SHEET INDEX

CONTENTS	SHEET NO.	ISSUE NO. 1	2	3
SHEET INDEX AND SUPPORTING INFORMATION	A1	1	2	3
130 TYPE POWER UNIT INDEX TABLE AND SUPPORTING INFORMATION NOTE: WHEN REQUESTING DOCUMENTATION DRAWINGS MAYBE ORDERED SELECTIVELY FROM SHEET A2	A2	1	2	3
FS1 130A POWER UNIT	B1	1	2	2
FS2 130B POWER UNIT	B2	1	2	2
FS3 130C POWER UNIT	B3	1	2	2
FS4 130D POWER UNIT	B4	1	2	2
FS7 130G POWER UNIT	B7		2	2
FS8 130H POWER UNIT	B8		2	2
FS10 130K POWER UNIT	B10			3
APP FIG. 1 (130A POWER UNIT)	C1	1	2	2
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APP FIG. 4 (130D POWER UNIT)	C4	1	2	2
APP FIG. 7 (130G POWER UNIT)	C7		2	2
APP FIG. 8 (130H POWER UNIT)	C8		2	2
APP FIG. 10 (130K POWER UNIT)	C10			3
CIRCUIT NOTES	D1	1	1	1
EQUIPMENT AND INFORMATION NOTES	D2	1	2	3
CURRENT DRAINS TABLE	D3	1	2	3

CONTENTS	SHEET NO.	ISSUE NO.

DRWG ISSUE	CD ISSUE	DATE ISSUED		
1	1	6-21-76	WF	
2D	2D	2-17-77	WF	
3D	3D	8-30-77	FN WF	

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.

SUPPORTING INFORMATION

CATEGORY	NO.
(SEE SHEET A2) MANUFACTURING TESTING REQUIREMENTS	A-18089
UNIT MATING CONNECTOR	KS-21244,L1
BSRS	411.775
SUMMARIZING SPECIFICATION	BSP 161-202-100

ISSUE 3D

1M99

POWER SYSTEMS

DC TO DC CONVERTER CIRCUIT
130 TYPE POWER UNITS

-48V INPUT
REGULATED OUTPUT

(2)

AT&T CO
STANDARD

SD-82270-01-A1

19 SHEETS

BELL TELEPHONE LABORATORIES INCORPORATED

6S

130 TYPE POWER UNIT INDEX TABLE

POWER UNIT OUTPUTS			SUPPORTING INFORMATION		SHEET NUMBER																											
UNIT	VOLTS	AMPERE	CATEGORY	NO.	A1	A2				B1	B2	B3	B4			B7	B8		B10	C1	C2	C3	C4			C7	C8		C10	D1	D2	D3
130A	-5.0	0-5	EQUIPMENT DRAWING	A315410	✓	✓				✓										✓										✓	✓	✓
130B	-12.0	0-2	EQUIPMENT DRAWING	A315410	✓	✓					✓										✓									✓	✓	✓
130C	+15 -15	0.1-0.8 0.1-0.8	EQUIPMENT DRAWING	A363185	✓	✓						✓										✓								✓	✓	✓
130D	+12.0 -12.0	0-0.9 0-1.1	EQUIPMENT DRAWING	A363185	✓	✓							✓										✓							✓	✓	✓
130G	+5.0	0-5	EQUIPMENT DRAWING	A315410	✓	✓										✓										✓				✓	✓	✓
130H	+6.0 -6.0	0-2 0-2	EQUIPMENT DRAWING	A363185	✓	✓											✓													✓	✓	✓
130K	+15.8 -12.0	0.65 1.25	EQUIPMENT DRAWING	A364080	✓	✓													✓										✓	✓	✓	✓

ISSUE 3D

DC TO DC CONVERTER CIRCUIT
(130 TYPE POWER UNIT INDEX TABLE)

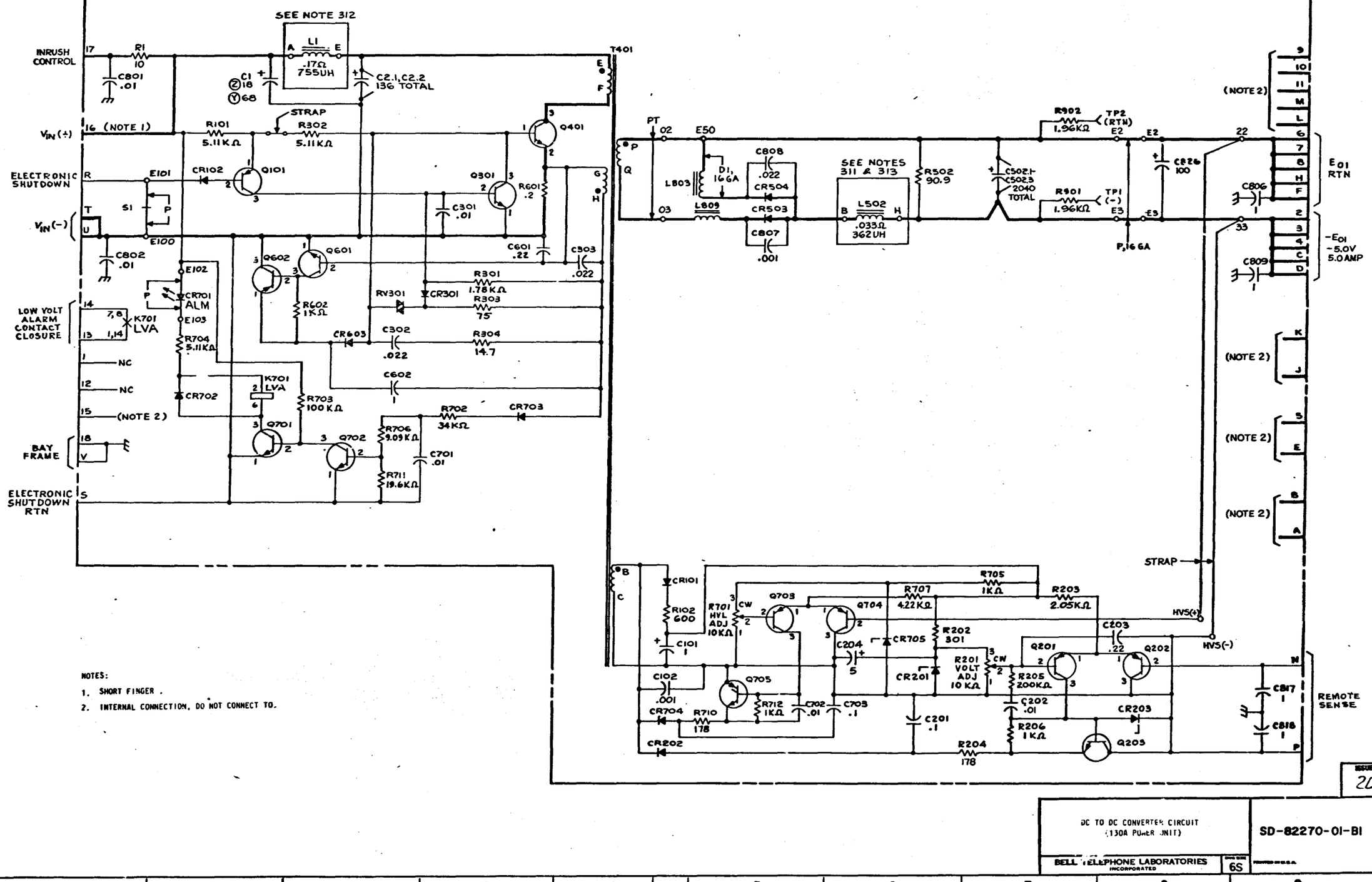
SD-82270-01-A2

BELL TELEPHONE LABORATORIES
INCORPORATED

6S

PRINTED IN U.S.A.

FS1
130A POWER UNIT



NOTES:

1. SHORT FINGER .
2. INTERNAL CONNECTION, DO NOT CONNECT TO.

ISSUE 20

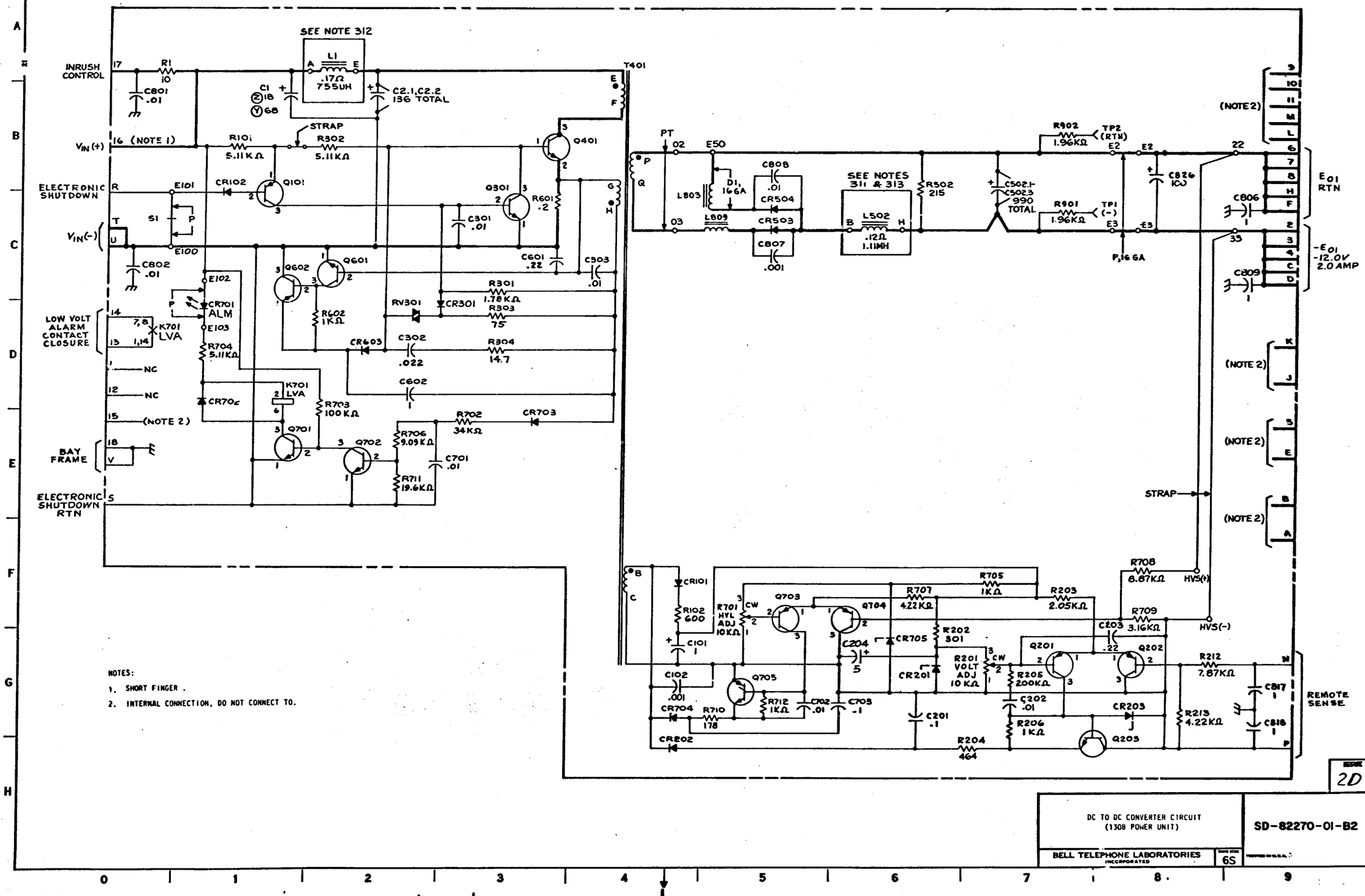
DC TO DC CONVERTER CIRCUIT
(130A POWER UNIT)

