

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.

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 |
|----------------------|-------------------|--|
| 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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HLN9031B Desk Microphone Circuit Board

| REFERENCE NUMBER | MOTOROLA PART NO. | DESCRIPTION |
|------------------|-------------------|-------------|
|------------------|-------------------|-------------|

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)

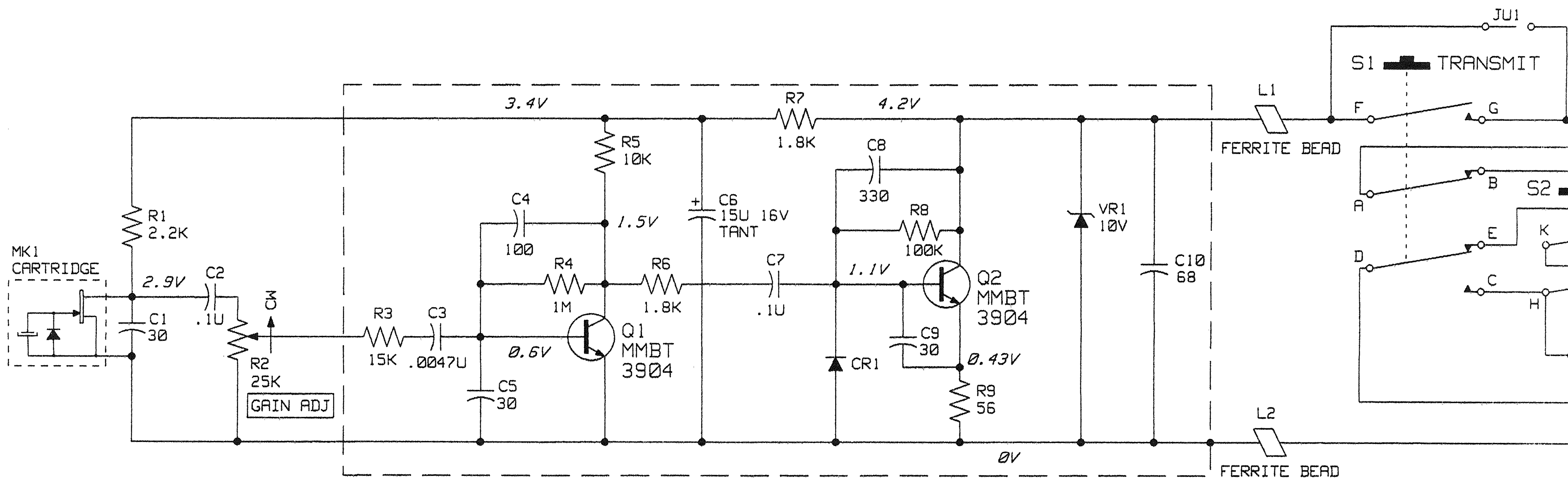
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|-----|-------------|---------------------|
| VR1 | 48-80140L15 | zener diode 10V SOT |
|-----|-------------|---------------------|

Non-referenced items

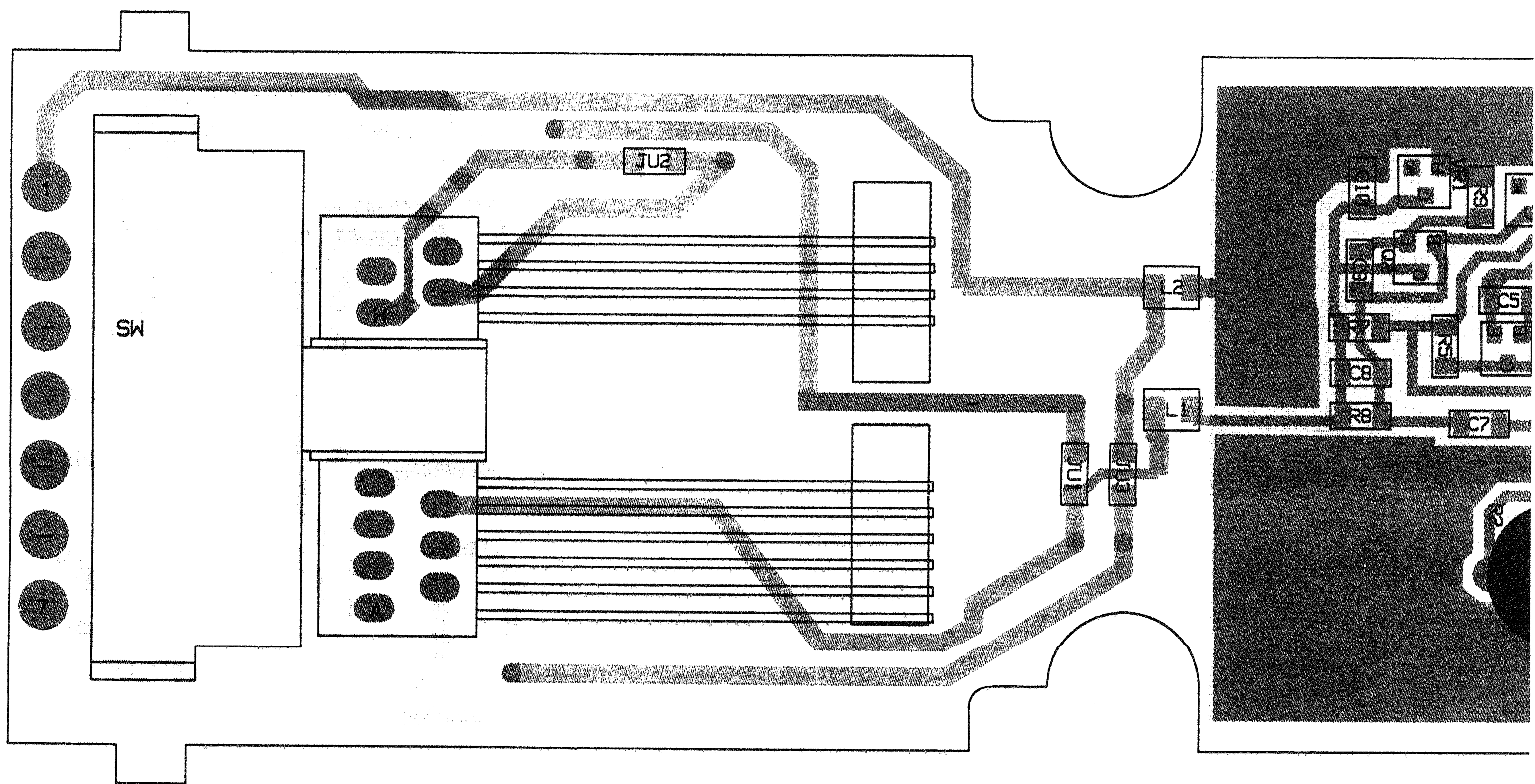
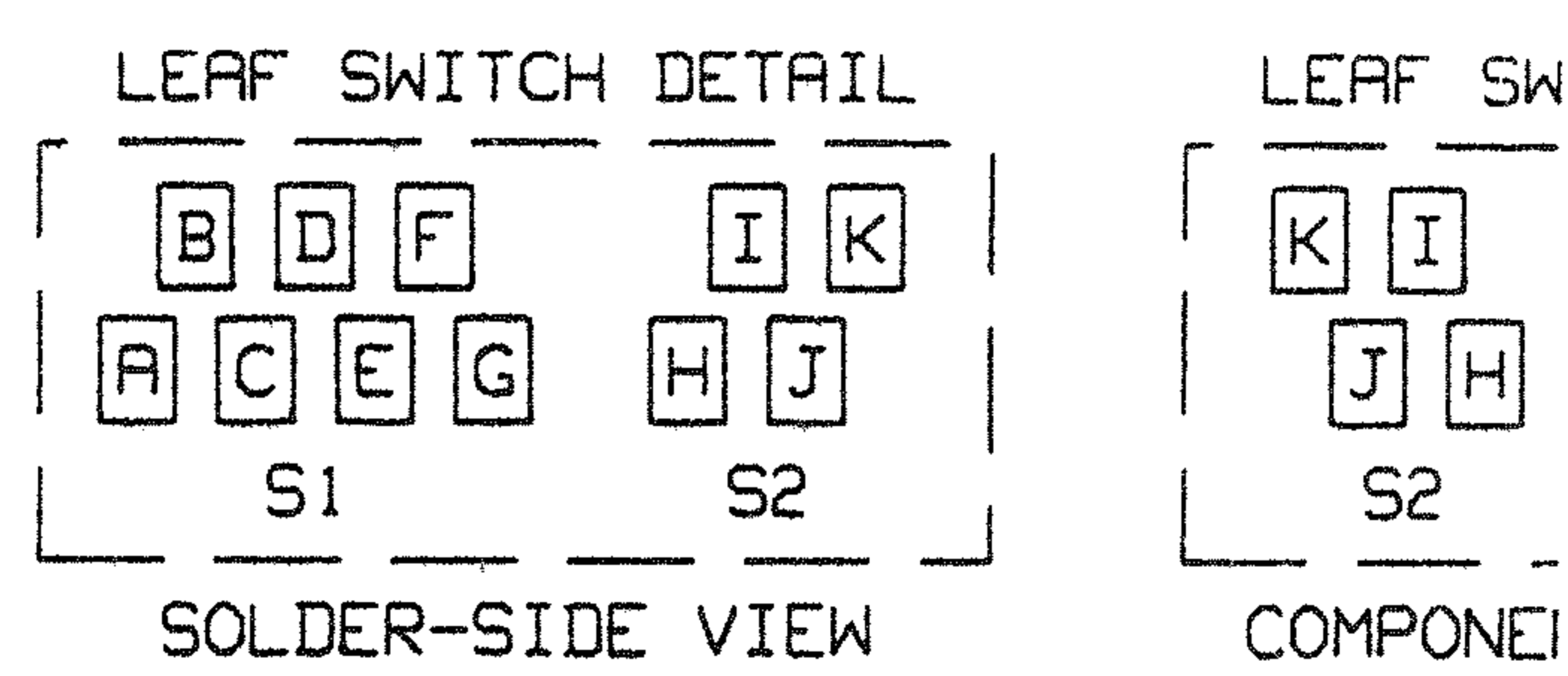
| | | |
|--|-------------|--------------------------------------|
| | 26-80644C01 | shield |
| | 32-80410D01 | gasket, cartridge |
| | 32-80411D01 | dampening pad (behind circuit board) |

