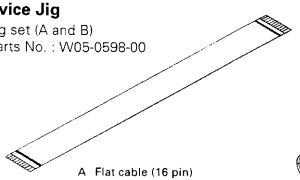
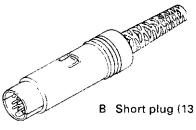
ADJUSTMENT

Service Jig

Jig set (A and B)
Parts No. : W05-0598-00

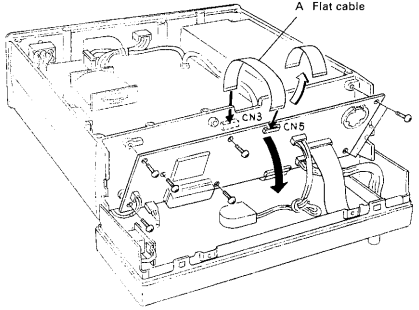


A Flat cable (16 pin)
(E37-0572-05)
About 17cm

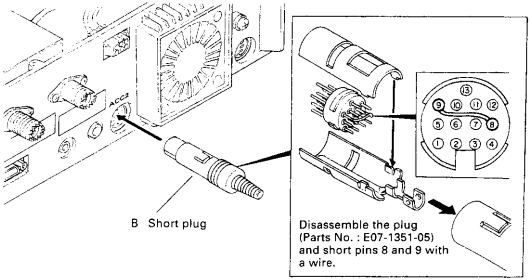


B Short plug (13 pin)

How to Use the Flat Cable



How to Use the Short Plug



ADJUSTMENT

Service Adjustment Mode

■ Outline

1. The transceiver is adjusted by the normal method and by a method using the service adjustment mode (automatic adjustment).
2. There are adjustment items of menu numbers 00 to 51 in the service adjustment mode. All adjustment data are saved in the EEPROM.
3. When the service adjustment mode is entered, data is read from the EEPROM and placed in the CPU RAM, so it can be modified.
4. The EEPROM is updated only when data is written in Menu No. 51.

■ Operation Procedure

1) Entering the service adjustment mode

1. Before turning the power on, insert the adjustment jig into the ACC2 socket.
2. Hold down the [N.R.] key and [LSB/USB] key and turn the [POWER] switch on. The display (LCD) shows "ADJUST" and then the adjustment mode menu.
3. After "ADJUST" appears, remove the short plug from the ACC2. (The transmitter cannot be adjusted without removing it.)

2) Menu number selection

When the [MULTE/CH] control is turned, the menu number changes.

3) Changing the setting data

Setting data can be changed by using the [UP] or [DOWN] key on the transceiver or the microphone.

4) Writing data

Press the [UP] or [DOWN] key on the transceiver or the microphone with MENU No.51 to write data.

5) Canceling the service adjustment mode

When the [CLR] key is pressed, the normal VFO mode display returns.

Notes:

1. The transceiver can transmit signals in the receiver adjustment mode. If a microphone is connected to the transceiver, take special care not to press the PTT key.
2. If the power is switched off during adjustment in the adjustment mode, the adjustment mode is canceled.

Service Adjustment Mode Menu

Menu No.	Function	Description
00	AGC	AGC reference voltage (14.1MHz USB)
01	ALC	ALC reference voltage (14.2MHz USB)
02	SSB SQL threshold	(14.1MHz USB)
03	S-meter (SSB)	Start level (S1) setting (14.1MHz USB)
04		S9 level setting (14.1MHz USB)
05		S9+60dB (full scale) level setting (14.1MHz USB)
06	FM SQL threshold	(29.1MHz FM)
07	S-meter (FM)	Start level (S1) setting (29.1MHz FM)
08		Full scale level setting (29.1MHz FM)
09~15	Not use	
16	SQL VR center	SQL VR center voltage reading (14.1MHz)
17	IF SHIFT center	IF SHIFT center voltage reading (14.1MHz)
18	100W protection setting	Read data at the 100W point on the RF meter (14.2MHz USB)
19	50W protection setting	Read data at the 50W point on the RF meter (14.2MHz USB)
20	25W protection setting	Read data at the 25W point on the RF meter (14.2MHz USB)
21	10W protection setting	Read data at the 10W point on the RF meter (14.2MHz USB)
22	5W protection setting	Read data at the 5W point on the RF meter (14.2MHz USB)
23	TGC setting	1.8MHz band (100W) (1.840MHz USB)
24		3.5MHz band (100W) (3.5MHz USB)
25		7MHz band (100W) (7.0MHz USB)
26		10MHz band (100W) (10.1MHz USB)
27		14MHz band (100W) (14.2MHz USB)
28		18MHz band (100W) (18.068MHz USB)
29		21MHz band (100W) (21.0MHz USB)
30		25MHz band (100W) (24.89MHz USB)
31		28MHz band (100W) (29.69MHz USB)

ADJUSTMENT

Menu No.	Function	Description
32	Not use	
33	TGC setting	14MHz band (50W) (14.2MHz USB)
34		14MHz band (25W) (14.2MHz USB)
35		14MHz band (10W) (14.2MHz USB)
36		14MHz band (5W) (14.2MHz USB)
37	ALC meter voltage reading	Start level setting (14.2MHz USB)
38		Maximum zone level setting (14.2MHz USB)
39	CAR level setting	CW (14.2MHz CW)
40		AM (14.2MHz AM)
41	FM maximum deviation	(29.69MHz FM)
42	SSB CAR shift compensation	USB (14.2MHz USB)
43		LSB (14.2MHz LSB)
44	SSB CAR suppression	USB (14.2MHz USB)
45		LSB (14.2MHz LSB)
46	SWR protection voltage setting	(14.2MHz CW)
47	HF band SWR=3.0 reading	For display in TX (1.840MHz CW)
48	Not use	
49	Check sum display	Sum of ROM's data (14.1MHz)
50	All LCD segments light	Display checking
51	Writing into EEPROM	

Display Check

Item	Condition	Measurement			Adjustment			Specifications/Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
1. All reset	1) DC IN : DC 13.8V Pushing [A=B] key down, [POWER] : ON				Front panel	LCD	After displaying "HELLO", the display is reset as follows; DISP f. : 14.000.00 MODE : USB ANT : 1 METER : ALC PRE AMP	Display should be normal. Should be at the reset frequency.
2. All LCD segments light	1) Menu No. : 50	ACC2 Jig (Short plug)					Check	All LCD segments light.

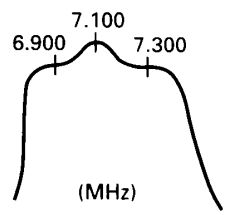
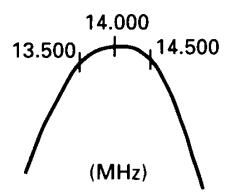
PLL Section

Item	Condition	Measurement			Adjustment			Specifications/Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
1. Reference oscillation (20MHz)	1) Display f. : 14.750MHz MODE : AM	f. counter	TX-RX (PLL)	TP505	TX-RX (PLL)	TC500	20.000.000MHz	±20Hz
2. 60MHz	1) Display f. : 14.750MHz MODE : AM	Oscilloscope		TP506		L529 L530	Repeat for MAX.	
3. 65MHz BPF	1) Display f. : 14.750MHz MODE : AM			TP503		L533 L534 L535	Repeaat for MAX.	

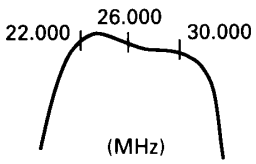
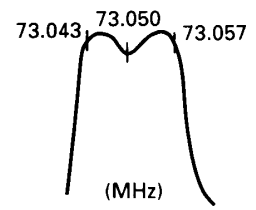
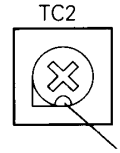
ADJUSTMENT

Item	Condition	Measurement			Adjustment			Specifications/Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
4. Lock voltage VCO1A	1) Display f. : 30kHz MODE : AM	DC V.M	TX-RX (PLL)	TP501	TX-RX (PLL)	TC502	2.0V	±0.05V
	2) Display f. : 10.980MHz						Check	6.5V or less
5. Lock voltage VCO1B	1) Display f. : 10.990MHz MODE : AM				TX-RX (PLL)	TC503	2.0V	±0.05V
	2) Display f. : 23.980MHz						Check	6.5V or less
6. Lock voltage VCO1C	1) Display f. : 23.990MHz MODE : AM				TX-RX (PLL)	TC504	2.0V	±0.05V
	2) Display f. : 29.990MHz						Check	6.5V or less
7. LO2 VCO2 voltage	1) Display f. : 14.100MHz MODE : AM			TP504			Check	3.0~6.0V
8. LO1 level	1) Display f. : 14.100MHz MODE : AM	RF V.M		CN503			Check	0~+3dBm
9. LO2 level	Measurement condition : 50Ω terminated			CN501				0~+4dBm
10. CAR level	1) Display f. : 14.100MHz MODE : AM	Oscilloscope		CN502			Check	1.0Vp-p±0.2

