

CONTROL PANEL  
**RC-D710**  
 SERVICE MANUAL

**KENWOOD**

Kenwood Corporation

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# RC-D710

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# CIRCUIT DESCRIPTION

## 1. Outline

You can operate the RC-D710 in the same manner as the TM-D710 by connecting the RC-D710 to the main unit of the TM-V71.

The RC-D710 has a piezoelectric buzzer circuit for generating key operation sounds, link sounds, error sounds, etc. The buzzer circuit does not operate when connected to the main unit of the TM-V71.

The buzzer circuit is used for indicating warnings and operations only when it is used in the Stand Alone mode.

The RC-D710 operates in the following 3-modes, depending on the state of the TXD terminal (pin 5) and RXD terminal (pin 2) of the modular jack (J1):

- (1) When the RC-D710 is connected to the main unit of the TM-V71, it operates in the TM-D710 mode if the TXD and RXD terminals of the RC-D710 communicate with the main unit of the TM-V71.
- (2) When the RC-D710 is connected to the PG-5J (Interface kit), it operates in the Stand Alone mode if the TXD and RXD terminals are connected to each other in the modular jack of the PG-5J.
- (3) The RC-D710 operates in the test mode if the TXD or RXD terminals of the RC-D710 are opened and the panel is operated when the RC-D710 is turned on. This mode is used by production or service.

## 2. Circuit configuration

The RC-D710 consists of the control section, the TNC section, the full-dot LCD (235×65 dots) display section and the buzzer circuit.

The flash-type panel MPU (IC1) is used in the RC-D710 and the firmware can be rewritten. Also, the panel MPU has no program for controlling frequency, so it is common for all types.

### 2-1. Power Supply Circuit

When the RC-D710 is connected to the transceiver main unit, 10V is always supplied to the RC-D710 if the transceiver main unit is connected to a power supply such as a battery, even if the transceiver main body is turned off. Voltage is applied to the panel MPU through the 5V AVR (IC6) and the RC-D710 is operating in the standby state.

When in standby state, the LCD power, the RS-232C circuit power and the TNC power are turned off with switches Q1, Q2, and Q3 respectively, in order to reduce power consumption.

The reset signal of the panel MPU (IC1) detects the rising edge of the voltage of the 5V line with the voltage detection IC (IC3). The voltage detection IC (IC24) detects the reduced voltage of the 10V power line and backs up the state immediately before the voltage becomes approximately 8V or less, to the EEPROM (IC2).

The voltage detection IC (IC14) monitors the TNC-5V line and the reset signal of the TNC MPU (IC11) performs reset operations.

The backup battery circuit divides the 5V voltage always applied with R115 and R116 and floating-charges the internal rechargeable lithium battery through the reverse current prevention diode (D3). The voltage of the battery is approximately 3.1V when fully charged.

The internal rechargeable lithium battery backs up the data of the S-RAM (IC13), RTC (IC25) and logic IC (IC15). The backup current of approximately 5μA is consumed. So, the data can be saved for approximately four weeks on a full charge.

The S-RAM is used for maintaining the status of the packet mode.

The call sign of the APRS and reception list are stored in the EEPROM.

### 2-2. Key, Encoder, Volume Input Circuit

The RC-D710 key corresponds to the panel MPU port, one-to-one. The POWER key is pulled up and connected to the interrupt port of the panel MPU.

Other keys are also pulled up outside because the panel MPU is an 8 bit data bus mode. The scanning process reads out the status of the keys. So, if a key is in the "L" level, no other keys are accepted.

The encoder is connected to the panel MPU and the port is pulled up.

The volume (VOL/SQL) divides the 5V voltage, reads with the A/D port of the panel MPU and transfers the data to the main unit section MPU.

## CIRCUIT DESCRIPTION

### 2-3. Display Circuit

The LCD is a COF (Chip On Flexible printed circuit board) type with the driver IC mounted on the FPC and controlled by the 8 bit data bus mode. The voltage "V3" is approximately 12V for the LCD, but due to the voltage booster function of this driver IC, it can operate with a single power of 5V.

The contrast can change this "V3" voltage by 16 steps, using the internal memory of the driver IC.

### 2-4. Brightness Circuit

The illumination color can be set to either amber or green.

The PWM signal output from the panel MPU passes through the LPF, is converted into DC voltage, and controls the current that flows to the LED with the transistor. The duty of the PWM changes the LED brightness to one of eight levels or OFF.

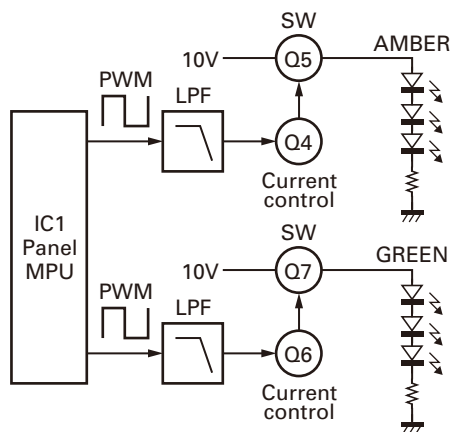


Fig. 1 Brightness circuit

### 2-5. TNC Section

The reception data signal from the transceiver main unit is input to the PRI terminal (pin 8 of the modular jack J1) of the RC-D710.

This signal is the same as the PR9 signal of the DATA terminal. So, the data signal enters the RC-D710 through the same route for both 1200bps and 9600bps.

The reception data signal from the PRI terminal passes the LPF (gain: 0, cutoff frequency: 4.8kHz) of IC22, adjusts the output with the electric volume (IC20) and the data signal enters the operational amplifier (IC10). The output adjustment value of the electric volume is fixed. The data signal of 1200bps and 9600bps is divided with the op-amp (IC10). Each data signal passes the buffer amp and is converted to a logic signal by the comparator (IC17).

The logic signal converted with the comparator enters to the TNC ASIC (IC12). The signal is demodulated with the TNC ASIC and is then processed with the TNC MPU (IC11).

For packet mode, signals processed with the TNC MPU enter to the panel MPU. The digital signals are not changed in the panel MPU. The level of the signal is changed with the RS-232C driver IC (IC7) and the signals are then output from the COM terminal (J2).

In APRS mode, the signal entering the panel MPU is processed and the status is displayed on the LCD.

The TNC section uses the same 3-chip TNC as the TM-D700. The flash-type TNC MPU is used and the firmware can be rewritten. The MPU clock operates at double frequency. TNC ASIC is an existing product. So, the frequency of the clock signal is divided by half with the flip-flop (IC16).

The S-RAM (IC13) has a capacity of 4M bits in order to operate smoothly in the KISS mode of packet communication.

### 2-6. Buzzer Circuit

IC26 is a circuit for changing the buzzer volume in 3-stages.

Q22 switches the power supply voltage of IC26 from 5V to 7.5V.

An amplitude twice as large as the power supply voltage is applied to the buzzer with pin 13 of IC26 at a high level. So, you can apply 5Vp-p, 10Vp-p and 15Vp-p signals to the buzzer.

A frequency of around 4kHz with a higher sound pressure is adopted for the RC-D710 or the beep sound of the transceiver generates a frequency of around 1kHz.

The output level when transmitting 1200bps data is set by the electronic volume (IC20). The modulation sensitivity of the DATA terminal is approximately 4-times larger than the 8-pin modular jack in the PKD input to the transceiver main unit. So, the attenuator level is automatically adjusted with the panel MPU (IC1) of the RC-D710.

You can set the data transmission and reception level using the MCP-2A (Memory control program) when used in the Stand Alone mode. If an FM transceiver with the DATA terminal made by KENWOOD (TM-733, TM-V7, TM-V708, etc) is used, it operates with the factory set value. Therefore, you do not have to set the data transmission and reception levels.

## SEMICONDUCTOR DATA

### Panel MPU: 30626FHPGKBXF (Display unit IC1)

Pin No.	Port Name	I/O	Function
1	2099EN	O	Chip enable output for serial-parallel conversion IC (BU2099FV)
2	RTC_SCL	O	RTC (RV5C386A) serial clock output (I2C bus)
3	LCD_RES	O	LCD driver reset terminal
4	CLOCK	O	Common serial clock output (EEPROM, DAC, serial-parallel)
5	DATA	O	Common serial data output (EEPROM, DAC, serial-parallel)
6	BYTE	I	Not used (5V)
7	NC	-	Not used (GND)
8	ENC_1	I	Encoder, B
9	SQCIN	I	Squelch state input from transceiver main unit
10	RESET	I	System reset
11	XOUT	O	System clock output (11.0592MHz)
12	VSS	I	GND
13	XIN	I	System clock input (11.0592MHz)
14	VCC	I	5V power supply
15	NMI	I	Not used (5V)
16	ENC_2	I	Encoder, A (INT)
17	RXD_INT	I	RXD detection interrupt from main unit UART terminal
18	INT	I	Power supply voltage fall detection interrupt
19	PKSOUT	O	PKS request output to transceiver main unit
20	AMBER	O	Brightness output PWM (Amber)
21	EEPCS	O	EEPROM (AT25256A) chip select output
22	EEPSI	I	EEPROM (AT25256A) serial data input
23	DA_EN	O	DAC (M62364) chip select output
24	BEEP	O	BEEP sound output
25	INTRA	I	RTC fixed-cycle interrupt terminal
26	GREEN	O	Brightness output PWM (Green)
27	RXD(TNC)	I	UART input from internal TNC terminal
28	TXD(TNC)	O	UART output to internal TNC terminal
29	TXD	O	UART output to main unit MPU
30	RXD	I	UART input from main unit MPU
31	CLKFLS	I	Not used (GND)
32	FLS_SW	I	Not used (5V)
33	TXD(PC)	O	UART data output to PC terminal
34	RXD(PC)	I	UART data input from PC terminal

Pin No.	Port Name	I/O	Function
35	S9600	I	Baud rate state input of TNC
36	PKSIN	I	Packet standby (PKS) state input of TNC
37	RDY	I	Not used (5V)
38	ALE	-	Not used
39	HOLD/EPM	I	Not used (5V)
40	HLDA	-	Not used
41	BCLK	-	Not used
42	RD	O	LCD driver RD terminal
43	BHE	-	Not used
44	WR	O	LCD driver WR terminal
45	MALED	I	Message state input to my station
46	TNCCTS	O	UART inhibiting signal output to TNC
47	TNCRTS	I	UART inhibiting signal input from TNC
48	LCD_CS0	O	LCD driver chip select
49	KEY_4	I	[MHz] key input
50	KEY_3	I	[MR] key input
51	KEY_2	I	[VFO] key input
52	KEY_1	I	[CALL] key input
53	KEY_8	I	[REV] key input
54	KEY_7	I	[TONE] key input
55	KEY_6	I	[F] key input
56	KEY_5	I	[KEY] key input
57~59	NC	-	Not used
60	VCC	I	5V power supply
61	NC	-	Not used
62	VSS	I	GND
63~69	NC	-	Not used
70	LCD_A0	O	LCD driver (Address bus)
71	PSW	I	Power switch detection interrupt
72	KEY_15	I	[PM] key input
73	KEY_14	I	[TNC] key input
74	KEY_13	I	[BAND SEL B] key input
75	KEY_12	I	[BAND SEL A] key input
76	KEY_11	I	[PF2] key input
77	KEY_10	I	[PF1] key input
78	KEY_9	I	[LOW] key input
79~86	LCD_D7~ LCD_D0	O	LCD driver (Data bus)
87	CONLED	I	Connection state input
88	STALED	I	The transmission remaining packet state input
89	GPSLED	I	GPS measurement state input

## SEMICONDUCTOR DATA

Pin No.	Port Name	I/O	Function
90	RTC_SDA	I/O	RTC (RV5C386A) serial data I/O (I2C bus)
91	VOL_B	I	AF VOL (Band B) A/D input
92	VOL_A	I	AF VOL (Band A) A/D input
93	SQL_B	I	SQL (Band B) A/D input
94	AVSS	I	GND
95	SQL_A	I	SQL (Band A) A/D input
96	VREF	I	Reference voltage
97	AVCC	I	Analog power supply
98	PCCTS	I	UART inhibiting signal input from PC
99	PCRTS	O	UART inhibiting signal output to PC
100	MBLED	I	Message board connection state input

**TNC MPU: 3048BTE25KBYB  
(Display unit IC11)**

Pin No.	Port Name	I/O	Function
1	VCC	-	5V power supply
2	HOSTCTS	I	CTS signal of asynchronous serial communication with host
3	SQ	I	Squelch input. H: With receive signal, L: No receive signal
4	PTT(PKSIN)	O	PTT output. H: Transmit, L: Receive
5	NC	-	Not used
6	NC	-	Not used
7	CONLED	O	CON LED Drive. H: Light off, L: Light on, During connection Light on
8	STALED	O	STALED Drive. H: Light off, L: Light on, Light on when transmit data exist.
9	NC	-	Not used
10	FWE(RESOUT)	I	Flash rewrite control
11	VSS	-	GND
12	GPSTX	O	3 chip TNC → Serial communication host data line
13	HOSTTX	O	3 chip TNC → Serial communication GPS data line
14	GPSRX	I	Host → Serial communication data line of 3 chip TNC
15	HOSTRX	I	GPS → Serial communication data line of 3 chip TNC
16	NC	-	L: Packet mode
17	GPSLED	O	Outputs 1-sec interval pulse when position determination data from GPS are received.
18	ABAUD1	I	Determine the communication speed with host by combination among ABAUD1~3. Set L for 9600bps.

