DWG ISSUE	CD ISSUE	DATE ISSUED	DRAWN	APPD
1	1	9-27-85		
28	1 APP 1B	5-19-87		

SHEET INDEX

CONTENTS	SHEET NO.	SHEET ISSUE NO.
SHEET INDEX OPTION INDEX SUPPORTING INFORMATION	A1	2
FS 1	B1	2
FS 2	B2	2
FS 3, FS 4	B3	1
FS 5, FS 6	B4	1
FS 7, FS 8, FS 9	B5	2
APP FIG. 1, 2, 3, 4, 5	C1	2
APP FIG. 6, 7	C2	2
CIRCUIT NOTES	D1A*	2
EQUIPMENT NOTES	D1B	2
INFORMATION NOTES	D2	2
	D3	1
	D4	2
CAD 1	G1	2
CAD 2	G2	1
CAD 3, 4	G3	1
CAD 5, 6	G4	2

* THIS SHEET WITH SUFFIX A WAS FORMELY WITHOUT A SUFFIX LETTER.

OPTION INDEX (CONT)

APP OR WRG	RATED ON ISSUE	SEE NOTES	LOCATION
T			SHEET B4, SHEET B5
S			APP FIG.3, 3A7
R			APP FIG.2,1D0,1G0, 2D0,2G0,14A7
Q			APP FIG.4, 4A2
P			APP FIG.6,5A6
N			APP FIG.7,5E6,5F6
M			1A2,1A8,2A1,2A8
L			APP FIG.6,5C7

OPTION INDEX

APP OR WRG	RATED ON ISSUE	SEE NOTES	LOCATION
Z			SHEET B2
Y			SHEET B2, 3E6 SHEET B4, SHEET B5
X			SHEET B2, 3E6 SHEET B4, SHEET B5
V			APP FIG.5, 1D0, 2D0, 5A2
U			3D1

SUPPORTING INFORMATION

CATEGORY	NO

8M10

"LINEAGE" ® XCS CONTROLLER
J85501B

DWG SIZE 6S | ISSUE 2B

AT & T BELL LABORATORIES | SD-82646-01 | SHEET A1 OF 17

FS1

P/O CM1

SEE NOTE 311

SEE FS3

J3: DS1 DS2 DS3 DSR VM VMR AM AMR — 6 7 8 1 3 2 5 4

P3: DS1 DS2 DS3 DSR VM VMR AM AMR

TB1.1 / P/O J2

ABS1	1	5
ABS3	2	9
PMNR	3	13
AR	4	17
PMJ	5	21
PMNV	6	25
SI(C)	7	29
PMJVR	8	33
D	9	37
SI(B)	10	47
TR2	11	51
BD	12	53
RMRSR	13	57
TR4	14	63
SIR(A)	15	67
SI(E)	16	71
SPARE	17	75
FAN	18	79
FAN		
RB3	19	83
RB5	20	87
DG	21	91
BATSHR	22	95
RB1	23	99

TO ALARM CKTS

(R,V) TO R4

TO EXTERNAL FAN LEAD

TO (R,V) REG. FUSES

TO CHARGE-DISCHARGE CKT

TO SHUNT (SEE NOTE 108)

(R,V) TO REG. FUSES

TB1.2 / P/O J2

ABS0	1	3
ABS2	2	7
SIR(C)	3	11
PMNVR	4	15
PMJR	5	19
A	6	23
PMN	7	27
PMJV	8	31
DR	9	35
TR1	10	43
SIR(B)	11	45
RMRS	12	49
TR3	13	55
BDR	14	61
SIR(E)	15	65
SI(A)	16	69
FG	17	73
FAJ	18	77
FAJ		
RB2	19	81
RB4	20	85
RG	21	89
BATSH	22	93
RB6	23	97

TO ALARM CKTS

TO EXTERNAL FUSE, CKT. BKR. PANEL OR LV DISCON PANEL

TO R1

TO (R,V) REG. FUSES

TO CHARGE-DISCHARGE CKT

TO SHUNT (SEE NOTE 108)

(R,V) TO REG. FUSES

SEE NOTE 111

P/O P2

ABS1	5
ABS3	9
PMNR	13
AR	17
PMJ	21
PMNV	25
SI(C)	29
PMJVR	33
D	37
SI(B)	47
TR2	51
BD	53
RMRSR	57
TR4	63
SIR(A)	67
SI(E)	71
SPARE	75
FAN	79
RB3	83
RB5	87
DG	91
BATSHR	95
RB1	99
ABS0	3
ABS2	7
SIR(C)	11
PMNVR	15
PMJR	19
A	23
PMN	27
PMJV	31
DR	35
TR1	43
SIR(B)	45
RMRS	49
TR3	55
BDR	61
SIR(E)	65
SI(A)	69
FG	73
FAJ	77
RB2	81
RB4	85
RG	89
BATSH	93
RB6	97

CP1
CP5-AKW1

P1.1: TRR1 RFAR1 LOAR1 CBR1 RFA1 LOA1 CB1 HV1 BAT1 RS1 RSR1 TR1 RB1 RG1

P1.6: TRR6 RFAR6 LOAR6 CBR6 RFA6 LOA6 CB6 HV6 BAT6 RS6 RSR6 TR6 RB6 RG6

P1.2-P1.5 --RESP--

TO RECTIFIER 1 THROUGH 6 RESPECTIVLY

P/O P2

B+	22
BDO	54
COMO	56
HVO	50
RMRSO	52
RMRSRO	32
FAJO	58
RFAO	40
FANO	48
VMO	36
VMRO	38
AMO	44
AMRO	46
UPFO	42
SPARE	68
	70
	84
	60
RMRSRO	34
V+	88
V-	90
B-	92
R2	72
R29	14
R3	76
R42	78
R7	74
R9	30
R14	18
R17	64
R19	10
R71	66
R54	20
R59	24
R62	26
R74	62
R77	80
R31.1	12
R31.2	16
R44.1	6
R44.2	8
R66.1	4
R66.2	28
SPARE	86
	94
	96
	98
	100
K5-12	59
K5-13	39
DB	41
RB	2
ABS	82
	1

SEE FS2 FOR CONNECTIONS

E4: E1 E2 E3 E0

SEE NOTE 311

J6

B+	14
BDO	23
COMO	25
HVO	19
RMRSO	21
RMRSRO	1
FAJO	27
RFAO	9
FANO	17
VMO	5
VMRO	7
AMO	13
AMRO	15
UPFO	11
	30
	28
	26
	29
RMRSRO	3
SPARE	4
	12
	6
	8
	10
	24
	22
	20
	18
	16
	2

TO CP2 5C5

P5

	20
	7
	6
	5
	3
	2

P4

	1
	2
	3

TO MODEM 5F5

"LINEAGE" ® XCS CONTROLLER

DWG SIZE	ISSUE
6S	2B

AT&T BELL LABORATORIES | SD-82646-01 | SHEET 81

FS2

CM1 (BACKPLANE)

CP1
CPS-AKW1

SEE NOTE 311

P/O CM1

TBI.1

P/O J2

P/O P2

TO ALARM CKTS

ABS1 ABS3 PMNR AR PMJ PMNV SI(C) PMJVR D SI(B) TR2 BD RMRSR TR4 SIR(A) SI(E) SPARE FAN RB3 RB5 DG BATSHR RB1

(R,V) TO R4

TO EXTERNAL FAN LEAD

TO (R,V) REG. FUSES

TO CHARGE-DISCHARGE CKT

TO SHUNT (SEE NOTE 108)

(R,V) TO REG. FUSES

TBI.2

ABS0 ABS2 SIR(C) PMNVR PMJR A PMN PMJV DR TR1 SIR(B) RMRS TR3 BDR SIR(E) SI(A) FG FAJ RB2 RB4 RG BATSH RBG

TO ALARM CKTS

TO EXTERNAL FUSE, CKT BKR PANEL OR LV DISCON PANEL

TO R1

TO (R,V) REG FUSES

TO CHARGE - DISCHARGE CKT

TO SHUNT (SEE NOTE 108)

