SKANTI VHF 1000 Series

VHF 1000 DSC
VHF 1000 P DSC
VHF 1000 P

Workshop Manual

SKANTI

Contents

How to use this manual

This workshop manual provides technicians with detailed information on all the products of the VHF series.

The first section deals with the handsets. In addition to the installation manual and the two operator's manuals - one for each handset - this section contains mechanical descriptions, diagrams, and parts lists.

Section two deals with the transceiver units. Like the previous section, it contains information on installation, operation, mechanical descriptions, diagrams, and parts lists.

The subject of the third section is service. Here you will find details on maintenance, test equipment, trouble shooting, how to check the system performance, adjustment procedures, the replacement of modules, and necessary adjustments after the repair or replacement of modules.

Finally, section four of the VHF workshop manual deals with accessories: Extra control units, an alarm panel unit, a PC program for the installation and test of the system, an options connector box, and a SPARC-bus splitter box.

Please note:

Any responsibility or liability for loss or damage in connection with the use of this product and the accompanying documentation is disclaimed.

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PART 1
Handset control units
VHF 1000 P / VHF 1000 P DSC

Contents

1 General information, CU description

In the VHF 1000 programme, there are two handsets for remote operation:

Handset for VHF telephony CU 1000 P
- is a basic VHF handset with no DSC option. This handset is part of the VHF 1000 P system. It can be connected to the other systems of the VHF 1000 programme performing VHF voice communication.

Handset for VHF telephony including DSC CU 1000 P DSC
- is similar to the VHF handset, but in addition it offers the possibility of transmitting and receiving DSC calls CLASS D, including PSTN (Public Switched Telephone Network) calls via a coast station. This handset is part of the VHF 1000 P DSC system. It can be connected to the other DSC systems of the VHF 1000 programme, and can be used as an extra DSC terminal. In the hook there is a distress button and, in the US version, a 25W key.

2 Manuals

Installation Manual CU 1000 P / P DSC
Operator's Manual VHF 1000 P Pleasure VHF
Operator's Manual VHF 1000 P DSC Pleasure VHF with built-in DSC

3 Service

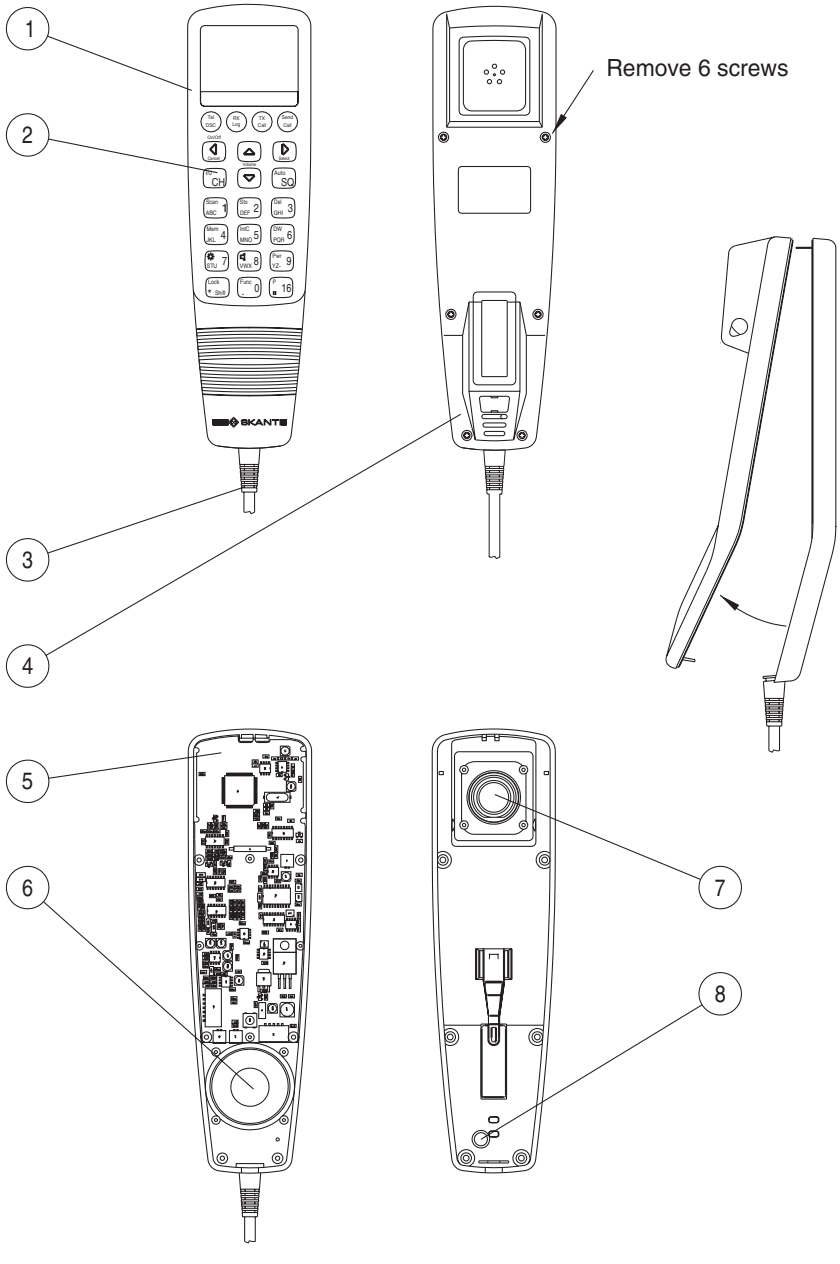
Please refer to part 3 of this manual: “Service”.

4 Mechanical description

Mechanical parts lists

POS	NAME	PART NO.
1	Upper part assembly for handset VHF 1000 P	733848
	Upper part assembly for handset VHF 1000 P DSC	733849
2	Keyboard buttons VHF 1000 P	48.774
	Keyboard buttons VHF 1000 P DSC	48.754
3	Spiral cable	56.155
4	Handset lower part	49.043
5	HxC AF & MMI unit 32263	632263
6	Loudspeaker. 8 OHM 1.5W ø40mm	46.031
7	Transducer dynamic 150ohm	46.008
8	Microphone spare part kit for handset, WP	46.003

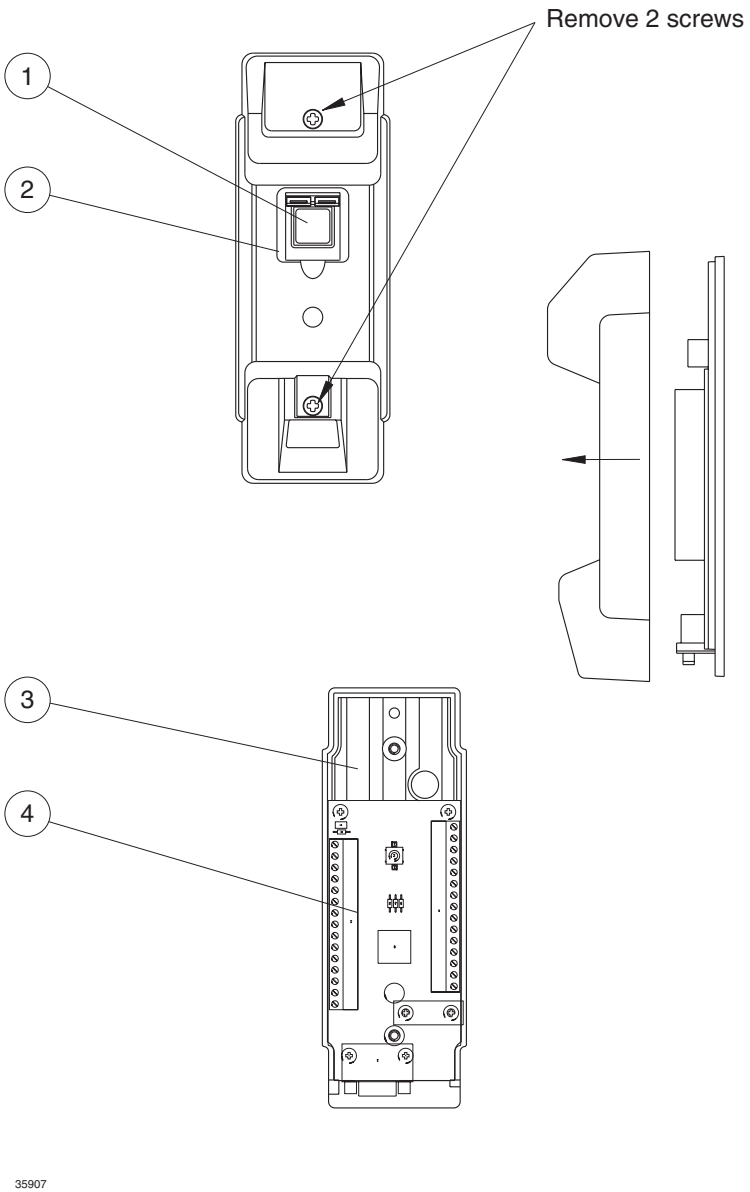
Exploded view CU 1000 P / CU 1000 P DSC



Mechanical parts lists

POS	NAME	PART NO.
1	Light guide for hook	48.759
2	Distress cover	48.771
3	Bottom plate for hook	48.801
4	Hook connection 32262	632262

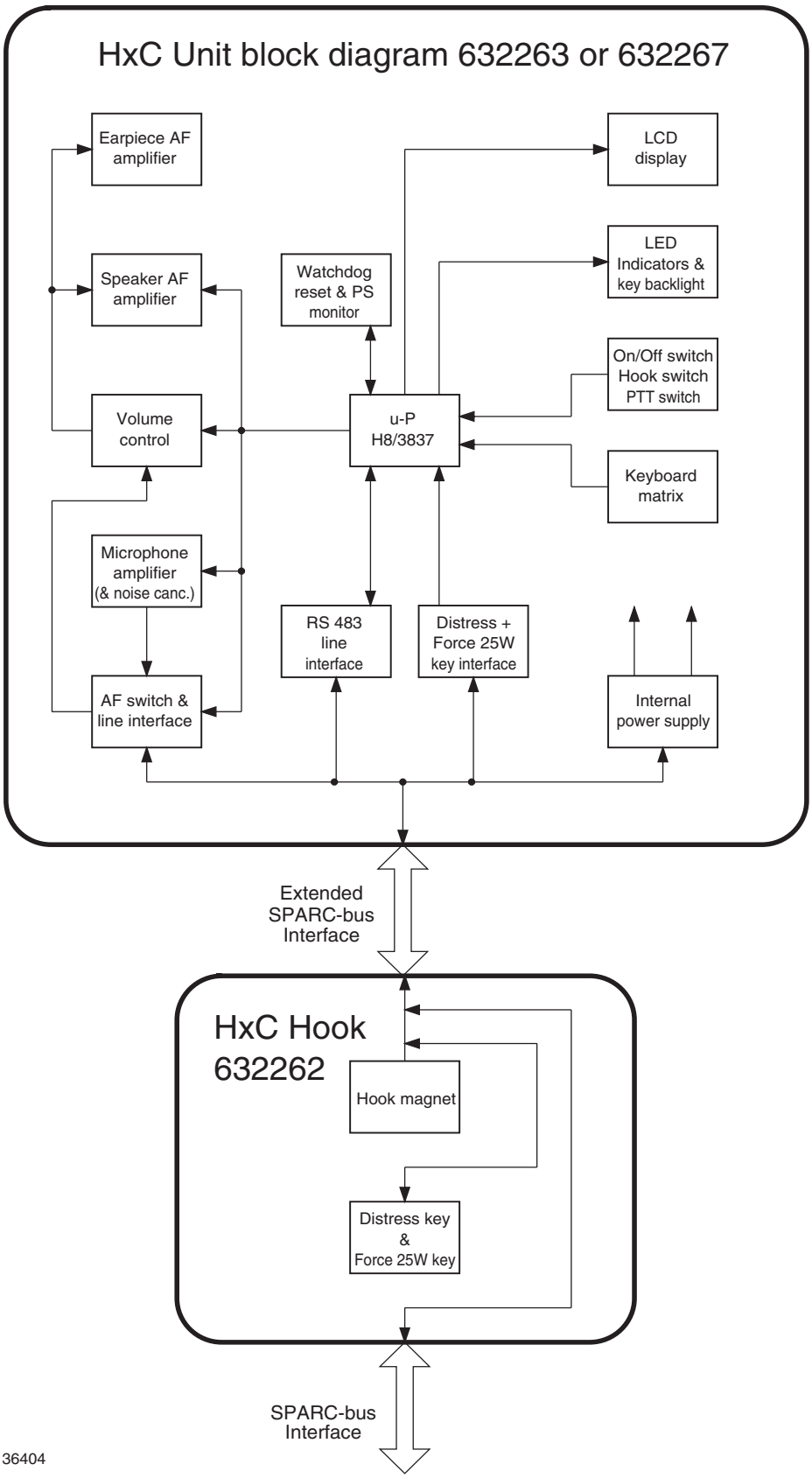
Exploded view Hook connection



5 Circuit description and schematic diagrams

Block diagram for handset control unit includig hook:

Printed circuit boards 32263/32267 and 32262.



A handset unit contains two printed circuit boards: A board placed inside the handset (shown in the HXC unit block diagram above), and a board placed in the hook (shown in the HXC hook block diagram above). The handset hook board functions as an interface board between the handset extended SPARC-bus interface and the SPARC-bus interface.

Specific description of hardware blocks

Microprocessor H8/3837 and on-board SPI interface.
The microprocessor in the handset is the HITACHI H8/3837 which has 2 Kb RAM and 60 Kb ROM.
The processor runs at a clock of 4.9152 Mhz, from crystal Z1.
The processor connects to and controls the following items:
Controls the display, controls the display backlight intensity, reads the keyboard,
reads other user switches (ON/OFF, PTT, HOOK, DISTRESS and FORCE25W),
controls audio (AF) switches etc., generates alarm tones, communicates serially to the SPARC-bus,
controls the volume, keyboard and indicator LED light levels, and controls the on-board power supplies, EEPROM and watchdog.

SPI data interface:
To control on-board peripherals N3 (attennuator), D2 (shift register) and D3 (EEPROM); a serial data interface of the SPI model is implemented by the microprocessor ports:
P3_3, p22: logic level output pin, data clock for serial communication.
P3_4, p23: logic level input pin; used for serial data input to the processor (from EEPROM).
P3_5, p24: logic level output pin; used for serial data output to the controlled devices.
Additionally also the following control pins are used for the SPI peripherals:
P3_0, p19: logic level output pin; enables the outputs of D2.
P3_1, p20: logic level output pin; latches in signal for D2 to set outputs according to last 8 data bits.
P3_7, p26: logic level output pin; chip selection for N3 to latch in serial data bits.
P3_2, p21: logic level output pin; chip selection for D3 to activate its latches.

RS 483 line interface
The RS 483 line interface is used as the communication channel by which the handset control unit receives and sends information to the transceiver unit or other control units placed at the SPARC-bus. The packet description is available in the document: SPARC-bus command specification. The line interface is a serial interface; the microprocessor uses its serial port 3 to receive and send data to the bus via the interface, which converts 0-5V levels to RS483 levels according to data sheet of Maxiim Max483 line interface driver.
Four microprocessor pins are used to complete the serial interface connecting to the SPARC-bus data line interface:
P1_6, p83: logic level, interrupt falling edge input pin for SPARC-bus packets interrupts.
P4_0, p85: logic level output pin; used to enable the TX part of the RS483 data line interface unit D5.
P4_1, p86: logic level input pin; used as serial data receiver pin for SPARC-bus data.
P4_2, p87: logic level output pin; used as serial data transmitter pin for SPARC-bus data.

LCD display & display backlight
The LCD display is a custom-built display consisting of 160 different segments forming symbols, VHF channel indication, and an information line of nine characters.
The display is controlled/driven directly from the microprocessor H8/3837.
Port A, p35-p32 : 4 display common pins
Port 5, p36-p43 : 8 display segment pins
Port 6, p44-p51 : 8 display segment pins
Port 7, p52-p59 : 8 display segment pins
Port 8, p60-p67 : 8 display segment pins
Port 9, p68-p75 : 8 display segment pins

The display backlight intensity is controlled directly from the microprocessor by a PWM output:
The PWM is used to set up 10 different display backlight levels including OFF. The PWM is controlled by the dimmer function. Each dimmer level (0-3) has a predefined setup intensity level (0-9) of the display backlight.
P1_4, p81 is used to output PWM signal to set the comparison level of N7-A op-amp which controls the current flow of the display backlight diodes (V1 and V28).

Indicator LEDs and keyboard backlight
The HxC unit has 3-5 indicator LEDs, placed right below the LCD display, to inform the user of the current operation state.
From left to right:
TX red. **1W** red. **US/BI** yellow. **CALL** green. **ALARM** red.
The intensity of the LEDs can be adjusted in four different steps. This feature is implemented as a 4 step constant voltage regulating circuit perfomed by the op-amp N7-b. N7-b gets V-set at IN+ and V-feedback at IN-, thus controlling the transistor V22 to output a constant voltage at its emitter pin. The five LEDs are fed by the transistor V22 and the serial shift register D2 controls the LEDs' on/off function and the V-set of the op-amp.
The keyboard backlight is controlled by the circuit of op-amp N7-c, transistor V20 and R54, performing a constant current generator for the keyboard backlight diodes V9-V13, V16, V21 and V23-V27.
P1_5, p82: logic level output pin. The light is turned on/off by the logic level signal KEYB_LIGHT_ON.
The on-board serial interface (SPI) is used to set up shift register D2.
The light intensity is set by shift register D2 through resistor divider of R22,R25 and R44,R50 feeding V-set to op-amp N7-c IN+.

ON/OFF switch, hook switch & PTT switch
1. **ON/OFF switch:** The switch S17 generates logic level signals according to pushed/not pushed informing the micro-processor (ON/OFF_DET): **PC_0**, p98 and the transceiver unit in the VHF 1000 system (SUPPLY_ON) via the SPARC-bus.
2. **Hook switch**: The switch K1 (reed relay) generates logic level signal according to handset on hook or not, informing the microprocessor by the signal (HOOK): **PC_2**, p100.
3. **PTT switch**: The switch S15 generates logic level signal according to PTT pushed/not pushed informing the micro-processor by the signal (PTT): **PC_1**, p99:

DISTRESS + FORCE25W key interface
The DISTRESS key and the FORCE25W key are read from the extended SPARC-bus plug pin X3-1 via an analogue input pin at the microprocessor (D4 pin 1). The EXT-KEY_INPUT at the microprocessor is, by default, pulled to +5VA by R16 when no key is pushed. When a key is pushed (placed at the hook print) a resistor divider is performed by R16 and a key corresponding resistor in the hook print, changing the voltage level of the signal EXT-KEY_INPUT.
Voltage levels are determined by a key pushed as shown below. The minimum level is included in the specific window.
PC_3, p1: input of DISTRESS key and FORCE25W key, placed at the hook PCB (analogue level window).

Key according to	input threshold levels min/max [V]
no key	3.5/5.0
DISTRESS	2.8/3.5
FORCE25W	2.2/2.8
DISTRESS+FORCE25W	1.5/2.2

Keyboard matrix
To control the keyboard for the key scanning to function, 11 I/O pins are used forming an 3*8 keyboard matrix structure. The keyboard matrix covers the 22 keys forming the handset keyboard.
P2_0 - P2_2, p11-p13: are used as **level output** pins (logic level) for the 3 columns in the keyboard matrix. Each output is toggled in sequence.
Port B, p90-p97: are used as **level input** pins (logic level) for the 8 key rows in the keyboard matrix, detecting individual key states, pushed/not pushed for every P2_X output sequence.
The microprocessor toggles each column 0-5V at duty cycle 1/3, detecting key pushes at each row of input pins according to the exited column. The read key task runs every 10 milliseconds, so each key is read every 30 milliseconds.

Internal power supply
There are three different internal power supplies. Each supply is generated from the SPARC-bus supply line named V-BAT in the diagram. The incoming voltage V-BAT is fused on board by F1:
+5VA: This voltage is used to feed all digital circuits on the board. It is always present when +12V is present at the SPARC-bus and the handset is connected. IC N1 outputting +5V DC at pin_1

+5V: This voltage is used to feed the circuits generating audio and light. The supply is only active if any light or audio is turned on. The supply can be switched on/off by the transistor V15, which is controlled by the microprocessor port **P2_5**, p16 signal ON/OFF_FET.
+5V is generated by the IC N5 performing +5V DC.

+8V: This voltage is used to feed the circuits generating audio and light.
The supply is only active if any light or audio is turned on. The supply can be switched on/off by the transistor V15, which is controlled by the microprocessor port **P2_5**, p16 signal ON/OFF_FET.
+8V is generated by the IC N6 performing +8V DC at pin_1.

+2,5V: This voltage is used as virtual ground reference for the audio circuits on the board.
+2.5V DC is generated by the op-amp N7-D, setting the voltage according to the voltage +5V and the voltage dividing resistors R56-R60.

Also, an individual “power supply” is implemented for the microphone amplifier circuit.
D2_7 functions as power supply output pin to the microphone amplifier circuit, making it possible to switch the circuit on only when needed (the PTT key is pushed).

Watchdog reset & power supply monitor
To monitor the on-board power supplies and proper program execution of the microprocessor, the watchdog D1 is implemented. The watchdog is connected to the microprocessor D4 by 4 ports. The watchdog features are:

1. Watching the +12V supply from the SPARC-bus (PFI pin4). Informing the microprocessor if voltage fades (PFO pin 5)
   P4_3, p88: logic level interrupt input pin, power fade (not OK) or power rise (OK) indicating SPARC-bus power supply.
2. Watching the +5VA supply (VCC pin 2). Resetting microprocessor if fading.
   RESET, p9: logic level input pin, resets the microprocessor when logic low.
3. Watching proper program execution of the H8/3837. (WDI pin 6). Resetting the microprocessor (by WDO to MR input) if toggle signal at WDI stops.
   Microprocessor **P2_4**, p15: logic level output pin, ALIVE signal to the watchdog, indicating proper microprocessor performance, i.e. toggled either up or down at least once every 1.6 seconds.
4. Generating reset signal to the microprocessor when MR (pin 1 manual reset) is pulled logic low by the microprocessor. **P2_3**, p14: logic level output pin, ON/OFF_RESET signal to the watchdog, getting the watchdog to generate a reset sequence back to the microprocessor.

AF switch & line interface
Reception of signals:
RX_AF, audio from the receiver:
To route the received signal from the SPARC-bus to the speaker/earpiece, the signal first passes the RX/LF line interface circuit (an audio filter, SPARC-bus balanced to unbalanced converter and LF switch) implemented by the op-amp N9-A and the switch N8-A. N9-A realizes a filter function of 6 dB/oct for de-emphasis. It also converts the balanced SPARC-bus signal to single-ended on-board signal.
P3_6, p25: logic level; sets N8A switch, used to route the received signal to the handset loudspeaker and earpiece during VHF telephony.
AF, audio to/from the control units:
When control unit intercom is carried out, switch N8-B routes the audio signal through the AF line interface circuit implemented by N9-B, (an audio filter and SPARC-bus balanced to unbalanced converter).
P1_3, p80: logic level; sets N8-B switch. When an intercom between control units is carried out, this switch routes the TX audio from the SPARC-bus to the handset loudspeaker/earpiece.

Transmission signal:
The transmission signal is generated in the microphone, amplified by N11-A and converted to balanced SPARC-bus signal by the circuit around N10.
P2_6, p17: logic level; disables N10 which functions as buffer and single/balance signal converter for the microphone signal to the SPARC-bus audio signal.

Earpiece AF amplifier
N2-B amplifies/buffers the AF signal from the attenuator N3 to drive the earpiece unit.
The amplifier delivers approximately 4 mW of power into the earpiece unit.

Microphone amplifier (& noise canceller)
N11-A amplifies/filters the signal from the microphone unit to the level used at the SPARC-bus AF lines.
P1_0, p77: logic level; sets N8C switch
P1_2, p79: logic level; sets N8D switch
Used as attenuation feed through of microphone signal during intercom dB, and for monitoring during normal VHF telephony.

Volume control
Volume control is performed by the attenuator N3. Inside N3 there are two independent signal attenuators, one used for the speaker signal and one for the earpiece signal.
The microprocessor sets the attenuation levels by transmitting control codes to N3, using the on-board serial interface.

Speaker AF amplifier
The audio signal to the speaker is buffered/amplified by the circuit around N2-A and N4.
The output signal from the attenuator N3 is buffered by op-amp N2-A, feeding the speaker amplifier N4.
N4 delivers approximately 245 mW of power into the speaker unit.
P2_7, p18: logic level; disables N4 which is the handset loudspeaker amplifier.

Alarm tones
The microprocessor generates alarm tones to the handset loudspeaker and earpiece.
P1_1, p78: is used as alarm tone output pin. The output signal is a square wave logic level (0-5V) signal; the square wave frequency sets the output tone.

HXC hook connection 32262
The hook connection board functions as interface to/from extended SPARC-bus/SPARC-bus. It also contains the DISTRESS button for the handset unit and the FORCE25W button for handsets using the US channels.

Connection description:
X1 & X3: SPARC-bus connection, to/from system.

Pin 1:	SUPPLY_ON	ON/OFF pulled low when turning on
Pin 2:	SPARC+	RS483 data line
Pin 3:	SPARC-	RS483 data line
Pin 4:	AF+	Audio TX and intercom
Pin 5:	AF-	Audio TX and intercom
Pin 6:	GND	System supply ground, battery-
Pin 7:	+12V DC	System supply
Pin 8:	RX_AF+	Received audio
Pin 9:	RX_AF-	Received audio
Pin 10:	+12V DC	System supply
Pin 11:	LS_1+	Loudspeaker 1 audio
Pin 12:	LS_1-	Loudspeaker 1 audio
Pin 13:	GND	System supply ground, battery-
Pin 14:	LS_2+	Loudspeaker 2 audio
Pin 15:	LS_2-	Loudspeaker 2 audio

X2: Extended SPARC-bus connection (to/from handset unit).

Pin 1:	SUPPLY_ON	ON/OFF pulled low when turning on
Pin 2:	SPARC+	RS483 data line
Pin 3:	SPARC-	RS483 data line
Pin 4:	AF+	Audio TX and intercom
Pin 5:	AF-	Audio TX and intercom
Pin 6:	GND	System supply ground, battery-
Pin 7:	+12V DC	System supply
Pin 8:	RX_AF+	Received audio
Pin 9:	RX_AF-	Received audio
Pin 10:	KEY_LIGHT	To drive backlight in DISTRESS button from the handset
Pin 11:	EXT_KEYINPUT	Voltage level for handset to detect key pushes at hook
Pin 12:	EARTH	
Pin 13:	EARTH	
Pin 14:	EARTH	
Pin 15:	EARTH	

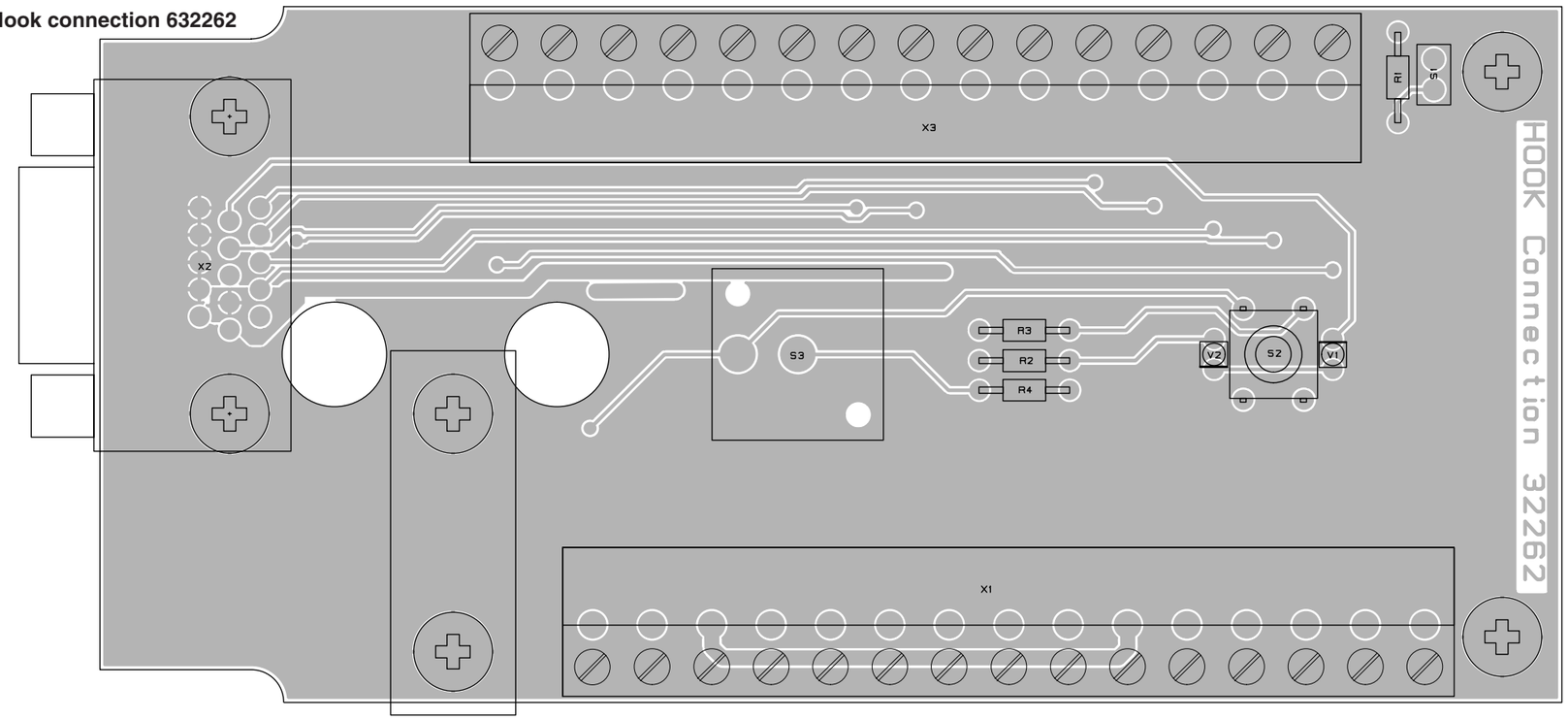
DISTRESS button backlight:
Driven from the handset, V1 and V2 function as backlight for the DISTRESS button.

DISTRESS button and FORCE25W button:
S2 functions as DISTRESS button, setting a specific voltage level at X2 pin 11 when pressed.
S3 functions as FORCE25W button, setting a specific voltage level at X2 pin 11 when pressed.
The voltage levels are described in the section DISTRESS + FORCE25W key interface.

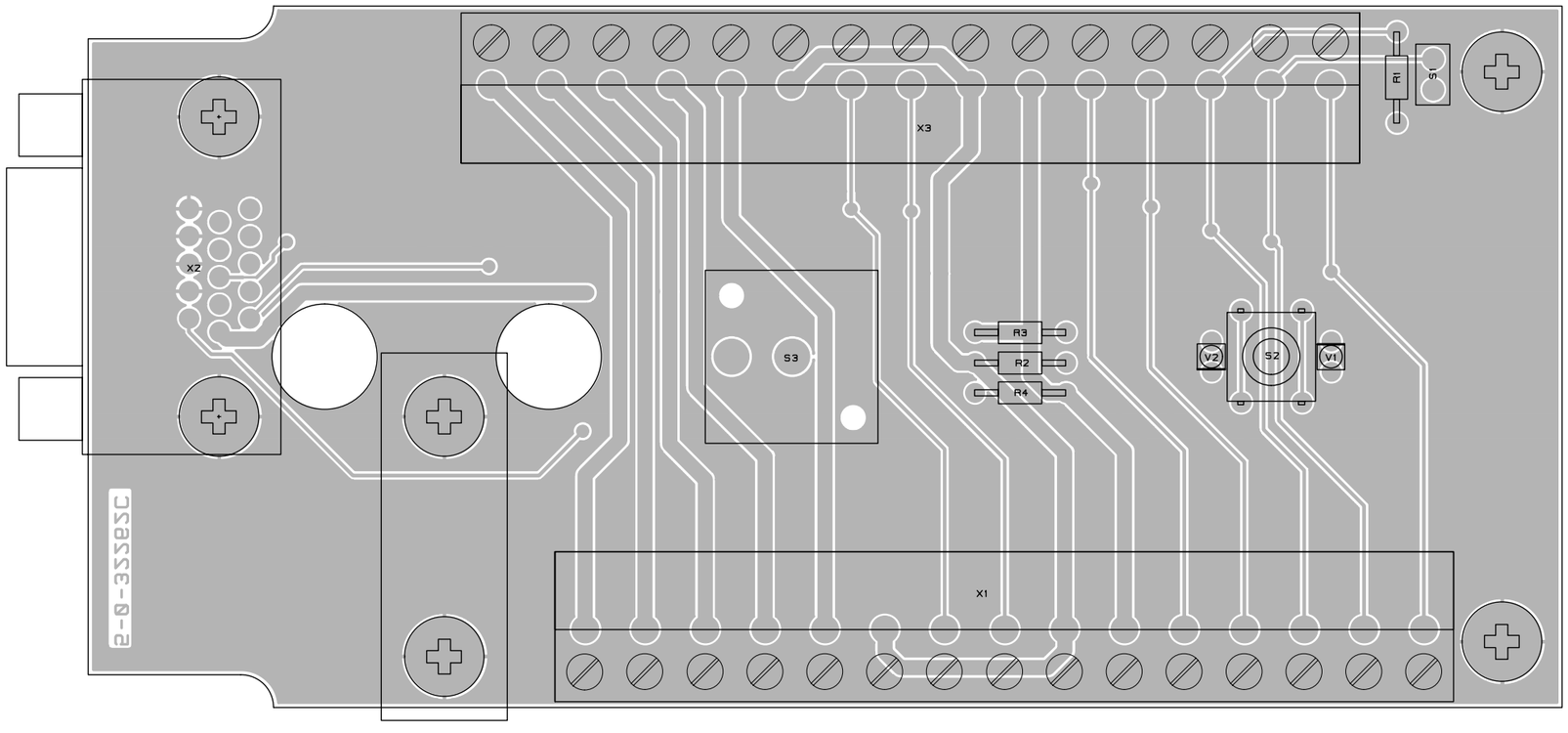
The jumper S1 can be used to terminate the SPARC-bus data lines when hook is placed at the end of the SPARC-bus connection cabling.

5.1 Hook connection 632262

Component location Hook connection 632262



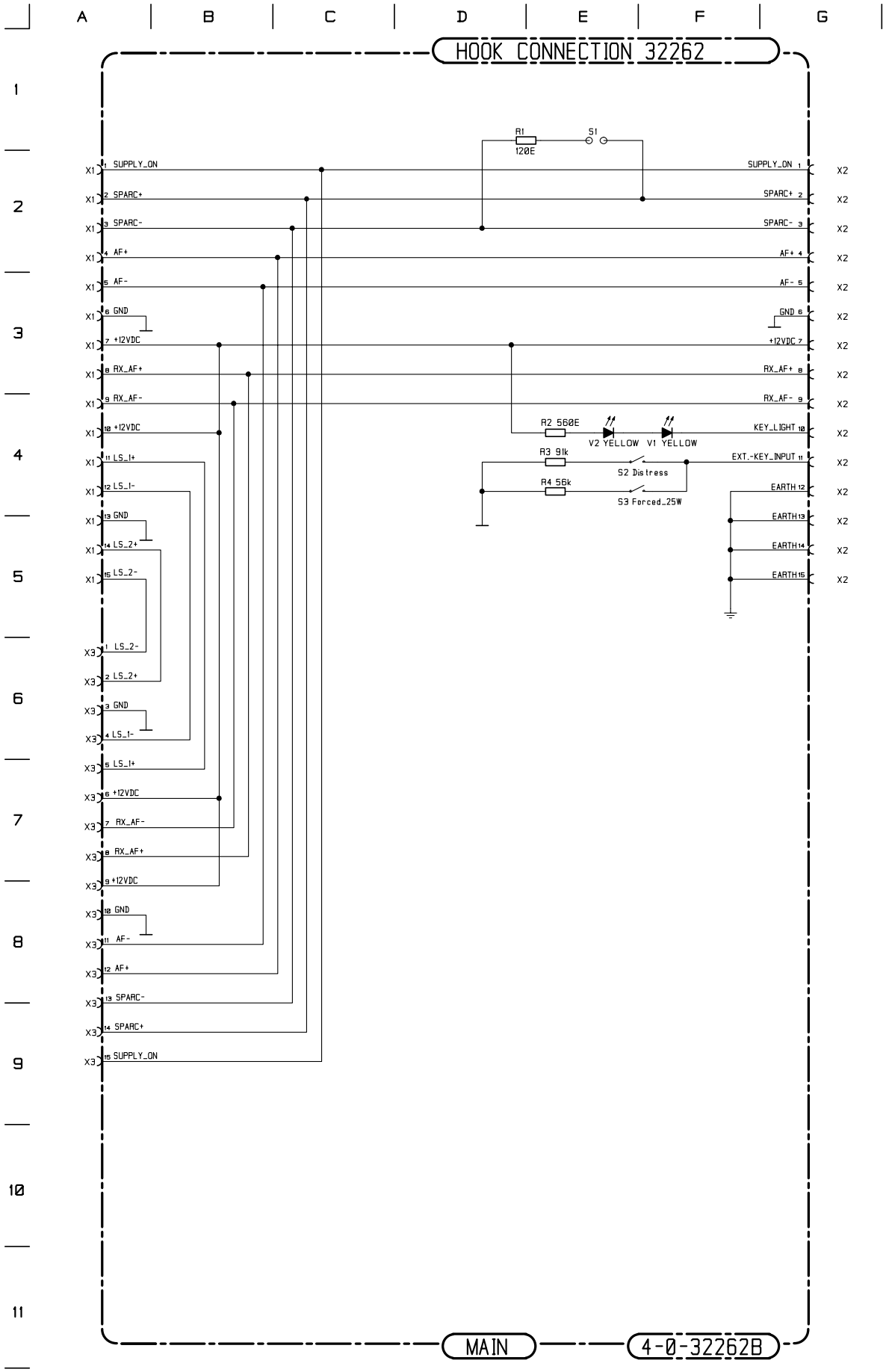
Seen from primary side
with primary side tracks.



Seen from primary side
with secondary side tracks.

PCB rev. 32262C

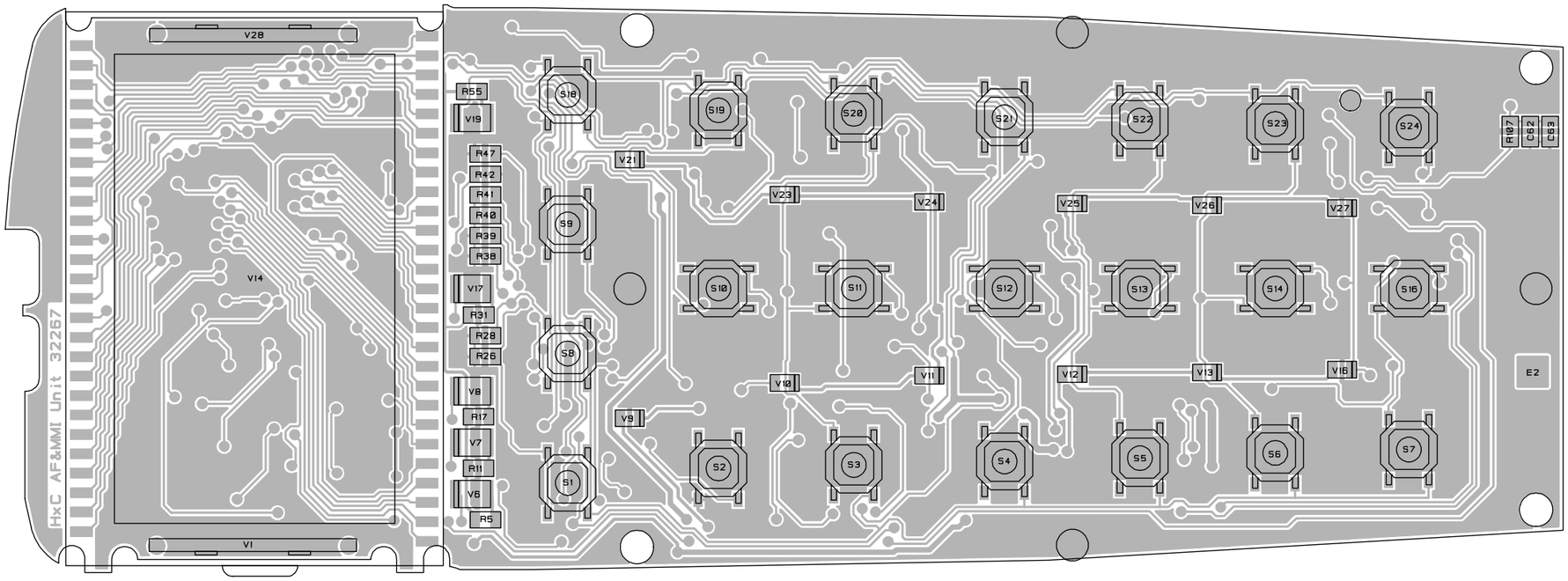
Hook connection 632262



This diagram is valid for PCB rev. 32262C

5.2 HxC AF & MMI unit 632267

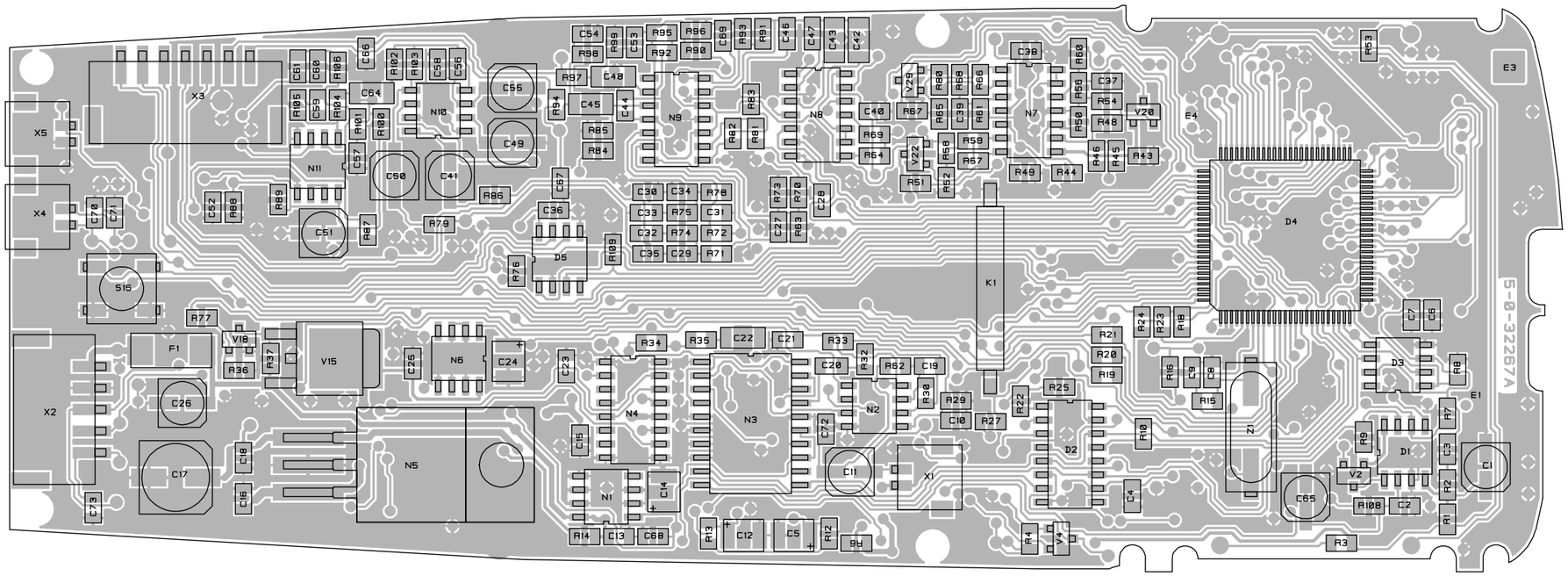
Component location HxC AF & MMI unit 632267



Seen from primary side with primary side tracks.

PCB rev. 32267B

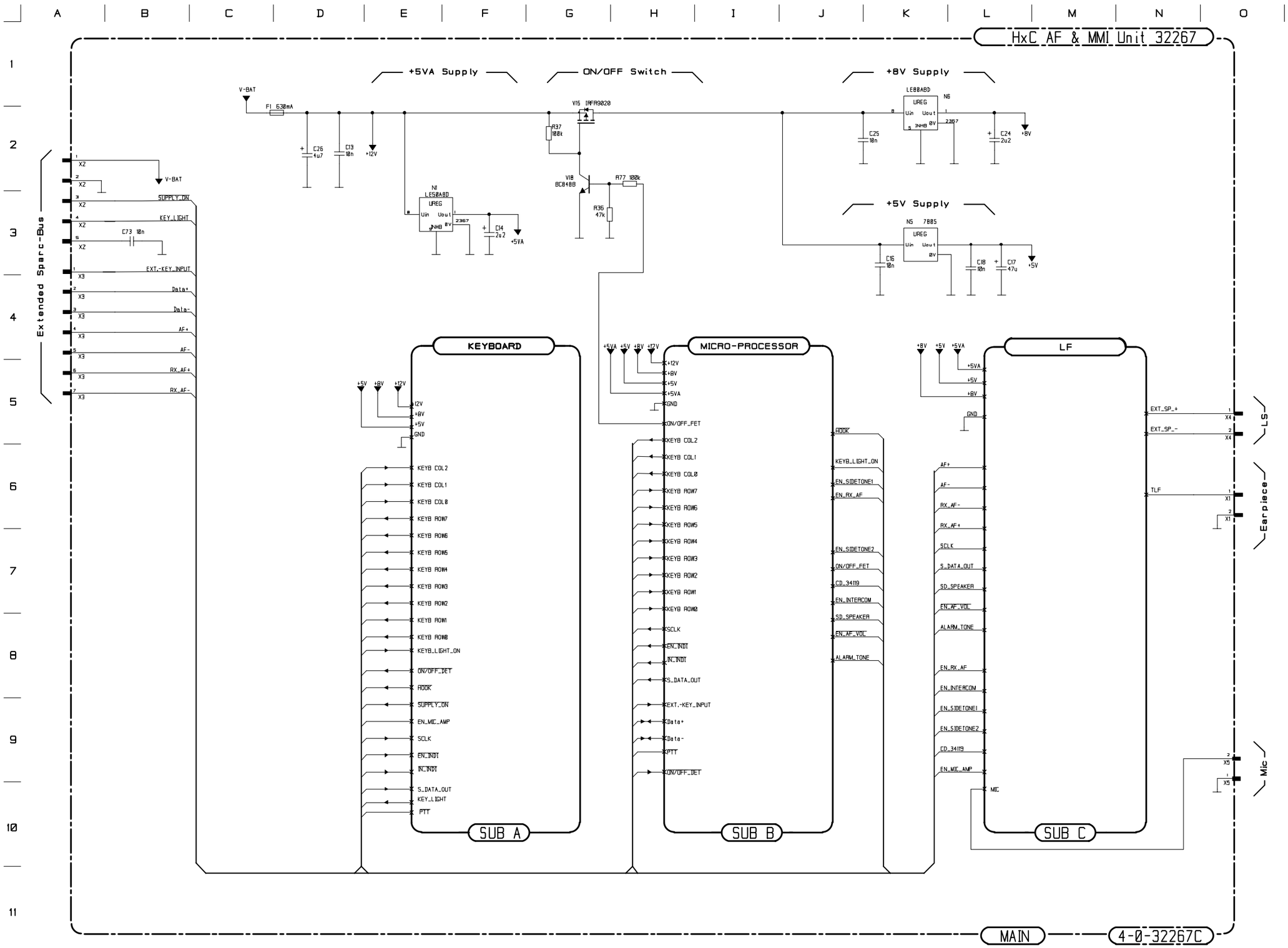
Component location HxC AF & MMI unit 632267



Seen from secondary side with secondary side tracks.

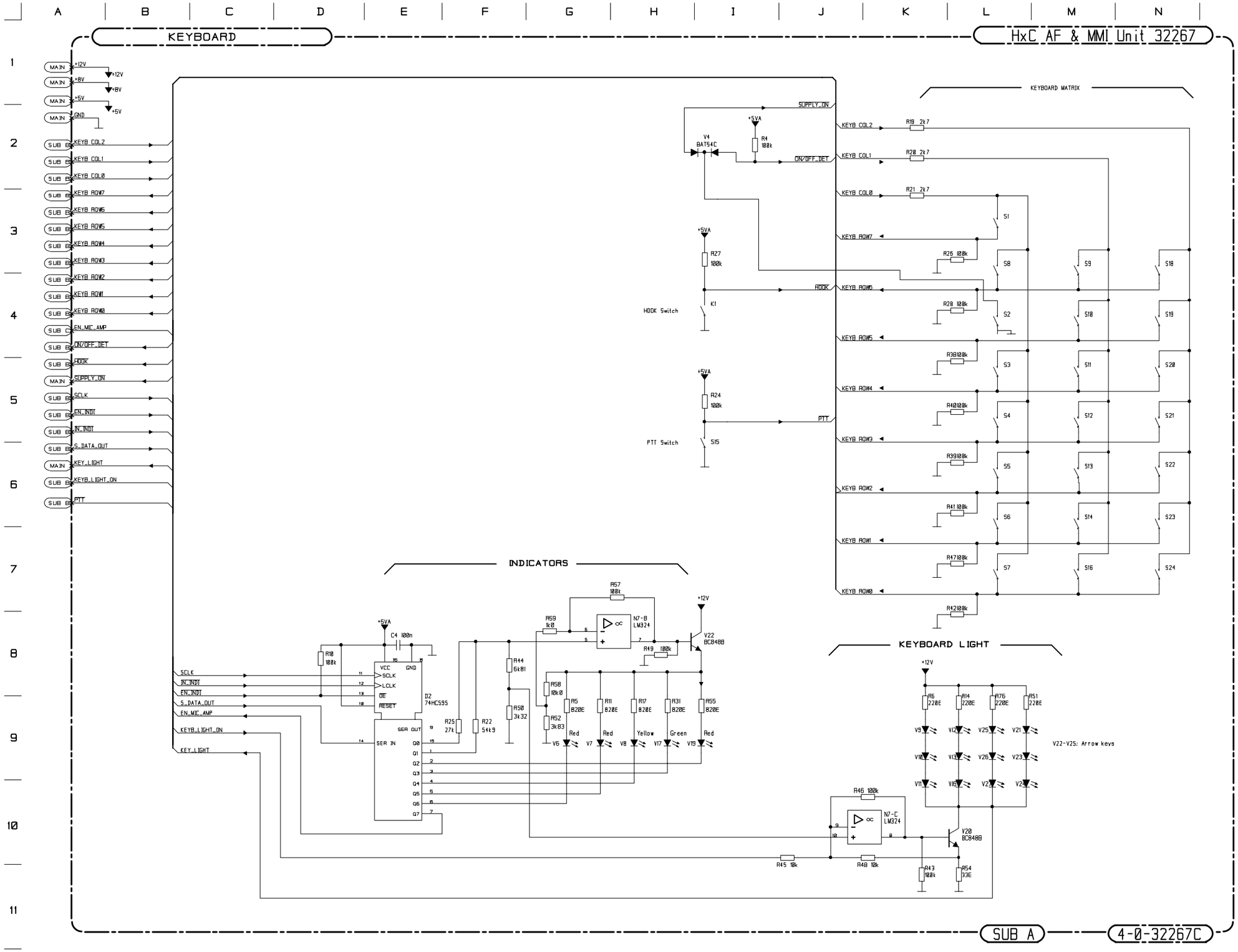
PCB rev. 32267B

HxC AF & MMI unit 632267



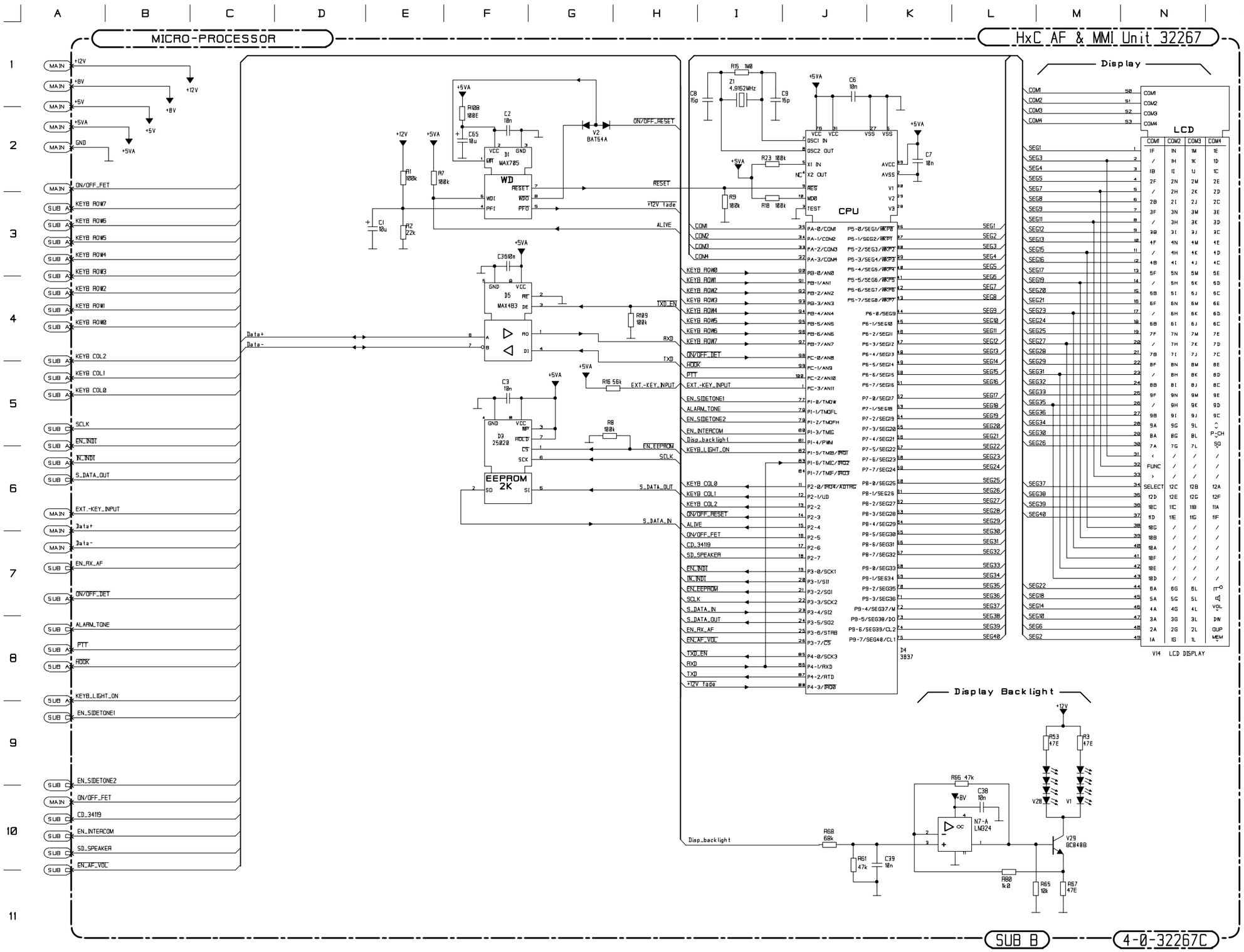
This diagram is valid for PCB rev. 32267B

HxC AF & MMI unit 632267



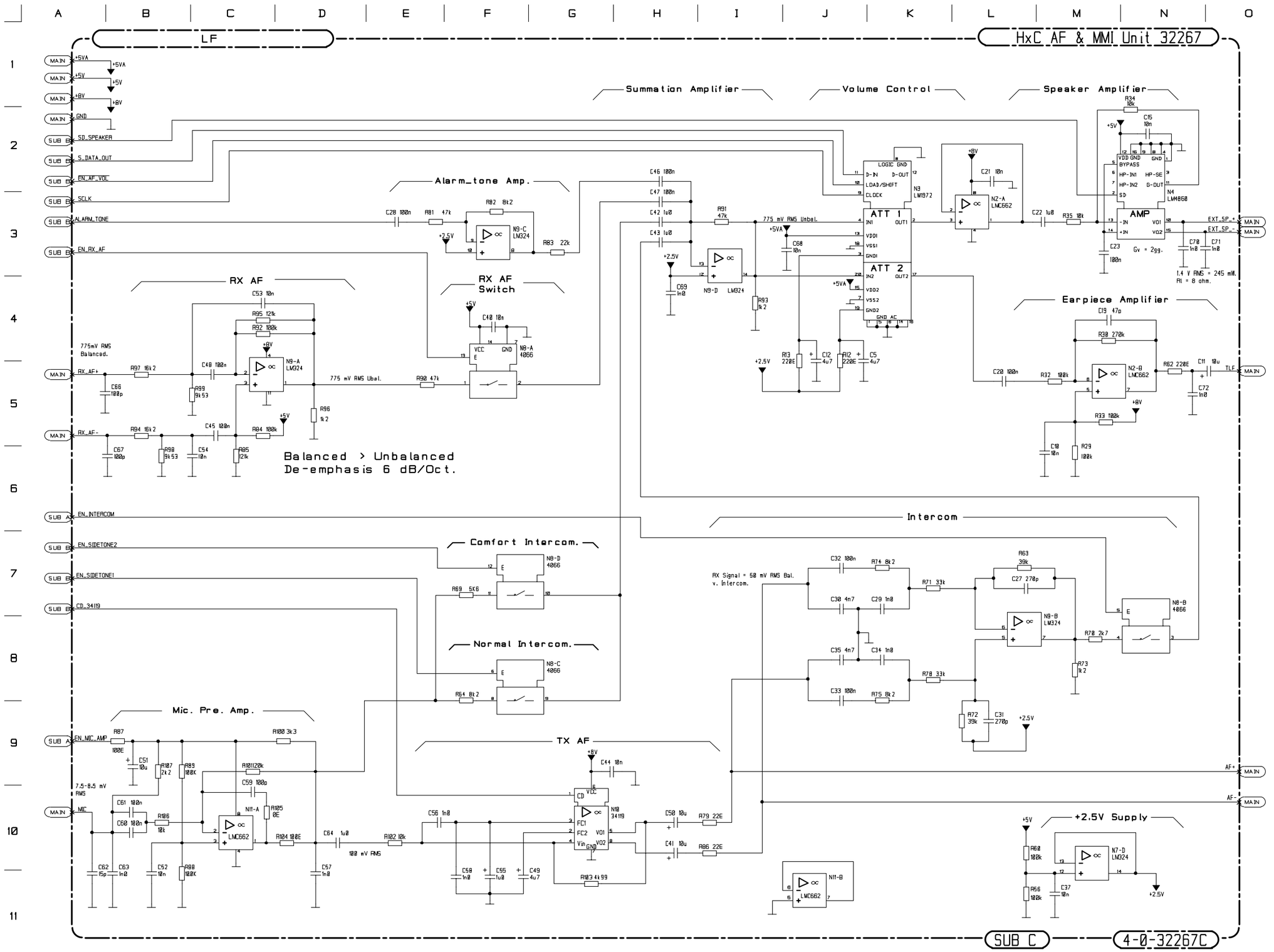
This diagram is valid for PCB rev. 32267B

HxC AF & MMI unit 632267



This diagram is valid for PCB rev. 32267B

HxC AF & MMI unit 632267



This diagram is valid for PCB rev. 32267B

6 Parts lists

HOOK CONNECTION 32262	ECI A/S	5-x-32262C / 4-0-32262B	632262

POSITION	DESCRIPTION	MANUFACTURER	TYPE	PART NO.
R1	RESISTOR MF 120 OHM 5% 0.33W	PHILIPS	2322 187 73121	02.450
R2	RESISTOR MF 560 OHM 5% 0.33W	PHILIPS	2322 187 73561	02.466
R3	RESISTOR MF 91k OHM 5% 0.33W	PHILIPS	2322 187 73913	02.519
R4	RESISTOR MF 56k OHM 5% 0.33W	PHILIPS	2322 187 73563	02.514
S1	SIL SQUARE PINS 2 POLES CC=1/10"	AMP	0-826629-2 (0-826647-2)	78.322
S2	KEYSWITCH MINIATURE SPST 7.4x7.4mm	TT	KSA0M210	43.524
S3	KEYSWITCH SP N-O 14.4X14.4mm	MARQUARDT	6425.1101	43.525
V1	LED SUB. MIN YELLOW 3.6mCd/10mA	H.P.	HLMP-6405 OPTION 1S1	25.658
V2	LED SUB. MIN YELLOW 3.6mCd/10mA	H.P.	HLMP-6405 OPTION 1S1	25.658
X1	TERMINAL BLOCK 15 POLES 1.5mm2	PTR	AK300/15b m.MESS.SKRUER BLÅ	81.022
X2	SOCKET 90 DEG. 4-40 BUSH. 15 POLES SUB D W/O SCREW	LEOCO	DHSL-15URL2	78.729
X3	TERMINAL BLOCK 15 POLES 1.5mm2	PTR	AK300/15b m.MESS.SKRUER BLÅ	81.022

POSITION	DESCRIPTION	MANUFACTURER	TYPE	PART NO.
HxC AF & MMI UNIT 32267		**ECI A/S**	**5-x-32267B / 4-0-32267C**	**632267**

