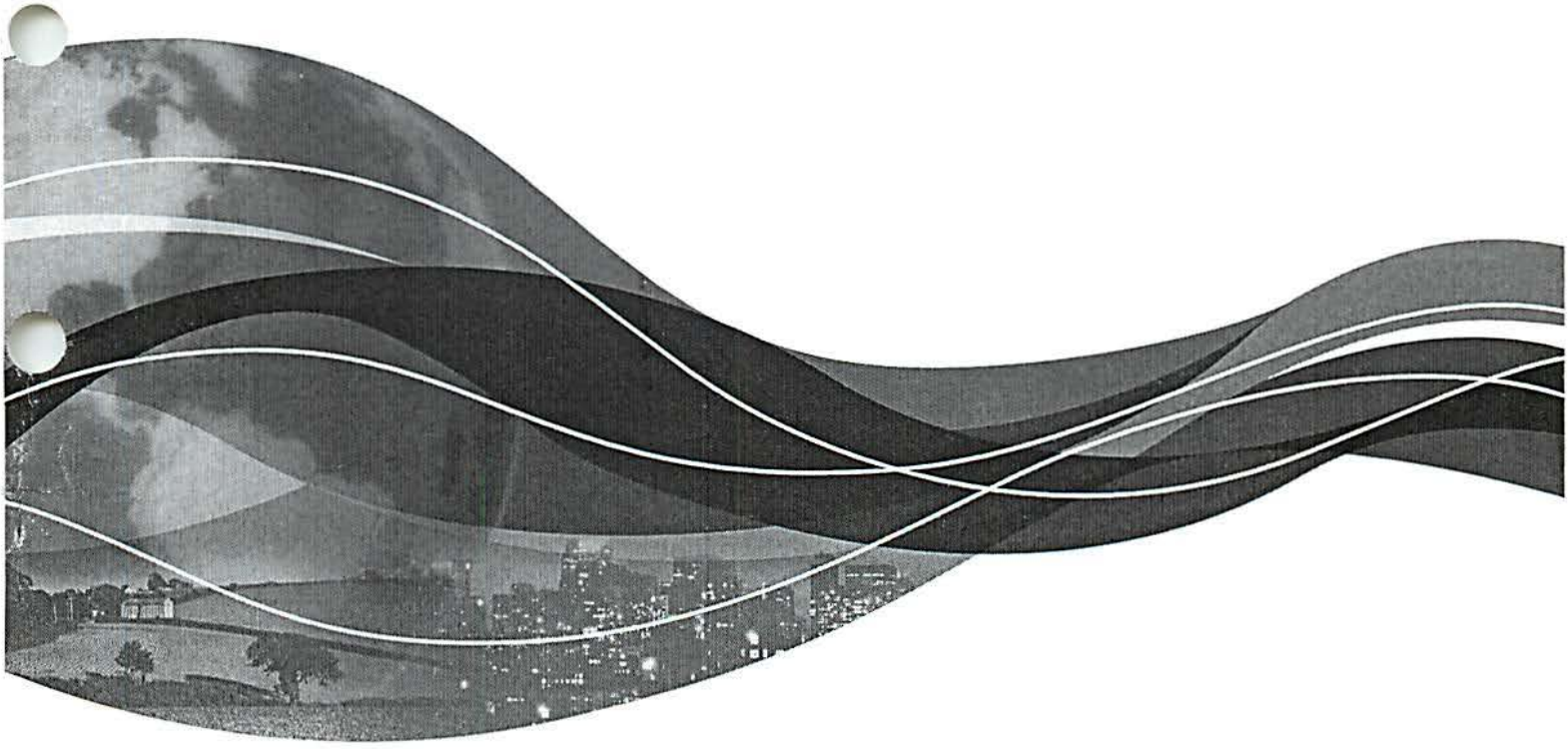
MOTOROLA

Service Guide

Minitor III™

Tone and Voice Pager



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Contents

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Introduction

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Available on a contract basis, Motorola Inc. offers comprehensive maintenance and installation programs which enable customers to meet requirements for reliable, continuous communications.

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Product Changes

When electrical, mechanical or production changes are incorporated into Motorola paging products, a revision letter is assigned to the chassis or kit affected, for example; -A, -B, or -C, and so on.

The part number, including the revision letter, is imprinted on the chassis or kit during production. The revision letter is an integral part of the chassis or kit number and is also listed on the schematic diagrams and printed circuit board layouts.

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This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions:

1. This device may not cause any harmful interference, and
2. This device must accept interference received, including interference that may cause undesired operation.

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1. This device may not cause interference, and
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Note: Emphasizes additional information pertinent to the subject matter.

Caution: Emphasizes information about actions which may result in equipment damage.

Warning: Emphasizes information about actions which may result in personal injury.

Parts Replacement

When ordering replacement parts or equipment, include the Motorola part number and description used in the service manual or supplement.

When ordering crystals or channel elements, specify the Motorola part number, description, crystal frequency, and operating frequency desired.

When the Motorola part number of a component is not known, use the product model number or other related major assembly along with a description of the related major assembly and of the component in question.

In the U.S.A., to contact Motorola, Inc. on your TTY, call: 800-793-7834.

Accessories and Aftermarket Division (AAD)

Replacement parts, test equipment, and manuals can be ordered from AAD.

U.S.A	Outside U.S.A.
Phone: 800-422-4210	Phone: 847-538-8023
FAX: 800-622-6210	FAX: 847-576-3023

Specifications—Low Band

	STANDARD
MODEL SERIES[1] 1 CHANNEL: 2 CHANNEL:	 A01YMS7238-X A01YMS7239-X
FREQUENCY:	33.0-49.0 MHz
MAX FREQ SEPARATION (2 CHANNEL MODELS ONLY):	4 MHz
WEIGHT (WITH BATTERIES):	4.9 oz. (139 g)
DIMENSIONS:	3.52" x 2.4" x .85"
SENSITIVITY ALERTING (ON BODY):	7.5 uV/m Splits B and C 6.5 uV/m Splits D and E
SELECTIVITY:	>60 dB @ 20 kHz
SPURIOUS IMAGE REJECTION	>55 dB
AUDIO OUTPUT (ALERT/VOICE):	93 dB/90 dB @ 12 inches
FREQUENCY STABILITY	± .0015%
CHANNEL SPACING	20 kHz
POWER SUPPLY:	Two "AAA" NiCad or Alkaline Batteries
BATTERY LIFE[2]	Selective Call >30 hrs (NiCad) >150 hrs (Alkaline) Monitor >20 hrs (NiCad) (2% duty cycle) >100 hrs (Alkaline)
[1] The "X" in the model number varies depending on version level (A, B, C, etc.) [2] When used in the Selective Call mode, battery life is based on receiving five 30-second calls per 8-hour period. When used in the Monitor mode, battery life depends upon the amount of voice traffic present on the channel.	

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

Specifications—VHF

	STANDARD	STORED VOICE
MODEL SERIES[1] 1 CHANNEL: 2 CHANNEL:	 A03YMS7238-X A03YMS7239-X	 A03YMS9238-X A03YMS9239-X
FREQUENCY:	143-174 MHz	143-174 MHz
MAX FREQ SEPARATION (2 CHANNEL MODELS ONLY):	8 MHz (A, B, C split) 7 MHz (D split)	8 MHz (A, B, C split) 7 MHz (D split)
WEIGHT (WITH BATTERIES):	4.8 oz. (135 g)	4.8 oz. (135 g)
DIMENSIONS:	3.52" x 2.4" x .85"	3.52" x 2.4" x .85"
SENSITIVITY ALERTING (ON BODY):	7.5 uV/m Typical 5.5 uV/m	7.5 uV/m Typical 5.5 uV/m
SELECTIVITY:	>60 dB @ 30 kHz	>60 dB @ 30 kHz
SPURIOUS IMAGE REJECTION	>55 dB	>55 dB
AUDIO OUTPUT (ALERT/VOICE):	93 dB/90 dB at 12 inches	93 dB/90 dB at 12 inches
FREQUENCY STABILITY	± .0015%	± .0015%
CHANNEL SPACING	30 kHz	30 kHz
POWER SUPPLY:	Two "AAA" NiCad or Alkaline Batteries	Two "AAA" NiCad or Alkaline Batteries
BATTERY LIFE[2]	Selective Call >40 hrs (NiCad) >195 hrs (Alkaline) Monitor (2% duty cycle) >30 hrs (NiCad) >145 hrs (Alkaline)	Selective Call >40 hrs (NiCad) >195 hrs (Alkaline) Monitor (2% duty cycle) >30 hrs (NiCad) >145 hrs (Alkaline)

[1] The "X" in the model number varies depending on version level (A, B, C, etc.)
[2] When used in the Selective Call mode, battery life is based on receiving five 30-second calls per 8-hour period. When used in the Monitor mode, battery life depends upon the amount of voice traffic present on the channel.

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

Specifications—UHF

	STANDARD	STORED VOICE
MODEL SERIES[1] 1 CHANNEL: 2 CHANNEL:	 A04YMS7238-X A04YMS7239-X	 A04YMS9238-X A04YMS9239-X
FREQUENCY:	406-430 MHz 450-512 MHz	406-430 MHz 450-512 MHz
MAX FREQ SEPARATION (2 CHANNEL MODELS ONLY):	8 MHz (A2-A5 split) 6 MHz (A6-A14 split)	8 MHz (A2-A5 split) 6 MHz (A6-A14 split)
WEIGHT (WITH BATTERIES):	4.8 oz. (135 g)	4.8 oz. (135 g)
DIMENSIONS:	3.52" x 2.4" x .85"	3.52" x 2.4" x .85"
SENSITIVITY ALERTING (ON BODY):	10 uV/m 8.5 uV/m (typically)	10 uV/m 8.5 uV/m (typically)
SELECTIVITY:	>60 dB @ 25 kHz	>60 dB @ 25 kHz
SPURIOUS IMAGE REJECTION	>50 dB	>50 dB
AUDIO OUTPUT (ALERT/VOICE):	93 dB/90 dB @ 12 inches	93 dB/90 dB @ 12 inches
FREQUENCY STABILITY	± .0005%	± .0005%
CHANNEL SPACING	25 kHz	25 kHz
POWER SUPPLY:	Two "AAA" NiCad or Alkaline Batteries	Two "AAA" NiCad or Alkaline Batteries
BATTERY LIFE[2]	Selective Call >35 hrs (NiCad) >170 hrs (Alkaline) Monitor >25 hrs (NiCad) (2% duty cycle) >120 hrs (Alkaline)	Selective Call >35 hrs (NiCad) >170 hrs (Alkaline) Monitor >25 hrs (NiCad) (2% duty cycle) >120 hrs (Alkaline)

[1] The "X" in the model number varies depending on version level (A, B, C, etc.)
[2] When used in the Selective Call mode, battery life is based on receiving five 30-second calls per 8-hour period. When used in the Monitor mode, battery life depends upon the amount of voice traffic present on the channel.

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

General Description

The Motorola Minitor III pager is an easy-to-use, compact alert monitor, powered by two rechargeable Nickel-Cadmium or two alkaline "AAA" size batteries. The pager can operate on selected UHF and VHF frequencies.

The Minitor III pager uses the most advanced self-contained, sealed, and custom-integrated circuits to perform the complex functions involved in radio paging. The pager is housed in a high-impact resistant case that offers excellent protection against dust intrusion, vibration, and shock. Lightweight and small in size, the unit can be carried comfortably in a pocket or purse, or clipped onto a belt.

The pager offers the following models:

- Single Frequency with Vibrator
- Two-Frequency with Vibrator
- Single Frequency Stored Voice with Vibrator
- Two-Frequency Stored Voice with Vibrator

On/Off Switch and Volume Control

The combined single control on the top of the pager applies power to the receiver when the control knob is turned a few degrees in the clockwise direction. An audio beep is sounded to indicate that the pager is turned on. As the control is rotated in the clockwise direction, the volume level of received messages increases.

Rotating the control in the counterclockwise direction reduces the audio level and turns the pager off.

Audible/Visual Alert Indicators

When the pager is initially turned on, both the red and amber light emitting diodes (LEDs) on the control panel light and an alert tone is sounded until the decoder circuit power-up is complete. Thereafter, whenever a properly encoded message is received, the red LED flashes and an audio alert is sounded.

The amber LED is on when an unread message is played back. If the battery voltage falls below the level required for reliable operation, a low-battery pulse tone sounds and the red LED flashes. Following any subsequent audio message, the momentary low-battery pulse tone is repeated until the batteries are replaced.

If the function switch is set to a vibrate position, the red LED flashes to indicate a low-battery state and the audible low-battery alert is generated.

Operating Modes

Depending on the model, the following modes are available for the pager:

- Monitor
- Monitor Tone Alert
- Monitor Vibrate
- Select Call Tone Alert
- Select Call Vibrate
- Scan or Priority Scan

Any 'monitor' mode allows voice communication on the selected channel to be heard through the speaker.

'Select call' modes require tone detection to automatically receive voice communication.

Priority scan mode monitors two channels. The amber LED blinks fast to indicate a transmission on F1 channel and at a slower rate for transmission on F2 channel. F1 is always the priority channel and will override channel activity on F2.

Reset Button

Pressing and releasing the reset button returns the pager to the standby mode. The reset button activates channel monitoring when pressed and held.

Stored Voice

The playback button is centered in the function switch. When pressed, it allows playback of up to two minutes of messages.

The red LED turns on if the memory contains any unread messages. The pager will also generate a reminder alert approximately every two minutes when an unread message exists.

