SERVING THE CREATIVE AUDIO AND MUSIC ELECTRONICS INDUSTRY

SOUND ARTS

MERCHANDISING JOURNAL

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VOL. 3 NO. 4
MAY 1980

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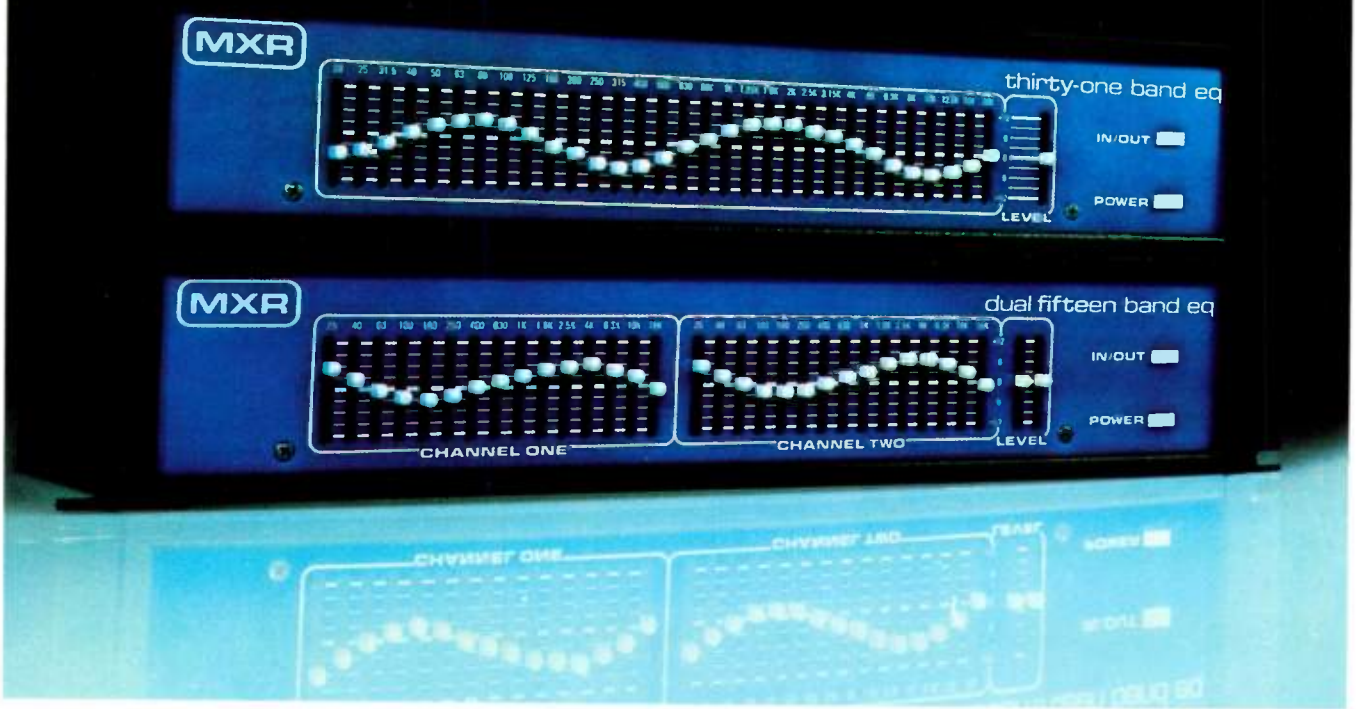


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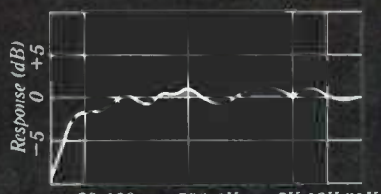

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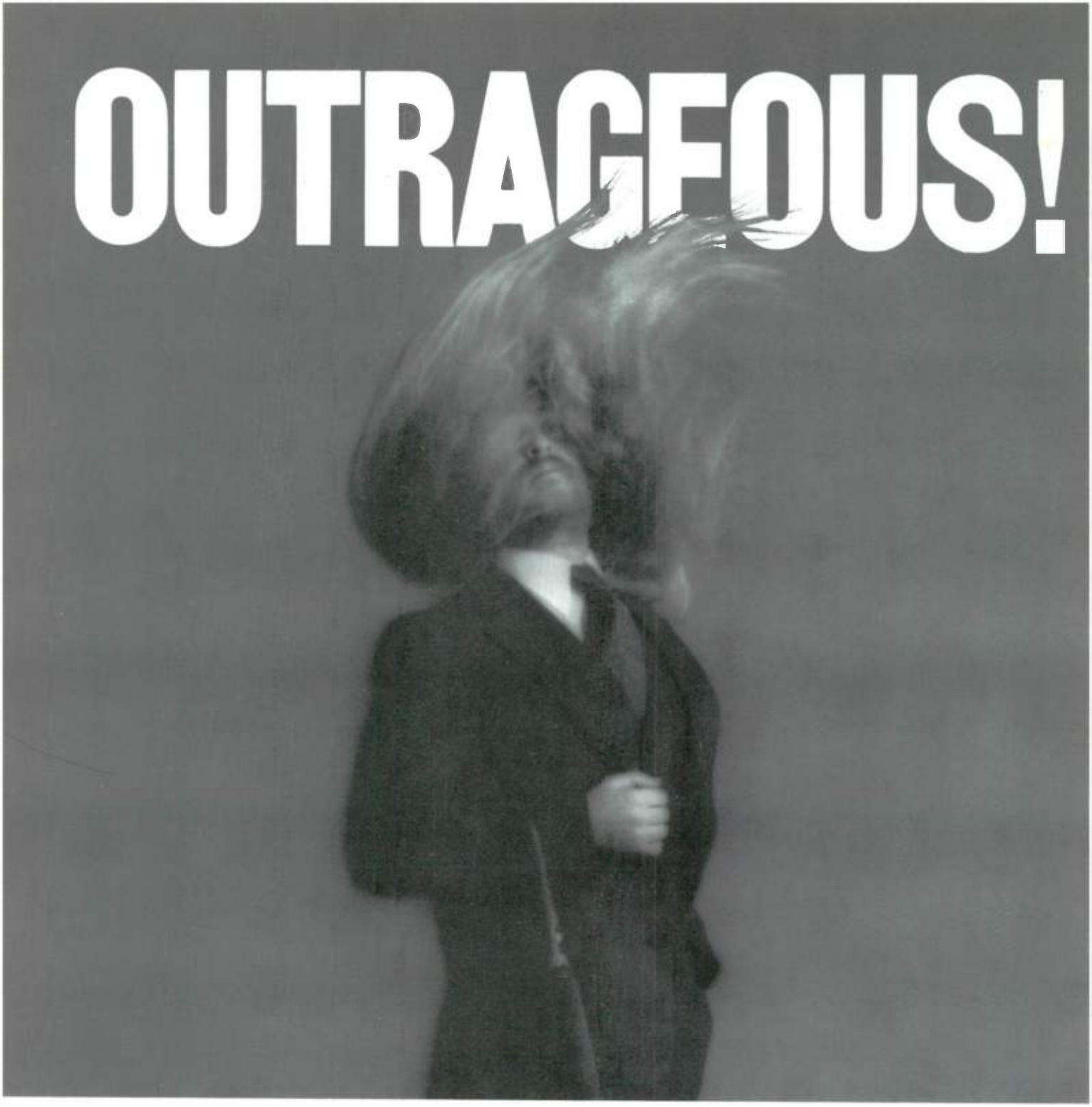

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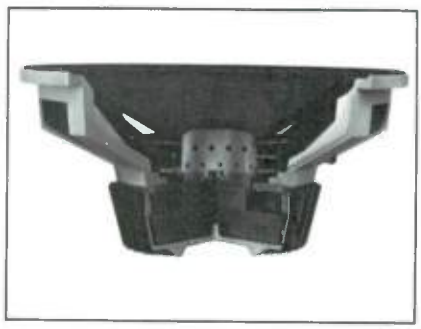

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VOL. 3 NO. 4

SOUND ARTS

MERCHANDISING JOURNAL

MAY 1980

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COMING NEXT ISSUE!

Selling for the Studio of 1990
Report on the AES Convention
No Fooling Sales for Dancing

Cover design by Fran Vitrano
(Form courtesy Unicord)

Sound Arts Merchandising Journal (USPS 410-410) is published monthly by Sound Arts Merchandising, Inc., 220 Westbury Ave., Carle Place, NY 11514. Controlled circulation postage paid at Hanover, New Hampshire 03755. Subscription rates: $18.00 for 12 issues; $26.00 for 24 issues. Add $7.00 per year for subscriptions outside of U.S. Subscriptions must be paid in American currency. Postmaster: Send Form 3579 to Sound Arts Merchandising Journal, 220 Westbury Ave., Carle Place, NY 11514.

SERVING THE CREATIVE AUDIO AND MUSIC ELECTRONICS INDUSTRY
SOUND ARTS
MERCHANDISING JOURNAL

Editorial and Executive Offices
Sound Arts Merchandising Journal
220 Westbury Avenue
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Editorial contributions should be addressed to The Editor, Sound Arts, 220 Westbury Avenue, Carle Place, NY 11514. Unsolicited manuscripts will be treated with care and must be accompanied by return postage.

A LETTER FROM THE EDITOR

In case you've tried to phone us and a synthesized voice answered your call, let me assure you that our interest in synthesis hasn't caused us to robotize ourselves. Far from it. We're happy to announce our settling in new quarters. We packed our typewriters, our Gelusil and our Xerox machine and have happily stormed the village of Carle Place, New York to set up enlarged offices in the hub of Long Island. The ambience is airy and homey and gives us room for implementing a lot of plans we've had for awhile. Our new address is 220 Westbury Avenue, Carle Place New York 11514. Our new phone number is 516-334-7880. We're "at home" and feeling good about it.

For those of you who, rather than feeling good, are "shattered" because the "prime rate's going up up up up up up UP," no need to declare the town in tatters. While we can't do anything about the prime rate or general credit tightening, we can present a lucid calm-down article on getting and keeping credit from manufacturers. Christine Kofoed writes in this issue on the credibility and communication necessary to doing financially sensible business with any factory. Since there's no product without producers, Christine's article makes retail sense.

Some of your recording customers may need some hints on the glories and pitfalls of editing their tapes and Larry Blakely gives those hints in a style you can easily pass on. Craig Anderton too, in "So You Want to Know," offers some hints on editing tape, among other passels of information on "Audio for Musicians."

Hartley Peavey wraps up his series on psyching out the customer, this month concentrating on post-sale procedures, when the customer may need some hand-holding after he's taken possession of his new purchase.

And John Saul reviews the basics of reverberation. Our regular columns wrap up a May-time issue to put spring in your step and green in your pockets.

Read on.

Regards,

Judith Morrison Lipton

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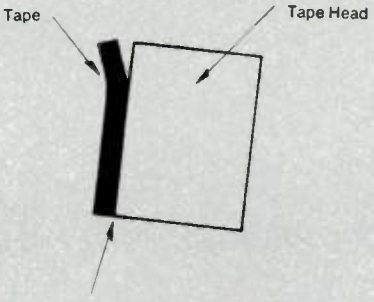
A CONTINUING INDUSTRY GLOSSARY

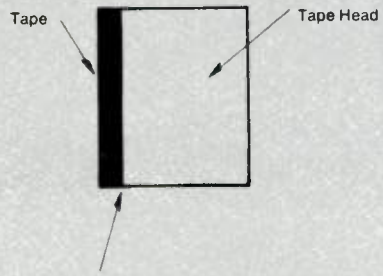
RECORDING

By Larry Blakely

Zenith Adjustment (Continued):



more pressure from the tape at bottom of head due to improper zenith adjustment; also signal loss of tracks near top of head.



equal pressure over entire tape head due to proper zenith adjustment; no signal loss due to tape to head contact.

FIGURE 3. Zenith Adjustment

Azimuth Adjustment: Perhaps the tape head adjustment most commonly referred to. The azimuth adjustment will insure that all the tape head gaps are perpendicular to each other. High frequency response is only optimum when the gaps of the record head and playback head are perpendicular to each other. Azimuth adjustments are often made by recordists and mixing engineers. This adjustment is made by utilizing a "standard alignment tape" and an "audio oscillator." If you have not made this adjustment, I suggest that you consult your tape recorder instruction manual for instructions or have a qualified service technician do it. Do not attempt to make any of these adjustments by trial and error, as you will likely have to scrap whatever you record after you have played with the tape head adjustment.

ELECTRONIC MUSICAL INSTRUMENTS & ACCESSORIES

By Wayne Howe

Triangle Wave: The triangle waveform sounds similar to the sine wave with just a little more "bite," since it has very few harmonics. (See figure 5.) The triangle wave is made up of odd harmonics whose amplitude can be determined by:

$$\frac{\text{amplitude of } f_1}{(\text{harmonic number})^2}$$

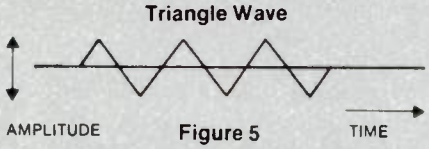


Figure 5

The spectrum analysis of the triangle wave is shown in figure 6. As you can see, this waveform is not very rich in harmonics.

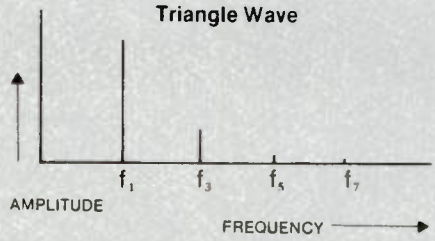


Figure 6

Square Wave: A square wave is a particular type of pulse wave (described later) in which the positive pulse time is equal to the negative pulse time. (See figure 7.)

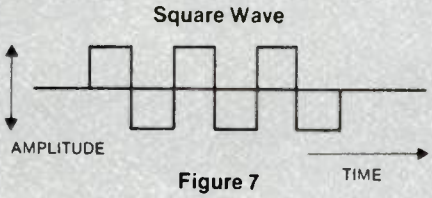


Figure 7

The frequency components which make up the spectral analysis are odd harmonics. The amplitude of any square wave harmonic is the amplitude of the fundamental f_1 divided by the number of the harmonic, *i.e.*, the amplitude of the fifth harmonic is:

$$\frac{\text{amplitude of } f_1}{}$$

SOUND REINFORCEMENT

By Glen E. Meyer

(Continued from last issue.) Even though speaker resonant frequency has always been accepted as a very important parameter of speaker design and capability, f_s has very little to do with speaker performance in a box. Suppose, as an example, that one were trying to choose between a speaker with a resonant frequency of 40 Hz and another with resonant frequency of 30 Hz. It would be generally thought that to obtain the best low frequency performance, the speaker with the lower f_s would be the better choice. In actuality, the speaker with the higher f_s might provide a more desirable bass response.

Q: The ratio of reactance to resistance in a series circuit or of resistance to reactance in a parallel circuit. This should not be confused with the Q having to do with directivity. As used in the Thiele/Small parameters, it could be defined as the ratio of the amount of mass and the force that is pushing this mass around.

Q_{es}: The Q of the driver at resonant frequency considering electrical resistance only.

Q_{ms}: The Q of the driver at resonant frequency, considering system non-electrical resistances only.

Q_{ts}: The total Q of the driver at free air resonance due to all driver resistances. In a common electrically lossless speaker, it is the measure of the ratio of mass to force. The mathematical formula for Q_{ts} is:

$$\text{Total Q at } F_s = \frac{(Q_{es} Q_{ms})}{(Q_{es} + Q_{ms})}$$

If we were to look at the Thiele parameters of a typical 15-inch musical speaker, the Q_{ts} of this example speaker is given as .238.

V_{as}: The volume of air having the same acoustic compliance as the driver suspension. It is generally given in meters cubed or feet cubed. Our example speaker has a V_{as} of 7.1 feet cubed.

N_o: The half-space reference effi-

TERMS: (CONTINUED)

A CONTINUING INDUSTRY GLOSSARY

RECORDING

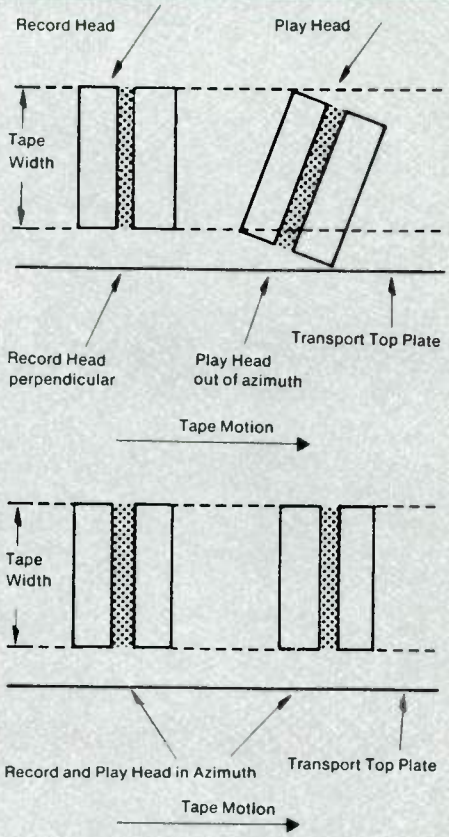


Figure 4 Azimuth adjustment

Two-Head Tape Recording System: A tape head format that utilizes an erase head and a combination record/playback head. When the tape recorder is in the record mode, the combination record/playback head acts as a record head to transfer the signal on to the tape. When the recorder is in the play mode, the same head performs a playback function. This is a popular tape head format because it requires fewer tape heads and allows machines to be built for less money. This format is utilized for most consumer (hi-fi) type tape recorders. It is desirable for the gap of the playback head to be narrow for optimum high frequency response and for the gap of a record head to be wide to prevent the head from overheating as well as to require less bias signal level. It can easily be seen that a tape head designed to do both record and play functions will likely require a compromise in the width of the gap.

