

## 1. Description

The HMN3000B desk microphone provides push-to-talk and monitor functions and a high-sensitivity electret microphone element in a housing which is suitable for base station installations. This model incorporates improved filtering and shielding to reduce interference from fluorescent lights, computer monitors and nearby transmitting antennas. The microphone is supplied with an five foot coiled cord having an 8-conductor telephone-style connector.

## 2. Operation

In installations using "Private-Line" or "Digital Private Line" coded squelch systems, first press the left-hand button (with the speaker symbol) to monitor the channel and verify it is not in use. To transmit, press the right-hand button (with the lightning bolt symbol) and speak into the microphone at a distance of about eight inches.

## 3. Sensitivity Adjustment

The microphone sensitivity is user-adjustable by a control which is accessed through a slot in the rear of the housing, using a flat-bladed tuning tool (Motorola part number 66-84974L01). The sensitivity has been preset at the factory to approximately the middle of the range and should be suitable for most installations. In a noisy environment, it may be desirable to reduce the sensitivity by turning the control counterclockwise (as viewed from the rear of the housing). If the control is turned completely counterclockwise, the microphone output will be reduced to zero.

The sensitivity may also be increased by turning the adjustment clockwise from its preset position. This may be useful in quiet environments where it is desirable to speak at a greater distance from the microphone.

## 4. Jumper-Selectable Options

There are locations for three chip-type jumpers on the circuit board inside the microphone. Refer to the schematic diagram and circuit board detail for locations. As supplied, jumper JU1 is not installed, and JU2 and JU3 are installed.

If JU1 is installed, the microphone circuit will be active at all times, regardless of whether the PTT button is pressed. This is required in some installations with intercom capability. The "talk" button is pressed to communicate with remote users without requiring PTT to be active.

If JU2 is removed, it is necessary to press both the Monitor and PTT buttons simultaneously to transmit. This can help ensure that the operator remembers to monitor the channel first before transmitting.

If JU3 is removed, the ground connection between the microphone audio and PTT circuits is removed. The PTT circuit will not work unless a different cable is installed which provides a separate PTT ground return to eyelet 7 of the circuit board. This capability is provided in case it is desired to retrofit this microphone into older installations.

## 5. Modification for PTT Without Activating Monitor

In certain channel scan applications, it may be desirable to activate PTT without activating the monitor function. This allows instant access to the channel on which the scanner has stopped, without requiring to leave the scan mode. To allow this, solder a jumper wire between pins D and E of the leaf switch S1. Refer to the schematic diagram and circuit board detail for the locations of these terminals.

## 6. Disassembly

Step 1. Remove the four screws securing the bottom plate and remove the plate.

Step 2. Lift the cable and grommet from the cutout in the rear of the housing base.

Step 3. Remove the four screws securing the rear housing cover to the front housing cover. Remove the front housing cover by pulling first forward then up. **Important:** Note that the top two screws are shorter than the bottom two. Do not interchange these during re-assembly.

**Step 4.** Using needle nose pliers, remove the two spring nuts which secure the locating pins of the rear housing cover to the base. Rotate the nuts counter-clockwise while lifting away from the pins. Remove the rear housing cover.

**Step 5.** Using needle nose pliers, remove the retainer clip from the shaft which holds the switch paddles, then slide the two sections of the shaft towards each other until the outer ends of the shaft sections are clear of the recessed holes in the side of the housing.

