

FOR PRO & SEMI PRO

NEW PRODUCT DIRECTORY

SOUTHERN CALIF. EDITION

VOL 2 ISSUE 5 DECEMBER 1978

the Mix

**NEW
PRODUCTS**
over 350 for 1979

**DYLAN
IN SESSION**
with Biff Dawes
KENT DUNCAN
a man and his dogma
61st A.E.S. / NEW YORK
a pictorial

FREE



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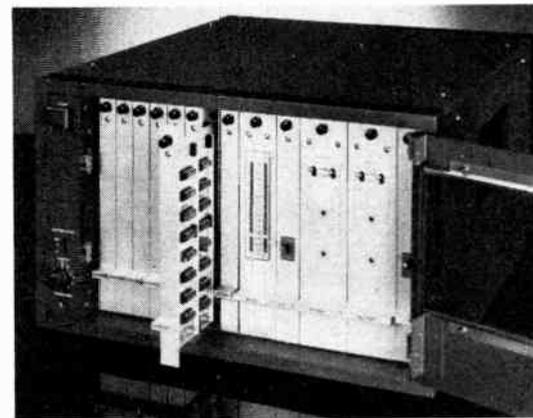
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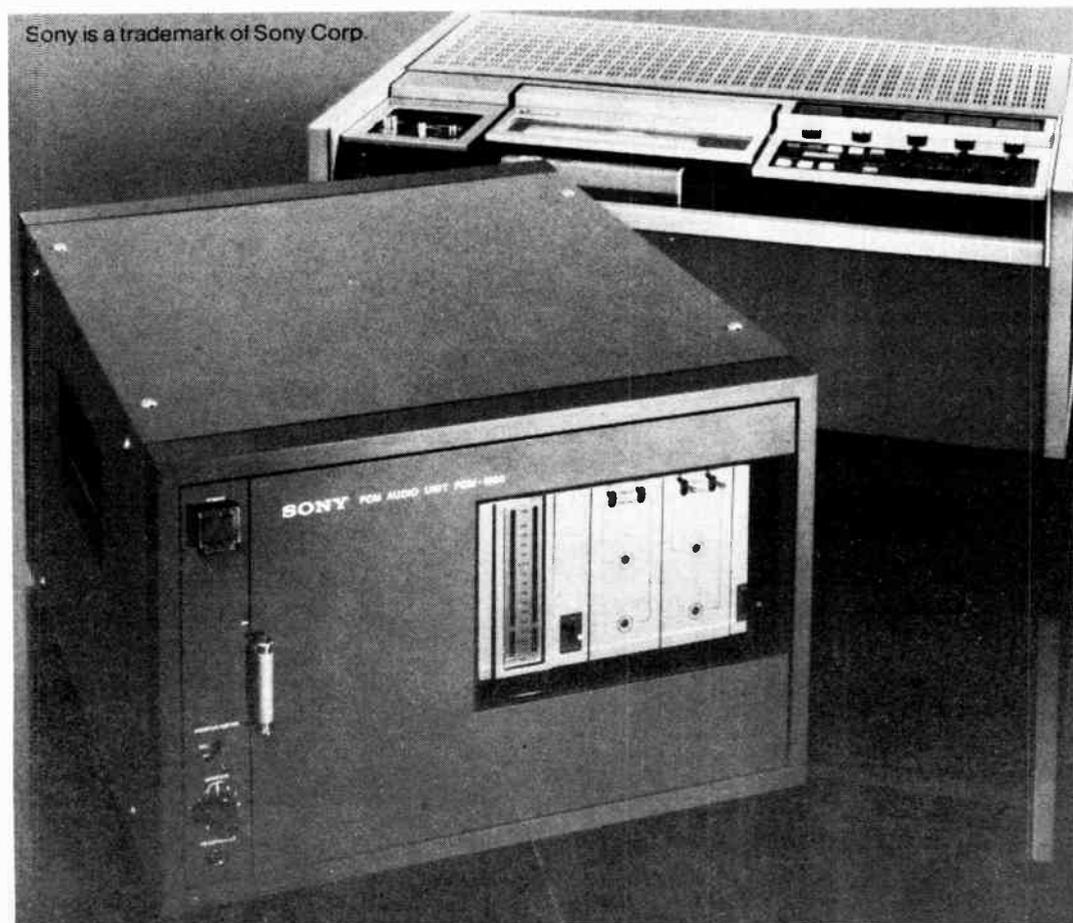
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the Mix

Recording Studio Publications



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DECEMBER 1978

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PUBLISHER / EDITOR

David M. Schwartz • William I. Laski • Penny Riker Jacob

ART DIRECTOR

Skeeter

EDITORIAL ASSISTANT

Mary Lowman

ART DEPARTMENT

Henry Harrison McUmbert

ILLUSTRATION

Andre Sala

PRODUCTION MANAGER

Sandy Cann

PHOTOGRAPHY

Jay Silverman

Penelope Dunes

DISTRIBUTION

Dean Coy

Frank Gygyus

Joan MacArthur

Annie Heenan

Leslie 'Ilwoy' Clark

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INSIDE TRACKS RING IN THE NEW

This being our year-end issue, we'd like to thank all of our old friends for their support and welcome our new ones to our voyeuristic journal of the recording industry. It's been a great year of growth for us and we hope it's brought happiness and good music to you. And now, on with the show...

In this issue we will spotlight new audio and recording products for 1979. Many of those listed were unveiled at the Audio Engineering Society convention held in New York, Nov. 3 through the 6th. For those not familiar with this show, the AES stages two national meetings each year, New York in November and Los Angeles in May. Each of these affairs runs about four days and the 5000 or so in attendance are treated to displays of equipment presented by the prime movers of the industry. The show also provides a chance to see old friends, meet new ones and hobnob with the stars of the audio set. It's always a great show and something not to be missed, if you are serious about this business. Information on the next show can be procured through the AES office at 60 East 42nd St., New York, 10017, or call Jackie Harvey at 212/661-8528. A glimpse of what we found at the N.Y. Show appears on pages 18 & 19.

Over 350 New Products for 1979

Our listing sections include over 350 new audio and recording products, detailing information such as manufacturer, product description, recommended usages, basic specifications and dealer availability. The categories are divided into Amplifiers, Echo, Reverb & Delay; Equalizers; Loudspeaker and Monitor Systems; Microphones; Mixing Consoles and Automation Systems; Signal Processing Devices; Synthesizers; Tape Recorders and Magnetic Tape; Test Equipment; Accessories and Other Equipment.

All of the listed information was supplied by the manufacturers and equipment introduced in 1978 has been included in this survey. If you have or know of new products that we missed, please let us know and we will be sure to include them in our next New Products issue, corresponding with the Los Angeles AES Convention in May of '79.

Feature Articles

A rare view of Bob Dylan in the studio as seen through the eyes of engineer Biff Dawes is the subject of an interview by the noted music researchers Saul Davis, Alan Wolfson and Ken Kubernik.

A more recent emergence in the recording industry, Kent Duncan has put together Kendun Recorders, one of the most successful independent studio and mastering operations in the world. Duncan also heads up Sierra Audio, designer and builder of some of our finest recording studios. In our interview with Kent we tune into the inner

workings of the man who built his ever-growing empire.

Sound Off, our vehicle for manufacturers to tell their story, looks at B & B Audio. In this issue Michael Gershman tells us the story of Dave Baskind and Harvey Ruben's research into VCA design.

Lyn Losmandy, proprietor of the Opamp Technical Bookstore, gives us a look at some of the audio reference material available in "The Bookshelf".

The Future

For you producers and studio people, we'd like to let our readers know about your projects. Stay in touch with us and we will keep the industry informed of your studio activity through our "Roomers" column, beginning in the January Mix.

The next listing of Southern California studios will show up in our March issue. Also in that issue will be an updated list of independent engineers and producers and a survey of recording arts schools and programs in California.

In the months ahead we plan to bring increased coverage of developments in the industry, comprehensive surveys and many surprises. Feel free to let us know what you would like to see in upcoming issues. Your input equals our output.

Coming in January

- **Listings:**
Northern California Studios
- **Record Promotion**
The selling of music, 1979
- **Remote Recording**
Jean Luc Ponty in concert
- **Studio Economics**
Getting it right on paper
- **Ed Long**
The man behind Time Align
- **Fantasy Records**
Rock and Roll and all that Jazz
- **Aural Excitement**
EXR vs. Aphex
- **Plus**
Interviews & Special Features

Catch it all in January 1979

inside DYLAN'S STREET LEGAL

Biff Dawes THE MAN BEHIND THE BOARD



by Saul Davis, Alan Wolfson and Ken Kubernik

Biff Dawe's reputation as Filmways/Heider's number one remote mixer led to his involvement as engineer on Bob Dylan's latest album, "Street Legal".

"I worked with Dylan and The Band on their 1974 tour as a stage set-up person for twelve shows. From that experience I got an idea of how Dylan worked. Early this year Dylan called Wally Heider and inquired about the feasibility of cutting an album at his rehearsal studio in Santa Monica. A couple of us went down to look at the room and we said, 'Fine, no problem'. From that point on I was the man behind the board for the LP."

What follows is a discussion with Biff one night at Heider's in Hollywood, where he explained the secrets of Bob Dylan's recording techniques.



Dennis Mays
Asst. Eng

Don De Vito
Producer

Biff Dawes
Engineer

Arthur Rosato
Co-Producer

DID YOU DISCUSS WITH DYLAN WHAT HE WANTED BEFORE BEGINNING THE LP?

Yeah, he wanted an older sound, a Sam Phillips/Sun Records sound, a very raw, very old time rock and roll sound. I did some research, bought some old Sun Sessions records and listened.

HOW DID YOU THINK THE TRANSITION FROM USING MODERN EQUIPMENT AND TECHNOLOGY TO TRYING TO GET A PRIMITIVE SOUND WOULD WORK?

It definitely isn't a studio album. There is no question about it, it's almost live. A highly technical studio LP like a Steely Dan record or The Doobie Bros. is basically rhythm tracks with overdubs and sweetening. "Street Legal" was done in the old live mono concept where everything was done at once. We had 24 tracks — we had some isolation but basically it was done in a very small area with little baffling. It was done solely in keeping the artists in their comfortable environment. We avoided the usual studio restrictions and used

stage monitors instead of headphones. It was a challenge, but Dylan wanted to keep a raw, natural feel.

I was frustrated, because, obviously, this was a major album and here I am with the idea that its not going to be technically oriented where I could excel ... we were more concerned with pleasing everyone aesthetically.

DID DYLAN'S RAW APPROACH REQUIRE A SPECIAL MIKING TECHNIQUE FOR CERTAIN INSTRUMENTS?

The mikes used were ones you'd use in a live situation. They weren't highly efficient condensers that you might normally put on a drum set in an enclosed booth. The drums were in the middle of the room and there was a low ceiling. And they weren't specially baffled. I knew as soon as I saw the room what I could use and what I couldn't. I couldn't use U87's in certain areas because there would be too much leakage. Bob wanted a live, echoe-type sound, therefore, no baffles around the drums. And there were nine or ten musicians all playing at once. Baffling would have destroyed the eye contact, another thing Dylan wanted intact.

WAS EACH SONG COMPLETED BEFORE MOVING ON TO THE NEXT?

Pretty much. The first night was the roughest. We spent a lot of time on one song. But we were just really getting used to working together. I was downstairs in a truck, the lights were out and, although we had cameras set up, we couldn't see anything. The communication was difficult. The best part about that was that the producer, Don de Vito, knew how to bridge the gap between Dylan and me — de Vito made Bob comfortable.

DID DYLAN RECORD THE VOCALS WITH THE BAND?

All his vocals were live... and this provided lots of leakage. I would start to mix a song and, due to the background singers, the drums would sound different when the girls weren't on their mikes.

WHAT MIKE DID DYLAN USE FOR HIS VOCALS?

A Shure SM50, the same as he'd use in a concert situation. We couldn't use a really efficient mike like a U87 or a condenser or there'd have been feedback problems. He moved in and out from the mike and there were a couple of times that we had to push his vocal to get it. There's one mix that he dropped off of that I was never really very happy with. Bob's vocal is the most important part. He doesn't print the lyrics on the record jacket so he likes to be sure that people can understand the words, and that's very important to him. The vocal is definitely out in front.

WHAT EFFECT DOES THE EXTREME LENGTH OF THE LP HAVE?

Well each side is about 25 minutes long and that effects sound quality. The average rock'n roll album by a Bad Company or a Foreigner or Bob Seger, the artists who have a big drum sound, is probably 16 minutes a side. Due to the technology involved, you're going to suffer when you put 25 minutes on a side. The bass is one of the first victims in such a case. Editing the songs down would have been the answer but no one wanted to edit anything out of the tunes. The technical sacrifice was there all along... in terms of pleasing the musicians and getting all the material on the record. Personally, I think it was worth it.



HOW LONG DID THE LP TAKE TO RECORD?

Well, we started on a Monday and we went for four days, took three days off, came back and did another two days and that was it, with the mixing done later at Heider's number three. The mixdown team was Don de Vito, Arthur Rosato, an assistant, and myself. Dylan came in for playbacks after about four mixes and he was constantly sent cassettes. At the final playback we had Robbie Robertson, Tom Wilson, who produced some of the early Dylan albums and who unfortunately just passed away, and Bob of course.

DID SOME OF THE NEW SOUNDS THAT HE WAS EXPERIMENTING WITH GET LOST DUE TO THE PARTICULAR RECORDING TECHNIQUES USED ON THE ALBUM?

Well, my overall feeling about the LP is that it's a good rehearsal album. They'd toured Japan and Australia and they were just getting really good. I saw them at the Universal Amphitheatre in Los Angeles and they were even better. Now is the opportune time for them to record. When we recorded, the arrangements weren't always completely together, the tempos changed. There's a fast version of "New Pony" that you would not believe. He wanted that rawness again, that's the bottom line. You can cry get it at certain stages. I don't know, if they went in and recorded "Street Legal" now, Dylan might not be happy with the way it'd turn out. It might be too slick.

One of our main goals was to please him and make everyone comfortable. Obviously putting the background vocals in another room wouldn't make them comfortable. And, there was no point in even bringing that up because I knew what the answer was going to be. Overdubbing the horn parts would have been nice, too, but the concentration was on a good feel in the take. If there was a bad bass mistake or something that wasn't quite together, but the overall feel of the song was great, that's what

Dylan was looking for. You're talking about a couple of songs that are eight minutes long, and that's a long song to go back and keep re-doing. If the overall feel was there and good then that was it.

DID YOU THINK THE PACE OF DYLAN'S RECORDING MOVED RATHER QUICKLY?

Oh, very fast. Just six days. That's the total number of days of recording. And that's almost an hour's worth of music, plus, one afternoon we recorded just demos and many other things like that. It was very fast. The funny thing about it is that we were booked to do it for a month in advance. We had meetings, we went down and looked at the room and all this and then, the Friday before the Monday we were going to start, all of a sudden he cancelled the whole thing. Then, we got a call back Monday and he decided he wanted to do it in the rehearsal studio. We had built a special room to record in and then he decided that he wanted to move back upstairs into their original rehearsal room, which was not a very acoustically advantageous move for us.

IN OTHER WORDS, THE ROOM THAT WAS RECORDED IN WAS NOT THE ROOM YOU HAD PREPARED FOR THE RECORDING?

Correct. The room that was used was the rehearsal room. The room that we had built, with sealed-off windows, bass traps, a nice wood floor, higher ceiling, a drum riser and everything that would have probably been better was not used, because they weren't comfortable playing in it. They went back upstairs to the old rehearsal room.

HOW DO YOU FEEL ABOUT A PROJECT WHERE YOU WERE LIMITED AS TO THE TOOLS YOU HAVE GROWN USE TO?

It comes down to the artist. If I'm dealing with somebody who will spend six months in the studio, then I can utilize all the technical parts, exhaust every arrangement, try every sound on an instrument

that I can possibly come up with. If I'm working with an artist that is highly, highly artistic, or creative and he wants to get everything down spontaneously, then I do it that way. That's just part of being professional.

SO THE BEAUTY IS IN THAT THE ALTERNATIVES ARE AVAILABLE FOR WHATEVER THE CLIENT WANTS?

Yeah. You know, a lot of times all the highly technical parts like overdubbing and exhausting all those arrangements and things leaves little room for accidents to happen. Obviously on this album there was a lot of room for accidents, which adds to it in a certain way. If you're listening to that album and you were there and watching what was happening, then you'd understand how it came out so idiosyncratic.

WELL, OBVIOUSLY BY TAKING ALL THESE RISKS, SO TO SPEAK, THEY WERE LEAVING THEMSELVES OPEN FOR NOT ONLY CALAMITIES BUT ALSO SOME THINGS THAT WOULD NEVER HAVE HAPPENED IF THEY...

Exactly. And maybe those happened to be the best arrangements that would ever have happened on those songs. If they had gone in the studio and worked on a rhythm track with one of those songs for two and a half days, they might have never gotten what they wanted.

ALSO DYLAN LIKES HIS RECORDS TO SORT OF BE ON THE EDGE...

Yeah, listen to the background singers. There's three girls and on some of the backgrounds you can hear them falling on and off. And everybody heard the playback but they weren't particularly concerned. The concern was to capture the spontaneity, the magic of the song, the live feel. And that's the best part of the album. I really like the album for that. A lot of people will never be able to understand that because they weren't there. No matter how much you try to explain to them and all that, they weren't sitting in the truck and recording it or up in the room looking on.



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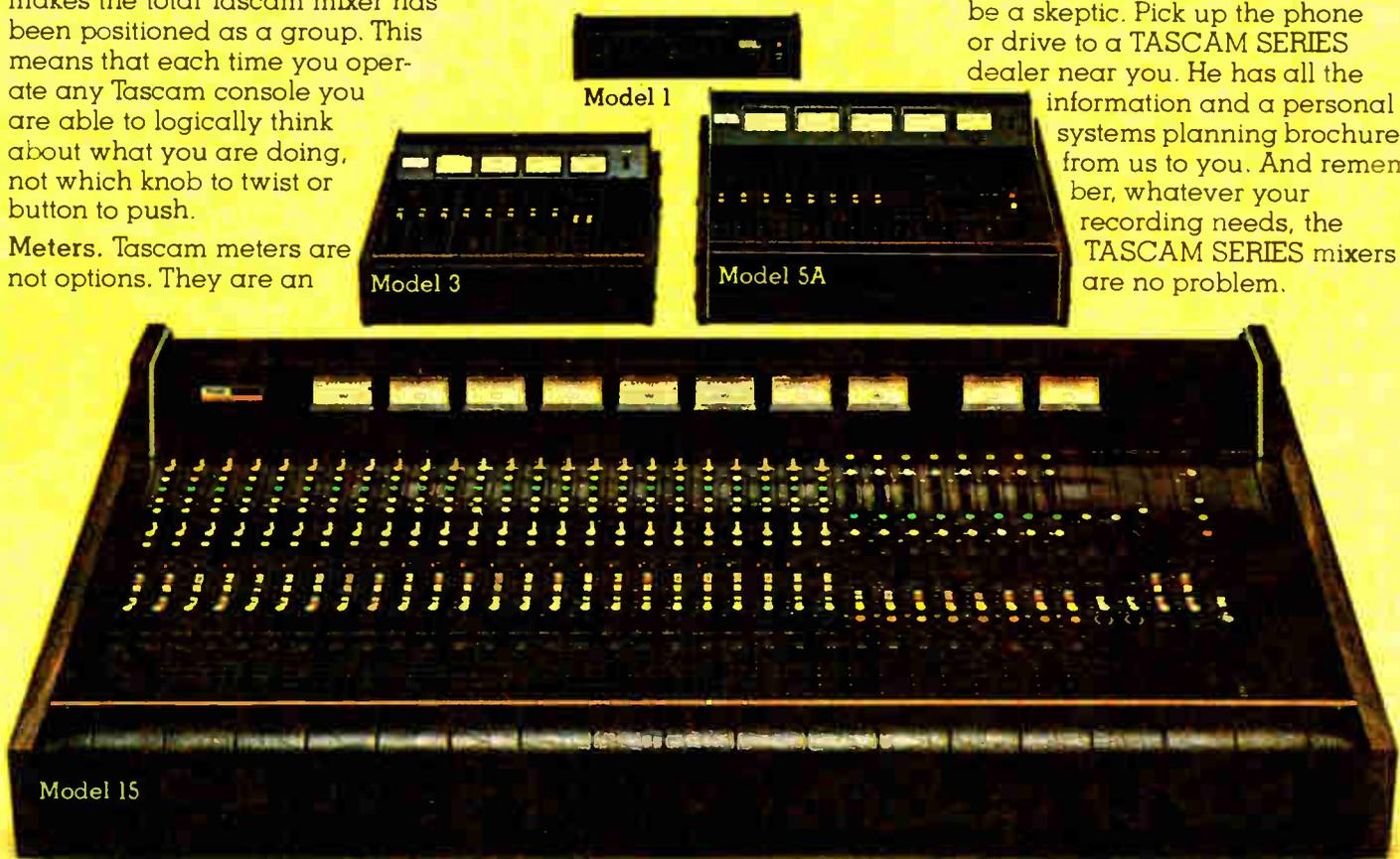
Channel Assignments (Busses). We believe that channel assignments should be simple and comprehensive. Simple in number and visually comprehensive. All TASCAM SERIES consoles have identical channel assignment color coding, making it easy to see to which output channel any particular input is assigned. Additionally, we have a unique panning system. Whenever any two or more channel assigned buttons are depressed, the pan is automatically engaged. If only one button is pushed, then pan is totally out of the system. Easy, simple, and terribly logical.

A Special Note About The Model 1. Our model 1 is really an inexpensive compact eight by two line-level mixer. It gives you the additional submixes you'll need without costing you a fortune.

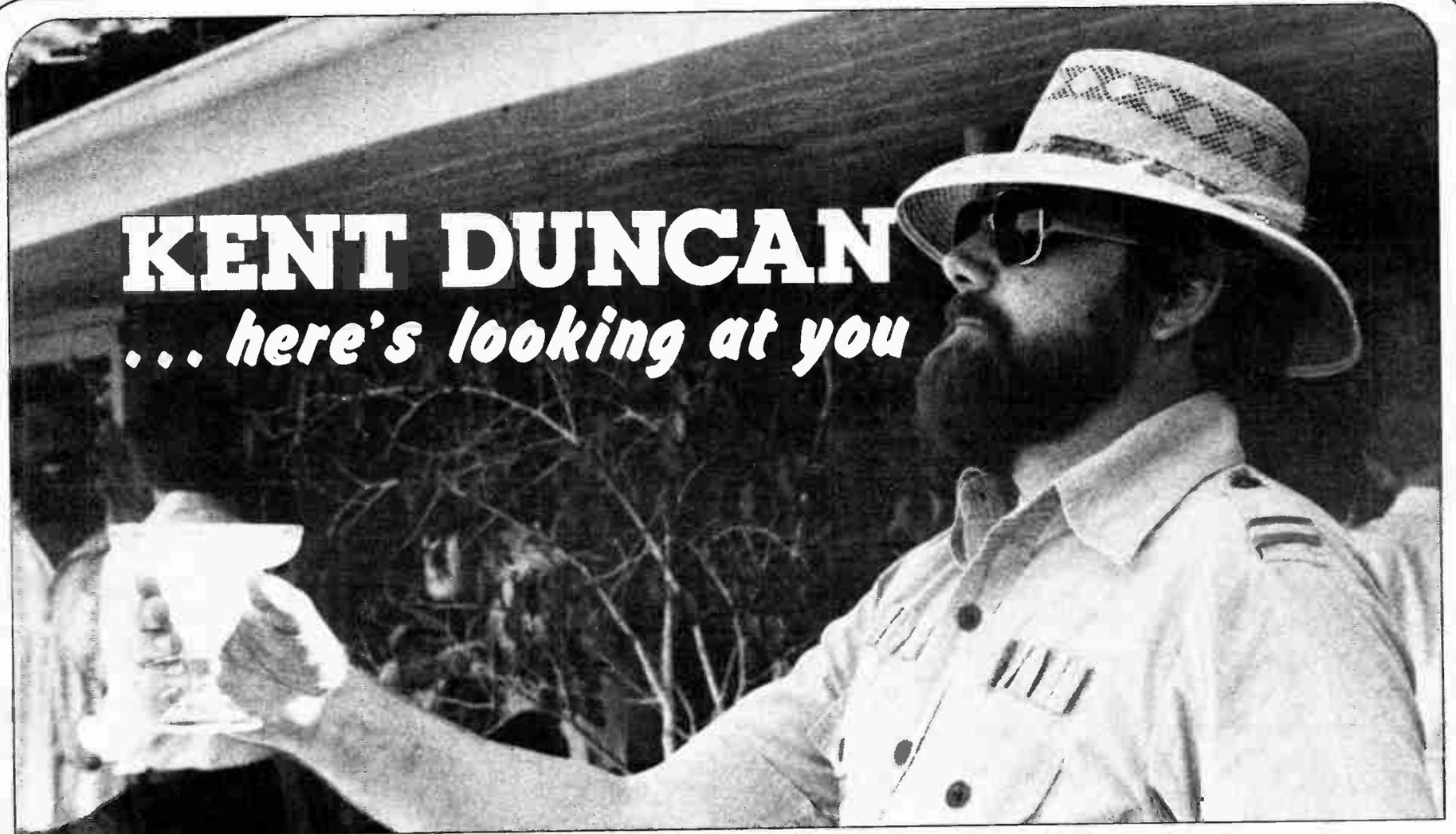
Where are our specs? In the equipment, where they belong. Because hearing is believing. So be a skeptic. Pick up the phone or drive to a TASCAM SERIES dealer near you. He has all the information and a personal systems planning brochure from us to you. And remember, whatever your recording needs, the TASCAM SERIES mixers are no problem.

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KENT DUNCAN

... here's looking at you

by David Schwartz

There is no typical success formula yet in the recording studio business. All of those who make it seem to have their own unique approach to the industry. There are, however, several prerequisites to success. Among them, total commitment, unlimited ambition, persistence and the ability and intuition to recognize and utilize opportunities are standard features in the personalities of over achievers. Beyond that, the unique factor is that seductive mystery of the industry.

In a short seven years, Duncan has gone from running an eight-track demo room with a few outside disc mastering projects to becoming the kingpin of Kendun Recorders, the most successful independent recording and mastering operation in the world. Not to let his spare time spoil him, Kent also heads up Sierra Audio, the Western Hemisphere representative for Tom Hidley Design, the world's premier creator of recording environments. In his Sierra disguise, Duncan has been involved with the design of studios in LA, Montreal, Toronto, Chicago, Atlanta, Seattle, Vancouver, Melbourne, Sydney, Manila and Tokyo this year.

Present activities have brought Kent "back to the basics". With the addition of professional managers at each department of Kendun and Sierra, Duncan has returned to the musical dimension; becoming involved with projects for Rod Stewart, Sergio Mendez and Alice Cooper. In September, Kent engineered the opening session at the twelve studio CBS-Sony complex in Tokyo.

Between puffs on an exotic cigar, Kent discussed his success and his love and concern for the industry.

HOW DID YOU START IN THE BUSINESS?

I've been a "Mr. Fixit" since I was in the 6th grade, taking all the school's tape recorders home and working on them. In high school I started a little record label and we did the dancebands and rock groups, and a little country and bluegrass. That was back in '61, '62 and '63. I virtually put myself through college doing remote recording and putting records out. I'd produce a record of a band and they would sell it at their concerts.

When I went to Cal Poly in 1964, I was doing my remotes with a couple of mono Ampex 601's and a stereo 602. I bought two Neumann U64 microphones, (those were the Newvistos which were later replaced by the KM 84's) and I picked up two Sony C-37A's, two Altec M-30's, two Neumann M-49 B's, two U-67's and two Ampex mixers; and we did original two-track masters at 7½ips and went straight to lacquer from that.

The guy who really helped me get started in this business, a wonderful man named Wade Alexander who has produced Rod McKuen for years, encouraged me to leave a small mastering studio I was working for and go independent — and I became probably the world's first independent disc mastering engineer. Wade and Rod became my steadiest clients and we did over a hundred albums for their Stanyan Record Label with Rod, — at least fifty of them in SQ Quad. Artists Rod produced on Warner Bros. included Glenn Yarbrough, Frank Sinatra, Anita Kerr and the San Sebastian Strings.

The first six months I was independent (back in early '71) I did a Van Morrison record and my first hit, "Patches", by Clarence Carter. Then came Hugh Maskela's "Grazin' in the Grass", Neil Diamond's "Holly Holy", "Brother Love" and "Sweet Caroline", and things began to mushroom.

I got married about this time and Irene and I had a two bedroom apartment here in Burbank with the back bedroom set up as a duplicating room. In June of '71 we moved into the building which went on to become our present studios. The front office used to be our kitchen and while we were living here (and when I wasn't booked), I was building our first studio. We formed Kendun in late '71 and opened our eight track demo room in early 1972.

All this time I had been looking for a cutting lathe, since it was getting ridiculous running all over town to do my mastering. I'd been doing my mono work at Custom Fidelity, my dialogue at Whitney and my stereo jobs at a place called Location. I used to buy lacquers from Mickey Knight and he said, "You buy more lacquer than Crystal, Radio Recorders, Sunset Sound, and Western, and you don't even have a lathe!"

So I finally found a sympathetic banker who helped me put together an SBA loan and I put a lathe on order. This was December of '71 and there was an eight months wait on delivery.

Our cutting room opened in June of '72 and about four days later I got a call from Tom Hidley at Record Plant who said they had a couple of cats there with an album that they couldn't get cut. They had gone to their regular cutting room in New York, but the record was skipping and they wanted it remastered. They tried three places in LA but they couldn't do any better and they were thinking about taking a tune off the album. The album was Stevie Wonder's "Innervisions" and the tune they were thinking of dropping was "Golden Lady". That would've been a great crime. So they came over here about midnight on a Wednesday and we finished it on Sunday afternoon.

continued on page 14...

Everybody flipped out with the record and that is really what put us on the map. We even bought 500 copies of the album from Motown and sent them around as our demo package!

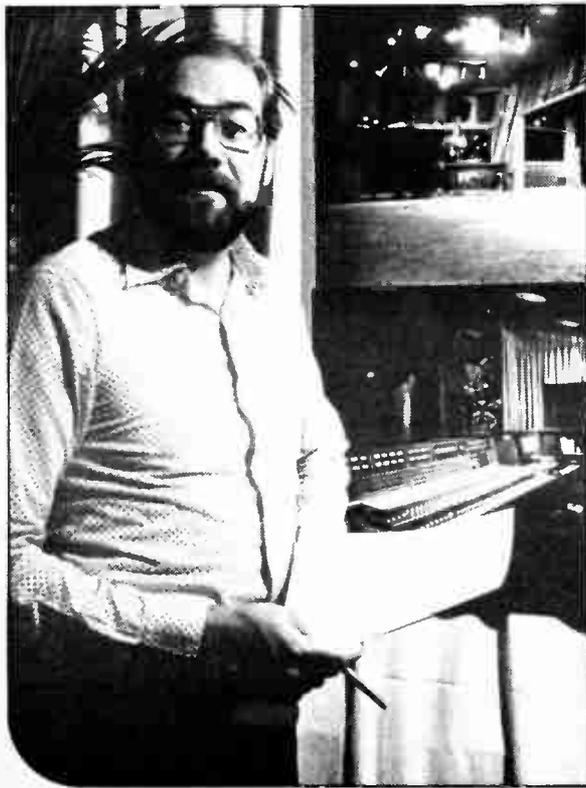
Chris Stone and Gary Kellegren at the Record Plant were impressed with the cutting and they were largely responsible for our quick growth. Gary turned everybody on to us — Jeff Beck, Buddy Miles, Billy Preston, The Isley Bros., Ahmet Ertegen and Mick Jagger flew in from London to master, Rod Stewart came over, Quincy Jones brought in "Body Heat" and we became the new "In" place.

WHAT WAS THE RECORDING STUDIO DOING DURING ALL OF THIS MASTERING ACTIVITY?

Our studios had been growing rapidly through this period and we opened the first full time twenty-four track room in LA. Chris and Gary had a twenty-four track machine, a real monster that Tom Hidley and I put together, but they were using it as a sixteen track. It had a sister that originally was intended for Jimmy Guercio at Caribou, but when Jimmy saw that it wouldn't fit in his control room, we adopted it for our room. This prompted Stevie's engineers, Bob and Malcom, to move in and we did about half of "Full-fillingness First Finale" and about 90 nights on "Songs in the Key of Life". Stevie said that he wanted us to block out our room for him exclusively for two years but we just couldn't make that kind of commitment.

WHAT IS THE ECONOMIC PICTURE LIKE AT KENDUN?

Kendun grew at about 100% a year for three years and 50% a year for three years and now its settled down to about a 25% growth rate, which is really about all that we can afford to do. We are something like four times more profitable than any other studio our size. I really believe a studio has a moral commitment to the industry and to the clients to be able to afford to replace the gear and remain state-of-the-art. We don't have a piece of gear here that was here when we started the place. We change gear every two and a half to three years and I would say most of the other studios around town probably change every four to five.



Tom Hidley with Kent at CBS-Sony Studios in Japan.

WHAT MADE KENDUN SO SUCCESSFUL?

We started as an eight-track hole-in-the-wall studio just like most of the other studios here did. We had the same kind of financing problems as everyone, but we realized that we had to believe in ourselves and forge ahead in every way we could find. The way we found that really serves to get a studio off the ground is to cater to album projects. The studio's bread and butter is the album. You have to set your sights and try to get tight with a major producer or a major independent engineer and tailor your studio to him. It's kind of a gamble, but if you try to keep everybody happy, you're going to need one of everything.

Our engineering philosophy is that if it's new, we want to look into it right away and if its good, we get it. We are now in the process of building a new room which will cost us a million dollars to put into operation—that's the most ever spent for a room in LA. The studio will have a Solid State Logic board and Studer 800 twenty-four track machines at \$78,000 a piece. We'll be running all European equipment in this room. This will bring us to three studios and two cutting rooms, which I believe is an ideal size. We now have the output of about 25 studios around town keeping our cutting rooms working to capacity.

HOW DO YOU SEE THE STATE OF THE INDUSTRY TODAY IN LA?

Everybody's always talked about LA being over-built since 1961 and when Wally Heider walked out of Western and said he was going to build two rooms of his own, people thought the world was coming to an end. And then there was the other spate when Sound Labs started up in '70 and Larrabee sprung up and Village came on somewhere in the late sixties or early seventies and suddenly it went from about twelve rooms to now about forty rooms that people would say are "A" rooms. I would like to think that there are about ten rooms that are "A" rooms, or maybe forty "A" and "B" rooms; and then about a hundred more. Actually I believe the Mix listed about 155 places of business — but that probably includes about 250 total rooms.

TELL US ABOUT SIERRA AUDIO.

Although Sierra has been operating in a major sense for only about a year, it actually dates back to '72 when, for a few short months, Sierra was created as the five western state's representative for Westlake Audio. When Kendun took off, we didn't have time to keep Sierra going so we gave it back to Tom Hidley, then president of Westlake.

The arrangement that Tom and I had was that I would do the site analysis and layout of the building and then send it off to Tom who would work out the acoustical design. He would then send it back to me to do the air conditioning, electrical, audio and acoustical overlays. Our association has worked very well and we have never had a client go bust.

In Tom's work with Westlake, and now Eastlake, he has designed 206 acoustical environments. They range from his first projects at the Warner Brothers Studio (Amigo), MGM (now Cherokee), Caribou, and the LA Record Plant, to the 59 rooms in Europe and Japan that we are doing this year.

There is a whole cult of artists and producers who go from one to another of our rooms because, even though the design has evolved, the rooms tend to sound similar. This is a good tool for the artist or producer because he doesn't have to spend two days trying to figure out the sound of a new room. Not that other monitor systems are wrong, but it appears that we are the only people who can repeat the sound of rooms.

GIVE US SOME INSIGHT INTO THE TOM HIDLEY/WESTLAKE STORY.

It starts back where Phil Ramone, at A&R Studios in New York, has this maintenance man named Tom Hidley and A&R buys equipment from a kid at Martin Audio, named Paul Ford. Tom comes to LA as a minority partner of TTG Recording and, at about the same time, Chris and Gary sell the New York Record Plant and move to LA to build the Record Plant here. They hire Tom away from TTG and allow him to start Westlake in the back of the Plant.

Continued on page 15...

Westlake was basically a phone on the wall of the Record Plant's maintenance department for the first year. When it incorporated in 1972, ownership was held by Westlake's Paul Ford, the attorney, and Tom as the majority stockholder. And, as you know, Westlake took off like crazy from there.

At the time Westlake built the Moody Blues' room in late '74 it became such a phenomenon in Europe that Tom made a trip in May and June of 1975 to talk to prospective clients. When he returned on a Tuesday afternoon, and it was a memorable day at the Wilshire office, he told of all the leads he had picked up and announced, "I'm moving to Switzerland on Friday."

Tom was completely convinced of the market over there but the minority members of the company couldn't see stretching the operation that far, so they agreed that the best thing to do would be to part ways. Tom went off to Europe, happy as a lark, and has built something like 122 rooms in the last three years. To maintain the name, of course, he established Eastlake and I set up Sierra to be his agent for the Western Hemisphere.

Tom sold Westlake to Paul, who bought out the other partners and ran it for about a year. In the meantime, Dave Harrison had started his console company and Paul got very interested in the console and decided that he would rather sell consoles than build rooms. So Paul sold Westlake to Glenn Phoenix and bought the foreign export rights to Harrison.

There's actually a new wrinkle in the mantle and you will be the first to print this. Tom, of course, has been completely active as the supervisor, expeditor, and executioner of all the rooms in Europe up till the end of this year. Starting January 1, he is moving to Hawaii and will be essentially retired from the construction end of the European business and will only do design. He has two clients — Sierra and David Hawkins, Tom's London dealer, who will assume active leadership of Eastlake. Sierra, at that time, will do consulting and construction but will no longer market equipment, allowing us freedom to recommend audio gear without being tied to specific brands.

WHAT DO YOU SEE HAPPENING AT KENDUN FIVE YEARS DOWN THE ROAD?

In five years our rooms will be all digital. I don't see any major change in our acoustic environments — they are excellent and should last a long time, but constant updates will always be inevitable.

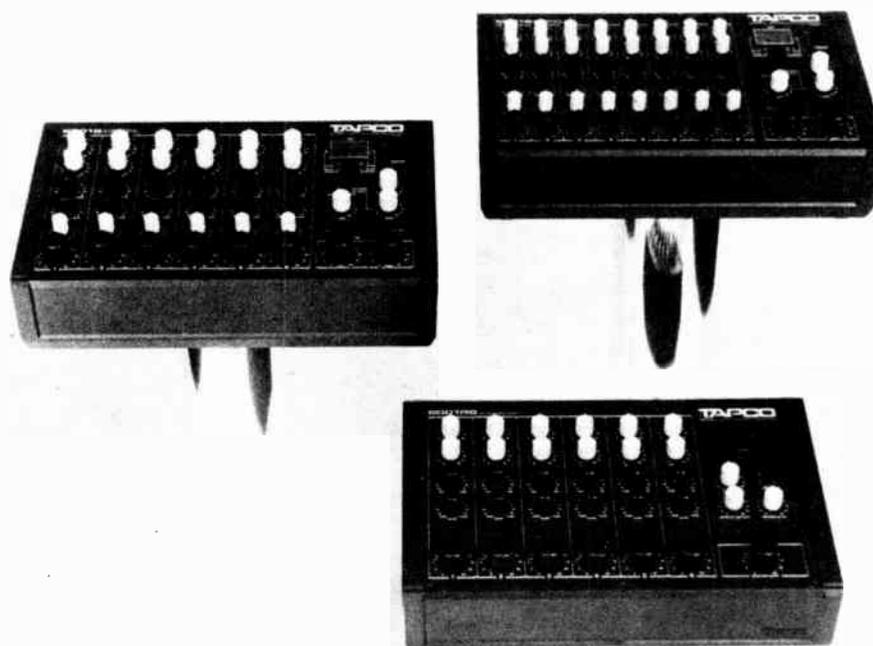
One major change that I see is toward a new breed of producer who will be a magician's mix of creative musicianship with an understanding of technology. It is going to be more and more of a team effort from the engineering side, where there will be a full time maintenance man assigned to the session, a full time computer programmer and an engineer to interpolate between them.

WHAT DIRECTION ARE YOU GOING IN YOUR OWN LIFE?

There are two major things going on in my life right now. One is Hawaii, for which I have a great love, and I am building a home in Maui. The other is finding a way to make myself complete — and I'm still searching. I think that anybody who is going to be unique is never going to be satisfied — he's always going to be his own worst critic. But I think, in the final analysis, that you probably satisfy your being and yourself through being for someone else.

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Sound Off

Sound Off is open to all manufacturers of audio products and provides a stage for declarations of product design, philosophy, and direction. The opinions expressed in Sound Off are those of the manufacturer and do not necessarily reflect those of Mix Publications. If you are interested in sounding off, please let us know.

B&B AUDIO'S QUALITY VCA

For sixty years, the audio industry has been trying to develop a quality voltage-controlled attenuator truly applicable in professional audio.

The search has been undertaken with limited success for many years, but no one overwhelmingly useful device emerged until last May when Dave Baskind and Harvey Rubens presented a paper on the B&B Audio VCA at the Los Angeles AES convention.

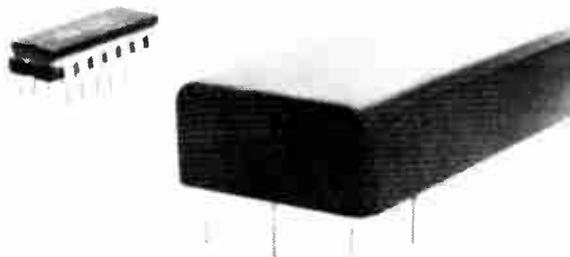
To understand the significance of VCA technology, possible audio applications include equalizers, noise reduction systems, automated disc mastering, console automation, compressors, expanders, tape recording functions, and synthesizers. Rubens estimates that a state-of-the-art studio could use well over a thousand VCA's today.

Research on VCA's actually goes back to the turn of the century when photocells were used to attempt to control attenuation. The first practical VCA's were known as AGC's (automatic gain control circuits) and were used prior to World War II in radio receivers to maintain constant reception of stations and to prevent overload. In the 60's, Fairchild introduced the Lumaten (light-controlled attenuator) which had fleeting success because the photocells it used could not be manufactured to precision standards. UREI also used photocells in limiters and remote gain controls but ran into the same difficulties that bedeviled Fairchild.

The vacuum tube approach was introduced in the 40's for audio applications and developed in the 1950's and 60's with UREI and Altec using the AGC principle in limiters. Altec's was used for radio transmission in the 50's but proved unwieldy. The huge device weighed several hundred pounds. (The B&B VCA weighs one ounce.)

When Shockley and Bardeen introduced the transistor in 1946, hopes for a quality VCA rose. Transistors were an important part of the Gilbert Multiplier, the first attempt at a precision VCA. Gilbert's device improved performance by using a predistortion circuit; however, the device's performance was limited by its noise floor and also because it could never be shut off completely.

Gilbert came up with the multiplier while working in instrumentation for Techtronics. Two other VCA pioneers also got started in instrumentation — Richard Burwen



Above, left:
B & B Audio 1537A

Above, right:
B & B Audio 202
(dbx retrofit)



At right:
Dave Baskind

He says that the B&B 1537A (and the B&B 202 designed to retrofit the dbx 202) will work best right now in automation. "It's going to shine in automatic or semi-automatic control of tape recording functions like equalization, bias, erase, level calibration, etc. Likewise, it will shine in limiters and analog to digital and digital to analog applications because it's a high speed device with a wide dynamic range. It will also make possible a new generation of test equipment like a sweeping distortion analyzer. It will also replace relays in some applications because there are no moving parts, and you don't have to worry about smog or smoke gumming up the works."

Baskind has mixed feelings about the fact that the B&B VCA is most likely to be used in digital applications. "A lot of people are saying that analog audio is on the way out. The sad part of that is that nobody has really gotten to the state of the art yet with analog. It is my contention that analog is going to be here a long time. It's getting less expensive to do state-of-the-art stuff and it's easier than digital too."

Fortunately for Baskind, the VCA has multiple applications in both forms. Whether analog or digital becomes the order of the day, it appears that the search for a quality VCA has come to an end.

with Analog Devices and Dave Blackmer in medical instrumentation before founding dbx. Blackmer put a logarithmic amplifier and an anti-log amplifier together in the late 60's to get the first patent on a multiplier or AGC circuit, while working for Automated Processes, the company that started Baskind off in this field.

Baskind, 34, was a science whiz in high school and was a member of The National Honors Group in Westinghouse's National Talent Search. In recent years, he has done major design work on some fifty recording studios including recent work for Leon Russell and The Captain and Tennille. He remembers, "I was working for the Integra Corporation in 1971 and we had a request from Automated Processes to investigate console automation for them. At the time, we were putting in a big console for Wally Heider two days before the Academy Awards and we had to have it running by award time when all the equalizers blew up..."

"Sol Walker who was AP's chief of engineering flew in to work out the problems and, in the course of fixing the console, we had several long talks about automation. One thing I came up with was a fader with a built-in meter so you could know through automation where your control track was sitting. I gave a drawing of it to AP gratis, and they're still using it in their 940 fader. At the same time, I showed them concepts for an outboard automation system. We are now marketing a third generation version of it as the OAS-1 through Aphex. I tried some other concepts out with George Noritaki, JBL's chief engineer, and Jack Sacks, inventor of SAE's click and pop filter. Then I dropped out of VCA work for a couple of years."

Later in 1976, when Baskind and Eddie Bissot, his partner in B&B, found they needed a high-performance VCA to complete a console, they asked Rubens to develop it. Rubens was intrigued because he was after the best-possible sounding console. Baskind and Rubens tried a circuit suggested by Sacks and the dbx circuit which they bettered. "We almost took out a license from dbx when they offered it, but we felt that what we had wasn't good enough in terms of professional audio; so we went back to the drawing board."

Baskind and Rubens ended up with a foot-square board loaded with parts and looked in vain for a major IC manufacturer willing to manufacture the device. Eventually they found a custom IC house that was willing to put it together. Says Baskind, "Our approach finally was based on the Sansen and Meyer concept."

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can be modified with a single control which adds a variable delay before the first echo or reflection signal.

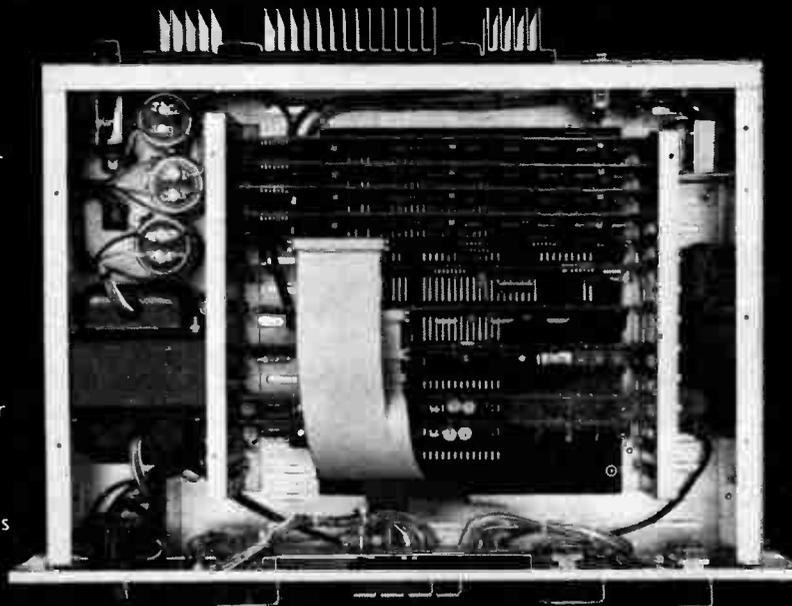
And, most importantly, the CPR-16 allows the prominence and density of resonant modes to be altered. Thus, the density and diffusion rate of echoes can be tailored to match any room, electromechanical device, or whim.

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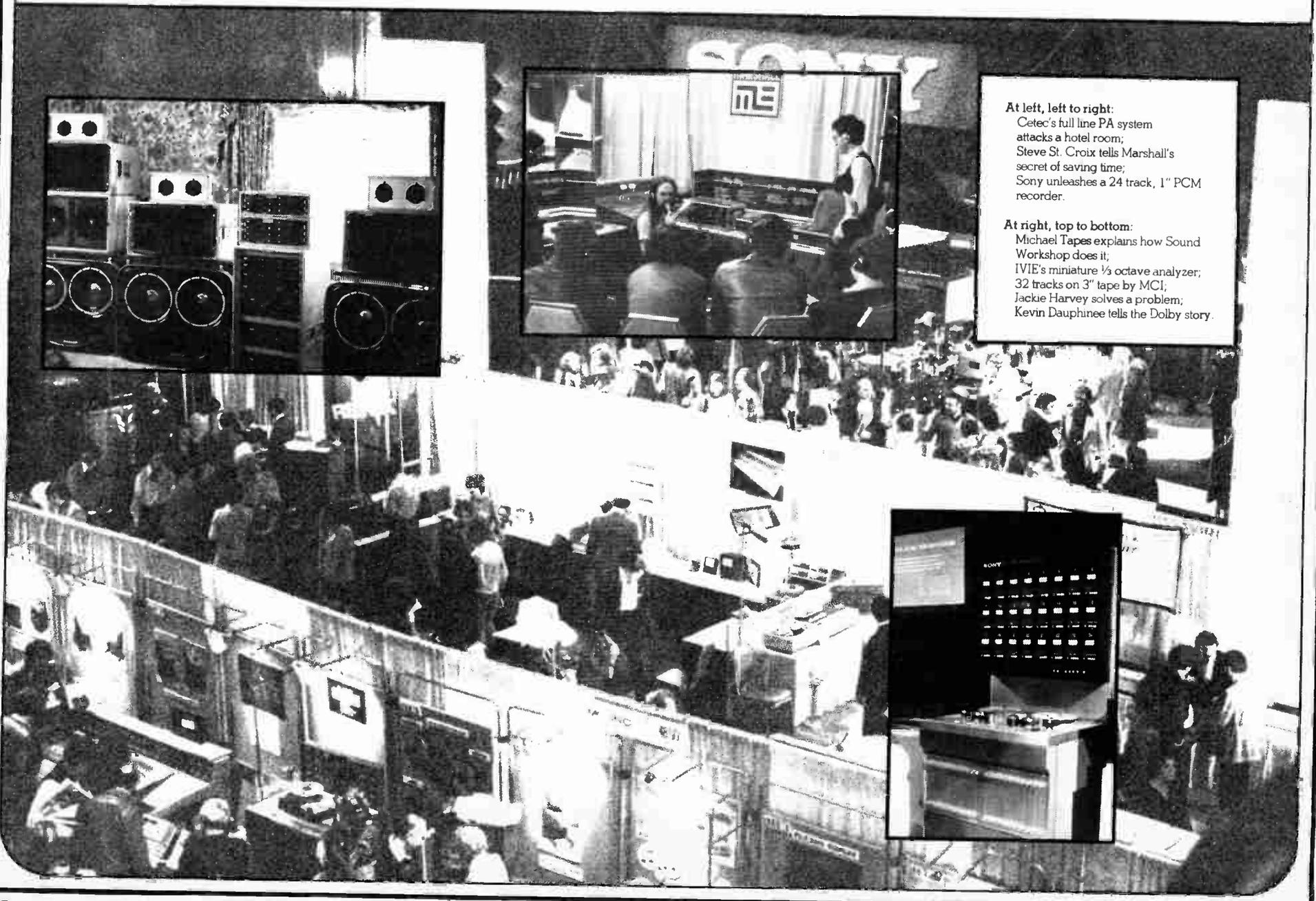
A Retrospective in Pictures

In case you couldn't make it to the New York Audio Engineering Society Show, here is a hint at what you might have encountered.

Nearly 140 audio related businesses displayed their latest offerings to 6800 hungry audiophiles. Technical papers were presented by 80 distinguished leaders in the field. Seminars and listening rooms abounded and, by our calculations, the state-of-the-art was advanced another six months.

At the Awards Banquet, Hugh S. Knowles received the Gold Medal for distinguished leadership in the development of hearing aids and audio devices. The Bronze Medal went to Peter K. Burkowitz for his organizational work on behalf of the AES in Europe. Dennis Preis was awarded the Publications Award for his paper on Linear Distortion.

For several hundred highlights of the show, please see our new product listings beginning on page 21.



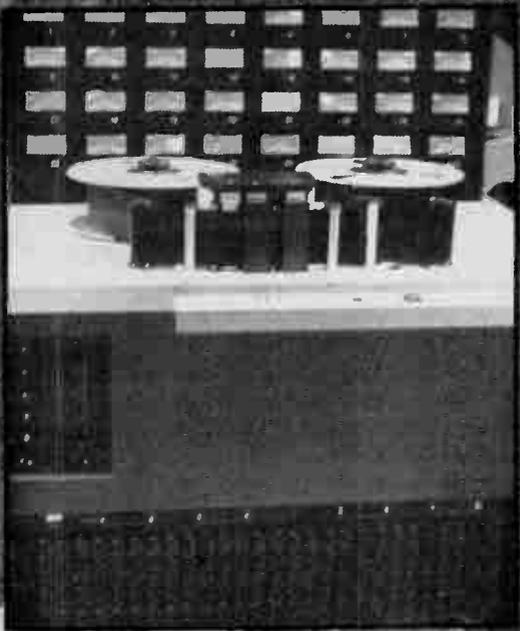
At left, left to right:
 Cetec's full line PA system attacks a hotel room;
 Steve St. Croix tells Marshall's secret of saving time;
 Sony unleashes a 24 track, 1" PCM recorder.

At right, top to bottom:
 Michael Tapes explains how Sound Workshop does it;
 IVIE's miniature 1/2 octave analyzer;
 32 tracks on 3" tape by MCI;
 Jackie Harvey solves a problem;
 Kevin Dauphinee tells the Dolby story.



ORANGE COUNTY
 audio

XEDIT



Dolby



the bookshelf

The gap that has existed in reference materials for the audio and recording industries has been closing rapidly. Today we find instructional volumes available in most every conceivable area in our field and the remaining holes seem to be getting plugged on a daily basis.

As proprietor of the Opamp/Technical Bookstore, I would like to recommend the following popular books to those putting together an audio library or just curious as to what is available.

Handbook of Multichannel Recording
Alton Everest; Tab Books; 322 pages; 1975; \$7.95. Modern techniques are explained for the layman and pro who want to make quality recordings of musical groups.



Sound Recording
John Eargle; VNR Publishing; 327 pages; 1976; \$17.95. Discussing techniques used in today's studios, the book covers acoustics, audio control systems, recording tools and their applications.

Audio Cyclopedia
Howard M. Tremaine; Howard Sams, Inc.; 1700 pages; 1969; \$39.95. A reference volume covering from the basic principles of sound to the latest in solid state equipment.

The Recording Studio Handbook
John M. Woram; Sagamore Publishing; 496 pages; 1976; \$35.00. Dealing with every important aspect in the current state of the recording art and technology, the handbook covers such topics as loudspeakers, equalizers, compressors, limiters, noise reduction, mixing consoles, reverberation and audio basics.

Microphones: Design and Application
Lou Burroughs; Tab Books; 260 pages;

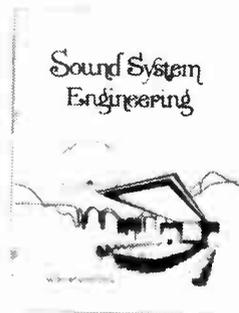
1974; \$12.95 soft, \$19.95 hard. Here is a non theoretical reference manual for everyone involved in the application of microphones — for TV, motion pictures, recording and sound reinforcement.

Applications of Digital Signal Processing
Alan Oppenheim; Prentice Hall; 499 pages; 1978; \$24.95. A state-of-the-art volume, this work includes analog/digital conversion, transducer design, tele-communications and image processing.

Sound System Installer's Handbook
Leo Sands; Howard Sams, Inc.; 192 pages; 1973; \$5.95. The purpose of this book is to assist electronics technicians and electricians in the professional design, application and installation of sound systems.

Music, Physics and Engineering
Harry Olsen; Dover Publishing; 460 pages; 1967; \$5.00. Areas covered in this work include sound waves, musical terminology, theatre, studio and room acoustics, sound reproduction systems and electronic music.

Sound System Engineering
Don and Carolyn Davis; Howard Sams, Inc.; 295 pages; 1977; \$19.95. An introductory book for the installer, this is a text outlining the engineering side of sound systems.



Psychology of Music
Carl Seashore; Dover Publishing; 408 pages; 1938; \$5.00. Here is a guide for music students in scientific observation and reasoning of the art form.

IC Opamp Cookbook
Walter Jung; Howard Sams, Inc.; 591 pages; 1974; \$12.95. This volume deals with general applications as well as a substantial amount of theory.

Your Introduction To Music-Record Business Law
Walter Hurst; Seven Arts Publishing; \$5.00. If you have been "stung" in the music business, here is a way to take the law into your own hands.

How to be a Music Publisher
Walter Hurst; Seven Arts Publishing; \$9.95. This includes the ins and outs of the music publishing business for songwriters, artists, musicians, distributors, accountants, attorneys, etc.

Modern Recording Techniques

Robert Runstein; Howard Sams, Inc.; 367 pages; 1974; \$9.95. Providing the information necessary to prepare pop music recordings, this book explains the equipment, controls, production techniques and contains many informative diagrams and charts.



Techniques of the Sound Studio
Alex Nisbett; Hasting House; \$14.95. This is a primer dealing with sound in TV and film applications.

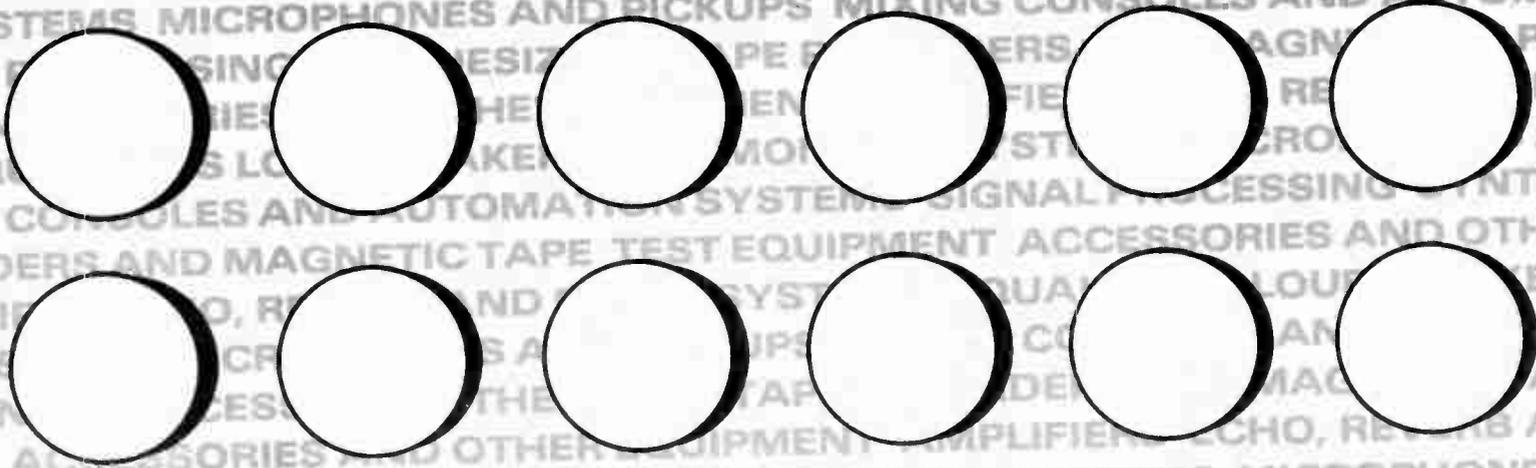
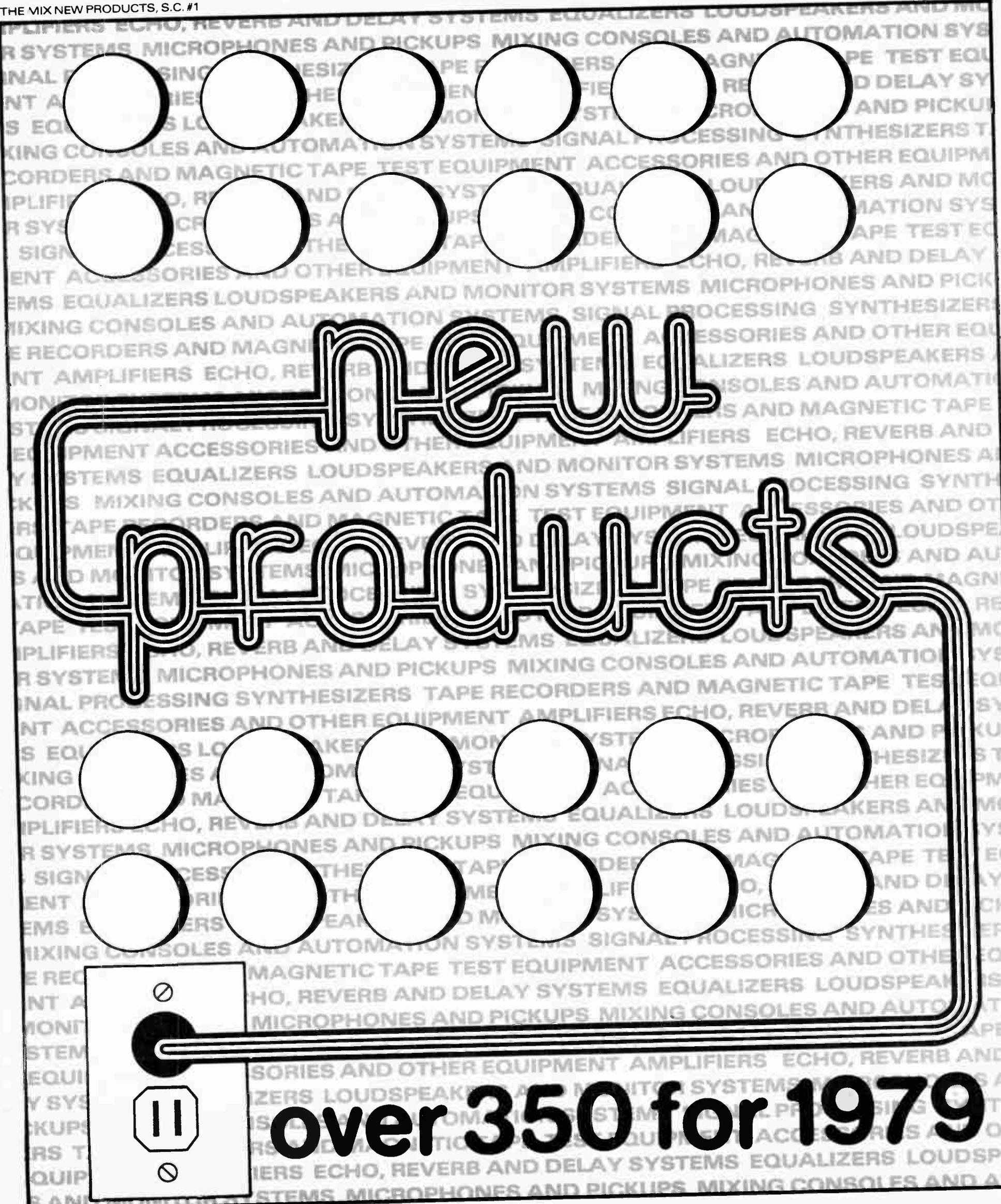
Use of Microphones
Alex Nisbett; Hasting House; 168 pages; 1974; \$6.95. An introductory handbook, Nisbett describes microphones and miking techniques.

Home Recording for Musicians
Craig Anderton; Guitar Player Books; 182 pages; 1978; 19.95. For the musician making the transition to recording; Craig lays it out in easy to understand terms and examples.

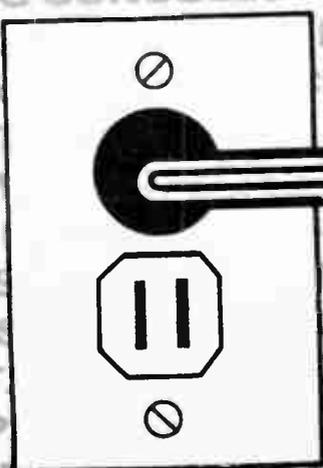
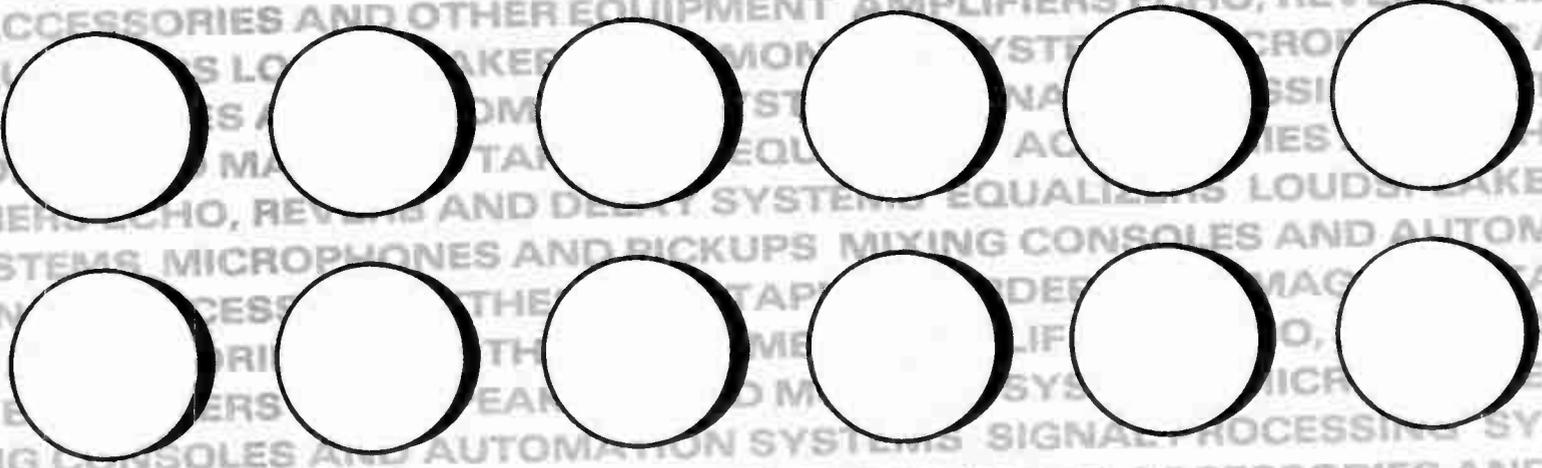
Moog's Musical Eatery
Shirleigh Moog; Crossing Press; 209 pages; 1978; \$5.95. And for dessert, here is a tasty collection of recipes sprinkled with musical anecdotes from the kitchen and dining room of the Robert Moog family.

Acoustic Techniques for Home and Studio
Alton Everest; Tab Books; \$6.95. Discussing problems and solutions, Everest also takes us on a brief tour of studios around the world.

Lyn Losmandy has spent the last year selling technical books to information starved engineers and musicians at Opamp Technical Bookstore, 1033 North Sycamore, in Hollywood. She named her bookstore Opamp as a tribute to her father, Bela Losmandy, who was a pioneer in the development of the operational amplifier. Prior to her librarianism, Lyn received a Bachelor's Degree in Radio, TV and Film from California State University.

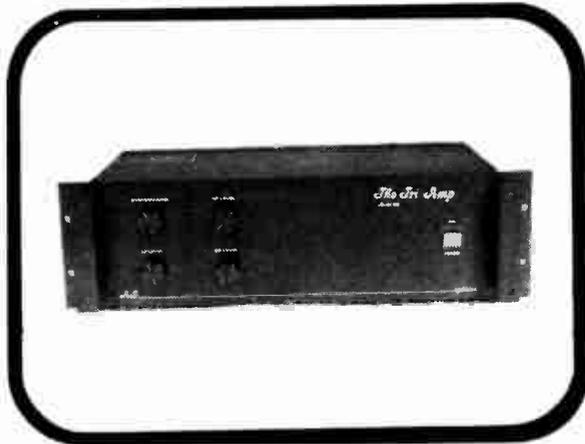


new products



over 350 for 1979

AMPLIFIERS



AB SYSTEMS
Model 730 Tri-Amp

MODEL 730 TRI-AMP

AB Systems
P.O. Box 369 Fair Oaks, CA 95628. (916) 988-8551
Contact: Bob Bird (Nat. Market manager)

PRODUCT DESCRIPTION: Fully self contained Tri-Amp including selectable internal crossovers. Delivers 350 watt bass, 100 watts mid, and 50 watts treble — all 8 ohm rated.

RECOMMENDED USAGES: Cost effective Tri-Amped P.A. systems, large auditorium and outdoor concert systems requiring a minimum of external support equipment.

BASIC SPECIFICATIONS: 350 watt bass, 100 watt mid, 50 watt HF all 8 ohm rated.
THD typically 0.1%.

Noise: — 101 dB.

19" Wide 5 1/4" High 10 3/4" Deep.

Internal selectable crossovers over the range of 50Hz to 5kHz Lo to mid and 800Hz to 20kHz Mid to hi.

DEALER AVAILABILITY:

Northern California:

Sound Genesis, 2001 Bryant St., San Francisco, CA.
Associated Sound, 2120 "P" St., Sacramento, CA.

Southern California:

West Lake Audio, 6311 Wilshire Blvd., Los Angeles, CA.
Burbank Sound Co., 1317 N. San Fernando Rd., Burbank, CA.
L.A. Sound Co., 7517 Sunset Blvd., Hollywood, CA.
Available throughout California.

ALEMbic F-2B STEREO PRE-AMPLIFIER

Alembic, Inc.
P.O. Box 948, Cotati, CA 94928. (707) 795-2161
Contact: Sam Field, Sales Manager

PRODUCT DESCRIPTION: The Alembic F-2B Stereo Preamp is a two-channel high quality tube preamp. The unit is rack mounting. Construction is rugged and all screws are treated with locking compound. Two inputs per channel are on the front panel, the outputs are on the rear panel. Each channel has a control for volume, bass, middle and treble as well as a bright switch.

RECOMMENDED USAGES: The Alembic F-2B is suitable for use with electric bass, guitar, piano or any low level musical instrument pickup.

BASIC SPECIFICATIONS: Input sensitivity: 8mV RMS.

Output Level: line level.

Tube Complement: two 7025

Power requirement: 10 watts.

DEALER AVAILABILITY: Available throughout California.

9440A POWER AMPLIFIER

Altec Lansing
1515 South Manchester, Anaheim, CA 92803. (714) 774-2900
Contact: Jim Morrison, VP/Commercial Sales

PRODUCT DESCRIPTION: The 9440A is a direct-coupled amplifier that typically delivers over 250 watts per channel into 8-ohm loads and over 450 watts per channel into 4-ohm loads at less than 0.1% total harmonic distortion. An optional plug-in line bridging transformer may be used in each channel for balanced inputs.

