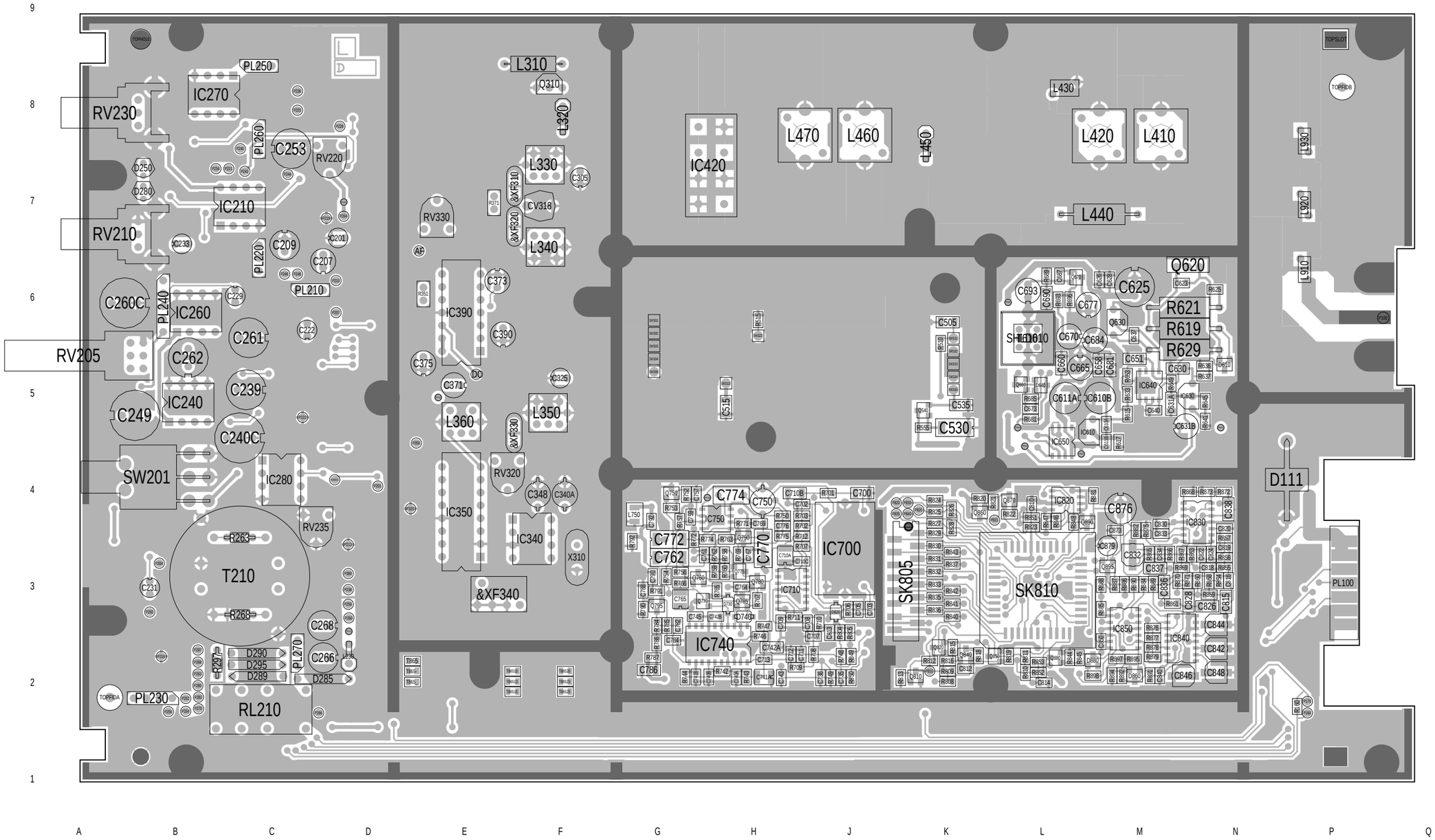
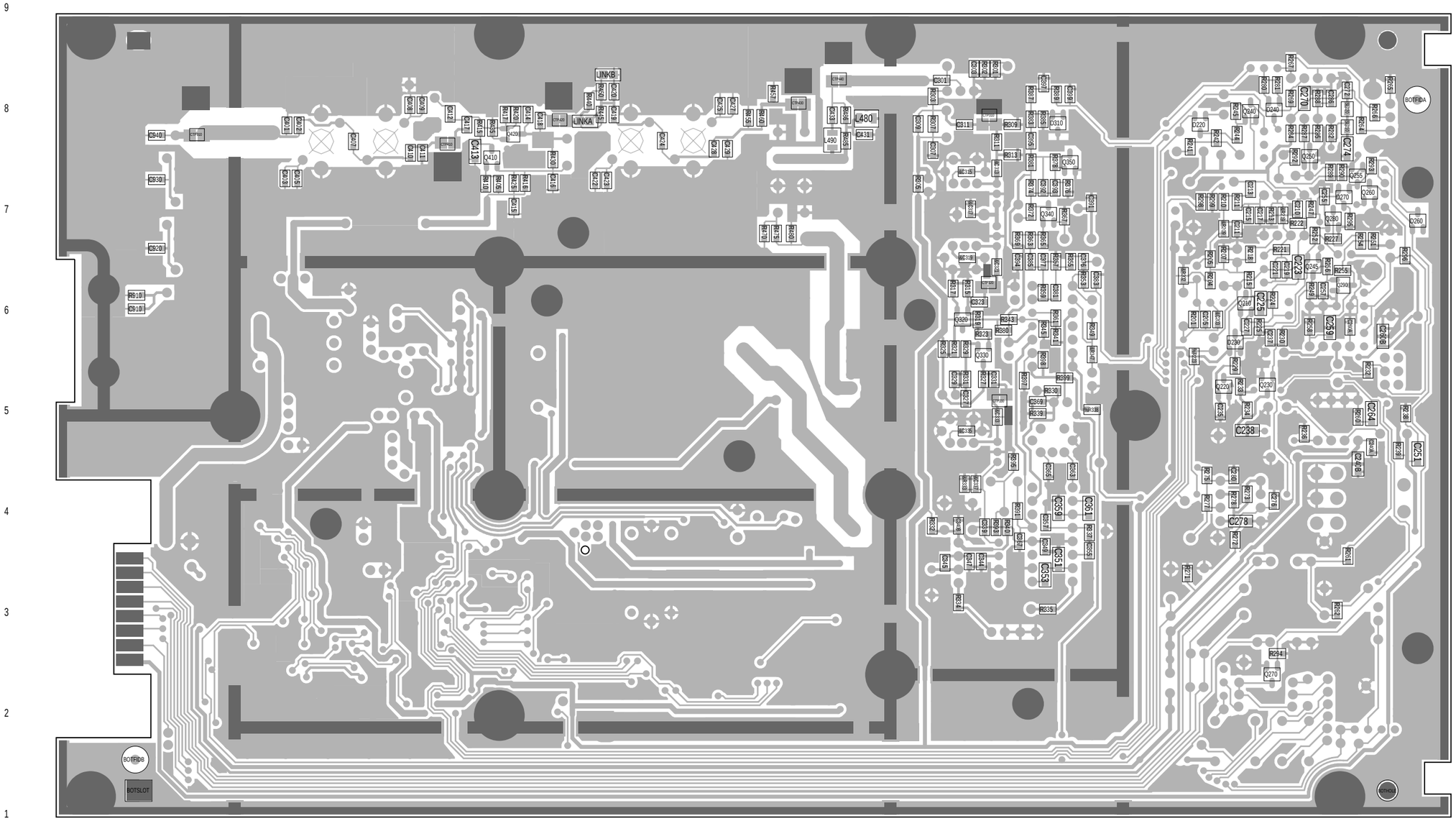


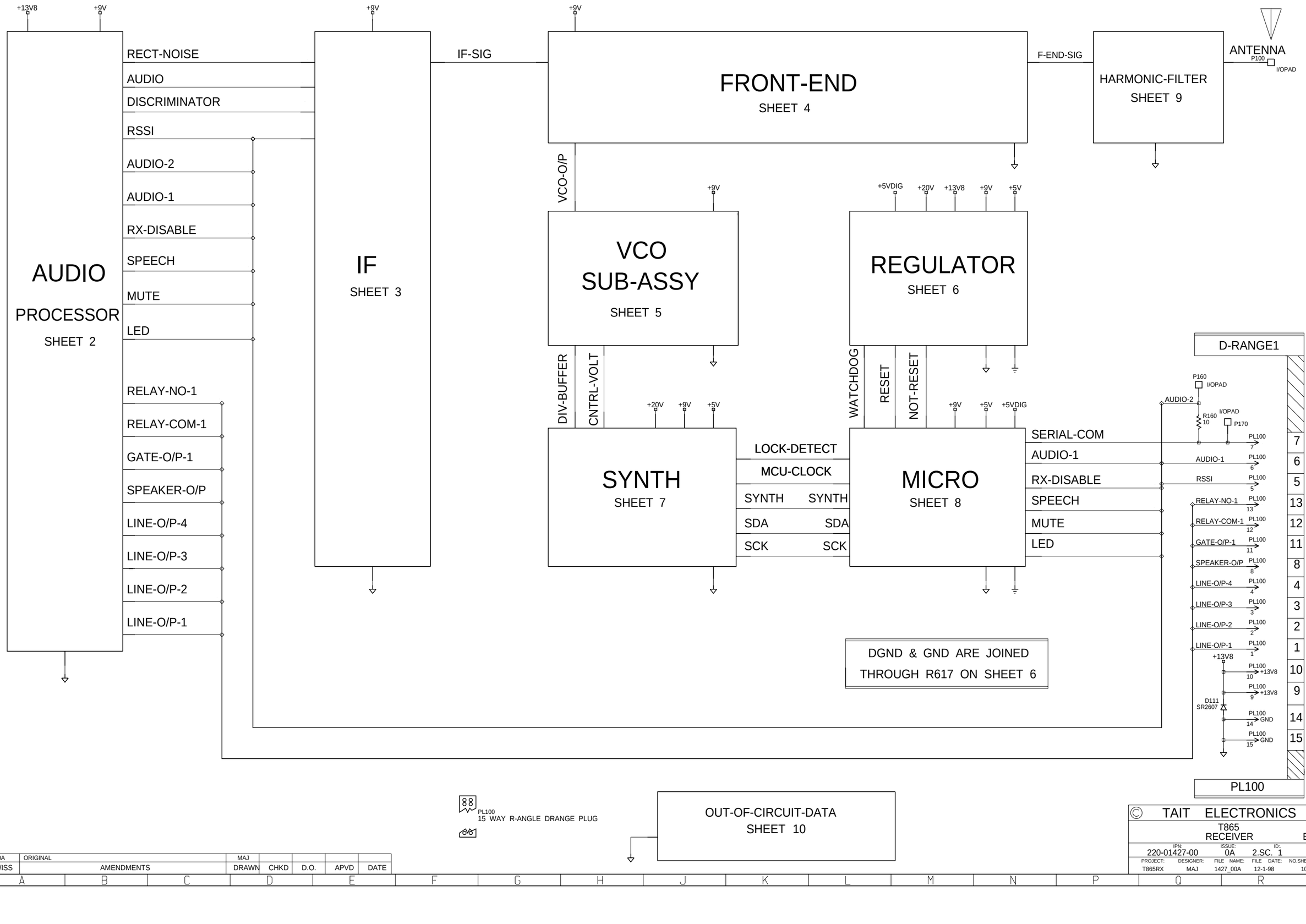
TAIT ELECTRONICS	IPN: 220-01427-00	ISS: -00	ID: 1.TA	DATE: 12 Jan 1998
865 RECEIVER PCB LAYOUT - TOP SIDE				B6.27

Scale:1.2:1 ; Rotation: 0 degrees



TAIT ELECTRONICS	IPN: 220-01427-00	ISS: -00	ID: 2.BA	DATE: 12 Jan 1998
865 RECEIVER PCB LAYOUT - BOTTOM SIDE				B6.28

Scale:1.2:1 ; Rotation: 0 degrees



REV/ISS	AMENDMENTS	DRAWN	CHKD	D.O.	APVD	DATE
0A	ORIGINAL	MAJ				

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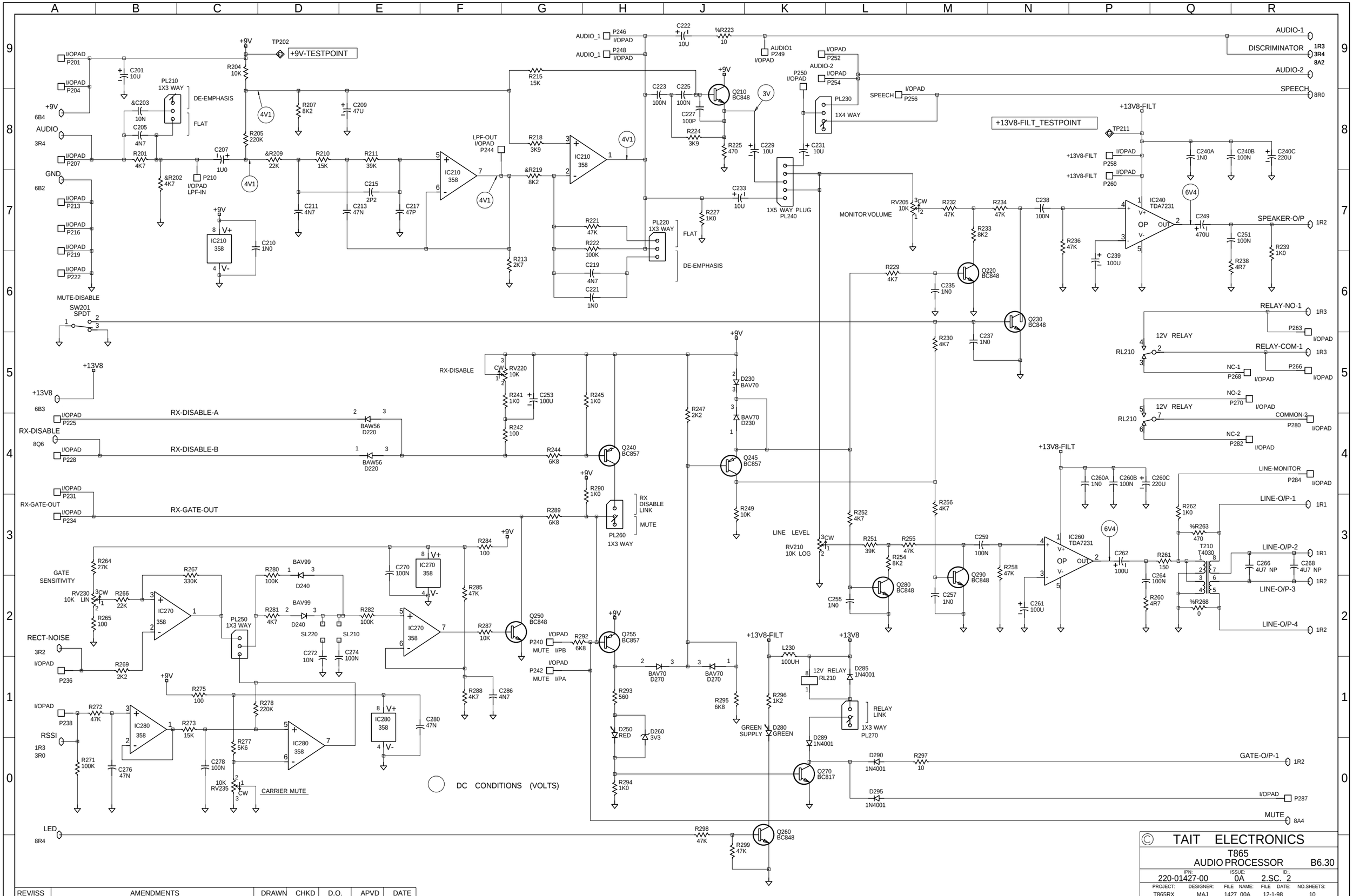
T865
RECEIVER B6.29

IPN:	ISSUE:	ID:
220-01427-00	0A	2.SC. 1

PROJECT:	DESIGNER:	FILE NAME:	FILE DATE:	NO.SHEETS:
T865RX	MAJ	1427_00A	12-1-98	10



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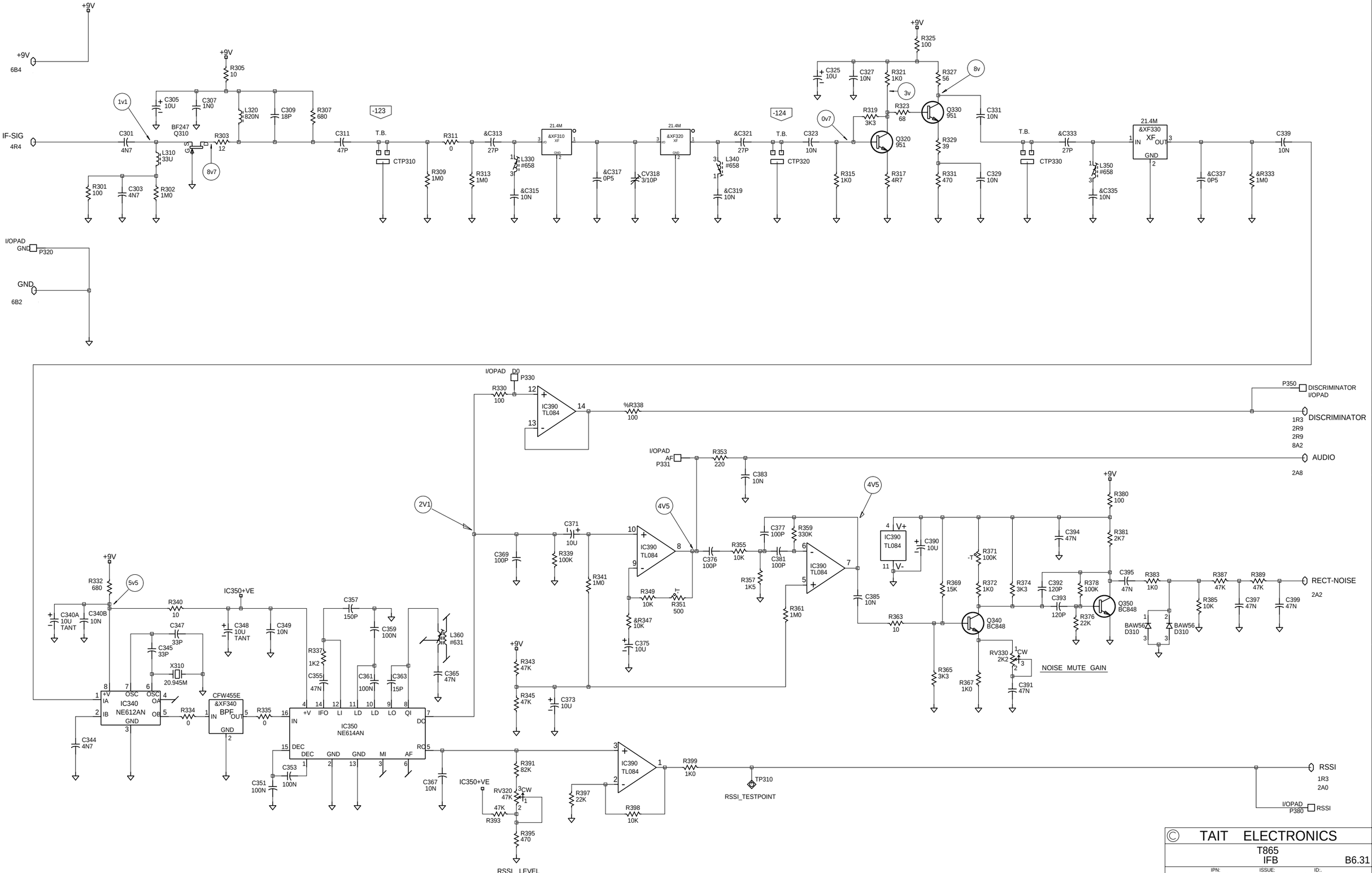
T865
AUDIO PROCESSOR B6.30

