



**MOTOROLA**

# ADVISOR<sup>®</sup> Message Receivers

**GSC and POCSAG Alphanumeric Display**

A03KLB/KLC5362/5662/5962AA/BA/CA/DA Models

A03KLB/KLC5366/5966DA Models

A03AZB/AZC5362/5372/5373/5962/5972/5973AA/BA/CA Models

A03AZB/5392/5992AA Models

A03KLB5162AA/A03TQB5962AA Models

138 – 174 MHz

## SPECIFICATIONS

Code Format:	31/21 POCSAG Code (CCIR Code #1), 512, 1200 and 2400 bps; 23/12 Golay Sequential Code (GSC)
Display:	
Alphanumeric:	Four-line, 20-character, 5 x 7 dot matrix
Ideographic (Thai):	Two-line, 14-character, 8 X 16 dot matrix
Ideographic (Traditional and Simplified Chinese)	Two-line, 7-character, 15 X 16 dot matrix
Memory:	
Alphanumeric and Ideographic (Thai):	Up to 20 personal and 8 maildrop messages, or 16 maildrop messages without personal addresses, totaling 6400 characters
Ideographic (Traditional and Simplified Chinese)	Up to 20 personal and 8 maildrop messages, or 16 maildrop messages without personal addresses, totaling 3200 characters
Channel Spacing:	25 kHz
Frequency Deviation:	±4.5 kHz (POCSAG); ±4.0 kHz (GSC)
Paging Sensitivity:	5µV per meter for 512 bps POCSAG and GSC; 7µV per meter for 1200 bps POCSAG; 9µV per meter for 2400 bps POCSAG
EIA Selectivity:	65 dB at ±25 kHz for 512/1200 bps POCSAG; 60 dB at ±25 kHz for 2400 bps POCSAG
Spurious & Image Rejection:	60 dB below carrier
Frequency Stability:	0.002% of reference frequency from -10°C to +50°C (+25°C ref.)
Alert Tone Frequency:	3200 Hz at full alert
Alert Tone Duration:	12 seconds unless manually reset.
Alert Tone Loudness:	80 dB typical at 12 inches; 78 dB minimum (for 3200 Hz tone)
Power Consumption:	0.9 mA average for 512 bps POCSAG and GSC; 1.15 mA average for 1200 bps POCSAG; 1.45 mA average for 2400 bps POCSAG
Battery:	One 1.5V, AAA-size alkaline
Battery Life:	Approximately 950 hours for 512 bps POCSAG and GSC; approximately 800 hours for 1200 bps POCSAG; and approximately 620 hours for 2400 bps POCSAG; based on 0.15 calls per user hour and full-capacity battery
Weight (with battery & belt clip)	3.82 ounces (117.4 grams)
Without Belt Clip:	3.55 ounces (109.7 grams)
Size:	3.38 x 2.32 x 0.78 inches (8.58 x 5.90 x 1.97 cm)

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

## SPECIAL NOTE

This manual includes all information needed to service your ADVISOR product except for receiver and decoder board schematic diagrams, parts lists, and pc board overlays. These are found in the separate supplements listed below.

## RELATED PUBLICATIONS

Theory/Maintenance Manual .....	6881011B75
Theory/Maintenance Manual (Thai) .....	6881011B59
Operating Instructions .....	6881011B82
Operating Instructions (Thai) .....	6881011B51
Operating Instructions (Simplified Chinese) .....	6881011B77
Operating Instructions (Traditional Chinese) .....	6881011B76
Receiver Servicing Supplement .....	6881103B02
Decoder Servicing Supplement .....	6881104B15
Decoder Servicing Supplement (Thai) .....	6881104B10
ADVISOR Evolution Training VideoTape (VHS) .....	9962002L13
ADVISOR Evolution Training VideoTape (PAL) .....	9962002L15

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**WARNING – Substitution of components may impair intrinsic safety.**

## SERVICE MANUAL



6881019B20-A



## PUBLICATION REVISION

**PUBLICATION NUMBER: 6881019B20-A**

**PMR NUMBER: 619B20-A1**

**TITLE: ADVISOR® VHF Modular Service Manual**

Information in the publication listed above has changed since the manual was printed. Use this document to update your manual.

Number of Instruction Pages: 1

Number of Replacement Pages: 0

### Revision Summary

Revision Level or PMR Number	Date	Description
6881019B20-A	March 27, 1995	Current issue of Service Manual
609B20-A1	April 24, 1996	PMR to note decoder board/housing changes

### PMR Number: 619B20-A1

Location	Update Instructions	Purpose
Page 4	Insert the following before step 10a: ADVISOR Message Receivers are configured with the vibrator motor mounted either on the back housing or on the decoder PCB. If the vibrator motor is mounted on the back housing, proceed with disassembly/reassembly according to the following procedure. If the vibrator motor is mounted on the PCB, use the procedure for replacing the decoder circuit board on page 4 for replacing the motor.	Vibrator motor is mounted on either the back housing or on the circuit board.
Page 4	Insert the following before step 10c: Some replacement back housings contain a shock pad in the motor mount area. First remove the shock pad with tweezers and then proceed with the motor replacement procedure.	Vibrator motor is mounted on either the back housing or on the circuit board.
Page 9	Change Back Cover Assembly Part Numbers from: Shadow Black 1562440C26 to 0162482C01 Steel Gray 1562440C37 to 0162482C02 Slate Gray 1562440C39 to 0162482C03	Housing part number changes.