SD-82270-01-BI

BELL TELEPHONE LABORATORIES INCORPORATED

6S

FS 2
130B POWER UNIT



NOTES:

1. SHORT FINGER .
2. INTERNAL CONNECTION, DO NOT CONNECT TO.

ISSUE 2D

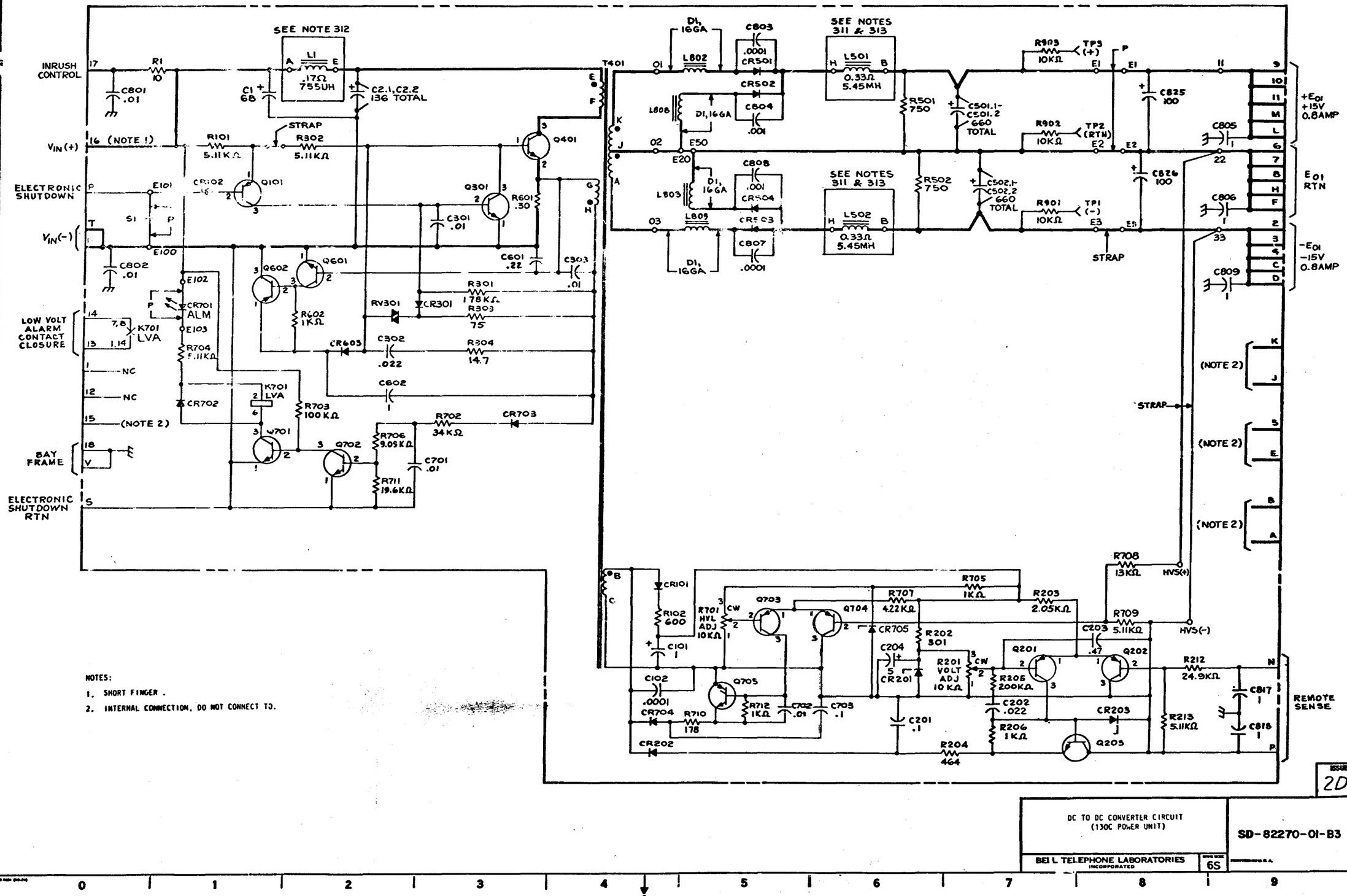
DC TO DC CONVERTER CIRCUIT
(130B POWER UNIT)

SD-82270-01-B2

BELL TELEPHONE LABORATORIES INCORPORATED

SHEET SIZE 6S

FS 3
130C POWER UNIT



NOTES:

1. SHORT FINGER .
2. INTERNAL CONNECTION, DO NOT CONNECT TO.

ISSUE 2D

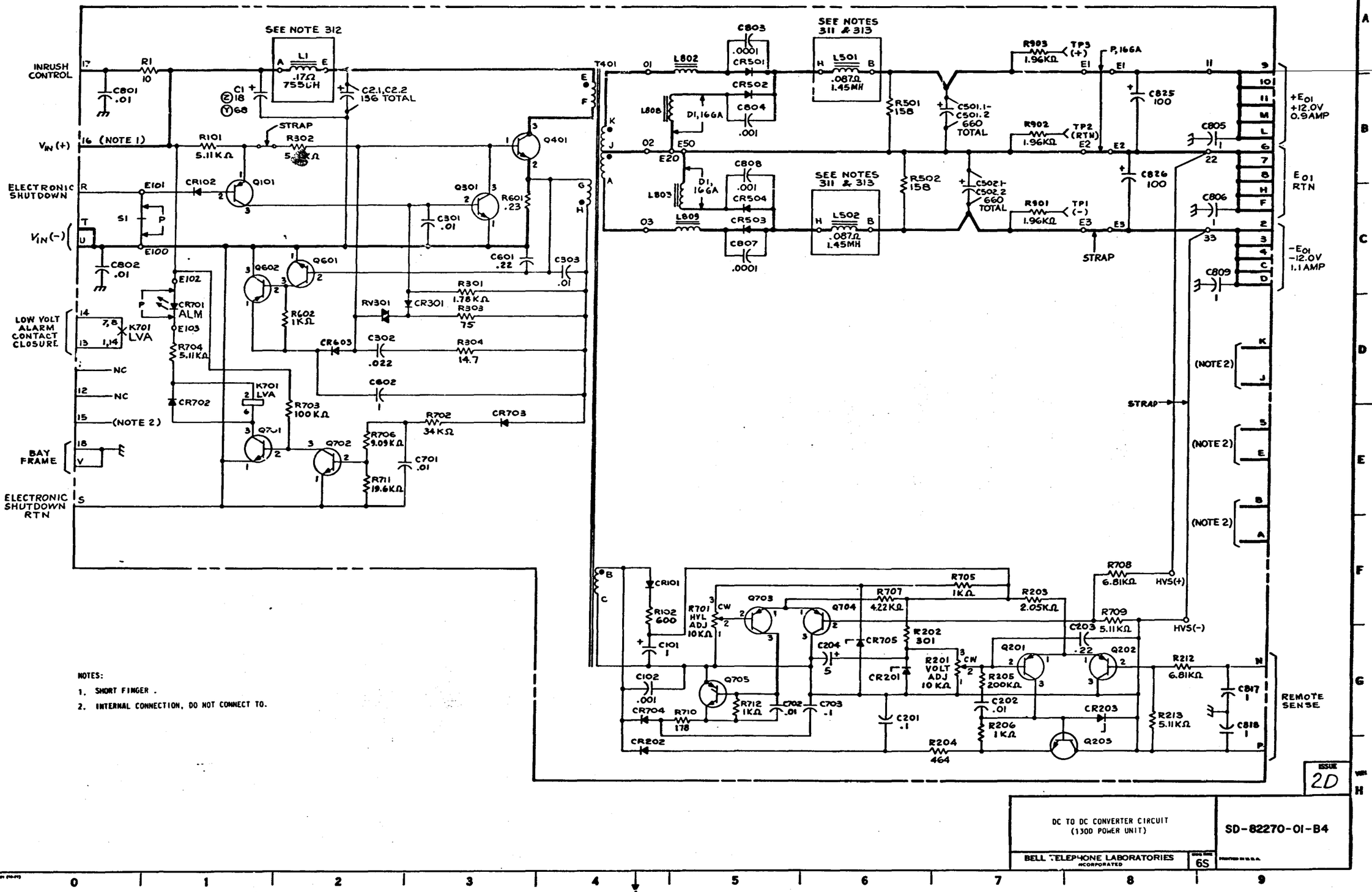
DC TO DC CONVERTER CIRCUIT
(130C POWER UNIT)