Pin No.	Port Name	I/O	Function
19	ABAUD2	I	Determine the communication speed with host by combination among ABAUD1~3. Set L for 9600bps.
20	ABAUD3	I	Determine the communication speed with host by combination among ABAUD1~3. Set H for 9600bps.
21	CARRIER (D3(NC))	I	Carrier sense. L: With carrier, H: No carrier
22	VSS	-	GND
23	NC	-	Not used
24	NC	-	Not used
25	B_SEL	O	Clock divider circuit control. L: 1/2, H: 1/1
26	NC	-	Not used
27~34	D8~D15	I/O	Data bus of S-RAM D0~D7
35	VCC	-	5V power supply
36~43	A0~A7	O	Address bus of S-RAM A0~A7
44	VSS	-	GND
45~53	A8~A16	O	Address bus of S-RAM A8~A16
54	A17(NC)	O	(Address bus of S-RAM A17)
55	A18(NC)	O	(Address bus of S-RAM A18)
56	A19	O	(Inverted to CS of S-RAM)
57	VSS	-	GND
58	WAIT	I	WAIT. H: Fixed
59	MBODLED	O	MBOD LED control. H: Light off, L: Light on
60	MAILED	O	MAIL LED control. H: Light off, L: Light on
61	CLKOUT(NC) (CARRIER)	O	Clock output (7.9872MHz). H: Sleep
62	STBY	I	Hardware standby terminal. L: Hardware standby status (Sleep action)
63	RESET	I	Reset terminal. L: Reset status
64	SLEEP	I	Sleep terminal. H: Fixed
65	VSS	-	GND
66	X2	I	System clock input (15.9744MHz)
67	X1	O	System clock output (15.9744MHz)
68	VCC	-	5V power supply
69	NC	-	Not used
70	RD(OE)	-	Connected to RD terminal of S-RAM
71	HWR	-	Connected to WR terminal of S-RAM
72	NC	-	Not used
73	MD0	I	MPU mode setting. Normally, H
74	MD1	I	MPU mode setting. Normally, L
75	MD2	I	MPU mode setting. Normally, H

## SEMICONDUCTOR DATA

Pin No.	Port Name	I/O	Function
76	VCC	-	5V power supply
77	VREF	-	5V power supply
78	TNC_SEL(VSS)	I	LOW
79	SPEC(VSS)	I	L: Fixed
80	GPS_SEL(VSS)	I	Selects GPS default. H: SONY(9600bps), L: NMEA(4800bps)
81	PLLOCK	I	Input from gate array
82	CLKEN(VSS)	I	MPU clock output selection. H: Output, L: No output
83	FLAG	I	Input from gate array
84	SIN	I	Inputs receive serial data from gate array
85	IODATA	I	Not used (GND)
86	VSS	-	Analog circuit GND
87	SCLKR	I	Clock input of receive data from gate array
88	SCLKT	I	Clock output of transmit data to gate array
89	IOCLK	I	Not used (GND)
90	IOEN	I	Extended output port data fixed control
91	NC	-	Not used
92	VSS	-	GND
93	SOUT	O	Serial data output to gate array
94	TXX	O	Transmit/receive switch output to gate array. H: Transmit, L: Receive
95	S9600	O	Output of gate array. H: 9600bps, L: 1200bps switch
96	WAY2	O	Output to gate array (Not used)
97	NC	-	Not used
98	LOOP	O	Output to gate array. (H: Loop back test in gate array)
99	PLLNT	O	Output to gate array (PLL lock follow-up)
100	HOSTRTS	O	RTS signal of asynchronous serial communication with host

### Shift Register: BU2099FV (Display unit IC8)

Pin No.	Port Name	Signal name	Function	Active level
6	Q0	TNCWR	TNC flash rewrite switching terminal	L: Rewrite
7	Q1	PKTSW	1200bps/ 9600bps switching	L: ON
8	Q2	TNC_SEL	Switching between packet and APRS mode	L: Packet H: APRS
9	Q3	TNC_CAR	Carrier sense output to TNC(carrier information of transmit band)	L: With carrier H: No carrier
10	Q4	SQCOUT	Squelch status output to TNC	L: Receive H: Transmit
11	Q5	32K_SW	Control of adjustment mode of RTC crystal	L
12	Q6	S5M_C	RS-232C driver power supply control	L
13	Q7	TNC_PSW	TNC power supply control output	L
14	Q8	-	Not used	
15	Q9	LCD_SW	LCD drive power supply switch (V3)	
16	Q10	-	Not used	
17	Q11	-	Not used	

## COMPONENTS DESCRIPTION

### DISPLAY UNIT (X54-3620-01)

Ref. No.	Use / Function	Operation / Condition / Compatibility
IC1	Panel MPU	
IC2	EEPROM	
IC3	Voltage detection	Reset voltage for panel MPU
IC4	Buffer	RXD to TX-RX unit
IC5	Buffer	TXD to TX-RX unit
IC6	5V AVR	5V
IC7	RS-232C driver	for COM Port
IC8	Output expander	12bit serial input/ Parallel output
IC10	OP amplifier	RX data buffer
IC11	TNC MPU	
IC12	TNC ASIC	
IC13	S-RAM	
IC14	Voltage detection	Reset voltage for TNC MPU
IC15	Input NAND gate	TNC MPU reset control
IC16	Flip flop	1/2 Dividing frequency
IC17	Comparator	RX data
IC18	Comparator	RX 1200bps
IC19	Switching	TX1200bps/ TX9600bps
IC20	D/A converter	Port 1:TX data, Port 2:RX data
IC21	Buffer	SQC IN to TX-RX unit
IC22	OP amplifier	RX data LPF
IC23	RS-232C driver	for GPS port
IC24	Voltage detection	INT voltage for panel MPU
IC25	RTC	Timer
IC26	Switching	for buzzer circuit control
Q1	Switching	SW5V for LCD and Variable resistor volume
Q2	Switching	SW5V for RS-232C driver IC
Q3	Switching	SW5V for TNC ASIC and TNC MPU
Q4	Switching	Amber LED 10V control
Q5	Switching	10V for Amber LED
Q6	Switching	Green LED 10V control
Q7	Switching	10V for Green LED
Q9	Switching	SW5V for RTC IC
Q10	Switching	PKSOUT control
Q11	Switching	TNC MPU flash rewrite
Q12	Filter	RX 1200bps data
Q13	Filter	RX 9600bps data
Q14	Filter	RX 1200bps data
Q15	Filter	RX 1200bps data
Q16	Switching	PKTSW control
Q22	Switching	10V control
Q24	Switching	Beep control
D1	Reverse current prevention	10V AVR input

Ref. No.	Use / Function	Operation / Condition / Compatibility
D2	Reverse current prevention	for backup power supply control
D3	Reverse current prevention	for backup charge control
D4	Reverse current prevention	for backup battery
D5	Reverse current prevention	10V power supply
D6	Reverse current prevention	5V power supply
D8~29	Over voltage prevention	Prevent surge voltage
D30~32	LED	Amber
D33~35	LED	Green
D36,38	LED	Amber
D39,41, D44,45	LED	Green
D46~48	LED	Amber
D49~51	LED	Green
D52~54	LED	Amber
D55~57	LED	Green
D58~60	LED	Amber
D61~63	LED	Green
D64~66	LED	Amber
D67~69	LED	Green
D70~72	LED	Amber
D73~75	LED	Green
D76~78	LED	Amber
D79~81	LED	Green
D82~84	LED	Amber
D85~87	LED	Green
D88~90	LED	Amber
D91~93	LED	Green
D94~96	LED	Amber
D97~99	LED	Green
D100~102	LED	Amber
D103~105	LED	Green
D106~108	LED	Amber
D109~111	LED	Green
D112~114	LED	Amber
D115~117	LED	Green
D118~120	LED	Amber
D121~123	LED	Green
D124~126	LED	Amber
D127~129	LED	Green
D130~132	LED	Amber
D133~135	LED	Green
D136~138	LED	Amber
D139~141	LED	Green

## TERMINAL FUNCTION

### DISPLAY UNIT (X54-3620-01)

Pin No.	Name	I/O	Function
<b>CN1 (for LCD)</b>			
1	NC	-	No connection
2	VDI	-	VDD bypass
3	VDD	-	Switched 5V
4	VDIS	-	LCD multi-level power supply control
5	CS	I	Chip select
6	RES	I	Reset
7	A0	I	Address
8	WR	I	Write/ Read select
9	RD	I	Data bus select
10	D0	I/O	8bit MPU data bus
11	D1	I/O	8bit MPU data bus
12	D2	I/O	8bit MPU data bus
13	D3	I/O	8bit MPU data bus
14	D4	I/O	8bit MPU data bus
15	D5	I/O	8bit MPU data bus
16	D6	I/O	8bit MPU data bus
17	D7	I/O	8bit MPU data bus
18	VDI	-	VDD bypass
19	VDD	-	Switched 5V
20	NC	-	No connection
21	VSS	-	GND
22	NC	-	No connection
23	VDD	-	Switched 5V
24	NC	-	No connection
25	VDD2	-	Switched 5V
26	NC	-	No connection
27	VOUT	O	Output pin for step-up
28	NC	-	No connection
29	CAP1+	O	For step-up capacitor
30	CAP1-	O	For step-up capacitor
31	CAP2-	O	For step-up capacitor
32	CAP2+	O	For step-up capacitor
33	V3	-	LCD multi-level power supply
34	V2	-	LCD multi-level power supply
35	V1	-	LCD multi-level power supply

Pin No.	Name	I/O	Function
36	VC	-	LCD multi-level power supply
37	MV1	-	LCD multi-level power supply
38	MV2	-	LCD multi-level power supply
39	VSS	-	GND
40	SVD2	O	NC (Thermal sensor)
<b>CN2</b>			
1	GND	-	GND
2	SW5V	O	Switched 5V
3	KEY12	I	Volume key signal (Band A)
4	VOL_A	I	AF volume voltage (Band A)
5	SQL_A	I	SQL volume voltage (Band A)
<b>CN3</b>			
1	GND	-	GND
2	SW5V	O	Switched 5V
3	KEY13	I	Volume key signal (Band B)
4	VOL_B	I	AF volume voltage (Band B)
5	SQL_B	I	SQL volume voltage (Band B)
<b>CN4</b>			
1	PRI	I	TNC data input
2	10V	I	+10V
3	GND	-	GND
4	TXD	I	Serial data input
5	PKS	O	Data standby control signal output
6	PKD	O	TNC data output
7	RXD	O	Serial data output
8	SQC	I	Squelch control signal input
<b>CN5 (for backup battery)</b>			
1	+	-	Battery +
2	GND	-	GND
<b>CN11</b>			
1	GND	-	GND
2	SW5V	I	Switched 5V
3	KEY12	O	Volume key signal (Band A)
4	VOL_A	O	AF volume voltage (Band A)
5	SQL_A	O	SQL volume voltage (Band A)
<b>CN12</b>			
1	GND	-	GND



## TERMINAL FUNCTION

Pin No.	Name	I/O	Function
2	SW5V	I	Switched 5V
3	KEY13	O	Volume key signal (Band B)
4	VOL_B	O	AF volume voltage (Band B)
5	SQL_B	O	SQL volume voltage (Band B)
<b>CN13</b>			
1	PRI	O	TNC data output
2	10V	O	+10V
3	GND	-	GND
4	TXD	O	Serial data output
5	PKS	I	Data standby control signal input
6	PKD	I	TNC data input
7	RXD	I	Serial data input
8	SQC	O	Squelch control signal output
<b>J1 (Panel jack)</b>			
1	SQC	I	Squelch control signal input
2	RXD	O	Serial data output
3	PKD	O	TNC data output
4	PKS	O	Data standby control signal output

Pin No.	Name	I/O	Function
5	TXD	I	Serial data input
6	GND	-	GND
7	10V	I	+10V
8	PRI	I	TNC data input
<b>J2 (COM terminal)</b>			
1	RTS	O	Request to send
2	CTS	I	Clear to send
3	TXD	O	Transmit data
4	GND	-	GND
5	RXD	I	Receive data
6	NC	-	No connection
7	NC	-	No connection
8	NC	-	No connection
<b>J3 (GPS jack)</b>			
1	GND	-	GND
2	TXD	O	GPS receiver command output
3	RXD	I	GPS measurement data input

# RC-D710

## PARTS LIST

\* New Parts. Δ indicates safety critical components.

Parts without **Parts No.** are not supplied.

Les articles non mentionnés dans le **Parts No.** ne sont pas fournis.

Teile ohne **Parts No.** werden nicht geliefert.

L : Scandinavia

Y : PX (Far East, Hawaii)

Y : AAFES (Europe)