ELECTRONIC MUSICAL INSTRUMENTS & ACCESSORIES

From this standpoint, the square wave sounds like a sawtooth wave without even harmonics. (See figure 8.)

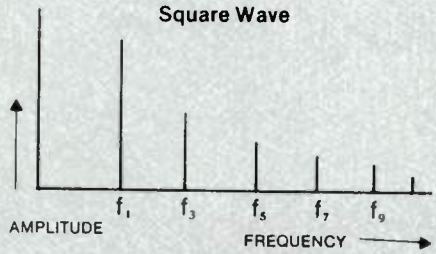


Figure 8

Pulse Waveform: A pulse waveform is similar to a square wave, except that the waveform spends a different amount of time in the positive state than it spends in the negative state. (See figure 9.) You can see from the positive pulses in this illustration why the waveform is called a pulse waveform.

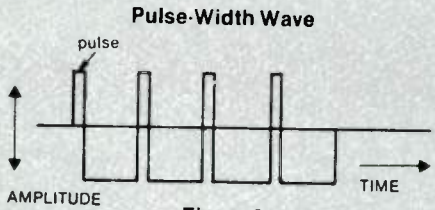


Figure 9

Pulse-Width: The duration of time that the pulse (usually the positive pulse) is on.

Duty-Cycle: The ratio of pulse width to the total wave cycle time period. It is usually expressed as a ratio or percent *i.e.,* 1:3 or 33.3%. For example, the duty cycle of a square wave would be 1:2 or 50%, since it is positive half of the time. The duty-cycle in a pulse-width waveform affects the harmonic content of the waveform. Figure 10 shows the harmonic content of a pulse waveform with a duty cycle of 1:3.

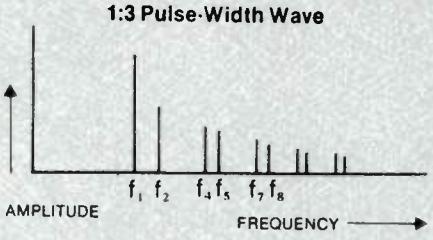


Figure 10

SOUND REINFORCEMENT

ciency given as a percentage. Our example 15-inch speaker has a reference efficiency of 6.2%. (We will discuss "half-space" at a later time.)

V_d: The peak displacement volume of the diaphragm. In other words, it is the volume of air that is displaced when the cone moves from its free state at rest to a full peak voltage state away or towards the magnet assembly. This term is generally given in cubic centimeters or in cubic inches. Our example speaker has a V_d of 17.2 inches cubed.

S_d: The effective diaphragm or cone area given in square centimeters or square inches. Our example speaker has an S_d of 132.6 inches squared.

X_{max}: The peak linear displacement of the diaphragm or cone. In other words, it is the maximum distance the cone can move in a given direction without creating excessive distortion. X_{max} is usually given in millimeters or in inches. Our example speaker has an X_{max} of .13 inches.

P_r: The thermally limited maximum input power that the speaker can handle. It is sometimes known as long-term average power handling capacity (Note: EIA Standard RS426). This term is given in watts. Our example speaker has a P_r of 200 watts.

R_r: The DC resistance of the voice coil. It is measured with an ohmmeter and is given as a certain amount of ohms. Our example speaker has a DC resistance of 5.2 ohms plus or minus 10%.

Full-Space Environment: A totally absorptive environment or area. An anechoic chamber could be considered a full-space environment down to a certain frequency which is determined by the size and design of the chamber. If a speaker system was placed in a full-space environment, it would probably be hung out in open air with no ceilings, walls, or floors in proximity.

Half-Space Environment: Full-space cut in half by a wall or a plane. A half-space environment for a speaker system would be when the system is mounted on a ceiling, on the floor, or in the middle of the wall.

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There are also four Ramsa line array speakers. The WS-135 includes four 10" woofers and a horn tweeter. While the WS-165 adds a built-in power amp. The WS-130 combines two 10" woofers and a horn tweeter. The WS-160 also adds a built-in power amp.

The versatile Ramsa WR-130 8 x 2 portable mixer accommodates two turntables, eight mikes, headphone monitoring and more. The WA-140 mixer-amplifier includes 4-balanced-mike, 4-line, 2-phono inputs and a 5-band equalizer. While the WP-9210 power amplifier offers 200 watts RMS per channel from 20Hz to 20kHz into 8 ohms with no more than 0.05% THD.

Three Ramsa microphones are hand-calibrated to meet high performance standards. For instrument miking there's the back electret condenser WM-8150. The WM-8000 and WM-8050, designed for vocal use, include floating microphone capsules and triple wind screens.

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Next there's Technics R&B Series SL-1015 quartz-synthesized direct-drive turntable system with a heavy rubber antiresonant base and EPA-500 tonearm system. The EPA-500, which can also be purchased separately, has a titanium nitride arm unit (EPA-501H) with dynamic damping for high compliance cartridges. A tonearm base (EPA-B500) with four-point gimbal suspension. And a stylus pressure gauge (SH-50P1), fully electronic and accurate to the tenth of a gram. To match the mass and compliance of any cartridge, there are four other titanium nitride arm units with dynamic damping.

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TROUBLESHOOTERS' BULLETIN

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(2)

Dealer note: A 25 amp service is mandatory for this modification, and is recommended for permanent installations only. The modified unit will pull 25 amps and most portable djs have access to 15 amp breakers only.

By increasing fuse sizes - as long as the power cord will take the current - you can increase the capability of the unit. You can use more lights and hook up larger loads and get more for your money.

DAVE WHEELER
GRICE ELECTRONICS

(3)

WIRELESS INTERFERENCE

There are as yet no radio frequencies set aside by the Federal Communications Commission in the United States (or by similar radio governing boards elsewhere) solely for wireless systems. Consequently, a potential user should be aware of the frequency allocations in the locales in which he plans to

use his system(s) to avert any potential interference problems.

(4)

There are two frequency bands most successfully utilized by today's professional wireless systems: the commercial FM (88-108 mHz) band, and the VHF business and TV channel bands (150-216 mHz). The wireless systems operating in the commercial FM band are tunable so that they can be tuned to blank spots between FM stations.

(5)

The VHF systems are all fixed frequency and cannot be tuned to open frequencies. For applications such as traveling musicians, live recordings, etc., where clear channel accessibility and freedom from random interference are a must in all locales, a well-designed, frequency-stable tunable system is recommended. Even for fixed location use, such systems offer a maximum of immunity from any possibility of interference from CB-ers, cabs and the like, since such business bands are so far removed from the commercial FM band.

(6)

With careful selection of frequencies, VHF systems do offer the advantage of enabling the maximum number of channels to be operated in one location. (For this reason, in the 24-track in-plant studio we are building, we plan on using more VHF systems than FM tunables.) The importance of proper design to prevent any radio cross-talk between adjacent operating units is especially critical in any such multi-channel application.

JOHN NADY
NADY SYSTEMS

What are the primary rules to remember when interfacing audio equipment?

Basically there are two things to consider when interconnecting two or more pieces of audio equipment—level compatibility and impedance loading effects. The general rule for level matching is to maintain as close to equal as possible nominal levels of outputs to inputs. For example, an equalizer with a nominal output level of −10 dB (0.25 volts) is best connected to, say, an electronic crossover with a nominal input level of −10 dB. Variations of up to 10 dB between nominal output and input levels are tolerable, particularly if output and/or input controls are available to trim the signal levels to match each piece of gear more closely. However, differences of more than 10 dB in nominal levels may result in loss of system headroom, which may cause one or more pieces of gear to prematurely overload or clip in or—in the other direction—cause one of the units to operate at less than its optimum output level, resulting in added system noise.

There is only one case in audio where impedance matching is required. This is in the connection of loudspeakers to transformer-coupled power amplifiers. In nearly every other case the general rule for minimizing loading effects is to maintain input impedances that are 10 or more times the output impedances driving them. To gain a feeling for this loading effect, let's say a mixer with a 600 ohm output impedance delivers one volt to one power amp with a 10 K ohm input impedance. The same mixer feeding 10 amplifiers Y-ed together, which now represents a 1 K ohm load to the mixer, would deliver 0.62 volts—about a 4 dB rise.

Never assume anything. Know the specifications of each of the pieces of equipment to be interfaced.

Dave Tkachuk
Audy Instruments

Should we run our PA in stereo?

Unless stereo effects are a vital part of the performance, at Dimension Five we recommend running the PA monaural for a number of different reasons. The main reason is purely economic. In order to run a PA in stereo far more amplifier channels, equalization, etc. are needed. True stereophonic PA is very difficult if not impossible to do, since the audience is widely scattered throughout the listening area and will often not appreciate the stereo imaging that they can, however, appreciate while sitting in their living rooms centered between two hi-fi loudspeakers.

Every time I turn my system on or off I get horrible thumps. I am afraid this will blow up my loudspeakers.

You can damage loudspeakers with turn-on and turn-off thumps. The solution here is to avoid the thumps. I am appalled at how often I see bands setting up and turning on their systems with their amp levels wide open—and then turning on a piece of signal processing gear, a crossover, a mix console etc. The solution to this problem is simply a turn-on and turn-off procedure; the procedure simply being that not until every piece of signal processing gear is turned on should the amplifier levels be turned up. For shutting the system down, the reverse is true. The first thing to be done is to have all amplifier levels turned down to zero, the amplifiers turned off and then every other piece of gear shut down. No more thumps.

My microphone is distorting. What new microphone should I buy?

The first question we ask customers is what microphone they are using. Invariably they are already using a decent quality pop vocal microphone. At this point, we try to explain that they probably don't even need a new microphone, and in fact their microphone is probably not distorting. Quality dynamic vocal microphones usually will only distort at very, very high levels and that distortion is in the form of a warm coloration and not the type of distortion that the customer is probably experiencing. At this point, we go on to explain to the customer that the distortion, which is usually described as a "muffled" sound, is the result of square waving or amplifier clipping at either the preamplifier level of the mixer or the power amplifier level before the loudspeakers, not to mention any other signal processing equipment in the signal chain. We try to take a little time with the customer and explain and demonstrate, if we can get him in to the store, the proper gain structuring of the sound system. If everything is working properly, the microphone distortion problem usually disappears and we have a very gratified customer who didn't have to buy a new microphone.

L. Richard Feld
Dimension Five Sound Co.
Philadelphia PA

What are CPU's, peripherals and interfaces?

CPU or central processing unit is the part of the computer system that controls or directs the rest of the system. This is the part that actually handles the information and does the "thinking," so to speak.

Peripherals is a fancy name for accessories or additional components added to the computer system or CPU. Printers, terminals, additional tape or disc storage units are all considered peripherals. Terminal is a device which enables you to move information into and out of the computer. Common types of terminals include keyboards, video displays and printers.

Interface is a device or circuit that connects two devices or circuits which could not be connected directly. It may act to match devices with different operating speeds, impedances, data codes, etc.

Neil Lewbel

Ashford 90° radial horns: The straight facts

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By Craig Anderton

TAPE RECORDER ACCESSORIES

In Part 1 of this series, we alluded to the fact that once a musician has bought a multitrack or other type of recorder, the studio is by no means complete. We've already discussed one important accessory, the mixing console (see SOUND ARTS, August and September 1978 issues); and we'll discuss several more, such as microphones. But for now, we're going to limit ourselves to talking about accessories that are specifically used in conjunction with a multitrack recorder in order to simplify, or maintain the consistency of, the recording process. Luckily for the musician, most of these accessories aren't too expensive; luckily for the dealer, they usually have a pretty decent profit margin.

HEAD CLEANER

Every tape recorder needs to have its tape heads and tape guides, as well as the pinch roller and capstan, cleaned on a regular basis. Most manufacturers recommend cleaning every 8 to 10 hours; however, it's virtually impossible to overclean, and I personally clean the recorder's salient parts after every session (that way, things are ready to go for the next session). Most manufacturers offer a particular type of cleaner which is recommended for their machines. Make sure you find out from the manufacturer whether the head cleaner is also suitable for the pinch roller or not, as some cleaners are incompatible with some pinch rollers. There is no real hard and fast rule on this, so I'd suggest following the manufacturer's instructions.

By the way, many musicians regard cleaning as a bit of a bother. Stress to those people that cleaning not only gives a better sound, but also contributes to a longer head life.

HEAD DEMAGNETIZERS

As tape passes by a head, a certain amount of residual magnetism builds up in that head. If this residual magnetism grows in intensity, then the head acquires some of the characteristics of a permanent magnet. Passing the tape past a magnetized head will cause high frequency loss *and* an increase in hiss—both of which are anathema to the recording process. Therefore, the heads must be periodically demagnetized using an appropriate tool to remove any traces of residual magnetism; most manufacturers recommend demagnetizing the heads every 8 to 20 hours. In practice, if you do just about an equal amount of recording and playback, the magnetism builds up very slowly. On the other hand, if you use a machine to mostly record, or mostly play back, magnetism builds up more quickly.

Most demagnetizers look like some kind of magic wand. The basic demagnetizing procedure is to make sure that all power to the recorder is *off*, then plug in the demagnetizer into an AC line with the demagnetizer *at least* two feet away from the machine. When first turned on, a demagnetizing device generates a very strong magnetic field, so if it's too close to a head it can actually magnetize the head—the exact opposite of what we're trying to do. Also, make sure the demagnetizer is not close to valuable tapes or anything else that can be affected by a strong magnetic field.

Slowly approach the playback head with the tip of the wand, coming as close as possible to the head, short of touching it. Wave the tip slightly from side to side across the face of the head, then slowly—very slowly, in fact—withdraw the tip of the wand from the head. By slowly, I mean no faster than 3 or 4 inches per second. Next, demagnetize the other heads. After demagnetization is complete, turn off power to the demagnetizer when it is at least 2 feet away from the tape recorder, for the same reason given above concerning turn-on. Demagnetizers draw a fair amount of current, and cannot be left on continuously. If one is on for 30 seconds, then let it rest for 30 seconds before continuing.

TEAC makes an ingenious head demagnetizing cassette that makes cassette demagnetization virtually foolproof; I hope they come up with a version for 4 and 8 track machines soon, because people seem to have a hard time understanding the demagnetization process. Anything that makes that process easier would be welcomed.

MAGNETOMETERS

Most studios demagnetize their heads on a regular schedule, which is fine. On the other hand, it seems kind of silly to demagnetize when it's not really needed. A sensitive magnetometer can actually measure the residual magnetism of a tape head, and let you

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WRH

block; you need separate models to handle cassette tape, 1/4" tape, 1/2" tape, 1" tape, and so on. By the way, some splicing blocks have little arms that hold the tape in place, or include cutters that make the splice for you. I steer clear of these, and prefer the basic type of block that just holds the tape in place and has a groove underneath where the tape is held. The actual splice is made by cutting the tape with a non-magnetized single-edged razor blade (another use for the demagnetizer!), guided by the groove. By the way, if the razor blade is not demagnetized, there will be a small "pop" at each splice. I check my razor blades with the magnetometer before each splice to prevent such problems.

LEADER TAPE

Paper or plastic leader tape is added at the beginning of a reel of tape, and sometimes between songs, for several reasons. First, you can write on the leader and identify the particular piece of tape. Second, as you rewind the tape, you can hit the stop button as soon as you see the paper leader, before the end of the tape comes off the take-up reel. A paper leader tape also prevents the end of the actual magnetic tape from getting "chewed up" during the recording process, say by flapping around wildly after a rewind is complete but before the machine has come to a complete stop.

know whether demagnetization is necessary or not. After buying and using a magnetometer, I found out some interesting things; sometimes it would take 50 or more operating hours to build up a noticeable level of magnetism, while on other occasions only 10 hours of operation would make a noticeable increase in residual magnetism.

SPLICING TAPE

No one's perfect, which is why they put erasers on the ends of pencils and splicing tape in recording studios. Splicing tape is distinctly different from other adhesive tapes, and you *must* use a type recommended for recording work. I prefer the ultra-thin kind, myself; while thicker splicing tape gives a real strong splice, it can also create a tiny "hump" as tape wraps around that splice. Thin splicing tape prevents this, but is more costly.

SPLICING BLOCK

To go along with splicing tape, you need a splicing block. This holds the tape firmly in place for the splicing operation. Splicing blocks are expensive, but a necessity for any kind of serious recording work. There is no such thing as a "universal" splicing

TEST TAPE

More and more manufacturers are starting to trust the consumer to make adjustments for tape bias, head alignment, and so on (a decision that makes any serious recordist happy). However, to set many of these parameters you need a test tape that contains specific tones, recorded at specific levels. Test tapes are horrendously expensive—but there's a reason for that. Each one has to be perfect, and to turn out *any* product where each unit must be perfect means expensive quality control procedures. Nonetheless, if treated carefully a test tape should last for enough passes to align a machine for several years. In addition to allowing the recordist to set up a tape recorder for proper operation, a test tape allows you to *keep* the recorder in good shape by presenting a standard against which you can compare the recorder's performance as it ages.

