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SD-125

maxon®

A World of Communications

SERVICE MANUAL



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Part Number: 680-100-2004

October 1998

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TABLE OF CONTENTS

TABLE OF CONTENTS i
SPECIFICATIONS 1
UNPACKING 7
INTRODUCTION 8
FEATURES 8
THEORY OF OPERATION 9
INTRODUCTION 9
DIGITAL CIRCUITS 9
RF CIRCUITS 9
RF CIRCUITS PLL SYNTHESIZER 10
RECEIVER 10
MAINTENANCE AND REPAIR 12
GENERAL 12
REMOVING & REPLACING THE UPPER COVER 12
REMOVING & REPLACING THE DIGITAL BOARD & SHIELD PLATE 12
REMOVING & REPLACING THE RF BOARD 13
PROGRAMMING 14
ALIGNMENT PROCEDURE 14
RECEIVER 14
TRANSMITTER 14
TEST EQUIPMENT SETUP 17
ALIGNMENT POINTS DIAGRAM 18
COMPONENT REPLACEMENT 19
TROUBLESHOOTING GUIDE 20
VOLTAGE CHART 21
SD-125 DIGITAL BOARD (COMMON) PARTS LIST (650-010-0029) 25
SD-125 (U1 400-430MHz) RF BOARD PARTS LIST (650-020-0027) 27
SD-125 (U2 440-470MHz) RF BOARD PARTS LIST (650-020-0026) 30
SD-125 (V2 148-174MHz) RF BOARD PARTS LIST (650-020-0029) 33
COMPONENT PINOUT 37
WIRING DIAGRAM 41
SCHEMATICS, BLOCK DIAGRAM & PCB's 43
BLOCK DIAGRAM 43
DIGITAL BOARD SCHEMATIC 44
RF BOARD (148-174MHz) SCHEMATIC 45
RF BOARD (400-430MHz) SCHEMATIC 46
RF BOARD (440-470MHz) SCHEMATIC 47
TCXO SCHEMATIC 48
VCO (148-174MHz) 48

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VCO (400-430MHz) 49
VCO (440-470MHz) 49
FRONT-END (148-174MHz) 50
FRONT-END (400-430MHz) 50
FRONT-END (440-470MHz) 50
POWER AMPLIFIER (148-174MHz) 51
POWER AMPLIFIER (400-430MHz) 51
POWER AMPLIFIER (440-470MHz) 51
DIGITAL PCB ASSEMBLY 52
RF PCB ASSEMBLY (148-174MHz) 53
RF PCB ASSEMBLY (400-430MHz) 54
RF PCB ASSEMBLY (440-470MHz) 54
EXPLODED VIEW & PARTS LIST. 55

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SPECIFICATIONS

GENERAL

Equipment Type . . . . . Data radio

Performance Specifications . . . . . TIA / EIA-603 & ETS 300-113

Band . . . . . UHF / VHF

Channel Spacings . . . . . 25 kHz, 12.5 kHz programmable

RF Output Power . . . . . 5/1 watt

Modulation Type F3D, F3E

Intermediate Frequency . . . . . 45.1 MHz & 455 kHz

Number of Channels 16

Frequency Source . . . . . Synthesizer

Operation Rating . . . . . Intermittent
90 : 5 : 5 (Standby: RX: TX)

Power Supply . . . . . Ext. Power Supply(12 VDC Nominal Voltage)
9.0V - 15.0V DC EXTREME

Temperature Range
Storage . . . . . from - 40°C to + 80°C
Operating . . . . . from - 30°C to + 60°C

Current Consumption
Standby (Muted) . . . . . < 65 mA
Transmit 5 Watts RF Power . . . . . < 2.0 A
Transmit 1 Watt RF power . . . . . < 1.0 A

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MAXON
SD-125 RF LINK MODULE

Frequency Bands:

	RX	TX
VHF: V1	136.000 - 162.000 MHz	136.000 - 162.000 MHz
V2	148.000 - 174.000 MHz	148.000 - 174.000 MHz
UHF: U2	440.000 - 470.000 MHz	440.000 - 470.000 MHz
U1	400.000 - 430.000	400.000 - 430.000
U5	420.000 - 450.000	420.000 - 450.000
U3	470.000 - 490.000	470.000 - 490.000
U4	490.000 - 512.000	490.000 - 512.000

Dimensions . . . . . (30 mm)H x (62 mm)W x (118 mm)D

Weight . . . . . 253 grams

TRANSMITTER

Carrier Power:	**Nom.**	**Max**	**Min**
Hi	5W	< 6W	> 4.5W
Low	1W	< 1.5W	> 0.8W

Sustained Transmission . . . . . Nominal conditions

Time:	5	10	30	Sec.
Power:	>90%	>85%	>80%	

Frequency Error . . . . . < 0.5 kHz Nominal condition for VHF

< 0.75 kHz Nominal condition for UHF

±3.0 ppm Extreme condition for UHF

±5.0 ppm Extreme condition for VHF

Frequency Deviation:

25 kHz Channel Spacing . . . . . Peak ±5.0, Min. ±3.8

12.5 kHz Channel Spacing . . . . . Peak ±2.5, Min. ±1.9

Audio Frequency Response . . . . . Within +1/-3dB of 6dB octave

@ 300 Hz to 2.55 kHz for 12.5 kHz C.S.

@ 300 Hz to 3.0 kHz for 25 kHz C.S.

Adjacent Channel Power

25 kHz . . . . . < 70 dBc @ Nominal Condition

< 65 dBc @ Extreme Condition

12.5 kHz . . . . . < 60 dBc @ Nominal Condition

< 55 dBc @ Extreme Condition

Conducted Spurious Emission . . . . . < -57 dBc

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Modulation Sensitivity . . . . . 100mV RMS @ 60 % Peak Dev.

Hum & Noise:

25 kHz Channel Spacing . . . . . > 40 dB (with no PSOPH)

12.5 kHz Channel Spacing. . . . . > 40 dB (with PSOPH)

Modulation Symmetry . . . . . < 10 % Peak Dev @ 1 kHz input for nominal dev +20dB

Load Stability . . . . . No osc at ≥ 10:1 VSWR all phase angles and suitable antenna

No destroy at ≥ 20:1 all phase angle

Peak Deviation Range Adjustment @ 1 kHz, Nom. Dev +20dB:

25 kHz Channel Spacing . . . . . Min. 3.5, Max. 6.0

12.5 kHz Channel Spacing. . . . . Min. 1.5, Max. 4.0

RECEIVER

Sensitivity (12dB Sinad) . . . . . UHF < -117 dBm, VHF <-118 dBm @ Nom. Condition

UHF < -115 dBm, VHF <-116 dBm @ Extreme Condition

Amplitude Characteristic. . . . . < ±3 dB

Adjacent Channel Selectivity:

25 kHz Channel Spacing . . . . . > 60 dB @ Nom., > 55 dB @ Extreme Condition

12.5 kHz Channel Spacing. . . . . > 50 dB @ Nom., > 45 dB @ Extreme Condition

Spurious Response Rejection. . . . . 70 dB (100 kHz - 4 GHz)

Image Response. . . . . > 70

IF Response . . . . . > 70

Others. . . . . > 70

Intermodulation Response Rejection:

±25 kHz/ 50 kHz . . . . . 65 dB

±50 kHz/ 100 kHz . . . . . 65 dB

Conducted Spurious Emission @ Nominal Conditions:

9 kHz - 1 GHz . . . . . < -57 dBm

1 GHz - 4 GHz. . . . . . < -47 dBm

RX Spurious Emissions (Radiated) @ Nominal Conditions

9 kHz - 1 GHz . . . . . < -57 dBm

1 GHz - 12.75 GHz . . . . . < -47 dBm

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AF Distortion . . . . . < 5% @ Nom., < 10 % @ Extreme condition

RX Hum & Noise:

25.0 kHz CP . . . . . < 40 dB No PSOPH

12.5 kHz CP . . . . . < 40 dB with PSOPH

Receiver Response Time . . . . . < 16 mS

Squelch Opening Range: . . . . . RF level for 6 to 14 dB Sinad

Squelch Closing Range (Hysteresis): . . . . . 0 - 6 dB Sinad @ Nominal Condition

Squelch Attack Time:

RF Level at Threshold . . . . . < 40 mS

RF Level at Threshold + 20 dB . . . . . < 30 mS

Squelch Decay Time . . . . . 5 mS Min., 20 mS Max.

Antenna Socket Input Match . . . . . > 10 dB Return Loss

L.O. Frequency Temperature Stability . . . . . 1st < 5 ppm, 2nd < 15 ppm from -30° to + 60° C

L.O. Frequency Aging Rate . . . . . ±2 ppm/ year

REFERENCE CRYSTAL

Frequency . . . . . 12.8 MHz

Holder Type HC-18

Temperature Characteristic . . . . . ±5.0 ppm from -30° C to +60° C

Aging Rate . . . . . < 2 ppm/ year in 1st year
< 1 ppm/ year thereafter

Lock Time . . . . . < 10 mS

TX to RX . . . . . < 20 (No Power Saving)

RX to TX . . . . . < 20

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ENVIRONMENTAL (performance without degradation unless stated)

Temperature . . . . . deg C

Operating . . . . . -30° to +60° C Degradation Specified @ Extreme

Storage . . . . . -40° to +80° C

Recharging . . . . . -10° to +55° C

ESD . . . . . 20 kV (C-MIC ≥ 15 kV)

Vibration . . . . . MIL STD 810 C Procedures I, II, V and IEC68 26

PROGRAMMER

Programmer (Interface Module) ACC-2000

Programmer (Interface Cable) QPA-4000

Programmer (Software) ACC-900

- ***Due to continuing research and development the company reserves the right to alter these specifications without prior notice.***

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UNPACKING

The SD-125 RF Link Module is the only item included in the shipping container.



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MAXON
SD-125 RF LINK MODULE

INTRODUCTION

The Maxon SD-125 Series of RF Link Modules from Maxon utilizes the latest technology in its design and manufacturing. Both the UHF and VHF models are PLL (Phase Lock Loop Synthesizer) / microprocessor controlled, and offer one to five watts of power with 16 channel capability. Multiple functions including 1200 to 9600 baud rates, AC and/or DC audio coupling, GMSK and FSK modulation are standard in these fully programmable wide bandwidth RF Link Module units.

The radio is programmed using a IBM® Personal Computer, DOS® based software, an interface module and a programming cable. This allows the radio to be tailored to meet the requirements of the individual user and of the System(s) it is operating within.



Maxon's SD-125

FEATURES

- ***Busy Channel Lockout***
- ***16 Channels***
- ***TX Time-out***
- ***Power Save***
- ***1 / 5 Watt Programmable Output***
- ***12.5 / 25 kHz Programmable Channel Spacing***

Busy Channel Lockout

The Busy Channel Lockout feature, when enabled, disables the transmitter when the receiving channel is busy and the user attempts to transmit.

16 Channels

The SD-125 Series radio can store up to 16 channels within the same band.

TX Time-out

The TX Time-out feature, when enabled, limits the amount of time that the user can continuously transmit. This time can be set in increments of 10 seconds from 10 seconds to 990 seconds.

Power Save

The Power Save feature is used when an external battery is used as the power source. When Power Save is enabled, the receiver "ON" and "OFF" time can be programmed into the radio and allows the operator to set the length of time the receiver is asleep.

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THEORY OF OPERATION

INTRODUCTION

The VHF and UHF radios are comprised of two PCB's (an RF PCB and a digital PCB). These boards are connected with an 18 pin female and male connector . The digital board is interfaced with external data equipment through the 9 pin d-sub male connector, which controls the radio and data receiving and sending .

DIGITAL CIRCUITS

The Digital circuit contains the CPU, the channel select switch, and associated digital circuits.

TX-SIGNAL CIRCUIT

The TX data signal comes from Pin 2 of Con 401, and goes through U404D. The TX-signal is amplified by U406C. The TX-signal is filtered by U405A & B which is a 4'th order low pass filter, the output of U405A is then fed to the RF board for TX modulation.

RX-SIGNAL CIRCUIT

The RX- data signal comes from the RF board, which is connected with pin 10 of Con 403. The RX-signal is switched by U404A and adjusted by RV403 and amplified by U407. The amplified signal goes to pin10 of Con 401.

RSSI DETECTOR

From the RF board, the RSSI (Received Signal Strength Indicator) signal flows to U403A & B through R461. The pulse is injected from pin 5 of U403B every 1 mS and C451 is discharged. It is then charged by R464. The RSSI signal is simultaneously input to pin 7 of U403A and those signals are compared. The compared signal is output from U403A. Pin 1 of U403A and the CPU detects the pulse width. The pulse width is varied by RSSI DC voltage, therefore, the carrier detection is controlled by the CPU.

EEPROM

RX / TX channel and RSSI detection level as well as other data from the programmer are stored in the EEPROM. The data stored is retained without power supplied. This is a non-volatile memory. The EEPROM may have information re-programmed or erased. U402 is an EEPROM with 2048 (8 x 256) capacity and data is written and read serially.

CHANNEL SELECTOR

One of 16 channels may be selected using the Dip Switch (SW401). SW401 encodes the channel number, selected into 4-bit binary code. The binary code plus one equals the channel number. The binary code is decoded by the CPU enabling the appropriate RX or TX frequency and associated data to be selected from the EEPROM.

DC TO DC CONVERTER

The main DC power is injected to the DC to DC converter . The DC to DC converter regulates the various input power supply voltage and outputs a constant voltage of 7.5 Volts. It is a source for all of the RF and digital circuits.

The DC to DC converter is formed by U801, Q801, Q802, L801 and R804. U801 is a switch mode DC to DC Converter IC. Input DC various appears as a voltage various through R804. U801 detects the voltage and controls the switching pulse. As the switching pulses, Q801and Q802 switches the input DC of various supply voltages and generates the constant DC of supply voltage.

RF CIRCUITS

TRANSMITTER

The transmitter is comprised of:

1. Buffer
2. P.A. Module
3. Low Pass Filter
4. Antenna Switch
5. A.P.C. Circuits

BUFFER

VCO output level is -6dBm and amplified to +10dBm (UHF), +6dBm (VHF). The buffer consists of Q16 and Q17 for isolation and gain.

P.A. MODULE

The P.A. Module contains Q501, Q502, and Q503. Three stage amplifier Q501 amplifies the TX signal from +10 dBm to 100 mW. Q502 is amplified to 0.5W. Q503 amplifies to 3W and then matched to 50 Ohms using the L.C. network, thereby reducing the harmonics by -30 dB.

LOW PASS FILTER

L7, L8, L11, C72, C73, C74 and C75 are the 7th order Chebyshev low pass filter. Unwanted harmonics are reduced by -70 dBc.

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ANTENNA SWITCH

When transmitting, the diodes D5 and D6 are forward biased enabling the RF signal passage to the antenna. D6 is shorted to ground inhibiting the RF signal to front end. In receive the diodes D5 and D6 are reversed biased passing the signal from the antenna through L13 and C83 to the front end without signal loss.

AUTOMATIC CURRENT CONTROL (ACC) CIRCUITS

The ACC circuit consists of R109, variable resistor RV1, IC3(B) and transistors Q21 and Q22. The supply current is monitored by the difference voltage on R109 (0.1 Ohm). If the current varies by RF power output or other reasons, it produces some bias voltage by IC3A and Q19. The differential signal at the output of IC3 is passed to Q21 and Q22 that produces a constant power output to the antenna. RV1 is used to adjust the RF power level.

RF CIRCUITS PLL SYNTHESIZER

12.8 MHz TCXO

The TCXO contains the 3-stage thermistor network compensation and crystal oscillator and modulation ports. Compensation is ±5 PPM or less from -30c to +60c.

PLL IC DUAL MODULES PRESCALER

Input frequency of 12.8 MHz to IC2 MC14519 pin 20 is divided to 6.25 kHz or 5 kHz by the reference counter, and then supplied to the comparator. RF signal input from VCO is divided to 1/64 at the prescaler in IC2, divided by A and N counter in IC2 to determine frequency steps, and then supplied to the comparator. PLL comparison frequency is 6.25/5kHz so that minimum programmable frequency step is 5/6.25 kHz. The A and N counter is programmed to obtain the desired frequency by serial data in the CPU. In the comparator, the phase difference between reference and VCO signal is compared. When the phase of the reference frequency is leading , Fv is the output, but when VCO frequency is leading, Fr is the output. When Fv=Fr, phase detector out is a very small pulse. 64/65 modulus prescaler is comprised in IC2, and has two output ports:

- Port A pin 16: TX enable 2
- Port B pin 15: prescaler power save control in PLL IC Pin 13 labeled test2 allows the technician to see the output of the dual modulus prescaler for trouble shooting purposes, no connection should be made to this pin.

LEVEL SHIFTER & CHARGE PUMP

The charge pump is used for changing output signals Fr, Fv at PLL IC from 0-5v to 0-12v necessary for controlling the VCO.

REFERENCE FREQUENCY LPF

The Loop Filter contains R12, C21 and C22. LPF settling time is 12mS with 1 kHz frequency. This also reduces the residual side-band noise for the best signal-to-noise ratio.

DC TO DC CONVERTER

The DC to DC converter convert the 5v to 14-16v to supply the necessary voltage for wide range frequency in the VCO.

VCO

The VCO consist of an RX VCO and a TX VCO. It is switched TX/RX by the power source. It is configured as a colpits oscillator and connected to the buffer as a cascade bias in order to save power. The varicap diode D201/D301 are low-resistance elements and produce a change in frequency with a change in reverse bias voltage (2-11v). L203/L303 are resonant coils, which changes the control voltage by the tuning core. D202 modulation diode, modulates the audio signal. C204 compensates for the non-linearity of the VCO due to modulation diode, and maintains a constant modulation regardless of frequency.

RECEIVER

FRONT-END

The receive signal is routed backward through the low pass filter, then onward to Pin 1 of the Hybrid Receiver Front End Module to a bandpass filter consisting of (VHF C622 through C608, L607 through L604) and (UHF C601through C610, L601 through L603) is coupled to the base of Q601 which serves as an RF amplifier. Diode D601 serves as protection from static RF overload from nearby transmitters. The output of Q601 is then coupled to a second bandpass filter consisting of (VHF C607 through C623 and L604 through L607).The output of Pin 6 is then coupled to the doubly balanced mixer D9. The receiver front end module is factory pre-tuned and requires no adjustment. Repair is effected by replacement of the entire module of the proper banded module. These are VHF 148MHz to 174 MHz and UHF 440 MHz to 470 MHz. The receiver front end module signal pins are as follows:

1. RF Input
2. Input Ground
3. N/A
4. Receive +5V
5. Ground
6. Output

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FIRST MIXER

D9, T2 and T3 are double balanced mixers which provide the 45.1 MHz intermediate frequency output. The filtered frequency from the front end module is coupled to T2 . The 45.1 MHz IF output is matched to the input of the 2-pole monolithic filter by L14, L31, C69 and C97. The crystal filter provides a bandwidth of ±7.2 kHz from the operating frequency providing a high degree of spurious and intermodulation protection. Additionally, a 90 MHz trap (XF1) is also placed at the filter output to provide additional attenuation of the second order IMD. The output of the filter is impedance matched by C97 and C69 to the base of the post of filter IF amplifier Q25.

SECOND OSCILLATOR MIXER LIMITER AND FM DETECTOR

The output of the post filter amplifier, Q25, is coupled via C98 to the input of IC5 (MC3371). IC5 is a monolithic single conversion FM transceiver, containing a mixer, the second local oscillator, limiter and quadrature detector. Crystal X1 44.645 MHz is used to provide resultant 455kHz signal from the output of the second mixer. The mixer output is then routed to CF1 (455F). These ceramic filters provide the adjacent channel selectivity of 25 kHz bandwidth .

RSSI (RECEIVER SIGNAL STRENGTH INDICATOR)

The RSSI signal is output from IC5 on pin 13. As the receiver signals the output, DC voltage is varied as much as receiver signal strength. Also, the DC signal is temperature compensated with a thermistor (TH1).

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MAINTENANCE AND REPAIR

GENERAL

When removing or fitting, use the Exploded View and Parts List, located on page 55 in conjunction with the following procedures:

- WARNING: Disconnect the SD-125 from all external equipment at the D-Sub connector prior to disassembly.

REMOVING & REPLACING THE UPPER COVER

Removing the Upper Cover:

1. Unscrew the four upper cover mounting screws located on the upper cover of the radio.

To replace the Upper Cover:

1. Reverse the steps taken to remove the Upper Cover.

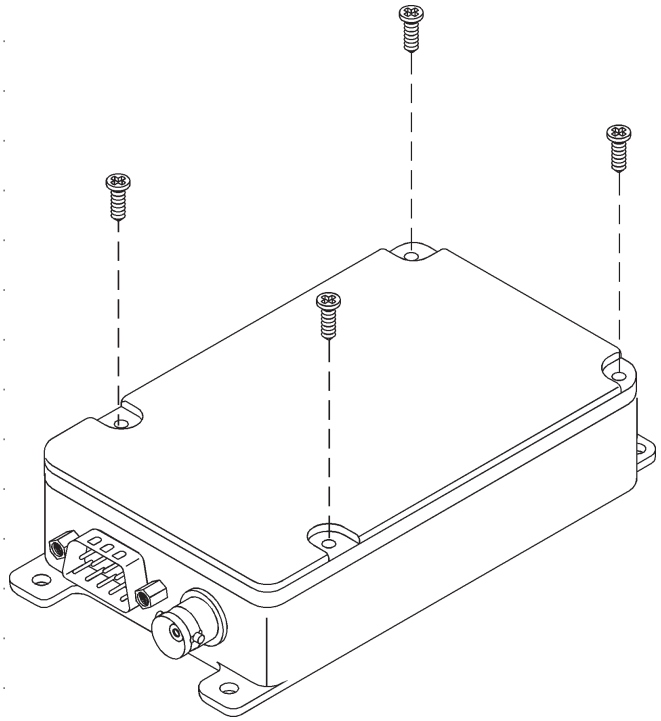


Figure 1-Upper Cover Removal

REMOVING & REPLACING THE DIGITAL BOARD & SHIELD PLATE

Removing the Digital Board Assembly & Shield Plate:

1. Remove the Upper Cover (refer to Removing & Replacing the Upper Cover).
2. Disconnect the DB9 pin connector on CON401.
3. Unscrew the 4 mounting screws.
4. Remove the Digital Board Assembly.
5. Remove the Shield Plate.

To replace the Digital Board Assembly:

1. Reverse the steps taken to remove the Digital Board Assembly & Shield Plate.

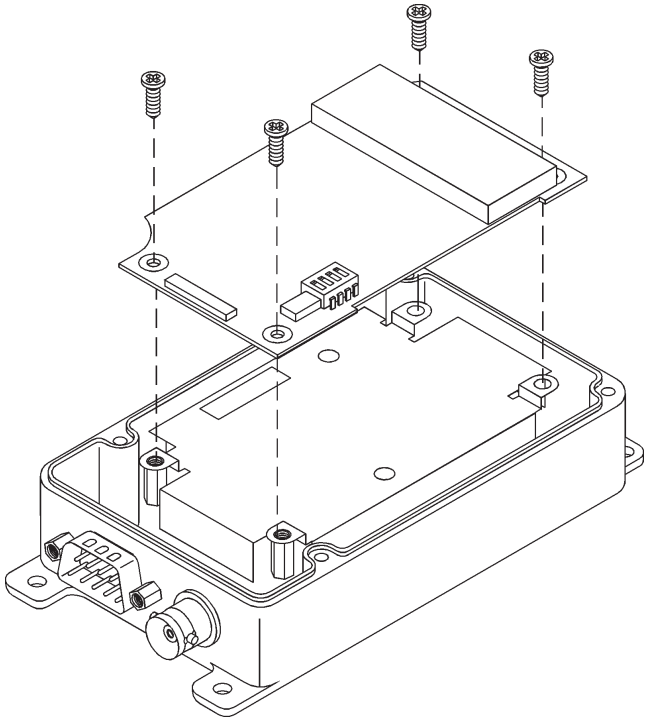


Figure 2-Digital Board Assembly Removal

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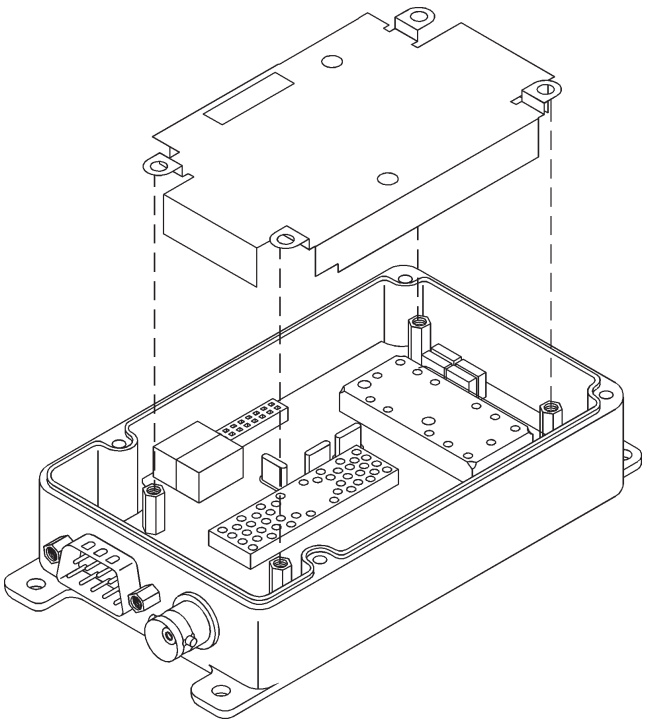


Figure 3-Shield Plate Removal

REMOVING & REPLACING THE RF BOARD

Removing the RF Board Assembly:

1. Remove the Upper Cover (refer to Removing & Replacing the Upper Cover).
2. Remove the Digital Board Assembly and Shield Plate (refer to Removing & Replacing the Digital Board Assembly & Shield Plate).
3. Unscrew the 4 mounting standoffs.
4. Unsolder the antenna connector cable.
5. Remove the RF Board Assembly.