# DISASSEMBLY/REASSEMBLY PROCEDURE

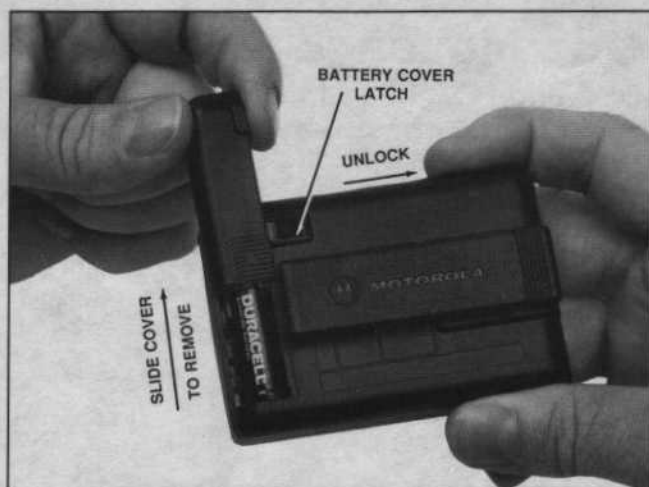


Figure 1.

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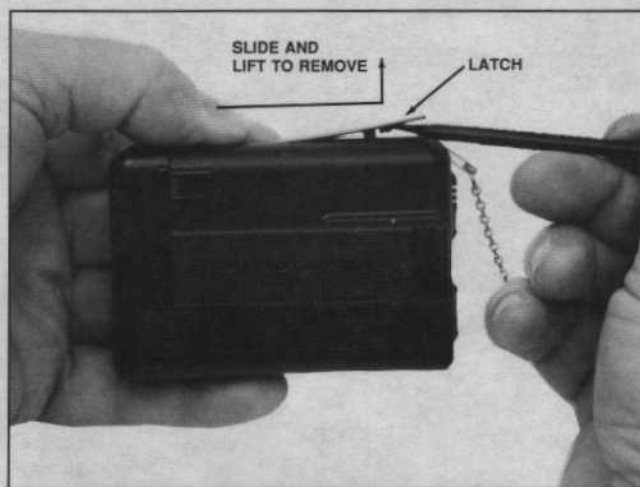


Figure 3.

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## 1. REMOVING/REPLACING THE BATTERY

(Refer to Figures 1 and 2 to perform the following steps:)

- Locate the ribbed battery-cover lock on the bottom of the pager. To unlock the battery door, slide the lock away from the battery door as far as it goes.
- While pressing on the serrated area of the battery door, slide the door in the direction indicated by the arrowhead. Use care, as the battery door is not permanently attached to the housing.
- Press on the positive "+" end of the battery, pushing toward the negative end until the battery is lifted out from the battery compartment.
- Position a new AAA-size battery so the "+" and "-" polarity markings match the polarity diagram embossed in the battery compartment. Insert the new battery, pressing it against the negative contact until the positive end seats firmly below the bump on the positive "+" contact.
- To replace the battery cover, be sure the battery-cover lock is in the fully open position, then slide the cover onto the pager.

Be sure the grooves and rails on the cover and the housing are properly aligned. Slide the cover onto the housing until it is fully closed. An audible click indicates it is properly seated.

- After the battery cover is engaged, slide the ribbed battery-cover lock toward the cover.

## 2. REMOVING THE BACK COVER

(Refer to Figures 3, 4, and 5 to perform the following steps:)

- Remove the battery as described in procedure 1.
- Remove the housing latch by lifting up on the end of the latch adjacent to the lanyard pin while sliding the latch toward the pin (Figure 3). Lift the latch with any thin object that does not mar the housing or latch. Slide the latch completely free of the housing.
- While holding the pager, press in on the side of the back cover near the battery-cover lock. At the same time apply outward pressure to the front cover near the positive battery contact to disengage the snap near this contact (Figure 4).



Figure 2.

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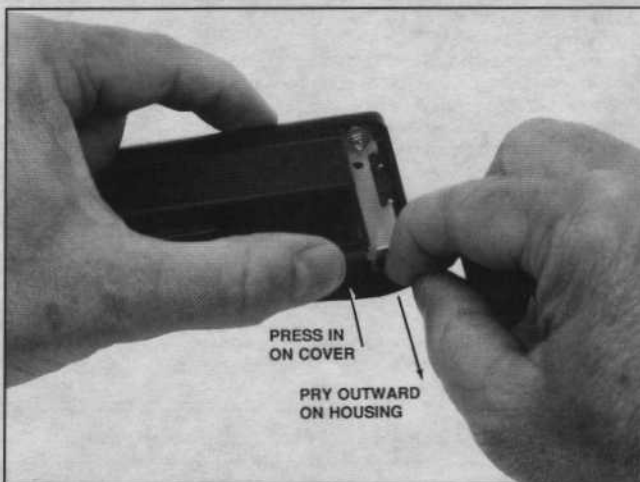


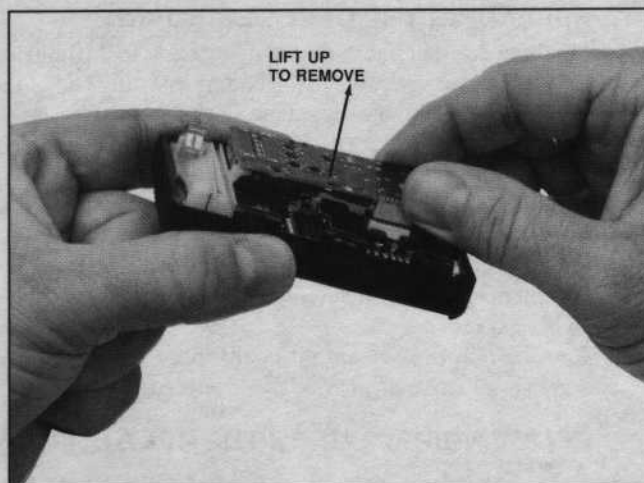
Figure 4.

