MOBILE RADIO

MASTR® Personal Series

PROGRESS LINE

PE MODELS

SEARCH LOCK MONITOR

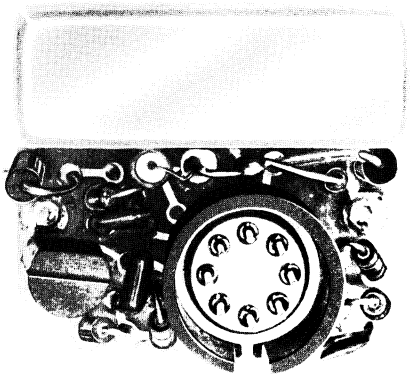
19A129746G1 - WITHOUT CHANNEL GUARD

19A129746G2 - WITH CHANNEL GUARD

Maintenance Manual LBI-4721C

DATAFILE FOLDER - DF-8413

SEARCH LOCK MONITOR 19A129746G1, G2



SPECIFICATIONS *

CONTROLS:	SLM (ON-OFF)
	(MON/CG/SLM)
INDICATOR	1 (LED)
SEARCH RATE	3-7 Times Per Second
SENSITIVITY	0 to -6 dB Below Receiver Squelch sensitivity
TEMPERATURE RANGE	-30°C to +60°C (-22°F to 140°F)
VOLTAGE	7.5 V
CURRENT DRAIN	
Search	1.9 mA (average)
Transmit	1.5 mA

*These specifications are intended primarily for the use of the serviceman. Refer to the appropriate Specification Sheet for the complete specifications.

GENERAL ELECTRIC

TABLE OF CONTENTS

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.

DESCRIPTION

The General Electric Search Lock Monitor (19A129746G1 & G2) for PE provides the user with a means of monitoring any two of eight receiver channels for an incoming message. 19A129746G1 is used in radios without channel guard; 19A129746G2 is used in radios with channel guard. Channel 1 is pre-set at the factory to be the "home" or favored channel; the second channel to be searched is selected by the user and is determined by the position of the multi-frequency switch.

The Search Lock Monitor (SLM) alternately searches both channels and locks onto the first channel receiving a message. Since the SLM operates off a standard noise squelch circuit, it stops searching each time a receive channel carrier is present and does not resume searching until the associated transmission is terminated. Unlike the Priority Search Lock Monitor in MASTR®II radios, the SLM for PE does not continue to search while receiving a message. It is possible, therefore, to miss a call on one channel while receiving, or transmitting on a second channel.

SLM is compatible with all internal options (except for Type 90 tone), all external audio options and all PE chargers. SLM, when used with the channel guard option, permits only those calls that are properly tone coded with his channel guard frequency to be heard. This option assures that only those calls intended for the user will be heard.

The Search Lock Monitor assembly shown in Figure 1 consists of a squelch control transistor, two integrated circuits (IC's), an LED and associated circuitry. The IC's are soldered directly to the printed wire board (PWB). The SLM occupies space normally reserved for transmit oscillators T7 and T8, therefore, it can be used in a radio with up to 6 transmit and 8 receive channels.

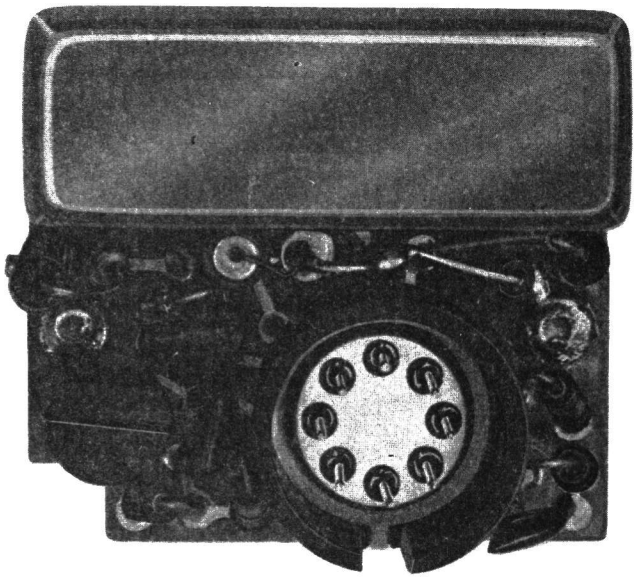


Figure 1 SLM Module

All system interconnections are made via a minature eight-pin plug and socket. The cable can be unplugged from the PWB to facilitate maintenance and permit access to transmit and receive oscillators.

OPERATION

Operation of the Search Lock Monitor is controlled by the SLM and multi-frequency switches. Status information is provided by the LED indicator located on the top center surface of the radio.

Depending on the configuration of the radio (optional channel guard) one of two different switches is provided to control SLM operation. If channel guard is not used (group 1) a simple SLM ON-OFF switch permits operation with or without the search lock function. When channel guard is used (group 2) a three position switch permits channel guard operation with or without the search lock function. When the SLM switch is in the OFF position (MON in channel guard equipped units) the radio operates as a standard noise squelch receiver with all messages received on the channel selected by the multi-frequency switch. Neither channel guard nor SLM is operational, when the SLM switch is in the OFF/MON position.

