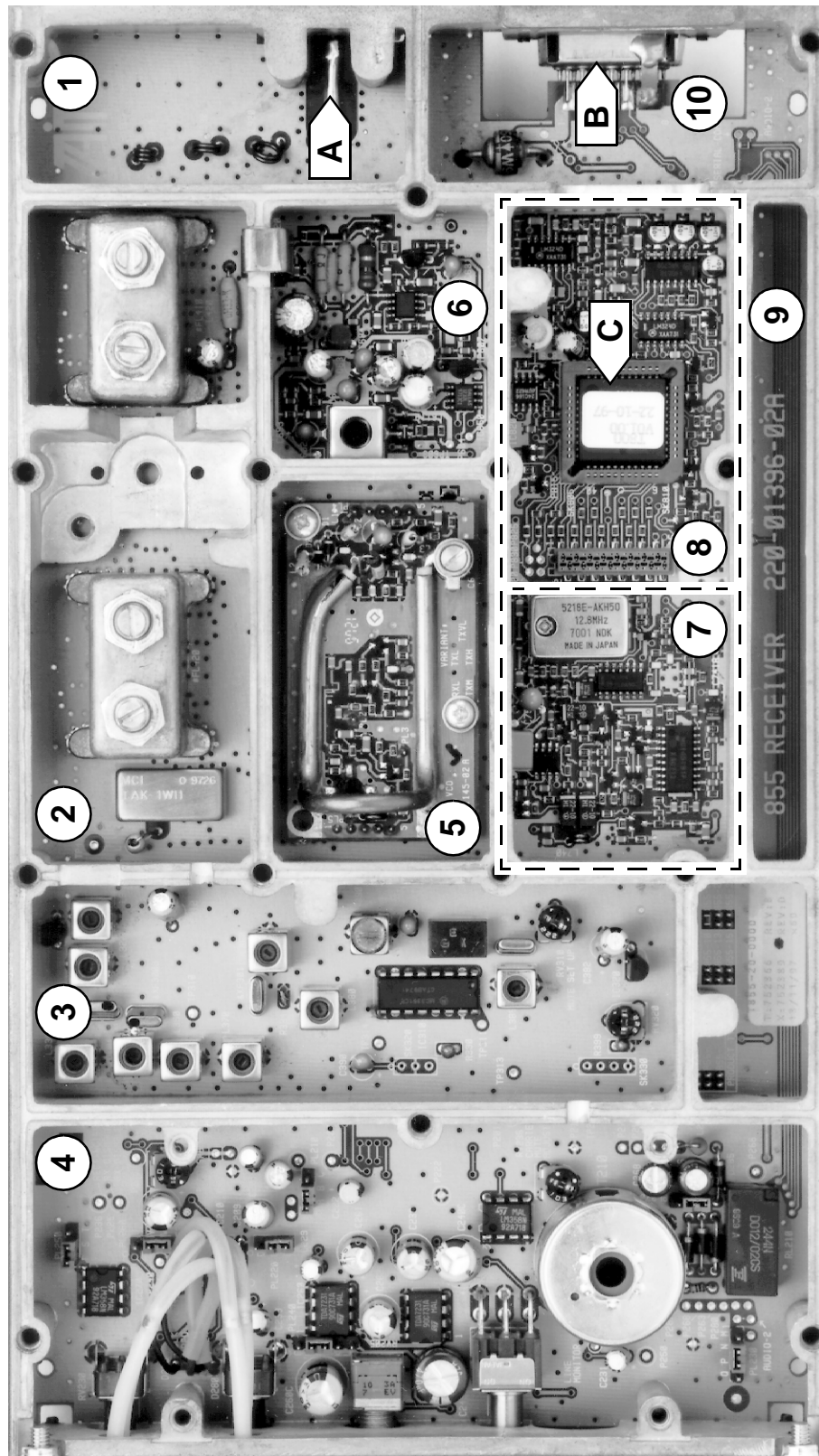


The photograph in [Figure 1.1](#) on the next page will help you to identify the main circuit blocks in the T855.

There is a similar photograph in [Figure 4.3](#) which shows the main tuning and adjustment controls.

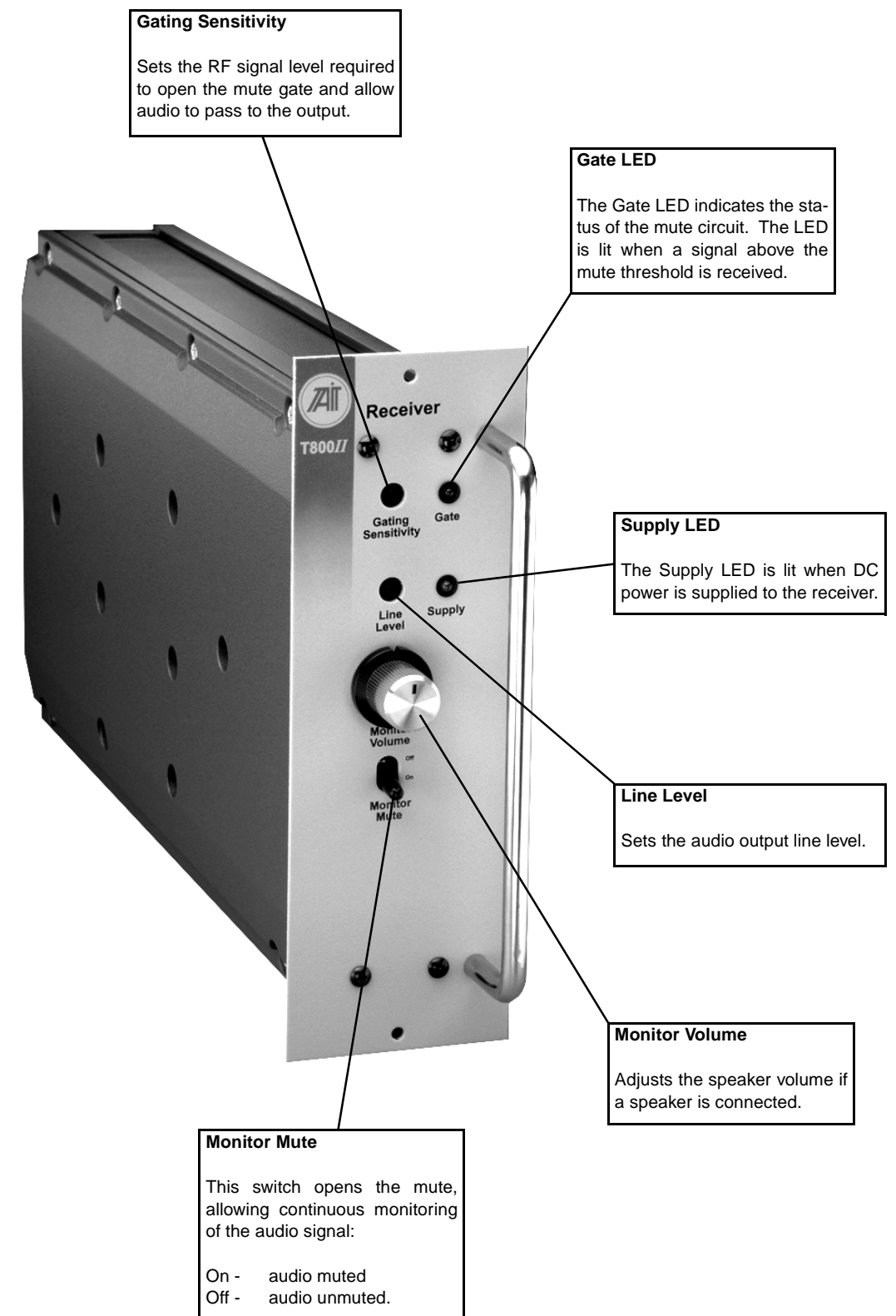
Extending both these fold-outs will allow you to refer to both photographs while using the manual.

The photograph in [Figure 1.2](#) on the next page shows the T855 front panel controls.



- Key:**
- 1 low pass filter
  - 2 receiver front end
  - 3 receiver IF
  - 4 audio processor
  - 5 VCO
  - 6 regulators
  - 7 synthesiser
- 8 microcontroller and CTCSS
  - 9 duct for cabling to extra D-range (if fitted)
  - 10 D-range
- A RF input
  - B D-range connector ("D-range 1" incl. audio out & DC in (refer to Section 1.2 in Part F)
  - C microcontroller

Figure 1.1 T855 Main Circuit Block Identification



**Monitor Mute**

This switch opens the mute, allowing continuous monitoring of the audio signal:

On - audio muted  
Off - audio unmuted.

**Monitor Volume**

Adjusts the speaker volume if a speaker is connected.

**Line Level**

Sets the audio output line level.

**Supply LED**

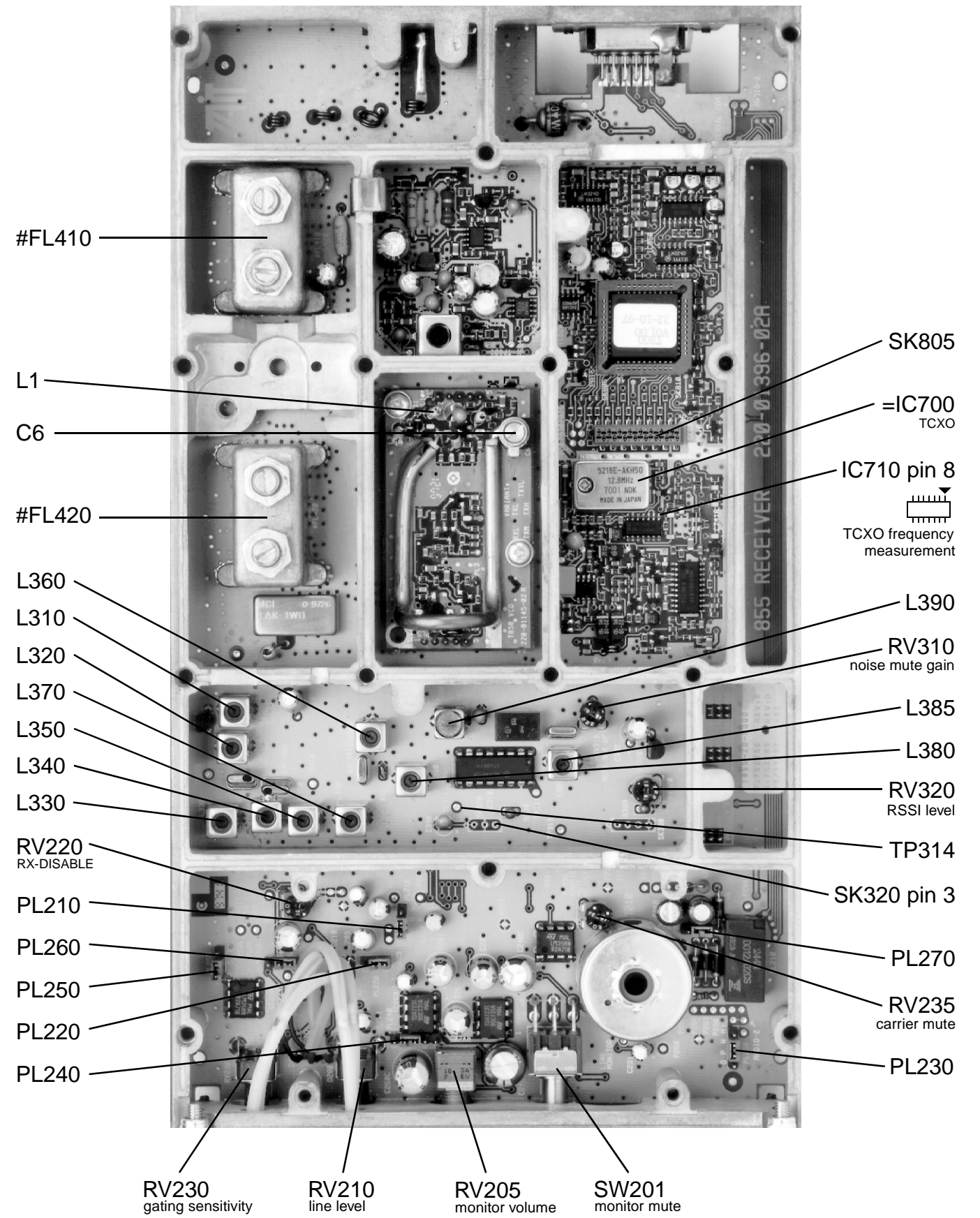
The Supply LED is lit when DC power is supplied to the receiver.

**Gate LED**

The Gate LED indicates the status of the mute circuit. The LED is lit when a signal above the mute threshold is received.

**Gating Sensitivity**

Sets the RF signal level required to open the mute gate and allow audio to pass to the output.



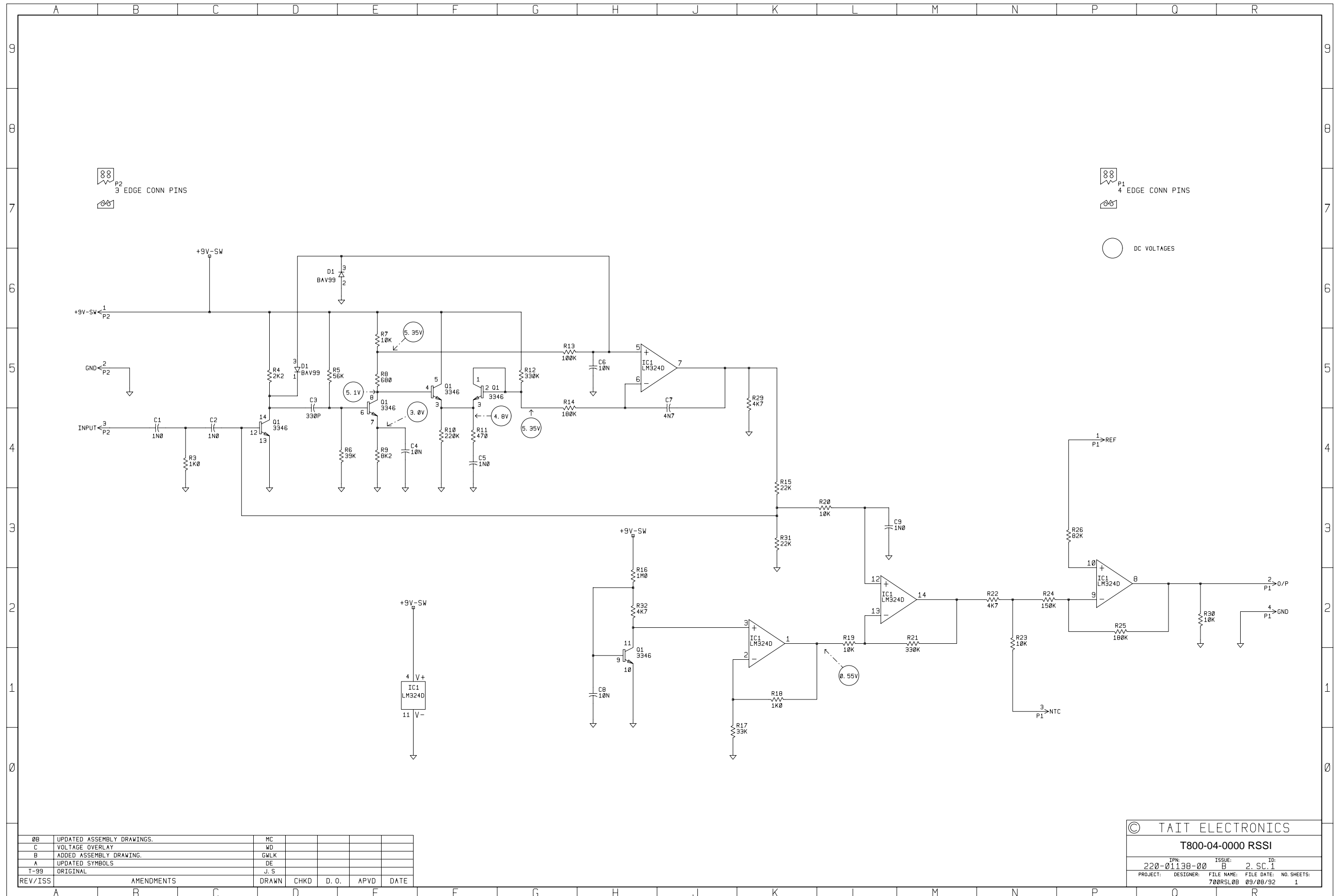
The photograph printed at right will help you to identify the main controls used in tuning and adjusting the T855.

There is a similar photograph in [Figure 1.1](#) which shows the main circuit blocks.

Extending both these fold-outs will allow you to refer to both photographs while using the manual.

Figure 4.3 T855 Main Tuning & Adjustment Controls





© TAIT ELECTRONICS  
 T800-04-0000 RSSI  
 IPN: 220-01138-00 ISSUE: B ID: 2, SC. 1  
 PROJECT: 700RSL08 DESIGNER: FILE NAME: FILE DATE: NO. SHEETS: 09/08/92 1

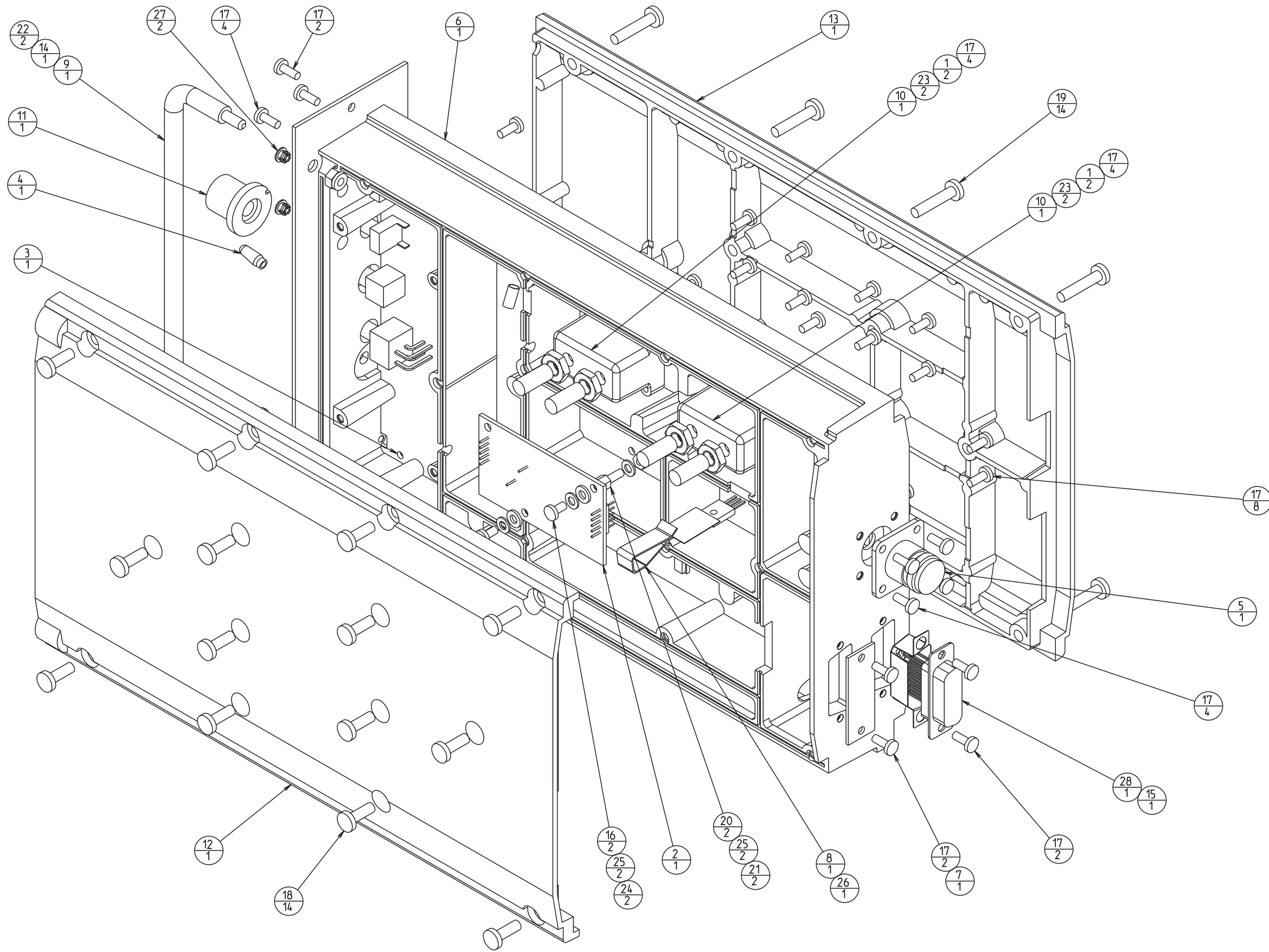
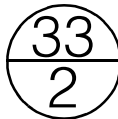
0B	UPDATED ASSEMBLY DRAWINGS.	MC				
C	VOLTAGE OVERLAY	WD				
B	ADDED ASSEMBLY DRAWING.	GWLK				
A	UPDATED SYMBOLS	DE				
T-99	ORIGINAL	J. S.				
REV/ISS	AMENDMENTS	DRAWN	CHKD	D. O.	APVD	DATE



**Key**

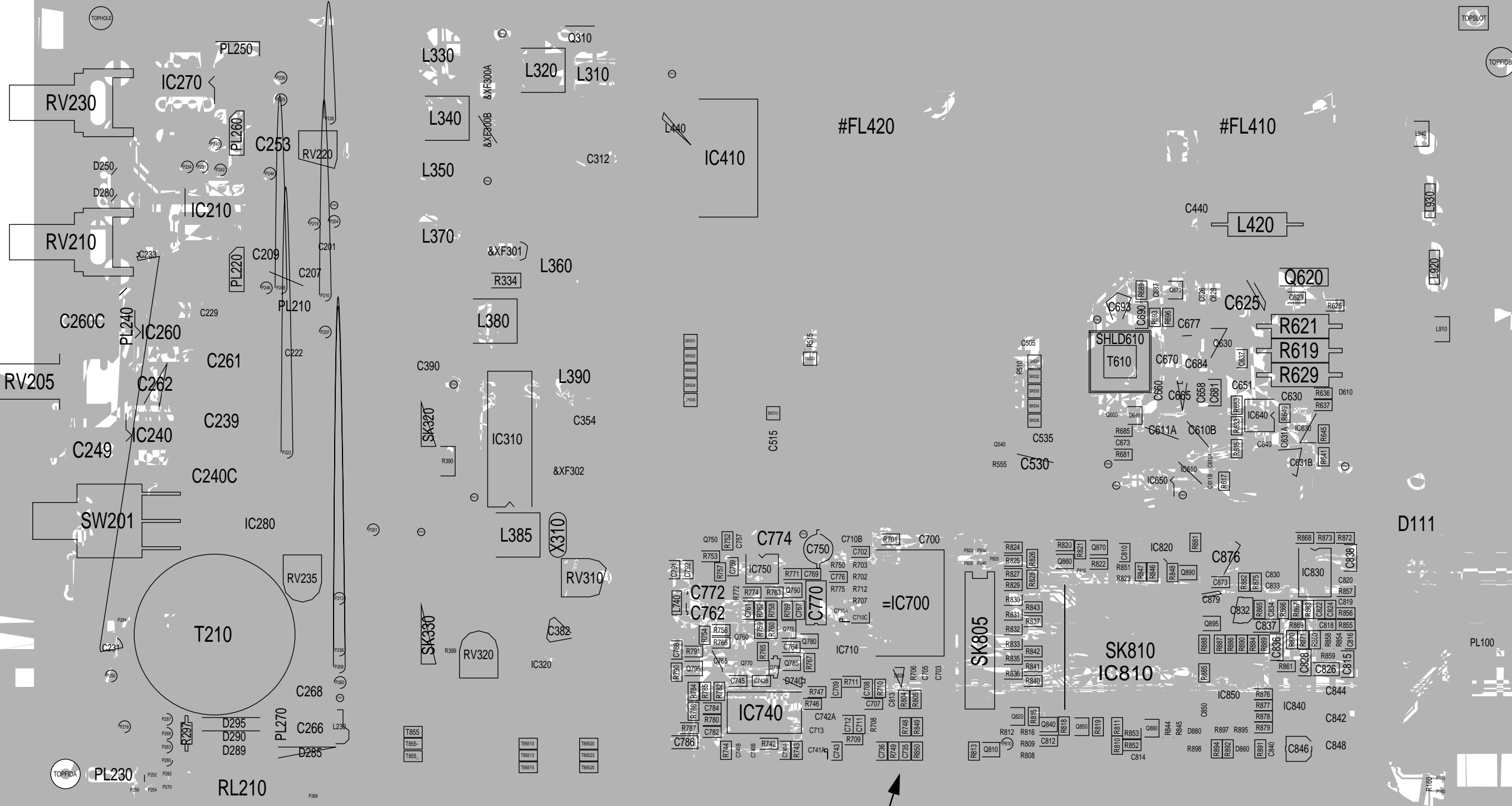
The upper number is the component identification number which appears in the "Legend" column of the Mechanical & Miscellaneous Parts on the facing page.

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









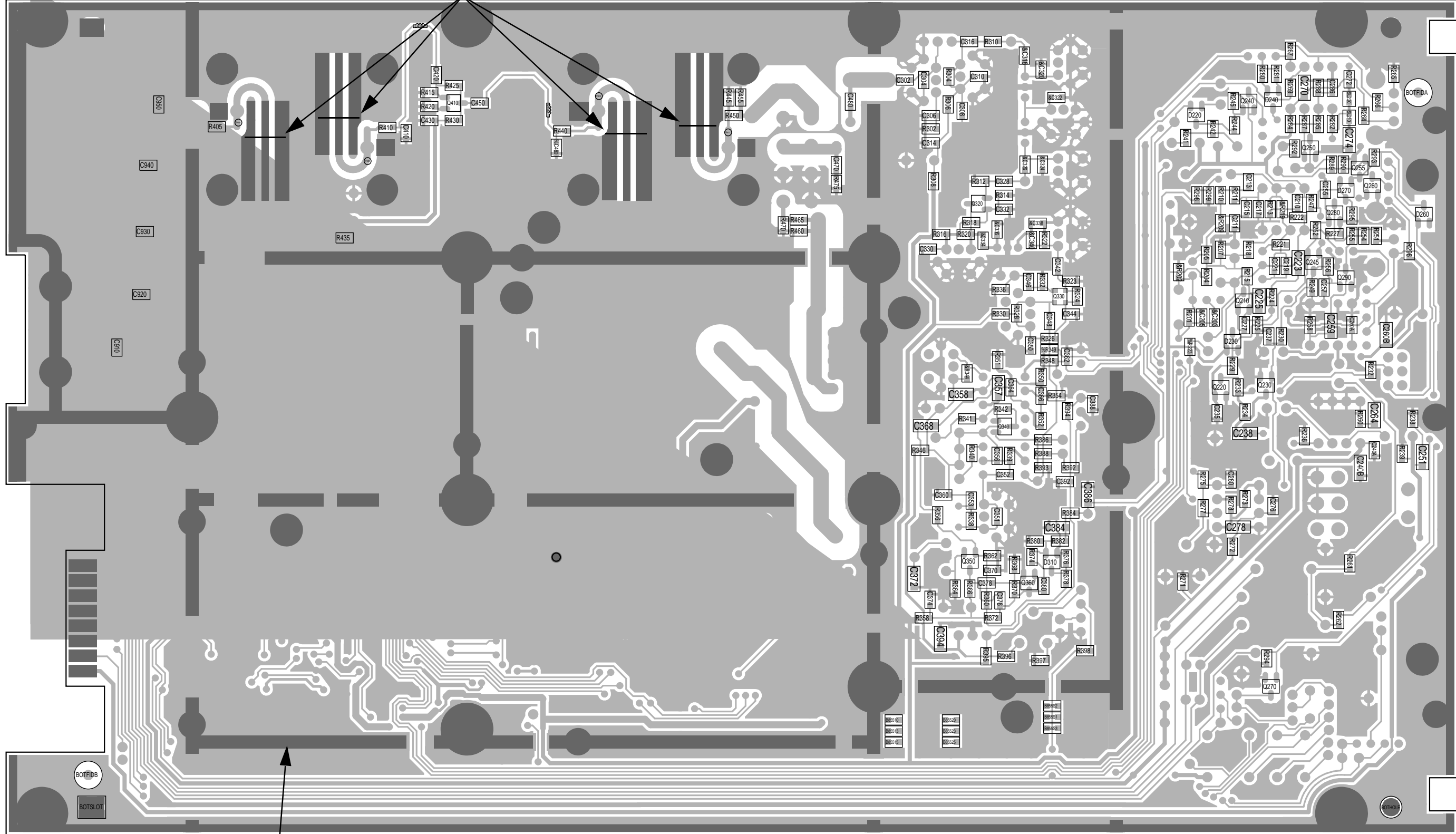
The darker shading shows the outline of the chassis.

A8MJ D

LFG7123465PQKHCBEN

T85-220-01 out - Top Side

These link wires are positioned according to frequency range and should not be moved as their position is optimised in the factory.



BOTFIDA  
BOTSLLOT

The darker shading shows the footprint of the bottom cover.

T855 PCB Layout - Bottom Side  
220-01396-02

M850-00

9

8

7

6

5

4

3

PL250 1 2 3

RECT NOISE

RX DISABLE A

PL260

1 RX DISABLE B

2

MUTE IP B

OUT

3 LFE OUT RV220

TP309

TP412

TP602  
+9V

TP603  
+20V

TP604  
+5V

TP607  
+5VDIG

TP601  
+13.8V

TP710  
LOCK

AO7

AO4

2

AO5

AO6

AO3

1

2

T

SK805

SERIAL COM 1

SERIAL COM

AUDIO 2

G

H

J

K

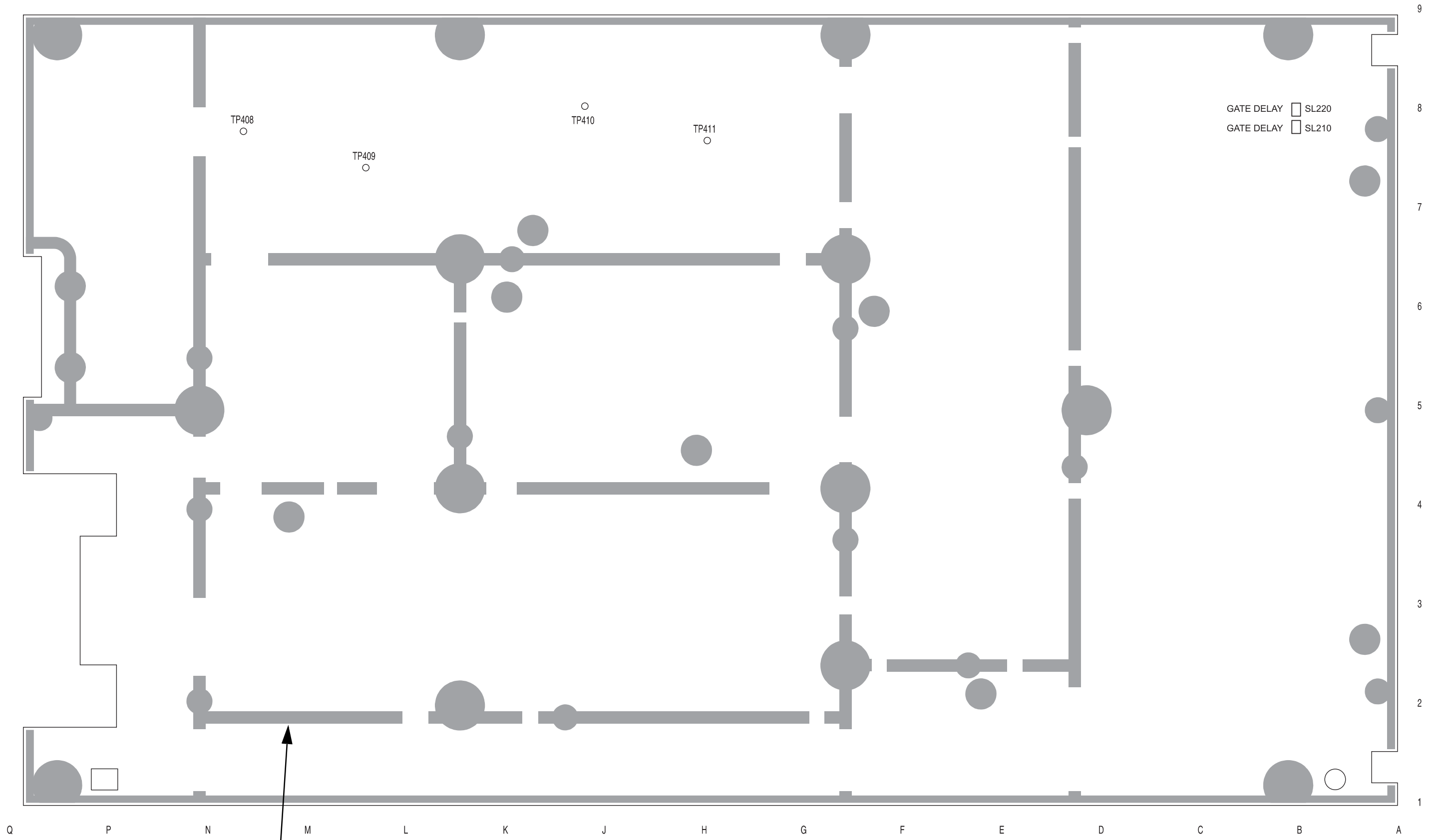
L

M

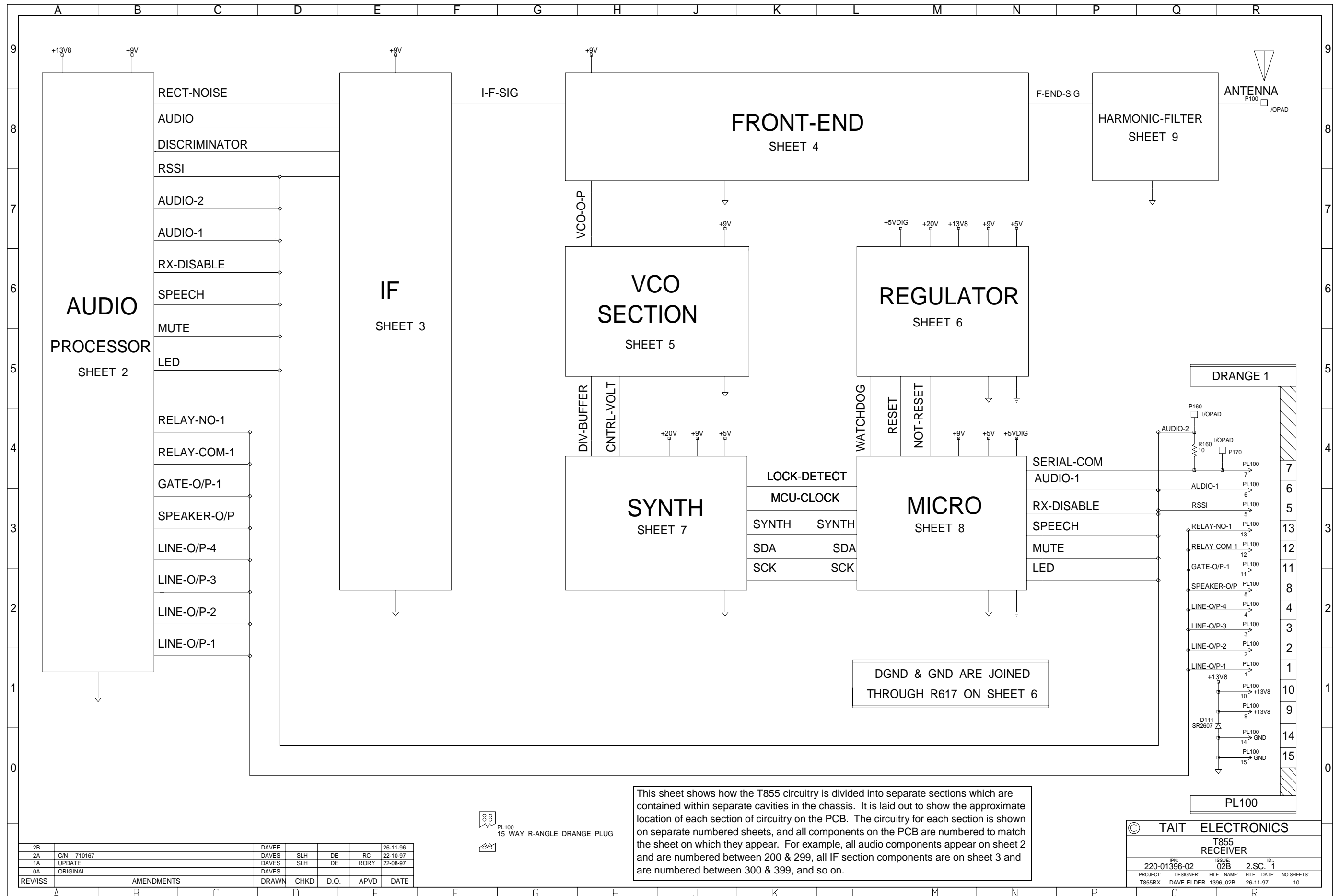
N

P

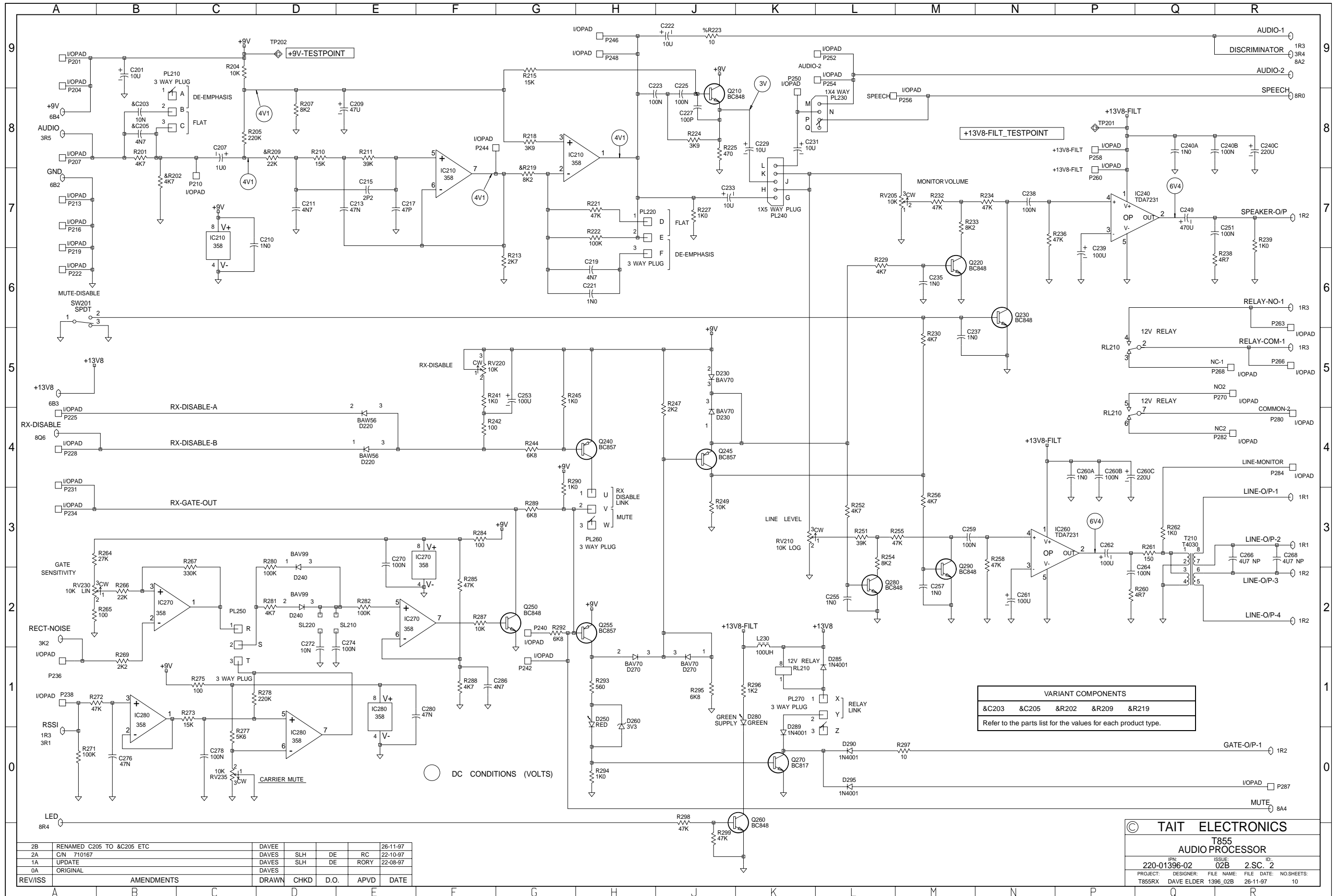
Q



**T855 Test Points & Options Connections - Bottom Side**  
**220-01396-02**



This sheet shows how the T855 circuitry is divided into separate sections which are contained within separate cavities in the chassis. It is laid out to show the approximate location of each section of circuitry on the PCB. The circuitry for each section is shown on separate numbered sheets, and all components on the PCB are numbered to match the sheet on which they appear. For example, all audio components appear on sheet 2 and are numbered between 200 & 299, all IF section components are on sheet 3 and are numbered between 300 & 399, and so on.



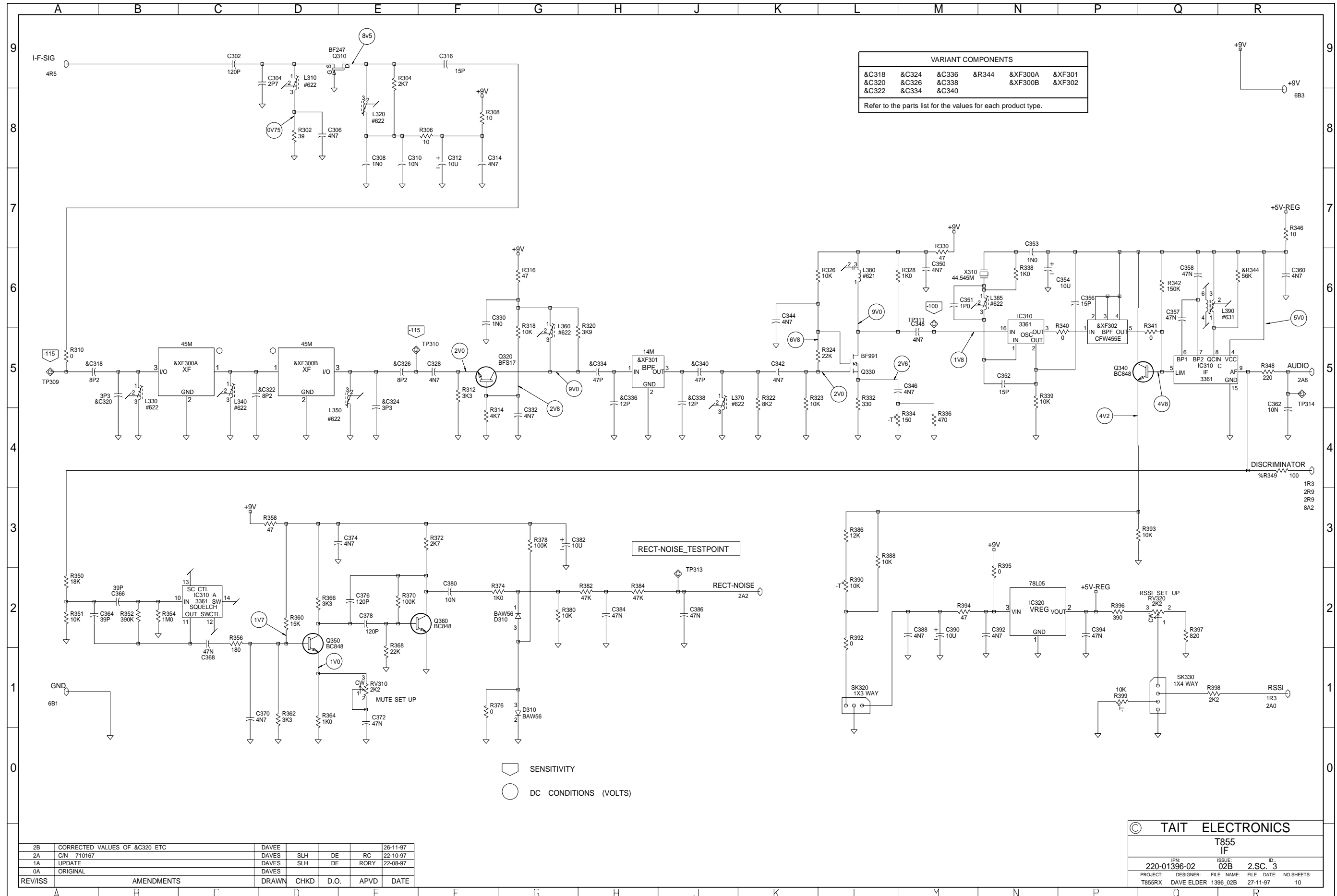
**VARIANT COMPONENTS**  
&C203 &C205 &R202 &R209 &R219  
Refer to the parts list for the values for each product type.

