

# Air Band Transceiver

## VXA-700

### Service Manual

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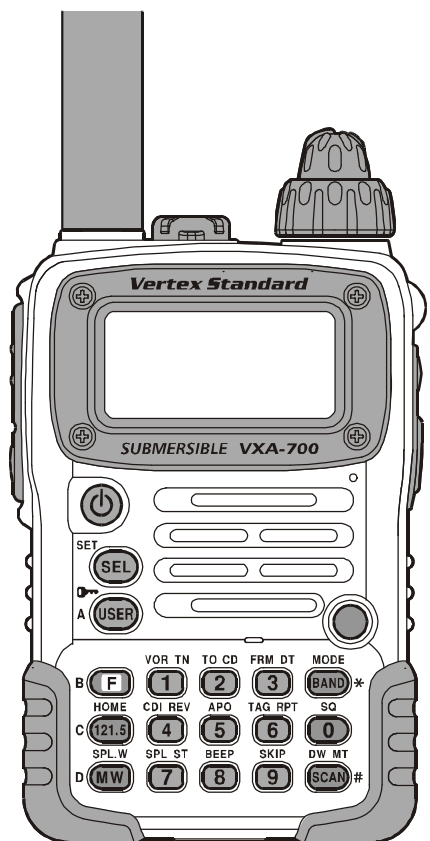
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## Introduction

This manual provides technical information necessary for servicing the **VXA-700** 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 are provided for each double-sided circuit board in the transceiver. Each side of the board is referred to by the type of the majority of components installed on that side ("leaded" or "chip-only"). 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 technical 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.

## Contents

<b>Specifications .....</b>	<b>2</b>
<b>Exploded View &amp; Miscellaneous Parts .....</b>	<b>3</b>
<b>Block Diagram .....</b>	<b>5</b>
<b>Connection Diagram .....</b>	<b>6</b>
<b>Circuit Description .....</b>	<b>7</b>
<b>Alignment .....</b>	<b>11</b>
<b>Board Unit (Schematics, Layouts &amp; Parts)</b>	
RF Unit .....	17
AF Unit .....	25
CNTL Unit .....	33

# Specifications

## GENERAL

<b>Frequency Range:</b>	TX 118.000 - 136.975 MHz (COM Band), 144.000 - 148.000MHz (Amateur Band) RX 88.000 - 108.000MHz (FM BC Band), 108.000 - 117.975 MHz (NAV Band), 118.000 - 136.975 MHz (COM Band), 144.000 - 148.000MHz (Amateur Band), Weather Channel (WX-01 - WX-10)
<b>Channel Spacing:</b>	5/10/12.5/15/20/25/50/100 kHz
<b>Emission Type:</b>	TX: AM & FM, RX: AM & FM
<b>Supply Voltage:</b>	4.5 - 15.0 VDC
<b>Current Consumption:</b> (approx.)	250 $\mu$ A (Power off), 35 mA (Battery saver on, save ratio 1:5), 60 mA (Squelch on), 180 mA (Receive). 1.7A/950 mA/650 mA/400 mA (Transmit FM: 5W/2.5W/1W/0.3W @ 7.4V) 800 mA (Transmit AM: 1.5W Carrier @ 7.4V) 400 mA (Transmit AM: 0.3W Carrier @ 4.5V)
<b>Temperature Range:</b>	+14 °F to +140 °F (-10 °C to +60 °C)
<b>Case Size (WxHxD):</b>	2.36" x 3.78" x 1.12" (60 x 96 x 28.5 mm) w/FNB-80LI
<b>Weight (approx.):</b>	9.9 oz. (280 grams) with FNB-80LI, antenna

## RECEIVER

<b>Circuit Type:</b>	Double-conversion Superheterodyne
<b>IFs:</b>	35.4 MHz & 450 kHz ( AM / NFM ), 45.65 MHz & 10.7MHz ( WFM )
<b>Sensitivity:</b>	88-108 MHz: < 2 $\mu$ V (for 12 dB SINAD with 1 kHz tone @ 22.5 kHz deviation) 108 MHz-138 MHz: < 1 $\mu$ V (for 6 dB S/N with 1 kHz tone @ 30 % modulation) 144-148 MHz: < 0.32 $\mu$ V (for 12 dB S/N with 1 kHz tone @ 3.5 kHz deviation) WX-01 - WX-10: < 0.4 $\mu$ V (for 12 dB S/N with 1 kHz tone @ 3.5 kHz deviation)
<b>Selectivity:</b>	AM/NFM: < 8 kHz/-6 dB, WFM: < 200 kHz/-6 dB
<b>Adjacent Ch. Selectivity:</b>	AM/NFM: > 25 kHz/-60 dB, WFM: > 300 kHz/-20 dB
<b>AF Output:</b>	0.4W @ 8 Ohms, 10 % THD

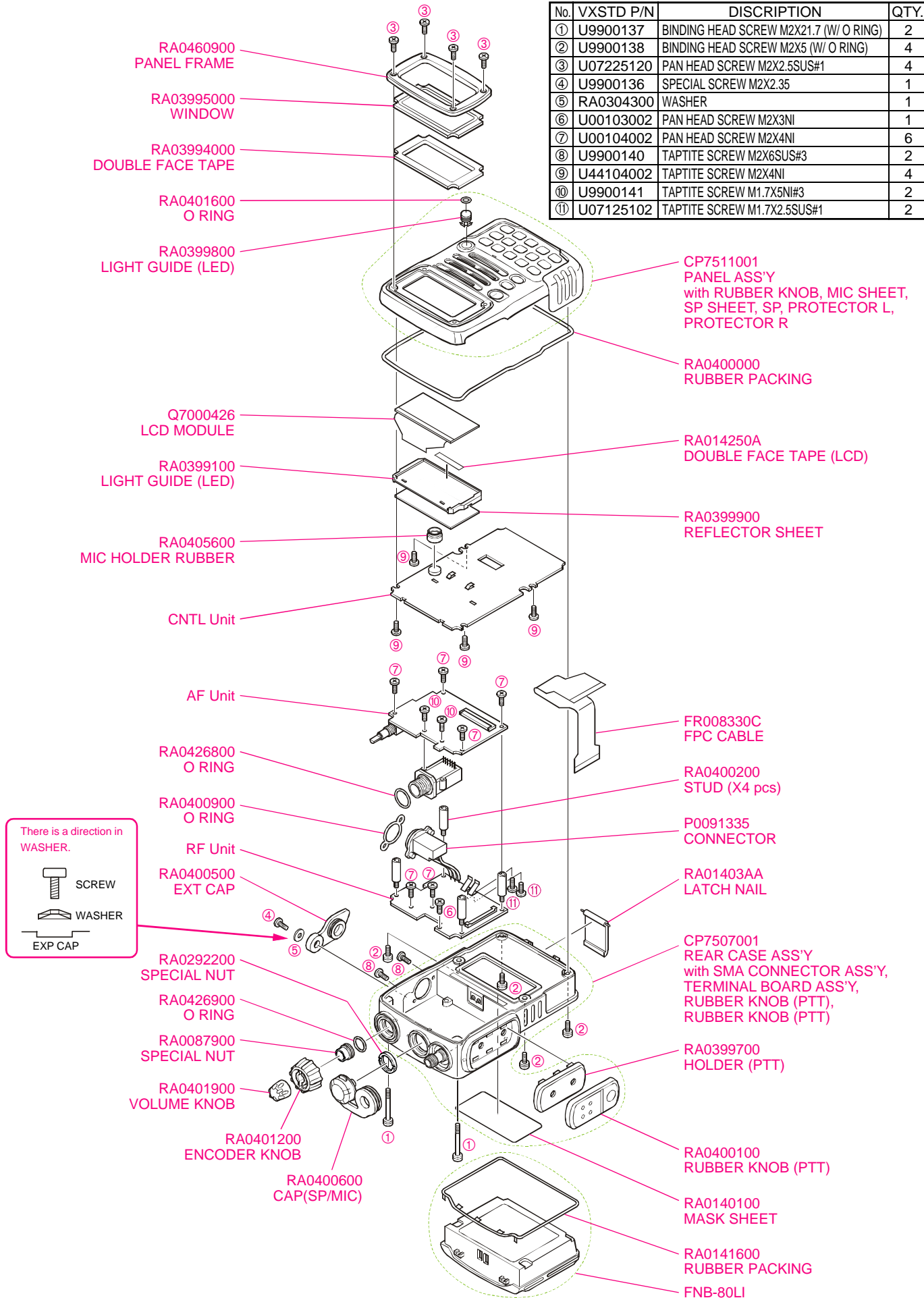
## TRANSMITTER

<b>Power Output:</b>	118 MHz-138 MHz: AM: 5.0 W (PEP), 1.5 W (Carrier Power) @ 7.4 V 144-148 MHz: FM:5.0 W @ 7.4 V, AM: 4.0 W (PEP), 1.3 W (Carrier Power) @ 7.4 V
<b>Frequency Stability:</b>	Better than $\pm$ 10 ppm (14 °F to 140 °F/-10 °C to +60 °C)
<b>Modulation System:</b>	AM: Low Level Modulation, FM: variable reactance
<b>Maximum deviation:</b>	$\pm$ 5 kHz
<b>Spurious Emission:</b>	> 60 dB below carrier
<b>Int. Microphone Type:</b>	Condenser
<b>Ext. Mic. Impedance:</b>	150 Ohms

Specification are subject to change without notice.

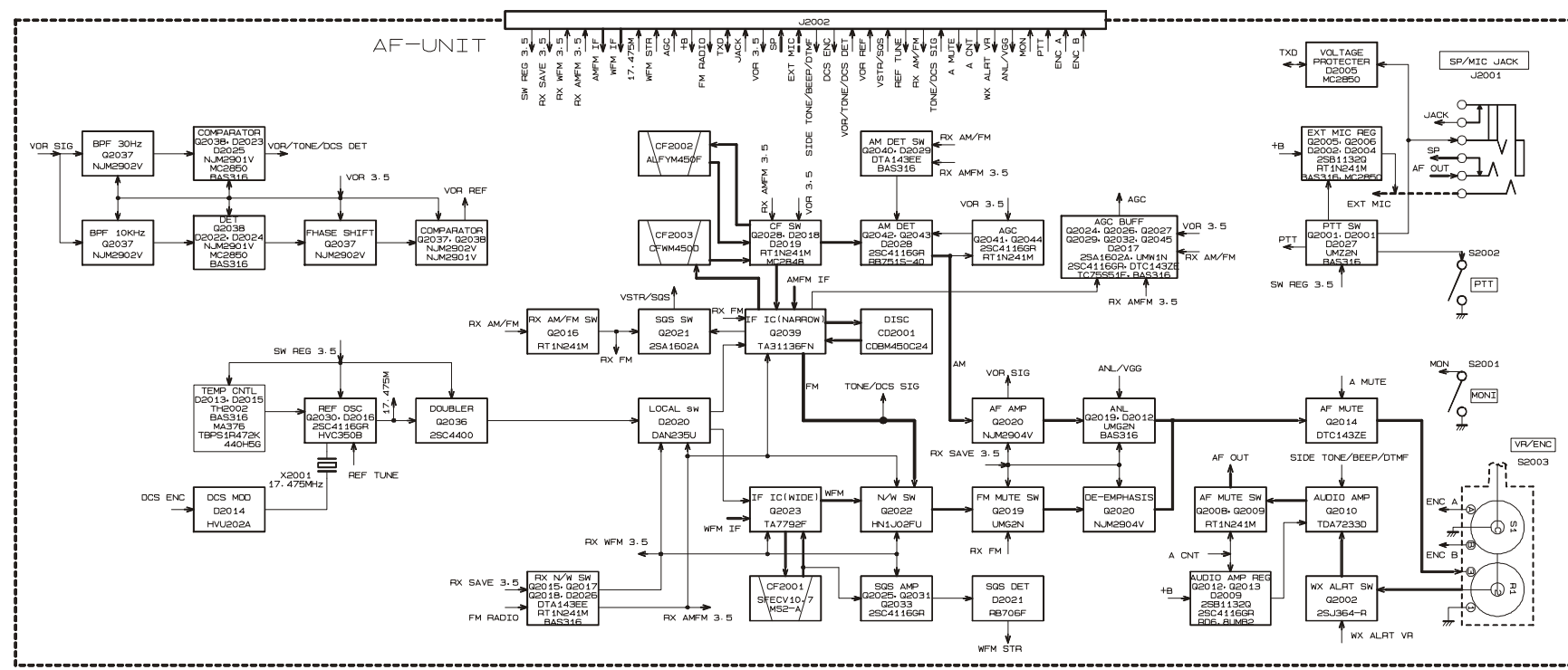
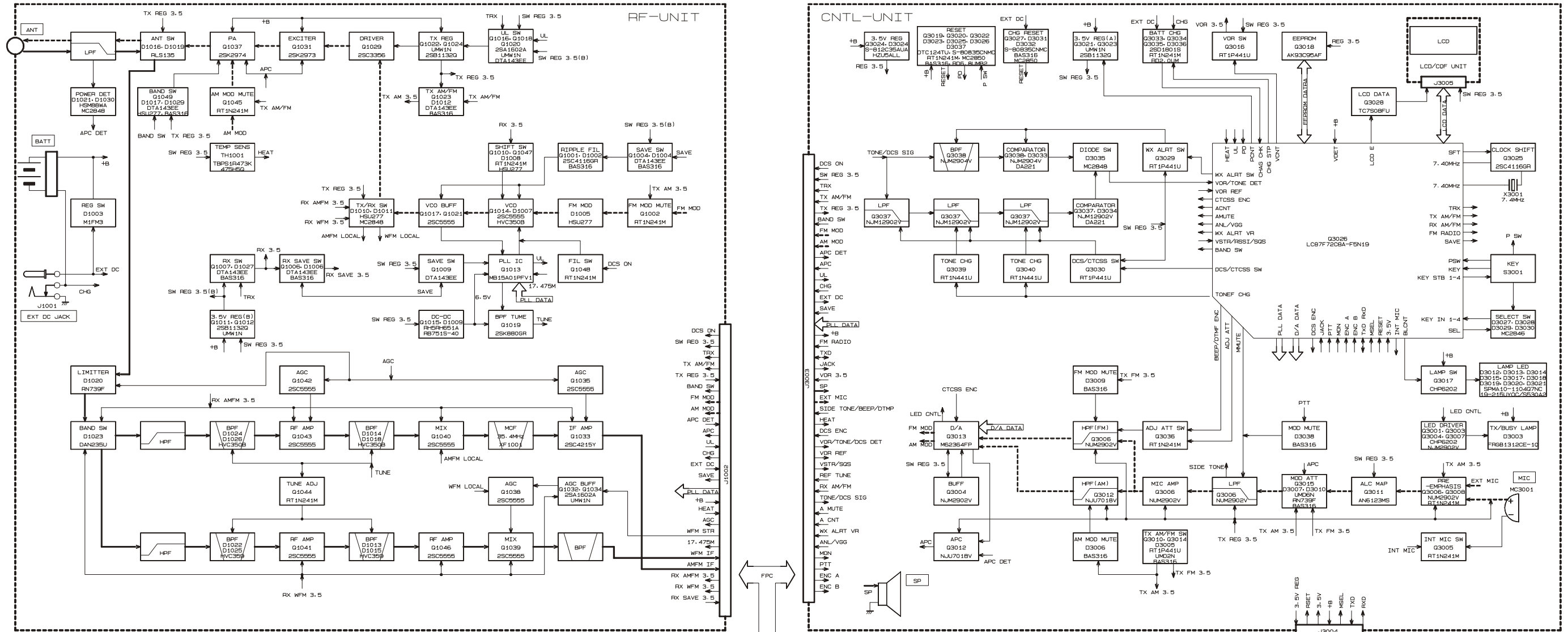
# Exploded View & Miscellaneous Parts

No.	VXSTD P/N	DISCRIPTION	QTY.
①	U9900137	BINDING HEAD SCREW M2X21.7 (W/ O RING)	2
②	U9900138	BINDING HEAD SCREW M2X5 (W/ O RING)	4
③	U07225120	PAN HEAD SCREW M2X2.5SUS#1	4
④	U9900136	SPECIAL SCREW M2X2.35	1
⑤	RA0304300	WASHER	1
⑥	U00103002	PAN HEAD SCREW M2X3NI	1
⑦	U00104002	PAN HEAD SCREW M2X4NI	6
⑧	U9900140	TAPTITE SCREW M2X6SUS#3	2
⑨	U44104002	TAPTITE SCREW M2X4NI	4
⑩	U9900141	TAPTITE SCREW M1.7X5NI#3	2
⑪	U07125102	TAPTITE SCREW M1.7X2.5SUS#1	2



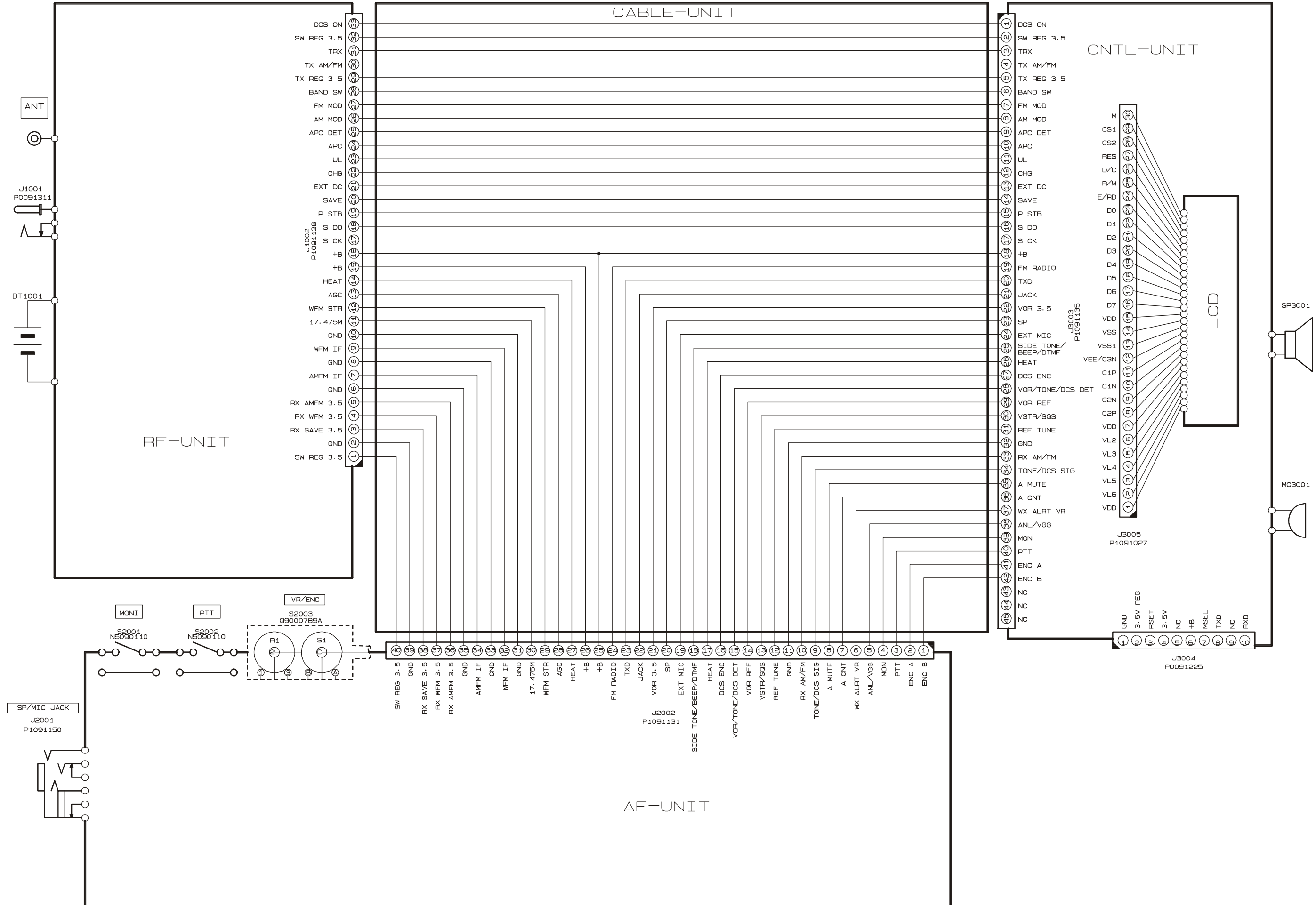
# Note

# Block Diagram



→ RX LINE  
 --- TX LINE  
 → CNTL LINE

# Connection Diagram



## Receive Signal Path

### Narrow FM and AM mode

Incoming RF from the antenna jack is passed through a low-pass filter and high-pass filter consisting of coils L1028, L1030, L1035, L1036, L1041, and L1045, capacitors C1142, C1145, C1147, C1153, C1155, C1159, C1164, C1167, C1180, C1182, C1185, and C1186 and antenna switching diodes **D1016 (RLS135)**, **D1017 (HSU275)**, and **D1019 (RLS135)**, and then proceeds to the receiver front end section.

Signals within the frequency range of the transceiver are applied to the receiver front end which contains RF amplifier **Q1043 (2SC5555)** and a varactor-tuned band-pass filter consisting of coils L1022, L1023, L1026, L1027, L1037, L1038, L1043, and L1044, capacitors C1130, C1134, C1135, C1140, C1143, C1157, C1168, C1175, C1176, C1179, and C1181, and diodes **D1014**, **D1018**, **D1024**, and **D1026** (all **HVC350**), and then applied to the 1st mixer **Q1040 (2SC5555)**.

Buffered output from the VCO is amplified by **Q1017 (2SC5555)** to provide a pure 1st local signal between 143.4 and 199.4 MHz for injection to the 1st mixer. The 35.4 MHz 1st mixer product then passes through monolithic crystal filter **XF1001 (35M15A1, 7.5 kHz BW)** which strips away unwanted mixer product; the 1st IF signal is then amplified by mixer post-amp **Q1033 (2SC4215Y)**.

The amplified 1st IF signal is applied to the FM IF subsystem IC **Q2039 (TA31136FN)**, which contains the 2nd mixer, 2nd local oscillator, limiter amplifier, noise amplifier and FM detector.

The 2nd local signal is generated by PLL reference/2nd local oscillator **Q2030 (2SC4116GR)** from the 17.475 MHz crystal X2001. The 17.475MHz signal is doubled by **Q2036 (2SC4400)** to produce the 450 kHz 2nd IF when mixed with the 1st IF signal within **Q2039**. The 2nd IF signal then passes through the ceramic filter **CF2002 (ALFYM450)** and **CF2003 (CFWM450D)** to remove all but the desired signal.

