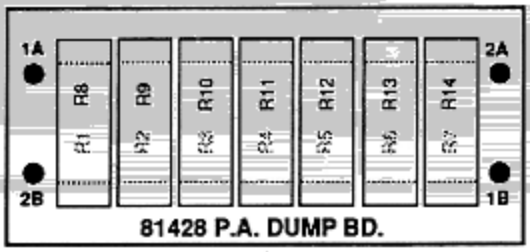
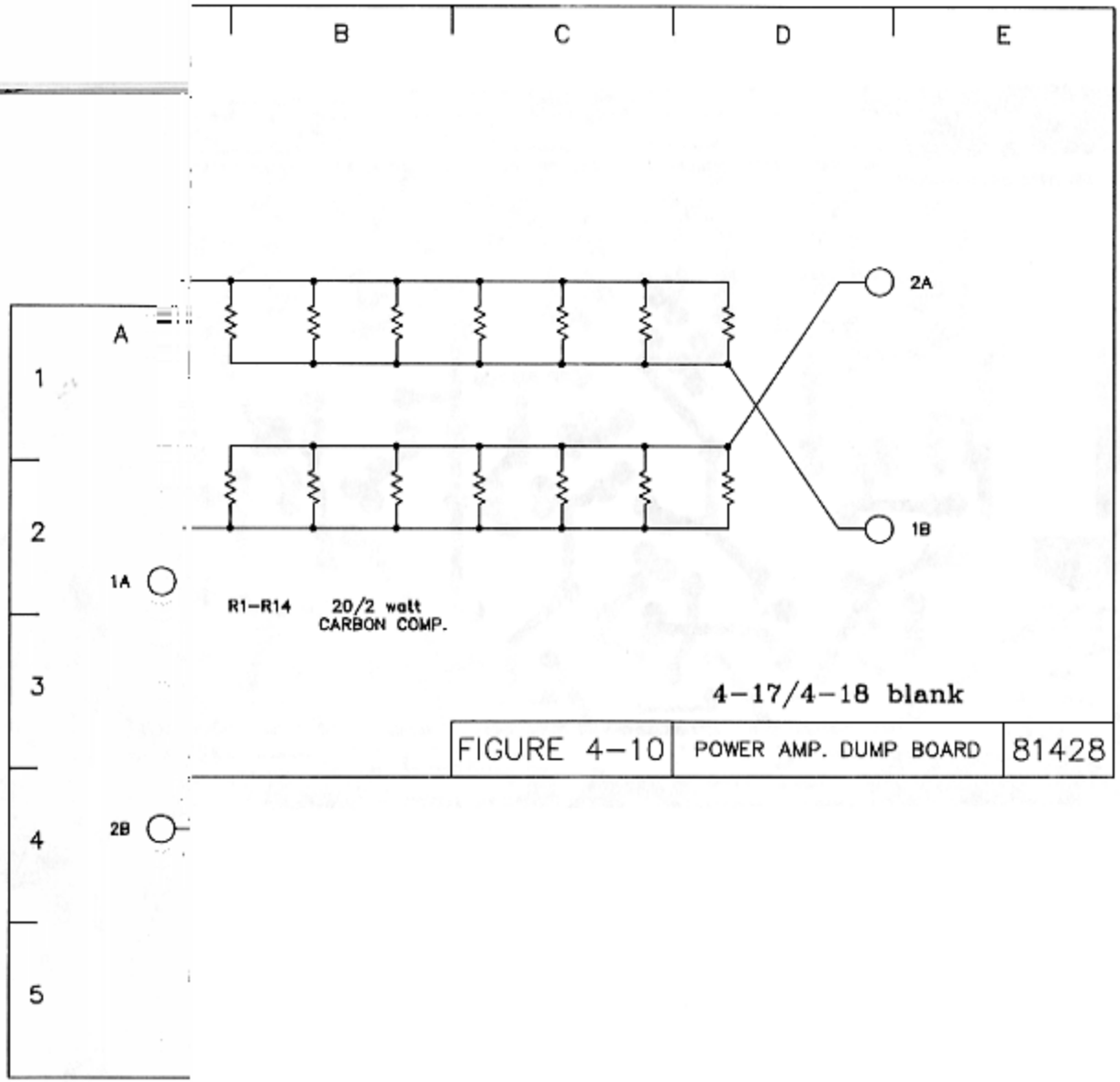
FIGURE 4-8 81428 POWER AMP. DUMP BOARD CIRCUIT TRACE



. 81428 POWER AMP. DUMP BOARD COMPONENT LAYOUT

FIGURE 4-9



4–17/4–18 blank

FIGURE 4–10 | POWER AMP. DUMP BOARD | 81428

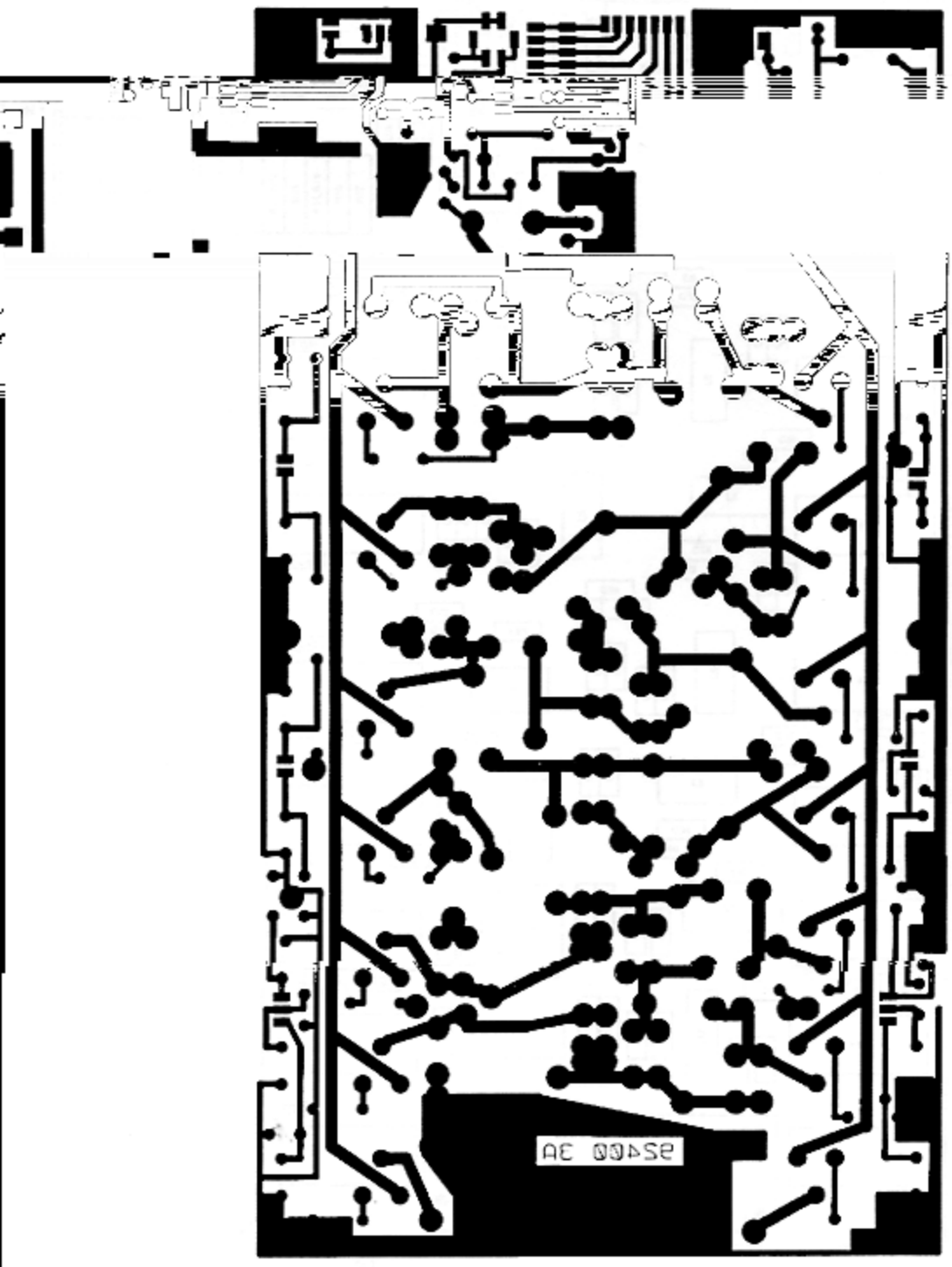
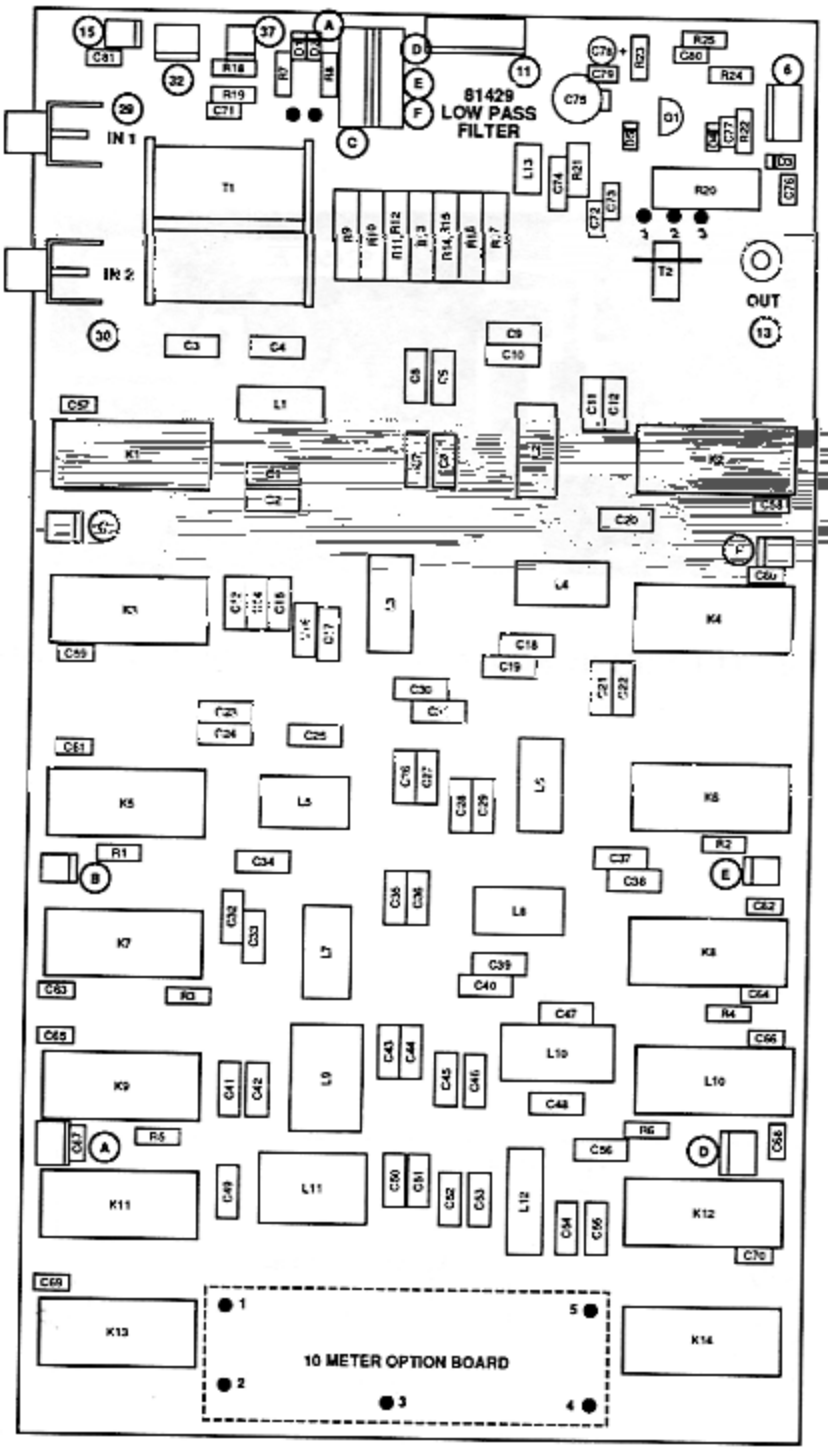


