	TR1	1, 2, 9, 10	1, 2, 3, 4
2	TR2	3, 4, 11, 12	5, 6, 7, 8
3	TR3	5, 6, 13, 14	9, 10, 11, 12
4	TR4	7, 8, 15, 16	13, 14, 15, 16

115. A SEQUENCE CONTROL UNIT MAY BE USED TO PROVIDE THE "MANUAL STOP" AND "STOP BY AUTO ENGINE" FUNCTION AND TO SIGNAL THE MCS CONTROLLER WHEN TO SEQUENCE START THE RECTIFIERS. THE SEQUENCE CONTROL UNIT MAY BE EXTERNAL TO THE PLANT CONTROLLER SUCH AS J87339A1, OR MAY BE THE INTERNAL CIRCUIT PACK, OPTION V, P or ZN (SEE F59) THE "TR1", "TR2", "TR3" AND "TR4" LEADS SHOWN ON TB1 OF CAD 1 SHOULD ALL BE CONNECTED TO THE APPROPRIATE CONTROL GROUPS ON THE SEQUENCE CONTROL UNIT. HOWEVER, IF THE ENGINE/ALTERNATOR AND AC CIRCUIT BREAKERS ARE CAPABLE OF SUPPORTING THE FULL RECTIFIER LOAD, INCLUDING INRUSH, AND THE ABOVE FEATURES ARE NOT REQUIRED THEN A SEQUENCE CONTROL UNIT IS NOT REQUIRED WITH THE MCS CONTROLLER.

116. CURRENT DRAINS FOR BOTH 24V AND 48V CONTROLLERS:

CURRENT DRAINS	+5V	+15V	-15V
STANDARD CONTROLLER E/W CP1,2,3,4,5	2.15A	.33A	.17A
SINGLE CP4 RECTIFIER SIGNALS BD	.35A	40ma	26ma
CP9 FEEDER DRAIN MONITOR	.45A	19ma	8ma
UNIVERSAL SHUNT MONITOR	.40A	50ma	5.5ma
SINGLE CP8 REMOTE ACCESS	.27A	38ma	48ma
CP10 DATA SWITCH	.464A	9.4ma	12.2ma
MAXIMUM ALLOWABLE CURRENT DRAINS	5.0A	500ma	500ma
CP12 RECTIFIER SEQUENCE CONTROLLER	0	120ma	0
CP13 ROUND CELL RESERVE TIME PREDICTOR	.40A	10ma	0

IF A COMBINATION OF CIRCUIT BOARDS EQUALS OR EXCEEDS THE MAXIMUM ALLOWABLE CURRENT DRAIN FOR ANY OF THE SUPPLY VOLTAGES, THEN A SECOND CONVERTER IS REQUIRED. CONNECTIONS ON THE BACKPLANE SHOULD BE IN ACCORDANCE WITH FS4.

117. IN ORDER FOR THE FEEDER DRAIN MONITOR BOARD (MC8D013C1) TO OPERATE PROPERLY OR BE PROGRAMMED INTO THE MCS CONTROLLER IT MUST BE CONNECTED TO EITHER KS-22012 CIRCUIT BREAKERS EQUIPPED WITH INTERNAL SHUNTS OR COMPARABLE CIRCUIT BREAKERS EQUIPPED WITH EXTERNAL SHUNTS, AND ALL CIRCUIT BREAKERS MUST BE IN THE "ON" POSITION. ANY CIRCUIT BREAKER/SHUNT THAT IS CONNECTED TO THE FEEDER DRAIN MONITOR AND MANUALLY TURNED OFF OR TRIPPED WILL AUTOMATICALLY DISABLE THE FEEDER DRAIN MONITOR BOARD IN ORDER TO PROTECT IT FROM BEING DAMAGED BY THE HIGH COMMON MODE VOLTAGE. EACH INPORT PORT OF THE FEEDER DRAIN MONITOR BOARD (1ST SHUNT, 2ND SHUNT, ETC.) CAN ACCEPT EITHER A 50mv OR 25mv SIGNAL. IT WILL NOT ACCEPT BOTH ON THE SAME PORT AT THE SAME TIME.

118. UNUSED NORMALLY OPEN MAJOR AND MINOR ALARM CLOSURES ON TB1 MAY BE PARALLELED TO PROVIDE THE ALARM CLOSURE FOR THE CALL-OUT-ON-ALARM FEATURE FOR THE DATA SWITCH PORT WHICH IS CONNECTED TO THE MCS REMOTE INTERFACE. IF BOTH AN UNUSED MAJOR AND AN UNUSED MINOR ALARM ARE NOT AVAILABLE, A SINGLE ALARM (MAJOR OR MINOR, AS REQUIRED) MAY BE USED.

119. DATA SWITCH WIRING OPTION (Q) IS ADDED TO CORRECT DRAWING ERRORS AND TO REMOVE REDUNDANT GROUND CONNECTIONS. DATA COMMUNICATION REQUIRES A COMMON GROUND REFERENCE FOR ALL SYSTEMS WHICH ARE CONNECTED TO DATA SWITCH PORTS. THE GRD TERMINAL OF EACH PORT ON CM2 BACKPLANE SHALL BE USED FOR ALM-RETURN CONNECTION ONLY AND MAY NOT BE USED TO CONNECT TO GROUND OF THE CONNECTED DEVICE.

CIRCUIT NOTES: (CONT)

120. ISOLATED ALARM PAIRS SI(F)/SIR(F) AND SI(G)/SIR(G) INDICATE OPEN CIRCUIT ON ALARM, CORRESPONDING TO ALARMS ON PMN/PMNR AND PMJ/PMJR, RESPECTIVELY.

121. THE RECTIFIER SEQUENCE CONTROLLER, OPTION P, IS EQUIPPED WITH FOUR SWITCHES TO CONTROL RECTIFIER RESTARTING. IN THE "NORM" POSITION, EACH RECTIFIER GROUP IS STOPPED AND SEQUENCE STARTED (SEE NOTE 114). ANY SWITCH SET TO "MAN-STOP" STOPS ALL RECTIFIERS IN ITS GROUP AND HIGHER NUMBERED GROUPS, THUS DISABLING THE SWITCHES OF HIGHER GROUPS. ANY SWITCH SET TO "STOP BY AUTO ENG" PREVENTS ITS GROUP AND HIGHER GROUPS FROM RE-STARTING WHEN THE ENGINE IS RUNNING. THE "STOP BY AUTO ENG" POSITION MAY BE USED TO PREVENT OVERLOADING OF AN UNDER SIZED ENGINE ALTERNATOR.