SD-82270-01-B3

BELL TELEPHONE LABORATORIES INCORPORATED

6S

FS 4
130D POWER UNIT



NOTES:

1. SHORT FINGER .
2. INTERNAL CONNECTION, DO NOT CONNECT TO.

ISSUE 2D

DC TO DC CONVERTER CIRCUIT (130D POWER UNIT)

SD-82270-01-B4

BELL TELEPHONE LABORATORIES INCORPORATED

6S

FS7
130G POWER UNIT

SEE NOTE 312

INRUSH CONTROL

V_{IN} (+)

ELECTRONIC SHUTDOWN

V_{IN} (−)

LOW VOLT ALARM CONTACT CLOSURE

BAY FRAME

ELECTRONIC SHUTDOWN RTN

NOTES:

1. SHORT FINGER
2. INTERNAL CONNECTION, DO NOT CONNECT TO.

STRAP

HV5(+)

HV5(−)

REMOTE SENSE

P,16 6A

DC TO DC CONVERTER CIRCUIT (130G POWER UNIT)

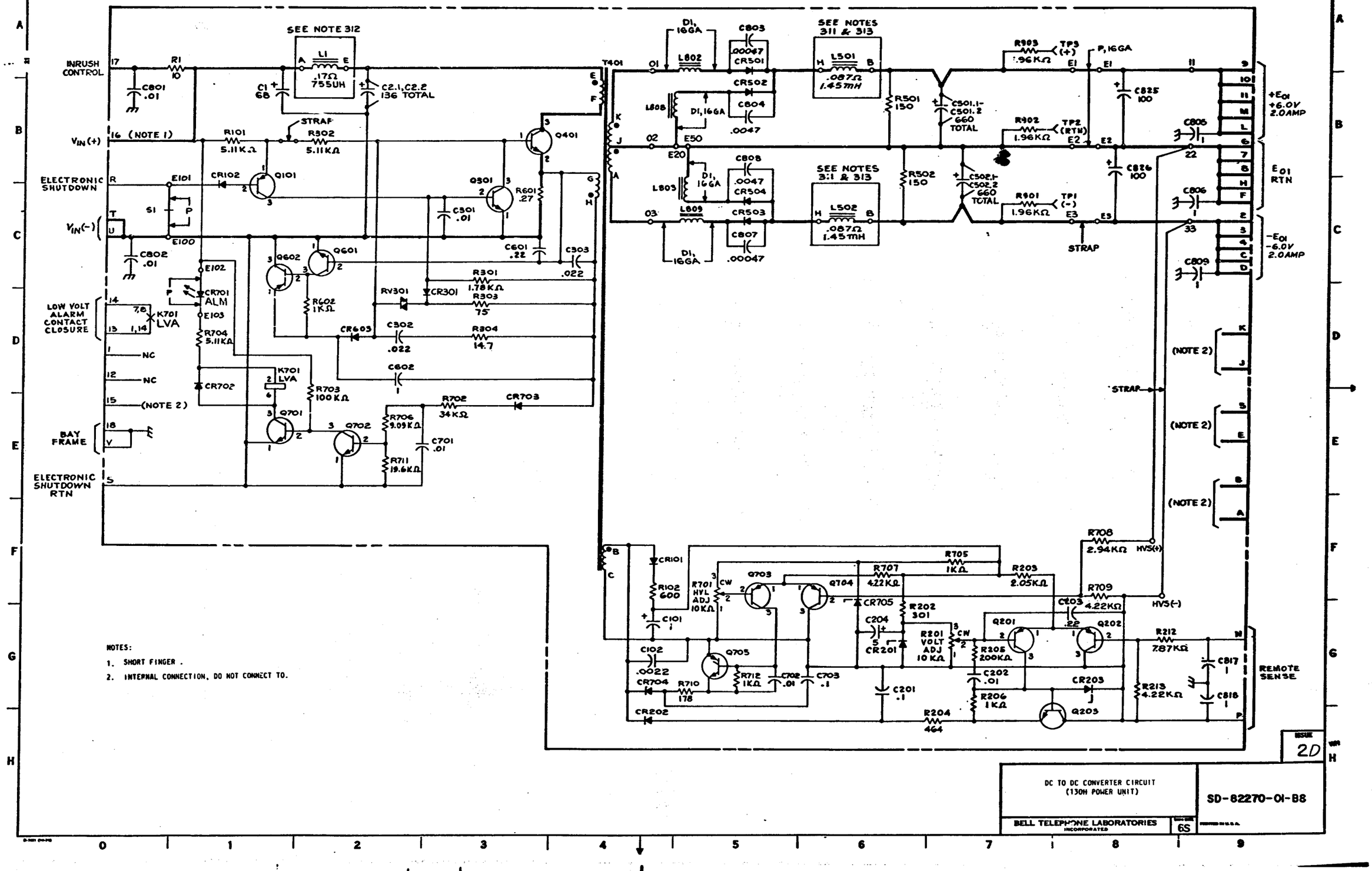
SD-82270-01-B7

BELL TELEPHONE LABORATORIES INCORPORATED

ISSUE 2D

SIZE 6S

FS8
130H POWER UNIT



ISSUE 2D

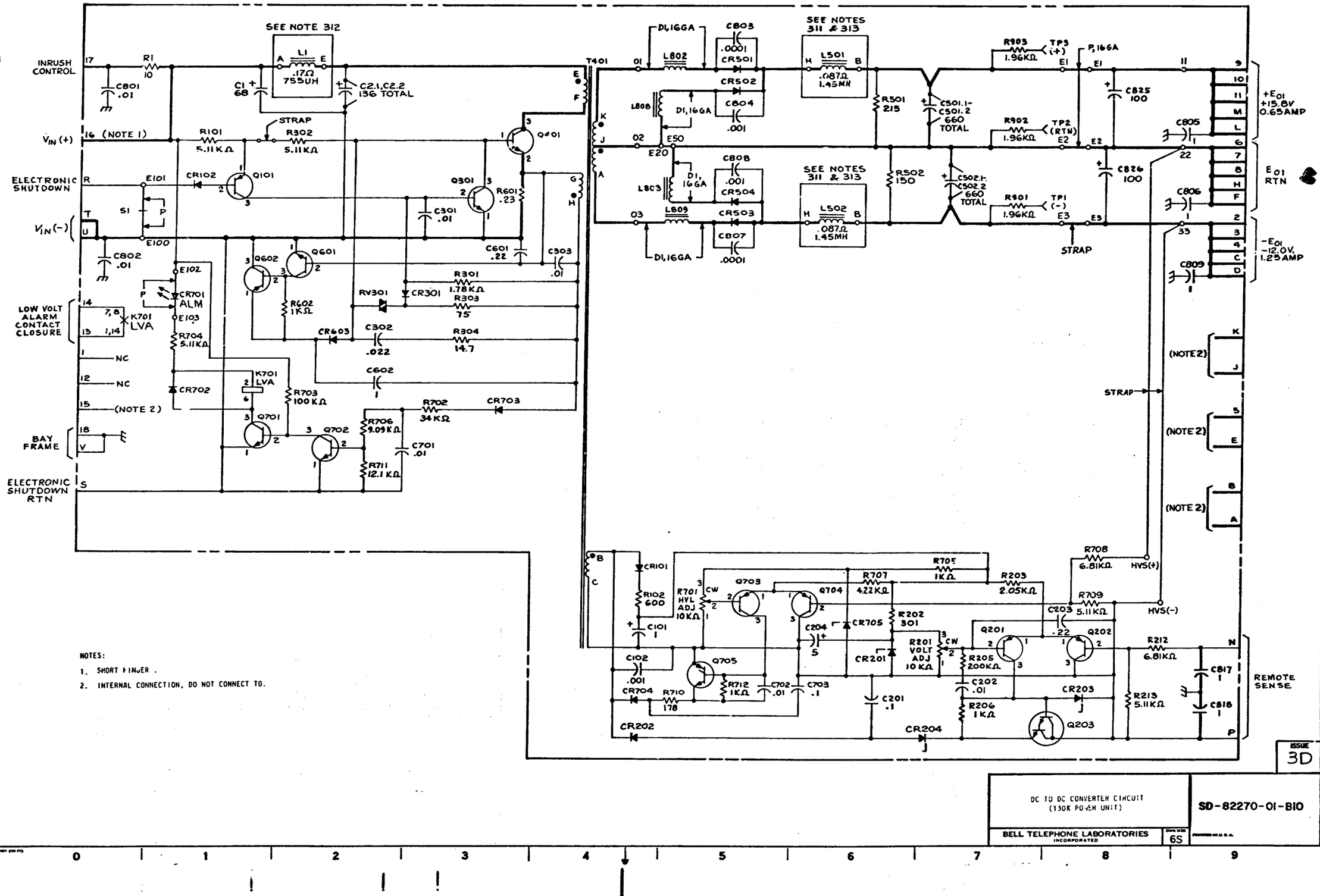
DC TO DC CONVERTER CIRCUIT
(130H POWER UNIT)

SD-82270-01-88

BELL TELEPHONE LABORATORIES
INCORPORATED

SIZE 6S

FS10
130K POWER UNIT



NOTES:

1. SHORT FINGER .
2. INTERNAL CONNECTION, DO NOT CONNECT TO.

ISSUE 3D

DC TO DC CONVERTER CIRCUIT (130K POWER UNIT)

SD-82270-01-B10

BELL TELEPHONE LABORATORIES INCORPORATED

DWG SIZE 6S

APP FIG. 1

130A POWER UNIT

RELAY

DESIG	LOC	CODE
K701	1D0, 1D1	KS-21457,L1 (SEE NOTE 314)

