

TYPE OF EXHIBIT: TUNE-UP PROCEDURE AND PARTS LIST

FCC PART: 2.1033 (c) (9)

MANUFACTURER: RITRON, INC.
505 West Carmel Drive
Carmel, IN 46032

MODEL: SST-144

TYPE OF UNIT: VHF-FM Handheld Transceiver

FCC ID: AIERIT13-144

DATE: May 18, 2001

Included in this exhibit is the tune-up procedure, parts list and semiconductor function list for the SST-144.

The tune-up procedure and parts list included in this exhibit are excerpts of the Maintenance and Operating Manual for the RITRON Model Patriot SST-144 VHF-FM Handheld Transceiver. The complete the Maintenance and Operating Manual is included with this application for Certification as a separate exhibit.

Signed:



Kevin G. Matson - Project Engineer

WARNING!

An authorized RF service technician must perform test and alignment of the SST-144. Do not attempt service of the SST-144 if not completely familiar with the operation of frequency synthesized radio operation. The SST-144 can operate in both Narrow Band (2.5 KHz deviation) and Wide Band (5 KHz deviation) systems.

RECOMMENDED TEST EQUIPMENT

- 1) 0 to +15 VDC, 2A current-limited power supply
- 2) RF Communications Test Set (to 162 MHz) with:
 - FM Deviation Meter
 - RF Wattmeter
 - Frequency Counter (to 162 MHz)
 - SINAD Measuring Device
- 3) Oscilloscope (to 20 MHz)
- 4) VTVM or DMM
- 5) RITRON PC Programming Kit
- 6) RITRON SST-SRVBD Test Module

RADIO PREPARATION

- 1) Make sure the radio battery is fully charged.
- 2) Install the RITRON SST-SRVBD test assembly and serial programming cable as follows:
 - a) Remove the SST-144 antenna from the radio.
 - b) Plug the SST-SRVBD into the 2.5 mm and 3.5 mm jacks on top of the radio.
 - c) Screw the SST-SRVBD antenna nut fully into the SST-144 antenna connector.
 - d) Set the jumper on the SST-SRVBD assembly to the "UHF" position.
 - e) Connect the serial programming cable from the PC computer (with the RITRON PC programming kit software installed) to the SST-SRVBD test assembly
- 3) Connect the FM communications test set to the BNC connector on the SST-SRVBD test assembly.
- 4) Turn on the radio to place it in operating mode.
- 5) From the PC Programmer on-screen menu, select "Tune Radio" to display the Alignment screen.
- 6) Set the RF Communications Test set to the Alignment Frequency indicated on the Alignment screen.

- 7) Press the appropriate "Select" button on the Alignment screen to make the following adjustments:

<u>SELECT</u>	<u>Alignment</u>
Frequency	Transmit frequency
Mod Bal	Modulation balance
Tone	QC/DQC tone encode deviation wide and narrow band
Voice	Voice deviation with no tone wide and narrow band Voice deviation with tone wide and narrow band
Power	Low transmitter power High transmitter power

- 8) After you have completed alignment of the SST-144, turn the radio off. This will remove the test frequencies and return to operation on the customer's programmed frequencies.

REFERENCE FREQUENCY

- 1) Make sure the unit has been switched on and is at room temperature (approximately +25° C)
- 2) Select "Frequency" from the PC Programmer "Alignment" screen.
- 3) Set the RF communications test set to the Alignment Frequency on the Alignment screen.
- 4) Press the "Tune" button on the Alignment screen to activate the transmitter.
- 5) Transmitter frequency error should be less than +/- 500 Hz.
- 6) If frequency adjustment is required, press the left arrow on the tuning bar to lower the frequency or the right arrow to raise the frequency.
- 7) Press the "Save" button to store the new alignment setting or "Cancel" to leave setting unchanged.

MODULATION BALANCE

Transmitter modulation balance has been set at the factory and should not require adjustment.

- 1) Select "Mod Bal" from the PC Programmer "Alignment" screen.
- 2) Set the RF communications test set to the Alignment Frequency on the Alignment screen.
- 3) Press the "Tune" button on the Alignment screen to activate the transmitter.
- 4) Check the de-modulated waveform for a 20 Hz square wave.
- 5) If adjustment of the modulation balance is required, press the left arrow on the tuning bar to flatten the top of the waveform or the right arrow to reduce overshoot.
- 6) Press the "Save" button to store the new alignment setting or "Cancel" to leave setting unchanged.

TRANSMITTER TONE DEVIATION

Transmitter tone deviation has been set at the factory and should not require adjustment.

- 1) Select "Tone" from the PC Programmer "Alignment" screen.
- 2) Set the RF communications test set to the transmit frequency on the screen.
- 3) Select either "Wide Band" or "Narrow Band" by pressing the desired option button.
- 4) Press the "Tune" button on the Alignment screen to activate the transmitter.
- 5) If adjustment of the tone deviation is required, press the left arrow on the tuning bar to lower deviation or the right arrow to raise deviation.
- 6) Press the "Save" button to store the new alignment setting or "Cancel" to leave setting unchanged.

TRANSMITTER VOICE DEVIATION

Transmitter voice deviation has been set at the factory and should not require adjustment.

- 1) Select "Voice" from the PC Programmer "Alignment" screen.
- 2) Set the RF communications test set to the transmit frequency on the screen.
- 3) Select "Voice Only - Wide Band", "Voice Only - Narrow Band", "Voice & Tone - Wide Band", or "Voice & Tone - Narrow Band" by pressing the desired option button.
- 4) Press the "Tune" button on the Alignment screen to activate the transmitter.
- 5) If adjustment of the voice deviation is required, press the left arrow on the tuning bar to lower deviation or the right arrow to raise deviation.
- 6) Press the "Save" button to store the new alignment setting or "Cancel" to leave setting unchanged.

TRANSMITTER POWER

Transmitter power has been set at the factory and should not require adjustment.

- 1) Select "Power" from the PC Programmer "Alignment" screen.
- 2) Set the RF communications test set to the transmit frequency on the screen.
- 3) Select "Low Power" or "High Power" by pressing the desired option button.
- 4) Press the "Tune" button on the Alignment screen to activate the transmitter.
- 5) If adjustment of the transmitter power is required, press the left arrow on the tuning bar to lower power or the right arrow to raise power.
- 6) Press the "Save" button to store the new alignment setting or "Cancel" to leave setting unchanged.

RECEIVER SENSITIVITY AND SQUELCH

The SST-144 receiver is factory tuned for a frequency range of 150 - 162 MHz. The SST-144 receiver is configured from the factory for Wide Band operation, with a Narrow Band Model available as an option. The SST-144 receiver bandwidth is configured on a per radio basis, it cannot be switched on a per channel basis.