FIGURE 4-11. 81429 LOW PASS FILTER BOARD CIRCUIT TRACE



LAYOUT

FIGURE 4-12 - 81429 LOW PASS FILTER BOARD COMPONENT L

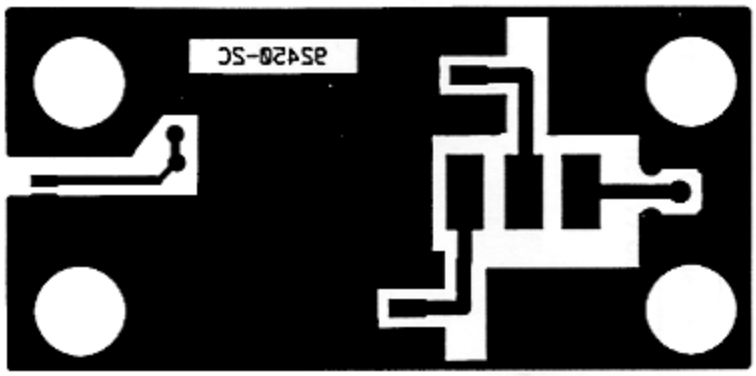


FIGURE 4-14. 81444 VAC RELAY BOARD CIRCUIT TRACE

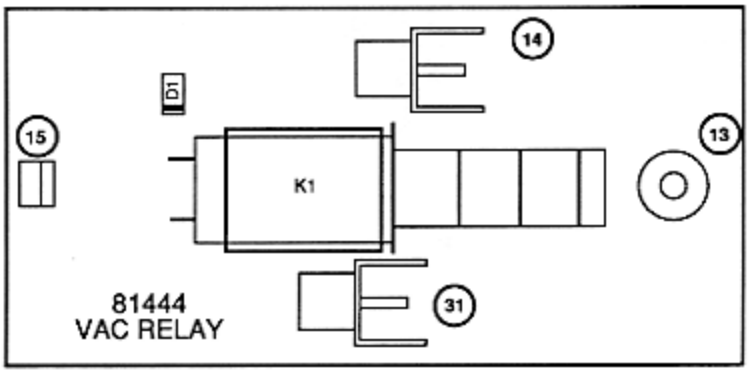


FIGURE 4-15. 81444 VAC RELAY BOARD COMPONENT LAYOUT

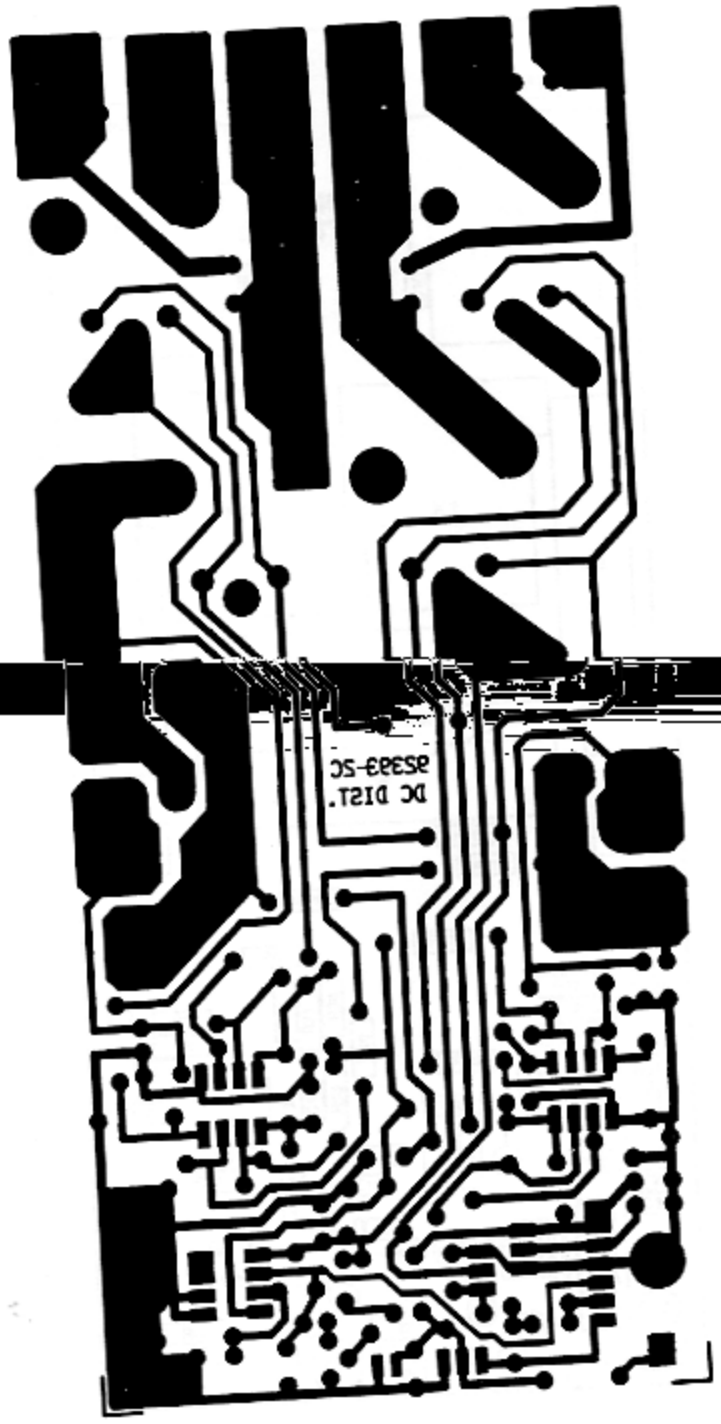


FIGURE 4-17. 81406 D.C. DISTRIBUTION BOARD CIRCUIT TRACE

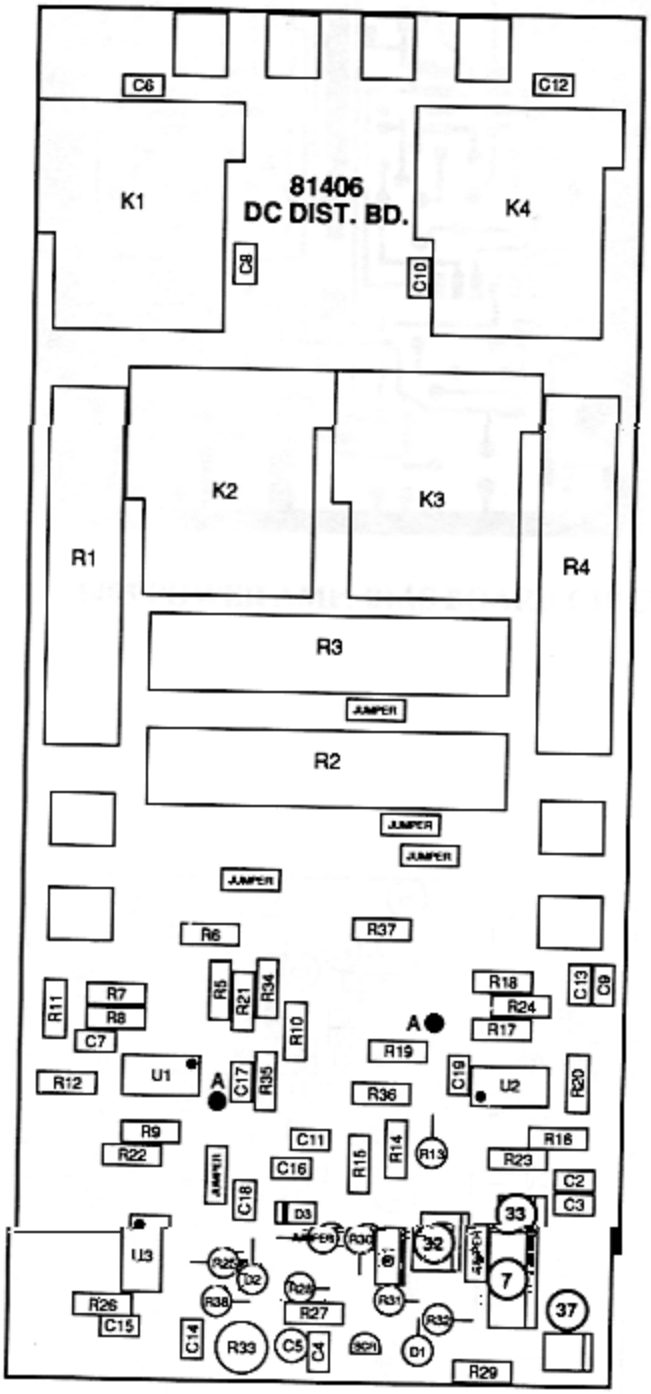


FIGURE 4-18. 81406 D.C. DISTRIBUTION BOARD COMPONENT LAYOUT

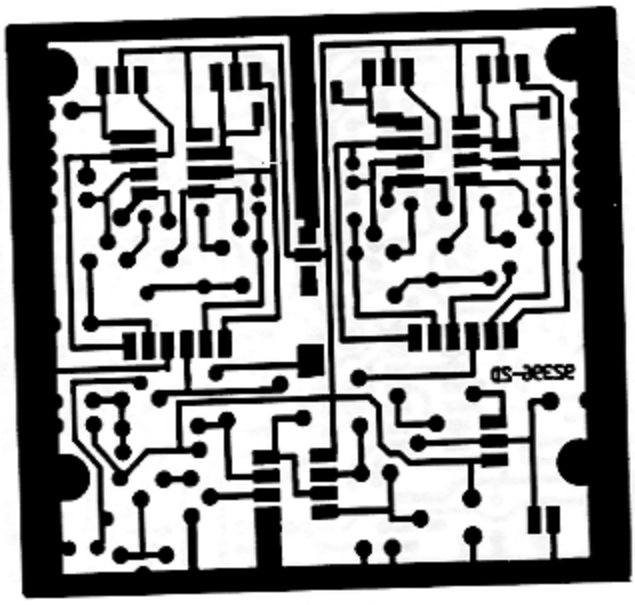