CAPACITOR

DESIG	LOC	CODE
C1	1B1	(1) SPRAGUE,672D686H060DM2C,68
		(2) SPRAGUE, 672D186H060CD2C, 18
[2] C2.1,C2.2	1B2	SPRAGUE, 672D686H060DM2C, 68
C101	1G4	600A, 1
C102	1G4	KS-19774,L1,.001
C201	1G6	KS-20736,L1,.1
C202	1G7	KS-19774,L1, .01
C203	1G8	KS-19774,L5,.22
C204	1G6	601A, 5
C301	1C3	KS-19774,L1,.01
C302	1D2	KS-19774,L5,.022
C303	1C3	KS-19774,L5,.022
[3] C502.1,C502.3	1C7	SPRAGUE, 672D687H6R30M2C, 680
C601	1C3	KS-19774,L5,.22
C602	1D2	KS-20736,L1,.1
C701	1E3	KS-19774,L1, .01
C702	1G5	KS-19774,L1, .01
C703	1G6	KS-20736,L1, .1
C801	1B0	KS-20480,L1, .01
C802	1C0	KS-20480,L1, .01
C806	1C8	KS-20736,L1, 1
C807	1C5	KS-19774,L1,.001
C808	1B5	KS-19774,L5, .022
C809	1C8	KS-20736,L1, 1
C817	1G9	KS-20736,L1, 1
C818	1G9	KS-20736,L1, 1
C826	1B7	(1) 653A,100
		(2) SPRAGUE,672D1C7H020DM2C,100

DIODE

DESIG	LOC	CODE
CR101	1F4	458C
CR102	1B1	458C
CR201	1G6	426AB
CR202	1H4	~~446A~~,533G
CR203	1G8	459BD
CR301	1D3	458C
CR503	1C5	485AE
CR504	1C5	485AE
CR603	1D2	458C
CR701	1D1	541A(LED)
CR702	1D1	458C
CR703	1E3	458C
CR704	1G4	~~446A~~,533G
CR705	1G6	459B

INDUCTOR

DESIG	LOC	CODE
L1	1A2	1300F
L502	1C6	1301B
L803	1C5	STACKPOLE, 57-1559
L809	1C5	STACKPOLE, 57-1559

POTENTIOMETER

DESIG	LOC	CODE
R201	1G7	KS-19055,L12, 10KΩ
R701	1F5	KS-19055,L12, 10KΩ

RESISTOR

DESIG	LOC	CODE
R1	1A0	KS-14603,L3A, 10
R101	1B1	KS-20289,L6C, 5.11KΩ
R102	1F4	KS-20810,L1A, 600
R202	1G6	KS-20616,L1A, 301
R203	1F7	KS-20616,L1A, 2.05KΩ
R204	1H6	KS-20810,L1A, 178
R205	1G7	KS-20616,L1A, 200KΩ
R206	1G7	KS-20616,L1A, 1KΩ
R301	1C3	KS-20616,L1A, 1.78KΩ
R302	1B2	KS-20289,L6C, 5.11KΩ
R303	1D3	KS-20810,L1A, 75
R304	1D3	KS-20616,L1A, 14.7
R502	1C6	KS-20289,L6C,90.9
R601	1C3	KS-20045,L3A,.2
R602	1D2	KS-20616,L1A, 1KΩ
R702	1E3	KS-20616,K1A, 34KΩ
R703	1E1	KS-20616,L1A, 100KΩ
R704	1D1	KS-20289,L6C, 5.11KΩ
R705	1F7	KS-20616,L1A, 1KΩ
R706	1E2	KS-20616,L1A, 9.09KΩ
R707	1F6	KS-20616,L1A, 4.22KΩ
R710	1G5	KS-20616,L1A, 178
R711	1E2	KS-20616,L1A, 19.6KΩ
R712	1G5	KS-20616,L1A, 1KΩ
R901	1C7	KS-2G616,L1A, 1.96KΩ
R902	1B7	KS-20616,L1A, 1.96KΩ

SWITCH

DESIG	LOC	CODE
S1	1C0	KS-19104,L17

TEST POINT

DESIG	LOC	CODE
TP1	1C8	KS-19427,L10
TP2	1B8	KS-19427,L10

TRANSFORMER

DESIG	LOC	CODE
T401	1A4	3000N

TRANSISTOR

DESIG	LOC	CODE
Q101	1B1	51A
Q201	1G7	51A
Q202	1G8	51A
Q203	1H7	92A
Q301	1C3	66S
Q401	1B3	KS-20836,L1
Q601	1C2	66S
Q602	1C1	51C
Q701	1E1	66J
Q702	1E2	66S
Q703	1F5	51A
Q704	1F6	51A
Q705	1G5	27C

VARISTOR

DESIG	LOC	CODE
RV301	1D2	100J

ISSUE 2D

DC TO DC CONVERTER CIRCUIT (130A POWER UNIT)

SD-82270-01-CI

BELL TELEPHONE LABORATORIES INCORPORATED

6S

APP FIG. 2

1308 POWER UNIT

RELAY

DESIG	LOC	CODE
K701	2D0, 2D1	KS-21457,L1 (SEE NOTE 314)

CAPACITOR

DESIG	LOC	CODE
C1	2B1	(1) SPRAGUE,672D686H060DM2C,68 (2) SPRAGUE, 672D186H060CD2C, 18
[2] C2.1,C2.2	2B2	SPRAGUE, 672D686H060DM2C, 68
C101	2G4	600A, 1
C102	2G4	KS-19774,L1,.001
C201	2G6	KS-20736,L1, .1
C202	2G7	KS-19774,L1, .01
C203	2G8	KS-19774,L5, .22
C204	2G6	601A, 5
C301	2C3	KS-19774,L1, .01
C302	2D2	KS-19774,L5, .022
C303	2C3	KS-19774,L1,.01
[3] C502.1, C502.3	2C7	SPRAGUE, 672D337H020DM2C, 330
C601	2C3	KS-19774,L5, .22
C602	2D2	KS-20736,L1, 1
C701	2E3	KS-19774,L1, .01
C702	2G5	KS-19774,L1, .01
C703	2G6	KS-20736,L1, .1
C801	2B0	KS-20480,L1, .01
C802	2C0	KS-20480,L1, .01
C806	2C8	KS-20736,L1, 1
C807	2C5	KS-19774,L1, .001
C808	2B5	KS-19774,L1, .01
C809	2C8	KS-20736,L1, 1
C817	2G9	KS-20736,L1, 1
C818	2G9	KS-20736,L1, 1
C826	2B7	(1) 653A,100 (2) SPRAGUE,672D107H020CG2C,100

DIODE

DESIG	LOC	CODE
CR101	2F4	458C
CR102	2B1	458C
CR201	2G6	426AB
CR202	2H4	~~4464~~,533B
CR203	2G8	459BD
CR301	2D3	458C
CR503	2C5	485AE
CR504	2C5	485AE
CR603	2D2	458C
CR701	2D1	541A(LED)
CR702	2D1	458C
CR703	2E3	458C
CR704	2G4	~~4464~~,533G
CR705	2G6	459B

INDUCTOR

DESIG	LOC	CODE
L1	2A2	1300F
L502	2C6	1301A
L803	2C5	STACKPOLE, 57-1559
L809	2C5	STACKPOLE, 57-1559

POTENTIOMETER

DESIG	LOC	CODE
R201	2G7	KS-19055,L12, 10KΩ
R701	2F5	KS-19055,L12, 10KΩ

RESISTOR

DESIG	LOC	CODE
R1	2A0	KS-14603,L3A, 10
R101	2B1	KS-20289,L6C, 5.11KΩ
R102	2F4	KS-20810,L1A, 600
R202	2G6	KS-20616,L1A, 301
R203	2F7	KS-20616,L1A, 2.05KΩ
R204	2H6	KS-20810,L1A, 464
R205	2G7	KS-20616,L1A, 200KΩ
R206	2G7	KS-20616,L1A, 1KΩ
R212	2F8	KS-20616,L1A, 7.87KΩ
R213	2G8	KS-20616,L1A, 4.22KΩ
R301	2C3	KS-20616,L1A, 1.78KΩ
R302	2B2	KS-20289,L6C, 5.11KΩ
R303	2D3	KS-20810,L1A, 75
R304	2D3	KS-20616,L1A, 14.7
R502	2C6	KS-20289,L6C, 215
R601	2C3	KS-20045,L3A, .2
R602	2D2	KS-20616,L1A, 1KΩ
R702	2E3	KS-20616,K1A, 34KΩ
R703	2E1	KS-20616,L1A, 100KΩ
R704	2D1	KS-20289,L6C, 5.11KΩ
R705	2F7	KS-20616,L1A, 1KΩ
R706	2E2	KS-20616,L1A, 9.09KΩ
R707	2F6	KS-20616,L1A, 4.22KΩ
R708	2F8	KS-20616,L1A, 8.87KΩ
R709	2F8	KS-20616,L1A, 3.16KΩ
R710	2G5	KS-20616,L1A, 178
R711	2E2	KS-20616,L1A, 19.6KΩ
R712	2G5	KS-20616,L1A, 1KΩ
R901	2C7	KS-20616,L1A, 1.96KΩ
R902	2B7	KS-20616,L1A, 1.96KΩ

SWITCH

DESIG	LOC	CODE
S1	2C0	KS-19104,L17

TEST POINT

DESIG	LOC	CODE
TP1	2C8	KS-19427,L10
TP2	2B8	KS-19427,L10

TRANSFORMER

DESIG	LOC	CODE
T401	2A4	3000P

TRANSISTOR

DESIG	LOC	CODE
Q102	2B1	51A
Q201	2G7	51A
Q202	2G8	51A
Q203	2H7	92A
Q301	2C3	66S
Q401	2B3	KS-20836,L1
Q601	2C2	66S
Q602	2C1	51C
Q701	2E1	66J
Q702	2E2	66S
Q703	2F5	51A
Q704	2F6	51A
Q705	2G5	27C

VARISTOR

DESIG	LOC	CODE
RV301	2D2	100J

ISSUE 2D

DC TO DC CONVERTER CIRCUIT (130B POWER UNIT)

SD-82270-01-C2

BELL TELEPHONE LABORATORIES INCORPORATED

6S

APP FIG. 3

130C POWER UNIT

RELAY

DESIG	LOC	CODE
K701	3D0,3D1	KS-21457,L1 (SEE NOTE 314)