122. RECTIFIERS PER J85502 (SD-82604-01) SHOULD BE PROVIDED WITH WIRING FOR EXTERNAL VOLTAGE SENSING AND FOR EXTERNAL HIGH-VOLTAGE SHUTDOWN. OPTIONS (ZA) (Q) AND (T) ON SD-82604-01 MUST NOT BE PROVIDED.

(CIRCUIT NOTES CONTINUED ON SHEET 03)

INFORMATION NOTES: (CONT)

304. ANY RELAY CONNECTED TO THIS CONTROL UNIT MUST HAVE CONTACT PROTECTION ACROSS ITS COIL.

305. ALARM INDICATORS

LEAD DESIGN	FUNCTION: MAJOR	MINOR	OFF.ALM CKT	ALM SENDING	
SI(E) SIR(E)	X			X	OPERATED CTF(F17), BAT(F20), ABS(F21) OR DISCHARGE FUSE *
SI(C) SIR(C)		X		X	OPERATED RB1(F1)-RB16(F16), MINOR PWR FEED(F19), F22 OR MINOR SENSE(F18) FUSE OR RECT FAIL
SI(B) SIR(B)	X			X	HIGH VOLTAGE
SI(A) SIR(A)	X			X	LOW VOLTAGE, VERY LOW VOLTAGE
SI(D) SIR(D)	X			X	VERY LOW VOLTAGE
PMN PMNR		X	X		OPERATED RB1(F1)-RB16(F16) MINOR PWR FEED(F19) F22 OR MINOR SENSE(F18) FUSE OR RECT FAIL
PMNV PMNVR		X	X		OPERATED RB1(F1)-RB16(F16), MINOR PWR FEED(F19) F22 OR MINOR SENSE(F18) FUSE OR RECT FAIL
PMJ PMJR	X		X		HIGH VOLTAGE, VERY LOW VOLTAGE, LOW VOLTAGE OR OPERATED F17, F20, F21 OR DISCHARGE FUSE *
PMJV PMJVR	X		X		HIGH VOLTAGE, VERY LOW VOLTAGE, LOW VOLTAGE OR OPERATED F17, F20, F21 OR DISCHARGE FUSE *
BD	X			X	LOW VOLTAGE
D	X			X	HIGH VOLTAGE, VERY LOW VOLTAGE, LOW VOLTAGE OR OPERATED F17, F20, F21 OR DISCHARGE FUSE *
A		X		X	OPERATED RB1(F1)-RB16(F16), MINOR PWR FEED(F19), F22 OR MINOR SENSE(F18) FUSE OR RECT FAIL
SI(F) SIR(F)		X	X		OPERATED RB1(F1)-RB16(F16), MINOR PWR FEED(F19) F22 OR MINOR SENSE(F18) FUSE OR RECT FAIL
SI(G) SIR(G)	X		X		HIGH VOLTAGE, VERY LOW VOLTAGE, LOW VOLTAGE OR OPERATED F17, F20, F21 OR DISCHARGE FUSE *

* OR CB TRIP

"LINEAGE" ® 2000 CONTROLLER FOR 24 VOLT OR 48 VOLT POWER PLANT J85501A

DWG SIZE [illegible] | ISSUE 12B

AT&T | SD-82588-01 | SHEET D2

CIRCUIT NOTES: (CONT)

123. THE FLOAT EQUALIZE FUNCTION CAN OPERATE ONLY WITH CABLES ASSEMBLIES PER NOTE 108 IN CONJUNCTION WITH FLOAT EQUALIZE-TYPE RECTIFIERS. THE REMOTE INTERFACE OPTION ZH IS REQUIRED FOR FLOAT EQUALIZE OPERATION. THE FLOAT EQUALIZE FEATURE IS ENABLED WHEN THE STRAP ST1 ON THE AUXILLIARY CIRCUIT PACK IS CUT (EPS -83006-02, OPTION Z). THE CIRCUIT PACK IS EQUIPPED WITH DIP SWITCHES THAT MAY BE SET TO ADJUST HIGH VOLTAGE SHUTDOWN LEVEL FOR VARIOUS FLOAT AND EQUALIZE VOLTAGES AND TO ADJUST BD AND LV2 ALARM LEVELS FOR VARIOUS FLOAT VOLTAGES (SEE BELOW). SWITCHES S3.5 AND S2.5 MUST BE OPEN FOR 48 VOLT CONTROLLERS AND MUST BE CLOSED FOR 24 VOLT CONTROLLERS.

24 VOLT (NOM)		48 VOLT (NOM)		SWITCH SETTINGS			
FLOAT # VOLTAGE ±0.12 VOLTS	HV LEVEL ±0.25 VOLTS	FLOAT # VOLTAGE ±0.25 VOLTS	HV LEVEL ±0.50 VOLTS	(O = OPEN - X = CLOSED)			
				S2.4	S2.3	S2.2	S2.1
		56.00	57.00	O	O	O	O
		55.50	56.50	O	O	O	X
			56.50	O	O	X	O
	29.80	55.00	56.00	O	O	X	X
	29.75		56.00	O	X	O	O
	29.30		55.50	O	X	O	X
	29.25	54.50	55.50	O	X	X	O
	28.80		55.00	O	X	X	X
28.00	28.75	54.00	55.00	X	O	O	O
	28.30		54.50	X	O	O	X
27.50	28.25	53.50	54.50	X	O	X	O
	27.80		54.00	X	O	X	X
27.00	27.75	53.00	54.00	X	X	O	O
	27.30		53.50	X	X	O	X
26.50	27.25		53.50	X	X	X	O
26.04	26.75	52.08	53.00	X	X	X	X

