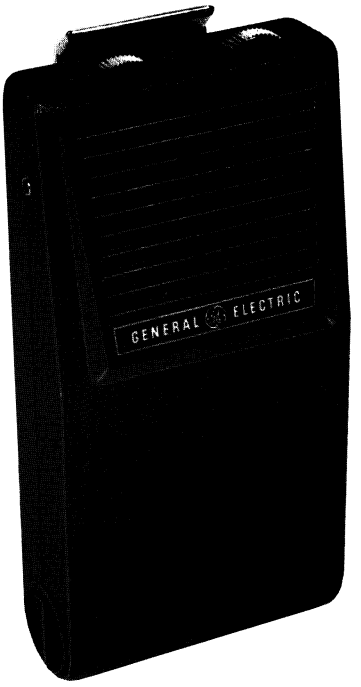
MOBILE RADIO

150.8–174 MHz

Executive Pager

MAINTENANCE MANUAL

VOICE ONLY



LBI-30392A

DF-1114

GENERAL ELECTRIC

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ILLUSTRATIONS

WARNING

No one should be permitted to handle any portion of the equipment that is supplied with high voltage; or to connect any external apparatus to the units while the units are supplied with power. KEEP AWAY FROM LIVE CIRCUITS.

SPECIFICATIONS*

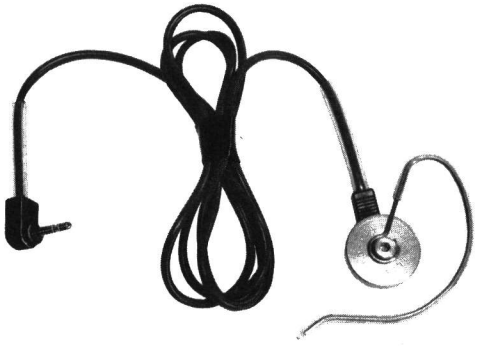
Type Number	ER-94-A
Frequency Range	150.8 — 174 MHz
Modulation Acceptance	±7 kHz
Channel Spacing	30 kHz
Selectivity	
EIA Method	-60 dB at ±30 kHz
20 dB Quieting	-65 dB at ±30 kHz
Chassis Sensitivity	
12 dB SINAD (EIA Method)	0.25 µV
20 dB Quieting Method	0.35 µV
Paging	0.15 µV
Spurious Response	-50 dB
Frequency Stability	.001% (-10°C to +50°C)
Battery Drain (at 3.75 Volts)	
Squelched	3 milliamperes
Unsquelched	110 milliamperes
Audio Power Output	150 milliwatts
Audio Distortion	Less than 10% at rated power output
Frequency Response	+2 dB and -10 dB of a standard 6 dB per octave de-emphasis curve from 300 to 3000 Hz (1000 Hz reference)

COMBINATION NOMENCLATURE

1st & 2nd Digits	3rd Digit	4th Digit	5th Digit	6th Digit	7th Digit	8th & 9th Digits
Product Line	RF Power	Channel Spacing	Mode of Operation	Alert Tones	Options	Frequency Range
AH Personal Pager	**O** Receive Only	**6** 30 kHz	**E** Voice Only	**V** Voice Only	**S** Voice Only	**66** 150.8-174 MHz

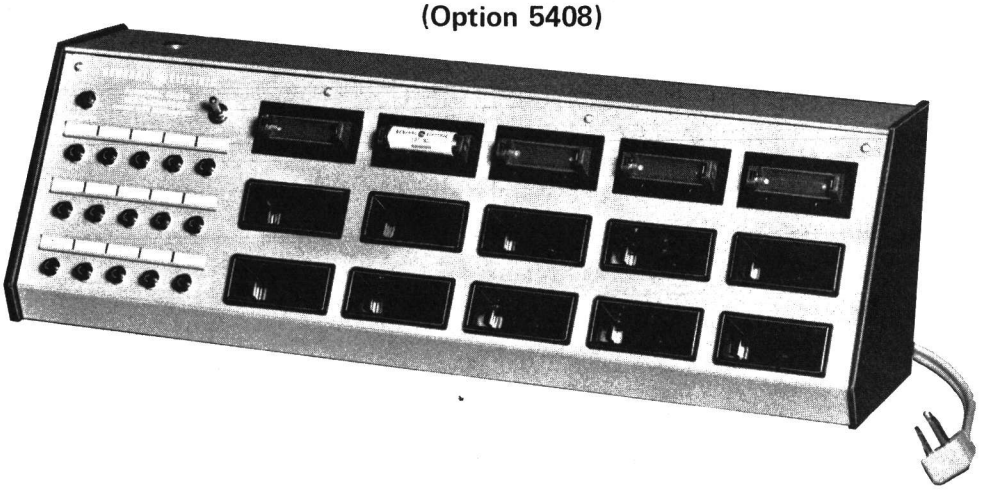
ACCESSORIES

EARPHONE 4033570G5
(Option 1402)

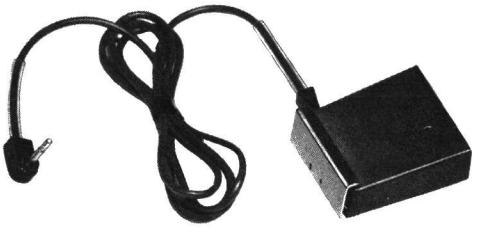


DESK CHARGER
COMBINATION 391L1B1X

MULTI-CHARGER
MODEL 4EP74A11
(Option 5408)



LAPEL SPEAKER 19A122060G14
& CORD SET 5495088P19
(Option 1401)



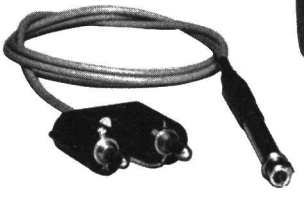
LEATHER CASE
(Option 1403)

TEST EQUIPMENT

IF GENERATOR
MODEL 4EX9A10
(Option 4381)

For setting the receiver on frequency and for troubleshooting

TEST AMPLIFIER
MODEL 4EX16A10 &
RF PROBE 19C311370-G1
(Option 4382)



For receiver front end and IF gain measurements

DESCRIPTION

General Electric Executive Pager combination AH06EUS66 is a compact, high performance FM receiver for voice only operation in the 150.8-174 MHz range.

The receiver is housed in a ruggedly-constructed, Lexan® case, with all operating controls conveniently mounted on the top of the case. An accessory jack on the side of the radio, is provided for an external earphone.

Power for the Personal Pager is normally supplied by a single rechargeable nickel-cadmium battery that fits in a separate battery compartment in the bottom section of the case. The battery can be recharged either in or out of the receiver.

If desired, the Pager can also be operated by either a mercury battery or alkaline battery. However, these batteries are not rechargeable.

The spring clip on the Pager may be used to clip the radio to a pocket or belt. The Pager may also be carried on a belt in an optional leather case.

OPERATION

Turn the receiver on by turning the OFF-VOLUME Control halfway to the right (see Figure 1). Next, turn the SQUELCH control to the right until a continuous hissing noise is heard. Then slowly turn the SQUELCH control to the left until the hissing sound just fades out. The radio is now ready to receive voice messages.

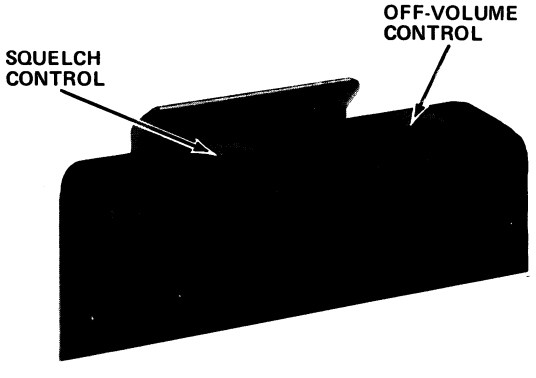


Figure 1 - Voice Only Receiver

BATTERY CHARGERS

Two different type chargers are available for recharging the nickel-cadmium batteries used in the Executive Pager. The chargers include a desk charger and multi-charger capable of fully recharging a battery in 14 hours.

NOTE

Temperature characteristics of nickel-cadmium batteries prevent a full charge at temperature extremes. For maximum capacity, recharge the battery at a room temperature between 65° to 85° Fahrenheit whenever possible.

The chargers are designed to prevent the battery from being overcharged. Whenever the battery is charged to approximately 70% of capacity, the charging circuit applies a trickle charge for the remainder of the charging cycle. The battery may be safely left on trickle charge for as long as desired.

Refer to the applicable Maintenance Manual for complete instructions.

WARNING

Do not attempt to recharge Mercury batteries. To do so may cause the batteries to explode.

Desk Charger

Desk Charger Combination 391L1B1X is available for recharging the nickel-cadmium battery from a 121 VAC, 50/60 Hz source. The charger will recharge one battery in a radio inserted in the charging insert and a single battery inserted in the battery charging clip. A fully discharged nickel-cadmium battery will recharge 100% in 14 hours.

To use the desk charger, turn the Pager OFF. Then place the radio into the charging insert, or the battery into the battery charging clip. The red charge light(s) will glow brightly at the beginning of the charge cycle and will gradually become dimmer until it goes out, indicating that the charger is on trickle charge. The charge will fully recharge the battery in an additional 6 hours.

Multi-Charger

Multi-Charger model 4EP74A11 is available for recharging up to 10 radios and 5 batteries or a combination of radio and batteries.

To use the multi-charger, plug the power cable into a 12-Volt 50/60 Hz source. Then turn the OFF-ON switch to the ON position. Place the radios into the battery charging clips. The green charge light will glow brightly at the start of the charging cycle, and will gradually become dimmer until it goes out, indicating that the charger is on trickle charge. The charger will fully recharge the batteries in an additional 6 hours.

BATTERY INFORMATION

The Executive Pager is shipped from the factory ready for immediate operation upon installation of the battery. The part number as well as battery life for each of the batteries is shown in the following chart.

Battery Type	GE Part Number	Equivalent	Battery Life with Battery Saver (5% Rx, 95% Standby)
Rechargeable	19A116252P1 (150 mAh)		22 hours
Mercury	19A116387P2 (package of 12)	Mallory TR133 Eveready T133	140 hours

The rechargeable battery is shipped from the factory in a fully charged condition--ready for immediate use. If the radio has been stored for over 30 days, the battery should be fully recharged before using. When it is necessary to store the unit for over 30 days, it is recommended that the battery be kept on charge in the Executive Pager charger.

BATTERY INSTALLATION OR REPLACEMENT

To replace the battery:

1. Turn the radio OFF.
2. Turn the cap to the left as far as it will go and remove (see Figure 2).
3. Replace the battery with the (+) end pointing in.

WARNING

Do not incinerate either the Mercury or the rechargeable battery. To do so may cause a battery to explode.