(R,V) TO REG. FUSES

SEE NOTE 111

SPARE

B+ B00 COMO HVO RMRSO RMRSRO FAJO RFAO FANO VMO VMRO AMO AMRO UPFO SPARE RMRSRO

R2 R29 R3 R242 R7 R9 R14 R17 R19 R71 R54 R59 R62 R74 R77

ABS DB B- RB K5-12 K5-13 V+ V- R66.1 R66.2 R44.1 R44.2 R31.1 R31.2

STP23

STP14 STP4 STP16 STP17 STP15 STP10 STP5 STP12 STP2 STP13 STP6 STP7 STP8 STP11 STP18

STP26 STP24

STP25

STP20

STP19

STP9 STP1 STP3

STP22 STP21

E3 E4 E1 E2

K5-12 K5-13

SEE NOTE 311

J6

SPARE

P5

P4

TO CP2 5C5

TO MODEM 5F5

"LINEAGE" ® XCS CONTROLLER

DWG SIZE 6S

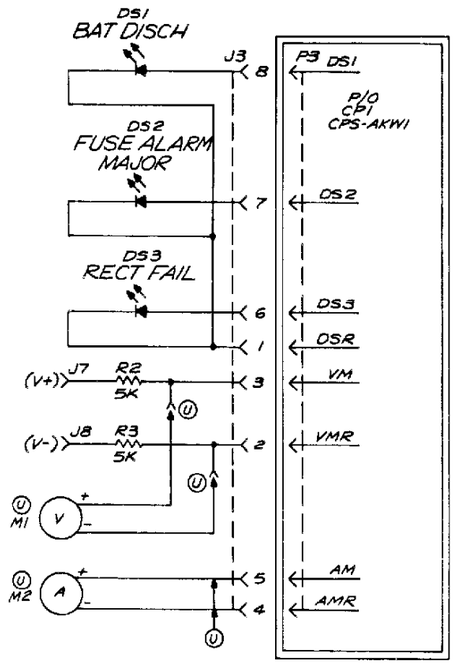
ISSUE 2B

AT&T BELL LABORATORIES

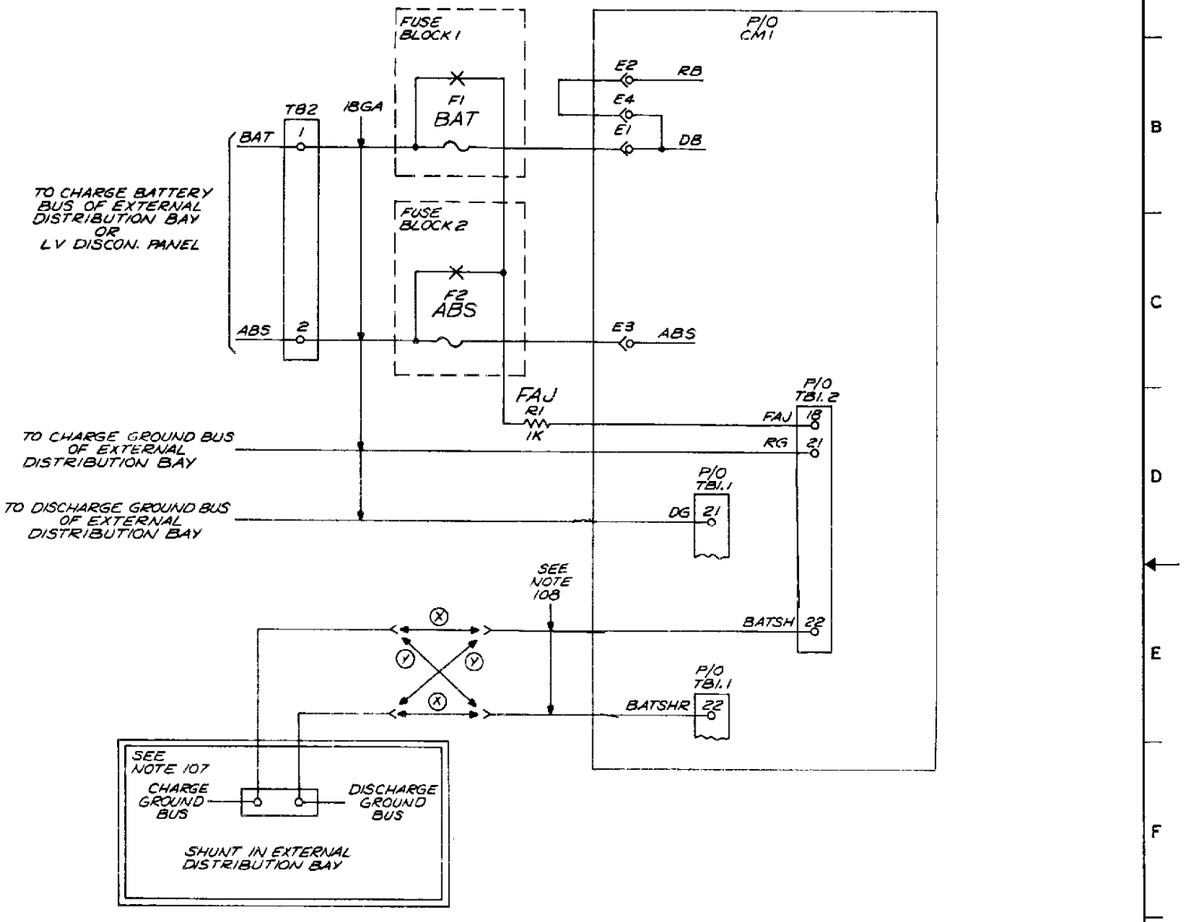
SD-82646-01

SHEET B2

FS3



⑤FS4



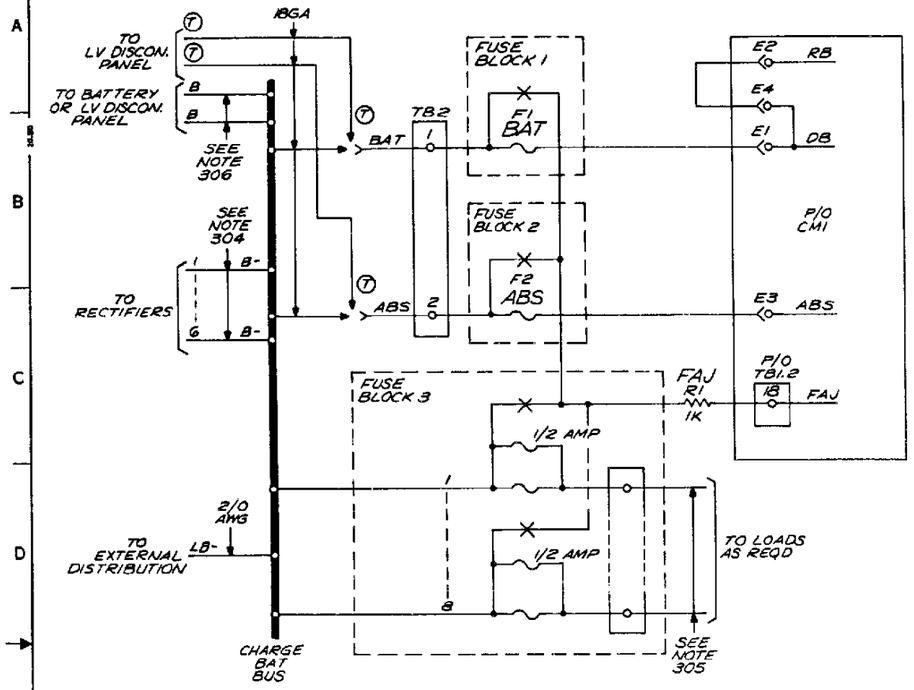
"LINEAGE"® XCS CONTROLLER

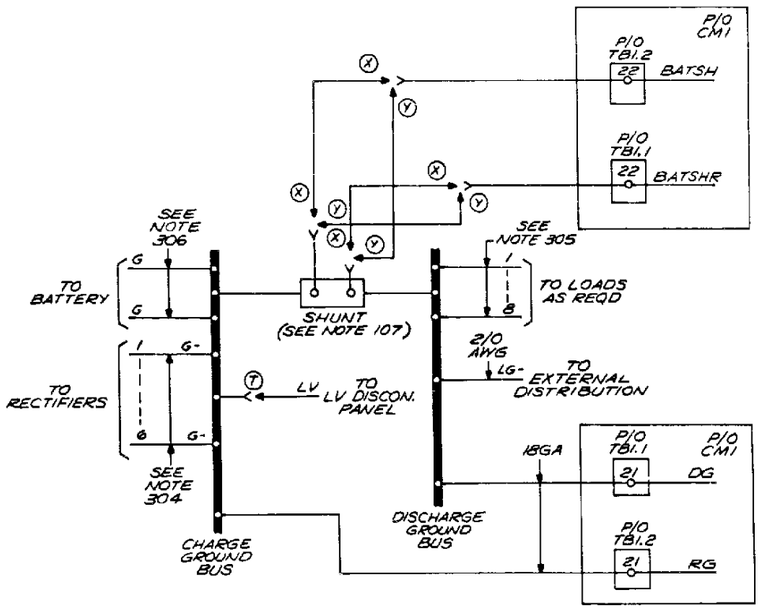
DWG SIZE	ISSUE
6S	/

AT&T BELL LABORATORIES | SD--82646-01 | SHEET 83

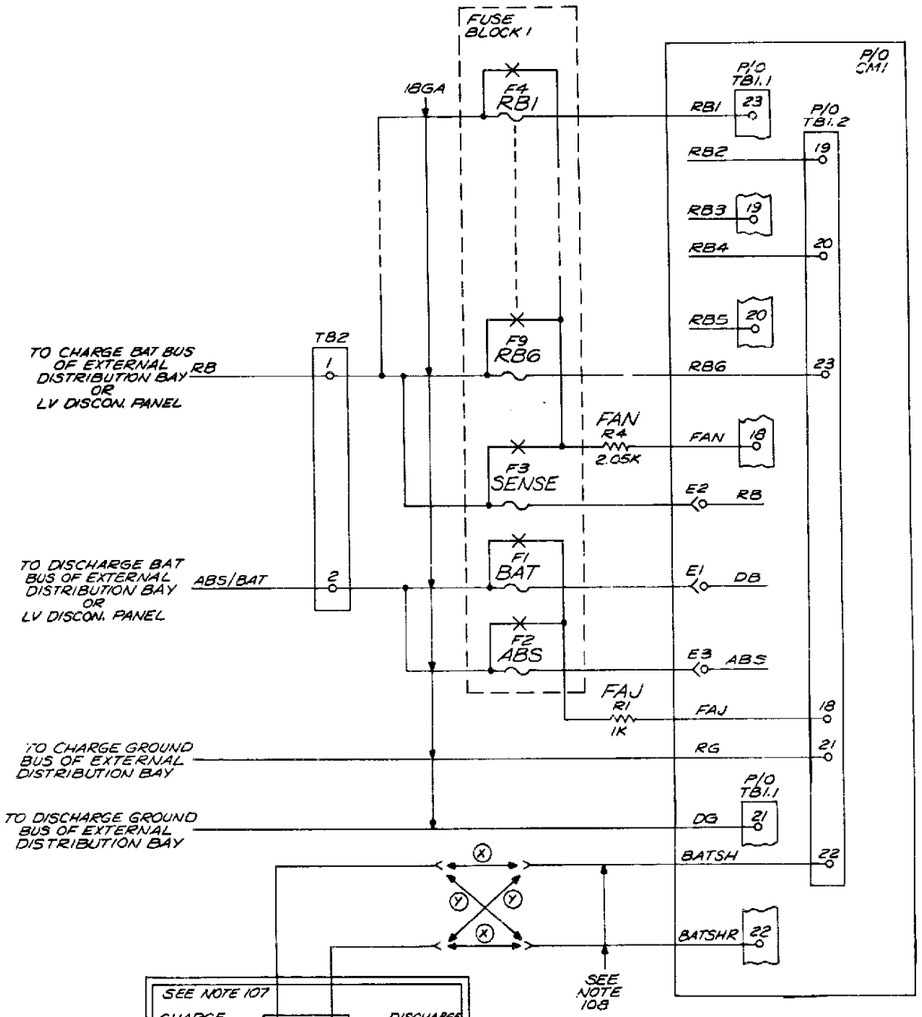
PRINTED IN U.S.A.

©FS5





®FS6



"LINEAGE"® -48 VOLT CONTROLLER

DWG SIZE	ISSUE
6S	/

AT&T BELL LABORATORIES | SO-82646-01 | SHEET B4

ⓥ FS7

FUSE BLOCK 1

F4 RB1

F9 RB6

F3 SENSE

F1 BAT

F2 ABS

FAJ R1 1K

FAN R4 2.05K

P/O CM1

P/O TB1.1

P/O TB1.2

RB1 — 23

RB2 — 19

RB3 — 19

RB4 — 20

RB5 — 20

RB6 — 23

FAN — 18

E2 — RB

E1 — DB

E3 — ABS

FAJ — 18

BATSH — 22

BATSHR — 22

DG — 21

RG — 21

TB2: RB — 1; ABS/BAT — 2

TO LV DISCON. PANEL (T) (T)

TO BATTERY OR LV DISCON. PANEL — SEE NOTE 306 — 8 8

TO RECTIFIERS — 1 8- 6 8-