CAPACITOR

DESIG	LOC	CODE
C1	3B1	SPRAGUE, 672D686H060DM2C, 68
[2] C2.1,C2.2	3B2	SPRAGUE, 672D686M060DM2C, 68
C101	3C[illegible]	600A, 1
C102	[illegible]	KS-19774,L1, .0001
C201	3G6	KS-20736,L1, .1
C202	3G7	KS-19774,L5, .022
C203	3G8	KS-19774,L5, .47
C204	3G6	601A, 5
C301	3C3	KS-19774,L1, .01
C302	3D2	KS-19774,L5, .022
C303	3C3	KS-19774,L1, .01
[2] C501.1,C501.2	3B?	SPRAGUE, 672D337H020DM2C, 330
[2] C502.1,C502.2	3C?	SPRAGUE, 672D337H020DM2C, 330
C601	3C3	KS-19774,L5, .22
C602	3D2	KS-20736,L1, 1
C701	3E3	KS-19774,L1, .01
C702	3G5	KS-19774,L1, .01
C703	3G6	KS-20736,L1, .1
C801	3B0	KS-20480,L1, .01
C802	3C0	KS-20480,L1, .01
C803	3A5	KS-19774,L1, .0001
C804	3B5	KS-19774,L1, .001
C805	3B8	KS-20736,L1, 1
C806	3C8	KS-20736,L1, 1
C807	3C5	KS-19774,L1, .0031
C808	3B5	KS-19774,L1, .001
C809	3C8	KS-20736,L1, 1
C817	3G9	KS-20736,L1, 1
C818	3G9	KS-20736,L1, 1
C825	3B7	653A,100
C826	3B7	653A,100

DIODE

DESIG	LOC	CODE
CR101	3F4	458C
CR102	3B1	458C
CR201	3G6	426AB
CR202	3H4	~~446A~~,533G
CR203	3G8	459BD
CR301	3D3	458C
CR501	3B5	485AU
CR502	3B5	485AU
CR503	3C5	485AE
CR504	3C5	485AE
CR603	3D2	458C
CR701	3D1	541A(LED)
CR702	3D1	458C
CR703	3E3	458C
CR704	3G4	~~446A~~,533G
CR705	3G6	459B

INDUCTOR

DESIG	LOC	CODE
L1	3A2	1300F
L501	3A6	1301K
L502	3C6	1301K
L802	3A5	STACKPOLE, 57-1559
L803	3C5	STACKPOLE, 57-1559
L808	3F5	STACKPOLE, 57-1559
L809	3C5	STACKPOLE, 57-1559

POTENTIOMETER

DESIG	LOC	CODE
R201	3G7	KS-19055,L12, 10KΩ
R701	3F5	KS-19055,L12, 10KΩ

RESISTOR

DESIG	LOC	CODE
R1	3A0	KS-14603,L3A, 10
R101	3B1	KS-20289,L6C, 5.11KΩ
R102	3F4	KS-20810,L1A, 600
R202	3G6	KS-20616,L1A, 301
R203	3F7	KS-20616,L1A, 2.05 KΩ
R204	3H6	KS-20810,L1A, 464
R205	3G7	KS-20616,L1A, 200KΩ
R206	3G7	KS-20616,L1A, 1KΩ
R212	3F8	KS-20616,L1A, 24.9KΩ
R213	3G8	KS-20616,L1A, 5.11KΩ
R301	3C3	KS-20616,L1A, 1,78KΩ
R302	3B2	KS-20289,L6C, 5.11KΩ
R303	3D3	KS-20810,L1A, 75
R304	3D3	KS-20616,L1A, 14.7
R501	3B6	KS-20289,L6C, 750
R502	3C6	KS-20289,L6C, 750
R601	3C3	KS-20045,L3A, .30
R602	3D2	KS-20616,L1A,1KΩ
R702	3E3	KS-20616,L1A, 34KΩ
R703	3E1	KS-20616,L1A, 100KΩ
R704	3D1	KS-20289,L6C, 5.11KΩ
R705	3F7	KS-20616,L1A, 1KΩ
R706	3E2	KS-20616,L1A, 9.09KΩ
R707	3F6	KS-20616,L1A, 4.22KΩ
R708	3F8	KS-20616,L1A, 13KΩ
R709	3F8	KS-20616,L1A, 5.11KΩ
R710	3G5	KS-20616,L1A, 178
R711	3E2	KS-20616,L1A, 19.6KΩ
R712	3G5	KS-20616,L1A, 1KΩ
R901	3C7	KS-20616,L1A, 10KΩ
R902	3B7	KS-20616,L1A, 10KΩ
R903	3A7	KS-20616,L1A, 10KΩ

SWITCH

DESIG	LOC	CODE
S1	3C0	KS-19104,L17

TEST POINT

DESIG	LOC	CODE
TP1	3C8	KS-19427,L10
TP2	3B8	KS-19427,L10
TP3	3A8	KS-19427,L10

TRANSFORMER

DESIG	LOC	CODE
T4001	3A4	3000W

TRANSISTOR

DESIG	LOC	CODE
Q1001	3A1	51A
Q2001	3G7	51A
Q2002	3G8	51A
Q2003	3H7	92A
Q3001	3C3	66S
Q4001	3B3	KS-20836,L1
Q6001	3C2	66S
Q6002	3C1	51C
Q7001	3E1	66J
Q7002	3E2	66S
Q7003	3F5	51A
Q7004	3F6	51A
Q7005	3G5	27C

VARISTOR

DESIG	LOC	CODE
RV3001	3D2	100J

ISSUE 2D

DC TO DC CONVERTER CIRCUIT (130C POWER UNIT)

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BELL TELEPHONE LABORATORIES INCORPORATED

6S

APP FIG. 4

1300 POWER UNIT

RELAY

DESIG	LOC	CODE
K701	4D0,4D1	KS-21457,L1 (SEE NOTE 314)

CAPACITOR

DESIG	LOC	CODE
C1	4B1	(Y) SPRAGUE,672D686H060DM2C,68 (Z) SPRAGUE, 672D186H060CD2C, 18
[2] C2.1,C2.2	4B2	SPRAGUE, 672D686H060DM2C, 68
C101	4G4	600A, 1
C102	4G4	KS-19774,L1, .001
C201	4G6	KS-20736,L1, .1
C202	4G7	KS-19774,L1, .01
C203	4G8	KS-19774,L5, .22
C204	4G6	601A, 5
C301	4C3	KS-19774,L1, .01
C302	4D2	KS-19774,L5, .022
C303	4C3	KS-19774,L1, .01
[2] C501.1,C501. 2	4B7	SPRAGUE, 672D337H020DM2C, 330
[2] C502.1,C502. 2	4C7	SPRAGUE, 672D337H020DM2C, 330
C601	4C3	KS-19774,L5, .22
C602	4D2	KS-20736,L1, 1
C701	4E3	KS-19774,L1, .01
C702	4G5	KS-19774,L1, .01
C703	4G6	KS-20736,L1, .1
C801	4B0	KS-20480,L1, .01
C802	4C0	KS-20480,L1, .01
C803	4A5	KS-19774,L1, .0001
C804	4B5	KS-19774,L1, .001
C805	4B8	KS-20736,L1, 1
C806	4C8	KS-20736,L1, 1
C807	4C5	KS-19774,L1, .0001
C808	4B5	KS-19774,L1, .001
C809	4C8	KS-20736,L1, 1
C817	4G9	KS-20736,L1, 1
C818	4G9	KS-20736,L1, 1
C825	4B7	(Y) 653A,100 (Z) SPRAGUE,672D107H020CG2C,100
C826	4B7	(Y) 653A,100 (Z) SPRAGUE,672D107H020CG2C,100

DIODE

DESIG	LOC	CODE
CR101	4F4	458C
CR102	4B1	458C
CR201	4G6	426AB
CR202	4H8	~~446A~~,533G
CR203	4G8	459BD
CR301	4D3	458C
CR501	4A5	485AU
CR502	4B5	485AE
CR503	4C5	485AE
CR504	4C5	485AU
CR603	4D2	458C
CR701	4D1	541A(LED)
CR702	4D1	458C
CR703	4E3	458C
CR704	4G4	~~446A~~,533G
CR705	4G6	459B

INDUCTOR

DESIG	LOC	CODE
L1	4A2	1300F
L501	4A6	1301J
L502	4C6	1301J
L802	4A5	STACKPOLE, 57-1559
L803	4C5	STACKPOLE, 57-1559
L808	4B5	STACKPOLE, 57-1559
L809	4C5	STACKPOLE, 57-1559

POTENTIOMETER

DESIG	LOC	CODE
R201	4G7	KS-19055,L12, 10KΩ
R701	4F5	KS-19055,L12 10KΩ

RESISTOR

DESIG	LOC	CODE
R1	4A0	KS-14603,L3A, 10
R101	4B1	KS-20289,L6C, 5.11KΩ
R102	4F4	KS-20810,L1A, 600
R202	4G6	KS-20616,L1A, 301
R203	4F7	KS-20616,L1A, 2.05KΩ
R204	4H6	KS-20810,L1A, 464
R205	4G7	KS-20616,L1A, 200KΩ
R206	4G7	KS-20616,L1A, 1KΩ
R212	4F8	KS-20616,L1A, 6.81KΩ
R213	4G8	KS-20616,L1A, 5.11KΩ
R301	4B3	KS-20616,L1A, 1.78KΩ
R302	4B2	KS-20289,L6C, 5.11KΩ
R303	4D3	KS-20810,L1A, 75
R304	4D3	KS-20616,L1A, 14.7
R501	4B6	KS-20289,L6C, 158
R502	4C6	KS-20289,L6C, 158
R601	4C3	KS-20045,L3A, .23
R602	4D2	KS-20616,L1A, 1KΩ
R702	4E3	KS-20616,K1A, 34KΩ
R703	4E1	KS-20616,L1A, 100KΩ
R704	4D1	KS-20289,L6C, 5.11KΩ
R705	4F7	KS-20616,L1A, 1KΩ
R706	4E2	KS-20616,L1A, 9.09KΩ
R707	4F6	KS-20616,L1A, 4.22KΩ
R708	4F8	KS-20616,L1A, 6.81KΩ
R709	4F8	KS-20616,L1A, 5.11KΩ
R710	4G5	KS-20616,L1A, 178
R711	4E2	KS-20616,L1A, 19.6KΩ
R712	4G5	KS-20616,L1A, 1KΩ
R901	4C7	KS-20616,L1A, 1.96KΩ
R902	4B7	KS-20616,L1A, 1.96KΩ
R903	4A7	KS-20616,L1A, 1.96KΩ

SWITCH

DESIG	LOC	CODE
S1	4C0	KS-19104,L17

TEST POINT

DESIG	LOC	CODE
TP1	4C8	KS-19427,L10
TP2	4B8	KS-19427,L10
TP3	4A8	KS-19427,L10

TRANSFORMER

DESIG	LOC	CODE
T401	4A4	3000U

TRANSISTOR

DESIG	LOC	CODE
Q101	4B1	51A
Q201	4G7	51A
Q202	4G8	51A
Q203	4H7	92A
Q301	4C3	66S
Q401	4B3	KS-20836,L1
Q601	4C2	66S
Q602	4C1	51C
Q701	4E1	66J
Q702	4E2	66S
Q703	4F5	51A
Q704	4F6	51A
Q705	4G5	27C

VARISTOR

DESIG	LOC	CODE
RV301	4D2	100J

ISSUE 2D

DC TO DC CONVERTER CIRCUIT (1300 POWER UNIT)

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BELL TELEPHONE LABORATORIES INCORPORATED

SIZE 6S

APP FIG. 7
130G POWER UNIT

RELAY

DESIG	LOC	CODE
K701	7B0,7D1	KS-21457,L1 (SEE NOTE 314)

CAPACITOR

DESIG	LOC	CODE
C1	7B1	SPRAGUE,672D686H060DM2C,68
[2] C2.1,C2.2	7B2	SPRAGUE, 672D686H060DM2C, 68
C101	7E4	500A, 1
C102	7E4	KS-19774,L1,.001
C201	7E6	KS-20736,L1,.1
C202	7E7	KS-19774,L1, .01
C203	7E8	KS-19774,L5,.22
C204	7E6	601A, 5
C301	7C3	KS-19774,L1,.01
C302	7D2	KS-19774,L5,.022
C303	7C3	KS-19774,L5,.022
[3] C501.1-C501.3	7C7	SPRAGUE, 672D687H6R3DM2C, 680
C601	7C3	KS-19774,L5,.22
C602	7D2	KS-20736,L1,1
C701	7E3	KS-19774,L1, .01
C702	7E5	KS-19774,L1, .01
C703	7E6	KS-20736,L1, .1
C801	7B0	KS-20480,L1, .01
C802	7C0	KS-20480,L1, .01
C803	7A5	KS-19774,L1,.001
C804	7B5	KS-19774,L5,.022
C805	7B8	KS-20706,L1,1
C806	7C8	KS-20736,L1,1
C817	7G9	KS-20736,L1,1
C818	7G9	KS-20736,L1,1
C825	7B7	653A,100

DIODE

DESIG	LOC	CODE
CR101	7F4	458C
CR102	7B1	458C
CR201	7E6	426AB
CR202	7B8	~~446A~~ ,533G
CR203	7E8	459BD
CR301	7B3	458C
CR501	7C5	485AU
CR502	7C5	485AU
CR603	7D2	458C
CR701	7D1	541A(LED)
CR702	7D1	458C
CR703	7E3	458C
CR704	7E4	~~446A~~,5,3G
CR705	7E6	459B

INDUCTOR

DESIG	LOC	CODE
L1	7A2	1300F
L501	7C6	1301B
L802	7C5	STACKPOLE, 57-1559
L802	7C5	STACKPOLE, 57-1559

POTENTIOMETER

DESIG	LOC	CODE
R201	7E7	KS-19055,L12, 10KΩ
R701	7F5	KS-19055,L12, 10KΩ

RESISTOR

DESIG	LOC	CODE
R1	7A0	KS-14603,L3A, 10
R101	7B1	KS-20289,L6C, 5.11KΩ
R102	7F4	KS-20810,L1A, 600
R202	7E6	KS-20616,L1A, 301
R203	7F7	KS-20616,L1A, 2.05KΩ
R204	7H6	KS-20810,L1A, 178
R205	7E7	KS-20616,L1A, 200KΩ
R206	7E7	KS-20616,L1A, 1KΩ
R301	7C3	KS-20616,L1A, 1.78KΩ
R302	7B2	KS-20289,L6C, 5.11KΩ
R303	7D3	KS-20810,L1A, 75
R304	7D3	KS-20616,L1A, 14.7
R501	7C6	KS-20289,L6C, 51.1
R601	7C3	KS-20045,L3A,.2
R602	7D2	KS-20616,L1A, 1KΩ
R702	7E3	KS-20616,K1A, 34KΩ
R703	7E1	KS-20616,L1A, 100KΩ
R704	7D1	KS-20289,L6C, 5.11KΩ
R705	7F7	KS-20616,L1A, 1KΩ
R706	7E2	KS-20616,L1A, 9.09KΩ
R707	7F6	KS-20616,L1A, 4.22KΩ
R710	7G5	KS-20616,L1A, 178
R711	7E2	KS-20616,L1A, 19.6KΩ
R712	7G5	KS-20616,L1A, 1KΩ
R902	7C7	KS-20616,L1A, 1.96KΩ
R903	7B7	KS-20616,L1A, 1.96KΩ

SWITCH

DESIG	LOC	CODE
S1	7C0	KS-19104,L17

TEST POINT

DESIG	LOC	CODE
TP2	7C8	KS-19427,L10
TP3	7B8	KS-19427,L10

TRANSFORMER

DESIG	LOC	CODE
T401	7A4	3000M

TRANSISTOR

DESIG	LOC	CODE
Q101	7E1	51A
Q201	7G7	51A
Q202	7G8	51A
Q203	7H7	92A
Q301	7C3	66S
Q401	7B3	KS-20836,L1
Q601	7C2	66S
Q602	7C1	51C
Q701	7E1	66J
Q702	7E2	66S
Q703	7F5	51A
Q704	7F6	51A
Q705	7G5	27C

VARISTOR

DESIG	LOC	CODE
RV301	7D2	100J

ISSUE 2D

DC TO DC CONVERTER CIRCUIT (130G POWER UNIT)

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BELL TELEPHONE LABORATORIES INCORPORATED

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APP FIG. 8

130H POWER UNIT

RELAY

DESIG	LOC	CODE
K701	8D0,8D1	KS-21457,L1 (SEE NOTE 314)

CAPACITOR

DESIG	LOC	CODE
C1	8B1	SPRAGUE, 672D686H06[illegible]M2C,68
[2] C2.1,C2.2	8B2	SPRAGUE, 672D686H06[illegible]M2C, 68
C101	8G4	60JA, 1
C102	8G4	KS-19774,L1, .0022
C201	8G6	KS-20736,L1, .1
C202	8G7	KS-19774,L1, .01
C203	8G8	KS-19774,L5, .22
C204	8G6	601A, 5
C301	8C3	KS-19774,L1, .01
C302	8D2	KS-19774,L5, .022
C303	8C3	KS-19774,L5, .022
[2] C501.1,C501.2	8B7	SPRAGUE, 672D337H0[illegible]M2C, 330
[2] C502.1,C502.2	8C7	SPRAGUE, 672D337H0[illegible]M2C, 330
C601	8C3	KS-19774,L5, .22
C602	8D2	KS-20736,L1, 1
C701	8E3	KS-19774,L1, .01
C702	8G5	KS-19774,L1, .01
C703	8G6	KS-20736,L1, .1
C801	8B0	KS-20480,L1, .01
C802	8C0	KS-20480,L1, .01
C803	8A5	KS-19774,L1, .00047
C804	8B5	KS-19774,L1, .0047
C805	8B8	KS-20736,L1, 1
C806	8C8	KS-20736,L1, 1
C807	8C5	KS-19774,L1, .00047
C808	8B5	KS-19774,L1, .0047
C809	8C8	KS-20736,L1, 1
C817	8G9	KS-20736,L1, 1
C818	8G9	KS-20736,L1, 1
C825	8B7	653A,100
C826	8B7	653A,100

DIODE

DESIG	LOC	CODE
CR101	8F4	458C
CR102	8B1	458C
CR201	8G6	426AB
CR202	8H4	~~446A~~ ,553G
CR203	8G8	459BD
CR301	8D3	458C
CR501	8A5	485AU
CR502	8B5	485AE
CR503	8C5	485AE
CR504	8C5	485AU
CR6C3	8D2	458C
CR701	8D1	541A(LED)
CR702	8D1	458C
CR703	8E3	458C
CR704	8G4	~~446A~~ ,553G
CR705	8G6	459B

INDUCTOR

DESIG	LOC	CODE
L1	8A2	1300F
L501	8A6	1301J
L502	8C6	1301J
L802	8A5	STACKPOLE, 57-1559
L803	8C5	STACKPOLE, 57-1559
L808	8B5	STACKPOLE, 57-1559
L809	8C[illegible]	STACKPOLE, 57-1559

POTENTIOMETER

DESIG	LOC	CODE
R201	8G7	KS-19055,L12, 10KΩ
R701	8F5	KS-19055,L12, 10KΩ

RESISTOR

DESIG	LOC	CODE
R1	8A0	KS-14603,L3A, 10
R101	8B1	KS-20289,L6C, 5.11KΩ
R102	8F4	KS-20810,L1A, 600
R202	8G6	KS-20616,L1A, 301
R203	8F7	KS-20616,L1A, 2.05 KΩ
R204	8H6	KS-20810,L1A, 464
R205	8G7	KS-20616,L1A, 200KΩ
R206	8G7	KS-20616,L1A, 1KΩ
R212	8F8	KS-20616,L1A, 7.87KΩ
R213	8G8	KS-20616,L1A, 4.22KΩ
R301	8C3	KS-20616,L1A, 1.78KΩ
R302	8B2	KS-20289,L6C, 5.11KΩ
R303	8D3	KS-20810,L1A, 75
R304	8D3	KS-20616,L1A, 14.7
R501	8B6	KS-20289,L6C, 150
R502	8C6	KS-20289,L6C, 150
R601	8C3	KS-20045,L3A, .27
R602	8D2	KS-20616,L1A,1KΩ
R702	8E3	KS-20616,L1A, 34KΩ
R703	8E1	KS-20616,L1A, 100KΩ
R704	8D1	KS-20289,L6C, 5.11KΩ
R70[illegible]	8F7	KS-20616,L1A, 1KΩ
R7[illegible]6	8E2	KS-20616,L1A, 9.09KΩ
R707	8F6	KS-20616,L1A, 4.22KΩ
R708	8F8	KS-20616,L1A, 2.94KΩ
R709	8F8	KS-20616,L1A, 4.22KΩ
R710	8G5	KS-20616,L1A, 178
R711	8E2	KS-20616,L1A, 19.6KΩ
R712	8G5	KS-20616,L1A, 1KΩ
R901	8C7	KS-20616,L1A, 1.96KΩ
R902	8B7	KS-20616,L1A, 1.96KΩ
R903	8A7	KS-20616,L1A, 1.96KΩ