RECOMMENDED USAGES: The 9440A is capable of operation from a 120V or 240V ac source. Circuit design provides fail-safe protection for the output transistors and the load. Provisions are made for mounting two accessory fans on the heat sink shroud for greater cooling of the output circuitry. Designed for rack mounting, the 9440A occupies only four vertical units of rack space (7"), and handles professional and industrial operations.

DEALER AVAILABILITY: Available throughout California.

SCAMP S08 DISTRIBUTION AMPLIFIER

Audio & Design Recording Limited, England

Contact:
Nigel Branwell, Audio & Design Recording USA West.
P.O. Box 902, Marina, CA 93933. (408) 372-9036 (Sales & Maint.)

PRODUCT DESCRIPTION: The S08 Distribution Amplifier is a Card module for incorporation in the standard 19" Scamp racking frame. The unit is a highly versatile device. Both inputs can be switched to any of the 8 outputs.

Inputs are protected against over voltage while outputs are individually isolated and short circuit protected for ultra-reliability. Comprehensive monitoring facilities and optimum modulation indicators (peak sensing with slow decay characteristics) are included.

RECOMMENDED USAGES: The S08 Distribution Amplifier is suitable wherever high quality signal splitting (a "clean feed") is desired. Common applications are for foldback in the studio; signal splitting between stage and auditorium for PA use; and film, TV and radio programs.

BASIC SPECIFICATIONS: 60v supply (stabilized to $\pm 24v$).

Noise: $\leq -100dB$ ref +8 dBm.

Distortion: @ 1kHz $\leq 0.008\%$ ref +8 dBm: @ 24 kHz $\leq 0.1\%$ ref -8 dBm.

Common mode rejection: @ 1kHz -60dB ref +8 dBm: @ 10 kHz -40 dBm ref +8 dBm.

Clip level: +24 dBm.

Frequency response: +0 -1 dB 20 Hz to 25 kHz.

Crosstalk: Input 'B' open circuit: Input 'A' driven @ +8 dBm; Output 1 - 8 : -95 dB @ 20 Hz; -88 dB @ 1kHz;

-68 dB @ 10 kHz; -60 dB @ 25 kHz.

N.B. All measurements taken with outputs in balanced mode and terminated with 600 ohms.

DEALER AVAILABILITY: Available throughout California.

TYPE 1252 REFERENCE CLASS A POWER AMPLIFIER

Audio Developments International
644 Emerson St., Palo Alto, CA 94301. (415) 321-3035. tlx: 470 464
Contact: Arthur K. Yeap

PRODUCT DESCRIPTION: Class A Reference Power Amplifier with DC response, minimal phase shift, ultra-low noise, ultra-low distortion, very high slew rate, high damping factor, 200W into 4 ohms, 185W into 8 ohms, 500W bridging switch, 10" high standard rack mount. \$1250. ret.

RECOMMENDED USAGES: Studio monitor systems, most advanced, rugged reliable sound systems, testing labs, connoisseur high fidelity systems, exclusive discos, high-end high fidelity dealers.

BASIC SPECIFICATIONS: Power: Class A 185 @ 8 ohms,

200w @ 4 ohms.

Phase shift less than 1 degree.

+4 dBm input sensitivity.

AC or DC coupling.

Ac: 5 Hz.

Slew rate: 50V/usec.

Freq. resp: DC to 25 kHz ± 0.1 dB, DC to 50 kHz ± 1.0 dB, DC to 75 kHz ± 2 dB.

THD: 0.002%.

DEALER AVAILABILITY:

Northern California: Contact factory for names of N. Cal. rep and dealers.

Southern California: Rep: Filament Audio Marketing
c/o Mr. Frank Offenstein, 1058 E. Edna Place, Covina, Ca 91724
(213) 337-4945

TC/225

Biamp Systems, Inc.

10950 SW 5th Ave., Beaverton, OR 97005. (503) 643-8411
Contact: Laury Lantz

PRODUCT DESCRIPTION: The TC/225 is an extremely fast, true complimentary stereo power amplifier featuring very low TIM distortion. With 225 watts per channel into 8 ohms and 350 watts into 4 ohms, the TC/225 will produce 600 watts into 8 ohms mono bridge via rear panel switch. Balanced bridging inputs are provided for balanced line operation without loss of slew rate. The massive heat sink assembly with low-noise forced-air cooling permits the TC/225 to meet all the FTC power requirements.

RECOMMENDED USAGES: The TC/225 is ideally suited for high intensity studio monitors, live sound reinforcement, disco or home hi-fi use. An excellent full range amplifier, the TC/225 is a popular choice for a low end amplifier in a biamped or tri-amped installation. The TC/225 will drive a 70 volt line without transformer coupling. Biamp also offers 120 watt and 60 watt stereo power amps.

BASIC SPECIFICATIONS: Power rating per channel: 225 watts RMS at 8 ohms, 350 watts RMS at 4 ohms.

THD 1 Hz to 20 kHz, 1 watt to rated output into 8 ohms: ± 15 dB 20 Hz to 20 kHz.

Signal to noise: below -100 dB.

Damping factor: over 300 to 1kHz.

Input sensitivity: 1.4 VRMS to rated output.

Slew Rate: greater than 50 volts per micro second.

DEALER AVAILABILITY: Available throughout California.

BGW SYSTEMS MODEL 100B

BGW Systems, Inc.

13130 S. Yukon Ave., Hawthorne, CA 90250
Contact: Don Parker, Customer Service

PRODUCT DESCRIPTION: This professional audio power amplifier features full complimentary circuitry, small single unit rack size, a full 50 watts/channel output power, XLR and 1/4 inch input connectors with provision for plug in input transformers. The front panel features 8 LEDs for power metering with built in clip indication.

RECOMMENDED USAGES: Any audio application from critical studio monitoring to small distributed sound reinforcement systems.

BASIC SPECIFICATIONS: Power output: 50 watts average continuous power per channel at either 8 or 4 ohms in stereo operation or 100 watts in balanced mode mono operation.

THD: less than 0.1% 20 Hz - 20 kHz.

IM Dist: less than 0.05%

DEALER AVAILABILITY: Available throughout California.

BGW SYSTEMS MODEL 250D

BGW Systems, Inc.

13130 S. Yukon Ave., Hawthorne, CA 90250
Contact: Don Parker, Customer Service.

PRODUCT DESCRIPTION: This is a professional audio power amplifier featuring full complimentary circuitry, arc interrupter speaker protection circuitry, magnetic circuit breaker mains protection, modular construction provisions for plug in input transformers and full pro connecting with either SLR or 1/4 inch input connectors. The front panel includes LED clipping indicators and gain controls.

RECOMMENDED USAGES: Any audio application from critical studio monitoring to shaker tables to distributed system usage.

BASIC SPECIFICATIONS: Power output: 100 watts per channel (stereo) into 8 ohms, or 251 watts (mono) into 8 ohms, at less than .03% I.M. distortion.

Dimensions: 5.25 inch by 19 inch standard rack front panel by 11.75 inches deep.

Weight: 30 lbs., net, 36 lbs., shipping.

DEALER AVAILABILITY: Available throughout California



BGW SYSTEMS, INC.
Model 750B Amplifier

BGW SYSTEMS INC. MODEL 750B and 750C
BGW Systems Inc.
13130 South Yukon Ave., Hawthorne Ca 90250
Contact: Don Parker, Customer Service Manager

PRODUCT DESCRIPTION: The 750 Series amplifiers stand at the top of BGW's professional product line.

BASIC SPECIFICATIONS: 225 watts minimum sine wave continuous average power output per channel with both channels driving 8-ohm loads over a power band from 20 Hz to 20 kHz.

The maximum Total Harmonic Distortion at any power level from 250-milliwatts to 225 watts shall be no more than 0.1%. 1 kHz power: 240 watts into 8-ohms per channel, both channels operating. 0.1% Total Harmonic Distortion.

360 watts minimum sine wave continuous average power output per channel with both channels driving 4-ohm loads over a power band from 20 Hz to 20 kHz. The maximum Total Harmonic Distortion at any power level from 250-milliwatts to 360 watts shall be no more than 0.1%.

1 kHz power: 400 watts into 4 ohms per channel, both channels operating. 0.1% Total Harmonic Distortion.

720 watts minimum sine wave continuous average power output monaural driving an 8-ohm load over a power band from 20 Hz to 20 kHz. The maximum Total Harmonic Distortion at any power level from 250-milliwatts to 720 watts shall be no more than 0.1%.

1 kHz power: 800 watts into 8-ohms, 0.2% Total Harmonic Distortion.

DEALER AVAILABILITY: Available throughout California



BOSE MODEL 1800 POWER AMPLIFIER

Bose Corp.
100 The Mountain Road, Framingham, MA 01701
Contact: Roy Komack, Mgr. Professional Products.

PRODUCT DESCRIPTION: The Bose Model 1800 is a professional solid-state, dual-channel power amplifier delivering 400 watts per channel into 4 ohms. It is rack mountable and has twin LED indicator arrays.

RECOMMENDED USAGES: Use as a studio monitor amplifier and/or for sound reinforcement.

DEALER AVAILABILITY: Available throughout California.



ASG 500 STEREO POWER AMP

Carvin Mfg. Co.
1155 Industrial Ave., Esccondido, CA 92025. (714) 747-1710
CONTACT: Warren Flarity, Sales

PRODUCT DESCRIPTION: The ASG amplifier is a high-powered dual-channel unit designed to provide high reliability under the stress of commercial sound reinforcement conditions. Active electronic crossover networks have been included in the input circuitry of each channel, providing the user with the choice of standard stereo operation of high-power monaural bi-amping. Two models are available, both 19" wide in a rugged Tolex covered cabinet or solid Teak cabinet.

RECOMMENDED USAGES: The standard of quality (reflected in the specifications) makes the ASG an excellent choice for disco, studio, PA or home applications.

BASIC SPECIFICATIONS: 500 W RMS (250 per Ch) at 2 ohms, 15 - 25 kHz ± 1 dB at full power.

THD: .08% at full power.

S/N: 90 dB+

Separation: 60 dB—damping: 100—bi-amp filters: 800 Hz.

Sensitivity: .5 VAC for full output.

Weight: 55 lbs. Dimensions: W 21.5", H 10", D 12".

Warranty: 2 years parts and labor.

Price: 500 watt model: \$475.00

250 watt model: \$350.00

DEALER AVAILABILITY: Factory direct only.

AMPLIFIERS

METRON A-4000

Cerwin-Vega Inc.
12250 Montague St., Arleta CA 91331. (213) 896-0777
Contact: Michael Koehn, Public Relations

PRODUCT DESCRIPTION: The A-4000 is a power amplifier rated at 350 watts RMS at no more than 0.02% THD into 8 ohms, 20 - 20k Hz with both channels driven. The A-4000 incorporates a symmetrical, differential, full complementary circuit design and operates off of massive, independent, toroidal potted transformers for each channel. The A-4000 features precise step attenuation gain control, large sample and peak hold level meters, forced air cooling, and a completely independent output protection circuit for speaker and amplifier protection. Rack mount specifications.

RECOMMENDED USAGES: The A-4000 is designed to provide flawless reproduction in any application where a high power amplifier is required. The rugged construction and performance specifications of the A-4000 allow it to be used in both home applications and professional recording or other commercial concerns.

BASIC SPECIFICATIONS: Output power: 350 watts RMS at no more than 0.02% THD into 8 ohms 20 - 20k Hz (both channels driven, 120 VAC).

Total harmonic distortion: 0.02% from 20 - 20k Hz from 250 mW to rated power.

Frequency response: -3 db from 2.5 - 2000k Hz; -1 db from 5 - 100k Hz.

Signal to noise (unweighted): greater than 110 db.

Slewing Rate: greater than 50V/us.

Damping factor: greater than 200.

Input sensitivity (nominal): 2.0 volts.

Input impedance (nominal): 10k ohms.

Cooling system: temperature sensing two-speed fan.

Dimensions: 18.9" w x 7.87" h x 18.5" d. Weight 79.38 lbs.

DEALER AVAILABILITY: Available throughout California.



METRON M-200

Cerwin-Vega Inc.
12250 Montague St., Arleta, CA 91331. (213) 896-0777
Contact: Michael Koehn, Public Relations

PRODUCT DESCRIPTION: The M-200 is a power amplifier rated at 125 watts RMS per channel at no more than 0.02% THD into 8 ohms, and is designed with both the discriminating audio enthusiast and sound professional in mind. It features the finest available audio signal processing electronics in a symmetrical, differential, full complementary circuitry design. The M-200 also incorporates 2 sophisticated protection systems which will fully protect the amplifier and all associated speaker systems for the duration of an unsafe operating condition. Includes illuminated level meters and front panel handles. Rack mount specifications.

RECOMMENDED USAGES: The M-200 can be used in all applications where a moderately powered amplifier with absolute response integrity is required. The M-200's specifications and rugged construction make it versatile for use in home systems or with professional recording applications.

BASIC SPECIFICATIONS: Output power: 125 watts RMS at no more than 0.02% THD into 8 ohms (both channels driven).

240 watts RMS minimum power at clipping into 4 ohms.

Total harmonic distortion: 0.02% from 20 - 20k Hz at 250mW to rated power.

Frequency response: -3 db from 2.5 - 200k Hz; -1 db from 5 - 100k Hz.

Signal to noise (unweighted): greater than 105 db.

Slewing rate: greater than 70V/us.

Input sensitivity: 1.4 volts.

Input impedance (nominal): 10k ohms.

Dimensions: 19" x 13" x 5.875". Weight: 31 lbs.

DEALER AVAILABILITY: Available throughout California.



D-75

Crown International, Inc.
1718 W. Mishawaka Rd., Elkhart, In 46514. (219) 294-5571

PRODUCT DESCRIPTION: The D-75 has two direct coupled amplifier circuits which employ a Dual IC op amp and silicon transistors in all stages. The output stage is a quasi-complementary format employing the Crown Class AB 4B technique, protection is provided by a V-1 limiter which limits the drive to the output transistors. Dimensions: 19" long, 8.75" deep, 1.75" high. Weight: 10 lbs. net. Full 3 year FTC warranty.

RECOMMENDED USAGES: The D-75 has several different usages. It provides clean amplification with minimal coloration. New features make the D-75 ideal for sound reinforcement, whether as a monitor amplifier, or a live driver between the mixing board and the amplifier. The following are added features on the D-75:

1. IOC distortion indicators.
2. Signal presence indicators.
3. Balanced line inputs.
4. Locking level controls.
5. Circuit/chassis floating ground.
6. Side by side output connectors (easy mono operation).

BASIC SPECIFICATIONS: 8 ohms: 35 WRMS per channel, 4 ohms: 45 WRMS per channel.

IM distortion less than .05% from .01 watts to .25 watts and .01% from .25 w to 35 w into 8 ohms.

THD less than .001% from 20 Hz to 400 Hz, and increasing linearly to .05% at 20 kHz at 35 WRMS per channel into 8 ohms.

From 20 Hz to 20 kHz the hum and noise level is 106 dB below the rated output.

DEALER AVAILABILITY: Available throughout California.



PROFESSIONAL SELF ANALYZING AMP (PSA-2)

Crown International, Inc.
1718 W. Mishawaka Rd., Elkhart, IN 46514. (219) 294-5571
Contact: Dave McLaughlin, Product Line Manager

PRODUCT DESCRIPTION: The Professional Self Analyzing Amplifier from Crown features advance technology allowing the amplifier more operational range along with increased reliability. Both circuit design and transistor analysis have been optimized by use of computer modeling techniques. Description: 19" long, 15" deep, 7" high. Weight: 57 lbs net weight. Also, a full 3 year FTC warranty.

RECOMMENDED USAGES: Ideally suited for professional sound reinforcement and commercial sound applications, the Crown PSA-2 amp offers unmatched performance and reliability.

Standard features include:

1. 10C overload indicators.
2. Signal present indicators.
3. Standby indicator.
4. Internal 2 speed fan.
5. XLR connectors.
6. balanced inputs
7. User adjustable filter cards.
8. Additional 20 dB of gain available.
9. adjustable threshold compressor.
10. test tone generator.

BASIC SPECIFICATIONS: 8 ohms: 250 watts continuous average power per channel.

4 ohms: 400 watts continuing average power per channel.

20 ohms: 475 watts continuous average power.

8 ohms mono: 800 watts continuous average power.

Extremely low IMD and THD from 20 Hz to 20 kHz. The hum and noise level is 115 dB below rated output (20 Hz - 20 KHz).

DEALER AVAILABILITY: Available throughout California.



AP-10 HEADPHONE AMPLIFIER

Eddor
3030 Red Hill Ave., Costa Mesa, CA 92626. (714) 556-2740
Contact: Phyllis Weston, SAles Manager

PRODUCT DESCRIPTION: Designed as a compact, reliable, economical amplifier for driving headphones. The new Eddor AP-10 offers 4 watts RMS on each side of 4 stereo channels into 4 ohms.

RECOMMENDED USAGES: Ideal for recording studio, video studio, educational, and A-V applications.

BASIC SPECIFICATIONS: A simple rear sounded toggle switch selects mono or stereo outputs. Flat frequency response from 20 - 20,000 Hz. Individual and master gain controls allow complete control over the system.

DEALER AVAILABILITY: Available throughout California.



HEIL OHMEGA SERIES POWER AMPLIFIER

Heil Sound, Ltd.
#2 Heil Industrial Drive, Marissa, Illinois 62257
Contact: Bob Heil, President

PRODUCT DESCRIPTION: Designed for traveling use. A service kit is available to carry on the road with easy to change plug-in modules. Problems can be corrected on location. As an added feature, the Heil Omega amplifier is constructed so if you should ever encounter any problems, simply unplug a card connector, unscrew the heat sink module and you have removed the entire left or right side of the amp. In less than 60 seconds a replacement module be installed and you are back on the road!

BASIC SPECIFICATIONS: For the Ohmega 200: 300 watts (total of both channels) @ 4 ohms, 100 watts (total of both channels) @ 8 ohms.

Specs. for the Ohmega 400: 500 watts (total of both channels) @ 4 ohms, 270 watts (total of both channels) @ 8 ohms.

Distortion less than .1% (typically .01%).

Frequency response 30 to 18,000 Hz.

All controls, fuse, plugs on front panel for ease in set up and operation.

Separate input level controls .8 volts RMS sensitivity. Balanced line inputs automatically switch to unbalanced when only 2 circuit phone plug is used. Greater than 10k ohms impedance.

All chassis metal used is a minimum of 1/8" thick.

3/16" thick cast zinc front panel.

Exclusive Heil "W" slot ventilation for unexcelled heat removal. Large diameter fan.

Two VU meters.

Heavy duty vinyl covered travel case with sessions handles.

DEALER AVAILABILITY: Musician's Supply — P.O. Box 1440 El Cajon, California.

Available throughout California.



PRO SERIES POWER AMPLIFIERS

Heil Sound, Ltd.

#2 Heil Industrial Drive, Marissa, Illinois 62257

Contact: Bob Heil, President

PRODUCT DESCRIPTION: To answer the many needs for a high quality amplifier for commercial sound use as well as musical entertainment groups, Heil Sound has introduced their Professional Series power amplifiers. Two well built models share many of the same features, with power levels being their basic difference. As an added feature, the Heil Professional Series amplifiers are constructed using the Exclusive "Mod-U-Pac" design. Should any problems arise, simply unplug the entire right or left side module. In 60 seconds, a new replacement module can be installed and you're back on stage! Both amplifiers also have the exclusive "Auto-Match" balanced inputs. Should a regular unbalanced phone plug be used, the amplifier automatically switches its balanced inputs to unbalanced. Using stereo phone plugs allows for usual ring-tip sleeve balanced connections.

RECOMMENDED USAGES: Designed especially for rack mounting into installations desiring high quality low cost amplification.

BASIC SPECIFICATIONS: The Professional 200: 150 watts per channel into 4 ohm load, 85 watts per channel into 8 ohm load, RMS continuous sine wave power.

Specifications for the Professional 400: 250 watts per channel into 4 ohm load, 125 watts per channel into 8 ohm load, RMS continuous sine wave power.

Frequency response 20 Hz to 45 kHz @ 8 ohms — 1 dB points.

THD distortion .09% into 8 ohms at 150 watts.

Residual hum and noise 90 dB down at 4 ohm output.

Power consumption 480/840 watts.

Input sensitivity 1 volt input for rated output.

Input impedance 10k balanced line inputs.

Dimensions 19" standard rack panel, 5" high for 200, 7" high for 400.

Finish black anodized.

DEALER AVAILABILITY: Musician's Supply, P.O. Box 1440 El Cajon, CA.

Available throughout California.



MODEL 170DC STEREO POWER AMPLIFIER

Marantz, Inc.

20525 Nordhoff St., Chatsworth, CA 91311. (213) 998-9333

Contact: Jim Murchison, Product Manager, Ext. 2175

PRODUCT DESCRIPTION: DC Amplifier for zero phase-shift distortion at low frequencies, low TIM (Transient Intermodulation Distortion) design, peak overload indicators, professional 3/4" meters calibrated in VU and watts, separate left and right channel gain controls, full complementary output, AC-DC input coupling switch.

RECOMMENDED USAGES: Monitor amplifier applications.

BASIC SPECIFICATIONS: 108 watts per channel into 4 ohms, minimum continuous power output from 20 Hz to 20 kHz with no more than 0.05% total harmonic distortion (86 watts into 8 ohms, 0.03% THD).

Dimensions: (WxHxD): 16 1/2" x 5 3/4" x 11 1/2". Weight: 31 lbs.

Suggested retail price: \$439.95.

DEALER AVAILABILITY: Available throughout California.



MODEL 300DC STEREO POWER AMPLIFIER

Marantz, Inc.

20525 Nordhoff St., Chatsworth, CA 91311. (213) 998-9333

Contact: Jim Murchison, Product Manager, Ext 2175

PRODUCT DESCRIPTION: DC Amplifier for zero phase-shift distortion at low frequencies, low TIM (Transient Intermodulation distortion), design, full complementary output, AC-DC input coupling switch, LED peak indicators, separate left and right channel gain controls, professional 3/4 inch meters calibrated in VU and watts, meter range switching.

RECOMMENDED USAGES: Monitor amplifier.

BASIC SPECIFICATIONS: 190 Watts per channel into 4 ohms, minimum continuous power output from 20 Hz to 20 kHz, with no more than 0.05% total harmonic distortion. (152 watts into 8 ohms, 0.03% THD).

Dimensions: (WHD): 16 1/2" x 5 3/4" x 11 1/2". Weight: 40 lbs.

Suggested retail price: \$629.95

DEALER AVAILABILITY: Available throughout California.

AMPLIFIERS

NAKAMICHI 420 POWER AMPLIFIER

Nakamichi Research (USA), Inc.

220 Westbury Ave., Carle Place, NY 11514. (516) 333-5440

Contact: Harron K. Appleman, Technical Director

PRODUCT DESCRIPTION: Stereo Power Amplifier featuring pure class B "complete mirror" push-pull output circuitry; low operating temperature/high stability; low negative feedback; unconditional load stability; full output protection without the use of relays and circuit-breakers; high capacity single power supply with toroidal transformer.

RECOMMENDED USAGES: Stereo amplification in single and multi-amplification applications. It can also be used as a bridged monaural amplifier (120W at 8 ohms) — BA-150 Bridging Adaptor required (optional).

BASIC SPECIFICATIONS: Power Output: 50 watts per channel minimum continuous sine wave at 8 ohms, 5 - 20,000 Hz with less than 0.02% THD (60W per channel at 4 ohms).

IHF power bandwidth: 5 - 100,000 Hz for under 0.1% THD, 5 - 10,000 Hz for under 0.005% THD.

Damping factor: over 100 (1 kHz, 8 ohms).

THD: under 0.002% at 1 kHz, under 0.005% at 10 kHz, 0.01% at 20 kHz.

Intermodulation distortion: under 0.002%.

Input sensitivity/Impedance: 1V/10k ohms.

S/N ratio: better than 110 dB (1HF-A).

Price: \$390.00

DEALER AVAILABILITY: Available throughout California.



NAKAMICHI 620 POWER AMPLIFIER

Nakamichi Research (USA), Inc.

220 Westbury Ave., Carle Place, NY 11514. (516) 333-5440

Contact: Harron K. Appleman, Technical Director

PRODUCT DESCRIPTION: Stereo Power Amplifier featuring pure class B "complete mirror" push-pull output circuitry; low operating temperature/high stability; low negative feedback; unconditional load stability; full output protection without the use of relays or circuit breakers; high capacity single power supply with toroidal core transformer; two peak power indicators with selectable "on" points (1, 5, 25 W for green and 25, 50, max W for red).

RECOMMENDED USAGES: Stereo amplification in single and multi-amplification applications. It can also be used as a bridged monaural amplifier (350W at 8 ohms) — BA-150 Bridging Adaptor required (optional).

BASIC SPECIFICATIONS: Power output: 100 watts per channel minimum continuous sine wave at 8 ohms, 5 - 20,000 Hz with less than 0.01% THD (175W per channel at 4 ohms).

IHF power bandwidth: 5 - 50,000 for less than 0.1% THD, 5 - 10,000 for less than 0.005% THD.

Damping factor: greater than 100 (1 kHz, 8 ohms).

THD: under 0.002% at 1 kHz, 0.005% at 10 kHz, 0.01% at 20 kHz.

Intermodulation distortion: under 0.002%.

S/N ratio: 120 dB (1HF-A).

Input sens./Impedance: 1V/10k ohms.

Price: \$740.00

DEALER AVAILABILITY: Available throughout California.



POWER AMPLIFIER MODEL 34

Opamp Labs, Inc.

1033 North Sycamore, Los Angeles, CA 90038. (213) 934-3566

Contact: B. Losmandy, Manager

PRODUCT DESCRIPTION: Dual Product — Audio power amplifier or 100 KHZ magnetic tape bias oscillator. Single polarity power supply.

RECOMMENDED USAGES: Model 34 Audio Amplifier — 100 KHZ Magnetic Tape Bias Oscillator-Buffer is a dual purpose module used for general purpose signal processing, earphone-speaker power amplification, distribution amp, combine amp, microphone amp and mag tape erase-record service. Output is short-circuit proof. Up to 1 ufd output capacitive loading. 20V rms output at 1K ohm load as 100 KC Osc.

BASIC SPECIFICATIONS: Power requirements: +8V to +30V (+24V Nom.).

Input impedance: 100K ohms.

Gain: 34 db (X50).

Output impedance: 1 ohm.

Frequency response: 20 HZ to 20 KHZ (± 2 db) 0.25% THD

(+ 18 dbm) 50 HZ to 10 KHZ (± 3 db) 1% THD (8W pk -8 ohm load).

Price: \$25.00

DEALER AVAILABILITY: Factory direct only.

MODEL 425 MEDIUM VOLTAGE D.C. OPERATIONAL AMPLIFIER

Opamp Labs, Inc.

1033 N. Sycamore Ave., Los Angeles, CA 90038. (213) 934-3566

Contact: Bel Losmandy, Manager

PRODUCT DESCRIPTION: Model 425 Differential D.C. Operational Amplifier features a matched pair of low noise input transistors coupled to an Opamp 4009 D.C. Operational Amp with a Class AB power output stage. It has less than 0.05% THD. at a gain of 100 and has a high output voltage ($\pm 22V$) and current (± 100 MA) capability. The amplifier may be used at any supply voltage from $\pm 6V$ to $\pm 25V$. Price: \$30.00 each.

RECOMMENDED USAGES: Active Combine Amplifier, Tape pre-amplifier. Line amplifier. Mic pre-amplifier. Phono amplifier.

DEALER AVAILABILITY: Factory direct only.



SM100K STEREO OR MONO D.C. THRU AUDIO OPERATIONAL POWER AMPLIFIER

Opamp Labs, Inc.

1033 North Sycamore Ave., Los Angeles, CA 90038. (213) 934-3566

Contact: Bel Losmandy, Manager.

PRODUCT DESCRIPTION: Power Operational Amplifiers offers dual 50 watts RMS or mono 100 watts RMS over the DC through audio range. Unit consists of panel chassis with hardware, two 440KR power amplifiers, 536 power supply, PC-SM100 convertible stereo 50 watt or mono 100 watt PC board, and all necessary components. SM100K Kit priced at \$225. Wired—\$300.

RECOMMENDED USAGES: Studio Monitor Amplifier

BASIC SPECIFICATIONS: 20 HZ to 20 KHZ.

0.5% THD.

8 ohm Load.

DEALER AVAILABILITY: Factory direct only.



CS-400 STEREO POWER AMPLIFIER

Peavey Electronics Corp.

711 A Street, Meridian, MS 39301. (601) 483-5365

Contact: Hollis T. Calvert, Director, Sales Promotion/Education

PRODUCT DESCRIPTION: 200 watts per channel, LED peak overload indication, level controls each channel, transformer, balanced inputs, bi-amping capability, 19" rack mount.

RECOMMENDED USAGES: It has usages in sound reinforcement, studio and home stereo systems.

BASIC SPECIFICATIONS: 200 watts RMS per channel.

20 Hz to 50 kHz response.

Less than 0.2% IM distortion.

Less than 0.1% THD.

DEALER AVAILABILITY: Available throughout California.



CS-800 STEREO POWER AMPLIFIER

Peavey Electronics Corp.

711 A Street, Meridian, MS 39301. (601) 483-5365

Contact: Hollis T. Calvert, Director Sales Promotion/Education

PRODUCT DESCRIPTION: Stereo Power Amp with 400 watts per channel, LED overload indicators, forced air cooling, level controls, transformer balanced inputs, crossover network, 19" rack mount.

RECOMMENDED USAGES: It has studio, sound reinforcement, and home stereo applications.

BASIC SPECIFICATIONS: 400 watts RMS per channel.

5 Hz to 30 kHz response.

Less than 0.2% IM distortion.

Less than 0.1% THD.

DEALER AVAILABILITY: Available throughout California.



QSC POWER AMPLIFIER 3.6

QSC Audio Products

1926 Placentia Ave., Costa Mesa, CA 92627. (714) 645-2540

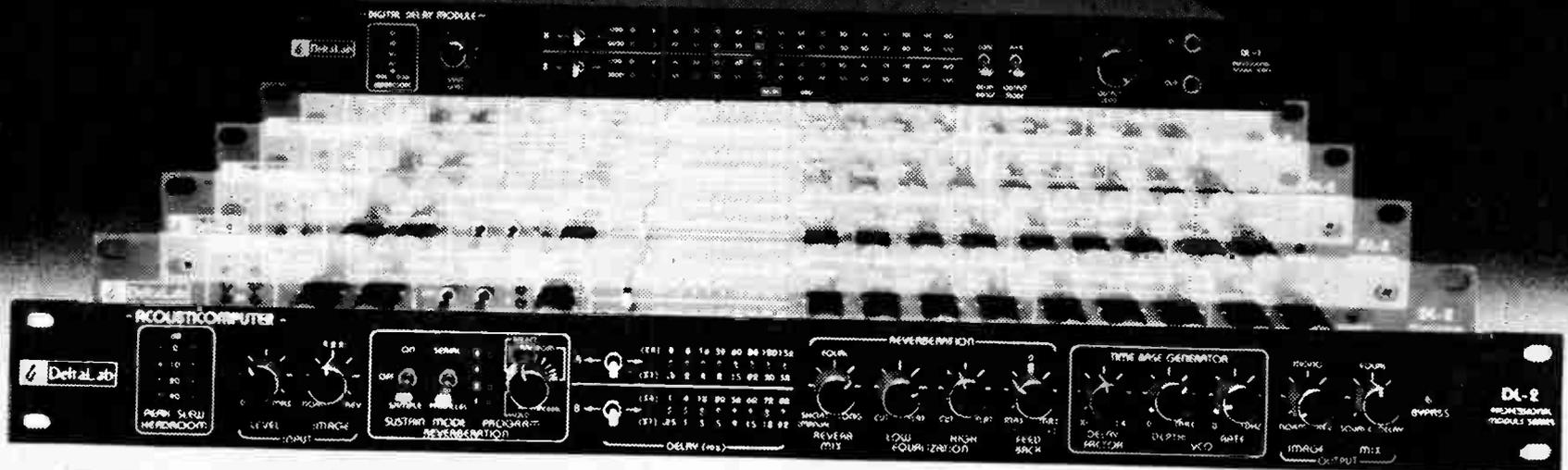
Contact: Barry Andrews

PRODUCT DESCRIPTION: The OSC Power Amplifier 3.6 is a rack mountable mono power amp that delivers 150 watts RMS into 4 ohms at 1% clipping. Typical distortion is .25% THD and .25% IM at power levels of 140 watts and below. The amp has current limiting short circuit protection, a thermal cut-out, and fused collectors on the output transistors to protect loads. The gain control is calibrated in both dB and Vrms for easy setting of proper system levels. The black line-grained faceplate features rack handles and tasteful multi-color graphics. Extremely compact and light, the amp measures 19" wide, 5 1/4" tall, 6" deep, and weighs just 16 lbs. Suggested list price is 1278.00

RECOMMENDED USAGES: Extremely rugged and compact, this versatile amp is suitable for sound reinforcement, PA, musical instrument, and disco applications. Designed for continuous professional use, it provides clean, stable power with particularly good high frequency response and well controlled clipping characteristics.

BASIC SPECIFICATIONS: Controls and switches: Power (on-off), gain.

Power at 1% clipping: 150 watts at 4 ohms, 85 watts at 8



How's THIS for an encore?

Modern Recording called our DL-1 Delay "probably the best we have encountered" . . . a tough act to follow.* Now after more than a year in development DeltaLab introduces its encore - the ACOUSTICOMPUTER® - a combination digital-delay and special-effects processor designed for use both on-stage and in the studio, providing well-known functions (echo, doubling, chorusing, vibrato, flanging, etc.) plus new effects not available in any other device.

- Pre-reverb delay with two independent delay channels, variable from 0.25ms to 152ms with LED display.
- Delay up to 240ms in serial (mono) mode.
- Built in VCO with external control input at rear.
- Same no-compromise sound quality as in our DL-1 Digital Delay: Full 20-15 kHz bandwidth at all delay lengths with 90 dB dynamic range.
- Computer-synthesized acoustic space with 16 selectable reverb programs plus a new special effect in which the ACOUSTICOMPUTER scans the 16 programs.
- Two channels in and out. Built in reverb mixing and stereo imaging controls.
- Foot-switch controlled bypass.

It's impossible to describe in this space everything the ACOUSTICOMPUTER does; you'll have to experiment with it yourself. By carefully minimizing the number of separate controls and grouping them logically, we've made it easy for non-engineers to operate the ACOUSTICOMPUTER.

For further information call or write Phil Markham at DeltaLab Research, Inc., 25 Drum Hill Road, Chelmsford, MA 01824 Tel. (617) 458-2545.

*See Modern Recording "Hands On Report," Sept. 1978.

 DeltaLab®

Available at Quality Dealers



1317 N. San Fernando, Burbank, CA 91504 (213) 841-0062
327 E. 1200 S., Orem, Utah 84057 (801) 224-4848

ohms.
Distortion: .25% at powers less than 140 watts.
Power bandwidth: 20 - 20kHz.
Damping factor: Greater than 100 for all frequencies up to 10 kHz.
Slew rate: 8V/ms.
Short circuit protection: Current limiting.
Load protection: DC fault fuses.
Thermal protection: 85 degree C cut-out.
Signal to Noise ratio: 80 dB.
Input sensitivity: 6 Vrms.
Input impedance: 10K - 35K ohms.

DEALER AVAILABILITY:

Northern California:

Bananas at Large, 802 4th St., San Rafael, CA 94901
North Coast Music, 280 State St., Ukiah, CA 95482
Stanroy Music, 622 4th St., Santa Rosa, CA 95404
K & K Music, 1904 West San Carlos St., San Jose, CA 95128

Southern California:

Betnun Music, 403 North Larchmont, Los Angeles, Ca 90064
Hogan's House of Music,
15638 Hawthorne Blvd., Lawndale, Ca 90260
La Habra Music, 146 West La Habra Blvd., La Habra, CA 90631
Sightsinger Music, 3723 South Bristol, Santa Ana, CA 92704



QSC POWER AMPLIFIER 5.0

QSC Audio Products

1926 Placentia Ave., Costa Mesa, CA 92627. (714) 645-2540
Contact: Barry Andrews

PRODUCT DESCRIPTION: The QSC Power Amplifier 5.0 is a rack mountable stereo power amp capable of delivering 120 watts per channel at 4 ohms. Intended for professional use, it has been designed to provide clean, stable power with good high frequency response and well controlled clipping characteristics. It has current limiting short circuit protection, a thermal cut-out, and fused collectors on the output transistors to protect the load. The gain controls are calibrated in both dB and Vrms for easy setting of proper system levels. The black line-grained faceplate features rack handles and tasteful multi-color graphics. Extremely compact and light, the amp is 5 1/4" tall, 19" wide, 6" deep, and weighs just 18 lbs. Suggested price is \$368.00

RECOMMENDED USAGES: The amp is suitable for sound reinforcement, PA, musical instrument, and disco applications. When ordered with an internal electronic crossover, the amp can be used as a mono bi-amp.

BASIC SPECIFICATIONS: Controls and switches: Power (on-off), gain (2).
75 watts per channel at 8 ohms.

Distortion: .25% THD and IM at powers less than 110 watts per channel at 4 ohms, and 70 watts per channel at 8 ohms.
Power bandwidth: 20 - 20 kHz.

Damping factor: greater than 100 for all frequencies up to 10 kHz.
Slew rate: 8v/ms.

Signal to noise ratio: 80 dB.
Input sensitivity: 6 Vrms.
Input impedance: 10k to 35k ohms.

DEALER AVAILABILITY: Available throughout California.



**P 50
SAE**

701 E. Macy St., Los Angeles, CA 90012. (213) 489-7600
Contact: Mark Cohen, Director, Pro Products Group.

PRODUCT DESCRIPTION: 50 watts per channel stereo power amp.
RECOMMENDED USAGES: Sound reinforcement, studios, instrument amplification.

BASIC SPECIFICATIONS: 50 watts RMS per channel @ 0.05% THD @ 8 ohms.
0.05% I.M.

S/N better than 100 dB.
DEALER AVAILABILITY: Available throughout California.



**P-300
SAE**

701 E. Macy St., Los Angeles, CA 90012. (213) 489-7600
Contact: Mark Cohen, Director, Pro Products Group

PRODUCT DESCRIPTION: The P 300 is a 300 watt per channel stereo power amp.

RECOMMENDED USAGES: This amp is designed for sound reinforcement, studios, instrument amplification.

BASIC SPECIFICATIONS: 300 watts RMS per channel @ 0.05% THD @ 8 ohms.
0.05% I.M.

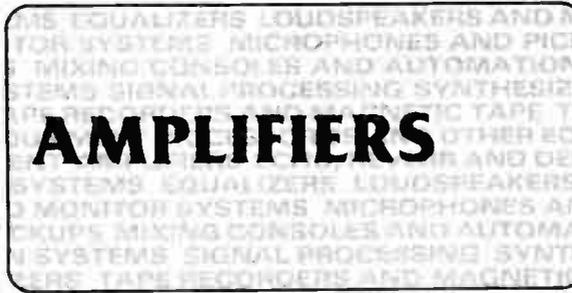
S/N better than 100 dB.
DEALER AVAILABILITY: Available throughout California.



TA-N88 POWER AMPLIFIER

Sony Industries

9 West 57th St., New York, NY 10019. (212) 371-5800
Contact: Nick Morris,
Professional Audio Division Manager.



PRODUCT DESCRIPTION: First power amplifier to utilize Class D, pulse width modulation circuitry and vertical field effect transistors.

BASIC SPECIFICATIONS: 160 watts per channel RMS

Weight: 22 lbs.

Ideal for high power public address systems and musical instrument amplification, plus some hi-fi systems.

Delivers peaks up to 250 watts per channel.

Price: \$1,000.00 retail.

DEALER AVAILABILITY: Contact Manufacturer.



**P400
SAE**

701 E. Macy ST., Los Angeles, CA 90012. (213) 489-7600
Contact: Mark Cohen, Director, Pro Products Group

PRODUCT DESCRIPTION: 400 watt per channel stereo power amp.

RECOMMENDED USAGES: Sound reinforcement, studios, instrument amplification.

BASIC SPECIFICATIONS: 400 watts RMS per channel @ 0.05% THD @ 8 ohms.

0.05% I.M.

S/N better than - 100 dB.

DEALER AVAILABILITY: Available throughout California



SOUNDCRAFTSMEN MA5002, PA 5001

Soundcraftsmen

11721 Newport Circle, Santa Ana, CA 92705. (714) 556-6191
Contact: Tom Thomas, National Sales Manager

PRODUCT DESCRIPTION: MA5002: A stereo 250-watt at 8 ohms/360-watt at 4 ohms per channel high power amplifier designed for pro and semi-pro use. Amplifier is the only energy efficient, cool running Class H amplifier available. Through two power supplies and analog logic circuitry, amplifier also operates at its most efficient point, allowing clean, undistorted sound with high power and reliability. Includes meters, clipping indicators, overload light, speaker switching and vari-portioned supply/logic indicators and level controls. Price \$799.00

PA 5001: Same as MA 5002, except no front panel controls or meters. Overload indicator only. Price \$649.00

RECOMMENDED USAGES: P.A. systems, monitor systems, live musicians, bi & tri amped systems and home hi-fi systems.

BASIC SPECIFICATIONS: Signal-to-noise 105 dB.

THD 0.1%, TIM .02%.

Slew rate 50.

Damping factor 100.

Input sensitivity 1.28 volts.

250 watts per channel - 8 ohms, 360 watts per channel - 4 ohms.

Overload protection through Auto-crowbar circuit that resets itself.

No current limiting, relays or speaker fusing.

7" x 19" rack mount. 55 lbs.

Available with RCA or phone jacks.

DEALER AVAILABILITY: Available throughout California.



SOUNDCRAFTSMEN EA5003 AMPQUALIZER

Soundcraftsmen

1721 Newport Circle, Santa Ana, CA 92705. (714) 556-6196
Contact: Tom Thomas, National Sales Manager

PRODUCT DESCRIPTION: Same as MA5002 and also includes 10-band, 2-channel graphic equalizer. Price \$949.00

RECOMMENDED USAGES: P.A. systems, monitor systems, live musicians, bi & tri amped systems and home hi-fi systems.

BASIC SPECIFICATIONS: Amplifier: same as MA5002.

Equalizer: Signal-to-noise 105 dB.

Distortion: .01%.

Boost & cut per control ±12 dB.

Zero-gain level balancing for unity gain.

OP-amp synthesized inductors in "eq" circuit, detented slide pots, 10-volt input capability.

DEALER AVAILABILITY: Available throughout California.



MODEL 109 LINE/DISTRIBUTION AMPLIFIER

Spectra Sonics

3750 Airport Road, Ogden, Utah 84403. (801) 392-7531
Contact: Greg Dille, Sales Engineer.

PRODUCT DESCRIPTION: The Spectra Sonics Model 109 Line/Distribution Amplifier is an all solid state design manufactured in modular format for simple easy insertion into a system. It will provide intermediate power (3 to 5 watts) into impedances from 1 ohm to 750 ohms. The Model 109, when used with the Model T66 high level transformer has an overall gain in excess of 43 dB and a maximum output of more than 27 dBm.

RECOMMENDED USAGES: The Spectra Sonics Model 109 is widely used in the broadcast industry to distribute audio programs to multiple telephone lines. It may also be used to drive several loudspeakers and numerous sets of headphones (75 sets of 600 ohms impedance).

BASIC SPECIFICATIONS: Gain: 40 dB ±1 dB.

Maximum output: 5 watts.

Overload recovery time: 5 microseconds for up to 1000% overload.

Input impedance: 100k ohms.

Output impedance: less than .02 ohms at 1 kHz.

Frequency response: within ±1 dB from 11 Hz to 50 kHz (500 ohms load).

Total harmonic distortion: 1/10 of 1% at 5 watts output (20 Hz - 20 kHz).

Output noise not more than an equivalent input of -122 dBv, unweighted 10 Hz - 20 kHz, input terminated 600 ohms.

Phase shift not more than 15°, 20 Hz - 20 kHz, 8 ohms.

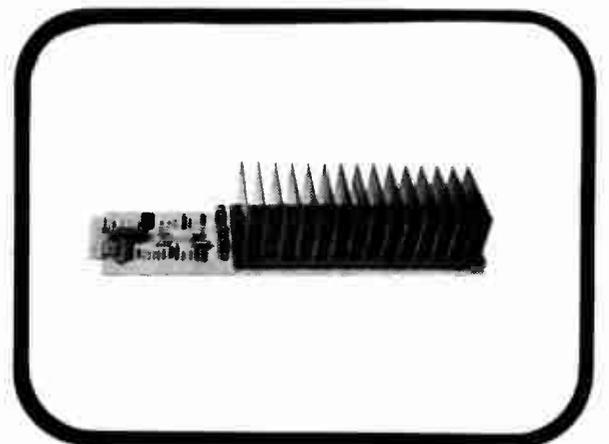
DEALER AVAILABILITY:

Northern California:

Delta Radio and Sound, Inc., Stockton, CA
Corporate Media Systems, Inc., San Rafael, CA

southern California:

Metro Audio Inc., Bakersfield, CA
Audio Concepts, Inc., Hollywood, CA



SPECTRA SONICS
Model 701 Power Amp

MODEL 701 POWER AMPLIFIER

Spectra Sonics

3750 Airport Rd., Ogden, Utah 84403. (801) 392-7531
Contact: Greg Dille, Sales Engineer

PRODUCT DESCRIPTION: Spectra Sonics Model 701 Power Amplifier is an advanced solid state electronic circuit developed to provide 80 watts of continuous power to a load. This D.C. amplifier is contained on a printed circuit card, and may be "plugged in" to a Card Holder Rack. It is designed to permit two Model 701s to be used in combination (bridged) to produce 160 watts of power.

RECOMMENDED USAGES: The model 701 may be used in public address systems, sound reinforcement systems, and studio monitor systems. The Model 701 Power Amplifier may be used as the basic amplifier to develop a sound system for any situation from a home system to a system of several thousand watts for large outdoors concerts.

BASIC SPECIFICATIONS: Frequency response: ±0.2 dB, max. output into 8 ohms, DC to 20 kHz, (±0.3 dB) maximum output into 4 ohms, DC to 20 kHz, (±0.4 dB), maximum output into 2 ohms, DC to 20 kHz.

Total harmonic distortion: .025% (±0.01%), at maximum output, 1 kHz, any load.

Signal-to-noise ratio: 122 dB, (±1 dB) below 80 watts, at 2 ohms, +6 dBv input.

Overload recovery time: 1 microsecond, (±.5 microsecond) for 1000% overload.

Damping factor: 1000 (±75) at 100 Hz and below, 8 ohms load.

DEALER AVAILABILITY: Available throughout California.



MODEL 712 POWER AMPLIFIER

Spectra Sonics

3750 Airport Rd., Ogden, Utah 84403. (801) 392-7531
Contact: Greg Dille, Sales Engineer

PRODUCT DESCRIPTION: Spectra Sonics Model 712 Power Amplifier is a basic amplifier with a total output of 100 watts continuous power. The amplifier is contained in a steel chassis. All input and output connections are located at the rear of the unit. An AC power cord is provided. The amplifier is cooled by a fan which runs when the unit is attached to an

IT'S WHAT GOES ON BEHIND THE FRONT PANEL THAT KEEPS WHAT'S GOING ON IN FRONT OF IT GOING ON...



The most versatile delay-processor made may deliver performance and specifications that the imitators can't match, but that's not enough for us; and it shouldn't be enough for you. Reliability is the final factor. We have incorporated the results of a year of lab research and two years of violent road testing into the final design of the Marshall Time

Modulator™ for that absolute maximum reliability.

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special high retention I.C. sockets and much more help assure that the Marshall Time Modulator™ represents the ultimate in performance and reliability. It does make a difference.



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PLEASE SEE MARSHALL LISTINGS ON DIRECTORY PAGE 56.

AB _____ We Do More than just Light Up Your Life

Designed for applications during system setup, for program special effects assignment or direct A/B comparison of speaker systems. The Model 301 is invaluable either on stage or in the control room for selection, protection and evaluation of up to 3 monitor speaker systems, plus separate headphone output and control.

- Selects 3 stereo monitor speaker systems
- Displays output level in 2 calibrated channels
- Display adjustable from 2 thru 500 watts
- Dot or Bar graph display selector
- 8 thru 600 ohm fused headphone jack
- Separate level control on headphone output

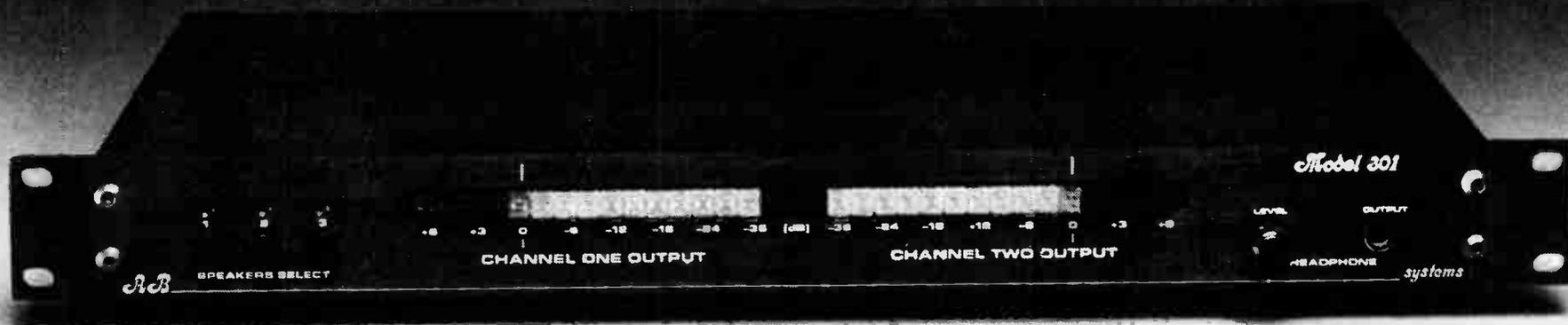
For further information or nearest dealer write or call:

AB _____ systems design inc.

P.O. Box 369 Fair Oaks, CA 95628

(916) 988-8551 Attn: Bob Bird

In Canada: ESTRON IND. LTD. Calgary, Alberta



we'll show you ours, if you'll show us yours!

The Mix is interested in finding out who our readers are. We'd appreciate it if you would fill out the form below and return it to us so we can learn more about you and what you like. To show our appreciation, we will send you a free copy of The Mix Southern Cal. Studio Directory. Thanks for your time.

1. What is your age?
 15-25 25-34 35-40 over 50.
2. Are you male or female?
3. What is your occupation?
A. RECORDING STUDIO
 Owner
 Engineer
 Staff
 Independent
 Maintenance
 Producer
 Independent
 Staff
 Studio Employee
B. MUSICIAN
 Full Time
 Part Time
 On contract to record label
C. PROFESSIONAL AUDIO
 Manufacturer
 Dealer
 Store Owner
 Employee
 Manufacturers Rep.
 Designer
 Consultant
D. MISCELLANEOUS
 Radio/TV
 Student
 Other (please specify) _____
4. How long have you been involved in recording?

5. How much time do you spend in recording studios in one month?

6. What other recording related publications do you read?

7. Do you have recording equipment in your home?
 professional reel to reel cassette
8. Where did you get your copy of The Mix?

9. What other listings, features or articles would you like to see in future editions of The Mix?

10. Comments or suggestions?

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 Berkeley, CA 94706

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Thank you, watch for your free copy of The Mix Southern California Recording Studio Directory to be delivered by March 15, 1979.

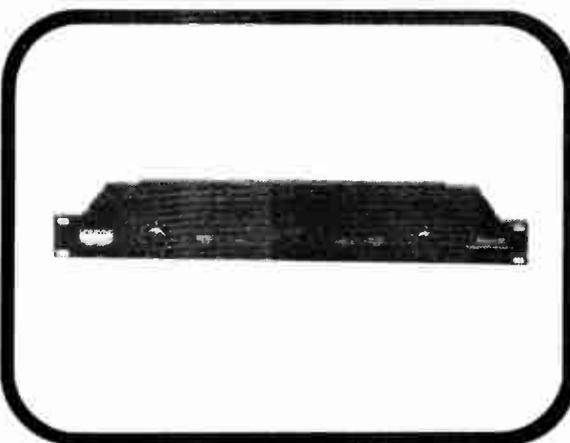
AMPLIFIERS

AC source.
RECOMMENDED USAGES: Spectra Sonics Model 712 Power Amplifier is designed for use in a sound amplification system where quality of reproduction is a most important consideration.
DEALER AVAILABILITY:
Northern California:
 Delta Sound and Radio, Inc., Stockton, CA.
 Corporate Media Systems, Inc., San Rafael, CA.
Southern California:
 Metro Audio, Inc., Bakersfield, CA.
 Audio Concepts, Inc., Hollywood, CA.
Available throughout California.

HA-10 HEADPHONE AMPLIFIER
 Symetrix, Inc.
 109 Bell St., Seattle, WA 98121. (206) 682-3076
 Contact: Dane Butcher, Sales Manager.

PRODUCT DESCRIPTION: The Symetrix HA-10 Headphone Amplifier has been specifically designed to fill the need for a compact, reliable, rack-mountable amplifier for powering headphones. Each channel of the HA-10 provides a conservatively rated 5 watts of RMS power into an eight ohm load and will drive any stereo headphones or combination of pairs of stereo phones with an impedance of four ohms or greater.
RECOMMENDED USAGES: The HA-10 is well suited for applications in all fields of professional audio: recording, radio-TV, sound reinforcement, live performance, film recording, etc. When used in a recording studio situation, for example, up to eight pairs of 100 ohm impedance headphones can be powered from each channel of the HA-10.

BASIC SPECIFICATIONS: Power: not less than 5 watts RMS per channel into eight ohms.
 Minimum recommended load: 4 ohms.
 Distortion: less than .07% THD @ 500 Hz, 2 watts output.
 Sensitivity: .2 volts for full output.
 Hum and noise: -87 dB.
 Crosstalk: greater than 75 dB.
DEALER AVAILABILITY:
Northern California:
 Bananas at Large, 802 4th St., San Raphael
 Sound Genesis, 2001 Bryant St., San Francisco
Southern California:
 Audio Concepts, 7138 Santa Monica Blvd., Hollywood

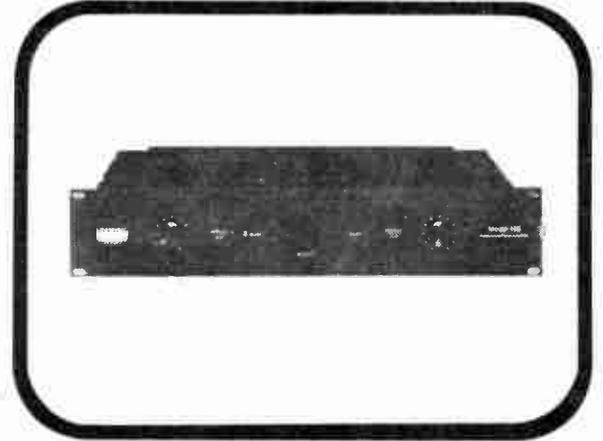


UNI-SYNC
 Model 50 Power Amplifier

MODEL 50 POWER AMPLIFIER
 Uni-Sync
 742 Hampshire Rd., Westlake Village, CA 91361. (805) 497-0766
 Contact: Madlyn Jamison

PRODUCT DESCRIPTION: The Model 50 is capable of delivering 50 watts into 8 ohms with a total harmonic distortion of less than .05%, and has several unique features that separate the Model 50 from other amplifiers. The Model 50 is two amplifiers in one, not simple a stereo unit. It is actually two individually powered amplifiers in one chassis. To the user this means a better sounding amplifier — more accurate bass response, greater dynamics and elimination of the crosstalk distortion

phenomenon. A new innovation is the available power monitor, which actually monitors distortion delivered by the amplifier and indicates any distortion in excess of .05% by lighting up the red LED display on the front panel. The construction is completely modular. Aside from the transformer and power cord, there is virtually no handwiring in the unit. This too contributes to quality of sound and top specifications by eliminating handwiring inconsistencies in performance and serviceability. The Model 50 is the only amplifier being manufactured that has 50 watts of power in a 1 3/4" high package.
DEALER AVAILABILITY: Available throughout California.



UNI-SYNC
 Model 100 Power Amplifier

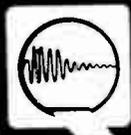
MODEL 100 POWER AMPLIFIER
 Uni-Sync Inc.
 742 Hampshire Rd., Westlake Village, CA 91361. (805) 497-0766
 Contact: Madlyn Jamison

PRODUCT DESCRIPTION: The Model 100 is capable of delivering 100 watts into 8 ohms with a total harmonic distortion of less than .03%, and has several unique features that separate the Model 100 from other amplifiers. The Model 100 is two amplifiers in one, not simply a stereo unit. It is actually two individually powered amplifiers in one chassis. To the user this means a better sounding amplifier — more accurate bass response, greater dynamics and elimination of the crosstalk distortion phenomenon. A new innovation is the available power monitor, which actually monitors distortion delivered by the amplifier and indicates any distortion in excess of .05% by lighting up the red LED display on the front panel. The construction is completely modular. Aside from the transformer and power cord, there is virtually no handwiring in the unit. This too contributes to quality of sound and top specifications by eliminating handwiring inconsistencies in performance and serviceability. The Model 100 is the only amplifier being manufactured that has 100 watts of power in a 3 1/2" high package.
DEALER AVAILABILITY: Available throughout California.



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BOARD

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ECHO, REVERB & DELAY SYSTEMS

SCAMP S24 TIME SHAPE MODULE (ANALOGUE DELAY UNIT)
Audio & Design Recording Limited, (England).
 Contact: Nigel Branwell
 Audio & Design Recording USA West.
 P.O. Box 902, Marina, CA 93933. (408) 372-9036 (sales & maint.)

PRODUCT DESCRIPTION: The S24 Time Shape Module is an Analogue Delay Unit for incorporation in the standard 19 inch Scamp rack. The Time Shape Module will accomplish all the tasks currently available from other Time Domain Processors — an exceptional unit at a competitive price. Featuring 0 to 45ms delay, pos/neg flanging, program controlled or manual delay setting, modulation, frequency and feedback, plus a unique feature — a limiter on the Input.

RECOMMENDED USAGES: Effects obtainable include: vocal doubling, flanging, neg/pos and limited spin, hall effect, hollowing, cardboard tube, wow-wow, vibrato, motorboating, robot voicing, etc. The limiter on input insures optimum modulation and noise parameters are maintained effortlessly. It also allows a whole new range of effects possibilities. Used with 100% feedback around the delay line, the limiter controls the level and creates a sustained signal that can be further modulated by another input signal with varied delay.

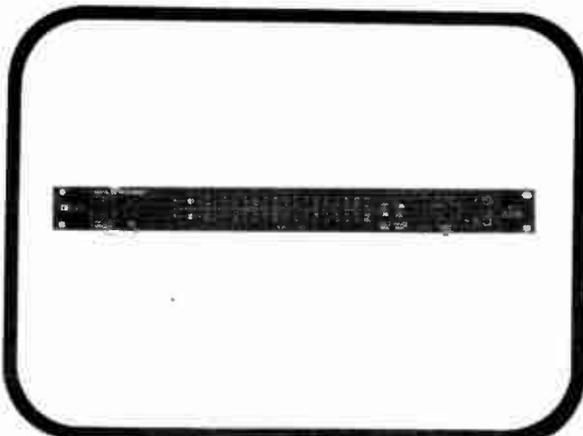
BASIC SPECIFICATIONS: 60v supply (stabilized to ±24v).
 Clip level: Input +24 dBm, output controlled by limiter to +6 dBm rising 3 - 4 dB in flange mode, +24 dBm in bypass mode.
 Noise level: better than -80 dB ref limit threshold.
 Distortion: better than 0.3% THD at 1 kHz ref limit threshold.
 Frequency response: 20 Hz - 15 kHz, +0 - 0.5 dB at any delay setting; 20 Hz - 17 kHz, +0 - 3 dB at any delay setting.
 Delay: Range 1 — 1.2ms to 11ms, Range 2 — 11ms to 45ms.
 Variable Pot.

DEALER AVAILABILITY: Available throughout California.

RECOMMENDED USAGES: The SR/240 is the new price performance leader and will be found in recording studios, touring PA systems, broadcast studios and any other application requiring the ultimate sound in low cost reverberation.

BASIC SPECIFICATIONS: THD: Below .01% dry signal.
 Slew rate: 13 volts per micro second dry signal.
 Signal to Noise Ratio, Unity gain: -90 dB from 0 dB, 20 - 100 kHz, -76 dB from 0 dB with blend control at maximum reverb, all EQ controls set at 50%.
 Input impedance: 25k unbalanced, 50k and 600 ohms balanced.
 Decay time: 2.5 seconds.
 Output: balanced 600 ohms, unbalanced 600 ohms.

DEALER AVAILABILITY: Available throughout California.



DELTALAB RESEARCH, INC.
 DL-1 Digital Delay Module

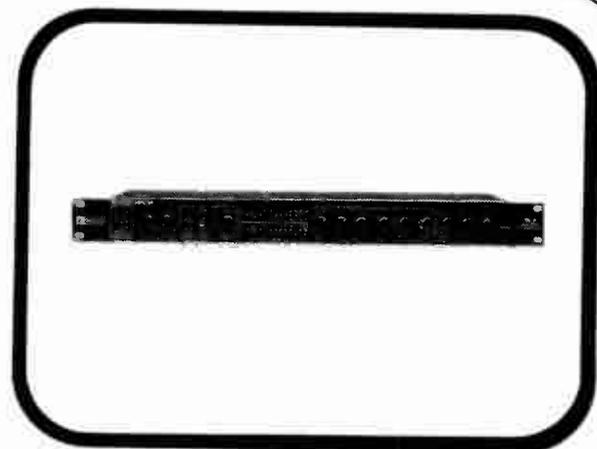
DL-1 DIGITAL DELAY MODULE
 Deltalab Research, Inc.
 25 Drum Hill Rd., Chelmsford, MA 01824
 Contact: Phil Markham, Sales & Marketing

PRODUCT DESCRIPTION: The DL-1 is a state-of-the-art digital delay offering wide bandwidth, low harmonic and inter-modulation distortion and high dynamic range at all delay lengths. The DL-1 is optimized in its "long" setting (up to 160ms) for flexibility in sound reinforcement applications. In its "short" delay setting, the DL-1 is optimized for high quality processing of musical signals at delay lengths up to 100ms.

RECOMMENDED USAGES: For more intelligible speech amplification in any hall, theater, church or synagogue; for natural reinforcement of musical sound; for more spacious dynamic disco sound; for creative effects in the recording studio such as double-tracking, slapback echo, delayed echo send, Haas-effect image localization, fixed flanging, tuned feedback resonance, hard reverberation, vocal thickening and spreading.

BASIC SPECIFICATIONS: Three outputs with independently selectable delays.
 Delay lengths from 5ms to 160ms.
 Frequency response 20 - 15 kHz at all delay lengths, all outputs.
 Dynamic range greater than 90 dB.
 No audible distortion (1 kHz THD less than 0.2%).
 Input and output level adjustable from 0 to 24 dBm (balanced).
 Front panel bypass to prevent unauthorized tampering.
DEALER AVAILABILITY: Available throughout California.

DL-2 ACOUSTICOMPUTER
 Deltalab Research, Inc.
 25 Drum Hill Rd., Chelmsford, MA 01824
 Contact: Phil Markham, Sales and Marketing



DELTALAB RESEARCH, INC.
 DL-2 Acousticcomputer

PRODUCT DESCRIPTION: The Acousticcomputer (DL-2) is a highly flexible 2-channel combination digital delay and special effects signal processor designed for studio and on-stage use. With 16 reverb programs and two independently selectable pre-reverb delays, plus special effects such as flanging, automatic double and triple tracking, the DL-2 provides flexibility and performance unsurpassed by any device in its price range.

RECOMMENDED USAGES: The Acousticcomputer has been engineered for critical applications in studio and on-stage where sonic compromises are not tolerable. By electing to not limit bandwidth vs delay length, carefully minimizing the separate controls and grouping them logically, the DL-2 lends itself to experimentation for recording engineers and musicians alike.

BASIC SPECIFICATIONS: Frequency response: 20 - 15 kHz at all delay lengths.
 90 dB dynamic range.

Delay length of from .25ms to 152ms (240ms in serial mode).
 VCO with external control voltage input.

DEALER AVAILABILITY: Available throughout California.

1745M DIGITAL DELAY LINE WITH PITCH CHANGE AND REMOTE CONTROL
 Eventide Clockworks, Inc.
 265 West 54th St. New York, NY 10019. (212) 581-9290

PRODUCT DESCRIPTION: The 1745M is a modular unit, giving up to 320 ms of delay (640 in "double" mode). The pitch change module can transpose the original input signal by up to one octave up or down. The remote control module uses the General Purpose interface Bus for compatibility with studio automation equipment, and allows the delay line to be controlled by the studio's computer.

RECOMMENDED USAGES: Unrivaled as a special effects device, and can also be used for sound reinforcement. The remote module allows "ADT" — automatic double tracking — with a realism previously unattainable, as the computer can vary the delay in small random amounts, exactly like the singer or musician trying to repeat a previous performance. Has 'Double' and 'repeat' modes as well as straight delay and pitch changing.

BASIC SPECIFICATIONS: 19" rack mount.
 90 dB dynamic range.

Frequency response: ±1 dB, 30 Hz to 16 kHz.
 Up to five outputs, each giving 320 ms of delay.

DEALER AVAILABILITY: Available throughout California.

BD955 BROADCAST DELAY LINE
 Eventide Clockworks, Inc.
 265 West 54th Street, New York, NY 10019. (212) 581-9290

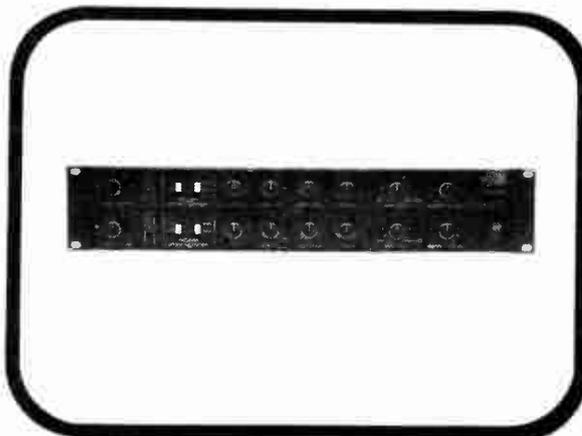
PRODUCT DESCRIPTION: Originally intended for policing live radio shows, this unit offers up to 6.4 seconds (yes, seconds!) of delay, with a frequency response of 15 kHz, enough for really high quality program reproduction. It is equipped to give from 6.5 milliseconds delay up to its maximum, making it a very versatile effects unit.

RECOMMENDED USAGES: To be used wherever a long delay is necessary. It can also provide the usual shorter delays measured in milliseconds.

BASIC SPECIFICATIONS: 19" rack mount unit.
 15 kHz frequency response (or 7.5 kHz, recommended for speech use only).

Delay of 1.6, 3.2, or 6.4 seconds.
 Price dependent on frequency response and delay time.
DEALER AVAILABILITY: Available throughout California.

S1066 SPECIAL EFFECTS DEVICE
 Eventide Clockworks Inc.
 265 West 54th St., New York, NY 10019. (212) 581-9290



BIAMP SYSTEMS, INC.
 SR/240 Stereo Reverb

SR/240
 Biamp Systems, Inc.
 10950 SW 5th Ave., Beaverton, OR 97005. (503) 643-8411
 Contact: Laury Lantz

PRODUCT DESCRIPTION: The Biamp SR/240 stereo reverberation system represents a breakthrough in low cost spring reverb performance. Using a pair of the new Accutronics type 9 springs of dissimilar characteristics on each channel (a total of 6 springs), the SR/240 produces a quality reverberant sound with extended frequency response. The exclusive 4-band "EQ Blend" system, automatic hard limiting, and reverb attack limiter circuits produce a full reverberant sound without spring slap and other problems normally associated with spring reverbs.

MODEL 224 REVERBERATION SYNTHESIZER

Lexicon Inc.
60 Turner St., Waltham Mass. 02154. (617) 891-6790
Contact: Keith Worsley, Sales Manager.

PRODUCT DESCRIPTION: Model 224 is a high speed digital computer designed to perform the mathematics of concert hall and reverberation synthesis. It has sufficient power to create over forty independent reverberation loops and enough memory to delay an input signal by 600 milliseconds. Two independent inputs and four independent outputs are provided. Eight separate modes are available and reverberation times, crossover, high frequency rolloff, depth and pre-delay can be adjusted in each of these modes.

RECOMMENDED USAGES: In the concert hall modes the 224 can create the space and depth of a concert hall. The user can control the reflectivity of the walls and the reverberation time of the hall can be adjusted from 0.6 sec to over 35 secs. By adjusting the controls and the stereo feeds the 224 can create a realistic feeling of being present at a live performance. The reverberation mode can be used to enrich a close-miked instrument or voice and then the concert hall mode can be used to create a natural ambience for the mix.

BASIC SPECIFICATIONS: Reverberation time: 0.6 to 35 secs. Signal/noise: approx. 75 dB at T; 2 secs.

Frequency response: 20 Hz to 8 kHz ± 2 dB.

Inputs: 2 balanced, +8 dBm.

Outputs: 4 balanced, +8 dBm.

DEALER AVAILABILITY:**Northern California:**

Bananas at Large, Leo's Music, Sound Genesis.

Southern California:

Audio Industries, Coast Recording Equipment Supply, Everything Audio, Westlake Audio.

**SERIES 440 DELAY LINE/FLANGER**

Loft Modular Devices, Inc.
91 Elm St., Manchester, CT 06040. (203) 646-7806
Contact: Richard Federman, Vice President.

PRODUCT DESCRIPTION: The Series 440 Delay Line/Flanger is a versatile and economical time-based effects generator. A noise reduction system is incorporated to insure a wide dynamic range and avoid input matching problems. The unit's bandwidth at 80 msec of delay still exceeds most reverb devices while at 40 msec of delay it is a full 18 kHz.

RECOMMENDED USAGES: The Series 440 Delay Line/Flanger provides the extremely short delays necessary for excellent flanging, Leslie-type sounds with different 'rotation' speeds and vibrato. While it also offers longer delays for double tracking with realistic pitch and timing errors, loudness enhancement, altering reverb characteristics, hard echo, and even slapback. All these effects have a tremendous depth because of the units analog processing and the built-in VCO time based function which can be mixed to any degree with straight delays. Control voltage input and output access allow further modification to the systems special effects capability.

BASIC SPECIFICATIONS: Input: 40k ohm, balanced into 3-pin connector +18 dBm max.

Outputs: two three pin connectors, original plus delayed.

