

Electro-Voice[®]

MICROPHONES

ELECTRO-VOICE, INC.
Buchanan, Michigan

TECHNICAL DATA SHEET NO. 20
MODEL 726—CARDYNE I
MODEL 731—CARDYNE II
TYPE—DYNAMIC

The CARDYNE microphones are cardioid uni-directional dynamic types operating on the E-V[®] Mechanophase principle. They utilize dual phase shifting diaphragms to produce a high degree of uni-directivity at all frequencies.



Fig. 1. Model 731

The CARDYNE models are designed for extremely accurate reproduction of music and speech. The directivity gives it unusual versatility in increasing the working distance from the user by reducing reverberation and acoustic feed-back. High output provides an excellent signal-to-noise ratio for broadcasting studio pick-up.

ACOUSTICAL The anechoic (echo-free) housing precludes internal reflection of sound and defraction. This assures full utilization of the inherent advantages of the Mechanophase principle and a wide, smooth frequency response. In no case should the back be covered as it will reduce the degree of uni-

directivity. The air-foil case and dual grille cloths are scientifically designed to minimize wind and breath noise. The directional properties (Fig. 5) of the CARDYNE are not to be confused with that of a conventional pressure microphone which is directional only on the high frequencies. The CARDYNE is uni-directional at all frequencies.

PHYSICAL The Electro-Voice CARDYNE utilizes the proven Mechanophase principle now applied to the moving coil dynamic type microphone. By the nature of its design, the magnetic assembly is positively sealed against dirt and stray iron particles. No adjustment for directivity is ever required.

The die castings are of highest purity pressure cast Zamak 3 and have excellent dimensional stability. The magnetic circuit is fabricated from Armco magnetic iron. The energizing magnet is Alnico V.

The Acoustalloy diaphragm, another Electro-Voice development, aids in providing the wide flat re-

*Electro-Voice Patents Pending.

sponse, and in addition is practically indestructible. It will withstand high humidity, extremes of temperature, corrosive effects of salt air, and terrific mechanical shocks.

The head of the CARDYNE is tiltable so that it may be directed toward the sound source for selective pickup. Large bearing surfaces give smooth adjustment without the use of thumb nuts. Screw at side provides takeup for wear. Large mounting stud provided to utilize Model 345 external shock absorber. CARDYNE I stud equipped with MC-3 sliding contact connector. CARDYNE II equipped with Cannon XL-3 type connector. Cable length is 20 ft. shielded and synthetic rubber jacketed.

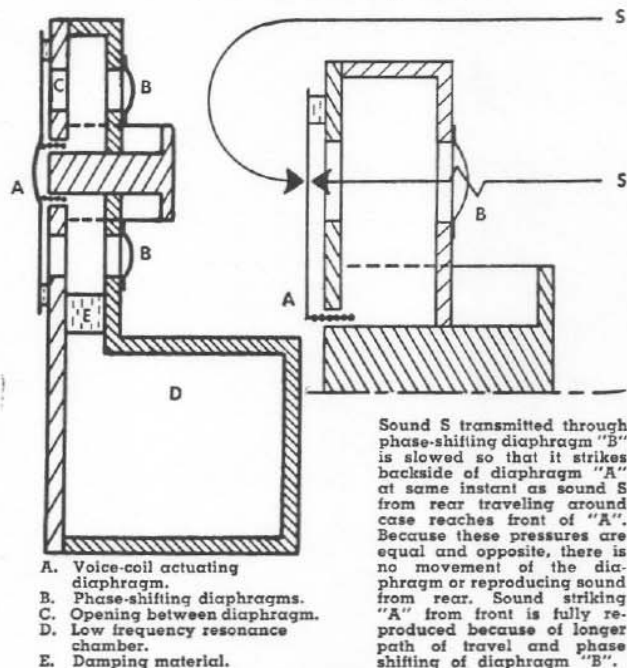


Fig. 2. Mechanophase Principle.