The receiver may be programmed to any frequency between 150-162 MHz.

- 1) Program the radio to a receive frequency in the middle of the 12 MHz band.
- 2) Set the RF Communications Test Set's generator to the programmed receive frequency at a RF level of -120 dB. Modulate the RF signal with a 1 KHz tone at 3 KHz deviation for wide band, 1.5 KHz deviation for narrow band.
- 3) Check receiver sensitivity at the lowest and highest operating frequencies and make slight adjustment to L103 and L104 to balance between the two, if necessary.

RECEIVER NOISE SQUELCH

The noise squelch sensitivity is set at the factory for a 12dB SINAD signal. Using the PC Programmer, squelch sensitivity can be adjusted on a per channel basis by adjusting the "Squelch Tightener" number to between 0-7. The higher number will require a stronger received signal to open squelch.

- 1) Select "Channel" from the PC Programmer "Edit" menu on the main screen.
- 2) Select the channel to be set and press "Edit" button.
- 3) Set the RF communications test set to the transmit frequency on the screen.
- 4) Enter a Squelch Tightener number between 0-7.
- 5) Press the "OK" button on the Channel Edit screen to return to the Channel List screen.
- 6) Select any other channels to be set.

- 7) Press the "OK" button on the Channel List screen to return to the Main screen.
- 8) Select "Program Radio" from the PC Programmer "Radio" menu to save all setting changes.

SYNTHESIZER

The synthesizer is preset at the factory for operation between 150 and 162 MHz. There is no manual adjustment to center the control voltage, with all adjustment performed by the factory selection of fixed capacitor C413. Do not attempt to adjust the synthesizer control unless a key component in the synthesizer has been replaced. Key components do not include the Y302 reference frequency TCVCXO or IC401 synthesizer IC. Synthesizer alignment errors cause poor operation at temperature extremes.

Should adjustment of the VCO control voltage be necessary, the radio must first be disassembled and powered up at 7.5 VDC. The following procedure defines testing of the VCO control voltage:

- 1) Select the channel that has the lowest transmit frequency.
- 2) Connect a VTVM, DVM or oscilloscope to Test Point 1 and measure the VCO control voltage. This voltage should be no less than 1.5 VDC.
- 3) Select the channel that has the highest receive frequency and measure Test Point 1. The control voltage should be no higher than 4.5 VDC.
- 4)
 - a) If adjustment of the VCO control voltage is required, remove the synthesizer shield top.
 - b) Squeeze or spread L401 or L406 that allows VCO control voltages between 1.5 and 4.5 VDC for the operating frequencies desired. Squeezing L401 or L406 will raise the operating frequency of the VCO while spreading L401 or L406 will lower the VCO frequency.
 - c) Replace the top of the synthesizer shield.

NOTE: This parts list reflects the most current component values. If a component value given in the schematic differs from this list, the parts list should be considered the most current.

Last Update: May 18, 2001

<u>Ref</u>	<u>Ritron PN</u>	<u>Description</u>	<u>X</u>	<u>Y</u>	<u>Theta</u>	<u>Loc</u>
CAPACITORS						
C101	15110470	47PF NPO 0805 50V CHIP	1164	3624	270	Top
C102	15110820	82PF NPO 0805 50V CHIP CAPACITOR	899	3667	180	Top
C103	15110151	150PF NPO 0805 50V CHIP	792	3627	270	Top
C104	15110470	47PF NPO 0805 50V CHIP	792	3762	90	Top
C105	15110470	47PF NPO 0805 50V CHIP	716	4125	180	Top
C106	15110330	33PF NPO 0805 50V CHIP	756	4235	90	Top
C108	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	502	4166	180	Top
C109	15110680	68PF NPO 0805 50V CHIP CAPACITOR	525	4371	180	Top
C110	15110330	33PF NPO 0805 50V CHIP	525	4275	0	Top
C112	15110330	33PF NPO 0805 50V CHIP	373	4112	270	Top
C113	15110101	100PF NPO 0805 50V CHIP CAP	265	4152	180	Top
C115	151101A0	1.0PF NPO 0805 50V CHIP	308	3679	0	Top
C116	15182103	.01uF CAPACITOR, CHIP, 0402,Z5U,5/10/20	473	3415	270	Top
C117	15110150	15PF 0805 NPO 50V CHIP CAP	308	3599	180	Top
C118	15110470	47PF NPO 0805 50V CHIP	199	3558	90	Top
C119	15111472	.0047MF X7R 0805 50V CHIP	647	3594	270	Top
C120	151108A2	8.2PF NPO 0805 50V CHIP	407	3548	0	Bottom
C121	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	138	947	90	Bottom
C122	152B6106	10uF 10V 3.4 X 2.8 CHIP TANTALUM	451	1669	0	Bottom
C123	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	450	946	90	Bottom
C124	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	320	904	90	Bottom
C125	15119104	.1uF X7R 0805 25V CERAMIC CHIP CAP	350	1364	0	Bottom
C126	15119104	.1uF X7R 0805 25V CERAMIC CHIP CAP	441	1557	0	Bottom
C127	15119104	.1uF X7R 0805 25V CERAMIC CHIP CAP	63	2202	0	Bottom
C128	15119104	.1uF X7R 0805 25V CERAMIC CHIP CAP	220	2114	270	Bottom
C129	15119104	.1uF X7R 0805 25V CERAMIC CHIP CAP	392	1802	0	Bottom
C130	15182103	.01uF CAPACITOR, CHIP, 0402,Z5U,5/10/20	571	904	90	Bottom
C131	15110330	33PF NPO 0805 50V CHIP	38	1263	0	Bottom
C132	15110330	33PF NPO 0805 50V CHIP	64	1156	270	Bottom
C133	15119104	.1uF X7R 0805 25V CERAMIC CHIP CAP	62	2119	0	Bottom
C134	15182103	.01uF CAPACITOR, CHIP, 0402,Z5U,5/10/20	39	1635	90	Top
C135	15110220	22PF NPO 0805 50V CHIP CAP	171	1533	180	Bottom
C201	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	1308	3154	90	Bottom
C202	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	839	3384	270	Bottom
C203	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	997	3248	90	Bottom
C204	152A8105	1MFD 16V ~3.2 X 1.6~ CHIP TANTALUM	959	3458	270	Bottom
C205	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	879	3425	90	Bottom
C206	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	1748	3308	90	Bottom
C207	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	1748	3104	90	Bottom
C208	15111102	.001MF X7R 0805 50V CHIP CAP	1741	2324	0	Top
C209	15119104	.1uF X7R 0805 25V CERAMIC CHIP CAP	1427	2284	90	Bottom
C210	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	1492	2264	90	Bottom
C212	15110150	15PF 0805 NPO 50V CHIP CAP	1741	2244	0	Top
C215	15110330	33PF NPO 0805 50V CHIP	1495	4105	180	Top
C217	15110150	15PF 0805 NPO 50V CHIP CAP	1387	4085	90	Top
C218	151103A9	3.9PF NPO 0805 50V CHIP	1149	3942	180	Top
C219	15110330	33PF NPO 0805 50V CHIP	1014	3942	180	Top
C220	151104A7	4.7PF NPO 0805 50V CHIP	1013	4177	180	Top
C221	15111102	.001MF X7R 0805 50V CHIP CAP	973	4413	90	Top
C222	15110220	22PF NPO 0805 50V CHIP CAP	933	4296	180	Top
C301	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	774	817	180	Bottom
C302	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	271	522	270	Top
C303	152B4226	22uF 6.3V 3.4 X 2.8 CHIP TANTALUM CAP	199	647	180	Top
C304	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	1261	4590	90	Bottom
C305	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	1027	384	0	Top
C306	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	563	398	270	Top
C307	15182103	.01uF CAPACITOR, CHIP, 0402,Z5U,5/10/20	20	4621	270	Top