Original minus delay, both outputs: +18 dBm max.

Delay Range: .4 msec through 160 msec (continuously variable).

THD: typically .2%.

Residual noise: less than -74 dBm.

Power: 110 VAC, 60 Hz.

DEALER AVAILABILITY:

Northern California: Meyer & Ross

1485 Rollins Rd., Burlingame, CA 94010. (415) 348-6800

Southern California: Star Enterprises

5491 Jefferson, Yorba Linda, CA 92686. (714) 996-5622

Available throughout California.

**MODEL AD-4 AUDIO DELAY**

Neutrik Products
91 McKee Dr., Mahwah, N.J. 07430. (201) 529-3800
Contact: G. Langdon, Tech. Mgr.

PRODUCT DESCRIPTION: The AD-4 provides state-of-the-art performance in analog audio delay processing at a moderate cost. The system is comprised of a limiting input amplifier with variable sensitivity and a LED overload indicator. Limiting action may be tailored for fast or slow response or switched out entirely. Four bucket brigade delay modules follow, each having associated clock circuitry, multi-pole low pass filtering and output amplifiers with variable gain. XLR-type connectors.

RECOMMENDED USAGES: The Neutrik AD-4 is designed to provide 4 discrete time-incremented outputs from a single input to satisfy the requirements for a uniform time delay in a distributed sound system. Typical applications: Recording studio, auditoriums, concert halls, stadiums, churches, warehouses, etc.

BASIC SPECIFICATIONS: Frequency response: 20 Hz - 10 kHz ± 1.5 dB.

S/N ratio for 1% THD: 66 dB.

Total harmonic distortion: $\leq 3\%$.

Input impedance: 75 k ohms unbalanced.

Input sensitivity: 10 mV - 10V for full output.

Output impedance: 100 ohms unbalanced.

Rack mountable.

DEALER AVAILABILITY: Available throughout California.

ECHO, REVERB & DELAY SYSTEMS

ORBAN MODEL 111B DUAL SPRING REVERB

Orban Associates, Inc.
645 Bryant St., San Francisco, CA 94107. (415) 957-1067
Contact: Michael Bernard, Sales Manager

PRODUCT DESCRIPTION: The Orban Dual Spring Reverb offers two channels of reverb in a single package. The 111B features not only a bass EQ control, but also a quasi-parametric midrange equalizer section, and a floating or fixed threshold limiter to reduce the unwanted spring sound.

RECOMMENDED USAGES: The 111B may be used with a studio-type console, using echo send and echo return busses in the customary manner. In addition, the 111B has an auxiliary output containing a mixture of direct sound and reverberated sound (user adjustable) in the event echo send and receive circuits are unavailable.

BASIC SPECIFICATIONS: Two independent channels: delay time approx. 30 milliseconds.

Weighted signal/noise ratio: better than 76 dB.

Input level: -30 to +4 dBm.

Input impedance: 10,000 ohms, unbalanced.

Source impedance non-critical.

Output level: nominal 0 dBm, +20 dBm clipping level.

Output impedance: 600 ohms.

Transformer-coupled, balanced and floating.

Power: 115 - 230 volts AC, 50 - 60 Hz, 10 watts.

Size: (whd): 19" x 3 1/2" x 12".

Weight: 10 lbs.

DEALER AVAILABILITY: Available throughout California.

**AKG ACOUSTICS BX10E and BX20E**

Phillips Audio Video Systems, Corp.
91 McKee Drive, Mahwah, NJ 07430. (201) 529-3800
Contact: Peter Wellikoff, National Marketing Representative.

PRODUCT DESCRIPTION: AKG Reverberation Units utilize the torsional transmission line principle. They provide independent decay-time adjustments, reverb high and low frequency equalization and reverberation/dry signal mixing for each channel. Both channels are electronically and acoustically separate. Decay time is adjusted silently through motion feedback, allowing dynamic adjustment even while recording. Reverberation/dry signal mixing enables reverberation to be added to dry signal. Impervious to acoustic feedback and mechanical vibration.

RECOMMENDED USAGES: Both the AKG BX10E and BX20E were designed to provide both the quality and operating features required in both studio and broadcast applications. The BX10E was designed for portable studio operation. Its lightweight, compact size and extreme flexibility, make it ideal for mobile usage. It is designed to produce superior, natural reverberation that exceeds the critical demands for studio technique, guarantees excellent acoustic fidelity and is entirely free from coloration. Its remote control allows for easy installation.

BASIC SPECIFICATIONS: BX10E - 2 chan reverb, decay time 1.5 sec - 3.5 sec.

Freq. resp: dry 20 - 20k; wet 20 - 12k; s/n wet 65 dB; acoustic feedback isolation-100 dB.

Dimensions: 12H x 17 1/2 W x 19 1/2 D. Weight: 45 lbs.

BX20E - 2 chan reverb, decay time 2 - 4.5 secs.

Freq. resp: dry 20 - 20k; wet 20 - 15 k; s/n dry 79 dB, wet 69 dB.

Acoustic feedback isolation-100 dB.

Dimensions: 43 1/2 H x 17 W x 19 1/2 D. Weight: 110 lbs.

DEALER AVAILABILITY: Available throughout California.

**CPR-16 COMPUTER PROGRAMMED REVERBERATION SYSTEM**

Quad-Eight Electronics
11929 Vose St., N. Hollywood, CA 91605. (213) 764-1516
Contact: Ronald L. Bennett, Sales Manager

PRODUCT DESCRIPTION: The Quad-Eight CPR-16 represents a revolutionary breakthrough for the application of advanced computer technology to the audio industry. Reverberation time can be changed from zero to twenty seconds in sixteen steps, even during operation, without signal degradation. High and low frequency damping rates can be controlled over a wide range which previously was only achieved by time-consuming rearrangements of complex arrays of absorption splay in live chambers or rooms. The simulation of "room size" can be modified with a single control which adds a variable delay before the first reflection. The CPR-16 allows the prominence and density of resonant modes to be altered.

BASIC SPECIFICATIONS: Freq. response: ± 1 dB, 20 Hz to 7 kHz. THD @ full signal less than 0.1%.

Dynamic Range: 80 dB.

Reverberation time: 12 settings from 0.25 sec to 3 sec plus 4, 5, 8, & 20 sec settings.

Room size: initial delays of 0, 5, 15, 30, 50, 75, 100, & 130 ms.

High freq. damping: 1 kHz to 8 kHz damping in 8 steps.

Low freq. damping: 20 Hz, 100 Hz, 250 Hz, & 500 Hz.

Two reverb programs, a delay program, and tape loop echo program.

DEALER AVAILABILITY:**Northern California:**

Accurate Sound Corp., 114 5th Avenue, Redwood City, CA 94063

Southern California:

Coast Recording Equipment Supply Co.

6114 Santa Monica Blvd., Hollywood, CA.

Tri-Tronics Inc., 2921 West Alameda Avenue, Burbank, CA.

**RV-10****Quad-Eight Electronics**

11929 Vose St., N. Hollywood, CA 91605. (213) 764-1516

Contact: Ronald L. Bennett, Sales Manager.

PRODUCT DESCRIPTION: The RV-10 is a variable decay reverberation device that is a patented approach to mechanical reverberation simulation. It has a clean, transparent sound that compares favorably with other types of reverberation devices or reverberation chambers. A 55ms initial delay, low frequency filtering, and the variable decay time feature and create new effects not available with other devices. The design and construction of the RV-10 gives it almost total immunity to pick-up of ambient sound. It may be used in the control room.

BASIC SPECIFICATIONS: Continuously variable decay time from 1 sec. to 5 sec.

Low freq filter at 100 Hz, 250 Hz, or 500 Hz at 18 dB per octave.

Four different initial delays developed by four independent transmission lines.

Full delay pattern is realized after 55 ms.

S/N: 60 dB.

Immunity to external noise is in excess of 55 dB.

Distortion in the drive and recovery system is under 0.25% up to full output level of +18 dBm.

DEALER AVAILABILITY:**Northern California:**

Accurate Sound Corp., 144 5th Ave., Redwood City, CA 94063

Southern California:

Coast Recording Equipment Supply Co.

6114 Santa Monica Blvd., Hollywood, CA

Tri-Tronics Inc., 2921 West Alameda Ave., Burbank, CA.

**QA-201 STEREO REVERB****Quantum Audio Labs, Inc.**

1905 Riverside Dr., Glendale, CA 91201

Contact: Carol Pope, Pres. Assistant

PRODUCT DESCRIPTION: The QA-201 is a professional, moderately priced stereo reverberation chamber. It utilizes two Accutronics reverb units which provide two completely independent channels. Each chamber has a volume control and high frequency tone control. A compressor/limiter circuit is included which permits optimum drive to each chamber. A unique overload indicator senses three different points in the circuit to detect possible overload.

RECOMMENDED USAGES: The QA-201 stereo reverberation chamber is used with any high or low level mixing console. It's XLR plugs provide high level inputs and outputs for professional consoles and phone jacks are used for consoles having -10 dB (re .775V) interface levels. Home studios, professional recording studios, broadcast studios, theatres and any other application requiring reverberant type sound will use this product.

BASIC SPECIFICATIONS: Input level: -25 dB to +18 dB (re .775V).

Output level: +4 dBm (XLR) or -10 dB (phonejack).

Decay time: 1.8 seconds.

Equalization: 12 dB boost and cut @ 4 kHz.

Overload protection: Compressor activation 6 dB below spring saturation.

Overload detection: LED sensor at 3 points in circuit.

Size: 19" w x 3.5" h x 12.25" d. Weight: 15 lbs.

DEALER AVAILABILITY: Available throughout California.

**DC-30 ANALOG CHORUS ECHO****Rolandcorp, US.**

2401 Saybrook Ave., Los Angeles, CA 90040. (213) 685-5141

Contact: Rolandcorp, US.

PRODUCT DESCRIPTION: Analog delay, echo and chorus effects are produced in monaural or stereo form by the DC-30. The chorus intensity, repeat rate, intensity and volume are all separately variable. There is variable tone on echo repeats. The echo repeat rate is controllable from a foot pedal and is very responsive producing echo pitch bend effects and bouncing ball effect. Intensity may be set for endless repeat without

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EQUALIZERS

1650 ACTIVE EQUALIZER

Altec Lansing,
1515 S. Manchester, Anaheim, CA 92803. (714) 774-2900
Contact: James Morrison, VP. Marketing

PRODUCT DESCRIPTION: Contains 28 active band rejection filters at 150 preferred 1/2 octave center frequencies from 31.5 to 16,000 Hz.
RECOMMENDED USAGES: Professional, industrial.
DEALER AVAILABILITY: Available throughout California.

B & B EQF-2 PARAMETRIC EQUALIZER

Aphex Systems, Ltd.
7801 Melrose Ave., Los Angeles, CA 90046. (213) 655-1411
Contact: Kent S. Beyer, Director of Sales

PRODUCT DESCRIPTION: A tunable combination peak/shelf equalizer with the added feature of a hi/lo pass filter.
RECOMMENDED USAGES: Typical
BASIC SPECIFICATIONS: 12 dB boost/cut over full band (20 Hz - 20 kHz).
Harmonic and IM distortion less than 0.1%.
Slew rate greater than 10 volts per microsecond.
Noise output — high level: —88 dBm, low level: —97.5 dBm.
Optional Jensen nickel-core transformer.
DEALER AVAILABILITY:
Northern California: Parasound, Inc.
680 Beach St., San Francisco, CA.
Southern California: Aphex Systems, Ltd.
7801 Melrose Ave., Los Angeles, CA 90046
Available throughout California.

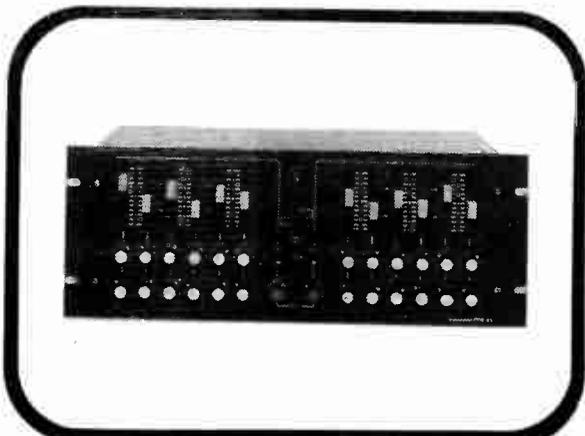
MODEL 4100 PARAMETRIC EQUALIZER/PREAMPLIFIER

Audioarts Engineering
286 Downs Rd., Bethany, CT 06525. (203) 393-0887

PRODUCT DESCRIPTION: The Model 4100 is a four band monophonic parametric equalizer/preamplifier. Each band is virtually full-range: Band 1 is 22 Hz - 3 kHz; band 2 is the same; band 3 is 100 Hz - 10 kHz; band 4 is 180 Hz - 21 kHz. Each section has an in/out switch; there is also a master in/out switch and an LED overload indicator. A front panel gain control is provided. Takes line level inputs plus musical instruments directly through a built-in low-noise input preamp. Price is \$332.00 list. Available as a stereo model (Model 4200) for \$599.00 list. Rack mount.
RECOMMENDED USAGES: Any operation requiring extensive frequency response alterations: recording, mixdowns, live PA reinforcement, direct onstage use as an instrument preamp. Unlimited use in playback for response shaping, room tailoring, etc. Band sections may be operated in tandem for considerable boost and cut. Bandwidth control continuously variable from 1/6 to 2 octaves, permitting synthesis of practically every imaginable response curve.
BASIC SPECIFICATIONS: Response: 20 Hz - 100 kHz, ±5 dB.
THD: .005% (.002% typical).
IM: .002% (.001% typical).
S/N: 110 dB (113 dB typical).
Output: 6 ohms; +21 dBm.
Input: 100k ohms; +20 dB.
Boost/cut range: ±16 dB (reciprocal curves).
DEALER AVAILABILITY: Factory direct only.

PARAGRAPHIC — E950 EQUALIZER*

Audio & Design Recording Limited.
84 Oxford Road, Reading, Berks, England.
Contact: Nigel Branwell
Audio & Design Recording (USA West)
P.O. Box 902, Marina, CA 93933. (408) 372-9036



AUDIO & DESIGN RECORDING LIMITED
Paraphoric-E90 Equalizer

PRODUCT DESCRIPTION: The Paraphoric Equalizer brings to the conventional graphic-equalizer all the flexibility of parametric equalization. Color coded pots for frequency and bandwidth enable it to be set up as a straight forward graphic unit in either stereo 6 section format or a 12 section mono system. In the 12 section mode it gives an Octave Equalizer with two "floating" sections for use over the whole bandwidth for tight notching. Variable over 4 octave range for each section. Variable from six to one-eighth octave.
RECOMMENDED USAGES: The system will be found ideal for sound reinforcement use in tight notching up to six feedback modes (stereo) — removing less audio content than with the usual third octave system, having the advantage of being EXACTLY tuneable to the required frequency. In broadcast applications, it will function as the ideal line equalization system; while in the recording, sound processing, or mastering studio, its flexibility will keep it in constant demand.
BASIC SPECIFICATIONS: Clip level: +24 dBm into 600 ohms. Distortion: 0.1% @ 1 kHz @ +24 dBm loaded 600 ohms. Noise: —84 dB ref. to 0 dBm, —92 dB ref. to +8 dBm. Frequency response: All controls ±1 dB 20 Hz - 20 kHz.
DEALER AVAILABILITY: Available throughout California
*Paraphoric" is a trademark of Audio & Design Recording Ltd.

TYPE 1500 AUTOMATIC GRAPHIC EQUALIZER

Audio Developments International
644 Emerson St., Palo Alto, CA 94301
Contact: Arthur K. Yeap

PRODUCT DESCRIPTION: The first and original (pat. pend) automatic graphic octave two-channel equalizer. Two LEDs above each band. Red for high and green for low indicate to user setting of each slider for flat amplitude response. When both RED and GRN LEDs light, band is adjusted for flatness. Range is ±12dB and various rolloff curves can be incorporated. Included is a built-in pink Noise generator, switchable mic or line input for reception of noise into equalizer. Inputs are unbalanced or balanced (opt). \$795 retail. Standard 19" rack-mount for rugged in-field use and quality ADI construction backed by comprehensive after-sales program.
RECOMMENDED USAGES: Equalization of rooms, auditoria, halls, stadiums or speakers and program material. Fastest means to flat response available with provisions for roll-off curves.
BASIC SPECIFICATIONS: Octave band graphic EQ with ten ANSI standard bands.
Range is ±12dB.
Filters: Double-pole Butterworth bandpass active-IC.
Freq. response: ±0.5dB EQ IN, 22Hz - 25kHz.

Noise: —104dB.
THD: 0.05%.
Alignment Accuracy: ±1dB using RED and GRN LED's.
Dimensions: 483mm x 132mm x 257mm.
DEALER AVAILABILITY:
Northern California: Contact Factory for names of N. Cal. rep. and dealers.
Southern California: Rep. Filament Audio Marketing
c/o Mr. Frank Offenstein
1058 E. Edna Place, Covina, CA 91724. (213) 337-4945
Available throughout California.

TYPE 1503 1/2 RD OCTAVE EQUALIZER

Audio Developments International
644 Emerson St., Palo Alto, CA 94301. (415) 321-3035
Contact: Arthur K. Yeap

PRODUCT DESCRIPTION: 1/2rd Octave Precision Equalizer. 31 ANSI bands from 20 Hz to 20kHz. Range is ±14dB. Filters are multi-pole Butterworth High-Q bandpass active IC type-better than older "gyrator" designs due to minimal phase shift. Low noise, rack-mount type: \$485 retail.
RECOMMENDED USAGES: Room, auditoria and stadium equalization, also speaker control and feedback reduction.
BASIC SPECIFICATIONS: 31 1/2rd Octave Bands from 20Hz to 20kHz.
Range: ±14dB.
Freq. response: Eq In, ±0.5dB 22Hz to 25kHz.
Noise: —104dB.
THD: 0.1dB.
DEALER AVAILABILITY:
Northern California: Contact factory for names of N. Cal. rep. and dealers.
Southern California: Rep. Filament Audio Marketing
c/o Mr. Frank Offenstein
1058 E. Edna Place, Covina, CA 91724. (213) 337-4945
Available throughout California.

EQ/210

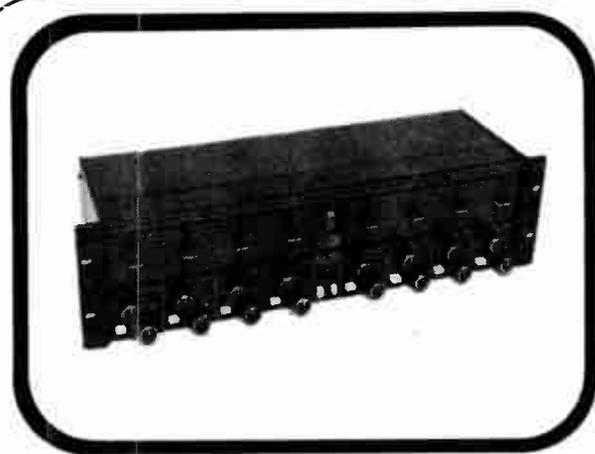
Blamp Systems, Inc.
10950 SW 5th Ave., Beaverton, OR 97005. (503) 643-8411
Contact: Laury Lantz

PRODUCT DESCRIPTION: The rapid acceptance of the EQ/210 stereo, one-octave equalizer has caused the EQ/210 to become the standard of the industry. This extremely popular equalizer features transformerless balanced lines in and out, ±15 dB of range, EQ in/out switching, oil damped all metal sliders with center detent action, overload LED's and gain control in a compact space saving design. Extremely low noise and distortion are achieved through advanced circuit designs.
RECOMMENDED USAGES: The EQ/210 is ideally suited for low cost equalization of portable or fixed sound reinforcement systems, musical instrument or vocal sound modification, live and studio monitor equalization, broadcast, or home HI-FI use.
BASIC SPECIFICATIONS: EQ characteristics: range: ±15 dB.
Band centers: 32, 64, 125, 250, 500, 1k, 2k, 4k, 8k, 16k.
Unity gain range: ±10 dB.
Frequency response: ±1 dB 5 Hz to 80 kHz, ±1 dB 20 Hz to 25 kHz.
Distortion: THD: .005%, IM: .005%.
Hum & noise: —100 dB rated output.
DEALER AVAILABILITY: Available throughout California.

EQ/270A

Blamp Systems, Inc.
10950 SW 5th Ave., Beaverton, OR 97005. (503) 643-8411
Contact: Laury Lantz

PRODUCT DESCRIPTION: The Blamp EQ/270A is a moderately priced professional 1/2 octave equalizer with 27 active combining filters from 40 Hz to 16 kHz on the standard ISO frequencies. Quality oil damped metal case sliders with center detent are used throughout. Transformerless balanced lines in and out and switchable input impedance are standard features. Low noise, high slew rate devices are utilized to maximize performance. Precise combining, minimum phase shift, low ringing and low filter interaction are the strengths of the all new EQ/270A.
RECOMMENDED USAGES: The familiarity of the 1/2 octave equalizer is well established for use in live performances and the recording studios. The high cost has been a deterrent. The EQ/270A offers a technologically advanced product for portable or fixed sound reinforcement, musical instrument and vocal sound modification, room equalization, live and studio monitor equalization, broadcast, or discriminating home HI-FI use at a very moderate price.
BASIC SPECIFICATIONS: EQ characteristics: Range: ±12 dB.
Filter bandwidth: 1/2 octave at 3 dB point with 6 dB of attenuation.
Unity Gain Range: ±12 dB.
Frequency response: ±1 dB 5 Hz to 80 kHz, ±1 dB 20 Hz to 25 kHz.
Distortion: THD: .005%, IM: .005%.
Hum and noise: —90 dB.
Slew Rate: 8 volts per micro second.
Input impedance: 600 ohm switch on rear panel 50k.
Filter interaction; same mixer, adjacent filter: No more than 0.75 dB ±6 dB for proper combining and minimum ripple.
DEALER AVAILABILITY: Available throughout California.



BIAMP SYSTEMS, INC.
EQ/480

EQ/480

Biamp Systems, Inc.
10950 SW 5th Ave., Beaverton, OR 97005. (503) 643-8411
Contact: Laury Lantz

PRODUCT DESCRIPTION: The Biamp EQ/480 is a stereo 4 band parametric equalizer with full tape monitoring capability. The unique front panel layout permits visual display of the boost or cut of each band with the frequency, Q, and EQ in-out switch directly below. The latest high slew rate, low noise circuit designs are used to maximize performance. A rear panel switch permits 8 band mono operation. Transformerless balanced lines, in and out, make the EQ/480 a truly professional unit.

RECOMMENDED USAGES: Parametric equalization offers the ultimate in precise sound modification, equalization or feedback suppression. The EQ/480 is ideally suited for portable or fixed sound reinforcement, musical instrument and vocal sound modification, live & studio monitor EQ, broadcast, discriminating home Hi-Fi use, or any other application where a fully professional parametric equalizer is required.

BASIC SPECIFICATIONS: Input impedance: 600 ohm or 50k switchable.

Frequency response: $\pm .1$ dB 20 Hz to 25 kHz, ± 1 dB 5 Hz to 80 kHz.

Distortion (20 kHz): THD: Less than .01%, IM: less than .005%.

Hum & noise: -95 dB.

Slew rate: greater than 8 volts per micro second.

EQ characteristics; Frequency: Low 16 Hz -800 Hz, Low Mid 48 Hz -2.4 kHz, High mid 160 Hz -8 kHz, High 480 Hz -24 kHz.

Octaves: $.1-3.3$.

Filter Gain: ± 15 dB.

DEALER AVAILABILITY: Available throughout California.

**GE-2 GRAPHIC EQUALIZER**

Corwin-Vega Inc.

12250 Montague St., Arleta, CA 91331. (213) 896-0777
Contact: Michael Koehn, Public Relations.

PRODUCT DESCRIPTION: The GE-2 is a 13 position graphic equalizer with full octave control above middle C, and half octave control below. It provides ± 12 dB of control at 31.5, 45, 63, 90, 125, 180, 250, 500, 1000, 2000, 4000, 8000, and 16,000 Hz. The GE-2 incorporates a 12 dB/octave rumble filter, an inductorless integrated circuit, and complete accommodations for tape recording and monitoring connections.

RECOMMENDED USAGES: The GE-2 was designed to be utilized as both a high quality home graphic equalizer, and especially as a professional equalizer and is designed and constructed to the highest professional standards. The GE-2 is notable for its half octave control below 250 Hz, which allows it to produce a uniformly excellent, well-defined bass sound in virtually any room, with any program material, through any loudspeaker system.

BASIC SPECIFICATIONS: ± 12 dB @ 31.5, 45, 63, 90, 125, 180, 250, 500, 1000, 2000, 4000, 8000, and 16,000 Hz.
Response: ± 1 dB from 20 - 20k Hz with control at center detent.

Rated Output: 2 volts RMS.

Maximum output: 8 volts RMS.

Harmonic or IM distortion: less than 0.05% (typically 0.02%) at rated output.

Hum & noise: less than 100 microvolts equivalent input noise.

Controls: gain slider, power switch with LED pilot light, latching indicator pushbuttons for equalizer bypass, tape mon. on/off, and pre/post selection.

Dimensions: 19" W x 5 1/4" H x 7 1/4" D.

Weight: 12 lbs.

Black anodized aluminum chassis with white lettering.

DEALER AVAILABILITY:

Northern California:

Leo's Music — 5447 Telegraph Ave., Oakland, CA 94609

Systems Warehouse — 69 Green St., San Francisco, CA 94111

Southern California:

California Musical Instruments —

1010 E. Vermont Ave., Anaheim, CA 92805

Sound Unlimited — 14540 Sherman Way, Van Nuys, CA 91405

Available throughout California.

EQUALIZERS

PQ-6 STEREO PARAMETRIC EQUALIZER

Furman Sound

616 Canal St., San Rafael, CA 94901. (415) 456-6766
Contact: Jim Furman

PRODUCT DESCRIPTION: The PQ-6 is a two-channel, 3-band parametric equalizer. Each channel has both high and low level inputs and outputs, allowing the unit to be used as either a straight equalizer or as a musical instrument preamp. The two channels may be used completely independently.

RECOMMENDED USAGES: Musical instrument preamp; general purpose studio equalizer; feedback suppression in sound reinforcement systems; or room equalization in control rooms or in home livingrooms.

BASIC SPECIFICATIONS: Each band boosts up to $+20$ db, cuts up to infinitely deep notch; bandwidth controls $1/2$ to 4 octaves for boost, $1/2$ to 1 octave for cut; frequency ranges: Bass 25-500 Hz, Midrange 150-2500 Hz, Treble 600-10,000 Hz; Signal-to-noise ratio 99db.
T.H.D. .025%.

Rack mountable.

DEALER AVAILABILITY: Available throughout California.

**PROFESSIONAL GRAPHIC EQUALIZER**

Heil Sound, Ltd.

#2 Heil Industrial Drive, Marissa, Illinois 62257
Contact: Bob Heil, President

PRODUCT DESCRIPTION: The Professional Graphic Equalizer from Heil Sound is a dual channel, 10 band active equalizer built into a standard 19" by 7" rack mount chassis. Each channel has a separate output level control for balance of the system as well as a defeat switch for EQ in/out. The filter sections begin at 30 Hz and are scaled one full octave apart up through 16,000 Hz. The level of each filter is controlled by a slide control with ± 15 dB boost and cut activity.

BASIC SPECIFICATIONS: Frequency response: 20 Hz to 20 kHz. Distortion level (IM): well below .01%.

Signal to noise ratio: 90 dB.

Dynamic Range: greater than 105 dB.

Maximum input level: 2 volts R.M.S.

Maximum output level: 6 volts R.M.S.

Filter gain: typically ± 15 dB.

Power requirement: 117 volts A.C., 1 amp.

Front panel is a standard 19" by 7" black anodized rack mount which can be mounted in a standard rack without any adapters.

DEALER AVAILABILITY: Musician's Supply, P.O. Box 1440, El Cajon, California.

**OMNI CRAFT EQ-1**

Omni Craft, Inc.

Rt. 4, Box 40, Lockport, Ill. 60441. (815) 838-1285
Contact: Preston Wakeland, President.

PRODUCT DESCRIPTION: The Model EQ-1 is a two channel, three band parametric equalizer that features widely variable parameters. Each band tunes a 50:1 frequency ratio, peaks or dips ± 20 dB and has adjustable bandwidth from 1 dB/octave to 17 dB/octave. There is an in-out switch for each band as well as a level indicating LED.

BASIC SPECIFICATIONS: Price \$650.00

3 1/2" x 19" rack mount.

DEALER AVAILABILITY: Factory direct only.

**EQ-27**

Peavey Electronics Corporation

711 A St., Meridian, MS 39301. (601) 483-5365

Contact: Hollis T. Calvert, Director of Sales Promotion/Education

PRODUCT DESCRIPTION: 27-band graphic equalizer, one-third octave centers, balanced outputs and inputs, output equals $+21$ dB into 600 ohms.

**210 STEREO EQUALIZER**

Peavey Electronics Corporation

711 A St., Meridian, MS 39301. (601) 483-5365

Contact: Hollis T. Calvert, Director of Sales Promotion/Education

PRODUCT DESCRIPTION: 20-band Stereo Equalizer, octave centers, balanced outputs, 12 dB/Octave low and high frequency roll-off filters, level control.

GE-810 MONAURAL EQ

Rolandcorp, US.

2401 Saybrook Ave., Los Angeles, CA 90040. (213) 685-5141

Contact: Rolandcorp, US.

PRODUCT DESCRIPTION: A 21 band $1/2$ octave equalizer with selectable control range (± 3 , ± 6 , ± 12). Standard 19", with handles. Selectable input/output range. LED signal and overload indicators. Normaled rear connection with front panel $1/4$ " patching for easy access. Especially useful in the electronic music studio. Also an equalize/on/off switch that is remote controllable for A/B comparison of EQ and Non EQ signal.

RECOMMENDED USAGES: Useful in any studio or for PA application where equalization is needed. Especially useful in the creative electronic music studio where specific channel or instrument equalization is frequently in and out of use.

BASIC SPECIFICATIONS: S/N: greater than -100 dB ("A" weighted) at flat response.

Distortion: .004% 20 Hz - 20 kHz.

Input range: $+20$ dBv, 0 dBv, -20 dBv.

Output range: 0 dBv, -20 dBv.

Input Impedance: 50k ohms, unbalanced.

Output impedance: 600 ohms, unbalanced.

Crosstalk @ 1 kHz, 0 dBv: greater than -85 dB ("A" weighted).

Power rec. 100v 50/60 Hz, 120v 50/60 Hz, 220v 50/60 Hz, 240v 50/60 Hz.

DEALER AVAILABILITY: Available throughout California.

**GE-820 STEREO EQ**

Rolandcorp, US.

2401 Saybrook Ave., Los Angeles, Ca 90040 (213) 685-5141

Contact: Rolandcorp, US.

PRODUCT DESCRIPTION: A stereo version of the GE-810, this is a 12 band per channel stereo equalizer. The bands are at 1 octave intervals with a selectable control range (± 3 , ± 6 , ± 12 dB.) The Ge-820 also features selectable input/output levels, studio normaled connections at rear with override jacks ($1/4$ ") on front panel, LED's indicating signal and overload, remote controllable by-pass switching, very low distortion, low noise, and a standard 19" rack size with handles.

RECOMMENDED USAGES: Useful in all recording/performing areas where stereo EQ is needed. The design makes it especially useful to the creative artist/engineer in an electronic music studio.

BASIC SPECIFICATIONS: Input level: (each channel) $+20$ dBv, 0 dBv, -20 dBv.

Input impedance: 50k ohms, unbalanced.

Out level (each channel) 0 dBv, -20 dBv.

Output impedance: 600 ohms, unbalanced.

Freq. response: 10 Hz - 40 kHz $+0$ dB, -1 dB.

Harmonic Distortion: less than .04% (20 - 20 kHz, 0 dBv).

S/N: greater than -100 dB.

Power consumption: 12w.

Power: 100v 50/60 Hz, 120v 50/60 Hz, 220v 50/60 Hz, 240v 50/60 Hz.

DEALER AVAILABILITY: Available throughout California.

**EQ-1**

SAE

701 E. Macy St., Los Angeles, CA 90012. (213) 489-7600

Contact: Mark Cohen, Director, Pro Products Group.

PRODUCT DESCRIPTION: 4-band mono parametric equalizer with additional high & low frequency shelving in $1 1/4$ " high rack mount.

RECOMMENDED USAGES: Sound reinforcement, recording, room equalization, instrument tone modification.

BASIC SPECIFICATIONS: Insertion loss: less than 1 db.

Maximum output before clipping @ 10k load: 9 volts.

Output impedance: 500 ohms.

Response: flat from 20Hz to 20kHz.

Distortion: 0.01 (THD) & I.M.

S/N: 95dB.

DEALER AVAILABILITY: Available throughout California.

**RM-230 PARAMETRIC EQUALIZER**

Sontec Electronics

10120 Marble Ct., Cockeysville, MD 21030, (301) 628-2283

Contact: Burgess MacNeal

PRODUCT DESCRIPTION: Parametric equalizer specifically designed for application where exceptional quality is needed in minimal space. This unit has three frequency bands per channel with continuously variable frequency, level, and shape. Both high and low bands have switch on shape pot to convert that band to a shelving EQ mode. All signal pass elements are discrete op-amps with slew rates greater than 200 V/microseconds.

RECOMMENDED USAGES: Program equalization in mixing, tape, dubbing and studio operations. Very useful in the production of electronic music. High and low frequency shelves allow flexibility where the nature of the program material requires a boost or cut over a wider range than a peaked section.

BASIC SPECIFICATIONS: ± 1 dB, \triangleright 200,000 Hz.
Slew rate: \approx 200 V/usec.
Noise: -84 dBm or better.
Distortion, (IM or THD) \triangleleft .002%.
Frequency of EQ: lo-shelf 10 - 800 Hz; hi-shelf 400 - 25,000 Hz.
Parametric sections cover same freq bands as shelves, plus mid band 120 - 8000 Hz.
Input 75k bal or unbal.
Max input or output level $+24$ dBm.
Size 19 x 1.75 x 6 inches.
115/230 VAC 50/60 Hz.
DEALER AVAILABILITY:
Southern California: Westlake Audio, Sierra Audio.

MEP-250A PARAMETRIC EQUALIZER
Sontec Electronics
10120 Marble Ct., Cockeysville, MD 21030. (301) 628-2283
Contact: Burgess MacNeal, President

PRODUCT DESCRIPTION: The latest model of the original ITI parametric equalizer. In addition to three tuned parametric equalizer. In addition to three tuned sections covering 10 to 25,000 Hz per channel, there are two variable frequency shelving sections. There are no I.C.'s or capacitors in the direct signal path. Signal amplifiers are discrete, with .4% IM distortion before feedback. Unit may be left in audio line without program quality degradation. There is no switching noise when EQ is added.

RECOMMENDED USAGES: Originally designed for program equalization in mixdown, the 250A gives a very flexible tool to the creative engineer interested in exceptional audio quality. As a result of the unique method of EQ generation, less EQ is required to achieve a desired sound. Additionally, use of the tuned shelving EQ allows dropping of high or low end response, than raising a particular instrument (such as a kick drum) only.

BASIC SPECIFICATIONS: Response ± 1 dB \triangleright 200,000 Hz
Slew rate \approx 200 V/usec.
Noise: -84 dBm or better.
Distortion: (IM or THD), \triangleleft .002%.
Freq of EQ: lo-shelf 10 - 800 Hz, hi-shelf 400 - 25,000 Hz.
Parametric sections: low 10 - 800 Hz, mid 120 - 8,000 Hz, hi 420 - 25,000 Hz.
Input 75k ohms bal or unbal.
Max input/output level $+24$ dBm.
Size: 19 x 3.5 x 11 inches.
115/230 VAC 50/60 Hz.
DEALER AVAILABILITY:
Southern California: Westlake Audio, Sierra Audio, Stan-art Corp.

SOUNDCRAFTSMEN RP2201-R
Soundcraftsmen
1721 Newport Circle, Santa Ana, CA 92705. (714) 556-6191
Contact: Tom Thomas, National Sales Manager

PRODUCT DESCRIPTION: A semi-professional stereo 10-band octave equalizer designed for clean, smooth frequency balancing at a moderate price. Front panel switching includes tape equalization, line equalization and tape monitor facilities. Unit includes exclusive Soundcraftsmen test record for frequency balancing of room acoustics. Front panel is 5 1/4" x 19" rack size — black & silver aluminum. Equalizer includes walnut side panels as well. Price \$299.00

RECOMMENDED USAGES: Equalization of room acoustics, master tapes, etc. Can be used for correcting frequency imbalances or deficiencies in the actual recording process or during playback. Unit helps eliminate feedback in live performance applications & creates more intelligibility in sound. Can be used with pro, semi-pro and hi-fi equipment.

BASIC SPECIFICATIONS: Signal-to-noise 105 dB.
Distortion: .01%, boost and cut per control ± 12 dB.
Zero-gain level balancing for unity gain.
Op-amp synthesized inductors in eq circuit.
Detented slide pots.
10-volt input capability.
5 1/4" x 19" rack mount front panel.
DEALER AVAILABILITY: Available throughout California.

SOUNDCRAFTSMEN RP2215-R
Soundcraftsmen
1721 Newport Circle, Santa Ana, CA 92705. (714) 556-6191
Contact: Tom Thomas, National Sales Manager

PRODUCT DESCRIPTION: A 10-band per channel octave equalizer with a 20-band passive wire wound inductor eq circuit. Unit has unity gain level controls and a voltage comparison circuit through LED's for visual monitoring of in/out levels. Also has two sets of equalized outputs with front panel switching eq defeat and monitor buttons. Equalizer has 5 1/4" x 19" front panel of silver & black. Includes pink noise test record. Price \$370.00

RECOMMENDED USAGES: Can be used for room acoustic balancing, disc to tape transfers, live recording equalization, elimination of feedback and applications where graphic equalization is essential. Also can be used in conventional hi-fi systems.



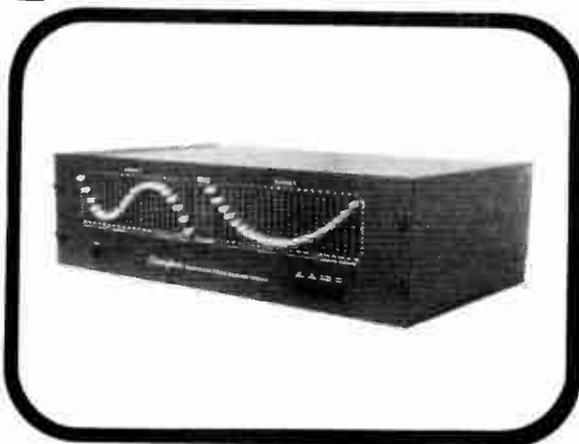
BASIC SPECIFICATIONS: Signal-to-noise 114 dB.
Distortion .01%.
10-volt input capability.
zero-gain level controls for unity gain.
Precision tuned wire wound inductors.
Boost or cut of 15 dB on each octave control.
Detented slide pots for quick zero reference.
DEALER AVAILABILITY: Available throughout California.

SOUNDCRAFTSMEN SE450
Soundcraftsmen
1721 Newport Circle, Santa Ana, CA 92705. (714) 556-6191
Contact: Tom Thomas, National Sales Manager

PRODUCT DESCRIPTION: A low cost 10 octave per channel graphic equalizer that has extremely low S/N and distortion specs. Unit has front panel tape equalization switching, tape monitor and "eq" defeat pushbuttons. Equalizer includes black vinyl cabinet and brushed aluminum front panel. Price \$249.00

RECOMMENDED USAGES: The SE450 can be used for equalization of room acoustics or outdoor theatre acoustic problems. Also equalization during the recording process from records, tapes or live performances. Unit is designed to be operated with pro, semi-pro or hi fidelity equipment.

BASIC SPECIFICATIONS: Signal to noise: 105 dB.
Distortion: .01%.
Boost or cut -12 dB.
10-volt input capability.
zero-gain controls.
Tape & line "eq".
Detented slide pots.
DEALER AVAILABILITY: Available throughout California.



SOUNDCRAFTSMEN
TG 3044 1/3 Octave Equalizer

SOUNDCRAFTSMEN TG3044-R 1/3 OCTAVE EQUALIZER
Soundcraftsmen
1721 Newport Circle, Santa Ana, CA 92705. (714) 556-6191
Contact: Tom Thomas, National Sales Manager

PRODUCT DESCRIPTION: The first and only 42-band, dual mono/stereo 1/3 octave equalizer under \$600.00 A true professional graphic equalizer with balanced inputs and outputs (also unbalanced), low shelving, tape & line "eq" control and "eq" defeat controls separate for left & right channel for dual mono operation. Controls are arranged in 15-1/3 octave increments through 1 kHz and 6 alternate 1/3 octave increments from 1K through 20K. Price \$550.00

RECOMMENDED USAGES: Can be used for room acoustic balancing, disc to tape transfers, live recording equalization, elimination of feedback and applications where graphic equalization is essential. Also can be used in conventional hi-fi systems. Excellent low cost/high quality method of achieving 1/3 octave wide balancing.

BASIC SPECIFICATIONS: Signal-to-noise: 114 dB.
Distortion: .01%.
10-volt input/output capability.
Zero-gain level controls.
Precision tuned wire-wound inductors.
Boost or cut of 15 dB pr control — each frequency control.
Low shelving at 15 Hz roll off.
12 dB per octave slope. Zero detent slide pots.
Front panel 5 1/4" x 19".
DEALER AVAILABILITY: Available throughout California.

TEAC GE-20 EQUALIZER
TEAC Corporation of America.
7733 Telegraph Rd., Montebello, CA 90640

PRODUCT DESCRIPTION: A ten-band stereo octave graphic equalizer, the TEAC GE-20 represents a significant advance in equalizer technology. Instead of wound coils, the GE-20 uses op-amp synthesized inductors eliminating induced hum and noise. $+10$ or -10 dB settings; independent high and low-pass filters on each channel; input level controls; overload LED's; and switchable output level meter complete the 19" rack mountable TEAC equalizer.

RECOMMENDED USAGES: Suitable for a myriad of applications from hi-fi to multi-track recording, the TEAC GE-20 represents a new low-cost breakthrough in graphic equalization.

BASIC SPECIFICATIONS: Center frequencies 31.5, 63, 125, 250, 500, 1k, 2k, 4k, 8k, 16k.
Input level -10 dB, impedance greater than 100k ohms.
Output: level -10 dB, max level $+18$ dB.
Frequency response: 20 Hz - 30 kHz ± 0.5 dB.
THD: 0.03%.

Signal to noise ratio: 85 dB.
DEALER AVAILABILITY: Available throughout franchised TEAC dealers throughout California and the USA.

GRAPHIC EQUALIZER MODEL 537
UREI
8460 San Fernando Rd., Sun Valley, CA 91352. (213) 767-1000
Contact: Ewald J. Consen.

PRODUCT DESCRIPTION: Model 537 provides 12 dB of boost or cut at each of its 27 frequencies, which are centered at ISO 1/3 octave increments from 40 Hz to 16 kHz. Signal to noise ratio better than 110 dB at maximum output. List price: \$736.00

RECOMMENDED USAGES: The 537 is an active filter set for general purpose frequency response adjustments of audio signals.

BASIC SPECIFICATIONS: Contact UREI.
DEALER AVAILABILITY: Contact UREI for your nearest dealer.

ROOM EQUALIZATION FILTER SET MODEL 539
UREI
8460 San Fernando Rd., Sun Valley, CA 91352. (213) 767-1000
Contact: Ewald J. Consen.

PRODUCT DESCRIPTION: Model 539 provides 0 - 15 dB of attenuation at each of 27 frequencies. The 27 vertical, step-less controls vary the attenuation of active filters which are centered on standard ISO 1/3-octave frequencies from 40 Hz to 16 kHz. Signal to noise ratio, better than 110 dB at maximum output. List price: \$796.00

RECOMMENDED USAGES: The 539 is specifically designed for high quality. Room "equalization" or "tuning".
BASIC SPECIFICATIONS: Contact UREI
DEALER AVAILABILITY: Contact UREI for your nearest dealer.

PA PROCESSING SYSTEM MODEL 567
UREI
8460 San Fernando Rd., Sun Valley, CA 91352. (213) 767-1000
Contact: Ewald J. Consen

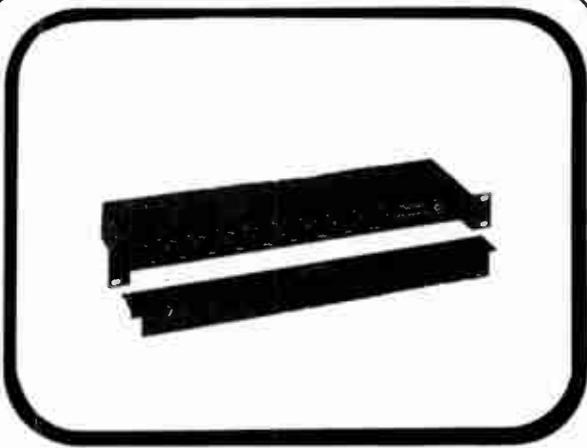
PRODUCT DESCRIPTION: Model 567 is a multipurpose device designed to provide all necessary signal processing functions between the mixing console and the power amplifiers. Four functional groups are organized on one rack panel (19" x 3 1/2").
A. Input amp with pink noise source for set up. B. 10 band graphic equalizer. C. 4 frequency feedback suppressor. D. 2 way active crossover network with adjustable crossover frequency points.

RECOMMENDED USAGES: Small to medium size sound reinforcement systems. (Churches, auditoriums, etc.).
BASIC SPECIFICATIONS: Input: High impedance, balanced or unbalanced.

Gain: From 10 dB to $+20$ dB.
Equalizer: 10 one-octave bands. 0 to $+10$ dB boost and cut.
Feedback Suppressor: 4 timable notchfilters 60 Hz to 6 kHz, depth variable 0 to -20 dB.
Electronic Crossover: 12 dB/octave filter slope, continuously adjustable from 500 Hz to 5 kHz.
Power Output: two, transformer isolated, $+24$ dBm.
Frequency Response: ± 1 dB, 20 Hz - 20 kHz.
Noise: -85 dBm.
Listed Price: \$696.00
DEALER AVAILABILITY: Contact UREI for your nearest dealer.

MODEL 4220 PASSIVE EQUALIZER
White Instruments, Inc.
P.O. Box 698, Austin, TX 78767. (512) 892-0752
Contact: Emory Straus, Marketing Mgr.

PRODUCT DESCRIPTION: Nine band passive equalizer provides up to 10 dB of cut. Designed to interface with most solid state equipment without insertion loss. As a passive device it introduces no noise to the system. There is no hard clipping at high levels. An accessory socket is provided to accommodate an optional low level crossover network for



WHITE INSTRUMENTS, INC.
Model 4220 Passive Equalizer

bi-amping a system. An EQ in/out switch bypasses the EQ without bypassing the crossover. Security cover furnished.

RECOMMENDED USAGES: For stage monitors, the 4220 is an excellent anti-feedback device. Intelligibility of sound reinforcement systems in small rooms can be greatly enhanced. The 4220 with its optional low-level crossover plug-in makes an inexpensive, versatile crossover system for bi-amping. Since no noise is introduced by this passive device, it is ideal for the most discriminating audiophile as a room or program equalizer.

BASIC SPECIFICATIONS: Nine octave bands on ISO centers from 63 Hz through 16 kHz with up to 10 dB cut.

Filter type: passive, single-tuned parallel L—C.

Noise: none.

Distortion: less than 0.05% to +20 dBv (re 0.78 Vrms).

Controls: rotary, sealed Mil-Spec potentiometers.

Connectors: redundant ¼" phone jack and barrier strip.

Less than 1k ohms source impedance.

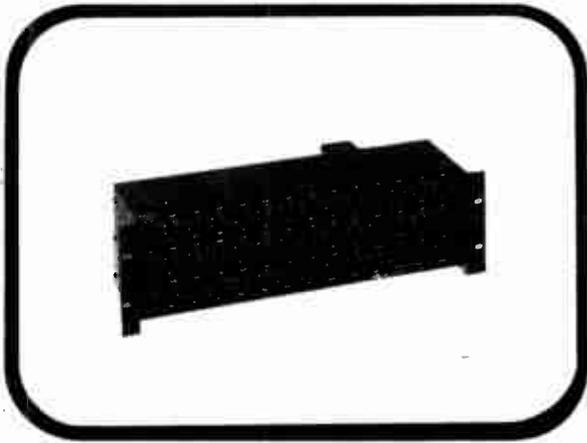
10k ohms load impedance.

1.75" x 19" x 5.5" rack mount.

3 lbs.

\$199.00

DEALER AVAILABILITY: Available throughout California.



WHITE INSTRUMENTS, INC.
Series 4300 1/6 Octave Equalizer

SERIES 4300 ONE-SIXTH OCTAVE EQUALIZER

White Instruments, Inc.

P.O. Box 698, Austin, Texas 78767. (512) 892-0752

Contact: Emory Straus, Marketing Mgr.

PRODUCT DESCRIPTION: A new standard for equalizers! The Series 4300 Equalizers offer one-sixth octave correction (twice the resolution of one-third octave) for trouble-some bass and mid-bass room responses. In addition, one-third octave resolution is available for the midrange and high frequencies. Optional low-level crossover networks plug in for either system bi-amping or tri-amping. Overall, mid and high frequency levels are trimmed from the front panel. White Instruments also offers one-sixth octave real time analyzers.

RECOMMENDED USAGES: Major recording studios in Nashville, L.A. and San Francisco report a marked "smoothing" or "tightening" of low end response. These rooms had previously been tuned with one-third octave equalizers. Major bands on tour report that they obtain more control over their stage monitors with the one-sixth octave equalizers. House equalization is also more refined.

BASIC SPECIFICATIONS: 28 one-sixth octave bands from 40 Hz through 894 Hz on ISO one-third centers and between, boost or cut 10 dB.

Variable high-pass filter from 20 Hz through 160 Hz.

Three outputs.

Noise: better than -90 dBv.

Distortion: less than 0.2% to +18 dBv.

Dimensions: 5.25" x 19" x 9.5" rack mount.

Security cover furnished.

\$1190.00

DEALER AVAILABILITY: Available throughout California.

Lexicon Digital Delays

THE CLEANEST SOUND MADE



When you want a really clean, sweet-sounding delay for your lead vocals and instrumentals... and professional quality equipment that works reliably month after month and gig after gig...

Lexicon has the answer.

Our stereo 102-S is both versatile and exciting to use. It's the industry's only delay system with two independent delay lines in a single chassis. Couple them with our VCO module and you get special effects like you never had before. Our top of the line unit for major studio use.



Our new single-channel, two-output "Prime Time" Model 93 provides delay, mixing and special effects with audio just as clean as the 102-S. Its low cost, reliability and portability make it ideal both for studios and entertainers.

Write on your letterhead for AN-3, our free 24-page application note and demo record on a wide array of audio effects achievable by delay processing.

Lexicon

Lexicon, Inc., 60 Turner Street
Waltham, MA 02154 (617) 891-6790

Export: Gotham Export Corporation, New York, New York

Regional Sales Office, 24 Greenbank Avenue, Piedmont, California 94611 • 415-654-2371

LOUDSPEAKER & MONITOR SYSTEMS

A7X

Altec Lansing

1515 S. Manchester, Anaheim, CA 92803. (714) 774-2900
Contact: James Morrison, V.P./Commercial Sales

PRODUCT DESCRIPTION: The powerful 802-8G high-frequency driver contains Altec's "Tangerine" radial phase plug; a new equalizer/dividing network provides smooth, gradual crossover in the mid and high frequencies.

RECOMMENDED USAGES: A7X Historically, the A7 series began as a cinema playback unit, but soon it was demanded as a studio monitor and home hi-fi unit. The new A7X excels in frequency response, bandwidth, power range and acoustic output.

BASIC SPECIFICATIONS: Power rating: 65 watts.

Frequency response: 45 - 20,000 Hz.

Pressure sensitivity: 101 dB SPL.

Nominal impedance: 8 ohms.

Distribution pattern: 40°V x 90°H.

Crossover frequency: 1200 Hz.

Dimensions: 54 1/4"H x 30"W x 24"D, (138 cmH x 76 cmW x 61 cmD).

Weight: 142 lbs. (64.5 kg).

Finish: metallic gray.

DEALER AVAILABILITY: Available throughout California.



9846-8A

Altec Lansing

1515 S. Manchester, Anaheim, CA 92803. (714) 774-2900
Contact: James Morrison, V.P./Commercial Sales.

PRODUCT DESCRIPTION: This medium-sized monitor utilizes a 15-inch bass driver in a sealed enclosure combined with a high-frequency compression driver and sectoral horn.

RECOMMENDED USAGES: A recognized master in monitoring, playback and sound reinforcement, the 9846-8A monitor speaker system offers pro-dependability.

BASIC SPECIFICATIONS: Power rating: 100 watts.

Frequency response: 25 - 20,000 Hz.

Pressure sensitivity: 93 dB.

Nominal impedance: 8 ohms.

Distribution pattern 40°V x 90°H.

Crossover frequency: 500 Hz.

Dimensions: 31"H x 26 1/2"W x 23 3/4"D, (79cmH x 67cmW x 60cmD).

Weight: 105 lbs., (47.6 kg).

Finish: light gray.

DEALER AVAILABILITY: Available throughout California.



9849-8A, 9849-8D

Altec Lansing

1515 S. Manchester, Anaheim, CA 92807. (714) 774-2900
Contact: James Morrison, VP/Commercial Sales

PRODUCT DESCRIPTION: The bass speaker produces extended low frequency response with ultra-low distortion even when driven at high power levels. Frequencies above 1500 Hz are handled by a compression driver mounted on a sectoral horn. Exteriors may be chosen in either a gray utility cabinet/black cloth grille (9849-8A), or oiled oak cabinet/brown knit grille (9849-8D).

RECOMMENDED USAGES: Where extended frequency response, low distortion and wide dynamic range are required, the 9849 bears the famous Altec heritage of quality. This compact, sturdy and attractive 9849 solves multipurpose applications.

BASIC SPECIFICATIONS: Power rating (watts): 60.

Frequency response: 40 - 15,000 Hz.

Pressure sensitivity (dB SPL): 94.

Nominal impedance (ohms): 8.

Distribution pattern 40°V x 90°H.

Crossover frequency: 1500 Hz.

Dimensions 24"H x 20 1/2"W x 15 1/4"D (61cmH x 52cmW x 89cmD).

Weight: 60 lbs (27.2 kg).

Finish: 9849-8A — gray lacquer, 9849-8D — oiled oak.

DEALER AVAILABILITY: Available throughout California.



60486/620A

Altec Lansing

1514 X. Manchester, Anaheim, CA 92803. (714) 774-2900
Contact: James Morrison, VP/Commercial Sales

PRODUCT DESCRIPTION: For more than a quarter-century, the 604-series of duplex coaxial loudspeaker systems have served as a standard in the recording industry. Altec's latest version, the 604-8G, provides excellent full-range sound and high sensitivity. Its low distortion advantage remedies listening fatigue. The asymmetrical dividing network design results in improved response and low distortion in mid frequencies, and increased system power capacity. By constructing the high frequency horn with an aluminum diaphragm, the result was extended treble response and greater linearity. Complementing the 604-series speaker is the 620A bass reflex vented enclosure, complete with oiled rift-cut oak cabinet, and brown knit grille. The vent is critically tuned for tight, crisp low bass response.

BASIC SPECIFICATIONS: Power rating: 65 watts.

Frequency response: 20 - 20,000 Hz.

Pressure sensitivity: 100 dB SPL.

Nominal impedance: 8 ohms.

Distribution pattern: 40°V x 90°H

Crossover frequency: 1500 Hz.

Dimensions: (HWD): 40"(102cm) x 26"(66cm) x 18"(46cm).

Weight: 138 lbs (62.9 kg).

Finish: oiled oak.

DEALER AVAILABILITY: Available throughout California.



LITTLE RED STUDIO MONITOR

Audio Marketing Ltd.

652 Glenbrook Rd., Stamford, Conn 06906. (203) 359-2315
Contact: Richard Anderson, V.P. & General Manager

PRODUCT DESCRIPTION: A bookshelf type studio monitor which provides the same characteristic sound as the Big Red Studio Monitor. Standard finish is a formica type and is available in red, brown, white and rosewood.

RECOMMENDED USAGES: For small recording & broadcast studios, mixing rooms, listening rooms, offices or the home listener who wishes to hear the music exactly as it was recorded.

BASIC SPECIFICATIONS: Two way, acoustic suspension.

13" woofer, 1/2" dome, cone tweeter.

max power: 50 watt.

Efficiency: 92 dBa — 1 watt at 4 ft.

24" x 16" x 12", 45 lbs.

Crossover controls: ±6 dB at 2 kHz, ±6 dB at 8 kHz.

DEALER AVAILABILITY:

Northern California: Sound Genesis.

Southern California: Audio Industries, Coast Recording Supply.

Available throughout California.



AURATONE® MODEL 5PC SUPER-PRO-CUBE™

Auratone Corporation

P.O. Box 698, Coronado, CA 92118. (714) 297-2820
Contact: H.E. Wilson, Sales Manager.

PRODUCT DESCRIPTION: Auratone Model 5PC Super-Pro-Cubes are special professional versions of 5C Super-Sound-Cube Mixdown monitor speakers with 1/4" phono jack amplifier connectors, fuse holders for driver blow-out protection mounted

on one side, and hard plastic grilles to protect cones from physical damage. The enclosures have rounded corners and are covered with tough pebble-grain black vinyl. Keyhole mounting plates for wall installation as well as soft plastic feet for shelf mounting are included.

RECOMMENDED USAGES: Recording studio mixdown and comparative monitor speakers. Mobile sound van speakers. Test lab reference speakers. Musician's stage monitors (mounted on a mic stand). Small auditorium and discotheque sound system speakers. Spot sound reinforcement speakers in larger auditoriums. Motion picture and TV production sound editing reference speakers.

BASIC SPECIFICATIONS: Rated power handling: 20 watts RMS (75 watts peak music power).

Impedance: 8 ohms.

Sensitivity: 90 dB w/1 watt input at 1 meter.

Audible frequency response: 50 Hz to 12.5 kHz.

Dimensions: 6 1/2" x 6 1/2" x 5 1/4".

Shipping Weight 10 lbs per pair.

Price \$80.00 per pair.

DEALER AVAILABILITY: Available from pro-Audio dealers worldwide or factory direct plus \$4.00 shipping and handling.



AURATONE MODEL 5RC SUPER—ROAD—CUBE

Auratone Corporation

P.O. Box 698, Coronado, CA 92118. (714) 297-2820
Contact: H.E. Wilson, Sales Manager

PRODUCT DESCRIPTION: Auratone Model 5RC Super-Road-Cubes are tough, portable versions of the famous Model 5C Super-Sound-Cube recording studio mixdown monitors. Completely covered with black pebble-grain vinyl, with metal suitcase corners, and leather carrying handle, the breakaway-hinged cubes fasten together with a locking latch to make a compact, easily transportable 6 1/2" x 6 1/2" x 11 1/4" unit. When opened for use, the drivers are shielded by hard plastic grilles and are fused for blowout protection. Amplifier connection is by a 1/4" phono jack.

BASIC SPECIFICATIONS: Rated power handling: 20 watts RMS (75 watts peak music power).

Impedance: 8 ohms.

Sensitivity: 90 dB w/1 watt input at 1 meter.

Audible frequency response: 50 Hz to 12.5 kHz.

Price: \$90.00 per pair.

DEALER AVAILABILITY: Available from Pro-Audio dealers worldwide or factory direct.



AURATONE MODEL 5W SUPER—SOUND—WEDGE

Auratone Corporation

P.O. Box 698, Coronado, CA 92118. (714) 297-2820
Contact: H. E. Wilson, Sales Manager

PRODUCT DESCRIPTION: The new Auratone Model 5W Super-Sound-Wedge is an identical sounding version of the Model 5C Super-Sound-Cube mixdown monitor speaker. The all black pebble-grain vinyl covered unit measures 7 1/2" x 7 1/2" x 4 1/4" deep, tapering to 2 3/4" at the bottom edge so that sound through the protective hard plastic grille may be angled at 15 degrees towards the mixer or engineer from an equipment rack or wall of a van in portable applications. They may also be mounted on a mike stand for small auditorium sound reinforcement or live performance stage monitors. Keyhole type metal mounting brackets are furnished with each unit.

BASIC SPECIFICATIONS: Rated power handling: 20 watts RMS (75 watts peak music power).

Impedance: 8 ohms.

Sensitivity: 90 dB w/1 watt input at 1 meter.

Audible frequency response: 50 Hz to 12.5 kHz.

Price: \$75.00 per pair.

DEALER AVAILABILITY: Available from Pro-Audio dealers worldwide or factory direct.



BOSE 802 PROFESSIONAL LOUDSPEAKER SYSTEM

Bose Corporation

100 The Mountain Rd., Framingham, MA 01701
Contact: Roy Komack, Mgr./Professional Products

PRODUCT DESCRIPTION: Successor to the Bose 800, the model 802 uses 8 full-range drivers in a high-impact case. It offers substantial improvements in efficiency, bass output, distortion, dispersion and power handling.

RECOMMENDED USAGES: Studio monitor, portable playback, sound reinforcement, stage monitor, musical instrument use, theatre installations and discos.

DEALER AVAILABILITY: Available throughout California.



B & W DM2/II

B & W Loudspeakers — Worthing, England.

Represented in the 11 Western States by Corinthian Marketing
Drawer BZ, Incline Village, Nevada 89450.
Contact: Bill Overhauser

PRODUCT DESCRIPTION: The DM2/II employs a three-drive unit loudspeaker system of some 47 litres capacity: free-

standing with either purpose-designed stand or angled plinth. The enclosure is constructed of high density particle board and is extensively braced; internal surfaces are laminated with anti-resonant bituminous pads to reduce all forms of cabinet coloration. The three separate drive units were all designed specifically for this speaker and manufactured in our own factory, where we employ the latest techniques to achieve maximum performance with safe power-handling capacity. Each unit is checked by digital means against a reference-standard unit before being passed for assembly. Also, throughout the development program, constant reference and comparisons were made between the sound of live musical instruments and the reproduced sound from the speaker.

RECOMMENDED USAGES: On its introduction back in 1972, the original B&W DM2 quickly earned its place as the loudspeaker of choice in studios and music-lovers' homes. Here then is the B&W DM2/II. It is an excellent loudspeaker that out-performs, and is altogether a worthy heir to the internationally esteemed model it replaces.

BASIC SPECIFICATIONS: Dimensions: Cabinet height — 710mm (28 in), width 270mm (10 1/2 in), depth 330mm (13 in), stand height 188mm (7 1/2 in), plinth height 60mm (2 1/2 in). Cabinet finish: standard; selected veneers of teak or walnut. Special; satin white or selected veneers of rosewood or black ash. Frequency response: 50 Hz to 18 kHz \pm 3 dB at centre of listening window.

Dispersion: Vertical: \pm 1 dB over 10°. Horizontal: \pm 2 dB over 40°. Accurate amplitude and phase coherence to free-field response within the listening window.

Power handling: Entirely suitable for amplifiers delivering 25 to 100 watts RMS into 8 ohms.

DEALER AVAILABILITY: Available throughout California.



B & W DM-5
B & W Loudspeakers, Worthing, England.
Represented in the 11 Western States by Corinthian Marketing.
Drawer BZ, Incline Village, Nevada 89450
Contact: Bill Overhauser

PRODUCT DESCRIPTION: The B & W DM-5 has earned a world wide reputation for out-performing several loudspeakers many times its size and price. The high frequency unit, for example, probably offers the best transient behavior of any h.f. unit in the world, with a linear extension of the frequency response to at least an octave above audibility. In addition, the DM-5 has extremely low system resonance and "Q". Typically, a system resonance of some 53 Hz and a "Q" of 0.7, figures that would do credit to loudspeakers four times its size.

RECOMMENDED USAGES: Ideal as a studio monitor where size or budget are of high importance. In order to obtain really satisfying bass response from a loudspeaker system, it was, until comparatively recently, necessary to have large free standing enclosures. Now with the DM-5, a mere 19 litres reproduces the whole musical spectrum from the lowest organ pedal note to the transient attack of a cymbal crash.

BASIC SPECIFICATIONS: Amplitude/frequency response: \pm 5 dB 100 Hz to 20 kHz, (free field).

Sensitivity: 6.8 watts into nominal impedance (i.e. 7.4 volts) for a sound pressure of 95 dB pink.

Power handling: Suitable for amplifiers between 10 and 25 watts RMS under normal domestic conditions.

Overload protection: 2.0 amp quick blow fuse to protect systems using amplifiers above 25 watts RMS.

Crossover: Crossover frequency 4.5 kHz with third order filter network employing close tolerance components throughout and Polyester, not electrolytic condensers.

Nominal impedance: 8 ohms.

DEALER AVAILABILITY: Available throughout California.



SUPER CONCERT SYSTEM 10
Carvin Mfg. Co.
1115 Industrial Ave., Escondido, CA 92025. (714) 747-1710
Contact: Warren Flarity, Sales

PRODUCT DESCRIPTION: The Carvin Super Concert System 10 includes: 1 Q1608 16 channel quad board w/anvil case. 4 ASG 500 500W RMS stereo power amps. 8 JBL 2470 - R520 radial horns. 8 XC-805 800 Hz passive/bi-amp sw crossovers. 8 JBL 1330 horn-loaded woofer systems. 8 50' XLR-50 cables. 12 6' XLR-6 cables. Price \$9975.00

RECOMMENDED USAGES: Recording and PA road concert system.

BASIC SPECIFICATIONS: 22 pieces, 1560 lbs, 2 years parts and labor.

DEALER AVAILABILITY: Factory direct only.

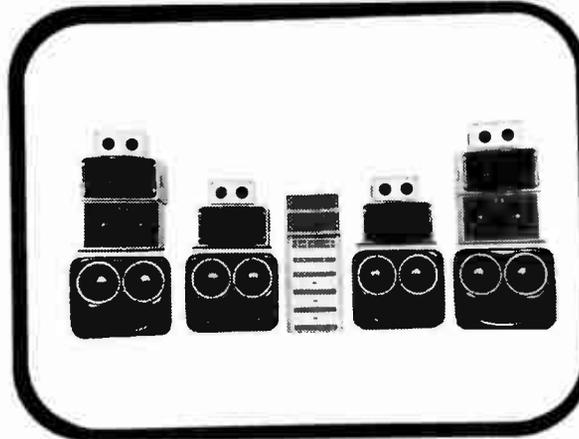


CETEC GAUSS FULL LINE PA SYSTEM
Cetec Gauss
13035 Saticoy St., N. Hollywood, CA 91605
Contact: Ken McKenzie, National Sales Manager,
Gauss Loudspeakers.

PRODUCT DESCRIPTION: First Full Line PA System by Gauss. Gauss Loudspeakers, by Cetec Gauss, has produced perhaps the simplest and most effective way to demonstrate three-way and four-way actively crossed over stereo sound systems. In the three-way actively crossed over stereo system,

LOUDSPEAKER & MONITOR SYSTEMS

geared for rock groups with audience capacity of 400 to 600 people, depending upon program material, the sound is defined with two Community Light and Sound GGM enclosures with Gauss 5840 speakers for low frequencies. The three-way system also contains two Gauss 4075 horns with HF4000 drivers for mid frequencies and eight Gauss 1502 UHF compression drivers for ultra high frequencies. The crossover system points of the three-way are 800 Hz and 8000 Hz through a Sound Craft EX4s crossover. The amplification power consists of one Crown DC300A for low frequencies, one Crown D150A for mid frequencies and one Crown D75 for ultra high frequencies.



CETEC GAUSS
Full Line PA System

In the four-way actively crossed over stereo system, geared for rock groups with audience capacity of up to 100 people, also depending upon program material, the sound is defined with the same components as the three-way with the addition of two T.D. Audio 2 x 12 direct radiating enclosures with four Gauss 2841 speakers for low-mid frequencies. The crossover system points are 300 Hz, 1200 Hz, and 8000 Hz using the same Sound Craft EX4s crossover and the addition of one Crown DC300A for mid-low frequency amplification power. The power output, monitoring the amplification power from the amplifier to the speakers for both systems is through a Uni-Sync metering system (PMSI). Additional components to the Gauss Loudspeaker stereo sound systems are one Crown series 800 2-track reel-to-reel tape unit, one Crown RTA-2 analyzer, a Sound Craft series 1-S 16 x 2 mixing console and a Deltalab digital delay unit. The cabinets for the speaker components are of Baltic Birch Natural finish constructed by T.D. Audio, Montclair, New Jersey, and the traveling cases were specially designed and fitted by C.C. Case Company, Montclair, New Jersey. In the amplification rack, the termination panel (rear side), there are six cooling fans, three pulling air and three blowing air, two AC inputs with ground lift switches and crossover inputs via a multi-pin computer connector (all connections labeled). The Systems were custom designed by Marvin Welkowitz, president of Quantum Audio, New York.

DEALER AVAILABILITY: Available throughout California.



BIG TWEET
Cetec Gauss
13035 Saticoy St., N. Hollywood, CA 91605
Contact: Mr. Ken McKenzie, National Sales Manager
Gauss Loudspeakers.

PRODUCT DESCRIPTION: Big Tweet can be called a compression driver, a tweeter, or a high-frequency loudspeaker. Although Gauss bass and middle-range loudspeakers from Cetec Gauss have long held world-wide respect, "Big Tweet" is the division's first high-end compression driver. Big Tweet has entered the audio market on a high note, and Gauss systems from Cetec Gauss now deliver the full range of professional-quality sound.

DEALER AVAILABILITY: Available throughout California.



THE ZOIDS
Community Light & Sound
5701 Grays Ave., Philadelphia, PA 19143. (215) 727-0900
Contact: Christine Kofod, Ex. Vice President.



COMMUNITY LIGHT & SOUND
The Zoids

PRODUCT DESCRIPTION: Zoids are sixty and ninety degree radials for mid-bass, mid and high frequency sound reinforcement. These horns are already boxed with closed-cell foam shot between box and horn, handles and connectors provided. These horns are extremely lightweight, solid and ready to stack.

RECOMMENDED USAGES: Two and Three-way sound systems.

BASIC SPECIFICATIONS: Mid-bass Zoid: 1 2" cone, max. SPL 130 dB, 60 degree radial, 180 - 1200 Hz.

RH60 Zoid: 1 2" comp. driver, max SPL: 134 dB, 60° radial, 400 Hz and up.

SR60 Zoid: 1 1" comp. driver, max SPL: 132 dB, 60° radial, 600 Hz and up.

BRH90 Zoid: 1 2" comp. driver, max SPL: 130 dB, 90° radial, 500 Hz and up.

RH90 Zoid: 1 1" comp. driver, max SPL: 128 dB, 90° radial, 600 Hz and up.

DEALER AVAILABILITY: Available throughout California.