If there are no messages in memory, a 'memory empty' tone is generated while the playback button is pressed.

Programmable Function Switch Options

Depending on the model, the function switch can be programmed with the following options:

Option Number	Description
0	Monitor F1 Tone Alert
1	Monitor F2 Tone Alert
2	Selective Call F1 Tone Alert
3	Selective Call F2 Tone Alert
4	Vibrate Alert F1 Monitor Mode
5	Vibrate Alert F2 Monitor Mode
6	Vibrate Alert F1 Selective Call Mode
7	Vibrate Alert F2 Selective Call Mode

Option Number	Description
8	Address Off Duty F1 Tone Alert Selective Call Mode
9	Address Off Duty F2 Tone Alert Selective Call Mode
10	Address Off Duty F1 Vibrate Alert Selective Call Mode
11	Address Off Duty F2 Vibrate Alert Selective Call Mode
12	Scan with Tone Alert only
13	PTL - Vibrate Alert Audio Off After Alert F1 Selective Call
14	PTL - Address Off Duty F1 Vibrate Alert Audio Off After Alert F1 Selective Call

Maintenance

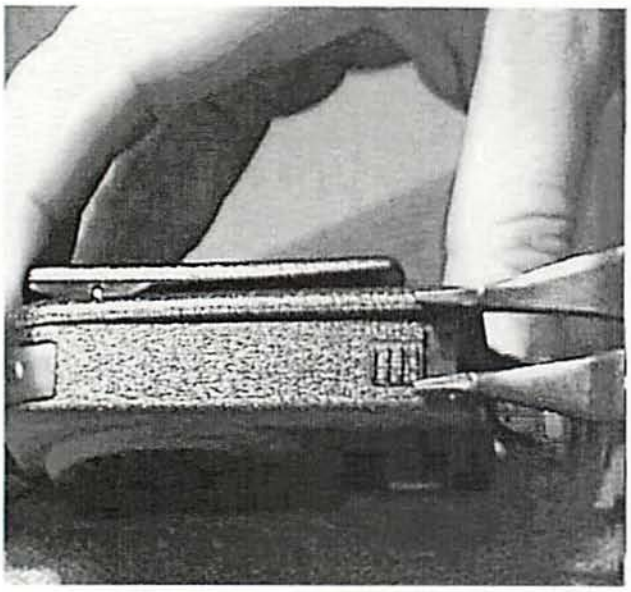
The procedures in this section provide instructions for the disassembly of the Minitor III pager. Special tools and test equipment used for the pager are listed in *Standard Tools and Test Equipment*, at the end of the disassembly instructions.

This product contains static-sensitive devices. Use anti-static handling procedures to prevent electrostatic discharge and component damage.

Removing Back Cover

To remove the back cover, do the following:

1. Turn volume control to Off position.
2. Using a 1.5 mm Allen wrench remove the back cover lock screw.
3. Remove batteries.
4. Separate the covers using lock ring pliers as follows:



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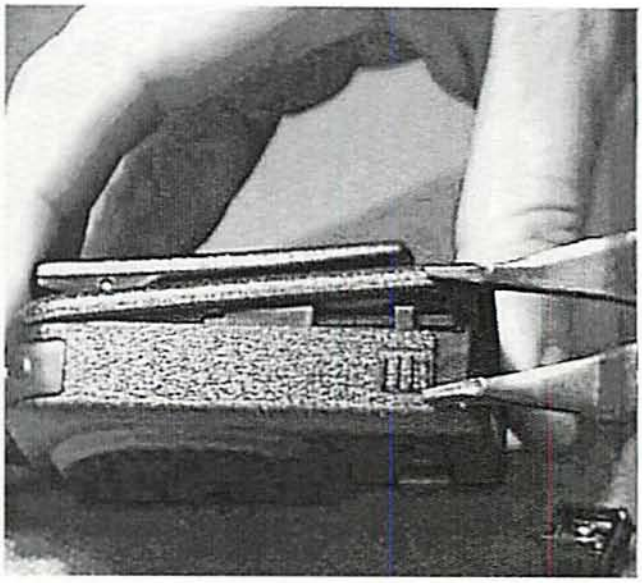
a. Hold housing firmly, then place lock ring pliers into position between back cover and front housing.



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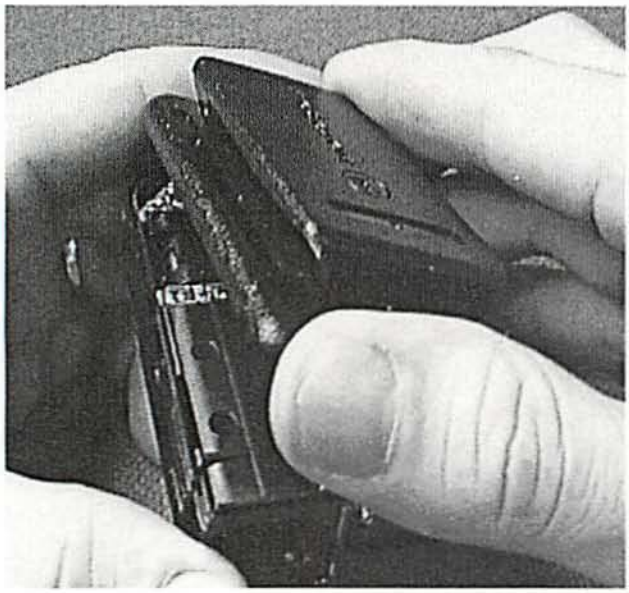
b. Compress lock ring pliers to pry back cover and front housing apart.



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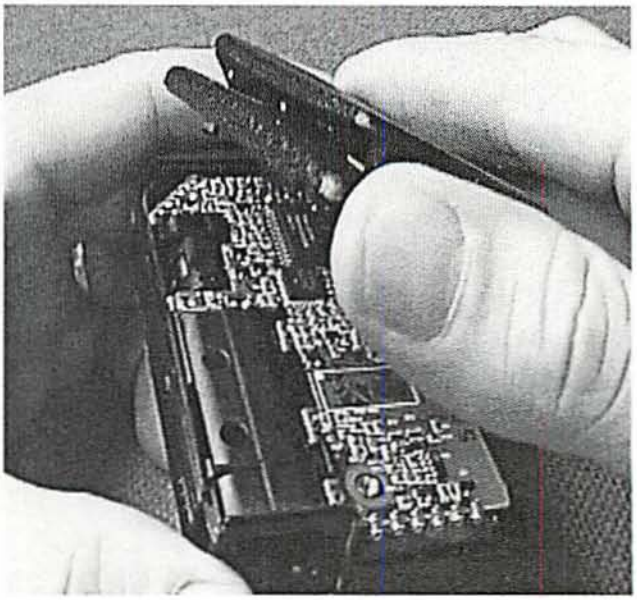
c. Pry up on back cover with thumb.



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d. Remove back cover and set aside.

Removing the Decoder Board and Receiver Assembly

After removing the back cover as described in the procedure, remove the decoder board and receiver assembly (Figure 1) as follows:

The decoder board and receiver are removed as one assembly, then separated later. When removing the assembly, take care not to break the wires connecting the decoder board and the speaker.

1. Gently lift the decoder board/receiver assembly out of the housing at the battery end of the housing. When the battery compartment has cleared the housing, pull the assembly away from the function and on/off volume switches.

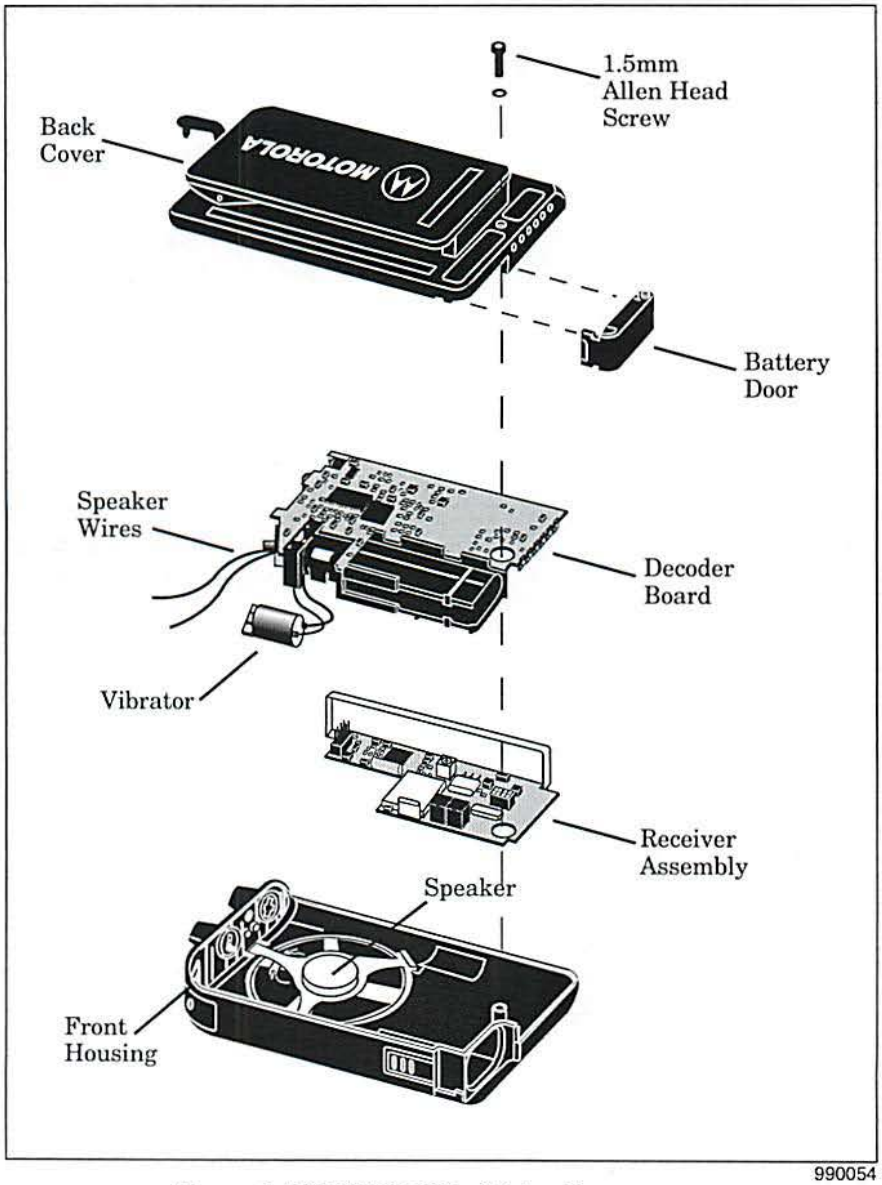


Figure 1. MINITOR III - Major Components

2. The receiver is attached to the decoder by two eight-pin miniature connectors located at each end of the receiver. Turn the assembly over and remove the receiver by lifting it upward off the decoder board.

Replacing the Decoder Board and Receiver Assembly

The assembly of the decoder board/receiver assembly is the reverse of disassembly. When reinstalling the decoder board/receiver assembly into the housing, ensure that the function and on/off knobs are in alignment with the switch positions on the decoder board (Figure 2).

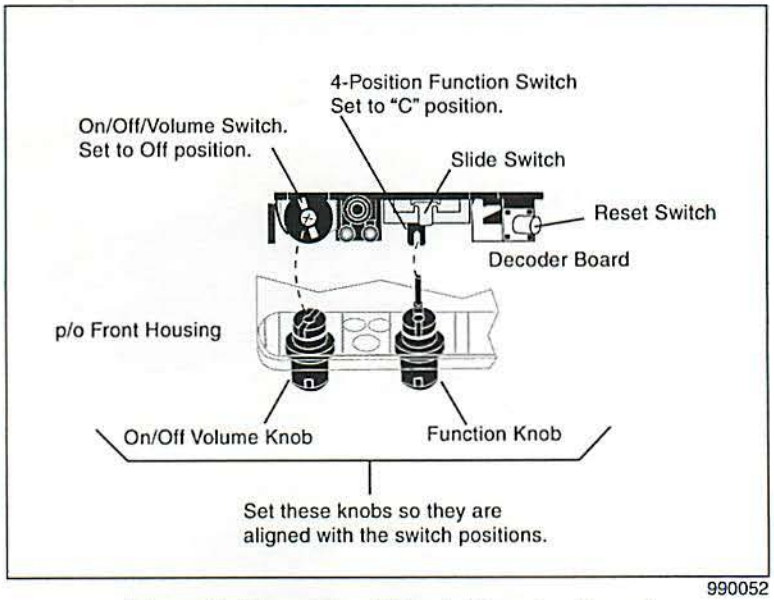


Figure 2. Front Panel Knob / Decoder Board Switch Position Alignment

Installing Escutcheon and Function Knob into a New Housing

When installing the function switch escutcheon and knob into the front housing, install the escutcheon first (Figure 3) to eliminate the chance of contaminating the adhesive surface with the lubricant used for installing the function switch.