In the FM mode, the 2nd IF signal from ceramic filters **CF2002** and **CF2003** is applied to the limiter amplifier section of **Q2039**, which removes amplitude variations in the 450 kHz IF before detection of the speech by the ceramic discriminator **CD2001 (CDBM450C24)**. Detected audio from **Q2039** is passed through the de-emphasis network, consisting of resistors R2051, R2053, R2054, and R2101, capacitors C2048, C2049, C2053, and C2077, and **Q2020-2 (NJM2904V)**, then applied to the AF amplifier **Q2010 (TDA7233D)**.

In the AM mode, the 2nd IF signal from ceramic filters **CF2002** and **CF2003** is amplified by **Q2039** and **Q2043** (both **2SC4116GR**), then amplified signal is applied to the AM detector **D2028 (RB751S)**. Detected audio from **D2028** is

passed through the audio amplifier **Q2020-1 (NJM2904V)** and ANL circuit, then applied to the AF amplifier **Q2020-2 (NJM2904V)**. When impulse noise is received, a portion of the AM detector output signal from **D2028**, including pulse noise, is rectified by **D2012 (BAS316)**. The resulting DC is applied to the ANL MUTE gate **Q1019 (UMG2N)**, which briefly interrupts the signal flow, thus reducing the level of the pulse noise.

The processed audio signal from **Q2020-2** passes through the audio mute gate **Q2014 (DTC143ZE)** and the volume control to the audio power amplifier **Q2010 (TDA7233D)**, providing up to 0.4 Watts to the headphone jack or 8  $\Omega$  loudspeaker.

A portion of the AF signal from the FM IF subsystem **Q2039** converted into DC voltage within the IC, and then passes through the AGC amplifier **Q2026 (UMW1)**, **Q2027 (2SA1602A)**, and **Q2045 (TC75S51F)** to the inversion amplifiers Q1035 and **Q1042** (both **2SC5555**). These amplifiers reduce the amplifier gain of the IF amplifier Q1033 and the RF amplifier **Q1043** when receiving a strong signal.

### Wide FM mode

Incoming RF from the antenna jack is passed through a low-pass filter consisting of coils L1030, L1035, L1036, and L1042, capacitors C1142, C1145, C1147, C1153, C1155, C1159, and C1167, and antenna switching diodes **D1016 (RLS135)**, **D1017 (HSU275)**, and **D1019 (RLS135)**, and then proceeds to the receiver front end section.

The RF signal is applied to the wide FM receiver front end which contains RF amplifiers **Q1041 (2SC5555)** and **Q1046 (2SC5555)** and a varactor-tuned band-pass filter consisting of coils L1017, L1018, L1024, L1025, L1033, L1034, L1039, and L1040, capacitors C1125, C1128, C1129, C1131, C1136, C1148, C1158, C1162, C1163, and C1169, and diodes **D1013**, **D1015**, **D1022**, and **D1025** (all **HVC359**), then applied to the 1st mixer **Q1039 (2SC5555)**.

Buffered output from the VCO is amplified by **Q1017 (2SC5555)** to provide a pure 1st local signal between 133.68 and 153.65 MHz for injection to the 1st mixer. The 45.65 MHz 1st mixer product then passes through band-pass filter consisting of coils L1010 and L1011, and capacitors C1075, C1078, C1081, C1083, C1087, C1092, and C1093.

The 1st IF signal is applied to the wide FM IF subsystem IC **Q2023 (TA7792F)**, which contains the 2nd mixer, 2nd local oscillator, limiter amplifier and FM detector.

The 2nd local signal is generated by PLL reference/2nd local oscillator **Q2030 (2SC4116GR)** from the 17.475 MHz crystal X2001. The 17.475MHz signal is doubled by **Q2036 (2SC4400)** to produce the 10.7 MHz 2nd IF when mixed with the 1st IF signal within **Q2023**. The 2nd IF signal then passes through ceramic filter **CF2001 (SFECV10.7MS2)** to strip away unwanted mixer products.

# Circuit Description

The filtered 2nd IF signal from ceramic filter **CF2001** is applied to the limiter amplifier section of **Q2023**, which removes amplitude variations in the 10.7 MHz IF before detection of the speech by the detector (which includes coil L2002 and capacitor C2061). Detected audio from **Q2023** is passed through the de-emphasis network, consisting of resistors R2051, R2053, R2054, and R2074, capacitors C2048, C2049, C2050, and C2063, and **Q2020-2 (NJM2904V)**; the audio is then applied to the AF amplifier, **Q2010 (TDA7233D)**.

## **Squelch Control**

When a signal is received, a DC squelch control voltage appears at pin 12 of FM IF subsystem IC **Q2039** at a level according to the received signal strength. This DC is applied to pin 13 of microprocessor **Q3026 (LC87F52C8A)**.

The DC squelch control voltage is compared with the SQL threshold level by the microprocessor, **Q3026**. If the DC squelch control voltage is higher, pin 46 of **Q3026** goes high. This signal activates the AF MUTE gate **Q2014 (DTC143ZE)**, thus disabling the receiver audio.

If a signal strong enough to exceed the threshold level is received the microprocessor stops scanning, if scanning is engaged, and allows audio to pass through the AF MUTE gate **Q2014**.

## **Transmit Signal Path**

Speech input from the microphone is passed through microphone amplifier **Q3006-3 (NJM2902V)**, then applied to the ALC amplifier **Q3011 (AN5123MS)**.

In the AM mode, the amplified speech signal is passed through the low-pass filter **Q3006-2 (NJM2902V)** and high-pass filter **Q3012-1 (NJM2904V)**. The filtered speech signal is passed through **Q3013 (M62364FP)**, which adjusts the modulation level, then fed to the AM modulator **Q1037 (2SK2974)**.

In the FM mode, the amplified speech signal is passed through the low-pass filter **Q3006-2 (NJM2902V)** and high-pass filter **Q3006-4 (NJM2902V)**, where the signal is pre-emphasized and stripped of excessive high frequency components that might result in over-deviation.

The processed audio may be mixed with a CTCSS tone generated by the microprocessor **Q3026**, and the level is controlled by **Q3013 (M62364FP)**. The audio is then delivered to **D1005 (HSU277)** for frequency-modulation of the PLL carrier up to 5 kHz from the un-modulated carrier at the transmitting frequency.

When using the optional headset, the SIDETONE signal from J2001 becomes "HIGH," turning pin 18 of **Q3026** on; pin 56 of **Q3026** then goes "HIGH," routing a portion of the speech to the AF power amplifier **Q2010** as a monitor signal.

The carrier signal from the VCO **Q1014 (2SC5555)** passes through buffer amplifier **Q1017 (2SC5555)** and TX/RX switch **D1010 (HSU277)**

The signal from **D1010** is amplified by **Q1029 (2SC3356)**, and **Q1031 (2SK2973)**, and ultimately applied to the final amplifier **Q1037 (2SK2974)** which increases the signal level up to 5 watts output power. The transmit signal then passes through the antenna switch **D1016 (RLS135)**, and is low-pass filtered to suppress away harmonic spurious radiation before delivery to the antenna.

## **Automatic Transmit Power Control**

RF power output from the final amplifier is sampled by C1149/C1154 and is rectified by **D1021 (HMS86WA)**. The resulting DC is fed through the Automatic Power Controller **Q3012 (NJU7018U)**, thus allowing control of the power output.

## **Transmit Inhibit**

When the transmit PLL is unlocked, pin 7 of PLL chip **Q1013 (MB15A01PFV1)** goes to a logic "low." The resulting DC "unlock" control voltage is turns off TX inhibit switches **Q1016 (2SA1602A)**, **Q1018 (UMW1)**, and **Q1020 (DTA143EE)** to disable the supply voltage to transmitter RF amplifier **Q1029**, disabling the transmitter.

## **Spurious Suppression**

Generation of spurious products by the transmitter is minimized by the fundamental carrier frequency being equal to the final transmitting frequency. Additional harmonic suppression is provided by a low-pass filter consisting of L1030, L1035, and L1036 and C1147, C1153, C1155, C1159, C1164, and C1167, resulting in more than 60 dB of harmonic suppression prior to delivery of the RF signal to the antenna.

## **PLL Frequency Synthesizer**

The PLL circuitry consists of VCO **Q1014 (2SC5555)**, VCO buffers **Q1017** and **Q1021** (both **2SC5555**), and PLL subsystem IC **Q1013 (MB15A01PFV1)**, which contains a reference divider, serial-to-parallel data latch, programmable divider, phase comparator, and charge pump.

Stability is maintained by a regulated 3.5 V supply via **Q3023 (2SB1132Q)** and **Q3024 (S-812C35AUA-C2P)**, which feeds the PLL reference oscillator **Q2030 (2SC4116GR)**, as well as capacitors associated with the 17.475 MHz frequency reference crystal **X2001**.

In the receive mode, VCO **Q1014** oscillates between 133.65 and 199.4 MHz. The VCO output is buffered by **Q1017** and **Q1021**, and applied to the prescaler section of **Q1013**. There the VCO signal is divided by 64 or 65, according to a control signal from the data latch section of **Q1013**, before being applied to the programmable divider section of **Q1013**. The data latch section of **Q1013** also receives



# Circuit Description

serial dividing data from the microprocessor **Q3026 (LC87F72C8A)**, which causes the pre-divided VCO signal to be further divided in the programmable divider section, depending upon the desired receive frequency, so as to produce a 5 kHz derivative of the current VCO frequency.

Meanwhile, the reference divider section of **Q1013** divides the 17.475 MHz crystal reference from the reference oscillator **Q2030** by 3495 to produce the 5 kHz loop reference. The 5 kHz signal from the programmable divider (derived from the VCO) and that derived from the reference oscillator are applied to the phase detector section of **Q1013**, which produces a pulsed output with pulse duration depending on the phase difference between the input signals. This pulse train is filtered to DC and returned to the varactor **D1007 (HVC350)**.

Changes in the level of the DC voltage applied to the varactors affect the reactance in the tank circuit of the VCO, changing the oscillating frequency of the VCO according to the phase difference between the signals derived from the VCO and the crystal reference oscillator. The VCO is thus phase-locked to the crystal reference oscillator.

The output of the VCO **Q1014** is buffered by **Q1017** before application to the 1st mixer, as described previously.

For transmission, the VCO **Q1014** oscillates between 118 and 137 MHz. The remainder of the PLL circuitry is shared with the receiver. However, the dividing data from the microprocessor is such that the VCO frequency is at the actual transmit frequency (rather than offset for IFs, as in the receiving case).

Receive and transmit buses select which VCO is made active by **Q1010 (RT1N241M)**. FET **Q1019 (2SK880GR)** buffers the VCV line for application to the tracking band-pass filters in the receiver front end.

When the power saving feature is active, the microprocessor periodically signals to the PLL IC **Q1013** to conserve power, and to shorten its lock-up time.

## *Push-To-Talk Transmit Activation*

The PTT switch on the microphone is fed through the PTT controller, **Q2001 (UMZ2N)**, to pin 28 of microprocessor **Q3026**, so that when the PTT switch is closed, pin 25 of **Q3026** goes high. This sends the signal to cut off the receiver, by disabling the 3.5 V supply bus at **Q1007 (DTA143EE)** which feeds the front-end, FM IF subsystem IC **Q2039**, and receiver VCO circuitry. At the same time, **Q1018 (UMW1)** and **Q1020 (DTA143EE)** activate the transmitter's 3.5 V supply line to enable the transmitter.

# Note

## Introduction

The **VXA-700** is carefully aligned at the factory for the specified performance across the Aircraft and Amateur bands. Realignment should therefore not be necessary except in the event of a component failure.

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. 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. Problems caused by unauthorized attempts at realignment are not covered by the warranty policy.

Vertex Standard reserves the right to change circuits and alignment procedures, in the interest of improved performance, without notifying owners.

The following test equipment (and familiarity with its use) is necessary for complete realignment. 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 signal 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.

Correction of problems caused by misalignment resulting from use of improper test equipment is not covered under the warranty policy.

## Required Test Equipment

- Radio Tester with calibrated output level at 200 MHz
- In-line Wattmeter with 5% accuracy at 200 MHz
- 50- $\Omega$ , 10-W RF Dummy Load
- Regulated DC Power Supply adjustable from 3 to 15 VDC, 2A
- Frequency Counter:  $\pm 0.2$  ppm accuracy at 200 MHz
- AF Signal Generator
- AC Voltmeter
- DC Voltmeter: high impedance
- VHF Sampling Coupler

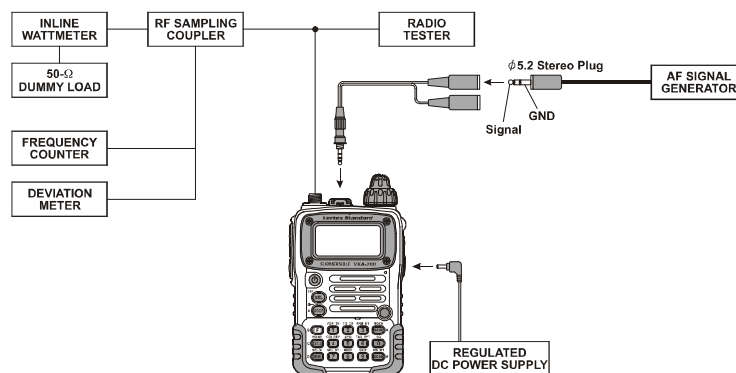
## Alignment Preparation & Precautions

A 50- $\Omega$  RF load and in-line wattmeter must be connected to the main antenna jack in all procedures that call for transmission, except where specified otherwise. Correct 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.

Set up the test equipment as shown below for transceiver alignment, apply 7.4 VDC power to the transceiver.

**Notes:** signal levels in dB referred to in alignment are based on 0 dB $\mu$  = 0.5  $\mu$ V (closed circuit).






**Test Equipment Setup**

# Alignment




## PLL Section

### PLL Reference Frequency




- ❑ Connect the wattmeter, dummy load and frequency counter to the antenna jack, then set the transceiver to 128.000 MHz; now turn the transceiver off.
- ❑ Press and hold in the **PTT** switch, **MONITOR** switch, and  key while turning the transceiver on to enter the alignment mode.
- ❑ Rotate the **DIAL** selector knob to select “RX TUNE xxx.”
- ❑ Press the **PTT** switch, and confirm that the counter reading is 128.000.00 MHz.
- ❑ If not:
  1. Press the  key momentarily;
  2. Rotate the **DIAL** selector knob clockwise (frequency up) or counter-clockwise (frequency down);
  3. Press and hold the  key for 1/2 second;
  4. Confirm the counter reading.
- ❑ Repeat above steps 1 - 4, so that the counter reading is 128.000.00 MHz ( $\pm 100$  Hz).
- ❑ Turn the transceiver off.

## Transmitter Section




### AM TX HI Power Adjustment

- ❑ Connect the wattmeter and dummy load to the antenna jack, then set the transceiver to 128.000 MHz and turn the transceiver off.
- ❑ Press and hold in the **PTT** switch, **MONITOR** switch, and  key while turning the transceiver on to enter the alignment mode.
- ❑ Rotate the **DIAL** selector knob to select “AM TX Hi xxx.”
- ❑ Press the **PTT** switch with no microphone input, and confirm that the RF output power is 1.5 Watts.
- ❑ If not:
  1. Press the  key momentarily;
  2. Rotate the **DIAL** selector knob clockwise (increases the power) or counter-clockwise (decreases the power);
  3. Press and hold the  key for 1/2 second;
  4. Confirm the RF output power.
- ❑ Repeat steps 1 - 4, as necessary, until you achieve the specified RF output power of 1.5 Watts.
- ❑ Turn the transceiver off, then back on again, to proceed to the next step.




### AM TX LOW Power Adjustment

- ❑ Connect the wattmeter and dummy load to the antenna jack, then set the transceiver to 128.000 MHz and turn the transceiver off.
- ❑ Reduce the power supply voltage to 4.8 V.
- ❑ Press and hold in the **PTT** switch, **MONITOR** switch, and  key while turning the transceiver on to enter the alignment mode.
- ❑ Rotate the **DIAL** selector knob to select “AM TX Lo xxx.”
- ❑ Press the **PTT** switch with no microphone input, and confirm that the RF output power is 0.3 Watts.
- ❑ If not:
  1. Press the  key momentarily;
  2. Rotate the **DIAL** selector knob clockwise (increases the power) or counter-clockwise (decreases the power);
  3. Press and hold the  key for 1/2 second;
  4. Confirm the RF output power.
- ❑ Repeat steps 1 - 4, as necessary, until you achieve the specified RF output power of 0.3 Watts.
- ❑ Return the power supply voltage to 7.4 V.
- ❑ Turn the transceiver off.




## **FM TX HI Power Adjustment**

- Connect the wattmeter and dummy load to the antenna jack, then set the transceiver to 146.000 MHz and turn the transceiver off.
- Press and hold in the **PTT** switch, **MONITOR** switch, and  key while turning the transceiver on to enter the alignment mode.
- Rotate the **DIAL** selector knob to select “FM TX Hi xxx.”
- Press the **PTT** switch, and confirm that the RF output power is 5 Watts.
- If not:
  1. Press the  key momentarily;
  2. Rotate the **DIAL** selector knob clockwise (increases the power) or counter-clockwise (decreases the power);
  3. Press and hold the  key for 1/2 second;
  4. Confirm the RF output power.
- Repeat steps 1 - 4, as necessary, until you achieve the specified RF output power of 5 Watts.
- Turn the transceiver off.




## **FM TX LOW1 Power Adjustment**

- Connect the wattmeter and dummy load to the antenna jack, then set the transceiver to 146.000 MHz and turn the transceiver off.
- Press and hold in the **PTT** switch, **MONITOR** switch, and  key while turning the transceiver on to enter the alignment mode.
- Rotate the **DIAL** selector knob to select “FM TX L1 xxx.”
- Press the **PTT** switch, and confirm that the RF output power is 0.3 Watts.
- If not:
  1. Press the  key momentarily;
  2. Rotate the **DIAL** selector knob clockwise (increases the power) or counter-clockwise (decreases the power);
  3. Press and hold the  key for 1/2 second;
  4. Confirm the RF output power.
- Repeat steps 1 - 4, as necessary, until you achieve the specified RF output power of 0.3 Watts.
- Repeat the above procedures for the “FM TX L2 xxx (set to 1 Watt)” and “FM TX L3 xxx (set to 2.5 Watt)” parameters.
- Turn the transceiver off.

## **Tx AM Modulation (Hi) Adjustment**




- Connect the Radio Tester to the antenna jack, then adjust the AF generator output level for injection of 200 mV rms @ 1 kHz to the **MIC** jack.
- Set the transceiver to 127.500 MHz and turn the transceiver off.
- Press and hold in the **PTT** switch, **MONITOR** switch, and  key while turning the transceiver on to enter the alignment mode.
- Rotate the **DIAL** selector knob to select “AM MOD Hi xxx.”
- Press the **PTT** switch, and confirm that the modulation level is 85 % modulation ( $\pm 5$  %).
- If not:
  1. Press the  key momentarily;
  2. Rotate the **DIAL** selector knob clockwise (increases the MIC gain) or counter-clockwise (decreases the MIC gain);
  3. Press and hold the  key for 1/2 second;
  4. Confirm the modulation level.
- Repeat steps 1 - 4, as necessary, until you achieve the specified 85 % modulation level ( $\pm 5$  %).
- Turn the transceiver off.

## **Tx AM Modulation (Low) Adjustment**




- Connect the Radio Tester to the antenna jack, then adjust the AF generator output level for injection of 200 mV rms @ 1 kHz to the **MIC** jack.
- Set the transceiver to 127.500 MHz and turn the transceiver off.
- Reduce the power supply voltage to 4.8 V.
- Press and hold in the **PTT** switch, **MONITOR** switch, and  key while turning the transceiver on to enter the alignment mode.
- Rotate the **DIAL** selector knob to select “AM MOD Lo xxx.”
- Press the **PTT** switch, and confirm that the modulation level is 85 % modulation ( $\pm 5$  %).
- If not:
  1. Press the  key momentarily;
  2. Rotate the **DIAL** selector knob clockwise (increases the MIC gain) or counter-clockwise (decreases the MIC gain);
  3. Press and hold the  key for 1/2 second;
  4. Confirm the modulation level.
- Repeat steps 1 - 4, as necessary, until you achieve the specified 85 % modulation level ( $\pm 5$  %).
- Return the power supply voltage to 7.4 V.
- Turn the transceiver off.

# Alignment

## ***Tx FM Deviation Adjustment***



- Connect the Radio Tester to the antenna jack, then adjust the AF generator output level for injection of 200 mV rms @ 1 kHz to the **MIC** jack.
- Set the transceiver to 146.000 MHz and turn the transceiver off.
- Press and hold in the **PTT** switch, **MONITOR** switch, and  key while turning the transceiver on to enter the alignment mode.
- Rotate the **DIAL** selector knob to select “FM MAX DEV xxx.”
- Press the **PTT** switch, and confirm that the maximum deviation is  $\pm 4.2$  to  $\pm 4.5$  kHz.
- If not:
  1. Press the  key momentarily;
  2. Rotate the **DIAL** selector knob clockwise (increases the deviation) or counter-clockwise (decreases the deviation);
  3. Press and hold the  key for 1/2 second;
  4. Confirm the deviation level.
- Repeat above steps 1 - 4, as necessary, until you achieve the specified deviation of  $\pm 4.2$  to  $\pm 4.5$  kHz.
- Turn the transceiver off.

## ***CTCSS Deviation Adjustment***



- Connect the Radio Tester to the antenna jack, then set the transceiver to 146.000 MHz and turn the transceiver off.
- Press and hold in the **PTT** switch, **MONITOR** switch, and  key while turning the transceiver on to enter the alignment mode.
- Rotate the **DIAL** selector knob to select “CTCSS DEV xxx.”
- Press the **PTT** switch, and confirm that the maximum deviation is  $\pm 0.5$  to  $\pm 0.7$  kHz.
- If not:
  1. Press the  key momentarily;
  2. Rotate the **DIAL** selector knob clockwise (increases the deviation) or counter-clockwise (decreases the deviation);
  3. Press and hold the  key for 1/2 second;
  4. Confirm the modulation level.
- Repeat steps 1 - 4, as necessary, until you achieve the desired deviation of  $\pm 0.5$  to  $\pm 0.7$  kHz.
- Turn the transceiver off.

## ***Receiver Section***




### ***AM & Narrow FM Squelch Hysteresis Adjustment***

- Press and hold in the **PTT** switch, **MONITOR** switch, and  key while turning the transceiver on to enter the alignment mode.
- Rotate the **DIAL** selector knob to select “AM/FM HITS xxx.”
- Press the  key momentarily, then adjust the hysteresis level using the **DIAL** selector knob (default: 001).
- Turn the transceiver off.