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AFBP-902026-O

Figure 5.



AFPB-902027-O

Figure 6.

- d. Grasp the back-cover and raise the side nearest the battery-cover lock until the back cover snaps free and is lifted away (Figure 5).

### 3. REPLACING THE BACK COVER

- a. To replace the back cover, reverse the steps taken to remove it.
- b. Align the interlocking tabs on the back cover and front housing. Snap the cover and housing together first on the side nearest the display, then snap them together near the battery-positive contact.
- c. Hold the cover and housing together near the lanyard pin, and insert the housing latch. The latch only goes back in one way — the small chamfer on one end of the latch must be adjacent to the lanyard pin. Align the tabs on the latch with the holes in the housing, press down and slide the latch away from the lanyard pin until it fits into the depression.
- d. Replace the battery and battery cover (see procedure 1).

### 4. REMOVING THE RECEIVER CIRCUIT BOARD

(Refer to Figure 6 to perform the following steps:)

- a. Remove the battery cover, battery, and back cover (refer to procedures 1 and 2).
- b. While holding the decoder board down, gently pry the receiver circuit board up and away from the decoder board, at a point near the interconnect socket. When the pins of the interconnect socket are disengaged, lift out the board.

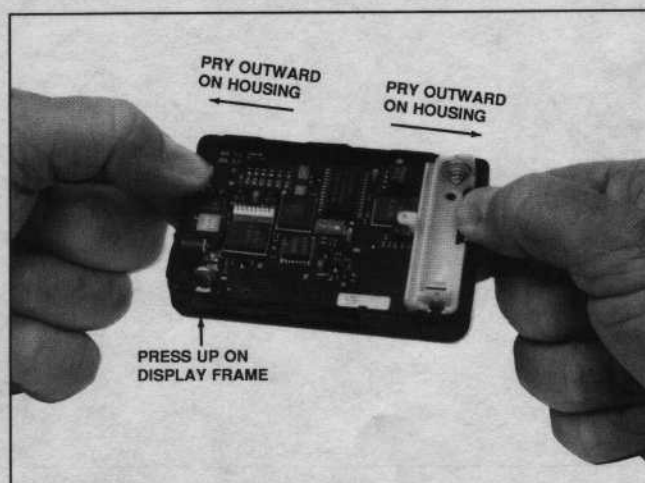
### 5. REPLACING THE RECEIVER CIRCUIT BOARD

- a. Align the pins of the interconnect plug on the decoder board with the socket on the receiver board.
- b. Align the support pin on the battery housing with the mating hole on the receiver board.
- c. Press down on the receiver circuit board until all the pins of the interconnect plug are fully engaged.
- d. Replace the back cover, battery, and battery cover.

### 6. REMOVING THE DECODER CIRCUIT BOARD

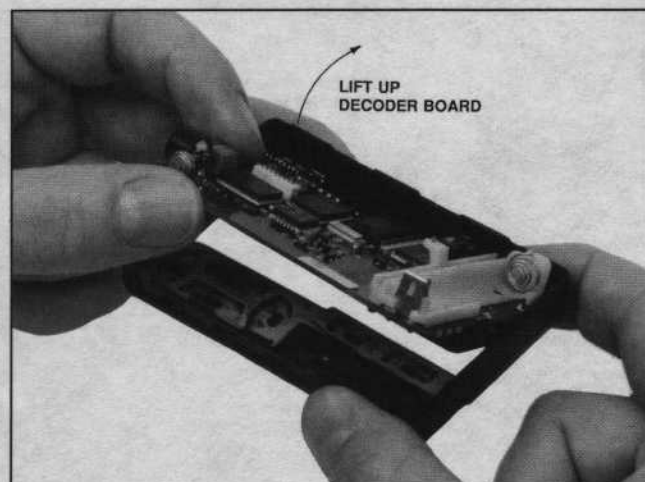
(Refer to Figures 7 and 8 to perform the following steps:)

- a. Remove the battery cover, battery, back cover, and receiver circuit board.



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Figure 7.



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Figure 8.



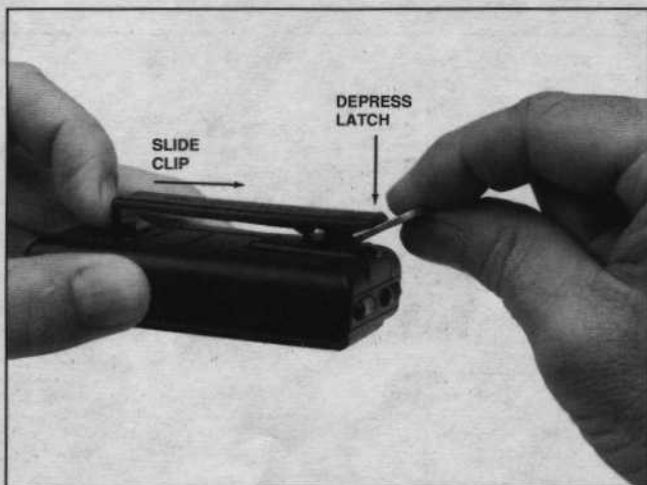
## 7. REPLACING THE DECODER BOARD

- Hold the decoder circuit board at an angle to the housing and align the projection on the battery-housing end of the circuit board with the clearance slot in the battery-cover rail of the housing.
- Slide the decoder circuit board into the housing, display side first, until the board touches the inside wall of the housing beneath the engagement tabs.
- Press the decoder circuit board into place at the edge nearest the housing latch/lanyard pin until the display and switch pad is seated.
- Replace the receiver circuit board, back cover, battery, and battery cover as previously described.