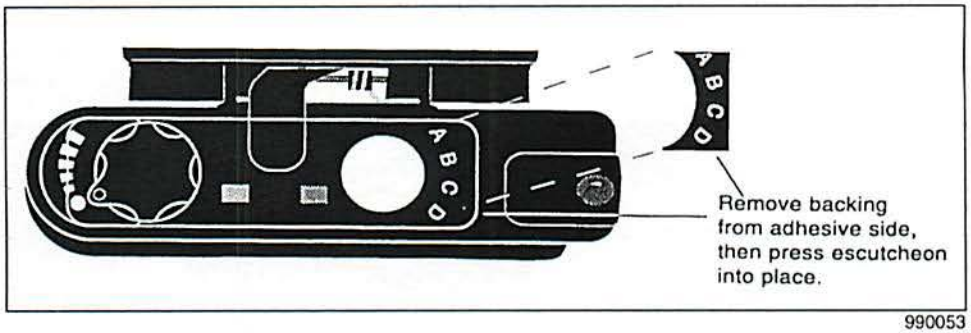


Figure 3. Escutcheon Installation Diagram

Function Knob Installation

Perform the following procedure to install the function knob into the housing (Figure 4):

Use only lubricant (P/N 1100490487) as specified. No other lubricant should be used.

1. Place lubricant (P/N 1100490487) on a cotton swab, then apply a light coat around the rim of the housing function switch opening.
2. Position switch with extrusion down and press into housing.
3. Reinstall decoder board/receiver into front housing.
4. On decoder board, set On/Off Volume switch to Off. Set Function switch position "C."
5. Set knobs to align with switch positions.

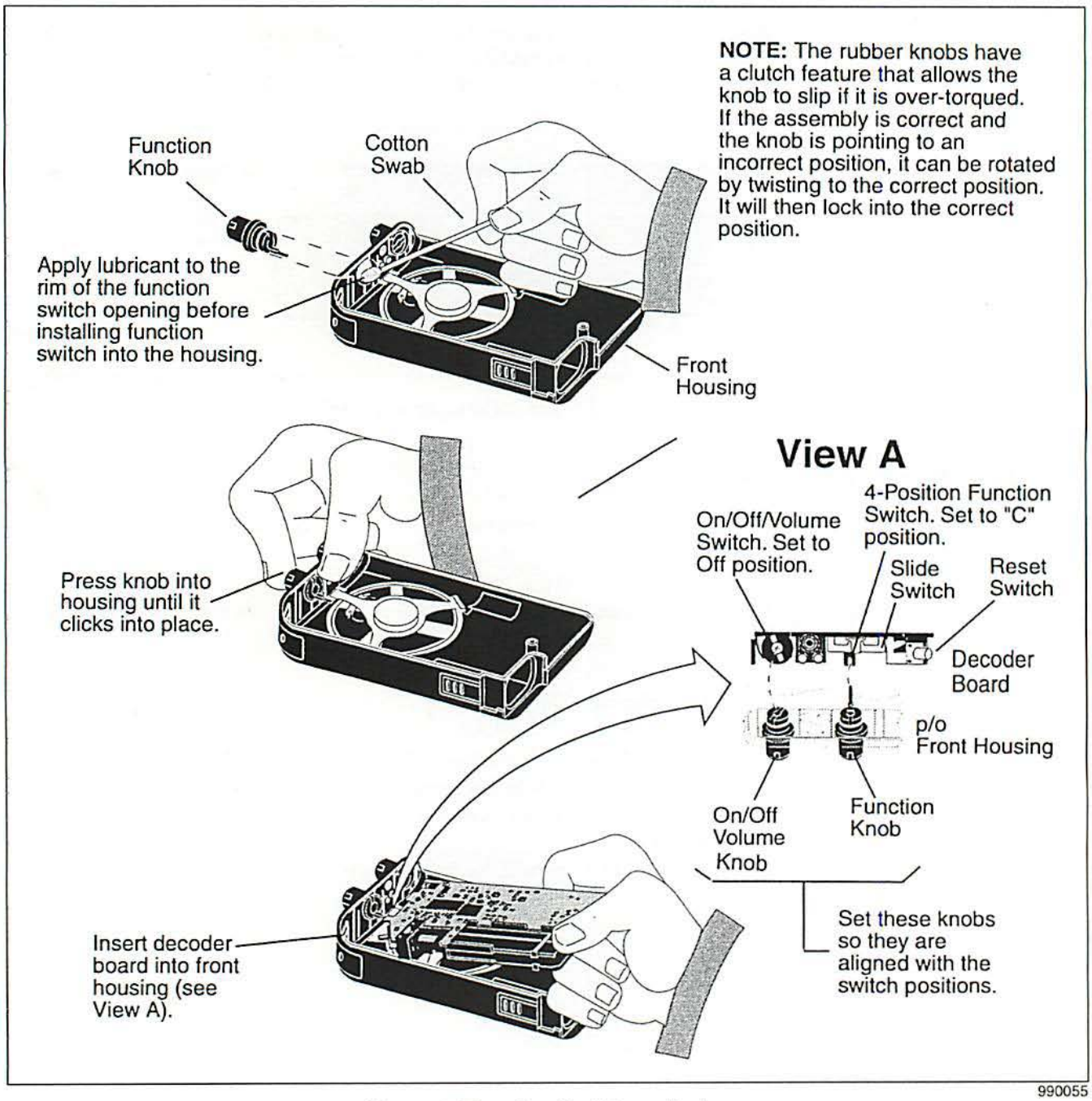


Figure 4. Function Knob Installation

Troubleshooting

Troubleshooting in this service guide is limited to tuning the receiver and adjusting the squelch and audio.

Tools and Test Equipment

The tools and test equipment listed in Table 1 are used to troubleshoot the Minitor III pager. Use equivalents whenever possible.

Table 1. Tools and Test Equipment

Part Number	Equipment Type
R1326 Series	RF Generator
R1068	Frequency Counter
S1053	AC Voltmeter
HP8903	Audio Analyzer or SINAD Meter
RTL 1005A	Radiation Test Fixture
2500857348	Audio Transformer, 1:1
1562939B20	Alignment Housing
6680384B73	Adjustment Tool, Trimmer
Sears 9-45492	Locking ring pliers

RF Tuning

The Minitor III pager is aligned at the factory to provide peak performance over a long period of time. If realignment is required use the following procedure:

1. Remove pager back cover See "Removing Back Cover" on page 9.
2. Replace pager front housing with alignment front housing.
3. Install pager in radiation test fixture1005A (Figure 5).
4. Connect test equipment (Figure 6).
5. Align pager according to alignment procedures described in Tables 2, 3, and 4.
6. When the alignment is complete, remove alignment front housing and attach pager front housing.

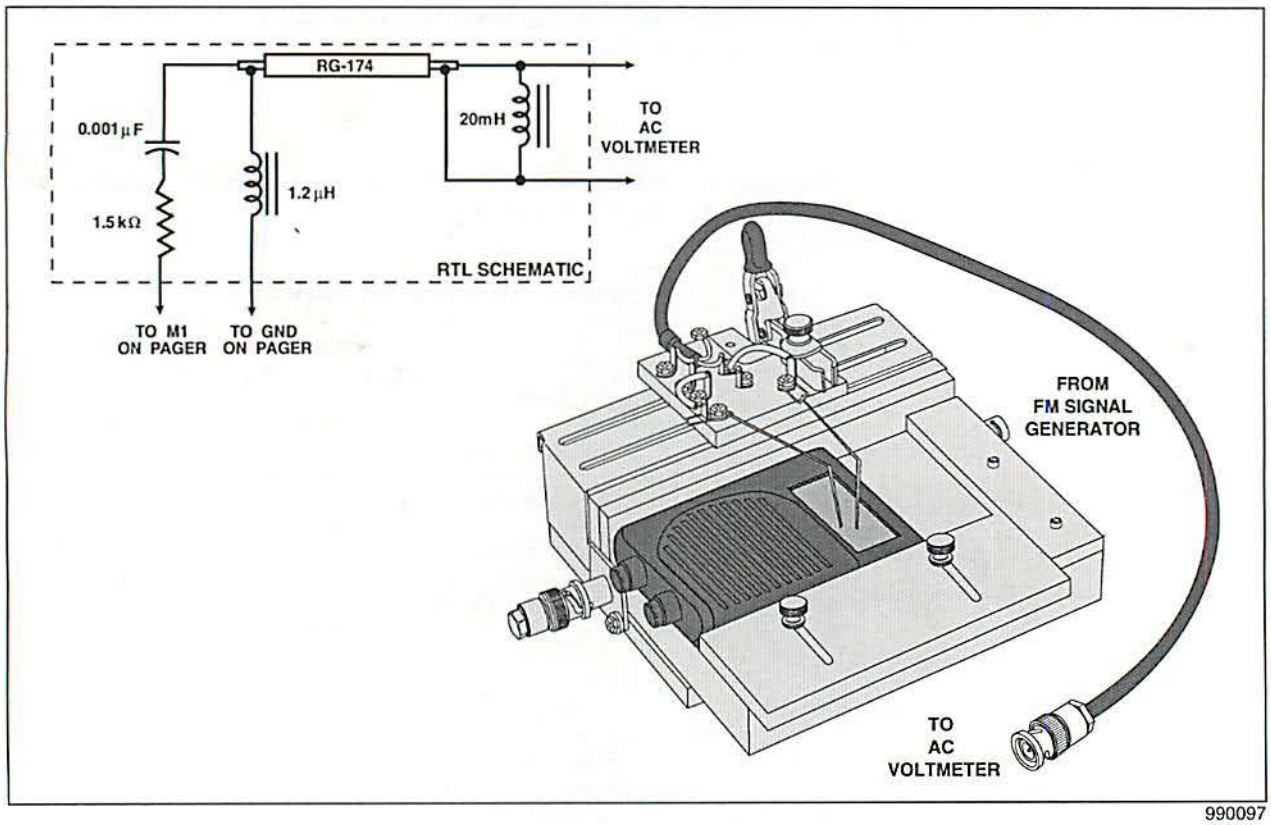


Figure 5. Radiation Test Fixture with Pager in Alignment Housing

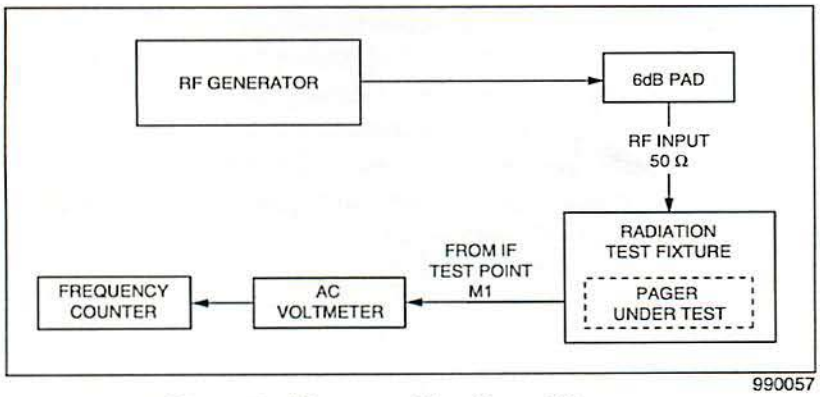


Figure 6. Alignment Test Setup Diagram

Table 2. Alignment Procedures (Low Band)

1	Set RF generator output frequency to 14.575 MHz for 'B' and 'C' split, and 17.9 MHz for 'D' and 'E' splits, and spray into receiver.
2	Set RMS voltmeter to the -40 dB scale and generate enough signal to measure mid-scale at M1 point.
3	Measure the exact IF at TP4 (M1) approximately 455 kHz. See Figure 7.
4	Set RF generator to the programmed customer frequency.
5	Set RF generator level for a mid scale reading on AC voltmeter.
6	Monitor TP4 frequency. Adjust C206 to frequency measured in steps 2 and 3 ± 50 Hz.
7	Monitor TP12 dc voltage. Adjust C210 to 1 volt.
8	Monitor TP4 level. Adjust C115 to maximum.
9	Monitor TP4 level. Adjust C116 to maximum.

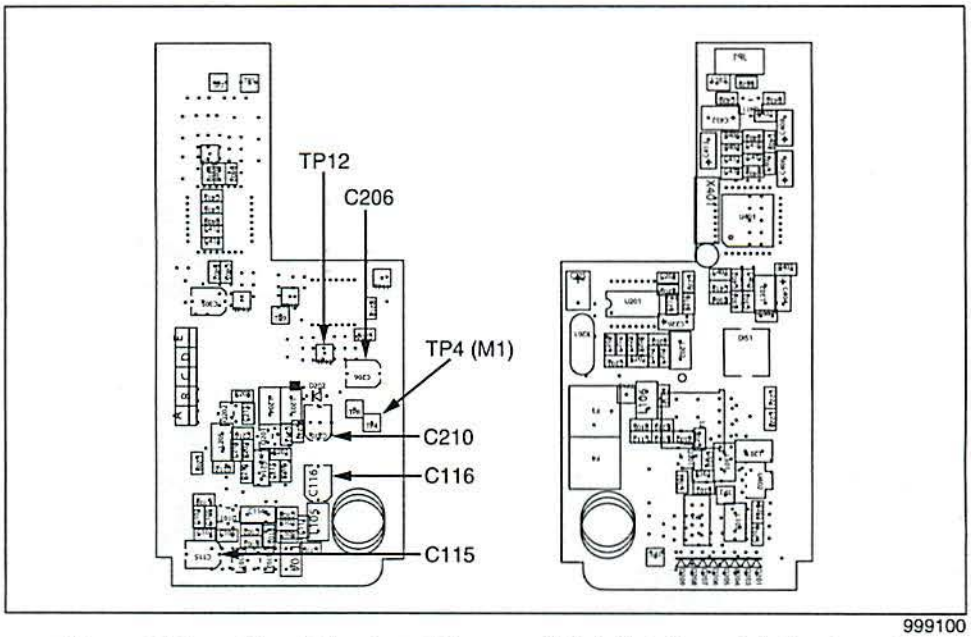


Figure 7. Low Band Receiver Alignment Test Points and Adjustments

Table 3. Alignment Procedures (VHF)

1	Set RF generator output frequency to 21.7 MHz for 'D' split and 21.4 MHz or 21.7 MHz for 'A', 'B', and 'C' splits, depending on PPS reading, and spray into receiver.
2	Set RMS voltmeter to the -40 dB scale and generate enough signal to measure mid-scale at the M1 point.
3	Measure the exact IF at TP4 (M1) approximately 455 kHz. See Figure 8.
4	Set RF generator to the programmed customer frequency.
5	Set RF generator level for a mid scale reading on AC voltmeter.
6	Monitor TP4 frequency. Adjust C206 to frequency measured in steps 2 and 3 ± 50 Hz.
7	Monitor TP12 dc voltage. Adjust C210 to 1 volt.
8	Monitor TP4 level. Adjust C105 to maximum.
9	Monitor TP4 level. Adjust C109 to maximum.