POSITION	DESCRIPTION	MANUFACTURER	TYPE	PART NO.
C1	CAPACITOR ELECTROLYTIC SMD 10uF 20% 16VDC	EUROPE CHEMICON	Al-Chip-MKV 16V/10 M	333.079
C2	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C3	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C4	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C5	CAPACITOR TANTALUM 4u7F 10% 10VDC	SPRAGUE	293D 475 X9 0010 B 2 T	67701100
C6	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C7	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C8	CAPACITOR CERAM. SMD 0805 15pF 5% NPO 50VDC	TDK	C2012 COG 1H 150 J T NiBa	323.076
C9	CAPACITOR CERAM. SMD 0805 15pF 5% NPO 50VDC	TDK	C2012 COG 1H 150 J T NiBa	323.076
C10	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C11	CAPACITOR ELECTROLYTIC SMD 10uF 20% 16VDC	EUROPE CHEMICON	Al-Chip-MKV 16V/10 M	333.079
C12	CAPACITOR TANTALUM 4u7F 10% 10VDC	SPRAGUE	293D 475 X9 0010 B 2 T	67701100
C13	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C14	CAPACITOR TANTALUM 3528 2u2F 20% 16VDC	ERO	CB 225020 M E17 REEL a 2000 STK	334.028
C15	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C16	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C17	CAPACITOR ELECTROLYTIC SMD 47uF 20% 16VDC	PANASONIC	ECE V 1C V 470 S P	333.175
C18	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C19	CAPACITOR CERAM. SMD 0805 47pF 5% N150 50VDC	MURATA	GRM40 P2H 470 J 50 PT REEL a 4000 STK	323.482
C20	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C21	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C22	CAPACITOR CERAM. SMD 1206 1u0F -20/80% Y5V 16VDC	MURATA	GRM42-6 Y5V 105 Z 16 PT10	328.806
C23	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C24	CAPACITOR TANTALUM 3528 2u2F 20% 16VDC	ERO	CB 225020 M E17 REEL a 2000 STK	334.028
C25	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C26	CAPACITOR ELECTROLYTIC SMD 4u7F 20% 25VDC	EUROPE CHEMICON	Al-Chip-MVK 35V/4.7 M	333.075
C27	CAPACITOR CERAM. SMD 0805 270pF 5% NPO 50VDC	TDK	C2012 COG 1H 271 J T NiBa	323.091
C28	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C29	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C30	CAPACITOR CERAM. SMD 0805 4n7F 10% X7R 50VDC	TDK	C2012 X7R 1H 472 K T NiBa	328.332
C31	CAPACITOR CERAM. SMD 0805 270pF 5% NPO 50VDC	TDK	C2012 COG 1H 271 J T NiBa	323.091
C32	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C33	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C34	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C35	CAPACITOR CERAM. SMD 0805 4n7F 10% X7R 50VDC	TDK	C2012 X7R 1H 472 K T NiBa	328.332
C36	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C37	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C38	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C39	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C40	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C41	CAPACITOR ELECTROLYTIC SMD 10uF 20% 16VDC	EUROPE CHEMICON	Al-Chip-MKV 16V/10 M	333.079
C42	CAPACITOR CERAM. SMD 1206 1u0F -20/80% Y5V 16VDC	MURATA	GRM42-6 Y5V 105 Z 16 PT10	328.806
C43	CAPACITOR CERAM. SMD 1206 1u0F -20/80% Y5V 16VDC	MURATA	GRM42-6 Y5V 105 Z 16 PT10	328.806
C44	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C45	CAPACITOR CERAM. SMD 1206 100nF 10% X7R 50VDC	MURATA	GRM42-6 X7R 104 K 50 PT	328.648
C46	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C47	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C48	CAPACITOR CERAM. SMD 1206 100nF 10% X7R 50VDC	MURATA	GRM42-6 X7R 104 K 50 PT	328.648
C49	CAPACITOR ELECTROLYTIC SMD 4u7F 20% 25VDC	EUROPE CHEMICON	Al-Chip-MVK 35V/4.7 M	333.075
C50	CAPACITOR ELECTROLYTIC SMD 10uF 20% 16VDC	EUROPE CHEMICON	Al-Chip-MKV 16V/10 M	333.079
C51	CAPACITOR ELECTROLYTIC SMD 10uF 20% 16VDC	EUROPE CHEMICON	Al-Chip-MKV 16V/10 M	333.079
C52	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C53	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C54	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C55	CAPACITOR ELECTROLYTIC SMD 1u0F 20% 50VDC	PANASONIC	EEV HA 1H V 010 R	333.067
C56	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C57	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C58	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C59	CAPACITOR CERAM. SMD 0805 100pF 5% NPO 50VDC	TDK	C2012 COG 1H 101 J T NiBa	323.086
C60	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C61	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C62	CAPACITOR CERAM. SMD 0805 15pF 5% NPO 50VDC	TDK	C2012 COG 1H 150 J T NiBa	323.076
C63	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C64	CAPACITOR CERAM. SMD 1206 1u0F -20/80% Y5V 16VDC	MURATA	GRM42-6 Y5V 105 Z 16 PT10	328.806
C65	CAPACITOR ELECTROLYTIC SMD 10uF 20% 16VDC	EUROPE CHEMICON	Al-Chip-MKV 16V/10 M	333.079
C66	CAPACITOR CERAM. SMD 0805 100pF 5% NPO 50VDC	TDK	C2012 COG 1H 101 J T NiBa	323.086
C67	CAPACITOR CERAM. SMD 0805 100pF 5% NPO 50VDC	TDK	C2012 COG 1H 101 J T NiBa	323.086
C68	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336

POSITION	DESCRIPTION	MANUFACTURER	TYPE	PART NO.
C69	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C70	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C71	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C72	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C73	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
D1	WATCH DOG 5V INCL. TIMER MAX705, ADM705	ANALOG DEVICES	ADM705AR REEL	356.642
D2	8-BIT SHIFT REG. W.LATCH 74HC595	PHILIPS	74HC595D TAPE & REEL	355.296
D3	EEPROM 2k BIT SERIAL X25020, AT25020	XICOR	X25020S T5,(X25020S-3 T5)	356.319
D4	PROGRAMMED OTP-CPU, D4 f. 632261 & 632263	ECI A/S	0-0-32461C Ver. AG	73246100
D5	RS485 LOW EMI TRANCEIVER MAX483, LTC1483	MAXIM	MAX483 CSA(ESA) TAPE&REEL	356.606
F1	FUSE SMD 2914 630mA FF	SHURTER	3402.0008.24	374.005
K1	REED SWITCH SPST 10VA FR2024	CP CLARE	FR2024	339.400
N1	VOLTAGE REGULATOR FIXED 5V/0.1A LE50AB	ST	LE50ABD TAPE&REEL	350.106
N2	DUAL CMOS OPAMP LMC662	NATIONAL	LMC662CMX	85810900
N3	DUAL AUDIO ATTENUATOR WITH MUTE LM1972	NATIONAL	LM1972	351.202
N4	AF POWER AMPLIFIER 1W LM4860	NATIONAL	LM4860MX	350.675
N5	VOLTAGE REGULATOR FIXED 5V/1A, MC7805, LM340T-5.0	MOTOROLA	MC7805CT (MC7805BT)	31.250
N6	VOLTAGE REGULATOR FIXED 8V/0.1A LE80AB	ST	LE80ABD TAPE&REEL	350.107
N7	QUAD OP.AMP. LM324	MOTOROLA	LM324D R2	350.530
N8	QUAD BILATERAL SWITCH CD4066BC	MOTOROLA	MC14066BD R2(R1)	355.066
N9	QUAD OP.AMP. LM324	MOTOROLA	LM324D R2	350.530
N10	LOW POWER AUDIO AMPLIFIER MC34119	MOTOROLA	MC34119D R2(R1)	85870000
N11	DUAL CMOS OPAMP LMC662	NATIONAL	LMC662CMX	85810900
R1	RESISTOR SMD 0805 100k OHM 1% 50mW	PHILIPS	2322 734 2/61004	302.570
R2	RESISTOR SMD 0805 22k OHM 5% 0.1W	ROHM	MCR 10 EZH J 223	302.064
R3	RESISTOR SMD 0805 47 OHM 5% 0.1W	ROHM	MCR 10 EZH J 47R	302.032
R4	RESISTOR SMD 0805 100k OHM 1% 50mW	PHILIPS	2322 734 2/61004	302.570
R5	RESISTOR SMD 0805 820 OHM 5% 0.1W	ROHM	MCR 10 EZH J 821	302.047
R6	RESISTOR SMD 0805 220 OHM 5% 0.1W	ROHM	MCR 10 EZH J 221	302.040
R7	RESISTOR SMD 0805 100k OHM 1% 50mW	PHILIPS	2322 734 2/61004	302.570
R8	RESISTOR SMD 0805 100k OHM 1% 50mW	PHILIPS	2322 734 2/61004	302.570
R9	RESISTOR SMD 0805 100k OHM 1% 50mW	PHILIPS	2322 734 2/61004	302.570
R10	RESISTOR SMD 0805 100k OHM 1% 50mW	PHILIPS	2322 734 2/61004	302.570
R11	RESISTOR SMD 0805 820 OHM 5% 0.1W	ROHM	MCR 10 EZH J 821	302.047
R12	RESISTOR SMD 0805 220 OHM 5% 0.1W	ROHM	MCR 10 EZH J 221	302.040
R13	RESISTOR SMD 0805 220 OHM 5% 0.1W	ROHM	MCR 10 EZH J 221	302.040
R14	RESISTOR SMD 0805 220 OHM 5% 0.1W	ROHM	MCR 10 EZH J 221	302.040
R15	RESISTOR SMD 0805 1M0 OHM 5% 0.1W	ROHM	MCR 10 EZH J 105	302.084
R16	RESISTOR SMD 0805 56k OHM 5% 0.1W	ROHM	MCR 10 EZH J 563	302.069
R17	RESISTOR SMD 0805 820 OHM 5% 0.1W	ROHM	MCR 10 EZH J 821	302.047
R18	RESISTOR SMD 0805 100k OHM 1% 50mW	PHILIPS	2322 734 2/61004	302.570
R19	RESISTOR SMD 0805 2k7 OHM 5% 0.1W	ROHM	MCR 10 EZH J 272	302.053
R20	RESISTOR SMD 0805 2k7 OHM 5% 0.1W	ROHM	MCR 10 EZH J 272	302.053
R21	RESISTOR SMD 0805 2k7 OHM 5% 0.1W	ROHM	MCR 10 EZH J 272	302.053
R22	RESISTOR SMD 0805 54k9 OHM 1% 50mW	PHILIPS	2322 734 2/65493	302.541
R23	RESISTOR SMD 0805 100k OHM 1% 50mW	PHILIPS	2322 734 2/61004	302.570
R24	RESISTOR SMD 0805 100k OHM 1% 50mW	PHILIPS	2322 734 2/61004	302.570
R25	RESISTOR SMD 0805 27k OHM 5% 0.1W	ROHM	MCR 10 EZH J 273	302.065
R26	RESISTOR SMD 0805 100k OHM 1% 50mW	PHILIPS	2322 734 2/61004	302.570
R27	RESISTOR SMD 0805 100k OHM 1% 50mW	PHILIPS	2322 734 2/61004	302.570
R28	RESISTOR SMD 0805 100k OHM 1% 50mW	PHILIPS	2322 734 2/61004	302.570
R29	RESISTOR SMD 0805 100k OHM 1% 50mW	PHILIPS	2322 734 2/61004	302.570
R30	RESISTOR SMD 0805 270k OHM 5% 0.1W	ROHM	MCR 10 EZH J 274	302.077
R31	RESISTOR SMD 0805 820 OHM 5% 0.1W	ROHM	MCR 10 EZH J 821	302.047
R32	RESISTOR SMD 0805 100k OHM 1% 50mW	PHILIPS	2322 734 2/61004	302.570
R33	RESISTOR SMD 0805 100k OHM 1% 50mW	PHILIPS	2322 734 2/61004	302.570
R34	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R35	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R36	RESISTOR SMD 0805 47k OHM 5% 0.1W	ROHM	MCR 10 EZH J 473	302.068
R37	RESISTOR SMD 0805 100k OHM 1% 50mW	PHILIPS	2322 734 2/61004	302.570
R38	RESISTOR SMD 0805 100k OHM 1% 50mW	PHILIPS	2322 734 2/61004	302.570
R39	RESISTOR SMD 0805 100k OHM 1% 50mW	PHILIPS	2322 734 2/61004	302.570
R40	RESISTOR SMD 0805 100k OHM 1% 50mW	PHILIPS	2322 734 2/61004	302.570
R41	RESISTOR SMD 0805 100k OHM 1% 50mW	PHILIPS	2322 734 2/61004	302.570
R42	RESISTOR SMD 0805 100k OHM 1% 50mW	PHILIPS	2322 734 2/61004	302.570
R43	RESISTOR SMD 0805 100k OHM 1% 50mW	PHILIPS	2322 734 2/61004	302.570
R44	RESISTOR SMD 0805 6k81 OHM 1% 50mW	PHILIPS	2322 734 2/66812	302.450
R45	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R46	RESISTOR SMD 0805 100k OHM 1% 50mW	PHILIPS	2322 734 2/61004	302.570
R47	RESISTOR SMD 0805 100k OHM 1% 50mW	PHILIPS	2322 734 2/61004	302.570
R48	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R49	RESISTOR SMD 0805 100k OHM 1% 50mW	PHILIPS	2322 734 2/61004	302.570
R50	RESISTOR SMD 0805 3k32 OHM 1% 50mW	PHILIPS	2322 734 2/63322	302.420
R51	RESISTOR SMD 0805 220 OHM 5% 0.1W	ROHM	MCR 10 EZH J 221	302.040

POSITION	DESCRIPTION	MANUFACTURER	TYPE	PART NO.
R52	RESISTOR SMD 0805 3k83 OHM 1% 50mW	PHILIPS	2322 734 2/63832	302.426
R53	RESISTOR SMD 0805 47 OHM 5% 0.1W	ROHM	MCR 10 EZH J 47R	302.032
R54	RESISTOR SMD 0805 33 OHM 5% 0.1W	ROHM	MCR 10 EZH J 33R	302.030
R55	RESISTOR SMD 0805 820 OHM 5% 0.1W	ROHM	MCR 10 EZH J 821	302.047
R56	RESISTOR SMD 0805 100k OHM 1% 50mW	PHILIPS	2322 734 2/61004	302.570
R57	RESISTOR SMD 0805 100k OHM 1% 50mW	PHILIPS	2322 734 2/61004	302.570
R58	RESISTOR SMD 0805 10k0 OHM 1% 50mW	PHILIPS	2322 734 2/61003	302.470
R59	RESISTOR SMD 0805 1k0 OHM 5% 0.1W	ROHM	MCR 10 EZH J 102	302.048
R60	RESISTOR SMD 0805 100k OHM 1% 50mW	PHILIPS	2322 734 2/61004	302.570
R61	RESISTOR SMD 0805 47k OHM 5% 0.1W	ROHM	MCR 10 EZH J 473	302.068
R62	RESISTOR SMD 0805 220 OHM 5% 0.1W	ROHM	MCR 10 EZH J 221	302.040
R63	RESISTOR SMD 0805 39k OHM 5% 0.1W	ROHM	MCR 10 EZH J 393	302.067
R64	RESISTOR SMD 0805 8k2 OHM 5% 0.1W	ROHM	MCR 10 EZH J 822	302.059
R65	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R66	RESISTOR SMD 0805 47k OHM 5% 0.1W	ROHM	MCR 10 EZH J 473	302.068
R67	RESISTOR SMD 0805 47 OHM 5% 0.1W	ROHM	MCR 10 EZH J 47R	302.032
R68	RESISTOR SMD 0805 68k OHM 5% 0.1W	ROHM	MCR 10 EZH J 683	302.070
R69	RESISTOR SMD 0805 5k6 OHM 5% 0.1W	ROHM	MCR 10 EZH J 562	302.057
R70	RESISTOR SMD 0805 2k7 OHM 5% 0.1W	ROHM	MCR 10 EZH J 272	302.053
R71	RESISTOR SMD 0805 33k OHM 5% 0.1W	ROHM	MCR 10 EZH J 333	302.066
R72	RESISTOR SMD 0805 39k OHM 5% 0.1W	ROHM	MCR 10 EZH J 393	302.067
R73	RESISTOR SMD 0805 1k2 OHM 5% 0.1W	ROHM	MCR 10 EZH J 122	302.049
R74	RESISTOR SMD 0805 8k2 OHM 5% 0.1W	ROHM	MCR 10 EZH J 822	302.059
R75	RESISTOR SMD 0805 8k2 OHM 5% 0.1W	ROHM	MCR 10 EZH J 822	302.059
R76	RESISTOR SMD 0805 220 OHM 5% 0.1W	ROHM	MCR 10 EZH J 221	302.040
R77	RESISTOR SMD 0805 100k OHM 1% 50mW	PHILIPS	2322 734 2/61004	302.570
R78	RESISTOR SMD 0805 33k OHM 5% 0.1W	ROHM	MCR 10 EZH J 333	302.066
R79	RESISTOR SMD 0805 22 OHM 5% 0.1W	ROHM	MCR 10 EZH J 22R	302.028
R80	RESISTOR SMD 0805 1k0 OHM 5% 0.1W	ROHM	MCR 10 EZH J 102	302.048
R81	RESISTOR SMD 0805 47k OHM 5% 0.1W	ROHM	MCR 10 EZH J 473	302.068
R82	RESISTOR SMD 0805 8k2 OHM 5% 0.1W	ROHM	MCR 10 EZH J 822	302.059
R83	RESISTOR SMD 0805 22k OHM 5% 0.1W	ROHM	MCR 10 EZH J 223	302.064
R84	RESISTOR SMD 0805 100k OHM 1% 50mW	PHILIPS	2322 734 2/61004	302.570
R85	RESISTOR SMD 0805 121k OHM 1% 50mW	PHILIPS	2322 734 2/61214	302.578
R86	RESISTOR SMD 0805 22 OHM 5% 0.1W	ROHM	MCR 10 EZH J 22R	302.028
R87	RESISTOR SMD 0805 100 OHM 5% 0.1W	ROHM	MCR 10 EZH J 101	302.036
R88	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R89	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R90	RESISTOR SMD 0805 47k OHM 5% 0.1W	ROHM	MCR 10 EZH J 473	302.068
R91	RESISTOR SMD 0805 47k OHM 5% 0.1W	ROHM	MCR 10 EZH J 473	302.068
R92	RESISTOR SMD 0805 100k OHM 1% 50mW	PHILIPS	2322 734 2/61004	302.570
R93	RESISTOR SMD 0805 1k2 OHM 5% 0.1W	ROHM	MCR 10 EZH J 122	302.049
R94	RESISTOR SMD 0805 16k2 OHM 1% 50mW	PHILIPS	2322 734 2/61623	302.490
R95	RESISTOR SMD 0805 121k OHM 1% 50mW	PHILIPS	2322 734 2/61214	302.578
R96	RESISTOR SMD 0805 1k2 OHM 5% 0.1W	ROHM	MCR 10 EZH J 122	302.049
R97	RESISTOR SMD 0805 16k2 OHM 1% 50mW	PHILIPS	2322 734 2/61623	302.490
R98	RESISTOR SMD 0805 9k53 OHM 1% 50mW	PHILIPS	2322 734 2/69532	302.464
R99	RESISTOR SMD 0805 9k53 OHM 1% 50mW	PHILIPS	2322 734 2/69532	302.464
R100	RESISTOR SMD 0805 3k3 OHM 5% 0.1W	ROHM	MCR 10 EZH J 332	302.054
R101	RESISTOR SMD 0805 120k OHM 5% 0.1W	ROHM	MCR 10 EZH J 124	302.073
R102	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R103	RESISTOR SMD 0805 4k99 OHM 1% 50mW	PHILIPS	2322 734 2/64992 REEL a 5000 STK	302.437
R104	RESISTOR SMD 0805 100 OHM 5% 0.1W	ROHM	MCR 10 EZH J 101	302.036
R105	RESISTOR SMD 0805 0 OHM 2A	ROHM	MCR 10 EZH JUMPER	302.000
R106	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R107	RESISTOR SMD 0805 2k2 OHM 5% 0.1W	ROHM	MCR 10 EZH J 222	302.052
R108	RESISTOR SMD 0805 100 OHM 5% 0.1W	ROHM	MCR 10 EZH J 101	302.036
R109	RESISTOR SMD 0805 100k OHM 1% 50mW	PHILIPS	2322 734 2/61004	302.570
S1	PUSHBUTTON SWITCH 1 MAKE PCB VERSION 5.2x5.2x1.5mm	ALPS	SKQGAB	373.021
S2	PUSHBUTTON SWITCH 1 MAKE PCB VERSION 5.2x5.2x1.5mm	ALPS	SKQGAB	373.021
S3	PUSHBUTTON SWITCH 1 MAKE PCB VERSION 5.2x5.2x1.5mm	ALPS	SKQGAB	373.021
S4	PUSHBUTTON SWITCH 1 MAKE PCB VERSION 5.2x5.2x1.5mm	ALPS	SKQGAB	373.021
S5	PUSHBUTTON SWITCH 1 MAKE PCB VERSION 5.2x5.2x1.5mm	ALPS	SKQGAB	373.021
S6	PUSHBUTTON SWITCH 1 MAKE PCB VERSION 5.2x5.2x1.5mm	ALPS	SKQGAB	373.021
S7	PUSHBUTTON SWITCH 1 MAKE PCB VERSION 5.2x5.2x1.5mm	ALPS	SKQGAB	373.021
S8	PUSHBUTTON SWITCH 1 MAKE PCB VERSION 5.2x5.2x1.5mm	ALPS	SKQGAB	373.021
S9	PUSHBUTTON SWITCH 1 MAKE PCB VERSION 5.2x5.2x1.5mm	ALPS	SKQGAB	373.021
S10	PUSHBUTTON SWITCH 1 MAKE PCB VERSION 5.2x5.2x1.5mm	ALPS	SKQGAB	373.021
S11	PUSHBUTTON SWITCH 1 MAKE PCB VERSION 5.2x5.2x1.5mm	ALPS	SKQGAB	373.021
S12	PUSHBUTTON SWITCH 1 MAKE PCB VERSION 5.2x5.2x1.5mm	ALPS	SKQGAB	373.021
S13	PUSHBUTTON SWITCH 1 MAKE PCB VERSION 5.2x5.2x1.5mm	ALPS	SKQGAB	373.021
S14	PUSHBUTTON SWITCH 1 MAKE PCB VERSION 5.2x5.2x1.5mm	ALPS	SKQGAB	373.021
S15	KEYSWITCH SPST 6.2x6.2mm 50V/50mA, FA=3.2N, KSC441 JB 70 SH	ITT	KSC441JB 70 SH	373.012
S16	PUSHBUTTON SWITCH 1 MAKE PCB VERSION 5.2x5.2x1.5mm	ALPS	SKQGAB	373.021

POSITION	DESCRIPTION	MANUFACTURER	TYPE	PART NO.
S18	PUSHBUTTON SWITCH 1 MAKE PCB VERSION 5.2x5.2x1.5mm	ALPS	SKQGAB	373.021
S19	PUSHBUTTON SWITCH 1 MAKE PCB VERSION 5.2x5.2x1.5mm	ALPS	SKQGAB	373.021
S20	PUSHBUTTON SWITCH 1 MAKE PCB VERSION 5.2x5.2x1.5mm	ALPS	SKQGAB	373.021
S21	PUSHBUTTON SWITCH 1 MAKE PCB VERSION 5.2x5.2x1.5mm	ALPS	SKQGAB	373.021
S22	PUSHBUTTON SWITCH 1 MAKE PCB VERSION 5.2x5.2x1.5mm	ALPS	SKQGAB	373.021
S23	PUSHBUTTON SWITCH 1 MAKE PCB VERSION 5.2x5.2x1.5mm	ALPS	SKQGAB	373.021
S24	PUSHBUTTON SWITCH 1 MAKE PCB VERSION 5.2x5.2x1.5mm	ALPS	SKQGAB	373.021
V1	LIGHT BAR YELLOW 1.2x19.2mm	DENYO EUROPA GM	150-021	25.699
V2	DIODE DUAL SCHOTTKY BAT54A	PHILIPS	BAT54A 215 ID: L42	340.308
V4	DIODE DUAL SCHOTTKY BAT54C	PHILIPS	BAT54C 215 ID: L43	340.309
V6	LED SMD 1210 SUPER RED 10mCd/20mA CL-200SR	CITIZEN	CL-200SR-C-TU	342.042
V7	LED SMD 1210 SUPER RED 10mCd/20mA CL-200SR	CITIZEN	CL-200SR-C-TU	342.042
V8	LED SMD 1210 YELLOW 15mCd/20mA CL-200Y	CITIZEN	CL-200Y-C-TU	342.040
V9	LED SMD 0805 YELLOW 5mCd/20mA CL170Y	CITIZEN	CL-170 Y-C D-T	342.026
V10	LED SMD 0805 YELLOW 5mCd/20mA CL170Y	CITIZEN	CL-170 Y-C D-T	342.026
V11	LED SMD 0805 YELLOW 5mCd/20mA CL170Y	CITIZEN	CL-170 Y-C D-T	342.026
V12	LED SMD 0805 YELLOW 5mCd/20mA CL170Y	CITIZEN	CL-170 Y-C D-T	342.026
V13	LED SMD 0805 YELLOW 5mCd/20mA CL170Y	CITIZEN	CL-170 Y-C D-T	342.026
V14	DISPLAY LCD F. HTC4000 50x34x2.85mm	GLORY SOUND LTD	0-3-31992B JY_S12-051	342.503
V15	MOSFET POWER, P-CHANNEL IRFR9020 ME8P06	IR	IRFR9020-TR	347.820
V16	LED SMD 0805 YELLOW 5mCd/20mA CL170Y	CITIZEN	CL-170 Y-C D-T	342.026
V17	LED SMD 1210 GREEN 20mCd/20mA CL-200G	CITIZEN	CL-200G-C-TU	342.041
V18	TRANS. AF SMALL SIGNAL NPN, BC848B	MOTOROLA	BC848BLT1 (T3)	345.048
V19	LED SMD 1210 SUPER RED 10mCd/20mA CL-200SR	CITIZEN	CL-200SR-C-TU	342.042
V20	TRANS. AF SMALL SIGNAL NPN, BC848B	MOTOROLA	BC848BLT1 (T3)	345.048
V21	LED SMD 0805 YELLOW 5mCd/20mA CL170Y	CITIZEN	CL-170 Y-C D-T	342.026
V22	TRANS. AF SMALL SIGNAL NPN, BC848B	MOTOROLA	BC848BLT1 (T3)	345.048
V23	LED SMD 0805 YELLOW 5mCd/20mA CL170Y	CITIZEN	CL-170 Y-C D-T	342.026
V24	LED SMD 0805 YELLOW 5mCd/20mA CL170Y	CITIZEN	CL-170 Y-C D-T	342.026
V25	LED SMD 0805 YELLOW 5mCd/20mA CL170Y	CITIZEN	CL-170 Y-C D-T	342.026
V26	LED SMD 0805 YELLOW 5mCd/20mA CL170Y	CITIZEN	CL-170 Y-C D-T	342.026
V27	LED SMD 0805 YELLOW 5mCd/20mA CL170Y	CITIZEN	CL-170 Y-C D-T	342.026
V28	LIGHT BAR YELLOW 1.2x19.2mm	DENYO EUROPA GM	150-021	25.699
V29	TRANS. AF SMALL SIGNAL NPN, BC848B	MOTOROLA	BC848BLT1 (T3)	345.048
X1	PLUG 2 POLES CC=1.5mm PCB VERSION	JST	S 2B-ZR-SM3A-TF	375.060
X2	PLUG 5 POLES RIGHT ANGLE CC=2mm, PCB VERSION	JST	S 5B-PH-SM3-TB	375.125
X3	PLUG 7 POLES RIGHT ANGLE CC=2mm, PCB VERSION	JST	S 7B-PH-SM3-TB	375.127
X4	PLUG 2 POLES CC=1.5mm PCB VERSION	JST	S 2B-ZR-SM3A-TF	375.060
X5	PLUG 2 POLES CC=1.5mm PCB VERSION	JST	S 2B-ZR-SM3A-TF	375.060
Z1	XTAL 4.9152MHz 50ppm	RALTRON	AS 4.9152 30pF SMD T	372.004

PART 2
Transceiver units
TU 1000 P / TU 1000 P DSC /
VHF 1000 DSC / VHF 1100 DSC

Contents

1 General information: Transceiver and SCC unit description

The VHF 1000 programme consists of the following VHF transceivers:

Black box transceiver for VHF telephony
- is a basic VHF without DSC made for use in the A1 naval areas. It is primarily targeted at the leisure boat market. As an option, this transceiver can be equipped with an ATIS (Automatic Transmitter Identification System) module.

The transceiver consists of a black box to which one aerial can be connected, and a SPARC-bus interface for the connection of one or more remote handsets. The box contains the transceiver and the optional ATIS module.

The VHF 1000 P system consists of this transceiver and the VHF handset.

Black box transceiver for VHF telephony and DSC
- is a transceiver similar to the VHF version, and also targeted at the leisure boat market.
In addition to the features of the basic VHF transceiver, it has an optional extra aerial connector and an extra receiver for the DSC watch facility. Furthermore, this transceiver contains a VHF-DSC modem which can be set up to work as an ATIS module besides the transmission/reception of DSC calls. Available are also an option box with an NMEA interface, among other things, and a SPARC-bus interface for the connection of more remote handsets.

The VHF 1000 P DSC system consists of this transceiver and the VHF-DSC handset. Also, the system can be operated by the VHF BASIC handset, for VHF voice operation.

Transceiver with integrated control unit for VHF-DSC telephony
- is a VHF with DSC class A. The system consists of a transceiver with an integrated control unit, including a handset. The transceiver has the same external connections as the black box VHF-DSC transceiver, and in addition a printer interface. Also, it contains a VHF-DSC modem which can be set up to work as an ATIS module besides the transmission/reception of DSC calls.

This transceiver is provided with a handset that only contains wires for the loudspeaker, a microphone and a switch to indicate whether the handset is hooked off. It is only possible to use this handset when directly connected to the transceiver. In fact, to ensure proper function, the handset must be directly connected to the transceiver. The radio can either be operated from the front or by one of the remote VHF BASIC/VHF-DSC handsets.

The front panel is an operation panel for the transceiver with soft keys and a fully alpha-numeric LCD display for easy access and use.

Due to the large LCD display, the setup of calls through the SCC (System Combined Control) unit is performed in an easy and efficient way, no matter what type of call.

It is possible to connect up to seven control units to one VHF-DSC transceiver unit. This makes it possible to operate the transceiver from different locations. Also, when more control units are connected, it is possible to use the system for intercom between the various control units. The location assigned to each individual control unit determines both the address when using intercom, and the priority of the control units, i.e. which control unit controls the transceiver.

2 TU 1000 P & TU 1000 P DSC

2.1 Manuals

Installation Manual TU 1000 P / TU 1000 P DSC
Please refer to the Operator's and Installation Manuals (Part 1, chapter 2)

2.2 Service

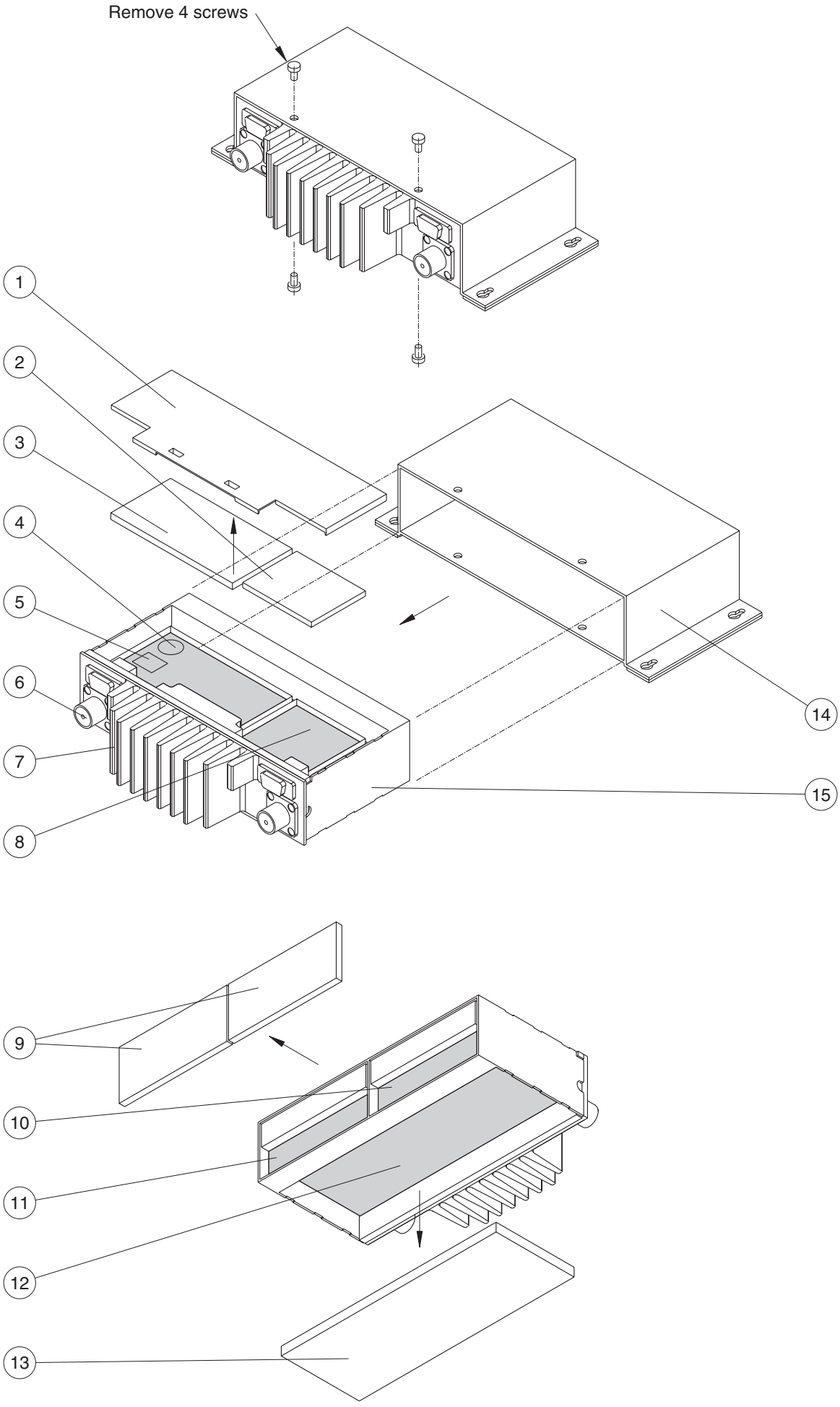
Please refer to part 3 of this manual: “Service”.

2.3 Mechanical description

Mechanical parts lists

POS	NAME	PART NO.
1	Cover for proc.	230462
2	Cover for shield	235507 (TU 1000 P)
	Cover for shield	233564 (TU 1000 P DSC)
3	Cover for shield	235508 (TU 1000 P)
	Cover for shield	233566 (TU 1000 P DSC)
4	Battery Lithium 3V/0.22Ah ø20x3.2	47.007 (TU 1000 P DSC)
5	Prom D9, for 63225002	73245102 (TU 1000 P DSC)
6	Chassis FATNING SO239	78.504
7	Cooling fin	59.045
8	RTU AF & Processor	63225001 (TU 1000 P)
	RTU AF & Processor	63225002 (TU 1000 P DSC)
9	Cover for receiver	230461
10	RTU Receiver	632252
11	RTU Receiver	632252 (only for TU 1000 P DSC)
12	RTU Transmitter	632251
13	Cover for transmitter	233868
14	Cover for VHF	23355010
15	Chassis	59.047

Exploded view TU 1000 P / TU 1000 P DSC



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2.4 Block diagram & circuit description

Please refer to chapter 4: Circuit description and schematic diagrams

3 VHF 1000 DSC & VHF 1100 DSC Professional VHF with built-in DSC

3.1 Manuals

Installation Manual VHF 1000 DSC Professional VHF with built-in DSC
Operator's Manual VHF 1000 DSC Professional VHF with built-in DSC
Installation Manual VHF 1100 DSC Professional VHF with built-in DSC
Operator's Manual VHF 1100 DSC Professional VHF with built-in DSC

3.2 Service

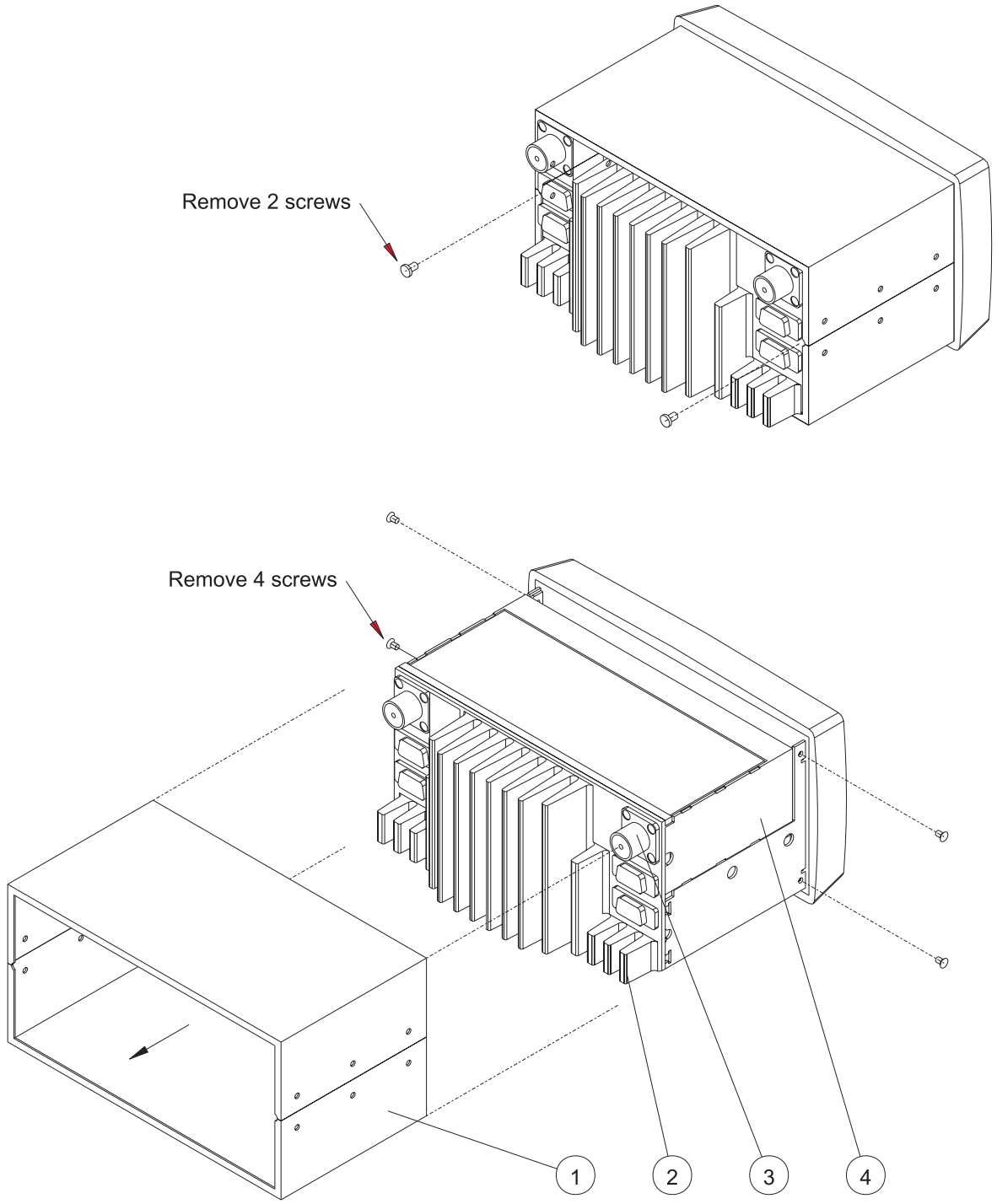
Please refer to part 3 of this manual: “Service”.

3.3 Mechanical description

Mechanical parts lists VHF 1000 DSC

POS	NAME	PART NO.
1	Cover	230553xx
2	Cooling fin	59.046
3	Antenna jack (female) SO239	78.504
4	Chassis	59.047
5	RTU Transmitter	632251
6	RTU Receiver	632252
7	Cover for receiver	230461
8	Loudspeaker 4 OHM 5W 50x90mm	46.046
9	Display LCD	25.718
10	SCC Indicator	632255
11	Air filter	51.008
12	Display window	48.827
13	Frontfoil	53.437
14	Distress cover	48.818
15	Interface 32253	632253
16	Housing for front chassis	164.073
17	SCC Keyboard	632256
18	Light guide	48.829
19	Frontal plane	48.830
20	Left side chassis	230478
21	RTU Transmitter	632251
22	Battery Li 3V/0.22Ah ø20x3.2	47.007
23	Prom D9, for 63225002	73245102
24	Ribbon cable w/9 pole Sub-D	56.126
25	Right side chassis	230477
26	Printer conv. 32270	632270

Exploded view VHF 1000 DSC



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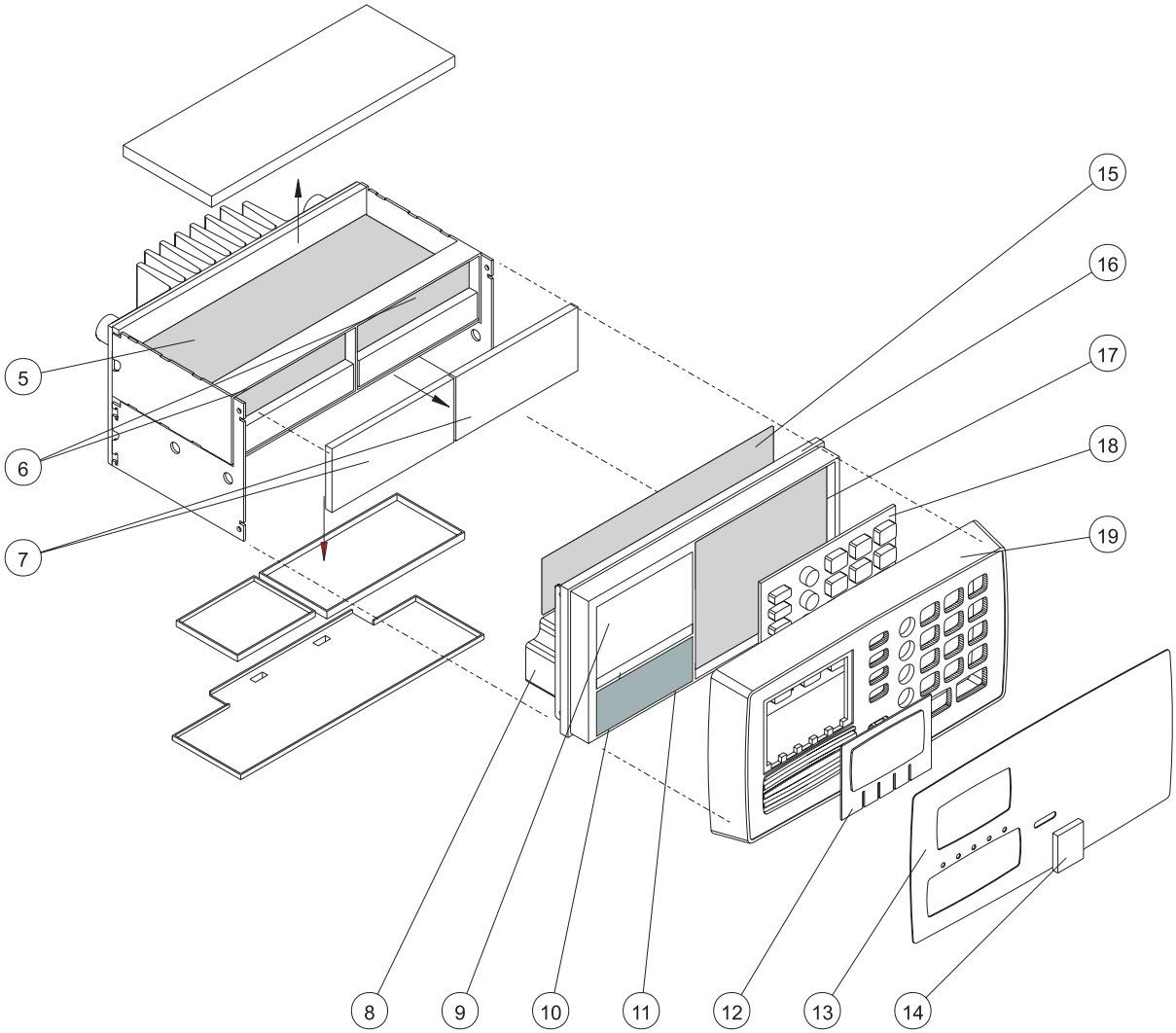
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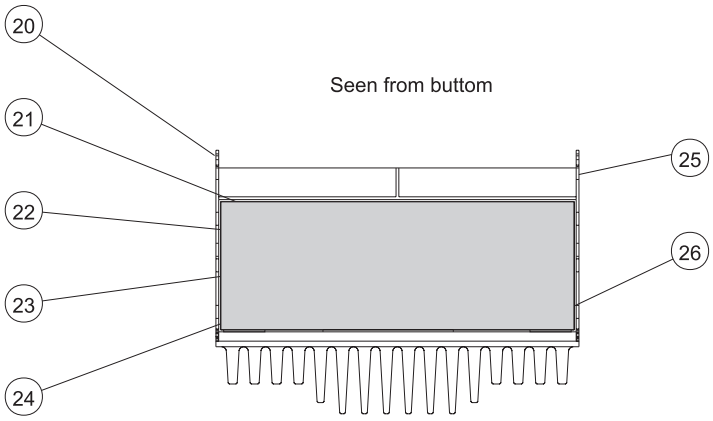
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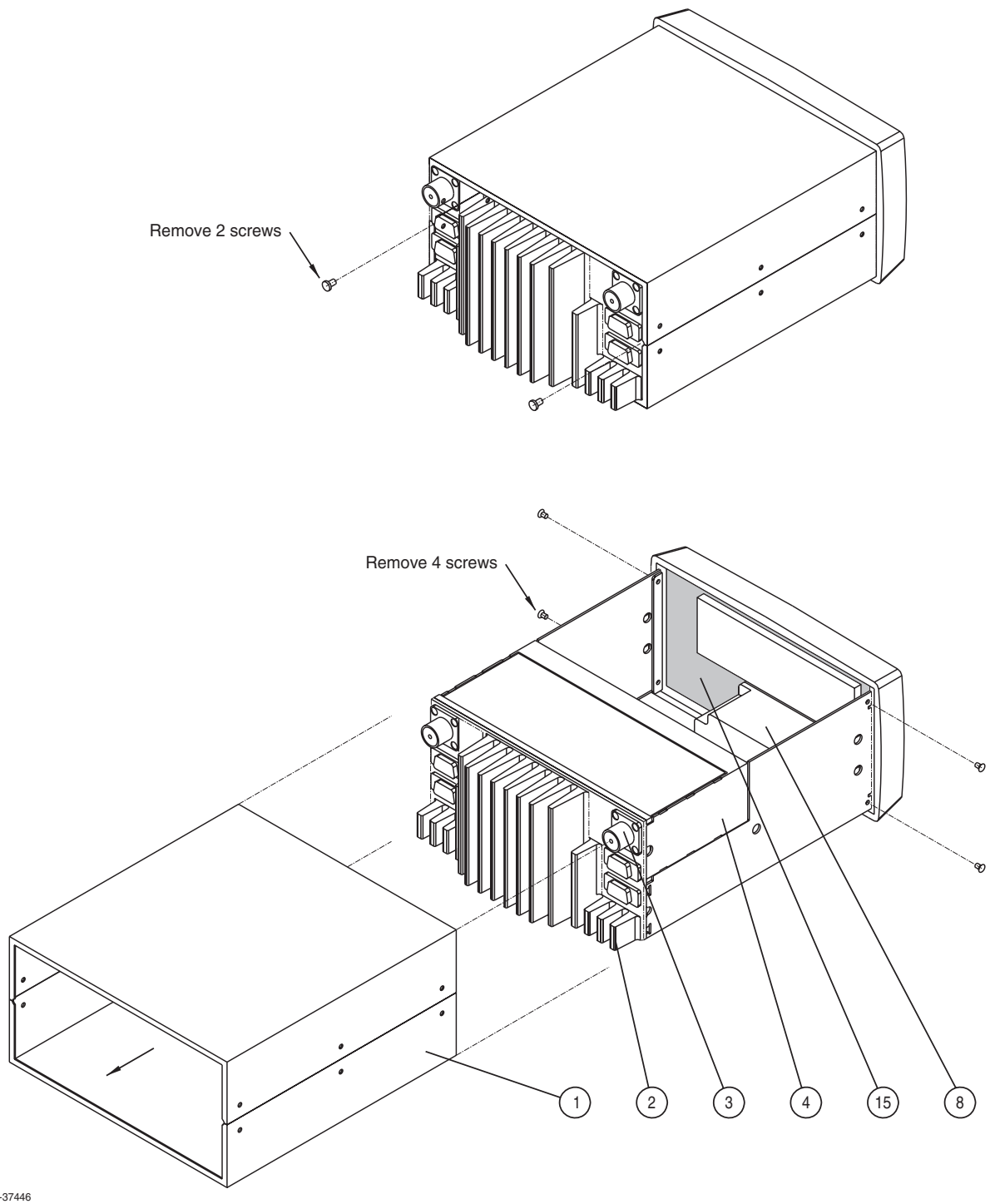
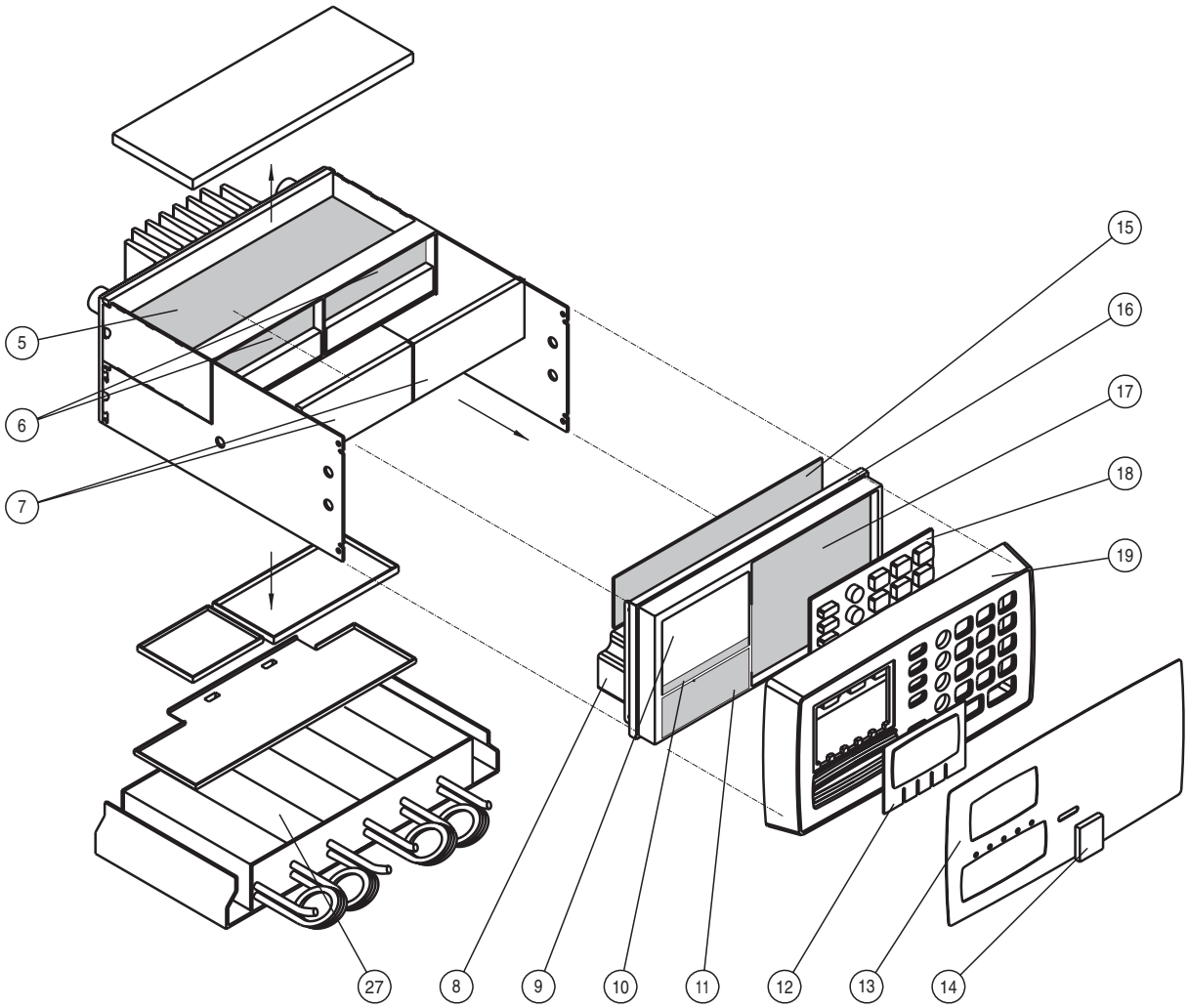
Mechanical parts lists Duplex VHF 1100 DSC

POS	NAME	PART NO.
1	Cover	23055290
2	Cooling fin	59.046
3	Antenna jack (female) SO239	78.504
4	Chassis	59.047
5	RTU Transmitter	636281
6	RTU Receiver	632252
7	Cover for receiver	230461
8	Loudspeaker 4 OHM 5W 50x90mm	46.046
9	Display LCD	25.718
10	SCC Indicator	632255
11	Air filter	51.008
12	Display window	48.827
13	Frontfoil	53.999
14	Distress cover	48.818
15	Interface 32253	632253
16	Housing for front chassis	164.073
17	SCC Keyboard	632256
18	Light guide	48.829
19	Frontal plane	48.830
20	Left side chassis	230481
21	RTU Transmitter	632251
22	Battery Li 3V/0.22Ah ø20x3.2	47.007
23	Prom D9, for 63225002	73245102
24	Ribbon cable w/9 pole Sub-D	56.144
25	Right side chassis	230479
26	Printer conv. 32270	632270
27	VHF duplex filter	38.620

Exploded view Duplex VHF 1100 DSC

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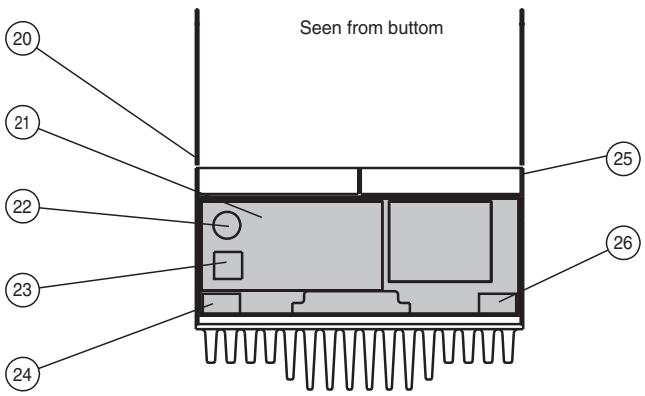
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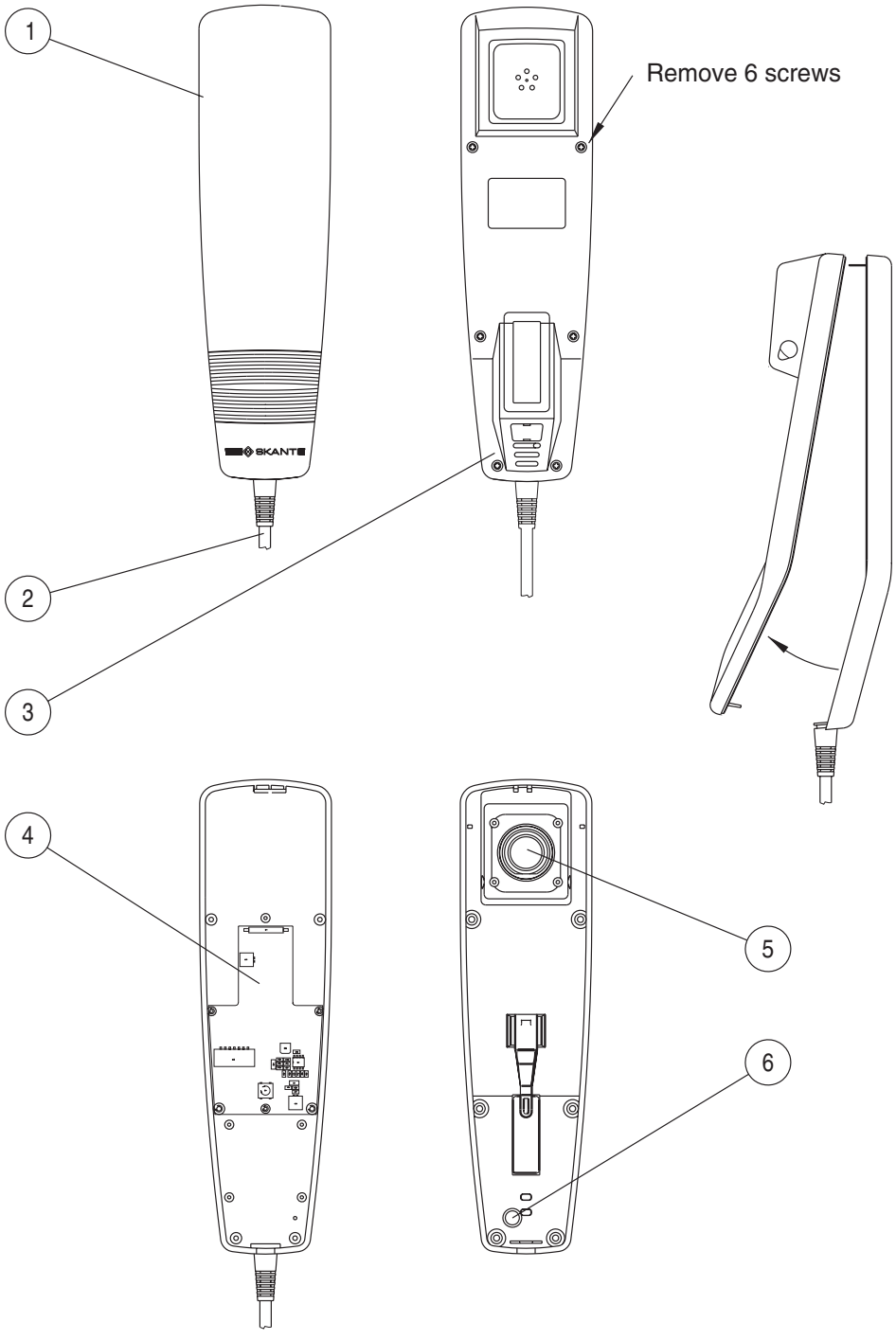
Mechanical parts lists

POS	NAME	PART NO.
1	Handset upper part	48.807
2	Spiral cable	56.117
3	Handset lower part	49.043
4	Handset unit 32264	632264
5	Transducer dynamic 150ohm	46.008
6	Microphone spare part kit for handset	46.003

Exploded view Handset for VHF 1000 DSC



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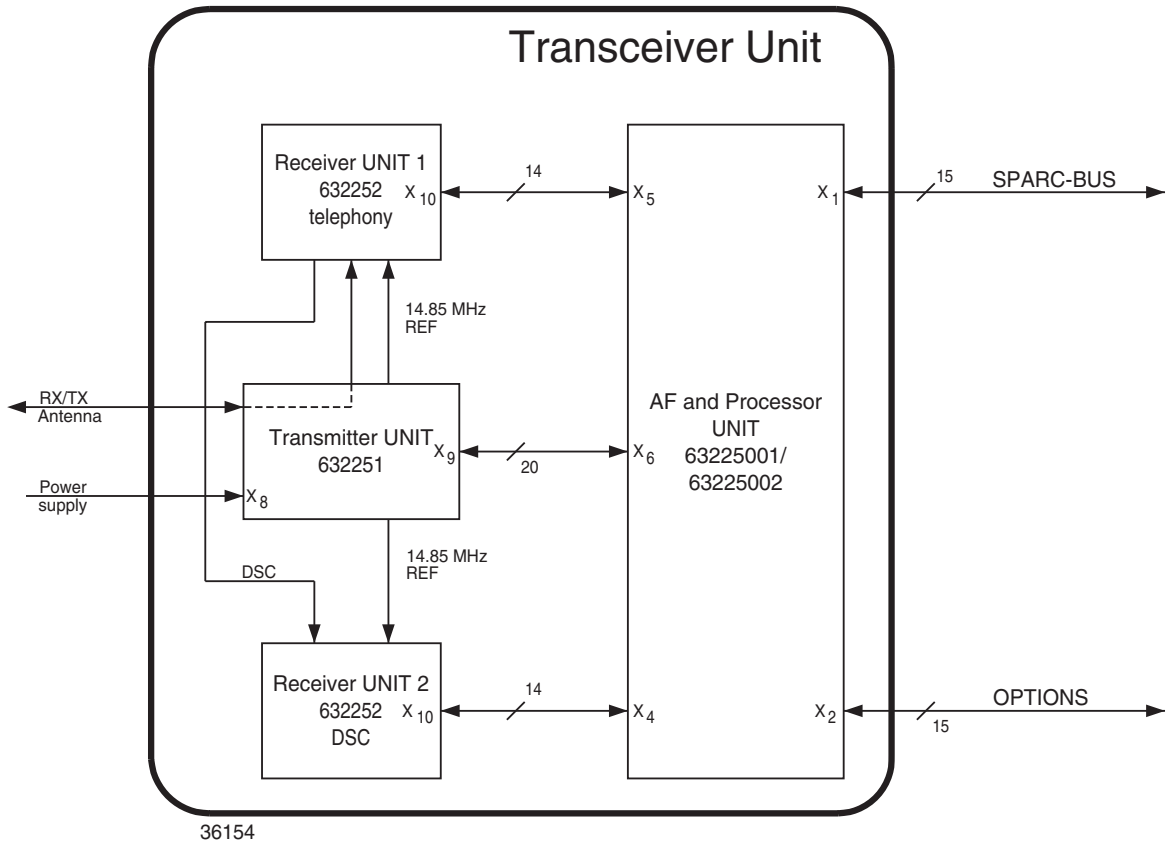
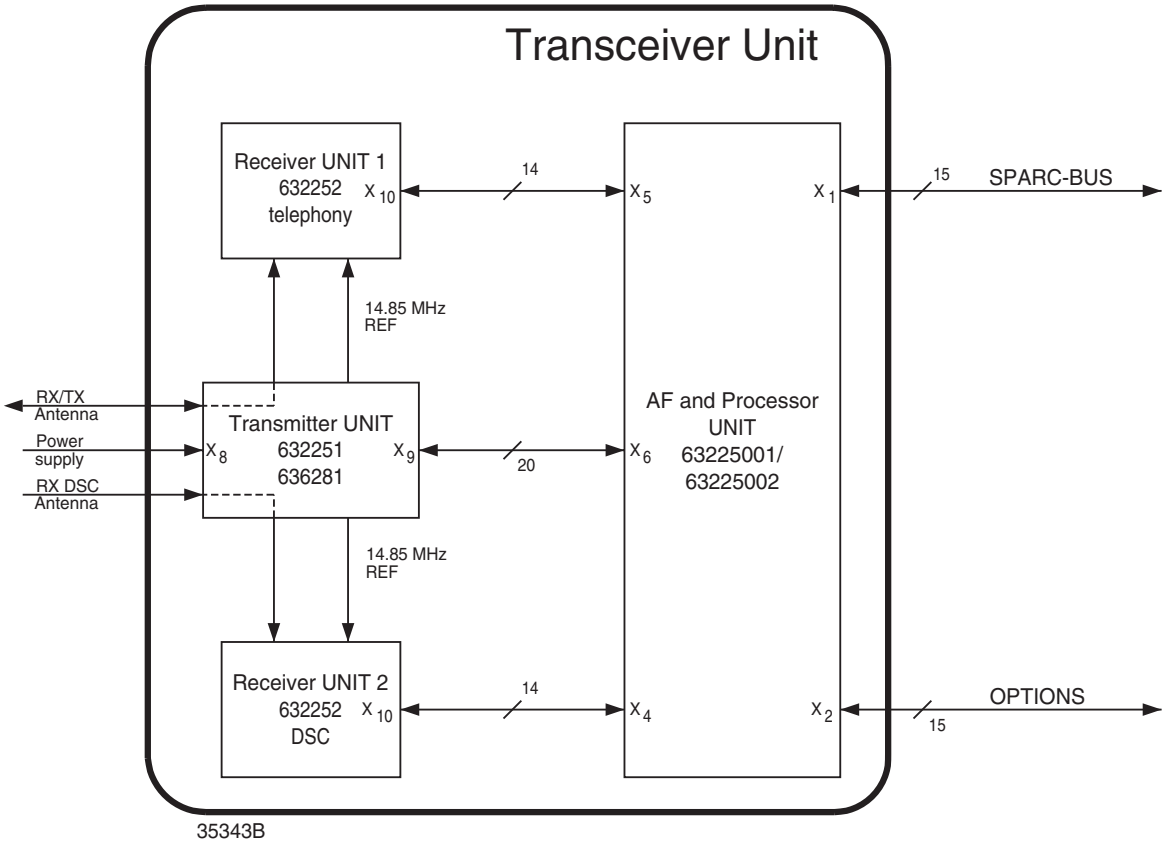
4 Circuit description and schematic diagrams

Block diagrams and circuit description of transceiver unit

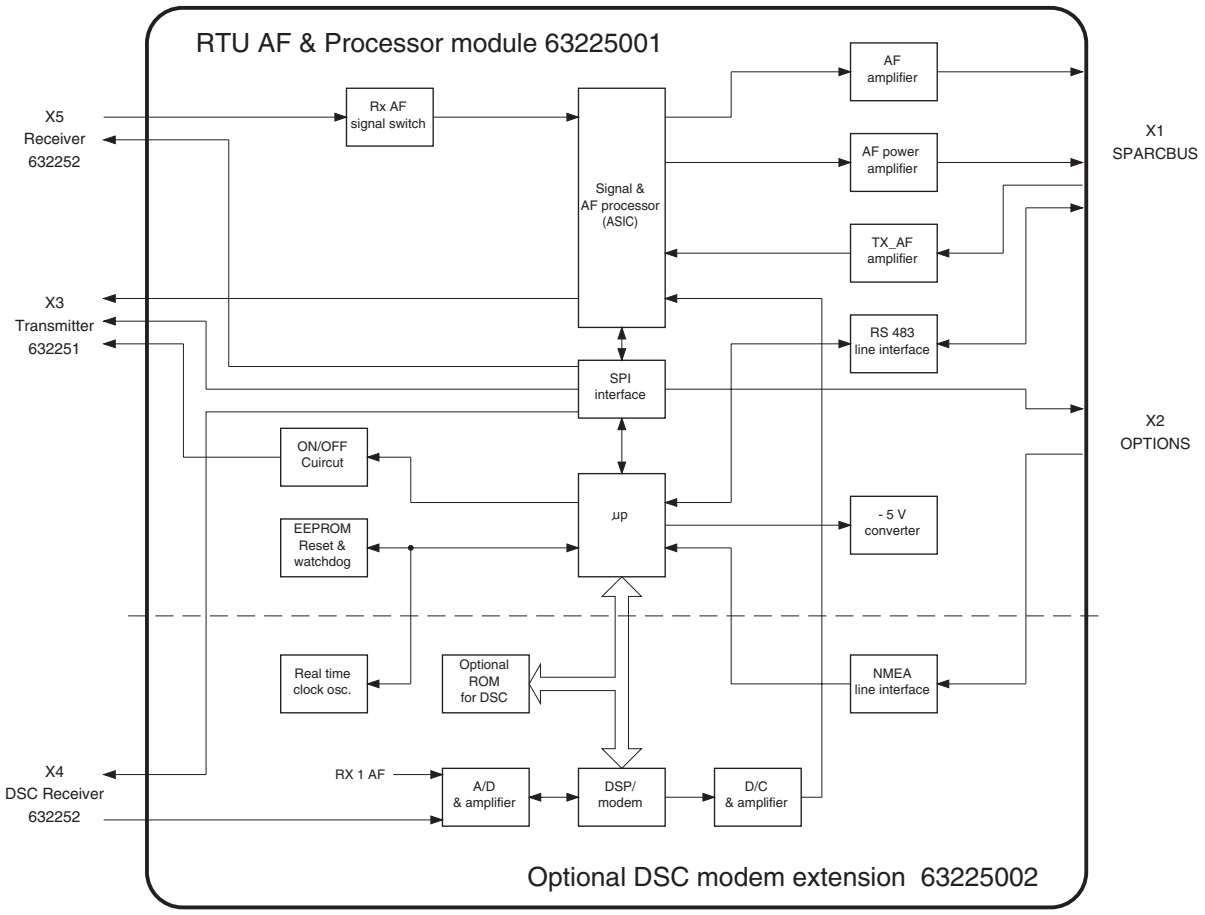
1 antenna



2 antennas



4.1 AF and processor unit 63225001/02



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Input selector
N7-A -> N7-C is used as input selector. Selection is made by the microcontroller via latch D11.