GOLLEHON 400 SRL
Golleson Industries, Inc.
209 Front St. NW, Grand Rapids, MI 49504. (616) 451-0775
Contact: John Golleson, President

PRODUCT DESCRIPTION: The Golleson 400 SRL is a self-contained all horn-loaded, 3-way loudspeaker which can be best described as incredibly loud. The low, mid, and high-frequency drivers are built to withstand punishing power levels. The 400 SRL is a new standard in state-of-the-art loudspeakers.

RECOMMENDED USAGES: Sound reinforcement, playback monitoring, disco. The 400 SRL is recommended for large night club, disco or outdoor installations, and electronic instrument reinforcement, especially synthesizer and percussion. Provision is made for bi-amplification with an 800 Hz (filtered 12 dB/octave) electronic crossover.

BASIC SPECIFICATIONS: Power rating RMS 100 watts. Frequency response 50 - 20 kHz.

Sensitivity 1 watt.

1 meter 106 dB SPL.

Nominal Impedance 8 ohms.

Dispersion H/V 110°/50°.

Crossover frequency 800 Hz - 5 kHz.

Speaker components 2115, 4690, 4660, 8110.

Dimensions (HxWxD): 27 1/2 x 27 x 27 1/4.

Weight 90 lbs.

DEALER AVAILABILITY:

Northern California:
Don Wehr Music — 817 Columbus Ave., San Francisco, CA 94133
K & K Sound Eng., 1904 W. San Carlos, San Jose, CA 95128

Southern California:
Coast Music — 1839 Newport Blvd., Costa Mesa, CA 92627
Nadine's Music — 1065 N. Vine, Hollywood, CA 90038



"CUBE" AND "TROFF" SPEAKER SYSTEMS
Heil sound, LTD.
#2 Heil Industrial Dr., Marissa, Illinois 62257
Contact: Bob Heil, President.

PRODUCT DESCRIPTION: The "Cube" uses one Heil "Celeste" series 12" transducer working into a fiberglass front loaded horn. The tuned port area couples to a rear folded horn producing great bass from the rear wave of the speaker, solid down to 80 Hz! The horn tweeter produces good clean super high response above 3500 Hz.

RECOMMENDED USAGES: The "Cube" can be used to replace the old inefficient column system with much better quality and efficiency. It can also be used as a mid range horn in an electronic crossover, 2 or 3 way system, meaning you don't need to trade in your club system to update it to a large auditorium system.

BASIC SPECIFICATIONS: The "Cube" is a very high efficient speaker system which produces 95 dB with only 1 watt input! It is capable of taking over 75 watts RMS, total. The "Cube" measures 20" x 23" x 25", weighs 65 lbs.

DEALER AVAILABILITY: Musician's Supply — P.O. Box 1440 El Cajon, California.

KLIPSCH MCM—1900 SYSTEM

Klipsch and Associates, Inc.
P.O. Box 688, Hope, Arkansas 71801. (501) 777-6751
Contact: Chuck Mulhearn, Industrial Division

PRODUCT DESCRIPTION: Very high efficiency, all horn-loaded, 3-way system, 4-way available by press time with higher level potential.

RECOMMENDED USAGES: High level sound reinforcement and playback applications for the performing arts where wide-range clean loud sound is required.

BASIC SPECIFICATIONS: 42-22,000 Hz ± 5 dB response outdoors at a distance of 10 meters, 0.8 meters above ground level.

DEALER AVAILABILITY:**Northern California:**

Pro Audio Electronics, Oakland, CA.
Turntables Unlimited, Sacramento, CA.
Sound Genesis, San Francisco.

Southern California:

Audio Concepts, Los Angeles, CA.

**MODEL 4313 CONTROL MONITOR**

James B. Lansing, Inc.
8500 Balboa Blvd., Northridge, CA 91329
Contact: Jim Brawley, Applications Engineer.

PRODUCT DESCRIPTION: The 4313 is a three way monitor system featuring a newly designed 12-inch low frequency transducer, a 5-inch mid-range transducer and a aluminum/phenolic 1" dome radiator.

RECOMMENDED USAGES: The 4313 is ideal for control rooms, small studios, mixdown facilities or any other application in which acoustical requirements call for a full sized monitor in a compact space.

BASIC SPECIFICATIONS: Frequency response 40 Hz - 18 kHz, ± 3 dB.

Maximum power input: 40 watts continuous sine wave.

Sensitivity: 106 dB at 1 meter with full power.

DEALER AVAILABILITY: Available throughout California.

**4301E ENERGIZED BROADCAST MONITOR**

James B. Lansing, Inc.
8500 Balboa Blvd., Northridge, CA 91329
Contact: Jim Brawley, Applications Engineer.

PRODUCT DESCRIPTION: A self contained amplifier/monitor speaker system featuring an 8-inch low frequency reproducer and 1.4-inch high frequency direct radiator and full conjugate network. The system includes a matched power amplifier built-in.

RECOMMENDED USAGES: Recommended for use in broadcast studios, small control or mix down rooms and for home recording systems.

BASIC SPECIFICATIONS: Frequency response: 45 Hz to 15 kHz, ± 3 dB.

Power amplifier: 10W continuous.

Sine wave less than 0.057 THD.

98 dB SPL at 1 meter full rated power.

DEALER AVAILABILITY: Available throughout California.

**L.A. STUDIO MONITOR**

Linear Audio Systems
15210 Ventura Blvd., Sherman Oaks, CA 91403. (213) 986-9111
Contact: Jeffrey W. Pam, Owner.

PRODUCT DESCRIPTION: LINEAR Audio Systems is proud to introduce the L.A. Studio Monitors. Unmatched in linearity, efficiency, power handling capacity and, with its walnut veneer cabinetry, beauty unsurpassed. All components are professionally hand-sealed and installed into finely tuned enclosures. No inductors are used within the crossover network; the drivers natural impedance characteristics provide all necessary roll-offs, the result being the elimination of ringing, phase-shifting, insertion loss and dampening impairment, normally associated with LC networks.

RECOMMENDED USAGES: Here is an attractive, moderately priced recording studio speaker; tastefully designed for studio monitor mixdown and the exacting home listener, each requiring precision high level playback equipment. Linear Audio Systems is ready right now to deliver, to your location, the highest quality studio monitor available. Speakers you will be proud to own.

BASIC SPECIFICATIONS: 3-way system: 12" woofer, 5" mid-range, 2 1/2" tweeter.

Cabinet dimensions: 25 x 14 1/2 x 12 1/2 inches.

Frequency response: ± 2 dB 50 Hz - 14 kHz, ± 5 dB 30 Hz - 20 kHz.

Harmonic distortion: less than 1%, 50 Hz - 15 kHz @ 100 SPL @ 3'.

Power handling: 75 watts (continuous).

Special features: front mounted brilliance & presence controls, fuse protection; easy push-connectors.

List Price \$229.00

DEALER AVAILABILITY:

Northern California: Hun Sound.

Southern California: Linear Audio Systems

Aphex West

B & B Audio

Also Factory direct and starting to be available throughout CA.

LOUDSPEAKER & MONITOR SYSTEMS

ANCHOR SERIES

Northwest Sound, Inc.
3497 NW Yeon Ave., P.O. Box 3586, Portland, Oregon 97208
(503) 223-1924
Contact: Ronald Fuller, Marketing Manager (213) 841-2394
Northwest Sound, Inc., 414 N. Sparks, Burbank, CA 91506

PRODUCT DESCRIPTION: Attractively styled loudspeaker systems with power amplifiers and microphone and phono preamps built in. Available in two versions with more on the drawing boards. Anchor 100: one 4 1/2" loudspeaker in a 6" x 7" x 7 1/4" walnut enclosure; Anchor 200: two 4 1/2" speakers and a dome tweeter for extended high-frequency response, all in an 8" x 12" x 8" walnut enclosure. Both have a sound quality never before achieved in such small packages. Also available in unpowered versions as Anchor 1 and Anchor 2.

RECOMMENDED USAGES: Compact "real world" monitors for track auditioning and mixdown. The built-in phono preamps allow direct monitoring of test pressings. Self-contained power amps save precious rack space. The compact size and the wall mounting hardware included with the Anchor 2/200 are ideal for crowded control rooms.

BASIC SPECIFICATIONS:

Anchor 100: Frequency response: ± 3 dB, 100 Hz to 15 kHz.

Rated power: 35 watts.

Maximum SPL at 1 meter, full power: 104 dB SPL.

Anchor 200: Frequency response: ± 3 dB, 100 Hz to 20 kHz.

Rated power: 55 watts.

Maximum SPL at 1 meter, full power: 109 dB SPL.

DEALER AVAILABILITY: Available throughout California.

**BASS BIN**

Professional Audio Systems
1214 West 252nd St., Harbor City, CA 90710. (213) 534-3570
Contact: Larry or Marilyn Doran.

PRODUCT DESCRIPTION: Birch plywood, with gun metal gray texture. Height: 32 in., width: 24 in., depth: 24 in., weight 75 lbs. Choice of PAS 15" drivers. ER-1580, or BG-1580 Loudspeakers.

RECOMMENDED USAGES: With BG-1580 Loudspeaker, keyboard/PA low frequency reinforcement. With ER-1580 Loudspeaker, Disco/PA low frequency reinforcement.

DEALER AVAILABILITY:**Northern California:**

Associated Sound — Sacramento.

Don Wher's — San Francisco.

K and K Music — San Jose.

Southern California:

Whittier Music Company — Whittier

California Musical Instruments — Anaheim.

Killeen Music — Burbank.

L.A. Sound — Hollywood.

**C-1080**

Professional Audio Systems
1214 West 252nd St., Harbor City, CA 90710
Contact: Larry or Marilyn Doran

PRODUCT DESCRIPTION: The G-1080 is a high efficiency extended range guitar ten inch loudspeaker, with a three inch voice coil of ultra light aluminum wire. The massive 90 oz. ferrite magnet is supported by a cast aluminum frame.

RECOMMENDED USAGES: For use as a lead guitar, or horn load speaker.

BASIC SPECIFICATIONS: Frequency response: 80 Hz - 7 kHz.

Free air resonance 55 Hz.

EIA sensitivity: 52.5 dB.

Power capacity: 130 Watts RMS.

DEALER AVAILABILITY:**Northern California:**

Associated Sound — Sacramento

Don Wher's — San Francisco

Gelb Music — Redwood City

Music Factory — San Luis Obispo

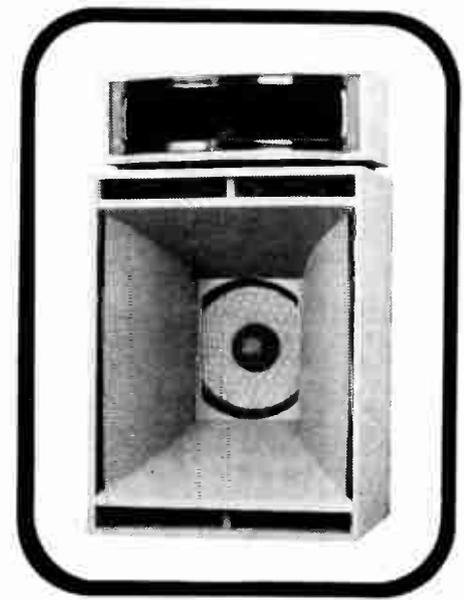
Southern California:

Hogan's House of Music — Lawndale

California Musical Instrument — Anaheim

Killeen Music — Burbank

L.A. Sound — Hollywood



PROFESSIONAL AUDIO SYSTEMS
G-1280

G-1280**Professional Audio Systems**

1214 West 252nd Street, Harbor City, CA 90710. (213) 534-3570
Contact: Larry or Marilyn Doran

PRODUCT DESCRIPTION: The G-1280 is a high powered high efficiency twelve inch loudspeaker with a three inch voice coil and a 90 oz. ferrite magnet generating 13,000 gauss in the gap. The G-1280 is initially available in a steel frame basket.

RECOMMENDED USAGES: For use as a lead guitar, or horn load speaker.

BASIC SPECIFICATIONS: Frequency response: 60 Hz - 5.5 kHz.

Free air resonance: 45 Hz.

EIA sensitivity: 54 dB.

Power capacity: 140 watts RMS.

DEALER AVAILABILITY:**Northern California:**

Associated Sound — Sacramento

Don Wher's — San Francisco

Gelb Music — Redwood City

Music Factory — San Luis Obispo

Southern California:

Hogan's — Lawndale

California Musical Instrument — Anaheim

Killeen Music — Burbank

L.A. Sound — Hollywood

**HF-40 X 90****Professional Audio Systems**

1214 West 252nd St., Harbor City, CA 90710. (213) 534-3570
Contact: Larry or Marilyn Doran

PRODUCT DESCRIPTION: The HF-40 X 90 is a 40° verticle by 90° horizontal radial horn designed to compliment the PAS Bass Bin with tuned frequency cut off of 800 Hz, constructed of fiberglass with reinforced ribbing, one inch throat with bolt patterns for a number of compression drivers and birch plywood with textured grey road case. It comes with parallel phone jacks for bi-amp, or an 800 Hz 12 dB per octave passive network with continuously variable attenuation. Horns for threaded drivers are available upon request.

RECOMMENDED USAGES: Disco, PA, sound reinforcement, in conjunction with the PAS Bass Bin.

BASIC SPECIFICATIONS: 800 Hz - 10 kHz, birch plywood with textured gun metal grey, height 8 1/4", width 23 1/4", depth 19", weight 26 lbs.

DEALER AVAILABILITY:**Northern California:**

Gelb Music — Redwood City

Associated Sound — Sacramento

Don Wher's House of Music — San Francisco

K And K Music — San Jose

Southern California:

Hogan's House of Music — Lawndale

California Musical Instruments — Anaheim

Killeen Music — Burbank

L.A. Sound — Hollywood

**SPENDOR BC-1 MONITOR SPEAKER****Made in England**

Exclusive US Importer: RCS Audio International, Inc.

1314 34th St. N.W., Wash. DC 20007

Contact: Richard E. Schaus, President.

LOUDSPEAKER & MONITOR SYSTEMS

RECOMMENDED USAGES: Broadcast monitor in modest size room.

BASIC SPECIFICATIONS: Three way, bass reflex speaker, 8" Bextrene woofer/midrange, 1" tweeter, 3/4" tweeter.

Crossover at 3,000 and 13,000 cycles.

16 dB/octave dividing network.

Minimum power requirement: 25 watts.

Maximum power handling: 55 watts.

8 ohm impedance.

25" x 12" x 12".

Total weight: 31 lbs.

Price: \$325.00 each.

DEALER AVAILABILITY:

Northern California:

Audible Difference, 435 Tasso, Palo Alto, CA 94301

California Audio Systems, 1018 S. Mooney Blvd., Visalia, CA 93277

Southern California:

Music and Sound of California, Inc.

22876 Ventura Blvd., Woodland Hills, CA 91364

Audio Directions

8898 Claremont Mesa Blvd., San Diego, CA 92123

SFENDOR BC-3 MONITOR SPEAKER

Made in England.

Exclusive US Importer: RCS Audio International, Inc.

1314 34th St. N.W., Wash. DC 20007

Contact: Richard C. Schaus, President

RECOMMENDED USAGES: Broadcast monitor in modest size room.

BASIC SPECIFICATIONS: Four way bass reflex speaker; 12" Bextrene woofer, 8" Bextrene mid-range, 1 1/2" tweeter, 3/4" tweeter.

Crossover at 700, 3,000 and 13,000 cycles.

16 dB/octave dividing network.

Minimum power requirement: 50 watts.

Maximum power handling: 75 watts.

8 ohm impedance.

31 1/2" x 15 1/2" x 15 1/2".

Total weight: 75 lbs.

price: \$750.00 each

DEALER AVAILABILITY:

Northern California:

Audible Difference, 435 Tasso, Palo Alto, CA 94301

California Audio Systems, 1018 S. Mooney Blvd., Visalia, CA 93277

Southern California:

Music and Sound of California, Inc.

22876 Ventura Blvd., Woodland Hills, CA 91364

Audio Directions

8398 Claremont Mesa Blvd., San Diego, CA 92123

SPENDOR SA-1 MINI-MONITOR SPEAKER

Made in England

Exclusive US Importer: RCS Audio International, Inc.

1314 34th St. N.W., Wash. DC 20007

Contact: Richard C. Schaus, President.

RECOMMENDED USAGES: Broadcast monitor in modest size room.

BASIC SPECIFICATIONS: Two way, dynamic speaker with 6" Bextrene woofer, 1" dome tweeter.

Crossover at 3,000 cycles.

18 dB/octave dividing network.

Minimum power requirement: 20 watts.

Maximum power handling: 40 watts.

8 ohm impedance.

12" x 9" x 9".

Total weight: 16 lbs.

Price: \$200.00 each.

DEALER AVAILABILITY:

Northern California:

Audible Difference, 435 Tasso, Palo Alto, CA 94301

California Audio Systems, 1018 S. Mooney Blvd., Visalia, CA 93277

Southern California:

Music and Sound of California, Inc.

22876 Ventura Blvd., Woodland Hills, CA 91364

Audio Directions

8898 Claremont Mesa Blvd., San Diego, CA 92123

SPECTRA SONICS MODEL 3100. PORTABLE SELF-POWERED SPEAKER SYSTEM

Spectra Sonics

3750 Airport Road, Ogden, Utah 84403. (801) 392-7531

Contact: Greg Dilley, Sales Engineer.

PRODUCT DESCRIPTION: The SPECTRA SONICS Model 3100 is a complete amplification system which will accept program material from a microphone, a turntable, a radio or a tape recorder. The system is powered by rechargeable, dry batteries or 115 VAC. The Model 3100 is ruggedly constructed to withstand numerous moves to various locations. The system will operate from 5 to 7 hours on batteries alone, and will amplify material to a level that is more than adequate for an assembly of 100 to 125 persons. The Model 3100 is compact, weighs only 38 pounds and is distinctively styled.

RECOMMENDED USAGES: The SPECTRA SONICS Model 3100 is ideally suited for use as a portable public address system at locations where there are no provisions for sound amplification. For example, the Model 3100 would be useful to address groups at parks, churches, or from a float while it is moving. Sound equipment rental agencies would be interested in this portable public address system for sports events, picnics, and political rallies.

BASIC SPECIFICATIONS: Frequency response: ± 1 dB, 20 Hz - 5 kHz, $+7$ dB at 15 kHz.

Total harmonic distortion and Noise: line - .01% or less, mix - less than noise.

Signal-to-noise ratio: line - 78 dB, mic - 60 dB.

Damping factor: 300 or greater, at 200 Hz or less.

DEALER AVAILABILITY:

Northern California:

Delta Sound and Radio, Inc., Stockton, CA

Corporate Media Systems, San Rafael, Ca

Southern California:

Metro Audio, Inc., Bakersfield, CA

Audio Concepts, Inc., Hollywood, CA

Available throughout California.

TIME ALIGNED STUDIO MONITOR SYSTEM MODEL 813

UREI

8460 San Fernando Rd., Sun Valley, CA 91352. (213) 767-1000

Contact: Ewald J. Consen.

PRODUCT DESCRIPTION: The 813 Studio Monitor System is the first generation product of a joint R&D effort of UREI and E.M. Long Associates. The Time-Align Technique is a real-time design method, utilizing proprietary instrumentation developed by Long which allows the driver placements and network parameters to be adjusted simultaneously, achieving near perfect alignment of the frequency components of a complex transient waveform as heard by a listener.

RECOMMENDED USAGES: Critical monitoring of audio signals in studios and control rooms.

BASIC SPECIFICATIONS: Type: Dual woofer coaxial with Model 838 three way TA network.

Power Rating: 75 watts 40 Hz to 20 kHz, with pink noise.

Frequency response: ± 3 dB, 40 Hz to 15 kHz

Sensitivity: 89 dB SPL/volt/meter.

Impedance: 8 ohms, nominal (minimum impedance 3.7 ohms).

Network: UREI 838, 3-way.

Cabinet: Utility flat black painted.

Weight: 79.8 kg (176 lbs.).

Shipping weight: 100.2 kg (221 lbs.).

Dimensions: (HWD)— 36" x 31" x 23" without grille, 23 3/4" with grille.

Accessory: Grille 813 G.

Listed Price: \$1,396.00

DEALER AVAILABILITY: Contact UREI for your nearest dealer.

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The Mix Recording Studio
Directory for Northern California
will be released on
January 1, 1979.
The next Southern California
Studio Directory is scheduled for
March 1, 1979.

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studio, music store or pro and
semi pro audio dealer.

the
Mix

MICROPHONES & PICKUPS

DC-63 VARIABLE PATTERN CONDENSER MICROPHONE
AB Pearl — Sweden
Exclusive Western U.S. Importer: Cara International Ltd.
 4145 Via Marina, #120, Marina del Rey, CA 90291
 Contact: W.L. Cara

PRODUCT DESCRIPTION: Variable pattern condenser microphone for 48 volt powering. Variable pattern control is selected by a combination of two ring switches and one potentiometer on the microphone body which provide 44 distinct combinations from cardioid, omni, bi-directional and in-between settings, and with selection of 16 dB pad in flat or high pass response. The DC-63 employs a dual diaphragm condenser element with dual FET pre-amplifier. Connector is 3-pin XLR type on microphone base. The size is very small for such a high quality microphone.

RECOMMENDED USAGES: All high quality studio work, instrumental and vocal group. Ideal medium to distant pick-up wherever full natural sound is desired. Also ideal for live show performance where larger microphones may be obtrusive.

BASIC SPECIFICATIONS: Frequency response: 30 to 20,000 Hz. Pattern: Variable with 44 combinations. Sensitivity (200 ohms): —48 dB to —52 dB**
 Output: 2.5 to 4.0 mV/Pa**
 Dynamic range: 126 to 130 dB**
 Operating voltage: +48 VDC, +6, —8**
 Current drain: 0.8 mA max.
 Weight: 11.5 ounces (325 grams).
 **denotes "depending upon pick-up pattern selected".
DEALER AVAILABILITY: Available throughout California.

MODEL F-69 STUDIO DYNAMIC CARDIOID MICROPHONE
AB Pearl Mikrofönlaboratorium, Astorp, Sweden
Exclusive Importer Western U.S. — Cara International, Ltd.
 4145 Via Marina, #120 Marina del Rey, CA 90291
 Contact: W.L. Cara

PRODUCT DESCRIPTION: Dynamic, cardioid microphone, light weight, rugged, high output. Very smooth frequency response with virtually no proximity effect. Connector in case is XLR 3-pin.

RECOMMENDED USAGES: Recording studio, broadcast, theater and public address use. Excellent hand held vocal microphone for professional users providing crisp, clean full range sound without boomy proximity effect.
BASIC SPECIFICATIONS: Directivity pattern: cardioid. Frequency response: 60 - 18,000 Hz. Sensitivity: —54 dB/Pa; Re: 200 ohms. Output level: 2.0 mV/Pa, balanced. Weight: 175 gr. (6.2 ounces).
DEALER AVAILABILITY: Available throughout California.

AT801
Audio-Technica U.S. Inc.
 33 Shiawassee Ave., Fairlawn, OH 44313
 Contact: Bob Herrold, Product Manager

PRODUCT DESCRIPTION: The AT801 is an omnidirectional electret condenser microphone with recessed on/off switch, AA penlight battery lasting 3500 hrs, slip in mic clamp, balanced output and vinyl carrying case.

RECOMMENDED USAGES: The microphone has a rising high end for drums, brass, etc. and excellent low end for pipe organ, bass guitar, etc.
BASIC SPECIFICATIONS: Sensitivity: —48 dBm. Impedance 600 ohms. Frequency response 40 - 18,000 Hz. Open circuit output voltage 0.62 mv (—64 dBV).
DEALER AVAILABILITY: Available throughout California.

AT802
Audio-Technica U.S., Inc.
 33 Shiawassee Ave., Fairlawn, OH 44313
 Contact: Bob Herrold, Product Manager

PRODUCT DESCRIPTION: The AT802 is an omnidirectional dynamic microphone with slip in mic clamp, balanced output and vinyl carrying case.

RECOMMENDED USAGES: The microphone has a flat frequency response and is a good general purpose recording microphone.
BASIC SPECIFICATIONS: Sensitivity: —56 dBm. Impedance 600 ohms. Frequency response 50 - 16,000 Hz. Open circuit output voltage 0.25 mv (—72 dBV).
DEALER AVAILABILITY: Available throughout California.

AT811
Audio-Technica U.S., Inc.
 33 Shiawassee Avenue, Fairlawn, OH 44313
 Contact: Bob Herrold, Product Manager

PRODUCT DESCRIPTION: The AT811 is a unidirectional electret condenser microphone with recessed on/off switch, AA penlight battery lasting 3500 hrs, slip in mic clamp, balanced output and vinyl carrying case.

RECOMMENDED USAGES: This is an effective mic for drums, acoustic guitar, etc. The slightly rising high end yields transparency.
BASIC SPECIFICATIONS: Sensitivity: —50 dBm. Impedance 600 ohms. Frequency response: 50 - 20,000 Hz. Open circuit output voltage 0.25 mv (—72 dBV).
DEALER AVAILABILITY: Available throughout California.

AT812
Audio-Technica U.S. Inc.
 33 Shiawassee Ave., Fairlawn, OH 44313
 Contact: Bob Herrold, Product Manager

PRODUCT DESCRIPTION: The AT812 is a unidirectional dynamic microphone with slip in mic clamp, balanced output, vinyl carrying case and recessed on/off switch.

RECOMMENDED USAGES: The microphone has a wide range frequency response and is excellent for amplified instruments. It will not overload.
BASIC SPECIFICATIONS: Sensitivity: —60 dBm. Impedance: 600 ohms. Frequency response: 50 - 18,000 Hz. Open circuit output voltage 0.16 mv (—76 dBV).
DEALER AVAILABILITY: Available throughout California.

AT813
Audio-Technica U.S., Inc.
 33 Shiawassee Avenue, Fairlawn, OH 44313
 Contact: Bob Herrold, Product Manager

PRODUCT DESCRIPTION: The AT813 is a unidirectional electret condenser microphone with recessed on/off switch, AA penlight battery lasting 3500 hrs, slip in mic clamp, balanced output, in vinyl carrying case and effective wind screen/pop filter.

RECOMMENDED USAGES: It can be used in the most exacting applications on a stand or hand-held. It is well liked for piano with flat response yielding faithful reproduction.
BASIC SPECIFICATIONS: Sensitivity: —55 dBm. Impedance 600 ohms. Frequency response 20 - 20,000 Hz. Open circuit output voltage 0.28 mv (—71 dBV).
DEALER AVAILABILITY: Available throughout California.

AKG ACOUSTICS
STEREO AND QUADRAPHONIC MICROPHONES
Phillips Audio Video Systems
 91 McKee Drive, Mahwah, NJ 07430. (201) 529-3800
 Contact: Peter Wellikoff, National Marketing Representative

PRODUCT DESCRIPTION: AKG Acoustics has recently introduced a new generation of stereo and quadraphonic microphones. All were designed to facilitate M-S and X-Y mic'ing techniques. Each model is distinguished with their own unique and innovative features, due to user demand and diverse application. Some of these esoteric features are a remote control pattern selector with nine adjustable pattern characteristics, LED's for aiding in sight-alignment of capsules, advanced FET technology 0/ —10/ —20 pre-attenuator switch, rotatable capsules, and phantom powering from 9 - 52 volts.

RECOMMENDED USAGES: While originally intended for true "concert-hall sound" reproduction of symphony orchestras, big bands, and operatic or choral ensembles, M-S and X-Y techniques are now finding applications in studio rock sessions as well. The recording or broadcast engineer now has constant fingertip control over both the apparent width of the stereo sound image and the apparent spaciousness of that image (ratio of direct-to reverberant sound pick-up).

BASIC SPECIFICATIONS: AKG's new family of stereo and quadraphonic FET condenser microphones all have a frequency range from 20 - 20,000 Hz and a minimal impedance of 200 ohms. While the quadraphonic microphone has a matte-nickel finish, all stereo microphones are finished in satin-black chrome. Each microphone is supplied with a 66 ft. cable, a suspension mount/stand adapter, windscreens, carrying case, and a remote control unit (except C-424 and C-33-none required) individual performance curves and measurements are supplied with complete technical data.

DEALER AVAILABILITY: Available throughout California.

BEYER DYNAMIC M260S
Beyer Dynamic, West Germany
distributed by: Hammond Industries
 155 Michael Drive, Syosset, NY 11791
 Contact: Jack Kelly, Sales Manager

PRODUCT DESCRIPTION: The M260S is a redesign of the world acclaimed M260. The microphone now incorporates a four-stage pop & blast filter and an on-off switch. The basket is now made from a refined steel-mesh, increasing the ruggedness of this microphone. The M260S still has identical response and polar pattern characteristics.

RECOMMENDED USAGES: The M260S is intended for vocal applications where a flat response unidirectional microphone is needed.

BASIC SPECIFICATIONS: Response: 50 - 18,000 Hz. Transducer type: 'short' ribbon. Pattern: hypercardioid. EIA sensitivity: —153 dBm. Impedance: 200 ohms.

DEALER AVAILABILITY:

Northern California:
 Bananas at Large — San Rafael
 Leo's Music — Oakland
 Sound Genesis — San Francisco
 Skip's Music — Sacramento
Southern California:
 Audio Concepts — Los Angeles
 Everything Audio — North Hollywood
 Guitar Center — L.A. & San Diego
 Westwood Music — Los Angeles
Available throughout California

CALREC/EDCOR
Calrec Audio Ltd.
 Hangingroyd Lane, Hebden Bridge, W. Yorks, England
 Contact: Edcor — Phyllis Weston, Sales manager. (714) 556-2740

PRODUCT DESCRIPTION: Calrec-Professional capacitor microphones 1000 Series with fixed capsules, 2000 Series with detachable capsules.

RECOMMENDED USAGES: Excellent choice for broadcast, film and recording studios, where the highest fidelity is essential.

BASIC SPECIFICATIONS: A virtually flat frequency response. S/N ratio of 76 dB. Phantom powered at 48 Volts. Source impedance of 200 ohms.
DEALER AVAILABILITY: Available throughout California.

MUSICAL INSTRUMENT PICKUPS
DiMarzio Instrument Pickups, Inc.
 1388 Richmond Terrace, Staten Island, NY 10310. (212) 981-9286
 contact: Dept. NB

PRODUCT DESCRIPTION: A complete line of replacement pickups is available for electric guitars and basses, acoustic (round-hole) guitars, and piano. All are high impedance, direct installation devices, and come with full warranties and instructions where required. The line includes the Super Dis-

tortion, Dual Sound, PAF, Super II, FS-I and Pre B-I, SDS-I and SDS-II, Model J, Model P, Model One, Acoustic and Acoustic Model II, and Key Mix System.

RECOMMENDED USAGES: Pickups are designed for direct installation in many guitars and basses. Specific models adapt to various musical applications. Catalog is available with full descriptions of functions of all models.

BASIC SPECIFICATIONS: Specifications for all models are available in catalog. Write direct to DiMarzio Musical Instrument Pickups, Inc., Dept. NB.

DEALER AVAILABILITY: Available throughout California.

EDCOR — WIRELESS MICROPHONE SYSTEMS

Edcor

3030 Red Hill Ave., Costa Mesa, CA 92626. (714) 556-2740

Contact: Phyllis Weston, Sales Manager

PRODUCT DESCRIPTION: Wireless lavalier or handheld battery powered transmitters. Single channel receiver and a two channel receiver, plus a diversity receiver system. A personal receiver for remote listening or cueing.

RECOMMENDED USAGES: For the professional concerned with high fidelity sound reproduction and reliability with total freedom of movement.

BASIC SPECIFICATIONS: Receiver: VHF system operating in the low business band or the high business band.

Features high and low impedance outputs.

Includes a RF field strength meter.

AC or DC operable.

Enclosed in a rugged metal enclosure.

Transmitter: Designed to accept most low impedance dynamic or electret microphones.

Accommodates a 9V alkaline battery.

Enclosed in a rugged case.

Drift free performance.

DEALER AVAILABILITY: Available throughout California.

FRAP IT (INTEGRATED TRANSDUCER)

FRAP (Flat Response Audio Pickup)

P.O. Box 40097, San Francisco, CA 94140

Contact: Cindy Portlock, Sales Manager

PRODUCT DESCRIPTION: The \$59.95 pickup with a built-in preamp in the transducer. A multiplexer combines the audio and power on the same type of cable commonly used for ordinary pickups. Power goes up the wire, audio comes back down, and a simple little circuit in the battery box separates the two. There is no cable noise, no cable loss, extended frequency response ability to use long cables of any type, and the capability to use any two-wire jack for custom installation. Battery life of 1500 hours.

RECOMMENDED USAGES: For the musician getting into amplification of acoustic instruments on a limited budget. For guitar, bass, violin, and percussion instruments.

BASIC SPECIFICATIONS: Frequency response: 20 - 50,000 Hz.

Output impedance: 1500 ohms.

Transient response: limited by the interfacing equipment used.

Power supply: two nine volt batteries.

Output jack: standard 1/4" phone jack.

On/off switch built into jack.

Transducer size: 3/8" x 9/8" x 1".

Cable length: nine feet (can be increased to 40 feet).

DEALER AVAILABILITY: Available throughout California.

FRAP MODEL FS-200

FRAP (Flat Response Audio Pickup)

Box 40097 San Francisco, CA 94140. (415) 431-9350

Contact: Cindy Portlock, Sales Manager

PRODUCT DESCRIPTION: The FS-200 has two 3D transducers with built-in low frequency roll-off devices and a built-in mixer. It also has separate outputs for Hz-out and 200 ohms. There is a switch for each channel to cut roll-offs in or out. This affords the discriminating musician the finest possible acoustic amplification with no distortion, signal loss, or harshness of tone characteristic of ordinary single dimension pickups. The stereo, stainless steel preamp has a protective flange for knobs and switches. Type F systems beat the finest microphones in listener tests and are currently in use by the leading professional musicians. List \$750.00

RECOMMENDED USAGES: The FS-200 was developed for use with the piano but not limited to piano. It is for use in any situation where one or two FRAPS are necessary or desirable, including string and percussion instruments.

BASIC SPECIFICATIONS: Frequency response: 5 - 100,000 Hz, 20 - 20,000 Hz.

Output impedance: 250 ohms, 200 ohms, mike level.

Transient response: limited only by the interfacing (amplification or recording equipment) used.

Power supply: LRN-69 ultra, low noise AC power supply.

Standard 1/4" phone jack, with 3 pin Cannon receptacle (balanced line).

Special features: 30 - 300 Hz adjust. roll-offs, roll-off defeat switches, phase reversal each channel, built in mixer.

Size of transducer: 9/8" x 9/8" x 2 1/2".

Preamp casing: stainless steel, 14 gauge (0.078").

DEALER AVAILABILITY: Available throughout California.

MICROPHONES & PICKUPS

FRAP MODEL FS-200LL

FRAP (Flat Response Audio Pickup)

Box 40097, San Francisco, CA 94140. (415) 431-9350

Contact: Cindy Portlock, Sales Manager.

PRODUCT DESCRIPTION: The FS-200LL is a line level stereo transducer system designed to meet the requirements of studios who wish to improve the performance of their EMT Echo plates. Included are two FRAP patented 3 dimensional transducers and an AC powered preamplifier with both individual and mixed channel outputs. The new system increases the output level by 24 dB without sacrificing system noise performance. List price \$750.00

RECOMMENDED USAGES: To upgrade performance of EMT Echo plates.

BASIC SPECIFICATIONS: Frequency response: 5 - 100,000 Hz, 20 - 20,000 Hz.

Output impedance 250 ohms, 600 ohms, line level.

Transient response: limited only by the interfacing (amplification or recording equipment) used.

Power supply: LRN-69 ultra low noise AC power supply.

Output jack: standard 1/4" phone jack, 3 pin Cannon receptacle (balanced line).

Special features: 30 - 300 Hz adjust. rolloffs, rolloff defeat switches, phase reversal each channel, built-in mixer.

Transducer size: 3/8" x 9/8" x 1".

Preamp size: 9/8" x 9/8" x 2 1/2".

Preamp casing: 14 gauge stainless steel (0.078").

DEALER AVAILABILITY: Factory direct only.

FRAP F-200R (GF-100 FOR CUSTOM INSTALLATION)

FRAP (Flat Response Audio Pickup)

Box 40097, San Francisco, CA 94140. (415) 431-9350

Contact: Cindy Portlock/Sales Manager.

PRODUCT DESCRIPTION: Type F Professional Systems offer the ultimate in reliability, versatility and fidelity. They consist of a hand selected, three dimensional transducer, a solid state, stainless steel preamp and adhesive wax for easy transducer placement. The preamp uses expensive discrete FET input amplifiers to prevent distortion, noise, and eliminate feedback. Type F Systems will drive virtually any amplification or recording equipment. List price \$300.00.

The GF-100 for installation in guitars has volume control mounted on Bass side of bridge, and a special brass nut for use with guitar strap. List price \$200.00

RECOMMENDED USAGES: For all string and percussion instruments GF-100 for custom guitar installation where one time only, permanent placement of transducer is preferred.

BASIC SPECIFICATIONS: Frequency response: 70 - 100,000 Hz, rolls off from 70 Hz down to 12 dB per octave to avoid boominess.

Output impedance: 300 ohms.

Power supply: two 8.4 volt mercury batteries.

Current drain: 3 Milliampere.

Battery life: over 200 hours.

Output jack: 1/4" phone jack with integral on/off switch.

Transducer size: 3/8" x 9/8" x 1".

DEALER AVAILABILITY: Available throughout California.

FRAP MODEL T (GT)

FRAP (Flat Response Audio Pickup)

Box 40097, San Francisco, CA 94140. (415) 431-9350

Contact: Cindy Portlock, Sales Manager

PRODUCT DESCRIPTION: The FRAP Model T (GT for custom installation) includes a three dimensional transducer, a rugged, reliable preamp and a stick of FRAP Wax. Now you can have isolation — picks up only the instrument you want, no leakage from other instruments, always a clean, sharp signal; mobility — the pickup moves with you; no inherent feedback; fast transient response; no distortion with the hottest signal, and all for \$135.00. The GT has a dual FET integrated circuit preamp. Custom installation allows a one-time-only, permanent placement of transducer. Lists for \$150.00

RECOMMENDED USAGES: For virtually any resonating instrument from string bass to harmonica. For the student or amateur musician who wants the highest quality acoustical sound within the moderate price range. Type GT for flat top, round hole guitars. Can run into recording board, phaser, echo, flanger, synthesizer, etc.

BASIC SPECIFICATIONS: Space age technology including I.C. circuitry.

Ruler line flat response: 40 to 100,000 Hz. Super fast response.

Top quality, long frame phone jack with integral switch and

self-cleaning, cross palladium contacts. Power supply: plus or minus, powered by two inexpensive 9 volt batteries.

Small size: 4 3/8" x 2 1/8" x 1 1/4", fits in the palm of your hand.

DEALER AVAILABILITY: Available throughout California.

FRAP MODEL W-200 (WS-200)

FRAP (Flat Response Audio Pickup)

Box 40097, San Francisco, CA 94140. (415) 431-9350

Contact: Cindy Portlock, Sales Manager.

PRODUCT DESCRIPTION: Type W Professional Pressure Transducer system looks only at the vibrating air column so it is accurate and virtually insensitive to extraneous mechanical noise. There is no key or valve noise, no feedback or distortion, no breath noise or proximity problems, complete isolation and freedom of movement. The nickle silver transducer replaces the cork and endplate in flutes. The screw mount transducer style for brass and woodwinds mounts in mouth-piece, bocal or barrel. Both can be left in place when not playing amplified. Preamp uses discrete FET input amplifiers. Available in single and dual channel models. W-200 lists \$500, piccolo \$525. WS-200 lists \$1250, piccolo \$25 extra.

RECOMMENDED USAGES: For C, E flat, Soprano, Alto, and Bass flutes piccolos, sax, clarinet, bass clarinet, trumpet, bassoon, etc. Free factory installation. Drives virtually any amplification or recording equipment.

BASIC SPECIFICATIONS: Frequency response: flat from 20 to 20,000 Hz, equalization switch includes flat and 5 degrees of equalization.

Output impedance: 250 ohms, 200 ohms balanced, mike level. Transient response: limited only by the interfacing equipment used.

Power supply — W-200: Four 9-volt batteries, life of approx. 100 hrs.

Power supply: WS-200: 3 Eveready 276 (NEDA 1603) batteries approx. life 500 hrs.

Transducer size: 1 1/8" in length by 7/16" diameter or 1.625 (flute) x 7/16" diameter. Preamp size: 5 1/2 x 4 1/4 x 2 1/8" for W-200 and 9 1/8 x 9 1/8 x 2 1/8" for WS-200. Preamp casing satin finish stainless steel.

DEALER AVAILABILITY: Available at Guitar Center, San Francisco Los Angeles and San Diego.

CORDLESS HANDHELD WIRELESS MICROPHONES and CORDLESS MUSICAL INSTRUMENT SYSTEMS

HM Electronics, Inc.

6151 Fairmount Ave., San Diego, CA 92120. (714) 280-6050

Contact: R. Dale Scott, National Sales Manager.

PRODUCT DESCRIPTION: Cordless VHF FM transmitter/receiver systems for microphones or musical instruments. HME cordless systems eliminate the cord normally attached to a microphone, or between musical instrument and amplifier.

RECOMMENDED USAGES: Entertainers: singers and musicians

BASIC SPECIFICATIONS: VHF FM crystal-controlled systems with transmitting range up to 2000 feet.

Frequency response: flat ± 2 dB from 20 Hz to 15 kHz.

Total harmonic distortion: less than 1%.

DEALER AVAILABILITY: Available throughout California

NAKAMICHI CM-50 MINIATURE ELECTRET MICROPHONE

Nakamichi Research (USA), Inc.

220 Westbury Ave., Carle Place, NY 11514. (516) 333-5440

Contact: Harron K. Appleman, Technical Director.

PRODUCT DESCRIPTION: Miniature (13 x 34 mm) Electret Microphone featuring the same super-omnidirectional element used in the CP-3 capsule (for CM-300); separate housing for battery and on/off switch, connected to mic head with thin, easily hidden cable; powered by 6V silver oxide battery (incl.); tie clasp holder supplied for lavalier applications; high-gain miniatures FET preamplifier built into mic head; foam wind-screen for outdoor use.

RECOMMENDED USAGES: Excellent pickup especially for applications where conventional microphones would be unwieldy or unsightly. The small size makes the unit ideal for binaural "dummy head" recording.

BASIC SPECIFICATIONS: Frequency response: 20 - 18,000 Hz ± 3.5 dB.

impedance: 250 ohms.

Sensitivity (1 kHz, re 0 dB: -75 dB ± 2.5 dB).

S/N ratio (re 0 dB: 46 dB).

Max SPL (for 3% THD): 125 dB.

Current consumption: less than 800 microamperes.

Connector: integral cable with 1/4" phone plug.

Price: \$135.00

DEALER AVAILABILITY: Available throughout California.

NAKAMICHI CM-100 ELECTRET CONDENSER MICROPHONE

Nakamichi Research (USA), Inc.

220 Westbury Avenue, Carle Place, NY 11514. (516) 333-5440

Contact: Harron K. Appleman, Technical Director

PRODUCT DESCRIPTION: Budget version of Nakamichi CM-300. The features are similar, except it comes supplied with CP-1 capsule only; uses one 1.5V penlight cell (incl.); accepts the same capsules as CM-300.

RECOMMENDED USAGES: All-purpose but reduced dynamic range may be unsuitable for certain applications (high SPL).

BASIC SPECIFICATIONS: Same as for CM-300, but Max SPL (for 3% THD) is 118 dB.

Price: \$85.00

DEALER AVAILABILITY: Available throughout California.

NAKAMICHI DM-500 DYNAMIC MICROPHONE

Nakamichi Research (USA), Inc.
220 Westbury Avenue, Carle Place, NY 11514. (516) 333-5440
Contact: Harron K. Appleman, Technical Director.

PRODUCT DESCRIPTION: The budget version of Nakamichi DM-1000 Microphone, its features are similar except for double construction casing. A stand adaptor and foam-lined case supplied. A pre-wired connecting cable is also included.

RECOMMENDED USAGES: All purpose amateur/semi-pro recording. Excellent for vocal pickup. Can be hand-held.

BASIC SPECIFICATIONS: Frequency response: 50 - 15,000 Hz. Impedance: 250 ohms. Sensitivity (1 kHz, re 0 dB: 1V/microbar): -73 dB. Connector: XLR. Price \$85.00

DEALER AVAILABILITY: Available throughout California.

NASTY CORDLESS MICROPHONE

Nasty Cordless
P.O. Box 2205, Berkeley, CA 94702. (415) 526-6745
Contact: Peter Kalmen, Director of Sales.

PRODUCT DESCRIPTION: The Nasty Cordless Microphone features wireless convenience at an unprecedented signal-to-noise ratio of better than 95 dB (30 dB quieter than any other wireless microphone), with no compression-limiting, for an uncolored natural sound. The microphone is tunable and operates interference-free across the entire FM band (88 - 108 MHz). The transmitter module may be used with any professional microphone of your choice. Matching PRO 400 and PRO 500 receivers offer true Combiner "Diversity" operation for absolute null-free performance.

RECOMMENDED USAGES: Due to its versatility and reliability, the Nasty Cordless Microphone can be used under the most demanding and difficult performance conditions. By eliminating the traditional performance problems of other wireless microphones, this system opens new avenues in stage mobility to the performer and visual excitement to the viewer. The unique, unparalleled qualities of the microphone allow the performer total access to the entire stage and adjacent areas without compromising sound quality.

BASIC SPECIFICATIONS: R.F. carrier frequency: 88 - 108 MHz. Modulation: wideband. Audio frequency response: 20 - 20,000 Hz \pm 3 dB. Signal to noise: better than 95 dB. Distortion: less than 1% THD. Transmission Range: 250 ft. Battery: 9 volt alkaline (20 hrs.)

DEALER AVAILABILITY: Available throughout California: distributor - Morley Pedals.

NEUMANN KMR82

Imported By Gotham Audio Corp.
741 Washington St., New York, NY 10014. (212) 741-7411
Contact: Eli Passin, V.P.

PRODUCT DESCRIPTION: Neumann KMR 82 condenser shot gun microphone, 48 volt phantom powered or battery operated; accessories available: N 80G2 power supply, EA 82 elastic suspension, indoor/outdoor windscreen. Specific attention was paid in its design to make the off-axis pickup frequency independent so that off axis sounds are not distorted but merely lower in level than on-axis sounds.

RECOMMENDED USAGES: Recommended for use under recording conditions where microphones cannot be positioned at the normal distance from the source, eg: picking up a soloist within a chorus under concert conditions; also as a boom mike in TV or film where the microphone must remain outside the picture.

BASIC SPECIFICATIONS: Operating principle: pressure gradient-interference transducer. Polar pattern: lobe shaped (shot gun). Freq. range: 40 Hz to 20 kHz. Sensitivity: 21 mV/Pa. Source impedance: 150 ohms. Minimum load impedance 1000 ohms. S/N ratio according to din 45590 (ref. level 1 Pa): 75 dB. Max SPL for 0.5% THD: 128 dB equals 50 Pa. Power supply 48V (+6, -8) Phantom powering. Current consumption: 0.7 mA. Operating time on batteries: min. 10 hours. Weight: 8.8 ounces. Dimensions: 11.6" long, 0.82" diam.

DEALER AVAILABILITY: Available through Neumann dealers throughout California.

MICROPHONES & PICKUPS

EMG PICKUPS

Overlend
P.O. Box 4394, Santa Rosa, Ca 95402
Contact: Rob Turner

PRODUCT DESCRIPTION: The EMG Pickups utilize an internal instrumentation Pre-Amplifier (IIP). The Pre-Amp allows high level output which is low impedance avoiding loss of high frequencies. Output level transients are greater than 3 volts for a high Signal-to-Noise Ratio, extending dynamic range. The EMG's are powered by a 9 volt battery with approx. 9 month life. All models come with pre-wired volume and tone controls, battery clip, and holder, the output jack acts as an on/off switch. A data sheet with wiring diagrams is also supplied. Further improvements include the elimination of string grounding, eliminating shocks and low noise operation.

RECOMMENDED USAGES: The EMG Pickups can be used with any musical amplifier, but are extremely useful in studio applications due to low noise and low impedance line. Full bandwidth frequency response allows greater flexibility to EQ, especially parametrics. The EMG's are well-suited to smaller studios which are not shielded, due to almost complete rejection of hum and buzz. Models available: EMG-H Humbucking Replacement. EMG-MH Mini-Humbucking replacement. EMG-S 3 Pickup system for Stratocaster. EMG-P 2 Pickup Domino Precision Bass.

BASIC SPECIFICATIONS: Output specifications: individual strings: 0.300v RMS. Full Strum Chords: 0.500v RMS. Transients: 3.0v P-P. Output noise: -85 dB (hum, buzz, white noise). Dynamic Range: 90 dB. Current req.: 1.0 ma.

DEALER AVAILABILITY:

Northern California:
Dan Torres Guitars, Saratoga
Hal's Music, Mountain View.
Parkway Music, Rohnert Park.

Southern California:
Guitar's Aire, Long Beach.
Guitar Academy, Anaheim
World of Strings, Long Beach.
The Music Lab, L.A.

MD 421

Sennheiser Electronic
10 West 37th St., New York, NY 10018. (212) 239-0190
Contact: Horst Ankermann, V.P.

PRODUCT DESCRIPTION: Outstanding among the world's top microphone models, the MD 421 has found wide acceptance as the work horse for the professional. The MD 421 is a dynamic microphone with an unusually wide frequency response, an exact cardioid pattern and the capability to record very high sound pressure levels without distortion. A continuously variable bass control is provided to adjust the low end response to the recording distance.

RECOMMENDED USAGES: Due to its technical features, The MD 421 is truly a microphone for all applications: be it high quality music recording in the studio, giving substance to the voice of a radio announcer, or coping with the tough requirements of a rock performer on stage.

BASIC SPECIFICATIONS: Frequency response from 30 to 17,000 Hz. Balanced, low impedance (200 ohms). Output level -54 dB at 94 dB SPL. Overload level exceeds 175 dB SPL. Standard XLR connector.

DEALER AVAILABILITY: Available throughout California

PROFIPOWER MD 431

Sennheiser Electronic
10 West 37th St., New York, NY 10018. (212) 239-0190
Contact: Horst Ankermann, V.P.

PRODUCT DESCRIPTION: Dynamic microphone, specially developed for the live stage performer. Double-housed and shockmounted, it eliminates handling noises. The frequency range covers all instruments as well as the human voice. Features include built-in bass/proximity cut-off and pop filter, tailored directional pattern for unusual volume before feedback and silent on/off switch. Included is a 15 ft. cable, XLR to phone plug and quick release mounting.

RECOMMENDED USAGES: For live performances by vocalists

of any style including rock. High volume of stage monitors or PA are possible. This microphone allows the singer to project his or her voice toward the audience with power and high clarity.

BASIC SPECIFICATIONS: Frequency response: 40 to 16,000 Hz. Super cardioid directional pattern. Solid metal housing with stainless steel grill. Low impedance, balanced (200 ohm). XLR connector. Output level: -55.5 dB at 94 dB SPL.

DEALER AVAILABILITY: Available throughout California.

SM17 DYNAMIC INSTRUMENT MICROPHONE

Shure Brothers Inc.
222 Hartrey Ave., Evanston, Illinois 60204
Contact: John Phelan, Pro Products Manager

PRODUCT DESCRIPTION: The Shure Model SM17 is a miniature dynamic microphone specifically for use with acoustic stringed instruments and other acoustic musical instruments. The SM17 has an omnidirectional pickup pattern and a frequency response well suited for instrument use. The microphone is supplied with an attached 3m (10 ft.) cable, expansion mount, clip, additional bushings (for the expansion mount), and two cable clips. Price \$69.60

RECOMMENDED USAGES: The Shure SM17 is recommended for acoustical pickup of all musical instruments where a small unobtrusive pickup is desired which offers wide range response and easy mounting.

BASIC SPECIFICATIONS: Type: dynamic.

Frequency response: 50 to 15,000 Hz.

Polar pattern: omnidirectional.

Impedance: microphone rating impedance is 150 ohms (200 ohms actual) for connection to microphone inputs rated at 19 to 300 ohms.

Output level (at 1,000 Hz): open circuit voltage -85 dB (.055 mV) (0 dB: 1 volt per microbar).

Power level: -64 dB (0 dB: 1 milliwatt with 10 microbars).

DEALER AVAILABILITY: Available throughout California.

SM81 STUDIO CONDENSER MICROPHONE

Shure Brothers Incorporated
222 Hartrey Ave., Evanston, Illinois 60204
Contact: John Phelan, Professional Products Manager

PRODUCT DESCRIPTION: The Shure Model SM81 is a high-quality, unidirectional condenser microphone designed for the most demanding professional applications in studio recording. It is especially suitable for applications requiring extremely wide frequency response, low noise and distortion characteristics, very low RF susceptibility, and reliable operation over a wide range of temperature and humidity extremes. The SM81 features a selectable 10 dB attenuator and a three-position low-frequency response switch. The SM81 is designed for simplex (phantom) powering from an external supply such as the Shure Models PS1 and PS1E2, or directly from recording equipment. The SM81 operates over a wide voltage range covering both DIN Standard 45 596 simplex voltages of 12 and 48 volts. Also available for use with the SM81 are a highly efficient windscreen (Model A81WS) for outdoor and vocal use, a compact lightweight microphone stand (Model S15) capable of being extended to 4.3m (14 ft), and a versatile stereo microphone adapter (Model A27M). Price \$225.00.

RECOMMENDED USAGES: The Shure SM81 is recommended for all professional recording applications where high quality is of utmost importance.

BASIC SPECIFICATIONS: Type: Cardioid condenser.

Frequency response: 20 to 20,000 Hz.

Output Impedance: rated at 150 ohms (85 ohms actual)

Recommended minimum load impedance: 800 ohms (may be used with loads as low as 150 ohms with reduced clipping level).

Output level (at 1,000 Hz) Open circuit voltage... -64 dB (0.63mV) (0 dB: 1 volt per microbar).

Maximum SPL (at 1,000 Hz) 135 dB (attenuator at 0); 145 dB (attenuator at 10) with 800 ohm load. 127 dB (attenuator at 0); 137 dB (attenuator at 10) with 150 ohm load.

Output Noise: (equivalent sound pressure levels; measured with true rms voltmeter) 16 dB max. A-weighted; 19 dB max. weighted per DIN 45 405.

Signal-to-noise ratio: 78 dB (IEC 179) at 94 dB SPL.

LF response switch: flat, -6 dB/Octave below 100 Hz, -18 dB/Octave below 80 Hz.

Attenuator switch: 0 or 10 dB.

Power: Supply Voltage 12 to 48 Vdc, positive pins 2 and 3. Current drain 1.25 mA (12V) to 2.25 mA (48V).

DEALER AVAILABILITY: Available throughout California.

C-74

Sony Industries
9 West 57th St., New York, NY 10019
Contact: Nick Morris, (212) 371-5800
Professional Audio Division Manager.

PRODUCT DESCRIPTION: Super uni-directional, gun type condenser mic for theatrical and media use. (Uni-directional precision, Urethane windscreen, low-cut switch, long battery life, AC/DC operation).

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MICROPHONES & PICKUPS

BASIC SPECIFICATIONS: Freq response: 40 - 16,000 Hz.
Output impedance: 250 ohms.
Dynamic range: 112 dB.
Max. sound pressure level: 126 dB.
Price: \$625.00 retail.
DEALER AVAILABILITY:
Northern California: Paul Seaman Company
14234 Catalina St., San Leandro, CA 94577
Southern California: Jerry Bauer Associates
8218 Lankershim Blvd., North Hollywood, CA 91605

C 78
Sony Industries
9 West 57th Street, New York, NY 10019. (212) 371-5800
Contact: Nick Morris.
Professional Audio Division Manager.

PRODUCT DESCRIPTION: Super uni-directional, gun type electret condenser mic for theatrical and media use. (Uni-directional operation, Urethane windscreen, lo-cut switch, long battery life, AC/DC operation).

BASIC SPECIFICATIONS: Freq response: 40 - 16,000 Hz.
Output impedance: 250 ohms.
Dynamic range: 112 dB.
Max sound pressure level: 126 dB.
Price: \$735.00 retail.
DEALER AVAILABILITY:
Northern California: Paul Seaman Company
14234 Catalina St., San Leandro, CA 94577
Southern California: Jerry Bauer Associates
8218 Lankershim Blvd., North Hollywood, CA 91605

ECM-41
Sony Industries
9 West 57th St., New York, NY 10019
Contact: Nick Morris. (212) 371-5800,
Professional Audio Division Manager.

PRODUCT DESCRIPTION: Uni directional electret condenser microphone for studio interviews. (Uni-directional, telescopic design, Urethane windscreen, balanced output).

BASIC SPECIFICATIONS: Freq response: 50 - 13,000 Hz.
Dynamic range: 95 dB.
S/N ratio: 63 dB.
Price: \$95.00 retail.
DEALER AVAILABILITY:
Northern California: Paul Seaman Company
14234 Catalina St., San Leandro, CA 94577.
Southern California: Jerry Bauer Associates
8218 Lankershim Blvd., North Hollywood, CA 91605.

ECM-53FP
Sony Industries
9 West 57th St., New York, NY 10019. (212) 371-5800
Contact: Nick Morris,
Professional Audio Division Manager.

PRODUCT DESCRIPTION: Cardioid back electret microphone, flexible for desk or podium. (back electret, flexible mount, long battery life).

BASIC SPECIFICATIONS: Freq response: 40 - 15,000 Hz.
Output impedance: 250 ohms.
Dynamic range: 98 dB.
Max. sound pressure level: 126 dB.
Price: \$280.00 retail.
DEALER AVAILABILITY:
Northern California: Paul Seaman Company
14234 Catalina St., San Leandro, CA 94577
Southern California: Jerry Bauer Associates
8218 Lankershim Blvd., North Hollywood, CA 91605.

F-660
Sony Industries
9 West 57th St., New York, NY 10019
Contact: Nick Morris, (212) 371-5800.
Professional Audio Division Manager.

PRODUCT DESCRIPTION: Uni-directional dynamic microphone for vocal/orchestral recording. (Uni-directional design, wide range, fine clarity, safety lock, vibration-free structure, double windscreen).

BASIC SPECIFICATIONS: Freq response: 100 - 10,000 Hz.
Output impedance: 250 ohms.
Price: \$250.00 retail.
DEALER AVAILABILITY:
Northern California: Paul Seaman Company
14234 Catalina St., San Leandro, CA 94577
Southern California: Jerry Bauer Associates
8218 Lankershim Blvd., North Hollywood, CA 91605

MODEL EC-9P MICROPHONE
Superscope, Inc.
20525 Nordhoff St., Chatsworth, CA 91311. (213) 998-9333
Contact: Rick Pearson, Product Manager, Ext. 2172

PRODUCT DESCRIPTION: Cardioid pattern electret condenser. Aluminum case available in black or silver-satin finish. Features low-cut filter, 10 dB pad, on-off switch, floor stand adaptor, windscreen, and battery. Can be used with internal battery or phantom power operation. Supplied with 10 feet of cable with XLR-12C connector at microphone and terminated in bare wire.

BASIC SPECIFICATIONS: Frequency response: 30 Hz to 17 kHz, ± 3 dB.
Output impedance: 250 ohms balanced.
Output level: -56 dB.
EIA sensitivity: -151 dBm.
Battery life, dry AA: 6,000 hours, Mercury: 12,000 hours.
External power: 12 - 49 volts.
Dimensions: (L x Dia): 7 3/4" x 1 1/4". Weight: 13.8 oz.
Suggested retail price: \$84.35.
DEALER AVAILABILITY: Available throughout California.

TO ALL INDEPENDENT ENGINEERS AND PRODUCERS:

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Direction: _____

MIXING CONSOLES & AUTOMATION



BIAMP SYSTEMS, INC.
1642 Mixing Console

1642 MIXING CONSOLE

Blamp Systems, Inc.
10950 SW 5th Ave., Beaverton, OR 97005. (503) 643-8411
Contact: Laury Lantz

PRODUCT DESCRIPTION: The 1642 is a 16 input X 4 submasters with 2 (left and right) main outputs. Input channels feature 100mm faders, 4 channel assign with pan, mute, solo, 4 band EQ, 3 busses, one pre, one post and one switchable, variable attenuator, mix/line switching, transformer balanced inputs, channel patching, line input and direct output. Complete headphone and metered solo capabilities and 4 channel record in and out are featured. Four independent echo or line channel returns with 4 channel assign, pan and level controls along with 4 independent sub sends make the 1642 one of the most versatile 4 output boards available.

RECOMMENDED USAGES: The 1642 features the latest high slew rate. Low noise IC's with advanced circuiting designs makes the 1642 suitable for any professional application. The 1642 was designed primarily for live performance and 4 track recording. Others will find it useful for live monitor mixing.

BASIC SPECIFICATIONS: Input impedance: 1000 ohm.
Frequency response: flat from 15 Hz to 33 kHz.
Total harmonic distortion: .02%.
Intermodulation distortion: .01%.
Slew Rate: greater than 8V per micro second.
Equivalent input noise: -127 dB.
Measurable preamp input noise: -120 dB, 150 ohm source
-50 dB input 1 volt output -100 kHz filter on output.
Crosstalk: Below 75 dB at 1 kHz, Below 60 dB at 10 kHz.
Equalization: HF ± 18 dB at 12.5 kHz, HM ± 18 dB at 3.7 kHz,
LM ± 18 dB at 200 Hz, LF ± 18 dB at 80 Hz.
DEALER AVAILABILITY: Available throughout California.

Q1608 MIXER

Carvin Mfg. Co.
1155 Industrial Ave., Escondido, CA 92025. (714) 747-1710
Contact: Warren Flarity, Sales.

PRODUCT DESCRIPTION: The Q1608 Mixer is a professional recording/road board, expandable from a 16 to 32 channel system. Fully-balanced differential inputs, 3-band parametric channel EQ, joystick quad panning, channel and main interrupt-points, 8 fully balanced main outputs, pink noise generator, solid Teak cabinetry.

RECOMMENDED USAGES: For discos, studios and road work (Anvil case available).

BASIC SPECIFICATIONS: Input: lo Z, bal. 150 to 600 ohms.
Bipolar differential common mode rejection: 75 dB +
Hum and noise: -125 dBv (EIN).
S/N: 72 dB.

Main output voltage: 10 vRMS, 600 ohms, +22 dBm.

Voltage gain: 74 dB.

THD: less than .05%.

Weight: 60 lbs.

Dimensions: 29.5" x 11" x 24.5".

Price: \$2950.00

Price MS16 Expander: \$1950.00

DEALER AVAILABILITY: Factory direct only.

SP600 MIXER, STEREO

Carvin Mfg. Co.
1155 Industrial Ave., Escondido, CA 92025. (714) 747-1710
Contact: Warren Flarity, Sales

PRODUCT DESCRIPTION: The SP600 features 6 channels with LED peak indicators on each channel. Professional VU meters on genuine teak panel. Colored knobs for easy identification. Two 10-band graphic equalizers, stereo panning, stereo headphone amplifier - switchable to main or cue. Built-in Hammond reverb system. Channel break-in jacks. Balanced XLR inputs. Latchable hard cover.

RECOMMENDED USAGES: For home, disco, small studio, production board and film studio use.

BASIC SPECIFICATIONS: Maximum level in (line): +24.78 dB.

Maximum level in (mic): +6.32 dB.

Maximum level out (line): +22.80 dB.

Slope: 18 volts per microsecond.

Maximum EQ boost and cut: ± 15 dB.

Maximum EQ slope: 12 dB/octave.

Minimum EQ slope: $\frac{3}{4}$ dB/octave.

DEALER AVAILABILITY: Everything Audio

16055 Ventura Blvd., Suite 1001, Encino, CA 91436

(213) 995-4175

MODEL 5200A STEREO MIXER/PREAMPLIFIER

Audioarts Engineering
286 Downs Rd., Bethany, CT 06525

PRODUCT DESCRIPTION: The Model 5200A is a quality stereo mixer designed primarily for discotheque usage. It is basically a 5 input mixer (2 phono, 2 tape, and 1 mic) with random access switching and individual input gain controls enabling any input or combination of inputs to be assigned to one or both of two output channels: PROGRAM or MONITOR (cue). Program has its own treble and bass controls as well as 2 record outputs. Monitor has a built-in headphone amplifier and jack. All switching is lighted. The microphone input may be switched to PROGRAM out (goes to tape) or to PAGE (goes to PROGRAM out but not to record out). All circuitry and switching is noiseless; all ICs are socket mounted, etc., for easy serviceability. List price is \$995.00

RECOMMENDED USAGES: Any realtime mixing situation where totally random access mixing is needed. Any mixing situation where simultaneous monitoring of both upcoming cue material and on-line program mix must be accomplished. i.e., discotheque music systems, tape recording, broadcast work, theater use, etc.

BASIC SPECIFICATIONS: THD: .0095%.

S/N: 95 dB.

Response: 20 Hz - 20 kHz, ± 5 dB.

Input: 47k, +20 dBm max.

Output: +20 dBm max.

DEALER AVAILABILITY: Factory direct only.

SYSTEM 10

Audioarts Engineering
286 Downs Rd., Bethany, CT 06525. (203) 393-0887

PRODUCT DESCRIPTION: The System 10 is a modular mixing board available with input configurations from 16 to 32 channels. There are ten main outputs; in addition each input is capable of acting as an output, permitting up to 26 outputs. The design permits matrixed subgroup output mixing. Each input module has a gain, mic line, pad, phase, 4-band EQ, variable high pass filter, independently controlled direct output control, EQ bypass, 5 level controlled subgroups, solo, mute, 10 monitor mixes (busses), overload light. Each output module (there are ten) has AUX LINE IN; level control, monitor mix level control, five subgroup level controls, master level control, solo, mute, talkback, headphone assignment, plus meter. Monitor/communication module: two headphone jacks, headphone level control, 5 subgroup trim controls, subgroup solos, solo level, talkback input and levels. Solo meter.
Price: \$5000 - 10,000.00

RECOMMENDED USAGES: Professional stage monitor systems; recording modules to be announced.

BASIC SPECIFICATIONS: Signal to noise: 95 dB.

THD: .01%.

Response: 20 Hz - 20 kHz, ± 5 dB.

E.I.N.: -129 dB.

XLR balanced IN and OUT: +26 dB max out; +26 line in.

DEALER AVAILABILITY: Factory direct only.

FADEX

Allison Research, Inc.
P.O. Box 40288, 2817 Erica Place, Nashville, Tenn 37204
(615) "ALLISON" or (615) 385-1760
Contact: Norman Baker, Vice President

PRODUCT DESCRIPTION: An automated fader system designed for retro-fit into existing non-automated consoles, as well as in new boards. FADEX works in conjunction with the industry standard Allison 65K Programmer, and provides automation of channel faders, group masters, grand master, channel mutes and solos and group mutes and solos. The device uses the new VCA-5M and exhibits no audio degradation.

RECOMMENDED USAGES: FADEX is used wherever proven state-of-the-art automation is required. FADEX is particularly applicable in retrofitting existing consoles for "in-the-console" automation. Its use is particularly recommended in mixing very complex musical forms, as the mix may be programmed, piece by piece, over a period of days, weeks, or months.

BASIC SPECIFICATIONS: Uses audio tracks for data storage (bandwidth required is 10 kHz).

Exclusive Allison Priority Encoding allows fader movements to be accessed with 4 msec.

Four level parity system allows error free decoding even on edge tracks and worn tape.

DEALER AVAILABILITY: Factory direct only.

65K PROGRAMMER

Allison Research, Inc.
P.O. Box 40288, 2817 Erica Pl., Nashville, Tenn 37204.
(615) "ALLISON" or (615) 385-1760
Contact: Norman Baker, Vice President

PRODUCT DESCRIPTION: The 65K is the industry standard programmer for mixdown automation. It features priority encoding and multiple parity systems, which allow fast and accurate access up to 65,536 digital bits or 8,192 analog functions. It is available in either digital or analog interface forms, and may be expanded to any conceivable degree of console automation.

RECOMMENDED USAGES: The device is used to organize and store mix-down information from programmable consoles. It may process "level only" automation, up through total automation of level, pan, echo, EQ, assignment, etc. The 65K programmer is currently offered on consoles from Harrison, Sphere, Auditronics, A.P.I., Trident, and Helios. Negotiations are under way with a number of other manufacturers.

BASIC SPECIFICATIONS: Capacity: to 65,536 digital or 8,192 analog functions.

Access time: 4 msec.

Storage medium: audio tape (10 kHz bandwidth).

Speed tolerance: ± 50 %.

5 1/4" rack package provides up to 64 analog functions, plus 512 bits digital. Expander packages available.

DEALER AVAILABILITY: Inquire with Manufacturer.

AMEK M-3000

Amek Systems and Controls
Salford, England

PRODUCT DESCRIPTION: This console has 36 inputs and 24 plus 8 direct outputs. It features 4-band parametric EQ, eight auxiliary outputs, mixes down to both stereo and quad. Unit features an additional eight VCA group faders. Can be used with Allison programmer or with our own floppy disc unit.

RECOMMENDED USAGES: Tracking and mixdown of audio for all types of media.

BASIC SPECIFICATIONS: Powered model: 150 WRMS, (75 W per Channel).
 Input: lo Z, bal. 150 to 600 ohms.
 Bipolar differential circuit.
 Common mode rejection: 75 dB +
 Attenuation: variable to -35 dB to 6 VAC.
 Hum & noise: -125 dBm.
 THD: less than .05%.
 Voltage Gain: 72 dB.
 Weight 55 lbs, Dimensions: 22" x 11" x 18".
 Price (powered) SP600: \$595.00, (non-powered) S600: \$480.00.
 Warranty: 2 year parts and labor.
DEALER AVAILABILITY: Factory direct only.



HARRISON 4832C MASTER RECORDING/REMIX CONSOLE
 Harrison Systems, Inc.
 P.O. Box 22964, Nashville, Tennessee 37202. (615) 834-1184
 Contact: Tom Piper, V.P., or Dave Purple, Sales.

PRODUCT DESCRIPTION: New 4832C 48 input Recording/Remix console featuring a new proprietary transformerless microphone preamplifier. All switching under logical control performed by N-channel J-FETs, eliminating relays. Console features include: VCA fader sections with 9 VCA sub-group capability; 4 band stepless parametric EQ; parametric Hi and Low-pass filters; 32 output assign busses; level automation interface and control circuitry standard. Standard metering is now 36-segment Hi Resolution bar display. Metering is a fully analogue bar graph switchable between true VU or PPM ballistics, which yields a highly visible, flicker-free display.

RECOMMENDED USAGES: The Harrison 4832C console with 48 equalized active tape returns is extremely useful and functional when synchronizing 2 or more multi-track tape recorders. Because the Master Modules are located in the center of the console, the 4832C can easily be utilized in a "split" 24 channel record and isolated 24 channel monitor configuration.
DEALER AVAILABILITY: Available throughout California.



HARRISON 864 AUTO SET
 Harrison Systems, Inc.
 P.O. Box 22964, Nashville, TN 37202. (615) 834-1184
 Contact: Tom Piper, V.P. or Dave Purple, Sales.

PRODUCT DESCRIPTION: Auto Set is capable of performing both standard dynamic automation as well as preset, or static automation. The physical package appears to be a small computer terminal. The data management capability includes the ability to store up to four independent mixes or dynamic sets of data on one tape track, and the ability to store up to 630 "snapshot" mixes or static sets of data on a data cartridge machine included in Auto Set.

RECOMMENDED USAGES: Auto Set may be utilized with any system requiring DC voltage control. When used with an X/Y crossfader, smooth transitions between different sets of data may be accomplished. The preset, or "snapshot mix" mode is ideal for live performance or direct-to-disc recording where data storage in real-time is impossible.
DEALER AVAILABILITY: Available throughout California.



HM 1000 STEREO MIXING SYSTEM
 Heil Sound, Ltd.
 #2 Heil Industrial Drive, Marissa, Illinois 62257
 Contact: Bob Heil, President

RECOMMENDED USAGES: Ideal for professional sound systems, small recording studios or broadcast applications.

BASIC SPECIFICATIONS: Balanced Lo-Z inputs. Unbalanced Hi-Z inputs.

Variable mic attenuator coupled to overload LED monitors input distortion levels.

Stereo pan pots.

±18db @ 50Hz active bass.

±18db @ 5KHz active treble.

Echo send control. Monitor send control.

3/16" cast zinc front plates.

Modular plug-in channels.

Stereo two-way 800Hz electronic crossover.

Stereo full range outputs. Stereo line inputs.

Monitor and echo masters. Mono echo return jack.

In-out switching jacks allow insertion of equalizers, limiters or compressors.

Two 2" VU meters monitor stereo outputs.

Buss line inputs to monitor and echo lines.

Outboard power supply insures low noise figures.

DEALER AVAILABILITY: Available throughout California.



PROFESSIONAL SERIES MICROPHONE MIXER
 Heil Sound, Ltd.
 #2 Heil Industrial Drive, Marissa, Illinois 62257.
 Contact: Bob Heil, President.

PRODUCT DESCRIPTION: The Pro-Mix features 8 low impedance, unbalanced mic inputs in a unique input circuit. The individual gain control varies the sensitivity of the actual mic preamp, thereby making it very simple to eliminate input

MIXING CONSOLES & AUTOMATION

distortion by merely reducing the input Gain control. This gives you the best signal-to-noise ratio with the most headroom. The EQ system used in each input allows ± 20 dB of activity instead of the usual 10 or 12 dB. This terrific EQ activity allows you to get the sound you want, when you want it.

RECOMMENDED USAGES: The output section has two outputs, the Main and Effects. These can be used as left and right, main and monitor, use one for PA and one for recording. a high quality 4" studio meter is switchable between the Main and Effects outputs.

The line input allows "ganging" two or more Pro-Mixer units for expandable systems. All Heil Sound Professional Series products are housed in black anodized aluminum chassis.

BASIC SPECIFICATIONS: Frequency response: 30 Hz - 15 kHz.

THD (1kc 40mv. input, 5V out) .09%

Input noise (10mv. input, 1V out) 55 dB.

Maximum output level 6V RMS into 600 ohms.

Output impedance 20 ohms at 1K.

Effect send impedance 20 ohm at 1K.

Effect send output level 6V. RMS into 600 ohms.

Weight 10 lbs.

Mic input impedance 1k ohm at 1K.

Maximum input level 150mv RMS at 1 kHz.

Bass EQ ±20 dB at 30 Hz.

Treble EQ ±20 dB at 5 kHz.

Line input impedance 42K at 1 kHz.

Line input level Max. 8V RMS.

Output meter, switchable, illuminated and adjustable.

Power consumption 8 watts.

Dimensions 19"W x 8 3/4"H x 6 3/4"D.

DEALER AVAILABILITY:

Musician's Supply, P.O. Box 1440, El Cajon, California.

Available throughout California.



160ARS RECORDING STUDIO CONSOLE 16 IN — 4 OUT.
 Opamp Labs, Inc.
 1033 North Sycamore Ave., Los Angeles, CA 90038
 Contact: B. Losmandy, Manager.

PRODUCT DESCRIPTION: 16 input — 4 output — 4 echo Buss — 8 track mixdown-monitor system.

BASIC SPECIFICATIONS: input Select: 0 dB, -10 dB, -20 dB, -30 dB, Mic level; Line 1 (transformer input); Line 2 (oscillator).

Echo: 16 Echo send controls, 4 echo return gain controls, 4 echo return assign push buttons (lighted) for 4 echo busses.

Low Freq. EQ: 40 cycles (shelf), 100 cycles (shelf), 300 cycles (peaking).

High Freq. EQ: 1.5 KC (peaking), 3 KC (peaking), 5 KC (peaking), 10 KC (shelf).

Output Assign: 4 output assign lighted alternate action push button switches.

Meters: 4 4 1/2" Simpson Lighted VU Meters for output assign channels. For stereo mixdown, the two center VU Meters are used.

DEALER AVAILABILITY: Factory direct only.



MARK 1 SERIES MIXER (6, 9, 12 CHANNEL VERSIONS)
 Peavey Electronics Corporation
 711 A St., Meridian, MS 39301. (601) 483-5365
 Contact: Hollis T. Calvert, Director Sales Promotion/Education

PRODUCT DESCRIPTION: Portable, high quality mixer for sound reinforcement featuring: variable input attenuation, Monitor send, high and low EQ, effects send, level sliders, high and low impedance inputs, master section, main-monitor-effects output and inputs; outputs for each channel.

DEALER AVAILABILITY: Available throughout California.



MARK 2 SERIES MIXER (7, 8, 12, 16 & 24 CHANNEL VERSIONS)
 Peavey Electronics Corp.
 711 A St., Meridian, Mississippi 39301
 Contact: Hollis T. Calvert, Director Sales Promotion/Education

PRODUCT DESCRIPTION: Stereo, LED overload indicators each channel, pre-monitor send each channel, 4-band EQ each channel, stereo pan each channel, LED ladder displays on main and sum, transformer balanced inputs and outputs, + 20 dBm levels at all outputs.

RECOMMENDED USAGES: Sound Reinforcement/Recording

BASIC SPECIFICATIONS: Frequency response: 30 Hz - 20 kHz, ±2 dB.

Outputs: 600 ohms.

Equivalent input noise: -125 dBv, 200 ohm source.

Crosstalk: greater than 60 dB @ 1 kHz.

Overall distortion: Less than 0.3% THD.

DEALER AVAILABILITY: Available throughout California.

NAKAMICHI 610 CONTROL PREAMPLIFIER

Nakamichi Research (USA), Inc.
 220 Westbury Ave., Carle Place, New York 11514. (516) 333-5440
 Contact: Harron K. Appleman, Technical Director

PRODUCT DESCRIPTION: Stereo Control Preamplifier featuring 5-in/2-out mixing of any of 19 different inputs including 5 low-noise, wide range mic inputs; 2 phono inputs; control facilities for up to 3 tape decks; built-in test tones from 1 kHz to 14.16 kHz for quick alignments; built-in pink noise generator; phase check and invert capability at all five mixer inputs; 15 dB and 30 dB mic input attenuators; 50 dB-range peak reading level meters; built-in amplifier/speaker switching with optional relay switching box (RM-610); independent record master and monitor level controls; independently programmable mixer sub-busses (line A and line B); low-noise/low-distortion circuitry throughout; low-leakage toroidal core transformer power supply; high-output headphone amplifier.

RECOMMENDED USAGES: Versatile input/output control center for home stereo systems and semi-pro/amateur recording studios. Switching system for A-B listening comparisons. Tape deck and system alignment and check, with built-in meters and test tones. On-location mixing console.

BASIC SPECIFICATIONS: Frequency response: 30 - 100,000 Hz ±1 dB (mic input).

Phono RIAA Deviation: within ±0.3 dB.

Equivalent-Input Noise: -127 dB (mic), -140 dB (phono).

Total Harmonic Distortion: under 0.01% (mic); under 0.005% (phono and aux).

Input Sensitivity: 0.2 mV (mic), 1 mV (phono), 75 mV (aux).

Output level (@ 0 dB): 1V (monitor out), 316 mV (rec out).

Max. Output level @ Clipping: 5V (monitor and rec out).

Price: \$660.00 (silver), \$680.00 (black).

DEALER AVAILABILITY: Available throughout California.



CORONADO
 Quad-Eight Electronics
 11929 Vose St., N. Hollywood, CA 91605. (213) 764-1516
 Contact: Ronald L. Bennett, Sales Manager

PRODUCT DESCRIPTION: The Coronado system is an automated 24 mixing buss/40 input console system. All amplifiers in the main signal path are discrete for optimum performance and headroom. Each system includes four fully equalized echo returns and six sub groups. The Coronado includes a COM-PUMIX III S.M.P.T.E. time code base automation system as standard equipment. The COMPUMIX III automation system is expandable to a electronic editing system with "floppy disk" memory and color CRT graphics, without modification to the basic system.

RECOMMENDED USAGES: The Coronado is for a truly "state-of-the-art" multitrack recording studio.

BASIC SPECIFICATIONS: Freq. response: 20 Hz to 20 kHz ±1 dB, 30 Hz to 20 kHz ±0.5 dB @ +24 dBm from mic in to any output.

Noise: -129 dBm mic input equivalent input noise.

Headroom: minimum headroom, mic preamp: +28 dBm.

Distortion: less than 0.25% THD measured at any level up to +24 dBm output and any freq. from 30 Hz to 20 kHz (typ. less than 0.1%).

DEALER AVAILABILITY:

Northern California:

Accurate Sound Corp., 114 5th Ave., Redwood City, CA 94063

Southern California:

Coast Recording Equipment Supply Co.

6114 Santa Monica Blvd., Hollywood, CA

Tri-Tronics Inc., 2921 West Alameda Ave., Burbank, CA



LM-6200
 Quad-Eight Electronics
 11929 Vose St., N. Hollywood, Ca 91605. (213) 764-1516
 Contact: Ronald L. Bennett, Sales Manager

PRODUCT DESCRIPTION: The LM-6200 Portable Mixing System is a 6 input/2 output portable studio quality mixer in a 3 1/2 inch rack chassis. It has 6 mic or line inputs, each with a input attenuator and each assignable to either/or Right or Left output busses. It includes overload peak indicators. The LM-6200 is self-powered and is adjustable to run on any voltage anywhere in the world. It also has provision for battery power pack. The LM-6200 systems may be cascaded by simple jumper cable.

RECOMMENDED USAGES: The LM-6200 was designed as a portable mixing system with the same performance as our large studio systems. It has found acceptance as a portable remote mixer for recording, film, and mobile video trucks, as well as fixed theatre installations.

BASIC SPECIFICATIONS: Freq. response: ±1 dB 20 Hz to 20 kHz.

Distortion: less than 0.25% THD 30 Hz to 15 kHz @ +24 dBm ref.

Crosstalk: -62 dB @ 1 kHz, -50 dB @ 10 kHz.

Noise: (output ref. level +4 dBm) Line: greater than 75 dB, Microphone: greater than 70 dB.

Max. output: +24 dBm.

Gain: 80 dB (ref. +4 dBm).

Power req. 100, 115, 140, 220, 240 V 50 - 60 Hz, or ±28 VDC.

Size: 3 1/2" High, 19" Rack mounting width, and 10 1/2" Deep.

Weight: 20 lbs.

DEALER AVAILABILITY:

Northern California:
Accurate Sound Corp., 114 5th Ave., Redwood City, CA 94063
Southern California:
Coast Recording Equipment Supply Co.
6114 Santa Monica Blvd., Hollywood, Ca
Tri-Tronics Inc., 2921 West Alameda Ave., Burbank, CA

PACIFICA

Quad-Eight Electronics
11929 Vose St., N. Hollywood, Ca 91605. (213) 764-1516
Contact: Ronald L. Bennett, Sales Manager

PRODUCT DESCRIPTION: Pacifica series of modular consoles are available in 8 track, 16 track, and 24 track configurations. The Pacifica is an 8 mixing buss system using only discrete amplifiers in the main signal paths for optimum performance. Each system includes four fully equalized echo returns with full function controls.

RECOMMENDED USAGES: The Pacifica system is flexible so as to be usable for 24/32 track recording studios, broadcast (Radio and TV), video sweetening, film scoring, radio/TV production, fixed installation sound reinforcement, and PA sound.

BASIC SPECIFICATIONS: Freq. response: 20 Hz to 20 kHz ± 1 dB, 30 Hz to 20 kHz ± 0.5 dB @ +24 dBm from mic in to any output.

Noise: -129 dBm mic input equivalent input noise.
Headroom: Minimum headroom.

Mic preamp: +28 dBm.

Distortion: less than 0.25% THD measured at any level up to +24 dBm output and any freq. from 30 Hz to 20 kHz (typ. less than 0.1%).

DEALER AVAILABILITY:

Northern California:
Accurate Sound Corp., 114 5th Ave., Redwood City, CA 94063
Southern California:
Coast Recording Equipment Supply Co.
6114 Santa Monica Blvd., Hollywood, CA 90038
Tri-Tronics Inc., 2921 West Alameda Ave., Burbank, CA

VENTURA

Quad-Eight Electronics
11929 Vose St., N. Hollywood, CA 91605. (213) 764-1516
Contact: Ronald L. Bennett, Sales Manager

PRODUCT DESCRIPTION: The Ventura systems are modular consoles and are available in 8 track, 16 track, and 24 track configurations. The Ventura is an 8 mixing buss, VCA fader system using only discrete amplifiers in the main signal paths for optimum performance. Each system includes four fully equalized echo returns with full function controls. The Ventura has VCA faders and six electronic sub-groups.

RECOMMENDED USAGES: The Ventura system is flexible so as to be ideal for 24/32 track or smaller recording studios, broadcast, video sweetening, film scoring, radio/TV production, fixed installation sound reinforcement, and portable PA sound systems.

BASIC SPECIFICATIONS: Freq. response: 20 Hz to 20 kHz ± 1 dB, 30 Hz to 20 kHz ± 0.5 dB @ +24 dBm from mic in to any output.

Noise: -129 dBm mic input equivalent input noise.
Headroom: Minimum headroom.

Mic preamp: +28 dBm.

Distortion: less than 0.25% THD measured at any level up to +24 dBm output and any freq. from 30 Hz to 20 kHz (typ. less than 0.1%).

DEALER AVAILABILITY:

Northern California:
Accurate Sound Corp., 114 5th Ave., Redwood City, CA 94063
Southern California:
Coast Recording Equipment Supply Co.,
6114 Santa Monica Blvd., Hollywood, CA 90038
Tri-Tronics Inc., 2921 West Alameda Ave., Burbank, CA

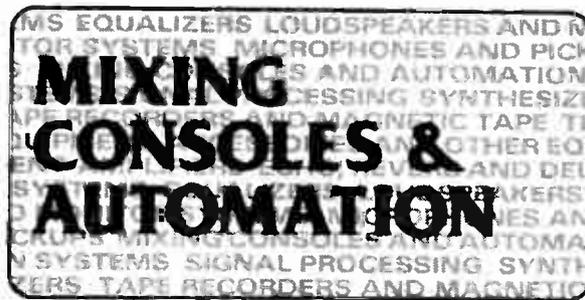
QA-1010

Quantum Audio Labs, Inc.
1905 Riverside Drive, Glendale, CA 91201
Carol Pope, Pres Assistant

Contact: Carol Pope, Pres. Assistant

PRODUCT DESCRIPTION: The QA-1010 is a full service, modular professional studio recording console. The console comes with either 8 or 16 busses and can be metered for 8, 16, or 24 track machines. Each input has fully parametric EQ and 4 completely flexible effects sends. The console comes complete with floor standing pedestal, patchbay, producers desk, etc. It's low noise, low distortion and high slew rate capability give it the most realistic sound available.

RECOMMENDED USAGES: The QA-1010 is designed for the medium sized recording studio that wants the maximum quality available but does not want the expense of automation boards. 8, 16, and 24 track capability means that the studio can begin with a modest investment and grow without having to buy a new console every time. Its multiple use effects busses also make it ideal for large auditorium or sports arenas where multiple output mixes are required.



BASIC SPECIFICATIONS: Modular, with 8 or 16 buss outputs. Monitor and metering for 8, 16, or 24 track machines. Slew Rate: Greater than 10 volts per microsecond. Noise: Greater than 88 dB max signal to noise. Output level: +18 dBm, typical clipping +21 dBm.

DEALER AVAILABILITY:

Northern California: Sound Genesis Inc., Alco Paramount, Protonics.
Southern California: Coast Recording Equipment Supply.

QM-8B

Quantum Audio Labs, Inc.
1905 Riverside Dr. Glendale, CA 91201
Contact: Carol Pope, Pres. Assistant

PRODUCT DESCRIPTION: The QM-8B is a professional recording console with four buss outputs and 8 track monitor and cue capability. It's high quality balanced microphone preamps with wide dynamic range help make it one of the quietest recording units on the market. Each input has solo, panning, 3 special effects sends and a deluxe 3 knob equalizer. Only high quality conductive plastic faders and VU meters are used. High slew rate and low distortion insure top quality.

RECOMMENDED USAGES: The QM-8B consoles are used in small recording studios, small and large PA systems, by musicians on the road, and many other applications. The discerning musician who wants multi track studio results with his demo system will appreciate the complete flexibility of the QM-8B. Agency and jingle studios are able to produce extremely effective products with this console. This console is used anywhere a high quality, reliable, 8 in, 4 out console is required.

BASIC SPECIFICATIONS: 8 inputs, 4 outputs with 3 additional effects busses.

Distortion: Less than .1% THD, typically .05% THD.

Slew Rate: Greater than 10 volts per microsecond.

Noise: Greater than 88 dB max signal to noise.

Output level: +18 dBm, typical clipping +21 dBm.

Size: 20" w x 20" deep x 8 1/2" high.

Weight: 61 lbs.

DEALER AVAILABILITY:

Northern California: Sound Genesis Inc., Alco Paramount, Protonics.
Southern California: Coast Recording Equipment Supply



QUANTUM AUDIO LABS, INC.
QM-12B

QM-12B

Quantum Audio Labs, Inc.
1905 Riverside Drive, Glendale, CA 91201
Contact: Carol Pope, Pres. Assistant

PRODUCT DESCRIPTION: The QM-12B incorporates all the features that make the QM-8B a most sought after unit. Four more inputs increase the flexibility for all applications. Options include stereo input modules for broadcast production use. The QM-12B console can be combined with an extender unit to provide 16, 20, or 24 input capability. The walnut side panels and full width wrist pad give all combinations an attractive professional air.

RECOMMENDED USAGES: The QM-12 satisfies the needs for a 4 buss console with multiple inputs. With it's optional ex-

tender module the console will monitor 16 track machines. This puts the 16 track overdub studio into a very modest price range. Radio and TV stations will use this product in their production rooms, large auditoriums which want professional recording quality and capability will use this for public address and sound reinforcement.

BASIC SPECIFICATIONS: 12 inputs, 4 outputs with 3 additional effects busses.

Distortion: Less than .1% THD, typically .05% THD.

Slew Rate: Greater than 88 dB max signal to noise.

Output level: +18 dBm, typical clipping +21 dBm.

Size 28" w x 20" deep x 8 1/2" high.

Weight: 63 lbs.

DEALER AVAILABILITY:

Northern California: Sound Genesis, Alco Paramount, Protonics
Southern California: Coast Recording Equipment Supply

MM-1 MIXER CONVERTER PREAMPLIFIER

Russound/FMP, Inc.

27-32 Canal St., North Berwick, Me. 03906. (207) 676-9916
Contact: Gaylord Russell, Pres.

PRODUCT DESCRIPTION: Two input, single output battery powered pocket mixer preamp. Balanced inputs are XLR terminated into high quality transformers that handle sources to 600 ohms at levels up to 0 dBm. Unbalanced inputs are phone jack terminated into 100k ohms and will except any mike or instrument level from 1 mV to 100 volts. Overall gain in balanced mode is 50 dB, 40 dB if unbalanced. Drives up to 500 feet of line without high frequency loss. Indicator lamp flashes at 5 dB below clipping. Uses easily available transistor radio batteries.

RECOMMENDED USAGES: Mixer/Converter Preamp allows performer to control both voice and instrument mic level independently. Expands input capability of tape recorder to permit each line input to mix two microphones. A pair of MM-1 units equips most stereo recorders to mix six microphones without the use of an outboard mixer.

BASIC SPECIFICATIONS: 6 1/2" x 3"W x 2 3/4"D. Uses 2 9V transistor radio batteries.

DEALER AVAILABILITY: Available throughout California.

SOLID STATE LOGIC CONSOLES

Solid State Logic Ltd.

Stonesfield, Oxford, England

Contact: Sid Goldstein, Parasound, (415) 637-4544

PRODUCT DESCRIPTION: The Solid State Logic Master Recording Consoles offer a fully-automated design which includes full distributed logic control of all major control states, compressor/limiter/de-esser/expander/noise-gate on each module, full parametric equalization on each module, one-button punch-in that automatically compensates for changes in level, patch-free audio subgrouping, multi-track tape remote in each module, and record-keeping of track assignment, song titles, and time. SSL consoles are available in various 32 and 40 track configurations.

RECOMMENDED USAGES: SSL Consoles are designed for the advanced professional who is looking for maximum quality and control. The highly sophisticated design of the SSL consoles is human engineered to the degree that it allows for very simple operation of all control functions. It is therefore ideal for the state-of-the-art recording studio desiring the best in automated consoles.

BASIC SPECIFICATIONS: 8'3" in length.

Two alternative mainframes are available to accept either 40 or 32 In/Out modules.

Both versions have 32 individual mix busses complete with meters and monitor faders.

48v phantom powering is standard.

All connections are made using Tuchel multi-pin connectors.

DEALER AVAILABILITY: In California:

Sierra Audio, 625 S. Glenwood Pl., Burbank, CA 91506.
(213) 843-8115

NOVA 2428

Sontec Electronics

10120 Marble Ct., Cockeysville, MD 21030. (301) 628-2283

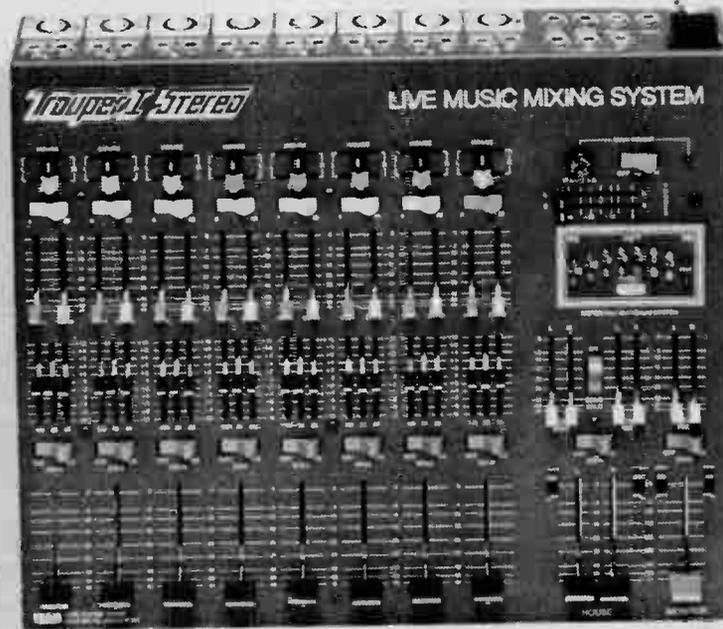
Contact: Burgess Macneal, President

PRODUCT DESCRIPTION: A state-of-the-art sound reinforcement or studio mixing board. All discrete amplifiers in direct signal path. Complete three band parametric EQ (plus shelving EQ) on each input and output. Modular design with LED stripline meters in every output module. Each input module has one Master Gain control and eight mix level controls. Unique mute and solo logic function provide the operator with great versatility.

RECOMMENDED USAGES: It can be used for sound reinforcement, as a stage monitor mixer, or for studio use where the ability to put different input mixes on different outputs is desired. Where superior quality is a requisite, the NOVA series consoles are exceptional.

BASIC SPECIFICATIONS: $\pm .2$ dB 10 - 30,000 Hz (line input to output).

TROUPER I INSIDE OUT



Anyway you look at the TROUPER I it is designed to perform, from its easily serviceable components to unique features, like a solo system or house and echo pan pots. The TROUPER I is flexibility. It is expandable to 18 inputs, available in mono or stereo and capable of handling any **UNI-SYNC** mixing situation. Take a look inside **and out.**



Ask your dealer for TROUPER or write for our free brochure.

DESIGNERS & MANUFACTURERS OF PROFESSIONAL AUDIO SYSTEMS & EQUIPMENT
742 HAMPSHIRE ROAD / WESTLAKE VILLAGE, CALIFORNIA 91361 / (805) 497-0766

Distortion under .002% at +24 dBm.
Noise: less than -80 dBm.
Available in 16, 20, or 24 inputs.
Slew rate: Greater than 100v/usec.
24 input model approx. 54" x 26" x 6" exclusive of power supply.
Power: 115/230 VAC 50/60 Hz.
DEALER AVAILABILITY: Factory direct only.

ARMS AUTOMATION

Sound Workshop Professional Audio Products, Inc.
1324 Motor Parkway, Hauppauge, NY 11787. (516) 582-6210
Contact: Factory

PRODUCT DESCRIPTION: ARMS Automation is a computer based automation system designed to aid the engineer and producer during the multi-track mixdown process. ARMS stores mixdown data on 2 tracks of the multi-track tape master permitting constant update of the mix until the desired mix is achieved. Unlike any other automation systems, mute information is stored separately and is accessed separately so that channels may be "unmuted" leaving the original fader levels intact. Other systems require the re-writing of unmuted channels. Tapes processed with ARMS are fully compatible with the MCI JH-50 automation system.

RECOMMENDED USAGES: In addition to aiding the mixdown process ARMS can be used to program "scenes", and "sets" in large sound reinforcement and multi-media presentations. ARMS is available as an option in the Sound Workshop Series 1600 Recording Console and is available for retro-fit into existing consoles.

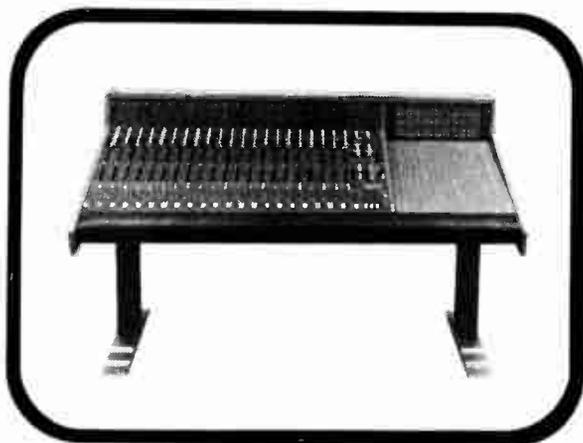
BASIC SPECIFICATIONS: Fixed bounce delay of 1.2 ms per pass. Resolution 4dB.

All data handled by the processor is in digital form, eliminating analog offset errors which are cumulative.

No additional bounce delay is encountered due to excessive fader movement, or excessive mix changes.

DEALER AVAILABILITY:

Northern California: Bananas at Large
Southern California: Express Sound



SOUND WORKSHOP PROFESSIONAL AUDIO PRODUCTS, INC.
Series 1600 Recording Console

SOUND WORKSHOP SERIES 1600 RECORDING CONSOLE

Sound Workshop Professional Audio Products, Inc.
1324 Motor Parkway, Hauppauge, NY 11787. (516) 582-6210
Contact: Factory.

PRODUCT DESCRIPTION: The Series 1600 is a high-performance mixing console which offers several design parameters not found on other boards. These include field expandable mainframe; optional VCA input sub-grouping package; choice of EQ sections, including parametric with variable bandwidth; ARMS automation, a micro-processor based computerized mixing system; optional spectrum real-time analyzer. All options can be ordered with the console or added in the field.

RECOMMENDED USAGES: Due to its modular design, the Series 1600 is a console that can grow as the studio grows. It is available in mainframe sizes from 4 input/2 output through 36 input/32 output. Mainframe can be expanded in the field. All options are field retro-fittable. ARMS Automation also provides in-place-solo, and independently writeable mutes.

BASIC SPECIFICATIONS: Nominal output +4 dBm.

Max output +26 dBm.

All inputs are balanced.

All outputs are line drive amplifiers.

Bus, control room, and studio outputs are transformer balanced.

Trans-Amp or transformer mix-preamps available.

THD typically less than .03%.

DEALER AVAILABILITY:

Northern California: Bananas at Large.
Southern California: Express Sound Co.

MIXING CONSOLES & AUTOMATION

THE SPECK "D" (MODEL SP-800-D)

Speck Electronics
7400 Greenbush Ave., N. Hollywood, CA 91605. (213) 764-1200
Contact: Vince Poulos, Sales.

PRODUCT DESCRIPTION: The Speck SP-800-D is a 16 input, 8 output mixing console. The console is totally modular with 16 input modules, an output module, and a complete communications module housed in a sturdy mainframe that contains 10 large illuminated VU meters.

Each input has 8 panable assigns, 3 band parametric equalizer, 3 sends, pan, stereo solo, a long throw slide fader, and most important: a second line input with an independent slide fader, a 2 band equalizer and pan.

RECOMMENDED USAGES: Since the Speck SP800-D has two (2) discrete line input circuits for each input module and 16 assignable direct outputs in addition to the 8 submasters, the SP800-D is well suited for 16 or 24 track studio operations. The stereo program buss is independent of the 8 track assign section which allows the console to feed a full complement of 1/2 track, 1/4 track, and cassette recorders simultaneously during mixdown.

BASIC SPECIFICATIONS: Frequency response: 20 Hz to 20K Hz.

Signal to noise: -72db.

Microphone input impedance: 150 ohms.

Line input impedance: 10K ohms.

Meters: 0 VU: +4 dBm.

Maximum output level: +22 dBm.

Shipping weight: 160 lbs.

Price \$8,750.00

DEALER AVAILABILITY: Factory direct only.

SPECKMIX "8"

Speck Electronics
7400 Greenbush Ave., N. Hollywood, CA 91605. (213) 764-1200
Contact: Vince Poulos, Sales

PRODUCT DESCRIPTION: The SPECKMIX "8" consists of 16 inputs of which 12 can be switched to line input, and a complete output section with stereo mixdown and panable echo returns.

The console is totally self-contained in a main frame with 8 large VU meters and an internal power supply. Each input consists of panable assigns, 3 band-6 frequency equalizer, cue and echo send, monitor and pan, solo and mute, and a long life slide fader.

RECOMMENDED USAGES: The SPECKMIX "8" is an economical 16 input, 8 output mixing console designed to be the first of its kind that interfaces to the popular mid-priced 8 track recorders available today. The SPECKMIX "8" can be used successfully as a P.A. console because of its great 8 track recordings and 8 track to stereo mixdown.

DEALER AVAILABILITY: Factory direct only.

MODEL 1026-26 AUDIO CONTROL CONSOLE

Spectra Sonics
3750 Airport Road, Ogden, Utah 84403. (801) 392-7531
Contact: Greg Dilley, Sales Engineer

PRODUCT DESCRIPTION: The Spectra Sonics Model 1026-26 Audio Control Console is designed to accept 26 inputs and provides 26 outputs. All inputs are switchable from line to microphone, have straight line attenuators, and a 15 frequency equalizer. Pre-listen; monitor; cues A, B, and C; mono; stereo; quad controls; echo send/return; patch bay; tape controls; plus numerous other functions are standard on this "beyond the state of the art" audio control console. An alternative to the VU meters installed for monitoring, as an option, is the continuous light bar display to provide a graphic presentation for monitoring the levels of the many functions.

RECOMMENDED USAGES: Spectra Sonics Model 1026-26 audio control console is a versatile, audio signal processing system for the most sophisticated application, such as sound reinforcement in operas or large entertainment centers, or in radio or television broadcast productions. The Spectra Sonics audio control consoles are especially useful in recording studios for master tape or direct disc mastering productions.

BASIC SPECIFICATIONS: Frequency Response: $\pm .2$ dB, 20Hz - 20 kHz.

Signal/Noise Ratio: Not less than 82.5dB below +4dBm output for a -50 input (50 ohms source).

Signal/Noise Ratio: Line Input, not less than 87dB below +4dBm output for a +4dBm input.

Tape Input: same as above, except 90 dB.

Total Harmonic Distortion: less than .01% at +18dBm (1kHz).

Intermodulation Distortion: Less than .02% at +18dBm.

Crosstalk: not less than 75dB at 20kHz (typically 90dB).

DEALER AVAILABILITY:

Northern California:

Delta Sound and Radio Inc., Stockton, CA
Corporate Media Systems, San Rafael, CA

Southern California:

Metro Audio, Inc., Bakersfield, CA
Audio Concepts, Inc. Hollywood, CA
Available throughout California.

MODEL 110 LINE/MICROPHONE AUDIO MIXER

Spectra Sonics
3750 Airport Road, Ogden, Utah 84403. (801) 392-7531
Contact: Greg Dilley, Sales Engineer

PRODUCT DESCRIPTION: Spectra Sonics, Model 1100 Line/Microphone Audio Mixer is an all solid state, rack mountable, audio mixer. The mixer will accept six line or microphone inputs, and has high and low frequency equalization with 20 dB of boost or cut. All the inputs and the monaural output are transformer isolated. The monitor and program output have independent level controls, and all inputs have gain control. The front panel is satin finished anodized aluminium with contrasting black nomenclature and contains an illuminated VU meter.

RECOMMENDED USAGES: The Spectra Sonics Model 1100 Line/Microphone Audio Mixer is used in sound amplification systems, discotheques, radio broadcast studios, recording studios, etc. Since it provides the essential features of mixing boards on a reduced scale, it is adaptable and accommodates application where multiple inputs must be mixed and distributed. This mixer meets the need for a compact, high quality audio processing device at a modest cost.

BASIC SPECIFICATIONS: Frequency Response: $\pm .75$ dB, 20Hz - 20kHz, Output at +18dBm.

SNR (50 ohms source, +4dBm output gain set nominal -15dB input and -10dB output, 20Hz - 20kHz, filtered at 18dB/octave slope).

For Mic Input -50dB, -78dB ± 1 dB, for Line Input, +4dBV -80dB minimum.

Maximum continuous Sine Wave Output Power, +24 dBm ± 0.5 dBm, THD, .01% typical.

Intermodulation Distortion and Noise (7kHz and 60Hz, mixed 1:4). .005% typical, at 4dBm, output.

DEALER AVAILABILITY:

Northern California:

Delta Sound & Radio, Inc., Stockton, CA
Corporate Media Systems, San Rafael, CA

Southern California:

Metro Audio, Inc., Bakersfield, CA
Audio Concepts, Inc., Hollywood, CA
Available throughout California.

MODEL MX-62 STEREO MIXER

Superscope, Inc.
20525 Nordhoff St., Chatsworth, CA 91311. (213) 998-9333
Contact: Rick Pearson, Product Manager, Ext 2172

PRODUCT DESCRIPTION: 6 input channels: 2 with L, R, or L + R assign, 2 with pan pots, and 2 with cross-fade. Features include straight-line gain controls, master level control, headphone monitor selector switch for monitoring each input signal or the total mix, headphone level control, separate record and amplifier outputs and 20 dB muting switch.

RECOMMENDED USAGES: Used for home, studio, public address, and disco mixing.

BASIC SPECIFICATIONS: Six input (4 monaural, 2 stereo), stereo output.

Frequency response, Mic: 15Hz - 25 kHz, ± 3 dB

Line: 10 Hz - 20kHz, ± 1 dB.

Phono: 30 Hz 20kHz ± 2 dB.

S/N Ratio, Mic: 64dB, Line: 67dB, Phono: 65dB.

Dimensions: (WxHxD): 14 1/2" x 4" x 8 3/4". Weight: 6.5 lbs.

Suggested retail price: \$238.95.

DEALER AVAILABILITY: Available throughout California.

MODEL 2402A

Tangent Systems, Inc.
2810 South 24th St., Phoenix, Arizona 85034
Contact: Will Hegarty, National Sales Manager.

PRODUCT DESCRIPTION: The Model 2402a is a 24-input stereo mixing console in a totally modular construction. Each input includes a 100mm slide fader, pan control, monitor send, reverb send, effects send, three-band equalization, gain trim, and peak LED overload indicator. A complete solo system is also included, as are channel patching buss access, balanced outputs, and internal headphone amplifier. Reverb and Phantom power are options.

RECOMMENDED USAGES: Professional sound reinforcement, monitor mixing, and semi-pro recording. The 2402a may also be daisy-chained with other Tangent mixing consoles for additional input capability. The solo, Phantom power, and channel patching features make the Tangent 2402a an excellent mixer for a performing group that also does their own recording.

BASIC SPECIFICATIONS: Frequency response: 10 Hz - 65 kHz, ± 1 dB.

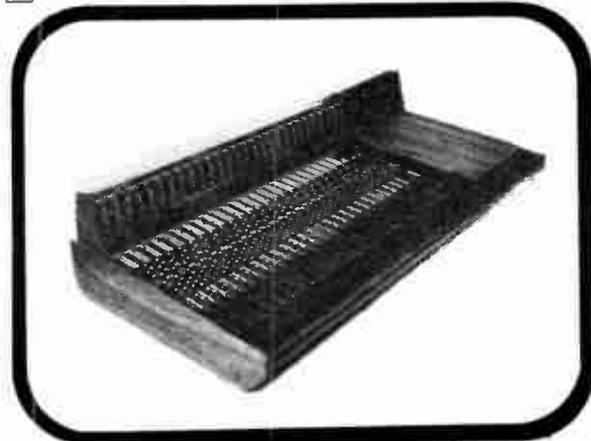
THD: .004% at 1 kHz, +20 output.

MIXING CONSOLES & AUTOMATION

Intermodulation distortion: .004% at +20 output.

Equivalent input noise: -128 dBm.

DEALER AVAILABILITY: Available throughout California.



TANGENT SYSTEMS, INC.
Model 3216

MODEL 3216

Tangent Systems, Inc.

2810 S. 24th St., Phoenix, Arizona 85034

Contact: Will Hegarty, National Sales Manager.

PRODUCT DESCRIPTION: The Model 3216 is a professional recording console, available in 8, 16, 24, and 32-input configurations. Three-band quasi-parametric equalization, two Echo sends, two Cue sends, 16 submaster assigns, Odd/Even panning, tape gain, mic gain, phase reverse, phantom power, pad, locut switch, solo, mute, and Penny & Giles conductive plastic slide fader are included on each input module. FET electronic switching and 12-segment LED metering arrays are also featured.

RECOMMENDED USAGES: Professional and semi-professional recording, radio, and television audio production, and live sound reinforcement.

BASIC SPECIFICATIONS: Frequency Response: 10 Hz - 65 kHz, ± 1 dB.

THD: .004% at 1 kHz, +20 output.

Intermodulation distortion: .004% at +20 output.

Equivalent input noise: -128 dBm.

DEALER AVAILABILITY:

Northern California: Bananas at Large.

Southern California: Express Sound Company.



TASCAM SERIES BY TEAC MODEL 15

TEAC Corp. of America

7733 Telegraph Rd., Montebello, CA 90640. (213) 726-0303

PRODUCT DESCRIPTION: The Model 15 mixer is available either in 24 x 8 format or 16 x 8, expandable to 20 or 24 inputs with the addition of 4301 input module packages. Additionally featured are six independent submixes — two 24 x 1, two 8 x 1 and two 8 x 2, enabling the engineer to blend infinite combinations of signals. Six frequency, four control equalization; selectable, pre or post fader, cue and echo sends; solo; mute; separate power supply; improved transient response and greater headroom are also featured on the latest addition to the TASCAM Series by TEAC.

RECOMMENDED USAGES: The TASCAM Series Model 15 represents the ideal interface for the 80-8 and 90-16 multi-track recorder reproducers, and with the addition of the optional LA-8 line amplifier, the Model 15 will provide highly flexible and sophisticated mixing capability for professional format studios.

BASIC SPECIFICATIONS: 16 in (24 in)/8 out.

Mic input impedance: 200 ohms; level: -50 dB; max level: +20 dB.

Line input impedance: greater than 50k ohms; level: -10 dB; max level: +28 dB.

Line out/Aux out: impedance — greater than 10k ohms; max level +13 dB.

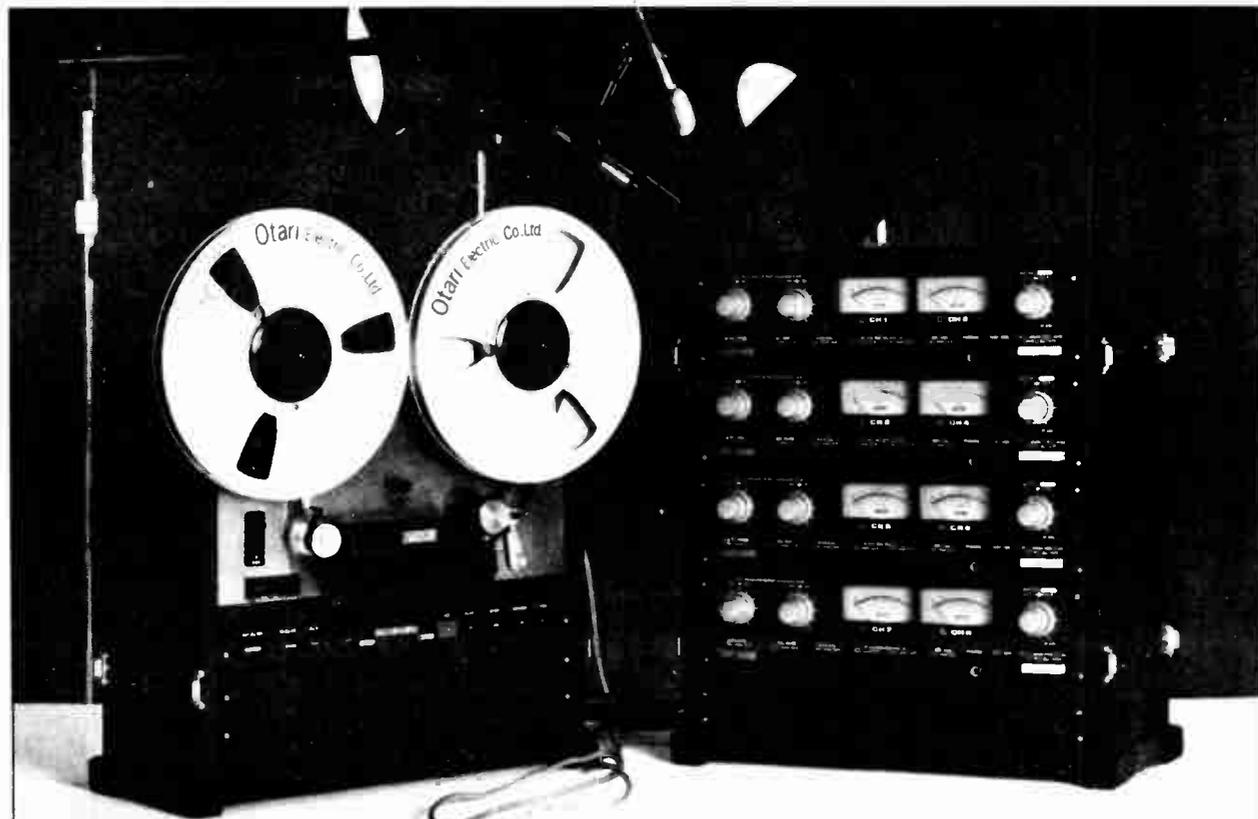
Frequency response: program buss 20 Hz - 20 kHz ± 1 dB.

Signal to noise (nominal): one mic input -76 dB weighted;

24 mic inputs -63 dB weighted; one line input -76 dB weighted;

24 line inputs -70 dB weighted.

DEALER AVAILABILITY: Available through TASCAM Series by TEAC dealers throughout California.



OTARI MX-5050-8

The Full Professional Half-Inch Eight Track

More features, better performance and reliability than any other half-inch eight track.

For less than \$5000, Otari's new MX-5050-8 let's you get started in eight track without sacrificing production flexibility, performance, or reliability.

Compare these features:

Dc capstan servo (standard, not an optional extra) for tighter speed control and $\pm 10\%$ pitch adjustment; separate electronics and transport for convenient portable or console mounting; 15 and $7\frac{1}{2}$ ips speeds (not just 15 ips); professional 600 ohm +4 dB output level with XLR's (not phono plugs); standard size VU meters; 19 dB headroom; synchronous reproduce with full frequency response for overdubbing; minutes/seconds counter (not reel rotation); front panel edit and cue controls; DBX or Dolby interface plug; all electronics adjustments front or rear accessible without panel disassembly; test oscillator for bias and level calibration; full motion sense logic and click-free punch-in and out; separate optimized erase/record/reproduce heads with direct amplifier coupling for reduced distortion and reliable off-tape monitoring.

See your Otari professional dealer for the full story.

(Incidentally if your requirements demand a one-inch eight track, check out the best-buy MX-7800 with optional synchronous reproduce remote control.)

OTARI

981 Industrial Road
San Carlos, Calif. 94070
(415) 593-1648 TWX: 910-376-4890

4-29-18 Minami Ogikubo
Suginami-ku, Tokyo 167, Japan
(03) 333-9631 Telex: J26604

SIGNAL PROCESSING

MODEL 2400

AB Systems

P.O. Box 369, Fair Oaks, CA 95628. (916) 988-8551
Contact: Bob Bird

PRODUCT DESCRIPTION: Economical approach to a fully selectable two channel electronic crossover with direct A/B comparison capability between any selected crossover frequency and or slope per channel. Features a built in sub woofer section with up to 6 dB boost and separate output jack. Recessed front panel controls are provided for independent level control of all sections. Inputs are balanced 1/4" phone jacks.

RECOMMENDED USAGES: Stereo bi-amp or mono tri-amp systems that require low cost dedicated equipment, while retaining full selectability of crossover frequency and slope.

BASIC SPECIFICATIONS: Crossover fully selectable from 50 Hz to 20 kHz at 6, 12, or 18 dB per octave (or non symmetrical if desired).

1 1/4" x 19" x 8" package.

DEALER AVAILABILITY:

Northern California:

Sound Genesis, 2001 Bryant St., San Francisco, CA
Associated Sound, 2120 P St., Sacramento, CA

Southern California:

Westlake Audio, 6311 Wilshire Blvd., Los Angeles, CA
Burbank Sound Co., 1317 N. San Fernando Rd., Burbank, CA
L.A. Sound Co., 7517 Sunset Blvd., Hollywood, CA
Available throughout California.

GUITARIST (MODEL 101), BASS GUITARIST (MODEL 101B)

Advanced Audio Designs, Inc.

1164 W. 2nd Ave. Eugene, Oregon 97402. (503) 485-4251
Contact: John L. Caporale, President

PRODUCT DESCRIPTION: The 101 Series are the most advanced preamplifiers available for today's demanding musicians. Two stages of preamplification allow selectable amounts of overdrive for harmonic control. Features include low, mid & high frequency equalization, with 15 dB boost & cut, and switchable center frequencies. To further enhance the 3 band equalization the preamps contain an additional low end and high end boost. Extensive field testing and a roadworthy package ensures reliability and the ultimate in performance.

RECOMMENDED USAGES: The 101 Series Instrument Preamplifiers are intended to be extremely performance oriented, for use in either a component system coupled to a professional power amplifier and speaker system, or as a front end preamp for your current system to give the musician increased flexibility and control over the final sound. It can also be used direct for recording purposes.

BASIC SPECIFICATIONS: EQ - low, mid, & high with 15 dB boost & cut switch selectable center frequencies.

Guitarist: High - 3k/4k, Mid - 1k/2k, Low - 125/250 Hz.

Bass Guitarist: High - 2k/3k, Mid - 1k/500Hz, Low - 75/150Hz.

Frequency response: ± 1.5 dB EQ set flat pre-amp set for no distortion. 30 Hz - 22 kHz at 2 volts out.

Rated output: 2 volts RMS into 500 ohms or higher.

Hum & noise level: 70 dB below rated output.

Distortion (THD): .01% minimum, 85% maximum dependent on control settings.

Output: low impedance-line level.

Full 2 years parts and labor warranty.

DEALER AVAILABILITY: Available throughout California.

KEPEXII (EXPANDER NOISE GATE)

Allison Research, Inc.

P.O. Box 40288, 2817 Erica Place, Nashville, Tenn 37204
(615) "ALLISON" or (615) 385-1760

Contact: Norman Baker, Vice President

PRODUCT DESCRIPTION: KEPEX II is a completely new ver-

sion of the very successful original KEPEX Keyable Program Expander. The new device offers drastically improved audio performance in all aspects, yet was studio tested during its design to maintain the original "KEPEX Sound". The new VCA-5M is used as a gain control element. New features are adjustable expansion ratio and attack time, plus automation capability.

RECOMMENDED USAGES: KEPEX II is useful for post production noise reduction, control of reverberation and leakage and tightening up percussion instruments. Numerous special effects are achievable. KEPEX II is also effective in film work in the removal or reduction of unwanted background noises.

BASIC SPECIFICATIONS: Expansion range: 0 to 80 dB. S/N in excess of 90 dB.

Distortion typically less than .05%.

Remote control capability.

Auxiliary VCA inputs.

7 controls.

DEALER AVAILABILITY: Available throughout California.

MODEL 1500 TUNEABLE NOTCH FILTER SYSTEM/ FEEDBACK SUPPRESSOR

Audioarts Engineering

286 Downs Rd., Bethany, CT 06525. (203) 393-0887

PRODUCT DESCRIPTION: The model 1500 feedback suppressor is a single channel notch filter system consisting of five identical filter sections. Each section is a 1/6 octave, continuously variable (0 to -16 dB) notch filter whose center frequency can be set anywhere from 52 Hz to 7.3 kHz. There is a master IN/OUT switch plus an LED overload indicator and a front panel master gain control. The unit fits one rack space and lists for \$338.00

RECOMMENDED USAGES: Ideally suited for live stage monitor and P.A. use where microphone/speaker placement would normally result in feedback. The Model 1500 is capable of notching out up to five different resonant peak frequencies, resulting in considerable system gain before feedback. Being a narrow notch system, the unit is also useful for noise elimination of specific frequencies (i.e., 60 cycle hum, background frequencies, etc.)

BASIC SPECIFICATIONS: Response: 20 Hz - 30 kHz, $\pm 1/2$ dB.

THD: .007%.

S/N: 105 dB.

Input: 20k ohms; +20 dB.

Output: +20 dB into 600 ohm load.

Gain: +6 dB.

DEALER AVAILABILITY: Contact Manufacturer.

MODEL 2100A STEREO TUNEABLE ELECTRONIC CROSSOVER

Audioarts Engineering

286 Downs Rd., Bethany, CT 06525. (203) 393-0887

PRODUCT DESCRIPTION: The Model 2100A is a stereo tuneable electronic crossover which may be used as a stereo bi-amp network or a monophonic tri-amp network. Crossover frequency is continuously variable from 70 Hz to 8 kHz, and crossover depth at the set frequency may be varied from -7 to +1 dB to fine tune the rolloff characteristics of the two speaker systems in use. High and low output level controls are provided: all switching is LED indicated. A monophonic version (Model 2100M is available). Price is \$315.00 (Model 2100A) and \$225.00 (Model 2100M). Rack Mount.

RECOMMENDED USAGES: Bi-amped stereo systems and tri-amped monophonic systems. Any live or reproduction system where the signal must be divided into two frequency bands (high and low) prior to amplification.

BASIC SPECIFICATIONS: Response: 20 Hz - 40 kHz, ± 5 dB.

S/N: 105 dB.

Slope: 12 dB/octave.

Input: 20k ohms bal., +20 dB.

Output: +20 dB into 600 ohms or greater.

Gain: +6 dB.

THD: .008%.

DEALER AVAILABILITY: Contact Manufacturer.

SCAMP S23 PAN MODULE

Audio & Design Recording Limited

84 Oxford Road, Reading, Berks, England.

Contact:

Nigel Branwell, Audio Design Recording (USA West)

P.O. Box 902, Marina, CA 93933. (408) 372-9036—Sales & Maint.

PRODUCT DESCRIPTION: scamp (Standardized Compatible Audio Modular Package) employs the Card Module concept within a standard racking frame — Maximum 17 modules. SCAMP's flexibility allows easy between session reconfiguration from a basic pool of modules. Existing modules include multi-ratio compressor and peak limiter; sweep and parametric equalizers; high and low pass dynamic noise filter-gates; octave equalizer; LED quad display column; and noise expander-gate.

The S23 Pan Module has been devised to create sensational panning effects.

RECOMMENDED USAGES: The S23 Pan Module will accept two inputs from a stereo source or dual track/group signal. Functions available are alternative-pan which "criss-crosses" the outputs (or pans a mono signal) at a regular rate determined by the speed control; and triggered-sweep (program controlled or manual) which pans according to a pre-determined L-R-L Stop, L-R Stop or vice versa. Tasty automatic fades can also be obtained. LED indicators show normal/track reversal, speed, trigger rate.

BASIC SPECIFICATIONS: 50V supply (stabilized to ± 24 v).

Clip level (input/output): +24 dB electronically balanced.

Noise level: better than -96 dB ref +8 dBm.

Distortion: better than 0.05% THD at 1 kHz at +8 dBm.

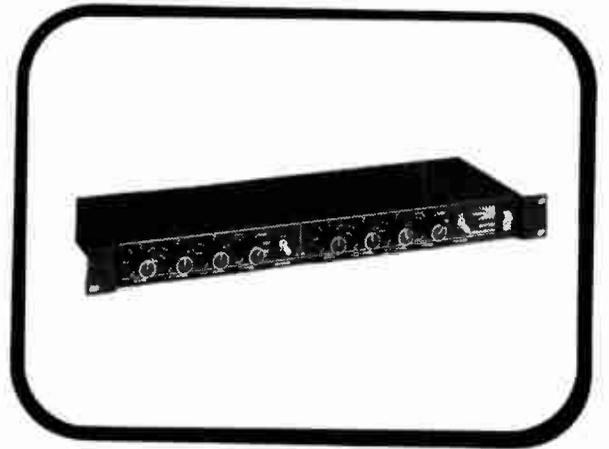
Frequency response: 20 Hz - 20 kHz ± 0.5 dB.

DEALER AVAILABILITY: Available throughout California.

SCAMP S24 TIME SHAPE MODULE

Audio & Design Recording Ltd., England

see: Echo, Reverb and Delay Systems.



BIAMP SYSTEMS, INC.

SM/23 Crossover

SM/23

Biamp Systems, Inc.

10950 SW 5th Ave., Beaverton, OR 97005. (503) 643-8411
Contact: Laury Lantz

PRODUCT DESCRIPTION: The SM/23 is a stereo 2-way or mono 3-way active electronic crossover featuring gain, LF level, HF level, frequency select and frequency range switch controls for each channel on the front panel. The circuit design is state variable with minimum phase shift, constant "Q" and extremely low distortion. Very compact, the SM/23 occupies only one rack space.

RECOMMENDED USAGES: The SM/23 is ideally suited for any stereo 2-way system which is bi-amped with quality power amplifiers. High intensity studio monitors, discos, live sound, permanent installation, home Hi Fi or any other critically demanding requirements for sonic superiority are handled with ease by the SM/23.

BASIC SPECIFICATIONS: Crossover range: continuously variable 12 dB per octave; X1 range —100 Hz to 1 kHz, X10 range —1 kHz to 10 kHz.

Frequency response: $\pm .25$ dB in passband, -3 dB at crossover frequency.

Distortion (THD & IM): less than .005% at 1.5V output 20 Hz to 20 kHz.

Hum & noise: typically less than -100 dBm rated output - no terminations, 100 kHz filter.

Inputs: Two types: transformerless bridging input with 1/4"

phone jack. 50k ohm (can be terminated to 600 ohm or higher with resistor in phone plug). Conventional single ended, 50k ohm.
Dimensions: 1 1/4" high, 19" wide rack mount, 5 1/2" deep.
DEALER AVAILABILITY: Available throughout California.



165 MODEL, "OVER-EASY COMPRESSOR"

dbx, Inc.
17 Chapel St., Newton, MA 02195

PRODUCT DESCRIPTION: Variable attack and release-time, adjusted by user to suit individual needs. Also variable compression ratio, variable threshold and output level. May be slaved for stereo with another model 165. Features dbx "Over-Easy" threshold and compression behavior, which reduces subjective pumping effects to inaudibility. Front-panel meter indication of level and compression.

RECOMMENDED USAGES: Broadcast stations (well suited for FM or TV), recording studios, disc mastering, sound reinforcement. Can be tailored to the exact attack and release behavior required.

BASIC SPECIFICATIONS: Attack time variable from 400 dB per millisecond to 1 dB per millisecond.

Release time variable from 4000 dB per second to 10 dB per second. Stereo coupling for use with another model 165 unit. "Over-Easy" compression behavior, exclusive with dbx.
DEALER AVAILABILITY: Available throughout California.



208 NOISE REDUCTION SYSTEM

dbx, Inc.
71 Chapel St., Newton, MA 02195

PRODUCT DESCRIPTION: 8-channel professional type dbx -1 system. Uses 2:1 compression and expansion, rack mount housing with "mainframe" concept. Each channel occupies a plug-in module. Specifications same as 158, but output level is designed for higher-level recording studio requirements, and rear panel is quick-disconnect 27-pin connectors with XL adapter cables included.

RECOMMENDED USAGES: Recording studio or broadcast tape recorder noise reduction.

BASIC SPECIFICATIONS: Same as 158 with exception of higher output levels.

DEALER AVAILABILITY: Available throughout California.



ONE-KNOB SQUEEZER

dbx, Inc.
71 Chapel St., Newton, MA 02195

PRODUCT DESCRIPTION: A compressor featuring one-knob utility. The compression ratio, threshold, and output gain are all three varied, by one knob, simultaneously. The compression curve is the new dbx "Over-Easy" type, which produces minimal "lunging" effects. Has LED indication of amount of compression.

RECOMMENDED USAGES: Individual recording tracks, in broadcast microphone channels, vocal, or sound reinforcement, where smooth performance and non-detectable action (pumping) is required.

BASIC SPECIFICATIONS: LED display (-2 dB to -30 dB) shows compression (gain reduction).

"Over-Easy" threshold behavior.

Response: 20 Hz to 20 kHz.

Low distortion and noise.

Suitable for driving 2k ohm loads or higher.

Unbalanced input and output using RCA phono jacks.

DEALER AVAILABILITY: Available throughout California.



DL-1 DIGITAL DELAY MODULE

DeltaLab Research, Inc.
25 Drum Hill Rd., Chelmsford, MA 01824
see: Echo, Reverb and Delay Systems.



DL-2 ACOUSTICOMPUTER

DeltaLab Research, Inc.
25 Drum Hill Rd., Chelmsford, MA 01824.
see: Echo, Reverb and Delay Systems.



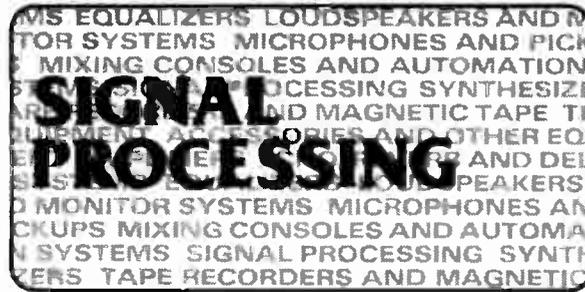
S1066 SPECIAL EFFECTS DEVICE

Eventide Clockworks, Inc.
265 W. 54th St., New York, NY 10019
see: Echo, Reverb and Delay Systems.



TX-2 TUNABLE CROSSOVER/BANDPASS FILTER

Furman Sound
616 Canal St., San Rafael, CA 94901. (415) 456-6766
Contact: Jim Furman



PRODUCT DESCRIPTION: The TX-2 provides two independently tunable crossover points which may be set anywhere from 20 Hz to 20 kHz. It may be used in stereo Bi-amp or mono tri-amp mode. Each channel can provide up to 8 dB gain if necessary. Phase reversed outputs are available, as are level controls for high (and midrange) outputs.

RECOMMENDED USAGES: Sound Reinforcement, P.A. systems; signal-processing use in recording studios as a bandpass filter.

BASIC SPECIFICATIONS: Signal-to-noise ratio: 101 dB.

THD: .01%.

Frequency ranges: 20 Hz - 20kHz (both crossover points).

DEALER AVAILABILITY: Available throughout California.



PRO ELECTRONIC CROSSOVER, 2 WAY/3 WAY

Heil Sound, Ltd.
#2 Heil Industrial Drive, Marissa, Illinois 62257
Contact: Bob Heil, President

PRODUCT DESCRIPTION: Connection of the HXO to your system requires at least two power amplifiers (or one Stereo amp). Connect the output of a mixer-preamplifier to the input of the HXO. Connect the HXO HI output to the input of the power amp that drives the high frequency horns. Connect the Lo output of the HXO to the input of the other power amp which drives the bass speakers. Adjust the Lo and Hi level controls on the HXO front panel for proper balance between the horns and bass bins.

RECOMMENDED USAGES: The Heil HXO Electronic Crossover is a 2 way, 800 Hz., electronic crossover which can be driven by any mixer — preamplifier producing from 5 to 6 volts out. The HXO is unity gain and is capable of driving multiorcords (snakes) or power amp directly. The output is unbalanced, low impedance terminated by regular phone jacks. The Lo volume control, controls the input level to the low-pass filter. The Hi volume, controls the level to the hi-pass filter. Two output meters register the output of each filter and this meter has a "meter adjust" control on the inside if the need arises to re-calibrate these meters.

BASIC SPECIFICATIONS: These high pass and low pass filters are active IC devices and have a 12 dB per octave slope.

The filters are mounted on a plug-in PC card and the crossover frequency can be changed, very easily, by plugging in the proper crossover frequency card. The "standard" model comes from the factory crossing over at 800 Hz. The HXO is built on a standard 19" X 1 1/4 rack mount panel.

The power supply operates from the standard 117 v AC line.

DEALER AVAILABILITY:

Northern California: Musician's Supply

P.O. Box 1440 El Cajon, CA.

Southern California: Musician's Supply, El Cajon, CA.



D & S DISTORTION SUSTAINER and D & S II

Ibanez
Eastern distributor: Elger Co.
P.O. Box 469, 1716 Winchester Rd., Cornwells Hgts., PA 19020
Western Distributor: Chesbro Music
327 Broadway, Idaho Falls, Idaho 83401
Contact: Jeff Hasselburger, Director of Marketing (Elger Co.)

PRODUCT DESCRIPTION: The D & S and D & S II are distortion sustainers designed for versatility and precise adjustment of distortion. Both feature Distortion, balance and tone controls, an LED effect mode/battery condition indicator and external DC power jack. The D & S provides long sustain capability with a kind of clean distortion while the D & S II allows the user to adjust between soft distortion and heavy dirt, with as much grit as anyone could ever use.

RECOMMENDED USAGES: Wherever controllable distortion with sustain is needed.

BASIC SPECIFICATIONS: Input impedance: 1M ohm.

Output impedance: 30k ohm.

Max gain: 40 dB.

Max input level: 0 dBm.

Equivalent input noise: 100 dB (input shorted IHF A curve).

Power: 9 volt battery.

Size: 1 1/2" x 2 1/4" x 4 1/4". Weight: 8 oz.

DEALER AVAILABILITY: Available throughout California



IBANEZ DOUBLE SOUND SD-5

Ibanez
Distributed in the East by: Elger Co.
P.O. Box 469, 1716 Winchester Rd., Cornwells Hgts., PA 19020

Distributed in the West by: Chesbro Music
327 Broadway, Idaho Falls, Idaho 83401
Contact: Jeff Hasselburger, Director of Marketing (Elger Co.)

PRODUCT DESCRIPTION: Distortion and wah-wah pedal. Either effect separately or both together may be selected for a variety of sounds. The wah sound is controlled by the pedal. A switch under the pedal selects wah or normal. Fuzz is actuated by a switch on the side and three controls allow precise adjustment of the distortion. An LED indicates effect on and battery condition.

RECOMMENDED USAGES: The SD-5 was designed for live or studio use.

BASIC SPECIFICATIONS: Input impedance: 1M ohm.

Output impedance: 100k ohm.

Max. input level: -4 dBm.

Max. output level: +10 dBm (wah), -5 dBm (fuzz).

Equivalent input noise: -100 dBm (input shorted IHF curve).

Power: 9 volt battery.

DEALER AVAILABILITY: Available throughout California.



IBANEZ PHASE TONE PT-909

Ibanez
Eastern Distributor: Elger Co.
P.O. Box 469, 1716 Winchester Rd., Cornwells, Hgts., PA 19020
Western Distributor: Chesbro Music
327 Broadway, Idaho Falls, Idaho 83401
Contact: Jeff Hasselburger, Director of Marketing (Elger Co.)

PRODUCT DESCRIPTION: The PT-909 is an improved phase shifter delivering cleaner sound with greater versatility. Speed width and feedback controls provide a wide range of phasing effects. An LED indicates effect on and also acts as a battery check. A jack is provided for external DC power. The in/out switch is located on top of the unit.

RECOMMENDED USAGES: Wherever a versatile, quiet, clean phaser is needed, the PT-909 is ready to go to work.

BASIC SPECIFICATIONS: Input impedance: 1M ohm.

Output impedance: 30k ohm.

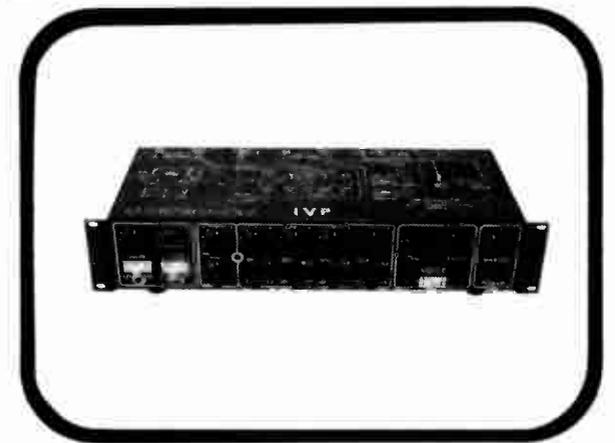
Max input level: 0 dBm.

Equivalent input noise: -80 dB (input shorted IHF A curve).

Power: 9 volts.

Size: 1 1/2" x 2 1/4" x 4 1/4". Weight: 8 oz.

DEALER AVAILABILITY: Available throughout California



INTERSOUND
IVP—Instrument Voicing Preamplifier

IVP-INSTRUMENT VOICING PREAMPLIFIER

Intersound
P.O. Box 1864, Boulder, CO 80306. (303) 443-5050
Contact: Chris Laletin, V.P. Marketing

PRODUCT DESCRIPTION: The IVP has 2 input channels each with Hi & Lo gain. The EQ section consists of 6 bands, 4 of which employ variable center frequency control. Two external effects loops are provided as well as a dynamically responsive tube sound which may be switched in or out with a front panel switch or a foot switch. The IVP has transformer balanced as well as unbalanced outputs which will drive mixers, crossovers, power amps, etc. The IVP comes in a 19" rackmount steel chassis.

RECOMMENDED USAGES: The IVP embodies the most advanced concept in total preamplification for component instrument amplifier systems. Its unique circuits give musicians the ability to choose the precise voice for their instruments with a wider range of sounds than previously possible. With the variety of inputs, outputs, and effects loops, the IVP can be used with existing guitar amplifiers or run directly into mixers, crossovers, power amps, etc.

BASIC SPECIFICATIONS: Frequency response: 20 Hz - 20 kHz ±1 dB.

THD: less than .1% (clean voice).

S/N: greater than 85 dB.

Minimum input: 50 mVrms (-24 dBV).

Maximum input: 8Vrms (+20 dBV).

Bass shelving EQ: ±15 dB at 50 Hz and below.

Treble shelving EQ: ± 15 dB at 10 kHz and above.
Four bands variable center frequency peak and dip type EQ: ± 15 dB at (30 Hz - 240 Hz), (100 Hz - 800 Hz), (450 Hz - 3.6 kHz), (1.2 kHz - 9.6 kHz).
DEALER AVAILABILITY: Available throughout California.

 MODEL 93 PRIME TIME

Lexicon Inc.
60 Turner St., Waltham, Mass. 02154
see: Echo, Reverb and Delay Systems.

 SERIES 440 DELAY LINE/FLANGER

Loft Modular Devices, Inc.
91 Elm St., Manchester, CT 06040
see: Echo, Reverb and Delay Systems.

 5002A MARSHALL TIME MODULATOR

Marshall Electronic
1205 York Rd., Lutherville, MD 21093. (301) 484-2220
Contact: Stephen St. Croix.

PRODUCT DESCRIPTION: 1.75" rack mount dual delay line/signal processor offers positive flanging™, negative flanging™ and eight different resonant flanges. Automatic double tracking and triple tracking have separate detune for each track. Card-board tube echo™, drum tuning, true vibrato and detune (pitch bend) capabilities exceed 4 octaves. Unit sweeps over 7 octave range. Also does arpeggio. Full on board mixer panel for combining these effects. Can also be used as a regular multi-tap delay line.

RECOMMENDED USAGES: Everything from normal delay to the bizarre. ADT™, ATT™, multiple combined flanges (you can get a positive flange™ and a negative flange™ at the same time for example), resonant flanges, stereo synthesis, Haas modulation, delay panning with doppler, extremely impressive vocoder effects, ambience generation, pitch quantising, the ever present CARDBOARD TUBE ECHO™, arpeggio and vibrato with or without additional delay, elimination of bad notes in a chord, and so forth. Voltage controlled drum retuning.

BASIC SPECIFICATIONS: Delay range: one tenth of one millisecond to 105 milliseconds.
Dynamic Range: 95 dB worst case at all delay settings.
Format: two delay lines, each with multiple tap configurations and full on board mix facilities.
Frequency response: 20 Hz to 15 kHz at all delay settings.
Sweep range: over 72:1 continuous.
Flange cancel depth: over 90 dB.
Flange T.D.R.: 105 dB.

 5050 STEREO EFFECTS EXPANDER

Marshall Electronic
1205 York Rd., Lutherville, MD 21093. (301) 484-2220
Contact: Stephen St. Croix.

PRODUCT DESCRIPTION: This one is 3.5", rack mount. It is a stereo master controller, synthesizer interface, and effects expander for two Time Modulators, and doubles as an effects generator for one or two P250's or P500's. It remotes important functions as well as expanding the effects range of the equipment that it is interfaced to. A special memory concept allows fast, simple switching of effects at any point in the performance or mix. Master in/out remote.

RECOMMENDED USAGES: Does all audio routing, control voltage generation, mixing and switching for the following effects: stereo flanging, inverted stereo flanges, tracking, difference interval tracking, inverted tracking combinations of all 8 resonant flange effects, true independent stereo spread multiple tracking, special peak/slew limited random control voltage generators for true Random detune, inverted stereo vibrato, ZCF™ (zero cross flange), envelope follower for tympani and slide guitar effects, alternate channel stereo echo. LED's indicate what's going on.