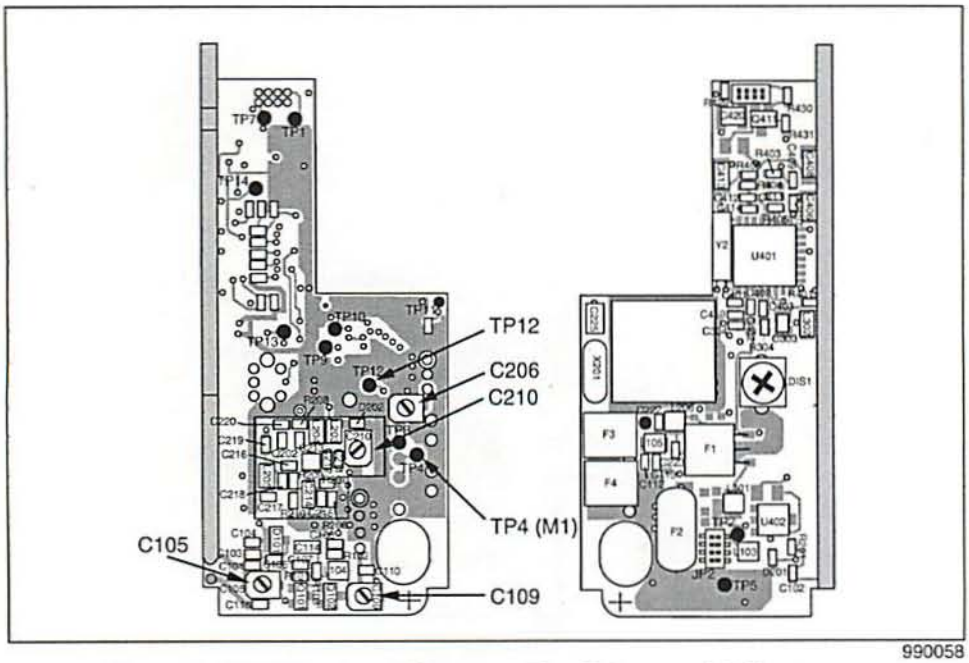


Figure 8. VHF Receiver Alignment Test Points and Adjustments

Table 4. Alignment Procedures (UHF)

1	Set RF generator output frequency to 21.7 MHz for A4 and A9, and 21.4 MHz for other splits, and spray into receiver.
2	Set RMS voltmeter to the -40 dB scale and generate enough signal to measure mid-scale at the M1 point.
3	Measure the exact IF at TP4 (M1) approximately 455 kHz. See Figure 9.
4	Set RF generator to the programmed customer frequency.
5	Set RF generator level for a mid scale reading on AC voltmeter.
6	Monitor TP4 frequency. Adjust C206 to frequency measured in steps 2 and 3 ± 50 Hz.
7	Monitor TP12 dc voltage. Adjust C210 to 1 volt.
8	Monitor TP4 level. Adjust C105 to maximum.
9	Monitor TP4 level. Adjust C109 to maximum.

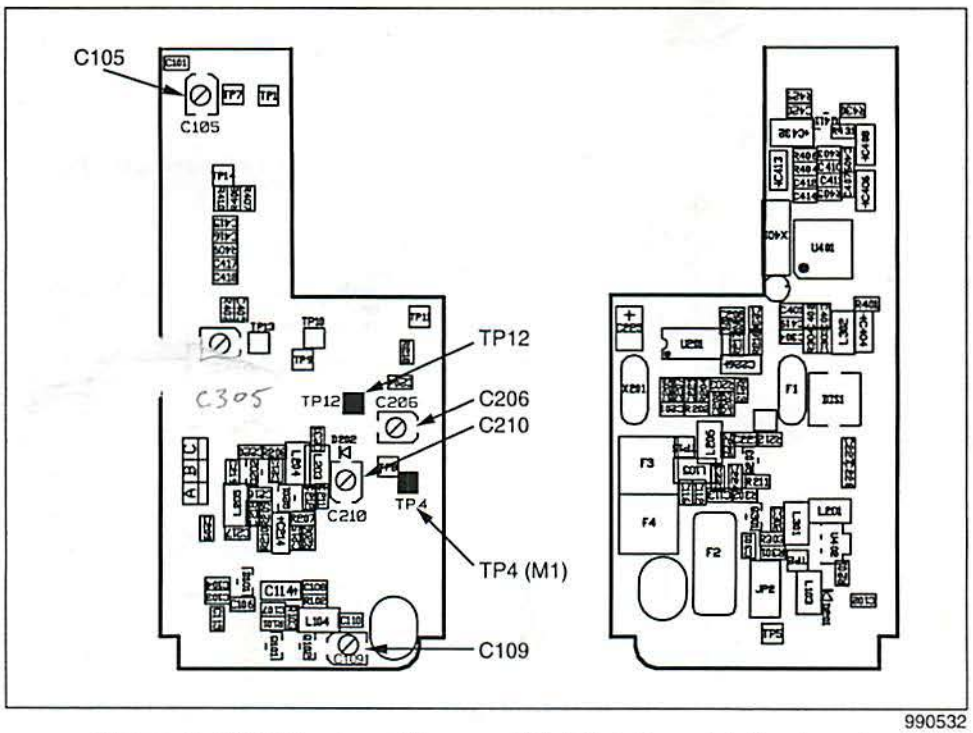


Figure 9. UHF Receiver Alignment Test Points and Adjustments

Squelch Adjustment

1. Remove pager back cover and place pager into radiation test fixture (Figure 10).

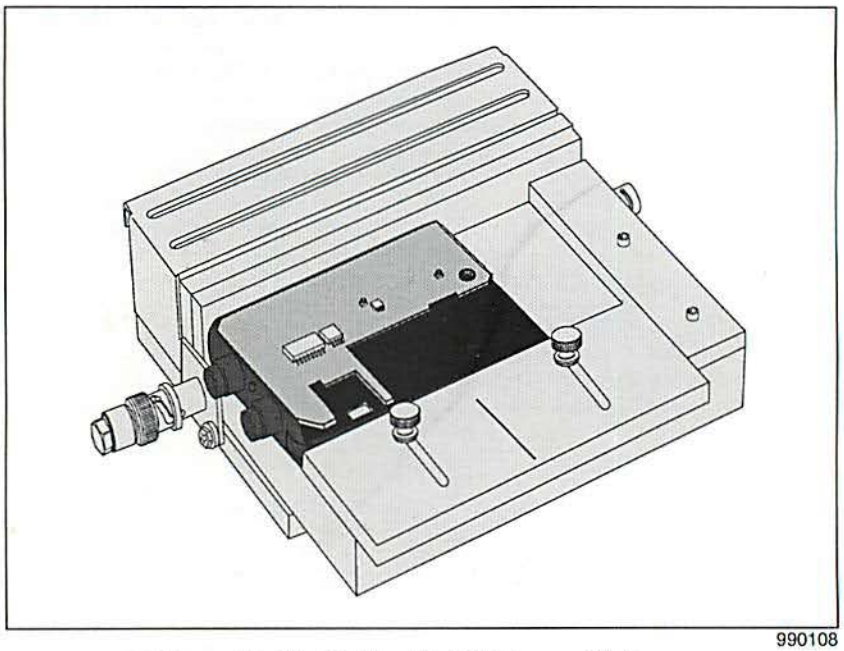


Figure 10. Radiation Test Fixture with Pager

2. Connect test equipment (Figure 11).

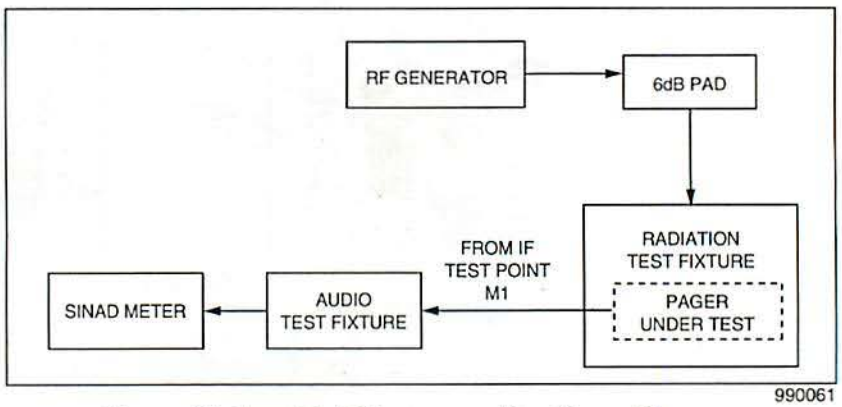


Figure 11. Squelch Adjustment - Test Setup Diagram

Speaker plug of audio test fixture (Figure 12) connects to speaker jack of pager. Audio transformer of audio test fixture connects to SINAD meter.

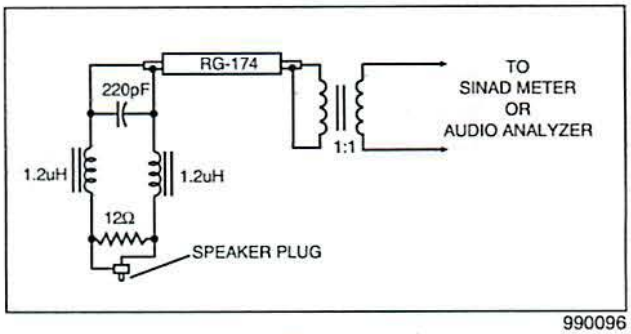


Figure 12. Audio Test Fixture Schematic

3. Set the RF generator output to the carrier frequency.
4. Set the RF level to ≈ -50 dBm.
5. Modulate the RF generator output at 3.3 kHz and a 1000 Hz tone.
6. Set the SINAD meter to measure audio RMS.
7. Adjust the pager's audio volume control for 1.5 VRMS at the output of the audio transformer.
8. Turn off the generator's RF output.
9. Adjust the squelch trim resistor, located at the narrow end of the decoder board (Figure 13), until audio turns on.

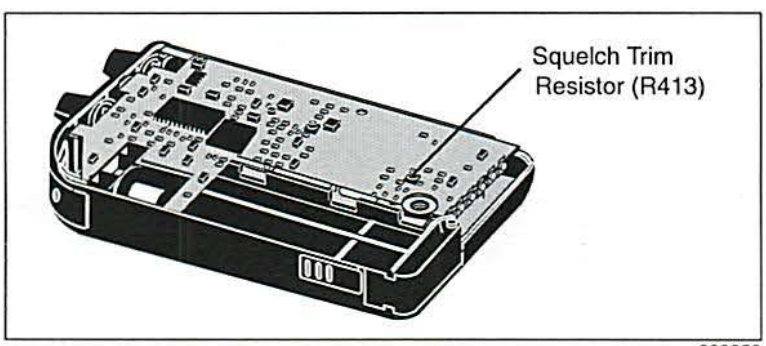


Figure 13. Squelch Adjustment Location (Decoder Board)

10. Turn on the RF generator's output and adjust the level until the meter indicates 4 dB SINAD. Record the RF dB output level.
11. Slowly adjust the squelch trim resistor (R413) until the audio just turns off.
12. Slowly increase the level of the RF generator in 0.5 dB steps until the audio turns back on.
13. The SINAD level when the audio turns on is "opening SINAD". It should typically be between 8 and 12 dB SINAD. Record the SINAD level and the RF dB output level. Typical RF generator level differences between 4 dB "closing SINAD" and 8-12 dB "opening SINAD" is 4 to 5 dB.

Audio Trim Pot Adjustment

1. Remove pager back cover and place pager into radiation test fixture as shown in procedures.
2. Connect test equipment (Figure 11).
3. Set RF generator output at -50 dBm on carrier frequency (quiet receiver).
4. Modulate RF generator output with 1000 Hz at 1.65 kHz deviation.
5. Set pager's volume control to maximum.
6. Adjust audio trim pot VR1 (Figure 14) to produce an output from the audio speaker.

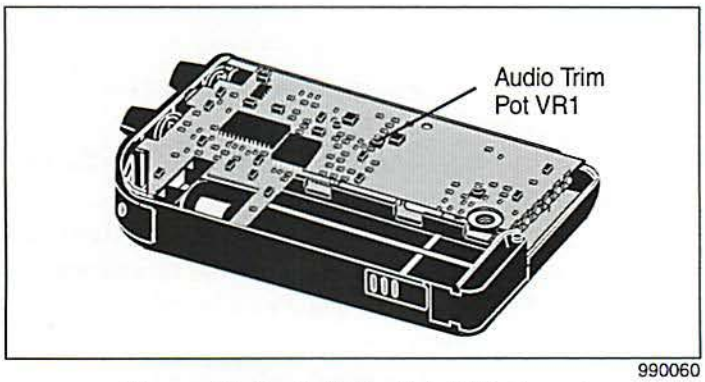


Figure 14. Audio Trim Pot Adjustment

Part Number Charts

The following tables are provided for use as a reference for the receivers, decoders, and replacement parts associated with the Minitor III pagers.