EMPTY REELS

It's always important to have a few empty reels floating around. For one thing, when assembling a master tape, you need lots of empty reels to hold bits and pieces of tape while they are being assembled. When making splices, empty reels are also invaluable—you can wind the part to be spliced out on to an empty reel, then remove that reel, put the reel holding the remainder of the tape back on to the machine, and make your splice. Then, you simply unspool the unwanted tape from the extra reel, and you've got your empty reel back again. Both plastic and metal reels are available. Plastic reels are lighter, which makes the machine transport happier, but they can also warp, which results in uneven tape travel and tape packing onto the take-up reel. I go with metal reels, since machines are rated to handle them anyway... even though they cost a little more.

That pretty much takes care of tape recorder-dedicated accessories. Next issue, we'll delve into other types of accessories for the home recording studio.

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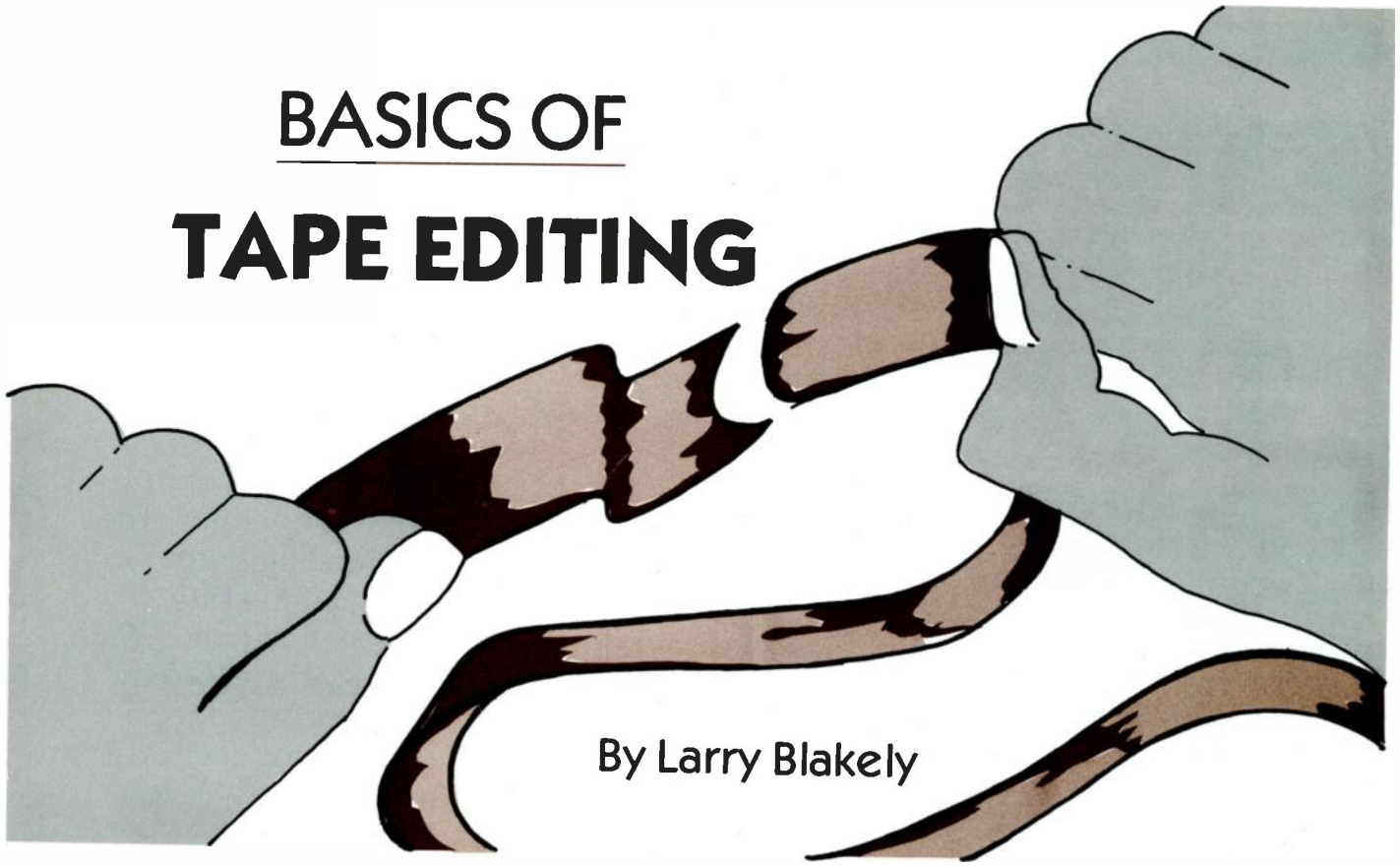
BASICS OF
TAPE EDITING



By Larry Blakely

Prior to the invention of the tape recorder in the early 1940's, when all recording was done with disc, it was necessary to have a perfect performance (no mistakes) to yield a perfect recording. If either the musicians or the recording engineer made a mistake, the entire performance had to be re-recorded. One of the main advantages of the tape recorder for the recording industry was its ability to edit. Now if someone made a mistake, only the section in which the mistake was made needed to be re-recorded. The section with the original mistake could be cut out from the original recording and spliced in with the re-recorded segment which had no mistake. The net result was a perfect recording, and even though a mistake had been made no one could tell the difference. This process of cutting out and replacing is of course called editing. And your recording customers may be interested in some basic information and tips on the process.

Editing can be utilized for many purposes other than that described above. Selections can be re-arranged, time between selections can be increased or decreased, unwanted portions of a recording (coughs or other extraneous sounds) can be removed. Programs or selections can also be shortened by editing out unwanted parts. It seems that not many individuals know how to edit, and often those who do cannot do it properly, nor do it well. Editing, like learning to play a musical instrument, requires the proper tools, skills and rules, and most important of all, practice.

Although what was described earlier sounds simple, the art of editing can be quite complicated. But the basics are quite easy—providing certain ground rules are followed. Recordists should be well informed of those ground rules.

The basic tools for editing are a splicing block, a single edge razor blade, a grease pencil (white), splicing tape, leader tape, talent and ambition.

Splicing blocks are available for different tape sizes: ¼", ½", 1", and 2". There are even splicing blocks available for the 1/8" tape which is used in cassettes. These splicing blocks are usually some four to six inches long with a long recessed slot in which to place the tape, and there are usually two diagonal slots in the block to guide the razor while cutting. One slot is usually perpendicular to the tape and the other is usually at a 30 to 40 degree angle. There are also other types of splicing blocks that have additional cutting slots at even different angles. Splicing blocks provide a quick and effective method for editing and are used by professionals throughout the world. Some individuals prefer to use so-called "tape splicers" which have a slot in which to place the tape, two levers to hold it down and a big arm with a plastic handle which moves to expose either trimming or cutting blades. I would like to discourage the use of "tape splicers," because they are not too often kind to the tape and have often been responsible for damage to tapes and must often be thrown away when the blades get dull.

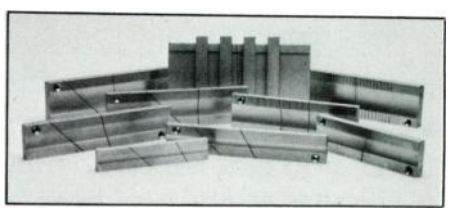


Figure 1. Editing Blocks (courtesy Editall)

Single edge razor blades are preferred because they are possibly the easiest way to cut tape quickly and simply and are less likely to cut the editor. It is important to demagnetize the razor blades before cutting the tape. When a razor blade is magnetized it may cause a pop on the tape because it has magnetized the metal particles on the tape in the area of the splice. It is common for razor blades taken directly from the box to be magnetized. Hold the razor blade approxi-

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mately one inch over the top of a bulk tape eraser (turn the eraser "on") and draw the razor blade *slowly* away from the magnetic field. This will demagnetize the razor blade. If the razor is not drawn away from the bulk eraser as described it may cause the blade to become magnetized (which you do not want). If the razor blade is allowed to lay on the eraser (while it is on), the razor can also become magnetized. It is also important to use a sharp razor blade when cutting tape to get a nice clean splice. If the blade is dull, replace it with a new, clean, sharp one. A recording studio or recordist should always have a box of new single-edged razor blades around.

Grease pencils should be used to mark the tape for the proper place to cut. Sometimes people use hard tipped marking pens or colored pencils. These should not be used. The tape is marked when it is next to the playback head, and hard tipped marking devices can cause damage to the play head. A grease pencil will not harm the head. Soft tipped felt markers can also be used with no fear of head damage. Another reason the grease pencil is so popular is that its mark can be wiped off the tape and the tape can be easily re-marked if you mark it in the wrong place. Markings made by felt tip pins (with solvent base marking fluid) cannot be removed from the tape. Markings made with *water base* felt tip markers will not make a good mark on the tape and will often come off when your hand lightly brushes it. When marking with such water base pens you can spend half of your time looking for the mark that isn't there. The grease pencil offers the best of all worlds for tape editing. White grease pencils are the most popular because the mark can be easily seen on the dark backing of the magnetic tape.

Splicing tape should be used and is manufactured and supplied by major magnetic tape manufacturers. Do not use plain cellulose tape for making splices! Splicing tape is made with a special type of adhesive that is placed on the backing in modest amounts, which will prevent the adhesive from oozing through the splice. When magnetic tape is stored for long periods of time, two tape layers can be bound together if the adhesive oozes through the splice. Plain everyday cellulose tape has far too much adhesive to be used for splicing. Splicing tape is available in standard sizes, which are usually slightly narrower than the width of the recording tape used. For example: the splicing tape that should be used for splicing 1/4″ tape is 7/32″ wide. This splicing tape comes on a small roll that can be easily placed on a standard (office type) cellulose tape dispenser for easy access and use. Often times when splicing tapes that are wider (1/2″, 1″ or 2″) a splicing tape approximately 1/2″ wide is used and trimmed along the edge of the magnetic tape with a razor blade.

Leader tape is a special type of tape with no magnetic backing. This is used between the selections on a tape. The leader tape is usually made of plastic; however, the popular choice of the recording industry for years has been made of paper. Whatever your choice, this special tape will not record and is used as a visual indication between selections, and also at the beginning and end of a reel. In preparation of a stereo master tape, three- to five-second lengths of leader are typically placed between selections to allow the disc cutting engineer to make the spreads on the disc. Usually 10 or 15 feet of leader are placed at the head of the reel prior to the first selection, and at the end of the reel after the last selection.

Now that we have all the wheres and whys of the basic editing tools down, we can look at the basic procedures used for editing.

Editing at the beginning and end of a selection is perhaps the simplest type of editing, and this is where we will start. It is first necessary to locate the playback head on the tape recorder. All editing is done by listening to the tape and all marking must be done at the playback head. Play the tape up to the beginning of the selection. Stop the recorder. With one hand on the supply reel and the other hand on the take-up reel, move the tape in a back and forth motion to find where the selection starts. Move the tape quickly (approximately one or two times the tape speed). You will hear the lack of signal prior to the beginning and a definite signal where the selection starts. This faster motion is used to find the general area of the beginning of the selection. Now a slower back and forth motion will fine tune and find the exact beginning. If there is a drum lick at the beginning, you will hear a high frequency click or sound, while the sounds of other instruments will have a lower frequency sound and seem less defined. However, move the tape until you have it just before the signal starts. Do not move the tape. Place a mark on the tape at the center of the playback head. The center of the playback head is where the gap is located. The gap is where the signal is picked up by the head.

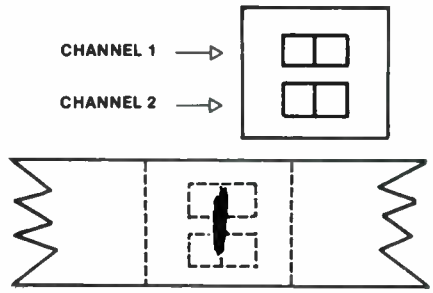


Figure 2. Marking the Tape in the Center of the Playback Head

Now wind the supply reel and take-up reel to allow the tape to fall away from the head and leave enough slack to place it in the splicing block, which should be located close to the recorder.

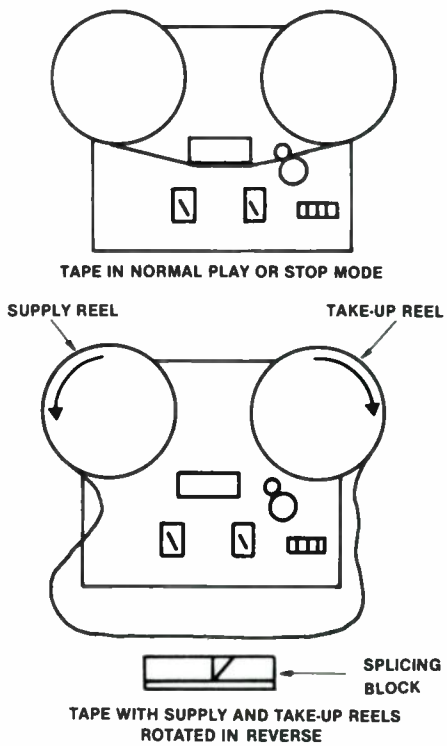


Figure 3. Reel Motion (must be done by hand)

Place the tape in the tape slot of the splicing block with the grease pencil mark in the center of the diagonal slot.

Figure 4. Mark on Tape in Center of Angle Cutting Slot

If the vertical slot is used, it will often cause a pop when the splice passes the play head.

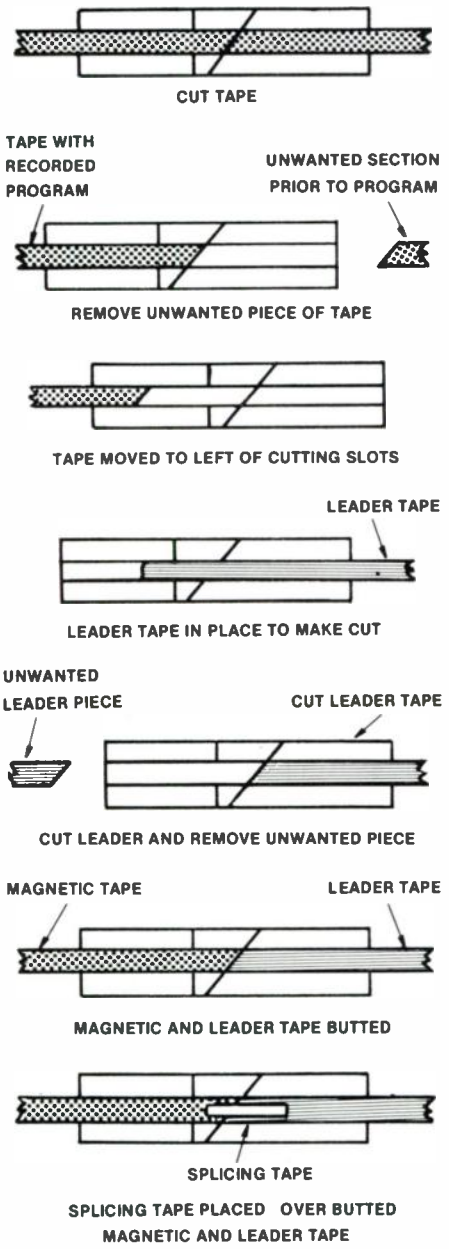
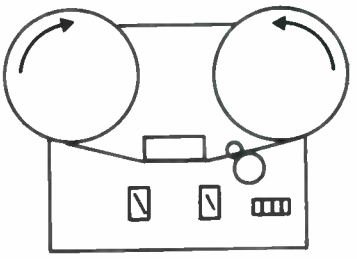


Figure 5. Splicing Procedure (for placing leader tape at the beginning of a recorded selection)

Cut the tape at a diagonal and remove the piece to the right of the cut (this is the section of tape prior the beginning of the selection). Move the piece of tape to the left of the slots. Now place a piece of leader tape (cut to the appropriate length) in the position previously occupied by the tape on the right of the slot. Cover the diagonal slot with the leader tape and cut it with the razor blade (so both the tape and the leader have been cut at the same angle). Remove the short piece of leader (on the left of the slot) which has been cut. Now slide the leader to the left until it butts up against the diagonal cut of the recording tape (which should still be about ½" to the left of the slot). With the recording tape and leader butted together, take a piece of splicing tape (approximately1" long), and place it in the tape slot on top of the recording tape and leader. One half the length of the splicing tape should be on the recording tape and the other half on the leader. Once the splicing tape is correctly in place, take your fingernail and move it back and forth on top of the splicing tape to create a good bond. The two tapes (magnetic and leader) are now spliced together.



TAPE WOUND BACK TO NORMAL TAPE PATH BY ROTATING REELS AS SHOWN

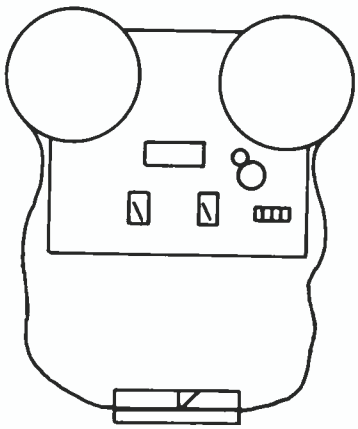


Figure 6. Reel Motion (must be done by hand)

Lift the spliced tape from the block and wind up the slack (by hand) with the take-up reel. Now you have completed the operation for properly splicing a segment of leader tape prior to a selection recorded on magnetic tape.