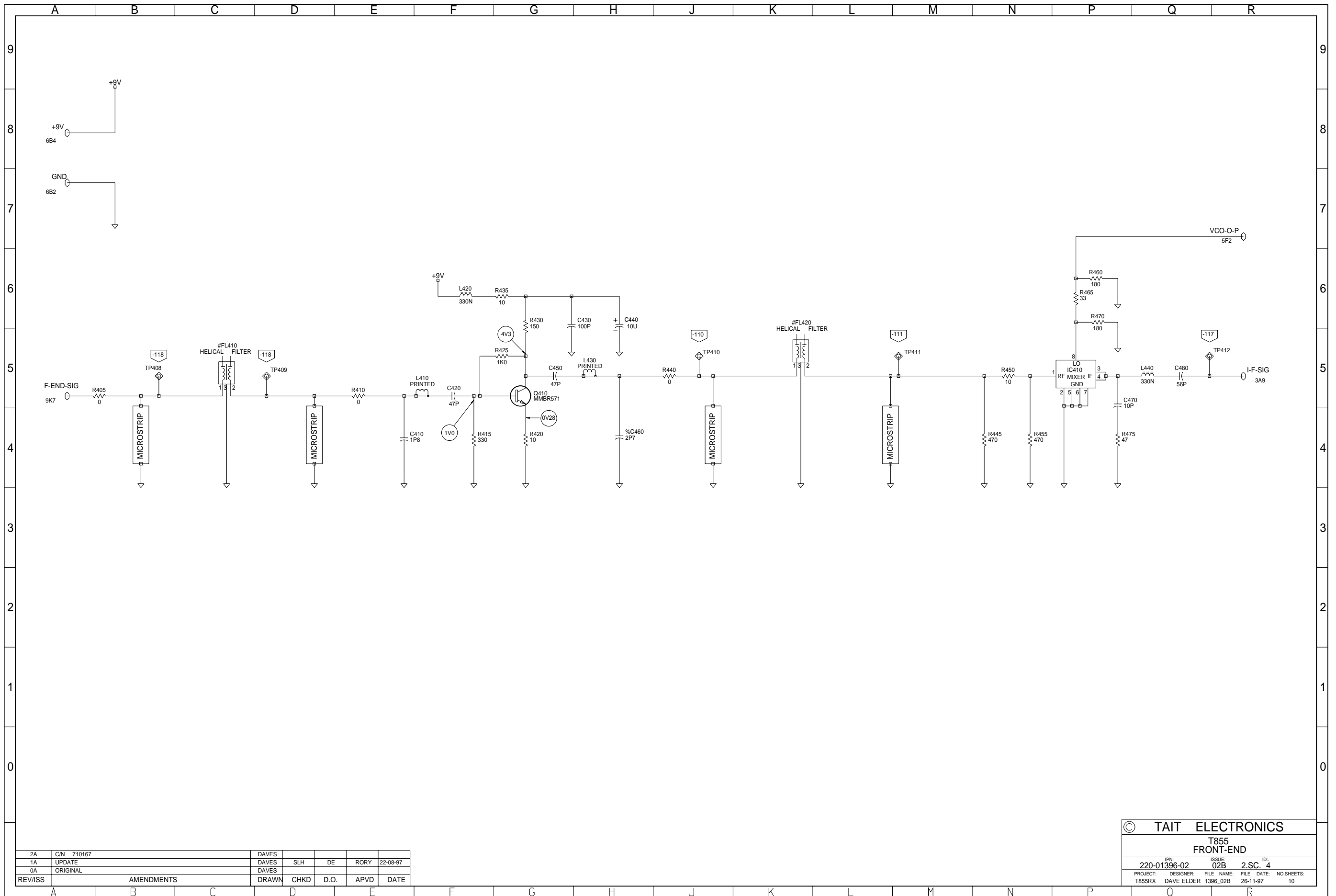
○ DC CONDITIONS (VOLTS)

2B	RENAMED C205 TO &C205 ETC	DAVEE			26-11-97
2A	C/N 710167	DAVES	SLH	DE	RC 22-10-97
1A	UPDATE	DAVES	SLH	DE	RORY 22-08-97
0A	ORIGINAL	DAVES			
REV/ISS	AMENDMENTS	DRAWN	CHKD	D.O.	APVD DATE

© TAIT ELECTRONICS  
T855  
AUDIO PROCESSOR

IPN	ISSUE	ID
220-01396-02	02B	2.S.C. 2
PROJECT: T855RX	DESIGNER: DAVE ELDER	FILE NAME: 1396_02B
FILE DATE: 26-11-97	NO. SHEETS: 10	

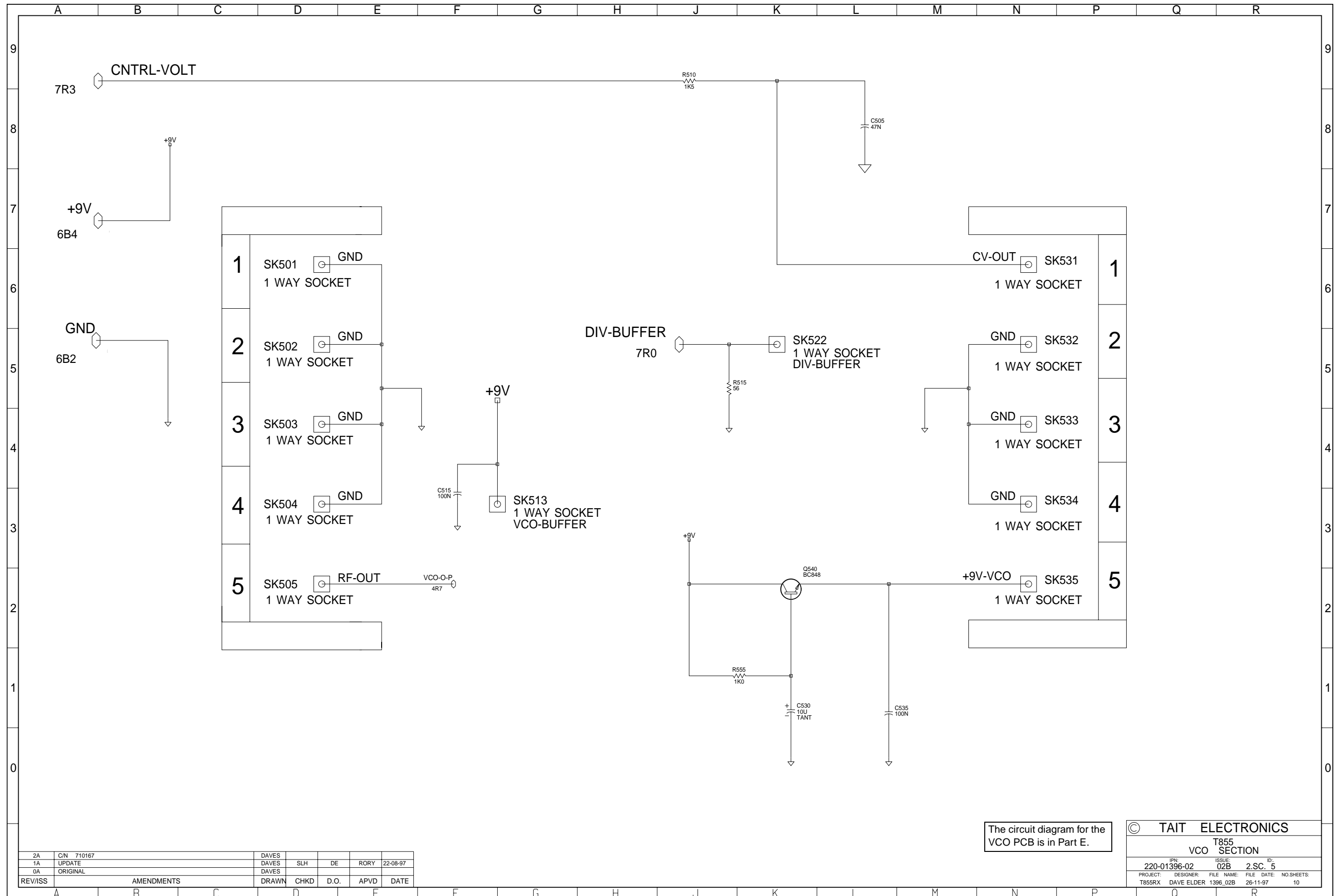




2A	C/N 710167	DAVES				
1A	UPDATE	DAVES	SLH	DE	RORY	22-08-97
0A	ORIGINAL	DAVES				
REV/ISS	AMENDMENTS	DRAWN	CHKD	D.O.	APVD	DATE

© TAIT ELECTRONICS			
T855 FRONT-END			
IPN	ISSUE	ID	
220-01396-02	02B	2.SC. 4	
PROJECT:	DESIGNER:	FILE NAME:	FILE DATE:
T855RX	DAVE ELDER	1396_02B	26-11-97
			NO.SHEETS: 10

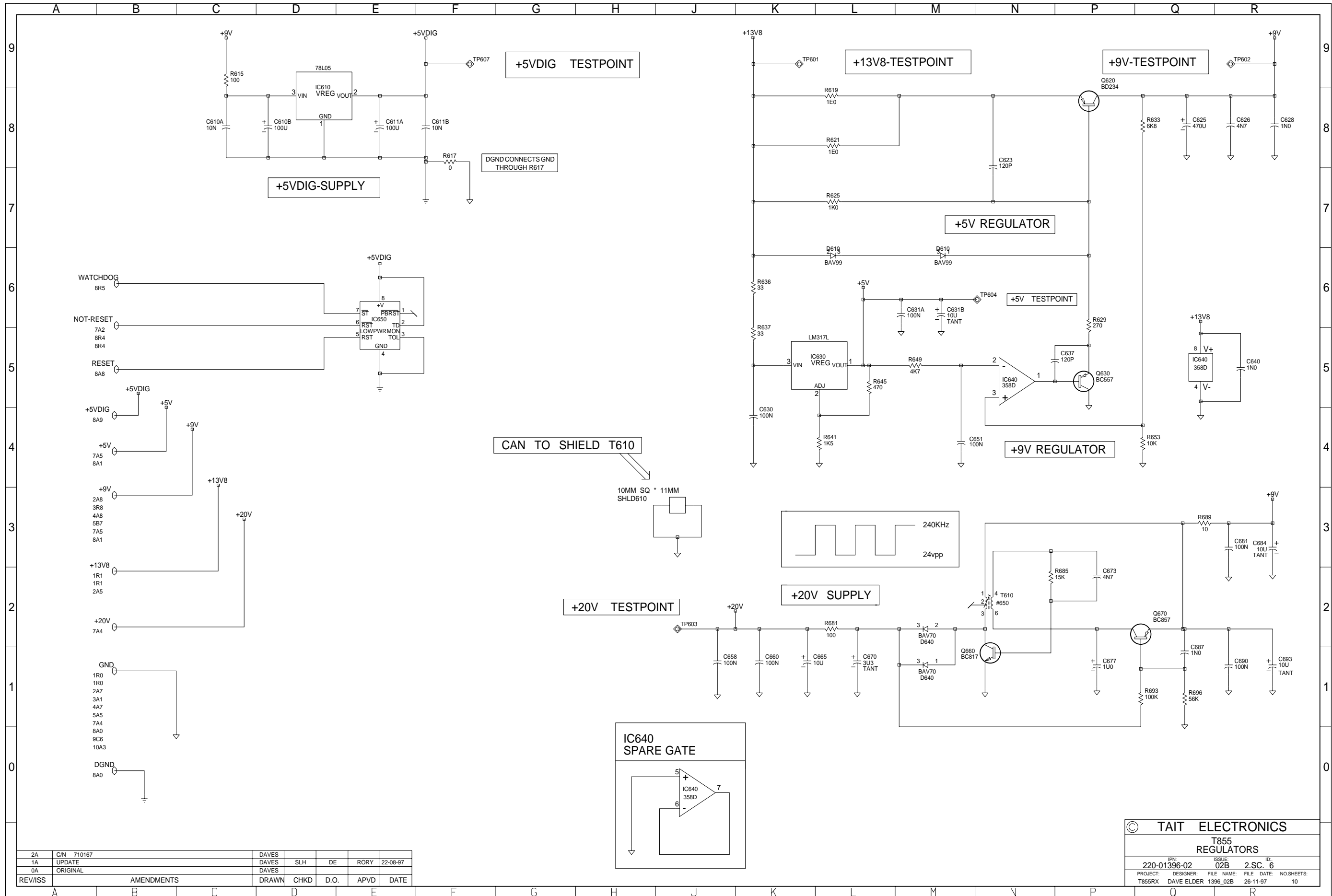




2A	C/N	710167	DAVES				
1A	UPDATE		DAVES	SLH	DE	RORY	22-08-97
0A	ORIGINAL		DAVES				
REV/ISS	AMENDMENTS		DRAWN	CHKD	D.O.	APVD	DATE

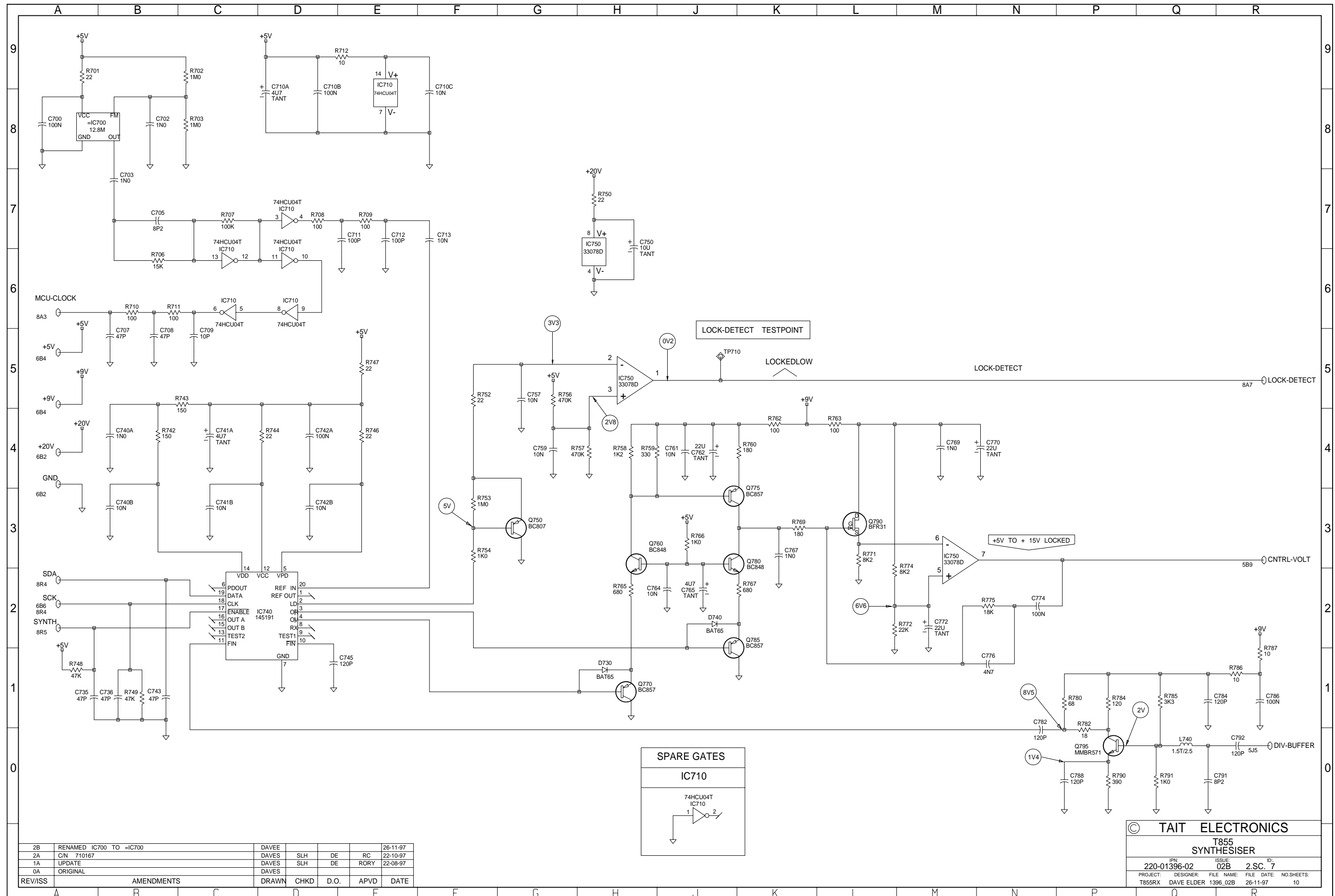
The circuit diagram for the VCO PCB is in Part E.

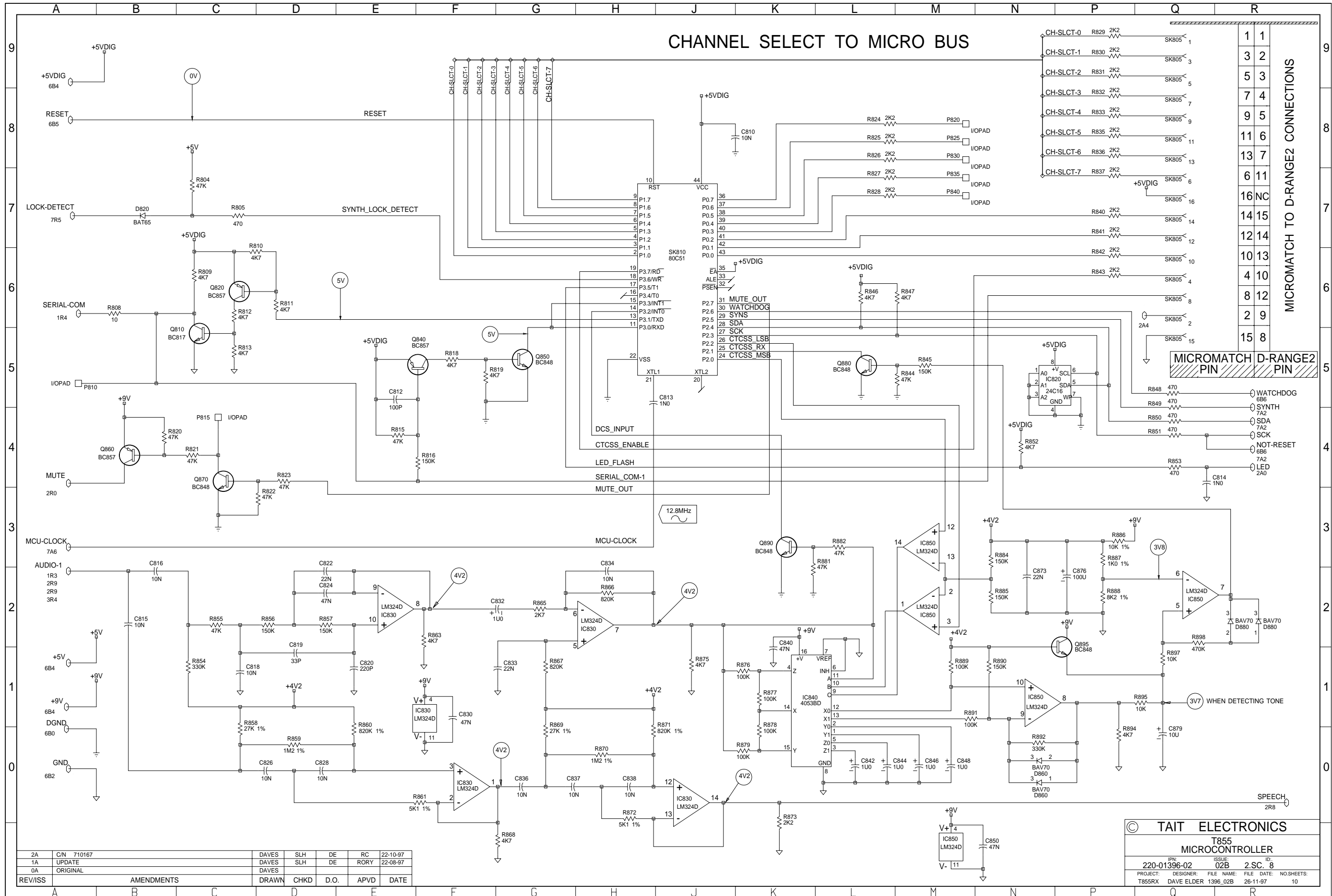
© TAIT ELECTRONICS			
T855 VCO SECTION			
IPN:	220-01396-02	ISSUE:	02B
DESIGNER:	DAVE ELDER	FILE NAME:	1396_02B
FILE DATE:	20-11-97	2.S.C.:	5
NO. SHEETS:	10		



2A	C/N 710167	DAVES				
1A	UPDATE	DAVES	SLH	DE	RORY	22-08-97
0A	ORIGINAL	DAVES				
REV/ISS	AMENDMENTS	DRAWN	CHKD	D.O.	APVD	DATE

© TAIT ELECTRONICS			
T855 REGULATORS			
IPN	ISSUE	FILE	ID
220-01396-02	02B	2.SC.	6
PROJECT:	DESIGNER:	FILE NAME:	FILE DATE:
T855RX	DAVE ELDER	1396_02B	26-11-97
			NO.SHEETS: 10

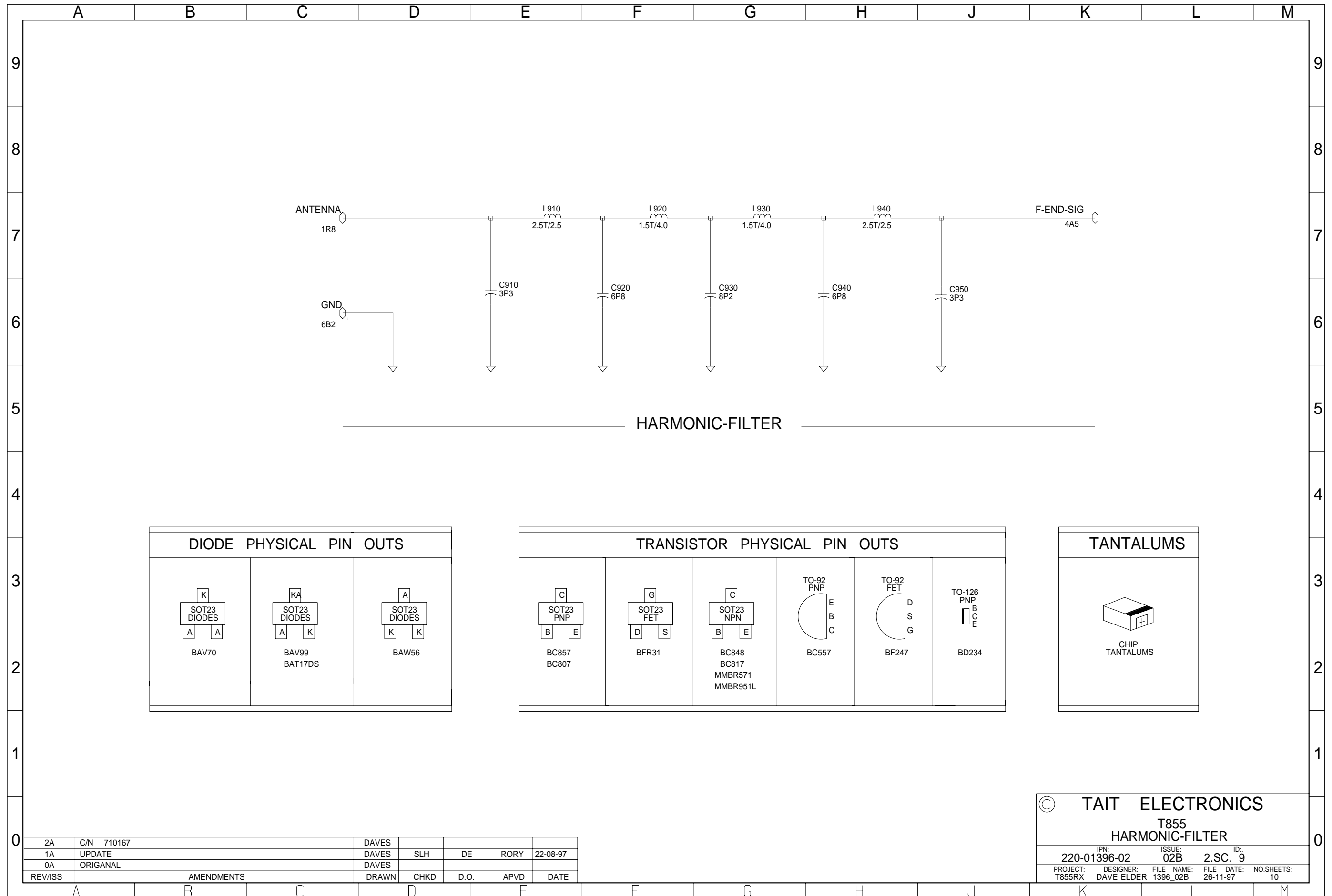




2A	C/N	710167	DAVES	SLH	DE	RC	22-10-97
1A	UPDATE		DAVES	SLH	DE	RORY	22-08-97
0A	ORIGINAL		DAVES				
REV/ISS	AMENDMENTS		DRAWN	CHKD	D.O.	APVD	DATE

© TAIT ELECTRONICS  
T855 MICROCONTROLLER

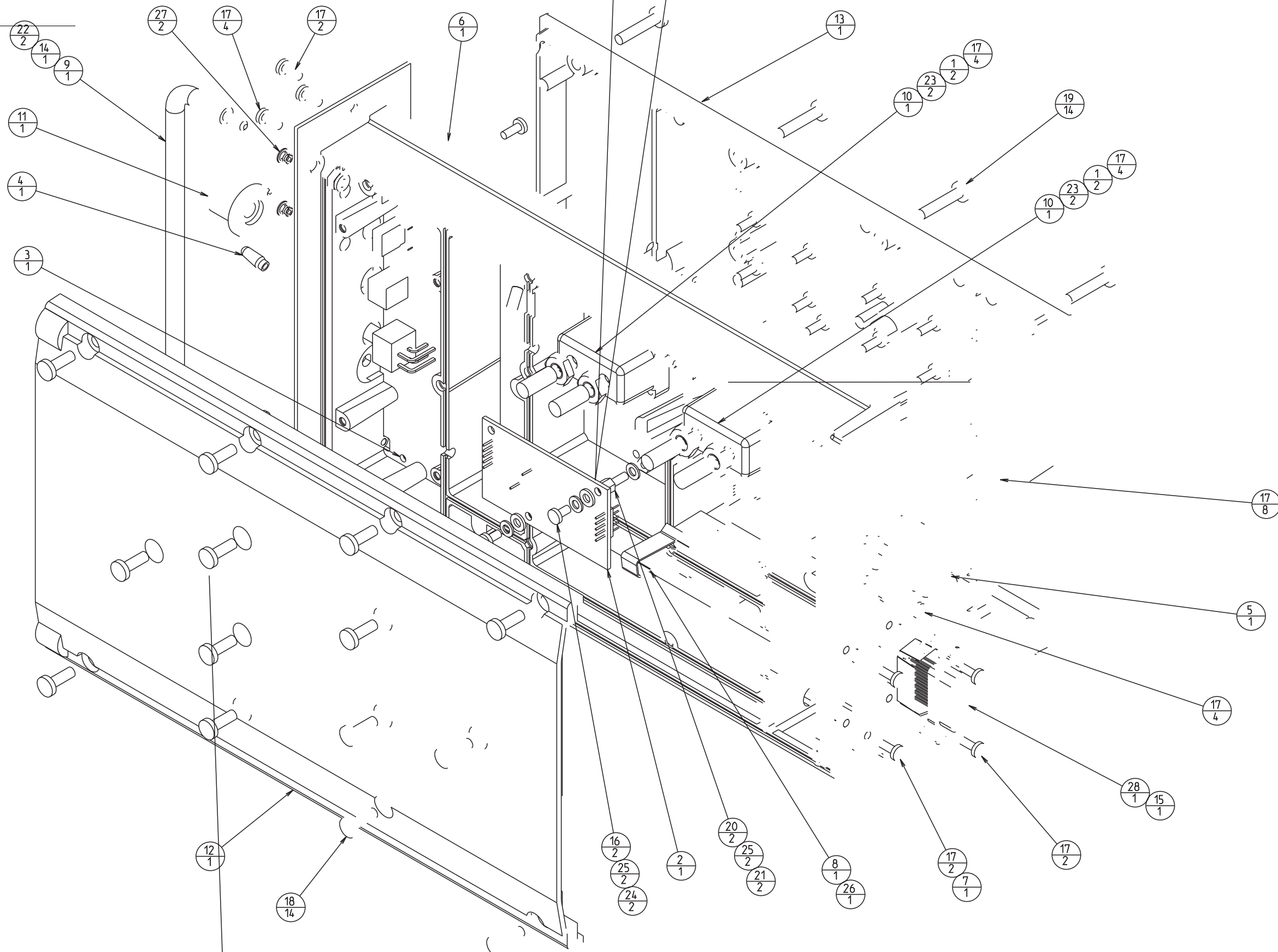
IPN	ISSUE	ID
220-01396-02	02B	2.S.C. 8
PROJECT:	DESIGNER:	FILE NAME:
T855RX	DAVE ELDER	1396_02B
		FILE DATE:
		26-11-97
		NO.SHEETS:
		10



2A	C/N 710167	DAVES				
1A	UPDATE	DAVES	SLH	DE	RORY	22-08-97
0A	ORIGANAL	DAVES				
REV/ISS	AMENDMENTS	DRAWN	CHKD	D.O.	APVD	DATE

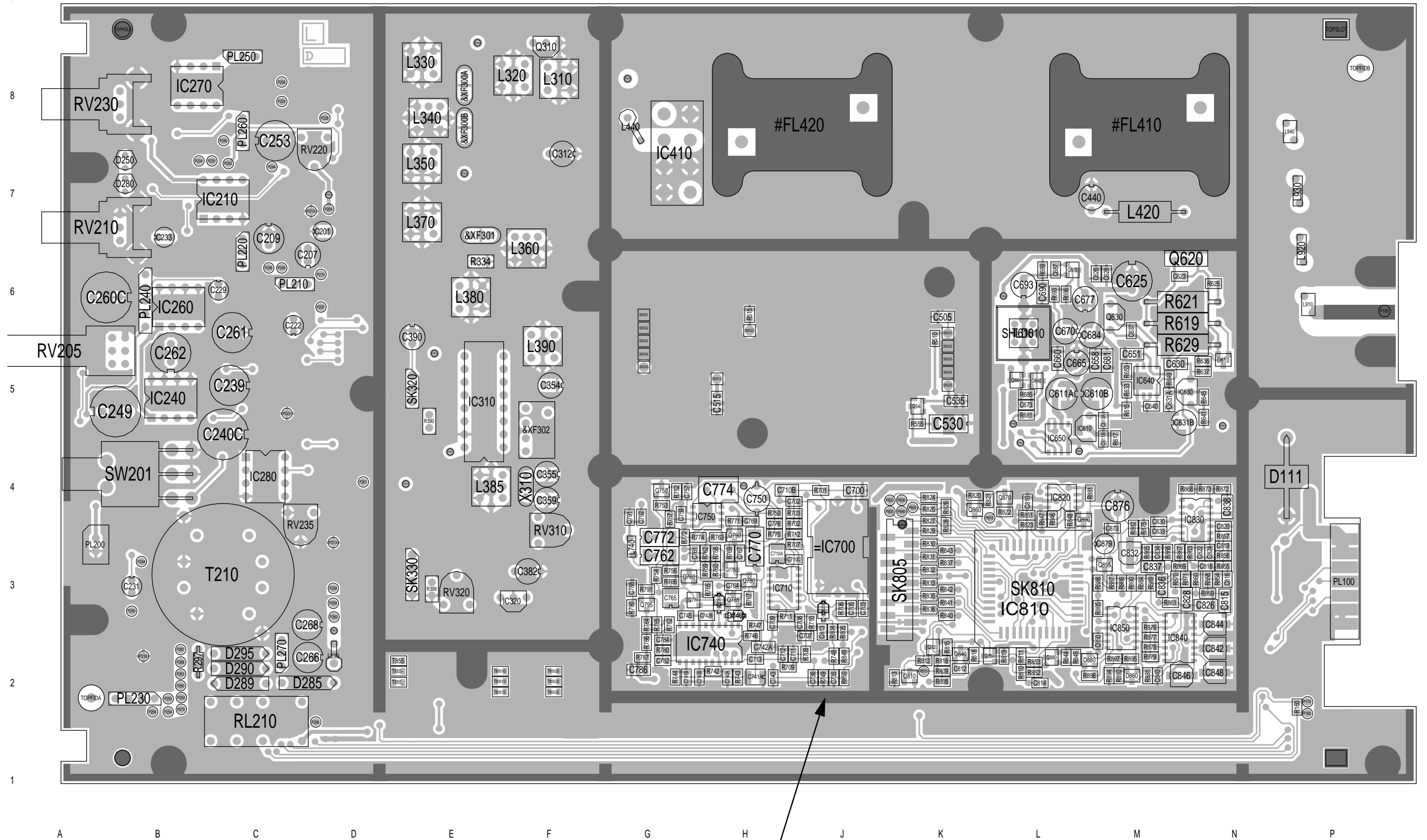
© TAIT ELECTRONICS					
T855 HARMONIC-FILTER					
IPN:	220-01396-02	ISSUE:	02B	ID:	2.SC. 9
PROJECT:	T855RX	DESIGNER:	DAVE ELDER	FILE NAME:	1396_02B
		FILE DATE:	26-11-97	NO.SHEETS:	10







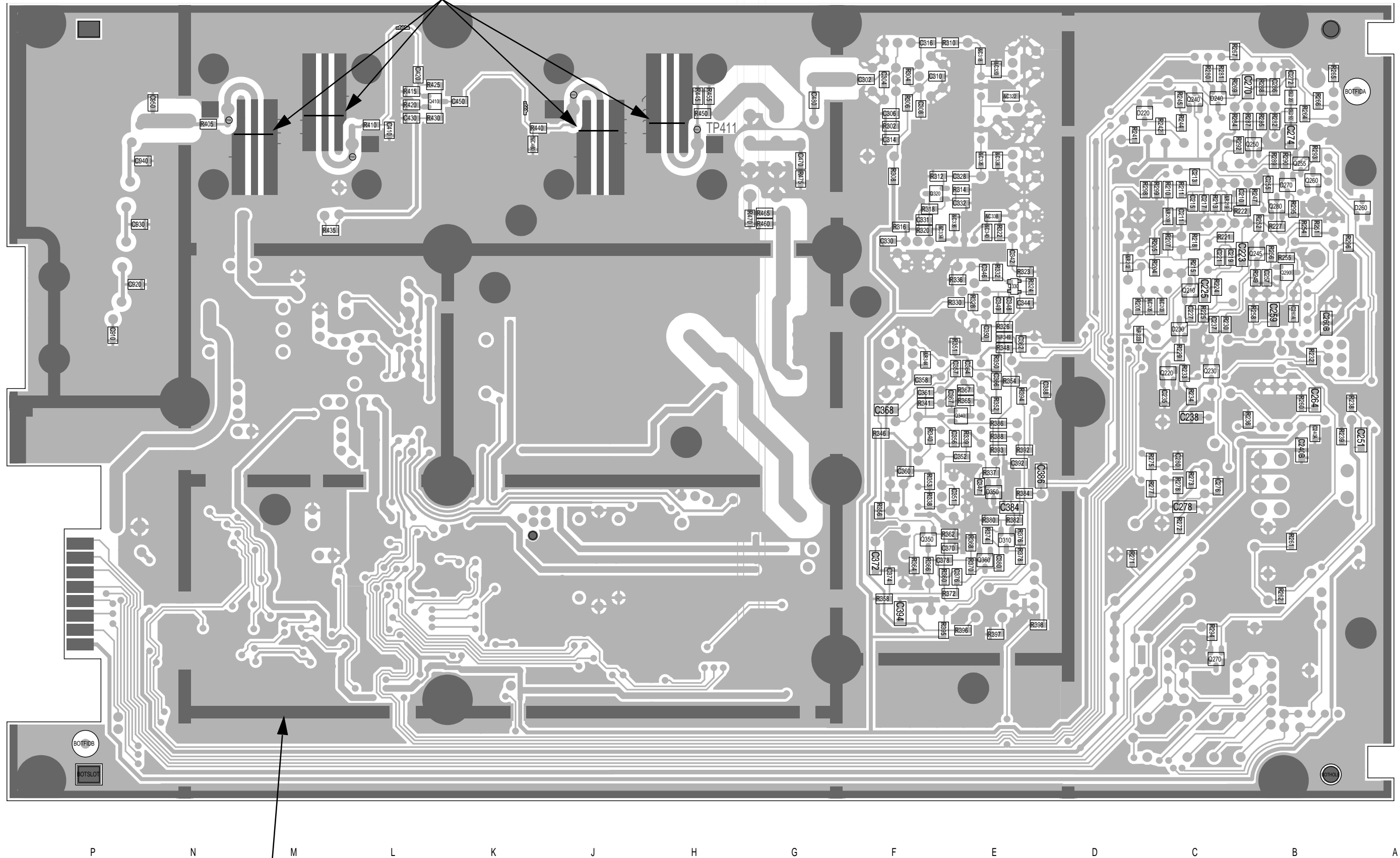




The darker shading shows the outline of the chassis.

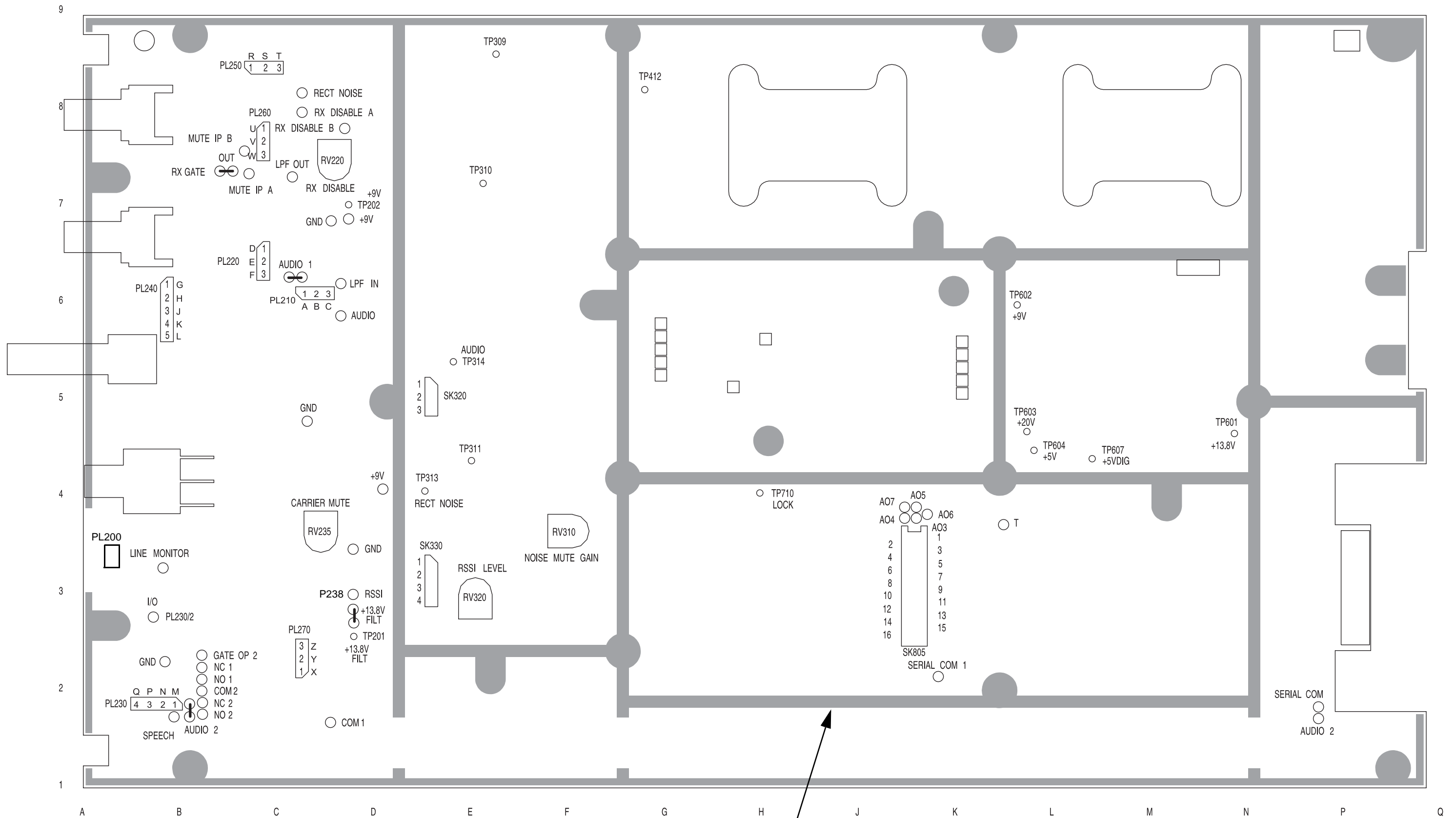
T855 PCB Layout - Top Side  
220-01396-03

These link wires are positioned according to frequency range and should not be moved as their position is optimised in the factory.

