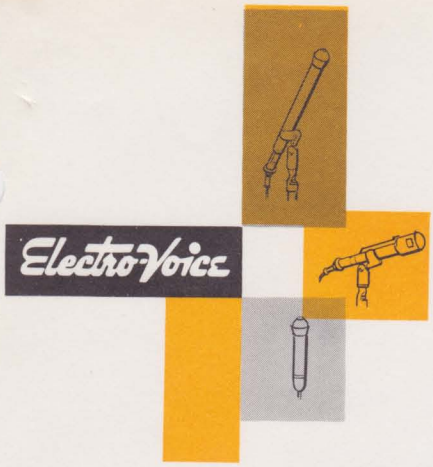

MICROPHONE FACTS

OR THE OPERATING ENGINEER

ELECTRO-VOICE, INC. • BUCHANAN, MICHIGAN • PHONE OXBOW 5-6831

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PROBLEMS WITH SMALL STUDIOS

DO YOU HAVE THEM ?

I am often asked for information about microphones for isolation booths, small announce booths, master control rooms and small studios in general.

Isolation booths, like the ones used on quiz shows, present an acoustic problem all their own. In such booths the quality of reproduction will be either boomy or hollow, depending on the frequency of the standing wave condition. Since it is practically impossible to eliminate this condition acoustically, it is up to the microphone to come to the rescue. In a case like this, a nondirectional microphone such as the E-V 655C, 654, 635, 646, or 649A should not be used. These microphones are similar to your ear in pickup pattern and thus do not have the ability to discriminate against unwanted sounds.

This is a job for a unidirectional microphone such as the 667, 666, 666R or 665. These microphones, due to their cardioid pickup patterns, will materially reduce or eliminate the effect of standing waves. Reproduction now will sound as though it is originating from a studio many times its size.

Small announce studios of 6' X 6', 6' X 8', 8' X 10' and others about these sizes, will require a unidirectional microphone. In such cases acoustic treatment alone will seldom furnish sufficient correction to allow the use of a nondirectional microphone, except at distances in the order of 6 to 12 inches.

If you are now using a nondirectional microphone under the above conditions, I suggest you try an E-V cardioid for improved reproduction.

In smaller stations I often find the master control or a studio control room being used as an announce studio. Under the conditions usually found in these locations, acoustic problems multiply due to the reflections caused by racks of equipment, steel cabinets, hard walls, glass and the like. Since it is impractical to acoustically treat the rack and panel equipment, and impossible to make glass nonreflecting, another solution must be found.

In the first place, a nondirectional microphone cannot be considered. A bi-directional microphone, since it is dead at the sides, will help, however, in this particular situation it will be inadequate since both front and back are live.

To meet the requirements, a microphone of the unidirectional type such as the E-V cardioid microphones is essential. Because these microphones reproduce sound only from the front, the problem will be solved when reflections are kept from entering the front.

In Figures 1 and 2 a simple approach to the solution is given. By using a sound absorbing screen behind the announcer, reflections are kept effectively from entering the front of the microphone. Each panel should be on the order of 3' wide and 6' tall and made of a sound absorbing material such as Celotex. In some instances it may be necessary to cover the top of the screen to reduce reflections from the ceiling. The greater the problem the more sound absorbing the screen must be. You will have to determine this by cut and try. Place the screen at different distances from the microphone, usually the closer the better. If you should wrap it around too tightly and place it too close, the screen may produce a resonance that is detrimental. Proper placement and choice of material will be up to you. I am sure you will find the time spent experimenting with this screen very worthwhile. It can also be of help to you in your regular studios.

MICROPHONE PROTECTION

Dynamic and ribbon microphones employ magnets, without which neither type could be made. However, the flux supplied by the magnets so necessary to the operation of these microphones inadvertently can be the means of their failure.

Let's suppose you have just acquired a new E-V microphone and are about to unwrap it preparing to change the impedance to match your equipment.

Stop...go no further until you have made some very necessary preparations.

Please do the following religiously: Be certain the work bench you are about to use has been wiped clean of all magnetic particles and dust. Then make doubly sure by spreading a clean newspaper. Now you can be certain that the new microphone won't be damaged by attracting iron particles to the diaphragm thus impairing its response.

We have gone to great lengths to protect E-V microphones against magnetic particle damage...or for that matter, all forms of damage. The grilles are constructed with at least 90% protection against any kind of foreign material. We could exclude 100% of this foreign material but then we wouldn't have any sound getting through either. Protection is limited to just under the point where it starts to degrade high-frequency response.

Since protection cannot be 100%, care on your part is necessary to a long life of uniform service.

When you unpacked the new microphone you found a bag designed for use as a protection for that microphone. If it is always kept in the bag when not in use, you will receive the reward of a longer trouble-free microphone life.

The one thing always to keep in mind is that iron particles are the greatest enemy of microphones containing magnets. Since iron particles are everywhere, watch where you lay that microphone. Remember, too, that your ribbon microphones are many, many times more vulnerable to this kind of damage.

Cordially yours,

ELECTRO-VOICE, INC.