IPN:	ISSUE:	ID:
220-01427-00	0A	2.SC. 2

PROJECT:	DESIGNER:	FILE NAME:	FILE DATE:	NO.SHEETS:
T865RX	MAJ	1427_00A	12-1-98	10

REV/ISS	AMENDMENTS	DRAWN	CHKD	D.O.	APVD	DATE



REV/ISS	AMENDMENTS	DRAWN	CHKD	D.O.	APVD	DATE

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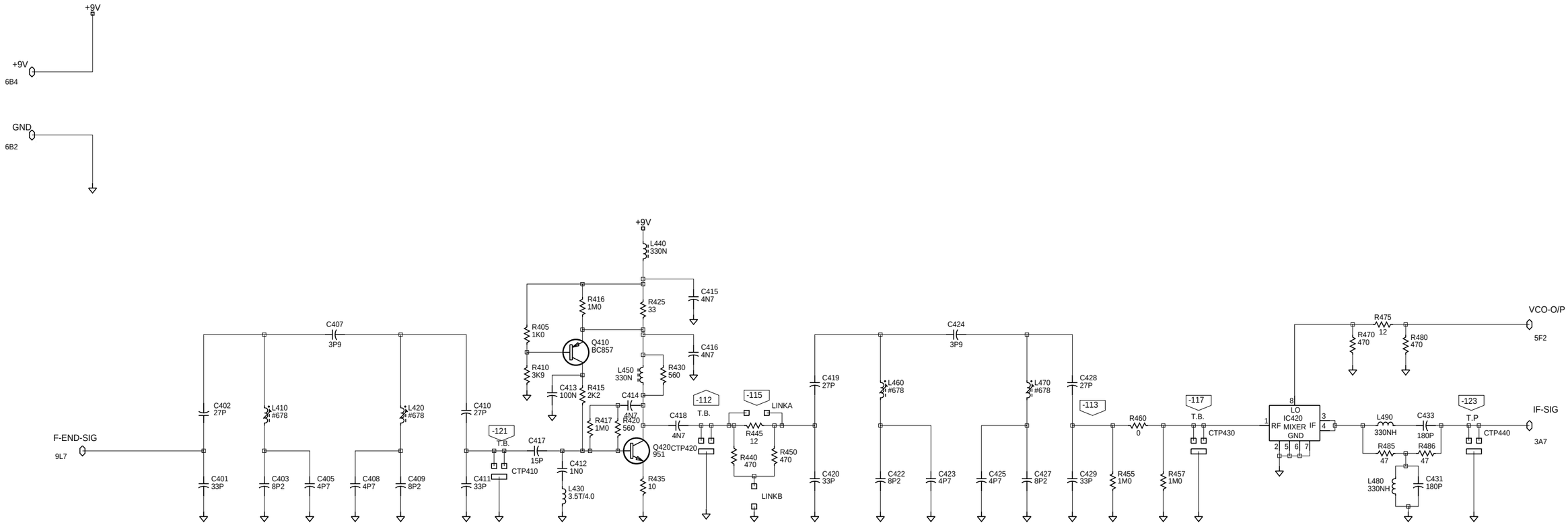
T865
IFB B6.31

IPN:	ISSUE:	ID:
220-01427-00	0A 2.SC. 3	

PROJECT:	DESIGNER:	FILE NAME:	FILE DATE:	NO.SHEETS:
T865RX	MAJ	1427_00A	12-1-98	10



REV/ISS	AMENDMENTS	DRAWN	CHKD	D.O.	APVD	DATE

T865
FRONT-END B6.32

IPN:	ISSUE:	ID.:		
220-01427-00	0A	2.SC. 4		
PROJECT:	DESIGNER:	FILE NAME:	FILE DATE:	NO.SHEETS:
T865RX	MAJ	1427_00A	12-1-98	10

CNTRL-VOLT
7R3

R510
2K2

C505
100N

+9V

+9V
6B4

GND
6B2

1
SK501
GND
1 WAY SOCKET

2
SK502
GND
1 WAY SOCKET

3
SK503
GND
1 WAY SOCKET

4
SK504
GND
1 WAY SOCKET

5
SK505
RF-OUT
1 WAY SOCKET

VCO-O/P
4R5

+9V

C515
100N

SK513
1 WAY SOCKET
VCO-BUFFER

DIV-BUFFER
7R0

SK522
1 WAY SOCKET
DIV-BUFFER

R515
56

CV-OUT
SK531
1 WAY SOCKET

1
GND
SK532
1 WAY SOCKET

2
GND
SK533
1 WAY SOCKET

3
GND
SK534
1 WAY SOCKET

4
+9V-VCO
SK535
1 WAY SOCKET

5

+9V

Q540
BC848

R555
470

C530
22U
TANT

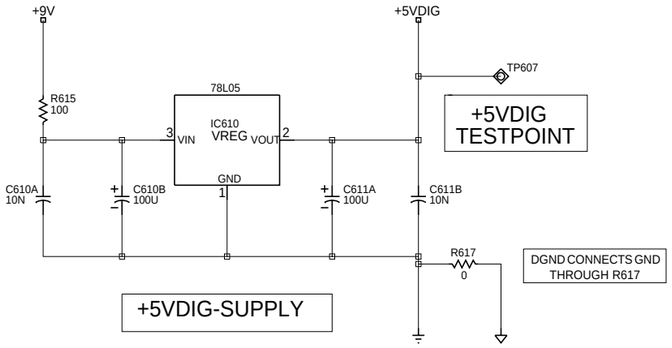
C535
100N

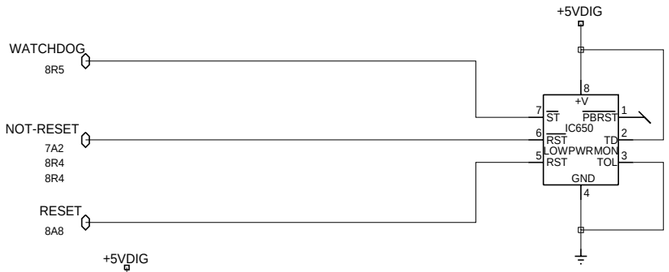
T865
VCO SUB-ASSY B6.33

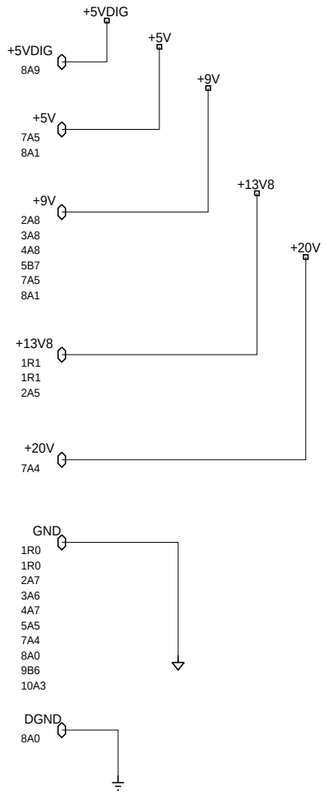
IPN:	ISSUE:		ID:
220-01427-00	0A	2.SC.	5

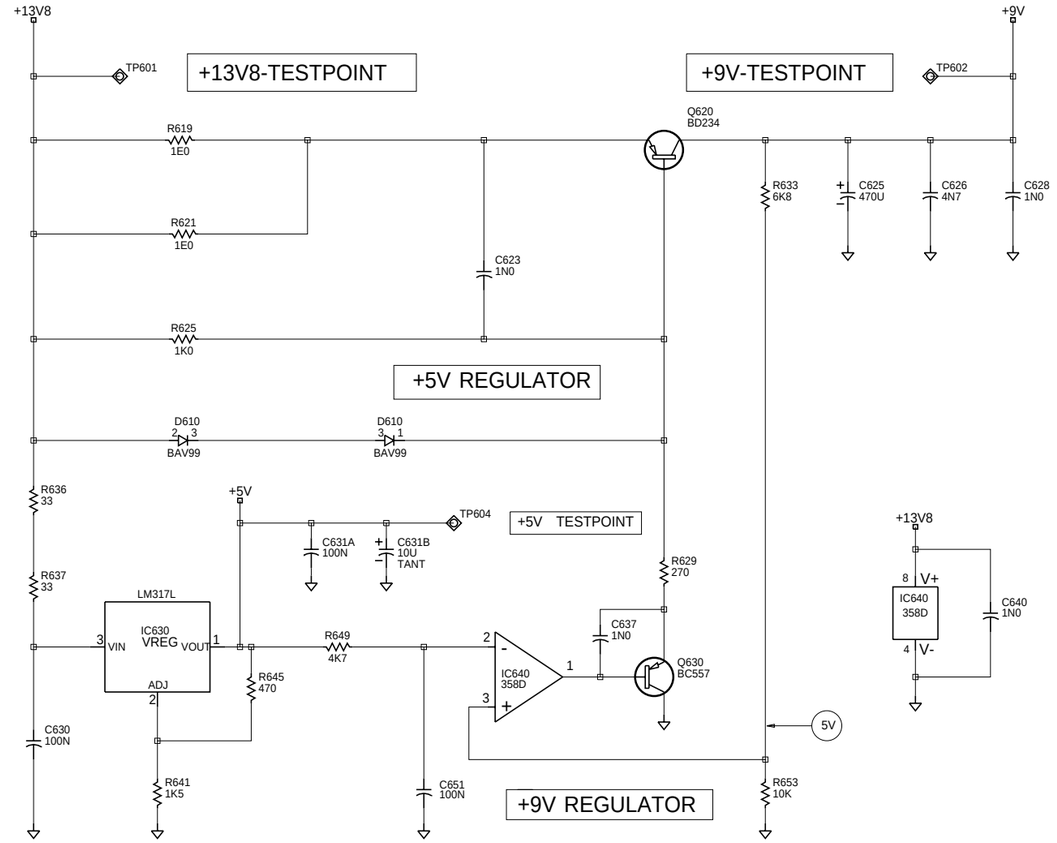
PROJECT:	DESIGNER:	FILE NAME:	FILE DATE:	NO.SHEETS:
T865RX	MAJ	1427_00A	12-1-98	10

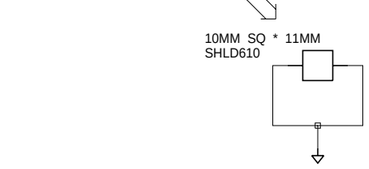
REV/ISS	AMENDMENTS	DRAWN	CHKD	D.O.	APVD	DATE

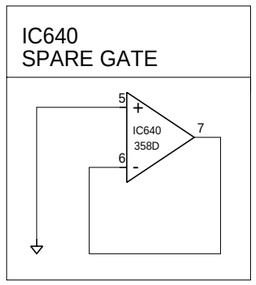












REV/ISS	AMENDMENTS	DRAWN	CHKD	D.O.	APVD	DATE

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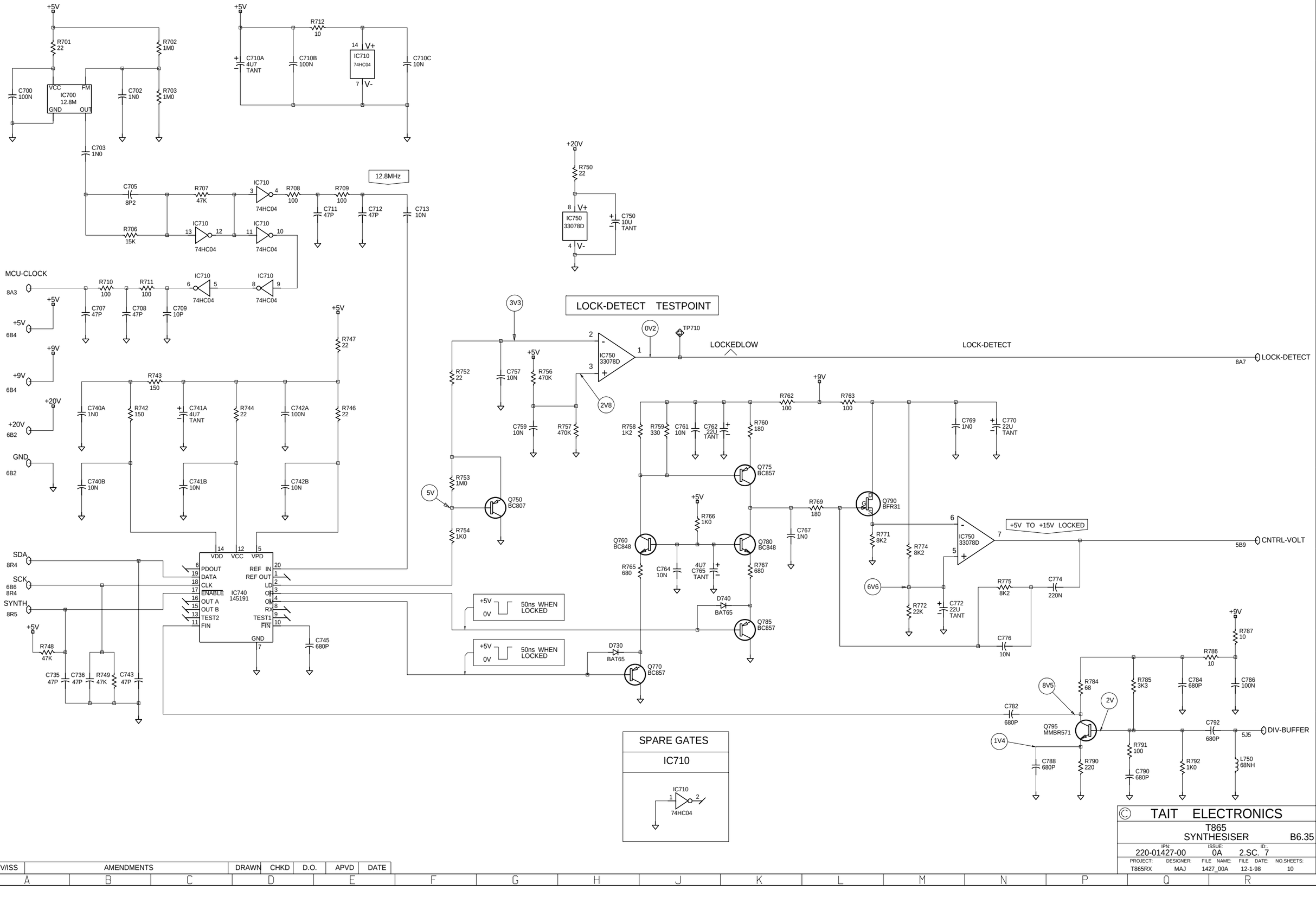
T865
REGULATOR B6.34

IPN:	ISSUE:	ID:
220-01427-00	0A	2.SC. 6

PROJECT:	DESIGNER:	FILE NAME:	FILE DATE:	NO.SHEETS:
T865RX	MAJ	1427_00A	12-1-98	10


+5V
R701 22
R702 1M0
C700 100N
IC700 12.8M
VCC FM GND OUT
C702 1N0
R703 1M0
C703 1N0
12.8MHz
C705 8P2
R707 47K
IC710 74HC04
R708 100
R709 100
C711 47P
C712 47P
C713 10N
R706 15K
MCU-CLOCK
8A3
R710 100
R711 100
C707 47P
C708 47P
C709 10P
6B4
+9V
6B4
+20V
6B2
GND
6B2
R747 22
R743 150
C740A 1N0
R742 150
C741A 4U7 TANT
R744 22
C742A 100N
R746 22
C740B 10N
C741B 10N
C742B 10N
SDA
8R4
SCK
6B6 8R4
SYNTH
8R5
IC740 145191
VDD VCC VPD
PDOUT DATA CLK ENABLE OUT A OUT B TEST2 FIN
REF IN REF OUT LD OP OM RX TEST1 FIN GND
C745 680P
R748 47K
C735 47P
C736 47P
R749 47K
C743 47P
R712 10
C710A 4U7 TANT
C710B 100N
IC710 74HC04
V+ V-
C710C 10N
+20V
R750 22
IC750 33078D
C750 10U TANT
V+ V-
3V3
LOCK-DETECT TESTPOINT
0V2
TP710
LOCKEDLOW
LOCK-DETECT
8A7
IC750 33078D
R752 22
C757 10N
R756 470K
2V8
C759 10N
R757 470K
R753 1M0
5V
Q750 BC807
R754 1K0
R758 1K2
R759 330
C761 10N
C762 22U TANT
R760 180
R762 100
R763 100
C769 1N0
C770 22U TANT
Q775 BC857
Q760 BC848
R766 1K0
Q780 BC848
R765 680
C764 10N
4U7 C765 TANT
R767 680
D740 BAT65
Q785 BC857
R769 180
C767 1N0
Q790 BFR31
R771 8K2
R774 8K2
6V6
R772 22K
C772 22U TANT
+5V TO +15V LOCKED
IC750 33078D
CNTRL-VOLT
5B9
R775 8K2
C774 220N
C776 10N
50ns WHEN LOCKED
D730 BAT65
Q770 BC857
+9V
R787 10
R786 10
8V5
R784 68
R785 3K3
C784 680P
C786 100N
2V
C782 680P
Q795 MMBR571
C792 680P
DIV-BUFFER
5J5
1V4
R791 100
C790 680P
C788 680P
R790 220
R792 1K0
L750 68NH
SPARE GATES
IC710
IC710 74HC04
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T865
SYNTHESISER
B6.35
IPN: 220-01427-00
ISSUE: 0A
ID: 2.SC. 7
PROJECT: T865RX
DESIGNER: MAJ
FILE NAME: 1427_00A
FILE DATE: 12-1-98
NO.SHEETS: 10
REV/ISS
AMENDMENTS
DRAWN
CHKD
D.O.
APVD
DATE