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C308	15111102	.001MF X7R 0805 50V CHIP CAP	0	0	0	Bottom
C309	15182103	.01uF CAPACITOR, CHIP, 0402,Z5U,5/10/20	496	1867	90	Bottom
C310	15119104	.1uF X7R 0805 25V CERAMIC CHIP CAP	1107	3264	0	Bottom
C311	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	1229	2967	90	Bottom
C312	15182103	.01uF CAPACITOR, CHIP, 0402,Z5U,5/10/20	501	4622	270	Top
C313	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	169	3033	270	Top
C314	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	1280	2595	180	Bottom
C315	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	1280	2271	180	Bottom
C316	15182103	.01uF CAPACITOR, CHIP, 0402,Z5U,5/10/20	826	2291	180	Top
C317	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	704	2321	0	Bottom
C318	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	826	2371	180	Top
C319	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	704	2360	0	Bottom
C320	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	1280	2402	180	Bottom
C321	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	1280	2503	180	Bottom
C322	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	1280	2311	180	Bottom
C323	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	1280	2771	180	Bottom
C324	15119104	.1uF X7R 0805 25V CERAMIC CHIP CAP	969	2221	0	Top
C325	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	1280	2673	180	Bottom
C326	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	1280	2634	180	Bottom
C327	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	1280	2350	180	Bottom
C328	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	658	2429	0	Bottom
C329	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	638	2501	270	Bottom
C330	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	704	2613	0	Bottom
C331	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	705	2692	0	Bottom
C332	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	705	2731	0	Bottom
C333	152A6475	4.7UF 10V A-SIZE TANTALUM CHIP CAP	502	2703	180	Top
C334	15119104	.1uF X7R 0805 25V CERAMIC CHIP CAP	91	2749	180	Bottom
C335	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	331	2879	270	Bottom
C336	15181332	.0033uF CAPACITOR, CHIP, 0402, X7R,5/10%	454	3156	90	Bottom
C337	152B6106	10uF 10V 3.4 X 2.8 CHIP TANTALUM	702	3457	270	Bottom
C338	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	254	3129	90	Top
C339	15119104	.1uF X7R 0805 25V CERAMIC CHIP CAP	245	2945	270	Top
C340	15111333	.033MFD X7R 0805 50V CHIP CAP	339	2675	270	Bottom
C341	15182103	.01uF CAPACITOR, CHIP, 0402,Z5U,5/10/20	585	2328	270	Bottom
C342	15110821	820PF NPO 0805 50V CHIP CAP	635	2984	180	Bottom
C343	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	649	3064	180	Bottom
C344	15181472	.0047uF CAPACITOR, CHIP, 0402, X7R,5/10%	174	2439	0	Top
C345	15181472	.0047uF CAPACITOR, CHIP, 0402, X7R,5/10%	269	2431	0	Top
C346	152A8105	1MFD 16V ~3.2 X 1.6~ CHIP TANTALUM	614	2247	90	Top
C347	15180180	18pF CAPACITOR, CHIP, 0402, COG, 5%	286	2500	90	Top
C348	15119473	.047uF X7R 0805 25V CHIP CAPACITOR	469	2595	0	Top
C349	15111333	.033MFD X7R 0805 50V CHIP CAP	81	2641	90	Bottom
C350	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	493	3156	90	Bottom
C351	15181222	.0022uF CAPACITOR, CHIP, 0402, X7R,5/10%	20	2640	270	Top
C352	15180100	10pF CAPACITOR, CHIP, 0402, COG, 5%	433	3234	90	Top
C353	15182103	.01uF CAPACITOR, CHIP, 0402,Z5U,5/10/20	594	3168	180	Bottom
C354	15181221	220pF CAPACITOR, CHIP, 0402, X7R, 5/10%	379	2436	90	Bottom
C355	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	251	2415	180	Bottom
C356	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	189	2436	90	Bottom
C357	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	126	2415	0	Bottom
C358	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	585	2498	90	Bottom
C359	15180100	10pF CAPACITOR, CHIP, 0402, COG, 5%	471	2588	270	Bottom
C360	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	465	2277	270	Top
C361	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	459	2138	90	Bottom
C362	15119104	.1uF X7R 0805 25V CERAMIC CHIP CAP	981	752	270	Bottom
C363	152B6106	10uF 10V 3.4 X 2.8 CHIP TANTALUM	1231	427	0	Top
C365	01503212	220MF 10V ELT CAPACITOR, 5mm HEIGHT	1489	5432	0.302	Top
C366	15119104	.1uF X7R 0805 25V CERAMIC CHIP CAP	1508	709	180	Bottom
C367	15119104	.1uF X7R 0805 25V CERAMIC CHIP CAP	1357	798	90	Bottom
C368	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	231	2696	270	Bottom
C369	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	663	2469	90	Top
C370	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	293	2856	180	Top
C371	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	704	2652	180	Bottom
C372	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	560	2588	90	Bottom