Receiver Section

Item	Condition	Measurement			Adjustment			Specifications/Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
1. AGC voltage	1) Menu No. : 00 (14.100MHz USB)	DC V.M	TX-RX (RF)	TP2	Front panel	UP or DOWN key	2.9V	±0.03V
• Writing data : After item 1 has been adjusted; 1) Menu No. : 51 2) [UP] or [DOWN] key : Push once time Display "rEAdy" → "run" → "good" (If "nG" is displayed, enter data again.) 3) [CLR] key : Push once time.								
2. BPF	1) Display f. : 7.000MHz MODE : FM PRE AMP : ON Spectrum analyzer setting Center f. : 7.100MHz Frequency span : 2MHz XdB/DIV : 2dB RBW : 30kHz VBW : 10kHz TG output : –20dBm	Tracking generator Spectrum analyzer	Rear panel TX-RX (RF)	ANT CN7	TX-RX (RF)	L20 L21 L22	Repeat adjustment 2 or 3 times until the level is maximized and the waveform becomes flat.	
	2) Display f. : 14.000MHz Spectrum analyzer setting Center f. : 14.000MHz Frequency span : 5MHz					L29 L30 L31	Repeat adjustment 2 or 3 times until the level is maximized and the waveform becomes flat. Note : If dip point appear, first turn TC2 (RF) and adjust to L29,30,31.	

ADJUSTMENT

Item	Condition	Measurement			Adjustment			Specifications/Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
3. RF AMP	1) Display f. : 22.000MHz MODE : FM PRE AMP : ON Spectrum analyzer setting Center f. : 26.000MHz Frequency span : 20MHz XdB/DIV : 2dB RBW : 30kHz VBW : 10kHz TG output : –20dBm	Tracking generator Spectrum analyzer	Rear panel TX-RX (RF)	ANT CN7	TX-RX (RF)	L67 L68	Repeat adjustment 2 or 3 times until the level is maximized and within the range of waveform. Note : If dip point appear, first turn TC2 (RF) and adjust to L67,68.	
4. MCF (73MHz)	1) Display f. : 14.000MHz MODE : USB AGC : OFF Spectrum analyzer setting Center f. : 73.050MHz Frequency span : 70kHz ATT : 10dB XdB/DIV : 2dB RBW/VBW : 1kHz TG output : –20dBm	Tracking generator Spectrum analyzer	TX-RX (RF)	CN3 CN4	TX-RX (RF)	L45 L54 L50 L51 L111	Repeat adjustment 2 or 3 times until the level is maximized and the waveform becomes flat. 1) Turn L45 and L54 to adjust to the 73.05MHz peak. (Repeat twice) 2) Turn L50, L51, and L111 to make a symmetrical waveform. 3) Make the waveform flat using L45 and L54.	
5. Trap initialize setting **E,E2,E3**	1) Set the TC2 position as shown right.				TX-RX (RF)	TC2	Turn TC2 180° from the default position.	TC2  Face the concave part of the knob downwards.
6. IF AMP	1) Display f. : 14.100MHz MODE : USB AGC : FAST PRE AMP : ON AF output : 0.63V/8Ω SSG frequency : 14.101MHz SSG output : –113dBm	SSG AF V.M Oscilloscope DM. SP	Rear panel	ANT EXT.SP	TX-RX (RF)	L55 L56 L61 IC15's L1,L2	Repeat adjustment 2 or 3 times until the AF output is maximized.	
7. RX MIX balance	1) Display f. : 100kHz MODE : USB PRE AMP : ON SSG output : OFF					VR1	Noise MIN	
8. IF GAIN	1) Display f. : 14.100MHz MODE : USB AGC : FAST PRE AMP : ON SSG frequency : 14.101MHz SSG output : –105dBm				Front panel	AF VR	AF output : 0.63V	
	2) SSG output : –115dBm				TX-RX (RF)	IC15's VR1	AF output : 0.4V	±0.05V
	3) SSG output : –105dBm						Check	AF output : 0.63V±0.05V
9. Trap **E,E2,E3**	1) Display f. : 15.200MHz MODE : USB AGC : FAST PRE AMP : ON SSG frequency : 15.201MHz SSG output : –113dBm				TX-RX (RF)	TC2	AF output : MIN	There must be a dip point.
	2) Display f. : 11.700MHz SSG frequency : 11.701MHz					TC1		

ADJUSTMENT

Item	Condition	Measurement			Adjustment			Specifications/Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
10. NB	1) Display f. : 14.100MHz MODE : USB AGC : FAST PRE AMP : ON SSG frequency : 14.101MHz SSG output : –103dBm	DC V.M SSG AF V.M Oscilloscope DM. SP	TX-RX (PLL) Rear panel	TP801 ANT EXT.SP	TX-RX (PLL)	L802 L803	Voltage MIN	
	2) [NB] key : ON/OFF	Noise G.		ANT			Adjust output of noise generator to S1 and S9, and check each.	Noise should disappear when NB is ON.
• Item 11 to 16 below are adjusted in the adjustment mode. To terminate the adjustment menu in the middle, save your settings with Menu No. 51.								
11. SSB SQL threshold	1) Menu No. : 02 (14.100MHz USB) SSG output : OFF	SSG AF V.M Oscilloscope DM. SP	Rear panel	ANT EXT.SP	Front panel	UP or DOWN key	1 push	
12. SSB S-meter S1	1) Menu No. : 03 (14.100MHz USB) SSG frequency : 14.101MHz SSG output : –107dBm							–113~–101dBm
S9	2) Menu No. : 04 (14.100MHz USB) SSG output : –81dBm							–87~–75dBm
Full scale	3) Menu No. : 05 (14.100MHz USB) SSG output : –21dBm							
13. FM SQL threshold	1) Menu No. : 06 (29.100MHz FM) SSG frequency : 29.100MHz SSG output : OFF							
14. FM S-meter S1	1) Menu No. : 07 (29.100MHz FM) SSG frequency : 29.100MHz SSG output : –117dBm MOD : 1kHz/3kHz							
Full scale	2) Nenu No. : 08 (29.100MHz FM) SSG output : –95dBm MOD : 1kHz/3kHz							–101~–89dBm
15. SQL VR center voltage	1) Menu No. : 16 (14.100MHz USB) SSG frequency : Anything SSG output : OFF						SQL VR : Center 1 push	
16. IF SHIFT VR center voltage	1) Menu No. : 17 (14.100MHz USB) SSG frequency : Anything SSG output : OFF						IF SHIFT VR : Center 1 push	

• Writing data : After items 11 to 16 have been adjusted;
1) Menu No. : 51
2) [UP] or [DOWN] key : Push once time Display "rEAdy" → "run" → "good" (If "nG" is displayed, enter data again.)
3) [CLR] key : Push once time.

ADJUSTMENT

Item	Condition	Measurement			Adjustment			Specifications/Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
17. S/N	1) Display f. : Below AF VR : 0.63V/8Ω SSG frequency : Below However, USB : +1kHz LSB : −1kHz	SSG AF V.M Oscilloscope Distortion meter DM. SP	Rear panel	ANT EXT.SP				
	Frequency / MODE / SSG output / SSG MOD / DEV							
	550kHz AM	−77dBm	1kHz	60%			S/N measurement	10dB or more
	1.550MHz AM	−77dBm	1kHz	60%				
	1.800MHz LSB	−119dBm	OFF	OFF			MAX sensitivity measurement	0.63V/8Ω or more
	3.550MHz LSB	−119dBm	OFF	OFF				
	7.100MHz LSB	−119dBm	OFF	OFF				
	10.100MHz USB	−119dBm	OFF	OFF				
	14.100MHz USB	−119dBm	OFF	OFF		←	PRE AMP : OFF	Sensitivity down 5~15dB.
	21.100MHz USB	−119dBm	OFF	OFF				
	24.800MHz USB	−123dBm	OFF	OFF				
	28.800MHz USB	−123dBm	OFF	OFF				
	29.800MHz FM	−119dBm	1kHz	3kHz		←	SINAD seisitivity	12dB SINAD or more measurement
18. ATT	1) Display f. : 14.300MHz MODE : USB AGC : FAST PRE AMP : ON SSG frequency : 14.301MHz SSG output : −113dBm	SSG AF V.M Oscilloscope DM. SP	Rear panel	ANT EXT.SP	Front panel	ATT key	1) Adjust the AF output to 1V. 2) 1 push the [ATT] key. 3) SSG output : −93dBm	AF output down. AF output : 1V±3dB
19. VS-3 (Option)	1) Connect the VS-3 to CN16 on the TX-RX unit. AF VR : MIN [PF] key : 1 push	VS-3	TX-RX (RF)	CN16	Front panel	PF key	1 push	The displayed frequency can be heard vocally.
20. DRU-3A (Option)	1) Connect the DRU-3A to CN17 on the TX-RX unit. Connect a microphone to the MIC jack. [REC] key : 1 push	DRU-3A Microphone	TX-RX (RF) Front panel	CN17 MIC	Front panel	CH1 key	Hold down [CH1], and talk into the microphone.	Can be recorded for about 15 seconds.
							Press the [CH1] key again.	The recorded voice must be played back.