Summation amplifier
The inputs are added together in ASIC OP2. To compensate for the lost signal in the input selector the gain is set to 1.1. Output from the summation is fed into ASIC “DET RX in”.

ASIC N6
The received signal is de-emphasized for LS1 and LS2 amplifier. The buffered signal is passed on to LF amplifier N2.

Balanced amplifier N3
This amplifier converts the signal from single end to balanced. Alarm tone can be added to the signal.

dB attenuator
V7, R21 is used to attenuate LS1 by 30dB.

LF switch
N8-A is used to mute LS2.

LF amplifier
N2 is a double amplifier with two inputs and outputs; one for LS1 and the other for LS2.
LS1 is for an internal speaker and goes up to 4W in 4W.
LS2 is for an external speaker and goes up to 6W in 4W.

Pre-emphasis
Pre-emphasis is made by C84, R91 and limited by R83, C72, R86 and C67 together with the input amplifier in the ASIC N6.

ASIC
ASIC contains AGC, limiter, LP filter and gain control. The output is used directly in the VCO.

Microcontroller
The microcontroller (D13) is a Hitachi H8323 with 32K ROM and ½K RAM driven by a 7.3728MHz crystal. In 63225001 the on-chip ROM is used. If SW update is needed, the on-chip program automatically finds an optionally mounted PROM and starts executing the external code. 63225002 always operates with external ROM and RAM.

Reset circuit & WD
D18 is a reset, watchdog and power failure control device. In case of power low, NMI is generated for the microcontroller. Power low level is adjusted by R6 and the trigger level is 10.0V DC. To adjust R6:

- Set the supply voltage to 10.0V DC.
- Turn R6 clockwise all the way.
- Turn R6 anticlockwise until control units indicate POWER LOW.

EEPROM
The device contains 2 serial EEPROMs each containing 1024 bytes. Setup information and the first 96 channels are stored in D20. If more than 96 channels are needed, D23 is mounted.

Selection circuit
D16 and D17 are used to select I/O devices attached to the microcontroller. D17 handles selection of PCBs in the RTU. D16 controls PCB 6322500x. The attached devices are :

1. Software reset
2. EEPROM D23
3. EEPROM D20
4. Latch D11
5. DSP on/off D4-B
6. ASIC read/write control
7. DSP data
8. Latch D2
9. Transmitter synthesiser
10. Latch on transmitter PCB
11. Latch on receiver 2 (DSC) PCB
12. Receiver 1 (main receiver) synthesiser
13. Latch on receiver 1 (main receiver) PCB
14. Receiver 2 (DSC) synthesiser
15. Reserved for future use
16. ATIS option in 63225001

SPARC-bus interface
D1 is a RS483 line driver for the SPARC-bus.

Power-on-hold circuit
The FET V2 is used to keep the power relay turned on during operation. Any ON/OFF button is coupled to SUPPLY_ON. When power is supplied, V4 and R3 charge C4 and keep the gate voltage high for V2. To turn off the device, the microcontroller keeps the voltage high for R9, C5 is charged, and V6 is turned on. When power drops, the microcontroller is reset, and C5 continues to keep V6 turned on. V6 discharges C4, and V2 is switched off.

NMEA
The incoming signal is electrically isolated by the optocoupler N1. The signal is fed to the microprocessor.

RTC (only for 63225002)
D19 is a battery backed real-time clock. The IC maintains track of time and date.
The time is controlled by a 32.768 kHz crystal.

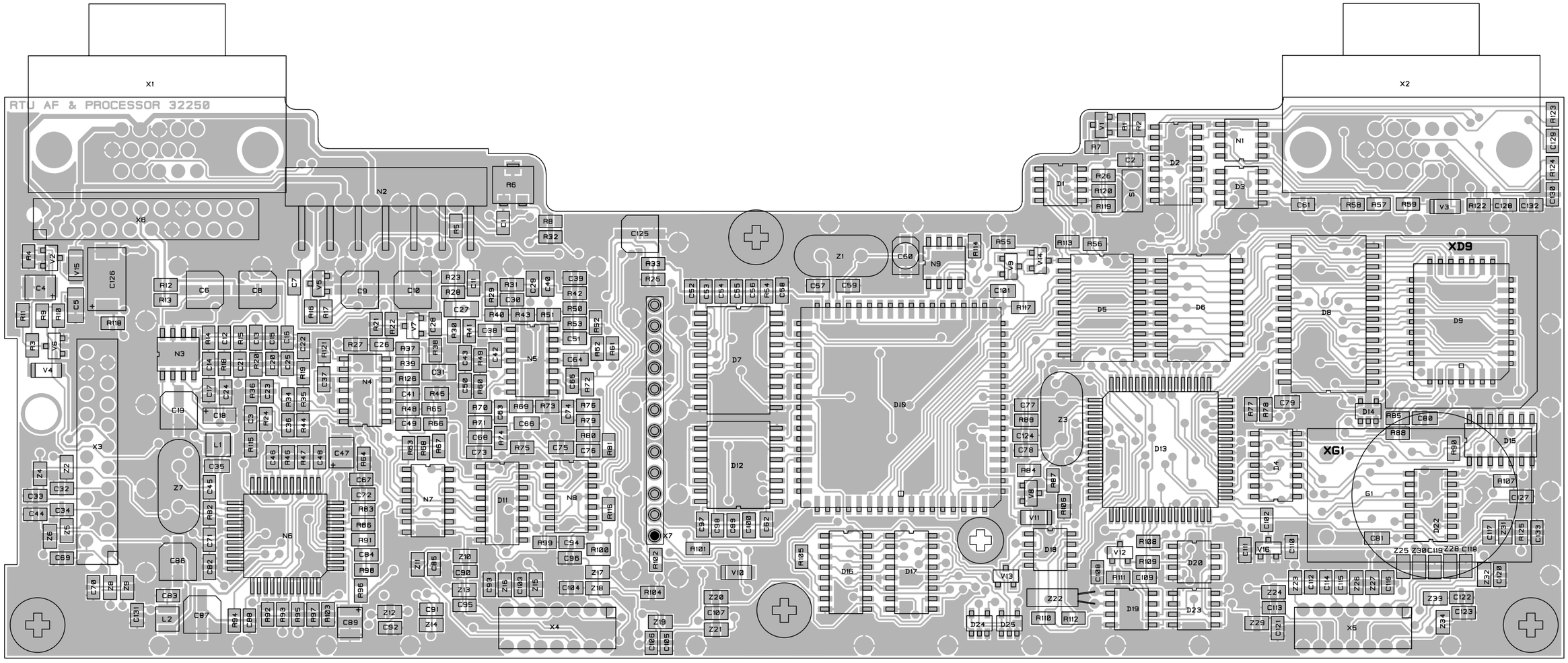
Battery (only for 63225002)
The battery supplies the RAM D8 and the RTC D19 during power off. The battery has an estimated working time of approx. 2 years.

A/D & amplifier (only 63225002)
N5 is used to amplify and filter the RX_1_AF and DSC_RX (receiver 2) inputs.
D7 is an A/D converter AD7812 from Analog Devices which is used to receive the amplified and filtered signals.

DSP/modem (only 63225002)
D10 is a DSP ADSP2115 from Analog Devices with 1K ROM and ½K RAM driven by a 19.6608 MHz crystal.

D/C & amplifier (only 63225002)
D12 is a D/A-converter AD7804 from Analog Devices which is used to transmit DSC-calls.
N4 is used to filter the output from the D/A-converter.

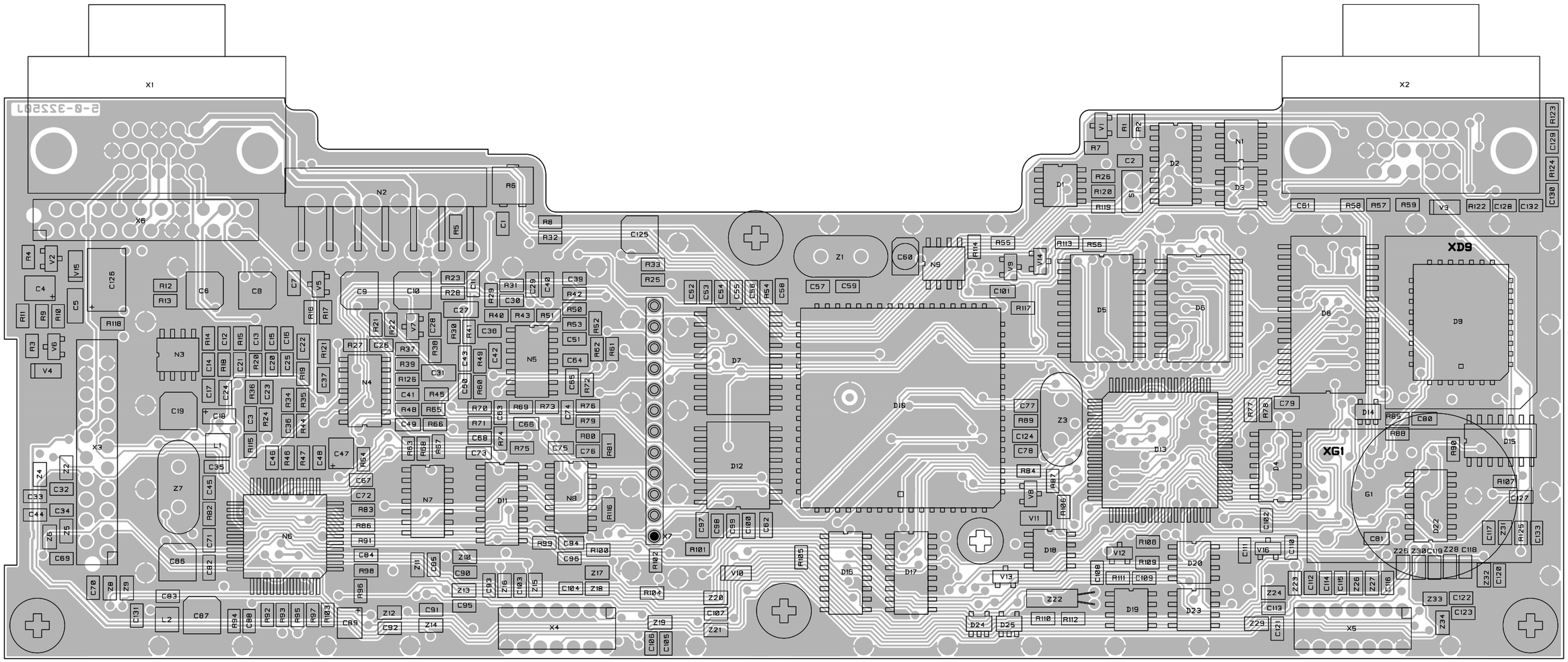
Component location AF and processor unit 63225001/02



Seen from primary side with primary side tracks.

PCB rev. 32250J

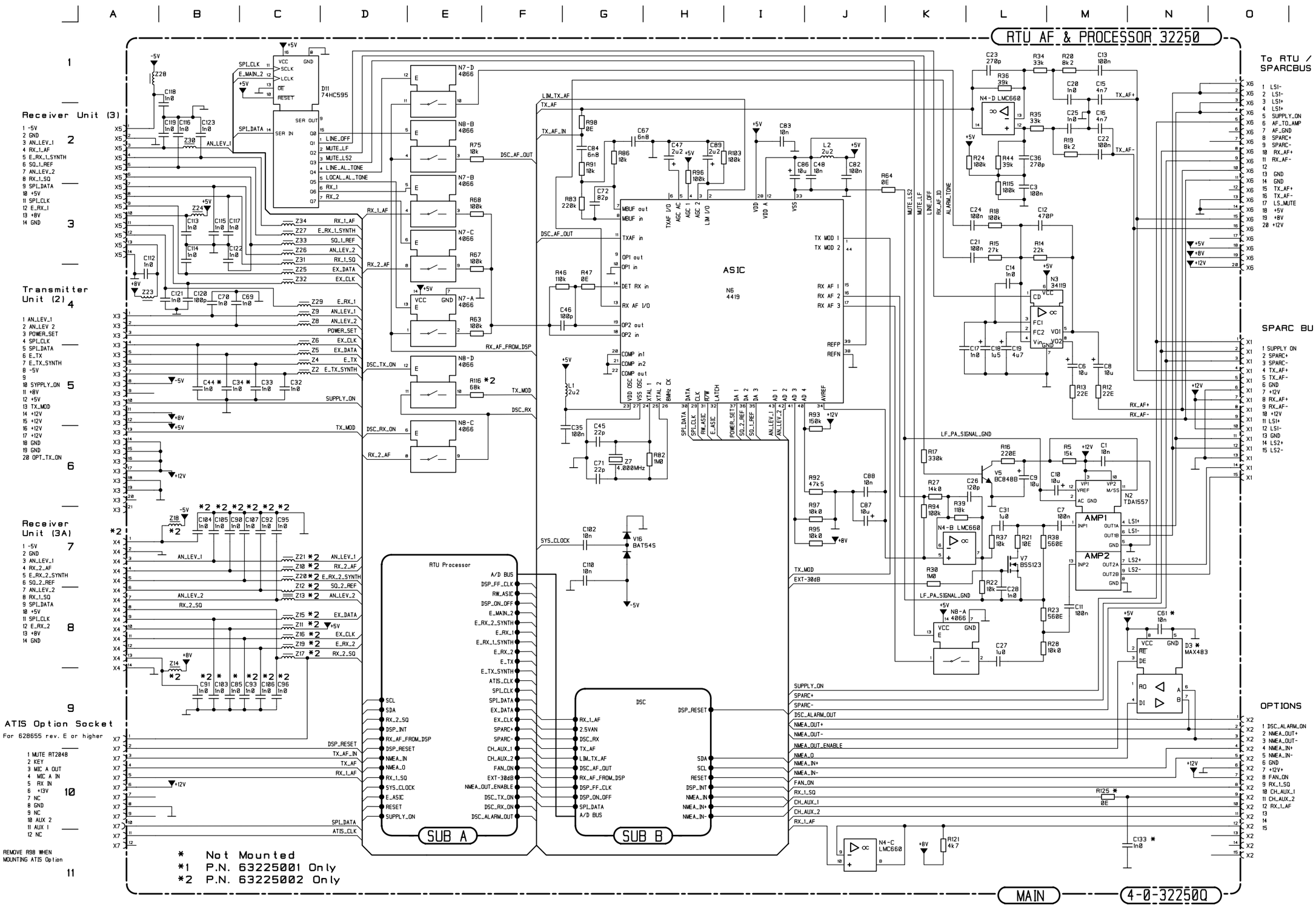
Component location AF and processor unit 63225001/02



Seen from primary side with secondary side tracks.

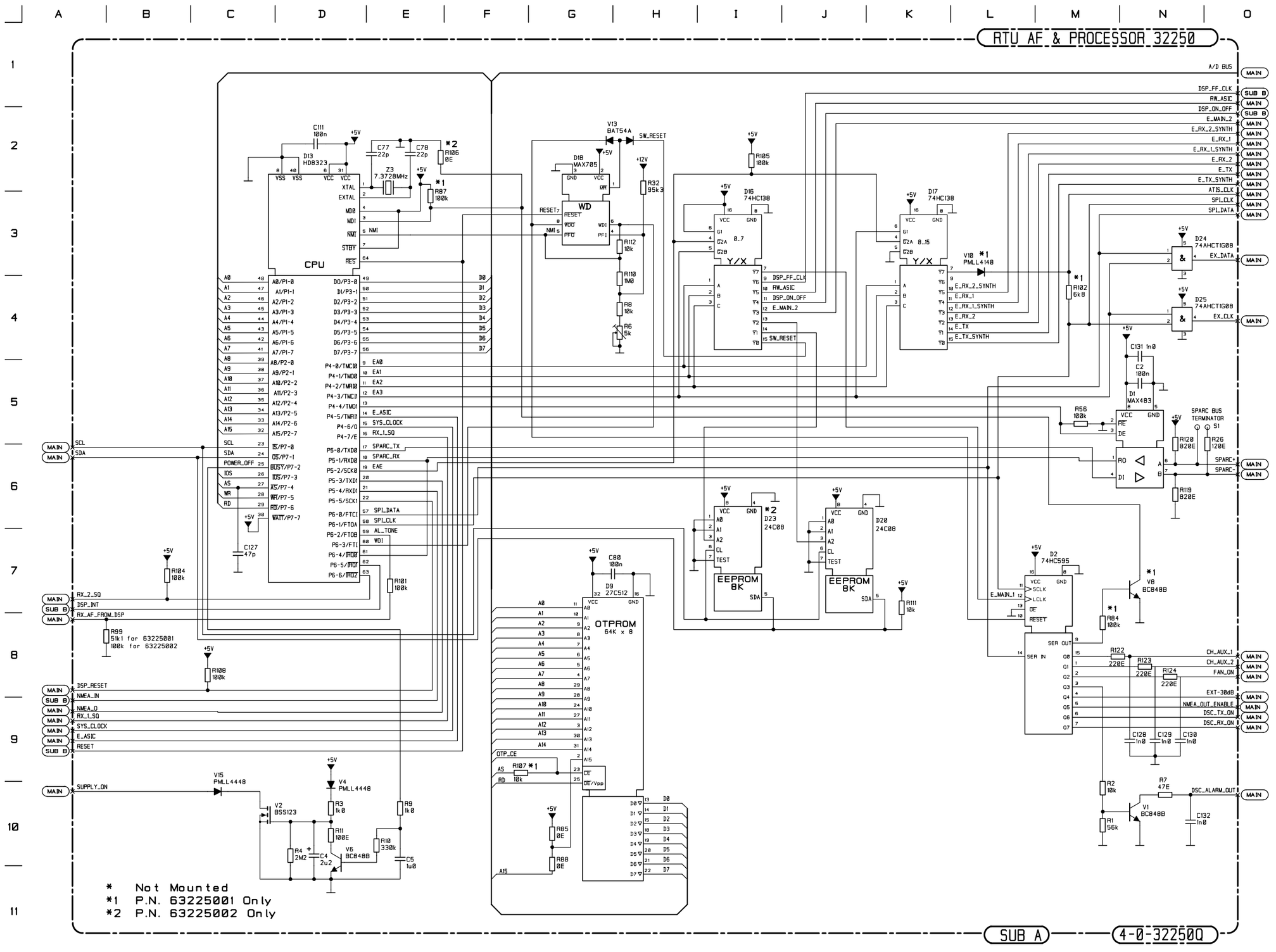
PCB rev. 32250J

AF and processor unit 63225001/02



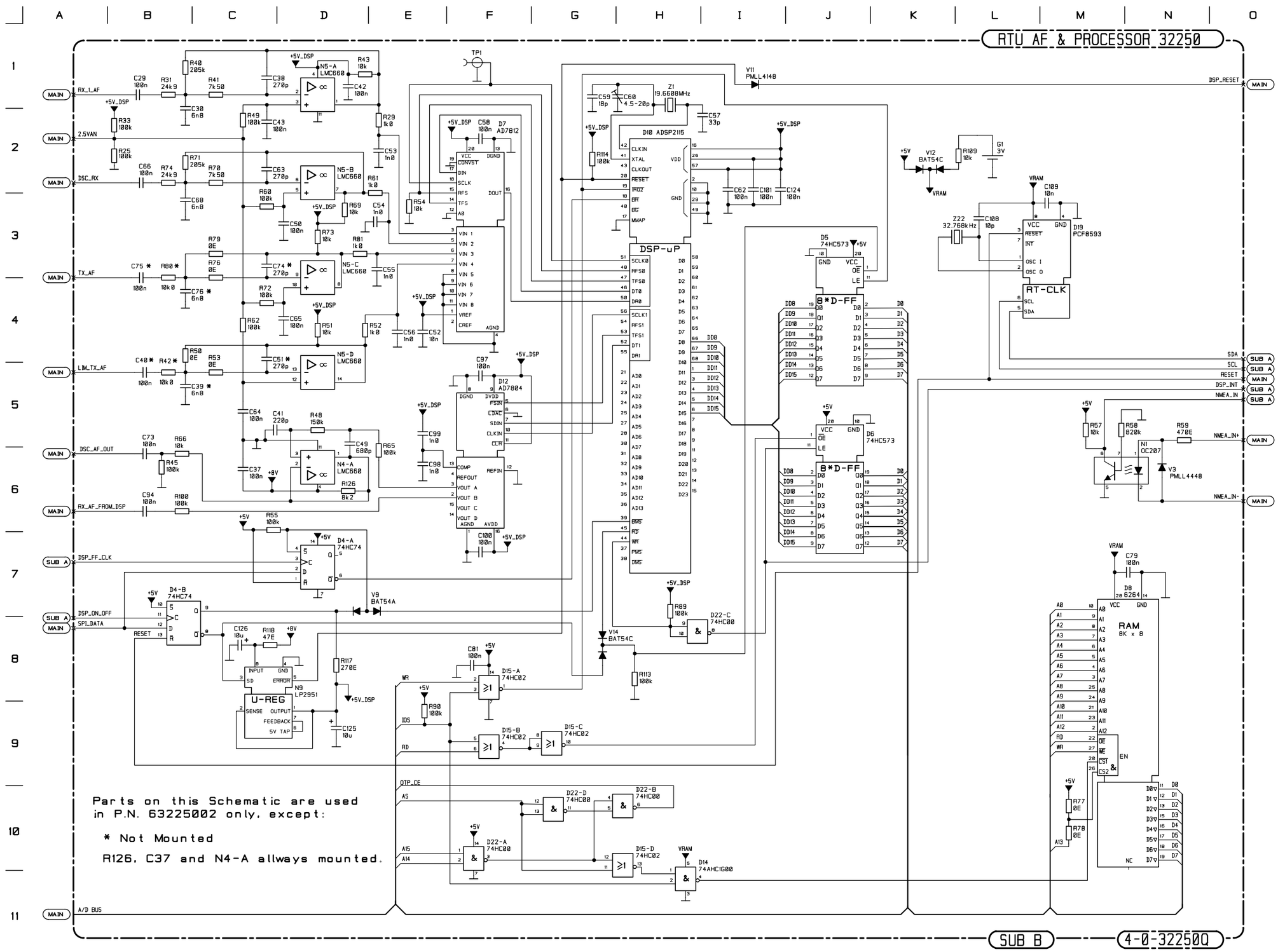
This diagram is valid for PCB rev. 32250J

AF and processor unit 63225001/02



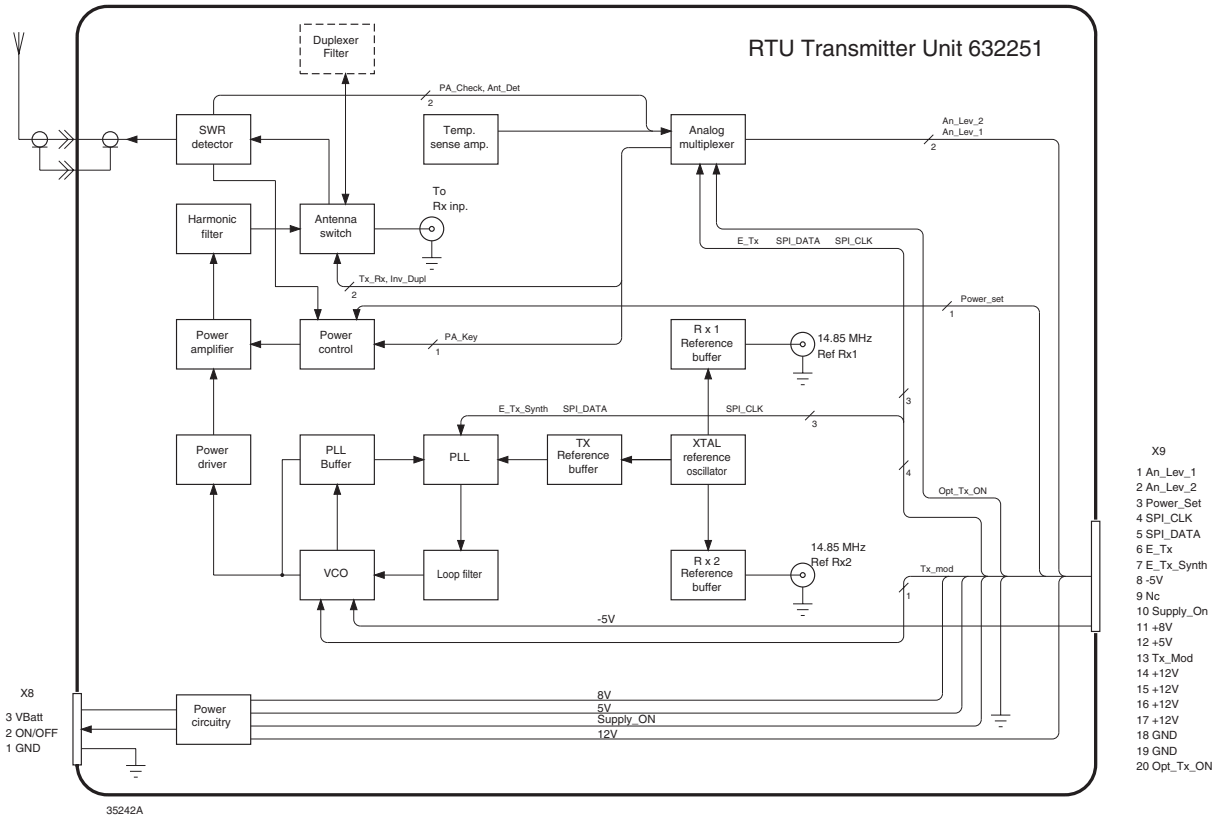
This diagram is valid for PCB rev. 32250J

AF and processor unit 63225001/02



This diagram is valid for PCB rev. 32250J

4.2 Transmitter unit 632251/636281



Power circuitry
A power relay, K3, switches the transceiver on and off. Polarity inversion is avoided by means of a fuse, F1, and a high current zener diode, V4. The power supply also includes two voltage regulators, N2 and N3, providing +5V and +8V, respectively. These supplies are adjustable since they provide a voltage which is used as a reference.

Reference oscillator
In order to accomplish a constant and stable transmitting and receiving frequency, the transceiver includes a 14.850 MHz crystal oscillator with a precision of 10 ppm (5 ppm. is optional). The oscillator, which is of the Colpitts type, is built around V19 and Z3, and its frequency can be adjusted with trimmer capacitor C48. In order to avoid frequency pulling, three identical common base amplifiers are used. These three amplifiers have their inputs connected to the reference oscillator, while their outputs provide separate reference signals to the transmitter and the receiver(s).

Analogue multiplexer
An analogue multiplexer, D2, provides the capability of monitoring 6 analogue voltages carrying information about the functionality of the transmitter. This multiplexer is controlled by an 8 bit serial to parallel register, D1. This register also controls the transmitter state (ON/OFF) and output power.

Voltage controlled oscillator
The oscillator of the transmitter is a series tuned colpitts around V28, containing two varicaps in order to accomplish frequency tuning by V21 and modulation by V25, independently. This oscillator with its buffer, V29, is capable of delivering 4 dBm over the frequency range 150.8 MHz to 163.6 MHz.

Phase locked loop, PLL buffer and loop filter
The transmitting frequency is maintained constant and stable by a serial controlled PLL, D3, with on-chip prescaler. An isolating amplifier containing V20 is used between the VCO and the PLL to ensure good spectral purity of the transmitted signal. A passive loop filter interfaces the PLL unit with the VCO.
A lock detector around V27 is included to ensure that the transmitter frequency is correct during transmissions.

Power driver
This part of the transmitter chain consists of two amplifier stages. The first stage of amplification is accomplished by a common emitter buffer, V15. A switching transistor, V14, shuts this stage down during reception. This stage delivers 13 dBm and the output power rise and decay times are shaped in such a way that frequency pulling of the VCO is avoided.
The final discrete stage of amplification contains a medium power VHF transistor, V7, running in class C. This amplifier puts 25 dBm out during transmission and is turned off during reception in order to save current.

PA stage
The final boost of amplification consists of an integrated power module, N1, capable of delivering 30W (40W in duplex) and withstanding a large amount of load mismatch. This stage provides a minimum gain of 20 dB, which can be reduced by varying the supply voltage to the first amplifier in the power module. This feature is used in order to obtain two output powers: 1W and 25W.

Harmonic filter
All of the harmonic signals of the carrier frequency are suppressed by a 7^{th} order elliptic filter.

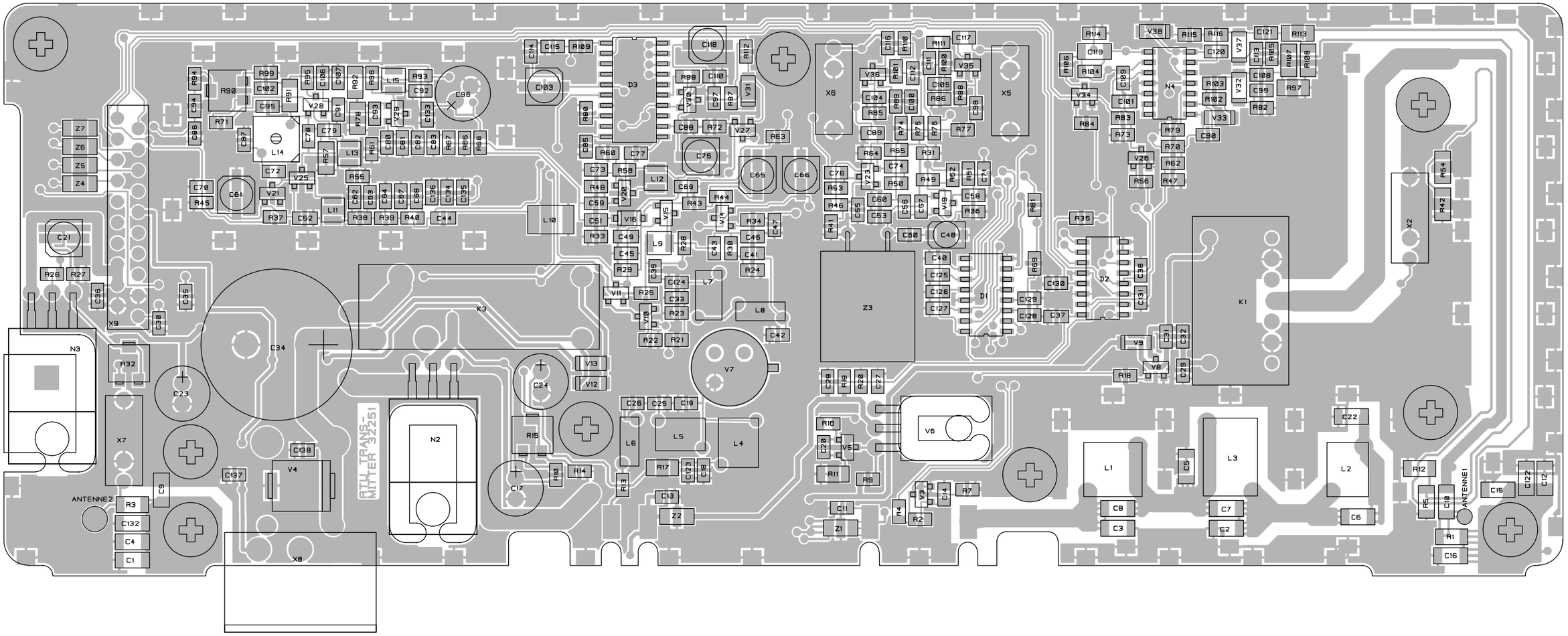
Aerial switch
The aerial is switched between the transmitter and the receiver by relay K1. As an option the transceiver can be operated as a coast station in reverse duplex by means of a second aerial relay, K2.

SWR Detector
The SWR detector consists of three elements: a directional coupler and two power detectors. The coupler samples forward and reverse going power in the transceiver.
A temperature compensated power detector consisting of an operational amplifier, N4-A, and two fast switching diodes, V32 and V33, provides the regulating circuitry with a voltage proportional to the output power.
The same circuitry used in the power detector is used in the reverse power detector around N4-B, V37 and V38. This is done to avoid transmitting at a high power level in case of aerial failure or high SWR.

Power regulator
The heart of the power regulator is the operational amplifier N4-C, which compares the detected output power with a power setting voltage. In this way the output power from the transmitter can be regulated by adjusting the voltage at pin 10 of N4-C. The transistor V26 is one of the shutdown mechanisms incorporated in the transmitter. This transistor and the surrounding RC network also contribute to the power envelope shaping done at the first stage of the power driver.
The HIGH-LOW power selection is done by shunting the output voltage from the forward power detector with V34.
Finally, the output from N4-C is buffered by the amplifier around V5 and V6, which is capable of driving the PA stage.

Temperature sensor
A forward biased transistor, V3, placed near the PA stage is used as a temperature sensor to alert the controlling circuitry and thereby prevent damage at the PA stage due to high temperatures.

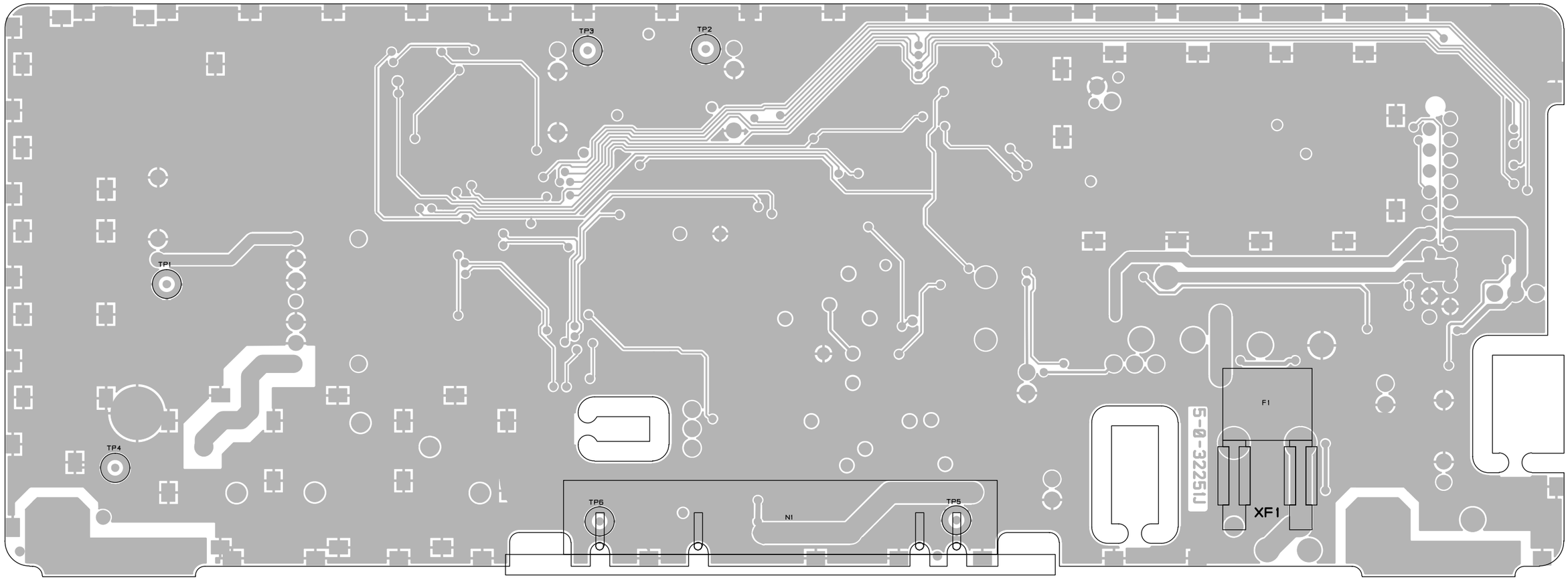
Component location Transmitter unit 632251



Seen from primary side with primary side tracks.

PCB rev. 32251J

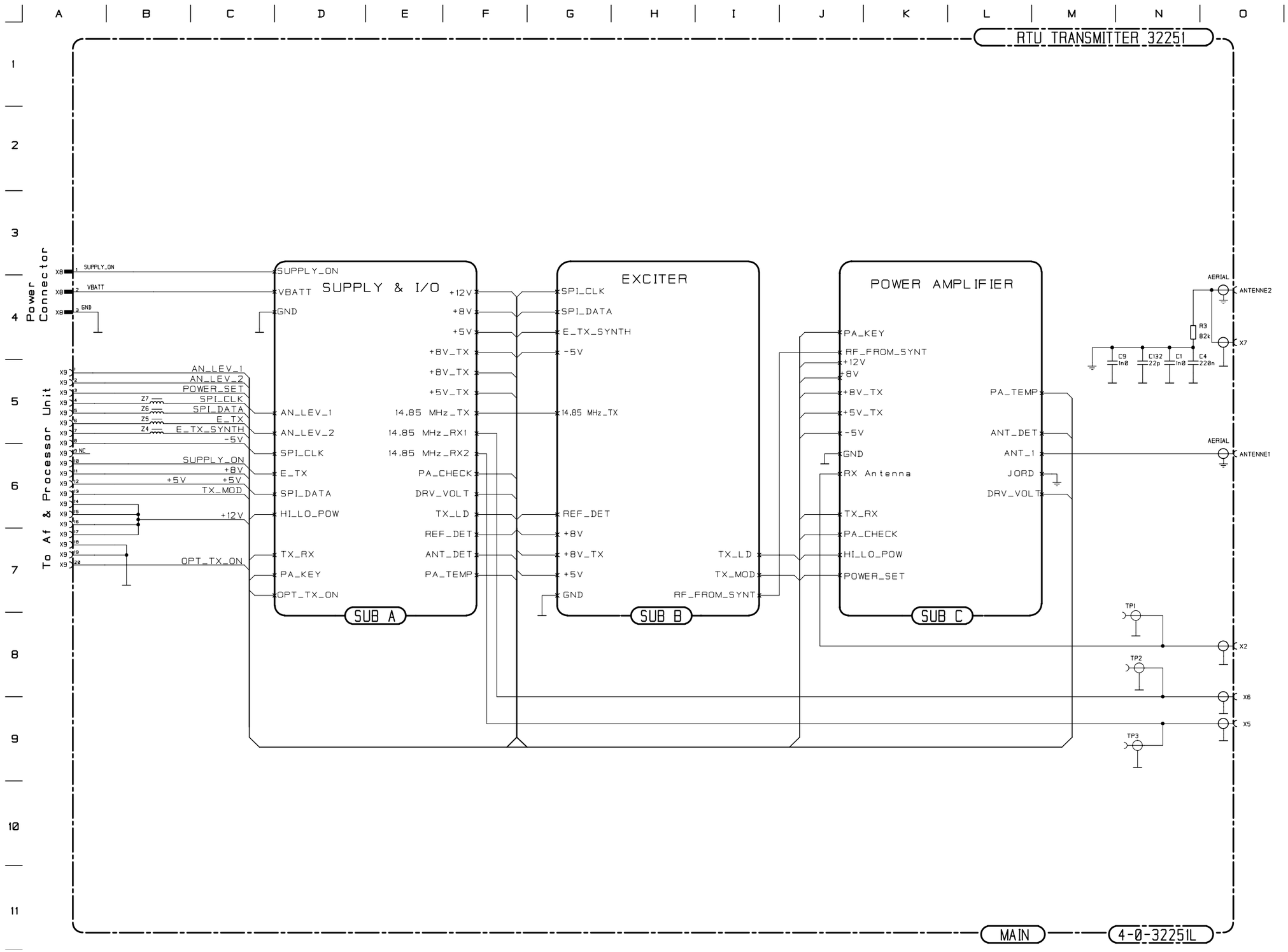
Component location Transmitter unit 632251



Seen from secondary side with secondary side tracks.

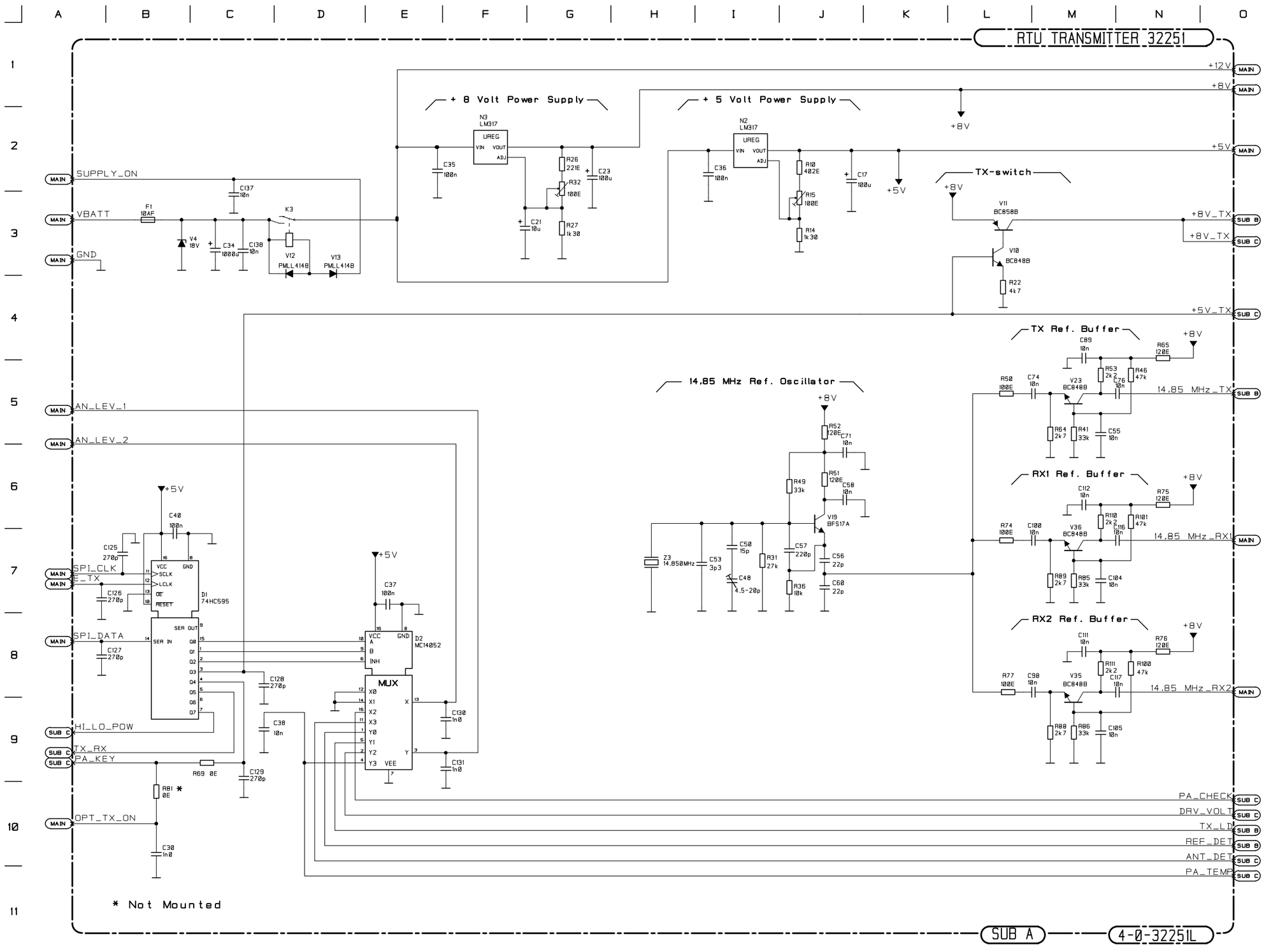
PCB rev. 32251J

Transmitter unit 632251



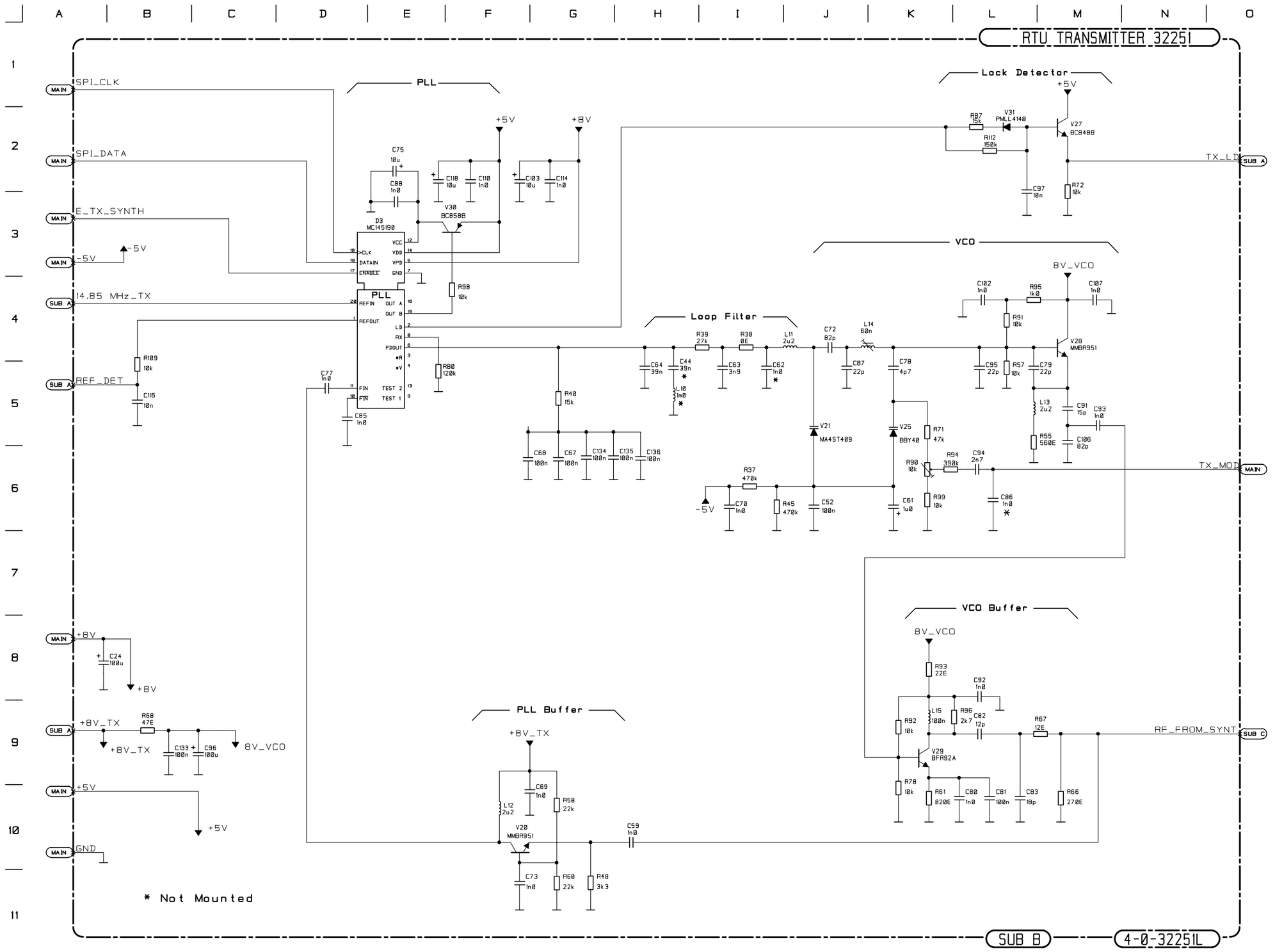
This diagram is valid for PCB rev. 32251J

Transmitter unit 632251



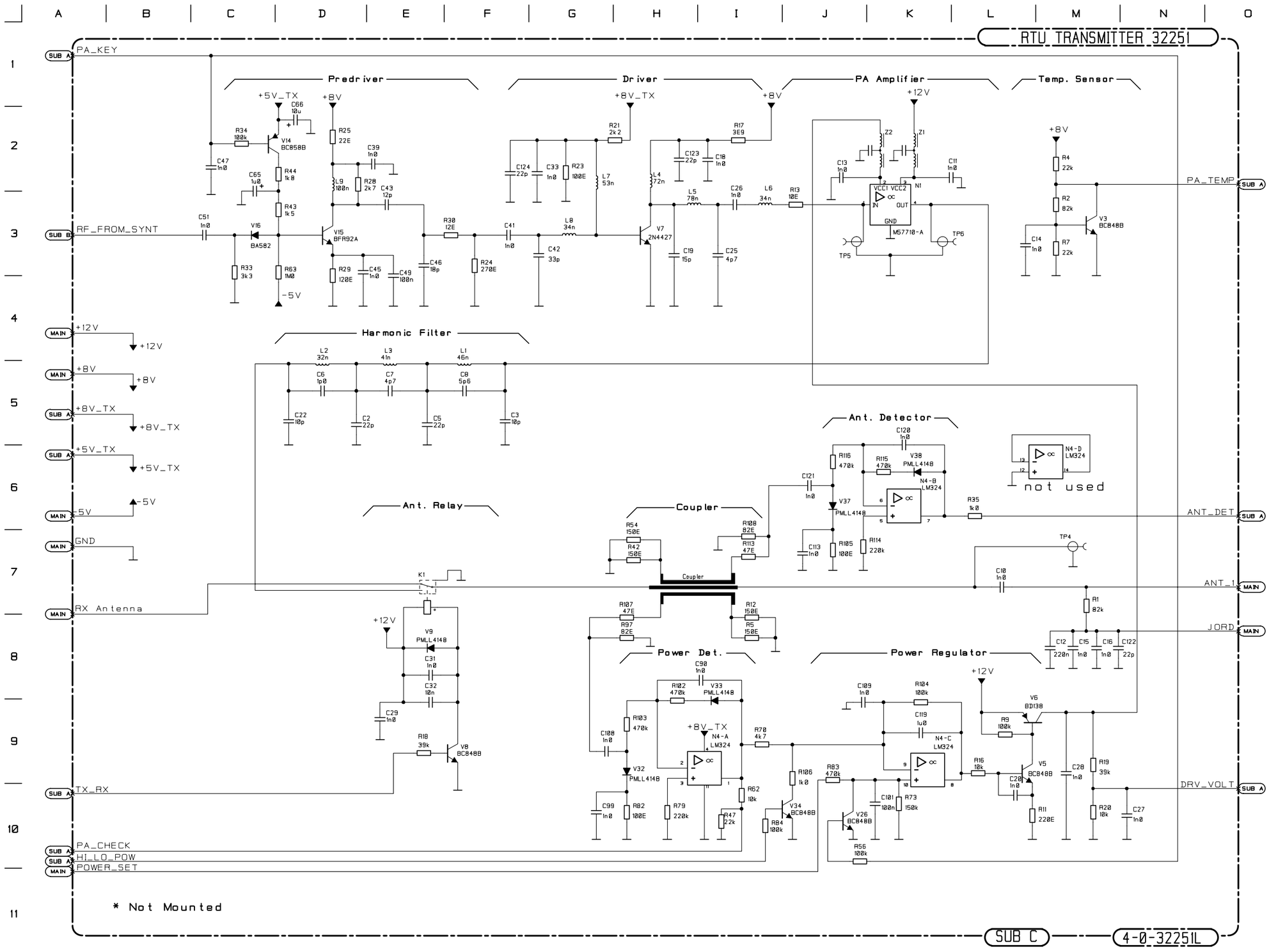
This diagram is valid for PCB rev. 32251J

Transmitter unit 632251



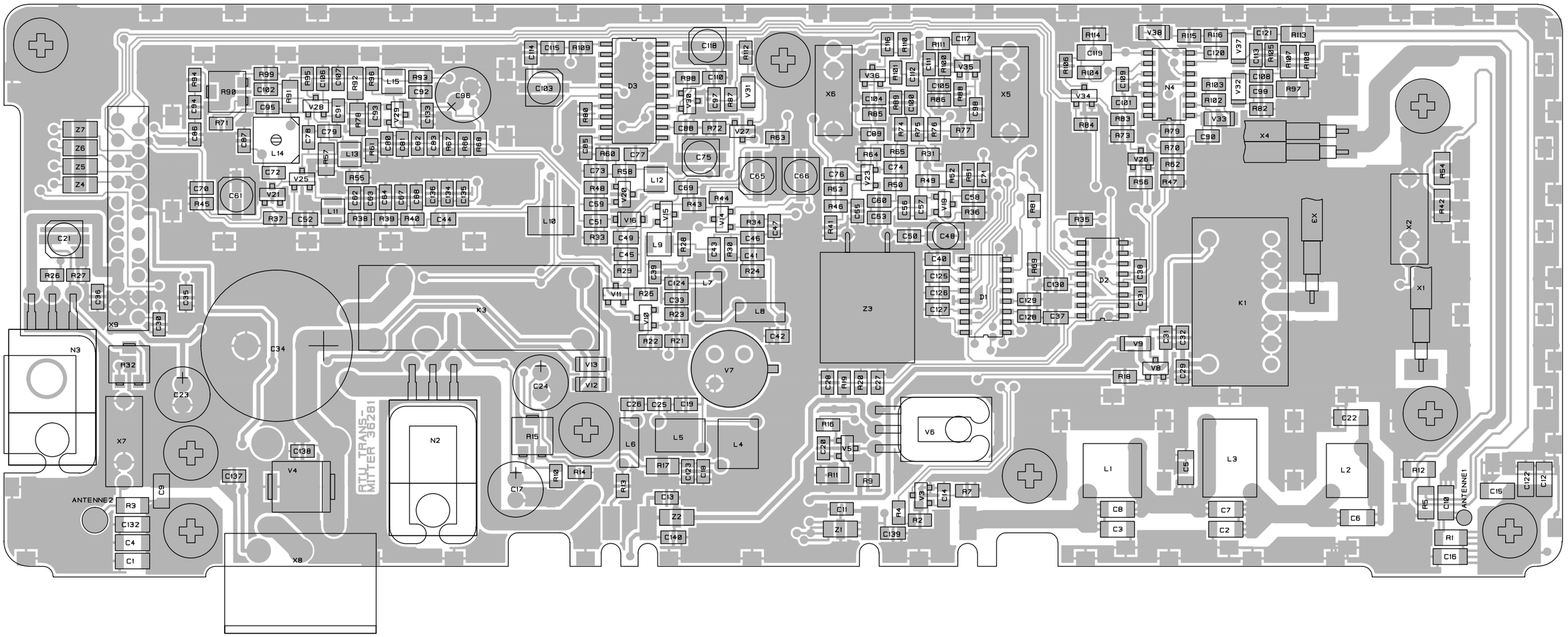
This diagram is valid for PCB rev. 32251J

Transmitter unit 632251



This diagram is valid for PCB rev. 32251J

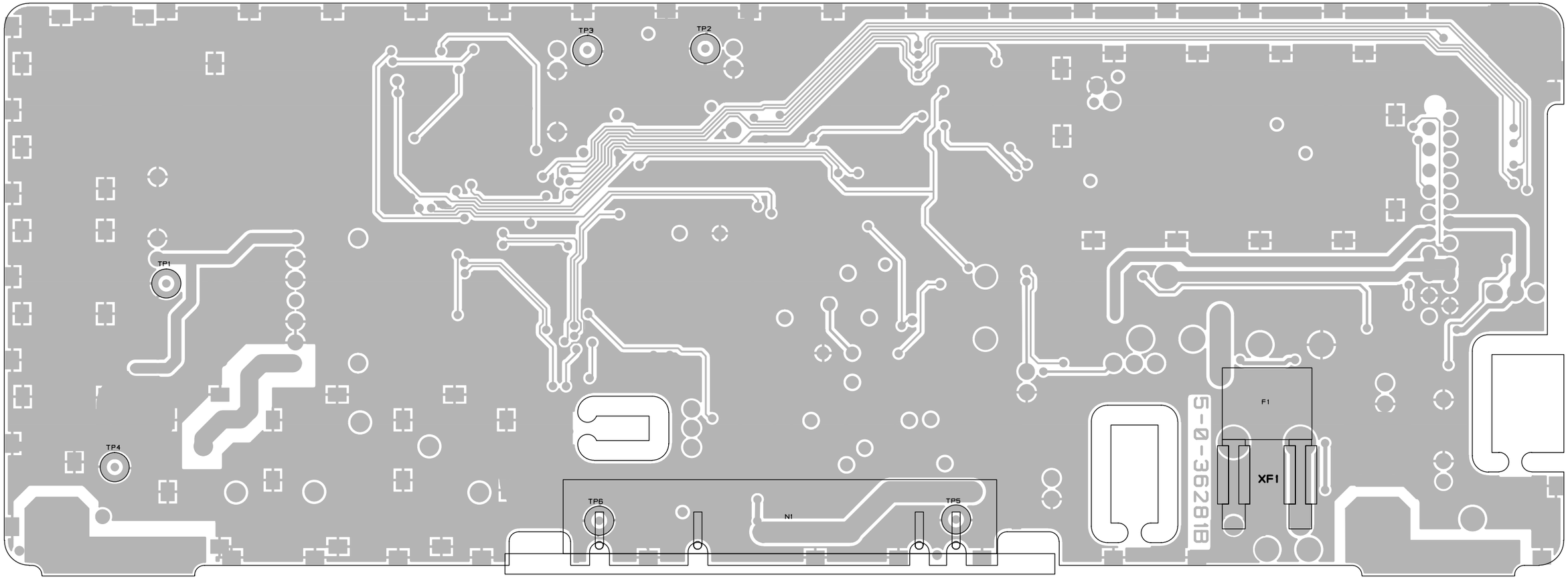
Component location Transmitter unit 636281



Seen from primary side with primary side tracks.