EQUALIZE VOLTAGE ±0.12 VOLTS	EQUALIZE HV LEVEL ±0.25 VOLTS	EQUALIZE VOLTAGE ±0.25 VOLTS	EQUALIZE HV LEVEL ±0.50 VOLTS	(O = OPEN - X = CLOSED)			
				S3.4	S3.3	S3.2	S3.1
		58.00	59.00	O	O	O	O
		57.50	58.50	O	O	O	X
			58.50	O	O	X	O
		57.00	58.00	O	O	X	X
			58.00	O	X	O	O
			57.50	O	X	O	X
		56.50	57.50	O	X	X	O
			57.00	O	X	X	X
		56.00	57.00	X	O	O	O
			56.50	X	O	O	X
		55.50	56.50	X	O	X	O
			56.00	X	O	X	X
29.00	29.75	55.00	56.00	X	X	O	O
	29.30		55.50	X	X	O	X
28.50	29.25	54.50	55.50	X	X	X	O
28.00	28.75	54.00	55.00	X	X	X	X

THE RECOMMENDED HIGH VOLTAGE (HV) SETTING FOR THE FLOAT OR EQUALIZE VOLTAGES SHOWN IS DETERMINED BY USING THE FOLLOWING RELATIONSHIP:

$V_{HV} = V_{FLOAT} + V_{RECTIFIER\ TOLERANCE} + V_{HV\ TOLERANCE} + V_{MARGIN}$

EXAMPLE: FOR A FLOAT VOLTAGE OF 52.08 VOLTS,

$V_{HV} = 52.08V + 0.5\% + 0.5V + 0.16V = 53.00V$

CIRCUIT NOTES: (CONT)

123. (CONT)

24 VOLT (NOM)			48 VOLT (NOM)			SWITCH SETTINGS				
FLOAT # VOLTAGE ±0.12 VOLTS	BD LEVEL ±0.25 VOLTS	LV2 LEVEL ±.25 VOLTS	FLOAT # VOLTAGE ±0.25 VOLTS	BD LEVEL ±0.50 VOLTS	LV2 LEVEL ±0.50 VOLTS	(O = OPEN - X = CLOSED)				
						S1.5	S1.4	S1.3	S1.2	S1.1
				56.00	52.75	O	O	O	O	O
	29.70	27.95		55.60	52.35	O	O	O	O	X
	29.60	27.85		55.50	52.25	O	O	O	X	O
	29.10	27.40	56.00	55.00	51.80	O	O	O	X	X
	29.50	27.75		55.40	52.15	O	O	X	O	O
	29.00	27.30		54.90	51.70	O	O	X	O	X
	28.90	27.25		54.80	51.60	O	O	X	X	O
	28.50	26.85		54.40	51.25	O	O	X	X	X
	29.20	27.50		55.10	51.90	O	X	O	O	O
	28.70	27.00		54.60	51.40	O	X	O	O	X
	28.60	26.95	55.50	54.50	51.35	O	X	O	X	O
	28.10	26.50		54.00	50.85	O	X	O	X	X
	28.50	26.85		54.50	51.35	O	X	X	O	O
	28.00	26.35		53.90	50.75	O	X	X	O	X
	27.90	26.30	55.00	54.00	50.85	O	X	X	X	O
	27.40	25.80		53.40	50.25	O	X	X	X	X
	28.20	26.55		54.00	50.85	X	O	O	O	O
	27.70	26.08		53.60	50.45	X	O	O	O	X
	27.60	26.00	54.50	53.50	50.35	X	O	O	X	O
	27.10	25.50	54.00	53.00	49.90	X	O	O	X	X
28.00	27.50	25.90		53.40	50.25	X	O	X	O	O
	27.00	25.45		52.90	49.80	X	O	X	O	X
27.50	27.00	25.45		52.90	49.80	X	O	X	X	O
	26.50	24.95		52.40	49.30	X	O	X	X	X
	27.20	25.60		53.00	49.90	X	X	O	O	O
	26.60	25.05		52.60	49.50	X	X	O	O	X
	26.60	25.05	53.50	52.50	49.45	X	X	O	X	O
	26.10	24.60	53.00	52.00	49.00	X	X	O	X	X
27.00	26.50	24.95		52.40	49.35	X	X	X	O	O
26.50	26.00	24.50		51.90	48.85	X	X	X	O	X
	25.90	24.40		51.90	48.80	X	X	X	X	O
26.04	25.50	24.00	52.08	51.25	48.25	X	X	X	X	X

THE RECOMMENDED BATTERY ON DISCHARGE (BD) ALARM SETTING FOR THE FLOAT VOLTAGES SHOWN IS DETERMINED BY USING THE FOLLOWING RELATIONSHIP:

$V_{BD} = V_{FLOAT} - V_{RECTIFIER\ TOLERANCE} - V_{BD\ TOLERANCE} - V_{MARGIN}$

EXAMPLE: FOR A FLOAT VOLTAGE OF 52.08 VOLTS,

$V_{BD} = 52.08V - 0.5\% - 0.5V - 0.07 = 51.25V$

NOTE: SWITCH S2.5 AND S3.5 SHOULD BE OPEN FOR A 48V PLANT AND CLOSE FOR A 24V PLANT.

124. ISSUE 10A REINSTATES S OPTION TO PROVIDE REFERENCE GROUND BETWEEN CONNECTING CIRCUITS SUCH AS REMOTE ACCESS SYSTEM OR REMOTE INTERFACE CIRCUIT PACKS. IT ALSO CHANGES Q OPTION FROM AVAIL TO DA.

125. OPTION ZL PROVIDES FOR AN RC NETWORK, THE 782DFE, WHICH REPLACES OPTION EM. THIS ELIMINATES A CONDITION WHICH MAY CAUSE A "UPROC FAIL" ALARM TO OCCUR.

126. OPTION ZN PROVIDES A RECTIFIER SEQUENCE CONTROLLER WITH A TEN SECOND DELAY BETWEEN RECTIFIER GROUPS WHICH MAY NOT BE SUITABLE FOR ALL APPLICATIONS. DEEPLY DISCHARGED LARGE CAPACITY BATTERIES MAY CAUSE RECTIFIER CURRENT TO EXCEED OUTPUT CIRCUIT BREAKER'S RATING AND CAUSE OUTPUT BREAKER TO TRIP. IT IS RECOMMENDED THAT OPTION ZA BE USED ONLY IN PLANTS EQUIPPED WITH ON-SITE, AUTOMATIC-STARTING AC ENGINE ALTERNATORS. FOR OTHER APPLICATIONS, JOB ANALYSIS IS REQUIRED TO DETERMINE THE ABILITY OF RECTIFIERS TO PROVIDE THE MAXIMUM RECHARGE CURRENT. NOTE THAT OPTION P PROVIDES A RECTIFIER SEQUENCE CONTROLLER THAT IS SUITABLE FOR ALL APPLICATIONS.