To replace the RF Board Assembly:

1. Reverse the steps taken to remove the RF Board Assembly.

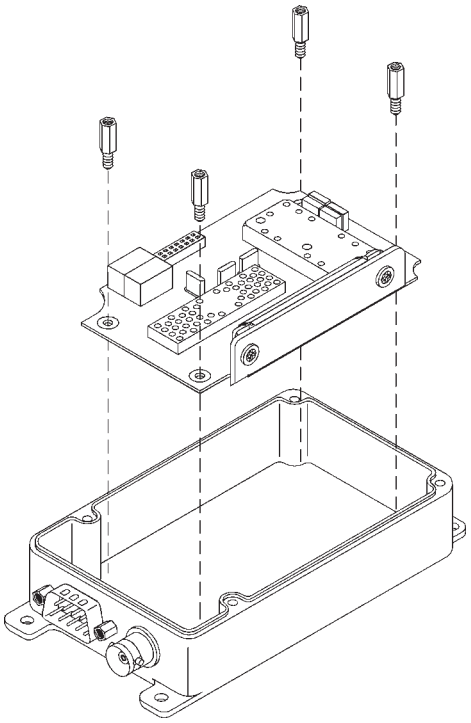


Figure 4-RF Board Removal

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PROGRAMMING

The SD-125 Series radio requires the ACC-900 Programming Software, ACC-2000 Interface Module, 9-15 VDC 200mA Power Supply and QPA-4000 Programmer Interface Cable. Refer to the ACC-900 Programming Manual (P/N: 680-110-0032) for detailed information on programming the SD-125 Series radio.

ALIGNMENT PROCEDURE

The SD-125 UHF/VHF Receiver is by design, broad band covering UHF(400-430 MHz & 440-470 MHz) and VHF(148-174 MHz) and should require no special alignment, unless repairs are performed on the receiver portion.

Should repairs be necessary, use the "Test Equipment Diagram" on page 17 & the "Alignment Points Diagram" on page 18, in conjunction with the following procedures:

- An Extender Board (P/N: 650-060-0016) is required in order to separate the Digital and RF PCB's to allow access to the alignment points. Installation instructions are provided with the Extender Board Assembly.

RECEIVER

1. Apply a standard test signal to the receiver antenna terminals.
2. Adjust T1 for maximum sensitivity and audio output with minimum audio distortion.
3. Adjust RV403 for the specific audio output level.

RX VCO

1. Set the unit to the highest receive frequency, 470MHz(UHF), 174MHz(VHF) and adjust the VCO L303 to 8 volts.
2. Set the unit to the lowest receive frequency 440MHz(UHF), 148(VHF) and check that the VCO voltage is above 2.0 volts. If voltage is below 2.0 volts, adjust L303 for 2.0 volts or more.

- Note: Use TP1 to measure the voltage.

TRANSMITTER

Connect the unit to a Service Monitor with the power meter setting to the 10 W scale (or autorange)

TCXO

Set the channel selector to the mid-range frequency 460 MHz, adjust TCX01 for a reading of 460 MHz ±200Hz (155 MHz VHF models).

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TX VCO

1. Set the unit to the highest transmit frequency, 470MHz(UHF), 174MHz(VHF) key the transmitter and adjust the VCO L203 to 8 volts.

2. Set the unit to the lowest transmit frequency 440 MHz(UHF), 148(VHF) key the transmitter and check that the VCO voltage is above 2.0 volts. If voltage is below 2.0 volts, adjust L203 for 2.0 volts or more.

- Note: use TP1 to measure the voltage.

TX Deviation and Balance Adjustment

1. Set the unit to a mid-frequency and input the TX data with 400 Hz standard audio level.

2. Increase the signal level to 20 dB from standard level.

3. Monitor the demodulated signal from service monitor. Adjust RV3 to make the monitored signal to be a balanced square wave.

4. Reduce input signal to the standard level and adjust RV2 for the standard deviation.

APC

1. Adjust RV1 for High Power (5W)

2. Adjust RV6 for Low Power (1W)

3. This completes the transmitter alignment procedures.

SD-125 Squelch setting using the ACC-2000 Interface Module

Maxon's wide range of data radio products since the crystal control module (DM-0500 series) had their squelch level setting by hardware touch up. With the new SD-125 series, the squelch level to open or close (unmute or mute) is set up by software control.

The RSSI utilizes the A/D conversion that will be fed to the microprocessor, which in turn will use this input to determine the squelch level setting to control the mute and unmute of the receiver.

Default setting of squelch level for all the SD-125 from our manufacture and workshop is approximately set at:

1. Squelch open (unmute) at -114dBm to -113dBm (0.45 - 0.5mV of the RX signal strength)

2. Squelch close (mute) at -117dBm to -116dBm (0.3 - 0.35mV of the RX signal strength)

Changing the default squelch settings requires use of the programming adaptor box. This box is designed for use not only as part of the programming kit but also as a tool of squelch level setting.

The minimum equipment required for squelch level setting is a RF signal generator. Radio communication test equipment is recommended.

1. Power up the programming adaptor box (use the DC supply of 9 - 15 Volts 200mA).

2. Hook up the SD-125 unit to the programming adaptor box, and its antenna connector to the RF input port of the RF signal generator.

3. With the adaptor box turned "off", simultaneously press and hold both "ON/OFF" and "WRITE" buttons down.

4. Release the "ON/OFF" button first then the "WRITE" button next. (LED indicator on the box will flash twice after that it may stay on / off, this is of no concern , because depending on the signal strength of the RF generator as well as the pre-set level of squelch the SD125 may be in standby mode (LED OFF) or in receiving mode (LED ON)

5. Adjust the RF signal generator for the desired signal strength to OPEN squelch (e.g. default setting is -113dBm, that is equivalent to 0.5mV)

6. Press and release "READ" button, LED indicator will flash 3 times then it will be ON.

7. Adjust the RF signal generator for the desired signal strength to CLOSE squelch (e.g. default setting is -116dBm, that is equivalent to 0.35mV)

8. Press and release "READ" button, LED indicator will flash 1 time then it will be OFF.

9. Press and release "WRITE" button, LED indicator will flash twice.

10. Squelch level is now set. Test for desired level by increasing or decreasing the RF signal to levels set

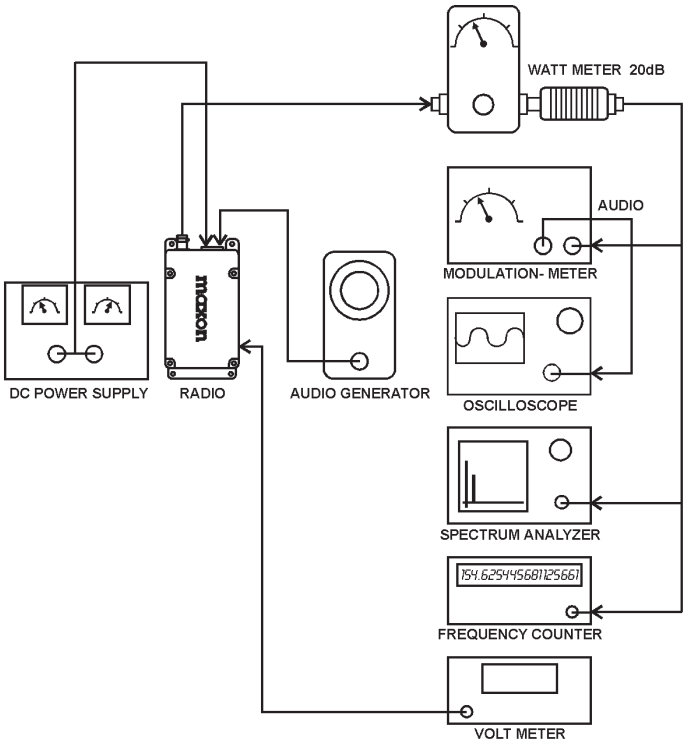
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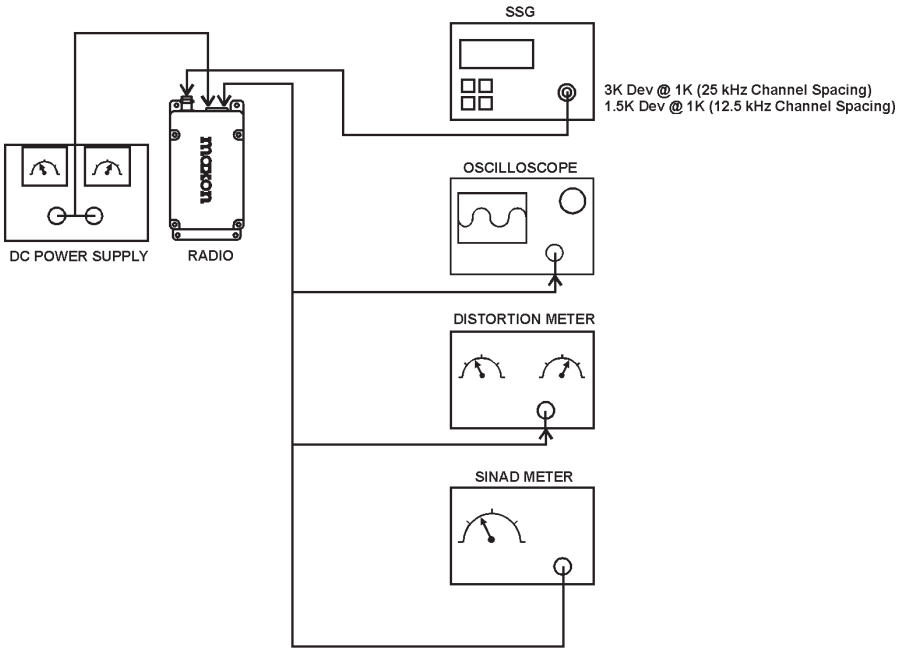
for open and close squelch (mute LED will be OFF & unmute LED will be ON).

- NOTE: The difference of RF signal strength between the unmute and mute levels must be greater than or at least equal to 0.15mV (i.e. at least -123.5dBm) for the squelch setting to work properly. If they are too close to one another, RSSI through the A/D conversion can not differentiate between the mute and unmute level properly. As a result, it would cause the CD (Carrier Detect) to act intermittently.

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TEST EQUIPMENT SETUP





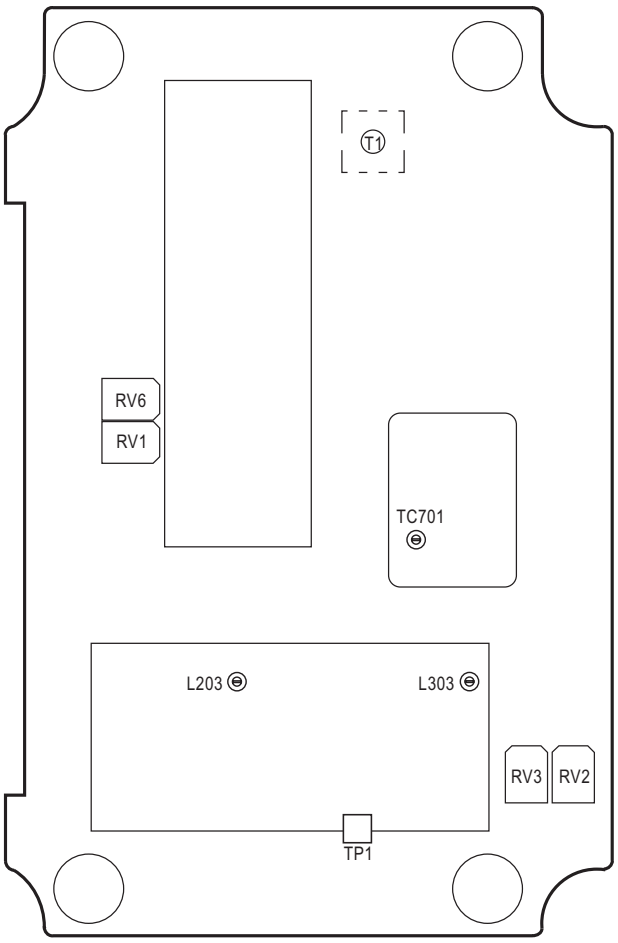
1. S.S.G. : @ 1kHz Audio:

3 kHz Deviation (25 kHz Channel Spacing)
1.5 kHz Deviation (12.5 kHz Channel Spacing)

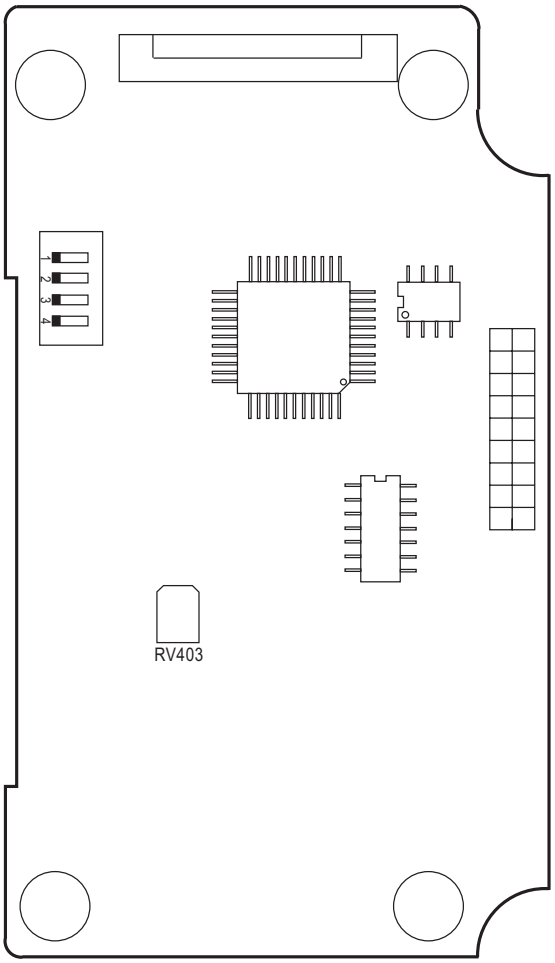
2. AF Generator : 10mV & 20dB Up.

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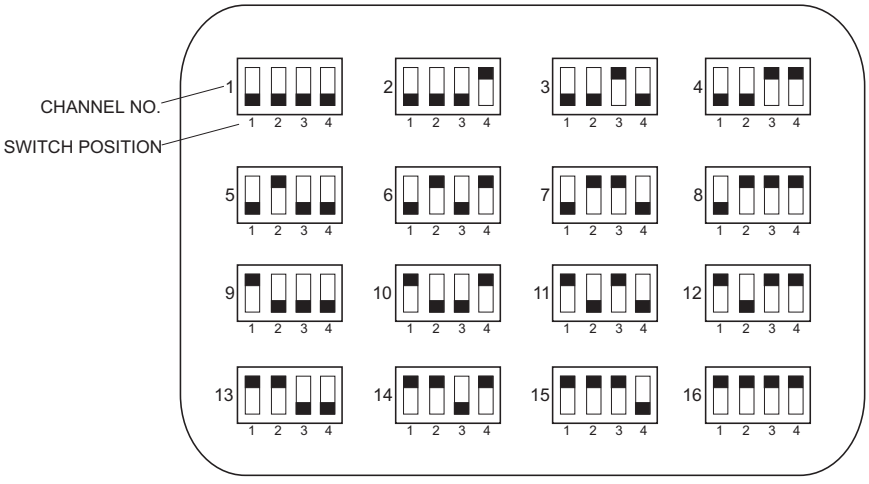
ALIGNMENT POINTS DIAGRAM



RF BOARD
ALIGNMENT POINTS



DIGITAL BOARD
ALIGNMENT POINTS



SW401
CHANNEL SELECT SWITCH

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COMPONENT REPLACEMENT

Surface Mount Components

Surface mount components should always be replaced using a temperature controlled soldering system. The soldering tools may be either a temperature controlled soldering iron or a temperature controlled hot-air soldering station. A hot-air system is recommended for the removal of components on these boards. With either soldering system, a temperature of 700° F (371° C) should be maintained.

The following procedures outline the removal and replacement of surface mount components. If a hot-air soldering system is employed, see the manufacturer's operating instructions for detailed information on the use of your system.

- CAUTION: Avoid applying heat to the body of any surface mount component using standard soldering methods. Heat should be applied only to the metalized terminals of the components. Hot-air systems do not damage the components since the heat is quickly and evenly distributed to the external surface of the component.
- CAUTION: The CMOS Integrated Circuit devices used in this equipment can be destroyed by static discharges. Before handling one of these devices, service technicians should discharge themselves by touching the case of a bench test instrument that has a 3-prong power cord connected to an outlet with a known good earth ground. When soldering or desoldering a CMOS device, the soldering equipment should have a known good earth ground.

Surface Mount Removal

1. Grip the component with tweezers or small needle nose pliers.
2. Alternately heat the metalized terminal ends of the surface mount component with the soldering iron. If a hot-air system is used, direct the heat to the terminals of the component. Use extreme care with the soldering equipment to prevent damage to the printed circuit board (PCB) and the surrounding components.
3. When the solder on all terminals is liquefied, gently remove the component. Excessive force may cause the PCB pads to separate from the board if all solder is not completely liquefied.
4. It may be necessary to remove excess solder using a vacuum de-soldering tool or Solder wick . Again, use great care when de-soldering or soldering on the printed circuit boards. It may also be necessary to remove the epoxy adhesive that was under the surface mount component and any flux on the printed circuit board.

Surface Mount Component Replacement

1. "Tin" one terminal end of the new component and the corresponding pad of the PCB. Use as little solder as possible.
2. Place the component on the PCB pads, observing proper polarity for capacitors, diodes, transistors, etc.
3. Simultaneously touch the "tinned" terminal end and the "tinned" pad with the soldering iron. Slightly press the component down on the board as the solder liquefies. Solder all terminals, allowing the component time to cool between each application of heat. Do not apply heat for an excessive length of time and do not use excessive solder.

With a hot-air system, apply hot air until all "tinned" areas are melted and the component is seated in place. It may be necessary to slightly press the component down on the board. Touch up the soldered connections with a standard soldering iron if needed. Do not use excessive solder.

- CAUTION: Some chemicals may damage the internal and external plastic parts of the radio.

4. Allow the component and the board to cool and then remove all flux from the area using alcohol or another approved flux remover.

Surface Mounted Integrated Circuit Replacement

Soldering and de-soldering techniques of the surface mounted IC's are similar to the above outlined procedures for the surface mounted chip components. Use extreme care and observe static precautions when removing or replacing the defective (or suspect) IC's. This will prevent any damage to the printed circuit board or the surrounding circuitry.
The hot-air soldering system is the best method of replacing surface mount IC's. The IC's can easily be removed and installed using the hot-air system. See the manufacturer's instructions for complete details on tip selection and other operating instructions unique to your system. If a hot-air system is not available, the service technician may wish to clip the pins near the body of the defective IC and remove it. The pins can then be removed from the PCB with a standard soldering iron and tweezers, and the new IC installed following the Surface Mount Component Replacement procedures. it may not be necessary to "tin" all (or any) of the IC pins before the installation process.

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TROUBLESHOOTING GUIDE

SYMPTOMS	CAUSES	COUNTERMEASURES
Unit does not work	1. Incomplete connection 2. Defective DC/DC VCC 3. 5v voltage source 4. PLL error 5. Filtering error 6. EEPROM fail	1. Check CON401 connection 2. Check U801 3. IC1 (5v ±0.2v) 4. Check TCXO/VCO/PLL IC 5. Check LPF (IC407) 6. Re-programming
Bad RX Sensitivity (-10 to -60dB)	1. Defective ANT Switch 2. Defective Front-End 3. Defective dBm 4. IF IC 5. VCO level drop 6. Change of 1st local frequency	1. Check D5, D6 2. Check Q601 3. Check D9, T2, T3 4. Replace IC5 5. RX VCO level .2dBm 6. Re-Tune TCXO
Defective RX	1. VCO frequency change or level drop 2. Defective voltage source	1. Repair RX VCO 2. Defective IF IC (IC5) 3. IC1, Q1, Q3
PLL Error	1. Defective 12.8 MHz TCXO 2. Voltage source for RX VCP/TX VCO 3. Defective PLL IC	1. Replace TCXO 2. Check RX VCO/TX VCO 3. Replace IC2
Low TX Power	1. APC	1. Re-adjust RV1
No TX Power	1. TX Buffer 2. Power Module 3. APC control	1. Check Q16, 17 2. Check Q501, 502, 503 3. Check Q22, D4
No Modulation	1. SW IC & Mic Amp IC	1. Check U404, 405, 406
No Programming	1. Short protector VCC	1. Defective programming lead

- An Extender Board, P/N: 650-060-0016, is required in order to separate the Digital and RF PCB's for troubleshooting purposes.

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VOLTAGE CHART

CONTROL CIRCUIT TRANSISTOR						
	RX			TX		
REF#	B	C	E	B	C	E
Q401	5.0	0.0	5.0	5.0	0.0	5.0
Q402	5.0	GND	5.0	5.0	0.0	5.0
Q403	4.7	0.0	5.0	4.7	0.0	5.0
Q404	4.8	0.0	GND	-	0.0	GND
Q405	4.6	1.8	1.8	4.6	1.8	1.8
Q406	4.8	0.0	0.0	0.0	5.0	0.0
Q407	7.5	4.0	7.5	7.5	4.0	7.5
Q408	0.0	7.5	0.0	0.0	7.5	0.0

RF BOARD TRANSISTOR						
	RX			TX		
REF #	B	C	E	B	C	E
Q2	4.7	0.0	5.0	0.0	4.7	5.0
Q3	0.0	4.7	5.0	4.7	0.0	5.0
Q4	0.0	5.0	5.0	0.0	5.0	5.0
Q5	5.0	0.0	5.0	5.0	0.0	5.0
Q6	4.0	18.0	5.0	4.2	18.0	5.0
Q7	18.0	6.3	18.0	18.0	6.3	18.0
Q8	5.0	0.0	5.0	5.0	0.0	5.0
Q11	0.0	6.3	0.0	0.0	6.3	0.0
Q12	2.0	4.7	1.2	0.0	0.0	0.0
Q13	4.6	4.6	4.0	0.0	0.0	0.0
Q14	0.0	0.0	0.0	4.6	4.6	4.0
Q16	0.0	0.0	0.0	1.6	4.8	0.8
Q17	0.0	0.0	0.0	0.6	3.0	GND
Q18	0.0	0.0	0.0	5.0	0.2	GND
Q19	1.0	7.5	0.5	1.6	7.5	1.0
Q21	0.0	7.5	0.0	1.6	6.6	1.2
Q22	7.5	0.0	7.5	6.8	5.0	7.5
Q25	0.7	4.0	GND	0.0	0.0	GND

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RF BOARD IC'S						
RECEIVE MODE						
PIN #	IC1	IC2	IC3 (OFF)	IC5	IC7 (OFF)	IC8 (OFF)
1	GND	NC	-	OSC1	-	-
2	GND	5.0	-	OSC2	-	-
3	GND	5.0	-	-	-	-
4	5.0	5.0	-	4.7	-	-
5	GND	5.0	-	3.3	-	-
6	7.5	NC	-	3.3	-	-
7	-	GND	-	3.3	-	-
8	-	NC	-	4.7	-	-
9	-	NC	-	AUDIO	-	-
10	-	AUDIO	-	NC	-	-
11	-	AUDIO	-	NC	-	-
12	-	5.0	-	NC	-	-
13	-	NC	-	-	-	-
14	-	5.0	-	NC	-	-
15	-	0.0	-	GND	-	-
16	-	0.0	-	1.8	-	-
17	-	4.6	-	-	-	-
18	-	0.0	-	-	-	-
19	-	4.7	-	-	-	-
20	-	OSC1	-	-	-	-

RF BOARD IC'S						
TRANSMIT MODE						
PIN #	IC1	IC2	IC3	IC5 (OFF)	IC7	IC8
1	GND	NC	1.6	-	1.8	0.7
2	GND	5.0	3.0	-	1.8	0.3
3	GND	5.0	3.0	-	1.8	0.3
4	5.0	5.0	GND	-	GND	GND
5	GND	5.0	0.8	-	1.8	1.88
6	7.5	NC	0.3	-	1.8	1.88
7	-	GND	4.0	-	1.8	1.88
8	-	NC	5.0	-	5.0	5.0
9	-	NC	-	-	-	-
10	-	AUDIO	-	-	-	-
11	-	AUDIO	-	-	-	-
12	-	5.0	-	-	-	-
13	-	NC	-	-	-	-
14	-	5.0	-	-	-	-
15	-	0.0	-	-	-	-
16	-	5.0	-	-	-	-
17	-	4.6	-	-	-	-
18	-	0.0	-	-	-	-
19	-	4.7	-	-	-	-
20	-	OSC1	-	-	-	-

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CONTROL CIRCUIT IC'S

RECEIVE MODE

PIN #	IC402	IC403	IC404	IC405	IC406	IC407	IC408
1	0.0	1.3	-	-	1.8	AUDIO	
2	0.0	0.0	-	-	1.8	GND	
3	0.7	5.0	-	-	1.8	AUDIO	
4	5.0	1.8	-	-	5.0	GND	
5	GND	2.0	GND	-	AUDIO	AUDIO	
6	4.7	5.0	0.0	-	1.8	7.5	
7	4.7	0.3	GND	-	AUDIO	4.0	
8	4.7	0.0	0.0	AUDIO	-	AUDIO	
9	-	1.8	1.8	AUDIO	-	-	
10	-	AUDIO	1.8	1.8	-	-	
11	-	AUDIO	-	GND	-	-	
12	-	GND	0.0	1.8	-	-	
13	-	-	0.0	AUDIO	-	-	
14	-	-	5.0	AUDIO	-	-	
15	-	-	-	-	-	-	
16	-	-	-	-	-	-	
17	-	-	-	-	-	-	
18	-	-	-	-	-	-	
19	-	-	-	-	-	-	
20	-	-	-	-	-	-	

PIN #	IC401		PIN #	IC401
1	4.63		23	4.7
2	4.63		24	4.7
3	0.0		25	4.7
4	5.0		26	0.0
5	0.0		27	5.0
6	0.0		28	4.6
7	2.0		29	GND
8	4.6		30	4.6
9	4.6		31	0.0
10	4.6		32	4.6
11	0.0		33	0.0
12	0.0		34	0.0
13	0.0		35	0.9
14	4.6		36	OSC2
15	4.7		37	OSC1
16	NC		38	7.5
17	GND		39	NC
18	5.0		40	NC
19	0.0		41	4.6
20	0.0		42	4.6
21	0.0		43	GND
22	NC		44	0.0