Operating the PTT switch disables the search lock function and activates the transmit revert circuit so that messages are always transmitted on the same channel regardless of the position of the multi-frequency switch. Normally this is channel 1; however, circuit modifications can be made to allow the user to assign or select the "home" channel.

Operating status indicated by the LED is defined below.

Flashing - alternately searching both selected channels --
- no carrier present.

On Steady) - Receiving carrier on home channel.

Off (Steady) - Receiving carrier on selected channel.

- SLM switch in "off" position.

SLM operates only when the receiver is squelched. When the receiver is unsquelched, the SLM locks onto the active channel.

Squelch Adjust

The squelch adjust control determines the operating threshold for the search lock function. Proceed as follows:

1) With the SLM switch in the OFF/MON position adjust the squelch control so the unit is squelched just beyond critical squelch.

2) Turn the SLM Switch to the ON position. The status indicator should begin flashing within three seconds. If not the squelch control should be reset (tightened) so that the LED begins flashing within three seconds.

NOTE

When the squelch delay is operational it may take up to three seconds for the search to resume after the squelch control was adjusted.

CIRCUIT ANALYSIS

The Search Lock Monitor (see Figure 2) utilizes a free running astable multivibrator to monitor alternately two receiver channels to determine if a carrier is present. One of these channels is fixed, the other is selected. In addition, when operating in the transmit mode the multivibrator keys the appropriate transmit oscillator.

During normal operation the multivibrator is controlled by the search control and transmit revert circuits. These circuits when triggered convert the astable multivibrator to bistable operation allowing it to assume either of two stable states. When a carrier is detected the search control circuit stops the multivibrator on the channel receiving the message.

When the PTT switch is operated the transmit revert circuit causes the multivibrator to key the appropriate transmit oscillator. Depending on the transmit revert option employed the transmit oscillator keyed is either the home channel or a channel determined by the position of the multi-frequency switch.

References to symbol numbers mentioned in the following text may be found on the Simplified Diagram, Schematic Diagram, Outline Diagram or Parts List. Figure 3 is a Simplified Diagram of the Search Lock Monitor.

SLM ON-OFF SWITCH

Standard units use a two position SPDT switch to turn SLM "on" or "off". Units provided with channel guard use a three position switch to permit channel guard operation with or without SLM and to turn both channel guard and SLM "off". When the SLM switch is in the "off" position, the channel monitored is determined by the position of the multi-frequency switch; alternate channels are not searched. Likewise all messages are transmitted via the channel designated by the multi-frequency switch.