CHANNEL SELECT TO MICRO BUS

+5VDIG
+5VDIG 6B4
0V
RESET 6B5
RESET
+5V
R804 47K
LOCK-DETECT 7R5
D820 BAT65
R805 470
SYNTH_LOCK_DETECT
+5VDIG
R810 4K7
R809 4K7
Q820 BC857
R811 4K7
SERIAL-COM 1R4
R808 10
R812 4K7
Q810 BC817
R813 4K7
5V
SERIAL-COM-1 I/OPAD P810
+9V
T-MUTE
P815 I/OPAD
R820 47K
Q860 BC857
R821 47K
MUTE 2R0
Q870 BC848
R823 47K
R822 47K
MCU-CLOCK 7A6
MCU-CLOCK
12.8MHz
CH-SLCT-0
CH-SLCT-1
CH-SLCT-2
CH-SLCT-3
CH-SLCT-4
CH-SLCT-5
CH-SLCT-6
CH-SLCT-7
+5VDIG
C810 10N
SK810 80C51
10 RST
44 VCC
9 P1.7
8 P1.6
7 P1.5
6 P1.4
5 P1.3
4 P1.2
3 P1.1
2 P1.0
19 P3.7/RD
18 P3.6/WR
17 P3.5/T1
16 P3.4/T0
15 P3.3/INT1
14 P3.2/INT0
13 P3.1/TXD
11 P3.0/RXD
22 VSS
21 XTL1
20 XTL2
C813 1N0
36 P0.7
37 P0.6
38 P0.5
39 P0.4
40 P0.3
41 P0.2
42 P0.1
43 P0.0
35 EA
33 ALE
32 PSEN
31 P2.7 MUTE_OUT
30 P2.6 WATCHDOG
29 P2.5 SYNS
28 P2.4 SDA
27 P2.3 SCK
26 P2.2 CTCSS_LSB
25 P2.1 CTCSS_RX
24 P2.0 CTCSS_MSB
+5VDIG
Q840 BC857
R818 4K7
R819 4K7
Q850 BC848
5V
C812 100P
R815 47K
R816 150K
DCS_INPUT
CTCSS_ENABLE
LED_FLASH
SERIAL_COM-1
MUTE_OUT
R824 2K2
R825 2K2
R826 2K2
R827 2K2
R828 2K2
P820 AUX-OUT-7 I/OPAD
P825 AUX-OUT-6 I/OPAD
P830 AUX-OUT-5 I/OPAD
P835 AUX-OUT-4 I/OPAD
P840 AUX-OUT-3 I/OPAD
+5VDIG
R846 4K7
R847 4K7
Q880 BC848
R845 150K
R844 47K
2A4
CH-SLCT-0 R829 2K2 SK805 CH-SLCT-0 1
CH-SLCT-1 R830 2K2 SK805 CH-SLCT-1 3
CH-SLCT-2 R831 2K2 SK805 CH-SLCT-2 5
CH-SLCT-3 R832 2K2 SK805 CH-SLCT-3 7
CH-SLCT-4 R833 2K2 SK805 CH-SLCT-4 9
CH-SLCT-5 R835 2K2 SK805 CH-SLCT-5 11
CH-SLCT-6 R836 2K2 SK805 CH.SLCT-6 13
CH-SLCT-7 R837 2K2 SK805 CH-SLCT-7 6
+5VDIG SK805 +5VDIG 16
R840 2K2 SK805 AUX-OUT-2 14
R841 2K2 SK805 AUX-OUT-1 12
R842 2K2 SK805 AUX-OUT-0 10
R843 2K2 SK805 CTCSS-DISABLE 4
SK805 SERIAL-COM-1 8
SK805 RX-DISABLE 2
SK805 GND 15

MICROMATCH	D-RANGE2
1	1
3	2
5	3
7	4
9	5
11	6
13	7
6	11
16	NC
14	15
12	14
10	13
4	10
8	12
2	9
15	8

MICROMATCH TO D-RANGE2 CONNECTIONS

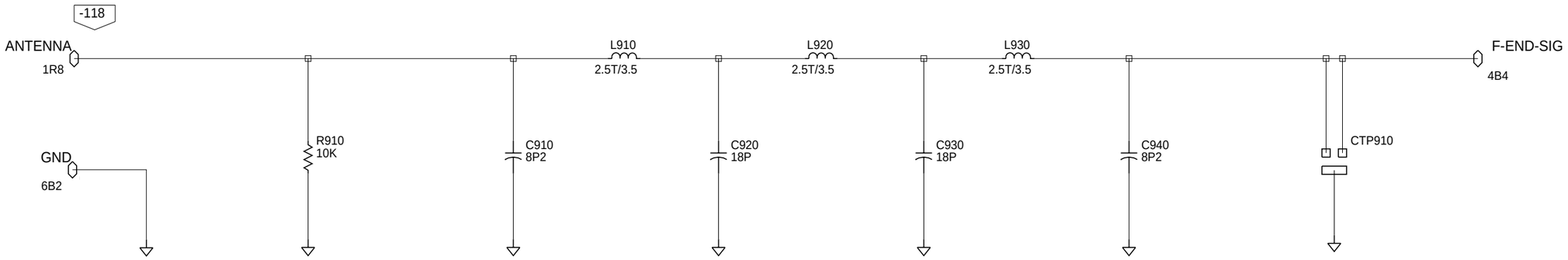
+5VDIG
IC820 24C16
8 +V
1 A0
2 A1
3 A2
4 GND
6 SCL
5 SDA
7 WP
R852 4K7
R848 470 WATCHDOG 6B6
R849 470 SYNTH 7A2
R850 470 SDA 7A2
R851 470 SCK
NOT-RESET 6B6
R853 470 LED 7A2
C814 1N0
Q890 BC848
R882 47K
R881 47K
IC850 LM324D
14 12 13 2 1 3
+4V2
+9V
R884 150K
R885 150K
C873 22N
C876 100U
R886 10K 1%
R887 1K0 1%
R888 8K2 1%
3V8
BAV70 D880
BAV70 D880
Q895 BC848
R898 470K
R897 10K
R895 10K
3V7 WHEN DETECTING TONE
R894 4K7
C879 10U
R892 330K
BAV70 D860
BAV70 D860
AUDIO-1 1R3 2R9 2R9 3R4
C816 10N
C815 10N
R855 47K
R856 150K
R857 150K
C822 22N
C824 47N
C819 33P
C818 10N
C820 220P
R854 330K
R858 27K 1%
R859 1M2 1%
R860 820K 1%
C826 10N
C828 10N
R861 5K1 1%
IC830 LM324D
C832 1U0
R863 4K7
R865 2K7
C834 10N
R866 820K
C833 22N
R867 820K
R869 27K 1%
R870 1M2 1%
R871 820K 1%
R872 5K1 1%
C836 10N
C837 10N
C838 10N
R868 4K7
R875 4K7
R873 2K2
C840 47N
IC840 4053BD
R876 100K
R877 100K
R878 100K
R879 100K
C842 1U0
C844 1U0
C846 1U0
C848 1U0
R889 100K
R890 150K
R891 100K
C850 47N
SPEECH 2R8
+5V 6B4
+9V 6B4
DGND 6B0
GND 6B2

T865 MICROPROCESSOR B6.36

IPN:	ISSUE:	ID:
220-01427-00	0A	2.SC. 8

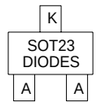
PROJECT:	DESIGNER:	FILE NAME:	FILE DATE:	NO.SHEETS:
T865RX	MAJ	1427_00A	12-1-98	10

REV/ISS	AMENDMENTS	DRAWN	CHKD	D.O.	APVD	DATE

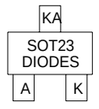


HARMONIC-FILTER

DIODE PHYSICAL PIN-OUTS



BAV70



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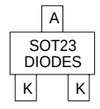
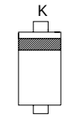
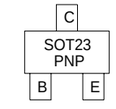


BAW56

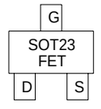


BAT65

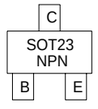
TRANSISTOR PHYSICAL PIN-OUTS



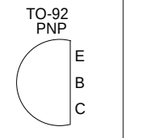
BC857
BC807



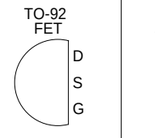
BFR31



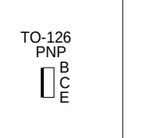
BC848
BC817
MMBR571
MMBR951L



BC557

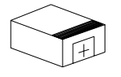


BF247



BD234

TANTALUMS



CHIP
TANTALUMS

T865
HARMONIC-FILTER B6.37

IPN:	ISSUE:	ID:.
220-01427-00	0A	2.SC. 9

PROJECT:	DESIGNER:	FILE NAME:	FILE DATE:	NO.SHEETS:
T865RX	MAJ	1427_00A	12-1-98	10

REV/ISS	AMENDMENTS	DRAWN	CHKD	D.O.	APVD	DATE

TOP SIDE VARIANT INDICATORS								
-10	-13	-15	-20	-23	-25	-	-	-
T86510 2K2	T86513 2K2	T86515 2K2	T86520 2K2	T86523 2K2	T86525 2K2	T865- 2K2	T865 2K2	T865_ 2K2

SMD LOCATION HOLES	
TOP SIDE	BOT SIDE
TOPHOLE HOLE, TOPSLOT SLOT	BOTHOLE HOLE, BOTSLOT SLOT

FIDUCIALS	
TOP SIDE	BOT SIDE
TOPFIDA FIDUCIAL, TOPFIDB FIDUCIAL	BOTFIDA FIDUCIAL, BOTFIDB FIDUCIAL

GND

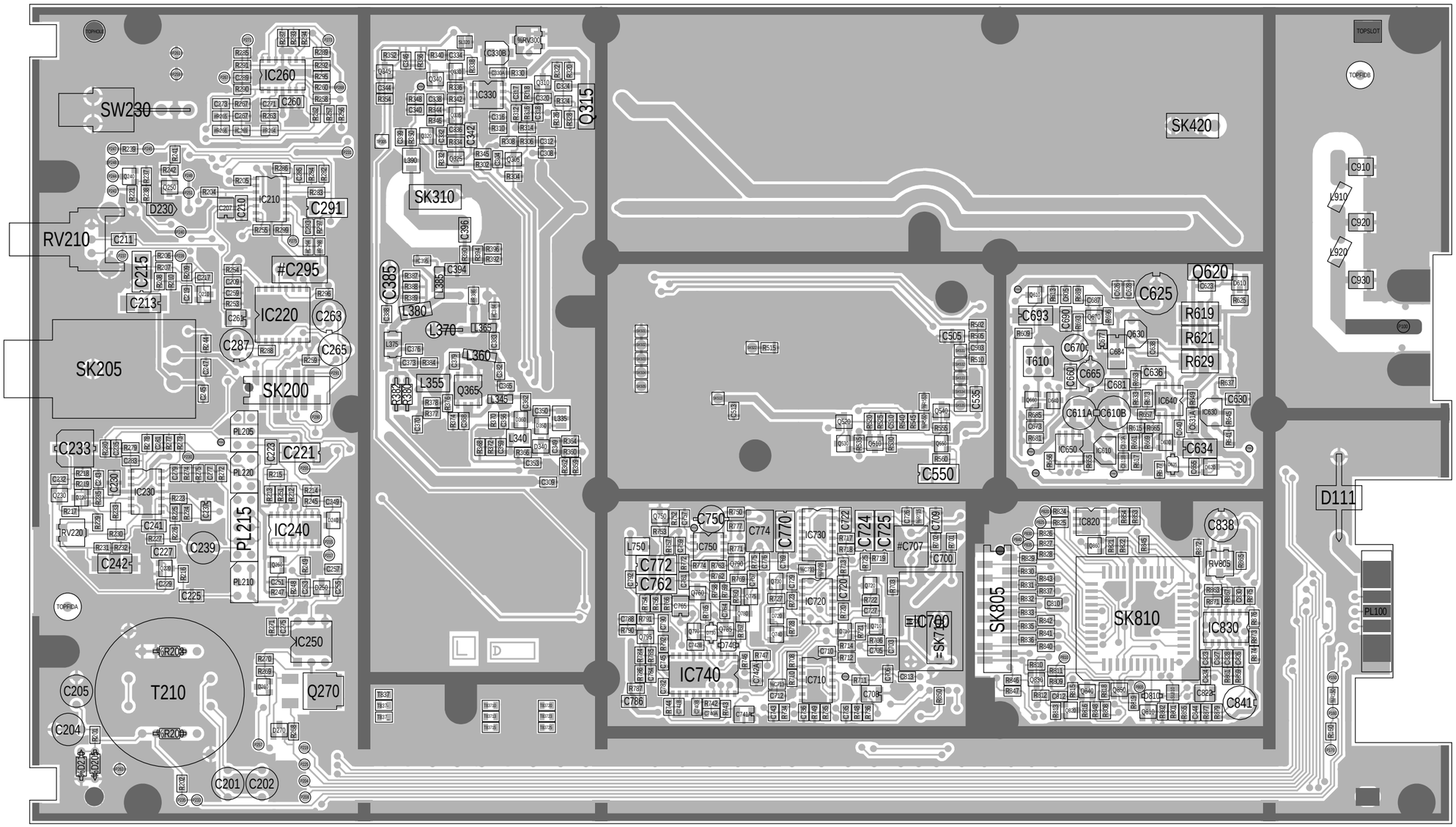
1R0
1R0
2A7
3A6
4A7
5A5
6B1
7A4
8A0
9B6

REV/ISS	AMENDMENTS	DRAWN	CHKD	D.O.	APVD	DATE

T865
OUT OF CIRCUIT DATA B6.38

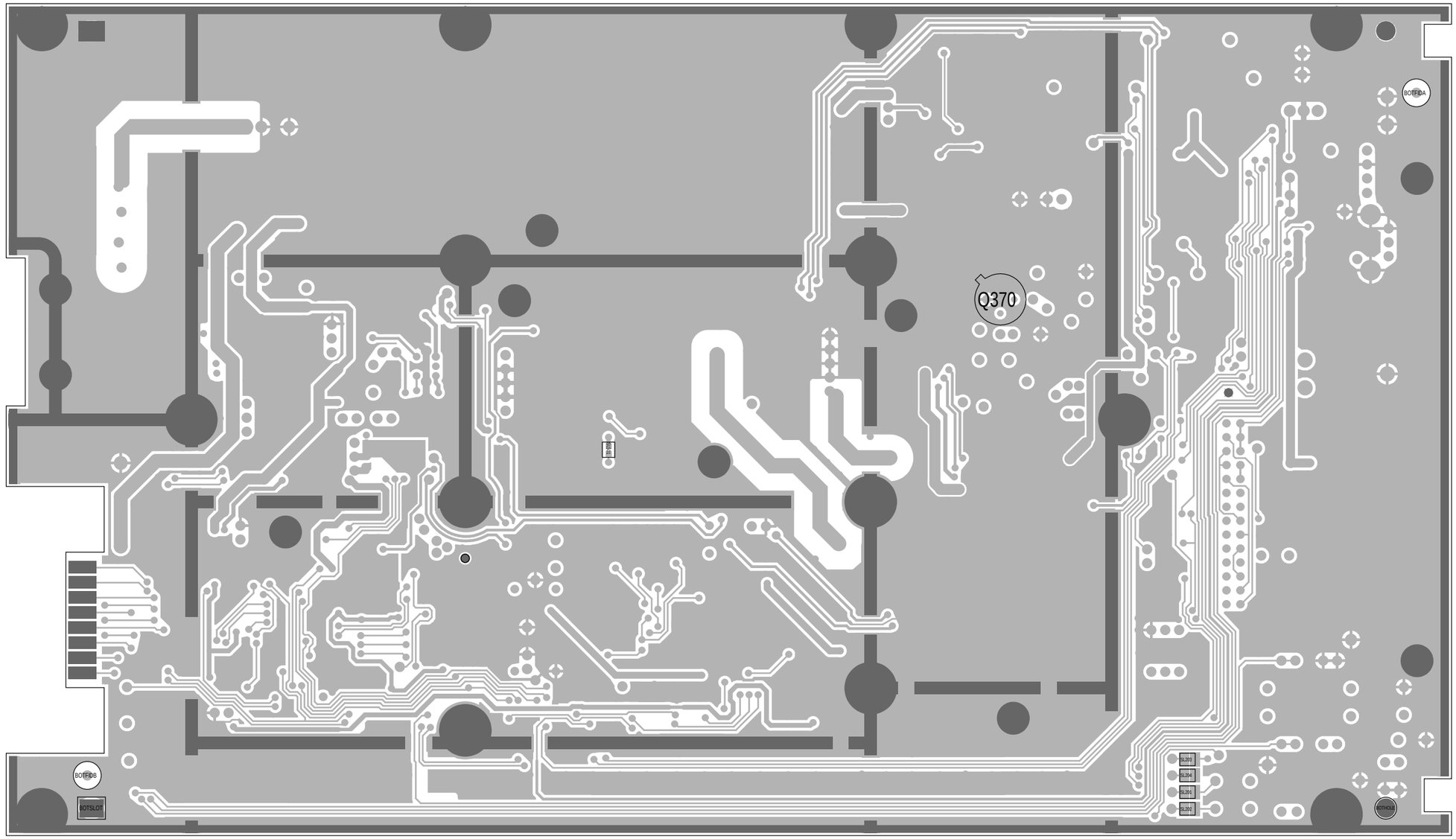
IPN:	ISSUE:	ID:.
220-01427-00	0A	2.SC. 10