Much of the same process can be repeated to place a leader at the end of a selection. However, when listening to find the end of the selection, it is a good idea to turn the monitor speaker up in level. Often recordings have a reverberation decay at the end and such a decay is low in level. It is important that you hear all of the decay prior to making a mark. Otherwise you will likely cut off part of the reverberation decay and it will not sound natural. This is often referred to as chopping the reverberation tail. With the monitor up in level, this is less likely to occur. Find the area of the tape near the end of the selection and let it play (monitor loud). After the last event or note, listen for the natural reverb decay or the dying away of the room sound and stop the tape. Now rock the tape back and forth, listening again for the disappearance of the room sound or reverb decay.

When it is all gone, make the mark in the center of the play head with the grease pencil and place the mark over the diagonal slot of the splicing block with the tape firmly in the tape slot of the block. Once the cut has been made, follow the same procedure as described previously. Only one thing changes: Now the leader goes on the left side of the cutting slot and the magnetic tape being saved is on the right. You can see this especially clearly after you have thrown away the good segment of the recorded tape and spliced the part you didn't want. We have all done this many times. Practice is a must. It is always a good idea to keep the work area in which you are editing neat, clean and organized. When you are editing, there are many things on your mind—which piece of tape is the selection to keep, which piece is the one to throw away, whether the cut is in the right place, whether the splicing tape is on straight, will the splicing tape bond securely to the magnetic and leader tape, etc.

As mentioned earlier, the length for leader tape between selections is usually three to five seconds. The actual length will depend upon the tape speed at which the tape is recorded. One way to never miss is to splice the leader tape at the end of a selection, place the splice over the play head and start the recorder in play mode while timing the leader with a stopwatch to the appropriate time. Stop the recorder. Make a mark on the play head. The leader is now the correct length. Cut the leader at the mark and unwind it from the take-up reel. Measure the length. Make all other leaders the same length.

Editing out and replacing sections of recorded tape will utilize the same basic editing procedures described above, except that there is no leader tape involved and you are using all recorded tape segments. It is possible to record an entire musical selection and find that there is a mistake. It is then possible to re-record the section of the selection where the mistake was made (usually a few bars) and replace it with the newly recorded section. This is all fine and well, but there are a few rules that must be observed. It is best to record the replacement section during the same session and in the same place that the original recording was done. If the original recording was done in one studio or location and the replacement section of tape was recorded in another, there will usually be problems when splicing the two recordings together and having them sound right. The original recording will have the acoustic color of one type and the replacement will most often have the acoustic color of an entirely different environment. The recording will not sound natural and will sound obviously tampered with to even untrained listeners. Therefore, it is the best policy to record replacement sections in the same studio or room. It is also a good practice to record them during the same session or on the same day. Even on the same day microphones are moved, the engineer has just a little different mix on the board, a little different EQ, a little more or less reverb, etc. If you make a recording of an entire selection and you seem pleased with it, listen to it carefully right away to see if you need to re-record any portions of it.

If you listen to your recorded selection and find a mistake that you can't live with, but the rest of the recording is so fantastic you can't live without it, you must make some decisions. If you re-record it, can it be spliced in and remain unnoticeable? Look for simple places to cut. This can be easily done at the beginnings of phrases and bars. Look for easy places to cut at the ending of the section like the end of phrases and bars. In other words we are looking for "holes" where there is little or no music—preferably no music. Try not to cut where there are sustained background instruments playing because a *very slight* difference in the level of the two recordings will be very noticeable.

You must learn to know what different instruments sound like when you are moving the tape back and forth in an effort to find the appropriate location to make a splice. There is no way I can explain the different sounds in this article. It will be necessary for you to find this out on your own. I suggest that you take a recorded tape that you don't want and use it for practice. Make splices at the beginning and end of selections. Take your tape and make two copies and try removing sections from one tape and replacing it with the same sections from the other tape. This is a good way to obtain the necessary practice because if you goof it up it is only a practice run and doesn't matter. Take some time and try to get proficient at it. You will discover that it doesn't take long to get the hang of it. After you have practiced you can do some neat tricks like removing the sound of coughs or the sound of someone hitting a music stand, etc.

The most important thing is to know when to pick up the blade and cut the tape and when you can not. If in doubt don't do it. If you must try, make a copy of the tape recording and cut the copy, find out if it will work, and when you are satisfied that you can do it then—and only then—touch the blade to the master tape. *There has been many a good master tape destroyed by a confident engineer who absolutely knew what he was doing making the wrong cut with a razor blade.* Editing is a great art and requires skill, but most of all a lot of practice.

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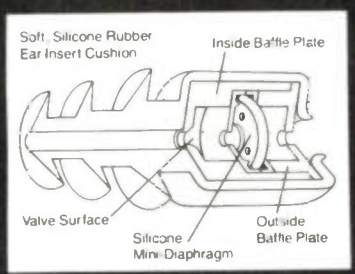

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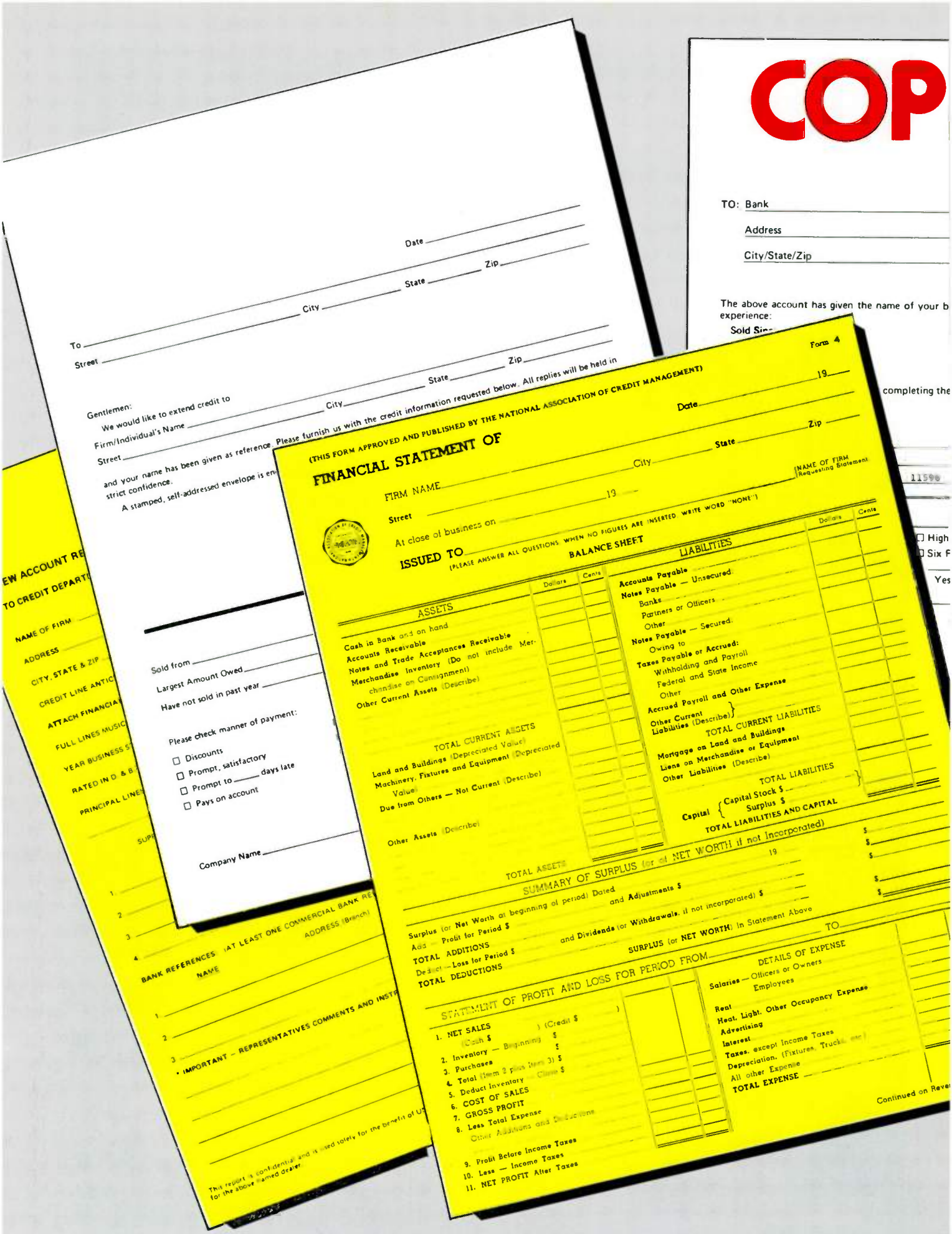
COP
TO: Bank
Address
City/State/Zip
The above account has given the name of your b
experience:
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Street
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Gentlemen:
We would like to extend credit to
Firm/Individual's Name
and your name has been given as reference. Please furnish us with the credit information requested below. All replies will be held in
strict confidence.
A stamped, self-addressed envelope is en
Sold from
Largest Amount Owed
Have not sold in past year
Please check manner of payment:
Discounts
Prompt, satisfactory
Prompt to _____ days late
Pays on account
Company Name
(THIS FORM APPROVED AND PUBLISHED BY THE NATIONAL ASSOCIATION OF CREDIT MANAGEMENT)
Form 4
FINANCIAL STATEMENT OF
FIRM NAME
(NAME OF FIRM Requesting Statement)
Street
City
State
Zip
At close of business on
19
ISSUED TO
Date
19
(PLEASE ANSWER ALL QUESTIONS. WHEN NO FIGURES ARE INSERTED WRITE WORD "NONE")
BALANCE SHEET
ASSETS
Dollars
Cents
Cash in Bank and on hand
Accounts Receivable
Notes and Trade Acceptances Receivable
Merchandise Inventory (Do not include Merchandise on Consignment)
Other Current Assets (Describe)
TOTAL CURRENT ASSETS
Land and Buildings (Depreciated Value)
Machinery, Fixtures and Equipment (Depreciated Value)
Due from Others — Not Current (Describe)
Other Assets (Describe)
TOTAL ASSETS
LIABILITIES
Dollars
Cents
Accounts Payable
Notes Payable — Unsecured:
Banks
Partners or Officers
Other
Notes Payable — Secured:
Owing to
Taxes Payable or Accrued:
Withholding and Payroll
Federal and State Income
Other
Accrued Payroll and Other Expense
Other Current Liabilities (Describe)
TOTAL CURRENT LIABILITIES
Mortgage on Land and Buildings
Liens on Merchandise or Equipment
Other Liabilities (Describe)
TOTAL LIABILITIES
Capital { Capital Stock $ / Surplus $
TOTAL LIABILITIES AND CAPITAL
SUMMARY OF SURPLUS (or of NET WORTH if not Incorporated)
19
Surplus (or Net Worth at beginning of period) Dated
Add — Profit for Period $
TOTAL ADDITIONS
Deduct — Loss for Period $
TOTAL DEDUCTIONS
and Adjustments $
and Dividends (or Withdrawals, if not incorporated) $
SURPLUS (or NET WORTH) in Statement Above
STATEMENT OF PROFIT AND LOSS FOR PERIOD FROM
TO
1. NET SALES (Credit $ / Cash $)
2. Inventory — Beginning $
3. Purchases $
4. Total (Item 2 plus Item 3) $
5. Deduct Inventory — Close $
6. COST OF SALES
7. GROSS PROFIT
8. Less Total Expense
Other Additions and Deductions
9. Profit Before Income Taxes
10. Less — Income Taxes
11. NET PROFIT After Taxes
DETAILS OF EXPENSE
Salaries — Officers or Owners
Employees
Rent
Heat, Light, Other Occupancy Expense
Advertising
Interest
Taxes, except Income Taxes
Depreciation, (Fixtures, Trucks, etc.)
All other Expense
TOTAL EXPENSE
Continued on Reve
EW ACCOUNT RE
TO CREDIT DEPART
NAME OF FIRM
ADDRESS
CITY, STATE & ZIP
CREDIT LINE ANTIC
ATTACH FINANCIA
FULL LINES MUSIC
YEAR BUSINESS ST
RATED IN D & B
PRINCIPAL LINES
BANK REFERENCES (AT LEAST ONE COMMERCIAL BANK RE
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ADDRESS (Branch)
IMPORTANT — REPRESENTATIVES COMMENTS AND INSTR
This report is confidential and is used solely for the benefit of U
for the above named dealer
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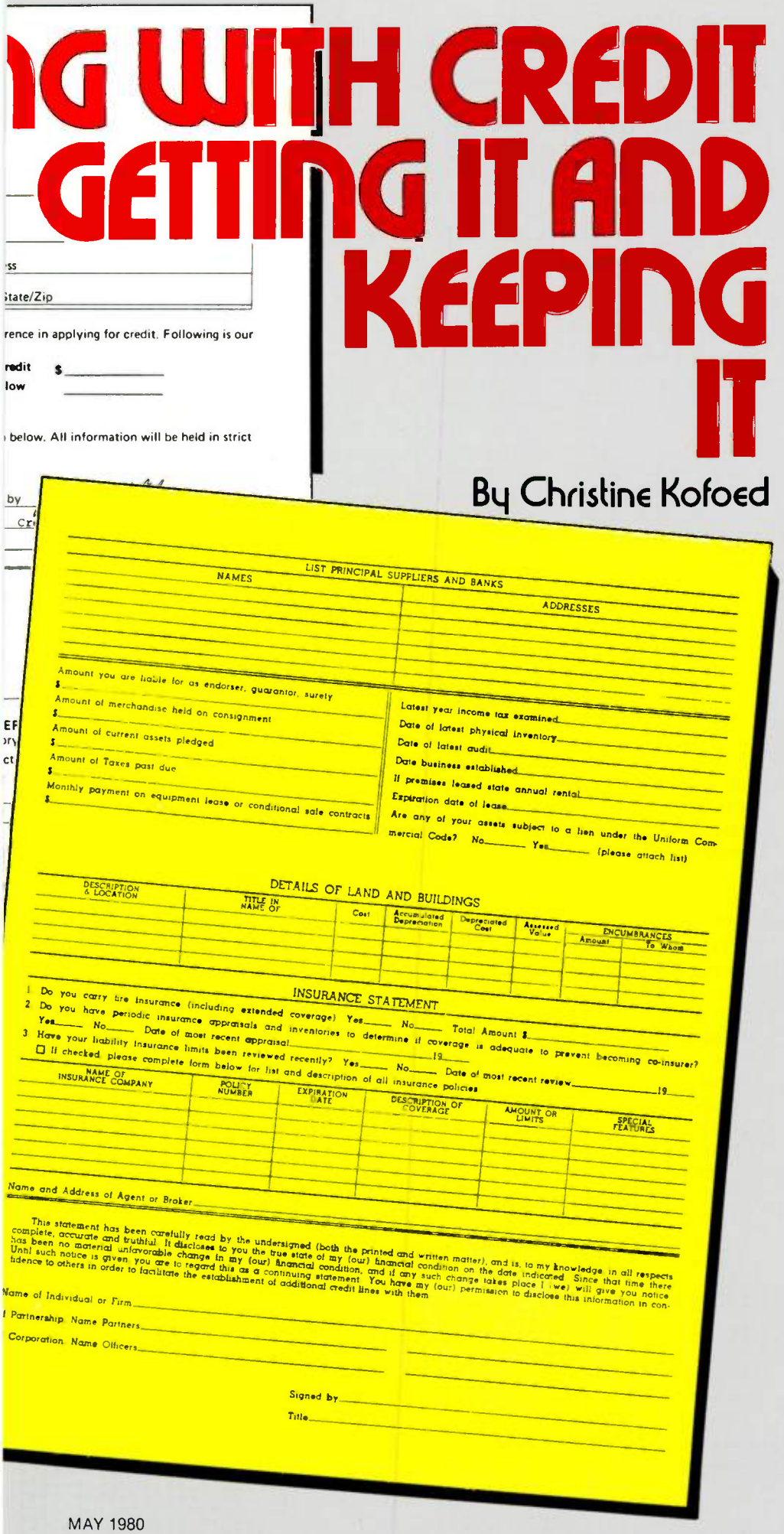
Yes

...G WITH CREDIT GETTING IT AND KEEPING IT

By Christine Kofoed



Credit—the dilemma of the decade. Who has it, how much he has and what it costs him may well determine who survives as a going concern. So here's to credit and here's to keeping it.

Gaining credit from a supplier is easy—if you've been operating on an open account status with five other manufacturers in the same field (one of whom is the proposed supplier's closest competitor) and you haven't missed a discount in five years. But what if you are a new business or have previously made a point of pre-paying your path through life? It is true that businesses without a track record are regarded with no small amount of suspicion. A financial statement can testify to a retailer's solvency, but it says nothing about his honesty, his intentions or the number of unhappy creditors left sprinkled like fairy dust in his wake. Therefore, most manufacturers depend upon each other for their information. A standard credit check may go something like this:

"Good morning, this is Sara from Sometime Signal. You've been listed as a reference by Foghorn-LegHorn Recording in Wanoocha?"