SEE NOTE 304

TO EXTERNAL DISTRIBUTION — 1 LB- 3 LB-

2/0 AWG

CHARGE BAT BUS (SEE NOTE 309)

18GA

SHUNT (SEE NOTE 107)

TO BATTERY — SEE NOTE 306 — G G

TO RECTIFIERS — 1 G- 6 G-

SEE NOTE 304

CHARGE GROUND BUS

LG- 1 LG- 3 — TO EXTERNAL DISTRIBUTION

2/0 AWG

(T) LV — TO LV DISCON. PANEL

18GA

DISCHARGE GROUND BUS

ⓟ FS8

XCS MICROPROCESSOR SEE NOTES 112 & 310

P6

14	B+
23	BDO
25	COMO
19	HVO
21	RMRSO
1	RMRSRO
27	FAJO
9	RFAO
17	FANO
5	VMO
7	VMRO
13	AMO
15	AMRO
11	UPFO — NC
30	U3.3
28	U4.2
26	U4.6
29	NC
3	RMRSRO
4	NC
12	NC
6	FLEQ
8	FE
10	FER
24	TDXI
22	RDXI
20	CTSI
18	NC
16	COM RTN
2	DTRI

TO J6 ON CMI 1C9, 2C9

ⓟ CP2 ED-82611-30 SEE NOTE 112 & 310

P6A

ⓛ WA3 SEE NOTE 311 — TBI.1 — 22

P/O P1: TXD 19; GRD 20; RXD 21

W1 SEE NOTE 312

P/O P1A: 4, 5, 6, 20, 3, 7, 2

P/O J1

TO LOCAL TERMINAL

ⓝ FS9

MODEM CONNECTIONS SEE NOTE 113

TO P5 ON CMI 1E9, 2E9

20	DATA TERMINAL READY (CD)
7	COMMON RETURN (AB)
6	DATA SET READY (CC)
5	CLEAR TO SEND (CB)
3	RECEIVED DATA (BB)
2	TRANSMITTED DATA (BA)

ⓝ 212ALP-DATA SET SEE NOTE 113

PLUG COMPATIBLE WITH RJ11C, RJ12C OR RJ13C

YEL — GRN (TIP) — RD (RING) — BK

TO PHONE JACK

"LIYEAGE" ③ XCS CONTROLLER

DWG SIZE	ISSUE
B5	2B

AT&T BELL LABORATORIES | SD-82646-01 | SHEET B5

APP FIG. 1

CIRCUIT MODULE

OPTION	DESIG	LOC	CODE
	CM1	1A1,2A1	ED-83178-30
	E/W		

CONNECTOR, JACK

OPTION	DESIG	LOC	CODE
	J2	1B2,1B6, 2A2,2A5	~~3-530841-5, AMP~~ 1-530841-1, AMP
	J6	1B9,2A9	~~2530841-6, AMP~~ 530841-2, AMP