K : USA

T : England

X : Australia

P : Canada

E : Europe

M : Other Areas

### RC-D710 (Y62-5670-60)

#### DISPLAY UNIT (X54-3620-01)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
<b>RC-D710</b>						D38			B30-2281-05	LED (Y)	
1	3B		A62-1159-01	PANEL (FRONT)		D39			B30-2293-05	LED (YG)	
2	1B		A82-0072-11	REAR PANEL		D41			B30-2293-05	LED (YG)	
4	3A	*	B10-2783-02	FRONT GLASS		D42,43			B30-2290-05	LED (G/Y)	
5	3A		B11-1856-03	ILLUMINATION GUIDE (ENC)		D44,45			B30-2293-05	LED (YG)	
6	2A		B11-1858-03	ILLUMINATION GUIDE (LCD)		D46-48			B30-2290-05	LED (G/Y)	
7	2A		B38-0926-05	LCD		D49-51			B30-2293-05	LED (YG)	
8	3A		B43-1611-04	BADGE		D52-54			B30-2290-05	LED (G/Y)	
9	1C	*	B62-2003-00	INSTRUCTION MANUAL (4-LANGUAGES)		D55-57			B30-2293-05	LED (YG)	
10	1C	*	B62-2004-00	INSTRUCTION MANUAL (4-LANGUAGES)		D58-60			B30-2290-05	LED (G/Y)	
12	2C		E30-3400-05	CORD WITH PLUG (GPS) ACCESSORY		D61-63			B30-2293-05	LED (YG)	
13	2C		E30-7639-05	MODULAR CABLE (4m) ACCESSORY		D64-66			B30-2290-05	LED (G/Y)	
15	2A		F20-1186-14	INSULATING SHEET (LCD-IC)		D67-69			B30-2293-05	LED (YG)	
17	3A		G09-0405-05	KNOB SPRING (ENC)		D70-72			B30-2290-05	LED (G/Y)	
18	1B		G10-1374-04	FIBROUS SHEET (MODULAR JACK)		D73-75			B30-2293-05	LED (YG)	
19	2C		G11-4228-04	SHEET (BRACKET) ACCESSORY		D76-78			B30-2290-05	LED (G/Y)	
20	3A		G11-4430-03	SHEET (FRONT GLASS)		D79-81			B30-2293-05	LED (YG)	
21	1B		G11-4431-04	SHEET (PCB-REAR PANEL)		D82-84			B30-2290-05	LED (G/Y)	
22	2C		G11-4438-04	SHEET (STAND) ACCESSORY		D85-87			B30-2293-05	LED (YG)	
23	2A		G11-4445-04	SHEET (LCD-IC)		D88-90			B30-2290-05	LED (G/Y)	
24	3B		G13-2221-04	CUSHION (FRONT PANEL)		D91-93			B30-2293-05	LED (YG)	
25	2A,2B		G13-2222-04	CUSHION (3KEY)		D94-96			B30-2290-05	LED (G/Y)	
26	2B		G13-2229-04	CUSHION (7KEY)		D97-99			B30-2293-05	LED (YG)	
27	1B		G13-2230-04	CUSHION (MODULAR JACK)		D100-102			B30-2290-05	LED (G/Y)	
28	2C		G13-2233-04	CUSHION (BRACKET) ACCESSORY		D103-105			B30-2293-05	LED (YG)	
30	2C		J09-0409-03	STAND ACCESSORY		D106-108			B30-2290-05	LED (G/Y)	
31	2A	*	J21-8580-13	MOUNTING HARDWARE (LCD)		D109-111			B30-2293-05	LED (YG)	
32	2C		J29-0663-13	BRACKET ACCESSORY		D112-114			B30-2290-05	LED (G/Y)	
33	2C		J29-0707-03	BRACKET ACCESSORY		D115-117			B30-2293-05	LED (YG)	
35	3A		K29-9377-03	KNOB (VOL)		D118-120			B30-2290-05	LED (G/Y)	
36	3A		K29-9380-03	KNOB (SQL)		D121-123			B30-2293-05	LED (YG)	
37	3A		K29-9409-03	KNOB (ENC)		D124-126			B30-2290-05	LED (G/Y)	
38	2B		K29-9410-02	BUTTON KNOB (3KEY-L)		D127-129			B30-2293-05	LED (YG)	
39	3B		K29-9411-02	BUTTON KNOB (3KEY-R)		D130-132			B30-2290-05	LED (G/Y)	
40	3B		K29-9412-02	BUTTON KNOB (7KEY)		D133-135			B30-2293-05	LED (YG)	
42	2C		L79-1417-05	LINE FILTER ACCESSORY		D136-138			B30-2290-05	LED (G/Y)	
A	1B		N09-6555-05	TAPTITE SCREW (REAR PANEL)		D139-141			B30-2293-05	LED (YG)	
B	3A		N14-0830-14	CIRCULAR NUT (VOL)		C1			CE32CL1HR47M	CHIP EL	0.47UF 50WV
C	3A		N14-0845-04	CIRCULAR NUT (ENC)		C2			CE32BF1E101M	CHIP EL	100UF 25WV
D	1B,2B		N80-2008-48	PAN HEAD TAPTITE SCREW (PCB)		C3-5			CE32CL1C100M	CHIP EL	10UF 16WV
44	2C		N99-2055-05	SCREW SET ACCESSORY		C6			CE32BM1C101M	CHIP EL	100UF 16WV
46	1C	*	T93-0134-05	CD-ROM (I/M) ACCESSORY		C7			CE32CL1C100M	CHIP EL	10UF 16WV
48	2B		W09-0971-05	LITHIUM CELL (PCB)		C8			CK73GB1H122K	CHIP C	1200PF K
<b>DISPLAY UNIT (X54-3620-01)</b>						C11			CK73GB1H471K	CHIP C	470PF K
D30-32			B30-2290-05	LED (G/Y)		C12,13			CK73GB1E104K	CHIP C	0.10UF K
D33-35			B30-2293-05	LED (YG)		C14			CK73GB1E105K	CHIP C	1.0UF K
D36			B30-2281-05	LED (Y)		C15			CK73HB1A104K	CHIP C	0.10UF K
						C16			CC73GCH1H101J	CHIP C	100PF J
						C17,18			CK73HB1A104K	CHIP C	0.10UF K
						C19			CK73GB1H471K	CHIP C	470PF K
						C20-22			CC73GCH1H101J	CHIP C	100PF J
						C23			CK73HB1H102K	CHIP C	1000PF K
						C24,25			CK73HB1A104K	CHIP C	0.10UF K
						C26			CK73HB1H102K	CHIP C	1000PF K
						C27,28			CC73GCH1H220J	CHIP C	22PF J

## PARTS LIST

DISPLAY UNIT (X54-3620-01)

Ref. No.	Address	New parts	Parts No.	Description	Desti-nation	Ref. No.	Address	New parts	Parts No.	Description	Desti-nation
C29			CK73HB1H471K	CHIP C 470PF K		C138			CK73GB1H102K	CHIP C 1000PF K	
C30-32			CK73HB1A104K	CHIP C 0.10UF K		C139			CK73GB1H221K	CHIP C 220PF K	
C33			CK73HB1H102K	CHIP C 1000PF K		C140			CK73HB1A104K	CHIP C 0.10UF K	
C34			CK73HB1A104K	CHIP C 0.10UF K		C141			CK73HB1E103K	CHIP C 0.010UF K	
C35			CK73HB1H471K	CHIP C 470PF K		C142			CK73HB1H102K	CHIP C 1000PF K	
C36			CK73HB1A104K	CHIP C 0.10UF K		C143			CK73GB1E105K	CHIP C 1.0UF K	
C37			CK73GB1A105K	CHIP C 1.0UF K		C144,145			CK73GB1C223K	CHIP C 0.022UF K	
C38			CK73HB1A104K	CHIP C 0.10UF K		C146			CK73GB1H682K	CHIP C 6800PF K	
C39,40			CC73GCH1H101J	CHIP C 100PF J		C147			CK73GB1C223K	CHIP C 0.022UF K	
C41-43			CK73HB1A104K	CHIP C 0.10UF K		C148			CK73GB1H682K	CHIP C 6800PF K	
C44			CK73HB1H471K	CHIP C 470PF K		C149			CK73GB1E103K	CHIP C 0.010UF K	
C45			CK73GB1A105K	CHIP C 1.0UF K		C150			CK73HB1H471K	CHIP C 470PF K	
C46-49			CK73GB1C104K	CHIP C 0.10UF K		C151			CK73HB1A104K	CHIP C 0.10UF K	
C50-53			CC73GCH1H101J	CHIP C 100PF J		C160,161			CK73FB1C105K	CHIP C 1.0UF K	
C54			CK73HB1A104K	CHIP C 0.10UF K		C162			CK73GB1E104K	CHIP C 0.10UF K	
C55			CC73GCH1H820J	CHIP C 82PF J		CN1			E40-6759-05	FLAT CABLE CONNECTOR	
C56			CK73HB1A104K	CHIP C 0.10UF K		CN2,3			E40-6708-05	PIN ASSY	
C57			CK73FB1A475K	CHIP C 4.7UF K		CN4			E40-6765-05	PIN ASSY	
C58			CK73GB1C104K	CHIP C 0.10UF K		CN11,12			E40-6710-05	PIN ASSY	
C59-61			CK73HB1A104K	CHIP C 0.10UF K		CN13			E40-6766-05	PIN ASSY	
C62			CK73GB1H104K	CHIP C 0.10UF K		J1			E58-0522-05	MODULAR JACK	
C63			CK73GB1E105K	CHIP C 1.0UF K		J2			E56-0419-05	DIN SOCKET	
C64			CK73GB1H104K	CHIP C 0.10UF K		J3			E11-0709-05	2.5D PHONE JACK	
C65			CK73GB1E105K	CHIP C 1.0UF K		CN5			J19-5386-05	HOLDER (LITHIUM CELL)	
C66			CK73GB1H104K	CHIP C 0.10UF K		L1-3			L92-0138-05	CHIP FERRITE	
C67-79			CK73GB1E105K	CHIP C 1.0UF K		L4			L33-1990-05	CHOKE COIL	
C80			CK73HB1A104K	CHIP C 0.10UF K		L11			L41-4795-33	SMALL FIXED INDUCTOR (4.7UH)	
C81			CK73HB1H471K	CHIP C 470PF K		L12-18			L92-0140-05	CHIP FERRITE	
C82			CK73HB1E472K	CHIP C 4700PF K		X1			L77-1950-05	CRYSTAL RESONATOR (11.0592MHZ)	
C83			CK73HB1H471K	CHIP C 470PF K		X2			L77-1802-05	CRYSTAL RESONATOR (32768HZ)	
C84			CK73HB1E472K	CHIP C 4700PF K		X3			L77-3031-05	CRYSTAL RESONATOR (15.9744MHZ)	
C85-98			CK73HB1H471K	CHIP C 470PF K		CP1			RK74HB1J102J	CHIP-COM 1.0K J 1/16W	
C99			CK73GB1E105K	CHIP C 1.0UF K		CP2			RK74HB1J473J	CHIP-COM 47K J 1/16W	
C100			CC73HCH1H101J	CHIP C 100PF J		CP3			RK75HA1J473J	CHIP-COM 47K J 1/16W	
C101			CK73HB1A104K	CHIP C 0.10UF K		CP4			RK75HA1J103J	CHIP-COM 10K J 1/16W	
C102			CK73HB1H102K	CHIP C 1000PF K		CP5,6			RK74HB1J102J	CHIP-COM 1.0K J 1/16W	
C103,104			CK73HB1A104K	CHIP C 0.10UF K		CP7			RK74HB1J473J	CHIP-COM 47K J 1/16W	
C105			CK73HB1H102K	CHIP C 1000PF K		CP10-13			RK74HB1J473J	CHIP-COM 47K J 1/16W	
C106			CK73HB1A104K	CHIP C 0.10UF K		R1,2			RK73HB1J333J	CHIP R 33K J 1/16W	
C107,108			CC73GCH1H090B	CHIP C 9.0PF B		R3,4			RK73HB1J473J	CHIP R 47K J 1/16W	
C109			CK73HB1H102K	CHIP C 1000PF K		R5			RK73HB1J334J	CHIP R 330K J 1/16W	
C110			CK73HB1A104K	CHIP C 0.10UF K		R6,7			RK73GH2A393D	CHIP R 39K D 1/10W	
C112-114			CK73HB1A104K	CHIP C 0.10UF K		R8			RK73HB1J394J	CHIP R 390K J 1/16W	
C115			CK73HB1H102K	CHIP C 1000PF K		R9			RK73HB1J102J	CHIP R 1.0K J 1/16W	
C116,117			CK73HB1A104K	CHIP C 0.10UF K		R10			RK73HB1J000J	CHIP R 0.0 J 1/16W	
C118			CK73HB1H102K	CHIP C 1000PF K		R11			RK73HB1J103J	CHIP R 10K J 1/16W	
C119,120			CK73HB1A104K	CHIP C 0.10UF K		R12			RK73HB1J333J	CHIP R 33K J 1/16W	
C121			CK73GB1C683K	CHIP C 0.068UF K		R14-16			RK73HB1J103J	CHIP R 10K J 1/16W	
C122,123			CK73GB1H152K	CHIP C 1500PF K		R17			RK73HB1J101J	CHIP R 100 J 1/16W	
C124,125			CK73HB1A104K	CHIP C 0.10UF K		R18,19			RK73HB1J102J	CHIP R 1.0K J 1/16W	
C126,127			CC73GCH1H040C	CHIP C 4.0PF C		R20			RK73HB1J101J	CHIP R 100 J 1/16W	
C128			CK73HB1A104K	CHIP C 0.10UF K		R21-26			RK73HB1J102J	CHIP R 1.0K J 1/16W	
C129,130			CK73GB1E105K	CHIP C 1.0UF K		R27,28			RK73HB1J103J	CHIP R 10K J 1/16W	
C131			CC73HCH1H101J	CHIP C 100PF J		R29			RK73HB1J473J	CHIP R 47K J 1/16W	
C132			CK73HB1E472K	CHIP C 4700PF K		R30			RK73HB1J102J	CHIP R 1.0K J 1/16W	
C133			CK73HB1H471K	CHIP C 470PF K		R31-34			RK73GB2A101J	CHIP R 100 J 1/10W	
C134			CK73HB1H102K	CHIP C 1000PF K		R35			RK73GB2A000J	CHIP R 0.0 J 1/10W	
C135			CK73GB1H682K	CHIP C 6800PF K		R36-39			RK73HB1J102J	CHIP R 1.0K J 1/16W	
C136			CK73GB1H103K	CHIP C 0.010UF K							
C137			CK73GB1H222K	CHIP C 2200PF K							