Additionally, the circuit can be field modified to permit SLM operation without

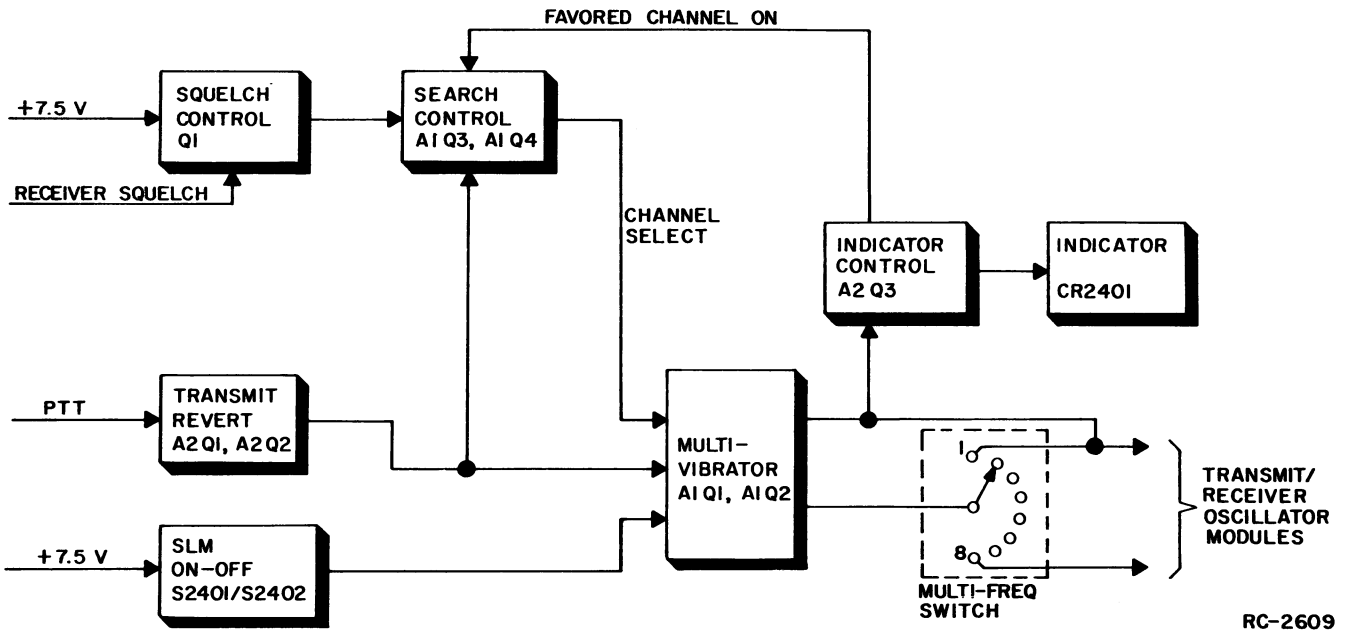


Figure 2 SLM Block Diagram

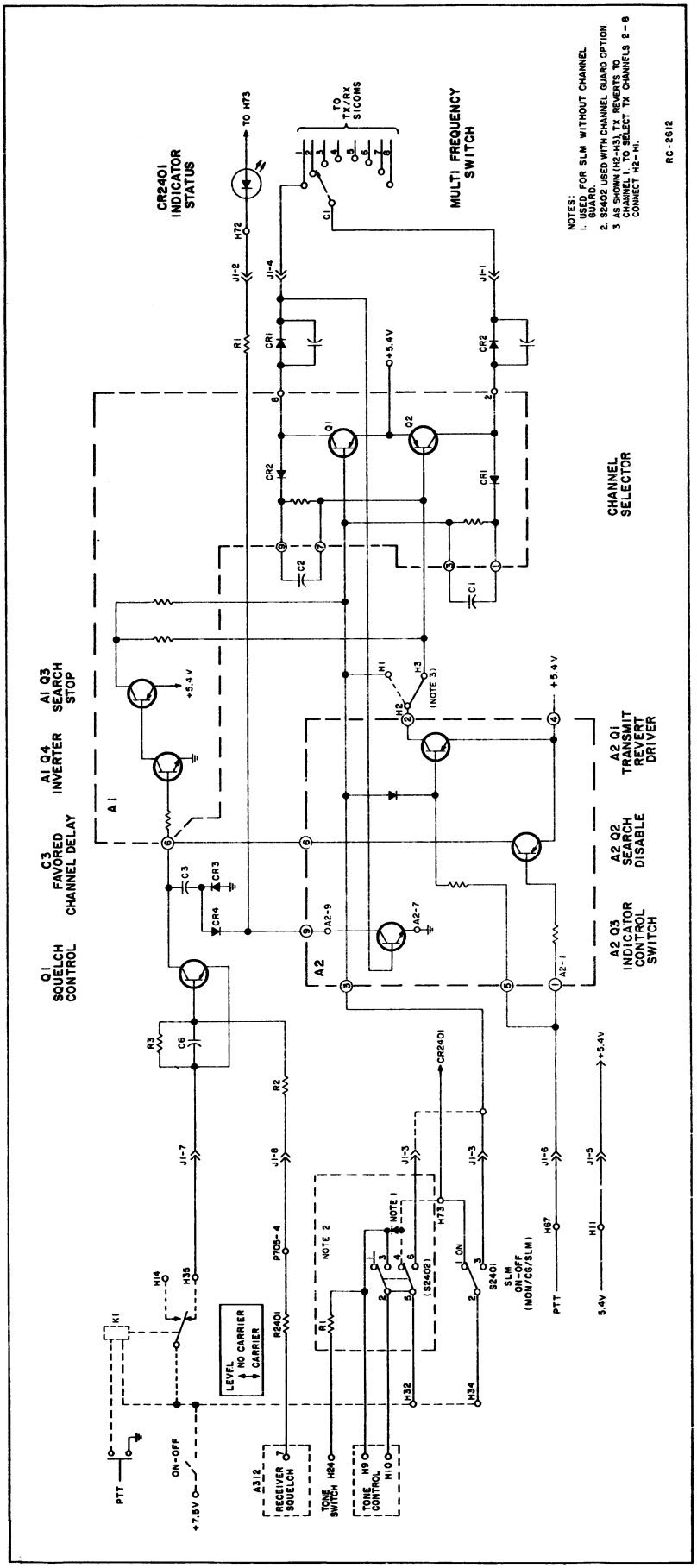


Figure 3 Search Lock Monitor, Simplified Diagram

channel guard. This is accomplished with the addition of a diode. Details are contained in the Field Modification section of this Manual.

This chart below correllates SLM/ Channel guard operation with switch position.

SLM SWITCH		FUNCTION	
S2401	S2402	SLM	CHANNEL GUARD
OFF	MON	OFF	OFF
	CG	OFF	ON
ON	SLM	ON	ON

MODES OF OPERATION

Circuit analysis for the SLM is described for three operational modes:

- Search
- Receive
- Transmit Revert

SEARCH MODE

Squelch control transistor Q1 monitors the receiver noise squelch line to determine whether a carrier is being received. Receipt of a carrier is indicated when the DC voltage at J1-8 falls to approximately 0.6V below battery voltage.

In the "search" mode (receiver squelched -- no carrier) J1-8 is equal to or greater than the battery voltage. This positive voltage at the base of Q1 prevents Q1 from turning on. With Q1 turned off, the search control circuits, consisting of A1-Q3 and A1-Q4, are also turned off and, therefore, do not exercise any control over the multivibrator. The voltage at the base of A1-Q4 (measured at A1-6) is less than 0.4 VDC when turned off.

The multivibrator is located on the A1 IC and consists of A1Q1, A1Q2 and associated circuitry. It is a conventional free running multivibrator operating from +5.4 V source at a frequency determined by C1 and C2. Normal operating frequency is between 3 and 7 Hz.

Its operation is preempted by the search control circuits when a carrier is received or by the transmit revert circuit when a call is transmitted. Under these conditions it becomes bistable and may lock in either state.