ELECTRICAL The frequency response of the CARDYNE model (Fig. 3) is held very closely in production. The electrical output is unusually high for a microphone of this quality and is due to the efficient Acoustalloy diaphragm and excellent magnetic circuit.

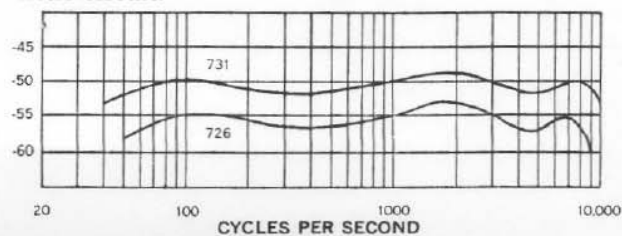


Fig. 3. Frequency Response.

There is a slight "proximity effect" which accentuates bass response when working a few inches from it. This is often useful in adding richness to singing or speaking voice but for most accurate reproduction, sound should originate at least six inches from the microphone. The CARDYNE at no time has the over-accentuated bass that is experienced with a true pressure gradient type.

The cardioid characteristic of the CARDYNE gives a wide angle front pickup and is virtually dead from the rear as indicated by figure 5. In addition the CARDYNE gives the following advantages:

1. True cardioid characteristic gives wide angle front pickup. Dead at rear.
2. The pickup range is nearly doubled over that of a conventional pressure type of microphone for average conditions of reverberation, acoustic feedback, and room noise. For public address work, this pickup range may be increased considerably by proper placement of speakers so that direct and reflected sound strikes the microphone at back (dead zone).

INPUT CIRCUIT Recessed switch at rear of microphone case gives instant selection of high impedance (25,000 ohms) or standard low impedances. Switch easily actuated by pencil point or small screw driver. Included in both Models 731 and 726. High impedance matches a standard grid input resistance from .5 to 5 megohms. Low impedance should be coupled by a matching transformer (E-V Model 502 or equivalent). Selector switch up for high impedance, down for low.



Fig. 4. Rear view showing Selector Switch.

APPLICATION The CARDYNE is recommended for all types of sound pickup, indoors and out, music and speech, where the highest quality reproduction is desired. The wide angle front response and increased pickup range are ideal for group work. Recommended for broadcasting, studio and remote, better quality public address, film and disc recording, dispatching, and general communications.

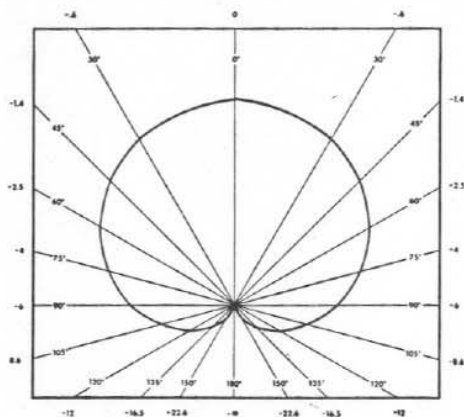


Fig. 5. Angle of Pickup Versus Output in Db.

MECHANICAL ON-OFF SWITCH: Sliding contact type switch built into stud. Short circuits microphone in OFF position. Is easily accessible for reconnecting as a relay control. Also available without On-Off switch.

STAND MOUNTING STUD: Large bearing surface gives smooth tilt adjustment; wear take-up provided by screw on the side. Cable connector attached to permit 95° tilt without strain on connector or cable. CARDYNE II equipped with Model 345 external shock mount. Model 345 shock mount can be added to CARDYNE I.

CABLE CONNECTOR: CARDYNE I equipped with locking three contact wiping type MC-3 connector. CARDYNE II equipped with locking three contact wiping type Cannon XL-3 connector. Built into the microphone stud to permit tilting of microphone without strain on connector or cable.