SWITCH

DESIG	LOC	CODE
S1	8C0	KS-19104,L17

TEST POINT

DESIG	LOC	CODE
TP1	8C8	KS-19427,L10
TP2	8B8	KS-19427,L10
TP3	8A8	KS-19427,L10

TRANSFORMER

DESIG	LOC	CODE
T401	8A4	3000AH

TRANSISTOR

DESIG	LOC	CODE
Q101	8B1	51A
Q201	8G7	51A
Q202	8G8	51A
Q203	8H7	92A
Q301	8C3	66S
Q401	8B3	KS-20836,L1
Q601	8C2	66S
Q602	8C1	51C
Q701	8E1	66J
Q702	8E2	66S
Q703	8F5	51A
Q704	8F6	51A
Q705	8G5	27C

VARISTOR

DESIG	LOC	CODE
RV301	8D2	100J

ISSUE 2D

DC TO DC CONVERTER CIRCUIT (130H POWER UNIT)

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BELL TELEPHONE LABORATORIES INCORPORATED 6S

APP FIG. 10

130K POWER UNIT

RELAY

DESIG	LOC	CODE
K701	10D0 10D1	KS-21457,L1 (SEE NOTE 314)

CAPACITOR

DESIG	LOC	CODE
C1	10B1	SPRAGUE,672D686H060DM2C,68
[2] C2.1,C2.2	10B2	SPRAGUE, 672D686H060DM2C, 68
C101	10G4	600A, 1
C102	10G4	KS-19774,L1, .001
C201	10G6	KS-20736,L1, .1
C202	10G7	KS-19774,L1, .01
C203	10G8	KS-19774,L5, .22
C204	10G6	601A,L5
C301	10C3	KS-19774,L1, .01
C302	10D2	KS-19774,L5, .022
C303	10C3	KS-19774,L5, .01
[2] C501.1,C501.2	10B7	SPRAGUE, 672D337H020DM2C, 330
[2] C502.1,C502.2	10C7	SPRAGUE, 672D337H020DM2C, 330
C601	10C3	KS-19774,L5, .22
C602	10D2	KS-20736,L1, 1
C701	10E3	KS-19774,L1, .01
C702	10G5	KS-19774,L1, .01
C703	10G6	KS-20736,L1, .1
C801	10B0	KS-20480,L1, .01
C802	10C0	KS-20480,L1, .01
C803	10A5	KS-19774,L1, .0001
C804	10B5	KS-19774,L1, .001
C805	10B8	KS-20736,L1, 1
C806	10C8	KS-20736,L1, 1
C807	10C5	KS-19774,L1, .0001
C808	10B5	KS-19774,L1, .001
C809	10C8	KS-20736,L1, 1
C817	10G9	KS-20736,L1, 1
C818	10G9	KS-20736,L1, 1
C825	10B7	653A,100 SPRAGUE,672D107H020CG2C,100
C826	10B7	653A,100 SPRAGUE,672D107H020CG2C,100

DIODE

DESIG	LOC	CODE
CR101	10F4	458C
CR102	10B1	458C
CR201	10G6	426AB
CR202	10H4	~~446A~~,533G
CR203	10G8	459BD
CR204	10H6	813AA
CR301	10D3	458C
CR501	10A5	485AU
CR502	10B5	485AE
CR503	10C5	485AE
CR504	10C5	485AU
CR603	10D2	458C
CR701	10D1	541A (LED)
CR702	10D1	458C
CR703	10E3	458C
CR704	10G4	~~446A~~,533G
CR705	10G6	459B

INDUCTOR

DESIG	LOC	CODE
L1	10A2	1300F
L501	10A6	1301J
L502	10C6	1301J
L802	10A5	STACKPOLE, 57-1559
L803	10C5	STACKPOLE, 57-1559
L808	10B5	STACKPOLE, 57-1559
L809	10C5	STACKPOLE, 57-1559

POTENTIOMETER

DESIG	LOC	CODE
R201	10G7	KS-19055,L12, 10KΩ
R701	10F5	KS-19055,L12 10KΩ

RESISTOR

DESIG	LOC	CODE
R1	10A0	KS-14603,L3A, 10
R101	10B1	KS-20289,L6C, 5.11KΩ
R102	10F4	KS-20810,L1A, 600
R202	10G6	KS-20616,L1A, 301
R203	10F7	KS-20616,L1A, 2.05KΩ
R205	10G7	KS-20616,L1A,200KΩ
R206	10G7	KS-20616,L1A,1KΩ
R212	10F8	KS-20616,L1A, 6.81KΩ
R213	10G8	KS-20616,L1A, 5.11KΩ
R301	10C3	KS-20616,L1A, 1.78KΩ
R302	10B2	KS-20289,L6C, 5.11KΩ
R303	10D3	KS-20810,L1A, 75
R304	10D3	KS-20616,L1A, 14.7
R501	10B6	KS-20289,L6C, 215
R502	10C6	KS-20289,L6C, 150
R601	10C3	KS-20045,L3A, .23
R602	10D2	KS-20616,L1A, 1KΩ
R702	10E3	KS-20616,L1A, 34KΩ
R703	10E1	KS-20616,L1A, 100KΩ
R704	10D1	KS-20289,L6C, 5.11KΩ
R705	10F7	KS-20616,L1A, 1KΩ
R706	10E2	KS-20616,L1A, 9.09KΩ
R707	10F6	KS-20616,L1A, 4.22KΩ
R708	10F8	KS-20616,L1A, 6.81KΩ
R709	10F8	KS-20616,L1A, 5.11KΩ
R710	10G5	KS-20289,L6C,178
R711	10E7	KS-20616,L1A,12.1KΩ
R712	10G5	KS-20616,L1A, 1KΩ
R901	10C7	KS-20616,L1A, 1.96KΩ
R902	10B7	KS-20616,L1A, 1.96KΩ
R903	10A7	KS-20616,L1A, 1.96KΩ

SWITCH

DESIG	LOC	CODE
S1	10C0	KS-19104,L17

TEST POINT

DESIG	LOC	CODE
TP1	10C8	KS-19427,L10
TP2	10B8	KS-19427,L10
TP3	10A8	KS-19427,L10

TRANSFORMER

DESIG	LOC	CODE
T401	10A4	30000

TRANSISTOR

DESIG	LOC	CODE
Q101	10B1	51A
Q201	10G7	51A
Q202	10G8	51A
Q203	10H7	GEX40K370
Q301	10C3	66S
Q401	10B3	KS-20836,L1
Q601	10C2	66S
Q602	10C1	51C
Q701	10E1	66J
Q702	10E2	66S
Q703	10F5	51A
Q704	10F6	51A
Q705	10G5	27C

VARISTOR

DESIG	LOC	CODE
RV301	10D2	100J

ISSUE 3D

DC TO DC CONVERTER CIRCUIT (130K POWER UNIT)

SD-82270-01-C10

BELL TELEPHONE LABORATORIES INCORPORATED

DWG SIZE 6S

CIRCUIT NOTES:

101.

DESIG	FUSE AMP (SEE BELOW)	POTENTIAL	ONE PER
		48	

BATTERY SYMBOL	VOLTAGE RANGE
-48	-42.5 TO -55

THE FOLLOWING BUSSMANN TYPE FUSES ARE RECOMMENDED FOR APPLICATION IN THE INPUT CIRCUIT OF THE 130 TYPE POWER UNITS FOR THE PURPOSE OF ISOLATING A FAILED POWER UNIT FROM THE -48 VOLT SOURCE.

AMPERES	TYPE	SIZE
1.5	MDA	1/4 X 1-1/4
1.6	FNM FRN	13/32 X 1-1/2 9/16 X 2

102. CIRCUIT BREAKER

THE FOLLOWING KS OR HEINEMANN MAGNETIC CIRCUIT BREAKERS ARE RECOMMENDED FOR APPLICATION IN THE INPUT CIRCUIT OF THE 130 TYPE POWER UNITS FOR THE PURPOSE OF ISOLATING A FAILED POWER UNIT FROM THE -48 VOLT SOURCE.

AMPERES	TYPE	CURVE	VOLTAGE	USE WITH
1.2	JA OR KS-19943	2	65	
	AM12 OR KS-15815	4	65	
	AM1 OR KS-21597	2	65	
	CD OR KS-21186	2	160	

CIRCUIT NOTES (CONT):

103.

RECORD OF CHANGES								
CHANGED ON ISSUE	PWR UNIT CODE	SERIES NO.	APPLICABLE SHEET	THIS OPTION WAS FURN	SEE NOTE	USED IN CIRCUIT STD	A&M	MD
1	130A		B1, C1	Z		Y		Z
1	130B		B2, C2	Z		Y		Z
1	130D		B4, C4	Z		Y		Z

104. CHANGES WILL BE RECORDED ON RECORD OF CHANGE TABLES FOR EACH POWER UNIT.

THE FS (B SHEET) AND THE APPROPRIATE APP FIGURE (C SHEET) WILL BE TREATED AS ONE SHEET FOR RECORD OF CHANGE PURPOSES. CHANGES ON THESE SHEETS WILL BE RECORDED ON THE RECORD OF CHANGE TABLES OF NOTE 103.

