

Dual-Band
Heavy Duty Submersible Transceiver

VX-6R

Technical Supplement

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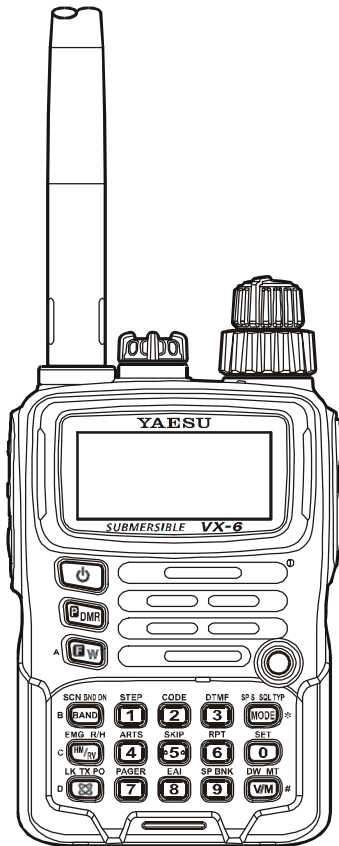
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Introduction

This manual provides the technical information necessary for servicing the VX-6R Dual-Band Heavy Duty Submersible Transceiver.

Servicing this equipment requires expertise in handling surface-mount chip components. Attempts by non-qualified persons to service this equipment may result in permanent damage not covered by the warranty, and may be illegal in some countries.

Two PCB layout diagrams provided for each double-sided board in this transceiver. Each side of the board is referred to by the type of the majority of components installed on that side ("Side A" or "Side B"). In most cases one side has only chip components, and the other has either a mixture of both chip and leaded components (trimmers, coils, electrolytic capacitors, ICs, etc.), or leaded components only.

While we believe the information in this manual to be correct, VERTEX STANDARD assumes no liability for damage that may occur as a result of typographical or other errors that may be present. Your cooperation in pointing out any inconsistencies in the technical information would be appreciated.

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Specifications

General

Frequency Ranges:	Rx 0.5 - 1.8 MHz (BC Band) 1.8 - 30 MHz (SW Band) 30-76 (59) MHz (50 MHz HAM: USA version) 76 (59)-108 MHz (FM: USA version) 108-137 MHz (Air Band) 137-174 MHz (144 MHz HAM Band) 174-222 MHz (VHF-TV Band) 222-420 MHz (ACT1: Action Band 1: USA version) 420-470 MHz (430 MHz HAM Band) 470-800 (729) MHz (UHF-TV: EXP version) (758-774) MHz (ACT2: Action Band 2, cellular Blocked)
	Tx: 144 - 146 (148) MHz 222-225 MHz (USA only) 430 - 440 (450) MHz
Channel Steps:	5/9/10/12.5/15/20/25/50/100 kHz
Frequency Stability:	±5 ppm @ 14 °F to +122 °F (−10 °C to +50 °C)
Emission Type:	F2D, F3E
Antenna Impedance:	50-ohm
Supply Voltage: (Negative Ground)	Nominal: 7.4 V DC Operating: 5 - 16.0 V DC (EXT DC jack) 11.0 - 16.0 V DC (EXT DC jack with Charging)
Current Consumption: (Approx. @7.4 V)	150 mA (Receive) 60 mA (Standby, Saver Off) 30 mA (Standby, Saver On) 900 μA (ON Timer Activated) 200 μA (Auto Power Off) 1.6 A (5 W TX, 144MHz) 1.5 A (1.5 W TX, 222 MHz: USA only) 1.8 A (5 W TX, 430 MHz)
Operating Temperature:	−4 °F to +140 °F (−20°C to +60°C)
Case Size:	2.3" (W) x 3.5" (H) x 1.1" (D) (58 x 89 x 28.5 mm) (w/o knob, antenna, and beltclip)
Weight (Approx.):	9.5 Oz (270 g) with FNB-80LI, and antenna



Specifications

Transmitter

RF Power Output:		High	Low 3	Low 2	Low 1
	144 MHz/430 MHz	5.0 W	2.5 W	1.0 W	0.3 W
	220 MHz	1.5 W	1.0 W	0.5 W	0.2 W
Modulation Type:	Variable Reactance F2D, F3E				
Maximum Deviation:	±5.0 kHz (F2D, F3E)				
Spurious Emission:	At least 60 dB below (@ High power)				
Microphone Impedance:	2 k-ohm				

Receiver

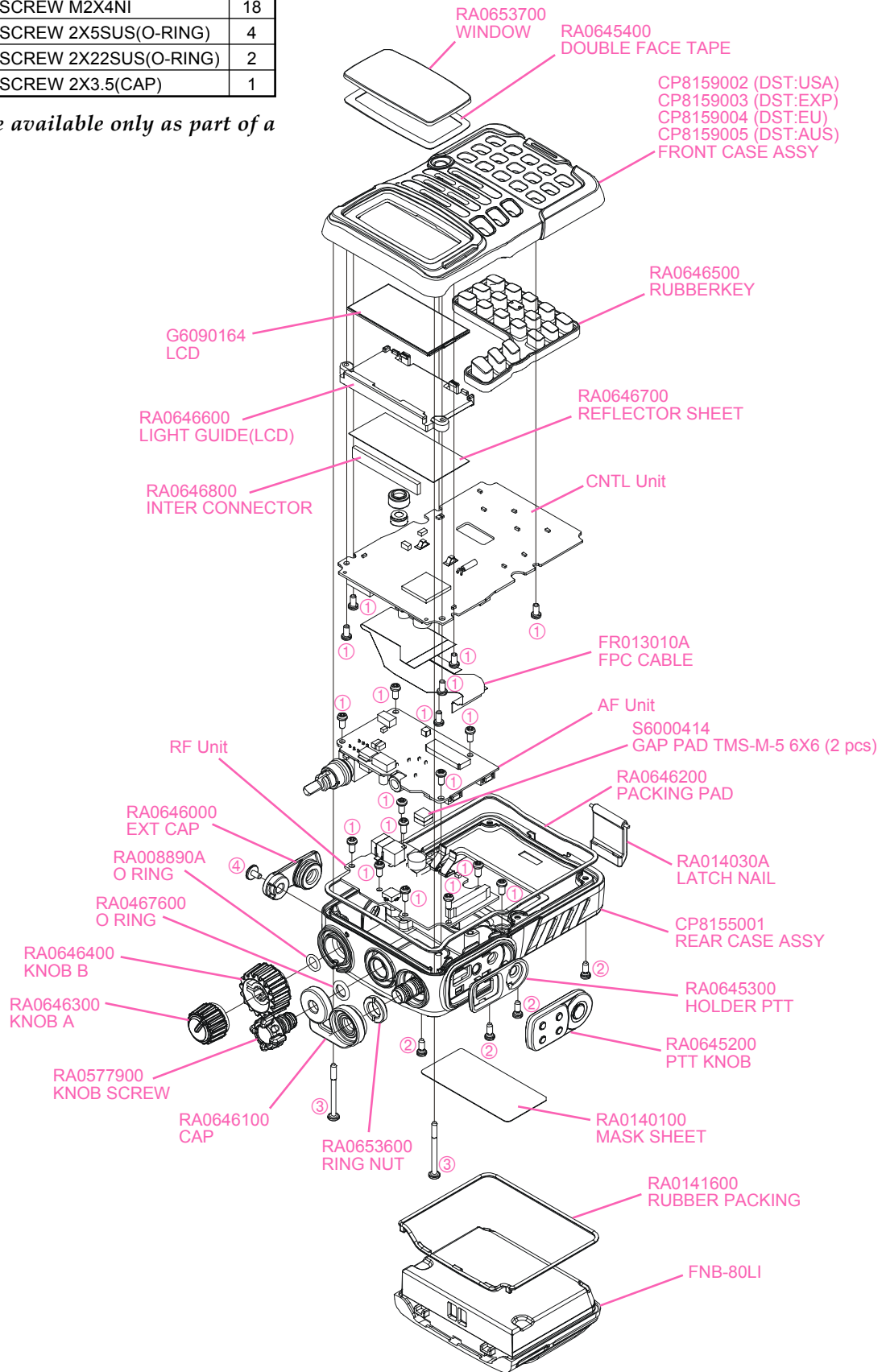
Circuit Type:	AM, NFM: Double-Conversion Superheterodyne WFM: Triple-Conversion Superheterodyne		
Intermediate Frequencies:	1st	2nd	3rd
	AM, NFM: 47.25 MHz	450 kHz	
	WFM: 45.8 MHz	10.7 MHz	1 MHz
Sensitivity: (Cellular Blocked)	1.5 µV for 10 dB SN (0.5 - 1.8 MHz, AM)		
	1 µV for 10 dB SN (1.8 - 30 MHz, AM)		
	0.35 µV TYP for 12 dB SINAD (30 - 54 MHz, NFM)		
	0.5 µV TYP for 12 dB SINAD (54 - 76 MHz, NFM)		
	0.5 µV TYP for 12 dB SINAD (54 - 59 MHz, NFM:USA)		
	1 µV TYP for 12 dB SINAD (76 - 108 MHz, WFM)		
	1 µV TYP for 12 dB SINAD (59 - 108 MHz, WFM:USA)		
	1.5 µV TYP for 10 dB SN (108 - 137 MHz, AM)		
	0.2 µV for 12 dB SINAD (137 - 140 MHz, FM)		
	0.16 µV for 12 dB SINAD (140 - 150 MHz, FM)		
	0.2 µV for 12 dB SINAD (150 - 174 MHz, FM)		
	0.5 µV TYP for 12 dB SINAD (174 - 250 MHz, WFM)		
	0.5 µV for 12 dB SINAD (300 - 350 MHz, NFM)		
	0.2 µV for 12 dB SINAD (350 - 420 MHz, NFM)		
	0.18 µV for 12 dB SINAD (420 - 470 MHz, NFM)		
	1 µV for 12 dB SINAD (470 - 540 MHz, WFM)		
	1 µV TYP for 12 dB SINAD (580 - 800 MHz, WFM)		
Selectivity:	0.5 µV TYP for 12 dB SINAD (800 - 999 MHz, NFM)		
	AM, NFM: 12 kHz/35 kHz (-6 dB/-60 dB)		
AF Output:	WFM: 200 kHz/500 kHz (-6 dB/-20 dB)		
	200 mW @ 8 ohm for 10 % THD (@ 7.4V DC)		
	400 mW @ 8 ohm for 10 % THD (@ 13.8V DC)		

Specifications are subject to change without notice, and are guaranteed within amateur bands only.

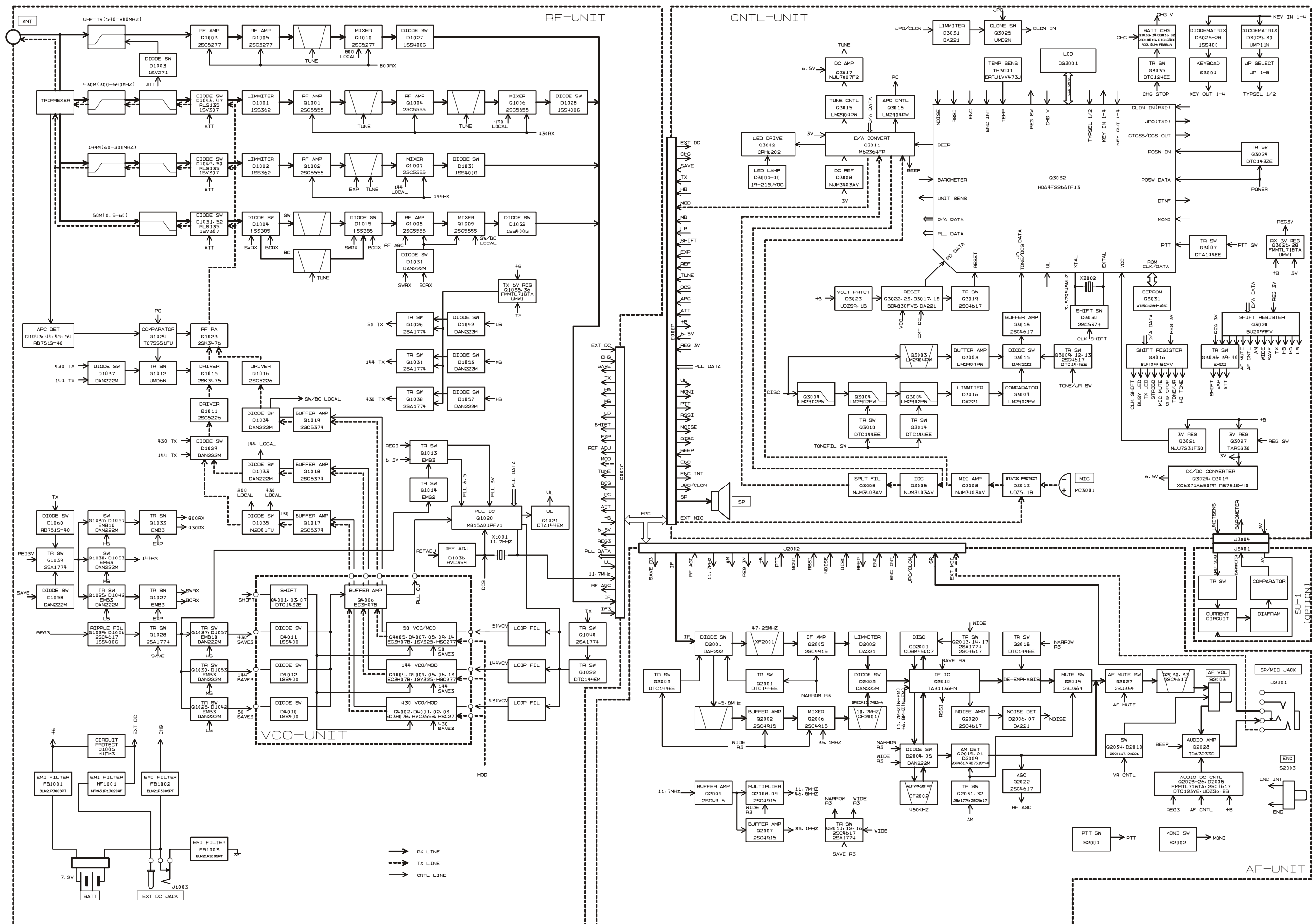
Exploded View & Miscellaneous Parts

No.	VXSTD P/N	Description	Qty.
①	U44104002	TAPTITE SCREW M2X4NI	18
②	U9900180	TAPTITE SCREW 2X5SUS(O-RING)	4
③	U9900179	TAPTITE SCREW 2X22SUS(O-RING)	2
④	U9900181	TAPTITE SCREW 2X3.5(CAP)	1

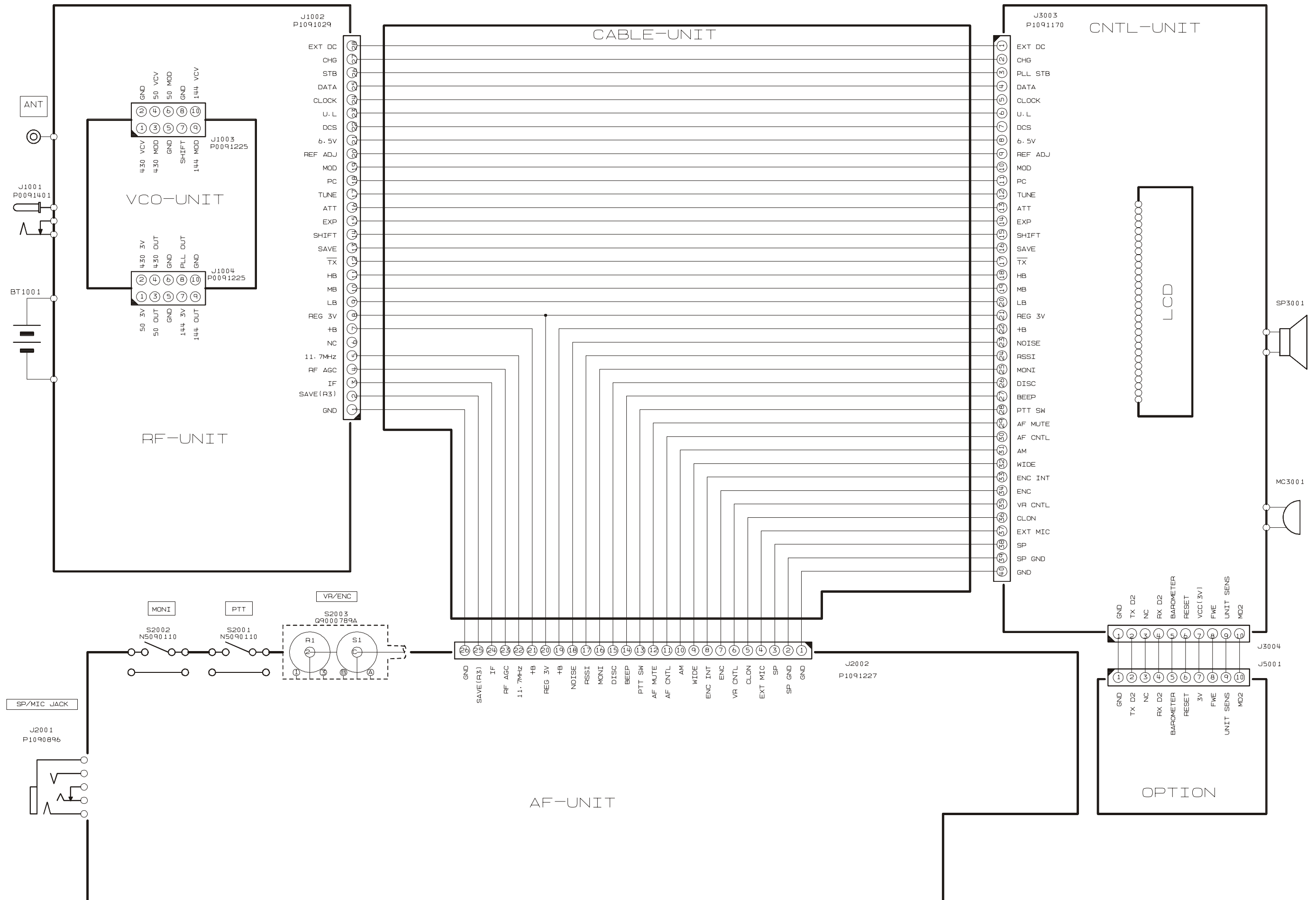
Non-designated parts are available only as part of a designated assembly.



Block Diagram



Interconnection Diagram



Circuit Description

The VX-6R consists of a RF-UNIT, a CNTL-UNIT and an AF-UNIT. The RF-UNIT contains the receiver front end, PLL IC, power and switching circuits, and the VCO-UNIT for transmit and receive local signal oscillation. The CNTL-UNIT contains the CPU, and audio ICs, and the power circuitry for the LCD. The AF-UNIT contains the IF, and audio ICs.

Receiver Signal Flow

The VX-6R includes four receiver front ends, each optimized for a particular frequency range and mode combination.

(1) Triplexer

Signals between 0.5 and 580 MHz received at the antenna terminal pass through a first low-pass filter.

Received 430 MHz band signals, after passing through a low-pass filter to the UHF T/R switch circuit composed of diode switch D1046, D1047.

Received 145 MHz band signals, after passing through a low-pass filter to the VHF T/R switch circuit composed of diode switch D1049, D1050.

Received 50 MHz band signals, after passing through a low-pass filter to the 50MHz T/R switch circuit composed of diode switch D1051, D1052.

(2) 0.50-60 MHz Reception

Received signals between 0.5 and 60 MHz pass through the Triplexer circuit, low-pass filter circuit, T/R switch diode D1051 and D1052 before additional filtering by a band-pass filter prior to application to RF amplifier Q1008 (**2SC5555ZD-TR**). The amplified RF signal is pass through the band-pass filter to first mixer Q1009 (**2SC5555ZD-TR**). Meanwhile, 50MHz output from the VCO-UNIT is amplified by Q1019 (**2SC5374-TL**) and applied through diode switch D1034 (**DAN222M-T2L**) to mixer Q1009 (**2SC5555ZD-TR**) as the first local signal. The 47.25 MHz (Narrow, 45.8 MHz: Wide) intermediate frequency product of the mixer is delivered to the AF-UNIT. The TUNE voltage from the CPU on the CNTL-UNIT is amplified by DC amplifier Q3017 (**NJU7007F2-TE1**) and applied to varactor D1014 in the variable frequency band-pass filters. By changing the electrostatic capacitance of the varactors, optimum filter characteristics are provided for each specific operating frequency.

(3) 60-300MHz Reception

Received signals between 60 and 300 MHz pass through the Triplexer circuit, low-pass filter/high-pass filter circuit, VHF T/R switch circuit and protector diode D1002 (**1SS362-TE85R**) before additional filtering by a band-pass filter prior to application to RF amplifier Q1002 (**2SC5555ZD-TR**). The amplified RF signal is pass through the band-pass filter to first mixer Q1007 (**2SC5555ZD-TR**). Meanwhile, VHF output from the VCO-UNIT is amplified by Q1018 (**2SC5374-TL**) and applied through diode T/R switch D1033 (**DAN222M-T2L**) to mixer Q1007 (**2SC5555ZD-TR**) as the first local signal. The 47.25 MHz (Narrow, 45.8 MHz: Wide) intermediate frequency product of the mixer is delivered to the AF-UNIT. The TUNE voltage from the CPU on the CNTL-UNIT is amplified by DC amplifier Q3017 (**NJU7007F2-TE1**) and applied to varactors D1008 and D1009, D1011, D1012, D1020, D1021, D1022, D1023, D1025 and D1026 in the variable frequency band-pass filters. By changing the electrostatic capacitance of the varactors, optimum filter characteristics are provided for each specific operating frequency.