CONNECTOR, PLUG

OPTION	DESIG	LOC	CODE
	P4	1F9,2E9	641126-3, AMP
	P5	1E9,2E9	208008-1, AMP

SHORTING STRAP

OPTION	DESIG	LOC	CODE
Z	STP1	2H5	L2007,L5
Z	STP2	2C7	L2007,L5
Z	STP3	2H5	L2007,L5
Z	STP4	2C5	L2007,L5
Z	STP5	2C6	L2007,L5
Z	STP6	2C7	L2007,L5
Z	STP7	2C7	L2007,L5
Z	STP8	2C8	L2007,L5
Z	STP9	2G5	L2007,L5
Z	STP10	2G6	L2007,L5
Z	STP11	2G8	L2007,L5
Z	STP12	2G6	L2007,L5
Z	STP13	2C7	L2007,L5
Z	STP14	2C5	L2007,L5
Z	STP15	2C6	L2007,L5
Z	STP16	2C5	L2007,L5
Z	STP17	2C6	L2007,L5
Z	STP18	2C8	L2007,L5
Y	STP19	2G6	L2007,L5
X	STP20	2F6	L2007,L5
X	STP21	2H6	L2007,L5
Y	STP22	2H6	L2007,L5
X	STP23	2A5	L2007,L5
Y	STP24	2F5	L2007,L5
X	STP25	2F5	L2007,L5
Y	STP26	2F5	L2007,L5

TERMINALS

OPTION	DESIG	LOC	CODE
	E1	1G8,2F6	#836, ZIERICK
	E2	1G8,2G6	#836, ZIERICK
	E3	1G8,2F6	#836, ZIERICK
	E4	1G8,2F6	#836, ZIERICK

TERMINAL BLOCK

OPTION	DESIG	LOC	CODE
	TB1.1	1B2,2A1	~~SEPR-23, CURTIS~~ 980-S-23,WECO
	TB1.2	1E2,2D1	~~SEPR-23, CURTIS~~ 980-S-23, WECO

CIRCUIT PACK

OPTION	DESIG	LOC	CODE
	CP1	1D4,2D3	AKW1

CONNECTOR, JACK

OPTION	DESIG	LOC	CODE
	J3	3B1	640442-8, AMP
	J7		KS-20667,L2
	J8		KS-20667,~~L2~~ L3

DIODE, LIGHT EMITTING

OPTION	DESIG	LOC	CODE
	DS1	3A1	534A, MTD IN, KS-21320,L105, SLEEVE
	DS2	3B1	534A, MTD IN, KS-21320,L105, SLEEVE
	DS3	3C1	534C, MTD IN, KS-21320,L105, SLEEVE

METER

OPTION	DESIG	LOC	CODE
U	M1	3D1	(Z) 83T, 30V, JEWELL
			(W) 83T, 60V, JEWELL
U	M2	3E1	83T, 50A, JEWELL 83T, 100A, JEWELL 83T, 150A, JEWELL 83T, 200A, JEWELL 83T, 300A, JEWELL 83T, 400A, JEWELL 83T, 600A, JEWELL 83T, 800A, JEWELL

RESISTOR

OPTION	DESIG	LOC	CODE
	R1(FAJ)	3D7	KS-14603,L1C, 1K
	R2	3C1	KS-20810,L1A, 5K
	R3	3D1	KS-20810,L1A, 5K

TERMINAL BLOCK

OPTION	DESIG	LOC	CODE
	TB2	3B6	SEIF-2, CURTIS

®APP FIG. 2

FUSE

OPTION	DESIG	LOC	CODE
	F1(BAT)	4D7	70G, 1/2 AMP
	F2(ABS)	4E7	70A, 1-1/3 AMP
	F3(SENSE)	4D7	70F, 1/4 AMP
	F4(RB1)	4B7	70A, 1-1/3 AMP
	F5(RB2)	4B7	70A, 1 1/3 AMP
	F6(RB3)	4B7	70A, 1-1/3 AMP
	F7(RB4)	4B7	70A, 1-1/3 AMP
	F8(RB5)	4B7	70A, 1-1/3 AMP
	F9(RB6)	4C7	70A, 1-1/3 AMP

FUSE BLOCK

OPTION	DESIG	LOC	CODE
	FUSE BLOCK 1	4A7	22A

RESISTOR

OPTION	DESIG	LOC	CODE
	R4(FAN)	4D7	KS-20289,L6C, 2.05K

ⓢAPP FIG. 3

FUSE

OPTION	DESIG	LOC	CODE
	F1(BAT.)	3B6	70C, 1/2 AMP
	F2(ABS)	3C6	70A, 1-1/3 AMP

FUSE BLOCK

OPTION	DESIG	LOC	CODE
	FUSE BLOCK 1	3A6	18A
	FUSE BLOCK 2	3C6	18A

ⓠAPP FIG. 4

FUSE

OPTION	DESIG	LOC	CODE
	F1(BAT.)	4B2	70G, 1/2 AMP
	F2(ABS)	4B2	70A, 1-1/3 AMP

FUSE BLOCK

OPTION	DESIG	LOC	CODE
	FUSE BLOCK 1	4A2	18A
	FUSE BLOCK 2	4B2	18A
	FUSE BLOCK 3	4C1	27A, E/W 70G ALARM FUSES

SHUNT (SEE NOTE 107)

OPTION	DESIG	LOC	CODE
	-	4G1	A-50-50, EMPRO
	-		A-100-50, EMPRO
	-		A-150-50, EMPRO
	-		A-200-50, EMPRO

ⓥAPP FIG. 5

FUSE

OPTION	DESIG	LOC	CODE
	F1(BAT.)	5D2	70G, 1/2 AMP
	F2(ABS)	5D2	70A, 1-1/3 AMP
	F3(SENSE)	5C2	70F, 1/4 AMP
	F4(RB1)	5B2	70A, 1-1/3 AMP
	F5(RB2)	5B2	70A, 1-1/3 AMP
	F6(RB3)	5B2	70A, 1-1/3 AMP
	F7(RB4)	5B2	70A, 1-1/3 AMP
	F8(RB5)	5B2	70A, 1-1/3 AMP
	F9(RB6)	5C2	70A, 1-1/3 AMP

FUSE BLOCK

OPTION	DESIG	LOC	CODE
	FUSE BLOCK 1	5A2	22A

RESISTOR

OPTION	DESIG	LOC	CODE
	R4(FAN)	5C3	KS-20289,L6C, 2.05K

SHUNT (SEE NOTE 107)

OPTION	DESIG	LOC	CODE
	-	5F1	A-50-50, EMPRO
	-		A-100-50, EMPRO
	-		A-150-50, EMPRO
	-		A-200-50, EMPRO

"LINEAGE"® XCS CONTROLLER

DWG SIZE	ISSUE
8S	2B

AT&T BELL LABORATORIES | SD-82646-01 | SHEET C1

Ⓟ APP FIG. 6

CIRCUIT PACK

OPTION	DESIG	LOC	CODE
	CP2	5A6	E0-82611-30

CABLE ASSEMBLY

OPTION	DESIG	LOC	CODE
Ⓛ	WA3	5C7	845807064

CABLE ASSEMBLY

OPTION	DESIG	LOC	CODE
	W1	5D7	H-285-224,L199

E/W

CONNECTOR, JACK

OPTION	DESIG	LOC	CODE
	J1	5D7	3-87631-0 HOUSING E/W 87309-3 CONTACTS

CONNECTOR, PLUG

OPTION	DESIG	LOC	CODE
	P1A	5D8	KS-19088,L2

Ⓝ APP FIG. 7

DATA SET

OPTION	DESIG	LOC	CODE
	DATA SET	5F6	212ALP

"LINEAGE" Ⓡ XCS CONTROLLER

DWG SIZE: 8S | ISSUE: 28

AT&T BELL LABORATORIES | SD-82646-01 | SHEET: C2

SHEET DIA
MISSING

ORDERED 12/11/96

CIRCUIT NOTES: (CONT)

110. WHEN OPTION (U) IS PROVIDED METERS ARE ± 2% TOLERANCE.

111. THE CONTROLLER WILL ACCEPT ONLY ONE EXTERNAL FAJ LEAD.

112. SWITCH S2 OF THE ED-82611-30 IS A DIP-SWITCH PACKAGE CONSISTING OF EIGHT INDIVIDUAL SWITCHES, S2A, S2B, S2C, S2D, S2E, S2F, S2G AND S2H. THE FOLLOWING TABLES GIVE THE FEATURE CORRESPONDING TO EACH VALID SWITCH POSITION.

