

**University  
Sound**™

a MARK IV company

#### SPECIFICATIONS

**Generating Element:**  
Dynamic

**Frequency Response:**  
50-10,000 Hz

**Polar Pattern:**  
Omnidirectional

**Impedance:**  
150 ohms

**Sensitivity,**  
**Open Circuit Voltage:**  
0.87 mV/Pascal at 1,000 Hz  
**Power Level:**  
-62 dB at 1,000 Hz  
(0 dB= 1 mW/Pascal)

**Case Material:**  
Die-cast zinc

**Finish:**  
Non-reflecting silver (US637A/US637SA)  
Non-reflecting black  
(US637BA/US637SBA)

**Dimensions,**  
**Diameter:**  
40 mm (1.57 in.)  
**Length:**  
597 mm (23.5 in.)  
(includes 18 in. gooseneck)

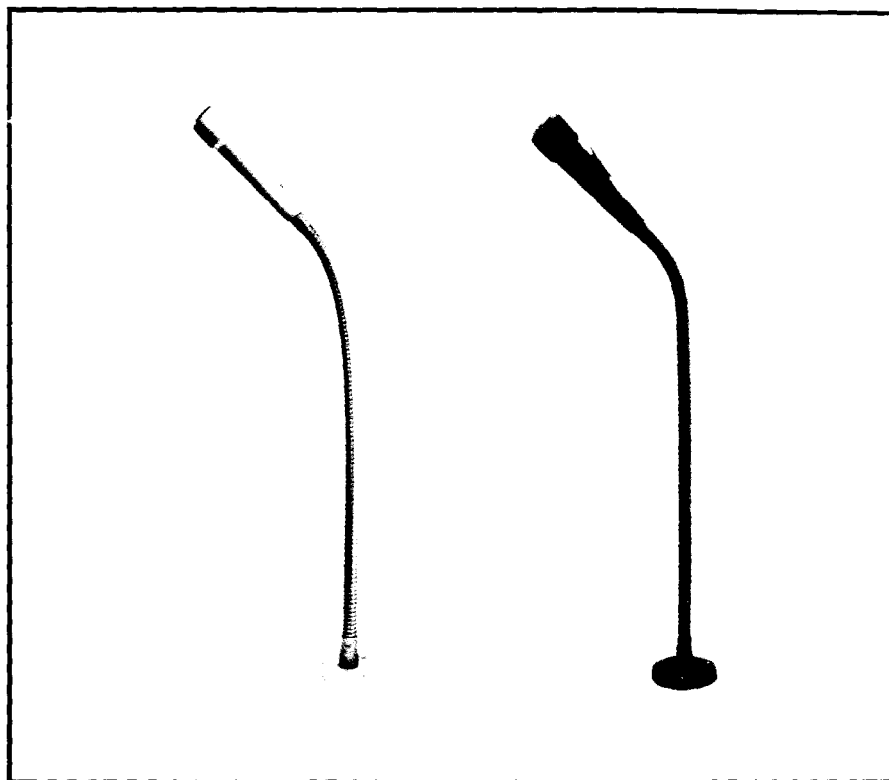
**Mounting:**  
5/8 in. - 27 thread in 2-3/4 in.  
diameter steel flange

**New Weight,**  
**US637SA/US637SBA:**  
822 g (29 oz) including cable  
**US637A/US637BA:**  
794 g (28 oz) including cable

**Shipping Weight,**  
**US637A Series:**  
964 g (2 lb, 2 oz)

**Switch,**  
**US637SA/US637SBA:**  
DPDT push to talk  
Activates mike in depressed  
position and switches relay circuit  
**US637A/US637BA:**  
None

**Cable,**  
**US637SA/US637SBA:**  
1.8 m (6 ft) four-conductor two-  
shielded, PVC jacketed (grey)  
**US637A/US637BA:**  
1.8 m (6 ft) two-conductor  
shielded, PVC jacketed (black)