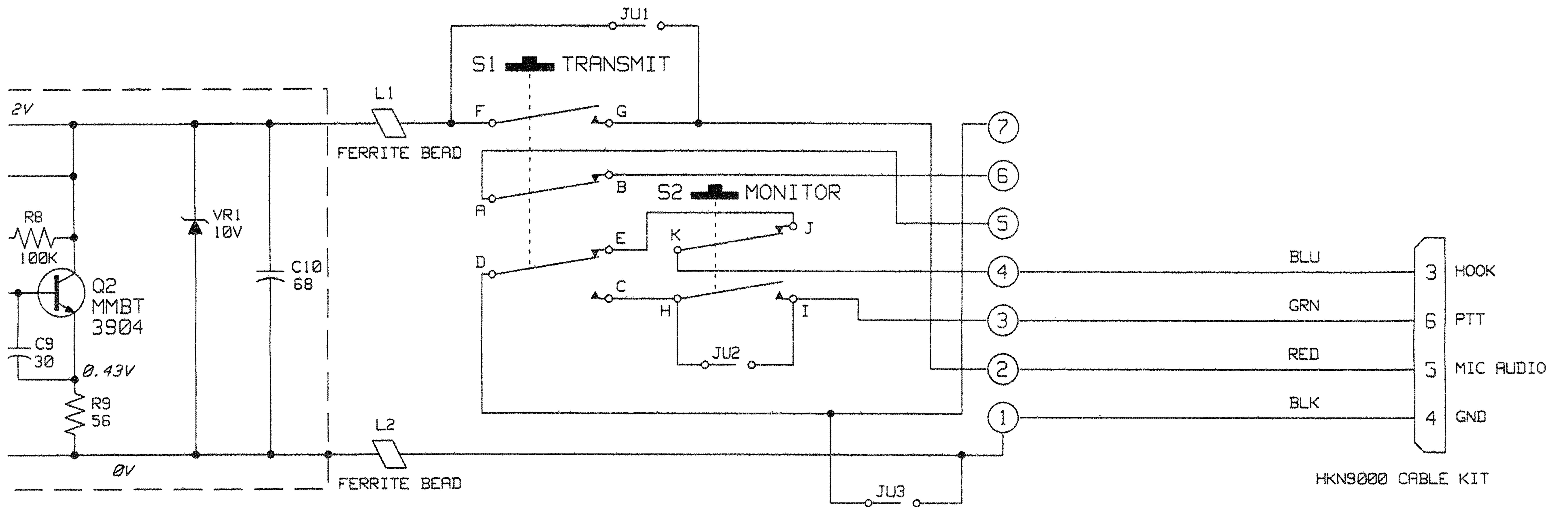
Note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part numbers.

