

Music 105 B Spring Quarter 1969

Instructor: Paulino Oliveira

T.A. 2 Betty Wong  
John Brines  
Charles Bull

Lab Assistant David Beren

Music 105 B is the continuation of Music 105A.

Each class member is expected to work on his own personal project through out the quarter utilizing techniques acquired from the previous course. Progress must be reported weekly to his respective TA.

~~late~~ assignments will <sup>not</sup> be accepted and ~~absence of~~ ~~assignments on due dates is an~~ automatic F.  
no shows and late comers are ~~definitely unappreciated~~ and will ~~be asked to drop out~~.  
Suggested projects material: and will ~~be asked to drop out~~.  
Please

1. Tape composition
2. Tape demonstration of possible techniques with Buchla System
3. Design and construction of supplementary modules to Buchla System with a paper discussing the musical reasons for the designs. Designs for modifications to Buchla modules
4. Advanced notation ~~system~~ for Buchla system with accompanying tape realization.
5. exploration of contact microphones on instruments

The class will meet on Tuesday 1-2:20  
Tuesday will be a lecture of general nature and project question and answers with Oliveira. Thursday will be



a meeting of interest groups for help on projects  
~~and~~ exercises for technical progress, and discussions of  
week by lab work.

Betty Wong will supervise recording and mixing.

Charles Buel will supervise composition projects

John Grimes will supervise general aesthetic questions  
regarding electronic music.

David Geren will answer technical questions regarding  
the labs in Q.306 and the most efficient  
use of contact microphones.

Q306 West contains the Buchla Systems, a four channel  
sound system consisting of 2 Revox stereo  
tape recorders, 2 Dyna stereo pre-amp Lafayette  
solid state power amp lifers and 4 speakers. A patch  
panel makes all outputs and inputs for this equip-  
ment available.

Q306 Center is a recording or editing station

Q306 East is contact microphone center. Check out  
these microphones through your TA.

Users of these labs are expected to take responsibility  
in the following manner:

1. Avoid twisting off or pulling out pots by the roots  
if frustrated.



2. Do not leave a tangled mess of patch cords for some<sup>one</sup> else to cope with, especially not on the floor.
3. Covers on tape recorders when out of use.
4. Turn off switch when lab is not in use.
5. Report any failure of equipment immediately to Dave Geren via message or to TA.
6. See that doors and windows are locked when you leave labs.

Q 305 and Q 307 and associated equipment is available to class members.

Sony 8002 and the Calrad microphone can be checked out in the music office

A Sony 777 is available with advance notice to Jim Dublins. On any other portable equipment advance notice is necessary.

Douglas Yedy of UCLA and Daniel Kenitz of UCSB will be guest lecturers in May. Class members are required to participate in these respective concerts.



no late assignments accepted until Monday

Betty work with recording + mixing

Charles work composing projects and notation

John work with general aesthetic aspect  
what is a good electronic composition

Dave Beren contact micro lab  
and patch  
frequency response measurement.

Personal project utilizing last quarter information and a new

Proof of work

Preliminary deadline  
responsible to TA  
Show + tell

Tuesday - interest groups Subject matter

Thursday - Obvious Question and answer

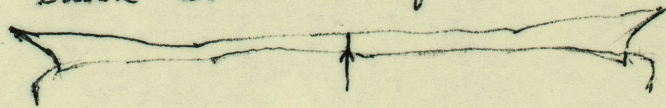
check source before Thurs.

Q 306W

Q 305

Q 307

Labs



\$70 Taxes

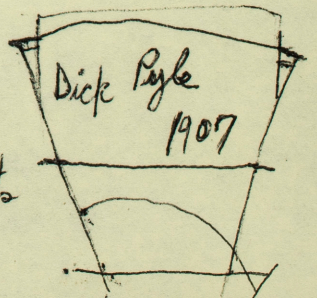
\$60 per month

Ernie Most

Enid Hines  
2021  
Tues Appts

off

1916





+ Letter - How did you participate  
in this course? +

Would you admit elements  
of danger or other taboos into  
your scores? Explain why or why not.

What questions would you like  
me to answer?

Give your address so I can  
answer you personally by letter.

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THE DEPARTMENT OF MUSIC, UNIVERSITY OF CALIFORNIA, SAN DIEGO  
and  
THE UC INTERCAMPUS CULTURAL EXCHANGE COMMITTEE

PROGRAM OF ELECTRONIC MUSIC

*presented by students in* SEMINAR IN ELECTRONIC MUSIC PERFORMANCE  
*with guest composer,* DANIEL LENTZ

May 29, 8:30 P.M.

RECITAL HALL, 409 MC



## PROGRAM

MISSA BREVIS (*Philip Winsor*) FOR THREE PERCUSSIONISTS  
(BONNIE BARNETT, JON DUTTON, JOHN GRIMES), IMPROVISED  
DANCE (JUDITH MULLEN) AND TAPE - - - MONKEY (*Gerald  
Walker*) CONCRETE SOUNDS PROCESSED BY MOOG SYSTEM - - -  
GOSPEL MEETING (*Daniel Lentz*) FOR TWELVE ELECTRONICS  
ASSISTANTS AND CHORUS OF WOMEN'S VOICES - - -

## INTERMISSION

BANANABURG (*Victor Laruccia*) FOR TWO LIVE ACTORS  
(DAN LAWLER, MARK ELSON), TWO FILMED ACTORS (BERTRAM  
TURETZKY, OLIVER MALCOLMSON), PROJECTIONS, TAPE,  
CHOREOGRAPHY (JUDITH MULLEN) - - - THE LAST CONCERT,  
IN 3 (*Daniel Lentz*) FOR PIANO (LANDON YOUNG) AND  
ELECTRONICS - - -

electronics assistants

David Geren  
Kent Brodwolf

technical assistants

Donald Bright  
Steven Clark  
Jon Dutton

publicity

Bonnie Barnett

production assistants

Betty Wong  
Charles Buel  
John Grimes



## COMING EVENTS:

- June 5 - Program of Chamber Music by students in seminars in the performance of music for small ensemble - Arthur Gleghorn, flautist, guest performer, in Henry Brant, Angels and Devils. 8:30 p.m. Place to be announced.
- June 7 - Encore: 201 Ensemble, 201 Concert Series - Gorecki, Concerto for Five Instruments and String Quartet; Erickson, Pacific Sirens; Stravinsky, Sonata for Two Pianos; Buel, Connections I, II.



THE DEPARTMENT OF MUSIC, UNIVERSITY OF CALIFORNIA, SAN DIEGO

and

THE UC INTERCAMPUS CULTURAL EXCHANGE COMMITTEE

ENTROPICAL PARADISE

PROGRAM OF MUSIC, DANCE, AND FILM

*presented by students in* SEMINAR IN ELECTRONIC MUSIC PERFORMANCE

*with guest composer,* DOUGLAS LEEDY

May 15, 8:30 P.M.

UCSD Art Gallery



## P R O G R A M

AUTOMATED RANDOM PROGRAM SEQUENCE FOR BUCHLA SYNTHESIZER:  
ENTROPICAL PARADISE WITH BIRD CALL (*Leedy*) - - - DANCE:  
A AND  $\Omega$  (*choreography by Judith Mullen, music, LEMON DROPS,*  
*by Kenneth Gaburo*) - - - TEDDY BEARS PICNIC (*Leedy*)

INTERMISSION DURING WHICH 88 IS GREAT (*Leedy*) FOR PIANO,  
18 HANDS, WILL BE PERFORMED IN THE RECITAL HALL, 409.  
FOLLOW SOUND AND LIGHT TO 409 AND BACK TO ART GALLERY  
FOLLOWING PERFORMANCE

EINIGE CANONISCHE VERAENDERUNGEN UEBER DAS WEIHNACHTSLIED  
"VOM HIMMEL HOCH" BY J. S. BACH (*variations 1, 2, 3, 5*)  
ELECTRIFIED ON THE MOOG SYNTHESIZER (*Leedy*) - - -  
CHANGES (*Charles Buel*) - - - USABLE MUSIC I FOR VERY  
SMALL INSTRUMENTS WITH HOLES (*Leedy*) PERFORMED BY THE  
UCSD HARMONICA BAND UNDER THE DIRECTION OF CAPT. THOMAS  
NEE - - - FILM: IT IS HERE (*John F. Gunderson, Jr.*)  
- - - FINALE (*Leedy*)

*coming events: "Music, Films, and Talk: Four Theater Pieces*  
*by Larry Austin," May 22, 8:30 p.m., 409 MC.*

*"Concert of Electronic Music," Daniel Lentz*  
*and students in Electronic Music Performance*  
*Seminar, May 29, 8:30 p.m., 409 MC.*



## PERFORMERS

### TAPE RECORDISTS

Klaus von Wrochem  
Betty Wong  
Judith Mullen  
Victor Laruccia  
Keith Carter  
Charles Buel  
Steven Clark

### TEDDY BEARS

Bonnie Barnett  
Ronald Watson  
Keith Carter  
Donald Bright  
David Geren (electronics)

### HARMONICA BAND

Alan Johnson  
Bonnie Barnett  
John Grimes  
Louise Spizizen  
Allan Goldman  
Ronald Robboy  
Jeffrey Raskin  
Jon Dutton  
Shirley Wong  
Betty Wong  
Lester Weil  
Elinor Barron  
Jack Logan  
Judith Mullen

### PIANISTS

Charles Buel  
Bonnie Barnett  
Judith Mullen  
Jeffrey Raskin  
John Grimes  
Jon Dutton  
Allan Goldman  
Betty Wong

### DANCERS

Bonnie Barnett  
Judith Mullen



THE FOLLOWING LECTURES AND DEMONSTRATIONS HAVE BEEN ARRANGED FOR THE MONTH OF MAY. EACH WILL PRESENT INFORMATION CONCERNING NEW MATERIALS AND PROCESSES. PLEASE NOTE THAT EACH SESSION WILL TAKE PLACE IN A DIFFERENT LOCATION TO PROVIDE BETTER DEMONSTRATION FACILITIES FOR EACH PARTICULAR FIELD OF SCIENCE OR TECHNOLOGY. OTHER LECTURES AND TOURS ARE BEING ARRANGED FOR JUNE. THERE WILL BE NO CHARGE.