## PARTS LIST

### DISPLAY UNIT (X54-3620-01)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
R40,41			RK73HB1J473J	CHIP R 47K J 1/16W		R152			RK73HB1J272J	CHIP R 27K J 1/16W	
R42			RK73HB1J102J	CHIP R 1.0K J 1/16W		R153			RK73HB1J273J	CHIP R 27K J 1/16W	
R43			RK73HB1J473J	CHIP R 47K J 1/16W		R154			RK73HB1J223J	CHIP R 22K J 1/16W	
R44			RK73HB1J102J	CHIP R 1.0K J 1/16W		R155			RK73HB1J273J	CHIP R 27K J 1/16W	
R45			RK73HB1J473J	CHIP R 47K J 1/16W		R160,161			RK73HB1J102J	CHIP R 1.0K J 1/16W	
R46,47			RK73HB1J102J	CHIP R 1.0K J 1/16W		R162			RK73HB1J273J	CHIP R 27K J 1/16W	
R48,49			RK73GB2A101J	CHIP R 100 J 1/10W		R163			RK73HB1J104J	CHIP R 100K J 1/16W	
R50,51			RK73HB1J102J	CHIP R 1.0K J 1/16W		R164			RK73HB1J103J	CHIP R 10K J 1/16W	
R52			RK73HB1J222J	CHIP R 2.2K J 1/16W		R165			RK73HB1J473J	CHIP R 47K J 1/16W	
R53			RK73HB1J102J	CHIP R 1.0K J 1/16W		R166-173			RK73GB2A271J	CHIP R 270 J 1/10W	
R54			RK73HB1J473J	CHIP R 47K J 1/16W		R175,176			RK73HB1J473J	CHIP R 47K J 1/16W	
R55			RK73HB1J122J	CHIP R 1.2K J 1/16W		R179			RK73HB1J473J	CHIP R 47K J 1/16W	
R56			RK73HB1J821J	CHIP R 820 J 1/16W		R180			RK73HB1J472J	CHIP R 4.7K J 1/16W	
R57			RK73HB1J000J	CHIP R 0.0 J 1/16W		R181			RK73HB1J473J	CHIP R 47K J 1/16W	
R58,59			RK73EB2E102J	CHIP R 1.0K J 1/4W		R182			RK73FB2B221J	CHIP R 220 J 1/8W	
R60			RK73FB2B102J	CHIP R 1.0K J 1/8W		R183			RK73FB2B122J	CHIP R 1.2K J 1/8W	
R61			RK73HB1J000J	CHIP R 0.0 J 1/16W		R184			RK73HB1J103J	CHIP R 10K J 1/16W	
R62,63			RK73EB2E102J	CHIP R 1.0K J 1/4W		R185			RK73HB1J473J	CHIP R 47K J 1/16W	
R64			RK73FB2B102J	CHIP R 1.0K J 1/8W		R186			RK73HB1J333J	CHIP R 33K J 1/16W	
R65,66			RK73GB2A271J	CHIP R 270 J 1/10W		R273			RK73FB2B121J	CHIP R 120 J 1/8W	
R69,70			RK73FB2B121J	CHIP R 120 J 1/8W		R275			RK73HB1J154J	CHIP R 150K J 1/16W	
R71,72			RK73FB2B471J	CHIP R 470 J 1/8W		VR1,2			R31-0629-15	VARIABLE RESISTOR	
R74			RK73FB2B121J	CHIP R 120 J 1/8W		S11-23			S70-0439-15	TACT SWITCH	
R75,76			RK73FB2B471J	CHIP R 470 J 1/8W		BZ1		*	T95-0074-05	PIEZOELECTRIC VIBRATOR	
R77-100			RK73GB2A271J	CHIP R 270 J 1/10W		D1			1SR154-400	DIODE	
R101			RK73HB1J103J	CHIP R 10K J 1/16W		D2,3			1SS388F	DIODE	
R102,103			RK73HB1J000J	CHIP R 0.0 J 1/16W		D4			1SS400	DIODE	
R104-107			RK73HB1J103J	CHIP R 10K J 1/16W		D5,6			1SS388F	DIODE	
R108,109			RK73HB1J000J	CHIP R 0.0 J 1/16W		D8-29			DA221	DIODE	
R111			RK73HB1J101J	CHIP R 100 J 1/16W		IC1		*	30626FHPGKBOXF	MICROPROCESSOR IC	
R112			RK73HB1J103J	CHIP R 10K J 1/16W		IC2			AT25256A10TU27	ROM IC	
R113			RK73HB1J102J	CHIP R 1.0K J 1/16W		IC3			BD4840FVE	MOS-IC	
R114			RK73HB1J334J	CHIP R 330K J 1/16W		IC4,5			TC4S81F-F	MOS-IC	
R115			RK73GH2A392D	CHIP R 3.9K D 1/10W		IC6			TA4805BF	MOS-IC	
R116			RK73GB2A562J	CHIP R 5.6K J 1/10W		IC7			ADM202EARUZ	MOS-IC	
R117,118			RK73HB1J154J	CHIP R 150K J 1/16W		IC8			BU2099FV	MOS-IC	
R119			RK73HB1J473J	CHIP R 47K J 1/16W		IC10			TA75W01FUF	MOS-IC	
R120			RK73HB1J154J	CHIP R 150K J 1/16W		IC11			3048BTE25KBYB	MICROPROCESSOR IC	
R121			RK73HB1J473J	CHIP R 47K J 1/16W		IC12			TGT0210Q	MOS-IC	
R122			RK73HB1J563J	CHIP R 56K J 1/16W		IC13			R1LP0408CSB5S	SRAM IC	
R123			RK73HB1J104J	CHIP R 100K J 1/16W		IC14			BD4840FVE	MOS-IC	
R124			RK73HB1J154J	CHIP R 150K J 1/16W		IC15			TC7S00FU-F	MOS-IC	
R125-127			RK73HB1J103J	CHIP R 10K J 1/16W		IC16			TC7W74FU-F	MOS-IC	
R128			RK73HB1J332J	CHIP R 3.3K J 1/16W		IC17			TA75W393FU-F	MOS-IC	
R129			RK73HB1J823J	CHIP R 82K J 1/16W		IC18			TA75S393F-F	MOS-IC	
R130			RK73HB1J393J	CHIP R 39K J 1/16W		IC19			TC7W66FK-F	MOS-IC	
R131			RK73HB1J332J	CHIP R 3.3K J 1/16W		IC20			M62364FP-F	MOS-IC	
R132			RK73HB1J103J	CHIP R 10K J 1/16W		IC21			TC4S81F-F	MOS-IC	
R133			RK73HB1J472J	CHIP R 4.7K J 1/16W		IC22			TC75S51F-F	MOS-IC	
R134			RK73HB1J104J	CHIP R 100K J 1/16W		IC23			ADM1101EARMZ	MOS-IC	
R135-138			RK73HB1J103J	CHIP R 10K J 1/16W		IC24			BD4840FVE	MOS-IC	
R139-141			RK73HB1J123J	CHIP R 12K J 1/16W		IC25			RV5C386A	MOS-IC	
R142			RK73HB1J222J	CHIP R 2.2K J 1/16W		IC26			TC4001BFT	MOS-IC	
R143,144			RK73HB1J123J	CHIP R 12K J 1/16W		Q1,2			DTA123JUA	DIGITAL TRANSISTOR	
R145			RK73HB1J332J	CHIP R 3.3K J 1/16W		Q3			2SA1162-F(Y)	TRANSISTOR	
R146			RK73HB1J103J	CHIP R 10K J 1/16W		Q4			DTC144EUA	DIGITAL TRANSISTOR	
R147,148			RK73HB1J223J	CHIP R 22K J 1/16W		Q5			CPH6122	TRANSISTOR	
R149			RK73HB1J103J	CHIP R 10K J 1/16W		Q6			DTC144EUA	DIGITAL TRANSISTOR	
R150			RK73HB1J272J	CHIP R 2.7K J 1/16W							
R151			RK73HB1J273J	CHIP R 27K J 1/16W							

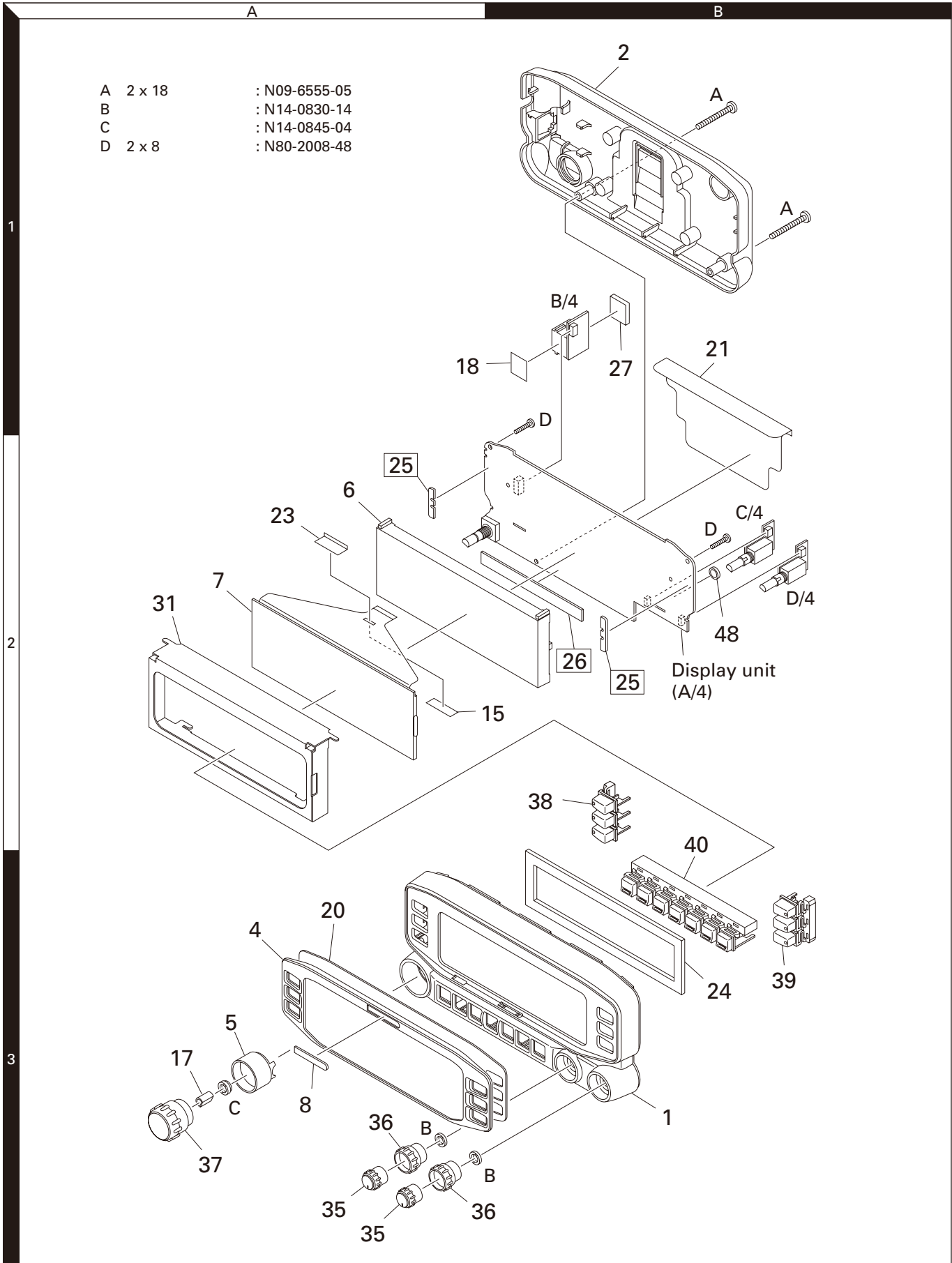
## PARTS LIST

DISPLAY UNIT (X54-3620-01)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
Q7			CPH6122	TRANSISTOR							
Q9			DTA123JUA	DIGITAL TRANSISTOR							
Q10			DTC143EKA	DIGITAL TRANSISTOR							
Q11			DTC144EUA	DIGITAL TRANSISTOR							
Q12,13			2SC4617(R)	TRANSISTOR							
Q14			2SA1774(R)	TRANSISTOR							
Q15			2SC4617(R)	TRANSISTOR							
Q16			2SK1824-A	FET							
Q22			DTA123JUA	DIGITAL TRANSISTOR							
Q24			2SK1824-A	FET							
S1			W02-1978-05	ENCODER							

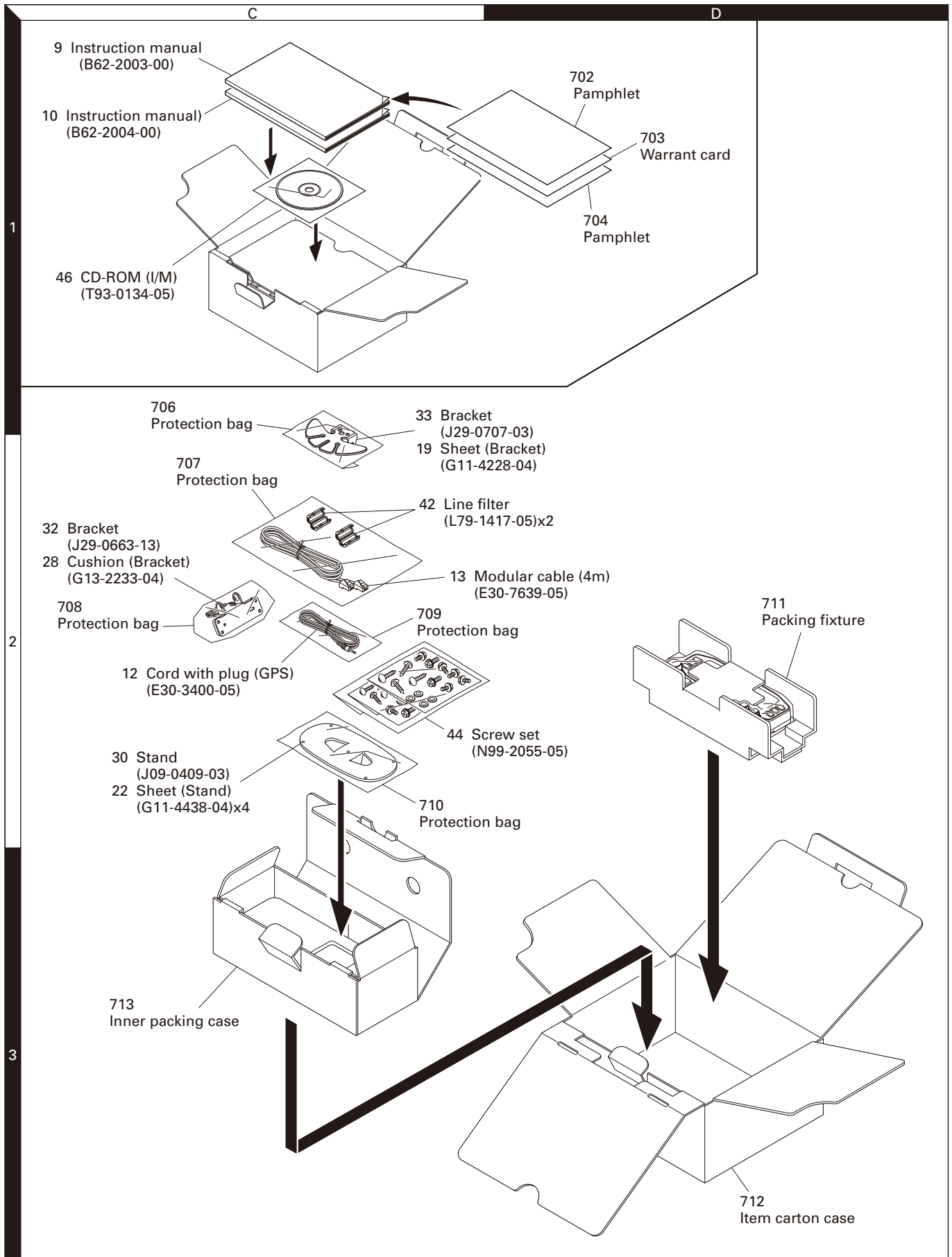
# RC-D710

## EXPLODED VIEW



14 Parts with the exploded numbers larger than 700 are not supplied.  
 If a part reference number is listed in a box on the exploded view of the PCB, that part does not come with the PCB. These parts must be ordered separately.

## PACKING



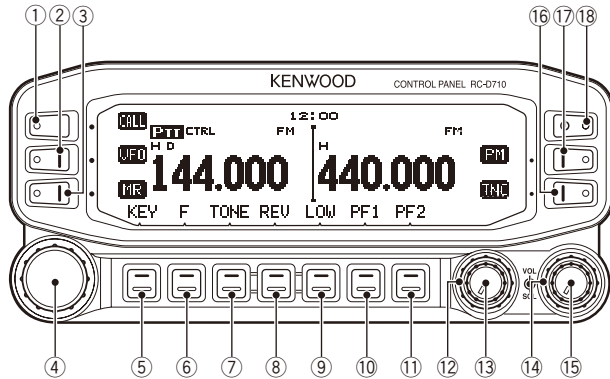
Parts with the exploded numbers larger than 700 are not supplied.

## ADJUSTMENT

### Controls

#### ■ Operation panel (Front)

Key names when the RC-D710 is connected to the main unit of the TM-V71.