(4) 300-580MHz Reception

Received signals between 300 and 580 MHz pass through the Triplexer circuit, low-pass filter/high-pass filter circuit, UHF T/R switch circuit and protector diode D1001 before additional filtering by a band-pass filter prior to application to RF amplifier Q1001 (**2SC5555ZD-TR**). The amplified RF signal is pass through the band-pass filter, RF amplifier Q1004 (**2SC5555ZD-TR**) and band-pass filter to first mixer Q1006 (**2SC5555ZD-TR**). Meanwhile, UHF output from the VCO-UNIT is amplified by Q1017 (**2SC5374-TL**) and applied through diode T/R switch D1035 (**HN2D01FUTE85R**) to mixer Q1006 as the first local signal. The 47.25 MHz (Narrow, 45.8 MHz: Wide) intermediate frequency product of the mixer is delivered to the AF-UNIT. The TUNE voltage from the CPU on the CNTL-UNIT is amplified by DC amplifier Q3017 (**NJU7007F2-TE1**) and applied to varactors D1006, D1007, D1018 and D1019 in the variable frequency band-pass filters. By changing the electrostatic capacitance of the varactors, optimum filter characteristics are provided for each specific operating frequency.

(5) 580 - 999 MHz Reception

Received signals between 580 and 999 MHz pass through the high-pass filter circuit, switch D1003 to ap-

Circuit Description

plication to RF amplifier Q1003 (**2SC5277-D2-TL**) and Q1005 (**2SC5277-D2-TL**). The amplified RF signal is pass through the band-pass filter to first mixer Q1010 (**2SC5277-D2-TL**). Meanwhile, UHF output from the VCO-UNIT is amplified by Q1017 (**2SC5374-TL**) and applied through diode T/R switch D1035 (**HN2D01FUTE85R**) to mixer Q1010 (**2SC5277-D2-TL**) as the first local signal. The (Narrow, 45.8 MHz: Wide) intermediate frequency product of the mixer is delivered to the AF-UNIT. The TUNE voltage from the CPU on the CNTL-UNIT is amplified by DC amplifier Q3017 (**NJU7007F2-TE1**) and applied to varactors D1016 and D1017 in the variable frequency band-pass filters. By changing the electrostatic capacitance of the varactors, optimum filter characteristics are provided for each specific operating frequency.

(6) 47.25 MHz First Intermediate Frequency

The 47.25 MHz first intermediate frequency from first mixers is delivered from the RF-UNIT to the AF-UNIT through jacks J1002 and J2002. On the AF-UNIT, the IF for AM and FM-narrow signals is passed through NAR/WIDE switch D2001 (**DAP222-TL**) and D2003 (**DAN222M-T2L**), and 47.25 MHz monolithic crystal filter (MCF) XF2001 to narrow IF amplifier Q2005 (**2SC4915**) for input to pin 16 of Narrow IF IC Q2010 (**TA31136FN**) after amplitude limiting by D2002 (**DA221-TL**). Meanwhile, a portion of the output of 11.7 MHz crystal X1001 on RF-UNIT is multiplied fourfold by Q2008 (**2SC4915**) and Q2009 (**2SC4915**) to provide the 46.8 MHz second local signal, applied to the Narrow IF IC. Within the IC, this signal is mixed with the 47.25 MHz first intermediate frequency signal to produce the 450 kHz second intermediate frequency.

This second IF is filtered by ceramic filter CF2002 and amplified by the limiting amplifier within the Narrow IF IC before quadrature detection by ceramic discriminator CD2001. Demodulated audio is output from pin 9 of the Narrow IF IC through narrow mute analog switch Q2019 (**2SJ364-R**) and squelch gate Q2020 (**2SC4617 TL R**) before de-emphasis.

The resulting audio is amplified by AF amplifier Q2028 (**TDA7233D-TR**) and output through MIC/EAR jack J2001 to internal speaker SP3001 or an external earphone.

(7) Squelch Control

Signal components in the neighborhood of 15 kHz contained in the discriminator output pass through an active band-pass filter composed of R2041, R2043, R2044, C2049, C2055 and the operational amplifier between pins 7 and 8 within Narrow IF IC Q2010 (**TA31136FN**). They are then rectified by D2006 and D2007 (both **DA221-TL**) to obtain a DC voltage corresponding to the level of noise. This voltage is input to pin 51 of CPU Q3032 (**HD64F2266TF13**), which compares the input voltage with a previously set threshold. When the input voltage drops below the threshold, normally due to the presence of a carrier, turning on squelch gate Q2027 (**2SJ364-R**) and allowing any demodulated audio to pass. At the same time, Q3001 (**DTC144EE TL**) and/or Q3005 (**DTC144EE TL**) and/or Q3006 (**DTC144EE TL**) goes on, causing the BUSY/TX lamp D3001 and D3012 to light.

Transmitter Signal Flow

(1) Transmit/Receive Switching

Closing PTT switch S2001 on the AF-UNIT pulls the base of Q3007 (**DTA144EE TL**) low, causing the collector to go high. This signal is input to pin 45 (PTT) of CPU Q3032 (**HD64F2266TF13**), allowing the CPU to recognize that the PTT switch has been pushed. When the CPU detects closure of the PTT switch, pin 9 of Q3020 (TX) (**BU2099FV-E2**) goes high. This control signal is delivered to the RF-UNIT, where it switches Q1039 (**2SA1774 TL R**) and Q1040 (**2SA1774 TL R**) to produce the TX control signal that activates Q1031 (**2SA1774 TL R**). At the same time, PLL division data is input to PLL IC Q1020 (**MB15A01PFV1-G-BND-EF**) from the CPU, to disable the receiver power saver. Also, switching Q1030 (**EMB3 T2R**) to disable the receiver circuits. Then causing the red side of BUSY/TX lamp D3011 to light.

(2) Modulation

Voice signal input from either built-in microphone MC3001 on CNTL-UNIT or external jack J2001 on the AF-UNIT is pre-emphasized by C3014 and R3031, and processed by microphone amplifier and IDC (instantaneous deviation control) circuit Q3008 (**NJM3403AV-TE1**) to prevent overmodulation, and active low-pass filter section of Q3008 (**NJM3403AV-TE1**).

During CTCSS operation, the voice signal is mixed with the TONE ENC subaudible tone signal from pin 43 of the CPU and delivered to the RF-UNIT through jacks J3003 and J1002. During DTMF operation, the DTMF tones from pin 55 of the CPU are input to the IDC stage.

(3) VHF Band (145/220 MHz) Transmission

Modulating audio from the CNTL-UNIT passes through deviation setting D/A converter Q3011 (**M62364FP 600D**) to VHF MOD of the VCO-UNIT mounted on the RF-UNIT. This signal is applied to varactor D4005 in the tank circuit of VHF VCO Q4004 (**EC3H07B-TL**), which oscillates at the desired VHF transmitting frequency. The modulated VCO signal is buffered by amplifier Q4006 (**EC3H07B-TL**) and Q1018 (**2SC5555ZD-TR**) and delivered through VHF T/R diode switch D1033 (**DAN222M-T2L**) to the RF-UNIT. The modulated low-level VHF transmit signal from the VCO is passed through diode switch D1029 (**DAN222M-T2L**) to amplifier Q1011 (**2SC5226-5-TL**). The modulated VHF transmit signal from the VCO is amplified by Q1015 (**2SK3475**) and RF power amplifier Q1023 (**2SK3476**) up to 5 W (depending on the power source). The RF output passes through TX diode switch D1049. RF output is passed by T/R switch and low-pass filter to suppress harmonics and spurious products before output to the antenna at the antenna terminal.

(4) UHF Band Transmission

Modulating audio from the CNTL-UNIT passes through deviation setting D/A converter Q3011 (**M62364FP 600D**) to UHF MOD of the VCO-UNIT mounted on the RF-UNIT. This signal is applied to varactor D4002 in the tank circuit of UHF VCO Q4002 (**EC3H07B-TL**), which oscillates at the desired UHF transmitting frequency. The modulated VCO signal is buffered by amplifier Q4006 (**EC3H07B-TL**) and Q1017 (**2SC5555ZD-TR**) and delivered through UHF T/R diode switch D1035 (**HN2D01FUTE85R**) to the RF-UNIT. The modulated low-level UHF transmit signal from the VCO is passed through diode switch D1029 (**DAN222M-T2L**) to amplifier Q1011 (**2SC5226-5-TL**). The modulated UHF transmit signal from the VCO is amplified by Q1015 (**2SK3475**) and RF power amplifier Q1023 (**2SK3476**) up to 5 W (depending on the power source). The RF output

passes through TX diode switch D1046. RF output is passed by T/R switch and low-pass filter to suppress harmonics and spurious products before output to the antenna at the antenna terminal.

PLL Frequency Synthesizer

PLL IC Q1020 (**MB15A01PFV1-G-BND-EF**) on the RF-UNIT consists of a data shift register, reference frequency divider, phase comparator, charge pump, intermittent operation circuit, and band selector switch. Serial PLL data from the CPU is converted into parallel data by the shift register in the PLL IC and is latched into the comparative frequency divider and reference frequency divider to set a frequency dividing ratio for each. An 11.7 MHz reference signal produced by X1001 is input to REF pin 1 of the PLL IC. The internal reference frequency divider divides the 11.7 MHz reference by 2,050 (or 1,640) to obtain a reference frequency of 5 kHz (or 6.25 kHz), which is applied to the phase comparator. Meanwhile, a sample of the output of VHF VCO Q4004 (**EC3H07B-TL**) or UHF VCO Q4002 (**EC3H07B-TL**) on the VCO-UNIT, buffered by Q4006 (**EC3H07B-TL**), is input to the PLL IC, where it is frequency-divided by the internal comparative frequency divider to produce a comparative frequency also applied to the phase comparator. The phase comparator compares the phase between the reference frequency and comparative frequency to output a pulse corresponding to the phase difference between them. This pulse is input to the charge pump, and the output from the charge pump passes through a loop filter composed of L1043, C1121, R1080, R1079, and either R1082, C1139, R1093 and C1145 for VHF, or R1081, C1138, R1092 and C1140 for UHF, which convert the pulse into a corresponding smoothed varactor control voltage (VCV). The VCV is applied to varactor D4004 and D4013 in the VHF VCO tank circuit, or to varactor D4001 in the UHF VCO tank circuit, to eliminate phase difference between the reference frequency and comparative frequency, and so locking the VCO oscillation frequency to the reference crystal. The VCO frequency is determined by the frequency-dividing ratio sent from the CPU to the PLL IC. During receiver power save operation, the PLL circuit operates intermittently to reduce current consumption, for which the intermittent operation control circuit reduces the lock-up time.

Circuit Description

Note:

Introduction

The **VX-6R** is carefully aligned at the factory for the specified performance across the amateur band. Realignment should therefore not be necessary except in the event of a component failure. Only an authorized VERTEX STANDARD representative should perform all component replacement and service, or the warranty policy may be void. The following procedures cover the adjustments that are not normally required once the transceiver has left the factory. However, if damage occurs and some parts subsequently are replaced, realignment may be required. If a sudden problem occurs during normal operation, it is likely due to component failure; realignment should not be done until after the faulty component has been replaced. We recommend that servicing be performed only by authorized VERTEX STANDARD service technicians who are experienced with the circuitry and fully equipped for repair and alignment. If a fault is suspected, contact the dealer from whom the transceiver was purchased for instructions regarding repair. Authorized VERTEX STANDARD service technicians realign all circuits and make complete performance checks to ensure compliance with factory specifications after replacing any faulty components. Those who do undertake any of the following alignments are cautioned to proceed at their own risk. Problems caused by unauthorized attempts at realignment are not covered by the warranty policy. Also, VERTEX STANDARD reserves the right to change circuits and alignment procedures in the interest of improved performance, without notifying owners.

Under no circumstances should any alignment be attempted unless the normal function and operation of the transceiver are clearly understood, the cause of the malfunction has been clearly pinpointed and any faulty components replaced, and realignment determined to be absolutely necessary.

The following test equipment (and familiarity with its use) is necessary for complete realignment. Correction of problems caused by misalignment resulting from use of improper test equipment is not covered under the warranty policy. While most steps do not require all of the equipment listed, the interactions of some adjustments may require that more complex adjustments be performed afterwards. Do not attempt to perform only a single step unless it is clearly isolated electrically from all other steps. Have all test equipment ready before beginning and, follow all of the steps in a section in the order presented.

Required Test Equipment

- RF Signal Generator with calibrated output level at 500 MHz
- Deviation Meter (linear detector)
- In-line Wattmeter with 5% accuracy at 500 MHz
- 50-ohm, 10-W RF Dummy Load
- 8-ohm AF Dummy Load
- Regulated DC Power Supply adjustable from 3 to 15 VDC, 3A
- Frequency Counter: 0.2-ppm accuracy at 500 MHz
- AF Signal Generator
- AC Voltmeter
- DC Voltmeter: high impedance
- UHF Sampling Coupler
- SINAD Meter

Alignment Preparation & Precautions

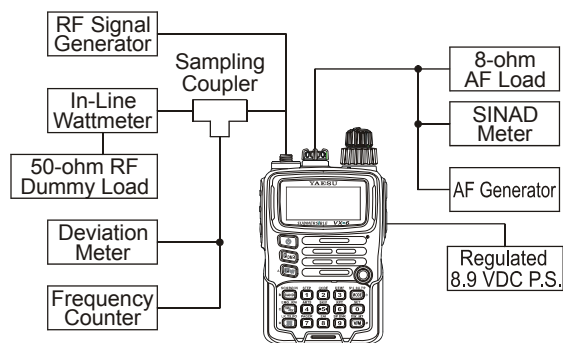
A 10 W RF dummy load and in-line wattmeter must be connected to the main antenna jack in all procedures that call for transmission, alignment is not possible with an antenna. After completing one step, read the next step to see if the same test equipment is required. If not, remove the test equipment (except dummy load and wattmeter, if connected) before proceeding.

Correct alignment requires that the ambient temperature be the same as that of the transceiver and test equipment, and that this temperature be held constant between 68 ~ 86 °F (20 ~ 30 °C). When the transceiver is brought into the shop from hot or cold air, it should be allowed some time to come to room temperature before alignment. Whenever possible, alignments should be made with oscillator shields and circuit boards firmly affixed in place. Also, the test equipment must be thoroughly warmed up before beginning.

Note: Signal levels in dB referred to in the alignment procedure are based on 0 dB μ =0.5 μ V (closed circuit).

Test Setup

Set up the test equipment as shown below for transceiver alignment, and apply 8.9 V DC power to the transceiver. Refer to the drawings for Alignment Points.



Alignment Setup

Alignment

Internal System Alignment Routine

This uses a programmed routine in the transceiver which simplifies many previously complex discrete component settings and adjustments with digitally-controlled settings via front panel buttons and LCD indications.

To begin, set the transceiver to the center of the 144 MHz, 220 MHz and 430 MHz bands. Next, select the 430 MHz band, then turn the transceiver off.

Now, press and hold the **[BAND]**, **[⊗]** and **[0]** buttons (at the same time) while powering the radio on again. The display will show the first setting.

Note: that the first few settings are not adjustable and are left as set from the factory.

In the alignment process, each adjustment is selected by rotating the **DIAL**. Alignment is performed by:

- Pressing the **[V/M]** button;
- Injecting a signal of the required frequency and level; then
- Pressing the **[V/M]** button after a level setting or adjustment is made. This second pressing of the **[V/M]** button stores the entry.

To exit the alignment routine, press the **[HOME]** button. After performing the system alignment in its entirety, individual settings can be returned to and adjust should the need arise

In the section to follow, typical default values (as set at the factory) are shown in brackets (e.g. [119]), to serve as a general guideline. As each transceiver is individually optimized at the factory, the precise settings for the transceiver on your bench may be slightly different.

PLL Reference Frequency (REF)

Press the **[V/M]** button, then transmit and adjust the counter frequency to 440.000 (± 300 Hz) by rotating the **DIAL**, then press the **[V/M]** button. Rotate the **DIAL** to select the next setting.

430 MHz band Alignment

Squelch Preset Threshold (THL) [167]

- Press the **[V/M]** button, then inject a -12.0 dB μ RF signal (1 kHz tone @ ± 3.5 kHz deviation), then rotate the **DIAL** for minimum squelch hysteresis, then press the **[V/M]** button. Rotate the **DIAL** to select the next setting.

Squelch Preset Tight (TLG) [136]

- Press the **[V/M]** button, then adjust the generator level to -4.0 dB μ , then press the **[V/M]** button. Rotate the **DIAL** to select the next setting.

S-Meter S-1 Adjustment (S1) [27]

- Press the **[V/M]** button, then adjust the generator level to -8.0 dB μ (1 kHz tone @ ± 3.5 kHz deviation), then press the **[V/M]** button. Rotate the **DIAL** to select the next setting.

S-Meter Full-Scale Adjustment (S9) [66]

- Press the **[V/M]** button, then adjust the generator level to $+20$ dB μ (1 kHz tone @ ± 3.5 kHz deviation), then press the **[V/M]** button. Rotate the **DIAL** to select the next setting.

Wide-FM S-Meter S-1 Adjustment (S1) [53]

- Press the **[V/M]** button, then adjust the generator level to 0 dB μ (1 kHz tone @ ± 20 kHz deviation), then press the **[V/M]** button. Rotate the **DIAL** to select the next setting.

Wide-FM S-Meter Full-Scale Adjustment (S9) [77]

- Press the **[V/M]** button, then adjust the generator level to $+20$ dB μ (1 kHz tone @ ± 20 kHz deviation), then press the **[V/M]** button. Rotate the **DIAL** to select the next setting.

High TX Power Adjustment (HP) [220]

- Press the **[V/M]** button, then transmit, and adjust the output power level for 5.0 W ± 0.3 W by rotating the **DIAL**, then press the **[V/M]** button. Rotate the **DIAL** to select the next setting.

LOW3 Tx Power Adjustment (LP3) [166]

- Press the **[V/M]** button, then transmit, and adjust the output power level for 2.5 W ± 0.2 W by rotating the **DIAL**, then press the **[V/M]** button. Rotate the **DIAL** to select the next setting.

L2 Tx Power Adjustment (LP2) [125]

- Press the **[V/M]** button, then transmit, and adjust the output power level for 1.0 W ± 0.1 W by rotating the **DIAL**, then press the **[V/M]** button. Rotate the **DIAL** to select the next setting.

L1 Tx Power Adjustment (LP1) [95]

- Press the **[V/M]** button, then transmit, and adjust the output power level for 0.3 W ± 0.1 W by rotating the **DIAL**, then press the **[V/M]** button. Rotate the **DIAL** to select the next setting.

TX Deviation Adjustment (DEU) [65]

- Inject a 1 kHz audio tone at a level of 50mV (rms) to the MIC jack. Press the **[V/M]** button, then transmit and adjust the deviation for 4.2 kHz \pm 0.2 kHz by rotating **DIAL**, then press the **[V/M]** button. Rotate the **DIAL** to select the next setting.

CTCSS Tx Deviation Adjustment (100) [15]

- Press the **[V/M]** button, then transmit and adjust the deviation for 0.6 kHz \pm 0.05 kHz by rotating **DIAL**, then press the **[V/M]** button. Rotate the **DIAL** to select the next setting.

DCS Tx Deviation Adjustment (DCS) [15]

- Press the **[V/M]** button, then transmit and adjust the deviation for 0.6 kHz \pm 0.05 kHz by rotating **DIAL**, then press the **[V/M]** button. Rotate the **DIAL** to select the next setting.

This completes the 430 MHz band internal alignment routine; press the **[BAND]** button to activate the 50 MHz band internal alignment routine.

50 MHz band Alignment

Squelch Preset Threshold (THL) [156]

- Press the **[V/M]** button, then inject a -8.0 dB μ RF signal (1 kHz tone @ \pm 3.5 kHz deviation), then press the **[V/M]** button. Rotate the **DIAL** to select the next setting.

Squelch Preset Tight (TLG) [124]

- Press the **[V/M]** button, then adjust the generator level to 0 dB μ , then press the **[V/M]** button. Rotate the **DIAL** to select the next setting.

S-Meter S-1 Adjustment (S1) [40]

- Press the **[V/M]** button, then adjust the generator level to -3.0 dB μ (1 kHz tone @ \pm 3.5 kHz deviation), then press the **[V/M]** button. Rotate the **DIAL** to select the next setting.

S-Meter Full-Scale Adjustment (S9) [71]

- Press the **[V/M]** button, then adjust the generator level to +20 dB μ (1 kHz tone @ \pm 3.5 kHz deviation), then press the **[V/M]** button. Rotate the **DIAL** to select the next setting.

Wide-FM S-Meter S-1 Adjustment (S1) [62]

- Press the **[V/M]** button, then adjust the generator level to +8 dB μ (1 kHz tone @ \pm 20 kHz deviation), then press the **[V/M]** button. Rotate the **DIAL** to select the next setting.

Wide-FM S-Meter Full-Scale Adjustment (S9) [83]

- Press the **[V/M]** button, then adjust the generator level to +25 dB μ (1 kHz tone @ \pm 20 kHz deviation), then press the **[V/M]** button. Rotate the **DIAL** to select the next setting.