ART AND ELECTRON MICROSCOPY

MAY 5TH MONDAY EVENING 8P.M.

290 HEARST MINING BLDG.

DR. GARETH THOMAS

UNIV. OF CALIF. BERKELEY

THE INTERNAL STRUCTURE OF CRYSTALLINE SOLIDS IS REVEALED IN THE ELECTRON MICROSCOPE BY PHOTOGRAPHING ELECTRONS WHICH HAVE PASSED THROUGH THIN SPECIMENS. VARIOUS EXAMPLES OF THE WIDE RANGE OF PATTERNS AS WELL AS DEMONSTRATIONS OF ELECTRON MICROSCOPES AT WORK WILL BE GIVEN. THE 1968 PHOTO EXHIBIT OF THE ELECTRON MICROSCOPE SOCIETY WILL BE ON DISPLAY.

LIGHT, COLOR AND OPTICS

MAY 9TH FRIDAY EVENING 8P.M.

ROOM 4 LE CONTE HALL

DR. JOHN STONE

UNIV. OF CALIF. BERKELEY

A DISCUSSION OF THE PHENOMENA OF HUMAN VISION, THE PHYSICAL NATURE OF LIGHT, WAVE THEORY AND THE FORMATION OF IMAGES, DIFFRACTION AND POLARIZATION.

ELECTRONIC CONTROL OF LIGHT AND SOUND

MAY 16TH FRIDAY EVENING 8P.M.

ROOM 1 LE CONTE HALL

DR. CARSON JEFFRIES

UNIV. OF CALIF. BERKELEY

DR. JEFFRIES IS A PROFESSOR OF PHYSICS WHO IS WORKING WITH ELECTRONICALLY PROGRAMMED LIGHT/SOUND SCULPTURES. HE WILL DISCUSS AND DEMONSTRATE THE POSSIBILITIES OF SOLID STATE CIRCUITS AND SWITCHING DEVICES TO ACTIVATE AND CONTROL LIGHT AND SOUND.

LUMINESCENCE

MAY 23RD FRIDAY EVENING 8P.M.

ROOM 273 CORY HALL

DR. JAQUES PANKOVE

UNIV. OF CALIF. BERKELEY

THIS DISCUSSION WILL BE CONCERNED WITH FLUORESCENCE, PHOSPHORESCENCE AND ELECTROLUMINESCENCE. DR. PANKOVE, A VISITING PROFESSOR AT U.C. IS ON LEAVE FROM R.C.A. LABORATORIES IN N.J.



E.A.T. BAY AREA IS IN THE PROCESS OF INCORPORATING IN CONJUNCTION WITH E.A.T. LOS ANGELES AS A NON-PROFIT CALIFORNIA CORPORATION. THIS WILL IN TURN BE PART OF THE NETWORK OF E.A.T. GROUPS THAT EXIST THROUGHOUT THE COUNTRY. PETER POOLE OF E.A.T. IN NEW YORK AND DAVID MCDERMOTT AND ARDISON PHILLIPS OF E.A.T. IN LOS ANGELES MET WITH MANY OF THE MEMBERS OF E.A.T. BAY AREA DISCUSSING VARIOUS ASPECTS OF THE FUNCTIONING OF E.A.T. ON A NATIONAL AND INTERNATIONAL LEVEL.

E.A.T. HAS BEEN INVITED TO DESIGN THE PEPSI COLA PAVILION AT THE WORLD'S FAIR IN OSAKA, JAPAN. LOWELL CROSS OF THE MILLS TAPE CENTER IS WORKING WITH DAVID TUDOR ON A VIDEO/LASER PIECE THAT WILL BE PART OF THE PAVILION. A PILOT PREVIEW OF THIS WORK WILL BE INCLUDED IN THE MAY 9TH CONCERT AT THE MILLS TAPE CENTER.

VIDEO WORKSHOP MEETING - APRIL 26TH 1:30 CALIF. COLLEGE OF ARTS AND CRAFTS GUILD AUDITORIUM B'WAY AND CLIFTON OAKLAND  
OPEN TO THOSE INTERESTED IN SETTING UP AN EXPERIMENTAL VIDEO FACILITY. WE ARE ALSO LOOKING FOR SPACE (PREFERABLY INDUSTRIAL) TO HOUSE THE WORKSHOP.

THE MACHINE SHOW, ORIGINALLY ASSEMBLED BY THE MUSEUM OF MODERN ART IN NEW YORK WILL BE OPENING AT THE SAN FRANCISCO MUSEUM OF ART ON JUNE 27TH. THIS EXHIBIT IS CONCERNED WITH THE MANIFESTATIONS OF THE MACHINE IN THE ARTS. NINE PIECES OF WORK CHOSEN FROM THE E.A.T. COMPETITION HELD IN 1967 ARE INCLUDED IN THE EXHIBIT.

IN CONJUNCTION WITH THE MACHINE SHOW, WHICH WILL BE AT THE MUSEUM FOR TWO MONTHS THERE WILL BE A SERIES OF PERFORMANCES AND FILMS. E.A.T. BAY AREA HAS BEEN WORKING ALONG WITH THE MUSEUM ON PERFORMANCES THAT REFLECT THE RELATIONSHIPS BETWEEN THE PERFORMING ARTS AND TECHNOLOGY.

OUR THANKS TO RAY BOURET, DON BAXTER, DICK HOORN AND LARRY MCDONALD AT P.G.& E. FOR THE LOAN OF THE FLASHERS AND BARRICADES THAT WILL FORM THE E.A.T. TRIBUTE TO THE ELECTRICAL ENERGY THAT WILL KEEP THE MACHINE SHOW RUNNING SMOOTHLY. WE ARE CONSTRUCTING A WALKWAY UP TO THE MUSEUM'S ENTRANCE ON OPENING NIGHT OF THE SAME FAMILIAR UNITS THAT P.G.& E. PROVIDES AS THE LIGHT SCULPTURES OF THE STREETS.

ANY ENGINEERS OR TECHNICIANS WILLING TO BE ON CALL FOR OPERATIONAL DIFFICULTIES IN THE MACHINE SHOW PLEASE CALL E.A.T. WE ARE FORMING A GROUP OF PEOPLE WHO WOULD BE ABLE TO HELP. MANY OF THE MACHINES ARE QUITE OLD.

\* SATURDAY AFTERNOON OPEN HOUSE WILL BE DISCONTINUED TEMPORARILY. WE WILL ANNOUNCE THESE AGAIN IN SEVERAL MONTHS.

E.A.T. IS WORKING WITH SEVERAL SCHOOLS IN THE AREA, HELPING TO SET UP ART AND TECHNOLOGY PROGRAMS. ANY NEWS OF THESE WILL BE PRINTED IN THE NEWSLETTER.

A SERIES OF LECTURES ON SYSTEMS ESTHETICS WILL BE GIVEN BY JACK BURNHAM FROM THE CENTER FOR ADVANCED VISUAL STUDIES AT M.I.T. THESE WILL BE AT CUMMINGS HALL AT STANFORD UNIVERSITY ON MAY 19TH, 21ST AND 23RD. MR. BURNHAM IS THE AUTHOR OF "BEYOND MODERN SCULPTURE" AS WELL AS AN ARTIST WHO HAS MORE RECENTLY BEEN EXPLORING ELECTROLUMINESCENT TAPES.

LAURA OF KPFA THANK YOU.



E.A.T. SAFETY PROGRAM IN NEW YORK HAS PUT TOGETHER, UNDER THE DIRECTION OF PETER POOLE, A COLLECTION OF VITAL INFORMATION CONCERNING THE PUBLIC EXHIBITION OF ART WORKS EMPLOYING LASERS. THIS INFORMATION WILL BE MADE AVAILABLE TO ARTISTS USING LASERS, GALLERIES AND MUSEUMS EXHIBITING THEM AND HEALTH DEPTS. IN VARIOUS MUNICIPALITIES TO CLARIFY WHAT IS SAFE AND WHAT IS NOT.

CONCERT MILLS TAPE CENTER MAY 9TH 8:30P.M. GREEK THEATER, MILLS COLLEGE

VIDEO/LASER BY DAVID TUDOR AND LOWELL CROSS A PILOT PREVIEW OF THE WORK THAT IS CURRENTLY BEING DONE FOR THE E.A.T. PEPSI COLA PAVILION AT THE WORLD'S FAIR. BOTH MR. CROSS AND MR. TUDOR WILL BE PRESENT AT THE PERFORMANCE.

A TAPE RECORDER PIECE BY DARIUS MILHAUD ETUDE POETIQUE  
FIRST CONCERT PERFORMANCE -UNDER THE PERSONAL DIRECTION OF MR. MILHAUD

PUBLIC ROADS FILM, SOUND AND LIVE PERFORMERS BY PATRICK GLEESON

LASER ENVIRONMENT BY MATT GLAVIN AND DON CAMPBELL  
HANSEN GALLERY 228 GRANT S.F.