"LINEAGE"® 2000 CONTROLLER FOR 24 VOLT OR 48 VOLT POWER PLANT
J85501A

DWG SIZE: B3
ISSUE: 13 M

AT&T | SD-82588-01 | SHEET 07

P/O CAD 1
(SEE NOTES 1,2 & 108)

TO RECTIFIER 1

ASR1	155
BAT	154
RB1	153
RG	152
DPG	151
VP	150
RS1	149
HV	148
APG	147
VI1	146
(28) EQ1	056
RFA1	055
PH1	054
CB1	053
TRH1	052
TP31	051
TP21	050
TP11	049
TP01	048
MAN1	047
TR1	046
RFAR1	145
CBR1	156

(P5) ON BACKPLANE FOR (CP4) CIRCUIT PACK

ASR1	455
BAT	454
RB2	453
RG	452
DPG	451
VP	450
RS1	449
HV	448
APG	447
VI2	446
(28) EQ2	356
RFA2	355
PH2	354
CB2	353
TRH2	352
TP32	351
TP22	350
TP12	349
TP02	348
MAN2	347
TR2	346
RFAR2	445
CBR2	456

TO RECTIFIER 2

TO RECTIFIER 3

ASR1	142
BAT	141
RB3	140
RG	139
DPG	138
VP	137
RS1	136
HV	135
APG	134
VI3	133
(28) EQ3	043
RFA3	042
PH3	041
CB3	040
TRH3	039
TP33	038
TP23	037
TP13	036
TP03	035
MAN3	034
TR3	033
RFAR3	132
CBR3	143

(P5) ON BACKPLANE FOR (CP4) CIRCUIT PACK

ASR1	442
BAT	441
RB4	440
RG	439
DPG	438
VP	437
RS1	436
HV	435
APG	434
VI4	433
(28) EQ4	343
RFA4	342
PH4	341
CB4	340
TRH4	339
TP34	338
TP24	337
TP14	336
TP04	335
MAN4	334
TR4	333
RFAR4	432
CBR4	443

TO RECTIFIER 4

TO RECTIFIER 5

ASR2	123
BAT	122
RB5	121
RG	120
DPG	119
VP	118
RS2	117
HV	116
APG	115
VI5	114
(28) EQ5	024
RFA5	023
PH5	022
CB5	021
TRH5	020
TP35	019
TP25	018
TP15	017
TP05	016
MAN5	015
TR5	014
RFAR5	113
CBR5	124

(P5) ON BACKPLANE FOR (CP4) CIRCUIT PACK

ASR2	423
BAT	422
RB6	421
RG	420
DPG	419
VP	418
RS2	417
HV	416
APG	415
VI6	414
(28) EQ6	324
RFA6	323
PH6	322
CB6	321
TRH6	320
TP36	319
TP26	318
TP16	317
TP06	316
MAN6	315
TR6	314
RFARC	413
CBR6	424

TO RECTIFIER 6

TO RECTIFIER 7

ASR2	110
BAT	109
RB7	108
RG	107
DPG	106
VP	105
RS2	104
HV	103
APG	102
VI7	101
(28) EQ7	011
RFA7	010
PH7	009
CB7	008
TRH7	007
TP37	006
TP27	005
TP17	004
TP07	003
MAN7	002
TR7	001
RFAR7	100
CBR7	111

(P5) ON BACKPLANE FOR (CP4) CIRCUIT PACK

ASR2	410
BAT	409
RB8	408
RG	407
DPG	406
VP	405
RS2	404
HV	403
APG	402
VI8	401
(28) EQ8	311
RFA8	310
PH8	309
CB8	308
TRH8	307
TP38	306
TP28	305
TP18	304
TP08	303
MAN8	302
TR8	301
RFAR8	400
CBR8	411

TO RECTIFIER 8

NOTES:

1. CONNECTIONS TO RECTIFIERS ARE MADE THROUGH A 963N CONNECTOR.

2. THE RFAR( ) AND CBR( ) LEADS ARE APPLIED ONLY FOR USE WITH THE J85502 AND J85503 SERIES OF RECTIFIERS.

"LINEAGE" ③ 2000 CONTROLLER FOR 24 VOLT OR 48 VOLT POWER PLANT
J85501A

DWG SIZE: 6S

ISSUE: 8B

AT&T

SD-82588-01

SHEET: G1

P/O CAD 1

(SEE NOTES 1,2 & 109)

TO RECTIFIER 9

RSA3	155
BAT	154
RB9	153
RG	152
DPG	151
VP	150
RS3	149
HV	148
APG	147
VI9	146
(28) EQ9	056
RFA9	055
PH9	054
CB9	053
TRH9	052
TP39	051
TP29	050
TP19	049
TP09	048
MAN9	047
TR9	046
RFAR9	145
CBR 9	156

(P6) ON BACKPLANE FOR (CP4) CIRCUIT PACK

RSR3	455
BAT	454
RB10	453
RG	452
DPG	451
VP	450
RS3	449
HV	448
APG	447
VI10	446
(28) EQ10	356
RFA10	355
PH10	354
CB10	353
TRH10	352
TP310	351
TP210	350
TP110	349
TP010	348
MAN10	347
TR10	346
RFAR10	445
CBR 10	456

TO RECTIFIER 10

TO RECTIFIER 11

RSR3	142
BAT	141
RB11	140
RG	139
DPG	138
VP	137
RS3	136
HV	135
APG	134
VI11	133
(28) EQ11	043
RFA11	042
PH11	041
CB11	040
TRH11	039
TP311	038
TP211	037
TP111	036
TP011	035
MAN11	034
TR11	033
RFAR 11	132
CBR 11	143

(P6) ON BACKPLANE FOR (CP4) CIRCUIT PACK

RSR3	442
BAT	441
RB12	440
RG	439
DPG	438
VP	437
RS3	436
HV	435
APG	434
VI12	433
(28) EQ12	343
RFA12	342
PH12	341
CB12	340
TRH12	339
TP312	338
TP212	337
TP112	336
TP012	335
MAN12	334
TR12	333
RFAR12	432
CBR12	443