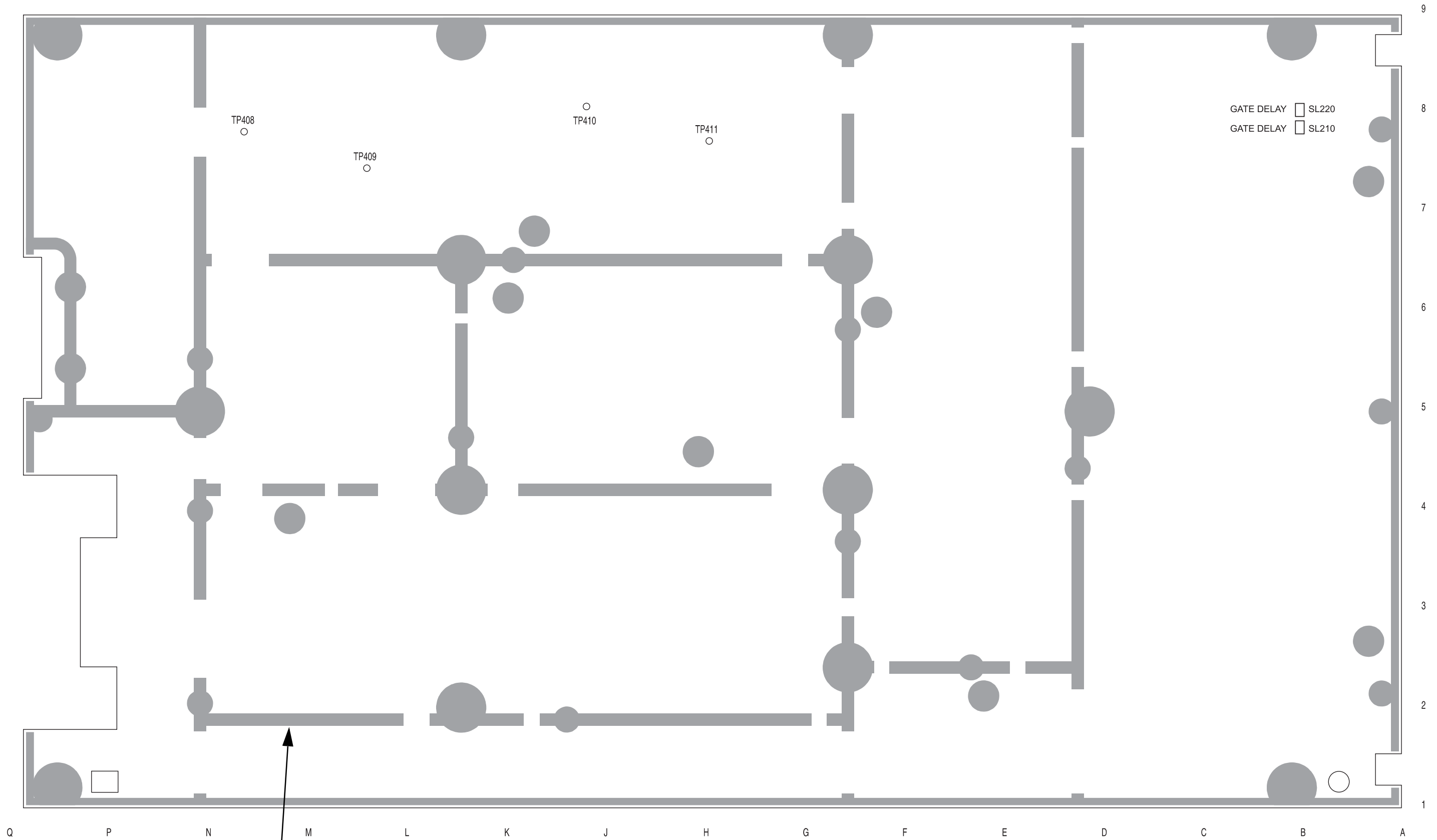


The darker shading shows the footprint of the bottom cover.

**T855 PCB Layout - Bottom Side**  
**220-01396-03**

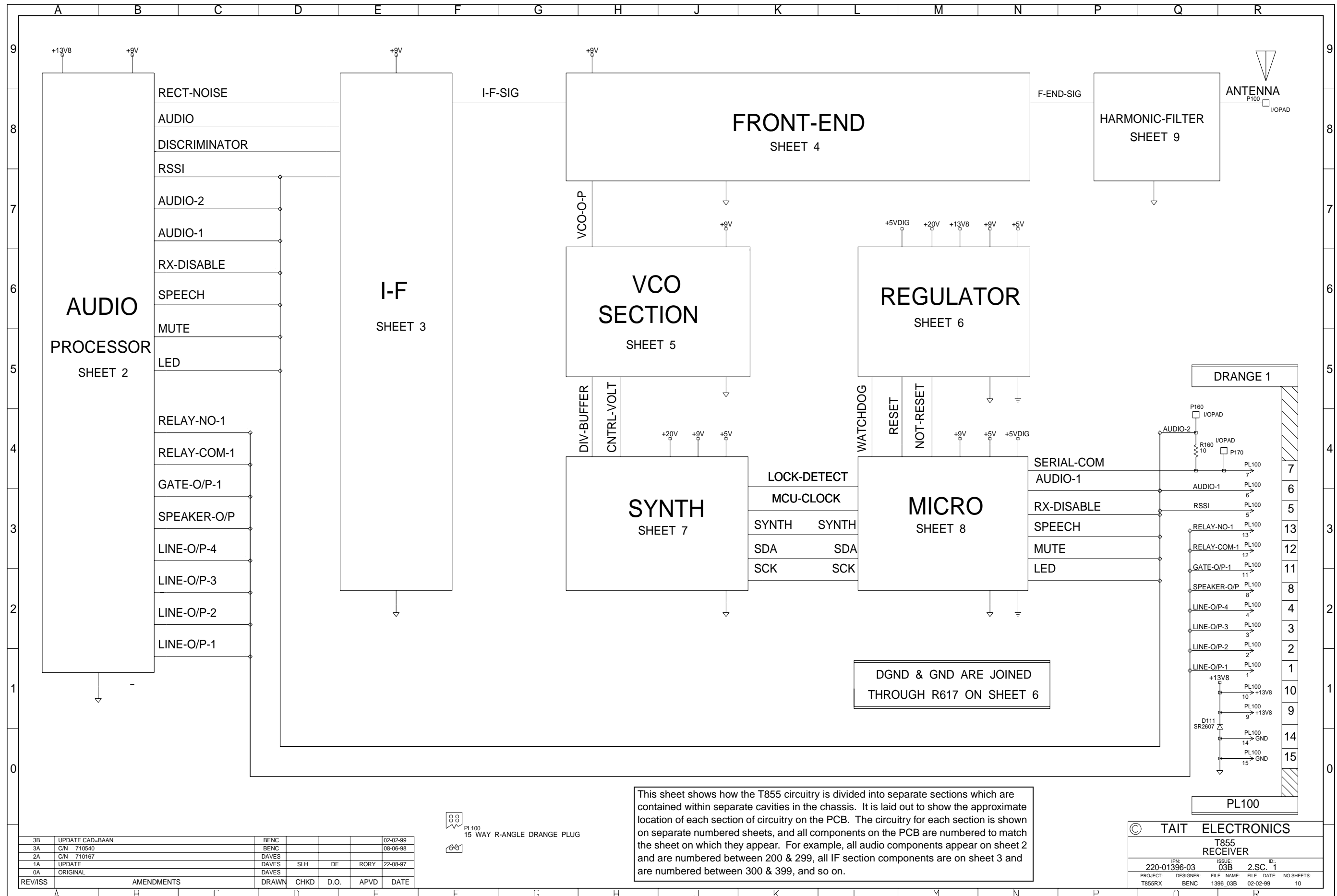


The darker shading shows the outline of the chassis.



The darker shading shows the footprint of the bottom cover.

**T855 Test Points & Options Connections - Bottom Side**  
**220-01396-03**

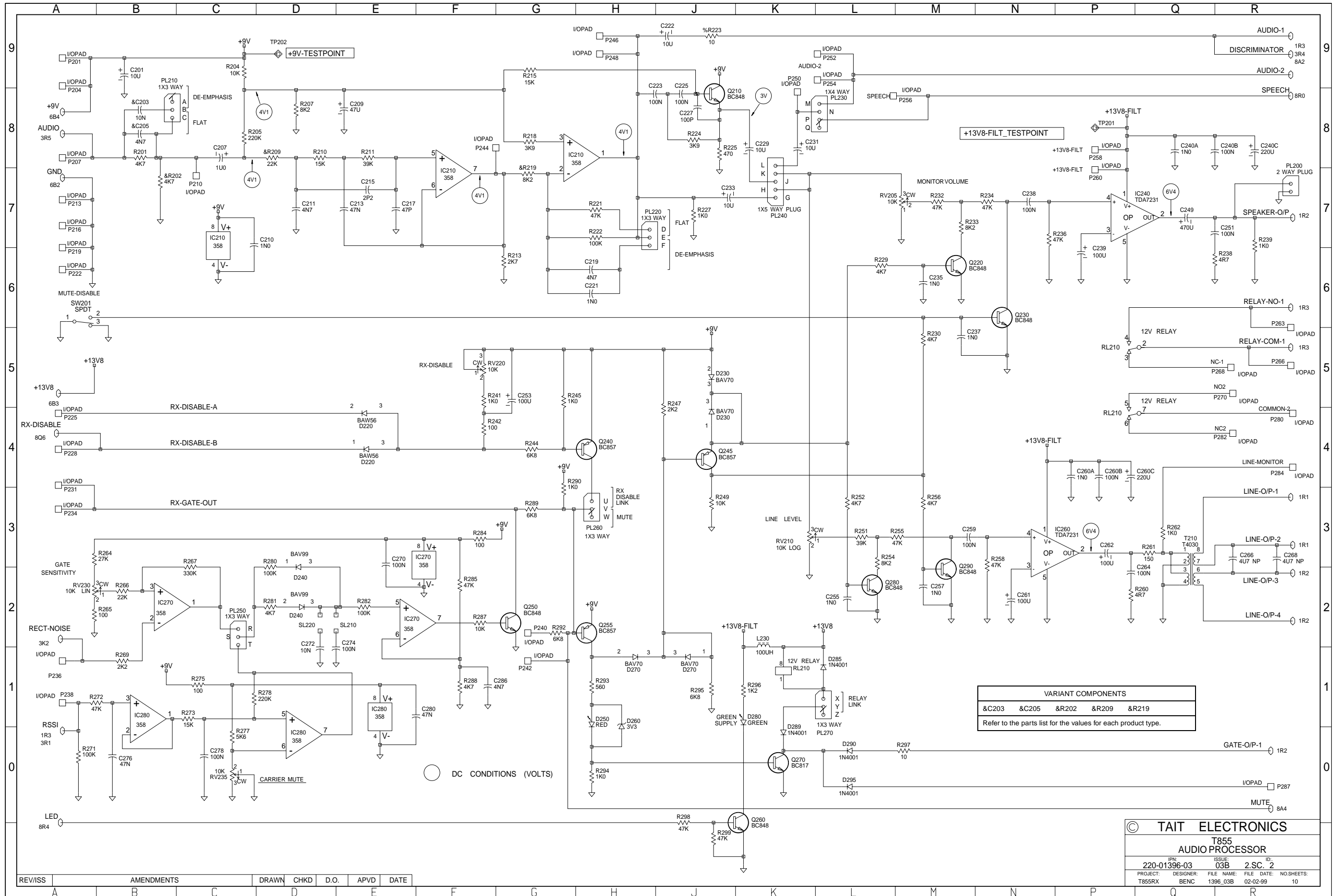


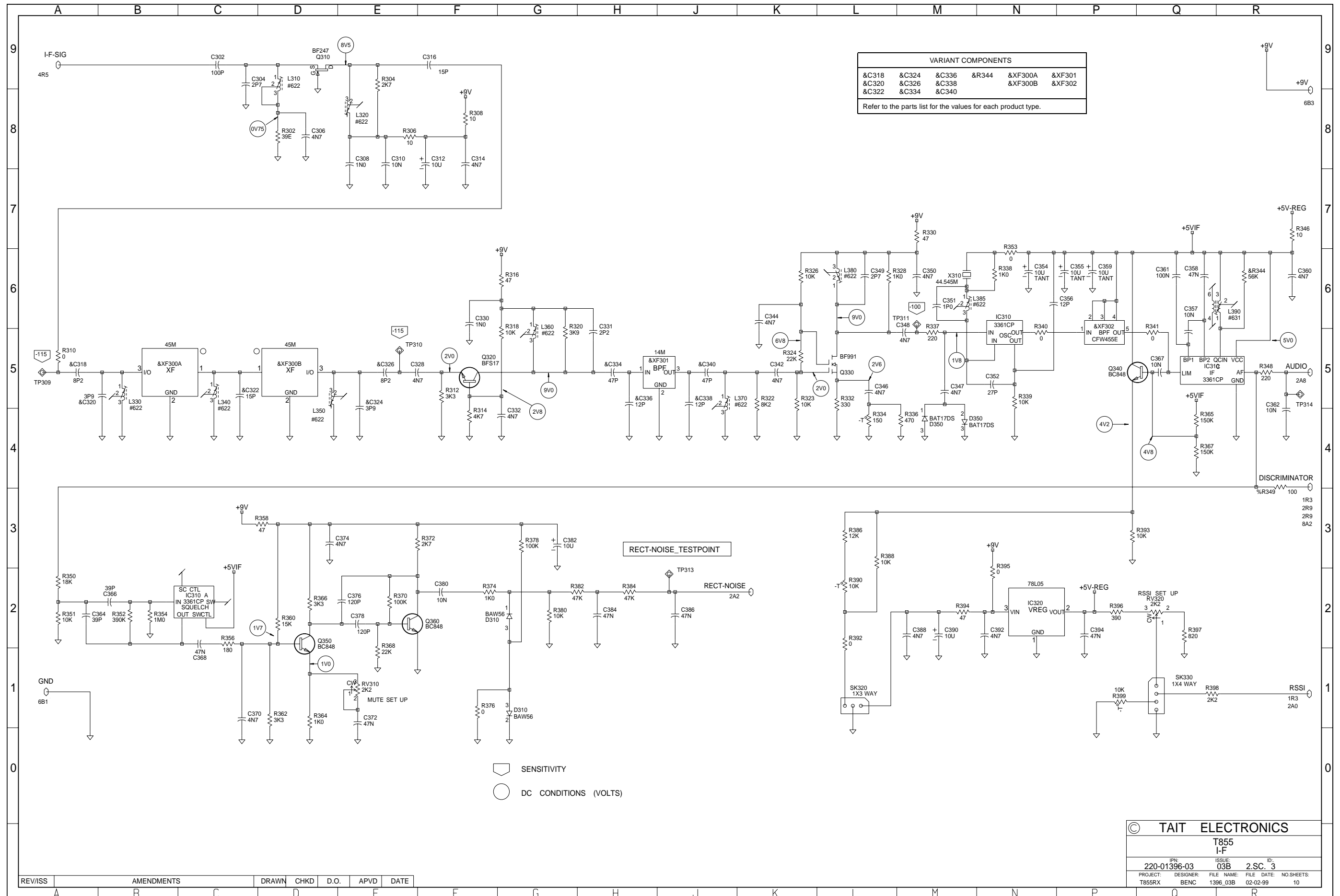
This sheet shows how the T855 circuitry is divided into separate sections which are contained within separate cavities in the chassis. It is laid out to show the approximate location of each section of circuitry on the PCB. The circuitry for each section is shown on separate numbered sheets, and all components on the PCB are numbered to match the sheet on which they appear. For example, all audio components appear on sheet 2 and are numbered between 200 & 299, all IF section components are on sheet 3 and are numbered between 300 & 399, and so on.

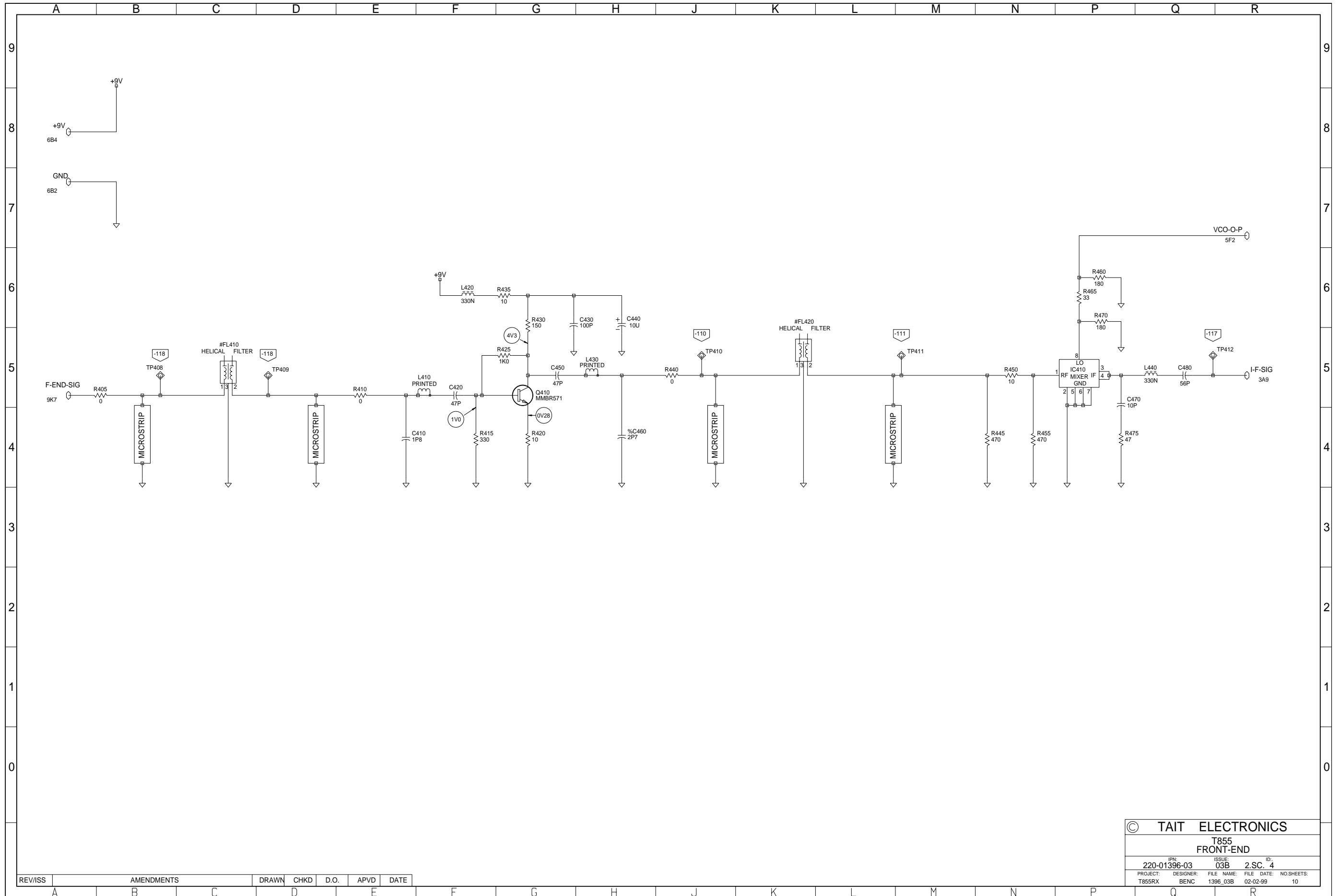
3B	UPDATE CAD=BAAN	BENC			02-02-99
3A	C/N 710540	BENC			08-06-98
2A	C/N 710167	DAVES			
1A	UPDATE	DAVES	SLH	DE	RORY 22-08-97
0A	ORIGINAL	DAVES			
REV/ISS	AMENDMENTS	DRAWN	CHKD	D.O.	APVD DATE

PL100  
 15 WAY R-ANGLE DRANGE PLUG

© TAIT ELECTRONICS					
T855 RECEIVER					
IPN:	220-01396-03	ISSUE:	03B	2.S.C.	1
PROJECT:	T855RX	DESIGNER:	BENC	FILE NAME:	1396_03B
		FILE DATE:	02-02-99	NO SHEETS:	10



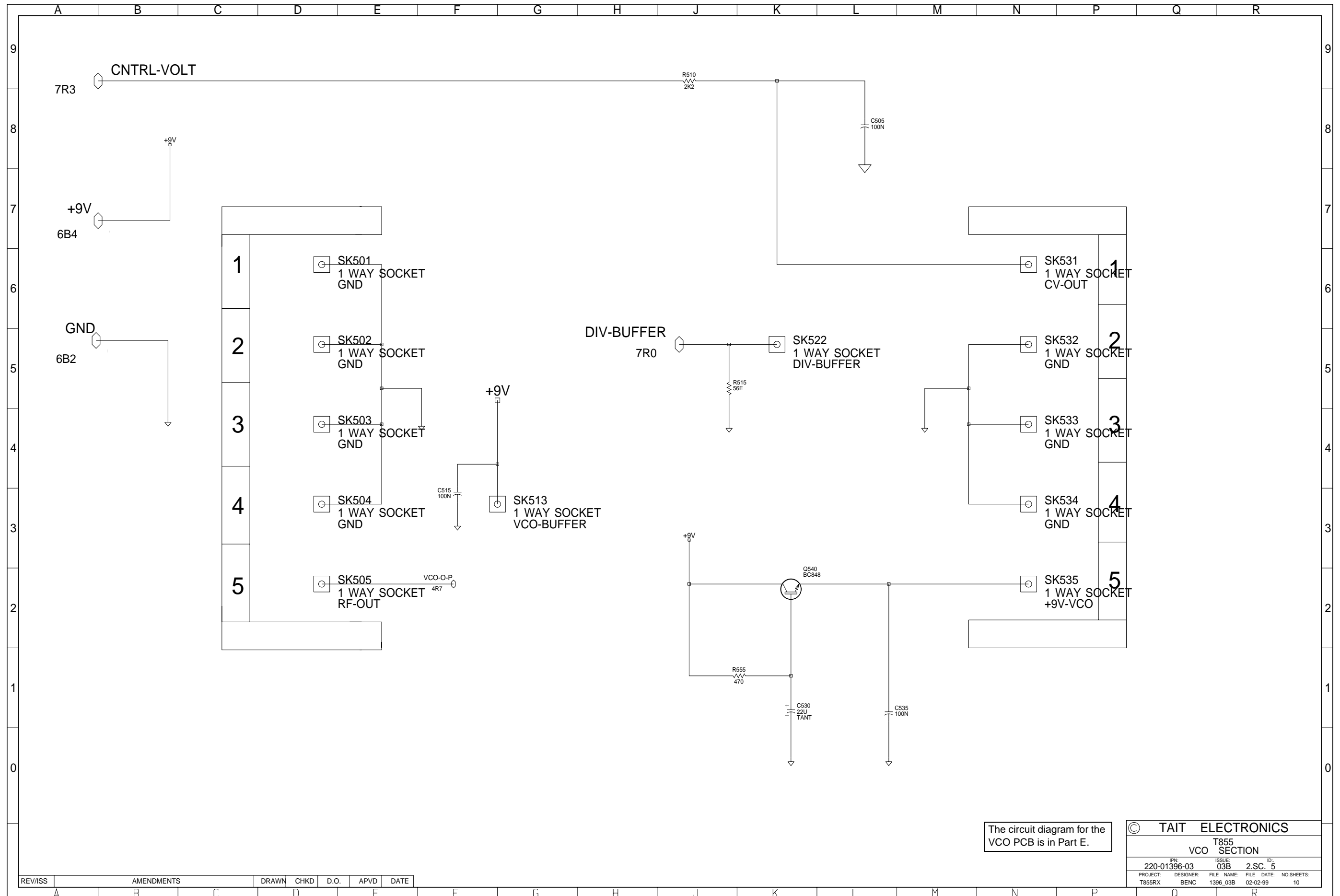




© TAIT ELECTRONICS			
T855 FRONT-END			
IPN: 220-01396-03	ISSUE: 03B	ID: 2.SC. 4	
PROJECT: T855RX	DESIGNER: BENC	FILE NAME: 1396_03B	FILE DATE: 02-02-99
		NO. SHEETS: 10	

REV/ISS	AMENDMENTS	DRAWN	CHKD	D.O.	APVD	DATE
A	B	C	D	E		

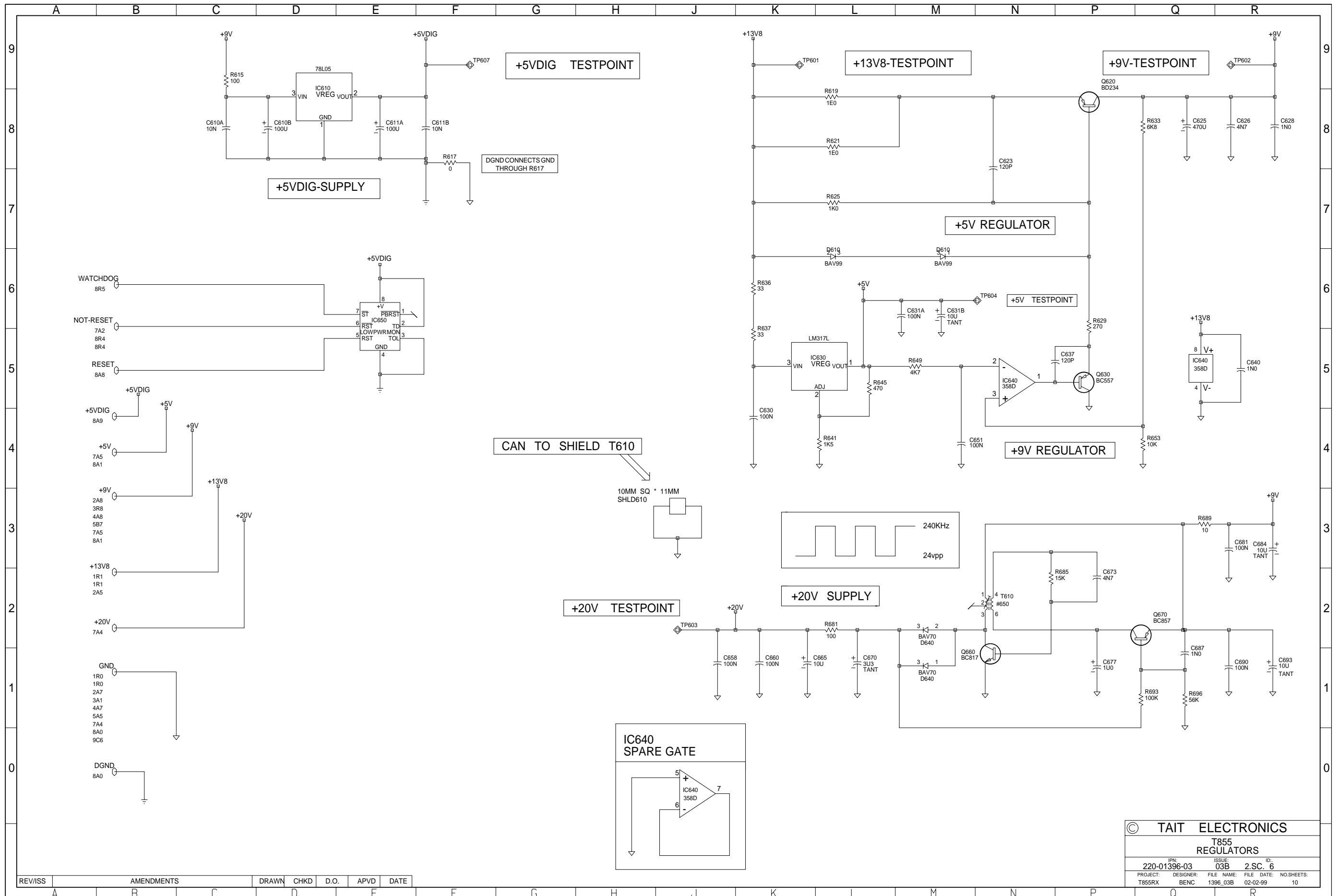




The circuit diagram for the VCO PCB is in Part E.

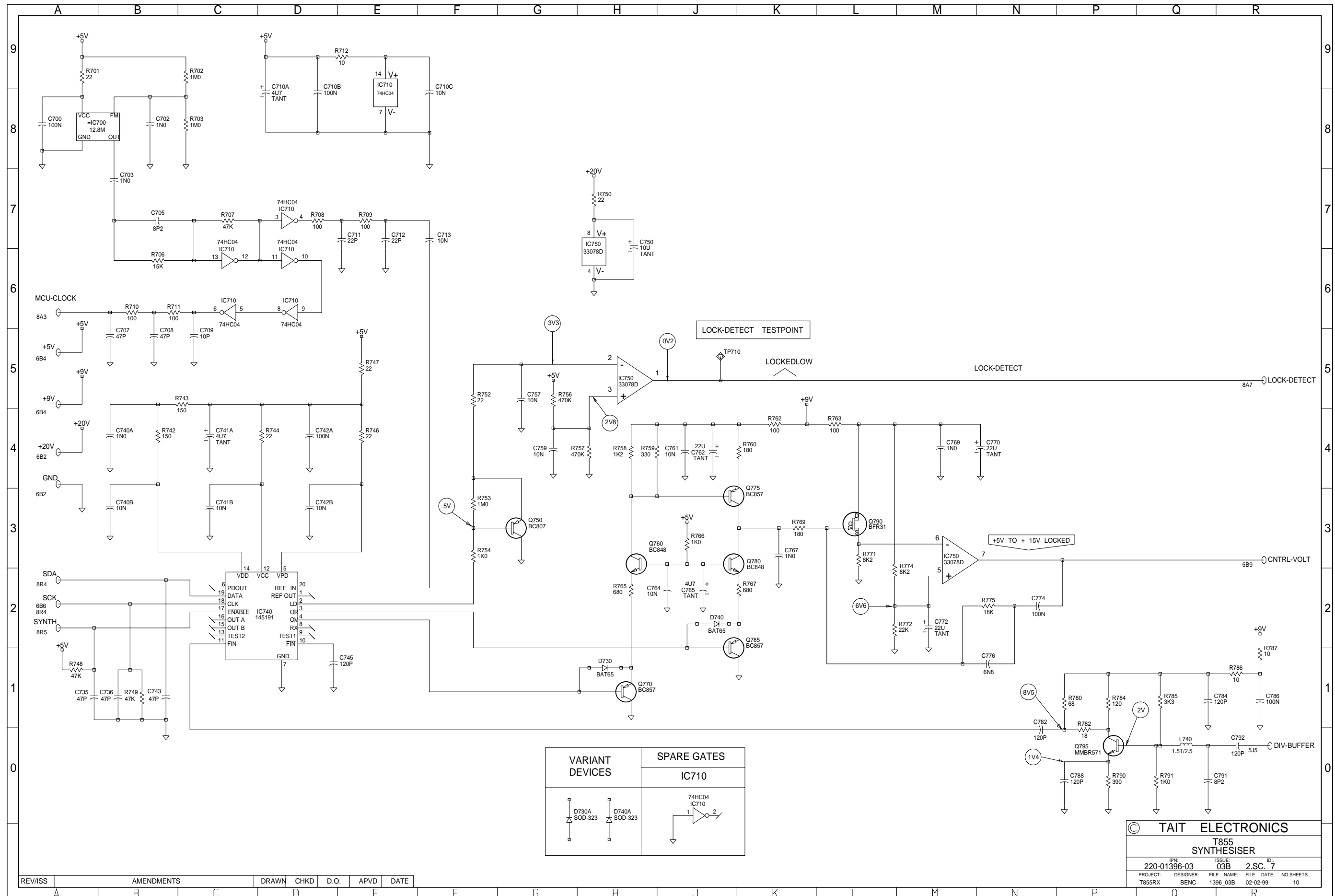
© TAIT ELECTRONICS	
T855 SECTION	
IPN: 220-01396-03	ISSUE: 03B
PROJECT: T855RX	DESIGNER: BENC
FILE NAME: 1396_03B	FILE DATE: 02-02-99
NO. SHEETS: 10	2.S.C. 5

REV/ISS	AMENDMENTS	DRAWN	CHKD	D.O.	APVD	DATE
A	B	C	D	E	F	G

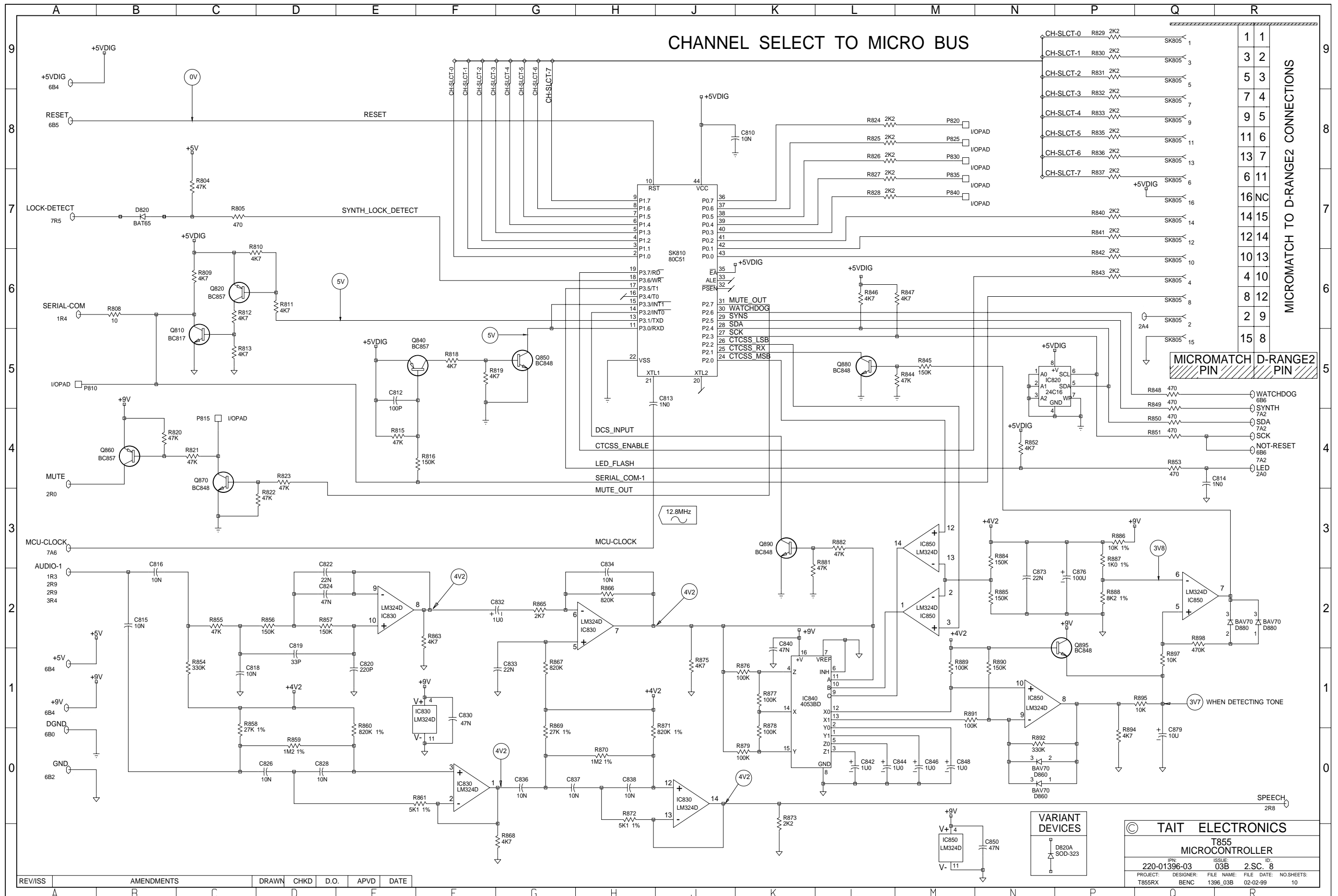


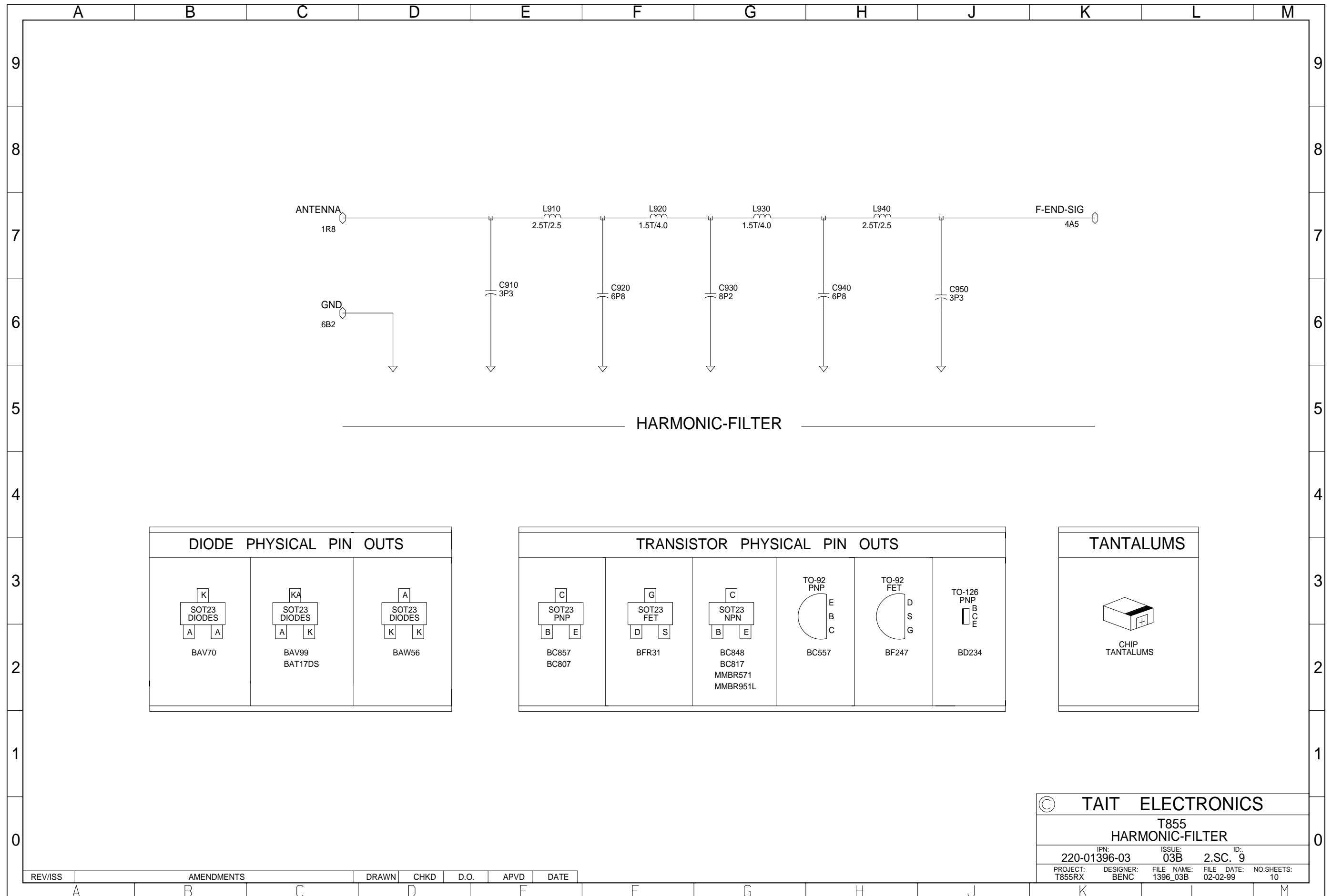
REV/ISS	AMENDMENTS	DRAWN	CHKD	D.O.	APVD	DATE
A						

© TAIT ELECTRONICS			
T855 REGULATORS			
IPN: 220-01396-03	ISSUE: 03B	ID: 2.S.C. 6	
PROJECT: T855RX	DESIGNER: BENC	FILE NAME: 1396_03B	FILE DATE: 02-02-99
			NO. SHEETS: 10



© TAIT ELECTRONICS  
T855 SYNTHESISER  
IPN: 220-01396-03  
ISSUE: 03B  
ID: 2.S.C. 7  
PROJECT: T855RX  
DESIGNER: BENC  
FILE NAME: 1396\_03B  
FILE DATE: 02-02-99  
NO SHEETS: 10





© TAIT ELECTRONICS  
 T855  
 HARMONIC-FILTER  
 IPN: 220-01396-03 ISSUE: 03B ID: 2.SC. 9  
 PROJECT: T855RX DESIGNER: BENC FILE NAME: 1396\_03B FILE DATE: 02-02-99 NO.SHEETS: 10

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

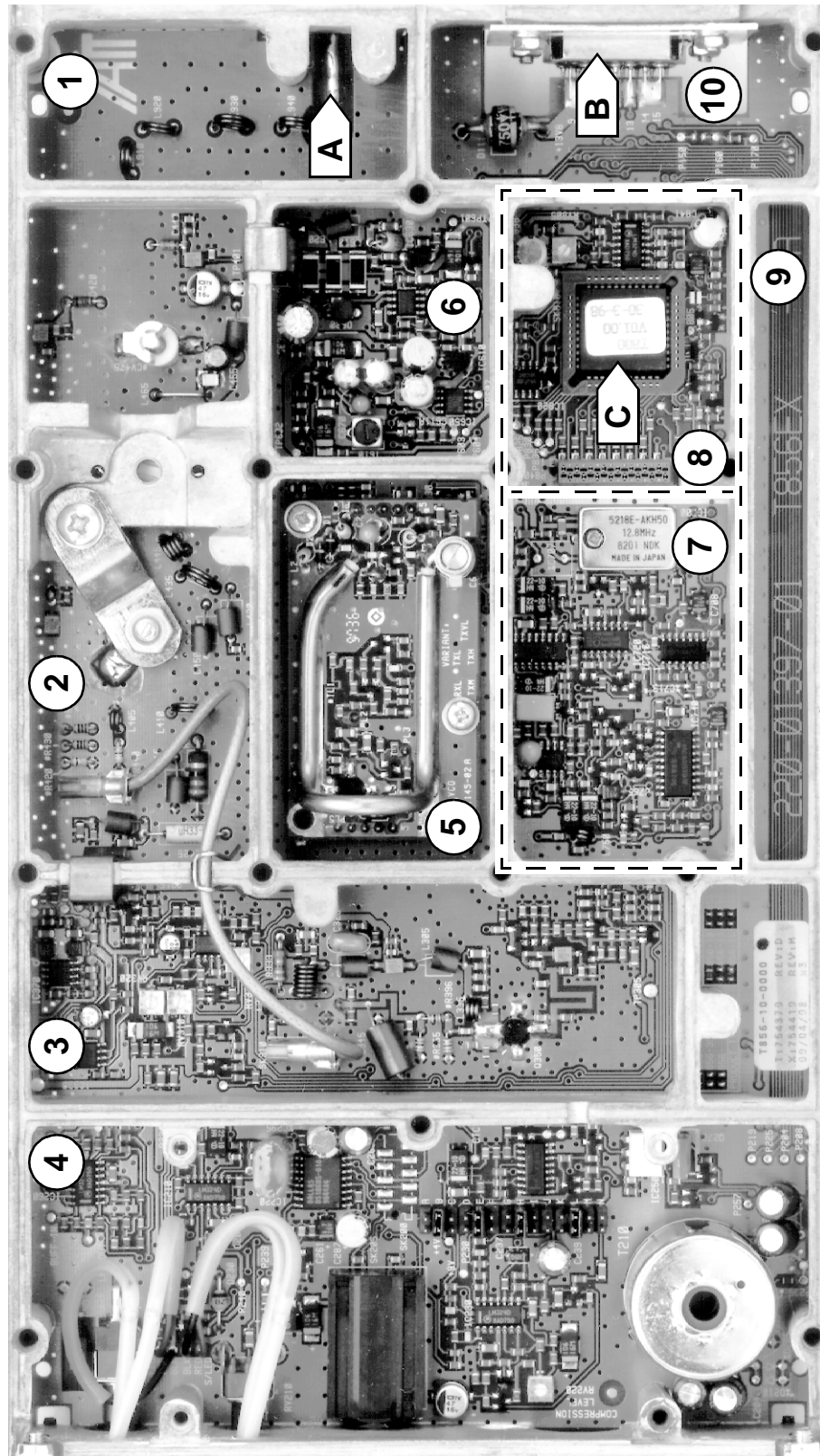


The photograph in [Figure 1.1](#) on the next page will help you to identify the main circuit blocks in the T856.

There is a similar photograph in [Figure 4.4](#) which shows the main tuning and adjustment controls.

Extending both these fold-outs will allow you to refer to both photographs while using the manual.

The photograph in [Figure 1.2](#) on the next page shows the T856 front panel controls.