- |                  |                          |
|------------------|--------------------------|
| ① CALL           | ⑩ PF1                    |
| ② VFO            | ⑪ PF2                    |
| ③ MR             | ⑫ SQL (Band A)           |
| ④ Tuning control | ⑬ BAND SEL/ VOL (Band A) |
| ⑤ KEY            | ⑭ SQL (Band B)           |
| ⑥ F              | ⑮ BAND SEL/ VOL (Band B) |
| ⑦ TONE           | ⑯ TNC                    |
| ⑧ REV            | ⑰ PM                     |
| ⑨ LOW            | ⑱ Power switch           |

### Panel MPU/TNC MPU Version Check Method

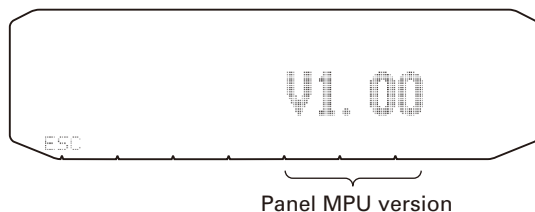
#### ■ Panel MPU version check method

You can confirm the Panel MPU version of the transceiver using its panel keys.

When confirming the version in APRS mode or packet mode and the beacon is transmitted, the version display is cancelled.

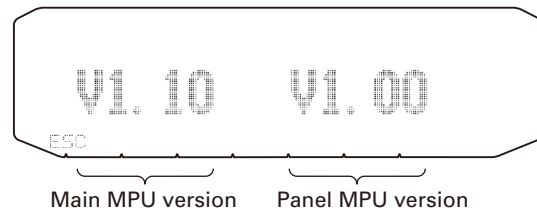
#### • Operation procedure

- 1) Turn the RC-D710 power OFF.
- 2) Turn the RC-D710 power ON while pressing the [PF1] key to enter the version display mode.
- 3) The Panel MPU version is displayed when entering the version display mode.



Panel MPU version

\* When the RC-D710 is connected to the TM-V71 main unit, the Main MPU and Panel MPU versions are displayed.



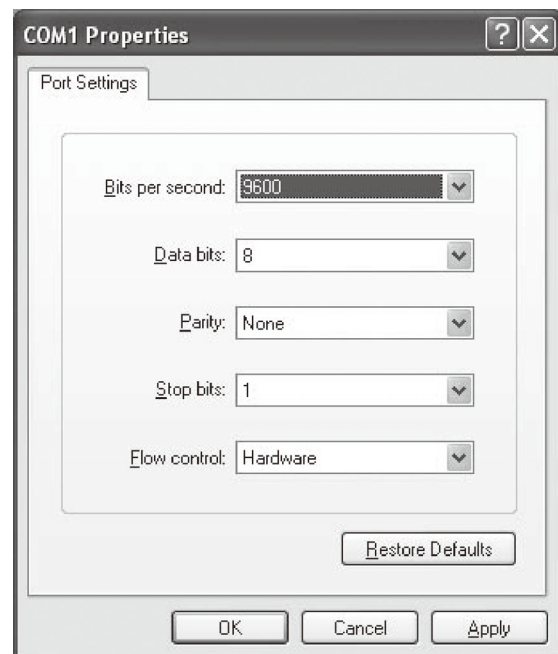
- 4) To exit the version display mode, press the [ESC] key.

#### ■ TNC MPU version check method

After connecting the RC-D710 to the PC via the PG-5G (programming cable), you can confirm the TNC MPU version by accessing the personal computer communication software.

#### • Operation procedure

- 1) Turn the RC-D710 power OFF.
- 2) Connect the RS-232C serial port of the PC to the COM terminal on the rear of the operation panel via the PG-5G (Programming cable).
- 3) Turn the RC-D710 power ON.
- 4) Run the personal computer communication software. The method of operating personal computer communication software "HyperTerminal" attached to Windows is described here as an example.
- 5) Click the "Start" button on the PC, and then select the software as follows: "Programs" → "Accessories" → "Communications" → "HyperTerminal"
- 6) The HyperTerminal starts, and the "Connection Description" window is displayed.
- 7) Input the name that you want to use, in the "Name" column, then click "OK".
- 8) Change the COM Port of the "Connect using" setting if necessary. (For example, select COM1.)
- 9) After selecting "OK" on the "Connect To" window, the "COM1 Properties" window is displayed.





## ADJUSTMENT

- 10) Confirm the COM terminal baud rate speed set to the RC-D710 by following these steps:
  - (1) Press the [F] key, then press the Tuning control.
  - (2) Select "AUX" by turning the Tuning control.
  - (3) Press the Tuning control to display the AUX menu.
  - (4) Turn the Tuning control to select menu number 528 (COM PORT BAUDRATE). The baud rate is displayed.
  - (5) Press the [ESC] key to exit menu mode.
- 11) Select the confirmed baud rate (from step 10, above) from the "Bits per second" pull-down menu on the "COM1 Properties" window.
- 12) Click "OK" on the "COM1 Properties" window. The "HyperTerminal" window is displayed.
- 13) Press the [TNC] key on the operation panel. "APRS 12 OPENING TNC" will appear on the display for approximately 1 second, followed by "APRS12". Press the [TNC] key again to enter the packet mode. The TNC MPU version is displayed on the HyperTerminal window.
 

Kenwood Radio Modem  
 AX.25 Level 2 Version 2.0  
 Release 23/Jun/07 3Chip ver 1.00  
 Checksum \$FD16  
 cmd:DA 070702113600  
 cmd:HB 1200  
 HBAUD was 1200  
 cmd:

TNC MPU version
- 14) To exit the packet mode, press the [TNC] key.

### Panel Adjustment Mode

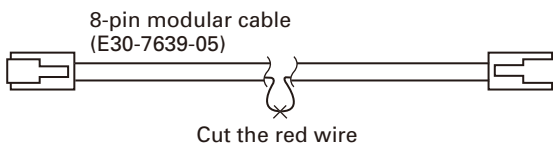
When the following parts are replaced, enter the panel adjustment mode and adjust the RTC (Clock function) clock frequency, and the LCD contrast.

Adjustment Items	Ref. No.	Parts No.	Parts Name
RTC Frequency	IC2	AT25256A10TU27	EEPROM
	IC25	RV5C386A	RTC IC
	X2	L77-1802-05	Crystal resonator
LCD Contrast	IC2	AT25256A10TU27	EEPROM
	-	B38-0926-05	LCD ASSY

### Preparation

The 8-pin modular cable (E30-7639-05) for connecting the RC-D710 to the transceiver main unit should be modified in order to enter the panel adjustment mode.

Cut the red wire in the cable with a nipper.



### How to enter the Panel Adjustment Mode

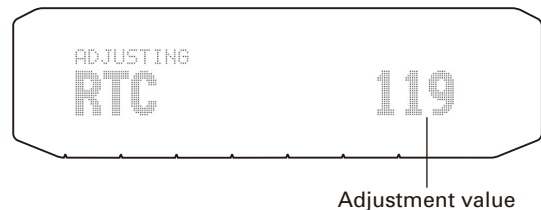
1. Connect the modified 8-pin modular cable between the RC-D710 and the transceiver main unit.
2. Turn the RC-D710 power ON while pressing the [KEY] and [REV] keys to enter the panel adjustment mode.
3. The LCD is fully lit up in the panel adjustment mode.

**Note:** To exit the panel adjustment mode, turn the RC-D710 power OFF.

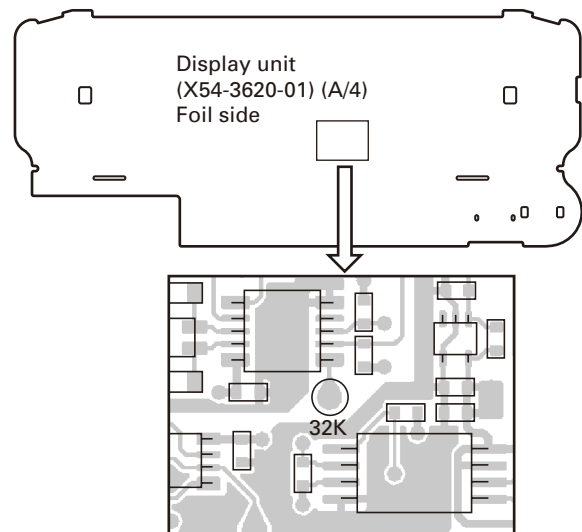
### Adjustment Procedure

#### 1. RTC Frequency Adjustment

- 1) Remove the 2 screws of the RC-D710 rear panel.
- 2) Remove the rear panel and sheet (G11-4431-04).
- 3) The LCD is fully lit when entering the panel adjustment mode according to the operating procedure of "How to enter the panel adjustment mode" described above.
- 4) Press the [KEY] key to display the RTC frequency adjustment screen.



- 5) Measure the output oscillating frequency from the "32K" land on the foil side of the display unit (X54-362) with a frequency counter.



- 6) Turn the Tuning control in order to set an adjustment value corresponding to the oscillating frequency measured referring to the table shown below. (For example, set the adjustment value to 113 if the measured oscillating frequency is 32767.300Hz.)

## ADJUSTMENT

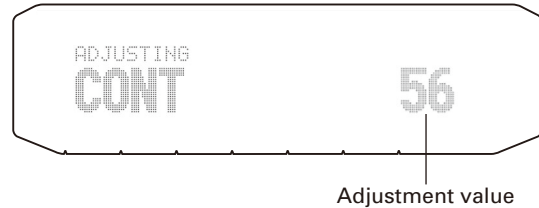
7) Press the Tuning control to write the adjustment value to the EEPROM.

**Note:** The oscillating frequency does not change even after adjusting the RTC frequency.

Clock Frequency (Hz)	Adjustment Value
32766.500 ~ 32766.999	108
32767.000 ~ 32767.499	113
32767.500 ~ 32768.250	119
32768.251 ~ 32768.750	126
32768.751 ~ 32769.250	3

### 2. LCD Contrast Adjustment

- 1) The LCD is fully lit when entering the panel adjustment mode according to the operating procedure of "How to enter the panel adjustment mode" described on page 17.
- 2) Press the [F] key to display the LCD contrast adjustment screen.

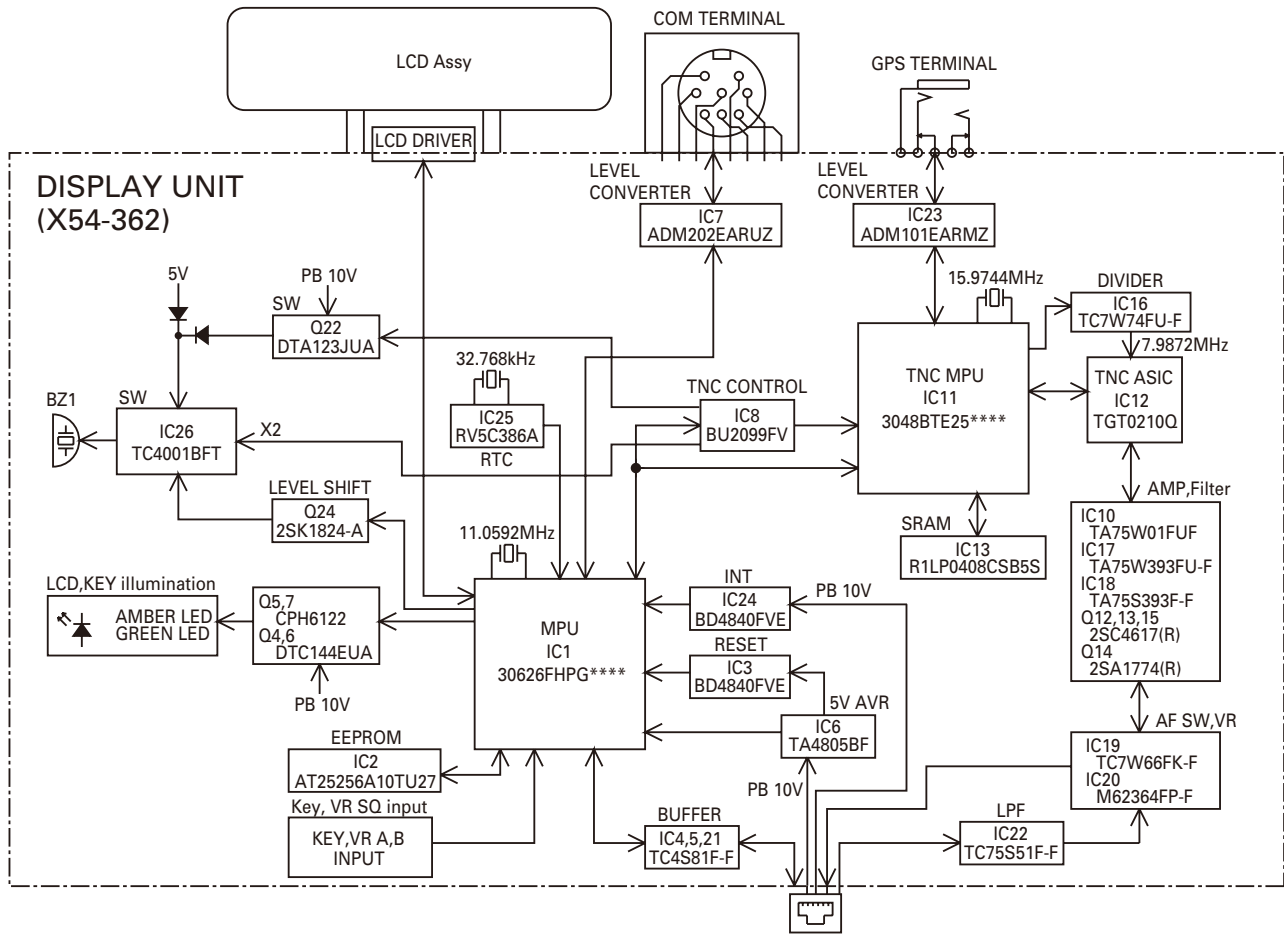


- 3) Turn the Tuning control to set the adjustment value to 53. At this time, confirm that no vertical stripes are displayed on the LCD.