A.

S2B	S2C	S2D	S2E	FEATURE
OPEN	CLOSED	CLOSED	OPEN	REMOTE TERMINAL
CLOSED	OPEN	OPEN	CLOSED	LOCAL TERMINAL

B.

S2A	NOT USED
CLOSED	
OPEN	

C.

S2F	S2G	S2H	FEATURE
CLOSED	CLOSED	CLOSED	24 VOLT APPLICATION
OPEN	OPEN	OPEN	48 VOLT APPLICATION

SWITCH COMBINATIONS NOT SHOWN IN THE ABOVE TABLES ARE NOT VALID.

113. MODEM SWITCH SETTINGS AND CONNECTIONS:
DATA/TALK SWITCH SET TO DATA
ANS/ORG SWITCH SET TO ANS
1200/300 SWITCH SET TO 1200
TELCO CONN-CONNECTION TO TELEPHONE LINE
TELSET CONN-NO CONNECTION REQUIRED

EQUIPMENT NOTES:

"LINEAGE" (R) XCS CONTROLLER

DWG SIZE: 6S

ISSUE: 2B

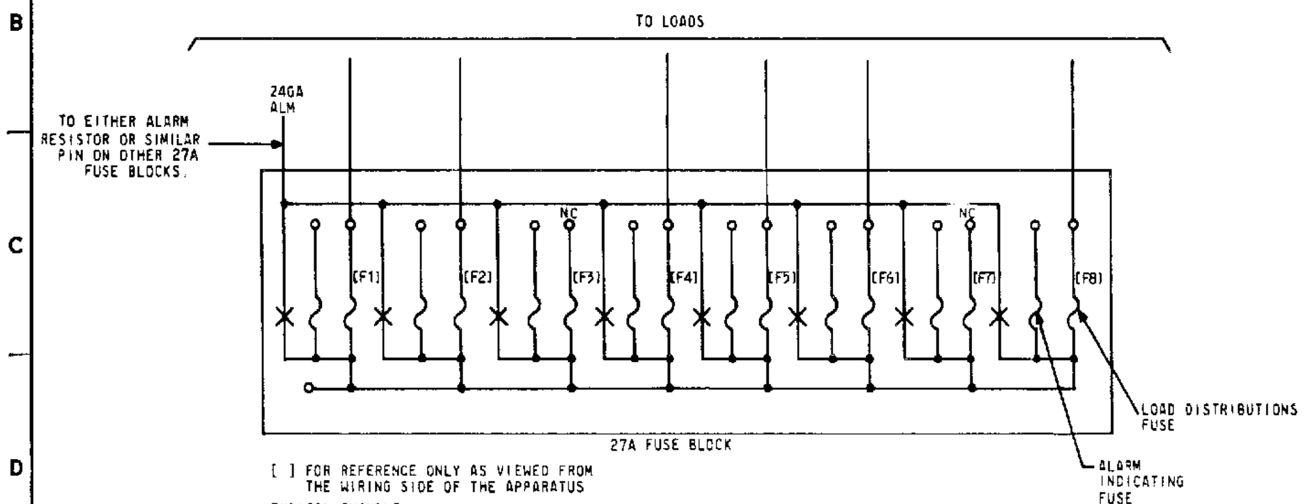
AT&T BELL LABORATORIES | SD-82646-01

SHEET: D18

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. WHEN ASSIGNING FUSES IN 27A FUSE BLOCKS, FOR EACH FUSE OVER 15 AMPERES AN ADJACENT FUSE POSITION IS TO REMAIN UNUSED AND DEDECATED TO ONLY THAT FUSE.



27A FUSE BLOCK

[ ] FOR REFERENCE ONLY AS VIEWED FROM THE WIRING SIDE OF THE APPARATUS

TYPICAL EXAMPLE.

FUSES F4 AND F8 ARE LARGER THAN 15 AMPS WIRING IS DONE TO SUIT JOB ASSIGNMENT. THE FRONT PANEL MARKING DESIGNATION STRIP FOR THE FUSE BLOCKS SHALL SHOW THE FUSES, SUCH AS F3 AND F7 DESIGNATED "NC" (NOT CONNECTED) WITH DUMMY FUSES MOUNTED IN THOSE UNUSED POSITIONS TO HELP RETAIN CAPS.

THE FUSING ASSIGNMENTS FOR A 27A FUSE BLOCK MUST FOLLOW THE GUIDELINES LISTED BELOW TO PREVENT THE FUSE BLOCK FROM DISSIPATING MORE POWER THAN IS RECOMMENDED (7.65 WATTS PER X-75533):

A. IF THE FUSING SCHEME IS MADE UP OF ONLY 74A,74B,74C,KS-19780-01 L1, L2,L4,L5 OR SMALLER FUSES, ALL POSITIONS (ALLOWING 2 POSITIONS FOR L4,L5) MAY BE ASSIGNED AND THE BLOCK WILL NOT DISSIPATE MORE THAN 7.65 WATTS.

B. IF THE FUSING SCHEME MATCHES ONE OF THE FOLLOWING COMBINATIONS, CHECK THE TOTAL LIST 2 CURRENT DRAIN THROUGH THE FUSES OF THE BLOCK. IF IT IS MORE THAN THE "MAX TOTAL CURRENT" ALLOWED OF THE TABLE BELOW, REASSIGN THE LOADS.

FUSING SCHEME	KS-19780 FUSES						74 TYPE FUSES						MAX TOTAL CURRENT ALLOWED
	L6	L5	L4	L3	L2	L1	F	E	D	C	B	A	
1	4												88 AMPS
2				8									96 AMPS
3							4						61 AMPS
4								8					68 AMPS
5									8				61 AMPS
6	3	1											88 AMPS
7	3		1										88 AMPS
8	3			2									84 AMPS
9	3				2								84 AMPS
10	3					2							80 AMPS
11	1	3											84 AMPS
12		3		1									72 AMPS
13							3	2					61 AMPS
14							3		2				60 AMPS
15							3			2			56 AMPS

FUSE RATINGS: L6 IS 30 AMPS, L5 IS 25 AMPS, L4 IS 20 AMPS, L3 IS 15 AMPS, L2 IS 10 AMPS, L1 IS 5 AMPS, F IS 20 AMPS, E IS 15 AMPS, D IS 10 AMPS, C IS 5 AMPS, B IS 3 AMPS AND A IS 1.5 AMPS

INFORMATION NOTES: (CONT)

302. (CONT)

C. FOR ALL OTHER POSSIBLE COMBINATIONS THE FUSING SCHEME FOR EACH 27A FUSE BLOCK MUST SATISFY THE FOLLOWING ALGEBRAIC EQUATION:

$$\sum_{n=1}^{8} .0038\,{}_nI^2_{L6} + .0035\,{}_nI^2_{L5} + .0047\,{}_nI^2_{L4} + .0070\,{}_nI^2_{L3} + .0125\,{}_nI^2_{L2} + .025\,{}_nI^2_{L1} + .0082\,{}_nI^2_{F} + .0097\,{}_nI^2_{E} + .0161\,{}_nI^2_{D} + .035\,{}_nI^2_{C} + .055\,{}_nI^2_{B} + .12\,{}_nI^2_{A} < 7.65$$

WHERE n IS AN INDEXER FOR THE NUMBER OF THE SAME TYPE OF FUSES USED IN THE BLOCK L6 THROUGH L1 AND F THROUGH A ARE USED TO IDENTIFY FUSE TYPE e.g. ${}_2I_{L5}$ IS THE LIST TWO CURRENT DRAIN THROUGH THE SECOND KS-19780 L5 FUSE IN THE FUSE BLOCK.