## 8. REMOVING/REPLACING THE BELT-CLIP ASSEMBLY

(Refer to Figures 9 and 10 to perform the following steps:)

- To remove the belt-clip assembly, press the latch in while pressing the clip toward the top of the pager. It slides free of the pager once the latch is disengaged.
- To replace, slide the belt-clip assembly into the recess in the back cover until the latch engages.



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Figure 9.



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Figure 10.

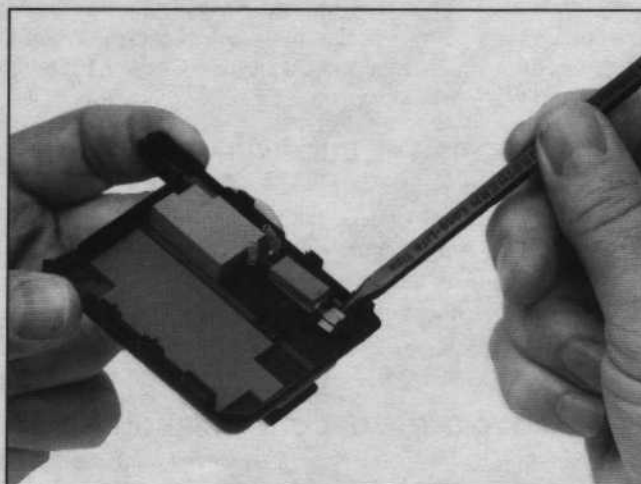
## 9. REPLACING THE RESET BUTTON

- From outside the housing, feed one of the legs of the button through the opening until the leg is visible on the inside of the housing. Make sure the leg is seated firmly at the end of the opening.
- To feed the second leg of the button through the opening, if necessary, squeeze the length of the button, bowing it away from the housing until the leg wedges into the opening.
- Using a small tool, make sure both legs are seated firmly in the opening, and both are entirely visible inside the housing.

## 10. REMOVING/REPLACING THE VIBRATOR MOTOR

(Refer to Figure 11 to perform the following steps:)

- Remove the battery cover, battery, and back cover.
- Remove the contact springs from the posts on the back cover by gently prying under the bottom coil using a thin, blunt object. (Do not pull on the springs as this causes damage to them.)
- To remove the vibrator motor, gently pry under the motor counterweight with a thin, blunt object. Apply just enough pressure to lift up the front edge of the motor as shown in Figure 11. (Excessive pressure bends the motor shaft.) Grasp the motor and pad and pull upwards to remove the assembly from the back cover.
- To reinstall the vibrator, position the vibrator/pad assembly so the counterweight of the motor faces toward the top of the back cover and the flat portion of the motor pad faces up (Figure 11.)
- Gently press the vibrator motor/pad assembly into the plastic snap on the back cover. Be sure the motor pad is fully seated around the vibrator motor.
- Seat the springs on the posts so the blue wire is positioned on the inner post and the red wire is positioned on the post closest to the outside edge of the back cover. Gently press on the top of each spring so the bottom of the spring is seated against the step of the post.



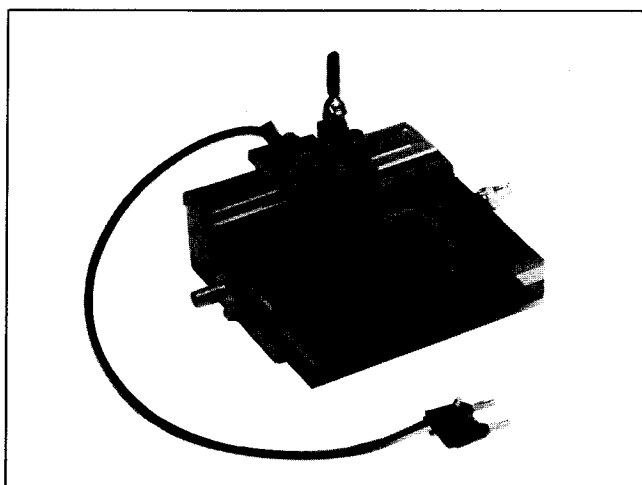
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Figure 11.

# ALIGNMENT PROCEDURE

The ADVISOR message receiver is aligned at the factory to provide peak performance over a long period of time. If realignment ever becomes necessary, the following procedures must be used:

1. Be certain a good (fresh) battery is installed in the pager (1.3 volts minimum output).
2. Install the pager in the alignment housing. Orient the unit in the RTL-1005 Radiation Test Fixture, modified with the RPX-4687 Nest and Flip-Down Head attachment as shown in Figure 12.
3. Refer to the Test Equipment Chart for a list of recommended test equipment. Connect the test equipment as shown in the Test Setup (Figure 13).
4. With the pager off, enter the Receiver Test Mode by pressing the following sequence of buttons: READ, UP ARROW, LEFT ARROW, FUNCTION. The LED lights indicating the pager is in the Receiver Test Mode. In this mode, the receiver stays on without strobing, allowing alignment and receiver performance checks to be made.
5. Turn the pager on (see page 6 for alignment procedure).