FIGURE 4-20. 81405 POWER AMP. BIAS BOARD CIRCUIT TRACE

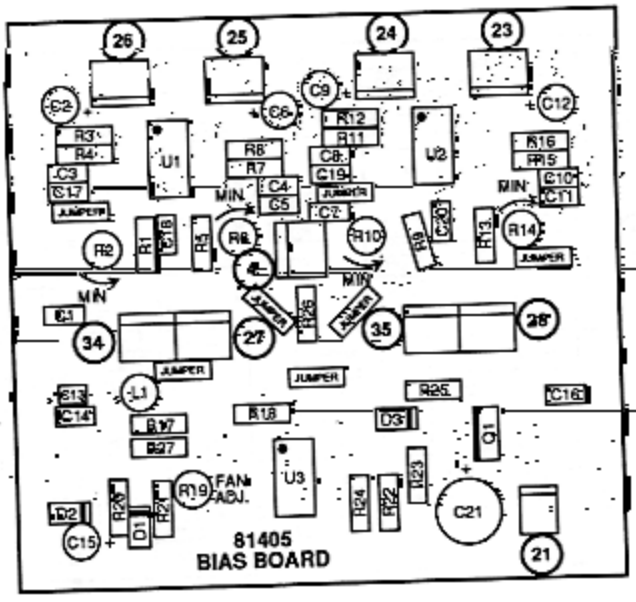


FIGURE 4-21. 81405 POWER AMP. BIAS BOARD COMPONENT LAYOUT

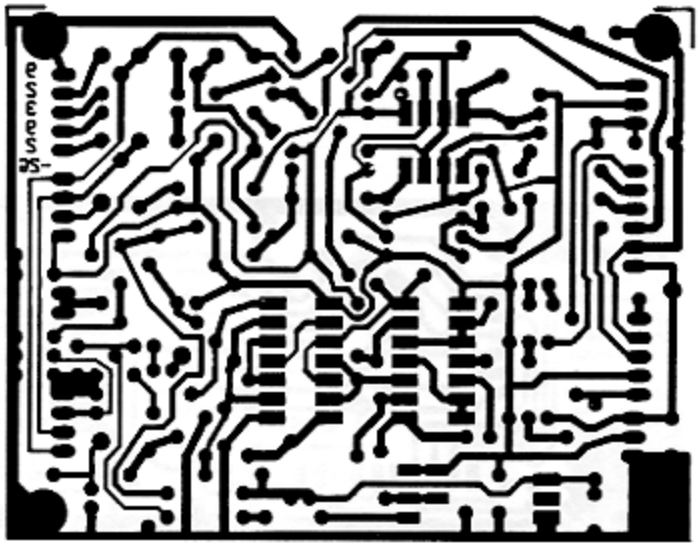


FIGURE 4-23. 81426 CONTROL BOARD CIRCUIT TRACE

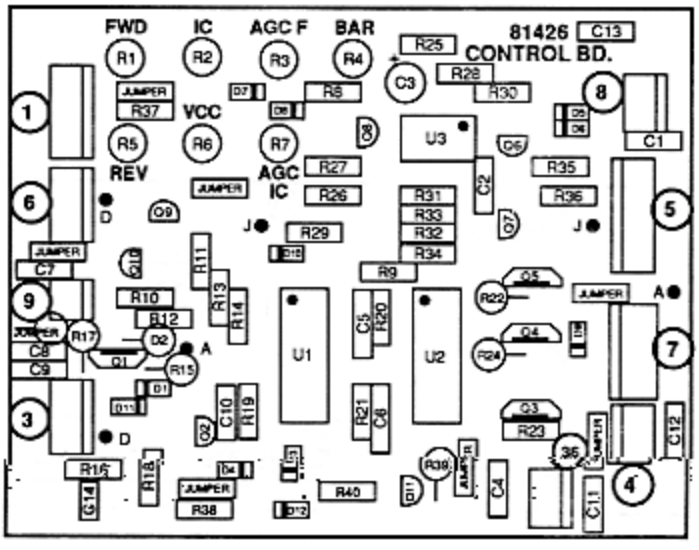


FIGURE 4-24. 81426 CONTROL BOARD COMPONENT LAYOUT

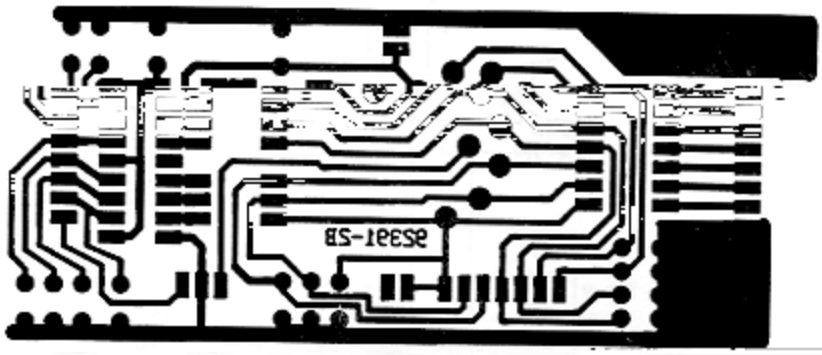


FIGURE 4-26. 81424 BANDSWITCH BOARD CIRCUIT TRACE

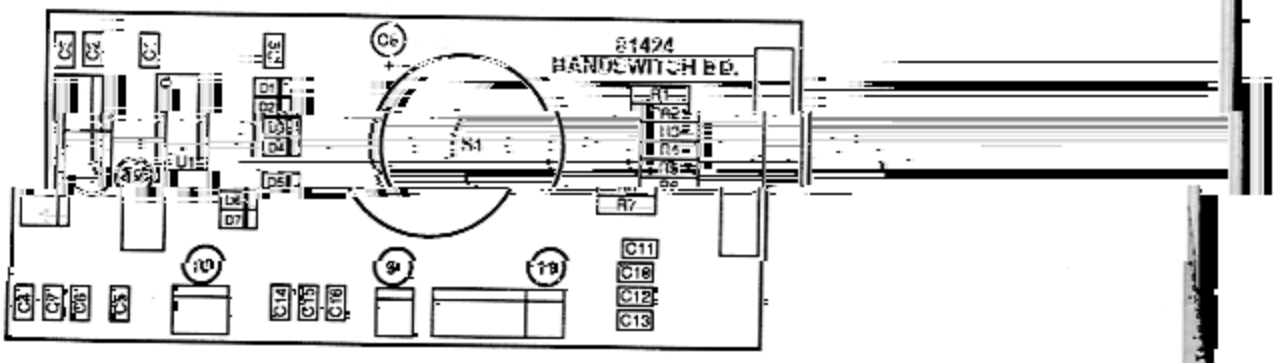
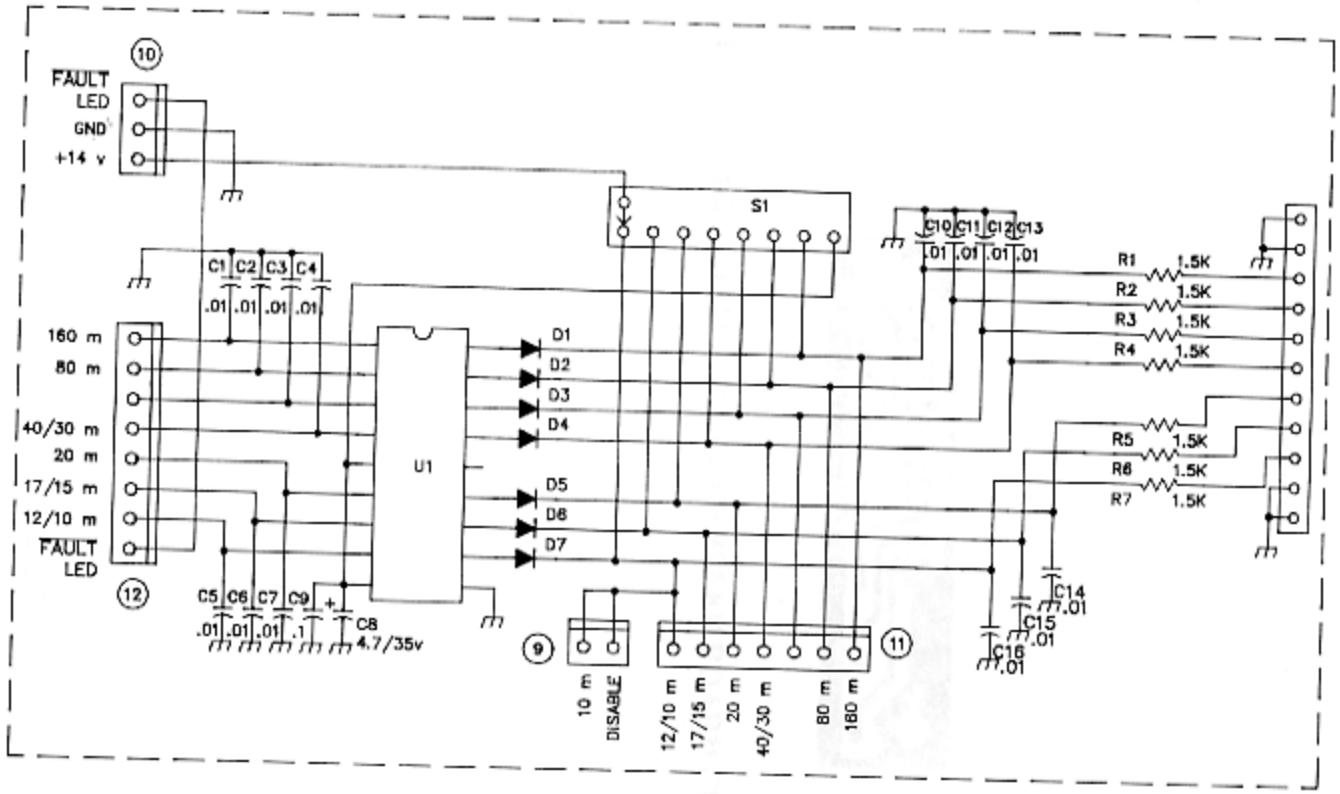


FIGURE 4-27. 81424 BANDSWITCH BOARD COMPONENT LAYOUT



D1–D7= 1N4002
