MOBILE RADIO

MAINTENANCE MANUAL

RF PROM/INTERFACE BOARD 19C850666G1-3

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DESCRIPTION

The RF PROM/Interface board houses the RF frequency PROM, power indicator, area select/group tone select switch, and the area/group display.

The RF PROM/Interface board is provided in three groups. Groups 1 and 2 are used with the General Electric GE-MARC V™ CORONA and CENTURA radios and group 3 is used with the GE-MARC V™ Classic radio. The Group 1 board contains a power indicator circuit and the RF frequency PROM. The group 2 board deletes the power indicator and provides an area select/group tone display. The display illuminates when power is applied. The Group 3 board contains only the RF frequency PROM. The display and status indicator are located in the control unit for the CLASSIC model radio. The RF PROM Interface board is located behind the control panel and plugs into the synthesizer/interconnect board.

The Group 2 RF PROM/Interface board consists of two printed wire boards (component and 7-segment display) connected together electrically and mechanically to form a "T" thus eliminating the need for interconnecting wires. The seven segment display is located behind the red lens in the nameplate. The area/group tone select switch extends through the control panel.

The 32 x 8 RF frequency PROM contains 32 8-bit locations in which reside the binary frequency code for up to 29 user frequencies and three test frequencies. The three test frequencies are 816.0125 MHz, 818.5125 MHz, and 820.9875 MHz and are accessed through locations 30, 31 and 32 respectively on the Microprocessor Control Test Set TL5B. In five channel radios the test frequencies are located in addresses 6, 7, and 8 respectively. The 29 channels may be assigned and programmed to operate in up to five areas with a maximum of 15 channels assigned to an area. Channel overlapping is permitted with some channels being programmed for use in more than one area.

The operational area is selected by the AREA/GP TN-SEL switch and displayed on the 7-segment display.

The logic board addresses the correct frequency locations assigned to each area. The address bits are A0-A4. The frequency code stored in the addressed location is applied to the synthesizer through P8 and P9.

Tone frequencies assigned to each area are stored in the personality PROM located on the logic board. Therefore, the programming of the RF frequency PROM must agree with the programming of the area select option in the personality PROM. Figure 1 shows a typical relationship between the RF frequency PROM and the personality PROM.

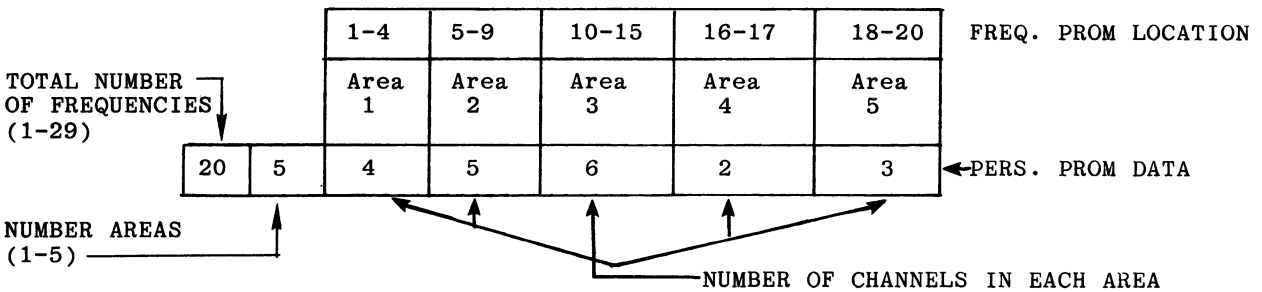
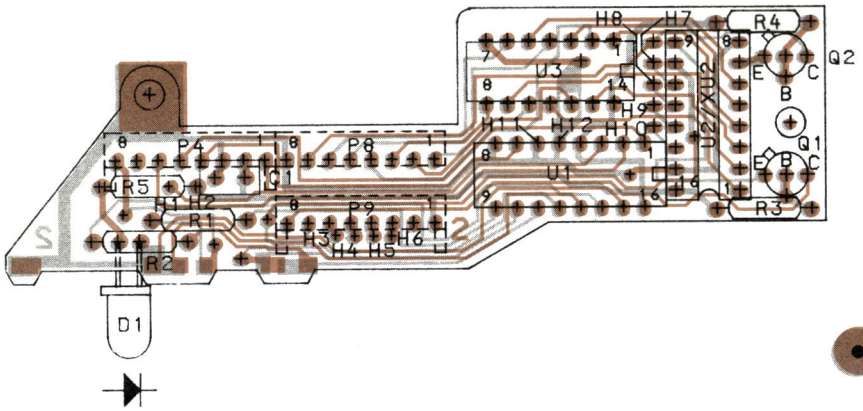