TO RECTIFIER 12

TO RECTIFIER 13

RSR4	123
BAT	122
RB13	121
RG	120
DPG	119
VP	118
RS4	117
HV	116
APG	115
VI13	114
(28) EQ13	024
RFA13	023
PH13	022
CB13	021
TRH13	020
TP313	019
TP213	018
TP113	017
TP013	016
MAN13	015
TR13	014
RFAR13	113
CBR 13	124

(P6) ON BACKPLANE FOR (CP4) CIRCUIT PACK

RSR4	423
BAT	422
RB14	421
RG	420
DPG	419
VP	418
RS4	417
HV	416
APG	415
VI14	414
(28) EQ14	324
RFA14	323
PH14	322
CB14	321
TRH14	320
TP314	319
TP214	318
TP114	317
TP014	316
MAN14	315
TR14	314
RFAR14	413
CBR14	443

TO RECTIFIER 14

TO RECTIFIER 15

RSR4	110
BAT	109
RB15	108
RG	107
DPG	106
VP	105
RS4	104
HV	103
APG	102
VI15	101
(28) EQ15	011
RFA15	010
PH15	009
CB15	008
TRH15	007
TP315	006
TP215	005
TP115	004
TP015	003
MAN15	002
TR15	001
RFAR15	100
CBR 15	111

(P6) ON BACKPLANE FOR (CP4) CIRCUIT PACK

RSR4	410
BAT	409
RB16	408
RG	407
DPG	406
VP	405
RS4	404
HV	403
APG	402
VI16	401
(28) EQ16	311
RFA16	310
PH16	309
CB16	308
TAH16	307
TP316	306
TP216	305
TP116	304
TP016	303
MAN16	302
TR16	301
RFAR16	400
CBR16	411

TO RECTIFIER 16

NOTES:

1. CONNECTIONS TO RECTIFIERS ARE MADE THROUGH A 96SN CONNECTOR.
2. THE RFAR ( ) AND CBR ( ) LEADS ARE APPLIED ONLY FOR USE WITH THE J85502 AND J85503 SERIES OF RECTIFIERS.

"LINEAGE" ® 2000 CONTROLLER FOR 24 VOLT OR 48 VOLT POWER PLANT J85501A

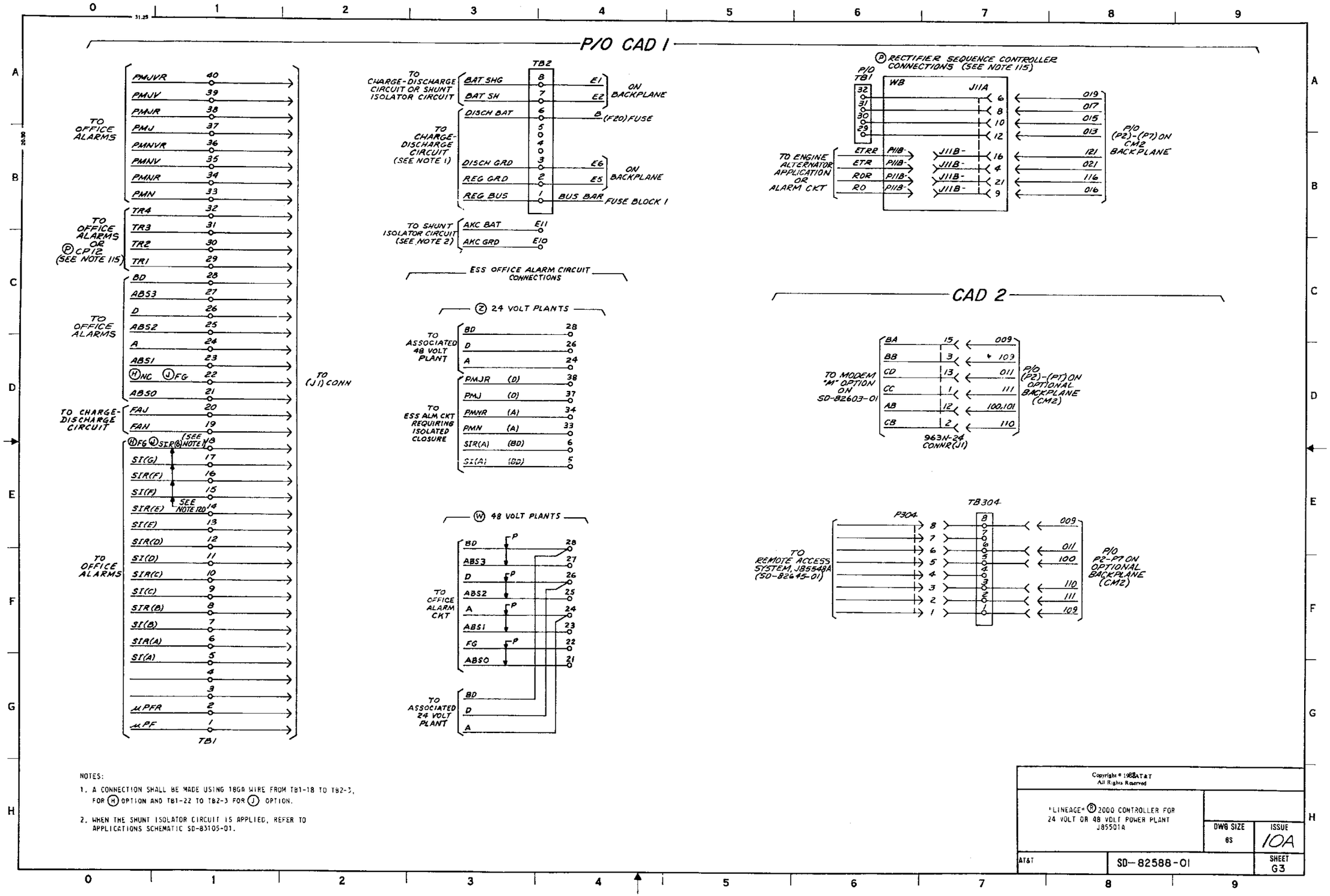
DWG SIZE: 6S

ISSUE: 8B

AT&T

SD- 82588-01

SHEET: G2



NOTES:

1. A CONNECTION SHALL BE MADE USING 18GA WIRE FROM TB1-18 TO TB2-3, FOR (H) OPTION AND TB1-22 TO TB2-3 FOR (J) OPTION.
2. WHEN THE SHUNT ISOLATOR CIRCUIT IS APPLIED, REFER TO APPLICATIONS SCHEMATIC SD-83105-01.