MAY 16TH

THE VIBRATING WORLD SAN FRANCISCO MUSEUM OF ART APRIL 22-MAY 19

AN EXHIBIT DEALING WITH CYMATICS, THE STRUCTURE AND DYNAMICS OF WAVES IN VIBRATION. THIS WILL INCLUDE PHOTOGRAPHS AND A FILM OF EXPERIMENTS OVER THE PAST DECADE BY HANS JENNY. THE EXHIBIT WAS ASSEMBLED BY IBM.

ENERGY SYSTEMS MERLIN STONE AND OTHERS -DE SAISET MUSEUM UNIV. OF SANTA CLARA  
DAVIS STREET CROSSOVER S.F., BROADWAY AND NINTH, OAKLAND, JARVIS AVE. RIGHT LANE  
RT. 17, MARKET AND FIRST S.F. MOST SYSTEMS ON EXHIBIT BETWEEN 8P.M. AND 4A.M.  
MAY 13TH TO JUNE 9TH.

INSIDE-OUTSIDE SOUNDS BY RICHARD FRIEDMAN

ON JULY 16TH, 1969, THREE MEN WILL LEAVE THE EARTH TO GO TO THE MOON. ON JULY 20TH, WE WILL LOOK UP AT THE MOON AND KNOW THAT SOMEBODY IS WALKING AROUND UP THERE. NO MATTER HOW ONE FEELS ABOUT HOW U.S. MONEY SHOULD BE SPENT, IT IS DIFFICULT NOT TO SEE THIS EVENT AS A MAJOR LANDMARK IN THE HISTORY OF MAN.

THERE HAS BEEN MUCH TALK WITHIN E.A.T. OF A CELEBRATION OF THE MOON LANDING. ONE OF THE SUGGESTED POSSIBILITIES WAS A LASER LIGHT SHOW ON THE MOON TO WELCOME ASTRONAUTS ARMSTRONG, ALDRIN AND LOW. WE WOULD LIKE TO HEAR YOUR PROPOSALS FOR SPECIFIC WORKS, PERFORMANCES, EVENTS OR EXHIBITS. PEOPLE INTERESTED IN FINDING COLLABORATIVE PARTNERS OR RECEIVING TECHNICAL INFORMATION OR ASSISTANCE, PLEASE MAKE YOUR REQUEST BY MAIL RATHER THAN PHONE.

ONE OF THE MOST BASIC CONCERNS OF E.A.T. IS THAT WE DEVELOP A RESPONSIBILITY AND A SENSE OF AWARENESS OF WHERE TECHNOLOGY AND SCIENCE CAN TAKE US. IT IS OUR RESPONSIBILITY TO BE AWARE OF THE POSSIBILITIES AND TO KNOW THAT IT IS MAN THAT CONTROLS THE DIRECTION THIS DEVELOPMENT TAKES.

MERLIN STONE

E.A.T. BAY AREA COORDINATORS

JOHN ALMEN

MERLIN STONE



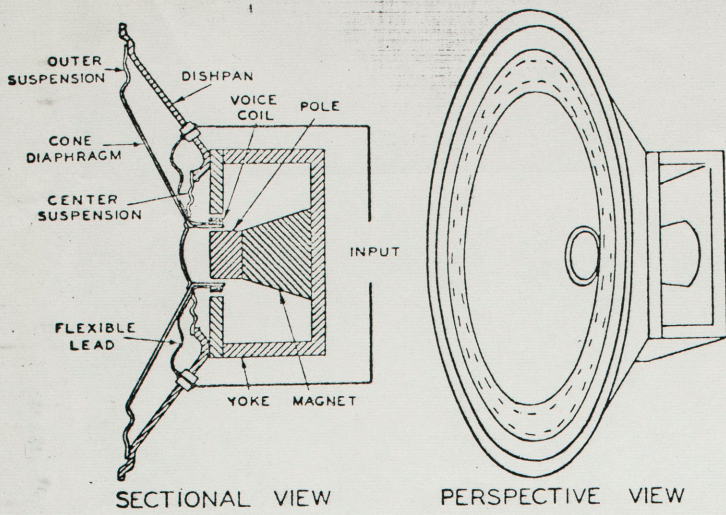


FIG. 9.13. Sectional and perspective views of a dynamic direct-radiator loudspeaker mechanism.

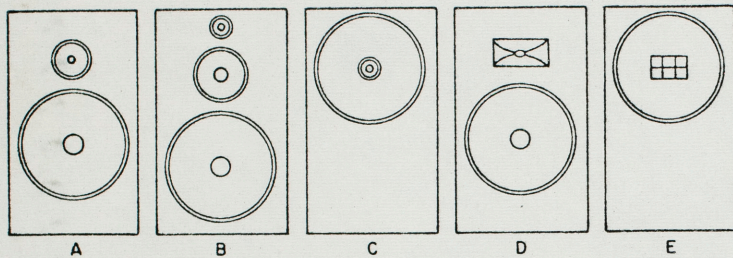


FIG. 9.15. Multiple loudspeaker arrangements. *A.* Low- and high-frequency direct-radiator loudspeaker mechanisms. *B.* Low-, mid- and high-frequency direct-radiator loudspeaker mechanisms. *C.* Low- and high-frequency direct-radiator loudspeaker mechanisms mounted coaxially. *D.* Direct-radiator low-frequency loudspeaker mechanism and horn high-frequency mechanism. *E.* Direct-radiator low-frequency mechanism and cellular-horn loudspeaker mechanism mounted coaxially.

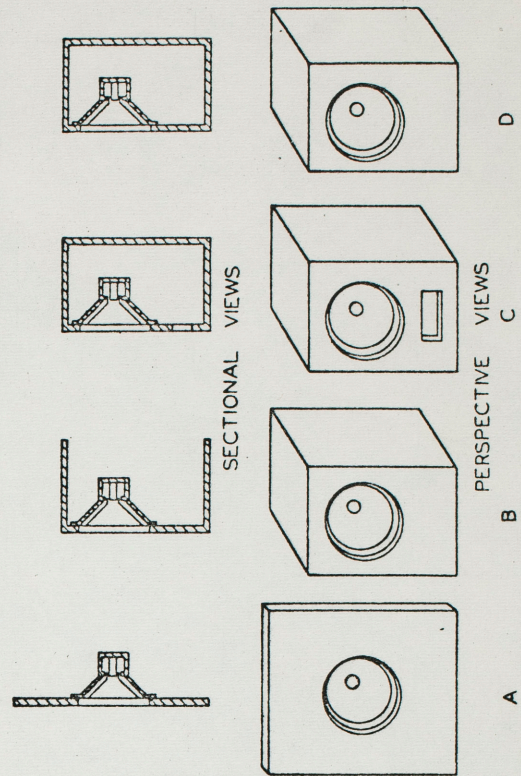


FIG. 9.14. Sectional and perspective views of mounting systems for direct-radiator loudspeaker mechanisms. *A.* Flat baffle. *B.* Open-back cabinet. *C.* Phase inverter or ported cabinet. *D.* Completely enclosed cabinet.

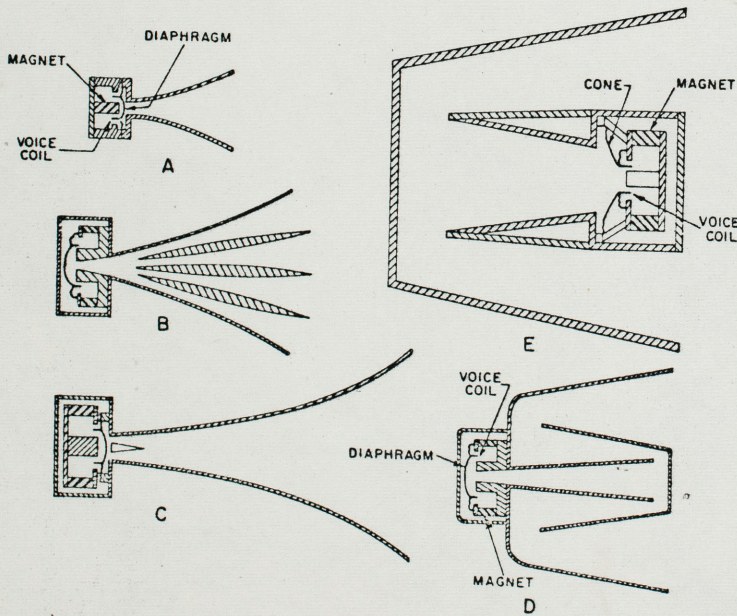


FIG. 9.16. Horn loudspeakers. *A.* High-frequency horn loudspeaker. *B.* Cellular high-frequency horn loudspeaker. *C.* Full-range horn loudspeaker. *D.* Full-range folded horn loudspeaker. *E.* Low-frequency folded horn loudspeaker.