### ***Wide FM Squelch Hysteresis Adjustment***

- Press and hold in the **PTT** switch, **MONITOR** switch, and  key while turning the transceiver on to enter the alignment mode.
- Rotate the **DIAL** selector knob to select the “WFM HITS xxx.”
- Press the  key momentarily, then adjust the hysteresis level using the **DIAL** selector knob (default: 000).
- Turn the transceiver off.




### ***AM & Narrow FM Squelch Threshold Adjustment***

- Connect the Radio Tester to the antenna jack, and adjust its output level to  $-11$  dB $\mu$  (with standard AM modulation: 30 % AM modulation @ 1 kHz) at 128.000 MHz.
- Set the transceiver to 128.000 MHz and turn the transceiver off.
- Press and hold in the **PTT** switch, **MONITOR** switch, and  key while turning the transceiver on to enter the alignment mode.
- Rotate the **DIAL** selector knob to select “AM/FM TH SQ xxx.”
- Press the  key momentarily (you will hear a long beep), then press and hold in the  key (until you hear the short beep).
- Turn the transceiver off.




## Wide FM Squelch Threshold Adjustment

- Connect the Radio Tester to the antenna jack, and adjust its output level to +15 dB $\mu$  (with standard Wide FM modulation:  $\pm 22.5$  kHz deviation @ 1 kHz) at 98.000 MHz.
- Set the transceiver to 98.000 MHz and turn the transceiver off.
- Press and hold in the **PTT** switch, **MONITOR** switch, and  key while turning the transceiver on to enter the alignment mode.
- Rotate the **DIAL** selector knob to select “WFM TH SQ xxx.”
- Press the  key momentarily (you will hear a long beep), then press and hold in the  key (until you hear the short beep).
- Turn the transceiver off.




## AM & Narrow FM Squelch Tight Adjustment

- Connect the Radio Tester to the antenna jack, and adjust its output level to +10 dB $\mu$  (with standard AM modulation: 30 % AM modulation @ 1 kHz) at 128.000 MHz.
- Set the transceiver to 128.000 MHz and turn the transceiver off.
- Press and hold in the **PTT** switch, **MONITOR** switch, and  key while turning the transceiver on to enter the alignment mode.
- Rotate the **DIAL** selector knob to select “AM/FM TI SQ xxx.”
- Press the  key momentarily (you will hear a long beep), then press and hold in the  key (you will hear a short beep).
- Turn the transceiver off.




## Wide FM Squelch Tight Adjustment

- Connect the Radio Tester to the antenna jack, and adjust its output level to +25 dB $\mu$  (with standard Wide FM modulation:  $\pm 22.5$  kHz deviation @ 1 kHz) at 98.000 MHz.
- Set the transceiver to 98.000 MHz and turn the transceiver off.
- Press and hold in the **PTT** switch, **MONITOR** switch, and  key while turning the transceiver on to enter the alignment mode.
- Rotate the **DIAL** selector knob to select “WFM TI SQ xxx.”
- Press the  key momentarily (you will hear a long beep), then press and hold in the  key (until you hear a short beep).
- Turn the transceiver off.




## AM & Narrow FM S-meter (S-1) Adjustment

- Connect the Radio Tester to the antenna jack, and adjust its output level to -3 dB $\mu$  (with standard AM modulation: 30 % AM modulation @ 1 kHz) at 128.000 MHz.
- Set the transceiver to 128.000 MHz and turn the transceiver off.
- Press and hold in the **PTT** switch, **MONITOR** switch, and  key while turning the transceiver on to enter the alignment mode.
- Rotate the **DIAL** selector knob to select “AM/FM S1 LV xxx.”
- Press the  key momentarily (you will hear a long beep), then press and hold in the  key (until you hear a short beep).
- Turn the transceiver off.

## Wide FM S-meter (S-1) Adjustment




- Connect the Radio Tester to the antenna jack, and adjust its output level to +15 dB $\mu$  (with standard Wide FM modulation:  $\pm 22.5$  kHz deviation @ 1 kHz) at 98.000 MHz.
- Set the transceiver to 98.000 MHz and turn the transceiver off.
- Press and hold in the **PTT** switch, **MONITOR** switch, and  key while turning the transceiver on to enter the alignment mode.
- Rotate the **DIAL** selector knob to select “WFM S1 LV xxx.”
- Press the  key momentarily (you will hear a long beep), then press and hold in the  key (until you hear a short beep).
- Turn the transceiver off.

## AM & Narrow FM S-meter (S-Full) Adjustment

- Connect the Radio Tester to the antenna jack, and adjust its output level to +15 dB $\mu$  (with standard AM modulation: 30 % AM modulation @ 1 kHz) at 128.000 MHz.
- Set the transceiver to 128.000 MHz and turn the transceiver off.
- Press and hold in the **PTT** switch, **MONITOR** switch, and  key while turning the transceiver on to enter the alignment mode.
- Rotate the **DIAL** selector knob to select “AM/FM SM LV xxx.”
- Press the  key momentarily (you will hear a long beep), then press and hold in the  key (until you hear a short beep).
- Turn the transceiver off.




# Alignment

## Wide FM S-meter (S-Full) Adjustment




- Connect the Radio Tester to the antenna jack, and adjust its output level to +25 dB $\mu$  (with standard Wide FM modulation:  $\pm 22.5$  kHz deviation @ 1 kHz) at 98.000 MHz.
- Set the transceiver to 98.000 MHz and turn the transceiver off.
- Press and hold in the **PTT** switch, **MONITOR** switch, and  key while turning the transceiver on to enter the alignment mode.
- Rotate the **DIAL** selector knob to select “WFM SM LV xxx.”
- Press the  key momentarily (you will hear a long beep), then press and hold in the  key (until you hear a short beep).
- Turn the transceiver off.

## VOR Section






### VOR Sensitivity Adjustment

- Connect the Radio Tester to the antenna jack, and adjust its output level to +5 dB $\mu$  (with standard AM modulation: 30 % AM modulation @ 1 kHz) at 108.000 MHz.
- Set the transceiver to 108.000 MHz and turn the transceiver off.
- Press and hold in the **PTT** switch, **MONITOR** switch, and  key while turning the transceiver on to enter the alignment mode.
- Rotate the **DIAL** selector knob to select “VSTR Level xxx.”
- Press the  key momentarily (you will hear a long beep), then press and hold in the  key (until you hear a short beep).
- Turn the transceiver off.


## VOR Sensitivity Hysteresis Adjustment

- Connect the Radio Tester to the antenna jack, and adjust its output level +5 dB $\mu$  (with standard AM modulation: 30 % AM modulation @ 1 kHz) at 108.000 MHz.
- Set the transceiver to 108.000 MHz and turn the transceiver off.
- Press and hold in the **PTT** switch, **MONITOR** switch, and  key while turning the transceiver on to enter the alignment mode.
- Rotate the **DIAL** selector knob to select “VSTR HITH xxx.”
- Press the  key momentarily (you will hear a long beep), then press and hold in the  key (until you hear a short beep).
- Turn the transceiver off.

## VOR Angle Adjustment

- Connect the Avionics Radio Tester to the antenna jack.
- Set the transceiver to 108.000 MHz, set up the “FROM” mode (press  +  key, if necessary), and set the Avionics Radio Tester as shown below.
  - Frequency:** 108.000 MHz
  - Output Level:** +40 dB $\mu$
  - 30 Hz VAR:** 30 %
  - 9.96 kHz Carrier:** 30 %
  - 9.96 kHz MOD:** 480 Hz
  - DIRECT:** FROM
  - PHASE:** 15 °
- Note the difference of the phase indication between the Transceiver’s indication and Avionics Radio Tester’s indication, then turn the transceiver off.
- Press and hold in the **PTT** switch, **MONITOR** switch, and  keys while turning the transceiver on to enter the alignment mode.
- Rotate the **DIAL** selector knob to select “VOR Degree xxx.”
- Press the  key momentarily (you will hear a long beep), then set the difference value that is noted step 3 above, using the **DIAL** selector knob.
- Press and hold in the  key (until you hear a short beep).
- Turn the transceiver off.

### Resetting the CPU

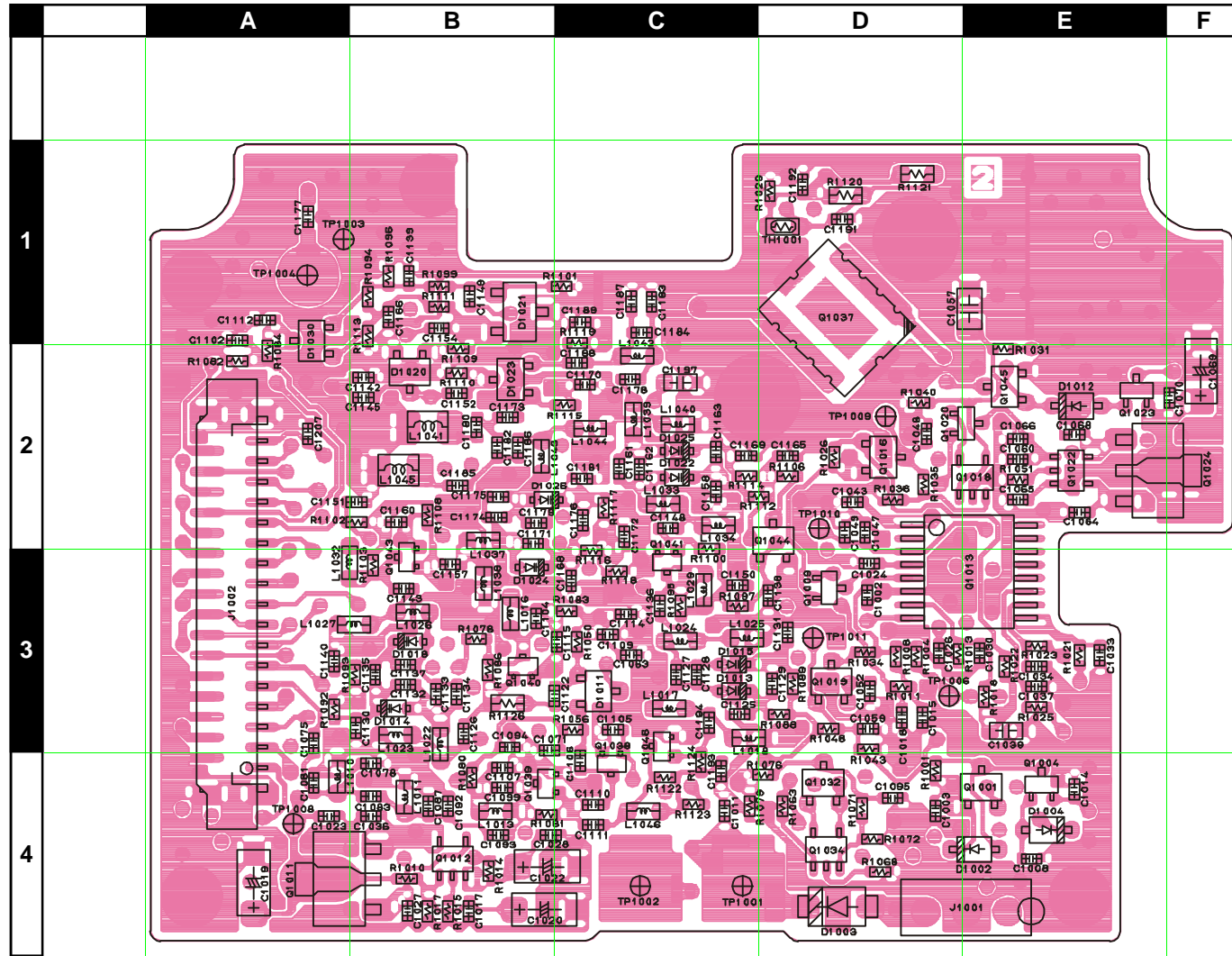
If you are unable to gain control of the transceiver (or if you want to clear all memories and settings to their factory defaults), press and hold in the  and **MONITOR** switches while turning the transceiver on.



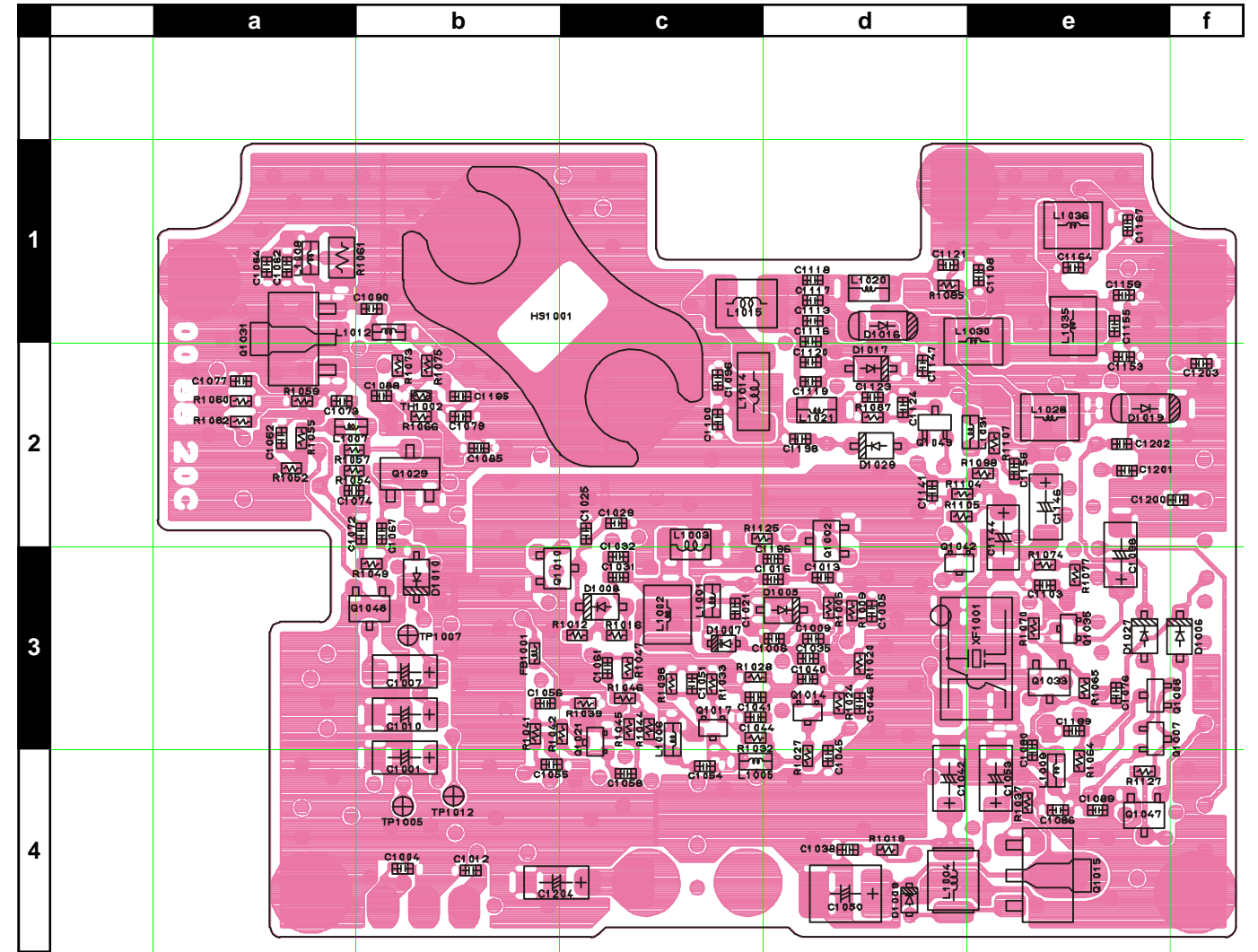


# RF Unit

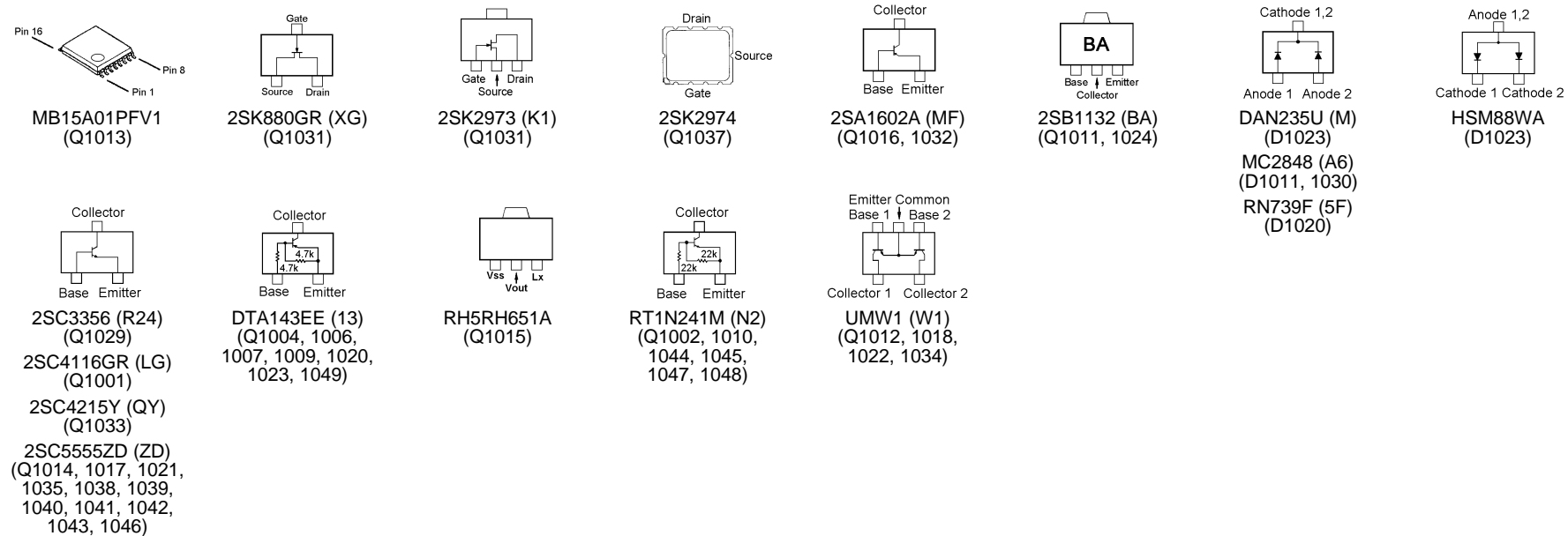
## Parts Layout



Side A



Side B



REF	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT	SIDE	LAY ADR	
PCB with Components						CB2147001					
Printed Circuit Board						AC045N000			FR0088200		
C 1001	CHIP TA.CAP.	22uF	4V		TEMSVA0G226M-8R	K78060023		1-	B	b4	
C 1002	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	D3	
C 1003	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	D4	
C 1004	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	b4	
C 1005	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	B	d3	
C 1006	CHIP CAP.	2pF	50V	CK	GRM36CK020C50PT	K22178204		1-	B	d3	
C 1007	CHIP TA.CAP.	4.7uF	16V		TEMSVA1C475M-8R	K78120031		1-	B	b3	
C 1008	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	E4	
C 1009	CHIP CAP.	1pF	50V	CK	GRM36CK010C50PT	K22178202		1-	B	d3	
C 1010	CHIP TA.CAP.	10uF	10V		TEMSVA1A106M-8R	K78100028		1-	B	b3	
C 1011	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	A	C4	
C 1012	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	b4	
C 1013	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	B	d3	
C 1014	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	E4	
C 1015	CHIP CAP.	0.033uF	10V	B	GRM36B333K10PT	K22108803		1-	A	D3	
C 1016	CHIP CAP.	22pF	50V	CH	GRM36CH220J50PT	K22178220		1-	B	d3	
C 1017	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	B4	
C 1018	CHIP CAP.	0.047uF	10V	B	GRM36B473K10PT	K22108801		1-	A	D3	
C 1019	CHIP TA.CAP.	4.7uF	16V		TEMSVA1C475M-8R	K78120031		1-	A	A4	
C 1021	CHIP CAP.	100pF	50V	CH	GRM36CH101J50PT	K22178236		1-	B	c3	
C 1022	CHIP TA.CAP.	22uF	4V		TEMSVA0G226M-8R	K78060023		1-	A	B4	
C 1023	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	A4	
C 1025	CHIP CAP.	0.022uF	16V	B	GRM36B223K16PT	K22128806		1-	B	c2	
C 1026	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	D3	
C 1027	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	B4	
C 1028	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	B4	
C 1029	CHIP CAP.	0.022uF	16V	B	GRM36B223K16PT	K22128806		1-	B	c2	
C 1030	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	E3	
C 1031	CHIP CAP.	0.022uF	16V	B	GRM36B223K16PT	K22128806		1-	B	c3	
C 1032	CHIP CAP.	0.022uF	16V	B	GRM36B223K16PT	K22128806		1-	B	c3	
C 1033	CHIP CAP.	100pF	50V	CH	GRM36CH101J50PT	K22178236		1-	A	E3	
C 1034	CHIP CAP.	100pF	50V	CH	GRM36CH101J50PT	K22178236		1-	A	E3	
C 1035	CHIP CAP.	10pF	50V	CH	GRM36CH100D50PT	K22178212		1-	B	d3	
C 1036	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	B4	
C 1037	CHIP CAP.	100pF	50V	CH	GRM36CH101J50PT	K22178236		1-	A	E3	
C 1038	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	d4	
C 1039	CHIP CAP.	0.22uF	10V	B	GRM39B224K10PT	K22104801		1-	A	E3	
C 1040	CHIP CAP.	39pF	50V	CH	GRM36CH390J50PT	K22178226		1-	B	d3	
C 1041	CHIP CAP.	18pF	50V	CH	GRM36CH180J50PT	K22178218		1-	B	c3	
C 1042	CHIP TA.CAP.	22uF	4V		TEMSVA0G226M-8R	K78060023		1-	B	d4	
C 1044	CHIP CAP.	3pF	50V	CJ	GRM36CJ030C50PT	K22178205		1-	B	c3	
C 1045	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	d4	
C 1046	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	d3	
C 1047	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	A	D2	
C 1048	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	D2	
C 1050	CHIP TA.CAP.	33uF	10V		TEMSVB21A336M-8R	K78100047		1-	B	d4	
C 1051	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	c3	
C 1052	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	D3	
C 1053	CHIP TA.CAP.	10uF	10V		TEMSVA1A106M-8R	K78100028		1-	B	e4	
C 1054	CHIP CAP.	7pF	50V	CH	GRM36CH070D50PT	K22178209		1-	B	c4	
C 1055	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	b4	
C 1056	CHIP CAP.	10pF	50V	CH	GRM36CH100D50PT	K22178212		1-	B	b3	
C 1057	CHIP CAP.	1uF	10V	B	GRM40B105K10PT(0.85)	K22100803		1-	A	E1	
C 1058	CHIP CAP.	5pF	50V	CH	GRM36CH050C50PT	K22178207		1-	B	c4	
C 1059	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	D3	
C 1061	CHIP CAP.	10pF	50V	CH	GRM36CH100D50PT	K22178212		1-	B	c3	
C 1062	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	a2	
C 1063	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	C3	
C 1064	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	E2	
C 1065	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	E2	
C 1066	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	E2	
C 1067	CHIP CAP.	12pF	50V	CH	GRM36CH120J50PT	K22178214		1-	B	b2	
C 1068	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	E2	
C 1069	CHIP TA.CAP.	4.7uF	16V		TEMSVA1C475M-8R	K78120031		1-	A	F2	
C 1071	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	B3	
C 1072	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	b2	
C 1073	CHIP CAP.	15pF	50V	CH	GRM36CH150J50PT	K22178216		1-	B	a2	
C 1074	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	a2	
C 1075	CHIP CAP.	4pF	50V	CH	GRM36CH040C50PT	K22178206		1-	A	A3	
C 1076	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	B	e3	
C 1077	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	a2	
C 1078	CHIP CAP.	33pF	50V	CH	GRM36CH330J50PT	K22178224		1-	A	B4	
C 1079	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	b2	
C 1080	CHIP CAP.	47pF	50V	CH	GRM36CH470J50PT	K22178228		1-	B	e3	