CABLE: Supplied with 20 feet of well-shielded, low loss, synthetic rubber-jacketed cable. As the high impedance output of dynamic type microphones is approximately 25,000 ohms, long cables should be avoided. When cable lengths of more than 40 to 50 feet are required, it is recommended that low impedance models with suitable coupling transformer, (such as E-V Model 502) be used. The attenuation effect of extra cable length on the high impedance type is shown in Fig. 6.

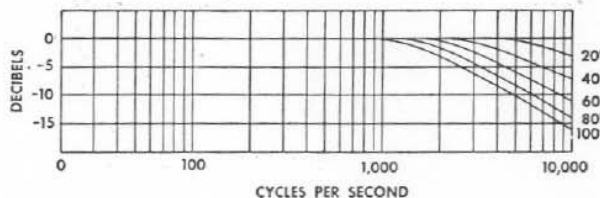


Fig. 6. Attenuation Effect of Extra Cable Length when Installed on 25,000 ohm (Hi-Z) Microphones. Based on cable capacity of .0007 Mfd/20 ft. (DB loss = $20 \log_{10} \sqrt{(RC \omega)^2 + 1}$).

INTERNAL SHOCK ABSORBER: Entire moving coil assembly cradled in Koylon synthetic latex rubber to provide freedom from mechanical vibration and shock.

CASE: The microphone case is fabricated from the highest purity (99.99%) pressure cast metal.

FINISH: The CARDYNE is finished in durable satin chromium. Wiping with a soft cloth is all that is necessary to maintain its rich lustre.

NET WEIGHT: 2½ pounds, less Model 345 Shock Mount.

OUTPUT LEVEL RATING: Power 53 db below six milliwatts for 10 dynes/cm². Voltage (high impedance) 53 db below 1 volt/dyne/cm², open circuit. Voltage developed by normal speech (10 dynes/cm²): .0024 volt across Hi-Z input.

CARDYNE II output level rating power 50 db below 6 milliwatts for 10 dynes/cm². Voltage (high impedance) 50 db below 1 volt/dyne/cm², open circuit. Voltage developed by normal speech (10 dynes/cm²): .0034 volt across Hi-Z output.

IMPEDANCE: Selector switch at rear of microphone for selection of high or low impedance. See Fig. 4.

FREQUENCY RESPONSE: CARDYNE I: 40 to 8,000 c.p.s. CARDYNE II: 40 to 10,000 c.p.s. substantially flat.

POLAR PATTERN: See Fig. 5. Cardioid. Wide angle front pickup with forward gain. Highly attenuated back pickup.

WARRANTY: The CARDYNE is guaranteed against defects in workmanship or material.

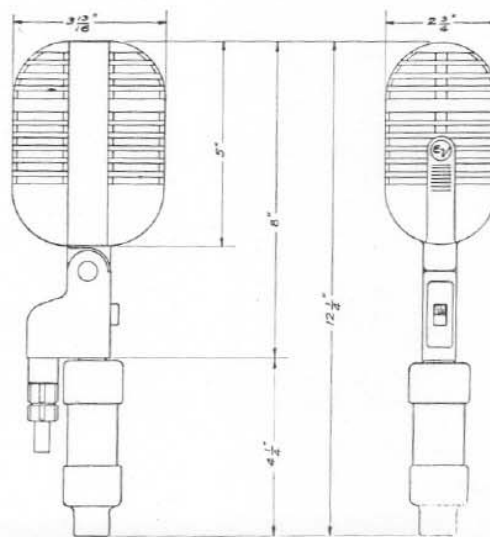


Fig. 7. Mechanical Dimensions.

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IMPROVED



CARDYNE

CARDIOID DYNAMIC MICROPHONE

TODAY's outstanding microphone value . . . by any comparison! *More features* have been added...*response improved...output increased* . . . to provide a *new standard* of performance! New impedance selector instantly gives you high or low impedance. New external shock mount provides double shock absorber action. Acoustalloy diaphragm withstands severest service.

E-V Mechanophase* principle gives *true cardioid* unidirectivity . . . cuts reverberation and random noise pick-up . . . stops feedback . . . nearly doubles conventional pick-up range . . . provides clear, natural close-up response.