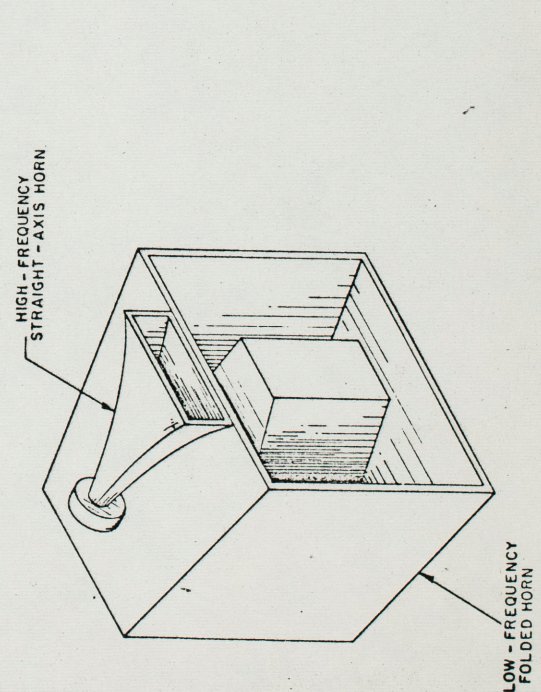
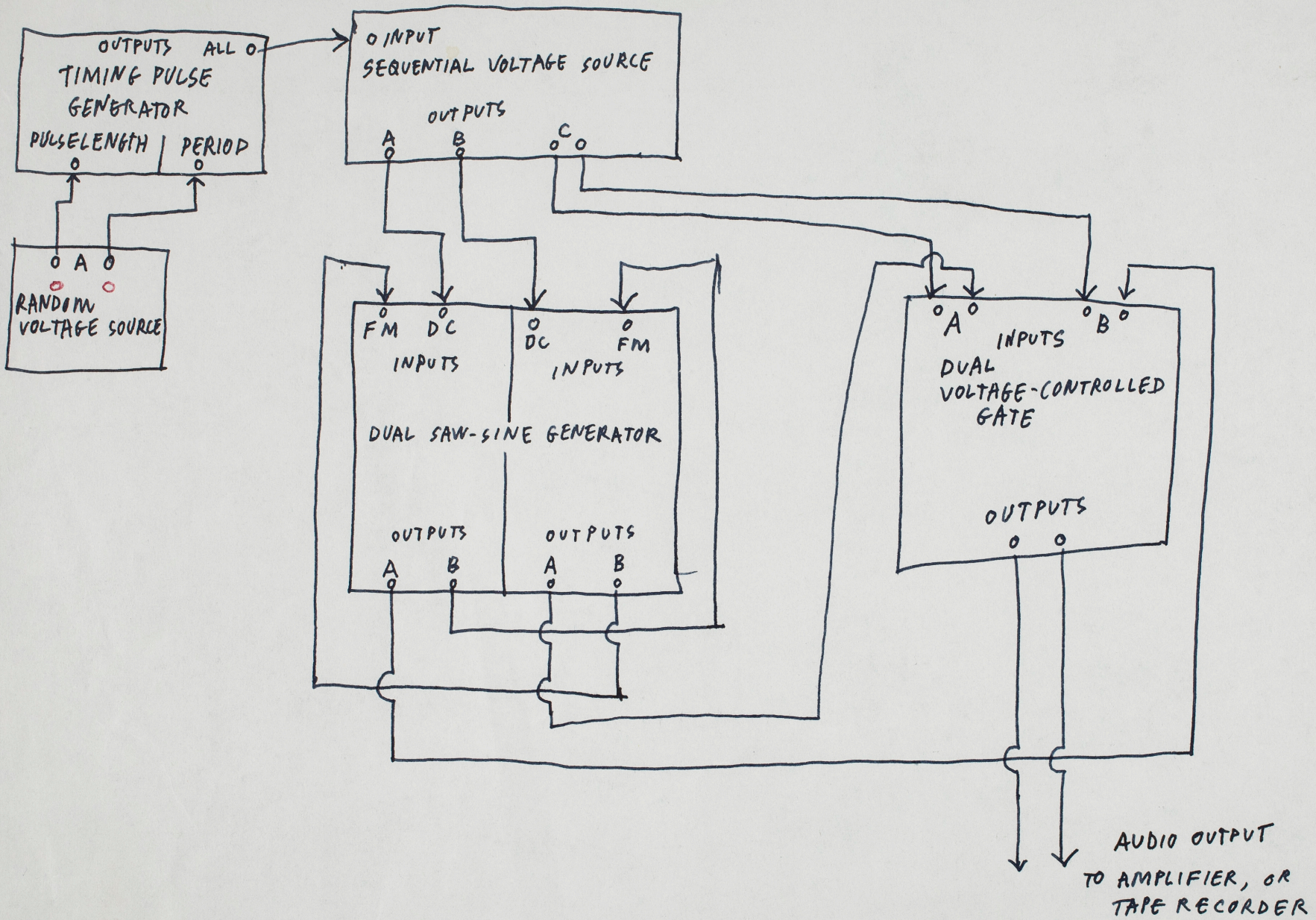


FIG. 9.17. A high-power horn loudspeaker consisting of a low-frequency folded horn and a high-frequency straight-axis horn loudspeaker.







Feed single pulse to each element of stereophones  
If amplitudes equal, apparent motion of sound  
can be simulated by varying the phase  
between pulses. Sound behind & slightly above head

Similarly for fixed phase, changes in  
intensity give the same impressions. In  
both cases, the location impressions were inside  
the head. Sound can not be made to move  
toward the front or to change elevation.

Hypothesis - localization phenomena and speech  
recognition is time domain rather than frequency.

PINNA = EXTERNAL EAR

Time delays through passages of Pinna  
contribute to localization and recognition





**DESCRIPTION AND APPLICATIONS**

The Model 666 is a cardioid microphone of the dynamic type with only one moving element. The cardioid pattern is obtained through use of three sound entrances located in the microphone case at different distances in back of the diaphragm. These three apertures, each having a selected acoustical impedance, combine to form one effective back entrance which varies in distance from the diaphragm inversely with frequency. The resulting phase and amplitude conditions produce a uniform cardioid pattern over a wide frequency range. This variable front-to-back distance,\* along with dynamic type construction, affords high resistance to mechanical shock and virtually eliminates proximity effect.

The Model 666 is an all-purpose microphone designed to provide wide-range reproduction under a great variety of conditions. Because of its excellent and uniform polar response, it is especially useful in locations where ambient noise and severe reverberation exist.

The Model 666 can be used on a floor or desk stand or carried in the hand. It may be used as a boom microphone, also, by employing Model 366 suspension shock mount.

The microphone features the exclusive non-metallic Electro-Voice Acoustalloy® diaphragm which permits smooth response over a wide frequency range and withstands high humidity, temperature extremes, corrosive effects of salt air, and severe mechanical shocks. It is practically indestructible in normal use.

The Model 666R is a dynamic cardioid microphone having the same polar response and physical dimensions as the Model 666, but with a rising frequency response. The 666R frequency response rises 4-1/2 db from 100 cps to 2000 cps, as shown in Figure 1. \*Variable-D, U.S. Patent No. 3,115,207

**FEATURES**

- Smooth wide range response combined with excellent front-to-back ratio
- Light weight, rugged dynamic microphone

**SPECIFICATIONS**

**TYPE:** Cardioid dynamic

**FREQUENCY RESPONSE:** Model 666 (Figure 2.)  
Model 666R (Figure 1.)

**IMPEDANCE:** 50, 150, and 250 ohms  
(connected for 150 ohms when shipped).  
Instructions for changing impedance - See Figure 6. To change impedance, press down on the locking pin (A) and remove the male insert by pulling on one of the pins. Unsolder the lead or leads marked "150" ohms and solder wire marked with desired impedance to pin (2). Caution: Cover exposed 150-ohm wire or wires with tubing (B).

**OUTPUT LEVEL:** Model 666

Impedance	Rating
50-ohm:-58 db*	EIA sensitivity: -151 db
150-ohm:-58 db*	EIA sensitivity:-152 db
250-ohm:-58 db*	EIA sensitivity:-150 db

**OUTPUT LEVEL:** Model 666R

Impedance	Rating
50-ohm:-56 db*	EIA sensitivity: -149 db
150-ohm:-56 db*	EIA sensitivity:-150 db
250-ohm:-56 db*	EIA sensitivity:-148 db

\* 0 db = 1 mw/10 dynes/cm<sup>2</sup>

**HUM PICKUP LEVEL:** -125 dbm\*\*  
Shielded transformer with special hum-bucking coil almost totally eliminates hum pickup when in vicinity of AC fields.  
\*\*Relative to 0.001 gauss field

**POLAR PATTERN:** Cardioid. Uniform front-to-back discrimination. See Figure 3.

**DIAPHRAGM:** Electro-Voice nonmetallic Acoustalloy®

**MAGNETIC CIRCUIT:** Employs Alnico V and Armeo magnetic iron in a non-welded circuit.

**CASE:** Cast Aluminum

**FINISH:** Nonreflecting gray

**DIMENSIONS:** Diameter, 1-11/16-in. max.,  
Length, 7-11/16-in. See Figure 4.



NET WEIGHT: 11 oz. without cable  
 CABLE: 20-ft., three conductor, shielded, neoprene rubber jacketed broadcast type. Equipped with UA-3-11 Cannon Connector which mates with UA-3-12 Cannon Connector.

STAND COUPLER: 1/2 in. pipe thread on Model 300, also has 5/8 in. -27 adaptor.

STANDARD ACCESSORIES: The Model 300 Detachable Stand Coupler. Protective carrying case.

OPTIONAL ACCESSORIES: Model 366 Suspension Shock Mount, Model 420 desk stand.

WARRANTY: Two year unconditional warranty with a life-time warranty against defects in workmanship and materials.