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CONTROL CIRCUIT IC'S							
TRANSMIT MODE							
PIN #	IC402	IC403	IC404	IC405	IC406	IC407	IC408
1	0.0	-	-	AUDIO	1.8	-	
2	0.0	-	-	AUDIO	1.8	-	
3	4.7	-	AUDIO	AUDIO	1.8	-	
4	5.0	-	AUDIO	5.0	5.0	-	
5	GND	-	0.0	AUDIO	-	-	
6	4.7	-	-	AUDIO	-	-	
7	4.7	-	GND	AUDIO	-	-	
8	4.7	-	-	1.8	AUDIO	-	
9	-	-	-	1.8	AUDIO	-	
10	-	-	AUDIO	1.8	1.8	-	
11	-	-	AUDIO	GND	GND	-	
12	-	-	4.6	0.0	1.8	-	
13	-	-	-	1.8	AUDIO	-	
14	-	-	-	1.8	AUDIO	-	
15	-	-	-	-		-	
16	-	-	-	-		-	
17	-	-	-	-		-	
18	-	-	-	-		-	
19	-	-	-	-		-	
20	-	-	-	-		-	

PIN #	IC401		PIN #	IC401
1	0.0		23	4.7
2	0.0		24	4.7
3	4.6		25	4.7
4	5.0		26	0.0
5	0.0		27	5.0
6	0.0		28	4.6
7	4.6		29	GND
8	4.6		30	4.6
9	4.6		31	0.0
10	0.0		32	4.6
11	0.0		33	0.0
12	0.0		34	0.0
13	4.6		35	0.0
14	0.4		36	OSC2
15	0.4		37	OSC1
16	NC		38	4.6
17	GND		39	NC
18	5.0		40	NC
19	0.0		41	4.6
20	0.0		42	4.6
21	4.7		43	GND
22	0.0		44	0.0

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SD-125 DIGITAL BOARD (COMMON) PARTS LIST (650-010-0029)

REF #	DESCRIPTION	PART #
C401	CAP, CER,1UF,+80-20%,16V,Y5V,0805	100-803-2105
C402	CAP, CER,0.001UF,10%,50V,X7R,0603	100-621-1102
C403	CAP, CER,0.022UF,10%,50V,X7R,0603	100-621-1223
C404	CAP, CER,0.1UF,+80-20%,25V,Y5V,0603	100-813-1104
C405	CAP, CER,47PF,5%,50V,COG,0603	100-520-1470
C406	CAP, CER,0.022UF,10%,50V,X7R,0603	100-621-1223
C407	CAP, CER,0.1UF,+80-20%,25V,Y5V,0603	100-813-1104
C408	CAP, CER,47PF,5%,50V,COG,0603	100-520-1470
C409	CAP, CER,0.047UF,+20-80%,25V,Y5V,0603	100-813-1473
C410	CAP, CER,0.0056UF,10%,50V,X7R,0603	100-621-1562
C411	CAP, CER,0.0027UF,5%,50V,X7R,0603	100-521-1272
C412	CAP, CER,0.0047UF,10%,50V,X7R,0603	100-621-1472
C413	CAP, CER,150PF,10%,50V,X7R,0603	100-621-1151
C414	CAP, CER,0.0039UF,10%,50V,X7R,0603	100-621-1392
C415	CAP, CER,47PF,5%,50V,COG,0603	100-520-1470
C416	CAP, CER,0.1UF,+80-20%,25V,Y5V,0603	100-813-1104
C417	CAP, CER,0.1UF,+80-20%,25V,Y5V,0603	100-813-1104
C422	CAP, CER,0.1UF,+80-20%,25V,Y5V,0603	100-813-1104
C423	CAP, CER,0.047UF,+20-80%,25V,Y5V,0603	100-813-1473
C424	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C425	CAP, TA,10UF,20%,6.3V,3216,A	102-013-0106
C426	CAP, CER,0.047UF,+20-80%,25V,Y5V,0603	100-813-1473
C427	CAP, TA,100UF,20%,6.3V,D	102-013-3107
C428	CAP, TA,47UF,20%,16V,7343H	102-033-5476
C429	CAP, CER,0.001UF,10%,50V,X7R,0603	100-621-1102
C430	CAP, CER,0.001UF,10%,50V,X7R,0603	100-621-1102
C431	CAP, CER,0.001UF,10%,50V,X7R,0603	100-621-1102
C432	CAP, CER,0.001UF,10%,50V,X7R,0603	100-621-1102
C433	CAP, CER,0.001UF,10%,50V,X7R,0603	100-621-1102
C434	CAP, CER,0.001UF,10%,50V,X7R,0603	100-621-1102
C435	CAP, TA,4.7UF,20%,10V,A	102-023-0475
C436	CAP, CER,0.1UF,+80-20%,25V,Y5V,0603	100-813-1104
C437	CAP, CER,39PF,5%,50V,COG,0603	100-520-1390
C438	CAP, CER,39PF,5%,50V,COG,0603	100-520-1390
C439	CAP, TA,1UF,20%,25V,3216	102-053-0105
C440	CAP, TA,10UF,20%,6.3V,3216,A	102-013-0106
C441	CAP, CER,0.001UF,10%,50V,X7R,0603	100-621-1102
C442	CAP, CER,0.001UF,10%,50V,X7R,0603	100-621-1102
C443	CAP, CER,0.001UF,10%,50V,X7R,0603	100-621-1102
C444	CAP, CER,0.001UF,10%,50V,X7R,0603	100-621-1102
C445	CAP, CER,0.001UF,10%,50V,X7R,0603	100-621-1102
C446	CAP, CER,0.001UF,10%,50V,X7R,0603	100-621-1102
C447	CAP, TA, 22UF,20%,35V,7343	102-063-3226
C449	CAP, CER,0.001UF,10%,50V,X7R,0603	100-621-1102
C450	CAP, CER,0.1UF,+80-20%,25V,Y5V,0603	100-813-1104
C451	CAP, CER,0.01UF,10%,25V,X7R,0603	100-611-1103
C452	CAP, CER,0.001UF,10%,50V,X7R,0603	100-621-1102
C453	CAP, CER,0.1UF,+80-20%,25V,Y5V,0603	100-813-1104
C454	CAP, TA,4.7UF,20%,10V,A	102-023-0475
C455	CAP, TA,4.7UF,20%,10V,A	102-023-0475
C456	CAP, TA,4.7UF,20%,10V,A	102-023-0475
C457	CAP, TA,4.7UF,20%,10V,A	102-023-0475
C458	CAP, CER,47PF,5%,50V,COG,0603	100-520-1470
C459	CAP, CER,47PF,5%,50V,COG,0603	100-520-1470
C460	CAP, TA,10UF,20%,6.3V,3216,A	102-013-0106
C461	CAP, TA,1UF,20%,25V,3216	102-053-0105

REF #	DESCRIPTION	PART #
C463	CAP, CER,0.1UF,+80-20%,25V,Y5V,0603	100-813-1104
C464	CAP, CER,0.1UF,+80-20%,25V,Y5V,0603	100-813-1104
C465	CAP, CER,0.0033UF,10%,50V,X7R,0603	100-621-1332
C466	CAP, CER,0.0027UF,5%,50V,X7R,0603	100-521-1272
C801	CAP, CER,51PF,5%,50V,COG,0603	100-520-1510
C802	CAP, CER,0.1UF,+80-20%,25V,Y5V,0603	100-813-1104
C803	CAP, CER,330PF,5%,50V,COG,0603	100-520-1331
C804	CAP, CER,51PF,5%,50V,COG,0603	100-520-1510
C805	CAP, CER,100PF,+/-5%,50V,COG,0603	100-520-1101
C806	CAP, CER,100PF,+/-5%,50V,COG,0603	100-520-1101
C807	CAP, TA, 22UF,20%,35V,7343	102-063-3226
C808	CAP, CER,0.1UF,+80-20%,25V,Y5V,0603	100-813-1104
C810	CAP, CER,0.01UF,10%,25V,X7R,0603	100-611-1103
C811	CAP, TA,100UF,20%,16V,E,7343	102-033-3107
C812	CAP, CER,100PF,+/-5%,50V,COG,0603	100-520-1101
C813	CAP, TA,4.7UF,20%,10V,A	102-023-0475
C815	CAP, TA,100UF,20%,16V,E,7343	102-033-3107
CON401	CONN,PLUG,15P,1.25MM,RT,SMT	140-081-0015
CON403	CONN, SKT,18P/DIP,2.0MMST,SMT	140-020-0056
D401	DIODE, ZNR,Z02W5.6V-Y,5.6V,0.2W,SOT-23	221-020-0056
D402	DIODE, ZNR,Z02W5.6V-Y,5.6V,0.2W,SOT-23	221-020-0056
D403	DIODE, ZNR,Z02W5.6V-Y,5.6V,0.2W,SOT-23	221-020-0056
D404	DIODE, ZNR,Z02W5.6V-Y,5.6V,0.2W,SOT-23	221-020-0056
D405	DIODE, ZNR,Z02W5.6V-Y,5.6V,0.2W,SOT-23	221-020-0056
D406	DIODE, SW,KDS193,SOT-23	220-010-0003
D407	DIODE, ZNR,Z02W5.6V-Y,5.6V,0.2W,SOT-23	221-020-0056
D408	DIODE, ZNR,Z02W5.6V-Y,5.6V,0.2W,SOT-23	221-020-0056
D409	DIODE, ZNR,Z02W5.6V-Y,5.6V,0.2W,SOT-23	221-020-0056
D410	DIODE, ZNR,Z02W5.6V-Y,5.6V,0.2W,SOT-23	221-020-0056
D801	DIODE, SW,KDS160,6V,2PIN USC	220-010-0017
D802	DIODE, SCHOTTKY,MBRS140T3,SMB	220-040-0012
L801	COIL, CHIP,12UH, A814AY-120M=P3	355-010-0120
L802	COIL, CHIP,3.3UH, 636CY-3R3M=P3	355-010-0335
Q401	TRANS, PNP,KRA104S,SOT-23,SW,(PD)	870-010-0005
Q402	TRANS, PNP,KRA104S,SOT-23,SW,(PD)	870-010-0005
Q403	TRANS, PNP,KRA104S,SOT-23,SW,(PD)	870-010-0005
Q404	TRANS, NPN,KRC104SND,SOT-23,SW,ND	870-020-0001
Q405	TRANS, PNP,KRA104S,SOT-23,SW,(PD)	870-010-0005
Q406	TRANS, NPN,KRC104SND,SOT-23,SW,ND	870-020-0001
Q407	TRANS, PNP,KTA1504(Y),SOT-23,SW	870-100-0004
Q408	TRANS, NPN,KRC104SND,SOT-23,SW,ND	870-020-0001
Q801	TRANS, SI4412DY,SO-8,MOSFET,N-CH	870-070-0006
Q802	TRANS, SI4412DY,SO-8,MOSFET,N-CH	870-070-0006
R403	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R404	RES, TF,47K,5%,1/16W,+/-200,0603	741-102-1473
R406	RES, TF,22K,5%,1/16W,+/-200,0603	741-102-1223
R407	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R409	RES, TF,100K,5%,1/16W,+/-200,0603	741-102-1104
R410	RES, TF,220K,5%,1/16W,+/-200,0603	741-102-1224
R411	RES, TF,100K,5%,1/16W,+/-200,0603	741-102-1104
R412	RES, TF,3.3K,5%,1/16W,+/-200,0603	741-102-1332
R413	RES, TF,180K,5%,1/16W,+/-200,0603	741-102-1184
R414	RES, TF,100K,5%,1/16W,+/-200,0603	741-102-1104
R415	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R416	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R417	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103

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MAXON
SD-125 RF LINK MODULE

REF #	DESCRIPTION	PART #
R418	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R419	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R420	RES, TF,9.1K,5%,1/16W,+/-200,0603	741-102-1912
R421	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R422	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R423	RES, TF,1K,5%,1/16W,+/-200,0603	741-102-1102
R424	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R425	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R426	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R428	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R429	RES, TF,47K,5%,1/16W,+/-200,0603	741-102-1473
R430	RES, TF,1M,5%,1/16W,+/-200,0603	741-102-1105
R431	RES, TF,47K,5%,1/16W,+/-200,0603	741-102-1473
R432	RES, TF,47K,5%,1/16W,+/-200,0603	741-102-1473
R433	RES, TF,4.7K,5%,1/16W,+/-200,0603	741-102-1472
R434	RES, TF,4.7K,5%,1/16W,+/-200,0603	741-102-1472
R435	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R436	RES, TF,4.7K,5%,1/16W,+/-200,0603	741-102-1472
R437	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R438	RES, TF,2.2K,5%,1/16W,+/-200,0603	741-102-1222
R439	RES, TF,4.7K,5%,1/16W,+/-200,0603	741-102-1472
R440	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R441	RES, TF,47K,5%,1/16W,+/-200,0603	741-102-1473
R442	RES, TF,47K,5%,1/16W,+/-200,0603	741-102-1473
R443	RES, TF,47K,5%,1/16W,+/-200,0603	741-102-1473
R444	RES, TF,47K,5%,1/16W,+/-200,0603	741-102-1473
R445	RES, TF,100K,5%,1/16W,+/-200,0603	741-102-1104
R446	RES, TF,100,5%,1/16W,+/-200,0603	741-102-1101
R447	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R448	RES, TF,1M,5%,1/16W,+/-200,0603	741-102-1105
R449	RES, TF,20K,5%,1/16W,+/-200,0603	741-102-1203
R450	RES, TF,33K,5%,1/16W,+/-200,0603	741-102-1333
R451	RES, TF,100K,5%,1/16W,+/-200,0603	741-102-1104
R452	RES, TF,100K,5%,1/16W,+/-200,0603	741-102-1104
R454	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R455	RES, TF,22K,5%,1/16W,+/-200,0603	741-102-1223
R456	RES, TF,470,5%,1/16W,+/-200,0603	741-102-1471
R457	RES, TF,22K,5%,1/16W,+/-200,0603	741-102-1223
R458	RES, TF,100K,5%,1/16W,+/-200,0603	741-102-1104
R460	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R461	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R463	RES, TF,1.8M,5%,1/10W,+/-200,0805	741-112-2185
R464	RES, TF,47K,5%,1/16W,+/-200,0603	741-102-1473
R465	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R466	RES, TF,47K,5%,1/16W,+/-200,0603	741-102-1473
R467	RES, TF,47K,5%,1/16W,+/-200,0603	741-102-1473
R468	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R469	RES, TF,100K,5%,1/16W,+/-200,0603	741-102-1104
R470	RES, TF,100K,5%,1/16W,+/-200,0603	741-102-1104
R471	RES, TF,220K,5%,1/16W,+/-200,0603	741-102-1224
R472	RES, TF,120K,5%,1/16W,+/-200,0603	741-102-1124
R473	RES., TF,68K, 5%, 1/16W,+/-200, 0603	741-102-1683
R474	RES, TF,100,5%,1/16W,+/-200,0603	741-102-1101
R475	RES, TF,100,5%,1/16W,+/-200,0603	741-102-1101
R476	RES, TF,100,5%,1/16W,+/-200,0603	741-102-1101
R477	RES, TF,100,5%,1/16W,+/-200,0603	741-102-1101
R478	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R480	RES, TF,100K,5%,1/16W,+/-200,0603	741-102-1104
R481	RES, TF,1K,5%,1/16W,+/-200,0603	741-102-1102

REF #	DESCRIPTION	PART #
R482	RES, TF,1K,5%,1/16W,+/-200,0603	741-102-1102
R483	RES, TF,1K,5%,1/16W,+/-200,0603	741-102-1102
R484	RES, TF,1K,5%,1/16W,+/-200,0603	741-102-1102
R485(LK2.10)	RES, TF, 0, 5%,1/16W, +/-200,0603	741-102-1000
R486	RES., TF,68K, 5%, 1/16W,+/-200, 0603	741-102-1683
R487	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R488	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R489	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R490	RES, TF,10,5%,1/16W,+/-200,0603	741-102-1100
R491	RES, TF,56K,5%,1/16W,+/-200,0603	741-102-1563
R492	RES, TF,100K,5%,1/16W,+/-200,0603	741-102-1104
R493	RES, TF,100K,5%,1/16W,+/-200,0603	741-102-1104
R494	RES, TF,100K,5%,1/16W,+/-200,0603	741-102-1104
R495	RES, TF,100K,5%,1/16W,+/-200,0603	741-102-1104
R496	RES, TF,0,5%,1/8W,TC250,1206	741-127-3000
R801	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R802	RES, TF,36K,5%,1/16W,+/-200,0603	741-102-1363
R804	RES, TF,0.033,1%,1/10W,+/-100, 0805	740-112-R033
R805	RES, TF,68K,1%,1/16W,+/-100,0603	740-211-1683
R806	RES, TF,20K,5%,1/16W,+/-200,0603	741-102-1203
RV402	RES, TF,0, +/-5%,1/10W,+/-250,0805	741-117-2000
RV403	POT, VRES,22K,+/-25%,TOP ADJ	901-120-0223
RV404	RES, TF,0, +/-5%,1/10W,+/-250,0805	741-117-2000
SW401	SW, DIP8P,4 POS,KSD-04,SPST	830-130-0004
U401	IC, CPU, OPT, MC68HC705C8FB,44-QFP	443-100-0010
U402	IC, EEPROM,AT93C56-10SI,SO-8,2K,2-5V	442-010-0003
U403	IC, QUAD CMPTR,LM339,SO14	441-110-0003
U404	IC, SW/MUX,MC14066BDR2,SO-14,A-SW	444-050-0001
U405	IC, OP AMP,KIA324F,SO-14,QUAD	441-030-0002
U406	IC, OP AMP,KIA324F,SO-14,QUAD	441-030-0002
U407	IC, AUDIO AMP,LM386M-1,0.33W,SO-8	441-040-0002
U408	IC, V DET,KIA7042P,4.2V,SOT-89	441-020-0005
U801	IC, DC/DC CONV, LTC1435CS,SO-16	441-011-0005
X401	RESONATOR, CER,CSAC3.58MGC	310-020-0004

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SD-125 (U1 400-430MHz) RF BOARD PARTS LIST (650-020-0027)

REF #	DESCRIPTION	PART #
	REPLACEMENT MODULES	
	ASSY, PCB,FRONT END,UHF,400-430MHZ	650-110-0019
	ASSY, PCB,PWR AMP,UHF,400-430MHZ	650-230-0017
	ASSY, PCB,TCXO	650-100-0002
	ASSY, PCB,VCO TX/RX,UHF,400-430MHZ	650-030-0026
C1	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C2	CAP, TA,10UF,20%,6.3V,3216,A	102-013-0106
C3	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C4	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C5	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C6	CAP, TA,4.7UF,20%,10V,A	102-023-0475
C7	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C8	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C9	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C11	CAP, CER,0.1UF,+80-20%,25V,Y5V,0603	100-813-1104
C12	CAP, TA,10UF,20%,6.3V,3216,A	102-013-0106
C13	CAP, CER,0.01UF,10%,25V,X7R,0603	100-611-1103
C14	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C15	CAP, CER,0.1UF,+80-20%,25V,Y5V,0603	100-813-1104
C16	CAP, CER,2PF,0.25PF,50V,COG,0603	100-020-1020
C17	CAP, CER,0.1UF,+80-20%,25V,Y5V,0603	100-813-1104
C18	CAP, CER,0.001UF,10%,50V,X7R,0603	100-621-1102
C19	CAP, CER,220PF,5%,50V,COG,0603	100-520-1221
C21	CAP, METAL,POLY,0.33UF,63V BOX	083-013-2334
C22	CAP, METAL POLY,0.022UF,10%,63V BOX	083-013-2223
C23	CAP, METAL POLY,0.01UF,10%,63V KBOX	083-014-2103
C24	CAP, METAL POLY,0.01UF,10%,63V KBOX	083-014-2103
C25	CAP, CER,1UF,+80-20%,16V,Y5V,0805	100-803-2105
C26	CAP, CER,0.1UF,+80-20%,25V,Y5V,0603	100-813-1104
C34	CAP, CER,220PF,5%,50V,COG,0603	100-520-1221
C35	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C36	CAP, CER,7PF,0.5PF,50V,COG,0805	100-110-2070
C37	CAP, CER,5.6PF,0.25PF,50V,COG,0603	100-020-15R6
C38	CAP, CER,15PF,5%,50V,COG,0805	100-520-2150
C39	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C41	CAP, CER,6PF,0.5PF,50V,COG,0805	100-120-2060
C42	CAP, CER,27PF,5%,50V,COG,0805	100-520-2270
C43	CAP, CER,5PF,0.25PF,50V,COG,0603	100-020-1050
C44	CAP, CER,1UF,+80-20%,16V,Y5V,0805	100-803-2105
C45	CAP, CER,220PF,5%,50V,COG,0603	100-520-1221
C46	CAP, CER,3PF,0.25PF,50V,COG,0603	100-020-1030
C47	CAP, CER,220PF,5%,50V,COG,0603	100-520-1221
C49	CAP, CER,4.7PF,0.5PF,50V,COG,0805	100-120-24R7
C50	CAP, CER,12PF,5%,50V,COG,0603	100-520-1120
C51	CAP, CER,6.8PF,0.5PF,50V,COG,0603	100-120-16R8
C53	CAP, CER,1UF,+80-20%,16V,Y5V,0805	100-803-2105
C54	CAP, CER,220PF,5%,50V,COG,0603	100-520-1221
C55	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C56	CAP, CER,6.8PF,0.5PF,50V,COG,0603	100-120-16R8
C57	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C58	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C59	CAP, CER,0.47UF,+20-80%,16V,Y5V,0805	100-803-2474
C60	Cap, TA,4.7uF,20%,10V,A	102-023-0475
C61	CAP, TA,10UF,20%,6.3V,3216,A	102-013-0106
C62	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C63	CAP, CER,0.01UF,10%,25V,X7R,0603	100-611-1103
C64	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C65	CAP, TA,10UF,20%,10V,B,3528	102-023-1106
C66	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C67	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C68	CAP, CER,470PF,10%,50V,X7R,0805	100-621-2471
C73	CAP, CER,9PF,0.25PF,50V,COG,0805	100-020-2090
C74	CAP, CER,18PF,5%,50V,COG,0805	100-520-2180
C75	CAP, CER,4PF,0.25PF,50V,COG,0805	100-020-2040
C76	CAP, CER,1PF,0.25PF,50V,COG,0805	100-020-2010
C77	CAP, CER,470PF,10%,50V,X7R,0805	100-621-2471
C78	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C79	CAP, CER,0.1UF,10%,25V,X7R,0805	100-611-2104
C80	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C81	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C82	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C83	CAP, CER,7PF,0.5PF,50V,COG,0603	100-120-1070
C84	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C87	CAP, CER,9PF,0.5PF,50V,COG,0603	100-120-1090
C88	CAP, CER,0.1UF,+80-20%,25V,Y5V,0603	100-813-1104
C90	CAP, CER,7PF,0.5PF,50V,COG,0603	100-120-1070
C92	CAP, CER,24PF,5%,50V,COG,0603	100-520-1240
C93	CAP, CER,82PF,5%,50V,COG,0603	100-520-1820
C94	CAP, CER,1UF,+80-20%,16V,Y5V,0805	100-803-2105
C96	CAP, CER,0.01UF,10%,25V,X7R,0603	100-611-1103
C97	CAP, CER,30PF,5%,50V,COG,0603	100-520-1300
C98	CAP, CER,0.001UF,10%,50V,X7R,0603	100-621-1102
C100	CAP, TA,10UF,20%,6.3V,3216,A	102-013-0106
C101	CAP, TA,10UF,20%,6.3V,3216,A	102-013-0106
C102	CAP, CER,0.001UF,10%,50V,X7R,0603	100-621-1102
C103	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C104	CAP, TA,1UF,20%,25V,3216	102-053-0105
C111	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C117	CAP, CER,47PF,5%,50V,COG,0603	100-520-1470
C118	CAP, CER,33PF,5%,50V,COG,0603	100-520-1330
C121	CAP, CER,20PF,5%,50V,COG,0603	100-520-1200
C122	CAP, CER,0.01UF,10%,25V,X7R,0603	100-611-1103
C123	CAP, CER,0.01UF,10%,25V,X7R,0603	100-611-1103
C124	CAP, CER,0.1UF,10%,25V,X7R,0805	100-611-2104
C125	CAP, CER,0.1UF,10%,25V,X7R,0805	100-611-2104
C126	CAP, CER,0.01UF,10%,25V,X7R,0603	100-611-1103
C127	CAP, CER,0.01UF,10%,25V,X7R,0603	100-611-1103
C128	CAP, TA,4.7UF,20%,10V,A	102-023-0475
C129	CAP, ELE,10UF,16V,20%,3X5,5.0PT	081-032-3106
C131	CAP, CER,0.001UF,10%,50V,X7R,0603	100-621-1102
C133	CAP, CER,0.1UF,+80-20%,25V,Y5V,0603	100-813-1104
C152	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C901	CAP, CER,0.01UF,10%,25V,X7R,0603	100-611-1103
C902	CAP, CER,0.01UF,10%,25V,X7R,0603	100-611-1103
C904	CAP, CER,0.01UF,10%,25V,X7R,0603	100-611-1103
C905	CAP, CER,68PF,5%,50V,COG,0603	100-520-1680
C906	CAP, CER,220PF,5%,50V,COG,0603	100-520-1221
C907	CAP, CER,0.01UF,10%,25V,X7R,0603	100-611-1103

NOTES:

1. Components are not available, assembly is non-repairable.

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MAXON
SD-125 RF LINK MODULE

REF #	DESCRIPTION	PART #
C909	CAP, CER,0.01UF,10%,25V,X7R,0603	100-611-1103
CF1	FILTER, CER, LT-455FW,455KHZ	310-101-0010
CF2	FILTER, CER,CF455HT,455KHZ	310-010-0013
CON1	CONN, SKT,18P/DIP,2.0MMST,SMT	140-020-0056
D5	DIODE, PIN,UPP9401,(T&R)50V,2.5W	220-020-0001
D6	DIODE, PIN,UPP9401,(T&R)50V,2.5W	220-020-0001
D9	DIODE, SCHOTTKY,CHIP,HSMS-2817#L31	220-040-0009
D12	DIODE, SW,KDS193,SOT-23	220-010-0003
D13	DIODE, SW,KDS181S,SOT-23	220-010-0004
D14	DIODE, SW,KDS181S,SOT-23	220-010-0004
D903	DIODE, SW,KDS226,SOT-23	220-010-0005
D904	DIODE, SW,KDS226,SOT-23	220-010-0005
H3	SCRW, MACH,STL,M2X6,FLH,PHL,ZN	330-110-0142
H4	SCRW, MACH,STL,M2X6,FLH,PHL,ZN	330-110-0142
IC1	IC, VREG,TK11450MTR,+5V,SOT-23L,(R5)	441-010-0002
IC2	IC, PLL,MC145191FR2,SO-20,RS-440	440-050-0011
IC3	IC, OP AMP,LM358MX,SO-8,DUAL	441-030-0006
IC5	IC, VHF RCVR,MC3371D,SO-16,NWRBAND	441-060-0007
IC7	IC, OP AMP,LM358MX,SO-8,DUAL	441-030-0006
IC8	IC, OP AMP,DUAL,TL062CDR,SO-8	441-030-0012
L1	COIL, CHIP,18NH,20%,LL2012-F18NM	371-010-5180
L2	COIL, CHIP,18NH,20%,LL2012-F18NM	371-010-5180
L3	COIL, CHIP,18NH,20%,LL2012-F18NM	371-010-5180
L4	COIL, CHIP,18NH,20%,LL2012-F18NM	371-010-5180
L5	COIL, CHIP,18NH,20%,LL2012-F18NM	371-010-5180
L6	COIL, CHIP,0.82UH:NL252018T-R82J	371-804-3R82
L7	COIL, SPRG, 2X0.75X3T:L SMD	350-000-0103
L8	COIL, SPRG, 2X0.75X3T:L SMD	350-000-0103
L11	COIL, SPRG, 2X0.75X3T:L SMD	350-000-0103
L12	COIL, CHIP,1.2UH,5%,NL252018T-1R2J	371-004-31R2
L13	COIL, SPRG, 1.0X0.35X7T;R,	350-000-0095
L14	COIL, CHIP,0.47UH:NL252018T-R47J	371-804-3R47
L15	COIL, CHIP,0.15UH,5%,NL252018T-R15J	371-004-3R15
L18	COIL, CHIP,1UH,5%,NL252018T-1R0J	371-017-3102
L19	COIL CHIP,10UH,CYLNDRCL,+/-10%,1206	371-005-3103
Q2	TRANS, PNP,KRA110SPK,SOT-23,SW,PK	870-010-0010
Q3	TRANS, PNP,KRA110SPK,SOT-23,SW,PK	870-010-0010
Q4	TRANS, PNP,KRA110SPK,SOT-23,SW,PK	870-010-0010
Q5	TRANS, PNP,KRA104S,SOT-23,SW,(PD)	870-010-0005
Q6	TRANS, NPN,KTC3875(BL),SOT-23,	870-200-0006
Q7	TRANS, PNP,KTA1504(Y),SOT-23,SW	870-100-0004
Q8	TRANS, PNP,KTA1504(Y),SOT-23,SW	870-100-0004
Q11	TRANS, NPN,KTC3875(BL),SOT-23,	870-200-0006
Q12	TRANS, NPN,BFR92A,SOT-23	870-200-0020
Q13	TRANS, NPN,KTC3875(BL),SOT-23,	870-200-0006
Q14	TRANS, NPN,KTC3875(BL),SOT-23,	870-200-0006
Q16	TRANS, NPN,BFR92A,SOT-23	870-200-0020
Q17	TRANS, 900MHZ AMP,MMBR951,SOT-23	870-200-0026
Q18	TRANS, NPN,KRC104SND,SOT-23,SW,ND	870-020-0001
Q19	Trans, NPN,KTC3875(BL),SOT-23,	870-200-0006
Q21	TRANS, NPN,KTC3875(BL),SOT-23,	870-200-0006
Q22	TRANS, PNP,KTA1663(Y),SOT-89,HC/SW,H(Y)	870-150-0002
Q25	TRANS, NPN,BFR92A,SOT-23	870-200-0020
Q31	TRANS, NPN,KRC104SND,SOT-23,SW,ND	870-020-0001
Q32	TRANS, NPN,KRC104SND,SOT-23,SW,ND	870-020-0001
Q34	TRANS, NPN,KRC104SND,SOT-23,SW,ND	870-020-0001
Q901	TRANS, NPN,KTC4075,UMT3	870-200-0031
Q902	TRANS, PNP,KTA2014, USM	870-100-0018
Q903	TRANS, NPN,KTC4075,UMT3	870-200-0031
Q904	TRANS, NPN,KTC4075,UMT3	870-200-0031
Q905	TRANS, NPN,KTC4075,UMT3	870-200-0031
R1	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R2	RES, TF,100K,5%,1/16W,+/-200,0603	741-102-1104
R3	RES, TF,2.2K,5%,1/16W,+/-200,0603	741-102-1222
R4	RES, TF,1.8K,5%,1/16W,+/-200,0603	741-102-1182
R5	RES, TF,1.8K,5%,1/16W,+/-200,0603	741-102-1182
R6	RES, TF,2K,5%,1/16W,+/-200,0603	741-102-1202
R7	RES, TF,1.8K,5%,1/16W,+/-200,0603	741-102-1182
R8	RES, TF,910,5%,1/10W,TC250,0805	741-117-2911
R11	RES, TF,100,5%,1/16W,+/-200,0603	741-102-1101
R12	RES, TF,5.6K,5%,1/16W,+/-200,0603	741-102-1562
R13	RES, TF,2.7K,5%,1/16W,+/-200,0603	741-102-1272
R14	RES, TF,2.7K,5%,1/16W,+/-200,0603	741-102-1272
R15	RES, TF,100,5%,1/16W,+/-200,0603	741-102-1101
R16	RES, TF,910,5%,1/10W,TC250,0805	741-117-2911
R17	RES, TF,12K,5%,1/16W,+/-200,0603	741-102-1123
R21	RES, TF,33,5%,1/16W,+/-200,0603	741-102-1330
R22	RES, TF,4.7K,5%,1/16W,+/-200,0603	741-102-1472
R23	RES, TF,100,5%,1/16W,+/-200,0603	741-102-1101
R24	RES, TF,5.6K,5%,1/16W,+/-200,0603	741-102-1562
R25	RES, TF,4.7K,5%,1/16W,+/-200,0603	741-102-1472
R26	RES, TF,18,5%,1/16W,+/-200,0603	741-102-1180
R27	RES, TF,4.7K,5%,1/16W,+/-200,0603	741-102-1472
R28	RES, TF,220,5%,1/16W,+/-200,0603	741-102-1221
R31	RES, TF,300,5%,1/16W,+/-200,0603	741-102-1301
R32	RES, TF,300,5%,1/16W,+/-200,0603	741-102-1301
R33	RES., TF,6.8K, 5%, 1/16W,+/-200, 0603	741-102-1682
R34	RES, TF,18,5%,1/16W,+/-200,0603	741-102-1180
R35	RES, TF,5.6K,5%,1/16W,+/-200,0603	741-102-1562
R36	RES, TF, 0, 5%,1/16W, +/-200,0603	741-102-1000
R37	RES, TF,1.2K,5%,1/16W, +/-200,0603	741-102-1122
R41	RES, TF,100,5%,1/16W,+/-200,0603	741-102-1101
R42	RES, TF,12K,5%,1/16W,+/-200,0603	741-102-1123
R43	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R45	RES, TF,12K,5%,1/16W,+/-200,0603	741-102-1123
R46	RES, TF,2.2K,5%,1/16W,+/-200,0603	741-102-1222
R47	RES, TF,2.2,5%,1/10W,TC250,0805	741-117-2229
R48	RES, TF,2.2,5%,1/10W,TC250,0805	741-117-2229
R49	RES, TF, 0, 5%,1/16W, +/-200,0603	741-102-1000
R50	RES, TF,1M,5%,1/16W,+/-200,0603	741-102-1105
R51	RES, TF,2.2,5%,1/10W,TC250,0805	741-117-2229
R52	RES, TF,3.3K,5%,1/16W,+/-200,0603	741-102-1332
R53	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R54	RES, TF,1K,5%,1/16W,+/-200,0603	741-102-1102
R55	RES, TF,1.5K,5%,1/16W,+/-200,0603	741-102-1152
R56	**RES**, TF,120 5%,1/16W,+/-200,0603	741-102-1121
R57	RES, TF,100K,1%,1/16W,0603	740-211-1003
R58	RES, TF,470K,5%,1/16W,+/-200,0603	741-102-1474
R59	RES, TF,39,5%,1/16W,+/-200,0603	741-102-1390
R61	RES, TF,68K,1%,1/16W,+/-100,0603	740-211-1683
R64	RES, TF,22,5%,1/16W,+/-200,0603	741-102-1220
R65	RES, TF,51,5%,1/16W,+/-200,0603	741-102-1510
R66	RES, TF,100,5%,1/16W,+/-200,0603	741-102-1101
R68	RES, TF,680K,5%,1/16W,+/-200,0603	741-102-1684
R69	RES, TF,470K,5%,1/16W,+/-200,0603	741-102-1474
R70	RES, TF,470K,5%,1/16W,+/-200,0603	741-102-1474
R71	RES, TF,1K,5%,1/16W,+/-200,0603	741-102-1102
R72	RES, TF,470K,5%,1/16W,+/-200,0603	741-102-1474

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REF #	DESCRIPTION	PART #
R74	RES, TF,22K,5%,1/16W,+/-200,0603	741-102-1223
R75	RES, TF,18K,5%,1/16W,+/-200,0603	741-102-1183
R76	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R77	RES, TF,1.2K,5%,1/16W, +/-200,0603	741-102-1122
R78	RES, TF,22K,5%,1/16W,+/-200,0603	741-102-1223
R79	RES, TF,10,5%,1/16W,+/-200,0603	741-102-1100
R82	RES, TF,33K,5%,1/16W,+/-200,0603	741-102-1333
R83	RES, TF,20K,5%,1/16W,+/-200,0603	741-102-1203
R92	RES, TF,4.7M,5%,1/16W,+/-200,0603	741-102-1475
R94	RES, TF,1K,5%,1/16W,+/-200,0603	741-102-1102
R95	RES, TF,82K,5%,1/16W,+/-200,0603	741-102-1823
R96	RES, TF,39K,5%,1/16W,+/-200,0603	741-102-1393
R97	RES, TF,100,5%,1/16W,+/-200,0603	741-102-1101
R98	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R99	RES, TF,100K,1%,1/16W,0603	740-211-1003
R100	RES, TF,68K,1%,1/16W,+/-100,0603	740-211-1683
R102	RES, TF,22K,5%,1/16W,+/-200,0603	741-102-1223
R103	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R104	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R105	RES, TF,22K,5%,1/16W,+/-200,0603	741-102-1223
R106	RES, TF,22K,5%,1/16W,+/-200,0603	741-102-1223
R108	RES, TF,56K,5%,1/16W,+/-200,0603	741-102-1563
R109	RES, TF,0.1,1%,1W, +/-100,0603	740-521-0R10
R110	RES, TF,330,5%,1/16W,+/-200,0603	741-102-1331
R111	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R112	RES, TF,22K,5%,1/16W,+/-200,0603	741-102-1223
R115	RES, TF,47K,5%,1/16W,+/-200,0603	741-102-1473
R116	RES, TF, 0, 5%,1/16W, +/-200,0603	741-102-1000
R118	RES, TF,680,5%,1/16W,+/-200,0603	741-102-1681
R124	RES, TF,100,5%,1/16W,+/-200,0603	741-102-1101
R125	RES, TF,47,5%,1/16W,+/-200,0603	741-102-1470
R129	RES, TF, 0, 5%,1/16W, +/-200,0603	741-102-1000
R901	RES, TF,2.2K,5%,1/16W,+/-200,0603	741-102-1222
R902	RES, TF,2.2K,5%,1/16W,+/-200,0603	741-102-1222
R903	RES, TF,4.7K,5%,1/16W,+/-200,0603	741-102-1472
R904	RES, TF,7.5K,5%,1/16W,+/-200,0603	741-102-1752
R905	RES, TF,27K,5%,1/16W,+/-200,0603	741-102-1273
R906	RES, TF,7.5K,5%,1/16W,+/-200,0603	741-102-1752
R907	RES, TF,27K,5%,1/16W,+/-200,0603	741-102-1273
R908	RES, TF,47,5%,1/16W,+/-200,0603	741-102-1470
R909	RES, TF,470,5%,1/16W,+/-200,0603	741-102-1471
RV1	POT,VRES,10K,+/-25%,TOP ADJ,	901-120-0103
RV2	POT,VRES,100K,+/-25%,TOP ADJ,	901-120-0104
RV3	POT,VRES,47K,+/-25%,TOP ADJ,	901-120-0473
RV6	POT,VRES,10K,+/-25%,TOP ADJ,	901-120-0103
T1	COIL, VAR,455KHZ QUAD,IFT,SMD	353-012-0001
T2	XFMR, B4F, FREQ.MIXER,617PT-1019,SMT	840-010-0002
T3	XFMR, B4F, FREQ.MIXER,617PT-1019,SMT	840-010-0002
X1	XTAL, 44.645M -30 15PM,32P,RX 3RD,HC-45	168-044-6450
XF1	FILTER, XTAL,KFN1045AA,45.1M	310-030-0015

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SD-125 (U2 440-470MHz) RF BOARD PARTS LIST (650-020-0026)

REF #	DESCRIPTION	PART #
	REPLACEMENT MODULES	
	ASSY, PCB,FRONT END,UHF,440-470MHZ	650-110-0017
	ASSY, PCB,PWR AMP,UHF,440-470MHZ	650-230-0016
	ASSY, PCB,TCXO	650-100-0002
	ASSY, PCB,VCO TX/RX,UHF,440-470MHZ	650-030-0023
C1	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C2	CAP, TA,10UF,20%,6.3V,3216,A	102-013-0106
C3	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C4	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C5	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C6	CAP, TA,4.7UF,20%,10V,A	102-023-0475
C7	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C8	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C9	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C11	CAP, CER,0.1UF,+80-20%,25V,Y5V,0603	100-813-1104
C12	CAP, TA,10UF,20%,6.3V,3216,A	102-013-0106
C13	CAP, CER,0.01UF,10%,25V,X7R,0603	100-611-1103
C14	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C15	CAP, CER,0.1UF,+80-20%,25V,Y5V,0603	100-813-1104
C16	CAP, CER,2PF,0.25PF,50V,COG,0603	100-020-1020
C17	CAP, CER,0.1UF,+80-20%,25V,Y5V,0603	100-813-1104
C18	CAP, CER,0.001UF,10%,50V,X7R,0603	100-621-1102
C19	CAP, CER,220PF,5%,50V,COG,0603	100-520-1221
C21	CAP, METAL,POLY,0.33UF,63V BOX	083-013-2334
C22	CAP, METAL POLY,0.022UF,10%,63V BOX	083-013-2223
C23	CAP, METAL POLY,0.01UF,10%,63V KBOX	083-014-2103
C24	CAP, METAL POLY,0.01UF,10%,63V KBOX	083-014-2103
C25	CAP, CER,1UF,+80-20%,16V,Y5V,0805	100-803-2105
C26	CAP, CER,0.1UF,+80-20%,25V,Y5V,0603	100-813-1104
C34	CAP, CER,220PF,5%,50V,COG,0603	100-520-1221
C35	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C36	CAP, CER,7PF,0.5PF,50V,COG,0805	100-110-2070
C37	CAP, CER,5.6PF,0.25PF,50V,COG,0603	100-020-15R6
C38	CAP, CER,15PF,5%,50V,COG,0805	100-520-2150
C39	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C41	CAP, CER,6PF,0.5PF,50V,COG,0805	100-120-2060
C42	CAP, CER,27PF,5%,50V,COG,0805	100-520-2270
C43	CAP, CER,5PF,0.25PF,50V,COG,0603	100-020-1050
C44	CAP, CER,1UF,+80-20%,16V,Y5V,0805	100-803-2105
C45	CAP, CER,220PF,5%,50V,COG,0603	100-520-1221
C46	CAP, CER,3PF,0.25PF,50V,COG,0603	100-020-1030
C47	CAP, CER,220PF,5%,50V,COG,0603	100-520-1221
C49	CAP, CER,4.7PF,0.5PF,50V,COG,0805	100-120-24R7
C50	CAP, CER,12PF,5%,50V,COG,0603	100-520-1120
C51	CAP, CER,6.8PF,0.5PF,50V,COG,0603	100-120-16R8
C53	CAP, CER,1UF,+80-20%,16V,Y5V,0805	100-803-2105
C54	CAP, CER,220PF,5%,50V,COG,0603	100-520-1221
C55	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C56	CAP, CER,6.8PF,0.5PF,50V,COG,0603	100-120-16R8
C57	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C58	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C59	CAP, CER,0.47UF,+20-80%,16V,Y5V,0805	100-803-2474
C60	CAP, TA,4.7UF,20%,10V,A	102-023-0475
C61	CAP, TA,10UF,20%,6.3V,3216,A	102-013-0106
C62	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C63	CAP, CER,0.01UF,10%,25V,X7R,0603	100-611-1103
C64	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C65	CAP, TA,10UF,20%,10V,B,3528	102-023-1106
C66	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C67	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C68	CAP, CER,470PF,5%,50V,COG,0805	100-520-2471
C73	CAP, CER,10PF,0.25PF,COG,50V,0805	100-020-2100
C74	CAP, CER,16PF,5%,50V,COG,0805	100-520-2160
C75	CAP, CER,5PF,0.25PF,50V,COG,0805	100-020-2050
C76	CAP, CER,1PF,0.25PF,50V,COG,0805	100-020-2010
C77	CAP, CER,470PF,5%,50V,COG,0805	100-520-2471
C78	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C79	CAP, CER,0.1UF,10%,25V,X7R,0805	100-611-2104
C80	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C81	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C82	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C83	CAP, CER,7PF,0.5PF,50V,COG,0603	100-120-1070
C84	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C87	CAP, CER,22PF,5%,50V,COG,0603	100-520-1220
C87	CAP, CER,9PF,0.5PF,50V,COG,0603	100-120-1090
C88	CAP, CER,0.1UF,+80-20%,25V,Y5V,0603	100-813-1104
C90	CAP, CER,7PF,0.5PF,50V,COG,0603	100-120-1070
C92	CAP, CER,24PF,5%,50V,COG,0603	100-520-1240
C93	CAP, CER,82PF,5%,50V,COG,0603	100-520-1820
C94	CAP, CER,1UF,+80-20%,16V,Y5V,0805	100-803-2105
C96	CAP, CER,0.01UF,10%,25V,X7R,0603	100-611-1103
C97	CAP, CER,30PF,5%,50V,COG,0603	100-520-1300
C98	CAP, CER,0.001UF,10%,50V,X7R,0603	100-621-1102
C100	CAP, TA,10UF,20%,6.3V,3216,A	102-013-0106
C101	CAP, TA,10UF,20%,6.3V,3216,A	102-013-0106
C102	CAP, CER,0.001UF,10%,50V,X7R,0603	100-621-1102
C103	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C104	CAP, TA,1UF,20%,25V,3216	102-053-0105
C111	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C117	CAP, CER,47PF,5%,50V,COG,0603	100-520-1470
C118	CAP, CER,33PF,5%,50V,COG,0603	100-520-1330
C121	CAP, CER,20PF,5%,50V,COG,0603	100-520-1200
C122	CAP, CER,0.01UF,10%,25V,X7R,0603	100-611-1103
C123	CAP, CER,0.01UF,10%,25V,X7R,0603	100-611-1103
C124	CAP, CER,0.1UF,10%,25V,X7R,0805	100-611-2104
C125	CAP, CER,0.1UF,10%,25V,X7R,0805	100-611-2104
C126	CAP, CER,0.01UF,10%,25V,X7R,0603	100-611-1103
C127	CAP, CER,0.01UF,10%,25V,X7R,0603	100-611-1103
C128	CAP, TA,4.7UF,20%,10V,A	102-023-0475
C129	CAP, ELE,10UF,16V,20%,3X5,5.0PT	081-032-3106
C131	CAP, CER,0.001UF,10%,50V,X7R,0603	100-621-1102
C133	CAP, CER,0.1UF,+80-20%,25V,Y5V,0603	100-813-1104
C152	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C901	CAP, CER,0.01UF,10%,25V,X7R,0603	100-611-1103
C902	CAP, CER,0.01UF,10%,25V,X7R,0603	100-611-1103
C904	CAP, CER,0.01UF,10%,25V,X7R,0603	100-611-1103
C905	CAP, CER,68PF,5%,50V,COG,0603	100-520-1680
C906	CAP, CER,220PF,5%,50V,COG,0603	100-520-1221

NOTES:

1. Components are not available, assembly is non-repairable.

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REF #	DESCRIPTION	PART #
C907	CAP, CER,0.01UF,10%,25V,X7R,0603	100-611-1103
C909	CAP, CER,0.01UF,10%,25V,X7R,0603	100-611-1103
CF1	FILTER, CER, LT-455FW,455KHZ	310-101-0010
CF2	FILTER, CER,CF455HT,455KHZ	310-010-0013
CON1	CONN, SKT,18P/DIP,2.0MMST,SMT	140-020-0056
D5	DIODE, PIN,UPP9401,(T&R)50V,2.5W	220-020-0001
D6	DIODE, PIN,UPP9401,(T&R)50V,2.5W	220-020-0001
D9	DIODE, SCHOTTKY,CHIP,HSMS-2817#L31	220-040-0009
D12	DIODE, SW,KDS193,SOT-23	220-010-0003
D13	DIODE, SW,KDS181S,SOT-23	220-010-0004
D14	DIODE, SW,KDS181S,SOT-23	220-010-0004
D903	DIODE, SW,KDS226,SOT-23	220-010-0005
D904	DIODE, SW,KDS226,SOT-23	220-010-0005
H3	SCRW, MACH,STL,M2X6,FLH,PHL,ZN	330-110-0142
H4	SCRW, MACH,STL,M2X6,FLH,PHL,ZN	330-110-0142
IC1	IC, VREG,TK11450MTR,+5V,SOT-23L,(R5)	441-010-0002
IC2	IC, PLL,MC145191FR2,SO-20,RS-440	440-050-0011
IC3	IC, OP AMP,LM358MX,SO-8,DUAL	441-030-0006
IC5	IC, VHF RCVR,MC3371D,SO-16,NWRBAND	441-060-0007
IC7	IC, OP AMP,LM358MX,SO-8,DUAL	441-030-0006
IC8	IC, OP AMP,DUAL,TL062CDR,SO-8	441-030-0012
L1	COIL, CHIP,18NH,20%,LL2012-F18NM	371-010-5180
L2	COIL, CHIP,18NH,20%,LL2012-F18NM	371-010-5180
L3	COIL, CHIP,18NH,20%,LL2012-F18NM	371-010-5180
L4	COIL, CHIP,18NH,20%,LL2012-F18NM	371-010-5180
L5	COIL, CHIP,18NH,20%,LL2012-F18NM	371-010-5180
L6	COIL, CHIP,0.82UH:NL252018T-R82J	371-804-3R82
L7	COIL, SPRG, 2X0.75X3T:L SMD	350-000-0103
L8	COIL, SPRG, 2X0.75X3T:L SMD	350-000-0103
L11	COIL, SPRG, 2X0.75X3T:L SMD	350-000-0103
L12	COIL, CHIP,1.2UH,5%,NL252018T-1R2J	371-004-31R2
L13	COIL, SPRG, 1.0X0.35X7T;R,	350-000-0095
L14	COIL, CHIP,0.47UH:NL252018T-R47J	371-804-3R47
L15	COIL, CHIP,0.15UH,5%,NL252018T-R15J	371-004-3R15
L18	COIL, CHIP,1UH,5%,NL252018T-1R0J	371-017-3102
L19	COIL CHIP,10UH,CYLNDRCL,+/-10%,1206	371-005-3103
Q2	TRANS, PNP,KRA110SPK,SOT-23,SW,PK	870-010-0010
Q3	TRANS, PNP,KRA110SPK,SOT-23,SW,PK	870-010-0010
Q4	TRANS, PNP,KRA110SPK,SOT-23,SW,PK	870-010-0010
Q5	TRANS, PNP,KRA104S,SOT-23,SW,(PD)	870-010-0005
Q6	TRANS, NPN,KTC3875(BL),SOT-23,	870-200-0006
Q7	TRANS, PNP,KTA1504(Y),SOT-23,SW	870-100-0004
Q8	TRANS, PNP,KTA1504(Y),SOT-23,SW	870-100-0004
Q11	TRANS, NPN,KTC3875(BL),SOT-23,	870-200-0006
Q12	TRANS, NPN,BFR92A,SOT-23	870-200-0020
Q13	TRANS, NPN,KTC3875(BL),SOT-23,	870-200-0006
Q14	TRANS, NPN,KTC3875(BL),SOT-23,	870-200-0006
Q16	TRANS, NPN,BFR92A,SOT-23	870-200-0020
Q17	TRANS, 900MHZ AMP,MMBR951,SOT-23	870-200-0026
Q18	TRANS, NPN,KRC104SND,SOT-23,SW,ND	870-020-0001
Q19	TRANS, NPN,KTC3875(BL),SOT-23,	870-200-0006
Q21	TRANS, NPN,KTC3875(BL),SOT-23,	870-200-0006
Q22	TRANS, PNP,KTA1663(Y),SOT-89,HC/SW,H(Y)	870-150-0002
Q25	TRANS, NPN,BFR92A,SOT-23	870-200-0020
Q31	TRANS, NPN,KRC104SND,SOT-23,SW,ND	870-020-0001
Q32	TRANS, NPN,KRC104SND,SOT-23,SW,ND	870-020-0001
Q34	TRANS, NPN,KRC104SND,SOT-23,SW,ND	870-020-0001
Q901	TRANS, PNP,KTA2014, USM	870-100-0018
Q902	TRANS, NPN,KTC4075,UMT3	870-200-0031
Q903	TRANS, PNP,KTA2014, USM	870-100-0018
Q904	TRANS, PNP,KTA2014, USM	870-100-0018
Q905	TRANS, PNP,KTA2014, USM	870-100-0018
R1	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R2	RES, TF,100K,5%,1/16W,+/-200,0603	741-102-1104
R3	RES, TF,2.2K,5%,1/16W,+/-200,0603	741-102-1222
R4	RES, TF,1.8K,5%,1/16W,+/-200,0603	741-102-1182
R5	RES, TF,1.8K,5%,1/16W,+/-200,0603	741-102-1182
R6	RES, TF,2K,5%,1/16W,+/-200,0603	741-102-1202
R7	RES, TF,1.8K,5%,1/16W,+/-200,0603	741-102-1182
R8	RES, TF,910,5%,1/10W,TC250,0805	741-117-2911
R11	RES, TF,100,5%,1/16W,+/-200,0603	741-102-1101
R12	RES, TF,5.6K,5%,1/16W,+/-200,0603	741-102-1562
R13	RES, TF,2.7K,5%,1/16W,+/-200,0603	741-102-1272
R14	RES, TF,2.7K,5%,1/16W,+/-200,0603	741-102-1272
R15	RES, TF,100,5%,1/16W,+/-200,0603	741-102-1101
R16	RES, TF,910,5%,1/10W,TC250,0805	741-117-2911
R17	RES, TF,12K,5%,1/16W,+/-200,0603	741-102-1123
R21	RES, TF,33,5%,1/16W,+/-200,0603	741-102-1330
R22	RES, TF,4.7K,5%,1/16W,+/-200,0603	741-102-1472
R23	RES, TF,100,5%,1/16W,+/-200,0603	741-102-1101
R24	RES, TF,5.6K,5%,1/16W,+/-200,0603	741-102-1562
R25	RES, TF,4.7K,5%,1/16W,+/-200,0603	741-102-1472
R26	RES, TF,18,5%,1/16W,+/-200,0603	741-102-1180
R27	RES, TF,4.7K,5%,1/16W,+/-200,0603	741-102-1472
R28	RES, TF,220,5%,1/16W,+/-200,0603	741-102-1221
R31	RES, TF,300,5%,1/16W,+/-200,0603	741-102-1301
R32	RES, TF,300,5%,1/16W,+/-200,0603	741-102-1301
R33	RES., TF,6.8K, 5%, 1/16W,+/-200, 0603	741-102-1682
R34	RES, TF,18,5%,1/16W,+/-200,0603	741-102-1180
R35	RES, TF,5.6K,5%,1/16W,+/-200,0603	741-102-1562
R36	RES, TF, 0, 5%,1/16W, +/-200,0603	741-102-1000
R37	RES, TF,1.2K,5%,1/16W, +/-200,0603	741-102-1122
R41	RES, TF,100,5%,1/16W,+/-200,0603	741-102-1101
R42	RES, TF,12K,5%,1/16W,+/-200,0603	741-102-1123
R43	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R45	RES, TF,12K,5%,1/16W,+/-200,0603	741-102-1123
R46	RES, TF,2.2K,5%,1/16W,+/-200,0603	741-102-1222
R47	RES, TF,2.2,5%,1/10W,TC250,0805	741-117-2229
R48	RES, TF,2.2,5%,1/10W,TC250,0805	741-117-2229
R49	RES, TF, 0, 5%,1/16W, +/-200,0603	741-102-1000
R50	RES, TF,1M,5%,1/16W,+/-200,0603	741-102-1105
R51	RES, TF,2.2,5%,1/10W,TC250,0805	741-117-2229
R52	RES, TF,3.3K,5%,1/16W,+/-200,0603	741-102-1332
R53	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R54	RES, TF,1K,5%,1/16W,+/-200,0603	741-102-1102
R55	RES, TF,1.5K,5%,1/16W,+/-200,0603	741-102-1152
R56	RES, TF,120 5%,1/16W,+/-200,0603	741-102-1121
R57	RES, TF,100K,1%,1/16W,0603	740-211-1003
R58	RES, TF,470K,5%,1/16W,+/-200,0603	741-102-1474
R59	RES, TF,39,5%,1/16W,+/-200,0603	741-102-1390
R61	RES, TF,68K,1%,1/16W,+/-100,0603	740-211-1683
R64	RES, TF,22,5%,1/16W,+/-200,0603	741-102-1220
R65	RES, TF,51,5%,1/16W,+/-200,0603	741-102-1510
R66	RES, TF,100,5%,1/16W,+/-200,0603	741-102-1101
R68	RES, TF,680K,5%,1/16W,+/-200,0603	741-102-1684
R69	RES, TF,470K,5%,1/16W,+/-200,0603	741-102-1474
R70	RES, TF,470K,5%,1/16W,+/-200,0603	741-102-1474
R71	RES, TF,1K,5%,1/16W,+/-200,0603	741-102-1102