 P 250 PRE REVERB DELAY

Marshall Electronic
1205 York Rd., Lutherville, MD 21093. (301) 484-2220
Contact: Stephen St. Croix.

PRODUCT DESCRIPTION: 1.75" rack mount unit designed to replace the tape deck used to delay send to your reverb device. Delay is continuously variable to over 250 milliseconds with a dynamic range of 95 dB at any delay setting. Actively balanced in and out: delivers ± 20 . Remote control and master/slave control provisions included. Control voltage input for special effects.

RECOMMENDED USAGES: Delay before your reverb, speaker delay, echo, general utility delay line.
BASIC SPECIFICATIONS: Dynamic range: 95 dB at 250 milliseconds.

 HP 400

Marshall Electronic
1205 York Rd., Lutherville, MD 21093. (301) 484-2220
Contact: Stephen St. Croix.

SIGNAL PROCESSING

PRODUCT DESCRIPTION: The HP 400 option expands the delay capabilities of the Time Modulator to four hundred milliseconds. The additional memory and modifications are installed entirely within the original chassis. Dual delay line structure is maintained. The front panel controls are re-scaled to offer precise control of the long delay time.

RECOMMENDED USAGES: Any application where very long delays are required, in addition to the original special effect spectrum of the Time Modulator: speaker delay tape loop echo (without the tape loop), delay send to your reverb unit (with the added advantage of being able to sum both delay lines and detune them before your plate for a super fat reverb).

BASIC SPECIFICATIONS: Dynamic Range at 400 milliseconds: Better than 95 dB.
Frequency response: 20 Hz to 15 kHz.

 P 500 HALF TIME

Marshall Electronic
1205 York Rd., Lutherville, MD 21093. (301) 484-2220
Contact: Stephen St. Croix.

PRODUCT DESCRIPTION: Delivers one half second of continuously variable delay, with multiple output taps (5) in addition to master summed output. Each output has its own front panel level control with level indicator and is complete with balanced driver. The master output may consist of any combination of all the other taps and feedthrough, each at independently controllable levels with a final overriding level control and indicator. All outputs are available simultaneously and may be independently routed.

RECOMMENDED USAGES: Echo, pre reverb delay, complex stereo or multi channel echo bounce, automatic swept or "chase" multi-channel echo, multi tap reverb fattening.

BASIC SPECIFICATIONS: Delivers ± 20 with a dynamic range of 95 dB regardless of delay settings. Remote control and master/slave control provisions included. Control voltage input for special effects.

DEALER AVAILABILITY: Available throughout California.

 MEDIAMIX RING MODULATOR

Mediamix
Box 484, Verdugo City, CA 91046. (213) 248-8029
Contact: Tim Wilde, owner

PRODUCT DESCRIPTION: The Mediamix RM-2 is a multi-purpose effects device whose name belies its real versatility. It contains an internal oscillator (LFO or AFO), a mic pre-amp, a "squaring function" for pitch doubling, and a DC offset control. A demo tape is available to demonstrate its many capabilities.

RECOMMENDED USAGES: As an outboard tremolo unit, a stereo panning device, a manually controllable LFO for modulating VCOs, a standard Ring Modulator, a poor man's vocoder, a pitch doubler... and more. For example, by plugging a mic into the X input, and a synthesizer into the Y input, the musician can create a singing synthesizer with very intelligible words.

BASIC SPECIFICATIONS: X input is mic or line, Y input is switchable (external line input, internal oscillator, or X input).
Output is line level.

Internal AC power supply.
DEALER AVAILABILITY: Factory direct only.

 MEDIAMIX SPATIAL MANIPULATOR

Mediamix
Box 484, Verdugo City, CA 91046. (213) 248-8029
Contact: Tim Wilde, owner

PRODUCT DESCRIPTION: An auto panning device with two internal oscillators and various unique functions. One oscillator controls speed of panning as well as shape. This oscillator has two waveshapes: triangle for normal panning, and pulse for an abrupt jumping between the two stereo outputs. A symmetry control allows adjustment of the shape of (or width of) the wave. The second oscillator modulates depth or width of the panning (this function can also be externally voltage controlled via the Mediamix Joysticks or PLFO).

RECOMMENDED USAGES: For creating a variety of stereo spatial effects. The two waveshapes and symmetry controls allow for any combination of pans and/or jumps, as well as stereo echo effects. By using the Mediamix Joystick Y axis to control width of pan, the synthesist can be playing a solo, for example, and on sustained notes push forward on the Joystick and the sound will spiral outward. Also sequencer runs are enhanced.

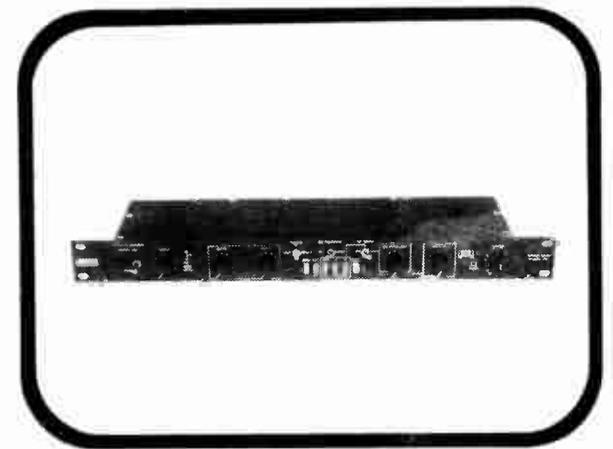
BASIC SPECIFICATIONS: Accepts any signal from 50mv to 5 V, which includes guitars, mics, Rhodes pianos, synthesizers, etc.

Stereo line level outputs.

Input features a unique LED indicator and sensitivity pot for optimum adjustment of input level.

Has an internal AC power supply.

DEALER AVAILABILITY: Factory direct only.



MICMIX AUDIO PRODUCTS
Dynaflanger

 DYNAFLANGER

MICMIX Audio Products, Inc.
2995 Ladybird, Dallas, TX 75220
Contact: Bryant Hawkes, Sales Manager.

PRODUCT DESCRIPTION: Capable of a wide variety of audio enhancement effects, ranging from subtle accents to dramatic resonances, Dynaflanger adds new dimensions to previous concepts of "flanging". It features the unique capability to dynamically control effects in response to frequency or amplitude variations in the program material being processed, making the effects precise and repeatable because the program material itself controls the result, automatically and with complete user control of parameters. Doubling, for example, can now be done with pitch dynamics rather than fixed pitch or time, and hard flanging can be directly related to instantaneous program signal frequency or peak amplitude for maximum effect.

RECOMMENDED USAGES: With its high sensitivity or line input, Dynaflanger can be used with any type equipment to create a number of dynamic effects such as frequency or amplitude-enabled hard flanging, pitch doubling, pitch bending, track thinning, spacey flanging, 'Leslie' and doppler shift modulator flanging. Units may be used in pairs for an exceptional variety of stereo effects, or on mono signals for Dynamic Cross Flanging which is one of the most pronounced effects available. Extremely versatile, Dynaflanger is a daily use type of equipment rather than a specialty device offering only limited application.

BASIC SPECIFICATIONS: Input impedance: 47k/600 ohms.
Input level range: -40 to $+18$ dB (ref 0 dB: 0.775 volts).
Maximum output level: $+18$ dBm RMS, 600 ohm load.
Direct signal frequency response, 20 Hz - 20 kHz (ref 1 kHz): $+0$, -2 dB.

Delayed signal frequency response, 20 Hz - 13 kHz (ref 1 kHz): $+0$, -3 dB.

Direct signal distortion @ $+18$ dBm Out, 200 Hz - 20 kHz: $\leq 0.03\%$.

Delayed signal distortion @ 1 kHz, delay midpoint: less than 0.4% typical.

Direct signal residual noise: -95 dBm (A).
Delayed signal residual noise: -75 dBm (A).

Internal delay time range: 0.26 to 6.4 ms.

Comb filter notch depth: greater than 45 dB typical.

DEALER AVAILABILITY: Available throughout California.

 MODEL AD-4 AUDIO DELAY

Neutrik Products
91 McKee Dr., Mahwah, NJ 07430
see: Echo, Reverb and Delay Systems

 OMNI CRAFT MODEL GT-1

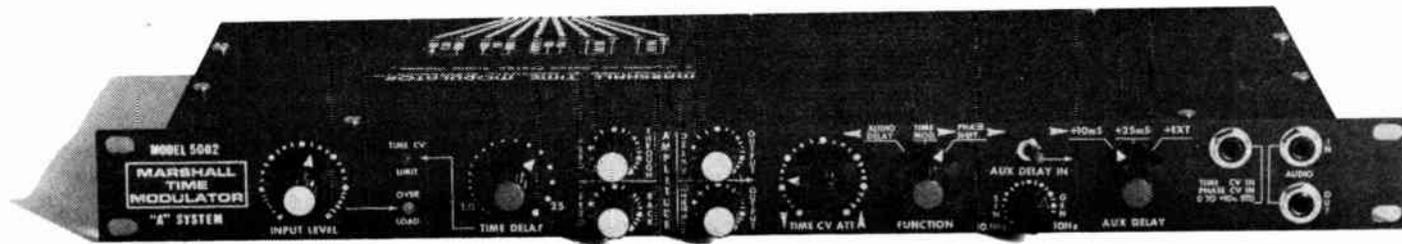
Omni Craft Inc.
Rt. 4 Box 40 Lockport, Illinois 60441. (815) 838-1285
Contact: Preston Wakeland, President.

PRODUCT DESCRIPTION: The Omni Craft Model GT-1 is a four channel noise gate in a self contained 1 1/4" x 19" rack mount cabinet. The audio signal passes through no active components in the GT-1 so the unit contributes no noise or distortion of its' own. The unit includes threshold, release and key-input controls and a front panel LED indicates the condition of the gate.

Price \$395.00

DEALER AVAILABILITY: Factory direct only.

THE MARSHALL TIME MODULATOR™



“DOES EVERYTHING A MARSHALL TIME MODULATOR™ DOES.”

Others claim it; we do it.

The Marshall Time Modulator™ started it all, and is now the reference standard to which others compare. Even the effects introduced by the Time Modulator™ have become industry standards; such as Positive Flanging™, Negative Flanging™, ADT™, Cardboard Tube Echo™, Resonant Flanging™ and others.

We have not been sitting back and resting these past three years since the Time Modulator™ was introduced. Every advancement in the technologies that apply to delay processing has been incorporated in the new Time Modulator™, assuring performance and specifications that exceed the very best of the newcomers.

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Ask your local Marshall representative for our demonstration kit and record, or ask us directly, and see why the first is still the best.



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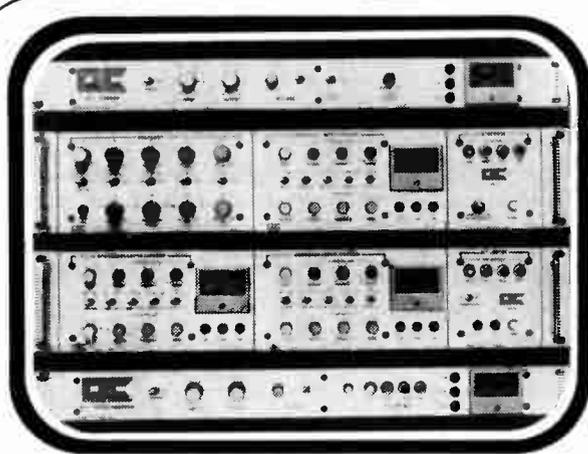
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Q1608

\$2950

Carvin Dept. MX-17, 1155 Industrial Ave., Escondido, Calif. 92025



ORANGE COUNTY ELECTRONICS
Stessor (Stereo Processor)

STRESSOR, (STEREO PROCESSOR)

Orange County Electronics Intl. Inc.
c/o Parasound Inc., 680 Beach St., San Francisco, CA 94109
(415) 673-4544
Contact: Sid Goldstein, Sales & Marketing

PRODUCT DESCRIPTION: The Orange County VS-1 Stessor and VS-2 Stessor combine the necessary processing functions of compressor, peak limiter, expander/noise gate and parametric equalizer all in one 19" rack mount. The VS-1 is the full bore unit with adjustable controls on the front panel while the VS-2 is designed with the same functions internally pre-set. The CLX-S-FM Stereo Processor and VS-3 Stereo Processor are stereo-linked compressors with separate peak limiters, expander/noise gates, and high frequency limiter. As with the Stessor units, the Stereo Processor comes in a full bore package or slim-line with all the controls pre-set internally.

RECOMMENDED USAGES: Applications for the VS-1 and VS-2 Stressors are for recording studios looking for a complete signal processing system integrated in one 19" rack mount unit. All functions work independently or in tandem with one another. The Stessor is ideal for dealing with problems such as level control and noise and offers extremely powerful processing capabilities as well. The Stereo Processors are designed for use in stereo mixdowns or in single track recording since the stereo-linked pairs are capable of being used in a dual-channel format as well. Each of these units replaces as many as five separate units in a rack.

BASIC SPECIFICATIONS: Switchable balanced/unbalanced operation, XLR connectors, 19" x 3 1/2" x 7".
120v/240v.

50/60 Hz operation.

DEALER AVAILABILITY:

Northern California:

Sound Genesis, San Francisco, CA.

Southern California:

Sierra Audio, Burbank, CA.

Audio Industries, Hollywood, CA.

Westlake Audio, Los Angeles, CA.

ORBAN MODEL 245E STEREO SYNTHESIZER

Orban Associates Inc.
645 Bryant St., San Francisco, CA 94107. (415) 957-1067
Contact: Michael Bernard, Sales Manager

PRODUCT DESCRIPTION: The Orban Stereo Synthesizer has been designed to take any mono signal and create life-like pseudo stereo. Its sound is distinct from pan-potted point sources or stereo effects synthesized with digital delay lines. Unlike other techniques, the Orban Synthesizer technique causes no change in spectral balance, does not blur the transient definition and adds no audible noise or distortion to the mono original. The stereo output sums back to the original mono for total mono/stereo compatibility.

RECOMMENDED USAGES: Uses include: saving tracks by recording strings, horns, or drums on a single track and spreading them in the mix; creating stereo depth from synthesizers, electronic string ensembles, & electric organs; creating stereo echo return from mono chamber or artificial reverb generator; use one channel to create phasing effects; re-process old mono recordings to pseudo stereo.

BASIC SPECIFICATIONS: Frequency response: ± 1 dB, 20 - 20,000 Hz.

THD @ +19 dBm, 20 - 20,000 Hz: 0.5% max, less than 0.1% typical.

Noise (unweighted, 30 - 18,000 Hz): -78 dBm max, -80 dBm typical.

Available gain: 9 dB.

Input: 25,000 ohms unbalanced bridging.

Output: 1 ohm unbalanced.

Will drive +21 dBm typical (+19 dBm minimum, 20 - 20,000 Hz) into 500 ohms or higher load impedance.

Short circuit protected.

Power: 115 - 230 volt, 50/60 Hz AC; 2 watts.

Size: (WHD): 19" x 1 3/4" x 5". Weight: 7 lbs.

DEALER AVAILABILITY: Available throughout California.



ORBAN 418A STEREO COMPRESSOR/LIMITER

Orban Associates Inc.
645 Bryant St., San Francisco, CA 94107. (415) 957-1067
Contact: Michael Bernard, Sales Manager.

PRODUCT DESCRIPTION: The Orban Stereo Compression/Limiter is a unique AGC device. It features program-controlled attack and release times, a high-frequency limiter with several user-selectable time constants, two stereo-ganged channels, and a simple and "friendly" control configuration.

RECOMMENDED USAGES: In the studio, the 418A is used as a "mixdown machine", saving time by gain riding and controlling high-frequency energy; limiting difficult sources such as chorus, french horn, or piano; in preparing reference cassettes for artists and producers; in producing masters for cassette production; in optical film sound track recording.

BASIC SPECIFICATIONS: Input impedance: 150k ohms balanced.

Input level: overloads at +21 dBm.

Output impedance: less than 400 ohms, unbalanced.

Output level: +4 dBm nominal.

Output level: +4 dBm nominal, +12 dBm peak level max.

Frequency response: ± 0.5 dB, 20 - 20,000 Hz below high-frequency limiter threshold.

High-frequency limiter: time constant rolloff of 75, 50, 37.5, or 25 microseconds $\pm 3\%$.

Separation: 50 dB or better.

Noise: -80 dB typical.

Power: 115 - 230 Volts AC, 50 - 60 Hz, 6 watts.

Size (WHD): 19" x 3 1/2" x 10".

DEALER AVAILABILITY: Available throughout California.

ORBAN MODEL 516EC DYNAMIC SIBILANCE CONTROLLER

Orban Associates Inc.
645 Bryant St., San Francisco, CA 94107. (415) 957-1067
Contact: Michael Bernard, Sales Manager.

PRODUCT DESCRIPTION: The Orban Dynamic Sibilance Controller is a three-channel unit designed to provide de-essing on 3 separate vocal channels or tracks.

RECOMMENDED USAGES: The Orban 516EC may be placed in the individual Mic input channels of the board (via line level patching) or in mixdown with single vocal tracks.

BASIC SPECIFICATIONS: Input impedance: 5400 ohms, unbalanced.

Output impedance: less than 1 ohm. Will drive 500 ohms or higher impedance.

Unbalanced gain: 0 dB ± 1 dB. Can be modified to +10 dB in the field.

Output clipping point: +19 dBm minimum; +21 dBm typical into 600 ohms, 20 - 20,000 Hz.

Output noise: -80 dBm max; -86 dBm typical.

Dynamic range: 107 dB typical.

Frequency response: ± 0.5 dB, 20 - 20,000 Hz.

THD: below 0.5% @ 18 dBm out into 600 ohms, 20 - 20,000 Hz.

Power: 115/230 volts AC, 50/60 Hz, 7 watts.

Size (WHD): 19" x 1 3/4" x 5".

DEALER AVAILABILITY: Available throughout California.

ORBAN MODEL 622 PARAMETRIC EQUALIZER

Orban Associates Inc.
645 Bryant St., San Francisco, CA 94107. (415) 957-1067
Contact: Michael Bernard, Sales Manager

PRODUCT DESCRIPTION: The Orban Parametric Equalizer is available in single channel (622A) or two-channel (622B) versions. Each channel consists of 4 bands, each having control over all three parameters of equalization: amount of peak boost or cut, bandwidth, and center frequency of equalization.

RECOMMENDED USAGES: The 622 allows a very wide range (infinitely variable) of control over the parameters of equalization. This allows tuning out very tight notches (such as for AC hum or buzz); or doing very complex equalization on a single track or instrument.

BASIC SPECIFICATIONS: Frequency response: ± 0.25 dB 20 - 20,000 Hz.

Gain: +12 dB.

Input impedance: 100k ohms, electronically balanced, source impedance should be 600 ohms or less.

Absolute overload point: +26 dBm.

Output impedance: 47 ohms, unbalanced, (01 option provides balanced transformer output).

THD @ +18 dBm output: less than 0.025%, 20 - 20,000 Hz.

Typically less than 0.002% at 1 kHz, +18 dBm.

Noise: less than -84 dBm.

Crosstalk: -90 dB, 20 - 20,000 Hz.

EQ. peak range: +16 dB to -00.

Typical notch depth obtainable is 40 dB.

Power: 115 - 230 volts AC, 50 - 60 Hz, 7 watts (B).

Size (WHD): 19" x 3 1/2" x 5.2".

CL-22 COMPRESSOR/LIMITER

Quad-Eight Electronics
11929 Vose St., North Hollywood, CA 91605. (213) 764-1516
Contact: Ronald L. Bennett, Sales Manager.

PRODUCT DESCRIPTION: The CL-22 is a VCA type Compressor/Limiter of a new type design. It has variable attack time, variable release time, variable compression, variable expansion, variable gain, and de-essing.

BASIC SPECIFICATIONS: Frequency response: ± 1 dB 20 Hz to 20 kHz.

Noise: -90 dBm @ unity gain.

Gain: 20 dB max.

Distortion: less than 0.25% THD 20 Hz to 20 kHz @ +24 dBm.

Compression ratio: continuously variable from 2:1 to 20:1.

DEALER AVAILABILITY:

Northern California:

Accurate Sound Corp., 114 5th Ave., Redwood City, CA 94063

Southern California:

Coast Recording Equipment Supply Co., 6114 Santa Monica Blvd., Hollywood, CA.

Tri-Tronics, 2921 West Alameda Avenue, Burbank, CA.

MODEL 4

Rack Labs

136 Park St., New Haven CT 06511. (203) 787-4880

Contact: Kevin Garrity

PRODUCT DESCRIPTION: The Model 4 is a 2-way stereo/3-way monaural fully variable electronic crossover. Each output is individually buffered and short-proof. The crossover frequency may be varied continuously from 80 Hz to 7 kHz. An input greater than 8 vrms will activate the peak indicator LED. The nature of the circuit insures that at any chosen crossover frequency the lo and hi outputs will be a uniform 3 dB down. Transistor supply regulation, heavy filtering, an 18 gage steel case and fast low noise op-amps contribute to the unit's superior noise rejection.

RECOMMENDED USAGES: The rack crossover is as well suited to home or studio listening use as it is to travel on the road. Reliability is what keeps us in business. Nobody, to this date, has reported a failure that put them, "off the air".

BASIC SPECIFICATIONS: Power bandwidth: 10 Hz - 40 kHz.

input Z: 10 K.

Freq. response at 2.5v: 5 Hz - 100 kHz.

Output Z: 1 K.

Tuning range: 80 Hz - 7 kHz.

Slopes: 12 dB per octave.

THD: less than .05% - typ. .01%.

Gain: unity.

Terminations: unbalanced RCA.

List Price: \$250.

DEALER AVAILABILITY: Factory direct only.

MODEL 5

Rack Labs

136 Park St., New Haven, CT 06511. (203) 787-4880

Contact: Kevin Garrity

PRODUCT DESCRIPTION: A truly new product, the Rack Labs Model 5 is the only stereo 3-way crossover that takes up only 1 3/4" of rack space. The lo-mid cross point may be varied from 80 Hz to 7 kHz while the upper crossover is fixed at 7k. All output levels are individually adjustable as well as being buffered to insure circuit stability. Peak LED indicators monitor the inputs and will trigger 1 volt before clipping.

RECOMMENDED USAGES: This product is the direct result of intensive lobbying by P.A. people, who didn't like the idea of having to spring for two 2-way crossovers, so they could have a stereo 3-way PA. The upper cross point is ideal for rings, slots, peizos or similar high frequency transducers. The price is right, at \$150 less than the cost of two 2-way crossovers.

BASIC SPECIFICATIONS: Power bandwidth: 10 Hz - 40 kHz.

Input Z: 10k.

Freq. response at 2.5v: 5 Hz - 100 kHz.

Output Z: 1k.

Tuning range: 80 Hz - 7 kHz.

List price: \$340.

Slopes: 12 dB/octave.

THD: less than .05% - typ. .01%.

Gain: unity.

Terminations: unbalanced RCA.

Case: 18ga steel, black enamel, front: brushed clear anodized al.

DEALER AVAILABILITY: Factory direct only.

PH-830 STEREO PHASE SHIFTER

Rolandcorp US.

2401 Saybrook Ave., Los Angeles, CA 90040. (213) 685-5141

PRODUCT DESCRIPTION: PH-830 is a Stereo Phase Shifter with variable shift freq. and resonance for each channel. The sweep LFO control signal may be inverted at one channel to produce opposite phase sweep effects in each channel. The LFO may also be phase locked to an incoming trigger pulse for precisely articulated shift patterns. Selectable input (+20 dB, 0 dB, -20 dB) and output (0 dB, -20 dB) levels make connection to other effects or instruments easy.



These Manufacturers know us

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 Orem, Utah 84057
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CLOSE-UP

3M ELECTRONIC DIGITAL EDITING SYSTEM



An electronic digital editing system designed to complement the 3M Digital Mastering system was shown in early prototype form at the Audio Engineering Society convention November 3rd in New York City.

Rather than physically joining pieces of tape, the new 3M system copies the electronic digital signals in selected sequences to create a master. While esthetic selection is under control of a record producer, execution of the actual copying is controlled by a sophisticated microprocessor.

The system comprises a table-based video screen and keyboard, selected tape recorder controls and associated microprocessor systems.

Using the 3M system, the operator listens for appropriate edit points, then stops the tape and views a graphic representation of the sound on the video screen. After satisfactory matching of sound and graphic representations, the precisely time-encoded points on the tape are registered

in the microprocessor for later automatic synchronism when the copying sequence occurs.

Edit capabilities include "insert" of live music into a previously recorded multi-track tape and assembly editing of 32 tracks onto a four or two track master.

Set-up sequences are interactive; the system leads the operator through the appropriate steps, asking for human decisions at each point.

Development of the system has been a joint effort of 3M and Inter-Technology Exchange, Ltd.

Custom units of the mastering system will be in place late in 1978, and the editing system will be available by the fourth quarter of 1979. Both systems will be supplied on lease.

RECOMMENDED USAGES: The PH-830 is equally at home on stage, in the studio (for engineer or musician) and in the electronic music studio. Since the LFO may be replaced by any control voltage thru the front panel jacks provided, use by engineer or artist in conjunction with synthesizers greatly augments the range of the unit. All normaled connections may be bypassed by using the front panel jacks. This makes the PH-830 ideal for electronic music studio applications. The "invert" and effect bypass switches may be remote controlled making the PH-830 useful in live work.

BASIC SPECIFICATIONS: Controls: phase shift intensity (2), shift frequency (2), resonance (2), phase shift/normal switch (2), input level (3), output level (2), remote mode switch, inverter on/off.

Input impedance: 50k ohms unbalanced.

Output impedance: 600 ohms unbalanced.

Harmonic distortion less than .004%.

Signal/noise: greater than -100 dB ("A" weighted).

Phase shift: 1440 degrees.

Center notch range 30 Hz - 10 kHz (variable by manual or cv).

LFO range: .016 Hz - 10 Hz (LED indicator).

power consumption 12w, requirements 120v 50/60 Hz.

DEALER AVAILABILITY: Available throughout California.



DRC-202 (DYNAMIC RANGE CONTROLLER)

Sontec Electronics

10120 Marble Ct., Cockeysville, MD 21030. (301) 628-2283

Contact: Burgess MacNeal.

PRODUCT DESCRIPTION: A complete stereo system including separate compression & limiting functions. All control functions are referenced to zero VU level. Six pots for each channel vary compression gain and ratio, attack and release times, limit threshold and crest factor. Four lighted indicators show action of peak and RMS detectors in both compress and limit modes. Two LED stripline meters readout amount of gain control over a 40 dB range. A switch interlocks compression control signals for stereo.

RECOMMENDED USAGES: Particularly useful when the engineer needs accurate control over program dynamics. Separate control over compression and limiting characteristics. At low compression ratios active gain modification exists to below a level of -50 dBm. The user can set the ratio of peak-to-RMS limiting by adjustment of one control. There is no guessing with the DRC-202; the functions performed are consistent with the control settings and the panel indicators.

BASIC SPECIFICATIONS: Frequency response: ± 2 dB 5 - 30,000 Hz.

Noise: ± 85 dBm.

Distortion: .2% THD worst case.

Compression: variable 0 to 20 dB.

Compression ratio: 1.5:1 to 50:1.

Peak and RMS release times variable 6 to 120 dB/sec.

Limit threshold adjustable +4 to +24 dBm.

Crest factor variable.

DEALER AVAILABILITY:

Southern California:

Westlake Audio, Los Angeles, CA.



PHASE FILTER

Symetrix, Inc.

109 Bell St., Seattle, WA 98121. (206) 682-3076

Contact: Dane Butcher, Sales Manager

PRODUCT DESCRIPTION: The Phase Filter is a rack-mount phaser utilizing extremely sharp notch filters to create a very strong phasing effect. The unit incorporates two low frequency oscillators (one switchable to manual control), depth control, resonance (recirculation) control, blend control, and an input level control with LED overload indicator. A front panel jack accepts low level signals. Rear panel jacks include line in and out, low level output, external control input, and an in/out footswitch jack.

RECOMMENDED USAGES: The Phase Filter is ideally suited for either stage or studio applications where a versatile, low noise, low distortion phase shifter is required. In/out switching is accomplished with a silent analog switch, a feature which can be appreciated by all performing musicians. The Phase Filter's 1 1/2" by 19" rack mount package will be appreciated by studio owners who are all too familiar with the "gadget" and "footpedal" types of phase shifters now on the market.

DEALER AVAILABILITY:

Northern California:

Sound Genesis, 2001 Bryant St., San Francisco

Bananas at Large, 802 4th St., San Raphael

Southern California:

Audio Concepts, 7138 Santa Monica Blvd., Hollywood

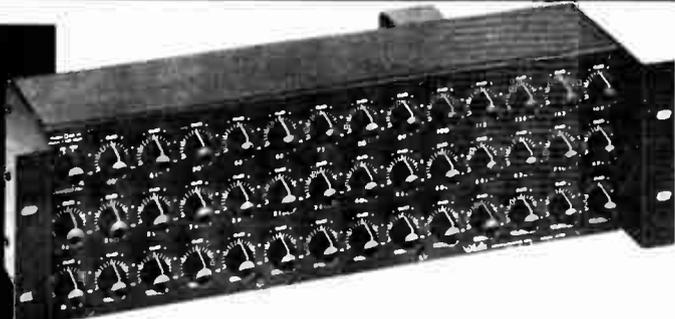


SPACE STATION SST-282

Ursa Major

Box 18, Belmont, MA 02178

see: Echo, Reverb and Delay Systems.



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The best thing about Bananas is the people. Our staff is involved in all phases of audio: playing, recording, manufacturing and modifying. We aren't just selling it, we're doing it. So when we set up your studio we know what equipment is going to meet your requirements, and we tune it right.

Make the call. We'll make you happy.



Bananas at Large

Audio/Musical Company
802 & 804 4th St. San Rafael 415-457-7600

SYNTHESIZERS



ARP INSTRUMENTS, INC.
ARP Quadra

ARP QUADRA

ARP Instruments, Inc.
45 Hartwell Ave., Lexington, Mass 02173
Contact: Robert Hoffman, V.P. Marketing.

PRODUCT DESCRIPTION: The Quadra is a five-octave keyboard controlled synthesizer, polyphonic, and consisting of four separate synthesizers under micro-processor control. Voices are selected using a panel of motionless touch switches and are instantly memorized in any of the Quadra's sixteen memory locations. A bass, string, poly/synth, and two-voice lead line synthesizer are individually programmable, with live performance variability. Two-octave bass range with 16' and 8' string and percussive bass voices; four octave poly synth (8' & 4') with VCF, VCA and ADSR; four-octave string section; five-octave lead synthesizer with two VCOs, VCF, VCA and ADSR; micro-processor keyboard with digitally memorized octave and intervals; arpeggio mode; etc.

RECOMMENDED USAGES: The Quadra answers the keyboardist's need for a programmable, polyphonic, multi-purpose synthesizer. The benefits of four separate synthesizers can now be derived from a single keyboard instrument. Live performance features include: a built-in stereo animator with mixer; touch sensitive keyboard control of pitch bending; footswitch control of pitch hold and flattening; and independent mixing control of the four synthesizer sections. Multi-track and layered synthesizer effects can be achieved live, and studio use is virtually unlimited for creating orchestral sounds, lead lines, bass lines, and polyphonic synthesizer effects simultaneously.

BASIC SPECIFICATIONS: Poly/synth section: controls bass section, string section and polyphonic section over five octaves. Lead/Mix section: sample and hold, LFO, 2 VCO's, VCF, VCA, final mixing.

Keyboard: microprocessor controller and lead synth touch sensor. Phase shifter: stereo animator.

Microprocessor: program/keyboard functions.

Outputs: poly/synth out, string out, bass out, lead out, stereo right (string/lead/bass) out, stereo left (poly/synth/bass), all 1/4". Main Output: Hi or low, 1/4" & XLR.

Additional pedal controllers: vol, phase, filter, sustain, portamento.

DEALER AVAILABILITY:

Northern California:
Leo's Music, Oakland
Bananas at Large, San Rafael
Southern California:
Hanich Music, West Covina
West L.A. Music, West Los Angeles

EMS VOCODER-2000

EMSA
269 Locust St., Northampton, MA 01060. (413) 586-3777
Contact: Everett Hafner, Pres.

PRODUCT DESCRIPTION: The EMS Vocoder-2000 is a compact, low-priced development from the original large EMS Vocoder introduced in 1975. It synthesizes speech-like sounds by analyzing input speech in a bank of narrow band-pass filters, and using this information to articulate another sound freely chosen for its musical effect.

RECOMMENDED USAGES: The Vocoder-2000 is most commonly used commercially to lend interesting new timbres to a spoken message without loss of intelligibility. It has many musical applications on stage and in studio composition. Especially will designed for live performance, it is easy to use and extremely versatile in the hands of gifted musicians.

BASIC SPECIFICATIONS: The essential functions of the Vocoder-2000 are performed by the following modules:

speech input pre-amp;
excitation input pre-amp;
16-channel analyzing filterbank; 16-channel synthesizing filterbank;
voiced/unvoiced detector;
noise generator;
audio oscillator;
pause stuffer;
slew/freeze section.

It provides a wide range of manual and pedal controls for rapid change of effects.

DEALER AVAILABILITY: Factory direct only.

MEDIAMIX JOYSTICKS MODELS #1 and #2

Mediamix
Box 484, Verdugo City, CA 91046. (213) 248-8029
Contact: Tim Wilde, Owner

PRODUCT DESCRIPTION: The Mediamix Joysticks enable a synthesist to slur notes and add natural vibrato with incredible fluidity. Based on a unique spring loaded return-to-center control stick, left/right movement changes pitch, forward/backward changes filter frequency OR can be used to voltage control other Mediamix Devices. Range controls adjust sensitivity. Joystick 2 features a sub-range control section giving the synthesist tuning flexibility similar to a pedal steel guitar. J2 also has a gating function.

RECOMMENDED USAGES: Joystick 1 can interface to Mini-Moog, ARP Axte and Odyssey, EMI, CAT, Oberheim 2 Voice and other small synthesizers. Joystick 2 can interface to all voltage controlled synthesizers, including multi-voice Oberheims. A thirty minute stereo demo cassette is available for all the Mediamix Products.

BASIC SPECIFICATIONS: Installation requires soldering 5 to 9 wires (some with resistors) to various places on the synthesizer's circuit boards. Complete pictorial instructions are available for most synthesizers. Also a small precision connector must be installed somewhere on the synth. The Joysticks plug into this connector.

Joystick 1 changes the pitch of all oscillators at once, Joystick 2 gives individual control over each oscillator (range and on/off).

DEALER AVAILABILITY: Factory direct only.

MEDIAMIX PROGRAMMABLE LFO

Mediamix
Box 484, Verdugo City CA 91046
Contact: Tim Wilde, Owner

PRODUCT DESCRIPTION: The PLFO consists of three synthesizer function blocks: A voltage controlled LFO oscillator with pulse/triangle wave selection and VC'd symmetry; an Envelope

or Transient generator with Delay; attack and decay controls; external trigger inputs and a separate output for external use; and a voltage controlled amplifier (VCA) section that can be controlled by the internal ENV GEN, a footpedal and/or one of the Mediamix Joysticks.

RECOMMENDED USAGES: The PLFO is used to modulate any voltage controllable device. It can accept a gate signal from the keyboard so that LFO modulation of a programmed amplitude will occur for every key depressed. The delay function of the ENV GEN allows the synthesist to have modulation on sustained notes only if so desired.

BASIC SPECIFICATIONS: Feeds any external modulation input, accepts a gate signal and control voltages. LFO frequency, symmetry, pulse width, and the VCA can all be externally voltage controlled. Contains its own AC power supply.

DEALER AVAILABILITY: Factory Direct only.

MEDIAMIX TRIANGLE MOD

Mediamix,
Box 484, Verdugo City, Ca 91046. (213) 248-8029
Contact: Tim Wilde, Owner

PRODUCT DESCRIPTION: The "T-Mod" was originally designed for Oberheim Expander Modules, but can be used with ARP Axte, Odyssey, and other synthesizers lacking a triangle waveshape. When used with an Oberheim, for example, each VCO will yield its normal pulse (buzz) or sawtooth (razz) along with a beautiful fat sounding triangle wave (woooo). Since each Oberheim SEM contains two VCOs, two triangle waves are produced (one being switch defeatable) and are summed into one of the external inputs.

RECOMMENDED USAGES: The Triangle Mod allows the synthesist to retain the overtones of the pulse/sawtooth waveshapes, plus have the "body" from the triangle wave that those other waveshapes don't have. Also, triangle waveshapes produce certain sounds that the other waveshapes simply cannot produce without extreme filtering.

BASIC SPECIFICATIONS: We provide an assembled and tested circuit board plus hardware and instructions for user installation (which consists of mounting the board inside the synth. and soldering a few wires to various points on the synth. PC boards). One Triangle Mod will handle four VCOs.

MEDIAMIX TRIGGER MOD

Mediamix
Box 484, Verdugo City, CA 91046. (213) 248-8029
Contact: Tim Wilde, Owner

PRODUCT DESCRIPTION: For use with Oberheim analog keyboard synthesizers and Mini-Moogs. Allows the synthesist to play as fast as possible, yet produce a trigger every time.

BASIC SPECIFICATIONS: User installation of the PC board is easy using complete pictorial instructions provided.

DEALER AVAILABILITY: Factory direct only.

MULTIMOOG

Norlin Music
7373 N. Cicero, Lincolnwood, IL 60646
Contact: Rock Wehrmann, Artist-In-Residence.

PRODUCT DESCRIPTION: The Multimoog is a two-oscillator monophonic synthesizer utilizing a unique force sensor mechanism, which enables the performer to either generate active control voltages or to introduce modulations by applying pressure to the key. This enables the performer to execute techniques with one hand that formerly needed two hands.

RECOMMENDED USAGES: The Multimoog works well as the basic building block in an open system multi-synthesizer connection. Its total input/output connections can be used to drive modular equipment while maintaining the speed and accuracy of a portable synthesizer.

BASIC SPECIFICATIONS: 31 1/4" x 15" x 5 1/2"; 26 lbs.

DEALER AVAILABILITY: Available throughout California.

POLYMOOG KEYBOARD

Norlin Music
7373 N. Cicero, Lincolnwood, IL 60646
Contact: Rock Wehrmann, Artist-In-Residence

PRODUCT DESCRIPTION: The Polymoog Keyboard is an extension of the design concept of the Polymoog synthesizer. A 71-note, totally polyphonic keyboard (individual loudness and filter articulators on each note) enables the performer to utilize the 14 preprogrammed sounds with no compromise in keyboard. An optimum number of front-panel controls brings this instrument to the non-synthesizer keyboard market.

RECOMMENDED USAGES: The Polymoog keyboard's ability to accurately reproduce 14 widely varied sounds, and to change from one to the next instantly, makes it an essential primary keyboard for live performances. It also makes it a necessary, time-saving tool in the studio.

BASIC SPECIFICATIONS: 45" x 22" x 6", 66 lbs.

DEALER AVAILABILITY: Available throughout California.

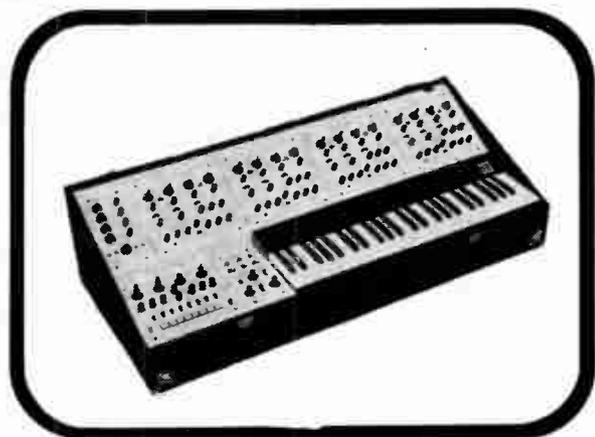
VOCODER

Norlin Music
7373 N. Cicero Ave., Lincolnwood, ILL 60646
Contact: Rock Wehrmann, Artist-in-Residence

PRODUCT DESCRIPTION: The Moog Vocoder superimposes the harmonic characteristics of one signal (the program input) on another signal (the carrier input) by using two sets of fixed filter bank. The energy ratios present at the first bank are converted to control voltages, which are used to open voltage controlled amplifiers at the output of the second fixed filter bank.

RECOMMENDED USAGES: The Vocoder is a powerful musical instrument, both live and in the studio. Live — one singer and one polyphonic sound source can become a vocal choir. In studio applications — background vocals, strings, and horn parts can be laid down in one take by one player.

BASIC SPECIFICATIONS: Program Input: Nominal level, line: 0dBm (0.7 volts). Mic: 40dBm (0.007 volts).
Input Impedance: Line: 20K ohms, Mic: 30K ohms.
Carrier Input: Nominal level: 0dBm (0.7 volts), input impedance: 100K ohms.
Output level: +10dBm (2.2 volts), output impedance: X1 ohm.
Effective Signal/Noise Ratio: 60dB.
Frequency Range: overall: 50 - 15,000 Hz, vocoded: 50 - 5,080 Hz, gated or bypassed: 5,080 - 15,000 Hz.



OBERHEIM ELECTRONICS, INC.

Four Voice Polyphonic Synthesizer with Programmer - FVS-1

FOUR VOICE POLYPHONIC SYNTHESIZER WITH PROGRAMMER — FVS-1

Oberheim Electronics, Inc.
1455 19th St., Santa Monica, CA 90404. (213) 829-6831
CONTACT: Russ Jones, V.P. Marketing

PRODUCT DESCRIPTION: The Oberheim Four Voice Polyphonic Synthesizer with Polyphonic Synthesizer Programmer is the first commercially available synthesizer on which four notes can be played simultaneously, plus have the facility to store up to 16 different Programs (Patches). Using versatile Synthesizer Expander Modules as its major elements, it is actually four complete synthesizers controlled by a single keyboard. Each Expander Module is a complete synthesizer. The result is 8 VCO's; 4 VCF's; 8 ENV GEN; 4 LFO's and 4 VCA's. It has a four octave keyboard utilizing advanced technology to generate control signals for each module. Also, it has a stereo output mixer.

RECOMMENDED USAGES: Use as a polyphonic synthesizer keyboard; for orchestration, composing and arranging. Being four synthesizers controlled by a single keyboard, it reduces the number of over-dubs required by conventional synthesizers. May be used to polyphonically reproduce many standard instruments, i.e.: strings, horns, etc. Combine all four voices in unison to create a rich, strong lead line. Patch all voices differently for multi-sound polyphony; or freeze on any voice to use a lead sound, which with the polyphonic synthesizer programmer, can multiply the single note patch potential of the programmer by four, thus, 64 patches in memory. Tune the VCO's at various intervals and combine in unison to create a chord played by a single key. Use split mode to play single note chords with the left hand and lead lines with right, or, with the VCO's tuned at different frequencies, play various intervals to create the effect of more notes than are actually being played.

BASIC SPECIFICATIONS: Output impedance: 560 ohms.
Max. output level: 20 volts P—P (stereo).
Gate output: voice #4, pos going +10 volts.
Gate input: SEM #4, pos going +5 volt minimum.
CV output: voice #4, 1 volt : 1 octave.
CV input: SEM #4, 1 volt : 1 octave.
Filter pedal input: 25k ohms impedance, required voltage range: ±5 volts.

DEALER AVAILABILITY:

Northern California:
Guitar Center, 928 Van Ness, San Francisco, Ca 94109
Leo's Music, 5447 Telegraph Ave., Oakland, CA 94609
Guitar Showcase, 3090 Bascom, San Jose, CA 95124

SYNTHESIZERS

Southern California:
Guitar Center, 7402 Sunset Blvd., Hollywood, Ca 90046
West L.A. Music, 11345 Santa Monica Blvd., Los Angeles, Ca 90025
Hanich Music, 235 N. Azusa Ave., West Covina, CA 91791
Downey Music Center, 11125 Downey, Downey, CA 90241
Available throughout California



OBERHEIM ELECTRONICS, INC.
OB-1 Programmable Lead Synthesizer

OB-1 PROGRAMMABLE LEAD SYNTHESIZER

Oberheim Electronics, Inc.
1455 19th St., Santa Monica, CA 90404. (213) 829-6831
Contact: Russ Jones, V.P. Marketing.

PRODUCT DESCRIPTION: The Oberheim OB-1 is a programmable lead line synthesizer. All parameters essential to building a patch can be set and stored in the memory (18 potentiometers and 16 switches). A total of eight different patches can be stored. The OB-1 Synthesizer includes two voltage controlled oscillators (VCO's) with sub-octave mode, a voltage controlled filter (VCF) two-pole and four-pole, two envelope generators (ADSR), a voltage controlled amplifier (VCA), a low frequency oscillator (LFO) and a noise generator. The memory will retain such parameters as VCO tuning, waveform (sawtooth, triangle, square, pulse), VCF tuning, VCF resonance, filter keyboard tracking, envelopes, sync, noise, cross modulation and volume. This gives the musician 9 (8 program, 1 manual) completely different patches of his own design. The OB-1 is shipped with 8 presets from the factory which include bass, flute, talk, box, violin, harmonica, horns, etc.

RECOMMENDED USAGES: As a single note lead line instrument. Can be driven by a pitch to voltage converter such as 360 Systems "Slavedriver", thus allowing other than keyboard players to play the synthesizer plus have the programmability feature.

BASIC SPECIFICATIONS: Output impedance: 1K Ohms.
Max. output level (high): 10V p-p.
Max. output level (low): 1V p-p.
Gate output: Pos going +12 volt.
Gate Input: (min): +5 volts.
CV output: 1 volt : 1 octave.
CV input impedance: 33k Ohms.
CV input: 1 volt : 1 octave.
Loudness input: linear positive going: +10 volts : full on.
Ext. audio in: 10k Ohms impedance; 2 Vp-p Min. for full loudness.
Oscillator range: 32.7 Hz (low C) ▶ Supersonic.

DEALER AVAILABILITY:

Northern California:
Guitar Center, 928 Van Ness, San Francisco, CA 94109
Leo's Music, 5447 Telegraph Ave., Oakland, CA 94609
Guitar Showcase, 3090 Bascom, San Jose, CA 95124
Southern California:
Guitar Center, 7402, Sunset Blvd., Hollywood, CA 90046
West L.A. Music, 11345 Santa Monica Blvd., Los Angeles, CA 90025
Hanich Music, 235 N. Azusa Ave., West Covina, CA 91791
Downey Music Center, 11125 Downey, Downey, CA 90241
Available throughout California

OBERHEIM SYNTHESIZER EXPANDER MODULE - SEM-1A

Oberheim Electronics, Inc.
1455 19th St., Santa Monica, CA 90404. (213) 829-6831
Contact: Russ Jones, V.P., Marketing

PRODUCT DESCRIPTION: The Expander Module is a precision electronic music system. It is a complete variable synthesizer without a keyboard in a small versatile package. It has two VCO's, a four mode VCF, two envelope generators, a LFO and a VCA.

RECOMMENDED USAGES: Use with a pitch follower to allow other than keyboard musicians to play the synthesizer: (i.e., guitar players); with a keyboard to form a small electronic synthesizer; to expand the capability of existing synthesizers with systems employing digital or analog sequencers; with polyphonic keyboards to form multi-voice synthesizer systems; as a precision laboratory signal generation and processing device.

BASIC SPECIFICATIONS: Output impedance: 1k ohms.
Max. output level: 20 V P—P (high) 2V P—P (low).
Gate input (min.): +5V (may be pos. or neg. going, with or without trigger).
CV input impedance: 50kOhms.
CV input: 1V : 1 octave.
VCA CTRL: linear pos. going +10V; full on.
Ext. audio in: 20k impedance 10V P—P min for full volume.
LFO output: 1 Hz - 20 Hz, 10V P—P.

DEALER AVAILABILITY:

Northern California:
Guitar Center, 928 Van Ness, San Francisco, CA 94109
Leo's Music, 5447 Telegraph Ave., Oakland, CA 94609
Guitar Showcase, 3090 Bascom, San Jose, CA 95124
Southern California:
Guitar Center, 7402 Sunset Blvd., Hollywood, CA 90046
West L.A. Music, 11345 Santa Monica Blvd., Los Angeles, Ca 90025
Hanich Music, 235 N. Azusa Ave., West Covina, CA 91791
Downey Music Center, 11125 Downey, Downey, CA 90241
Available throughout California.

TWO VOICE POLYPHONIC SYNTHESIZER — TVS-1A

Oberheim Electronics, Inc.
1455 19th St., Santa Monica, CA 90404
Contact: Russ Jones, V.P. Marketing

PRODUCT DESCRIPTION: The Oberheim Two Voice Polyphonic Synthesizer brings true polyphonic operation and modular expansion capability to the compact synthesizer field. Fully loaded, this versatile Synthesizer contains two Synthesizer Expander Modules, each of which is electronically a complete synthesizer, an eight position, two voice Quantized Mini-Sequencer with Sample/Hold, and a true two voice polyphonic, 37 note digital keyboard. This powerful combination of precision electronic music modules allows the synthesizer user to control two completely independent synthesizer voices.

RECOMMENDED USAGES: The Two Voice Polyphonic Synthesizer can be used in a multitude of ways: i.e., as a bass keyboard, a rhythm machine, a synthesizer keyboard, or a duophonic instrument with both voices patched to the same sound, or differently. Use the mini-sequencer to drive one voice while the other is free to play lead. Both voices combine to create a four note chord played by a single key. Drive both voices with the mini-sequencer for dual repeating melodic lines. Modulate the VCF of either module with sample/hold from the mini-sequencer and use noise as an audio source to create rhythmic drum effects. Use the mini-sequencer as a constant gate source to help create sounds like bagpipes or sitar (these patches available upon request). Run the audio output of the left voice through the VCF sections of the right voice for more complex filtering.

BASIC SPECIFICATIONS: Output impedance: 560 ohms.
Max. output level: 20 volt P-P.
Gate output: voice #2, pos going +10 volt.
Gate Input: SEM #2, pos going +5 volt minimum.
CV Output: voice #2, 1 volt : 1 octave.
CV Input: SEM #2, 1 volt : 1 octave.
Ext Audio in: 20k impedance, 10 volt P-P minimum for full volume.

DEALER AVAILABILITY:

Northern California:
Guitar Center, 928 Van Ness, San Francisco, CA 94109
Leo's Music, 5447 Telegraph Ave., Oakland, CA 94609
Guitar Showcase, 3090 Bascom, San Jose, CA 95124
Southern California:
Guitar Center, 7402 Sunset Blvd., Hollywood, CA 90046
West L.A. Music, 11345 Santa Monica Blvd., Los Angeles, CA 90025
Hanich Music, 235 N. Azusa Ave., West Covina, Ca 91791
Downey Music Center, 11125 Downey, Downey, Ca 90241
Available Throughout California

CAT S.R.M. SYNTHESIZER

Octave Electronics Inc.
32-73 Steinway St., Long Island City, NY 11103
Contact: Ken Iorio, Pres.

PRODUCT DESCRIPTION: Performance synthesizer featuring two oscillators with mixable waveforms, oscillator sync and monophonic or duophonic keyboard response. Other features include LFO delay waveform for automatic delayed vibrato effects, multiple trigger keyboard for quick playing response, sub-octave waveforms on each oscillator for doubling effect that greatly fattens the overall sound, LFO monitor serves as a visual indication of the LFO speed setting and TWO NOTE

MEMORY that eliminates "glitching" between notes in the duophonic keyboard mode.

RECOMMENDED USAGES: Recommended for general electronic studio use because of its extremely versatile and straightforward patching system. Also an excellent live performance instrument because of the human-engineered panel functions that facilitate quick on-stage changes of synthesized sounds. Educational institutions also appreciate the clarity of the front panel layout which allows students to grasp synthesizer concepts more rapidly than with other more complicated synthesizers.

BASIC SPECIFICATIONS: Two oscillators, seven mixable wave-shapes, polyphonic or duophonic keyboard with TWO NOTE MEMORY feature that allows both notes to sustain after key release.

ADSR and AR transient generators with ADSR repeat. Sample and hold feature.

LFO with continuously variable delay on sine wave output. LFO monitor lamp.

Pedal control of VCO1, VCF, and glide.

Suboctave doubler on each oscillator.

Oscillator sync feature.

DEALER AVAILABILITY: Available throughout California.



CATSTICK SYNTHESIZER CONTROLLER

Octave Electronics Inc.

32-73 Steinway St., Long Island City, NY 11103

Contact: Carmine Bonanno, Vice President.

PRODUCT DESCRIPTION: The CATSTICK is a spring-loaded joystick device that can be used with any voltage controlled patchable synthesizer. The CATSTICK has four identical sections — one for each of the joystick directions. Each of these sections allows the joystick to turn on one of two LFOs (provided with the unit) and add a control voltage offset. Thus, if the CATSTICK were to be connected to a VCO and VCF via the control voltage inputs, it would be possible to obtain pitch bend up in one direction, vibrato in the other direction and filter sweep in the other two directions. The stick returns to a vertical off position when released so that all of the modulations turn off.

RECOMMENDED USAGES: Recommended as a replacement for ribbon controllers, pressure sensitive controllers and sliders or footpedals since the CATSTICK allows four different modulations (one for each of the joystick directions) to be controlled with one hand. This allows the performer to open up an entirely new perspective on synthesizer control and often allows modulation styles not often available by any other means to become an important part of basic technique.

BASIC SPECIFICATIONS: Precision spring-loaded joystick. Two internal LFO's with three selectable waveforms. Four accessible VCA's.

Patching system allows access to X-axis control voltage.

Y-axis control voltage.

X-axis VCA's and control voltage summed.

Y-axis VCA's and control voltage summed.

VCA inputs and outputs.

X and Y-axis outputs summed

A total of 16 patch jacks are provided for complete flexibility with both studio and performance synthesizers.

DEALER AVAILABILITY: Available throughout California.



KITTEN SYNTHESIZER

Octave Electronics, Inc.

32-73 Steinway St., Long Island City, NY 11103

Contact: Carmine Bonanno, Vice Pres.

PRODUCT DESCRIPTION: Performance or lead-line synthesizer featuring one oscillator with mixable waveforms and two suboctave doublers for an incredibly fat sound. The basic features include a LFO with continuously variable delay for vibrato delay effects. A multiple trigger keyboard offers the performer quick keyboard response on fast passages. An LFO monitor lamp gives a visual indication of the LFO speed setting which is useful on stage during set-up. A versatile patching system allows the synthesizer to be used as an add-on module to an existing system or on its own as a completely contained basic system.

RECOMMENDED USAGES: The Kitten is recommended as a lead line synthesizer because of its fat suboctave doubling and mixable waveform features. Also, the human-engineered control panel allows quick changes of synthesizer sounds on stage, and is an excellent teaching aid for synthesis students. Many performers have used the Kitten as an add-on expander to their already existing system.

BASIC SPECIFICATIONS: One oscillator, two suboctave doubling waveforms, total of five mixable waveforms.

Monophonic multiple trigger keyboard.

LFO with delay on the sine wave output.

Sample and hold.

ADSR with repeat, LFO monitor lamp. Pedal control of VCO, VCF and glide.

Eight note sequencer patch available.

DEALER AVAILABILITY: Available throughout California.

SYNTHESIZERS

1550 STRINGZ 'N' THINGZ

PAIA Electronics, Inc.

1020 W. Wilshire, Oklahoma City, OK 73116. (405) 843-9626

Contact: Marvin Jones, Product Development

PRODUCT DESCRIPTION: The Stringz 'n' Thingz is a polytonic system which was designed specifically to create the effect of violins and cellos for orchestral backgrounds. The Stringz, with more user accessible controls than most string synthesizers, also allows straight reed organ voicings and rich ethereal pipe organ voices with the dual delay lines provided. A separate electric piano-type voice can be mixed with the string output or brought out separately for special effects. Jacks are provided to allow foot pedal or switch control of special effects and interface with external synthesizers for additional processing. Dual mixers allow separate blend of violin and cello voices for each half of the keyboard.

RECOMMENDED USAGES: Stringz is best used as a background effect for fill purposes where lush orchestral background is desired but recording conditions don't allow for actual use of an orchestra. This one keyboard can also serve to "compact" the amount of keyboards a traveling musician must carry, as the string and piano are both generated by one keyboard. Optional stereo board also allows the string output to be converted to stereo, and a microprocessor interface is under development which will allow storage of string and piano parts or simultaneous control of a polyphonic synthesizer from the Stringz keyboard.

BASIC SPECIFICATIONS: Stringz weighs 30 lbs and is 31" long, 13" deep, and 5" thick.

Output level is nominally 500 mV to drive high level inputs.

Self contained regulated power supply

Case covered in vinyl to withstand road travel.

3 octave keyboard.

Foot pedals and switches, optional.

\$295. in kit form, custom factory assembly available.

DEALER AVAILABILITY: Dealer inquiries invited. Available by mail-order from factory.

#3750 PROGRAMMABLE DRUM SET

PAIA Electronics

1020 W. Wilshire, Oklahoma City, OK 73116. (405) 843-9626

Contact: Marvin Jones

PRODUCT DESCRIPTION: Most electronic drummers offer limited selection or alteration of drum beat patterns. The Programmable Drum Set allows the user to enter his own sequence of patterns into the 256 event memory, thus allowing odd time signatures, syncopations, drum rolls, and features not available in preprogrammed units. Touch switches are used for all drum and instruction programming which offer no wear and extreme dependability. Controls are easy to use — NO PROGRAMMING KNOWLEDGE IS REQUIRED. Capabilities to set up two scores, and two alternate bridge patterns.

RECOMMENDED USAGES: The Programmable Drum Set can be used by synthesists who wish to add electronic drum effects to their music, but who have felt limited by previous drum machines. External sync input allows drums to be triggered by keyboard activity, sequencers, and other triggering devices. When used as a metronome, other musicians can program complex time signatures to practice their improvisational skills, or for inspiration in composition work.

BASIC SPECIFICATIONS: Battery powered; 1-9 volt plus, 4 AA penlight cells. Memory save switch allows your programs to be saved in memory while the rest of the circuitry is turned off. Features include: tempo control, score select switch, LED indicators

Eight drum sounds: bass, accent bass, snare, tom, clave, conga, woodblock, and rest.

Four additional touch controls for play, repeat, reset, and bridge select.

\$84.95 in kit form.

Custom factory assembly available.

DEALER AVAILABILITY: Mail order from factory, kit form or assembled. Dealer inquiries invited.

GNOME MICROSYNTHESIZER

PAIA Electronics, Inc.

1020 W. Wilshire, Oklahoma City, OK 73116. (405) 843-9626

Contact: Marvin Jones, Product Development

PRODUCT DESCRIPTION: The Gnome provides a basic starting point for those interested in learning about and exploring the possibilities of electronic music. The gnome is handheld,

and operates on two 9 volt batteries. Circuitry included provides VCO, VCF, two envelope generators, VCA, noise source, and a ribbon controller. Modification instructions available for allowing guitar interface with the Gnome.

RECOMMENDED USAGES: The Gnome has become very popular as an educational tool for elementary and junior high music courses. In higher level education, the gnome serves well as effects generator for theatre groups, waveform generator for physics lessons, and is still useful for advanced music classes. The "no-patch-cord" type of operation makes learning a snap. Even for the advanced studio synthesist, the Gnome can be programmed to provide many of the basic effects used, leaving the larger modular synthesizers for use in the complex effects.

BASIC SPECIFICATIONS: Handheld: 10" x 5 1/2" x 2 1/2".

Power supply: 2 nine volt batteries.

Oscillator range: over 6 octaves.

Remote triggering input jack.

External control input for VCO and VCF frequency.

\$49.95, kit form. Custom factory assembly available.

DEALER AVAILABILITY: Kit or assembled from factory. Dealer inquiries invited.



OZ MINI-ORGAN

PAIA Electronics, Inc.

1020 W. Wilshire, Oklahoma City, OK 73116. (405) 843-9626

Contact: Marvin Jones

PRODUCT DESCRIPTION: The OZ is a self contained portable organ which uses a 1 1/2 octave keyboard plus a 5 octave range control and tuning control to provide over 7 octaves of range. The self-contained amp and speaker allow operation outdoors, in the car, or in flying saucers. Volume and tone controls allow adjustment of sound to suit, and can also be used to alter the signal prior to the signal output jack. A mixing signal input also allows interface of OZ to larger syn- use the OZ's internal amp and speaker. Or, use the two jacks together as an external processing loop for the Oz signal. Trigger output allows interface of OZ to larger synthesizers for additional processing.

RECOMMENDED USAGES: Oz lends itself well to use as a practice instrument for musicians on the road, backstage, or while traveling. When interfaced with larger synthesizers, Oz provides a polytonic pitch source for generation of more complex sounds from standard "one-note" synthesizers. As a small, personal instrument, Oz is great for keyboard technique or music theory classes where it is desirable that each student have his own instrument.

BASIC SPECIFICATIONS: Portable: 13" x 11" x 4 1/2".

12 lbs shipping wt.

Power supply: 8 size AA penlight batteries.

Internal amp power: 1 watt.

Pitch bender plate which works from body capacitance.

LED indicators.

DEALER AVAILABILITY: Available by mail order from factory in kit form for \$89.95, or custom factory assembly available. Dealer inquiries invited.



P-4700J COMPUTER CONTROLLED POLYPHONIC SYNTHESIZER

PAIA Electronics, Inc.

1020 W. Wilshire, Oklahoma City, OK 73116. (405) 843-9626

Contact: Marvin Jones, Product Development

PRODUCT DESCRIPTION: The P-4700J provides for polyphonic capabilities with the 6503 based microprocessor system which is built into the keyboard section. With the modules provided, a two voice system with software envelope generation results. Computer software and firmware provided, however, allows for up to 16-voice operation by simple addition of more synthesizer modules for generation of the additional voices. Modular, patch cord type operation retains all features of the analog studio synthesizers which most musicians are familiar with. Available either in kit form or custom assembled.

RECOMMENDED USAGES: Software possibilities for the P-4700J include multi-track recording in the microprocessor's memory, real time polyphonic operation, compositional routines, monotic or polyphonic storage and sequencing with programmed or real time transposition, editing, and playback, and much more.

BASIC SPECIFICATIONS: 1K bytes user memory

4 channel keyboard output for use with 4 voices or 2 voices with software envelope generation.

Additional modules include D/A converter, 2-VCA's, 3-VCO's, LFO. Noise, 2-VCF's, stereo mixer, reverb, power supplies.

\$749 in kit form.

DEALER AVAILABILITY: Dealer inquiries invited. Available in kit form or custom assembled from the factory.



JP-4 POLYPHONIC SYNTHESIZER

Rolandcorp US

2401 Saybrook Ave., Los Angeles, CA 90040. (213) 685-5141

Contact: Rolandcorp US

PRODUCT DESCRIPTION: A four voice Polyphonic Synthesizer with Pre-set voices and memory. Designed for performance, the JP-4 includes a variable function bender-mod wheel, Sub-VCO's and 24 dB VCF's. The keyboard has 4 different assignment modes for different playing styles and techniques, and also contains

Our microphones are more often heard than seen.

We really don't have to broadcast the virtues of our equipment.

Especially if you've ever broadcast on our equipment.

In fact, go into almost any professional facility, and it'll be easy to spot Sony. With one exception:

Our miniature omni-directional electret condenser mike. The ECM-50PS is so small, you'd never expect such big performance. Yet this tie-tac microphone offers a wide frequency response, with full coverage from any direction.

On your visit you'll also come across the Sony C-37P. This is a professional condenser mike that's at home on stage or in studios. This versatility is enhanced by a selector switch that lets you go from omni to uni-directional. And thanks to FET circuitry, the 37P boasts a remarkably wide dynamic range, allowing sound pressures of up to 154 dB.

With the ECM-56F, Sony moves in the direction of a uni-directional condenser microphone. Offering Sony's exclusive Back Electret design, this unit combines a wide frequency response, with uncanny smoothness.

The Back Electret also sets the ECM-53FP ahead. The microphone: a flexible Cardioid for desk or podium.

The Sony C-74 microphone (not pictured), is a gun-type. You'll often see it at news conferences, where loaded questions are asked. This uni-directional condenser microphone is acknowledged as the standard in its category.

It's no stranger to theatres, sound stages, large halls and television studios. When you can't get proximity, make sure you're not at a distance from Sony.

Sony's line of microphones is as complete as you'll find anywhere.

But it also has Sony's disciplined quality and on-going perfectionism. Which you won't find anywhere.

SONY®

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9 West 57 Street, New York, N.Y. 10019
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an arpeggiator that sequences notes in the order played up, down, or up and down or randomly over the range of the keyboard. The arpeggiator may be driven by an external clock.

RECOMMENDED USAGES: For keyboardists and Electronic Musicians, the JP-4 is compact enough to stack with other keyboards and instruments. Stereo outputs allow for the most effective use of Roland's unique Chorus effect in live performance or studio work. 10 original Pre-set voices and 8 user programmed memories make for quick response on stage and the single panel is easy enough to understand and manipulate that altering any parameter during performance is very easy.

BASIC SPECIFICATIONS: 4 VCO's with Sub VCO on each. 4-24 dB/8va Low pass VCF with ADSR, LFO, KBd, Arpeggiator, and Bender/mod wheel control.

High pass filter.

Noise Source.

VCA's have separate ADSR and Bender/Mod wheel controls.

4 octave keyboard with polyphonic Portamento.

DEALER AVAILABILITY: Available throughout California.

RS-505 PARAPHONIC SYNTHESIZER

Rolandcorp US

2401 Saybrook Ave., Los Angeles, Ca 90040. (213) 685-5141

Contact: Rolandcorp Us.

PRODUCT DESCRIPTION: The RS-505 is a Paraphonic (many simultaneous and polyphonic voices) keyboard instrument with split keyboard and 3 independent voicing sections.

1. A string synthesizer with separate voicings for upper/lower keyboard and independent AR Envelope generator.

2. A polyphonic synthesizer voice with separate registers for upper/lower keyboard, Low-pass VCF and ADSR. This section also has a special 2 register monophonic bass voice.

3. A 3 (contra bass, Tuba, and Cello) voice monophonic bass synthesizer with AR envelope generator. Each section may be separately routed through the ensemble mode which produces chorus through flanging effects.

RECOMMENDED USAGES: Perfect for performance. The keyboard includes an automatic or manual Pitch Bend or up-bow and Glissando effects. Synthesizer ADSR has single gate and multiple gate trigger mode. LFO delay for delayed vibrato. Mixer allows performer to blend the separate sections stereo outputs and separate out for bass synthesizer. Other outputs include gate and trigger outs. Inputs include external audio in, control in for VCF, and VCA.

BASIC SPECIFICATIONS: 4 octave keyboard. Strings-AR envelope control blend of 8' and 4' voicing for each of upper and lower KBD. Ensemble synthesizer — ADSR, VCF 8' and 4' voicing for upper and lower KBD and 16' and 8' bass. On lower ensemble mode Bass AR envelope, 16', 16' + 8' registers for lower KBD only ensemble switch.

DEALER AVAILABILITY: Available throughout California.

SOUND EFFECT VOCODER VSM 201

Sennheiser Electronic Corp.

10 West 37th St., New York, NY 10018. (212) 239-0190

Contact: Horst Ankermann, V.P.

PRODUCT DESCRIPTION: The Vocoder generates sounds in a synthetic way, using human diction together with a second audio signal such as a musical sound or noise.

RECOMMENDED USAGES: Speech or vocals with extreme high or low pitch, unusual vibrato or tremolo, derived from simply spoken copy. Combining two different musical instruments. Articulation of noise, e.g. wind, bells, engine. Many applications in recording commercials, film sound-tracks and records. Also for live performances of rock groups.

BASIC SPECIFICATIONS: 20 analysis channels.

3 equalizer banks.

AGC amplifiers

Reliable, rugged construction with high quality computer parts.

DEALER AVAILABILITY:

Southern California: Rolls Electronics

4260 Lankershim Blvd. N. Hollywood, CA 91602. (213) 877-4424

EVI (ELECTRONIC VALVE INSTRUMENT)

Steiner Synthesizers (formerly Steiner Parker)

2734 South 2700 West, Salt Lake City, Utah 84119. (801) 972-1447

Contact: O.D. Williams, V.P. Sales

PRODUCT DESCRIPTION: The Electronic Valve Instrument is a synthesizer controller that will plug into almost any brand of synthesizer on the market. It allows the player to have full control of dynamics and pitch bend on each and every note. The unit is played by blowing into the EVI in much the same manner as playing a brass instrument such as a trumpet or french horn. Fingering is the same as for a trumpet. Range of the instrument without retuning the synthesizer is 7 octaves. Full range is limited only by the synthesizer used. With Steiner synthesizers, the full range is in excess of 17 octaves. The instrument can be learned by anyone in a very short time. No lip development is necessary as all the sound is produced by the synthesizer. The EVI is the most versatile of all synthesizer controllers and is the easiest to learn.

SYNTHESIZERS

RECOMMENDED USAGES: No other method of control will give as much expressiveness, versatility, or range on the synthesizer. The Electronic Valve Instrument has to be heard to be believed and is the most effective way to play music, as written, with a synthesizer.

BASIC SPECIFICATIONS: Requires plus and minus voltages of any value between nine and fifteen volts.

Weight: less than two pounds. Case included.

Control cords up to 100 feet long are possible for live performance.

Can be learned and played easily by an eight year old child.

Demo tape available.

DEALER AVAILABILITY: Available throughout California.

MICROCON

Steiner Synthesizers

2734 South 2700 West, Salt Lake City, Utah 84119. (801) 972-1447

Contact: O.D. Williams, V.P. Sales

PRODUCT DESCRIPTION: The Microcon is a complete synthesizer (less keyboard) for only \$300. It can be used to add another voice to an existing synthesizer of any brand, or it can be used in conjunction with controllers such as the Steiner Multiphonic Keyboard or EVI (Electronic Valve Instrument) to make small, inexpensive but highly versatile custom synthesizers. It is the perfect companion for the Roland Micro Composer. It is the fastest selling expander module on the market today. It works with the Ampeg Patch 2000 guitar, the MCI Guitorgan, the 360 systems slavedriver, and with just about any other synthesizer product. Combination discounts are available when bought with other Steiner controllers or synthesizers.

RECOMMENDED USAGES: As an expander module for any synthesizer. As the basic synthesizer to use with your sequencer, auxiliary keyboard, Electronic Valve Instrument, 360 Slavedriver, Patch 2000, Guitorgan, etc. Can be controlled from the front panel without any external controller to produce some sounds. The perfect companion for any synthesizer.

BASIC SPECIFICATIONS: 110 volt operation. Contains VCO, VCF, Trigger Gen, VCA, LFO, and control section.

Weight 3 lbs. Measures 6 by 4 by 3 inches.

220 volt version available.

Outputs can be connected in parallel to mix sounds of several Microcons going into a single sound input.

