MAINTENANCE MANUAL

CONTROL UNIT 19A705384P1 FOR MCS

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DESCRIPTION

The Control Unit for the MCS radio consists of a 5 watt audio amplifier and a 3-inch speaker housed in a Lexan case. The Control Unit contains several controls and switches including a POWER switch to control power to the amplifier and the radio, a CHANNEL switch to select up to 4 channels, and a MONITOR switch to disable Channel Guard and squelch. A red TX LED will light to indicate the microphone PTT is keyed.

The Control Unit is interconnected to the radio by a system cable with a 9-pin plug (P1). The power cable has two connectors: J2 connects to the power cable from the battery and/or ignition switch, and P2 connects to the power cable on the radio. An 8-pin microphone connector (J1) is located at the back of the Control Unit.

CIRCUIT ANALYSIS

Ignition switch A+ enters the Control Unit through J2-2 and is applied to the POWER switch. The switch supplies SWA+ to the 5 watt PA, the TX LED, and to the radio through P2-2.

Receiver audio from the radio is routed through system connector P1 to transformer XF1. The audio passes from XF1 through volume control VR101 to the input of 5 watt amplifier IC101. The amplified audio is applied to the speaker through coupling capacitor C105.

Microphone audio from J1-5 is amplified by Q1 with a gain of 5 (14dB). If desired, the microphone amplifier may be bypassed by connecting the mic to J1-4. Voltage for the amplifier on the MIC HI line is supplied from the Audio Board (+8 volt line) on the radio through a 570 ohm load resistance. Changing the resistance to 180 ohms (by shorting the 390 ohm resistor on the Audio Board) will reduce the gain of the amplifier to 6dB.

The 4 logic lines (CH SEL0, CH SEL1, $\overline{\text{MONITOR}}$, and $\overline{\text{PTT}}$) are routed from the radio to the Control Head through P1. These lines are normally pulled high (+5V) by 50K pull-up resistors internal to the Logic Board microprocessor in the radio. The switches on the Control Unit pull these lines low. four diodes are used to convert the 4-position channel switch to two binary lines (both lines are low for Channel 1 and high for Channel 4).

GE Mobile Communications

General Electric Company
Lynchburg, Virginia 24502

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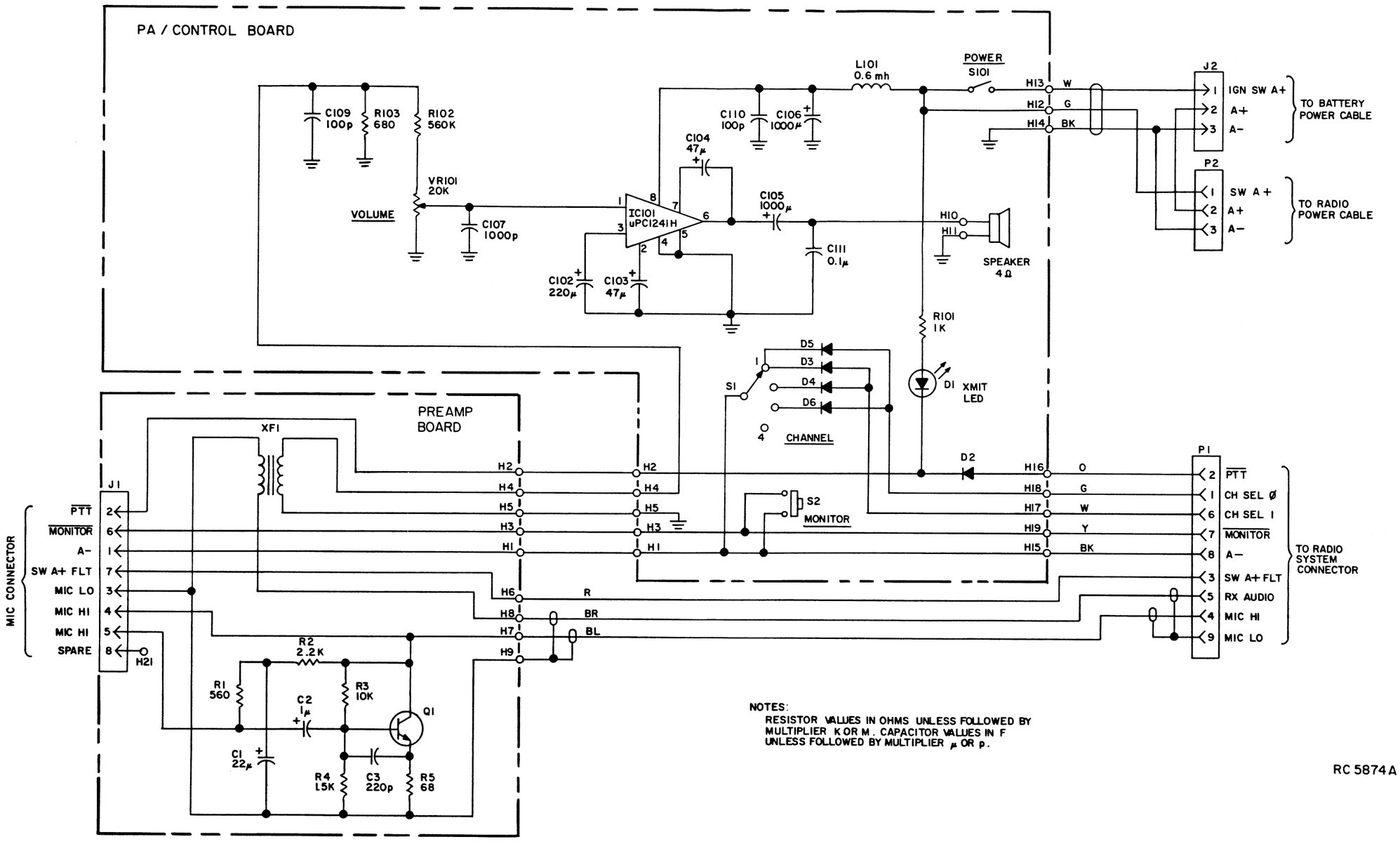


