MOBILE RADIO

LBI-30712D
(DF4098)

INSTRUCTIONS

FOR

RECEIVER CONTROL BOARD 19D429100G1

TABLE OF CONTENTS

DESCRIPTION

The 19D429100 Receiver Control Board is required in three and four-frequency MASTR® II Tone Remote Control Base Stations. As long as PTT tone (2175 Hz) is present, the selected transmit oscillator remains selected, but is released when the 2175 Hz hold tone is removed by releasing PTT. The receiver oscillator, which is selected when the transmitter oscillator is selected, stays selected after release of PTT until a different frequency function tone is received at the station.

In four-frequency tone remote/repeat and any three or four-frequency system with Channel Guard, the transmit and receive oscillators are strapped together on the mother board. The Receiver Control Board latches the selected transmit and receive oscillators. This allows the transmit oscillator to stay selected when the PTT hold tone is released. The Receiver Control Board is used in multi-frequency transmit, single-frequency receive combinations as an STE board.

In four-frequency transmit with four separate receivers applications, each receiver oscillator is strapped to ground. The receiver audio may be sent on separate audio pairs or a single audio pair. Each receiver output lead from the Receiver Control Board is now used to control the line audio output of the receivers instead of their oscillators.

CIRCUIT ANALYSIS

The TX INTERCONNECT lead from each of the four transmit select circuits on the Transmitter Control Boards are connected to terminals D10(TX F1), D11 (TX F2), D4 (TX F3) and A9 (TX F4) on the Receiver Control Board. When TX F1 is selected, the TX F1 INTERCONNECT lead goes high, forward biasing CR1 and turning on Q1. Conduction of Q1 sets flip-flop U1-A, U1-D and the resultant high output of U1-D (pin 11) turns on Q5. This applies a low to lead A6 (RX F1) to select the receiver F1 oscillator or audio lead, depending on the receiver strapping. Conduction of Q5 also applies ground to the receive F1 Indicator LED CR6, turning on the light.

NOR gates U3-A, U3-B, U3-C and U4-A are used to reset each related flip-flop. Selecting the TX F2 tone latches flip-flop U1-B, U1-C to select the F2 receiver. The high output at pin 6 of U1-B is applied to NOR gate U3-A and the resultant low output of U3-A is applied to pin 2 of U1-A, resetting the previously latched F1 flip-flop.

When F1-F2 service switch S2 is in the F1 position, ground is applied to the input of U1-D (pin 13), selecting the F1 receiver. Placing the switch in the F2 position grounds the input to U1-B, selecting the F2 receiver. Service switch S1 serves the same function for receivers F3 and F4.

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WORLD HEADQUARTERS • LYNCHBURG, VIRGINIA 24502 U.S.A.

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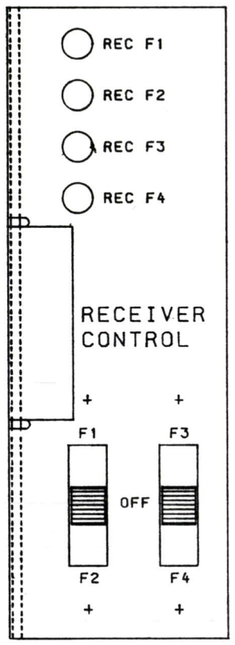
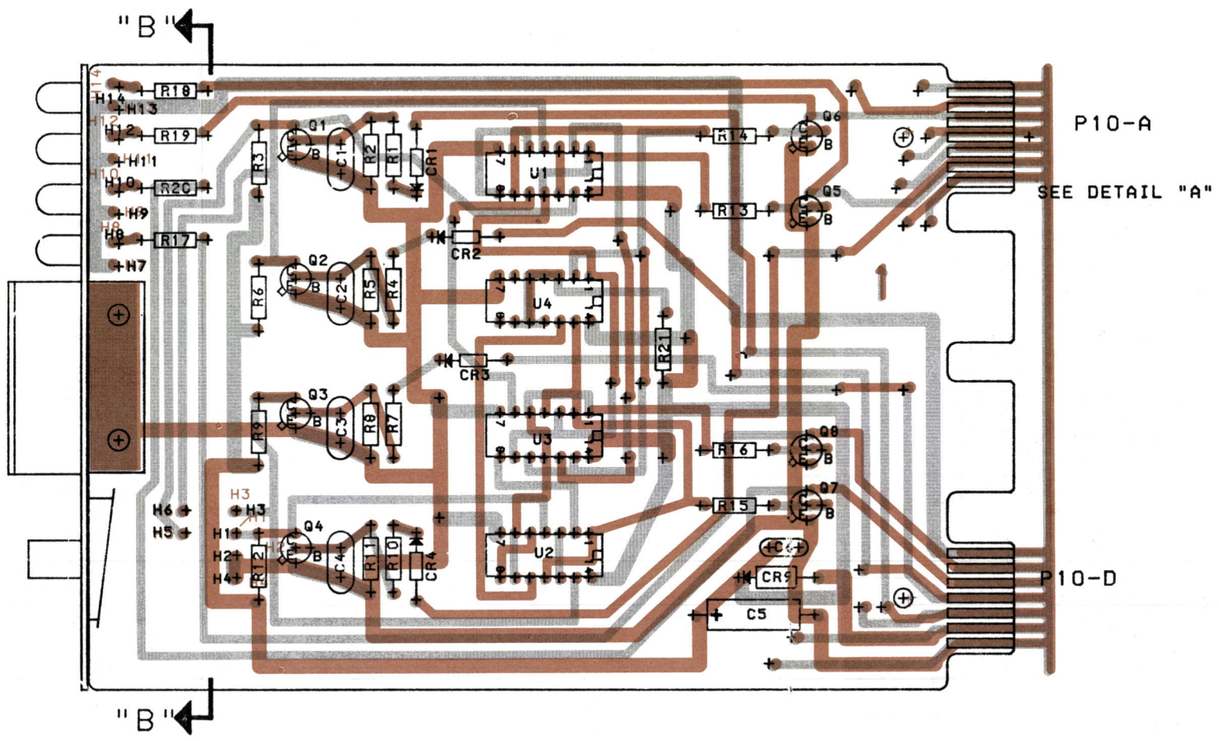
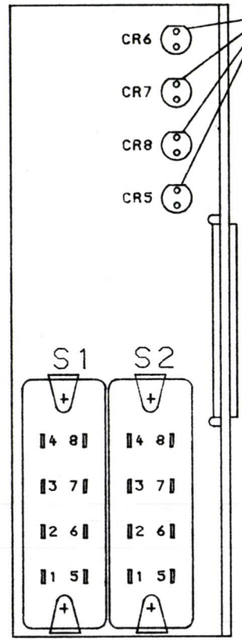
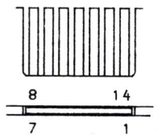






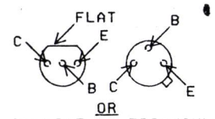
SECTION "B-B"

REFER TO W. DIAG FOR THE FOLLOWING CONNECTIONS	
FROM	TO
S1-4	H3
S1-2	S1-3
S1-3	H2
S1-1	H1
S2-1	H6
S2-2	S2-3
S2-3	H4
S2-4	H5
CR6 CATHODE	H14
CR6 ANODE	H13
CR7 CATHODE	H12
CR7 ANODE	H11
CR8 CATHODE	H10
CR8 ANODE	H9
CR5 CATHODE	H8
CR5 ANODE	H7



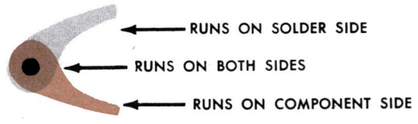
SOLDER SIDE
TYP. NUMBERING OF
CONTACT FINGERS.
DETAIL "A"

LEAD IDENTIFICATION
FOR Q1-Q8



OR
IN-LINE TRIANGULAR
TOP VIEW

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

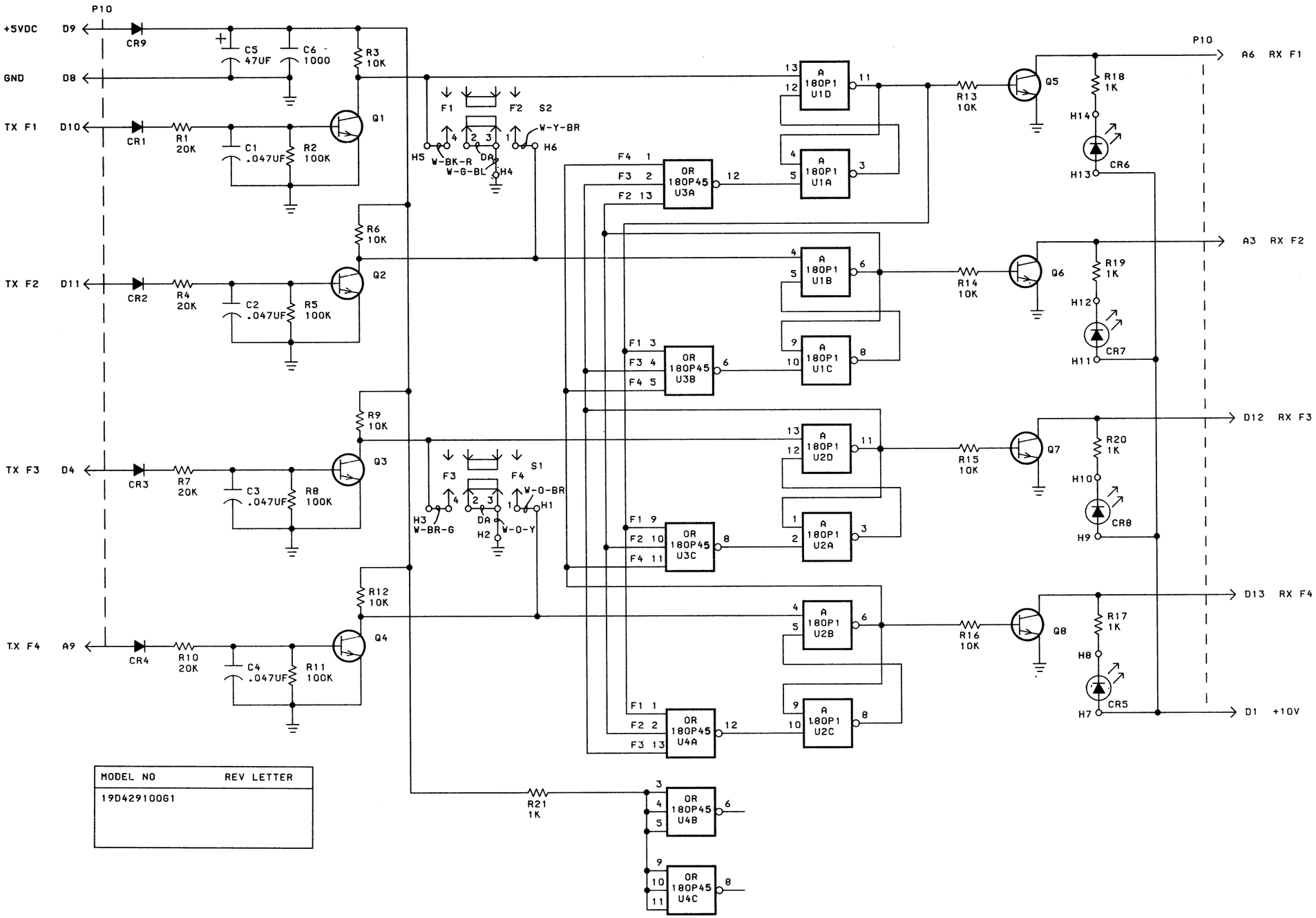


(19D429101, Rev. 1)
(19B232309, Sh. 1, Rev. 1)
(19B232309, Sh. 2, Rev. 1)

OUTLINE DIAGRAM

RECEIVER CONTROL BOARD
19D429100G1

2 Issue 2



NOTES:
1. VCC 5 VDC FOR U1-U4 PIN14, GROUND FOR U1-U4 PIN 7.
2. ALL WIRES ARE SF24 UNLESS OTHERWISE NOTED.