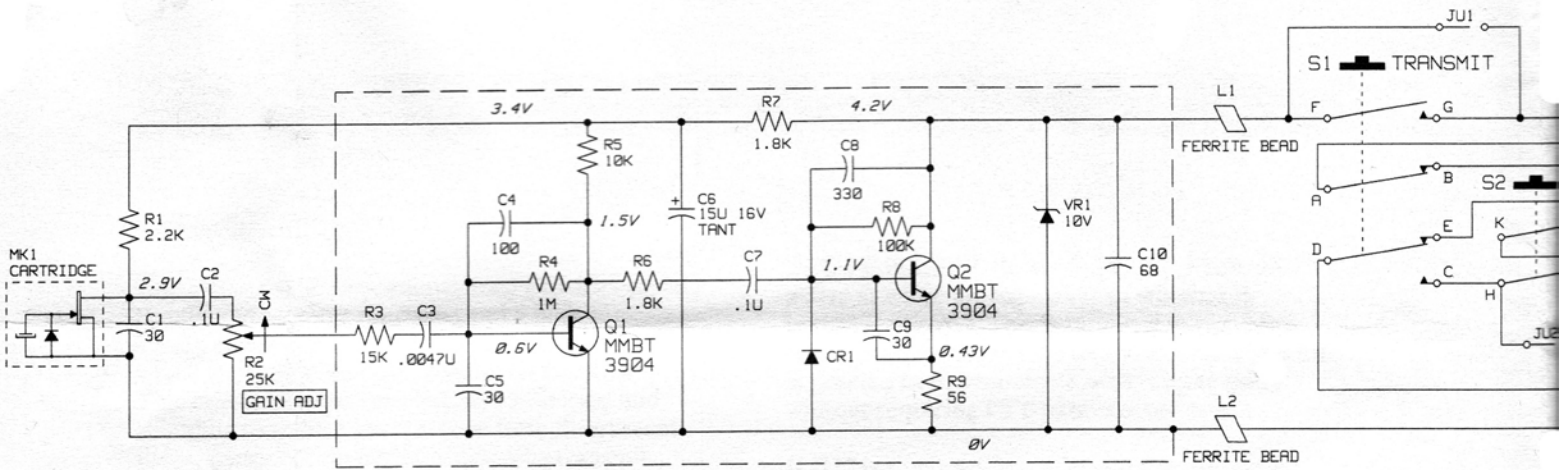
**Step 6.** Remove the circuit board by swinging it forward and out of the housing, starting at the bottom, until the cutouts at the top of the board are free of the plastic fingers which retain it.

## **7. Re-assembly**

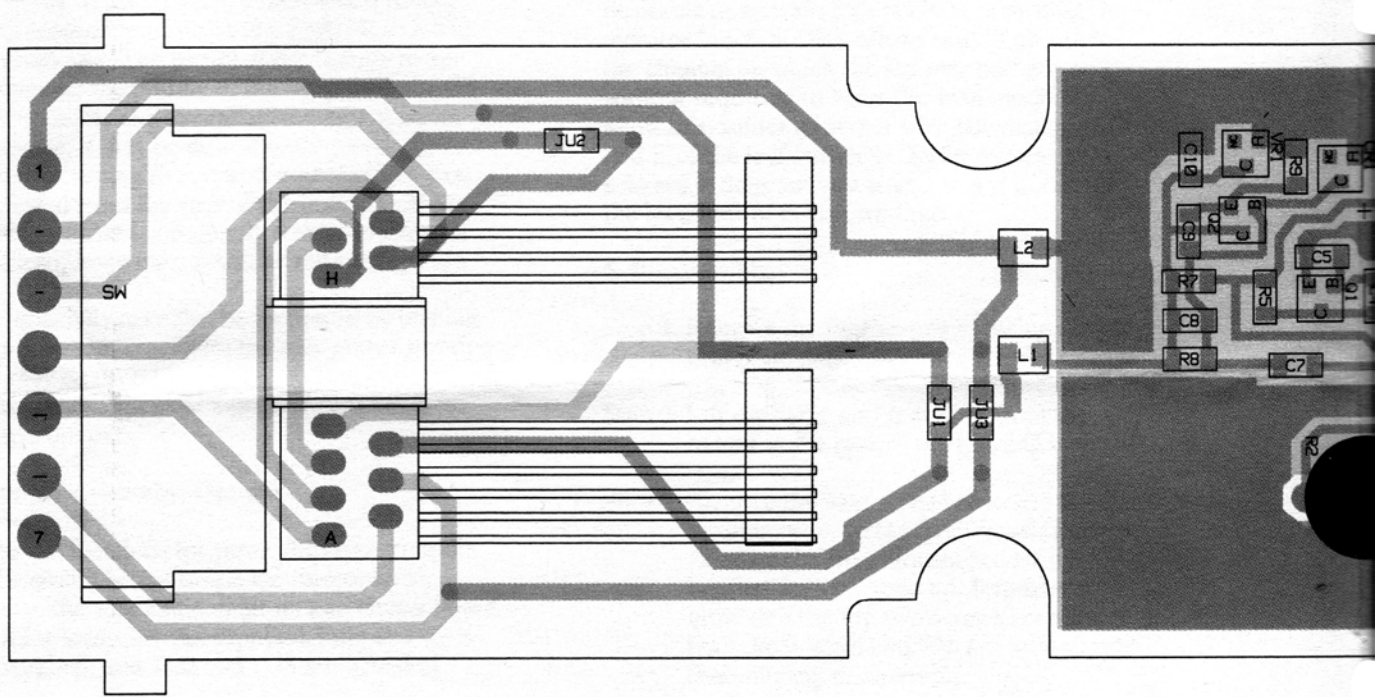
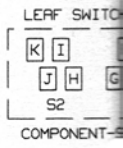
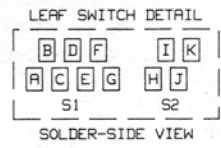
Repeat the above steps in reverse order. Make sure the board is properly centered at the top when reinstalling it into the housing. Also, make sure the correct screws are reinstalled into the rear cover. The two shorter screws are installed at the top.

