

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
capacitor, fixed uF, ±5%, 100V (unless otherwise stated)		
C1	23-84665F03	100 +100, -10% 25V, electrolytic
C2	08-84637L15	.27
C3	08-84637L37	.1
C4, 5	08-84637L03	.0012 630V
C6	23-84665F02	15 +100, -10% 25V, electrolytic
C7	21-82187B16	3000 pF ±10%
C8	21-82372C10	.05 +80, -20% 25V
C11	23-84762H16	22 ±10% 20V, tantalum
C12-14	08-84637L42	.47 ±10%
C15	21-82187B44	.0016 ±10%
C17-19	21-82187B44	.001
C20	23-84665F03	100 +100, -10% 25V, electrolytic
C21-23	21-82187B44	.0016 ±10%
C24	23-84665F04	+150V, -10% 50V, electrolytic
C25	23-84665F02	15 +100, -10% 25V, electrolytic
C26	08-84637L06	.0068 630V
C27	21-82187B44	.0016 ±10%
C28	08-84637L15	.27
C29	08-84637L03	.0012 630V
C30	08-84637L05	.0039 630V
C31	08-84637L01	.15
C32	21-82187B44	.0016 ±10%
C33	23-84665F01	10 +100, -10% 25V, electrolytic
C34	08-83813H38	.006 ±10%
C36	23-84539G01	1 ±20% 35V, tantalum
C37	21-00851299	600 pF ±10% 600V
C38	08-84637L37	.1
C39	23-84665F01	10 +100, -10% 25V, electrolytic
C40	08-84637L36	.082
C41	21-83596E10	220 pF ±20% 500V
C42	21-82187B44	.0016 ±10%
C43	21-83596E06	.01 ±10%, -40% 250
C44	21-83596E10	220 pF ±20% 500V
C45	23-84665F14	220 16V, electrolytic
C46	21-83596E36	.01 +60, -40% 250
C47	23-84665F02	15 +100, -10% 25V, electrolytic
C49	21-82372C10	.05 +80, -20% 25V
C59, 60	21-83596E10	220 pF ±20% 500V
C61	21-82372C10	.05 +80, -20% 25V

diode (see note)		
CR1	48-83654H01	silicon
CR2, 3	48-83329G04	silicon

connector receptacle		
J1	09-82071K01	12 contact
J2	09-80269B04	socket dual

coil, rf		
L1, 2	24-82723H27	1.2 uH, green
L3	24-80038A02	ferrite, 1/2 turn
L4-6	24-82723H27	1.2 uH, green

connector plug		
P3	28-80141H02	male

transistor (see note)		
Q1	48-00869E42	NPN
Q2	48-00869E43	PNP
Q3	48-00869E48	NPN

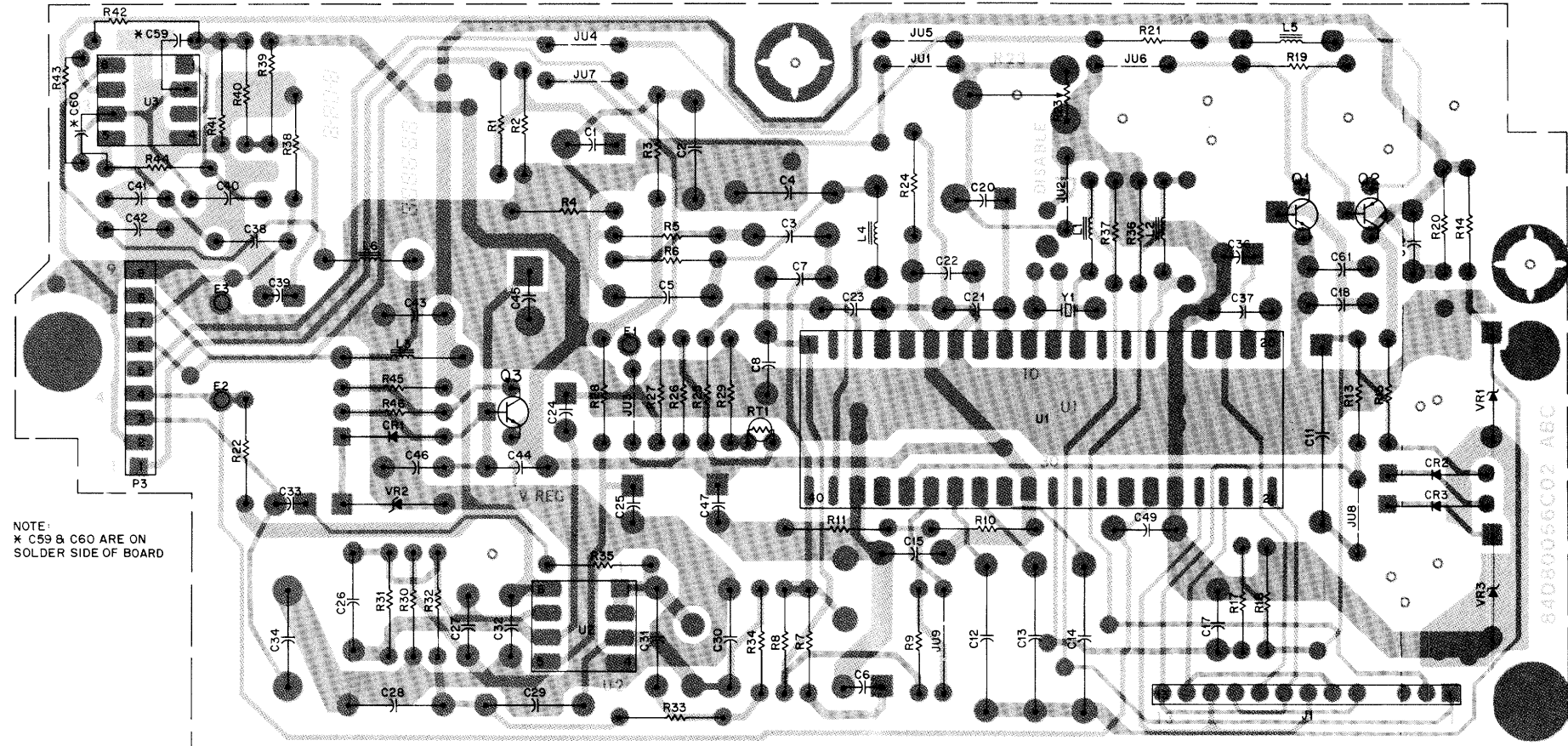
thermistor		
RT1	06-83600K02	100 ±20% 2mW

resistor, fixed, ohm, ±5%, 1/4 watt (unless otherwise stated)		
R1	06-11009C74	11k
R2	06-10621C63	5.11k ±1%
R3	06-11009C99	120k
R4	06-11009C91	56k
R5	06-10621D58	48.7k ±1%
R6	06-10621D57	47.5k ±1%
R7	06-11009C43	560
R8	06-11009D04	180k
R9	06-11009C97	100k
R10	06-11009D03	160k
R11	06-11009D01	130k
R13	06-10621D44	34.8k
R14	06-11009C43	560
R15	06-11009C42	510
R17	06-11009C73	10k
R18-20	06-11009C89	47k
R21	06-11009C25	100
R22	06-11009C81	22k
R23	18-84944C02	25k ±20% .1 W
R24	06-11009C83	27k
R25, 26	06-11009C54	4.3k
R27	06-11009C81	22k
R28	06-11009C71	8.2k
R29	06-11009C68	6.2k
R30	06-11009C78	16k
R31	06-10621E06	150k ±1%
R32	06-10621C36	2.67k ±1%
R33, 34	06-10621D34	27.4k ±1%
R35	06-11009C77	15k
R36, 37	06-11009C59	47k
R38	06-11009C93	68k
R39	06-11009C61	3.3k
R40, 41	06-10621C91	10k ±1%

MXW-0049-C (2)		
REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
R42, 43	06-10621C79	7.5k ±1%
R44	06-10621D18	18.7k ±1%
R45	06-11009C01	10
R46	06-11009C32	200
Integrated circuit (see note)		
U1	51-83977M17	encoder/decoder dual opamp
U2, 3	51-80067C03	
voltage regulator (see note)		
VR1	48-82256C44	7.5V, zener
VR2	48-82256C38	9.1V, zener
VR3	48-82256C33	2.7V, zener
crystal (see note)		
Y1	48-80055C01	32.768 kHz, tuning fork
mechanical parts		
03-10904A02	machine screw	
03-10904A15	machine screw, 3 used	
04-80149A01	locking washer, 4 used	

note: for best performance, order diodes, transistors, and integrated-circuit devices by Motorola part number.

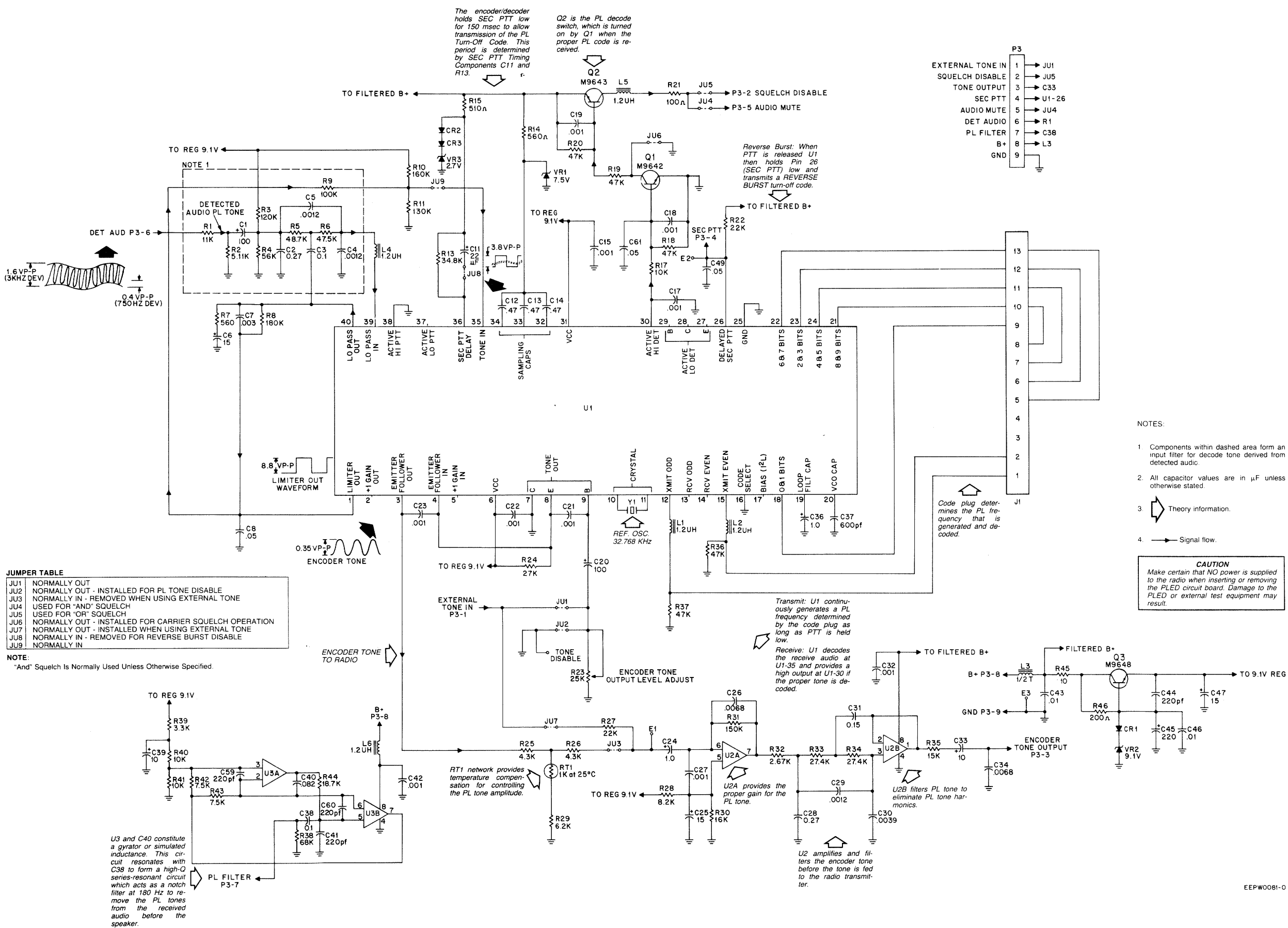
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SHOWN FROM SOLDER SIDE

SOLDER SIDE

COMPONENT SIDE: BD-DEPW-0107-0
SOLDER SIDE: BD-DEPW-0108-0
OL-DEPW-0109-0



JUMPER TABLE
JU1 NORMALLY OUT - INSTALLED FOR PL TONE DISABLE
JU3 NORMALLY IN - REMOVED WHEN USING EXTERNAL TONE
JU4 USED FOR 'AND' SQUELCH
JU5 USED FOR 'OR' SQUELCH
JU6 NORMALLY OUT - INSTALLED FOR CARRIER SQUELCH OPERATION
JU7 NORMALLY OUT - INSTALLED WHEN USING EXTERNAL TONE
JU8 NORMALLY IN - REMOVED FOR REVERSE BURST DISABLE
JU9 NORMALLY IN

NOTE: "And" Squelch Is Normally Used Unless Otherwise Specified.

CAUTION
Make certain that NO power is supplied to the radio when inserting or removing the PLED circuit board. Damage to the PLED or external test equipment may result.

NOTES:

- Components within dashed area form an input filter for decode tone derived from detected audio.
- All capacitor values are in μF unless otherwise stated.
- Theory information.
- Signal flow.

tone "PRIVATE-LINE" ENCODER/DECODER

MODEL HLN4181A

FUNCTION

Encodes and decodes sub-audible "Private-Line" tones. Encoder modulates transmitter and delays transmitter turn-off 150 ms to allow transmission of turn-off reverse tone burst. Decoder detects received tone and unsquelches receiver when proper tone is received.