Table 5. Low Band Receiver/Decoder Model Chart

MODEL NUMBER	DESCRIPTION
A01YMS7238AC	PAGER, 1 CHANNEL NON STORED VOICE
A01YMS7239AC	PAGER, 2 CHANNEL NON STORED VOICE

		ITEM NUMBER	DESCRIPTION
A	A	NRB2368A2	PAGER ASSEMBLY (33.0-36.999 MHz)
A	A	NRB2368A3	PAGER ASSEMBLY (37.0-40.999 MHz)
A	A	NRB2368A4	PAGER ASSEMBLY (41.0-44.999 MHz)
A	A	NRB2368A5	PAGER ASSEMBLY (45.0-49.0 MHz)

KEY: X = ITEM INCLUDED A = ALTERNATE ITEM SUPPLIED O = NO COST OPTION C = COST OPTION R = REQUEST OPTION

Table 6. VHF Receiver/Decoder Model Chart

MODEL NUMBER	DESCRIPTION
A03YMS7238AC	PAGER (143-174 MHz) 1 CHANNEL NON STORED VOICE
A03YMS7239AC	PAGER (143-174 MHz) 2 CHANNEL NON STORED VOICE
A03YMS9238AC	PAGER (143-174 MHz) 1 CHANNEL STORED VOICE
A03YMS9239AC	PAGER (143-174 MHz) 2 CHANNEL STORED VOICE
A03YMS7238BC	PAGER (143-174 MHz) 1 CHANNEL NON STORED VOICE
A03YMS7239BC	PAGER (143-174 MHz) 2 CHANNEL NON STORED VOICE
A03YMS9238BC	PAGER (143-174 MHz) 1 CHANNEL STORED VOICE
A03YMS9239BC	PAGER (143-174 MHz) 2 CHANNEL STORED VOICE

ITEM NUMBER	DESCRIPTION
NRD3744A1	PAGER ASSEMBLY (143-151 MHz)
NRD3744A2	PAGER ASSEMBLY (151-159 MHz)
NRD3744A3	PAGER ASSEMBLY (159-167 MHz)
NRD3744A4	PAGER ASSEMBLY (167-174 MHz)
NRD3744B1	PAGER ASSEMBLY (143-151 MHz)
NRD3744B2	PAGER ASSEMBLY (151-159 MHz)
NRD3744B3	PAGER ASSEMBLY (159-167 MHz)
NRD3744B4	PAGER ASSEMBLY (167-174 MHz)
NRD3746B1	PAGER ASSEMBLY (143-151 MHz)
NRD3746B2	PAGER ASSEMBLY (151-159 MHz)
NRD3746B3	PAGER ASSEMBLY (159-167 MHz)
NRD3746B4	PAGER ASSEMBLY (167-174 MHz)
NRD3746C1	PAGER ASSEMBLY (143-151 MHz)
NRD3746C2	PAGER ASSEMBLY (151-159 MHz)
NRD3746C3	PAGER ASSEMBLY (159-167 MHz)
NRD3746C4	PAGER ASSEMBLY (167-174 MHz)
NRD3746D1	PAGER ASSEMBLY (143-151 MHz)
NRD3746D2	PAGER ASSEMBLY (151-159 MHz)
NRD3746D3	PAGER ASSEMBLY (159-167 MHz)
NRD3746D4	PAGER ASSEMBLY (167-174 MHz)
NRD3748B1	PAGER ASSEMBLY (143-151 MHz) STORED VOICE
NRD3748B2	PAGER ASSEMBLY (151-159 MHz) STORED VOICE
NRD3748B3	PAGER ASSEMBLY (159-167 MHz) STORED VOICE
NRD3748B4	PAGER ASSEMBLY (167-174 MHz) STORED VOICE
NRD3748C1	PAGER ASSEMBLY (143-151 MHz) STORED VOICE
NRD3748C2	PAGER ASSEMBLY (151-159 MHz) STORED VOICE
NRD3748C3	PAGER ASSEMBLY (159-167 MHz) STORED VOICE
NRD3748C4	PAGER ASSEMBLY (167-174 MHz) STORED VOICE
NRD3748D1	PAGER ASSEMBLY (143-151 MHz) STORED VOICE
NRD3748D2	PAGER ASSEMBLY (151-159 MHz) STORED VOICE
NRD3748D3	PAGER ASSEMBLY (159-167 MHz) STORED VOICE
NRD3748D4	PAGER ASSEMBLY (167-174 MHz) STORED VOICE

KEY: X = ITEM INCLUDED A = ALTERNATE ITEM SUPPLIED O = NO COST OPTION C = COST OPTION
R = REQUEST OPTION

Table 7. UHF Receiver/Decoder Model Chart

MODEL NUMBER	DESCRIPTION
A04YMS7238AC	PAGER (406-430, 450-512 MHz) 1 CHANNEL
A04YMS9238AC	PAGER (406-430, 450-512 MHz) 1 CHANNEL STORED VOICE
A04YMS7239AC	PAGER (406-430, 450-512 MHz) 2 CHANNEL
A04YMS9239AC	PAGER (406-430, 450-512 MHz) 2 CHANNEL STORED VOICE

				ITEM NUMBER	DESCRIPTION
A		A		NRE1841A2	PAGER ASSEMBLY (406-414 MHz)
A		A		NRE1841A3	PAGER ASSEMBLY (414-422 MHz)
A		A		NRE1841A4	PAGER ASSEMBLY (422-430 MHz)
A		A		NRE1841A5	PAGER ASSEMBLY (450-458 MHz)
A		A		NRE1841A6	PAGER ASSEMBLY (458-464 MHz)
A		A		NRE1841A7	PAGER ASSEMBLY (464-470 MHz)
A		A		NRE1841A8	PAGER ASSEMBLY (470-476 MHz)
A		A		NRE1841A9	PAGER ASSEMBLY (476-482 MHz)
A		A		NRE1841A10	PAGER ASSEMBLY (482-488 MHz)
A		A		NRE1841A11	PAGER ASSEMBLY (488-494 MHz)
A		A		NRE1841A12	PAGER ASSEMBLY (494-500 MHz)
A		A		NRE1841A13	PAGER ASSEMBLY (500-506 MHz)
A		A		NRE1841A14	PAGER ASSEMBLY (506-512 MHz)
	A		A	NRE1843A2	PAGER ASSEMBLY (406-414 MHz) STORED VOICE
	A		A	NRE1843A3	PAGER ASSEMBLY (414-422 MHz) STORED VOICE
	A		A	NRE1843A4	PAGER ASSEMBLY (422-430 MHz) STORED VOICE
	A		A	NRE1843A5	PAGER ASSEMBLY (450-458 MHz) STORED VOICE
	A		A	NRE1843A6	PAGER ASSEMBLY (458-464 MHz) STORED VOICE
	A		A	NRE1843A7	PAGER ASSEMBLY (464-470 MHz) STORED VOICE
	A		A	NRE1843A8	PAGER ASSEMBLY (470-476 MHz) STORED VOICE
	A		A	NRE1843A9	PAGER ASSEMBLY (476-482 MHz) STORED VOICE
	A		A	NRE1843A10	PAGER ASSEMBLY (482-488 MHz) STORED VOICE
	A		A	NRE1843A11	PAGER ASSEMBLY (488-494 MHz) STORED VOICE
	A		A	NRE1843A12	PAGER ASSEMBLY (494-500 MHz) STORED VOICE
	A		A	NRE1843A13	PAGER ASSEMBLY (500-506 MHz) STORED VOICE
	A		A	NRE1843A14	PAGER ASSEMBLY (506-512 MHz) STORED VOICE

KEY: X = ITEM INCLUDED A = ALTERNATE ITEM SUPPLIED O = NO COST OPTION C = COST OPTION
R = REQUEST OPTION

Table 8. Low Band Receiver/Decoder Tanapa Chart

TANAPA NUMBER	DESCRIPTION
NRB2368A2	PAGER (33.0-36.999 MHz)
NRB2368A3	PAGER (37.0-40.999 MHz)
NRB2368A4	PAGER (41.0-44.999 MHz)
NRB2368A5	PAGER (45.0-49.0 MHz)

				ITEM NUMBER	DESCRIPTION
X				0162939B22	RECEIVER ASSEMBLY (33.0-37.0 MHz)
	X			0162939B23	RECEIVER ASSEMBLY (37.0-41.0 MHz)
		X		0162939B24	RECEIVER ASSEMBLY (41.0-45.0 MHz)
			X	0162939B25	RECEIVER ASSEMBLY (45.0-49.0 MHz)
X	X	X	X	0162939B26	DECODER BOARD (NON STORED VOICE)

KEY: X = ITEM INCLUDED A = ALTERNATE ITEM SUPPLIED O = NO COST OPTION C = COST OPTION
R = REQUEST OPTION

Table 9. VHF Receiver/Decoder Tanapa Chart

TANAPA NUMBER	DESCRIPTION
NRD3744B1	PAGER (143-150.999 MHz)
NRD3744B2	PAGER (151-158.999 MHz)
NRD3744B3	PAGER (159-166.999 MHz)
NRD3744B4	PAGER (167-174 MHz)
NRD3746B1	PAGER (143-150.999 MHz) VIBRATOR INCLUDED
NRD3746B2	PAGER (151-158.999 MHz) VIBRATOR INCLUDED
NRD3746B3	PAGER (159-166.999 MHz) VIBRATOR INCLUDED
NRD3746B4	PAGER (167-174 MHz), VIBRATOR INCLUDED
NRD3748B1	PAGER (143-150.999 MHz) STORED VOICE & VIBRATOR
NRD3748B2	PAGER (151-158.999 MHz) STORED VOICE & VIBRATOR
NRD3748B3	PAGER (159-166.999 MHz) STORED VOICE & VIBRATOR
NRD3748B4	PAGER (167-174 MHz), STORED VOICE & VIBRATOR INCLUDED
NRD3746C1	PAGER (143-150.999 MHz)
NRD3746C2	PAGER (151-158.999 MHz)
NRD3746C3	PAGER (159-166.999 MHz)
NRD3746C4	PAGER (167-174 MHz)
NRD3748C1	PAGER (143-150.999 MHz) STORED VOICE AND VIBRATOR
NRD3748C2	PAGER (151-158.999 MHz) STORED VOICE AND VIBRATOR
NRD3748C3	PAGER (159-166.999 MHz) STORED VOICE AND VIBRATOR
NRD3748C4	PAGER (167-174 MHz) STORED VOICE AND VIBRATOR
NRD3746D1	PAGER (143-150.999 MHz)
NRD3746D2	PAGER (151-158.999 MHz)
NRD3746D3	PAGER (159-166.999 MHz)
NRD3746D4	PAGER (167-174 MHz)
NRD3748D1	PAGER (143-150.999 MHz) STORED VOICE
NRD3748D2	PAGER (151-158.999 MHz) STORED VOICE
NRD3748D3	PAGER (159-166.999 MHz) STORED VOICE
NRD3748D4	PAGER (167-174.999 MHz) STORED VOICE
NRD3746E1	PAGER (143-150.999 MHz)
NRD3746E2	PAGER (151-158.999 MHz)
NRD3746E3	PAGER (159-166.999 MHz)
NRD3746E4	PAGER (167-174 MHz)
NRD3748E1	PAGER (143-150.999 MHz) STORED VOICE
NRD3748E2	PAGER (151-158.999 MHz) STORED VOICE
NRD3748E3	PAGER (159-166.999 MHz) STORED VOICE
NRD3748E4	PAGER (167-174.999 MHz) STORED VOICE

ITEM NUMBER	DESCRIPTION
0162939B10	RECEIVER ASSEMBLY (143-150.999 MHz)
0162939B11	RECEIVER ASSEMBLY (151-158.999 MHz)
0162939B12	RECEIVER ASSEMBLY (159-166.999 MHz)
0162939B13	RECEIVER ASSEMBLY (167-174 MHz)
0162939B08	DECODER BOARD (WITH SQUELCH) NON-VIBRATOR
0162939B14	DECODER BOARD (STORED VOICE) NON-VIBRATOR
0162939B20	DECODER BOARD (NON STORED VOICE)
0162939B21	DECODER BOARD (STORED VOICE)
0162939B27	DECODER BOARD (NON STORED VOICE)
0162939B28	DECODER BOARD (STORED VOICE)

Note: If the non-vibrator decoders are not available as replacement parts, decoders with vibrators are the designated replacement parts

KEY: X = ITEM INCLUDED A = ALTERNATE ITEM SUPPLIED O = NO COST OPTION C = COST OPTION R = REQUEST OPTION

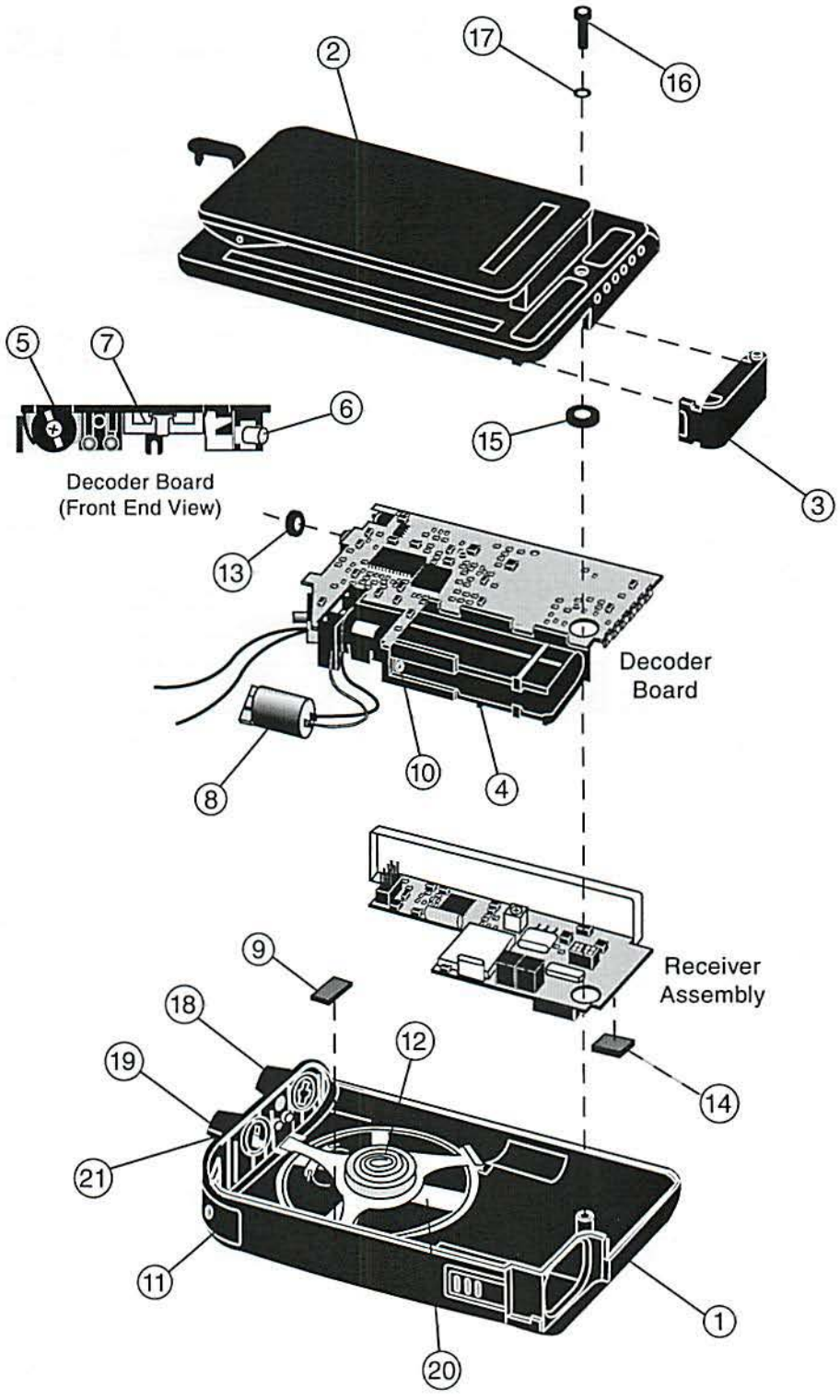
Table 10. UHF Receiver/Decoder Tanapa Chart

Tanapa NUMBER	DESCRIPTION
NRE1841A2	PAGER (406-414 MHz)
NRE1841A3	PAGER (414-422 MHz)
NRE1841A4	PAGER (422-430 MHz)
NRE1841A5	PAGER (450-458 MHz)
NRE1841A6	PAGER (458-464 MHz)
NRE1841A7	PAGER (464-470 MHz)
NRE1841A8	PAGER (470-476 MHz)
NRE1841A9	PAGER (476-482 MHz)
NRE1841A10	PAGER (482-488 MHz)
NRE1841A11	PAGER (488-494 MHz)
NRE1841A12	PAGER (494-500 MHz)
NRE1841A13	PAGER (500-506 MHz)
NRE1841A14	PAGER (506-512 MHz)
NRE1843A2	PAGER (406-414 MHz), (STORED VOICE)
NRE1843A3	PAGER (414-422 MHz), (STORED VOICE)
NRE1843A4	PAGER (422-430 MHz), (STORED VOICE)
NRE1843A5	PAGER (450-458 MHz), (STORED VOICE)
NRE1843A6	PAGER (458-464 MHz), (STORED VOICE)
NRE1843A7	PAGER (464-470 MHz), (STORED VOICE)
NRE1843A8	PAGER (470-476 MHz), (STORED VOICE)
NRE1843A9	PAGER (476-482 MHz), (STORED VOICE)
NRE1843A10	PAGER (482-488 MHz), (STORED VOICE)
NRE1843A11	PAGER (488-494 MHz), (STORED VOICE)
NRE1843A12	PAGER (494-500 MHz), (STORED VOICE)
NRE1843A13	PAGER (500-506 MHz), (STORED VOICE)
NRE1843A14	PAGER (506-512 MHz), (STORED VOICE)

ITEM NUMBER	DESCRIPTION
0162939B17	RECEIVER ASSEMBLY (450-458 MHz)
0162939B18	RECEIVER ASSEMBLY (458-464 MHz)
0162939B19	RECEIVER ASSEMBLY (464-470 MHz)
0162939B32	RECEIVER ASSEMBLY (406-414 MHz)
0162939B33	RECEIVER ASSEMBLY (414-422 MHz)
0162939B34	RECEIVER ASSEMBLY (422-430 MHz)
0162939B35	RECEIVER ASSEMBLY (470-476 MHz)
0162939B36	RECEIVER ASSEMBLY (476-482 MHz)
0162939B37	RECEIVER ASSEMBLY (482-488 MHz)
0162939B38	RECEIVER ASSEMBLY (488-494 MHz)
0162939B39	RECEIVER ASSEMBLY (494-500 MHz)
0162939B40	RECEIVER ASSEMBLY (500-506 MHz)
0162939B41	RECEIVER ASSEMBLY (506-512 MHz)
0162939B27	DECODER BOARD (NON STORED VOICE)
0162939B28	DECODER BOARD (STORED VOICE)

KEY: X = ITEM INCLUDED A = ALTERNATE ITEM SUPPLIED O = NO COST OPTION C = COST OPTION R = REQUEST OPTION

Exploded View



Exploded View Parts List

Table 11. Replacement Parts

REF. NO.	MOTOROLA PART NUMBER	DESCRIPTION
1	1562939B01 1562939B04	FRONT HOUSING[1], BLACK FRONT HOUSING[1], RED
2	1562939B02 1562939B05	BACK COVER[2], BLACK BACK COVER[2], RED
3	1562939B03 1562939B06	BATTERY DOOR[3], BLACK BATTERY DOOR[3], RED
4	1562939B07	BATTERY HOUSING
5	4062939B14	VOLUME CONTROL (S. R. VAR 22K EVM1XSX50BE4)
6	4062939B15	RESET SWITCH, PUSHBUTTON (SKHHLW0001)
7	4062939B16	SLIDE SWITCH (SLD-14-464E-1)
8	5962939B17	VIBRATOR (SERVO 10 PHI 10CL-1209W-00)
9	7562939B18	VIBRATOR SHOCK PAD
10	4162939B19	BATTERY SPRING
11	1562939B20	TUNING FRONT COVER
12	4162939B21	ESD SPRING
13	7562939B22	RING PAD
14	7562939B23	SNUBBER PAD
15	7562939B24	CUSHION RING
16	0362939B25	SCREW (2.3 x 6.8)
17	7562939B26	SCREW, O-RING
18	3662939B30	VOLUME KNOB CAP & NON STORED-VOICE FUNCTION SWITCH KNOB CAP
19	3662939B31	STORED VOICE FUNCTION SWITCH KNOB CAP
20	5005454L02	SPEAKER, 2-INCH, LOW PROFILE
21	0162480U04 0162480U01	NON STORED VOICE FUNCTION SWITCH KNOB STORED VOICE FUNCTION SWITCH KNOB

1. Includes speaker grill cloth, reset button, volume control, and battery lock.
2. Includes belt clip and UL label.
3. Includes sheet metal.

Appendices

Appendix A — Minitor III Schematics

Appendix B — Board Layouts

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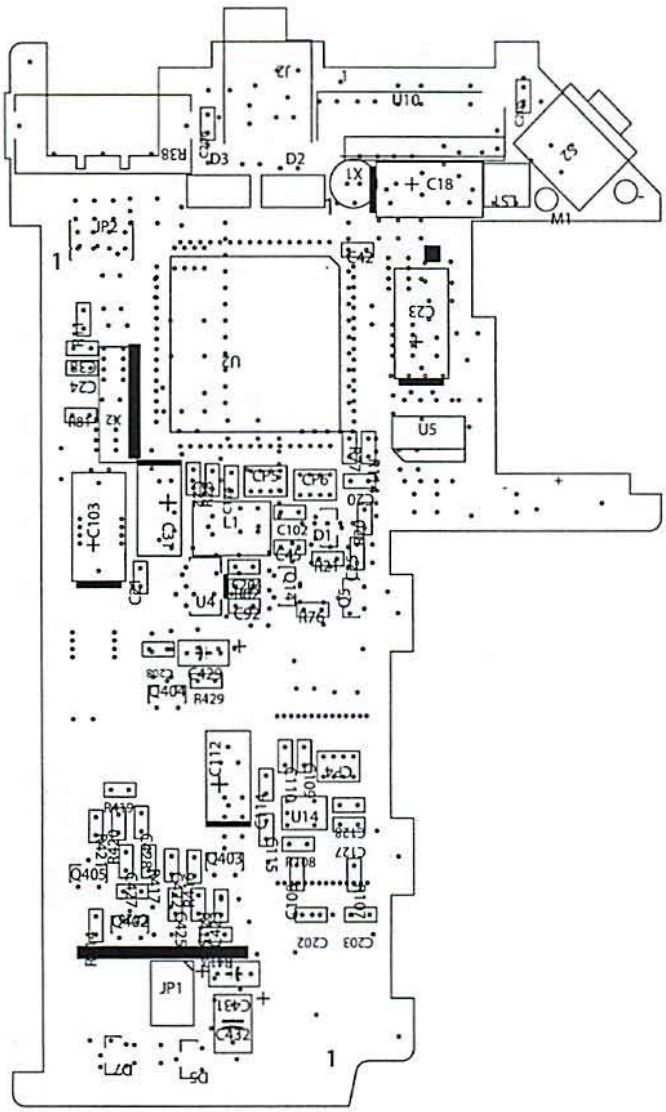
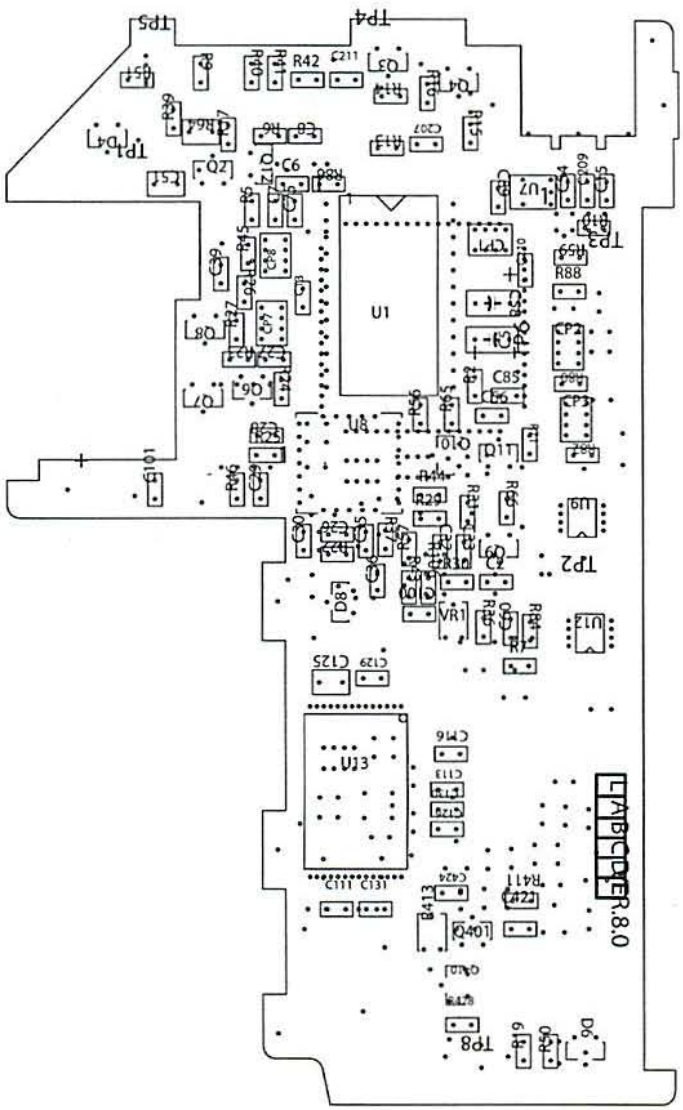
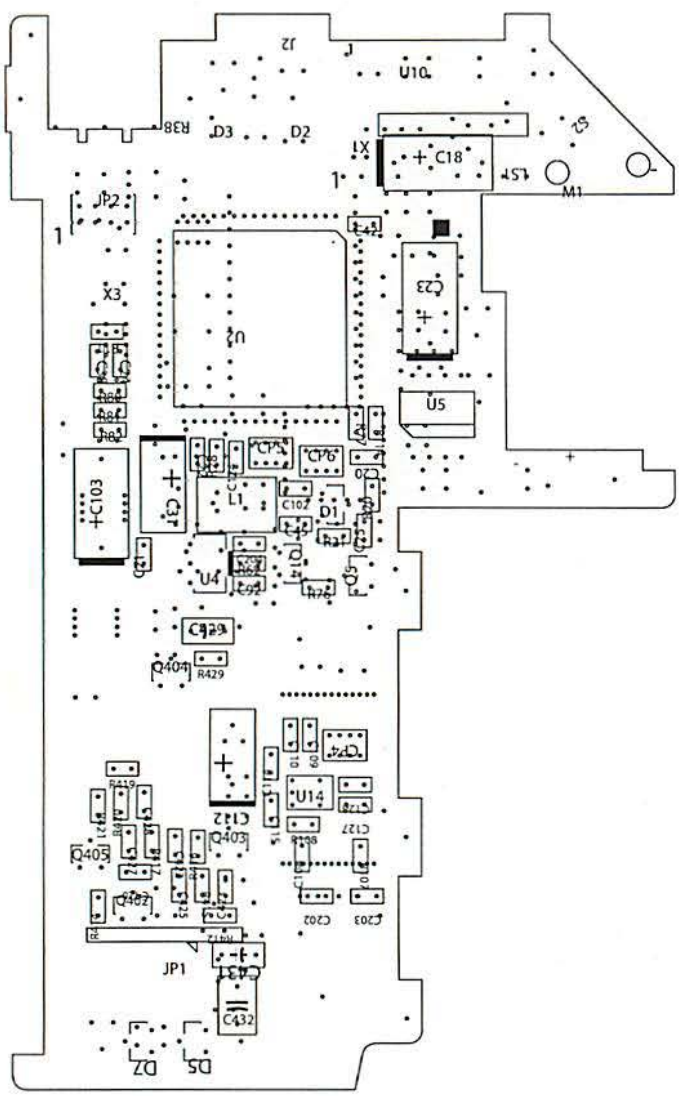


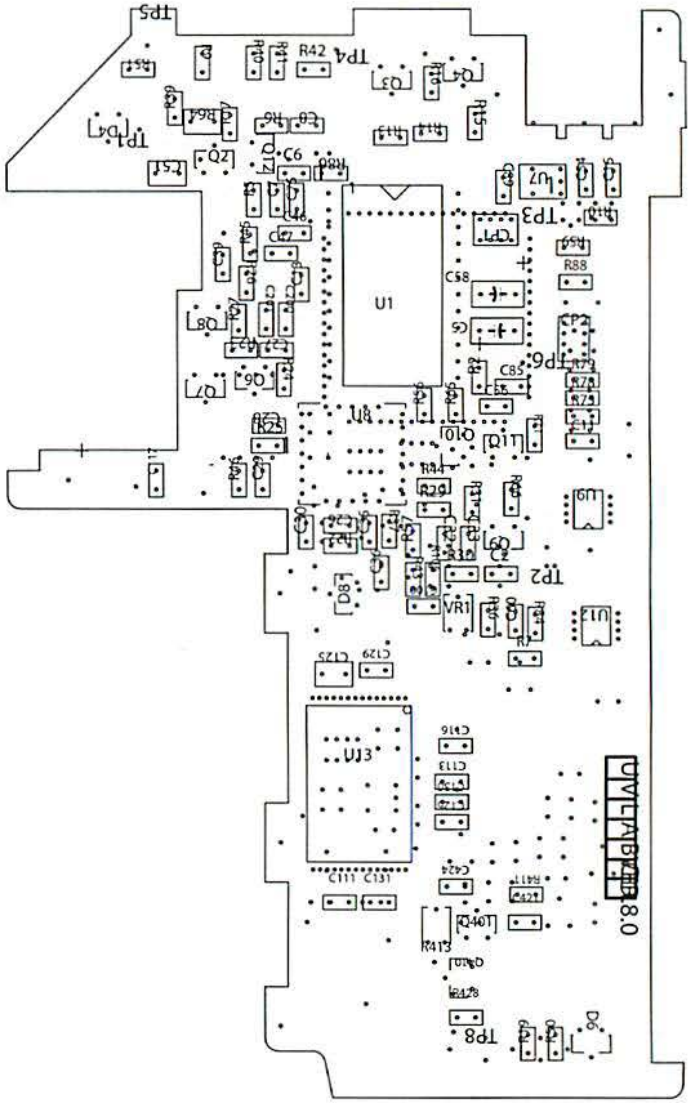


Motorola Part Number	Description
0162939B26	Low Band Logic (Decoder) Board

Figure B1.1—Low Band Logic (Decoder) Board Top Layer

Figure B1.2—Low Band Logic (Decoder) Board Bottom Layer





Motorola Part Number	Description
0162939B27	VHF/UHF NSV Logic (Decoder) Board
0162939B28	VHF/UHF SV Logic (Decoder) Board

Figure B1.3—VHF / UHF Logic Board Top Layer

Figure B1.4—VHF / UHF Logic (Decoder) Board Bottom Layer

Motorola Part Number	Description
0162939B22	Receiver Assembly B (33.0–36.99 MHz)
0162939B23	Receiver Assembly C (37.0–40.99 MHz)
0162939B24	Receiver Assembly D (41.0–44.99 MHz)
0162939B25	Receiver Assembly E (45.0–49.0 MHz)

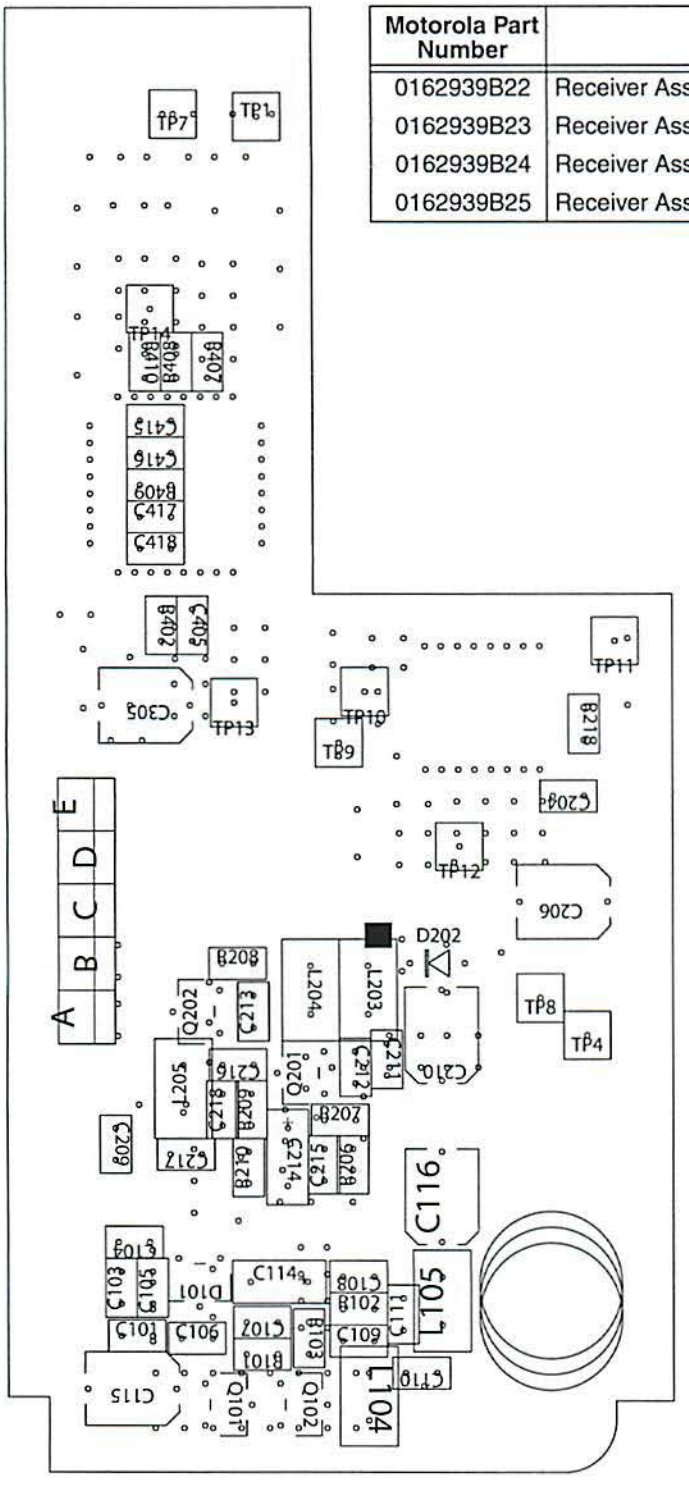


Figure B2.1—Low Band RF Board Top Layer

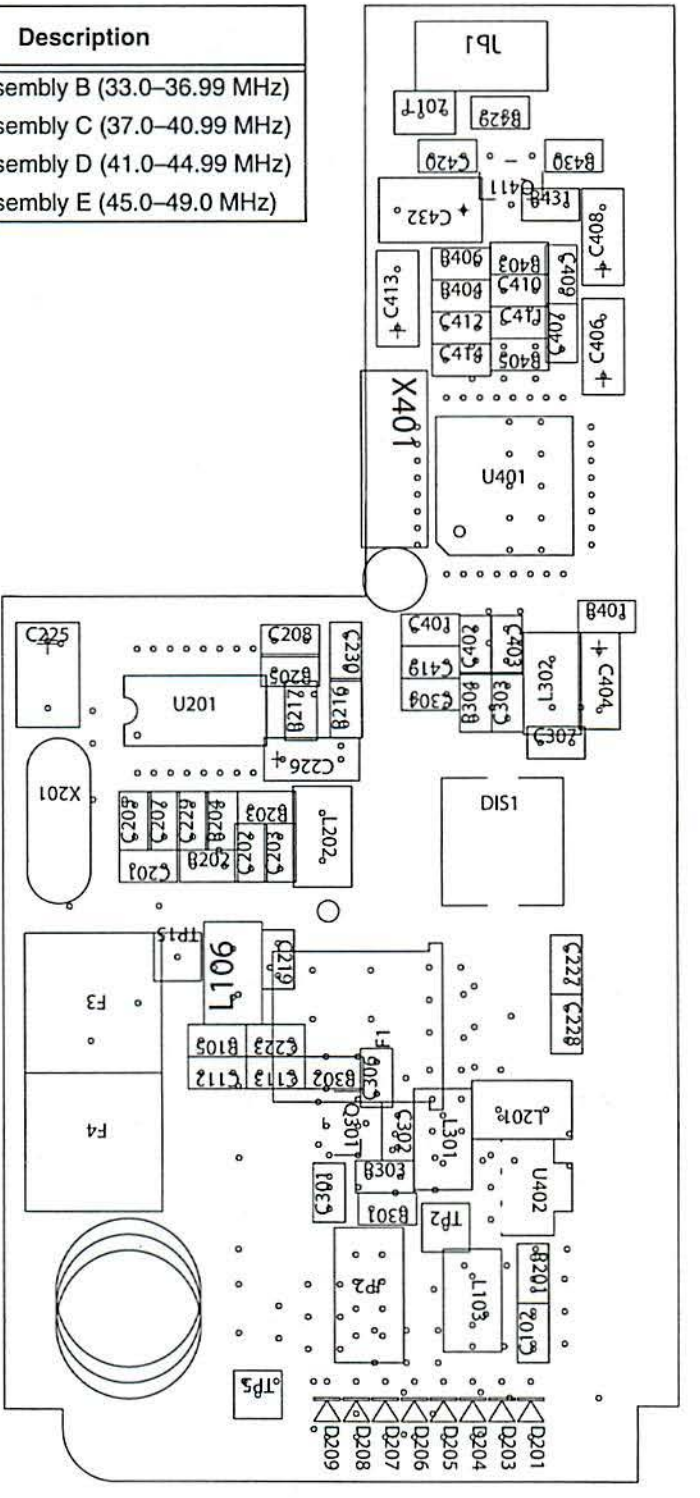


Figure B2.2—Low Band RF Board Bottom Layer

Motorola Part Number	Description
0162939B10	Receiver Assembly A (143–150.99 MHz)
0162939B11	Receiver Assembly B (151–158.99 MHz)
0162939B12	Receiver Assembly C (159–166.99 MHz)
0162939B13	Receiver Assembly D (167–174.0 MHz)