ALL RESISTORS ARE 1/4 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.

MODEL NO	REV LETTER
19D429100G1	

SCHEMATIC DIAGRAM

RECEIVER CONTROL BOARD
19D429100G1

PARTS LIST

RECEIVER CONTROL BOARD
19D429100G1

ISSUE 4

SYMBOL	GE PART NO.	DESCRIPTION
		- - - - - - - - - - CAPACITORS - - - - - - - - - -
C1 thru C4	19A143477P21	Polyester: .047 uF ±20%, 50 VDCW.
C5	5496267P2	Tantalum: 47 uF ±20%, 6 VDCW; sim to Sprague Type 150D.
C6	19A700233P7	Ceramic: 1000 pF ±20%, 50 VDCW.
		- - - - - - - - - - - DIODES - - - - - - - - - - -
CR1 thru CR4	19A115250P1	Silicon, fast recovery, 225 mA, 50 PIV.
CR5 thru CR8	162B3011P0002	Diode, optoelectronic: red; sim to Hew. Packard 5082-4650.
CR9	T324ADP1041	Rectifier, silicon; general purpose.
		- - - - - - - - - - PRINTED BOARDS - - - - - - - - -
P10		Part of printed board 19D429099P1.
		- - - - - - - - - - - TRANSISTORS - - - - - - - - - -
Q1 thru Q8	19A700023P1	Silicon, NPN; sim to Type 2N3904.
		- - - - - - - - - - - RESISTORS - - - - - - - - - - -
R1	3R152P203J	Composition: 20K ohms ±5%, 1/4 w.
R2	19A700106P111	Composition: 100K ohms ±5%, 1/4 w.
R3	19A700106P87	Composition: 10K ohms ±5%, 1/4 w.
R4	3R152P203J	Composition: 20K ohms ±5%, 1/4 w.
R5	19A700106P111	Composition: 100K ohms ±5%, 1/4 w.
R6	19A700106P87	Composition: 10K ohms ±5%, 1/4 w.
R7	3R152P203J	Composition: 20K ohms ±5%, 1/4 w.
R8	19A700106P111	Composition: 100K ohms ±5%, 1/4 w.
R9	19A700106P87	Composition: 10K ohms ±5%, 1/4 w.
R10	3R152P203J	Composition: 20K ohms ±5%, 1/4 w.
R11	19A700106P111	Composition: 100K ohms ±5%, 1/4 w.
R12 thru R16	19A700106P87	Composition: 10K ohms ±5%, 1/4 w.
R17 thru R21	19A700106P63	Composition: 1K ohms ±5%, 1/4 w.
		- - - - - - - - - - SWITCHES - - - - - - - - - -
S1 and S2	19B209261P12	Slide: 2 PTT, sim. to Switchcraft 46313MDR.
		- - - - - - - - INTEGRATED CIRCUITS - - - - - - -
U1 and U2	19A116180P1	Digital: QUAD 2-INPUT NAND GATE
U3 and U4	19A116180P45	Digital, Triple 3-Input Positive Nor Gate: Identification No. 7427.
		- - - - - - - - - MISCELLANEOUS - - - - - - - - -
	19B219702P5	Panel.
	19B219690G1	Handle assembly. (Secures S1 and S2).
	4032480P1	Nut, sheet spring: sim to Vector Electronic Co. No. 440. (Secures S1 and S2).
	19B201074P204	Tap screw, phillips POZIDRIV®: No. 4-40 x 1/4. (Secures S1 and S2).

*COMPONENTS ADDED, DELETED OR CHANGED BY PRODUCTION CHANGES