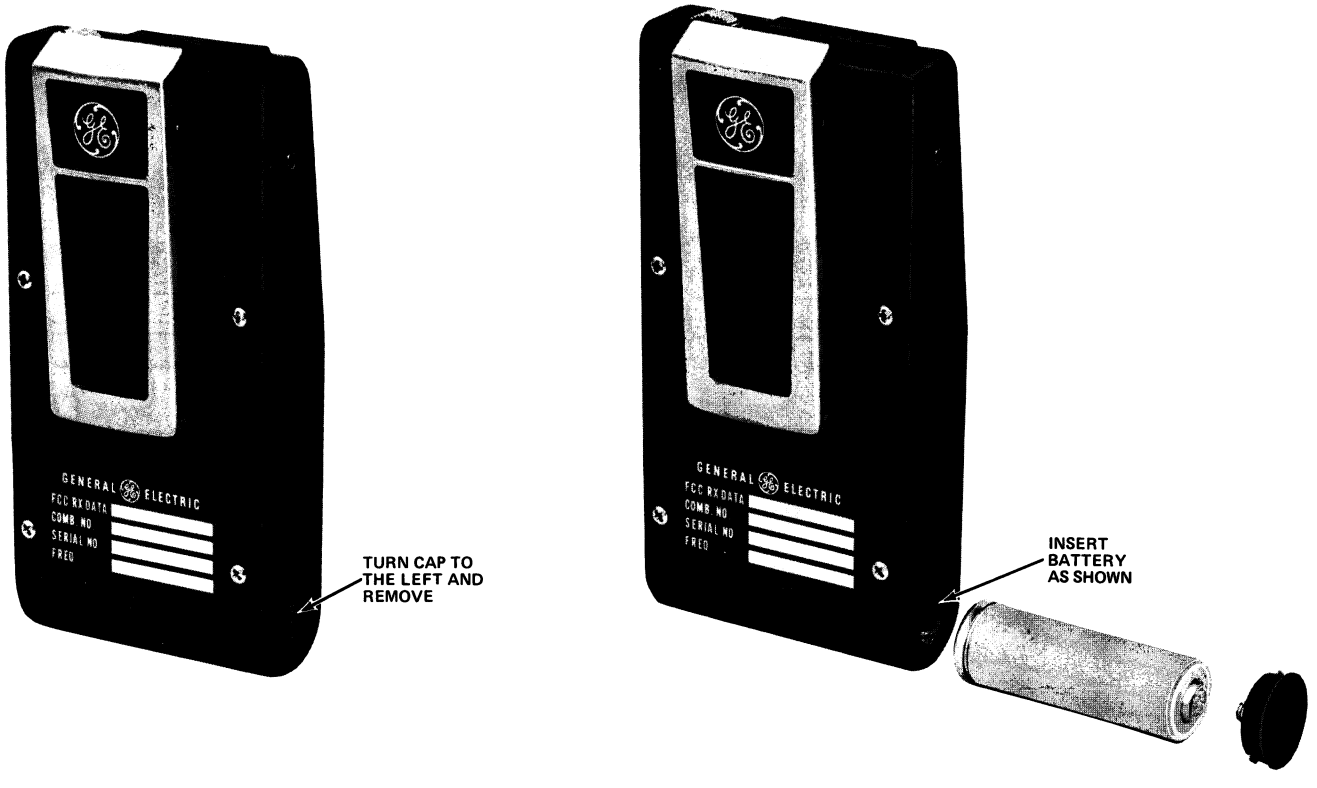


Figure 2 - Battery Replacement

NOTE

There is no way to dispose of mercury batteries without possible polution except by returning them to the manufacturer for recycling.

Mallory Battery Company will buy all used mercury batteries at the current market price. Batteries are to be shipped prepaid, enclosing a packing slip indicating who is to receive payment for the batteries to:

Mallory Battery Company
Plant #2
Lexington NC 27292

INITIAL ADJUSTMENT

The initial adjustment for the Executive Pager includes zeroing the receiver to the system operating frequency and tuning the antenna circuit and front end coils. Refer to the FRONT END ALIGNMENT in the ALIGNMENT PROCEDURE listed in the Table of Contents.

MAINTENANCE

SERVICING THE RECEIVER

If the radio should begin to operate improperly, the first thing to suspect is a discharged battery. If a freshly recharged battery or a new mercury or alkaline battery fails to restore the radio to its normal operating condition, refer to the Troubleshooting Procedure for help in isolating and correcting the problem.

A complete procedure is provided in this manual for disassembling the radio for servicing. Refer to the DISASSEMBLY PROCEDURE as listed in the Table of Contents.

TEST AND TROUBLESHOOTING PROCEDURES

Whenever difficult servicing problems occur the Test Procedure for the receiver can be used by the serviceman to compare the actual performance of the unit to the specifications met by the Pager when shipped from the factory.

In addition, a Troubleshooting Procedure is available. For best results, the Test Procedure should be used in conjunction with the Troubleshooting Procedure when servicing the radio (see Table of Contents).

CIRCUIT ANALYSIS

RECEIVER

General Electric Paging receiver Type ER-94-A is a double-conversion, superheterodyne receiver for operating in the 150.8-174 MHz range. The circuit board consists of both discrete components and Thick Film Integrated Circuit Modules.

References to symbol numbers mentioned in the following text are found in the Outline Diagram, Schematic Diagram and Parts List (see Table of Contents). The typical circuit diagrams used in the text are representative of the circuits used in the Integrated Circuit Modules. A block diagram of the receiver is shown in Figure 3.

Antenna & RF Amplifier

The antenna circuit consists of ferrite rod E301 and capacitor C301. The circuit is tuned by C301. An RF signal from the antenna is coupled by RF Cable W301 to a matching network (L301 and C303) providing the proper impedance match to the base of RF Amplifier Q303.

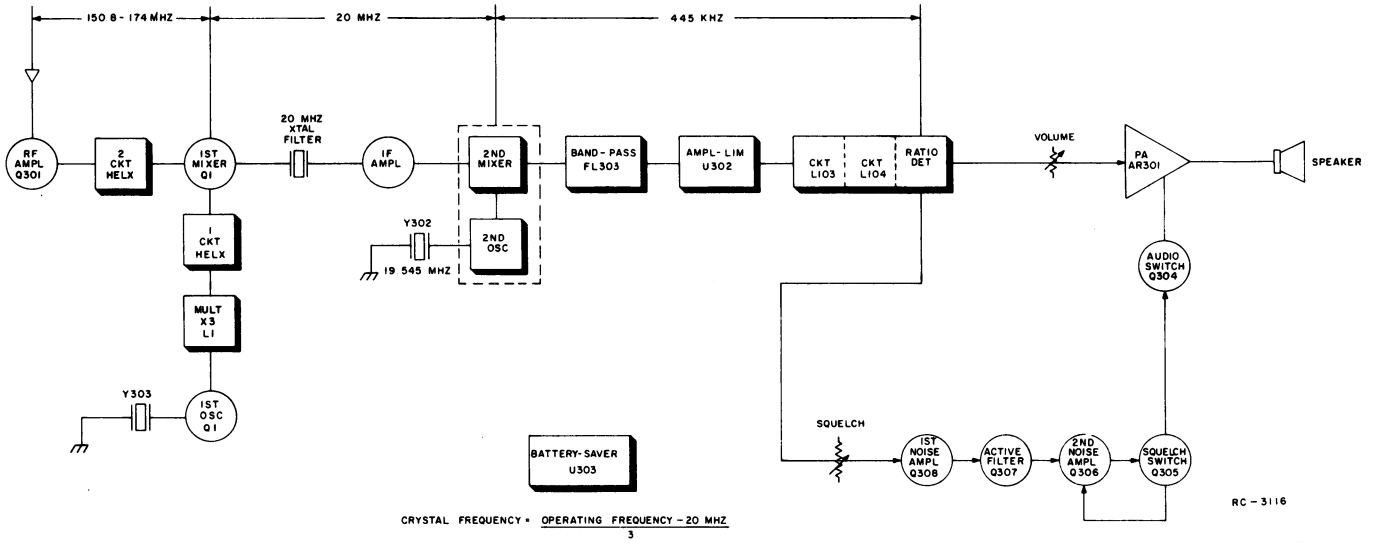


Figure 3 - Voice Only Receiver Block Diagram

The output of Q303 is coupled through C305 to helical resonators L4 and L2. The output of L2 is applied to the base of first mixer A301-Q1.

1st Oscillator & Mixer

1st Oscillator A302-Q1 is a third mode oscillator that operates in the 43 to 51 MHz range. Crystal Y303 is connected in the oscillator feedback path to permit oscillation at the crystal frequency only. A302-L1, C1 and C2 make up the mode-selective resonant circuit. Tuneable coil L1 permits the oscillator frequency to be shifted slightly for setting the receiver on the system operating frequency.

The oscillator output is transformer-coupled through A303-L1, C5 and helical resonator L2 to the emitter of First Mixer A301-Q1. A301-L1 is tuned to three times the crystal frequency. The oscillator is metered at TP3.

RF from the helical resonators L4 and L2, is applied to the base of 1st Mixer A301-Q1. The injection frequency from the oscillator and multiplier is applied to the emitter of the 1st Mixer A301-Q1. The 20-megahertz high IF output is coupled through high IF crystal filter Y301, providing High-IF selectivity to the base of the High-IF Amplifier Q302.

2nd Oscillator & Mixer

The 20 megahertz signal coupled to the 2nd Mixer and Oscillator Module U301-3 is coupled to the base of 2nd Mixer transistor Q2. Also coupled to the base of Q2 is a 19.545 megahertz low side injection frequency from Colpitts oscillator Q1. The 20 megahertz High-IF signal and 19.545 megahertz low side injection frequency, produce a 455 kilohertz Low-IF output at U301-4. A typical 2nd mixer and oscillator circuit is shown in Figure 4.

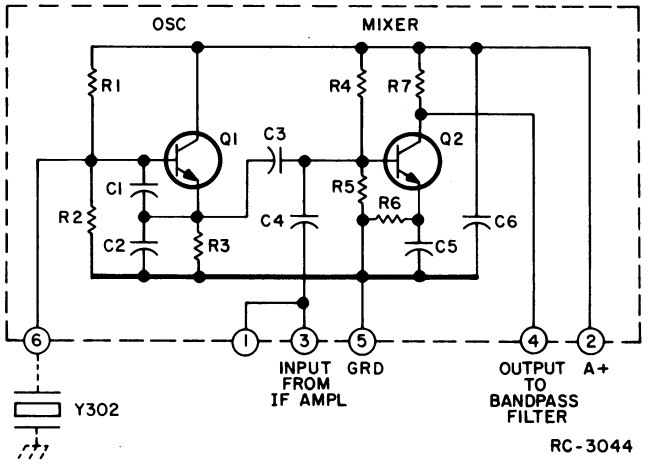


Figure 4 - Typical 2nd Mixer and Oscillator Circuit

The 455 kilohertz Low-IF from 2nd Mixer and Oscillator Module U301-4 is coupled through Low-IF band-pass filter FL303. FL303 provides additional selectivity for the receiver. The output from FL303 is metered at TP1 and coupled to Amplifier/Limiter Module U302-1.