All this, *plus* other E-V features, makes the improved Cardyne a better buy than ever for broadcasting, recording and high quality public address.

E-V BROADCAST CARDYNE II. Model 731

Frequency response substantially flat 30-12,000 c.p.s. Output -50 db. Includes external shock mount. High-Low impedance selector. Cannon XL-3 connector. "On-Off" switch.

List Price \$80.00

(Also available without "On-Off" switch or with 50-250 ohm impedance selector.)

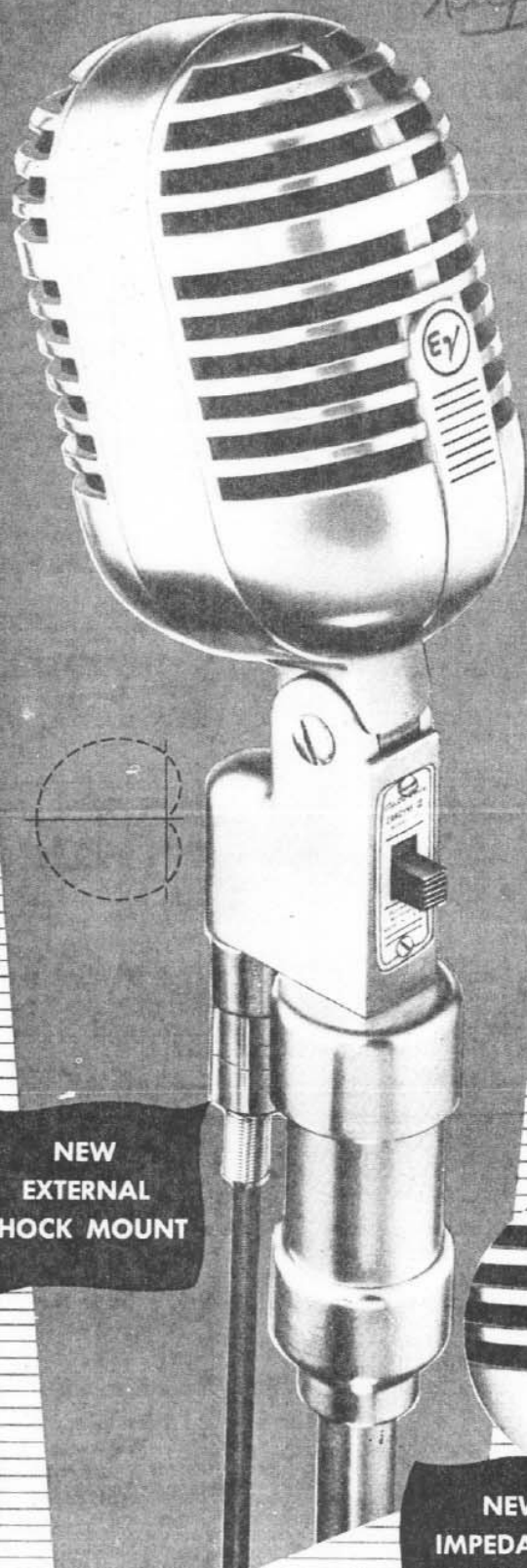
E-V CARDYNE I. Model 726

(Shown at right). Performance characteristics similar to Model 731. Has Impedance Selector, but does not include external shock mount. Frequency response substantially flat 40-10,000 c.p.s. Output -53 db. "On-Off" switch. Amphenol MC-3 connector.

List price \$59.50

E-V Model 345 External Shock Mount also available separately. Fits Models 731 and 726.

List Price \$11.50



**NEW
EXTERNAL
SHOCK MOUNT**

**NEW
IMPEDANCE
SELECTOR**

Recessed switch at rear of microphone case gives instant selection of high impedance (25,000 ohms) or low impedance (150 ohms). Switch easily actuated by pencil point. Included in both Models 731 and 726.