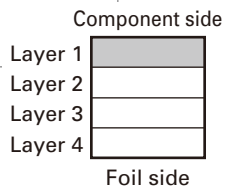
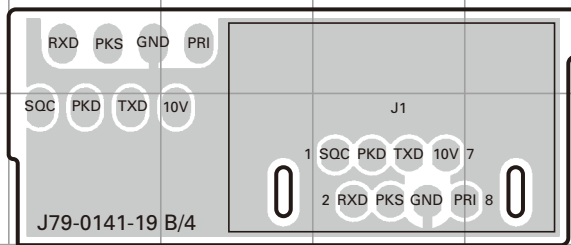
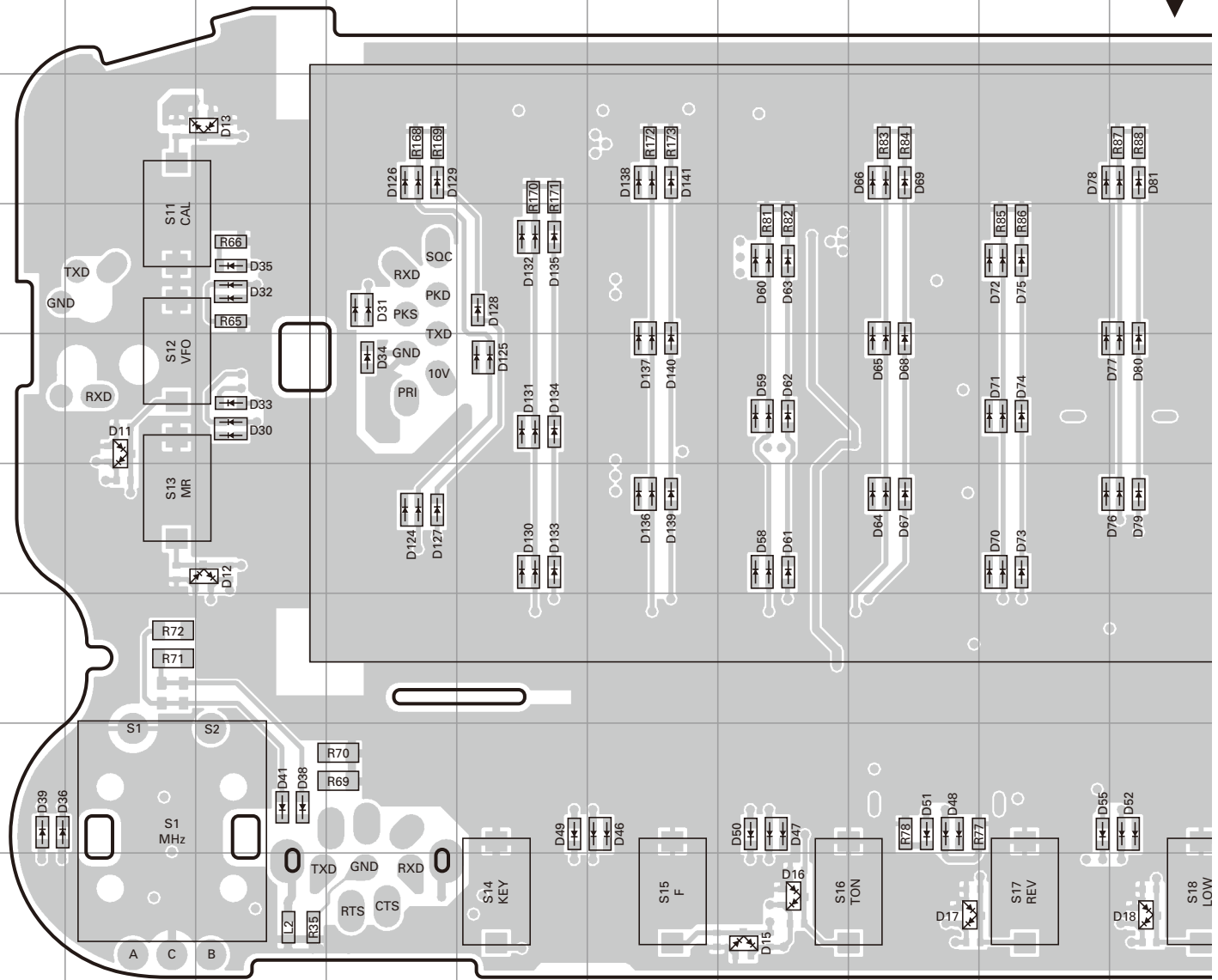
- 4) Press the Tuning control to write the adjustment value to the EEPROM.

## BLOCK DIAGRAM



# RC-D710 PC BOARD

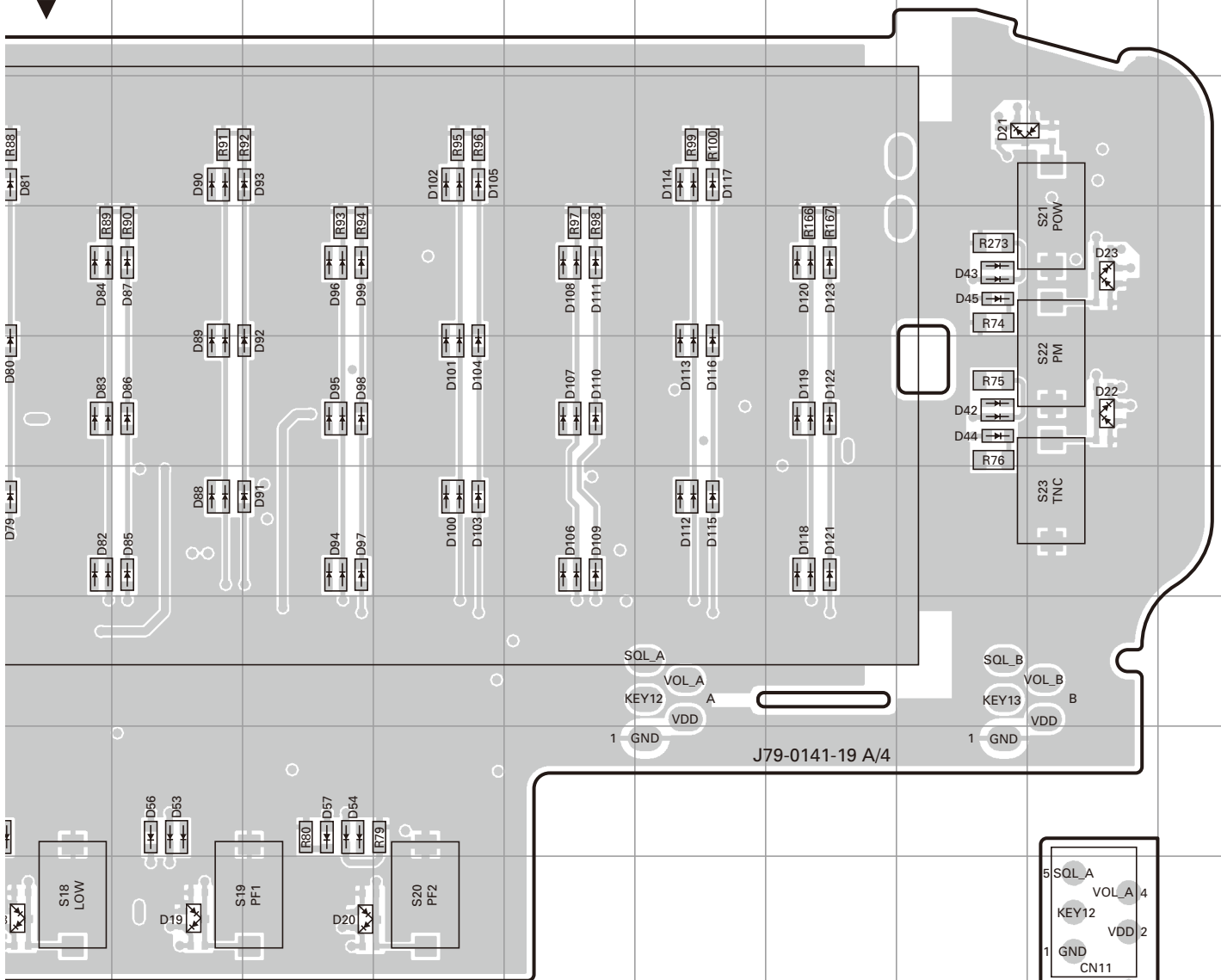
DISPLAY UNIT (X54-3620-01) (A/4, B/4, C/4, D/4)  
Component side view (J79-0141-19)



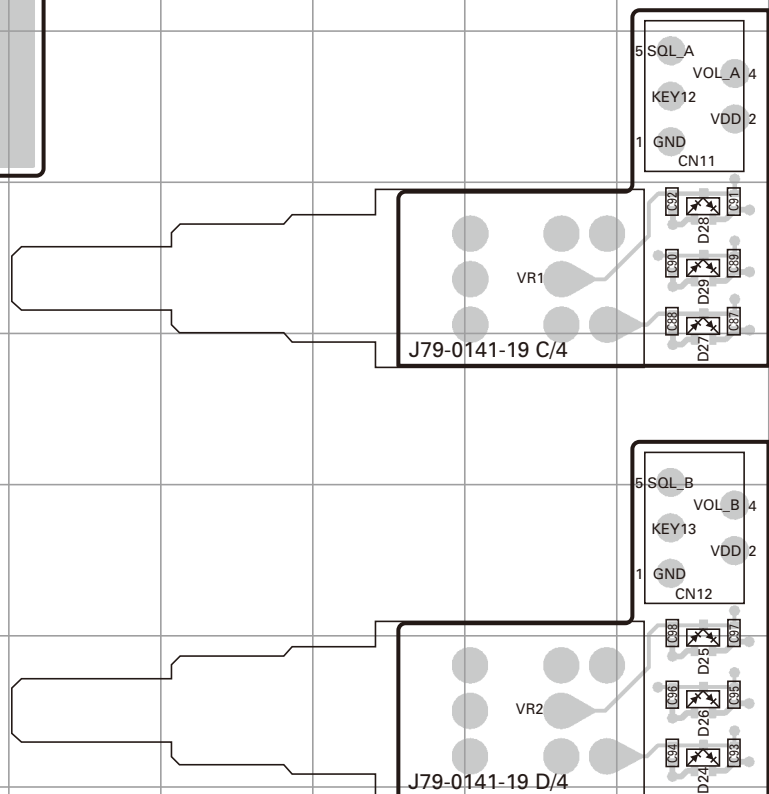
Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address
D11	5B	D28	10R	D46	8F	D62	5G	D78	3J
D12	6C	D29	10R	D47	8G	D63	4G	D79	6J
D13	3C	D30	5C	D48	8H	D64	6H	D80	5J
D15	9G	D31	4D	D49	8E	D65	5H	D81	3J
D16	9G	D32	4C	D50	8G	D66	3H	D82	6J
D17	9H	D33	5C	D51	8H	D67	6H	D83	5J
D18	9J	D34	5D	D52	8H	D68	5H	D84	4J
D19	9K	D35	4C	D53	8K	D69	3H	D85	6K
D20	9L	D36	8A	D54	8L	D70	6I	D86	5K
D21	3Q	D38	8C	D55	8I	D71	5I	D87	4K
D22	5R	D39	8A	D56	8K	D72	4I	D88	6K
D23	4R	D41	8C	D57	8L	D73	6I	D89	5K
D24	13R	D42	5Q	D58	6G	D74	5I	D90	3K
D25	13R	D43	4Q	D59	5G	D75	4I	D91	6L
D26	13R	D44	5Q	D60	4G	D76	6J	D92	5L
D27	10R	D45	4Q	D61	6G	D77	5J	D93	3L

# PC BOARD RC-D710

## DISPLAY UNIT (X54-3620-01) (A/4, B/4, C/4, D/4) Component side view (J79-0141-19)

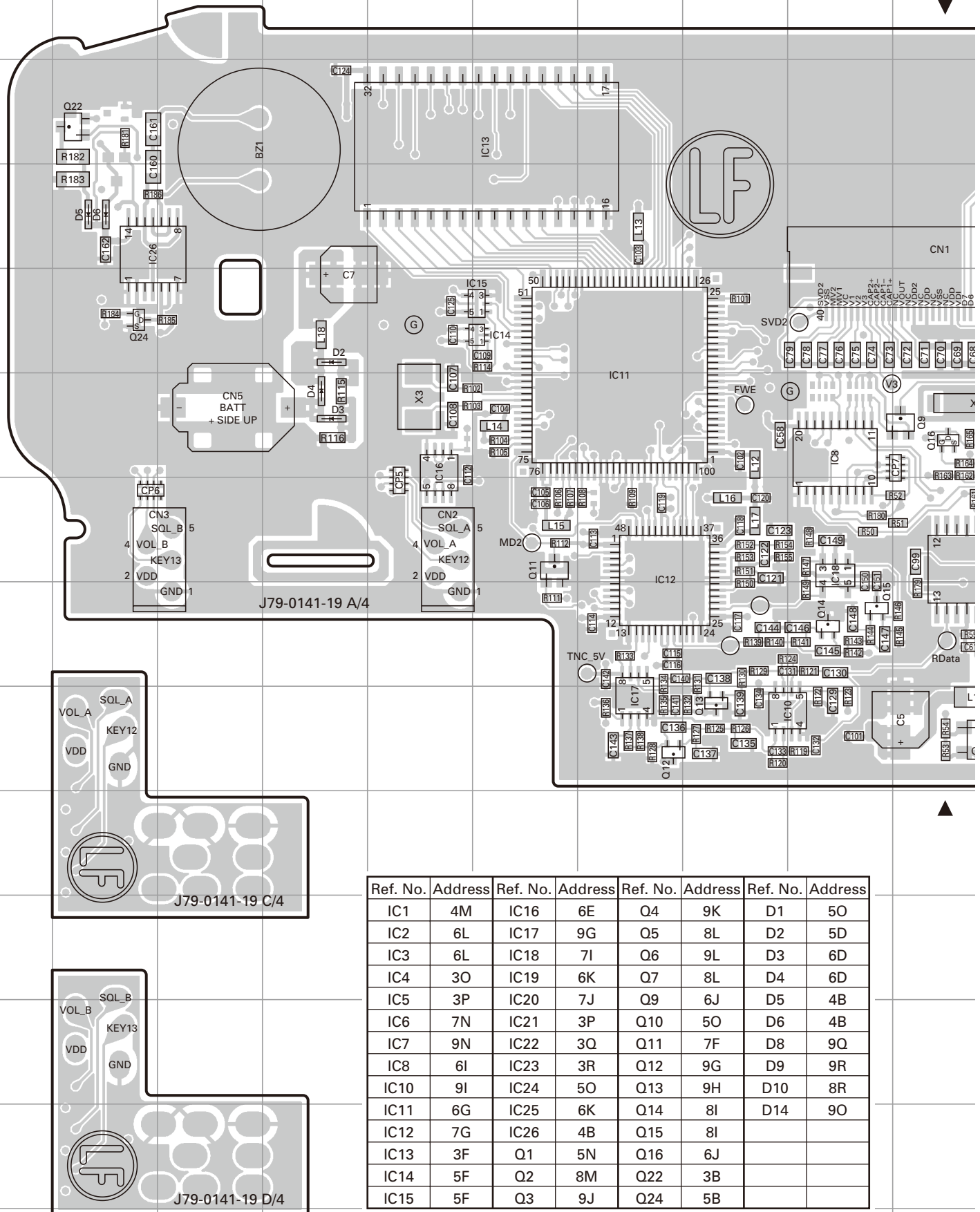


o.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address
3	3J	D94	6L	D110	5N	D126	3D
4	6J	D95	5L	D111	4N	D127	6D
5	5J	D96	4L	D112	6O	D128	4E
6	3J	D97	6L	D113	5O	D129	3D
7	6J	D98	5L	D114	3O	D130	6E
8	5J	D99	4L	D115	6O	D131	5E
9	4J	D100	6M	D116	5O	D132	4E
10	6K	D101	5M	D117	3O	D133	6E
11	5K	D102	3M	D118	6P	D134	5E
12	4K	D103	6M	D119	5P	D135	4E
13	6K	D104	5M	D120	4P	D136	6F
14	5K	D105	3M	D121	6P	D137	5F
15	3K	D106	6N	D122	5P	D138	3F
16	6L	D107	5N	D123	4P	D139	6F
17	5L	D108	4N	D124	6D	D140	5F
18	3L	D109	6N	D125	5E	D141	3F