105. IN SOME SINGLE OUTPUT OR DUAL OUTPUT UNITS THE FOLLOWING CONNECTOR OUTPUT FINGERS MAY BE CONNECTED IN PARALLEL TO PROVIDE HIGHER CONNECTOR CURRENT CAPABILITY.

$+E_{01}$ IN PARALLEL WITH $+E_{02}$
E_{01} RTN IN PARALLEL WITH E_{02} RTN
$-E_{01}$ IN PARALLEL WITH $-E_{02}$

106. RELAY (K701) CONTACTS ARE RATED AT 10VA (100 VOLTS AND 0.1 AMPERES MAXIMUM).

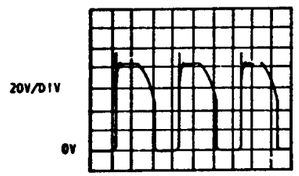
107. WHERE PRINTED BOARD CONNECTOR FINGERS ARE SHOWN CONNECTED IN PARALLEL, THE CONNECTOR TERMINALS ON THE FRAME MUST ALSO BE WIRED IN PARALLEL.

CIRCUIT NOTES (CONT):

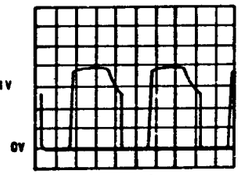
108. V_{CE} OF Q401 TO V_{IN} (-)

(TYPICAL)

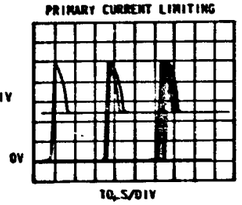
FULL LOAD



NO LOAD



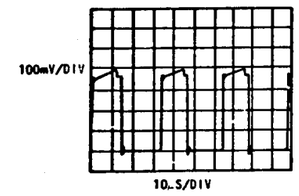
PRIMARY CURRENT LIMITING



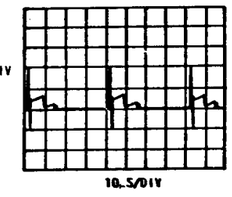
VOLTAGE ACROSS R601 TO V_{IN}(-). THIS VOLTAGE IS EQUIVALENT TO THE COLLECTOR CURRENT OF Q401.

(TYPICAL)

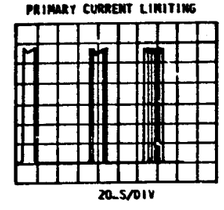
FULL LOAD



NO LOAD



PRIMARY CURRENT LIMITING



ISSUE	
1	

DC TO DC CONVERTER CIRCUIT (130 TYPE POWER UNITS)

SD-82270-01-D1

BELL TELEPHONE LABORATORIES INCORPORATED

6S

CIRCUIT NOTES (CONT'D):

EQUIPMENT NOTES:

201. ALL WIRE SHALL BE KS-19195-L1, 20 GAUGE UNLESS OTHERWISE SPECIFIED.

202. KS-21244,L4 KEYS ARE POSITIONED BETWEEN MATING CONNECTOR TERMINALS AS SHOWN IN THE FOLLOWING TABLE:

POWER UNIT CODE	1ST POSITION	2ND POSITION	3RD POSITION	4TH POSITION
130A	4-5	5-6	6-7	-
130B	4-5	5-6	10-11	-
130C	4-5	5-6	11-12	-
130D	4-5	5-6	12-13	-
130G	4-5	5-6	15-16	-
130H	4-5	5-6	16-17	-
130K	4-5	6-7	10-11	-

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. FRONT PANEL TEST POINT DESIGNATIONS ARE AS FOLLOWS:

TP1 = 1, $-E_{01}$ = -
TP2 = 2, E_{01} RTN = RTN
TP3 = 3, $+E_{01}$ = +
TP4 = 4, $-E_{02}$ =
TP5 = 5, E_{02} RTN = RTN
TP6 = 6, $+E_{02}$ = +

303. FOR EXTERNAL VOLTAGE REGULATION SENSING, CONNECTOR PINS N AND P WILL BE CONNECTED TO DESIRED LOCATION VIA EXTERNAL BAY FRAME WIRING. EXTERNAL VOLTAGE REGULATION SENSE LEAD CONNECTIONS FOR 130 TYPE POWER UNITS ARE CONNECTED PER THE FOLLOWING TABLE:

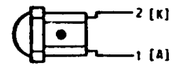
POWER UNIT	EXTERNAL VOLTAGE REGULATION SENSING	
	+N TO	-P TO
130A	E_{01} RTN	$-E_{01}$
130B	E_{01} RTN	$-E_{01}$
130C	$+E_{01}$	$-E_{01}$
130D	E_{01} RTN	$-E_{01}$
130G	$+E_{01}$	E_{01} RTN
130H	$+E_{01}$	$-E_{01}$
130K	$-E_{01}$ RTN	$-E_{01}$

INFORMATION NOTES (CONT'D):

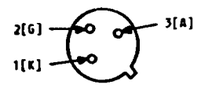
304. COMPONENT NUMBERING SEQUENCE:

SEQUENCE NUMBER	CIRCUIT FUNCTION
1-99	CIRCUIT FUNCTION UNSPECIFIED
100	BIAS AND ELECTRONIC SHUTDOWN
200	VOLTAGE REGULATION
300	DRIVE CIRCUIT
400	POWER AMPLIFIER
500	OUTPUT CONDITIONING
600	CURRENT LIMITING
700	LV ALARM AND HV SHUTDOWN
800	NOISE SUPPRESSION
900	TEST POINT LIMITING RESISTORS

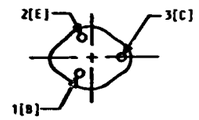
305. THE TERMINAL ARRANGEMENT OF THE 541A (LED) DIODE IS:



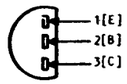
306. THE TERMINAL NUMBER ARRANGEMENT OF THE 27C TRANSISTOR IS:



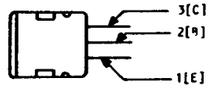
307. THE TERMINAL NUMBER ARRANGEMENT OF THE KS-20836,L1, TRANSISTOR IS:



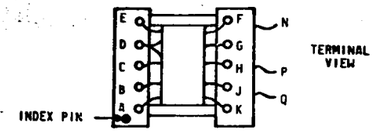
308. THE TERMINAL NUMBER ARRANGEMENT OF THE 51 AND 66 TYPE TRANSISTOR IS:



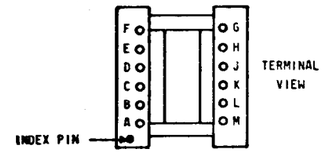
309. THE TERMINAL NUMBER ARRANGEMENT OF THE 92A TRANSISTOR IS:



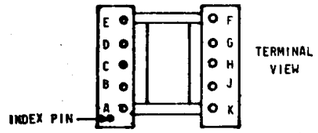
310. THE TERMINAL ARRANGEMENT OF T401 TRANSFORMER IS:



311. THE TERMINAL ARRANGEMENT OF THE 1301 TYPE INDUCTOR IS:

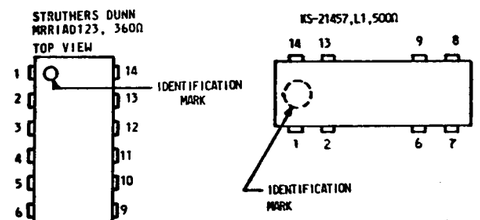


312. THE TERMINAL ARRANGEMENT OF THE 1300 TYPE INDUCTOR IS:



313. INDUCTANCE VALUE IS AT ZERO CURRENT AND INDUCTOR DCR IS AT 25°C.

314. THE TERMINAL ARRANGEMENT FOR K701 RELAY IS:



ISSUE 3D

DC TO DC CONVERTER CIRCUIT (130 TYPE POWER UNITS)

SD-82270-01-D2

BELL TELEPHONE LABORATORIES INCORPORATED

SIZE 6S

CURRENT DRAINS TABLE

POWER UNIT	LIST 1 (I_{OUT} AND LIST 1 ARE IN AMPERES)	LIST 2 (I_{OUT} AND LIST 2 ARE IN AMPERES)
130A	$.025 + 6.84\left(\frac{I_{OUT}}{48}\right)$	$.027 + 6.83\left(\frac{I_{OUT}}{42.5}\right)$
130B	$.035 + 14.2\left(\frac{I_{OUT}}{48}\right)$	$.036 + 14.1\left(\frac{I_{OUT}}{42.5}\right)$
130C	$.045 + 17.25\left(\frac{I_{OUT}^{*}}{48}\right)$	$.045 + 17.13\left(\frac{I_{OUT}^{*}}{42.5}\right)$
	* I_{OUT} IS THE SUM OF THE +15 AND -15 VOLT CURRENTS	
130D	$.068 + 15.85\left(\frac{I_{OUT}^{*}}{48}\right)$	$.072 + 15.78\left(\frac{I_{OUT}^{*}}{42.5}\right)$
	* I_{OUT} IS THE SUM OF THE +12 AND -12 VOLT CURRENTS	
130G	$.046 + 6.58\left(\frac{I_{OUT}}{48}\right)$	$.047 + \left(\frac{I_{OUT}}{42.5}\right)$
130H	$.045 + 7.64\left(\frac{I_{OUT}^{*}}{48}\right)$	$.046 + 7.49\left(\frac{I_{OUT}^{*}}{42.5}\right)$
	* I_{OUT} IS THE SUM OF THE +5 AND -6 VOLT CURRENTS	
130K	$.095 + 14.02\left(\frac{\lvert -I_O^1 \rvert}{48}\right) + 16.62\left(\frac{\lvert +I_O^1 \rvert}{48}\right)$	$.095 + 14.11\left(\frac{\lvert -I_O^1 \rvert}{42.5}\right) + 16.02\left(\frac{\lvert +I_O^1 \rvert}{42.5}\right)$

POWER UNIT	LIST 1 (I_{OUT} AND LIST 1 ARE IN AMPERES)	LIST 2 (I_{OUT} AND LIST 2 ARE IN AMPERES)

ISSUE 3D

DC TO DC CONVERTER CIRCUIT
(130 TYPE CURRENT DRAINS TABLE)

SD-82270-01-D3

BELL TELEPHONE LABORATORIES INCORPORATED

DWG SIZE 6S