PROJECT:	DESIGNER:	FILE NAME:	FILE DATE:	NO.SHEETS:
T865RX	MAJ	1427_00A	12-1-98	10



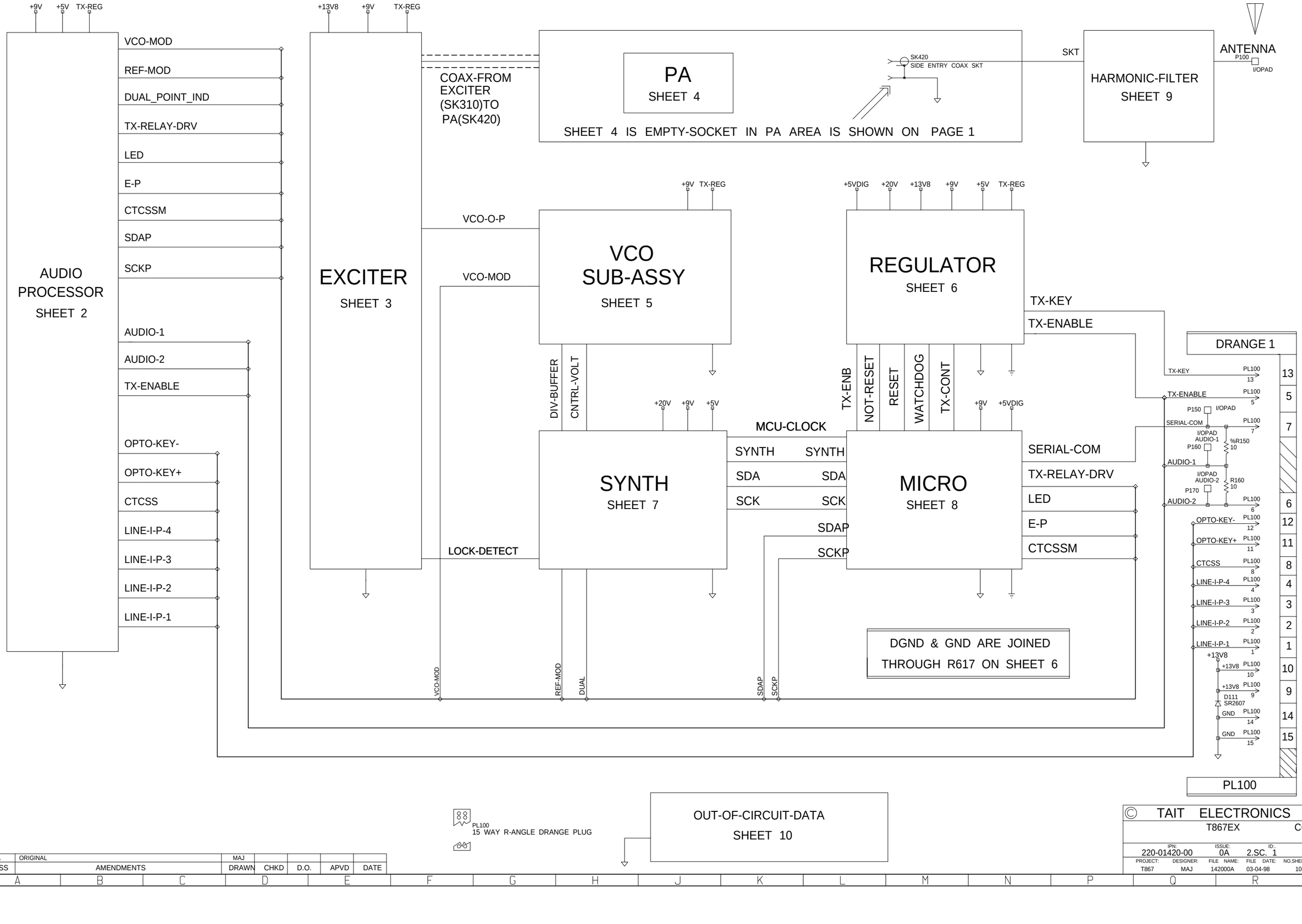
TAIT ELECTRONICS	IPN: 220-01420-00	ISS: -00A	ID: 1.TA	DATE: 7 Apr 1998
T867EXCITER PCB LAYOUT - TOP SIDE				C6.35

Scale:1.2:1 ; Rotation: 0 degrees



TAIT ELECTRONICS	IPN: 220-01420-00	ISS: -00A	ID: 2.BA	DATE: 7 Apr 1998
T867EXCITER PCB LAYOUT - BOTTOM SIDE				C6.36

Scale:1.2:1 ; Rotation: 0 degrees



REV/ISS	AMENDMENTS	DRAWN	CHKD	D.O.	APVD	DATE
0A	ORIGINAL	MAJ				

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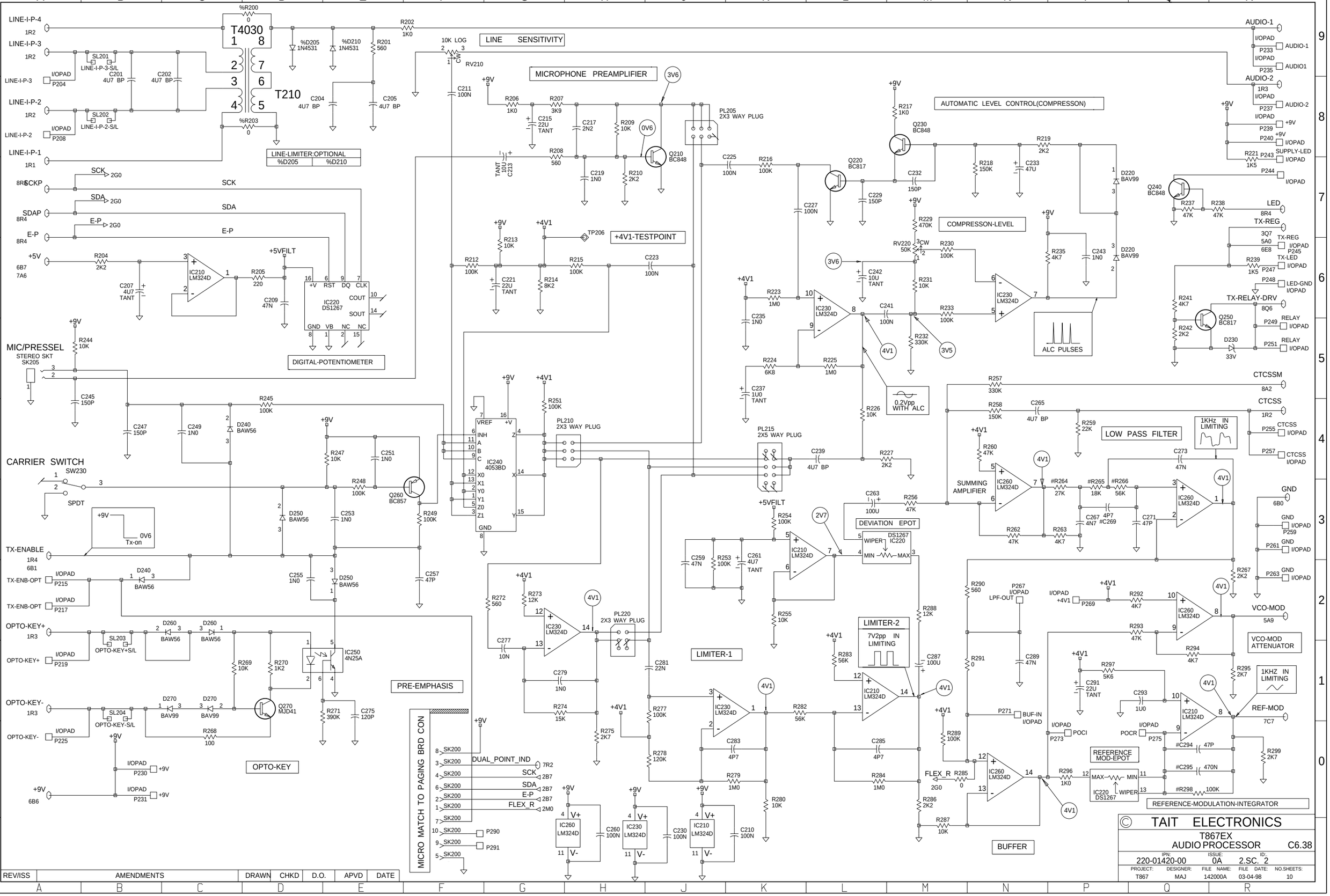
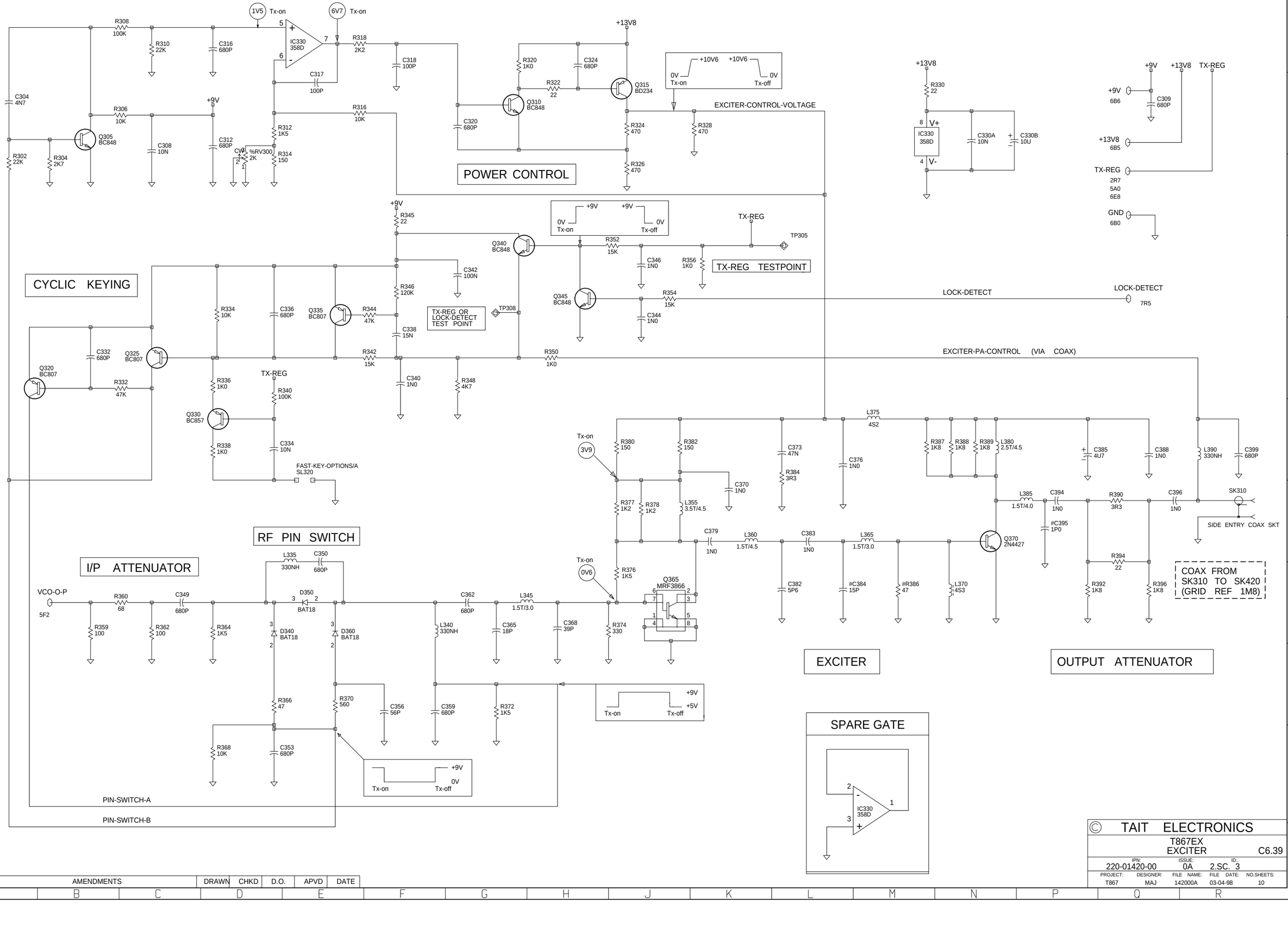
T867EX C6.37

IPN:	ISSUE:	ID:
220-01420-00	0A	2.SC. 1

PROJECT:	DESIGNER:	FILE NAME:	FILE DATE:	NO.SHEETS:
T867	MAJ	142000A	03-04-98	10


LINE SENSITIVITY
MICROPHONE PREAMPLIFIER
AUTOMATIC LEVEL CONTROL(COMPRESSON)
COMPRESSON-LEVEL
+4V1-TESTPOINT
DIGITAL-POTENTIOMETER
LINE-LIMITER:OPTIONAL
%D205
%D210
MIC/PRESSEL
STEREO SKT
SK205
CARRIER SWITCH
SW230
SPDT
TX-ENABLE
TX-ENB-OPT
OPTO-KEY+
OPTO-KEY-
OPTO-KEY
PRE-EMPHASIS
MICRO MATCH TO PAGING BRD CON
DUAL_POINT_IND
SCK
SDA
E-P
FLEX_R
LIMITER-1
LIMITER-2
7V2pp IN LIMITING
DEVIATION EPOT
ALC PULSES
0.2Vpp WITH ALC
LOW PASS FILTER
1KHz IN LIMITING
SUMMING AMPLIFIER
VCO-MOD ATTENUATOR
1KHZ IN LIMITING
REFERENCE MOD-EPOT
REFERENCE-MODULATION-INTEGRATOR
BUFFER
AUDIO-1
AUDIO-2
SUPPLY-LED
LED
TX-REG
TX-LED
LED-GND
TX-RELAY-DRV
RELAY
CTCSSM
CTCSS
VCO-MOD
REF-MOD
GND
T4030
T210
IC210 LM324D
IC220 DS1267
IC230 LM324D
IC240 4053BD
IC250 4N25A
IC260 LM324D
PL205 2X3 WAY PLUG
PL210 2X3 WAY PLUG
PL215 2X5 WAY PLUG
PL220 2X3 WAY PLUG
Q210 BC848
Q220 BC817
Q230 BC848
Q240 BC848
Q250 BC817
Q260 BC857
Q270 MJD41
D220 BAV99
D230 33V
D240 BAW56
D250 BAW56
D260 BAW56
D270 BAV99
SL201 LINE-I-P-3-S/L
SL202 LINE-I-P-2-S/L
SL203 OPTO-KEY+S/L
SL204 OPTO-KEY-S/L
TP206
+5V
+5VFILT
+9V
+4V1
2V7
3V6
0V6
4V1
3V5
Tx-on
SCKP
SDAP
E-P
LINE-I-P-4
LINE-I-P-3
LINE-I-P-2
LINE-I-P-1
I/OPAD
P204
P208
P215
P217
P219
P225
P230
P231
P233
P235
P237
P239
P240
P243
P244
P245
P247
P248
P249
P251
P255
P257
P259
P261
P263
P269
P271
P273
P275
P290
P291
LPF-OUT
BUF-IN
POCI
POCR
MAX
MIN
WIPER
DS1267 IC220
REV/ISS
AMENDMENTS
DRAWN
CHKD
D.O.
APVD
DATE
© TAIT ELECTRONICS
T867EX
AUDIO PROCESSOR
C6.38
IPN: 220-01420-00
ISSUE: 0A
ID: 2.SC. 2
PROJECT: T867
DESIGNER: MAJ
FILE NAME: 142000A
FILE DATE: 03-04-98
NO.SHEETS: 10