- Key:**
- 1 low pass filter
  - 2 PA
  - 3 exciter drive amplifier
  - 4 audio processor
  - 5 VCO
  - 6 regulators
  - 7 synthesiser
  - 8 microcontroller and CTCSS
  - 9 duct for cabling to extra D-range (if fitted)
  - 10 D-range
- A RF output  
 B D-range connector ("D-range 1" incl. audio in & DC in (refer to Section 2.2 in Part F))  
 C microcontroller

Figure 1.1 T856 Main Circuit Block Identification

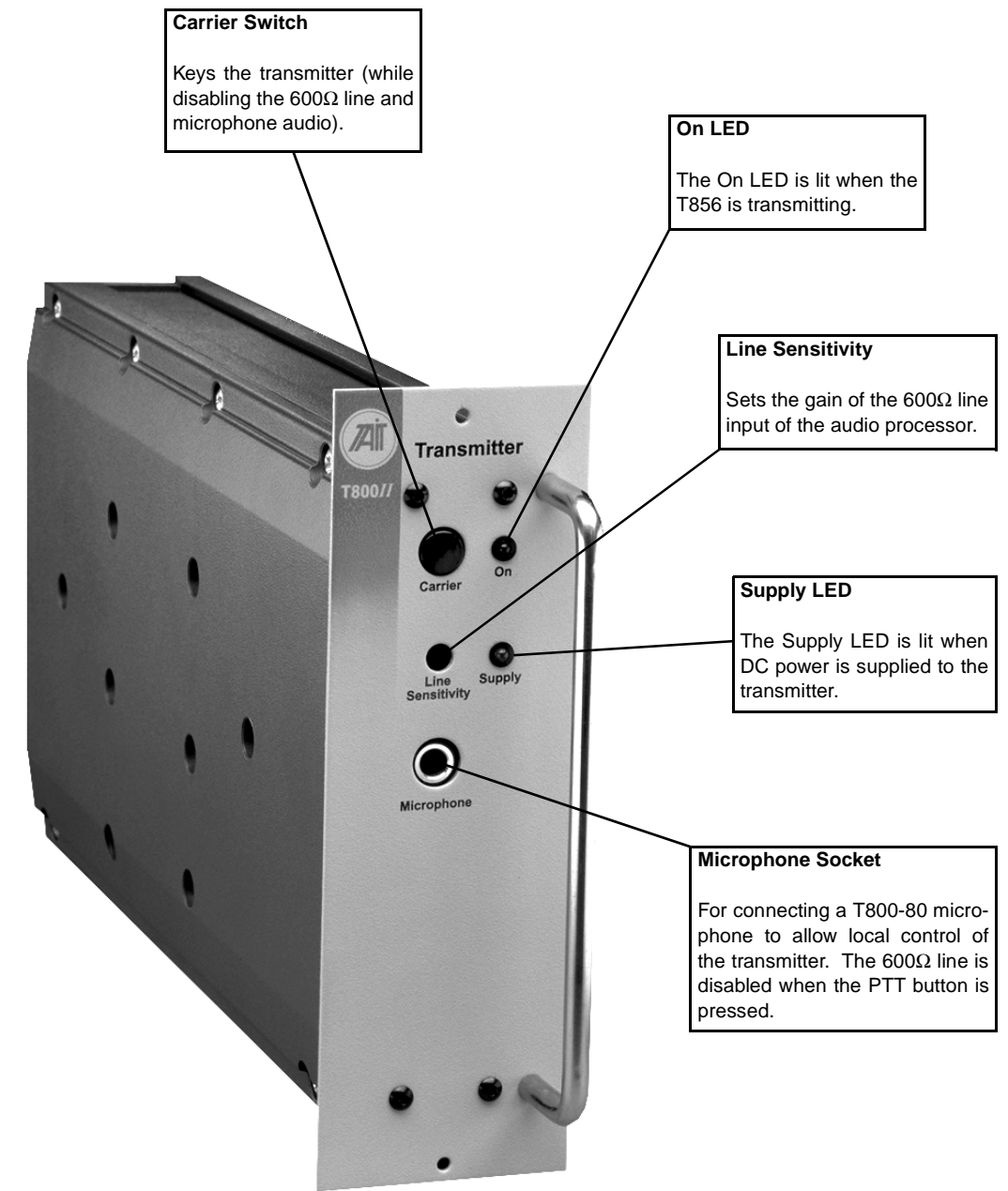


Figure 1.2 T856 Front Panel Controls



The photograph in [Figure 1.3](#) on the next page will help you to identify the main circuit blocks in the T857.

There is a similar photograph in [Figure 4.5](#) which shows the main tuning and adjustment controls.

Extending both these fold-outs will allow you to refer to both photographs while using the manual.

The photograph in [Figure 1.4](#) on the next page shows the T857 front panel controls.

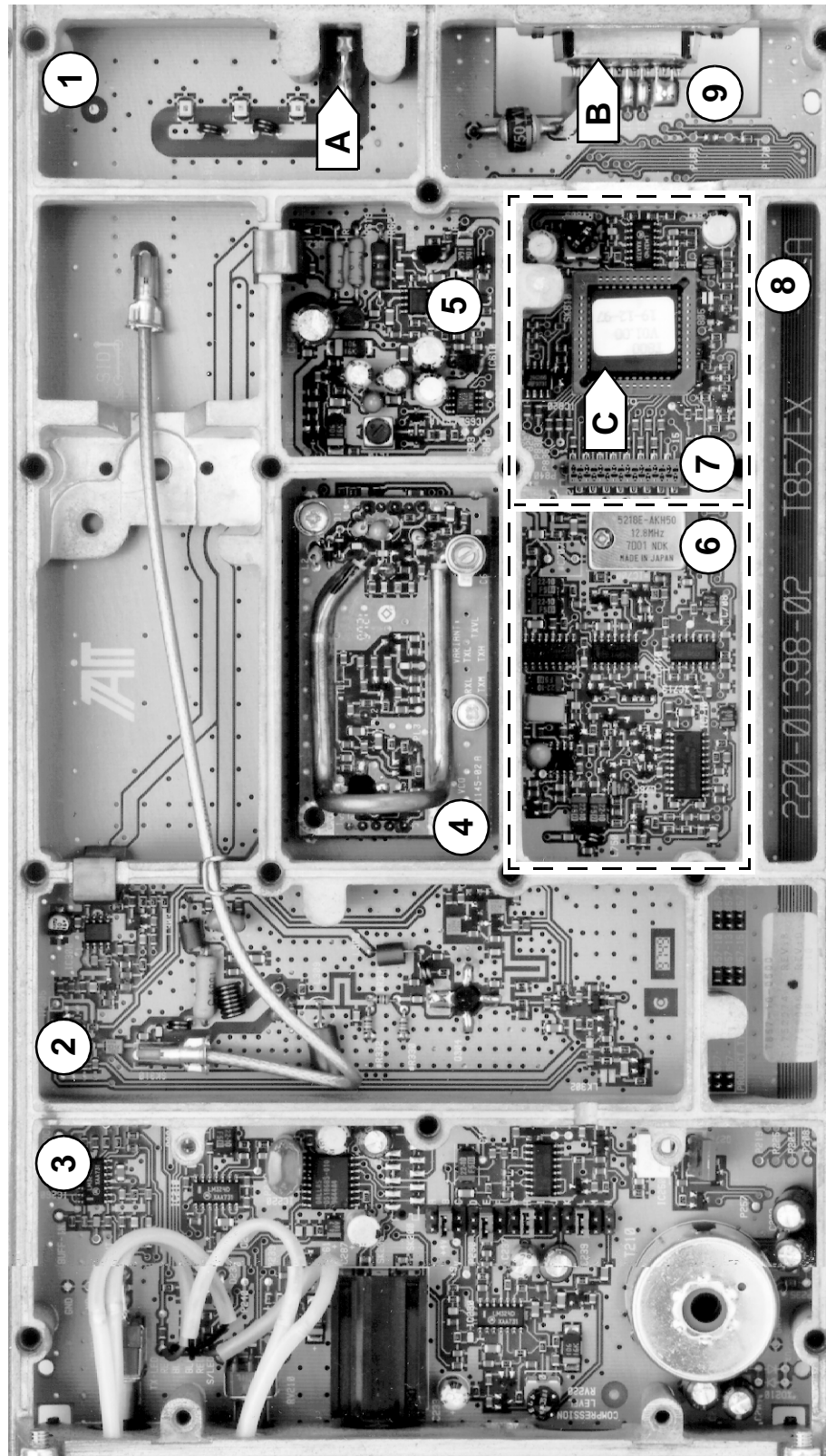


Figure 1.3 T857 Main Circuit Block Identification

- Key:**
- 1 low pass filter
  - 2 exciter drive amplifier
  - 3 audio processor
  - 4 VCO
  - 5 regulators
  - 6 synthesiser
  - 7 microcontroller and CTCSS
  - 8 duct for cabling to extra D-range (if fitted)
  - 9 D-range
  - A RF output
  - B D-range connector ("D-range 1" incl. audio in & DC in (refer to Section 2.2 in Part F))
  - C microcontroller

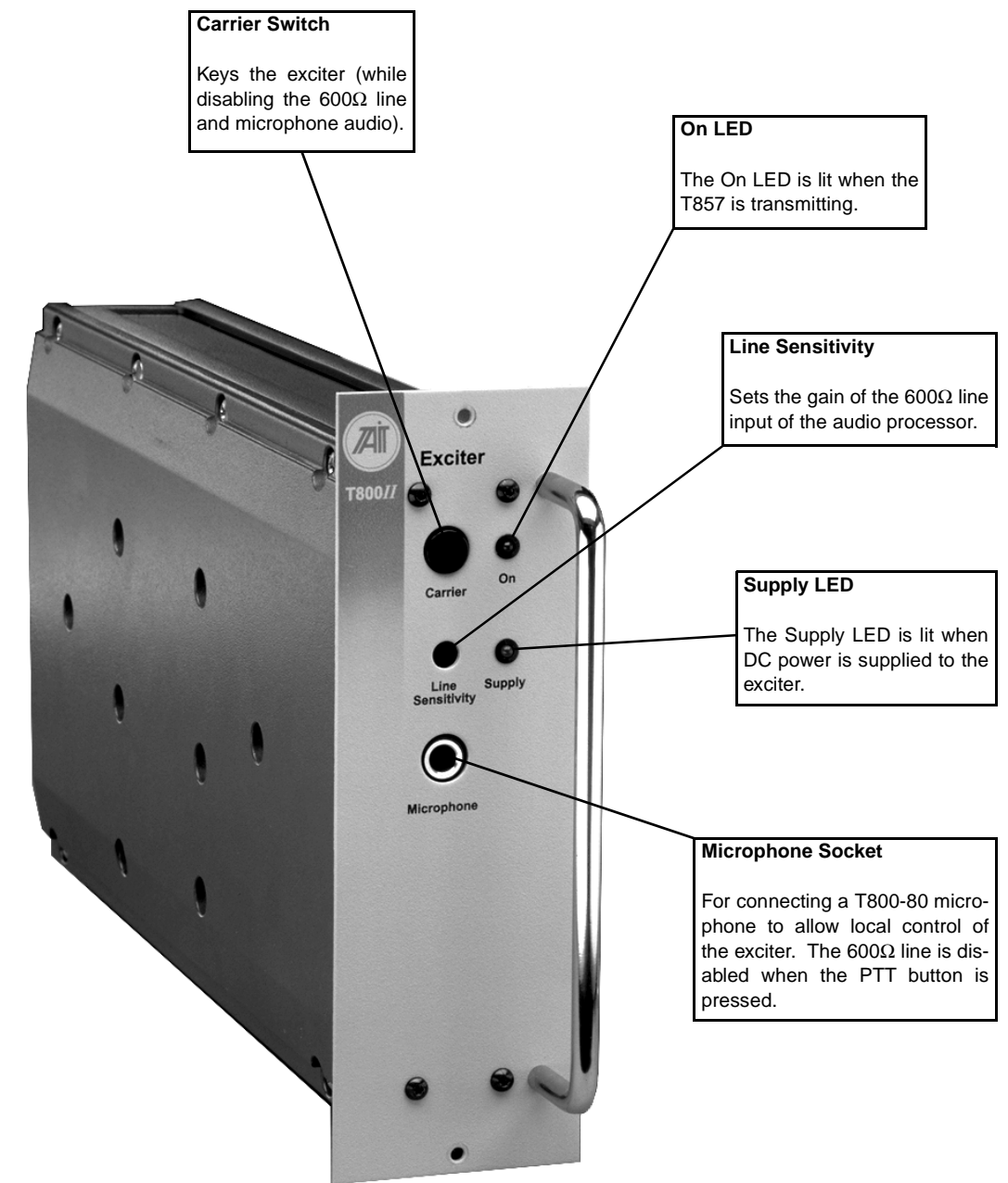


Figure 1.4 T857 Front Panel Controls

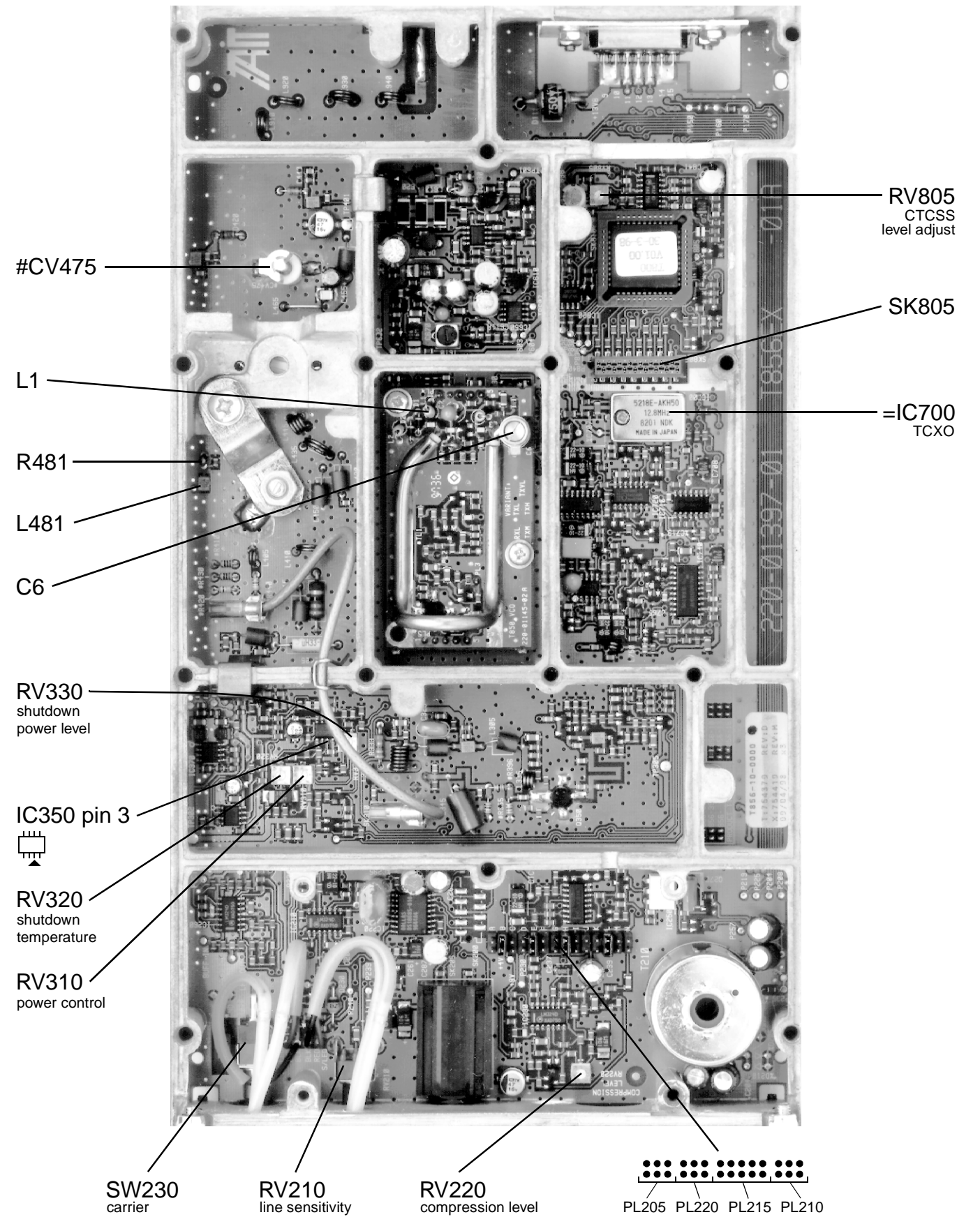


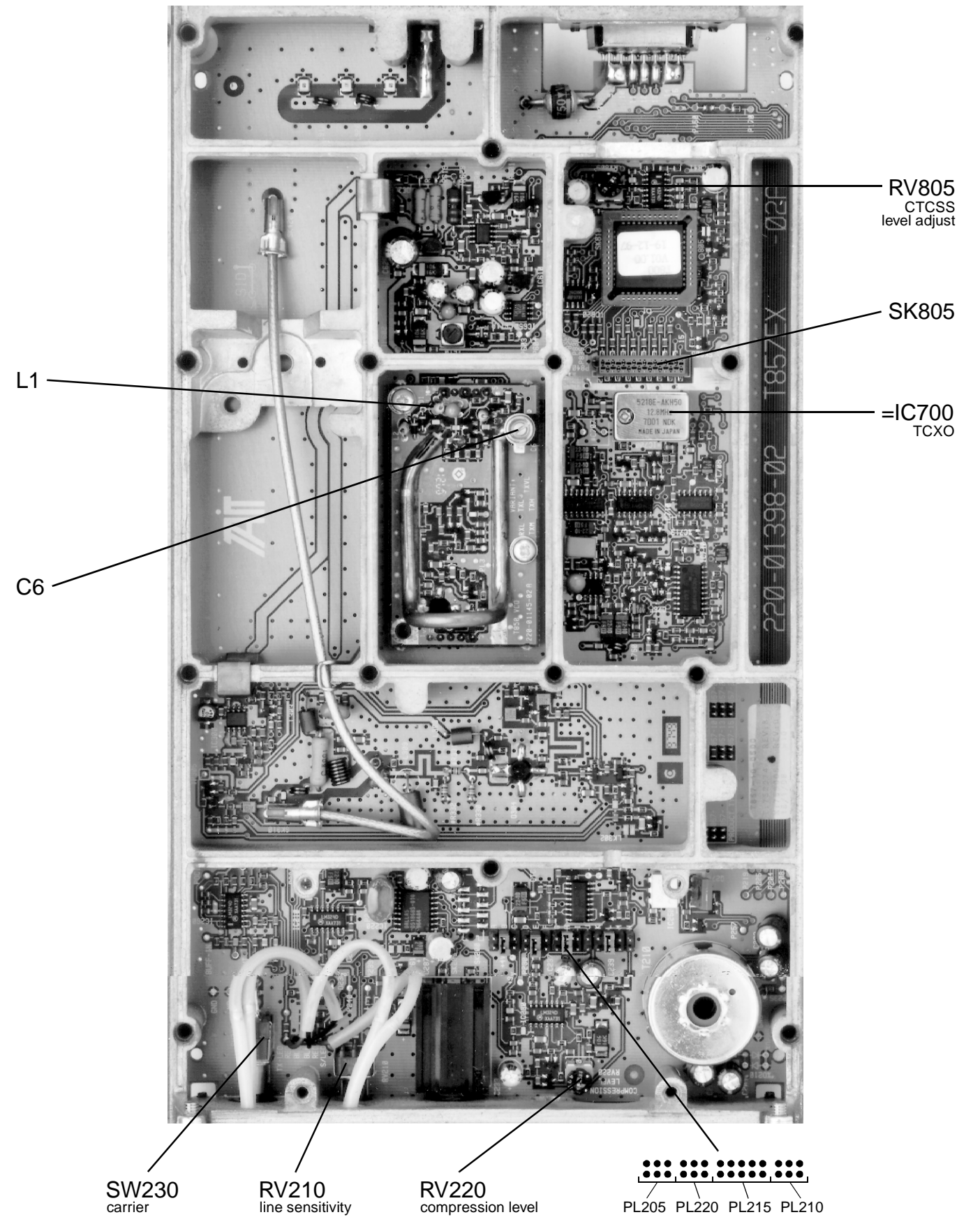
Figure 4.4 T856 Main Tuning & Adjustment Controls

The photograph printed at right will help you to identify the main controls used in tuning and adjusting the T856.

There is a similar photograph in [Figure 1.1](#) which shows the main circuit blocks.

Extending both these fold-outs will allow you to refer to both photographs while using the manual.





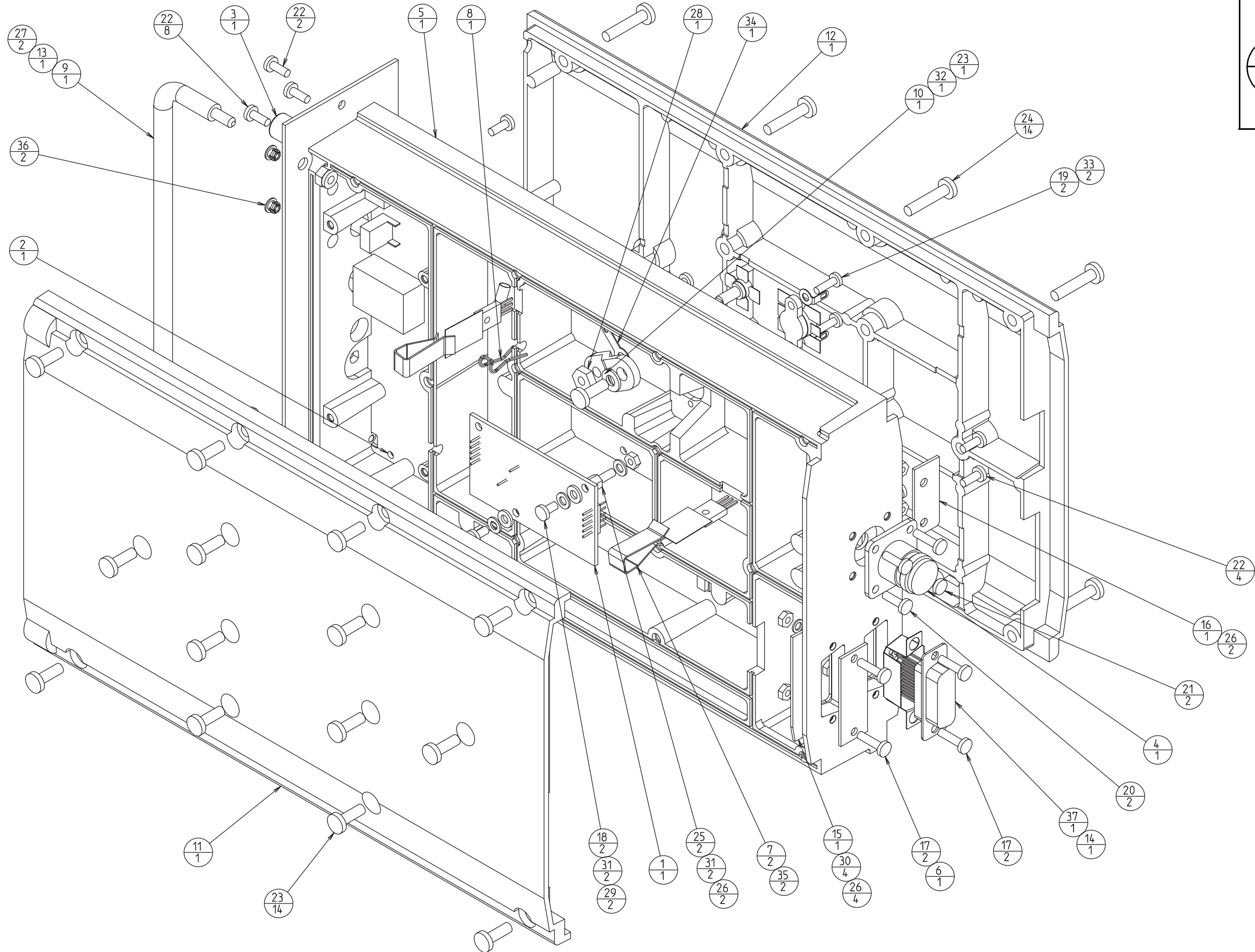
The photograph printed at right will help you to identify the main controls used in tuning and adjusting the T857.

There is a similar photograph in [Figure 1.3](#) which shows the main circuit blocks.

Extending both these fold-outs will allow you to refer to both photographs while using the manual.

Figure 4.5 T857 Main Tuning & Adjustment Controls





**Key**

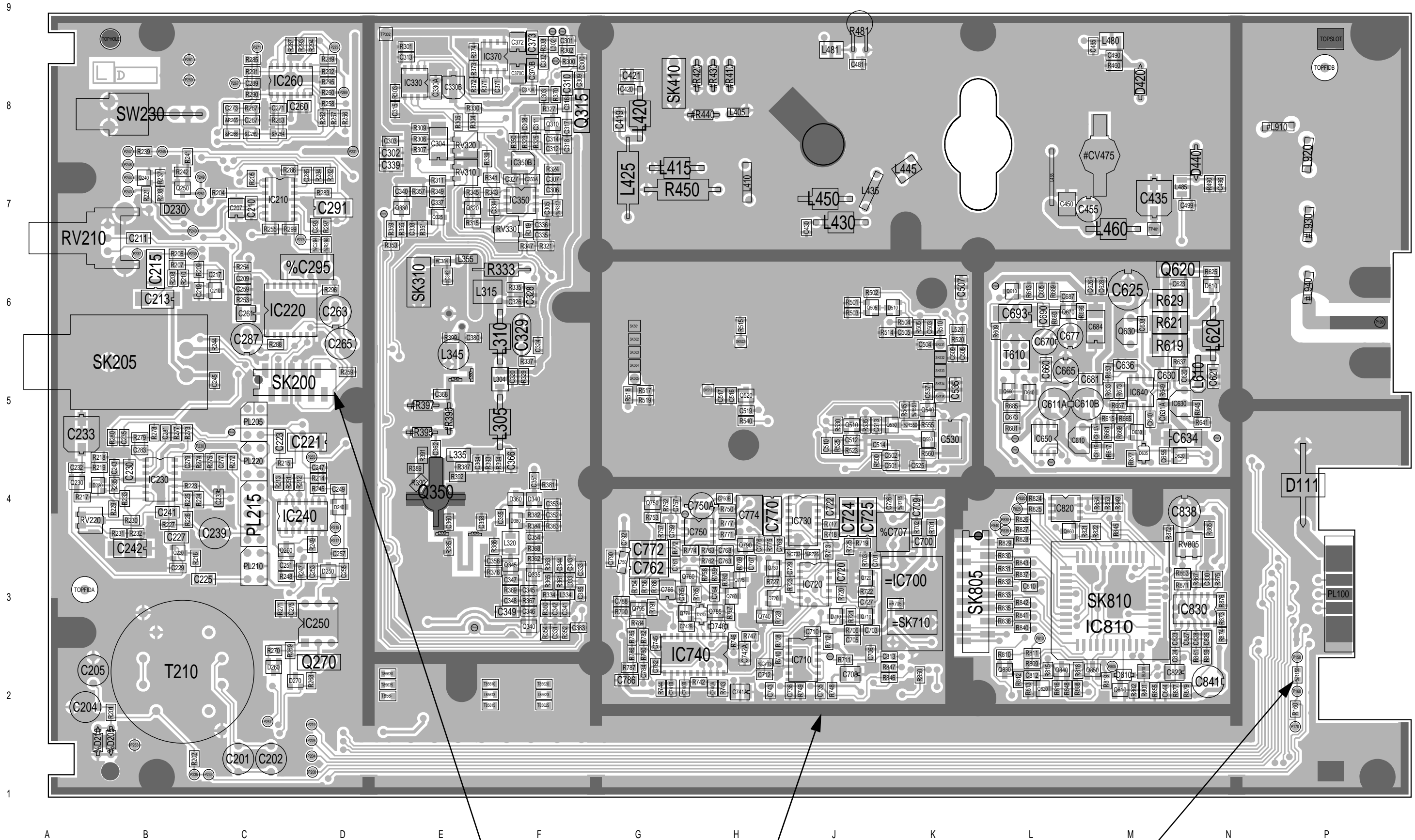
The upper number is the component identification number which appears in the "Legend" column of the Mechanical & Miscellaneous Parts on the facing page.

**33**  
**2**

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







SK200 is currently not fitted as standard. It will be fitted for future options.

The darker shading shows the outline of the chassis.

%R150 (10Ω) is fitted only when the T856 is used in a Series I rack frame (refer to Part I for full details).

**T856 PCB Layout - Top Side**  
220-01397-01

9

8

7

6

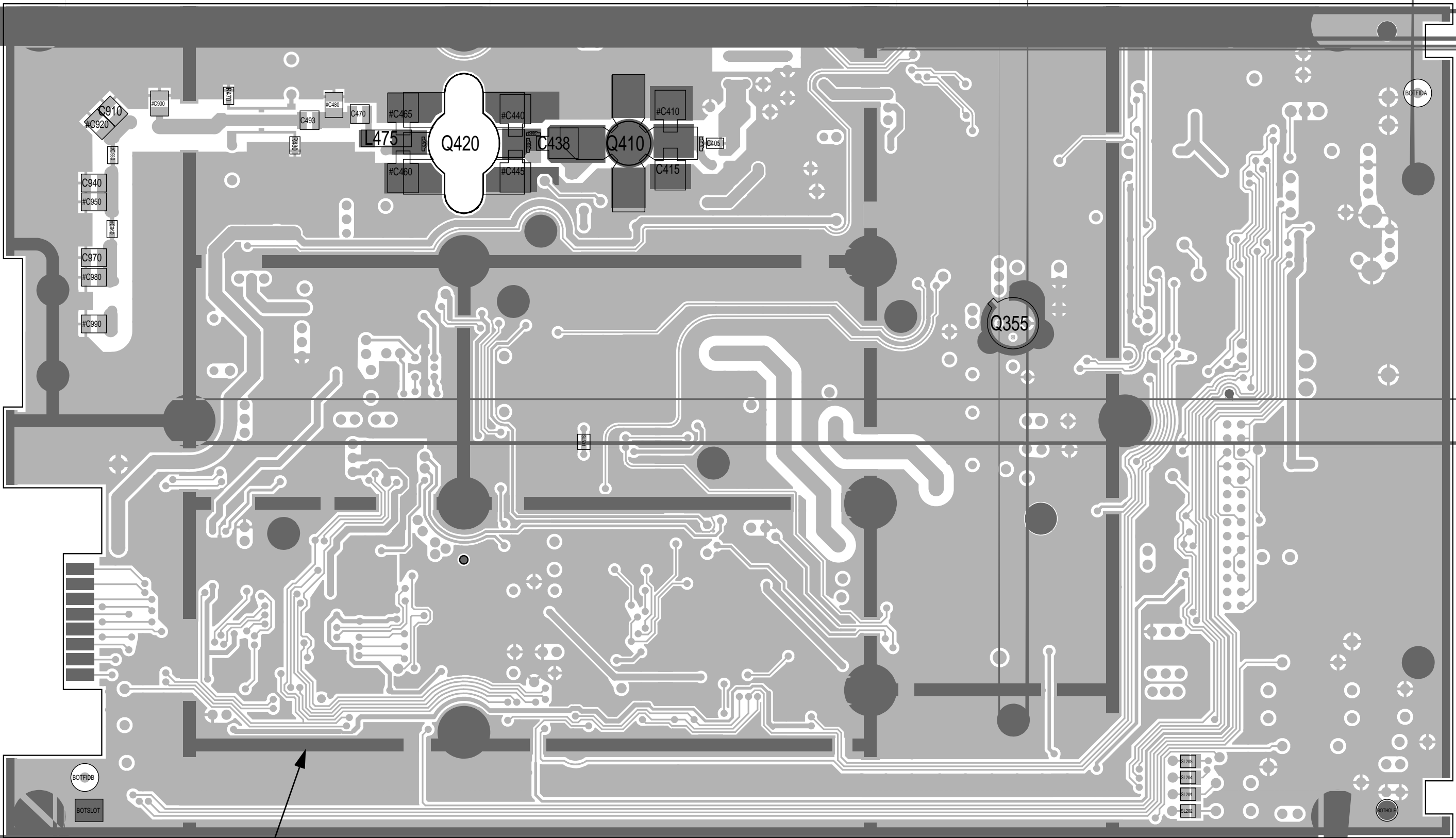
5

4

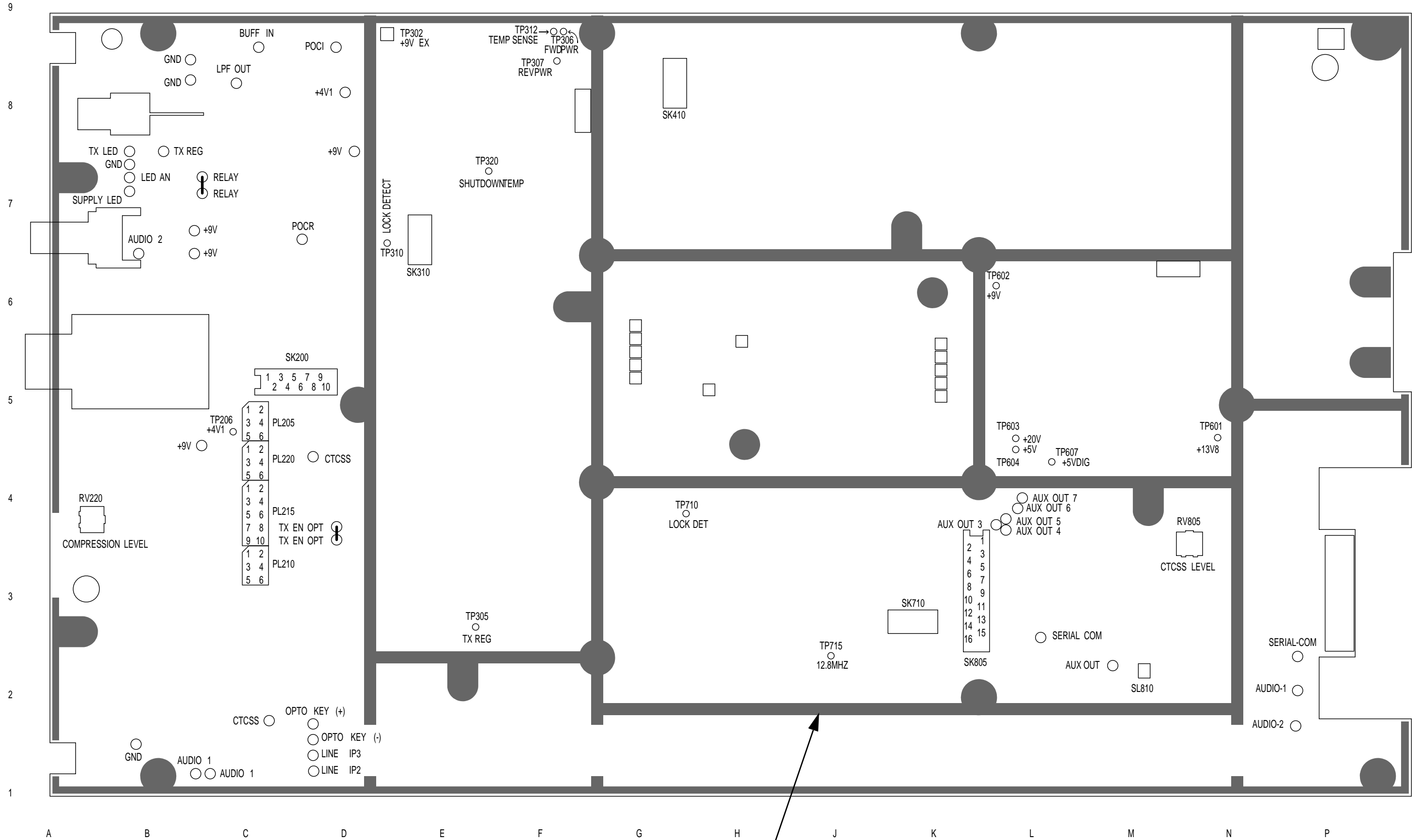
3

2

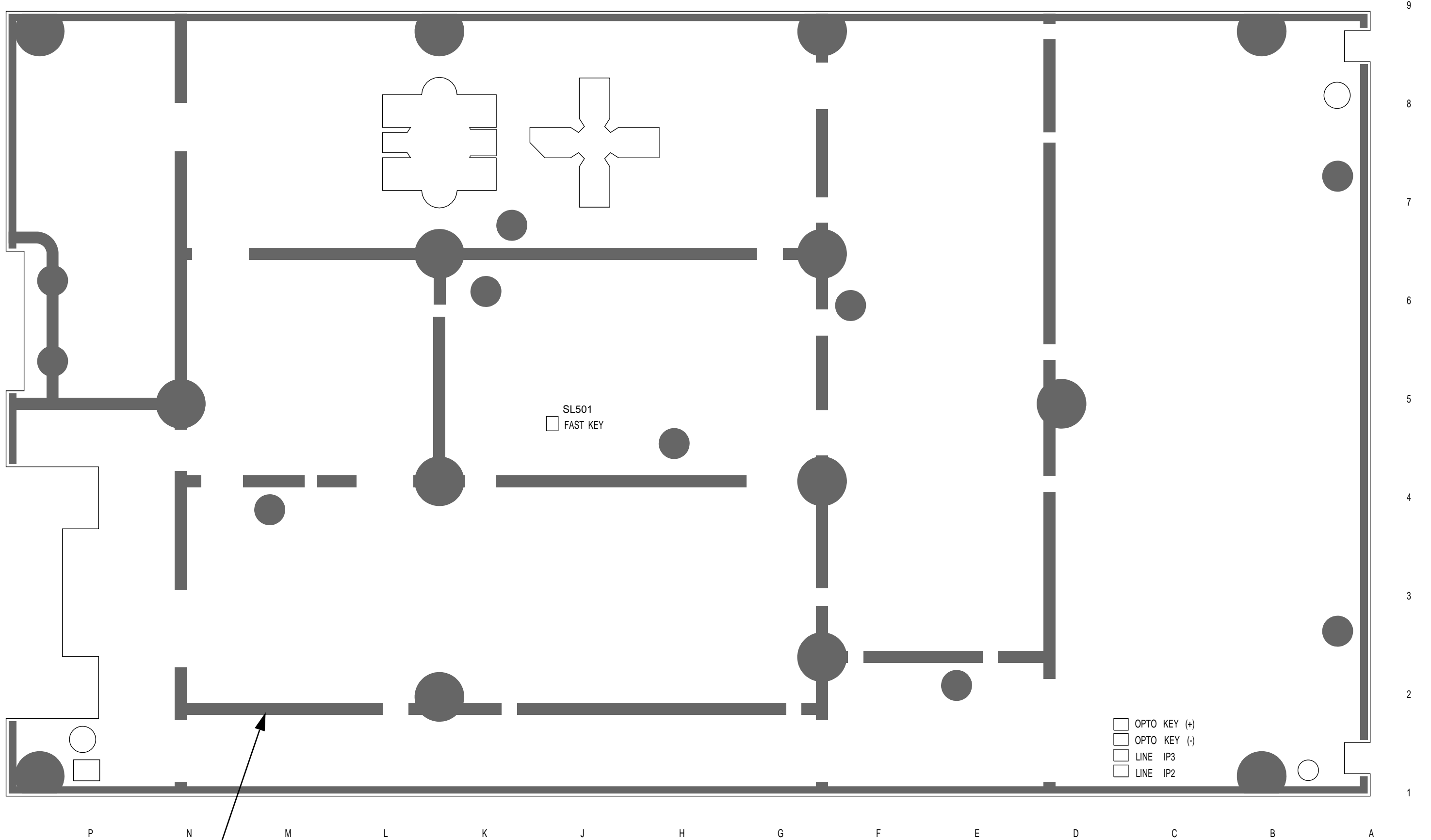
1



The darker shading shows the footprint of the bottom cover.

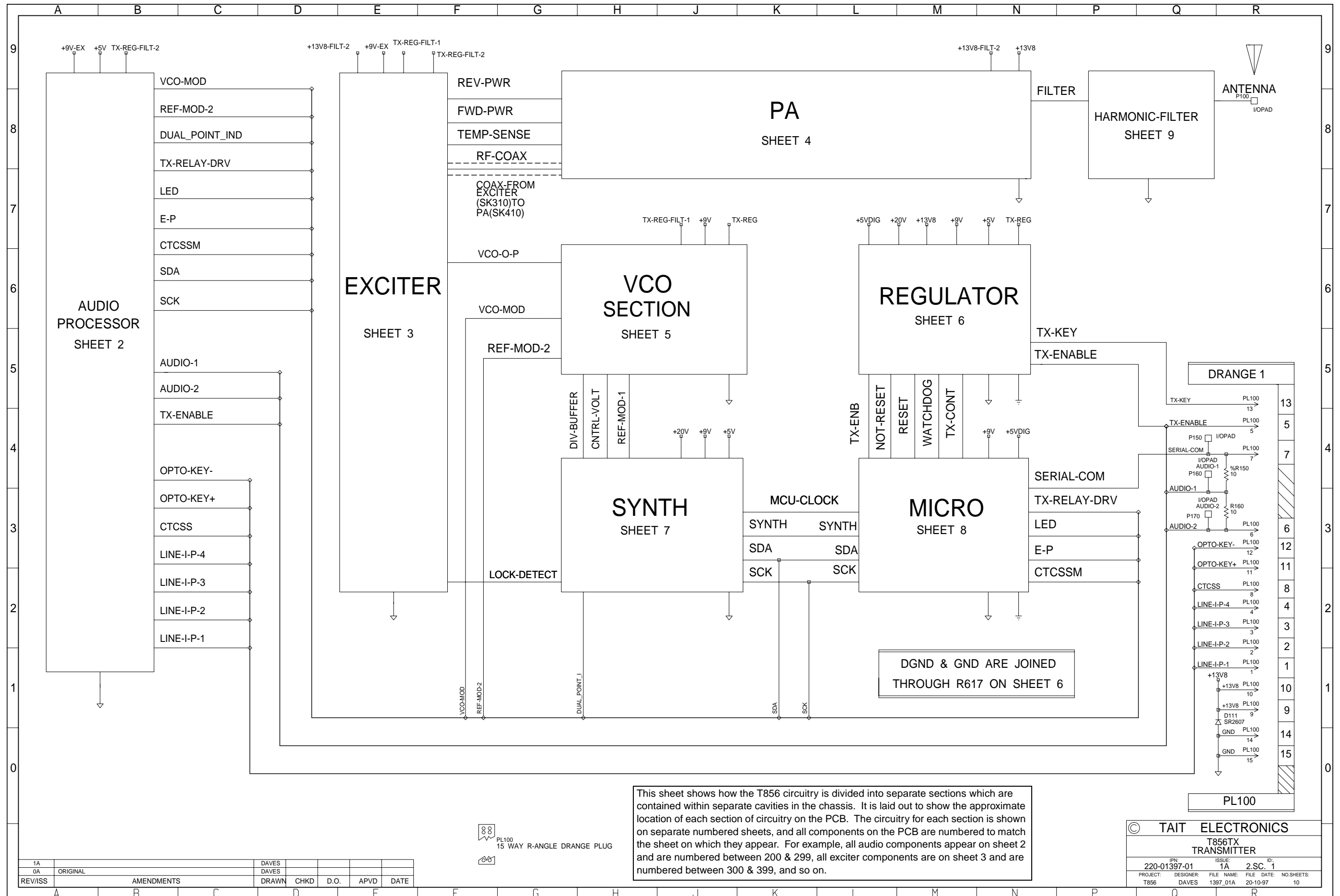


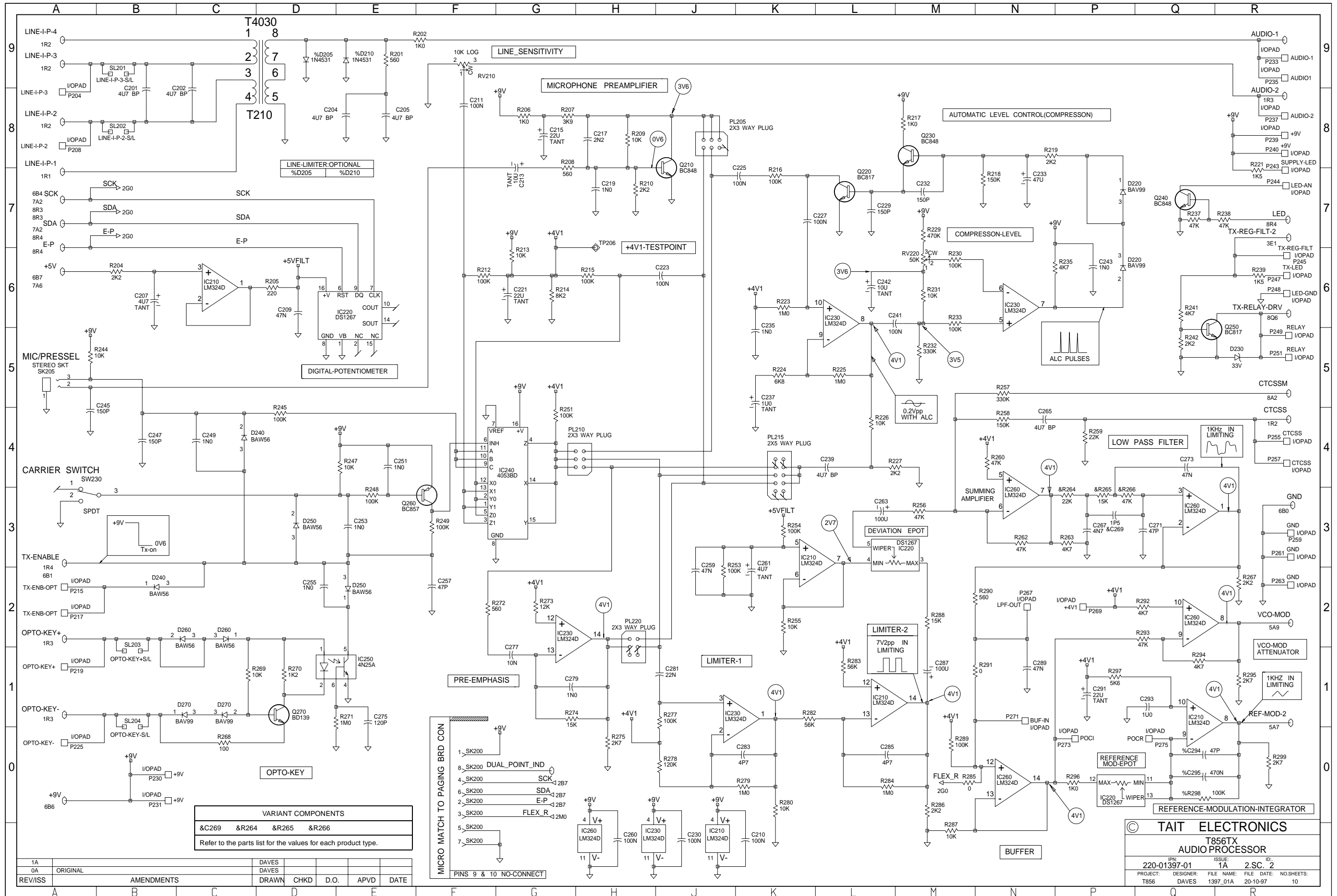
The darker shading shows the outline of the chassis.