The home channel controlled by A1Q1 is fixed while the second or alternate channel is controlled by A1Q2 and the position of the multi-frequency switch. As each side of the multivibrator turns on +5.0 V is applied to the associated receiver oscillator module, via J1-4 (home channel) and J1-1 (selected channel). This positive voltage turns on the associated receivers oscillators and allows the SLM search control circuits to monitor the receiver squelch output to determine if a carrier is present.

Indicator Control

The indicator control circuit, consisting of A2Q3 and CR2401, indicates the operating status of the SLM circuit. It operates from the collector of A1Q1 which in the standard configuration is connected to channel 1.

When channel 1 is searched indicator control transistor A2Q3 conducts and completes the ground return path for the favored channel delay circuit and the status indicator. The status indicator CR2401 lights during the time channel 1 is searched or receiving a carrier. It is out during the time the selected channel is searched or receiving a carrier. Positive voltage for CR2401 is provided direct from battery through the radio ON-OFF switch, SLM switch and H73, on the system board. The ground return may be checked at J1-2.

RECEIVE MODE

Assume receipt of a receiver carrier on the home channel. Squelch control transistor Q1 detects the presence of a carrier on the receiver squelch line and turns on the search control circuit. A DC voltage approximately 0.6 V below battery voltage on the receiver squelch line indicates the presence of a carrier and turns Q1 on. Q1 applies +7.5 V (from radio ON-OFF switch and contacts of relay K1) to the search control circuits via A1-6.

The search control circuit causes the multivibrator to assume a bistable state halting the search with A1Q1 turned on. In this state 5.4 volts at the emitter of A1Q1 is applied to the transmitter and receiver home channel SICOM via the collector of A1Q1 and J1-4. The receiver remains on until the transmission is completed and the receiver noise squelch line released.

Favored Channel

In addition, with the home channel selected a ground is supplied from the indicator control circuit to the LED via A2-9, R1 and J1-2 causing it to light and through CR4 to C3. This allows C3 to charge through squelch control transistor Q1 to approximately 7.5 V. When the carrier drops out Q1 turns off and removes this voltage from C3. Search control transistors A1Q3 and A1Q4 are held on the 3 to 5 seconds by C3. This prevents the multivibrator from searching until C3 discharges. When C3 discharges to a voltage level below the threshold of A1-Q4, it turns off and

disables the search control circuits allowing the SLM to resume searching.

The delay is associated with the home channel only (unless modified) thus allowing the SLM to "favor" or linger on that channel. The favored channel feature prevents intermittent carrier interruptions from unlocking the search lock circuit and interfering with audio reception during momentary squelch fades or short breaks in transmission. Normally, there is no delay on the selected or non-favored channel.

The favored channel circuit can be field modified to:

1) Permit the search circuit to linger on both channels.

2) Eliminate the delay so that neither channel is favored.

3) Select the favored channel via the multi-frequency switch.

TRANSMIT REVERT

The transmit revert circuit is activated when the PTT switch is operated. It stops search and reverts the multivibrator to bistable operation on the home channel for transmitting. When the PTT switch is pressed A- is applied to search disable transistor A2Q2 and transmit revert driver A2Q1 through J1-6, A2-1 and A2-5. This turns both transistors on. A2Q2 applies +5.4 V to inverter A1Q4 which turns on search stop transistor A1Q3 and immediately stops the multivibrator from searching. A2Q1 applies +5.4 V to the base of A1Q2 through H2, H3 forcing A1Q1 to conduct and key the transmitter associated with channel 1. Should the user elect to have the capability of manually selecting the transmit channel move the DA wire connected to H3 to H1.

FIELD MODIFICATIONS

STANDARD CONFIGURATION

In standard PE radios the SLM is wired to operate as follows:

1) Home channel is channel 1.

2) Favored channel is channel 1.

3) Transmit revert channel is channel 1.

A PE radio equipped with SLM may be easily field modified to:

1) Establish the "home" channel on any designated channel.

2) Eliminate delay on the "home" channel so that neither channel is favored.

3) Provide selectable "home" channel.

4) Set up delay on both searched channels.

5) Defeat transmit revert to "home" channel so that messages will be transmitted on the channel designated by the multi-frequency switch with SLM ON or OFF.

6) Defeat channel guard during search to allow all messages to be heard. (With this modification when the channel GUARD/SLM switch is in the CG position search is disabled.)

SLM REMOVAL

Before making any modifications remove the SLM PWB from the radio:

1) Disassemble radio in accordance with LBI-4575 to gain access to SLM board A2401. Refer to Service Outline to locate PWB (space formerly occupied by transmitters T7 and T8).

2) Disconnect cable W2401 and PWB by lifting up on nylon cord.

3) Unsolder two mounting tabs securing SLM to system board. Be careful not to lose small insulators. Lift out.

HOME CHANNEL ASSIGNMENT

To reassign the "home" channel (favored) proceed as follows:

1) Unsolder wire connected between J1-4 and terminal 1 of multi-frequency selector switch S1 from terminal 1.

2) Solder wire removed from terminal 1 of multi-frequency switch S1 to terminal corresponding to desired channel. (Channel 1 - terminal 1; channel 2 - terminal 2: etc.)

SELECTABLE HOME CHANNEL (FAVORED)

To provide selectable "home" channel (favored) and a fixed non-favored channel proceed as follows:

1) Unsolder wire connected between J1-4 and terminal 1 of multi-frequency switch S1 from terminal 1.