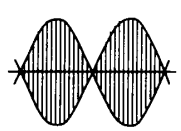
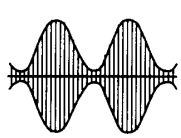
Transmitter Section

Item	Condition	Measurement			Adjustment			Specifications/Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
1. ALC voltage	1) Menu No. : 01 (14.200MHz USB) Transmit	DC V.M	TX-RX (RF)	TP1	Front panel	UP or DOWN key	2.7V	±0.03V
• Writing data : After item 1 has been adjusted; 1) Menu No. : 51 2) [UP] or [DOWN] key : Push once time Display "rEAdy" → "run" → "good" (If "nG" is displayed, enter data again.) 3) [CLR] key : Push once time. 4) [SPLIT] key : Push once time.								
2. Final idling current	1) Display f. : 14.200MHz MODE : USB Final unit VR1, 2 : MIN Transmit	DC. A	Rear panel	DC IN	Final		(First adjust VR1 and VR2 for minimum)=A	
						VR1	A+250mA	
						VR2	(A+250mA)+250mA	

ADJUSTMENT

Item	Condition	Measurement			Adjustment			Specifications/Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
3. TX AMP	1) Display f. : 14.200MHz MODE : CW Connect to CN10 a 50Ω dummy load. Transmit	50Ω dummy Oscilloscope	TX-RX (RF)	CN10	TX-RX (RF)	L69,70 L71,72 L74,75 L76 VR3	Repeat 2 or 3 times for DRV output MAX	Reference value 2.5Vp-p or more
4. NULL	1) Display f. : 3.500MHz MODE : USB Transmit	Power meter DC V.M (Oscilloscope)	Rear panel Final	ANT CN12	Final	TC1	MIN	Reference value 50mV or less
5. Power frequency characteristic	1) Initialize	Power meter	Rear panel	ANT	Final	VR3	Full counterclock-wide (VR MIN)	
	2) Menu No. : 18 (14.200MHz USB) Transmit				Front panel	UP or DOWN key	100W	±5.0W
	3) Writing data with Menu No. 51. [CLR] key : Push once time (Adjustment mode terminated)							
	4) Display f. : 29.699MHz MODE : CW Transmit				Final	VR3	Power MAX	95W or more
6. 14MHz TGC	1) Menu No. 27 (14.200MHz USB) Transmit	Power meter	Rear panel	ANT	Front panel	UP or DOWN key	Setting data : 050	
					TX-RX (RF)	VR9	100W	±3.0W
	2) Writing data with Menu No. 51.				Front panel	UP or DOWN key	1 push	
• Item 7 to 17 below are adjusted in the adjustment mode. To terminate the adjustment menu in the middle, save your settings with Menu No. 51.								
7. Power 100W	1) Menu No. : 18 (14.200MHz USB) Transmit	Power meter	Rear panel	ANT	Front panel	UP or DOWN key	100W	±5.0W
50W	2) Menu No. : 19 (14.200MHz USB) Transmit						50W	±2.5W
25W	3) Menu No. : 20 (14.200MHz USB) Transmit						25W	±1.0W
10W	4) Menu No. : 21 (14.200MHz USB) Transmit						10W	±1.0W
5W	5) Menu No. : 22 (14.200MHz USB) Transmit						5W	±1.0W
8. TGC 1.9MHz	1) Menu No. : 23 (1.840MHz USB) Transmit						100W **K,M2,E,E3** 10W **E2**	±5W **K,M2,E,E3** ±1.0W **E2**
3.5MHz	2) Menu No. : 24 (3.500MHz USB) Transmit						100W	±5W Note : Skip 14MHz
7.0MHz	3) Menu No. : 25 (7.00MHz USB) Transmit							
10MHz	4) Menu No. : 26 (10.100MHz USB) Transmit							

ADJUSTMENT

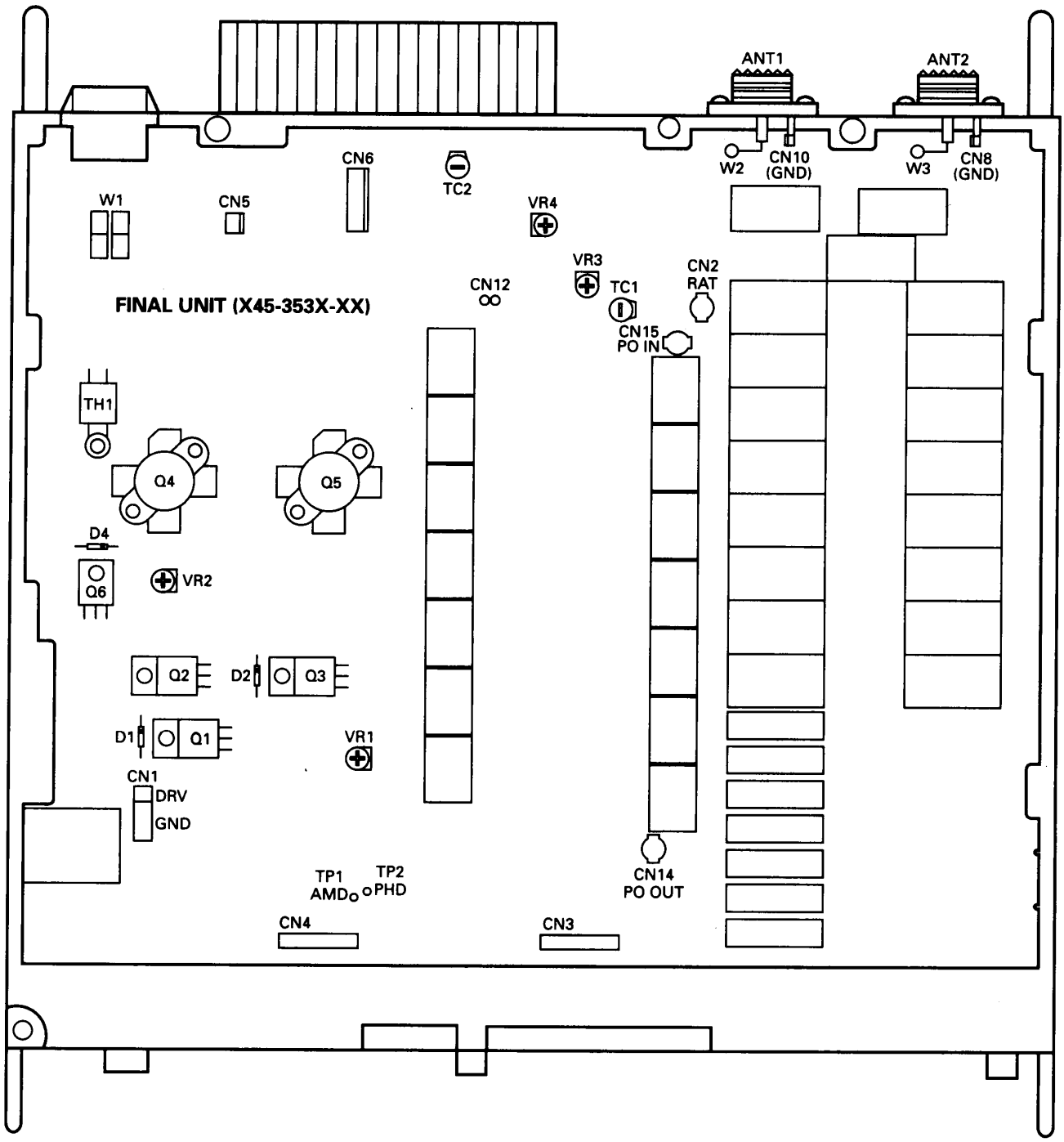
Item	Condition	Measurement			Adjustment			Specifications/Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
8. TGC 18MHz	5) Menu No. : 28 (18.068MHz USB) Transmit	Power meter	Rear panel	ANT	Front panel	UP or DOWN key	100W	±5W
21MHz	6) Menu No. : 29 (21.000MHz USB) Transmit							
25MHz	7) Menu No. : 30 (24.890MHz USB) Transmit							
28MHz	8) Menu No. : 31 (29.690MHz USB) Transmit							
9. Power TGC 50W	1) Menu No. : 33 (14.200MHz USB) Transmit						50W	±2.5W
25W	2) Menu No. : 34 (14.200MHz USB) Transmit						25W	±1.0W
10W	3) Menu No. : 35 (14.200MHz USB) Transmit						10W	±1.0W
5W	4) Menu No. : 36 (14.200MHz USB) Transmit						5W	±1.0W
10. ALC meter Start point	1) Menu No. : 37 (14.200MHz USB) Transmit						1 push	
Zone MAX	2) Menu No. : 38 (14.200MHz USB) Transmit							
11. CW carrier level	1) Menu No. : 39 (14.200MHz CW) Transmit						ALC meter zone MAX	
12. AM carrier level	1) Menu No. : 40 (14.200MHz AM) Transmit							
13. FM MAX deviation	1) Menu No. : 41 (29.690MHz FM) Transmit	Power meter Linear detector					±4.5kHz According to the larger +, −.	±0.1kHz
14. SSB carrier point USB	1) Menu No. : 42 (14.200MHz USB) Transmit	Power meter Oscilloscope					Waveform cross	OK  NG 
LSB	2) Menu No. : 43 (14.200Mhz LSB) Transmit							