"Foghorn? Mmm. OK, he's been with us for over three years, last sale dated April 15, 1980. Our terms are 6% 30, net 31. His high credit this year was $8,000 with a $10,000 limit. He usually discounts, but not always. His current balance outstanding is $4,368.80 and that is all within terms."

Or . . . "This is Sara again at Sometime Signal. We're checking on Sounds Dubious in Chicago."

Sounds Dubious opened one year ago. Balance outstanding is now $1,435.60, all over 120 days past due. We worked out a payment schedule with him a month ago which he did not meet. The last time we called he claimed that something must be wrong at the Post Office since he had mailed a payment every week except for one because he can't find that invoice and who had ordered it anyway. He is now up for collection."

The writing of a business credit history usually begins with local suppliers. Almost everyone in the sound business deals regularly with a hardware store, electrical supply house, lumber mill, etc. Ask to pay on a thirty day basis instead of cash with order. After you have been paying on open account for some amount of time, ask if you can use them as your reference on your proposed national account.

Establish and maintain a close relationship with the branch manager at your bank. It is in his interest to support business in his area. He can cooperate in your search for credit by providing information on the size of your account, the size of your business line of credit, the length of time he's known you, or perhaps he can even offer a personal recommendation.

Get to know your manufacturer's representative. Discuss your operation with him, your financial plans and your current needs for product. He may be asked for his evaluation of your chances of success as a dealer and your probable credit worthiness. Since he reps several lines he could probably endorse you to many companies.

Don't overlook your financial statement. If it isn't now being prepared by an accountant, at least on a quarterly basis, it should be. Your supplier is going to want to see a copy of it—the latest one, definitely, but also your year-end statement (the one with all the taxes due shown on it) and a statement from the previous year might be requested.

Get to know the Credit Manager at the factory—even while you are on a CWO or COD basis. This is the person who must be convinced of your ability to pay within the terms specified before you can be slated for open account. Barbara Magnussen at BGW defined her requirements for open account:

"If a business is less than a year old we keep it on a pre-paid status, largely because of the high percentage of failure of new businesses. If it is over one year old, but with no credit references, we will place great emphasis on the financial statement. The statement is probably the most important information that we can get. People who are interested *in business* will have it. They will know it and refer to it often. Too many times the talent in retail operations is in the electronics end of things. We have to be convinced that someone is watching the store. Also, anyone who has been operating within the sound community will be known, will have established a reputation, because it is such a small industry. We will often check that as well."

Contacts in the sound business should not be overlooked at any stage in your career. One rather large and successful retailer realized the importance of contacts while still working as a salesman for another company.

"I made sure that I established personal relationships with *everyone* as I went along. I took care of calls to and from the manufacturers because no one else wanted to be bothered with placing orders, hassling delivery, or with sitting down with the reps when they visited. Before too long I *was* the retail operation as far as the suppliers were concerned. When the time came to move on, not only did I take several very good customers with me, but I had solid contacts with sales managers, manufacturer's representatives and with some credit people."

Personal contacts within the sound industry are a very important and tangible asset—or liability, depending upon your record. Because professional sound is as small and interrelated as it is, your emerging reputation will be abroad in an amazingly short period of time. But making use of contacts is an art. When the retailer quoted above began his business, there was someone behind the scenes at every line he needed who knew him and liked him enough to offer a personal endorsement on his ability to take on a debt and repay within terms. Even though he had no references, no banking history, no previous business experience, he was placed on open account with every one of them. When he was ready to take on more lines and his potential suppliers called his newly won references, the message was the same, "He's new to us, but he has discounted on the first three invoices and he was personally recommended by Mr. Soandso in Sales." It worked wonders.

Taking advantage of all the discounts offered for paying within a specified period of time has always been considered a must for any intelligent business person. It is looked upon as free money, the reasoning being that if someone were to offer you 10 percent of the amount you borrowed if you paid him within two weeks instead of thirty days, and you had the money available, you would be pretty foolish not to pay within the two weeks. One dealer on the West Coast tells of the time he overlooked a 10% in ten day discount on a $7,000 opening order. "The rep walked in the door, took me aside, draped a kindly arm around my shoulder and said, 'Listen. Fool. If you ever ever intend to do that again, you just let me know. Give *me* seven thousand dollars. *I'll* pay them the sixty-three hundred. I can *use* seven hundred bucks.' " The dealer hasn't missed a discount since.

On the other hand, in these days of tight, expensive money, perhaps it would make sense for you to hold onto your cash until the end of the thirty day period allowed for payment. Would it? When the dealer mentioned above paid the full amount at the end of thirty days, he was actually paying $700 for the privilege of using his supplier's $6,300 for one month, or an effective yearly percentage of 133%!

Take the thirty days if you must, but by all means pay invoices within terms. Finance charges for late payment will no doubt go up sharply in the very near future, just as tolerance for late payers will go sharply down.

If for some reason you find yourself unable to pay an invoice within terms, the most important thing you can do is communicate. This is where the personal relationship you have established with the credit department will come into play. Now they know you, and they know your business. Call *before* the invoice is due. Tell them that it will be late and when they can expect to receive your payment. Apologize for the delay, for you have breached a trust and the people on the other end of the phone will be held accountable for it. Make sure it doesn't happen again in the very near future, because your welcome and your forgiveness will wear considerably thinner with each repetition. Beat back the temptation to say nothing at all and to hope no one will notice that you haven't paid them. That's silly. Another great temptation is to promise them anything when they call inquiring about your silence. That is dangerous. You have already broken one promise and are now compounding your difficulty by offering another that you may not be able to back up. If you don't have a definite knowledge of when you will be able to repay, arrange to call back within the next 24 hours. Do so. Set forth a proposed repayment schedule. Expect it to get shot down and shortened up. Agree to it, if you can do it, and then stick to it. But communicate! Alan Liberman at dbx put it this way: "Refusing to communicate is absolutely the worst thing a dealer who is in trouble can do. If he doesn't talk to us, then we don't know what's happening. It will always work against him. On the other hand, good talkers, good communicators can convince a manufacturer to work with them."

More than one retail operation has been "worked with" by their suppliers

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CIRCLE 81 ON READER SERVICE CARD

in times of deep difficulty. The reasoning behind this sort of support is simple. There is an enormous investment by the factory in both time and effort in their retailers. If the dealer has been selling, if he had been paying, if his eminent demise is not the result of poor business practices (something the factory will never know if you don't tell them), then the dealer is probably worth the wait. Every single manufacturer in professional sound has been burned by would-be dealers. It is perhaps to the manufacturers' credit and is definitely a testimony to their humanity that every errant retailer is not instantly and permanently categorized as a deadbeat.

By far the most devastating blow you can deal to your business is to establish credit and then fail to live up to the obligations you have taken on. Not only does it ruin your chances of any additional grace from the company in question, but it severely limits your chances with almost everyone else in the field. Manufacturers may be diehard competitors, but they will always cooperate fully in their sharing of past experience and in sharing their current estimation of a dealer's honesty and life expectancy.

And please, when the credit department calls for payment, remember that most of the really believable excuses have been heard by even the most inexperienced of collectors. Common excuses such as "the check's in the mail," "the bookkeeper died," or "the computer only accepts invoices at certain times of the month and yours didn't make it" will no longer do. Common Act of God excuses (it flooded in accounts payable) or the showing of the palms of your hands (Hey, things are bad all over, what do you want from me?) will bring forth little more than a yawn and a letter from Dun & Bradstreet. Real creativity such as "it froze up outside and the sidewalk moved up and I can't open the door" or "the bookkeeping department moved to Orange County and they don't have a phone" may earn a moment of silent appreciation from Collections on the other end of the line, or perhaps even win you a round of applause, but the piper must still be paid. Perhaps it would be best if you didn't antagonize him first.

Christine Kofoed is Executive Vice President of Community Light and Sound.

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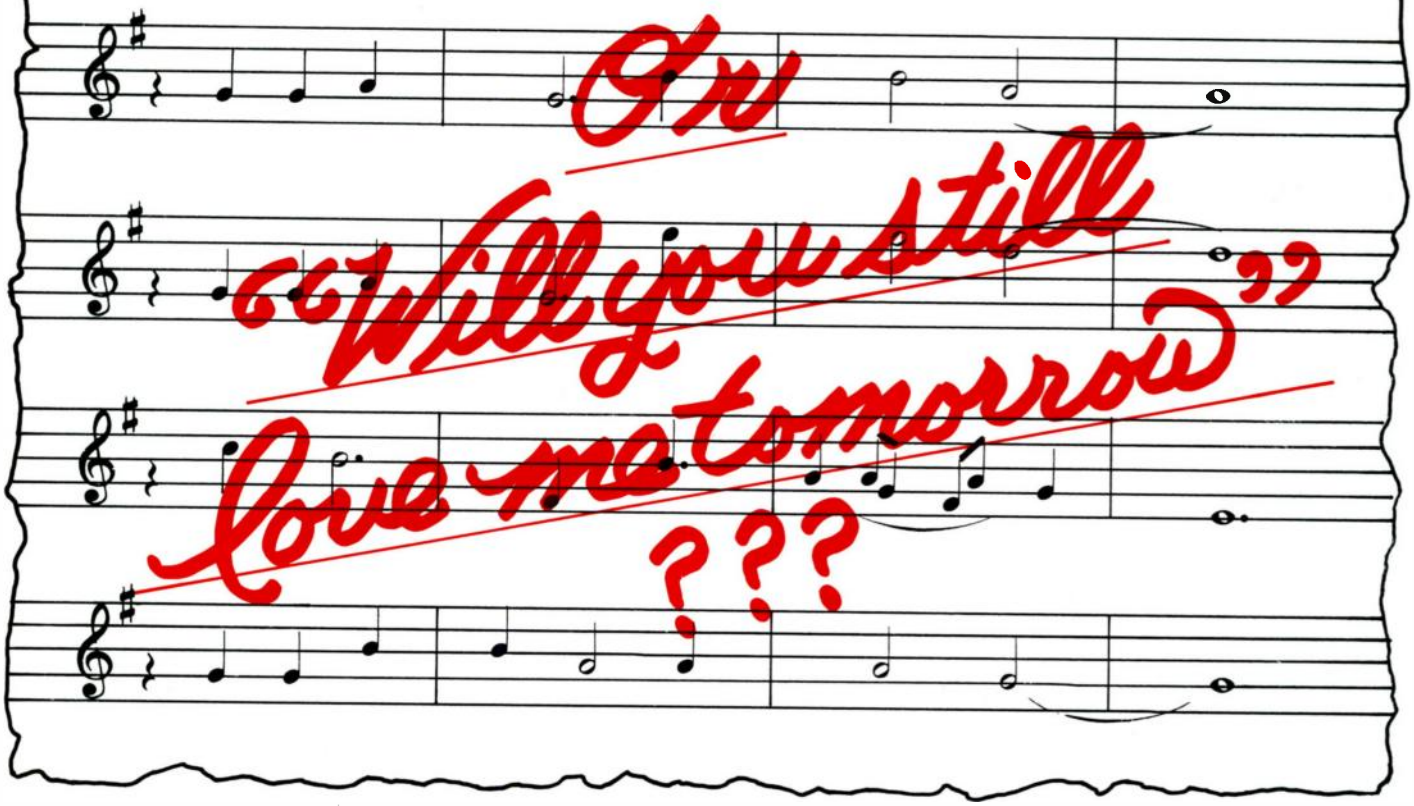
CIRCLE 95 ON READER SERVICE CARD

CUSTOMER REASSURANCE

by Hartley Peavey



In preceding articles we discussed why and where people buy things, along with the concept of "adversarial selling." But a truly successful sale is not completed when the final transaction occurs but, rather, at the point where the customer psychologically accepts his purchase and is convinced that he acted wisely and received his just due.

Everyone in the sales business knows the importance of a satisfied customer. While most of our sales brethren pay lip service to the elusive satisfied customer, I've found that very few have given much thought to what the customer's post acquisition feelings are. Unfortunately, most sales people relate customer satisfaction to the mechanical things which are, in fact, the more simplistic aspects, such as initial product training, operating advice, and warranty repairs, etc. To *truly satisfy* this customer, we must successfully deal with not only the mechanical aspects of customer satisfaction but also with his post sale sensitivities, which are almost never discussed in depth in sales training activities. As preceding articles have stated, most of the answers and insights into these problems can be found within ourselves.

Previous articles have described the various psychological phases prospective buyers (customers) go through before actually consummating the purchase. We have seen that the various stages of the prepurchase period are somewhat predictable in a general sort of way. While most of us understand that the prepurchase stages are, to some general degree, ritualistic, we often forget that they can be somewhat traumatic as well. The raw nerves of this prepurchase period and the trauma of the buying experience often sensitize the customer and create a hypersensitive individual who must be dealt with carefully and with understanding.

Once the customer has convinced himself to buy and once he actually makes the purchase, he enters a new world of realization wherein he must reach a state of psychological equilibrium between, on the one hand, his prepurchase aura of fantasies, expectations, and rationalizations and, on the other hand, the *realities* of ownership. His ownership fantasies have rarely touched on the negative side of things such as loading a heavy power amp into a truck or on the technical difficulties of actually operating a mixing console. In the prepurchase period, the prospect's feelings are almost totally concentrated on the *joy of ownership*, and when he gains physical possession, the realities begin to creep into his thoughts. The typical guitar purchaser has envisioned that his new axe will miraculously augment his playing ability and, when he comes to the realization that it will not, the ownership euphoria begins to fade. Suppressed guilt and nagging doubts about the product and/or dealer begin to enter his mind. When the customer begins to realize that his purchase is a physical commodity whose ability to fulfill his prepurchase fantasies is largely dependent on him and his abilities, the trauma of post-purchase blues sets in.

There is much truth in the old saying

that familiarity breeds contempt and it is often true as it pertains to the new purchaser/owner, especially one whose prepurchase fantasies have been intense. The realization that the newly acquired object requires direct and sometimes skillful user actions can be quite a letdown, as exemplified in the guitar situation previously described. With the realization that *skillful* user interface is required to derive the desired result from the new acquistion, the new owner often consciously feels mild disappointment with vague feelings of guilt which often manifest themselves in varying degrees of hostility toward either the product, the manufacturer/dealer, and/or the salesperson who sold the item. This feeling of uncertainty or hostility is often suppressed and refocused as guilt over the customer's realization that his aura of acquisition was, to some degree, based on fantasy and rationalization. At this point, the customer's feelings are often confused and he is seeking reinforcement from his peer group, his relatives, and certainly from his vendor/dealer representative.

When a prospect becomes a customer by making a purchase from a salesperson, an interesting bond is forged between the two individuals. The strength of this feeling is almost directly proportional to the purchase price. The buyer puts his trust (and his money) in the hands of the seller and generally feels that a state of reciprocal interest should exist—and it should. It is common for the purchaser to show up in the dealer's store quite frequently immediately after the sale for reinforcement in the form of assurance of continuing dealer interest and support, helpful product advice and continuing reaffirmation of the wisdom of the purchase. During this post sale period, the customer is often extremely sensitive and his feelings easily hurt, especially if his post purchase trauma has been severe. Any real or imagined sign of nonsupport from the dealer/representative may have a far more adverse effect than rational logic would indicate. The smart salesperson never stops selling; he just changes his approach after the sale. Ironically, what both buyer *and* seller are seeking is post sale commitment from each other. The customer needs constant assurance of support, while the dealer wants assurance of further sales to the customer. As with most relationships, all parties involved must convey to the other parties their respective convictions and/or support. The customer/vendor bond *must* be nurtured and encouraged in the post sale period! Many dealers alienate their customers during this critical period because of a lack of understanding and the dealer's feeling that the customer is "nitpicking" over small and often unimportant details. Quite often, the customer is merely seeking some sign of reinforcement/support and his mechanism to *reach* the dealer is through expressions of concern over various and seemingly trivial details.

During the immediate post sale period, it is often very useful to relate to the customer positive situations involving other customers/users of the item recently purchased. If the salesperson/dealer agressively reinforces the new owner with positive user/customer information, the initiative will remain with the seller where it must be to maximize the possibility of future sales. I have advocated in previous articles that in any desirable customer/dealer interface, the dealer must try to maintain the initiative. This is just as important after the sale as before. In other words, don't let the customer put *you* on the defensive if at all possible! Understanding, sensitivity, and a purposeful approach on the part of the dealer/salesperson will usually result in good continuing post sale customer relations.

The 60's and 70's are gone, as are the days of 35-cents-a-gallon gas. The old Golden Rule and the law of the jungle are still with us, and I think it's a true statement that anyone in our business who forgets either will receive his just reward.

In addition to the psychological aspects of the consumer's post-sale attitude, attention to the mechanics of customer satisfaction is vital to the *continuation* of that satisfaction. For the past sixteen years or so, the demand for musical and audio equipment has been so great as to allow many dealers with "sloppy" sales techniques and/or poor overall market approaches to actually prosper. Recent trends have brought us tighter money as well as greatly more sophisticated consumers. Because performance, professionalism, and value are being increasingly sought out by the consumer, dealers must realize that the expectations of the current audio prospect are greater than ever. Both manufacturer and dealer must respond in a positive way if market share is to be retained and increased.

Because of new attitudes relative to value and the tight money situation, the longevity as well as the performance of audio equipment is having much greater overall bearing on the purchasing decision than ever before. Unfortunately, many dealers are clinging to the dated and questionable attitude that after the sale, service is the manufacturer's problem. I have actually heard dealers tell prospective customers, "I just sell it; service is up to the manufacturer." Ironically, most of these same people wouldn't dare consider buying an expensive item such as an automobile or home appliance from a dealer or salesperson who told *them*, "Look, we don't fix it, we just sell it!"