2) Unsolder wire connected between J1-1 and C1 of multi-frequency switch from C1.

3) Solder wire removed from terminal 1 to C1.

4) Solder wire removed from C1 to terminal 1.

FAVORED CHANNEL DEFEAT

To eliminate favored channel function remove C3.

FAVORED CHANNEL DELAY ON BOTH CHANNELS

To provide the favored channel function on both receiver channels remove CR3 and replace with DA wire.

TRANSMIT REVERT

Normally the transmit revert circuit restricts the transmitter to the "home" channel. To transmit via the multi-frequency switch (selectable transmitters) unsolder DA jumper between H2 and H3 of the PWB and resolder between H2 and H1.

CHANNEL GUARD DISABLE

In radios equipped with SLM and channel guard, the SLM switching circuit can be modified to defeat channel guard and permit operation as a standard noise squelch SLM equipped radio.

To defeat channel guard add a diode (Part Number 19A115250P1) between S2402-3 and S2402-4 as shown below.

CIRCUIT MODIFICATIONS

CIRCUIT MODIFICATIONS APPLICABLE TO RADIOS EQUIPPED WITH SLM, CHANNEL GUARD AND DUAL FRONT END RECEIVERS

SLM with Channel Guard

When SLM and channel guard are provided, the channel guard board 4EK17A12 is modified as indicated below.

FREQUENCY	COMPONENTS(S) REMOVED			
	R603	R606	R607	C607
30 - 50 MHz		X		X
132 - 174 MHz		X	X	
406 - 470 MHz	X		X	

SLM WITH CHANNEL GUARD IN RADIOS EQUIPPED WITH A DUAL FRONT END RECEIVER

When SLM and channel guard are provided in radios equipped with a dual front end receiver, the channel guard board is modified as indicated above and the receiver is modified as indicated in the chart below.

DM WIRE FROM	TO	CONNECTION REMOVE	ADD
H30	H31	X	
H17	H18	X	
H15	H16	X	
H23	H24	X	
H30	H18		X
H18	H16		X
H16	H23		X

MAINTENANCE

VOLTAGE READINGS

All voltage readings are DC readings measured with a 20,000 ohms per volt VOM with reference to battery negative. Battery voltage is 7.5 V. The readings are taken with the controls adjusted as follows:

SQUELCH - MAXIMUM
SLM - OFF/MON
Multi-freq - Channel 2 (not on home channel)
Transmit revert - H2 to H3

TEST POINT	VOLTAGE READING	TEST POINT	VOLTAGE READING
J1-1	5 V	A1-1	5.0
J1-2	0	A1-2	5.2
J1-3	7.5	A1-6	0.4 max.
J1-4	0	A1-7	4.8
J1-5	5.4	A1-8	0
J1-6	7.5	A1-9	0
J1-7	7.5		
J1-8	7.0 volts min.		

Squelch Open

J1-8 7.0 V Max.
A1-6 7.0 V Min.

PTT Pressed

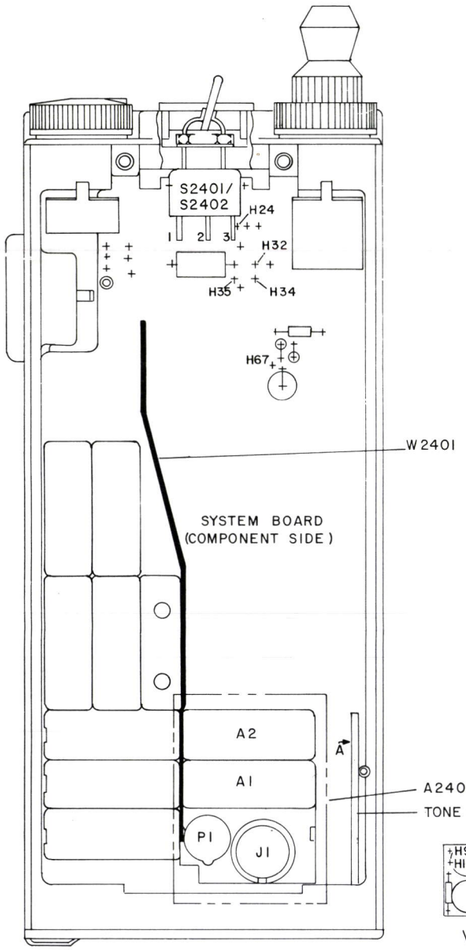
J1-6 0 volts

SLM-On
Receiver-Unsquelched

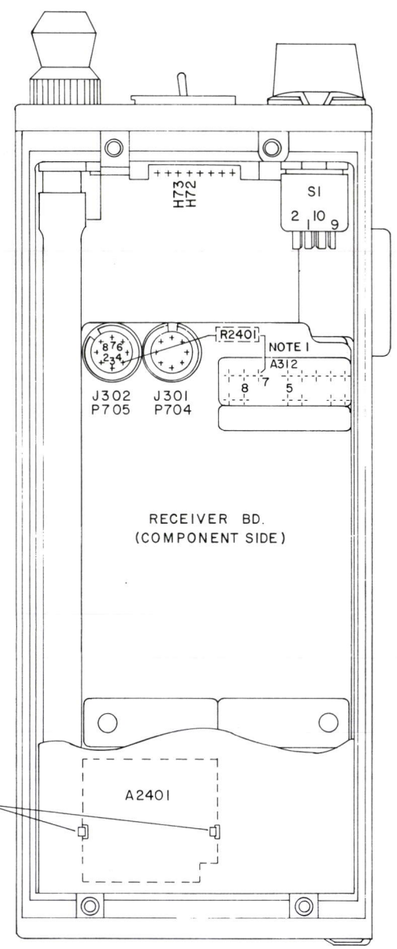
J1-1, 4 5 volt Square wave (200 ms)