303.

ALARM INDICATORS

LEAD DESIG	FUNCTION			
	MAJOR	MINOR	OFF-ALM CKT	ALM SENDING
SI(E) SIR(E)	✓			✓
	OPERATED BAT.(F1), ABS(F2) OR DISCHARGE FUSE OR CB TRIP OR LV DISCONNECT			
SI(C) SIR(C)		✓		✓
	OPERATED SENSE(F3), RB1(F4) - RB6(F9) FUSE OR RECT FAIL			
SI(B) SIR(B)	✓			✓
	HIGH VOLTAGE			
SI(A) SIR(A)	✓			✓
	LOW VOLTAGE			
PMN PMNR		✓	✓	
	OPERATED SENSE(F3), RB1(F4) - RB6(F9) FUSE OR RECT FAIL			
PMNV PMNVR		✓	✓	
	OPERATED SENSE(F3), RB1(F4) - RB6(F9) FUSE OR RECT FAIL			
PMJ PMJR	✓		✓	
	HIGH VOLTAGE, LOW VOLTAGE OR OPERATED F1, F2 OR DISCHARGE FUSE OR CB TRIP OR LV DISCONNECT			
PMJV PMJVR	✓		✓	
	HIGH VOLTAGE, LOW VOLTAGE OR OPERATED F1, F2 OR DISCHARGE FUSE OR CB TRIP OR LV DISCONNECT			
BD BDR	✓			✓
	LOW VOLTAGE			
D DR	✓			✓
	HIGH VOLTAGE, LOW VOLTAGE OR OPERATED F1, F2 OR DISCHARGE FUSE OR CB TRIP OR LV DISCONNECT			
A AR		✓		✓
	OPERATED SENSE(F3), RB1(F4) - RB6(F9) FUSE OR RECT FAIL			

304. THE CHART BELOW PROVIDES A GUIDELINE FOR RECTIFIER CONNECTIONS TO THE BUS BARS BECAUSE OF THE PHYSICAL SIZE OF THE BUS BARS AND CABINET:

RECTIFIER (AMP)	GAUGE (AWG)	MAXIMUM # OF CABLES PER BUS BAR
15	14	6
25	8	6
35	8	6
50	6	6
100	2	4

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8S	2B

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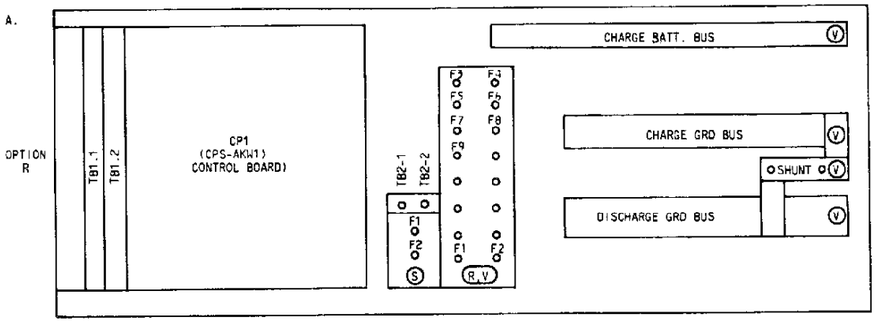
INFORMATION NOTES: (CONT)

305. THE MAXIMUM ALLOWABLE WIRE GAUGE FOR LOAD CONNECTIONS IS 8 AWG AND THE MAXIMUM NUMBER OF LOAD CONNECTIONS IS EIGHT.

306. THE MAXIMUM ALLOWABLE WIRE GAUGE FOR BATTERY CABLES IS 1/0 AND THE MAXIMUM NUMBER OF BATTERY CONNECTIONS IS TWO.

307. A.



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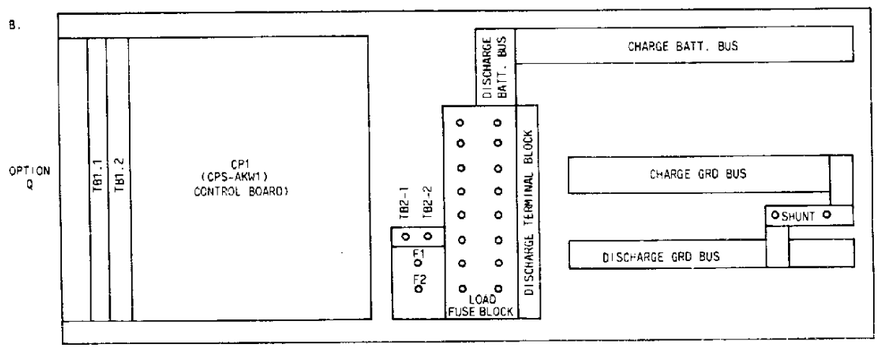

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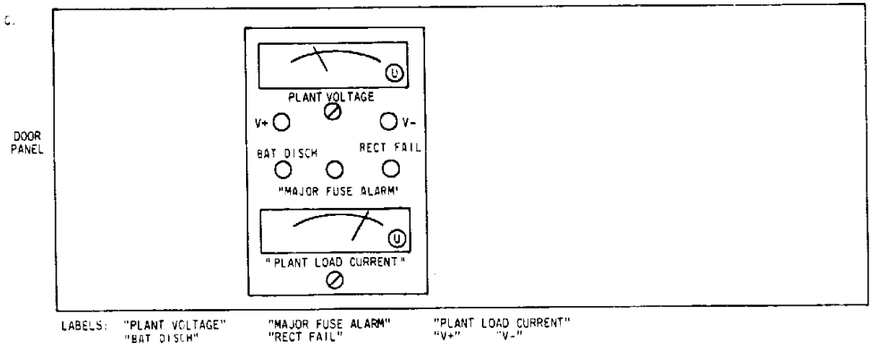
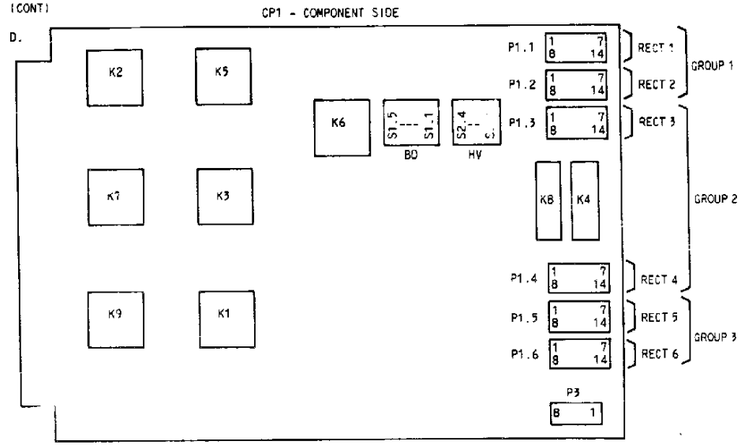


LABELS: "PLANT VOLTAGE" "MAJOR FUSE ALARM" "PLANT LOAD CURRENT"
"BAT DISCH" "RECT FAIL" "V+" "V-"

INFORMATION NOTES: (CONT)

307. (CONT)

D.