This completes the 50 MHz band internal alignment routine; press the **[BAND]** button to activate the 145 MHz band internal alignment routine.

144 MHz Band Alignment

Squelch Preset Threshold (THL) [171]

- Press the **[V/M]** button, then inject a -12.0 dB μ RF signal (1 kHz tone @ \pm 3.5 kHz deviation), then press the **[V/M]** button. Rotate the **DIAL** to select the next setting.

Squelch Preset Tight (TLG) [142]

- Press the **[V/M]** button, then adjust the generator level to -4.0 dB μ , then press the **[V/M]** button. Rotate the **DIAL** to select the next setting.

S-Meter S-1 Adjustment (S1) [27]

- Press the **[V/M]** button, then adjust the generator level to -8.0 dB μ (1 kHz tone @ \pm 3.5 kHz deviation), then press the **[V/M]** button. Rotate the **DIAL** to select the next setting.

S-Meter Full-Scale Adjustment (S9) [65]

- Press the **[V/M]** button, then adjust the generator level to +20 dB μ (1 kHz tone @ \pm 3.5 kHz deviation), then press the **[V/M]** button. Rotate the **DIAL** to select the next setting.

Wide-FM S-Meter S-1 Adjustment (S1) [55]

- Press the **[V/M]** button, then adjust the generator level to 0 dB μ (1 kHz tone @ \pm 20 kHz deviation), then press the **[V/M]** button. Rotate the **DIAL** to select the next setting.

Wide-FM S-Meter Full-Scale Adjustment (S9) [79]

- Press the **[V/M]** button, then adjust the generator level to +20 dB μ (1 kHz tone @ \pm 20 kHz deviation), then press the **[V/M]** button. Rotate the **DIAL** to select the next setting.

High TX Power Adjustment (HP) [198]

- Press the **[V/M]** button, then transmit, and adjust the output power level for 5.0 W \pm 0.3 W by rotating the **DIAL**, then press the **[V/M]** button. Rotate the **DIAL** to select the next setting.

Alignment

L3 Tx Power Adjustment (LP3) [159]

- Press the **[V/M]** button, then transmit, and adjust the output power level for 2.5 W \pm 0.2 W by rotating the **DIAL**, then press the **[V/M]** button. Rotate the **DIAL** to select the next setting.

L2 Tx Power Adjustment (LP2) [124]

- Press the **[V/M]** button, then transmit, and adjust the output power level for 1.0 W \pm 0.1 W by rotating the **DIAL**, then press the **[V/M]** button. Rotate the **DIAL** to select the next setting.

L1 Tx Power Adjustment (LP1) [96]

- Press the **[V/M]** button, then transmit, and adjust the output power level for 0.3 W \pm 0.1 W by rotating the **DIAL**, then press the **[V/M]** button. Rotate the **DIAL** to select the next setting.

TX Deviation Adjustment (DEU) [100]

- Inject a 1 kHz audio tone at a level of 50mV (rms) to the MIC jack. Press the **[V/M]** button, then transmit and adjust the deviation for 4.2 kHz \pm 0.2 kHz by rotating **DIAL**, then press the **[V/M]** button. Rotate the **DIAL** to select the next setting.

CTCSS Tx Deviation Adjustment (100) [18]

- Press the **[V/M]** button, then transmit and adjust the deviation for 0.6 kHz \pm 0.05 kHz by rotating **DIAL**, then press the **[V/M]** button. Rotate the **DIAL** to select the next setting.

DCS Tx Deviation Adjustment (DCS) [56]

- Press the **[V/M]** button, then transmit and adjust the deviation for 0.6 kHz \pm 0.05 kHz by rotating **DIAL**, then press the **[V/M]** button. Rotate the **DIAL** to select the next setting.

This completes the 144 MHz band internal alignment routine; press the **[BAND]** button to activate the 220 MHz band internal alignment routine.

220 MHz Band Alignment

Squelch Preset Threshold (THL) [167]

- Press the **[V/M]** button, then inject a -12.0 dB μ RF signal (1 kHz tone @ \pm 3.5 kHz deviation). Press the **[V/M]** button, then rotate the **DIAL** to select the next setting.

Squelch Preset Tight (TLG) [136]

- Press the **[V/M]** button, then adjust the generator level to -4.0 dB μ , then press the **[V/M]** button. Rotate the **DIAL** to select the next setting.

S-Meter S-1 Adjustment (S1) [27]

- Press the **[V/M]** button, then adjust the generator level to -8.0 dB μ (1 kHz tone @ \pm 3.5 kHz deviation), then press the **[V/M]** button. Rotate the **DIAL** to select the next setting.

S-Meter Full-Scale Adjustment (S9) [66]

- Press the **[V/M]** button, then adjust the generator level to $+20$ dB μ (1 kHz tone @ \pm 3.5 kHz deviation), then press the **[V/M]** button. Rotate the **DIAL** to select the next setting.

Wide-FM S-Meter S-1 Adjustment (S1) [53]

- Press the **[V/M]** button, then adjust the generator level to 0 dB μ (1 kHz tone @ \pm 20 kHz deviation), then press the **[V/M]** button. Rotate the **DIAL** to select the next setting.

Wide-FM S-Meter Full-Scale Adjustment (S9) [77]

- Press the **[V/M]** button, then adjust the generator level to $+20$ dB μ (1 kHz tone @ \pm 20 kHz deviation), then press the **[V/M]** button. Rotate the **DIAL** to select the next setting.

High TX Power Adjustment (HP) [132] (USA version only)

- Press the **[V/M]** button, then transmit, and adjust the output power level for 1.5 W \pm 0.3 W by rotating the **DIAL**, then press the **[V/M]** button. Rotate the **DIAL** to select the next setting.

LOW3 Tx Power Adjustment (LP3) [120] (USA version only)

- Press the **[V/M]** button, then transmit, and adjust the output power level for 1.0 W \pm 0.2 W by rotating the **DIAL**, then press the **[V/M]** button. Rotate the **DIAL** to select the next setting.

L2 Tx Power Adjustment (LP2) [103] (USA version only)

- Press the **[V/M]** button, then transmit, and adjust the output power level for 0.5 W \pm 0.1 W by rotating the **DIAL**, then press the **[V/M]** button. Rotate the **DIAL** to select the next setting.

L1 Tx Power Adjustment (LP1) [89] (USA version only)

- Press the **[V/M]** button, then transmit, and adjust the output power level for 0.2 W \pm 0.1 W by rotating the **DIAL**, then press the **[V/M]** button. Rotate the **DIAL** to select the next setting.

TX Deviation Adjustment (DEU) [62] (USA version only)

- Press the **[V/M]** button, then inject a 1 kHz audio tone at a level of 50mV (rms) to the MIC jack. Press the **[V/M]** button, then transmit and adjust the deviation for 4.2 kHz ± 0.2 kHz by rotating **DIAL**, then press the **[V/M]** button. Rotate the **DIAL** to select the next setting.

CTCSS Tx Deviation Adjustment (100) [29] (USA version only)

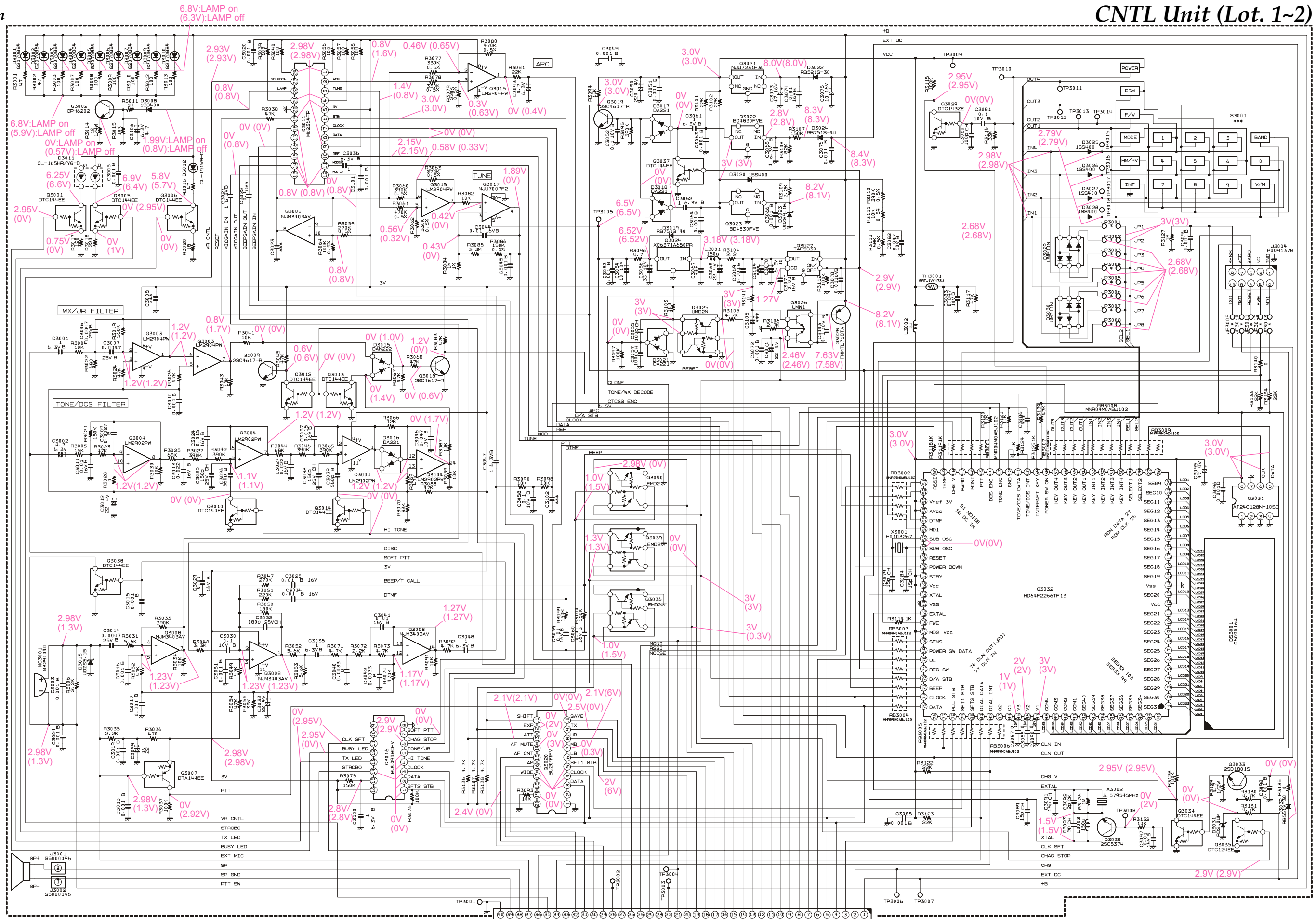
- Press the **[V/M]** button, then transmit and adjust the deviation for 0.6 kHz ± 0.05 kHz by rotating **DIAL**, then press the **[V/M]** button. Rotate the **DIAL** to select the next setting.

DCS Tx Deviation Adjustment (DCS) [30] (USA version only)

- Press the **[V/M]** button, then transmit and adjust the deviation for 0.8 kHz ± 0.05 kHz by rotating **DIAL**, then press the **[V/M]** button.

This completes the internal alignment routine for all bands. To save all settings and exit, press the **[HM/RV]** button.

Alignment
Note:



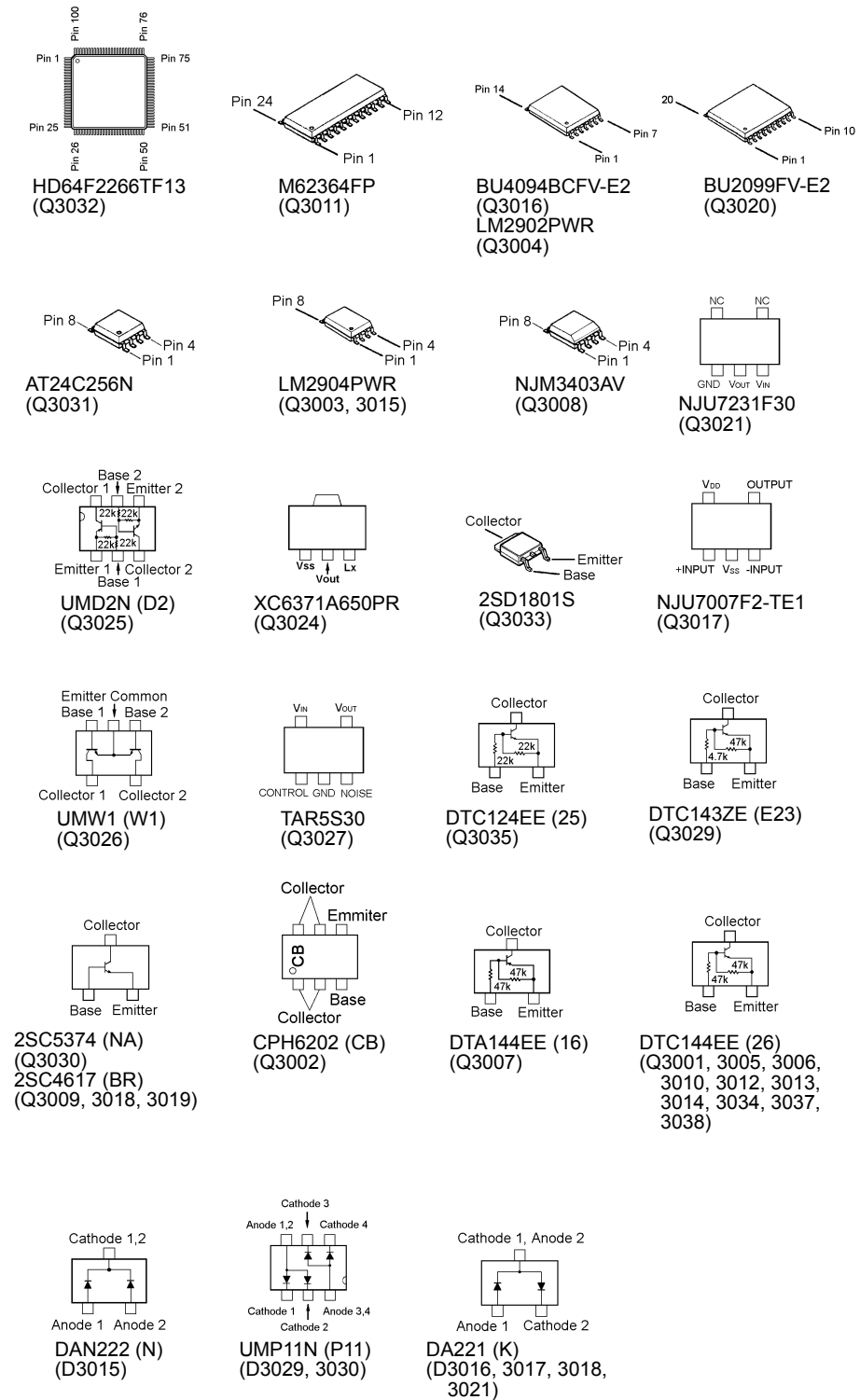
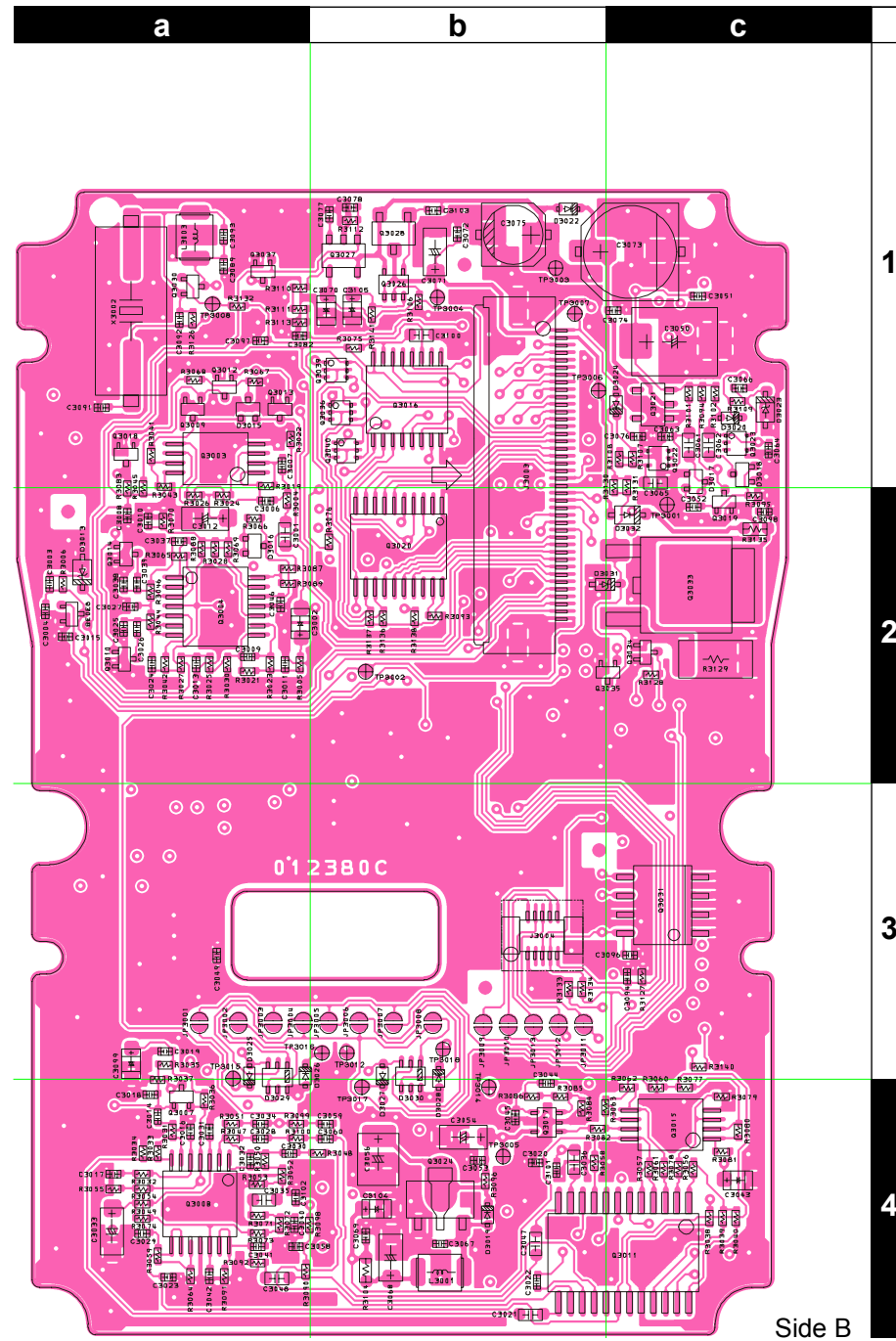
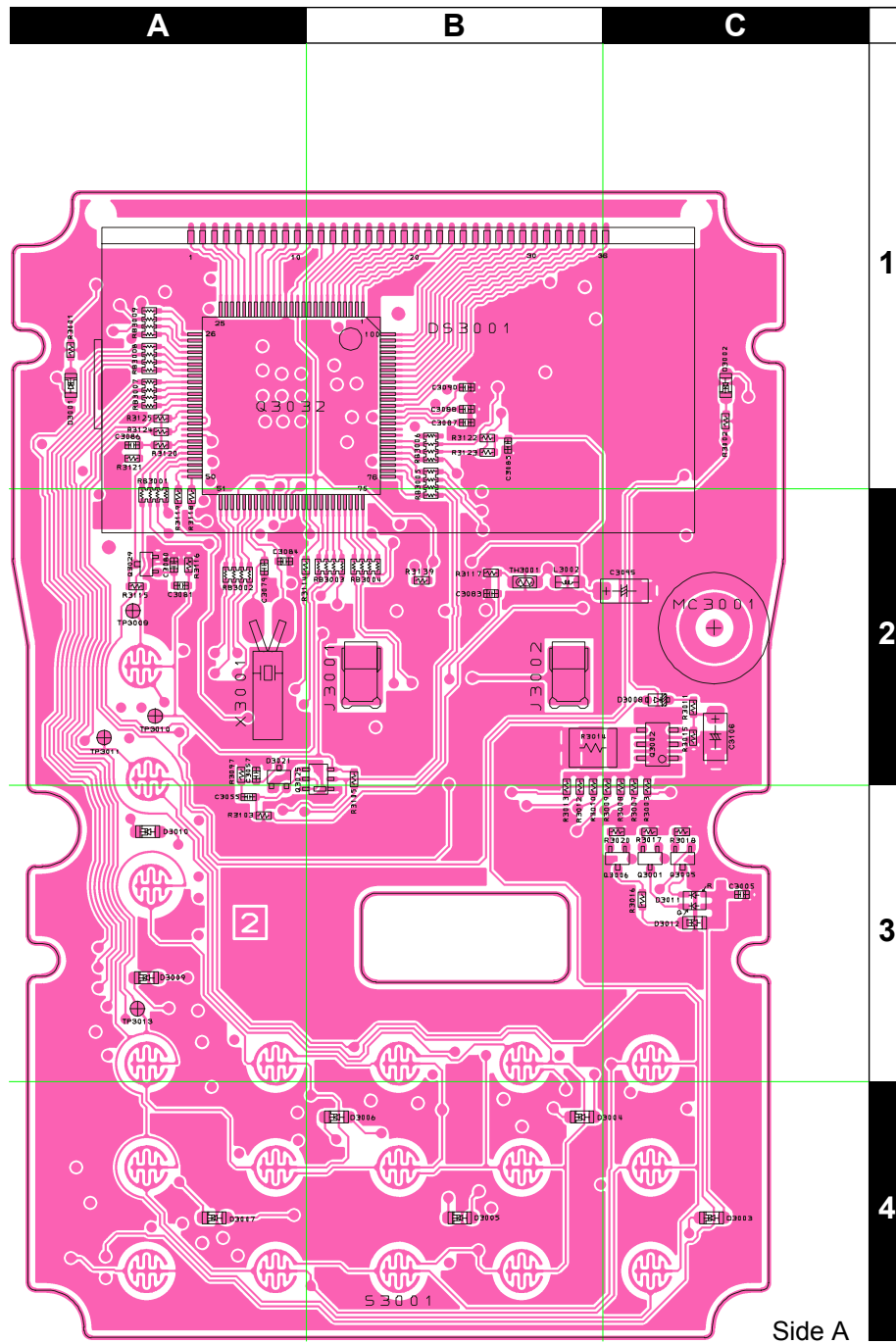
NOTE:
 RESISTOR VALUES ARE IN Ω , 1/16W ;
 CAPACITOR VALUES ARE IN μ F, 50V ;
 (T) CAPACITOR VALUES ARE TANTALUM ;
 ELECTROLYTIC CAPACITORS ARE IN μ F, 16V ;
 INDUCTOR VALUES ARE IN H ;
 COIL VALUES ARE IN H ;
 UNLESS OTHERWISE NOTED.