PCB rev. 36281B

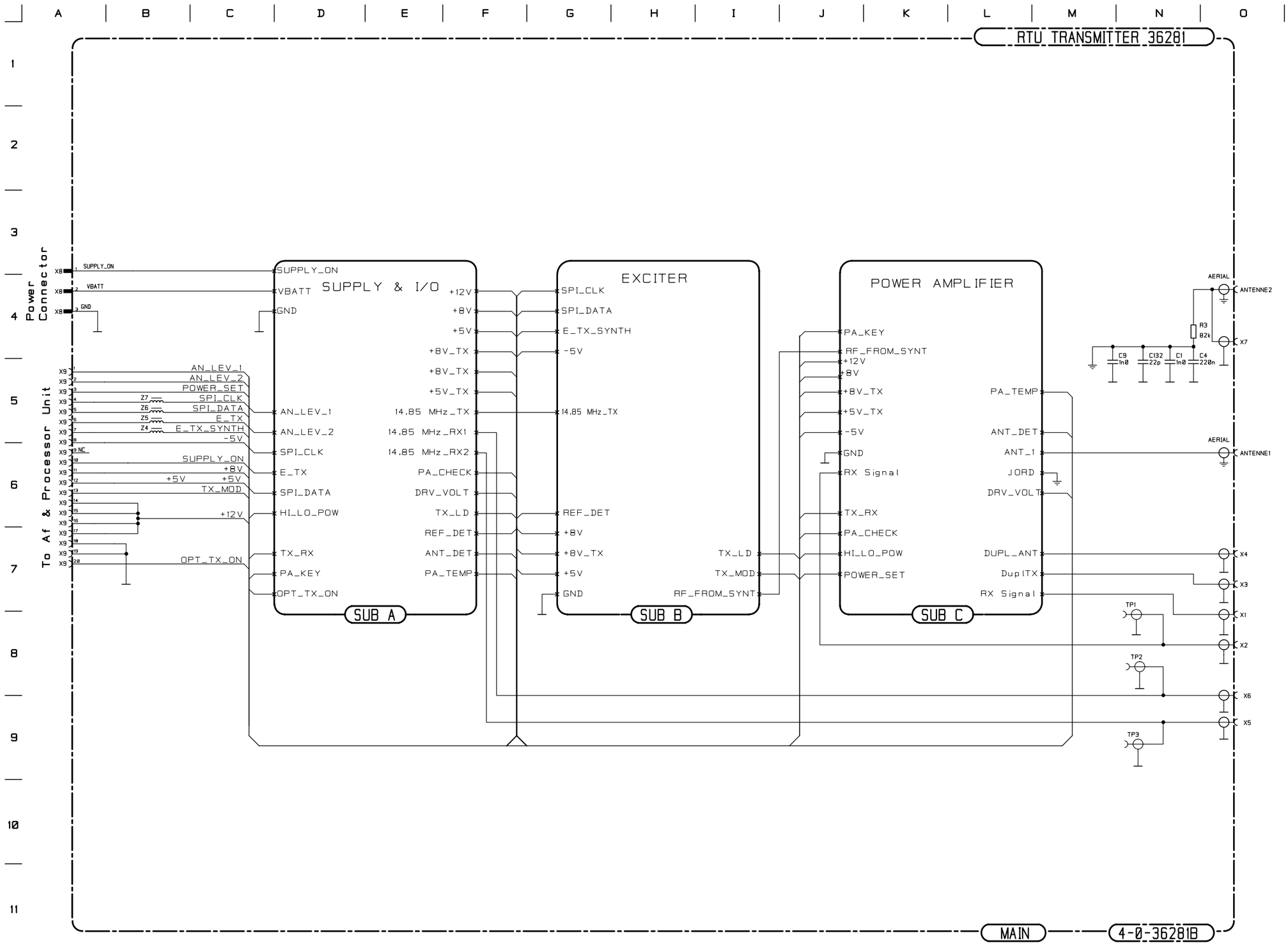
Component location Transmitter unit 636281



Seen from secondary side with secondary side tracks.

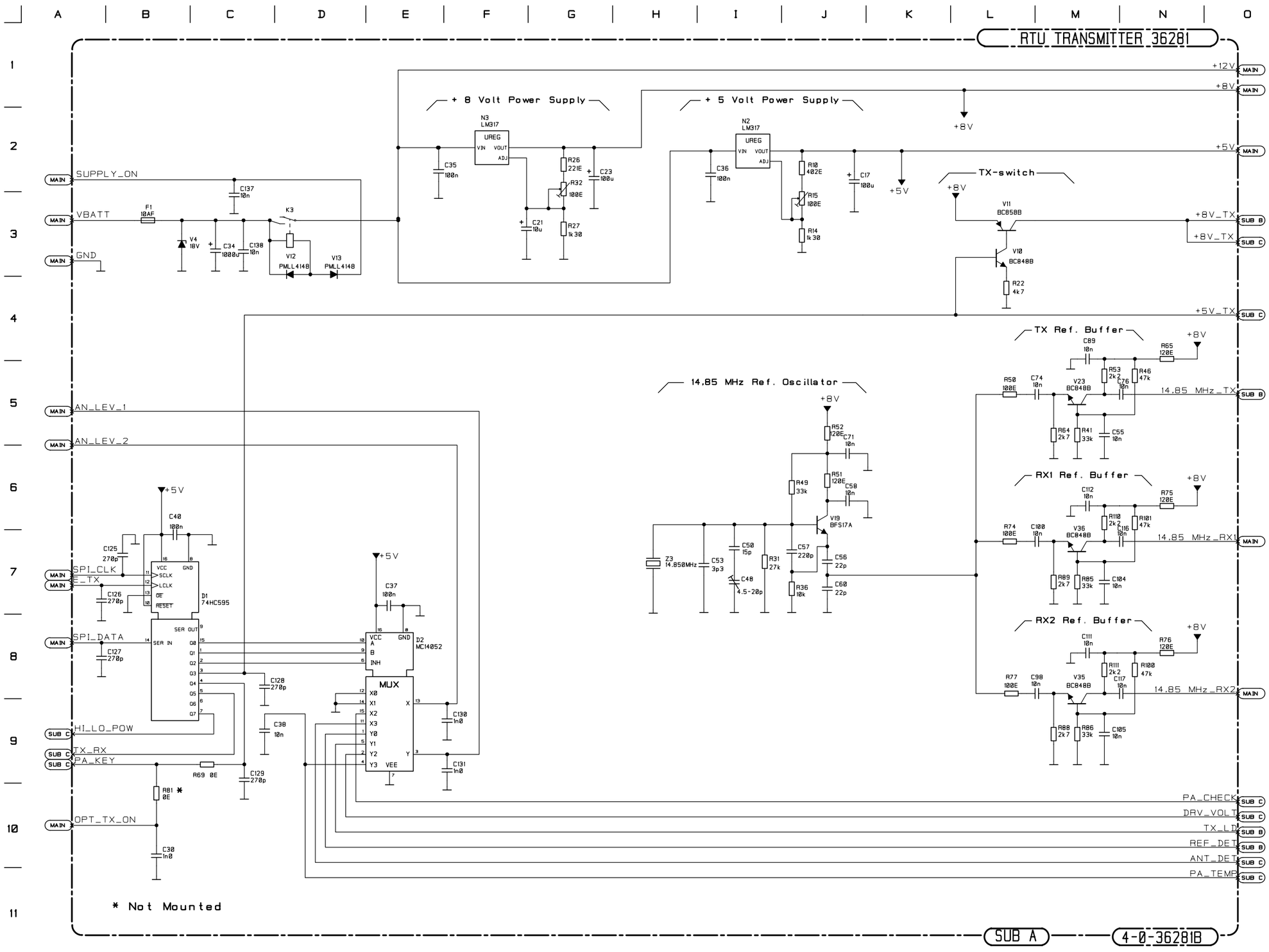
PCB rev. 36281B

Transmitter unit 636281



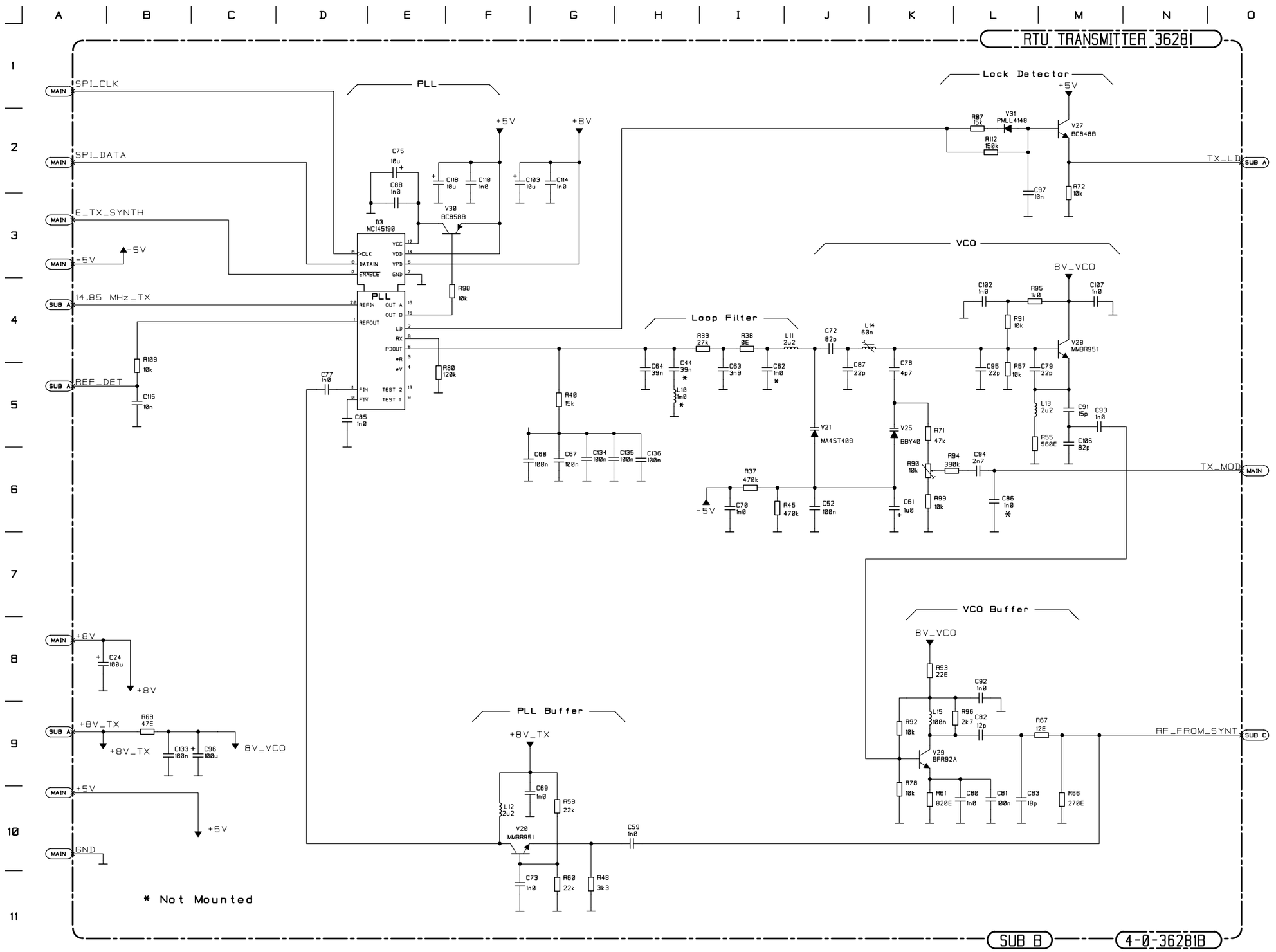
This diagram is valid for PCB rev. 36281B

Transmitter unit 636281



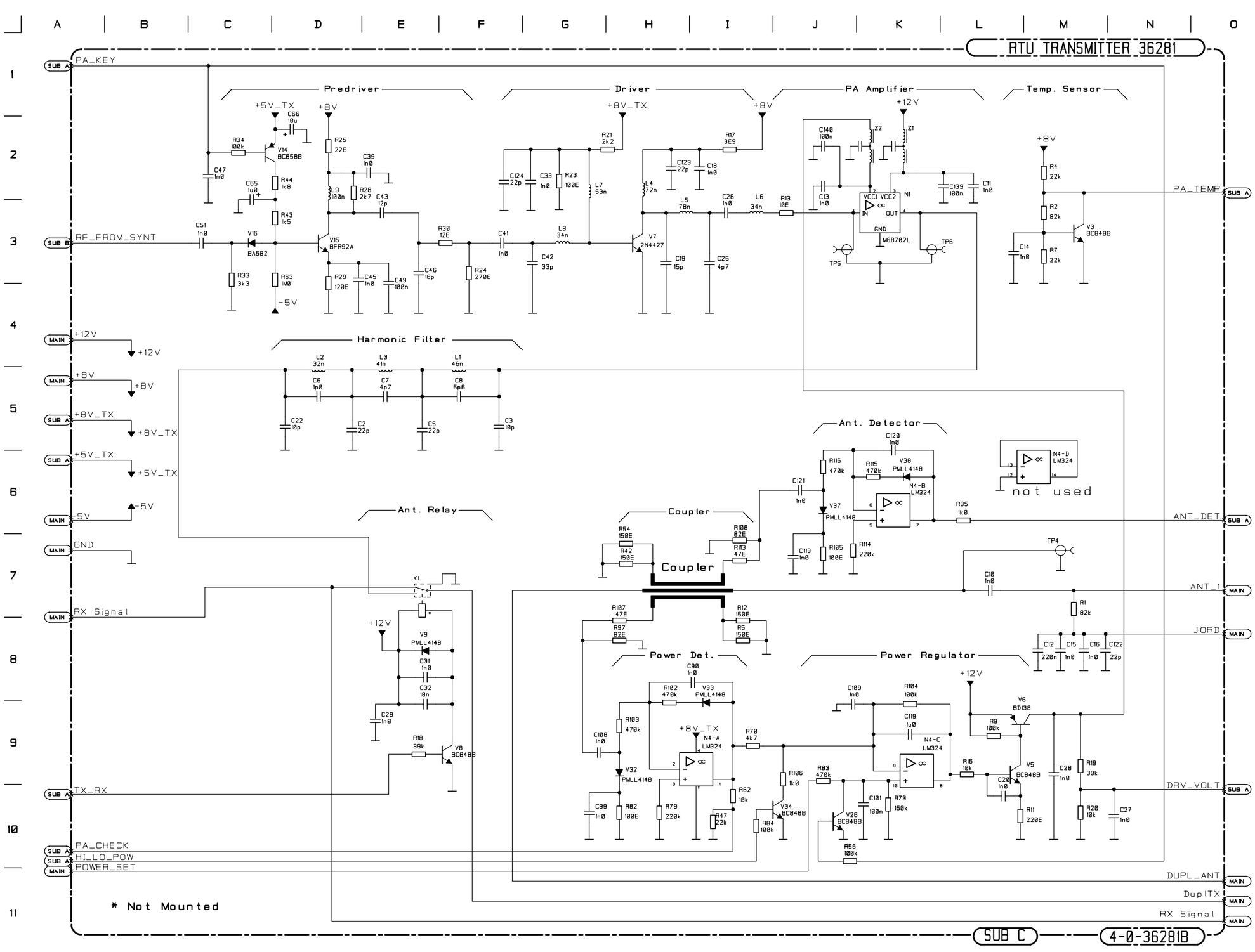
This diagram is valid for PCB rev. 36281B

Transmitter unit 636281



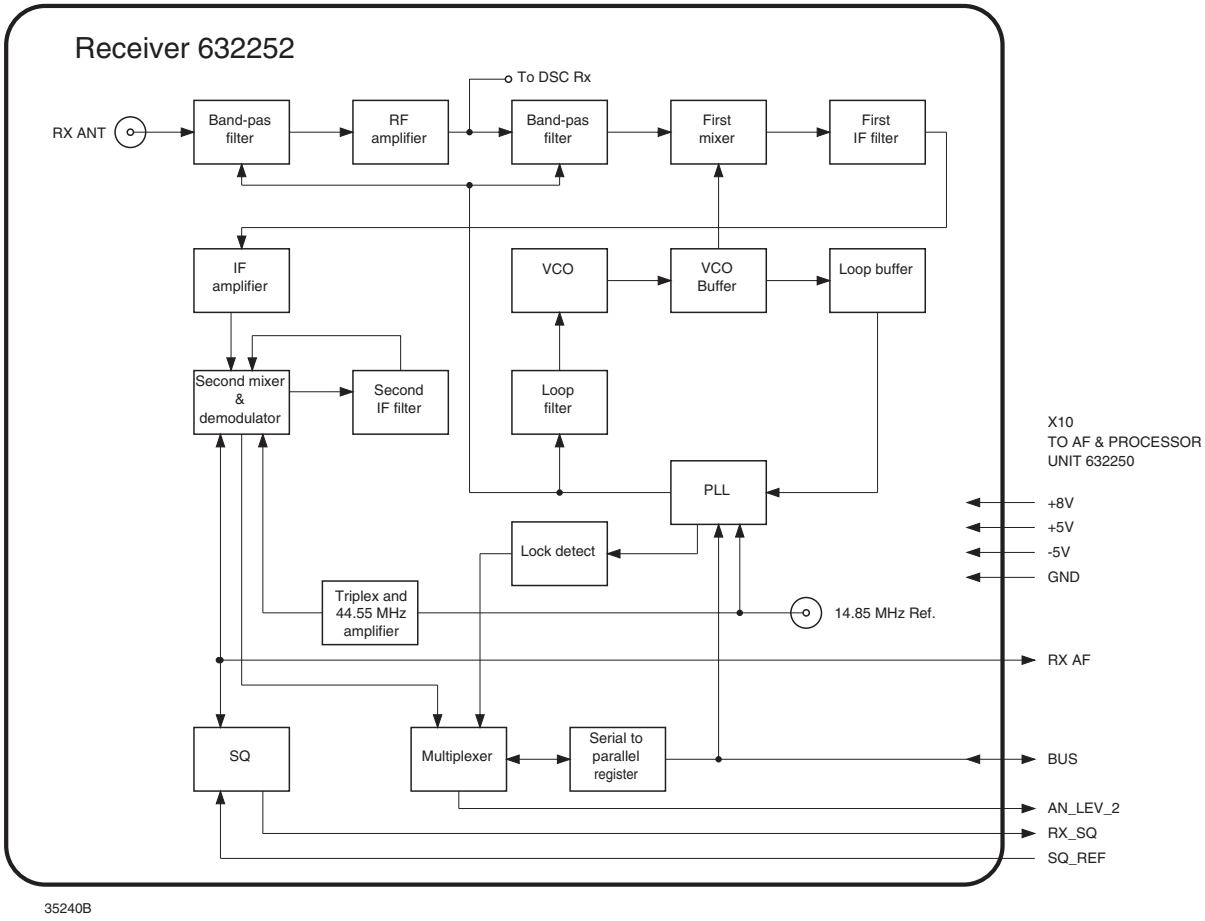
This diagram is valid for PCB rev. 36281B

Transmitter unit 636281



This diagram is valid for PCB rev. 36281B

4.3 Receiver unit 632252



The receiver is of the type FM double superheterodyne with a first intermediate frequency of 45 MHz and upper-injection first LO. Second intermediate frequency is 450 kHz with lower-injection secondLO.

Band-pass filters
The received signal is led through an aerial relay to the input band-pass filter. This filter and the intermediate band-pass filter are controlled by a DC voltage on the diodes capacitors V2, V3, V5 and V6. This DC voltage is driven from the RX-VCO control voltage, and it secures an optimum filter response in the whole frequency range of the receiver. These two filters can be adjusted by L7, L8, L13 and L14 to create the necessary attenuation of unwanted signals and obtain maximum sensitivity.

RF amplifier
The RF amplifier covers the frequency range from 150.8MHz to 163.6MHz, and has high gain and low noise figure. The amplifier is implemented with V4.

First mixer
The first mixer is a balanced mixer implemented with V9 and V14, which are of the J-FET type. The RF signal is led to the balanced input transformer TR2 and then to the gates of the J-FET's, which are switched by injecting the first LO signal in to the sources of the V9 and V14. The mixed signals are fed to the balanced output transformer TR1 where the wanted signal on 45MHz is selected by the tune circuit consisting of TR1, C41 and C58.

First IF filter
The receiver adjacent channel selectivity is maintained by means of a 4-pole crystal filter Z1 in co-operation with the ceramic filter Z3. R17 gives the impedance matching of output of the crystal filter.

IF amplifier
The transistor V7 amplifies the 45MHz output signal from the crystal filter to the second mixer, which has a tuned drain circuit consisting of L17, C70 and C74.

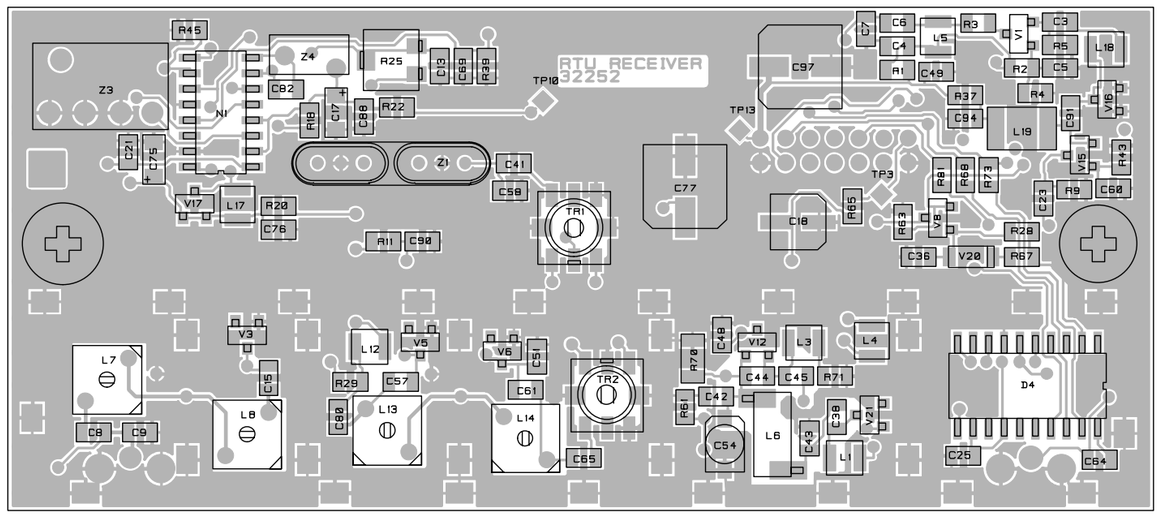
Second mixer, demodulator, second IF filter and multiplexer
The 45 MHz signal is down converted to 450 kHz by the second LO of 44.55 MHz. The mixer output is fed through the ceramic filter Z3 to the limiter amplifier and demodulator in the N1. The AF signal is amplified by an internal operation amplifier. The output signal can be adjusted by R25. The RX_level, which is an output from N1 to indicate the strength of the received signal, is multiplexed with the lock detector signal, from the pLL (D4), by D2 and the output is routed to AN_LEV_2.

VCO and VCO buffer
The VCO, which is built around V12, is oscillating at +45 MHz above the selected channel frequency. The oscillator can shift the band by means of the trimmer capacitor C54. The output voltage of the VCO is fed to the VCO buffer, which is implemented with V13.

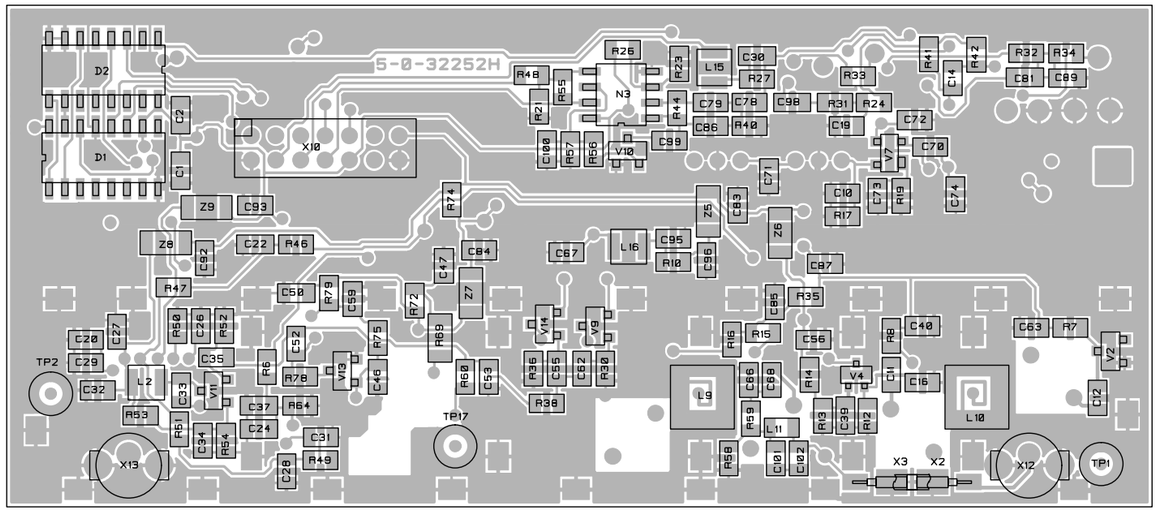
Loop buffer, PLL and loop filter
The output of the VCO buffer is fed to the prescaler of the PLL, which is implemented by IC MC145190, via the loop buffer. This is realized by V11. The output from the phase detector of the PLL is fed to the VCO through the loop filter providing optimum settling and filtering of the VCO.

Tripler and 44.55 MHz amplifier
The second LO is generated from the 14.85 MHz, which is amplified and clipped by a dual schottky diode V16 generating 3rd harmonic signal. This signal is selectively amplified at 44.55 MHz by V1.

Component location Receiver unit 632252



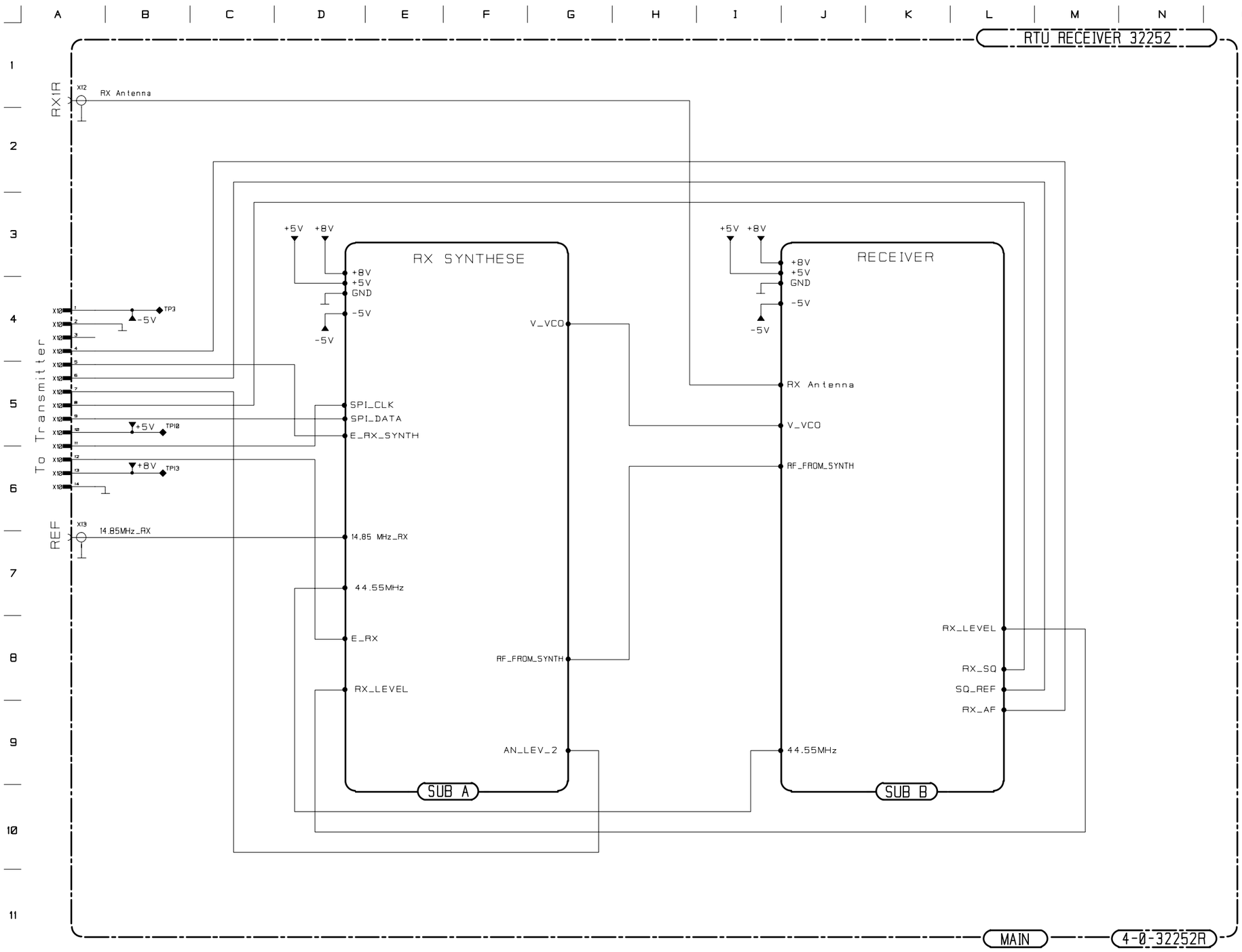
Seen from primary side with primary side tracks.



Seen from secondary side with secondary side tracks.

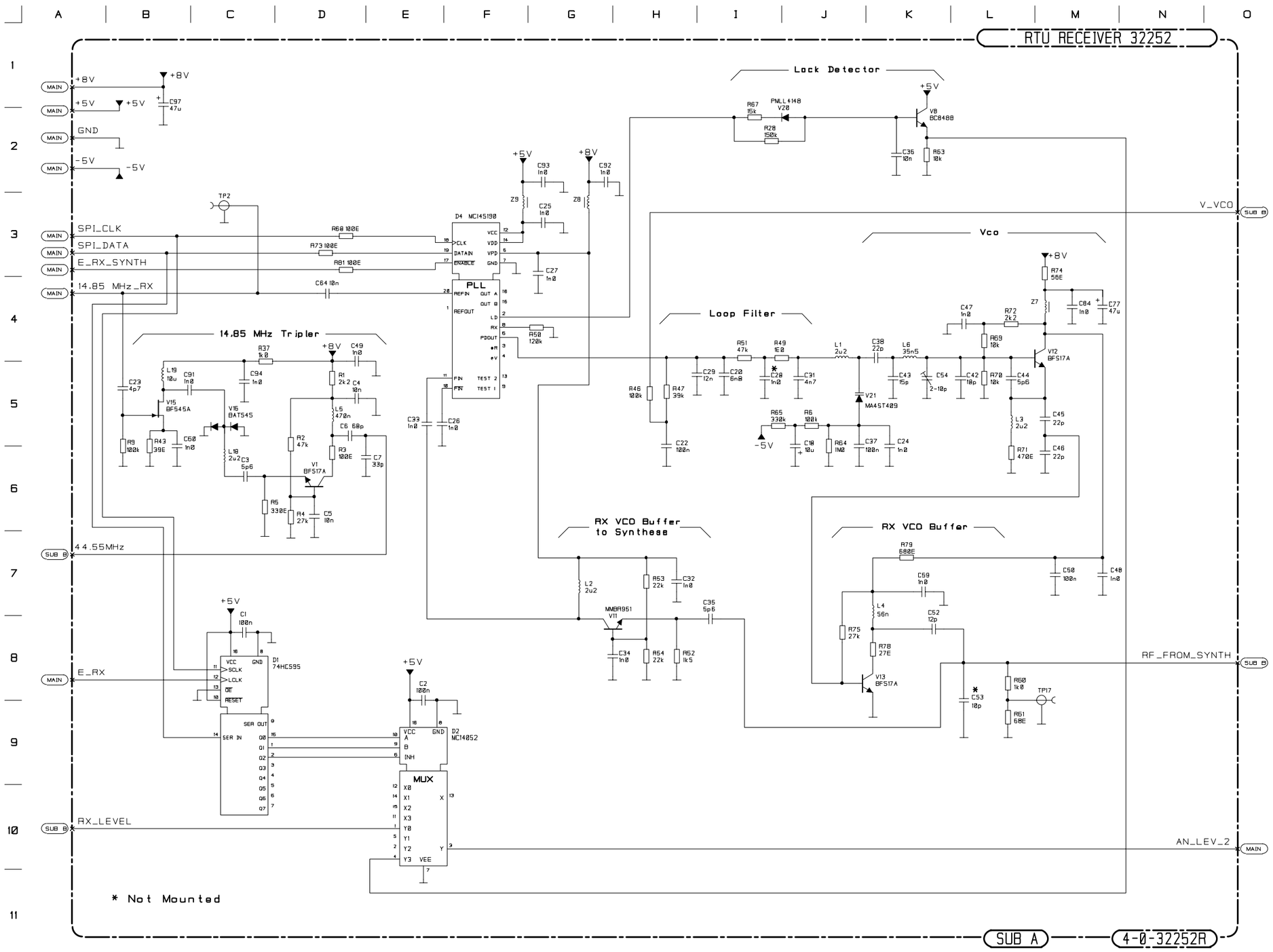
PCB rev. 32252H

Receiver unit 632252



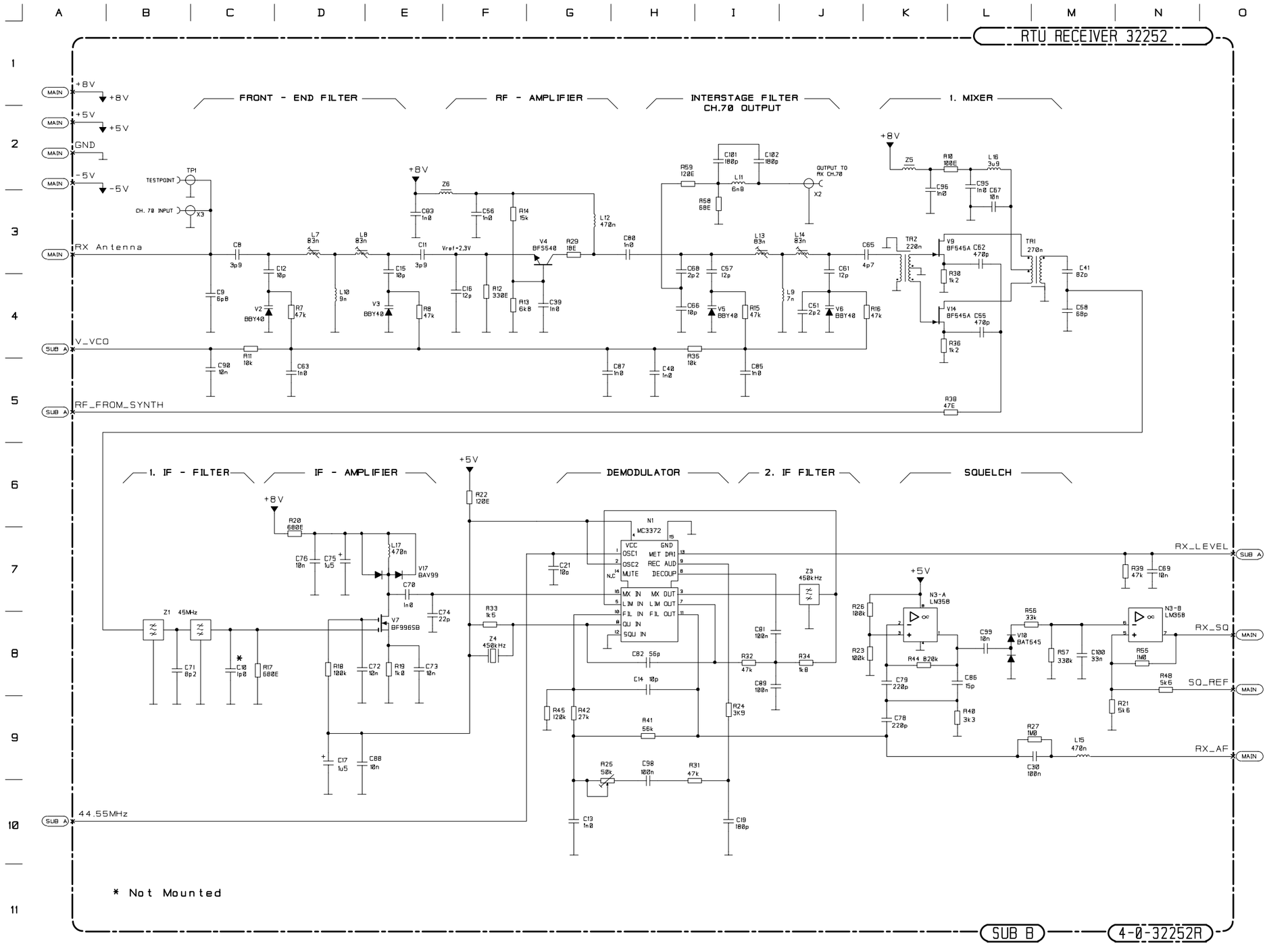
This diagram is valid for PCB rev. 32252H

Receiver unit 632252



This diagram is valid for PCB rev. 32252H

Receiver unit 632252



This diagram is valid for PCB rev. 32252H

4.4 Duplex filter

NB! This chapter is relevant to duplex transceiver versions only.

In the duplex radio, VHF 1100 DSC, there is a duplex filter which allows it to operate in full duplex mode with only one antenna installed (plus 1 for DSC)

The duplex filter consists of 6 cavities, three in both the RX and TX section.

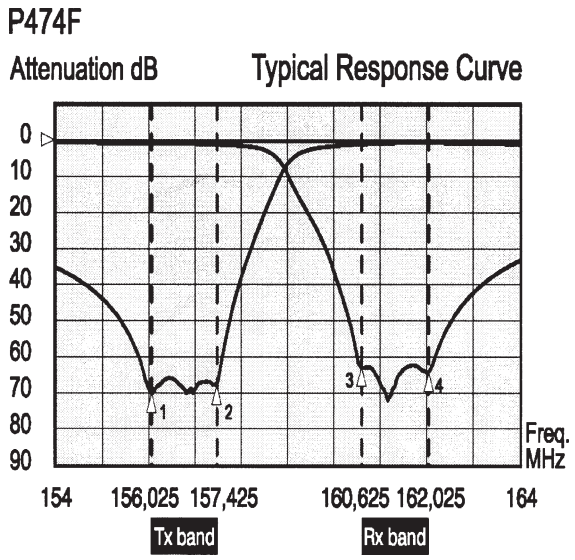
The cavaties in the TX-section are stagger tuned. The three cavities are suppressing the noise in the receiving band 160.625Mhz - 162.025Mhz with min. insertion loss in the transmitting band.

The cavities in the RX-section are stagger tuned. They are suppressing the transmitting frequencies with min. insertion loss in the receiving band.

NB! The filter is adjusted with special measuring equipment, and may not be readjusted by service technicians

Technical data for duplex filter for VHF 1100 DSC

Frequency Range TX - (MHz)	156.025 - 157.425
Frequency Range RX - (MHz)	160.625 - 162.025
Bandwidth Rx and TX - (MHz)	1.4
Insertion loss, max - (dB)	1.5
RX Attenuation @ TX - (dB)	60
TX Attenuation @ RX - (dB)	60



4.5 Interface unit 632253

Power supply
+5V, +8V, and +12V are applied from the transceiver unit 632250.
Negative supply for the contrast voltage to the display is generated by the circuit around N1-D including temperature compensation.

On/off circuit
The on/off circuit is used for the detection of the on/off condition. Hardware turn on and software turn off. The on/off key is separately read by the microprocessor input pin_25.
The circuit around V6-V7 enables the microprocessor to watch the state of the on/off key, together with the hardware turn-on function by pulling the line signal ON_OFF logic low.

Reset
A reset circuit (D2) keeps the microprocessor reset for at least 100 milliseconds after power on, waiting for voltage settling before program execution starts up.

Microprocesser, memories and chip selection
The microprocessor used is an H83003 (D4), and with a 512 kbyte PROM, a 128 kbyte RAM, it makes the microcomputer part of the control unit. The processor has a built-in watchdog, which will reset the system if program failure occurs.
The EEPROM (256 bytes) D3 is used to read/store setup parameters used in the control unit.

Backlight
There are three different circuits for regulating indicators (N1-A), display (N1-C) and keyboard (N1-B). The microprocessor makes a voltage by means of a PWM output. This voltage is used as a reference input for the regulation.

Contrast control
The microprocessor makes a voltage by means of a PWM output. This voltage is amplified (N1-D) and used as the contrast voltage for the display.

SPARC-bus interface
The RS483 driver (D11) is used as a SPARC-bus interface to communicate with the transceiver and other control units.

Centronics interface
The Centronics interface is used to print out received DSC calls. The latches (D8,D9) are the hardware interface.

MIC amplifier
The microphone amplifier signal (MIC) is converted from unbalanced to balanced in the circuit around N7. The AF signal is the input to the transmitter.

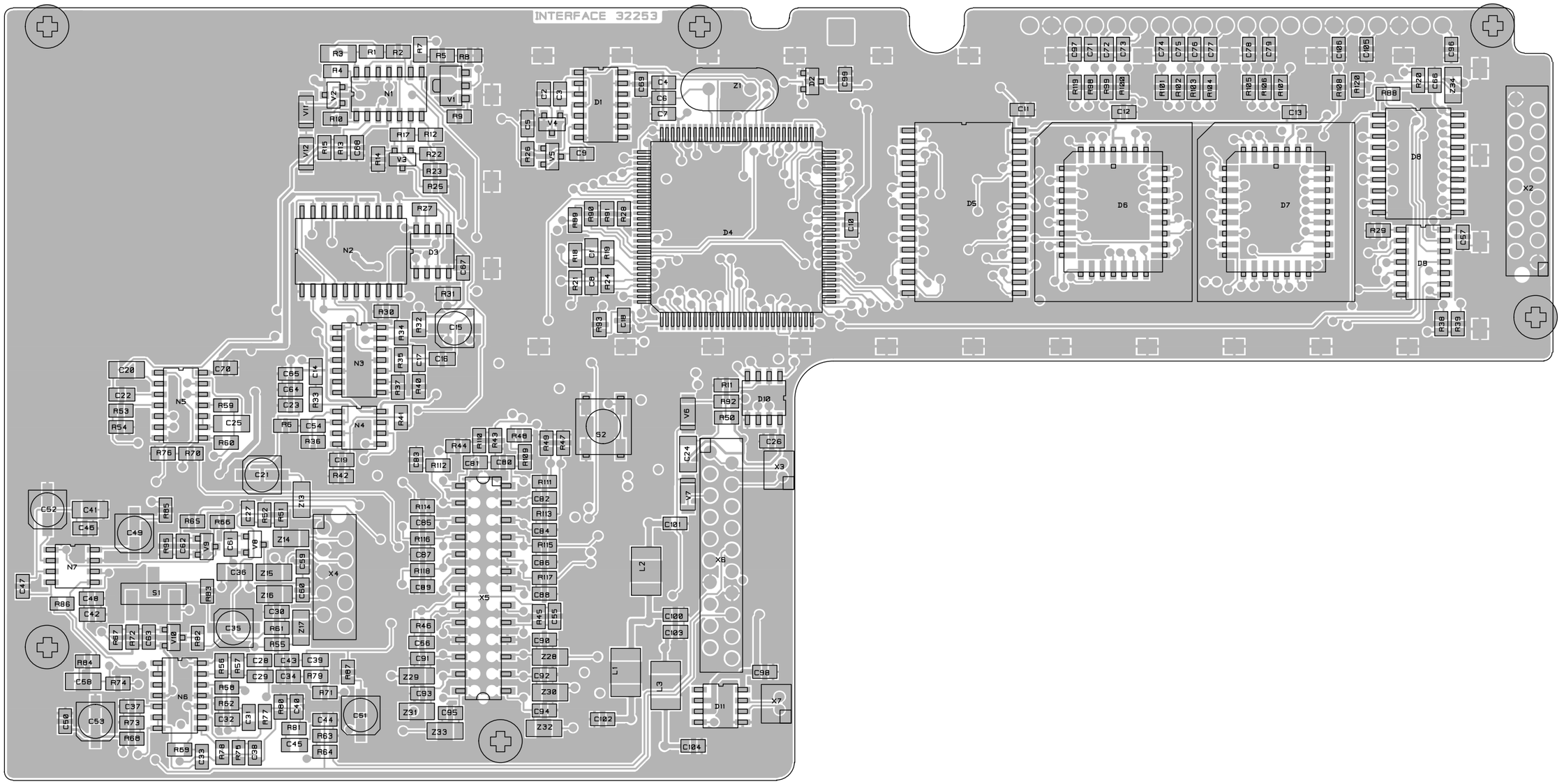
RX AF
The RX AF is converted from balanced to unbalanced in the circuit around N6-D.

Intercom
When an intercom between control units is performed, the SPARC-bus AF signal is switched by N5-A and converted (balanced/unbalanced) by the circuit around N6-C.

Summation amplifier and attenuator
The summation point of the AF is made in N3-D. The audio attenuator (N2) is used to control the output level to the earpiece.

Earpiece amplifier
The earpiece amplifier N4-A amplifies the signal from the volume control to the earpiece in the handset. (TLF).

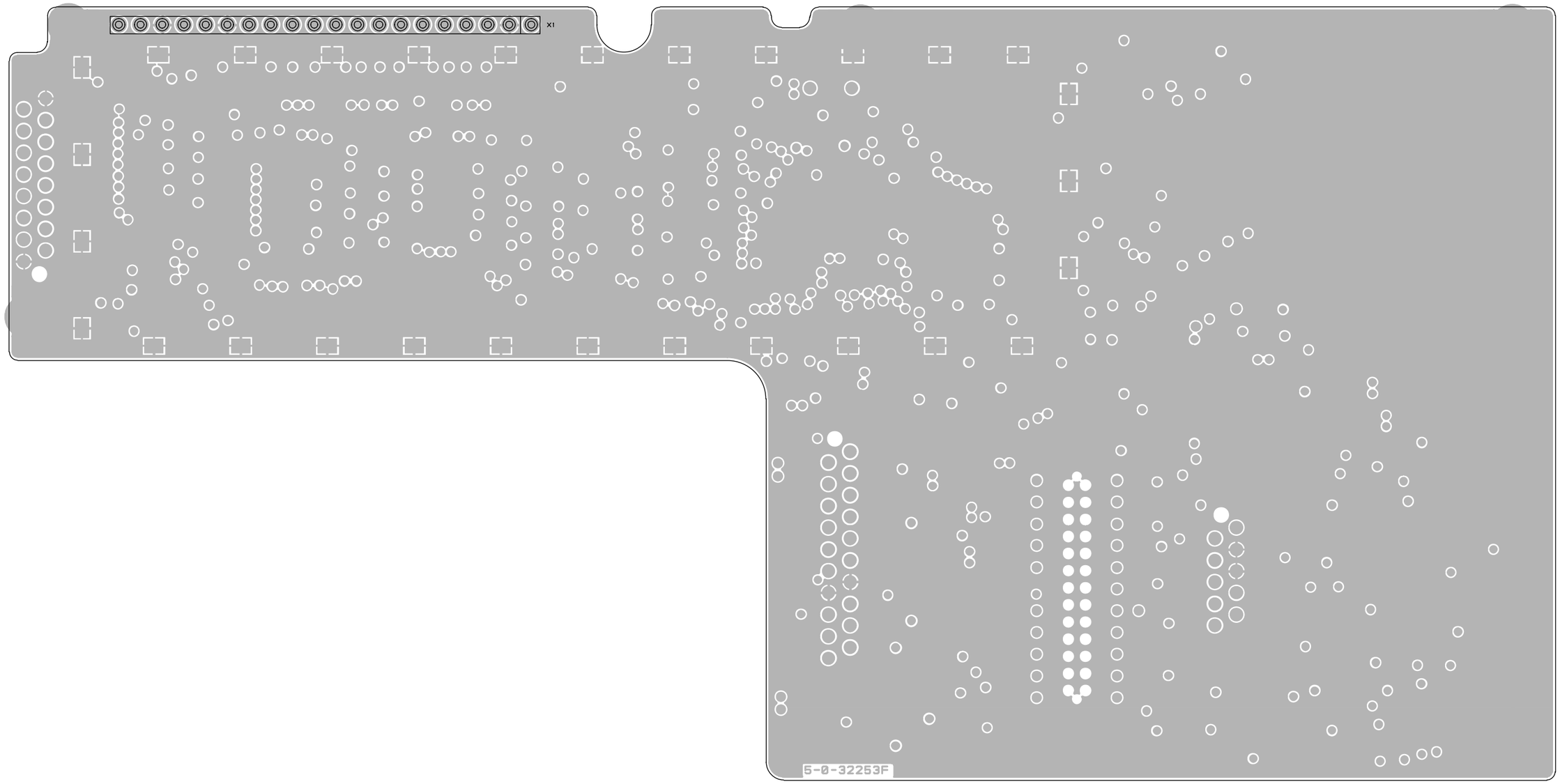
Component location Interface unit 632253



Seen from primary side with primary side tracks.

PCB rev. 32253F

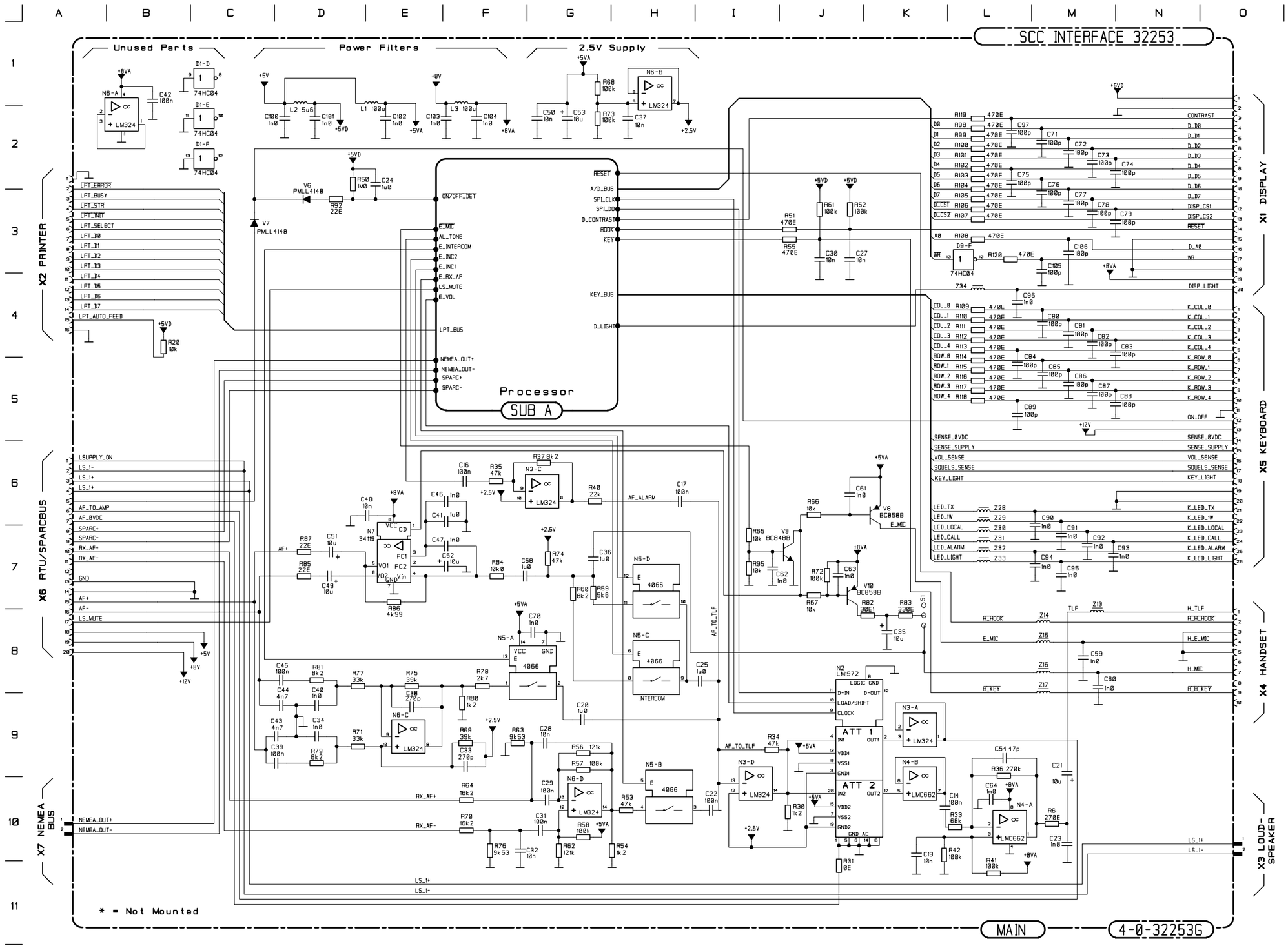
Component location Interface unit 632253



Seen from secondary side with secondary side tracks.

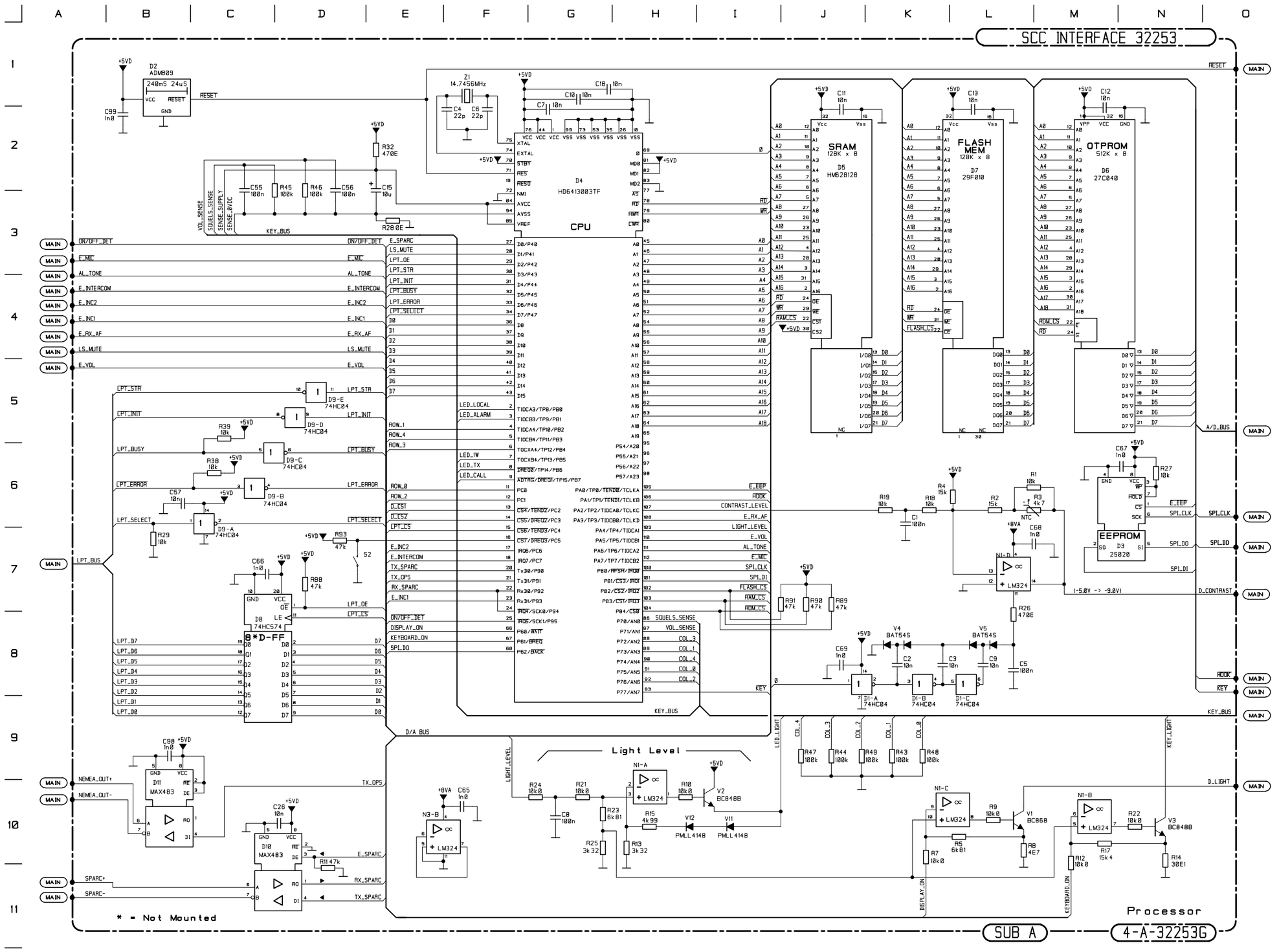
PCB rev. 32253F

Interface unit 632253



This diagram is valid for PCB rev. 32253F

Interface unit 632253

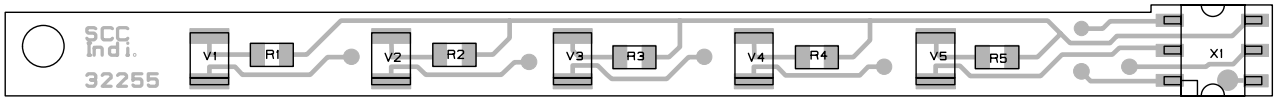


This diagram is valid for PCB rev. 32253F

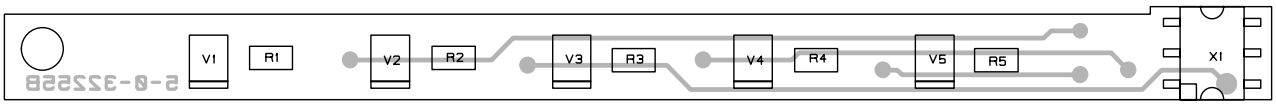
4.6 Indicator unit 632255

The indicator diodes are made by means of V1-V4 (TX, 1W, LOCAL, CALL, ALARM) LEDs.
The light intensity in the diodes is controlled by means of signal LED_LIGHT.
On/off of the indicators is controlled individually by the signals LED_CALL, LED_1W, LED_ALARM, LED_LOCAL, LED_TX.

Component location Indicator unit 632255



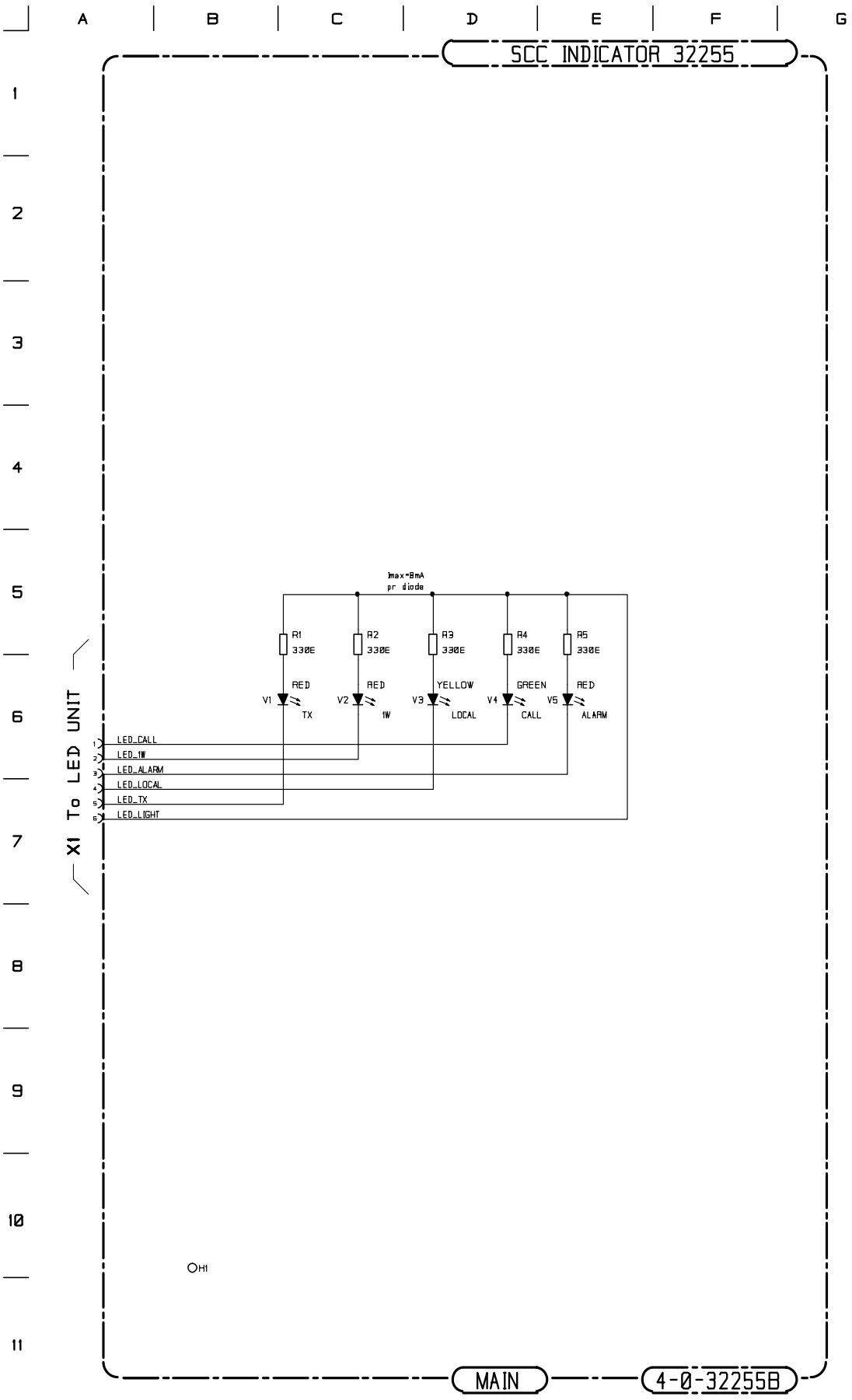
Seen from primary side with primary side tracks.



Seen from primary side with secondary side tracks.

PCB rev. 32255B

Indicator unit 632255

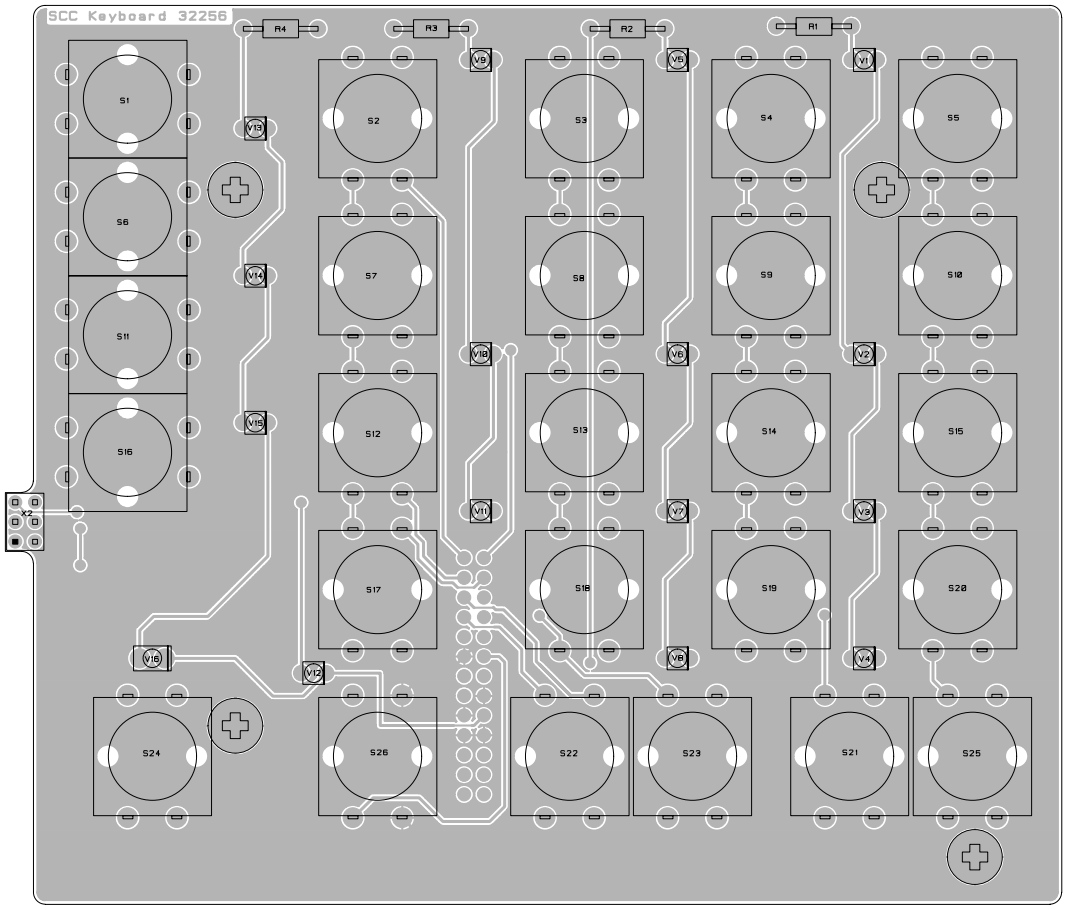


This diagram is valid for PCB rev. 32255B

4.7 Keyboard unit 632256

The keyboard is made by means of the switches S1-S26.
S1-S25 are set up in a matrix structure in which the Col_1-Col_4 are toggled in sequence. For each Column state the Rows (Row_0-Row_4) are then read by the microprocessor.
S26 is the on/off key separately read by the microprocessor input pin_25.
The keyboard backlight is made by means of the LEDs V1-V16. The backlight intensity is controlled by the microprocessor through the signal KEY_LIGHT.
The keyboard unit wires the control signals and power supply line (by X2) for the indicator diodes placed at the indicator unit 632255.