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MAXON
SD-125 RF LINK MODULE

REF #	DESCRIPTION	PART #
R72	RES, TF,470K,5%,1/16W,+/-200,0603	741-102-1474
R74	RES, TF,22K,5%,1/16W,+/-200,0603	741-102-1223
R76	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R77	RES, TF,1.2K,5%,1/16W, +/-200,0603	741-102-1122
R78	RES, TF,22K,5%,1/16W,+/-200,0603	741-102-1223
R79	RES, TF,10,5%,1/16W,+/-200,0603	741-102-1100
R82	RES, TF,33K,5%,1/16W,+/-200,0603	741-102-1333
R83	RES, TF,20K,5%,1/16W,+/-200,0603	741-102-1203
R92	RES, TF,4.7M,5%,1/16W,+/-200,0603	741-102-1475
R94	RES, TF,1K,5%,1/16W,+/-200,0603	741-102-1102
R95	RES, TF,82K,5%,1/16W,+/-200,0603	741-102-1823
R96	RES, TF,39K,5%,1/16W,+/-200,0603	741-102-1393
R97	RES, TF,100,5%,1/16W,+/-200,0603	741-102-1101
R98	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R99	RES, TF,100K,1%,1/16W,0603	740-211-1003
R100	RES, TF,68K,1%,1/16W,+/-100,0603	740-211-1683
R102	RES, TF,22K,5%,1/16W,+/-200,0603	741-102-1223
R103	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R104	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R105	RES, TF,22K,5%,1/16W,+/-200,0603	741-102-1223
R106	RES, TF,22K,5%,1/16W,+/-200,0603	741-102-1223
R108	RES, TF,56K,5%,1/16W,+/-200,0603	741-102-1563
R109	RES, TF,0.1,1%,1W, +/-100,0603	740-521-0R10
R110	RES, TF,330,5%,1/16W,+/-200,0603	741-102-1331
R111	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R112	RES, TF,22K,5%,1/16W,+/-200,0603	741-102-1223
R115	RES, TF,47K,5%,1/16W,+/-200,0603	741-102-1473
R116	RES, TF, 0, 5%,1/16W, +/-200,0603	741-102-1000
R118	RES, TF,680,5%,1/16W,+/-200,0603	741-102-1681
R124	RES, TF,100,5%,1/16W,+/-200,0603	741-102-1101
R125	RES, TF,47,5%,1/16W,+/-200,0603	741-102-1470
R129	RES, TF, 0, 5%,1/16W, +/-200,0603	741-102-1000
R901	RES, TF,2.2K,5%,1/16W,+/-200,0603	741-102-1222
R902	RES, TF,2.2K,5%,1/16W,+/-200,0603	741-102-1222
R903	RES, TF,4.7K,5%,1/16W,+/-200,0603	741-102-1472
R905	RES, TF,27K,5%,1/16W,+/-200,0603	741-102-1273
R907	RES, TF,27K,5%,1/16W,+/-200,0603	741-102-1273
R908	RES, TF,47,5%,1/16W,+/-200,0603	741-102-1470
R909	RES, TF,470,5%,1/16W,+/-200,0603	741-102-1471
RV1	POT,VRES,10K,+/-25%,TOP ADJ,	901-120-0103
RV2	POT,VRES,100K,+/-25%,TOP ADJ,	901-120-0104
RV3	POT,VRES,47K,+/-25%,TOP ADJ,	901-120-0473
RV6	POT,VRES,10K,+/-25%,TOP ADJ,	901-120-0103
T1	COIL, VAR,455KHZ QUAD,IFT,SMD	353-012-0001
T2	XFMR, B4F, FREQ.MIXER,617PT-1019,SMT	840-010-0002
T3	XFMR, B4F, FREQ.MIXER,617PT-1019,SMT	840-010-0002
X1	XTAL, 44.645M -30 15PM,32P,RX 3RD,HC-45	168-044-6450
XF1	FILTER, XTAL,KFN1045AA,45.1M	310-030-0015

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SD-125 (V2 148-174MHz) RF BOARD PARTS LIST (650-020-0029)

REF #	DESCRIPTION	PART #
	REPLACEMENT MODULES	
	FRONT-END ASSEMBLY (SEE NOTE 1)	650-110-0012
	POWER AMP ASSEMBLY (SEE NOTE 1)	650-230-0012
	VCO ASSEMBLY (SEE NOTE 1)	650-030-0025
	TCXO (SEE NOTE 1)	650-100-0002
C1	CAP, CER,0.001UF,10%,50V,X7R,0603	100-621-1102
C2	CAP, TA,10UF,20%,6.3V,3216,A	102-013-0106
C3	CAP, CER,0.001UF,10%,50V,X7R,0603	100-621-1102
C4	CAP, CER,0.001UF,10%,50V,X7R,0603	100-621-1102
C5	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C6	CAP, TA,4.7UF,20%,10V,A	102-023-0475
C7	CAP, CER,0.001UF,10%,50V,X7R,0603	100-621-1102
C8	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C9	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C11	CAP, CER,0.1UF,+80-20%,25V,Y5V,0603	100-813-1104
C12	CAP, TA,10UF,20%,6.3V,3216,A	102-013-0106
C13	CAP, CER,0.01UF,10%,25V,X7R,0603	100-611-1103
C14	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C15	CAP, CER,0.1UF,+80-20%,25V,Y5V,0603	100-813-1104
C16	CAP, CER,2PF,0.25PF,50V,COG,0603	100-020-1020
C17	CAP, CER,0.1UF,+80-20%,25V,Y5V,0603	100-813-1104
C18	CAP, CER,0.001UF,10%,50V,X7R,0603	100-621-1102
C19	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C21	CAP, METAL,POLY,0.33UF,63V BOX	083-013-2334
C22	CAP, METAL POLY,0.022UF,10%,63V BOX	083-013-2223
C23	CAP, METAL POLY,0.01UF,10%,63V KBOX	083-014-2103
C24	CAP, METAL POLY,0.01UF,10%,63V KBOX	083-014-2103
C25	CAP, CER,1UF,+80-20%,16V,Y5V,0805	100-803-2105
C26	CAP, CER,0.1UF,+80-20%,25V,Y5V,0603	100-813-1104
C34	CAP, CER,220PF,5%,50V,COG,0603	100-520-1221
C35	CAP, CER,0.001UF,10%,50V,X7R,0603	100-621-1102
C36	CAP, CER,14PF,5%,50V,COG,0805	100-520-2140
C37	CAP, CER,33PF,5%,50V,COG,0603	100-520-1330
C38	CAP, CER,43PF,5%,50V,COG,0805	100-520-2430
C39	CAP, CER,0.001UF,10%,50V,X7R,0603	100-621-1102
C42	CAP, CER,0.001UF,10%,50V,X7R,0805	100-621-2102
C43	CAP, CER,3PF,0.25PF,50V,COG,0603	100-020-1030
C44	CAP, CER,1UF,+80-20%,16V,Y5V,0805	100-803-2105
C45	CAP, CER,10PF,0.5PF,50V,COG,0603	100-120-1100
C46	CAP, CER,9PF,0.5PF,50V,COG,0603	100-120-1090
C47	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C50	CAP, CER,24PF,5%,50V,COG,0603	100-520-1240
C51	CAP, CER,22PF,5%,50V,COG,0603	100-520-1220
C53	CAP, CER,1UF,+80-20%,16V,Y5V,0805	100-803-2105
C54	CAP, CER,0.001UF,10%,50V,X7R,0603	100-621-1102
C55	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C57	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C58	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C59	CAP, CER,0.47UF,+20-80%,16V,Y5V,0805	100-803-2474
C60	CAP, TA,4.7UF,20%,10V,A	102-023-0475
C61	CAP, TA,10UF,20%,6.3V,3216,A	102-013-0106
C62	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C63	CAP, CER,0.01UF,10%,25V,X7R,0603	100-611-1103
C64	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C65	CAP, TA,10UF,20%,10V,B,3528	102-023-1106
C66	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C67	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C68	CAP, CER,0.001UF,10%,50V,X7R,0805	100-621-2102
C72	CAP, CER,9PF,0.25PF,50V,COG,0805	100-020-2090
C73	CAP, CER,30PF,5%,50V,COG,0805	100-520-2300
C74	CAP, CER,36PF,5%,50V,COG,0805	100-520-2360
C75	CAP, CER,22PF,5%,50V,COG,0805	100-520-2220
C76	CAP, CER,6.8PF,0.5PF,50V,COG,0805,	100-120-26R8
C77	CAP, CER,0.001UF,10%,50V,X7R,0805	100-621-2102
C78	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C79	CAP, CER,0.1UF,10%,25V,X7R,0805	100-611-2104
C80	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C81	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C82	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C83	CAP, CER,7PF,0.5PF,50V,COG,0603	100-120-1070
C84	CAP, CER,0.001UF,10%,50V,X7R,0603	100-621-1102
C88	CAP, CER,0.1UF,+80-20%,25V,Y5V,0603	100-813-1104
C90	CAP, CER,7PF,0.5PF,50V,COG,0603	100-120-1070
C92	CAP, CER,24PF,5%,50V,COG,0603	100-520-1240
C93	CAP, CER,82PF,5%,50V,COG,0603	100-520-1820
C94	CAP, CER,1UF,+80-20%,16V,Y5V,0805	100-803-2105
C96	CAP, CER,0.01UF,10%,25V,X7R,0603	100-611-1103
C97	CAP, CER,33PF,5%,50V,COG,0603	100-520-1330
C98	CAP, CER,0.001UF,10%,50V,X7R,0603	100-621-1102
C100	CAP, TA,10UF,20%,6.3V,3216,A	102-013-0106
C101	CAP, TA,10UF,20%,6.3V,3216,A	102-013-0106
C102	CAP, CER,0.001UF,10%,50V,X7R,0603	100-621-1102
C103	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C104	CAP, TA,1UF,20%,25V,3216	102-053-0105
C111	CAP, CER,470PF,10%,50V,X7R,0603	100-621-1471
C117	CAP, CER,47PF,5%,50V,COG,0603	100-520-1470
C118	CAP, CER,33PF,5%,50V,COG,0603	100-520-1330
C121	CAP, CER,20PF,5%,50V,COG,0603	100-520-1200
C122	CAP, CER,0.01UF,10%,25V,X7R,0603	100-611-1103
C123	CAP, CER,0.01UF,10%,25V,X7R,0603	100-611-1103
C124	CAP, CER,0.1UF,10%,25V,X7R,0805	100-611-2104
C125	CAP, CER,0.1UF,10%,25V,X7R,0805	100-611-2104
C126	CAP, CER,0.01UF,10%,25V,X7R,0603	100-611-1103
C127	CAP, CER,0.01UF,10%,25V,X7R,0603	100-611-1103
C128	CAP, TA,4.7UF,20%,10V,A	102-023-0475
C129	CAP, ELE,10UF,16V,20%,3X5,5.0PT	081-032-3106
C131	CAP, CER,0.001UF,10%,50V,X7R,0603	100-621-1102
C133	CAP, CER,0.1UF,+80-20%,25V,Y5V,0603	100-813-1104
C901	CAP, CER,0.01UF,10%,25V,X7R,0603	100-611-1103
C902	CAP, CER,0.01UF,10%,25V,X7R,0603	100-611-1103
C904	CAP, CER,0.01UF,10%,25V,X7R,0603	100-611-1103
C905	CAP, CER,68PF,5%,50V,COG,0603	100-520-1680
C906	CAP, CER,220PF,5%,50V,COG,0603	100-520-1221
C907	CAP, CER,0.01UF,10%,25V,X7R,0603	100-611-1103
C909	CAP, CER,0.01UF,10%,25V,X7R,0603	100-611-1103
CF1	FILTER, CER, LT-455FW,455KHZ	310-101-0010
CF2	FILTER, CER,CF455HT,455KHZ	310-010-0013

NOTES:

1. Components are not available, assembly is non-repairable.

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MAXON
SD-125 RF LINK MODULE

REF #	DESCRIPTION	PART #
CON1	CONN, SKT,18P/DIP,2.0MMST,SMT	140-020-0056
D5	DIODE, PIN,UPP9401,(T&R)50V,2.5W	220-020-0001
D6	DIODE, PIN,UPP9401,(T&R)50V,2.5W	220-020-0001
D9	DIODE, SCHOTTKY,CHIP,HSMS-2817#L31	220-040-0009
D12	DIODE, SW,KDS193,SOT-23	220-010-0003
D13	DIODE, SW,KDS181S,SOT-23	220-010-0004
D14	DIODE, SW,KDS181S,SOT-23	220-010-0004
D903	DIODE, SW,KDS226,SOT-23	220-010-0005
D904	DIODE, SW,KDS226,SOT-23	220-010-0005
H3	SCRW, MACH,STL,M2X6,FLH,PHL,ZN	330-110-0142
H4	SCRW, MACH,STL,M2X6,FLH,PHL,ZN	330-110-0142
IC1	IC, VREG,TK11450MTR,+5V,SOT-23L,(R5)	441-010-0002
IC2	IC, PLL,MC145191FR2,SO-20,RS-440	440-050-0011
IC3	IC, OP AMP,LM358MX,SO-8,DUAL	441-030-0006
IC5	IC, VHF RCVR,MC3371D,SO-16,NWRBAND	441-060-0007
IC7	IC, OP AMP,LM358MX,SO-8,DUAL	441-030-0006
IC8	IC, OP AMP,DUAL,TL062CDR,SO-8	441-030-0012
L1	COIL, CHIP,47NH,20%,LL2012-F47NM	371-010-5470
L3	COIL, CHIP,1.2UH,5%,NL252018T-1R2J	371-004-31R2
L4	COIL, CHIP 0.1UH:NL252018T-R10J	371-804-3R10
L5	COIL, CHIP 0.1UH:NL252018T-R10J	371-804-3R10
L6	COIL, CHIP,1UH,5%,NL252018T-1R0J	371-017-3102
L7	COIL, SPRG,3X0.55X4T:L SMD	350-000-0104
L8	COIL, SPRG, 3X0.55X5T:L SMD	350-000-0105
L11	COIL, SPRG, 3X0.55X5T:L SMD	350-000-0105
L12	COIL, CHIP,1.2UH,5%,NL252018T-1R2J	371-004-31R2
L13	COIL, SPRG,2.8X0.4X8T:L,SMD	350-000-0106
L14	COIL, CHIP,0.47UH:NL252018T-R47J	371-804-3R47
L15	COIL, CHIP,0.15UH,5%,NL252018T-R15J	371-004-3R15
L18	COIL, CHIP,1UH,5%,NL252018T-1R0J	371-017-3102
L19	COIL CHIP,10UH,CYLNDRCL,+/-10%,1206	371-005-3103
Q2	TRANS, PNP,KRA110SPK,SOT-23,SW,PK	870-010-0010
Q3	TRANS, PNP,KRA110SPK,SOT-23,SW,PK	870-010-0010
Q4	TRANS, PNP,KRA110SPK,SOT-23,SW,PK	870-010-0010
Q5	TRANS, PNP,KRA104S,SOT-23,SW,(PD)	870-010-0005
Q6	TRANS, NPN,KTC3875(BL),SOT-23,	870-200-0006
Q7	TRANS, PNP,KTA1504(Y),SOT-23,SW	870-100-0004
Q8	TRANS, PNP,KTA1504(Y),SOT-23,SW	870-100-0004
Q11	TRANS, NPN,KTC3875(BL),SOT-23,	870-200-0006
Q12	TRANS, NPN,BFR92A,SOT-23	870-200-0020
Q13	TRANS, NPN,KTC3875(BL),SOT-23,	870-200-0006
Q14	TRANS, NPN,KTC3875(BL),SOT-23,	870-200-0006
Q16	TRANS, 900MHZ AMP,MMBR951,SOT-23	870-200-0026
Q17	TRANS, 900MHZ AMP,MMBR951,SOT-23	870-200-0026
Q18	TRANS, NPN,KRC104SND,SOT-23,SW,ND	870-020-0001
Q19	TRANS, NPN,KTC3875(BL),SOT-23,	870-200-0006
Q21	TRANS, NPN,KTC3875(BL),SOT-23,	870-200-0006
Q22	TRANS, PNP,KTA1663(Y),SOT-89,HC/SW,H(Y)	870-150-0002
Q25	TRANS, NPN,BFR92A,SOT-23	870-200-0020
Q31	TRANS, NPN,KRC104SND,SOT-23,SW,ND	870-020-0001
Q32	TRANS, NPN,KRC104SND,SOT-23,SW,ND	870-020-0001
Q34	TRANS, NPN,KRC104SND,SOT-23,SW,ND	870-020-0001
Q901	TRANS, NPN,KTC4075,UMT3	870-200-0031
Q902	TRANS, PNP,KTA2014, USM	870-100-0018
Q903	TRANS, NPN,KTC4075,UMT3	870-200-0031
Q904	TRANS, NPN,KTC4075,UMT3	870-200-0031
Q905	TRANS, NPN,KTC4075,UMT3	870-200-0031
R(L2)	RES, TF,0, +/-5%,1/10W,+/-250,0805	741-117-2000
R1	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R2	RES, TF,100K,5%,1/16W,+/-200,0603	741-102-1104
R3	RES, TF,2.2K,5%,1/16W,+/-200,0603	741-102-1222
R4	RES, TF,1.8K,5%,1/16W,+/-200,0603	741-102-1182
R5	RES, TF,1.8K,5%,1/16W,+/-200,0603	741-102-1182
R6	RES, TF,2K,5%,1/16W,+/-200,0603	741-102-1202
R7	RES, TF,1.8K,5%,1/16W,+/-200,0603	741-102-1182
R8	RES, TF,910,5%,1/10W,TC250,0805	741-117-2911
R11	RES, TF,100,5%,1/16W,+/-200,0603	741-102-1101
R12	RES, TF,5.6K,5%,1/16W,+/-200,0603	741-102-1562
R13	RES, TF,2.7K,5%,1/16W,+/-200,0603	741-102-1272
R14	RES, TF,2.7K,5%,1/16W,+/-200,0603	741-102-1272
R15	RES, TF,100,5%,1/16W,+/-200,0603	741-102-1101
R16	RES, TF,910,5%,1/10W,TC250,0805	741-117-2911
R17	RES, TF,12K,5%,1/16W,+/-200,0603	741-102-1123
R21	RES, TF,100,5%,1/16W,+/-200,0603	741-102-1101
R22	RES, TF,4.7K,5%,1/16W,+/-200,0603	741-102-1472
R23	RES, TF,120 5%,1/16W,+/-200,0603	741-102-1121
R24	RES, TF,5.6K,5%,1/16W,+/-200,0603	741-102-1562
R25	RES, TF,3.3K,5%,1/16W,+/-200,0603	741-102-1332
R26	RES, TF,18,5%,1/16W,+/-200,0603	741-102-1180
R27	RES, TF,4.7K,5%,1/16W,+/-200,0603	741-102-1472
R28	RES, TF,56,5%,1/16W,+/-200,0603	741-102-1560
R31	RES, TF,300,5%,1/16W,+/-200,0603	741-102-1301
R32	RES, TF,300,5%,1/16W,+/-200,0603	741-102-1301
R33	RES, TF,3.3K,5%,1/16W,+/-200,0603	741-102-1332
R34(C87)	RES, TF,18,5%,1/16W,+/-200,0603	741-102-1180
R35	RES, TF,8.2K,5%,1/16W,+/-200,0603	741-102-1822
R36	RES, TF, 0, 5%,1/16W, +/-200,0603	741-102-1000
R37	RES, TF,3.3K,5%,1/16W,+/-200,0603	741-102-1332
R41	RES, TF,100,5%,1/16W,+/-200,0603	741-102-1101
R42	RES, TF,12K,5%,1/16W,+/-200,0603	741-102-1123
R43	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R45	RES, TF,12K,5%,1/16W,+/-200,0603	741-102-1123
R46	RES, TF,2.2K,5%,1/16W,+/-200,0603	741-102-1222
R47	RES, TF,18,5%,1/10W,TC250,0805	741-117-2180
R48	RES, TF,18,5%,1/10W,TC250,0805	741-117-2180
R49	RES, TF, 0, 5%,1/16W, +/-200,0603	741-102-1000
R50	RES, TF,1M,5%,1/16W,+/-200,0603	741-102-1105
R51	RES, TF,18,5%,1/10W,TC250,0805	741-117-2180
R52	RES, TF,3.3K,5%,1/16W,+/-200,0603	741-102-1332
R53	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R54	RES, TF,1K,5%,1/16W,+/-200,0603	741-102-1102
R55	RES, TF,2.7K,5%,1/16W,+/-200,0603	741-102-1272
R56	RES, TF,270,5%,1/16W,+/-200,0603	741-102-1271
R57	RES, TF,100K,1%,1/16W,0603	740-211-1003
R58	RES, TF,470K,5%,1/16W,+/-200,0603	741-102-1474
R59	RES, TF,39,5%,1/16W,+/-200,0603	741-102-1390
R61	RES, TF,68K,1%,1/16W,+/-100,0603	740-211-1683
R64	RES, TF,22,5%,1/16W,+/-200,0603	741-102-1220
R65	RES, TF,51,5%,1/16W,+/-200,0603	741-102-1510
R66	RES, TF,100,5%,1/16W,+/-200,0603	741-102-1101
R68	RES, TF,680K,5%,1/16W,+/-200,0603	741-102-1684
R69	RES, TF,470K,5%,1/16W,+/-200,0603	741-102-1474
R70	RES, TF,470K,5%,1/16W,+/-200,0603	741-102-1474
R71	RES, TF,1K,5%,1/16W,+/-200,0603	741-102-1102
R72	RES, TF,470K,5%,1/16W,+/-200,0603	741-102-1474
R74	RES, TF,22K,5%,1/16W,+/-200,0603	741-102-1223
R75	RES, TF,47K,5%,1/16W,+/-200,0603	741-102-1473