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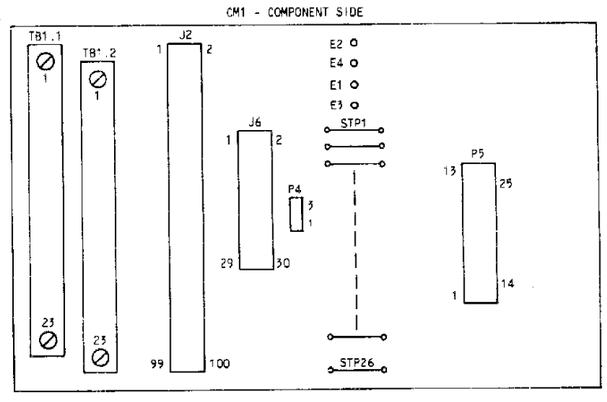

309. A MAXIMUM OF NINE CONNECTIONS CAN BE MADE TO THE CHARGE BATT. BUS. THESE CONNECTIONS MAY CONSIST OF ANY COMBINATION OF BATTERY, RECTIFIER AND EXTERNAL DISTRIBUTION LEADS CONSISTANT WITH NOTES 304 AND 306.

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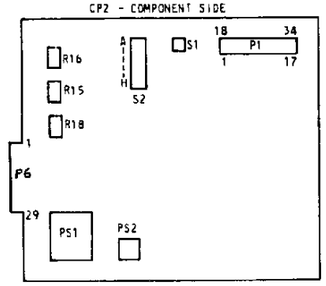
INFORMATION NOTES: (CONT)

310.



311. CM1 CIRCUIT MODULE PROVIDED WITH OPTION L IS CODED "G-1.A", "G-1.B" OR "G-1.C". OPTION M PROVIDES AN ADDED CONNECTION ON CM1, WHICH IS GROUP CODED WITH "G-D" IN ADDITION TO "G-1". WA3 CABLE ASSEMBLY IS REQUIRED FOR UNITS EQUIPPED WITH OPTIONS L & P ONLY.

312. CABLE ASSEMBLY W1 IS USED FOR CONNECTING CP2 TO A LOCAL TERMINAL ONLY. CONNECTOR P1A OF W1 IS AN RS-232 CONNECTOR. SWITCH S2 OF CP2 MUST BE CONFIGURED FOR LOCAL TERMINAL APPLICATION WHEN A LOCAL TERMINAL APPLICATION IS REQUIRED.

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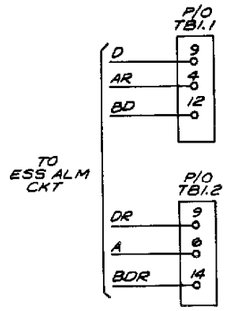
SHEET: 04

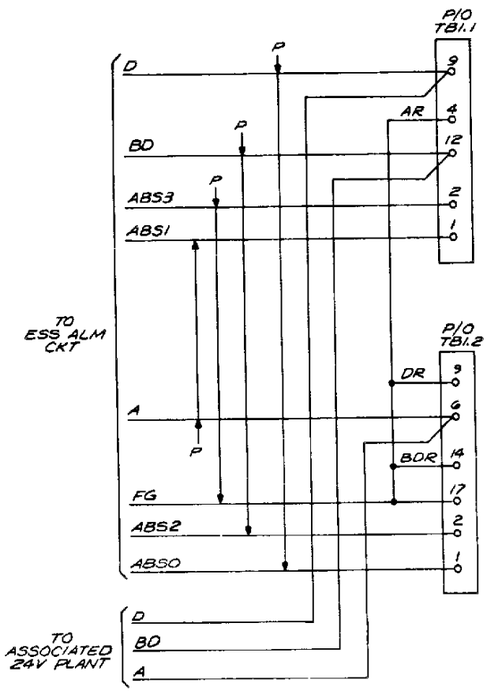
CAD 1

ESS OFFICE ALARM CIRCUIT CONNECTIONS

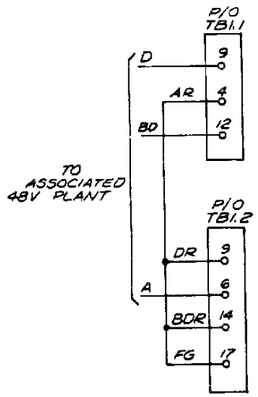
24 AND 48V PLANTS REQUIRING ISOLATED CLOSURES