ADJUSTMENT

Item	Condition	Measurement			Adjustment			Specifications/Remarks
		Test-equipment	Unit	Terminal	Unit	Parts	Method	
15. SSB carrier suppression USB	1) Menu No. : 44 (14.200MHz USB) Transmit	Power meter Oscilloscope	Rear panel	ANT	TX-RX (RF)	VR4 VR5	Carrier level MIN	50dB or less (Repeat check both LSB and USB.)
LSB	2) Menu No. : 45 (14.200MHz LSB) Transmit							
16. SWR protection	1) Menu No. : 46 (14.200MHz CW) Transmit	150Ω dummy Through type power meter			Front panel	UP or DOWN key	40W	±1.0W
17. SWR meter (SWR : 3.0)	1) Menu No. : 47 (1.840MHz CW) Transmit	150Ω dummy					1 push	
• Writing data : After items 7 to 17 have been adjusted; 1) Menu No. : 51 2) [UP] or [DOWN] key : Push once time Display "rEAdy" → "run" → "good" (If "nG" is displayed, enter data again.) 3) [CLR] key : Push once time.								
18. Spurious	1) Display f. : 24.900MHz MODE : CW Transmit	Power meter Spectrum analyzer	Rear panel	ANT	TX-RX (RF)	VR2	±1.650MHz Spurious level MIN	50dB or less
19. AT amplitude	1) Display f. : 29.690MHz MODE : CW Transmit Power : 10W	Power meter Oscilloscope	Rear panel Final	ANT TP1	Final	VR4	Turn the VR to the point where the waveform on the oscilloscope changes from high to low. (Threshold point)	
20. AT phase	1) Display f. : 29.690MHz MODE : CW Transmit Power : 10W			TP2		TC2	Turn the VC to the point where the waveform on the oscilloscope changes from high to low.	
21. MIC sensitivity SSB	1) Display f. : 14.200MHz MODE : USB AG : 1kHz/5mV Transmit	Power meter AG VTVM	Rear panel Front panel	ANT MIC			Check	90W or more
FM	1) Display f. : 29.000MHz MODE : FM AG : 1kHz/3mV **E,E2,E3** 1kHz/5mV **K,M2** Transmit	Power meter Linear detector AG VTVM Oscilloscope	Rear panel Front panel	ANT MIC				DEV : ±2.5~3.75kHz **K,M2** DEV : ±2.25~3.75kHz **E,E2,E3**
	2) AG : 1kHz/30mV **E,E2,E3** 1kHz/50mV **K,M2** Transmit							DEV : ±3.8~5.0kHz
22. Transmit frequency characteristic	1) Display f. : 14.200MHz MODE : USB/LSB AG : 1kHz/5mV 400Hz/5mV 2.6kHz/5mV Transmit	Power meter AG AF V.M	Rear panel Front panel	ANT MIC			Set AG to 1.0kHz and turn the [MULTI/CH] knob to set to 50W. Change the AG frequency and measure the difference between the power levels at 1.0kHz and at another frequency. Take a measurement for each USB and LSB.	Within 6dB

ADJUSTMENT

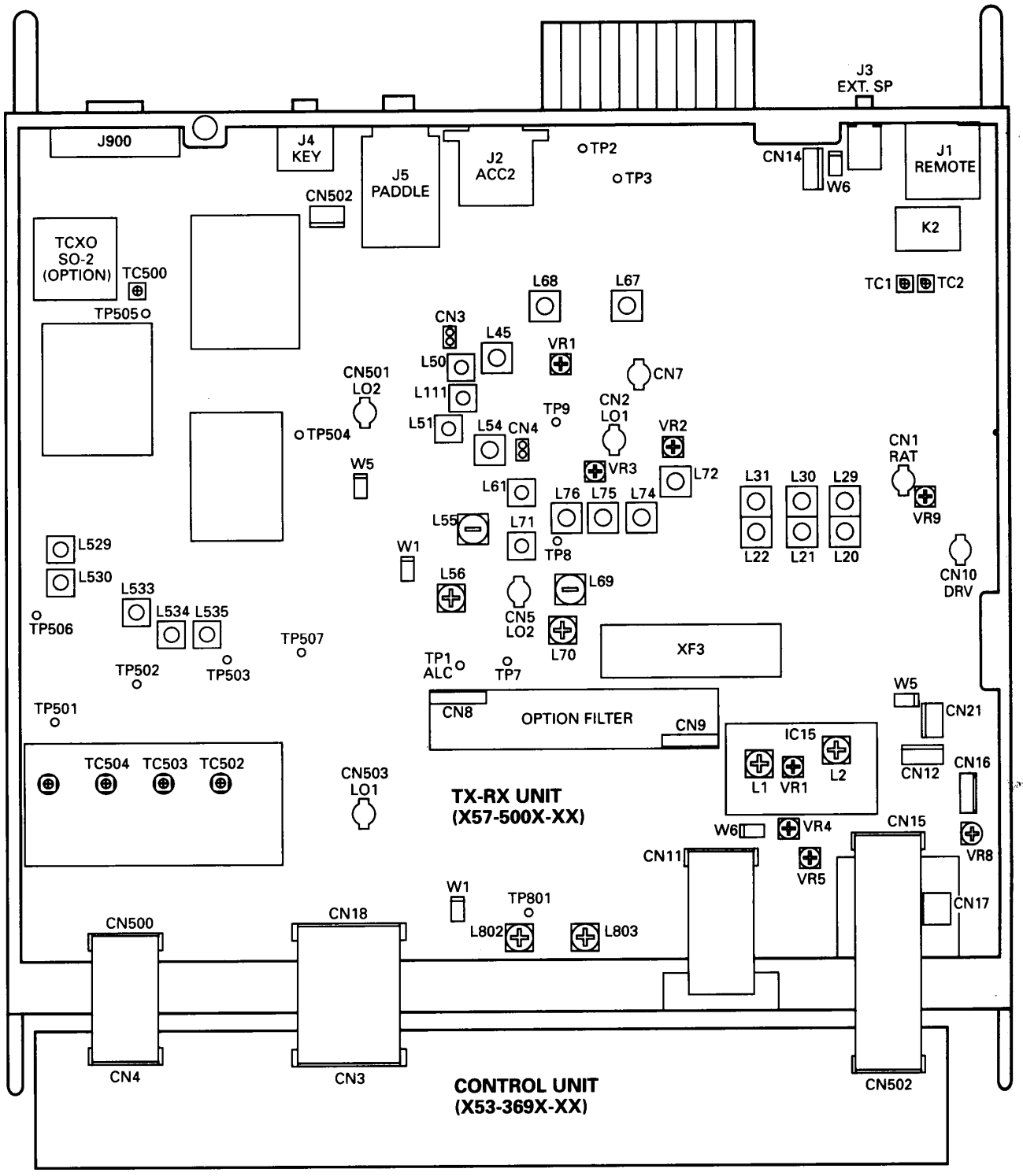
Adjustment Points (Top)



VR1,2 : Final idling current
VR3 : Power frequency characteristic
VR4 : AT amplitude
TC1 : NULL
TC2 : AT phase

ADJUSTMENT

Adjustment Points (Bottom)