NOTES:
RESISTOR VALUES IN OHMS UNLESS FOLLOWED BY MULTIPLIER K OR M. CAPACITOR VALUES IN F UNLESS FOLLOWED BY MULTIPLIER µ OR p.

RC 5874 A

PARTS LIST

MCS CONTROL UNIT
19A705384P1
ISSUE 2

SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - - - - CAPACITORS - - - - - - - - - -
C1	82EC100022-19	Capacitor: 22 uF, 16V.
C2	82EC100001-10	Capacitor: 1 uF, 16V.
C3	82CC100220-19	Ceramic: 220 pF.
		- - - - - - - - - - - DIODES - - - - - - - - - -
D1	82LD205020-18	LED, red: LT-32x59, 20mA.
D2 thru D6	82DD100000-19	Diode: sim to 1N4148.
		- - - - - - - - - - TRANSFORMERS - - - - - - - -
E1 thru E14	67TF000000-10	Transformer: 600 ohm to 600 ohm.
		- - - - - - - - - - CONNECTORS - - - - - - - - - -
J1	67TJ080000-13	Jack, 8 pin.
J2	63PW000000-12	Housing.
J2	79IL000000-18	Pin.
		- - - - - - - - - - - PLUGS - - - - - - - - - - -
P2	63PW000000-25	Housing.
P2	79IL000000-21	Pin.
		- - - - - - - - - - TRANSISTORS - - - - - - - - - -
Q1	67TR100001-11	NPN: sim to 2SC1740 or 2SC1815.
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R1	82KR205600-18	Resistor: 560 ohm, 1/4 w.
R2	82KR2K0022-13	Resistor: 2.2K ohm, 1/4 w.
R3	82KR2K0100-10	Resistor: 10K ohm, 1/4 w.
R4	82KR2K0015-13	Resistor: 1.5K ohm, 1/4 w.
R5	82KR200680-11	Resistor: 68 ohm, 1/4 w.
		- - - - - - - - - - SWITCHES - - - - - - - - - -
S1	67SW100001-19	Select switch, 1-4.
S2	67SW100002-16	Momentary switch.
		- - - - - - - - VARIABLE RESISTORS - - - - - - -
VR1	82VR3K0200-19	20K(A) 300 DEG.
		POWER AMPLIFIER BOARD
		- - - - - - - - - - CAPACITORS - - - - - - - - - -
C102	82EC100220-11	Capacitor: 220 uF, 16V.
C103 and C104	82EC100047-16	Capacitor: 47 uF, 16V.
C105 and C106	82EC101000-10	Capacitor: 1000 uF, 16V.
C107	82MC10C001-10	Mylar: 0.001 uF, 16V.
C109 and C110	82CC100100-14	Ceramic: 100 pF.
C111	82MC10A001-16	Mylar: 0.1 uF.
		- - - - - - - - INTEGRATED CIRCUITS - - - - - - -
IC101	67IC200001-18	Integrated circuit.
		- - - - - - - - - - INDUCTORS - - - - - - - - - -
L101	82FL20A006-16	Inductor: 0.6 mH.
		- - - - - - - - - - RESISTORS - - - - - - - - - -
R101	82KR1K0010-15	Resistor: 1K ohm, 1/4 w.
R102	82KR1K5600-17	Resistor: 560K ohm, 1/4 w.
R103	82KR106800-18	Resistor: 680 ohm, 1/4 w.
		- - - - - - - - - - SWITCHES - - - - - - - - - -
S101	67SW100003-13	Power switch: 2-2.
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
	C030F29B-01	Speaker: 4 ohm, 3", 5W.
	6700000000-A5	Heatsink. (Used with Pre-Amp).
	8600000000-B9	Screw: 3x8. (Used with Heatsink).
	8600000000-F1	Nut. (Used with Heatsink).
	6700000000-B8	Heatsink. (Used with Power-amp).
	8600000000-B9	Screw: 3x8. (Used with IC101).
	8600000000-F1	Nut. (Used with IC101).
	88NR000120-15	Red wire: 26 AWG, 120m/m. (Speaker positive).
	88NB000150-19	Black wire: 26 AWG, 150m/m. (Speaker negative).
	63TI000000-48	Rear housing.
	63TI000000-51	Grill, front panel.
	63TA000000-42	Control panel.
	63RA000000-19	Knob. (Used for Volume and Select).
	63UA000000-30	Knob. (Power switch).
	63UA000000-43	Knob. (Momentary switch).
	660B000000-45	Nameplate, "MCS".
	63LG000000-15	Retainer mat.
	63RG000000-11	Breakaway device.
	63UI000000-10	Mount.
	8600000000-74	Screw. (Secures grill).
	8600000000-58	Screw. (Secures mount).
	8600000000-16	Screw bag.
	8411105053-12	Plate. (Used with housing and mount).
	8411100054-14	Plate. (Used with housing and mount).
	8600000000-C2	Screw: 3x12. (Used with grill and housing).
	88QB091100-13	Single cable: 9 pin, 1.1M.
	88QB060750-16	Power cable: 3 pin x 2, 0.75M.
	8412095080-17	Spring washer: 9.5 x 8 x 0.1. (Secures speaker).