The darker shading shows the footprint of the bottom cover.

**T856 Test Points & Options Connections - Bottom Side**  
**220-01397-01**

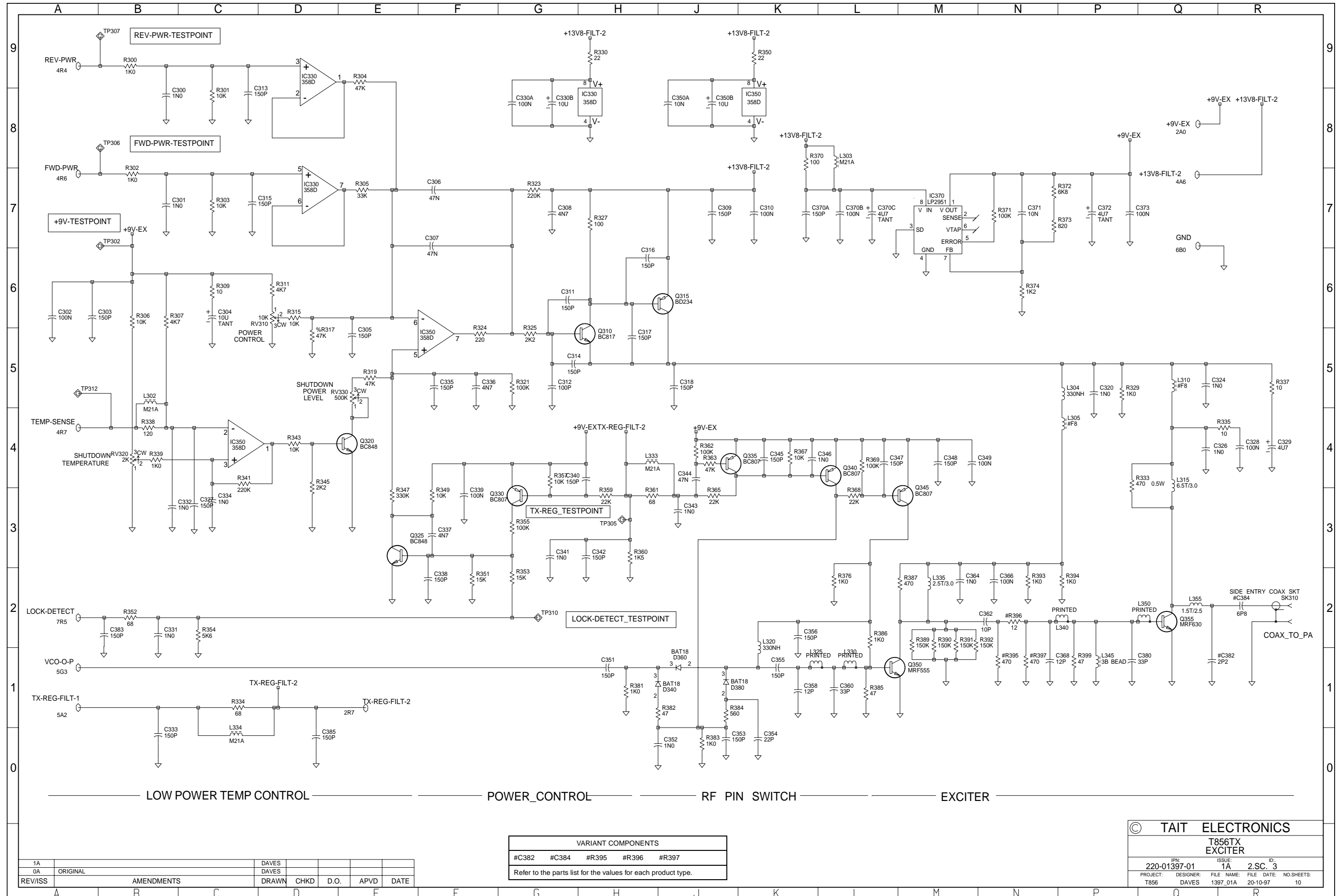




VARIANT COMPONENTS			
&C269	&R264	&R265	&R266
Refer to the parts list for the values for each product type.			

1A	DA	REV/ISS	AMENDMENTS	DRAWN	CHKD	D.O.	APVD	DATE

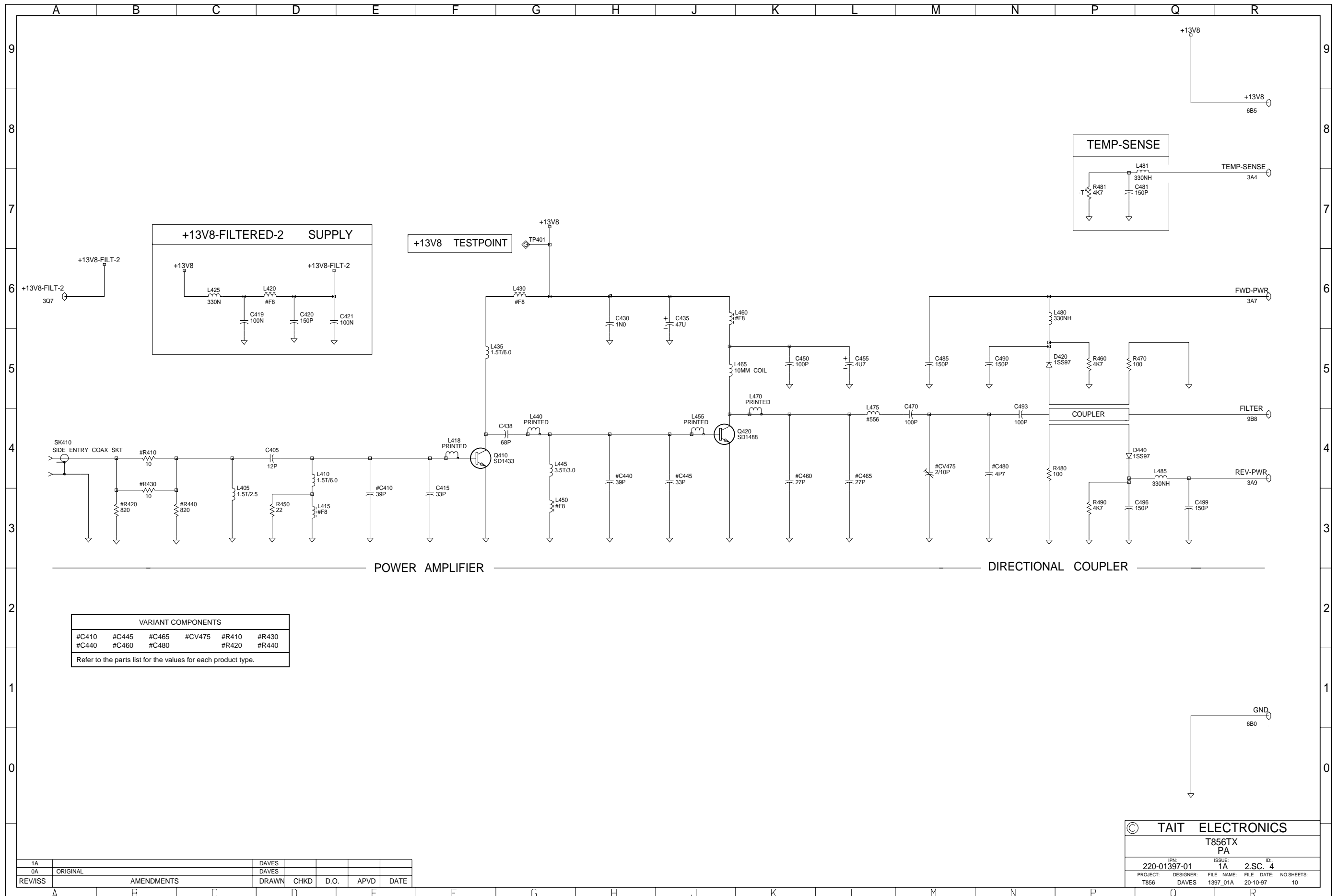
<b>TAIT ELECTRONICS</b>			
<b>T856TX AUDIO PROCESSOR</b>			
IPN	ISSUE	ID	
220-01397-01	1A	2.S.C. 2	
PROJECT:	DESIGNER:	FILE NAME:	FILE DATE:
T856	DAVES	1397_01A	20-10-97
			NO.SHEETS: 10



REV/ISS	AMENDMENTS	DRAWN	CHKD	D.O.	APVD	DATE
1A		DAVES				
0A	ORIGINAL	DAVES				

VARIANT COMPONENTS				
#C382	#C384	#R395	#R396	#R397
Refer to the parts list for the values for each product type.				

© TAIT ELECTRONICS			
T856TX EXCITER			
IPN:	ISSUE:	ID:	
220-01397-01	1A	2.S.C. 3	
PROJECT:	DESIGNER:	FILE NAME:	FILE DATE: NO.SHEETS:
T856	DAVES	1397_01A	20-10-97 10

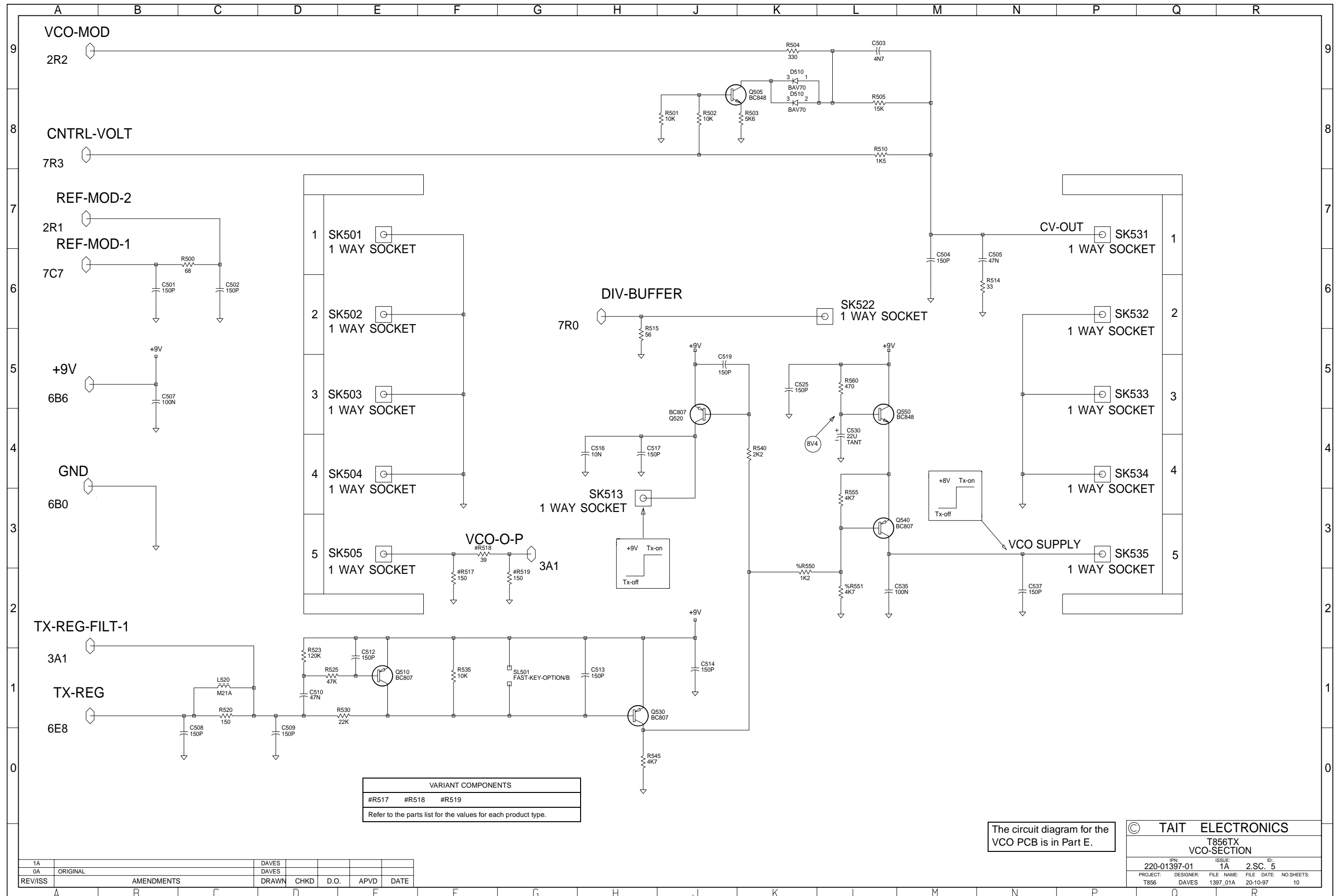


VARIANT COMPONENTS				
#C410	#C445	#C465	#CV475	#R410
#R430	#C440	#C460	#C480	#R420
#R440	Refer to the parts list for the values for each product type.			

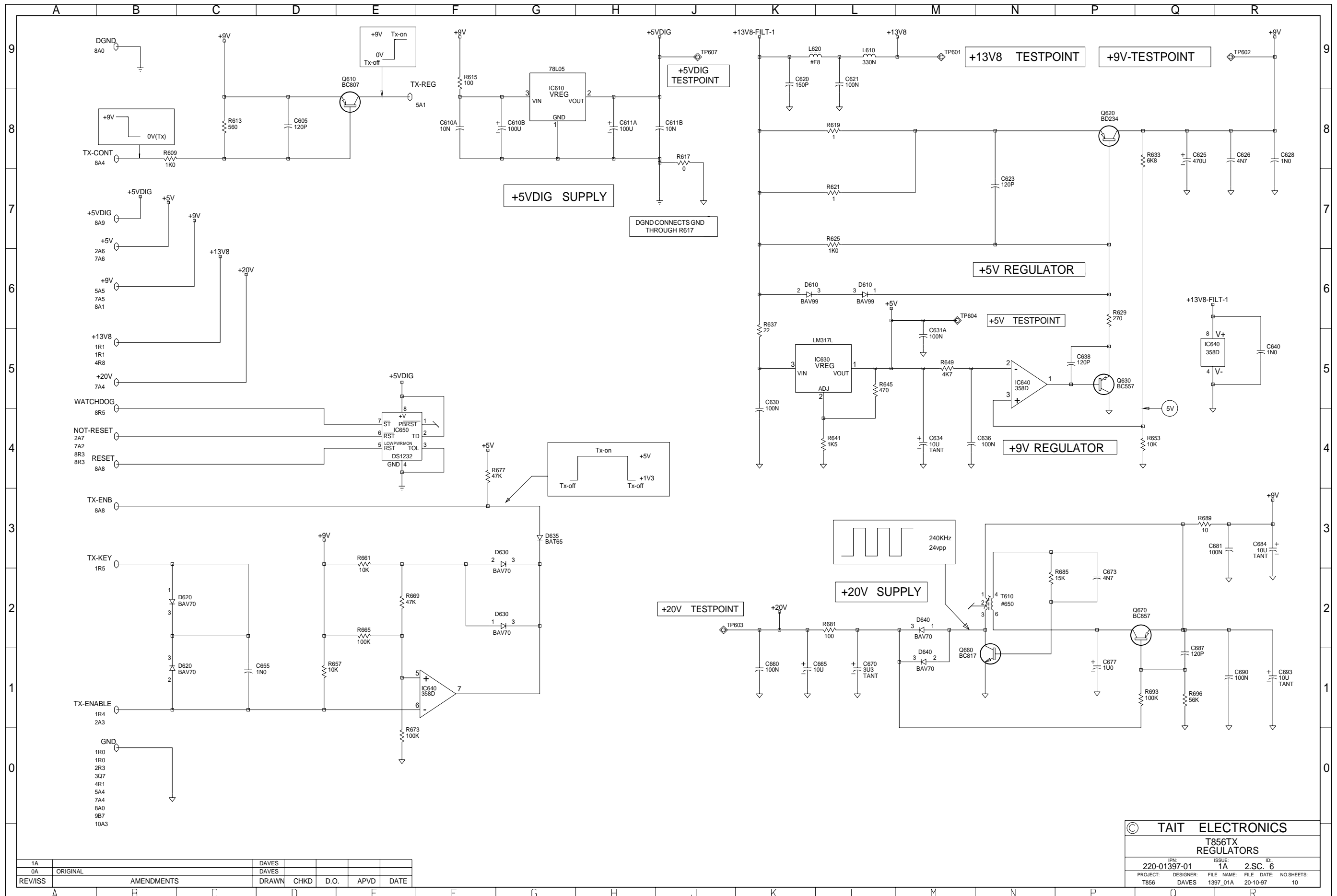
1A		DAVES				
0A	ORIGINAL	DAVES				
REV/ISS	AMENDMENTS	DRAWN	CHKD	D.O.	APVD	DATE

© TAIT ELECTRONICS  
T856TX PA  
IPN: 220-01397-01 ISSUE: 1A ID: 2.SC. 4  
PROJECT: T856 DESIGNER: DAVES FILE NAME: 1397\_01A FILE DATE: 20-10-97 NO.SHEETS: 10



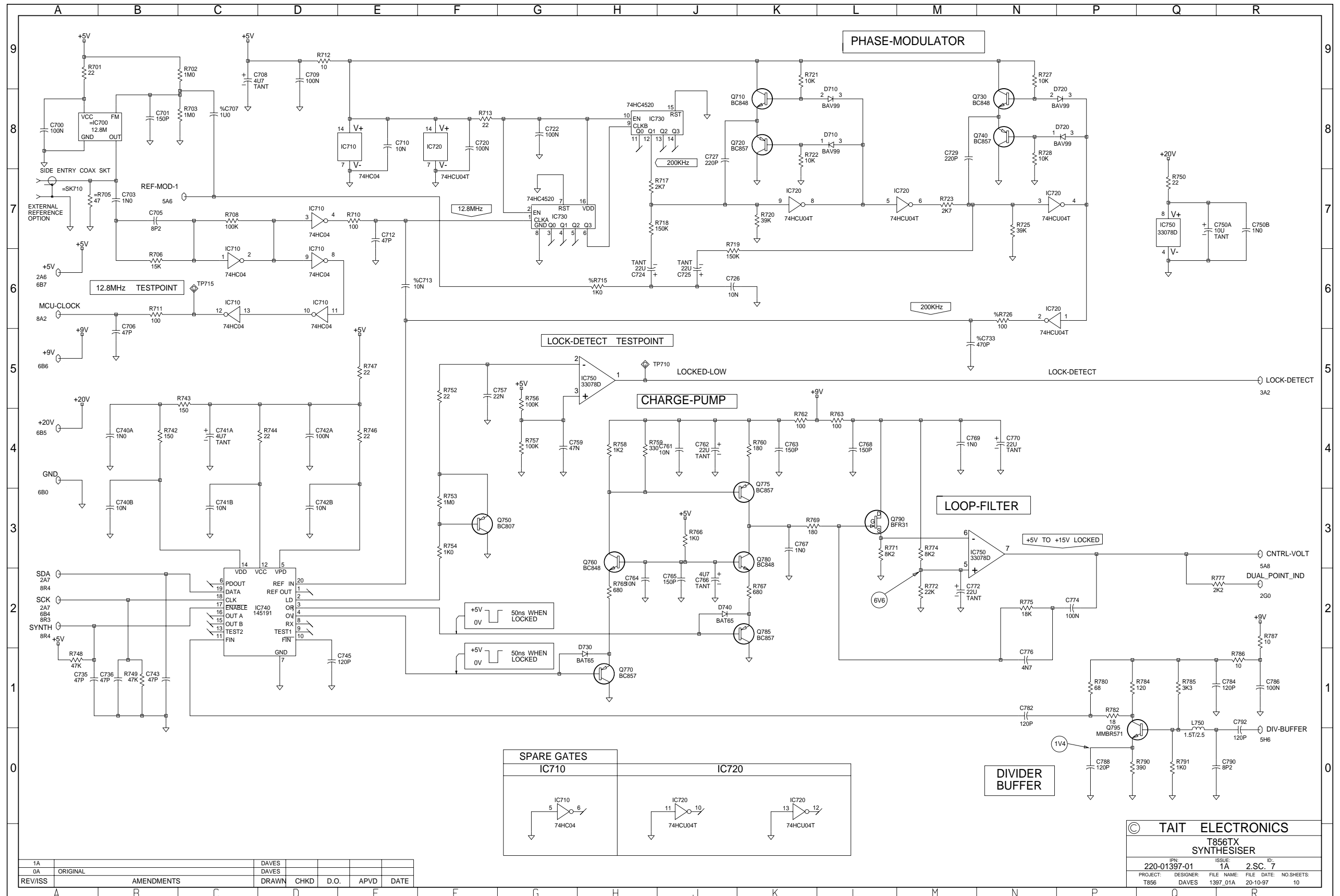


© TAIT ELECTRONICS  
T856TX  
VCO-SECTION  
IPN: 220-01397-01  
ISSUE: 1A  
ID: 2.S.C. 5  
PROJECT: T856  
DESIGNER: DAVES  
FILE NAME: 1397\_01A  
FILE DATE: 20-10-97  
NO SHEETS: 10



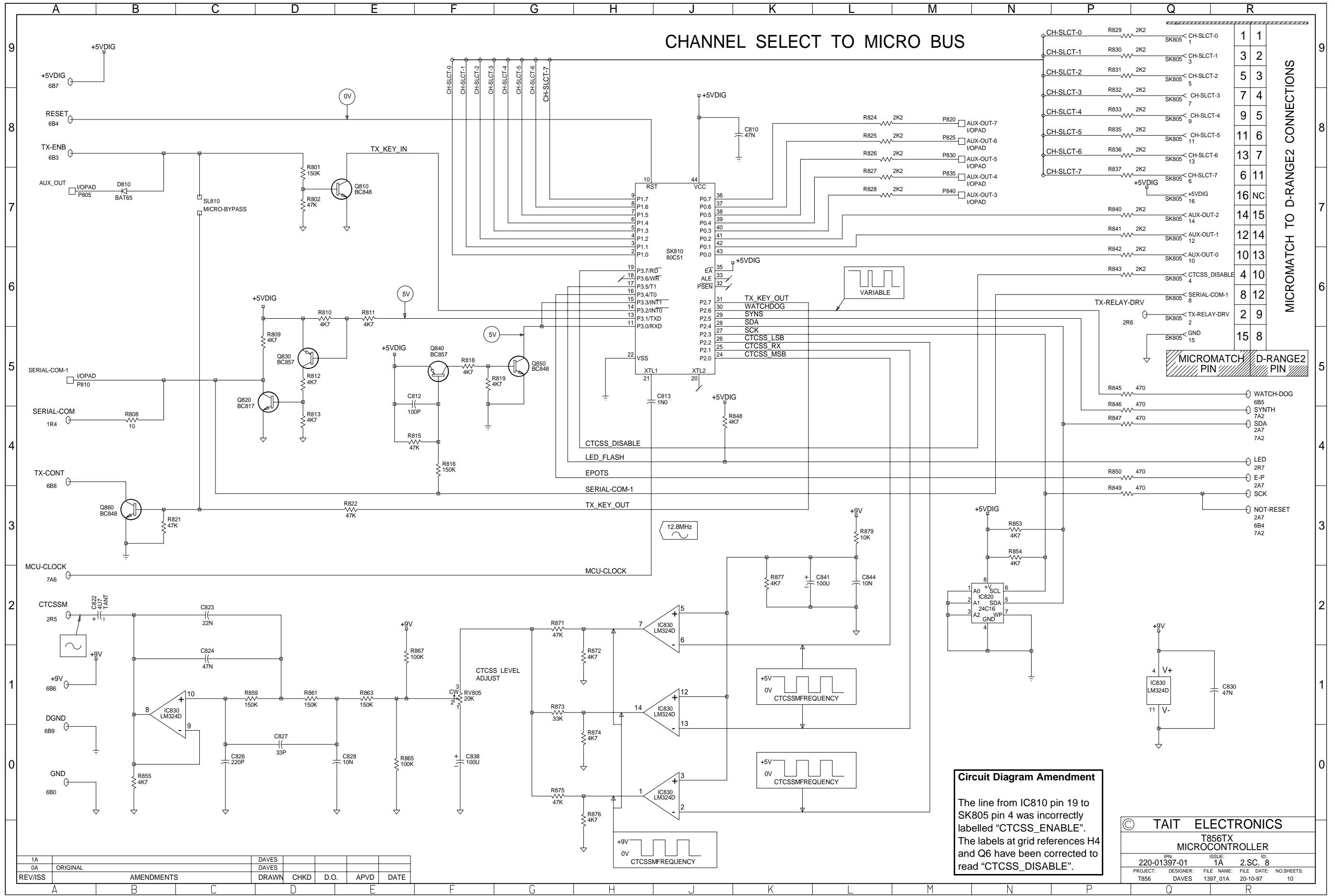
© TAIT ELECTRONICS	
T856TX REGULATORS	
IPN: 220-01397-01	ISSUE: 1A
DESIGNER: DAVES	FILE NAME: 1397_01A
FILE DATE: 20-10-97	NO. SHEETS: 10

1A	ORIGINAL	DAVES				
0A		DAVES				
REV/ISS	AMENDMENTS	DRAWN	CHKD	D.O.	APVD	DATE



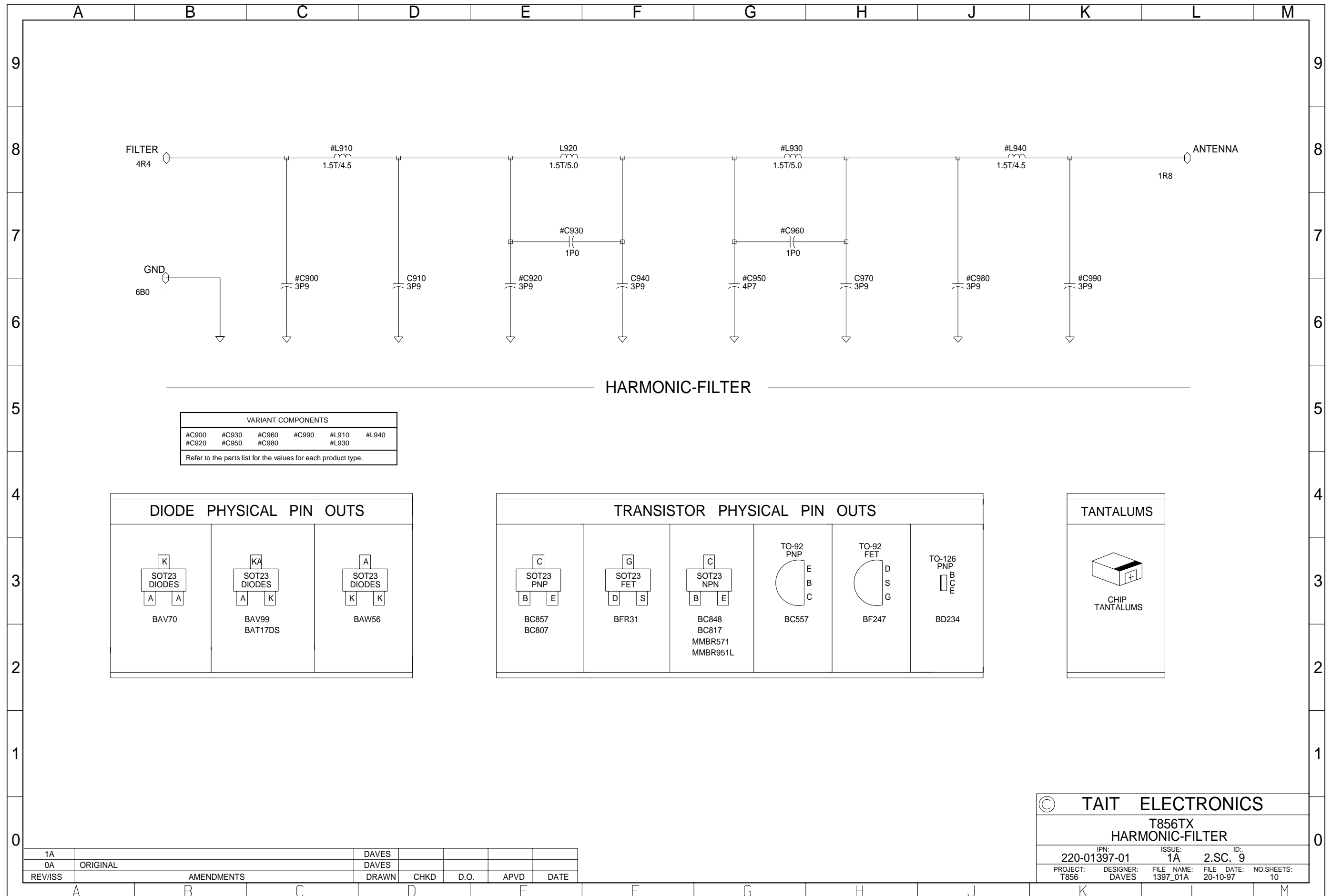
1A		DAVES				
0A	ORIGINAL	DAVES				
REV/ISS	AMENDMENTS	DRAWN	CHKD	D.O.	APVD	DATE

© TAIT ELECTRONICS			
T856TX SYNTHESISER			
IPN:	ISSUE:	FILE NAME:	NO. SHEETS:
220-01397-01	1A	1397_01A	10
PROJECT:	DESIGNER:	FILE DATE:	
T856	DAVES	20-10-97	



1A	DA	REV/ISS	ORIGINAL	AMENDMENTS	DAVES	DRAWN	CHKD	D.O.	APVD	DATE

© TAIT ELECTRONICS	
T856TX MICROCONTROLLER	
IPN: 220-01397-01	ISSUE: 1A
DESIGNER: DAVES	FILE DATE: 1397_01A
PROJECT: T856	NO. SHEETS: 10



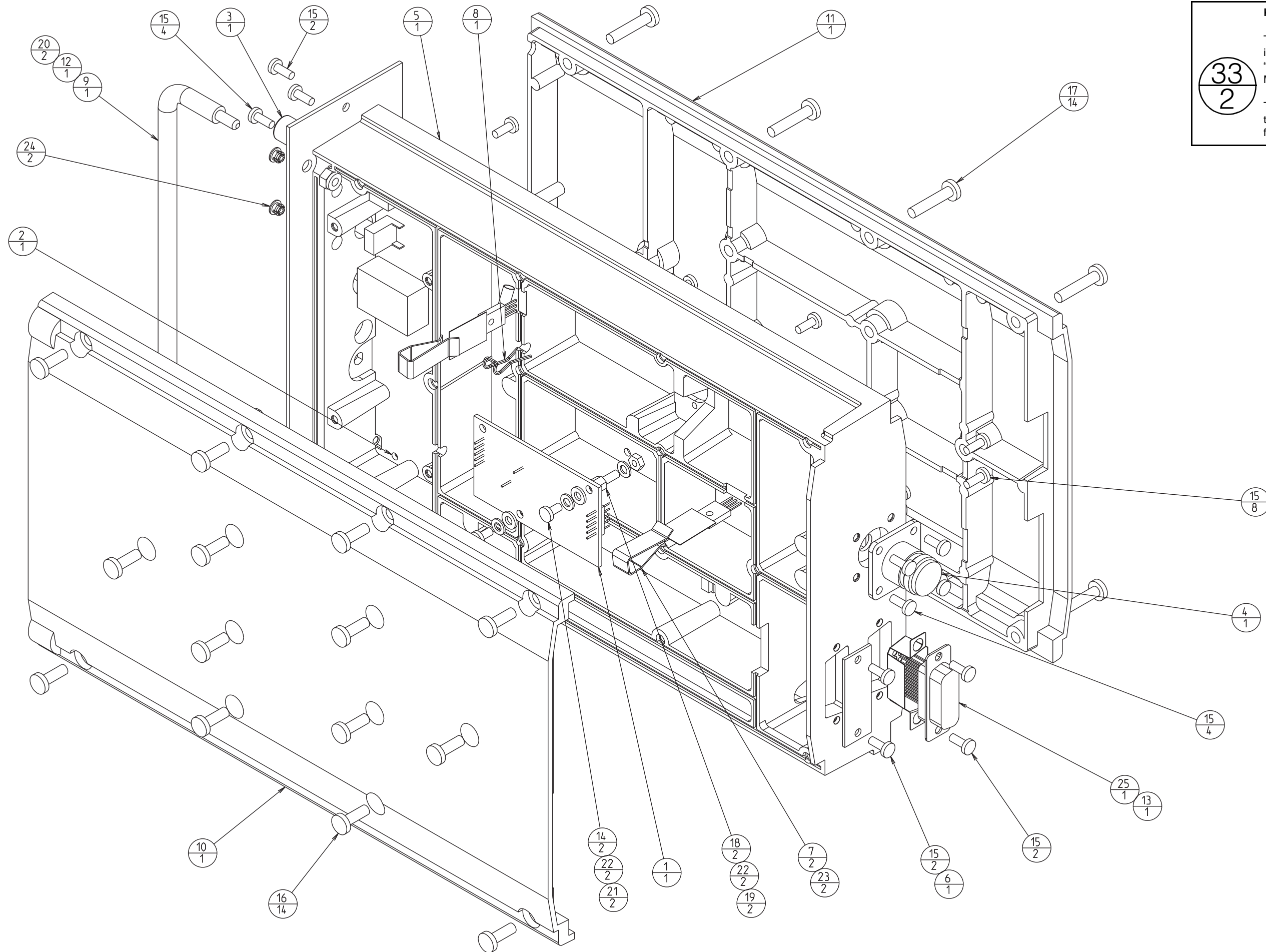


**Key**

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

**33**  
**2**

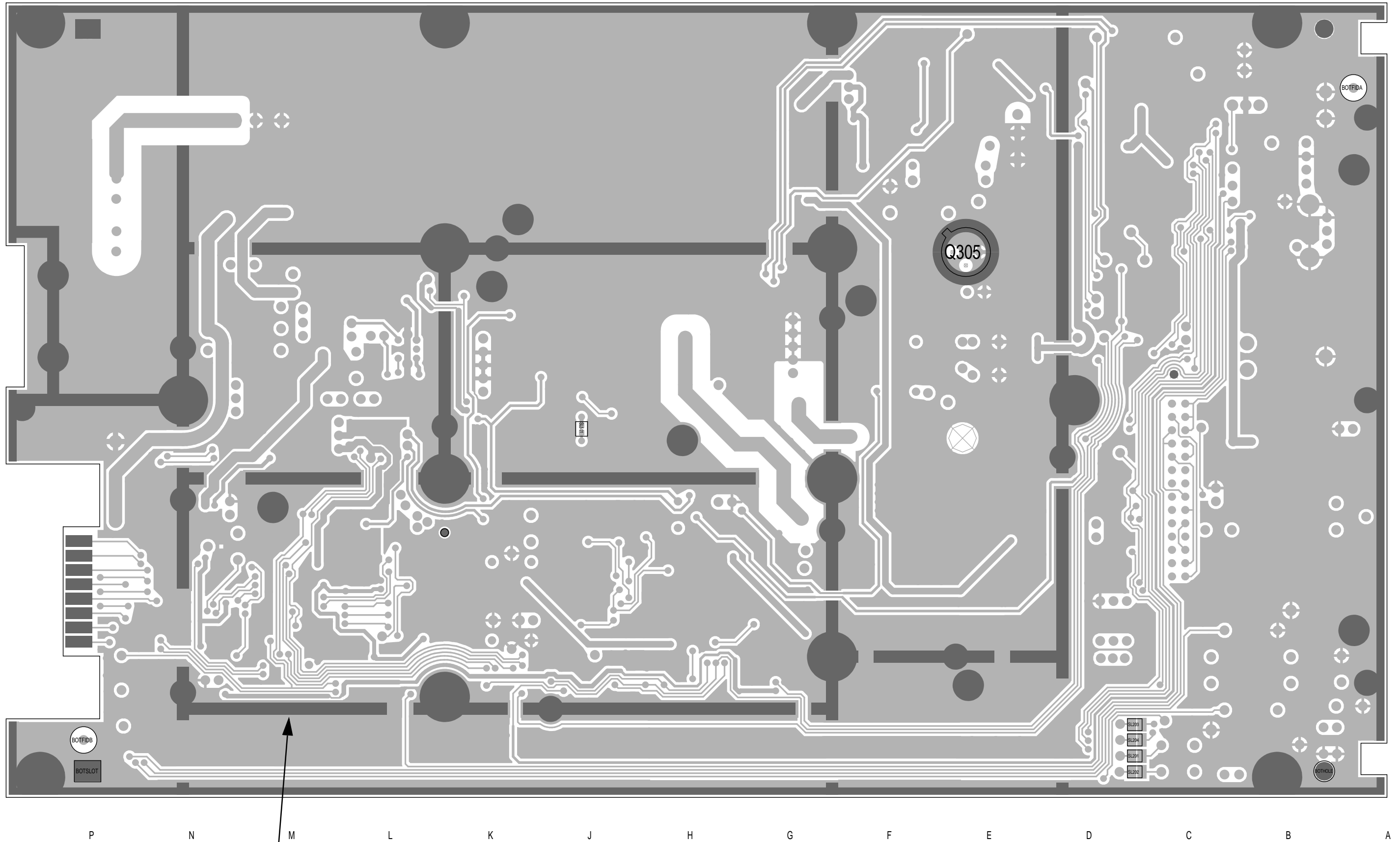
The lower number indicates how many of this component are used in this location or function.