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Figure 12. Test Fixture

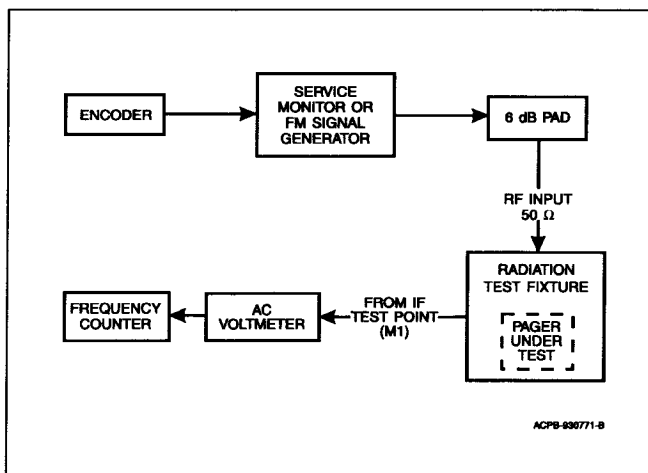


Figure 13. Test Setup

## NOTE

The unit does not receive a page in the Receiver Test Mode. To check paging sensitivity, leave the Receiver Test Mode by pressing the ON/RESET button. The normal power-up sequence now occurs.

## Test Equipment Chart

MOTOROLA MODEL NUMBER	DESCRIPTION
R1060	Signal Generator
R2002	Communications System Analyzer or Service Monitor
R1068	Frequency Counter
S1053	AC Voltmeter
R1150 or R1151	Universal Encoder
REX-4076	Encoder Software Modification Kit for R1150A and R1150B
RTL-1005	Radiation Test Fixture
RPX-4687	Nest Modification Kit and Flip-Down Head Attachment for RTL-1005
5880322A17	Attenuator, 6dB
6680384B73	Alignment Tool, Square Tip
0180355A14	Receiver/Decoder Interconnect Cable
1580390B70	Alignment Housing
NRN8636	Display Soldering Fixture
0162486C01	Display Lens Repair Text Fixture
RLN4062	Edsyn Hot Air Machine (110 Vac)
RLN4062/220	Edsyn Hot Air Machine (220 Vac)
6680381B08	Hot Air Tip, Four Sided
6680381B04	Hot Air Tip, Large Fan Tip
NLN3548	Universal Programming Interface (117 Vac), cables included
NLN3592	Universal Programming Interface (220 Vac), cables included
NLN3671	Programming Package; includes Pager Mechanical Interface, software, and manual.
NLN3672	Programming Package; includes logoless interface, software, and manual.

STEP	ADJUSTMENT	PROCEDURE
1.	---	Set the Motorola service monitor or the Motorola FM signal generator output to 17.9 MHz.
2.	---	Set the RF power level to produce a 10 dB rise at metering point (M1) as indicated by the ac voltmeter.
3.	---	The frequency counter must indicate $455 \pm 1.5$ kHz. Record this number as $f_1$ .
4.	---	Set the signal generator to the appropriate customer frequency with sufficient power level to produce a 10 dB rise as indicated by the ac voltmeter, or the frequency counter has a stable reading.
5.	L365	Tune for the same frequency observed in step 3 ( $f_1 \pm 200$ Hz).
6.	---	Modulate the customer frequency with a 400 Hz tone at 4.5 kHz deviation.
7.	L357, C352, L352 L353, L354	Tune the radio coils and trimmer capacitors in the exact order specified to produce maximum peak reading. Reduce generator level as required to keep metering point (M1) at about $10 \pm 3$ dB rise.
8.	---	Repeat procedure as required to ensure pager is properly aligned, i.e., proper pager sensitivity in the RTL-1005 Radiation Test Fixture is -88.0 dBm or less for 512 bps POCSAG, -85.5 dBm or less for 1200 bps POCSAG and -83.0 dBm or less for 2400 bps POCSAG (RF input is measured at the input to the RTL fixture.)
<b>IMPORTANT:</b> After the alignment procedure is complete, be sure to remove the pager from the Receiver Test Mode by pressing the ON/RESET button.		

## GAIN AND WAVEFORM MEASUREMENT PROCEDURE

### INITIAL REQUIREMENTS

1. Be certain a good (fresh) battery is installed in the pager (1.3 volts minimum output).
2. Refer to the Test Equipment Chart for a list of recommended test equipment.
3. Refer to the applicable schematic for waveform and voltage information, (ac voltages are in parenthesis).
4. Enter Receiver Test Mode described in step 4 of the Alignment Procedure.

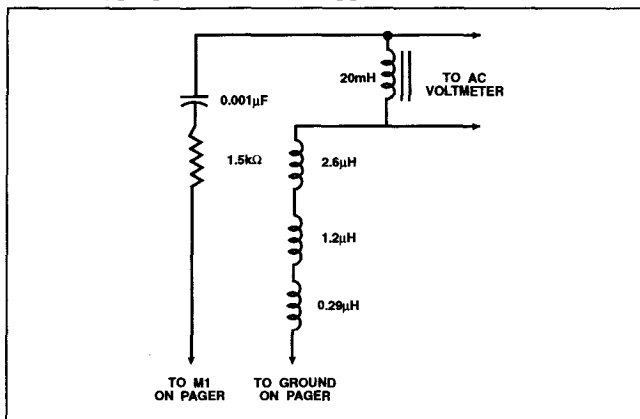
### RECEIVER GAIN MEASUREMENT PROCEDURE

#### NOTE

Stage gains must be checked in sequence. Always perform this test starting with step 1. If restarting the procedure, return to step 1 to ensure accuracy.

1. Install the pager in the alignment housing. Orient the unit in the RTL-1005 Radiation Test Fixture, modified with the RPX-4687 Nest and Flip-Down Head attachment as shown in Figure 12.
2. To measure stage gains with an RF millivoltmeter, use a high-impedance probe with a short grounding pin attached to the body of the probe. Hold the probe onto the test point indicated in the following procedure and hold the grounding pin onto the closest exposed ground at the same time (see Figure 14 for the Test Fixture Schematic).
3. **Front-end Stage Gain:**
  - a. Probe TP1 on the receiver board with a millivoltmeter probe. Note noise level on the meter with no on-channel RF signal present.
  - b. Place the pager in the Receiver Test Mode (refer to procedure 4 in the Alignment Procedure).
  - c. With an RF generator, radiate enough on-channel signal power into the RTL-1005 fixture to get the signal level at TP1 to rise about 10 dB as indicated by the millivoltmeter reading.