"LINEAGE" (R) 2000 CONTROLLER FOR 24 VOLT OR 48 VOLT POWER PLANT
J85501A

DWG SIZE	ISSUE
8S	10A

AT&T	SD-82588-01	SHEET
		G3

P/O CAD 3
(SEE NOTE 1)

TO RECTIFIER 1

RSR1	155
BAT	154
RB1	153
RG	152
LOAR	151
HVR	150
RS1	149
HV	148
RFAR	145
TRR	146
RFA1	055
PMNV	054
CB1	053
CBR1	156
LOA	051
PMN	050
PMNR	049
PMNVR	048
GRD	047
TR1	046

RECT 1

(P5) ON BACKPLANE FOR (CP11) CIRCUIT PACK

TO RECTIFIER 2

RSR1	455
BAT	454
RB2	453
RG	452
LOAR	451
HVR	450
RS1	449
HV	448
RFAR	445
TRR	446
RFA2	355
PMNV	354
CB2	353
CBR2	456
LOA	351
PMN	350
PMNR	349
PMNVR	348
GRD	347
TR2	346

RECT 2

TO RECTIFIER 3

RSR1	142
BAT	141
RB3	140
RG	139
LOAR	138
HVR	137
RS1	136
HV	135
RFAR	132
TRR	133
RFA3	042
PMNV	041
CB3	040
CBR3	143
LOA	038
PMN	037
PMNR	036
PMNVR	035
GRD	034
TR3	033

RECT 3

(P5) ON BACKPLANE FOR (CP11) CIRCUIT PACK

TO RECTIFIER 4

RSR1	442
BAT	441
RB4	440
RG	439
LOAR	438
HVR	437
RS1	436
HV	435
RFAR	432
TRR	433
RFA4	342
PMNV	341
CB4	340
CBR4	443
LOA	338
PMN	337
PMNR	336
PMNVR	335
GRD	334
TR4	333

RECT 4

TO RECTIFIER 5

RSR2	123
BAT	122
RB5	121
RG	120
LOAR	119
HVR	118
RS2	117
HV	116
RFAR	113
TRR	114
RFA5	023
PMNV	022
CB5	021
CBR5	124
LOA	019
PMN	018
PMNR	017
PMNVR	016
GRD	015
TR5	014

RECT 5

(P5) ON BACKPLANE FOR (CP11) CIRCUIT PACK

TO RECTIFIER 6

RSR2	423
BAT	422
RB6	421
RG	420
LOAR	419
HVR	418
RS2	417
HV	416
RFAR	413
TRR	414
RFA6	323
PMNV	322
CB6	321
CBR6	424
LOA	319
PMN	318
PMNR	317
PMNVR	316
GRD	315
TR6	314

RECT 6

TO RECTIFIER 7

RSR2	110
BAT	109
RB7	108
RG	107
LOAR	106
HVR	105
RS2	104
HV	103
RFAR	100
TRR	101
RFA7	010
PMNV	009
CB7	008
CBR7	111
LOA	006
PMN	005
PMNR	004
PMNVR	003
GRD	002
TR7	001

RECT 7

(P5) ON BACKPLANE FOR (CP11) CIRCUIT PACK

TO RECTIFIER 8

RSR2	410
BAT	409
RB8	408
RG	407
LOAR	406
HVR	405
RS2	404
HV	403
RFAR	400
TRR	401
RFA8	310
PMNV	309
CB8	308
CBR8	411
LOA	306
PMN	305
PMNR	304
PMNVR	303
GRD	302
TR8	301

RECT 8

NOTES:

1. CONNECTIONS TO RECTIFIERS ARE MADE THROUGH A 963N CONNECTOR.

"LINEAGE" ® 2000 CONTROLLER FOR 24 VOLT OR 48 VOLT POWER PLANT
J85501A

DWG SIZE	ISSUE
6S	4AC

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P/O CAD 3
(SEE NOTE 1)

TO RECTIFIER 9

RSR3	155
BAT	154
RB9	153
RG	152
LOAR	151
HVR	150
RS3	149
HV	148
AFAR	145
TRR	146
RFA9	055
PMNV	054
CB9	053
CBR9	156
LOA	051
PMN	050
PMNR	049
PMNVR	048
GRD	047
TR9	046

RECT 9

(P6) ON BACKPLANE FOR (CP11) CIRCUIT PACK

TO RECTIFIER 11

RSR3	142
BAT	141
RB11	140
RG	139
LOAR	138
HVR	137
RS3	136
HV	135
AFAR	132
TRR	133
RFA11	042
PMNV	041
CB11	040
CBR11	143
LOA	038
PMN	037
PMNR	036
PMNVR	035
GRD	034
TR11	033

RECT 11

(P6) ON BACKPLANE FOR (CP11) CIRCUIT PACK

TO RECTIFIER 13

RSR4	123
BAT	122
RB13	121
RG	120
LOAR	119
HVR	118
RS4	117
HV	116
AFAR	113
TRR	114
RFA13	023
PMNV	022
CB13	021
CBR13	124
LOA	019
PMN	018
PMNR	017
PMNVR	016
GRD	015
TR13	014

RECT 13

(P6) ON BACKPLANE FOR (CP11) CIRCUIT PACK

TO RECTIFIER 15

RSR4	110
BAT	109
RB15	108
RG	107
LOAR	106
HVR	105
RS4	104
HV	103
AFAR	100
TRR	101
RFA15	010
PMNV	009
CB15	008
CBR15	111
LOA	006
PMN	005
PMNR	004
PMNVR	003
GRD	002
TR15	001