While I'm sure that some will disagree, it is my considered opinion that every dealer who is interested in growth and profit should make *service* a major selling tool. In nearly all our sales seminars, someone will invariably ask, "How do I cope with discounting?" My response is simple: with professionalism and service! Most of us realize that, to varying degrees, the dealer who gets the sale will be the one who succeeds in gaining the customer's confidence. . . and that doesn't necessarily *have* to be the one selling ten points over invoice.

I recommend that instead of being secreted away in the back room, a service department should be highly visible—a lesson the car dealers learned years ago! Another pointer that we can pick up from the automobile folks is that service people should *look* like service people. A "lab coat" for your electronic technician is one of the lowest cost confidence building aids available. Some of the most impressive and successful retail operations I've ever seen have had a highly visible service area. One progressive (and highly profitable) dealer has his service department behind a picture window, and when his customers come in and start the old price game, he simply points to the white-lab-coated gents behind the glass and says, "Well, maybe you can get it for less elsewhere, but *here*, those guys and myself are behind you all the way!" Bingo! A picture is worth a thousand words! And can mean $$$ in your pocket!

Hartley Peavey is President of Peavey Electronics.

The human ear is a very intricate and sophisticated listening device. Subconsciously, even the average or untrained person is quite particular about the quality of musical sounds that are heard. The reasons for a particular taste and preference (including the quality as well as the type) may not be readily apparent, but they do influence listening and buying habits, directing people toward those sounds that provide the most pleasure.

Whatever the particular type of sound that brings enjoyment, reverberation is and always has been one of the fundamental necessities for pleasurable listening. The quality of the reverberation heard (but not necessarily noticed) is often a key element in determining whether a sound will be liked or disliked. If the reverberation is smooth and natural, the overall sound will generally be appreciated. If the reverberant portion of the sound is rough and contains qualities of a dissonant character that are not in common with the reverberation heard in everyday life, the overall sound is less pleasing.

The characteristics of good reverberation are not totally measurable. In spite of tremendous technological advances in science and electronics, the quality of reverberation, whether natural or artificial, can only be completely assessed by the human ear. More surprisingly, it does not require any significant degree of training to be able to distinguish good from bad reverberation. Even the most inexperienced person can usually tell quite readily the difference between high and low quality reverberation during a simple A-B comparison test when certain musical sounds are used.

Reverberation is a necessity for most recorded music because it adds depth, dimension and additional excitement to the listening experience. A dry (non-reverberated) performance seemingly lacks that all-important characteristic of "life," while a poorly reverberated performance is often even less appreciated. Recording engineers who strive to create the aural illusion of their recordings being done "live" are extremely concerned with the quality of reverberation that is utilized. Those who listen to such a recording should not have to really try to imagine themselves being present in a concert hall or auditorium. The ambience and presence should envelop them automatically when the eyes are closed. Most of this illusion is brought about with high quality, natural sounding reverberation.

Inasmuch as reverberation is a necessity for the enjoyment of music and other sounds, one may ask, "What are some of the qualities and characteristics of good reverberation?" To

know these, some key terms must first be understood and these include *echo, delay, decay* and *diffusion.*

When a sound is made inside a room, a listener initially hears the sound as it comes directly from the source. A short time later, after a *delay* that is usually between five and fifty milliseconds, the first *echo* reaches the listener, and this is followed almost immediately by several more individual echoes. In most rooms, the delay between the direct sound and the first echo is so short that it is not consciously noticeable. In a very large theater or auditorium, however, it can become quite obvious. The first echo and the ones immediately following it are often referred to as the "early echoes" of reverberation. In large rooms these early echoes can be readily differentiated by the trained ear, while in the Grand Canyon almost anyone can make them out.

Rapidly following this initial group come many, many more echoes. As the quantity increases, the spacing between them becomes smaller and smaller until they join together into one seemingly continuous sound. The original sound is being *diffused* throughout the room due to the multitude of random paths that the echoes are taking. As the degree of diffusion increases, the amplitude or level of the reverberant sound decreases. Each of the echoes bouncing around the room becomes weaker because only a portion of the sound is reflected when it strikes an object or a surface. This fading of the reverberant sound is referred to as the *decay.*

In the early days of recording, engineers often relied on the reverberation characteristics of the room or studio itself. Gradually, they became aware of the need for higher quality reverberation and began the building of "acoustic chambers" to provide a means of artificial reverberation. These "live" chambers are designed with non-parallel walls and generally constructed of hard, sound reflective materials and might contain baffles and other acoustic devices to improve their sound qualities.

A loudspeaker is placed at one end of the chamber and a microphone at the opposite end. The signal enters the chamber by way of the speaker and is picked up by the microphone, along with the diffused sounds of reverberation which have been generated from within the chamber. This reverberated signal is then routed back to the mixing console and added to the original "dry" signal. A live chamber is quite difficult to design and very expensive to build, as one rarely sounds good the first time it is tried. A live acoustic chamber will typically require a volume of 2,000 cubic feet or more, which is a lot of real estate for special purpose use. While the basics of acoustic chambers are not complicated, there are not too many exceptionally good sounding acoustic chambers in existence, even today.

The plate reverberator is another popular medium used for artificial reverberation. This type system can be relatively costly. Reverberation is achieved by attaching a driving transducer (similar to a speaker voice coil) to a large sheet of thin metal. This plate is stretched taut by spring supports within a picture-frame type mount. Basically, the driver translates electrical signals into mechanical vibrations of the plate, which are then changed back into electrical signals by "pick-up" transducers also mounted on the plate.

Plates are known for having relatively high diffusion characteristics, but the diffusion occurs almost instantaneously, rather than on an increasing basis as we are accustomed to hearing in natural reverberation. Plate systems are typically large (4′ high, 8′ long and 1′ wide) and require periodic "tuning." This tuning is a specialized process of adjusting the suspension mounts of the metal plate and requires trained personnel to maintain the optimum reverberation qualities. Plate type systems will often vary considerably in their audible characteristics. These units are also sensitive and will pick up acoustic as well as mechanical vibrations. They usually must be placed in an acoustically isolated room.

The most popular and widely used reverberation medium is the spring. Systems of this type have a wide variation in price and performance, with prices ranging from roughly $20 to over $4,000 and somewhat similar variations in performance, although not necessarily directly proportional. Most spring reverberator mechanisms consist of one or more coiled wires that are similar in appearance to that of a miniature screen door spring. The coiled wire is connected to a driving transducer at one end and a receiving transducer at the other end. The driver makes the spring mechanically oscillate and these movements of the spring are translated into electrical signals by the receiving transducer to produce the reverberant sound. Variations in the spring itself cause minor oscillations which produce a diffusion in the output signal. Although spring reverberation systems have had significant drawbacks, the spring based system can be designed to provide superb performance, comparable to or even surpassing any other type of reverberation system at a significantly lower cost to the user.

Another (and latest) method for producing reverberation involves the use of solid state circuitry. The basis for these products, however, originated many years ago using multiple playback head tape recorders (actually wire recorders were utilized). Analog type electronic reverberators are generally constructed using "bucket brigade" devices which take the input signal and delay it for some number of milliseconds, thus creating an echo or a series of echoes. These delayed signals are returned to the input (recycled) to create further delayed output signals. This process can be repeated many, many times using a reduced amplitude on each of the recycles so that the signal slowly dies away (decays). The newer digital reverberation effects are generally achieved in a similar manner, with the exception that the original input signal is translated into a digital word and temporarily stored in a memory. The numeric value is then recalled later, translated back into an analog output signal and the process is repeated (recycled) many hundreds of times per second. It is also possible when using either digital or analog electronic processing to place taps at points along a delay line and recycle the outputs of these various taps for different kinds of effects having a general reverberation nature, or to simulate the taps with digital memory.

One thing to remember in any type of reverberation, whether it be acoustic, plate, spring, digital or whatever, is that *diffusion* is of utmost importance. Without a high degree of diffusion, standing waves and flutter echoes become particularly noticeable. Standing waves can cause the ringing or feedback in a sound reinforcement system, or the "holes" that seem to occur at certain frequencies in the response curve. Basically a comb filter

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John R. Saul is President of MicMix Audio Products.

effect, they can be useful, but not in reverberation. Electronic type designs by nature are very precise in operation as opposed to the randomness required for a high degree of diffusion. Electronic reverberators of significant quality are therefore quite complex.

The *high quality* spring reverberation system offers an economical means of obtaining good reverberation. Unfortunately, a number of simple design spring reverberators have been marketed over the years which have given spring systems a general notoriety as producers of unwanted side effects commonly referred to as "boing, twang and flutter." Some relatively sophisticated modifications of the basic spring mechanism, along with numerous types of electronic signal processing, have been used to correct or mask the inadequacies of the springs.

Because boing and twang are indicative of resonant ringing, the use of internal limiting is a popular method of suppression. Limiting, however, can give reverberant sound an unnatural quality, adding muddiness and sometimes causing variations in output level.

Micmix Audio Products recently applied for a patent on new technology it developed for the "XL" series units which we feel overcomes the inherent difficulties in the spring/driver mechanism. Eliminating the core of the problem produces a smooth and natural sounding reverberation like that of a live acoustic chamber or concert hall, without the use of limiting or other signal manipulation techniques.

Percussive sounds and other transient type signals have always been the criteria for judging reverberation quality. Almost all musicians who walk into a room in which they are to perform will clap their hands and listen to the reverberant sound. The single handclap not only tells them how live or dead the room is but also its acoustic character, colorations and the smoothness of the decay. This is a very simple and effective test.

Artificial reverberation systems can be tested in a similar fashion. Recording engineers who want to analyze the sound of a reverberation unit will often use a drum track. These transient type signals will usually show them very quickly and effectively what the true characteristics of the reverberation system are. At Micmix, for instance, we use a test which consists of a single-cycle electronic pulse which is extremely consistent, repetitive and pure, without any tonality of its own. Using such a test, unwanted resonances or "ringing" in the system can be easily detected by even untrained personnel, as well as any other boing, twang or flutter that may be in the system. The electronic pulse test makes it easy for almost anyone to become an "instant expert," particularly when making A-B comparison tests.

When auditioning or comparing any reverberation system, it is most important to listen to *just* the reverberant signal with no direct sound mixed in. Any undesireable side effects will then become immediately apparent. Reverberation systems are often demonstrated by adding a small amount of reverberant signal to a dry signal (strings are a favorite choice), or by actually doing a mixdown. Such methods of demonstration can hide deficiencies in the reverberation system and result in an unhappy customer when the equipment is put to a real test after purchase.

The Sunn Professional Guitarists Sound Check

1. Can you select either or both channels without disturbing preset controls?
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3. Does your footswitch have L.E.D. and memory?
4. Do you have individual channel volume controls and master volume control?
5. Does your amp have C-MOS drive control?
6. Are you effectively patching in effects and/or other amps?
7. Can you achieve the tonal coloration you want?
8. Do your tone controls wash out at high levels?
9. Can you combine the best of tube and solid state sound?
10. Is your amp really portable?
11. Can you control channel interaction so that when you turn treble up, midrange and bass are not affected?
12. Can you use reverb without interference from your tone controls?

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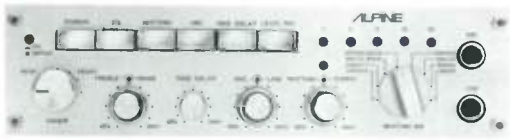
CIRCLE 77 ON READER SERVICE CARD

The SOUND SH

For the traveling rock and roll band, what could be more useful than an in-car system that includes a 25 watt-per-channel amplifier, guitar and mic inputs, a rhythm unit, a reverb unit, time delay unit and PA system!

Well, **Alpine Electronics** has such a system available. The Model 3005 is completely portable and can be used indoors with an AC adaptor. The rhythm section offers bossa nova, waltz rock (???), disco 1 and 2, march, waltz, swing and rock rhythms to accompany the group as they wail and warble their way down the Interstate from town to town.

Front/rear speaker level control, tone control, mic/line volume control, rhythm volume and tempo control and LED output indicators are but a few of the features of the Model 3005, which is sure to change the nature of small combo rehearsals and driving in America. Car audio will never be quite the same!



CIRCLE 1 ON READER SERVICE CARD

Keyboard dealers will be especially pleased with the latest offering from **Moog**, the Prodigy synthesizer. This two and a half octave keyboard is a duophonic lead synthesizer that sounds and performs much like the popular Minimoog, but which costs only a fraction of what the Minimoog sells for.

The Prodigy has two oscillators, a filter section, mixer section, filter contour and loudness contour controls, pitch bend, modulation wheels, portamento control and oscillator sync controls.

The second oscillator can be run in sync or tuned to an interval of as much as a perfect fifth above or below oscillator one.

The oscillators have a footage capability of from 32′ to 4′, and offer a selection of four basic waveshapes: triangle, sawtooth, square or pulse wave. Modulation of the oscillators can be done with either a sawtooth or square wave, thereby allowing the user to introduce vibrato or trill effects via the modulation wheel.

The filter section can be driven into self-oscillation by rotating the Emphasis control fully clockwise, which produces a sine wave that can be used as a flute or picollo sound.

Variable attack, decay/release, and sustain controls are provided in both the filter and loudness contour sections. Variable modulation rate and variable keyboard filter tracking are some of the other features of the Prodigy.

Unlike the more expensive Moog products, this unit does not have the sophisticated rear panel layout that will accept external control signals. Just a simple output is all that is provided, but when one considers the cost of this unit, it is easy to see that there is an awful lot of synthesizer here for a price that seems almost too good to be true. This is no "beginner" or "student" model, it is a fully professional unit that no dealer should have trouble selling.

CIRCLE 2 ON READER SERVICE CARD

Rhodes Keyboard Instruments has a new addition to the ever-popular line of electric pianos that have become standard equipment in virtually every studio in the country, not to mention countless bands of every description.

The newcomer is a smaller 54-key version of the Stage 73 model, the only difference being the shorter scale: C (65 Hz) to F (1396 Hz). The Stage 54 also has the new "flat-top" corrugated top which has now become standard on all Rhodes pianos, and comes complete with four screw-on legs and sustain pedal included.

CIRCLE 3 ON READER SERVICE CARD

OPPE

By Charlie Lawing

The introduction of wireless transmitters for microphones and instruments has made big waves among the top money-making groups in the country, and no doubt many a concert-goer has been thrilled at the sight of a guitarist, unfettered by conventional wiring, leaping and strutting with unprecedented stage freedom. Indeed, through the use of wireless systems, musicians have literally been able to swing from the rafters, strapped to a skyhook, while playing.

Impressive stuff, but until recently, reserved only for those groups with the greenbacks to burn, because wireless did not come cheap. However, **Nady Systems, Inc.**, one of the pioneers of wireless mic use in the music world, has introduced a low cost professional quality transmitter, the Nasty Cordless Black Microphone Transmitter, which puts wireless transmission within the reach of your average, ordinary, run-of-the-mill musician.

Like the more expensive Nady systems, the Black Transmitter is tunable, and it operates on clear channels in the FM band (88-108 mHz). The transmitter has a 250-foot range and a frequency response of 20 to 20,000 Hz ±3 db. Because it is tunable, the Black Transmitter can be operated in any location without interference.

Perhaps most important is the fact that this transmitter can be used with any microphone, thus allowing the performer the option of choosing his/her own favorite mic. Hookup or changing mics is an easy task that can be performed in a few minutes. Nady Systems recommends the use of the Toshiba ST-335 receiver (the unit is available from Nady), but any FM receiver can be used.

CIRCLE 4 ON READER SERVICE CARD

Helpinstill Designs, Inc. pioneered the development of contact pickups for acoustic pianos before entering the market with their own portable acoustic/electric piano. The latest offering from Helpinstill is the Roadmaster Flightcase Piano, a 64-note acoustic piano with dual stringing and built-in Helpinstill Sensors.

The Roadmaster is housed in a formica-over-plywood road case that has aluminum extruded trim and heavy steel corners. The piano weighs approximately 200 lbs. and is mounted on heavy steel casters.

As with all such acoustic pianos built for road use, the primary concern is tuning stability. The Roadmaster contains a 14-lamination pinblock that helps hold tuning pins in place while the piano is being moved. Furthermore, the Roadmaster features a laminated spruce soundboard for maximum efficiency during acoustic use.

The 64-note keyboard begins with "A" two ocatves below middle "C," and continues to "C" three octaves above middle "C." One more important feature that should not be overlooked is the ample space for stacking other keyboards on top of the Roadmaster.

CIRCLE 5 ON READER SERVICE CARD

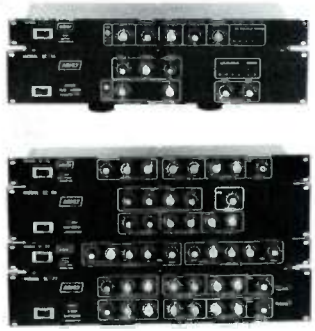
Ashly Audio has expanded its line of electronic crossovers and peak limiter-compressors to include two-way, three-way and four-way crossovers as well as updated versions of their mono and stereo limiters.