- d. Record the power level at TP2 as indicated by the millivoltmeter while the first oscillator is disabled (TP3 grounded).
  - e. The front-end stage gain is the difference between the two measurements ( $12 \text{ dB} \pm 6 \text{ dB}$ ).
4. **First Mixer and Crystal Filter Stage Gain:**
    - a. With TP3 grounded, record the power level shown on the millivoltmeter at TP2.
    - b. Record the power level shown at TP4 with the second oscillator disabled (short across second oscillator crystal).
    - c. The stage gain is the difference between the two recordings ( $24 \pm 5 \text{ dB}$ ).
  5. **Second Oscillator and First IF Amplifier Stage Gain:**
    - a. Observe the power level at M1. Reduce radiated on-channel RF signal until millivoltmeter reading begins to decline. Record reduced M1 reading.
    - b. Record TP4 reading with the second oscillator disabled.
    - c. The stage gain is the difference between the two readings ( $30 \pm 9 \text{ dB}$ ).
    - d. First and second oscillator activities and injections must be observed using a high-impedance probe. Typical voltage values are stated on the schematic diagram (refer to the appropriate receiver supplement).



AEPF-17417-0

Figure 14. Test Fixture Schematic

## OSCILLATOR FREQUENCIES

CARRIER FREQ. (MHz)	1ST OSC. FREQ. RANGE (MHz)	2ND OSC FREQ. (MHz)
139.5400-139.5800	60.8200-60.8400	18.355
139.7670-139.8830	60.9335-60.9915	18.355
140.1460-140.2630	61.1230-61.1815	18.355
140.4500-140.4900	61.2750-61.2950	18.355
142.3570-142.3980	62.2285-62.2490	18.355
142.6170-142.6570	62.3585-62.3785	18.355
143.3020-143.3420	62.7010-62.7210	18.355
143.6660-143.7060	62.8830-62.9030	18.355
145.5060-145.6990	63.8030-63.8995	18.355
145.9610-146.0020	64.0305-64.0510	18.355
146.1130-146.1460	64.1065-64.1230	18.355
148.4850-148.5350	65.2925-65.3175	18.355
148.8788-149.6000	43.6596-43.9000	18.355
151.4730-151.8105	44.5243-44.6368	18.355
152.2607-152.3007	44.7869-44.8002	18.355
152.6620-152.6910	44.9207-44.9303	18.355
153.6780-153.7180	45.2593-45.2727	18.355
154.2240-154.2640	45.4413-45.4547	18.355
155.0888-155.1288	45.7296-45.7429	18.355
155.4380-155.4700	45.8460-45.8567	18.355
156.9850-157.9350	46.3617-46.6783	18.355
160.1271-160.1671	47.4090-47.4224	18.355
161.4600-162.1825	47.8553-48.0942	18.355
163.1033-164.1850	48.4011-48.7617	18.355
164.6910-164.7310	48.9303-48.9437	18.355
165.9350-165.9750	49.3450-49.3583	18.355
166.3900-166.4300	49.4967-49.5100	18.355
167.2140-167.2540	49.7713-49.7847	18.355
167.6040-167.6440	49.9013-49.9147	18.355
168.1725-168.2125	50.0908-50.1042	18.355
168.5138-168.5538	50.2046-50.2179	18.355
173.5200-173.5600	51.8733-51.8867	18.355