RECT 15

(P6) ON BACKPLANE FOR (CP11) CIRCUIT PACK

TO RECTIFIER 10

RSR3	455
BAT	454
RB10	453
RG	452
LOAR	451
HVR	450
RS3	449
HV	448
AFAR	445
TRR	446
RFA10	355
PMNV	354
CB10	353
CBR10	456
LOA	351
PMN	350
PMNR	349
PMNVR	348
GRD	347
TR10	346

RECT 10

TO RECTIFIER 12

RSR3	442
BAT	441
RB12	440
RG	439
LOAR	438
HVR	437
RS3	436
HV	435
AFAR	432
TRR	433
RFA12	342
PMNV	341
CB12	340
CBR12	443
LOA	338
PMN	337
PMNR	336
PMNVR	335
GRD	334
TR12	333

RECT 12

TO RECTIFIER 14

RSR4	423
BAT	422
RB14	421
RG	420
LOAR	419
HVR	418
RS4	417
HV	416
AFAR	413
TRR	414
RFA14	323
PMNV	322
CB14	321
CBR14	424
LOA	319
PMN	318
PMNR	317
PMNVR	316
GRD	315
TR14	314

RECT 14

TO RECTIFIER 16

RSR4	410
BAT	409
RB16	408
RG	407
LOAR	406
HVR	405
RS4	404
HV	403
AFAR	400
TRR	401
RFA16	310
PMNV	309
CB16	308
CBR16	411
LOA	306
PMN	305
PMNR	304
PMNVR	303
GRD	302
TR16	301

RECT 16

NOTES:

1. CONNECTIONS TO RECTIFIERS ARE MADE THROUGH A 963N CONNECTOR.

"LINEAGE" ® 2000 CONTROLLER FOR 24 VOLT OR 48 VOLT POWER PLANT
J85501A

DWG SIZE: 6S

ISSUE: 4AC

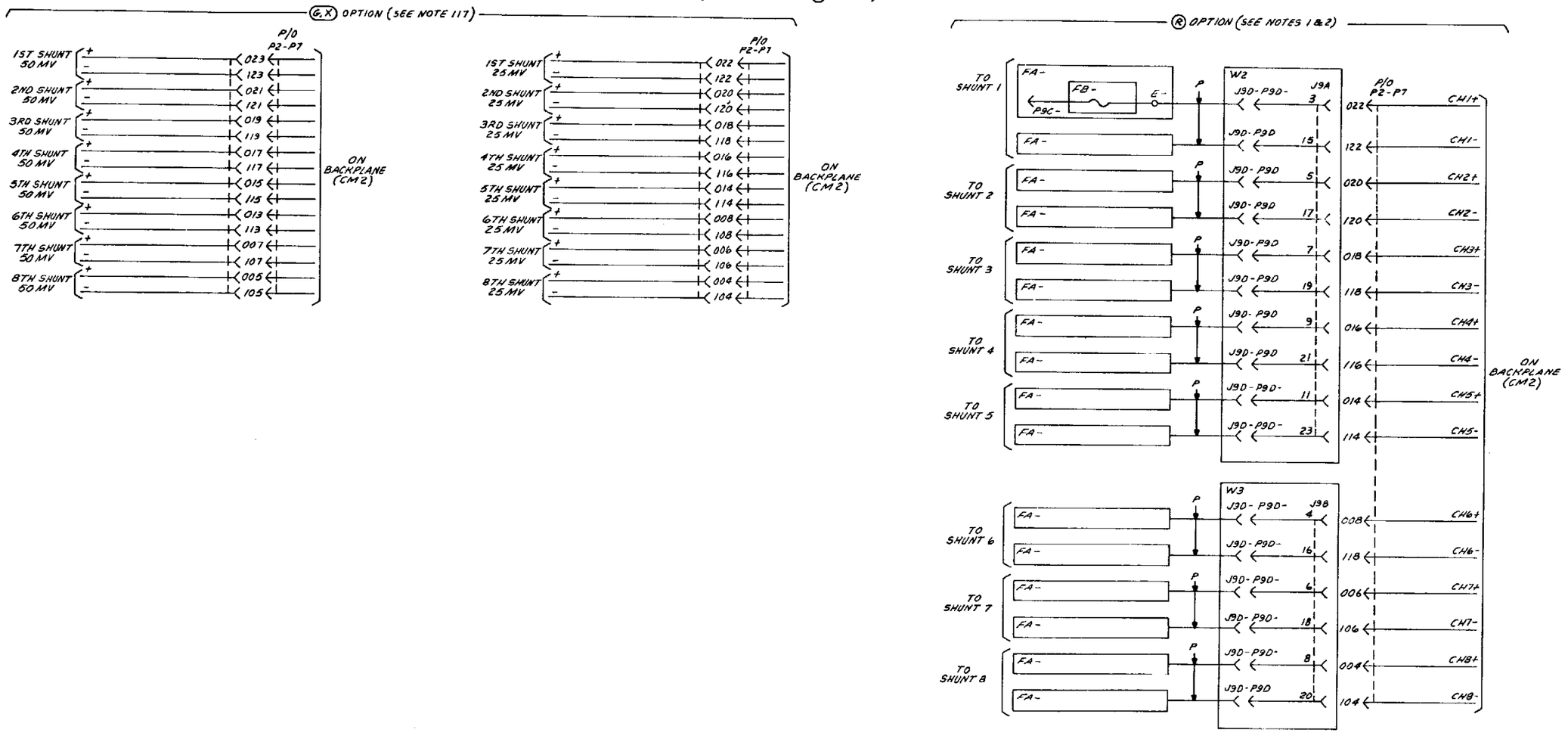
AT&T

SD-82588-01

SHEET: G5

P/O CAD 4

(V) OPTIONAL CARD CAGE
(SEE NOTES 1 & 2 (R) OPTION)



NOTES:

1. CONNECTOR 9C- (PART OF FUSE ASSEMBLY FA-) IS COMPATIBLE WITH TERMINALS 12 AND 13 OF KS-22012 TYPE CIRCUIT BREAKERS EQUIPPED WITH SHUNTS. TO MONITOR OTHER TYPES OF SHUNTS, CONNECTOR 9C- MAY BE REMOVED AND REPLACED WITH SUITABLE CONNECTOR DURING INSTALLATION. ALL WIRES BETWEEN TERMINALS E- (PART OF FUSE ASSEMBLIES FA-) AND CONNECTORS J9D- (PART OF WIRE ASSEMBLIES W2 & W3) SHALL BE LOCALLY PROVIDED. CRIMP CONNECTIONS ARE REQUIRED AT BOTH ENDS.
2. CONNECTIONS BETWEEN THE W2/W3 CONNECTORS (DESIGNATED P) AND THE FA- FUSE ASSEMBLIES SHALL BE TWISTED PAIR, KS-22247,L4 STD WIRE WITH A LOOP LENGTH NOT TO EXCEED 2000 FEET.