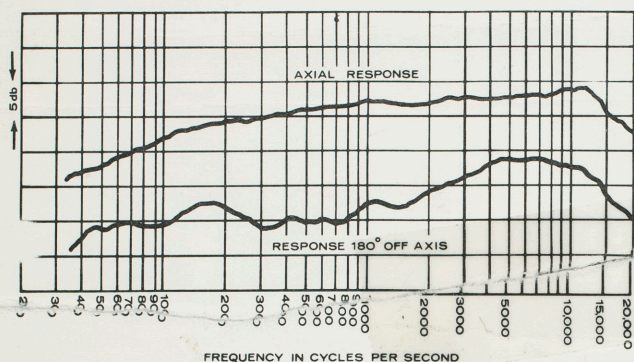


Figure 1 - 666R Frequency Response

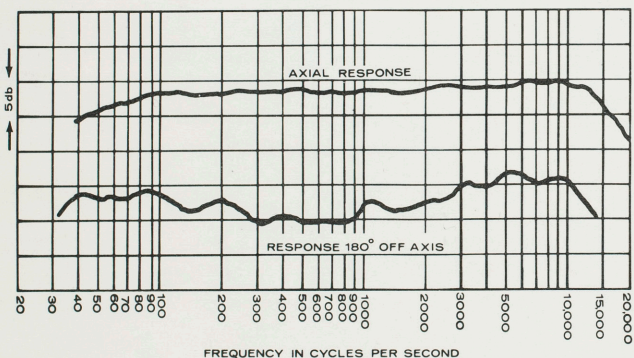


Figure 2 - 666 Frequency Response

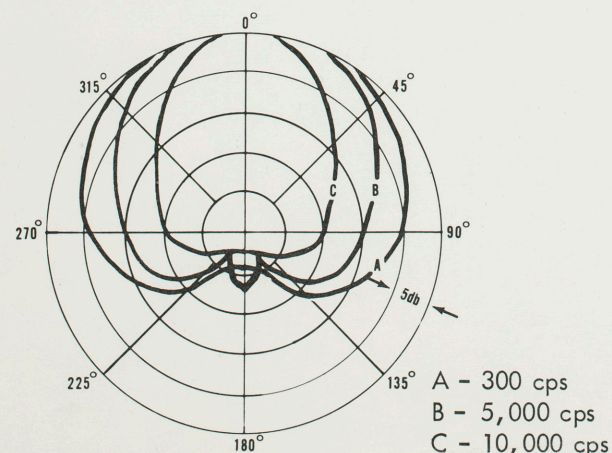


Figure 3 - Polar Pattern

A - 300 cps  
 B - 5,000 cps  
 C - 10,000 cps

## ARCHITECTS' AND ENGINEERS' SPECIFICATIONS

The microphone shall be an Electro-Voice Model 666 (or 666R) or equivalent. The microphone shall be a cardioid dynamic type with wide-range, uniform response from 30 to 16,000 cps. The diaphragm shall be nonmetallic Acoustalloy and shall have a magnetic shield to prevent dust and iron particles from reaching the diaphragm. The available impedances shall be 50, 150, or 250 ohms. It shall be possible to select desired impedance by changing one soldered connection in removable insert at end of microphone. Lines shall be balanced to ground and phased.

The output levels shall be -58 db at all impedances, with 0 db = 1 mw/10 dynes/cm<sup>2</sup>. (For Model 666R, output level shall be -56 db at all impedances, with 0 db = 1 mw/10 dynes/cm<sup>2</sup>.) The magnetic circuit shall be a non-welded circuit employing Alnico V and Armco magnetic iron.

The case shall be of cast aluminum. The microphone shall have a maximum diameter of 1-11/16" and a length of 7-11/16"; weight shall be 11 ounces. Finish shall be abrasion-proof, non-reflecting gray. A twenty-foot, three-conductor, shielded neoprene rubber jacketed broadcast type cable shall be provided. The microphone shall have a built-in cable connector similar or equivalent to the model UA-3-11 which will mate with a connector similar or equivalent to model UA-3-12 on the cable. Electro-Voice Model 666 (666R) is specified.

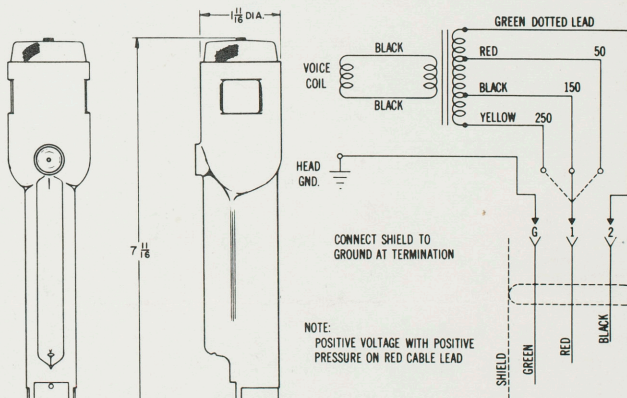


Figure 5 - Wiring Diagram

Figure 4 - Dimensions

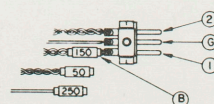


Figure 6 - Method of Impedance Adjustment



# Electro-Voice®

## CARDIOID UNIDIRECTIONAL PROFESSIONAL BROADCAST, P.A., AND RECORDING MICROPHONES



**RE15:** Highest quality super cardioid "Continuously Variable-D"® (maximum off-axis rejection at 150° from front).† Most uniform polar pattern at all frequencies ever offered in a cardioid microphone. Integral bass compensation switch. Response: 80 to 15,000 Hz. Acceptance angle: 150°. Impedance: 150 ohms. Output level: -56 db. Finish: Matte Satin Nickel. Net Each . . . . . \$153.00  
**APPLICATIONS:** On stand, hand-held, or portable boom use/Fishpoled for dialogue in motion picture recording/Individual instrument (or section) pickup for orchestral recording/In professional public address controls effects of resonance and reverberation.

**RE10:** Similar in design and construction to RE15, but for applications with slightly less rigid performance tolerances. Matte satin nickel finish, black grill and "backbone." Response: 80 to 13,000 Hz. Impedance: Lo-Z. Output: -55 db. Net Each . . . . . \$90.00

**306:** Extension arm for use with 307. Length 13-7/16". Net . . . . . \$7.80

**307:** Suspension mount adapts any microphone with 3/4" dia. shank to boom or shock-mounted use. Use with all RE series, 635A, etc. Net . . . \$20.70

**314:** Windscreen blast filter for RE10 and RE11. Acoustifoam™. Zippered for easy installation. Net . . . . \$7.80

**RE16:** Similar to RE15 except has integral blast and pop filter around head. For close-up vocal use on stand or hand-held. Virtually eliminates pickup of breath noises. Strong metal screen prevents damage. Specifications same as RE15. Net . . \$159.00

**RE11:** Similar to RE10 except with integral blast and pop filter around head. Virtually eliminates breath noises when used for close-up vocals. Strong metal protective screen around filter. Same specifications as RE10. Net . . . . . \$96.00

\*U.S. Patent No. 3,095,084

†U.S. Patent No. 3,115,207



**666:** "Variable-D"® cardioid eliminates proximity effect for close working.† Most accepted professional cardioid. Acceptance angle: 150°. Frequency response: 40 to 15,000 Hz. Impedance: 50, 150, and 250 ohms. Output level: -58 db. Finish: TV gray. Net Each . . . . . \$162.00

**666R:** Identical to 666, but with rising low frequency response (4 1/2 db, 100 Hz to 1,000 Hz) for control of room rumble and other low frequency problems. Net Each . . . . . \$162.00

**524A:** Windscreen for use with 666 microphone. Minimizes wind effect on boom operation or when used outdoors. Acoustifoam™. Net weight: 1/2 oz. Net . . . . . \$7.50

**665:** "Variable-D"® similar to 666, but for less demanding applications.† Response: 70 to 13,000 Hz. Impedance: 50 and 250 ohms, selectable at recessed integral switch. Finish: TV gray. Net Each . . \$96.00



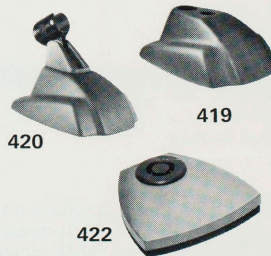
### Microphone Stands

**419:** Desk stand for use with 665. Net . . . . . \$8.10

**420:** Die cast desk stand for microphones with 1" to 1-1/8" dia. shank including 666, 654A, 655C. Net \$12.60

**421:** Small size, flat diecast desk stand for inconspicuous use. Interchangeable rubber shock mounts for 1" or 3/4" stand clamps. Net . . \$10.50

**422:** Similar to 421 but for larger or heavier microphones. Net . . . . . \$10.50



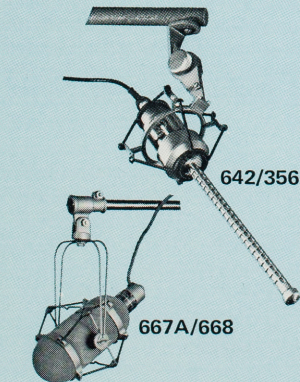
### BOOM MICROPHONES

**642:** Most used professional quality microphone for boom, floor stand, or special mounting where "on mike" sound at extended working distance is required\*. Nominal acceptance angle (for speech and vocals) 80°. Two position low frequency compensation. Response: 40 to 10,000 Hz. Impedance: 50, 150, 250 ohms. Output level: -48 db. Finish: Non-reflecting gray. Net Each . . . . . \$234.00

**APPLICATIONS:** TV studio booms/Sound track recording/Dialogue and vocals/Multiple footlight mounting for theatrical productions/Educational classroom television.

**668:** "Continuously Variable-D"® cardioid for boom and fishpole use for broadcast and motion pictures.† Smooth cardioid pattern for reduction of ambient noise and reverberation. Built-in equalizer provides 36 response variations to tune microphone to environment. Acceptance angle: 150°. Frequency response: 40 to 10,000 Hz. Impedance: 50, 150, and 250 ohms selectable at computer panel. Output level: -51 db. Finish: TV gray. Net Each . \$297.00  
**APPLICATIONS:** Boom use in TV and on motion picture location/Fishpoled for dialogue in motion picture recording/ Professional public address to control effects of auditorium resonance and reverberation.