Amplifier/Limiter

The 455 kilohertz Low-IF coupled to Amplifier/Limiter Module A302-1 is applied to the base of amplifier transistor Q1. A typical Amplifier/Limiter circuit is shown in Figure 5. Further amplification is obtained through Q2, A3 and Q4. The output of Q4 is A302-8 is coupled to L303 and L304 of the ratio detector circuit.

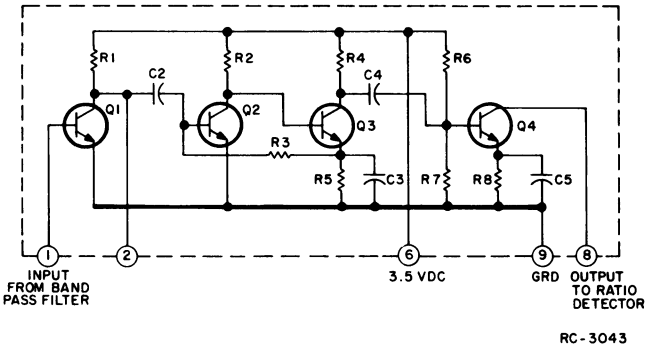


Figure 5 - Typical Amplifier/Limiter Circuit

Ratio Detector

Diodes CR301 and CR302 in the ratio detector circuit rectify the Low-IF and voltages, the sum of which always remains constant, develop across R316 and R317. Audio is developed as a result of the varying ratio of the voltages across R316 and R317. Capacitor C321 stabilizes the detector circuit and keeps the sum of the voltages across R316 and R317 constant. The recovered audio is metered at TP2.

Audio PA

The output of the ratio detector is coupled through SQUELCH control R346 to the base of First Noise Amplifier Q308, in the squelch circuit, and through VOLUME control R323 to Pin 7 of audio PA module AR301. When a signal is received, the squelch circuit causes Audio switch Q304 to activate AR301 and audio is heard at Speaker LS1.

Squelch

The squelch circuit consists of 1st Noise Amp Q308, Active Filter Q307, 2nd Noise Amp Q306 and Squelch Switch Q305.

Noise from the ratio detector operates the squelch circuit. With no carrier applied to the receiver, noise is coupled through SQUELCH control R346 to the base of 1st Noise

Amp Q308. R346 determines the gain of the Noise Amplifier by varying the noise amplitude on the base of Q308.

The output of Q308 is applied to an active, high-pass filter that attenuates frequencies below 3 kHz. The filter consists of C339, C340, C341, R340, R341 and Q307.

Following the high-pass filter is 2nd Noise Amp Q306. The output of Q306 is rectified by CR303 and CR304, and filter by R333 and C335 to produce a positive DC voltage. The positive voltage is applied to the base of PNP Squelch Switch Q305, turning it off.

The collector of Q305 is tied to the base of Audio Switch Q304. Turning off Q305 changes the bias voltage on Q304, turning it off.

When the receiver is quieted by a carrier, the receiver noise is reduced. This removes the positive voltage on the base of Squelch Switch Q305 turning it on. Turning on Q305 applies the bias voltage to Q304, allowing it to conduct so that sound is heard from the speaker. Capacitor C334 in the collector of Q305 slows down the switching action of the transistor to provide more positive switching. Resistor R336 connects from the collector of Q305 to the base of Q306 providing a hysteresis loop in the squelch circuit. When a weak signal opens the squelch, the signal level may be reduced by approximately 3 dB without the squelch closing.

BATTERY SAVER

Battery saver U303 reduces the average current by alternately turning power off and on to the receiver stages (see Figure 6).

Multivibrator transistors Q5 and Q6 cause transistor switch Q8 to apply voltage to receiver stages at a 9 (off) to 1 (on) rate (540 msec/60 msec). When a signal is received, a positive voltage from the collector of Squelch Switch Q305 is applied to U303-6 stopping multivibrator Q5 and Q6 with voltage applied to the receiver stages.

When the signal is removed the receiver squelches and the positive voltage is removed from U303-6. Multivibrator, Q5 and Q6, starts switching, again, applying voltage to the receiver stages at a 9 to 1 rate.

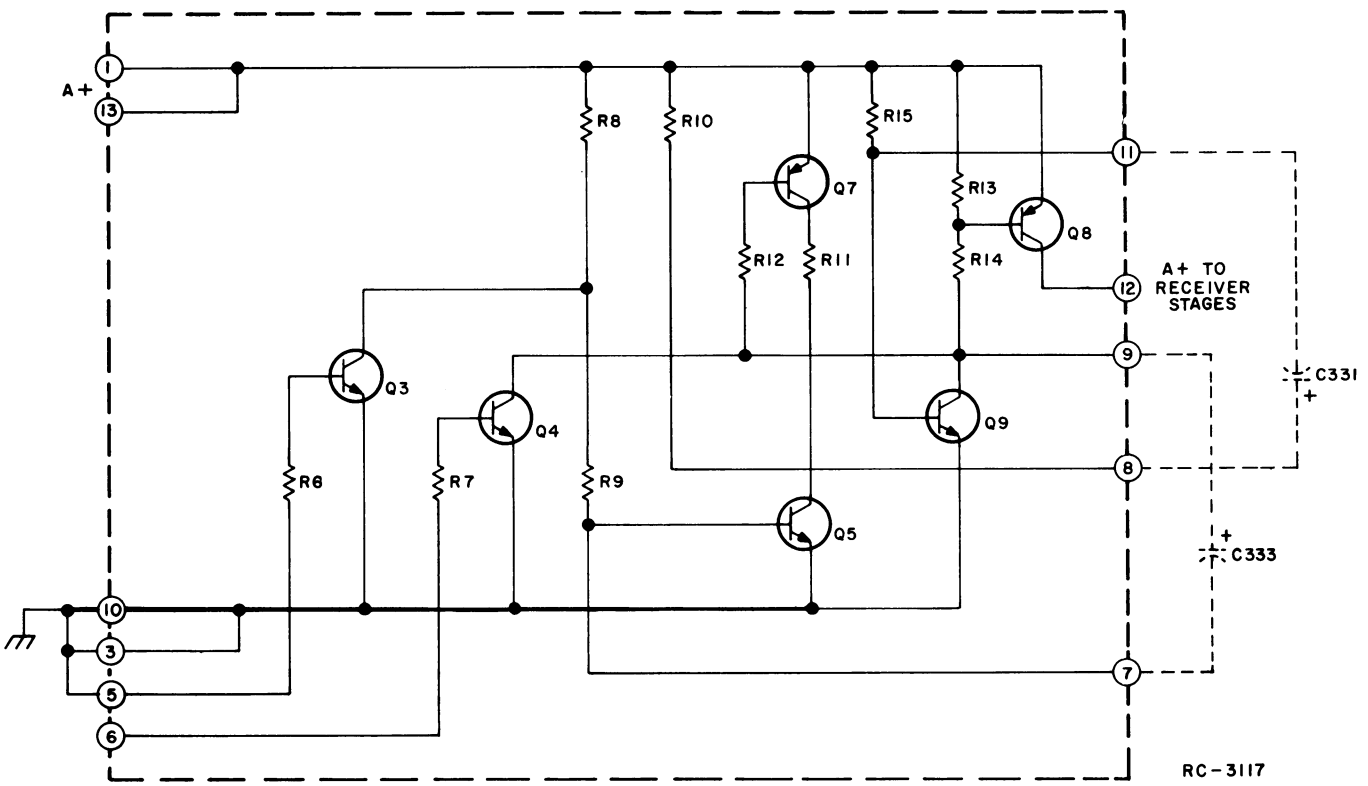


Figure 6 - Typical Battery Saver Circuit

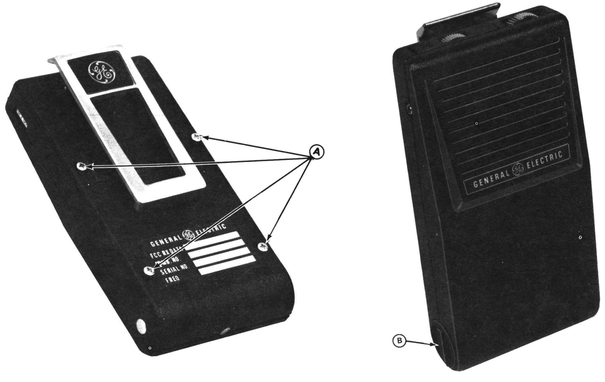
DISASSEMBLY PROCEDURE

Equipment required:

To disassemble a General Electric Executive Pager, the only equipment required is a small Phillips-head screwdriver.

To gain access to the receiver:

1. Turn the radio OFF.
2. Loosen the four captive screws (A).
3. Turn the radio on its back and carefully lift up the front cover by the end nearest the battery compartment (B). Then, carefully lift off the cover.

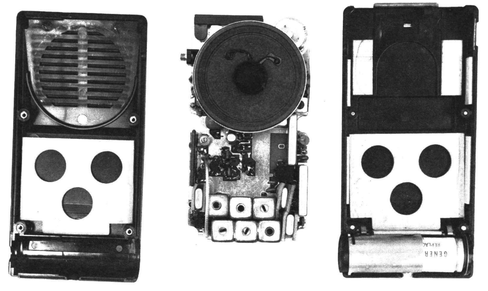


CAUTION

When replacing the front cover, place the edge of the front cover into the groove at the top of the case and close the cover.

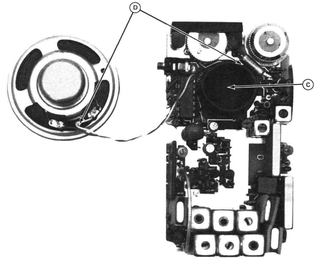
To remove the receiver board:

1. Remove the front cover as directed above.
2. Lift up the receiver board and remove from the case as shown.



To replace the speaker:

1. Carefully remove the speaker from mounting cup (C).
2. Unsolder leads from speaker.



3. When replacing the speaker in the mounting cup, align the two points (D). Route the speaker leads counterclockwise around the cup

REPLACEMENT PROCEDURE

Equipment required:

- A pencil-type, 40-to 60-watt soldering iron
- A de-soldering tool such as a SOLDA PULLT (R)
- A pair of longnose pliers

Procedure:

1. Clip out and remove the defective component (when possible) so that the leads can be removed individually.
2. Hold the soldering iron against the bottom of the printed circuit board to melt the solder holding the component or module lead.
3. Remove the melted solder from the lead(s) with the de-soldering tool.
4. When the solder has sufficiently been removed from the lead(s), the longnose pliers may be used to break loose any residual solder and remove the component from the board.
5. Solder in the new component on the bottom side of the board using the small pencil tip on the soldering iron.