"LINEAGE" (R) 2000 CONTROLLER FOR 24 VOLT OR 48 VOLT POWER PLANT
J85501A

DWG SIZE: 6S
ISSUE: 5A
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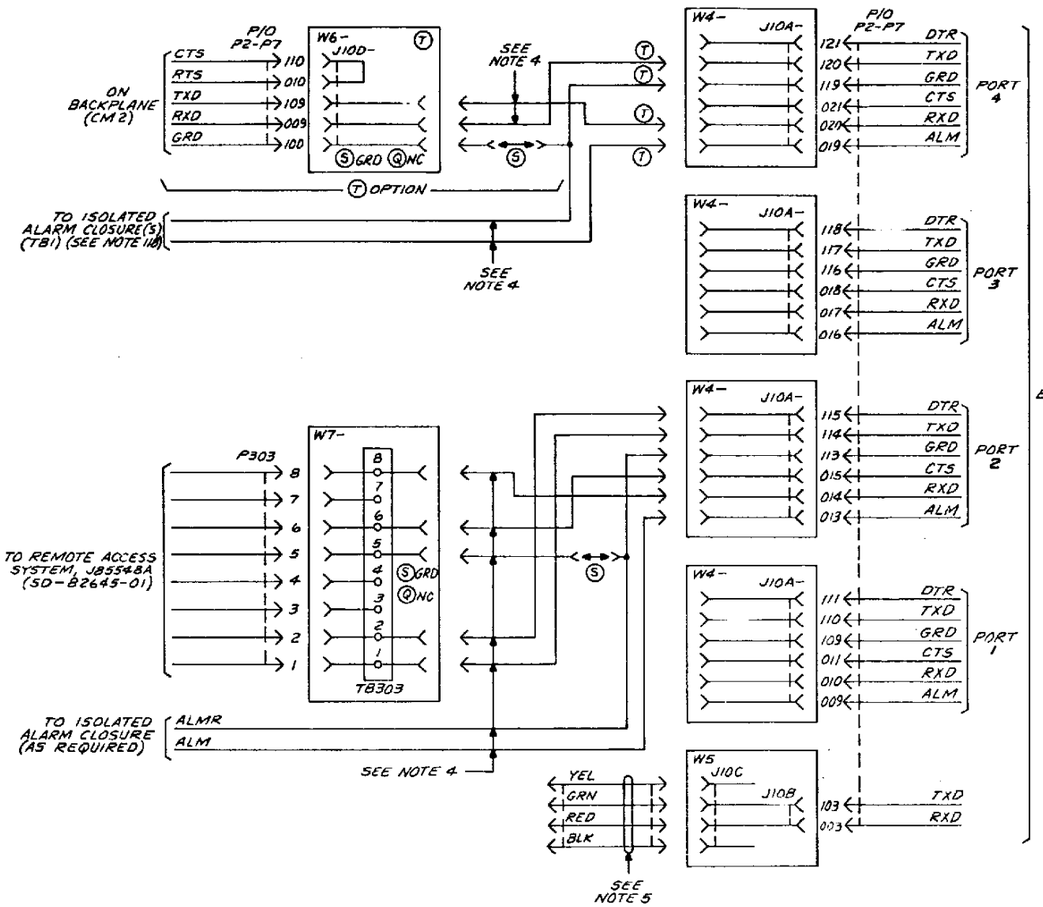
SD-82588-01
SHEET: G6

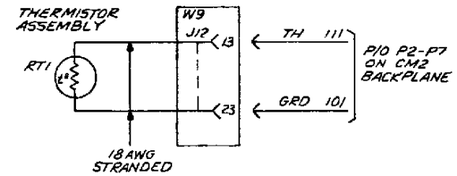
P/O CAD 4

(U) OPTION (SEE NOTE 3, 119)



CAD 5

(ZC) ROUND CELL RESERSE TIME PREDICTOR CONNECTIONS



NOTES (CON'T):

3. MCS DATA SWITCH PORTS 1 THROUGH 4 MAY BE USED IN ANY COMBINATION FOR CONNECTIONS TO MCS REMOTE INTERFACE WITHIN THE SAME CONTROLLER, TO MCS REMOTE INTERFACE IN ANOTHER PLANT, OR TO LINEAGE REMOTE ACCESS SYSTEM. TYPICAL CONNECTIONS ARE SHOWN.

4. ALL WIRES BETWEEN CABLE ASSEMBLIES W7- AND W4- AND ALL WIRES BETWEEN CABLE ASSEMBLIES W4- AND W6- FOR REMOTE INTERFACE IN EXTERNAL PLANTS SHALL BE LOCALLY PROVIDED. KS-22247,L4, 22 AWG STR OR EQUIVALENT SHALL BE USED. ADDITIONAL WIRE IS NOT REQUIRED FOR CONNECTIONS BETWEEN W4- AND W6- WHEN THE DATA SWITCH AND REMOTE INTERFACE ARE IN THE SAME CONTROLLER. CRIMP CONNECTIONS ARE REQUIRED FOR ALL WIRING BETWEEN CABLE ASSEMBLIES.

5. THE INDICATED CABLE ASSEMBLY IS A CUSTOMER-PROVIDED PLUG AND CORD. THE PLUG SHALL BE COMPATIBLE WITH RJ11C, RJ12C OR RJ13C. THE CORD SHALL BE M40S OR EQUIVALENT. THE MAXIMUM CORD LENGTH IS 25 FEET. THE PHONE JACK SHALL BE MOUNTED NEAR THE CONTROLLER TO MEET THE 25 FOOT REQUIREMENT.

"LINEAGE" ® 2000 CONTROLLER FOR 24 VOLT OR 48 VOLT POWER PLANT
J85501Q

DWG SIZE: 6S
ISSUE: 10A

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