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES

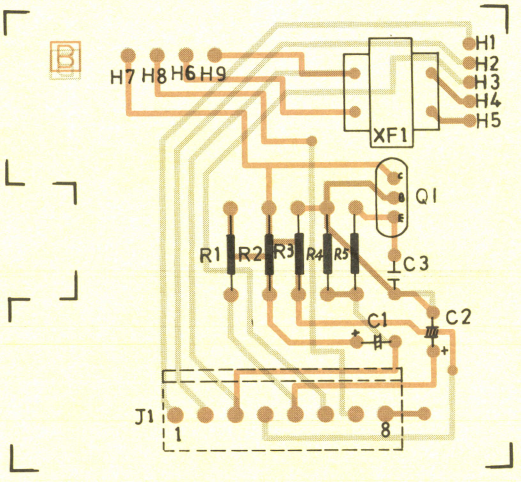
ADDENDUM NO. 1 TO LBI-31966
(PCCN)

This addendum adds the Outline Diagram for Control Units 19A705348P1, P2 & P3 to Maintenance Manual LBI-31966.

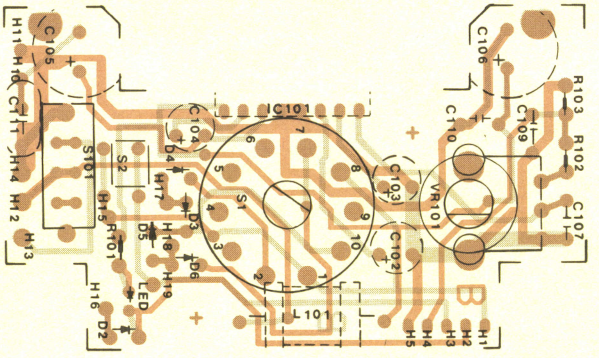
NOTE

When ordering replacement parts listed in Maintenance Manual LBI-31966 from the GE Mobile Communication Service Parts Operation, please use only the **"R19/"** prefix. The **"R19/"** prefix will be the only one shown in any future **SERVICE PARTS PRICE LIST.**

PREAMP BOARD



PA/CONTROL BOARD



RUNS ON SOLDER SIDE
RUNS ON BOTH SIDES
RUNS ON COMPONENT SIDE