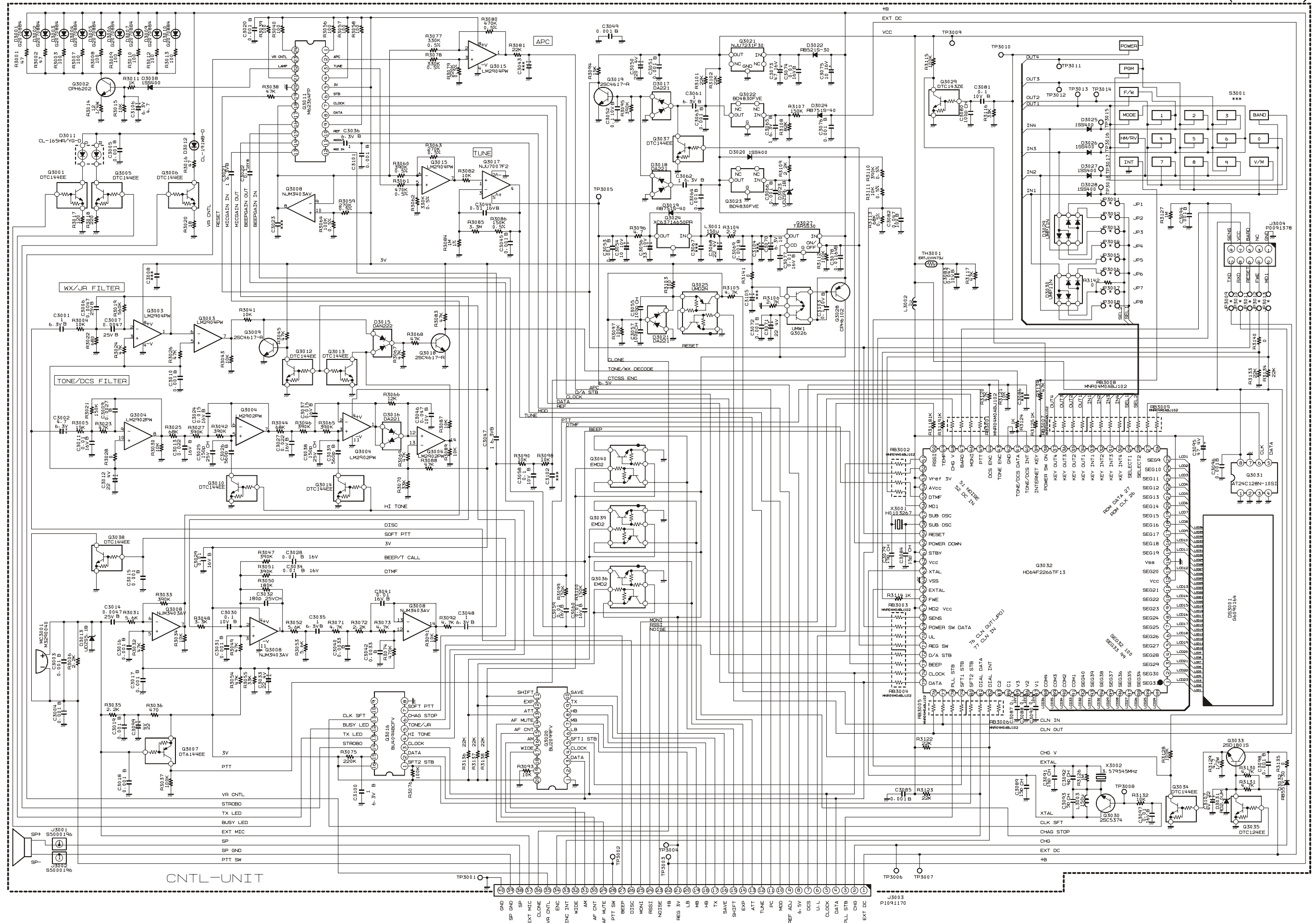
xx : RX
 (xx) : TX

Frequency:145.000 MHz, TX Power:Low1, EXT DC:8.4 V

CNTL Unit (Lot. 1~2)

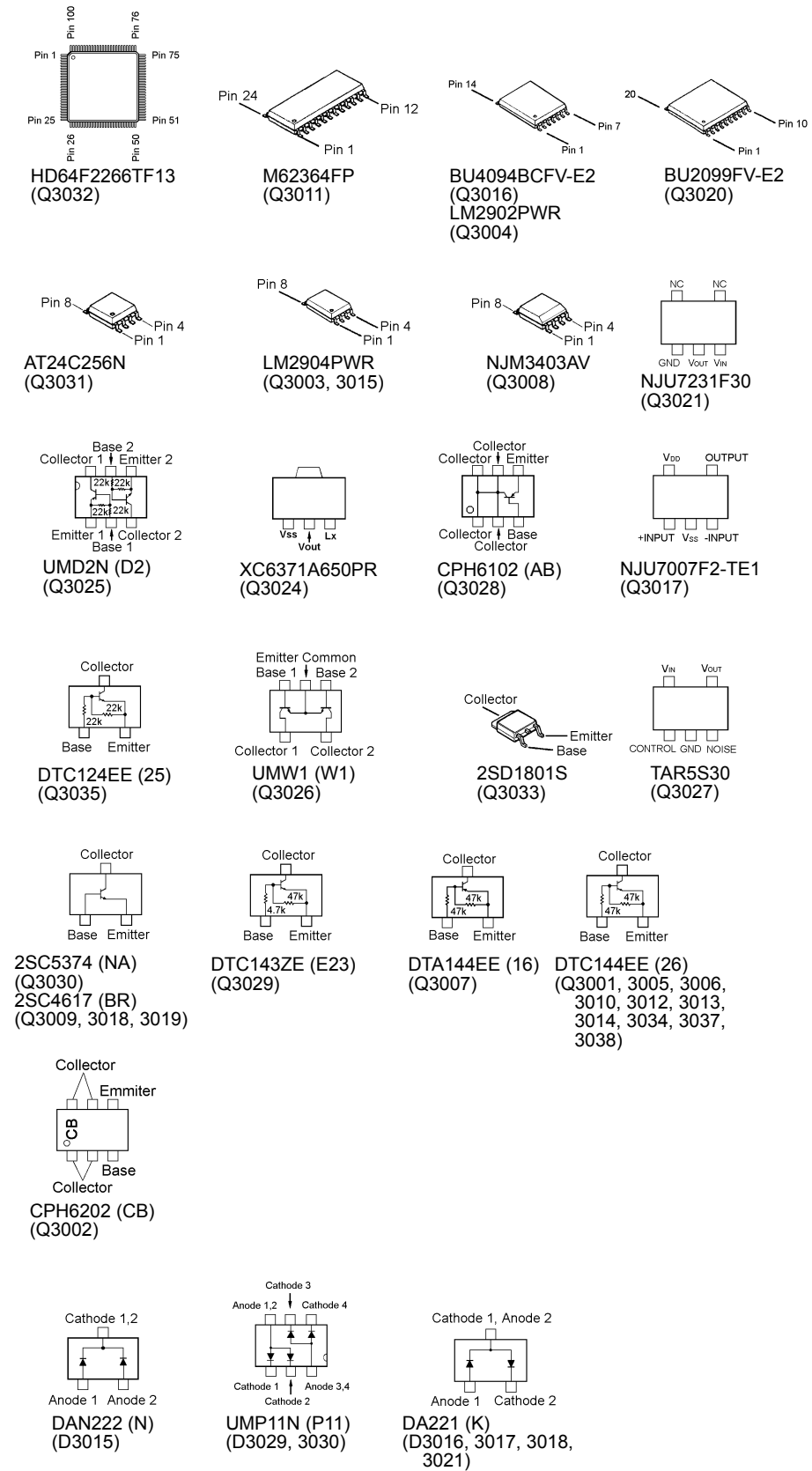
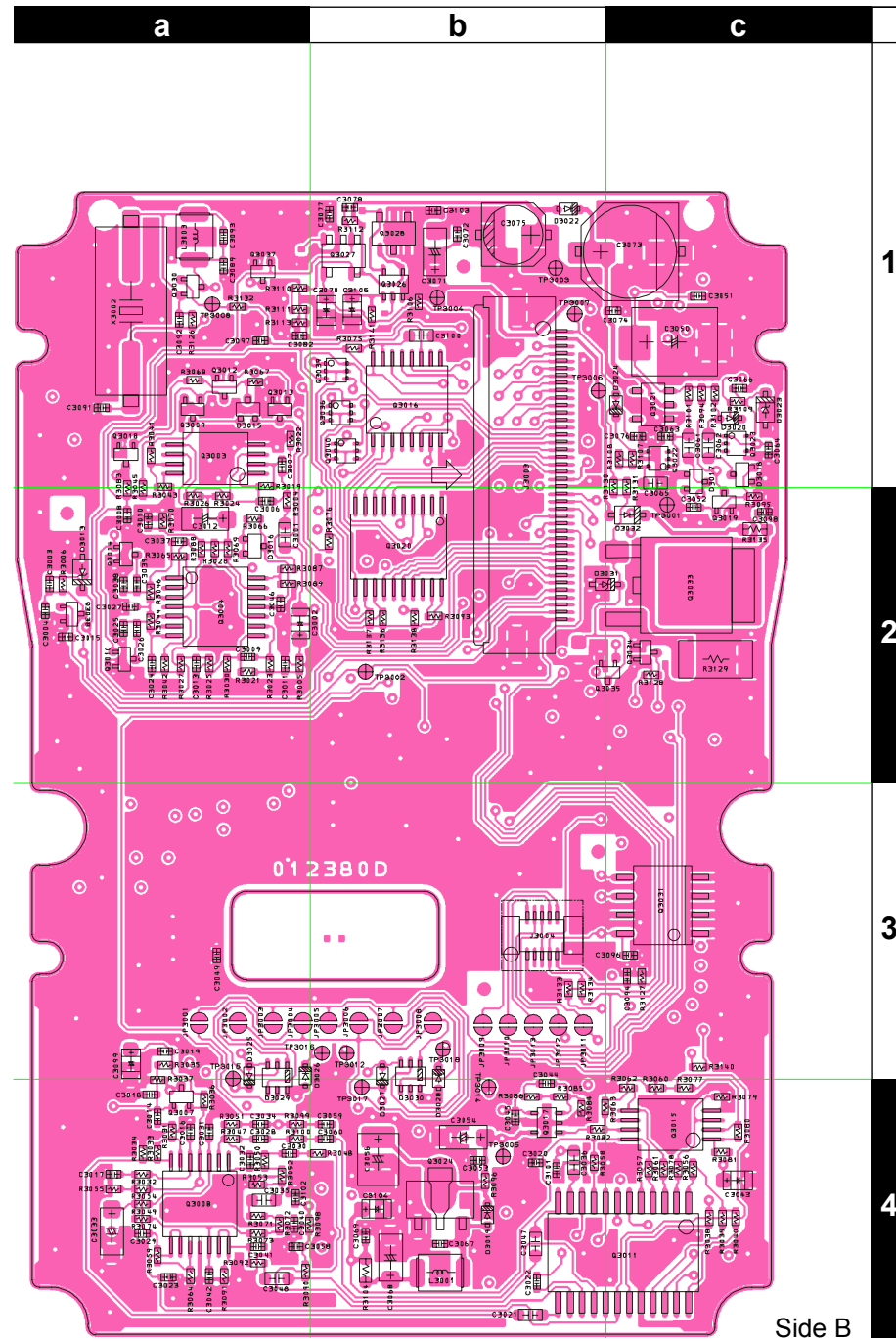
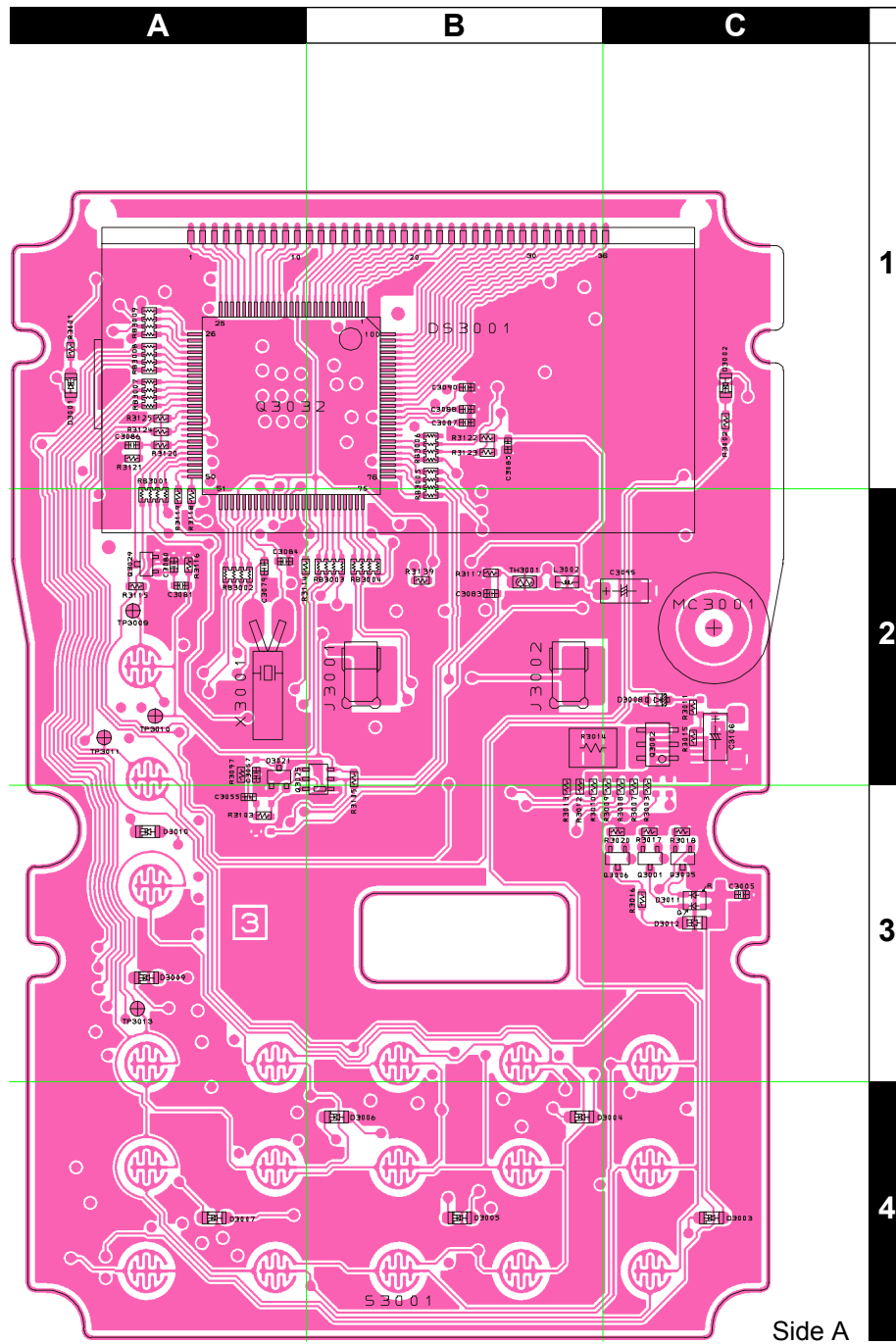
Parts Layout





CNTL Unit (Lot. 3~)