**US637A/US637SA**

**US637BA/US637SBA** Gooseneck-Mounted  
Paging Microphone

#### DESCRIPTION

The University Sound US637A Series are durable, shock-mounted gooseneck supported microphones featuring an extended frequency response for intelligibility and combining attractive styling with ruggedness and high output level. Available in silver (US637A/US637SA) or black (US637BA/US637SBA), this series is ideally suited for use in bank drive-ups, fast-food restaurants, supermarkets, and other commercial applications. The replaceable element is shock mounted in a die-cast metal case. Attached to the metal case is an 18-inch flexible gooseneck terminating in a steel flange for surface mounting. The flange is slotted to provide the option for cable exit above the mounting surface. Sealed to prevent vapor penetration, the US637SA/US637SBA also provide a replaceable leaf-type switch designed to operate more than one million cycles. As shipped, the University Sound US637A Series may be used as direct, bolt down replacements for most gooseneck paging applications.

The omnidirectional polar characteristic of these microphones, combined with their special frequency response, yields excellent voice intelligibility without the low-frequency accentuation and breath pops of a directional microphone. By combining an effective internal shock-mount with the inherent low shock sensitivity of an omnidirectional design, these microphones greatly reduce mechanically produced sounds caused by the user grasping and moving the microphone.

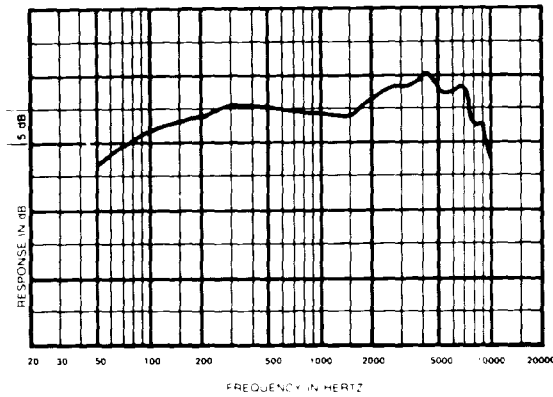


FIGURE 1 — Frequency Response

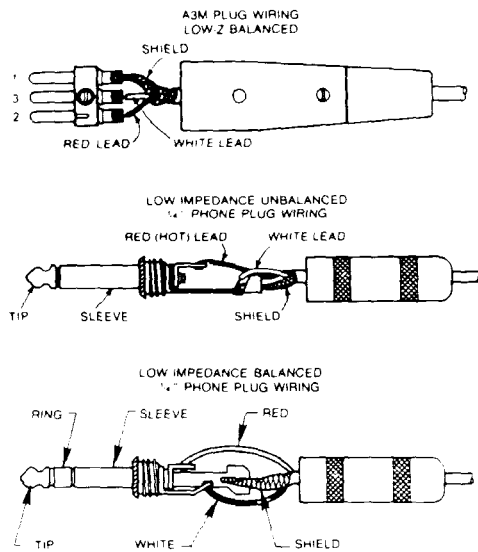


FIGURE 2 — US637A Wiring Diagram

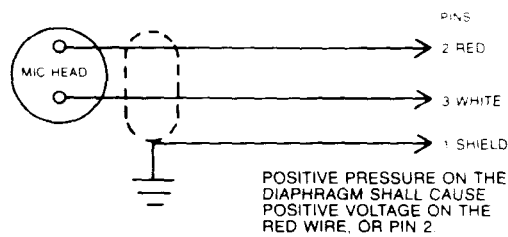


FIGURE 3 — US637A/US637BA Series Phase

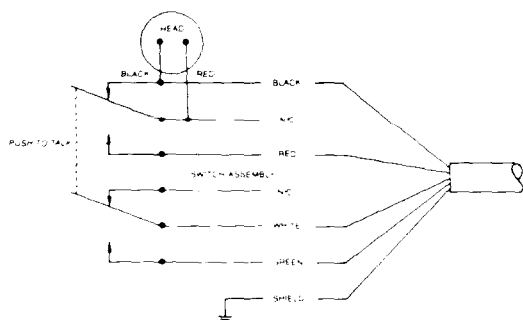


FIGURE 4 — US637SA/US637SBA Wiring Diagram

### Models US637SA/US637SBA

These microphones include a DPDT leaf-type switch which provides push-to-talk operation by activating or deactivating the microphone and the included relay switching circuit. An integral four-conductor cable is provided for ready connection to the input circuit.