<u>Ref</u>	<u>Ritron PN</u>	<u>Description</u>	<u>X</u>	<u>Y</u>	<u>Theta</u>	<u>Loc</u>
C373	15119104	.1uF X7R 0805 25V CERAMIC CHIP CAP	359	2320	90	Bottom
C384	152B6106	10uF 10V 3.4 X 2.8 CHIP TANTALUM	1062	455	90	Bottom
C401	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	1566	1966	270	Top
C402	15110101	100PF NPO 0805 50V CHIP CAP	1638	1931	90	Top
C403	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	1741	1871	90	Top
C404	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	1066	1850	180	Top
C405	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	1353	2013	180	Top
C406	15110101	100PF NPO 0805 50V CHIP CAP	1182	1785	270	Top
C409	15119104	.1uF X7R 0805 25V CERAMIC CHIP CAP	980	1766	90	Top
C410	15110100	10PF NPO 0805 50V CHIP CAP	1295	1589	270	Top
C411	15111102	.001MF X7R 0805 50V CHIP CAP	1375	1285	270	Top
C412	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	1047	1788	90	Top
C413	151105A6	5.6PF NPO 0805 50V CHIP CAPACITOR	1463	1101	90	Top
C414	152B6106	10uF 10V 3.4 X 2.8 CHIP TANTALUM	722	1625	0	Top
C415	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	1695	947	270	Top
C416	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	1715	1341	180	Top
C417	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	1717	1145	0	Top
C418	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	677	1121	180	Top
C419	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	678	1214	180	Top
C420	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	678	1254	180	Top
C421	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	1053	1601	180	Top
C423	151101A0	1.0PF NPO 0805 50V CHIP	1255	1482	0	Top
C424	151105A6	5.6PF NPO 0805 50V CHIP CAPACITOR	1295	1337	90	Top
C425	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	1069	937	90	Top
C426	15111103	.01MF X7R 0805 50V CHIP	832	922	180	Top
C427	152AB224	0.22uF 35V 3.2 X 1.6 CHIP TANATULUM CAP	817	1015	0	Top
C428	15181102	.001uF CAPACITOR, CHIP, 0402, X7R, 5/10%	855	1473	270	Top
C429	15111223	.022mf X7R 0805 CHIP CAP 50V	1029	1028	0	Top
C430	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	971	1460	270	Top
C431	15110100	10PF NPO 0805 50V CHIP CAP	774	1486	270	Top
C432	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	766	1100	180	Top
C433	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	932	1460	90	Top
C434	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	1081	1183	270	Top
C435	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	687	1355	180	Top
C436	15180101	100pF CAPACITOR, CHIP, 0402, COG, 5%	1429	1703	90	Top

DIODE

CR101	48D100A2	MA4CP101A PIN DIODE, SOT-23	1052	3624	90	Top
CR102	48E1005G	MMBD-352LT1 SCHOTTKY DIODE SOT23	852	4125	0	Top
CR103	48A1005C	MMBD7000, DUAL DIODES IN SERIES, SOT-23	366	2121	0	Bottom
CR201	48D100A2	MA4CP101A PIN DIODE, SOT-23	1467	3990	0	Top
CR301	48B61012	1N4742A ZENER DIODE, 12V 1W DL-41 MELF	991	604	90	Top
CR302	48AA01SA	DIODE, 1A, 50V, SMT, D0214AC CASE	1154	630	90	Top
CR303	48A1005B	MMBD6100, DUAL DIODES, COM CATHODE, SOT2	363	431	90	Top
CR304	48A100A3	MMBD2835, DUAL DIODES, COM ANODE, SOT-23	65	4114	0	Top
CR305	48A1005C	MMBD7000, DUAL DIODES IN SERIES, SOT-23	617	2823	0	Bottom
CR306	48A1005C	MMBD7000, DUAL DIODES IN SERIES, SOT-23	449	2956	90	Bottom
CR307	48AA01SA	DIODE, 1A, 50V, SMT, D0214AC CASE	1290	630	90	Top
CR401	48A1005C	MMBD7000, DUAL DIODES IN SERIES, SOT-23	695	1808	90	Top
CR402	48C10AQ3	VARACTOR DIODE, SMV1236-004, SOT-23	1186	1339	0	Top
CR403	48C1004G	MMBV-2101L DIODE VVC SOT-23	1118	1482	180	Top
CR404	48A1004D	MMBV3401 PIN/UHF DIODE SOT-23	1599	1102	270	Top

FUSE

F301	06000040	WIRE; #40AWG TINNED BUS (INCHES)	754	603	270	Bottom
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INTEGRATED CIRCUITS

IC101	31030003	MC3371D SUBSYSTEM IC, SO-16	314	1158	270	Bottom
IC301	314G0306	MCU, 28 PIN, SOIC, SST/JMX 4 SERIES v06	992	2546	0	Bottom
IC302	31210005	EEPROM, 512X8, 24C04	989	2501	180	Top
IC303	310K0004	LMV324MT RAIL TO RAIL QUAD OP AMP	474	2442	180	Top
IC304	311K0003	SWITCH,ANALOG,TRIPLE SPDT,4053,TSSOP-16	228	2684	0	Top
IC305	310K0003	LMV358MM DUAL OP AMP, GP LV R/R TSSOP	404	3120	0	Top

<u>Ref</u>	<u>Ritron PN</u>	<u>Description</u>	<u>X</u>	<u>Y</u>	<u>Theta</u>	<u>Loc</u>
IC306	310K0001	DS1806E 6 PROG POTS 10K OHM 20-PIN TSSOP	242	2185	0	Top
IC307	31010004	LM386MX-1 AUDIO AMP SO-8	1331	567	90	Bottom
IC308	310K0002	MAX7410 5TH ORDER SW CAP BUTTERWORTH LPF403	2935	0	0	Top
IC309	310E0002	REGULATOR,LDO,LP2980,5V,W ENABLE,SOT-25	162	504	0	Top
IC401	313K0005	SYNTHESIZER, MC145193, TSSOP	891	1265	180	Top

JACKS

J301	02100001	2.5MM PC-MT JACK; ANT-CHGR	1178	4668	0	Top
J303	02100053	3.5MM STEREO JACK; PANEL MOUNT	1560	4646	0	Top

INDUCTORS

L101	01870954	4.5T AIRFCW COIL .09 a L= 43 nH	1090	3757	125	Top
L103	01870954	4.5T AIRFCW COIL .09 a L= 43 nH	792	38829	0.145	Top
L104	01870955	5.5T AIRFCW COIL .1 a L = 51 nH	413	4371	180	Top
L105	01870954	4.5T AIRFCW COIL .09 a L= 43 nH	268	4044	270	Top
L106	18110102	CHIP INDUCTOR 1.0uhy	381	3481	270	Top
L107	18110220	INDUCTOR, CHIP, 22nH	593	3729	0	Top
L108	18110681	CHIP INDUCTOR .68uhy	51	1648	180	Bottom
L202	18110102	CHIP INDUCTOR 1.0uhy	1454	2281	180	Top
L204	18433108	8T AIRCOIL, SMT, 28.0NH, .120 X .270	1695	3988	90	Top
L205	18110102	CHIP INDUCTOR 1.0uhy	1509	3851	0	Top
L206	01870955	5.5T AIRFCW COIL .1 a L = 51 nH	1163	3757	0	Top
L207	01870954	4.5T AIRFCW COIL .09 a L= 43 nH	1321	39435	0.113	Top
L208	01870954	4.5T AIRFCW COIL .09 a L= 43 nH	1109	40278	0.746	Top
L401	18433107	7T AIRCOIL, SMT, 22.0NH, .120 X .270	1516	1486	0	Top
L402	18433110	10T AIRCOIL, SMT, 43.0NH, .120 X .270	1349	1062	270	Top
L403	18110102	CHIP INDUCTOR 1.0uhy	1590	968	0	Top
L404	18110331	CHIP INDUCTOR .33uhy	1187	964	180	Top
L406	18433104	4T AIRCOIL SMT 12.5nH .120 X .145	1601	1756	90	Top