EQUIPMENT REQUIRED

1. GE Test Set Models 4EX3A11 (TM11 or TM12) or 4EX8K11, or 20,000 ohms-per-volt multimeter.
2. A 455 kHz signal source (IF Generator Model 4EX7A10 or equivalent), and a 150.8 - 174 MHz signal source (M800 Signal Generator or equivalent).
3. Test Amplifier Model 4EX16A10 and RF Probe 19C311370G1. Connect the Test Amplifier to the GE Test Set.

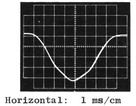
PRELIMINARY CHECKS & ADJUSTMENTS

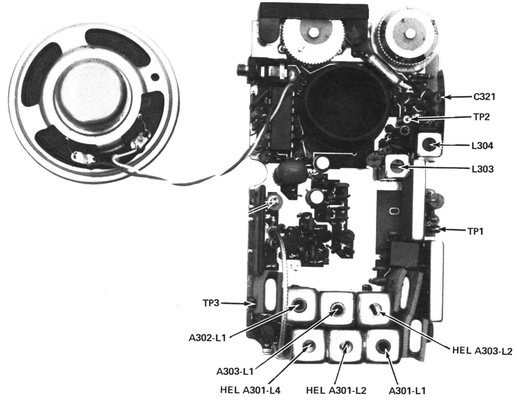
1. Install a freshly-charged nickel cadmium battery or a new mercury or alkaline battery.

   In tone only receivers, connect a 2.2 μf capacitor between H8 and emitter of Q303.

2. Connect the signal generator as recommended in Figure 12.

ALIGNMENT PROCEDURE

STEP	METERING POINT	TUNING CONTROL	PROCEDURE
			RATIO DETECTOR
1.	Positive End of C321	L303	Connect a 455 kHz signal between the insulated body of C308 and ground. Maintaining the generator level below limiting, adjust L303 for maximum output at C321.
2.	TP2	L304	Adjust L304 for zero output at TP2.
3.	Positive end of C321 and TP2	L303 & L304	Repeat Steps 1 and 2 until the maximum output at the positive end of C321 coincides with a zero reading at TP2. Disconnect the 455 kHz generator.
			1ST OSCILLATOR
4.	TP3	A302-L1 & A303-L1	Adjust A302-L1 for a maximum meter reading at TP3. Tune A303-L1 for a very small dip at TP3.
			HI & LO IF FILTER
5.		See Procedure	Connect the scope, signal generator and detector as shown in Figures 13 and 14. Apply an on-frequency signal using the lowest possible input level to avoid limiting. Modulate the generator with 20 Hz at 10 to 16 kHz deviation. NOTE An on-frequency signal is easily determined by zero beating the channel signal with the 455 kHz marker generator signal. Loosely couple the 455 kHz generator to the case of Q302 and adjust the RF level of the RF signal generator to 20 dB quieting level.
6.	TP1	A301-L1	Tune A301-L1 for maximum amplitude and best shape on scope as shown on scope waveform, keeping the signal below saturation.  Horizontal: 1 ms/cm Vertical: .01 Volt/cm
			FRONT END
7.		Helicals A301-L4 & L2 and A303-L2	Apply an on-frequency signal as above and tune helicals A301-L4 & L2, A303-L2 and C301 for maximum quieting. NOTE Do NOT tune Mixer Coil A301-L1
			1ST OSCILLATOR
8.		A302-L1	Apply an on-frequency signal as above. Loosely couple 455 kHz to the receiver and adjust A302-L1 for zero beat to the speaker.
			ANTENNA CIRCUIT
9.	TP1	C301	Apply radiated, on-frequency signal to the receiver antenna and adjust C301 for best quieting.



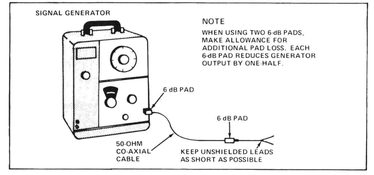


Figure 7 - Signal Generator Setup

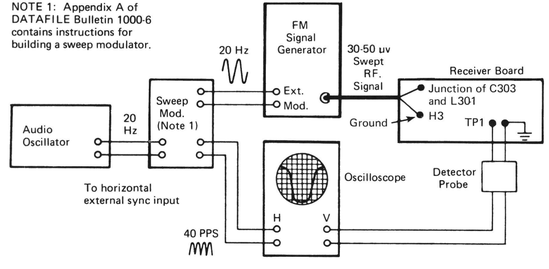


Figure 8 - Test Setup for 20-Hz Double-Trace Sweep Alignment

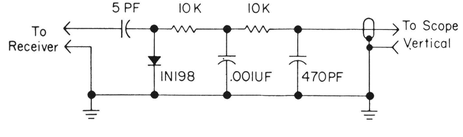


Figure 9 - Detector Probe for Sweep Alignment

TEST PROCEDURES

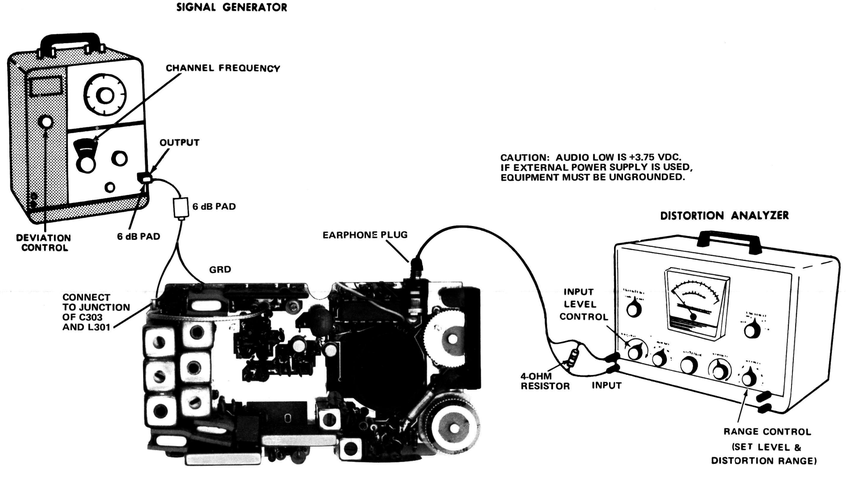
These Test Procedures are designed for checking receiver specifications, and for helping service a receiver that is operating--but not properly. The problems encountered could be low power, poor sensitivity, distortion, ration detector not operating properly, and low gain. By following the sequence of test steps starting with Step 1, the defect can be quickly localized. Once the defective stage is pinpointed, refer to the "Service Check" listed to correct the problem. Additional corrective measures are included in the Troubleshooting Procedure. Before starting with the Receiver Test Procedures, be sure the receiver is turned and aligned to the proper operating frequency.

TEST EQUIPMENT REQUIRED

- Distortion Analyzer similar to: Heath IM-12
- Signal Generator similar to: Measurements M-800
- 6-dB attenuation pad, and 4-ohm resistor

PRELIMINARY ADJUSTMENTS

1. Connect an external 3.75-Volt supply to the receiver or install a freshly-charged or new battery.
2. Connect the test equipment to the receiver as shown for all steps of the Test Procedure.
3. Connect the signal generator high to the lead of C303 as shown in Figure 12.
4. Turn on all of the equipment and let it warm up for 20 minutes



STEP 1
AUDIO POWER OUTPUT AND DISTORTION

TEST PROCEDURE

Measure Audio Power Output as follows:

A. Apply a 1000 microvolt, on-frequency test signal modulated by 1,000 hertz with ±3.0 kHz deviation to the receiver.

B. Connect a 4-ohm load resistor across the Distortion Analyzer input as shown.

C. Connect a standard earphone plug to the receiver accessory jack, and connect the receiver output across the 4-ohm resistor as shown.

D. Adjust the VOLUME control for 150-milliwatts output (.78 volts RMS using the Distortion Analyzer as a VTVM).

E. Make distortion measurements according to manufacturer's instructions. Reading should be less than 10%.
If the receiver sensitivity is to be measured, leave all controls and equipment as they are.

SERVICE CHECK

If the distortion is more than 10%, or maximum audio output is less than 150 milliwatts, make the following checks:

F. Battery or external supply voltage -- low voltage will cause distortion.

G. Audio Gain (Refer to Receiver Troubleshooting Procedure).

H. Ratio Detector Alignment (Refer to Receiver Alignment Procedure on reverse side of page).

J. Audio output set too high -- output voltage over .78 volt, Re-check Step D.

STEP 2
USABLE SENSITIVITY (12-dB SINAD)

If STEP 1 checks out properly, measure the receiver sensitivity as follows:

A. Apply a 1000-microvolt, on-frequency signal modulated by 1000 Hz with a 3.0-kHz deviation to the receiver.

B. Place the RANGE switch on the Distortion Analyzer in the 200 to 2000-Hz distortion range position (1000-Hz filter in the circuit). Tune the filter for minimum reading or null on the lowest possible scale (100%, 30%, etc.).

C. Place the RANGE switch to the SET LEVEL position (filter out of the circuit) and adjust the input LEVEL control for a +2 dB reading on a mid range (30%).

D. While reducing the signal generator output, switch the RANGE control from SET LEVEL to the distortion range until a 12-dB difference (+2 dB to -10 dB) is obtained between the SET LEVEL and distortion range positions (filter out and filter in).

E. The 12-dB difference (Signal plus Noise and Distortion to noise plus distortion ratio) is the "usable" sensitivity level. The sensitivity should be less than or equal to rated 12 dB SINAD specification with an audio output of at least 75 milliwatts (.55 volt RMS across the 4-ohm receiver load using the Distortion Analyzer as a VTVM).

F. Leave all controls as they are and all equipment connected if the Modulation Acceptance Bandwidth test is to be performed.

SERVICE CHECK

If the sensitivity level is more than rated 12 dB SINAD, make the following checks:

G. Check the alignment of the RF stages as directed in the Alignment Procedure, and make the gain measurements as shown on the Troubleshooting Procedure.

STEP 3
MODULATION ACCEPTANCE BANDWIDTH (IF BANDWIDTH)

If STEPS 1 and 2 check out properly, measure the bandwidth as follows:

A. Set the Signal Generator output for twice the microvolt reading obtained in the 12-dB SINAD measurement and reduce audio volume control to 10% rated output.

B. Set the RANGE control on the Distortion Analyzer in the SET LEVEL position (1000-Hz filter out of the circuit), and adjust the input LEVEL control for a +2 dB reading on the 30% range.