Custom cables are available to connect to any brand of synthesizer or for any custom application.

DEALER AVAILABILITY: Available throughout California. Write or call for current dealer list.

SYNTHACON

Steiner Synthesizers

2734 South 2700 West, Salt Lake City, Utah 84119. (801) 972-1447

Contact: O.D. Williams, V.P. Sales

PRODUCT DESCRIPTION: The Synthacon is a general purpose synthesizer of extremely high versatility, roughly equivalent to the 2600 at about one half the price. It has three oscillators, a four octave KBD, and patching is achieved with front panel switches that give over 300 billion possible sound combinations. The unit contains sufficient versatility for studio use and also is quick to patch due to use of front panel switches making it ideal for live performance. It has more back panel connectors for accessories than any other synthesizer selling for less than \$4500.

RECOMMENDED USAGES: Live performance or studio use. Currently in use by many nationally known recording groups for both stage use and studio use. Used on hundreds of national TV commercials and records. The best general usage all purpose synthesizer on the market. Sells for less than \$1500. You cannot match its features with any other brand until you spend at least \$4500.

BASIC SPECIFICATIONS: Four octave KBD, three oscillators, two full envelope generators, three mode filter, VCA bypass capability, trigger generator, sample and hold, noise generator, 110 or 220 volt operation, portable, weight 32 lbs. Keyboardless version available for use with other controllers or for use with other synthesizers in a daisy chain. Multiphonic version available.

DEALER AVAILABILITY: Available throughout California. Write or call for full dealer list.

SLAVEDRIVER (Interface for guitar or bass, and synthesizer).

360 Systems

18730 Oxnard St., #215 Tarzana, CA 91356. (213) 342-3127

Contact: Jan Lucas, Director of Marketing

PRODUCT DESCRIPTION: The Slavedriver and Bass Slavedriver allow you to use your own solid-body guitar or bass to control your favorite synthesizer. The Slavedriver has four outputs... one for pitch, one for triggers (which occur each time a note is picked), one for loudness, and one audio output for processing through the synthesizers' filter. A hex-pickup is supplied with the guitar, and a quad pickup is supplied with the bass, to insure maximum separation so that smooth and natural playing are all that is required...NO special techniques are necessary. The synthesizer will now copy any lines played on the guitar or bass, in any register, and in any voice the synthesizer can produce.

RECOMMENDED USAGES: Lead lines may be doubled or tripled; parallel harmonies may be produced; guitars can now play bass and basses can now do lead lines in any octave...up or down. The vocabulary of sounds possible is nearly infinite, and a majority of the sounds are valid for all styles of music. A sustain pedal allows you to harmonize your lead line in a parallel fashion, live on stage. Filter swept phase and flange effects are possible using nearly any synthesizer.

BASIC SPECIFICATIONS: Pitch accuracy: $\pm .02$ semitone over instrument range; Acquisition speed: one string vibration. Outputs: Audio (guitar), pitch CV, trigger, loudness CV. Jacks for sustain and transpose footswitches.

power: 117 VAC 60 Hz 10 watts.

DEALER AVAILABILITY: Available throughout California.

THE SPECTRE (A complete guitar synthesizer package).

360 Systems

18730 Oxnard St., #215, Tarzana, CA 91356. (213) 342-3127

Contact: Jan Lucas, Director of Marketing

PRODUCT DESCRIPTION: The Spectre is a complete guitar synthesizer packaged in a Tolex-covered road case with detachable lid and handle. It's got 2 oscillators, 2 envelope generators, 4-mode VCF, 2 presettable interval transposers for parallel harmonies, hex fuzz, and a polyphonic effects processor for chord work. The oscillators follow your lead note, which is determined by 360's latest pitch tracking circuitry, and is accurate for nearly all styles of picking. An optional programmer plugs in with one cord, and will store 64 of your best sounds. Any of them can be recalled with a foot-switch. A hex pickup is included and it will fit on most solid-body guitars.

RECOMMENDED USAGES: Use whenever and wherever a synthesizer is used, or when a unique guitar sound is desired. The vocabulary of sounds is so diverse that the user need not worry about repeating himself. Many extremely fat sounds can be produced by mixing in the natural guitar sounds with the synthesized ones. These hybrid sounds may be just the edge a particular song is in need of. \$1695. suggested list.

BASIC SPECIFICATIONS: Pitch accuracy: $\pm .02$ semitone over the entire guitar range.

Speed: one string vibration.

Outputs: pitch control for optional external synthesizers, 1 volt/octave.

Trigger: Ov-off, +14v on.

High and Low level audio outputs.

Continuous Hex Fuzz output.

Power: 117 VAX 60 Hz, 10 watts.

DEALER AVAILABILITY: Available throughout California

POLYPHONY MAGAZINE

Polyphony Publishing Company

1020 W. Wilshire, P.O. Box 20305, Okla. City, OK 73116

Contact: Marvin Jones, Editor

Polyphony is a bimonthly publication dedicated to the education and intercommunication of electronic music enthusiasts. Typical contents include circuits for construction, modifications for commercial equipment to allow more versatile or higher quality operation, book, record, and equipment reviews of interest to the synthesist, software and interface information for digital or computer aided music systems, and general interest articles about home recording, music and electronics theory.

POLYPHONY serves well as not only a source of current information on new products and techniques, but also as a valuable reference source which should be kept next to your synthesizers along with your operating manuals and patch charts.

Distributed through music stores, recording studios, record stores, etc. Dealer inquiries invited. Subscriptions are \$4.00 per year.

Meet AKG's "New Professionals"

AKG is a research, development and manufacturing organization specializing in electro-acoustic technology. Our designs have been awarded over 600 transducer related patents, and our products have earned the highest degree of user respect for quality and dependability.

The AKG line of various microphone models is considered to be the most sophisticated available for applications ranging through the spectrum of professional uses. From studio, to in-concert recording and reinforcement, to location film sound...our products can be called on to solve the most difficult situations you may encounter. AKG has developed a broad range of products to meet your varying creative requirements and, as new audio frontiers evolve, our

engineers will lead the technological pioneering.

We set our goals rather high and turn every stone to live up to, and improve upon, self-imposed challenges. We constantly strive to

advance beyond state-of-the-art developments. Some of these advancements you see illustrated below. Loaded with practical, innovative features, AKG's "New Professional" microphones are intended to further build upon the remarkable results achievable with the other AKG "Professionals." Ask your dealer or write directly.



The Mark of Professional Quality... in microphones, headphones, phonocartidges, reverb units.

PHILIPS AUDIO VIDEO SYSTEMS CORP

A NORTH AMERICAN PHILIPS COMPANY
91 McKee Drive, Mahwah, N.J. 07430 • (201) 529-3800



TAPE RECORDERS & MAGNETIC TAPE

BRENELL MINI 8

Allen & Heath — Brenell Limited
Campsbourne Road, Hornsey, London N. 8, England

PRODUCT DESCRIPTION: Compact Eight track, one-inch professional audio tape recorder/reproducer. Foolproof logic control, independent record, sync, playback equalization accessible on front panel, silent drop-in-out of record mode, 20dB headroom, Remote control with electronics tape counter optionally available, simplified tape threading, fully variable input/output level adjust, multi-voltage A.C. power transformer, provision for vari-speed capstan drive.

RECOMMENDED USAGES: Wherever eight track tape recording/playback is required. Particularly where small size and lowest possible weight is desired without compromising professional quality specifications. Ideal for use in small studios and mobile applications.

BASIC SPECIFICATIONS: No. Tracks: Eight.

Tape Width: one inch (25.4 mm).

Reel Size: NAB 26.25 cm (10 1/2").

Tape Speeds: 19 & 38 cm/s; (7 1/2 & 15 ips).

Record level: 0 VU at 320 nWb/m.

Wow & Flutter: 0.05% DIN.

Signal/Noise Ratio: —60dB unweighted.

Dimensions: 22" x 17" x 8 1/2" deep.

Weight: 32 kgs (71 pounds).

DEALER AVAILABILITY: EXCLUSIVELY IMPORTED: W.L. Cara, partner, CARA INTERNATIONAL LTD., 4145 Via Marina #120, Marina del Rey, CA 90291.

A limited number of dealerships will be appointed. Product available starting October 1978

NOTE: Deliveries can now be made for shipment within 60 days.

GAUSS 1200 SERIES

Cetec Gauss

13035 Satcoy St., N. Hollywood, CA 91605. (213) 875-1900

Contact: Mr. Mort Fujii, President, Cetec Gauss.

PRODUCT DESCRIPTION: The Gauss research and development program offers you a constant upgraded, state-of-the-art answer to high speed audio tape duplicating problems. Each is thoroughly tested and proven prior to being built into new systems or offered as an option to existing systems. And note: what Gauss built into the new system is almost invariably offered as a system upgrading device to existing systems. That means your existing system is not obsolete by new developments in the field.

BASIC SPECIFICATIONS: New Features: Tape packer arm — provides tape guidance just prior to contact with the pancake, eliminating layer to layer air film. The tape guide may be changed to accommodate either 1/4" or cassette tapes.

Motorized tape cleaner — the cleaner wipes loose oxide and foreign matter before the tape enters the head assembly.

Loop bin vacuum holdback — the endless loop tape bin offers a vacuum holdback which eliminates contact and abrasion with oxide surface and eliminates problems of continual daily maintenance.

Central bias control — the Master Reproducer's bias generator controls tape head bias of the Master and up to 20 slaves.

Improved tape guidance — the new tape path built into the Master Reproducer consoles greatly reduces contact with the oxide surfaces. Results in longer Master tape life and tape tracking stability.

DEALER AVAILABILITY: Factory direct only.

FX-1

Fuji Photo Film USA, Inc.

350 Fifth Avenue, New York, NY 10001

Contact: Roger Adelman, Marketing Services Administrator.

PRODUCT DESCRIPTION: The superior pure—ferric low noise, high output, normal bias, 120 micro-second EQ tape. Optimum particle size and optimum density provide minimal noise while maximizing other desirable performance characteristics. Extremely wide frequency response and plenty of high end headroom. Response is unusually linear over the whole audible frequency range. The maximum output level is up to 4 dB higher than reference level. Cassettes come in 46, 60 and 90 minutes.

RECOMMENDED USAGES: FX-1 is designed for use with normal bias and 120 micro-second equalization. You don't need special settings to get the very best performance your tape-deck is capable of.

BASIC SPECIFICATIONS: The secret of FX-1 is Fuji's own Superior Pure-Ferric particles, developed as a result of extensive research into optimization of gamma ferric oxide performance. Fuji's Superior Pure Ferric particles are only 0.4 microns long, with a length to width ratio of 8:1. Fuji packs this magnetic material at a density of up to 20% more than other tapes can achieve. Fuji's special cassette shell holds as anti-static "waffled" slip sheets to improve and assure smooth running of your cassette.

DEALER AVAILABILITY:

Northern California:

Viking of Northern California

825 San Antonio Road, Palo Alto, CA 94303

Southern California:

Markham Company, 6611 Odessa Ave., Van Nuys, CA 91406

Available throughout California.

FX-II BERIDOX

Fuji Photo Film USA, Inc.

350 Fifth Avenue, New York, NY 10001

Contact: Roger Adelman, Marketing Services Administrator

PRODUCT DESCRIPTION: THE AUDIO TAPE WITH THE VIDEO TAPE TECHNOLOGY, made from Fuji's own "Berthollide Iron Oxide". Fuji, being a world supplier of video tape to the industrial market, has utilized its superior technology in bringing you an audio tape designed for use with high (chrome) bias and 70 micro second equalization but without chrome's drawbacks. FX-II has a very high saturation level and reduced noise level to give you extremely wide dynamic range.

RECOMMENDED USAGES: It is to be used in chrome biased tape decks. With FX-II, when you record high level sources, you can lower the input level without a noise problem. In addition, if the program source is low level, the input level may be raised without causing distortion during high volume passages. While conforming to high (chrome) bias settings, you benefit from the Beridox formulation, as FX-II is virtually non-abrasive compared to chrome base audio tapes.

BASIC SPECIFICATIONS: +4 dB maximum output level for the widest dynamic range. The combination of a high maximum output level and low noise level ensures that you have ample dynamic range for all kinds of recording. This is most important since saturation level refers to the point where an increase in input current no longer results in an increase in magnetism; it is therefore an indication of the maximum amount of information that can be stored on the tape.

DEALER AVAILABILITY:

Northern California:

Viking of Northern California

825 San Antonio Road, Palo Alto, CA 94303

Southern California:

Markham Company, 6611 Odessa Ave., Van Nuys, CA 91406

Available throughout California.

FUJI FL

Fuji Photo Film USA, Inc.

350 Fifth Avenue, New York, NY 10001

Contact: Rodger Adelman, Marketing Services Administrator

PRODUCT DESCRIPTION: The low noise — high fidelity cassette tape. The exclusive Fuji Gamma Ferric Oxide formulation assures clear and faithful sound reproduction. FL cassettes utilize the normal bias available in any and every cassette deck of today or yesterday. As in the FX-1 and FX-11, flexibility and strength are the two most important qualities of binder material. Fuji is a world leader in producing the most advanced binder technology available today. Fuji FL has a sensitivity equal or superior to other top grade, low noise tapes.

RECOMMENDED USAGES: The Fuji FL can be used on any cassette deck with normal settings. Fuji FL possesses true high fidelity reproduction, high signal-to-noise ratio, wide dynamic range, exceptional versatility and complete reliability. It's great for recording live, pre-recorded music or voice.

BASIC SPECIFICATIONS: Available in 30, 60, 90 and 120 minute versions. The cassette shell is made from high impact resistant polystyrene, which guards against deforming and warping. The precision made hubs, rollers and friction-free slip sheets deliver even running and the smoothest possible trouble free performance.

DEALER AVAILABILITY:

Northern California:

Viking of Northern California,

825 San Antonio Road, Palo Alto, Ca 94303

Southern California: Markman Company

6611 Odessa Avenue, Van Nuys, CA 91406

Available throughout California.

GARNER 1056 TAPE DUPLICATOR

Garner Industries

4200 N. 48th St., Lincoln, Nebraska 68504. (402) 464-5911

Contact: Bruce A. Alderman, Sales Manager

PRODUCT DESCRIPTION: The Garner 1056 delivers perfect dubs time after time. It's precision and accuracy are unmatched. The unit features a common precision-ground capstan which drives the master and five slaves at the same speed. Garner's ferrite recording heads deliver extremely long life. The compact design and convenient control panel make operation and installation the easiest you'll find.

DEALER AVAILABILITY: Factory direct only.

32 TRACK ANALOG TAPE RECORDER — JH32

MCI

4007 N.E. 6th Ave., Ft. Lauderdale, Fla. 33334. (304) 566-2853

Contact: Lutz Meyer.

PRODUCT DESCRIPTION: The JH-32 is an all new 2" or 3" master tape recorder, available for 16, 24 or 32 track operation. In its 32 track configuration, this is the first and only 3" analog tape recorder. The JH-32 incorporates all of the major features of the JH-16 and, since no 3" standard has been established, MCI has been able to optimize its own bias and equalization characteristics. The crosstalk and cross erasure specs are superior. Standard with the JH-32 is AutoLocator III with ten memory positions and a built-in tape velocity indicator which simultaneously displays in quarter semitones how far sharp or flat the transport has shifted using the speed control. The JH-32 includes remote control and will handle up to 14" reels.

BASIC SPECIFICATIONS: Please contact factory for complete specifications.

DEALER AVAILABILITY:

Audio Industries Corporation

1419 N. LaBrea Ave., Hollywood, CA 90028. (213) 851-4111

MODEL 5030B CASSETTE DECK

Marantz, Inc.

20525 Nordhoff St., Chatsworth, CA 91311. (213) 998-9333

Contact: Jim Murchison, Product Manager, Ext 2175

PRODUCT DESCRIPTION: Features 3-head design, double Dolby NR system, super hard permalloy head, mic/line mixing, master gain control, 3-inch professional VU meters, LED peak indicators, bias and EQ settings for FeCr, CrO2 and normal tape, multiplex filter, defeatable peak limiter, locking pause control, total shut-off, 3-digit tape counter with memory rewind, DC servo motor system, separate left and right channel record level controls, damped action vertical load cassette door.

BASIC SPECIFICATIONS: Wow and Flutter: 0.05%.

Frequency response, FeCr Tape: 35 Hz to 17 kHz, ± 3dB, Signal-to-Noise Ratio: Playback: 54dB, Overall (Dolby Off): 56dB, Overall (Dolby On): 66dB.

Dimensions: 16 1/2" w x 5 3/4" h x 11 1/8" d.

Weight: 14.8 lbs.

Suggested retail price: \$430.95.

DEALER AVAILABILITY: Available throughout California.

NAKAMICHI 600 II 2-HEAD CASSETTE CONSOLE

Nakamichi Research (USA), Inc.

220 Westbury Ave., Cale Place, NY 11514. (516) 333-5440

Contact: Harron K. Appleman, Technical Director

PRODUCT DESCRIPTION: Stereo Cassette Deck featuring unique Crystalloy "SuperHead" which records and plays with a 0.9

micron gap and maintains performance over 10,000 hours of use; User-adjustable rec cal with built-in 400 Hz tone; user-adjustable bias and EQ switches; switchable mpx filter; high-output headphone amp; playback phase correction; peak-level meters with 47 dB range; DC servomotor transport; memory rewind; timer self-start for unattended recording or PB; angled front panel for maximum visibility and ease-of-use (can be mounted in Nakamichi SYSTEM ONE rack or optional walnut cabinet).

RECOMMENDED USAGES: High quality cassette recording from pre-recorded sources. Multiple units can be stacked in Nakamichi SYSTEM ONE rack for cassette duplication. External mic mixer required for live recording.

BASIC SPECIFICATIONS: Frequency response: 35 - 20,000 Hz ± 3 dB (EX-II or SX tape).

Signal-to-noise ratio: 63 dB (A-weighted, re 400 Hz, 3% THD, SX tape w/Dolby NR).

Wow and Flutter: under 0.12% wtd peak, 0.08% wrms.

Total harmonic distortion: under 1.5% (re 400 Hz, 200 nanowebers per meter).

Erasure: better than 60 dB (at 1 kHz, saturation).

Separation: better than 35 dB (at 1 kHz, 0 dB).

Crosstalk: better than 60 dB (at 1 kHz, 0 dB).

Price: \$655.00 (silver), \$680.00 (black).

DEALER AVAILABILITY: Available throughout California.

NAKAMICHI 700 II 3-HEAD CASSETTE DECK

Nakamichi Research (USA), Inc.
220 Westbury Ave., Carle Place, NY 11514. (516) 333-5440
Contact: Harron K. Appleman, Technical Director

PRODUCT DESCRIPTION: Same as Nakamichi 1000II, but has no Dynamic Noise Limiter and no auto-rewind; it is not rack-mountable.

RECOMMENDED USAGES: High quality cassette recording from live or pre-recorded sources. Prof/semi-pro and home use.

BASIC SPECIFICATIONS: Same as for Nakamichi 1000II.

Price \$1,140.00

DEALER AVAILABILITY: Available throughout California.

NAKAMICHI 1000 II 3-HEAD CASSETTE DECK

Nakamichi Research (USA), Inc.
220 Westbury Ave., Carle Place, NY 11514 (516) 333-5440
Contact: Harron K. Appleman, Technical Director

PRODUCT DESCRIPTION: Stereo Cassette Deck featuring three separate heads (erase, record, play); user-adjustable record head azimuth; IC logic-controlled transport with two motors, double capstans, DC servomotor drive; "touch-command" transport controls; double Dolby noise reduction; Dynamic Noise Limiter; separate bias and EQ switches; front panel rec. calibration with built-in 400 Hz test tone; record-head impedance compensation; playback phase correction; three mic inputs and two line inputs fully mixable; high-output headphone amp; memory rewind and auto-rewind; switchable mpx filter; 19-inch rack mountable; two 50 dB-range peak reading level meters. Remote control optional.

RECOMMENDED USAGES: High quality cassette recording from live or pre-recorded sources. Highly recommended for recording studio installations.

BASIC SPECIFICATIONS: Frequency response: 35 - 22,000 Hz ± 3 dB (with EX-II or SX tapes).

Signal-to-noise ratio: 65 dB (A-weighted, re 400 Hz, 3% THD, SX tape w/Dolby NR).

Wow-and-flutter: under 0.1% wtd peak, 0.05% wrms.

Total harmonic distortion: under 1.5% (re 400 Hz, 200 nanowebers per meter).

Erasure: over 60 dB (at 1 kHz, saturation).

Separation: better than 35 dB (at 1 kHz, 0 dB).

Crosstalk: better than 60 dB (at 1 kHz, 0 dB).

Price: \$1,850.00, remote control: \$80.00

DEALER AVAILABILITY: Available throughout California.

TAPE RECORDERS & MAGNETIC TAPE

MX-5050-B TWO CHANNEL RECORDER

Otari Corporation
981 Industrial Rd., San Carlos, CA 94070. (415) 593-1648
Contact: Lew Barrett, Steve Krampf, Sales Managers.

PRODUCT DESCRIPTION: A new compact professional recorder (two channel) with all proven features of MX-5050 series such as front adjustable bias and record EQ, selective reproduce, edit and cue, and test oscillator, plus these new features: TTL/IC logic for noise free punch in and out, 3 speed in pairs of 15, 7½ or 7¼, 3¼ ips, 24 dBm headroom, dc capstan servo with 7% speed control in record and reproduce, peak reading LED's plus standard VU's, return-to-zero memory, and extra ¼ track playback head.

RECOMMENDED USAGES: Highest quality two channel-half track mastering with complete editing and production capabilities, two channel mixdown from multi-channel masters.

BASIC SPECIFICATIONS: 24 dBm headroom, 30 to 22,000 Hz ± 2 dB at 15 ips.

Flutter less than 0.05% at 15 ips.

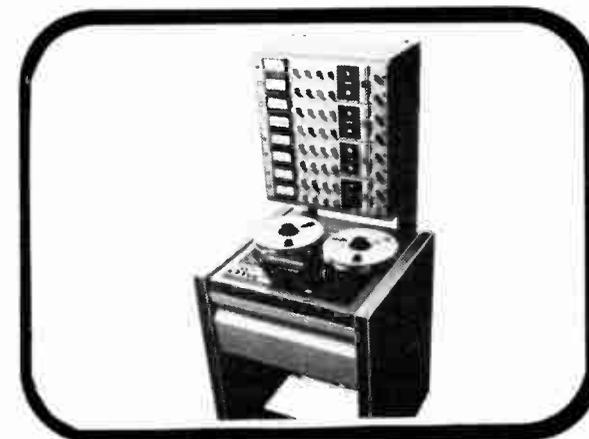
Three speeds.

All XLR connections.

+4 dBm or -10 dBm outputs (rear panel selectable).

Full range of accessories including remote control, road case, floor console, and rack mounting kit.

DEALER AVAILABILITY: Available throughout California.



OTARI CORPORATION
MX-7800 Eight Channel One Inch Recorder

MX-7800 EIGHT-CHANNEL ONE-INCH RECORDER

Otari Corporation
981 Industrial Rd, San Carlos, CA 94070. (415) 593-1648
Contact: Lew Barrett, Steve Krampf, Sales Managers.

PRODUCT DESCRIPTION: First full function, one-inch eight track. All modes including selective reproduce (sel-sync) and speed control (course and fine $\pm 12\%$) can be remote. Remote selective reproduce for adding tracks in perfect time sync from outside the control room. Also accessory remote tape time with large LED readout and return-to-zero memory for mixdown. No clicks or pops on record punch-in or punch-out, 30 & 15 ips speeds, constant tension system for tighter timing and better tape handling, dynamic braking for smooth stops, automatic monitor switching when changing modes, dc capstan servo, plus easy access to electronics and transport, console mounting.

RECOMMENDED USAGES: Full capability one-inch mastering compatible with other eight channel machines, 30 ips tape speed for best audio quality without noise reduction systems.

BASIC SPECIFICATIONS: 30/15 ips (15/7½ ips on special order). 20 dBm headroom.

$\pm 12\%$ speed control.

63 dB signal to noise unweighted.

60 dB unweighted in selective reproduce.

All XLR connectors.

Two built-in test frequencies (700 Hz and 15 kHz).

Flutter less than 0.04% at 30 ips.

DEALER AVAILABILITY: Available throughout California.

SCULLY 284-B 8 TRACK RECORDER SYSTEM

Scully Recording Instruments
475 Ellis St., Mountain View, CA 94043 (415) 968-8389
Contact: Homer Hull, Marketing Manager

PRODUCT DESCRIPTION: 8-track 1" recorder has speeds to 30 in/sec, D.C. capstan servo drive, 14" reel capacity with automatic constant tension holdback control, $\pm 20\%$ pitch control, and optional "varisync" accessory providing variable speeds of -25 to +50% of selected transport speed with LED speed readout to 2 decimal places. Two special speeds may be preset for pushbutton access, plus external sync may be selected to lock to other recorders. Floor mount console included.

RECOMMENDED USAGES: A versatile 8-track studio master recorder, because its 14" reel capacity, provides a realistic supply of tape for program length recording and post-production PLUS, when coupled to the Scully "varisync" accessory provides a wide variety of speed/sync controls to meet varying client needs. Selective synchronization is provided on each channel and operations may "push-in or out" of record without pops while tape is moving. "Edit spill" is also provided.

BASIC SPECIFICATIONS: Response at 30 in/sec is ± 2 dB 50 Hz to 20 kHz.

S/N ratio weighted at 500 nWb/m peak record level is 68 dB all speeds.

Inputs: Floating Bridging 10K ohms.

Weighted peak flutter (ansi s 4.3) .04% at 15 and 30 in/sec.

Motion direction sensing and dynamic braking employed.

Weight 390 lbs.

DEALER AVAILABILITY: Available throughout California.

PCM-1800

Sony Industries
230 West Hill Place, Crocker Industrial Park, Brisbane, CA 94005
(415) 467-4900
Contact: Roger Pryor.

PRODUCT DESCRIPTION: (Professional Mastering Machine) compact and easy handling, no need for VTR (U-Matic) modification, complete dropout error correcting code, electronic editing with video editors, digital-to-digital dubbing without quality loss, master tape cutting for record disc, pitch and depth control — by using tow VTRs and a video editor.

BASIC SPECIFICATIONS: Size: (metric) 430 x 265 x 475.

Weight: 35 kilos.

100/120 volts.

50/60 Hz (power supply).

150 watts.

DEALER AVAILABILITY: Contact Manufacturer.

DIGITAL RECORDING SERVICE

Soundstream, Inc.
34 South 600 East, Salt Lake City, Utah 84102
Contact: Robert B. Ingebretsen, VP/Recording Services

PRODUCT DESCRIPTION: Soundstream offers digital recording services to interested parties on a contractual basis. Provided are the equipment and personnel for recording at any conventional recording studio, editing and mixing at Soundstream, and mastering at any conventional mastering facility.

Audio remains in digital form throughout, from the output of the recording console to the input of the disc cutting lathe.

RECOMMENDED USAGES: High quality record mastering (as in the production of Audiophile Recordings), high quality audio archiving, high quality re-mixing and mastering of analog tapes, general purpose data collection.

BASIC SPECIFICATIONS: The benefits of digital recording include: Dynamic range exceeding 90 dB without any audio compression.

Distortion typically less than .004%.

Frequency response flat from DC through 21 kHz.

Usual analog recording problems such as tape print-through, hiss, wow and flutter are eliminated. Recordings may be played back at half or full speed.

DEALER AVAILABILITY: Not available through dealers. Available through contact (see above) only.

STUDER A80/RC PROFESSIONAL TAPE RECORDER

Studer Revox America, Inc.
1819 Broadway, Nashville, TN 37203. (615) 329-9576
Contact: Mr. Ray Updike, Vice President.

PRODUCT DESCRIPTION: Electronic Tape Timer with 7 digit LED display with negative reading (selectable), zero locator. Tape cutter close to replay head. Splicing plate on head assembly, head shield for replay head with tape marker (ready inked). NAB, Cine, DIN adaptors and turntables. All amplifiers are located beneath the tape transport for easy access for service.

RECOMMENDED USAGES: Television, recording studios, and broadcast markets.

BASIC SPECIFICATIONS: Suitable for both 50 and 60 Hz Mains; Equalizations CCIR or NAB are selectable by means of plug-in prints.

Frequency response for 15 ips: 30 Hz — 18 kHz ± 2 dB, 60 Hz - 15 kHz ± 1 dB; for 7.5 ips: 30 Hz - 15 kHz ± 2 dB, 60 Hz - 12 kHz ± 1 dB.

Tape speeds 7.5 and 15 ips (15/30 ips on request).

DEALER AVAILABILITY: Studer Revox America, Inc. (This office serves all of California.)

14046 Burbank Blvd., Van Nuys, CA 91401
Contact Bill Van Doren at (213) 780-4234.



OTARI CORPORATION
MX-5050-B Two Channel Recorder

The first
Time Aligned™
Control Room
Speaker System

Unbelievably Clean...from a whisper, to the threshold of pain.

The UREI 813 Monitor Loudspeaker System brings impressive new realism and clarity to recording control room listening. This first Time Aligned™ professional monitor employs the efficient Altec 6048-G duplex 15" driver with a UREI custom horn for extended and more uniform H.F. response, plus an added 15" direct radiating driver for extended L.F. response and higher power handling. Add to this the UREI 3-way TA™ network in a unique pressure controlled enclosure and you have unbelievably clean reproduction from low levels to the threshold of pain! Bring your aspirin and hear it at your UREI dealer.



UREI

8460 San Fernando Road
Sun Valley, California 91352 (213) 767-1000

Exclusive export agent: Gotham Export Corporation, New York

Time-Align and its derivatives are trademarks of and licensed by E. M. Long Associates

STUDER B 67 PROFESSIONAL TAPE RECORDERS

Studer Revox America, Inc.
1819 Broadway, Nashville, TN 37203. (615) 329-9576
Contact: Mr. Ray Updike, Vice President.

PRODUCT DESCRIPTION: Electronic tape timer, tape cutter close to replay head NAB-Adaptors, tape reel dimensions up to 10 1/2". All console VU -versions are equipped with monitor speaker in panel above tape transport. Comes in console and portable models.

RECOMMENDED USAGES: Television, recording studios, and broadcast markets.

BASIC SPECIFICATIONS: Frequency response: @ 15 ips: ±2 dB, 30 Hz - 18 kHz; ±1 dB, 60 Hz - 15 kHz.

@ 7.5 ips: ±2 dB, 30 Hz - 15 kHz; ±1 dB, 60 Hz - 12 kHz.

@ 3.75 ips: ±2 dB, 40 Hz - 12 kHz; ±1 dB, 60 Hz - 10 kHz.

Tape speeds: 15 ips, 7.5 ips, 3.75 ips.

Reel type: DIN, NAB, Cine up 265 mm. reels.

DEALER AVAILABILITY: Studer Revox America, Inc. (serves all of California).

14046 Burbank Blvd., Van Nuys, CA 91401

Contact: Bill Van Doren at (213) 760-4234.



TEAC A-3440

TEAC Corporation of America
7733 Telegraph Rd., Montebello, CA 90640

PRODUCT DESCRIPTION: Just introduced by TEAC to replace the discontinued A3340S, the new A3440 represents the current state of the art in multi-channel home recording. A complete function and electronic update of the TEAC three-motor transport results in a machine with all the flexibility required by the creative recordist. Mic inputs; track selectable headphone mix; optional dbx interface; variable twin speed operation; input-output level controls and optional remote control complete this update of a TEAC "classic".

BASIC SPECIFICATIONS: 1/4", 4 track simul-sync, 3 heads 15 7/8 IPS.

Wow & flutter: 0.04% at 15 ips.

Frequency response: 40 - 22 kHz ±3 dB.

Signal to noise ratio: 65 dB.

Dimensions(W x H x D) 445 x 523 x 235 mm. Weight 25 kg.

DEALER AVAILABILITY: Through franchised TEAC dealers throughout California and the USA.



TEAC C-1

TEAC Corporation of America
7733 Telegraph Rd., Montebello, Ca 90640

PRODUCT DESCRIPTION: A spin-off from TEAC's involvement in instrumentation recorders, the new C-1 represents the ultimate expression of the cassette art. The three-motor, dual capstan, closed-loop transport features full logic, remoteable, solenoid operation. Three-head operation for realtime monitoring; plug-in bias and EQ cards for a variety of tape formulations; vari-speed; dolby noise reduction and optional dbx interface; 19" rack mountable; timer function; memory rewind and play; and choice of black or brushed aluminum face plates complete this exciting new cassette deck from TEAC.

RECOMMENDED USAGES: Suggested for any application requiring state-of-the-art or industrial quality cassette recording and reproduction.

BASIC SPECIFICATIONS: Wow & flutter: 0.04%.

Frequency response: 30 - 18,000 Hz (±3 dB).

Signal to noise: 58 dB (68 dB Dolby on over 5 kHz).

Dimensions: (Hx WxD) 6 1/2 x 19 x 13 1/4 inches.

Weight: 32 lbs.

DEALER AVAILABILITY: Through franchised TEAC dealers throughout California and the USA.



3M DIGITAL AUDIO MASTERING SYSTEM

3M Company
Mincom Division, 3M Center, St. Paul, MN 55101
Contact: Bob Brown, Marketing Director

PRODUCT DESCRIPTION: The 32-channel audio mastering system digitally recreates distortionless and noise-free sound. In addition to absence of tape noise, modulation noise, distortion and flutter, signal-to-noise ratio better than 90 dB is achieved. Signal quality shows no deterioration through multiple-generation copies made during dubbing and mix-down. System consists of 32-channel pre-mix recorder and 2/4 channel mastering recorder, results from six years of 3M research, including two-year 3M-British Broadcasting Corporation research project.

BASIC SPECIFICATIONS: Frequency response: ±0.3dB 30Hz-15kHz, -2dB 20Hz -3dB 20kHz.

Signal-to-Noise: +90dB.

32 channels on one-inch tape (pre-mix recorder) and 2/4 on half-inch tape (master recording).

Tape Speed 45 ips with ±10% vernier.

Timing accuracy controlled by crystal oscillator.

Flutter and print through is not measurable.

Harmonic distortion less than 0.03% 100Hz - 20kHz at maximum input/output level (+28dBm).

Intermodulation distortion less than 0.03% for any two frequencies 100Hz - 20kHz at maximum input/output level.

Sampling rate 50,000 times a second.

DEALER AVAILABILITY: Factory direct only.

The Problem....

...is you need more than just equipment to be sure you achieve the business you're looking for. Whether it's better quality, increased profits, greater flexibility or reduced costs, each piece of equipment has to be evaluated as an integral part of your system.

For years, we at ACCURATE SOUND CORPORATION have been helping our clients translate their needs into the equipment that will give them what they are looking for. Modernizing, expanding or just starting out, we are familiar with your problems. And we can help you come up with the right answers.

The Solution...

... may lie with one of the numerous brand names we represent like 3M, HARRISON and QUAD EIGHT.

... or our own equipment may be more appropriate. Our products include:

2400 Duplicator and 2600 Transport

Now you can go from original to copy in two easy steps. Together, they provide the finest Real Time performance for high-speed and low-cost duplicating.

Starbird Microphone Boom

For years the standard of excellence, the Starbird reduces costly set-up time dramatically, and assures maximum safety for studio personnel. Its design permits quick and precise "spotting", with maximum extension and height flexibility.

4000 Cassette Logger

This rugged rack-mounted system performs efficiently for low speed logging, normal cassette record/playback and medium-speed duplication. Compatible with any cassette head format, the modular design gives you greater flexibility than other loggers.

... or perhaps you just need to talk to one of our experienced staff. Ask for an Audio Analysis, and one of our consultants will be happy to tell you more about our system concepts, acoustical designs and leasing programs.

Remember, Your bottom line is our top priority.

"... BECAUSE SOUND COMES FROM A SYSTEM"

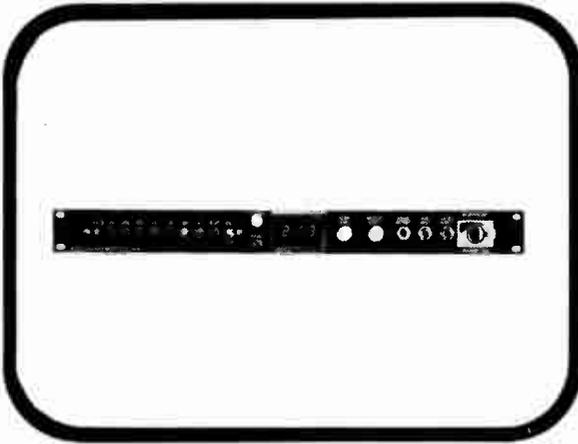


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sound corporation**
CONSULTANT · STUDIO EQUIPMENT AND DESIGN
RECORDING EQUIPMENT · MANUFACTURING
SALES & SERVICE

114 - 5TH AVENUE
REDWOOD CITY, CA. 94063

Telex: 34-8327
(415) 365-2843

TEST EQUIPMENT



ACOUSTILOG, INC.
Model 232A Reverb Timer

MODEL 232 A REVERB TIMER
Acoustilog, Inc.
19 Mercer ST., New York, NY 10013. (212) 925-1365
Contact: Al Fierstein, Pres.

PRODUCT DESCRIPTION: Acoustic reverberation is measured in 1/2 octave intervals from 63 Hz to 16 kHz, with a 3 digit readout and optional oscilloscope output. Built-in pink noise generator can be used for equalization in the flat mode, or is filtered to the proper frequency for reverberation measurement. Decays up to 9.99 seconds, with 10ms resolution are displayed, and entire operation is done by one operator.

RECOMMENDED USAGES: Control rooms, recording studios and concert halls can be measured for proper application and arrangement of absorption materials. Live and electronic echo chambers can be tested, and spring tensions set on plate-type units. Digital delay units can be measured and calibrated.

BASIC SPECIFICATIONS: Time base accuracy: $\pm 2\%$, ± 3 counts.
Range accuracy: ± 2 dB.
Resolution: .01 seconds.
Pink noise generator spectrum: ± 2 dB, 20 - 20,000 Hz.
Automatic level detector: 4 dB range.
Microphone input: 3 pin XLR, accepts low impedance microphones, phantom powering available.
Dimensions: 19" x 1 3/4" x 7".
Weight: 4 lbs with optional carrying case.
DEALER AVAILABILITY: Factory direct only.

CT-3 MICROPHONE CABLE TESTER
Altair Corp.
P.O. Box 7034, Ann Arbor, MI 48107
Contact: Lance Korhals, President.

PRODUCT DESCRIPTION: The CT-3 is a GO/NO GO microphone cable tester. It has an XLR type connector in each end. The unit is switched on by pushing in on the cable's female connector. Two LED's are provided for status indication. All three conductors are tested simultaneously and continuously. A failure in any one of them will cause one of the LED's to go out. One stays on to let you know the cable is being tested.

RECOMMENDED USAGES: The CT-3 checks for all the common wiring faults: shorts, open circuits and cross-wiring (including reversed phase). There are no buttons to push so both hands are free to wiggle the cable and connectors to check for loose, intermittent connections. With the CT-3 1/2 accessory (provided with CT-3), snake cables can be tested after the system is set up, without moving the cable. Permanent studio wiring can likewise be tested.

BASIC SPECIFICATIONS: Size: 3/4 inch diameter x 6 inches long.
Weight: 3 ounces.
Construction: Epoxy fiberglass (with pocket clip).
Connectors: Male and female XLR type.
Battery: 7 volt mercury.
DEALER AVAILABILITY: Available throughout California.

MODEL 4400A MULTIPURPOSE AUDIO TEST SET
Amber Electro Design
4810 Jean Talon St. W., Montreal, Quebec H4P 2N5. (514) 735-4105
Contact: Wayne Jones, President

PRODUCT DESCRIPTION: Provides several audio generation signals and measurements in a single package. Contains a function generator, low distortion sine wave, tone burst generator and pink noise generator. Receiver contains a frequency counter, digital dBm meter (true RMS), wave analyser, spectrum analyser, selective filters and digital plot recorder. It can generate and store plots of amplitude or phase versus time or frequency, spectrum energy versus frequency, amplitude difference versus frequency, crosstalk versus frequency, etc. Stored plots may be viewed on an oscilloscope or transferred to paper on a XY recorder.

RECOMMENDED USAGES: For audio performance evaluation in maintenance, R & D, production test, service, QC, etc.

BASIC SPECIFICATIONS: Frequency range: 20 Hz to 100 kHz.
Generator output level: +33 dBm to -80 dBm.
Digital dBm measurement range: +30 dBm to -120 dBm.
Digital dBm meter resolution 0.01 dB.
Flatness: ± 1 dB 20 Hz to 100 kHz, ± 0.2 dB 50 Hz to 50 kHz.
Accuracy ± 0.2 dB 50 Hz, 50 kHz.
Sweep speed: 1 second to 1024 secs.
Plotting range: 10, 20, 30, 40, 50, or 60 dB from +30 dBm to -120 dBm.

DEALER AVAILABILITY:
Southern California representative:
Cara Pacific Sales Company
4145 Via Marina, #120, Marina Del Rey, CA 90291. (213) 821-7898

MODEL 4405 DISTORTION MEASUREMENT SYSTEM
Amber Electro Design Ltd.
4810 Jean Talon St. W., Montreal, Quebec H4P 2N5. (514) 735-4105
Contact: Wayne Jones, President

PRODUCT DESCRIPTION: Provides an ultra low distortion wide range audio oscillator and tracking analyser to measure total Harmonic Distortion. Intermodulation Distortion and Difference Frequency Distortion. Completely automatic in operation: auto ranges, auto tunes, auto nulls. Optional digital frequency counter and readout of signal amplitude in volts, dBm or watts or distortion in % or dB. Optional non-volatile digital storage of 128 user programmed frequency presets. Instrument is fully programmable and may be swept to generate distortion versus frequency plots using an XY Recorder or Amber 4400A. Also optional IEE-488 Interface adapter.

RECOMMENDED USAGES: Audio performance evaluation in maintenance, R&D, production test, service, QC, etc.

BASIC SPECIFICATIONS: Frequency range: 20 Hz to 100 kHz.
Amplitude range +40 dBm to -40 dBm.
Residual distortion: 0.003% mid band.

DEALER AVAILABILITY:
Southern California Rep: Cara Pacific Sales Company
4145 Via Marina, #120, Marina Del Rey, CA 90291

4405 DISTORTION PLOTTING SYSTEM.
Amber Electro Design Ltd.
4810 Jean Talon West, Montreal, Quebec H4P 2N5, Canada
Contact: Western US rep. W.L. Cara, Cara Pacific Sales
4145 Via Marina, #120, Marina del Rey, CA 90291

PRODUCT DESCRIPTION: The Amber 4405 is a compact distortion measurement and analysis instrument which is easy to use. It is fully automatic in operation with automatic input level set, auto frequency tuning and auto nulling. The automation operates over the full measurement range. The 4405 will automatically identify an unknown signal and lock on it providing a distortion reading with no manual operation necessary. It may be externally programmed with logic level commands and will interface with the Amber 4400 & 4400-A to provide swept distortion plots, and with X-Y Interface, will provide hard copy of distortion plots. Optional Intermodulation and difference frequency distortion measurement capability is available.

RECOMMENDED USAGES: The 4405 is useful for all audio spectrum distortion analysis from 10 Hz to 20,000 Hz from 100% (max.) to 0.003% (min.); 20 kHz to 50 kHz 0.05% min.; 50 kHz to 100 kHz 0.1% min.
BASIC SPECIFICATIONS: Frequency range: 20 - 20 kHz & 100 - 100 kHz - swept plots.
Analyzer: frequency range IMD: LF -20 Hz to 400 Hz; HF -3 kHz to 30 kHz.
Input amplitude range: +40 dBm to -40 dBm.
Input impedance: 100 k ohms shunted by 47 pf.
Power: 100, 120, 220, 240 VAC, +5% -10%, 48 Hz - 400 Hz, 40V.A.

Dimensions: 3 1/2" x 16" x 12" (89mm high x 406mm wide x 305mm deep). Weight: 5 kg (11 lbs).

DEALER AVAILABILITY:
Northern California:
Marcom - Scotts Valley, CA.
Alco Paramount - San Jose, CA.
Southern California:
Audio Industries Corp. - Los Angeles, CA
Everything Audio - North Hollywood, CA
Westlake Audio - Los Angeles, CA.

TYPE 1000.2 REAL-TIME AUDIO SPECTRUM ANALYSER
Audio Developments Int'l.
644 Emerson St., Palo Alto, CA 94301. (415) 321-3035, tlx: 470 464.
Contact: Art Yeap, Steve Smith, Robin Daigh

PRODUCT DESCRIPTION: The Type 1000.2 is the only real-time analyzer featuring 4 digital CMOS memories. It has built-in random noise generator, a calibrated condenser mic is supplied, mic and line inputs, brilliant LED display behind glare-free black-out impact-resistant screen, and outputs to scope. An all in one portable low-cost unit using the highest quality ADI construction and backed by a complete after-sale program. \$1150. retail.

RECOMMENDED USAGES: Applications include fast loudspeaker and room frequency response testing, fast equalization of acoustic environments, tape recorder alignment and freq. resp. calibration, separate L and R program material frequency analysis and stereo FM compatibility tests and the ability to "freeze" 4 separate frames for instant comparisons. Also, since the unit can be hand-held or set on a table with extendable mic, no body resonances will be encountered that can lead to false measurements.

BASIC SPECIFICATIONS: Separate mic and line inputs.
Line with switchable L & R input.
Filters meeting ANSI S1.11-1966 Class 1, Din 45 651, IEC 225 standards for centers, skirts and passband.
Detectors are Quasi-RMS "fast".
Storage is Digital with 4 memories and 0 dB error.
Display is LED behind glare-free screen with 22 dB or 33 dB selectable range and SPI range from 50 dB to 140 dB.
Outputs for X and Y axis and internal true pink-noise generator.
Size is 322mm x 101mm x 24mm.

DEALER AVAILABILITY:
Northern California: Please contact factory for name of N. Cal. rep and dealers.
Southern California rep.:
Filament Audio Marketing.
Mr. Frank Offenstein
1058 E. Edna Pl., Covina, CA 91724. (213) 337-4945

TYPE 1103 1/3rd OCTAVE REAL-TIME ANALYSIS SYSTEM
Audio Developments International
644 Emerson St., Palo Alto, CA 94301
(415) 321-3035. tlx: 470 464
Contact: Arthur K. Yeap

PRODUCT DESCRIPTION: The System 1103 is a complete 1/3rd Octave Real-Time Analysis System featuring the latest in digital and analog technology. There are separate mic and line inputs with a weighting selectable, 5" CRT display, 8 non-volatile memories, peak-accumulate and store features, 19 portable construction with battery operation, built-in pink-noise generator, two time constants and unit can be interfaced with ADI Buss or Time-Domain Spectrography, RT60, SPI measurements etc. Also digital readout of frequency and level in dB is included at a spectacularly low price. \$2125 retail.

RECOMMENDED USAGES: Precision analysis of room response, speaker response, room equalization and auditorium, stadium setup, Time Domain Spectrography measurements, RT60 measurements, SPL measurements, noise measurements, Tape recording testing, portable vibration analysis.

BASIC SPECIFICATIONS: 31 precision 1/3rd Octave filters. Mic and line inputs. 5" glare-free CRT infinite resolution screen with 40 dB range. 8 non-volatile memories which remain on, in storage, for one year. Peak-accumulate circuit. Pink-noise generator. Battery operation and portable case. ADI Buss. Digital readout of level in dB selectable band by band and digital readout of center frequency.

DEALER AVAILABILITY:**Northern California:**

Contact factory for names of N. Cal. rep. and dealers.

Southern California:Rep.: Filament Audio Marketing
c/o Frank Offenstein

1058 E. Edna Place, Covina, Ca 91724. (213) 337-4945.

Available throughout California.

TEST EQUIPMENT

PRODUCT DESCRIPTION: The ARA-412B is a third octave real time analyzer which displays 27 bands of third octave frequency levels on your DC coupled oscilloscope. The ARA-412B processes signals from either a microphone or auxiliary input into twenty-seven (27) active bandpass filters. These filtered AC signals are scanned sequentially by a multiplexer. The multiplexed signal is then passed through a logarithmic converter and presented at the output. The ARA-412B also supplies simultaneously an external sweep output to the horizontal input of your oscilloscope.

RECOMMENDED USAGES: The ARA-412B real time analyzer provides a solution for quick and accurate tuning of filters in public address, play-back and monitoring systems. Several oscilloscopes can be connected to the ARA-412B for demonstration and teaching use. The ARA-412B in the FAST integration time mode (200ms) can be used for program material monitoring and analysis. The ARA-412B can also be used for quick analysis of microphone response, amplifier response, tone control curves and many other uses.

BASIC SPECIFICATIONS: Frequency range: from 40 Hz to 16 kHz. Filter characteristics: Active two-pole multiple feedback bandpass filters with nominal center frequencies at 1/3 octave increments in accordance with ISO preferred center frequencies. Number of bandpass filters: 27.

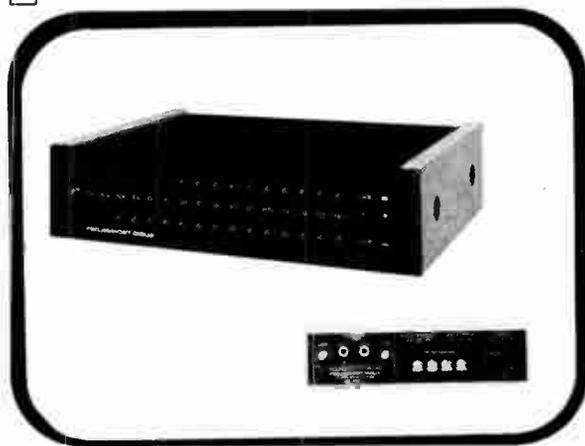
Display range: 27 dB.

Detectors time constant: two dynamic characteristics: RMS Fast (200ms) and RMS Slow (2s).

Scanning time: internal scan covers 27 channels sequentially in 20ms \pm 2ms.

Input source impedance: 10k ohms high level, 1.5k ohms microphone level.

Input levels: microphone input: 1mV peak to peak minimum for full display.

DEALER AVAILABILITY: Factory direct only.

AUDIO TECHNOLOGY
Model 510 Peak Responding LED Display

MODEL 510 PEAK RESPONDING LED DISPLAY

Audio Technology

1169 Tower Rd., Schaumburg, IL 60195. (312) 885-0066
Contact: Bill Griffis, Sales Manager

PRODUCT DESCRIPTION: The Audio Technology Model 510 is a peak-responding level indicator capable of reading voltage levels (preamp or tuner outputs for example) and power levels. It is thus useful in tape recording as well as monitoring power amplifier output. The 510 has 2 rows of 16 LED's — 1 row for each channel — calibrated in decibels. The 0-dB levels can be adjusted for both line and power level indication with rear panel controls. Sensitivity of the line level inputs is continuously adjustable and for power level inputs it is switchable for 0-dB points of 25, 50 & 100 watts into load impedances of 4, 8 or 16 ohms. Switching from the line level (dBm) to the power level (dBw) mode is accomplished with a front panel pushbutton.

RECOMMENDED USAGES: The model 510 will find applications in broadcast production consoles, studio mixing consoles, final level monitoring before the cutting lathe, or wherever an accurate indication of true peak audio signal level is desired. The 510 is especially suited to monitoring the signal level to a tape machine as tape is easily saturated by peak signals. The 510 allows the user to optimize recorder performance in terms of full use of available headroom, best signal-to-noise ratio and avoidance of distortion associated with tape saturation.

BASIC SPECIFICATIONS: The 510 has a frequency response of 20 to 20,000 Hz and input impedances of 100,000 ohms for the line level inputs and 20,000 ohms for the power level inputs. The 0-dB level for the line inputs is adjustable from 50mV to 5V.

The power inputs can display levels from 0.003 to 400 watts. In any one sensitivity setting the display range is 45 dB (-39 to +6 dB).

The display resolution near the 0-dB point is 1 dB.

The 510 measures 7 1/2" x 1 3/4" x 5 1/2" and is priced at \$129.95.

Genuine oak side panels are available for \$7.95 as well as a 19 x 1 3/4" rack-mount front panel for \$11.50.

DEALER AVAILABILITY:**Northern California:** Representative: Dobbs-Stanford.

1011 Commercial St., San Carlos, CA 94070. (415) 595-3630

Southern California: Representative: Trego Sales Co.

2239 Benedict Cyn, Dr., Beverly Hills, CA 90210. (213) 274-8351

Available throughout California.

ARA 412-27-G REAL TIME ANALYZER/OSCILLOSCOPE

Communications Company, Inc.

3490 Noell St., San Diego, CA 92110. (714) 297-3261

Contact: David Johnson, Victor Hall, Engineer

PRODUCT DESCRIPTION: The ARA-412-27-G is a third octave real time analyzer which displays 27 bands of third octave frequency levels on an internal DC coupled oscilloscope. The ARA-412-27-G processes signals from either a microphone or auxiliary input. The built-in 15 mHz oscilloscope of the ARA-412-27-G is usable independently from the analyzer in the external mode, thus giving you two (2) quality test instruments in one package. With the built-in noise generator, the user has a complete audio-measurement system at his disposal.

RECOMMENDED USAGES: The ARA-412-27-G real time analyzer provides a solution for quick accurate tuning of filters in public address, play-back, and monitoring systems. The ARA-412-27-G in the FAST integration time mode (200 ms) can be used for program material monitoring and analysis. The ARA-412-27-G can also be used for quick analysis of microphone response, amplifier response, tone control curves and many other uses.

BASIC SPECIFICATIONS: Real Time Analyzer frequency range: from 40 Hz to 16 kHz.

Filter characteristics: active two-pole multiple feedback bandpass filters with nominal center frequencies at 1/3 octave increments in accordance with ISO preferred center frequencies.

Number of bandpass filters: 27.

Display range: 27 dB detectors.

Time Constant: Two dynamic characteristics: RMS Fast (200ms) and RMS Slow (2s).

Scanning time: Internal scan covers 27 channels sequentially in 20ms \pm 2ms.Internal noise generator: 40 Hz to 16 kHz \pm 2 dB.

15 mHz oscilloscope.

DEALER AVAILABILITY: Factory direct only.**RT-60B REVERBERATION TIMER**

Communications Company, Inc.

3490 Noell St., San Diego, CA 92110. (714) 297-3261

Contact: David Johnson, Victor Hall, Engineer

PRODUCT DESCRIPTION: The RT60B Reverberation Timer utilizes a SPL type 11 condenser microphone to supply signals to each of seven ANSI S1.11 — 1966 octave band filters. The filter outputs drive specially designed detectors, which create a unique algorithm that works within a 20 dB window. Digital circuitry creates an easy set-up display as well as a latched 10 millisecond resolution time display. The set-up circuitry indicates graphic as well as word displays for easy level set-up. Filter output is provided for filter external use. The RT60 also includes a flat position so that external filters can be accommodated.

RECOMMENDED USAGES: The RT60B Reverberation Timer is a new state-of-the-art measuring device that will compute room decay time within seven octave band segments. Using digital readout logic, the operator can achieve accurate measurements without the use of cumbersome chart recorders and additional equipment. The RT60B provides a fast, accurate and portable means of reverberation time analysis of concert halls, auditoriums, churches, etc. The RT60 is particularly useful for prescribing proper acoustic treatment as well as sound system design.

BASIC SPECIFICATIONS: Timing range: up to 9.99 sec.

Measurement window: a unique algorithm working within a 20 dB window computes, latches and displays proper RT60 time.

Resolution: 0.1v (10 milliseconds). Time Base: digital solid state clock with timing accuracy within 5%.

Filter characteristic: center frequencies — 125-250-500-1000-2000-4000-8000 Hz.

Each filter satisfies the requirements of IEC Recommendation 225 and ANSI S1.11-1966 Octave Band class 11.

Microphone: condenser SPL type 11.

Liquid crystal display.

DEALER AVAILABILITY: Factory direct only.**RTA-2 REAL TIME ANALYZER**

Crown International, Inc.

1718 W. Mishawaka Rd., Elkhart, IN 46514. (219) 294-5571

Contact: James T. King, Manager of Technical Services

PRODUCT DESCRIPTION: The RTA-2 is a 1/3 octave Audio band analyzer. Using a cathode ray tube display, the RTA-2 will show the user the amplitude and frequency response of an entire system in real time. The unit self-contains a pseudo-random pink noise, 2 generator, mic phantom power supply and auxiliary inputs for the CRT display. The rugged, practical RTA-2 is specifically designed to meet the needs of the audio industry accurately and conveniently but at low cost. Full FTC 3 year warranty covers everything except scope tube (which is warranted for one (1) year excluding breakage and phosphor burns).

RECOMMENDED USAGES: The RTA-2 can be used to equalize sound in homes, auditoriums and theatres in only minutes. The unit is designed for both portable and fixed use. The RTA-2 can speed tape recorder equalization time to a fraction of the normal time. The unit is a valuable tool and time saver in broadcast engineering, commercial sound installations, acoustical analysis, large portable and fixed sound systems. The serious professional really cannot afford to be without one.

BASIC SPECIFICATIONS: Bandwidth: 16 Hz to 20 kHz. (32 single pole pair 1/3 octave filters on ISO 1/3 octave centers).

Display mode: 1/3 or 1 octave push button selected.

Usable dynamic range: 60 dB display accuracy: full scale to 40 dB is \pm 1.0 dB in 5 dB per division range.Pink noise accuracy: \pm 5 dB from 16 Hz to 20 kHz.

Weight: 22 lbs.

Dimensions: 19 x 15" behind EIA 19" rack mounting surface.

CRT: 5" round with lighted graticule.

DEALER AVAILABILITY: Available throughout California.**HEIL SOUND AUDIO ANALYZER**

Heil Sound, Ltd.

#2 Heil Industrial Dr., Marissa, Ill 62257

Contact: Bob Heil, Pres.

PRODUCT DESCRIPTION: The Heil 10 band Audio Analyzer is a highly useful tool for analyzing room acoustics and sound system performance. Until now, all other real time analyzers have been very difficult to use and understand their actual analysis. The people at Heil Sound have produced a new analyzer which is simple enough that anyone can equalize a system to the room in a matter of minutes. Simply zero each band filter meter reading by adjusting your systems equalizer. No more guess work or hand plotting response curves. Your analyzer reads out directly which graphic equalizer filter to adjust!

BASIC SPECIFICATIONS: The Audio Analyzer features a pink noise generator, built-in. Lo-Z calibrated instrumentation microphone input, line input, illuminated program switch with level controls for mic or line, a high quality 4" illuminated meter reads out each of the 10 band pass filters. Black anodized 19" by 3 1/2" standard rack mount.

Until now, analyzers have cost 10 to 20 times what the Heil AA-1 cost. At this low price, perfect equalization will become very affordable for every sound engineer, live performing bands, studios, as well as home audiophiles.

DEALER AVAILABILITY: Southern California: Musicians Supply, P.O. Box 1440, El Cajon, CA.**ARA 412 B REAL TIME ANALYZER**

Communications Company, Inc.

3490 Noell St., San Diego, CA 92110. (714) 297-3261

Contact: David Johnson, Victor Hall, Engineer

SUBSCRIBPTIONS

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 Northern and Southern California: 1 year, 8 issues — \$12.00

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 Southern California 1 year — 7.50
 Northern and Southern California 1 year — 12.00

TEST EQUIPMENT

NAKAMICHI T-100 AUDIO ANALYZER

Nakamichi Research (USA), Inc.
 220 Westbury Ave., Carle Place, NY 11514. (516) 333-5440
 Contact: Harron K. Appleman, Technical Director

PRODUCT DESCRIPTION: Multi-function audio performance analyzer featuring lightning-fast bar-graph "plasma" display with linear dB scale; AC voltage readings over a 110 dB input range; continuous signal display with choice of average ("VU") levels or peak levels; power indication with accessory Watt-scale graticule (incl.); automatic 20 dB level shift for tape deck response measurements; additional 40 dB sensitivity with A-weighting filter for noise measurement; level vs. THD (@ 400 Hz) with automatic level setting and nulling distortion analyzer; weighted and unweighted speed and wow/flutter measurements with internal 3 kHz calibrated oscillators built-in audio oscillator with 21 spot frequencies from 20 to 20,000 Hz; pink noise generator; all connections via RCA phono jacks; FET analog switching; carrying case & strap included.

RECOMMENDED USAGES: Primary use: tape deck analyzer — unit includes all necessary functions for complete testing and alignment of professional and consumer tape equipment (special tools and alignment tapes not included). Other possible applications include testing of turntables, amplifiers and other audio components. Room response measurements possible with calibrated microphone.

BASIC SPECIFICATIONS: Oscillator output deviation: ±0.2 dB (20 - 20,000 Hz).
 Max. output voltage: 1.2 V.
 Frequency accuracy: ±2%.
 Measurement range: -80 dB to +30 dB (re: 1V : 0 dB).
 Level measurement frequency response: 20 - 20,000 Hz ±0.3 dB.
 Display ballistics (Average VU): 0.3 sec rise and fall, (peak indication): 10 ms rise, 2 sec fall.
 Price: \$800.00

DEALER AVAILABILITY: Available throughout California.



MODEL 3201 AUDIOTRACER

Neutrik Products
 91 McKee Dr., Mahwah, NJ 07430
 Contact: G. Langdon, Tech. Mgr.

PRODUCT DESCRIPTION: The 3201 Audiotracer is a high quality Swiss crafted measuring instrument for electro-acoustic applications. It consists, in principle, of a voltage controlled oscillator with three logarithmic decades, an output amplifier feeding the system to be measured, and input amplifier with linear or log mode, true RMS rectifier and the recording (writing) unit.

RECOMMENDED USAGES: Designed to make frequency — and time — plots of various acoustic and electronic parameters such as: frequency response of transducers, amplifiers, tape recorders, etc; measurement of complete audio systems including room acoustics; SPL over longer time periods and many more.

BASIC SPECIFICATIONS: Please request full specifications from Neutrik Products at the above address.

DEALER AVAILABILITY: Available throughout California.



1701A DISTORTION MEASUREMENT SYSTEM

Sound Technology, Inc.
 1400 Dell Ave., Campbell, CA 95008. (408) 378-6540
 Contact: L. McGuire, Vice President

PRODUCT DESCRIPTION: The Model 1701A measures total harmonic distortion down to .001% in less than 5 seconds. It provides both an audio signal source that is pushbutton tuned from 10 Hz to 110 kHz and a total harmonic distortion analyzer than has automatic nulling and automatic level setting. This precision instrument also measures AC voltage and SMPTE intermodulation distortion.

RECOMMENDED USAGES: The Model 1701A is used in the design, installation, production and maintenance of audio equipment such as mixing consoles, tape recorders, amplifiers and equalizers. Its differential input makes it useful in balanced or single-minded systems.

BASIC SPECIFICATIONS: Tuneable 10 Hz to 110 kHz.
 Measures AC voltage from 30 uV to 300V.
 Measures total harmonic distortion to .001%.
 Measures intermodulation distortion to .0025%.

DEALER AVAILABILITY: Factory direct only.

MAGNETIC TEST TAPES

Standard Tape Laboratory, Inc.
 26120 Eden Landing Road, #5, Hayward, CA 94545
 Contact: Frank G. Lennert, Treasurer.

PRODUCT DESCRIPTION: Reliable and consistent magnetic tape recorder calibration tapes and Standard Tape Manual. Our calibration techniques involve use of standard flux heads, vault references accumulated for over twenty-five years, and heads and guiding systems specially manufactured for greatest achievable stability. Available on a wide variety of formats — 2", 1", 1/2", 1/4", cassette, cartridge, 35 mm film, 16 mm film, and super 8 mm film.

RECOMMENDED USAGES: Reproduce tape recorder testing and set-up as follows: Frequency alignment, level set, azimuth set, 1/2 & 1/2 octave tests (pink noise), frequency sweeps (sweep tapes), flutter tests, and speed and timing. Standard Tape Manual is used as a reference source by sophisticated users of magnetic recording equipment. Covers head losses, flux levels, induction loop measurements, reproduce response curves, etc.

BASIC SPECIFICATIONS: Most accurate reference available. Specifications for each type of test tape are the best achievable state of the art.

DEALER AVAILABILITY: All items, including custom products, can be shipped direct from our laboratory. Catalog items also available from select dealers throughout the world.



TENVELOMETER

Tentel Corp.
 50 Curtner Ave., Campbell, CA 95008. (408) 377-6588
 Contact: Wayne Graham, Gen. Mgr./Sales

PRODUCT DESCRIPTION: Tape tension gage for diagnosing in-line tension to detect wow and flutter, crosstalk, and program timing errors. The best method to determine holdback and take-up tension to prevent tape damage and stretching. It eliminates the cumbersome fish scale and string method.

RECOMMENDED USAGES: It is for virtually all audio recorders, particularly newer constant tension machines. Recommended by (and for) Ampex 1100, 1200, ATR100, Scully recorders, Otari recorders, Studer and other quality tape recorders to maintain tape drive performance.

BASIC SPECIFICATIONS: Available for 1/4 to 2" tape. Recommend the T2-H20-ML at \$195 for general use on 1/4 to 2" tape widths.

DEALER AVAILABILITY: Factory direct only.



VIDIGRAF MODEL 970

UREI
 8460 San Fernando Rd., Sun Valley, CA 91352. (213) 767-1000
 Contact: Ewald J. Consen.

PRODUCT DESCRIPTION: Model 970 is a bar graph display system which operates into any standard video monitor or with an inexpensive accessory into a standard TV receiver. The system may be configured for VU level display and/or frequency spectrum display.

RECOMMENDED USAGES: The 970 is designed primarily for multi track recording, disc cutting, and film sound track applications. However, its DC to 20 kHz input capability suggests a wide range of DC or AC analog voltage measurement applications.

BASIC SPECIFICATIONS: Contact UREI for complete specs.

DEALER AVAILABILITY: Contact UREI for your nearest dealer.

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X-CESSORIES & OTHER EQUIPMENT

ALEMBIC STRATOBLOSTER BOOSTER PREAMP

Alembic, Inc.
P.O. Box 948, Cotati, CA 94928. (707) 795-2161
Contact: Sam Field, Sales Manager

PRODUCT DESCRIPTION: The Alembic Stratobloster is a solid state booster preamp designed to install in a guitar. Easy replacement fit for stratocaster type guitars. The circuit can be used in any high-impedance instrument. The Stratobloster isolates the pickup from the capacitance of the guitar cord to give more highs and isolates the volume control so tone is constant as volume is changed. A bypass switch permits selection of original sound or boosted output. Amount of boost is adjustable.

RECOMMENDED USAGES: For use with all conventional high-impedance guitars. Also allows experimentation with low-impedance pickups or rewinding the present pickups with fewer turns of wire for extended highs with sufficient output.

BASIC SPECIFICATIONS: Gain boost range: 3 to 16 dB.

Bypass switch.

Battery Complement: 9V.

DEALER AVAILABILITY: Available throughout California.



VCA-5M VOLTAGE CONTROLLER AMP

Allison Research
P.O. Box 40288, 2817 Erica Place, Nashville, Tenn 37204
(615) "ALLISON" or (615) 385-1760
Contact: Norman Baker, Vice President

PRODUCT DESCRIPTION: The VCA-5M is an improved Voltage Controlled Amplifier which exhibits very low noise and distortion levels to 1/10th that of prior VCA designs. A monolithic gain control element reduces temperature sensitivities to a fraction of discrete transistor designs.

RECOMMENDED USAGES: VCA-5M finds a host of uses in automated mixing systems, electronic music, limiters, compressors, expanders, and remote gain control applications.

BASIC SPECIFICATIONS: Gain control range: 150 dB.

I.M. or THD distortion: less than .06% at any attenuation or gain.

Noise: 112 dB below maximum output at unity gain.

Control format: linear decibels v.s. control current.

DEALER AVAILABILITY: Contact factory at this time.



PW-6 POWER ATTENUATOR;

PW-5 (UNBALANCED LINE)

Altair Corporation
P.O. Box 7034, Ann Arbor, MI 48107.
Contact: Lance Korhals, President.

PRODUCT DESCRIPTION: The Power Attenuator reduces the loudness of a guitar amplifier without affecting its natural output — stage distortion and sustain. By inserting the PW-6 between the amplifier and speakers, the amount of power that actually reaches the speakers can be precisely controlled. The amount of attenuation is adjustable and is calibrated in 4 dB steps from 0 to 44 dB. Outputs for two speaker cabinets and a low impedance balanced line output (with pad) are provided.

RECOMMENDED USAGES: The PW-6 is particularly useful in the recording studio where isolation between microphones is essential. The Power Attenuator can quiet a big amplifier without using excessive isolation materials, yet allow the engineer to get the full-power sound without leakage into other mics. The low impedance balanced line output permits the signal to be sent directly to the mixer without using a mic. This further reduces crosstalk due to acoustical leakage, as well as providing excellent noise immunity.

BASIC SPECIFICATIONS: 3.8 x 8.4 x 5.5 inches.

Attenuation: 0 to 44 dB in 4 dB increments (4 ohm amp, 4 ohm load).

Main output impedance: less than 6.6 ohms.

Input impedance: 3.9 to 8 ohms (dependent on load).

Continuous power dissipation: 150 watts.

Maximum recommended amplifier power: 300 watts into 4 ohms, 150 watts into 8 ohms.

DEALER AVAILABILITY: Available throughout California.



APHEX AURAL EXCITER

Aphex Systems, Ltd.
7801 Melrose Ave., Los Angeles, CA 90046. (213) 655-1411
Contact: Kent S. Beyer, Director of Sales.

PRODUCT DESCRIPTION: Outboard unit used primarily in mix-down adds presence and clarity, brings out harmonic nuances previously hidden. Adds definition and spatial quality.

RECOMMENDED USAGES: Recommended for acoustic source material such as: drums, string and horn overdubs, vocals, acoustic piano, guitar and percussion.

BASIC SPECIFICATIONS: Normal level in: 0 VU; +4 dBm.

Output impedance: 600 ohms.

Headroom: 19 dB.

Noise level: -90 dB.

XLR connectors.

Stereo unit, 2 in - 2 out.

De-esser: 12 dB notch filter at 5000 Hz.

DEALER AVAILABILITY:

Northern California:

Parasound, Inc., 680 Beach St., San Francisco, CA.

Southern California:

Aphex Systems, Ltd., 7801 Melrose Ave., Los Angeles, CA 90046

Available throughout California.



B&B 2521 OP AMP

Aphex Systems, Ltd.
7801 Melrose Ave. Los Angeles, CA 90046. (213) 655-1411
Contact: Kent S. Beyer, Director of Sales

PRODUCT DESCRIPTION: 100% field repairable op amp; 100% short-circuit protected; built in power decoupling; greatly improved overload characteristics; socketed op amp totally eliminates obsolescence.

BASIC SPECIFICATIONS: Maximum input: ± 16 volts.

Max. power output: 1 watt (+30 dBm).

Minimum slew rate: 10 volts/microsecond.

THD: .02%, IM distortion: .02%.

Output noise: AV: 0 dB - 113 dBm; AV: 20 dB - 93 dBm.

DEALER AVAILABILITY:

Northern California:

Parasound, Inc. 680 Beach ST., San Francisco, CA

Southern California:

Aphex Systems, Ltd., 7801 Melrose Ave., Los Angeles, CA 90046

Available throughout California.



B&B VCA MODEL 202 OR 1537A CHIP VOLTAGE CONTROLLED ATTENUATOR

Aphex Systems, Ltd.
7801 Melrose Ave., Los Angeles, CA 90046. (213) 655-1411
Contact: Kent S. Beyer, Director of Sales

PRODUCT DESCRIPTION: The first VCA suitable for professional audio. Offered in a retrofit package for the dbx 202 or in chip form for OEM manufacturers. A control mechanism serving as an electronic building block.

RECOMMENDED USAGES: Used in automation devices, servo-controlled mechanisms, telecommunications, computerized systems and outboard audio devices.

BASIC SPECIFICATIONS: THD distortion: 20 Hz - 20 kHz : 0.004%.

IM distortion: 0.03%.

Noise: -90 dBm worst case.

Input impedance: 20k ohms.

Maximum input level: +20 dBv.

Unity gain.

DC shift vs. attenuation: less than 20 mV.

DEALER AVAILABILITY:

Northern California:

Parasound, Inc. 680 Beach ST., San Francisco, CA.

Southern California: Aphex Systems.

Available throughout California.



PB-1X, PB-2X BOOM ATTACHMENTS

Atlas Sound

10 Pomeroy Road, Parsippany, N.J. 07054

Contact: Howard Berke, National Sales Manager

PRODUCT DESCRIPTION: Atlas Sound PB-1X is a designer-styled boom attachment which offers maximum functional flexibility, and allows the maintenance of close proximity between the microphone and its sound source. The PB-1X is supplied with a diecast zinc swivel, finished in gleamed black epoxy, and equipped with oversized hardware and individual knobs to allow free or sliding control of motion, stationary positioning and orientation in horizontal or vertical directions. This model includes wear-proof all-metal grip action clutch assemblies, and provides extended operational flexibility.

RECOMMENDED USAGES: The PB-1X is suited for application on stage, in studios, with sound system facilities, or utilized where recordings are made. It is particularly suited for use by vocalists and choirs, or in conjunction with keyboard or percussion instrument-miking.

BASIC SPECIFICATIONS: PB-1X:

Length: 31" to 50".

Material — cold rolled steel tubing Diecast Zinc Swivel.

Finish — Chrome-plated tube assembly Black counterweight.

Termination — $\frac{1}{8}$ " - 27.

Weight — 6 lbs.

PB-2X:

Length — 21" - 40".

Weight — 4.5 lbs.

Material, finish, and termination — same as PB-1X.

DEALER AVAILABILITY: Available throughout California.



SB-36W

HEAVY-DUTY MICROPHONE BOOM STAND

Atlas Sound

10 Pomeroy Road, Parsippany, NJ 07054

Contact: Howard Berke, National Sales Manager.

PRODUCT DESCRIPTION: Atlas Sound Model SB 36W heavy-duty microphone boom stand is modern in appearance and ruggedly made. The horizontal tube assembly consists of two sections of $\frac{1}{2}$ " rust-resistant cold rolled steel, chrome-plated and terminating in a grommet swivel for installation and directional positioning of any microphone with standard $\frac{1}{8}$ " - 27 threads.

The model features the famous Atlas Sound wear-proof grip action clutch for positive locking control. In addition, the one-piece casting of SB-36W offers edge concentrated weight for extra stability, incorporates the adjustable air suspension control, and is finished in black with decorative chrome center cover.

RECOMMENDED USAGES: SB-36W is ideally suited for use on stage, bandstand and studios. It is particularly designed for use in auditoriums, schools, recording and broadcasting studios, etc... wherever dependability in operation and flexibility in application are essential.

BASIC SPECIFICATIONS: Horizontal Boom: 62".

Vertical height: 48".

Base: 17" dia.

Counterweight: 6 lbs.

Weight: 40 lbs.

DEALER AVAILABILITY: Available throughout California.



PSC

MICROPHONE STAND

Atlas Sound

10 Pomeroy Road, Parsippany, N.J. 07054

Contact: Howard Berke, National Sales Manager.

PRODUCT DESCRIPTION: Atlas Sound PSC microphone stand is a single-unit tripod microphone floor stand designed for mobility and compactness. It combines the stand base and vertical tube in a single unit that is fully portable and foldable, fast and simple to set-up, and includes spring-action telescoping legs. It features the famous all-metal grip-action clutch and is a stand rugged of construction and modern in appearance.

RECOMMENDED USAGES: The PSC is recommended for use by performers, musicians and vocalists in studios, auditoriums, theatres, all-purpose rooms, hotels and clubs; wherever sound

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systems are utilized or recordings are made. They are designed for indoor or outdoor application. They provide the optimum of dependability, and can be combined with microphone booms and many accessories to offer maximum convenience features for general purpose and professional use.

BASIC SPECIFICATIONS: Height: 35" to 63".
Base Spread: 25".
Storage shipment length: 32".
Thread size: 3/4" - 27.
Finish: baked epoxy base, black.
Weight: 4 1/2 lbs.
DEALER AVAILABILITY: Available throughout California.

**PSC-3
MICROPHONE STAND**
Atlas Sound

10 Pomeroy Road, Parsippany, NJ 07054
Contact: Howard Berke, National Sales Manager.

PRODUCT DESCRIPTION: Atlas Sound PSC-3 microphone stand is a single unit tripod microphone floor stand designed for mobility and compactness. It combines the stand base and vertical tube in a single unit that is fully portable and foldable, fast and simple to set up, and includes spring-action telescoping legs. It features the famous all-metal grip action clutch and is a stand rugged of construction and modern in appearance. Model PSC-3 offers the vertical adjustment flexibility from extra low, for seated performers of instrument-miking, to standard height by three section vertical tube with two clutch assemblies.

RECOMMENDED USAGES: The PSC-3 is recommended for use by performers, musicians, vocalists, in studios, in auditoriums, or in theatres, all-purpose rooms, hotels and clubs, wherever sound systems are utilized or recordings are made. They are designed for indoor application, provide the optimum of dependability, and can be combined with microphone booms and many accessories to offer maximum convenience features for general purpose and professional use.

BASIC SPECIFICATIONS: Height: 26" to 66".
Base Spread: 25".
Storage/shipment length: 22".
Thread size: 3/4" - 27.
Finish: Baked Epoxy Base, Black.
Weight: 4 lbs.
DEALER AVAILABILITY: Available throughout California.

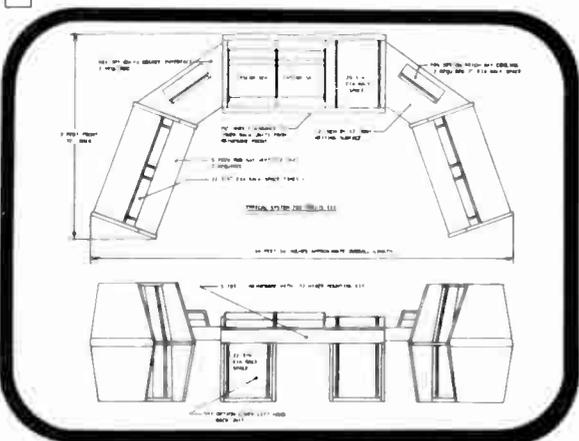
**SB-100W
STUDIO BOOM**
Atlas Sound

10 Pomeroy Road, Parsippany, N.J. 07054
Contact: Howard Berke, National Sales Manager.

PRODUCT DESCRIPTION: Model SB-100W is a versatile studio quality mobile microphone boom stand. It is recommended whenever maximum operational flexibility, heavy-duty reliability and optimum microphone positioning range are desired. Noise-free and continuously variable 350° radius, microphone follower and direction rotation are provided by means of a unique flexible drive controlled by a single knob. The flexible drive also allows complete one-handed guidance control of boom motion in both the vertical and horizontal directions. Proper balance by the proportioned counterweight and friction adjustment of boom rotation allow all motion functions to be controlled without any physical effort. Snap-in clips are furnished to secure the microphone cable to the boom.

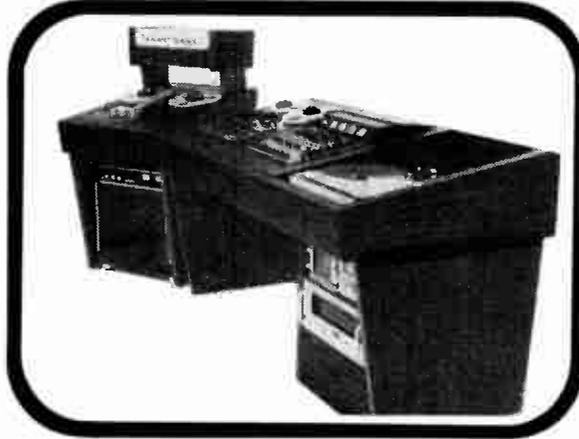
RECOMMENDED USAGES: The SB 100W is recommended for application in television, recording, broadcasting facilities, and in conjunction with sound reinforcement systems. It is suitable for use in studio, on stage or for remote location work.

BASIC SPECIFICATIONS: Boom length: 110".
Height: 61 1/2" to 92 1/2".
Base: 34".
Counterweight: 5.5 lbs.
Microphone direction control: 350° rotation with horizontal and vertical movement.
Weight 47 1/4 lbs.
DEALER AVAILABILITY: Available throughout California.



BSC, INC.
System 700 — Series III

X-CESSORIES & OTHER EQUIPMENT



BSC, INC.
Expandable Modular Housing

SYSTEM 700 — SERIES III
BSC, Inc.
2932 River Rd., River Grove, Illinois 60171
Contact: Paul F. Bergetz, President.

PRODUCT DESCRIPTION: The System 700 — Series III is an expandable modular console housing for mixers, recorders, turntables and rack mount equipment.

RECOMMENDED USAGES: The Series III is a great way to integrate control room equipment for studio, broadcast or disco.
BASIC SPECIFICATIONS: Modular construction allows updating to suit your future needs.

Off the shelf availability for the following mixing consoles: (delivery usually requires 10 days from receipt of check): Tascam 3, Tascam 5-5A-5EX, Tascam 10-10B, Tascam 15, Soundworkshop 1280 Series, Tangent 3216 Series, Tangent 802A-1202A, Tangent 16020A-2402A.
1/8" aluminium and 1" high density particle board construction. Finished in 1/16" formica brand rosewood laminate with textured dull black epoxy enamel trim.
Rack mounting hardware available for all types of equipment. Full EIA center spacing on tapped 3/16" steel rails. Units are shipped knocked down and require simple screw together construction.
DEALER AVAILABILITY: Bananas at Large.

**4500 SMPTE INTERLOCKING SYNCHRONIZER
SMPTE CODE CONTROL SYSTEMS**
The BTX Corporation
438 Boston Post Road, Weston, MA 02193. (617) 891-1239
Contact: Ronald C. Barker, Director of Marketing

PRODUCT DESCRIPTION: SMPTE Code controls systems,

synchronizers, generators, and readers.
RECOMMENDED USAGES: Audio interlocking to lock any two audio recorders to yield 14, 30 or 46 track capability or to lock any audio recorder with any video recorder.
BASIC SPECIFICATIONS: Lock within 50 microseconds using code levels recorded down to -10 dBm. Programmable offset (any two codes can be synchronized) plus lip sync adjust.
DEALER AVAILABILITY: Factory direct only.

BRASS GUITAR REPLACEMENT PARTS.
DiMarzio Musical Instrument Pickups, Inc.

1386 Richmond Terrace, Staten Island, NY 10310. (212) 981-9286
Contact: Dept. NB

PRODUCT DESCRIPTION: The line of brass replacement parts includes brass nuts, bridges and bridge pieces. All items are solid brass, designed for durability. Adjustment tools are included where required.

RECOMMENDED USAGES: The brass nuts are designed for use with Gibson-style guitars and basses, Fender-style guitars and basses, and Rickenbacker-style basses. Brass bridges are available for replacement on Gibson-style guitars, and a variety of electric basses. Brass replacement saddles are available for replacement on Stratocaster-style guitars. All parts are designed to produce maximum sustain with minimal wear.

BASIC SPECIFICATIONS: Specifications are available in our catalog, or upon inquiry.
DEALER AVAILABILITY: Available throughout California.

**MULTIMATE
PATCH PANEL**
EMSA

269 Locust St., Northampton, MA 01060. (413) 586-3777
Contact: Everett Hafner, President.

PRODUCT DESCRIPTION: Multimate products are custom-built patch panels using the matrix concept familiar to computer engineers. Each row of the matrix carries signal from the output of an audio source; each column delivers signal to the input of a device. Connection is made with a conductive pin inserted at the intersection of the appropriate row and column.

RECOMMENDED USAGES: The principal uses of Multimate are in electronic music studios, where complex interconnections are desired without the use of large mixers. What the matrix method makes possible is an arbitrary number of multiple input and output connections for complicated tape effects and instrumental ensembles.

BASIC SPECIFICATIONS: Multimate is made to order, with the desired matrix size and specified input and output jacks. The typical small unit employs a 10 by 10 matrix accessed through RCA jacks, mounted in a wood enclosure and equipped with a set of 20 patching pins. Matrix sizes up to 40 by 40 are available.

DEALER AVAILABILITY: Factory direct only.

EVERYTHING AUDIO DIRECT BOXES AND EARPHONE BOXES
Everything Audio

16055 Ventura Blvd., Suite 1001, Encino, Ca 91436. (213) 995-4175

PRODUCT DESCRIPTION: Aluminum extrusion boxes, engraved. All switches protected from outside damage. Very rugged.

RECOMMENDED USAGES: Direct Box: for insertion of low level instrument, such as guitar, directly into console. Earphone Box: variety of systems for splitting one line to many earphones, with or without volume adjust.

DEALER AVAILABILITY: Factory direct only.

**GARNER
BULK AUDIO TAPE ERASER**
Garner Industries

4200 N. 48th St., Lincoln, Nebraska 68504. (402) 464-5911
Contact: Bruce A. Alderman, Sales Manager

PRODUCT DESCRIPTION: Garner high speed tape erasers are now available in four sizes for bulk erasing audio reels, cartridges, and cassettes. Seven, ten and one-half, fourteen, and sixteen inch belt widths are now available. Erases tapes clean in just four seconds. Garner bulk tape erasers will save valuable man-hours and do a better erasing job. We're so certain users will like this innovation in tape erasing that we guarantee our customers money back if not satisfied during the first 30 days of use.

RECOMMENDED USAGES: Garner bulk erasers are presently being used in recording studios, production studios, radio and television stations, and by all three major networks.

BASIC SPECIFICATIONS: All units operate on any 110 volt outlet. No special power requirements. Thermal projection-automatic shut off.
DEALER AVAILABILITY: Factory direct only.

**GARNER VIDEO 'RASER
BULK VIDEO TAPE ERASER**

Garner Industries
4200 N. 48th St., Lincoln, Nebraska 68504. (402) 464-5911
Contact: Bruce A. Alderman, Sales Manager

PRODUCT DESCRIPTION: Garner's high speed Video 'Raser erases video tape that exceeds professional standards in less than five seconds. It is a simple one-step, in and out operation that gives perfect tape erasures in a one pass operation. Garner's Video 'Raser will save valuable man-hours. We guarantee our customer's money back if not satisfied during the first 30 days of use.

RECOMMENDED USAGES: Garner bulk erasers are presently being used in recording studios, production studios, television stations, and by all three major networks.

BASIC SPECIFICATIONS: Unit operates on any 110 volt outlet. No special power requirements. Thermal projection-automatic shut off.

DEALER AVAILABILITY: Factory direct only.

HEIL SOUND "TALK BOX"

Heil Sound, Ltd.
#2 Heil Industrial Drive, Marissa, IL 62257.
Contact: Bob Heil, President

PRODUCT DESCRIPTION: Designed and used by Peter Frampton, Joe Walsh, and Captain and Tennelle. The original 110 watt, specially designed trans-receiver allows larger guitar amps to be used without fail. You can now create those original effects live and with ease. A specially designed by-pass switch allows for the use of regular speakers on the Talk Box by means of a simple connection between amp and speakers.

List Price: \$150.00

DEALER AVAILABILITY:
Musician's Supply, P.O. Box 1440, El Cajon, California.

HEAVY DUTY BULK TAPE ERASER, MODEL HD-11M

Microtran Company
P.O. Box 236, 145 E. Mineola Ave., Valley Stream, NY 11582
(516) 561-6050
Contact: Albert J. Eisenberg, Marketing Manager.

PRODUCT DESCRIPTION: Epoxy molded bulk tape eraser for up to 1/4" magnetic tape and sound film. High intensity magnetic field restores audio, video and computer tapes to like-new condition without rewinding.

RECOMMENDED USAGES: Ideal for cassettes, cartridges and reel diameters from 3 1/4" to 10 1/2".

BASIC SPECIFICATIONS: Erasure 65 - 90 dB below saturation. Standard 5/16" spindle. Epoxy molded for ruggedness and longer duty cycle.

117V. 50/60 Hz, 5 amps.
Size: 7" x 3 1/2" x 3 1/4" H, weight: 9 lbs.

DEALER AVAILABILITY:
Northern California:
Moltronics, 2320 Owen St., Santa Clara, CA 95051

Southern California:
Everest Record Group, 10920 Wilshire Blvd., L.A. CA 90024
Fidelity Sound, 136 S. Glassell St., Orange, CA 92666
Moltronics, 5610 E. Imperial Highway, South Gate, CA 90280
Available throughout California.

**INDUSTRIAL AUDIO/VIDEO/COMPUTER BULK TAPE ERASER,
MODEL HD-20**

Microtran Company
P.O. Box 236, 145 E. Mineola Ave., Valley Stream, NY 11582
(516) 561-6050
Contact: Albert J. Eisenberg, Marketing Manager.

PRODUCT DESCRIPTION: Bulk tape eraser for magnetic tape up to 1" wide and magnetic sound film up to 35mm.

RECOMMENDED USAGES: Ideal for bulk tape erasure of cassettes, cartridges, and reel diameters from 3 1/4" to 10 1/2". Designed and constructed for heavy duty industrial use.

BASIC SPECIFICATIONS: Erasure 65 - 90 dB below saturation.

Standard 5/16" spindles.
Fuse and pilot light.
117V. 50/60 Hz, 10 amps.
Size: 8" x 6" x 4" H, weight: 15 lbs.

DEALER AVAILABILITY:
Northern California:
Moltronics, 2320 Owen St., Santa Clara, CA 95051

Southern California:
Everest Record Group, 10920 Wilshire Blvd., L.A., CA 90024
Fidelity Sound, 136 S. Glassell St., Orange, CA 92666
Moltronics, 5610 E. Imperial Highway, South Gate, CA 90280
Available throughout California

MAGNETIC TAPE EDITING PEN, MODEL HD-35M

Microtran Company
P.O. Box 236, 145 E. Mineola Ave., Valley Stream, NY 11582
(516) 561-6050
Contact: Albert J. Eisenberg, Marketing Manager.

**X-CESSORIES
& OTHER
EQUIPMENT**

PRODUCT DESCRIPTION: Hand held wand for dubbing out syllables, words and errors.

RECOMMENDED USAGES: For erasing small areas of sound and video from magnetic tape and film. Syllables, program material, and errors may be removed.

BASIC SPECIFICATIONS: Active tip area 1/4" D. Press to operate switch.

115V. 50/60 Hz at 10 watts.
Size: 5/8" D x 8" L, weight: 6 oz.

DEALER AVAILABILITY:
Moltronics, 3220 Owen St., Santa Clara, CA 95051
Southern California:

Everest Record Group, 10920 Wilshire Blvd., L.A. CA 90024
Fidelity Sound, 136 S. Glassell St., Orange, CA 92666
Moltronics, 5610 E. Imperial Highway, South Gate, CA 90280
Available throughout California.

MAGNETIC TAPE ERASER, MODEL HD-15

Microtran Company
P.O. Box 236, 145 E. Mineola Ave., Valley Stream, NY 11582
(516) 561-6050
Contact: Albert J. Eisenberg, Marketing Manager.

PRODUCT DESCRIPTION: Hand held magnetic tape eraser. For cassettes cartridges and reels. Ideal for cassette erasure. Film range: 8, 16 and 35mm. High impact plastic case.

RECOMMENDED USAGES: A compact tape demagnetizer; it erases recorded signals and noise without rewinding. It removes background noise below level of new tapes or sound film. It also demagnetizes heads, guide posts, tools, watches, metal objects, etc.

BASIC SPECIFICATIONS: Size: 4 3/8" L x 2 1/2" W x 4 3/8" H. Weight: 2 1/2 lbs.

8' cord with molded plug.
Universal unit for any reel size.
117V. 50/60 Hz.

4 amps.
DEALER AVAILABILITY:
Northern California:
Moltronics, 2320 Owen St., Santa Clara, CA 95051

Southern California:
Everest Record Group, 10920 Wilshire Blvd., L.A., CA 90024
Fidelity Sound, 136 S. Glassell St., Orange, CA 92666
Moltronics, 5610 E. Imperial Highway, South Gate, CA 90280
Available throughout California.

**MU SHIELDED MICROPHONE INPUT TRANSFORMERS,
S100 SERIES.**

Microtran Company
145 East Mineola Ave., P.O. Box 236, Valley Stream, NY 11582
(516) 561-6050
Contact: Albert J. Eisenberg, Marketing Manager

RECOMMENDED USAGES: For coupling professional grade microphone input transformers to preamplifiers. For professional sound studios and broadcast mixing consoles.

BASIC SPECIFICATIONS: Double mu-metal shielded. Broad frequency response. Microphone input transformers. Available in 9 electrical ratings in both stud and PC mounting. Designed for simplex powering of condenser microphones. Low microphonic noise. Electrostatic shielding. Single stud mounting permits rotation for minimum hum pick-up. Extremely low distortion.

3/8" D x 1 1/8" H.
30 - 15 kHz \pm 1 dB.
Power level range up to 0 dBm.

DEALER AVAILABILITY:
Northern California:
Moltronics, 2320 Owen St., Santa Clara, CA 95051

Southern California:
Everest Record Group, 10920 Wilshire Blvd., Los Angeles, Ca 90024
Fidelity Sound, 136 S. Glassell St., Orange, CA 92666
Moltronics, 5610 E. Imperial Highway, South Gate, CA 90280
Available throughout California.

**PROFESSIONAL AUDIO/VIDEO/COMPUTER BULK TAPE ERASER
MODEL HD-25**

Microtran Company
P.O. Box 236, 145 E. Mineola Ave., Valley Stream, NY 11582
(516) 561-6050
Contact: Albert J. Eisenberg, Marketing Manager.

PRODUCT DESCRIPTION: Bulk magnetic tape eraser for heavy

duty professional use.

RECOMMENDED USAGES: For bulk erasure of magnetic tapes up to 2" wide on reels up to 17" in diameter and magnetic sound film up to 35mm. For cassettes, cartridges and reels.

BASIC SPECIFICATIONS: Double fuses and pilot lights for safety, erasure 65 - 90 dB below saturation.

Standard 5/16" spindle.
6 foot, 3-conductor line cord.
115V. 50/60 Hz, 20 amps.
Size: 14" x 12" x 4" H, weight: 33 lbs.

DEALER AVAILABILITY:
Northern California:
Moltronics, 2320 Owen Street, Santa Clara, CA 95051

Southern California:
Everest Record Group, 10920 Wilshire Blvd., L.A., CA 90024
Fidelity Sound, 136 S. Glassell St., Orange, CA 92666
Moltronics, 5610 E. Imperial Highway, South Gate, CA 90280
Available throughout California.

TAPE HEAD DEMAGNETIZER, MODEL HD-40M

Microtran Company
P.O. Box 236, 145 E. Mineola Ave., Valley Stream, NY 11582
(516) 561-6050
Contact: Albert J. Eisenberg, Marketing Manager

PRODUCT DESCRIPTION: Neutralizes residual permanent magnetism in recording head. Heavy duty AC electromagnet with extended pole piece for easy access. Special finish on pole piece prevents marring heads.

RECOMMENDED USAGES: To clear up noise and harmonic distortion caused by magnetized heads. Removes magnetism, reduces noise level, reduces harmonic distortion, improves signal-to-noise ratio, insures high frequency response.

BASIC SPECIFICATIONS: 117V AC, 1 amp.

High impact molded case.
Size: 4" L x 1 1/4" Diameter.
Weight: 7 oz.

DEALER AVAILABILITY:
Northern California:
Moltronics, 2320 Owen St., Santa Clara, CA 95051

Southern California:
Everest Record Group, 10920 Wilshire Blvd., L.A. CA 90024
Fidelity Sound, 136 S. Glassell St., Orange, CA 92666
Moltronics, 5610 E. Imperial Highway, South Gate, CA 90280
Available Throughout California.

NASTY CORDLESS BLACK TRANSMITTER

Nasty Cordless
P.O. Box 2205, Berkeley, Ca 94702. (415) 526-6745
Contact: Peter T. Kalmen, Director of Sales.

PRODUCT DESCRIPTION: The Nasty Cordless Black Transmitter is a miniature radio transmitter designed for replacing the cord to any electric instrument or microphone. Tunable from 88 - 108 mHz, it can be used with any commercial FM tuner for interference-free operation. The Black features stable, drift-free performance, less than 1% distortion, long range of 250 ft. and full frequency response (20 - 20,000 Hz).

RECOMMENDED USAGES: The Nasty Black is designed for professional club and concert use, whenever greater stage mobility and freedom from electrical shocks is desired. The Black is compatible with any electric instrument as it is available with both high and low input impedance. Also, it can be used with lavalier or hidden mics for stage productions, conferences, etc.

BASIC SPECIFICATIONS: R.F. Carrier frequency: 88 - 108 mHz. Modulation: wideband.

Audio frequency response: 20 - 20,000 Hz \pm 3 dB.
Signal to Noise: better than 75 dB.
Distortion: less than 1%.

Transmission range: 250 ft.
Battery: 9 volt alkaline (20 hours).

DEALER AVAILABILITY: Distributed throughout California by Morley Pedals.

NASTY CORDLESS BLUE TRANSMITTER SYSTEM

Nasty Cordless
P.O. Box 2205, Berkeley, Ca 94702. (415) 526-6745
Contact: Peter T. Kalmen, Director of Sales

PRODUCT DESCRIPTION: The Nasty Cordless Blue Transmitter System consists of the Nasty Cordless Blue Transmitter and the Nasty Pro 400 and Pro 500 receivers. The system was developed for professional club and concert use, utilizing radio transmission of sound. It expands performance capabilities by offering unparalleled quiet operation (better than 95 dB), long range transmission (250 ft.), stable, drift-free operation, tunable interference free FM transmission, and ease of operation. High or low input impedance match all microphones or electric instrument pickups.

RECOMMENDED USAGES: The Nasty Cordless Blue provides limitless possibilities for onstage performance. The Blue improves visual impact, allows complete freedom from dangerous shocks associated with cords, and increases the mobility and creative potentials of the user. The Blue is designed for use in any performing situation requiring both the most critical sound requirements and greater stage freedom. It can also be used with miniature hidden mics, etc., in addition to any

electric instrument.

BASIC SPECIFICATIONS: R.F. Carrier Frequency: 88 - 108 mHz.
Modulation: wideband.
Audio Frequency response: 20 - 20,000 Hz ± 3 dB.
Signal to noise: better than 95 dB.
Distortion: less than 1% THD.
Transmission range: 250 ft.
Battery: 9 volt alkaline (20 hrs.).
DEALER AVAILABILITY: Available throughout California at Morley Pedals.



XLR-TYPE AUDIO CONNECTORS

Neutrik Products
91 McKee Dr., Mahwah, NJ 07430. (201) 529-3800
Contact: G. Langdon, Tech. Mgr.

PRODUCT DESCRIPTION: Neutrik has precision-engineered the world's most advanced XLR-type audio connector. These electro-mechanical components are swiss-crafted to meet the demanding requirements of professional, industrial and commercial applications. The complete line includes both male and female connectors and a new modular system to custom design any type of in-line accessory.

RECOMMENDED USAGES: To be used for applications requiring professional 3-pin XLR-type audio connectors.

BASIC SPECIFICATIONS: 3 and 5 pin XLR-type connectors available in nickel finish with silver-plated pins or black finish with gold-plated pins. Heavy duty phone plug, switches and various transformers are available. Please consult catalog.
DEALER AVAILABILITY: Available throughout California.



NEXUBAFFLE

Nexus, Inc.
50 Chuckanut Drive, Oakland, NJ 07436. (201) 337-0707
Contact: John Esak, V.P.

PRODUCT DESCRIPTION: Prices from \$135 - \$225.

Instant drumbooths, or vocal booths. The nexubaffle is a portable, effective gobo available in several sizes which hook together magnetically for easy set-up and take-down. A versatile tool for the engineer who wishes to minimize bleed. (With or without windows.)

RECOMMENDED USAGES: May be used in the studio or on stage to keep bleed to a minimum. May also be used for music departments, doctor's offices, speaker testing, radio stations, and thousands of other uses.

BASIC SPECIFICATIONS: Sample sizes are: 2 1/2" x 35" x 72" or 4" x 35" x 72".

.95 NRC.

Noise reduction from 13 to 53 dB.

Will include literature and full chart.

DEALER AVAILABILITY: Factory direct only.



BOILERMAKER (MICROPHONE STANDS)

Northwest Sound, Inc.
3497 NW Yeon Ave., P.O. Box 3586, Portland, Oregon 97208
Contact: Ronald Fuller, Marketing Manager
Northwest Sound, Inc. 414 N. Sparks, Burbank, Ca 91506

PRODUCT DESCRIPTION: Specification quality microphone stands crafted for use where appearance is as important as performance. Available in a range of anodized colors as well as rosewood, teak, and oak. Machined steel bases are smaller but more stable than similar products of other manufacturers. Tubes and clutch mechanism parts are precision machined for years of trouble-free service.

RECOMMENDED USAGES: Model B: Aluminum upright tubes are available in a range of anodized colors to match any decor. Model W: Rosewood, teak, and oak tubes and matching base cover for a rich, natural look and feel.

Model T: Low profile stand for on-camera use. Non-reflective black-anodized tubes with maximum diameter of 5/8" virtually disappear into the background.

BASIC SPECIFICATIONS: Model B: Two section stand; height range 39 1/2" to 67 1/2"; upright tubes of grained anodized 6061-T6 aluminum; base 10" diameter x 1/2" thick machined steel — 12 pounds or 14" triangle x 1 1/4" high steel — 7 pounds.

Model W: Two section stand; height range 39 1/2" to 67 1/2"; base and lower tube of steel covered by solid rosewood, teak or oak; upper tube of grained anodized 6061-T6 aluminum; base 10" diameter x 1/2" thick — 12 pounds.

Model T: Two section low profile stand; height range 39 1/2" to 67 1/2"; upright tubes 5/8" and 3/4"; grained black-anodized 6061-T6 aluminum; base 10" diameter x 1/2" thick machined steel — 12 pounds or 14" triangle x 1 1/4" high steel — 7 pounds.

DEALER AVAILABILITY: Available throught USA.



OMNI CRAFT MODEL SP-1

Omni Craft, Inc.
RT. 4 Box 40, Lockport, Illinois, 60441. (815) 838-1285.
Contact: Preston Wakeland, President.

PRODUCT DESCRIPTION: The Model SP-1 is an AV pulser that is used for generating accurately timed pulses for triggering slide programmers. Pulse duration is variable from 20ms. to

X-CESSORIES & OTHER EQUIPMENT

2 seconds. Two oscillators are included, i kHz and 50 Hz. An external oscillator may be used for other frequencies.

Price: \$300.00

DEALER AVAILABILITY: Factory direct only.



OMNI CRAFT MODEL SP-2

Omni Craft, Inc.
RT. 4, Box 40, Lockport, Illinois 60441. (815) 838-1285
Contact: Preston Wakeland, President.

PRODUCT DESCRIPTION: The Model SP-2 is a highly accurate and sophisticated system for pulsing critical slide programmers. It features a four digit counter that displays frequency, pulse duration in milliseconds, and number of pulses applied to the tape. It can accept up to five internal plug-in oscillators of any audio frequency, and it has zero-cross detection in the switching circuit.

Price: \$600.00 with one oscillator, additional oscillators are \$35 ea.

DEALER AVAILABILITY: Factory direct only.



MODEL T-25 LINE TRANSFORMER

Opamp Labs, Inc.
1033 N. Sycamore Ave., Los Angeles, Ca 90038. (213) 934-3566
Contact: Bel Losmandy, Manager

PRODUCT DESCRIPTION: 600 ohm to 600 ohm Line Transformer

RECOMMENDED USAGES: Line Input or output transformer

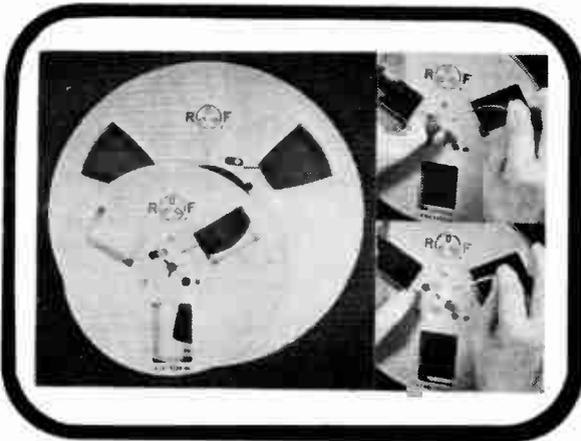
BASIC SPECIFICATIONS: 600 ohm to 600 ohm

20 Hz to 20 kHz (± 1 dB).

24 dBm level.

\$15.00 each.

DEALER AVAILABILITY: Factory direct only.



R.F. PRODUCTS, CO.
"No Walk-Around" Take-up Reels

"NO WALK-AROUND" METAL TAKEUP REELS

R. F. Products, Co.
P.O. Box 270, Lyons, NJ 07939. (201) 766-6158
Contact: Don N. Forsmen, Chief Engineer

PRODUCT DESCRIPTION: Takeup reels that eliminate "walk-around" and multiple wraps during threading. A thumbnail operated latch and the first 1/2" of tape do it. After engagement you can go into any FWD mode and not lose the takeup. At the end of REW or REV PLAY the latch automatically releases the tape end. Results: consistent distance to the first signal, no tails to trim, no mangled tape ends, no wasted time and tape.

RECOMMENDED USAGES: This can be used with all reel-to-reel decks with EIA or NAB reel tables. It can be used in either takeup or supply position. Adaptions to custom decks are easily handled. Conduit Mfr. for other tape widths.

BASIC SPECIFICATIONS: Model 1805-17 for 1/4" tape, 10 1/2", MAB hub, \$16.75 plus \$1.75 Shp-hndlg.
Model 1805-9 for 1/4" tape, 7", EIA hub, \$13.95 plus \$1.50 Shp-hndlg.

Both are of Satin Anodized aluminum.

DEALER AVAILABILITY: Factory direct only.

DB-6 BRIDGING DIRECT BOX

Russound/FMP, Inc.
27-32 Canal St., North Berwick, Me. 03906. (207) 676-9916
Contact: Gaylord Russell, Pres.

PRODUCT DESCRIPTION: Bridging Direct Box. AC powered. Six separate channels in and out. Choice of XLR or 3 circuit phone jack on balanced inputs and outputs; phone jack or RCA phone on unbalanced inputs and outputs. Battery power available for convenience and low noise. High quality transformers and active components used throughout. Balanced outputs will drive any load from 50 ohms up; unbalanced will drive 600 ohms up.

RECOMMENDED USAGES: Each channel will terminate, isolate, bridge, convert, split, phase invert or attenuate any signal from mike to 0 dBm level at any impedance from 50 ohms to 5 megohms. Converts balanced to unbalanced lines and vice-versa.

BASIC SPECIFICATIONS: 19" w x 8 3/4" h x 3 1/2" d in rack mount. Wood carry case with cable storage space included.

DEALER AVAILABILITY: Available throughout California.



QT-1R 4 CHANNEL PATCHING AND CONTROL CENTER

Russound/FMP, Inc.
27-32 Canal St., North Berwick, Me. 03906. (207) 676-9916
Contact: Gaylord Russell, Pres.

PRODUCT DESCRIPTION: 4 channel patching and control center for up to four 4 or 2 channel tape recorders.

RECOMMENDED USAGES: Expanded tape monitor loop of audio system to accept four or two channel noise reductions systems, graphic equalizers, matrix decoder and up to four stereo or quad tape recorders, all of which may be connected and left permanently in place, all switching functions being handled by front panel switches or patch cords.

BASIC SPECIFICATIONS: Rack mounts fits standard 5 1/4" rack space, all metal case 19" w x 5 1/2" h x 5" d. Also available in table model. 16 patch cords included.

DEALER AVAILABILITY: Available throughout California.



FP-36R PATCH BAY

Russound/FMP, Inc.
27-32 Canal St., No. Berwick, Maine 03906. (202) 676-4078
Contact: Gaylord Russell, Pres.

PRODUCT DESCRIPTION: Patchbay — 18 inputs and 18 outputs on front panel. Stackable to provide as many inputs and outputs as needed.

RECOMMENDED USAGES: Functional equivalent of the full size rack mount patch bays used in professional studios. Connect any combination of components in any sequence. May be used independently in tape monitor loop or to augment patching capability of a Russound QT-1 or SP-1.

BASIC SPECIFICATIONS: Rack mount for standard 1 3/4" rack, all metal case. 19" W x 1 3/2" H x 5" D.

Also available in table model.

12 Patch cords provided.

DEALER AVAILABILITY: Available throughout California.



RUSSOUND PATCHBAYS, DIRECT BOXES, MIC PREAMPS

Russound/FMP, Incorporated
Canal Street, North Berwick, Maine 03906. (207) 676-9916
Contact: John Rabbitt, Sales Manager

PRODUCT DESCRIPTION: Patch bays, direct boxes, remote mic preamplifiers and line drivers, amplifier overdrive protectors, battery powered for location use.

RECOMMENDED USAGES: Russound products interface with the full range of semi-pro recording and signal processing components and systems operating with single-ended non-transformer coupled termination. Russound multi-channel direct boxes allow intermix and interface any assortment of pro and semi-pro equipment, irrespective of levels, impedances and plug configurations.

DEALER AVAILABILITY:

Northern California:

Sound Genesis, 2001 Bryant St., San Francisco
Eber Electronics, 2355 Market St., San Francisco
Systems Warehouse, 69 Green Street, San Francisco
Stereo Store, 816 Mission St., San Francisco

Southern California:

Ametron, 1200 North Vine St., Hollywood
Bell Aire Hi-Fi, 927 Westwood Blvd., Los Angeles
Beverly Stereo, 8143 Beverly Blvd., Los Angeles
Stereo Plus, 12024 Wilshire Blvd., West Los Angeles

Available throughout California.



TMS-2 TAPE RECORDER SELECTOR SWITCH

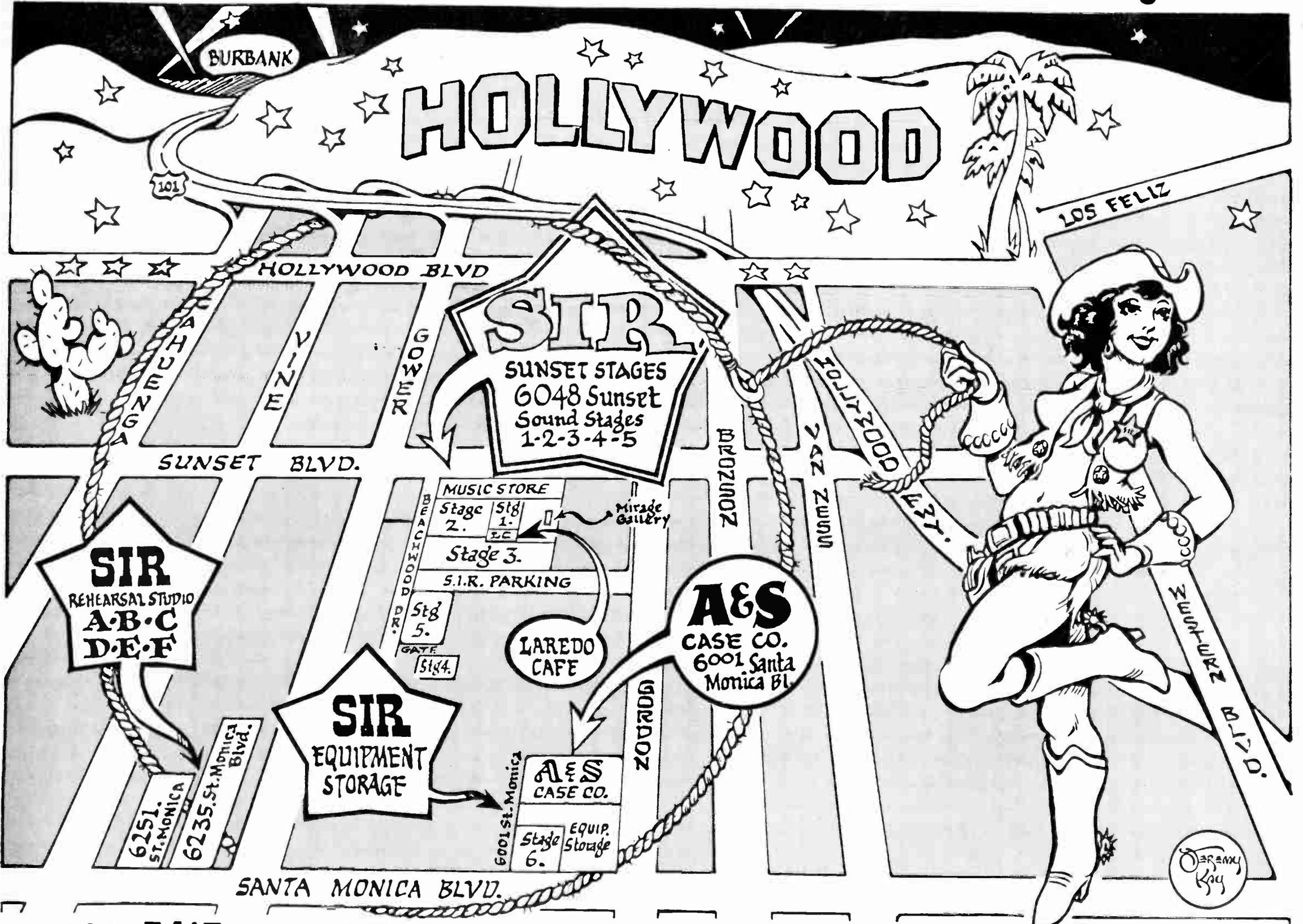
Russound/FMP, Inc.
27-32 Canal St., North Berwick, Me. 03906. (207) 676-9916
Contact: Gaylord Russell, Pres.

PRODUCT DESCRIPTION: Tape Recorder Selector Switch.

RECOMMENDED USAGES: Connections for up to five tape recorders or other line level sources to be used in any com-

• Musical Rentals • Rehearsal Studios • Sound Stages •

THE MIX NEW PRODUCTS, S.C. #1



466-3417 Ken Berry **STUDIO INSTRUMENT RENTALS** Dolph Rempp 466-1314
 INCORPORATED

DECEMBER 1978

bination. When used with a Russound SP-1 or FP-36, permits interface of such accessories as equalizers, dbx or Dolby noise reduction, reverb, delay etc. and adds switching for up to five additional recorders.

BASIC SPECIFICATIONS: Walnut finish vinyl over wood case.

4 1/2" h x 7 3/4" w x 4 1/4" d.

DEALER AVAILABILITY: Available throughout California.

LONG-LIFE FERRITE MAGNETIC RECORDING HEADS

Saki Magnetics, Inc.

1649 12th St., Santa Monica, CA 90404. (213) 451-8611

Contact: Mr. Trevor Boyer, General Sales Manager

PRODUCT DESCRIPTION: Saki manufactures long-life ferrite replacement heads for most of the major high speed duplicating and studio machines, such as: Ampex, Electrosonic, Mincom, Scully, Studer & Gauss. Their heads are constructed of hot-pressed PDK ferrite with glass-bonded gaps and out-wear standard metal heads by 10 to 15 times life. All heads are shipped with an unconditional guarantee of satisfaction.

RECOMMENDED USAGES: Saki Long-Life Ferrite Heads are recommended for any application where optimum high performance and extreme long life are desirable, especially where heads must be removed once a year.

BASIC SPECIFICATIONS: In all cases, heads are compatible with the physical mounting and electronics in the existing systems with the exception of Mincom where two resistors must be added to compensate for the highly efficient ferrite material.

DEALER AVAILABILITY:

Northern California: Accurate Sound Company

114 5th Av., Redwood City, CA 94063. (415) 365-2843

Southern California: Saki Magnetics, Inc.

649 12th St., Santa Monica, CA 90404

AUDIO MODULES AND ACCESSORIES

Sescom, Inc.

12931 Budlong Ave., (P.O. Box 590), Gardena, CA 90247

(213) 770-3510. Outside CA (800) 421-1828.

Contact: Franklin J. Miller, President.

PRODUCT DESCRIPTION: Sescom has a large line of audio modules and accessories for those who like to construct their own projects. A free catalog featuring these and all other Sescom products is available for the asking.

DEALER AVAILABILITY: Available throughout California.

LINE LEVEL SPLITTER (LS-1)

Sescom, Inc.

12931 Budlong Ave. (P.O. Box 590) Gardena, CA 90247

(213) 770-3510. Outside CA (800) 421-1828

Contact: Franklin J. Miller, President.

PRODUCT DESCRIPTION: The line level splitter is designed to be used with mixers and other equipment that have no output transformers. The unit also splits the output up to four times while maintaining balance and isolation. The input impedance is selectable, 150 ohms or 600 ohms, via the switch on the front panel. All connections are made via "XLR" type connectors. The unit is rack mountable.

BASIC SPECIFICATIONS: Input impedance: 150 or 600 ohms.

Output impedance: four 600 ohm balanced.

Input power level: +30 dBm.

Frequency response: ± 1 dB 20 - 20 kHz.

Distortion: $\leq 2\%$ 20 - 20 kHz.

DEALER AVAILABILITY: Available throughout California.

"MIC-SPLIT" *G* TRANSFORMERS, 66J0036 B, 66J0040 B, 66J0092 B.

Sescom, Inc.

12931 Budlong Ave., (P.O. Box 590), Gardena, CA 90247

(213) 770-3510. Outside CA (800) 421-1828.

Contact: Franklin J. Miller, President.

PRODUCT DESCRIPTION: Third generation "Mic-Splitting" transformers were developed for the most modern applications. The 66J0036B two-way, 66J0040B three-way and 66J0092B four-way split will pass phantom voltage from the first split to the microphone. The input power level has been increased. The transformer has been sectioned to obtain a frequency response of ± 1 dB, 20 - 20 kHz, with no peaks to color the audio. All leads are color-coded for easy wiring. The use of 75-ohm resistors in series with each output leg will prevent short circuiting of the audio while in use.

BASIC SPECIFICATIONS: 66J0036B, 66J0040B & 66J0092B: primary & secondary impedance: 150 - 250 ohms (usable to 1200 ohms).

Input power level: +6 dBm at 30 Hz $\leq 1\%$ THD.

Frequency response: ± 1 dB 20 - 20 kHz.

Maximum insertion loss: $\leq 1\frac{1}{2}$ dB unterminated (typically ≤ 1 dB).

Electromagnetic shielding: -60 dB.

Electrostatic shielding: Separate isolated electrostatic shields

X-CESSORIES & OTHER EQUIPMENT

for each winding.
Housing: Mu-metal.

DEALER AVAILABILITY: Available throughout California.

MLD-1 MIC-LINE DRIVER

Sescom, Inc.

12931 Budlong Ave., (P.O. Box 590), Gardena, CA 90247

(213) 770-3510. Outside CA (800) 421-1828.

Contact: Franklin J. Miller, President.

PRODUCT DESCRIPTION: The MLD-1 mic-line driver was designed with three applications for field or studio use. It can be used to bring a normal low-impedance microphone to line level. For field application in which the cable runs may be extremely long, it can increase the level which is lost in the cable run. In field or studio use where the cable may be noisy, it can increase the output above the noise. The unit features a bi-fet op amp with high slew rate and low distortion for first-class audio performance. The MLD-1 is self-powered by a 9-volt battery, but it can also be phantom powered. The unit is built in a rugged die-cast box for field use.

BASIC SPECIFICATIONS: Input impedance: 150 ohms transformer-balanced.

Output impedance: 600 ohms transformer-balanced.

Gain: Adjustable, 20 dB to 45 dB max.

Distortion: $\leq 2\%$ 20 - 20 kHz at +6 dBm.

Frequency response: ± 1 dB 20 - 20 kHz.

Battery life: 20 hours.

Battery consumption: 2.8 ma.

Equivalent input noise: -128 dB.

DEALER AVAILABILITY: Available throughout California.

STEREO BALANCE BOX (SB-1)

Sescom, Inc.

12931 Budlong Ave. (P.O. Box 590), Gardena, Ca 90247

(213) 770-3510. Outside Ca (800) 421-1828.

Contact: Franklin J. Miller, President.

PRODUCT DESCRIPTION: The stereo balance box is designed to be used with semi-professional equipment to give it professional features. The unit contains two adjustable line amplifiers with output transformers, two input transformers for balancing and impedance matching, and a self-contained power supply. Input and output connections are designed for multiple uses. The line amplifier sections have screwdriver adjustments for gain of the amplifier, and front panel controls for level adjustment. The input section has a selectable switch for 600 ohms or 15k ohms balanced; the output is 15k ohms unbalanced.

RECOMMENDED USAGES: Designed to be used with Semi-Pro tape recorders to give them the same features as professional tape machines. The SB-1 will give you balanced inputs to the tape recorder and balanced 600-ohm outputs capable of +18 dBm.

BASIC SPECIFICATIONS: Line Amplifier section: Input impedance: 100k ohms unbalanced.

Output Impedance: 600 ohms balanced.

Frequency response: ± 1 dB 20 - 20 kHz.

Gain: Unity to 20 dB.

Distortion: $\leq 2\%$ 20 - 20 kHz @ +18 dBm.

Input section: Input impedance 600 ohms or 15k ohms balanced, switchable.

Output Impedance: 15k ohms unbalanced.

Distortion: $\leq 2\%$ 20 - 20 kHz.

Frequency response: ± 1 dB 20 - 20 kHz.

DEALER AVAILABILITY: Available throughout California

STEREO INPUT BALANCER (IB-1)

Sescom, Inc.

12931 Budlong Ave. (P.O. Box 590), Gardena, CA 90247

(213) 770-3510. Outside CA (800) 421-1828.

Contact: Franklin J. Miller, President

PRODUCT DESCRIPTION: The stereo input balancer is designed to be used with power amplifiers that have unbalanced inputs; the input of the IB-1 is selectable, 15k ohms or terminated 600 ohms. The input connection is made by a female "XLR" and has a parallel male "XLR" for thru connection to other audio equipment. The unit is rack mountable.

BASIC SPECIFICATIONS: Input impedance: selectable 600 ohms or 15k ohms.

Output impedance: 15k ohms.

Input power level: +30 dBm.

Frequency Response: ± 1 dB 20 - 20 kHz.

Distortion: $\leq 2\%$ 20 - 20 kHz.

DEALER AVAILABILITY: Available throughout California.

STEREO OUTPUT BALANCER (OPB-1)

Sescom, Inc.

12931 Budlong Ave. (P.O. Box 590) Gardena, CA 90247

(213) 770-3510. outside CA (800) 421-1828

Contact: Franklin J. Miller, President

PRODUCT DESCRIPTION: The stereo output balancer is designed to be used with mixers and other devices that have low impedance unbalanced outputs. The input of the OB-1 is 600 ohms unbalanced via phone jacks and female "XLR" connectors, which are wired in parallel. The output is 600 ohms balanced via male "XLR" connectors. Unit is rack mountable.

BASIC SPECIFICATIONS: Input impedance: 600 ohms.

Output impedance: 600 ohms.

Input power level: +30 dBm.

Frequency response: ± 1 dB 20 - 20 kHz.

Distortion: $\leq 2\%$ 20 - 20 kHz.

DEALER AVAILABILITY: Available throughout California

DTC-400 DISK TRANSFER CONSOLE

Sontec Electronics

10120 Marble Ct., Cockeysville, MD 21030. (301) 628-2283

Contact: Burgess MacNeal, President.

PRODUCT DESCRIPTION: Compact console for disk cutting. High slew-rate discrete circuitry with extremely low distortion assures minimal program degradation. Modular design allows flexible front panel layout console includes noise reduction level controls, limiter-compressor systems, filters, elliptical equalizers, high frequency limiters and complete monitoring and metering. Console can be supplied on order with special panel configurations or different modular components.

RECOMMENDED USAGES: Primarily for use in transferring tapes to master lacquer. Allows engineer great flexibility in disk mastering. Complete duplication of many controls enables set-up of separate parameters for each cut on a side. All controls are exactly resettable for future recuts. High slew-rate circuitry eliminates certain forms of transient distortion.

BASIC SPECIFICATIONS: ± 2 dB 10 - 30,000 Hz.

Distortion: $\leq .002\%$ IM or THD.

Slew rate greater than 100 V/ μ sec.

5-frequency lo and hi-pass filters.

75 frequency parametric equalization with 1 dB step attenuators.

48 x 26 x 38 inches.

Less than 300 lbs.

Power: 115/230 VAC, 50/60 Hz.

DEALER AVAILABILITY: Factory direct only.

SPECTRA SONICS MODEL 902

Spectra Sonics

3750 Airport Road, Ogden, Utah 84403. (801) 392-7531

Contact: Greg Dilley, Sales Engineer

PRODUCT DESCRIPTION: The SPECTRA SONICS Model 902 Straight Line Attenuator has been developed to provide from 0 to 100 dB of attenuation of a linear dB taper. The attenuator may be mounted on 1.5 inch centers and is only 8 1/2" long. The Model 902 is available in mono, stereo, and quad configurations. The control movement is a full 5 inches and functions smoothly without undue resistance. The escutcheon is black anodized with silver indices calibrated for the linear dB taper.

RECOMMENDED USAGES: The Model 902 provides a means of exercising attenuation of the audio signal without introducing distortion. The Model 902 is used in sound reinforcement systems, and audio control consoles in recording studios, broadcast stations, and similar applications.

BASIC SPECIFICATIONS: Source impedance: 0 - 1k ohms.

Input impedance: 10k ohms.

Termination: 100k ohms, minimum.

Operating range: 0 dB - 90 dB.

Insertion loss: 0 dB.

Cut off: 100 dB.

DEALER AVAILABILITY:

Northern California:

Delta Sound and Radio, Inc. Stockton, CA

Corporate Media Systems, Inc., San Rafael, CA

Southern California:

Metro Audio Inc., Bakersfield, CA

Audio Concepts, Inc., Hollywood, CA

Available throughout California.

X-CESSORIES & OTHER EQUIPMENT

SPECTRA SONICS MODEL 404RS

Spectra Sonics
3750 Airport Road, Ogden, Utah. (801) 392-7531
Contact: Greg Dilley, Sales Engineer

PRODUCT DESCRIPTION: SPECTRA SONICS Model 404RS Power Supply will provide minimal voltages of plus and minus 25 VDC (± 5 VDC) at 8 amperes. The power source required is 115 VAC, 50/60 Hz. The Model 404RS is sturdily constructed and the electronic components are protected by a rigid steel chassis. The supply may be mounted in a standard, electronic equipment rack. The power supply is designed so that two supplies may be installed in one chassis to provide a power source of 16 amperes. The configuration is designated "Model 404RSD".

RECOMMENDED USAGES: The SPECTRA SONICS Model 404RS and 404RSD are ideally suited for SPECTRA SONICS Model 701 Power Amplifier, for applications in sound reinforcement systems where reliability and durability are significant considerations. The Model 404RS is very compact, thus it lends itself readily to situations where available space is at a premium. The power supply may be used to provide D.C. for electrical loads up to 8 amperes or in the dual configuration, up to 16 amperes.

BASIC SPECIFICATIONS: 115 VAC, 50/60 Hz source - 56 VDC ± 1 volt no load, 48 VDC ± 1 volt at 8 amperes.
Ripple: 1.2 volt peak to peak maximum, .4 volt average.
Power requirement: 115 volts, 50/60 Hz, 400 watts.
Efficiency: 94%, approximate.
Ambient temperature range: -40° to 185° F.
DEALER AVAILABILITY: Available throughout California.

MICROPHONE ADAPTER KIT/K-150P1
Switchcraft, Inc.
5555 N. Elston Ave., Chicago, IL. 60630. (312) 792-2700

PRODUCT DESCRIPTION: Kit contains 4 most common microphone adapters for conversion of 3 and 4 pin contact. Threaded coupling microphone connectors. Adapters provide completely shielded connections for minimum hum pickup and crosstalk. Quick ground feature assures positive ground connection to connector shell and continuity between mated connectors.

RECOMMENDED USAGES: For adapting microphones, public address and sound reinforcement systems.

BASIC SPECIFICATIONS: 4 adapters in convenient pouch for compact storage.

DEALER AVAILABILITY: Available throughout California.

TDK HD-01 HEAD DEMAGNETIZER
TDK Electronics
755 Eastgate Blvd., Garden City, NY 11530

PRODUCT DESCRIPTION: The TDK HD-01 Head Demagnetizer represents a breakthrough in demagnetizing often inaccessible cassette deck heads. A battery powered electronic circuit contained within a standard cassette shell, the HD-01 is simply inserted into the cassette well. After engaging the play mechanism, demagnetization is accomplished within one second and the HD-01 can be removed. Completely automatic, the TDK HD-01 is supplied complete with battery.

RECOMMENDED USAGES: Especially suitable for duplication systems where frequent and multiple demagnetization is required, the HD-01 is recommended for thorough demagnetization of any cassette system including portables and car stereos.
DEALER AVAILABILITY: At TDK dealers throughout California.

DISTRIBUTE

If you have a recording or music related business and would like to be a distribution point for The Mix, please mail the coupon below and we will give you a call.

_____ name
 _____ business name
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 _____ phone

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Dynamically Controls Flanging Effects Automatically In Response To Frequency or Amplitude Variations Of The Program Material.

True Automated Flanging from the people who bring you MASTER-ROOM. "No 1 Rated American Reverb" — Billboard Magazine

MIX MICMIX Audio Products, Inc.

(214) 352-3811

299 Ladybird
Dallas, TX 75220

feedback

Dear Mix,

What can we do to get record companies to see the value of small studios and regional support? Why should a record company who signs a new group feel that they have to gamble megabucks on \$200 an hour studios and national promotion when they can invest in the development of many groups on a regional level. Taking advantage of the wealth of qualified, professional and especially low cost 8 and 16 track studios listed in the Mix, a record company could put together a grooming program for undeveloped but promising talent. With some inexpensive local promotion, the record company could take advantage of hometown support to start an act on its way.

Who needs the small chance of rags to riches when thoughtful planning could produce more professional results, cost effectiveness and realistic job security for musicians.

All the pieces are here. Let's get it together.

Allen Rice
Mill Valley, CA.

Good thought. If you'd like to expand on it, we'll be happy to keep the subject open.

Eds.

Dear Mix,

I picked up the Mix at the AES Show in New York and particularly enjoyed your interviews.

I wish that an East Coast edition existed, but its fascinating to see what people out West are doing.

Greg Crowley
Westinghouse Broadcasting
Washington, D.C.

Funny you should mention that.

Eds.

Dear Mix,

I would like to see more professional appraisals of equipment and recording techniques. How about some circuits and electronics for do-it-yourselfers?

John Uhrig
Hollywood, CA.

Hang tight, John, we're on the way. In January we'll have five recording engineers discussing the Aphex and EXR Aural Exciters. As for electronics projects, we've got some black box ideas coming up in March... so stay with us.

Eds.

Dear Mix,

The voices of surrounding engineers is always helpful. Thanks for running the independent engineers forum.

Mark Jones
Santa Anna, CA.

Dear Mix,

Would you please publish a list of audio schools and programs.

Thomas Stravino
Bethpage, N.Y.

Watch for our March issue where we'll be running a survey of where to learn the audio business.

Eds.



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**CATCH THEM
IN THE MIX**

To an extent that no other stereo power amp in its price range can equal, the Peavey CS-400 is a totally versatile amplifier.

The CS-400 offers many features in terms of operation, engineering, and concept never before available.

Up front, the CS-400 features a rugged 5.25" x 19" rack mountable chassis with a steel reinforced, die cast panel for beauty and protection. LED overload indicators, level controls, line outputs, high temperature indicator, and lighted mains switch add to the amp's clean, functional design.

Inside, the CS-400 is an uncompromising fusion of modern, solid-state technology and quality components. 200 Watts per channel into 4 Ohms, less than 0.1% total harmonic distortion, with an extremely wide frequency response (+0, -1 dB 5 Hz to 40 kHz @ 1w, 4 Ohms) make some pretty impressive specs.

But there's a lot more to the CS-400 than raw power and impressive specs. What really makes the CS-400 so special is its versatile back panel and patching system that enable such accessories as input transformers,

crossover networks, and bi-amping possibilities using small interchangeable plug-in modules. With the CS-400's plug-in module system, our engineers have created a method to *fully utilize* all the performance capability of the amplifier.

Without this unique patch panel, our CS-400 would just be another great amplifier. With it, it'll be another standard for power amplifiers.

Get all the details at one of our selected audio dealers. He'll show you why incredible values are *still* a reality at Peavey.



The Peavey CS-400

Power @ Clipping:
(10% THD, 1.0 kHz, 120 VAC Line)
260 Watts RMS into 4 Ohms

Total Harmonic Distortion:
Less than 0.1% from 20 mW to 200 Watts RMS
20 Hz to 20 kHz into 4 Ohms, typically below 4 Ohms



Intermodulation Distortion:
Less than 0.1% from 10 mW to 200 Watts RMS
into 4 Ohms, typically below 0.5%

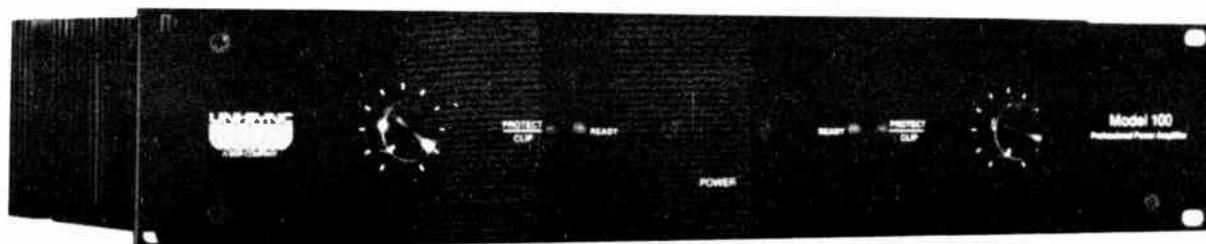
Frequency Response:
+0, -1 dB, 5 Hz to 40 kHz (1 Watt, 4 Ohms)

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World Radio History

TWO FOR THE ROAD

THE UNI-SYNC DUAL PROFESSIONAL POWER AMPLIFIER MODEL 100



The Trouper Series met the challenge of combining roadability with top performance, on the road or off, UNI-SYNC delivers sound. Designed in the same tradition, comes the MODEL 100 Professional Power Amplifier with these exclusive features:

Two Amplifiers: Not just a stereo amplifier, but actually two amplifiers in one chassis, which means accurate bass response, greater dynamics and elimination of the crosstalk distortion phenomenon.

Design: Greater efficiency due to technically superior transformer and heat sink designs.

Size: Smallest dual 100 watt professional power amplifier on the market - a 3½ inch package.

True modular construction: road tested interlocking PC board assemblies eliminate inconsistencies in performance, and serviceability problems found in hand-wired products.

Connections: Balanced bridging XLR and ¼ inch phone inputs; both may be used bal-

anced or unbalanced. Outputs are 5-way Banana Binding Posts. Mono operation switch.

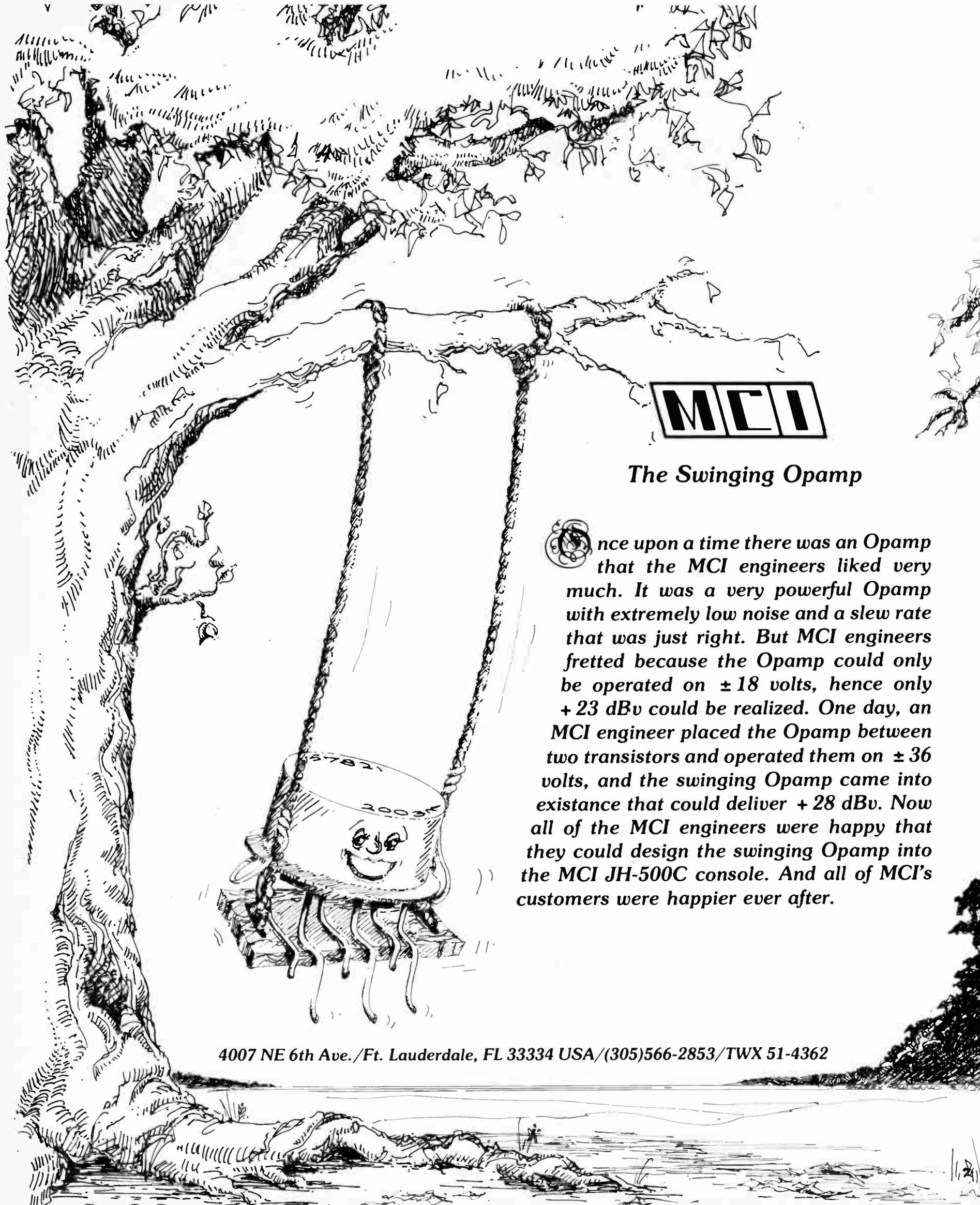
Specifications: 8 ohm power outputs; 100 watts average continuous power per channel; power band 20Hz to 20kHz. Total Harmonic Distortion: .02%. Intermodulation Distortion: Less than .004% @ rated output. Frequency Response: -3Db 1Hz and 100kHz. Fully complimentary output.

Protection Features: On/off transient speaker protection circuitry for DC offset; SOA limiting circuitry; Independent Thermal Shutdown; and Available Power Monitor, provides accurate LED indication of amplifier status.

UNI-SYNC has made significant strides in the design and packaging of the MODEL 100 and companion power amplifiers. We invite you to take an inside look at the MODEL 100, see your local dealer or write for a free brochure.



DESIGNERS & MANUFACTURERS OF PROFESSIONAL AUDIO SYSTEMS & EQUIPMENT
742 HAMPSHIRE ROAD/WESTLAKE VILLAGE, CALIFORNIA 91361/(805) 497-0766



MCI

The Swinging Opamp

Once upon a time there was an Opamp that the MCI engineers liked very much. It was a very powerful Opamp with extremely low noise and a slew rate that was just right. But MCI engineers fretted because the Opamp could only be operated on ± 18 volts, hence only $+23$ dBv could be realized. One day, an MCI engineer placed the Opamp between two transistors and operated them on ± 36 volts, and the swinging Opamp came into existence that could deliver $+28$ dBv. Now all of the MCI engineers were happy that they could design the swinging Opamp into the MCI JH-500C console. And all of MCI's customers were happier ever after.

4007 NE 6th Ave./Ft. Lauderdale, FL 33334 USA/(305)566-2853/TWX 51-4362

CARL,
Here are some
thoughts on our thing!
Michael

Notes-New Product Release

Audio Machinery Shared Access Memory System

The Audio Machinery Shared Access Memory System approaches digital signal processing hardware from a totally new perspective. The system is built around an active mainframe which contains up to six seconds of Random Access Memory (RAM). The mainframe accepts up to eight plug-in modules that can access all or part of the memory. The memory "distribution" is under microprocessor control. This computer is part of the mainframe, and also keeps track of how much time (at full bandwidth, 16kHz) is available in the memory.

If the amount of time called for by the various modules exceeds the RAM space available, several modes of operation allow for lowering of the sampling rate to accommodate the "time request" (at reduced bandwidth). The sampling rate may be adjusted manually, or the microprocessor can handle it. In either case the processor adjusts the filters to match the sampling rate selected.

- Design Parameters:
- availability of long delays (up to 6 seconds)
 - exceed present performance standards
 - quick setting of delay times
 - 1 ms steps plus sweepability
 - internal oscillator control of VCO
 - external voltage control of VCO
 - straight A/D and D/A without companding, compression, or pre/de-emphasis
 - cost effectiveness
 - eliminate splice clicks inherent in pitch shifting
 - true room simulation reverberation with complete control of variable parameters (including width and length of room)

The mainframe contains two readouts which display how much time is available in the memory and at what bandwidth. Three momentary pushbuttons control the operating modes which include computer setting of the sampling rate, manual setting of the sampling rate, and the initial set-up mode. The mainframe also provides 2 audio input busses and 2 voltage control auxiliary busses which are all accessible from each module. The memory "tap" switch bypasses the analog signal input and "taps" the memory being used by the adjacent module allowing the 2 to be in series without additional D/A and A/D conversion.

Modules available include Pitch/Delay, Delay, Output, Reverberation, and more