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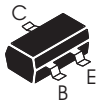
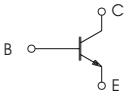
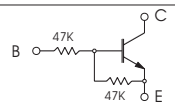
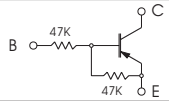
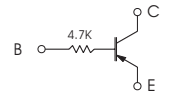
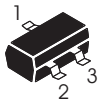
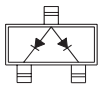
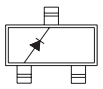
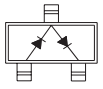
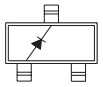
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R76	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R77	RES, TF,1.2K,5%,1/16W, +/-200,0603	741-102-1122
R78	RES, TF,22K,5%,1/16W,+/-200,0603	741-102-1223
R79	RES, TF,10,5%,1/16W,+/-200,0603	741-102-1100
R82	RES, TF,33K,5%,1/16W,+/-200,0603	741-102-1333
R83	RES, TF,20K,5%,1/16W,+/-200,0603	741-102-1203
R90	RES, TF,300,5%,1/16W,+/-200,0603	741-102-1301
R91	RES, TF,300,5%,1/16W,+/-200,0603	741-102-1301
R92	RES, TF,4.7M,5%,1/16W,+/-200,0603	741-102-1475
R94	RES, TF,1K,5%,1/16W,+/-200,0603	741-102-1102
R95	RES, TF,82K,5%,1/16W,+/-200,0603	741-102-1823
R96	RES, TF,39K,5%,1/16W,+/-200,0603	741-102-1393
R97	RES, TF,100,5%,1/16W,+/-200,0603	741-102-1101
R98	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R99	RES, TF,100K,1%,1/16W,0603	740-211-1003
R100	RES, TF,68K,1%,1/16W,+/-100,0603	740-211-1683
R102	RES, TF,22K,5%,1/16W,+/-200,0603	741-102-1223
R103	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R104	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R105	RES, TF,22K,5%,1/16W,+/-200,0603	741-102-1223
R106	RES, TF,22K,5%,1/16W,+/-200,0603	741-102-1223
R108	RES, TF,56K,5%,1/16W,+/-200,0603	741-102-1563
R109	RES, TF,0.1,1%,1W, +/-100,0603	740-521-0R10
R110	RES, TF,330,5%,1/16W,+/-200,0603	741-102-1331
R111	RES, TF,10K,5%,1/16W,+/-200,0603	741-102-1103
R112	RES, TF,22K,5%,1/16W,+/-200,0603	741-102-1223
R115	RES, TF,47K,5%,1/16W,+/-200,0603	741-102-1473
R116	RES, TF, 0, 5%,1/16W, +/-200,0603	741-102-1000
R118	RES, TF,680,5%,1/16W,+/-200,0603	741-102-1681
R124	RES, TF,100,5%,1/16W,+/-200,0603	741-102-1101
R125	RES, TF,22,5%,1/16W,+/-200,0603	741-102-1220
R129(C56)	RES, TF, 0, 5%,1/16W, +/-200,0603	741-102-1000
R901	RES, TF,2.2K,5%,1/16W,+/-200,0603	741-102-1222
R902	RES, TF,2.2K,5%,1/16W,+/-200,0603	741-102-1222
R903	RES, TF,4.7K,5%,1/16W,+/-200,0603	741-102-1472
R904	RES, TF,7.5K,5%,1/16W,+/-200,0603	741-102-1752
R905	RES, TF,27K,5%,1/16W,+/-200,0603	741-102-1273
R906	RES, TF,7.5K,5%,1/16W,+/-200,0603	741-102-1752
R907	RES, TF,27K,5%,1/16W,+/-200,0603	741-102-1273
R908	RES, TF,47,5%,1/16W,+/-200,0603	741-102-1470
R909	RES, TF,470,5%,1/16W,+/-200,0603	741-102-1471
RV1	POT,VRES,10K,+/-25%,TOP ADJ,	901-120-0103
RV2	POT,VRES,100K,+/-25%,TOP ADJ,	901-120-0104
RV3	POT,VRES,47K,+/-25%,TOP ADJ,	901-120-0473
RV6	POT,VRES,10K,+/-25%,TOP ADJ,	901-120-0103
T1	COIL, VAR,455KHZ QUAD,IFT,SMD	353-012-0001
T2	XFMR, B4F, FREQ.MIXER,617PT-1019,SMT	840-010-0002
T3	XFMR, B4F, FREQ.MIXER,617PT-1019,SMT	840-010-0002
X1	XTAL, 44.645M -30 15PM,32P,RX 3RD,HC-45	168-044-6450
XF1	FILTER, XTAL,KFN1045AA,45.1M	310-030-0015

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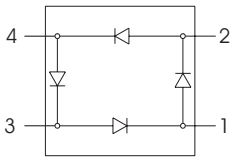
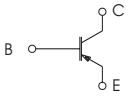
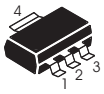
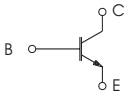
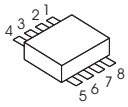
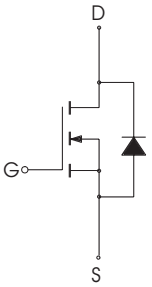
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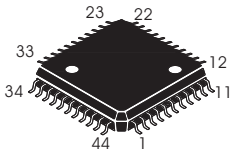
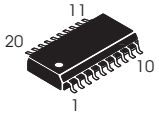
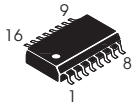
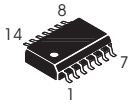
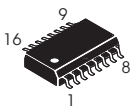
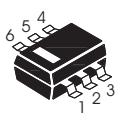
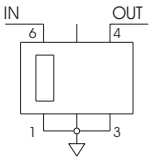
COMPONENT PINOUT

BASE DIAGRAM	MANUFACTURER'S PART NUMBER	REFERENCE NO.	SCHEMATIC
	2SC5084	Q202,203,302,303	
	MMBR951	Q16,17,501,601	
	BFR92A	Q12,25	
	KTC3875S (ALG)	Q6,11,13,14,19,21	
	KTC4075	Q901,903,904,905	
	KTA2014	Q902	
	KTA1504S (ASG)	Q7,8,407	
	KRC104S (ND)	Q18,31,32,34, Q404,406,408	
	KRA104S (PD)	Q5,401,402,403,405	
	KRA110S (NK)	Q2,3,4	
	KDS181 (A3)	D13,14	
	KDS193 (F3)	D12,406	
	KDS226 (C3)	D903,904	
	MMBD101 MMBV3401 (4D)	D4,5,6	
	Zener 5.6V	D401,402,403,404,405 D407,408,409,410	

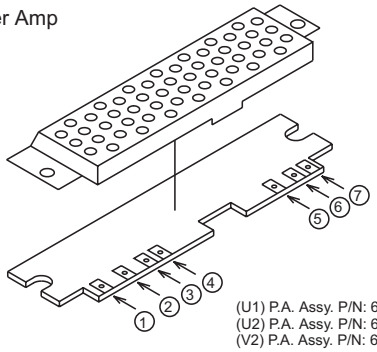
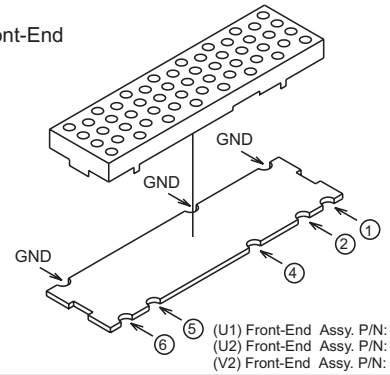
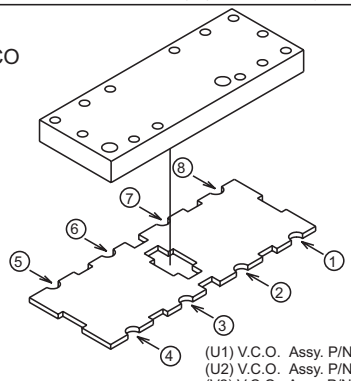
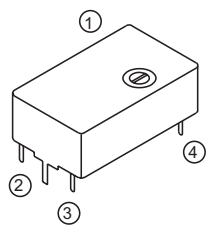
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BASE DIAGRAM	MANUFACTURER'S PART NUMBER	REFERENCE NO.	SCHEMATIC
	HSMS2817	D9	
 1.BASE 2.COLLECTOR 3.EMITTER	KTA1663	Q22	
 1.EMITTER 2.BASE 3.EMITTER 4.COLLECTOR	BFG35 BLT50	Q502	
 1,4,5,8:EMITTER 2,3:BASE 6,7:COLLECTOR	BLT52	Q503	
	1SV229 1SV217	D201,202,301	
	KDS160	D801	
	MMBR140T3	D802	
	UPP9401	D5,6	
	SI4412	Q801,802	

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BASE DIAGRAM	MANUFACTURER'S PART NUMBER	REFERENCE NO.	IC'S
	MC68HC705C8FB	U401	CPU IC
	MC14519IF	IC2	PLL IC
	LTC1435	U801	DC/DC Convertor
 1:VCC 2:GND 3:OUTPUT 4:GND	KIA7042P/F	U408	Voltage Regulator
	LM339	U403	Comparator
	MC14066	U404	Analoge SW IC
	LM324	U405,406	OP AMP
	LM358	IC3,7	OP AMP
	AT93C56-10S1	U402	EEPROM
	LM386	U407	Audio AMP
	TL062	IC8	OP AMP
	MC3371DR2	IC5	IF IC
	KT11450	IC1	

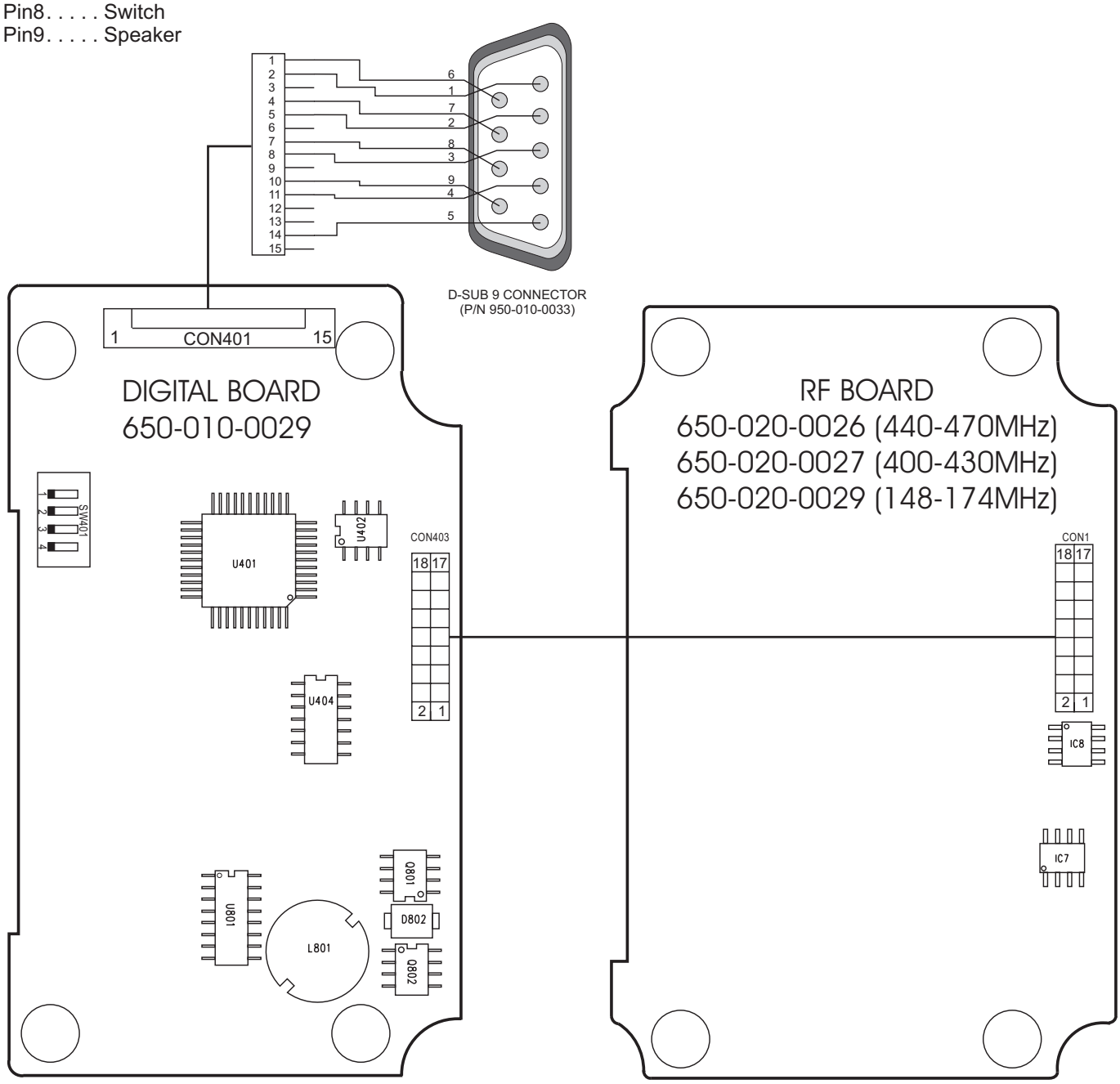
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BASE DIAGRAM	PIN DESCRIPTION
RF Power Amp  (U1) P.A. Assy. P/N: 650-230-0017 (U2) P.A. Assy. P/N: 650-230-0016 (V2) P.A. Assy. P/N: 650-230-0012	No Description ① Input ② GND ③ Vcc (Pre Drive) ④ Vcc Control (Drive) ⑤ Vcc (Final) ⑥ Output ⑦ GND
RX Front-End  (U1) Front-End Assy. P/N: 650-110-0019 (U2) Front-End Assy. P/N: 650-110-0017 (V2) Front-End Assy. P/N: 650-110-0012	① Input ② GND ④ B^+(4V) ⑤ GND ⑥ Output
RX/TX VCO  (U1) V.C.O. Assy. P/N: 650-030-0026 (U2) V.C.O. Assy. P/N: 650-030-0023 (V2) V.C.O. Assy. P/N: 650-030-0025	① NC ② RX Streening ③ TX Modulation ④ TX Streening ⑤ TX Vcc ⑥ TX Out ⑦ RX Vcc ⑧ TX Out
12.8 MHz TCXO  TCXO Assy. P/N: 650-100-0002	① Modulation ② GND ③ Out ④ Vcc (5V)

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WIRING DIAGRAM

Pin1. . . . . Audio In (Data RX)
Pin2. . . . . Audio Out (Data TX)
Pin3. . . . . PTT
Pin4. . . . . GND (Ground)
Pin5. . . . . B+ (8-18 Volts DC)
Pin6. . . . . Carrier Detect (Squelch)
Pin7. . . . . N/C No Connect
Pin8. . . . . Switch
Pin9. . . . . Speaker



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REVISIONS			
REV	DESCRIPTION	CHG BY	DATE
A	RELEASED TO MANUFACTURING	JW	09/98

TCXO
TCXO(12.8MHz)
TCXO1
Ref Freq
+5V
TCXO MOD
IC2
PLL CIRCUIT
#R
#V
PLL EN
DATA
L/D
CPU
F in
LEVEL SHFTER
Q6,7,8,11
REF L.P.F
C21,C22
CONT
TX VCO
Q202/203
TX VCO
MOD
TX BUFFER
Q16/Q17
TX 5V
P.A. MODULE
Q501
Q502
Q503
L.P.F
ANT SW
D5
D6
ANT
TX B+
CURRENT SENSOR
VCC
Q22
CONTROL
IC3B
AUTO POWER CONTROL
RV1
POWER ADJUST
HI
IC3A
CURRENT DETECTOR
CONVERT
RV6
POWER ADJUST
LOW
FROM CPU
INVERTER
Q5
DC/DC CONVERTER
16V
BALANCE
RV401
RX VCO
Q302/303
RX VCO
CONT
Q12
RX BUFEFER
LOCAL LPF
L1,L2
FRONT END
T2/3/D9
MIXER
FILTER
LOW NOISE AMP
Q601
FILTER
RX
5V
IC405B
BUFFER
RV2
MOD LEVEL
U405A
2nd LPF
U405B
2nd LPF
BUFFER
25KHz
CF1
455KHz
2nd IF FILTER
X1
2nd LOCAL
44.645MHz
12.5KHz
CF2
2nd IF FILTER
T1
QUADRATURE
RX +5V
XF1
1st IF FILTER
45.1MHz
1st IF AMP
Q25
MIXER
INPUT
RSSI OUT
DATA OUT
CH SEL
X401
3.57
L/D
CHANNEL
U401
68HC705C8
DATA EN
TCAP
PA0
386 EN
5V REGULATOR
VCC
Vin 7.5V-25V
Vout 7.5V
IC1
5V
D/D CONVERTER
U402
EEPROM
U408
RESET
U404A
U403A
LM339
RSSI SQUELCH CONTROL
U403B
LM339
DB9
DB9 CABLE
U403D
COMPARATOR
LK9/LK10
LK2/LK3
3KHz LPF
U406B
R454/C422
DEMPHASIS
U407
LM386
AUDIO AMP
RV403
AF LEVEL
CPU AF MUTE
U404C
U405D
PREMPHSIS
U405C
U406C
U404D
TX TONE
U404B

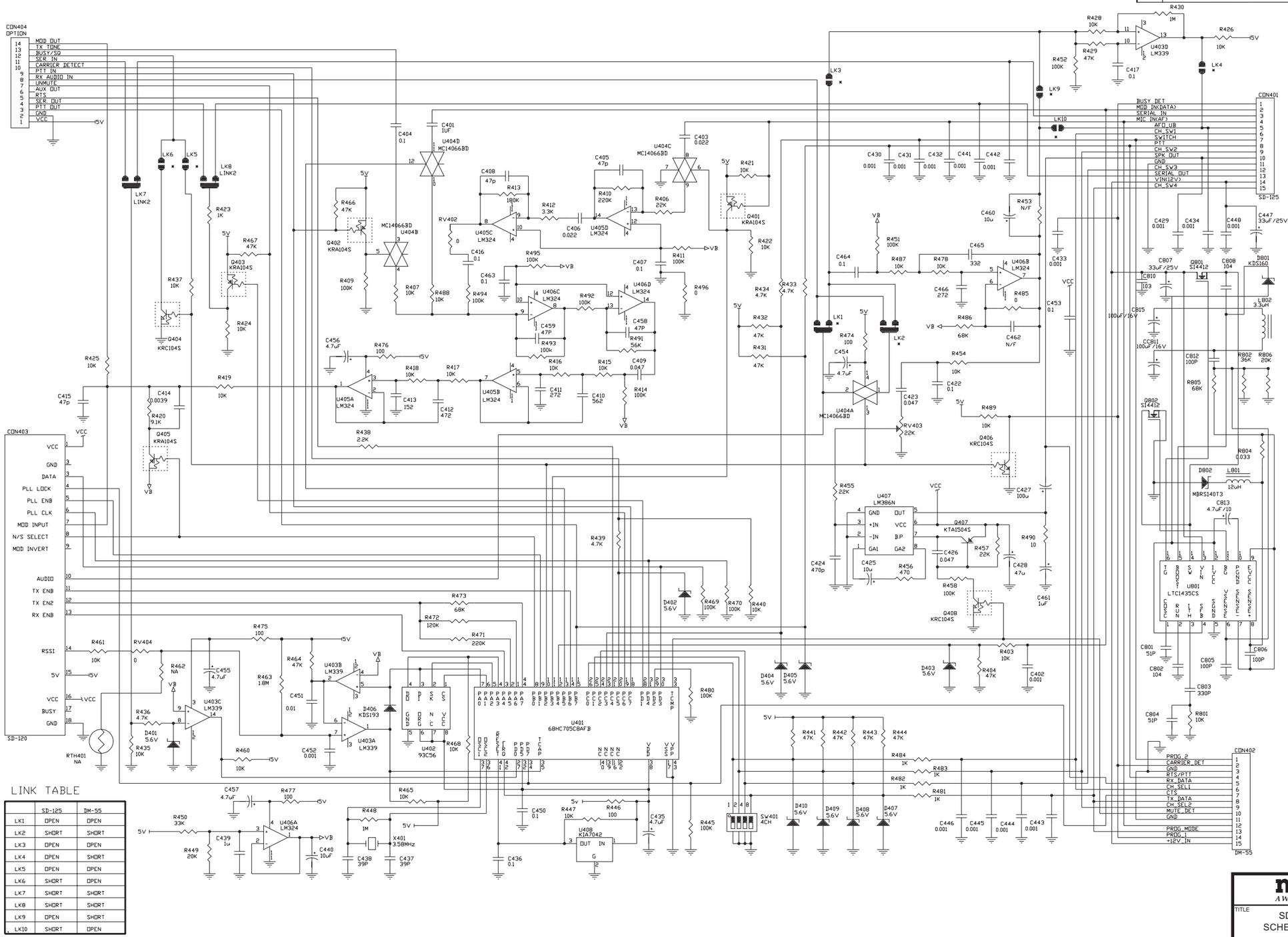
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CorelDRAW 7.0
09-14-98

maxon
A World of Communications

TITLE	SD-125 BLOCK DIAGRAM
DOCUMENT NUMBER	060-010-0040
SIZE	B
SCALE	NA
SHEET	1 OF 1

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REVISIONS			
REV	DESCRIPTION	CHG BY	DATE
A	RELEASED TO MANUFACTURING	JW	10/98



770-010-0029.PLT
AutoCAD R13c4
10-20-98

maxon
A World of Communications

TITLE	SD-125 DIGITAL SCHEMATIC DIAGRAM
DOCUMENT NUMBER	770-010-0029
SIZE	B
SCALE	NA
SHEET	1 OF 1

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REVISIONS			
REV	DESCRIPTION	CHG BY / DATE	
A	RELEASED TO MANUFACTURING	JW	10/98

VCO (TX SECTION)

P/N:770-030-0017
(VHF)

VCO (RX SECTIION)

POWER AMP MODULE SCHEMATIC
(VHF)
P/N:770-230-0012

FRONT-END (VHF) SCHEMATIC
P/N:770-110-0012

MIXER

ORCAD FILE: S0200029.SCH
AUTOCAD FILE: 770-020-0029.DWG
LIBRARIES: SD125R11.LIB
PADS FILE: P0200029.JOB
SD125 RF MAIN BOARD ASSEMBLY: 650-020-0029

NOTES:

1. ALL VALUES ARE IN OHMS, MICROHENERIES, OR MICROFARADS UNLESS OTHERWISE SPECIFIED.
2. ALL RESISTORS ARE 1/10W 5% UNLESS OTHERWISE SPECIFIED.

770-020-0029.PLT
AutoCAD R13c4
10-20-98

maxon
A World of Communications

TITLE	SD-125 RF SCHEMATIC DIAGRAM (V2 148-174MHz)
DOCUMENT NUMBER	770-020-0029
SIZE	B
SCALE	NA
SHEET	1 OF 1

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REVISIONS			
REV	DESCRIPTION	CHG BY	DATE
A	RELEASED TO MANUFACTURING	JW	10/98

VCO (TX SECTION)

P/N: 770-030-0026
VCO MODULE (UHF) SCHEMATIC

VCO (RX SECTION)

POWER AMP MODULE (UHF) SCHEMATIC
P/N:770-230-0017

MIXER

FRONT-END (UHF) SCHEMATIC
P/N:770-110-0019

TCXO SCHEMATIC
P/N: 770-100-0002

ORCAD FILE: S0200026.SCH (BAND 2)
AUTOCAD FILE: 770-020-0027.DWG
LIBRARIES: SD125R11.LIB
PADS FILE: P0200026.JOB
SD125 RF MAIN BOARD ASSEMBLY: 650-020-0027

NOTES:

1. ALL VALUES ARE IN OHMS, MICROHENERIES, OR MICROFARADS UNLESS OTHERWISE SPECIFIED.
2. ALL RESISTORS ARE 1/10W 5% UNLESS OTHERWISE SPECIFIED.

770-020-0027.PLT
AutoCAD R13c4
10-20-98

maxon
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TITLE	SD-125 RF SCHEMATIC DIAGRAM (U1 400-430MHz)
DOCUMENT NUMBER	770-020-0027
SIZE	B
SCALE	NA
SHEET	1 OF 1

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REVISIONS			
REV	DESCRIPTION	CHG BY	DATE
A	RELEASED TO MANUFACTURING	JW	10/98

VCO (TX SECTION)

P/N: 770-030-0023
VCO MODULE (UHF) SCHEMATIC

VCO (RX SECTION)

POWER AMP MODULE (UHF) SCHEMATIC
P/N:770-230-0016

MIXER

FRONT-END (UHF) SCHEMATIC
P/N:770-110-0017

TCXO SCHEMATIC
P/N: 770-100-0002

ORCAD FILE: S0200026.SCH
AUTOCAD FILE: 770-020-0026.DWG
LIBRARIES: SD125R11.LIB
PADS FILE: P0200026.JOB
SD125 RF MAIN BOARD ASSEMBLY: 650-020-0026

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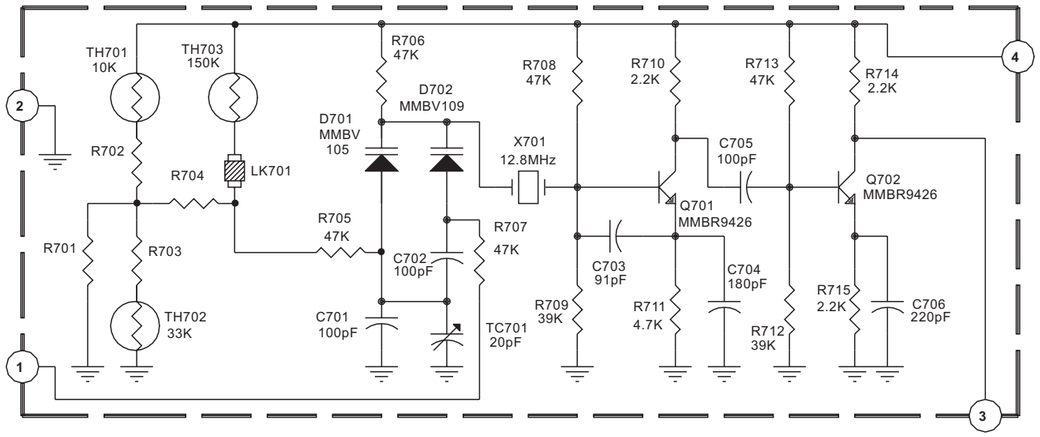
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2. ALL RESISTORS ARE 1/10W 5% UNLESS OTHERWISE SPECIFIED.