# RC-D710 PC BOARD

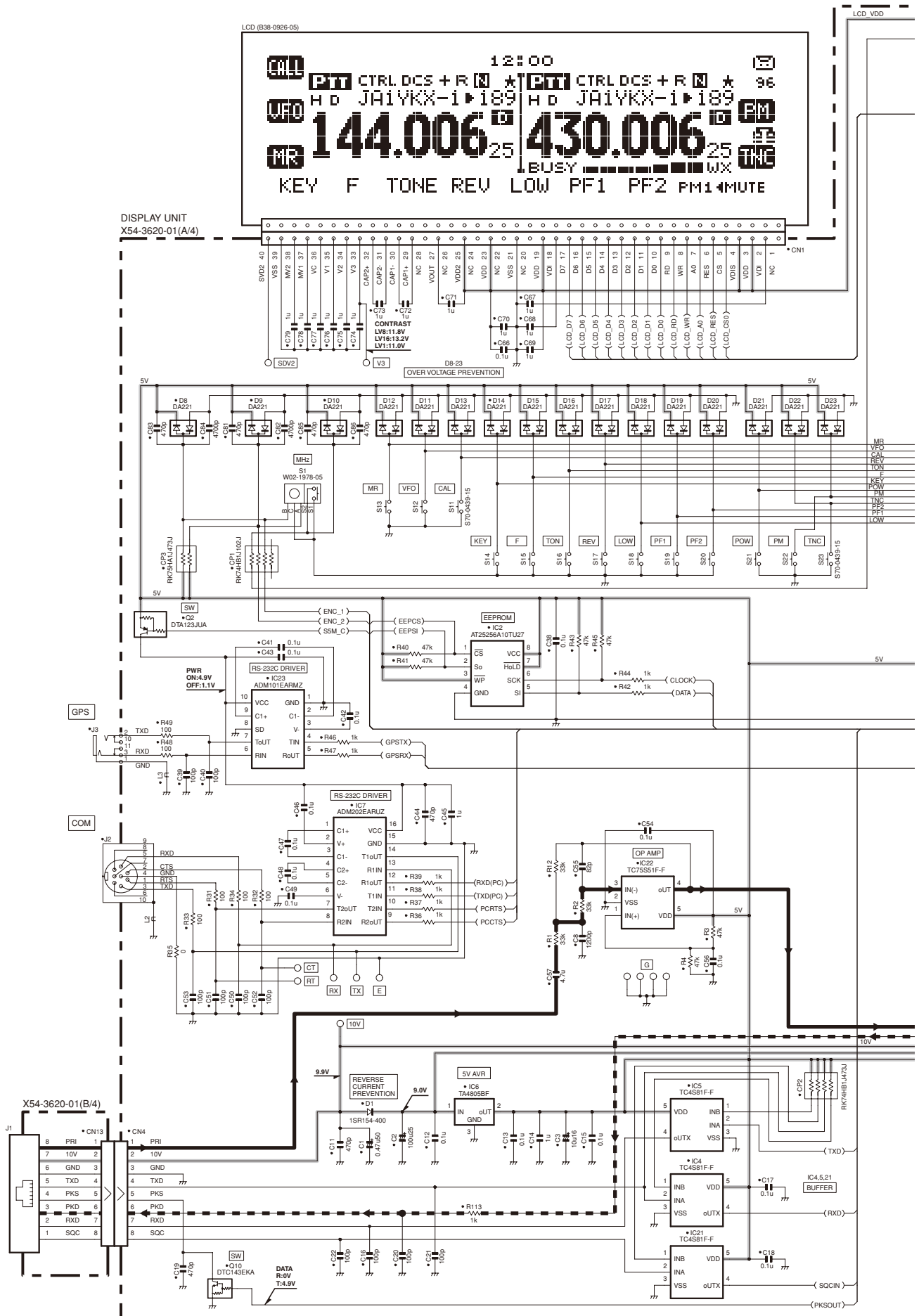
DISPLAY UNIT (X54-3620-01) (A/4, B/4, C/4, D/4)  
Foil side view (J79-0141-19)



Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address
IC1	4M	IC16	6E	Q4	9K	D1	5O
IC2	6L	IC17	9G	Q5	8L	D2	5D
IC3	6L	IC18	7I	Q6	9L	D3	6D
IC4	3O	IC19	6K	Q7	8L	D4	6D
IC5	3P	IC20	7J	Q9	6J	D5	4B
IC6	7N	IC21	3P	Q10	5O	D6	4B
IC7	9N	IC22	3Q	Q11	7F	D8	9Q
IC8	6I	IC23	3R	Q12	9G	D9	9R
IC10	9I	IC24	5O	Q13	9H	D10	8R
IC11	6G	IC25	6K	Q14	8I	D14	9O
IC12	7G	IC26	4B	Q15	8I		
IC13	3F	Q1	5N	Q16	6J		
IC14	5F	Q2	8M	Q22	3B		
IC15	5F	Q3	9J	Q24	5B		



# RC-D710 SCHEMATIC DIAGRAM



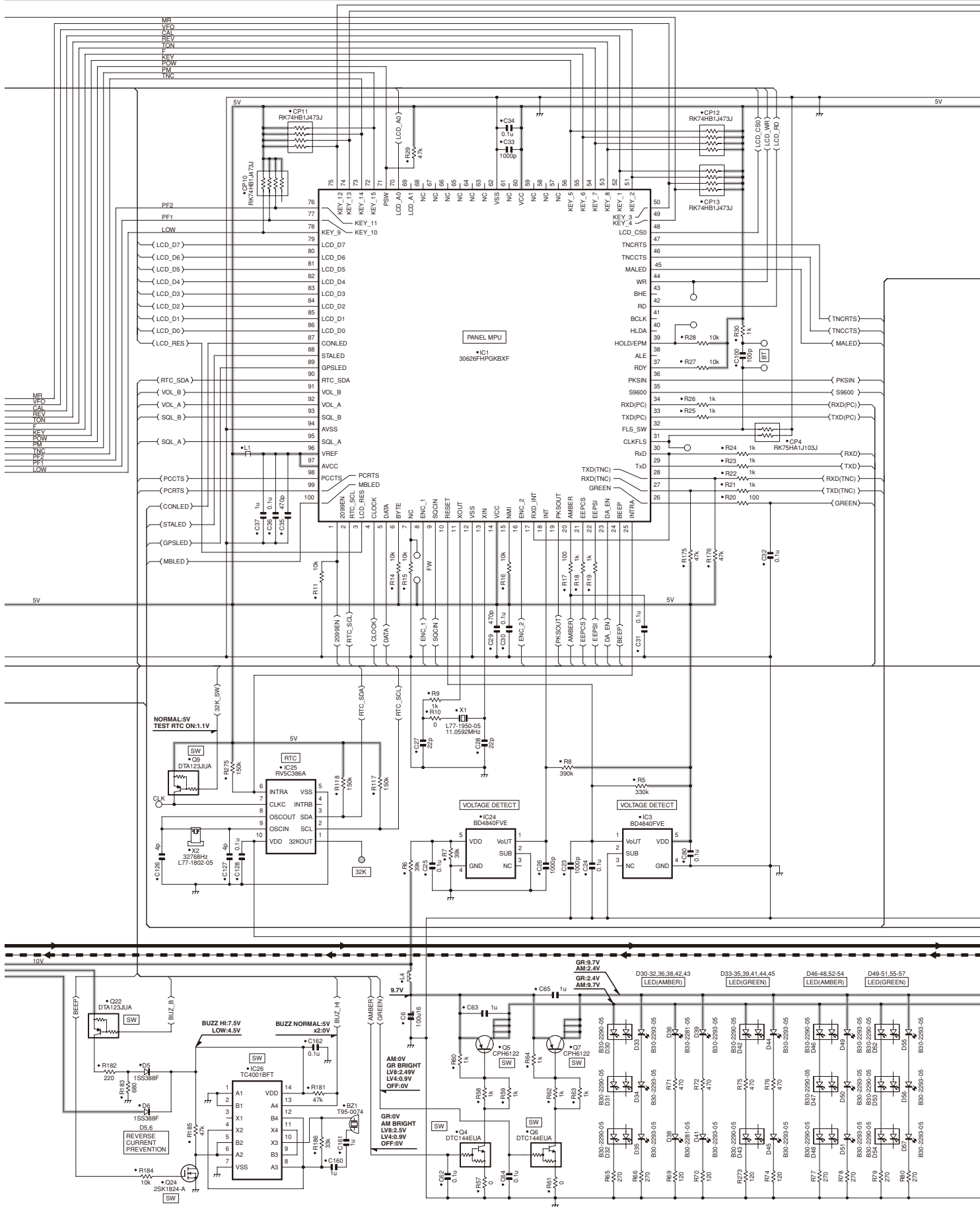


# SCHEMATIC DIAGRAM RC-D710

DISPLAY UNIT (X54-3620-01) (A/4)

LCD\_VDD

LCD\_VDD

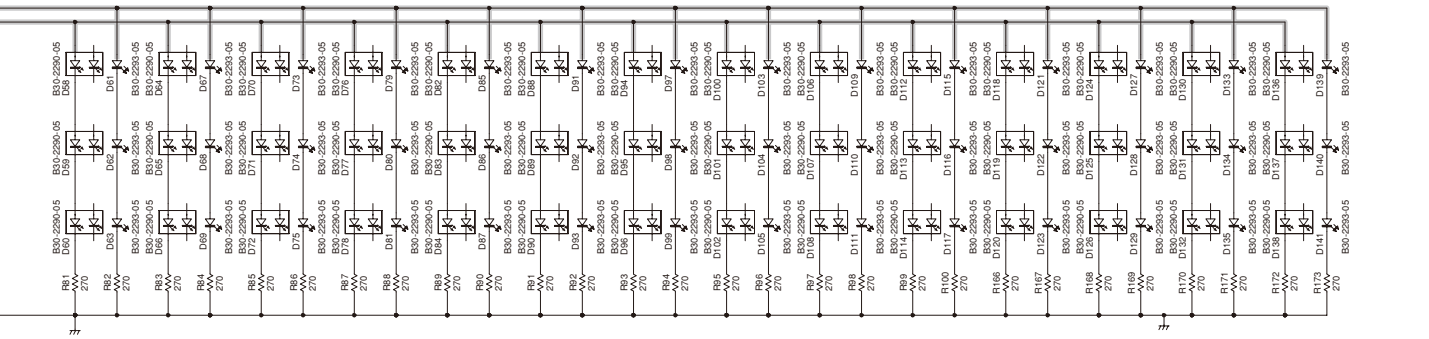
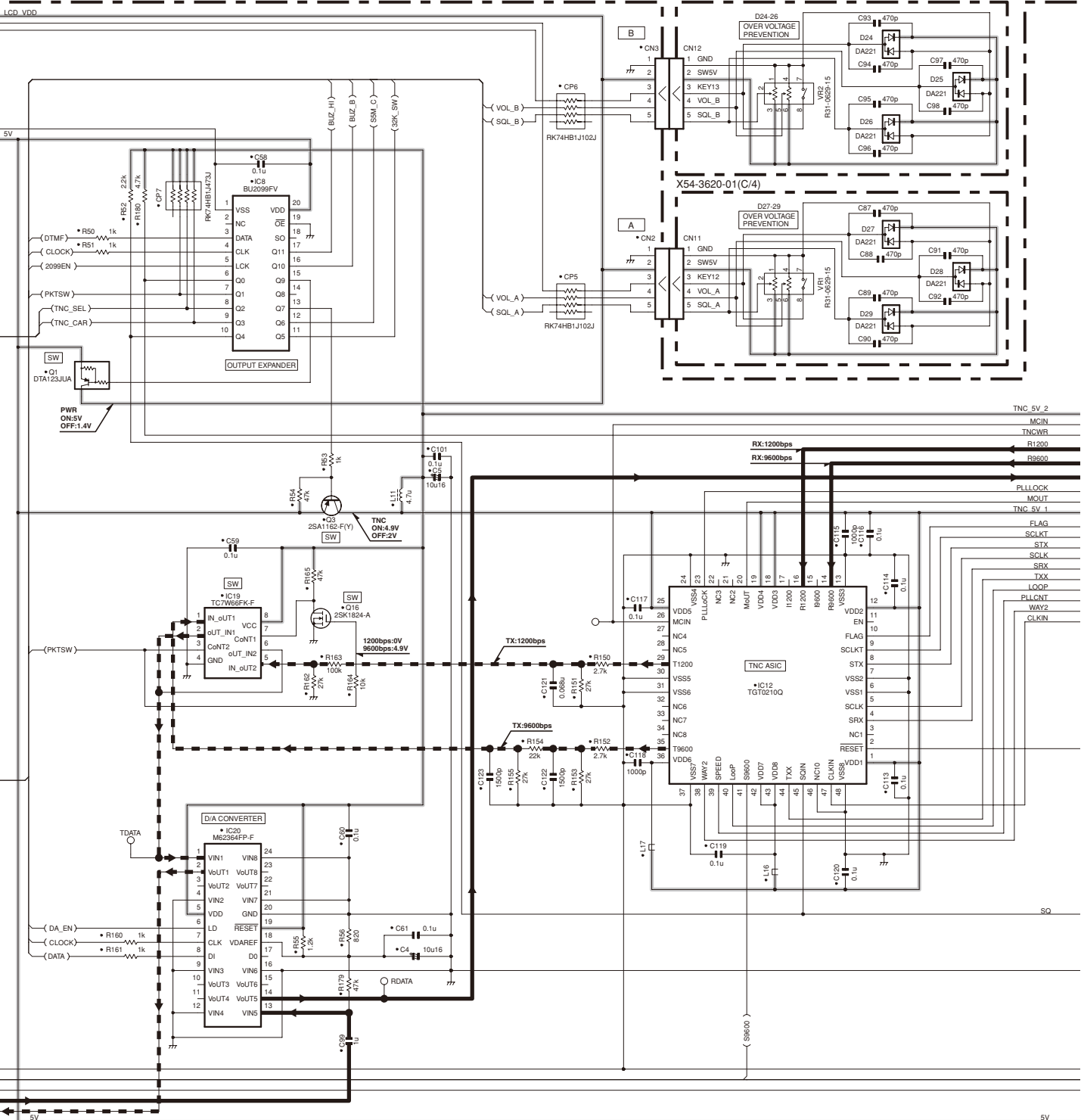