# RF Unit

## Parts List

REF	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT	SIDE	LAY ADR
C 1081	CHIP CAP.	2pF	50V	CK	GRM36CK020C50PT	K22178204		1-	A	A4
C 1082	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	a1
C 1083	CHIP CAP.	1pF	50V	CK	GRM36CK010C50PT	K22178202		1-	A	B4
C 1084	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	B	a1
C 1085	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	b2
C 1086	CHIP CAP.	0.0047uF	25V	B	GRM36B472K25PT	K22148830		1-	B	e4
C 1087	CHIP CAP.	33pF	50V	CH	GRM36CH330J50PT	K22178224		1-	A	B4
C 1088	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	b2
C 1089	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	B	e4
C 1090	CHIP CAP.	68pF	50V	CH	GRM36CH680J50PT	K22178232		1-	B	b1
C 1092	CHIP CAP.	2pF	50V	CK	GRM36CK020C50PT	K22178204		1-	A	B4
C 1093	CHIP CAP.	3pF	50V	CJ	GRM36CJ030C50PT	K22178205		1-	A	B4
C 1094	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	A	B3
C 1095	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	A	D4
C 1096	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	B	c2
C 1098	CHIP CAP.	0.01uF	50V	B	ECUV1H103KBG	K22179562		1-	B	e3
C 1099	CHIP CAP.	12pF	50V	CH	GRM36CH120J50PT	K22178214		1-	A	B4
C 1100	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	B	c2
C 1102	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	A1
C 1103	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	B	e3
C 1104	CHIP CAP.	39pF	50V	CH	GRM36CH390J50PT	K22178226		1-	A	B3
C 1106	CHIP CAP.	4pF	50V	CH	GRM36CH040C50PT	K22178206		1-	A	C4
C 1107	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	B4
C 1108	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	e1
C 1109	CHIP CAP.	0.0047uF	25V	B	GRM36B472K25PT	K22148830		1-	A	C3
C 1110	CHIP CAP.	4pF	50V	CH	GRM36CH040C50PT	K22178206		1-	A	C4
C 1111	CHIP CAP.	39pF	50V	CH	GRM36CH390J50PT	K22178226		1-	A	C4
C 1112	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	A1
C 1113	CHIP CAP.	27pF	50V	CH	GRM36CH270J50PT	K22178222		1-	B	d1
C 1114	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	A	C3
C 1115	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	B3
C 1116	CHIP CAP.	6pF	50V	CH	GRM36CH060D50PT	K22178208		1-	B	d1
C 1117	CHIP CAP.	8pF	50V	CH	GRM36CH080D50PT	K22178210		1-	B	d1
C 1118	CHIP CAP.	33pF	50V	CH	GRM36CH330J50PT	K22178224		1-	B	d1
C 1119	CHIP CAP.	10pF	50V	CH	GRM36CH100D50PT	K22178212		1-	B	d2
C 1120	CHIP CAP.	8pF	50V	CH	GRM36CH080D50PT	K22178210		1-	B	d2
C 1121	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	d1
C 1122	CHIP CAP.	1pF	50V	CK	GRM36CK010C50PT	K22178202		1-	A	B3
C 1123	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	d2
C 1124	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	d2
C 1125	CHIP CAP.	470pF	50V	B	GRM36B471K50PT	K22178805		1-	A	C3
C 1126	CHIP CAP.	22pF	50V	CH	GRM36CH220J50PT	K22178220		1-	A	B3
C 1128	CHIP CAP.	3pF	50V	CJ	GRM36CJ030C50PT	K22178205		1-	A	C3
C 1129	CHIP CAP.	470pF	50V	B	GRM36B471K50PT	K22178805		1-	A	D3
C 1130	CHIP CAP.	220pF	25V	CH	GRM36CH221J25PT	K22148203		1-	A	B3
C 1131	CHIP CAP.	470pF	50V	B	GRM36B471K50PT	K22178805		1-	A	D3
C 1134	CHIP CAP.	0.5pF	50V	CK	GRM36CK0R5C50PT	K22178201		1-	A	B3
C 1135	CHIP CAP.	220pF	25V	CH	GRM36CH221J25PT	K22148203		1-	A	B3
C 1136	CHIP CAP.	5pF	50V	CH	GRM36CH050C50PT	K22178207		1-	A	C3
C 1138	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	D3
C 1139	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	A	B1
C 1140	CHIP CAP.	220pF	25V	CH	GRM36CH221J25PT	K22148203		1-	A	A3
C 1141	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	d2
C 1142	CHIP CAP.	8pF	50V	CH	GRM36CH080D50PT	K22178210		1-	A	B2
C 1143	CHIP CAP.	6pF	50V	CH	GRM36CH060D50PT	K22178208		1-	A	B3
C 1145	CHIP CAP.	33pF	50V	CH	GRM36CH330J50PT	K22178224		1-	A	B2
C 1147	CHIP CAP.	39pF	50V	CH	GRM36CH390J50PT	K22178226		1-	B	d2
C 1148	CHIP CAP.	15pF	50V	CH	GRM36CH150J50PT	K22178216		1-	A	C2
C 1149	CHIP CAP.	0.5pF	50V	CK	GRM36CK0R5C50PT	K22178201		1-	A	B1
C 1150	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	C3
C 1151	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	B2
C 1152	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	B2
C 1153	CHIP CAP.	33pF	50V	CH	GRM36CH330J50PT	K22178224		1-	B	e2
C 1154	CHIP CAP.	0.5pF	50V	CK	GRM36CK0R5C50PT	K22178201		1-	A	B1
C 1155	CHIP CAP.	6pF	50V	CH	GRM36CH060D50PT	K22178208		1-	B	e1
C 1156	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	e2
C 1157	CHIP CAP.	33pF	50V	CH	GRM36CH330J50PT	K22178224		1-	A	B3
C 1158	CHIP CAP.	470pF	50V	B	GRM36B471K50PT	K22178805		1-	A	C2
C 1159	CHIP CAP.	27pF	50V	CH	GRM36CH270J50PT	K22178222		1-	B	e1
C 1160	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	B2
C 1162	CHIP CAP.	3pF	50V	CJ	GRM36CJ030C50PT	K22178205		1-	A	C2
C 1163	CHIP CAP.	470pF	50V	B	GRM36B471K50PT	K22178805		1-	A	C2
C 1164	CHIP CAP.	4pF	50V	CH	GRM36CH040C50PT	K22178206		1-	B	e1
C 1165	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	A	D2
C 1166	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	A	B1
C 1167	CHIP CAP.	15pF	50V	CH	GRM36CH150J50PT	K22178216		1-	B	e1

REF	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT	SIDE	LAY ADR
C 1168	CHIP CAP.	220pF	25V	CH	GRM36CH221J25PT	K22148203		1-	A	C3
C 1169	CHIP CAP.	470pF	50V	B	GRM36B471K50PT	K22178805		1-	A	C2
C 1170	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	C2
C 1172	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	A	C2
C 1173	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	B2
C 1175	CHIP CAP.	4pF	50V	CH	GRM36CH040C50PT	K22178206		1-	A	B2
C 1176	CHIP CAP.	220pF	25V	CH	GRM36CH221J25PT	K22148203		1-	A	C2
C 1177	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	A1
C 1178	CHIP CAP.	47pF	50V	CH	GRM36CH470J50PT	K22178228		1-	A	C2
C 1179	CHIP CAP.	1pF	50V	CK	GRM36CK010C50PT	K22178202		1-	A	B2
C 1180	CHIP CAP.	68pF	50V	CH	GRM36CH680J50PT	K22178232		1-	A	B2
C 1181	CHIP CAP.	220pF	25V	CH	GRM36CH221J25PT	K22148203		1-	A	C2
C 1182	CHIP CAP.	27pF	50V	CH	GRM36CH270J50PT	K22178222		1-	A	B2
C 1184	CHIP CAP.	56pF	50V	CH	GRM36CH560J50PT	K22178230		1-	A	C1
C 1185	CHIP CAP.	220pF	25V	CH	GRM36CH221J25PT	K22148203		1-	A	B2
C 1186	CHIP CAP.	39pF	50V	CH	GRM36CH390J50PT	K22178226		1-	A	B2
C 1188	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	C2
C 1189	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	C1
C 1191	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	D1
C 1192	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	D1
C 1193	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	C4
C 1194	CHIP CAP.	12pF	50V	CH	GRM36CH120J50PT	K22178214		1-	A	C3
C 1195	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	B	b2
C 1196	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	B	d3
C 1197	CHIP CAP.	0.01uF	50V	B	GRM39B103M50PT	K22174823		1-	A	C2
C 1199	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	e3
C 1201	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	e2
C 1202	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	e2
C 1204	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	B	b4
C 1207	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	A2
C 1208	CHIP CAP.	0.001uF	50V	CH	GRM40CH102J50PT	K22170288		1-		
C 1209	CHIP CAP.	0.01uF	50V	B	GRM39B103M50PT	K22174823		1-		
C 1210	CHIP CAP.	0.001uF	50V	CH	GRM40CH102J50PT	K22170288		1-		
C 1211	CHIP CAP.	100pF	50V	CH	GRM39CH101J50PT	K22174235		1-		
C 1212	CHIP CAP.	100pF	50V	CH	GRM36CH101J50PT	K22178236		1-		
C 1213	CHIP CAP.	100pF	50V	CH	GRM36CH101J50PT	K22178236		1-		
C 1214	CHIP CAP.	100pF	50V	CH	GRM36CH101J50PT	K22178236		1-		
C 1215	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-		
D 1002	DIODE				BAS316	G2070716		1-	A	E4
D 1003	DIODE				M1FM3-4063	G2070804		1-	A	D4
D 1004	DIODE				BAS316	G2070716		1-	A	E4
D 1005	DIODE				HSU277TRF	G2070118		1-	B	d3
D 1006	DIODE				BAS316	G2070716		1-	B	f3
D 1007	DIODE				HVC350B-TRF	G2070596		1-	B	c3
D 1008	DIODE				HSU277TRF	G2070118		1-	B	c3
D 1009	DIODE				RB751S-40TE61	G2070850		1-	B	d4
D 1010	DIODE				HSU277TRF	G2070118		1-	B	b3
D 1011	DIODE				MC2848-T11-1	G2070694		1-	A	C3
D 1012	DIODE				BAS316	G2070716		1-	A	E2
D 1013	DIODE				HVC359 TRF	G2070708		1-	A	C3
D 1014	DIODE				HVC350B-TRF	G2070596		1-	A	B3
D 1015	DIODE				HVC359 TRF	G2070708		1-	A	C3
D 1016	DIODE				RLS135 TE-11	G2070128		1-	B	d1
D 1017	DIODE				HSU277TRF	G2070118		1-	B	d2
D 1018	DIODE				HVC350B-TRF	G2070596		1-	A	B3
D 1019	DIODE				RLS135 TE-11	G2070128		1-	B	e2
D 1020	DIODE				RN739F T106	G2070626		1-	A	B2
D 1021	DIODE				HSM88WA TR	G2070168		1-	A	B1
D 1022	DIODE				HVC359 TRF	G2070708		1-	A	C2
D 1023	DIODE				DAN235U TL	G2070176		1-	A	B2
D 1024	DIODE				HVC350B-TRF	G2070596		1-	A	B3
D 1025	DIODE				HVC359 TRF	G2070708		1-	A	C2
D 1026	DIODE				HVC350B-TRF	G2070596		1-	A	B2
D 1027	DIODE				BAS316	G2070716		1-	B	e3
D 1029	DIODE				BAS316	G2070716		1-	B	d2
D 1030	DIODE				MC2848-T11-1	G2070694		1-	A	A1
FB1001	FERRITE BEADS				BK1005LL680-T	L9190127		1-	B	b3
HS1001	HEATSINK PLATE					RA0455500		1-	B	b1
J 1002	CONNECTOR				IL-FPR-33S-VF-E1500	P1091138		1-	A	A3
L 1001	M.RFC	4.7uH			LK1608 4R7K-T	L1690688		1-	B	c3
L 1002	COIL				E2 0.3-1.7-8T-L	L0022376		1-	B	c3
L 1003	CHIP COIL	0.027uH			LQN21A27NJ04	L1690614		1-	B	c2
L 1004	M.RFC	150uH			FLC32T-151J	L1690229		1-	B	d4
L 1005	M.RFC	0.22uH			HK1608 R22J-T	L1690940		1-	B	c4
L 1006	M.RFC	0.22uH			HK1608 R22J-T	L1690940		1-	B	c3
L 1007	M.RFC	0.068uH			HK1608 68NJ-T	L1690526		1-	B	a2

# RF Unit

## Parts List

REF	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT	SIDE	LAY ADR
L 1008	M.RFC	0.1uH			HK1608 R10J-T	L1690528		1-	B	a1
L 1009	M.RFC	0.56uH			LK1608 R56K-T	L1690415		1-	B	e4
L 1010	M.RFC	0.33uH			LK1608 R33K-T	L1690412		1-	A	A4
L 1011	M.RFC	0.33uH			LK1608 R33K-T	L1690412		1-	A	B4
L 1012	M.RFC	0.022uH			HK1608 22NJ-T	L1690520		1-	B	b1
L 1013	M.RFC	1uH			LK1608 1R0K-T	L1690687		1-	A	B4
L 1014	COIL				E2 0.28-1.0-11TR	L0022426		1-	B	c2
L 1015	COIL				E2 0.45-1.5-4.5T-L	L0022601		1-	B	c1
L 1016	M.RFC	0.56uH			LK1608 R56K-T	L1690415		1-	A	B3
L 1017	M.RFC	0.068uH			LBH1608T68NJ	L1691196		1-	A	C3
L 1018	M.RFC	0.068uH			LBH1608T68NJ	L1691196		1-	A	C3
L 1020	M.RFC	4.7uH			LK2125 4R7K-T	L1690327		1-	B	d1
L 1021	M.RFC	4.7uH			LK2125 4R7K-T	L1690327		1-	B	d2
L 1022	M.RFC	0.022uH			LBH1608T22NJ	L1691190		1-	A	B3
L 1023	M.RFC	0.082uH			LBH1608T82NJ	L1691197		1-	A	B3
L 1024	M.RFC	0.068uH			LBH1608T68NJ	L1691196		1-	A	C3
L 1025	M.RFC	0.068uH			LBH1608T68NJ	L1691196		1-	A	C3
L 1026	M.RFC	0.022uH			LBH1608T22NJ	L1691190		1-	A	B3
L 1027	M.RFC	0.082uH			LBH1608T82NJ	L1691197		1-	A	A3
L 1028	COIL				E2 0.3-1.7-8T-L	L0022376		1-	B	e2
L 1029	M.RFC	0.22uH			LK1608 R22K-T	L1690410		1-	A	C3
L 1030	COIL				E2 0.3-1.7-8T-L	L0022376		1-	B	e1
L 1031	M.RFC	4.7uH			LK1608 4R7K-T	L1690688		1-	B	d2
L 1032	M.RFC	6.8uH			LK1608 6R8K-T	L1690632		1-	A	A3
L 1033	M.RFC	0.068uH			LBH1608T68NJ	L1691196		1-	A	C2
L 1034	M.RFC	0.068uH			LBH1608T68NJ	L1691196		1-	A	C2
L 1035	COIL				E2 0.3-1.7-8T-L	L0022376		1-	B	e1
L 1036	COIL				E2 0.3-1.7-8T-L	L0022376		1-	B	e1
L 1037	M.RFC	0.068uH			LBH1608T68NJ	L1691196		1-	A	B2
L 1038	M.RFC	0.047uH			LBH1608T47NJ	L1691194		1-	A	B3
L 1039	M.RFC	0.056uH			LBH1608T56NJ	L1691195		1-	A	C2
L 1040	M.RFC	0.082uH			LBH1608T82NJ	L1691197		1-	A	C2
L 1041	CHIP COIL	0.082uH			LQN21A82NJ04	L1690619		1-	A	B2
L 1042	M.RFC	0.027uH			LBH1608T27NJ	L1691191		1-	A	C2
L 1043	M.RFC	0.082uH			LBH1608T82NJ	L1691197		1-	A	B2
L 1044	M.RFC	0.039uH			LBH1608T39NJ	L1691193		1-	A	C2
L 1045	CHIP COIL	0.082uH			LQN21A82NJ04	L1690619		1-	A	B2
L 1046	M.RFC	0.27uH			LK1608 R27K-T	L1690411		1-	A	C4
L 1047	M.RFC	0.039uH			HK1608 39NJ-T	L1690523		1-		
Q 1001	TRANSISTOR				2SC4116GR TE85R	G3341167G		1-	A	E4
Q 1002	TRANSISTOR				RT1N241M-T11-1	G3070249		1-	B	d2
Q 1004	TRANSISTOR				DTA143EE TL	G3070252		1-	A	E4
Q 1006	TRANSISTOR				DTA143EE TL	G3070252		1-	B	e3
Q 1007	TRANSISTOR				DTA143EE TL	G3070252		1-	B	e3
Q 1009	TRANSISTOR				DTA143EE TL	G3070252		1-	A	D3
Q 1010	TRANSISTOR				RT1N241M-T11-1	G3070249		1-	B	b3
Q 1011	TRANSISTOR				2SB1132 T100 Q	G3211327Q		1-	A	A4
Q 1012	TRANSISTOR				UMW1 TR	G3070078		1-	A	B4
Q 1013	IC				MB15A01PFV1-G-BND-EF	G1092545		1-	A	E3
Q 1014	TRANSISTOR				2SC5555ZD-TR	G3355557		1-	B	d3
Q 1015	IC				RH5RH651A-T1	G1092598		1-	B	e4
Q 1016	TRANSISTOR				2SA1602A-T11-1F	G3116028F		1-	A	D2
Q 1017	TRANSISTOR				2SC5555ZD-TR	G3355557		1-	B	c3
Q 1018	TRANSISTOR				UMW1 TR	G3070078		1-	A	E2
Q 1019	FET				2SK880GR TE85R	G3808807G		1-	A	D3
Q 1020	TRANSISTOR				DTA143EE TL	G3070252		1-	A	D2
Q 1021	TRANSISTOR				2SC5555ZD-TR	G3355557		1-	B	c3
Q 1022	TRANSISTOR				UMW1 TR	G3070078		1-	A	E2
Q 1023	TRANSISTOR				DTA143EE TL	G3070252		1-	A	E2
Q 1024	TRANSISTOR				2SB1132 T100 Q	G3211327Q		1-	A	E2
Q 1029	TRANSISTOR				2SC3356-T2B R25	G3333567E		1-	B	b2
Q 1031	FET				2SK2973-T13	G3829738		1-	B	a1
Q 1032	TRANSISTOR				2SA1602A-T11-1F	G3116028F		1-	A	D4
Q 1033	TRANSISTOR				2SC4215Y TE85R	G3342157Y		1-	B	e3
Q 1034	TRANSISTOR				UMW1 TR	G3070078		1-	A	D4
Q 1035	TRANSISTOR				2SC5555ZD-TR	G3355557		1-	B	e3
Q 1037	FET				2SK2974-T11	G3829747		1-	A	D1
Q 1038	TRANSISTOR				2SC5555ZD-TR	G3355557		1-	A	C4
Q 1039	TRANSISTOR				2SC5555ZD-TR	G3355557		1-	A	B4
Q 1040	TRANSISTOR				2SC5555ZD-TR	G3355557		1-	A	B3
Q 1041	TRANSISTOR				2SC5555ZD-TR	G3355557		1-	A	C3
Q 1042	TRANSISTOR				2SC5555ZD-TR	G3355557		1-	B	d3
Q 1043	TRANSISTOR				2SC5555ZD-TR	G3355557		1-	A	B3
Q 1044	TRANSISTOR				RT1N241M-T11-1	G3070249		1-	A	D2
Q 1045	TRANSISTOR				RT1N241M-T11-1	G3070249		1-	A	E2
Q 1046	TRANSISTOR				2SC5555ZD-TR	G3355557		1-	A	C3