770-020-0026.PLT
AutoCAD R13c4
10-20-98

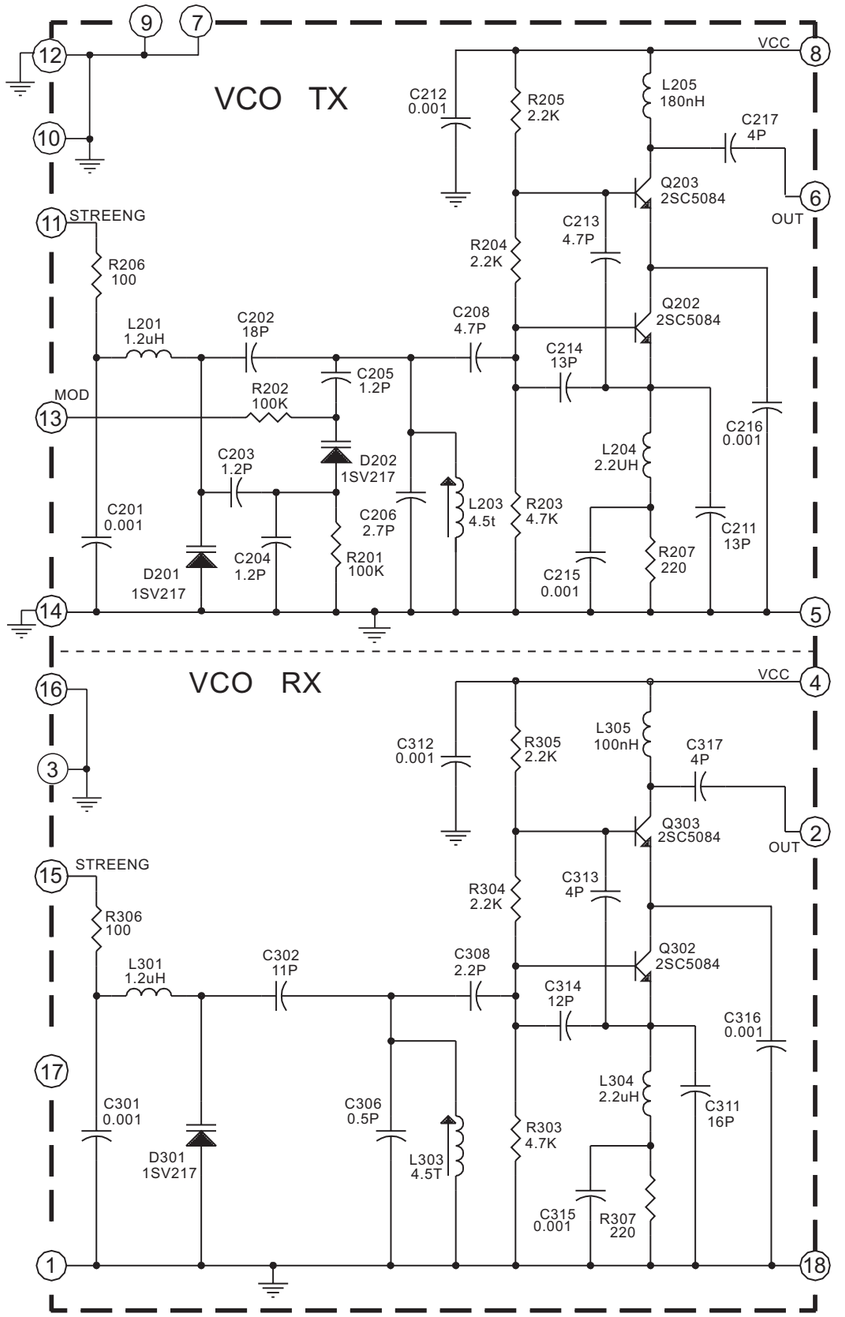
maxon
A World of Communications

TITLE	SD-125 RF SCHEMATIC DIAGRAM (U2 440-470MHz)		
DOCUMENT NUMBER	770-020-0026	SIZE	B
SCALE	NA	SHEET 1	OF 1

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T.C.X.O.
770-100-0002

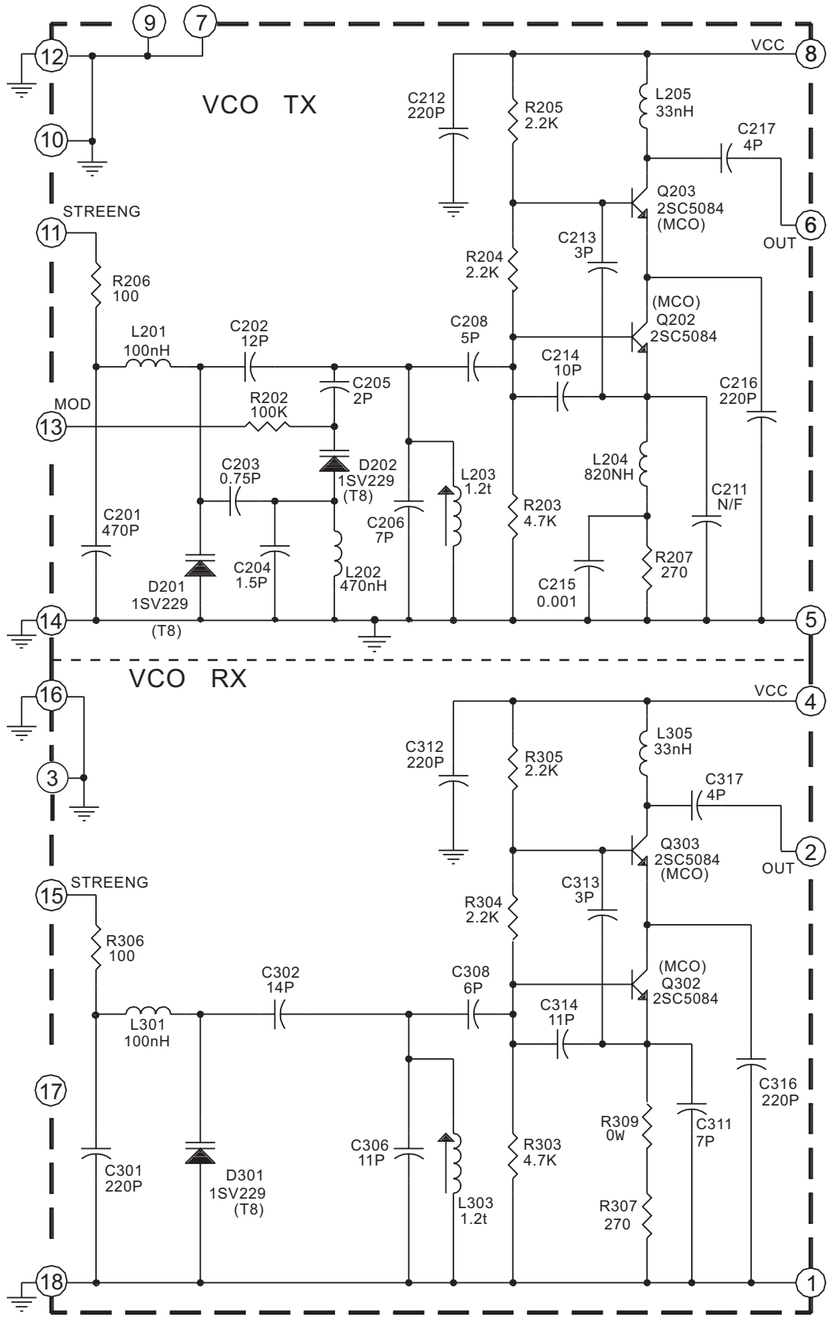


V.C.O. (148-174MHz)
770-030-0017

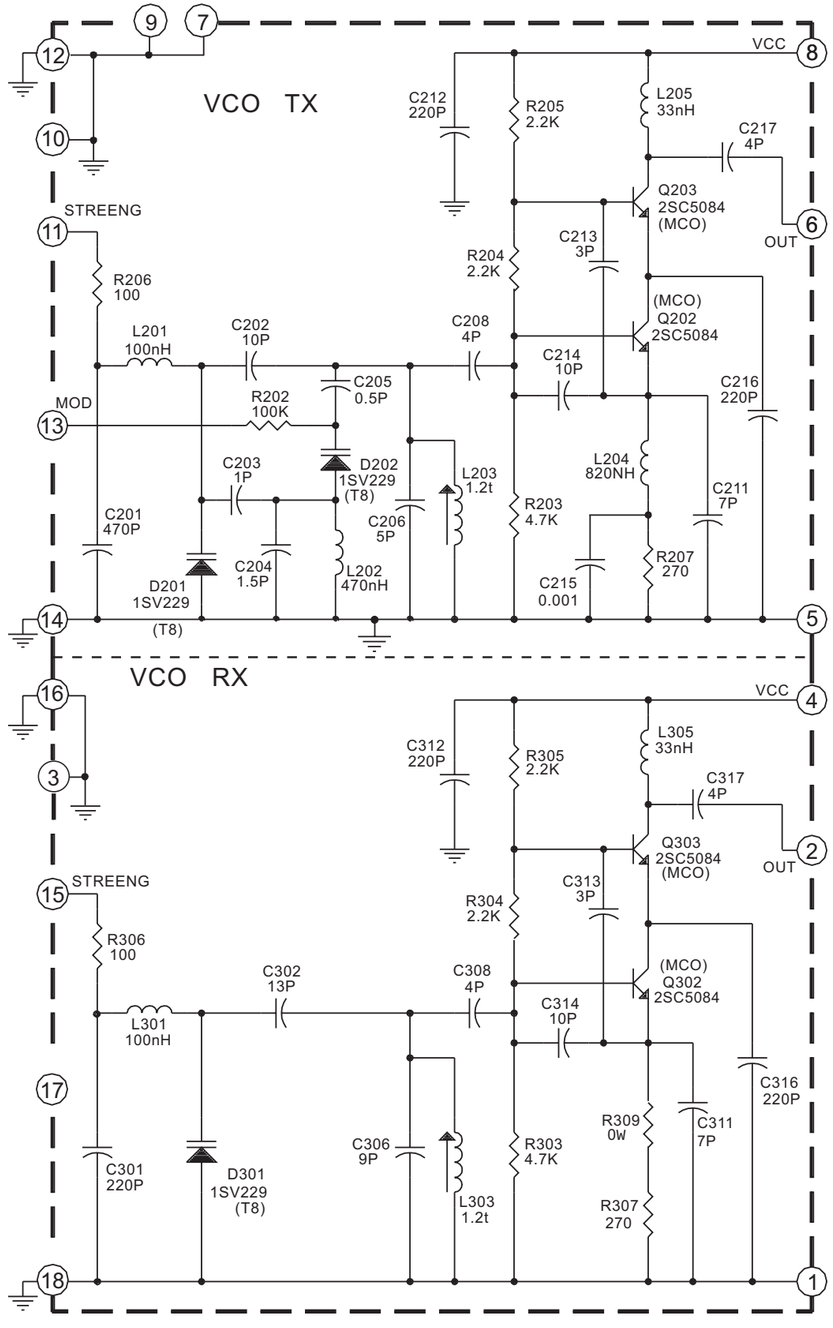
NOTES:

1. ALL VALUES ARE IN OHMS, MICROHENRIES OR MICROFARADS UNLESS OTHERWISE SPECIFIED.
2. ALL RESISTORS ARE 1/10W 5% UNLESS OTHERWISE SPECIFIED.

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V.C.O. (400-430MHz)
770-030-0026

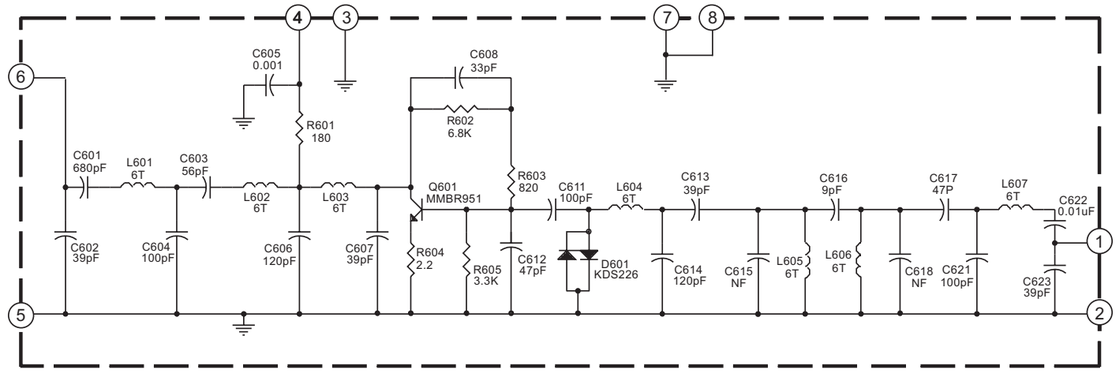


V.C.O. (440-470MHz)
770-030-0023

NOTES:

1. ALL VALUES ARE IN OHMS, MICROHENRIES OR MICROFARADS UNLESS OTHERWISE SPECIFIED.
2. ALL RESISTORS ARE 1/10W 5% UNLESS OTHERWISE SPECIFIED.

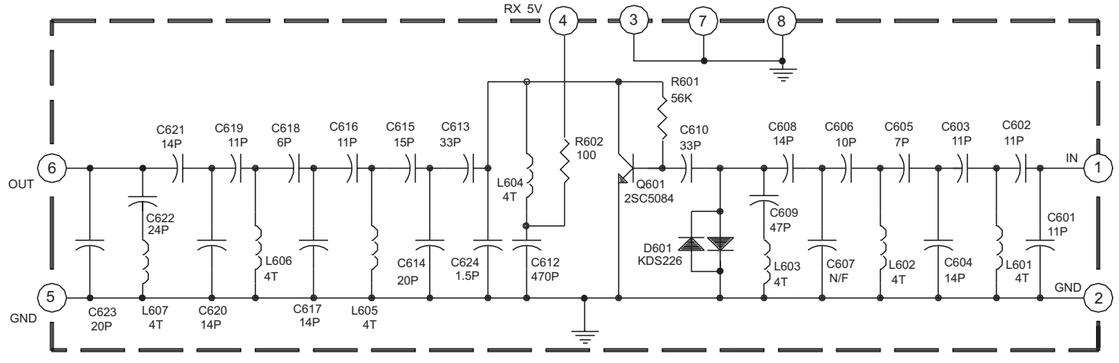
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NOTES:

1. ALL VALUES ARE IN OHMS, MICROHENRIES OR MICROFARADS UNLESS OTHERWISE SPECIFIED.
2. ALL RESISTORS ARE 1/10W 5% UNLESS OTHERWISE SPECIFIED.

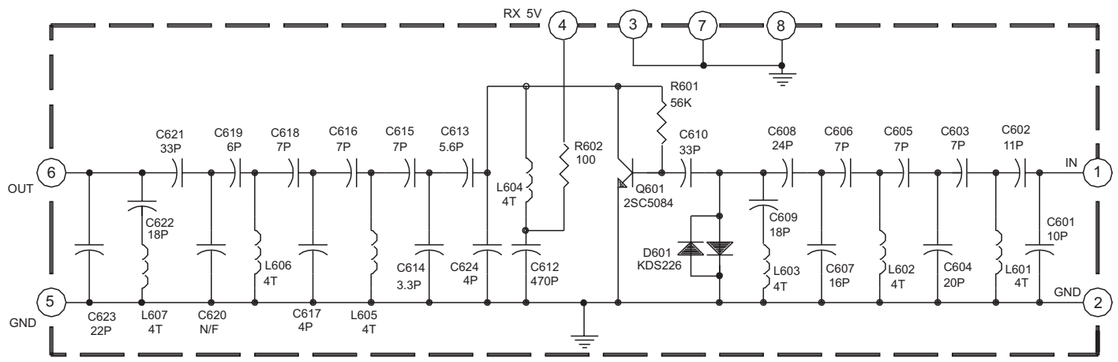
FRONT-END (148-174MHz)
770-110-0012



NOTES:

1. ALL VALUES ARE IN OHMS, MICROHENRIES OR MICROFARADS UNLESS OTHERWISE SPECIFIED.
2. ALL RESISTORS ARE 1/10W 5% UNLESS OTHERWISE SPECIFIED.

FRONT-END (400-430MHz)
770-110-0019



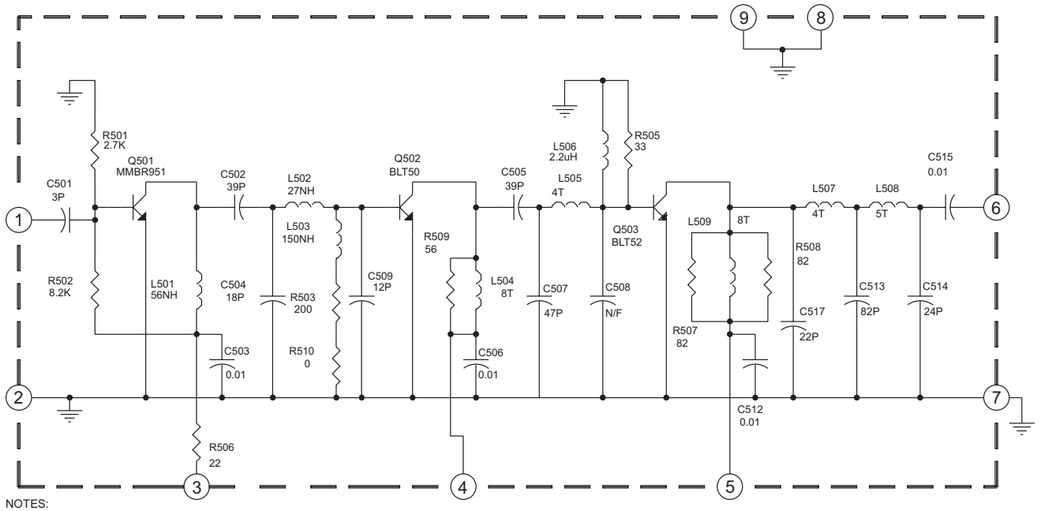
NOTES:

1. ALL VALUES ARE IN OHMS, MICROHENRIES OR MICROFARADS UNLESS OTHERWISE SPECIFIED.
2. ALL RESISTORS ARE 1/10W 5% UNLESS OTHERWISE SPECIFIED.

FRONT-END (440-470MHz)
770-110-0013

- ***ote Schematics are for reference only. Based on band selection reference designators and part values may differ from schematics shown.***

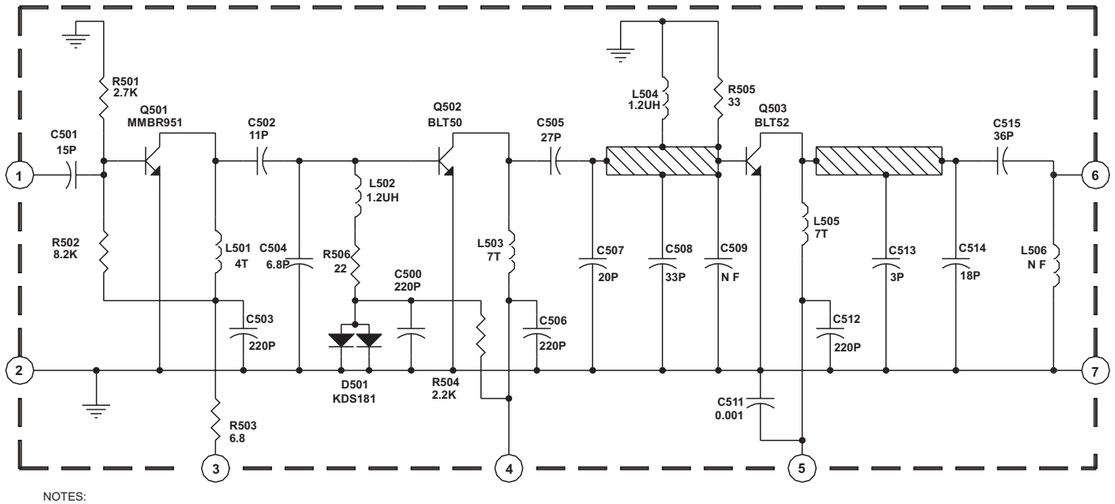
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NOTES:

1. ALL VALUES ARE IN OHMS, MICROHENRIES OR MICROFARADS UNLESS OTHERWISE SPECIFIED.
2. ALL RESISTORS ARE 1/10W 5% UNLESS OTHERWISE SPECIFIED.

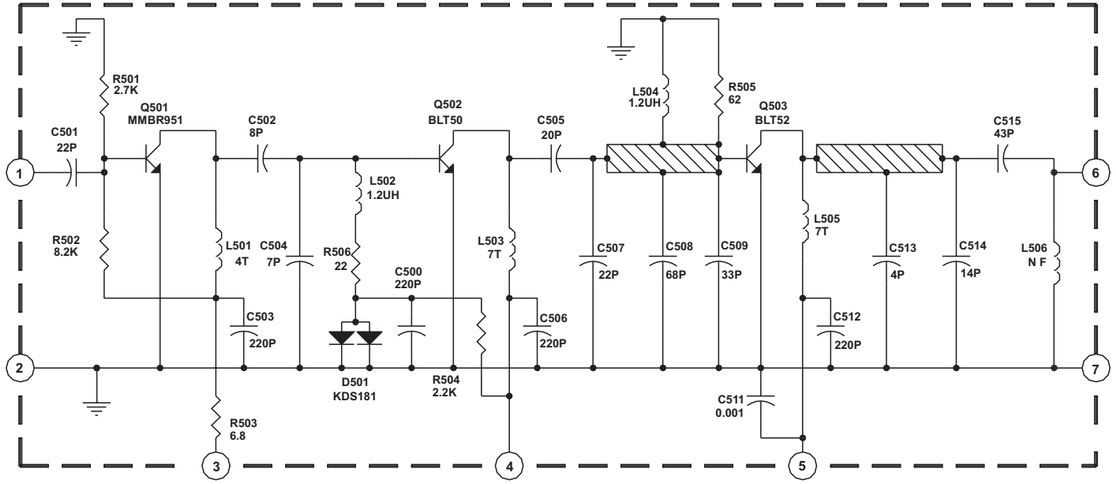
POWER AMP(148-174MHz)
770-230-0012



NOTES:

1. ALL VALUES ARE IN OHMS, MICROHENRIES OR MICROFARADS UNLESS OTHERWISE SPECIFIED.
2. ALL RESISTORS ARE 1/10W 5% UNLESS OTHERWISE SPECIFIED.

POWER AMP(400-430MHz)
770-230-0017

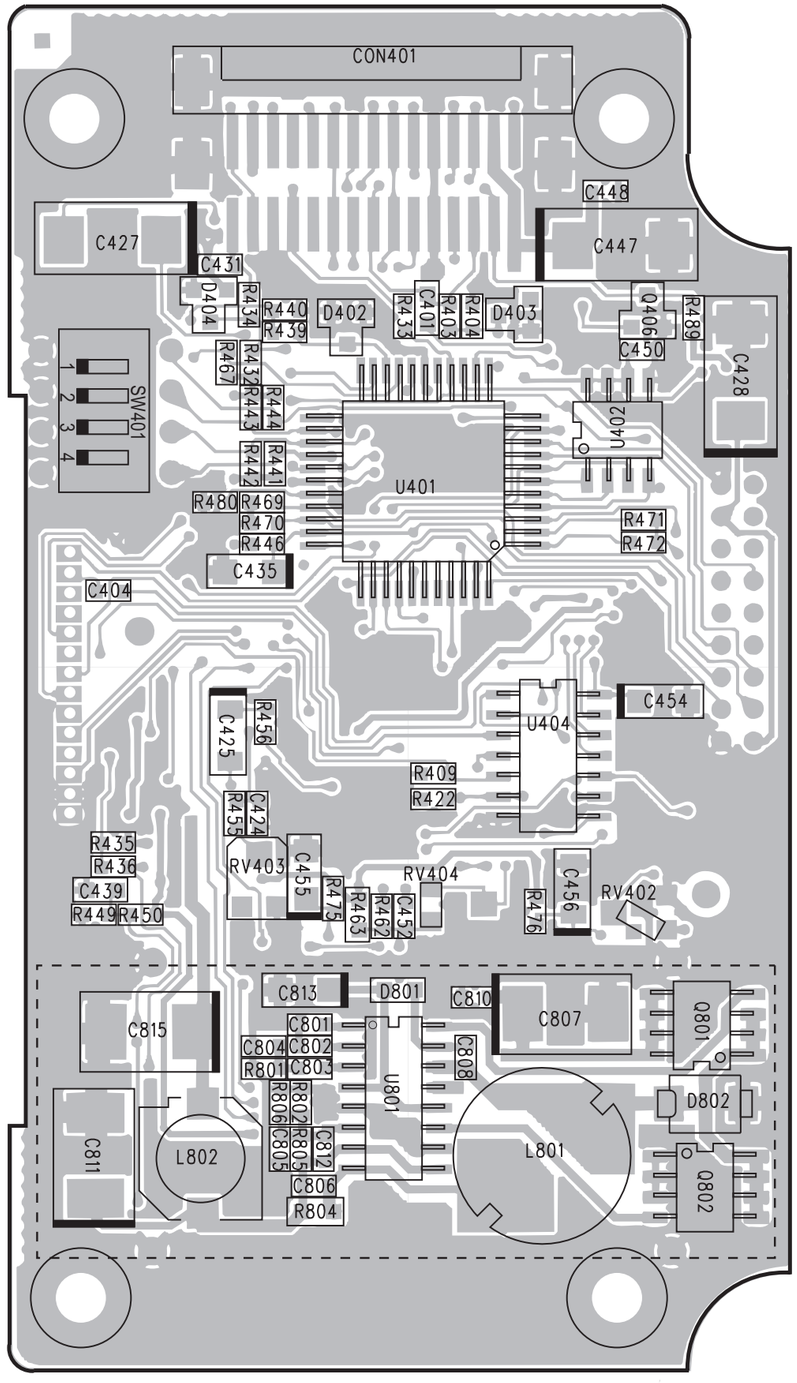


NOTES:

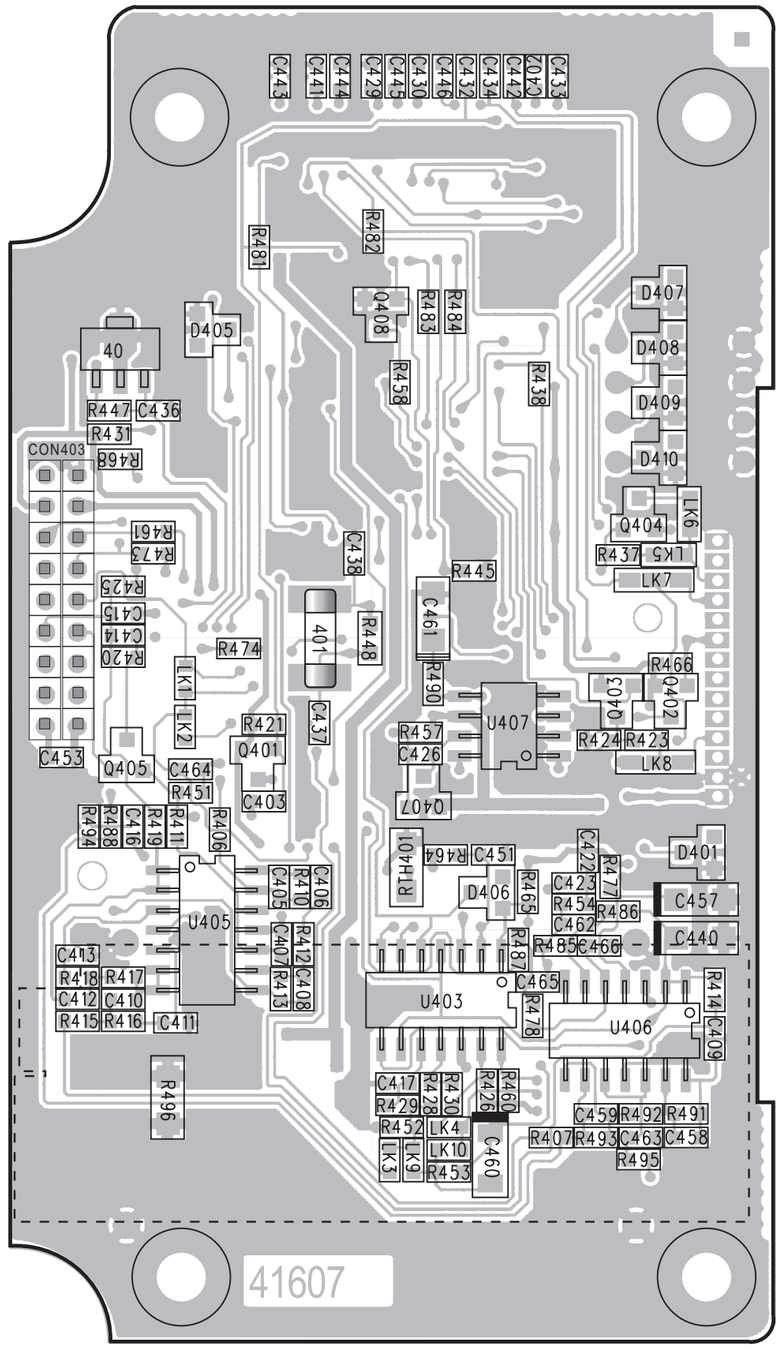
1. ALL VALUES ARE IN OHMS, MICROHENRIES OR MICROFARADS UNLESS OTHERWISE SPECIFIED.
2. ALL RESISTORS ARE 1/10W 5% UNLESS OTHERWISE SPECIFIED.