Lou Burroughs

Lou Burroughs
Vice President
Broadcast & Recording Equipment

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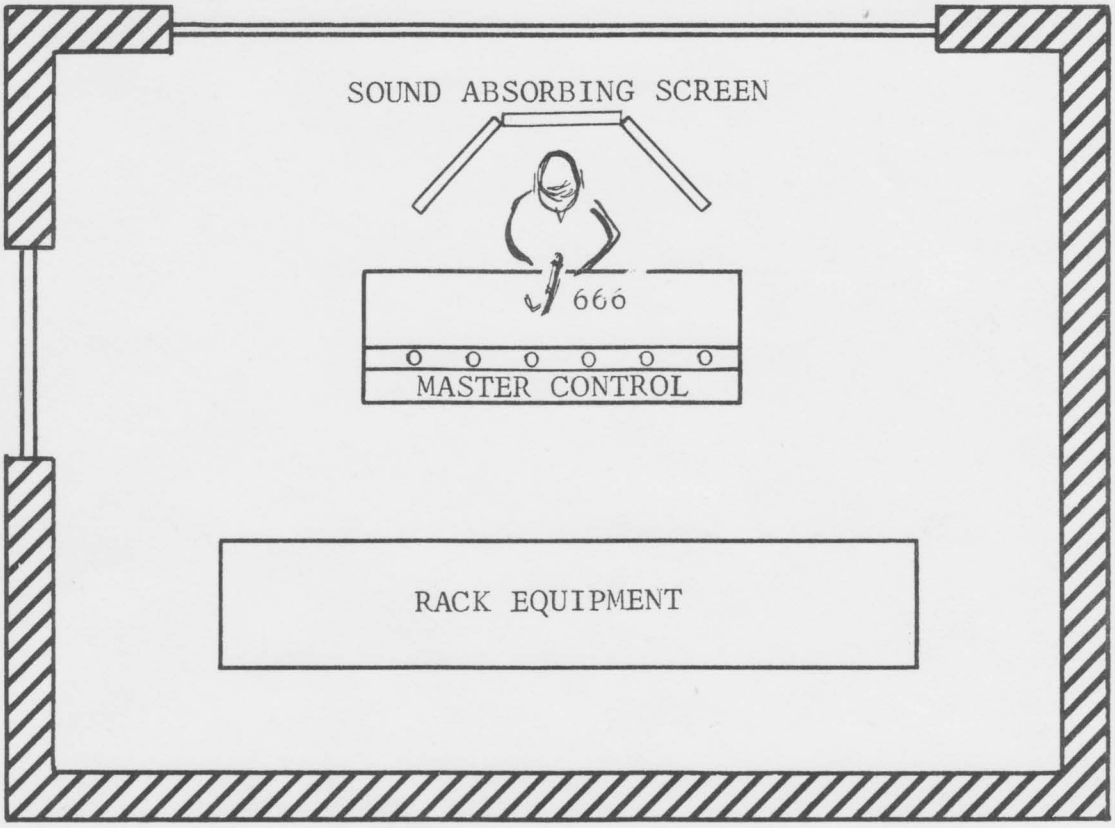

FIGURE 1

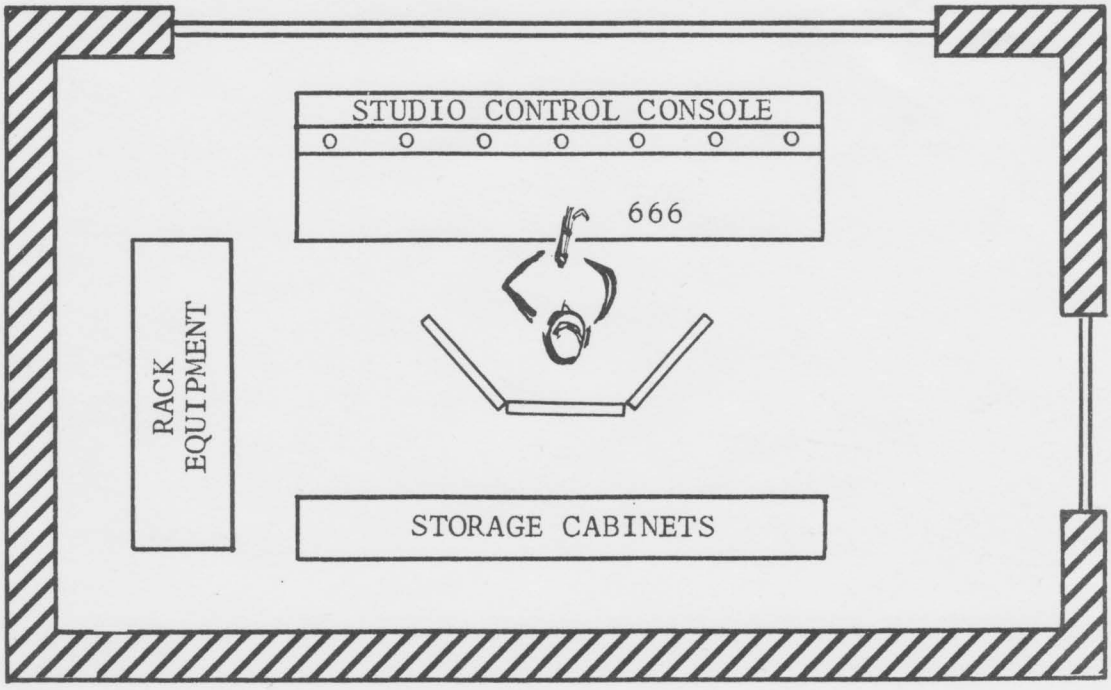

FIGURE 2