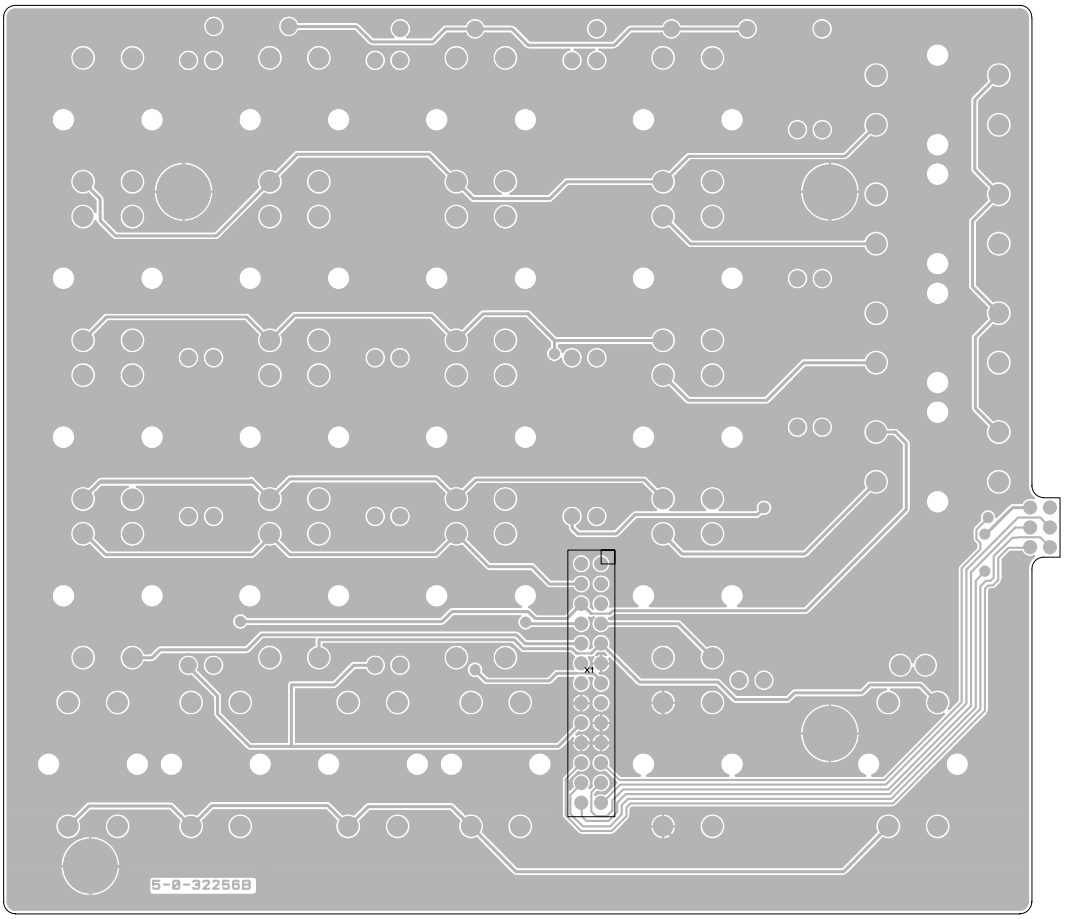
Component location Keyboard unit 632256



Seen from primary side with primary side tracks

PCB rev. 32256B

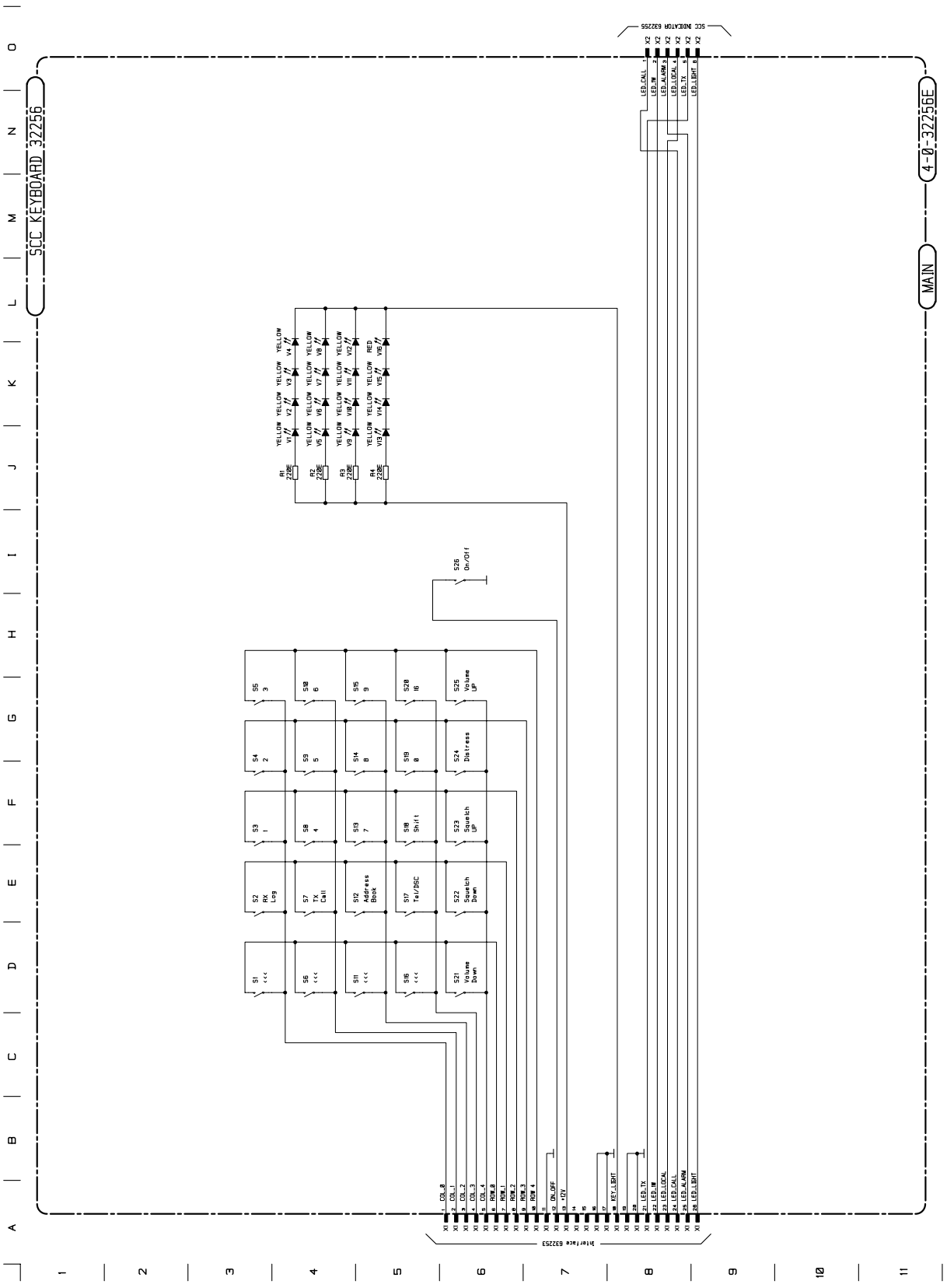
Component location Keyboard unit 632256



Seen from secondary side with seondary side tracks

PCB rev. 32256B

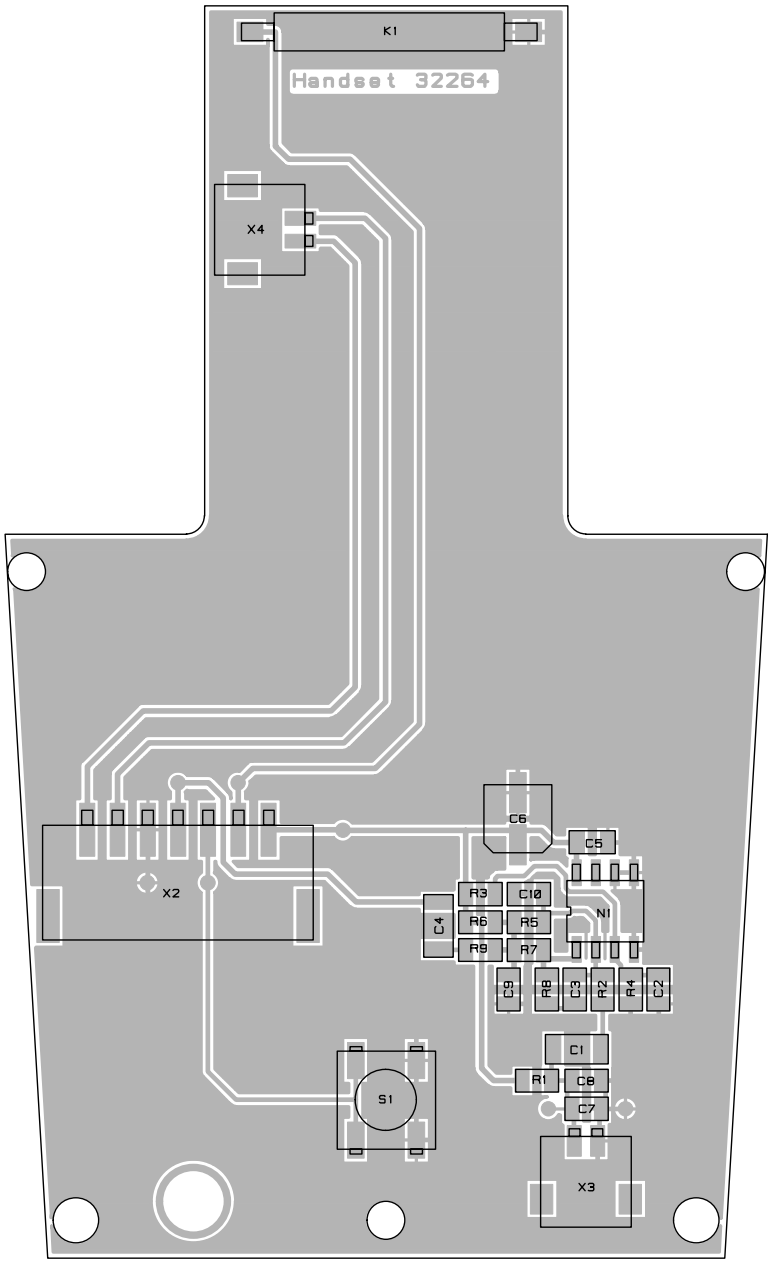
Keyboard unit 632256



This diagram is valid for PCB rev. 32256B

4.8 Handset unit 632264

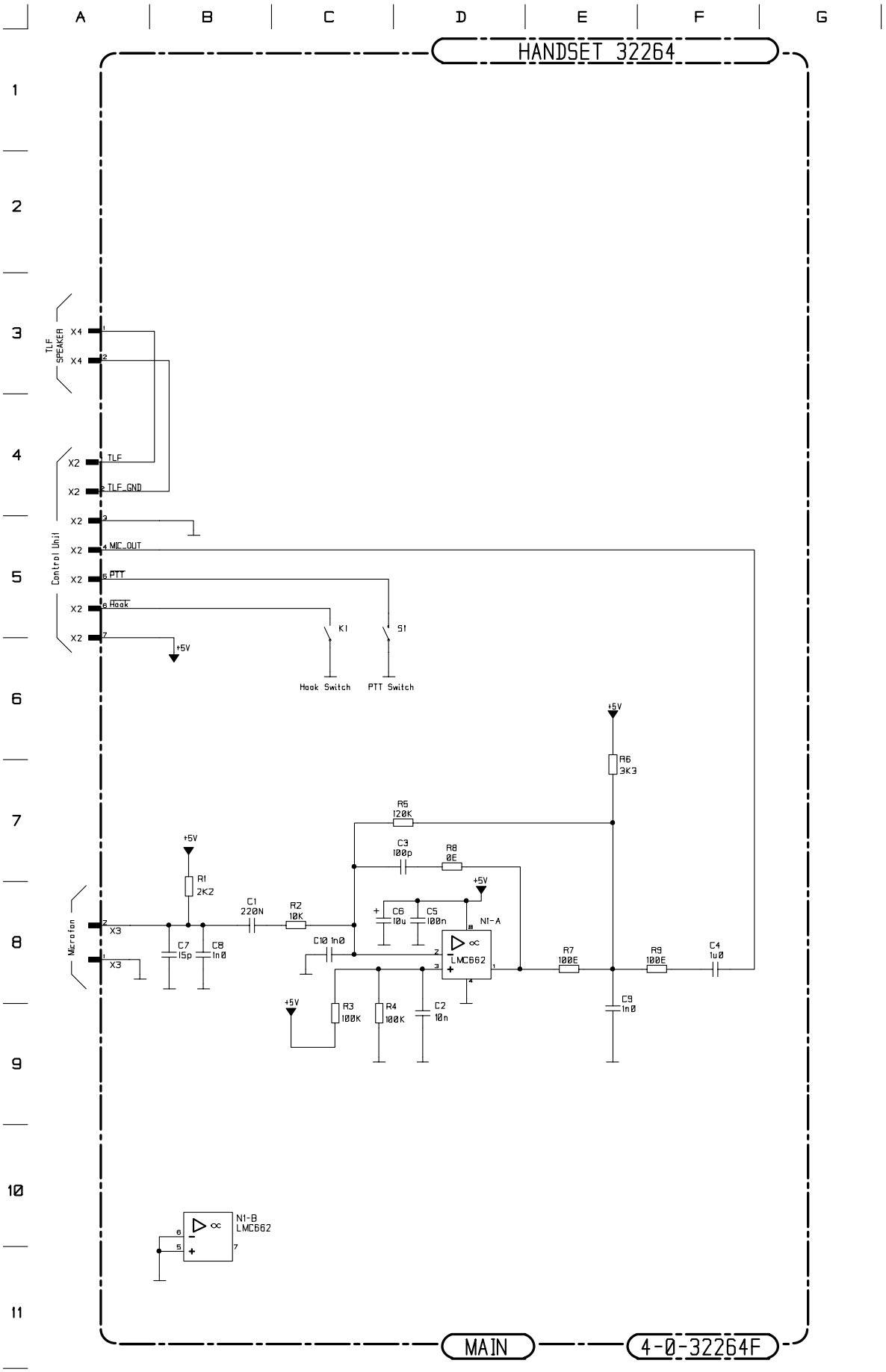
Component location handset unit 632264



Seen from primary side with primary side tracks.

PCB rev. 32264C

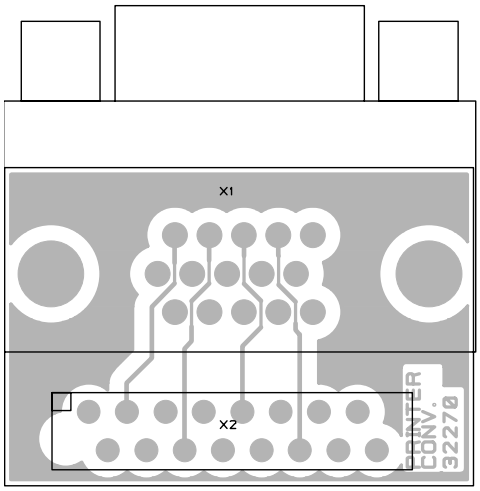
Handset unit 632264



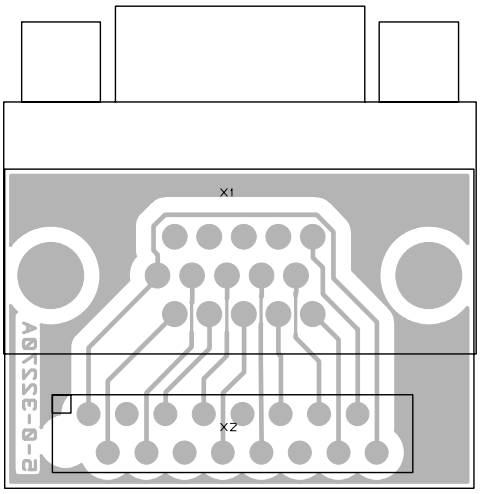
This diagram is valid for PCB rev. 32264C

4.9 Printer converter 632270

Component location printer converter 632270



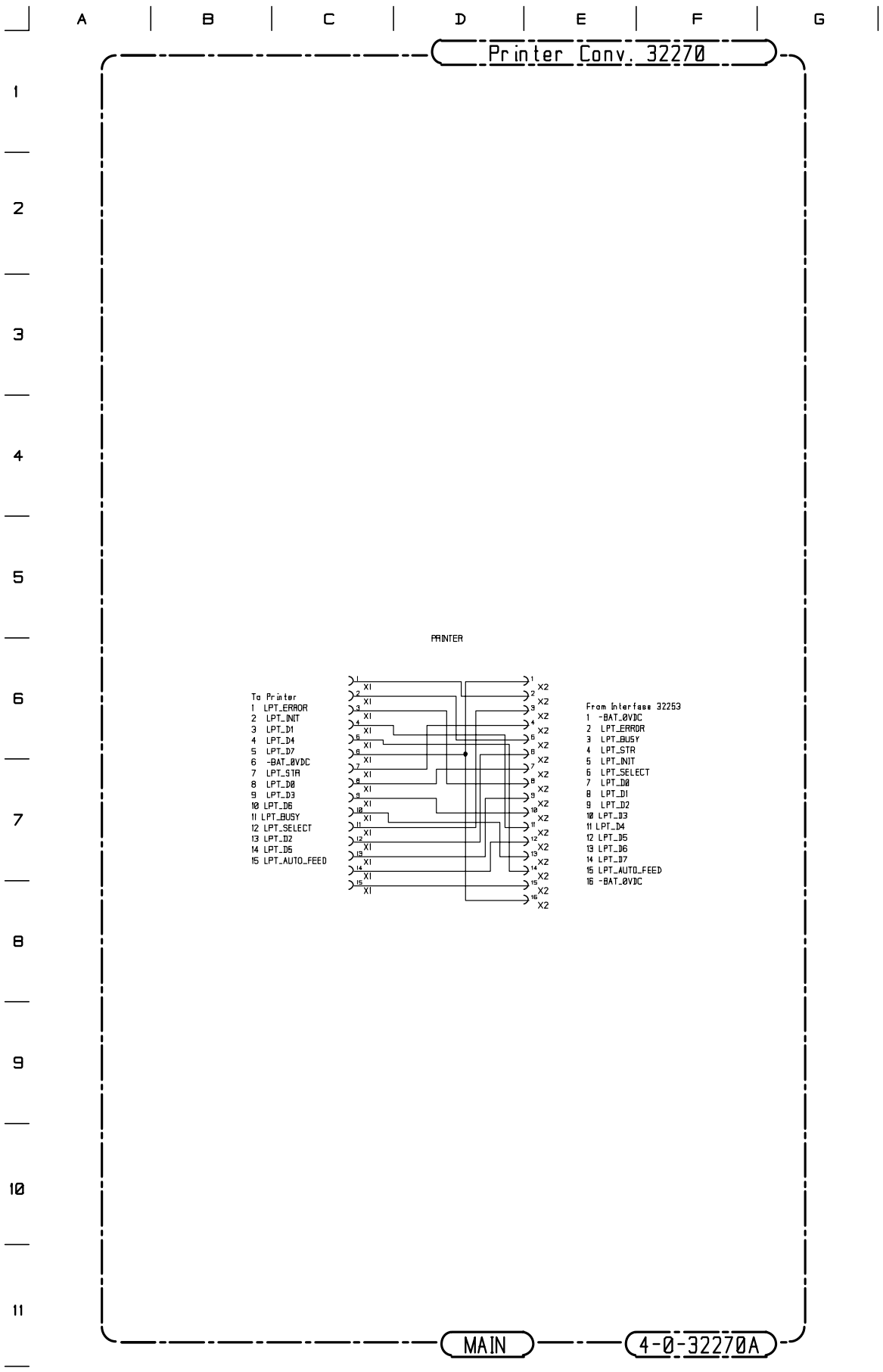
Seen from primary side with primary side tracks.



Seen from primary side with secondary side tracks.

PCB rev. 32270A

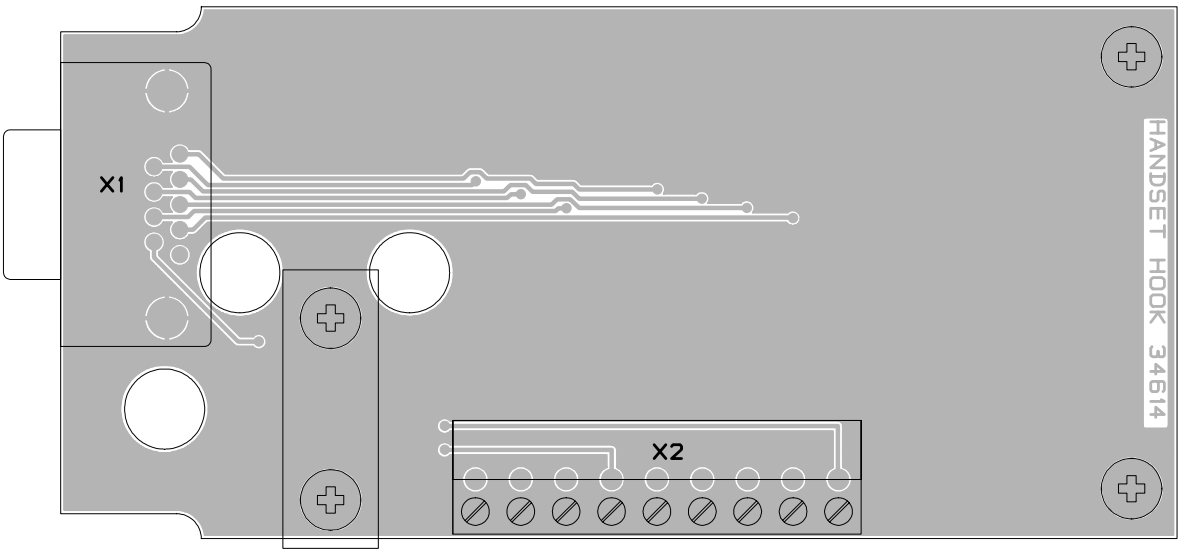
Printer converter 632270



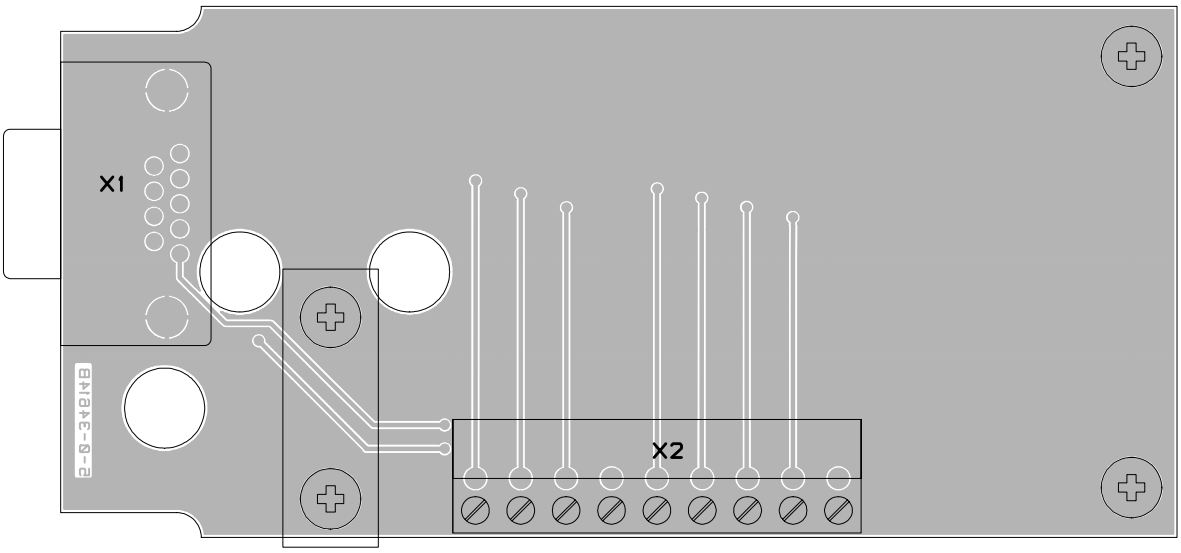
This diagram is valid for PCB rev. 32270A

4.10 Handset hook 634614

Component location handset hook 634614



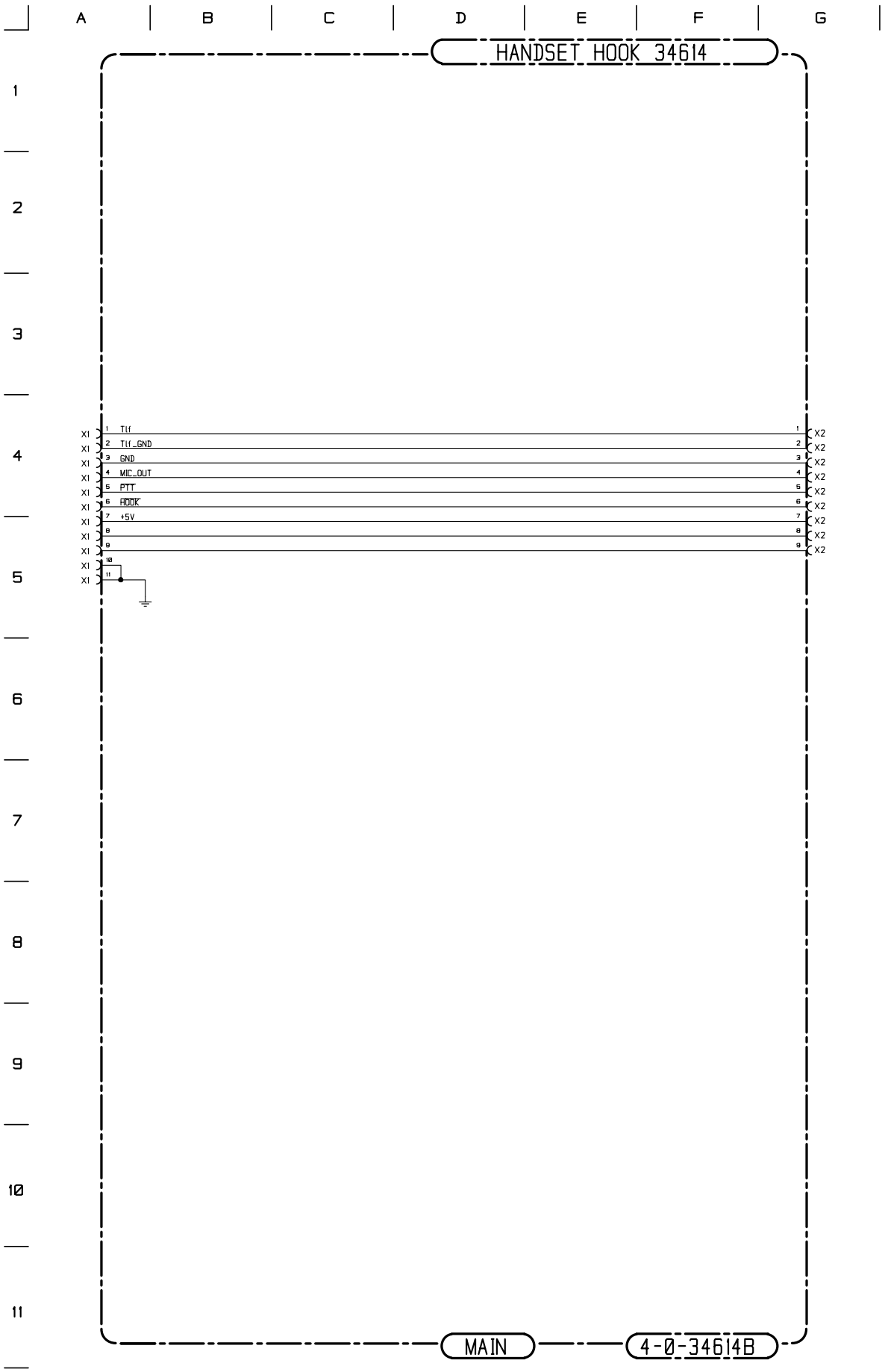
Seen from primary side with primary side tracks.



Seen from primary side with secondary side tracks.

PCB rev. 34614B

Handset hook 634614



This diagram is valid for PCB rev. 34614B

5 Parts lists

RTU AF & PROCESSOR 32250 Version 01 ECI A/S 5-x-32250J / 4-0-32250Q 63225001

POSITION	DESCRIPTION	MANUFACTURER	TYPE	PART NO.
C1	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C2	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C3	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C4	CAPACITOR TANTALUM 3528 2u2F 20% 16VDC	ERO	CB 225020 M E17 REEL a 2000 STK	334.028
C5	CAPACITOR CERAM. SMD 1206 1u0F -20/80% Y5V 16VDC	MURATA	GRM42-6 Y5V 105 Z 16 PT10	328.806
C6	CAPACITOR ELECTROLYTIC SMD 10uF 20% 16VDC	EUROPE CHEMICON	Al-Chip-MKV 16V/10 M	333.079
C7	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C8	CAPACITOR ELECTROLYTIC SMD 10uF 20% 16VDC	EUROPE CHEMICON	Al-Chip-MKV 16V/10 M	333.079
C9	CAPACITOR ELECTROLYTIC SMD 10uF 20% 16VDC	EUROPE CHEMICON	Al-Chip-MKV 16V/10 M	333.079
C10	CAPACITOR ELECTROLYTIC SMD 10uF 20% 16VDC	EUROPE CHEMICON	Al-Chip-MKV 16V/10 M	333.079
C11	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C12	CAPACITOR CERAM. SMD 0805 470pF 10% X7R 50VDC	PHILIPS	2222 580 16609	328.320
C13	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C14	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C15	CAPACITOR CERAM. SMD 0805 4n7F 10% X7R 50VDC	TDK	C2012 X7R 1H 472 K T NiBa	328.332
C16	CAPACITOR CERAM. SMD 0805 4n7F 10% X7R 50VDC	TDK	C2012 X7R 1H 472 K T NiBa	328.332
C17	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C18	CAPACITOR TANTALUM 3216 1u5F 20% 16VDC	ERO	CA 155016 M E17	334.007
C19	CAPACITOR ELECTROLYTIC SMD 4u7F 20% 25VDC	EUROPE CHEMICON	Al-Chip-MVK 35V/4.7 M	333.075
C20	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C21	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C22	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C23	CAPACITOR CERAM. SMD 0805 270pF 5% NPO 50VDC	TDK	C2012 COG 1H 271 J T NiBa	323.091
C24	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C25	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C26	CAPACITOR CERAM. SMD 0805 120pF 5% NPO 50VDC	TDK	C2012 COG 1H 121 J T NiBa	323.087
C27	CAPACITOR CERAM. SMD 1206 1u0F -20/80% Y5V 16VDC	MURATA	GRM42-6 Y5V 105 Z 16 PT10	328.806
C28	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C29	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C30	CAPACITOR CERAM. SMD 0805 6n8F 10% X7R 50VDC	TDK	C2012 X7R 1H 682 K T NiBa	328.334
C31	CAPACITOR CERAM. SMD 1206 1u0F -20/80% Y5V 16VDC	MURATA	GRM42-6 Y5V 105 Z 16 PT10	328.806
C32	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C33	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C34	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C35	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C36	CAPACITOR CERAM. SMD 0805 270pF 5% NPO 50VDC	TDK	C2012 COG 1H 271 J T NiBa	323.091
C37	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C38	CAPACITOR CERAM. SMD 0805 270pF 5% NPO 50VDC	TDK	C2012 COG 1H 271 J T NiBa	323.091
C39	CAPACITOR CERAM. SMD 0805 6n8F 10% X7R 50VDC	TDK	C2012 X7R 1H 682 K T NiBa	328.334
C40	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C41	CAPACITOR CERAM. SMD 0805 220pF 5% NPO 50VDC	TDK	C2012 COG 1H 221 J T NiBa	323.090
C42	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C43	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C44	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C45	CAPACITOR CERAM. SMD 0805 22pF 5% NP0 50VDC	TDK	C2012 COG 1H 220 J T NiBa	323.078
C46	CAPACITOR CERAM. SMD 0805 100pF 5% NPO 50VDC	TDK	C2012 COG 1H 101 J T NiBa	323.086
C47	CAPACITOR TANTALUM 3528 2u2F 20% 16VDC	ERO	CB 225020 M E17	334.028
C48	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C49	CAPACITOR CERAM. SMD 0805 680pF 5% NPO 50VDC	TDK	C2012 COG 1H 681 J T NiBa	323.096
C50	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C51	CAPACITOR CERAM. SMD 0805 270pF 5% NPO 50VDC	TDK	C2012 COG 1H 271 J T NiBa	323.091
C52	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C53	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C54	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C55	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C56	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C57	CAPACITOR CERAM. SMD 0805 33pF 5% NPO 50VDC	TDK	C2012 COG 1H 330 J T 000A	323.080
C58	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C59	CAPACITOR CERAM. SMD 0805 18pF 5% NPO 50VDC	TDK	C2012 COG 1H 180 J T NiBa	323.077
C60	CAPACITOR TRIMMER SMD 4.5-20pF NP0	SCIMAREC	TC03C200ATP02 ID: RED	335.008
C61	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C62	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C63	CAPACITOR CERAM. SMD 0805 270pF 5% NPO 50VDC	TDK	C2012 COG 1H 271 J T NiBa	323.091
C64	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C65	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C66	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C67	CAPACITOR CERAM. SMD 0805 6n8F 10% X7R 50VDC	TDK	C2012 X7R 1H 682 K T NiBa	328.334
C68	CAPACITOR CERAM. SMD 0805 6n8F 10% X7R 50VDC	TDK	C2012 X7R 1H 682 K T NiBa	328.334
C69	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324

POSITION	DESCRIPTION	MANUFACTURER	TYPE	PART NO.
C70	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C71	CAPACITOR CERAM. SMD 0805 22pF 5% NP0 50VDC	TDK	C2012 COG 1H 220 J T NiBa	323.078
C72	CAPACITOR CERAM. SMD 0805 82pF 5% NPO 50VDC	TDK	C2012 COG 1H 820 J T NiBa	323.085
C73	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C74	CAPACITOR CERAM. SMD 0805 270pF 5% NPO 50VDC	TDK	C2012 COG 1H 271 J T NiBa	323.091
C75	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C76	CAPACITOR CERAM. SMD 0805 6n8F 10% X7R 50VDC	TDK	C2012 X7R 1H 682 K T NiBa	328.334
C77	CAPACITOR CERAM. SMD 0805 22pF 5% NP0 50VDC	TDK	C2012 COG 1H 220 J T NiBa	323.078
C78	CAPACITOR CERAM. SMD 0805 22pF 5% NP0 50VDC	TDK	C2012 COG 1H 220 J T NiBa	323.078
C79	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C80	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C81	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C82	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C83	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C84	CAPACITOR CERAM. SMD 0805 6n8F 10% X7R 50VDC	TDK	C2012 X7R 1H 682 K T NiBa	328.334
C85	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C86	CAPACITOR ELECTROLYTIC SMD 10uF 20% 16VDC	EUROPE CHEMICON	Al-Chip-MKV 16V/10 M	333.079
C87	CAPACITOR ELECTROLYTIC SMD 10uF 20% 16VDC	EUROPE CHEMICON	Al-Chip-MKV 16V/10 M	333.079
C88	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C89	CAPACITOR TANTALUM 3528 2u2F 20% 16VDC	ERO	CB 225020 M E17	334.028
C90	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C91	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C92	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C93	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C94	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C95	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C96	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C97	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C98	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C99	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C100	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C101	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C102	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C103	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C104	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C105	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C106	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C107	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C108	CAPACITOR CERAM. SMD 0805 10pF 5% NPO 50VDC	TDK	C2012 COG 1H 100 D T NiBa	323.074
C109	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C110	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C111	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C112	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C113	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C114	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C115	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C116	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C117	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C118	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C119	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C120	CAPACITOR CERAM. SMD 0805 100pF 5% NPO 50VDC	TDK	C2012 COG 1H 101 J T NiBa	323.086
C121	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C122	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C123	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C124	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C125	CAPACITOR ELECTROLYTIC SMD 10uF 20% 16VDC	EUROPE CHEMICON	Al-Chip-MKV 16V/10 M	333.079
C126	CAPACITOR TANTALUM 10uF 10% 25VDC	SPRAGUE	293D 106 X9035 D2T	67700300
C127	CAPACITOR CERAM. SMD 0805 47pF 5% NPO 50VDC	TDK	C2012 COG 1H 470 J T NiBa	323.082
C128	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C129	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C130	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C131	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C132	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C133	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
D1	RS485 LOW EMI TRANCEIVER MAX483, LTC1483	MAXIM	MAX483 CSA(ESA) TAPE&REEL	356.606
D2	8-BIT SHIFT REG. W.LATCH 74HC595	PHILIPS	74HC595D TAPE & REEL	355.296
D3	RS485 LOW EMI TRANCEIVER MAX483, LTC1483	MAXIM	MAX483 CSA(ESA) TAPE&REEL	356.606
D4	DUAL D-FF SET/RESET 74HC74	MOTOROLA	MC74HC74D R2	355.223
D5	OCTAL D-TYPE LATCH 3-STATE 74HC573	TEXAS	SN74HC573DW	85980200
D6	OCTAL D-TYPE LATCH 3-STATE 74HC573	TEXAS	SN74HC573DW	85980200
D7	10 BIT A/D CONVERTER SERIAL INP. AD7812	ANALOG DEVICES	AD7812YR R	351.856
D8	SRAM 8kx8 Taa<=150nSecs UM6264DM,MSM5165AL,HM6264A	UMC/EliteMT	UM 6264DM-70L (-70LL) LP	356.310
D9	SOCKET PLCC 32 POLES LOW PROFILE	T.Z.T.	ZT-SMTP-S-32-T/O	376.803
D10	16 BIT DSP uPROCESSOR PLCC 68 ADSP-2115	ANALOG DEVICES	ADSP-2115KP(BP)-80(-100)	357.300

POSITION	DESCRIPTION	MANUFACTURER	TYPE	PART NO.
D11	8-BIT SHIFT REG. W.LATCH 74HC595	PHILIPS	74HC595D TAPE & REEL	355.296
D12	QUAD 10BIT DAC SERIAL AD7804	ANALOG DEVICES	AD7804BR(CR)R-16	351.808
D13	Prog.uC, D13, f.63225001 RTU AF & PRC.32250 Ver.01	ECI A/S	0-0-32450A	73245000
D14	2-INP.POS. NAND GATE FAST TC7S00F, 74AHC1G00	TOSHIBA	TC7S00F-TE85L ID: E1	355.775
D15	QUAD 2-INPUT NOR GATE HCMOS 74HC02	MOTOROLA	MC74HC02DR2	350.202
D16	3 TO 8 LINE DECODER 74HC138	TEXAS	SN74HC138D R	355.235
D17	3 TO 8 LINE DECODER 74HC138	TEXAS	SN74HC138D R	355.235
D18	WATCH DOG 5V INCL. TIMER MAX705, ADM705	ANALOG DEVICES	ADM705AR REEL	356.642
D19	REAL TIME CLOCK CALENDAR PCF8593	PHILIPS	PCF8593T TAPE&REEL	357.376
D20	EEPROM 8k BIT SERIAL 24C08	SGS-THOMSON	M24C08MN6T	356.323
D22	QUAD 2-INPUT NAND GATES 74HC00	TEXAS	SN74HC00DR(TAPE&REEL)	355.200
D23	EEPROM 8k BIT SERIAL 24C08	SGS-THOMSON	M24C08MN6T	356.323
D24	2-INP. POS. AND GATE FAST TC7S08F, 74AHCT08	TOSHIBA	TC7S08F-TE85L ID: E2	355.778
D25	2-INP. POS. AND GATE FAST TC7S08F, 74AHCT08	TOSHIBA	TC7S08F-TE85L ID: E2	355.778
G1	BATTERY LITHIUM 3V 0.22Ah Ø20x3.2mm	SANYO	CR2032	47.007
L1	CHOKE FIXED 1211 2u2H 10%	COILCRAFT	1008CS-222-XKBC	337.228
L2	CHOKE FIXED 1211 2u2H 10%	COILCRAFT	1008CS-222-XKBC	337.228
N1	OPTO COUPLER MOC207, IL207	QT	MOC207 R1 (R2) Id = Q207	353.057
N2	AF POWER AMPLIFIER 2x22W TDA1557Q	PHILIPS	TDA1557Q	31.437
N3	LOW POWER AUDIO AMPLIFIER MC34119	MOTOROLA	MC34119D R2(R1)	85870000
N4	CMOS QUAD OPAMP SO14 LMC660	NATIONAL	LMC660CMX	350.605
N5	CMOS QUAD OPAMP SO14 LMC660	NATIONAL	LMC660CMX	350.605
N6	ASIC AF 4419 SAILOR 356.405	AMS	ASIC 4419 QFP SAILOR 356.405	356.405
N7	QUAD BILATERAL SWITCH CD4066BC	MOTOROLA	MC14066BD R2(R1)	355.066
N8	QUAD BILATERAL SWITCH CD4066BC	MOTOROLA	MC14066BD R2(R1)	355.066
N9	VOLTAGE REG. ADJUSTABLE Io=0.1A, LP2951C	NATIONAL	LP2951CM (LP2951ACM)	350.050
R1	RESISTOR SMD 0805 56k OHM 5% 0.1W	ROHM	MCR 10 EZH J 563	302.069
R2	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R3	RESISTOR SMD 0805 1k0 OHM 5% 0.1W	ROHM	MCR 10 EZH J 102	302.048
R4	RESISTOR SMD 0805 2M2 OHM 5% 0.1W	ROHM	MCR 10 EZH J 225	302.088
R5	RESISTOR SMD 0805 15k OHM 5% 0.1W	ROHM	MCR 10 EZH J 153	302.062
R6	PRESET SEALED 5k0 OHM 20% 1/4W	BOURNS	3314J-1-502-E(G)	310.408
R7	RESISTOR SMD 0805 47 OHM 5% 0.1W	ROHM	MCR 10 EZH J 47R	302.032
R8	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R9	RESISTOR SMD 0805 1k0 OHM 5% 0.1W	ROHM	MCR 10 EZH J 102	302.048
R10	RESISTOR SMD 0805 330k OHM 5% 0.1W	ROHM	MCR 10 EZH J 334	302.078
R11	RESISTOR SMD 0805 100 OHM 5% 0.1W	ROHM	MCR 10 EZH J 101	302.036
R12	RESISTOR SMD 0805 22 OHM 5% 0.1W	ROHM	MCR 10 EZH J 22R	302.028
R13	RESISTOR SMD 0805 22 OHM 5% 0.1W	ROHM	MCR 10 EZH J 22R	302.028
R14	RESISTOR SMD 0805 22k OHM 5% 0.1W	ROHM	MCR 10 EZH J 223	302.064
R15	RESISTOR SMD 0805 27k OHM 5% 0.1W	ROHM	MCR 10 EZH J 273	302.065
R16	RESISTOR SMD 0805 220 OHM 5% 0.1W	ROHM	MCR 10 EZH J 221	302.040
R17	RESISTOR SMD 0805 330k OHM 5% 0.1W	ROHM	MCR 10 EZH J 334	302.078
R18	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R19	RESISTOR SMD 0805 8k2 OHM 5% 0.1W	ROHM	MCR 10 EZH J 822	302.059
R20	RESISTOR SMD 0805 8k2 OHM 5% 0.1W	ROHM	MCR 10 EZH J 822	302.059
R21	RESISTOR SMD 0805 10 OHM 5% 0.1W	ROHM	MCR 10 EZH J 10R	302.024
R22	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R23	RESISTOR SMD 0805 560 OHM 5% 0.1W	ROHM	MCR 10 EZH J 561	302.045
R24	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R25	RESISTOR SMD 0805 100k OHM 1% 50mW	PHILIPS	2322 734 2/61004	302.570
R26	RESISTOR SMD 0805 120 OHM 5% 0.1W	ROHM	MCR 10 EZH J 121	302.037
R27	RESISTOR SMD 0805 14k0 OHM 1% 50mW	PHILIPS	2322 734 2/61403 REEL a 5000 STK	302.484
R28	RESISTOR SMD 0805 10k0 OHM 1% 50mW	PHILIPS	2322 734 2/61003	302.470
R29	RESISTOR SMD 0805 1k0 OHM 5% 0.1W	ROHM	MCR 10 EZH J 102	302.048
R30	RESISTOR SMD 0805 1M0 OHM 5% 0.1W	ROHM	MCR 10 EZH J 105	302.084
R31	RESISTOR SMD 0805 24k9 OHM 1% 50mW	PHILIPS	2322 734 2/62493	302.508
R32	RESISTOR SMD 0805 95k3 OHM 1% 50mW	PHILIPS	2322 734 2/69533	302.564
R33	RESISTOR SMD 0805 100k OHM 1% 50mW	PHILIPS	2322 734 2/61004	302.570
R34	RESISTOR SMD 0805 33k OHM 5% 0.1W	ROHM	MCR 10 EZH J 333	302.066
R35	RESISTOR SMD 0805 33k OHM 5% 0.1W	ROHM	MCR 10 EZH J 333	302.066
R36	RESISTOR SMD 0805 39k OHM 5% 0.1W	ROHM	MCR 10 EZH J 393	302.067
R37	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R38	RESISTOR SMD 0805 560 OHM 5% 0.1W	ROHM	MCR 10 EZH J 561	302.045
R39	RESISTOR SMD 0805 118k OHM 1% 50mW	PHILIPS	2322 734 2/61184	302.577
R40	RESISTOR SMD 0805 205k OHM 1% 50mW	PHILIPS	2322 734 2/62054	302.600
R41	RESISTOR SMD 0805 7k50 OHM 1% 50mW	PHILIPS	2322 734 2/67502	302.454
R42	RESISTOR SMD 0805 10k0 OHM 1% 50mW	PHILIPS	2322 734 2/61003	302.470
R43	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R44	RESISTOR SMD 0805 39k OHM 5% 0.1W	ROHM	MCR 10 EZH J 393	302.067
R45	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R46	RESISTOR SMD 0805 110k OHM 1% 50mW	PHILIPS	2322 734 2/61104	302.574
R47	RESISTOR SMD 0805 0 OHM 2A	ROHM	MCR 10 EZH JUMPER	302.000
R48	RESISTOR SMD 0805 150k OHM 5% 0.1W	ROHM	MCR 10 EZH J 154	302.074

POSITION	DESCRIPTION	MANUFACTURER	TYPE	PART NO.
R49	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R50	RESISTOR SMD 0805 0 OHM 2A	ROHM	MCR 10 EZH JUMPER	302.000
R51	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R52	RESISTOR SMD 0805 1k0 OHM 5% 0.1W	ROHM	MCR 10 EZH J 102	302.048
R53	RESISTOR SMD 0805 0 OHM 2A	ROHM	MCR 10 EZH JUMPER	302.000
R54	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R55	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R56	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R57	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R58	RESISTOR SMD 0805 820k OHM 5% 0.1W	ROHM	MCR 10 EZH J 824	302.083
R59	RESISTOR SMD 0805 470 OHM 5% 0.1W	ROHM	MCR 10 EZH J 471	302.044
R60	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R61	RESISTOR SMD 0805 1k0 OHM 5% 0.1W	ROHM	MCR 10 EZH J 102	302.048
R62	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R63	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R64	RESISTOR SMD 0805 0 OHM 2A	ROHM	MCR 10 EZH JUMPER	302.000
R65	RESISTOR SMD 0805 100k OHM 1% 50mW	PHILIPS	2322 734 2/61004	302.570
R66	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R67	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R68	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R69	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R70	RESISTOR SMD 0805 7k50 OHM 1% 50mW	PHILIPS	2322 734 2/67502	302.454
R71	RESISTOR SMD 0805 205k OHM 1% 50mW	PHILIPS	2322 734 2/62054	302.600
R72	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R73	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R74	RESISTOR SMD 0805 24k9 OHM 1% 50mW	PHILIPS	2322 734 2/62493	302.508
R75	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R76	RESISTOR SMD 0805 0 OHM 2A	ROHM	MCR 10 EZH JUMPER	302.000
R77	RESISTOR SMD 0805 0 OHM 2A	ROHM	MCR 10 EZH JUMPER	302.000
R78	RESISTOR SMD 0805 0 OHM 2A	ROHM	MCR 10 EZH JUMPER	302.000
R79	RESISTOR SMD 0805 0 OHM 2A	ROHM	MCR 10 EZH JUMPER	302.000
R80	RESISTOR SMD 0805 10k0 OHM 1% 50mW	PHILIPS	2322 734 2/61003	302.470
R81	RESISTOR SMD 0805 1k0 OHM 5% 0.1W	ROHM	MCR 10 EZH J 102	302.048
R82	RESISTOR SMD 0805 1M0 OHM 5% 0.1W	ROHM	MCR 10 EZH J 105	302.084
R83	RESISTOR SMD 0805 220k OHM 5% 0.1W	ROHM	MCR 10 EZH J 224	302.076
R84	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R85	RESISTOR SMD 0805 0 OHM 2A	ROHM	MCR 10 EZH JUMPER	302.000
R86	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R87	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R88	RESISTOR SMD 0805 0 OHM 2A	ROHM	MCR 10 EZH JUMPER	302.000
R89	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R90	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R91	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R92	RESISTOR SMD 0805 47k5 OHM 1% 50mW	PHILIPS	2322 734 2/64753	302.535
R93	RESISTOR SMD 0805 150k OHM 5% 0.1W	ROHM	MCR 10 EZH J 154	302.074
R94	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R95	RESISTOR SMD 0805 10k0 OHM 1% 50mW	PHILIPS	2322 734 2/61003	302.470
R96	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R97	RESISTOR SMD 0805 10k0 OHM 1% 50mW	PHILIPS	2322 734 2/61003	302.470
R98	RESISTOR SMD 0805 0 OHM 2A	ROHM	MCR 10 EZH JUMPER	302.000
R99	RESISTOR SMD 0805 51k1 OHM 1% 50mW	PHILIPS	2322 734 2/65113	302.538
R100	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R101	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R102	RESISTOR SMD 0805 6k8 OHM 5% 0.1W	ROHM	MCR 10 EZH J 682	302.058
R103	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R104	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R105	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R106	RESISTOR SMD 0805 0 OHM 2A	ROHM	MCR 10 EZH JUMPER	302.000
R107	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R108	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R109	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R110	RESISTOR SMD 0805 1M0 OHM 5% 0.1W	ROHM	MCR 10 EZH J 105	302.084
R111	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R112	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R113	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R114	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R115	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R116	RESISTOR SMD 0805 68k OHM 5% 0.1W	ROHM	MCR 10 EZH J 683	302.070
R117	RESISTOR SMD 0805 270 OHM 5% 0.1W	ROHM	MCR 10 EZH J 271	302.041
R118	RESISTOR SMD 0805 47 OHM 5% 0.1W	ROHM	MCR 10 EZH J 47R	302.032
R119	RESISTOR SMD 0805 820 OHM 5% 0.1W	ROHM	MCR 10 EZH J 821	302.047
R120	RESISTOR SMD 0805 820 OHM 5% 0.1W	ROHM	MCR 10 EZH J 821	302.047
R121	RESISTOR SMD 0805 4k7 OHM 5% 0.1W	ROHM	MCR 10 EZH J 472	302.056
R122	RESISTOR SMD 0805 220 OHM 5% 0.1W	ROHM	MCR 10 EZH J 221	302.040

POSITION	DESCRIPTION	MANUFACTURER	TYPE	PART NO.
R123	RESISTOR SMD 0805 220 OHM 5% 0.1W	ROHM	MCR 10 EZH J 221	302.040
R124	RESISTOR SMD 0805 220 OHM 5% 0.1W	ROHM	MCR 10 EZH J 221	302.040
R125	RESISTOR SMD 0805 0 OHM 2A	ROHM	MCR 10 EZH JUMPER	302.000
R126	RESISTOR SMD 0805 8k2 OHM 5% 0.1W	ROHM	MCR 10 EZH J 822	302.059
S1	SIL SQUARE PINS 2 POLES CC=1/10"	AMP	0-826629-2 (0-826647-2)	78.322
V1	TRANS. AF SMALL SIGNAL NPN, BC848B	MOTOROLA	BC848BLT1 (T3)	345.048
V2	FET DMOS SWITCH N-CHANNEL BSS123	PHILIPS	BSS123 ID: SA	347.505
V3	DIODE SWITCH HIGH SPEED LL4448, PMLL4448	PHILIPS	PMLL4448	340.148
V4	DIODE SWITCH HIGH SPEED LL4448, PMLL4448	PHILIPS	PMLL4448	340.148
V5	TRANS. AF SMALL SIGNAL NPN, BC848B	MOTOROLA	BC848BLT1 (T3)	345.048
V6	TRANS. AF SMALL SIGNAL NPN, BC848B	MOTOROLA	BC848BLT1 (T3)	345.048
V7	FET DMOS SWITCH N-CHANNEL BSS123	PHILIPS	BSS123 ID: SA	347.505
V8	TRANS. AF SMALL SIGNAL NPN, BC848B	MOTOROLA	BC848BLT1 (T3)	345.048
V9	DIODE DUAL SCHOTTKY BAT54A	PHILIPS	BAT54A 215 ID: L42	340.308
V10	DIODE SWITCH HIGH SPEED PMLL4148, 4446, 4448	PHILIPS	PMLL4148(4446)(4448) 115	83710000
V11	DIODE SWITCH HIGH SPEED PMLL4148, 4446, 4448	PHILIPS	PMLL4148(4446)(4448) 115	83710000
V12	DIODE DUAL SCHOTTKY BAT54C	PHILIPS	BAT54C 215 ID: L43	340.309
V13	DIODE DUAL SCHOTTKY BAT54A	PHILIPS	BAT54A 215 ID: L42	340.308
V14	DIODE DUAL SCHOTTKY BAT54C	PHILIPS	BAT54C 215 ID: L43	340.309
V15	DIODE SWITCH HIGH SPEED LL4448, PMLL4448	PHILIPS	PMLL4448	340.148
V16	DIODE DUAL SCHOTTKY BAT54S	PHILIPS	BAT54S LT1 T1 ID: LD3	340.310
X1	SOCKET 90 DEG. 4-40 BUSH. 15 POLES SUB D W/O SCREW	LEOCO	DHSL-15URL2	78.729
X2	SOCKET 90 DEG. 4-40 BUSH. 15 POLES SUB D W/O SCREW	LEOCO	DHSL-15URL2	78.729
X3	SOCKET PCB VERSION 2x10 POLES u-MATCH	AMP	2-215079-0 / 9-215079-0	78.198
X4	SOCKET 90 DEG PCB VERSION 2x7 POLES CC=2mm	MOLEX	87264-1450	78.475
X5	SOCKET 90 DEG PCB VERSION 2x7 POLES CC=2mm	MOLEX	87264-1450	78.475
X6	SOCKET PCB VERSION 2x10 POLES u-MATCH	AMP	2-215079-0 / 9-215079-0	78.198
X7	1/10" SOCKET STRIP 12 POLES	ADV.INTERCONNEC	KSS 012-85 T G	78.817
XD9	SOCKET PLCC 32 POLES LOW PROFILE	T.Z.T.	ZT-SMTP-S-32-T/O	376.803
XG1	BATTERY HOLDER, CR2032	SANYO	20H-1	78.451
Z1	CRYSTAL 19.6608MHz 50ppm	MEIDEN	MQX-3H2-19660-20	39.778
Z2	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z3	CRYSTAL 7.3728MHz HC49U/U-4H h=3.6mm	MEIDEN	MQX-3H2-073728-30	39.819
Z4	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z5	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z6	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z7	CRYSTAL 4.000MHz 50ppm	MEIDEN	MQX-3H2-04000-16	39.768
Z8	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z9	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z10	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z11	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z12	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z13	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z14	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z15	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z16	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z17	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z18	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z19	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z20	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z21	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z22	CRYSTAL 32.768kHz	NDK	MU-206S	39.765
Z23	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z24	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z25	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z26	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z27	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z28	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z29	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z30	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z31	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z32	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z33	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z34	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001

POSITION	DESCRIPTION	MANUFACTURER	TYPE	PART NO.
RTU AF & PROCESS0R 32250	**Version 02**	**ECI A/S**	**5-x-32250J / 4-0-32250Q**	**63225002**
POSITION	**DESCRIPTION**	**MANUFACTURER**	**TYPE**	**PART NO.**
C1	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C2	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C3	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C4	CAPACITOR TANTALUM 3528 2u2F 20% 16VDC	ERO	CB 225020 M E17	334.028
C5	CAPACITOR CERAM. SMD 1206 1u0F -20/80% Y5V 16VDC	MURATA	GRM42-6 Y5V 105 Z 16 PT10	328.806
C6	CAPACITOR ELECTROLYTIC SMD 10uF 20% 16VDC	EUROPE CHEMICON	Al-Chip-MKV 16V/10 M	333.079
C7	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C8	CAPACITOR ELECTROLYTIC SMD 10uF 20% 16VDC	EUROPE CHEMICON	Al-Chip-MKV 16V/10 M	333.079
C9	CAPACITOR ELECTROLYTIC SMD 10uF 20% 16VDC	EUROPE CHEMICON	Al-Chip-MKV 16V/10 M	333.079
C10	CAPACITOR ELECTROLYTIC SMD 10uF 20% 16VDC	EUROPE CHEMICON	Al-Chip-MKV 16V/10 M	333.079
C11	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C12	CAPACITOR CERAM. SMD 0805 470pF 10% X7R 50VDC	PHILIPS	2222 580 16609	328.320
C13	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C14	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C15	CAPACITOR CERAM. SMD 0805 4n7F 10% X7R 50VDC	TDK	C2012 X7R 1H 472 K T NiBa	328.332
C16	CAPACITOR CERAM. SMD 0805 4n7F 10% X7R 50VDC	TDK	C2012 X7R 1H 472 K T NiBa	328.332
C17	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C18	CAPACITOR TANTALUM 3216 1u5F 20% 16VDC	ERO	CA 155016 M E17	334.007
C19	CAPACITOR ELECTROLYTIC SMD 4u7F 20% 25VDC	EUROPE CHEMICON	Al-Chip-MVK 35V/4.7 M	333.075
C20	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C21	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C22	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C23	CAPACITOR CERAM. SMD 0805 270pF 5% NPO 50VDC	TDK	C2012 COG 1H 271 J T NiBa	323.091
C24	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C25	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C26	CAPACITOR CERAM. SMD 0805 120pF 5% NPO 50VDC	TDK	C2012 COG 1H 121 J T NiBa	323.087
C27	CAPACITOR CERAM. SMD 1206 1u0F -20/80% Y5V 16VDC	MURATA	GRM42-6 Y5V 105 Z 16 PT10	328.806
C28	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C29	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C30	CAPACITOR CERAM. SMD 0805 6n8F 10% X7R 50VDC	TDK	C2012 X7R 1H 682 K T NiBa	328.334
C31	CAPACITOR CERAM. SMD 1206 1u0F -20/80% Y5V 16VDC	MURATA	GRM42-6 Y5V 105 Z 16 PT10	328.806
C32	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C33	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C34	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C35	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C36	CAPACITOR CERAM. SMD 0805 270pF 5% NPO 50VDC	TDK	C2012 COG 1H 271 J T NiBa	323.091
C37	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C38	CAPACITOR CERAM. SMD 0805 270pF 5% NPO 50VDC	TDK	C2012 COG 1H 271 J T NiBa	323.091
C39	CAPACITOR CERAM. SMD 0805 6n8F 10% X7R 50VDC	TDK	C2012 X7R 1H 682 K T NiBa	328.334
C40	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C41	CAPACITOR CERAM. SMD 0805 220pF 5% NPO 50VDC	TDK	C2012 COG 1H 221 J T NiBa	323.090
C42	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C43	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C44	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C45	CAPACITOR CERAM. SMD 0805 22pF 5% NP0 50VDC	TDK	C2012 COG 1H 220 J T NiBa	323.078
C46	CAPACITOR CERAM. SMD 0805 100pF 5% NPO 50VDC	TDK	C2012 COG 1H 101 J T NiBa	323.086
C47	CAPACITOR TANTALUM 3528 2u2F 20% 16VDC	ERO	CB 225020 M E17 REEL a 2000 STK	334.028
C48	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C49	CAPACITOR CERAM. SMD 0805 680pF 5% NPO 50VDC	TDK	C2012 COG 1H 681 J T NiBa	323.096
C50	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C51	CAPACITOR CERAM. SMD 0805 270pF 5% NPO 50VDC	TDK	C2012 COG 1H 271 J T NiBa	323.091
C52	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C53	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C54	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C55	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C56	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C57	CAPACITOR CERAM. SMD 0805 33pF 5% NPO 50VDC	TDK	C2012 COG 1H 330 J T 000A	323.080
C58	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C59	CAPACITOR CERAM. SMD 0805 18pF 5% NPO 50VDC	TDK	C2012 COG 1H 180 J T NiBa	323.077
C60	CAPACITOR TRIMMER SMD 4.5-20pF NP0	SCIMAREC	TC03C200ATP02 ID: RED	335.008
C61	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C62	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C63	CAPACITOR CERAM. SMD 0805 270pF 5% NPO 50VDC	TDK	C2012 COG 1H 271 J T NiBa	323.091
C64	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C65	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C66	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C67	CAPACITOR CERAM. SMD 0805 6n8F 10% X7R 50VDC	TDK	C2012 X7R 1H 682 K T NiBa	328.334
C68	CAPACITOR CERAM. SMD 0805 6n8F 10% X7R 50VDC	TDK	C2012 X7R 1H 682 K T NiBa	328.334
C69	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324