REF	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT	SIDE	LAY ADR
Q 1047	TRANSISTOR				RT1N241M-T11-1	G3070249		1-	B	e4
Q 1048	TRANSISTOR				RT1N241M-T11-1	G3070249		1-	B	b3
Q 1049	TRANSISTOR				DTA143EE TL	G3070252		1-	B	d2
R 1001	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	A	D4
R 1004	CHIP RES.	680	1/16W	5%	RMC1/16S 681JTH	J24189023		1-	A	D3
R 1005	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	d3
R 1008	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	A	D3
R 1009	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	B	d3
R 1010	CHIP RES.	0	1/16W	5%	RMC1/16S JPTH	J24189070		1-	A	B4
R 1011	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	A	D3
R 1012	CHIP RES.	22k	1/16W	5%	RMC1/16S 223JTH	J24189041		1-	B	c3
R 1013	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	A	D3
R 1014	CHIP RES.	3.3k	1/16W	5%	RMC1/16S 332JTH	J24189031		1-	A	B4
R 1015	CHIP RES.	2.2k	1/16W	5%	RMC1/16S 222JTH	J24189029		1-	A	B4
R 1016	CHIP RES.	1k	1/16W	5%	RMC1/16S 102JTH	J24189025		1-	B	c3
R 1018	CHIP RES.	470k	1/16W	5%	RMC1/16S 474JTH	J24189057		1-	A	E3
R 1019	CHIP RES.	4.7	1/16W	5%	RMC1/16S 4R7JTH	J24189066		1-	B	d4
R 1020	CHIP RES.	39k	1/16W	5%	RMC1/16S 393JTH	J24189044		1-	B	d3
R 1021	CHIP RES.	2.2k	1/16W	5%	RMC1/16S 222JTH	J24189029		1-	A	E3
R 1022	CHIP RES.	220k	1/16W	5%	RMC1/16S 224JTH	J24189053		1-	A	E3
R 1023	CHIP RES.	2.2k	1/16W	5%	RMC1/16S 222JTH	J24189029		1-	A	E3
R 1024	CHIP RES.	1.8k	1/16W	5%	RMC1/16S 182JTH	J24189028		1-	B	d3
R 1025	CHIP RES.	2.2k	1/16W	5%	RMC1/16S 222JTH	J24189029		1-	A	E3
R 1026	CHIP RES.	220k	1/16W	5%	RMC1/16S 224JTH	J24189053		1-	A	D2
R 1027	CHIP RES.	100	1/16W	5%	RMC1/16S 101JTH	J24189013		1-	B	d4
R 1028	CHIP RES.	680	1/16W	5%	RMC1/16S 681JTH	J24189023		1-	B	c3
R 1029	CHIP RES.	39k	1/16W	5%	RMC1/16S 393JTH	J24189044		1-	A	D1
R 1031	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	A	E2
R 1032	CHIP RES.	2.2k	1/16W	5%	RMC1/16S 222JTH	J24189029		1-	B	c3
R 1033	CHIP RES.	2.2k	1/16W	5%	RMC1/16S 222JTH	J24189029		1-	B	c3
R 1034	CHIP RES.	1M	1/16W	5%	RMC1/16S 105JTH	J24189061		1-	A	D3
R 1035	CHIP RES.	22k	1/16W	5%	RMC1/16S 223JTH	J24189041		1-	A	D2
R 1036	CHIP RES.	22k	1/16W	5%	RMC1/16S 223JTH	J24189041		1-	A	D2
R 1037	CHIP RES.	4.7	1/16W	5%	RMC1/16S 4R7JTH	J24189066		1-	B	e4
R 1038	CHIP RES.	150	1/16W	5%	RMC1/16S 151JTH	J24189015		1-	B	c3
R 1040	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	A	D2
R 1041	CHIP RES.	470	1/16W	5%	RMC1/16S 471JTH	J24189021		1-	B	b3
R 1042	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	B	b3
R 1043	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	A	D3
R 1044	CHIP RES.	18	1/16W	5%	RMC1/16S 180JTH	J24189004		1-	B	c3
R 1045	CHIP RES.	18	1/16W	5%	RMC1/16S 180JTH	J24189004		1-	B	c3
R 1046	CHIP RES.	18	1/16W	5%	RMC1/16S 180JTH	J24189004		1-	B	c3
R 1047	CHIP RES.	1k	1/16W	5%	RMC1/16S 102JTH	J24189025		1-	B	c3
R 1048	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	A	D3
R 1049	CHIP RES.	2.2k	1/16W	5%	RMC1/16S 222JTH	J24189029		1-	B	b3
R 1050	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	A	C3
R 1051	CHIP RES.	2.2k	1/16W	5%	RMC1/16S 222JTH	J24189029		1-	A	E2
R 1052	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	B	a2
R 1054	CHIP RES.	15k	1/16W	5%	RMC1/16S 153JTH	J24189039		1-	B	a2
R 1055	CHIP RES.	33	1/16W	5%	RMC1/16S 330JTH	J24189007		1-	B	a2
R 1056	CHIP RES.	2.2k	1/16W	5%	RMC1/16S 222JTH	J24189029		1-	A	C3
R 1057	CHIP RES.	100	1/16W	5%	RMC1/16S 101JTH	J24189013		1-	B	a2
R 1059	CHIP RES.	1k	1/16W	5%	RMC1/16S 102JTH	J24189025		1-	B	a2
R 1060	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	B	a2
R 1061	CHIP RES.	47	1/10W	5%	RMC1/10T 470J	J24205470		1-	B	a1
R 1062	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	a2
R 1063	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	A	D4
R 1064	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	e4
R 1065	CHIP RES.	150k	1/16W	5%	RMC1/16S 154JTH	J24189051		1-	B	e3
R 1066	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	B	b2
R 1068	CHIP RES.	68k	1/16W	5%	RMC1/16S 683JTH	J24189047		1-	A	D4
R 1070	CHIP RES.	33	1/16W	5%	RMC1/16S 330JTH	J24189007		1-	B	e3
R 1071	CHIP RES.	2.7k	1/16W	5%	RMC1/16S 272JTH	J24189030		1-	A	D4
R 1072	CHIP RES.	1k	1/16W	5%	RMC1/16S 102JTH	J24189025		1-	A	D4
R 1073	CHIP RES.	330k	1/16W	5%	RMC1/16S 334JTH	J24189055		1-	B	b2
R 1074	CHIP RES.	56k	1/16W	5%	RMC1/16S 563JTH	J24189046		1-	B	e3
R 1075	CHIP RES.	1k	1/16W	5%	RMC1/16S 102JTH	J24189025		1-	B	b2
R 1077	CHIP RES.	39k	1/16W	5%	RMC1/16S 393JTH	J24189044		1-	B	e3
R 1078	CHIP RES.	560	1/16W	5%	RMC1/16S 561JTH	J24189022		1-	A	B3
R 1080	CHIP RES.	270	1/16W	5%	RMC1/16S 271JTH	J24189018		1-	A	B4
R 1081	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	A	B4
R 1082	CHIP RES.	220k	1/16W	5%	RMC1/16S 224JTH	J24189053		1-	A	A2
R 1083	CHIP RES.	820	1/16W	5%	RMC1/16S 821JTH	J24189024		1-	A	C3
R 1084	CHIP RES.	33k	1/16W	5%	RMC1/16S 333JTH	J24189043		1-	A	A2
R 1085	CHIP RES.	100	1/16W	5%	RMC1/16S 101JTH	J24189013		1-	B	d1
R 1086	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	A	B3

# RF Unit

## Parts List

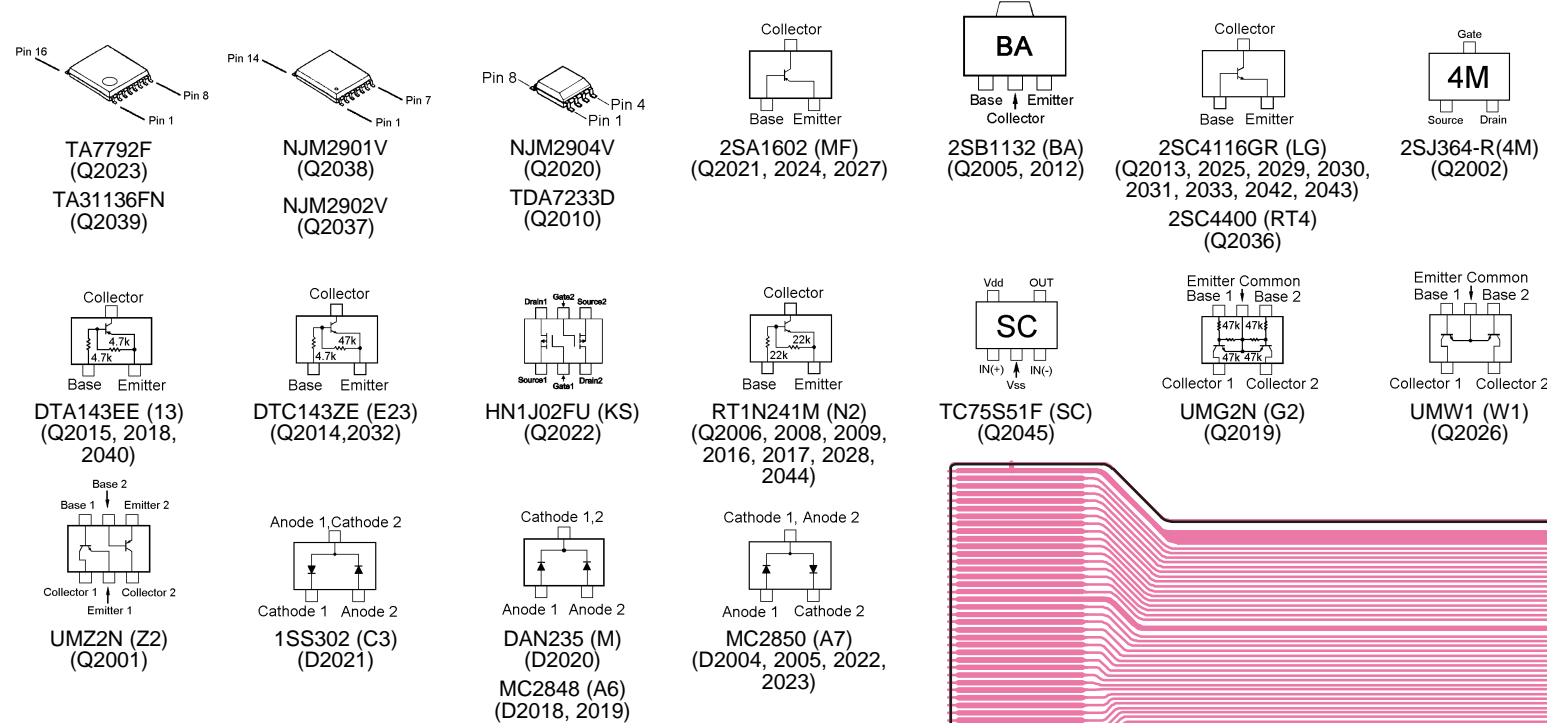
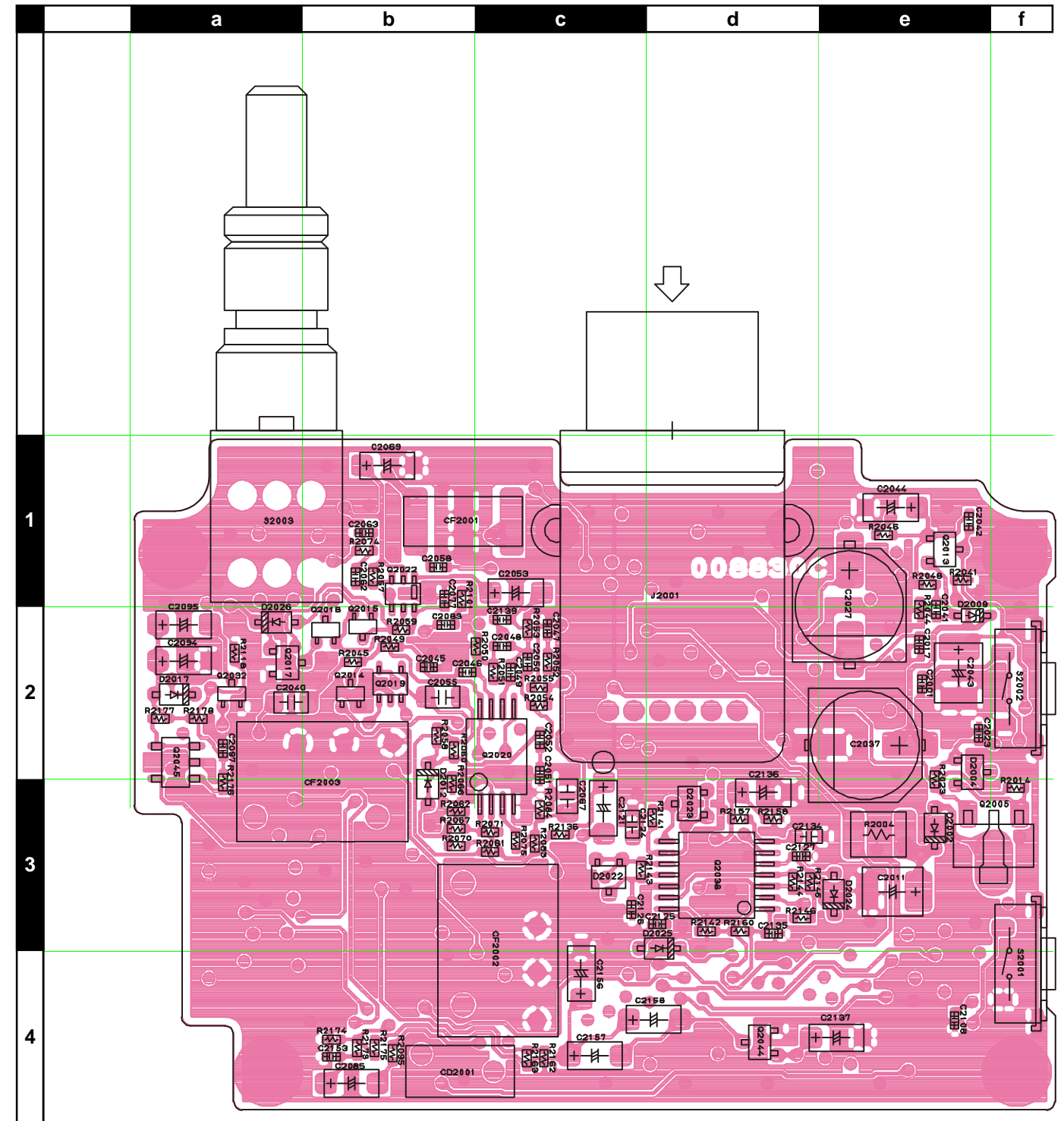
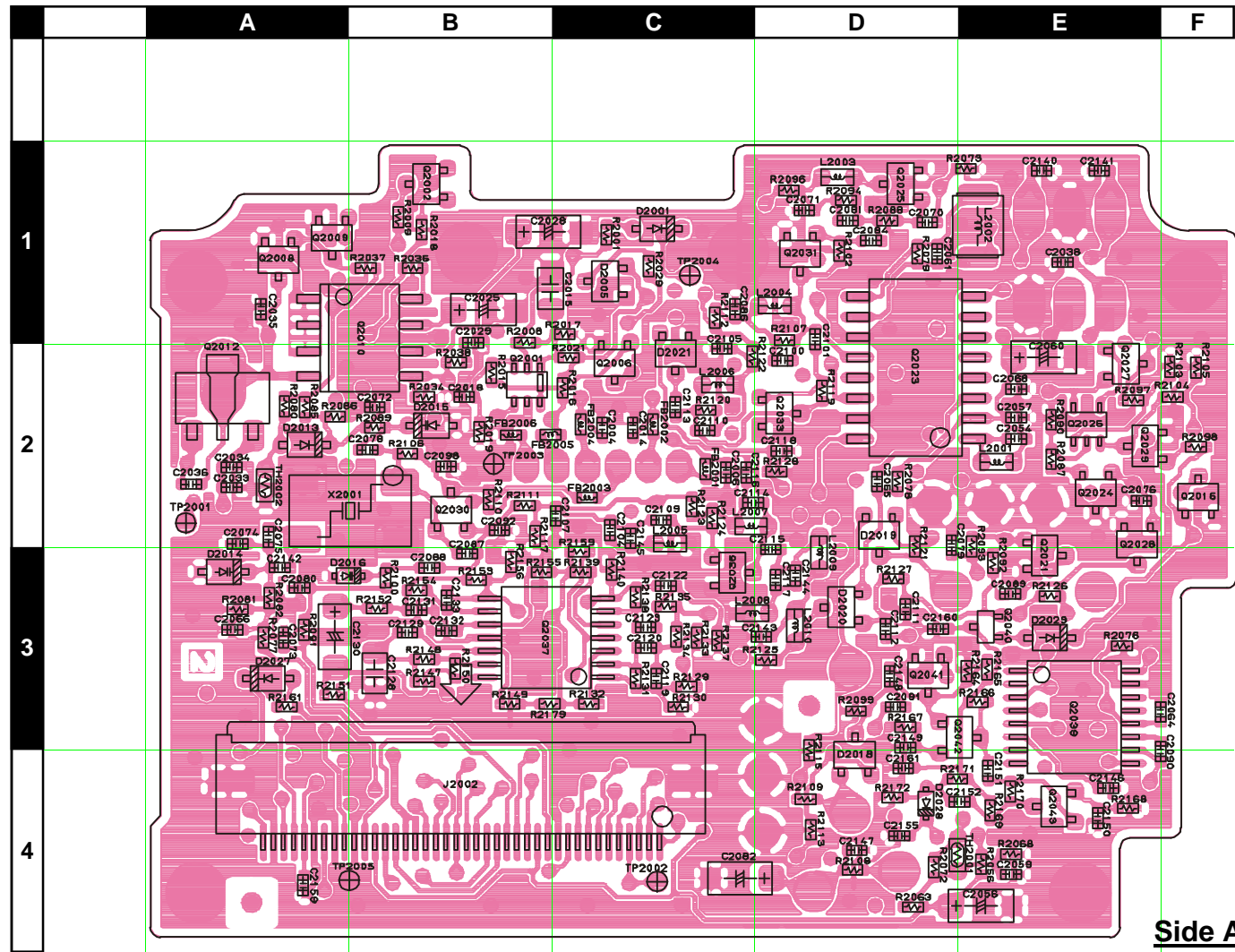
REF	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT	SIDE	LAY ADR
R 1087	CHIP RES.	560	1/16W	5%	RMC1/16S 561JTH	J24189022		1-	B	d2
R 1088	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	A	D3
R 1089	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	A	D3
R 1092	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	A	A3
R 1093	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	A	B3
R 1094	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	A	B1
R 1095	CHIP RES.	100	1/16W	5%	RMC1/16S 101JTH	J24189013		1-	A	C3
R 1096	CHIP RES.	33k	1/16W	5%	RMC1/16S 333JTH	J24189043		1-	A	B1
R 1097	CHIP RES.	390	1/16W	5%	RMC1/16S 391JTH	J24189020		1-	A	C3
R 1098	CHIP RES.	68k	1/16W	5%	RMC1/16S 683JTH	J24189047		1-	B	e2
R 1099	CHIP RES.	33k	1/16W	5%	RMC1/16S 333JTH	J24189043		1-	A	B1
R 1100	CHIP RES.	3.3k	1/16W	5%	RMC1/16S 332JTH	J24189031		1-	A	C2
R 1101	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	A	C1
R 1102	CHIP RES.	390	1/16W	5%	RMC1/16S 391JTH	J24189020		1-	A	B2
R 1103	CHIP RES.	470	1/16W	5%	RMC1/16S 471JTH	J24189021		1-	A	B3
R 1104	CHIP RES.	150k	1/16W	5%	RMC1/16S 154JTH	J24189051		1-	B	d2
R 1105	CHIP RES.	0	1/16W	5%	RMC1/16S JPTH	J24189070		1-	B	d2
R 1107	CHIP RES.	18k	1/16W	5%	RMC1/16S 183JTH	J24189040		1-	B	e2
R 1108	CHIP RES.	22k	1/16W	5%	RMC1/16S 223JTH	J24189041		1-	A	B2
R 1109	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	A	B2
R 1110	CHIP RES.	2.2k	1/16W	5%	RMC1/16S 222JTH	J24189029		1-	A	B2
R 1111	CHIP RES.	33k	1/16W	5%	RMC1/16S 333JTH	J24189043		1-	A	B1
R 1112	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	A	C2
R 1113	CHIP RES.	33k	1/16W	5%	RMC1/16S 333JTH	J24189043		1-	A	B1
R 1114	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	A	C2
R 1115	CHIP RES.	2.2k	1/16W	5%	RMC1/16S 222JTH	J24189029		1-	A	C2
R 1116	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	A	C2
R 1117	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	A	C2
R 1119	CHIP RES.	2.2k	1/16W	5%	RMC1/16S 222JTH	J24189029		1-	A	C1
R 1122	CHIP RES.	470	1/16W	5%	RMC1/16S 471JTH	J24189021		1-	A	C4
R 1123	CHIP RES.	470	1/16W	5%	RMC1/16S 471JTH	J24189021		1-	A	C4
R 1124	CHIP RES.	2.7k	1/16W	5%	RMC1/16S 272JTH	J24189030		1-	A	C4
R 1125	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	c2
R 1126	CHIP RES.	0	1/16W	5%	RMC1/16 000JATP	J24185000		1-	A	B3
R 1127	CHIP RES.	22k	1/16W	5%	RMC1/16S 223JTH	J24189041		1-	B	e4
TH1001	THERMISTOR				TBPS1R473K475H5Q	G9090068		1-	A	D1
TH1002	THERMISTOR				ERTJ0ET102J	G9090131		1-	B	b2
XF1001	XTAL FILTER				35S15A	H1102335		1-	B	e3
	TERMINAL PLATE					RA0287100		1-		
	SHIELD CASE VCO					RA0455600		1-		
	STICK FINGER				97-542-02	S5000211		1-		
	SHIELD SHEET					RA0459300		1-		