# RC-D710 SCHEMATIC DIAGRAM

DISPLAY UNIT (X54-3620-01) (A/4)

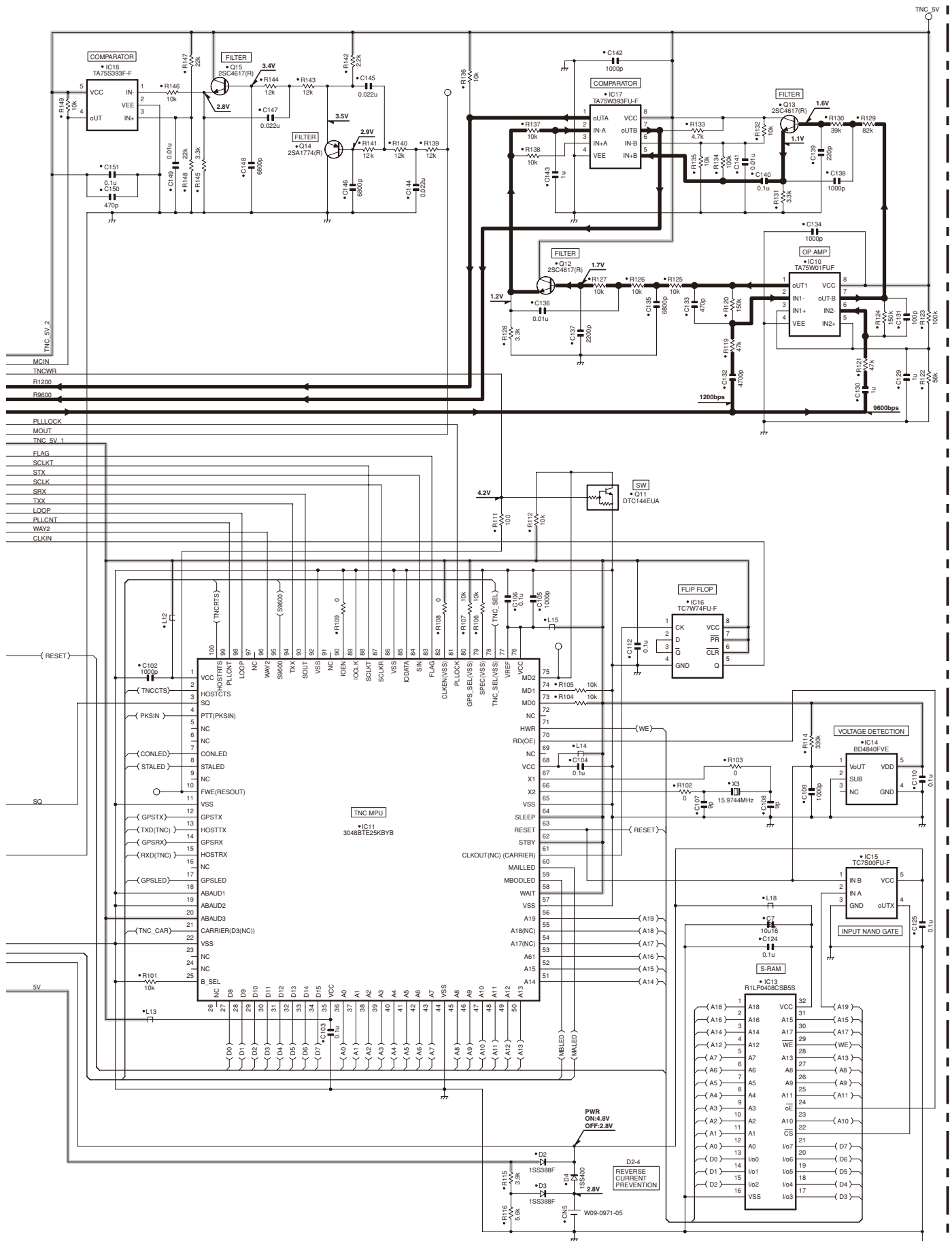
LCD\_VDD

X54-3620-01 (D/4)



# SCHEMATIC DIAGRAM RC-D710

DISPLAY UNIT (X54-3620-01) (A/4)



Note : The components marked with a dot (•) are parts of layer 1.

# RC-D710

## OPTIONAL ACCESSORIES

### PG-5J (Interface Kit)

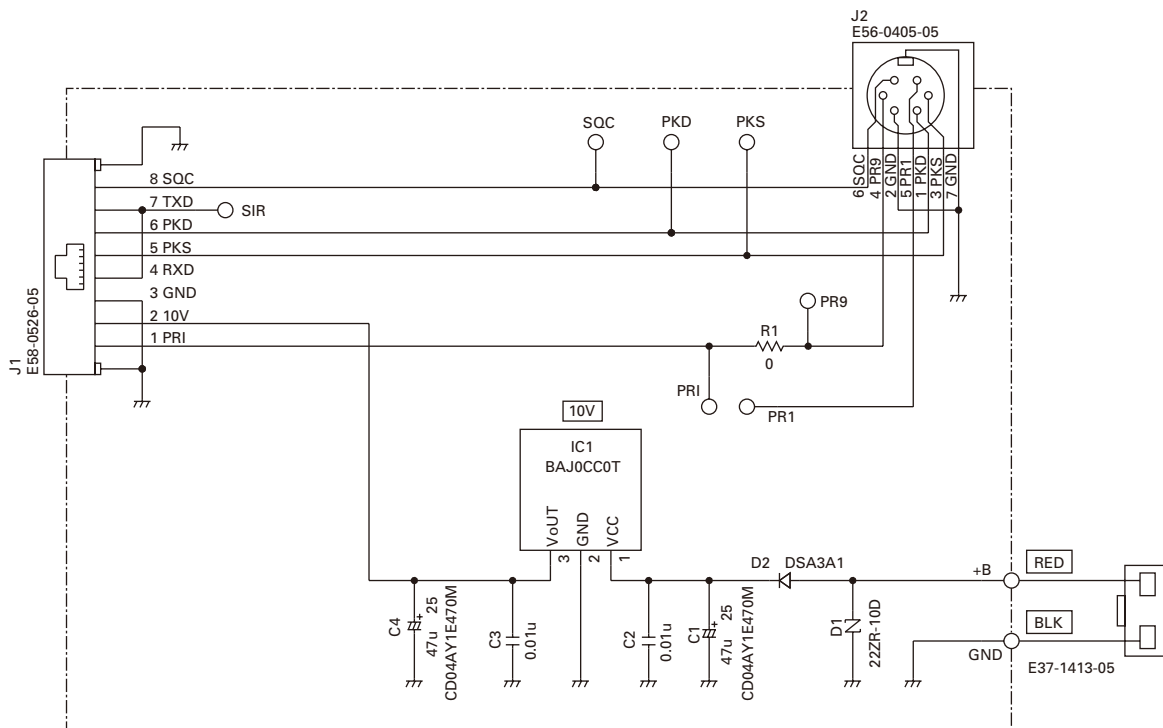
#### External View



#### PARTS LIST

Ref. No.	New parts	Parts No.	Q'ty	Description
①	*	E30-7645-05	1	TRUNK CABLE (1m)
②	*	E30-7646-05	1	DC CORD (3m)
-	*	F52-0019-05	1	FUSE (BLADE, 3A)
-	*	N99-2069-05	1	SCREW SET

#### Schematic Diagram



## SPECIFICATIONS

### ■ RC-D710 Specifications

Supply voltage .....	10 V DC (9~11V DC) Negative ground
Current.....	Less than 450mA
Operating temperature range .....	-20°C~+60°C (-4°F~+140°F)
Dimensions (W x H x D)	
Without projections .....	155 x 70 x 38 mm (6.10" x 2.76" x 1.50")
With projections .....	156 x 71 x 56 mm (6.14" x 2.80" x 2.20")
Weight (approx.) .....	0.3 kg (0.7 lbs)

# RC-D710

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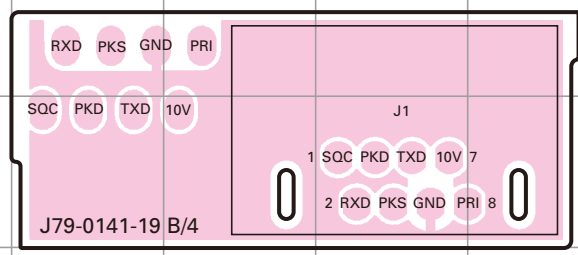
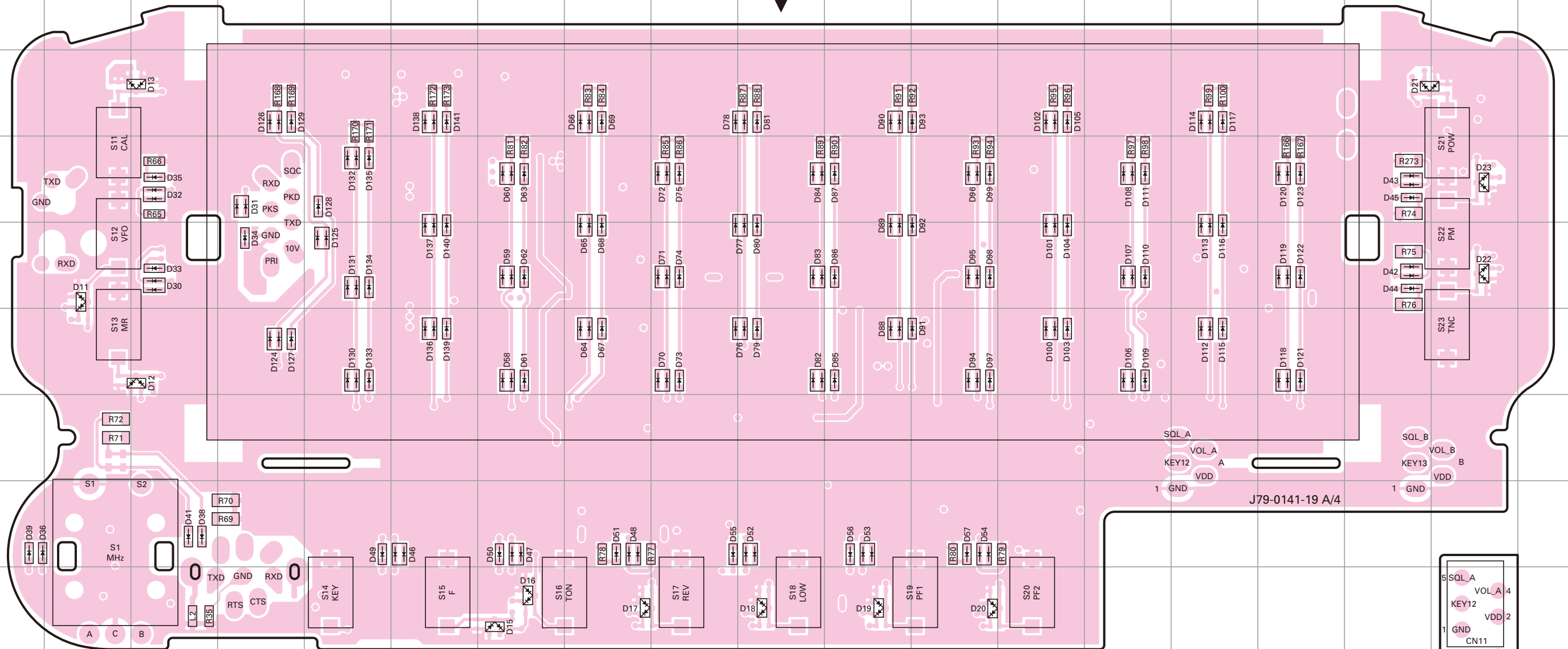


# RC-D710 PC BOARD

# PC BOARD RC-D710

DISPLAY UNIT (X54-3620-01) (A/4, B/4, C/4, D/4)  
Component side view (J79-0141-19)

DISPLAY UNIT (X54-3620-01) (A/4, B/4, C/4, D/4)  
Component side view (J79-0141-19)



Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address	Ref. No.	Address
D11	5B	D28	10R	D46	8F	D62	5G	D78	3J	D94	6L	D110	5N
D12	6C	D29	10R	D47	8G	D63	4G	D79	6J	D95	5L	D111	4N
D13	3C	D30	5C	D48	8H	D64	6H	D80	5J	D96	4L	D112	6O
D15	9G	D31	4D	D49	8E	D65	5H	D81	3J	D97	6L	D113	5O
D16	9G	D32	4C	D50	8G	D66	3H	D82	6J	D98	5L	D114	3O
D17	9H	D33	5C	D51	8H	D67	6H	D83	5J	D99	4L	D115	6O
D18	9J	D34	5D	D52	8H	D68	5H	D84	4J	D100	6M	D116	5O
D19	9K	D35	4C	D53	8K	D69	3H	D85	6K	D101	5M	D117	3O
D20	9L	D36	8A	D54	8L	D70	6I	D86	5K	D102	3M	D118	6P
D21	3Q	D38	8C	D55	8I	D71	5I	D87	4K	D103	6M	D119	5P
D22	5R	D39	8A	D56	8K	D72	4I	D88	6K	D104	5M	D120	4P
D23	4R	D41	8C	D57	8L	D73	6I	D89	5K	D105	3M	D121	6P
D24	13R	D42	5Q	D58	6G	D74	5I	D90	3K	D106	6N	D122	5P
D25	13R	D43	4Q	D59	5G	D75	4I	D91	6L	D107	5N	D123	4P
D26	13R	D44	5Q	D60	4G	D76	6J	D92	5L	D108	4N	D124	6D
D27	10R	D45	4Q	D61	6G	D77	5J	D93	3L	D109	6N	D125	5E