U1= UDN2982A

REFERENCE DESIGNATORS LAST USED
R7,C16,D7,S1,U1

NOTE: UNLESS OTHERWISE SPECIFIED
CAPACITORS IN MICROFARADS (μf)
RESISTORS IN OHMS ±5% 1/4 watt

FIGURE 4-28 | BANDSWITCH BOARD | 814

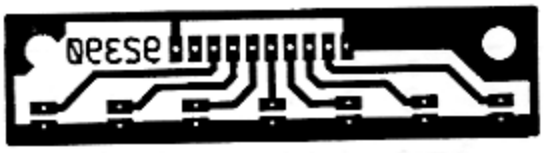


FIGURE 4-29. 81423 BANDSWITCH LED BOARD CIRCUIT TRACE

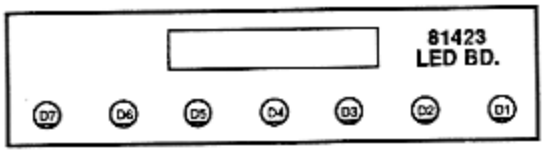
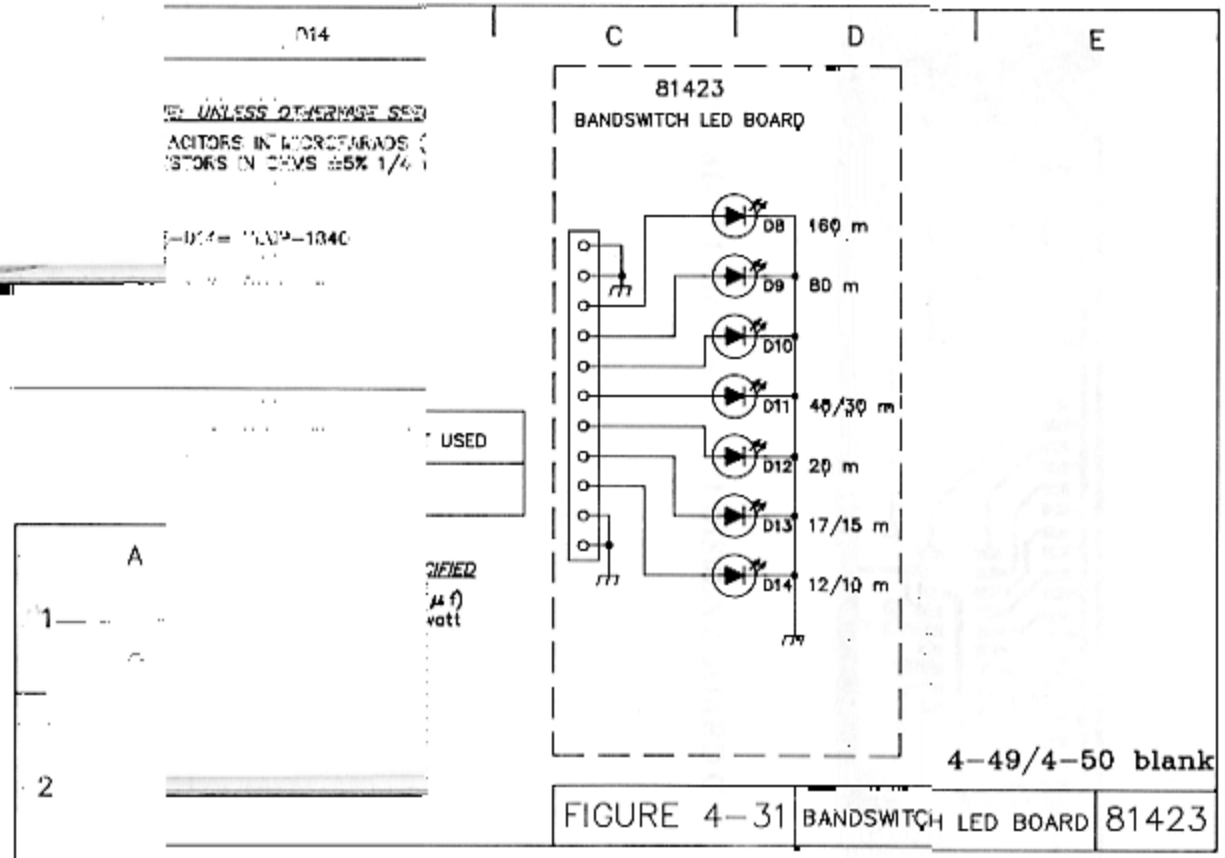


FIGURE 4-30. 81423 BANDSWITCH LED BOARD COMPONENT LAYOUT



4-49/4-50 blank

FIGURE 4-31 BANDSWITCH LED BOARD 81423

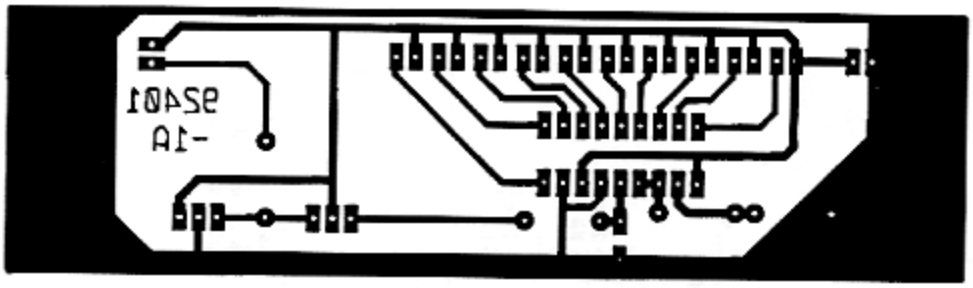
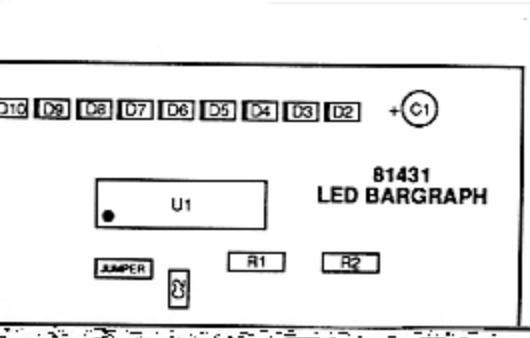