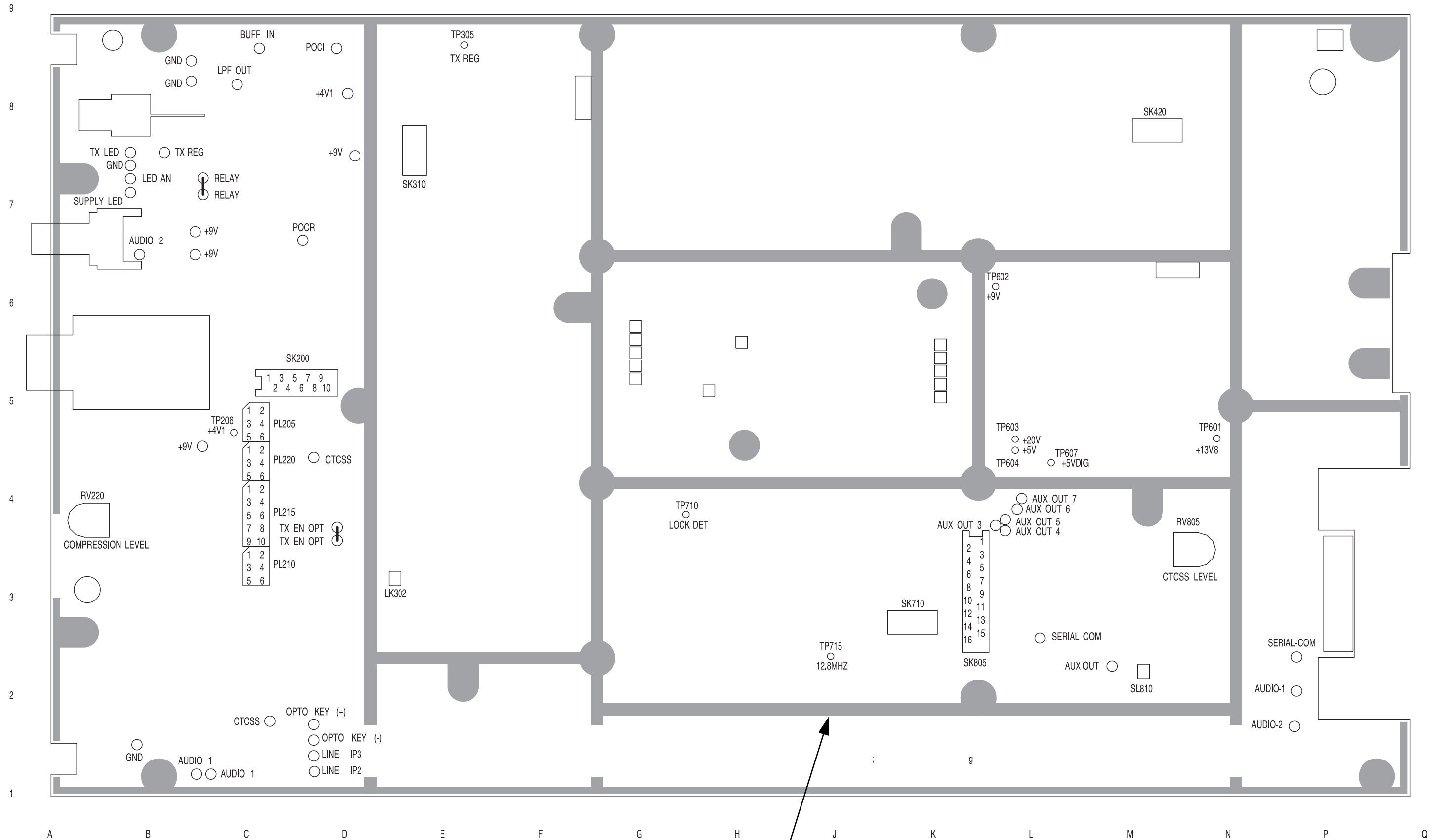




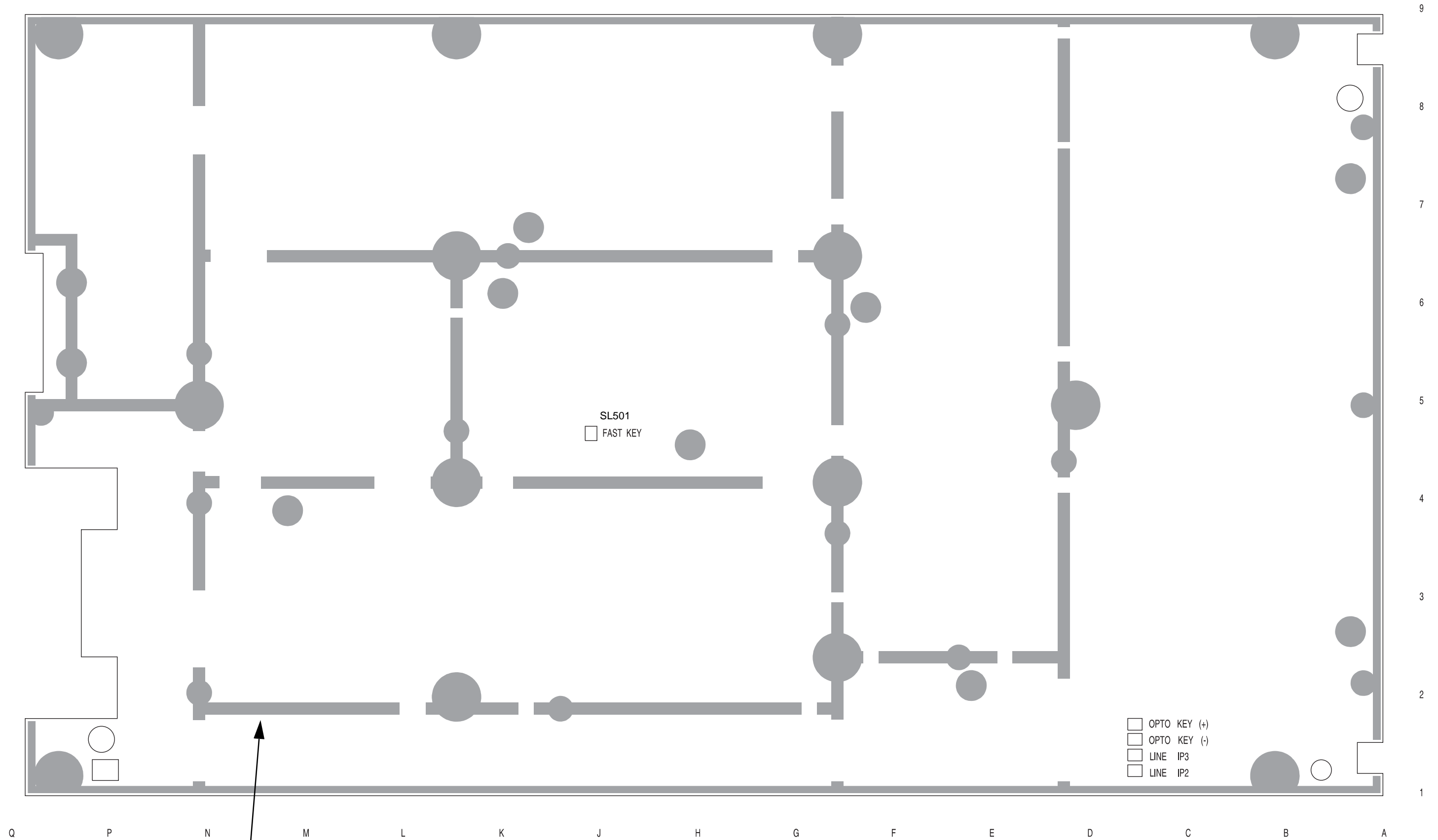


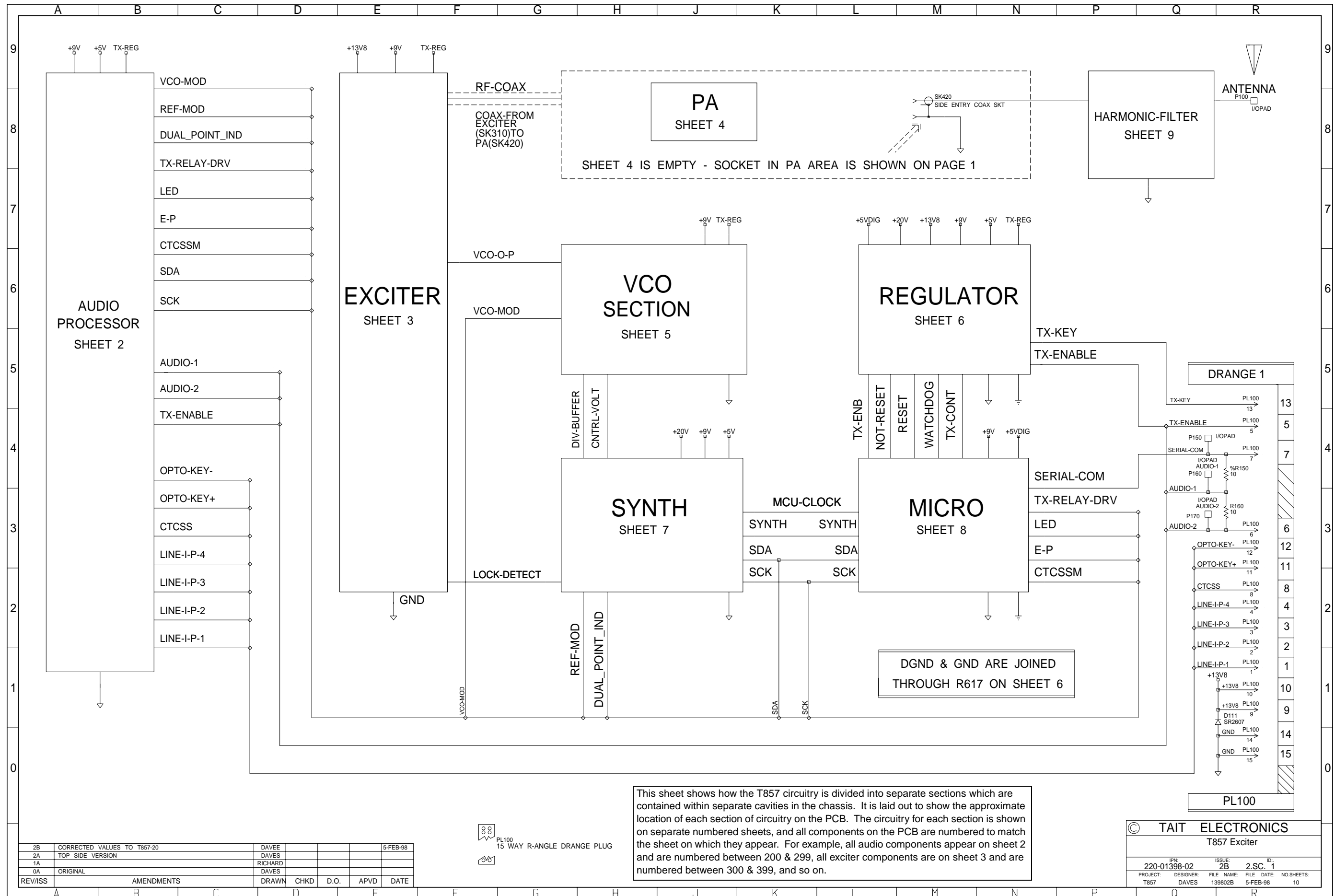
The darker shading shows the footprint of the bottom cover.

T857 PCB Layout - Bottom Side  
220-01398-02



The darker shading shows the outline of the chassis.

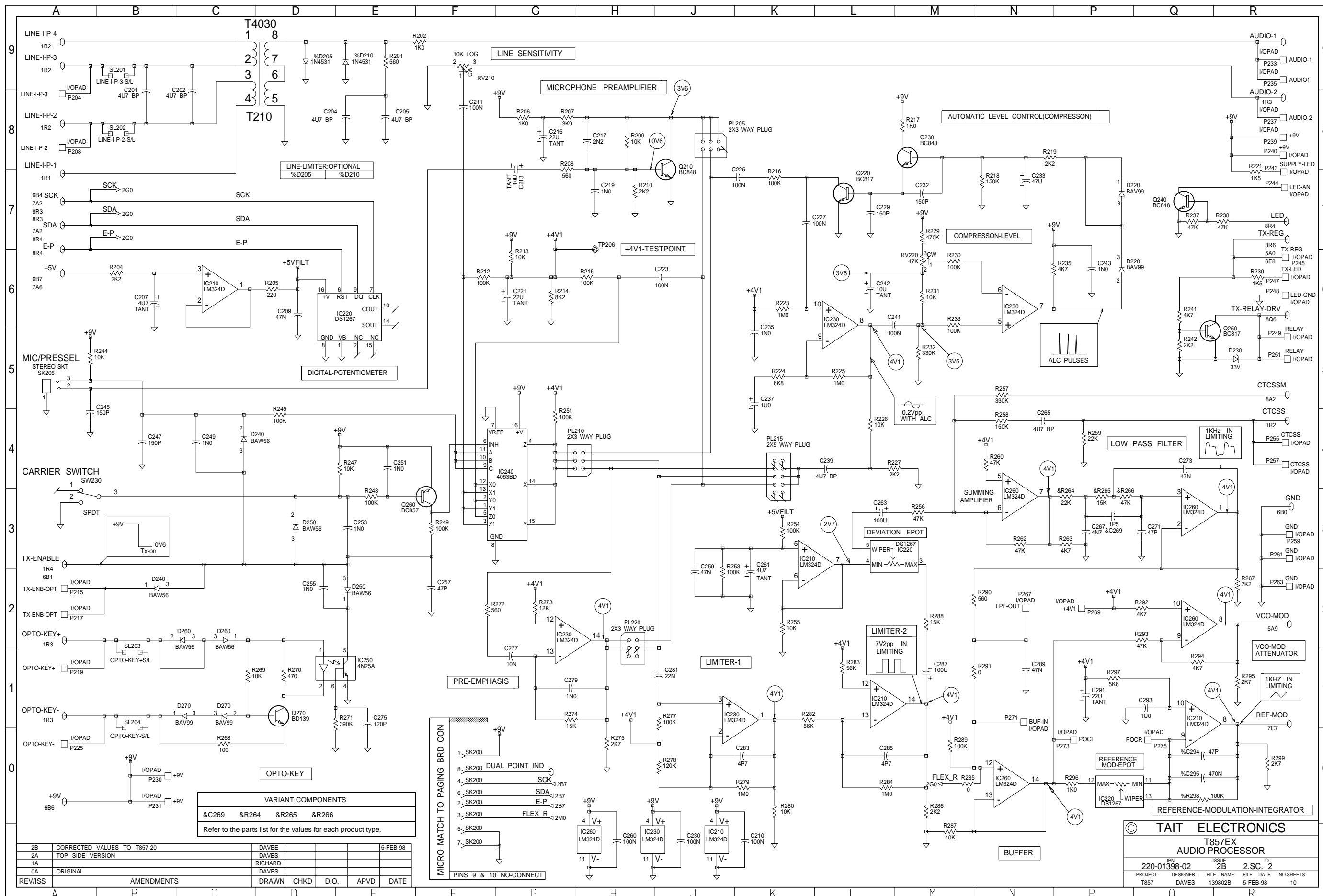


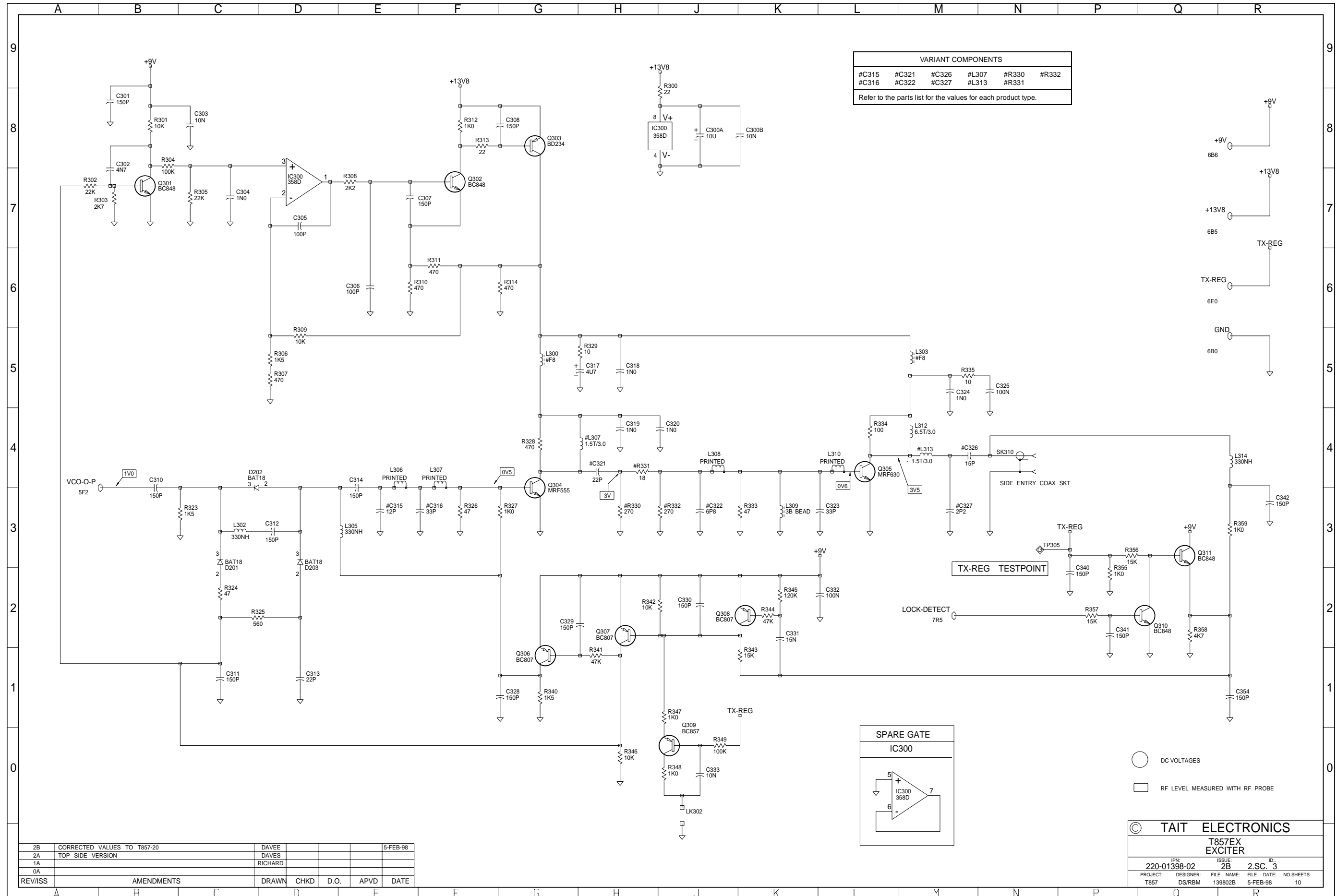


This sheet shows how the T857 circuitry is divided into separate sections which are contained within separate cavities in the chassis. It is laid out to show the approximate location of each section of circuitry on the PCB. The circuitry for each section is shown on separate numbered sheets, and all components on the PCB are numbered to match the sheet on which they appear. For example, all audio components appear on sheet 2 and are numbered between 200 & 299, all exciter components are on sheet 3 and are numbered between 300 & 399, and so on.

2B	CORRECTED VALUES TO T857-20	DAVEE			5-FEB-98
2A	TOP SIDE VERSION	DAVES			
1A		RICHARD			
0A	ORIGINAL	DAVES			
REV/ISS	AMENDMENTS	DRAWN	CHKD	D.O.	APVD DATE

© TAIT ELECTRONICS					
T857 Exciter					
IPN:	220-01398-02	ISSUE:	2B	2.S.C.	1
PROJECT:	T857	DESIGNER:	DAVES	FILE NAME:	139802B
		FILE DATE:	5-FEB-98	NO SHEETS:	10

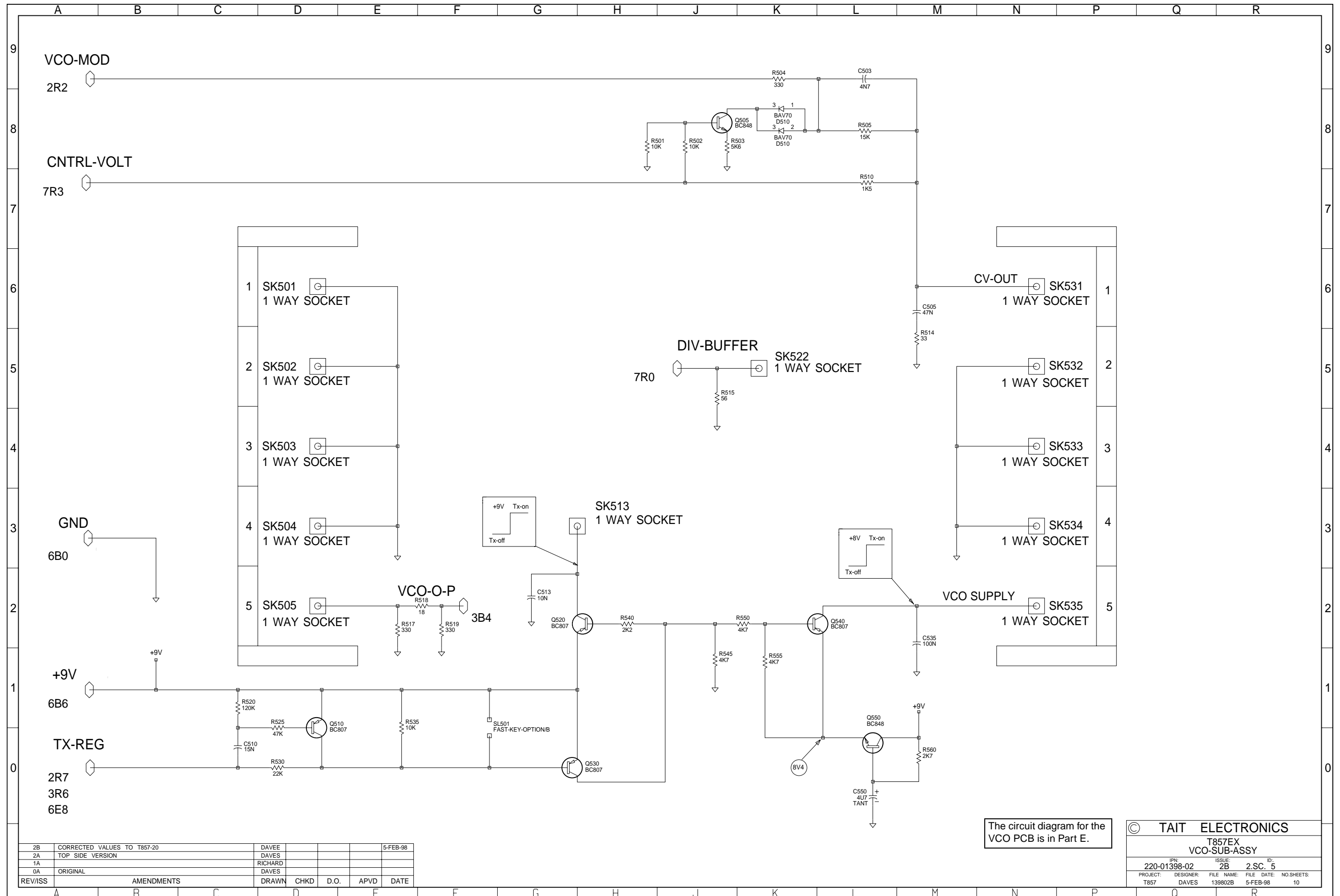




SK420 is the only component in this section  
of the T857 circuitry and is shown on sheet 1.

**Sheet 4 - Not Used In The T857**  
**220-01398-02**

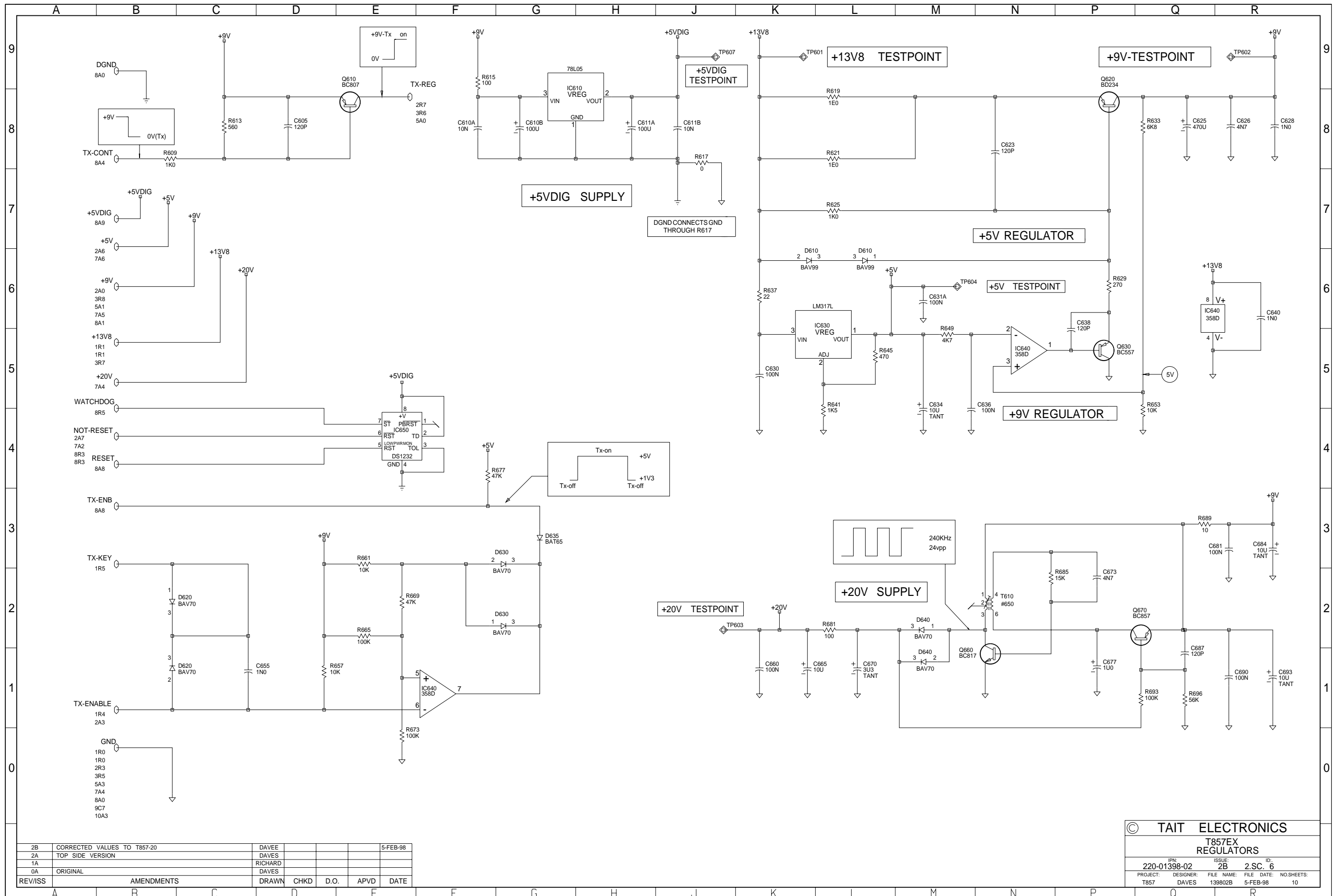




2B	CORRECTED VALUES TO T857-20	DAVEE				5-FEB-98
2A	TOP SIDE VERSION	DAVES				
1A		RICHARD				
0A	ORIGINAL	DAVES				
REV/ISS	AMENDMENTS	DRAWN	CHKD	D.O.	APVD	DATE

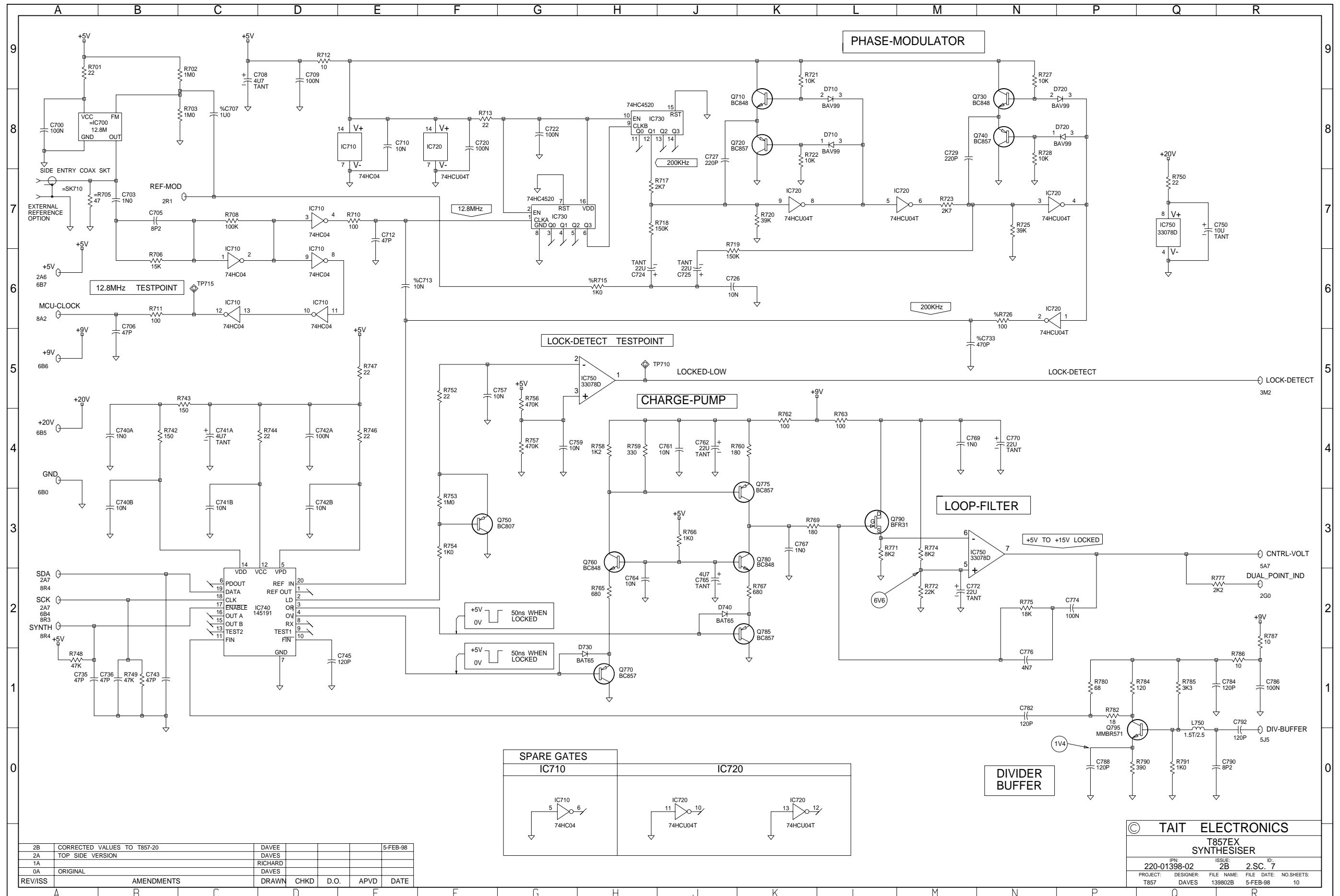
The circuit diagram for the VCO PCB is in Part E.

© TAIT ELECTRONICS					
T857EX					
VCO-SUB-ASSY					
IPN:	220-01398-02	ISSUE:	2B	FILE:	2.S.C. 5
PROJECT:	T857	DESIGNER:	DAVES	FILE NAME:	139802B
				DATE:	5-FEB-98
				NO. SHEETS:	10



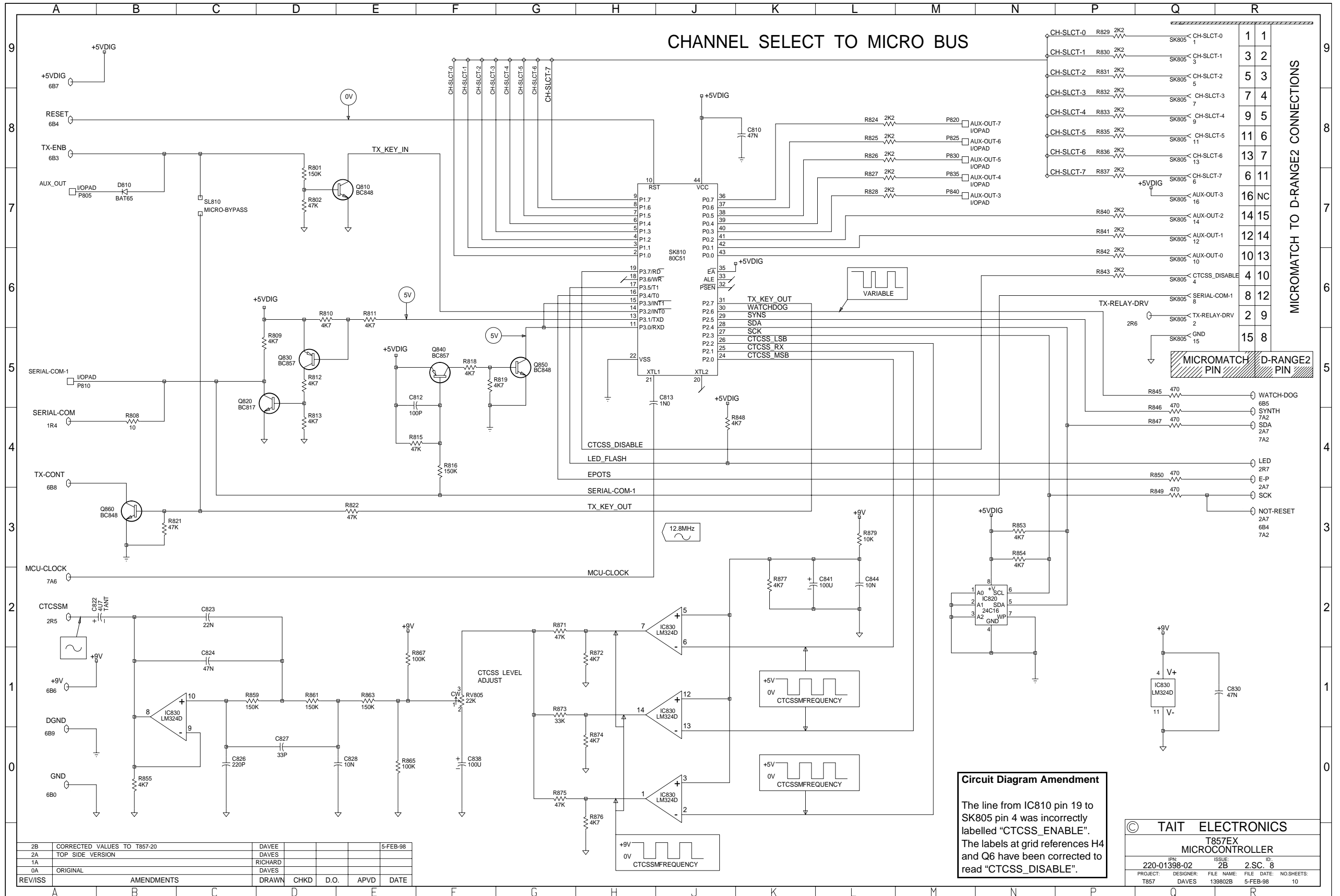
2B	CORRECTED VALUES TO T857-20	DAVEE			5-FEB-98
2A	TOP SIDE VERSION	DAVES			
1A		RICHARD			
0A	ORIGINAL	DAVES			
REV/ISS	AMENDMENTS	DRAWN	CHKD	D.O.	APVD DATE

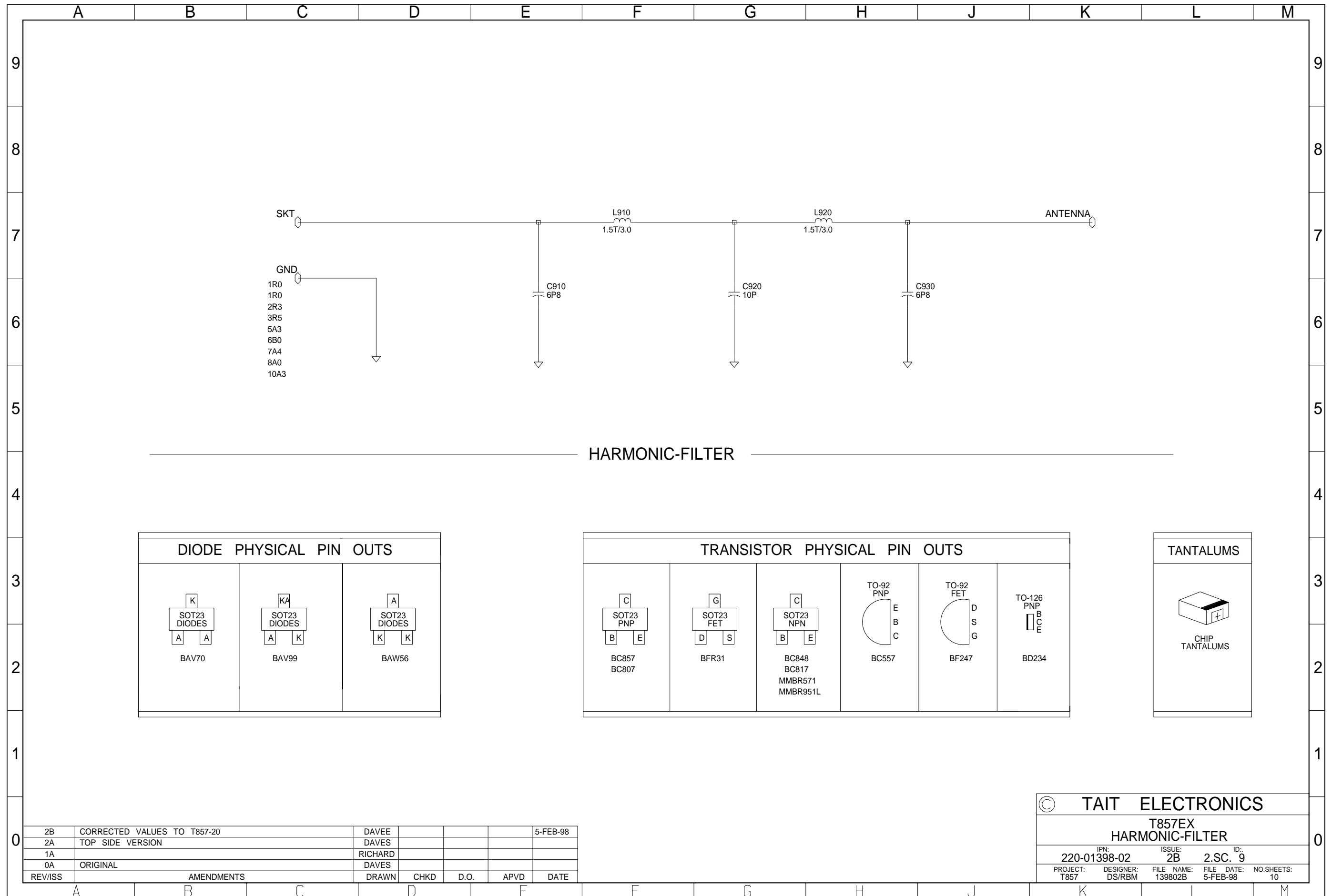
© TAIT ELECTRONICS					
T857EX REGULATORS					
IPN	220-01398-02	ISSUE	2B	ID	2.S.C. 6
PROJECT	T857	DESIGNER	DAVES	FILE NAME	139802B
		FILE DATE	5-FEB-98	NO.SHEETS	10



2B	CORRECTED VALUES TO T857-20	DAVEE				5-FEB-98
2A	TOP SIDE VERSION	DAVES				
1A		RICHARD				
0A	ORIGINAL	DAVES				
REV/ISS	AMENDMENTS	DRAWN	CHKD	D.O.	APVD	DATE

© TAIT ELECTRONICS			
T857EX SYNTHESISER			
IPN:	220-01398-02	ISSUE:	2B
DESIGNER:	DAVES	FILE NAME:	139802B
DATE:	5-FEB-98	NO. SHEETS:	10





DIODE PHYSICAL PIN OUTS		
 SOT23 DIODES BAV70	 SOT23 DIODES BAV99	 SOT23 DIODES BAW56

TRANSISTOR PHYSICAL PIN OUTS					
 SOT23 PNP BC857 BC807	 SOT23 FET BFR31	 SOT23 NPN BC848 BC817 MMBR571 MMBR951L	 TO-92 PNP BC557	 TO-92 FET BF247	 TO-126 PNP BD234

TANTALUMS
 CHIP TANTALUMS

2B	CORRECTED VALUES TO T857-20	DAVEE				5-FEB-98
2A	TOP SIDE VERSION	DAVES				
1A		RICHARD				
0A	ORIGINAL	DAVES				
REV/ISS	AMENDMENTS	DRAWN	CHKD	D.O.	APVD	DATE

<b>TAIT ELECTRONICS</b>					
T857EX HARMONIC-FILTER					
IPN: 220-01398-02		ISSUE: 2B		ID: 2.SC. 9	
PROJECT: T857	DESIGNER: DS/RBM	FILE NAME: 139802B	FILE DATE: 5-FEB-98	NO. SHEETS: 10	

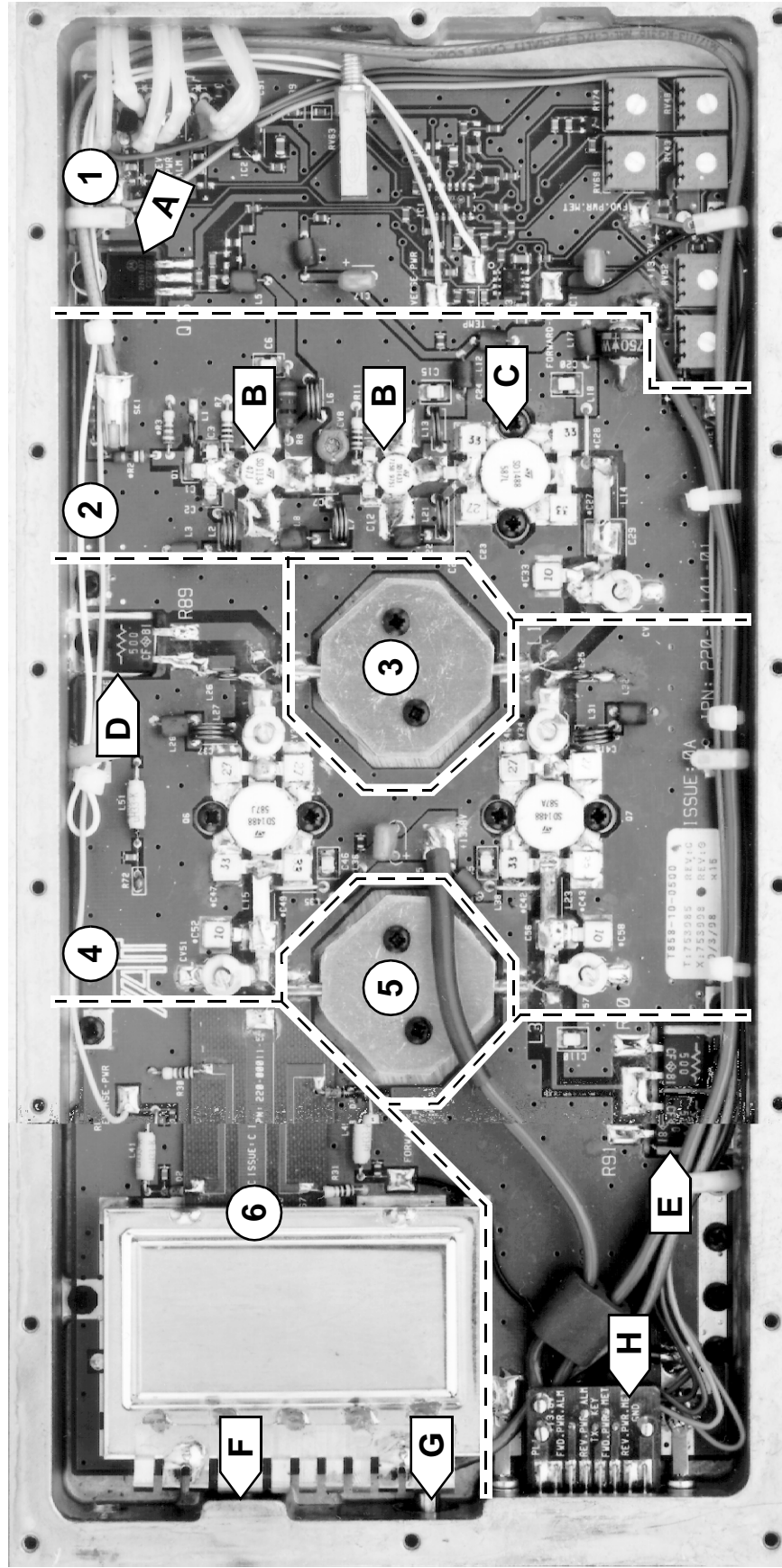


The photograph in [Figure 1.1](#) on the next page will help you to identify the main circuit blocks in the T858.

There is a similar photograph in [Figure 3.3](#) which shows the main adjustment controls.

Extending both these fold-outs will allow you to refer to both photographs while using the manual.

The photograph in [Figure 1.3](#) shows the T858/859 front panel controls.

**Key:**

- 1 power control & alarms circuitry
- 2 drive amplifier
- 3 input power splitter
- 4 final amplifiers
- 5 output power combiner
- 6 low pass filter & directional coupler

- A power control transistor (Q16)
- B pre-driver
- C driver
- D input combiner termination (R89)
- E output combiner termination (R90/R91)
- F RF output
- G RF input
- H D-range connector (incl. DC in, alarm & metering outputs - refer to [Section 3.2](#) in Part F)

Figure 1.1 T858 Main Circuit Block Identification



The photograph in [Figure 1.2](#) on the next page will help you to identify the main circuit blocks in the T859.

There is a similar photograph in [Figure 3.4](#) which shows the main adjustment controls.

Extending both these fold-outs will allow you to refer to both photographs while using the manual.

The photograph in [Figure 1.3](#) on the next page shows the T858/859 front panel controls.