MICROPHONE

M301	05500037	MICROPHONE; ELECTRET, MINIATURE	0	0	0	Bottom
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PLUGS

P201	25500700	CONTACT, PCB MNT, ANTENNA,SST	896	4550	90	Top
P302	21310021	HEADER, 2 PIN SIDE ENTRY SHROUDED	754	737	0	Top

TRANSISTORS

Q101	4801002A	MMBT3906 PNP, SOT23	565	4072	270	Top
Q102	48210E2P	BFS17A, VHF, SOT-23 LOW NOISE	661	4371	0	Top
Q103	4841006U	MMBFJ309LT1, N-CHAN, RF, SOT23	373	3843	270	Top
Q104	4821003B	MMBT918LT1 VHF SOT23 (3B)	270	3548	0	Bottom
Q105	4821003B	MMBT918LT1 VHF SOT23 (3B)	38	1374	180	Bottom
Q201	4801002A	MMBT3906 PNP, SOT23	908	3268	90	Bottom
Q202	4801001Q	MMBT5088, NPN, SOT-23	766	3268	270	Bottom
Q203	04801505	M68776 7W RF MODULE 135-175 MHZ 7.2V	1819	2710	90	Top
Q204	4821007A	MMBR901LT1 1GHZ SOT-23 (7A)	1603	2274	270	Top
Q301	48010R02	MUN2211T1, NPN, INT 10K/10K BIAS, "8A",	1133	2987	90	Bottom
Q302	4801002A	MMBT3906 PNP, SOT23	1094	3124	90	Bottom
Q303	4801001Q	MMBT5088, NPN, SOT-23	583	519	0	Top
Q304	480100DH	BCW68GLT1 .8AMP PNP SOT-23	445	668	0	Top
Q306	480100DH	BCW68GLT1 .8AMP PNP SOT-23	1222	2259	90	Top
Q307	4801001Q	MMBT5088, NPN, SOT-23	964	615	0	Bottom
Q308	480100DH	BCW68GLT1 .8AMP PNP SOT-23	1152	679	0	Bottom
Q401	4821007A	MMBR901LT1 1GHZ SOT-23 (7A)	1470	1919	270	Top
Q402	4821007A	MMBR901LT1 1GHZ SOT-23 (7A)	1289	1920	270	Top
Q403	4821007A	MMBR901LT1 1GHZ SOT-23 (7A)	1333	1724	270	Top
Q404	4801001Q	MMBT5088, NPN, SOT-23	837	1766	270	Top
Q405	4801006A	MUN2111T1, PNP, INT 10K/10K BIAS, SC-59	1556	1241	0	Top
Q406	480A0002	TRANSISTOR, DUAL NPN W/10K UMG9N SOT23-5	1710	1242	270	Top

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RESISTORS						
R101	47180103	10K OHM, RESISTOR, CHIP, 0402,1/16W,5%	527	3955	90	Top
R102	47180472	4.7K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	175	3530	270	Bottom
R103	47180332	3.3K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	645	4275	180	Top
R104	47180102	1K OHM RESISTOR, CHIP,0402, 1/16W,5%	756	4355	270	Top
R105	47180271	270 OHM RESISTOR, CHIP, 0402, 1/16W, 5%	565	4187	270	Top
R106	47180152	1.5K OHM RESISTOR, CHIP, 0402, 1/16W,5%	469	3824	270	Top
R107	47180152	1.5K OHM RESISTOR, CHIP, 0402, 1/16W,5%	388	3484	180	Bottom
R108	47180223	22K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	251	3450	180	Bottom
R109	47180101	100 OHM RESISTOR, CHIP, 0402,1/16W,5%	167	3450	180	Bottom
R110	47180154	150K OHM RESISTOR, CHIP, 0402, 1/16W,5%	411	946	270	Bottom
R111	47180122	1.2K OHM RESISTOR, CHIP, 0402, 1/16W,5%	529	904	270	Bottom
R112	47180224	220K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	349	966	180	Bottom
R113	47180123	12K OHM RESISTOR, CHIP, 0402, 1/16W,5%	489	946	90	Bottom
R114	47180152	1.5K OHM RESISTOR, CHIP, 0402, 1/16W,5%	551	966	0	Bottom
R115	47180104	100K OHM, RESISTOR, CHIP, 0402,1/16W,5%	155	2174	270	Bottom
R116	47180103	10K OHM, RESISTOR, CHIP, 0402,1/16W,5%	155	2089	90	Bottom
R117	47180393	39K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	117	1676	90	Top
R118	47180103	10K OHM, RESISTOR, CHIP, 0402,1/16W,5%	49	1486	90	Bottom
R119	47180102	1K OHM RESISTOR, CHIP,0402, 1/16W,5%	9	1486	270	Bottom
R120	47180681	680 OHM RESISTOR, CHIP, 0402, 1/16W, 5%	78	1635	90	Top
R201	47180103	10K OHM, RESISTOR, CHIP, 0402,1/16W,5%	800	3384	90	Bottom
R202	47180471	470 OHM RESISTOR, CHIP, 0402, 1/6W, 5%	669	3248	270	Bottom
R203	47180121	120 OHM, RESISTOR, CHIP, 0402, 1/16W,5%	908	3151	90	Bottom
R205	47180822	8.2K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	1555	2244	0	Bottom
R206	47180182	1.8K OHM RESISTOR, CHIP, 0402, 1/16W,5%	1618	2264	270	Bottom
R207	47180181	180 OHM RESISTOR, CHIP, 0402, 1/16W, 5%	1384	3842	180	Top
R208	47180102	1K OHM RESISTOR, CHIP,0402, 1/16W,5%	899	4425	90	Top
R301	47180103	10K OHM, RESISTOR, CHIP, 0402,1/16W,5%	536	686	90	Top
R302	47100471	470 OHM 0805 CHIP RES.	475	479	270	Top
R303	47180104	100K OHM, RESISTOR, CHIP, 0402,1/16W,5%	316	546	90	Top
R304	47180102	1K OHM RESISTOR, CHIP,0402, 1/16W,5%	623	639	270	Top
R305	47180104	100K OHM, RESISTOR, CHIP, 0402,1/16W,5%	410	547	270	Top
R306	47180103	10K OHM, RESISTOR, CHIP, 0402,1/16W,5%	535	1867	90	Bottom
R307	47180103	10K OHM, RESISTOR, CHIP, 0402,1/16W,5%	998	3143	90	Bottom
R308	47180103	10K OHM, RESISTOR, CHIP, 0402,1/16W,5%	1127	3328	180	Bottom
R309	47180103	10K OHM, RESISTOR, CHIP, 0402,1/16W,5%	1257	2891	270	Bottom
R310	47180104	100K OHM, RESISTOR, CHIP, 0402,1/16W,5%	704	2191	0	Bottom
R311	47180104	100K OHM, RESISTOR, CHIP, 0402,1/16W,5%	461	4622	270	Top
R312	47180103	10K OHM, RESISTOR, CHIP, 0402,1/16W,5%	704	2230	0	Bottom
R313	47180104	100K OHM, RESISTOR, CHIP, 0402,1/16W,5%	1184	2376	270	Top
R314	47180472	4.7K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	1260	2375	270	Top
R315	47180102	1K OHM RESISTOR, CHIP,0402, 1/16W,5%	738	2841	90	Bottom
R316	47180103	10K OHM, RESISTOR, CHIP, 0402,1/16W,5%	760	2506	90	Top
R317	47180103	10K OHM, RESISTOR, CHIP, 0402,1/16W,5%	799	2506	90	Top
R318	47180104	100K OHM, RESISTOR, CHIP, 0402,1/16W,5%	704	2521	180	Bottom
R319	47180471	470 OHM RESISTOR, CHIP, 0402, 1/6W, 5%	705	2770	180	Bottom
R320	47180471	470 OHM RESISTOR, CHIP, 0402, 1/6W, 5%	643	2919	0	Bottom
R321	47180103	10K OHM, RESISTOR, CHIP, 0402,1/16W,5%	752	2957	180	Bottom
R322	47180393	39K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	294	3070	270	Bottom
R323	47180823	82K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	371	3070	270	Bottom
R324	47180224	220K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	332	3070	270	Bottom
R325	47180104	100K OHM, RESISTOR, CHIP, 0402,1/16W,5%	416	3156	90	Bottom
R326	47180183	18K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	585	2413	270	Bottom
R327	47180183	18K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	624	2328	90	Bottom
R328	47180103	10K OHM, RESISTOR, CHIP, 0402,1/16W,5%	479	2791	270	Bottom
R329	47180153	15K OHM RESISTOR, CHIP, 0402, 1/16W,5%	174	2400	180	Top
R330	47180100	10 OHM RESISTOR, CHIP,0402, 1/16W 5%	664	2384	90	Top
R331	47180104	100K OHM, RESISTOR, CHIP, 0402,1/16W,5%	269	2391	0	Top
R332	47180154	150K OHM RESISTOR, CHIP, 0402, 1/16W,5%	207	2501	90	Top
R333	47180473	47K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	246	2500	90	Top
R334	47180273	27K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	561	2588	90	Top
R335	47180102	1K OHM RESISTOR, CHIP,0402, 1/16W,5%	39	2787	270	Top

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R336	47180104	100K OHM, RESISTOR, CHIP, 0402,1/16W,5%	2	2787	270	Top
R337	47180103	10K OHM, RESISTOR, CHIP, 0402,1/16W,5%	532	3156	270	Bottom
R338	47180224	220K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	393	3234	90	Top
R339	47180394	390K OHM RESISTOR, CHIP, 0402, 1/6W, 5%	467	2361	270	Bottom
R340	47180104	100K OHM, RESISTOR, CHIP, 0402,1/16W,5%	340	2436	90	Bottom
R341	47180104	100K OHM, RESISTOR, CHIP, 0402,1/16W,5%	251	2456	0	Bottom
R342	47180184	180K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	65	2394	270	Bottom
R343	47180564	560K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	696	3167	0	Top
R344	47180104	100K OHM, RESISTOR, CHIP, 0402,1/16W,5%	26	2424	270	Bottom
R345	47180104	100K OHM, RESISTOR, CHIP, 0402,1/16W,5%	127	2456	180	Bottom
R346	47180102	1K OHM RESISTOR, CHIP,0402, 1/16W,5%	697	3129	180	Bottom
R347	47180100	10 OHM RESISTOR, CHIP,0402, 1/16W 5%	517	2650	180	Bottom
R348	47180473	47K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	432	2588	270	Bottom
R349	47180473	47K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	29	2146	0	Top
R350	47180224	220K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	29	2198	0	Top
R351	47180222	2.2K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	426	2277	90	Top
R352	47100225	2.2M 0805 CHIP RESISTOR	50	2410	0	Top
R353	47180103	10K OHM, RESISTOR, CHIP, 0402,1/16W,5%	483	2162	180	Top
R354	47180102	1K OHM RESISTOR, CHIP,0402, 1/16W,5%	847	653	180	Bottom
R355	47180103	10K OHM, RESISTOR, CHIP, 0402,1/16W,5%	912	772	90	Bottom
R356	47180273	27K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	1172	775	0	Bottom
R357	47180102	1K OHM RESISTOR, CHIP,0402, 1/16W,5%	1178	534	270	Bottom
R358	47180103	10K OHM, RESISTOR, CHIP, 0402,1/16W,5%	251	2376	0	Bottom
R359	47180100	10 OHM RESISTOR, CHIP,0402, 1/16W 5%	1600	730	270	Bottom
R360		Factory Select	139	588	90	Bottom
R361		Factory Select	188	588	90	Bottom
R401	47180101	100 OHM RESISTOR, CHIP, 0402,1/16W,5%	1517	2006	90	Top
R402	47180221	220 OHM RESISTOR, CHIP, 0402, 1/16W, 5%	1702	1871	270	Top
R403	47180272	2.7K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	1450	2013	180	Top
R404	47180102	1K OHM RESISTOR, CHIP,0402, 1/16W,5%	1429	1802	90	Top
R405	47180471	470 OHM RESISTOR, CHIP, 0402, 1/6W, 5%	1153	1900	270	Top
R406	47180272	2.7K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	1193	1900	270	Top
R407	47180470	47 OHM RESISTOR, CHIP, 0402, 1/16W, 5%	1086	1788	270	Top
R408	47180470	47 OHM RESISTOR, CHIP, 0402, 1/16W, 5%	1067	1726	180	Top
R409	47180100	10 OHM RESISTOR, CHIP,0402, 1/16W 5%	1390	1631	180	Top
R410	47180153	15K OHM RESISTOR, CHIP, 0402, 1/16W,5%	1206	1633	180	Top
R411	47180103	10K OHM, RESISTOR, CHIP, 0402,1/16W,5%	1206	1684	0	Top
R412	47180102	1K OHM RESISTOR, CHIP,0402, 1/16W,5%	1271	1827	180	Top
R413	47180472	4.7K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	677	1903	0	Top
R414	47180103	10K OHM, RESISTOR, CHIP, 0402,1/16W,5%	1464	1311	270	Top
R415	47180102	1K OHM RESISTOR, CHIP,0402, 1/16W,5%	1695	1032	90	Top
R416	47180104	100K OHM, RESISTOR, CHIP, 0402,1/16W,5%	1138	1601	0	Top
R417	47180102	1K OHM RESISTOR, CHIP,0402, 1/16W,5%	924	933	90	Top
R418	47180103	10K OHM, RESISTOR, CHIP, 0402,1/16W,5%	936	1028	90	Top
R419	47180123	12K OHM RESISTOR, CHIP, 0402, 1/16W,5%	718	906	0	Top
R420	47180103	10K OHM, RESISTOR, CHIP, 0402,1/16W,5%	718	946	180	Top
R421	47180392	3.9K OHM RESISTOR, CHIP, 0402, 1/16W, 5%	1081	1325	90	Top
R422	47180100	10 OHM RESISTOR, CHIP,0402, 1/16W 5%	894	1461	90	Top
R423	47180474	470K OHM RESISTOR, 0402, 1/16W, 5%	850	1100	180	Top
R424	47180681	680 OHM RESISTOR, CHIP, 0402, 1/16W, 5%	1468	1703	90	Top
R425	47180103	10K OHM, RESISTOR, CHIP, 0402,1/16W,5%	1617	1337	180	Top