FIGURE 4-32. 81431 LED BARGRAPH DISPLAY BOARD CIRCUIT TRACE



H DISPLAY BOARD COMPONENT LAYOUT

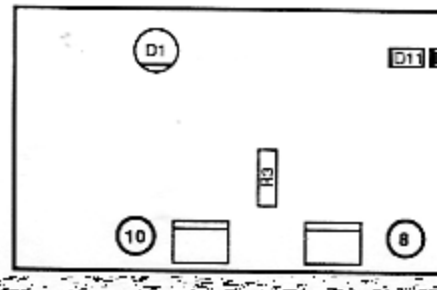
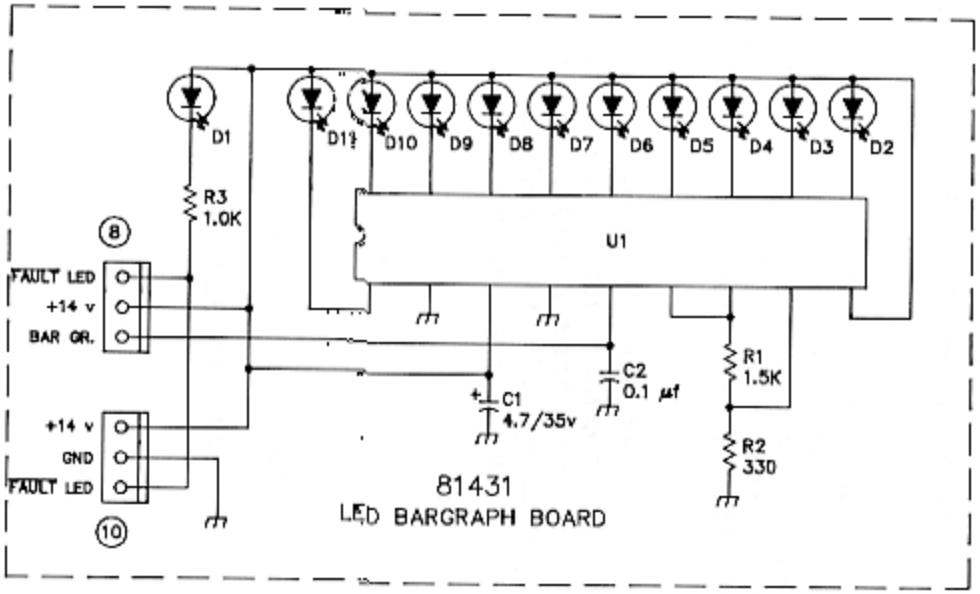


FIGURE 4-33. 81431 LED BARGRAP



REFERENCE DESIGNATORS LAST USED
R3,C2,D11,U1

D1= 5082-4855
D2= LN224RP
D3-D11= P316-ND
U1= LM3914

NOTE: UNLESS OTHERWISE SPECIFIED

CAPACITORS IN MICROFARADS (µf)
RESISTORS IN OHMS ±5% 1/4 watt

4-53/4-54 blank

FIGURE 4-34	LED BARGRAPH BOARD	81431

CAUTION TO PARAGON OWNERS

WITH

RS-232 BOARD INSTALLED

Some of the early RS-232 boards (Model 258) do not have the band information brought out to the rear panel "D" connector for remote control of the Hercules II amplifier. The later versions do have the information lines at the connector but will require RF by-passing.

The current version of the Model 258 (now Model 258-H) board is by-passed and has both the computer interconnect cable and the Hercules II control cable factory installed. If your RS-232 board does not have both cables installed, please contact our customer service department BEFORE YOU ATTEMPT REMOTE OPERATION.

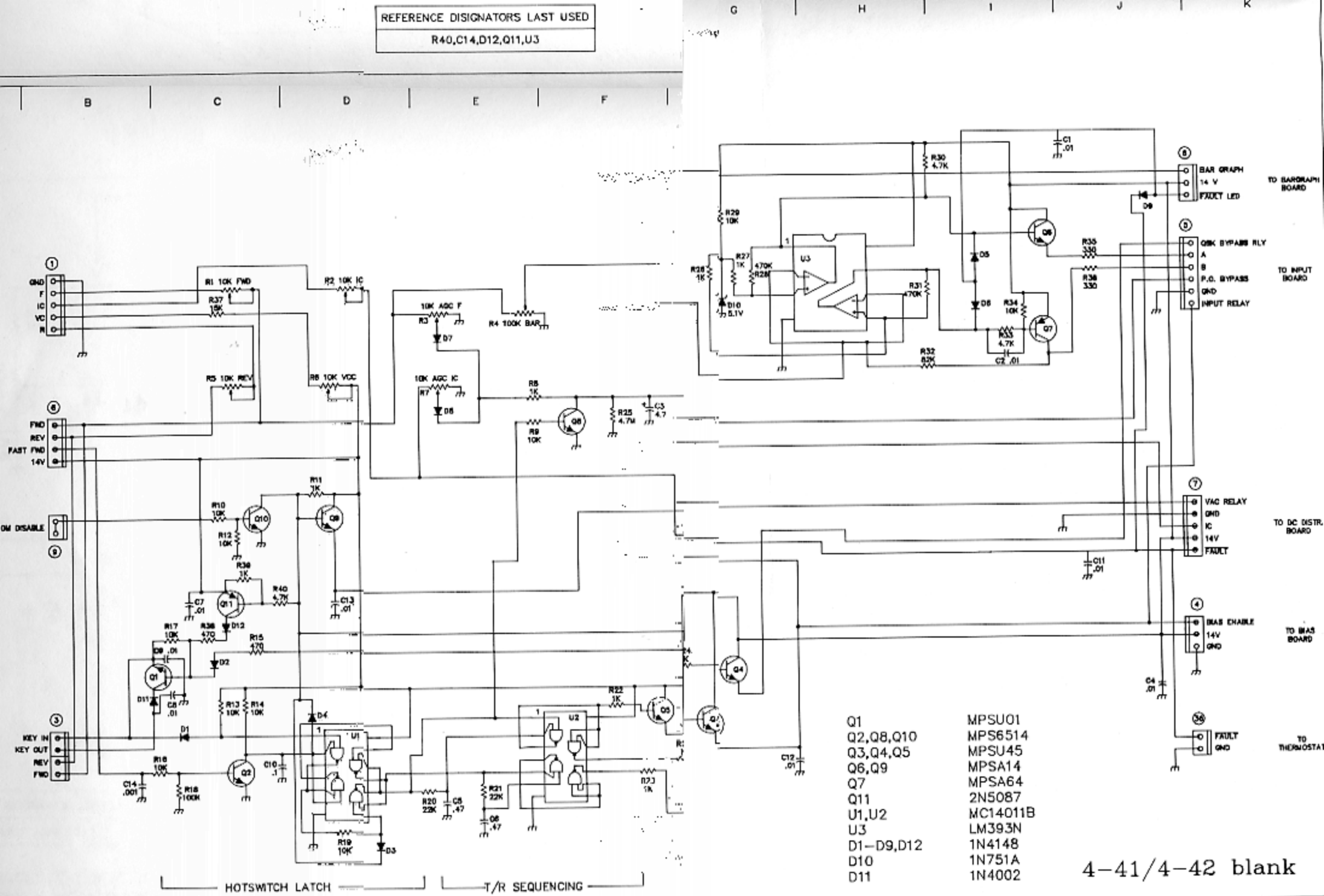
As explained in this manual, there is also a control interface that provides remote control of the Hercules II only. This is a circuit board that provides the rear panel "D" connector and patches into the Paragon cabling system. The plug-in cable that connects the Paragon to the Hercules II is included.

TEN-TEC, Inc.

Customer service telephone 615-428-0364

FAX 615-428-4483

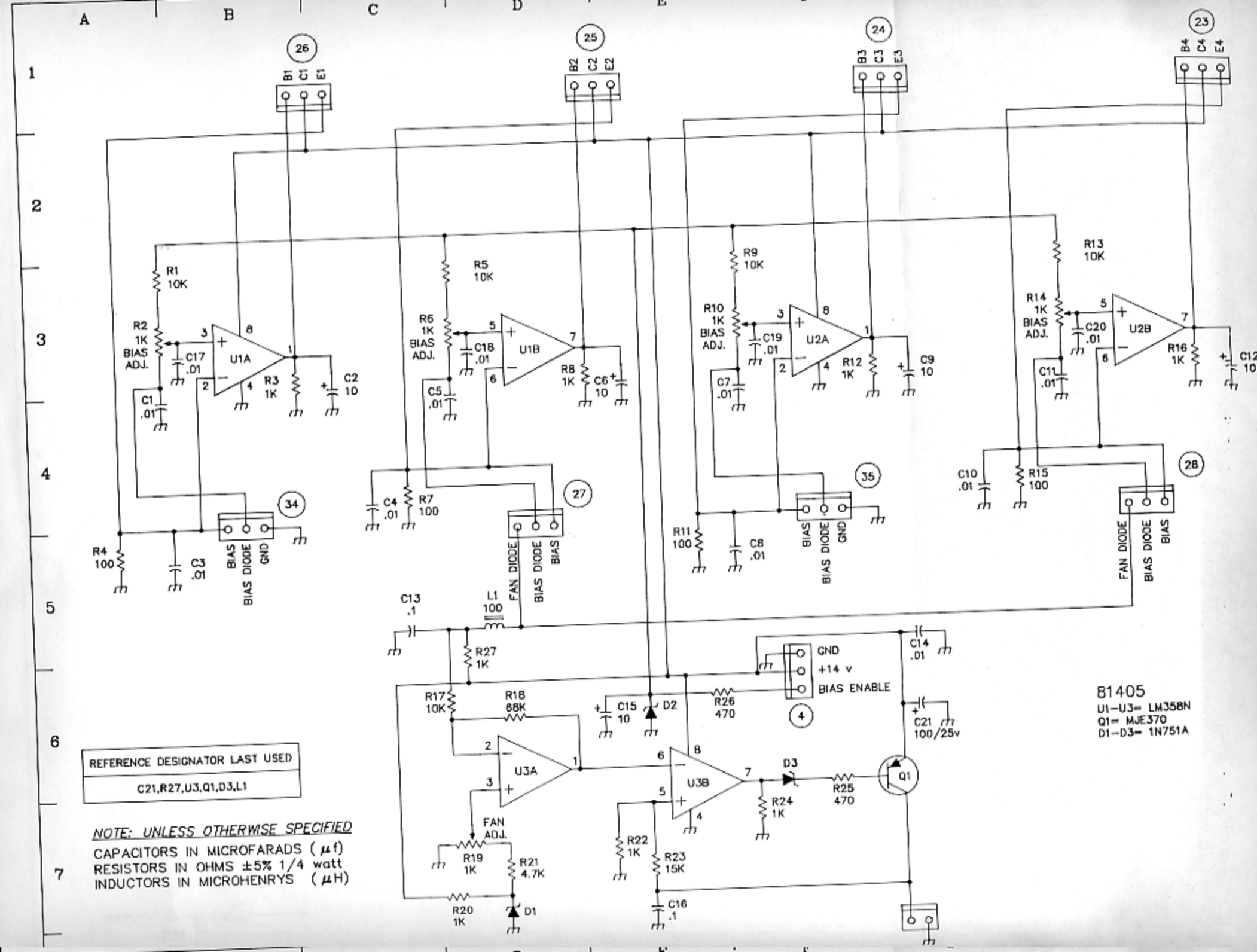
REFERENCE DISIGNATORS LAST USED
R40,C14,D12,Q11,U3