**667A:** Identical to 668, but with six response variations for less demanding applications. Net Each . . . . . \$207.00



**368:** Windscreen for 667A & 668 used outdoors. Net . \$56.70

**324:** Boom suspension mount for model 642, will accept windscreen. Net . . . . . \$40.80

**356:** Suspension shock mount for 642. Net . . . . . \$31.50

**326:** Windscreen blast filter for 642. Net . . . . . \$28.20

**327:** Kit includes 324 and 326. Net . . . . . \$63.00



# Electro-Voice®

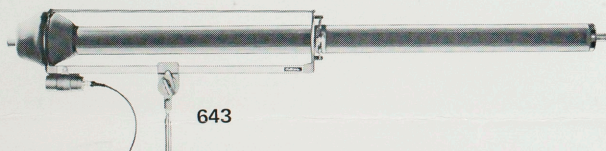
## OMNIDIRECTIONAL PROFESSIONAL BROADCAST, P.A. AND RECORDING MICROPHONES



**RE55:** Successor to 655C. Smooth, peak free wide range response combined with functional styling makes this the most versatile professional quality omnidirectional dynamic ever offered. Response: 40 to 20,000 Hz. Impedance: 150 ohms. Output level: -55 db. Finish: Matte Satin Nickel. Net Each . . . . . \$126.00  
**APPLICATIONS:** Recording symphony orchestra/Close instrument miking/Hand held for audience participation and interview use/On-the-spot news coverage.

**635A:** Most popular professional quality performers' microphone. Smooth, carefully shaped response yields "flat effect" when used close up. Built-in four-stage pop and breath blast filter. Response: 80 to 13,000 Hz. Impedance: 150 ohms. Output level: -55 db. Finish: Matte Satin Nickel. Net Each . . . . . \$49.20  
**APPLICATIONS:** Stage performance/Wide dynamic range, freedom from proximity effect, assures consistent results regardless of working distance/No windscreen necessary.

### Special Long-Range Microphone



**643:** A highly directional dynamic microphone combining the best characteristics of cardioid and distributed front-opening principle for more specialized and extended long range pickup. Provides cardioid pickup pattern up to 100 Hz and is highly directional over balance of range. Impedance: 50, 150, and 250 ohms selected by changing internal connector pin. Light weight extruded and cast aluminum case with integral shock mount and removable wind filter. Output: -48 db. Response: 30 to 10,000 Hz. Net Each . . . . . \$982.80  
**APPLICATIONS:** Sports broadcasts/Band pickups/Parades/Audience participation and interviewing.

**654A:** Slim-trim broadcast dynamic, can be used stand mounted, hand held, or as lavalier. Matches all low impedance inputs. Frequency response: 50 to 15,000 Hz. Output level: -57 db. Non-reflecting gray finish. Net Each \$63.00

**513:** Filter for use with low impedance microphones has switch to match 50, 150, or 250 ohms. When used inline between microphone and preamp, rejects unwanted noise below 100 Hz. Terminals provided for cable connections. Net . . . . . \$59.70

**380:** Attenuator for use in microphone line, attenuates signal 10 db. Net . . . . . \$15.60

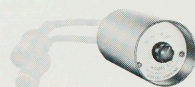
**310:** Detachable clamp, designed for 3/4" diameter microphones. Net . . . . . \$3.90

**310A:** Same as above except gray, as furnished with professional microphones. Net . . . . . \$3.90

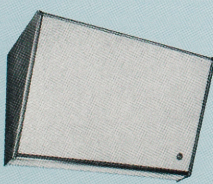
**311:** Detachable clamp cut back for easy snap-in, snap-out. Net . . . . . \$3.90

**311A:** Same as above except gray, as furnished with professional microphones. Net . . . . . \$3.90

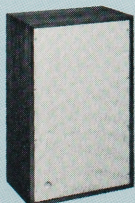
**305:** Adapter for mounting 5/8"-27 threads on 1/2" stand. Net . . . . . \$1.50



**649B:** Smallest dynamic lavalier. Designed for the most demanding professional applications. Response is carefully tailored to compensate lavalier acoustic conditions so resulting signal perfectly matches signal from other microphones. Response: 70 to 10,000 Hz. Impedance: 150 ohms. Output level: -61 db. Finish: Non-reflecting gray. Net Each . . . . . \$66.00  
**APPLICATIONS:** Live performances, allows artist greatest freedom of movement/Concealed on person or in set/Consistent "on mike" sound through accurately tailored response.



Sentry I



Sentry II

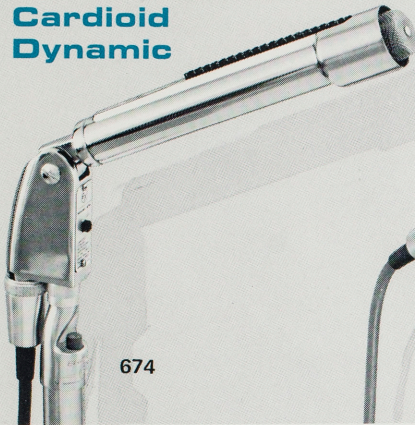
**SENTRY I:** Wall or ceiling mounted system designed specifically for monitor use in recording and broadcast studios. Extremely wide, very flat response. Walnut finished cabinet. Frequency response: 30 to 20,000 Hz. 16 ohms impedance. Permits precise monitoring and use as reference standard. Net Each . . . . . \$180.00

**SENTRY II:** Floor model, similar to Sentry I above. For free standing floor position. Net Each . . . . . \$180.00  
**APPLICATIONS:** Studio and control room monitoring/Classroom use, music instruction and appreciation courses/Home hi fi.

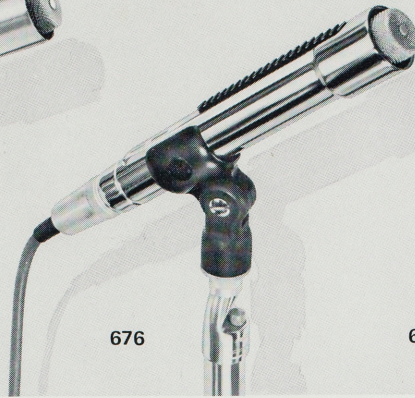


# Electro-Voice® MICROPHONES FOR P.A., TAPE RECORDING,

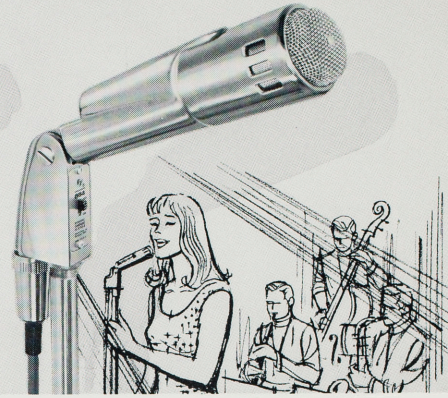
## Cardioid Dynamic



674



676



664

**674:** Radically new design brings truly professional quality to public address, recording, communications, and other general purpose microphone applications. An exclusive Continuously Variable-D® microphone† which assures uniform symmetrical cardioid pattern at all frequencies. Highest discrimination against feedback and unwanted sound. Exclusive three position switch offers controlled low-frequency attenuation to overcome rumble and feedback when microphone is used at a distance. Slim design permits full view of person speaking. Rugged high pressure die-cast construction. Dual Lo-Z and Hi-Z. E-V QC™-4M cable connector allows easy change of impedance without tools by moving a single pin. Frequency response: 60–15,000 Hz. Output: –27 db. Satin chrome finish. Net . . . . . \$53.40  
**APPLICATIONS:** Public address/Base station communications/Quality tape recording in the home and in schools.

- 674A:** Non-reflecting gray. Dual impedance, shipped Hi-Z. . . . . \$53.40
- 674G:** Gold finish. Net . . . . . \$56.70
- 674P:** 674 with phone plug at end of cable. Net . . . . . \$55.20

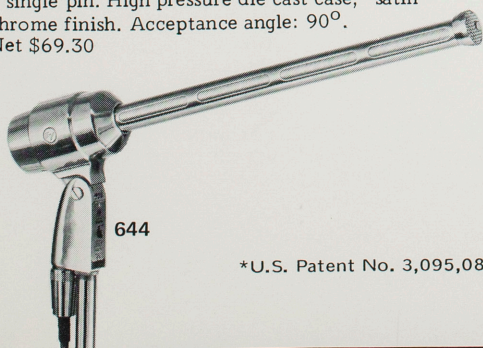
**676:** Similar to 674, except less mounting stud and on/off switch. For use with stand mounting clamp (supplied) so microphone can easily be removed and used hand-held during performance. Very uniform polar pattern across audio spectrum. Three position bass tilt selector adjusts low frequency response to suit environment. Response: 60–15,000 Hz with low-frequency attenuation switch. Output: –57 db. Dual Lo-Z and Hi-Z. New E-V QC™-4M cable connector allows easy change of impedance without tools by moving a single pin. Satin chrome finish. Net . . . . . \$53.40  
**676A:** Non-reflecting gray. Net . . . . . \$53.40  
**676G:** Gold finish. Net . . . . . \$56.70  
**676P:** 676 with phone plug at end of cable. Net . . . . . \$55.20

**664:** Designed for quality tape recording, communications, and public address applications. Cardioid pattern at all frequencies, with Variable-D® feature†. Permits close talking without “booming” or bass attenuation. Provides better discrimination against unwanted sound. Blast filter minimizes wind effect. Acoustalloy® diaphragm shielded from dust and magnetic particles. Response: 60–15,000 Hz. Output: –58 db. On/off switch. Dual Lo-Z and Hi-Z. E-V QC™-4M cable connector allows easy change of impedance without tools by moving a single pin. Satin chrome finish. Net . . . . . \$53.40  
**664A:** Non-reflecting gray. Net . . . . . \$53.40  
**664G:** Gold finish. Net . . . . . \$56.70  
**664P:** 664 with phone plug at end of cable. Net . . . . . \$55.20