Parts Layout



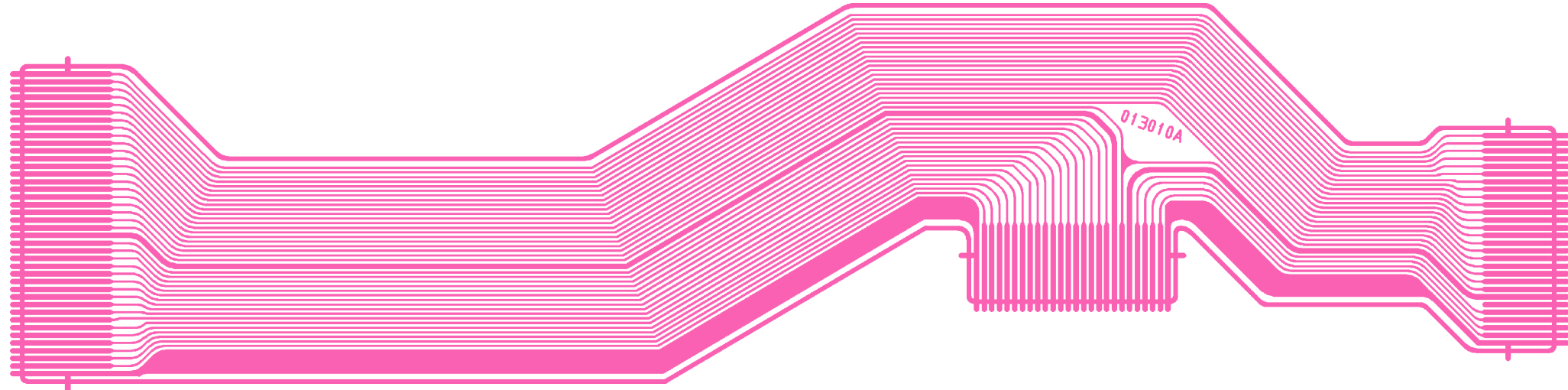
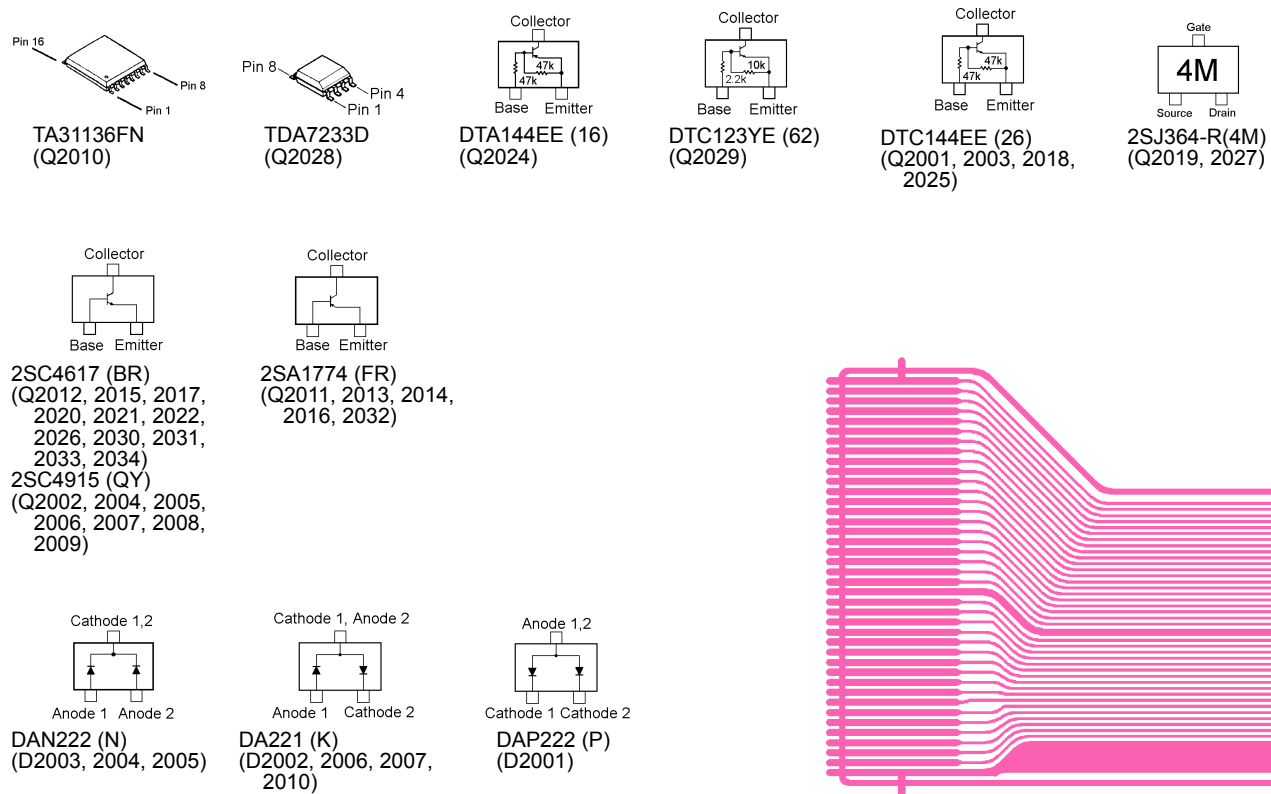
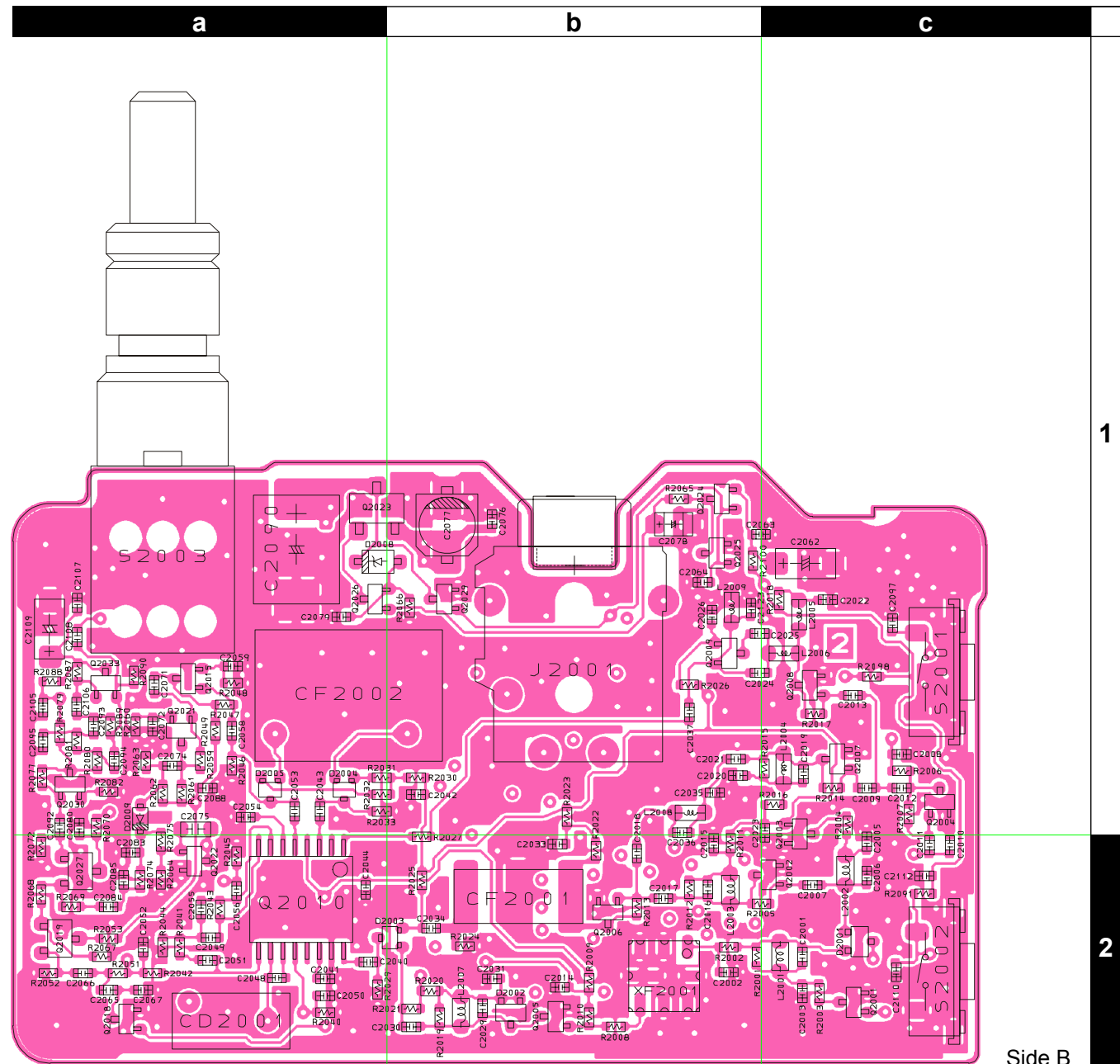
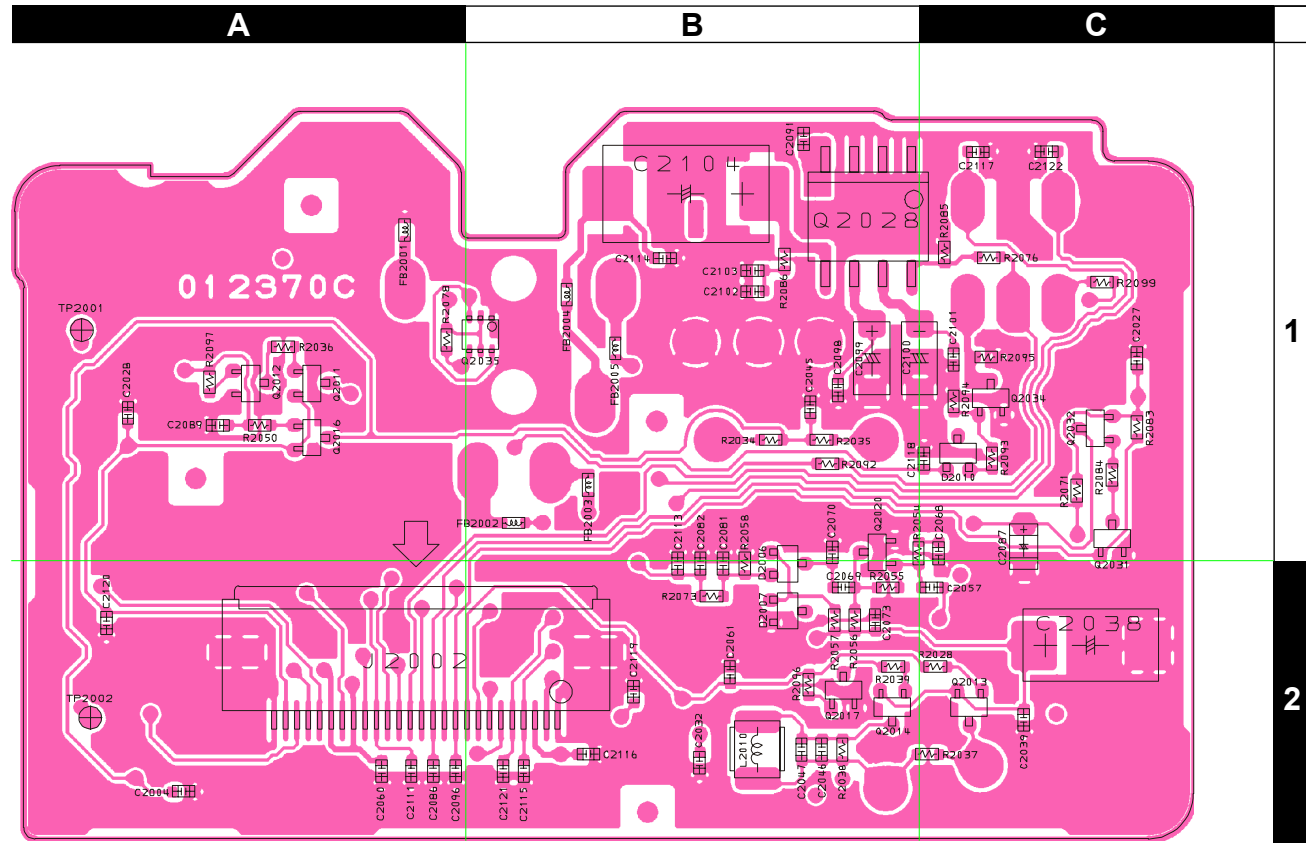
REF.	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT.	SIDE	LAY ADR.
D 3009	LED				19-215UYOC/S530-A2/TR8	G2070884		1-	A	A3
D 3010	LED				19-215UYOC/S530-A2/TR8	G2070884		1-	A	A3
D 3011	LED				CL-165HR/YG-D-T	G2070860		1-	A	C3
D 3012	LED				CL-191WB-D(TAPE)	G2070952		1-	A	C3
D 3013	DIODE				UDZS TE-17 5.1B	G2070908		1-	B	a2
D 3015	DIODE				DAN222 TL	G2070174		1-	B	a1
D 3016	DIODE				DA221 TL	G2070178		1-	B	a2
D 3017	DIODE				DA221 TL	G2070178		1-	B	c1
D 3018	DIODE				DA221 TL	G2070178		1-	B	c1
D 3019	DIODE				RB751S-40TE61	G2070850		1-	B	b4
D 3020	DIODE				1SS400 TE61	G2070634		1-	B	c1
D 3021	DIODE				DA221 TL	G2070178		1-	A	A2
D 3022	DIODE				RB521S-30 TE61	G2070642		1-	B	b1
D 3023	DIODE				UDZS TE-17 9.1B	G2070868		1-	B	c1
D 3024	DIODE				RB751S-40TE61	G2070850		1-	B	c1
D 3025	DIODE				1SS400 TE61	G2070634		1-	B	a3
D 3026	DIODE				1SS400 TE61	G2070634		1-	B	a3
D 3027	DIODE				1SS400 TE61	G2070634		1-	B	b3
D 3028	DIODE				1SS400 TE61	G2070634		1-	B	b3
D 3029	DIODE				UMP11N TN	G2070646		1-	B	a3
D 3030	DIODE				UMP11N TN	G2070646		1-	B	b3
D 3031	DIODE				RD2.0UM-T2	G2070190		1-	B	b2
D 3032	DIODE				RB551V-30 TE-17	G2070892		1-	B	c2
DS3001	LCD				AH021M	G6090164		1-	A	B1
J 3001	SHIELD FINGER				2026 3100012	S5000196		1-	A	B2
J 3002	SHIELD FINGER				2026 3100012	S5000196		1-	A	B2
J 3003	CONNECTOR				9637S-40-Y905	P1091170		1-	B	b1
J 3004	CONNECTOR				AXK6F10345YP	P0091378		1-	B	b3
L 3001	M.RFC	150uH			FLC32P-T-151K	L1690661		1-	B	b4
L 3002	M.RFC	1uH			LK1608 1R0K-T	L1690687		1-	A	B2
L 3003	M.RFC	150uH			FLC32T-151J	L1690229		1-	B	a1
MC3001	MICROPHONE ELEMENT				SKB-2244S-C1033MG	M3290040		1-	A	C2
Q 3001	TRANSISTOR				DTC144EE TL	G3070075		1-	A	C3
Q 3002	TRANSISTOR				CPH6202-TL	G3070265		1-	A	C2
Q 3003	IC				LM2904PWR	G1094010		1-	B	a1
Q 3004	IC				LM2902PWR	G1094009		1-	B	a2
Q 3005	TRANSISTOR				DTC144EE TL	G3070075		1-	A	C3
Q 3006	TRANSISTOR				DTC144EE TL	G3070075		1-	A	C3
Q 3007	TRANSISTOR				DTA144EE TL	G3070074		1-	B	a4
Q 3008	IC				NJM3403AV-TE1	G1092215		1-	B	a4
Q 3009	TRANSISTOR				2SC4617 TL R	G3346178R		1-	B	a1
Q 3010	TRANSISTOR				DTC144EE TL	G3070075		1-	B	a2
Q 3011	IC				M62364FP 600D	G1093033		1-	B	c4
Q 3012	TRANSISTOR				DTC144EE TL	G3070075		1-	B	a1
Q 3013	TRANSISTOR				DTC144EE TL	G3070075		1-	B	a1
Q 3014	TRANSISTOR				DTC144EE TL	G3070075		1-	B	a2
Q 3015	IC				LM2904PWR	G1094010		1-	B	c4
Q 3016	IC				BU4094BCFV-E2	G1093527		1-	B	b1
Q 3017	IC				NJU7007F2-TE1	G1093617		1-	B	b4
Q 3018	TRANSISTOR				2SC4617 TL R	G3346178R		1-	B	a1
Q 3019	TRANSISTOR				2SC4617 TL R	G3346178R		1-	B	c2
Q 3020	IC				BU2099FV-E2	G1093243		1-	B	b2
Q 3021	IC				NJU7231F30-TE1	G1093512		1-	B	c1
Q 3022	IC				BD4830FVE-TR	G1094121		1-	B	c1
Q 3023	IC				BD4830FVE-TR	G1094121		1-	B	c1
Q 3024	IC				XC6371A650PR	G1094017		1-	B	b4
Q 3025	TRANSISTOR				UMD2N TR	G3070076		1-	A	B2
Q 3026	TRANSISTOR				UMW1 TR	G3070078		1-	B	b1
Q 3027	IC				TAR5S30(TE85L)	G1093570		1-	B	b1
Q 3028	TRANSISTOR				FMMTL718TA	G3070335		1-	B	b1
Q 3028	TRANSISTOR				CPH6102-TL	G3070223		3-	B	b1
Q 3029	TRANSISTOR				DTC143ZE TL	G3070102		1-	A	A2

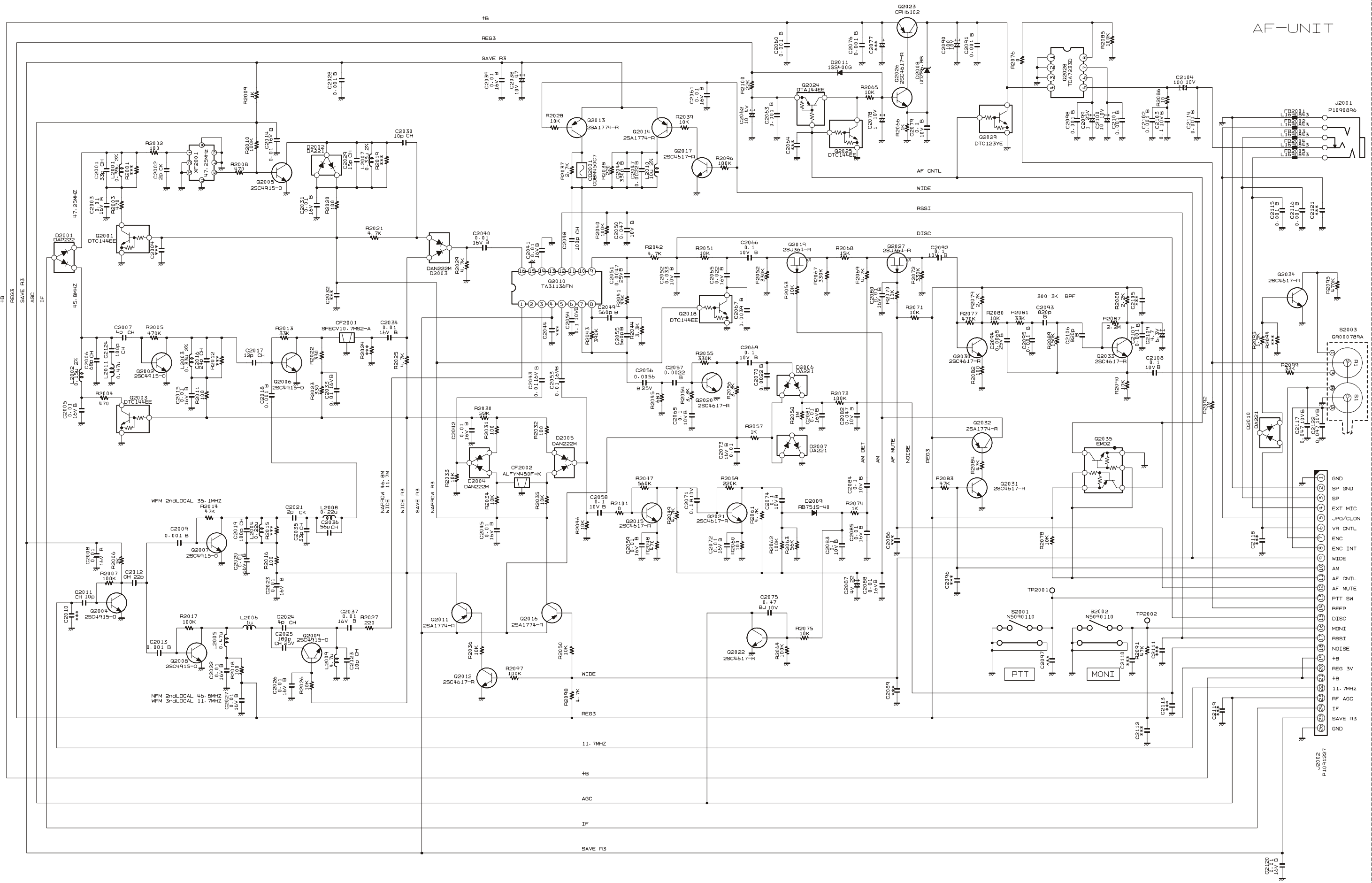
CNTL Unit

REF.	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT.	SIDE	LAY ADR.
R 3115	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	A	A2
R 3116	CHIP RES.	33k	1/16W	5%	RMC1/16S 333JTH	J24189043		1-	A	A2
R 3117	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	A	B2
R 3118	CHIP RES.	1k	1/16W	5%	RMC1/16S 102JTH	J24189025		1-	A	A2
R 3119	CHIP RES.	1k	1/16W	5%	RMC1/16S 102JTH	J24189025		1-	A	A2
R 3120	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	A	A1
R 3121	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	A	A1
R 3122	CHIP RES.	22k	1/16W	5%	RMC1/16S 223JTH	J24189041		1-	A	B1
R 3123	CHIP RES.	22k	1/16W	5%	RMC1/16S 223JTH	J24189041		1-	A	B1
R 3124	CHIP RES.	1k	1/16W	5%	RMC1/16S 102JTH	J24189025		1-	A	A1
R 3125	CHIP RES.	1k	1/16W	5%	RMC1/16S 102JTH	J24189025		1-	A	A1
R 3126	CHIP RES.	1M	1/16W	5%	RMC1/16S 105JTH	J24189061		1-	B	a1
R 3127	CHIP RES.	1M	1/16W	5%	RMC1/16S 105JTH	J24189061		1-	B	c3
R 3128	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	B	c2
R 3129	CHIP RES.	4.7	1/2W	5%	RMC1/2 4R7JCTP	J24275479		1-	B	c2
R 3130	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	B	c1
R 3131	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	B	c1
R 3132	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	a1
R 3133	CHIP RES.	22k	1/16W	5%	RMC1/16S 223JTH	J24189041		1-	B	b3
R 3134	CHIP RES.	22k	1/16W	5%	RMC1/16S 223JTH	J24189041		1-	B	b3
R 3135	CHIP RES.	0	1/16W	5%	RMC1/16 000JATP	J24185000		1-	B	c2
R 3136	CHIP RES.	22k	1/16W	5%	RMC1/16S 223JTH	J24189041		1-	B	b2
R 3137	CHIP RES.	22k	1/16W	5%	RMC1/16S 223JTH	J24189041		1-	B	b2
R 3138	CHIP RES.	22k	1/16W	5%	RMC1/16S 223JTH	J24189041		1-	B	b2
R 3139	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	A	B2
R 3140	CHIP RES.	0	1/16W	5%	RMC1/16S JPTH	J24189070		1-	B	c3
R 3141	CHIP RES.	0	1/16W	5%	RMC1/16S JPTH	J24189070		1-	B	b1
RB3001	BLOCK RES.				MNR04M0ABJ102	J42900039		1-	A	A2
RB3002	BLOCK RES.				MNR04M0ABJ102	J42900039		1-	A	A2
RB3003	BLOCK RES.				MNR04M0ABJ102	J42900039		1-	A	B2
RB3004	BLOCK RES.				MNR04M0ABJ102	J42900039		1-	A	B2
RB3005	BLOCK RES.				MNR04M0ABJ102	J42900039		1-	A	B1
RB3006	BLOCK RES.				MNR04M0ABJ102	J42900039		1-	A	B1
RB3007	BLOCK RES.				MNR04M0ABJ102	J42900039		1-	A	A1
RB3008	BLOCK RES.				MNR04M0ABJ102	J42900039		1-	A	A1
RB3009	BLOCK RES.				MNR04M0ABJ102	J42900039		1-	A	A1
TH3001	THERMISTOR				ERTJ1VV473J	G9090122		1-	A	B2
X 3001	XTAL VT-200				32.768KHZ 20PPM/6PF	H0103267		1-	A	A2
X 3002	XTAL XPFEGC	3.579545MHz			3.579545MHZ	H0103304		1-	B	a1
	LIGHT GUIDE				(LCD)	RA0646600		1-		
	REFLECTOR SHEET					RA0646700		1-		
	INTER CONNECTOR					RA0646800		1-		

AF Unit (Lot. 1~2)