The microphones are shipped with the switch wired for parallel operation of several units. The relay contacts are activated in the depressed "push-to-talk" position.

### TO CHANGE TO NORMALLY CLOSED OPERATION

For operation of a single microphone and if shorting of the microphone element is necessary, the switch wiring must be changed to short the microphone connection in the "off" or non-depressed position.

To change the switch wiring, the switch assembly must be accessed. First remove the two cross recessed screws from the switch plate then carefully lift the switch assembly from the microphone case by moving the switch assembly up and forward. If the switch assembly does not easily lift from the microphone, check to insure that there is sufficient slack on the cable. Unsolder the red wire, coming from the cable bundle, (not the red wire from the element) and resolder this red wire to the switch tab above and to the left of the original position. To reassemble, reverse the disassembly procedure, being careful to dress the element leads beside the switch blades to prevent mechanical interference with the blade movement. Finally, the rubber gasket seal must be repositioned beneath the switch plate.

### Element Replacement

The element used in the US637A Series is replaceable and can be removed through the front opening of the microphone. It is first necessary to disconnect the element leads from their termination points by removing the switch assembly. Next, remove the grille screen by squeezing the screen and working the edges of the grille from the groove in the periphery of the case. The microphone element and shock mount can now be withdrawn through the front opening of the microphone. To reassemble, reverse the disassembly procedure.

### ARCHITECTS' AND ENGINEERS' SPECIFICATIONS

#### Models US637A/US637BA

The model US637A shall be finished in a non-reflecting silver epoxy paint and chrome. The model US637BA shall be finished in a non-reflecting black epoxy paint. The microphone shall be an omnidirectional dynamic type with uniform frequency response from 50 to 10,000 Hz. The microphone impedance shall be 150 ohms. Output level shall be -62 dB with 0 dB equaling 1 mW/Pascal. Dimensions shall be 40 mm (1.57 in.) diameter and 597 mm (23.5 in.) long. The microphone shall include an 18 in. gooseneck and mounting flange, and shall include the options of complete concealment of cable when mounted or cable exit from the mounting flange. The microphone, gooseneck and mounting flange shall be all metal construc-

tion. A locking nut shall be provided to allow rotation of the microphone case. The rear cavity of the microphone shall be sealed to prevent vapor penetration. The element shall be shock mounted from the case and shall be replaceable. A 1.8 mm (6 ft) two-conductor shielded, vinyl jacketed cable shall be included.

The University Sound Model US637A and US637BA are specified.

**Model US637SA/US637SBA**

The model US637SA shall be finished in a non-reflecting silver epoxy paint. The model US637SBA shall be finished in a non-reflecting black epoxy paint. The microphone shall be an omnidirectional dynamic type with uniform frequency response from 50 to 10,000 Hz. The microphone impedance shall be 150 ohms. Output level shall be -62 dB with 0 dB equaling 1 mW/Pascal. Dimensions shall be 40 mm (1.57 in.) diameter and 597 mm (23.5 in.) long. The microphone shall include an 18 in. gooseneck and mounting flange, and shall include the options of complete concealment of cable when mounted or cable exit from the mounting flange. The microphone, gooseneck and mounting flange shall be all metal construction. A locking nut shall be provided to allow rotation of the microphone case. The rear cavity of the microphone shall be sealed to prevent vapor penetration. The element shall be shock mounted from the case and shall be replaceable. A 1.8 mm (6 ft) two-conductor shielded, vinyl jacketed cable shall be included.

The microphone shall include a replaceable double-pole, double-throw leaf switch design tested to over one million on and off cycles. The switch shall include options of microphone shorting or disconnection in the "off" position, with additional contacts to provide a short or open connection to two control wires. A rubber gasket shall seal the switch cavity.

The University Sound Model US637SA and US637SBA are specified.