## **8. Lubrication**

A small amount of silicone grease has been applied to the switch paddles where they activate the leaf switch. If operation of the switch paddles is not smooth, a small additional amount of grease (Motorola P/N 11-834678) may be applied. These locations can be accessed by removing only the bottom plate and rear housing cover (steps 1, 3 and 4 above). It is not necessary to remove the circuit board from the housing.



JUMPER USAGE TABLE	
JU1	ADD FOR BASE STATION WITH INTERCOM
JU2	REMOVE TO REQUIRE MONITOR DURING PTT
JU3	REMOVE FOR ISOLATED AUDIO & PTT GROUNDS



REFERENCE NUMBER	MANUFACTURER PART NUMBER
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HF  
HF  
HL

11/30/95

REFERENCE NUMBER	MANUFACTURER PART NUMBER
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Non-referenced item

30

11/16/93

REFERENCE NUMBER	MANUFACTURER PART NUMBER
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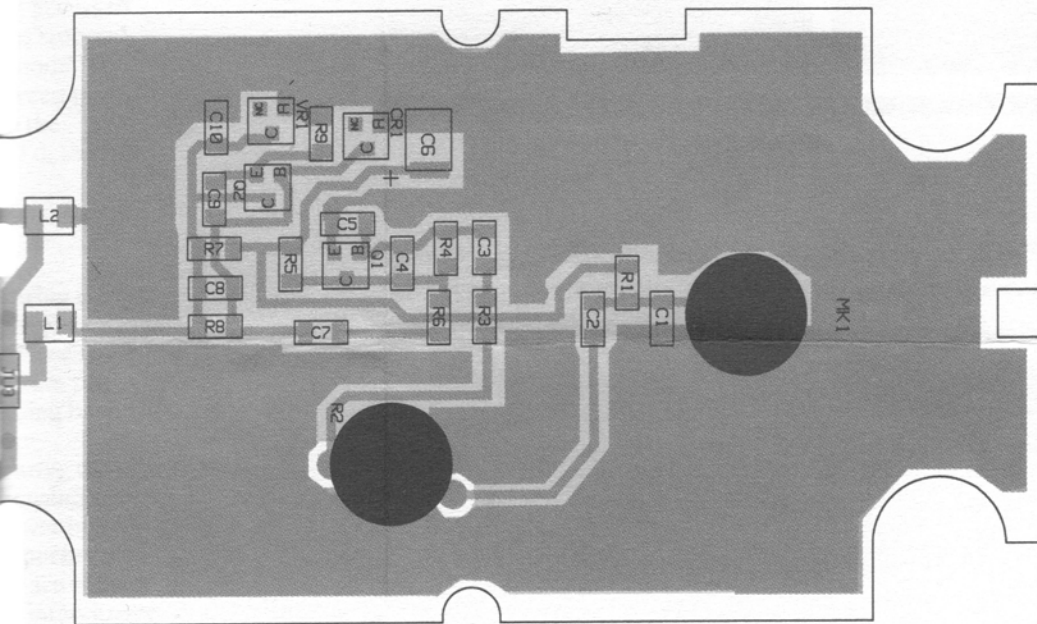
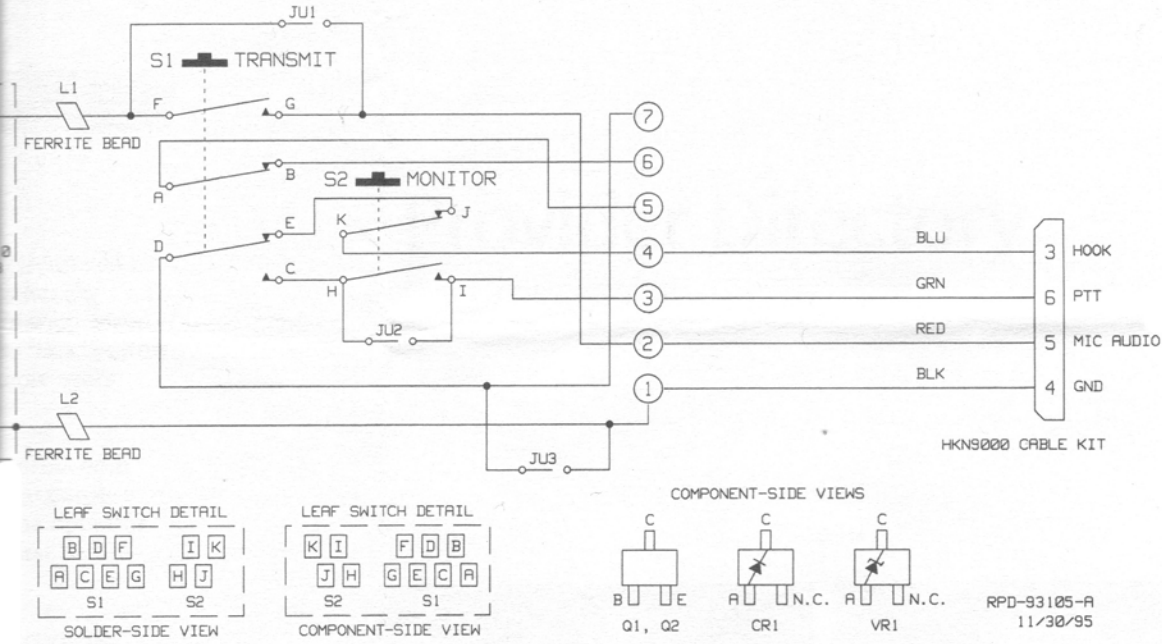
Switch

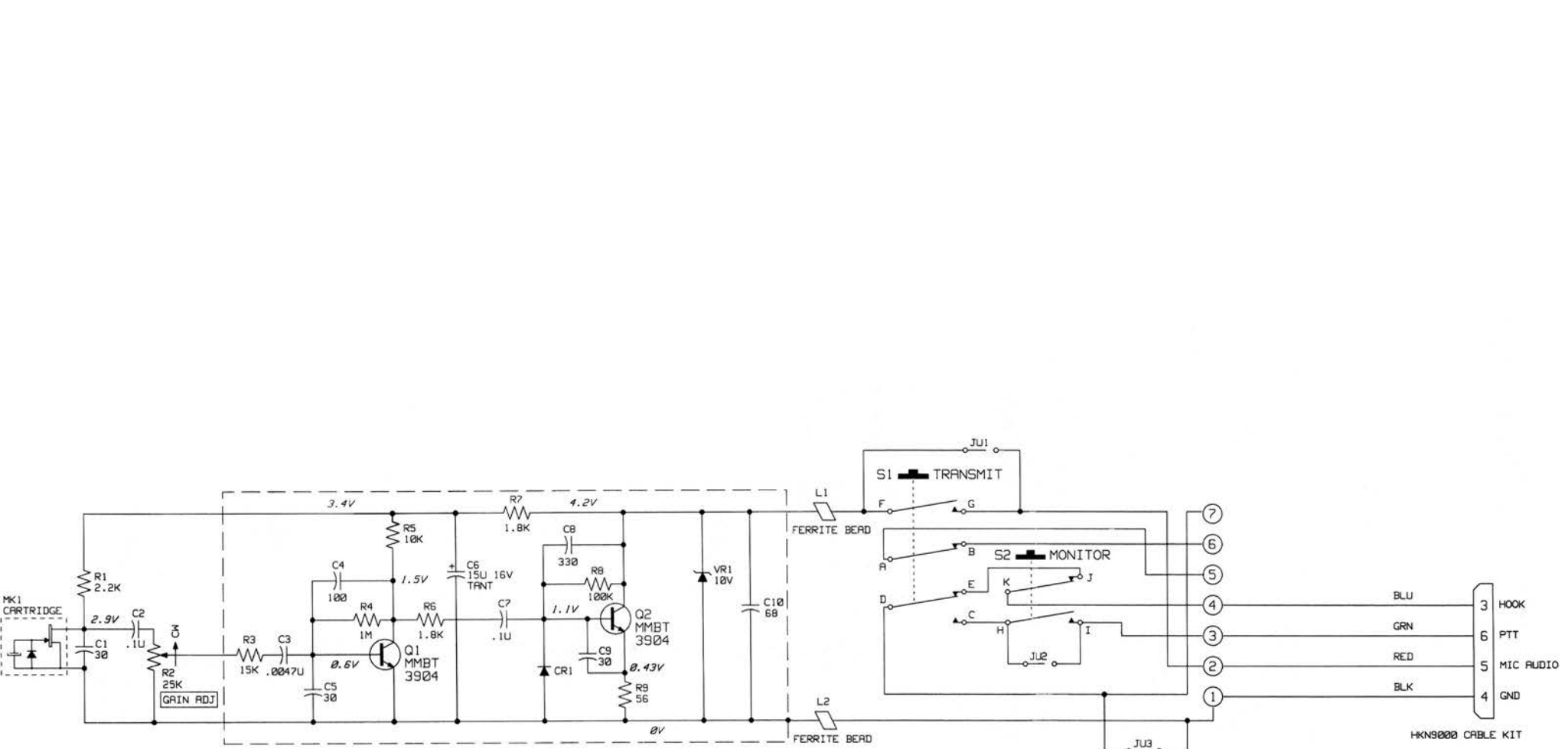
S1 40

Non-referenced item

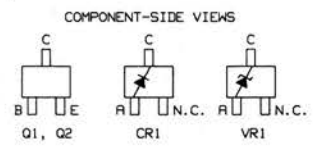
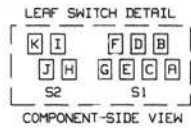
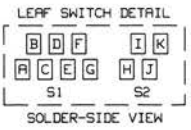
02  
03  
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64  
75

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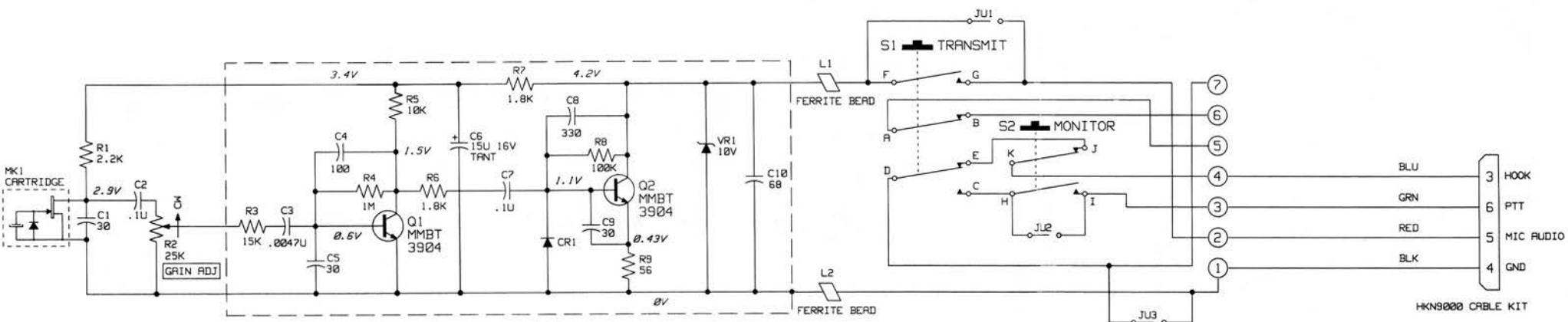




JUMPER USAGE TABLE	
JU1	ADD FOR BASE STATION WITH INTERCOM
JU2	REMOVE TO REQUIRE MONITOR DURING PTT
JU3	REMOVE FOR ISOLATED AUDIO & PTT GROUNDS

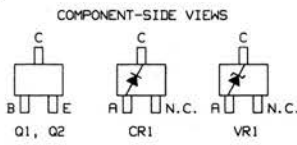
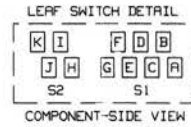
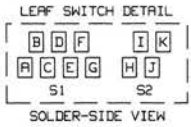


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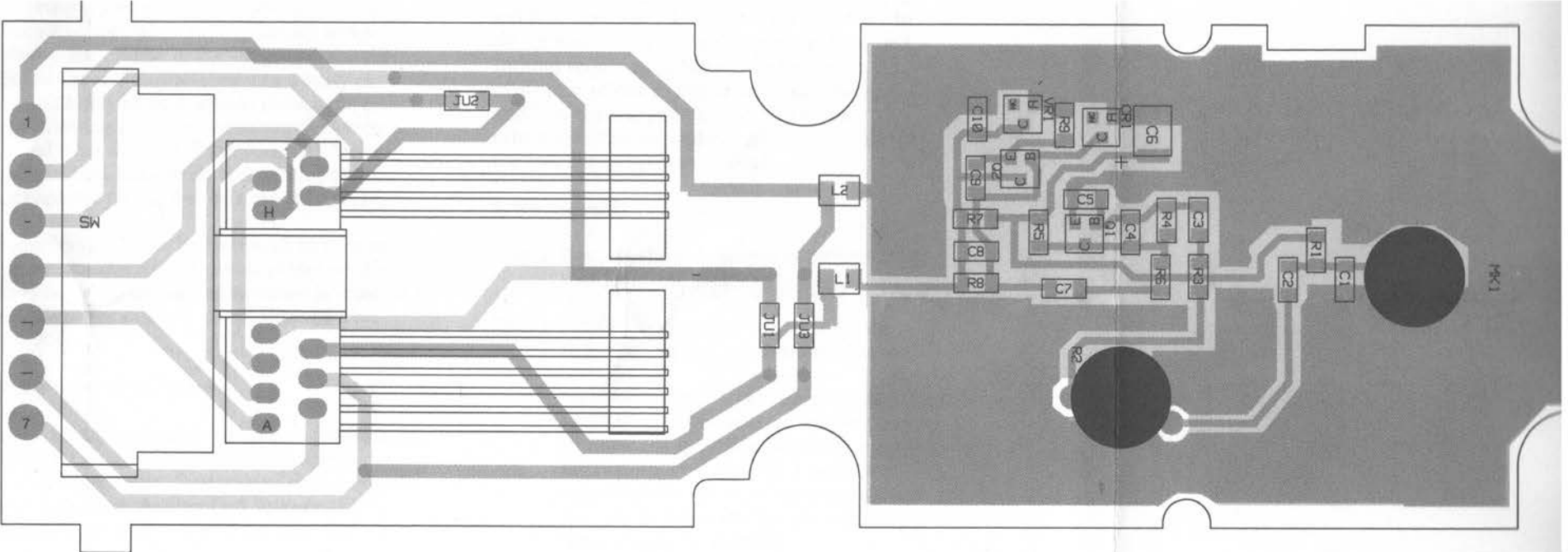