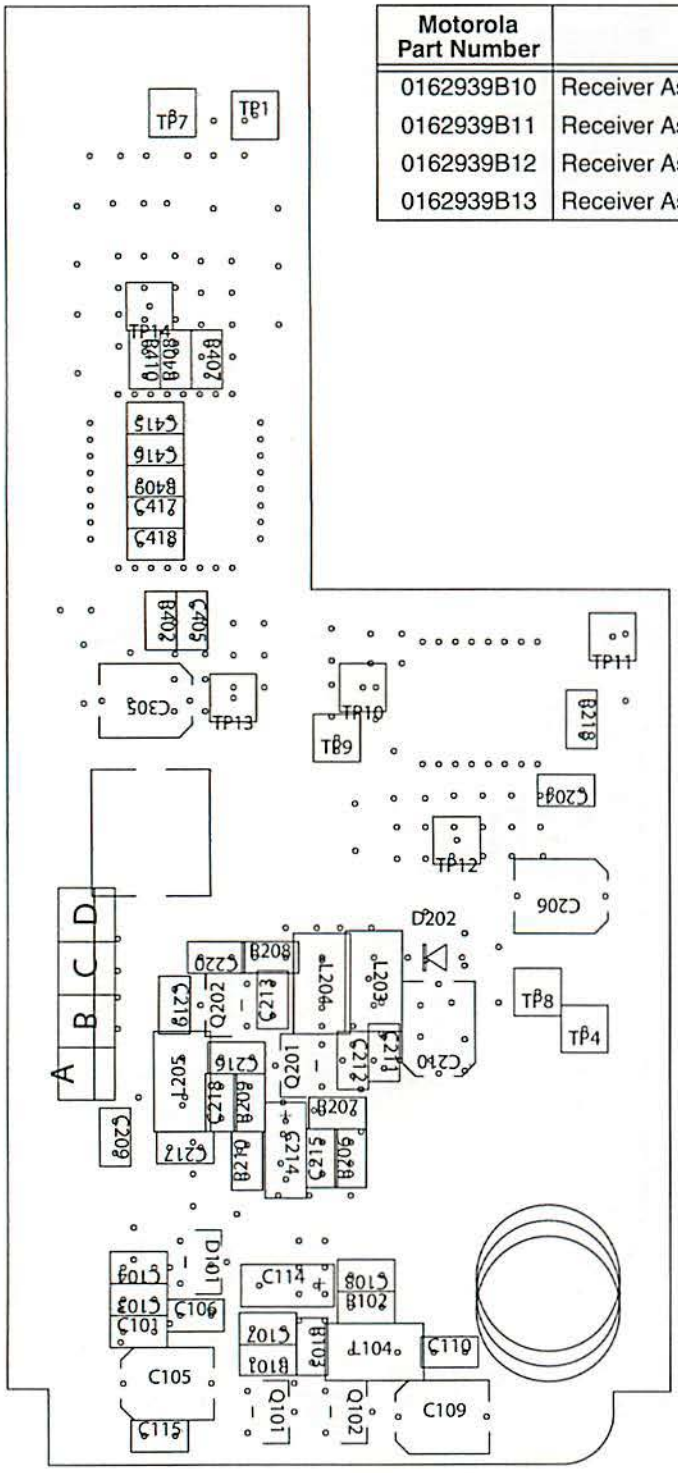


Figure B2.3—VHF RF Board Top Layer

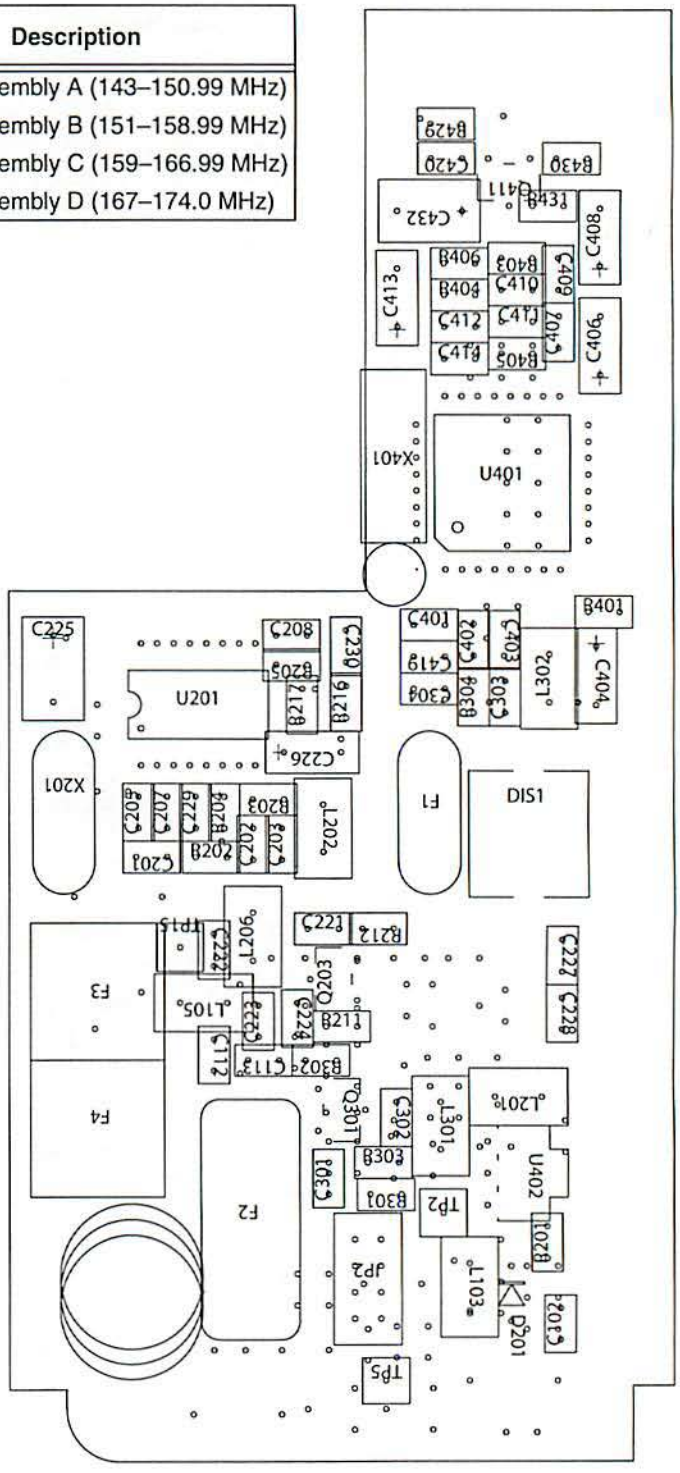


Figure B2.4—VHF RF Board Bottom Layer

Motorola Part Number	Description
0162939B32	Receiver Assembly A2 (406–413.99 MHz)
0162939B33	Receiver Assembly A3 (414–421.99 MHz)
0162939B34	Receiver Assembly A4 (422–430 MHz)
0162939B17	Receiver Assembly A5 (450–457.99 MHz)
0162939B18	Receiver Assembly A6 (458–463.99 MHz)
0162939B19	Receiver Assembly A7 (464–469.99 MHz)
0162939B35	Receiver Assembly A8 (470–475.99 MHz)
0162939B36	Receiver Assembly A9 (476–481.99 MHz)
0162939B37	Receiver Assembly A10 (482–487.99 MHz)
0162939B38	Receiver Assembly A11 (488–493.99 MHz)
0162939B39	Receiver Assembly A12 (494–499.99 MHz)
0162939B40	Receiver Assembly A13 (500–505.99 MHz)
0162939B41	Receiver Assembly A14 (506–512 MHz)

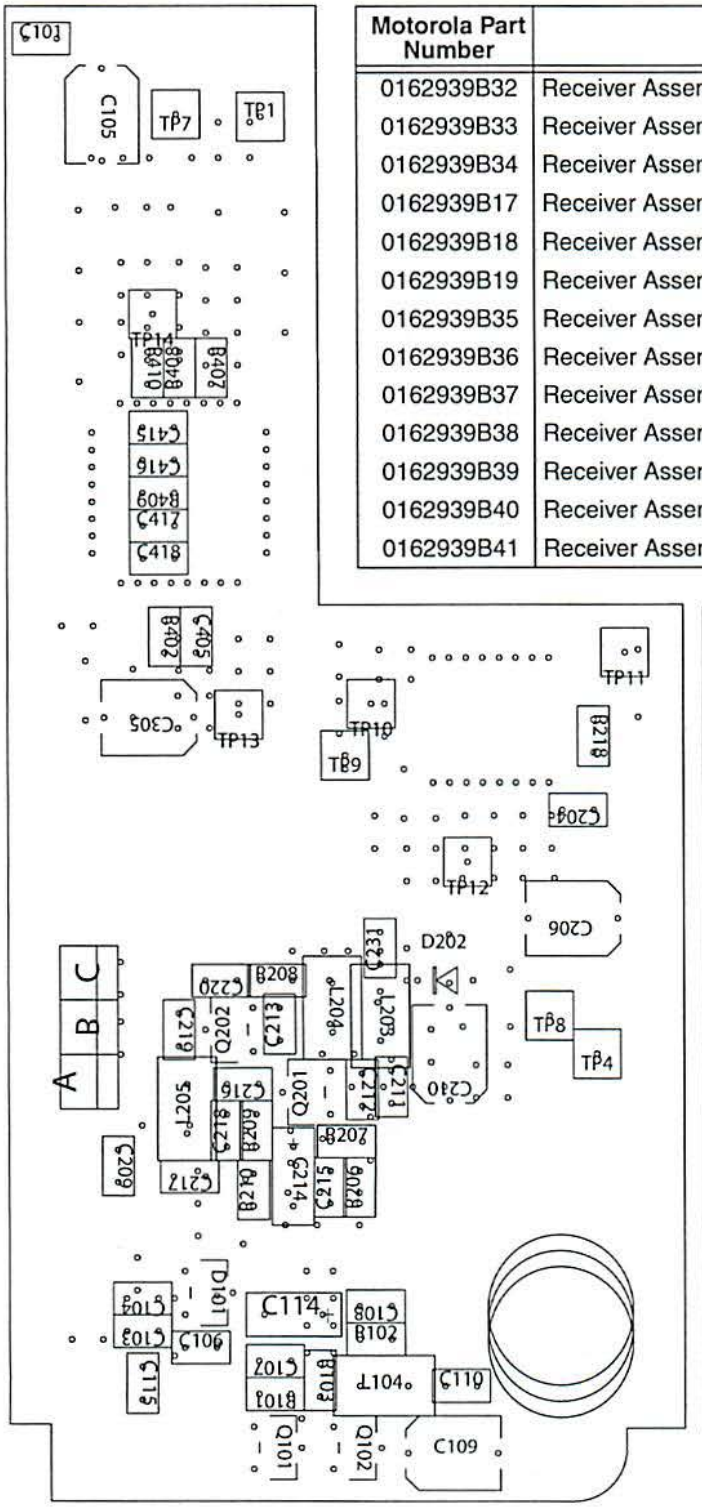


Figure B2.5—UHF RF Board Top Layer

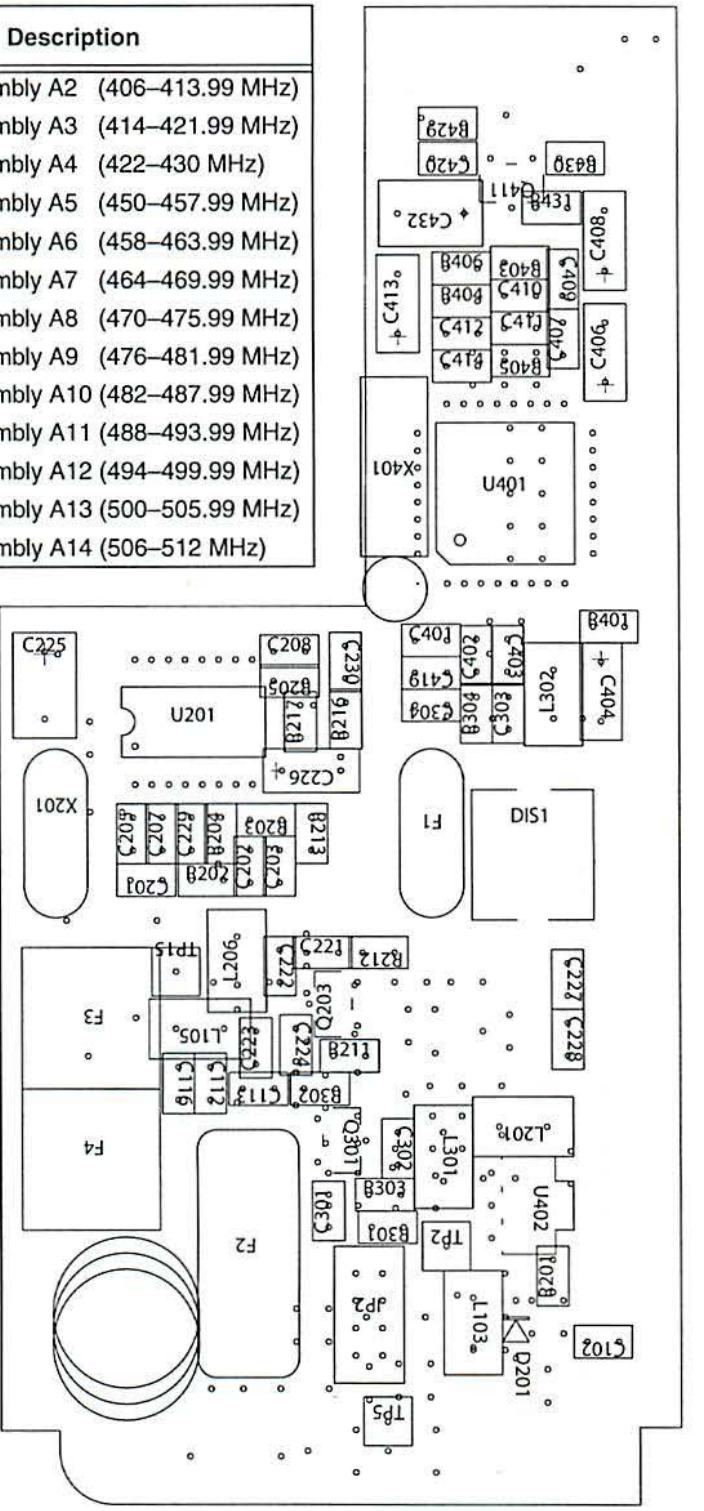


Figure B2.6—UHF RF Board Bottom Layer

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