**WARRANTY (Limited)** — University Sound Commercial Microphones are guaranteed for two years from date of original purchase against malfunction due to defects in workmanship and materials. If such malfunction occurs, unit will be repaired or replaced (at our option) without charge for materials or labor if delivered prepaid to University Sound. Unit will be returned prepaid. Warranty does not extend to finish, appearance items, cables, cable connectors, switches, or malfunction due to abuse or operation under other than specified conditions, nor does it extend to incidental or consequential damages, so the above exclusion may not apply to you. Repair by other than University Sound will void this guarantee. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

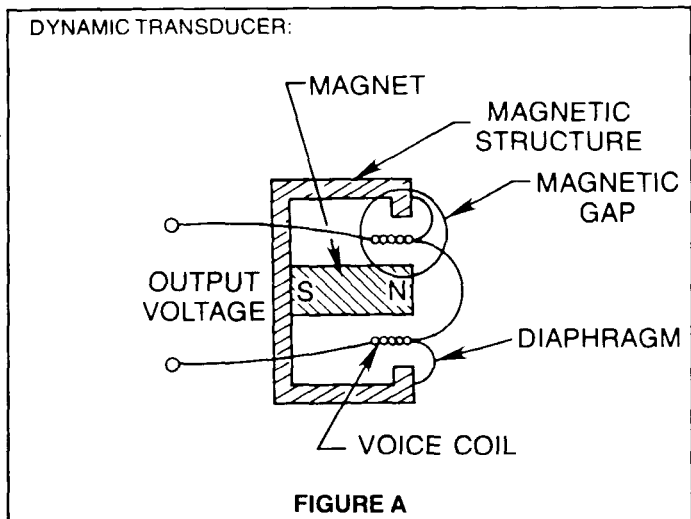
Service and repair information for this product: University Sound products:  
University Sound, Inc.,  
Phone 818/362-9516, FAX 818/367-5292.

Applications and technical information for University Sound products:  
University Sound, Inc., Technical  
Coordinator, Phone 818/362-9516, FAX 818/  
367-5292.

Specifications subject to change without notice.

# MICROPHONE SELECTION AND APPLICATION GUIDE

## HOW DO MICROPHONES GENERATE THEIR ELECTRICAL VOLTAGE?



The diaphragm of a dynamic microphone is a thin formed-plastic membrane. Attached to the diaphragm is a coil of wire, known as the "voice coil." As sound pressure moves the diaphragm/voice coil assembly within the magnetic gap, a very small voltage is generated. This small, induced voltage is the output of the microphone.

Dynamic microphones are used in a wide range of applications from public address to professional recording. The dynamic microphone provides excellent fidelity, extremely stable performance characteristics and ruggedness—all at a reasonable price to make the dynamic an excellent choice for any application.

### POLAR PATTERN

A microphone's polar pattern is three dimensional in character. Omnidirectional microphones pick up sound from all directions. Unidirectional microphones reject or reduce sound from their sides and rear.

## OMNIDIRECTIONAL POLAR PATTERN

The polar pattern of an omnidirectional microphone may be visualized as an inflated balloon with the microphone at the center.

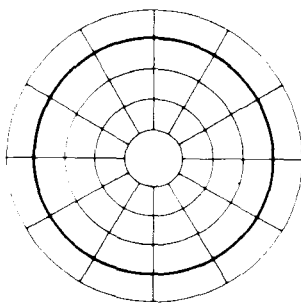
Usually the polar pattern is represented on polar graph paper, as illustrated in Figure B. The polar pattern shows the loss in output level (in dB) experienced as the microphone is rotated 360° with a constant-output sound source at a fixed distance and frequency.

## OMNIDIRECTIONAL MICROPHONE ADVANTAGES

In many systems where loudspeakers are located 20 to 40 feet away from the microphone—as at the top of a proscenium arch—a directional microphone is likely to show only negligible advantages with respect to feedback over an omnidirectional microphone. This is especially true where extremely close working distances are employed, say one-eighth to six inches.

The omnidirectional microphone, where it can be used, has several advantages in its favor:

1. For a given price, an omnidirectional microphone generally has a smoother frequency response than its unidirectional counterpart. Such smoothness of response is important because any roughness invites feedback.
2. An omnidirectional microphone is significantly less susceptible to breath pop than its unidirectional counterpart.
3. An omnidirectional microphone is significantly less sensitive to mechanical shock than its unidirectional counterpart.
4. An omnidirectional microphone is often more rugged than its unidirectional counterpart.



**FIGURE B**  
Polar Pattern