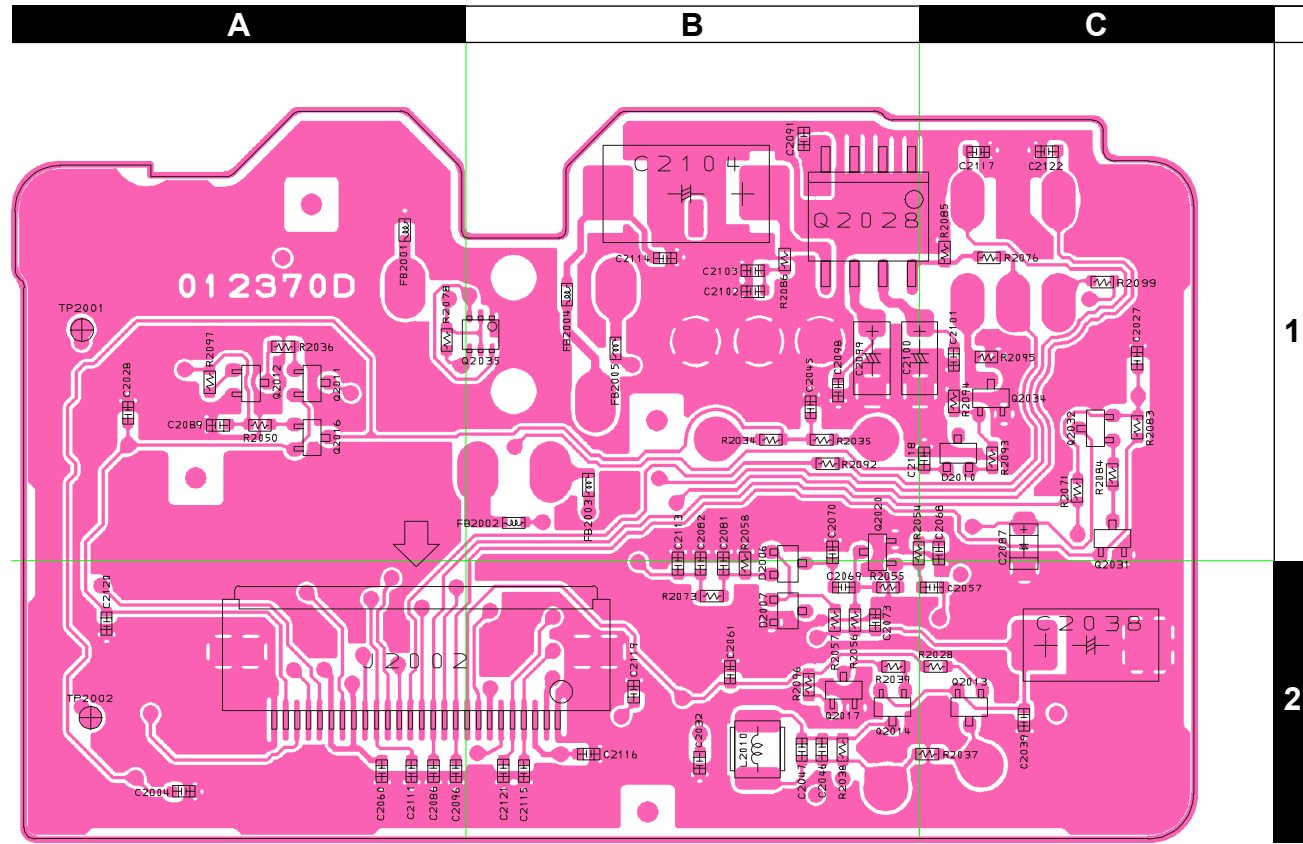
Parts Layout



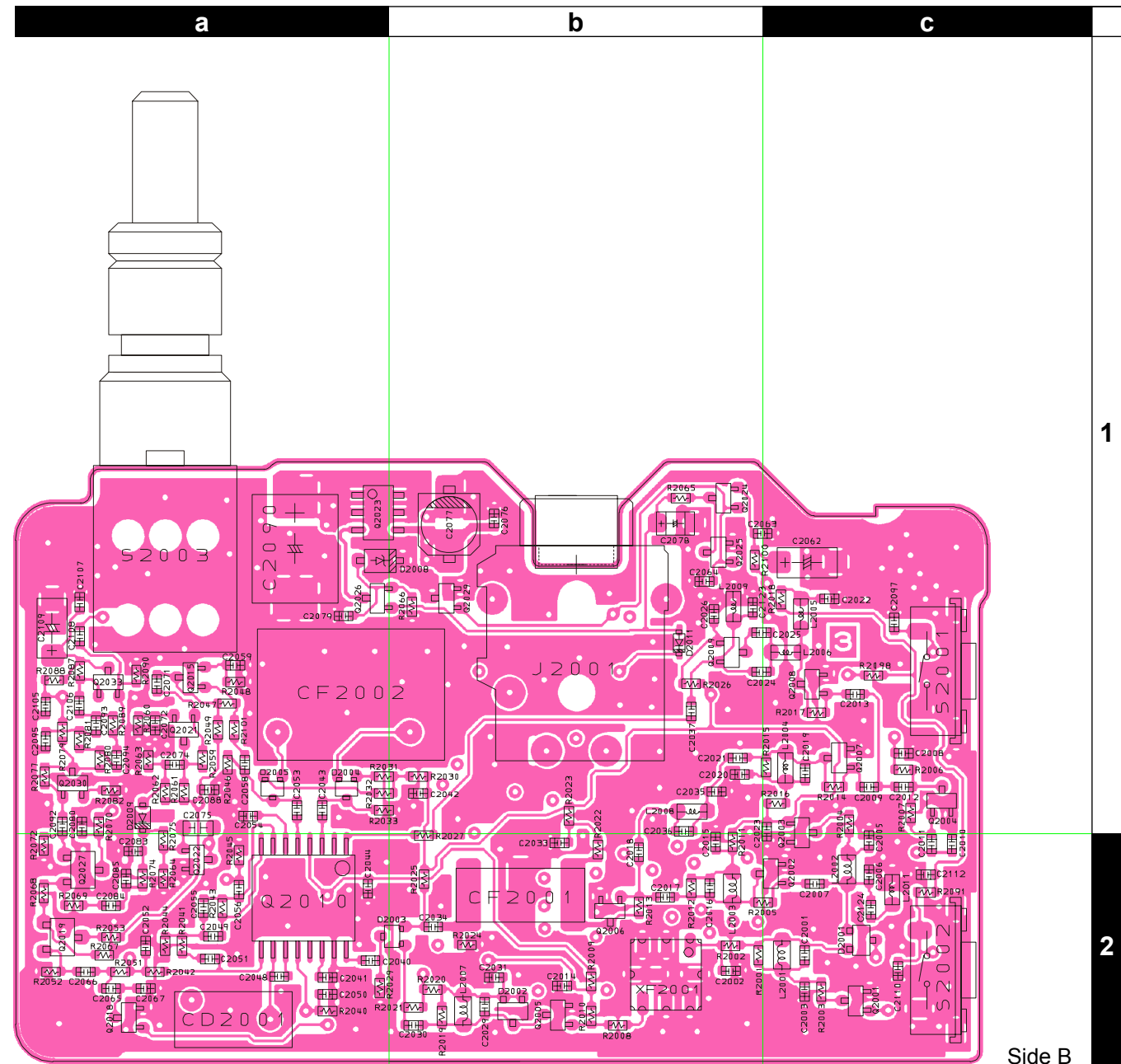
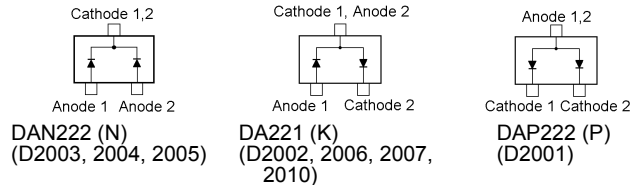
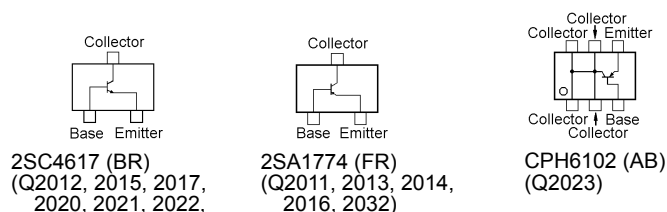
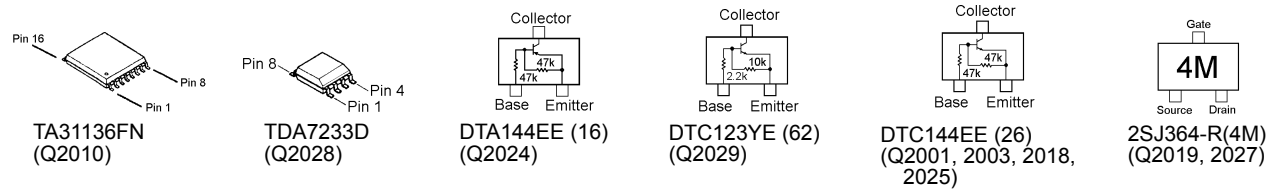


AF Unit (Lot. 3~)

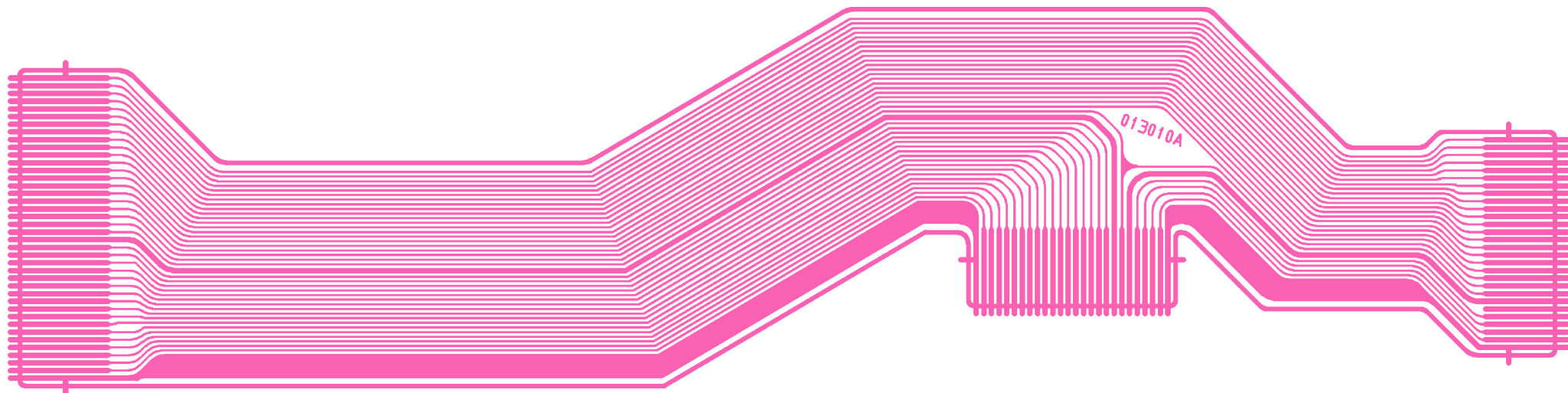
Parts Layout



Side A



Side B



REF.	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT.	SIDE	LAY ADR.
D 2011	DIODE				1SS400G T2R	G2070934		3-	B	b1
FB2001	CHIP COIL				BLM10A121SPT	L1690843		1-	A	A1
FB2002	CHIP COIL				BLM10A121SPT	L1690843		1-	A	B1
FB2003	CHIP COIL				BLM10A121SPT	L1690843		1-	A	B1
FB2004	CHIP COIL				BLM10A121SPT	L1690843		1-	A	B1
FB2005	CHIP COIL				BLM10A121SPT	L1690843		1-	A	B1
J 2001	CONNECTOR				HSJ1594-010055	P1090896		1-	B	b1
J 2002	CONNECTOR				9637S-26-Y905	P1091227		1-	A	A2
L 2001	M.RFC	0.39uH		2%	C1608CB-R39G	L1691107		1-	B	c2
L 2002	M.RFC	0.15uH		2%	C1608CB-R15G	L1691101		1-	B	c2
L 2003	M.RFC	0.33uH		2%	C1608CB-R33G	L1691106		1-	B	b2
L 2004	M.RFC	0.22uH			LK1608 R22K-T	L1690410		1-	B	c1
L 2005	M.RFC	0.47uH			LK1608 R47K-T	L1690414		1-	B	c1
L 2006	M.RFC	1uH			LK1608 1R0K-T	L1690687		1-	B	c1
L 2007	M.RFC	0.33uH		2%	C1608CB-R33G	L1691106		1-	B	b2
L 2008	M.RFC	0.22uH			LK1608 R22K-T	L1690410		1-	B	b1
L 2009	M.RFC	4.7uH			LK1608 4R7K-T	L1690688		1-	B	b1
L 2010	M.RFC	10uH		2%	KQ1008TE100G	L1691216		1-	A	B2
L 2011	M.RFC	0.47uH			LK1608 R47K-T	L1690414		3-	B	c2
Q 2001	TRANSISTOR				DTC144EE TL	G3070075		1-	B	c2
Q 2002	TRANSISTOR				2SC4915-O(TE85L)	G33491580		1-	B	c2
Q 2003	TRANSISTOR				DTC144EE TL	G3070075		1-	B	c1
Q 2004	TRANSISTOR				2SC4915-O(TE85L)	G33491580		1-	B	c1
Q 2005	TRANSISTOR				2SC4915-O(TE85L)	G33491580		1-	B	b2
Q 2006	TRANSISTOR				2SC4915-O(TE85L)	G33491580		1-	B	b2
Q 2007	TRANSISTOR				2SC4915-O(TE85L)	G33491580		1-	B	c1
Q 2008	TRANSISTOR				2SC4915-O(TE85L)	G33491580		1-	B	c1
Q 2009	TRANSISTOR				2SC4915-O(TE85L)	G33491580		1-	B	b1
Q 2010	IC				TA31136FN(EL)	G1091605		1-	B	a2
Q 2011	TRANSISTOR				2SA1774 TL R	G3117748R		1-	A	A1
Q 2012	TRANSISTOR				2SC4617 TL R	G3346178R		1-	A	A1
Q 2013	TRANSISTOR				2SA1774 TL R	G3117748R		1-	A	C2
Q 2014	TRANSISTOR				2SA1774 TL R	G3117748R		1-	A	B2
Q 2015	TRANSISTOR				2SC4617 TL R	G3346178R		1-	B	a1
Q 2016	TRANSISTOR				2SA1774 TL R	G3117748R		1-	A	A1
Q 2017	TRANSISTOR				2SC4617 TL R	G3346178R		1-	A	B2
Q 2018	TRANSISTOR				DTC144EE TL	G3070075		1-	B	a2
Q 2019	FET				2SJ364-R(TX)	G3703648R		1-	B	a2
Q 2020	TRANSISTOR				2SC4617 TL R	G3346178R		1-	A	B1
Q 2021	TRANSISTOR				2SC4617 TL R	G3346178R		1-	B	a1
Q 2022	TRANSISTOR				2SC4617 TL R	G3346178R		1-	B	a2
Q 2023	TRANSISTOR				FMMTL718TA	G3070335		1-	B	a1
Q 2023	TRANSISTOR				CPH6102-TL	G3070223		3-	B	a1
Q 2024	TRANSISTOR				DTA144EE TL	G3070074		1-	B	b1
Q 2025	TRANSISTOR				DTC144EE TL	G3070075		1-	B	b1
Q 2026	TRANSISTOR				2SC4617 TL R	G3346178R		1-	B	a1
Q 2027	FET				2SJ364-R(TX)	G3703648R		1-	B	a2
Q 2028	IC				TDA7233D-TR	G1091112		1-	A	B1
Q 2029	TRANSISTOR				DTC123YE TL	G3070095		1-	B	b1
Q 2030	TRANSISTOR				2SC4617 TL R	G3346178R		1-	B	a1
Q 2031	TRANSISTOR				2SC4617 TL R	G3346178R		1-	A	C1
Q 2032	TRANSISTOR				2SA1774 TL R	G3117748R		1-	A	C1
Q 2033	TRANSISTOR				2SC4617 TL R	G3346178R		1-	B	a1
Q 2034	TRANSISTOR				2SC4617 TL R	G3346178R		1-	A	C1
Q 2035	TRANSISTOR				EMD2 T2R	G3070312		1-	A	B1
R 2002	CHIP RES.	100	1/16W	5%	RMC1/16S 101JTH	J24189013		1-	B	b2
R 2003	CHIP RES.	470	1/16W	5%	RMC1/16S 471JTH	J24189021		1-	B	c2
R 2004	CHIP RES.	470	1/16W	5%	RMC1/16S 471JTH	J24189021		1-	B	c1
R 2005	CHIP RES.	470k	1/16W	5%	RMC1/16S 474JTH	J24189057		1-	B	c2
R 2006	CHIP RES.	1k	1/16W	5%	RMC1/16S 102JTH	J24189025		1-	B	c1
R 2007	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	B	c1
R 2008	CHIP RES.	470	1/16W	5%	RMC1/16S 471JTH	J24189021		1-	B	b2

AF Unit

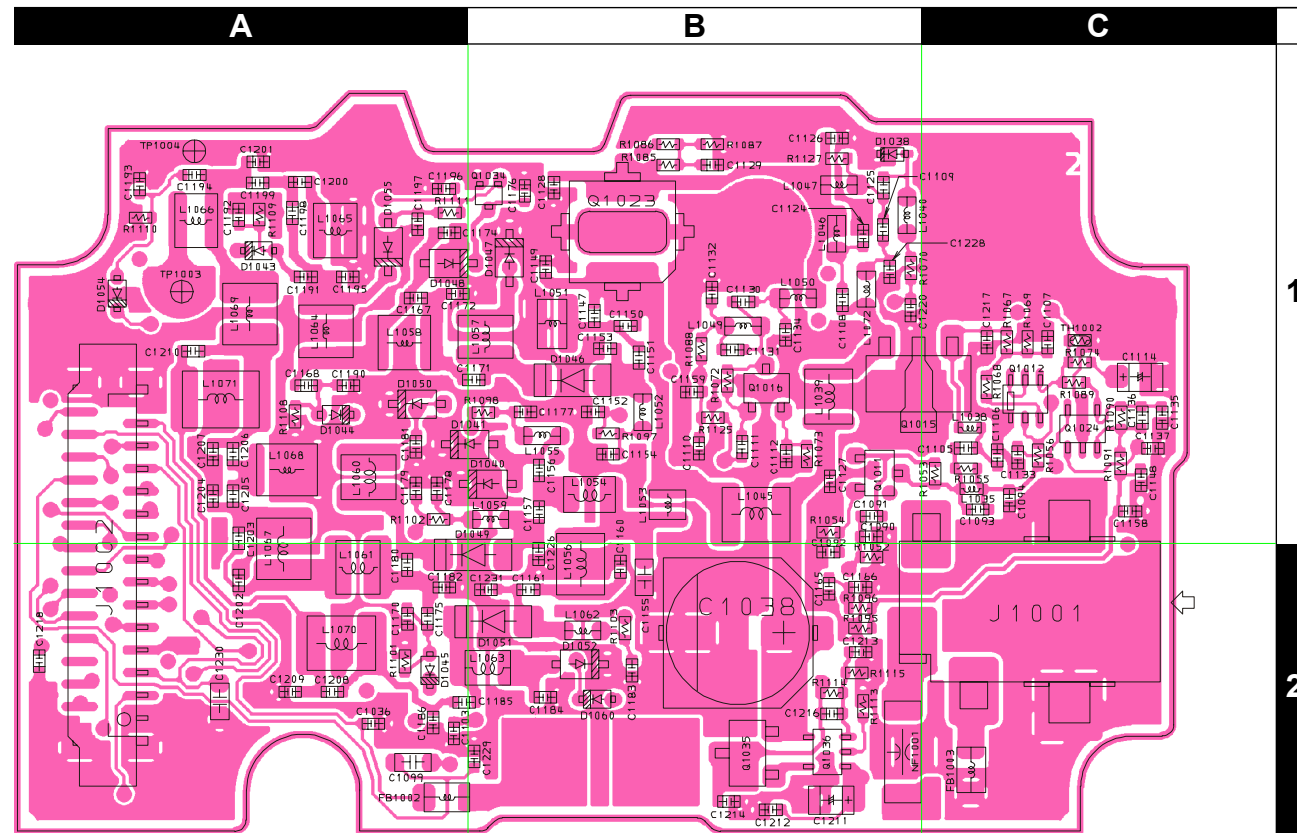
REF.	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT.	SIDE	LAY ADR.
R 2009	CHIP RES.	1k	1/16W	5%	RMC1/16S 102JTH	J24189025		1-	B	b2
R 2010	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	B	b2
R 2011	CHIP RES.	100	1/16W	5%	RMC1/16S 101JTH	J24189013		1-	B	b2
R 2013	CHIP RES.	33k	1/16W	5%	RMC1/16S 333JTH	J24189043		1-	B	b2
R 2014	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	B	c1
R 2016	CHIP RES.	100	1/16W	5%	RMC1/16S 101JTH	J24189013		1-	B	c1
R 2017	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	B	c1
R 2018	CHIP RES.	100	1/16W	5%	RMC1/16S 101JTH	J24189013		1-	B	c1
R 2020	CHIP RES.	100	1/16W	5%	RMC1/16S 101JTH	J24189013		1-	B	b2
R 2021	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	B	b2
R 2022	CHIP RES.	330	1/16W	5%	RMC1/16S 331JTH	J24189019		1-	B	b2
R 2023	CHIP RES.	330	1/16W	5%	RMC1/16S 331JTH	J24189019		1-	B	b1
R 2025	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	B	b2
R 2026	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	b1
R 2027	CHIP RES.	220	1/16W	5%	RMC1/16S 221JTH	J24189017		1-	B	b2
R 2028	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	A	C2
R 2029	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	B	a2
R 2030	CHIP RES.	22k	1/16W	5%	RMC1/16S 223JTH	J24189041		1-	B	b1
R 2031	CHIP RES.	100	1/16W	5%	RMC1/16S 101JTH	J24189013		1-	B	a1
R 2032	CHIP RES.	100	1/16W	5%	RMC1/16S 101JTH	J24189013		1-	B	a1
R 2033	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	a1
R 2034	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	A	B1
R 2035	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	A	B1
R 2036	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	A	A1
R 2037	CHIP RES.	2.7k	1/16W	5%	RMC1/16S 272JTH	J24189030		1-	A	C2
R 2038	CHIP RES.	220	1/16W	5%	RMC1/16S 221JTH	J24189017		1-	A	B2
R 2039	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	A	B2
R 2040	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	B	a2
R 2041	CHIP RES.	33k	1/16W	5%	RMC1/16S 333JTH	J24189043		1-	B	a2
R 2042	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	B	a2
R 2043	CHIP RES.	390k	1/16W	5%	RMC1/16S 394JTH	J24189056		1-	B	a2
R 2044	CHIP RES.	3.3k	1/16W	5%	RMC1/16S 332JTH	J24189031		1-	B	a2
R 2045	CHIP RES.	680	1/16W	5%	RMC1/16S 681JTH	J24189023		1-	B	a2
R 2046	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	a1
R 2047	CHIP RES.	560k	1/16W	5%	RMC1/16S 564JTH	J24189058		1-	B	a1
R 2048	CHIP RES.	470	1/16W	5%	RMC1/16S 471JTH	J24189021		1-	B	a1
R 2049	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	B	a1
R 2050	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	A	A1
R 2051	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	a2
R 2052	CHIP RES.	330k	1/16W	5%	RMC1/16S 334JTH	J24189055		1-	B	a2
R 2053	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	a2
R 2054	CHIP RES.	3.3k	1/16W	5%	RMC1/16S 332JTH	J24189031		1-	A	B1
R 2055	CHIP RES.	330k	1/16W	5%	RMC1/16S 334JTH	J24189055		1-	A	B2
R 2056	CHIP RES.	3.3k	1/16W	5%	RMC1/16S 332JTH	J24189031		1-	A	B2
R 2057	CHIP RES.	1k	1/16W	5%	RMC1/16S 102JTH	J24189025		1-	A	B2
R 2058	CHIP RES.	1M	1/16W	5%	RMC1/16S 105JTH	J24189061		1-	A	B1
R 2059	CHIP RES.	220k	1/16W	5%	RMC1/16S 224JTH	J24189053		1-	B	a1
R 2060	CHIP RES.	100	1/16W	5%	RMC1/16S 101JTH	J24189013		1-	B	a1
R 2061	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	B	a1
R 2062	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	B	a1
R 2063	CHIP RES.	56k	1/16W	5%	RMC1/16S 563JTH	J24189046		1-	B	a1
R 2064	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	B	a2
R 2065	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	b1
R 2066	CHIP RES.	1k	1/16W	5%	RMC1/16S 102JTH	J24189025		1-	B	b1
R 2067	CHIP RES.	330k	1/16W	5%	RMC1/16S 334JTH	J24189055		1-	B	a2
R 2068	CHIP RES.	15k	1/16W	5%	RMC1/16S 153JTH	J24189039		1-	B	a2
R 2069	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	B	a2
R 2070	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	a1
R 2071	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	A	C1
R 2072	CHIP RES.	330k	1/16W	5%	RMC1/16S 334JTH	J24189055		1-	B	a2
R 2073	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	A	B2
R 2074	CHIP RES.	1k	1/16W	5%	RMC1/16S 102JTH	J24189025		1-	B	a2