REV/ISS	AMENDMENTS	DRAWN	CHKD	D.O.	APVD	DATE

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T867EX
EXCITER C6.39

IPN:	ISSUE:	ID:
220-01420-00	0A	2.SC. 3

PROJECT:	DESIGNER:	FILE NAME:	FILE DATE:	NO.SHEETS:
T867	MAJ	142000A	03-04-98	10

REV/ISS	AMENDMENTS	DRAWN	CHKD	D.O.	APVD	DATE
	ORIGINAL	DAVES				

NOT USED C6.40

IPN:	ISSUE:	ID:
220-01420-00	0A	2.SC. 4

PROJECT:	DESIGNER:	FILE NAME:	FILE DATE:	NO.SHEETS:
T867	MAJ	142000A	03-04-98	10

VCO-MOD

2R2

R502
330

C503
4N7

R505
15K

CNTRL-VOLT

7R3

R510
680

1 SK501
1 WAY SOCKET

2 SK502
1 WAY SOCKET

3 SK503
1 WAY SOCKET

4 SK504
1 WAY SOCKET

5 SK505
1 WAY SOCKET

GND

6B0

VCO-O-P

3B2

DIV-BUFFER

7R0

SK522
1 WAY SOCKET

R515
56

CV-OUT

SK531
1 WAY SOCKET

C505
100N

SK532
1 WAY SOCKET

SK533
1 WAY SOCKET

SK534
1 WAY SOCKET

SK535
1 WAY SOCKET

VCO SUPPLY

+9V Tx-on

SK513
1 WAY SOCKET

+8V Tx-on

C513
10N

Q520
BC807

R540
2K2

%R550
4K7

R545
4K7

%R553
10K

R555
4K7

Q540
BC807

C535
100N

+9V

6B6

R520
120K

R525
47K

Q510
BC807

C510
22N

R530
22K

R535
10K

SL501
FAST-KEY-OPTION/B

Q530
BC807

TX-REG

2R7
3Q7
6E8

8V4

Q550
BC848

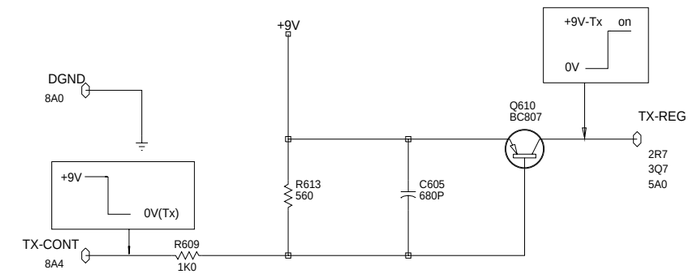
R560
470

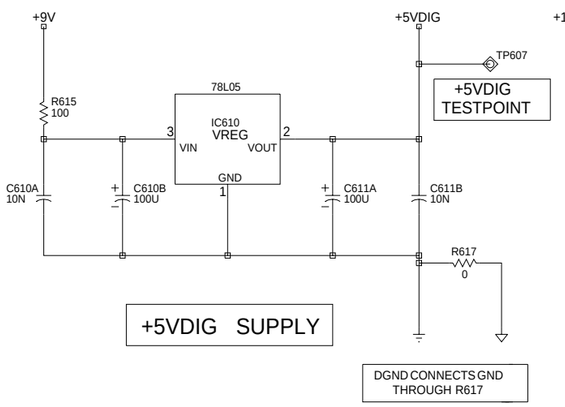
C550
22U
TANT

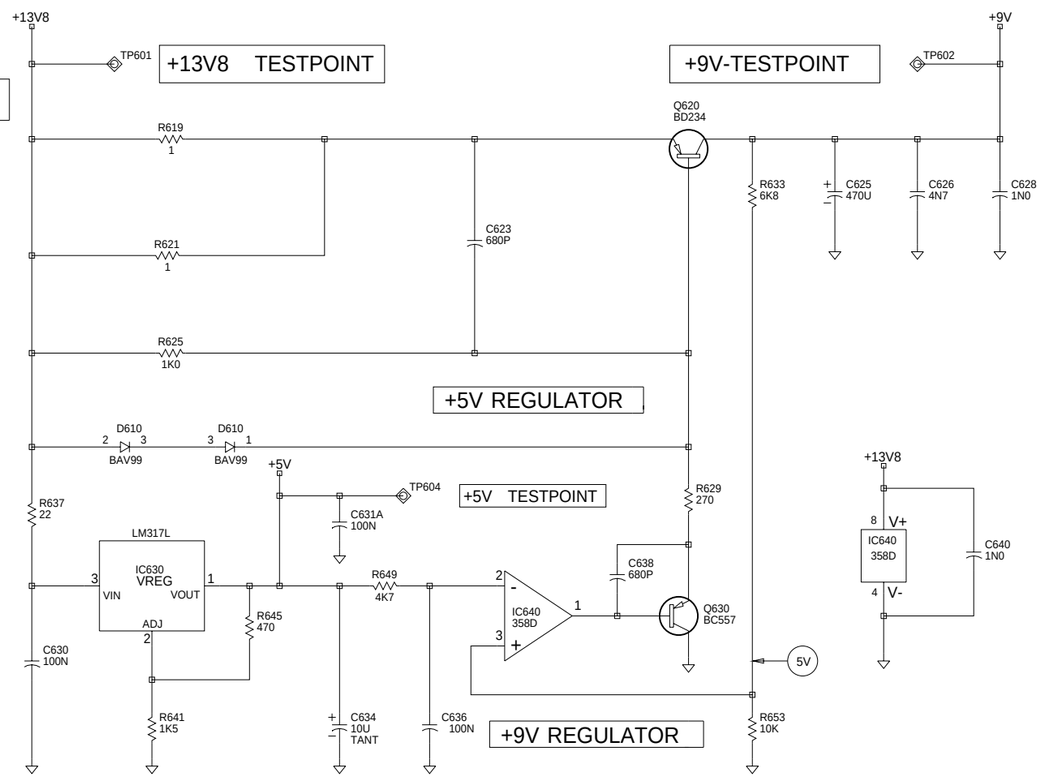
T867EX
VCO-SUB-ASSY C6.41

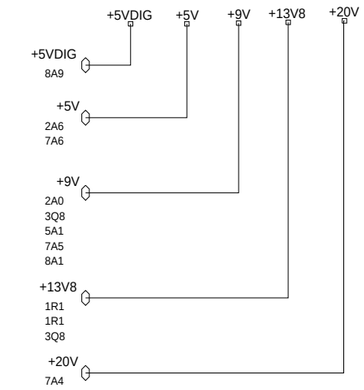
IPN:	ISSUE:	ID:		
220-01420-00	0A	2.SC. 5		
PROJECT:	DESIGNER:	FILE NAME:	FILE DATE:	NO.SHEETS:
T867	MAJ	142000A	03-04-98	10

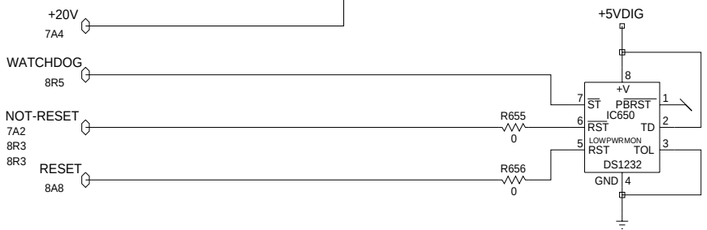
REV/ISS	AMENDMENTS	DRAWN	CHKD	D.O.	APVD	DATE

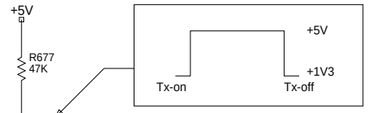


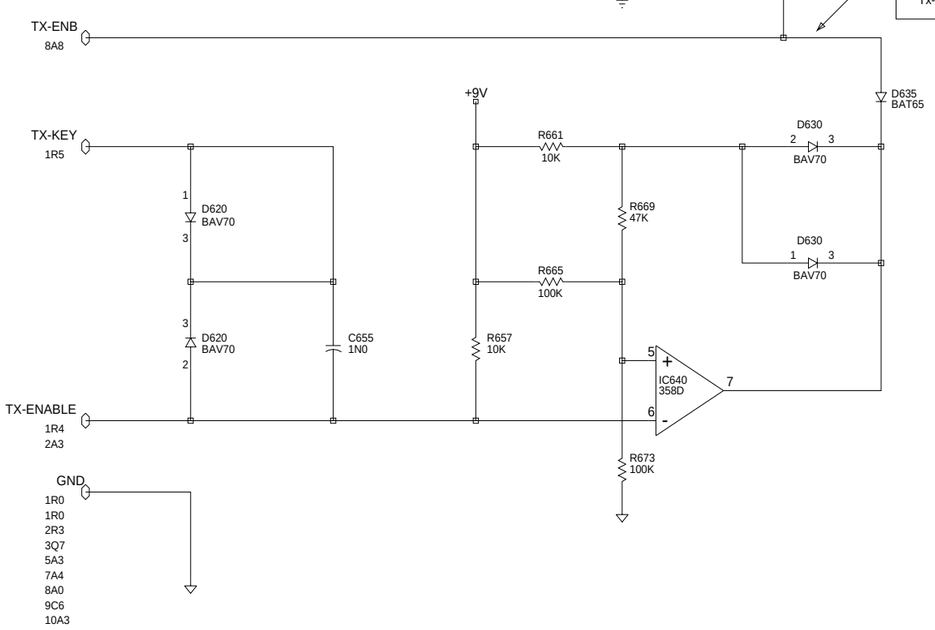


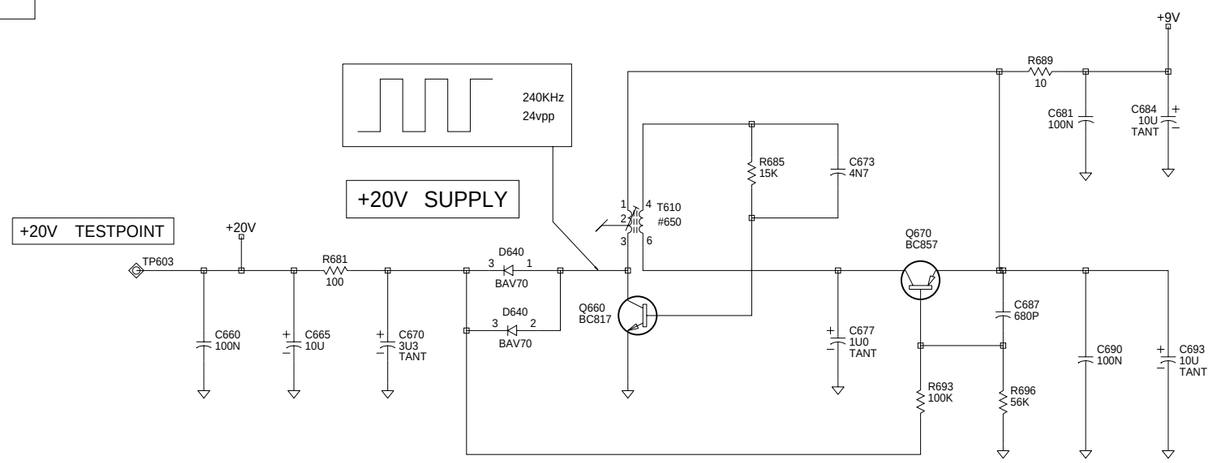












T867EX
REGULATOR C6.42

IPN:	ISSUE:		ID:	
220-01420-00	0A	2.SC.	6	

PROJECT:	DESIGNER:	FILE NAME:	FILE DATE:	NO.SHEETS:
T867	MAJ	142000A	03-04-98	10

REV/ISS	AMENDMENTS	DRAWN	CHKD	D.O.	APVD	DATE

PHASE-MODULATOR

+5V
R701 22
R702 1M0
R703 1M0
C700 100N
VCC FM
=IC700 12.8M
GND OUT
#C707 1U0
SIDE ENTRY COAX SKT
=SK710
EXTERNAL REFERENCE OPTION
=R705 47
C703 1N0
REF-MOD
2R1
C705 8P2
R708 100K
IC710 3 4
74HC04
R710 100
C712 47P
12.8MHz
+5V
2A6
6B7
R706 15K
IC710 1 2
74HC04
IC710 9 8
74HC04
12.8MHz TESTPOINT
TP715
MCU-CLOCK
8A2
R711 100
IC710 12 13
74HC04
IC710 10 11
74HC04
+9V
6B6
C706 47P
%C713 10N
%R715 1K0
C726 10N
+5V
C708 4U7 TANT
C709 100N
R714 10
R712 10
IC710 14 V+ 7 V-
74HC04
C710 10N
IC720 14 V+ 7 V-
74HCU04T
C720 100N
R713 22
C722 100N
74HC4520 10 EN CLKB IC730 15 RST
Q0 Q1 Q2 Q3
11 12 13 14
200KHz
74HC4520 2 EN CLKA IC730 1 7 RST 16 VDD
GND Q0 Q1 Q2 Q3
8 3 4 5 6
12.8MHz
R717 2K7
R718 100K
TANT 22U C724
TANT 22U C725
R719 100K
Q710 BC848
R721 10K
D710 2 3 BAV99
Q720 BC857
D710 1 3 BAV99
R722 10K
C727 220P
R720 39K
IC720 9 8
74HCU04T
IC720 5 6
74HCU04T
R723 2K7
Q730 BC848
R727 10K
D720 2 3 BAV99
Q740 BC857
D720 1 3 BAV99
R728 10K
C729 220P
IC720 3 4
74HCU04T
R725 39K
+20V
R750 22
IC750 33078D 8 V+ 4 V-
C750 10U TANT
200KHz
%R726 100
IC720 2 1
74HCU04T
%C733 470P
LOCK-DETECT TESTPOINT
TP710
LOCKED-LOW
LOCK-DETECT
LOCK-DETECT
3Q6
R752 22
C757 10N
+5V
R756 470K
IC750 33078D 2 - 3 + 1
R757 470K
C759 10N
CHARGE-PUMP
+9V
R762 100
R763 100
R758 1K2
R759 330
C761 10N
C762 22U TANT
R760 180
C769 1N0
C770 22U TANT
Q775 BC857
+5V
R766 1K0
R769 180
Q790 BFR31
C767 1N0
R753 1M0
Q750 BC807
R754 1K0
Q760 BC848
R765 680
C764 10N
4U7 C765 TANT
Q780 BC848
R767 680
D740 BAT65
Q785 BC857
D730 BAT65
Q770 BC857
LOOP-FILTER
+5V TO +15V LOCKED
R771 8K2
R774 8K2
R772 22K
C772 22U TANT
6V6
IC750 33078D 6 - 5 + 7
CNTRL-VOLT
5A7
R777 2K2
DUAL_POINT_IND
2G0
R775 6K8
C774 220N
C776 10N
+9V
R787 10
R784 68
R785 3K3
C784 680P
R786 10
C786 100N
C782 680P
Q795 MMBR571
C792 680P
DIV-BUFFER
5J5
1V4
C788 680P
R790 220
R791 100
C790 680P
R792 1K0
L750 68NH
DIVIDER BUFFER
+20V
6B5
R743 150
C740A 1N0
R742 150
C741A 4U7 TANT
R744 22
C742A 100N
R746 22
R747 22
GND
6B0
C740B 10N
C741B 10N
C742B 10N
SDA 8R4
SCK 2A7 6B4 8R3
SYNTH 8R4
R734 470
R735 470
R736 470
R748 47K
+5V
C735 47P
C736 47P
R749 47K
C743 47P
IC740 145191
14 VDD 12 VCC 5 VPD
6 PDOUT 19 DATA 18 CLK 17 ENABLE 16 OUT A 15 OUT B 13 TEST2 11 FIN
20 REF IN 1 REF OUT 2 LD 3 OR 4 OV 8 RX 9 TEST1 10 FIN
GND 7
C745 680P
+5V 0V 50ns WHEN LOCKED
+5V 0V 50ns WHEN LOCKED
SPARE GATES
IC710
IC720
IC710 5 6 74HC04
IC720 11 10 74HCU04T
IC720 13 12 74HCU04T

T867EX
SYNTHESISER C6.43

IPN:	ISSUE:	ID:
220-01420-00	0A	2.SC. 7

PROJECT:	DESIGNER:	FILE NAME:	FILE DATE:	NO.SHEETS:
T867	MAJ	142000A	03-04-98	10

REV/ISS	AMENDMENTS	DRAWN	CHKD	D.O.	APVD	DATE

CHANNEL SELECT TO MICRO BUS

+5VDIG
+5VDIG 6B7
RESET 6B4
TX-ENB 6B3
AUX_OUT I/OPAD P805
D810 BAT65
SL810 MICRO-BYPASS
R801 150K
R802 47K
Q810 BC848
TX_KEY_IN
0V
5V
CH-SLCT-0
CH-SLCT-1
CH-SLCT-2
CH-SLCT-3
CH-SLCT-4
CH-SLCT-5
CH-SLCT-6
CH-SLCT-7
C810 47N
SK810 80C51
RST
VCC
P1.7
P1.6
P1.5
P1.4
P1.3
P1.2
P1.1
P1.0
P3.7/RD
P3.6/WR
P3.5/T1
P3.4/T0
P3.3/INT1
P3.2/INT0
P3.1/TXD
P3.0/RXD
VSS
XTL1
XTL2
P0.7
P0.6
P0.5
P0.4
P0.3
P0.2
P0.1
P0.0
EA
ALE
PSEN
P2.7
P2.6
P2.5
P2.4
P2.3
P2.2
P2.1
P2.0
TX_KEY_OUT
WATCHDOG
SYNTH
SDA.
SCK
CTCSS_LSB
CTCSS_RX
CTCSS_MSB
C813 1N0
R824 2K2
R825 2K2
R826 2K2
R827 2K2
R828 2K2
P820 AUX-OUT-7 I/OPAD
P825 AUX-OUT-6 I/OPAD
P830 AUX-OUT-5 I/OPAD
P835 AUX-OUT-4 I/OPAD
P840 AUX-OUT-3 I/OPAD
VARIABLE
CH-SLCT-0 R829 2K2 SK805 CH-SLCT-0 1
CH-SLCT-1 R830 2K2 SK805 CH-SLCT-1 3
CH-SLCT-2 R831 2K2 SK805 CH-SLCT-2 5
CH-SLCT-3 R832 2K2 SK805 CH-SLCT-3 7
CH-SLCT-4 R833 2K2 SK805 CH-SLCT-4 9
CH-SLCT-5 R835 2K2 SK805 CH-SLCT-5 11
CH-SLCT-6 R836 2K2 SK805 CH-SLCT-6 13
CH-SLCT-7 R837 2K2 SK805 CH-SLCT-7 6
+5VDIG SK805 +5VDIG 16
R840 2K2 SK805 AUX-OUT-2 14
R841 2K2 SK805 AUX-OUT-1 12
R842 2K2 SK805 AUX-OUT-0 10
R843 2K2 SK805 CTCSS-ENABLE 4
SK805 SERIAL-COM-1 8
TX-RELAY-DRV
2R6
SK805 TX-RELAY-DRV 2
SK805 GND 15