†U.S. Patent No. 3,115,207

## Unidirectional Line Microphone

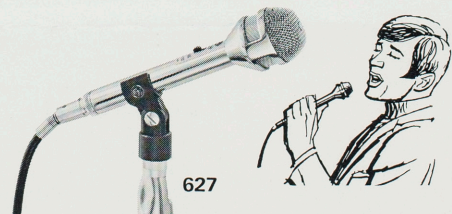
**644:** Combination cardioid and distributed front opening\* instrument, making it the most directional PA microphone available. Better than 2½ times working distance of pressure types with virtually no change in response. Extremely high rejection of noise from sides and rear, reducing reverberation and feedback. Narrow front angle of acceptance for best isolation. Very low response to wind noise and shock. Response is smooth from 40 to 10,000 Hz. Output: –53 db. Dual Lo-Z and Hi-Z. E-V QC™-4M cable connector permits impedance change without tools by moving a single pin. High pressure die cast case, satin chrome finish. Acceptance angle: 90°. Net \$69.30



644

\*U.S. Patent No. 3,095,084

## “Single D” Cardioid Entertainers Microphone



627

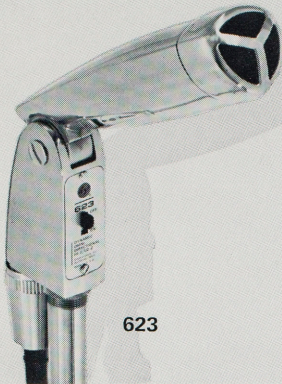
**627:** “Single-D” cardioid. Low frequency response varies with working distance. “Robust” sound enhanced when microphone is close to lips. Low frequency response to sounds more than two feet away is reduced, improving feedback control. Built in breath and pop filter. Acceptance angle: 150°. With on/off switch. Satin chrome finish. Response: 80 to 11,000 Hz. Output: –58 db. Hi-Z or Lo-Z, must be specified. Net . . . . . \$37.80  
**627N:** Same as 627 but with matte satin nickel finish. Net . . . . . \$37.80  
**627P:** 627 (Hi-Z) with phone plug at end of cable. Net . . . . . \$39.30  
**627PN:** 627N (Hi-Z) with phone plug at end of cable. Net . . . . . \$39.30





# ENTERTAINMENT, EXPERIMENTERS

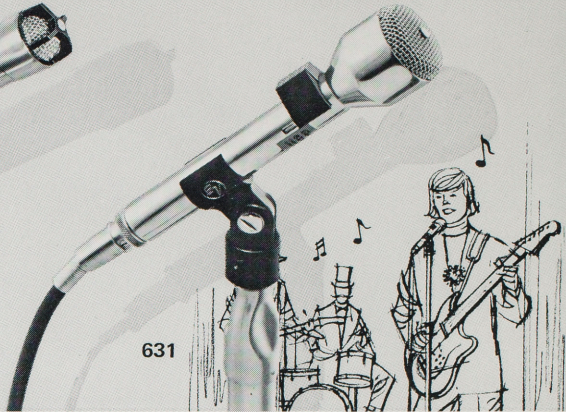
## Omnidirectional Dynamic



623



636



631

**623:** Ideal for PA, recording, and general use. Use on stand or hand-held. On/off switch and tiltable head. Response: 60 to 12,000 Hz. Output: -56 db. E-V QC™ -4M cable connector allows easy change of impedance without tools by moving a single pin. Satin chrome finish. Acoustalloy® diaphragm. Net . . . \$36.00

**636:** Slim dynamic, exceptionally fine for PA, recording, and general use. Response: 60 to 13,000 Hz. Output: -58

db. Pop-proof head and wide pickup range. On/off switch and satin chrome finish. Dual Lo-Z and Hi-Z. E-V QC™ -4M cable connector allows easy change of impedance by moving a single pin. Net . . . . . \$45.60

**636G:** Gold finish. Net . . . . . \$48.90

**631:** High quality hand or stand dynamic is lightweight, rugged, and shock-proof. Effective 4-stage filter allows close up use without blasting, pops, or

distortion. Silent, magnetic on/off switch with removable actuator button. Satin chrome, one-piece case. Response: 80 - 13,000 Hz. Output: -55 db. Hi-Z or Lo-Z must be specified. Net . \$37.80

**631N:** Same as 631 but with matte satin nickel finish. Net . . . . . \$37.80

**631P:** 631 with phone plug at end of cable. Net . . . . . \$39.30

**631PN:** 631N with phone plug at end of cable. Net . . . . . \$39.30

### For those "On-The-Go"-Microphones in Handy Carrying Cases



**Single Case:** Sturdy plastic case holds single microphone and cable. Microphone nests in contoured foam plastic insert for complete protection from bumps and scrapes.



**Deluxe Double Case:** Strong and handsome black formed case with metal reinforcement trim. Same as high quality musical instrument cases. Holds two microphones in contoured foam plastic insert and cables for complete protection.

**627PC:** One 627 (Hi-Z) with phone plug in single carrying case. Net . . . . . \$42.00

**627PCN:** One 627N (Hi-Z) with phone plug in single carrying case. Net . . . \$42.00

**627PD:** Two 627's with phone plugs in deluxe double case. Total Net . . . . \$91.20

**627PDN:** Two 627N's with phone plugs in deluxe double case. Total Net . . \$91.20

**631PC:** One 631 (Hi-Z) with phone plug in single carrying case. Net . . . . . \$42.00

**631PCN:** One 631N (Hi-Z) with phone plug in single carrying case. Net . . . . \$42.00

**631PD:** Two 631's with phone plugs in deluxe double case. Total Net . . . . \$91.20

**631PDN:** Two 631N's with phone plugs in deluxe double case. Total Net . . . \$91.20

**664PC:** One 664 with phone plug in single carrying case. Net . . . . . \$58.20

**664PD:** Two 664's with phone plugs in deluxe double case. Total Net . . . \$122.70

**674PC:** One 674 with phone plug in single carrying case. Net . . . . . \$58.20

**674PD:** Two 674's with phone plugs in deluxe double case. Total Net . . . \$122.70

**676PC:** One 676 with phone plug in single carrying case. Net . . . . . \$58.20

**676PD:** Two 676's with phone plugs in deluxe double case. Total Net . . . \$122.70

**456:** Single case only with foam insert. Specify for model 627, 631, 664, 674, or 676. Net . . . . . \$5.40

**457:** Deluxe double case only with foam insert. Specify for 627, 631, 664, 674, or 676. Net . . . . . \$15.00

### Transformer and Attenuator

**380:** Attenuator for use in microphone line, attenuates signal 10 db. Net . . . . . \$15.60

**502B:** 150 ohm line transformer, matches Lo-Z microphones to high impedance inputs. Response: 30-20,000 Hz. Net . . . . . \$9.90



**630:** Famous for quality at low cost. Unaffected by heat or humidity. Acoustalloy® diaphragm and tiltable head. Dual Lo-Z or Hi-Z. E-V QC™ -4M cable connector allows easy change of impedance by moving a single pin. Response: 60 to 11,000 Hz. Output: -55 db. On/off switch. Satin chrome finish. Net . . . . . \$33.00



**611:** Traditional styling, fine performance. Response: 50-9,000 Hz. Output level: -55 db. Omnidirectional. On/off switch, satin chrome finish. Dual Lo-Z and Hi-Z. Net . . . . . \$28.20



**641:** Modern dynamic. Integral on/off switch. Wide range response: 70 to 10,000 Hz. High output level: -57 db. 15' cable. Case is chrome plated die-cast zinc and gray high impact plastic. Hi-Z or Lo-Z must be specified. Net \$24.90



**634A:** Similar to 641 less stud and on/off switch. Fits any stand, boom, or gooseneck with complete cable concealment. Ideal for electronic teaching aids, amateur and commercial communications, and paging systems. Hi-Z or Lo-Z must be specified. Net . . . \$18.90

**648:** Extremely versatile paging, intercom, or talk-back microphone. Omnidirectional with Acoustalloy® diaphragm. Non-reflecting gray. Does not include cable. Hi-Z or Lo-Z must be specified. Net \$35.40

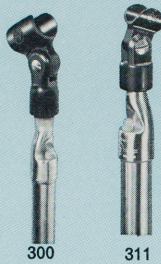




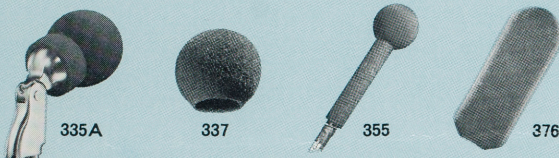
## MICROPHONE ACCESSORIES

### Stand Clamps

- 300:** Allows removal of microphone while in use. Fits any 1" to 1-1/8" diameter cylindrical microphone. Provides positive mounting to 5/8"-27 desk or floor stand. Black Lexan. Net .....\$4.80
- 310:** Similar to above but designed for 3/4" diameter microphones. Net .....\$3.90
- 311:** Similar to 310 except cut back for easy snap-in, snap-out. Net .....\$3.90
- 305:** Adapter for mounting 5/8"-27 threads on 1/2" stand. Net .....\$1.50



### Acoustifoam® Windscreens



Protect against mechanical shock, dust and wind and breath noises.