SPEAKER

SP301	05500045	SPEAKER, 45MM, 1W, LOW PROFILE SST/RTX	0	0	0	Bottom
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SWITCHES

SW301	05100042	SWITCH SPST MOMENTARY MINI PC 260GM	268	4587	180	Top
SW302	05100042	SWITCH SPST MOMENTARY MINI PC 260GM	788	4588	180	Top
SW303	05100046	SWITCH, TACT LO PROFILE RT ANGLE 160gf	82	3097	270	Top
SW304	05100046	SWITCH, TACT LO PROFILE RT ANGLE 160gf	82	3948	270	Top

<u>Ref</u>	<u>Ritron PN</u>	<u>Description</u>	<u>X</u>	<u>Y</u>	<u>Theta</u>	<u>Loc</u>
TRANSFORMER						
T101	05600018	455KHZ IF TRANSFORMER (5MM)	128	1822	180	Top
CRYSTAL						
Y302	23050003	TCVCXO, 14.400 MHz, 1.5 PPM, VC=30 PPM/V	146	837	90	Top
FILTERS						
YF101	02301403	43.650 MHz Crystal Filter +/-6.0KHz UM-1	44	3524	90	Top
YF102	02301013	FILTER,CERAMIC,450KHz,+/-7.5KHz,6 POLE	249	1614	90	Top
HARDWARE						
	1750250A	PCB, ML4 FR4 5UPM, .062 MIX, SST-144				
	25602500	CRYSTAL SUPPORT, RUBBER PAD, SMALL/UM-1				
	06001010	#24 AWG STRANDED WIRE; RED (INCHES)				
	06001011	#24 AWG STRANDED WIRE; BLACK INCHES				
	06001023	#28 AWG STRANDED WIRE;GREEN INCHES				
	06001029	#28 AWG STRANDED WIRE; BLUE INCHES				
	25105500	SHIELD, SST-PLUS SYNTHESIZER				
	25603000	FOAM, MOUNTING, SPEAKER,SST				
	25603900	SPACER, MIC FOAM, SST				
	25605700	MICROPHONE HOLDER, SST-PLUS				
ANTENNA						
	AFS-150	ANTENNA VHF MOLDED, 150-160 REG LEN SST				
MAIN CASE ASSEMBLY						
	13250000	CASE W/INSERT, PLASTIC, SST BLACK				
	13578000	DOOR, BATTERY, PLASTIC, SST 2-PC				
	13588000	LATCH, BATTERY DOOR, PLASTIC SST 2-PC				
	25106400	BATTERY DOOR HINGE RETAINER				
	25201500	RETAINER, PLASTIC, PTT, SST				
	25400600	BUSHING, THREADED, PLATED, ANTENNA SS				
	25603300	GRILLE CLOTH, SPEAKER, SST				
	25603400	DUAL JACK PLUG, RUBBER,SST				
	25606200	HINGE, BATTERY DOOR, SST				
	25800500	ACTUATOR, RUBBER,PTT,SST				
	25800600	ACTUATOR, RUBBER, TACT, SST				
	02802026	NUT; KNURLED; M4PO.5;/2.5MM JACK				
	02802027	NUT; KNURLED; M6PO.5/3.5MM JACK				
	28112401	SCREW 4-40 X 1/4" PHFLST				
	28233G03	KNURLED NUT, ANTENNA, JMX				
CASE BOTTOM ASSEMBLY						
	13564000	CASE, BOTTOM, PLASTIC, SST 2-PC				
	2142D021	CONNECTOR, CABLE ASSEMBLY, 2-POS, SST+				
	25400800	SPRING CONTACT, BATTERY, SST W/O TABSC				
	25400900	CONTACT BATTERY SST-PLUS (POLARIZED)				
	25604800	SPACER, PCB, FOAM, SST 2-PC				
BELT CLIP						
	25201600	BELT CLIP, PLASTIC, SST BLACK				
	2811B600	SCREW 6-32 X 1/4" PHTRST				

<u>Ritron PN</u>	<u>Description</u>
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SST-144 MODELS ONLY**CASE LABELS**

14220001	LABEL, CONTROLS, SST
14222029	LABEL, NAMEPLATE, SST
14290002	BLANK LABEL, .75" X .25" GLOSSY WHITE
14200037	LABEL SST/JMX MFG DATE CODE
14200104	LABEL, FCC SERIAL, SST-144

BATTERY PACK AND INSULATOR

BPS-6N-SC	BATTERY, RECHG, 7.2V NiCd, BLUE, SST
14230088	LABEL, BATTERY, BPS-6N-SC, SST
25300600	INSULATOR, BATTERY, FIBRE, SST
25606000	FOAM SUPPORT, BATTERY JMX SERIES
25601600	BATTERY SHIM; ASSEMBLY ~X~ SERIES

PACKING MATERIALS

14210004	LOW BATTERY NOTICE LABEL
14312006	SHIPPING CARTON, CARDBOARD, SST
14321002	FOAM INSERT, PACKING, SST/MINI
14500025	OWNER'S MANUAL, 14x/44x SERIES, JMX/SST
14540006	WARRANTY REGISTRATION CARD