MICROMATCH PIN / D-RANGE2 PIN

MICROMATCH PIN	D-RANGE2 PIN
1	1
3	2
5	3
7	4
9	5
11	6
13	7
6	11
16	NC
14	15
12	14
10	13
4	10
8	12
2	9
15	8

MICROMATCH TO D-RANGE2 CONNECTIONS

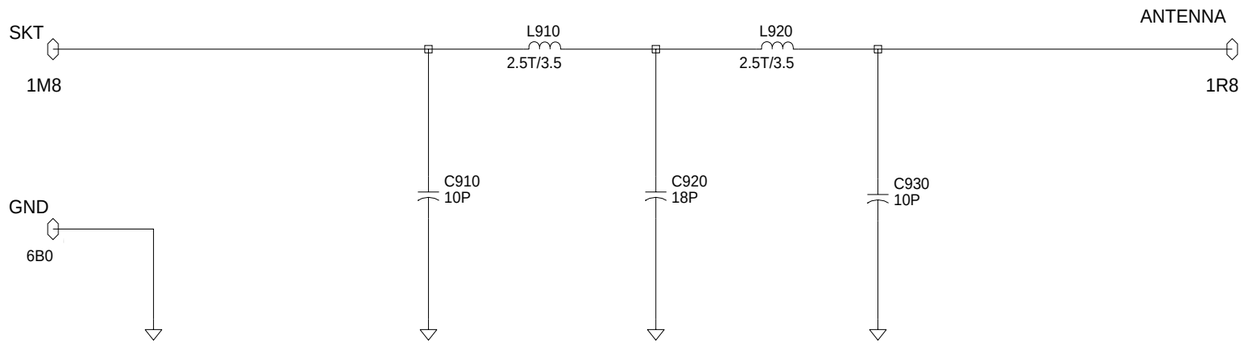
+5VDIG
R809 4K7
R810 4K7
R811 4K7
Q830 BC857
Q820 BC817
R812 4K7
R813 4K7
SERIAL-COM-1 I/OPAD P810
SERIAL-COM 1R4
R808 10
Q840 BC857
R818 4K7
Q850 BC848
R819 4K7
C812 100P
R815 47K
R816 150K
R845 470 WATCH-DOG 6B5
SYNTH 7A2
SDA 7A2
R846 470 SDAP 2A7
R847 470 SCKP 2A7
LED 2R7
R850 470 E-P 2A7
SCK
NOT-RESET 6B4 7A2
R848 4K7
CTCSS_ENABLE
LED_FLASH
EPOTS
SERIAL-COM-1
TX_KEY_OUT
TX-CONT 6B8
Q860 BC848
R821 47K
R822 47K
MCU-CLOCK 7A6
MCU-CLOCK
12.8MHz
+9V
R879 10K
R877 4K7
C841 100U
C844 10N
+5V 0V CTCSSMFREQUENCY
+5V 0V CTCSSMFREQUENCY
+9V 0V CTCSSMFREQUENCY
+5VDIG
R853 4K7
R854 4K7
IC820 24C16
+V A0 A1 A2 SCL SDA WP GND
CTCSSM 2R5
C822 4U7 TANT
C823 22N
C824 47N
+9V
+9V 6B6
DGND 6B9
GND 6B0
IC830 LM324D
R855 4K7
C826 220P
C827 33P
C828 10N
R859 150K
R861 150K
R863 150K
R865 100K
R867 100K
CW
RV805 20K
C838 100U
CTCSS LEVEL ADJUST
R871 47K
R872 4K7
R873 33K
R874 4K7
R875 47K
R876 4K7
C830 47N

REV/ISS	AMENDMENTS	DRAWN	CHKD	D.O.	APVD	DATE

T867EX
MICROPROCESSOR C6.44

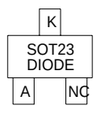
IPN:	ISSUE:	ID:
220-01420-00	0A	2.SC. 8

PROJECT:	DESIGNER:	FILE NAME:	FILE DATE:	NO.SHEETS:
T867	MAJ	142000A	03-04-98	10

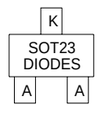


HARMONIC-FILTER

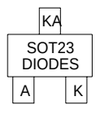
DIODE PHYSICAL PIN OUTS



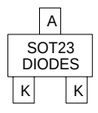
BAT18



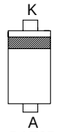
BAV70



BAV99

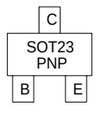


BAW56

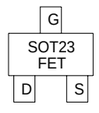


BAT65

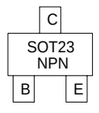
TRANSISTOR PHYSICAL PIN OUTS



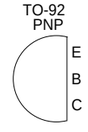
BC857
BC807



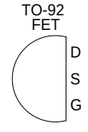
BFR31



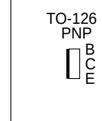
BC848
BC817
MMBR571
MMBR951L



BC557

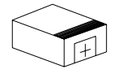


BF247



BD234

TANTALUMS



CHIP
TANTALUMS

T867EX
HARMONIC-FILTER C6.45

IPN:	ISSUE:	ID:.
220-01420-00	0A	2.SC. 9

PROJECT:	DESIGNER:	FILE NAME:	FILE DATE:	NO.SHEETS:
T867	MAJ	142000A	03-04-98	10

REV/ISS	AMENDMENTS	DRAWN	CHKD	D.O.	APVD	DATE

TOP SIDE VARIANT INDICATORS								
-10	-13	-15	-20	-23	-25	-	-	-
T83710 10K 1%	T83713 10K 1%	T83715 10K 1%	T83720 10K 1%	T83723 10K 1%	T83725 10K 1%	T837- 10K 1%	T837 10K 1%	T837 10K 1%

SMD LOCATION HOLES	
TOP SIDE	BOT SIDE
TOPHOLE HOLE, TOPSLOT SLOT	BOTHOLE HOLE, BOTSLOT SLOT

FIDUCIALS	
TOP SIDE	BOT SIDE
TOPFIDA FIDUCIAL, TOPFIDB FIDUCIAL	BOTFIDA FIDUCIAL, BOTFIDB FIDUCIAL

GND

1R0
1R0
2R3
3Q7
5A3
6B0
7A4
8A0
9C6

T867EX
OUT 0F CIRCUIT DATA C6.46

IPN:	ISSUE:	ID:.
220-01420-00	0A	2.SC. 10

PROJECT:	DESIGNER:	FILE NAME:	FILE DATE:	NO.SHEETS:
T867	MAJ	142000A	03-04-98	10

REV/ISS	AMENDMENTS	DRAWN	CHKD	D.O.	APVD	DATE

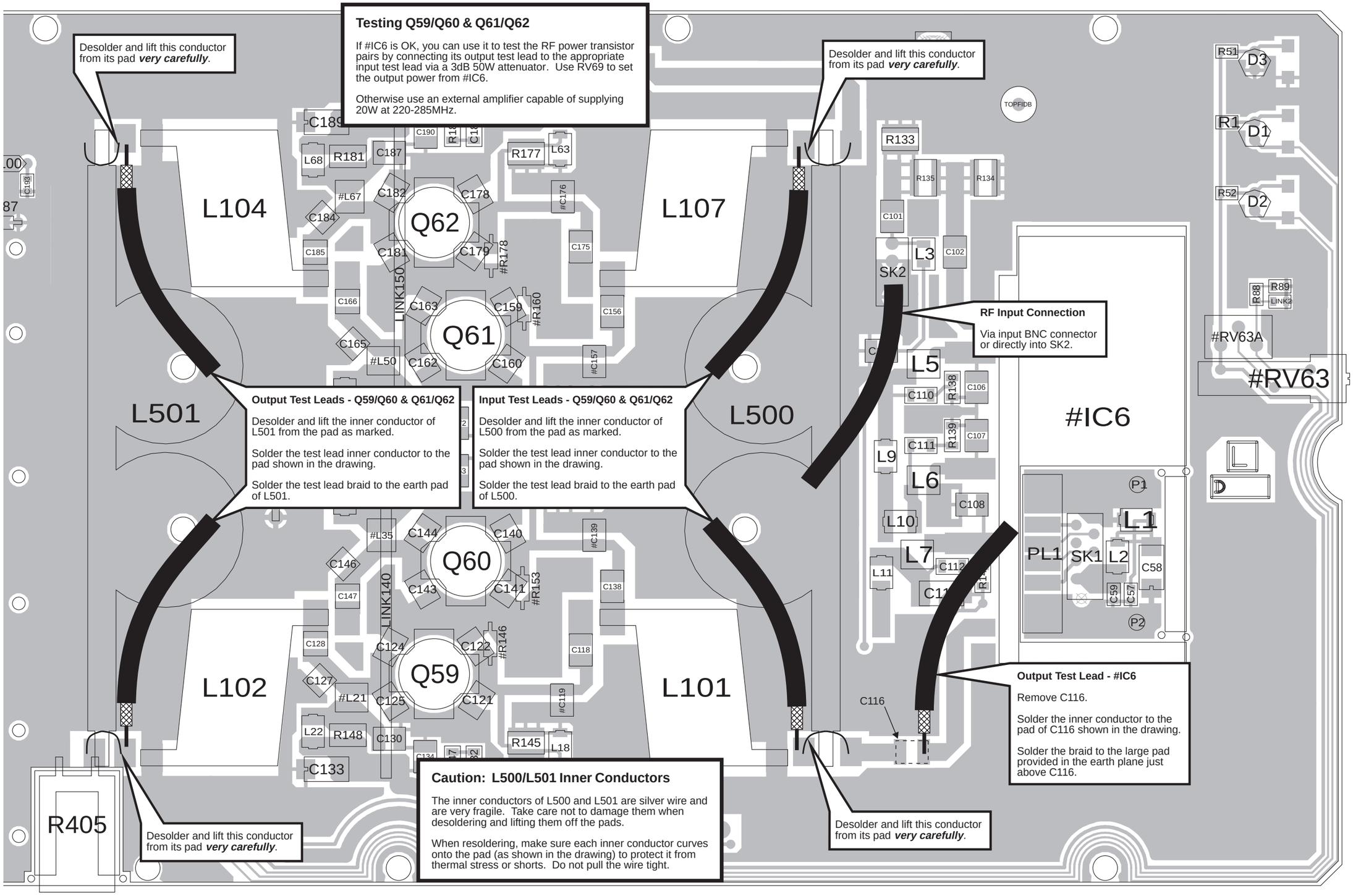


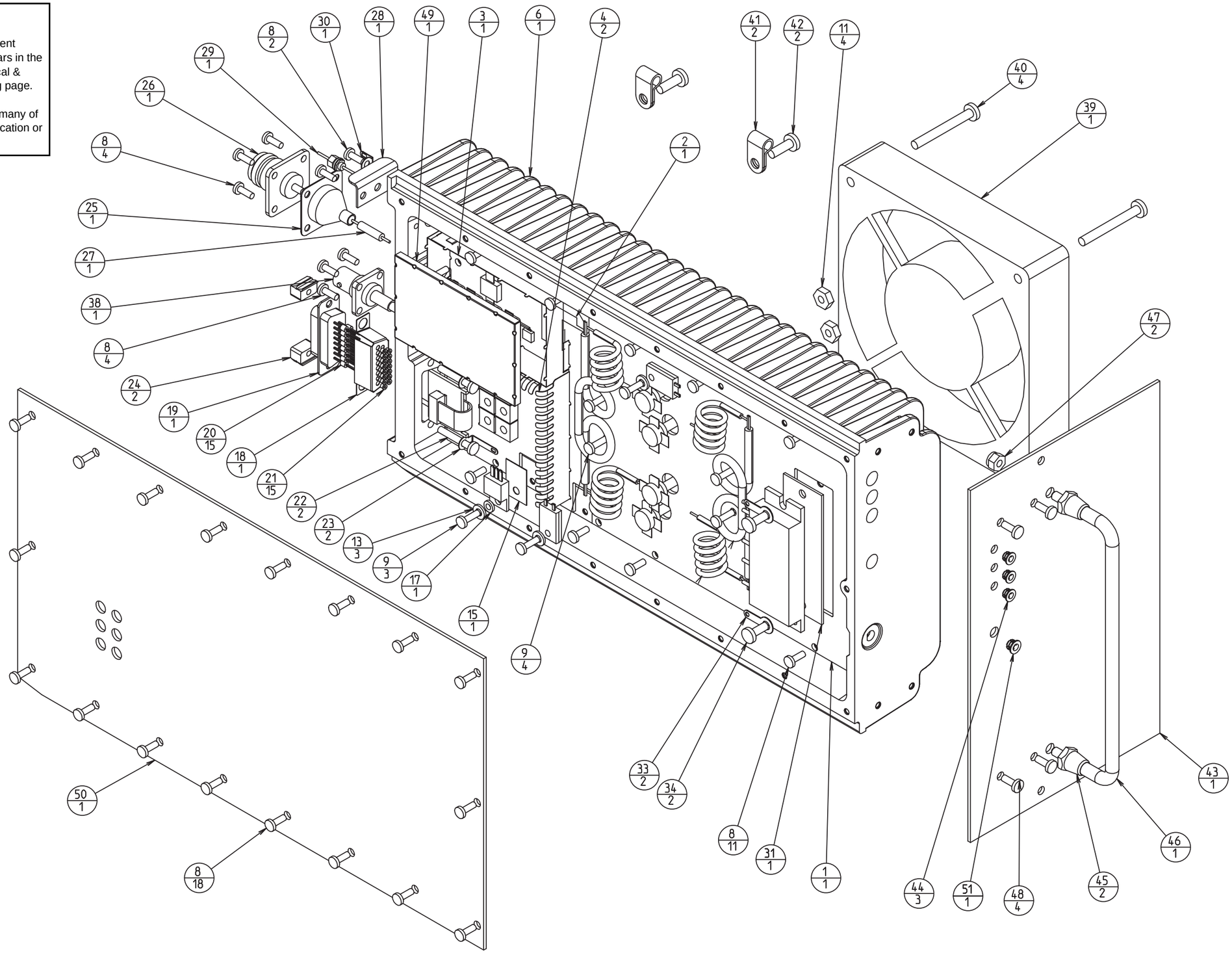
Figure 4.1 Positioning Of Test Leads

Key

33/2

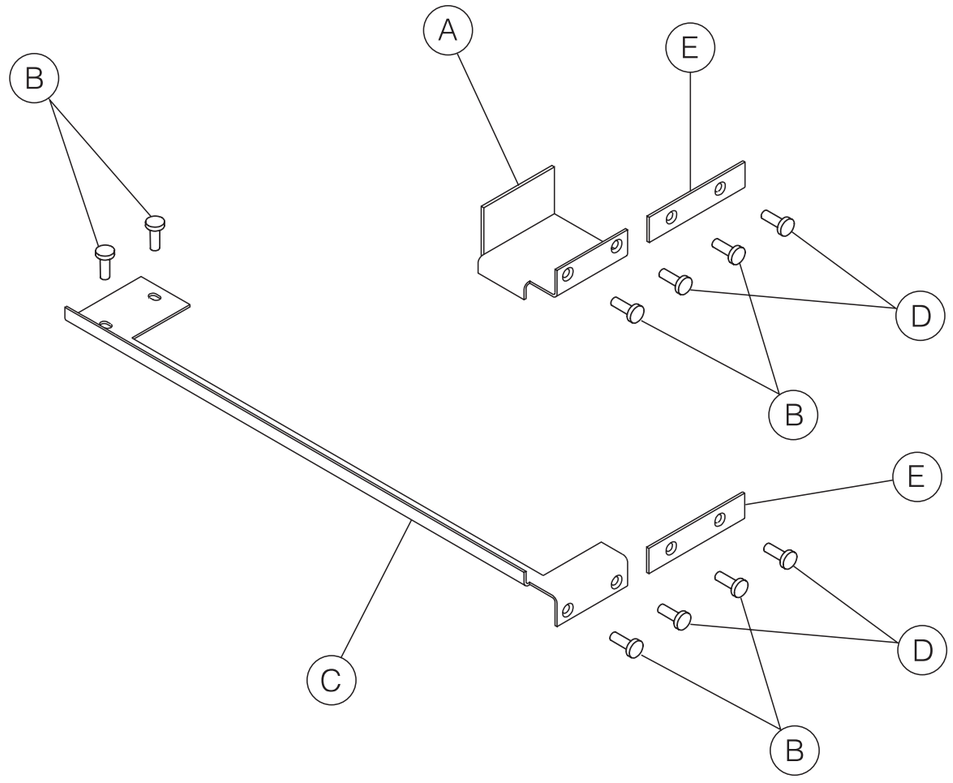
The upper number is the component identification number which appears in the "Legend" column of the Mechanical & Miscellaneous Parts on the facing page.

The lower number indicates how many of this component are used in this location or function.

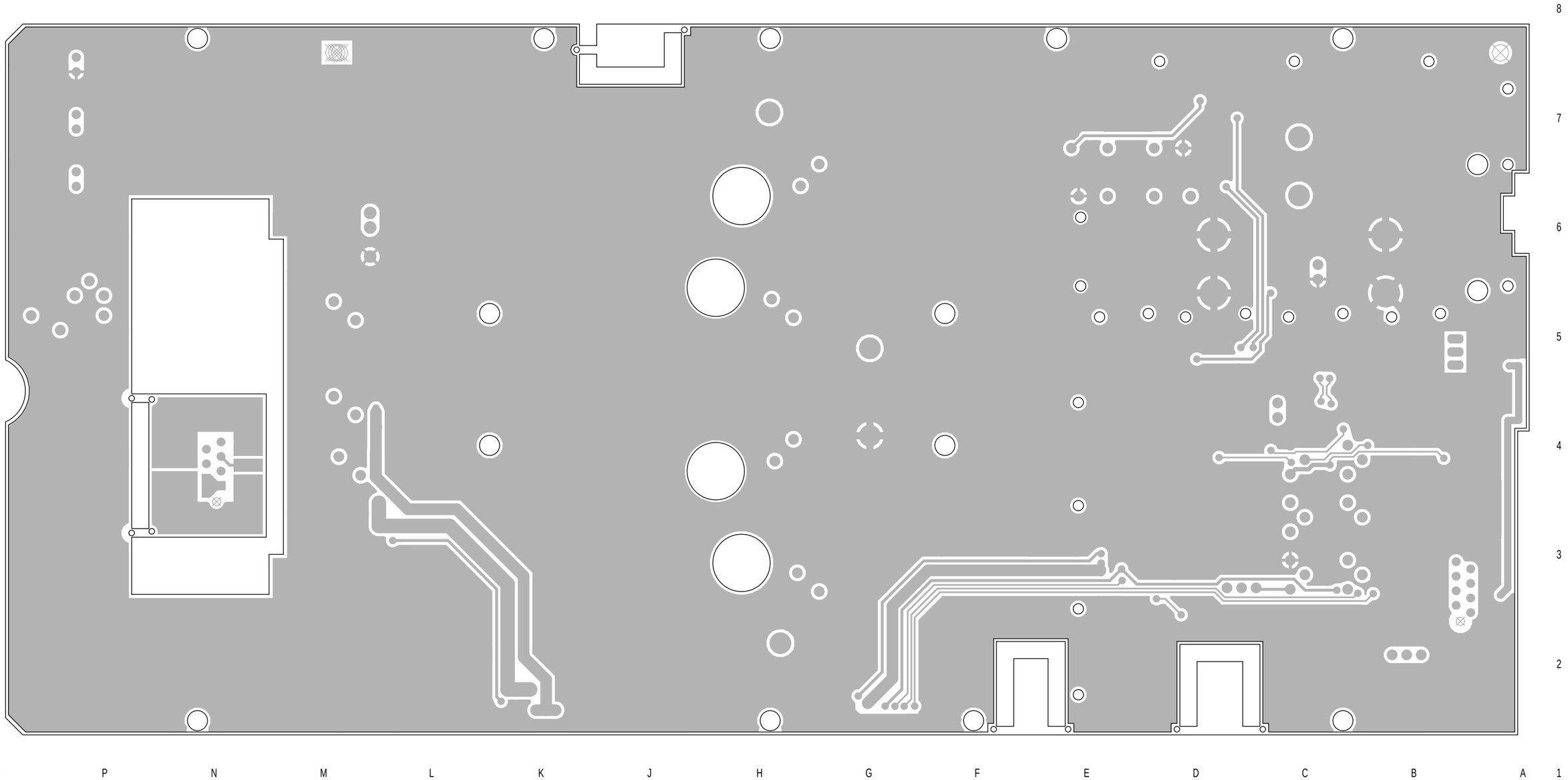


Note: The T869 rack frame guide mechanical assembly drawing is on the next page.