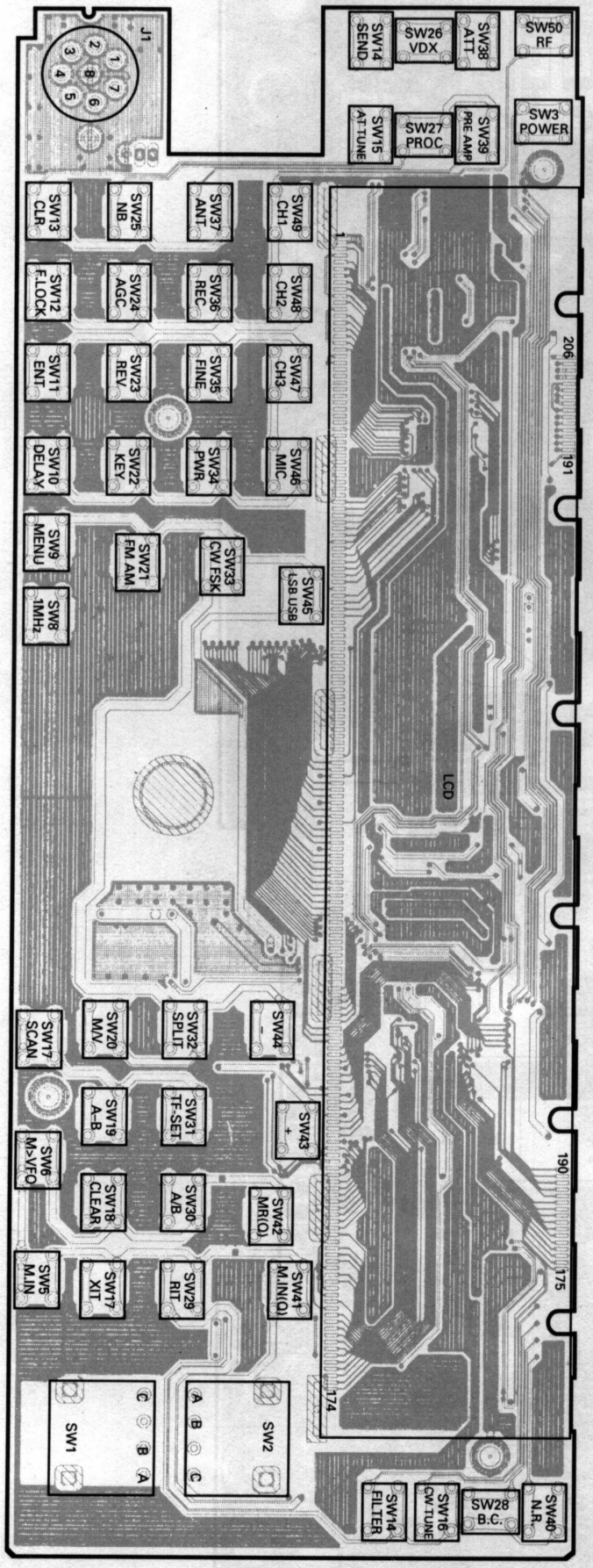


TC1,2 : Trap **E,E2,E3**
TC2 : Trap initialize setting **E,E2,E3**
TC500 : Reference oscillation
TC502 : Lock voltage (VCO1A)
TC503 : Lock voltage (VCO1B)
TC504 : Lock voltage (VCO1C)

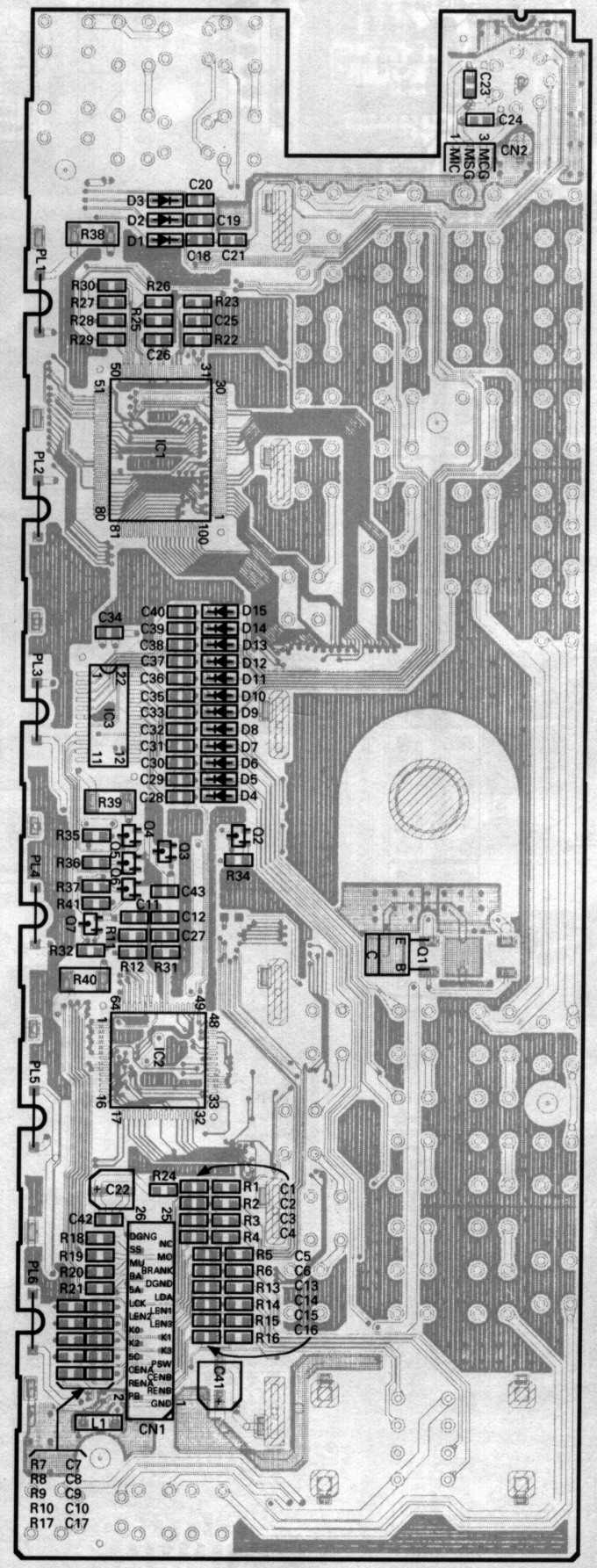
L20~22,29~31 : BPF
L45,50,51,54,111 : MCF (73MHz)
L55,56,61 : IF AMP
L67,68 : RF AMP
L69~72,74~76 : TX AMP
L529,530 : 60MHz
L533~535 : 65MHz BPF
L802,803 : NB

VR1 : RX MIX balance
VR2 : Spurious
VR3 : TX AMP
VR4 : SSB carrier suppression (USB)
VR5 : SSB carrier suppression (LSB)
VR9 : 14MHz TGC
IC15's VR1 : IF GAIN
IC15's L1,2 : IF AMP
*VR8 : VS-3 voice output level

LCD ASSY (B38-0765-05)
Component side view

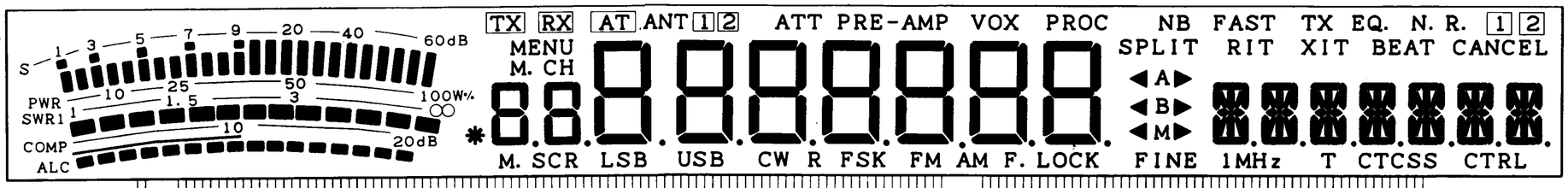


LCD ASSY (B38-0765-05)
Foil side view



LCD ASSY (B38-0765-05)

LCD1
• (B38-0779-08)