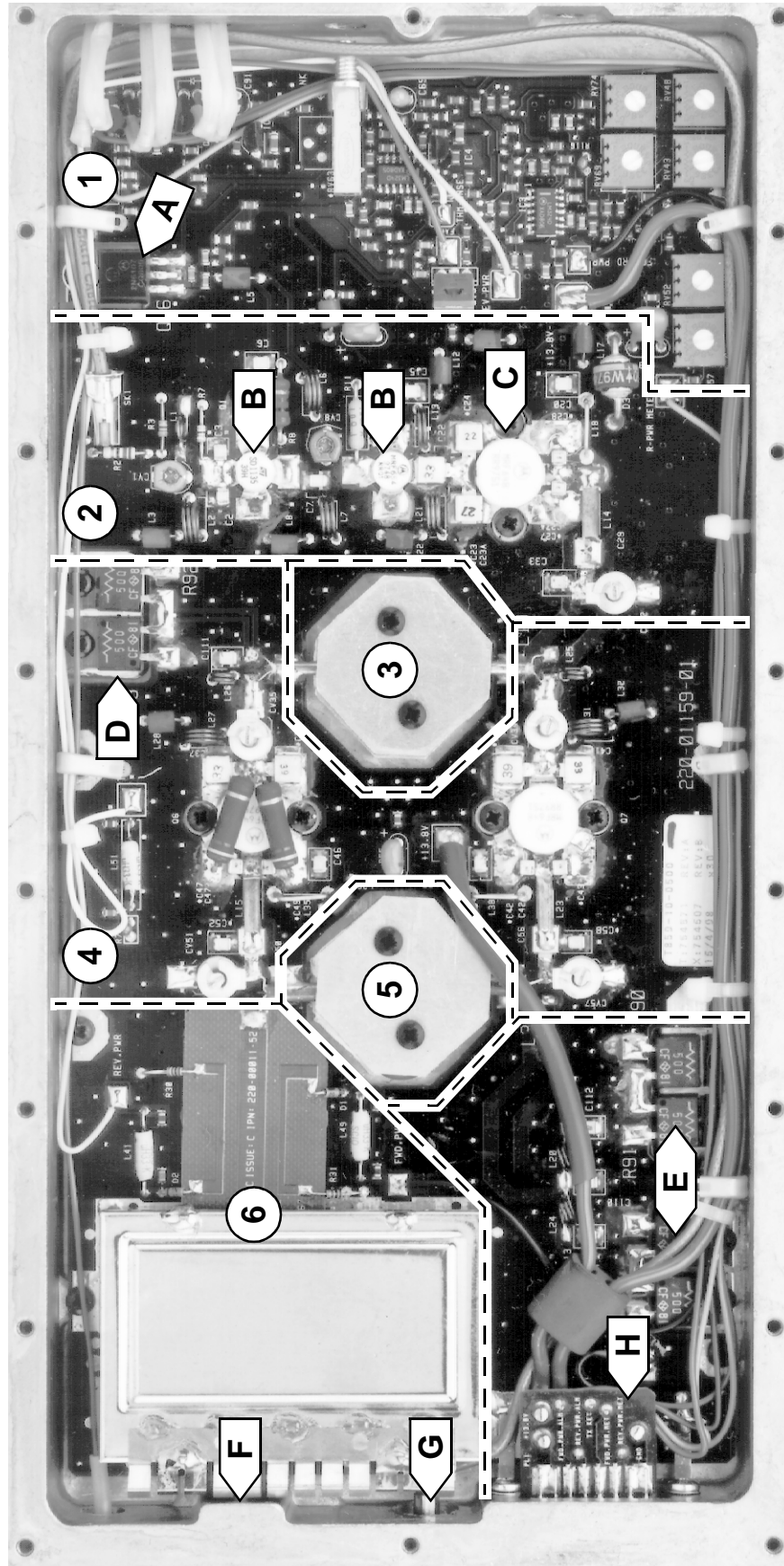


Figure 1.2 T859 Main Circuit Block Identification

- Key:**
- 1 power control & alarms circuitry
  - 2 drive amplifier
  - 3 input power splitter
  - 4 final amplifiers
  - 5 output power combiner
  - 6 low pass filter & directional coupler
- A power control transistor (Q16)
  - B pre-driver
  - C driver
  - D input combiner termination (R89/R92)
  - E output combiner termination (R90/R91/R93/R94)
  - F RF output
  - G RF input
  - H D-range connector (incl. DC in, alarm & metering outputs - refer to Section 3.2 in Part F)

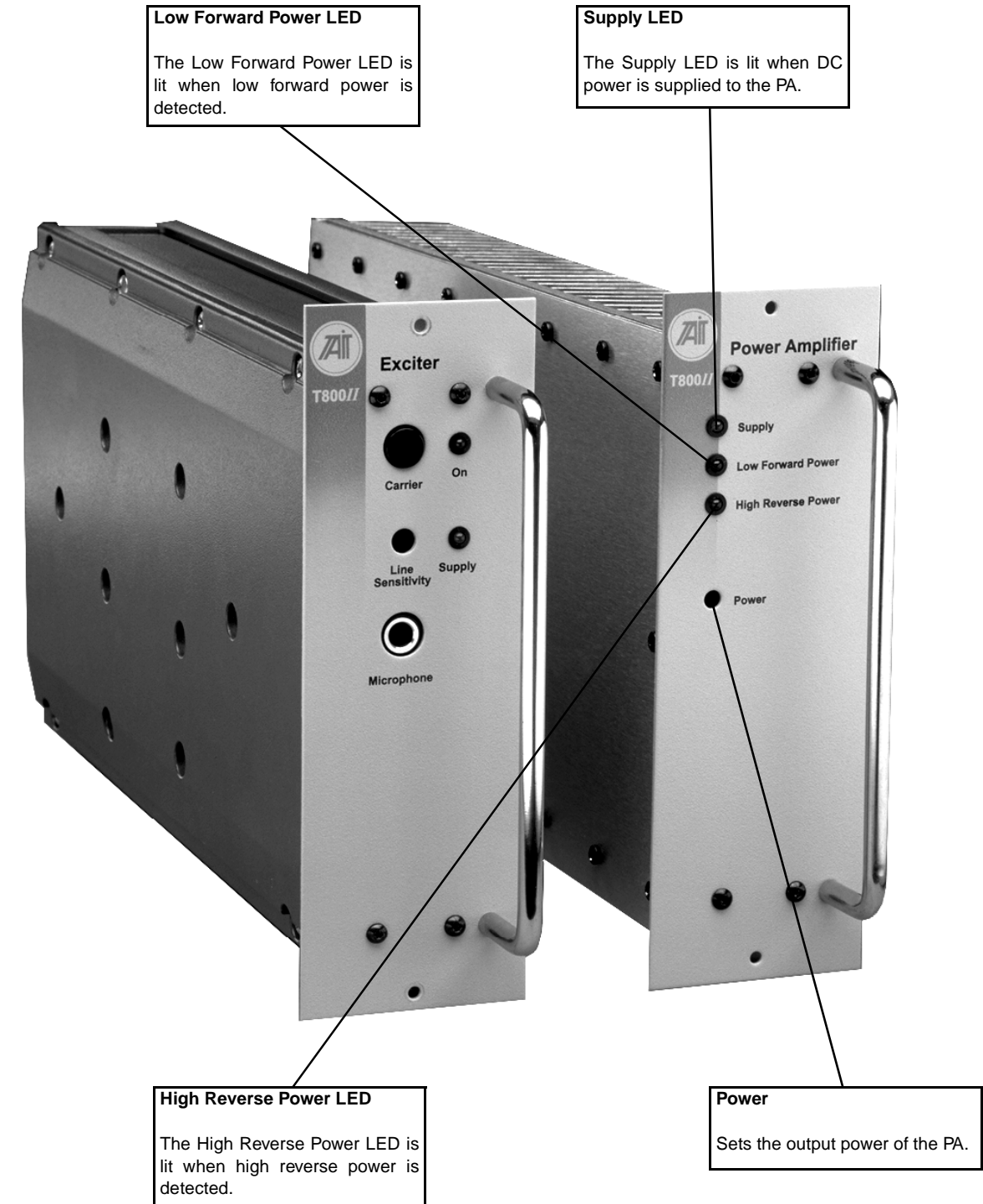
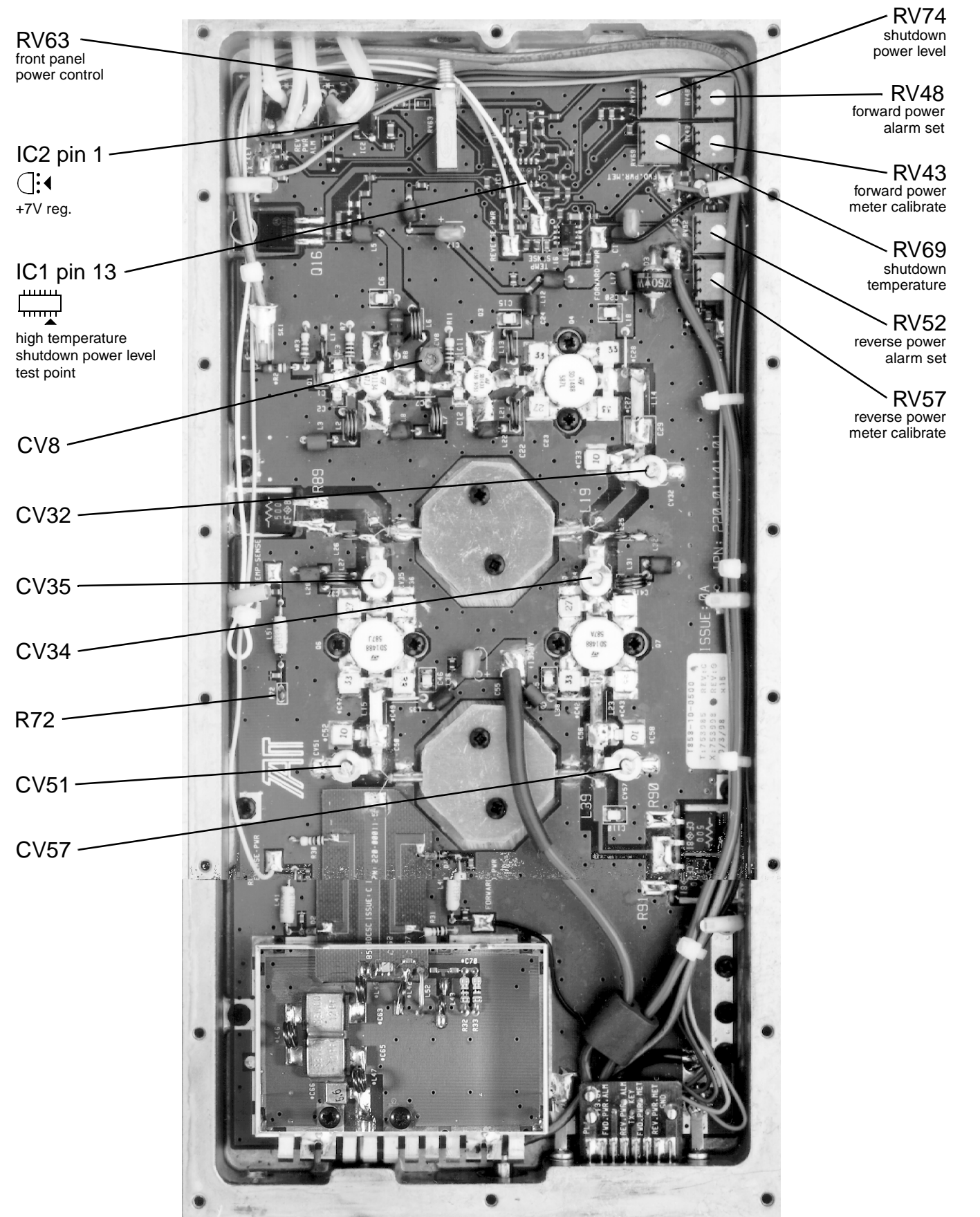


Figure 1.3 T858/859 Front Panel Controls - T858 Shown With T857 Exciter (The T859 has the same controls as the T858 but has a double-width front panel.)



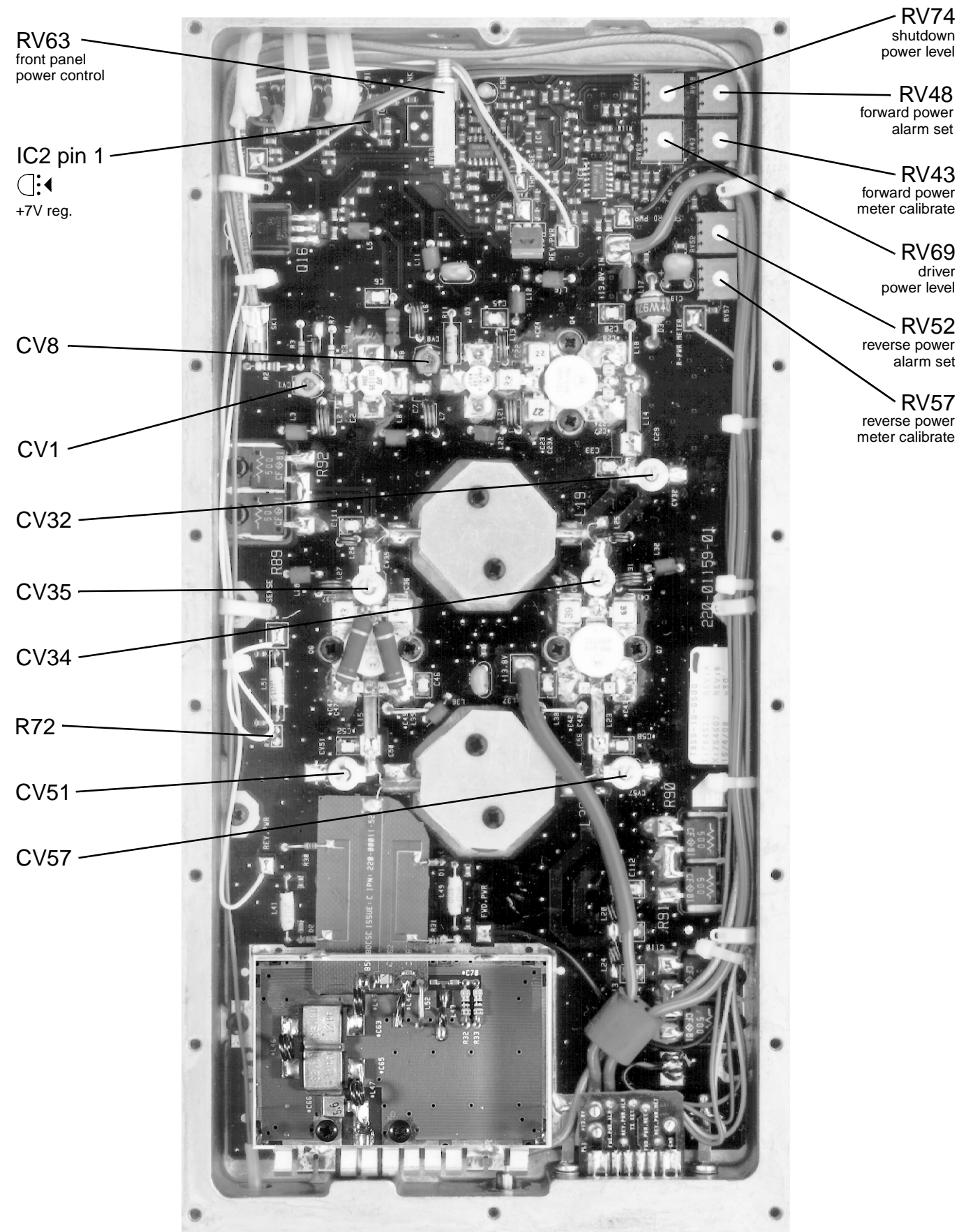
The photograph printed at right will help you to identify the main controls used in tuning and adjusting the T858.

There is a similar photograph in [Figure 1.1](#) which shows the main circuit blocks.

Extending both these fold-outs will allow you to refer to both photographs while using the manual.

Figure 3.3 T858 Main Adjustment Controls





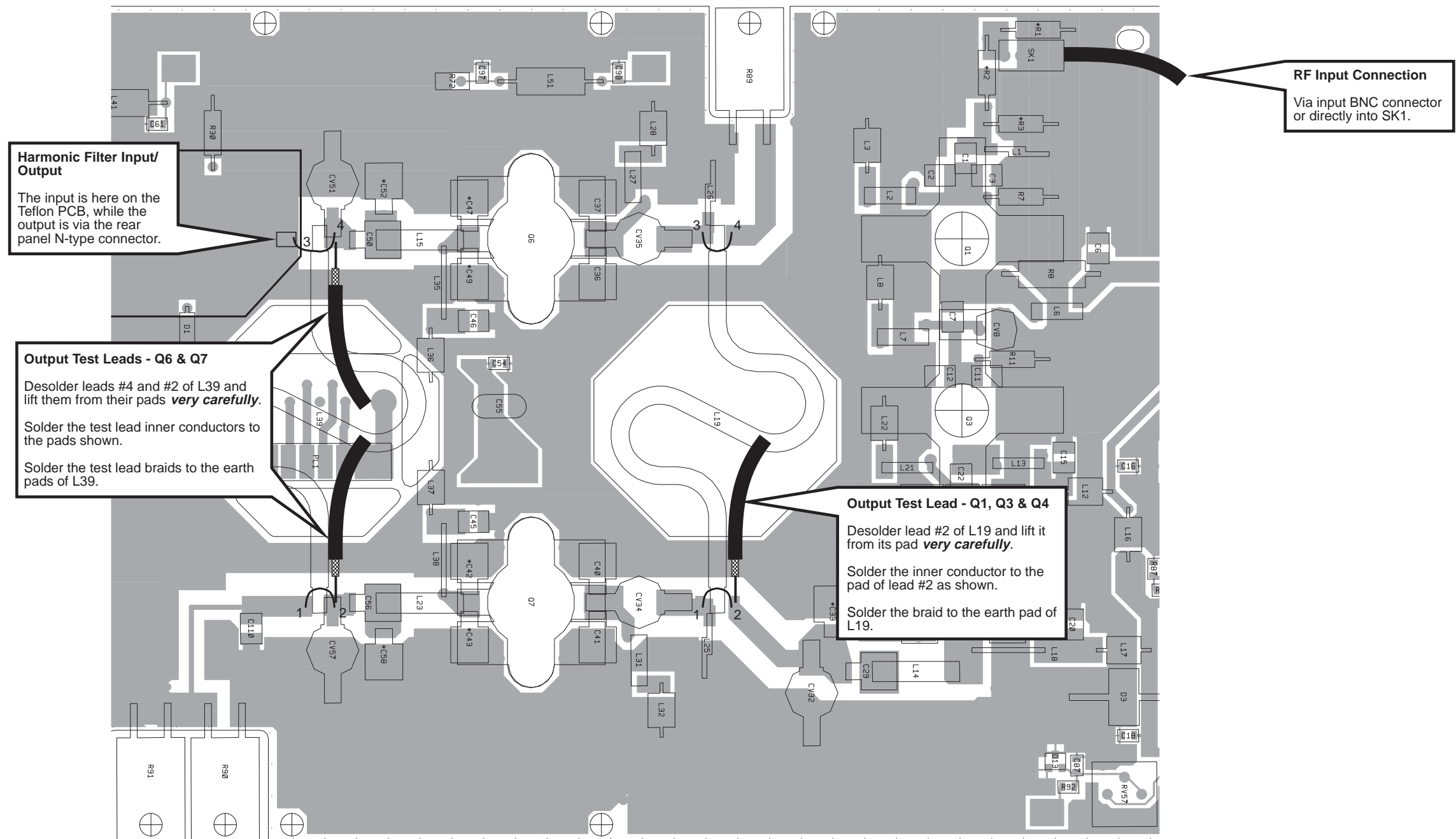
The photograph printed at right will help you to identify the main controls used in tuning and adjusting the T859.

There is a similar photograph in [Figure 1.2](#) which shows the main circuit blocks.

Extending both these fold-outs will allow you to refer to both photographs while using the manual.

Figure 3.4 T859 Main Adjustment Controls





**Caution: L19/L39 Inner Conductors**

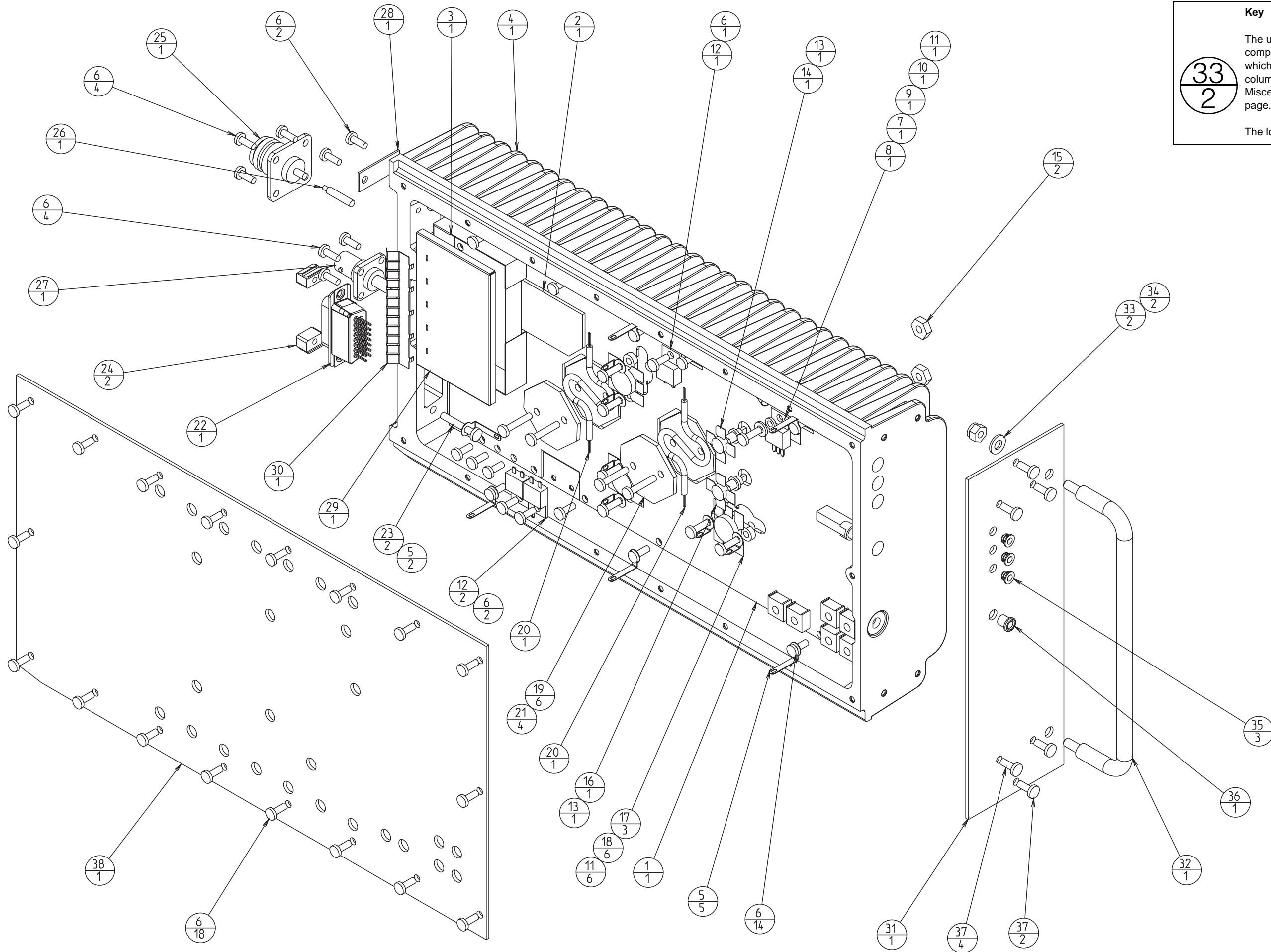
The inner conductors of L19 and L39 are silver wire and are very fragile. Take care not to damage them when desoldering and lifting them off the pads.

When resoldering, make sure each inner conductor curves onto the pad (as shown in the drawing) to protect it from thermal stress or shorts. Do not pull the wire tight.

Figure 4.1 T858/859 Test Break Point Location







**Key**

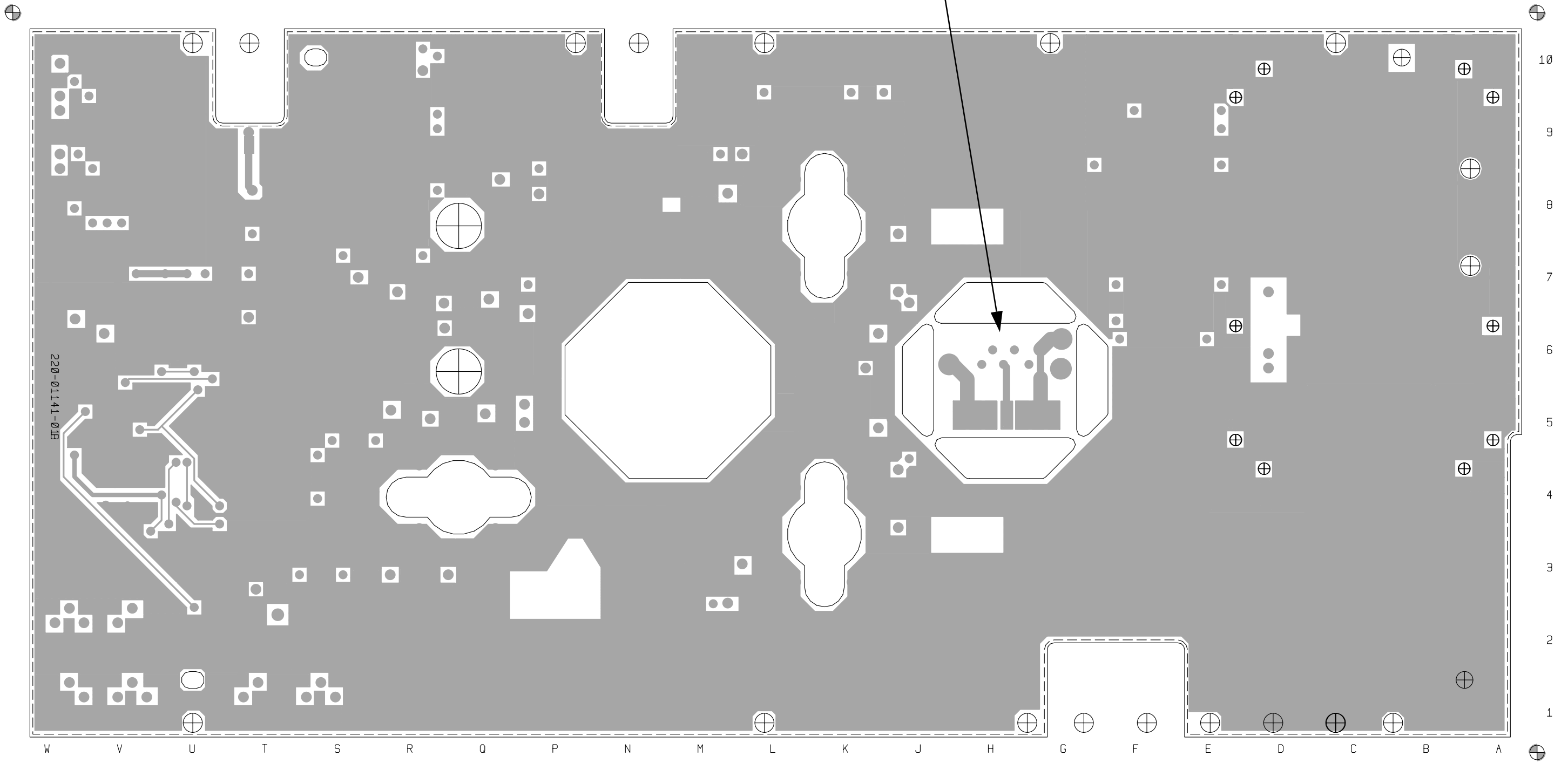
The upper number is the component identification number which appears in the "Legend" column of the Mechanical & Miscellaneous Parts on the facing page.

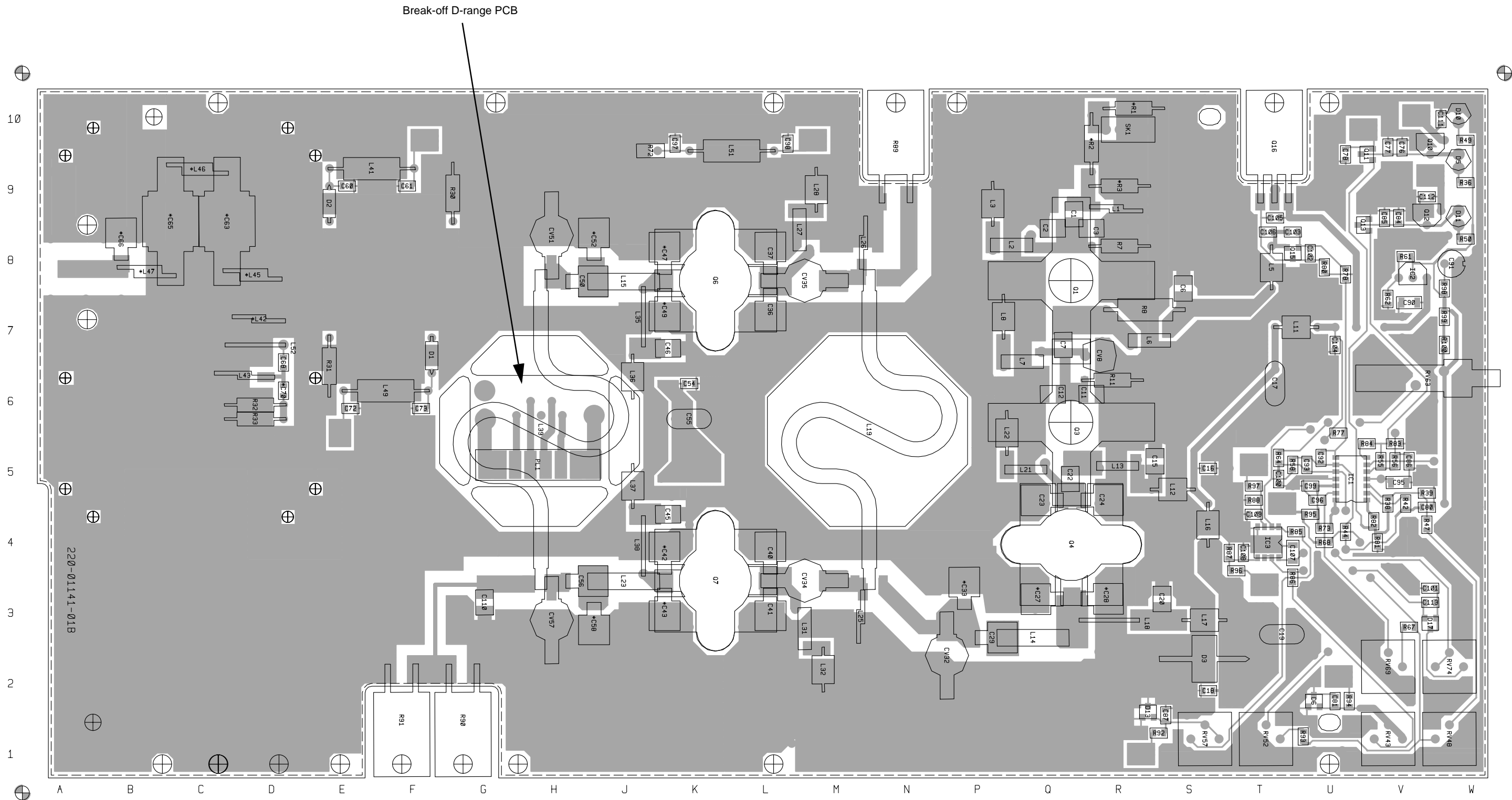
The lower number indicates how

**33**  
**2**

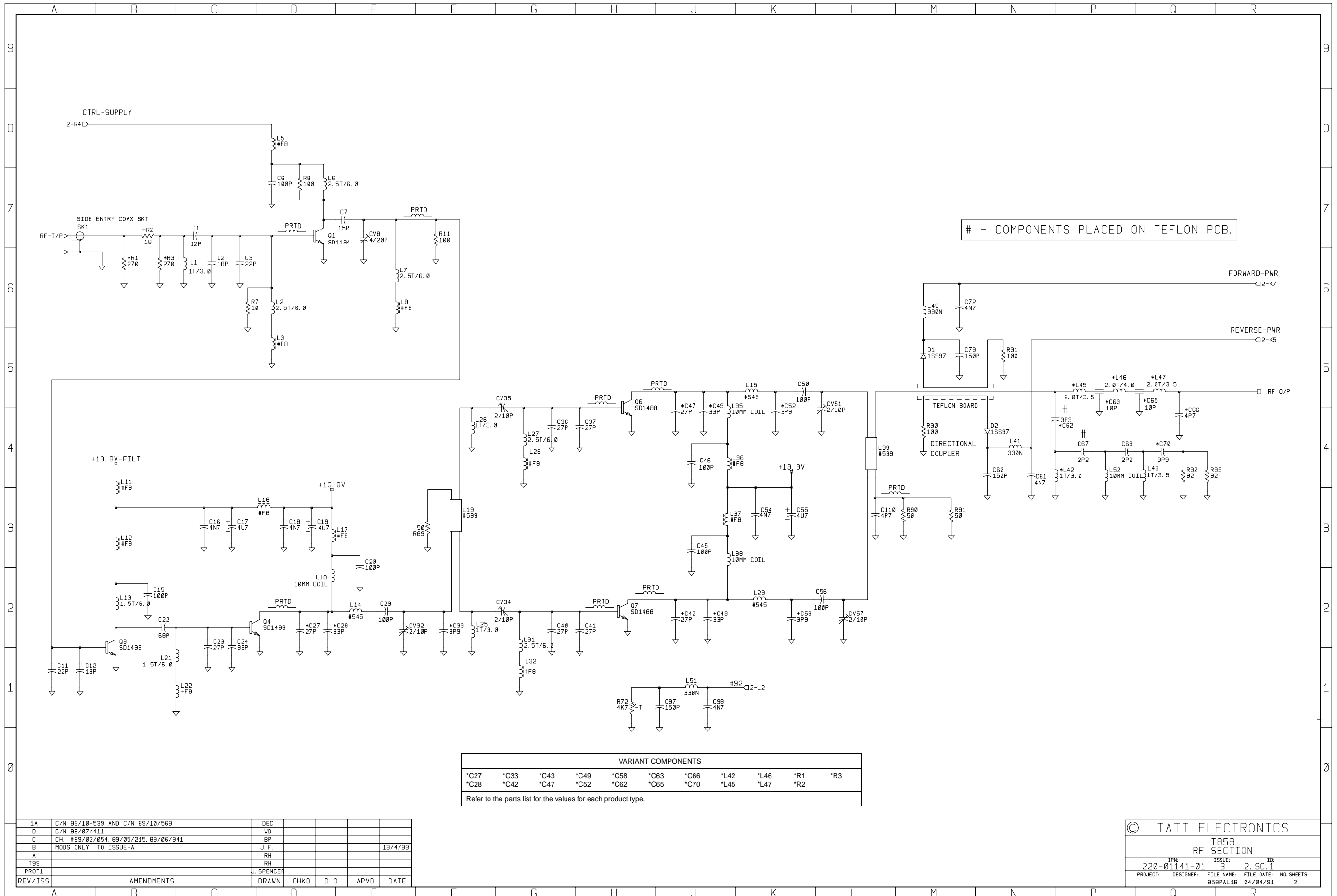


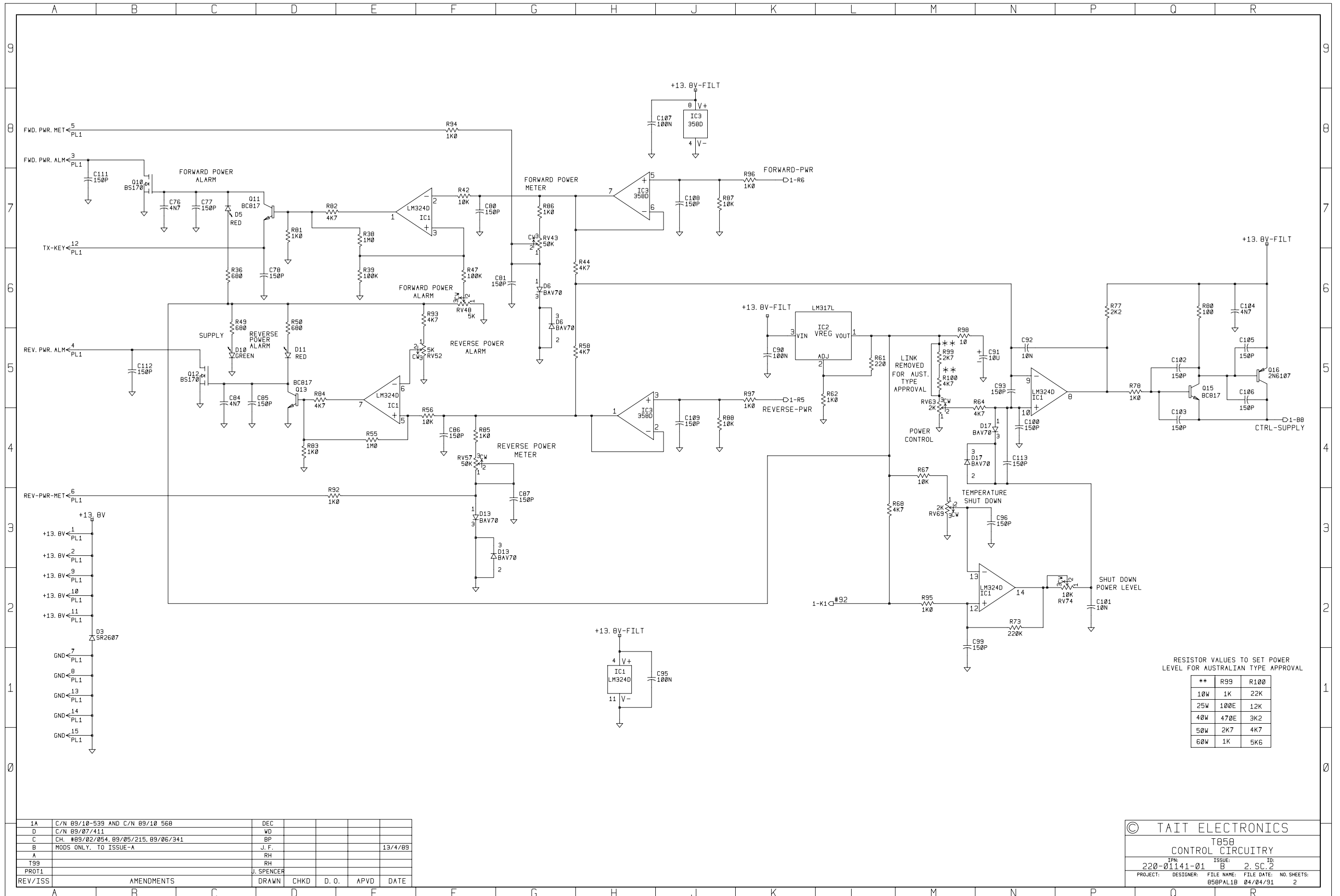
Break-off D-range PCB





T858 PCB Layout - Top Side  
220-01141-01



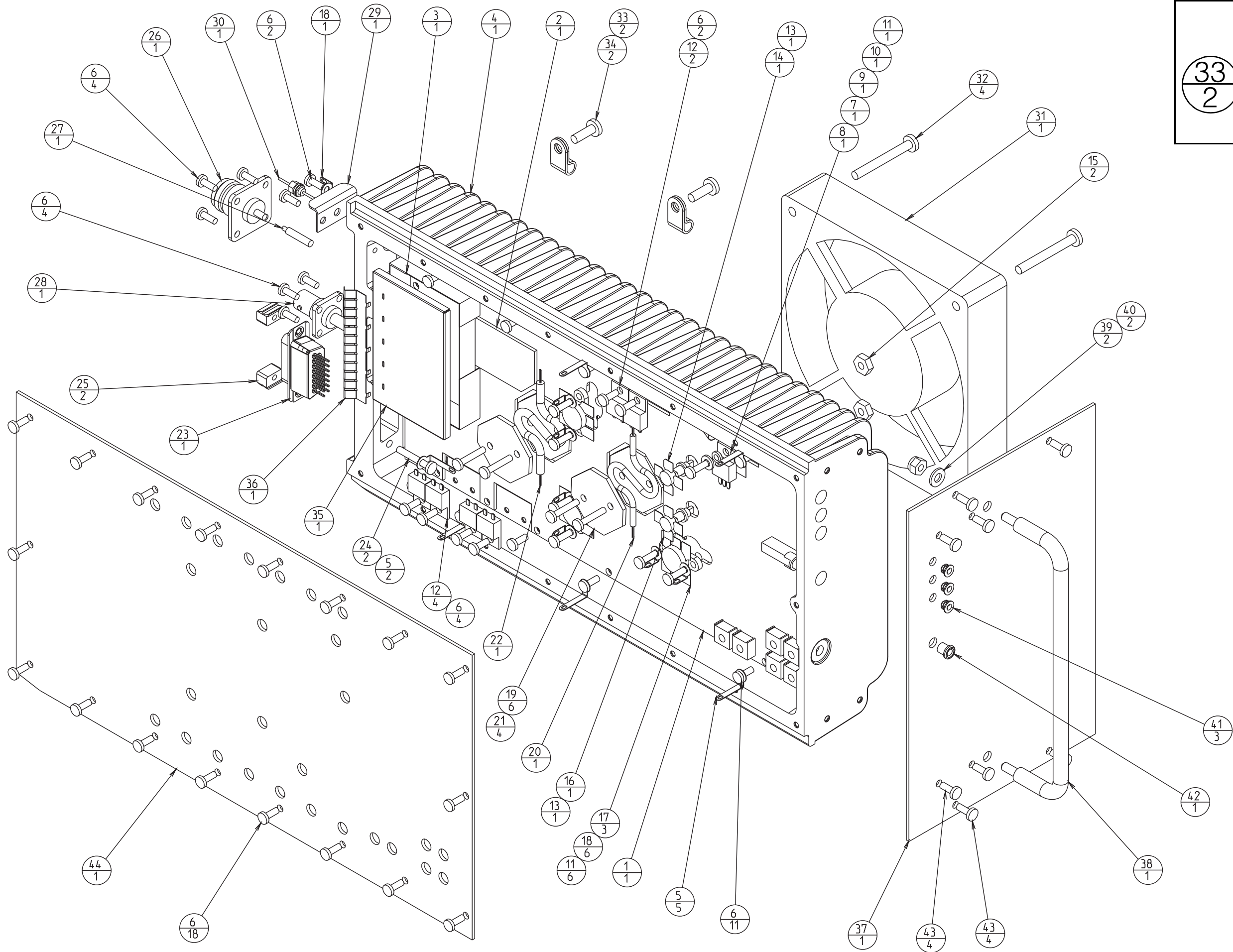


RESISTOR VALUES TO SET POWER LEVEL FOR AUSTRALIAN TYPE APPROVAL

**	R99	R100
10W	1K	22K
25W	100E	12K
40W	470E	3K2
50W	2K7	4K7
60W	1K	5K6

1A	C/N 89/10-539 AND C/N 89/10 560	DEC			
D	C/N 89/07/411	WD			
C	CH. #89/02/054, 89/05/215, 89/06/341	BP			
B	MODS ONLY. TO ISSUE-A	J.F.			13/4/89
A		RH			
T99		RH			
PROT1		J. SPENCER			
REV/ISS	AMENDMENTS	DRAWN	CHKD	D. O.	APVD DATE

© TAIT ELECTRONICS  
T858 CONTROL CIRCUITRY  
IPN: 220-01141-01 ISSUE: B 2. SC. 2  
PROJECT: DESIGNER: FILE NAME: FILE DATE: NO. SHEETS: 858PAL18 04/04/91 2