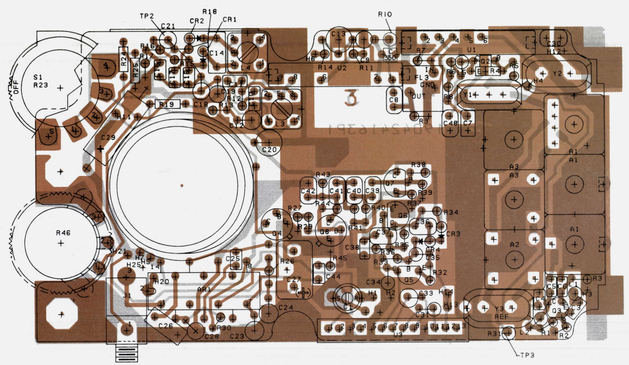
C. While increasing the deviation of the Signal Generator, switch the RANGE control from SET LEVEL to distortion range until a 12-dB difference is obtained between the SET LEVEL and distortion range readings (from +2 dB to -10 dB).

D. The deviation control reading for the 12-dB difference is the Modulation Acceptance Bandwidth of the receiver. It should be more than ±7 kHz.

SERVICE CHECK

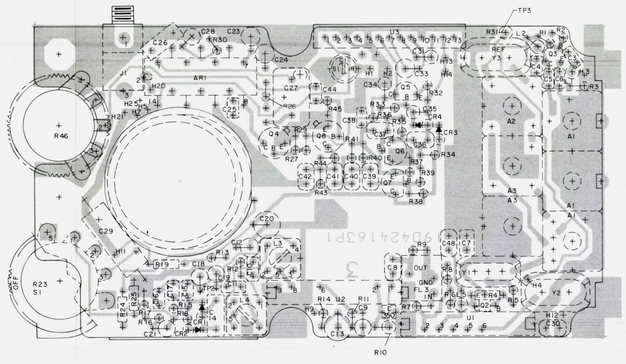
If the Modulation Acceptance Bandwidth test does not indicate the proper width, re-align A302-L1 (1st Mixer) (Refer to the Receiver-Alignment Procedure).

COMPONENT SIDE



(19B227544, Sh. 1, Rev. 3)
(19B227544, Sh. 2, Rev. 3)

SOLDER SIDE



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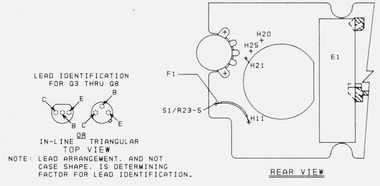
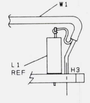
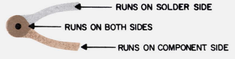




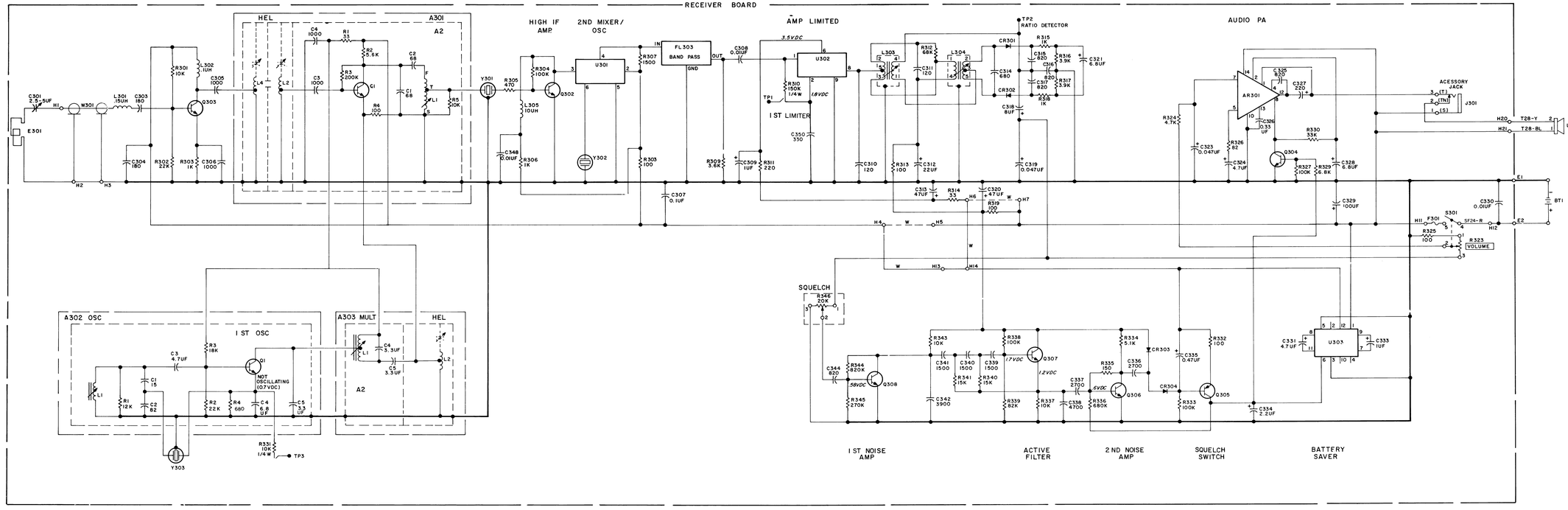


PARTIAL REFERENCE DESIGNATIONS ARE SHOWN.FOR COMPLETE DESIGNATION, PREFIX WITH 300 SERIES. EXAMPLE: C1 =C301. R1 =R301. ETC.

OUTLINE DIAGRAM

150.8—174 MHz EXECUTIVE PAGER
TYPE ER-94-A

(19D424165, Rev. 6)



(198622124, Rev. 7)

NOTES:
1. ALL WIRES T-28 UNLESS OTHERWISE NOTED.

THIS ELEM DIAG APPLIES TO

MODEL NO	REV LETTER
PLI9D424164GI	E

ALL RESISTORS ARE 1/8 WATT UNLESS OTHERWISE SPECIFIED AND RESISTOR VALUES IN OHMS UNLESS FOLLOWED BY K=1000 OHMS OR MEG=1,000,000 OHMS. CAPACITOR VALUES IN PICOFARADS (EQUAL TO MICROMICROFARADS) UNLESS FOLLOWED BY UF=MICROFARADS, INDUCTANCE VALUES IN MICROHENRYS UNLESS FOLLOWED BY MH=MILLIHENRYS OR H=HENRYS.

IN ORDER TO RETAIN RATED EQUIPMENT PERFORMANCE, REPLACEMENT OF ANY SERVICE PART SHOULD BE MADE ONLY WITH A COMPONENT HAVING THE SPECIFICATIONS SHOWN IN THE PARTS LISTING THAT ITEM.

SCHEMATIC DIAGRAM

150.8—174 MHz EXECUTIVE PAGER TYPE ER-94-A

Issue 2

PARTS LIST

LBI30391A

150.8-174 MHz EXECUTIVE PAGER
(VOICE ONLY)
ER-94-A

SYMBOL	GE PART NO.	DESCRIPTION
		RECEIVER BOARD 19D426164G1
A301		FRONT END 19B226099G2
A1		FIRST MIXER BOARD 19C320724G1
		- - - - - - - - - - CAPACITORS - - - - - - - - - -
C1 and C2	19A116114P4059	Ceramic: 68 pf ±5%, 100 VDCW; temp coef -220 PPM.
C3 and C4	5495323P12	Ceramic: .001 µf +100% -20%, 75 VDCW.
		- - - - - - - - - - INDUCTORS - - - - - - - - - -
L1	19B216949G1	Coil.
		- - - - - - - - - - TRANSISTORS - - - - - - - - - -
Q1	19A116159P1	Silicon, NPN.
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R1	3R151P330J	Composition: 33 ohms ±5%, 1/8 w.
R2	3R151P562J	Composition: 5.6K ohms ±5%, 1/8 w.
R3	3R151P204J	Composition: 0.20 megohm ±5%, 1/8 w.
R4	3R151P101J	Composition: 100 ohms ±5%, 1/8 w.
R5	3R151P103J	Composition: 10K ohms ±5%, 1/8 w.
		- - - - - - - - - - INDUCTORS - - - - - - - - - -
L2	19B216441G12	Helical resonator. (Part of Z2). Includes:
	19C311727P1	Tuning slug.
L4	19B216441G2	Helical resonator. (Part of Z4). Includes:
	19C311727P1	Tuning slug.
		- - - - - - - - HELICAL RESONATORS - - - - - - - -
Z2		Consists of L2 and 19D413123G3 can.
Z4		Consists of L4 and 19D413123G2 can.
A302		FIRST OSCILLATOR 19C320739G1
		- - - - - - - - - - CAPACITORS - - - - - - - - - -
C1	19A116114P3036	Ceramic: 15 pf ±5%, 100 VDCW; temp coef -150 PPM.
C2	19A116288P21	Ceramic: 82 pf ±5%, 100 VDCW; sim to Erie 8121-100-COG-820J.
C3	19A116114P16	Ceramic: 4.7 pf ±5%, 100 VDCW; temp coef 0 PPM.
C4	19A116114P3022	Ceramic: 6.8 pf ±5%, 100 VDCW; temp coef -150 PPM.
C5	19A116114P22	Ceramic: 3.3 pf ±5%, 100 VDCW; temp coef 0 PPM.
		- - - - - - - - - - INDUCTORS - - - - - - - - - -
L1	19B219288G1	Coil. Includes:
	19B209436P1	Tuning slug.
		- - - - - - - - - - TRANSISTORS - - - - - - - - - -
Q1	19A116159P1	Silicon, NPN.