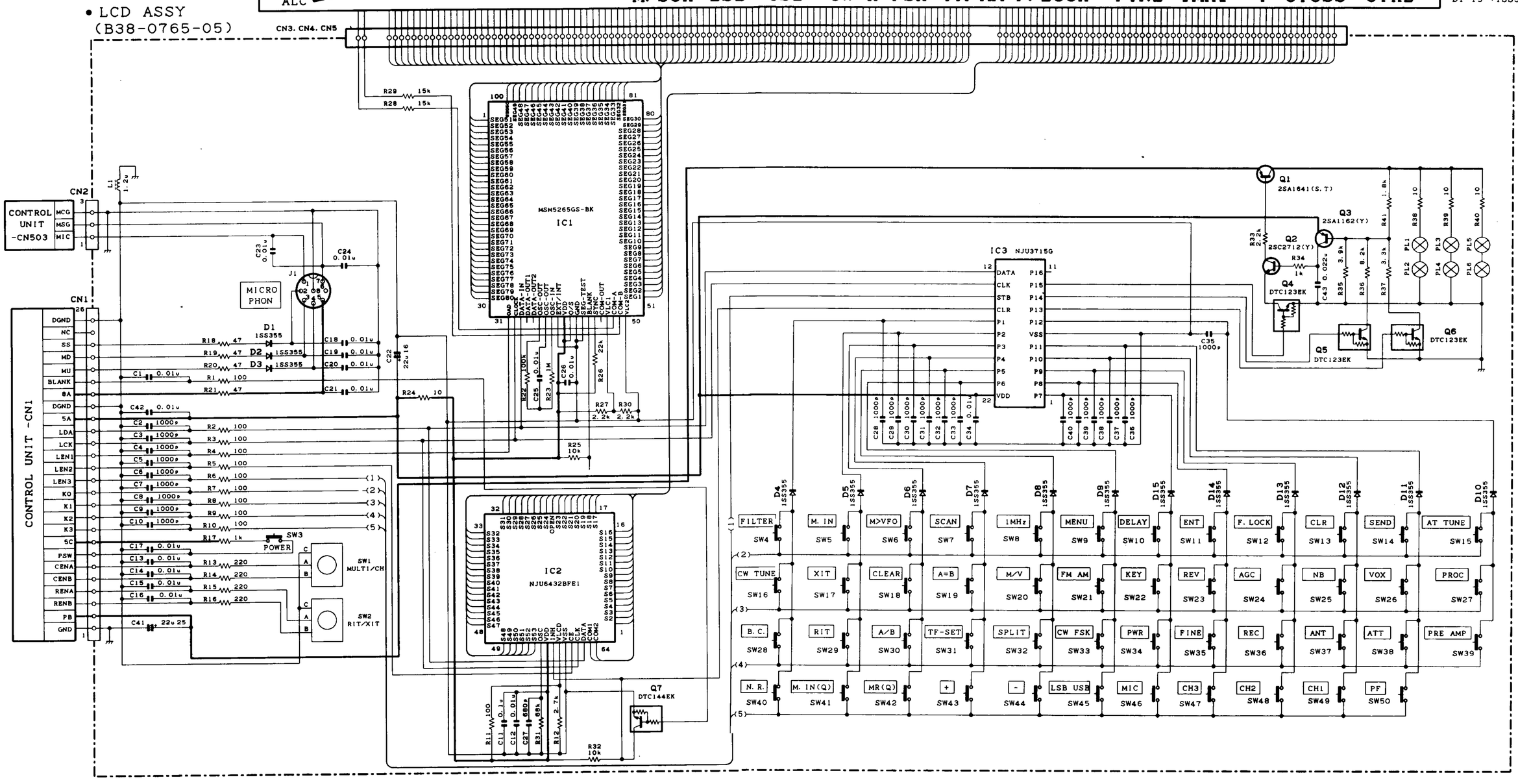
IC1 :MSM5265GS-BK
IC2 :NJU6432BFE1
IC3 :NJU3715G

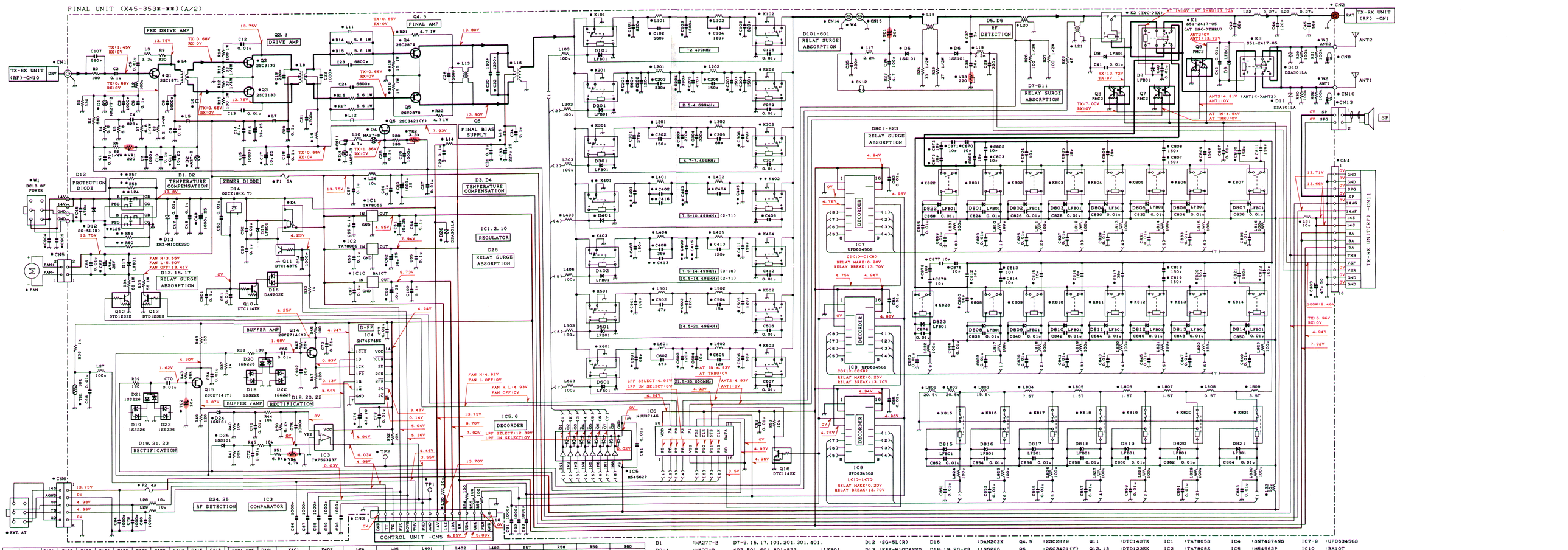
Q1 :2SA1641(S, T)
Q2 :2SC2712(Y)
Q3 :2SA1162(Y)
Q4-6 :DTC123EK
Q7 :DTC144EK

D1-15 :1SS355

• LCD ASSY
(B38-0765-05)

CN3. CN4. CN5

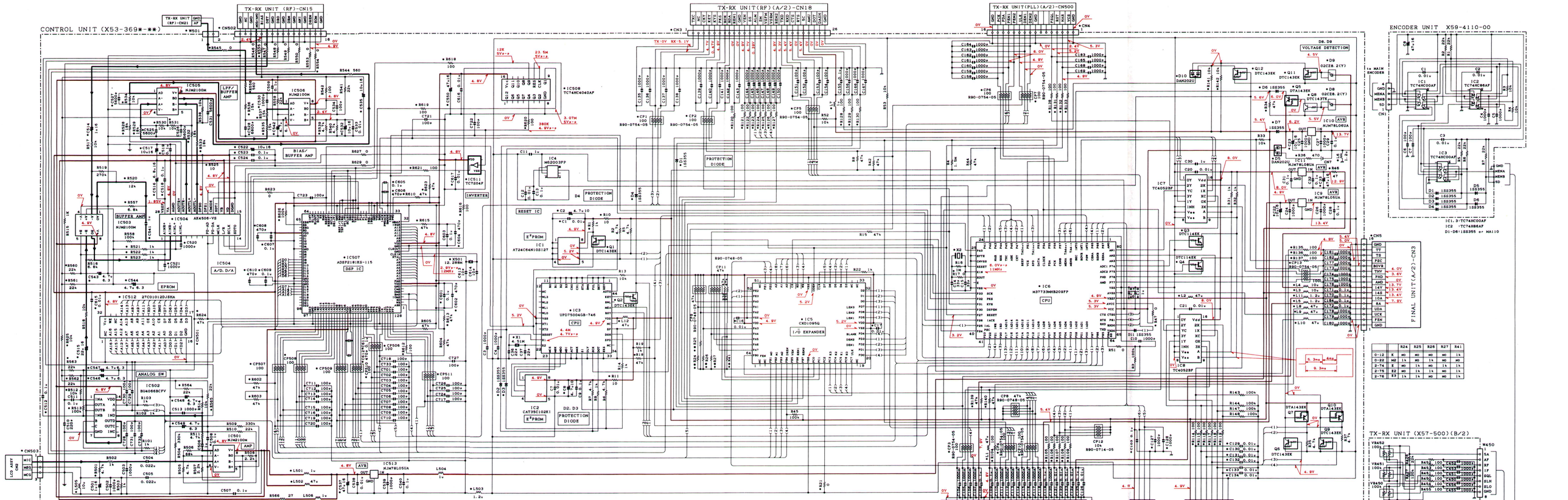




		C401	C402	C403	C404	C405	C406	C409	C413	C415	C416
0-10	K,M2	NO	NO	NO	NO	NO	NO	180P	5P	120P	NO
2-71	E, E2, E3	180P	47P	270P	150P	150P	0.01U	330P	NO	NO	5P

	C904, 905	D401	K401	K402	L24	L25	L401	L402	L403	R57	R58	R59	R60
	NO	NO	NO	NO	NO	NO	NO	NO	NO	B92-2569-05	B92-2569-05	B92-2569-05	B92-2569-05
	470P	LFB01	854-1420-05	854-1420-05	L79-0558-05	L79-0558-05	L39-1221-05	L39-1220-05	L40-1015-48	NO	NO	NO	NO