POWER AMP(440-470MHz)
770-230-0016

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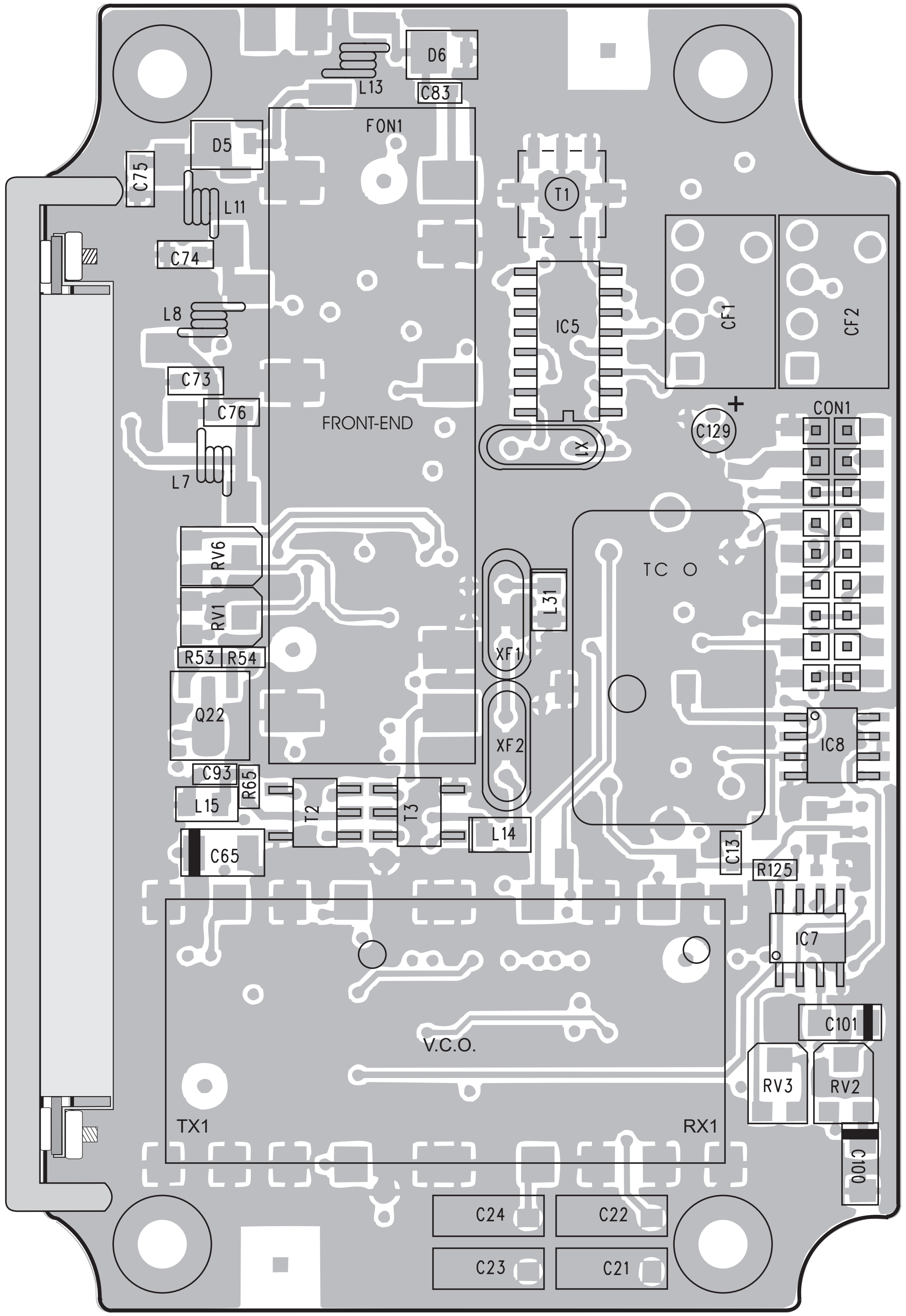


Digital Board Assembly 416078A
650-010-0029

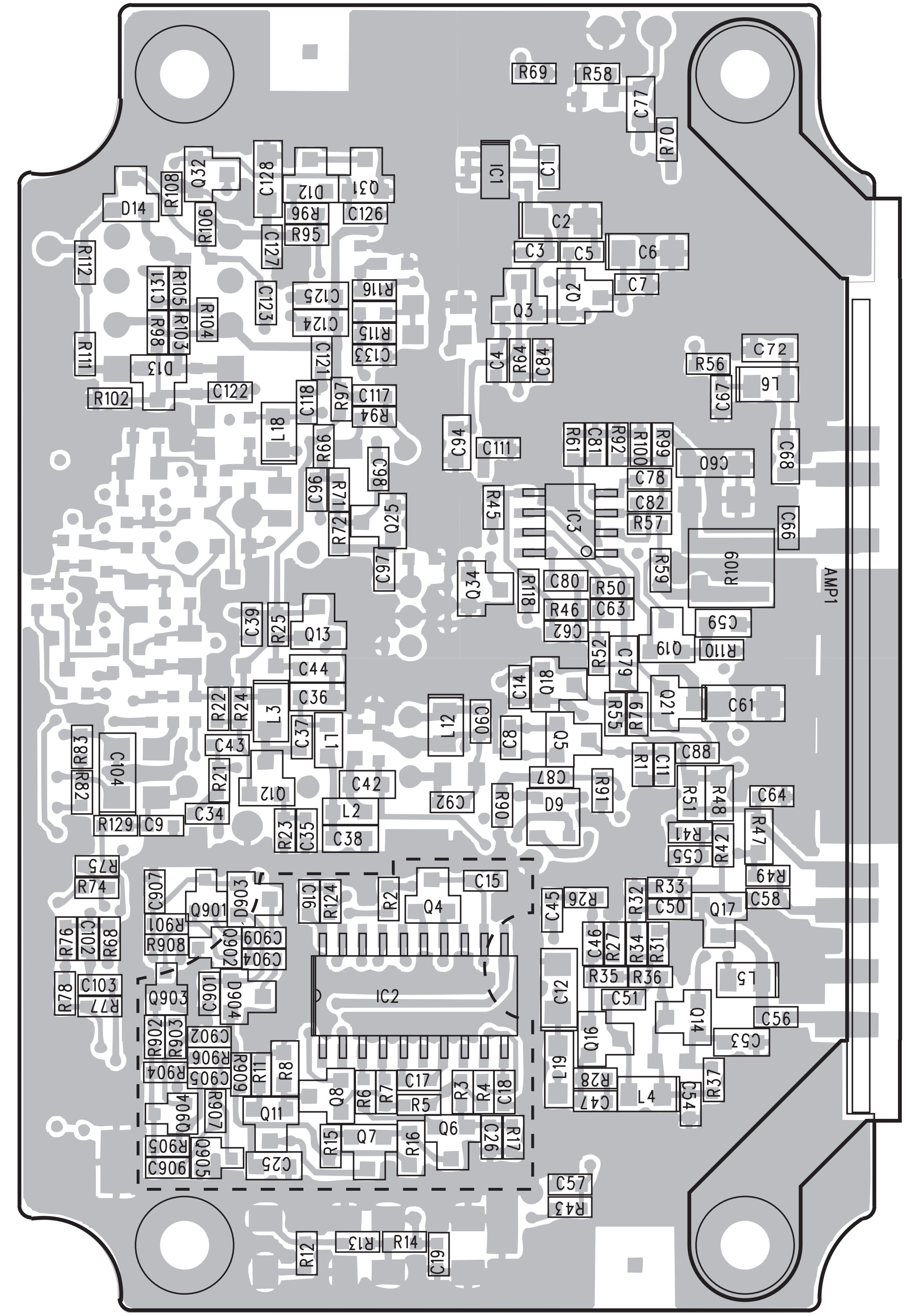


Digital Board Assembly 416078A
650-010-0029

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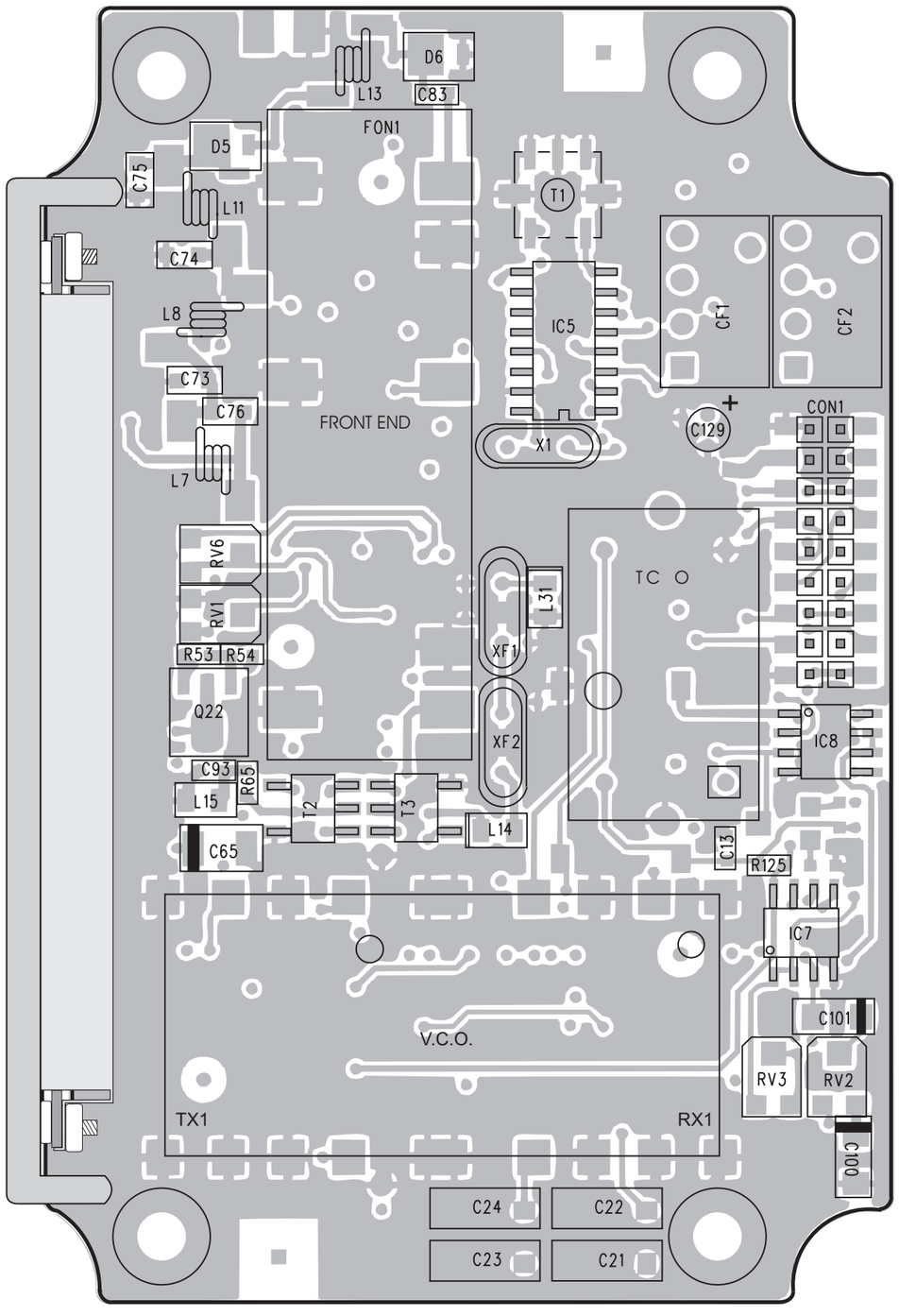


RF Board Assembly 416074A Rev. 06
148-174MHz
650-020-0029

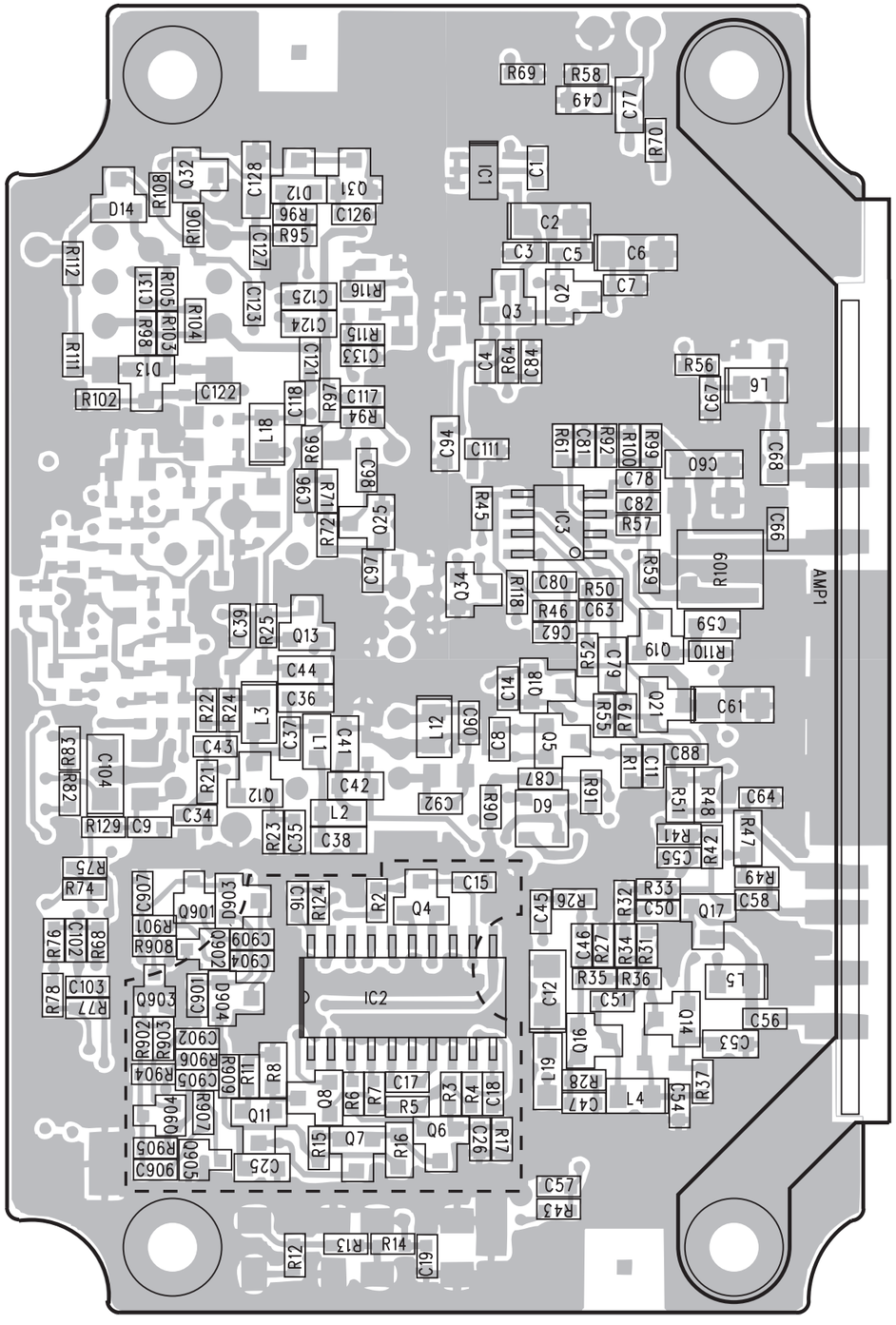


RF Board Assembly 416074A Rev. 06
148-174MHz
650-020-0029

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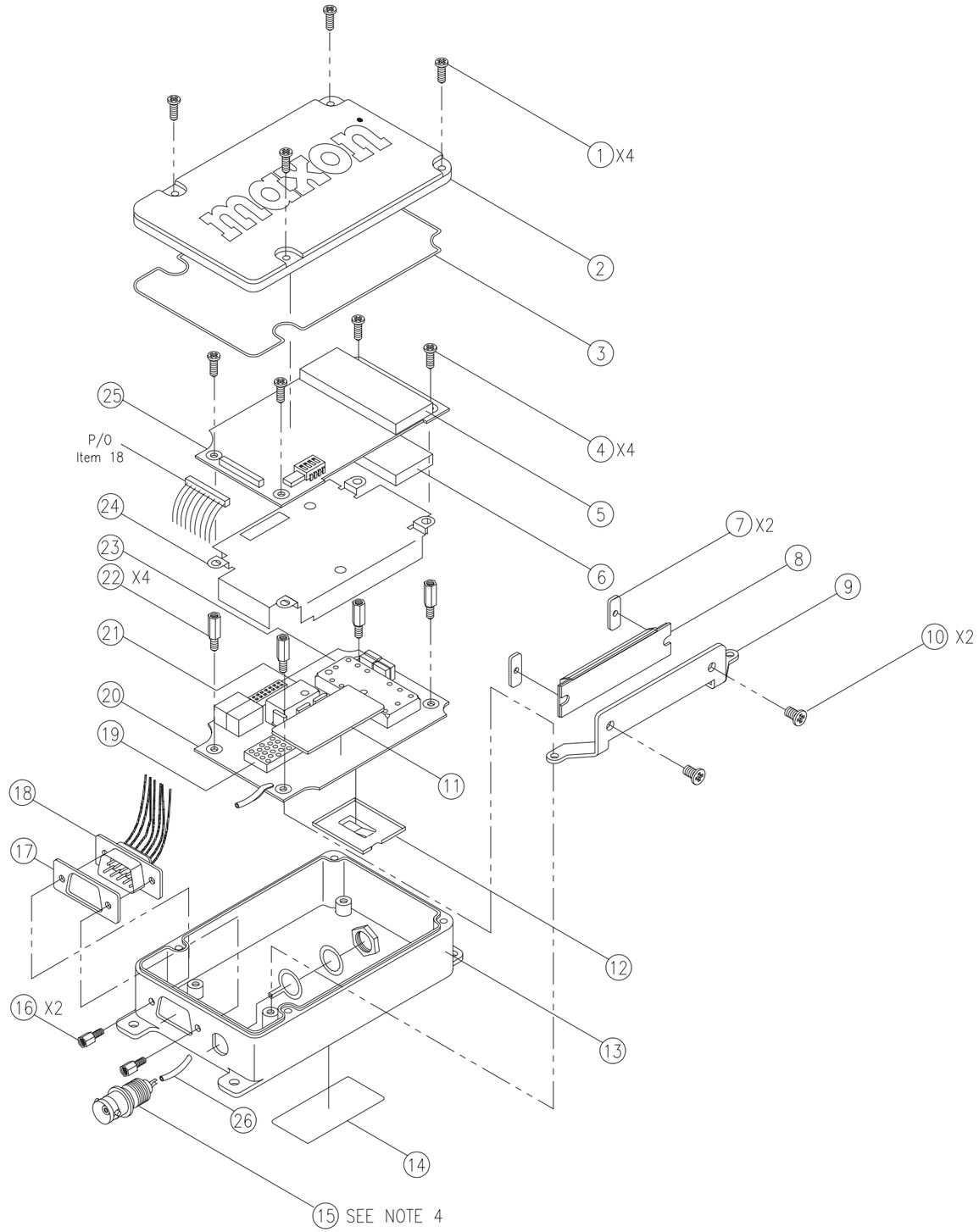


RF Board Assembly 416074A Rev. 06
650-020-0027 (400-430MHz)
650-020-0026 (440-470MHz)



RF Board Assembly 416074A Rev. 06
650-020-0027 (400-430MHz)
650-020-0026 (440-470MHz)

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REPAIRABLE/REPLACEABLE PARTS LIST			
ITEM #	QUANTITY	PART NUMBER	DESCRIPTION
1	4	330-110-0082	SCREW, M3X8
2	1	560-080-0053	UPPER COVER
3	1	330-220-0038	GASKET
4	4	330-110-0047	SCREW, M2X6
5	1	NOT AVAILABLE	SHIELD CAN
6	1	NOT AVAILABLE	SHIELD CAN
7	2	NOT AVAILABLE	BRACKET
8	1	650-230-0017	P.A. MODULE (400-430MHz)
8	1	650-230-0016	P.A. MODULE (440-470MHz)
8	1	650-230-0012	P.A. MODULE (148-174MHz)
9	1	NOT AVAILABLE	HEAT SINK
10	2	330-110-0042	SCREW, M2.5x10,
11	1	NOT AVAILABLE	SHIELD
12	1	NOT AVAILABLE	SHIELD
13	1	560-080-0054	BOTTOM COVER
14	1	NOT AVAILABLE	FCC COMPLIANCE LABEL
15	1	140-080-0016	BNC CONNECTOR, 50 OHM
16	2	330-115-0001	JACK SCREW
17	1	330-220-0039	GASKET
18	1	950-010-0033	D-SUB 9 CONNECTOR
19	1	650-110-0019	FRONT-END MODULE (400-430MHz)
19	1	650-110-0017	FRONT-END MODULE (440-470MHz)
19	1	650-110-0012	FRONT-END MODULE (148-174MHz)
20	1	NOT AVAILABLE	RF PCB ASSY. (400-430MHz)
20	1	NOT AVAILABLE	RF PCB ASSY. (440-470MHz)
20	1	NOT AVAILABLE	RF PCB ASSY. (148-174MHz)
21	1	650-100-0002	TCXO MODULE
22	4	330-270-0018	STANDOFF,HEX,M/F,11.8x4xM2.6
23	1	650-030-0026	VCO MODULE (400-430MHz)
23	1	650-030-0023	VCO MODULE (440-470MHz)
23	1	650-030-0025	VCO MODULE (148-174MHz)
24	1	NOT AVAILABLE	SHIELD PLATE
25	1	NOT AVAILABLE	DIGITAL PCB ASSY.
26	1	920-060-0005	COAX CABLE
AVAILABLE BOARD LEVEL COMPONENTS FOR DIGITAL BOARD			
SW401	1	830-130-0004	DIP SWITCH, 4 POSITION
L801	1	355-010-0120	INDUCTOR,CHIP,12uH
L802	1	355-010-0335	INDUCTOR,CHIP,3.3uH
X401	1	310-020-0004	CERAMIC RESONATOR, 3.58MHz
RV403	1	901-120-0223	VARIABLE RESISTOR, 22K
AVAILABLE BOARD LEVEL COMPONENTS FOR RF BOARDS			
T1	1	353-012-0001	COIL,VAR,455kHz QUAD,IFT
RV1, RV6	2	901-120-0103	VARIABLE RESISTOR, 10K
RV2	1	901-120-0104	VARIABLE RESISTOR, 100K
RV3	1	901-120-0473	VARIABLE RESISTOR, 47K
CON1	1	140-020-0056	CONNECTOR, SKT,18P/DIP
CF1	1	310-101-0010	CERAMIC FILTER, LT-455FW,455kHz
CF2	1	310-010-0013	CERAMIC FILTER, ALCFM455E,455kHz
X1	1	168-044-6450	CRYSTAL, 44.645MHz
XF1 / XF2	1(PAIR)	310-030-0015	CRYSTAL FILTER, PAIR,45.1MHz

NOTES:

1. THE SD-125 SERIES EXTENDER BOARD (P/N: 650-060-0016) IS REQUIRED FOR TROUBLESHOOTING.
2. FOR SPECIFIC COMPONENT LOCATIONS;
   REFER TO DIGITAL BOARD ASSEMBLY (P/N:650-010-0029) ON PAGE 52.
3. FOR SPECIFIC COMPONENT LOCATIONS;
   REFER TO RF BOARD ASSEMBLY (P/N:650-020-0026) ON PAGE 54.
   REFER TO RF BOARD ASSEMBLY (P/N:650-020-0027) ON PAGE 54.
   REFER TO RF BOARD ASSEMBLY (P/N:650-020-0029) ON PAGE 53.
4. BNC CONNECTOR (ITEM 15) INCLUDES ALL NECESSARY HARDWARE TO MOUNT CONNECTOR.

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