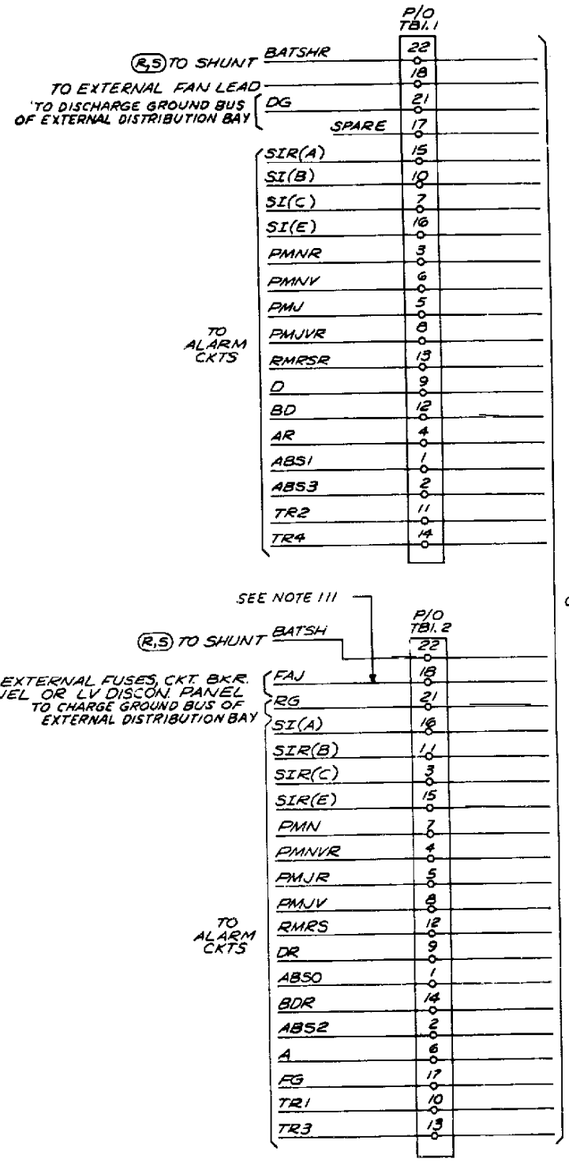


48VOLT PLANTS REQUIRING NON-ISOLATED CLOSURES



24VOLT PLANTS REQUIRING NON-ISOLATED CLOSURES





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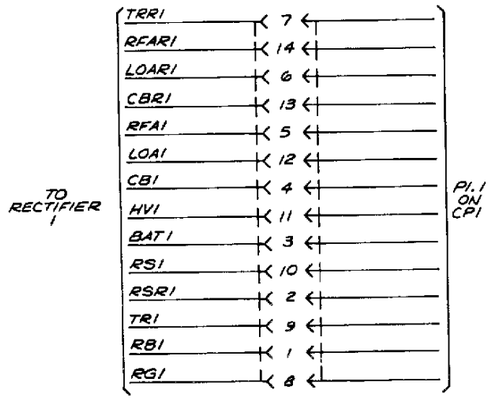
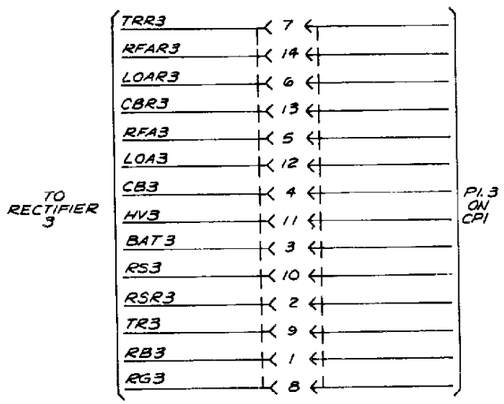
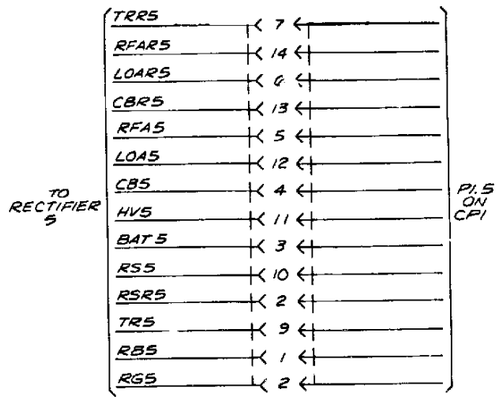
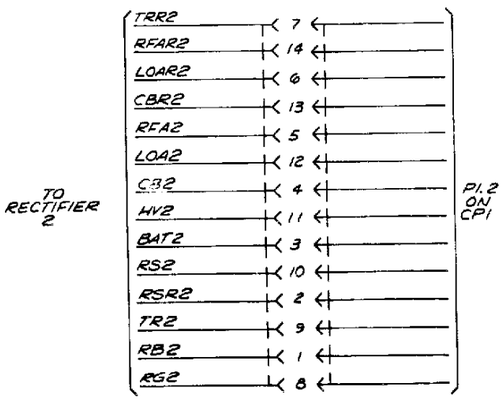
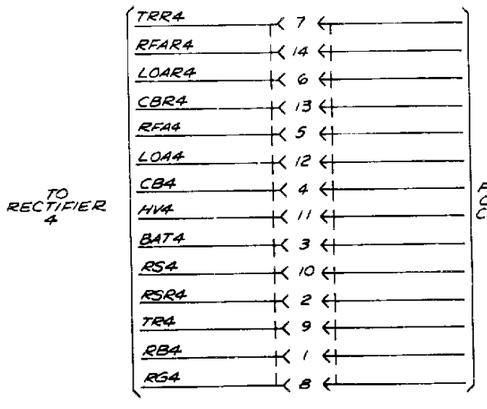
CAD 2

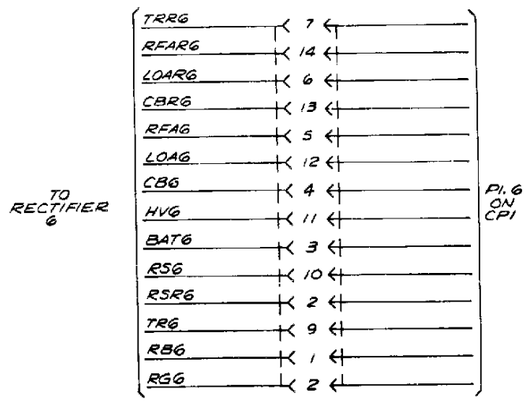












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DWG SIZE	ISSUE
6S	/

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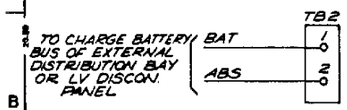
CAD 3

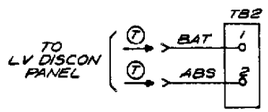
CAD 4

TB2 CONNECTIONS

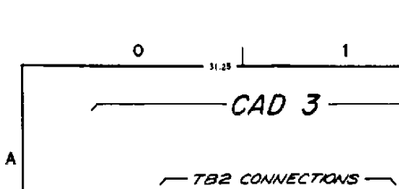
OPTION (S)



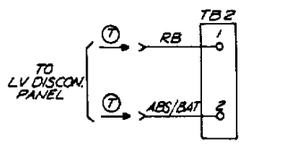
OPTION (Q)



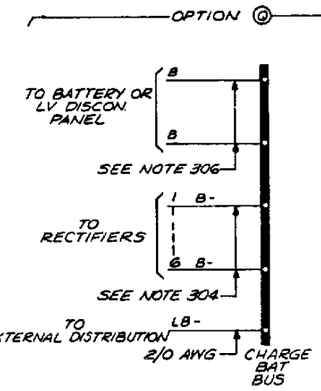
OPTION (R)



OPTION (V)



OPTION (Q)



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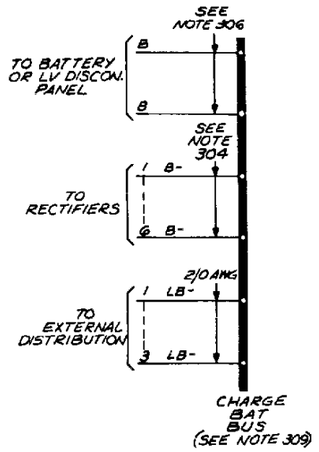

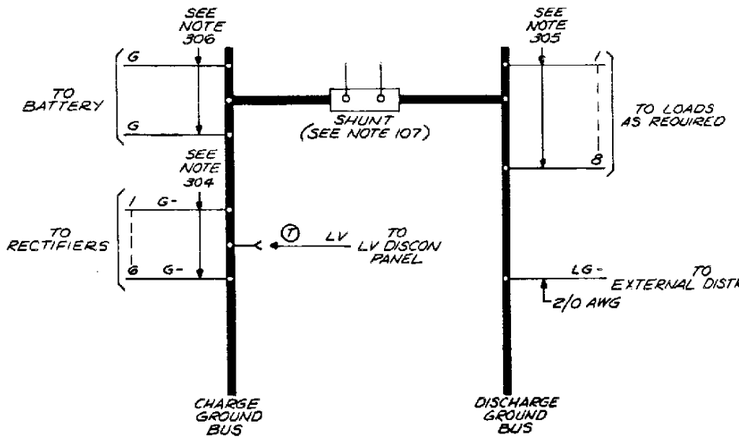

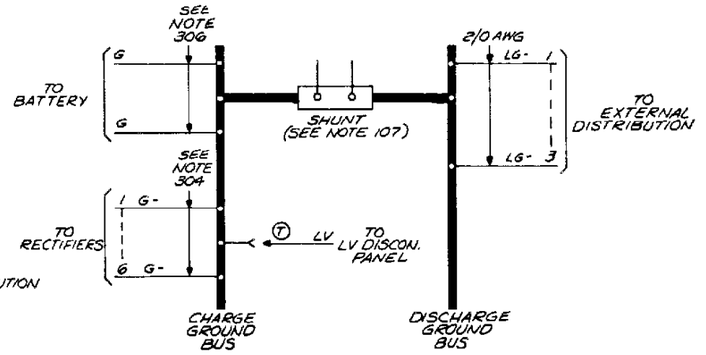

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DWG SIZE	ISSUE
B5	/

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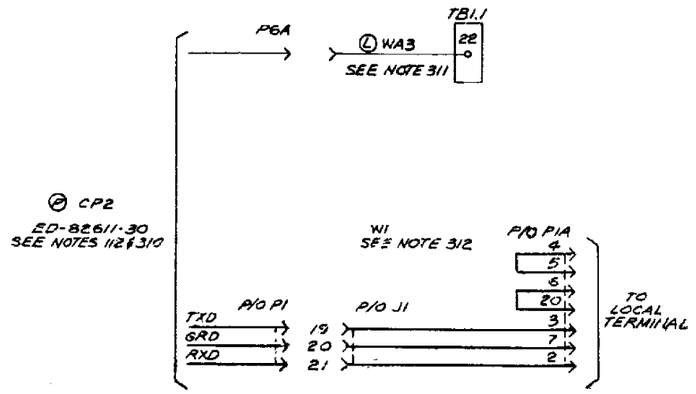
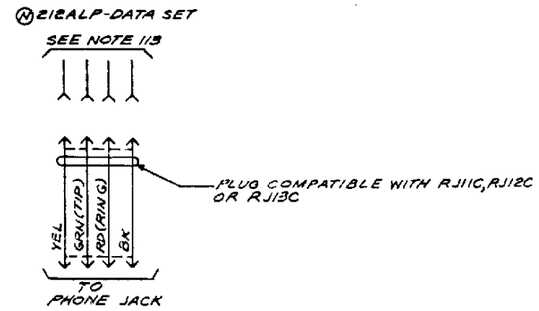
ⓟ CAD 5



Ⓝ CAD 6



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DWG SIZE: 8S

ISSUE: 2B

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