# AF Unit

## Parts Layout



REF	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT	SIDE	LAY ADR	
PCB with Components						CB2148001					
Printed Circuit Board						AC045N000			FR0088300		
C 2001	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	e2	
C 2004	CHIP CAP.	220pF	25V	CH	GRM36CH221J25PT	K22148203		1-	A	C2	
C 2006	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	C2	
C 2011	CHIP TA.CAP.	22uF	16V		TEMSVB21C226M-8R	K78120028		1-	B	e3	
C 2014	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	C2	
C 2015	CHIP CAP.	1uF	10V	B	GRM40B105K10PT	K22100802		1-	A	B1	
C 2017	CHIP CAP.	100pF	50V	CH	GRM36CH101J50PT	K22178236		1-	B	e2	
C 2018	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	A	B2	
C 2023	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	B	e2	
C 2025	CHIP TA.CAP.	4.7uF	16V		TEMSVA1C475M-8R	K78120031		1-	A	B1	
C 2027	AL.ELECTRO.CAP.	220uF	10V		RV3-10V221MF80-R	K48100002		1-	B	e1	
C 2028	CHIP TA.CAP.	4.7uF	16V		TEMSVA1C475M-8R	K78120031		1-	A	B1	
C 2029	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	A	B1	
C 2033	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	A2	
C 2034	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	A	A2	
C 2035	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	A1	
C 2036	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	A2	
C 2037	AL.ELECTRO.CAP.	100uF	16V		ECEV1CA101WP	K48120012		1-	B	e2	
C 2040	CHIP CAP.	1uF	10V	B	GRM40B105K10PT	K22100802		1-	B	a2	
C 2041	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	B	e1	
C 2042	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	e1	
C 2043	CHIP TA.CAP.	10uF	20V		TEMSVB21D106M-8R	K78130028		1-	B	e2	
C 2045	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	b2	
C 2046	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	B	b2	
C 2047	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	c2	
C 2048	CHIP CAP.	0.0033uF	50V	B	GRM36B332K50PT	K22178815		1-	B	c2	
C 2049	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	B	c2	
C 2050	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	B	c2	
C 2052	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	B	c2	
C 2053	CHIP TA.CAP.	4.7uF	16V		TEMSVA1C475M-8R	K78120031		1-	B	c1	
C 2054	CHIP CAP.	22pF	50V	CH	GRM36CH220J50PT	K22178220		1-	A	E2	
C 2055	CHIP CAP.	1uF	10V	B	GRM40B105K10PT	K22100802		1-	B	b2	
C 2056	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	A	E4	
C 2057	CHIP CAP.	0.022uF	16V	B	GRM36B223K16PT	K22128806		1-	A	E2	
C 2058	CHIP CAP.	10pF	50V	CH	GRM36CH100D50PT	K22178212		1-	B	b1	
C 2059	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	E4	
C 2060	CHIP TA.CAP.	10uF	6.3V		TEMSVA0J106M-8R	K78080027		1-	A	E2	
C 2061	CHIP CAP.	39pF	50V	CH	GRM36CH390J50PT	K22178226		1-	A	D1	
C 2062	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	B	b1	
C 2063	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	B	b1	
C 2064	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	A	E3	
C 2065	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	A	D2	
C 2066	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	A	A3	
C 2067	CHIP CAP.	1uF	10V	B	GRM40B105K10PT	K22100802		1-	B	c3	
C 2068	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	E2	
C 2069	CHIP TA.CAP.	10uF	6.3V		TEMSVA0J106M-8R	K78080027		1-	B	b1	
C 2070	CHIP CAP.	47pF	50V	CH	GRM36CH470J50PT	K22178228		1-	A	D1	
C 2071	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	A	D1	
C 2072	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	A	B2	
C 2073	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	A	A3	
C 2074	CHIP CAP.	8pF	50V	CH	GRM36CH080D50PT	K22178210		1-	A	A2	
C 2075	CHIP CAP.	22pF	50V	CH	GRM36CH220J50PT	K22178220		1-	A	A2	
C 2076	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	A	E2	
C 2077	CHIP CAP.	0.0033uF	50V	B	GRM36B332K50PT	K22178815		1-	B	b1	
C 2078	CHIP CAP.	47pF	50V	CH	GRM36CH470J50PT	K22178228		1-	A	B2	
C 2079	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	D2	
C 2080	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	A	A3	
C 2081	CHIP CAP.	47pF	50V	CH	GRM36CH470J50PT	K22178228		1-	A	D1	
C 2082	CHIP TA.CAP.	10uF	6.3V		TEMSVA0J106M-8R	K78080027		1-	A	C4	
C 2083	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	B	b2	
C 2084	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	A	D1	
C 2085	CHIP TA.CAP.	4.7uF	16V		TEMSVA1C475M-8R	K78120031		1-	B	b4	
C 2086	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	A	C1	
C 2087	CHIP CAP.	22pF	50V	CH	GRM36CH220J50PT	K22178220		1-	A	B3	
C 2088	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	B3	
C 2089	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	A	E3	
C 2090	CHIP CAP.	68pF	50V	CH	GRM36CH680J50PT	K22178232		1-	A	E3	
C 2091	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	A	D3	
C 2095	CHIP TA.CAP.	33uF	4V		TEMSVA0G336M-8R	K78060036		1-	B	a2	
C 2098	CHIP CAP.	7pF	50V	CH	GRM36CH070D50PT	K22178209		1-	A	B2	
C 2100	CHIP CAP.	47pF	50V	CH	GRM36CH470J50PT	K22178228		1-	A	D2	
C 2101	CHIP CAP.	100pF	50V	CH	GRM36CH101J50PT	K22178236		1-	A	D1	
C 2104	CHIP CAP.	47pF	50V	CH	GRM36CH470J50PT	K22178228		1-	A	C2	
C 2105	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	A	C2	

# AF Unit

## Parts List

REF	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT	SIDE	LAY ADR
C 2107	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	A	B2
C 2109	CHIP CAP.	56pF	50V	CH	GRM36CH560J50PT	K22178230		1-	A	C2
C 2110	CHIP CAP.	47pF	50V	CH	GRM36CH470J50PT	K22178228		1-	A	C2
C 2111	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	D3
C 2112	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	D3
C 2113	CHIP CAP.	330pF	50V	B	GRM36B331K50PT	K22178803		1-	A	C2
C 2114	CHIP CAP.	39pF	50V	CH	GRM36CH390J50PT	K22178226		1-	A	C2
C 2115	CHIP CAP.	12pF	50V	CH	GRM36CH120J50PT	K22178214		1-	A	D2
C 2116	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	C2
C 2117	CHIP CAP.	47pF	50V	CH	GRM36CH470J50PT	K22178228		1-	A	D3
C 2118	CHIP CAP.	0.047uF	10V	B	GRM36B473K10PT	K22108801		1-	A	D2
C 2119	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	C3
C 2120	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	C3
C 2121	CHIP TA.CAP.	10uF	6.3V		TEMSVA0J106M-8R	K78080027		1-	B	c3
C 2122	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	A	C3
C 2123	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	A	C3
C 2124	CHIP CAP.	0.22uF	10V	B	GRM39B224K10PT	K22104801		1-	B	c3
C 2125	CHIP CAP.	470pF	50V	B	GRM36B471K50PT	K22178805		1-	B	d3
C 2126	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	B	c3
C 2127	CHIP CAP.	470pF	50V	B	GRM36B471K50PT	K22178805		1-	B	d3
C 2128	CHIP CAP.	0.15uF	25V	B	GRM40B154K25PT	K22140823		1-	A	B3
C 2129	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	A	B3
C 2130	CHIP TA.CAP.	4.7uF	16V		TEMSVA1C475M-8R	K78120031		1-	A	A3
C 2131	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	A	B3
C 2132	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	A	B3
C 2133	CHIP CAP.	0.0047uF	25V	B	GRM36B472K25PT	K22148830		1-	A	B3
C 2134	CHIP CAP.	1uF	10V	F	GRM39F105Z10PT	K22105001		1-	B	d3
C 2135	CHIP CAP.	470pF	50V	B	GRM36B471K50PT	K22178805		1-	B	d3
C 2136	CHIP TA.CAP.	10uF	6.3V		TEMSVA0J106M-8R	K78080027		1-	B	d3
C 2137	CHIP TA.CAP.	10uF	6.3V		TEMSVA0J106M-8R	K78080027		1-	B	e4
C 2139	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	B	c2
C 2140	CHIP CAP.	0.047uF	10V	B	GRM36B473K10PT	K22108801		1-	A	E1
C 2141	CHIP CAP.	0.047uF	10V	B	GRM36B473K10PT	K22108801		1-	A	E1
C 2142	CHIP CAP.	5pF	50V	CH	GRM36CH050C50PT	K22178207		1-	A	A3
C 2143	CHIP CAP.	120pF	50V	CH	GRM36CH121J50PT	K22178238		1-	A	D3
C 2144	CHIP CAP.	2pF	50V	CK	GRM36CK020C50PT	K22178204		1-	A	D3
C 2146	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	A	E4
C 2147	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	D4
C 2148	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	A	D3
C 2149	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	A	D3
C 2150	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	A	E4
C 2151	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	A	E4
C 2152	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	A	D4
C 2153	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	B	b4
C 2155	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	D4
C 2159	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	A	A4
C 2160	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	A	D3
C 2161	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	A	D4
C 2162	CHIP CAP.	9pF	50V	CH	GRM36CH090D50PT	K22178211		1-		
C 2163	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-		
C 2164	CHIP CAP.	0.1uF	16V	B	GRM39B104K16PT	K22124805		1-		
C 2165	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-		
C 2166	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-		
CD2001	CERAMIC DISC				CDBM450C24	H7901390		1-	B	b4
CF2001	CERAMIC FILTER				SFECV10.7MS2-A-TC	H3900514		1-	B	b1
CF2002	CERAMIC FILTER				ALFYM450F=K	H3900531		1-	B	b3
CF2003	CERAMIC FILTER				CFWM450D	H3900522		1-	B	a3
D 2001	DIODE				BAS316	G2070716		1-	A	C1
D 2002	DIODE				BAS316	G2070716		1-	B	e3
D 2004	DIODE				MC2850-T11-1	G2070704		1-	B	e2
D 2005	DIODE				MC2850-T11-1	G2070704		1-	A	C1
D 2009	DIODE				RD6.8UMB2-T1B	G2070438		1-	B	e2
D 2012	DIODE				BAS316	G2070716		1-	B	b3
D 2013	DIODE				BAS316	G2070716		1-	A	A2
D 2014	DIODE				HVU202A-TR	G2070332		1-	A	A3
D 2015	DIODE				MA376-(TX)	G2070414		1-	A	B2
D 2016	DIODE				HVC350B-TRF	G2070596		1-	A	A3
D 2017	DIODE				BAS316	G2070716		1-	B	a2
D 2018	DIODE				MC2848-T11-1	G2070694		1-	A	D4
D 2019	DIODE				MC2848-T11-1	G2070694		1-	A	D2
D 2020	DIODE				DAN235U TL	G2070176		1-	A	D3
D 2021	DIODE				RB706F-40T106	G2070824		1-	A	C2
D 2022	DIODE				MC2850-T11-1	G2070704		1-	B	c3
D 2023	DIODE				MC2850-T11-1	G2070704		1-	B	d3
D 2024	DIODE				BAS316	G2070716		1-	B	e3
D 2025	DIODE				BAS316	G2070716		1-	B	d3

REF	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT	SIDE	LAY ADR
D 2026	DIODE				BAS316	G2070716		1-	B	a2
D 2027	DIODE				BAS316	G2070716		1-	A	A3
D 2028	DIODE				RB751S-40TE61	G2070850		1-	A	D4
D 2029	DIODE				BAS316	G2070716		1-	A	E3
FB2001	FERRITE BEADS				BK1005HM102-T	L9190124		1-	A	C2
FB2002	FERRITE BEADS				BK1005HM102-T	L9190124		1-	A	C2
FB2003	FERRITE BEADS				BK1005HM102-T	L9190124		1-	A	C2
FB2004	FERRITE BEADS				BK1005HM102-T	L9190124		1-	A	C2
FB2005	FERRITE BEADS				BK1005HM102-T	L9190124		1-	A	B2
FB2006	FERRITE BEADS				BK1005HM102-T	L9190124		1-	A	B2
FB2007	FERRITE BEADS				BK1005HM102-T	L9190124		1-	A	B2
J 2001	CONNECTOR				KP-269	P1091150		1-	B	d1
J 2001	CONNECTOR				KP-269	P1091150A		5-	B	d1
J 2002	CONNECTOR				IL-FHR-F40S-HF-E3000	P1091131		1-	A	B4
L 2001	M.RFC	0.47uH			LK1608 R47K-T	L1690414		1-	A	E2
L 2002	M.RFC	4.7uH			FLC32T-4R7K	L1690211		1-	A	E1
L 2003	M.RFC	4.7uH			LK1608 4R7K-T	L1690688		1-	A	D1
L 2004	M.RFC	4.7uH			LK1608 4R7K-T	L1690688		1-	A	D1
L 2005	M.RFC	0.039uH			HK1608 39NJ-T	L1690523		1-	A	C2
L 2006	M.RFC	4.7uH			LK1608 4R7K-T	L1690688		1-	A	C2
L 2007	M.RFC	0.47uH			LK1608 R47K-T	L1690414		1-	A	C2
L 2008	M.RFC	0.033uH			LBH1608T33NJ	L1691192		1-	A	C3
L 2009	M.RFC	0.56uH			LK1608 R56K-T	L1690415		1-	A	D3
L 2011	M.RFC	2.2uH			LK2125 2R2K-T	L1690323		1-	A	D3
Q 2001	TRANSISTOR				UMZ2N TR	G3070117		1-	A	B2
Q 2002	FET				2SJ364-R(TX)	G3703648R		1-	A	B1
Q 2005	TRANSISTOR				2SB1132 T100 Q	G3211327Q		1-	B	e3
Q 2006	TRANSISTOR				RT1N241M-T11-1	G3070249		1-	A	C2
Q 2008	TRANSISTOR				RT1N241M-T11-1	G3070249		1-	A	A1
Q 2009	TRANSISTOR				RT1N241M-T11-1	G3070249		1-	A	A1
Q 2010	IC				TDA7233D-TR	G1091112		1-	A	B1
Q 2012	TRANSISTOR				2SB1132 T100 Q	G3211327Q		1-	A	A2
Q 2013	TRANSISTOR				2SC4116GR TE85R	G3341167G		1-	B	e1
Q 2014	TRANSISTOR				DTC143ZE TL	G3070102		1-	B	b2
Q 2015	TRANSISTOR				DTA143EE TL	G3070252		1-	B	b2
Q 2016	TRANSISTOR				RT1N241M-T11-1	G3070249		1-	A	F2
Q 2017	TRANSISTOR				RT1N241M-T11-1	G3070249		1-	B	a2
Q 2018	TRANSISTOR				DTA143EE TL	G3070252		1-	B	b2
Q 2019	TRANSISTOR				UMG2N TR	G3070088		1-	B	b2
Q 2020	IC				NJM2904V-TE1	G1091677		1-	B	c2
Q 2021	TRANSISTOR				2SA1602A-T11-1F	G3116028F		1-	A	E3
Q 2022	FET				HN1J02FU(TE85L)	G3070221		1-	B	b1
Q 2023	IC				TA7792F(TP1)	G1092467		1-	A	D2
Q 2024	TRANSISTOR				2SA1602A-T11-1F	G3116028F		1-	A	E2
Q 2025	TRANSISTOR				2SC4116GR TE85R	G3341167G		1-	A	D1
Q 2026	TRANSISTOR				UMW1 TR	G3070078		1-	A	E2
Q 2027	TRANSISTOR				2SA1602A-T11-1F	G3116028F		1-	A	E2
Q 2028	TRANSISTOR				RT1N241M-T11-1	G3070249		1-	A	E2
Q 2029	TRANSISTOR				2SC4116GR TE85R	G3341167G		1-	A	E2
Q 2030	TRANSISTOR				2SC4116GR TE85R	G3341167G		1-	A	B2
Q 2031	TRANSISTOR				2SC4116GR TE85R	G3341167G		1-	A	D1
Q 2032	TRANSISTOR				DTC143ZE TL	G3070102		1-	B	a2
Q 2033	TRANSISTOR				2SC4116GR TE85R	G3341167G		1-	A	D2
Q 2036	TRANSISTOR				2SC4400-4-TL	G3344008D		1-	A	C3
Q 2037	IC				NJM2902V-TE1	G1091679		1-	A	B3
Q 2038	IC				NJM2901V-TE1	G1092779		1-	B	d3
Q 2039	IC				TA31136FN(EL)	G1091605		1-	A	E3
Q 2040	TRANSISTOR				DTA143EE TL	G3070252		1-	A	E3
Q 2042	TRANSISTOR				2SC4116GR TE85R	G3341167G		1-	A	D3
Q 2043	TRANSISTOR				2SC4116GR TE85R	G3341167G		1-	A	E4
Q 2044	TRANSISTOR				RT1N241M-T11-1	G3070249		1-	B	d4
Q 2045	IC				TC75S51F TE85R	G1092048		1-	B	a2
R 2001	CHIP RES.	22k	1/16W	5%	RMC1/16S 223JTH	J24189041		1-	A	C1
R 2004	CHIP RES.	150	1/4W	5%	RMC1/4 151JATP	J24245151		1-	B	e3
R 2008	CHIP RES.	6.8k	1/16W	5%	RMC1/16S 682JTH	J24189035		1-	A	B1
R 2009	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	A	B1
R 2014	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	f3
R 2015	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	A	B2
R 2016	CHIP RES.	22k	1/16W	5%	RMC1/16S 223JTH	J24189041		1-	A	C2
R 2018	CHIP RES.	100	1/16W	5%	RMC1/16S 101JTH	J24189013		1-	A	B1
R 2019	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	A	B2
R 2021	CHIP RES.	1k	1/16W	5%	RMC1/16S 102JTH	J24189025		1-	A	C2
R 2023	CHIP RES.	18	1/16W	5%	RMC1/16S 180JTH	J24189004		1-	B	e2
R 2029	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	A	C1
R 2036	CHIP RES.	470	1/16W	5%	RMC1/16S 471JTH	J24189021		1-	A	B1
R 2037	CHIP RES.	22k	1/16W	5%	RMC1/16S 223JTH	J24189041		1-	A	B1

# AF Unit

## Parts List

REF	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT	SIDE	LAY ADR
R 2038	CHIP RES.	10	1/16W	5%	RMC1/16S 100JTH	J24189001		1-	A	B2
R 2041	CHIP RES.	2.2k	1/16W	5%	RMC1/16S 222JTH	J24189029		1-	B	e1
R 2044	CHIP RES.	100	1/16W	5%	RMC1/16S 101JTH	J24189013		1-	B	e1
R 2045	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	B	b2
R 2046	CHIP RES.	15k	1/16W	5%	RMC1/16S 153JTH	J24189039		1-	B	e1
R 2048	CHIP RES.	15k	1/16W	5%	RMC1/16S 153JTH	J24189039		1-	B	e1
R 2049	CHIP RES.	5.6k	1/16W	5%	RMC1/16S 562JTH	J24189034		1-	B	b2
R 2050	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	B	b2
R 2051	CHIP RES.	330k	1/16W	5%	RMC1/16S 334JTH	J24189055		1-	B	c2
R 2052	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	B	c2
R 2053	CHIP RES.	33k	1/16W	5%	RMC1/16S 333JTH	J24189043		1-	B	c2
R 2054	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	c2
R 2055	CHIP RES.	0	1/16W	5%	RMC1/16S JPTH	J24189070		1-	B	c2
R 2056	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	A	E4
R 2057	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	B	b1
R 2058	CHIP RES.	18k	1/16W	5%	RMC1/16S 183JTH	J24189040		1-	B	b2
R 2059	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	B	b2
R 2060	CHIP RES.	33k	1/16W	5%	RMC1/16S 333JTH	J24189043		1-	B	b2
R 2061	CHIP RES.	33k	1/16W	5%	RMC1/16S 333JTH	J24189043		1-	B	c3
R 2062	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	b3
R 2063	CHIP RES.	2.2k	1/16W	5%	RMC1/16S 222JTH	J24189029		1-	A	D4
R 2066	CHIP RES.	33k	1/16W	5%	RMC1/16S 333JTH	J24189043		1-	B	b3
R 2067	CHIP RES.	33k	1/16W	5%	RMC1/16S 333JTH	J24189043		1-	B	b3
R 2068	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	A	E4
R 2070	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	B	b3
R 2071	CHIP RES.	330k	1/16W	5%	RMC1/16S 334JTH	J24189055		1-	B	c3
R 2072	CHIP RES.	8.2k	1/16W	5%	RMC1/16S 822JTH	J24189036		1-	A	D4
R 2073	CHIP RES.	330	1/16W	5%	RMC1/16S 331JTH	J24189019		1-	A	E1
R 2074	CHIP RES.	1k	1/16W	5%	RMC1/16S 102JTH	J24189025		1-	B	b1
R 2075	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	B	c3
R 2077	CHIP RES.	150k	1/16W	5%	RMC1/16S 154JTH	J24189051		1-	A	A3
R 2078	CHIP RES.	1k	1/16W	5%	RMC1/16S 102JTH	J24189025		1-	A	D2
R 2079	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	A	D1
R 2080	CHIP RES.	27k	1/16W	5%	RMC1/16S 273JTH	J24189042		1-	A	A2
R 2081	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	A	A3
R 2082	CHIP RES.	150k	1/16W	5%	RMC1/16S 154JTH	J24189051		1-	A	A3
R 2083	CHIP RES.	68k	1/16W	5%	RMC1/16S 683JTH	J24189047		1-	B	c3
R 2084	CHIP RES.	33k	1/16W	5%	RMC1/16S 333JTH	J24189043		1-	B	c3
R 2085	CHIP RES.	1.2M	1/16W	5%	RMC1/16S 125JTH	J24189062		1-	A	A2
R 2086	CHIP RES.	470k	1/16W	5%	RMC1/16S 474JTH	J24189057		1-	A	A2
R 2087	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	A	E2
R 2088	CHIP RES.	470k	1/16W	5%	RMC1/16S 474JTH	J24189057		1-	A	D1
R 2089	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	A	B2
R 2090	CHIP RES.	560	1/16W	5%	RMC1/16S 561JTH	J24189022		1-	A	E2
R 2091	CHIP RES.	0	1/16W	5%	RMC1/16S JPTH	J24189070		1-	A	A3
R 2092	CHIP RES.	22	1/16W	5%	RMC1/16S 220JTH	J24189005		1-	A	E3
R 2093	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	A	E2
R 2094	CHIP RES.	1k	1/16W	5%	RMC1/16S 102JTH	J24189025		1-	A	D1
R 2095	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	B	b4
R 2096	CHIP RES.	470	1/16W	5%	RMC1/16S 471JTH	J24189021		1-	A	D1
R 2097	CHIP RES.	2.7k	1/16W	5%	RMC1/16S 272JTH	J24189030		1-	A	E2
R 2098	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	A	F2
R 2099	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	A	D3
R 2100	CHIP RES.	150k	1/16W	5%	RMC1/16S 154JTH	J24189051		1-	A	B3
R 2101	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	B	b1
R 2102	CHIP RES.	470k	1/16W	5%	RMC1/16S 474JTH	J24189057		1-	A	D1
R 2104	CHIP RES.	1k	1/16W	5%	RMC1/16S 102JTH	J24189025		1-	A	F2
R 2106	CHIP RES.	27k	1/16W	5%	RMC1/16S 273JTH	J24189042		1-	A	B2
R 2107	CHIP RES.	1k	1/16W	5%	RMC1/16S 102JTH	J24189025		1-	A	D1
R 2108	CHIP RES.	3.3k	1/16W	5%	RMC1/16S 332JTH	J24189031		1-	A	D4
R 2109	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	A	D4
R 2110	CHIP RES.	470	1/16W	5%	RMC1/16S 471JTH	J24189021		1-	A	B2
R 2112	CHIP RES.	470	1/16W	5%	RMC1/16S 471JTH	J24189021		1-	A	C1
R 2113	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	A	D4
R 2115	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	A	D3
R 2119	CHIP RES.	470k	1/16W	5%	RMC1/16S 474JTH	J24189057		1-	A	D2
R 2121	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	A	D2
R 2122	CHIP RES.	470	1/16W	5%	RMC1/16S 471JTH	J24189021		1-	A	C2
R 2123	CHIP RES.	270	1/16W	5%	RMC1/16S 271JTH	J24189018		1-	A	C2
R 2124	CHIP RES.	56k	1/16W	5%	RMC1/16S 563JTH	J24189046		1-	A	C2
R 2125	CHIP RES.	1k	1/16W	5%	RMC1/16S 102JTH	J24189025		1-	A	D3
R 2126	CHIP RES.	5.6k	1/16W	5%	RMC1/16S 562JTH	J24189034		1-	A	E3
R 2127	CHIP RES.	2.2k	1/16W	5%	RMC1/16S 222JTH	J24189029		1-	A	D3
R 2129	CHIP RES.	1k	1/16W	5%	RMC1/16S 102JTH	J24189025		1-	A	C3
R 2130	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	A	C3
R 2131	CHIP RES.	180k	1/16W	5%	RMC1/16S 184JTH	J24189052		1-	A	C3