TROUBLESHOOTING

SYMPTOM	PROCEDURE
Continues Search when squelch is open.	Check voltages on J1-8 (7.0 V maximum) and A1-6 (7.0 V minimum)
Continues search when PTT is pressed.	Check voltage on J1-6 (0 Volts)
Does not revert to proper channel when PTT is pressed.	Check for correct strapping on bottom of PWB H2-H3 (Transmit Home Channel) H1-H2 (Transmit Selected Channel)



FRONT VIEW



REAR VIEW

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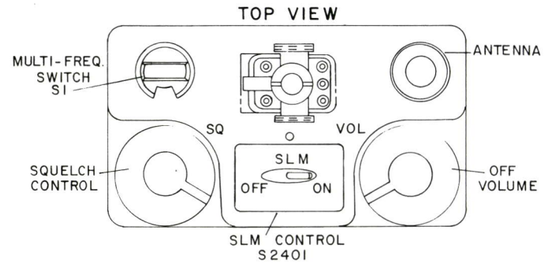
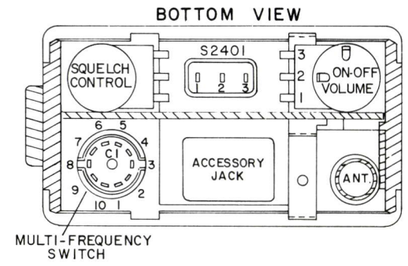
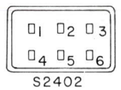
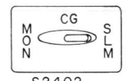
CONTROL UNIT







S2402



S2402
SLM CONTROL SWITCH
W/CHANNEL GUARD

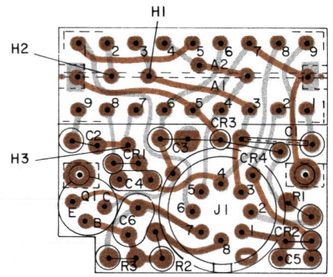
SLM SWITCH	SLM CONTACT CLOSURES		
	LEFT	CENTER	RIGHT
S2401	SLM-OFF		SLM-ON
S2402 WITH CHANNEL GUARD	SLM-OFF CG OFF	SLM-OFF CG ON	SLM-ON CG ON

TRANSMIT REVERT
OPTION TABLE

TRANSMIT	CONNECT
HOME CHANNEL	H2 - H3
SELECTED CHANNEL	H2 - H1

LEAD IDENTIFICATION
FOR CR2401

NOTES: 1. ON RADIOS WITH DUAL FRONT END R2401 IS CONNECTED BETWEEN J302-4 & H2 ON SOLDER SIDE OF RECEIVER.



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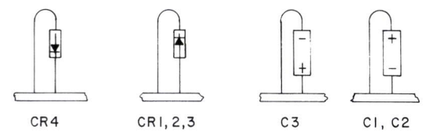
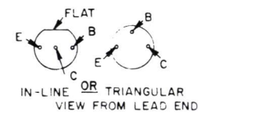
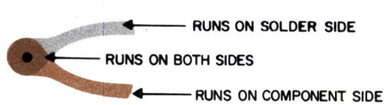
(19C320492, Sh. 3, Rev. 0)



COMPONENT ORIENTATION

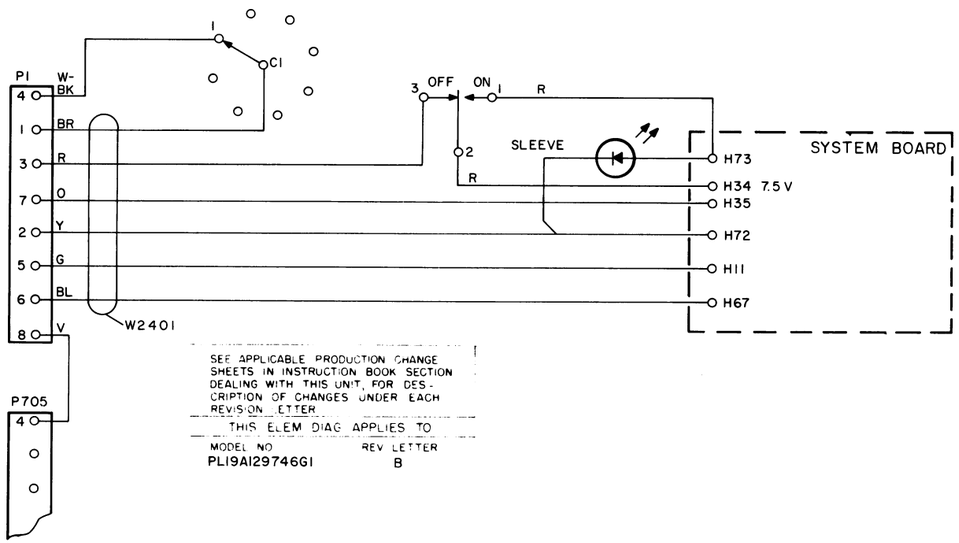


NOTE: LEAD ARRANGEMENT, AND NOT CASE SHAPE, IS DETERMINING FACTOR FOR LEAD IDENTIFICATION.



OUTLINE DIAGRAM

SEARCH LOCK MONITOR

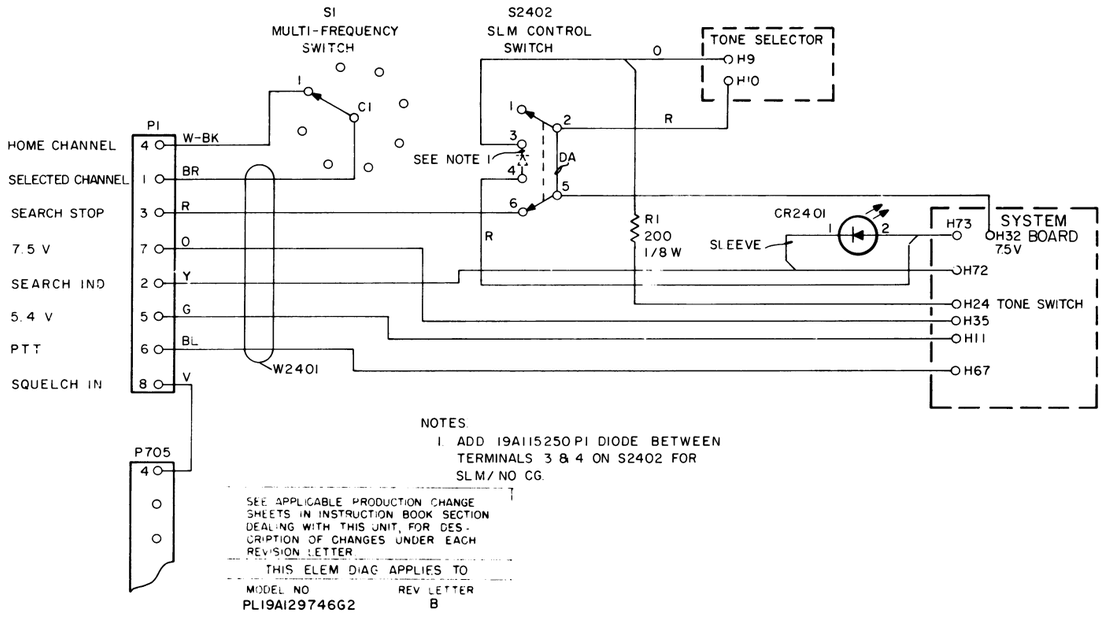


SEE APPLICABLE PRODUCTION CHANGE SHEETS IN INSTRUCTION BOOK SECTION DEALING WITH THIS UNIT, FOR DESCRIPTION OF CHANGES UNDER EACH REVISION LETTER.

THIS ELEM DIAG APPLIES TO	
MODEL NO	REV LETTER
PLI9AI29746GI	B

(19B219971, Rev. 3)

INTERCONNECTION DIAGRAM
SEARCH LOCK MONITOR WITHOUT CHANNEL GUARD



NOTES:
1. ADD 19A115250P1 DIODE BETWEEN TERMINALS 3 & 4 ON S2402 FOR SLM/NO CG.

SEE APPLICABLE PRODUCTION CHANGE SHEETS IN INSTRUCTION BOOK SECTION DEALING WITH THIS UNIT, FOR DESCRIPTION OF CHANGES UNDER EACH REVISION LETTER.

THIS ELEM DIAG APPLIES TO	
MODEL NO	REV LETTER
PLI9AI2974662	B

(19B219972, Rev. 3)

INTERCONNECTION DIAGRAM
SEARCH LOCK MONITOR WITH CHANNEL

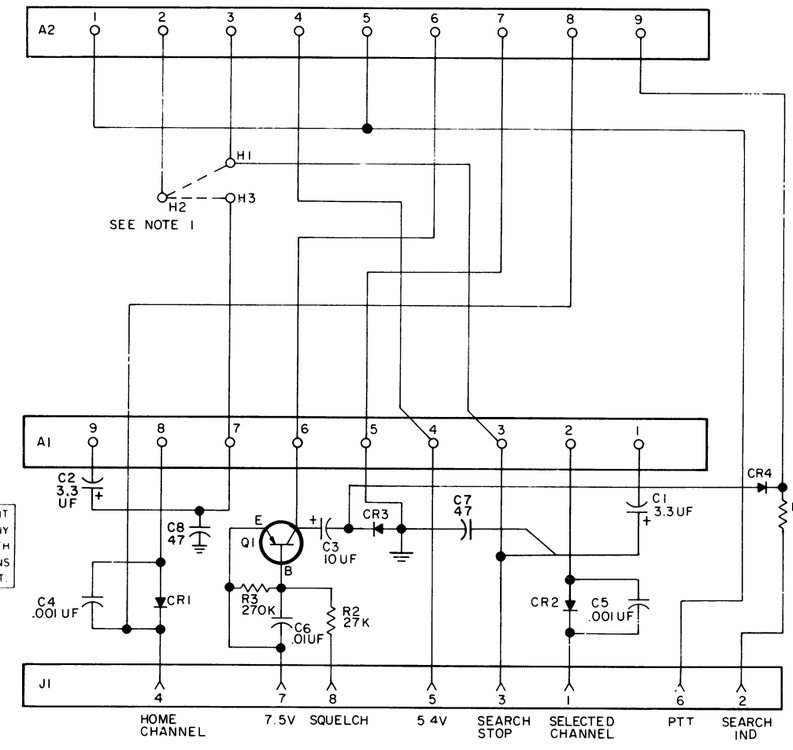
NOTES:
1. JUMPER H2 TO H1 (TRANSMIT TO SELECTED CHANNEL) JUMPER H2 TO H3 (STANDARD TRANSMIT HOME CHANNEL)

SEE APPLICABLE PRODUCTION CHANGE SHEETS IN INSTRUCTION BOOK SECTION DEALING WITH THIS UNIT, FOR DESCRIPTION OF CHANGES UNDER EACH REVISION LETTER.

THIS ELEM DIAG APPLIES TO	
MODEL NO	REV LETTER
PLI9B219901GI	B

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

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.



(19C320493, Rev. 3)

SCHEMATIC DIAGRAM
SEARCH LOCK MONITOR

PARTS LIST

LBI-4722B

SEARCH LOCK MONITOR KIT
19A129746G1, G2

SYMBOL	GE PART NO.	DESCRIPTION
A2401		SEARCH LOCK MONITOR BOARD 19B219901G1
A1	19C317060G2	Search Lock Monitor Module.
A2	19C320491G1	Search Control Module.
		- - - - - - - - - - CAPACITORS - - - - - - - - -
C1 and C2	5491674P36	Tantalum: 3.3 µf ±20%, 10 VDCW; sim to Sprague Type 162D.
C3	5491674P2	Tantalum: 10 µf ±20%, 10 VDCW; sim to Sprague Type 162D.
C4 and C5	5495323P12	Ceramic: .001 µf +100% -20%, 75 VDCW.
C6	19A116192P1	Ceramic: 0.01 µf ±20%, 50 VDCW; sim to Erie 8121 SPECIAL.
C7*	19A116114P7053	Ceramic: 47 pf ±5%, 100 VDCW; temp coef -750 PPM. Added to 19A129746G1, G2 by REV B.
C8*	19A116114P7053	Ceramic: 47 pf ±5%, 100 VDCW; temp coef -750 PPM. Added to 19B219901G1 by REV B.
		- - - - - - - DIODES AND RECTIFIERS - - - - - - -
CR1 and CR2	19A116052P2	Silicon.
CR3 and CR4	19A115250P1	Silicon.
		- - - - - - - JACKS AND RECEPTACLES - - - - - -
J1	19A116122P1	Terminal, feed-thru: sim to Warren 1-B-2994-4.
		- - - - - - - - - - TRANSISTORS - - - - - - - - -
Q1	19A115768P3	Silicon, PNP; sim to Type 2N3702.
		- - - - - - - - - - RESISTORS - - - - - - - - -
R1	3R151P302J	Composition: 3000 ohms ±5%, 1/8 w.
R2	3R151P273J	Composition: 27,000 ohms ±5%, 1/8 w.
R3	3R151P274J	Composition: 0.27 megohm ±5%, 1/8 w.
		- - - - - - - DIODES AND RECTIFIERS - - - - - -
CR2104*	19A134323P1	Diode, optoelectronic: red; sim to Opcoa LLL-7A.
		In 19A129746G1, G2 earlier than REV A:
	19A116951P1	Diode, light emitting: red; sim to GE SSL 212.
		- - - - - - - - - RESISTORS - - - - - - - - -
R2401	3R151P103J	Composition: 10,000 ohms ±5%, 1/8 w.
		- - - - - - - - - - SWITCHES - - - - - - - - - -
S2401	19A116648P6	Toggle: SPDT, 5 amps at 28 VDC or 5 amps at 115 VAC; sim to C and K Components "7000" Series.
S2402	19B219979G1	Switch Assembly. Includes resistor R1 (3R152-P201J).
		- - - - - - - - - - - CABLES - - - - - - - - - -
W2401	19C320567G1	Cable: includes plug (19A127569P1), approx 7-1/2 inches long.
		- - - - - - - - - MISCELLANEOUS - - - - - - - -
	19B216316P1	Insulator. (Used with J1).
	19C320721P1	Seal. (Used with S2401).
	19B216926P6	Cap, decorative. (SEARCH LOCK).
	19B216926P7	Cap, decorative. (SEARCH LOCK WITH CHANNEL GUARD).
	19B219957P1	Insulator. (Used with A2401).
	19A127754P1	Gasket.

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

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 - SLM 19A129746G1&G2

To incorporate a new LED.
Changes CR2401. Added gasket.

REV. B - To make compatible with other product line.
Added C7.

REV. A - SLM BOARD 19B219901G1
Incorporated into initial shipment.

REV. B - To improve performance when operating in a RF field. Added C8.

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 for 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.

MOBILE RADIO DEPARTMENT
GENERAL ELECTRIC COMPANY • LYNCHBURG, VIRGINIA 24502

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