D1	:MA27T-B	D7-9, 15, 17, 101, 201, 301, 401,	D12	:SG-5L(R)	D16	:DAN202K	Q4, 5	:2SC2879	Q11	:DTC143TK	IC1	:TA7805S	IC4	:SN74S74NS	IC7-9	:UPD6345GS
D2-4	:MA27-B	402, 501, 601, 801-823	D13	:ERZ-M10DK220	D18, 19, 20-23	:1SS226	Q6	:2SC3421(Y)	Q12, 13	:TA7808S	IC2	:TA7805F	IC5	:M54562P	IC10	:BA10T
D5, 6, 24, 25	:1SS101	D10, 11, 26	D14	:0ZC18(X, Y)	Q1	:2SC1971	Q7-9	:FMC2	Q14, 15	:2SC2714(Y)	IC3	:TA7533F	IC6	:NJU3714G		
					Q2, 3	:2SC3133	Q10, 16	:DTC114EK								


CONTROL UNIT (X53-369*-**)
TX-RX UNIT (RF)-CN15
TX-RX UNIT (RF)-CN21
TX-RX UNIT(RF)(A/2)-CN18
TX-RX UNIT(PLL)(A/2)-CN500
ENCODER UNIT X59-4110-00
TX-RX UNIT (X57-500)(B/2)
LCD ASSY -CN1
FINAL UNIT(A/2)-CN3
IC505 NJM2100M
IC506 NJM2100M
IC503 NJM2100M
IC504 AK4506-VS
IC507 ADSP2181KS-115
DSP IC
IC1 AT24C64N10SI27
IC2 CAT35C102KI
IC3 UPD75004GB-746
CPU
IC4 M62003FP
IC5 CXD1095Q
I/O EXPANDER
IC6 M37733MHB209FP
CPU
IC7 TC4052BF
IC8 TC4052BF
IC501 NJM2100M
IC502 BU4066BCFV
IC508 TC74HC4040AF
IC509 NJM78L05UA
IC510 NJM78L05UA
IC511 TC7S04F
IC512 27C01012DJSHA
IC513 NJM78L05UA
D2, D3 PROTECTION DIODE
D4 PROTECTION DIODE
D6, D9 VOLTAGE DETECTION
D10 DAN202U
Q1 DTC143EK
Q2 DTC143EK
Q3 DTC114EK
Q4 DTC114EK
Q5 DTA143EK
Q6 DTC143EK
Q7 DTA143EK
Q8 DTC143EK
Q9 DTC143EK
Q10 DTA143EK
Q11 DTC143EK
Q12 DTC143EK
LPF/ BUFFER AMP
BIAS/ BUFFER AMP
BUFFER AMP
ANALOG SW
EPROM
A/D, D/A
INVERTER
PROTECTION DIODE
RESET IC
E²PROM
AVR
AMP
CP1 R90-0748-05
CP2 R90-0754-05
CP3 R90-0754-05
CP4 R90-0754-05
CP5 R90-0754-05
CP6 R90-0754-05
CP7 R90-0748-05
CP8 R90-0748-05
CP12 R90-0714-05
X1 4.91M
X2 10M
X501 12.288M
X502 12.288M
CN1
CN2
CN3
CN4
CN501
CN502
CN503
CN504
CN505
CN506
CN507
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CN523
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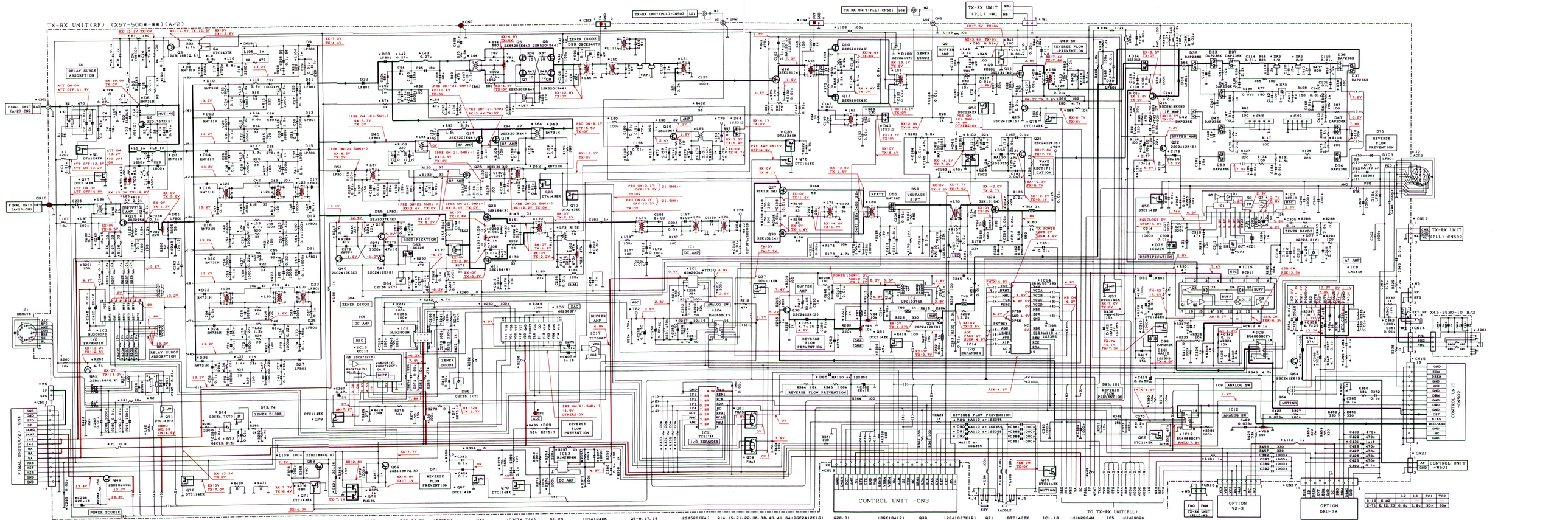
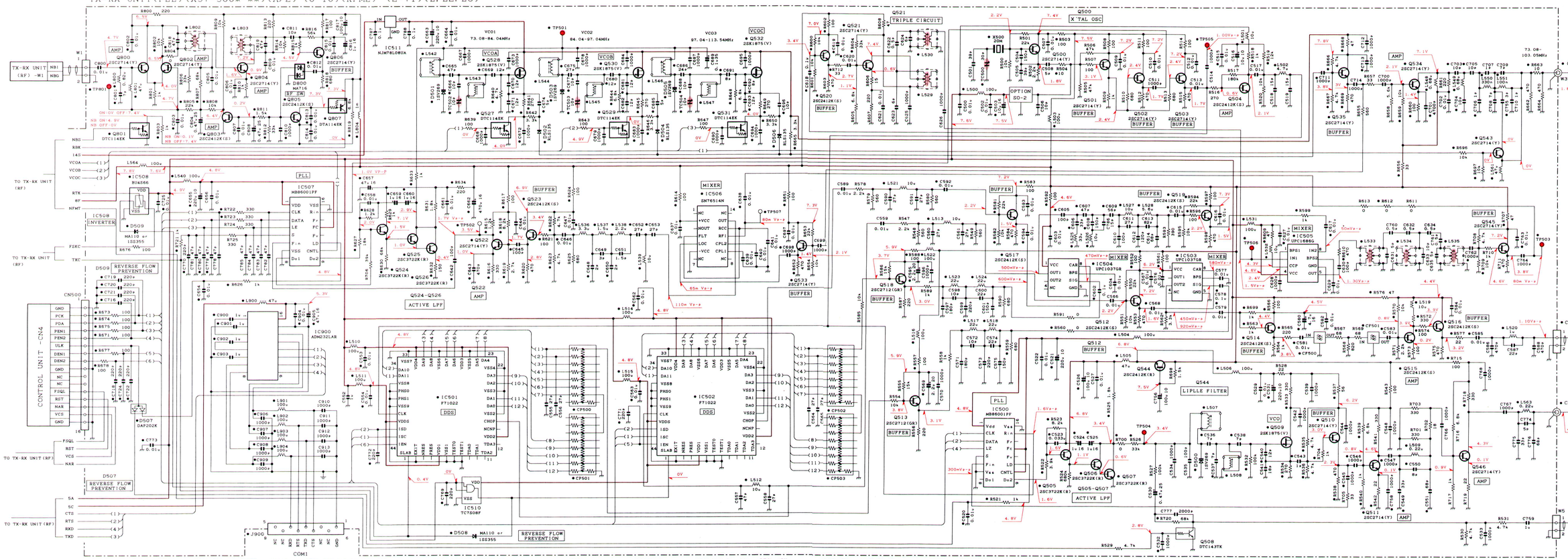
CN528
CN529
CN530
CN531
CN532
CN533
CN534
CN535
CN536
CN537
CN538
CN539
CN540

