

LOU BURROUGHS

MICROPHONE FACTS

for the operating engineer

from *Electro-Voice*®

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September 25, 1958

MORE NEWS FROM ELECTRO-VOICE FOR THE OPERATING ENGINEER

Before discussing the use of microphones, I would like to tell you how we at Electro-Voice feel and think about them.

During the thirty some years Electro-Voice has been manufacturing, we have produced every popular-type of microphone for almost every purpose -- carbon, condenser, ribbon, dynamic, crystal, and ceramic. Since your interest is broadcasting, telecasting, or recording, my comment will be confined to dynamic, condenser, and ribbon microphones.

A few years ago, our production of condenser and ribbon microphones was far greater than that of the dynamic. At one time, in fact, 85 per cent of our microphone production was of the ribbon type. Today, however, we manufacture neither the condenser nor the ribbon. We have been asked many times why these two types were dropped from our line. Here are the reasons:

During the many years we manufactured condenser and ribbon microphones along with dynamic, our laboratories worked continually with each type to improve response, durability, and uniformity. From the beginning the dynamic stood out as the microphone "most likely to succeed", providing we could perfect the diaphragm that was so necessary to the future of this type of microphone. In the early years, the dynamic failed to be popular as response was limited and far from smooth. At best it was just a rugged microphone suitable for P. A. speech.

WE DEVELOP ACOUSTALLOY

At the end of World War II, some equipment we had designed was available to facilitate development of our exclusive diaphragm material. We developed a plastic formula and with the aid of this equipment succeeded in producing a diaphragm that proved to be the answer. The missing link was found. The first diaphragm tested produced the smooth, wide-range response required.

Unlike most development projects, this was not a long, drawn-out affair that progressed slowly to its conclusion. The entire development had been just a matter of weeks from idea to finished product. Because of this sudden development, we were afraid to use it. Several questions remained unanswered. What was the life of our new diaphragm? What would the response be in a few weeks, months, years?

Answers came gradually. Temperature and humidity tests were made including the one-hundred-hour salt-spray test of the Signal Corps. Then shock tests which included shot gun and finally cannon fire. Many other tests were made. Our new diaphragm material came through unchanged. In approximately a year we were ready to put the Electro-Voice stamp-of-approval on the new material and give it a name. This is the material you all know as E-V Acoustalloy. *

It is now 12 years since Acoustalloy was first used. During this time many have tried to duplicate the results but so far, none have succeeded. Our laboratory tests reveal only two ways to damage Acoustalloy -- heat the microphone so hot you can't handle it or open up the microphone and actually puncture or tear the diaphragm.

THE DYNAMIC COMPARED WITH THE CONDENSER

In comparing our dynamic to the condenser, we found the dynamic was equal to the best condenser in response and superior to the majority. Smoother, high-frequency response is invariably the opinion of those listening to a comparison. Since the dynamic seemed always to be the choice of the impartial listener, why then should we continue to manufacture the condenser with all the extra equipment required to operate it -- power supply, amplifier, follower tube, multi-conductor cable? Also, the microphone cartridges are extremely delicate and none too stable. Today we feel the condenser is the most difficult and complicated way to solve a comparatively simple problem. If or when a condenser microphone can be designed with the simplicity, ruggedness, and stability required by most microphone users, we again will have a condenser microphone to offer.

THE DYNAMIC COMPARED WITH THE RIBBON

During the years that we manufactured the ribbon microphone, it enjoyed top popularity. This is the microphone that brought the E-V name into prominence. But even though we owe much of our early success to the ribbon microphone we at no time considered it the microphone of the future. Here are the reasons:

To produce a ribbon microphone having maximum performance, the ribbon must be about one ten-thousandth of an inch thick, around a sixteenth of an inch wide, and corrugated over its entire length. For the microphone to have a smooth peak-free response, this ribbon must have no stretch or sag.

We found that it was impossible to adequately protect the ribbon without degrading the response. With maximum allowable protection, the original response of the microphone would remain unchanged for a very short time. Blow into it and the response was per-

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manently altered. Shoot a gun and the ribbon was destroyed. Just one fast pan with a TV boom and the ribbon is stretched. Because of this one outstanding weakness we have discontinued producing this type of microphone. The increasing demand for smoother, wider-range response is eliminating the ribbon from the commercial market.

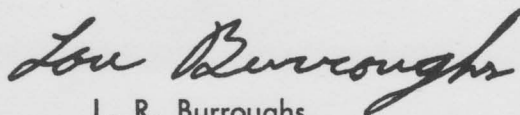
After years of experience producing the ribbon and the condenser, we find it most gratifying to be producing our line of dynamics. Never before have we experienced such complete customer satisfaction. Our production of dynamic microphones is many times that attained during the period we were manufacturing all three types and yet the number of personnel in our service department has decreased. These rugged dynamics can take it, and come back for more. These are the microphones of the future.

And in the future, as in the past, we will do our best to have the microphone developed today that you will need tomorrow. Changing techniques are continually making new demands. Depend on Electro-Voice. We will be there with the answer.

The next issue of MICROPHONE FACTS will take up a problem or problems that may be of specific interest to you.

Cordially yours,

ELECTRO-VOICE, INC.

A handwritten signature in dark ink, reading "Lou Burroughs". The signature is fluid and cursive, with the first name "Lou" and last name "Burroughs" clearly distinguishable.

L. R. Burroughs

Vice President

Broadcast & Recording Equipment