REF.	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT.	SIDE	LAY ADR.
R 2075	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	a2
R 2076	CHIP RES.	0	1/16W	5%	RMC1/16S JPTH	J24189070		1-	A	C1
R 2077	CHIP RES.	470k	1/16W	5%	RMC1/16S 474JTH	J24189057		1-	B	a1
R 2078	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	A	A1
R 2079	CHIP RES.	2.7k	1/16W	5%	RMC1/16S 272JTH	J24189030		1-	B	a1
R 2080	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	a1
R 2081	CHIP RES.	33k	1/16W	5%	RMC1/16S 333JTH	J24189043		1-	B	a1
R 2082	CHIP RES.	100	1/16W	5%	RMC1/16S 101JTH	J24189013		1-	B	a1
R 2083	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	A	C1
R 2084	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	A	C1
R 2085	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	A	C1
R 2086	CHIP RES.	10	1/16W	5%	RMC1/16S 100JTH	J24189001		1-	A	B1
R 2087	CHIP RES.	2.2M	1/16W	5%	RMC1/16S 225JTH	J24189065		1-	B	a1
R 2088	CHIP RES.	2.2k	1/16W	5%	RMC1/16S 222JTH	J24189029		1-	B	a1
R 2089	CHIP RES.	150k	1/16W	5%	RMC1/16S 154JTH	J24189051		1-	B	a1
R 2090	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	a1
R 2091	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	B	c2
R 2092	CHIP RES.	1M	1/16W	5%	RMC1/16S 105JTH	J24189061		1-	A	B1
R 2093	CHIP RES.	1.5k	1/16W	5%	RMC1/16S 152JTH	J24189027		1-	A	C1
R 2095	CHIP RES.	470k	1/16W	5%	RMC1/16S 474JTH	J24189057		1-	A	C1
R 2096	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	A	B2
R 2097	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	A	A1
R 2098	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	B	c1
R 2099	CHIP RES.	33k	1/16W	5%	RMC1/16S 333JTH	J24189043		1-	A	C1
R 2100	CHIP RES.	22k	1/16W	5%	RMC1/16S 223JTH	J24189041		1-	B	b1
R 2101	CHIP RES.	0	1/16W	5%	RMC1/16S JPTH	J24189070		3-	B	a1
S 2001	TACT SWITCH				SKQTLA	N5090110		1-	B	c1
S 2002	TACT SWITCH				SKQTLA	N5090110		1-	B	c2
S 2003	ROTARY ENCODER				TP70D270E20 20F A203	Q9000789A		1-	B	a1
XF2001	XTAL FILTER	47.25MHz			MF47R2 47.25MHZ	H1102347		1-	B	b2

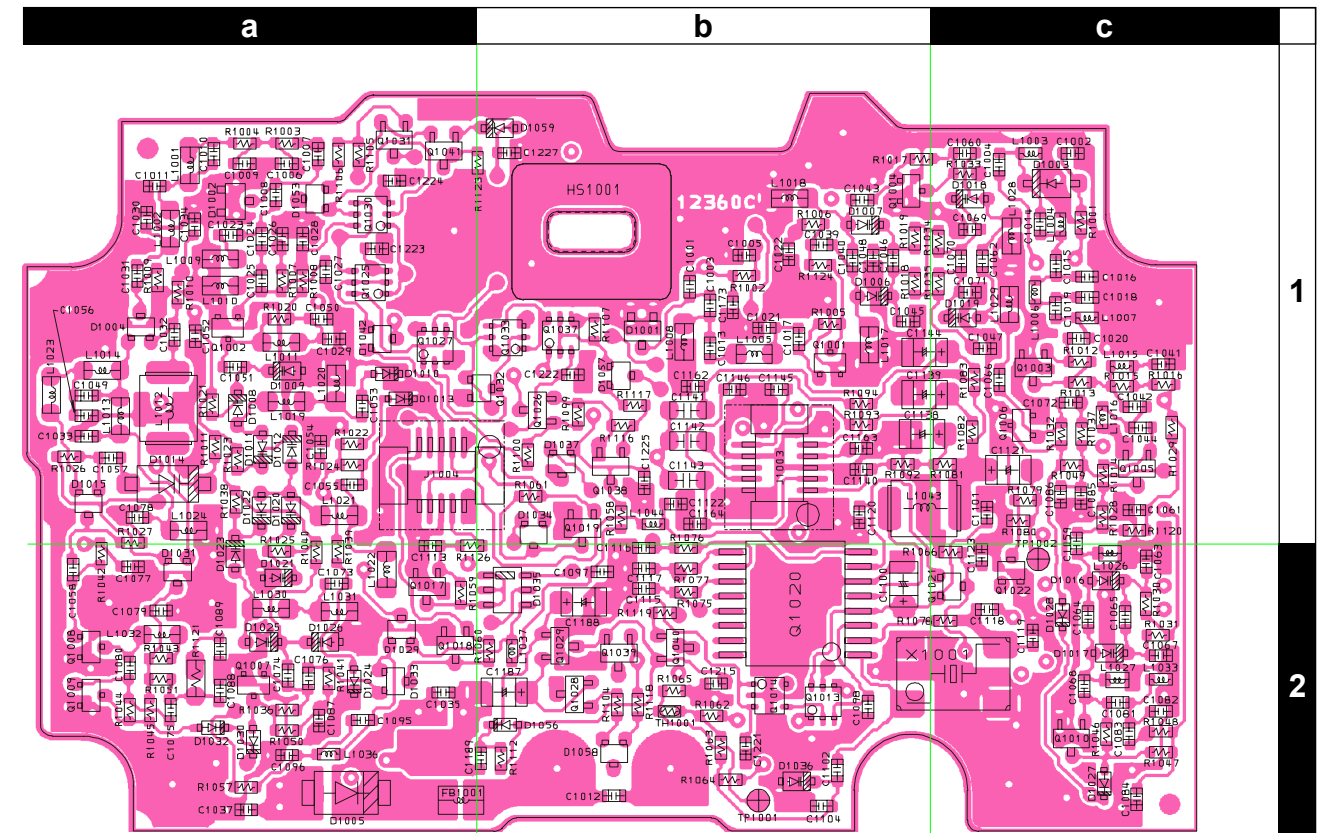
AF Unit
Note:

RF Unit (Lot. 1~2)

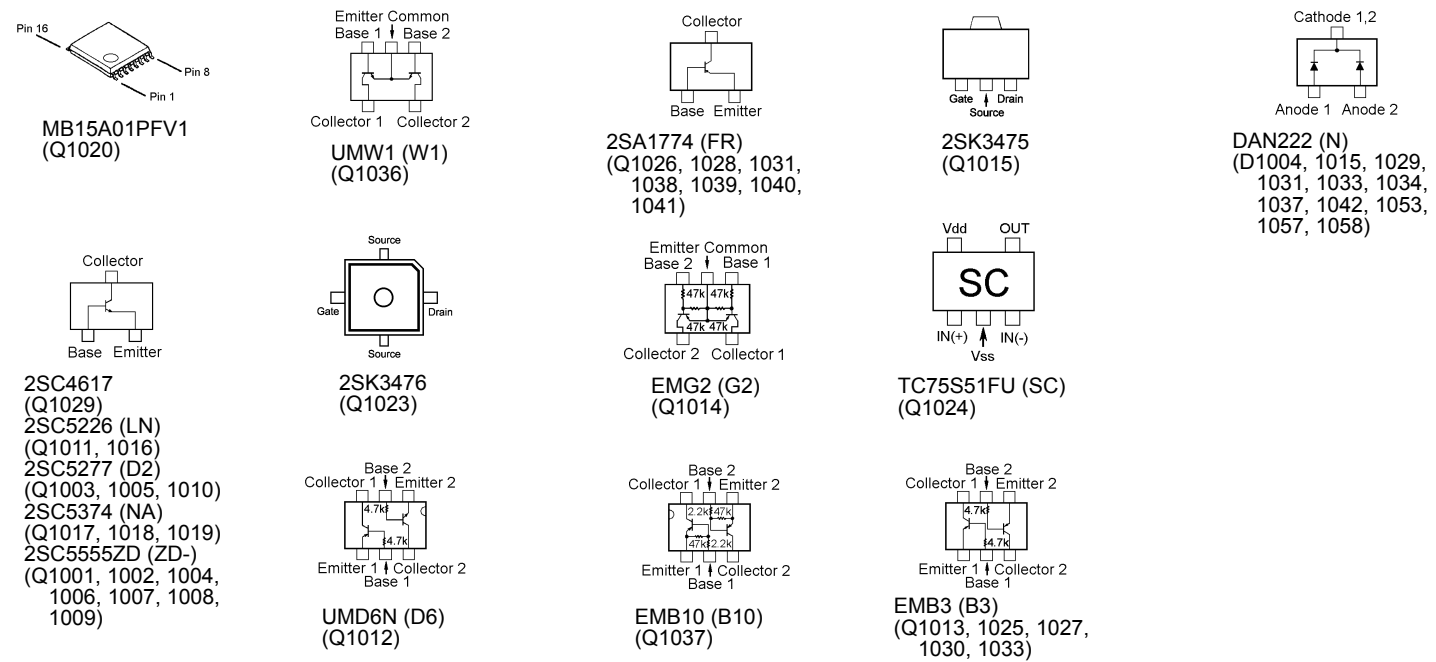
Parts Layout



Side A



Side B



REF.	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT.	SIDE	LAY ADR.
C 1202	CHIP CAP.	18pF	50V	CH	GRM36CH180J50PT	K22178218		1-	A	A2
C 1203	CHIP CAP.	8pF	50V	CH	GRM36CH080D50PT	K22178210		1-	A	A1
C 1204	CHIP CAP.	12pF	50V	CH	GRM36CH120J50PT	K22178214		1-	A	A1
C 1205	CHIP CAP.	33pF	50V	CH	GRM36CH330J50PT	K22178224		1-	A	A1
C 1206	CHIP CAP.	33pF	50V	CH	GRM36CH330J50PT	K22178224		1-	A	A1
C 1207	CHIP CAP.	12pF	50V	CH	GRM36CH120J50PT	K22178214		1-	A	A1
C 1209	CHIP CAP.	120pF	50V	CH	UMK105CH121JW-F	K22178284		1-	A	A2
C 1210	CHIP CAP.	10pF	50V	CH	UMK105CH100DW-F	K22178258		1-	A	A1
C 1212	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	B2
C 1213	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	B2
C 1214	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	B2
C 1215	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	b2
C 1216	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	B2
C 1217	CHIP CAP.	3pF	50V	CJ	UMK105CJ030CW-F	K22178251		1-	A	C1
C 1218	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	A2
C 1220	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	B1
C 1221	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	b2
C 1222	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	b1
C 1223	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	a1
C 1224	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	a1
C 1225	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	b1
C 1226	CHIP CAP.	7pF	50V	CH	UMK105CH070DW-F	K22178255		1-	A	B2
C 1227	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	b1
C 1228	CHIP CAP.	33pF	50V	CH	GRM36CH330J50PT	K22178224		1-	A	B1
C 1228	CHIP CAP.	33pF	50V	CH	GRM36CH330J50PT	K22178224	AUSTRALIA	2-	A	B1
C 1228	CHIP CAP.	33pF	50V	CH	GRM36CH330J50PT	K22178224	EUROPE	2-	A	B1
C 1228	CHIP CAP.	33pF	50V	CH	GRM36CH330J50PT	K22178224	EXPORT	2-	A	B1
C 1228	CHIP CAP.	33pF	50V	CH	GRM36CH330J50PT	K22178224	USA	2-	A	B1
C 1229	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	A2
C 1231	CHIP CAP.	47pF	50V	CH	GRM36CH470J50PT	K22178228		1-	A	B2
C 1232	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	A1
C 1233	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		3-	B	b2
C 1234	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		3-	A	B2
C 1240	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804	USA	2-		
D 1001	DIODE				1SS362 TE85R	G2070268		1-	B	b1
D 1002	DIODE				1SS362 TE85R	G2070268		1-	B	a1
D 1003	DIODE				1SV271 TPH3	G2070476		1-	B	c1
D 1004	DIODE				DAN222M T2L	G2070936		1-	B	a1
D 1005	DIODE				M1FM3-4063	G2070804		1-	B	a2
D 1006	DIODE				1SV323(TPH3)	G2071006		1-	B	b1
D 1007	DIODE				1SV323(TPH3)	G2071006		1-	B	b1
D 1008	DIODE				1SV325(TPH3)	G2070848		1-	B	a1
D 1009	DIODE				1SV325(TPH3)	G2070848		1-	B	a1
D 1010	DIODE				JDS2S03S(TAPE)	G2071062		1-	B	a1
D 1011	DIODE				HVC355B(TAPE)	G2070588		1-	B	a1
D 1012	DIODE				HVC355B(TAPE)	G2070588		1-	B	a1
D 1013	DIODE				JDS2S03S(TAPE)	G2071062		1-	B	a1
D 1014	DIODE				HVR100-8TRU	G2070540		1-	B	a1
D 1015	DIODE				DAN222M T2L	G2070936		1-	B	a1
D 1016	DIODE				1SV331(TPH3,F)	G2071044		1-	B	c2
D 1017	DIODE				1SV331(TPH3,F)	G2071044		1-	B	c2
D 1018	DIODE				1SV323(TPH3)	G2071006		1-	B	c1
D 1019	DIODE				1SV323(TPH3)	G2071006		1-	B	c1
D 1020	DIODE				1SV325(TPH3)	G2070848		1-	B	a1
D 1021	DIODE				1SV325(TPH3)	G2070848		1-	B	a2
D 1022	DIODE				HVC355B(TAPE)	G2070588		1-	B	a1
D 1023	DIODE				HVC355B(TAPE)	G2070588		1-	B	a2
D 1024	DIODE				JDS2S03S(TAPE)	G2071062		1-	B	a2
D 1025	DIODE				1SV325(TPH3)	G2070848		1-	B	a2
D 1026	DIODE				1SV325(TPH3)	G2070848		1-	B	a2
D 1027	DIODE				1SS400G T2R	G2070934		1-	B	c2
D 1028	DIODE				1SS400G T2R	G2070934		1-	B	c2

RF Unit

REF.	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT.	SIDE	LAY ADR.
D 1029	DIODE				DAN222M T2L	G2070936		1-	B	a2
D 1030	DIODE				1SS400G T2R	G2070934		1-	B	a2
D 1031	DIODE				DAN222M T2L	G2070936		1-	B	a2
D 1032	DIODE				1SS400G T2R	G2070934		1-	B	a2
D 1033	DIODE				DAN222M T2L	G2070936		1-	B	a2
D 1034	DIODE				DAN222M T2L	G2070936		1-	B	b1
D 1035	DIODE				HN2D01FUTE85R	G2070348		1-	B	b2
D 1036	DIODE				HVC359 TRF	G2070708		1-	B	b2
D 1037	DIODE				DAN222M T2L	G2070936		1-	B	b1
D 1038	DIODE				JDS2S03S(TAPE)	G2071062		1-	A	B1
D 1040	DIODE				1SS314 TPH3	G2070122		1-	A	B1
D 1041	DIODE				1SS314 TPH3	G2070122		1-	A	A1
D 1042	DIODE				DAN222M T2L	G2070936		1-	B	a1
D 1043	DIODE				RB751S-40TE61	G2070850		1-	A	A1
D 1044	DIODE				RB751S-40TE61	G2070850		1-	A	A1
D 1045	DIODE				RB751S-40TE61	G2070850		1-	A	A2
D 1046	DIODE				RLS135 TE-11	G2070128		1-	A	B1
D 1047	DIODE				1SV307(TPH3)	G2070638		1-	A	B1
D 1048	DIODE				1SV271 TPH3	G2070476		1-	A	A1
D 1049	DIODE				RLS135 TE-11	G2070128		1-	A	B2
D 1050	DIODE				1SV307(TPH3)	G2070638		1-	A	A1
D 1051	DIODE				RLS135 TE-11	G2070128		1-	A	B2
D 1052	DIODE				1SV307(TPH3)	G2070638		1-	A	B2
D 1053	DIODE				DAN222M T2L	G2070936		1-	B	a1
D 1054	DIODE				RB751S-40TE61	G2070850		1-	A	A1
D 1055	DIODE				1SV271 TPH3	G2070476		1	A	A1
D 1055	DIODE				1SV271 TPH3	G2070476	AUSTRALIA	2-	A	A1
D 1055	DIODE				1SV271 TPH3	G2070476	EUROPE	2-	A	A1
D 1055	DIODE				1SV271 TPH3	G2070476	EXPORT	2-	A	A1
D 1055	DIODE				RLS135 TE-11	G2070128	USA	2-	A	A1
D 1056	DIODE				1SS400G T2R	G2070934		1-	B	b2
D 1057	DIODE				DAN222M T2L	G2070936		1-	B	b1
D 1058	DIODE				DAN222M T2L	G2070936		1-	B	b2
D 1059	DIODE				EDZ TE61 3.9B	G2071004		1		
D 1059	DIODE				EDZ TE61 5.1B	G2070998	AUSTRALIA	2		
D 1059	DIODE				EDZ TE61 5.1B	G2070998	EUROPE	2		
D 1059	DIODE				EDZ TE61 5.1B	G2070998	EXPORT	2		
D 1059	DIODE				EDZ TE61 5.1B	G2070998	USA	2		
D 1060	DIODE				RB751S-40TE61	G2070850		1-	A	B2
D 1061	DIODE				1SS400 TE61	G2070634	USA	2-		
FB1001	CHIP COIL				BLM21PG300SN1D	L1690840		1-	B	a2
FB1002	CHIP COIL				BLM21PG300SN1D	L1690840		1-	A	A2
FB1003	CHIP COIL				BLM21PG300SN1D	L1690840		1-	A	C2
HS1001	HEATSINK PLATE					RA0653300		1-	B	b1
J 1001	CONNECTOR				MJC-040-T	P0091401		1-	A	C2
J 1002	CONNECTOR				IL-FPR-28S-VF-E1500	P1091029		1-	A	A2
J 1003	CONNECTOR				AXK6F10345YP	P0091378		1-	B	b1
J 1004	CONNECTOR				AXK6F10345YP	P0091378		1-	B	a1
L 1001	M.RFC	0.1uH			LK1608 R10K-T	L1690407		1-	B	a1
L 1002	M.RFC	0.1uH			LK1608 R10K-T	L1690407		1-	B	a1
L 1003	M.RFC	0.0082uH			TFL0510-8N2	L1690810		1-	B	c1
L 1004	M.RFC	0.0082uH			TFL0510-8N2	L1690810		1-	B	c1
L 1005	CHIP COIL	0.0068uH			LQW1608A6N8C00	L1690879		1-	B	b1
L 1006	M.RFC	0.0047uH			TFL0510-4N7	L1690807		1-	B	c1
L 1007	M.RFC	0.0082uH			TFL0510-8N2	L1690810		1-	B	c1
L 1008	CHIP COIL	0.033uH			LQW1608A33NG00	L1690886		1-	B	b1
L 1008	M.RFC	0.033uH			HK1608 33NJ-T	L1690522		3-	B	b1
L 1009	M.RFC	0.15uH			LK1608 R15K-T	L1690409		1-	B	a1
L 1010	M.RFC	0.1uH			HK1608 R10J-T	L1690528		1-	B	a1
L 1011	M.RFC	0.22uH			LK1608 R22K-T	L1690410		1-	B	a1
L 1012	M.RFC	120uH			FLC32T-121J	L1690228		1-	B	a1
L 1013	M.RFC	33uH			LK1608 330M-T	L1690690		1-	B	a1