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

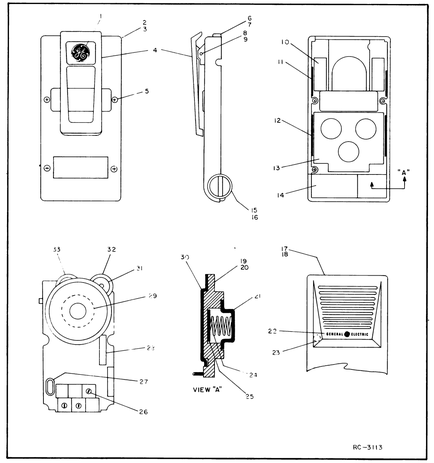
SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R1	3R151P123J	Composition: 12K ohms ±5%, 1/8 w.
R2	3R151P223J	Composition: 22K ohms ±5%, 1/8 w.
R3	3R151P183J	Composition: 18K ohms ±5%, 1/8 w.
R4*	3R151P681J	Composition: 680 ohms ±5%, 1/8 w.
		Earlier than REV A:
	3R151P102J	Composition: 1K ohms ±5%, 1/8 w.
A303		MULTIPLIER 19B226100G2
A2		MULTIPLIER BOARD 19D417315G2
		- - - - - - - - - - CAPACITORS - - - - - - - - - -
C5 and C6	19A116114P12	Ceramic: 3.3 pf ±5%, 100 VDCW; temp coef 0 PPM.
		- - - - - - - - - - INDUCTORS - - - - - - - - - -
L1	19B216591G2	Coil. Includes powdered iron tuning slug 19B209436P1. NOTE: L1 may require brass tuning slug (Modification Kit 19A128707G1) for 165-174 MHz operation.
		- - - - - - - - - - INDUCTORS - - - - - - - - - -
L2	19B216441G4	Helical resonator. Including tuning slug 19C311727P1.
		- - - - - - - - - - NETWORKS - - - - - - - - - -
Z2		Includes L2 and 19D413123P30 can.
AR301	19A134361P1	Integrated circuit, linear: sim to SGS-ATES TBA-820.
		- - - - - - - - - - CAPACITORS - - - - - - - - - -
C301	19A116149P4	Variable: 2 to 5 pf, 63 VDCW, temp coef -33 PPM.
C303 and C304	19A116114P10073	Ceramic: 180 pf ±10%, 100 VDCW; temp coef -3300 PPM.
C305 and C306	19A116192P13	Ceramic: 1000 pf ±10%, 50 VDCW; sim to Erie 8121-A050-W5R-102K.
C307	19A116264P5	Ceramic: 0.1 µf ±20%, 50 VDCW.
C308	19A116192P1	Ceramic: 0.01 pf ±20%, 50 VDCW; sim to Erie 8121 SPECIAL.
C309	5496267P17	Tantalum: 1.0 µf ±20%, 35 VDCW; sim to Sprague Type 150D.
C310 and C311	19A116288P9	Ceramic: 120 pf ±5%, 100 VDCW; sim to Erie 8121-A100-622-121J.
C312	5491674P35	Tantalum: 22 µf +20%, 4 VDCW; sim to Sprague Type 162D.
C313	5491674P42	Tantalum: 47 µf ±20%, 6 VDCW; sim to Sprague Type 162D.
C314	19A116288P10	Ceramic: 680 pf ±5%, 50 VDCW; sim to Erie 8131-W050-S2R-681J.
C315 thru C317	19A116192P9	Ceramic: 920 pf ±20%, 50 VDCW; sim to Erie 8111-050-W5R.
C318	5491674P39	Tantalum: 6.8 µf ±20%, 16 VDCW; sim to Sprague Type 162D.
C319	5496267P23	Tantalum: 0.047 µf ±20%, 35 VDCW; sim to Sprague Type 150D.
C320	5491674P42	Tantalum: 47 µf ±20%, 6 VDCW; sim to Sprague Type 162D.
C321	5496267P1	Tantalum: 6.8 µf ±20%, 6 VDCW; sim to Sprague Type 150D.
C323	5496267P23	Tantalum: 0.047 µf ±20%, 35 VDCW; sim to Sprague Type 150D.

SYMBOL	GE PART NO.	DESCRIPTION
C324*	5491674P45	Tantalum: 4.7 µf ±10%, 6 VDCW; sim to Sprague Type 162D.
		In REV C & D:
	5496267P1	Tantalum: 6.8 µf ±20%, 6 VDCW; sim to Sprague Type 150D.
		In REV B & earlier:
	5491674P34	Tantalum: 15 µf ±20%, 6 VDCW; sim to Sprague Type 162D.
C325	19A116192P9	Ceramic: 920 pf ±10%, 50 VDCW; sim to Erie 8111-A050-W5R-821K.
C326	19A116264P9	Ceramic: 0.33 µf ±20%, 50 VDCW.
C327	19A116178P7	Tantalum: 220 µf ±20%, 6 VDCW.
C328	5496267P1	Tantalum: 6.8 µf ±20%, 6 VDCW; sim to Sprague Type 150D.
C329	19B209240P19	Tantalum: 100 µf ±20%, 6 VDCW.
C330	19A116192P1	Ceramic: 0.01 µf ±20%, 50 VDCW; sim to Erie 8121 SPECIAL.
C331	5491674P45	Tantalum: 4.7 µf ±10%, 6 VDCW; sim to Sprague Type 162D.
C333	5496267P17	Tantalum: 1.0 µf ±20%, 35 VDCW; sim to Sprague Type 150D.
C334	5491674P44	Tantalum: 2.2 µf ±20%, 15 VDCW; sim to Sprague Type 162D.
C335	5491674P24	Tantalum: 0.47 µf +50-20%, 10 VDCW; sim to Sprague Type 162D.
C336 and C337	19A116192P4	Ceramic: 2700 pf ±10%, 50 VDCW; sim to Erie 8121-W050-W5R-272K.
C338	19A116264P1	Ceramic: 0.0047 µf ±20%, 50 VDCW.
C339 thru C341	19A116192P10	Ceramic: 150% pf ±10%, 50 VDCW; sim to Erie 8121-A050-W5R-152K.
C342	19A116192P5	Ceramic: 3900 pf ±10%, 50 VDCW; sim to Erie 8121-W050-W5R-392K.
C344	19A116192P9	Ceramic: 820 pf ±10%, 50 VDCW; sim to Erie 8111-A050-W5R-821K.
C348	19A116192P1	Ceramic: 0.01 µf ±20%, 50 VDCW; sim to Erie 8121 SPECIAL.
C350*	19A116192P7	Ceramic: 330 pf ±10%, 50 VDCW; sim to Erie 8101-A050-W5R-331K. Added by REV A.
		- - - - - - - - DIODES AND RECTIFIERS - - - - - - - -
CR301 thru CR304	19A115250P1	Silicon.
		- - - - - - - - - - ANTENNAS - - - - - - - - - -
E301	19C327270G1	Antenna.
E302	19A115065P2	Terminal, stud: sim to USECO 2024 A.
		- - - - - - - - - - FUSES - - - - - - - - - -
F301	19A127884G1	Fuse Kit.
		- - - - - - - - - - TONE NETWORKS - - - - - - - - - -
FL303	19A134199P1	Filter, bandpass: 20 KHz at 6 db, 40 KHz at 40 db; sim to Murata Corp. Of America CFU-455D-1.
		- - - - - - - - - - JACKS AND RECEPTACLES - - - - - - - - - -
J301	19A134358P1	Jack, telephone: sim to NTT 310 ENC PC.
		- - - - - - - - - - INDUCTOR - - - - - - - - - -
L301	19B209420P103	Coil, RF: 0.15 µh ±10%, 0.10 ohms DC res max; sim to Jeffers 4416-2K.
L302	19B209420P1	Coil, RF: 0.10 µh ±5%, 0.08 ohms DC res max; sim to Jeffers 4416-1J.
L303	19A116308P1	IF Transformer: sim to TOKO LSN 4816YE1.
L304	19A116308P2	IF Transformer: sim to TOKO LSN 4817YN1.
L305	19B209420P125	Coil, RF: 19.0 µh ±10%, 3.10 ohms DC res max; sim to Jeffers 4446-4K.

SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - - - - TRANSISTORS - - - - - - - - - -
Q302	19A116159P1	Silicon, NPN.
Q303	19A116860P1	Silicon, NPN; sim to Type 2N4996.
Q304	19A129184P1	Silicon, NPN.
Q305	19A115852P1	Silicon, PNP; sim to Type 2N3906.
Q306 and Q307	19A116774P1	Silicon, NPN; sim to Type 2N5210.
Q308	19A129184P1	Silicon, NPN.
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R301	3R151P103J	Composition: 10K ohms ±5%, 1/8 w.
R302	3R151P223J	Composition: 22K ohms ±5%, 1/8 w.
R303	3R151P102J	Composition: 1K ohms ±5%, 1/8 w.
R304	3R151P106J	Composition: 100K ohms ±5%, 1/8 w.
R305	3R151P471J	Composition: 470 ohms ±5%, 1/8 w.
R306	3R151P102J	Composition: 1K ohms ±5%, 1/8 w.
R307	3R151P152J	Composition: 1.5K ohms ±5%, 1/8 w.
R308	3R151P101K	Composition: 100 ohms ±10%, 1/8 w.
R309	3R151P562J	Composition: 5.6K ohms ±5%, 1/8 w.
R310	3R152P154J	Composition: 150K ohms ±5%, 1/4 w.
R311	3R151P221J	Composition: 220 ohms ±5%, 1/8 w.
R312	3R151P683K	Composition: 68K ohms ±10%, 1/8 w.
R313	3R151P101K	Composition: 100 ohms ±10%, 1/8 w.
R314	3R151P330K	Composition: 33 ohms ±10%, 1/8 w.
R315	3R151P102J	Composition: 1K ohms ±5%, 1/8 w.
R316 and R317	3R151P392J	Composition: 3.9K ohms ±5%, 1/8 w.
R318	3R151P102J	Composition: 1K ohms ±5%, 1/8 w.
R319	3R151P101J	Composition: 100 ohms ±5%, 1/8 w.
R323		(Part of S301).
R324	3R151P472J	Composition: 4.7K ohms ±5%, 1/8 w.
R325	3R151P101J	Composition: 100 ohms ±5%, 1/8 w.
R326*	3R151P820J	Composition: 82 ohms ±5%, 1/8 w.
		In REV C & D:
	3R151P101J	Composition: 100 ohms ±5%, 1/8 w.
		In REV B & earlier:
	3R151P330J	Composition: 33 ohms ±5%, 1/8 w.
R327	3R151P104J	Composition: 100K ohms ±5%, 1/8 w.
R328*	3R151P473J	Composition: 47K ohms ±5%, 1/8 w. Deleted by REV D.
R329	3R151P682J	Composition: 6.8K ohms ±5%, 1/8 w.
R330	3R151P333J	Composition: 33K ohms ±5%, 1/8 w.
R331	3R152P103K	Composition: 10K ohms ±10%, 1/4 w.
R332	3R151P101K	Composition: 100 ohms ±10%, 1/8 w.
R333	3R151P104J	Composition: 100K ohms ±5%, 1/8 w.
R334	3R151P512J	Composition: 5.1K ohms ±5%, 1/8 w.
R335	3R151P154J	Composition: 150K ohms ±5%, 1/8 w.
R336	3R151P684J	Composition: 680K ohms ±5%, 1/8 w.
R337	3R151P103J	Composition: 10K ohms ±5%, 1/8 w.
R338	3R151P104K	Composition: 100K ohms ±10%, 1/8 w.
R339	3R152P823J	Composition: 82K ohms ±5%, 1/4 w.
R340 and R341	3R151P153J	Composition: 15K ohms ±5%, 1/8 w.
R343	3R152P103J	Composition: 10K ohms ±5%, 1/4 w.