POSITION	DESCRIPTION	MANUFACTURER	TYPE	PART NO.
C70	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C71	CAPACITOR CERAM. SMD 0805 22pF 5% NP0 50VDC	TDK	C2012 COG 1H 220 J T NiBa	323.078
C72	CAPACITOR CERAM. SMD 0805 82pF 5% NPO 50VDC	TDK	C2012 COG 1H 820 J T NiBa	323.085
C73	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C74	CAPACITOR CERAM. SMD 0805 270pF 5% NPO 50VDC	TDK	C2012 COG 1H 271 J T NiBa	323.091
C75	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C76	CAPACITOR CERAM. SMD 0805 6n8F 10% X7R 50VDC	TDK	C2012 X7R 1H 682 K T NiBa	328.334
C77	CAPACITOR CERAM. SMD 0805 22pF 5% NP0 50VDC	TDK	C2012 COG 1H 220 J T NiBa	323.078
C78	CAPACITOR CERAM. SMD 0805 22pF 5% NP0 50VDC	TDK	C2012 COG 1H 220 J T NiBa	323.078
C79	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C80	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C81	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C82	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C83	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C84	CAPACITOR CERAM. SMD 0805 6n8F 10% X7R 50VDC	TDK	C2012 X7R 1H 682 K T NiBa	328.334
C85	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C86	CAPACITOR ELECTROLYTIC SMD 10uF 20% 16VDC	EUROPE CHEMICON	Al-Chip-MKV 16V/10 M	333.079
C87	CAPACITOR ELECTROLYTIC SMD 10uF 20% 16VDC	EUROPE CHEMICON	Al-Chip-MKV 16V/10 M	333.079
C88	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C89	CAPACITOR TANTALUM 3528 2u2F 20% 16VDC	ERO	CB 225020 M E17	334.028
C90	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C91	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C92	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C93	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C94	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C95	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C96	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C97	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C98	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C99	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C100	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C101	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C102	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C103	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C104	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C105	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C106	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C107	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C108	CAPACITOR CERAM. SMD 0805 10pF 5% NPO 50VDC	TDK	C2012 COG 1H 100 D T NiBa	323.074
C109	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C110	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C111	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C112	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C113	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C114	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C115	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C116	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C117	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C118	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C119	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C120	CAPACITOR CERAM. SMD 0805 100pF 5% NPO 50VDC	TDK	C2012 COG 1H 101 J T NiBa	323.086
C121	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C122	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C123	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C124	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C125	CAPACITOR ELECTROLYTIC SMD 10uF 20% 16VDC	EUROPE CHEMICON	Al-Chip-MKV 16V/10 M	333.079
C126	CAPACITOR TANTALUM 10uF 10% 25VDC	SPRAGUE	293D 106 X9035 D2T	67700300
C127	CAPACITOR CERAM. SMD 0805 47pF 5% NPO 50VDC	TDK	C2012 COG 1H 470 J T NiBa	323.082
C128	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C129	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C130	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C131	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C132	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C133	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
D1	RS485 LOW EMI TRANCEIVER MAX483, LTC1483	MAXIM	MAX483 CSA(ESA) TAPE&REEL	356.606
D2	8-BIT SHIFT REG. W.LATCH 74HC595	PHILIPS	74HC595D TAPE & REEL	355.296
D3	RS485 LOW EMI TRANCEIVER MAX483, LTC1483	MAXIM	MAX483 CSA(ESA) TAPE&REEL	356.606
D4	DUAL D-FF SET/RESET 74HC74	MOTOROLA	MC74HC74D R2	355.223
D5	OCTAL D-TYPE LATCH 3-STATE 74HC573	TEXAS	SN74HC573DW	85980200
D6	OCTAL D-TYPE LATCH 3-STATE 74HC573	TEXAS	SN74HC573DW	85980200
D7	10 BIT A/D CONVERTER SERIAL INP. AD7812	ANALOG DEVICES	AD7812YR R	351.856
D8	SRAM 8kx8 Taa<=150nSecs UM6264DM,MSM5165AL,HM6264A	UMC/EliteMT	UM 6264DM-70L (-70LL) LP	356.310
D9	PROM D9,for 63225002 RTU AF & PRC.32250 Ver.02	ECI A/S	0-0-32451	73245102
D10	16 BIT DSP uPROCESSOR PLCC 68 ADSP-2115	ANALOG DEVICES	ADSP-2115KP(BP)-80(-100)	357.300

POSITION	DESCRIPTION	MANUFACTURER	TYPE	PART NO.
D11	8-BIT SHIFT REG. W.LATCH 74HC595	PHILIPS	74HC595D TAPE & REEL	355.296
D12	QUAD 10BIT DAC SERIAL AD7804	ANALOG DEVICES	AD7804BR(CR)R-16	351.808
D13	CPU 8 BIT OTP QFP 64 HD6473238F10	HITACHI	HD6473238F10	356.032
D14	2-INP.POS. NAND GATE FAST TC7S00F, 74AHC1G00	TOSHIBA	TC7S00F-TE85L ID: E1	355.775
D15	QUAD 2-INPUT NOR GATE HCMOS 74HC02	MOTOROLA	MC74HC02DR2	350.202
D16	3 TO 8 LINE DECODER 74HC138	TEXAS	SN74HC138D R	355.235
D17	3 TO 8 LINE DECODER 74HC138	TEXAS	SN74HC138D R	355.235
D18	WATCH DOG 5V INCL. TIMER MAX705, ADM705	ANALOG DEVICES	ADM705AR REEL	356.642
D19	REAL TIME CLOCK CALENDAR PCF8593	PHILIPS	PCF8593T TAPE&REEL	357.376
D20	EEPROM 8k BIT SERIAL 24C08	SGS-THOMSON	M24C08MN6T	356.323
D22	QUAD 2-INPUT NAND GATES 74HC00	TEXAS	SN74HC00DR(TAPE&REEL)	355.200
D23	EEPROM 8k BIT SERIAL 24C08	SGS-THOMSON	M24C08MN6T	356.323
D24	2-INP. POS. AND GATE FAST TC7S08F, 74AHCT08	TOSHIBA	TC7S08F-TE85L ID: E2	355.778
D25	2-INP. POS. AND GATE FAST TC7S08F, 74AHCT08	TOSHIBA	TC7S08F-TE85L ID: E2	355.778
G1	BATTERY LITHIUM 3V 0.22Ah Ø20x3.2mm	SANYO	CR2032	47.007
L1	CHOKE FIXED 1211 2u2H 10%	COILCRAFT	1008CS-222-XKBC	337.228
L2	CHOKE FIXED 1211 2u2H 10%	COILCRAFT	1008CS-222-XKBC	337.228
N1	OPTO COUPLER MOC207, IL207	QT	MOC207 R1 (R2) Id = Q207	353.057
N2	AF POWER AMPLIFIER 2x22W TDA1557Q	PHILIPS	TDA1557Q	31.437
N3	LOW POWER AUDIO AMPLIFIER MC34119	MOTOROLA	MC34119D R2(R1)	85870000
N4	CMOS QUAD OPAMP SO14 LMC660	NATIONAL	LMC660CMX	350.605
N5	CMOS QUAD OPAMP SO14 LMC660	NATIONAL	LMC660CMX	350.605
N6	ASIC AF 4419 SAILOR 356.405	AMS	ASIC 4419 QFP SAILOR 356.405	356.405
N7	QUAD BILATERAL SWITCH CD4066BC	MOTOROLA	MC14066BD R2(R1)	355.066
N8	QUAD BILATERAL SWITCH CD4066BC	MOTOROLA	MC14066BD R2(R1)	355.066
N9	VOLTAGE REG. ADJUSTABLE Io=0.1A, LP2951C	NATIONAL	LP2951CM (LP2951ACM)	350.050
R1	RESISTOR SMD 0805 56k OHM 5% 0.1W	ROHM	MCR 10 EZH J 563	302.069
R2	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R3	RESISTOR SMD 0805 1k0 OHM 5% 0.1W	ROHM	MCR 10 EZH J 102	302.048
R4	RESISTOR SMD 0805 2M2 OHM 5% 0.1W	ROHM	MCR 10 EZH J 225	302.088
R5	RESISTOR SMD 0805 15k OHM 5% 0.1W	ROHM	MCR 10 EZH J 153	302.062
R6	PRESET SEALED 5k0 OHM 20% 1/4W	BOURNS	3314J-1-502-E(G)	310.408
R7	RESISTOR SMD 0805 47 OHM 5% 0.1W	ROHM	MCR 10 EZH J 47R	302.032
R8	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R9	RESISTOR SMD 0805 1k0 OHM 5% 0.1W	ROHM	MCR 10 EZH J 102	302.048
R10	RESISTOR SMD 0805 330k OHM 5% 0.1W	ROHM	MCR 10 EZH J 334	302.078
R11	RESISTOR SMD 0805 100 OHM 5% 0.1W	ROHM	MCR 10 EZH J 101	302.036
R12	RESISTOR SMD 0805 22 OHM 5% 0.1W	ROHM	MCR 10 EZH J 22R	302.028
R13	RESISTOR SMD 0805 22 OHM 5% 0.1W	ROHM	MCR 10 EZH J 22R	302.028
R14	RESISTOR SMD 0805 22k OHM 5% 0.1W	ROHM	MCR 10 EZH J 223	302.064
R15	RESISTOR SMD 0805 27k OHM 5% 0.1W	ROHM	MCR 10 EZH J 273	302.065
R16	RESISTOR SMD 0805 220 OHM 5% 0.1W	ROHM	MCR 10 EZH J 221	302.040
R17	RESISTOR SMD 0805 330k OHM 5% 0.1W	ROHM	MCR 10 EZH J 334	302.078
R18	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R19	RESISTOR SMD 0805 8k2 OHM 5% 0.1W	ROHM	MCR 10 EZH J 822	302.059
R20	RESISTOR SMD 0805 8k2 OHM 5% 0.1W	ROHM	MCR 10 EZH J 822	302.059
R21	RESISTOR SMD 0805 10 OHM 5% 0.1W	ROHM	MCR 10 EZH J 10R	302.024
R22	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R23	RESISTOR SMD 0805 560 OHM 5% 0.1W	ROHM	MCR 10 EZH J 561	302.045
R24	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R25	RESISTOR SMD 0805 100k OHM 1% 50mW	PHILIPS	2322 734 2/61004	302.570
R26	RESISTOR SMD 0805 120 OHM 5% 0.1W	ROHM	MCR 10 EZH J 121	302.037
R27	RESISTOR SMD 0805 14k0 OHM 1% 50mW	PHILIPS	2322 734 2/61403	302.484
R28	RESISTOR SMD 0805 10k0 OHM 1% 50mW	PHILIPS	2322 734 2/61003	302.470
R29	RESISTOR SMD 0805 1k0 OHM 5% 0.1W	ROHM	MCR 10 EZH J 102	302.048
R30	RESISTOR SMD 0805 1M0 OHM 5% 0.1W	ROHM	MCR 10 EZH J 105	302.084
R31	RESISTOR SMD 0805 24k9 OHM 1% 50mW	PHILIPS	2322 734 2/62493	302.508
R32	RESISTOR SMD 0805 95k3 OHM 1% 50mW	PHILIPS	2322 734 2/69533	302.564
R33	RESISTOR SMD 0805 100k OHM 1% 50mW	PHILIPS	2322 734 2/61004	302.570
R34	RESISTOR SMD 0805 33k OHM 5% 0.1W	ROHM	MCR 10 EZH J 333	302.066
R35	RESISTOR SMD 0805 33k OHM 5% 0.1W	ROHM	MCR 10 EZH J 333	302.066
R36	RESISTOR SMD 0805 39k OHM 5% 0.1W	ROHM	MCR 10 EZH J 393	302.067
R37	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R38	RESISTOR SMD 0805 560 OHM 5% 0.1W	ROHM	MCR 10 EZH J 561	302.045
R39	RESISTOR SMD 0805 118k OHM 1% 50mW	PHILIPS	2322 734 2/61184	302.577
R40	RESISTOR SMD 0805 205k OHM 1% 50mW	PHILIPS	2322 734 2/62054	302.600
R41	RESISTOR SMD 0805 7k50 OHM 1% 50mW	PHILIPS	2322 734 2/67502	302.454
R42	RESISTOR SMD 0805 10k0 OHM 1% 50mW	PHILIPS	2322 734 2/61003	302.470
R43	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R44	RESISTOR SMD 0805 39k OHM 5% 0.1W	ROHM	MCR 10 EZH J 393	302.067
R45	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R46	RESISTOR SMD 0805 110k OHM 1% 50mW	PHILIPS	2322 734 2/61104	302.574
R47	RESISTOR SMD 0805 0 OHM 2A	ROHM	MCR 10 EZH JUMPER	302.000
R48	RESISTOR SMD 0805 150k OHM 5% 0.1W	ROHM	MCR 10 EZH J 154	302.074

POSITION	DESCRIPTION	MANUFACTURER	TYPE	PART NO.
R49	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R50	RESISTOR SMD 0805 0 OHM 2A	ROHM	MCR 10 EZH JUMPER	302.000
R51	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R52	RESISTOR SMD 0805 1k0 OHM 5% 0.1W	ROHM	MCR 10 EZH J 102	302.048
R53	RESISTOR SMD 0805 0 OHM 2A	ROHM	MCR 10 EZH JUMPER	302.000
R54	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R55	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R56	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R57	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R58	RESISTOR SMD 0805 820k OHM 5% 0.1W	ROHM	MCR 10 EZH J 824	302.083
R59	RESISTOR SMD 0805 470 OHM 5% 0.1W	ROHM	MCR 10 EZH J 471	302.044
R60	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R61	RESISTOR SMD 0805 1k0 OHM 5% 0.1W	ROHM	MCR 10 EZH J 102	302.048
R62	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R63	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R64	RESISTOR SMD 0805 0 OHM 2A	ROHM	MCR 10 EZH JUMPER	302.000
R65	RESISTOR SMD 0805 100k OHM 1% 50mW	PHILIPS	2322 734 2/61004	302.570
R66	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R67	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R68	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R69	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R70	RESISTOR SMD 0805 7k50 OHM 1% 50mW	PHILIPS	2322 734 2/67502	302.454
R71	RESISTOR SMD 0805 205k OHM 1% 50mW	PHILIPS	2322 734 2/62054	302.600
R72	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R73	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R74	RESISTOR SMD 0805 24k9 OHM 1% 50mW	PHILIPS	2322 734 2/62493	302.508
R75	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R76	RESISTOR SMD 0805 0 OHM 2A	ROHM	MCR 10 EZH JUMPER	302.000
R77	RESISTOR SMD 0805 0 OHM 2A	ROHM	MCR 10 EZH JUMPER	302.000
R78	RESISTOR SMD 0805 0 OHM 2A	ROHM	MCR 10 EZH JUMPER	302.000
R79	RESISTOR SMD 0805 0 OHM 2A	ROHM	MCR 10 EZH JUMPER	302.000
R80	RESISTOR SMD 0805 10k0 OHM 1% 50mW	PHILIPS	2322 734 2/61003	302.470
R81	RESISTOR SMD 0805 1k0 OHM 5% 0.1W	ROHM	MCR 10 EZH J 102	302.048
R82	RESISTOR SMD 0805 1M0 OHM 5% 0.1W	ROHM	MCR 10 EZH J 105	302.084
R83	RESISTOR SMD 0805 220k OHM 5% 0.1W	ROHM	MCR 10 EZH J 224	302.076
R84	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R85	RESISTOR SMD 0805 0 OHM 2A	ROHM	MCR 10 EZH JUMPER	302.000
R86	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R87	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R88	RESISTOR SMD 0805 0 OHM 2A	ROHM	MCR 10 EZH JUMPER	302.000
R89	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R90	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R91	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R92	RESISTOR SMD 0805 47k5 OHM 1% 50mW	PHILIPS	2322 734 2/64753	302.535
R93	RESISTOR SMD 0805 150k OHM 5% 0.1W	ROHM	MCR 10 EZH J 154	302.074
R94	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R95	RESISTOR SMD 0805 10k0 OHM 1% 50mW	PHILIPS	2322 734 2/61003	302.470
R96	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R97	RESISTOR SMD 0805 10k0 OHM 1% 50mW	PHILIPS	2322 734 2/61003	302.470
R98	RESISTOR SMD 0805 0 OHM 2A	ROHM	MCR 10 EZH JUMPER	302.000
R99	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R100	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R101	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R102	RESISTOR SMD 0805 6k8 OHM 5% 0.1W	ROHM	MCR 10 EZH J 682	302.058
R103	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R104	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R105	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R106	RESISTOR SMD 0805 0 OHM 2A	ROHM	MCR 10 EZH JUMPER	302.000
R107	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R108	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R109	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R110	RESISTOR SMD 0805 1M0 OHM 5% 0.1W	ROHM	MCR 10 EZH J 105	302.084
R111	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R112	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R113	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R114	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R115	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R116	RESISTOR SMD 0805 68k OHM 5% 0.1W	ROHM	MCR 10 EZH J 683	302.070
R117	RESISTOR SMD 0805 270 OHM 5% 0.1W	ROHM	MCR 10 EZH J 271	302.041
R118	RESISTOR SMD 0805 47 OHM 5% 0.1W	ROHM	MCR 10 EZH J 47R	302.032
R119	RESISTOR SMD 0805 820 OHM 5% 0.1W	ROHM	MCR 10 EZH J 821	302.047
R120	RESISTOR SMD 0805 820 OHM 5% 0.1W	ROHM	MCR 10 EZH J 821	302.047
R121	RESISTOR SMD 0805 4k7 OHM 5% 0.1W	ROHM	MCR 10 EZH J 472	302.056
R122	RESISTOR SMD 0805 220 OHM 5% 0.1W	ROHM	MCR 10 EZH J 221	302.040

POSITION	DESCRIPTION	MANUFACTURER	TYPE	PART NO.
R123	RESISTOR SMD 0805 220 OHM 5% 0.1W	ROHM	MCR 10 EZH J 221	302.040
R124	RESISTOR SMD 0805 220 OHM 5% 0.1W	ROHM	MCR 10 EZH J 221	302.040
R125	RESISTOR SMD 0805 0 OHM 2A	ROHM	MCR 10 EZH JUMPER	302.000
R126	RESISTOR SMD 0805 8k2 OHM 5% 0.1W	ROHM	MCR 10 EZH J 822	302.059
S1	SIL SQUARE PINS 2 POLES CC=1/10"	AMP	0-826629-2 (0-826647-2)	78.322
V1	TRANS. AF SMALL SIGNAL NPN, BC848B	MOTOROLA	BC848BLT1 (T3)	345.048
V2	FET DMOS SWITCH N-CHANNEL BSS123	PHILIPS	BSS123 ID: SA	347.505
V3	DIODE SWITCH HIGH SPEED LL4448, PMLL4448	PHILIPS	PMLL4448	340.148
V4	DIODE SWITCH HIGH SPEED LL4448, PMLL4448	PHILIPS	PMLL4448	340.148
V5	TRANS. AF SMALL SIGNAL NPN, BC848B	MOTOROLA	BC848BLT1 (T3)	345.048
V6	TRANS. AF SMALL SIGNAL NPN, BC848B	MOTOROLA	BC848BLT1 (T3)	345.048
V7	FET DMOS SWITCH N-CHANNEL BSS123	PHILIPS	BSS123 ID: SA	347.505
V8	TRANS. AF SMALL SIGNAL NPN, BC848B	MOTOROLA	BC848BLT1 (T3)	345.048
V9	DIODE DUAL SCHOTTKY BAT54A	PHILIPS	BAT54A 215 ID: L42	340.308
V10	DIODE SWITCH HIGH SPEED PMLL4148, 4446, 4448	PHILIPS	PMLL4148(4446)(4448) 115	83710000
V11	DIODE SWITCH HIGH SPEED PMLL4148, 4446, 4448	PHILIPS	PMLL4148(4446)(4448) 115	83710000
V12	DIODE DUAL SCHOTTKY BAT54C	PHILIPS	BAT54C 215 ID: L43	340.309
V13	DIODE DUAL SCHOTTKY BAT54A	PHILIPS	BAT54A 215 ID: L42	340.308
V14	DIODE DUAL SCHOTTKY BAT54C	PHILIPS	BAT54C 215 ID: L43	340.309
V15	DIODE SWITCH HIGH SPEED LL4448, PMLL4448	PHILIPS	PMLL4448	340.148
V16	DIODE DUAL SCHOTTKY BAT54S	PHILIPS	BAT54S LT1 T1 ID: LD3	340.310
X1	SOCKET 90 DEG. 4-40 BUSH. 15 POLES SUB D W/O SCREW	LEOCO	DHSL-15URL2	78.729
X2	SOCKET 90 DEG. 4-40 BUSH. 15 POLES SUB D W/O SCREW	LEOCO	DHSL-15URL2	78.729
X3	SOCKET PCB VERSION 2x10 POLES u-MATCH	AMP	2-215079-0 / 9-215079-0	78.198
X4	SOCKET 90 DEG PCB VERSION 2x7 POLES CC=2mm	MOLEX	87264-1450	78.475
X5	SOCKET 90 DEG PCB VERSION 2x7 POLES CC=2mm	MOLEX	87264-1450	78.475
X6	SOCKET PCB VERSION 2x10 POLES u-MATCH	AMP	2-215079-0 / 9-215079-0	78.198
X7	1/10" SOCKET STRIP 12 POLES	ADV.INTERCONNEC	KSS 012-85 T G	78.817
XD9	SOCKET PLCC 32 POLES LOW PROFILE	T.Z.T.	ZT-SMTP-S-32-T/O	376.803
XG1	BATTERY HOLDER, CR2032	SANYO	20H-1	78.451
Z1	CRYSTAL 19.6608MHz 50ppm	MEIDEN	MQX-3H2-19660-20	39.778
Z2	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z3	CRYSTAL 7.3728MHz HC49U/U-4H h=3.6mm	MEIDEN	MQX-3H2-073728-30	39.819
Z4	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z5	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z6	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z7	CRYSTAL 4.000MHz 50ppm	MEIDEN	MQX-3H2-04000-16	39.768
Z8	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z9	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z10	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z11	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z12	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z13	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z14	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z15	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z16	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z17	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z18	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z19	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z20	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z21	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z22	CRYSTAL 32.768kHz	NDK	MU-206S	39.765
Z23	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z24	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z25	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z26	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z27	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z28	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z29	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z30	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z31	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z32	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z33	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001
Z34	EMI FERRITE BEAD 2x1.25x0.9mm 0.2A	MURATA	BLM 21 A 121 S PT	370.001

POSITION	DESCRIPTION	MANUFACTURER	TYPE	PART NO.
RTU Transmitter 32251 RT47xx & RT48xx		**ECI A/S**	**5-x-32251J / 4-0-32251L**	**632251**
POSITION	**DESCRIPTION**	**MANUFACTURER**	**TYPE**	**PART NO.**
C1	CAPACITOR CERAM. SMD 1206 1n0F 10% X7R 500VDC	MURATA	GRM42-6 X7R 102 K 500 PT	324.688
C2	CAPACITOR CERAM. SMD 1206 22pF 5% NPO 500VDC	PHILIPS	2222 9711 1527	324.278
C3	CAPACITOR CERAM. SMD 1206 10pF 5% NPO 500VDC	PHILIPS	2222 9711 1523	324.274
C4	CAPACITOR CERAM. SMD 1206 220nF 10% X7R 16VDC	ROHM	MCH31 2 C 224 K P(K)	328.689
C5	CAPACITOR CERAM. SMD 1206 22pF 5% NPO 500VDC	PHILIPS	2222 9711 1527	324.278
C6	CAPACITOR CERAM. SMD 1206 1p0F +/- 0.25p NPO 500VD	MURATA	GRM42-6 COG 010 C 500 PT	324.262
C7	CAPACITOR CERAM. SMD 1206 4p7F +/-0.25pF NPO 500VD	MURATA	GRM42-6 COG 4R7 C 500 PT	324.270
C8	CAPACITOR CERAM. SMD 1206 5p6F +/-0.25pF NPO 500VD	MURATA	GRM42-6 COG 5R6 C 500 PT	324.271
C9	CAPACITOR CERAM. SMD 1206 1n0F 10% X7R 500VDC	MURATA	GRM42-6 X7R 102 K 500 PT	324.688
C10	CAPACITOR CERAM. SMD 1206 1n0F 10% X7R 500VDC	MURATA	GRM42-6 X7R 102 K 500 PT	324.688
C11	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C12	CAPACITOR CERAM. SMD 1206 220nF 10% X7R 16VDC	ROHM	MCH31 2 C 224 K P(K)	328.689
C13	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C14	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C15	CAPACITOR CERAM. SMD 1206 1n0F 10% X7R 500VDC	MURATA	GRM42-6 X7R 102 K 500 PT	324.688
C16	CAPACITOR CERAM. SMD 1206 1n0F 10% X7R 500VDC	MURATA	GRM42-6 X7R 102 K 500 PT	324.688
C17	CAPACITOR ELECTROLYTIC 100uF 20% 16VDC	PANASONIC	ECA 1C FG 101 i	14.534
C18	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C19	CAPACITOR CERAM. SMD 0805 15pF 5% NPO 50VDC	TDK	C2012 COG 1H 150 J T NiBa	323.076
C20	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C21	CAPACITOR ELECTROLYTIC SMD 10uF 20% 16VDC	EUROPE CHEMICON	Al-Chip-MKV 16V/10 M	333.079
C22	CAPACITOR CERAM. SMD 1206 10pF 5% NPO 500VDC	PHILIPS	2222 9711 1523	324.274
C23	CAPACITOR ELECTROLYTIC 100uF 20% 16VDC	PANASONIC	ECA 1C FG 101 i	14.534
C24	CAPACITOR ELECTROLYTIC 100uF 20% 16VDC	PANASONIC	ECA 1C FG 101 i	14.534
C25	CAPACITOR CERAM. SMD 0805 4p7F +/-0.25pF NPO 50VDC	TDK	C2012 COG 1H 4R7 C T NiBa	323.070
C26	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C27	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C28	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C29	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C30	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C31	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C32	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C33	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C34	CAPACITOR ELECTROLYTIC 1000uF 20% 35VDC	SAMHWA ELEC.	SV-1000uF-35WV	14.655
C35	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C36	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C37	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C38	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C39	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C40	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C41	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C42	CAPACITOR CERAM. SMD 0805 33pF 5% N150 50VDC	MURATA	GRM40 P2H 330 J 50 PT	323.480
C43	CAPACITOR CERAM. SMD 0805 12pF 5% NP0 50VDC	TDK	C2012 COG 1H 120 J T NiBa	323.075
C44	CAPACITOR CERAM. SMD 0805 39nF 10% X7R 50VDC	TDK	C2012 X7R 1H 393 K T 000A	328.343
C45	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C46	CAPACITOR CERAM. SMD 0805 18pF 5% NPO 50VDC	TDK	C2012 COG 1H 180 J T NiBa	323.077
C47	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C48	CAPACITOR TRIMMER SMD 4.5-20pF NP0	SCIMAREC	TC03C200ATP02 ID: RED	335.008
C49	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C50	CAPACITOR CERAM. SMD 0805 15pF 5% NPO 50VDC	TDK	C2012 COG 1H 150 J T NiBa	323.076
C51	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C52	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C53	CAPACITOR CERAM. SMD 0805 3p3F +/-0.25pF NPO 50VDC	TDK	C2012 COG 1H 3R3 C T NiBa	323.068
C55	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C56	CAPACITOR CERAM. SMD 0805 22pF 5% NP0 50VDC	TDK	C2012 COG 1H 220 J T NiBa	323.078
C57	CAPACITOR CERAM. SMD 0805 220pF 5% NPO 50VDC	TDK	C2012 COG 1H 221 J T NiBa	323.090
C58	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C59	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C60	CAPACITOR CERAM. SMD 0805 22pF 5% NP0 50VDC	TDK	C2012 COG 1H 220 J T NiBa	323.078
C61	CAPACITOR ELECTROLYTIC SMD 1u0F 20% 50VDC	PANASONIC	EEV HA 1H V 010 R	333.067
C62	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C63	CAPACITOR CERAM. SMD 0805 3n9F 10% X7R 50VDC	PHILIPS	2222 280 16622	328.331
C64	CAPACITOR CERAM. SMD 0805 39nF 10% X7R 50VDC	TDK	C2012 X7R 1H 393 K T 000A	328.343
C65	CAPACITOR ELECTROLYTIC SMD 1u0F 20% 50VDC	PANASONIC	EEV HA 1H V 010 R	333.067
C66	CAPACITOR ELECTROLYTIC SMD 10uF 20% 16VDC	EUROPE CHEMICON	Al-Chip-MKV 16V/10 M	333.079
C67	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C68	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C69	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324

POSITION	DESCRIPTION	MANUFACTURER	TYPE	PART NO.
C70	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C71	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C72	CAPACITOR CERAM. SMD 0805 82pF 5% NPO 50VDC	TDK	C2012 COG 1H 820 J T NiBa	323.085
C73	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C74	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C75	CAPACITOR ELECTROLYTIC SMD 10uF 20% 16VDC	EUROPE CHEMICON	Al-Chip-MKV 16V/10 M	333.079
C76	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C77	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C78	CAPACITOR CERAM. SMD 0805 4p7F +/-0.25pF NPO 50VDC	TDK	C2012 COG 1H 4R7 C T NiBa	323.070
C79	CAPACITOR CERAM. SMD 0805 22pF 5% NP0 50VDC	TDK	C2012 COG 1H 220 J T NiBa	323.078
C80	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C81	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C82	CAPACITOR CERAM. SMD 0805 12pF 5% NP0 50VDC	TDK	C2012 COG 1H 120 J T NiBa	323.075
C83	CAPACITOR CERAM. SMD 0805 18pF 5% NPO 50VDC	TDK	C2012 COG 1H 180 J T NiBa	323.077
C85	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C86	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C87	CAPACITOR CERAM. SMD 0805 22pF 5% NP0 50VDC	TDK	C2012 COG 1H 220 J T NiBa	323.078
C88	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C89	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C90	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C91	CAPACITOR CERAM. SMD 0805 15pF 5% NPO 50VDC	TDK	C2012 COG 1H 150 J T NiBa	323.076
C92	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C93	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C94	CAPACITOR CERAM. SMD 0805 2n7F 10% X7R 50VDC	PHILIPS	2222 580 16619	328.329
C95	CAPACITOR CERAM. SMD 0805 22pF 5% NP0 50VDC	TDK	C2012 COG 1H 220 J T NiBa	323.078
C96	CAPACITOR ELECTROLYTIC 100uF 20% 16VDC	PANASONIC	ECA 1C FG 101 i	14.534
C97	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C98	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C99	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C100	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C101	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C102	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C103	CAPACITOR ELECTROLYTIC SMD 10uF 20% 16VDC	EUROPE CHEMICON	Al-Chip-MKV 16V/10 M	333.079
C104	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C105	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C106	CAPACITOR CERAM. SMD 0805 82pF 5% NPO 50VDC	TDK	C2012 COG 1H 820 J T NiBa	323.085
C107	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C108	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C109	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C110	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C111	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C112	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C113	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C114	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C115	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C116	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C117	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C118	CAPACITOR ELECTROLYTIC SMD 10uF 20% 16VDC	EUROPE CHEMICON	Al-Chip-MKV 16V/10 M	333.079
C119	CAPACITOR CERAM. SMD 1206 1u0F -20/80% Y5V 16VDC	MURATA	GRM42-6 Y5V 105 Z 16 PT10	328.806
C120	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C121	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C122	CAPACITOR CERAM. SMD 1206 22pF 5% NPO 500VDC	PHILIPS	2222 9711 1527	324.278
C123	CAPACITOR CERAM. SMD 0805 22pF 5% NP0 50VDC	TDK	C2012 COG 1H 220 J T NiBa	323.078
C124	CAPACITOR CERAM. SMD 0805 22pF 5% NP0 50VDC	TDK	C2012 COG 1H 220 J T NiBa	323.078
C125	CAPACITOR CERAM. SMD 0805 270pF 5% NPO 50VDC	TDK	C2012 COG 1H 271 J T NiBa	323.091
C126	CAPACITOR CERAM. SMD 0805 270pF 5% NPO 50VDC	TDK	C2012 COG 1H 271 J T NiBa	323.091
C127	CAPACITOR CERAM. SMD 0805 270pF 5% NPO 50VDC	TDK	C2012 COG 1H 271 J T NiBa	323.091
C128	CAPACITOR CERAM. SMD 0805 270pF 5% NPO 50VDC	TDK	C2012 COG 1H 271 J T NiBa	323.091
C129	CAPACITOR CERAM. SMD 0805 270pF 5% NPO 50VDC	TDK	C2012 COG 1H 271 J T NiBa	323.091
C130	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C131	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C132	CAPACITOR CERAM. SMD 1206 22pF 5% NPO 500VDC	PHILIPS	2222 9711 1527	324.278
C133	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C134	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C135	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C136	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C137	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C138	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
D1	8-BIT SHIFT REG. W.LATCH 74HC595	PHILIPS	74HC595D TAPE & REEL	355.296
D2	DUAL 4 CHANNEL ANALOG MUX MC14052B, HEF4052B	PHILIPS	HEF4052BT TAPE&REEL	351.708
D3	1.1GHz PLL SYNTHESIZER MC14519	MOTOROLA	MC145190F	355.841
F1	ATO BLADE MINI FUSE 10AF COLOURED RED	LITTELFUSE	297010	45.735
K1	RELAY RF 12VDC SPDT UM1-12W-K	OMRON	G5Y-1-H-12VDC	21.120
K3	RELAY 12VDC SPDT 8A	TAKAMISAWA	JS-12-K JS-12E-K	21.135

POSITION	DESCRIPTION	MANUFACTURER	TYPE	PART NO.
L1	COIL FIXED 46nH HiQ ø6.5 x 7.1mm	ECI A/S	6-0-32853C	432853
L2	COIL FIXED 32nH HiQ 6.5 x 5.0mm	ECI A/S	6-0-32854C	432854
L3	COIL FIXED 41nH HiQ ø6.5 x 9.5mm	ECI A/S	6-0-32852C	432852
L4	COIL FIXED 56nH HiQ ø5.9 x 4.9mm	ECI A/S	6-0-32857B	432857
L5	COIL FIXED 60nH HiQ ø5.9 x 4.0mm	ECI A/S	6-0-32856B	432856
L6	COIL FIXED 21nH HiQ ø5.9 x 2.3mm	ECI A/S	6-0-32885B	432885
L7	COIL FIXED 38nH HiQ ø5.9 x 3.2mm	ECI A/S	6-0-32855B	432855
L8	COIL FIXED 21nH HiQ ø5.9 x 2.3mm	ECI A/S	6-0-32885B	432885
L9	CHOKE FIXED 100nH 5%	COILCRAFT	1008CS-101-XJBC	337.262
L10	CHOKE FIXED 1m0H 10%	TDK	NL453232T-102-K	337.341
L11	CHOKE FIXED 1211 2u2H 10%	COILCRAFT	1008CS-222-XKBC	337.228
L12	CHOKE FIXED 1211 2u2H 10%	COILCRAFT	1008CS-222-XKBC	337.228
L13	CHOKE FIXED 1211 2u2H 10%	COILCRAFT	1008CS-222-XKBC	337.228
L14	COIL RF 60nH ADJUSTABLE	TOKO	NE545SN-100093	38.502
L15	CHOKE FIXED 100nH 5%	COILCRAFT	1008CS-101-XJBC	337.262
N1	VHF POWER AMP. 25W S-AV6/M57710A/MC5233	TOSHIBA	S-AV6	32.450
N2	POS. VOLTAGE REG. ADJUST. Io=1.5A LM317T	MOTOROLA	LM317T	31.055
N3	POS. VOLTAGE REG. ADJUST. Io=1.5A LM317T	MOTOROLA	LM317T	31.055
N4	QUAD OP.AMP. LM324	MOTOROLA	LM324D R2	350.530
R1	RESISTOR SMD 1206 82k OHM 5% 0.25W	ROHM	MCR18 EZH J 823	57003800
R2	RESISTOR SMD 0805 82k OHM 5% 0.1W	ROHM	MCR 10 EZH J 823	302.071
R3	RESISTOR SMD 1206 82k OHM 5% 0.25W	ROHM	MCR18 EZH J 823	57003800
R4	RESISTOR SMD 0805 22k OHM 5% 0.1W	ROHM	MCR 10 EZH J 223	302.064
R5	RESISTOR SMD 1206 150R OHM 5% 0.25W	ROHM	MCR18 EZH J 151	57001200
R7	RESISTOR SMD 0805 22k OHM 5% 0.1W	ROHM	MCR 10 EZH J 223	302.064
R9	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R10	RESISTOR SMD 0805 402 OHM 1% 50mW	PHILIPS	2322 734 2/64021	302.328
R11	RESISTOR SMD 1206 220 OHM 5% 0.25W	ROHM	MCR 18 EZH J 221	303.040
R12	RESISTOR SMD 1206 150R OHM 5% 0.25W	ROHM	MCR18 EZH J 151	57001200
R13	RESISTOR SMD 0805 10 OHM 5% 0.1W	ROHM	MCR 10 EZH J 10R	302.024
R14	RESISTOR SMD 0805 1k30 OHM 1% 50mW	PHILIPS	2322 734 2/61302	302.381
R15	PRESET SEALED 100 OHM 20% 1/4W	BOURNS	3314J-1-101-E(G)	310.403
R16	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R17	RESISTOR SMD 1206 3R9 OHM 5% 0.25W	ROHM	MCR 18 EZH J 3R9	57006800
R18	RESISTOR SMD 0805 39k OHM 5% 0.1W	ROHM	MCR 10 EZH J 393	302.067
R19	RESISTOR SMD 0805 39k OHM 5% 0.1W	ROHM	MCR 10 EZH J 393	302.067
R20	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R21	RESISTOR SMD 0805 2k2 OHM 5% 0.1W	ROHM	MCR 10 EZH J 222	302.052
R22	RESISTOR SMD 0805 4k7 OHM 5% 0.1W	ROHM	MCR 10 EZH J 472	302.056
R23	RESISTOR SMD 0805 100 OHM 5% 0.1W	ROHM	MCR 10 EZH J 101	302.036
R24	RESISTOR SMD 0805 270 OHM 5% 0.1W	ROHM	MCR 10 EZH J 271	302.041
R25	RESISTOR SMD 0805 22 OHM 5% 0.1W	ROHM	MCR 10 EZH J 22R	302.028
R26	RESISTOR SMD 0805 221 OHM 1% 50mW	PHILIPS	2322 734 2/62211	302.303
R27	RESISTOR SMD 0805 1k30 OHM 1% 50mW	PHILIPS	2322 734 2/61302	302.381
R28	RESISTOR SMD 0805 2k7 OHM 5% 0.1W	ROHM	MCR 10 EZH J 272	302.053
R29	RESISTOR SMD 0805 120 OHM 5% 0.1W	ROHM	MCR 10 EZH J 121	302.037
R30	RESISTOR SMD 0805 12 OHM 5% 0.1W	ROHM	MCR 10 EZH J 12R	302.025
R31	RESISTOR SMD 0805 27k OHM 5% 0.1W	ROHM	MCR 10 EZH J 273	302.065
R32	PRESET SEALED 100 OHM 20% 1/4W	BOURNS	3314J-1-101-E(G)	310.403
R33	RESISTOR SMD 0805 3k3 OHM 5% 0.1W	ROHM	MCR 10 EZH J 332	302.054
R34	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R35	RESISTOR SMD 0805 1k0 OHM 5% 0.1W	ROHM	MCR 10 EZH J 102	302.048
R36	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R37	RESISTOR SMD 0805 470k OHM 5% 0.1W	ROHM	MCR 10 EZH J 474	302.080
R38	RESISTOR SMD 0805 0 OHM 2A	ROHM	MCR 10 EZH JUMPER	302.000
R39	RESISTOR SMD 0805 27k OHM 5% 0.1W	ROHM	MCR 10 EZH J 273	302.065
R40	RESISTOR SMD 0805 15k OHM 5% 0.1W	ROHM	MCR 10 EZH J 153	302.062
R41	RESISTOR SMD 0805 33k OHM 5% 0.1W	ROHM	MCR 10 EZH J 333	302.066
R42	RESISTOR SMD 1206 150R OHM 5% 0.25W	ROHM	MCR18 EZH J 151	57001200
R43	RESISTOR SMD 0805 1k5 OHM 5% 0.1W	ROHM	MCR 10 EZH J 152	302.050
R44	RESISTOR SMD 0805 1k8 OHM 5% 0.1W	ROHM	MCR 10 EZH J 182	302.051
R45	RESISTOR SMD 0805 470k OHM 5% 0.1W	ROHM	MCR 10 EZH J 474	302.080
R46	RESISTOR SMD 0805 47k OHM 5% 0.1W	ROHM	MCR 10 EZH J 473	302.068
R47	RESISTOR SMD 0805 22k OHM 5% 0.1W	ROHM	MCR 10 EZH J 223	302.064
R48	RESISTOR SMD 0805 3k3 OHM 5% 0.1W	ROHM	MCR 10 EZH J 332	302.054
R49	RESISTOR SMD 0805 33k OHM 5% 0.1W	ROHM	MCR 10 EZH J 333	302.066
R50	RESISTOR SMD 0805 100 OHM 5% 0.1W	ROHM	MCR 10 EZH J 101	302.036
R51	RESISTOR SMD 0805 120 OHM 5% 0.1W	ROHM	MCR 10 EZH J 121	302.037
R52	RESISTOR SMD 0805 120 OHM 5% 0.1W	ROHM	MCR 10 EZH J 121	302.037
R53	RESISTOR SMD 0805 2k2 OHM 5% 0.1W	ROHM	MCR 10 EZH J 222	302.052
R54	RESISTOR SMD 1206 150R OHM 5% 0.25W	ROHM	MCR18 EZH J 151	57001200
R55	RESISTOR SMD 0805 560 OHM 5% 0.1W	ROHM	MCR 10 EZH J 561	302.045
R56	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R57	RESISTOR SMD 1206 10k OHM 5% 0.25W	DRALORIC	CR 1206 L 103 J G4	303.060

POSITION	DESCRIPTION	MANUFACTURER	TYPE	PART NO.
R58	RESISTOR SMD 0805 22k OHM 5% 0.1W	ROHM	MCR 10 EZH J 223	302.064
R60	RESISTOR SMD 0805 22k OHM 5% 0.1W	ROHM	MCR 10 EZH J 223	302.064
R61	RESISTOR SMD 0805 820 OHM 5% 0.1W	ROHM	MCR 10 EZH J 821	302.047
R62	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R63	RESISTOR SMD 0805 1M0 OHM 5% 0.1W	ROHM	MCR 10 EZH J 105	302.084
R64	RESISTOR SMD 0805 2k7 OHM 5% 0.1W	ROHM	MCR 10 EZH J 272	302.053
R65	RESISTOR SMD 0805 120 OHM 5% 0.1W	ROHM	MCR 10 EZH J 121	302.037
R66	RESISTOR SMD 0805 270 OHM 5% 0.1W	ROHM	MCR 10 EZH J 271	302.041
R67	RESISTOR SMD 0805 12 OHM 5% 0.1W	ROHM	MCR 10 EZH J 12R	302.025
R68	RESISTOR SMD 0805 47 OHM 5% 0.1W	ROHM	MCR 10 EZH J 47R	302.032
R69	RESISTOR SMD 0805 0 OHM 2A	ROHM	MCR 10 EZH JUMPER	302.000
R70	RESISTOR SMD 0805 4k7 OHM 5% 0.1W	ROHM	MCR 10 EZH J 472	302.056
R71	RESISTOR SMD 0805 47k OHM 5% 0.1W	ROHM	MCR 10 EZH J 473	302.068
R72	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R73	RESISTOR SMD 0805 150k OHM 5% 0.1W	ROHM	MCR 10 EZH J 154	302.074
R74	RESISTOR SMD 0805 100 OHM 5% 0.1W	ROHM	MCR 10 EZH J 101	302.036
R75	RESISTOR SMD 0805 120 OHM 5% 0.1W	ROHM	MCR 10 EZH J 121	302.037
R76	RESISTOR SMD 0805 120 OHM 5% 0.1W	ROHM	MCR 10 EZH J 121	302.037
R77	RESISTOR SMD 0805 100 OHM 5% 0.1W	ROHM	MCR 10 EZH J 101	302.036
R78	RESISTOR SMD 1206 10k OHM 5% 0.25W	DRALORIC	CR 1206 L 103 J G4	303.060
R79	RESISTOR SMD 0805 220k OHM 5% 0.1W	ROHM	MCR 10 EZH J 224	302.076
R80	RESISTOR SMD 0805 120k OHM 5% 0.1W	ROHM	MCR 10 EZH J 124	302.073
R81	RESISTOR SMD 0805 0 OHM 2A	ROHM	MCR 10 EZH JUMPER	302.000
R82	RESISTOR SMD 0805 100 OHM 5% 0.1W	ROHM	MCR 10 EZH J 101	302.036
R83	RESISTOR SMD 0805 470k OHM 5% 0.1W	ROHM	MCR 10 EZH J 474	302.080
R84	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R85	RESISTOR SMD 0805 33k OHM 5% 0.1W	ROHM	MCR 10 EZH J 333	302.066
R86	RESISTOR SMD 0805 33k OHM 5% 0.1W	ROHM	MCR 10 EZH J 333	302.066
R87	RESISTOR SMD 0805 15k OHM 5% 0.1W	ROHM	MCR 10 EZH J 153	302.062
R88	RESISTOR SMD 0805 2k7 OHM 5% 0.1W	ROHM	MCR 10 EZH J 272	302.053
R89	RESISTOR SMD 0805 2k7 OHM 5% 0.1W	ROHM	MCR 10 EZH J 272	302.053
R90	PRESET SEALED 10k OHM 20% 1/4W	BOURNS	3314J-1-103-E(G)	310.409
R91	RESISTOR SMD 1206 10k OHM 5% 0.25W	DRALORIC	CR 1206 L 103 J G4	303.060
R92	RESISTOR SMD 1206 10k OHM 5% 0.25W	DRALORIC	CR 1206 L 103 J G4	303.060
R93	RESISTOR SMD 0805 22 OHM 5% 0.1W	ROHM	MCR 10 EZH J 22R	302.028
R94	RESISTOR SMD 0805 390k OHM 5% 0.1W	ROHM	MCR 10 EZH J 394	302.079
R95	RESISTOR SMD 0805 1k0 OHM 5% 0.1W	ROHM	MCR 10 EZH J 102	302.048
R96	RESISTOR SMD 0805 2k7 OHM 5% 0.1W	ROHM	MCR 10 EZH J 272	302.053
R97	RESISTOR SMD 1206 82 OHMS 5% 0.25W	ROHM	MCR18 EZH J 820	303.035
R98	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R99	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R100	RESISTOR SMD 0805 47k OHM 5% 0.1W	ROHM	MCR 10 EZH J 473	302.068
R101	RESISTOR SMD 0805 47k OHM 5% 0.1W	ROHM	MCR 10 EZH J 473	302.068
R102	RESISTOR SMD 0805 470k OHM 5% 0.1W	ROHM	MCR 10 EZH J 474	302.080
R103	RESISTOR SMD 0805 470k OHM 5% 0.1W	ROHM	MCR 10 EZH J 474	302.080
R104	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R105	RESISTOR SMD 0805 100 OHM 5% 0.1W	ROHM	MCR 10 EZH J 101	302.036
R106	RESISTOR SMD 0805 1k0 OHM 5% 0.1W	ROHM	MCR 10 EZH J 102	302.048
R107	RESISTOR SMD 1206 47 OHMS 5% 0.25W	ROHM	MCR 18 JZO J 470	303.032
R108	RESISTOR SMD 1206 82 OHMS 5% 0.25W	ROHM	MCR18 EZH J 820	303.035
R109	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R110	RESISTOR SMD 0805 2k2 OHM 5% 0.1W	ROHM	MCR 10 EZH J 222	302.052
R111	RESISTOR SMD 0805 2k2 OHM 5% 0.1W	ROHM	MCR 10 EZH J 222	302.052
R112	RESISTOR SMD 0805 150k OHM 5% 0.1W	ROHM	MCR 10 EZH J 154	302.074
R113	RESISTOR SMD 1206 47 OHMS 5% 0.25W	ROHM	MCR 18 JZO J 470	303.032
R114	RESISTOR SMD 0805 220k OHM 5% 0.1W	ROHM	MCR 10 EZH J 224	302.076
R115	RESISTOR SMD 0805 470k OHM 5% 0.1W	ROHM	MCR 10 EZH J 474	302.080
R116	RESISTOR SMD 0805 470k OHM 5% 0.1W	ROHM	MCR 10 EZH J 474	302.080
V3	TRANS. AF SMALL SIGNAL NPN, BC848B	MOTOROLA	BC848BLT1 (T3)	345.048
V4	DIODE ZENER 18V 5% SMC SMC18A	MOTOROLA	1.5SMC18A-T3 ID: 18A	341.429
V5	TRANS. AF SMALL SIGNAL NPN, BC848B	MOTOROLA	BC848BLT1 (T3)	345.048
V6	TRANSISTOR AF POWER PNP BD138	MOTOROLA	BD138	29.057
V7	TRANSISTOR RF 2N4427	MOTOROLA	2N4427	28.330
V8	TRANS. AF SMALL SIGNAL NPN, BC848B	MOTOROLA	BC848BLT1 (T3)	345.048
V9	DIODE SWITCH HIGH SPEED PMLL4148, 4446, 4448	PHILIPS	PMLL4148(4446)(4448) 115	83710000
V10	TRANS. AF SMALL SIGNAL NPN, BC848B	MOTOROLA	BC848BLT1 (T3)	345.048
V11	TRANS. AF SMALL SIGNAL NPN, BC858B	MOTOROLA	BC858BT1 (T3)	345.058
V12	DIODE SWITCH HIGH SPEED PMLL4148, 4446, 4448	PHILIPS	PMLL4148(4446)(4448) 115	83710000
V13	DIODE SWITCH HIGH SPEED PMLL4148, 4446, 4448	PHILIPS	PMLL4148(4446)(4448) 115	83710000
V14	TRANS. AF SMALL SIGNAL NPN, BC858B	MOTOROLA	BC858BT1 (T3)	345.058
V15	TRANSISTOR RF NPN BFR92A	PHILIPS	BFR92A ID: P2p	345.530
V16	DIODE BAND SWITCHING BA582/BA782 SOD-123	ITT	BA782	340.650
V19	TRANSISTOR RF NPN BFS17A / BFS17P	PHILIPS	BFS17A	345.517
V20	TRANSISTOR RF NPN MMBR951	MOTOROLA	MMBR951LT1	345.531

POSITION	DESCRIPTION	MANUFACTURER	TYPE	PART NO.
V21	DIODE CAPACITANCE MA4ST09 5pF/20V	MACOM	MA4ST409	340.645
V23	TRANS. AF SMALL SIGNAL NPN, BC848B	MOTOROLA	BC848BLT1 (T3)	345.048
V25	DIODE CAPACITANCE BBY40 4p3F/28VDC	PHILIPS	BBY40	340.640
V26	TRANS. AF SMALL SIGNAL NPN, BC848B	MOTOROLA	BC848BLT1 (T3)	345.048
V27	TRANS. AF SMALL SIGNAL NPN, BC848B	MOTOROLA	BC848BLT1 (T3)	345.048
V28	TRANSISTOR RF NPN MMBR951	MOTOROLA	MMBR951LT1	345.531
V29	TRANSISTOR RF NPN BFR92A	PHILIPS	BFR92A ID: P2p	345.530
V30	TRANS. AF SMALL SIGNAL NPN, BC858B	MOTOROLA	BC858BT1 (T3)	345.058
V31	DIODE SWITCH HIGH SPEED PMLL4148, 4446, 4448	PHILIPS	PMLL4148(4446)(4448) 115	83710000
V32	DIODE SWITCH HIGH SPEED PMLL4148, 4446, 4448	PHILIPS	PMLL4148(4446)(4448) 115	83710000
V33	DIODE SWITCH HIGH SPEED PMLL4148, 4446, 4448	PHILIPS	PMLL4148(4446)(4448) 115	83710000
V34	TRANS. AF SMALL SIGNAL NPN, BC848B	MOTOROLA	BC848BLT1 (T3)	345.048
V35	TRANS. AF SMALL SIGNAL NPN, BC848B	MOTOROLA	BC848BLT1 (T3)	345.048
V36	TRANS. AF SMALL SIGNAL NPN, BC848B	MOTOROLA	BC848BLT1 (T3)	345.048
V37	DIODE SWITCH HIGH SPEED PMLL4148, 4446, 4448	PHILIPS	PMLL4148(4446)(4448) 115	83710000
V38	DIODE SWITCH HIGH SPEED PMLL4148, 4446, 4448	PHILIPS	PMLL4148(4446)(4448) 115	83710000
X2	SOCKET COAX 45 DEG. PCB VERSION	TAIKO	TMP-J01X-A2	78.517
X5	SOCKET COAX 45 DEG. PCB VERSION	TAIKO	TMP-J01X-A2	78.517
X6	SOCKET COAX 45 DEG. PCB VERSION	TAIKO	TMP-J01X-A2	78.517
X7	SOCKET COAX 45 DEG. PCB VERSION	TAIKO	TMP-J01X-A2	78.517
X8	PLUG 3 POLES PCB VERSION RIGHT ANGLE CC=1/5"	WIELAND	Best. Nr: 25.352.3353.0/W	78.956
X9	SOCKET PCB VERSION 2x10 POLES u-MATCH	AMP	2-215079-0 / 9-215079-0	78.198
Z1	T-TYPE EMI FILTER 2n2F 25VDC 6ADC	MURATA	NFM60R 30 T 222 T1	335.415
Z2	T-TYPE EMI FILTER 2n2F 25VDC 6ADC	MURATA	NFM60R 30 T 222 T1	335.415
Z3	CRYSTAL C1074 14.850MHz 10ppm NC18C	DANTRONIC	ECI SPEC: C1074	39.839
Z4	EMI FERRITE BEAD 3.2x1.6x1.6mm 0.2A	MURATA	BLM 31 B 601 S PT	370.021
Z5	EMI FERRITE BEAD 3.2x1.6x1.6mm 0.2A	MURATA	BLM 31 B 601 S PT	370.021
Z6	EMI FERRITE BEAD 3.2x1.6x1.6mm 0.2A	MURATA	BLM 31 B 601 S PT	370.021
Z7	EMI FERRITE BEAD 3.2x1.6x1.6mm 0.2A	MURATA	BLM 31 B 601 S PT	370.021

POSITION	DESCRIPTION	MANUFACTURER	TYPE	PART NO.
RTU RECEIVER 32252 RT47xx / RT48xx		**ECI A/S**	**5-x-32252H / 4-0-32252R**	**632252**

POSITION	DESCRIPTION	MANUFACTURER	TYPE	PART NO.
C1	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C2	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C3	CAPACITOR CERAM. SMD 0805 5p6F +/-0.25pF NPO 50VDC	TDK	C2012 COG 1H 5R6 C T NiBa	323.071
C4	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C5	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C6	CAPACITOR CERAM. SMD 0805 68pF 5% NPO 50VDC	TDK	C2012 COG 1H 680 J T NiBa	323.084
C7	CAPACITOR CERAM. SMD 0805 33pF 5% NPO 50VDC	TDK	C2012 COG 1H 330 J T 000A	323.080
C8	CAPACITOR CERAM. SMD 0805 3p9F +/-0.25pF NPO 50VDC	TDK	C2012 COG 1H 3R9 C T NiBa	323.069
C9	CAPACITOR CERAM. SMD 0805 6p8F +/-0.25pF NP0 50VDC	TDK	C2012 COG 1H 6R8 C T NiBa	323.072
C10	CAPACITOR CERAM. SMD 0805 1p0F +/-0.25pF NP0 50VDC	TDK	C2012 COG 1H 010 C T NiBa	323.062
C11	CAPACITOR CERAM. SMD 0805 3p9F +/-0.25pF NPO 50VDC	TDK	C2012 COG 1H 3R9 C T NiBa	323.069
C12	CAPACITOR CERAM. SMD 0805 10pF 5% NPO 50VDC	TDK	C2012 COG 1H 100 D T NiBa	323.074
C12	CAPACITOR CERAM. SMD 0805 10pF 5% NPO 50VDC	TDK	C2012 COG 1H 100 D T NiBa	323.074
C13	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C14	CAPACITOR CERAM. SMD 0805 10pF 5% NPO 50VDC	TDK	C2012 COG 1H 100 D T NiBa	323.074
C15	CAPACITOR CERAM. SMD 0805 10pF 5% NPO 50VDC	TDK	C2012 COG 1H 100 D T NiBa	323.074
C16	CAPACITOR CERAM. SMD 0805 12pF 5% NP0 50VDC	TDK	C2012 COG 1H 120 J T NiBa	323.075
C17	CAPACITOR TANTALUM 3216 1u5F 20% 16VDC	ERO	CA 155016 M E17	334.007
C18	CAPACITOR ELECTROLYTIC SMD 10uF 20% 16VDC	EUROPE CHEMICON	Al-Chip-MKV 16V/10 M	333.079
C19	CAPACITOR CERAM. SMD 0805 180pF 5% NPO 50VDC	TDK	C2012 COG 1H 181 J T NiBa	323.089
C20	CAPACITOR CERAM. SMD 0805 6n8F 10% X7R 50VDC	TDK	C2012 X7R 1H 682 K T NiBa	328.334
C22	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C23	CAPACITOR CERAM. SMD 0805 4p7F +/-0.25pF NPO 50VDC	TDK	C2012 COG 1H 4R7 C T NiBa	323.070
C24	CAPACITOR CERAM. SMD 0805 1n0 5% NPO 50VDC	TDK	C2012 COG 1H 102 J T NiBa	323.098
C25	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C26	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C27	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C28	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C29	CAPACITOR CERAM. SMD 0805 12nF 10% X7R 50VDC	TDK	C2012 X7R 1H 123 K T NiBa	328.337
C30	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C31	CAPACITOR CERAM. SMD 0805 4n7F 10% X7R 50VDC	TDK	C2012 X7R 1H 472 K T NiBa	328.332
C32	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C33	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C34	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C35	CAPACITOR CERAM. SMD 0805 5p6F +/-0.25pF NPO 50VDC	TDK	C2012 COG 1H 5R6 C T NiBa	323.071
C36	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C37	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C38	CAPACITOR CERAM. SMD 0805 22pF 5% NP0 50VDC	TDK	C2012 COG 1H 220 J T NiBa	323.078
C39	CAPACITOR CERAM. SMD 0805 1n0 5% NPO 50VDC	TDK	C2012 COG 1H 102 J T NiBa	323.098
C40	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C41	CAPACITOR CERAM. SMD 0805 82pF 5% NPO 50VDC	TDK	C2012 COG 1H 820 J T NiBa	323.085
C42	CAPACITOR CERAM. SMD 0805 18pF 5% NPO 50VDC	TDK	C2012 COG 1H 180 J T NiBa	323.077
C43	CAPACITOR CERAM. SMD 0805 15pF 5% NPO 50VDC	TDK	C2012 COG 1H 150 J T NiBa	323.076
C44	CAPACITOR CERAM. SMD 0805 5p6F +/-0.25pF NPO 50VDC	TDK	C2012 COG 1H 5R6 C T NiBa	323.071
C45	CAPACITOR CERAM. SMD 0805 22pF 5% NP0 50VDC	TDK	C2012 COG 1H 220 J T NiBa	323.078
C46	CAPACITOR CERAM. SMD 0805 22pF 5% NP0 50VDC	TDK	C2012 COG 1H 220 J T NiBa	323.078
C47	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C48	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C49	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C50	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C51	CAPACITOR CERAM. SMD 0805 2p2F +/-0.25pF NPO 50VDC	TDK	C2012 COG 1H 2R2 C T NiBa	323.066
C52	CAPACITOR CERAM. SMD 0805 12pF 5% NP0 50VDC	TDK	C2012 COG 1H 120 J T NiBa	323.075
C53	CAPACITOR CERAM. SMD 0805 10pF 5% NPO 50VDC	TDK	C2012 COG 1H 100 D T NiBa	323.074
C54	CAPACITOR TRIMMER SMD 2-10pF NP0	SCIMAREC	TC03C100ATP02 ID: WHITE	335.009
C55	CAPACITOR CERAM. SMD 0805 470pF 5% NPO 50VDC	TDK	C2012 COG 1H 471 J T NiBa	323.094
C56	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C57	CAPACITOR CERAM. SMD 0805 12pF 5% NP0 50VDC	TDK	C2012 COG 1H 120 J T NiBa	323.075
C58	CAPACITOR CERAM. SMD 0805 68pF 5% NPO 50VDC	TDK	C2012 COG 1H 680 J T NiBa	323.084
C59	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C60	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C61	CAPACITOR CERAM. SMD 0805 12pF 5% NP0 50VDC	TDK	C2012 COG 1H 120 J T NiBa	323.075
C62	CAPACITOR CERAM. SMD 0805 470pF 5% NPO 50VDC	TDK	C2012 COG 1H 471 J T NiBa	323.094
C63	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C64	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C65	CAPACITOR CERAM. SMD 0805 4p7F+/-0.25pF NPO 50VDC	TDK	C2012 COG 1H 4R7 C T NiBa	323.070
C66	CAPACITOR CERAM. SMD 0805 10pF 5% NPO 50VDC	TDK	C2012 COG 1H 100 D T NiBa	323.074
C67	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C68	CAPACITOR CERAM. SMD 0805 2p2F +/-0.25pF NPO 50VDC	TDK	C2012 COG 1H 2R2 C T NiBa	323.066