TX-RX UNIT (X57-500X-XX) : RF 0-10 : K,M2 2-71 : E,E2,E3

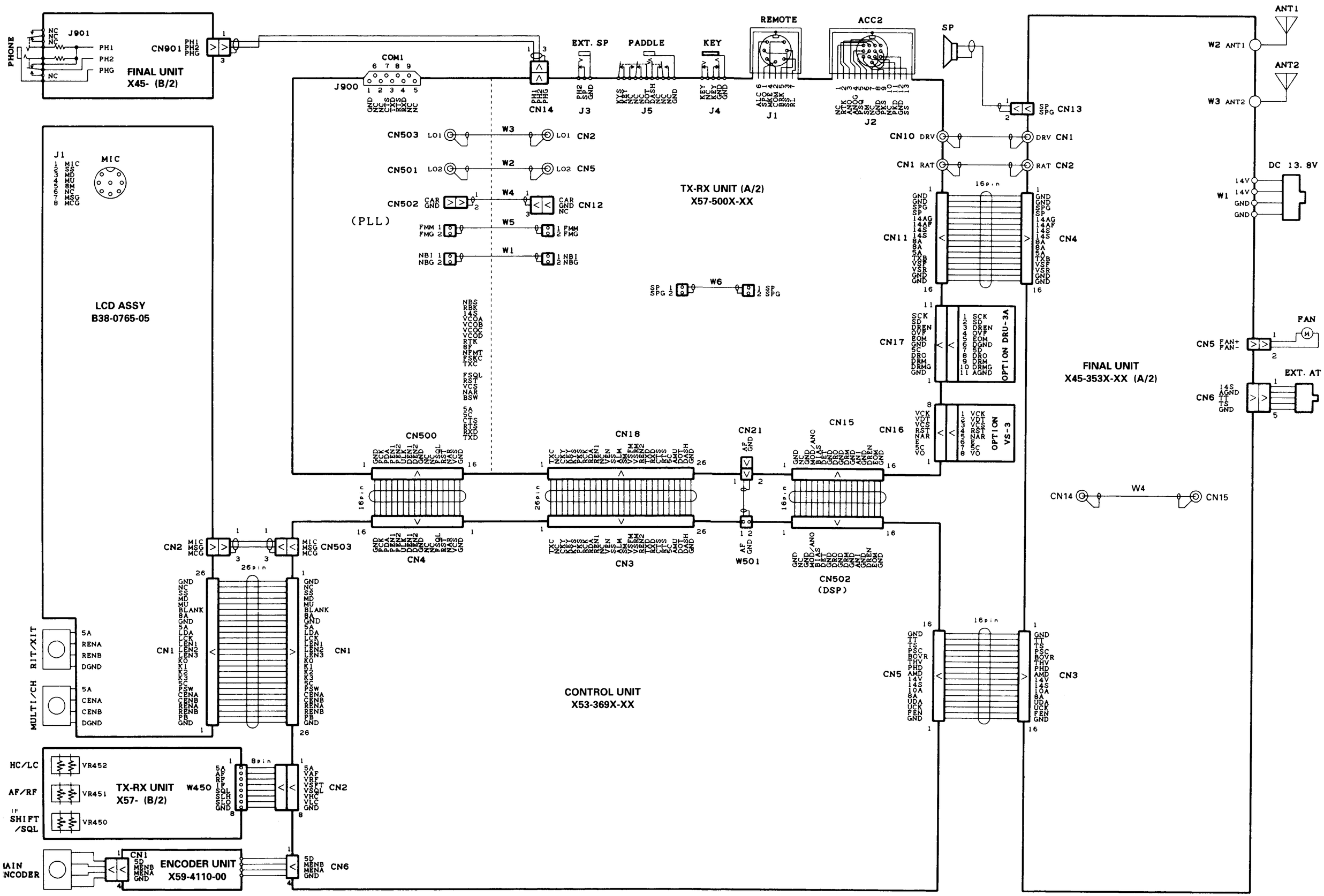


0-10 K, M2	2-71 E, E2, E3	L2 6.8μ	L3 3.9μ	TC1 30P	TC2 30P

TX-RX UNIT(PLL)(X57-500*-**)(A/2) (0-10)(K.M2) (2-71)(E.E2.E3)



WIRING


PHONE
J901
NC
NC
NC
PH1
PH2
NC
PHG
CN901 PH1 PH2 PHG
FINAL UNIT
X45- (B/2)
COM1
6 7 8 9
J900
1 2 3 4 5
GND NC NC TXD RTS RXD NC NC
CN14
EXT. SP
PH2 SP GND
J3
PADDLE
KYS MIC NC DOT DASH NC NC GND
J5
KEY
KEY
J4
REMOTE
ALC 6 4 5 3 7
J1
ACC2
NC CK ANO ANO PSK GND PKS PKD GND SS
J2
SP
SP SPG CN13
ANT1
W2 ANT1
ANT2
W3 ANT2
DC 13.8V
W1
14V 14V GND GND
CN10 DRV
DRV CN1
CN1 RAT
RAT CN2
16pin
CN11
CN4
FAN
CN5 FAN+ FAN-
EXT. AT
CN6
14S AGND TT TS GND
CN17
OPTION DRU-3A
SCK SD DREN OVF EOM GND SC DRO DRM DRMG GND
CN16
OPTION VS-3
VCK VDT VCS RST NAR SC VO
FINAL UNIT
X45-353X-XX (A/2)
J1
MIC
MIC SS MD MU SM NC MSG MCG
LCD ASSY
B38-0765-05
CN503 LO1
W3
LO1 CN2
CN501 LO2
W2
LO2 CN5
CN502 CAR GND
W4
CAR GND NC CN12
(PLL)
FMM FMG
W5
FMM FMG
NBI NBG
W1
NBI NBG
TX-RX UNIT (A/2)
X57-500X-XX
SP SPG
W6
SP SPG
NBS RBK 14S VCOA VCOB VCOC VCOD RTK 8F NPMT FSC TXC FSQL RST VCS NAR BSW 5A SC CTS RTS RXD TXD
CN500
CN18
CN21
AF GND
CN15
CN16
CN14
W4
CN15
CN2 MIC MSG MCG
CN503
CN4
CN3
W501
CN502
(DSP)
CN1
CN1
CONTROL UNIT
X53-369X-XX
CN5
CN3
MULTI/CH
RIT/XIT
5A RENA RENB DGND
5A CENA CENB DGND
HC/LC
AF/RF
IF SHIFT /SQL
VR452
VR451
VR450
TX-RX UNIT
X57- (B/2)
W450
8pin
5A AF RF IF SQL SLH SLO GND
CN2
MAIN ENCODER
CN1 5D MENB MENA GND
ENCODER UNIT
X59-4110-00
CN6

KENWOOD

ASI-0029

SUPPLEMENTARY INFO.

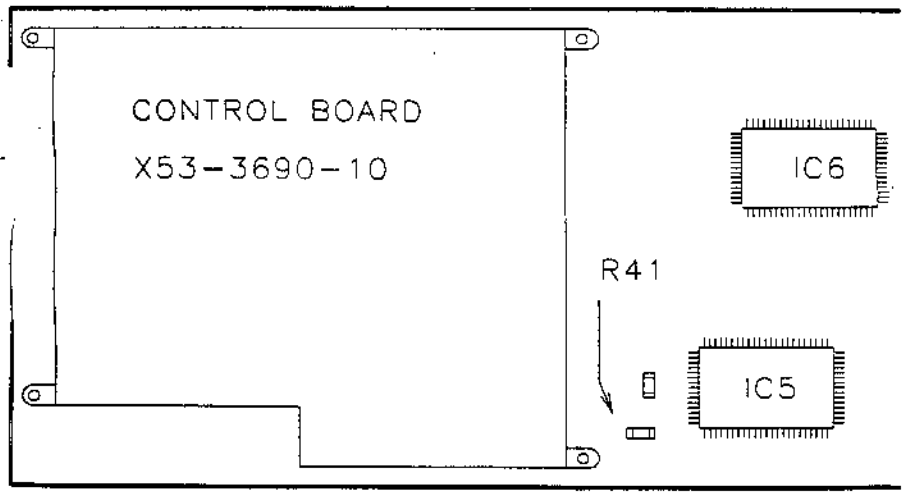
Amateur Radio Division

SUBJECT: TS-570D MARS/CAP MODIFICATION INFORMATION DATE: 10/11/96

This modification is provided "as is", and is subject to change without notice. Kenwood Service Corporation makes no warranty of any kind with regard to this modification procedure, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Kenwood Service Corporation shall not be liable for any error or for incidental or consequential damage in conjunction with the furnishing, performance, or use of this modification procedure.

It is illegal to operate outside the limits of your class license or permits.

1. Disconnect the power cord and antenna coax from the transceiver.
2. Remove the top and bottom covers.
3. Remove the top screw from each side of the front panel assembly.
4. Loosen the bottom screw from each side of the front panel assembly.
5. Carefully rotate the front panel forward to gain access to the Control board (X53-3690-10). This board is mounted vertically against the body of the transceiver. It is not the board that is mounted in the front panel assembly.
6. Locate and remove resistor R41 from the Control board.
7. Assemble the transceiver then perform the CPU reset procedure by holding the A=B button depressed as power is turned on.



This modification requires soldering equipment rated for CMOS type circuits. It also requires familiarity with surface mount soldering techniques. If you do not have the proper equipment or knowledge, do not attempt this modification. Seek qualified assistance

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