**Key**

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

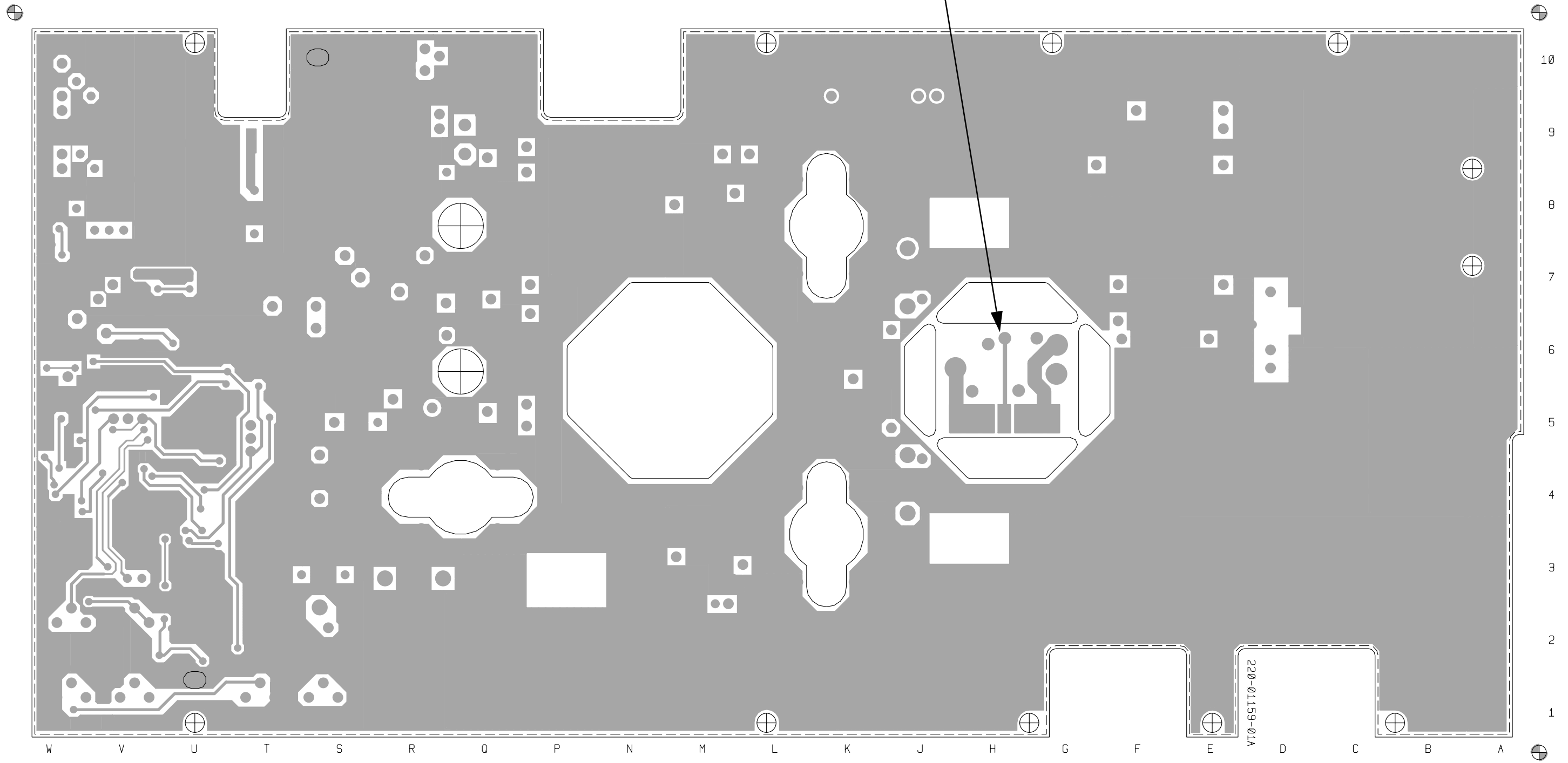
**33**  
**2**

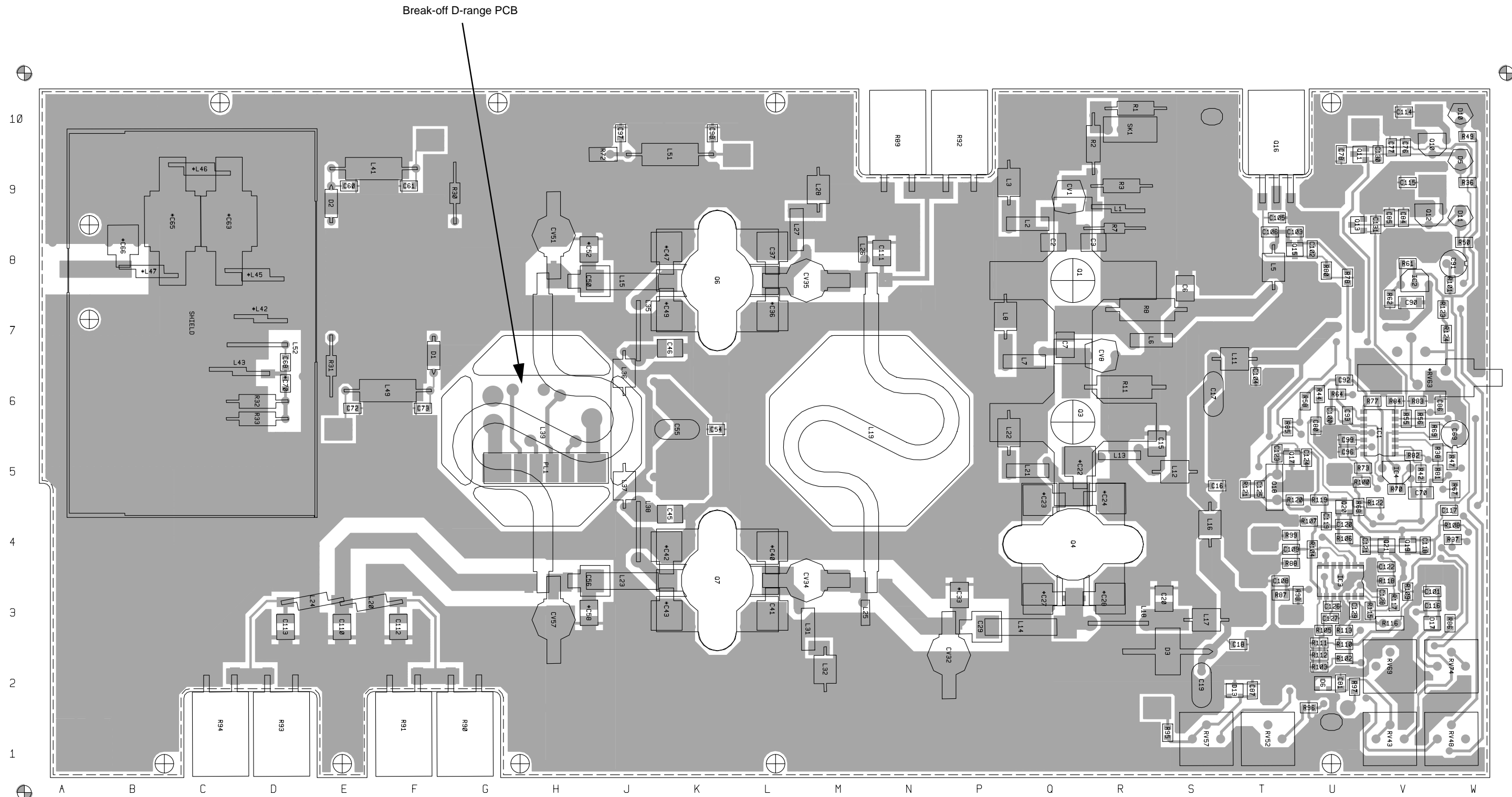
The lower number indicates how many of this component are used in this location or function.



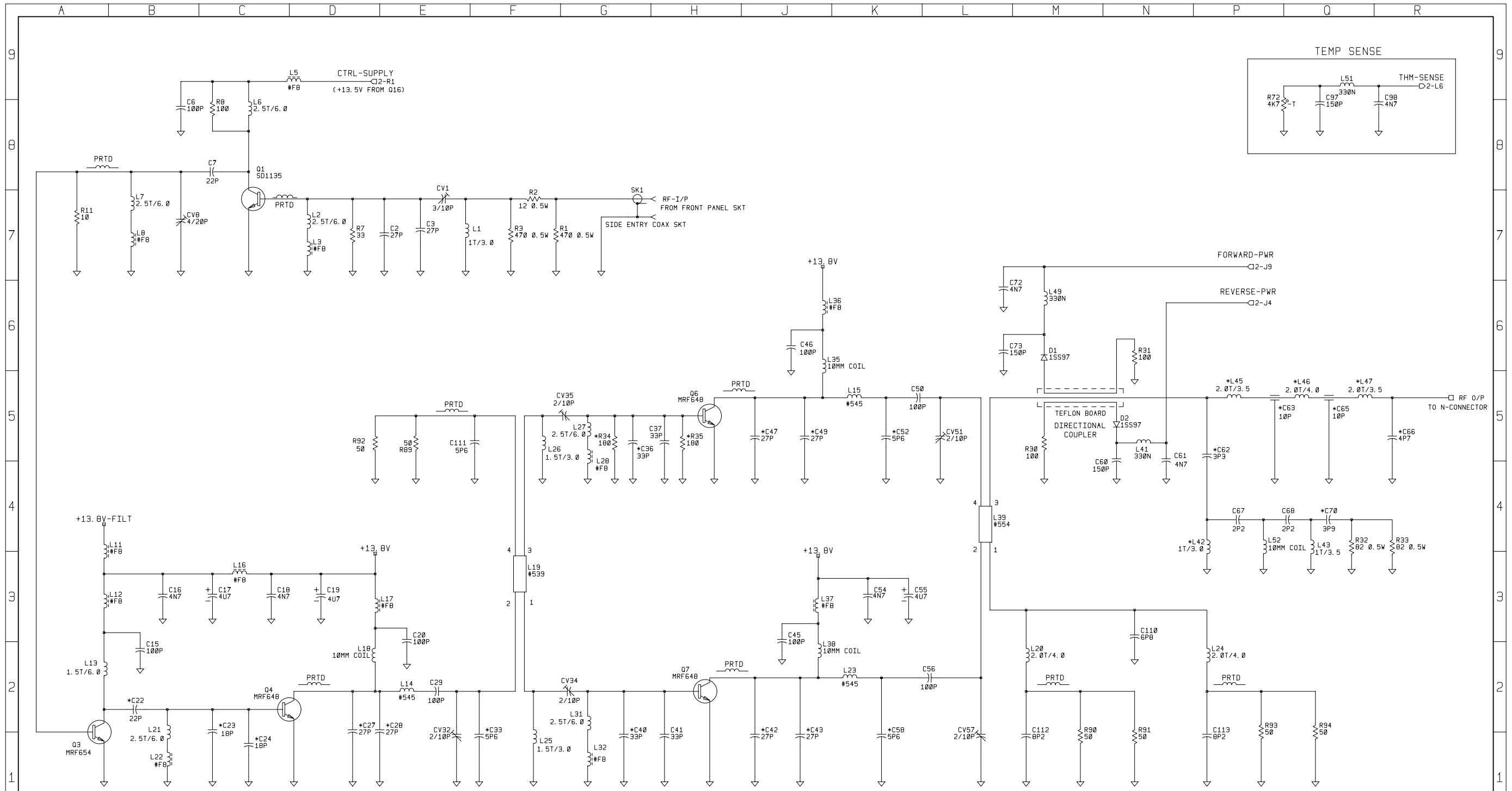


Break-off D-range PCB





T859 PCB Layout - Top Side  
220-01159-01



VARIANT COMPONENTS												
*C22	*C24	*C28	*C36	*C42	*C47	*C52	*C62	*C65	*C70	*L42	*L46	*R34
*C23	*C27	*C33	*C40	*C43	*C49	*C58	*C63	*C66		*L45	*L47	*R35

Refer to the parts list for the values for each product type.

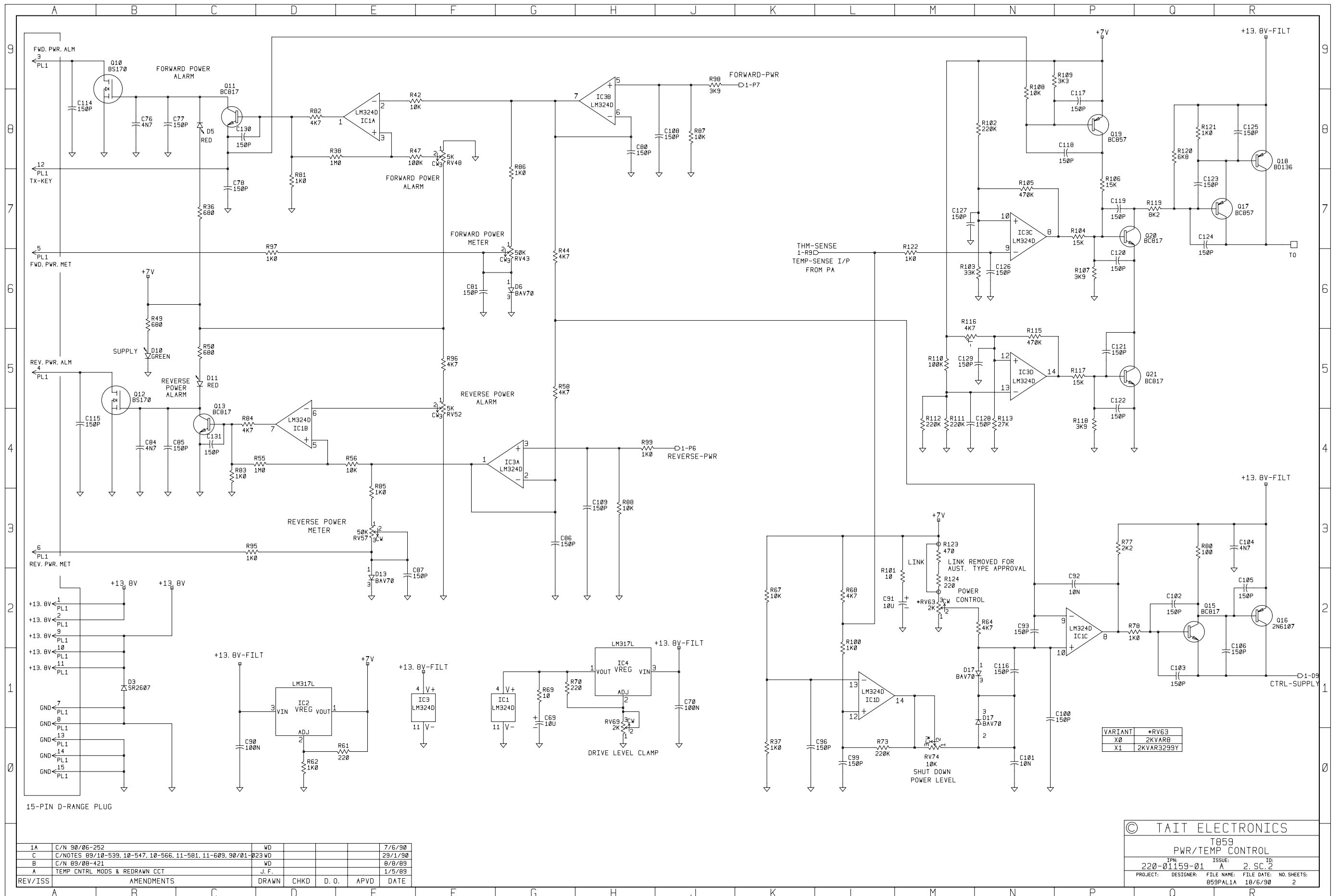
1A	C/N 90/06-252	WD				7/6/90
C	C/NOTES 89/10-539, 10-547, 10-566, 11-501, 11-609, 90/01-023	WD				29/1/90
B	C/N 89/08-421	WD				8/8/89
A	TEMP CNTRL MODS & REDRAWN CCT	J. F.				1/5/89
REV/ISS	AMENDMENTS	DRAWN	CHKD	D. O.	APVD	DATE

© TAIT ELECTRONICS

T859  
 RF SECTION

IPN: 220-01159-01 ISSUE: A 2 SC. 1

PROJECT: 859PAL1A DESIGNER: FILE NAME: 18/6/90 NO. SHEETS: 2



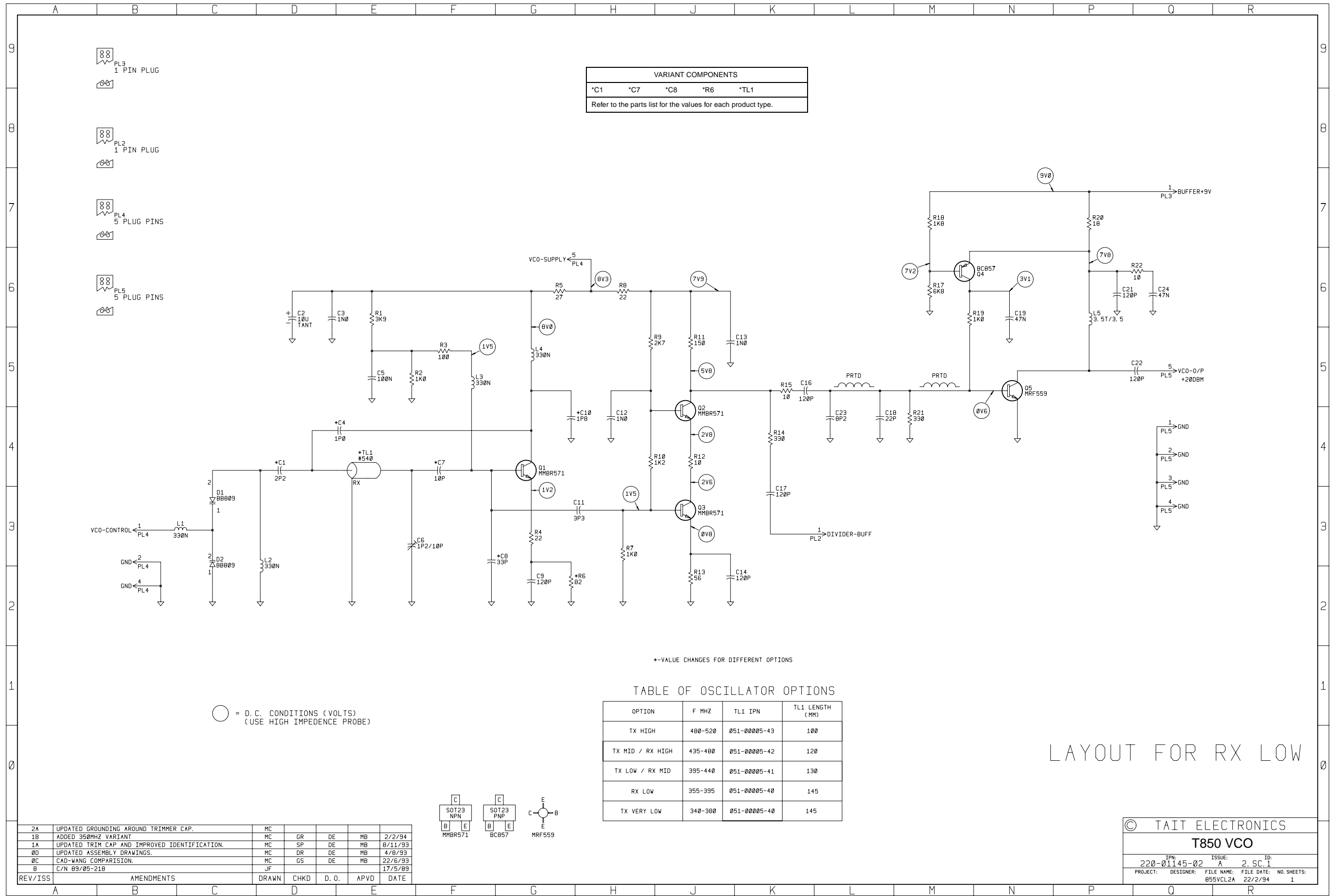
REV/ISS	AMENDMENTS	DRAWN	CHKD	D. O.	APVD	DATE
1A	C/N 90/06-252					7/6/90
C	C/NOTES 09/10-539, 10-547, 10-566, 11-581, 11-609, 90/01-023 WD					29/1/90
B	C/N 09/08-421					9/9/89
A	TEMP CNTRL MODS & REDRAWN CCT	J. F.				1/5/89

© TAIT ELECTRONICS

T859  
PWR/TEMP CONTROL

IPN: 220-01159-01  
ISSUE: A  
ID: 2. SC.2

PROJECT: 059PAL1A  
DESIGNER: FILE NAME: 18/6/90  
FILE DATE: NO. SHEETS: 2



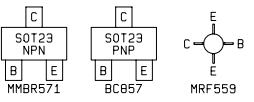
VARIANT COMPONENTS				
*C1	*C7	*C8	*R6	*TL1
Refer to the parts list for the values for each product type.				

\*-VALUE CHANGES FOR DIFFERENT OPTIONS

TABLE OF OSCILLATOR OPTIONS

OPTION	F MHZ	TL1 IPN	TL1 LENGTH (MM)
TX HIGH	480-520	051-00005-43	100
TX MID / RX HIGH	435-480	051-00005-42	120
TX LOW / RX MID	395-440	051-00005-41	130
RX LOW	355-395	051-00005-40	145
TX VERY LOW	340-380	051-00005-40	145

○ = D.C. CONDITIONS (VOLTS)  
(USE HIGH IMPEDENCE PROBE)



LAYOUT FOR RX LOW

© TAIT ELECTRONICS  
**T850 VCO**  
 IPN: 220-01145-02 A 2, SC. 1  
 PROJECT: DESIGNER: FILE NAME: FILE DATE: NO. SHEETS:  
 B55VCL2A 22/2/94 1

REV/ISS	AMENDMENTS	DRAWN	CHKD	D. O.	APVD	DATE
2A	UPDATED GROUNDING AROUND TRIMMER CAP.	MC	GR	DE	MB	2/2/94
1B	ADDED 350MHZ VARIANT	MC	SP	DE	MB	8/11/93
1A	UPDATED TRIM CAP AND IMPROVED IDENTIFICATION.	MC	DR	DE	MB	4/8/93
0D	UPDATED ASSEMBLY DRAWINGS.	MC	GS	DE	MB	22/6/93
0C	CAD-WANG COMPARISON.	JF				17/5/89
B	C/N 89/05-21B					

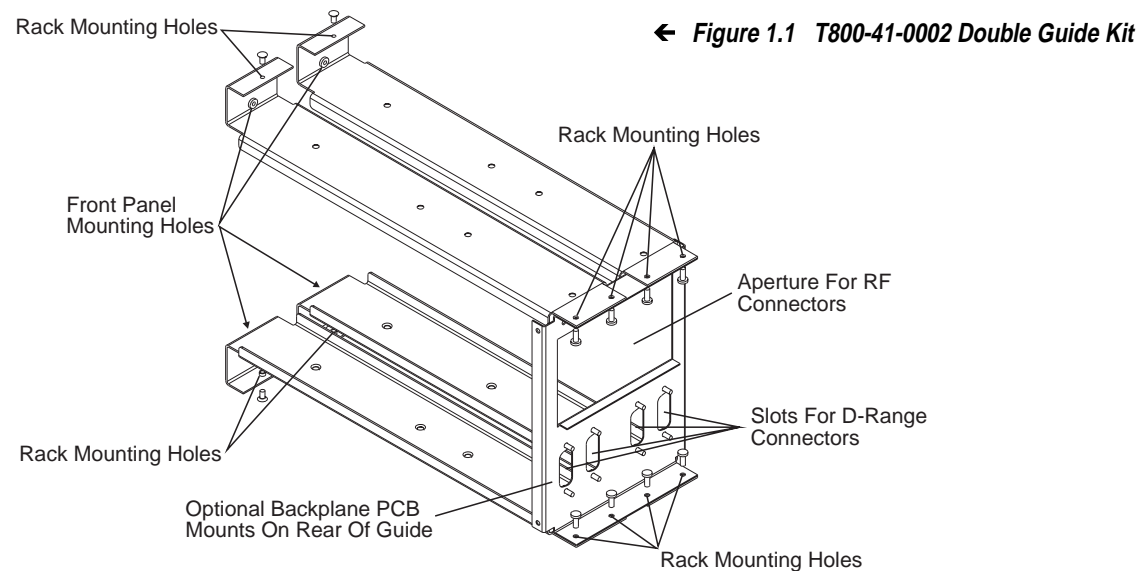


# 1 T855 Installation

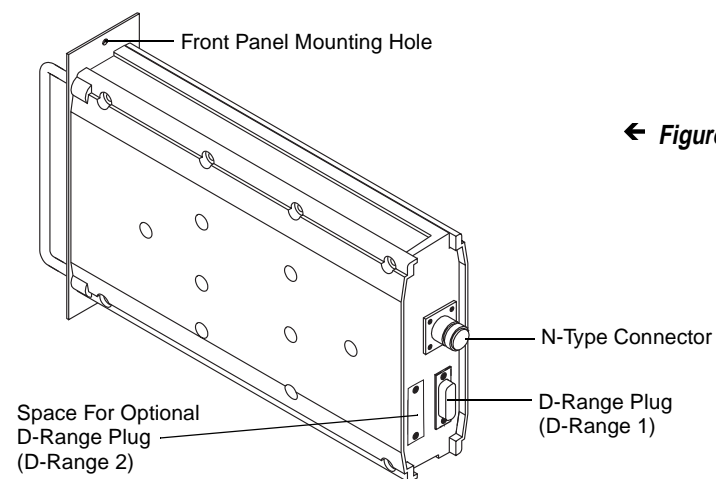
## 1.1 Rack Mounting

The T855 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 T855 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 Customer Service Organisation.

A rear mounted N-type connector is used for RF input on the T855, 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 T855 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.

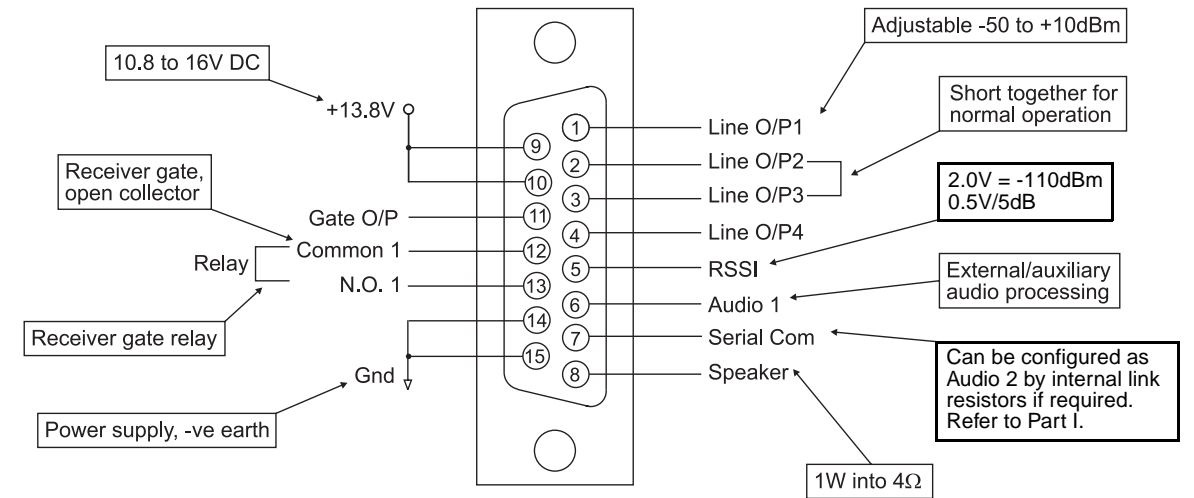


Figure 1.3 T855 D-Range 1 Wiring - Rear View

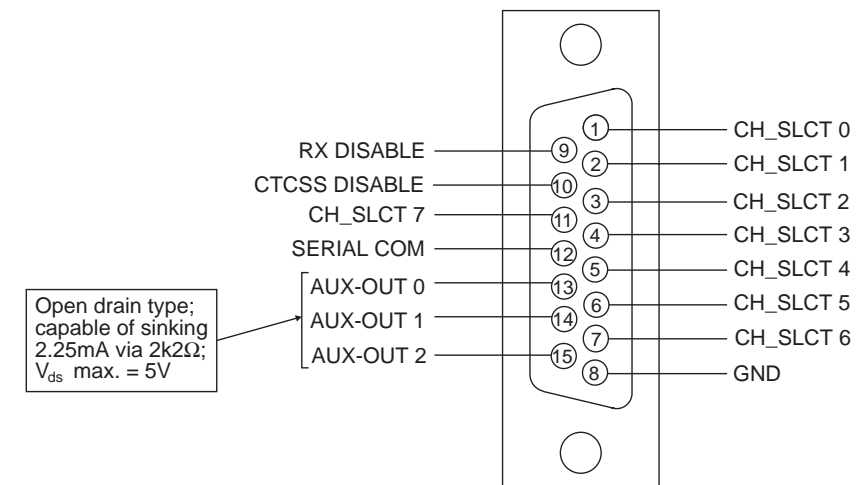


Figure 1.4 T855 D-Range 2 Wiring - Rear View (standard T800-03-0000 kit)

**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 T855 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.

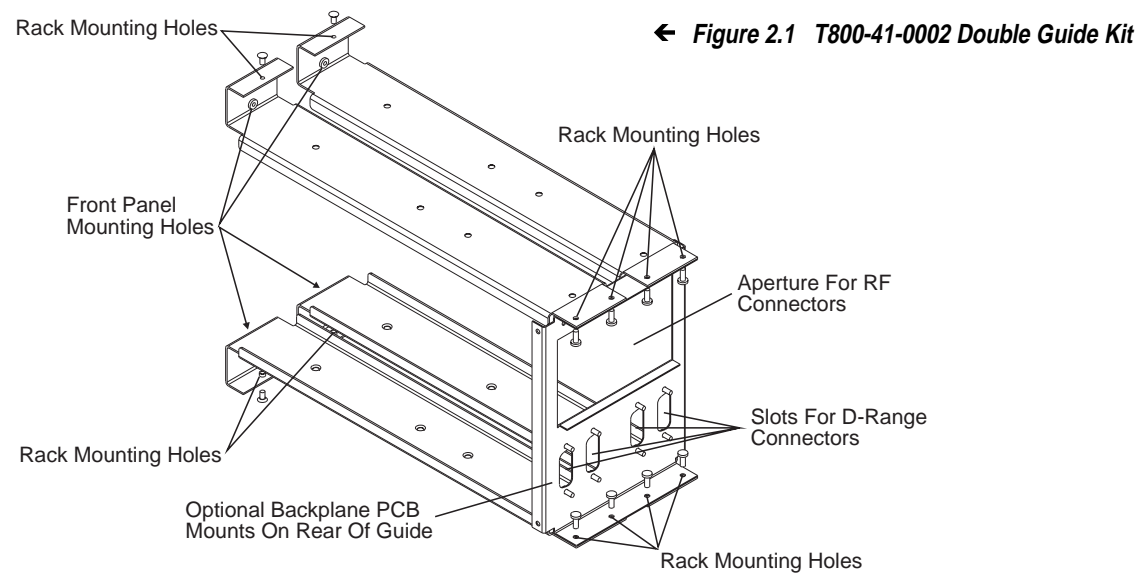


## 2 T856/857 Installation

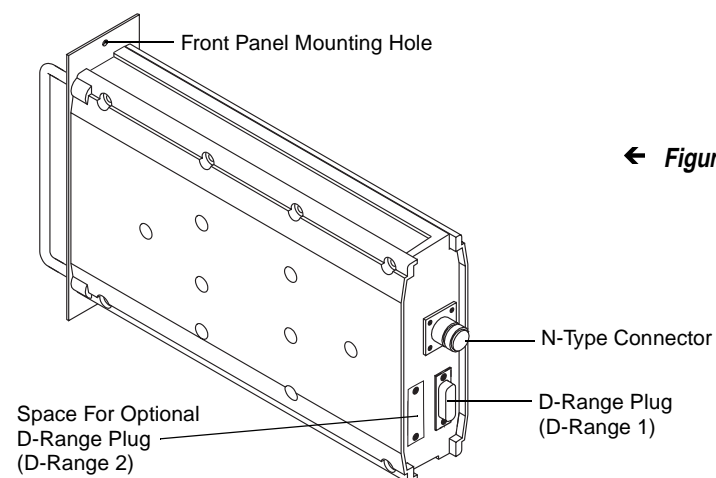
### 2.1 Rack Mounting

The T856 transmitter and T857 exciter are 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 T856/857 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 Customer Service Organisation.

A rear mounted N-type connector is used for RF output on the T856/857, 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 T856/857 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.

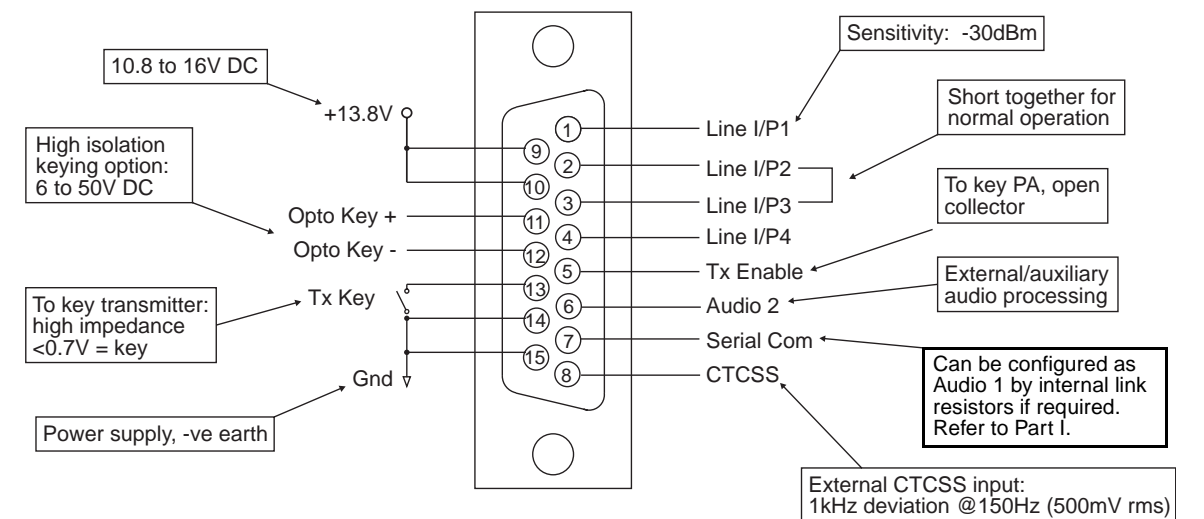


Figure 2.3 T856/857 D-Range 1 Wiring - Rear View

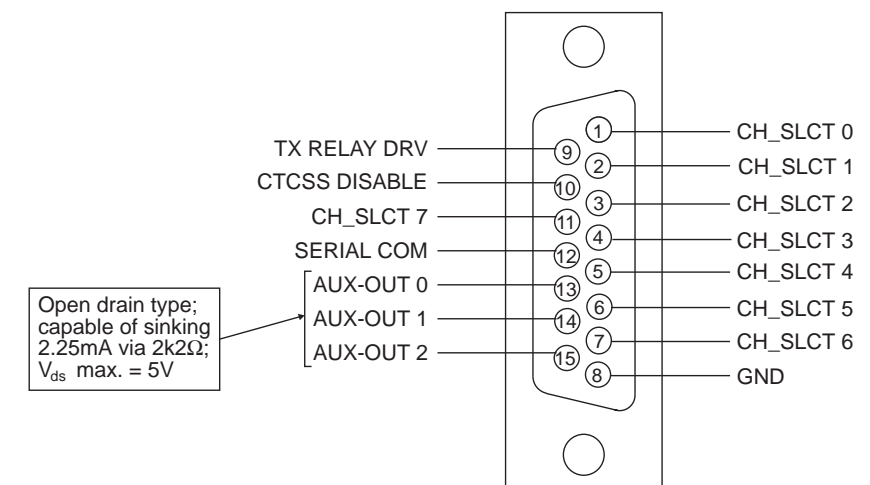


Figure 2.4 T856/857 D-Range 2 Wiring - Rear View (standard T800-03-0000 kit)

**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 T856 transmitters and T857 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 T858/859 Installation

## 3.1 Rack Mounting



**Caution:** If you require continuous operation of the T858, leave the rack module position immediately adjacent to the finned heatsink empty. There should be adequate airflow over the fins at all times. Extra airflow can be provided by fitting an auxiliary fan kit such as the T800-19-0010 (refer to the T800 Ancillary Equipment Service Manual or your nearest Tait Dealer or Customer Service Organisation for more details).

The T858 and T859 PAs are 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 two (T858) or four (T859) front panel mounting screws. Figure 3.1 shows the standard, double width guide designed for use with the T859, 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 Customer Service Organisation.

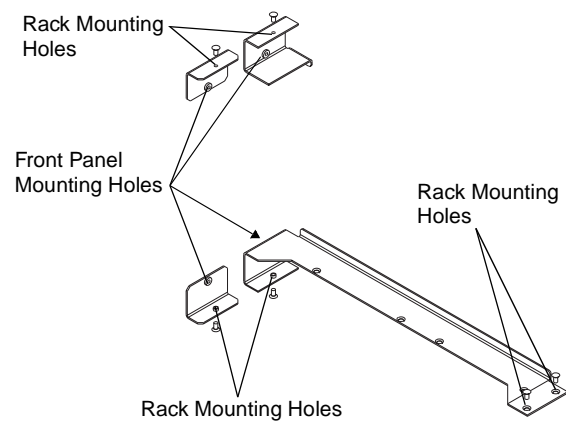


Figure 3.1 T800-45-0001 PA Guide Kit

The PA rear panel has three connectors: a BNC for RF input (from an adjacent T857 exciter), an N-type for RF output and a D-range for all DC, audio and control connections (refer to Figure 3.2).

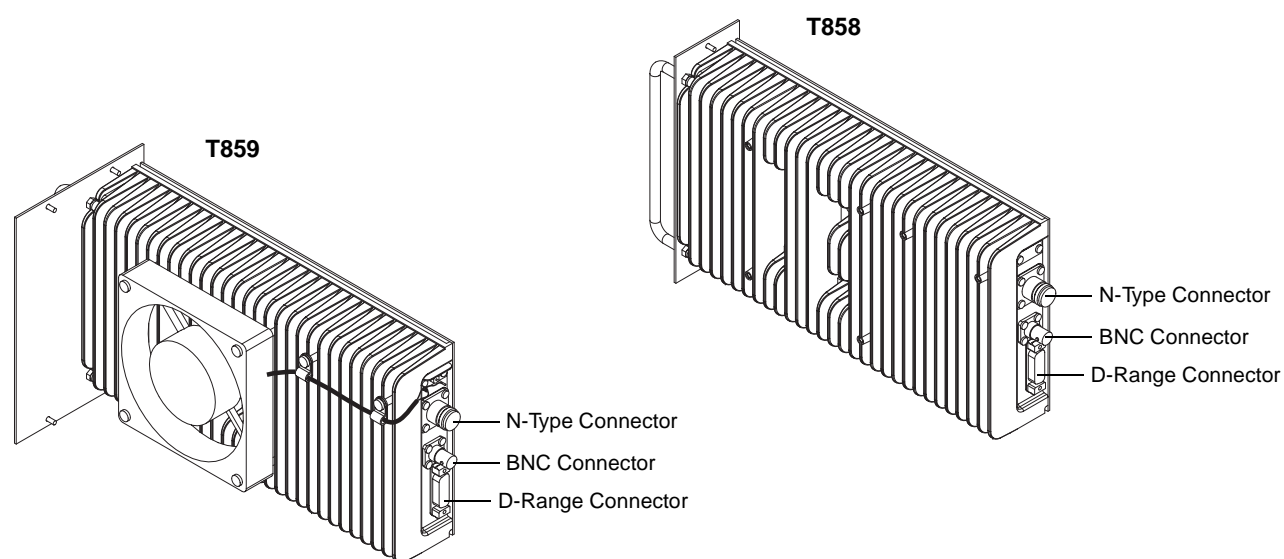


Figure 3.2 T858/859 Chassis Connectors

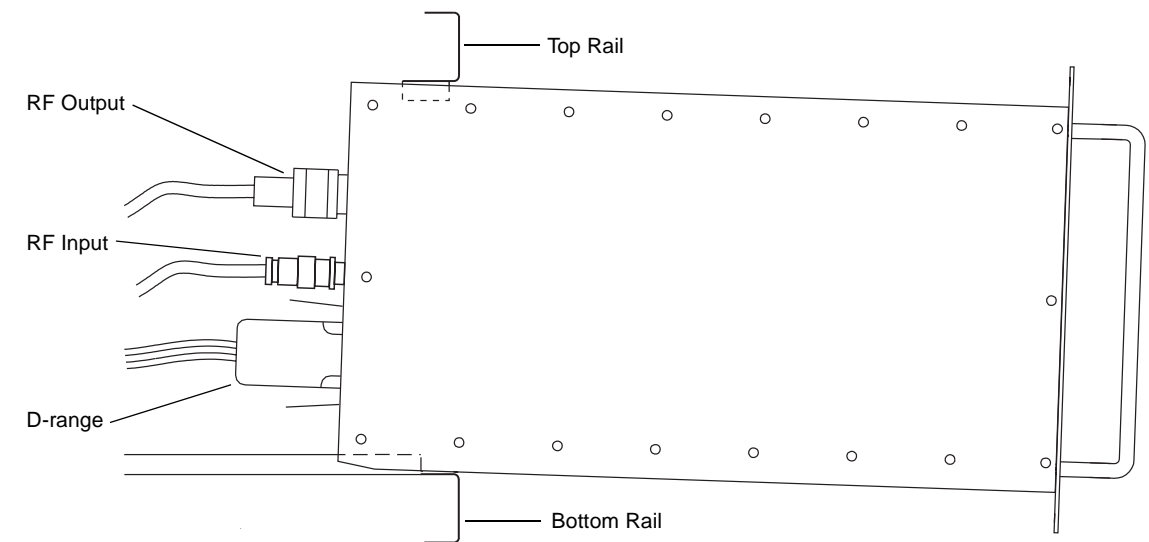


Figure 3.3 T858/859 PA In Latched Position

**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.

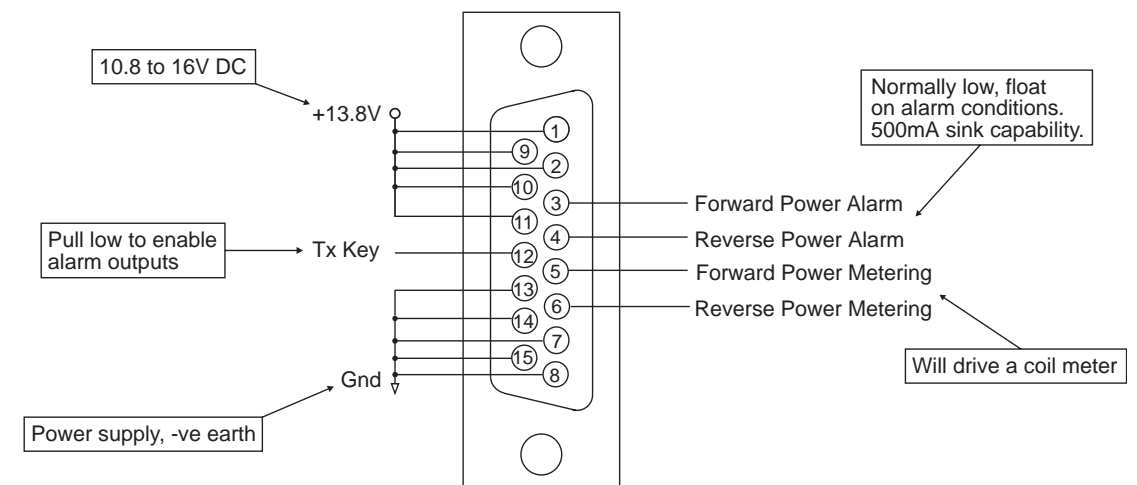


Figure 3.4 T858/859 D-Range Wiring - Rear View

### 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 T858/859 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.