POSITION	DESCRIPTION	MANUFACTURER	TYPE	PART NO.
C69	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C70	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C71	CAPACITOR CERAM. SMD 0805 8p2F +/-0.25pF NPO 50VDC	TDK	C2012 COG 1H 8R2 C T 000A	323.073
C72	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C73	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C74	CAPACITOR CERAM. SMD 0805 22pF 5% NP0 50VDC	TDK	C2012 COG 1H 220 J T NiBa	323.078
C75	CAPACITOR TANTALUM 3216 1u5F 20% 16VDC	ERO	CA 155016 M E17	334.007
C76	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C77	CAPACITOR ELECTROLYTIC SMD 47uF 20% 16VDC	PANASONIC	ECE V 1C V 470 S P	333.175
C78	CAPACITOR CERAM. SMD 0805 220pF 5% NPO 50VDC	TDK	C2012 COG 1H 221 J T NiBa	323.090
C79	CAPACITOR CERAM. SMD 0805 220pF 5% NPO 50VDC	TDK	C2012 COG 1H 221 J T NiBa	323.090
C80	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C81	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C82	CAPACITOR CERAM. SMD 0805 56pF 5% NPO 50VDC	TDK	C2012 COG 1H 560 J T NiBa	323.083
C83	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C84	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C85	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C86	CAPACITOR CERAM. SMD 0805 15pF 5% NPO 50VDC	TDK	C2012 COG 1H 150 J T NiBa	323.076
C87	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C88	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C89	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C90	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C91	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C92	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C93	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C94	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C95	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C96	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C97	CAPACITOR ELECTROLYTIC SMD 47uF 20% 16VDC	PANASONIC	ECE V 1C V 470 S P	333.175
C98	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C99	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C100	CAPACITOR CERAM. SMD 0805 33nF 10% X7R 16VDC	MURATA	GRM40 X7R 333 K 16 PT	328.387
C101	CAPACITOR CERAM. SMD 0805 180pF 5% NPO 50VDC	TDK	C2012 COG 1H 181 J T NiBa	323.089
C102	CAPACITOR CERAM. SMD 0805 180pF 5% NPO 50VDC	TDK	C2012 COG 1H 181 J T NiBa	323.089
D1	8-BIT SHIFT REG. W.LATCH 74HC595	PHILIPS	74HC595D TAPE & REEL	355.296
D2	DUAL 4 CHANNEL ANALOG MUX MC14052B, HEF4052B	PHILIPS	HEF4052BT TAPE&REEL	351.708
D4	1.1GHz PLL SYNTHESIZER MC14519	MOTOROLA	MC145190F	355.841
L1	CHOKE FIXED 1211 2u2H 10%	COILCRAFT	1008CS-222-XKBC	337.228
L2	CHOKE FIXED 1211 2u2H 10%	COILCRAFT	1008CS-222-XKBC	337.228
L3	CHOKE FIXED 1211 2u2H 10%	COILCRAFT	1008CS-222-XKBC	337.228
L4	CHOKE FIXED SMD 1211 56nH 5%	COILCRAFT	1008CS-560-XJBC	337.259
L5	CHOKE FIXED 470nH 5%	COILCRAFT	1008CS-471-XJBC	337.270
L6	SPRING INDUCTOR 35n5H 5% Ø3x7mm	COILCRAFT	B09T TAPE&REEL	337.409
L7	COIL RF 83nH ADJUSTABLE	TOKO	NE545SN-100094	38.503
L8	COIL RF 83nH ADJUSTABLE	TOKO	NE545SN-100094	38.503
L11	CHOKE FIXED SMD 0805 6.8nH 5%	TOKO	LL2012-F6N8J	337.009
L12	CHOKE FIXED 470nH 5%	COILCRAFT	1008CS-471-XJBC	337.270
L13	COIL RF 83nH ADJUSTABLE	TOKO	NE545SN-100094	38.503
L14	COIL RF 83nH ADJUSTABLE	TOKO	NE545SN-100094	38.503
L15	CHOKE FIXED 470nH 5%	COILCRAFT	1008CS-471-XJBC	337.270
L16	CHOKE FIXED SMD 1211 3u9H 5%	COILCRAFT	1008CS-392-XJBC	337.281
L17	CHOKE FIXED 470nH 5%	COILCRAFT	1008CS-471-XJBC	337.270
L18	CHOKE FIXED 1211 2u2H 10%	COILCRAFT	1008CS-222-XKBC	337.228
L19	CHOKE FIXED SMD 1812 10uH 10%	PANASONIC	ELJ-FB100KF	74101200
N1	NBFM IF SYSTEM MC3372	MOTOROLA	MC3372D	350.570
N3	DUAL LOW POW. OP AMP LM358	MOTOROLA	LM358D R2 (LM358AD R2)	350.525
R1	RESISTOR SMD 0805 2k2 OHM 5% 0.1W	ROHM	MCR 10 EZH J 222	302.052
R2	RESISTOR SMD 0805 47k OHM 5% 0.1W	ROHM	MCR 10 EZH J 473	302.068
R3	RESISTOR SMD 0805 100 OHM 5% 0.1W	ROHM	MCR 10 EZH J 101	302.036
R4	RESISTOR SMD 0805 27k OHM 5% 0.1W	ROHM	MCR 10 EZH J 273	302.065
R5	RESISTOR SMD 0805 330 OHM 5% 0.1W	ROHM	MCR 10 EZH J 331	302.042
R6	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R7	RESISTOR SMD 0805 47k OHM 5% 0.1W	ROHM	MCR 10 EZH J 473	302.068
R8	RESISTOR SMD 0805 47k OHM 5% 0.1W	ROHM	MCR 10 EZH J 473	302.068
R9	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R10	RESISTOR SMD 0805 100 OHM 5% 0.1W	ROHM	MCR 10 EZH J 101	302.036
R11	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R12	RESISTOR SMD 0805 330 OHM 5% 0.1W	ROHM	MCR 10 EZH J 331	302.042
R13	RESISTOR SMD 0805 6k8 OHM 5% 0.1W	ROHM	MCR 10 EZH J 682	302.058
R14	RESISTOR SMD 0805 15k OHM 5% 0.1W	ROHM	MCR 10 EZH J 153	302.062
R15	RESISTOR SMD 0805 47k OHM 5% 0.1W	ROHM	MCR 10 EZH J 473	302.068
R16	RESISTOR SMD 0805 47k OHM 5% 0.1W	ROHM	MCR 10 EZH J 473	302.068
R17	RESISTOR SMD 0805 680 OHM 5% 0.1W	ROHM	MCR 10 EZH J 681	302.046
R18	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072

POSITION	DESCRIPTION	MANUFACTURER	TYPE	PART NO.
R19	RESISTOR SMD 0805 1k0 OHM 5% 0.1W	ROHM	MCR 10 EZH J 102	302.048
R20	RESISTOR SMD 0805 680 OHM 5% 0.1W	ROHM	MCR 10 EZH J 681	302.046
R21	RESISTOR SMD 0805 5k6 OHM 5% 0.1W	ROHM	MCR 10 EZH J 562	302.057
R22	RESISTOR SMD 0805 120 OHM 5% 0.1W	ROHM	MCR 10 EZH J 121	302.037
R23	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R24	RESISTOR SMD 0805 3k9 OHM 5% 0.1W	ROHM	MCR 10 EZH J 392	302.055
R25	PRESET SEALED 50k OHM 20% 1/4W	BOURNS	3314J-1-503-E(G)	310.411
R26	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R27	RESISTOR SMD 0805 1M0 OHM 5% 0.1W	ROHM	MCR 10 EZH J 105	302.084
R28	RESISTOR SMD 0805 150k OHM 5% 0.1W	ROHM	MCR 10 EZH J 154	302.074
R29	RESISTOR SMD 0805 18 OHM 5% 0.1W	ROHM	MCR 10 EZH J 18R	302.027
R30	RESISTOR SMD 0805 1k2 OHM 5% 0.1W	ROHM	MCR 10 EZH J 122	302.049
R31	RESISTOR SMD 0805 47k OHM 5% 0.1W	ROHM	MCR 10 EZH J 473	302.068
R32	RESISTOR SMD 0805 47k OHM 5% 0.1W	ROHM	MCR 10 EZH J 473	302.068
R33	RESISTOR SMD 0805 1k5 OHM 5% 0.1W	ROHM	MCR 10 EZH J 152	302.050
R34	RESISTOR SMD 0805 1k8 OHM 5% 0.1W	ROHM	MCR 10 EZH J 182	302.051
R35	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R36	RESISTOR SMD 0805 1k2 OHM 5% 0.1W	ROHM	MCR 10 EZH J 122	302.049
R37	RESISTOR SMD 0805 1k0 OHM 5% 0.1W	ROHM	MCR 10 EZH J 102	302.048
R38	RESISTOR SMD 0805 47 OHM 5% 0.1W	ROHM	MCR 10 EZH J 47R	302.032
R39	RESISTOR SMD 0805 47k OHM 5% 0.1W	ROHM	MCR 10 EZH J 473	302.068
R40	RESISTOR SMD 0805 3k3 OHM 5% 0.1W	ROHM	MCR 10 EZH J 332	302.054
R41	RESISTOR SMD 0805 56k OHM 5% 0.1W	ROHM	MCR 10 EZH J 563	302.069
R42	RESISTOR SMD 0805 27k OHM 5% 0.1W	ROHM	MCR 10 EZH J 273	302.065
R43	RESISTOR SMD 0805 39 OHM 5% 0.1W	ROHM	MCR 10 EZH J 390	302.031
R44	RESISTOR SMD 0805 820k OHM 5% 0.1W	ROHM	MCR 10 EZH J 824	302.083
R45	RESISTOR SMD 0805 120k OHM 5% 0.1W	ROHM	MCR 10 EZH J 124	302.073
R46	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R47	RESISTOR SMD 0805 39k OHM 5% 0.1W	ROHM	MCR 10 EZH J 393	302.067
R48	RESISTOR SMD 0805 5k6 OHM 5% 0.1W	ROHM	MCR 10 EZH J 562	302.057
R49	RESISTOR SMD 0805 1R0 OHM 5% 0.1W	ROHM	MCR 10 MZH J 1R0	302.012
R50	RESISTOR SMD 0805 120k OHM 5% 0.1W	ROHM	MCR 10 EZH J 124	302.073
R51	RESISTOR SMD 0805 47k OHM 5% 0.1W	ROHM	MCR 10 EZH J 473	302.068
R52	RESISTOR SMD 0805 1k5 OHM 5% 0.1W	ROHM	MCR 10 EZH J 152	302.050
R53	RESISTOR SMD 0805 22k OHM 5% 0.1W	ROHM	MCR 10 EZH J 223	302.064
R54	RESISTOR SMD 0805 22k OHM 5% 0.1W	ROHM	MCR 10 EZH J 223	302.064
R55	RESISTOR SMD 0805 1M0 OHM 5% 0.1W	ROHM	MCR 10 EZH J 105	302.084
R56	RESISTOR SMD 0805 33k OHM 5% 0.1W	ROHM	MCR 10 EZH J 333	302.066
R57	RESISTOR SMD 0805 330k OHM 5% 0.1W	ROHM	MCR 10 EZH J 334	302.078
R58	RESISTOR SMD 0805 68 OHM 5% 0.1W	ROHM	MCR 10 EZH J 68R	302.034
R59	RESISTOR SMD 0805 120 OHM 5% 0.1W	ROHM	MCR 10 EZH J 121	302.037
R60	RESISTOR SMD 0805 1k0 OHM 5% 0.1W	ROHM	MCR 10 EZH J 102	302.048
R61	RESISTOR SMD 0805 68 OHM 5% 0.1W	ROHM	MCR 10 EZH J 68R	302.034
R63	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R64	RESISTOR SMD 0805 1M0 OHM 5% 0.1W	ROHM	MCR 10 EZH J 105	302.084
R65	RESISTOR SMD 0805 330k OHM 5% 0.1W	ROHM	MCR 10 EZH J 334	302.078
R67	RESISTOR SMD 0805 15k OHM 5% 0.1W	ROHM	MCR 10 EZH J 153	302.062
R68	RESISTOR SMD 0805 100 OHM 5% 0.1W	ROHM	MCR 10 EZH J 101	302.036
R69	RESISTOR SMD 1206 10k OHM 5% 0.25W	DRALORIC	CR 1206 L 103 J G4	303.060
R70	RESISTOR SMD 1206 10k OHM 5% 0.25W	DRALORIC	CR 1206 L 103 J G4	303.060
R71	RESISTOR SMD 0805 470 OHM 5% 0.1W	ROHM	MCR 10 EZH J 471	302.044
R72	RESISTOR SMD 0805 2k2 OHM 5% 0.1W	ROHM	MCR 10 EZH J 222	302.052
R73	RESISTOR SMD 0805 100 OHM 5% 0.1W	ROHM	MCR 10 EZH J 101	302.036
R74	RESISTOR SMD 0805 56 OHM 5% 0.1W	ROHM	MCR 10 EZH J 56R	302.033
R75	RESISTOR SMD 0805 27k OHM 5% 0.1W	ROHM	MCR 10 EZH J 273	302.065
R78	RESISTOR SMD 0805 27 OHM 5% 0.1W	ROHM	MCR 10 EZH J 27R	302.029
R79	RESISTOR SMD 0805 680 OHM 5% 0.1W	ROHM	MCR 10 EZH J 681	302.046
R81	RESISTOR SMD 0805 100 OHM 5% 0.1W	ROHM	MCR 10 EZH J 101	302.036
TR1	TRAFO RF 270nH ADJUSTABLE	TOKO	A638AN-A055ADZ TYPE 5CCE,	338.004
TR2	TRAFO RF 220nH ADJUSTABLE	TOKO	A638AN-A102YWP=P3 TYPE 5CCE,	338.005
V1	TRANSISTOR RF NPN BFS17A / BFS17P	PHILIPS	BFS17A	345.517
V2	DIODE CAPACITANCE BBY40 4p3F/28VDC	PHILIPS	BBY40	340.640
V3	DIODE CAPACITANCE BBY40 4p3F/28VDC	PHILIPS	BBY40	340.640
V4	TRANSISTOR RF NPN BFS540	PHILIPS	BFS540 TAPE&REEL ID:N4	345.525
V5	DIODE CAPACITANCE BBY40 4p3F/28VDC	PHILIPS	BBY40	340.640
V6	DIODE CAPACITANCE BBY40 4p3F/28VDC	PHILIPS	BBY40	340.640
V7	DUAL GATE MOS-FET N-CHANN BF996S	PHILIPS	BF996S-215 ID = MHp	347.096
V8	TRANS. AF SMALL SIGNAL NPN, BC848B	MOTOROLA	BC848BLT1 (T3)	345.048
V9	JFET RF SMALL SIGNAL N-CH BF545A, SST5484	PHILIPS	BF545A-215(235) ID: M65	347.005
V10	DIODE DUAL SCHOTTKY BAT54S	MOTOROLA	BAT54S LT1 T1 ID: LD3	340.310
V11	TRANSISTOR RF NPN MMBR951	MOTOROLA	MMBR951LT1	345.531
V12	TRANSISTOR RF NPN BFS17A / BFS17 P	PHILIPS	BFS17F	345.517
V13	TRANSISTOR RF NPN BFS17A / BFS17 P	PHILIPS	BFS17F	345.517
V14	JFET RF SMALL SIGNAL N-CH BF545A, SST5484	PHILIPS	BF545A-215(235) ID: M65	347.005

POSITION	DESCRIPTION	MANUFACTURER	TYPE	PART NO.
V15	JFET RF SMALL SIGNAL N-CH BF545A, SST5484	PHILIPS	BF545A-215(235) ID: M65	347.005
V16	DIODE DUAL SCHOTTKY BAT54S	PHILIPS	BAT54S 215 ID: L44	340.350
V17	DUAL SWITCH DIODE BAV99	PHILIPS	BAV99 REEL a 3000 STK	340.999
V20	DIODE SWITCH HIGH SPEED PMLL4148, 4446, 4448	PHILIPS	PMLL4148(4446)(4448) 115	83710000
V21	DIODE CAPACITANCE MA4ST09 5pF/20V	MACOM	MA4ST409	340.645
X10	DIL SQ PIN 2x7 POLES CC=2mm	SAMTEC	TW-07-03-T-D-230-130	78.342
X12	SOCKET COAX 90 DEG. PCB VERSION	TAIKO	TMP-J01X-V6	78.518
X13	SOCKET COAX 90 DEG. PCB VERSION	TAIKO	TMP-J01X-V6	78.518
Z1	CRYSTAL FILTER Fc=45MHz,BW=15kHz,BILIT	TOYOCOM	45E2B12F (UM.1)x2	40.038
Z3	CERAMIC FILTER Fc=450kHz BW=20kHz	AVX/KYOCERA	KBF-450R-20A	41.513
Z4	CERAMIC DISCRIMINATOR Fc=450kHz, BW=4kHz	MURATA	CDBM450C7	41.507
Z5	EMI FERRITE BEAD 3.2x1.6x1.6mm 0.2A	MURATA	BLM 31 A 601 S PT	370.022
Z6	EMI FERRITE BEAD 3.2x1.6x1.6mm 0.2A	MURATA	BLM 31 A 601 S PT	370.022
Z7	EMI FERRITE BEAD 3.2x1.6x1.6mm 0.2A	MURATA	BLM 31 A 601 S PT	370.022
Z8	EMI FERRITE BEAD 3.2x1.6x1.6mm 0.2A	MURATA	BLM 31 A 601 S PT	370.022
Z9	EMI FERRITE BEAD 3.2x1.6x1.6mm 0.2A	MURATA	BLM 31 A 601 S PT	370.022

POSITION	DESCRIPTION	MANUFACTURER	TYPE	PART NO.
INTERFACE 32253 RT472x / RT482x		**ECI A/S**	**5-x-32253F / 4-0-32253G**	**632253**
POSITION	**DESCRIPTION**	**MANUFACTURER**	**TYPE**	**PART NO.**
C1	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C2	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C3	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C4	CAPACITOR CERAM. SMD 0805 22pF 5% NP0 50VDC	TDK	C2012 COG 1H 220 J T NiBa	323.078
C5	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C6	CAPACITOR CERAM. SMD 0805 22pF 5% NP0 50VDC	TDK	C2012 COG 1H 220 J T NiBa	323.078
C7	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C8	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C9	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C10	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C11	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C12	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C13	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C14	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C15	CAPACITOR ELECTROLYTIC SMD 10uF 20% 16VDC	EUROPE CHEMICON	Al-Chip-MKV 16V/10 M	333.079
C16	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C17	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C18	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C19	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C20	CAPACITOR CERAM. SMD 1206 1u0F -20/80% Y5V 16VDC	MURATA	GRM42-6 Y5V 105 Z 16 PT10	328.806
C21	CAPACITOR ELECTROLYTIC SMD 10uF 20% 16VDC	EUROPE CHEMICON	Al-Chip-MKV 16V/10 M	333.079
C22	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C23	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C24	CAPACITOR CERAM. SMD 1206 1u0F -20/80% Y5V 16VDC	MURATA	GRM42-6 Y5V 105 Z 16 PT10	328.806
C25	CAPACITOR CERAM. SMD 1206 1u0F -20/80% Y5V 16VDC	MURATA	GRM42-6 Y5V 105 Z 16 PT10	328.806
C26	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C27	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C28	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C29	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C30	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C31	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C32	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C33	CAPACITOR CERAM. SMD 0805 270pF 5% NPO 50VDC	TDK	C2012 COG 1H 271 J T NiBa	323.091
C34	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C35	CAPACITOR ELECTROLYTIC SMD 10uF 20% 16VDC	EUROPE CHEMICON	Al-Chip-MKV 16V/10 M	333.079
C36	CAPACITOR CERAM. SMD 1206 1u0F -20/80% Y5V 16VDC	MURATA	GRM42-6 Y5V 105 Z 16 PT10	328.806
C37	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C38	CAPACITOR CERAM. SMD 0805 270pF 5% NPO 50VDC	TDK	C2012 COG 1H 271 J T NiBa	323.091
C39	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C40	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C41	CAPACITOR CERAM. SMD 1206 1u0F -20/80% Y5V 16VDC	MURATA	GRM42-6 Y5V 105 Z 16 PT10	328.806
C42	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C43	CAPACITOR CERAM. SMD 0805 4n7F 10% X7R 50VDC	TDK	C2012 X7R 1H 472 K T NiBa	328.332
C44	CAPACITOR CERAM. SMD 0805 4n7F 10% X7R 50VDC	TDK	C2012 X7R 1H 472 K T NiBa	328.332
C45	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C46	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C47	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C48	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C49	CAPACITOR ELECTROLYTIC SMD 10uF 20% 16VDC	EUROPE CHEMICON	Al-Chip-MKV 16V/10 M	333.079
C50	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C51	CAPACITOR ELECTROLYTIC SMD 10uF 20% 16VDC	EUROPE CHEMICON	Al-Chip-MKV 16V/10 M	333.079
C52	CAPACITOR ELECTROLYTIC SMD 10uF 20% 16VDC	EUROPE CHEMICON	Al-Chip-MKV 16V/10 M	333.079
C53	CAPACITOR ELECTROLYTIC SMD 10uF 20% 16VDC	EUROPE CHEMICON	Al-Chip-MKV 16V/10 M	333.079
C54	CAPACITOR CERAM. SMD 0805 47pF 5% NPO 50VDC	TDK	C2012 COG 1H 470 J T NiBa	323.082
C55	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C56	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C57	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	PHILIPS	2222 580 16627	328.336
C58	CAPACITOR CERAM. SMD 1206 1u0F -20/80% Y5V 16VDC	MURATA	GRM42-6 Y5V 105 Z 16 PT10	328.806
C59	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C60	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C61	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C62	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C63	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C64	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C65	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C66	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C67	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C68	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324

POSITION	DESCRIPTION	MANUFACTURER	TYPE	PART NO.
C69	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C70	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C71	CAPACITOR CERAM. SMD 0805 100pF 5% NPO 50VDC	TDK	C2012 COG 1H 101 J T NiBa	323.086
C72	CAPACITOR CERAM. SMD 0805 100pF 5% NPO 50VDC	TDK	C2012 COG 1H 101 J T NiBa	323.086
C73	CAPACITOR CERAM. SMD 0805 100pF 5% NPO 50VDC	TDK	C2012 COG 1H 101 J T NiBa	323.086
C74	CAPACITOR CERAM. SMD 0805 100pF 5% NPO 50VDC	TDK	C2012 COG 1H 101 J T NiBa	323.086
C75	CAPACITOR CERAM. SMD 0805 100pF 5% NPO 50VDC	TDK	C2012 COG 1H 101 J T NiBa	323.086
C76	CAPACITOR CERAM. SMD 0805 100pF 5% NPO 50VDC	TDK	C2012 COG 1H 101 J T NiBa	323.086
C77	CAPACITOR CERAM. SMD 0805 100pF 5% NPO 50VDC	TDK	C2012 COG 1H 101 J T NiBa	323.086
C78	CAPACITOR CERAM. SMD 0805 100pF 5% NPO 50VDC	TDK	C2012 COG 1H 101 J T NiBa	323.086
C79	CAPACITOR CERAM. SMD 0805 100pF 5% NPO 50VDC	TDK	C2012 COG 1H 101 J T NiBa	323.086
C80	CAPACITOR CERAM. SMD 0805 100pF 5% NPO 50VDC	TDK	C2012 COG 1H 101 J T NiBa	323.086
C81	CAPACITOR CERAM. SMD 0805 100pF 5% NPO 50VDC	TDK	C2012 COG 1H 101 J T NiBa	323.086
C82	CAPACITOR CERAM. SMD 0805 100pF 5% NPO 50VDC	TDK	C2012 COG 1H 101 J T NiBa	323.086
C83	CAPACITOR CERAM. SMD 0805 100pF 5% NPO 50VDC	TDK	C2012 COG 1H 101 J T NiBa	323.086
C84	CAPACITOR CERAM. SMD 0805 100pF 5% NPO 50VDC	TDK	C2012 COG 1H 101 J T NiBa	323.086
C85	CAPACITOR CERAM. SMD 0805 100pF 5% NPO 50VDC	TDK	C2012 COG 1H 101 J T NiBa	323.086
C86	CAPACITOR CERAM. SMD 0805 100pF 5% NPO 50VDC	TDK	C2012 COG 1H 101 J T NiBa	323.086
C87	CAPACITOR CERAM. SMD 0805 100pF 5% NPO 50VDC	TDK	C2012 COG 1H 101 J T NiBa	323.086
C88	CAPACITOR CERAM. SMD 0805 100pF 5% NPO 50VDC	TDK	C2012 COG 1H 101 J T NiBa	323.086
C89	CAPACITOR CERAM. SMD 0805 100pF 5% NPO 50VDC	TDK	C2012 COG 1H 101 J T NiBa	323.086
C90	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C91	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C92	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C93	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C94	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C95	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C96	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C97	CAPACITOR CERAM. SMD 0805 100pF 5% NPO 50VDC	TDK	C2012 COG 1H 101 J T NiBa	323.086
C98	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C99	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C100	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C101	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C102	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C103	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C104	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C105	CAPACITOR CERAM. SMD 0805 100pF 5% NPO 50VDC	TDK	C2012 COG 1H 101 J T NiBa	323.086
C106	CAPACITOR CERAM. SMD 0805 100pF 5% NPO 50VDC	TDK	C2012 COG 1H 101 J T NiBa	323.086
D1	HEX INVERTERS 74HC04 74HC04	TEXAS	SN74HC04D R	355.205
D2	SUPERVISOR CIRCUIT ADM809	ANALOG DEVICE	ADM809MART-REEL-7 ID: 9Mxx	356.645
D3	EEPROM 2k BIT SERIAL X25020, AT25020	XICOR	X25020S T5,(X25020S-3 T5)	356.319
D4	CPU 16 BIT OTP QFP112 HD6413003TF	HITACHI	HD6413003TF	356.033
D5	SRAM 128kx8 Taa<=70nS TC551001,HM628128	TOSHIBA	TC551001CFL-70L	356.318
D6	SOCKET PLCC 32 POLES LOW PROFILE	T.Z.T.	ZT-SMTP-S-32-T/O	376.803
D6	SOCKET PLCC 32 POLES LOW PROFILE	T.Z.T.	ZT-SMTP-S-32-T/O	376.803
D6	PROG. OTP, D6 f. 632253	ECI A/S	0-0-32453B Ver. AD	73245302
D7	SOCKET PLCC 32 POLES LOW PROFILE	T.Z.T.	ZT-SMTP-S-32-T/O	376.803
D8	OCTAL D-FF POS. EDGE TRIG 74HC574	TEXAS	SN74HC574DWR	85980400
D9	HEX INVERTERS 74HC04 74HC04	TEXAS	SN74HC04D R	355.205
D10	RS485 LOW EMI TRANCEIVER MAX483, LTC1483	MAXIM	MAX483 CSA(ESA) TAPE&REEL	356.606
D11	RS485 LOW EMI TRANCEIVER MAX483, LTC1483	MAXIM	MAX483 CSA(ESA) TAPE&REEL	356.606
N1	QUAD OP.AMP. LM324	MOTOROLA	LM324D R2	350.530
N2	DUAL AUDIO ATTENUATOR WITH MUTE LM1972	NATIONAL	LM1972	351.202
N3	QUAD OP.AMP. LM324	MOTOROLA	LM324D R2	350.530
N4	DUAL CMOS OPAMP LMC662	NATIONAL	LMC662CMX	85810900
N5	QUAD BILATERAL SWITCH CD4066BC	MOTOROLA	MC14066BD R2(R1)	355.066
N6	QUAD OP.AMP. LM324	MOTOROLA	LM324D R2	350.530
N7	LOW POWER AUDIO AMPLIFIER MC34119	MOTOROLA	MC34119D R2(R1)	85870000
R1	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R2	RESISTOR SMD 0805 12k OHM 5% 0.1W	ROHM	MCR 10 EZH J 123	302.061
R3	RESISTOR NTC 4K7 OHM 10% 0.25W	SIEMENS	B57621-C472-K62	306.810
R4	RESISTOR SMD 0805 47k OHM 5% 0.1W	ROHM	MCR 10 EZH J 473	302.068
R5	RESISTOR SMD 0805 6k81 OHM 1% 50mW	PHILIPS	2322 734 2/66812	302.450
R6	RESISTOR SMD 0805 270 OHM 5% 0.1W	ROHM	MCR 10 EZH J 271	302.041
R7	RESISTOR SMD 0805 10k0 OHM 1% 50mW	PHILIPS	2322 734 2/61003	302.470
R8	RESISTOR SMD 0805 4R7 OHM 5% 0.1W	ROHM	MCR 10 EZH J 4R7	302.020
R9	RESISTOR SMD 0805 10k0 OHM 1% 50mW	PHILIPS	2322 734 2/61003	302.470
R10	RESISTOR SMD 0805 10k0 OHM 1% 50mW	PHILIPS	2322 734 2/61003	302.470
R11	RESISTOR SMD 0805 47k OHM 5% 0.1W	ROHM	MCR 10 EZH J 473	302.068
R12	RESISTOR SMD 0805 10k0 OHM 1% 50mW	PHILIPS	2322 734 2/61003	302.470
R13	RESISTOR SMD 0805 3k32 OHM 1% 50mW	PHILIPS	2322 734 2/63322	302.420
R14	RESISTOR SMD 0805 30R1 OHM 1% 50mW	PHILIPS	2322 734 2/63019	302.216
R15	RESISTOR SMD 0805 4k99 OHM 1% 50mW	PHILIPS	2322 734 2/64992	302.437
R17	RESISTOR SMD 0805 15k4 OHM 1% 50mW	PHILIPS	2322 734 2/61543	302.488

POSITION	DESCRIPTION	MANUFACTURER	TYPE	PART NO.
R18	RESISTOR SMD 0805 15k OHM 5% 0.1W	ROHM	MCR 10 EZH J 153	302.062
R19	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R20	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R21	RESISTOR SMD 0805 10k0 OHM 1% 50mW	PHILIPS	2322 734 2/61003	302.470
R22	RESISTOR SMD 0805 10k0 OHM 1% 50mW	PHILIPS	2322 734 2/61003	302.470
R23	RESISTOR SMD 0805 6k81 OHM 1% 50mW	PHILIPS	2322 734 2/66812	302.450
R24	RESISTOR SMD 0805 10k0 OHM 1% 50mW	PHILIPS	2322 734 2/61003	302.470
R25	RESISTOR SMD 0805 3k32 OHM 1% 50mW	PHILIPS	2322 734 2/63322	302.420
R26	RESISTOR SMD 0805 470 OHM 5% 0.1W	ROHM	MCR 10 EZH J 471	302.044
R27	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R28	RESISTOR SMD 0805 0 OHM 2A	ROHM	MCR 10 EZH JUMPER	302.000
R29	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R30	RESISTOR SMD 0805 1k2 OHM 5% 0.1W	ROHM	MCR 10 EZH J 122	302.049
R31	RESISTOR SMD 0805 0 OHM 2A	ROHM	MCR 10 EZH JUMPER	302.000
R32	RESISTOR SMD 0805 470 OHM 5% 0.1W	ROHM	MCR 10 EZH J 471	302.044
R33	RESISTOR SMD 0805 68k OHM 5% 0.1W	ROHM	MCR 10 EZH J 683	302.070
R34	RESISTOR SMD 0805 47k OHM 5% 0.1W	ROHM	MCR 10 EZH J 473	302.068
R35	RESISTOR SMD 0805 47k OHM 5% 0.1W	ROHM	MCR 10 EZH J 473	302.068
R36	RESISTOR SMD 0805 270k OHM 5% 0.1W	ROHM	MCR 10 EZH J 274	302.077
R37	RESISTOR SMD 0805 8k2 OHM 5% 0.1W	ROHM	MCR 10 EZH J 822	302.059
R38	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R39	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R40	RESISTOR SMD 0805 22k OHM 5% 0.1W	ROHM	MCR 10 EZH J 223	302.064
R41	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R42	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R43	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R44	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R45	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R46	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R47	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R48	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R49	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R50	RESISTOR SMD 0805 1M0 OHM 5% 0.1W	ROHM	MCR 10 EZH J 105	302.084
R51	RESISTOR SMD 0805 470 OHM 5% 0.1W	ROHM	MCR 10 EZH J 471	302.044
R52	RESISTOR SMD 0805 100k OHM 1% 50mW	PHILIPS	2322 734 2/61004	302.570
R53	RESISTOR SMD 0805 47k OHM 5% 0.1W	ROHM	MCR 10 EZH J 473	302.068
R54	RESISTOR SMD 0805 1k2 OHM 5% 0.1W	ROHM	MCR 10 EZH J 122	302.049
R55	RESISTOR SMD 0805 470 OHM 5% 0.1W	ROHM	MCR 10 EZH J 471	302.044
R56	RESISTOR SMD 0805 121k OHM 1% 50mW	PHILIPS	2322 734 2/61214	302.578
R57	RESISTOR SMD 0805 100k OHM 1% 50mW	PHILIPS	2322 734 2/61004	302.570
R58	RESISTOR SMD 0805 100k OHM 1% 50mW	PHILIPS	2322 734 2/61004	302.570
R59	RESISTOR SMD 0805 5k6 OHM 5% 0.1W	ROHM	MCR 10 EZH J 562	302.057
R60	RESISTOR SMD 0805 8k2 OHM 5% 0.1W	ROHM	MCR 10 EZH J 822	302.059
R61	RESISTOR SMD 0805 100k OHM 1% 50mW	PHILIPS	2322 734 2/61004	302.570
R62	RESISTOR SMD 0805 121k OHM 1% 50mW	PHILIPS	2322 734 2/61214	302.578
R63	RESISTOR SMD 0805 9k53 OHM 1% 50mW	PHILIPS	2322 734 2/69532	302.464
R64	RESISTOR SMD 0805 16k2 OHM 1% 50mW	PHILIPS	2322 734 2/61623	302.490
R65	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R66	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R67	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R68	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R69	RESISTOR SMD 0805 39k OHM 5% 0.1W	ROHM	MCR 10 EZH J 393	302.067
R70	RESISTOR SMD 0805 16k2 OHM 1% 50mW	PHILIPS	2322 734 2/61623	302.490
R71	RESISTOR SMD 0805 33k OHM 5% 0.1W	ROHM	MCR 10 EZH J 333	302.066
R72	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R73	RESISTOR SMD 0805 100k OHM 1% 50mW	PHILIPS	2322 734 2/61004	302.570
R74	RESISTOR SMD 0805 47k OHM 5% 0.1W	ROHM	MCR 10 EZH J 473	302.068
R75	RESISTOR SMD 0805 39k OHM 5% 0.1W	ROHM	MCR 10 EZH J 393	302.067
R76	RESISTOR SMD 0805 9k53 OHM 1% 50mW	PHILIPS	2322 734 2/69532	302.464
R77	RESISTOR SMD 0805 33k OHM 5% 0.1W	ROHM	MCR 10 EZH J 333	302.066
R78	RESISTOR SMD 0805 2k7 OHM 5% 0.1W	ROHM	MCR 10 EZH J 272	302.053
R79	RESISTOR SMD 0805 8k2 OHM 5% 0.1W	ROHM	MCR 10 EZH J 822	302.059
R80	RESISTOR SMD 0805 1k2 OHM 5% 0.1W	ROHM	MCR 10 EZH J 122	302.049
R81	RESISTOR SMD 0805 8k2 OHM 5% 0.1W	ROHM	MCR 10 EZH J 822	302.059
R82	RESISTOR SMD 0805 30R1 OHM 1% 50mW	PHILIPS	2322 734 2/63019	302.216
R83	RESISTOR SMD 0805 33k OHM 5% 0.1W	ROHM	MCR 10 EZH J 333	302.066
R84	RESISTOR SMD 0805 10k0 OHM 1% 50mW	PHILIPS	2322 734 2/61003	302.470
R85	RESISTOR SMD 0805 22 OHM 5% 0.1W	ROHM	MCR 10 EZH J 22R	302.028
R86	RESISTOR SMD 0805 4k99 OHM 1% 50mW	PHILIPS	2322 734 2/64992 REEL a 5000 STK	302.437
R87	RESISTOR SMD 0805 22 OHM 5% 0.1W	ROHM	MCR 10 EZH J 22R	302.028
R88	RESISTOR SMD 0805 47k OHM 5% 0.1W	ROHM	MCR 10 EZH J 473	302.068
R89	RESISTOR SMD 0805 47k OHM 5% 0.1W	ROHM	MCR 10 EZH J 473	302.068
R90	RESISTOR SMD 0805 47k OHM 5% 0.1W	ROHM	MCR 10 EZH J 473	302.068
R91	RESISTOR SMD 0805 47k OHM 5% 0.1W	ROHM	MCR 10 EZH J 473	302.068

POSITION	DESCRIPTION	MANUFACTURER	TYPE	PART NO.
R92	RESISTOR SMD 0805 22 OHM 5% 0.1W	ROHM	MCR 10 EZH J 22R	302.028
R93	RESISTOR SMD 0805 47k OHM 5% 0.1W	ROHM	MCR 10 EZH J 473	302.068
R94	RESISTOR SMD 0805 47k OHM 5% 0.1W	ROHM	MCR 10 EZH J 473	302.068
R95	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R98	RESISTOR SMD 0805 470 OHM 5% 0.1W	ROHM	MCR 10 EZH J 471	302.044
R99	RESISTOR SMD 0805 470 OHM 5% 0.1W	ROHM	MCR 10 EZH J 471	302.044
R100	RESISTOR SMD 0805 470 OHM 5% 0.1W	ROHM	MCR 10 EZH J 471	302.044
R101	RESISTOR SMD 0805 470 OHM 5% 0.1W	ROHM	MCR 10 EZH J 471	302.044
R102	RESISTOR SMD 0805 470 OHM 5% 0.1W	ROHM	MCR 10 EZH J 471	302.044
R103	RESISTOR SMD 0805 470 OHM 5% 0.1W	ROHM	MCR 10 EZH J 471	302.044
R104	RESISTOR SMD 0805 470 OHM 5% 0.1W	ROHM	MCR 10 EZH J 471	302.044
R105	RESISTOR SMD 0805 470 OHM 5% 0.1W	ROHM	MCR 10 EZH J 471	302.044
R106	RESISTOR SMD 0805 470 OHM 5% 0.1W	ROHM	MCR 10 EZH J 471	302.044
R107	RESISTOR SMD 0805 470 OHM 5% 0.1W	ROHM	MCR 10 EZH J 471	302.044
R108	RESISTOR SMD 0805 470 OHM 5% 0.1W	ROHM	MCR 10 EZH J 471	302.044
R109	RESISTOR SMD 0805 470 OHM 5% 0.1W	ROHM	MCR 10 EZH J 471	302.044
R110	RESISTOR SMD 0805 470 OHM 5% 0.1W	ROHM	MCR 10 EZH J 471	302.044
R111	RESISTOR SMD 0805 470 OHM 5% 0.1W	ROHM	MCR 10 EZH J 471	302.044
R112	RESISTOR SMD 0805 470 OHM 5% 0.1W	ROHM	MCR 10 EZH J 471	302.044
R113	RESISTOR SMD 0805 470 OHM 5% 0.1W	ROHM	MCR 10 EZH J 471	302.044
R114	RESISTOR SMD 0805 470 OHM 5% 0.1W	ROHM	MCR 10 EZH J 471	302.044
R115	RESISTOR SMD 0805 470 OHM 5% 0.1W	ROHM	MCR 10 EZH J 471	302.044
R116	RESISTOR SMD 0805 470 OHM 5% 0.1W	ROHM	MCR 10 EZH J 471	302.044
R117	RESISTOR SMD 0805 470 OHM 5% 0.1W	ROHM	MCR 10 EZH J 471	302.044
R118	RESISTOR SMD 0805 470 OHM 5% 0.1W	ROHM	MCR 10 EZH J 471	302.044
R120	RESISTOR SMD 0805 470 OHM 5% 0.1W	ROHM	MCR 10 EZH J 471	302.044
S1	SHUNT CONNECTOR FEMALE 2 POLES	AMF	142270-1	78.325
S2	KEYSWITCH SPST 6.2X6.2MM 50V/50mA, FA=3.2N	ITT	KSC441JB 70 SH	373.012
V1	TRANS. AF MED POW. NPN, BC868	PHILIPS	BC868-115 ID: CAC	84720100
V2	TRANS. AF SMALL SIGNAL NPN, BC848B	MOTOROLA	BC848BLT1 (T3)	345.048
V3	TRANS. AF SMALL SIGNAL NPN, BC848B	MOTOROLA	BC848BLT1 (T3)	345.048
V4	DIODE DUAL SCHOTTKY BAT54S	MOTOROLA	BAT54S LT1 T1 ID: LD3	340.310
V5	DIODE DUAL SCHOTTKY BAT54S	MOTOROLA	BAT54S LT1 T1 ID: LD3	340.310
V6	DIODE SWITCH HIGH SPEED PMLL4148, 4446, 4448	PHILIPS	PMLL4148(4446)(4448) 115	83710000
V7	DIODE SWITCH HIGH SPEED PMLL4148, 4446, 4448	PHILIPS	PMLL4148(4446)(4448) 115	83710000
V8	TRANS. AF SMALL SIGNAL NPN, BC858B	MOTOROLA	BC858BT1 (T3)	345.058
V9	TRANS. AF SMALL SIGNAL NPN, BC847B	PHILIPS	BC847B 215(235) ID: 1Fp	84720000
V10	TRANS. AF SMALL SIGNAL NPN, BC858B	MOTOROLA	BC858BT1 (T3)	345.058
V11	DIODE SWITCH HIGH SPEED PMLL4148, 4446, 4448	PHILIPS	PMLL4148(4446)(4448) 115	83710000
V12	DIODE SWITCH HIGH SPEED PMLL4148, 4446, 4448	PHILIPS	PMLL4148(4446)(4448) 115	83710000
X1	1/10" SIL SOCKET 20 POLES	ADV.INTERCONNEC	KSS 020-176 TG	78.825
X2	SOCKET PCB VERSION 2x8 POLES u-MATCH	AMP	1-215079-6	78.197
X3	PLUG 2 POLES VERTICAL PCB VERSION	JST	B2B-ZR	78.448
X4	SOCKET PCB VERSION 2x5 POLES u-MATCH	AMP	1-215079-0	78.194
X5	SOCKET 2x13 POLES CC=2mm PCB VERSION	BERG ELECTRONIC	92429-126 (326)	376.091
X6	SOCKET PCB VERSION 2x10 POLES u-MATCH	AMP	2-215079-0 / 9-215079-0	78.198
X7	PLUG 2 POLES VERTICAL PCB VERSION	JST	B2B-ZR	78.448
Z1	CRYSTAL 14.7456MHz 50ppm	MEIDEN	MQX-3H2-14745-20 Cload=20pF	39.772
Z13	EMI FERRITE BEAD 3.2x1.6x1.6mm 0.2A	MURATA	BLM 31 B 601 S PT	370.021
Z14	EMI FERRITE BEAD 3.2x1.6x1.6mm 0.2A	MURATA	BLM 31 B 601 S PT	370.021
Z15	EMI FERRITE BEAD 3.2x1.6x1.6mm 0.2A	MURATA	BLM 31 B 601 S PT	370.021
Z16	EMI FERRITE BEAD 3.2x1.6x1.6mm 0.2A	MURATA	BLM 31 B 601 S PT	370.021
Z17	EMI FERRITE BEAD 3.2x1.6x1.6mm 0.2A	MURATA	BLM 31 B 601 S PT	370.021
Z28	EMI FERRITE BEAD 3.2x1.6x1.6mm 0.2A	MURATA	BLM 31 B 601 S PT	370.021
Z29	EMI FERRITE BEAD 3.2x1.6x1.6mm 0.2A	MURATA	BLM 31 B 601 S PT	370.021
Z30	EMI FERRITE BEAD 3.2x1.6x1.6mm 0.2A	MURATA	BLM 31 B 601 S PT	370.021
Z31	EMI FERRITE BEAD 3.2x1.6x1.6mm 0.2A	MURATA	BLM 31 B 601 S PT	370.021
Z32	EMI FERRITE BEAD 3.2x1.6x1.6mm 0.2A	MURATA	BLM 31 B 601 S PT	370.021
Z33	EMI FERRITE BEAD 3.2x1.6x1.6mm 0.2A	MURATA	BLM 31 B 601 S PT	370.021
Z34	EMI FERRITE BEAD 3.2x1.6x1.6mm 0.2A	MURATA	BLM 31 B 601 S PT	370.021
Z35	RESISTOR SMD 0805 470 OHM 5% 0.1W	ROHM	MCR 10 EZH J 471	302.044

POSITION	DESCRIPTION	MANUFACTURER	TYPE	PART NO.
SCC INDIKATOR 32255	**RT47xx & RT48xx**	**ECI A/S**	**5-x-32255B / 4-0-32255B**	**632255**

POSITION	DESCRIPTION	MANUFACTURER	TYPE	PART NO.
X1	SOCKET 2x3 POLES CC=2mm PCB VERSION	BERG ELECTRONIC	92429-106	376.081
R1	RESISTOR SMD 0805 330 OHM 5% 0.1W	ROHM	MCR 10 EZH J 331	302.042
R2	RESISTOR SMD 0805 330 OHM 5% 0.1W	ROHM	MCR 10 EZH J 331	302.042
R3	RESISTOR SMD 0805 330 OHM 5% 0.1W	ROHM	MCR 10 EZH J 331	302.042
R4	RESISTOR SMD 0805 330 OHM 5% 0.1W	ROHM	MCR 10 EZH J 331	302.042
R5	RESISTOR SMD 0805 330 OHM 5% 0.1W	ROHM	MCR 10 EZH J 331	302.042
V1	LED SMD 1210 SUPER RED 10mCd/20mA CL-200SR	CITIZEN	CL-200SR-C-TU	342.042
V2	LED SMD 1210 SUPER RED 10mCd/20mA CL-200SR	CITIZEN	CL-200SR-C-TU	342.042
V3	LED SMD 1210 YELLOW 15mCd/20mA CL-200Y	CITIZEN	CL-200Y-C-TU	342.040
V4	LED SMD 1210 GREEN 20mCd/20mA CL-200G	CITIZEN	CL-200G-C-TU	342.041
V5	LED SMD 1210 SUPER RED 10mCd/20mA CL-200SR	CITIZEN	CL-200SR-C-TU	342.042

POSITION	DESCRIPTION	MANUFACTURER	TYPE	PART NO.

SCC KEYBOARD 32256 RT473x / RT483x ECI A/S — **5-x-32256B / 4-0-32256E** — **632256**

POSITION	DESCRIPTION	MANUFACTURER	TYPE	PART NO.
R1	RESISTOR MF 220 OHM 5% 0.33W	PHILIPS	2322 187 73221	02.456
R1	RESISTOR MF 220 OHM 5% 0.33W	PHILIPS	2322 187 73221	02.456
R2	RESISTOR MF 220 OHM 5% 0.33W	PHILIPS	2322 187 73221	02.456
R2	RESISTOR MF 220 OHM 5% 0.33W	PHILIPS	2322 187 73221	02.456
R3	RESISTOR MF 220 OHM 5% 0.33W	PHILIPS	2322 187 73221	02.456
R3	RESISTOR MF 220 OHM 5% 0.33W	PHILIPS	2322 187 73221	02.456
R4	RESISTOR MF 220 OHM 5% 0.33W	PHILIPS	2322 187 73221	02.456
R4	RESISTOR MF 220 OHM 5% 0.33W	PHILIPS	2322 187 73221	02.456
S1	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S1	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S2	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S2	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S3	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S3	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S4	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S4	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S5	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S5	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S6	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S6	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S7	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S7	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S8	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S8	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S9	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S9	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S10	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S10	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S11	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S11	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S12	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S12	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S13	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S13	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S14	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S14	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S15	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S15	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S16	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S16	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S17	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S17	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S18	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S18	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S19	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S19	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S20	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S20	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S21	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S21	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S22	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S22	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S23	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S23	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S24	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S24	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S25	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S25	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S26	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
S26	SWITCH KEYBOARD 12x12mm	ALPS	SKHCAD (KHC 10904)	43.601
V1	LED SUB. MIN YELLOW 0.4mCd/2mA	H.P.	HLMP-7019 OPTION 1S1	25.649
V1	LED SUB. MIN YELLOW 0.4mCd/2mA	H.P.	HLMP-7019 OPTION 1S1	25.649
V1	LED SUB. MIN GREEN 4.2mCd/10mA	H.P.	HLMP-6505 OPTION 1S1	25.663
V1	LED SUB. MIN GREEN 4.2mCd/10mA	H.P.	HLMP-6505 OPTION 1S1	25.663
V2	LED SUB. MIN YELLOW 0.4mCd/2mA	H.P.	HLMP-7019 OPTION 1S1	25.649
V2	LED SUB. MIN YELLOW 0.4mCd/2mA	H.P.	HLMP-7019 OPTION 1S1	25.649
V2	LED SUB. MIN GREEN 4.2mCd/10mA	H.P.	HLMP-6505 OPTION 1S1	25.663

POSITION	DESCRIPTION	MANUFACTURER	TYPE	PART NO.
V2	LED SUB. MIN GREEN 4.2mCd/10mA	H.P.	HLMP-6505 OPTION 1S1	25.663
V3	LED SUB. MIN YELLOW 0.4mCd/2mA	H.P.	HLMP-7019 OPTION 1S1	25.649
V3	LED SUB. MIN YELLOW 0.4mCd/2mA	H.P.	HLMP-7019 OPTION 1S1	25.649
V3	LED SUB. MIN GREEN 4.2mCd/10mA	H.P.	HLMP-6505 OPTION 1S1	25.663
V3	LED SUB. MIN GREEN 4.2mCd/10mA	H.P.	HLMP-6505 OPTION 1S1	25.663
V4	LED SUB. MIN YELLOW 0.4mCd/2mA	H.P.	HLMP-7019 OPTION 1S1	25.649
V4	LED SUB. MIN YELLOW 0.4mCd/2mA	H.P.	HLMP-7019 OPTION 1S1	25.649
V4	LED SUB. MIN GREEN 4.2mCd/10mA	H.P.	HLMP-6505 OPTION 1S1	25.663
V4	LED SUB. MIN GREEN 4.2mCd/10mA	H.P.	HLMP-6505 OPTION 1S1	25.663
V5	LED SUB. MIN YELLOW 0.4mCd/2mA	H.P.	HLMP-7019 OPTION 1S1	25.649
V5	LED SUB. MIN YELLOW 0.4mCd/2mA	H.P.	HLMP-7019 OPTION 1S1	25.649
V5	LED SUB. MIN GREEN 4.2mCd/10mA	H.P.	HLMP-6505 OPTION 1S1	25.663
V5	LED SUB. MIN GREEN 4.2mCd/10mA	H.P.	HLMP-6505 OPTION 1S1	25.663
V6	LED SUB. MIN YELLOW 0.4mCd/2mA	H.P.	HLMP-7019 OPTION 1S1	25.649
V6	LED SUB. MIN YELLOW 0.4mCd/2mA	H.P.	HLMP-7019 OPTION 1S1	25.649
V6	LED SUB. MIN GREEN 4.2mCd/10mA	H.P.	HLMP-6505 OPTION 1S1	25.663
V6	LED SUB. MIN GREEN 4.2mCd/10mA	H.P.	HLMP-6505 OPTION 1S1	25.663
V7	LED SUB. MIN YELLOW 0.4mCd/2mA	H.P.	HLMP-7019 OPTION 1S1	25.649
V7	LED SUB. MIN YELLOW 0.4mCd/2mA	H.P.	HLMP-7019 OPTION 1S1	25.649
V7	LED SUB. MIN GREEN 4.2mCd/10mA	H.P.	HLMP-6505 OPTION 1S1	25.663
V7	LED SUB. MIN GREEN 4.2mCd/10mA	H.P.	HLMP-6505 OPTION 1S1	25.663
V8	LED SUB. MIN YELLOW 0.4mCd/2mA	H.P.	HLMP-7019 OPTION 1S1	25.649
V8	LED SUB. MIN YELLOW 0.4mCd/2mA	H.P.	HLMP-7019 OPTION 1S1	25.649
V8	LED SUB. MIN GREEN 4.2mCd/10mA	H.P.	HLMP-6505 OPTION 1S1	25.663
V8	LED SUB. MIN GREEN 4.2mCd/10mA	H.P.	HLMP-6505 OPTION 1S1	25.663
V9	LED SUB. MIN YELLOW 0.4mCd/2mA	H.P.	HLMP-7019 OPTION 1S1	25.649
V9	LED SUB. MIN YELLOW 0.4mCd/2mA	H.P.	HLMP-7019 OPTION 1S1	25.649
V9	LED SUB. MIN GREEN 4.2mCd/10mA	H.P.	HLMP-6505 OPTION 1S1	25.663
V9	LED SUB. MIN GREEN 4.2mCd/10mA	H.P.	HLMP-6505 OPTION 1S1	25.663
V10	LED SUB. MIN YELLOW 0.4mCd/2mA	H.P.	HLMP-7019 OPTION 1S1	25.649
V10	LED SUB. MIN YELLOW 0.4mCd/2mA	H.P.	HLMP-7019 OPTION 1S1	25.649
V10	LED SUB. MIN GREEN 4.2mCd/10mA	H.P.	HLMP-6505 OPTION 1S1	25.663
V10	LED SUB. MIN GREEN 4.2mCd/10mA	H.P.	HLMP-6505 OPTION 1S1	25.663
V11	LED SUB. MIN YELLOW 0.4mCd/2mA	H.P.	HLMP-7019 OPTION 1S1	25.649
V11	LED SUB. MIN YELLOW 0.4mCd/2mA	H.P.	HLMP-7019 OPTION 1S1	25.649
V11	LED SUB. MIN GREEN 4.2mCd/10mA	H.P.	HLMP-6505 OPTION 1S1	25.663
V11	LED SUB. MIN GREEN 4.2mCd/10mA	H.P.	HLMP-6505 OPTION 1S1	25.663
V12	LED SUB. MIN YELLOW 0.4mCd/2mA	H.P.	HLMP-7019 OPTION 1S1	25.649
V12	LED SUB. MIN YELLOW 0.4mCd/2mA	H.P.	HLMP-7019 OPTION 1S1	25.649
V12	LED SUB. MIN GREEN 4.2mCd/10mA	H.P.	HLMP-6505 OPTION 1S1	25.663
V12	LED SUB. MIN GREEN 4.2mCd/10mA	H.P.	HLMP-6505 OPTION 1S1	25.663
V13	LED SUB. MIN YELLOW 0.4mCd/2mA	H.P.	HLMP-7019 OPTION 1S1	25.649
V13	LED SUB. MIN YELLOW 0.4mCd/2mA	H.P.	HLMP-7019 OPTION 1S1	25.649
V13	LED SUB. MIN GREEN 4.2mCd/10mA	H.P.	HLMP-6505 OPTION 1S1	25.663
V13	LED SUB. MIN GREEN 4.2mCd/10mA	H.P.	HLMP-6505 OPTION 1S1	25.663
V14	LED SUB. MIN YELLOW 0.4mCd/2mA	H.P.	HLMP-7019 OPTION 1S1	25.649
V14	LED SUB. MIN YELLOW 0.4mCd/2mA	H.P.	HLMP-7019 OPTION 1S1	25.649
V14	LED SUB. MIN GREEN 4.2mCd/10mA	H.P.	HLMP-6505 OPTION 1S1	25.663
V14	LED SUB. MIN GREEN 4.2mCd/10mA	H.P.	HLMP-6505 OPTION 1S1	25.663
V15	LED SUB. MIN YELLOW 0.4mCd/2mA	H.P.	HLMP-7019 OPTION 1S1	25.649
V15	LED SUB. MIN YELLOW 0.4mCd/2mA	H.P.	HLMP-7019 OPTION 1S1	25.649
V15	LED SUB. MIN GREEN 4.2mCd/10mA	H.P.	HLMP-6505 OPTION 1S1	25.663
V15	LED SUB. MIN GREEN 4.2mCd/10mA	H.P.	HLMP-6505 OPTION 1S1	25.663
V16	LED SUB. MIN RED 22.0mCd/20mA	H.P.	HLMP-Q105 OPTION 1S1	25.664
V16	LED SUB. MIN RED 22.0mCd/20mA	H.P.	HLMP-Q105 OPTION 1S1	25.664
X1	1/10" DIL SQ. PINS 2x3 POLES	SAMTEC	TW-03-11-G-D-120-110	78.341
X1	1/10" DIL SQ. PINS 2x3 POLES	SAMTEC	TW-03-11-G-D-120-110	78.341
X1	DIL SQ PIN 2X3 POLES CC=2mm	SAMTEC	MTMM-103-08-G-D-260	78.345
X1	DIL SQ PIN 2X3 POLES CC=2mm	SAMTEC	MTMM-103-08-G-D-260	78.345
X1	DIL SQ PIN 2X3 POLES CC=2mm	SAMTEC	MTMM-103-08-G-D-260	78.345
X2	DIL SQ PIN 2x13 POLES CC=2mm	SAMTEC	TW-13-03-T-D-200-150	78.348
X2	DIL SQ PIN 2x13 POLES CC=2mm	SAMTEC	TW-13-03-T-D-200-150	78.348

POSITION	DESCRIPTION	MANUFACTURER	TYPE	PART NO.
HANDSET 32264	**VHF4000**	**ECI A/S**	**5-x-32264C / 4-0-32264F**	**632264**

POSITION	DESCRIPTION	MANUFACTURER	TYPE	PART NO.
C1	CAPACITOR CERAM. SMD 1206 220nF 10% X7R 16VDC	ROHM	MCH31 2 C 224 K P(K)	328.689
C2	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	MURATA	GRM40 X7R 103 K 50 PT	328.336
C3	CAPACITOR CERAM. SMD 0805 100pF 5% NPO 50VDC	TDK	C2012 COG 1H 101 J T NiBa	323.086
C4	CAPACITOR CERAM. SMD 1206 1u0F -20/80% Y5V 16VDC	MURATA	GRM42-6 Y5V 105 Z 16 PT10	328.806
C5	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C6	CAPACITOR ELECTROLYTIC SM 10uF 20% 16VDC	EUROPE CHEMICON	Al-Chip-MKV 16V/10 M	333.079
C7	CAPACITOR CERAM. SMD 0805 15pF 5% NPO 50VDC	TDK	C2012 COG 1H 150 J T NiBa	323.076
C8	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C9	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C10	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
X2	PLUG 7 POLES RIGHT ANGLE CC=2mm, PCB VERSION	JST	S 7B-PH-SM3-TB	375.127
X3	PLUG 2 POLES CC=1.5mm PCB VERSION	JST	S 2B-ZR-SM3A-TF	375.060
X4	PLUG 2 POLES CC=1.5mm PCB VERSION	JST	S 2B-ZR-SM3A-TF	375.060
K1	REED SWITCH SPST 10VA FR2024	CP CLARE	FR2024	339.400
R1	RESISTOR SMD 0805 2k2 OHM 5% 0.1W	ROHM	MCR 10 EZH J 222	302.052
R2	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R3	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R4	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R5	RESISTOR SMD 0805 120k OHM 5% 0.1W	ROHM	MCR 10 EZH J 124	302.073
R6	RESISTOR SMD 0805 3k3 OHM 5% 0.1W	ROHM	MCR 10 EZH J 332	302.054
R7	RESISTOR SMD 0805 100 OHM 5% 0.1W	ROHM	MCR 10 EZH J 101	302.036
R8	RESISTOR SMD 0805 0 OHM 2A	ROHM	MCR 10 EZH JUMPER	302.000
R9	RESISTOR SMD 0805 100 OHM 5% 0.1W	ROHM	MCR 10 EZH J 101	302.036
S1	KEYSWITCH SPST 6.2x6.2mm 50V/50mA, FA=3.2N	ITT	KSC441JB 70 SH	373.012
N1	DUAL CMOS OPAMP LMC662	NATIONAL	LMC662CMX	85810900

POSITION	DESCRIPTION	MANUFACTURER	TYPE	PART NO.
PRINTER CONV. 32270	**VHF4000 RT4822**	**ECI A/S**	**5-x-32270A / 4-0-32270A**	**632270**

POSITION	DESCRIPTION	MANUFACTURER	TYPE	PART NO.
X1	SOCKET 90 DEG. 4-40 BUSH.	15 POLES SUB D	TAITEK HDR-15 S 1 3	78.722
X2	INTERCONNECTION CABLE	16 POLES	ECI A/S 3-0-33493	533493

POSITION	DESCRIPTION	MANUFACTURER	TYPE	PART NO.
HANDSET HOOK 34614		**ECI A/S**	**5-x-34614B / 4-0-34614B**	**634614**

POSITION	DESCRIPTION	MANUFACTURER	TYPE	PART NO.
X1	SOCKET D-SUB 9 POLES RIGHT ANGEL PCB VERSION	LEOCO	DE-09SMURL2	75100231
X1	SOCKET D-SUB 9 POLES RIGHT ANGEL PCB VERSION	LEOCO	DE-09SMURL2	75100231
X2	TERMINAL BLOCK 9 POLES 1.5mm2 PCB VERSION	PTR	AK300/9 m.MESS.SKRUER BLÅ	81.109
X2	TERMINAL BLOCK 9 POLES 1.5mm2 PCB VERSION	PTR	AK300/9 m.MESS.SKRUER BLÅ	81.109

POSITION	DESCRIPTION	MANUFACTURER	TYPE	PART NO.
RTU Transmitter 36281	**ECI A/S**	**ECI A/S**	**5-x-36281A / 4-0-36281B**	**636281**

POSITION	DESCRIPTION	MANUFACTURER	TYPE	PART NO.
C1	CAPACITOR CERAM. SMD 1206 1n0F 10% X7R 500VDC	MURATA	GRM42-6 X7R 102 K 500 PT	324.688
C2	CAPACITOR CERAM. SMD 1206 22pF 5% NPO 500VDC	PHILIPS	2222 9711 1527	324.278
C3	CAPACITOR CERAM. SMD 1206 10pF 5% NPO 500VDC	PHILIPS	2222 9711 1523	324.274
C4	CAPACITOR CERAM. SMD 1206 220nF 10% X7R 16VDC	MURATA	GRM42-6 X7R 224 K 16 PT10	328.689
C5	CAPACITOR CERAM. SMD 1206 22pF 5% NPO 500VDC	PHILIPS	2222 9711 1527	324.278
C6	CAPACITOR CERAM. SMD 1206 1p0F +/- 0.25p NPO 500VD	MURATA	GRM42-6 COG 010 C 500 PT	324.262
C7	CAPACITOR CERAM. SMD 1206 4p7F +/-0.25pF NPO 500VD	MURATA	GRM42-6 COG 4R7 C 500 PT	324.270
C8	CAPACITOR CERAM. SMD 1206 5p6F +/-0.25pF NPO 500VD	MURATA	GRM42-6 COG 5R6 C 500 PT	324.271
C9	CAPACITOR CERAM. SMD 1206 1n0F 10% X7R 500VDC	MURATA	GRM42-6 X7R 102 K 500 PT	324.688
C10	CAPACITOR CERAM. SMD 1206 1n0F 10% X7R 500VDC	MURATA	GRM42-6 X7R 102 K 500 PT	324.688
C11	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C12	CAPACITOR CERAM. SMD 1206 220nF 10% X7R 16VDC	MURATA	GRM42-6 X7R 224 K 16 PT10	328.689
C13	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C14	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C15	CAPACITOR CERAM. SMD 1206 1n0F 10% X7R 500VDC	MURATA	GRM42-6 X7R 102 K 500 PT	324.688
C16	CAPACITOR CERAM. SMD 1206 1n0F 10% X7R 500VDC	MURATA	GRM42-6 X7R 102 K 500 PT	324.688
C17	CAPACITOR ELECTROLYTIC 100uF 20% 16VDC	PANASONIC	ECA 1C FG 101 i	14.534
C18	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C19	CAPACITOR CERAM. SMD 0805 15pF 5% NPO 50VDC	TDK	C2012 COG 1H 150 J T NiBa	323.076
C20	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C21	CAPACITOR ELECTROLYTIC SMD 10uF 20% 16VDC	EUROPE CHEMICON	Al-Chip-MKV 16V/10 M	333.079
C22	CAPACITOR CERAM. SMD 1206 10pF 5% NPO 500VDC	PHILIPS	2222 9711 1523	324.274
C23	CAPACITOR ELECTROLYTIC 100uF 20% 16VDC	PANASONIC	ECA 1C FG 101 i	14.534
C24	CAPACITOR ELECTROLYTIC 100uF 20% 16VDC	PANASONIC	ECA 1C FG 101 i	14.534
C25	CAPACITOR CERAM. SMD 0805 4p7F +/-0.25pF NPO 50VDC	TDK	C2012 COG 1H 4R7 C T NiBa	323.070
C26	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C27	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C28	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C29	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C30	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C31	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C32	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	MURATA	GRM40 X7R 103 K 50 PT	328.336
C33	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C34	CAPACITOR ELECTROLYTIC 1000uF 20% 35VDC	SAMHWA ELEC.	SV-1000uF-35WV	14.655
C35	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C36	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C37	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C38	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	MURATA	GRM40 X7R 103 K 50 PT	328.336
C39	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C40	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C41	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C42	CAPACITOR CERAM. SMD 0805 33pF 5% N150 50VDC	MURATA	GRM40 P2H 330 J 50 PT	323.480
C43	CAPACITOR CERAM. SMD 0805 12pF 5% NP0 50VDC	TDK	C2012 COG 1H 120 J T NiBa	323.075
C44	CAPACITOR CERAM. SMD 0805 39nF 10% X7R 50VDC	TDK	C2012 X7R 1H 393 K T 000A	328.343
C45	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C46	CAPACITOR CERAM. SMD 0805 18pF 5% NPO 50VDC	TDK	C2012 COG 1H 180 J T NiBa	323.077
C47	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C48	CAPACITOR TRIMMER SMD 4.5-20pF NP0	SCIMAREC	TC03C200ATP02 ID: RED	335.008
C49	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C50	CAPACITOR CERAM. SMD 0805 15pF 5% NPO 50VDC	TDK	C2012 COG 1H 150 J T NiBa	323.076
C51	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C52	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C53	CAPACITOR CERAM. SMD 0805 3p3F +/-0.25pF NPO 50VDC	TDK	C2012 COG 1H 3R3 C T NiBa	323.068
C55	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	MURATA	GRM40 X7R 103 K 50 PT	328.336
C56	CAPACITOR CERAM. SMD 0805 22pF 5% NP0 50VDC	TDK	C2012 COG 1H 220 J T NiBa	323.078
C57	CAPACITOR CERAM. SMD 0805 220pF 5% NPO 50VDC	TDK	C2012 COG 1H 221 J T NiBa	323.090
C58	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	MURATA	GRM40 X7R 103 K 50 PT	328.336
C59	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C60	CAPACITOR CERAM. SMD 0805 22pF 5% NP0 50VDC	TDK	C2012 COG 1H 220 J T NiBa	323.078
C61	CAPACITOR ELECTROLYTIC SMD 1u0F 20% 50VDC	PANASONIC	EEV HA 1H V 010 R	333.067
C62	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C63	CAPACITOR CERAM. SMD 0805 3n9F 10% X7R 50VDC	MURATA	GRM40 X7R 392 K 50 PT	328.331
C64	CAPACITOR CERAM. SMD 0805 39nF 10% X7R 50VDC	TDK	C2012 X7R 1H 393 K T 000A	328.343
C65	CAPACITOR ELECTROLYTIC SMD 1u0F 20% 50VDC	PANASONIC	EEV HA 1H V 010 R	333.067
C66	CAPACITOR ELECTROLYTIC SMD 10uF 20% 16VDC	EUROPE CHEMICON	Al-Chip-MKV 16V/10 M	333.079
C67	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C68	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C69	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C70	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324