REF	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT	SIDE	LAY ADR
R 2132	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	A	C3
R 2133	CHIP RES.	1.5k	1/16W	5%	RMC1/16S 152JTH	J24189027		1-	A	C3
R 2134	CHIP RES.	27k	1/16W	5%	RMC1/16S 273JTH	J24189042		1-	A	C3
R 2135	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	A	C3
R 2136	CHIP RES.	22k	1/16W	5%	RMC1/16S 223JTH	J24189041		1-	B	c3
R 2137	CHIP RES.	33k	1/16W	5%	RMC1/16S 333JTH	J24189043		1-	A	C3
R 2138	CHIP RES.	220k	1/16W	5%	RMC1/16S 224JTH	J24189053		1-	A	C3
R 2139	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	A	C3
R 2140	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	A	C3
R 2141	CHIP RES.	68k	1/16W	5%	RMC1/16S 683JTH	J24189047		1-	B	d3
R 2142	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	B	d3
R 2143	CHIP RES.	39k	1/16W	5%	RMC1/16S 393JTH	J24189044		1-	B	c3
R 2145	CHIP RES.	39k	1/16W	5%	RMC1/16S 393JTH	J24189044		1-	B	d3
R 2146	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	B	d3
R 2147	CHIP RES.	15k	1/16W	5%	RMC1/16S 153JTH	J24189039		1-	A	B3
R 2148	CHIP RES.	220k	1/16W	5%	RMC1/16S 224JTH	J24189053		1-	A	B3
R 2149	CHIP RES.	120k	1/16W	5%	RMC1/16S 124JTH	J24189050		1-	A	B3
R 2150	CHIP RES.	220k	1/16W	5%	RMC1/16S 224JTH	J24189053		1-	A	B3
R 2151	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	A	A3
R 2152	CHIP RES.	33k	1/16W	5%	RMC1/16S 333JTH	J24189043		1-	A	B3
R 2153	CHIP RES.	180k	1/16W	5%	RMC1/16S 184JTH	J24189052		1-	A	B3
R 2154	CHIP RES.	27k	1/16W	5%	RMC1/16S 273JTH	J24189042		1-	A	B3
R 2155	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	A	B3
R 2156	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	A	B3
R 2157	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	B	d3
R 2158	CHIP RES.	33k	1/16W	5%	RMC1/16S 333JTH	J24189043		1-	B	d3
R 2159	CHIP RES.	56k	1/16W	5%	RMC1/16S 563JTH	J24189046		1-	A	C3
R 2160	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	B	d3
R 2161	CHIP RES.	1k	1/16W	5%	RMC1/16S 102JTH	J24189025		1-	A	A3
R 2164	CHIP RES.	150k	1/16W	5%	RMC1/16S 154JTH	J24189051		1-	A	E3
R 2165	CHIP RES.	220k	1/16W	5%	RMC1/16S 224JTH	J24189053		1-	A	E3
R 2166	CHIP RES.	470	1/16W	5%	RMC1/16S 471JTH	J24189021		1-	A	E3
R 2167	CHIP RES.	1k	1/16W	5%	RMC1/16S 102JTH	J24189025		1-	A	D3
R 2168	CHIP RES.	1k	1/16W	5%	RMC1/16S 102JTH	J24189025		1-	A	E4
R 2169	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	A	E4
R 2170	CHIP RES.	560k	1/16W	5%	RMC1/16S 564JTH	J24189058		1-	A	E4
R 2171	CHIP RES.	27k	1/16W	5%	RMC1/16S 273JTH	J24189042		1-	A	D4
R 2172	CHIP RES.	18k	1/16W	5%	RMC1/16S 183JTH	J24189040		1-	A	D4
R 2173	CHIP RES.	1k	1/16W	5%	RMC1/16S 102JTH	J24189025		1-	B	b4
R 2174	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	B	b4
R 2176	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	B	a2
R 2177	CHIP RES.	150k	1/16W	5%	RMC1/16S 154JTH	J24189051		1-	B	a2
R 2179	CHIP RES.	12k	1/16W	5%	RMC1/16S 123JTH	J24189038		1-	A	B3
R 2180	CHIP RES.	470	1/16W	5%	RMC1/16S 471JTH	J24189021		1-		
R 2181	CHIP RES.	0	1/10W	5%	RMC1/10T 000J	J24205000		1-		
S 2001	TACT SWITCH				SKQTLA	N5090110		1-	B	f4
S 2002	TACT SWITCH				SKQTLA	N5090110		1-	B	f2
S 2003	ROTARY ENCODER				TP70D270E20 20F A203	Q9000789A		1-	B	a1
TH2001	THERMISTOR				TBPS1R223K460H5Q	G9090085		1-	A	D4
TH2002	THERMISTOR				TBPS1R472K440H5Q	G9090066		1-	A	A2
	XTAL TOP-B	17.475MHz			17.475MHZ	H0103231		1-	A	A2

# **AF Unit**

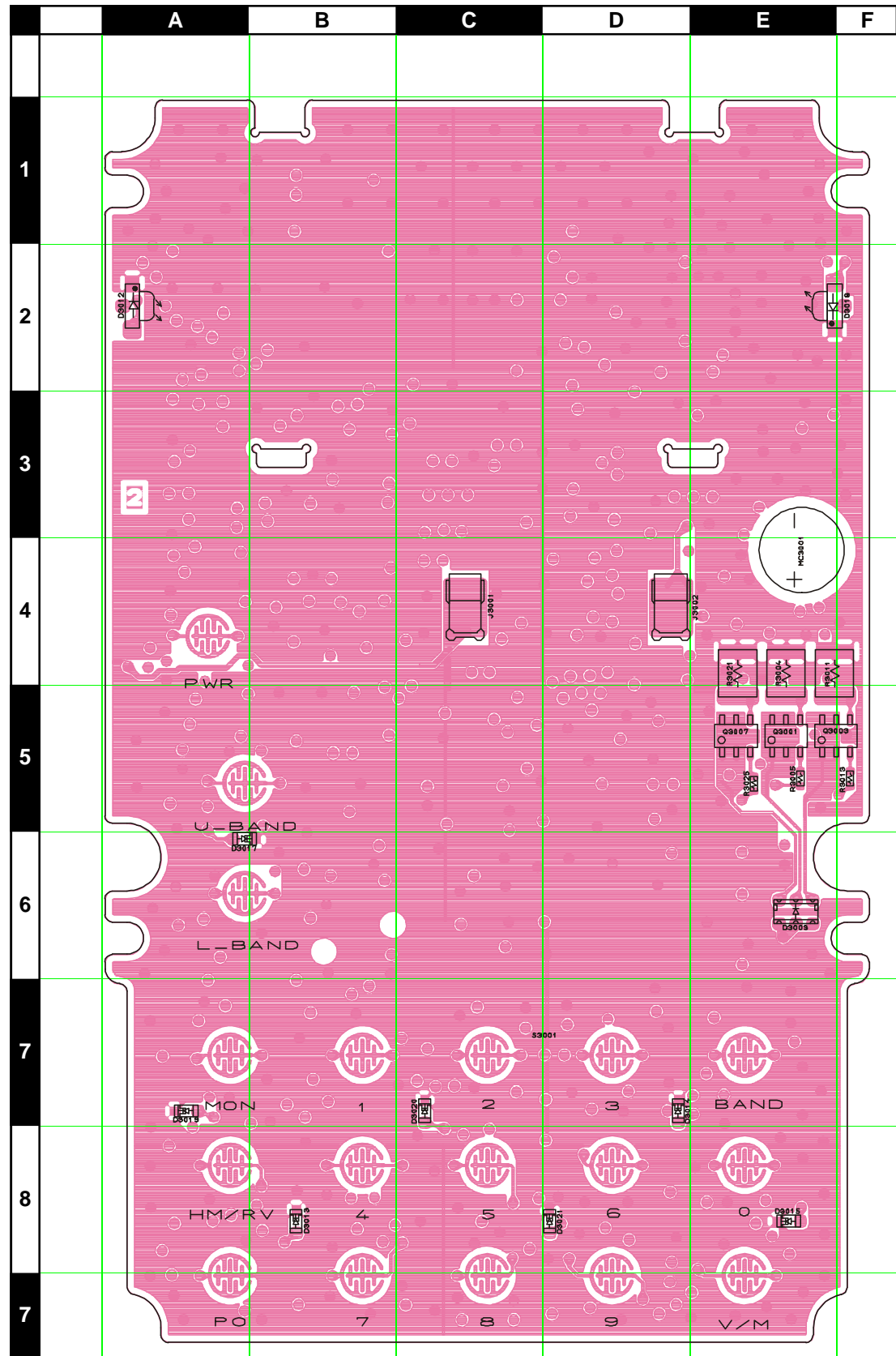
*Note*



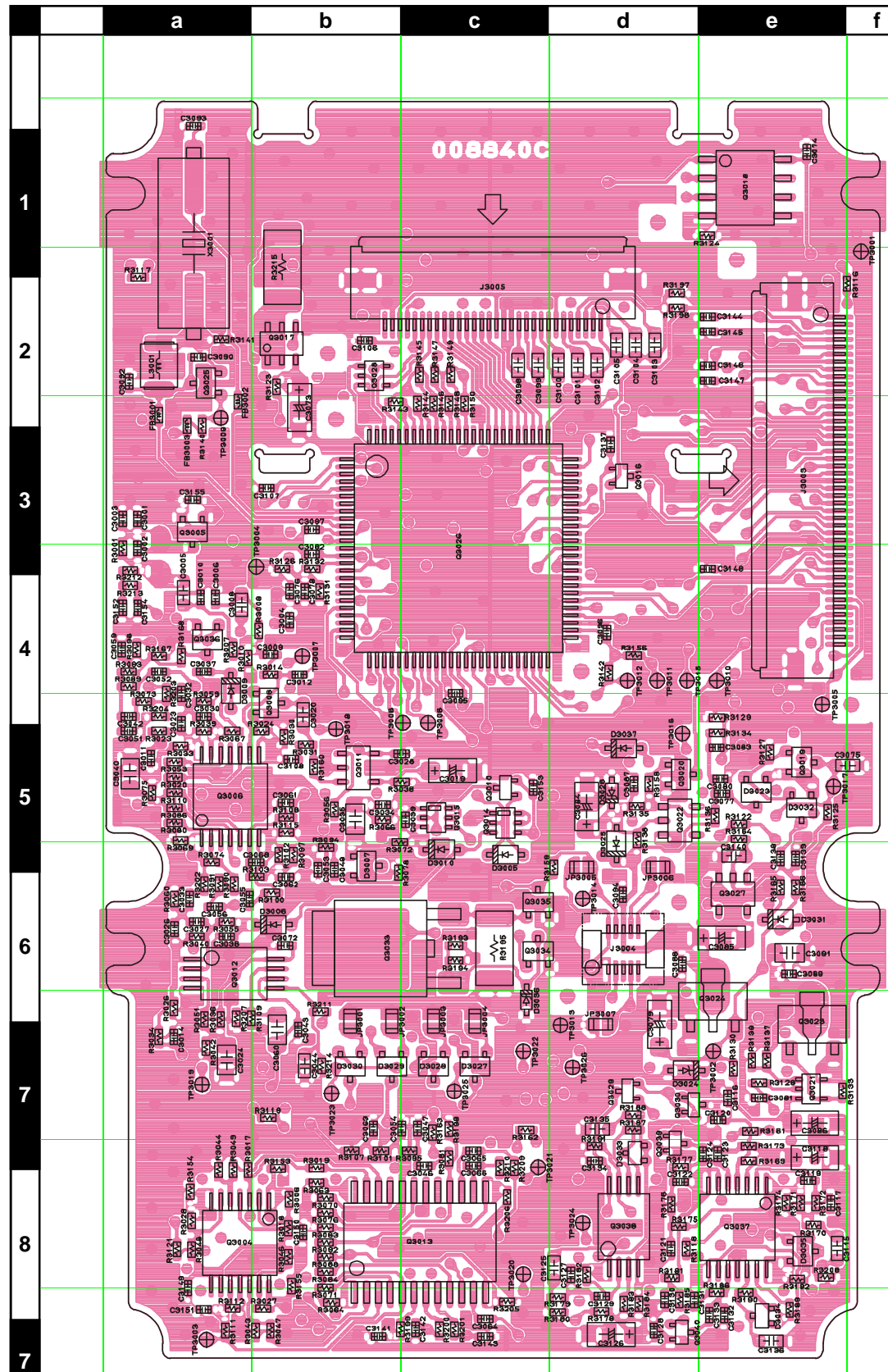


# CNTL Unit

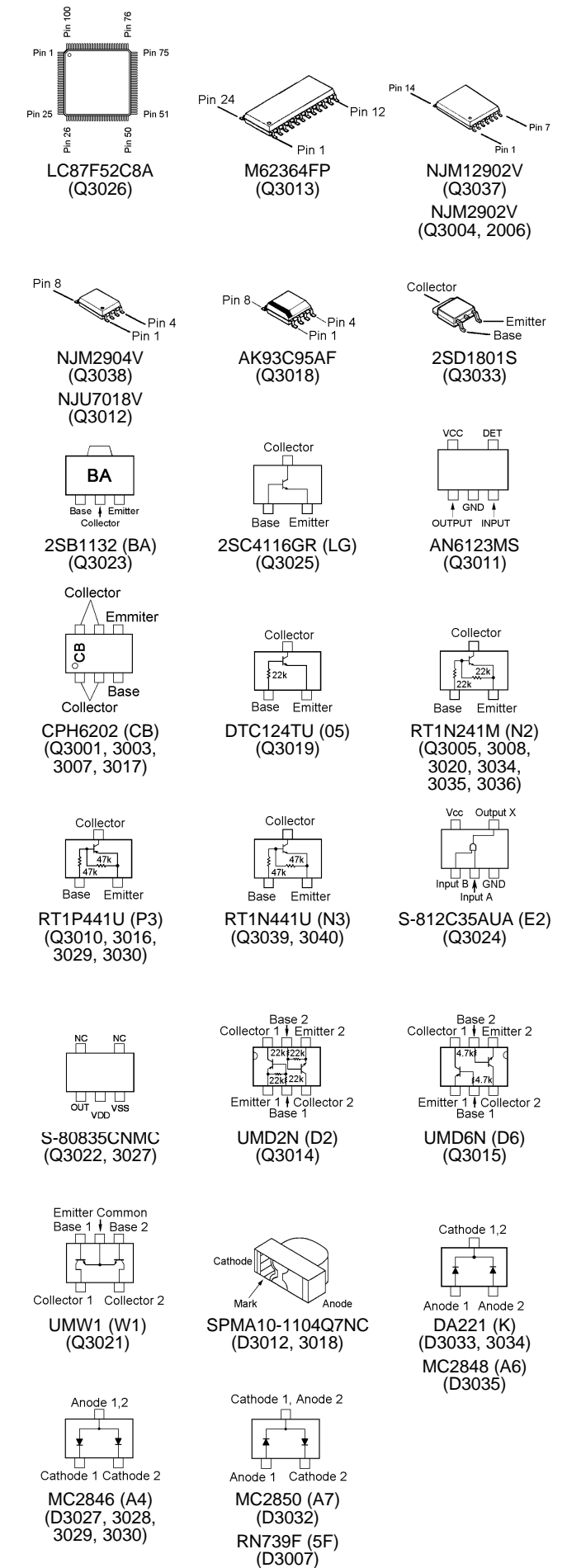
## Parts Layout



**Side A**



**Side B**



REF	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT	SIDE	LAY ADR	
PCB with Components						CB2149001					
Painted Circuit Board						AC045N000				FR0088400	
C 3001	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	a3	
C 3002	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	a4	
C 3005	CHIP CAP.	0.015uF	25V	B	GRM39B153K25PT	K22144805		1-	B	a4	
C 3008	CHIP CAP.	0.1uF	16V	B	GRM39B104K16PT	K22124805		1-	B	a4	
C 3009	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	B	b4	
C 3011	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	a5	
C 3014	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	a7	
C 3019	CHIP TA.CAP.	4.7uF	16V		TEMSVA1C475M-8R	K78120031		1-	B	c5	
C 3020	CHIP CAP.	0.1uF	16V	B	GRM39B104K16PT	K22124805		1-	B	b5	
C 3023	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	a5	
C 3024	CHIP CAP.	1uF	10V	B	GRM40B105K10PT(0.85)	K22100803		1-	B	a7	
C 3026	CHIP CAP.	470pF	50V	B	GRM36B471K50PT	K22178805		1-	B	a6	
C 3027	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	B	a6	
C 3030	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	B	a5	
C 3032	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	B	a4	
C 3033	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	B	a6	
C 3034	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	b5	
C 3035	CHIP CAP.	1uF	10V	B	GRM40B105K10PT(0.85)	K22100803		1-	B	b5	
C 3039	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	B	c5	
C 3040	CHIP CAP.	1uF	10V	B	GRM40B105K10PT(0.85)	K22100803		1-	B	a5	
C 3042	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	B	a5	
C 3043	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	B	b7	
C 3044	CHIP CAP.	0.22uF	10V	B	GRM39B224K10PT	K22104801		1-	B	b7	
C 3046	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	B	c8	
C 3047	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	B	c7	
C 3048	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	B	b6	
C 3052	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	B	a4	
C 3053	CHIP CAP.	0.0033uF	50V	B	GRM36B332K50PT	K22178815		1-	B	b6	
C 3054	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	B	b7	
C 3055	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	B	a6	
C 3056	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	B	a6	
C 3059	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	a4	
C 3060	CHIP CAP.	0.1uF	25V	B	GRM40B104M25PT	K22140811		1-	B	b7	
C 3061	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	B	b5	
C 3062	CHIP CAP.	0.0033uF	50V	B	GRM36B332K50PT	K22178815		1-	B	b6	
C 3063	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	B	b7	
C 3064	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	B	c9	
C 3065	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	B	c8	
C 3066	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	B	c8	
C 3068	CHIP CAP.	47pF	50V	CH	GRM36CH470J50PT	K22178228		1-	B	b6	
C 3072	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	b6	
C 3074	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	B	e1	
C 3075	CHIP CAP.	0.22uF	10V	B	GRM39B224K10PT	K22104801		1-	B	e5	
C 3076	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	b4	
C 3077	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	B	e5	
C 3078	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	B	b4	
C 3079	CHIP TA.CAP.	33uF	4V		TEMSVA0G336M-8R	K78060036		1-	B	d7	
C 3080	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	e5	
C 3081	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	B	e7	
C 3082	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	B	b4	
C 3083	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	e5	
C 3084	CHIP TA.CAP.	4.7uF	16V		TEMSVA1C475M-8R	K78120031		1-	B	d5	
C 3085	CHIP TA.CAP.	4.7uF	20V		TEMSVA1D475M-8R	K78130048		1-	B	e6	
C 3086	CHIP TA.CAP.	4.7uF	16V		TEMSVA1C475M-8R	K78120031		1-	B	e7	
C 3087	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-	B	d5	
C 3088	CHIP CAP.	100pF	50V	CH	GRM36CH101J50PT	K22178236		1-	B	d6	
C 3089	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	e6	
C 3091	CHIP CAP.	1uF	10V	B	GRM40B105K10PT(0.85)	K22100803		1-	B	e6	
C 3092	CHIP CAP.	7pF	50V	CH	GRM36CH070D50PT	K22178209		1-	B	a2	
C 3093	CHIP CAP.	7pF	50V	CH	GRM36CH070D50PT	K22178209		1-	B	a1	
C 3094	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	d6	
C 3095	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	c4	
C 3096	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	B	d4	
C 3097	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	b3	
C 3098	CHIP CAP.	1uF	10V	F	GRM39F105Z10PT	K22105001		1-	B	c2	
C 3099	CHIP CAP.	1uF	10V	F	GRM39F105Z10PT	K22105001		1-	B	c2	
C 3100	CHIP CAP.	1uF	10V	F	GRM39F105Z10PT	K22105001		1-	B	d2	
C 3101	CHIP CAP.	1uF	10V	F	GRM39F105Z10PT	K22105001		1-	B	d2	
C 3102	CHIP CAP.	1uF	10V	F	GRM39F105Z10PT	K22105001		1-	B	d2	
C 3103	CHIP CAP.	1uF	10V	F	GRM39F105Z10PT	K22105001		1-	B	d2	
C 3104	CHIP CAP.	1uF	10V	F	GRM39F105Z10PT	K22105001		1-	B	d2	
C 3105	CHIP CAP.	1uF	10V	F	GRM39F105Z10PT	K22105001		1-	B	d2	
C 3106	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	b2	
C 3107	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	b3	