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



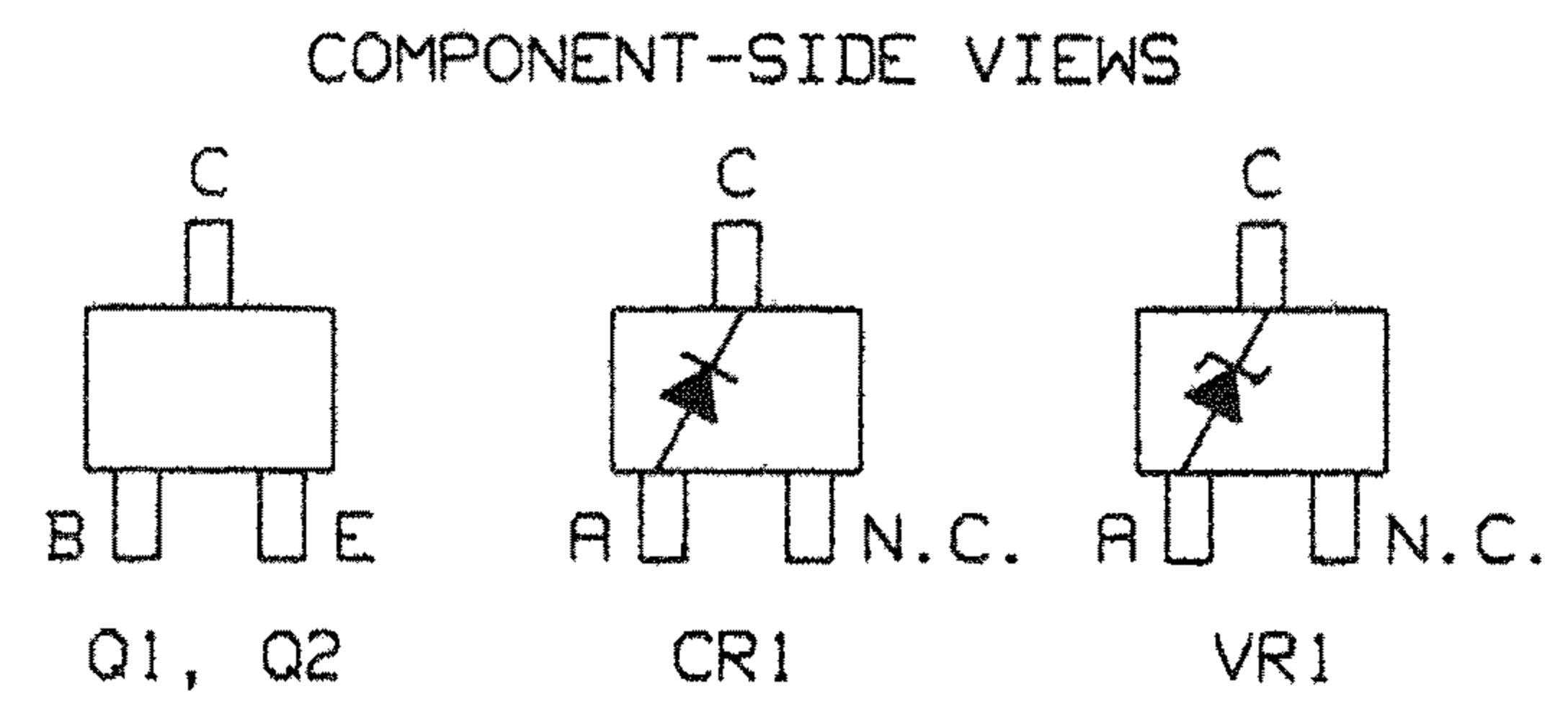
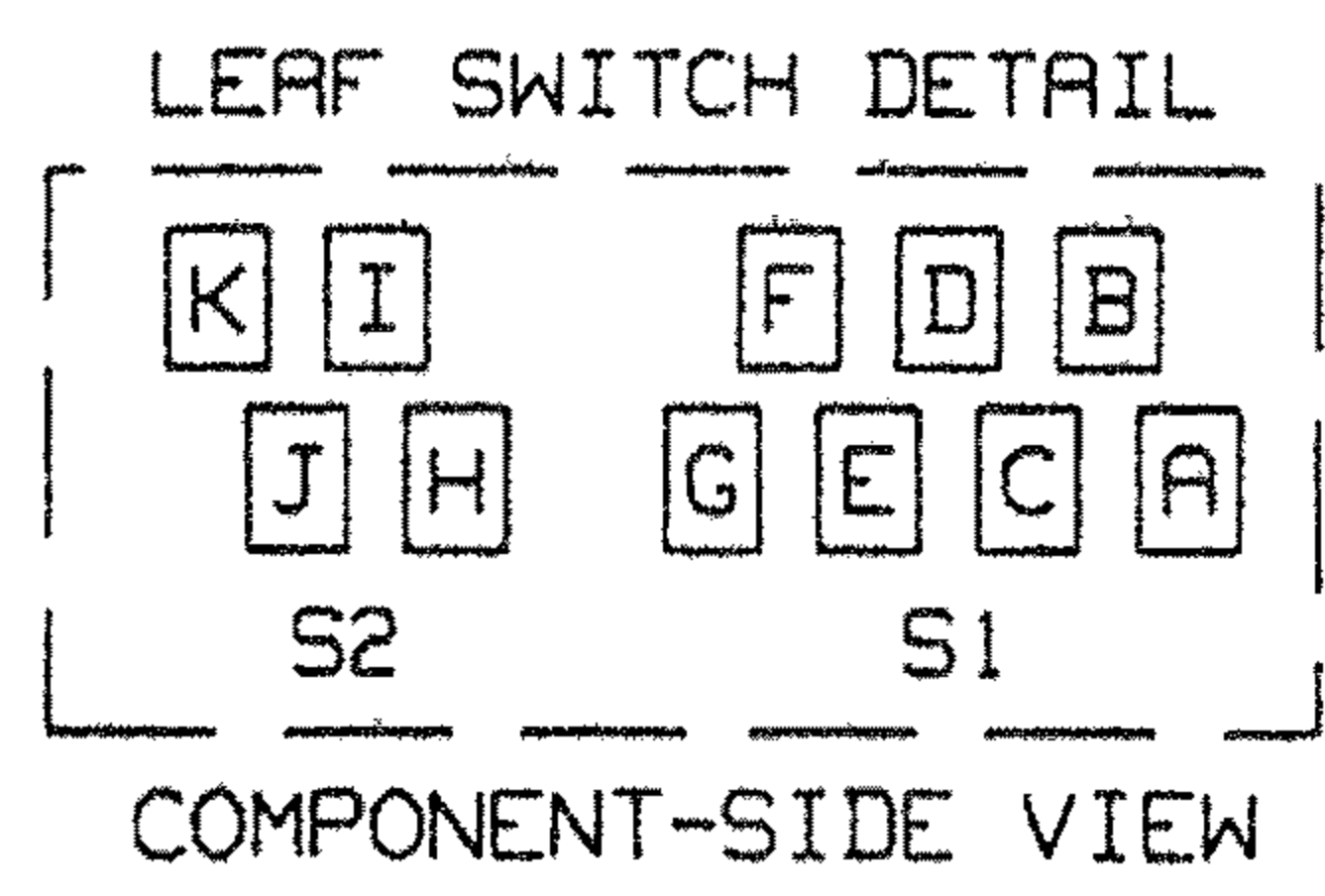
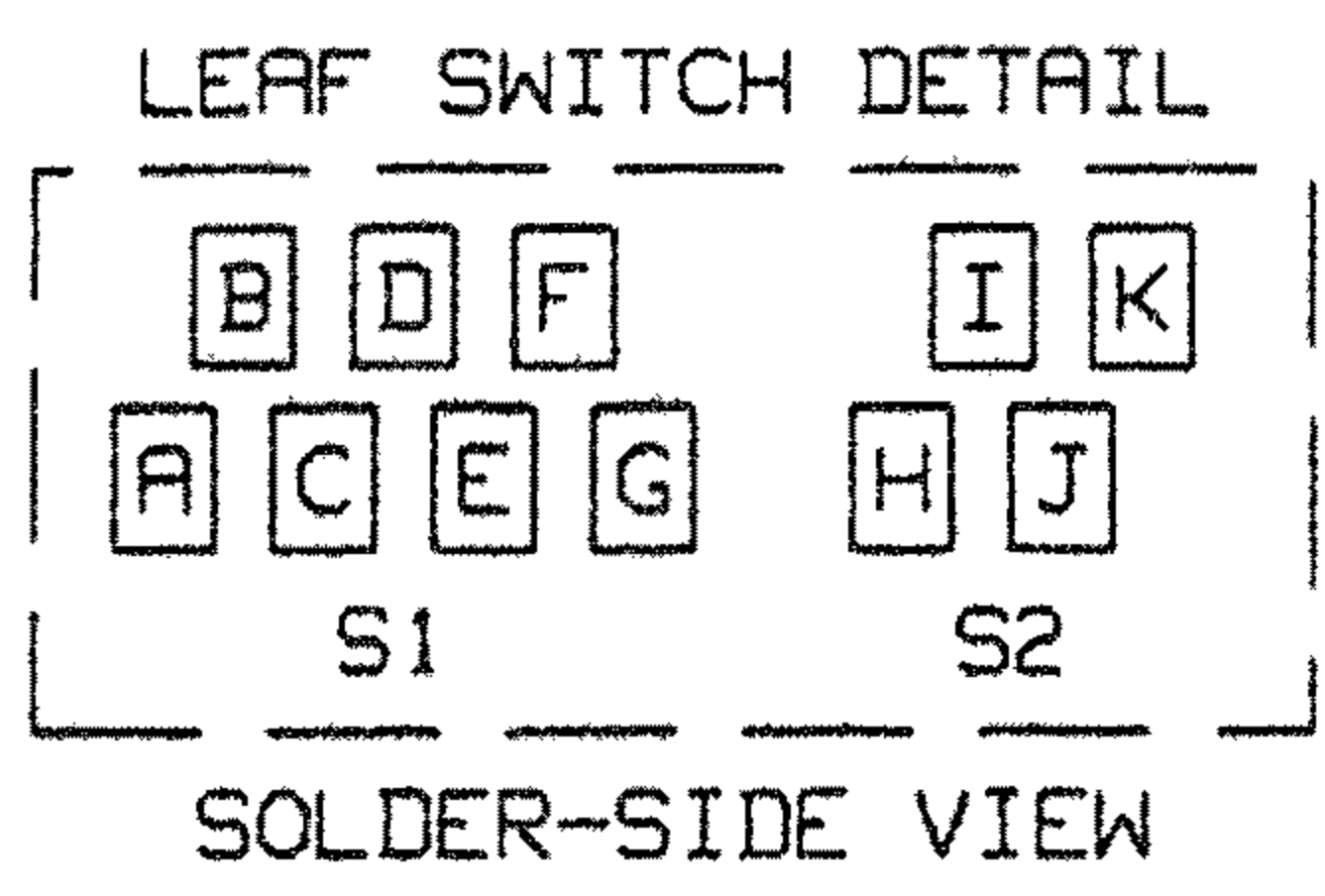


USAGE TABLE

OPERATION WITH INTERCOM

MONITOR DURING PTT

ATTACHED AUDIO & PTT GROUNDS



RPD-93105-A

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