All of the new crossovers feature balanced inputs, continuously variable crossover frequencies, peak overload lights, and high-current output stages that are capable of driving long cable runs. One of the unique features of these crossovers is the "rolloff" control that serves as an EQ band which is centered at the crossover point. This "rolloff" control is an adjustment for flat frequency response in the crossover region. In addition to the standard 19″ rack-mount housing, these new Ashly crossovers use a plug-in ribbon cable interconnecting system that improves reliability and allows easy servicing.

The new SC-50 (mono) and SC-55 (stereo) limiters feature balanced inputs, a detector patch point for frequency sensitive limiting, a limiter bypass switch, a regulated power supply and the same type of plug-in ribbon cable as is found on the crossovers mentioned above.

Both of these limiters boast a wide frequency response (20 Hz to 20 kHz), extremely low noise (better than −90 dBV), and very little distortion (.05%.) Either unit can be used in tandem with other SC-50's or SC-55's for multi-channel tracking.

Ashly suggests using the limiters for loudspeaker protection, prevention of clipping, vocal level control, loudness enhancement, tape-to-disc transfer and musical instrument sustain.



CIRCLE 6 ON READER SERVICE CARD

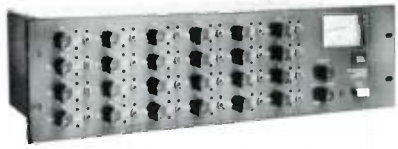
Meteor Light and Sound has a new lighting controller, the PatternMaster 10, which can be used in conjunction with the Tenway SuperChaser 2 or 2M. Unlike simple matrix units, the PatternMaster 10 is able to operate two different axes of the light display simultaneously, which means that the lighting controller can have a completely new dimension of lighting capability. Furthermore, this unit is capable of revolutionizing the simple Tenway light display without any need for rewiring of standard tenway lines.

In addition to the new lighting controller, Meteor has a new stereo amplifier, the PowerMaster 190. Rated at 90 watts per channel, the PowerMaster has front panel circuit breakers for each channel that keep downtime to a minimum. Independent front panel level controls are provided for each channel with peak LED's which indicate input overload.

CIRCLE 7 ON READER SERVICE CARD

JBL's new 7510 automatic microphone mixer comes from the manufacturer as a four-input module which can be expanded to 24-input capacity. According to JBL, the mixer is particularly suited for installation in public meeting facilities, but can be used equally well in the recording studio or in broadcasting.

The 7510 combines digital and analog circuitry which provides significant advantages over conventional mic mixers. For instance, features such as automatic mic on/off and output level correction allow the user to obtain considerable gian before feedback. In addition, advanced level sensing circuitry provides extremely fast attack, which makes the 7510 an excellent device for use in gated mixing.



CIRCLE 8 ON READER SERVICE CARD

the SOUND SHOPPE
REAR ENTRANCE

Altec Lansing has now made available for mass consumption a line of speaker systems that have been in use for a number of years in exclusive professional environments only. These systems are called "Stanley Screamers," and were designed and built in conjunction with Altec sound contractor Stan Miller, head of Stanal Sound.

According to Altec, these "Screamers" have been used in major concerts by such stars as Neil Diamond, John Denver, Waylon Jennings and Dolly Parton, among others

The Model 1020-R Dual Subwoofer System includes two Altec Lansing 421-8LF low frequency speakers with an output of 20 Hz to 80 Hz. Another popular model among professionals is the 3210-R, which is a three-way tri-amp ready system. The 3210-R includes two 604-HPLN 15" duplex loudspeakers (less the crossover network), a 291-16F high frequency compression driver with Tangerine radial phase plug and low mass magnet, a Mantaray constant directivity horn and a high output, extended range system. The horn has a dispersion of 90 by 40 degrees and the enclosure is equipped with tri-amp ready inputs.

All told, there are five different "Stanley Screamers" available from Altec. Each of these enclosures is available in two finishes, one for the road and one for permanent installation. The cabinets are made from non-resonant plywood and covered with a fiberglass finish. The road-finished cabinets have reinforced steel corner caps and recessed carrying handles. Some road models include fiberglass lids and/or hardwood skids. The utility-finished cabinets are intended for use in discos, night clubs or other places where fixed installation is desired.

CIRCLE 9 ON READER SERVICE CARD

AKG has a new product available that is distinguished by being almost invisible. It is the C-567, one of the smallest lavalier mics available anywhere. The unit is designed for low-profile use in applications such as television news and talk shows, or in motion picture work where the mic can be hidden on talent or on props. Other applications include church pulpits or recording studios. In the studio, the C-567 can be used as a clip-on mic for a tight instrumental sound.

The transducer system in this microphone is field replaceable, and the microphone "head" and output module are all-metal zinc constructed. The C-567 is black-chrome plated for an attractive, non-reflective exterior.

There is no battery compartment in the C-567; instead, the mic may be phantom powered from the mixer or recorder to which it is connected, or by AKG external phantom power supplies (AC or battery operated).

Several accessories are available for use with the C-567, including tie bars for one or two mics, a single-mic tie tac, a belt clip and a wire mesh windscreen. The C-567 is an omnidirectional mic with a frequency range of 20 to 20,000 Hz.

CIRCLE 10 ON READER SERVICE CARD

By John Parris Frantz

DEALER DOSSIER

Gary Gand Music Highland Park IL

It is possible for big things to come in small packages. At least that's the case with Gary Gand Music in Highland Park, Illinois.

This music retail outlet is not a big store, but it uses its limited space wisely by displaying the most recent and innovative gear on the showroom floor. In addition, the operation has cautiously expanded only into the markets the personnel feel they have a great knowledge of and are comfortable with. For the past nine years they have canvassed the retail sound system market in the midwest. Their sound reinforcement expertise has enabled them to supply hundreds of national music groups and institutions with sound systems that have that special Gary Gand Music custom touch.

SOUND ARTS went to this suburb of Chicago to talk with owners Gary Gand and Joan Burnstein and store manager, Jim McKay.

Gand has had a developing interest in the sound field since his teenage days as a professional musician. Besides his musical interests, he also enjoyed repairing and customizing electric guitars. His knack for guitar electronics soon led him into the business of customizing and calibrating live sound systems. With the knowledge of these fields well in hand, he opened up his music retail corporation, which focuses only on sound reinforcement, guitars, guitar amplification and synthesizers.

How did you get started in the music retail business? What was your previous experience?

Gand: I started playing music professionally when I was around 11 years old. I came from a musical family and started playing professionally with my folks. We were fairly well-known in the Chicagoland area and we also played things like world fairs and Disneyland. As a teenager I started playing rock and roll. I also got into tinkering with guitars. In fact, a couple of guys who were in bands with me have gone into guitar manufacturing. I got some electronics experience in high school and Dean Zelinsky of Dean Guitars used to take guitar lessons from me. I've done some advisory work on his guitars. The year he started manufacturing, I demonstrated his guitars at his NAMM Show booth.

What type of clientele do you attract here?

Gand: We deal with the performing musician. Our stock is all performance oriented gear. We don't handle things like beginning guitars or band instruments. We don't teach instruments. This gear is not the stuff you would get if you were just going to play in a basement.

What's your area of emphasis in the retail market?

Gand: Our primary thrust in the market is P.A. reinforcement. Our equipment is mainly for groups who are on the road. The other major areas of the business are guitars and synthesizers.

We do installation of sound systems for colleges, schools, churches, clubs, youth centers and other places like that. We've been doing that for five years. We also have a touring sound company called Gary Gand Sound, which is separate from our retail business. We have two large systems that are working all the time. We do concerts where we provide mixing and all the equipment. We've done work for performers like Sea Level, Steve Allen, Barbara Mandrell, Larry Coryell, John McLaughlin, Billy Cobham, among others. We cover a five state area. We have four soundmen for the sound company in addition to myself. I do most of the selling and I also like to do some shows myself once in a while.

What made you decide to do live sound contracting?

Gand: The reason we decided to get into this area is because five or six years ago sound systems were just beginning to happen. They were like synthesizers. When synthesizers began to appear on the scene, we studied electronic music so we would know everything about it. With sound systems we thought the best way to get a handle on it would be to go out and do it, so we built a system and started taking it on the road. After doing it for five years there's a lot of knowledge we have that others don't and can't get, because they don't have the experience with the equipment. The positive way to approach this thing is not to sit down with a lot of catalogues and memorize all the specs, but rather to get the "hands on" experience with it. This helps us with the retail end of sound systems. We can speak directly to a customer in the first-person about what happens when you take this piece of gear on the road. That aspect is responsible for the quality of the systems that we put together.

We don't have the sound company as a big money-making thing. It's almost like having an anechoic chamber in a test department. Other stores talk about scoping-out equipment and putting it on the workbench, etc. Well, we do that too, but that only confirms what the catalogue says. The thing someone really needs to know is what happens to the equipment when you put it on the road for six months, drop it off a loading dock, plug it into a 220 circuit and jostle it here to there. The only way you find that out is by doing it.

What kind of advice would you give

ROAD TOUGH? PROVE IT.

It's six long feet to the floor. What will happen when our great sound hits bottom? How long will it still sound great? We had to find out. So we picked an ATM41 Dynamic and an ATM91 Fixed-Charge Condenser out of stock, tested them, and started in.

Each was dropped seven times on its side from six feet onto the office floor. Nothing much was happening. So we repeated the series, this time dropping each microphone on its nose. Seven times from six feet. Still no problems. They looked good and sounded good, but *we* were getting tired.

So we moved to an unyielding slate floor. Here it took three more drops on its side from six feet, and three more on its nose from four feet to finally affect the ATM41. A truly remarkable record!

But what about our ATM91 Fixed-Charge Condenser? It should have given up long before a dynamic. But quite the contrary! The ATM91 withstood four side drops onto slate from six feet, three drops right on the nose from four feet, and another six drops on the nose from *six* feet and still tested OK for sound! Granted it looked anything but new, but it *still performed.*

Our little test left us arm-weary but convinced that the ATM Series microphones could easily earn their "Road Tough" name in the field. That's the testing which really counts. Try us.

Part of the secret of ATM toughness is this 3-layer windscreen. An outer heavy wire, a finer wire screen just inside, and an inner layer of woven bronze. All soldered to each other and to a solid brass ring. There's nothing else like it on any microphone.

This ATM91 survived 27 drops from as high as 6 feet!

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another retailer who might want to expand into that market?

Gand: If he's not in a large metropolitan area, I'd tell him to forget it. There isn't enough going on in the rural areas. Plus, you need good people to run the equipment. There are other stores in this area that have small sound systems, but they're doing it for an advertisement. We take it very seriously, and the people we have working the equipment are experienced road people. They're not the salesmen from the store. A sound company has to be run completely differently from the retail store with experienced people. To give you an idea of the type of people we have—one of our former soundmen is now working for Showco, one of the biggest companies in the United States.

I would also discourage some store owners from getting into it now, because it's a little too late.

Burnstein: If a store owner has to ask himself if he should do it—he shouldn't, because it's a type of thing where you're totally involved in it. You're already doing it before you really enter into the business.

Gand: It was really our next step. We were all in bands and dabbling with it. It was a natural progression. Some stores go into home recording or teaching. We were comfortable with going into the live sound business.

It looks as though you carry a wide variety of accessory items that are common to the sound reinforcement market.

Gand: Yes we carry things like flight cases and a lot of hardware like connectors and raw cables on wheels.

McKay: We can service customers who just play quiet coffee houses along with customers who are on the large concert tour circuit.

What type of advertising do you do?

Burnstein: We don't do much. We run a small ad in the Illinois Entertainer (a local music magazine). We used to use radio advertising before and it was successful for a while, but then it tapered off. Now it just seems to be word-of-mouth and our Yellow Pages ad in which we list just about every brand name we carry.

McKay: Word-of-mouth is still the best advertising, especially as far as P.A. systems go.

What type of business philosophy do you employ at the store?

Burnstein: Our style is soft-sell rather than hard-sell, but we are what you might term as alert. We try to advise the customer.

Gand: If a customer is looking at a $10,000 P.A. system, he's not going to buy it the first time he comes in here. You don't have to pick him up by the ankles and shake him. He's going to come in several times.

There's a lot of information to know about P.A.'s. We may spend an hour or so telling him about crossovers or helping him make up his mind whether to go bi-amplified, tri-amplified, or four-way. He'll come back several more times and ask more questions until he decides to make a purchase.

What is the hardest aspect of the live sound business?

Gand: I would say the most difficult thing is packaging a system. You can buy speakers, cabinets, and a mixer from all different manufacturers. What do you do then? Shovel it into a truck with a forklift? You have to case everything. You have to make cable harnesses and cable packages that make sense. It's really the preparation and custom work that makes a good system. Anybody can buy a raw speaker and a cabinet, but what do you do with it after that? It really becomes detailed. What kind of screws do you use? How thick is the gasket going to be? Do you need silicone sealer on it? What brand of caster do you use? Corners, latches, cable packages, connectors—they're all important, because it's the details that will kill you. Every time you hear a concert where the sound system doesn't work, it's because some little thing like that failed. Like a three foot cable from the crossover to the snake, or a guy didn't have a road case for the board and someone dropped it, or someone put a foot through a speaker without a steel grille on the front. These are some classic examples.

I can't even count the number of people who come in here with a new P.A. they bought from another store which blew up on them the first time they plugged it in. I tell them to bring it in and I find things like no protection capacitors on the horns. You have to package a P.A. so that anyone can put it together. You have to stencil and color code it. You have to mount handles everywhere. The reason people don't think of this is because they've never done it. Handles may sound trivial until you have to pull the gear out of a truck and lug it up a flight of stairs.

How many times have you seen a soundman climb up a 20-foot stack of speakers during a concert with a flashlight in his mouth and a screwdriver in his hand? He's probably fixing something that would not have needed fixing if he had used the right carriage bolt or had packaged the case with styrofoam. It would have cost a little more money, but I'd rather spend it than climb up that stack of speakers in the pouring rain with 5,000 angry bikers ready to kick my ass because the band hasn't started playing yet.

How is your floor plan laid out?

Gand: Half of our store is devoted to sound systems. A quarter of it is acoustic guitars and synthesizers. The last quarter of the store is targeted toward electric guitars and amplification.

Photos by Gail Venette Carlson

VMR™... the most talked about new component in years!

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No wonder dealers telling the VMR story have made the Electro-Voice S15-3 one of the best selling single-enclosure PA systems in the country. Instrumentalists, vocalists and sound men all have learned that a VMR in their system means incredibly clean midrange reproduction. Dealers displaying the bold VMR baffle are getting attention – and plenty of it.

The massive 16-lb magnet structure found in the VMR reproduces unmuddied midrange frequencies with the efficiency you would only expect to find with a horn. Plus the integral Thiele-aligned VMR enclosure rids systems of the "honky" sound typical of small horns. Maybe that's why companies like ARP, Oberheim, Moog and Crumar have used the S18-3 stage keyboard

system to demonstrate their synthesizer products.

The VMR is the speaker that has made the B215-M and B115-M bass guitar systems *the* bass systems to own. No wonder companies like Gibson and Kramer have used these systems to demonstrate their basses at trade shows and seminars.

The VMR's basic accuracy is the reason you see the FM12-3 floor monitor so often on television musical broadcasts. When artists hear themselves accurately, they perform better. That's why FM12-3's sell.

If you're one of our dealers who has made VMR-based enclosures sell so well, give yourself a well deserved pat on the back. You've earned it. If you're one of our dealers who is not fully benefiting from this great opportunity, you should learn more about the VMR story. You're missing some great opportunities.

If you're not currently selling Electro-Voice VMR-based speakers, maybe you should be. They're the hottest selling systems around.

For further information about getting on the VMR bandwagon contact Chuck Gring, Music Products Sales Manager at Electro-Voice.

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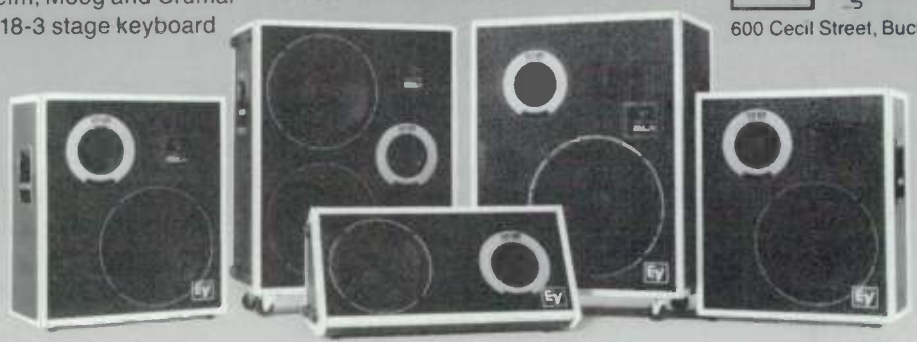

CIRCLE 90 ON READER SERVICE CARD

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Gand: A lot of stores leave dust and fingerprints all over the equipment. We spend a lot of time keeping this place clean.

McKay: I think something that's unusual about us is that we carry equipment that we all feel good about. This is important because when a customer asks about a piece of equipment, our salesmen have a genuine and good feeling about what they're selling, so therefore they can just talk about it without a lot of hype or b.s. line.

