OMNI-DIRECTIONAL CONTROLLED MAGNETIC MICROPHONES

GENERAL
The Commando Series Microphones are designed for voice reproduction and are ideal for tape recording, fixed or mobile public address systems, amateur communications, and similar uses. The microphones are pressure operated units using the balanced armature controlled magnetic principle. They feature high output, smooth response, extreme ruggedness and ability to withstand severe moisture and temperature conditions.

Model 415 is a high-impedance microphone for connection to amplifiers, mixers or tape recorders with high-impedance microphone inputs.

The Models 420, 425 and 430 are dual-impedance microphones with the option of low-impedance for connection to microphone inputs rated at 25 to 200 ohms, or of high-impedance for connection to high-impedance microphone inputs.

Model 415 can be used as a handheld unit or can be stand-mounted with the furnished A25B swivel adapter. The A25B has standard %-27 threads and is adjustable through 90° from vertical through horizontal. The Model 415 has an attached 2.1m (7 ft) single-conductor shielded cable.

Model 420 is designed specifically for applications requiring a small wearable microphone. It is furnished with a detachable lavalier cord and clip assembly and a small-diameter, extremely flexible, attached 6.1m (20 ft) two-conductor shielded cable. Model 420 allows the wearer full use of both hands used as a lavalier microphone or can be used as a handheld microphone removed from the lavalier assembly.

Model 425 has a %-27 threaded base permitting easy goose-neck mounting. It is furnished with a small-diameter attached 2.1m (7 ft) two-conductor shielded cable. This microphone is also available with an attached gooseneck in a 6 in. length as Model 425-G6, in a 12 in. length as Model 425-G12, and in an 18 in. length as Model 425-G18.

Model 430 is supplied with a detachable 4.6m (15 ft) two-conductor shielded cable with an Amphenol MC2M connector on the microphone end. It has a press-to-talk locking or non-locking switch and can be used handheld or stand-mounted in the furnished A25B swivel adapter.

ARCHITECTS' SPECIFICATIONS
The microphone shall be Shure Model (415, 420, 425, 430) or equivalent balanced armature controlled magnetic type microphone with a frequency response of 60 to 10,000 Hz. This unit shall have an omnidirectional polar characteristic. The microphone shall be dual impedance (except Model 415—high impedance only) with a rated impedance of 150 ohms for connection to microphone inputs rated at 25 to 200 ohms and High for connection to high-impedance microphone inputs. The microphone output shall be:

- Low ................................................................. -54 dB
  (0 dB = 1 milliwatt with 10 microbars)
- High .............................................................. -55 dB
  (0 dB = 1 volt per microbar)

MODEL 415 — The microphone shall be provided with a swivel adapter adjustable through 90° from vertical to horizontal and suitable for mounting on a stand having a %-27 thread. The microphone shall be provided with a 2.1m (7 ft) single-conductor shielded cable. The overall dimensions shall be 173.0 mm (6-13/16 in.) in length and 44.5 mm (1 7/16 in.) in diameter.

MODEL 420 — The microphone shall be provided with a lavalier cord and clip assembly for use as a wearable microphone. The microphone shall be provided with a 6.1m (20 ft) two-conductor shielded cable. The overall dimensions shall be 93.7 mm (3-11/16 in.) in length and 44.5 mm (1 7/16 in.) in diameter.

MODEL 425 — The microphone shall be provided with an adapter having a %-27 thread. The microphone shall be provided with a 2.1m (7 ft) two-conductor shielded cable. The overall dimensions shall be 118 mm (4-21/32 in.) in length and 44.5 mm (1 7/16 in.) in diameter.

MODEL 430 — The microphone shall be provided with an On-Off switch and a swivel adapter adjustable through 90° from vertical to horizontal and suitable for mounting on a stand having a %-27 thread. The microphone shall be provided with a detachable 4.6m (15 ft) two-conductor shielded cable with an Amphenol MC2M connector on the microphone end. The overall dimensions shall be 177 mm (7 in.) in length and 44.5 mm (1 7/16 in.) in diameter.

IMPEDANCE SELECTION
The dual-impedance Models 420, 425, and 430 are shipped connected for high-impedance operation.

To change Models 420 and 425 to low impedance:
1. Remove the three Phillips Head screws holding the bottom cap or adapter to the microphone.
2. Gently pull down the cap or adapter.
3. Reach in with longnose pliers or tweezers and remove the pin jack (WHITE lead) from the terminal marked "H". (See Figure A.) Install this pin jack on terminal pin marked "L".
4. Reassemble bottom cap or adapter to microphone, making sure that the cable strain relief is well seated in the bottom cap and that the screws are tightened securely.

To change Model 430 to low impedance:
1. Remove the two Phillips Head screws located below the nameplate and a third of the way around from the switch.
2. Loosen the screw between the switch and the nameplate just enough to pull off the top part of the microphone. This screw should remain attached to the switch bracket inside the chrome base of the microphone.
3. Reach in with longnose pliers or tweezers and remove the pin jack (RED lead) from the terminal marked "H". (See Figure A.) Install this pin jack on terminal pin marked "L".
4. Reassemble the bottom chrome base to the upper part of the microphone. Position switch bracket so that top part of microphone slides easily into chrome base. Tighten all screws securely.

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CONNECTIONS

Model 415 — high impedance only: The WHITE lead is the "hot" cable conductor for connection to high-impedance inputs; the shield is connected to the chassis or amplifier ground.

Models 420, 425, and 430 — dual impedance: For balanced-line low-impedance connections, the BLACK and WHITE leads are the "hot" conductors; the shield is connected to the chassis or amplifier ground. For unbalanced low-impedance or high-impedance connections, the WHITE lead is the "hot" conductor; the BLACK lead and shield are connected to the chassis or amplifier ground.

The low-impedance connection is recommended where long cable lengths are required or under conditions of severe hum disturbance. The permissible cable length is practically unlimited since neither response nor level is appreciably affected. Shure Model A95 Series Line Matching Transformers are available for use in those cases where a low-impedance microphone line is desirable but the associated amplifier has a high-impedance input. These transformers provide a proper impedance match between a 25 to 200 ohm microphone line and a high-impedance input and are available with various input and output connectors.

SPECIFICATIONS

Type
Controlled Magnetic

Frequency Response
60 to 10,000 Hz (See Figure B)

Impedance
Model 415 — Microphone impedance is high for connection to high-impedance microphone inputs.
Models 420, 425, 430 — LOW: Microphone rating impedance is 150 ohms (200 ohms actual at 1kHz) for connection to microphone inputs rated at 25 to 200 ohms. HIGH: Microphone impedance is "High" for connection to high-impedance inputs. Microphones wired for high impedance as supplied.

Output Level (at 1,000 Hz)

<table>
<thead>
<tr>
<th>Type</th>
<th>High</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open Circuit Voltage*</td>
<td>-55 dB</td>
<td>-75 dB</td>
</tr>
<tr>
<td>Power Level**</td>
<td>1.78 mV</td>
<td>.18 mV</td>
</tr>
</tbody>
</table>

* 0 dB = 1 volt per microbar
** 0 dB = 1 milliwatt with 10 microbars

Polar Pattern
Omnidirectional

Case