**JUMPER USAGE TABLE**

JU1	ADD FOR BASE STATION WITH INTERCOM
JU2	REMOVE TO REQUIRE MONITOR DURING PTT
JU3	REMOVE FOR ISOLATED AUDIO & PTT GROUNDS



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# DESK MICROPHONE

## HMN3000B Desk Microphone

REFERENCE NUMBER	MOTOROLA PART NO.	DESCRIPTION
	HHN9002A	Desk Microphone Housing and Hardware Kit
	HKN9000A	Desk Microphone Cable Kit
	HLN9031B	Desk Microphone Circuit Board

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## HKN9000A Desk Microphone Cable Kit

REFERENCE NUMBER	MOTOROLA PART NO.	DESCRIPTION
Non-referenced items		
	30-80043N04	cable, coiled cord with grommet

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## HHN9002A Desk Microphone Housing and Hardware Kit

REFERENCE NUMBER	MOTOROLA PART NO.	DESCRIPTION
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### Switch

S1 40-84711E03 leaf switch, dual

### Non-referenced items

02-10101A69 spring nut (2 used on rear housing pins)  
 03-00135102 screw locking 4-40x1/4 (3 used for S1)  
 03-00138809 screw machine 4-40x5/16 (4 used, bottom plate)  
 03-00140047 screw tapping 4-20x5/8 (2 used, top rear housing)  
 03-00140251 screw tapping 4-20x3/4 (2 used, bottom rear housing)  
 04-10058B10 washer, teflon  
 15-82976M05 front cover  
 15-82978M06 rear cover  
 15-84191E04 housing  
 35-80494D01 mic baffle, felt  
 38-84184E09 monitor paddle  
 38-84192E07 PTT paddle  
 42-82143C05 clamp, cable retainer  
 42-84725E01 clip, shaft retainer  
 47-84193E01 shaft (with hole)  
 47-84194E01 shaft extension (with pin)  
 64-82977M01 base plate  
 75-84722E01 pad (for base plate)

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PL-931021-B

## HLN9031B Desk Microphone Circuit Board

REFERENCE NUMBER	MOTOROLA PART NO.	DESCRIPTION
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Capacitor, chip, 5%, 50V unless otherwise indicated.

C1 21-13740B36 30 pF  
 C2 21-13741B69 .1 uF  
 C3 21-13741B37 .0047 uF  
 C4 21-13740B49 100 pF  
 C5 21-13740B36 30 pF  
 C6 23-11049J29 tantalum 15 uF 10% 16V  
 C7 21-13741B69 .1 uF  
 C8 21-13740B61 330 pF  
 C9 21-13740B36 30 pF  
 C10 21-13740B45 68 pF

### Diodes (see note)

CR1 48-05129M76 silicon SOT

### Jumpers

JU1 not used  
 JU2 06-11077A01 jumper  
 JU3 06-11077A01 jumper

### Inductors

L1 24-84657R01 ferrite bead  
 L2 24-84657R01 ferrite bead

### Microphone

MK1 50-80409D01 cartridge electret

### Transistors (see note)

Q1 48-80214G02 NPN; type MMBT3904  
 Q2 48-80214G02 NPN; type MMBT3904

Resistors, chip, 5%, 1/10 watt, unless otherwise indicated.

R1 06-11077A82 2.2k  
 R2 18-84944C02 variable 25k  
 R3 06-11077B03 15k  
 R4 06-11077B47 1 meg  
 R5 06-11077A98 10k  
 R6 06-11077A80 1.8k  
 R7 06-11077A80 1.8k  
 R8 06-11077B23 100k  
 R9 06-11077A44 56

### Voltage regulators (see note)

VR1 48-80140L15 zener diode 10V SOT

### Non-referenced items

26-80644C01 shield  
 32-80410D01 gasket, cartridge  
 32-80411D01 dampening pad (behind circuit board)

Note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part numbers.

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PL-931003-A