Gand: If a piece of equipment doesn't rate, it will come back to us in the long run. Bad equipment shouldn't be around at all. Mediocre equipment, and there's a lot of it, is carried by stores who get what they can get. That's a lousy way to run a business. We don't have dissatisfied customers coming back to us, because we don't sell junk. Likewise, there's a lot of good equipment on the market that we don't handle, because we have only the brands that we feel are innovative and have a good track record. There's a new company on the market that we feel is innovative because they ask people like us about prototypes. They'll send us something that we'll take out on the road and we give them information on its performance. So when they start making them, the equipment has our thumbprint on it.

Another unusual thing about our store is that we don't carry any used equipment. We don't get many trade-ins, because the equipment we sell is all good gear. Once a customer buys it, he'll keep it and just add to it. There's a lot of that in the design of our systems, where a customer can expand it rather than just dump it after a year. Everything in here is bright, shiny new, and it's the latest gear. In fact when people come in here, they usually ask what's new. We get new equipment every day and we're really on top of what's happening in the market.

How do you handle the repair end of the business?

Gand: Well, it depends on what the repair is. We look for the fastest way to get it back to the customer. If we can fix it here faster than we can send it out, then that's what we'll do.

Do you have the facilities here to do repairs?

Gand: We can do some repairs here. It depends on how extensive they are. If we had to replace the whole inside of a mixing board, we couldn't do it. We do about 75 percent of our repairs here at the store. The whole trick is to sell equipment that doesn't break.

So you could say that 75 percent of the repair work that comes in to you consists of minor repairs.

Gand: Yes, that's right.

Why did you pick this particular location?

Gand: This store used to be an art gallery. I walked in here and I saw the pictures hanging on the walls and thought the guitars would look good here and spotlights there. It was an attractive store.

Do you offer any unique or special services?

McKay: We are willing to spend time with customers in order to sell them a good system, and to find out what their needs are. Gary and I will go out of the store a lot of times to customer's houses to see exactly what they're

trying to do. After we sell a system, we like to go out and make sure everything is working right.

What's the hottest item you're selling now? Something that is so hot you can't keep it on the floor.

Gand: The MXR pitch transposer. People are going crazy for it. It's a device that changes the pitch of any instrument. It can lower or raise the pitch to an octave or less. It has presets that can tune it to harmonies.

Burnstein: We made the mistake of loaning it to a few people when it first came out. Now, they call us every day to see if we got theirs in yet.

What do you think of the state of the market?

Gand: We think the future of this business is good. That's why we're in it. I think the kind of store we have here evolved because of the equipment. If the evolution of electronics hadn't gone the way it did, we wouldn't be here today.

Burnstein: W've always tried to be very flexible. We've always let our business go into the areas that are happening and ease out of the areas that aren't happening. We also like to stay fairly specialized with things that we really know.

McKay: As far as the economy is concerned, we do have to be careful. One of the reasons we've stayed in business so long is because we're very careful about taking on new equipment.

Gand: We went through the last recession, and a lot of music stores didn't make it. We're going to make it through this one too, because we're solid.

How about one good sound story for the road, so to speak?

Gand: Every time we set up a P.A. system on a job, we pump pink noise through the system to do a real time analysis of the equipment. Well, we were at a school once where I was doing this test with the pink noise and a kid came into the auditorium and wanted to know what we were doing. I told him we were letting the air out of the speakers. He said, "What do you do that for?" I told him that when you're on the road a long time, the pressure builds up on the inside of the cabinets and you have to let it out. So he said, "Wow, I went to see a rock band down at the stadium once and those guys must have been on the road for a real long time, because they were letting the air out of the speakers for about an hour."

INDUSTRY UPDATE

K. Oeda, Chairman of the Board of Nikko Audio, has also assumed the position of President, replacing **Kay Sato**, who has resigned. Other changes include giving "additional responsibilities" to John Schroder, Vice President of Marketing and Sales, who will remain based in New York. Schroder is adding to his sales staff and is currently seeking regional managers for the west and midwest.

Roger F. Cox has been appointed Director, Marketing for Fender/Rogers/Rhodes, CBS Musical Instruments. Cox comes to the company from Norlin Music where he was Director of Marketing, Electronics, Gibson Division. Before that, he held marketing and engineering prositions with Altec and Ampeg.

Mobile Fidelity Sound Lab has appointed **Herb Belkin** President and Chief Operating Officer. Belkin has been involved with Mobile Fidelity for the last two years as an outside consultant. His background includes the Vice Presidency, Operations at ABC Records, as well as similar positions with Motown and Atlantic.

James B. Lansing Sound, Inc.'s Operations Division has been expanded with the appointments of **Jerry Feingold** as Director of Manufacturing Engineering and **Ray Blinde** as Director of Materials Management.

Leon Kuby has been named Vice President of Research and Development of Harman Kardon. Kuby's background with the company goes back to 1956 when he was assistant to Sidney Harman. His later affiliations included Marantz and Empire Scientific. He rejoined Harman Kardon in January of this year.

Sony Industries' Professional Audio Division has signed five new rep firms to carry its line of microphones, mixers and headphones. The new firms are: Marketing & Sales, Wilton CT; CHF Sales Corp., Atlanta; Sound Professionals, Shawnee Mission, KS; Scowcroft & Associates, Denver; C & W Marketing, Liverpool, N.Y.

Donald F. Metz has been appointed Manager of Manufacturing at Shure Brothers' Arlington Heights plant. Metz was previously plant manager at Rauland-Borg Corporation.

Ronald Friedlander, Senior Vice President of Hitachi Sales Corporation of America, died suddenly on March 19 of a heart attack, after attending a series of management meetings in Tokyo. Friedlander directed Hitachi's operations in the United States for the past three years. He joined the company in 1975 as eastern regional sales manager, and was named vice president two years later. Previously, he was corporate vice president of Wards Company in Richmond, VA.

Gerald Orbach has been appointed to the newly created post of General Manager-Audio Division of Sharp Electronics Corporation. Orbach will have responsibility for sales of both Sharp audio products and Optonica high fidelity components. **Harvey Schneider** will continue to serve as National Sales and Merchandising Manager for Sharp audio products, reporting to Orbach, while a new national sales and merchandising manager for Optonica will soon be hired to replace **John Bermingham** who has left the company.

Irving B. Katz, Chairman of Inter-Magnetics Corp., has been named President and Chief Executive Officer of Swire InterMagnetics Corp., a joint venture between InterMagnetics and Swire Pacific Ltd., a Hong Kong based conglomerate.

Len Stein has been named Public Relations Representative for Fuji Magnetic Tape Division, to function as the official media liaison for Fuji consumer, industrial and professional video and audio tape products. Stein was formerly account supervisor on the Sony Industries and Sony Video Products Company accounts.

Robert D. Coppola has been named European Director of Marketing of General Sound. Coppola was previously President of KLH's European subsidiary.

The New England Conservatory of Music will hold a Summer Session from June 30-August 8, featuring workshops, courses and master classes. Among the offerings is the Electronic Music Workshop with Robert Ceely, June 30-July 3. The Workshop will include lectures, demonstrations, hands-on experience with ARP, Moog, Buchla and EML synthesizers, and demonstrations of studio techniques.

Dobbs-Stanford, Inc., Irving, Texas, has been appointed to represent James B. Lansing Sound Inc. in the sale of musical instrument products, covering a territory comprising Texas, Oklahoma, Arkansas, Louisiana, Mississippi and western Tennessee.

Ashly Audio has just completed a move to its new 11,000 square foot manufacturing facility. The new address is 100 Fernwood Avenue, Rochester, New York 14621.

Audio & Design Recording has acquired the U.S. registered trademark Audio Designs from Audio Designs Manufacturing of Roseville, Michigan, which will cease its use of the mark and has changed its corporate name to ADM Technology, Inc.

SAE has named Shalco, Inc. representative for professional products in the state of Michigan.

Copies of the "CAMEO Dictionary of Creative Audio Terms" ordered in quantity are available at reduced prices. Prices range from $4.95 for one copy to $2.50 for 100 and up. Contact Cameo (10 Delmar Avenue, Framingham MA 01701) for details.

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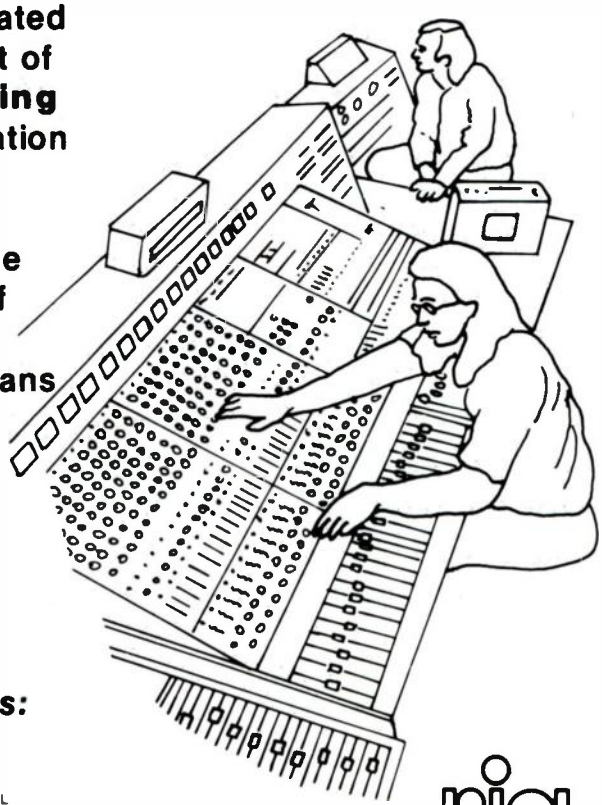

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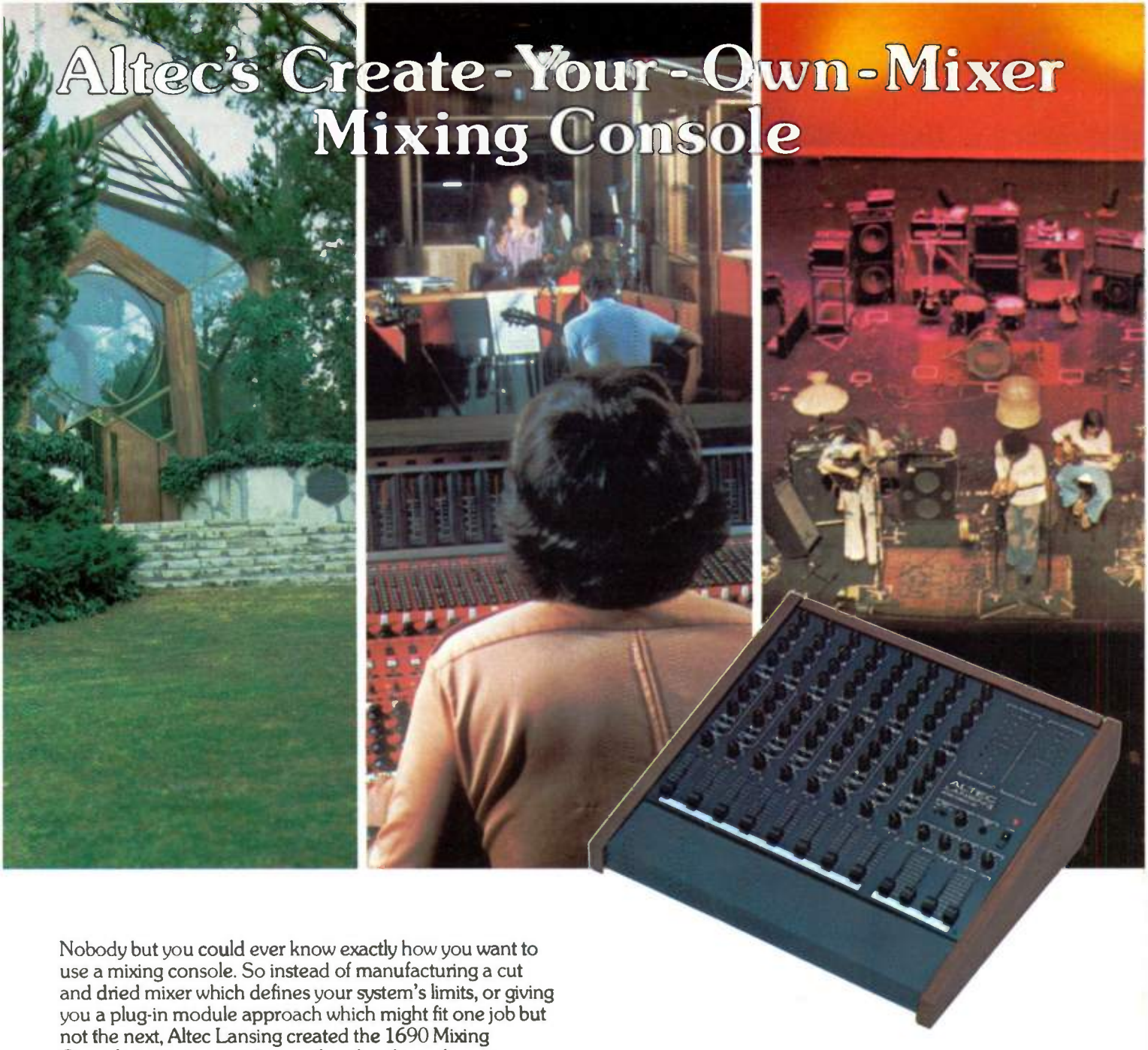
Altec's Create-Your-Own-Mixer Mixing Console



Nobody but you could ever know exactly how you want to use a mixing console. So instead of manufacturing a cut and dried mixer which defines your system's limits, or giving you a plug-in module approach which might fit one job but not the next, Altec Lansing created the 1690 Mixing Console to give you options rather than boundaries.

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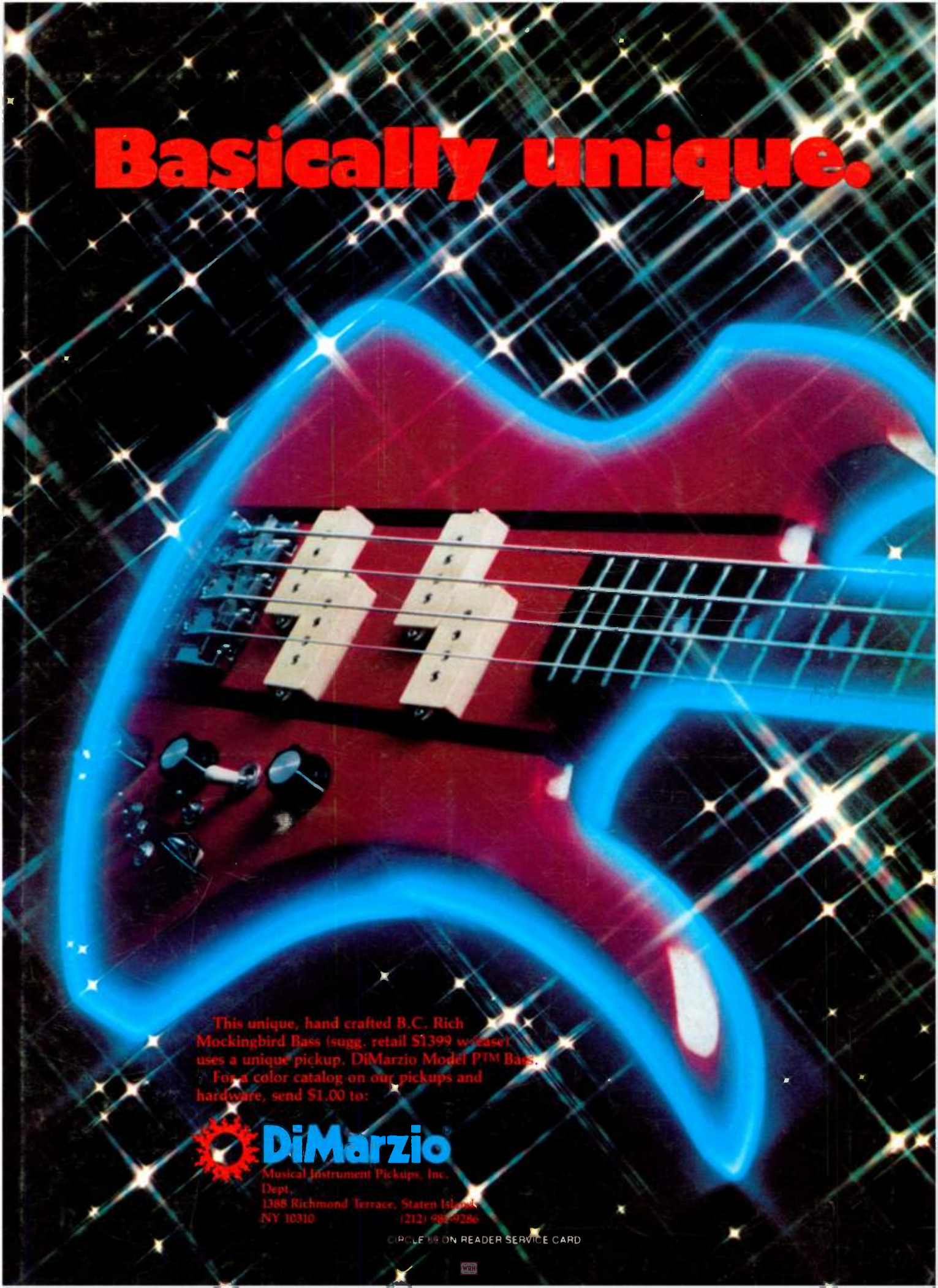

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