### FREQUENCIES NOT LISTED USE 17.445 MHz FOR 2ND OSCILLATOR

**CARRIER FREQUENCY:**

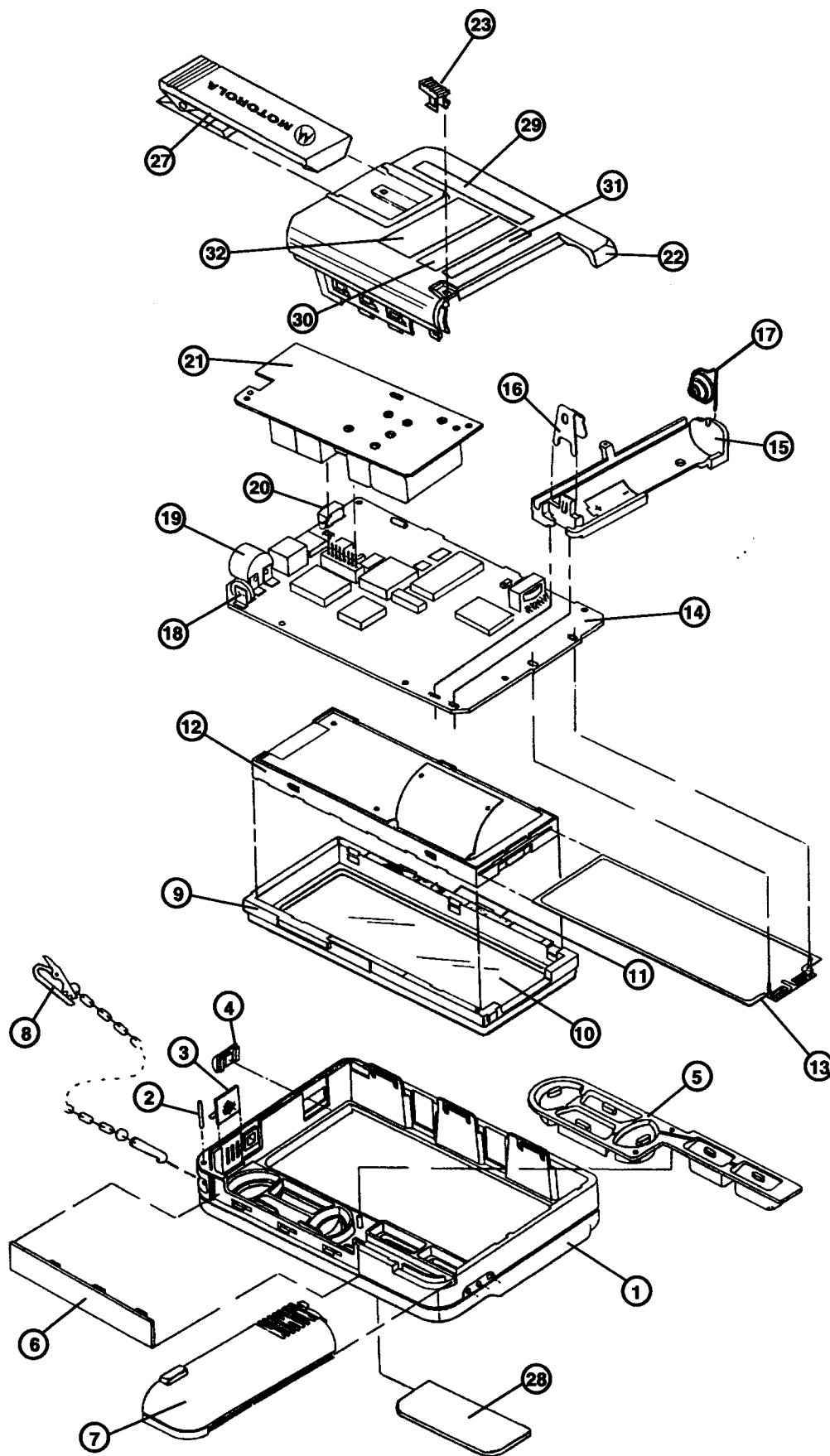
$$f_c = 2f_o + 17.9 \text{ MHz (138.000-148.599 MHz)}$$

$$f_c = 3f_o + 17.9 \text{ MHz (148.600-174.000 MHz)}$$

**CRYSTAL COLOR CODE:**

YELLOW = 17.445 MHz    GREEN = 18.355 MHz

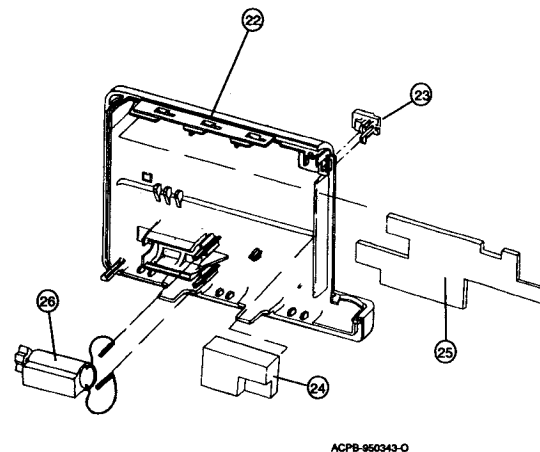




ACPB-950342-O

## EXPLODED VIEW PARTS LIST

ITEM NUMBER	MOTOROLA PART NUMBER	DESCRIPTION
1	See Table 1	FRONT HOUSING ASSEMBLY (includes items 2, 3, and 4)
2	2205006M02	PIN, Lanyard
3	3505014M03	GRILL CLOTH, Mesh
4	3805051V01	BUTTON, Reset
5	7505064V03	PAD, Switch
6	See Table 1	LATCH, Housing
7	See Table 1	COVER, Battery
8	4205035H08	LANYARD (w/logo)
or	4205035H09	LANYARD, Blank (no logo)
9	See Table 1	FRAME ASSEMBLY, (includes items 10 and 11)
10	6162885A01	LENS
11	1105070V01	ADHESIVE
12	7262922A01	MODULE, LCD
13	6562890A01	PANEL, Electroluminescent
or	6562890A02	
14	See Note 1	CIRCUIT BOARD, Decoder
15	1562440A03	BATTERY HOUSING ASSEMBLY (includes items 16, and 17)
16	3905073V01	CONTACT, Battery Positive
17	3905065V01	CONTACT, Battery Negative
or	3905065V03	
18	See Note 1	BATTERY, Secondary (Rechargeable)
19	See Note 1	TRANSDUCER
20	See Note 1	SWITCH
21	See Note 2	CIRCUIT BOARD, Receiver
22	See Table 1	BACK COVER ASSEMBLY (includes items 23, 24, and 25)
23	5505049V01	LATCH, Battery Cover
24	7505033W03	PAD, Shock
25	7505034W04	PAD, Receiver
26	NYN5459	VIBRATOR MOTOR KIT (w/Shock Pad)
27	See Table 1	BELT CLIP KIT
28	3362741A07	NAMEPLATE, Motorola
29	See Note 3	LABEL, Bar Code
30	See Note 3	LABEL, F.C.C.
31	See Note 3	LABEL, Cap Code
32	See Note 3	LABEL, Reward
	REX4131	REFURBISH KIT (includes items 1, 6, 7, 9, 22, and 27)



### NOTES:

1. Refer to decoder electrical parts list.
2. Refer to receiver electrical parts list.
3. Rear label set 3362002P15 (includes items 29 through 32).