SYMBOL	GE PART NO.	DESCRIPTION
R344	3R151P824K	Composition: 820K ohms ±10%, 1/8 w.
R345	3R151P274J	Composition: 270K ohms ±5%, 1/8 w.
R346	19A134358P2	Resistor, variable, carbon film: 20K ohms ±20%; sim to TRUBARE (TBM) Type RV-12 Model 121-52.
		- - - - - - - - - - SWITCHES - - - - - - - - - -
S301	19A134358P1	Switch/resistor. includes Resistor (R323), 10K ohms ±20%, .05 w max; Switch, rotary, DPST; 0.1 amp at 12 volts; sim t TRUBARE (TBM) Type RV-12 Model 121-52.
		- - - - - - - - - - INTEGRATED CIRCUITS - - - - - - - - - -
U301	19C321359G2	2nd Oscillator, Mixer.
U302	19C321351G1	455 Limiter.
U303	19C327247G1	Saver Battery.
		- - - - - - - - - - CABLES - - - - - - - - - -
W301	19A136734G1	Cable, RF: approx 1 foot long.
		- - - - - - - - - - CRYSTALS - - - - - - - - - -
Y301	19B219824G14	Crystal, freq: Resonator A: 19,990.300 KHz, Resonator B: 19,990.300 KHz.
Y302	19B206357G7	Quartz: frequency range 19.545 Mhz, temp range -30°C to +85°C. NOTE: When reordering Y303 give GE Part Number and specify exact frequency needed. Crystal Freq. Operating Freq +20.0 MHz
Y303	19B203890P7	Quartz: frequency range 42-55 MHz, temp range -30°C to +85°C.
		MISCELLANEOUS
		- - - - - - - - - - BATTERIES - - - - - - - - - -
BT1	19A116252P1	Nickel-Cadmium: Rechargeable, 3.75 v, 150 MAH; sim to GE 41B902CD09.
	19A116387P2	Mercury. (OPTIONAL).
	19A116448P2	Alkaline. (OPTIONAL).
		- - - - - - - - - - LOUDSPEAKERS - - - - - - - - - -
LS1	19A116090P2	Permanent magnet: 2.00 inch, 4 ohms ±10% voice coil impd, 650 Hz ±1/2 Hz resonant; freq range 400 to 3000 Hz.
	19A122030G4	Label speaker. (OPTIONAL).
	4033570G5	Ear speaker. (OPTIONAL).
	5495088P19	Cord Set. (USED WITH LAPEL SPEAKER).
	19B219876P1	Alignment tool. (Hollow tip one end).
	4038831P5	Alignment tool. (Screw driver tip both ends).
		MECHANICAL PARTS (SEE MC1113)
1	NP280188	Nameplate.
2	19D424071G1	Housing (Black).
3	19D424071G2	Housing (White).
4	19B227431G1	Clip.
5	19A134352P1	Machine screw: No. 2-56 x 5/8.
6	19C327258P1	Block. (Black- Used with R346).
7	19C327258P2	Block. (White- Used with R346).
8	19A134351P1	Pin, grooved.
9	19B227412P1	Spring, clip.
10	19B227477P4	Pad.
11	19B227477P1	Pad.
12	19B227477P2	Pad.
13	19B227430P1	Pad.

SYMBOL	GE PART NO.	DESCRIPTION
14	19C327255G1	Contact, electrical.
15	19B227474G1	Battery door. (Black).
16	19B227474G2	Battery door. (White).
17	19C327265G1	Cover. (Black).
18	19C327265G2	Cover. (White).
19	19C327205P1	Contact support. (Black).
20	19C327205P2	Contact support. (White).
21	19B227426P1	Charging contact.
22	NP280187	Nameplate. (GE monogram).
23	19A116719P1	Threaded insert.
24	19A127850P1	Spring.
25	19C327209P2	Battery contact.
26	19A116477P1	Machine screw: No. 5/32.
27	19B227477P3	Pad.
28	19A129811P2	Insulator.
29	19C327169P1	Mounting cup.
30	19C327234G1	Contact, electrical.
31	19A136665P1	Insulator.
32	19C327198P1	Knob.
33	19C327235P1	Knob.



PRODUCTION CHANGES

Changes in the equipment to improve performance or to simplify circuits are identified by a "Revision Letter," which is stamped after the model number of the unit. The revision stamped on the unit includes all previous revisions. Refer to the Parts List for descriptions of parts affected by these revisions.

REV. A - Receiver Board 19D424164G1
To improve sensitivity.
Added C350.

REV. B - To change battery wire size.
Changed wire from #12 to #301-4

REV. C - To increase audio sensitivity.
Changed C324 and R326.

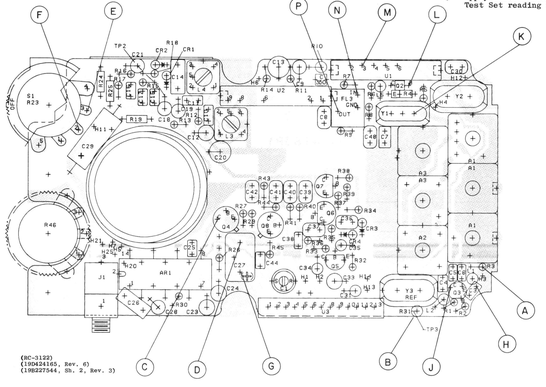
REV. D - To improve audio destortation rating.
Deleted R328.

REV. E - To improve audio frequency response.
Changed C324 and R326.

QUICKCHECKS

Before starting the procedure, check for battery voltage on the receiver board (H12 and ground). Also check fuse wire F301.

SYMPTOM	PROCEDURE
No audio	Check reading at (F), (C) and (D).
Low Sensitivity	1. Check Antenna and reading at (A). 2. Check gains at (H) through (P).
Noise but no signal	1. Check first oscillator reading at (B). 2. Check second oscillator injection voltage at U301 Pin 3.



(RC-3122)
(19D424165, Rev. 6)
(19B227544, Sh. 2, Rev. 3)

STEP 3 - RF GAIN CHECKS
(STEPS H THRU P)

EQUIPMENT REQUIRED:

1. RF probe and Test Amplifier Model 4EX16A10 connected to GE Test Set Model 4EX3A11, or an RF voltmeter.
2. A signal generator (M-560 or equivalent) connected between the junction of C303 and L301 and ground.

PROCEDURE FOR MIXER & 1ST IF:

1. Switch the Test Set to the Test 1 position and the Test Amplifier to the X50 position.
2. Connect the RF probe across the input of the stage to be measured as shown on the diagram. Increase the signal generator output to obtain a reference reading on Test Set 4EX3A11. Note the Test Set reading and the dB reading onthe generator (dB1).
3. Connect the RF probe to the output of the stage to be measured as shown on the diagram. Decrease the generator output until the Test Set reference reading in Step 2 is obtained. Note the dB reading on the generator (dB2).
4. Subtract the dB reading from the dB2 reading and check the results with the typical gains shown on the diagram.

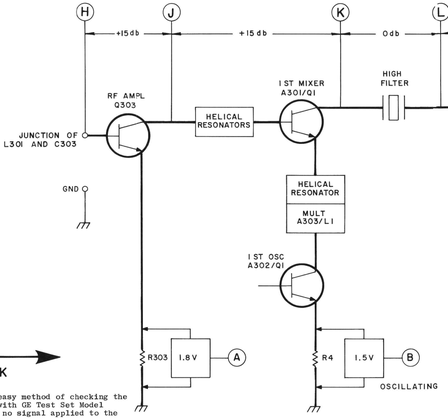
Example:
35 dB (dB2)
− 15 dB (dB1)
20 dB gain

PROCEDURE FOR 2ND MIXER:

1. With not signal in, connect the RF probe to the output of U302 (Pin 8) and set the Test Amp to the X10 position.
2. Apply a 200 microvolt signal to the receiver and check for a Test Set reading of 2 volts.

STEP 1 - DC VOLTAGE CHECK
(STEPS A THRU D)

The DC voltage checks provide an easy method of checking the operation of the receiver stages with GE Test Set Model 4EX3A10 (or equivalent), and with no signal applied to the receiver.



U301 PIN VOLTAGES

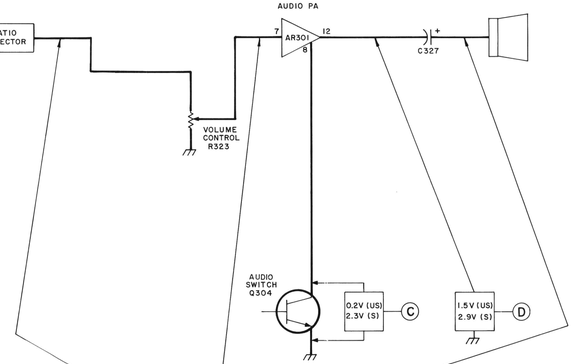
PIN	1	2	3	4	5	6	7	8	9	10
VOLTAGE	–	3.4	2.1	2.9	GRD	1.6	–	–	–	–

U302 PIN VOLTAGES

PIN	1	2	3	4	5	6	7	8	9	10
VOLTAGE	.68	2.0	–	–	–	3.3	–	3.3	GRD	–

AR301 PIN VOLTAGES

PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14
VOLTAGE	3.7	2.3	0	.7	.6	0	0	0	0	GRD	0	1.5	1.3	3.7



STEP 1 - AUDIO & NOISE WAVEFORMS
(STEPS E THRU G)

EQUIPMENT REQUIRED:

- Oscilloscope connected between the points shown and ground.
- Signal Generator (Measurements M-560 or equivalent).

PRELIMINARY STEPS:

1. Apply a standard signal to the external antenna pins. A standard signal is 1000 microvolts on the receiver frequency modulated by one kHz with 3.0 kHz deviation.
2. Set the Volume control for 150 milliwatts output (.78 Volts).

PEAK-TO-PEAK READINGS	SIGNAL	0.17V	.06V	2.0V
	NOISE	0.3V	0.1V	2.5V
STANDARD SIGNAL				
NOISE WAVEFORM				

RC-3130

QUICKCHECKS

Before starting the procedure, disable the Battery Saver and make sure the receiver circuits are working correctly. To disable the Battery Saver, short together Pins 12 and 13 of U303.

Symptom	Procedure
Receiver won't unsquelch	1. Check C342, C338, CR303 and CR304 on Squelch Board. 2. Check C319 on receiver board.
Receiver won't squelch	1. Check CR303, CR304 and shorted Q305. 2. Make Audio Gain Checks.
Erratic critical squelch	1. Check C335 and R346.
Squelches on voice peaks.	1. Check the receiver frequency. 2. Check C341, C340 and C339.

STEP 3- AUDIO GAIN CHECKS

EQUIPMENT REQUIRED:

- Audio generator with 7 kHz output.
- Signal generator (M-560 or equivalent).
- Oscilloscope (5MV to 1.2 volts).

PROCEDURE

1. Apply a 1000 microvolt, 7 kHz signal modulated by 3.0 kHz deviation to the external connector.
2. Turn SQUELCH control R346 fully clockwise.
3. Scope reading at the base of 1st Noise Amp Q308 should be approximately 45 millivolts.
4. Turn R346 counterclockwise until the reading at the base of Q308 drops to 5 millivolts.
5. Check for a 140 millivolts peak-to-peak reading at the collector of Q308.
6. Check for a 100 millivolts peak-to-peak reading at the emitter of Active Filter Q307.
7. Check for a 1.2 volts peak-to-peak reading at the collector of 2nd Noise Amp Q306. The waveform should be clipped on the negative side.