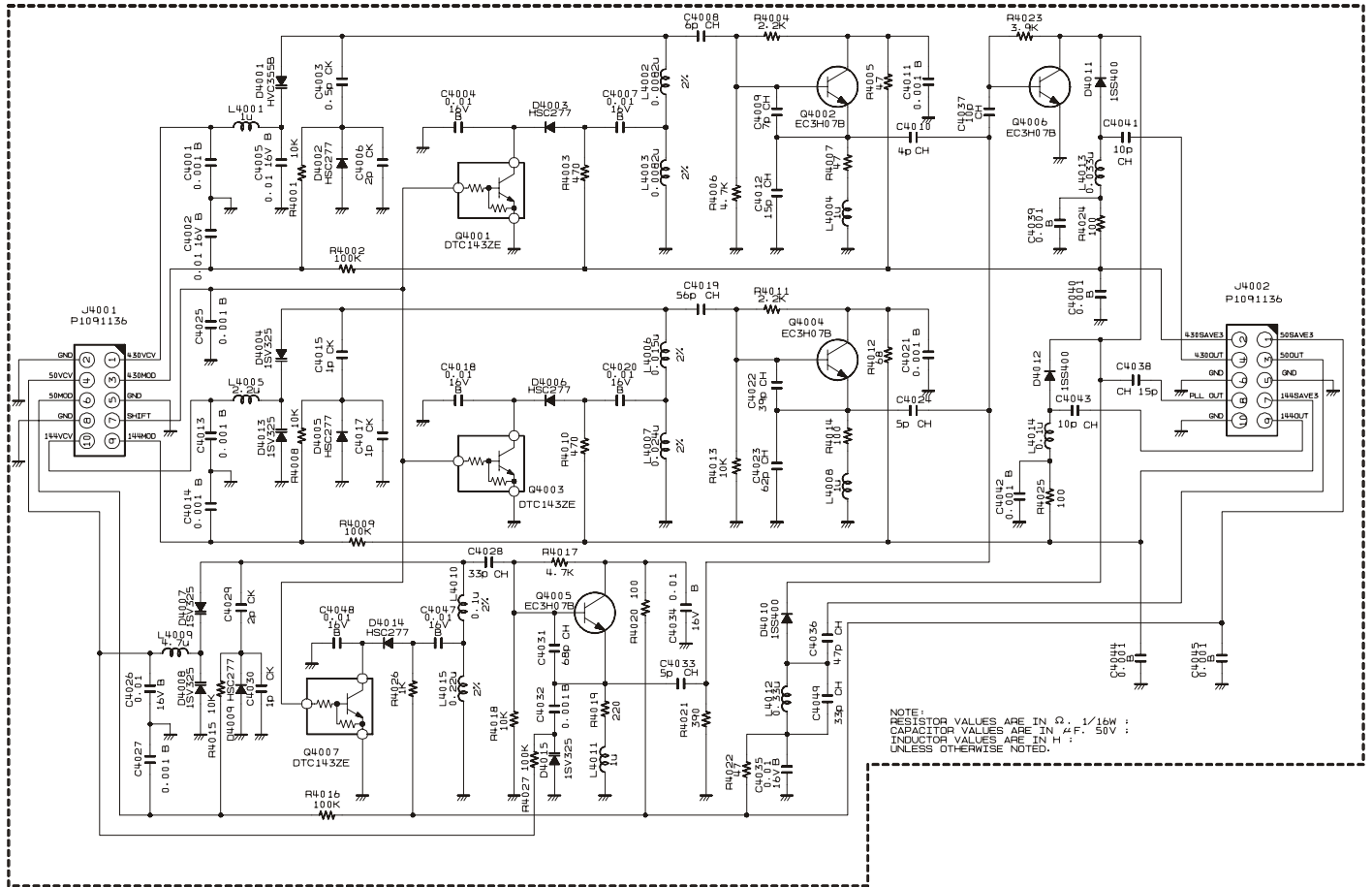
RF Unit

REF.	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT.	SIDE	LAY ADR.
L 1060	COIL				E2 0.25-1.9-5.5T-R	L0022610		1-	A	A1
L 1061	COIL				E2 0.25-1.9-5.5T-R	L0022610		1-	A	A2
L 1062	M.RFC	4.7uH			LK1608 4R7K-T	L1690688		1-	A	B2
L 1063	CHIP COIL	0.1uH			LQN21AR10J04	L1690620		1-	A	B2
L 1064	COIL				E2 0.45-1.4-4T-L	L0022391		1-	A	A1
L 1065	COIL				E2 0.35-1.6-4T-L	L0022456		1-	A	A1
L 1066	COIL				E2 0.35-1.6-4T-L	L0022456		1-	A	A1
L 1067	COIL				E2 0.35-1.6-5.5T-L	L0022616		1-	A	A2
L 1068	COIL				E2 0.3-1.7-7T-R	L0022372		1-	A	A1
L 1069	COIL				E2 0.35-1.6-7T-L	L0022390		1-	A	A1
L 1070	COIL				E2 0.25-1.85-8.5T-L	L0022576		1-	A	A2
L 1071	COIL				E2 0.25-1.9-10.5T-L	L0022749		1-	A	A1
L 1072	M.RFC	0.012uH			ELJ-RE12NJF2	L1690715		1	A	B1
L 1072	M.RFC	0.012uH			ELJ-RE12NJF2	L1690715	AUSTRALIA	2-	A	B1
L 1072	M.RFC	0.012uH			ELJ-RE12NJF2	L1690715	EUROPE	2-	A	B1
L 1072	M.RFC	0.012uH			ELJ-RE12NJF2	L1690715	EXPORT	2-	A	B1
L 1072	M.RFC	0.012uH			ELJ-RE12NJF2	L1690715	USA	2-	A	B1
L 1073	M.RFC	0.01uH			TFL0510-10N	L1690811	EUROPE	3-		
NF1001	EMI FILTER				NFM4516P13C204FT1	Q9000759		1-	A	B2
Q 1001	TRANSISTOR				2SC5555ZD-TR	G3355557		1-	B	b1
Q 1002	TRANSISTOR				2SC5555ZD-TR	G3355557		1-	B	a1
Q 1003	TRANSISTOR				2SC5277-D2-TL	G3352778B		1-	B	c1
Q 1004	TRANSISTOR				2SC5555ZD-TR	G3355557		1-	B	b1
Q 1005	TRANSISTOR				2SC5277-D2-TL	G3352778B		1-	B	c1
Q 1006	TRANSISTOR				2SC5555ZD-TR	G3355557		1-	B	c1
Q 1007	TRANSISTOR				2SC5555ZD-TR	G3355557		1-	B	a2
Q 1008	TRANSISTOR				2SC5555ZD-TR	G3355557		1-	B	a2
Q 1009	TRANSISTOR				2SC5555ZD-TR	G3355557		1-	B	a2
Q 1010	TRANSISTOR				2SC5277-D2-TL	G3352778B		1-	B	c2
Q 1011	TRANSISTOR				2SC5226-5-TL	G3352268E		1-	A	B1
Q 1012	TRANSISTOR				UMD6N TR	G3070215		1-	A	C1
Q 1012	TRANSISTOR				EMD6-T2R	G3070346		3-	A	C1
Q 1013	TRANSISTOR				EMB3 T2R	G3070303		1-	B	b2
Q 1014	TRANSISTOR				EMG2 T2R	G3070304		1-	B	b2
Q 1015	FET				2SK3475(T2LVX)	G3070318		1-	A	B1
Q 1016	TRANSISTOR				2SC5226-5-TL	G3352268E		1-	A	B1
Q 1017	TRANSISTOR				2SC5374-TL	G3353748		1-	B	a2
Q 1018	TRANSISTOR				2SC5374-TL	G3353748		1-	B	a2
Q 1019	TRANSISTOR				2SC5374-TL	G3353748		1-	B	b1
Q 1020	IC				MB15A01PFV1-G-BND-EF	G1092545		1-	B	b2
Q 1021	TRANSISTOR				DTA144EM T2L	G3070310		1-	B	c2
Q 1022	TRANSISTOR				DTC144EM T2L	G3070309		1-	B	c2
Q 1023	FET				2SK3476(TE12L)	G3834768		1-	A	B1
Q 1024	IC				TC75S51FU-TE85L	G1094194		1-	A	C1
Q 1025	TRANSISTOR				EMB3 T2R	G3070303		1-	B	a1
Q 1026	TRANSISTOR				2SA1774 TL R	G3117748R		1-	B	b1
Q 1027	TRANSISTOR				EMB3 T2R	G3070303		1-	B	a1
Q 1028	TRANSISTOR				2SA1774 TL R	G3117748R		1-	B	b2
Q 1029	TRANSISTOR				2SC4617 TL R	G3346178R		1-	B	b2
Q 1030	TRANSISTOR				EMB3 T2R	G3070303		1-	B	a1
Q 1031	TRANSISTOR				2SA1774 TL R	G3117748R		1-	B	a1
Q 1032	TRANSISTOR				DTC144EM T2L	G3070309		1-	B	b1
Q 1033	TRANSISTOR				EMB3 T2R	G3070303		1-	B	b1
Q 1034	TRANSISTOR				DTC144EM T2L	G3070309		1-	A	B1
Q 1035	TRANSISTOR				FMMTL718TA	G3070335		1-	A	B2
Q 1035	TRANSISTOR				CPH6102-TL	G3070223		3-	A	B2
Q 1036	TRANSISTOR				UMW1 TR	G3070078		1-	A	B2
Q 1037	TRANSISTOR				EMB10 T2R	G3070302		1-	B	b1
Q 1038	TRANSISTOR				2SA1774 TL R	G3117748R		1-	B	b1
Q 1039	TRANSISTOR				2SA1774 TL R	G3117748R		1-	B	b2
Q 1040	TRANSISTOR				2SA1774 TL R	G3117748R		1-	B	b2
Q 1041	TRANSISTOR				2SA1774 TL R	G3117748R		1-	B	a1

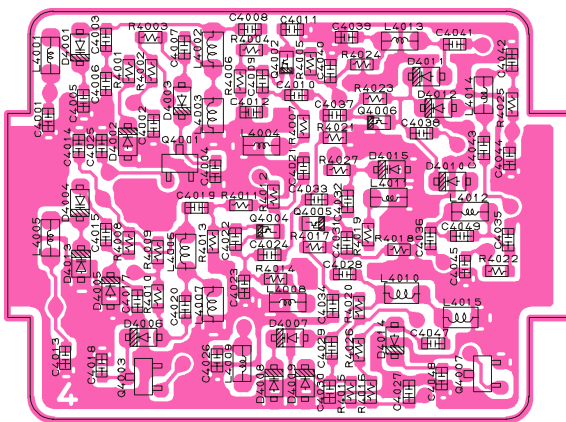
REF.	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT.	SIDE	LAY ADR.
R 1108	CHIP RES.	3.3k	1/16W	5%	RMC1/16S 332JTH	J24189031		1-	A	A1
R 1109	CHIP RES.	3.3k	1/16W	5%	RMC1/16S 332JTH	J24189031		1-	A	A1
R 1110	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	A	A1
R 1111	CHIP RES.	270	1/16W	5%	RMC1/16S 271JTH	J24189018		1-	A	A1
R 1112	CHIP RES.	1k	1/16W	5%	RMC1/16S 102JTH	J24189025		1-	B	b2
R 1113	CHIP RES.	1k	1/16W	5%	RMC1/16S 102JTH	J24189025		1-	A	B2
R 1114	CHIP RES.	10k	1/16W	0.5%	MCR01MZPD1002	J24189374		1-	A	B2
R 1115	CHIP RES.	10k	1/16W	0.5%	MCR01MZPD1002	J24189374		1-	A	B2
R 1116	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	b1
R 1117	CHIP RES.	1k	1/16W	5%	RMC1/16S 102JTH	J24189025		1-	B	b1
R 1118	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	B	b2
R 1119	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	B	b2
R 1120	CHIP RES.	100	1/16W	5%	RMC1/16S 101JTH	J24189013		1-	B	c1
R 1121	CHIP RES.	330	1/16W	5%	RMC1/16 331JATP	J24185331		1-	B	a2
R 1124	CHIP RES.	100	1/16W	5%	RMC1/16S 101JTH	J24189013		1-	B	b1
R 1125	CHIP RES.	330	1/16W	5%	RMC1/16S 331JTH	J24189019		1-	A	B1
R 1126	CHIP RES.	0	1/16W	5%	RMC1/16S JPTH	J24189070		1-2	B	a1
R 1126	CHIP RES.	0	1/16W	5%	RMC1/16S JPTH	J24189070	AUSTRALIA	3-	B	a1
R 1126	CHIP RES.	0	1/16W	5%	RMC1/16S JPTH	J24189070	EXPORT	3-	B	a1
R 1126	CHIP RES.	0	1/16W	5%	RMC1/16S JPTH	J24189070	USA	3-	B	a1
R 1128	CHIP RES.	680	1/16W	5%	RMC1/16S 681JTH	J24189023		1-	A	B1
R 1129	CHIP RES.	470	1/16W	5%	RMC1/16 471JATP	J24185471		1-	A	B1
R 1129	CHIP RES.	470	1/16W	5%	RMC1/16S 471JTH	J24189021		3-	A	B1
R 1130	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		3-	B	b1
R 1131	CHIP RES.	560	1/16W	5%	RMC1/16 561JATP	J24185561	USA	2-		
R 1132	CHIP RES.	470	1/10W	5%	RMC1/10T 471J	J24205471	USA	2-		
TH1001	THERMISTOR				ERTJ0EV473J	G9090120		1-	B	b2
X 1001	XTAL XVNBAI	11.7MHz			11.7MHz	H0103311		1-	B	c2
	TERMINAL PLATE					RA0287100		1-		

RF Unit
Note:

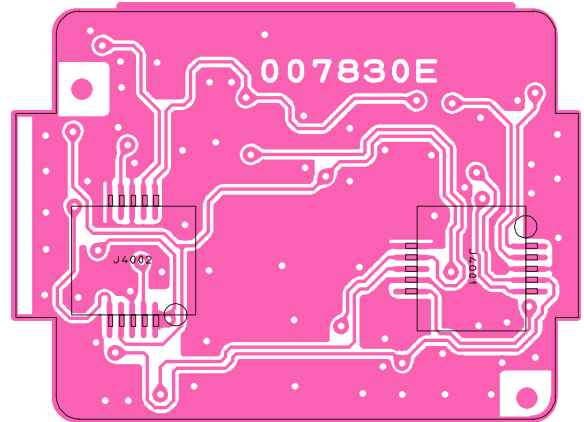
Circuit Diagram



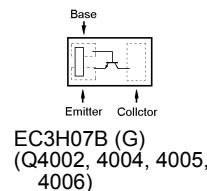
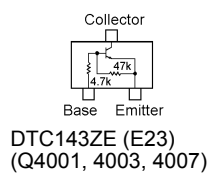
Parts Layout



Side A



Side B



REF.	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT.	SIDE	LAY ADR.
D 4013	DIODE				1SV325(TPH3)	G2070848		1-	A	A1
D 4014	DIODE				HSC277TRF	G2070584		1-	A	A1
D 4015	DIODE				1SV325(TPH3)	G2070848		1-	A	A1
J 4001	CONNECTOR				AXK5F10335YP	P1091136		1-	B	b1
J 4002	CONNECTOR				AXK5F10335YP	P1091136		1-	B	a1
L 4001	M.RFC	1uH			LK1608 1R0K-T	L1690687		1-	A	A1
L 4002	M.RFC	0.0068uH		5%	C1608CB-6N8J	L1691093		1-	A	A1
L 4003	M.RFC	0.0082uH		2%	C1608CB-8N2G	L1691226		1-	A	A1
L 4004	M.RFC	1uH			LK1608 1R0K-T	L1690687		1-	A	A1
L 4005	M.RFC	2.2uH			LK1608 2R2K-T	L1690634		1-	A	A1
L 4006	M.RFC	0.015uH		2%	C1608CB-15NG	L1691034		1-	A	A1
L 4007	M.RFC	0.024uH		2%	C1608CB-24NG	L1691281		1-	A	A1
L 4008	M.RFC	1uH			LK1608 1R0K-T	L1690687		1-	A	A1
L 4009	M.RFC	4.7uH			LK1608 4R7K-T	L1690688		1-	A	A1
L 4010	M.RFC	0.1uH		2%	C1608CB-R10G	L1691045		1-	A	A1
L 4011	M.RFC	1uH			LK1608 1R0K-T	L1690687		1-	A	A1
L 4012	M.RFC	0.33uH			LK1608 R33K-T	L1690412		1-	A	A1
L 4013	M.RFC	0.033uH			HK1608 33NJ-T	L1690522		1-	A	A1
L 4014	M.RFC	0.1uH			LK1608 R10K-T	L1690407		1-	A	B1
L 4015	M.RFC	0.22uH		2%	C1608CB-R22G	L1691103		1-	A	A1
Q 4001	TRANSISTOR				DTC143ZE TL	G3070102		1-	A	A1
Q 4002	TRANSISTOR				EC3H07B-TL	G3070286		1-	A	A1
Q 4003	TRANSISTOR				DTC143ZE TL	G3070102		1-	A	A1
Q 4004	TRANSISTOR				EC3H07B-TL	G3070286		1-	A	A1
Q 4005	TRANSISTOR				EC3H07B-TL	G3070286		1-	A	A1
Q 4006	TRANSISTOR				EC3H07B-TL	G3070286		1-	A	A1
Q 4007	TRANSISTOR				DTC143ZE TL	G3070102		1-	A	A1
R 4001	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	A	A1
R 4002	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	A	A1
R 4003	CHIP RES.	470	1/16W	5%	RMC1/16S 471JTH	J24189021		1-	A	A1
R 4004	CHIP RES.	2.2k	1/16W	5%	RMC1/16S 222JTH	J24189029		1-	A	A1
R 4005	CHIP RES.	47	1/16W	5%	RMC1/16S 470JTH	J24189009		1-	A	A1
R 4006	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	A	A1
R 4007	CHIP RES.	47	1/16W	5%	RMC1/16S 470JTH	J24189009		1-	A	A1
R 4008	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	A	A1
R 4009	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	A	A1
R 4010	CHIP RES.	470	1/16W	5%	RMC1/16S 471JTH	J24189021		1-	A	A1
R 4011	CHIP RES.	2.2k	1/16W	5%	RMC1/16S 222JTH	J24189029		1-	A	A1
R 4012	CHIP RES.	68	1/16W	5%	RMC1/16S 680JTH	J24189011		1-	A	A1
R 4013	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	A	A1
R 4014	CHIP RES.	100	1/16W	5%	RMC1/16S 101JTH	J24189013		1-	A	A1
R 4015	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	A	A1
R 4016	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	A	A1
R 4017	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	A	A1
R 4018	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	A	A1
R 4019	CHIP RES.	220	1/16W	5%	RMC1/16S 221JTH	J24189017		1-	A	A1
R 4020	CHIP RES.	100	1/16W	5%	RMC1/16S 101JTH	J24189013		1-	A	A1
R 4021	CHIP RES.	390	1/16W	5%	RMC1/16S 391JTH	J24189020		1-	A	A1
R 4022	CHIP RES.	47	1/16W	5%	RMC1/16S 470JTH	J24189009		1-	A	B1
R 4023	CHIP RES.	3.9k	1/16W	5%	RMC1/16S 392JTH	J24189032		1-	A	A1
R 4024	CHIP RES.	100	1/16W	5%	RMC1/16S 101JTH	J24189013		1-	A	A1
R 4025	CHIP RES.	100	1/16W	5%	RMC1/16S 101JTH	J24189013		1-	A	B1
R 4026	CHIP RES.	1k	1/16W	5%	RMC1/16S 102JTH	J24189025		1-	A	A1
R 4027	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	A	A1
	SHIELD CASE VCO					RA0400300		1-		
	SHIELD SHEET					RA043430B		1-		



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