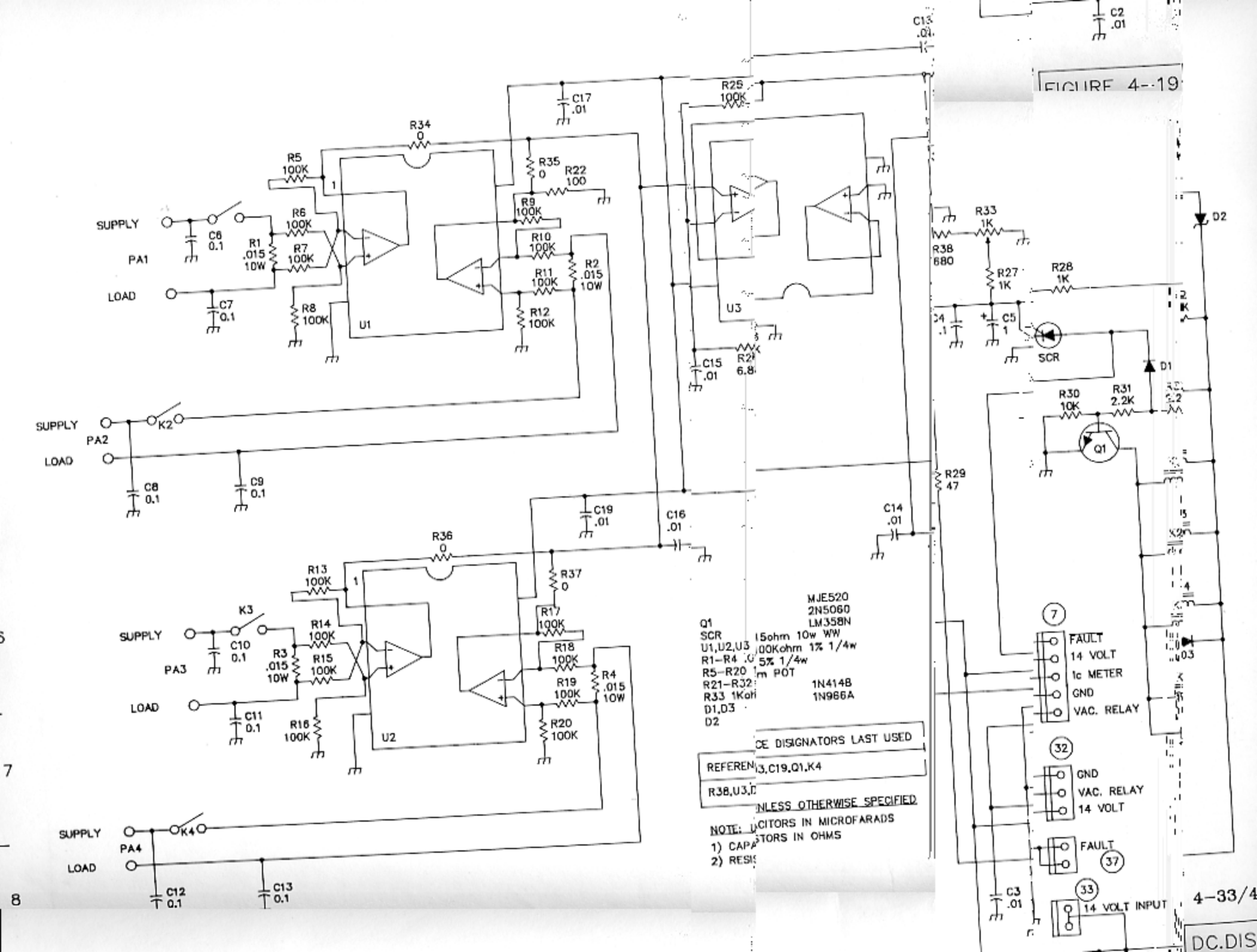


Q1	MPSU01
Q2,Q8,Q10	MPS6514
Q3,Q4,Q5	MPSU45
Q6,Q9	MPSA14
Q7	MPSA64
Q11	2N5087
U1,U2	MC14011B
U3	LM393N
D1–D9,D12	1N4148
D10	1N751A
D11	1N4002

4–41/4–42 blank

FIGURE 4–25 CONTROL BOARD 81426


A
B
C
D
1
2
3
4
5
6
7
26
B1 C1 E1
25
B2 C2 E2
24
B3 C3 E3
23
B4 C4 E4
R1 10K
R2 1K BIAS ADJ.
C17 .01
U1A
R3 1K
C1 .01
C2 10
R5 10K
R6 1K BIAS ADJ.
C18 .01
U1B
R8 1K
C6 10
C5 .01
R9 10K
R10 1K BIAS ADJ.
C19 .01
U2A
R12 1K
C9 10
C7 .01
R13 10K
R14 1K BIAS ADJ.
C20 .01
U2B
R16 1K
C12 10
C11 .01
34
BIAS BIAS DIODE GND
R4 100
C3 .01
27
FAN DIODE BIAS DIODE BIAS
C4 .01
R7 100
35
BIAS BIAS DIODE GND
R11 100
C8 .01
28
FAN DIODE BIAS DIODE BIAS
C10 .01
R15 100
C13 .1
L1 100
R27 1K
GND
+14 v
BIAS ENABLE
4
C14 .01
C21 100/25v
R17 10K
R18 68K
C15 10
D2
R26 470
U3A
U3B
D3
Q1
R25 470
R24 1K
FAN ADJ.
R19 1K
R21 4.7K
R20 1K
D1
R22 1K
R23 15K
C16 .1
81405
U1-U3= LM358N
Q1= MJE370
D1-D3= 1N751A
REFERENCE DESIGNATOR LAST USED
C21,R27,U3,Q1,D3,L1
NOTE: UNLESS OTHERWISE SPECIFIED
CAPACITORS IN MICROFARADS (μf)
RESISTORS IN OHMS ±5% 1/4 watt
INDUCTORS IN MICROHENRYS (μH)


SUPPLY
PA1
LOAD
C6 0.1
C7 0.1
R1 .015 10W
R2 .015 10W
R4 .015 10W
R5 100K
R6 100K
R7 100K
R8 100K
R9 100K
R10 100K
R11 100K
R12 100K
R13 100K
R14 100K
R15 100K
R16 100K
R17 100K
R18 100K
R19 100K
R20 100K
R22 100
R25 100K
R26 6.8
R27 1K
R28 1K
R29 47
R30 10K
R31 2.2K
R33 1K
R34 0
R35 0
R36 0
R37 0
R38 680
U1
U2
U3
C2 .01
C3 .01
C4 .1
C5 1
C8 0.1
C9 0.1
C10 0.1
C11 0.1
C12 0.1
C13 0.1
C14 .01
C15 .01
C16 .01
C17 .01
C19 .01
SUPPLY
PA2
LOAD
K2
SUPPLY
PA3
LOAD
K3
SUPPLY
PA4
LOAD
K4
SCR
D1
D2
D3
Q1
7
FAULT
14 VOLT
1c METER
GND
VAC. RELAY
32
GND
VAC. RELAY
14 VOLT
FAULT
37
33
14 VOLT INPUT
MJE520
2N5060
LM358N
1N4148
1N966A
Q1
SCR
U1,U2,U3
R1-R4
R5-R20
R21-R32
R33 1Kohm
D1,D3
D2
15ohm 10w WW
00Kohm 1% 1/4w
5% 1/4w
m POT
CE DISIGNATORS LAST USED
REFEREN
3,C19,Q1,K4
R38,U3,
NLESS OTHERWISE SPECIFIED
NOTE:
CITORS IN MICROFARADS
TORS IN OHMS
1) CAPA
2) RESI
FIGURE 4-19
4-33/4
DC.DIS