# CNTL Unit

## Parts List

REF	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT	SIDE	LAY ADR
C 3108	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	B	b5
C 3115	CHIP CAP.	1uF	10V	F	GRM39F105Z10PT	K22105001		1-	B	e8
C 3117	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	B	e8
C 3118	CHIP TA.CAP.	22uF	4V		TEMSVAOG226M-8R	K78060023		1-	B	e8
C 3119	CHIP CAP.	0.0027uF	50V	B	GRM36B272K50PT	K22178814		1-	B	e8
C 3121	CHIP CAP.	0.022uF	16V	B	GRM36B223K16PT	K22128806		1-	B	d8
C 3122	CHIP CAP.	0.015uF	16V	B	GRM36B153K16PT	K22128807		1-	B	d8
C 3123	CHIP CAP.	470pF	50V	B	GRM36B471K50PT	K22178805		1-	B	e8
C 3124	CHIP CAP.	820pF	50V	B	GRM36B821K50PT	K22178808		1-	B	e8
C 3125	CHIP CAP.	1uF	10V	F	GRM39F105Z10PT	K22105001		1-	B	d8
C 3126	CHIP TA.CAP.	22uF	4V		TEMSVAOG226M-8R	K78060023		1-	B	d9
C 3127	CHIP CAP.	0.0047uF	25V	B	GRM36B472K25PT	K22148830		1-	B	d8
C 3128	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	d9
C 3129	CHIP CAP.	0.0047uF	25V	B	GRM36B472K25PT	K22148830		1-	B	d9
C 3130	CHIP CAP.	0.022uF	16V	B	GRM36B223K16PT	K22128806		1-	B	d9
C 3131	CHIP CAP.	0.015uF	16V	B	GRM36B153K16PT	K22128807		1-	B	d9
C 3132	CHIP CAP.	470pF	50V	B	GRM36B471K50PT	K22178805		1-	B	e9
C 3133	CHIP CAP.	820pF	50V	B	GRM36B821K50PT	K22178808		1-	B	e9
C 3135	CHIP CAP.	1uF	10V	F	GRM39F105Z10PT	K22105001		1-	B	d7
C 3136	CHIP CAP.	0.047uF	16V	B	GRM36B473K16PT	K22124804		1-	B	e9
C 3138	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-	B	e6
C 3139	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	e6
C 3140	CHIP CAP.	1uF	10V	F	GRM39F105Z10PT	K22105001		1-	B	e6
C 3141	CHIP CAP.	100pF	50V	CH	GRM36CH101J50PT	K22178236		1-	B	b9
C 3142	CHIP CAP.	100pF	50V	CH	GRM36CH101J50PT	K22178236		1-	B	c9
C 3143	CHIP CAP.	100pF	50V	CH	GRM36CH101J50PT	K22178236		1-	B	c9
C 3144	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	e2
C 3145	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	e2
C 3147	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-	B	e2
C 3152	CHIP TA.CAP.	4.7uF	16V		TEMSVA1C475M-8R	K78120031		1-	B	a4
C 3156	CHIP CAP.	0.001uF	50V	B	GRM36B102K50PT	K22178809		1-		
C 3157	CHIP CAP.	0.0022uF	50V	B	GRM36B222K50PT	K22178813		1-		
C 3158	CHIP CAP.	0.1uF	10V	B	GRM36B104K10PT	K22108802		1-		
C 3159	CHIP CAP.	0.01uF	16V	B	GRM36B103K16PT	K22128804		1-		
C 3160	CHIP TA.CAP.	4.7uF	16V		TEMSVA1C475M-8R	K78120031		1-		
D 3003	LED				FRGB1312CE-10-TF	G2070870		1-	A	E6
D 3005	DIODE				BAS316	G2070716		1-	B	c6
D 3006	DIODE				BAS316	G2070716		1-	B	b6
D 3007	DIODE				RN739F T106	G2070626		1-	B	b6
D 3009	DIODE				BAS316	G2070716		1-	B	a4
D 3010	DIODE				BAS316	G2070716		1-	B	c6
D 3012	LED				SPMA10-1104Q7NC	G2070878		1-	A	A2
D 3013	LED				19-215UYOC/S530-A2/TR8	G2070884		1-	A	B8
D 3014	LED				19-215UYOC/S530-A2/TR8	G2070884		1-	A	D7
D 3015	LED				19-215UYOC/S530-A2/TR8	G2070884		1-	A	E8
D 3017	LED				19-215UYOC/S530-A2/TR8	G2070884		1-	A	A6
D 3018	LED				SPMA10-1104Q7NC	G2070878		1-	A	E2
D 3019	LED				19-215UYOC/S530-A2/TR8	G2070884		1-	A	A7
D 3020	LED				19-215UYOC/S530-A2/TR8	G2070884		1-	A	C7
D 3021	LED				19-215UYOC/S530-A2/TR8	G2070884		1-	A	D8
D 3023	DIODE				MC2850-T11-1	G2070704		1-	B	e5
D 3024	DIODE				HZU5ALL-TR	G2070754		1-	B	d7
D 3025	DIODE				BAS316	G2070716		1-	B	d5
D 3026	DIODE				RD6.8UMB2-T1B	G2070438		1-	B	d5
D 3027	DIODE				MC2846-T11-1	G2070702		1-	B	c7
D 3028	DIODE				MC2846-T11-1	G2070702		1-	B	c7
D 3029	DIODE				MC2846-T11-1	G2070702		1-	B	b7
D 3030	DIODE				MC2846-T11-1	G2070702		1-	B	b7
D 3031	DIODE				BAS316	G2070716		1-	B	e6
D 3032	DIODE				MC2850-T11-1	G2070704		1-	B	e5
D 3033	DIODE				DA221 TL	G2070178		1-	B	d8
D 3034	DIODE				DA221 TL	G2070178		1-	B	e9
D 3035	DIODE				MC2848-T11-1	G2070694		1-	B	e8
D 3036	DIODE				RD2.0UM-T2	G2070190		1-	B	c7
D 3037	DIODE				BAS316	G2070716		1-	B	d5
D 3038	DIODE				BAS316	G2070716		1-		
DS3001	LCD MODULE				LM7910FWTU	Q7000426		1-		
FB3001	FERRITE BEADS				BK1005HM102-T	L9190124		1-	B	a3
FB3002	FERRITE BEADS				BK1005HM102-T	L9190124		1-	B	a3
FB3003	FERRITE BEADS				BK1005HM102-T	L9190124		1-	B	a3
J 3001	SHIELD FINGER				2026 3100012	S5000196		1-	A	C4
J 3002	SHIELD FINGER				2026 3100012	S5000196		1-	A	D4
J 3003	CONNECTOR				IL-FHR-F45S-HF-E3000	P1091135		1-	B	e3
J 3004	CONNECTOR				AXK6F10335P	P0091225		1-	B	d6
J 3005	CONNECTOR				IL-FHR-F30S-HF-E3000	P1091027		1-	B	c2
L 3001	M.RFC	33uH			FLC32T-330J	L1690221		1-	B	a2

REF	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT	SIDE	LAY ADR
MC3001	MIC. ELEMENT				EM-140	M3290032		1-	A	E4
Q 3001	TRANSISTOR				CPH6202-TL	G3070265		1-	A	E5
Q 3003	TRANSISTOR				CPH6202-TL	G3070265		1-	A	E5
Q 3004	IC				NJM2902V-TE1	G1091679		1-	B	a8
Q 3005	TRANSISTOR				RT1N241M-T11-1	G3070249		1-	B	a3
Q 3006	IC				NJM2902V-TE1	G1091679		1-	B	a5
Q 3007	TRANSISTOR				CPH6202-TL	G3070265		1-	A	E5
Q 3008	TRANSISTOR				RT1N241M-T11-1	G3070249		1-	B	b5
Q 3010	TRANSISTOR				RT1P441U-T11-1	G3070248		1-	B	c5
Q 3011	IC				AN6123MS-TXL	G1093114		1-	B	b5
Q 3012	IC				NJU7018V(TE1)	G1093760		1-	B	a6
Q 3013	IC				M62364FP 600D	G1093033		1-	B	c8
Q 3014	TRANSISTOR				UMD2N TR	G3070076		1-	B	c5
Q 3015	TRANSISTOR				UMD6N TR	G3070215		1-	B	c5
Q 3016	TRANSISTOR				RT1P441U-T11-1	G3070248		1-	B	d3
Q 3017	TRANSISTOR				CPH6202-TL	G3070265		1-	B	b2
Q 3018	IC				AK93C95AF E-1	G1092838		1-	B	e1
Q 3019	TRANSISTOR				DTC124TU T106	G3070065		1-	B	e5
Q 3020	TRANSISTOR				RT1N241M-T11-1	G3070249		1-	B	d5
Q 3021	TRANSISTOR				UMW1 TR	G3070078		1-	B	e7
Q 3022	IC				S-80835CNMC-B8U-T2	G1093606		1-	B	d5
Q 3023	TRANSISTOR				2SB1132 T100 Q	G3211327Q		1-	B	e7
Q 3024	IC				S-812C35AUA-C2P-T2	G1093672		1-	B	e7
Q 3025	TRANSISTOR				2SC4116GR TE85R	G3341167G		1-	B	a2
Q 3026	IC				LC87F52C8A-F50T6 (R0734)	G1093855		1-	B	c4
Q 3027	IC				S-80835CNMC-B8U-T2	G1093606		1-	B	e6
Q 3028	IC				TC7S08FU TE85R	G1091528		1-	B	b2
Q 3029	TRANSISTOR				RT1P441U-T11-1	G3070248		1-	B	d7
Q 3030	TRANSISTOR				RT1P441U-T11-1	G3070248		1-	B	d7
Q 3033	TRANSISTOR				2SD1801S-TL	G3418018S		1-	B	b6
Q 3034	TRANSISTOR				RT1N241M-T11-1	G3070249		1-	B	c6
Q 3035	TRANSISTOR				RT1N241M-T11-1	G3070249		1-	B	c6
Q 3036	TRANSISTOR				RT1N241M-T11-1	G3070249		1-	B	a4
Q 3037	IC				NJM12902V(TE1)	G1093592		1-	B	e8
Q 3038	IC				NJM2904V-TE1	G1091677		1-	B	d8
Q 3039	TRANSISTOR				RT1N441U-T11-1	G3070247		1-	B	d8
Q 3040	TRANSISTOR				RT1N441U-T11-1	G3070247		1-	B	d9
R 3001	CHIP RES.	2.2k	1/16W	5%	RMC1/16S 222JTH	J24189029		1-	B	a4
R 3004	CHIP RES.	220	1/4W	5%	RMC1/4 221JATP	J24245221		1-	A	E4
R 3005	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	A	E5
R 3006	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	b8
R 3007	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	B	a4
R 3011	CHIP RES.	220	1/4W	5%	RMC1/4 221JATP	J24245221		1-	A	E4
R 3013	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	A	F5
R 3014	CHIP RES.	22k	1/16W	5%	RMC1/16S 223JTH	J24189041		1-	B	b4
R 3017	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	a8
R 3018	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	b8
R 3019	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	b8
R 3020	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	B	a5
R 3021	CHIP RES.	220	1/4W	5%	RMC1/4 221JATP	J24245221		1-	A	E4
R 3023	CHIP RES.	0	1/16W	5%	RMC1/16S JPTH	J24189070		1-	B	a5
R 3024	CHIP RES.	270k	1/16W	5%	RMC1/16S 274JTH	J24189054		1-	B	b5
R 3025	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	A	E5
R 3026	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	a7
R 3027	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	b9
R 3028	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	a8
R 3030	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	b5
R 3031	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	B	b5
R 3033	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	B	a5
R 3034	CHIP RES.	0	1/16W	5%	RMC1/16S JPTH	J24189070		1-	B	a7
R 3036	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	B	a7
R 3038	CHIP RES.	1M	1/16W	5%	RMC1/16S 105JTH	J24189061		1-	B	b5
R 3039	CHIP RES.	1.5M	1/16W	5%	RMC1/16S 155JTH	J24189063		1-	B	a5
R 3040	CHIP RES.	2.2M	1/16W	5%	RMC1/16S 225JTH	J24189065		1-	B	a6
R 3042	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	B	a7
R 3043	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	b9
R 3044	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	a8
R 3046	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	b8
R 3047	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	b9
R 3048	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	a8
R 3049	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	a8
R 3051	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	B	a7
R 3053	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	B	a5
R 3055	CHIP RES.	220k	1/16W	5%	RMC1/16S 224JTH	J24189053		1-	B	a6
R 3056	CHIP RES.	12k	1/16W	5%	RMC1/16S 123JTH	J24189038		1-	B	b5
R 3059	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	B	a5

# CNTL Unit

## Parts List

REF	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT	SIDE	LAY ADR
R 3060	CHIP RES.	27k	1/16W	5%	RMC1/16S 273JTH	J24189042		1-	B	a6
R 3063	CHIP RES.	100	1/16W	5%	RMC1/16S 101JTH	J24189013		1-	B	b8
R 3064	CHIP RES.	100	1/16W	5%	RMC1/16S 101JTH	J24189013		1-	B	b9
R 3066	CHIP RES.	1.2k	1/16W	5%	RMC1/16S 122JTH	J24189026		1-	B	b5
R 3067	CHIP RES.	220k	1/16W	5%	RMC1/16S 224JTH	J24189053		1-	B	a5
R 3069	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	a5
R 3070	CHIP RES.	100	1/16W	5%	RMC1/16S 101JTH	J24189013		1-	B	b8
R 3071	CHIP RES.	100	1/16W	5%	RMC1/16S 101JTH	J24189013		1-	B	b8
R 3072	CHIP RES.	15k	1/16W	5%	RMC1/16S 153JTH	J24189039		1-	B	b5
R 3073	CHIP RES.	0	1/16W	5%	RMC1/16S JPTH	J24189070		1-	B	a5
R 3074	CHIP RES.	33k	1/16W	5%	RMC1/16S 333JTH	J24189043		1-	B	a6
R 3075	CHIP RES.	39k	1/16W	5%	RMC1/16S 393JTH	J24189044		1-	B	a5
R 3076	CHIP RES.	100	1/16W	5%	RMC1/16S 101JTH	J24189013		1-	B	b8
R 3078	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	B	b6
R 3080	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	B	a5
R 3081	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	B	c8
R 3083	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	b8
R 3084	CHIP RES.	100	1/16W	5%	RMC1/16S 101JTH	J24189013		1-	B	b8
R 3086	CHIP RES.	56k	1/16W	5%	RMC1/16S 563JTH	J24189046		1-	B	a5
R 3089	CHIP RES.	180k	1/16W	5%	RMC1/16S 184JTH	J24189052		1-	B	a4
R 3090	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	B	a6
R 3091	CHIP RES.	33k	1/16W	5%	RMC1/16S 333JTH	J24189043		1-	B	a6
R 3094	CHIP RES.	22k	1/16W	5%	RMC1/16S 223JTH	J24189041		1-	B	b6
R 3095	CHIP RES.	15k	1/16W	5%	RMC1/16S 153JTH	J24189039		1-	B	c8
R 3097	CHIP RES.	22k	1/16W	5%	RMC1/16S 223JTH	J24189041		1-	B	b6
R 3098	CHIP RES.	0	1/16W	5%	RMC1/16S JPTH	J24189070		1-	B	a4
R 3100	CHIP RES.	0	1/16W	5%	RMC1/16S JPTH	J24189070		1-	B	b6
R 3101	CHIP RES.	15k	1/16W	5%	RMC1/16S 153JTH	J24189039		1-	B	b8
R 3102	CHIP RES.	560k	1/16W	5%	RMC1/16S 564JTH	J24189058		1-	B	b6
R 3103	CHIP RES.	15k	1/16W	5%	RMC1/16S 153JTH	J24189039		1-	B	b6
R 3107	CHIP RES.	15k	1/16W	5%	RMC1/16S 153JTH	J24189039		1-	B	b8
R 3108	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	B	b5
R 3109	CHIP RES.	2.2k	1/16W	5%	RMC1/16S 222JTH	J24189029		1-	B	a7
R 3110	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	B	a5
R 3111	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	B	a9
R 3112	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	B	a9
R 3115	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	b5
R 3116	CHIP RES.	12	1/16W	5%	RMC1/16S 120JTH	J24189002		1-	B	e2
R 3117	CHIP RES.	12	1/16W	5%	RMC1/16S 120JTH	J24189002		1-	B	a2
R 3118	CHIP RES.	22	1/16W	5%	RMC1/16S 220JTH	J24189005		1-	B	d8
R 3119	CHIP RES.	22	1/16W	5%	RMC1/16S 220JTH	J24189005		1-	B	b7
R 3121	CHIP RES.	22	1/16W	5%	RMC1/16S 220JTH	J24189005		1-	B	a8
R 3122	CHIP RES.	22	1/16W	5%	RMC1/16S 220JTH	J24189005		1-	B	e5
R 3123	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	B	b2
R 3124	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	e1
R 3125	CHIP RES.	22k	1/16W	5%	RMC1/16S 223JTH	J24189041		1-	B	e5
R 3126	CHIP RES.	330k	1/16W	5%	RMC1/16S 334JTH	J24189055		1-	B	b4
R 3127	CHIP RES.	180k	1/16W	5%	RMC1/16S 184JTH	J24189052		1-	B	e5
R 3128	CHIP RES.	2.2k	1/16W	5%	RMC1/16S 222JTH	J24189029		1-	B	e7
R 3130	CHIP RES.	3.3k	1/16W	5%	RMC1/16S 332JTH	J24189031		1-	B	e7
R 3131	CHIP RES.	82k	1/16W	5%	RMC1/16S 823JTH	J24189048		1-	B	b4
R 3132	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	b4
R 3133	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	B	e7
R 3134	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	B	e5
R 3135	CHIP RES.	220k	1/16W	5%	RMC1/16S 224JTH	J24189053		1-	B	d5
R 3136	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	B	e5
R 3137	CHIP RES.	0	1/16W	5%	RMC1/16S JPTH	J24189070		1-	B	e7
R 3138	CHIP RES.	33k	1/16W	5%	RMC1/16S 333JTH	J24189043		1-	B	d5
R 3140	CHIP RES.	22k	1/16W	5%	RMC1/16S 223JTH	J24189041		1-	B	a3
R 3141	CHIP RES.	1M	1/16W	5%	RMC1/16S 105JTH	J24189061		1-	B	a2
R 3142	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	B	d4
R 3143	CHIP RES.	82k	1/16W	5%	RMC1/16S 823JTH	J24189048		1-	B	b3
R 3144	CHIP RES.	39k	1/16W	5%	RMC1/16S 393JTH	J24189044		1-	B	c3
R 3145	CHIP RES.	22k	1/16W	5%	RMC1/16S 223JTH	J24189041		1-	B	c2
R 3146	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	c3
R 3147	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	B	c2
R 3148	CHIP RES.	22k	1/16W	5%	RMC1/16S 223JTH	J24189041		1-	B	c3
R 3149	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	c2
R 3150	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	B	c3
R 3153	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	b8
R 3154	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	a8
R 3155	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	b8
R 3156	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	B	d4
R 3158	CHIP RES.	0	1/16W	5%	RMC1/16S JPTH	J24189070		1-	B	d5
R 3159	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	B	d6
R 3160	CHIP RES.	0	1/16W	5%	RMC1/16S JPTH	J24189070		1-	B	b5

REF	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT	SIDE	LAY ADR
R 3161	CHIP RES.	22	1/16W	5%	RMC1/16S 220JTH	J24189005		1-	B	e7
R 3162	CHIP RES.	22	1/16W	5%	RMC1/16S 220JTH	J24189005		1-	B	c7
R 3163	CHIP RES.	22	1/16W	5%	RMC1/16S 220JTH	J24189005		1-	B	c7
R 3164	CHIP RES.	39k	1/16W	5%	RMC1/16S 393JTH	J24189044		1-	B	e5
R 3165	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	B	e6
R 3166	CHIP RES.	22k	1/16W	5%	RMC1/16S 223JTH	J24189041		1-	B	e6
R 3169	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	B	e8
R 3170	CHIP RES.	12k	1/16W	5%	RMC1/16S 123JTH	J24189038		1-	B	e8
R 3171	CHIP RES.	150k	1/16W	5%	RMC1/16S 154JTH	J24189051		1-	B	e8
R 3172	CHIP RES.	8.2k	1/16W	5%	RMC1/16S 822JTH	J24189036		1-	B	e8
R 3173	CHIP RES.	33k	1/16W	5%	RMC1/16S 333JTH	J24189043		1-	B	e8
R 3174	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	e8
R 3175	CHIP RES.	68k	1/16W	5%	RMC1/16S 683JTH	J24189047		1-	B	d8
R 3176	CHIP RES.	180k	1/16W	5%	RMC1/16S 184JTH	J24189052		1-	B	d8
R 3177	CHIP RES.	390k	1/16W	5%	RMC1/16S 394JTH	J24189056		1-	B	d8
R 3178	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	B	d9
R 3179	CHIP RES.	18k	1/16W	5%	RMC1/16S 183JTH	J24189040		1-	B	d9
R 3180	CHIP RES.	1.2k	1/16W	5%	RMC1/16S 122JTH	J24189026		1-	B	d9
R 3181	CHIP RES.	68k	1/16W	5%	RMC1/16S 683JTH	J24189047		1-	B	d8
R 3182	CHIP RES.	1M	1/16W	5%	RMC1/16S 105JTH	J24189061		1-	B	d8
R 3183	CHIP RES.	47k	1/16W	5%	RMC1/16S 473JTH	J24189045		1-	B	d9
R 3184	CHIP RES.	33k	1/16W	5%	RMC1/16S 333JTH	J24189043		1-	B	d9
R 3185	CHIP RES.	180k	1/16W	5%	RMC1/16S 184JTH	J24189052		1-	B	d9
R 3186	CHIP RES.	390k	1/16W	5%	RMC1/16S 394JTH	J24189056		1-	B	e9
R 3187	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	d7
R 3188	CHIP RES.	68k	1/16W	5%	RMC1/16S 683JTH	J24189047		1-	B	d7
R 3189	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	e9
R 3190	CHIP RES.	120k	1/16W	5%	RMC1/16S 124JTH	J24189050		1-	B	e9
R 3193	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	B	c6
R 3194	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	B	c6
R 3195	CHIP RES.	4.7	1/2W	5%	RMC1/2 4R7JCTP	J24275479		1-	B	c6
R 3196	CHIP RES.	0	1/16W	5%	RMC1/16S JPTH	J24189070		1-	B	d2
R 3198	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	c7
R 3199	CHIP RES.	2.2k	1/16W	5%	RMC1/16S 222JTH	J24189029		1-	B	b9
R 3200	CHIP RES.	2.2k	1/16W	5%	RMC1/16S 222JTH	J24189029		1-	B	c9
R 3201	CHIP RES.	2.2k	1/16W	5%	RMC1/16S 222JTH	J24189029		1-	B	c9
R 3202	CHIP RES.	0	1/16W	5%	RMC1/16S JPTH	J24189070		1-	B	a6
R 3207	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	a7
R 3208	CHIP RES.	100k	1/16W	5%	RMC1/16S 104JTH	J24189049		1-	B	e8
R 3209	CHIP RES.	4.7k	1/16W	5%	RMC1/16S 472JTH	J24189033		1-	B	c8
R 3210	CHIP RES.	0	1/16W	5%	RMC1/16S JPTH	J24189070		1-	B	c8
R 3211	CHIP RES.	10k	1/16W	5%	RMC1/16S 103JTH	J24189037		1-	B	b7
R 3212	CHIP RES.	2.2k	1/16W	5%	RMC1/16S 222JTH	J24189029		1-	B	a4
R 3213	CHIP RES.	470	1/16W	5%	RMC1/16S 471JTH	J24189021		1-	B	a4
R 3215	CHIP RES.	47	1/2W	5%	RMC1/2 470JCTP	J24275470		1-	B	b2
R 3216	CHIP RES.	1.8k	1/16W	5%	RMC1/16S 182JTH	J24189028		1-		
R 3217	CHIP RES.	6.8k	1/16W	5%	RMC1/16S 682JTH	J24189035		1-		
R 3218	CHIP RES.	68k	1/16W	5%	RMC1/16 683JATP	J24185683		1-		
X 3001	XTAL SMD-49TA	7.4MHz			7.4MHZ	H0103285		1-	B	a1
	MIC HOLDER RUBBER					RA0405600		1-		
	REFLECTOR SHEET				(LCD)	RA0399900		1-		
	DOUBLE FACE				(LCD)	RA014250A		1-		
	LIGHT GUIDE				GRN 20 2/2	RA0399100		1-		
	WIRE ASSY					T50502000		1-		



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