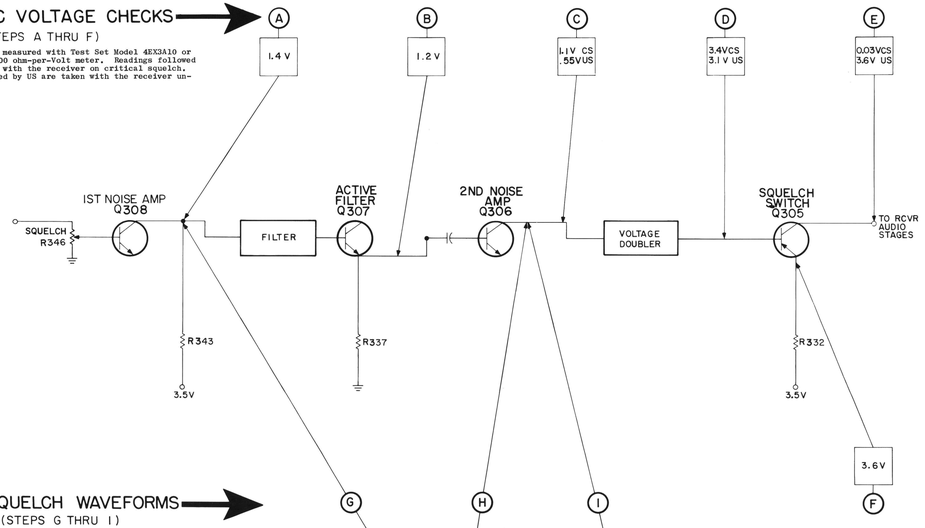
TROUBLESHOOTING PROCEDURE

150.8—174 MHz EXECUTIVE PAGER
NOISE SQUELCH CIRCUIT

STEP 1- DC VOLTAGE CHECKS

(STEPS A THRU F)

DC readings are measured with Test Set Model 4EX3A10 or equivalent 20,000 ohm-per-Volt meter. Readings followed by CS are taken with the receiver on critical squelch. Readings followed by US are taken with the receiver unsquelched.



STEP 2- SQUELCH WAVEFORMS

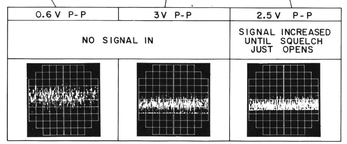
(STEPS G THRU I)

EQUIPMENT REQUIRED:

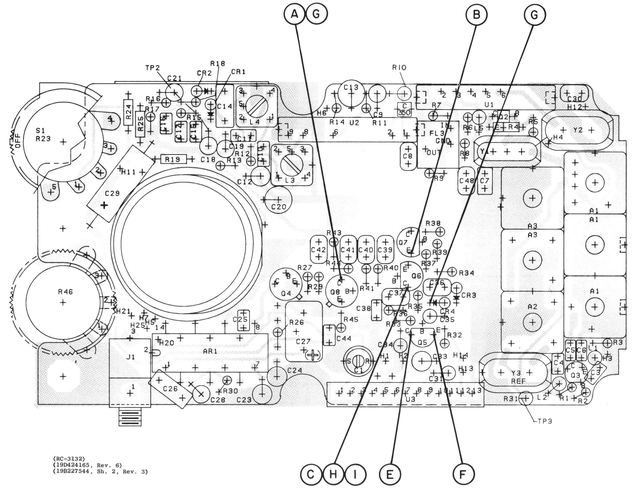
- Oscilloscope connected between the points shown and ground.
- Signal Generator (Measurements M560 or equivalent) connected to external antenna connectors.

PRELIMINARY STEPS:

1. Set R346 for critical squelch.
2. When a signal is required, apply an on-frequency signal with no modulation.



RC-3121

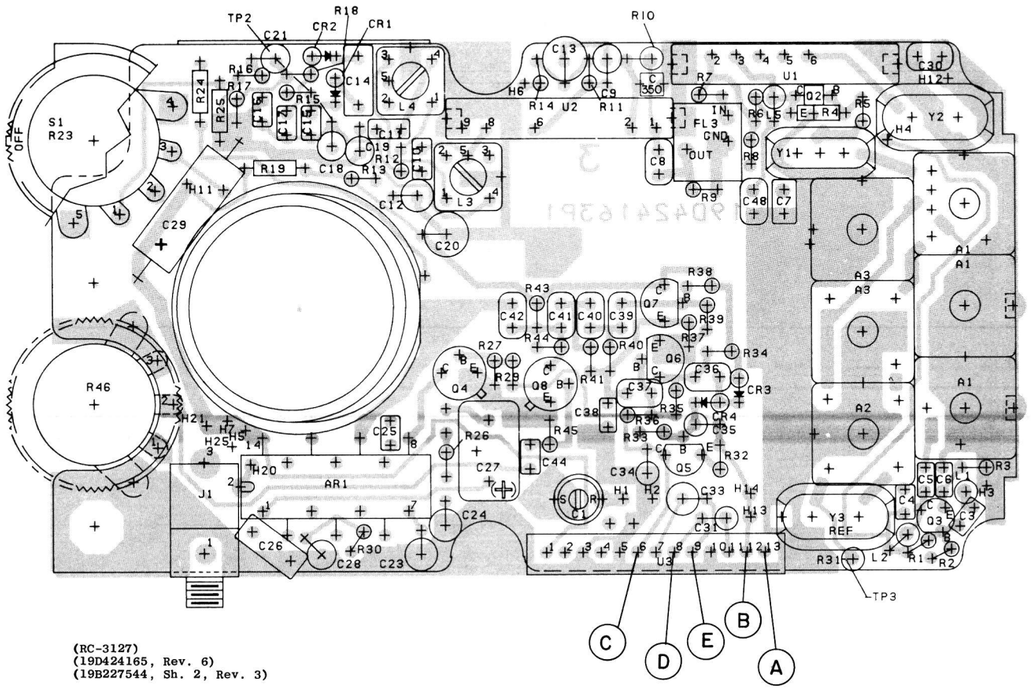


(RC-3122)
(19D434165, Rev. 6)
(19B227544, Sh. 2, Rev. 3)

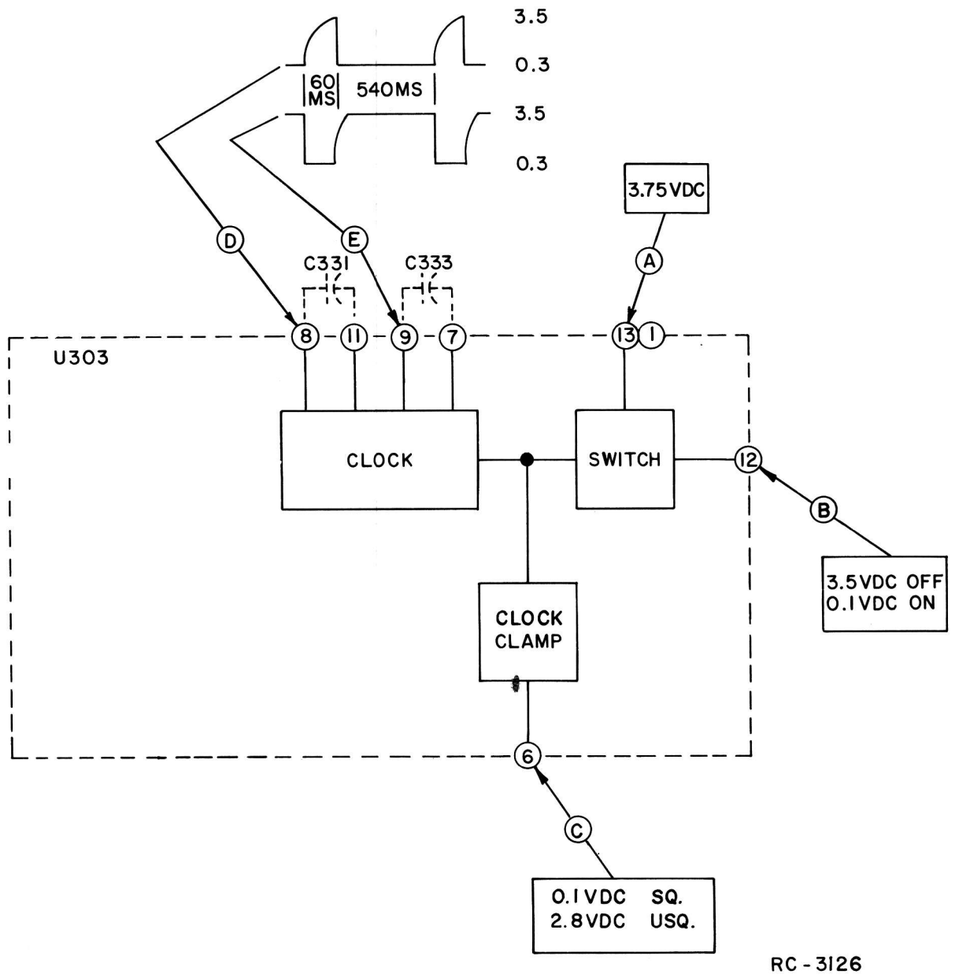
BATTERY SAVER TROUBLESHOOTING

Before starting the procedure, disable the Battery Saver and make sure the receiver circuits are working correctly. To disable the Battery Saver, short together Pins 12 and 13 of U303.

STEP	TEST POINT	ACTION
1		Apply correct RF input signal.
2	(A)	Check (A) for 3.75 VDC.
3	(C) (B)	Open audio and check (C). Battery saver should be OFF (B).
5	(D) (E)	Check (D) and (E) for a squarewave 60 millisecond to 540 millisecond duration. If these times are incorrect, check C331 and C333.



(RC-3127)
(19D424165, Rev. 6)
(19B227544, Sh. 2, Rev. 3)



RC-3126

TROUBLESHOOTING PROCEDURE

150.8—174 MHz EXECUTIVE PAGER
BATTERY SAVER

ORDERING SERVICE PARTS

Each component appearing on the schematic diagram is identified by a symbol number, to simplify locating it in the parts list. Each component is listed by symbol number, followed by its description and GE Part Number.

Service Parts may be obtained from Authorized GE Communication Equipment Service Stations or through any GE Radio Communication Equipment Sales Office. When ordering a part, be sure to give:

1. GE Part Number or component
2. Description of part
3. Model number of equipment
4. Revision letter stamped on unit

These instructions do not purport to cover all details or variations in equipment nor to provide for every possible contingency to be met in connection with installation, operation or maintenance.

Should further information be desired, or should particular problems arise which are not covered sufficiently for the purchaser's purposes, contact the nearest Radio Communication Equipment Sales Office of the General Electric Company.

DF-1114

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