- 335A:** Acoustifoam. Use on 630, 641, 634A microphones. Net ..\$7.80
- 337:** For use on 627 microphone. Net .....\$4.80
- 355:** Acoustifoam. Protects against mechanical shock and pickup of dust and magnetic particles. For use with models 655C, 654A, 636, and 623 microphones. Net .....\$6.90
- 376:** Acoustifoam sleeve for 676 and 674 microphones. Net ...\$9.30
- 524A:** Acoustifoam windscreen. Use with 666 microphone. Net ..\$7.50

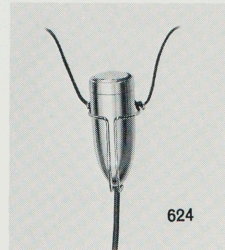
### Microphone Stands



- 418:** Desk stand for microphones with small type studs such as 611, 623, 630, 641, 636, 674, and new style (after early 1968) 644 and 664. Net .....\$8.10
- 418S:** With switch. Net .....\$11.10
- 418G:** Gold finish. Net .....\$10.20
- 419:** Desk stand for use with microphones having large type studs such as 665 and older style (before early 1968) 644 and 664. Net ...\$8.10
- 419S:** With switch. Net .....\$11.10
- 419G:** Gold finish. Net .....\$10.20
- 420:** Die-cast stand for use with 666, 654A, 655C, 652A, 676, or other models with 1" diameter. Clamp adapts 1" to 1-1/8" mikes without tools. Net .....\$12.60
- 420G:** Same as above except gold finish. Net .....\$16.50
- 421:** Small size. Interchangeable rubber shock mounts to accept 3/4" or 1" stand clamps. Net .....\$10.50
- 422:** Similar to 421 but larger to accommodate heavier microphone. Net .....\$10.50
- 423A:** 5-1/8" base with 5" riser. 5/8"-27 thread. Rests firmly on rubber base buttons. Net .....\$3.60
- 428:** Touch to talk lever type DPDT switch. Closes or opens instantly or locks in "talk" position. Fits standard 5/8"-27 thread. Net ..\$18.90



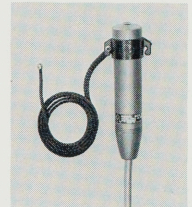
## LAVALIER MICROPHONES



**624:** Most economical dynamic lavalier on the market. For chest or hand use. Response: 100 to 7,000 Hz. Output: -56 db. Wire mesh head acoustically treated for wind and moisture protection. Hi-Z or Lo-Z must be specified. Lo-Z not balanced to ground. Non-reflecting gray finish. Net ..\$28.20

**924:** Crystal lavalier. Same in appearance as 624, except has chrome finish. Response: 60 to 8,000 Hz. Output: -60 db. Net .....\$14.70

**647A:** Smallest high quality lavalier in PA field delivers big microphone performance. Extremely rugged construction assures long life. Frequency response: 70 to 10,000 Hz. Output: -60 db. Weighs on 2 oz. Non-reflecting gray finish. Hi-Z or balanced Lo-Z must be specified. Net .....\$51.90



### Crystal Microphones



**920:** Omnidirectional pickup. Strong wire-mesh head acoustically treated for wind and moisture protection. High capacity, moisture sealed crystal. Hi-Z. AC-DC insulated (case not grounded). Satin chrome finish. Frequency response: 60 to 10,000 Hz. Output: -50 db. Excellent for group or conference applications or use where wide angle pickup is desired. Net .....\$17.40

**805:** For guitar, banjo, other stringed instruments. Hi-Z. Sealed crystal. Chrome finish. 15' cable. Net ..\$12.60



### Low-Cost Ceramic Microphones



**715** Omnidirectional. 60 - 7,000 Hz. Output: -55 db. Hi-Z. 5' cable. Non-reflecting gray finish. Rugged, lightweight. AC-DC insulated. With 5/8"-27 adapter. Net .....\$9.30

**721:** Inexpensive ceramic features high output level and light weight for recording, experimenting, and general use. High impact gray plastic case. May be used handheld or with integral fold-out stand. Response: 100 to 5,000 Hz. Output: -52 db. Hi-Z. 5' cable included. Net .....\$4.08







**602FTR:** Transistorized noise cancelling dynamic mobile with built-in transistor amplifier. Provides level for direct replacement of carbon units. Maximum output: -43 db with 250 ohm load and 27 V supply. Output adjustable from exterior. Response: 100 to 5,000 Hz. Press-to-talk switch and coiled cord with phone plug at terminal end. Lo-Z. Net . . . . . \$40.80

### Dynamic Transistorized Compressor Microphone



619TR

**619TR:** Unique base-station microphone with built-in transistor amplifier and speech compressor. Ideal for two-way communications where a high value of average modulation (P.E.P.) is important. Greatly increases chances of successful transmission under adverse long-range conditions. Eliminates need for special clipper or compressor equipment and can be used with any impedance or input level. Separate controls for level and degree of compression. Rugged die-cast stand in nonreflecting gray with chrome plated die-cast head. Grip-to-talk switch in stand riser, compression meter in base. Switch completes battery circuit in "on" position and provides for relay operation. Response: 150-10,000 Hz. Output (at compression threshold): Hi-Z -42 db; 3000 ohm -44 db; 150 ohm -58 db; (Maximum output with gain and compression controls at max. -40 db.) Coiled cord cable extends to 5'. Size: 4 1/2" wide, 9 3/4" high, 4 3/4" deep. Net weight: 2 lbs. Net . . . . . \$42.00

**625TRSCKK:** Transistorized noise cancelling handset. Phenolic case holds Lo-Z microphone and 150 ohm magnetic receiver. FAA approved. Response: 100 to 5,000 Hz. Output: -48 db (carbon equiv.). Five-conductor coiled cord. Net . . . . . \$77.10

**625SCKK:** Same as 625TRSCKK but without transistor amplifier. Output: -55 db. Net . . . . . \$53.40



205STCKK

**205STCKK:** Noise cancelling, single button carbon for aircraft and emergency communications. FAA approved. Blast-proof, waterproof, and shock resistant. Output at 1/4": -50 db. Lo-Z. Black phenolic case. Press-to-talk switch and coiled cord. Net . . . . \$31.50



603TR

**205STCKKP:** With PJ-068 phone plug. Net . . . . \$34.50



602TR

**603TR:** Transistorized noise cancelling mobile providing all dynamic advantages for direct replacement of carbon units. Built-in transistor amplifier matches level of carbon circuits. Output adjustable with internal potentiometer up to -44 db. Excellent for aircraft applications. Response: 200 to 4,000 Hz. Lo-Z. Press-to-talk switch and coiled cord. Magnetic hanger bracket furnished. Net . . . . \$88.20

**602TR:** Similar to 603TR but different case design. Uses conventional hanger bracket. Fixed output level: -48 db (carbon equiv.) Response: 100 to 5,000 Hz. FAA approved. Net . . . . . \$58.50

**600E:** Dynamic mobile of rugged construction. Lo-Z has "open circuit" wiring for multiple paging installation. Hi-Z provides "straight-



600E

through" circuit for VOX operations. Output level: -55 db. Response: 100 to 7,000 Hz, matched to high intelligibility requirements. Gray. With hang-up bracket. Specify Hi-Z or Lo-Z. Net . . . \$24.60



602F

**210E:** Similar to 600E but single-button carbon. Output: -50 db. Lo-Z. Press-to-talk switch closes microphone and relay circuit. Coiled cord extends to 5'. Net . . . . \$21.90

**602F:** Similar to 602FTR, less transistor amplifier. For circuits designed for dynamic microphones. Output: -60 db. Hi-Z or balanced Lo-Z must be specified. Net \$36.30



714

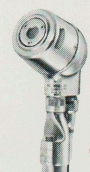
**714:** Ceramic hand-held unit for paging, ham radio, and CB. Cyclocac case for long life and protection from shock. High impedance output: -55 db. Response tailored for high intelligibility: 100 to 7,000 Hz. DPDT switch. Coiled cord extends to 5'. Bracket included. Net . . . . \$10.50

**717:** Similar to 714, except cardioid pickup. Aperture on either side of diaphragm provides attenuation of sound arriving from rear and sides. Output: -55 db. Response: 100 to 7,000 Hz. Net \$12.30



625TRSCKK

**606:** Differential dynamic is close talking, noise cancelling. Accepts sounds of close origin (1/4") and rejects sounds of distant origin. Response: 100 to 5,000 Hz. Output at 1/4": -55 db. Acoustalloy® diaphragm. Has built-in connector and satin chrome finish. Hi-Z or balanced Lo-Z must be specified. 15' cable. Net . . . . . \$33.00



606



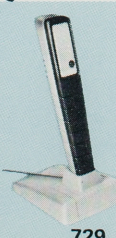
619

**619:** Similar to 619TR less compressor and amplifier. For base station paging and two-way. Press-to-talk switch in base movable to upper stand for grip-to-talk use. Switch allows relay operation. Response: 70 - 10 kHz. Output: -57 db. Hi-Z or Lo-Z must be specified. Net . . . . . \$30.00

**619KK:** With 5' coiled cord cable. Net . . . . . \$30.00

**719:** Similar to 619 with ceramic element. Response 70 to 7kHz. Output: -57 db. Hi-Z. Net \$17.40

**719KK:** With 5' coiled cord cable. Net . . . . . \$17.40



729

**729:** Ceramic cardioid reduces random noise. For PA, paging, home recording, and general communications. Tailored for single sideband. Output: -60 db. Response: 60 to 8,000 Hz. Hi-Z. 8 1/2" cable. Net . . . \$15.30

**729SR:** With relay switch. Net . . \$16.80



727

**727:** Omnidirectional, similar in appearance to 729. Withstands extremes of temperature and humidity. Hi-Z. Response: 60 to 8,000 Hz. Output: -55 db. Net . . . . . \$12.60

**727SR:** With relay switch. Net . . \$14.70