Table 1

Color	Belt Clip Assembly Part Number	Battery Cover Part Number	Frame Assembly Part Number	Back Cover Assembly Part Number	Front Housing Assembly Part Number	Housing Slide Latch Part Number
Shadow Black	NRN8327	1505046V01	1562442A03	1562440C26	1562440B01	5505050V01
Steel Gray	NYN4993	1505046V07	1562442A08	1562440C37	1562440B08	5505050V07
Slate Gray	NYN5754	1505046V08	1562442A10	1562440C39	1562440B09	5505050V08

## REPLACEMENT PARTS

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 the description of the related major assembly and of the component in question.

### PAGING PRODUCTS GROUP

#### U.S.A. (Paging Accessories)

Phone: 1-800-892-3068  
FAX: 407-547-1724

#### International (Paging Accessories, Replacement Parts, and Manuals)

FAX: 55-11-828-0157 (Pan American)  
FAX: 65-354-2232 (Asia Pacific)  
FAX: 44-256-81-9338 (Europe/Africa)

### AFTERMARKET PRODUCTS DIVISION (APD)

#### U.S.A. (Test Equipment, Replacement Parts, and Manuals)

Phone: 1-800-422-4210 (Customer Service)  
FAX: 708-538-8198

#### International (Test Equipment)

TELEX: 403305  
FAX: 708-576-3023

## PAGER SERVICE

### SERVICE MAINTENANCE CONTRACTS

#### U.S.A.

Phone: 407-739-8879  
FAX: 407-739-8885

#### International

FAX: 407-739-3180 (Pan American)  
FAX: 65-354-2232 (Asia Pacific)  
FAX: 44-256-81-9338 (Europe/Africa/Middle East)  
FAX: 86-10461-0272 (China)

### CUSTOMER AND PRODUCT SERVICES

#### U.S.A.

Phone: 407-739-2213

#### APD Parts Identification Help

Phone: 708-538-0021 (U.S.A.)  
Phone: 708-538-8023 (International)

#### International

FAX: 407-739-3072 (Pan American)  
FAX: 65-482-3879 (Asia Pacific)  
FAX: 407-739-3072 (Europe/Africa/Middle East)

### U.S.A. PAGER SERVICE CENTERS

Motorola  
Midwest Pager Service Center\*  
1314 North Plum Grove Road  
**Schaumburg, IL 60173-4546**  
Phone: 708-576-5763  
FAX: 708-538-2763

Motorola  
Mid Atlantic Pager Service Center  
5370 Truman Drive, Suite C  
**Decatur, GA 30035**  
Phone: 404-981-5070  
FAX: 404-981-5211

Motorola  
Northeast Pager Service Center  
20C Commerce Way  
**Totowa, NJ 07512**  
Phone: 201-785-0105  
FAX: 201-812-8175

Motorola  
South Central Pager Service Center  
1701 Valley View Lane, Suite A  
**Farmers Branch, TX 75234**  
Phone: 214-241-1891  
FAX: 214-243-6781

Motorola  
Southeast Pager Service Center\*  
3020 High Ridge Road, Suite 600  
**Boynton Beach, FL 33426**  
Phone: 407-533-0037  
FAX: 407-533-9711

Motorola  
West Coast Pager Service Center  
2333 East Utah Avenue  
**El Segundo, CA 90245-0930**  
Phone: 310-536-0081  
FAX: 310-536-9897

Motorola  
Pager Service Center  
Road 686, KM 17  
Cabo Caribe Industrial Park  
**Vega Baja, Puerto Rico 00694**  
Phone: 809-858-8903  
FAX: 809-858-8904

### INTERNATIONAL PAGER SERVICE CENTERS

Motorola  
European Pager Service Center\*  
Unit 1, The Ringway Centre, Edison Road  
Houndmills, Basingstoke RG21 2YP  
**England, United Kingdom**  
Phone: 44-256-84-2220  
FAX: 44-256-81-9338

Motorola  
Iberia Pager Service Center  
San Severo S/N, Barajas Park  
28042 **Madrid, Spain**  
Phone: 34-1-329-0461  
FAX: 34-1-329-1933

Motorola  
Korea Pager Service Center  
Samtan Bldg, 2nd Floor 947-7 Daechi-Dong  
**Kangnan-Ku, Seoul, South Korea, 135-280**  
Phone: 82-2-565-5316  
FAX: 82-2-561-1633

Motorola  
Asia Pacific Pager Service Center\*  
49 Jalan Pemimpin #02-09  
**Republic of Singapore 2057**  
Phone: 65-353-8030  
FAX: 65-353-8026

Motorola Do Brazil  
Pager Service Center  
Rua Bandeira Paulista, 580  
Itaim Bibi  
**São Paulo, SP, Brazil 04532-001**  
Phone: 55-11-821-9991  
FAX: 55-11-828-0157

Motorola  
Malaysia Pager Service Center  
2nd Floor, Wisma Damansara  
Jalan Semantan 50490  
**Kuala Lumpur, Malaysia**  
Phone: 603-253-1818  
FAX: 603-253-8892

Motorola  
Beijing Pager Service Center\*  
29, Don Zhi Men Wai Avenue  
**Beijing, Peoples Republic of China 100027**  
Phone: 86-10461-0278 or 461-0268  
FAX: 86-10461-0272

Motorola  
Taiwan Pager Service Center  
2F-1, 35 Section 1, Cheng-Teh Road  
**Taipei, China**  
Phone: 886-2-555-0589  
FAX: 886-2-555-1039

Motorola Canada Limited  
Canada Pager Service Center  
2 East Beaver Creek Road, Unit 4  
**Richmond Hill, Ontario, Canada L4B2N3**  
Phone: 905-709-2337  
FAX: 905-709-7240

\* These service centers are authorized and equipped to handle new product LCD module repairs.  
For other international locations, please inquire at the most convenient FAX number above, or contact your local Motorola sales representative.