T869 Mechanical Assembly
220-01371-01



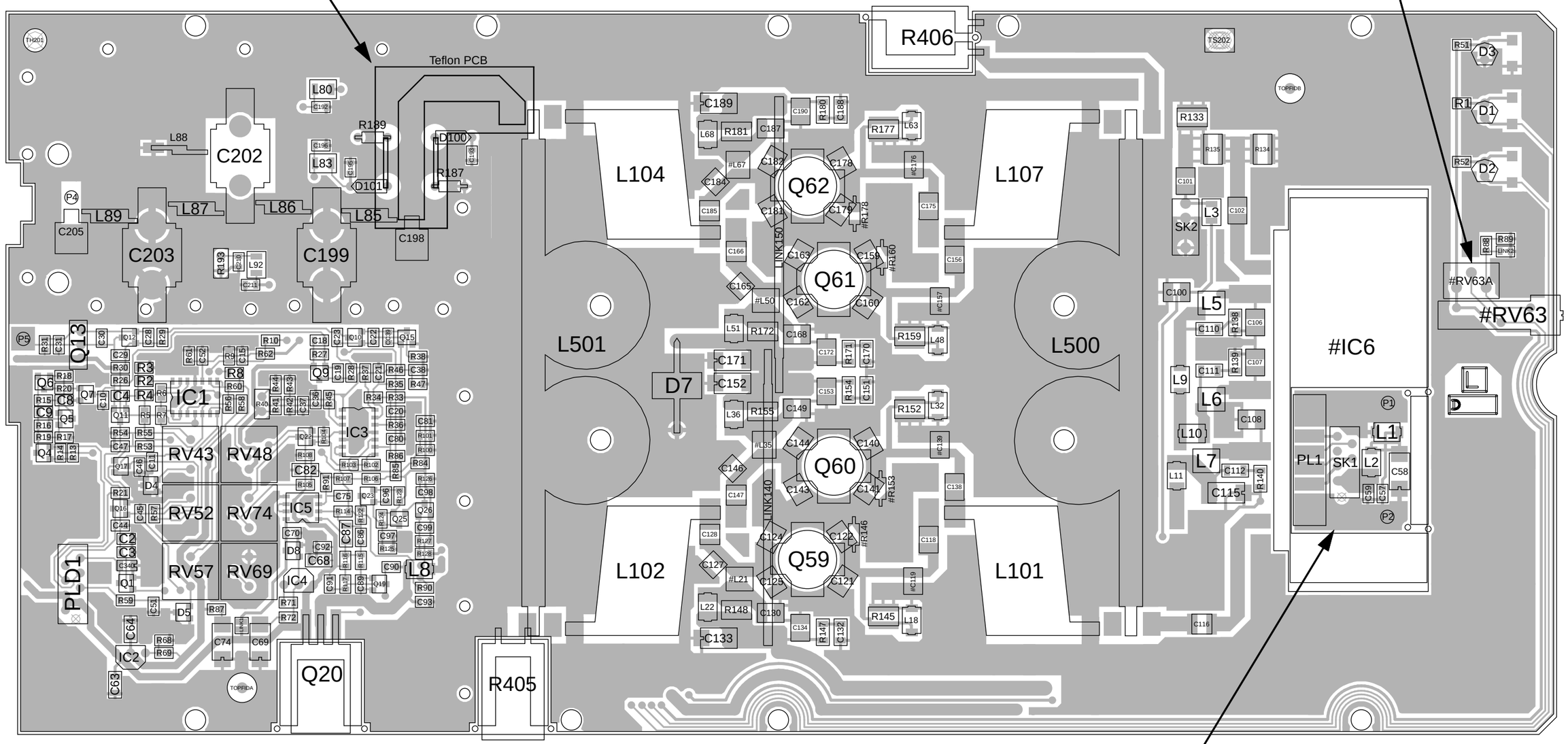
T869 Rack Frame Guide
Mechanical Assembly



T869 PCB Layout
Bottom Side
220-01371-01

Note: In order to enhance the mechanical security of the Teflon PCB, R187, R189, D100 and D101 are soldered to both the Teflon PCB and the underside of the main PCB.

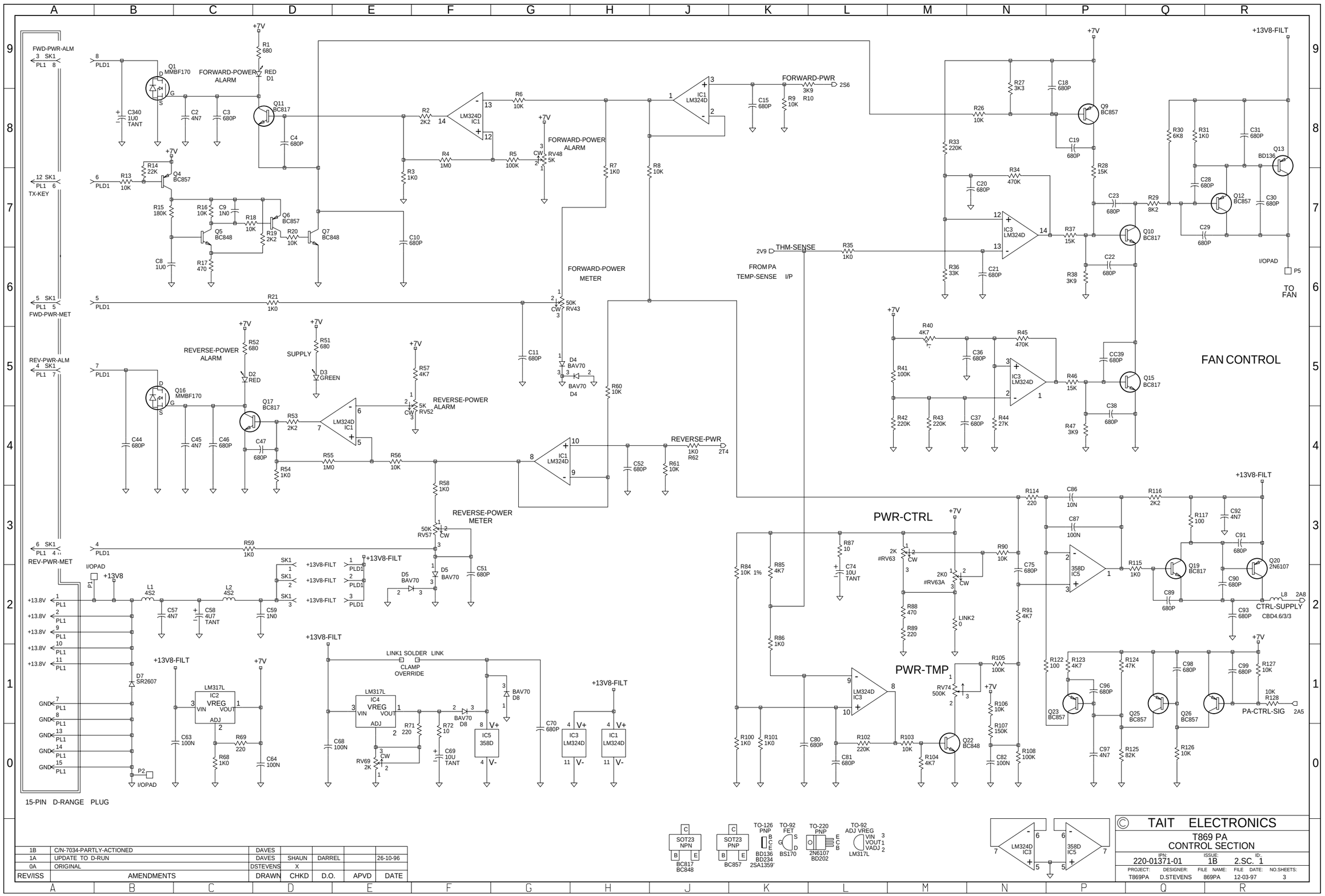
Note: #RV63A may be fitted instead of #RV63 if only internal adjustment of the output power is required.



Note: The circuitry for the break-off D-range PCB is shown on the control section circuit diagram.

T869 PCB Layout
Top Side
220-01371-01

30/06/98



REV/ISS	AMENDMENTS	DRAWN	CHKD	D.O.	APVD	DATE
1B	C/N-7034-PARTLY-ACTIONED	DAVES				
1A	UPDATE TO D-RUN	DAVES	SHAUN	DARREL		26-10-96
0A	ORIGINAL	DSTEVENS	X			

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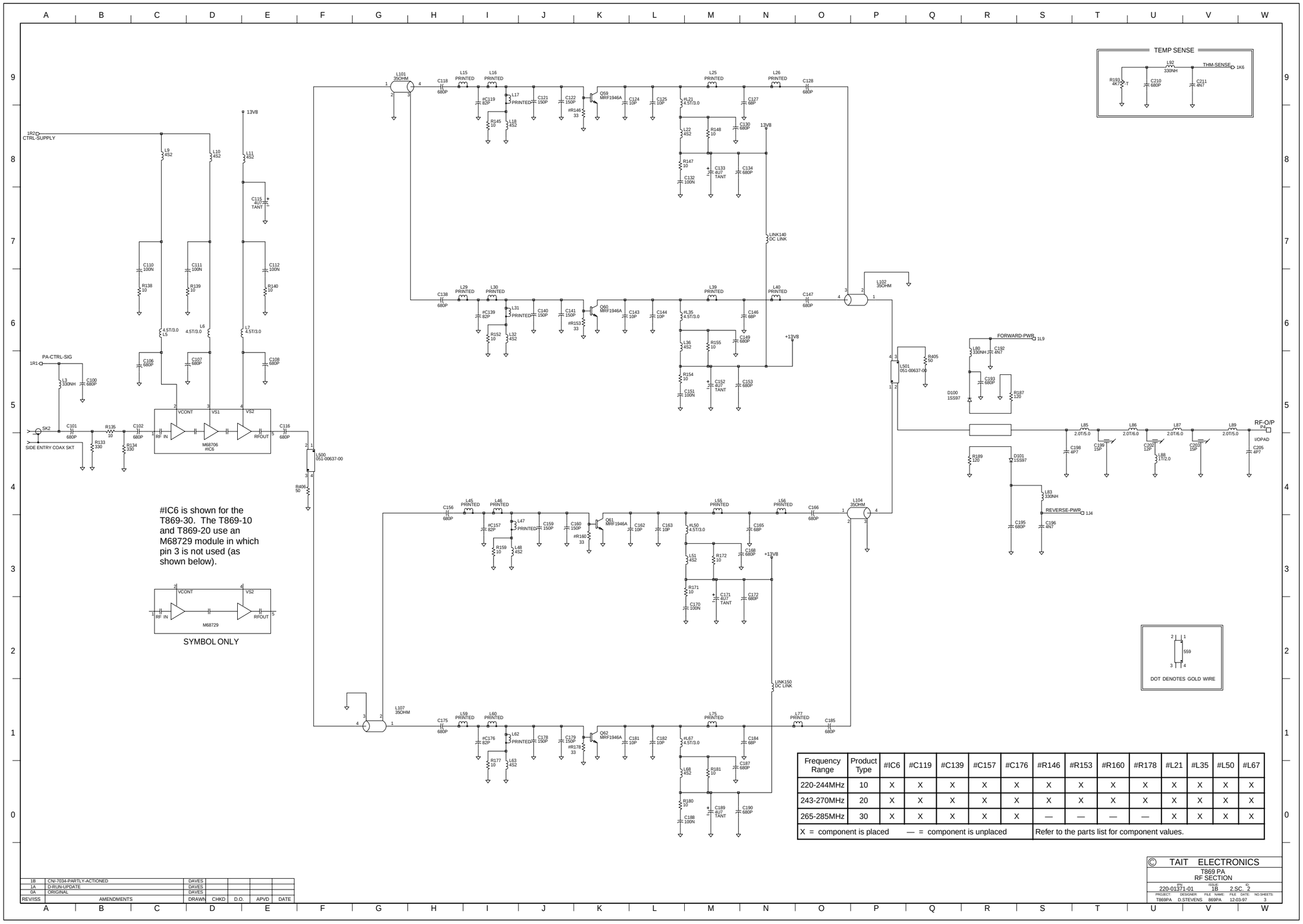
T869 PA
CONTROL SECTION

IPN:	ISSUE:	ID:
220-01371-01	1B	2.SC. 1

PROJECT:	DESIGNER:	FILE NAME:	FILE DATE:	NO.SHEETS:
T869PA	D.STEVENS	869PA	12-03-97	3



Frequency Range	Product Type	#IC6	#C119	#C139	#C157	#C176	#R146	#R153	#R160	#R178	#L21	#L35	#L50	#L67
220-244MHz	10	X	X	X	X	X	X	X	X	X	X	X	X	X
243-270MHz	20	X	X	X	X	X	X	X	X	X	X	X	X	X
265-285MHz	30	X	X	X	X	X	—	—	—	—	X	X	X	X
X = component is placed — = component is unplaced							Refer to the parts list for component values.							

REV/ISS	AMENDMENTS	DRAWN	CHKD	D.O.	APVD	DATE
1B	CN/-7034-PARTLY-ACTIONED	DAVES				
1A	D-RUN-UPDATE	DAVES				
0A	ORIGINAL	DAVES				

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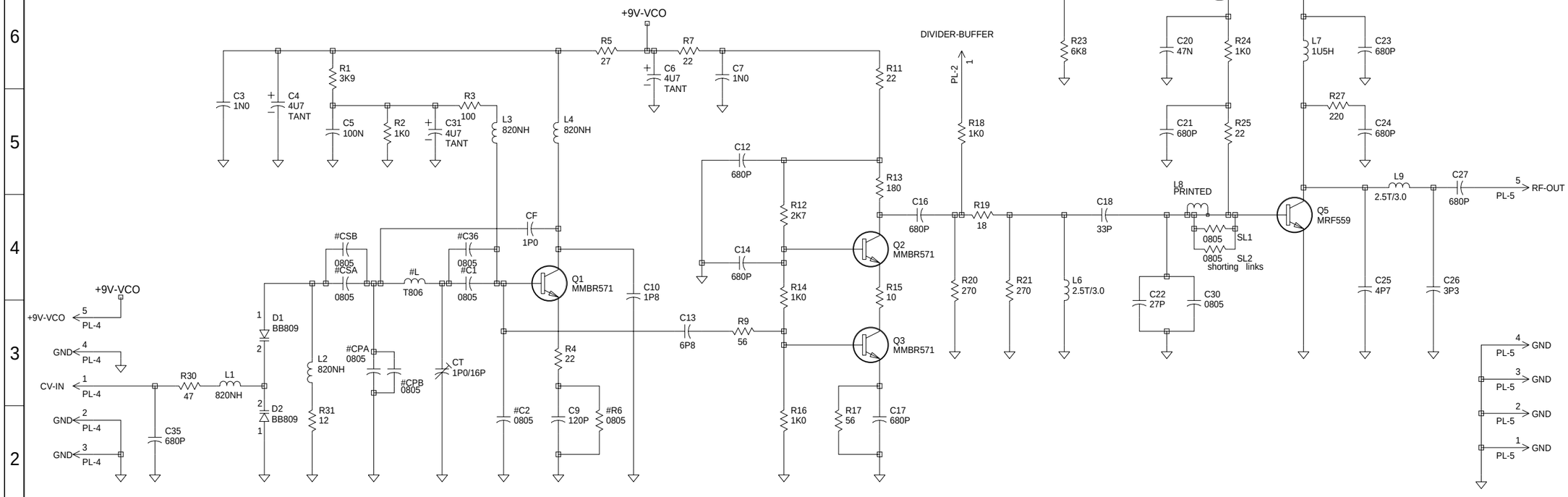
T869 PA
RF SECTION

DRG	ISSUE	SC.
220-01371-01	1B	2

PROJECT:	DESIGNER:	FILE NAME:	FILE DATE:	NO.SHEETS:
T869PA	D.STEVENS	869PA	12-03-97	3

Sheet 2 T869 RF Section - 220-01371-01

Rx/Tx Band	VCO Freq. (MHz)	#CPA	#CPB	#CSA	#CSB	#C1	#C2	#L	#R6
Tx High	265-285	2p7	not placed	3p3	not placed	12p	27p	6T/0.56mm	150Ω
Tx Mid	238-270	1p8	1p8	3p9	not placed	15p	33p	6T/0.56mm	150Ω
Rx Mid/Tx Low	218-250	2p7	not placed	3p9	not placed	12p	27p	8T/0.56mm	180Ω
Rx Low	198-225	1p5	2p7	2p7	2p7	15p	56p	8T/0.56mm	180Ω



Note: #C36 is not placed as standard.