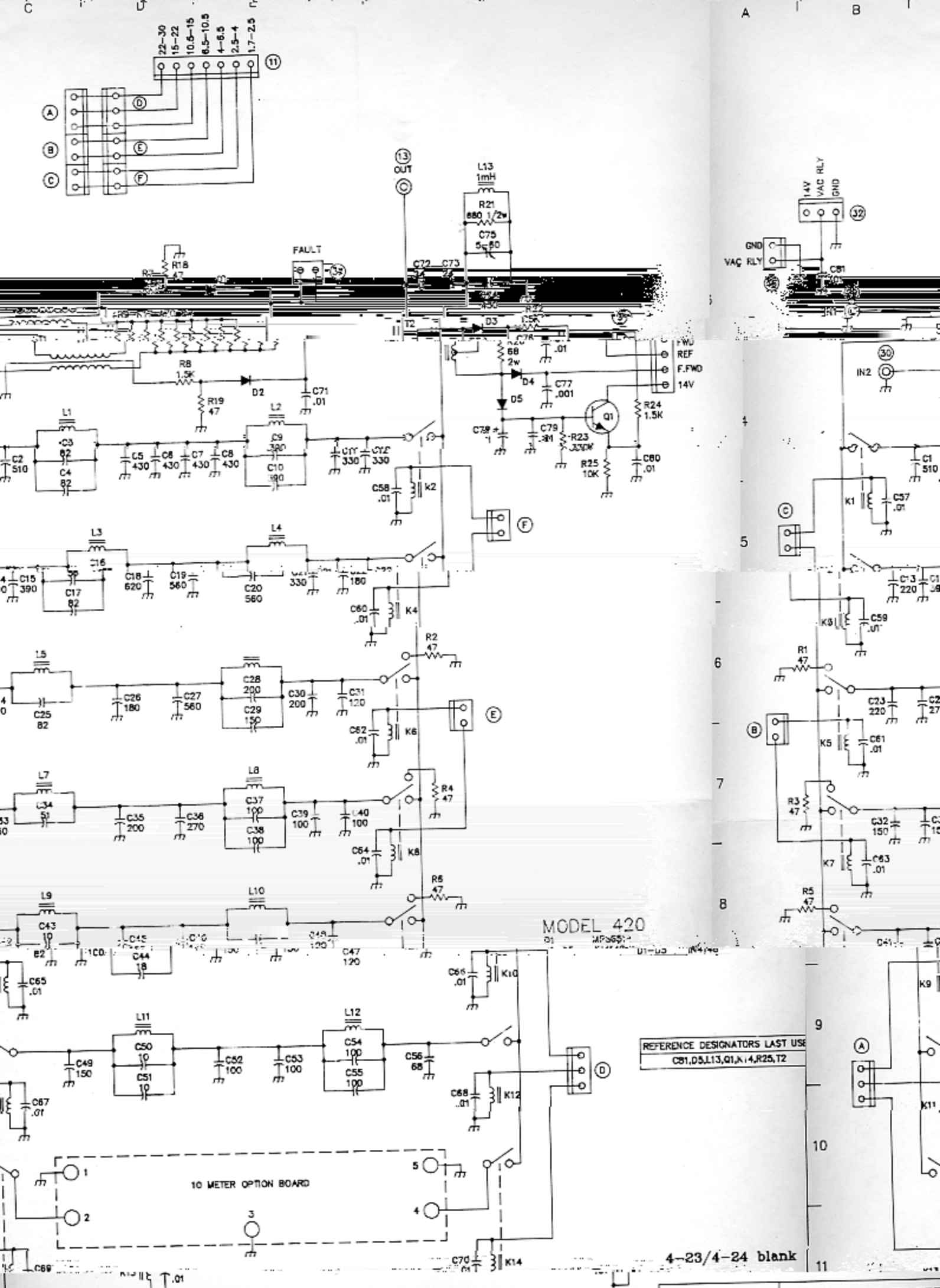
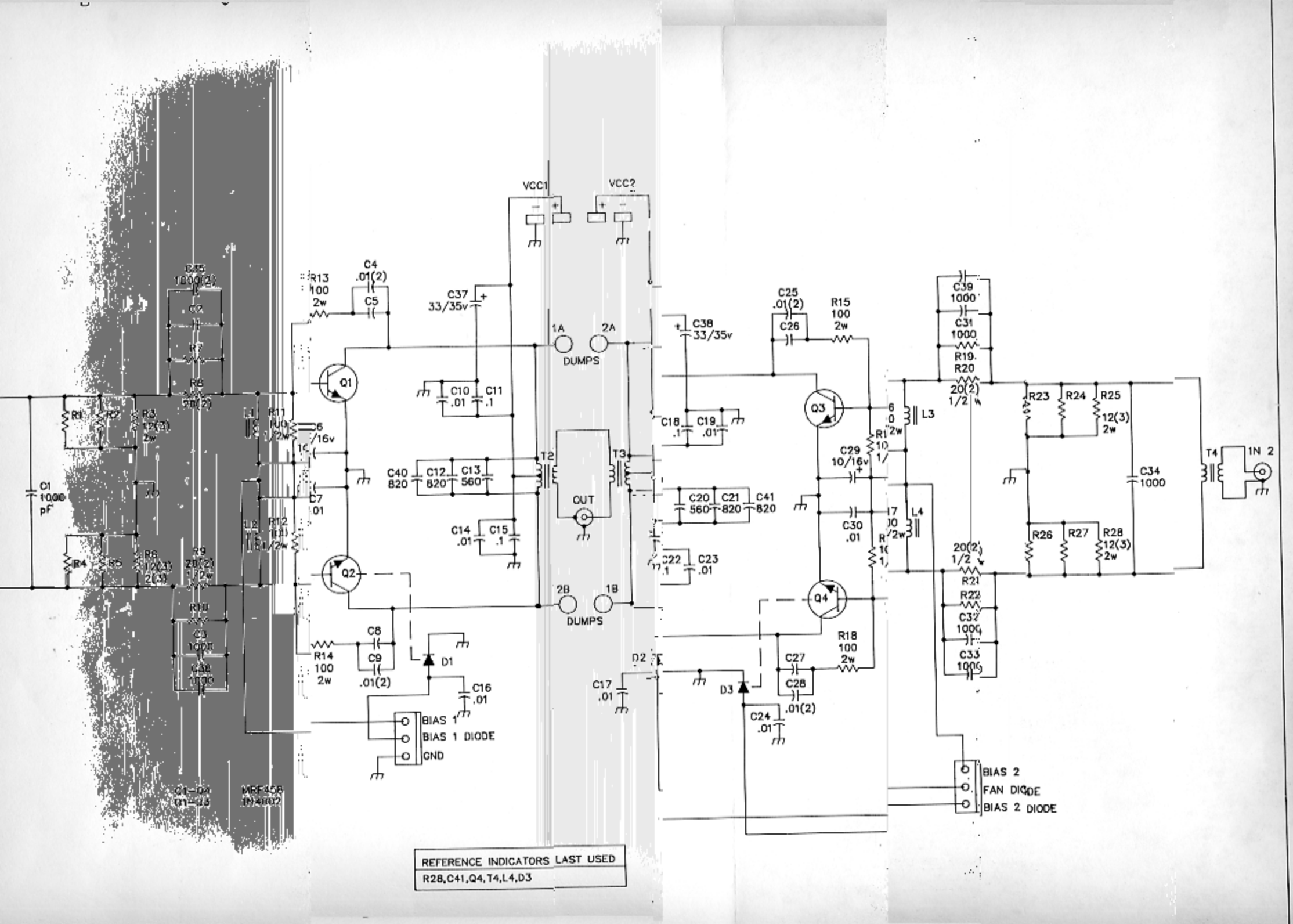
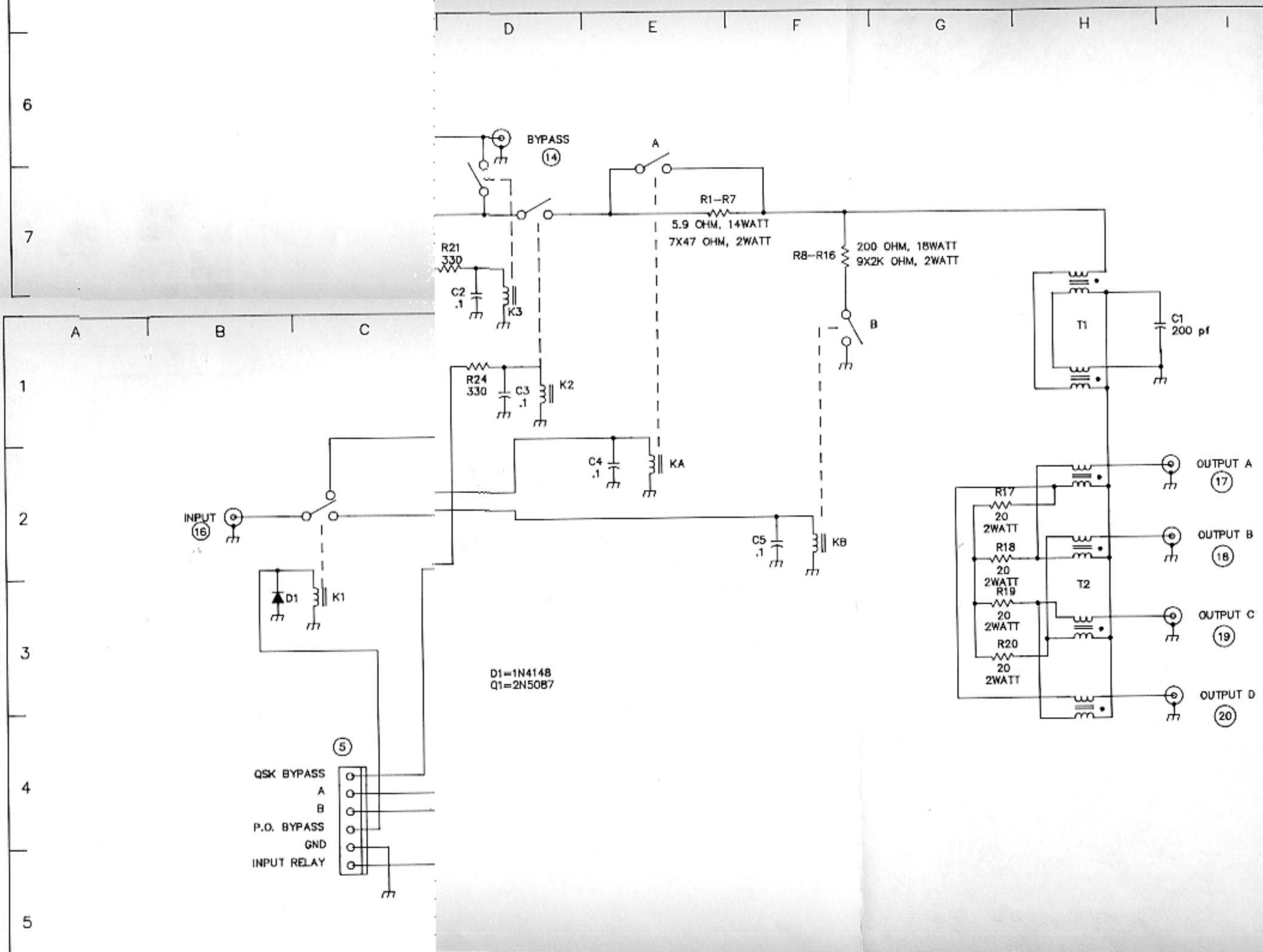
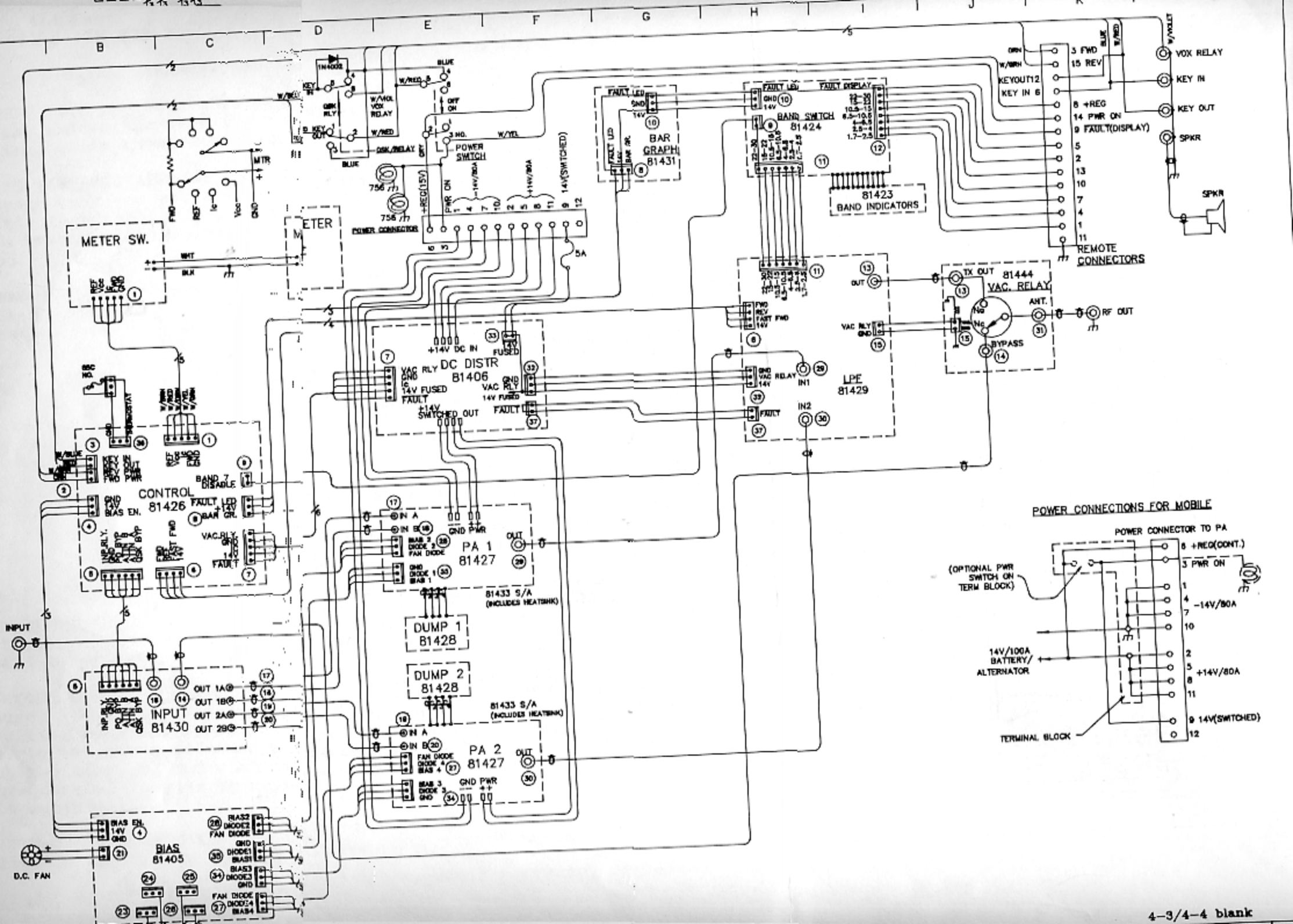