POSITION	DESCRIPTION	MANUFACTURER	TYPE	PART NO.
C71	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	MURATA	GRM40 X7R 103 K 50 PT	328.336
C72	CAPACITOR CERAM. SMD 0805 82pF 5% NPO 50VDC	TDK	C2012 COG 1H 820 J T NiBa	323.085
C73	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C74	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	MURATA	GRM40 X7R 103 K 50 PT	328.336
C75	CAPACITOR ELECTROLYTIC SMD 10uF 20% 16VDC	EUROPE CHEMICON	Al-Chip-MKV 16V/10 M	333.079
C76	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	MURATA	GRM40 X7R 103 K 50 PT	328.336
C77	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C78	CAPACITOR CERAM. SMD 0805 4p7F +/-0.25pF NPO 50VDC	TDK	C2012 COG 1H 4R7 C T NiBa	323.070
C79	CAPACITOR CERAM. SMD 0805 22pF 5% NP0 50VDC	TDK	C2012 COG 1H 220 J T NiBa	323.078
C80	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C81	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C82	CAPACITOR CERAM. SMD 0805 12pF 5% NP0 50VDC	TDK	C2012 COG 1H 120 J T NiBa	323.075
C83	CAPACITOR CERAM. SMD 0805 18pF 5% NPO 50VDC	TDK	C2012 COG 1H 180 J T NiBa	323.077
C85	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C86	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C87	CAPACITOR CERAM. SMD 0805 22pF 5% NP0 50VDC	TDK	C2012 COG 1H 220 J T NiBa	323.078
C88	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C89	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	MURATA	GRM40 X7R 103 K 50 PT	328.336
C90	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C91	CAPACITOR CERAM. SMD 0805 15pF 5% NPO 50VDC	TDK	C2012 COG 1H 150 J T NiBa	323.076
C92	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C93	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C94	CAPACITOR CERAM. SMD 0805 2n7F 10% X7R 50VDC	MURATA	GRM40 X7R 272 K 50 PT	328.329
C95	CAPACITOR CERAM. SMD 0805 22pF 5% NP0 50VDC	TDK	C2012 COG 1H 220 J T NiBa	323.078
C96	CAPACITOR ELECTROLYTIC 100uF 20% 16VDC	PANASONIC	ECA 1C FG 101 i	14.534
C97	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	MURATA	GRM40 X7R 103 K 50 PT	328.336
C98	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	MURATA	GRM40 X7R 103 K 50 PT	328.336
C99	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C100	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	MURATA	GRM40 X7R 103 K 50 PT	328.336
C101	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C102	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C103	CAPACITOR ELECTROLYTIC SMD 10uF 20% 16VDC	EUROPE CHEMICON	Al-Chip-MKV 16V/10 M	333.079
C104	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	MURATA	GRM40 X7R 103 K 50 PT	328.336
C105	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	MURATA	GRM40 X7R 103 K 50 PT	328.336
C106	CAPACITOR CERAM. SMD 0805 82pF 5% NPO 50VDC	TDK	C2012 COG 1H 820 J T NiBa	323.085
C107	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C108	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C109	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C110	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C111	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	MURATA	GRM40 X7R 103 K 50 PT	328.336
C112	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	MURATA	GRM40 X7R 103 K 50 PT	328.336
C113	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C114	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C115	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	MURATA	GRM40 X7R 103 K 50 PT	328.336
C116	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	MURATA	GRM40 X7R 103 K 50 PT	328.336
C117	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	MURATA	GRM40 X7R 103 K 50 PT	328.336
C118	CAPACITOR ELECTROLYTIC SMD 10uF 20% 16VDC	EUROPE CHEMICON	Al-Chip-MKV 16V/10 M	333.079
C119	CAPACITOR CERAM. SMD 1206 1u0F -20/80% Y5V 16VDC	MURATA	GRM42-6 Y5V 105 Z 16 PT10	328.806
C120	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C121	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C122	CAPACITOR CERAM. SMD 1206 22pF 5% NPO 500VDC	PHILIPS	2222 9711 1527	324.278
C123	CAPACITOR CERAM. SMD 0805 22pF 5% NP0 50VDC	TDK	C2012 COG 1H 220 J T NiBa	323.078
C124	CAPACITOR CERAM. SMD 0805 22pF 5% NP0 50VDC	TDK	C2012 COG 1H 220 J T NiBa	323.078
C125	CAPACITOR CERAM. SMD 0805 270pF 5% NPO 50VDC	TDK	C2012 COG 1H 271 J T NiBa	323.091
C126	CAPACITOR CERAM. SMD 0805 270pF 5% NPO 50VDC	TDK	C2012 COG 1H 271 J T NiBa	323.091
C127	CAPACITOR CERAM. SMD 0805 270pF 5% NPO 50VDC	TDK	C2012 COG 1H 271 J T NiBa	323.091
C128	CAPACITOR CERAM. SMD 0805 270pF 5% NPO 50VDC	TDK	C2012 COG 1H 271 J T NiBa	323.091
C129	CAPACITOR CERAM. SMD 0805 270pF 5% NPO 50VDC	TDK	C2012 COG 1H 271 J T NiBa	323.091
C130	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C131	CAPACITOR CERAM. SMD 0805 1n0F 10% X7R 50VDC	MURATA	GRM40 X7R 102 K 50 PT	328.324
C132	CAPACITOR CERAM. SMD 1206 22pF 5% NPO 500VDC	PHILIPS	2222 9711 1527	324.278
C133	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C134	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C135	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C136	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C137	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	MURATA	GRM40 X7R 103 K 50 PT	328.336
C138	CAPACITOR CERAM. SMD 0805 10nF 10% X7R 50VDC	MURATA	GRM40 X7R 103 K 50 PT	328.336
C139	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
C140	CAPACITOR CERAM. SMD 0805 100nF 10% X7R 25VDC	MURATA	GRM40 X7R 104 K 25 PT	328.348
D1	8-BIT SHIFT REG. W.LATCH 74HC595	PHILIPS	74HC595D TAPE & REEL	355.296
D2	DUAL 4 CHANNEL ANALOG MUX MC14052B, HEF4052B	PHILIPS	HEF4052BT TAPE&REEL	351.708
D3	1.1GHz PLL SYNTHESIZER MC14519	MOTOROLA	MC145190F/ LTB 991010 LIA	355.841
F1	ATO BLADE MINI FUSE 10AF COLOURED RED	LITTELFUSE	297010	45.735
K1	RELAY RF 12VDC SPDT UM1-12W-K	OMRON	G5Y-1-H-12VDC	21.120

POSITION	DESCRIPTION	MANUFACTURER	TYPE	PART NO.
K3	RELAY 12VDC SPDT 8A	TAKAMISAWA	JS-12-K	21.135
L1	COIL FIXED 46nH HiQ ø6.5 x 7.1mm	ECI A/S	6-0-32853C	432853
L2	COIL FIXED 32nH HiQ 6.5 x 5.0mm	ECI A/S	6-0-32854C	432854
L3	COIL FIXED 41nH HiQ ø6.5 x 9.5mm	ECI A/S	6-0-32852C	432852
L4	COIL FIXED 56nH HiQ ø5.9 x 4.9mm	ECI A/S	6-0-32857B	432857
L5	COIL FIXED 60nH HiQ ø5.9 x 4.0mm	ECI A/S	6-0-32856B	432856
L6	COIL FIXED 21nH HiQ ø5.9 x 2.3mm	ECI A/S	6-0-32885B	432885
L7	COIL FIXED 38nH HiQ ø5.9 x 3.2mm	ECI A/S	6-0-32855B	432855
L8	COIL FIXED 21nH HiQ ø5.9 x 2.3mm	ECI A/S	6-0-32885B	432885
L9	CHOKE FIXED 100nH 5%	COILCRAFT	1008CS-101-XJBC	337.262
L10	CHOKE FIX. 1812 1m0H 10%	TDK	NL453232T-102-K	337.341
L11	CHOKE FIXED 1211 2u2H 10%	COILCRAFT	1008CS-222-XKBC	337.228
L12	CHOKE FIXED 1211 2u2H 10%	COILCRAFT	1008CS-222-XKBC	337.228
L13	CHOKE FIXED 1211 2u2H 10%	COILCRAFT	1008CS-222-XKBC	337.228
L14	COIL RF 60nH ADJUSTABLE	TOKO	NE545SN-100093	38.502
L15	CHOKE FIXED 100nH 5%	COILCRAFT	1008CS-101-XJBC	337.262
N1	RF POWER MODULE Po= 60W, 135 - 160MHz	MITSUBISHI	M68702L	32.455
N2	POS. VOLTAGE REG. ADJUST. Io=1.5A LM317T	MOTOROLA	LM317T	31.055
N3	POS. VOLTAGE REG. ADJUST. Io=1.5A LM317T	MOTOROLA	LM317T	31.055
N4	QUAD OP.AMP. LM324	MOTOROLA	LM324D R2	350.530
R1	RESISTOR SMD 1206 82k OHM 5% 0.25W	ROHM	MCR18 EZH J 823	57003800
R2	RESISTOR SMD 0805 82k OHM 5% 0.1W	ROHM	MCR 10 EZH J 823	302.071
R3	RESISTOR SMD 1206 82k OHM 5% 0.25W	ROHM	MCR18 EZH J 823	57003800
R4	RESISTOR SMD 0805 22k OHM 5% 0.1W	ROHM	MCR 10 EZH J 223	302.064
R5	RESISTOR SMD 1206 150R OHM 5% 0.25W	ROHM	MCR18 EZH J 151	57001200
R7	RESISTOR SMD 0805 22k OHM 5% 0.1W	ROHM	MCR 10 EZH J 223	302.064
R9	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R10	RESISTOR SMD 0805 402 OHM 1% 50mW	PHILIPS	2322 734 2/64021	302.328
R11	RESISTOR SMD 1206 220 OHM 5% 0.25W	ROHM	MCR 18 EZH J 221	303.040
R12	RESISTOR SMD 1206 150R OHM 5% 0.25W	ROHM	MCR18 EZH J 151	57001200
R13	RESISTOR SMD 0805 10 OHM 5% 0.1W	ROHM	MCR 10 EZH J 10R	302.024
R14	RESISTOR SMD 0805 1k30 OHM 1% 50mW	PHILIPS	2322 734 2/61302	302.381
R15	PRESET SEALED 100 OHM 20% 1/4W	BOURNS	3314J-1-101-E(G)	310.403
R16	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R17	RESISTOR SMD 1206 3R9 OHM 5% 0.25W	ROHM	MCR 18 EZH J 3R9	57006800
R18	RESISTOR SMD 0805 39k OHM 5% 0.1W	ROHM	MCR 10 EZH J 393	302.067
R19	RESISTOR SMD 0805 39k OHM 5% 0.1W	ROHM	MCR 10 EZH J 393	302.067
R20	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R21	RESISTOR SMD 0805 2k2 OHM 5% 0.1W	ROHM	MCR 10 EZH J 222	302.052
R22	RESISTOR SMD 0805 4k7 OHM 5% 0.1W	ROHM	MCR 10 EZH J 472	302.056
R23	RESISTOR SMD 0805 100 OHM 5% 0.1W	ROHM	MCR 10 EZH J 101	302.036
R24	RESISTOR SMD 0805 270 OHM 5% 0.1W	ROHM	MCR 10 EZH J 271	302.041
R25	RESISTOR SMD 0805 22 OHM 5% 0.1W	ROHM	MCR 10 EZH J 22R	302.028
R26	RESISTOR SMD 0805 221 OHM 1% 50mW	PHILIPS	2322 734 2/62211	302.303
R27	RESISTOR SMD 0805 1k30 OHM 1% 50mW	PHILIPS	2322 734 2/61302	302.381
R28	RESISTOR SMD 0805 2k7 OHM 5% 0.1W	ROHM	MCR 10 EZH J 272	302.053
R29	RESISTOR SMD 0805 120 OHM 5% 0.1W	ROHM	MCR 10 EZH J 121	302.037
R30	RESISTOR SMD 0805 12 OHM 5% 0.1W	ROHM	MCR 10 EZH J 12R	302.025
R31	RESISTOR SMD 0805 27k OHM 5% 0.1W	ROHM	MCR 10 EZH J 273	302.065
R32	PRESET SEALED 100 OHM 20% 1/4W	BOURNS	3314J-1-101-E(G)	310.403
R33	RESISTOR SMD 0805 3k3 OHM 5% 0.1W	ROHM	MCR 10 EZH J 332	302.054
R34	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R35	RESISTOR SMD 0805 1k0 OHM 5% 0.1W	ROHM	MCR 10 EZH J 102	302.048
R36	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R37	RESISTOR SMD 0805 470k OHM 5% 0.1W	ROHM	MCR 10 EZH J 474	302.080
R38	RESISTOR SMD 0805 0 OHM 2A	ROHM	MCR 10 EZH JUMPER	302.000
R39	RESISTOR SMD 0805 27k OHM 5% 0.1W	ROHM	MCR 10 EZH J 273	302.065
R40	RESISTOR SMD 0805 15k OHM 5% 0.1W	ROHM	MCR 10 EZH J 153	302.062
R41	RESISTOR SMD 0805 33k OHM 5% 0.1W	ROHM	MCR 10 EZH J 333	302.066
R42	RESISTOR SMD 1206 150R OHM 5% 0.25W	ROHM	MCR18 EZH J 151	57001200
R43	RESISTOR SMD 0805 1k5 OHM 5% 0.1W	ROHM	MCR 10 EZH J 152	302.050
R44	RESISTOR SMD 0805 1k8 OHM 5% 0.1W	ROHM	MCR 10 EZH J 182	302.051
R45	RESISTOR SMD 0805 470k OHM 5% 0.1W	ROHM	MCR 10 EZH J 474	302.080
R46	RESISTOR SMD 0805 47k OHM 5% 0.1W	ROHM	MCR 10 EZH J 473	302.068
R47	RESISTOR SMD 0805 22k OHM 5% 0.1W	ROHM	MCR 10 EZH J 223	302.064
R48	RESISTOR SMD 0805 3k3 OHM 5% 0.1W	ROHM	MCR 10 EZH J 332	302.054
R49	RESISTOR SMD 0805 33k OHM 5% 0.1W	ROHM	MCR 10 EZH J 333	302.066
R50	RESISTOR SMD 0805 100 OHM 5% 0.1W	ROHM	MCR 10 EZH J 101	302.036
R51	RESISTOR SMD 0805 120 OHM 5% 0.1W	ROHM	MCR 10 EZH J 121	302.037
R52	RESISTOR SMD 0805 120 OHM 5% 0.1W	ROHM	MCR 10 EZH J 121	302.037
R53	RESISTOR SMD 0805 2k2 OHM 5% 0.1W	ROHM	MCR 10 EZH J 222	302.052
R54	RESISTOR SMD 1206 150R OHM 5% 0.25W	ROHM	MCR18 EZH J 151	57001200
R55	RESISTOR SMD 0805 560 OHM 5% 0.1W	ROHM	MCR 10 EZH J 561	302.045
R56	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072

POSITION	DESCRIPTION	MANUFACTURER	TYPE	PART NO.
R57	RESISTOR SMD 1206 10k OHM 5% 0.25W	DRALORIC	CR 1206 L 103 J G4	303.060
R58	RESISTOR SMD 0805 22k OHM 5% 0.1W	ROHM	MCR 10 EZH J 223	302.064
R60	RESISTOR SMD 0805 22k OHM 5% 0.1W	ROHM	MCR 10 EZH J 223	302.064
R61	RESISTOR SMD 0805 820 OHM 5% 0.1W	ROHM	MCR 10 EZH J 821	302.047
R62	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R63	RESISTOR SMD 0805 1M0 OHM 5% 0.1W	ROHM	MCR 10 EZH J 105	302.084
R64	RESISTOR SMD 0805 2k7 OHM 5% 0.1W	ROHM	MCR 10 EZH J 272	302.053
R65	RESISTOR SMD 0805 120 OHM 5% 0.1W	ROHM	MCR 10 EZH J 121	302.037
R66	RESISTOR SMD 0805 270 OHM 5% 0.1W	ROHM	MCR 10 EZH J 271	302.041
R67	RESISTOR SMD 0805 12 OHM 5% 0.1W	ROHM	MCR 10 EZH J 12R	302.025
R68	RESISTOR SMD 0805 47 OHM 5% 0.1W	ROHM	MCR 10 EZH J 47R	302.032
R69	RESISTOR SMD 0805 0 OHM 2A	ROHM	MCR 10 EZH JUMPER	302.000
R70	RESISTOR SMD 0805 4k7 OHM 5% 0.1W	ROHM	MCR 10 EZH J 472	302.056
R71	RESISTOR SMD 0805 47k OHM 5% 0.1W	ROHM	MCR 10 EZH J 473	302.068
R72	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R73	RESISTOR SMD 0805 150k OHM 5% 0.1W	ROHM	MCR 10 EZH J 154	302.074
R74	RESISTOR SMD 0805 100 OHM 5% 0.1W	ROHM	MCR 10 EZH J 101	302.036
R75	RESISTOR SMD 0805 120 OHM 5% 0.1W	ROHM	MCR 10 EZH J 121	302.037
R76	RESISTOR SMD 0805 120 OHM 5% 0.1W	ROHM	MCR 10 EZH J 121	302.037
R77	RESISTOR SMD 0805 100 OHM 5% 0.1W	ROHM	MCR 10 EZH J 101	302.036
R78	RESISTOR SMD 1206 10k OHM 5% 0.25W	DRALORIC	CR 1206 L 103 J G4	303.060
R79	RESISTOR SMD 0805 220k OHM 5% 0.1W	ROHM	MCR 10 EZH J 224	302.076
R80	RESISTOR SMD 0805 120k OHM 5% 0.1W	ROHM	MCR 10 EZH J 124	302.073
R81	RESISTOR SMD 0805 0 OHM 2A	ROHM	MCR 10 EZH JUMPER	302.000
R82	RESISTOR SMD 0805 100 OHM 5% 0.1W	ROHM	MCR 10 EZH J 101	302.036
R83	RESISTOR SMD 0805 470k OHM 5% 0.1W	ROHM	MCR 10 EZH J 474	302.080
R84	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R85	RESISTOR SMD 0805 33k OHM 5% 0.1W	ROHM	MCR 10 EZH J 333	302.066
R86	RESISTOR SMD 0805 33k OHM 5% 0.1W	ROHM	MCR 10 EZH J 333	302.066
R87	RESISTOR SMD 0805 15k OHM 5% 0.1W	ROHM	MCR 10 EZH J 153	302.062
R88	RESISTOR SMD 0805 2k7 OHM 5% 0.1W	ROHM	MCR 10 EZH J 272	302.053
R89	RESISTOR SMD 0805 2k7 OHM 5% 0.1W	ROHM	MCR 10 EZH J 272	302.053
R90	PRESET SEALED 10k OHM 20% 1/4W	BOURNS	3314J-1-103-E(G)	310.409
R91	RESISTOR SMD 1206 10k OHM 5% 0.25W	DRALORIC	CR 1206 L 103 J G4	303.060
R92	RESISTOR SMD 1206 10k OHM 5% 0.25W	DRALORIC	CR 1206 L 103 J G4	303.060
R93	RESISTOR SMD 0805 22 OHM 5% 0.1W	ROHM	MCR 10 EZH J 22R	302.028
R94	RESISTOR SMD 0805 390k OHM 5% 0.1W	ROHM	MCR 10 EZH J 394	302.079
R95	RESISTOR SMD 0805 1k0 OHM 5% 0.1W	ROHM	MCR 10 EZH J 102	302.048
R96	RESISTOR SMD 0805 2k7 OHM 5% 0.1W	ROHM	MCR 10 EZH J 272	302.053
R97	RESISTOR SMD 1206 82 OHMS 5% 0.25W	ROHM	MCR18 EZH J 820	303.035
R98	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R99	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R100	RESISTOR SMD 0805 47k OHM 5% 0.1W	ROHM	MCR 10 EZH J 473	302.068
R101	RESISTOR SMD 0805 47k OHM 5% 0.1W	ROHM	MCR 10 EZH J 473	302.068
R102	RESISTOR SMD 0805 470k OHM 5% 0.1W	ROHM	MCR 10 EZH J 474	302.080
R103	RESISTOR SMD 0805 470k OHM 5% 0.1W	ROHM	MCR 10 EZH J 474	302.080
R104	RESISTOR SMD 0805 100k OHM 5% 0.1W	ROHM	MCR 10 EZH J 104	302.072
R105	RESISTOR SMD 0805 100 OHM 5% 0.1W	ROHM	MCR 10 EZH J 101	302.036
R106	RESISTOR SMD 0805 1k0 OHM 5% 0.1W	ROHM	MCR 10 EZH J 102	302.048
R107	RESISTOR SMD 1206 47 OHMS 5% 0.25W	ROHM	MCR 18 JZO J 470	303.032
R108	RESISTOR SMD 1206 82 OHMS 5% 0.25W	ROHM	MCR18 EZH J 820	303.035
R109	RESISTOR SMD 0805 10k OHM 5% 0.1W	ROHM	MCR 10 EZH J 103	302.060
R110	RESISTOR SMD 0805 2k2 OHM 5% 0.1W	ROHM	MCR 10 EZH J 222	302.052
R111	RESISTOR SMD 0805 2k2 OHM 5% 0.1W	ROHM	MCR 10 EZH J 222	302.052
R112	RESISTOR SMD 0805 150k OHM 5% 0.1W	ROHM	MCR 10 EZH J 154	302.074
R113	RESISTOR SMD 1206 47 OHMS 5% 0.25W	ROHM	MCR 18 JZO J 470	303.032
R114	RESISTOR SMD 0805 220k OHM 5% 0.1W	ROHM	MCR 10 EZH J 224	302.076
R115	RESISTOR SMD 0805 470k OHM 5% 0.1W	ROHM	MCR 10 EZH J 474	302.080
R116	RESISTOR SMD 0805 470k OHM 5% 0.1W	ROHM	MCR 10 EZH J 474	302.080
V3	TRANS. AF SMALL SIGNAL NPN, BC848B	MOTOROLA	BC848BLT1 (T3)	345.048
V4	DIODE ZENER 18V 5% SMC SMC18A	MOTOROLA	1.5SMC18A-T3 ID: 18A	341.429
V5	TRANS. AF SMALL SIGNAL NPN, BC848B	MOTOROLA	BC848BLT1 (T3)	345.048
V6	TRANSISTOR AF POWER PNP BD138	MOTOROLA	BD138	29.057
V7	TRANSISTOR RF 2N4427	MOTOROLA	2N4427 OBSOLETE!! 990925/LIA	28.330
V8	TRANS. AF SMALL SIGNAL NPN, BC848B	MOTOROLA	BC848BLT1 (T3)	345.048
V9	DIODE SWITCH HIGH SPEED PMLL4148, 4446, 4448	PHILIPS	PMLL4148(4446)(4448) 115	83710000
V10	TRANS. AF SMALL SIGNAL NPN, BC848B	MOTOROLA	BC848BLT1 (T3)	345.048
V11	TRANS. AF SMALL SIGNAL NPN, BC858B	MOTOROLA	BC858BT1 (T3)	345.058
V12	DIODE SWITCH HIGH SPEED PMLL4148, 4446, 4448	PHILIPS	PMLL4148(4446)(4448) 115	83710000
V13	DIODE SWITCH HIGH SPEED PMLL4148, 4446, 4448	PHILIPS	PMLL4148(4446)(4448) 115	83710000
V14	TRANS. AF SMALL SIGNAL NPN, BC858B	MOTOROLA	BC858BT1 (T3)	345.058
V15	TRANSISTOR RF NPN BFR92A	PHILIPS	BFR92A ID: P2p	345.530
V16	DIODE BAND SWITCHING BA582/BA782 SOD-123	ITT	BA782	340.650
V19	TRANSISTOR RF NPN BFS17A / BFS17P	PHILIPS	BFS17A	345.517

POSITION	DESCRIPTION	MANUFACTURER	TYPE	PART NO.
V20	TRANSISTOR RF NPN MMBR951	MOTOROLA	MMBR951LT1	345.531
V21	DIODE CAPACITANCE MA4ST09 5pF/20V	MACOM	MA4ST409	340.645
V23	TRANS. AF SMALL SIGNAL NPN, BC848B	MOTOROLA	BC848BLT1 (T3)	345.048
V25	DIODE CAPACITANCE BBY40 4p3F/28VDC	PHILIPS	BBY40	340.640
V26	TRANS. AF SMALL SIGNAL NPN, BC848B	MOTOROLA	BC848BLT1 (T3)	345.048
V27	TRANS. AF SMALL SIGNAL NPN, BC848B	MOTOROLA	BC848BLT1 (T3)	345.048
V28	TRANSISTOR RF NPN MMBR951	MOTOROLA	MMBR951LT1	345.531
V29	TRANSISTOR RF NPN BFR92A	PHILIPS	BFR92A ID: P2p	345.530
V30	TRANS. AF SMALL SIGNAL NPN, BC858B	MOTOROLA	BC858BT1 (T3)	345.058
V31	DIODE SWITCH HIGH SPEED PMLL4148, 4446, 4448	PHILIPS	PMLL4148(4446)(4448) 115	83710000
V32	DIODE SWITCH HIGH SPEED PMLL4148, 4446, 4448	PHILIPS	PMLL4148(4446)(4448) 115	83710000
V33	DIODE SWITCH HIGH SPEED PMLL4148, 4446, 4448	PHILIPS	PMLL4148(4446)(4448) 115	83710000
V34	TRANS. AF SMALL SIGNAL NPN, BC848B	MOTOROLA	BC848BLT1 (T3)	345.048
V35	TRANS. AF SMALL SIGNAL NPN, BC848B	MOTOROLA	BC848BLT1 (T3)	345.048
V36	TRANS. AF SMALL SIGNAL NPN, BC848B	MOTOROLA	BC848BLT1 (T3)	345.048
V37	DIODE SWITCH HIGH SPEED PMLL4148, 4446, 4448	PHILIPS	PMLL4148(4446)(4448) 115	83710000
V38	DIODE SWITCH HIGH SPEED PMLL4148, 4446, 4448	PHILIPS	PMLL4148(4446)(4448) 115	83710000
X2	SOCKET COAX 45 DEG. PCB VERSION	TAIKO	TMP-J01X-A2	78.517
X5	SOCKET COAX 45 DEG. PCB VERSION	TAIKO	TMP-J01X-A2	78.517
X6	SOCKET COAX 45 DEG. PCB VERSION	TAIKO	TMP-J01X-A2	78.517
X7	SOCKET COAX 45 DEG. PCB VERSION	TAIKO	TMP-J01X-A2	78.517
X8	PLUG 3 POLES PCB VERSION RIGHT ANGLE CC=1/5"	WIELAND	Best. Nr: 25.352.3353.0/W	78.956
X9	SOCKET PCB VERSION 2x10 POLES u-MATCH	AMP	2-215079-0 / 9-215079-0	78.198
Z1	T-TYPE EMI FILTER 2n2F 25VDC 6ADC	MURATA	NFM60R 30 T 222 T1	335.415
Z2	T-TYPE EMI FILTER 2n2F 25VDC 6ADC	MURATA	NFM60R 30 T 222 T1	335.415
Z3	CRYSTAL C1074 14.850MHz 10ppm NC18C	DANTRONIC	ECI SPEC: C1074	39.839
Z4	EMI FERRITE BEAD 3.2x1.6x1.6mm 0.2A	MURATA	BLM 31 B 601 S PT	370.021
Z5	EMI FERRITE BEAD 3.2x1.6x1.6mm 0.2A	MURATA	BLM 31 B 601 S PT	370.021
Z6	EMI FERRITE BEAD 3.2x1.6x1.6mm 0.2A	MURATA	BLM 31 B 601 S PT	370.021
Z7	EMI FERRITE BEAD 3.2x1.6x1.6mm 0.2A	MURATA	BLM 31 B 601 S PT	370.021

PART 3
Service

Contents

1 System maintenance

1.1 Preventive maintenance

If the VHF system has been installed in a proper way, the maintenance can, dependent on the environments and working hours, be reduced to a performance check at the service workshop at intervals not exceeding 12 months. A complete performance check list is enclosed in this manual, chapter: System performance check.
The inspection of the aerial, cables, and plugs for mechanical defects, salt deposits, corrosion, and any foreign bodies should be done at regular intervals not exceeding 12 months.

Along with each VHF system, a test sheet is delivered listing all the measurements made in the test department of the factory. If the control measuring made in the service workshop does not show the same values as those listed in the test sheet, the set must be adjusted as specified in chapter: Adjustment procedures.

1.2 Change of battery for back-up

(Not for TU 1000 P)
The VHF system is constructed with a real-time clock which uses a lithium battery for power back-up. By means of this battery, it is possible to maintain track of time and date even though the VHF system has been turned off.
The capacitance of the battery is 220 mAh (milli Ampere hours), and if the real-time clock consumes a current of about 12.5µA, the battery should last for a period of app. 2 years. However, in practice this period will be longer because the battery is only used when the VHF system is turned off.
The battery is located at the AF & processor module (632250) and is soldered to the PCB to obtain mechanical stability.
If you need to order a new battery, please note that the spare part number is: 47.007.

IMPORTANT!
To avoid environmental damages caused by the lithium, the old battery must be handed over to the authorities for proper destruction.

1.3 Change of software

The AF & processor module includes the PROM D9, which contains the software. To locate this PROM, please see the component location of the module described in this manual, part 1 and 2, chapter: Circuit Description and schematic diagrams.

2 Necessary test equipment

OSCILLOSCOPE:

Bandwidth	DC-35 MHz
Sensitivity	2mV/div
Input impedance	1 Mohm//20 pF
E.g. Philips type	PM3050

PASSIVE PROBE:

Attenuation	20 dB
Input impedance	10 Mohm//15 pF
Compensation range	10-30 pF
E.g. Philips type	PM8936/091

MULTIMETER:

Sensitivity DC (f.s.d.)	100 mV
Input impedance	10 Mohm
Accuracy DC (f.s.d.)	1.5%
E.g. Philips type	PM2505

FREQUENCY COUNTER:

Frequency range	100 Hz - 165 MHz
Resolution	1 Hz at f = 100 MHz
Accuracy	1×10^{-7}
Sensitivity	100 mV RMS
Input impedance	1 Mohm/30 pF
E.g. Philips type	PM 6674

RF SIGNAL GENERATOR:

Frequency range	155 MHz - 165 MHz
Output level:	-124dBm - +7dBm (EMF: 0.25 μV_{RMS} - 1 V_{RMS})
Output impedance	50 ohm
Type of modulation	FM
Modulation frequency	External: 1.3kHz, 2.1kHz / Internal: 1kHz
E.g. Rohde & Schwarz	CMT

RF MODULATION METER:

Frequency range	155 MHz - 165 MHz
Input impedance	50 ohm
E.g. Rohde & Schwarz	CMT

LF SIGNAL GENERATOR:

Frequency range	100 Hz - 3 kHz
Output level	10 mV - 1V
Output impedance	50 ohm
E.g. Hewlett-Packard	HP 8903B

LF DISTORTION METER:

Frequency range	1000 Hz, 1300 Hz, 2100 Hz
Distortion range (f.s.d.)	0.1-10%
Input impedance	100 kohm
Accuracy (f.s.d.)	5% of reading
E.g. Hewlett-Packard	HP 8903B

3 System trouble shooting

Trouble shooting should only be performed by persons with sufficient technical knowledge who have the necessary measuring instruments at their disposal, and who have carefully studied the operation principles and structure of the VHF series.

The first thing to check is whether the fault is somewhere in the aerial circuit, the power source, the handset, or inside the VHF system itself.

In order to help you during trouble shooting, part 1 and 2, chapter: Circuit Description and schematic diagrams contains diagrams, principal descriptions, and component location of the individual components.

The VHF system has a number of trimming cores and trimmers which must not be touched unless adjustments can be made as specified in chapter: Adjustment procedures.
When measuring inside the unit, short circuits must be avoided as they would damage the transistors.

4 System Performance check

4.1 Check of system performance

The primary purpose of this test is to control the function of all system units. The test procedures require no test equipment.

The test procedures are described in the installation manuals in the sections “System function test”.

4.2 Check of receiver sensitivity

The receiver sensitivity is controlled by applying a modulated RF test signal to the aerial terminal and then measuring the output signal-noise-distortion-to-noise-distortion ratio (SINAD) by means of an audio analyser.

1. Connect an RF signal generator to the aerial input, and adjust the RF signal level to -107 dBm (EMF: 6 dB/µV). Modulate the RF signal with 1 kHz to a peak frequency deviation of 3 kHz.

2. Connect the AF_out (receiver output) signal from the test box to the audio analyser and measure SINAD ratio.

3. The level of the test signal is to be adjusted until the SINAD ratio of 20 dB is obtained, using the psophometric network (CCITT).

4. The level of the test signal at the input is the value of the maximum usable sensitivity, and it is not to exceed -119 dBm.

4.3 Check of receiver distortion

The receiver distortion is controlled by applying an RF signal to the aerial terminal and then measuring the output distortion by means of the distortion meter of the audio analyser.

1. Connect an RF signal generator to the aerial input, and adjust the signal level to -30 dBm (EMF: 83 dB/µV). Modulate the carrier frequency with 1 kHz to a peak frequency deviation of 3 kHz.

2. Connect the AF_out (receiver output) signal from the test box to the audio analyser, and measure the audio frequency distortion.

3. The measured distortion is not to exceed 3%.

4.4 Check of TX AF Level

The TX AF level is controlled by checking that the peak nominal deviation of the transmitted RF signal is correct.

1. Reduce the output RF power from the VHF transceiver to 1W.

2. Connect a modulation meter through an attenuator to the aerial terminal at the VHF transceiver. **Please note:** To protect the modulation meter from damages caused by the large input voltage, it is necessary to use an attenuator of about 30dB.

3. Connect the output of an LF signal generator to the AF_in of the test box. Adjust the frequency of the LF signal to 1kHz and the level to 100mVrms.

4. Start the transmission by turning on the PTT switch of the test box.

5. The measured nominal deviation is to be in the interval ±2.8kHz- ±3.2kHz .

4.5 Check of TX AF distortion

The TX AF distortion is controlled by checking that the distortion of the transmitted RF signal is correct.

1. Reduce the output RF power from the VHF transceiver to 1W.

2. Connect a distortion meter through an attenuator to the aerial terminal at the VHF transceiver. **Please note:** To protect the modulation meter from damages caused by the large input voltage, it is necessary to use an attenuator of about 30dB.

3. Connect the output of an LF signal generator to the AF_in of the test box. Adjust the frequency of the LF signal to 1kHz and the level to 100mVrms.

4. Start the transmission by turning on the PTT switch of the test box.

5. The measured distortion is not to exceed 3% .

5 Adjustment procedures

This section contains the adjustment procedures for all adjustable components in the VHF system.

5.1 Adjustment of AF & processor unit (632250)

In the AF & processor unit there are two hardware adjustments to be made: Power Low Level and DSP clock adjustment.

1. **The power low level is** adjusted by trimpot R6. The trigger level is 10V DC.
   - Set supply voltage to 10V DC.
   - Turn R6 clockwise all the way.
   - Turn R6 anticlockwise until the control units indicate POWER LOW on the display.

2. **The DSP clock** is adjusted by C60. The DSP clock is supplied by a 19.6608MHz crystal oscillator which will be divided by 4 in the DSP (D18) to form a clock frequency of 4.9152MHz, which can be adjusted by C60 as follows:
   - Connect a frequency counter by means of a passive probe to the SCLK pin in the AD-converter (D7pin-18).
   - Adjust the trimmer capacitor C60 until the frequency is 4.9152MHz ± 10Hz

3. **Software adjustments**
   There are 3 parameters in the radio, which needs to be adjusted, if you install a replacement board. The 3 parameters are adjusted as follows, the 3 parameters, are all placed in the Transmitter Setup window under RTU setup in the pcv4xxx:

   - **TX_MAX_HIGH_TEMP (default 115)**
   - Perform the first five actions indicated in Step 1
   - Select the SERVICE menu
   - Select READ
   - Read the value of PA TEMP (must be done at +25°C)
   - Subtract 32 from the value, e.g. 143 is read, subtract 32 and you get 111
   - Press F5
   - Select the TRANSMITTER SETUP
   - Set the parameter TX MAX HIGH TEMP to [read value - 32] (111 in the example)
   - Select OK
   - Select SEND TO UNIT
   - Select OK

   - **TX_POWER_HIGH (default 105)**
   - Set output power of the radio to 25 W
   - Select the TRANSMITTER SETUP menu as shown above
   - Set the value (e.g. default 105 as first trial)
   - Select OK
   - Select SEND TO UNIT
   - Select OK
   - Press PTT and measure the output power
   - Change the value up or down to match the required output power. This means steps 1 to 6 must be repeated. MAX output power is 25 W. **Note: 1 step is approximately 0.4 W.**

   - **TX_POWER_LOW (default 85)**
   - Set output power of the radio to 1 W
   - Select the TRANSMITTER SETUP menu as shown above.
   - Set the value (e.g. default 85 as first trial)
   - Select OK
   - Select SEND TO UNIT
   - Select OK
   - Press PTT and measure the output power.
   - Change the value up or down to match the required output power. This means steps 1 to 6 must be repeated. MAX output power is 1 W. **Note: 1 step is approximately 0.02 W.**

5.2 Adjustment of transmitter unit (632251) / (636281)

In the transmitter unit there are 5 adjustable components. These are adjusted as shown below. (The adjustment of the RF output power 1W and 25W can be made by means of software).

1. **The +5V and +8V voltage regulators** can be adjusted by trimpot R15 and R32 respectively.
   - Switch the transceiver on.
   - Measure the DC voltage of the output pin the +5V regulator N2.
   - Adjust R15 until the +5 volt is reached.
   - Measure the DC voltage of the output pin the +8V regulator N3.
   - Adjust R32 until the +8 volt is reached.

2. **The 14.85MHz reference oscillator** is built around V19 and Z3, and its frequency is adjusted by the trimming capacitor C48 as shown below:
   - Connect a frequency counter by means of a passive probe to the input of the PLL (D3-pin-20).
   - Adjust C48 until the frequency is 14.85 MHz ± 10Hz.

3. **The VCO voltage** is adjusted by L14:
   - Set the transceiver on channel 88 (157.425 MHz), and get it to activate the VCO.
   - Measure the DC voltage of the output pin of the PLL(D3-pin-6) on the other side of R40.
   - Adjust L14 until the VCO voltage is 3.7V DC ± 50mV DC.

4. **The nominal deviation** of the transmitter is adjusted by R90. The adjustment is made as follows:
   - Select reduced output RF power (1W) from the VHF transceiver.
   - Connect a modulation meter through an attenuator to the aerial terminal at the VHF transceiver.
   - **Please note:** To protect the modulation meter from damages caused by the large input voltage, it is necessary to use an attenuator of about 30dB.
   - Connect the output of an LF signal generator to the AF_in of the test box. Adjust the frequency of the LF signal to 1kHz and the level to 100mVrms.
   - Start the transmission by turning on the PTT switch of the test box.
   - Adjust R90 until the nominal deviation is 3kHz ± 40Hz.

5.3 Adjustment of receiver unit (632252)

In the receiver unit there are 8 adjustable components. The adjustment of these components is made as follows:

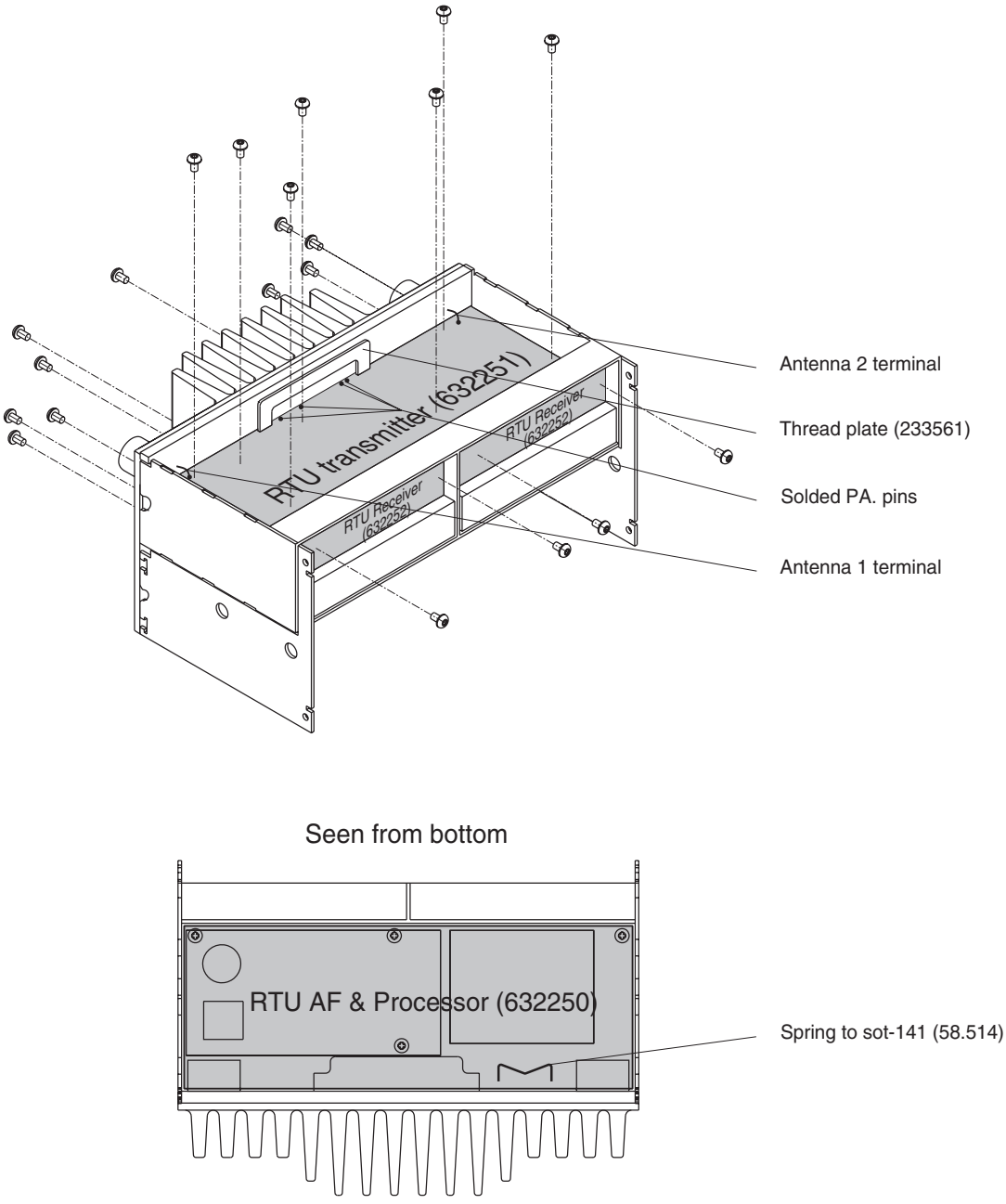
1. **The VCO voltage** is adjusted by C54 as shown below:
   - Set the transceiver on channel 17 (156.850MHz).
   - Measure the DC voltage of the output pin of the PLL(D4-pin-6) on the other side of R46.
   - Adjust C54 until the VCO voltage is 3.04V DC ± 10mV DC.

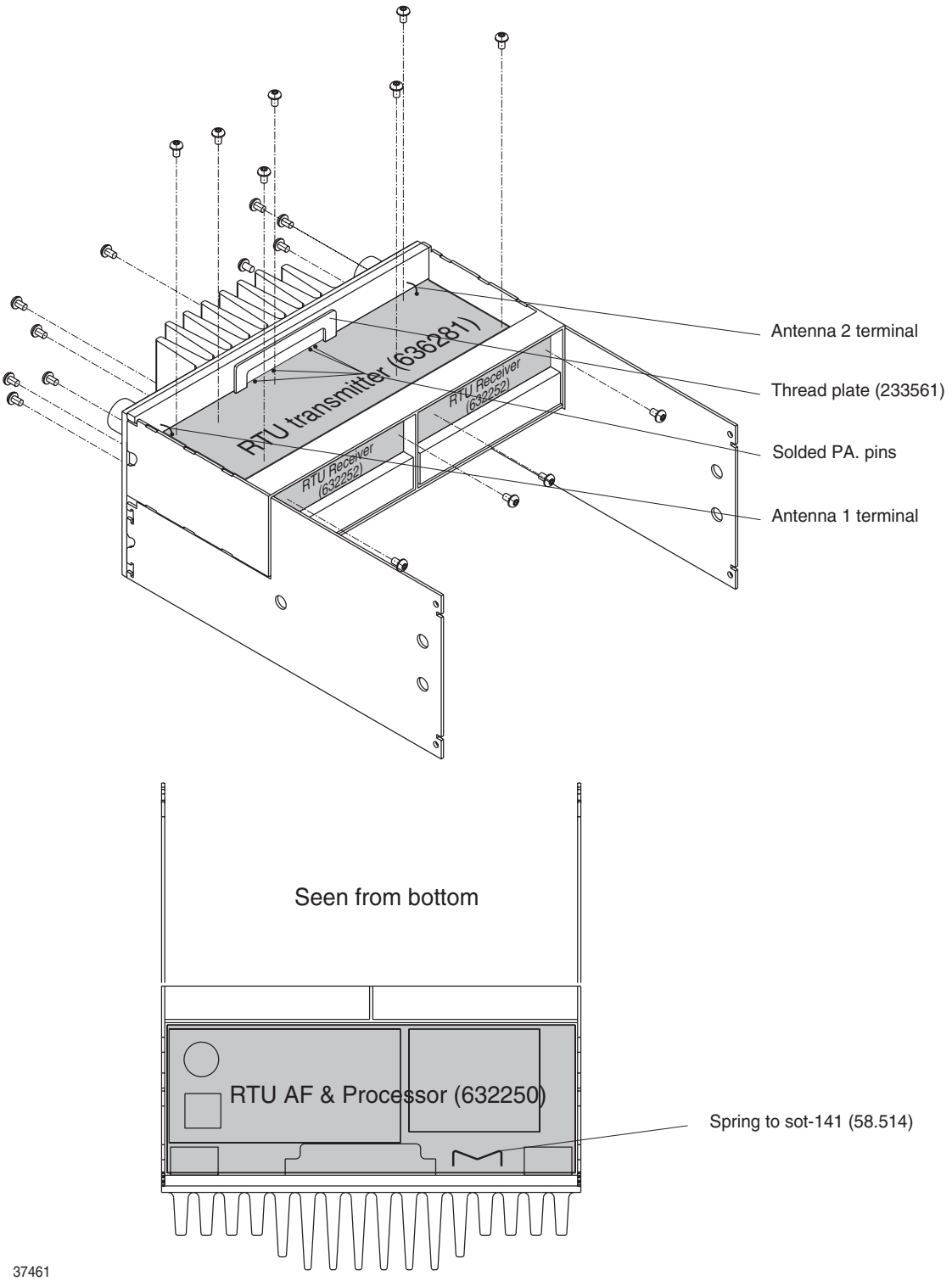
2. **The front-end filters and mixer transformers** are adjusted by L7, L8, L13, L14, TR1 and TR2. All components are adjusted to maximum RSSI output (Received Signal Strength Indicator) of N1 at pin-13. The adjustment is made as follows:
   - Apply an unmodulated carrier with the frequency 157.425 MHz to the aerial terminal, and adjust the signal level to -90 dBm (EMF: 23 dB/µV).
   - Set the transceiver on channel 88 (157.425 MHz).
   - Measure the DC voltage of pin-13 of the N1.
   - Adjust in succession L7, L8, L13, L14, TR1 and TR2 until the DC voltage is 2V DC± 0.2V DC.

3. **The AF output level** is adjusted by trimpot R25. The adjustment is made as follows:
   - Apply an RF signal to the aerial terminal, and adjust the signal level to -50dBm (EMF: 63 dB/µV). Modulate the RF signal with 1kHz to a peak frequency deviation of 3kHz.
   - Measure the AC voltage of the AF output of the demodulator N1 pin-11.
   - Adjust the trimpot R25 until the output level is 150mVrms ± 5mV.

6 Removal / installation of units

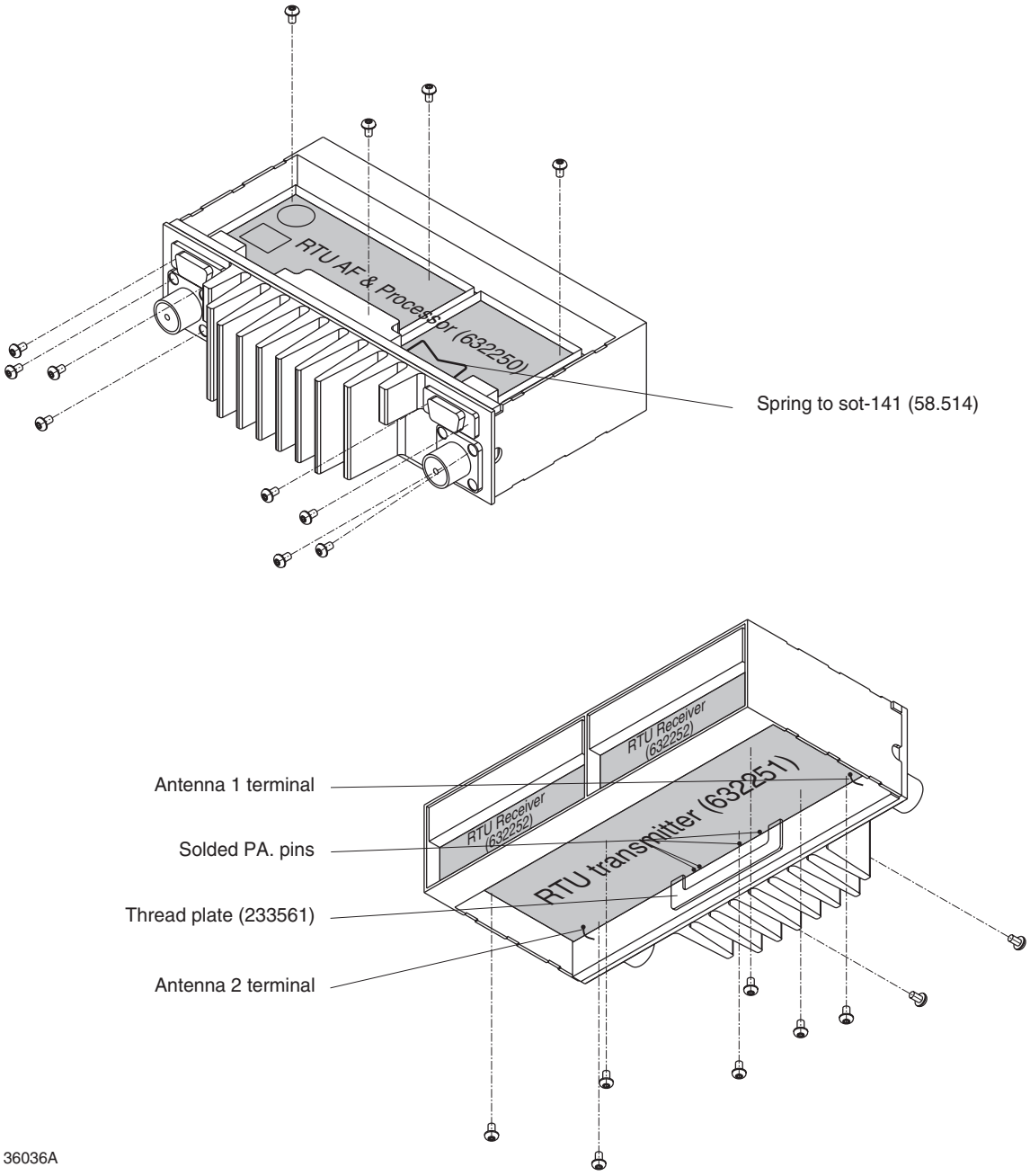
If a fault has been located to a single unit, it may often be worth-while to replace it and then repair it later on. The following schematic figures illustrate the removal of the units of the VHF system.

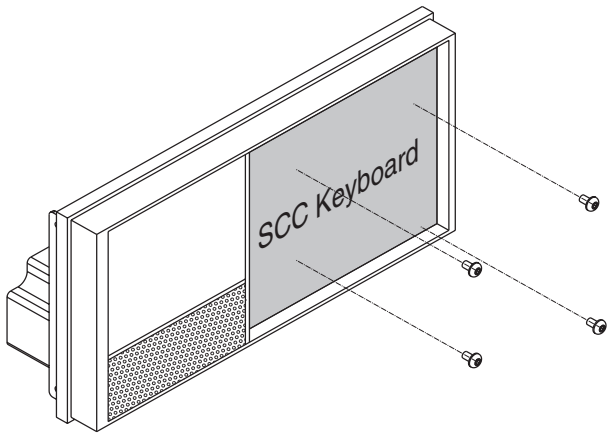



RTU transmitter (636281)
RTU Receiver (632252)
RTU Receiver (632252)
Antenna 2 terminal
Thread plate (233561)
Solded PA. pins
Antenna 1 terminal

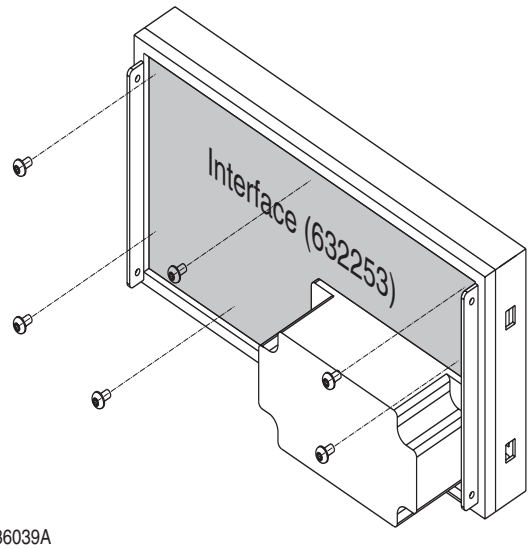
Seen from bottom
RTU AF & Processor (632250)
Spring to sot-141 (58.514)

37461


RTU AF & Processor (632250)
Spring to sot-141 (58.514)
Antenna 1 terminal
Solded PA. pins
Thread plate (233561)
Antenna 2 terminal
RTU Receiver (632252)
RTU Receiver (632252)
RTU transmitter (632251)
36036A



36038A



36039A

6.1 Removal / installation of AF & processor unit (632250)

To remove the AF & processor unit, it is necessary to remove both receiver units first (see section 2.7.3).
The removal of the AF & processor unit can be done as follows:

- Remove the spring of sot-141 (see the above figure).
- Unscrew the two 25-pole sub-D connectors.
- Disconnect the 20-pole flat cable.
- Unscrew the unit from the chassis, and remove the unit.

Install the new AF & processor unit by doing the opposite of the above steps in reverse order.

6.2 Removal / installation of transmitter unit (632251) / (636281)

To remove the transmitter unit, it is necessary to remove both receiver units first (see section 2.7.3).
The removal of the transmitter unit can be done as follows:

- Unsolder the power module and both aerial terminals.
- Unscrew and remove the thread plate and both aerial connectors.
- Disconnect the 20-pole flat cable.
- Unscrew and remove the unit from the chassis.

Install the new transmitter unit by doing the opposite of the above steps in reverse order.

6.3 Removal / installation of receiver unit (632252)

The removal of the receiver unit is very simple and is done as follows:
- Disconnect all coax cables.
- Unscrew and remove the unit from the chassis.

Install the new receiver unit by doing the opposite of the above steps in reverse order.

6.4 Removal / installation of interface unit (632253)

After disassembling the front control unit from the RTU, the removal of the interface unit can be done as follows:
- Disconnect the speaker cable.
- Unscrew and remove the unit from the housing for the front chassis.
  Install the new interface unit by doing the opposite of the above steps in reverse order.
  Please note: Place the unit gently in the housing for the front chassis so that the pins of the male connector of the display will enter the place on the female connector of the unit that matches.

6.5 Removal / installation of keyboard unit (632256)

After the removal of the frontal plane, the keyboard unit can be removed as follows:
- Remove the display window
- Unscrew and remove the indicator module.
- Unscrew and remove the unit from the housing for the front chassis.

Install the new keyboard unit by doing the opposite of the above steps in reverse order.

7 Necessary adjustments after repair or replacement of units

7.1 Repair/replacement of AF & processor unit (632250)

If this unit is replaced by a new one which is factory adjusted, it is only necessary to:
Perform chapter: System performance check.
If this unit is repaired, it is necessary to:
Perform chapter: Adjustment of AF & Processor unit.
Perform chapter: System performance check.

7.2 Repair/replacement of transmitter unit (632251) / (636281)

If this unit is replaced by a new one which is factory adjusted, it is only necessary to:
Perform chapter: System performance check.
If this unit is repaired, it is necessary to:
Perform chapter: Adjustment of transmitter unit.
Perform chapter: System performance check.

7.3 Repair/replacement of receiver unit (632252)

If this unit is replaced by a new one which is factory adjusted, it is only necessary to:
Perform chapter: System performance check.
If this unit is repaired, it is necessary to:
Perform chapter: Adjustment of receiver unit.
Perform chapter: System performance check.

7.4 Repair/replacement of interface unit (632253)

If this unit is replaced by one that is new or has been repaired, it is only necessary to:
Perform chapter: System performance check.

PART 4
Accessories

Contents

1 Handset control units (for use of extra control units)

At the time of printing this preliminary manual, the contents of this page had not yet been completed. The page is therefore left blank.

2 Alarm panel unit (for GMDSS installation)

At the time of printing this preliminary manual, the contents of this page had not yet been completed. The page is therefore left blank.

3 Using the PCV4xxx for system setup

4 Test box

5 Option connection box

For an explanation including illustrations, see the installation manuals:

- Front-operated transceiver unit with dumb handset: Chapter 2.7
- Transceiver unit operated by handset: Chapter 2.6

The following provides an explanation of the pins of the option connection box:

Pin no.	Pin name	Explanation
1	DSC_ALARM_ON	Indicates that there are one or more distress or urgency SC_calls in the buffer.
2	NMEA_OUT+	Optional – not used.
3	NMEA_OUT-	Optional – not used.
4	NMEA_IN+	The positive side of a balanced input signal from an external instrument, i.e. a GPS.
5	NMEA_IN-	The negative side of a balanced input signal from an external instrument, i.e. a GPS.
6	-BAT.	Battery ground.
7	+12V DC	DC power supply.
8	FAN_ON	An output control signal to control an external FAN to cool the transceiver down.
9	RX_!_SQ	Squelch signal from receiver_1. Not enabled.
10	CH_AUX_1	Associated with every channel, there are 2 AUX bits, defined independently for each channel. These bits can be used e.g. to control an external instrument, or to get a certain action to take place in connection with the chosen channel.
11	CH_AUX_2	The same as CH_AUX_1.
12	RX_1_AF	Demodulated AF signal from receiver_1. The signal level is app. 150 mVrms

6 Sparc-bus splitter box

For an explanation including illustrations, see chapters 2.5 and 2.6 of the installation manual. The connection of one or more handsets to the transceiver can be done in two ways:

1. Directly between the transceiver and the handset hook.
2. By means of a SPARC-bus splitter box.

The second way has the advantage that if the handset installations are far away from each other and from the transceiver, there will be no degradation in the level of the data bus (SPARC+ and SPARC-) because the transceiver will just see the short stub (app. 90 cm) between the transceiver and the splitter box. The following provides an explanation of the pins of the splitter box:

Pin no.	Pin name	Explanation
1	Supply_ON	ON/OFF signal.
2	SPARC+	The positive side of the balanced signal of the data bus (SPARC-bus), which is derived by a line interface RS483.
3	SPARC-	The negative side of the balanced signal of the data bus (SPARC-bus), which is derived by a line interface RS483.
4	AF+	The positive side of the TX_AF, which will be modulated and transmitted in the transceiver.
5	AF-	The negative side of the TX_AF, which will be modulated and transmitted in the transceiver.
6	-BAT	Battery ground.
7	+12V DC	DC power supply.
8	RX_AF+	The positive side of the balanced AF received signal, which is demodulated but not de-emphasised.
9	RX_AF-	The positive side of the balanced AF received signal, which is demodulated but not de-emphasised.
10	+12V DC	DC power supply.
11	LS_1+	The positive side of the balanced AF received signal, which is demodulated and de-emphasised. This signal is fed to the positive side of an internal loudspeaker of 4 ohms to give 4W.
12	LS_1-	The negative side of the balanced AF received signal, which is demodulated and de-emphasised. This signal is fed to the positive side of an internal loudspeaker of 4 ohms to give 4W.
13	-BAT	Battery ground.
14	LS_2+	The positive side of the balanced AF received signal, which is demodulated and de-emphasised. This signal is fed to the positive side of an external loudspeaker of 4 ohms to give 6W.
15	LS_2-	The negative side of the balanced AF received signal, which is demodulated and de-emphasised. This signal is fed to the positive side of an external loudspeaker of 4 ohms to give 6W.