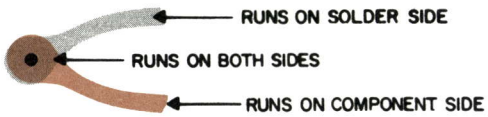
Figure 1 - Typical Frequency Plan

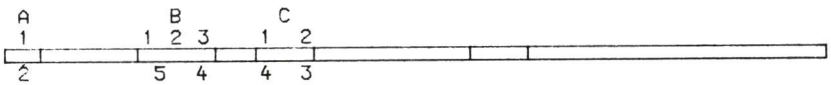
GENERAL ELECTRIC

DISPLAY

The display circuitry consists of the BCD to 7-segment decoder/driver and the 7-segment display. Pressing and holding the AREA/GP TN SEL switch down applies A- to I/O register through P4-8. This control signal is applied to the logic board which continually advances the binary code appearing on P4-4, 5, 6. The binary code is decoded by U1 and the appropriate segments of DS1 are turned on. Releasing the AREA/GP TN-SEL switch stops the sequence.

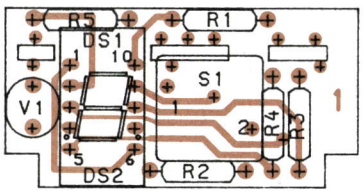




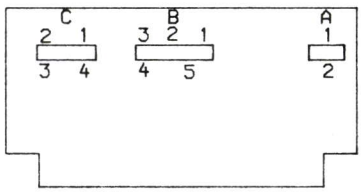


END VIEW SHOWING CONTACT INDENTIFICATION

(19B800636, Rev. 2)
(19A701528, Sh. 1, Rev. 2)
(19A701528, Sh. 2, Rev. 2)

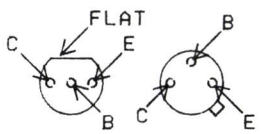


(19B800610, Rev. 1)
(19A701317, Sh. 1, Rev. 1)