JMX-144 MODELS ONLY**CASE LABELS**

14220002	LABEL, CONTROLS, JMX
14222035	LABEL, NAMEPLATE, JMX
14290002	BLANK LABEL, .75" X .25" GLOSSY WHITE
14200037	LABEL SST/JMX MFG DATE CODE
14200103	LABEL, FCC SERIAL, JMX-144

BATTERY PACK AND INSULATOR

BPJS-6N	BATTERY, YELLOW, RECHG, 7.2V NiCd 700 mAh
BC-A	BATTERY CHARGER, 120VAC-5.5VDC 100mA
14230088	LABEL, BATTERY, BPS-6N-SC, SST
25300600	INSULATOR, BATTERY, FIBRE, SST
25606000	FOAM SUPPORT, BATTERY JMX SERIES
25601600	BATTERY SHIM; ASSEMBLY ~X~ SERIES

PACKING MATERIALS

14210004	LOW BATTERY NOTICE LABEL
14313012	BOX, CHIPBOARD, SMALL, 4 COLOR, JMX
14352004	INSERT, CORRUGATED CARDBOARD, JMX
14500025	OWNER'S MANUAL, 14x/44x SERIES, JMX/SST
14540006	WARRANTY REGISTRATION CARD
14610006	JOB COM BROCHURE

TYPE OF EXHIBIT: SEMICONDUCTOR FUNCTION

FCC PART: 2.1033 (c) (10)

MANUFACTURER: RITRON, INC.
505 West Carmel Drive
Carmel, IN 46032

MODEL: SST-144

TYPE OF UNIT: VHF-FM Handheld Transceiver

FCC ID: AIERIT13-144

DATE: May 3, 2001

DESCRIPTION:

The following list specifies the manufacturer, identification and function of each semiconductor device used in the SST-144 handheld transceiver.

<u>Schem ID</u>	<u>RITRON PN#</u>	<u>Manufacturer</u>	<u>Manufacturer ID</u>	<u>Function</u>
CR101	48D100A2	M/A Com, Inc.	MA4CP101A	TX/RX switching
CR102	48E1005G	Motorola Semiconductors	MMBD-352LT1	Voltage clamp
CR103	48A1005C	Motorola Semiconductors	MMBD7000LT1	Noise detection
CR201	48D100A2	M/A Com, Inc.	MA4CP101A	TX/RX switching
CR301	48B61012	Philips Semiconductors	BZD27-C12	Over voltage protection
CR302	48AA01SA	General Semiconductors	ASBCS1B	Reverse voltage protection
CR303	48A1005B	Motorola Semiconductors	MMBD6100LT1	Turn-on detection
CR304	48A100A3	Motorola Semiconductors	MMBD2835LT1	PTT switching
CR305	48A1005C	Motorola Semiconductors	MMBD7000LT1	Voltage clamp
CR306	48A1005C	Motorola Semiconductors	MMBD7000LT1	Voltage clamp
CR307	48AA01SA	General Semiconductors	ASBCS1B	Reverse voltage protection
CR401	48A1005C	Motorola Semiconductors	MMBD7000LT1	Biasing
CR402	48C10AQ3	Alpha Industries, Inc.	SMV1236-004	VCO tuning
CR403	48C1004G	Motorola Semiconductors	MMBV-2101L	VCO modulation
CR404	48A1004D	Motorola Semiconductors	MMBV3401TI	TX/RX VCO switching
IC101	31030003	Motorola Semiconductors	MC3371BD	RX FM-IF subsystem
IC301	314G0301	Motorola Semiconductors	MC68HC705P6ACDW	Microcontroller
IC302	31210005	Atmel Corporation	AT24C04AN-10SC	EEPROM
IC303	310K0004	National Semiconductors	LMV324MT	Audio processing
IC304	311K0003	Philips Components	74LV4053PWDH	Audio signal switching
IC305	310K0003	National Semiconductors	LMV358MM	Audio processing
IC306	310K0001	Dallas Semiconductor	DS1806E	Audio signal level control
IC307	31010004	National Semiconductors	LM386MX-1	Audio amplifier
IC308	310K0002	Maxim Integrated Products	MAX7410CUA	Tone low pass filter
IC309	310E0002	National Semiconductors	LP2980AIM5X-5.0	+5 VDC voltage regulator
IC401	313K0005	Motorola Semiconductors	MC145193DT	Frequency synthesizer
Q 101	4801002A	Motorola Semiconductors	MMBT3906LT1	RX +V switching
Q 102	48210E2P	Philips Components	BFS17A	RX RF amplifier
Q 103	4841006U	ON Semiconductors	MMBFJ309LT1	RX Mixer
Q 104	4821003B	Motorola Semiconductors	MMBT918LT1	RX IF amplifier
Q 105	4821003B	Motorola Semiconductors	MMBT918LT1	RX 1st LO multiplier/amp
Q 201	4801002A	Motorola Semiconductors	MMBT3906LT1	TX +V switching
Q 202	4801001Q	Motorola Semiconductors	MMBT-5088LT1	TX +V switching

<u>Schem ID</u>	<u>RITRON PN#</u>	<u>Manufacturer</u>	<u>Manufacturer ID</u>	<u>Function</u>
Q 203	04801505	Misubishi Electronic Device	M68766	TX RF final amplifier
Q 204	4821007A	Motorola Semiconductors	MMBT901T1	TX RF driver amplifier
Q 301	48010R02	Motorola Semiconductors	MUN2211T1	PTT detection
Q 302	4801002A	Motorola Semiconductors	MMBT3906LT1	PTT detection
Q 303	4801001Q	Motorola Semiconductors	MMBT-5088LT1	Battery +V switching
Q 304	480100DH	Motorola Semiconductors	BCW68GLT1	Battery +V switching
Q 306	480100DH	Motorola Semiconductors	BCW68GLT1	+5V switching
Q 307	4801001Q	Motorola Semiconductors	MMBT-5088LT1	Audio amplifier enable
Q 308	480100DH	Motorola Semiconductors	BCW68GLT1	Audio amplifier +V switching
Q 401	4821007A	Motorola Semiconductors	MMBT901T1	VCO buffer amplifier
Q 402	4821007A	Motorola Semiconductors	MMBT901T1	VCO buffer amplifier
Q 403	4821007A	Motorola Semiconductors	MMBT901T1	VCO oscillator
Q 404	4801001Q	Motorola Semiconductors	MMBT-5088LT1	VCO voltage de-coupling
Q 405	4801006A	Motorola Semiconductors	MUN2111LT1	TX/RX VCO switching
Q 406	480A0002	ROHM Co., Ltd.	UMG9N	TX/RX VCO switching