REV/ISS	AMENDMENTS	DRAWN	CHKD	D.O.	APVD	DATE
2A	UPDATE	R.MOFFAT				25/05/97
1A	UPDATE	R.MOFFAT				12/03/96
P1	PROTOTYPE	M.HALL				

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T860 VCO
WITH TRIMMER

IPN:	ISSUE:	ID:.
220-01399-02	A	2.SC. 1

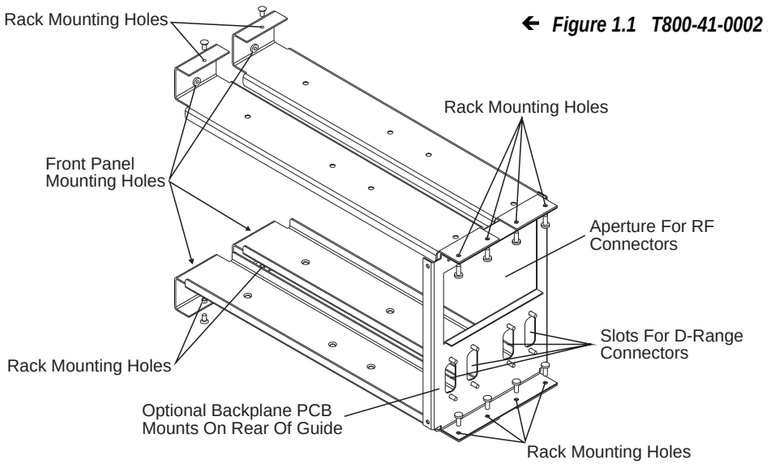
PROJECT:	DESIGNER:	FILE NAME:	FILE DATE:	NO.SHEETS:
T860	J.VERITY	1399_02A	25/05/97	2

1 T865 Installation

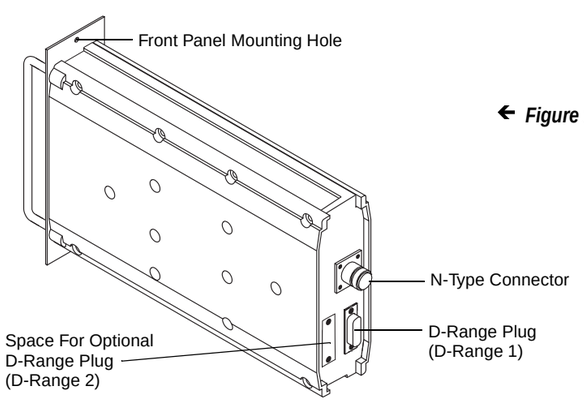
1.1 Rack Mounting

The T865 receiver is designed for use in a standard 483mm rack frame using a Tait T800 Series II guide. The guide is securely mounted to the rack frame with front and rear retaining screws, and the T865 is secured into the guide with two front panel mounting screws. Figure 1.1 shows a standard, double module guide which can also be fitted with an optional backplane PCB to locate and mate the rear D-range connector(s). For more information on available guide kits, refer to the T800 Ancillary Equipment Service Manual or your nearest Tait Dealer or Subsidiary.

A rear mounted N-type connector is used for RF input on the T865, while all DC, audio and control connections are via the rear mounted D-range connector, D-range 1 (PL100). An additional rear D-range connector (T800-03-0000) can be fitted when remote multichannel operation, or additional control or low frequency lines are required (refer to Figure 1.2).



← *Figure 1.1 T800-41-0002 Double Guide Kit*



← *Figure 1.2 T865 Chassis Connectors*

1.2 Rack Wiring

The D-range input and output connections are shown in Figure 1.3 and Figure 1.4. Ensure that the cables are not subjected to any stresses due to tight bends or incorrect lengths.

Make sure the RF coax cable to the N-type connector is free from sharp bends or twists. If access to the rear of the rack frame is restricted, the cable should be long enough to allow the chassis to be fully withdrawn from the guide.

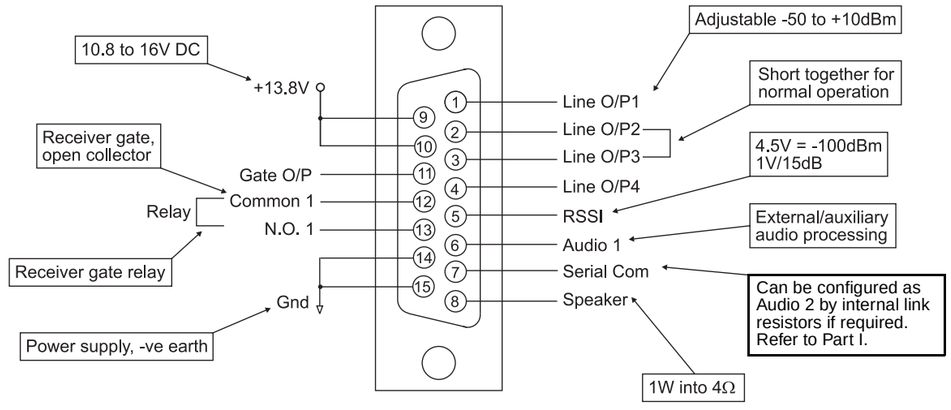


Figure 1.3 T865 D-Range 1 Wiring - Rear View

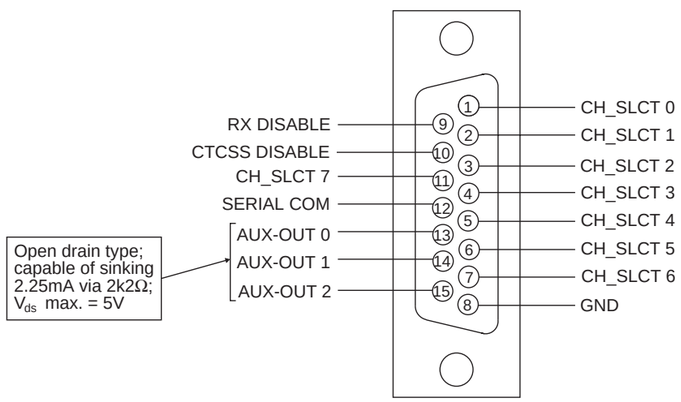


Figure 1.4 T865 D-Range 2 Wiring - Rear View (standard T800-03-0000 kit)

Note: Figure 1.4 above shows the standard pin allocations for the T800-03-0000 auxiliary D-range kit. A T800-03 auxiliary D-range kit is also available for special applications requiring custom internal wiring.

1.3 Power Supply

If a power supply other than an appropriate Tait model is used, ensure that it is capable of providing enough current to drive the T800 system and is also free from excessive ripple or noise.

The system should be protected by the use of appropriately rated fuses in the power supply.

Note: It is particularly important when the prime power source is a battery that fuses be employed in all supply lines.

1.4 Reverse Polarity Protection

A shunt diode is fitted to all T865 receivers for protection against connection to a power supply of incorrect polarity.

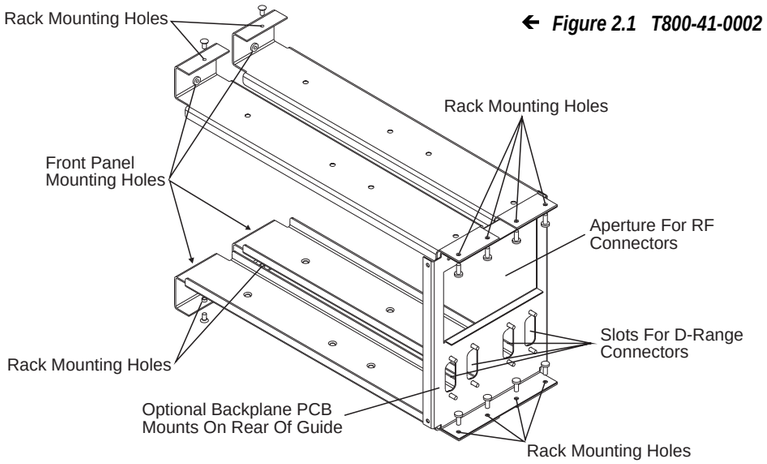
Note: A fuse must be fitted in the power supply line for the diode to provide effective protection.

2 T867 Installation

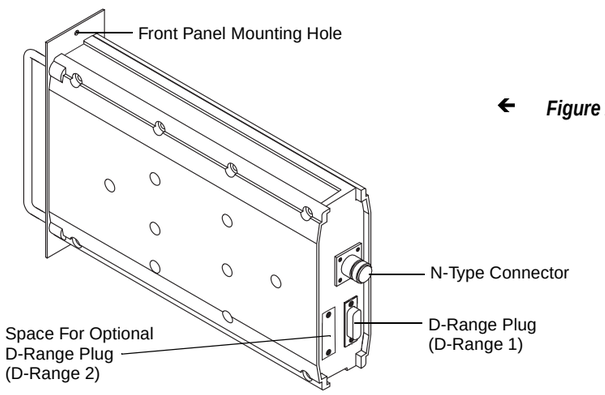
2.1 Rack Mounting

The T867 exciter is designed for use in a standard 483mm rack frame using a Tait T800 Series II guide. The guide is securely mounted to the rack frame with front and rear retaining screws, and the T867 is secured into the guide with two front panel mounting screws. Figure 2.1 shows a standard, double module guide which can also be fitted with an optional backplane PCB to locate and mate the rear D-range connector(s). For more information on available guide kits, refer to the T800 Ancillary Equipment Service Manual or your nearest Tait Dealer or Subsidiary.

A rear mounted N-type connector is used for RF output on the T867, while all DC, audio and control connections are via the rear mounted D-range connector, D-range 1 (PL100). An additional rear D-range connector (T800-03-0000) can be fitted when remote multichannel operation, or additional control or low frequency lines are required (refer to Figure 2.2).



← *Figure 2.1 T800-41-0002 Double Guide Kit*



← *Figure 2.2 T867 Chassis Connectors*

2.2 Rack Wiring

The D-range input and output connections are shown in Figure 2.3 and Figure 2.4. Ensure that the cables are not subjected to any stresses due to tight bends or incorrect lengths.

Make sure the RF coax cable to the N-type connector is free from sharp bends or twists. If access to the rear of the rack frame is restricted, the cable should be long enough to allow the chassis to be fully withdrawn from the guide.

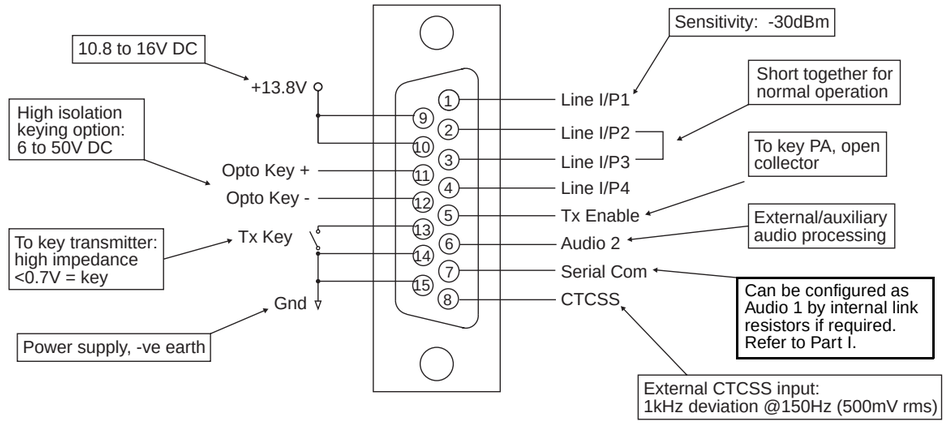


Figure 2.3 T867 D-Range 1 Wiring - Rear View

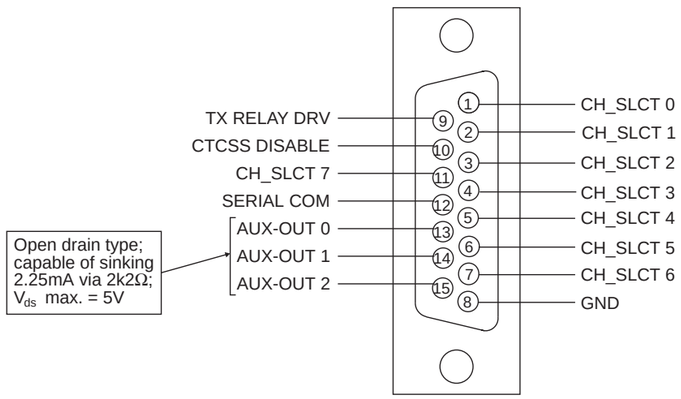


Figure 2.4 T867 D-Range 2 Wiring - Rear View (standard T800-03-0000 kit)

Note: Figure 2.4 above shows the standard pin allocations for the T800-03-0000 auxiliary D-range kit. A T800-03 auxiliary D-range kit is also available for special applications requiring custom internal wiring.

2.3 Power Supply

If a power supply other than an appropriate Tait model is used, ensure that it is capable of providing enough current to drive the T800 system and is also free from excessive ripple or noise.

The system should be protected by the use of appropriately rated fuses in the power supply.

Note: It is particularly important when the prime power source is a battery that fuses be employed in all supply lines.

2.4 Reverse Polarity Protection

A shunt diode is fitted to all T867 exciters for protection against connection to a power supply of incorrect polarity.

Note: A fuse must be fitted in the power supply line for the diode to provide effective protection.

3 T869 Installation

3.1 Rack Mounting

The T869 PA is designed for use in a standard 483mm rack frame using Tait T800 Series II guide rails. The guide rails are securely mounted to the rack frame with front and rear retaining screws, and the PA is secured into the guide with four front panel mounting screws. Figure 3.1 shows the standard, double width guide designed for use with the T869, while Figure 3.3 shows how the PA can be latched in the extended position. For more information on available guide kits, refer to the T800 Ancillary Equipment Service Manual or your nearest Tait Dealer or Subsidiary.

The PA rear panel has three connectors: a BNC for RF input (from an adjacent T867 exciter), an N-type for RF output and a D-range for all DC, audio and control connections (refer to Figure 3.2).

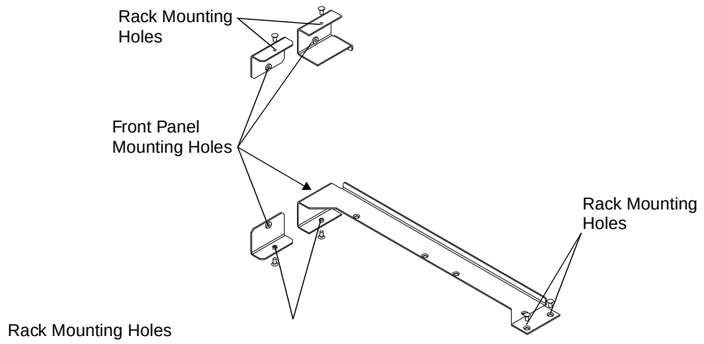


Figure 3.1 T800-45-0001 PA Guide Kit

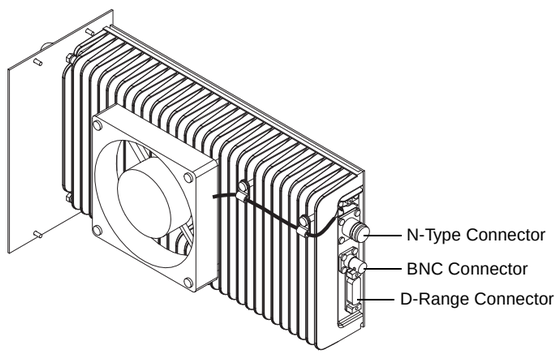


Figure 3.2 T869 Chassis Connectors

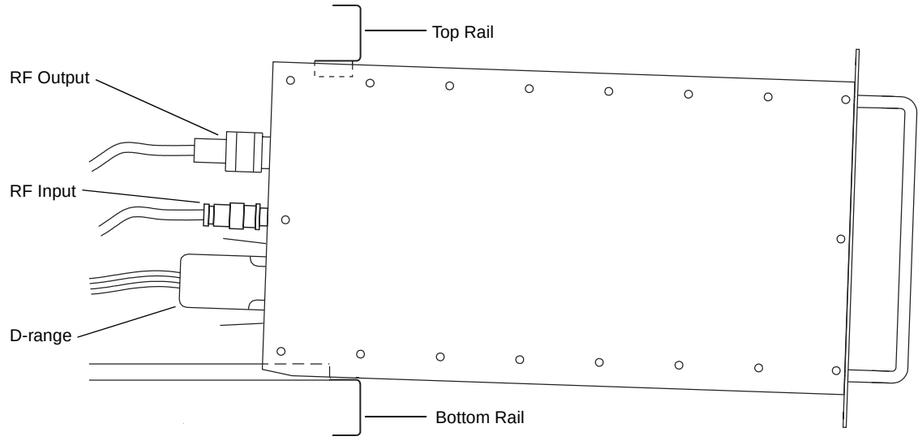


Figure 3.3 PA In Latched Position

Note: You will need appropriate extension leads if you wish to carry out any adjustment procedures with the PA withdrawn from the rack in the latched position. Alternatively, disconnect and withdraw the PA and reconnect it behind the rack.

3.2 Rack Wiring

The D-range input and output connections are shown in Figure 3.4. Ensure that the cables are not subjected to any stresses due to tight bends or incorrect lengths.

Make sure the RF coax cables to the N-type and BNC connectors are free from sharp bends or twists. If access to the rear of the rack frame is restricted, the cables should be long enough to allow the chassis to be fully withdrawn from the guide.

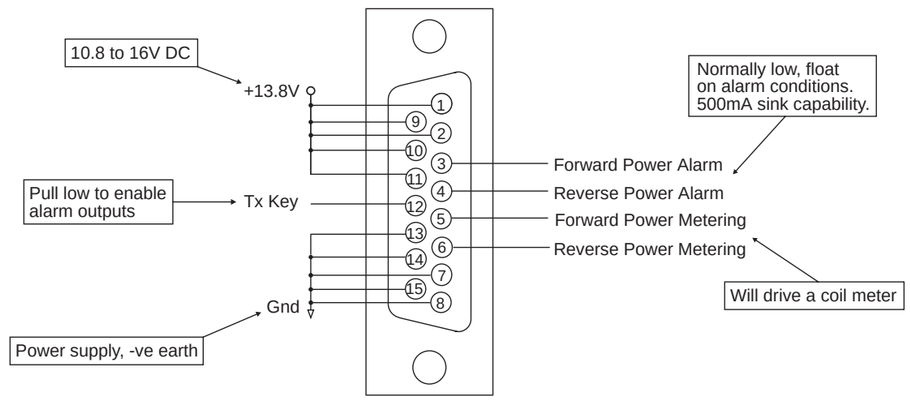


Figure 3.4 T869 D-Range Wiring - Rear View

3.3 Power Supply

If a power supply other than an appropriate Tait model is used, ensure that it is capable of providing enough current to drive the T800 system and is also free from excessive ripple or noise.

The system should be protected by the use of appropriately rated fuses in the power supply.

Note: It is particularly important when the prime power source is a battery that fuses be employed in all supply lines.

Caution: **Connect the power supply *directly* to the PA, and *not* via connector blocks. This will avoid overheating of connector blocks that are not of the correct current rating.**

3.4 Reverse Polarity Protection

A shunt diode is fitted to all T869 PAs for protection against connection to a power supply of incorrect polarity.

Note: A fuse must be fitted in the power supply line for the diode to provide effective protection.