SOLDER SIDE VIEW
SHOWING CONTACT
IDENTIFICATION

LEAD IDENTIFICATION
FOR Q1 AND Q2



OR

IN-LINE TRIANGULAR

TOP VIEW

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

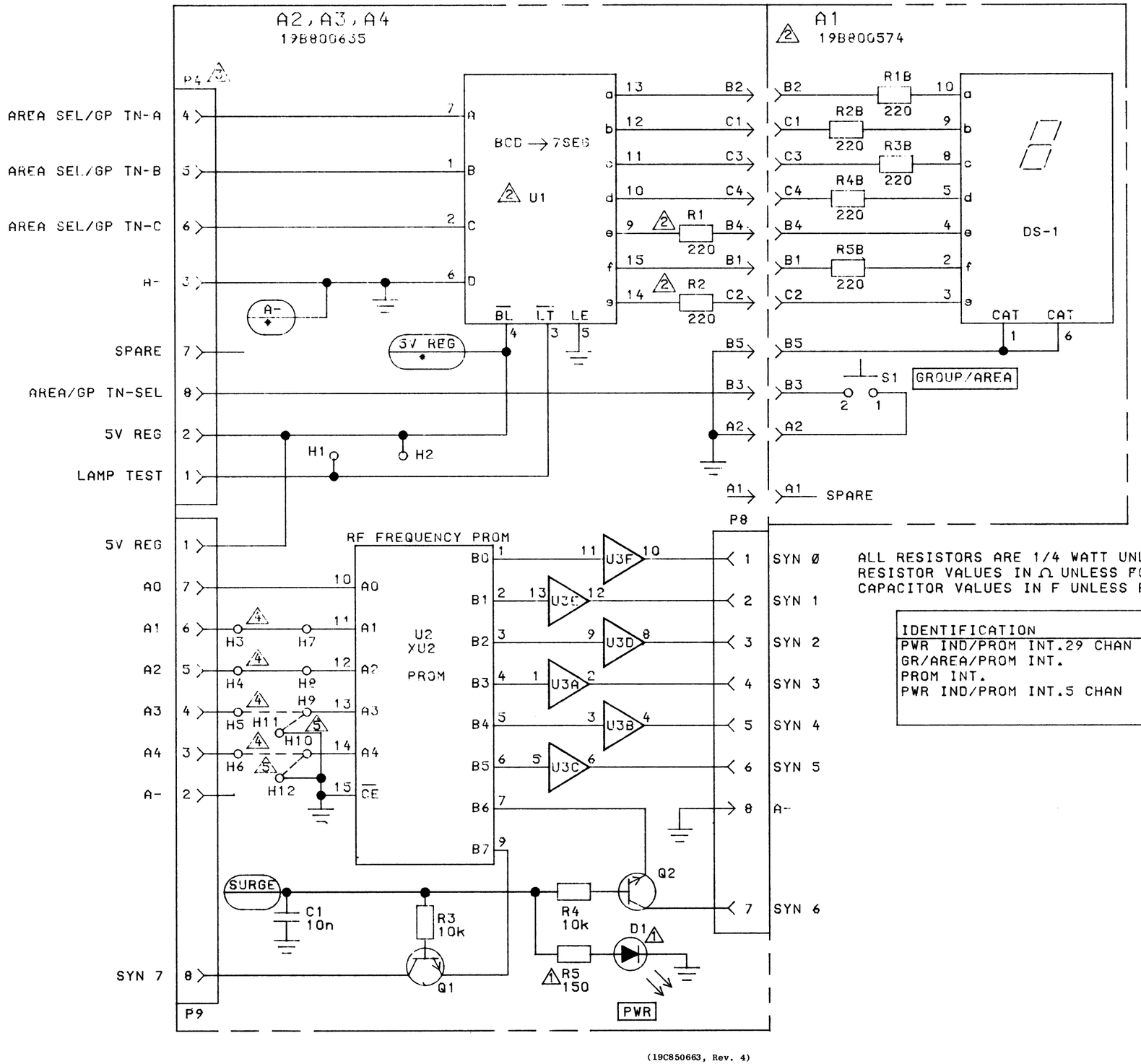
OUTLINE DIAGRAM

7 SEGMENT DISPLAY

Issue 1

GENERAL ELECTRIC COMPANY • MOBILE COMMUNICATIONS DIVISION
WORLD HEADQUARTERS • LYNCHBURG, VIRGINIA 24502 U.S.A.

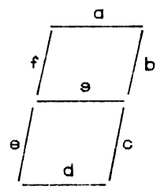
GENERAL ELECTRIC* U.S.A.



(19C850663, Rev. 4)

NOTES:

1. PRESENT IN GP.1 AND GP.4 ONLY.
2. PRESENT IN GP.2 ONLY.
3. NOT PRESENT IN GP.3.
4. ST 0.60-9
5. OMIT JUMPERS H5 TO H9, H6 TO H10 IN GP 4 ONLY. DA JUMPERS H9 TO H11, H10 TO H12 PRSENT GP.4 ONLY.



♦POWER AND GND CONNECTIONS

DEVICE	5V REG PIN NO.	A- PIN NO.
U1	16	8
U2	16	8
U3	14	7

ALL RESISTORS ARE 1/4 WATT UNLESS OTHERWISE SPECIFIED.
RESISTOR VALUES IN Ω UNLESS FOLLOWED BY MULTIPLIER k OR M.
CAPACITOR VALUES IN F UNLESS FOLLOWED BY MULTIPLIER u,n OR p.