FIGURE 4-13 LOW PASS FILTER


VCC1
VCC2
C4 .01(2)
C5
R13 100 2w
C37 33/35v
1A
2A
DUMPS
C38 33/35v
C25 .01(2)
C26
R15 100 2w
C39 1000
C31 1000
R19
R20
20(2) 1/2 w
C10 .01
C11 .1
C18 .1
C19 .01
Q1
Q3
L3
T2
T3
C40 820
C12 820
C13 560
OUT
C20 560
C21 820
C41 820
C29 10/16v
C30 .01
L4
C14 .01
C15 .1
C22 .1
C23 .01
R23
R24
R25 12(3) 2w
C34 1000
T4
1N 2
R26
R27
R28 12(3) 2w
C1 1000 pF
R1
R2
R3 12(2) 2w
R4
R5
R6 12(3) 2(3)
R7 20(2) 1/2w
R8
R9
R10
R11 100 1/2w
R12 100 1/2w
C6 /16v
C7 .01
Q2
Q4
2B
1B
DUMPS
R21
R22
C32 1000
C33 1000
20(2) 1/2 w
C8
C9 .01(2)
R14 100 2w
D1
D2
D3
C16 .01
C17 .01
C27
C28 .01(2)
C24 .01
R18 100 2w
BIAS 1
BIAS 1 DIODE
GND
BIAS 2
FAN DIODE
BIAS 2 DIODE
MRF458
1N4002
REFERENCE INDICATORS LAST USED
R28,C41,Q4,T4,L4,D3


BYPASS
14
A
R1–R7
5.9 OHM, 14WATT
7X47 OHM, 2WATT
R8–R16
200 OHM, 15WATT
9X2K OHM, 2WATT
B
R21
330
C2
.1
K3
R24
330
C3
.1
K2
C4
.1
KA
C5
.1
KB
T1
C1
200 pf
T2
INPUT
16
D1
K1
D1=1N4148
Q1=2N5087
OUTPUT A
17
OUTPUT B
18
OUTPUT C
19
OUTPUT D
20
R17
20
2WATT
R18
20
2WATT
R19
20
2WATT
R20
20
2WATT
5
QSK BYPASS
A
B
P.O. BYPASS
GND
INPUT RELAY


METER SW.
METER
MTR
FWD
REF
Ig
Vdd
GND
WHT
BLK
1N4002
KEY SW
W/VIOL
VOX RELAY
W/RED
BLUE
KEY OUT
DISK/RELAY
OFF
ON
3 NO.
W/YEL
POWER SWITCH
756
POWER CONNECTOR
+REG(15V)
PWR ON
-14V/80A
+14V/80A
14V(SWITCHED)
5A
FAULT LED
BAR GRAPH
81431
FAULT DISPLAY
BAND SWITCH
81424
81423
BAND INDICATORS
ORN
W/BRN
KEYOUT12
KEY IN 6
3 FWD
15 REV
8 +REG
14 PWR ON
9 FAULT(DISPLAY)
REMOTE CONNECTORS
VOX RELAY
KEY IN
KEY OUT
SPKR
+14V DC IN
DC DISTR
81406
VAC RLY
14V FUSED
FAULT
+14V SWITCHED OUT
LPE
81429
IN1
IN2
VAC RELAY
TX OUT
81444
VAC. RELAY
ANT.
RF OUT
BYPASS
CONTROL
81426
BAND 7 DISABLE
BIAS EN.
INPUT
INPUT
81430
OUT 1A
OUT 1B
OUT 2A
OUT 2B
PA 1
81427
PA 2
81427
81433 S/A
(INCLUDES HEATSINK)
DUMP 1
81428
DUMP 2
81428
BIAS
81405
D.C. FAN
POWER CONNECTIONS FOR MOBILE
POWER CONNECTOR TO PA
(OPTIONAL PWR SWITCH ON TERM BLOCK)
14V/100A BATTERY/ ALTERNATOR
TERMINAL BLOCK
8 +REG(CONT.)
3 PWR ON
-14V/80A
+14V/80A
9 14V(SWITCHED)