IDENTIFICATION	MODEL NO.	REV LETTER
PWR IND/PROM INT.29 CHAN	PL19C850666G1	
GR/AREA/PROM INT.	PL19C850666G2	
PROM INT.	PL19C850666G3	
PWR IND/PROM INT.5 CHAN	PL19C850666G4	

SCHEMATIC DIAGRAM

RF PROM INTERFACE BOARD

Issue 1

PARTS LIST

PROM/DISPLAY BOARD
19C850666G1 PROM INTERFACE/POWER INDICATOR
19C850666G2 PROM INTERFACE/7 SEGMENT DISPLAY
19C850666G3 PROM INTERFACE
ISSUE 3

SYMBOL	GE PART NO.	DESCRIPTION
A1		7 SEGMENT DISPLAY BOARD 19B800574G3
		- - - - - - - - INDICATING DEVICES - - - - - - -
DS1	19A134085P2	Display, optoelectronic: 7 segment.
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R1 thru R5	19A700019P29	Deposited carbon: 220 ohms ±5%, 1/4 w.
		- - - - - - - - - - SWITCHES - - - - - - - - - -
S1	19A701324P1	Push: contacts rated 1 mA at 10 volts; sim to IEE/Schadow 210091.
A2 thru A4		7 SEGMENT COMPONENT BOARD A2 19B800635G1 PROM INTERFACE/POWER INDICATOR A3 19B800635G2 PROM INTERFACE/7 SEGMENT DISPLAY A4 19B800635G3 PROM INTERFACE
		- - - - - - - - - - CAPACITORS - - - - - - - - - -
C1	19A700005P7	Polyester: 0.01 uF ±10%, 50 VDCW.
		- - - - - - - - - - DIODES - - - - - - - - - -
D1	19A134354P3	Diode, optoelectronic: Green; sim to Hew. Packard 5082-4955.
		- - - - - - - - - - PLUGS - - - - - - - - - -
P4	19A700041P57	Connector,printed wiring: sim to Molex 22-02-2081.
P8 and P9	19A700041P57	Connector,printed wiring: sim to Molex 22-02-2081.
		- - - - - - - - - - TRANSISTORS - - - - - - - - - -
Q1 and Q2	19A700023P1	Silicon, NPN; sim to Type 2N3904.
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R1 and R2	19A700019P29	Deposited carbon: 220 ohms ±5%, 1/4 w.
R3 and R4	19A700019P49	Deposited carbon: 10K ohms ±5%, 1/4 w.
R5	19A700019P27	Deposited carbon: 150 ohms ±5%, 1/4 w.
		- - - - - - - - INTEGRATED CIRCUITS - - - - - - -
U1	19A700029P204	Digital: BCD-TO-SEVEN SEGMENT LATCH/DECODER/DRIVER.
U3	19A116180P256	Digital: Hex Buffers/Drivers With Open-Collector High Voltage Output.
		- - - - - - - - - - SOCKETS - - - - - - - - - -
XU2	19A700156P9	Integrated circuit: 16 contacts; sim to Burndy DILB14-P108.
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
	19A701341P1	Spacer. (Located under S1).
	19A701338P1	Angle support. (Secures A2-A4).
	19A702364P305	Machine screw: TORZ® DRIVE, M3-.5 x 5. (Secures A2-A4 to support).
	19A700032P5	Lockwasher, internal tooth: No. 3MM. (Secures A2-A4).
	19C850828P1	PROM label.

SYMBOL	GE PART NO.	DESCRIPTION
		ASSOCIATED PARTS RF FREQUENCY PROM KIT 19A701922G1,G2 NOTE: When reordering the RF frequency PROM include complete combination number, number of areas, and the RF frequencies assigned to each area.
		- - - - - - - - INTEGRATED CIRCUITS - - - - - - -
U2	19A701922G1	PROM, Digital: sim to Signetics 82S123F/C. (PROGRAMMED). Used with Option ZO.
U2	19A701922G2	PROM, Digital: sim to Signetics 82S123F/C. (PROGRAMMED); Used only with channel plan USA-1, Option ZT (2 channel offset).
U2	19A134331P4	PROM, Digital: sim to Signetics 82S123F/C. (BLANK PROM).

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES