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Radio World®

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Vol 21, No 13 | Radio's Best Read Newspaper | June 25, 1997

Politics Snags Deal for WINX(AM)

by Alan Haber

ROCKVILLE, Md. A local county government has given up the idea of purchasing an AM station and converting it into a "vehicle" for local traffic information.

Instead, officials in Maryland's Montgomery County are working on an agreement that would see WINX(AM) owner William Parris keep the county's $50,000 deposit in exchange for traffic and public service announcements.

Also being worked out is a plan for the county to lease land, located about two miles from the current WINX(AM) transmitter site, for the station to move its transmitter and towers. According to a Montgomery County news release, such a lease agreement is "subject to County Board of Appeals approval of a special exception" and "would earn the county approximately $150,000 during the next five years on property that is currently not generating any income." A five-year extension option was pegged for inclusion in the proposed agreement.

The current Travelers Advisory Radio System "will continue to provide traffic advisories through 12 smaller (10 watt) AM radio transmitters that reach listeners in a total of 36 square miles located along the I-270 and Route 29 corridors," according to the release.

Reaction from county officials was mixed. Council member Gail Ewing was against the idea of buying the AM radio station in the first place. "I believe very strongly that local government has absolutely no business either owning a radio station or broadcasting traffic reports on a regular basis," she said. "It's totally out of line and (a) waste of taxpayers' dollars, period."

That said, with the majority of county council members voting in the second week of May to support the continuation of regular traffic broadcasts, Ewing does, however, view the new plan as win-win for Montgomery County. "Because you're going to have the taxpayers receiving money back for the ... use of the towers, and you're going to

See WINX, page 6 ▶

FCC Chairman to Leave Post

by Matt Spangler

WASHINGTON Citing the difficulty of finding time for his family and a desire to bring new blood on board, Federal Communications Commission Chairman Reed Hundt last month announced he will resign from the FCC.

"I believe it is time for a new group of commissioners to join Commissioner Ness in carrying out the commission's future mission; and I know it is time for me to devote much more attention to my family," he wrote President Clinton.

Some in Washington have speculated that Hundt may be gunning for a better job in the Clinton Administration, or is interested in becoming commissioner of Major League Baseball.

Susan Ness' term expires in June 1999. By the fall, she is expected to be joined on the commission by a batch of new faces. James Quello and Rachelle Chong were both expected to retire upon the expiration of their terms at the end of June. The other vacancies are the seats of Hundt, who will stay on until a succesor is named, and that of former Commissioner Andrew Barrett.

FCC General Counsel William Kennard and Harold Furchgott-Roth, chief economist for the House Committee on Commerce, already have been nominated by the White House to fill two vacant slots on the commission.

Kennard, a Democratic nominee, and Furchgott-Roth, a Republican, were widely considered shoo-ins as nominees. Hundt issued a statement about both nominees upon learning of the White House's decision on May 23.

"Bill Kennard has been the best general counsel in FCC history," he wrote. "Under his leadership, we have dramatically

See FCC, page 12 ▶

FCC Chairman Reed Hundt

Satellite Service Faces DARS Competition

by James Careless

PASADENA, Calif. Two-way mobile digital radio by satellite: it's not a dream.

Radio Satellite Corp. of Pasadena, Calif., has patented such a technology. It's called RadioSat, and it offers digital-quality audio backed by on-screen descriptive graphics, and more benefits. Using built-in global positioning satellite (GPS) equipment, a RadioSat in-car receiver can offer drivers traffic maps designed to steer them around accidents, keep their offices alerted as to their location — even track their vehicles when stolen.

"We can do a lot of other things that are unusual," said RadioSat Chairman/CEO Gary Noreen. "By combining navigation with broadcasting we can send out targeted emergency alerts. For instance, if there's a tornado in the area, only those RadioSat receivers within the danger zone will be alerted. Moreover, each receiver will then display not only where the tornado is, but

See MSAT, page 7 ▶

RadioSat would deliver two-way mobile digital radio using an MSAT satellite.

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World Radio History

NEWSWATCH

NPR Finds News VP North of the Border

WASHINGTON National Public Radio has hired Canadian journalist Jeffrey Dvorkin to replace Bill Buzenberg as its new vice president for news and information.

Buzenberg resigned in January amid speculation that he had been forced out by NPR President Delano Lewis.

Dvorkin is the former chief journalist and managing editor for CBC Radio News and Information, a division of the Canadian Broadcasting Corp. He was responsible for all daily radio network newscasts and programs for the English CBC Radio Networks.

How will Dvorkin measure up to his predecessor? John Dinges, head of the radio concentration in the Columbia University Graduate School of Journalism, and former managing editor at NPR, said: "I think Jeffrey comes into it with the same kind of news values that Bill had."

Dinges wondered how well someone like Dvorkin, with a solid news background, would fare with the more corporate-minded Lewis. "I didn't see any reason in the world why Delano (Lewis) needed to get rid of Bill Buzenberg, who was the most capable news head that NPR has ever had ... therefore you wonder what is he looking for in the new guy that is different from the guy that he already had."

Dinges had a theory about Buzenberg's dismissal: "(Lewis) wanted somebody that would not fight as hard for the budget."

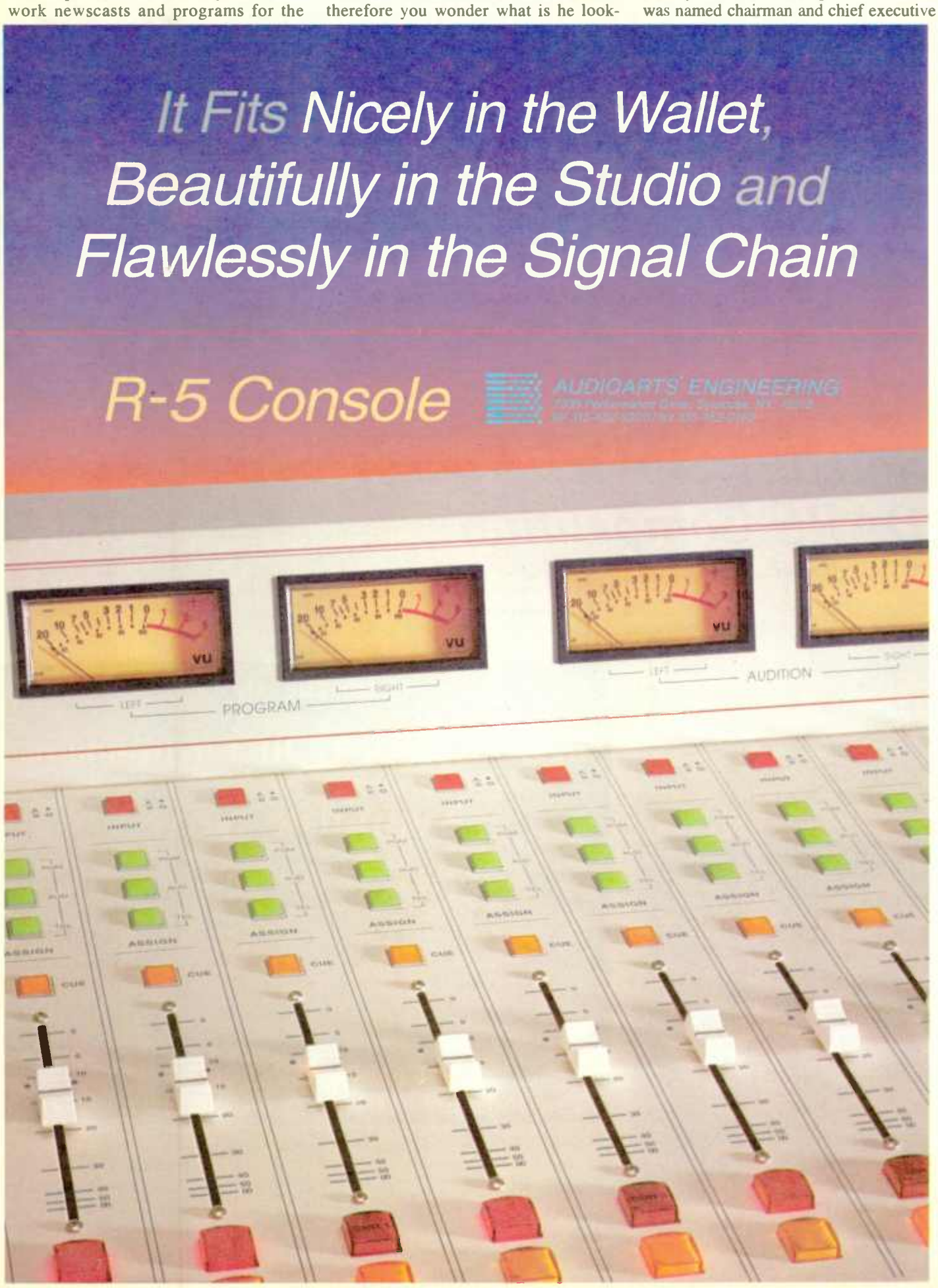
Dvorkin's appointment is subject to approval by NPR's Board of Directors, which meets July 23-24.

Karmazin Takes Reins At CBS TV

NEW YORK Mel Karmazin has added 14 TV stations to the 77 radio outlets already on his list of responsibilities. He was named chairman and chief executive officer of the new CBS Station Group. Peter Lund, former president and CEO of the CBS Television and Cable Group, resigned.

Westinghouse Chairman and CEO Michael H. Jordan announced the division of the CBS Corp. into three entities — CBS Television, CBS Cable and the $2.2 billion CBS Station Group. Television

See NEWSWATCH, page 3 ▶



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World Radio History

Is the FCC Sold on the Senate Auction Bill?

by Matt Spangler

WASHINGTON Anyone else out there puzzled by what's going on with spectrum auctions? It's quite a maze: on the one hand, you've got the Federal Communications Commission and its freeze on comparative proceedings, and then on the other you've got Congress and the White House, who want to squeeze x billion dollars out of broadcasters and forget about all this public service obligation nonsense.

That's my concise, impartial reading on the situation. Now I'll try to go into more detail, all the while putting things into perspective and into plain English.

Once upon a time, the FCC applied "public interest criteria" to decide which of several applicants competing for the same frequency would be granted a license. The commission looked at "integration of ownership and operation," which favored owners who doubled as general managers, and "diversification of ownership," which favored independent operators.

This led to an environment in which multiple station owners would essentially set up "silent partners" that met the FCC's criteria of integration, minority ownership and so forth, but did not participate in decision-making. All perfectly legal.

Then, in 1991, the FCC denied an application filed by a client of RW's fearless legal columnist, Harry Cole. His firm challenged the decision, and the December 1993 decision by the D.C. Circuit Court of Appeals known as *Bechtel vs. FCC* dissolved the commission's extant comparative hearings process.

As the FCC is wont to do, it ignored the order of the court to come up with new criteria. (They had to review the facts, you know.) In September 1996, Bechtel and Cole filed a petition with the Appeals Court for a writ of mandamus demanding that the FCC act. This was denied in February of this year "without prejudice to petitioners' right to renewal," meaning it could be appealed again if the commission did not come up with new criteria by the court-imposed deadline of Aug. 7.

The solution

In 1993, the government discovered a new tool, that would be perceived as a means of shrinking the ballooning deficit, and then later as a quick and easy solution for the comparative proceedings problem: the auction, part of the Omnibus Budget Reconciliation Act of 1993.

At press time, the Senate Commerce Committee was busily drafting cure-all legislation that it hoped would be voted on by the scheduled recess at the end of May — just in time for Congress to vote on the Budget Deficit Reconciliation Balancing Act.

The "Electromagnetic Spectrum Policy Act of 1997" is designed to correct a series of grievances. A preliminary summary of the proposed bill stated that it addressed the following complaints: "the NTIA gives the FCC congested government spectrum; the FCC and users can't determine where commercial use of spectrum will interfere with government use; the FCC takes too long to allocate spectrum; the FCC can't earmark auction proceeds for specific uses; FCC auction authority only extends to certain services; FCC auction authority expires next year; and licensees who don't go through auctions get use of spectrum for free." The bill would also give the FCC auction authority and extend it to all licensed services.

The comparative hearings controversy is neatly resolved: all initial licenses for analog radio and television stations for which there's more than one applicant will be auctioned off. And the FCC doesn't have to fear telling the American public that there are no longer any criteria ensuring minority ownership; if anyone complains, all the commission has to say is, "Hey, Congress made us do it!"

Meanwhile, Congress and the White House press on with their plans to auction spectrum, regardless of what happens to the Commerce bill. The budget resolution that Congress was evaluating at press time asks that $26.3 billion be collected in auctions by 2002. Interestingly, the spectrum auction bill enables proceeds to be earmarked by the FCC or to be put toward deficit reduction.

On hold

A source said the Senate has put off introducing the spectrum auction bill for some months while it waited for Congress and the White House to decide how much should be raised in auctions.

As the recent WCS (wireless communications services) auction demonstrated,

See OWNERSHIP, page 12 ▶

INSIDE the BELTWAY

A Roundup of News and Comment Affecting Radio From the Nation's Capital

NEWSWATCH

▶ NEWSWATCH, continued from page 2

operation will be led by Jim Warner, and cable will be headed by Don Mitzner; both will report directly to Jordan.

Lund, who had been with CBS since 1977, agreed to stay on board through the transition to a Karmazin-led organization. At press time, CBS would not comment on his resignation.

Sources on Wall Street cite the poor first-quarter performance of CBS TV stations, and Karmazin's stellar track record, namely his attention to the bottom line, as reasons for the restructuring.

The moves were made in anticipation of the planned spin-off of Westinghouse Electric Corp., the industrial arm of the company, to shareholders this fall.

Country Still Rules Formats

NEW YORK Country is once again leading the industry, according to The 1997 Radio Format Study from Interep.

The sales and marketing company's annual radio format report profiles 23 formats and various format trends. Adult contemporary was the top format in the Northeast, news/talk was number one in the West, while country reigned supreme in the Midwest and South.

The largest proportion of college grads listen to an adult alternative format, while the highest concentration for professionals/managers was classical. All-news had the highest concentration of listeners with $75,000-plus household incomes.

NFCB Elects New Board Members

SAN FRANCISCO Two new board members have been added to the nation's only organization for community-oriented, non-commercial radio stations.

In April the membership of the National Federation of Community Broadcasters elected Barbara Bernstein, independent producer and board/volunteer member of KBOO(FM), Portland, Ore., and Valerie van Isler, general manager of Pacifica station WBAI-FM, New York, to the board of directors.

Undaunted by the ever-consolidating landscape of radio, Bernstein stated: "I believe it is ... important that NFCB maintain a strong connection to its roots: locally oriented community radio stations."

Van Isler said that NFCB cannot accomplish this alone. "We also need the arm of advocacy, the hands of cooperation and the best brains in the business to ensure our mutual existence."

The board meets June 19-22 in Washington.

The '97 Hall of Fame Nominees Are ...

CHICAGO Rick Dees and Bruce Williams are among the nominees for the 1997 Radio Hall of Fame.

The induction ceremony, sponsored by The Museum of Broadcast Communications and hosted by CBS Radio's Charles Osgood, will be available for broadcast on Oct. 19 at 9 p.m. EST. The 1996 ceremony was broadcast on Westwood One.

Dees and Williams are up against classical music commentator Karl Haas and African American radio personality Walt "Baby" Love for active network/syndicated inductee. Nominees for network/syndicated pioneer include Bing Crosby, William Conrad, the voice of "Matt Dillon" on radio's "Gunsmoke," comedian Eddie Cantor and singer Kate Smith.

Past inductees include Casey Kasem, Don Imus and Larry King.

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World Radio History

Lauren Bacall Has Radio Roots

Page Four

by Lucia Cobo

CHICAGO I just returned from the annual PROMAX show, this year held in The Windy City. What a great town, isn't it?

And PROMAX continues to try and reach out to radio, although I think they still have some ways to go before I would comfortably call them "radio-friendly."

The conference had its share of radio roundtables and format meetings, but the groups are small and the overwhelming presence on the exhibit floor is that of television and cable.

Luminous guest

For its Master Creative Series guest speaker, however, PROMAX invited one of my all-time favorites and a person that radio can proudly lay claim to — in spite of her fame as a movie star. Lauren Bacall made a rare appearance on Saturday, June 7, in a general session that I hoped would last all day.

Of course, we all know that Lauren Bacall forged a successful career in movies, television and the theater. But did you know that she and husband Humphrey Bogart were on the radio?

Bogart produced, narrated and starred on a syndicated radio series in the late 1940s called "Humphrey Bogart Presents." With Lauren as his co-star, he also starred in a syndicated radio adventure series called "Bold Adventure," in the early 1950s.

Which probably helps explain why she is in such great demand as a voice-over artist to this day.

In a presentation that garnered her numerous heartfelt ovations, Bacall talked about growing up without a father, the support of her family when she decided to pursue her acting dream and her philosophy of life. There wasn't a dry eye in the house when she was finished.

She was gracious and funny, opening with "I'm breathing, I guess I should be grateful." That set the tone for an informative and entertaining session. Bottom line: she believes that talent is not the only thing that will propel you forward. Although she encouraged the promotions executives gathered to nurture talent and foster situations that will create trust between talent and management, she also stressed that for her, "Work means health."

Lauren Bacall dazzled PROMAX.

PROMAX gets an A+ for effort on this one. They sure don't make them like Lauren Bacall anymore.

SBE Chapters Rev Up

Speaking of trade shows, the SBE just released a list of regional trade shows and conventions that its member chapters are planning. Many of the regional shows include broadcast engineering seminars, trade shows and the usual networking opportunities.

If you would like more information, contact the individual chapters at the numbers listed below.

Central New York
Regional SBE Convention and SBE National Meeting
September 26
Four Points Hotel, Liverpool, N.Y.
Contact: John Soergel (315) 437-5805

Pittsburgh Chapter 20
Regional SBE Convention
Sept. 30 to Oct. 1
Sheraton Inn North, Pittsburgh
Contact: Mary Pam Sprague (412) 362-9937

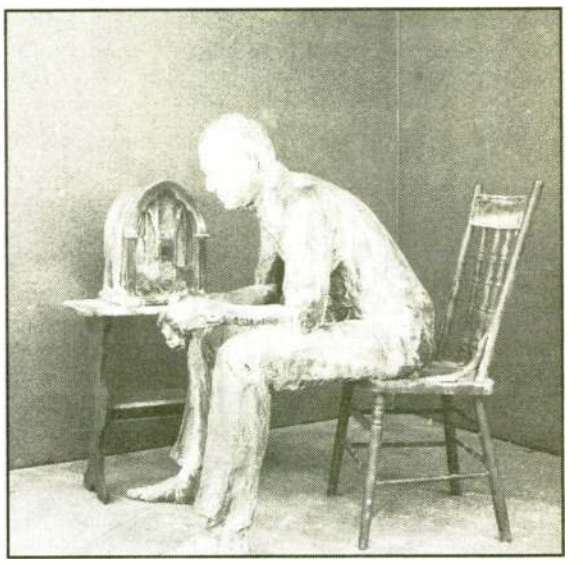
Kentucky SBE Regional
October 18
Location not yet decided
Contact: Larry Rixman (812) 948-5841

1997 Broadcasters Clinic
Oct. 21 - 24
Holiday Inn West, Middleton, Wis.
Contact: Michelle Lukens (608) 255-2600

Electronic Media Expo
Oct. 22 - 23
Meydenbauer Center, Bellevue, Wash.
Contact: Earl Fleehart (206) 957-1801

TAB/SBE Annual Convention & Trade Show
Oct. 29 - 31
El Paso Convention Center, El Paso, Texas
Contact: Oscar Rodriguez (512) 322-9944

Well, that's it for now.



The new memorial to Franklin Delano Roosevelt is open on the Tidal Basin in Washington. The importance of radio to Depression-era America is acknowledged by the figure on the right.

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World Radio History

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DAB testing was unbiased

Dear **RW**:

Gary Shapiro of CEMA spoke well about the EIA/CEMA testing program ("CEMA: Don't Shoot the Messenger," April 30).

Having been a member of the original task committee for formulation and execution of it, and a participant in many of the proceedings, I can testify to the unbiased approach used throughout the entire process. Most of my colleagues from the receiver manufacturing side of the fence have hoped that the IBOC systems would prove superior because we mostly believe that the business model associated with IBOC broadcasting has the highest degree of potential success for both broadcaster and consumer; but, alas, it has not been the case.

Had IBOC test results been favorable, would CEMA be accused of being biased against Eureka 147? Probably. Seems we must always have someone to blame for things not going the way we expected them to.

Almon H. Clegg
Consultant
Cumming, Ga.

Atwater Kent: No unions

Dear **RW**,

Enjoyed your article on the Atwater Kent radios ("Time Capsule Reveals a Legacy," April 30).

My late grandfather Karl Lossé worked for Atwater Kent in Philadelphia (Germantown) until it closed prior to World War II. I believe my grandfather was a foreman. He died in 1984 but I still remember the stories he told me about the Kent radios and how they were the best made. My grandfather was a friend of A. Atwater Kent.

Although you listed some of the reasons for the demise of Atwater Kent, I believe you missed the most important, at least as my grandfather once relayed to me. Atwater Kent was one of the few really stable companies that operated continuously through the depths of the depression. My grandfather was never out of work while working for Kent. He told me that in the late 1930s, employees tried to unionize the company, hoping to get more benefits and pay. These employees weren't satisfied that they had jobs when at least 25 percent of the working men didn't. A. Atwater Kent would not have any part of a union at his company, and warned these disgruntled employees he would shut the place down if they unionized and/or struck the firm. They did, and Kent shuttered the place just before the war.

Tom Mulvaney
Lexington, Ky.

Peanut power? Try CB

Dear **RW**,

I think Kent Waterman and others who advocate unlicensed radio stations are missing the point ("Peanuts or Pirates, Make 'em Legal," May 28). No one is abridging anyone's freedom of speech or trying to deprive a city of radio service. In fact, Mr. Waterman hits the nail on the head himself when he mentions his "dirty 5 watts."

That's the principal reason for the FCC's existence: keeping down interference. The AM band is crowded enough as it is without adding hundreds or even thousands of unregulated stations.

Sure, one or two stations running 5 watts or so wouldn't really hurt much. But I'm sure no one believes things would stop with only a couple unlicensed stations. Pretty soon the band would be jammed with them. And who says all these stations would be clean? A perfect example of what happens when FCC regulation ceases is the Citizens Band, where chaos rules, and dirty so-called linears (which most of them aren't!) pollute the spectrum with their barely suppressed slop.

From my years of running NRSC measurements for AM stations, I have been in numerous spots where there is only one signal on the whole band. I agree perhaps there are some very isolated spots that could benefit from their own radio stations. Possibly we could take a lesson from Canada, where I understand there are transmitters of only a few watts output serving many isolated settlements.

However, I do not believe the public "interest, convenience and necessity" would be served by allowing unlicensed transmitters to proliferate. Just tune to 27.185 MHz (CB Channel 19) and see what we'd all be in for should unregulated transmitters come about.

David M. Hallow
DAG Communications
Arlington, Texas

Conelrad and EAS

Dear **RW**,

I believe there may have been an error in your article, "Before EBS There Was Conelrad" (April 30). The dividing line as to which station moved which way (i.e., to 640 or 1240 kHz) was not as clear as which frequency was closer.

I work for a station on 1110 kHz which was assigned to 640 kHz for Conelrad operation. Obviously, 1240 would have been closer. I think the determination was actually that the clears went to 640 and everybody else went to 1240, but I'm not certain of that. Our station is a clear and thus would have gone to 640.

Regarding the current imposed "civil defense" system, the EAS, I lean toward those who disagree that it is necessary. But our own station (formerly the CPCS-1 and now one of three LP-1s in town) has elected to relay the National Weather Service automatically when it issues a Tornado Warning affecting areas for which we would have agreed in the past to activate EBS.

A tornado is life-threatening. As many people as possible should get the word *now*. This will not necessarily translate into any competitive advantage, since all the "jukeboxes" who monitor us will have it on their air almost as soon as we do. It just seemed like the thing to do.

We are encouraged by the fact that NWS personnel have been issuing WRSAME alerts using many of the same protocols for a few years now and should have it down. We also opted for automatic relay since we found that the EAS boxes were not designed to do *anything* with a received alert *until the entire alert is received* (read: up to two minutes later) unless the filter is programmed for automatic relay. Only in this case will the alert be relayed nearly immediately, and immediacy is what is called for here.

Mike Shane
Assistant Engineer
KFAB(AM)/KGOR(FM)
Omaha, Neb.

The Return of Old-Time Radio

It's official: Old-time radio is back.

We know it is. The New York Times said so.

Earlier this month, the great gray lady of journalism ran a full-page Sunday feature about the popularity of golden-era radio in the late 1990s.

This enthusiasm for classic radio extends beyond the expected group of older fans. Young listeners, according to the Times, are turning to these audio treasures as an alternative to predictable and racy modern entertainment.

"A new generation is discovering a medium that lets you 'exercise the muscles of your mind while you listen,'" the article states.

Radio stations are playing more old programs. Newsletters, books and catalogues feed nuggets of information about old-time radio to young and old fans. Reissued tapes, bootleg recordings, nostalgia conventions and Internet websites recall the days of Benny and Bergen, Bing and Barbasol.

We're not surprised.

Readers of **RW** already know about the continuing appeal of classic radio. Our "Roots of Radio" and "Pioneer Profile" features look back regularly at influential people and programs. In our pages, syndicators advertise nostalgia radio programs. Letters from our readers reveal great interest in stories about the days when radio and film were the only true national mass media.

In fact, as examples of the trend, the Times article cited Radio Spirits, a program supplier and **RW** advertiser, as well as radio station WMKV(FM) Cincinnati, profiled here in our June 11 issue.

We're glad to read about classic radio in the pages of an influential national newspaper. Perhaps articles of this kind will help to re-energize the people who make today's radio programs, challenging them to paint complex, entertaining mind pictures, to live up to the high standards set by their predecessors, and to realize the power of the spoken word.

— RW

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Radio World
Vol. 21, No. 13 June 25, 1997

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Radio World (ISSN 0274-8541) is published bi-weekly by IMAS Publishing (USA), Inc., PO Box 1214, Falls Church, VA 22041 Phone: (703) 998-7600, Fax (703) 998-2966 Periodicals postage rates are paid at Falls Church VA 22046 and additional mailing offices. POSTMASTER: Send address changes to Radio World, PO Box 1214, Falls Church VA 22041. REPRINTS: Reprints of all articles in this issue are available. Call or write Giselle Hirtenfeld, P.O. Box 1214, Falls Church, VA 22041; (703) 998-7600; Fax: (703) 998-2966. Copyright 1997 by IMAS Publishing (USA), Inc. All rights reserved

—PRINTED IN THE USA—

Next Issue of Radio World
July 9, 1997

World Radio History

WINX Deal Undone by Politics

▶ WINX, continued from page 1

have the private sector hold on to the radio station and not get us into owning a radio station."

Graham Norton, director of the Department of Public Works and Transportation said he was disappointed. Traffic officials there had hoped to use the AM station to offer more-powerful traffic information to drivers in this congested suburb of Washington, D.C.

"We've had an opportunity to dramatically improve the flow of transportation information to the citizens with the initiative that we had," he said, referring to the county's desire to purchase WINX. "We've stepped dramatically back from that. It's better than nothing, but nowhere near as good as what we would have had."

Council President Marilyn Praisner, who at press time hadn't seen anything formal on the proposed agreement or discussed the situation with council members, said, "It looks to me as if we could have avoided a lot of headache and grief if we had looked at this kind of option in the first place."

Parris said he "would be an extremely happy person" if the deal for the new transmitter site comes through. "We end up keeping the radio station," he said. "We're a company in business to expand and not contract. Here's an opportunity to keep WINX under a very favorable lease agreement and continue to expand."

Looking back

The proposed agreement between WINX and Montgomery County did not materialize overnight. Parris' desire to sell WINX in the first place arose, he said, after his transmitter site was sold by its controlling bank to a group of land developers. (That sale has not yet gone through.)

After Parris lost a bid to buy the land occupied by his towers, the Montgomery County Department of Public Works and Transportation put a $50,000 deposit on the station and made plans to use the frequency for traffic information. WINX is at 1600 kHz, operating at 1 kW day, 500 W post-sunset.

But the state General Assembly Department of Fiscal Services concluded that $300,000 in state funds should not be turned over to Montgomery County towards the cost of purchasing WINX.

Owner Parris said he could not afford to keep operating as before. He said he lost out on his bid to buy the tower land and was facing a "10-times increase in rent" from the new owners of the land. There was no choice but to sell.

All traffic

Traffic is a big deal in populous Montgomery County, a suburb of Washington. Both of the frequencies currently used to provide traveler's information are owned by the county's Department of Public Works and Transportation.

Broadcasting traffic information over WINX full-time would have allowed significantly increased coverage — about 600 square miles, according to Bill Corder, supervisor of the department's transportation management center. Corder suggested that the standing low-power transmitters could be used to supplement the 1600 frequency in areas not covered by it.

The FCC granted assignment of the WINX license to the county on March 24. A commission staff attorney said the grant was rescinded on April 11 when the Audio Services Division was made aware of an objection filed by a communications lawyer, a resident who believes that there is already enough traffic information available on the radio in Montgomery County.

According to the release, "The County's license application with the Federal Communications Commission will be withdrawn once an agreement has been reached with WINX."

The Montgomery County Council was not happy about the original WINX situation. When interviewed earlier, Praisner said the council had many concerns, including "the obligations and responsibilities that are associated with owning and managing a radio station."

"When you move into purchasing a radio station, we're not talking about buying five more police cars than we had budgeted," she said. "You're talking about assuming a major responsibility."

David Weaver, director of public information for Montgomery County, said, "a mountain is being made out of a molehill." He suggested that the current setup with the 590 and 1070 frequencies is "a very inefficient way of doing business ... There are obviously a lot of capital costs associated with maintaining those transmitters, and so we have been looking for some time for a more efficient ... and a more cost-effective" method of disseminating traffic information.

"Our local county council has thrown several fits over this item," Weaver said. On May 8, the council voted "essentially to throw the baby out with the bath water. They voted to restrict our department of transportation from spending any FY '98 dollars, any new revenue or any budgeted money on enhanced travelers advisory radio system operations."

Why was the council so upset about the WINX situation? "I don't know," said Weaver, "other than that they didn't get to make the decision themselves. This was a management decision by our Department of Public Works and Transportation." Weaver also said there is "absolutely no legal obligation to consult with the council or seek their prior approval before moving forward."

Bill Afflerbach, principal engineer with Columbia Telecommunications, who put together the original deal with Montgomery County, said WINX "would be off the air if this deal doesn't go through." Montgomery County, he said, "has already agreed that they want to increase coverage ... This is the best way to do it. It's an engineering business decision."

WINX 94.3FM 1600AM Rock 'n' Roll Oldies

Small AM Has Rock 'n' Roll Roots

ROCKVILLE, Md. In the midst of all this traffic is a small AM rock 'n' roll oldies station. A light bulb sits on owner Parris' desk — an ordinary light bulb at first glance, but upon further consideration one practically bursting with ideas.

"I do everything here," he said, "including changing the light bulbs. This is here," he said, pointing to the bulb, "to remind me to buy a bulb."

WINX(AM) is modeled after the mid-1960s incarnation of WABC(AM) in New York. The station pumps out a high-energy sound to listeners, complete with prerequisite echo.

A tiny, grayish, weather-beaten building in a grassy field at the end of a residential neighborhood houses the AM transmitter; Parris affectionately calls the building "the bunker." The DJs who broadcast from within hardly take a breath and, likely as not, people in their cars and at home feel out of breath listening to them.

Bill Parris

At 94.3 MHz on the FM dial, WINX-FM serves a simulcast of the AM programming to Northern Virginia, Charles County, Md., and a good part of Montgomery County from its transmitter site in Warrenton, Va. WNTL(AM) is a 50-kW daytimer. Parris' company, Radio Broadcast Communications, is leasing it on a month-to-month basis, and rebroadcasts WINX at 1030 kHz. "It's Pittsburgh to Cape May, New Jersey," said Parris.

Between the three stations, Parris said, "we cover some folks."

WINX is a gut-level rock 'n' roll oldies radio experience, programmed from the heart and operated with care by an owner who places what could be seen, in today's tightly structured radio landscape, as an unusual amount of trust in his DJs. He places so much trust in them that they choose the songs they play from cards lined up in holders, left to right, rather than follow a list created by a computerized scheduling program.

With WINX-FM about to get a power increase from 2 to 4 kW, Parris continues to realize his rock 'n' roll oldies radio dream. Radio Broadcast Communications purchased WINX(AM) in March 1993. "We changed it from a top 40 station to a high-energy, highly familiar, uptempo, ass-kicking oldies station," he said.

The hits? They just keep on coming.

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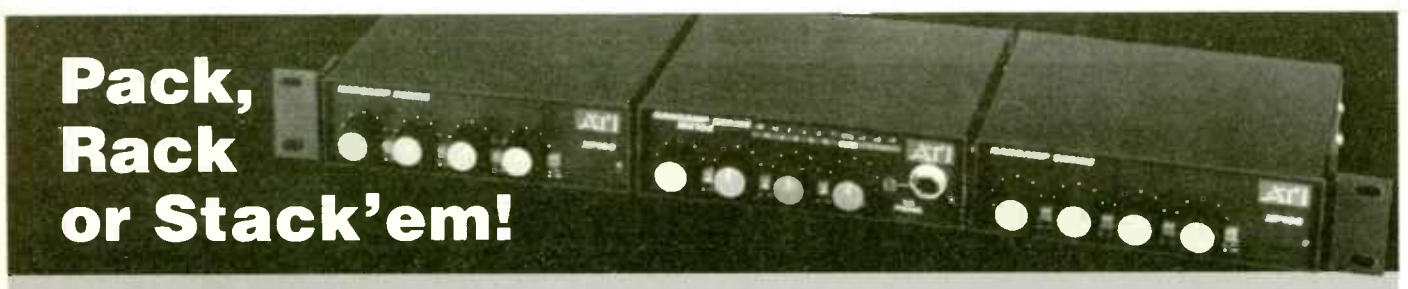

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ATI

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World Radio History

Satellite Service Faces DARS

▶ MSAT, continued from page 1

where your vehicle is in relation to it."

Using GPS, local over-the-air broadcasters can run promotions via satellite. Here's how it works: a radio station in Boise, Idaho, offers a free tee-shirt to the first 100 callers to answer a skill-testing question either by phone or RadioSat. This data is sent to the satellite, which broadcasts it throughout North America. Car radios that are tuned to the station's frequency and located within the station's listening area — as determined by integrated GPS receivers — will display the information on their in-car screens. Listeners can then respond with the push of a button on the radio.

This sounds futuristic, but it's not. The satellite RadioSat needs to deliver such two-way mobile services, Canada's MSAT-1, is already in orbit. It has the transponder space and coverage needed to deliver RadioSat in L-band across North America, and negotiations with Canada's TMI Communications to clinch that space are already under way. "They seem eager to work with us," Noreen said, "and we're trying to put together a deal right now."

"TMI is certainly very interested in working with RadioSat because it could potentially be a very large user of space segment capacity on MSAT-1," said Steve Howse, TMI's MSAT product manager. "Bulk capacity sales have been targeted as a growth opportunity in the new TMI business plan as TMI enters its second year of operation and looks at new ways to increase utilization of its satellite asset."

Stumbling blocks

This, then, is the potential of RadioSat. Standing in the way are three factors: satellite DARS (digital audio radio services), international trade laws and the lack of consumer receivers.

To date, the Federal Communications Commission has already licensed two companies to offer one-way DARS in S-band. One of these is American Mobile Radio Corp., which owns North America's only other MSAT satellite, and works cooperatively with TMI in providing satellite telephone services across the continent.

Although Noreen was a founding member of AMRC, he has been rebuffed in his attempts to win the company's support for RadioSat. Now, having agreed to pay $90 million for its DARS spectrum, AMRC is likely to oppose FCC approval for RadioSat, particularly because it faces the same mobile sales problems that have convinced TMI to back RadioSat.

The second problem is international trade law. Noreen said changes in the World Trade Organization's GATT rules will allow TMI to sell mobile services in the United States starting next year, but these changes don't include digital radio.

The U.S. government is unlikely to look favorably on Canadian satellites carrying U.S. services anyway. In fact, last year the United States killed a similar deal between Canadian satellite owner Telesat Canada, TCI and TelQuest to share four North American DBS (direct broadcast satellite) systems.

Washington said "no" because Canada refused to ease its foreign programming restrictions in exchange for approval. To date, the Canadian government has not changed its domestic content quotas and, given nationalistic feelings north of the border, probably will not do so anytime soon.

Gary Noreen is aware of these concerns. "According to TMI, our RadioSat service is classified as 'telecommunications' rather than 'broadcast' because it is inherently two-way, and thus is not subject to broadcast restrictions," he said. He added that Canada may have some leverage with the United States over this issue. Although the MSAT frequencies RadioSat needs have been internationally approved, AMRC's U.S. DARS spectrum must be coordinated with the Canadians.

You want us to do what?

Still, there's the question of consumer receivers. There aren't any. To make RadioSat work, Noreen must persuade manufacturers to produce AM/FM/L-band receivers — which will likely be the size of two car radios stacked on top of each other, in order to accommodate a touchscreen interface — and the systems' two-way coaster-sized antennas. To do this is a problem in itself.

In short, RadioSat is up against the kind of non-technical obstacles that have killed many a promising technology. Promoters see it as an innovative concept that uses not just existing technology, but also existing satellite capacity, to offer substantial benefits for satellite and conventional broadcasters alike. For local radio stations, they say, RadioSat is a way to make money from added-value services without having to convert their terrestrial transmitters to digital. They can simply deliver these services by satellite, targeting their audience by selecting the right GPS coordinates, while broadcasting audio as usual on either AM or FM. But the obstacles are high.

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World Radio History

Rainbow PUSHES for Viacom Challenge

Jackson Claims Viacom Reneged on Promise to Sell at Least Two Stations to Minority Broadcasters

by Sharon Rae

WASHINGTON Before it inks the sale of its D.C. stations to Evergreen, Viacom may have to clear the deal with one more person: the Rev. Jesse Jackson.

The National Rainbow/PUSH Coalition is challenging Viacom Inc.'s proposed sale of its four Washington radio stations — WJZW(FM), WMZQ-FM, WBZS(AM) and WZHF(AM) — to Evergreen Media Corp. Jackson, head of the civil rights group, alleges that Viacom reneged on a 1993 deal to sell at least two of the stations to minority buyers.

"Viacom promised to take affirmative steps, including meetings and consultations with minority broadcasters," stated Jackson. "Relying on this promise and on the fact that minorities would need considerable time to raise the money to buy the station ... the FCC gave Viacom an 18-month waiver of the FCC's multiple ownership rules."

Evergreen is buying the Viacom radio properties as part of its merger with Dallas-based Chancellor Broadcasting, which will ultimately become Chancellor Media.

Jackson charged that Viacom did not keep its promise in good faith: "Viacom did nothing to fulfill its pledge." He also stated that the FCC has "done little to defend and protect minority media ownership."

The 18-month waiver expired in September 1995. Rainbow/PUSH leaders said that Viacom kept all four stations for 20 additional months without an extension ruling from the FCC. "Without the waiver, Viacom would have been required to divest the stations immediately," stated Jackson.

Rev. Jesse Jackson

Federal regulations limit the number of radio and television stations one company may control. (Viacom also owns Washington television station WDCA.)

A source with the Rainbow Coalition alleged that Viacom believes divestiture is not required because the FCC has yet to act on a waiver extension request.

Tune in, tune out

Repeated calls from **RW** to Viacom for comments were not returned. FCC officials called the matter "restricted" and said they could not comment.

In prepared statements, Viacom responded that Jackson's request to block the sale is "without merit" and "won't delay completion of its deal with Evergreen."

Jackson's group is committing itself to 'use (its) leverage as a stockholder to promote equal opportunity.'

A recent transaction by Evergreen seems to have calmed the waters a bit. Evergreen announced last month it is selling a pair of AM stations in Washington and an AM station in San Francisco to African-American-controlled Douglas Broadcasting for $18 million. Jackson stated that, while Evergreen's initiative is constructive, it does not "moot the issues raised by Rainbow/PUSH's March 31st petition to the FCC."

In that petition, Rainbow calls Viacom's 1993 request for a temporary waiver "a sham." Jackson's group is committing itself to "use (its) leverage as a stockholder to promote equal opportunity."

Rainbow/PUSH is moving forward with plans to purchase stock in 10 of the largest publicly traded media corporations in the United States, "to ensure that people of color are treated not as passive consumers but as producers and trading partners. Surely if we can listen to and tune into television and radio outlets, we can just as easily tune out."

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World Radio History

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World Radio History

Spokane FM Hit by Pirate

by Lauren Rooney

SPOKANE, Wash. Most radio stations love it when listeners are jammin' to the music. But for radio station KZZU-FM in Spokane, Wash., a little jammin' recently went too far.

Program Director Ken Hopkins said the station started getting phone calls from listeners around May 1, complaining that someone was talking over the songs. "Mostly between 10 a.m. and 5 p.m., he'd broadcast things like 'KZZU sucks,' or 'Don't listen to the Zoo, the Zoo sucks.'"

Hopkins thought the messages were probably taped, because they repeated over and over. Some messages targeted on-air personalities, some were racist, some were just cruel.

"I got a call from a listener who said he was driving with his kids, when suddenly over our air he heard a string of obscenities, and then that Santa Claus had just been shot. Another time he said the governor had been killed," Hopkins said.

A pirate was apparently chasing KZZU.

One proponent of low-power stations said this behavior is not typical of most "pirates" today.

"Pirates don't purposely jam the signals of licensed stations," said Paul Griffin, a pirate broadcaster at Radio Free Berkeley in Northern California. "We (represent) civil disobedience rather than outlaws," he said. "Technically what we're doing is against FCC regulations, but we're doing that because we want to see regulations changed."

Roving the airwaves

Chief Engineer Tim Anderson believes the jammer was using something similar to a CB linear amplifier tuned down into the FM band to jam the air signal. Not a ton of power, but enough to lock out the KZZU signal in a several-block area. "We got many calls, all indicating that they clearly heard the statements. Not like, 'I thought I heard something,' or 'It was fuzzy.'" And the pirate was on the move, with the jamming occurring in several different areas of Spokane. "So he was probably broadcasting from a van or car," Anderson said.

It went on for about 10 days. KZZU air personalities fired back with a joke song about the pirate, and asked listeners to try to catch the guy on tape. The only time they actually heard him, he bled through the speakers in the production room. The pirate continued, and KZZU called in the big guns, offering a $5,000 reward for information leading to his capture and conviction. The station also notified the Federal Communications Commission.

> **Pirates don't purposely jam the signals of licensed stations.**
>
> — Paul Griffin

"It is quite curious," said Anderson, "that he went dark and didn't come up any longer after we broadcast on at least two TV stations that we would aggressively pursue him." But before setting sail to other seas, the pirate announced that if listeners wanted to hear more of what he had to say, they could tune in to Channel 7 or 13 on their CB radios.

KZZU posted this sign in Spokane, hoping to nab its 'jammer.'

It's that easy!

"Micro-power radio broadcasters," as the FCC refers to them, typically broadcast at low power without an FCC license (the commission won't license anything less than 100 W).

It's pretty easy to get a micro-power station up and running. You can buy a transmitter kit with antenna and necessary cables for about $700 over the Internet. All it takes is a little electronics experience and a soldering gun. Then you hook a cassette deck into the equipment, find a place on the FM band that no one is using and start broadcasting.

While it may be cheap to start up and run your micro-power station, doing so could cost you a treasure chest in FCC fines — from $11,000 to $100,000 plus confiscation of your equipment and possible jail time. John Winston, assistant bureau chief of Compliance and Information at the FCC, said they do go after pirates. "When we get a complaint about a pirate station, and we do know the identity, we send a letter telling them to stop broadcasting. And they usually do."

But Winston admitted pirates are not a top priority at the FCC. "If we can't identify the operation, we'll initiate an investigation. How quickly that can be completed depends on workload at the FCC and resources."

The FCC investigation in Spokane didn't turn up anything. While station managers are glad the jamming has stopped, Ken Hopkins said he almost wished it hadn't. If the pirate had continued broadcasting, he said, it might be possible to nail the perpetrator.

Stations have been victimized by pirates before. But that doesn't make it any more pleasant when it's your station that gets hit.

"I thought I had seen just about everything happen to us, but this opened a whole new chapter," Hopkins said.

Pirates Gather

CARSON, Calif. Pirate radio broadcasters set sail for Carson, Calif., for the second annual Micro-Power Radio conference, scheduled for June 20 and 21.

"We've got to get organized," said organizer Paul Griffin, founder of the Association of Micro-Power Broadcasters, before the conference. "If we're not organized, the FCC could just come around and take us all off the air, one at a time." Last year about 200 people attended, some from as far away as Australia and the Netherlands.

The conference offered workshops on buying, installing and repairing equipment, on how to get service from record companies, and a chance for pirates to exchange ideas. Attendees were also expected to discuss the case of Radio Free Berkeley vs. the FCC.

In 1995, when RFB first went on the air, it challenged the FCC order to stop broadcasting. A judge ordered the FCC to prove RFB would cause irreparable harm and create chaos and anarchy on the airways if allowed to broadcast as stated in the cease-and-desist order. The case was pending in the San Francisco Circuit Court of Appeals.

FCC officials could not comment on that case because it is still in the courts, but the agency is aware of the conference. John Winston, of the commission's Bureau of Compliance and Information, said the FCC could do nothing about it. "They can meet, they can talk about what they do, but the FCC can't do anything until they go on the air," he said.

Winston wouldn't say whether the FCC would be monitoring the California conference, but said the agency keeps track of such meetings.

— by Lauren Rooney

World Radio History

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World Radio History

FCC Chairman Hundt Resigns

▶ FCC, continued from page 1

improved our win record in the Court of Appeals."

Of the relative unknown Furchgott-Roth, who has been with the Commerce Committee since 1985, Hundt said: "I'm completely pleased that the president has nominated a prominent economist to the commission. This choice underscores the importance of economics in all of our analyses."

In her statement, Ness also commended Clinton's nominations: "Bill is an exceptionally talented lawyer whose calm professionalism and excellent judgment have already benefited the agency enormously. Harold is an experienced economist whose involvement in the development of the Telecommunications Act will be invaluable."

The White House must now nominate another Democrat/Republican pair for Senate approval. The Republican Senate leadership has already recommended Michael Powell, chief of staff for the U.S. Department of Justice Antitrust Division and son of retired Gen. Colin Powell.

At press time there were no solid candidates for a second Democratic nominee who, along with either Ness or Kennard (if confirmed) could assume the chairmanship. Kathleen Wallman, former chief of the FCC Common Carrier Bureau and current deputy assistant to President Clinton for economic policy, is rumored to be a potential candidate. Sources in Washington predicted that Hundt would remain chairman until some time after the Senate's August recess.

Sen. Conrad Burns, R-Mont., said the Commerce Committee hoped to wrap up its hearings on the current nominees by the end of June.

Parting words

Hundt was sworn in as chairman of the FCC on Nov. 29, 1993. His term saw the implementation of the Telecommunications Act of 1996, the first spectrum auctions in FCC history and the streamlining and reform of the commission and its processes.

Both sides of the political fence praised Hundt upon his announcement.

"Chairman Hundt has been a strong and visionary leader of the FCC during this historic period in telecommunications policy," Clinton said in a statement. "(His) leadership has opened opportunity to businesses, here and abroad, while ensuring that all Americans share in the benefits of the telecommunications revolution."

Vice President Gore, a friend of Hundt's since high school, said, "Perhaps Chairman Hundt's greatest accomplishment was proving that government can adopt policies that promote both market values and family values."

Sen. John McCain, R-Ariz., tempered his citation of Hundt. "While Mr. Hundt and I have had our philosophical differences, he deserves praise for his hard work and commitment to public service. Chairman Hundt's implementation of the Telecommunications Act does not deserve much of the criticism it has received. Such criticism instead should have been directed at the Act itself."

> **He once again made it very clear that he has prejudiced this issue (of alcohol advertising).**
>
> — DISCUS Spokeswoman Elizabeth Board

McCain voted against the Telecom Act because he felt it placed too much power in the hands of the FCC. He did not object to the broadcast ownership provisions of the legislation.

In his outgoing speech to FCC staff, Hundt lauded the legislation as one of the singular achievements of his tenure. "That mission of creating competition throughout all aspects of the communications marketplace is one that we began pursuing in 1993 and 1994, and that became the law of the land in the Telecommunications Act of 1996," he said.

He spoke little of the work his commission has done in radio, briefly mentioning the ownership barriers the Telecom Act lifted.

"On the license-processing line, we have performed the impossible," he said. "We've ... handled the greatest number of mergers and acquisitions per year in FCC history."

A spokeswoman at the FCC said Hundt will not let up on his agenda while he waits for a successor. This will include, in Hundt's words, "the threat" of liquor advertising and "the decline" of public service announcements. These are two issues on which he and National Association of Broadcasters President Edward O. Fritts have been sharply divided.

"While we haven't always agreed with Chairman Hundt," Fritts said in a statement, "we have enjoyed his competitive spirit and the robust debate that he engendered by bringing a full marketplace of ideas to the table."

Gary Shapiro, president of the Consumer Electronics Manufacturers Association, which recently clashed with the FCC on the issue of satellite digital radio, echoed Fritts' sentiment. "While we occasionally disagreed on policy," he said in a statement, "I will always respect him for transforming the FCC into a government agency where the best and brightest produced well-reasoned actions in a well-managed environment."

Some of his adversaries were ready to see Hundt leave as soon as possible, notably the Distilled Spirits Council of the United States. "He once again made it very clear that he has prejudiced this issue (of alcohol advertising)," DISCUS spokeswoman Elizabeth Board said of his remarks.

The FCC spokeswoman did not expect any big shakeups at the FCC as a result of Hundt's departure; any staff changes would depend on his replacement.

Is FCC Sold on Senate Auction Bill?

▶ OWNERSHIP, continued from page 3

what is raised often falls short of government's expectations. The WCS auctions, which were expected to raise $1.8 billion, according to Congressional Budget Office estimates, generated a paltry $13.6 million. Outgoing FCC Chairman Reed E. Hundt, blames, among other things, the failure of the auctions to reach the goal on the fear of WCS bidders of interference from the DARS providers that would be on adjacent spectrum. (Hey Reed, remember who put DARS there in the first place!)

Rep. Mike Oxley, R-Ohio, who pushed the idea of spectrum auctions in 1993, pointed out that "too much available spectrum is being dumped on the free market too soon, reducing its value and proceeds to the federal Treasury."

This may not be a particularly big issue for radio, where spectrum in some areas may be almost worthless, so what happens if that $26 billion isn't raised in time? There has been talk of a "trigger tax" that would be levied on broadcasters to make up the difference.

According to a government spokesman, there has been much ado about nothing with this issue. The trigger tax had apparently been suggested by the Office of Management and Budget as a means of accounting for the disparity between the $36 billion it was suggesting and CBO's more conservative $26 billion.

The spokesman called it "a dead issue," but apparently radio had nothing to fear anyway: the respective offices of budget were talking about going after TV dollars anyway.

On the other hand, the Senate bill would provide that all spectrum not assigned by auction during the current term of the applicable license would be subject to a "spectrum lease fee."

This means a committee set up by Congress and consisting of "industry experts" and FCC representatives will divvy up among broadcasters what the auctions don't raise.

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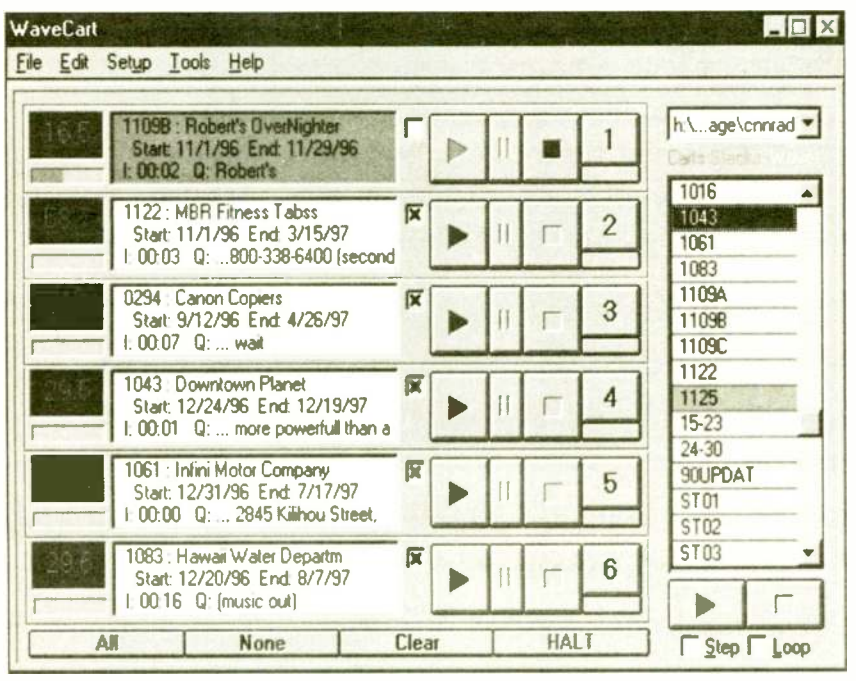

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World Radio History

RDS Takes to the Road

by Alan Haber

WASHINGTON The Radio Data System (RDS), broadcasting's little engine that could, may finally be on the road to achieving a clearly defined success.

According to an industry source who wished to remain anonymous, plans long in the works call for up-level RDS radios to be included as standard equipment in cars manufactured by Ford Motor Co. (Lincoln Mercury) and General Motors Corp. (Cadillac) for the 1998 model year. These cars will be available this fall.

The source said the car RDS rollout will continue with product introductions as follows: BMW for the 1999 model year, GM's Chevrolet and Pontiac brands in the 1999-and-a-half model year, Oldsmobile for year 2000 models, and Buick for 2002 models. Currently, Audi and Porsche are standard-equipped with RDS radios.

Although the reality of RDS radios shipping as standard equipment in cars is a huge step for the growth of the nearly four-and-a-half year-old technology, the question of commitment by broadcasters remains. Getting broadcasters to come on-line with RDS is "going to be up to each (automobile) manufacturer," said the source. "If you don't tell (broadcasters), they won't know."

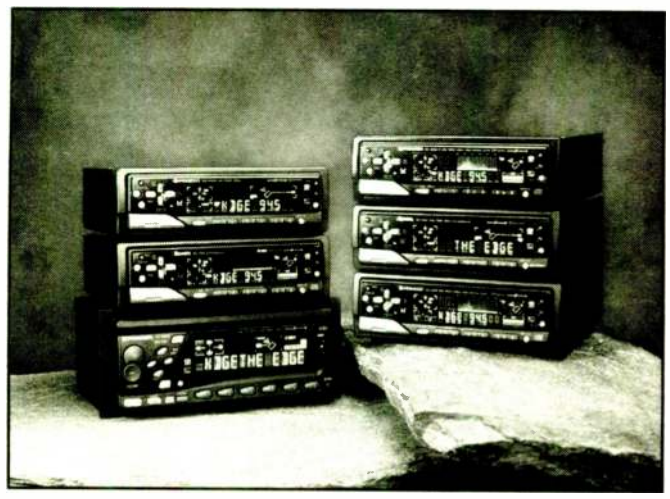
The source pointed to the 15-month campaign by the Consumer Electronics Manufacturers Association, which ended in June 1996 and saw the placement of 300 encoders in radio stations in the country's top 25 markets, as a positive force in the development of RDS.

Right track

The campaign, said the source, "got enough stations on the air. It generated enough interest in the industry to give people the incentive to go and take the risk to introduce the products ... I don't think it convinced any broadcasters, really, but I don't think that was the point."

The introduction of new consumer RDS radios gives weight to the technology. For example, Pioneer began shipping the first of its six car models in February; the other five were pegged for a June retail rollout.

Best Buy will carry three of the Pioneer models, according to Russ Johnston, vice president, Car Product Planning. They include a cassette model, a single-CD model and a second single-CD model specifically for GM and Chrysler automobiles. All six of the radios function as CD changer controllers.



The Line of Car RDS Radios From Pioneer

"This RDS technology is very key to the future for ... our industry," said Johnston, who noted that Pioneer is developing a trade advertising campaign and a public relations campaign to tout RDS.

"We're putting together a program that we want to go to the RDS Forum with," Johnston said. "Our idea is, go into a few markets — major markets — with a mindset of developing radiotext to show to the broadcasting community how successful this can be."

How successful *can* it be? What will it take to break RDS wide open? Johnston said that radio station general managers have told him: "What's really going to make this happen is the day that the owner of a station or a GM of a station turns on a competitive station and sees the RDS signal come through ... It's going to snowball this thing into a tremendous success."

Products such as the Inovonics mini-encoder, which sells for less than $400 and supports radiotext, can only help the RDS cause. "Most stations," said Senior Development Engineer Ben Barber, "spend that on a lunch."

Products

RDS products are available from companies such as Denon, whose extensive lineup includes three car CD units, three car cassette units, five home receivers, a Dolby Pro Logic home theater system, a standalone tuner and a pre-amp tuner. Mike Gatto, car audio sales manager, said: "In terms of automotive, we intend to expand our selection of RDS-based tuners."

The KDC-PS907 CD RDS Receiver From Kenwood

Onkyo has two home models. Kenwood is offering two home audio/video receivers, as well as four car units — two CD and two cassette — that were introduced at the 1997 Winter CES. Clarion is offering a high-end RDS AM/FM CD player with CD changer control.

Mondial Designs is offering a Dolby Pro Logic RDS home receiver under the company's AmFi brand. Becker has one CD and one cassette RDS unit. ADS Technologies is distributing its Cadet Data Radio card for Microsoft Windows 95-based PCs (an FM-only PCMCIA version, for notebook and handheld computers, will also be rolling out). Bang & Olufsen offers two audio systems that are RDS upgradable; a third system can be ordered in an RDS version.

Looking ahead, Blaupunkt will introduce two RDS radios by September, according to Senior Design Engineer Mike Stosich.

Broadcasters will be watching, likely with cautious optimism, the effects of these product introductions. Another industry observer — a longtime RDS supporter — suggested that even though the consumer electronics industry's efforts are respected, "more needs to be done." These efforts "will fall short of the big picture" if consumer products "aren't readily available and plugged into the retail system in all markets nationwide by the end of this year."

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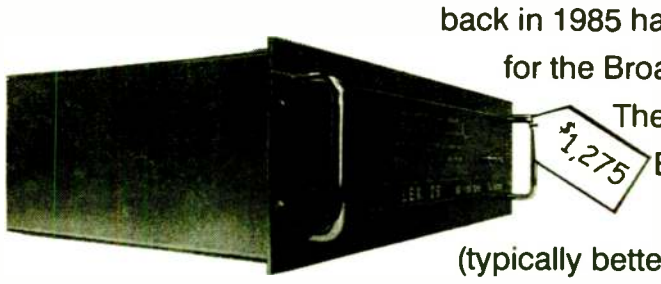

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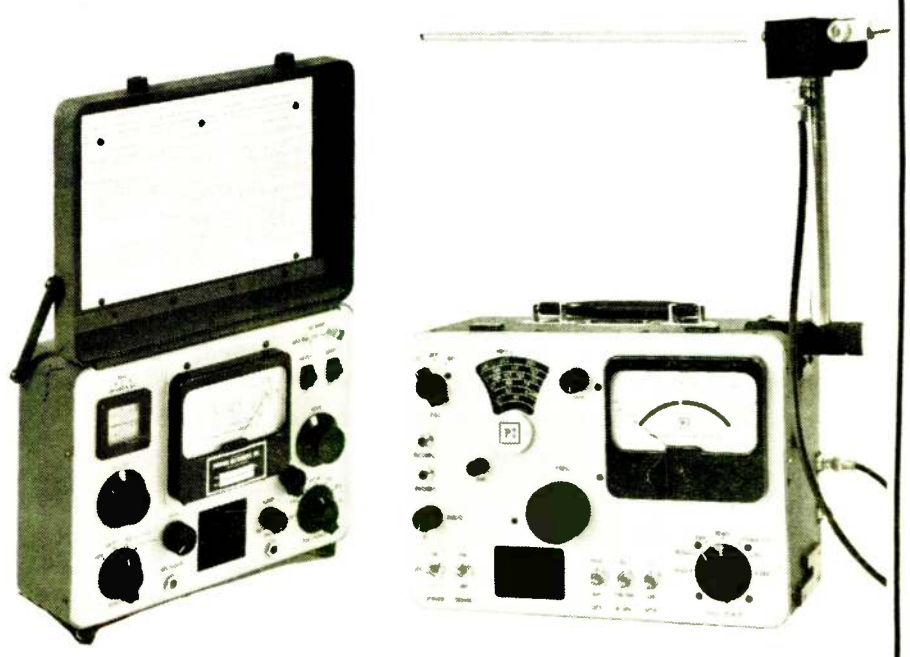

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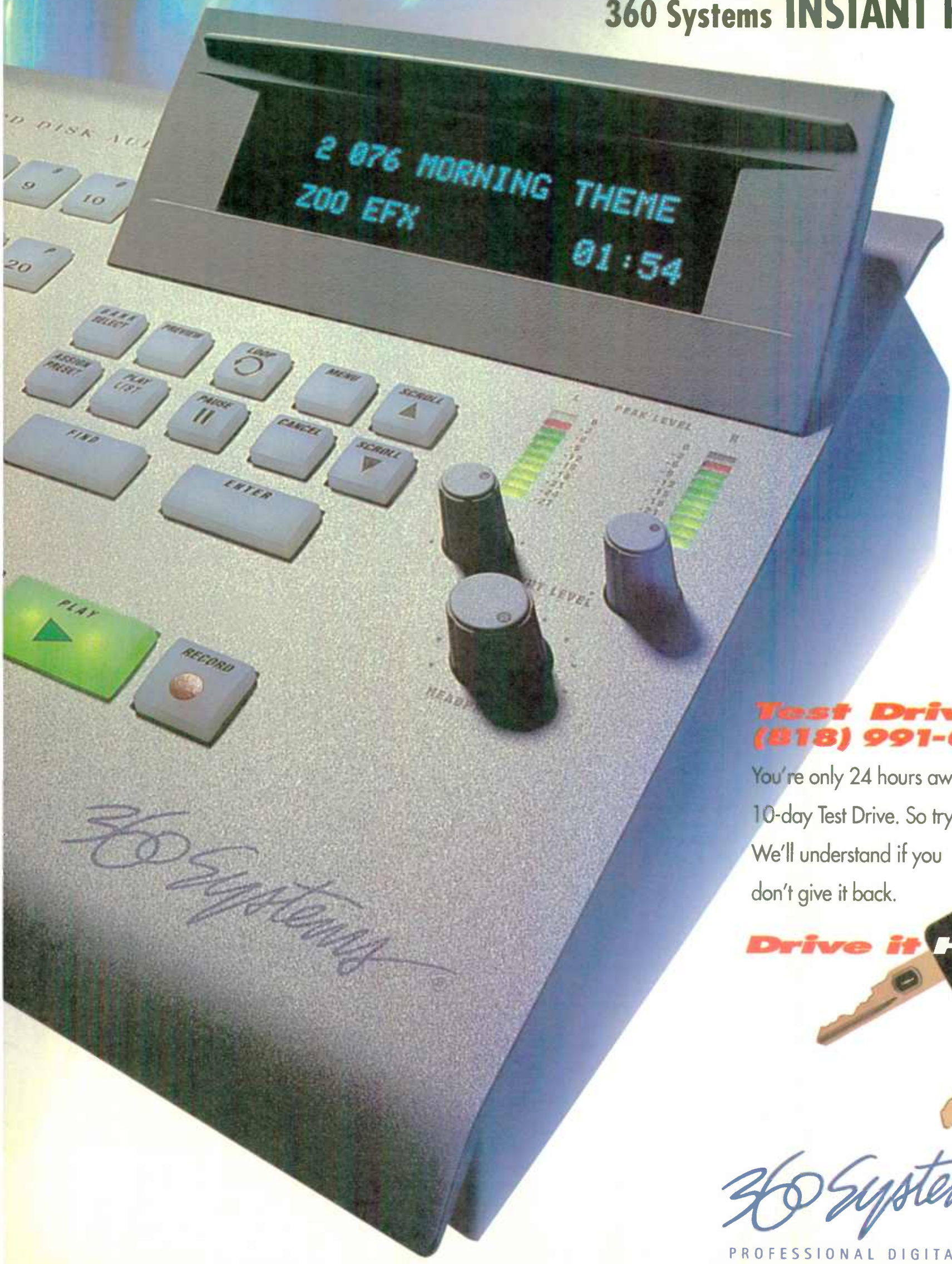

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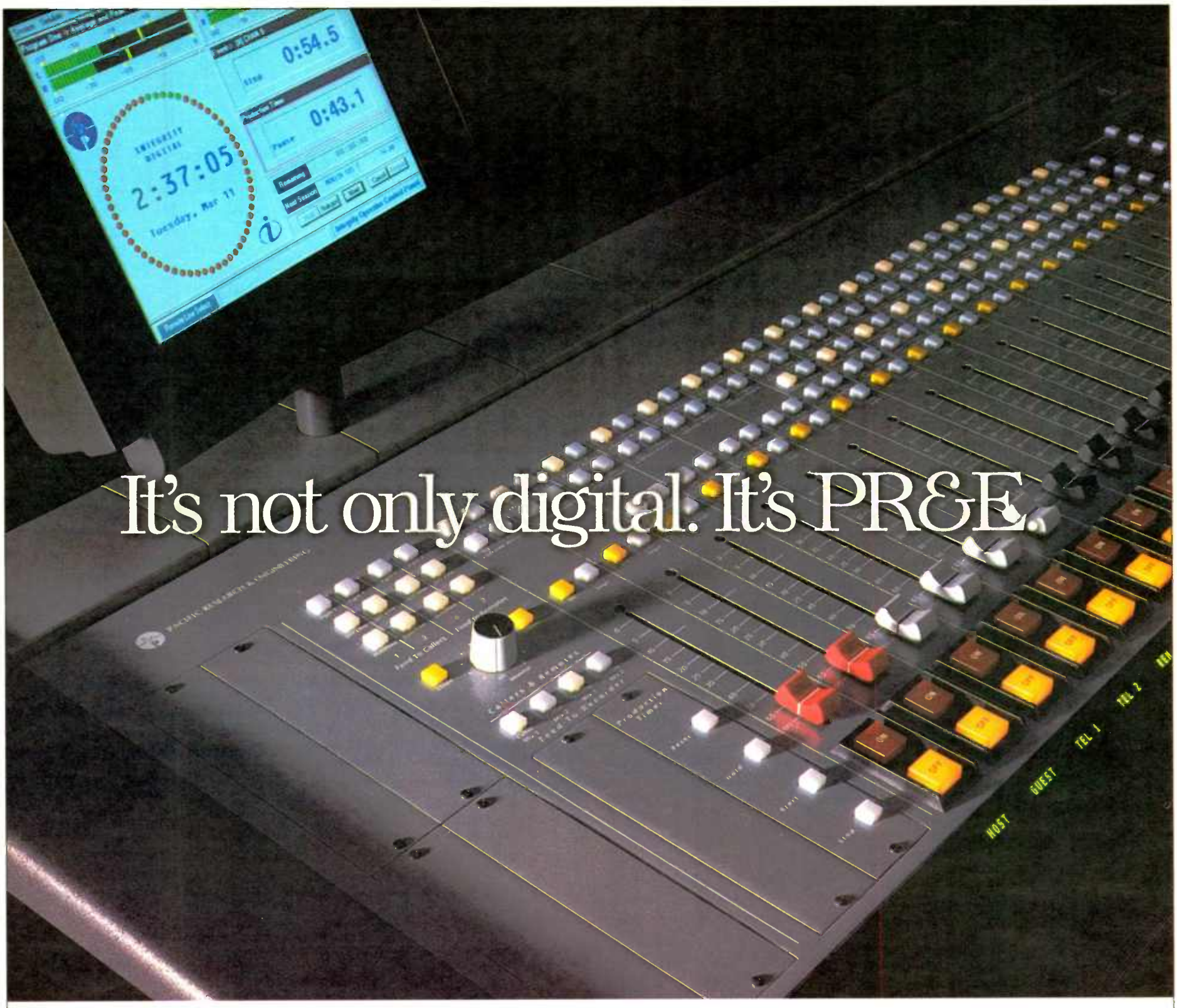
Circle (74) On Reader Service Card

World Radio History



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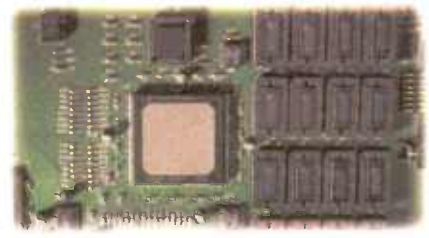
The LCD displays audio levels, time-of-day clocks, session status and event timers with a Windows® interface to powerful configuration management and session-based features.

Integrity's difference is more than just digital. It also offers four special-purpose buses to provide automated mix-minus for telephone and remote feeds, each with IFB.



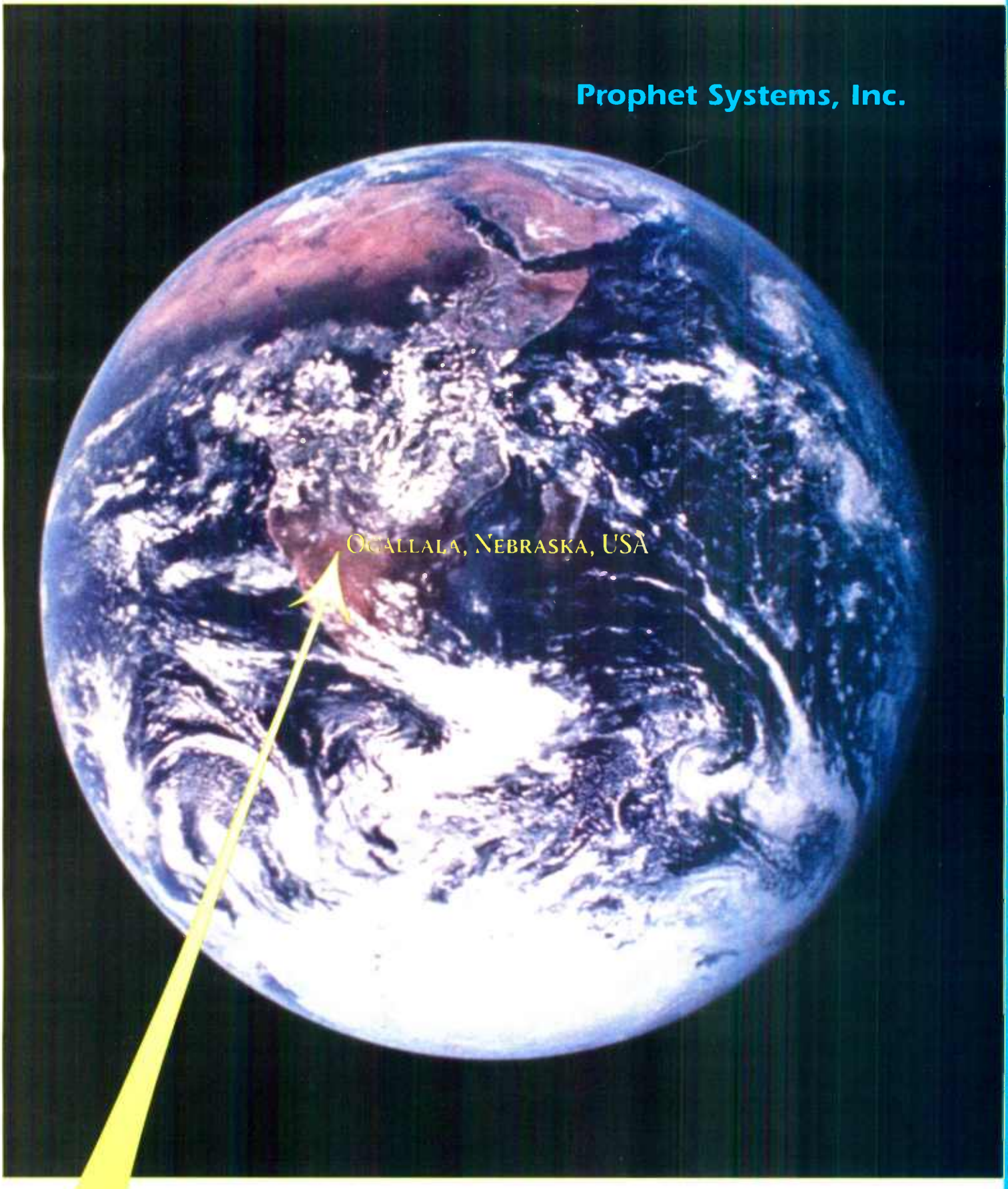
Integrity uses an array of state-of-the-art floating-point digital signal processors to perform its mixing, routing and other functions.

Each fader has a 10-character alphanumeric display. The display changes when another audio source is assigned, which can happen either manually or at a preassigned time.

PACIFIC RESEARCH & ENGINEERING

Circle (98) On Reader Service Card

World Radio History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World Radio History

XPS

If you're a small station looking for peace of mind, we have your system. With Audio Wizard™ XPS for Windows, you get the quality of our world class Audio Wizard CFS for Windows at a price you'll love. Start out with one control room, and we'll expand with you. You can't buy a better system at any price. Now competitors can't even claim they cost less. Why buy any other system when you can buy the best system on earth!

(Economical!

- Pentiums on every workstation!
- New, high quality computers with three year factory warranty!
- Live, satellite, and automated modes!
- Backtime system, fills out each hour!

X features

- Automatically record and play network feeds!
- The leading hard drive music automation system in the industry!
- Unsurpassed flexibility, runs any program or music log!
- On-line copy system, integrate your stations!

X more features

- Exclusive time and temperature announce!
- Replaces carts, reels, CD players!
- Uses Windows for the ultimate in multi-user, multi-tasking, realtime operating systems!

+ flexibility

- Dolby stereo–standard!
- Button bar with quick record capabilities!
- Uses non-proprietary equipment!
- Global and/or individual song and spot crossfades!

Audio Wizard XPS

World Radio History

Why the Wizard?

Audio Wizard CFS is a True Multi-Station System
Markets of all sizes are taking advantage of the new FCC rulings allowing multiple station ownership within a market. This means groups of stations–2, 3, 4, 6, or more–can share all their audio and data delivery from one system.

Audio Wizard CFS for Windows™ is designed to smoothly handle multi-station program streams. Audio Wizard systems in operation today are providing Windows™-based digital automation ranging from a single work station feeding one station to a Goliath 100 work station system feeding 14 radio stations. And all from one Audio Wizard CFS!

Multi-station program streams can be managed from one or multiple work stations. And it's possible to switch among these options throughout the day to accommodate program variations from drive time live assist to night time walkaway. For the ultimate in flexibility–any work station can run any station log.

As your format changes throughout the day, from live assist to satellite or satellite to hard drive automation, the system changes modes instantly and seamlessly.

All this is only a dream for other automation systems. Audio Wizard CFS is a True Multi-User System. With the Audio Wizard CFS, any work station can access, record and play any station audio file instantly, access all system data and options, and create any system report. All of this under complete security supervision managed to any depth you require.

Expandability
The Audio Wizard CFS for Windows was designed for expansion in both hardware and features. A two work station configuration can be upgraded to handle 100 or more work stations. The less expensive configuration you choose today can grow without penalty as your station expands. Adding a work station to the system usually can be done at a much lower cost than a non-networked system while offering all the benefits that a true multi-user environment provides. Benefits include complete system access from any work station and full sharing of audio files among all work stations. It all adds up to increased productivity for your talent.

Flexibility
The Audio Wizard offers flexibility– live-assist, full automated walk-away operation or a programmed combination. Switching operating modes is instantaneous.

Plus, if you want a song to fade up earlier, you can change the system to do it. If you don't want to play liners for a particular hour, enter it into the log. More than 200 different parameters from global crossfades and pad values to accepting line optos in manual mode. Preset parameters enable the song chart history module to auto-fill empty spot blocks automatically. You enjoy complete power to modify the system to your specific needs. The choices are all yours!

Prophet Systems, Inc.

Station Integration
Audio Wizard CFS will tie all your divisions together. Sales, programming, production, air talent all will benefit from the power a single integrated system provides. Imagine the direct smooth flow of production from entering an order, writing copy, recording the spot and playing it to air with no duplication of effort. All of this provided by one system!

Smooth Multitasking
One of the most common compliments we hear is how smoothly our system handles multiple tasks. The multitasking capabilities of Windows allows us to run several programs in the background transparently and smoothly. Using Windows capabilities has allowed our designers to concentrate on adding features. Windows is a marvelous tool.

Central File Server Advantage
Networking allows multiple computers to connect and share files and resources. Not all networks perform equally. Audio Wizard CFS for Windows uses the most flexible and powerful network configuration--the Central File Server (CFS).

All work stations enjoy instant access to all audio and data from the system because all audio and data is centralized on the file server's hard drives. There is never operator time required or transfer delay between computers because the audio is never bicycled from one work station drive to another. It is all available equally to all work stations, making an easily manageable system for handling the hundreds, if not thousands, of files that are created.

Novell 4.11 Network Advantage
We designed Audio Wizard CFS around proven technology and a philosophy of open compatibility. Novell 4.11, the latest and most powerful Novell product, was chosen as our network for its efficiency, expandability, capability and stability. Novell's success has given it nearly a 70% penetration in the computer networking field.

Central Audio Server Playback
The Audio Wizard CFS takes networking one step further than our competitors. Our network doesn't merely provide a vehicle for copying files among work stations. We actually record and play audio directly from the file server's hard drives. There is no transfer delay and all audio is available equally to all work stations. Plus, the same audio file may be simultaneously played back in different rooms on different work stations without conflict.

With the Digital Reel-Reel System, a spot can be recording on one work station while playing back simultaneously to air, allowing time-shifting recorded events to as little as 10 seconds.

Overnight Automated Routines
Menial routine computer file maintenance is automatically handled by the system. Through the night, the Audio Wizard:

- purges old data,
- backs up the system data to the hard drives,
- deletes outdated spots and songs,
- archive spots and songs that have reached their archive date,
- builds up to four days worth of control room and digital reel to reel logs,
- and generates music logs for each station with the Music Librarian module,

– all while you sleep..!

(Multi-Station)^{x}

◄◄— expandibility —►►

\+ flexibility

Audio Wizard CFS

World Radio History

Expandability

The system is designed with expandability in mind. You can quickly add more hard drives as your storage needs grow, up to 70 gig or more. And Audio Wizard for Windows can support 100 or more workstations...no other system can even come close to our ability to expand and grow with you!

Unsurpassed Flexibility

Audio Wizard for Windows' legendary array of features, extremely easy to use interface and the ability to handle any format, even news, set the standard that no other system can match. Our Digital Reel-Reel, VoiceTRAC System, On-line Copy Module and the industry-leading Music Automation System are second to none. The multi-track Wizard Editor is the easiest to use editing software available and has an unlimited record length! When you need a true multi-user, multi-station system with an impressive live sound, there is no choice except Audio Wizard for Windows.

24-Hour Support

NOVELL SFT III
HOT STANDBY
MIRRORED
FILE SERVER

Reliability and Redundancy

Audio Wizard for Windows leads the way in equipment and data reliability and backup redundancy. All commercial spot drives are mirrored as a standard feature, plus drive mirroring is available for all system drives. The ultimate in redundancy, the hot standby mirrored file server provides automatic and continuous operation even if your main file server or any system hard drive experiences failure! Our innovative Local Backup module allows a control room computer to continue running up to four days worth of logs in the event the file server is unavailable and, for permanent archiving of spots and songs, a high-capacity optical drive is available.

Satisfied Customers

The measure of any system is customer satisfaction. Customer support has always been priority one, and we provide exceptional support by fully trained support experts with radio industry experience. Twenty-four hour emergency support is available 365 days a year to cover any situation you may encounter.

World Radio History

CFS & The Super Duopoly...

the standard by which others are judged.

Multi-Site Transfer Module

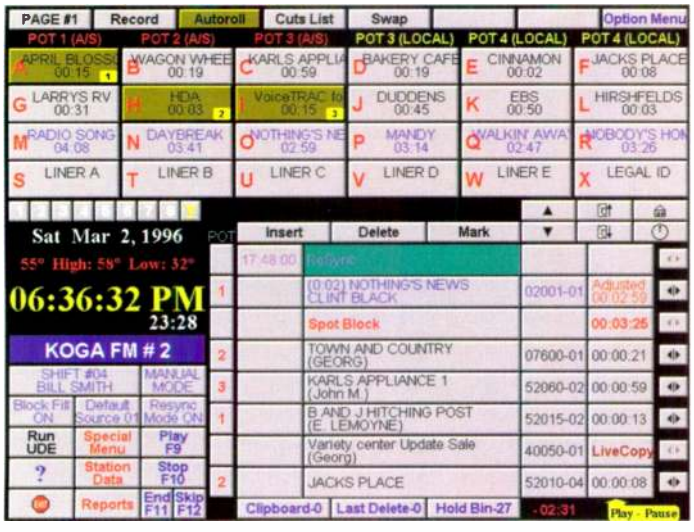
This is a must for groups. The Multi-Site Transfer module will send copies of system data and audio such as spots, songs, music logs and VoiceTRACs between linked sites. Information can be sent via T1, ISDN, FR56 or simply via modem.

Live Show Interface

Since its release, our Live Show Interface has met with rave reviews. D-Js are excited about the power and flexibility this new interface gives them for live shows.

Their favorite features include:

- Drag and Drop of commercials and songs
- Full touch screen integration
- Forty-two pages of buttons for immediate access to over 1000 liners, jingles, songs, etc. per shift with up to 99 shifts!
- Auto Roll of Buttons
- Pause / Reposition of spots and songs



Run an Unlimited Number of Stations Out of One System

There is absolutely no other company that can match our ability to run multiple stations out of one system. Audio Wizard for Windows was designed specifically for the needs of the Super Duopoly. Our state-of-the-art designs allow 4,6,8, or even 10 or more stations to be run out of one system. With numerous multiple station sites running successfully for years, you can count on Audio Wizard for Windows for stability and to provide leading-edge technology that has been thoroughly tested and perfected.

Quality

Most systems still use slower 486, and even outdated 386 computers. Audio Wizard for Windows uses only name brand Pentium computers on every workstation, as well as the fastest and most reliable hard drives, controller cards, network hubs and modems. In fact, every piece of equipment is the best available on the market today!

AudioWizard™ *for Windows*™

The *Flexible* Digital Automation System featuring Windows and Novell Technology

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World Radio History

Executive Summary

Welcome from Prophet Systems, Inc., the worldwide leader in digital automation for radio.

Your world has never been more competitive. Every day, you must find ways to accomplish more with less–to improve your product and maintain your edge while reducing your costs of operation.

(innovation)

What if you discovered an employee who could eliminate the problems and hassles that cost your station precious time and money? One who could increase productivity, and unite your staff into an efficient, effective team. One who would always be on time, and never need a day off!

◄◄—— powerful interface ——►►

Meet your new best employee: Audio Wizard for Windows, the world's most complete digital production and delivery system! It's fully integrated, coordinating all parts of your station. We offer you the flexibility of live or fully automated environments. We allow you to run multiple radio stations from one system, maximizing your resources, and maximizing your profits!

But don't take our word for it. Talk to the people who actually use Audio Wizard for Windows. We're proud of our customer satisfaction record, so check our user list on our web site– http://www.prophetsys.com. You can hear what they have to say first hand. We've forged strong partnerships with our customers through meeting their individual needs and solving their problems. Audio Wizard for Windows is very much the product of user suggestions and ideas.

+ support

Plus, we speak your language! Audio Wizard for Windows is the only system designed, sold and supported by people with broadcasting backgrounds. While other companies guess at what you need, we know from our own real-life experience. We share your work ethic. And when you have a problem, someone who truly understands and cares is only a phone call away.

AudioWizard™ for Windows™

Like all technology-based industries, the digital audio field is growing rapidly. It seems every day another company pops up, claiming to be able to do what we do, and do it for less. But can they deliver? How long will this one be in business? The stakes are high, and the cost of a mistake can be devastating. That's why you can feel good about doing business with Prophet Systems, Inc. We've been here since the birth of radio's digital audio revolution, and we will continue to lead the pack in innovation and customer service.

We think you'll like our combination of down-to-earth Midwestern values and the most advanced technology available.

X superior hardware

Of course individual results vary, but almost all of our customers tell us they've seen their investment cost returned in saved revenues within 2 years. Many did it in 1 year.

From on-air, production and traffic to engineering, sales and management, Audio Wizard for Windows can unite everyone at your station into a supercharged cost-effective broadcast machine.

= Prophet Systems, Inc.

Your competition won't stand a chance.

Contact us today to learn more about Audio Wizard for Windows from Prophet Systems, Inc., the leader in digital broadcast technology.

World Radio History

What is the Crystal Ball?

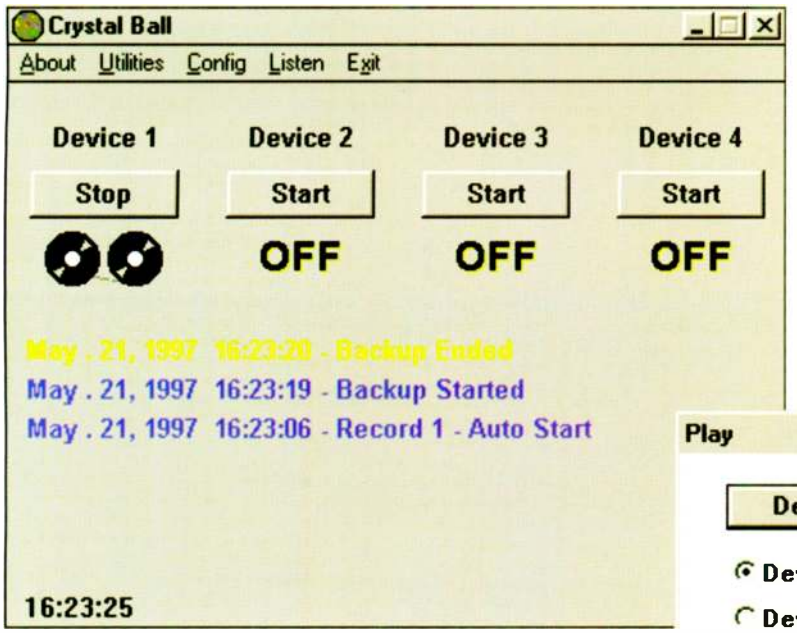
Do you ever wish you could go into the past to see exactly what happened on the air? Prophet Systems, Inc. announces the Crystal Ball.

This product makes archiving every minute of the day easy and economical. Just type in the date and time of the audio you want to review, and the Crystal Ball will automatically retrieve it for you. Up to four stations can be archived from one computer. The Crystal Ball accurately records audio onto small compact storage Digital DAT tapes instead of older, more expensive forms of storage. The Crystal Ball can retrieve audio for any day and time off the computer's hard disk or off DAT for instant replay without interrupting any program being recorded. This digital logging device accurately records audio in easy-to-manage one hour files.

Program Directors can use the Crystal Ball to critique any show from any day. Salespeople can easily provide air checks to customers. Production staff can construct promos with full audio quality and the news department can review call-in shows.

Select sample rates from 32,000 to 48,000 with compression rates from 3.4:1 to 24:1. Select mono or stereo.

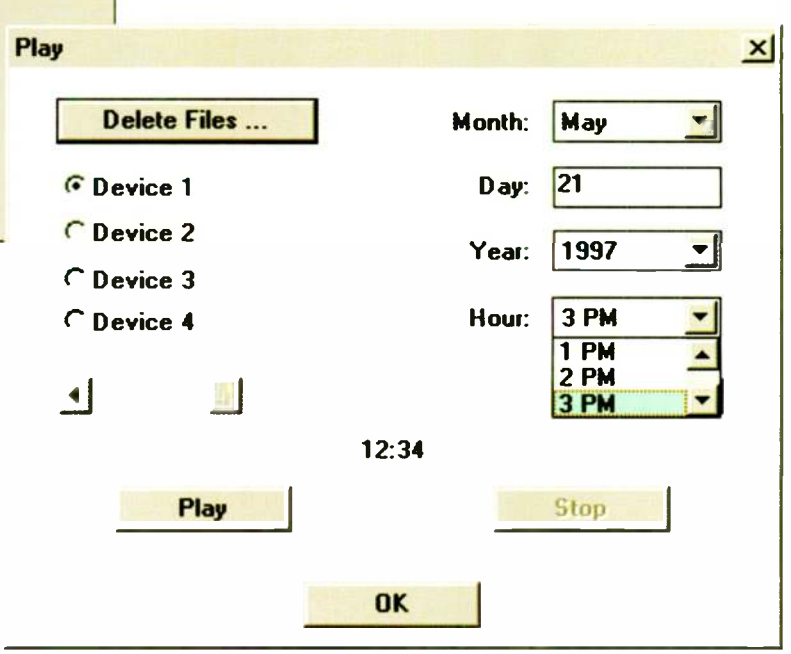
Examine the past with the Crystal Ball.



Storage requirements

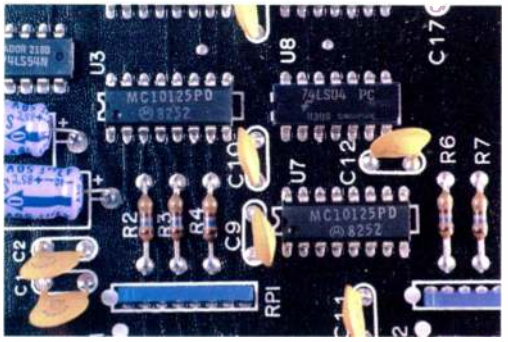
The Crystal Ball is fully user configurable for sample rate and compression ratio. Choices include: 64 Kbps mono which equates to 0.25 meg/minute, 354 meg/day, 2.4gig/week. This is a popular choice if you wish to just review the material for critique or legal purposes. Audio is clear, but not quite FM quality. One single DAT tape will back up 4.5 weeks of programs.

Another choice is 96 Kbps mono which equates to 0.37 meg/minute, 530 meg/day, 3.7gig/week. This is a popular choice if you wish to reuse the archived audio for promos or news. The audio is clear and clean. Three entire weeks of audio will still fit on one DAT tape. Up to 4 broadcast stations can be recorded on one workstation.



Prophet Systems, Inc.

World Radio History



Innovate

in•no•vate \in-e-vat\ *verb*
To begin or introduce something new.

Innovation

"The difficulty lies, not in the new ideas, but in escaping from the old ones..."
John Maynard Keynes (1883-1946), British economist, *The General Theory of Employment, Interest and Money*, Preface (1936).

Mr. Keynes' famous quote summarizes the twofold problem of innovation. First a new idea must be developed and perfected, and second, people must be convinced to escape from the old way. To be truly innovative, an idea must be new ***and*** successful. Prophet Systems, Inc. embodies the concept of innovation. We are constantly developing new ways of perfecting digital audio automation, and we have been successful in helping stations "escape from the old ideas."

Innovative

in•no•va•tive \in-e-va tiv\ *adjective*
Marked by or given to innovations. **See Prophet Systems, Inc.**

Prophet Systems, Inc.

World Radio History

Studio Sessions

The Voice of Mr. Burns
See Page 23

Radio World — Resource for Radio Production and Recording — June 25, 1997

LiquidTrax: Be the Bandleader

Alan R. Peterson

Wouldn't it be nice if you could manipulate the performance and overall mix of a piece of production music?

Imagine being able to cut the level of a guitar track that was too loud. Maybe pan a synth bed to one side of the mix. Perhaps completely eliminate a drum track or drop in a choral effect. When cc ·v points suggest a specific kind of ical support, it would be nice to in parts of the performance on and.

)ne way of doing this would be)I file versions of the music, con- ling some elements of the mix. drawback: Each piece would so· nd different from one General)I sound module to another.

There is a neat way to actually pull off without resorting to MIDI syn- is. The new LiquidTrax collection n OneMusic (represented in the ited States and Canada by tCom Music) is based on the same d idea: letting the local producer e the final say in the way a piece production music is supposed to nd.

xing it up

LiquidTrax is a fully remixable pro- tion library on CD that allows you to stom score" music for a spot or pro- , allowing maximum musical support o· he spoken copy.

There are full mixes in all broadcast gths and long mixes of nearly three nutes each. However, these cuts are) accompanied by synchronous stereo mixes of other instruments used in the ection, all on separate cuts.

The idea is to use some, all or portions these submixes. A producer can bring melodies, percussion or textures in ween spoken segments. Production comes more compelling and sounds as custom music was composed just for t project.

Here is how it works: One main thm cut — along with the submixes re resenting the guitar parts, extra key- ard textures and percussion — are sep- tely loaded into an eight-track or bet- digital workstation (DAW) with a nple-accurate display. A soft click nd at the top of each submix is used a "timing mark," or synchronizing sitioner. By vertically aligning all of clicks in the display, all tracks auto- tically play in sync with each other.

With some DAWs and MIDI sequenc- /recording packages, this can be done h a snap-to-grid feature. Otherwise, cing a marker at an arbitrary point on timeline, grabbing the sync clicks and performing a Move To Marker edit is the fastest way.

It is a lot like being given the multi-track master of an original session and becoming George Martin. A rather fun experience.

For the first time, you can actually decide how much of a particular instrument or group you want in the mix. Want hotter drums? Turn up that particular track. Maybe your project requires a soft synth pad to play for eight seconds before that guitar-with-bass power track dive-bombs into your mix.

Perhaps you want part of the mix to fade down a little, while another comes up. Maybe that vocal effect at the beginning was so neat, you want it to repeat further in the mix. No longer are you locked into what the music company sends you. You are the one in charge.

A LiquidTrax selection is shown being edited on a SADiE system.

Got an attitude?

The cutsheet included with each CD comes with an equally clever legend. "Intensity" numbers from 1 to 10 help you identify soft and hard cuts. An "attitude" window features a smiley-face character that visually describes the mood of the chosen piece. A demonic face with spiked hair means "aggressive," and a smug countenance with eyes shut and hair combed implies "confident."

Besides being versatile, this is one easy collection to maneuver around, thanks to this track information scheme.

The three-disc volume I was sent to review was called "Rock 1 — Crazy Hands Les Dudek," and had an intensity scale of 6 through 9. Dudek is not unfamiliar to me, and this particular CD was filled with energetic rock guitar themes.

The first CD contained full mixes, while the other two consisted of submixes. I worked with the latter two discs.

I used the IQS SAW Classic program on a feeble 386 PC, a combination that actually works fairly well. With four parts loaded in and snapped to zero, I went ahead and began the mix. I had an admirable degree of control over the mix, and it was fun to bring in guitar screams and synthesizer drops when *I* decided it was time to bring them in.

I did experience some timing glitches by the end of the track, but I chalk that up to this particular Colonial-era computer, which skipped a beat or two during the three-minute playback. Indeed, in picking up the playback closer to the end, all tracks were still nicely locked. LiquidTrax really works.

Best of all, the result did not sound like some clichéd looped music bed normally heard in unrated rental videos.

See CD, page 26 ▶

So You Want to Do Your Own Voice-overs

Mike Weiner

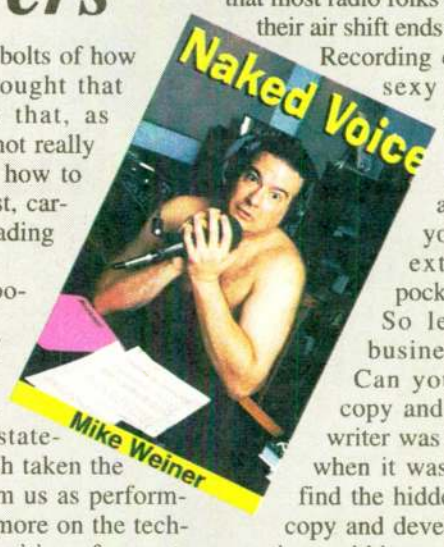
In 1985, I was being escorted out the door at a prominent Washington radio station where I had been the assistant program director, promotions director and anything else they could squeeze out of me for $25,000 a year. That is when I went into business for myself as a voice-over artist.

It sounds as if it were an easy walk into a new life, but there were lots of lessons to be learned. There were a number of teachers to meet along the way and a good bit of perseverance and struggle to build my "private practice" in the voice-over world.

Life is good

Now I make a decent living recording narrations for industrials and commercials and for other specialty areas that are emerging with the advent of technology.

When I was asked by **RW** to share some of the nuts and bolts of how I did it, the first thought that came to mind was that, as broadcasters, we are not really taught how to *act* — how to convey sincere, honest, caring emotion when reading copy.



It is quite the opposite today, actually.

Today's trend of liners, sweepers and tightly controlled positioning statements has pretty much taken the need to act away from us as performers. Today we focus more on the technical skills and necessities of operating the board or computer — whatever the audio tools happen to be at a radio station — rather than on the performance itself.

Oddly, it seems as if the broadcasting environment is no longer the place to learn how to communicate a message ("act") to people one-to-one.

First, let me define "performance." In the context of this piece, I am talking about that horrible little inconvenience that most radio folks have to endure after their air shift ends: production.

Recording commercials is not sexy all the time (if ever), but if you believe producing commercials is a hassle and a pain, you are overlooking extra money in the pocket.

So let's get down to business: *Can you act?* Can you take a piece of copy and find out what the writer was thinking or feeling when it was written? Can you find the hidden clues within the copy and develop the appropriate emotions within you? Finally, can you read the copy as you feel the emotion?

If you can, my friend, *you are acting*. And acting is communicating another person's point of view to someone.

I have a saying for this whole

See WEINER, page 22 ▶

World Radio History

Averting Disasters With Ditto

Read G. Burgan

Some of us are slower learners than others. Take me, for example.

A few months ago I lost a SCSI hard drive. It was not backed up, but all it contained were a few in-process digital audio files. Most had already been transferred to another medium. No big deal.

A replacement was quickly ordered and even more quickly installed. Since I have two computers, I hardly missed a beat. End of story ... sort of.

More recently I lost an IDE hard drive. This one contained my Windows 95 operating system, *all* of my program files and a lot of day-to-day user files like correspondence and database material. B-i-i-i-i-g problem.

Summertime blues

I had backed up some of it on CD-ROM, but when I checked, the date was from last August. A lot of water had passed over the computer dam since then. When is the last time you restored a drive containing your Windows 95 operating system? If you never have, rest assured you will. Here is what to expect:

If you did not elect to make a "startup" disc when you installed Windows 95, you will have to reinstall a DOS system. Before you can install a CD-ROM version of Windows 95, you will need to find and install the SCSI or other DOS drivers to enable the CD player.

After rebooting and starting the Windows 95 installation CD, you will have to insert the first disc of an earlier Windows version to prove you are eligible to use the upgrade. Fun, huh?

Then there is the obligatory Windows interrogation procedure. Once Windows 95 is installed and rebooted, you have only just begun. Unless you are one of the lucky ones with nothing but plug-and-play peripherals, you need to go into the Device Manager and make a list of every currently used IRQ, DMA, Memory Address, and so on.

Then you must install each peripheral — one at a time — checking its configuration against the information you copied from the Device Manager.

Ditto Easy 3200 Tape Drive

To play it safe, each new peripheral must be tested and retested every time a new one is added. And if some of your drivers are updates from company websites, you will have to go back, find them and then download them one by one.

After that it is time to install the software. In my case, Lotus Suite alone requires 24 floppy discs. It can easily take a day or more to restore everything.

It was the better part of three days before I was close to where I had been before I lost the hard drive, and that was without much of my own personal user files that can never be replaced.

Lesson learned

I may learn slowly, but you do not have to hit me with a baseball bat twice. I immediately began an investigation of my backup options.

While you can use a Jaz or Zip drive or a rewritable optical disc for backup, tape drives are more commonly used and generally offer a better cost-per-megabyte ratio. Tape drives divide up into a few basic groups. For example: internal and external; and IDE, SCSI and parallel port devices.

If cost is no object and speed is essential, DAT drives typically boast a transfer rate of 24 MB/minute or more and can hold up to 8 GB on a tape. But they start around $600, and can run $1,000 or more.

Tape drives are often classified according to their interface: SCSI, parallel port, floppy controller, IDE or proprietary. SCSI tape backup drives are usually faster, but cost more. Internal drives generally are cheaper than external drives, but can only be accessed from one computer unless you have a network. Trouble is, you cannot always guarantee access to a network if the operating system has been lost on one computer.

I opted for a Ditto Easy 3200 external tape drive from Iomega, the same folks who brought us the Zip drive.

With a street price of around $270, the drive is relatively inexpensive. It uses Travan TR-3 cartridges that are available readily for about $34 and can hold 1.8 GB of uncompressed data (or 3.2 GB compressed). Because the drive can read a wide variety of tape types, it offers good versatility.

The external drive connects to the computer's parallel port and has a pass-through connection for the printer. If you are using Windows 95, the drive is detected automatically and the appropriate driver is added as soon as you boot up.

Ditto's backup software is easy to install and use. Basically you are looking for two functions: the ability to back up

See DITTO, page 21 ▶

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World Radio History

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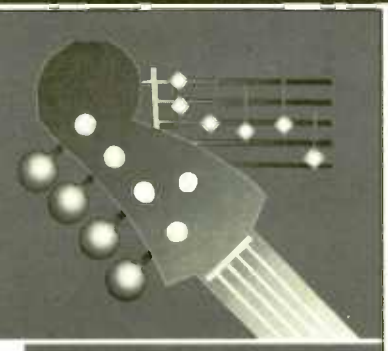

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World Radio History

Ditto Derails Data Disasters

▶ DITTO, continued from page 18

and restore an entire drive and the ability to do incremental backups on a scheduled basis to supplement the original backup. The Ditto software will do both.

This is a test

To test the backup software and drive, I selected my C drive, containing approximately 600 MB of files, including the Windows 95 operating system, program files and user files. The test backup took about one hour and 15 minutes, and another hour and 15 minutes for the software to compare the backup with the original files.

Sorting through the numbers, that worked out to about four megabytes a minute if you do not bother with the comparison. Count on two megabytes a minute if you do.

The real test is whether or not the backup will actually restore the drive *to a bootable state*. If your software does not restore the Windows 95 registry, then you really have not gained very much.

For this test, I swapped my C and D drives to see if the software would recreate the original C drive on its replacement. There is one drawback to this kind of backup: you cannot start the backup until you are in the Windows operating environment.

This means you have to go through the process of reinstalling Windows 95 and the Ditto Backup software program before you can begin the actual backup. This took about 45 minutes.

And there was still one hang-up. When I went to restore the drive, the Ditto software could not find the necessary backup log. Well, of *course* it couldn't; it was on the original C drive. If there had really been a crash, the backup log would have been destroyed with the rest of the files on the drive.

Fortunately there is a duplicate log on the backup tape and accessing the Rebuild option recreates it. After that, the backup went smoothly.

It took about another hour to completely restore the drive. This brought the total time to restore the drive to something less than two hours. Certainly an improvement over the nearly three days it took to do it manually. And this time all of my personal files were intact as well. But would it reboot?

I may learn slowly, but you do not have to hit me in the head with a baseball bat twice.

Without a flaw. Well, almost. There were two problems with the restored drive: It did not restore the original Epson color stylus printer driver and Sound Forge 4.0a would not work.

Make it work

I don't know the cause of the printer driver problem, but it took only a few minutes to add the proper driver manually.

The Sound Forge problem is not the fault of the Ditto software. Sonic Foundry uses a copy protection system to discourage the illegal distribution of its program. Copying it to another media renders it inoperable. Fortunately, reinstalling Sound Forge was no big deal. After that, everything ran smoothly.

All of the drivers for the sound card, printer, scanner and everything else were properly installed and functioned smoothly. From now on, I intend to have a full backup of each of my program drives and to back up the software incrementally after that.

The Ditto Easy 3200 tape drive represents an excellent value and is a versatile way to back up hard drives. It certainly beats pulling out your hair and crying in your beer when you suddenly find that two years' worth of files and programs have disappeared into thin air.

Is there an even easier way to back up your computer? A few third-party companies create what they call a "disaster disc" that will boot your computer from ground zero and allow you to use your tape drive to restore even your operating system, registry and programs in one simple operation. Do they work? Stay tuned as I test some of the latest and report in a future article.

Reach Iomega Corp. at 1821 West Iomega Way, Roy, Utah, 84067-9977. Call (800) MY-STUFF, visit their website at *www.iomega.com* or ***circle Reader Service 133.***

■■■

Read Burgan is a freelance writer and a former public radio station manager. Reach him at (906) 296-0652 or through e-mail at rgb@up.net

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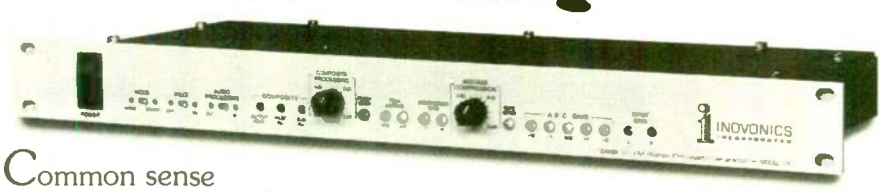

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Circle (170) On Reader Service Card

World Radio History

Step Up to the Mic

▶ WEINER, continued from page 17

process: If you feel it as you say it, I will feel it as I hear it.

Over the top

If you are involved in theatrical acting, great. It is valuable experience, but voice-over work requires you to tone it down to nearly neutral. Over-exaggeration in the intimate world of voice-overs can mean a lack of believability.

Should you be Tommy Testosterone, your pipes could get you in trouble if that is all you are selling. Your vocal instrument normally has a three- to four-octave range. Just because you like the rumble of the speakers on playback does not mean you are communicating in the best way.

Let yourself work your full range. It will be a reach at first and feel awkward, but work on it. Johnny One Note will not last in the voice-over business.

There is no single way to get yourself into the world of V/Os. Sometimes advertisers will hear you and may request your voice for their spot. Maybe an agency creative director likes your sound on the air and has something in mind.

Maybe you got real and put together a demo tape that showed off your range within a copy selection that fit your voice print.

And maybe you went ahead and ran off 500 dubs to start, floating them off to anyone and everyone who might be a potential employer.

A thorough education in business strategies and tactics that apply to the industry can only help. Maintaining a database of names and addresses of companies and individuals to send tapes to is smart.

Putting a tape together to show you off at your best should be just that: you at your best. I always get chills when I hear someone say, "Oh, it's just a demo." Well, isn't that the point? *Your* demo should always be your *best* performance, not just a string of tossed-together spots in a montage.

Royal flush

An aunt of mine was once overheard telling a relative, upon hearing of his latest business venture, "You may as well flush the money down the toilet and save yourself the aggravation!" If you really believe your tape is "just a demo," then my aunt's good advice applies here.

Take the time to find copy that you may be hired to read. Make each piece as important as the others. Take the time to find your best performance. Most of all, use someone else's ears to help guide you.

Find somebody you can trust, someone who will give you useful feedback to change your delivery until it matches the copy's intent. Record the tracks dry — focus on the performance and not the mix.

I had a coach in Los Angeles who told me years ago that she has people take *off* their headphones because it detracts from the performance. I found she was right. Try it.

Find a studio where you can mix the dry copy into finished pieces, then start editing them into bites.

Your reel should not run more than two minutes. Don't mix narrations and commercials together. They are very different styles and can muddy the waters for a commercial producer.

Audience grabber

This is one pointer you hear a lot and it is true: Put your best material up front. Your tape may only get 20 seconds of a producer's time, so it is imperative you wow your audience right away.

Now, go get the copies made. Make it look like you spent the time to deliver this piece of art to your potential customers.

Take the time to call the ad agencies in your market or the closest market near you. Comb the Yellow Pages for companies that produce videos, multimedia, CD-ROMs and radio spots. Call and ask if they would receive your tape.

Say you plan to send out 10 tapes a week to the people you spoke with. In a year, that will be 520 of your tapes in circulation. Follow up each tape with a postcard.

Offer some kind of incentive for them to use you. Maybe you have your own computer-based digital studio at home, or you can use the production room at the station (ask your program director first).

There are a lot of things you can do to be creative about getting out to the market and making sure your tape gets heard. These are only a few basics, but they may help get your V/O career going ... if the market buys your talent.

The only way to find out is to go through the moves I have described here.

■ ■ ■

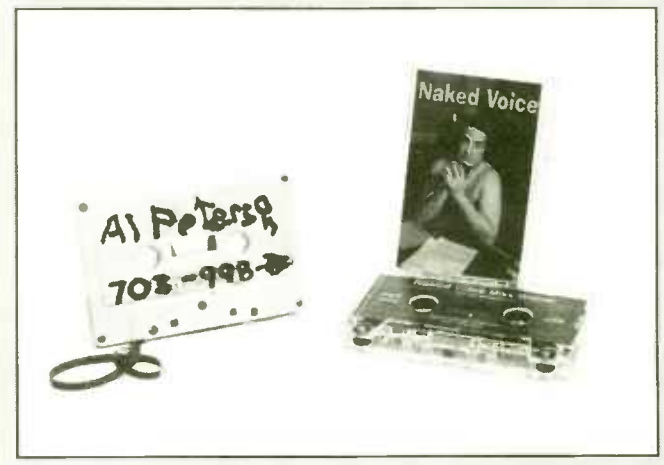
Mike Weiner (pronounced "wy-ner") is a Washington-based national voice-over talent with an impressive client list. He conducts intensive Voice-over Marketing Workshops several times a year and coaches other talent as well. For information on his workshops, call him at (301) 924-5700 or by e-mail at mjweiner@aol.com

Money Talks: The Cost Of That First Tape

Newcomers beware: It takes more than a few C-10 cassettes "borrowed" from the station and labeled with generic file-folder stick-ons to make a big splash.

You are up against the pros who know the importance of a high-quality dub and a high-caliber presentation.

If you really are on a shoestring, you can order blank cassettes through companies such as J&I Audio/Video or American Media Services. Normal cost can be anywhere from $55-$75 per hundred tapes. Your favorite broadcast equipment dealer is another good source.



Which demo gets your attention?

But a first-class presentation is mandatory and that takes a little cash. What kind of money are we talking about? Let's break it down.

Whip out the wallet

Figure on 500 dubs to really get rolling. Just be ready to put aside a whole day.

That crummy $89 twin-deck boombox from your college days won't be up to the task. Even at double-speed, 500 two-minute tapes will take over eight hours to produce, not counting the time spent cueing, rewinding, quality control checking, packing and ... well, you get the idea.

Get a dubbing house to do the job instead.

Weiner goes through Disc Makers, which can do a starter package of 300 C-20 cassettes along with printed black-and-white J-cards for about $495. A 500-tape run will cost $665. Weiner goes for the big package: 1,000 tapes and a four-color J-card for $1,140.

Mailing costs must be factored in, too. A cassette with case alone (2.7 oz.) takes about 78 cents postage. Add the weight of the envelope, cover letter and résumé and the scale could tip to $1.01.

Don't send material out in a flimsy No. 9 letter-size envelope. Use padded mailers or at least some sturdy brown 9x12-inch envelopes ($30 or more for 500). Budget for another hundred or so ($6); we all make mistakes on the addressing.

Let's check the toteboard

Ignoring for one moment the cost of copying your résumé, good-quality matching paper for the cover letter, follow-up phone calls and postcards, good-looking address labels and the like, the minimum you will spend for those first 500 tapes will be somewhere around $1,200. Sure it sounds steep, but it puts your presentation head-and-shoulders above others in the pile.

When you start getting the good jobs, you may want to add a headshot photograph, imprinted letterhead and envelopes, and so on. While more expensive, this approach could move you into that league that commands union rates or better — a big change from doing $25 spots. And as we hear from our sales managers every day, it pays to advertise.

Phone numbers for companies mentioned above: J&I Audio/Video in California is at (800) 942-1711. For American Media Services in Texas, call (800) 345-1953. For Disc Makers in New Jersey, call (800) 468-9353.

— Alan R. Peterson with Mike Weiner

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World Radio History

'Monty Burns' Alter Ego Goes NPR

Rich Rarey

It is a sure bet that, at one time or another, you have been exposed to the work of humorist Harry Shearer in movies and television. You may be surprised to know he also hosts his own weekly national radio program, "Le Show," on public radio. "Le Show" is in its 12th year and originates from NPR member station KCRW(FM) in Santa Monica, Calif.

The résumé

Shearer has directed, acted in and written motion pictures such as "This Is Spinal Tap," "Club Paradise" and "Wayne's World 2," among others. He has performed in and consulted on cable and television comedy programs such as "Fernwood 2 Night" and "Saturday Night Live" (when it was still considered funny). He co-wrote and directed the original theater production "J. EDGAR!", a musical about the former FBI chief.

He also performed on and co-wrote several albums, including Spinal Tap's hilarious "Break Like the Wind."

Photo From Harry Shearer's Home Page

These days he performs on the Fox animated series "The Simpsons" as Ned Flanders, Mr. Burns, Smithers and about 12 other voices. He writes for print and contributes to Spy magazine and the L.A. Times Sunday Magazine.

First contact

We noticed "Le Show" in 1987, when Harry took it upon himself to lampoon NPR's "Weekend Edition/Sunday (WESUN)." His send-up of this struggling program was so searing, so aware and so dead-on, it became funny to us only after several years. Now, his parody still evokes laughter from the show's staff and other NPR staffers who recall those trying times.

Shearer had remade WESUN's host into a slow-talking character named Eviva Schlermin, with a voice disconcertingly similar to that of the real host. During one segment depicting the program's high excitement level, Eviva had an NPR-like science reporter come on and introduce the audience to the aural wonders of soap melting in warm water. Exclaimed the host, "It forces you to listen ... so ... closely!"

After this parody, we became aware of Shearer's credits popping up in other media, usually on projects that made us laugh because of the stories' timelines, tight writing or engaging and twisted — but plausible — plots.

We were intrigued that this man, who works well indeed in many commercial media, would find a creative outlet in public radio. We caught up with Shearer between projects and asked him our version of 20 questions.

Shearer sessions

"Public radio affords me the license — oops, the *freedom* — to do precisely the program I want to do, without worrying about formats or people's expectations," Shearer said. "As a matter of fact, one of the most frustrating things about the program is the number of public stations that don't take it because it doesn't fit their format (Washington, D.C., for example)."

Why does Shearer do the program at all?

"I'm not a standup, so the comedy clubs are not an option, even if they weren't one of the more depressing circles of hell. Commercial television dips its toe in my pool from time to time, but resists fully diving in, and public television thinks all comedy was taped in England 10 or 20 years ago."

He said he needed some kind of regular outlet in order to write when he did not feel like writing, and who ever feels like writing?

"I long since acquired radio chops which make doing this show relatively transparent, from a logistical standpoint," Shearer said. His experience with writing for radio came from listening to a lot of Jack Benny, Bob and Ray, Stan Freberg and The Goons. He said it is just like writing for a visual medium, except you have to suggest what the physical jokes are.

"Actually," said Shearer, "radio writing probably does end up being more verbal, but I do try to get some visual stuff in, since it involves the listener in the creative process, shanghaiing him/her into being the art director."

See HARRY, page 25 ▶

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PRODUCT GUIDE

Companies with new product announcements for Studio Sessions Product Guide should send them to:
Radio World, c/o Studio Sessions Editor, P.O. Box 1214, Falls Church, VA. 22041

Audio-Technica SmartMixer

Audio-Technica is out with a new version of its SmartMixer: the AT-MX351.

This is a microprocessor-controlled, automatic switching five-channel mixer that delivers fast and quiet performance in multi-mic conference setups for broadcast.

Each mic/line channel features individually switchable 48V phantom power and selectable limiting. Balanced inputs and outputs are on the rear panel, as is a Sub-D connector for TTL output to control external devices.

Mic priority allows one or more mics to override all others, an option useful for moderators and program hosts. A "last mic on" feature keeps the mic used last turned on for ambient sound to be heard through the system, eliminating totally dead air.

Several SmartMixers can be cascaded with a provided link cable. The priority control extends throughout the entire system of chained units.

For information, contact Audio-Technica in Ohio at (330) 686-2600 or ***circle Reader Service 14.***

Imported RDL Reverb

RDL Audio, based in the U.K., released the DRP1600 Digital Reverb.

The 1600 offers 16 preset effects including room, hall and gate effects. A regeneration control and balance pot allow tailoring of each program to suit the needs of the project.

The device is a standard 1 RU size; signal path is through front-panel quarter-inch jacks.

For information, contact RDL Audio Ltd. in England at +44-1353-698589 or ***circle Reader Service 205.***

AKG Shotgun Mic

For ambient or dialog recording, AKG Acoustics has brought out the CK 69-ULS shotgun capsule, a two-part microphone with highly directional characteristics.

The phantom-powered mic is designed to complement the AKG C480 preamp. The dual-capsule design allows sound engineers to configure the mic to the purpose: in long configuration, the mic delivers results up to 20-24 feet from the source. Unscrew the front half, and the same capsule becomes a short shotgun for close-up work or to attenuate a noisy environment.

Frequency response is 20 Hz-18 kHz, with a dynamic range of 127 dB with the sensitivity switch set to -10 dB.

For information, contact Harman Pro North America in Nashville at (818) 227-1800 or ***circle Reader Service 62.***

Project Patch Bay

Signal Transport makes patching easy with the new Project Patch TRS Studio Wiring System.

The panel is based around a quarter-inch 48-point patch bay, featuring PC board-mounted TRS front panel jacks. Each group of eight top and bottom

jacks comes out to a gold-plated rear-panel multipin connector.

New configurations can be made by swapping connectors without the need to solder, crimp or punch-panel any wires.

The Project Patch TRS has a suggested price of $250.

For information, contact Signal Transport in California at (510) 528-6039 or ***circle Reader Service 181.***

New Promusic Releases

New CDs released by Promusic include the sounds of the past and some pieces evoking the classic piano bar, among others.

"60s and 70s Cheese" is a 30-track CD on the Cavendish label, recalling the pop sounds of those decades. From the MCT Library comes "Piano Bar Piano Jazz," with solo, trio and quartet performances. The UBM division has brought out "Body Feeling Fitness," a collection of aerobic and fitness training music, and "Extra Scenery Perception" is a 57-track collection of inspirational textures released under the Water Music label.

Promusic has launched an on-line license application for use of the company's music, available at *www.promusic-inc.com*

For information, contact Promusic in Florida at (561) 995-0331 or ***circle Reader Service 38.***

QMI Speaker Stands

QMI keeps nearfield monitors steady with the CKD 10 and CKD 11 speaker stands.

Built from steel, these medium-mass designs are extremely rigid and finished in a tough black powder-coat paint. Each can be fitted with spikes and filled with shot or sand to enhance stability.

The CKD 10 has a rise of 1 meter, while the CKD 11 will support a speaker at 1.1 meters. Both are appropriate for providing optimum placement in most studio environments.

For information, contact QMI in Massachusetts at (508) 429-6881 or ***circle Reader Service 157.***

T.C. Spatial Expander

T.C. Electronic of Denmark has adopted technology from its line of pedal effects for musicians and created the TC 1210 spatial expander and stereo chorus/flanger.

The rackmount processor uses classic analog "bucket brigade" delay circuitry with a frequency response not possible in the earlier days. The TC 1210 scopes out to 20 Hz - 20 kHz with low noise figures and better than

100 dB dynamic range.

Stereo enhancement utilizes the Haas effect (principle of first arrival). Delay and phase shift combine in the TC 1210 to open and widen a stereo image through this process.

Clock sweep circuitry in both channels can be synchronized to enhance the chorusing and flanging programs. Delay times are from .66 to 22 msec.

For information, contact T.C. Electronic in California at (805) 373-1828 or ***circle Reader Service 54.***

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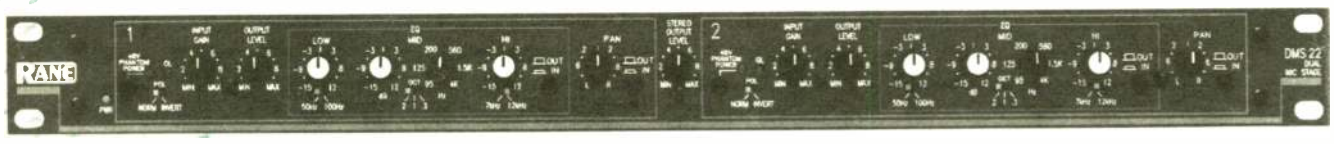

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World Radio History

'Simpsons' Star on the Radio

▶ HARRY, continued from page 23

Shearer also had a great crash course in writing for radio: The Credibility Gap.

This was a group on KRLA(AM), then later on KPCC(FM), in Los Angeles, that put out three 10-minute daily programs of topical satire for several years. "In that situation, one learned quickly what works and what doesn't," Shearer said.

"Le Show" does not have a format as such, but does have eclectic music surrounded by recurring bits, both produced and read live from scraps of paper. One curious feature is his reading from arcane trade magazines (his taste in trades includes the popular *World Wastes* magazine) and the real estate section of the L.A. Times.

"The real estate section itself is absurd," said Shearer. "Celebrities touting their expensive homes in print, almost as if the whole thing were conceived by somebody in the high-end home security business. The trade publications aren't absurd, they're just a lot more unvarnished in their depiction of the activities and motivations of commercial America than are the consumer media.

"I've always loved combining an insider's knowledge with an outsider's point of view, and reading the trades allows me to do just that," he said.

Ah feel yer pain

Shearer's produced features on "Le Show" have always impressed us. His characters include President Clinton and the first lady, Dan Rather, Charles Kuralt, fashion critic Mr. Blackwell, Ronald Reagan, Ross Perot and George Bush.

They are believable and funny because his diction is spot-on, and through his writing, the characters say things that are completely plausible — what they might have actually said, but would never say in public.

Shearer as Derek Smalls From 'This Is Spinal Tap'

"Real life is funny, with the caveat that it has a lot of depressing interruptions," said Shearer. "My job is to distill the depressing parts out, leaving only the funny stuff. To me, if it ain't at least plausible, it has a much harder time being funny. Is Clinton with two heads funnier than Clinton with one? Only to a three-year-old."

As far as mimicking voices, Shearer has no known technique he applies, except observing himself and friends with similar talents. He also said that having a musical ear plays a big part in achieving authenticity by enabling him to replicate the "particular melody of a person's spiel" as well as the macro elements of a voice.

Head in the books

This ability allows Shearer to match the gravely, strained voice of the president, the edged voice of the first lady, or the nasal whine of Ross Perot.

Harry's preparation for "Le Show" is based on voluminous reading.

"It's what I'd do anyway," said Shearer. "Read a bunch of newspapers and magazines — more since the Internet caught on — watch newsy stuff on TV, sample the satellites. The writing happens relatively quickly and relatively late — usually on Saturday afternoons — and the pre-production takes up the later Saturday hours."

This arrangement offers several advantages. The show can be as topical as possible and it can be done around schedules for other, more lucrative show-biz ventures. "And I never have to consider watching 'Saturday Night Live'," joked Shearer.

He records the sketches at his home studio, equipped with a satellite dish for receiving what he calls "found objects." The voices are performed serially: one character after another in real time.

The one time we were allowed to watch the process, we were amazed to see him switch seamlessly from Al Gore to Connie Chung to Ross Perot. We had to watch through the studio window, because having us with him in the same room would be a distraction.

After the voices are laid down, Harry adds the subtle touches. In one skit about a former CIA director, a careful listener could barely detect the sound of office fluorescent lights. These were added just for effect and were so slight that one became subconsciously transported into the skit.

By the time Harry arrives at KCRW for his 11 a.m. (PST) Sunday morning broadcast, he has culled his material to a remarkably small gaggle of clippings and a DAT containing the day's pre-produced sketches. An opening music selection, then "Hello, and welcome to 'Le Show'" begins another weekly installment into the inventive, creative mind of Harry Shearer.

You can find a treasure of "Le Show" audio, a list of stations and more at *www.timecast.com/channels/comedy/shearer*

The site includes broadcast times of the show on select stations and an archive of RealAudio clips from "Le Show" and other Harry Shearer projects — including a most interesting "found objects" collection.

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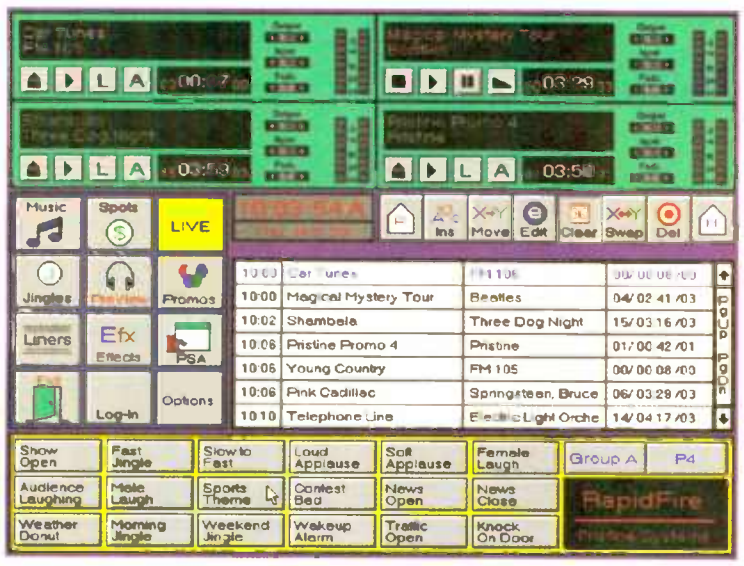

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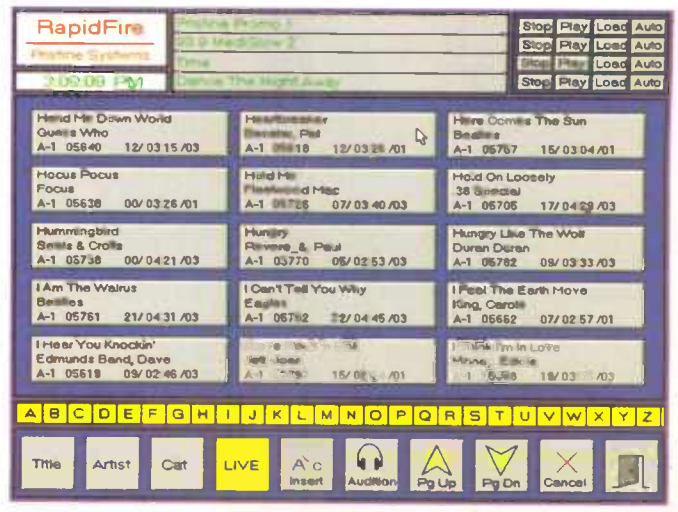

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World Radio History

Arrange Music With LiquidTrax

▶ CD, continued from page 17

Dudek and company put some real musical thought into this disc set.

Each LiquidTrax cut and submix is a stereo track. If you drop four submixes into a DAW such as the Roland DM-80-8, Fostex D-80 or the original, four-stereo-track SAW, all of the tracks will be used just to hold music. There will be no room for voice track and effects.

You could offload a submix to a DAT deck or save a stereo mixdown as a new file to free up tracks. But this now locks you in to an established mix that you cannot modify. You could also collapse the stereo submixes to mono, but the spaciousness of the music is lost.

More powerful systems have more tracks. Systems like SAW Plus, the Orban Audicy and the higher-up versions of the Spectral product line and Digidesign ProTools (to name a few) have room and horsepower to spare.

I would not recommend eight-track, tape-based modular multitracks or the current generation of MiniDisc portable studios with four mono tracks. Synching the clicks may be possible but very time-consuming; besides, the MD just does not have enough tracks. LiquidTrax was designed specifically for use in a non-linear DAW, and that is where it works best.

Loading four CD cuts obviously takes longer than loading one, but this library was designed more for versatility and creative use than "we need it in 15 minutes." The tradeoff in speed is more than compensated for by the ability to mix and modify infinitely.

Because the beds and submixes are related harmonically and thematically, even a shot-in-the-dark edit stands a good chance of sounding good.

It is definitely worth your time to explore the possibilities offered by LiquidTrax. A demo CD is available with a working sample cut you can drop into your DAW and experiment with. To get it, along with product literature, contact OneMusic in Nashville, Tenn., at (615) 242-4452 or ***circle Reader Service 109.***

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65 Years Ago

Reprinted from Radio World April 9, 1932.
Editor's note: The RW of old, printed for a time in the 1920s and 1930s, and today's RW are unrelated except in name.

The RW of today often features reviews of new microphones. This article from 1932 describes the reaction at WOR(AM) when carbon button and early condenser mics were replaced with dynamic units. Amazingly, many of today's mics have only a one-octave higher response than the one described here.

NEW WOR "MIKE" QUICKLY NOTED BY LISTENERS

WOR, Newark, N. J., has completely equipped its studios with the new dynamic microphone, the latest innovation in broadcasting pick-ups and which engineers say is 300 per cent more sensitive than either the condenser or carbon type.

While Bell Laboratory engineers have monitored WOR with a view toward checking tone fidelity, it was not expected that listeners would notice the difference for a week or two, but hundreds of them proved more observing than the technicians presupposed.

Flat Characteristics

J. R. Poppele, chief engineer of WOR, says that the new microphone has an over-all frequency response characteristic from 30 to 10,000 cycles with a gradient that is entirely flat in this range. Non-technically that means it is equally sensitive to any part of this scale.

"It is much better on the low end and also on the high," said Mr. Poppele. "The condenser microphone heretofore had been regarded as the last word in pick-ups. But a peak always has been manifest in the upper range of response in the condenser variety.

"The dynamic microphone lends a perspective not obtainable with any other type. For example, but one unit is necessary to pick up a program of huge symphony groups. This does away with the necessity of the so-called mixer panel, though various microphones are cut in and out as needed.

Fewer Extraneous Noises

"It has other advantages, too. One can stand a considerable distance away from it without loss of efficiency. Its low output impedance eliminates extraneous noises picked up by induction in the connecting cables."

The new microphone is so sensitive that all artists will have to be re-educated in broadcasting. As an illustration one of the microphones was used in a household talk the other morning and the woman at the microphone seeking to add "atmosphere" to her talk dropped a lump of sugar into a teacup. The result was that the tubes were badly overloaded. It sounded as if a mechanic had struck a huge iron boiler with a sledge hammer.

World Radio History

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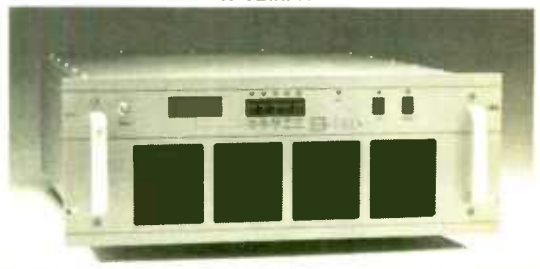

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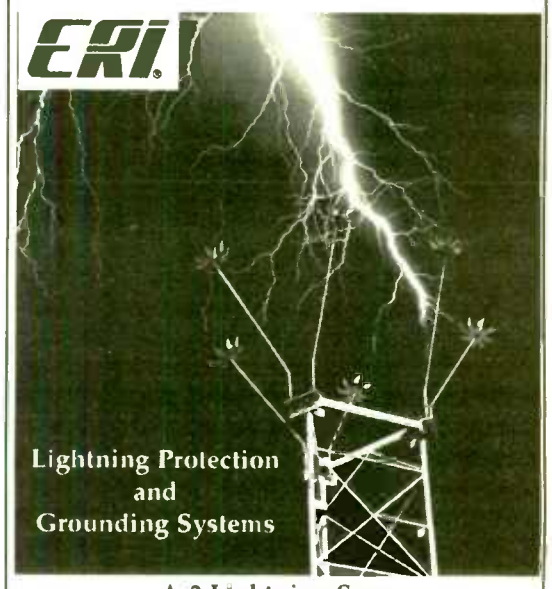

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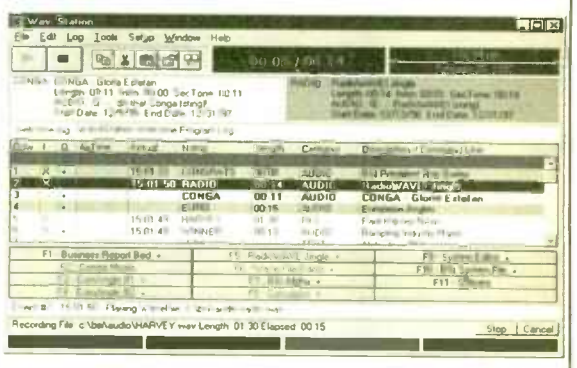

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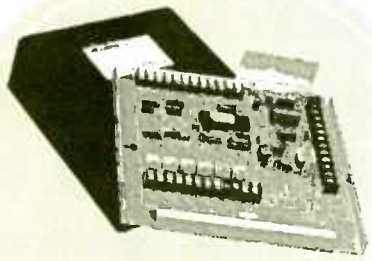

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FEED LINE

Take Note: AM Control Is Complex

W.C. Alexander

This is the 13th installment in a series about AM antenna systems. The previous part appeared May 28.

An important part of most directional antenna systems is the control circuitry. The majority of stations operating with a directional antenna have more than one mode of operation. Some stations operate non-directional daytime and directional at night. A few operate just the opposite — directional day and ND at night. Others operate directional day and night, but with different patterns. Some stations have yet a third mode or pattern for critical hours. Some means of switching between patterns and modes is needed.

Why switch?

A station that operates non-directional part of the time and directional during other times must have a means of detuning the unused towers. The same is true of multiple pattern directional arrays where some towers in the array are not used in some modes. The method used to detune the unused towers differs with the situation, and some engineers prefer one method over others. Regardless, to implement the detuning it is necessary to switch out that tower's directional network and switch in a detuning network at the tower.

When operating with different directional modes, it is often necessary to switch in different components in the antenna tuning unit (ATU) for the different modes. For example, the daytime directional pattern may require a 90-degree lagging network at one tower, while the nighttime pattern may require an 80-degree leading network. Two separate tee-networks would be required, and a means of switching between them would be needed.

RF contactors

Switching of components and networks in an AM antenna system usually is accomplished using different variations of the RF contactor. This device uses sturdy, plated finger-stock and plated shorting bars to create a high-current capacity switch. Several individual SPST switches typically are arranged on an insulated frame with a rocker-type armature to create SPDT and DPDT switch arrangements. To actuate the armature, 110/220-volt AC solenoids or electric motors are used. Solenoid-driven switches are fast and provide almost instantaneous transition between switch states, but the current draw of the solenoids is high and the rather violent mechanical action produces

See AM, page 30 ▶

Museum of News Turns Back Clock

Alan R. Peterson

For just one day earlier this month, you might say everything old was news again.

On June 1, members of the Metropolitan Washington Old Time Radio Club presented a talk in the broadcast studio at the Newseum in Arlington, Va., the world's only interactive museum dedicated exclusively to news and its history.

Inside the air conditioned studio — a combined functional radio and television facility within the museum — visitors left the present and spent one hour back in the days when current events beamed from a speaker rather than a cathode ray tube.

Gathering members

The club was founded in 1984 when several radio enthusiasts from the Washington area began listening to and collecting old radio programs from the 1930s and '40s. Programs included classic characters such as Jack Benny, Fibber McGee and Amos 'n' Andy, and recordings of historic newscasts by the legends of radio's Golden Age.

A number of artifacts in the museum, including old microphones, were donated or are on loan from the club.

On the dais, along with tape players and classic sound effect props, was an authentic portable "Standby" light box. When it was switched to its "On the Air" position, the show was officially underway.

Club members Michael Henry, Jack French, Bill Jacobsen and Mark Bush spoke very little to the assembled crowd, preferring instead to let their tapes do the talking.

French led off with a recording of what arguably could have cost candidate Al Smith the presidency in the 1928 election, won by Herbert Hoover.

"Until this election," French told the crowd, "few people had ever heard or seen a presidential candidate, instead casting votes based on that person's record."

French played the tape of Smith. The gruff-voiced and inarticulate candidate sounded like "a Chicago gangster," to quote French. This perception may have cost Smith the vote.

Club member Mark Bush demonstrates the creaky-door effect with the help of a young audience member.

War reports

Other classic voices of the past emanating from French's cassette deck included Amelia Earhart, followed by Kate Smith with a plea to buy War Bonds.

Jacobsen brought back the dark days of World War II with recordings of legendary news reporters and commentators of the day.

Listeners heard Elmer Davis reporting on Germany's invasion of Poland; bulletins of the bombing of Pearl Harbor; Edward R. Murrow's live report from Trafalger Square — sirens and all; reports of D-Day by Charles Collingwood.

Accounts of the death of President Franklin Roosevelt were somberly delivered by Walter Winchell (who blooped "*Henry* S Truman"), John Charles Daly

See MUSEUM, page 38 ▶

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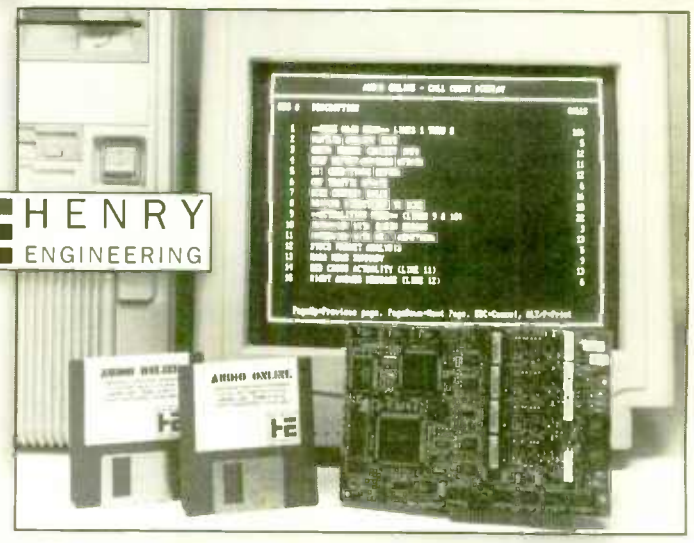

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World Radio History

Antenna Control With No Hassles

▶ AM, continued from page 29

significant wear and tear. Motorized RF contactors are much gentler and they typically require little current to operate, but they are mechanically more complex and are quite slow to operate, taking a full second or more to transition between states.

Another type of RF switch that is sometimes seen in situations where lower power levels are involved is the vacuum relay. Depending upon the impedance of the RF circuit where the relay is inserted, this type of switch can be an economical alternative. Vacuum relay coils draw little current, their operation is fast, and usually there is only one moving part. At higher power levels or in circuits where RF voltages or currents are high, a vacuum relay may not work.

While RF contactors are generally rugged, they can easily be damaged by lightning, arcing contacts and the like. Lightning, if not properly shunted, may jump from the RF conductors over to the motor or solenoid as it seeks ground through the AC neutral. The results are predictable — a burned-out solenoid or motor. Limit switches are frequent casualties of lightning as well.

RF arcs can occur if the excitation is not completely removed before the contactor goes into motion. An improperly designed or operating control system may allow this condition to occur. When it does happen, arcs develop between the finger stock and the shorting bar. The plating is destroyed at this point, and eventually the shorting bar may become spot-welded to the finger stock or the supporting frame, preventing the switch from moving. Another effect is that the points which have arced tend to be poor connections and heat builds up there as current flows. This heat can destroy the switch in a short period of time.

A proper control system

At the heart of any multi-mode AM antenna system is a control system to manage the operation of all the RF switches and transmitters. The job of this system is to sequence properly all the events that must take place as a mode change occurs and to prevent excitation of the system without all the switches in the proper position.

As an example, let's consider a multi-tower directional array that must switch between DA-day and DA-night modes. When the command is received from the local push-button or the remote control to switch patterns, first the controller must mute the excitation. This is achieved either by opening an interlock, disabling the drive or inhibiting the plate circuit of the transmitter in use at the time. After a preset amount of time has passed (usually a tenth to a quarter of a second or so to allow the transmitter excitation to shut down completely), a command to move all the RF switches in each of the antenna tuning units and phasor is initiated.

Once a tally is received from all the switches showing that they have successfully moved to the new position and another preset amount of time has passed, the transmitter excitation is reenabled. From pattern selection to successful completion of the switch, if everything is properly adjusted, should be less than a half of a second — well within the recovery time of most AM receiver AGCs. In a properly designed, properly adjusted system, listeners will notice little more than a pop when the switch is made.

The detuning method differs with the situation.

If something goes awry during the switch, say a contactor does not move, the control system should sense this and prevent the excitation from coming back on. Phasor and ATU components, including transmission lines, can be seriously damaged or destroyed if excitation is allowed to come on feeding an incorrectly configured system. Should, for example, a 50 kW daytime transmitter be allowed to come on feeding a system with one ATU still configured for the 1 kW nighttime pattern, in all likelihood the capacitors in the ATU will be destroyed, and the transmission line is at serious risk of being damaged as well.

Safety functions

Operator safety functions should also be incorporated into an antenna control system. In the systems I design, I always insist on fully interlocked phasor cabinet doors so that opening any door or cover plate on the phasor will remove the RF excitation from the system. I also incorporate a key switch-operated interlock bypass circuit which will allow operation of either transmitter into the dummy load while the main is on the air. We have all been in situations, some stressful, where we get in a hurry and perhaps forget to turn the transmitter off before opening an equipment access door. It is important that we protect ourselves and other workers from these situations with safety features.

Relays vs. logic

Over the years, antenna control systems traditionally have been designed using relay logic. Throughout my career, I have often thought that these same functions could be achieved easily and more economically using logic circuits instead of mechanically latching relays and time-delay relays. That is true, but with the control system indirectly connected to all that steel sticking up into the air, the mean time between failures could be measured as the time span between the last repair and the next thunderstorm! Relays are fairly immune to the large surges that are bound to come in when lightning strikes, and they can handle large amounts of current.

Only recently, however, one manufacturer has come out with a PCL (Programmable Logic Controller)-based antenna switching controller. This controller is completely programmable to operate a set of RF switches and transmitter interfaces in any combination that can be imagined. The interface to the outside world has been ruggedized to give the system good surge/lightning immunity.

Whether relay controlled or logic controlled, the fact remains that either motors or solenoids that run on either 110 or 220 V AC must be actuated by the control system. There are two ways to do this. One involves running a constant AC power feed to each tower and using low voltage slave relays to actually apply the AC power to the solenoids or motors. The advantage to this method is that a single run of AC power cable can be run to each tower, and other AC-powered loads — tower lights, ATU lighting, utility outlets, etc. — can be operated from that same source. The downside is that added components (relays, sockets and wiring) are necessary.

The other method involves switching the AC current to the motors or solenoids directly from the controller. If solenoids are used, this involves running a rather large (No. 10 or better) conductor to each side of each solenoid plus a neutral. If motors are used, smaller conductors can usually be used. A separate source of AC power must then be run to each tower for the ancillary loads.

Care and feeding

Most modern antenna control systems are built to be fail-safe. That means that the system power supply must be on and all the relays/switches in the proper position for the selected mode before the transmitter will be allowed to come on. Redundant power supplies are common, because the failure of the controller supply will prevent the transmitter from coming on, even if all the RF circuitry is configured correctly!

Because the control system is central to the transmitter site's operation, periodic checks of the power supply voltage are important. Also, it has been said that cleanliness is next to godliness. This is especially true in relay-based control systems. A dirty relay here can keep the station off the air.

The limit and travel switches on contactor motors or solenoids are especially prone to give trouble. Because of the rather violent action of solenoid-operated contactors, these switches really get slammed open and shut. Proper adjustment of limit switches and actuating hardware is critical.

For some reason, in those areas that are plagued with them, fire ants seem to be attracted to AC power. (You guys in the north, get ready — they're coming!) I have seen fire ants completely pack solenoid mechanisms to the point where the contactor could not move. Periodic cleaning out of these areas with a vacuum or high-pressure air is necessary to keep the mechanisms moving freely. Also, a few moth balls in a cup left in the ATU will go a long way toward keeping ants, wasps and other pests away.

Finally, periodically test all the interlock and safety circuits in the system. If the transmitter excitation is not killed completely before any contactor starts to move, arcing and arc damage will occur. An improperly working interlock can kill you. Test these features at least once a year.

The antenna control system should be invisible if it is working properly. By starting with a good design and continuing with good maintenance, you can achieve trouble-free operation for many years.

■ ■ ■

Cris Alexander is director of engineering for Crawford Broadcasting in Dallas. Contact him at (214) 445-1713 or via e-mail at cbceng@compuserve.com

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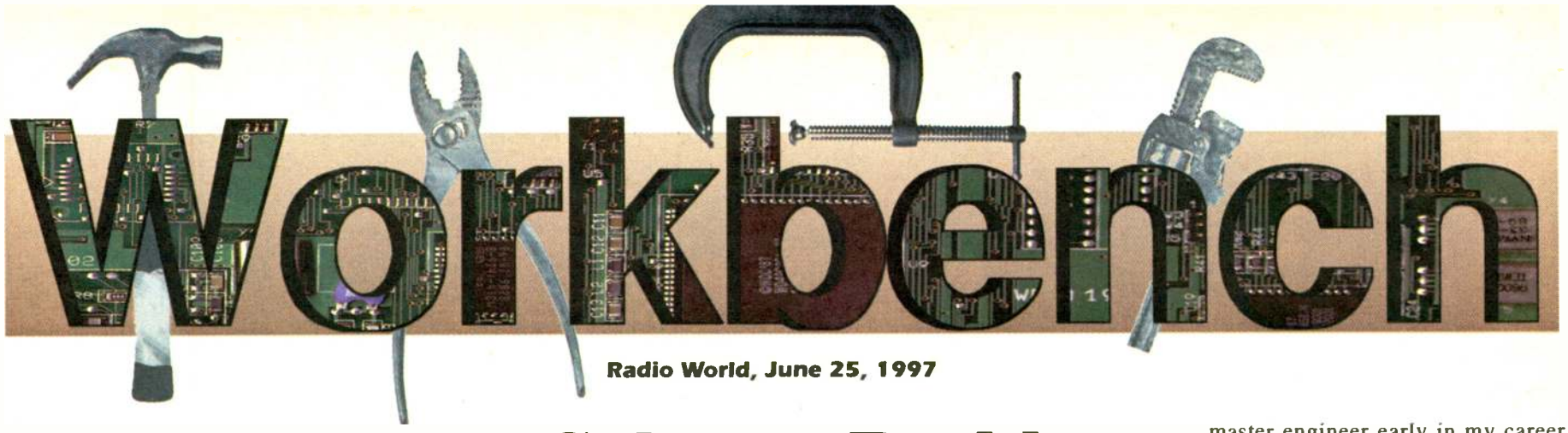


Radio World, June 25, 1997

A Careful Hunt Solves a Problem

John Bisset

A recent event reminded me how lucky I was to learn broadcast engineering in the shadow of several seasoned chiefs. So often, engineers begin their careers without this advantage. Instead of starting as an assistant, they become chiefs of three or four stations right away. It's "sink or swim" engineering. It may be great for the ego. But missing out on the "apprenticeship" has its drawbacks.

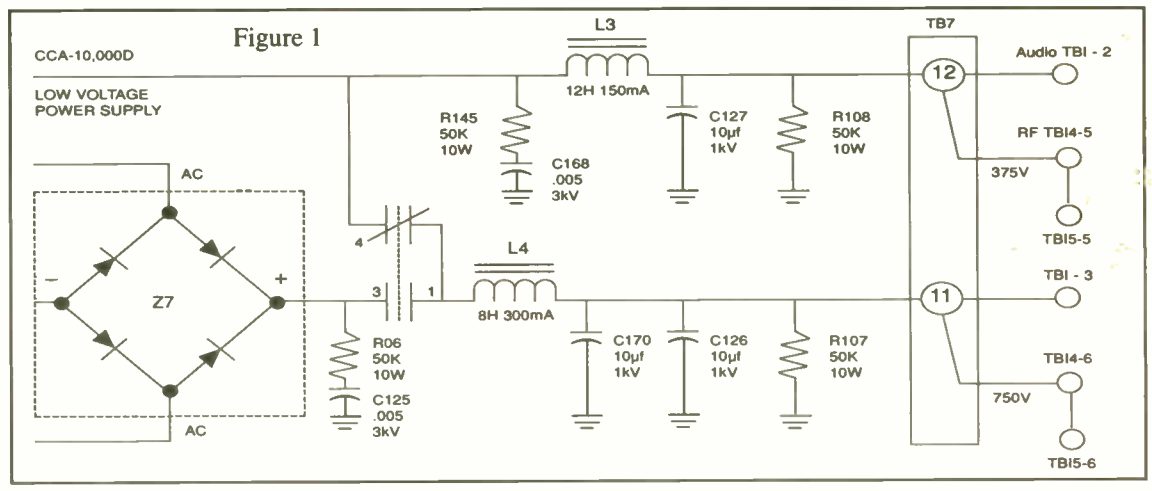
One is cultivating good troubleshooting skills. I recall so many instances in which the engineer just ran in circles — not because he didn't know what he was doing, but because he had never been taught troubleshooting in an organized and systematic way.

A recent service call was an ideal example of isolating the problem and correcting it. Thanks to Merrill Pittman, chief for more than 40 years at WANN(AM) in Annapolis, Md., whom I assisted in this particular failure.

The call came in right after the morning rush hour: The main transmitter, a CCA 10,000D, was off the air with a low-voltage overload. Could I assist the chief in tracking it down? I was glad to see another engineer decide, in this era of trimming budgets, that *he* wouldn't work on a transmitter by himself. I headed to the site.

Being a sole engineer at any station these days doesn't mean you must literally take your life in your hands! If your general manager won't spring for the expense to call in someone to assist you, drag him down to the site. Your point is better made if the weather is cold. After a half-hour or so of freezing in a cold transmitter shack, he'll not only better appreciate your devotion to the station and your craft, but should do nearly anything to avoid a return trip.

Figure 1



The Low-voltage Supply in a CCA 10,000D AM Transmitter

A low-voltage overload on an old tube AM rig ... shouldn't be too much trouble to find, I thought, as I drove to the site. Probably something in the power supply, like a blown cap or shorted bridge rectifier.

By the time I got to the site, the list of things to check had grown. Sure enough, as soon as the plates were turned on, the overload light illuminated. Something was definitely shorting the supply to ground.

Our first step was the obvious. Because the low voltage fed the screens of both the audio and RF low-level sections, we pulled the tubes to see if a tube had internally shorted. No luck.

Open resistors

The next step was to check the bleeder and suppression resistors on the power supply itself. We thought that one may have shorted. Imagine our surprise to find them all open. So much for bleeding off the voltage. In this day of solid-state transmitters, "low" voltage may bring to mind 24 V or maybe 48 V. In this rig, the "low" voltage was in excess of 700 V, another reason to use the shorting stick before placing your hand inside.

We got the bleeders replaced, and then disconnected the output of the power supply. With our voltmeter across the output, we turned the rig on. No overload, and the voltage looked fine — a little high with no load, but not unhappy.

Our short lay beyond the supply. Two wires connected to the audio and RF sections. A third portion of the power supply ran through a time delay relay contact, which wasn't pulling in, so we ignored it. We ohmed out the two wires to see which went to the audio and which fed the RF oscillator section. CCA used the stripes on the wires to indicate the wire number, but between the wire wrapping and dim light, the ohmmeter method was quicker.

We connected the audio first, applied power, and no overload. I learned from a master engineer early in my career to check and double-check. This takes time, but it keeps you from running in circles. With that in mind, we disconnected the AF lead, and now hooked up power to the RF section. After applying power, the overload light came on immediately, just as before.

Poring over the schematic, we found a number of .05 bypass caps. Although these are rated at 1 kV, they can fail. The speed with which the overload was occurring sure gave the appearance of a cap shorted to ground.

One of the virtues of a CCA transmitter is that there is plenty of room to get around inside. Locating the oscillator section, we shone a strong spot light onto the component board. Two 2-W composition resistors looked a little discolored. Pulling the mounting panel from the front, we found that the resistors had indeed overheated. Both measured about 20 ohms rather than their 33 K and 47 K values. The bypass caps were fine.

Replacing these two resistors, along with another that looked suspect, corrected the problem. Before leaving the site, I spoke to CCA to order some spare parts, and was greeted by their new customer service manager, Mike Mallory. He has been a contract engineer for a number of years, and brings to CCA a wealth of transmitter repair knowledge. He's also an avid reader of *Workbench*! He has agreed to provide us with tips from time to time.

In addition to Mike's technical knowledge, he understands the term "customer service." It's always an advantage to have worn the shoes of your customers. Just look at the success of Steve Church's Telos, Frank Foti's Cutting Edge, Hank Landsberg's Henry Engineering, and Paul Donahue's MUSICAM USA/Starguide.

CCA also features technical training seminars on their transmitters. For information, circle ***Reader Service 204.***

■ ■ ■

John Bisset is a principal with Multiphase, a technical services company. Reach him at (703) 323-7180. Printed submissions qualify for SBE recertification credit. Fax submissions to (703) 764-0751, or send them via e-mail at WRWBENCH@AOL.COM

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Audioactive, the Internet audio suite from Telos Systems, now supports the open, standards-based software platform NetShow 2.0 from Microsoft.

Audioactive is a hardware and software system for streaming live, real-time audio over the World Wide Web. The dedicated hardware-based encoder offers more processing power than systems using general-purpose CPUs. Audioactive features a five DSP-chip compression engine for MPEG Layer 3 bitrate reduction.

For more information from Telos, contact John Casey at (216) 241-7225 in Ohio, or via e-mail: jcasey@telos-systems.com *or* ***circle Reader Service 85.***

Quantegy 480 Analog Master Tape

Quantegy Inc. has created the Quantegy 480 analog tape for NAGRA recorders.

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For more information, please call Quantegy at (770) 486-2800 in Georgia, or ***circle Reader Service 61.***

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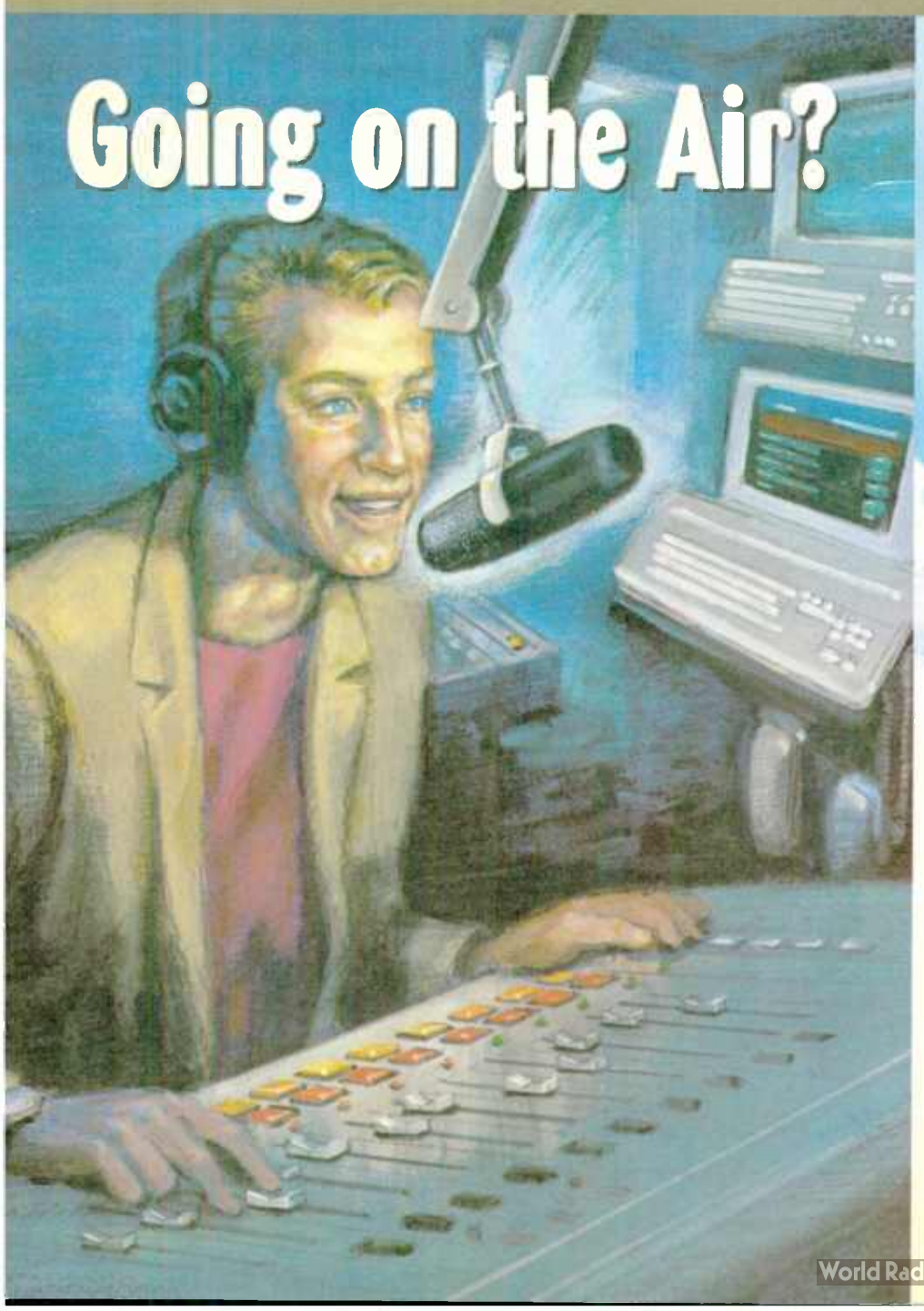
The AM10A transmitter maintains the features of the original AM-10, including redundant power supplies, AM C-Quam stereo and Class E power amplification.

For more information, contact Tracy Peterson at (217) 224-9600 or ***circle Reader Service 13.***



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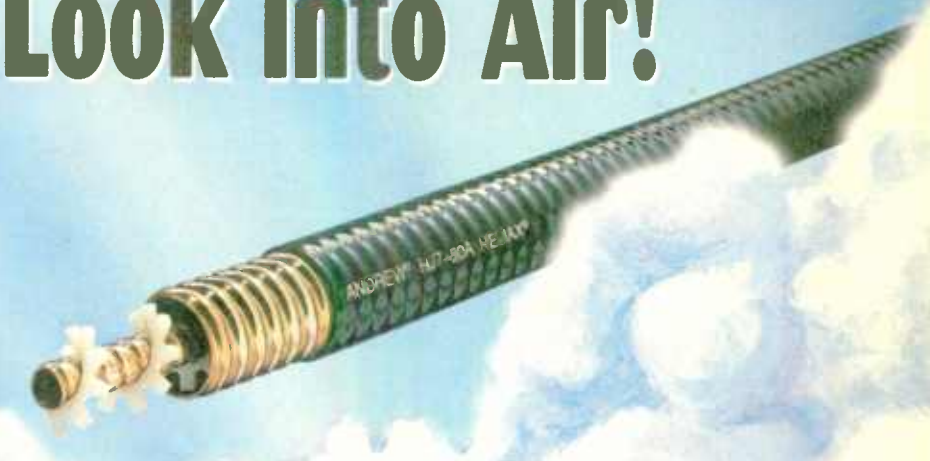

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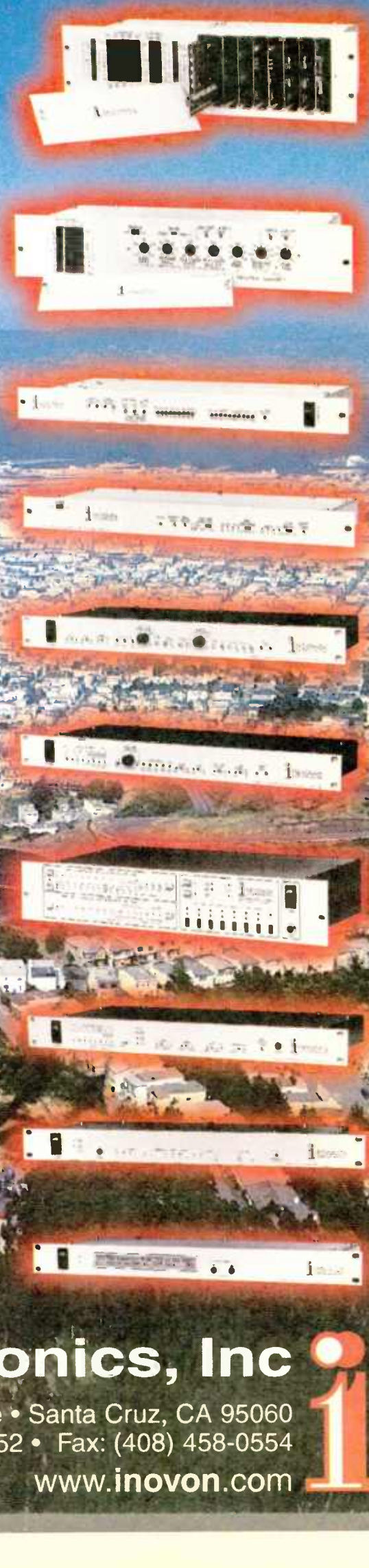

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World Radio History

GUEST COMMENTARY

The End of the Loudness Wars

Eric Small

The radio loudness wars have ended. Not with a formal surrender on board a flag-draped battle ship the way World War II ended, but amid the paperwork blizzard of radio licenses transferring as consolidation rolled on.

You remember the loudness wars, don't you? Newcomers to the industry, as well as future generations, might not believe the intensity with which individual radio stations — especially in major markets — once waged a single-minded pursuit to be the loudest kid on the block.

Who's the loudest of 'em all?

The wars were driven by the desire of stations to make a good Arbitron showing by being the dominant station on the dial. There were never any formal studies done to correlate being loud with getting good ratings, but it was generally agreed that, since most FMs had sound-alike formats (remember the music of the '80s?) a listener scanning stations, especially in a car, would naturally tune to the one that sounded the loudest.

Three to five generations of radio broadcasters have been brought up expecting heavy processing as the norm.

One New York City rock station, engaged in a loudness battle that was obvious even to the casual listener, had management proclaim that they'd sooner pay the FCC fines and get the ratings the extra boost would bestow.

It got so bad in New York that some audiophiles proclaimed the market unlistenable. Rumors flew that two heavy-handed rockers raised the ante further but finally had their general managers sit down and agree on a loudness ceiling of their own.

But it wasn't all brute force. Some of the more creative stations employed a combination of processing techniques, including composite clipping and stereo enhancement, to sculpt their particular sound. This did, in fact, make them more easily identifiable. Later, with more precise modulation measuring, stations (especially those whose formats wouldn't benefit from aggressive processing) were able to squeeze an extra dB of modulation to help maintain a dial presence in an increasingly processed environment. My company was among those offering these processing and monitoring products.

Effects of consolidation

But all that's changed now, thanks to the checkbooks of the mega-groups and relaxed ownership rules.

When one group owns all the powerhouse stations in a market, who's left to fight a loudness war? Even if more than one owner dominates a given market, there is little incentive to be "the loudest." Each of the groups knows the others' processing philosophy, so why waste money and audio quality once technical parity exists?

And, well, why not? With niche music formatting, and the return of talk to FM — Howard Stern and Don Imus in most big and medium markets — the whole concept of "competition" among stations has changed anyway.

Even if you aren't a "golden ears," you might think that stations might have started to focus on improving the quality of their sounds, now that loud is no longer equated with ratings. But the end of hostilities has only brought status quo to audio processing, not improvement.

The Author as Ham at Age 12

Depending on how you count, three to five generations of radio broadcasters have been brought up expecting heavy processing as the norm. The sad truth is that few have ever heard lightly processed radio, unless they have spent time in Europe, and it is disappearing quickly even there.

The winds of change

There is some hope. While no strong economic incentive exists to roll back audio processing, audio quality may improve as a by-product of the new paradigm of FM broadcast

See LOUDNESS, page 38 ▶

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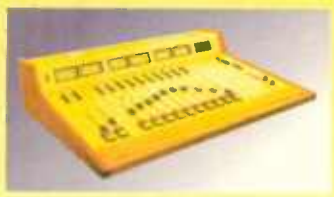

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As illustrated in the Sony Worldwide Networks master control studio on the right (one of seven Arrakis studios in the Manhattan, New York complex), Arrakis can provide complete major market studios with Arrakis consoles, digital workstations, video-audio switchers, furniture, and system prewiring.

With a choice of several console lines; digital workstations for live air, production, news, and automation; and two major studio furniture product lines, Arrakis can meet broadcasters needs from the compact news studio to the major market network origination center. Complete Arrakis equipped studios can be found around the world from Tokyo, to Moscow, to Japan, to Tahiti. *Call Arrakis today for your equipment or studio needs,*

Sony Worldwide Networks

Manhattan, New York

World Radio History

Newseum Looks Back

▶ MUSEUM, continued from page 29

and Hilmar Robert Baukhage ("Baukhage Talking ...").

Club founding member Bush saved the crowd pleaser for the end of the presentation with a live demonstration of classic sound effects, much like those once used in reality-based radio dramas such as "You Are There."

All the favorites were there: coconuts for horses hooves, a small door with buzzer and rattling doorknob, cellophane for the campfire and a large sheet of metal for the rumble of thunder.

Several dozen dowels suspended by strings became a marching army. A hollowed-out cactus branch filled with pellets became a steady rainfall. A mousetrap on a snare drum simulated a gunshot.

A look of recognition moved across the crowd when one perplexing device made from a leather belt, a large dowel and some violin rosin was finally operated. There came the familiar "squeaky door" effect from radio's classic "Inner Sanctum" program.

With the help of some enthusiastic youngsters in Tiger Cubs uniforms, Bush read a prepared script while the group worked the sound effects on-cue with great delight.

The entire event was recorded for later broadcast on cable television's C-SPAN channel.

■■■

The Newseum is located on the first floors of the Freedom Forum World Center in Arlington, Va., across the Potomac from Washington, D.C. For information on events at the Newseum, call (703) 284-3700.

End of the Loudness Wars?

▶ LOUDNESS, continued from page 35

engineering — coverage enhancement.

Once an owner has most of the audience in a market, being more competitive in that market doesn't deliver much return on the investment. However, every square mile of new coverage may well garner most listeners in that square mile. Now that's worth some effort.

Making coverage the new battle ground more accurately reflects the real goals of contemporary corporate radio management. There are parameters, outside those controlled by your license that can improve coverage.

There are also signal-to-noise ratio improvements. The SNR of a stereo FM signal is about 26 dB

Eric Small

worse than the same signal in monaural. The auto radio manufacturers have been taking advantage of this effect for years with their automatic stereo blend circuits. While they tend to be very heavy-handed, no one argues about their effectiveness. A lot of interesting things can be done at the station to improve the SNR without degrading the signal quality.

Improving the SNR and reducing the susceptability to multipath both tend to increase the audio quality. Because the techniques used to manipulate SNR and multipath susceptability are still in the early stages of patent application, it's too soon to assess the net impact on audio quality. But the potential is there for a significant improvement in audio quality as a by-product of improved coverage.

And wouldn't it be a fitting epitaph to the loudness wars if, in the end, their legacy was an actual improvement in the way radio stations sound?

■■■

Eric Small is president of manufacturer Modulation Sciences Inc. He is a veteran of the battles in audio processing, including the loudness wars. To contact him or find out more about Modulation Sciences products, call (800) 826-2603.

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World Radio History

Running Radio

Radio World — Resource for Business, Programming & Sales — June 25, 1997

Station Services
See Page 45

WHN: Has It Been 10 Years?

Vince Santarelli

"This is Dan Taylor on America's number-one country music station, 1050 WHN New York. And now, one more song to close it all out."

With those words, disc jockey Dan Taylor hit the button to play "For The Good Times" by Ray Price, and 1050 WHN(AM) faded into radio history. The date was July 1, 1987. The country station, sold to Emmis Broadcasting, would assume the call letters WFAN, and offer an untried format: all sports.

This month marks 10 years since WHN's demise. Its replacement, WFAN, has gone on to great success with the sports format, and it subsequently hopped down the dial to 660 kHz, the old home of WNBC(AM). Meanwhile, the country format has risen to dominance across the country but never regained its foothold in New York City.

Decade after decade

The history of WHN goes back to 1922. The station was among the first on the air in New York. In the late 1940s, the call letters changed to WMGM. In the 1950s and early '60s, the station tried its hand at programming rock 'n' roll, only to be done in by AM competitors WINS, WMCA and later WABC.

On Feb. 28, 1962, WMGM was purchased by Storer Broadcasting. The call letters were changed back to WHN and the format was changed to what was then called Middle of the Road (MOR). Today we would call it Adult Standards.

During its MOR days, WHN played host to big-name personalities including Jim Ameche (brother of Don), Herb Oscar Anderson, who gained fame as the "Morning Mayor" at WABC, Bob Fitzsimmons and Jack Sterling. WHN also at various times was the flagship station for the New York Mets, Yankees, Rangers, Knicks and Nets.

New York country

WHN really gained prominence in the New York market with country music. New York had been without a country station for almost two years. Storer saw a market void and wasted no time filling it.

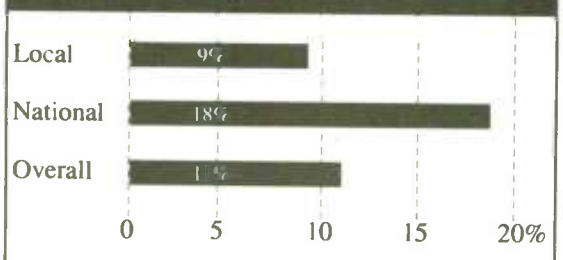
On Feb. 26, 1973, WHN played the George Jones song "The Race Is On," and country returned to the Big Apple. Original all-night personality Stan Martin, known in those days as "The Midnight Cowboy," remembers the early days. "We did country in a very classy way. Most importantly, we related to the audience. The basic formula was, 'Be yourself and respect the music.'"

Martin, who currently programs WQEW(AM) in New York, remembers how loyal the audience was. "One of the most exciting promotions that I remember at WHN was this big picnic that we held. Bill Anderson performed and we provided the food and drinks in this big park. Thousands of listeners turned out. It was just the most incredible thing I'd ever seen," he said.

It was a time when some critics thought New Yorkers would not be interested in country music. It was a big deal when country performers came to Carnegie Hall or played a large outdoor venue.

See COUNTRY, page 40 ▶

RADIO REVENUE : YEAR TO DATE



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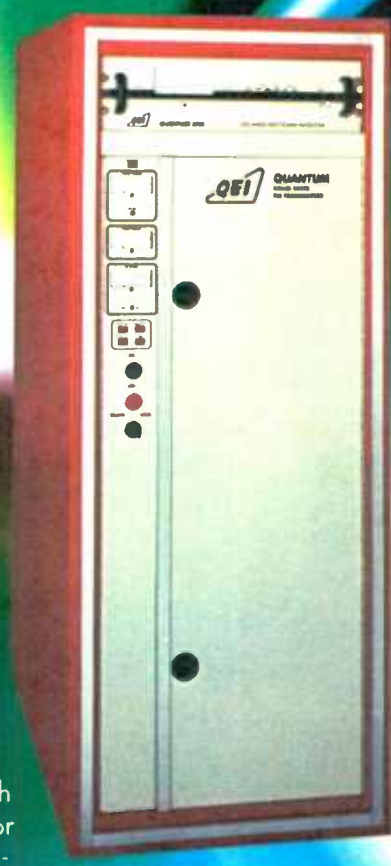

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World Radio History

No Home for Country in NYC

▶ COUNTRY, continued from page 39

WHN hosted the New York debut of some of country's biggest stars. Martin remembers Crystal Gayle's first city appearance. Brian Kelly, who did the all-night show in the early '80s, remembers one night at the Lone Star Cafe.

"There I stood on the stage, emceeing my first concert live on the air. The guy I was introducing only had one hit under his belt to this point. Little did we know how big he would become," he said. That performer was George Strait.

Lee Arnold, who served as the midday DJ for most of the 14-year country run, remembers WHN fondly. "It's my favorite of all of the stations I've worked at. The happiest times and happiest years of my life were spent at WHN. It was a team effort. ... Each personality was distinct and had his own niche. It was just a very happy-sounding radio station." Arnold currently is the midday personality at WQEW.

WHN helped bring in the talent. Both Arnold and Martin remembered the close bonds that Nashville had to the station. "There was never a problem with getting the stars to perform in New York," Arnold said.

He remembers the Felt Forum Series of concerts at Madison Square Garden. WHN sponsored these shows, featuring the biggest names in country. "The concerts were extremely successful," Arnold said. "They provided the necessary exposure to the artists as well as the radio station. All of the DJs mixed and mingled and got involved with the listeners. That was the special thing about WHN. We really cared about our listeners and we showed it."

Special effects

The station had an effect on the listeners in other ways. Stan Martin tells the story of O'Lunney's.

"Hugh O'Lunney owned a bar on Second Avenue between 48th and 49th Streets," he said. "One night, while driving in his car, Hugh heard WHN for the first time. He liked the sound so much that he decided to turn his bar into a country bar and restaurant. The change worked, and Hugh was very successful for many, many years."

Vintage Lee Arnold

Ruth Meyer was WHN's first country program director. She gained her programming stripes at rock 'n' roll station WMCA. Both Martin and Arnold recall her taking charge at WHN as if she had been programming country all her life. She was responsible for the country changeover and started the station off right.

Country crossover

Later, the station would fall under the guidance of Ed Salamon. It was here that Salamon earned his reputation as a master programmer. He took over the reins in 1975 and stayed until 1981.

Salamon's programming philosophy was to play country without sounding country. "We had a WABC-type of approach, but we just happened to be playing country music," Kelly said. "We played a lot of crossovers: Eagles, Dan Fogelberg, etc." Kelly lives in Philadelphia and is no longer active in radio.

WHN and country music did well in the nation's top market. Arbitron figures from 1975 indicate a 3.9 rating for the station, placing it 15th. The numbers stayed strong, registering a 3.6 in early 1979. WHN even survived an attempt at programming country on FM.

After Salamon left, the station came under the guidance of several more programmers. There were some ownership changes, too. Storer decided to get involved in cable television and sold all of its radio properties. Mutual purchased WHN, and when it was purchased by Westwood One, the latter operated WHN as well. Westwood One then sold the station to Emmis.

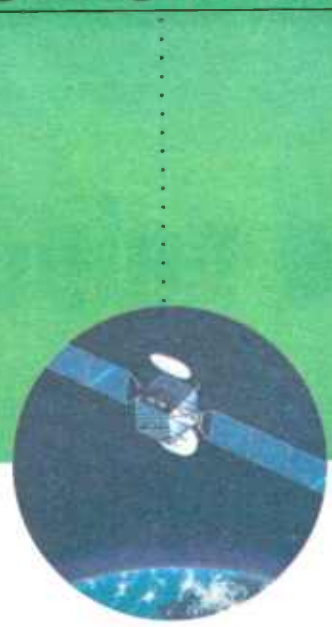
"We knew the end was coming, for sure, for about four months," Arnold said. "That last day was a very sad and very sweet moment. I couldn't even think about this being my last show. I was too concerned with remembering all of the good times. And when Dan Taylor hit that last song, it was all over. It was very sad."

The country slack was taken up in New York City that day by the now-defunct WYNY. But, said Arnold, "As far as I'm concerned, that last day of WHN was the end of country radio in New York."

■■■

Vince Santarelli is editor of the monthly newsletter Apple Bites. You can reach him by e-mail at applebites@juno.com

Sharing programming? We have just enough



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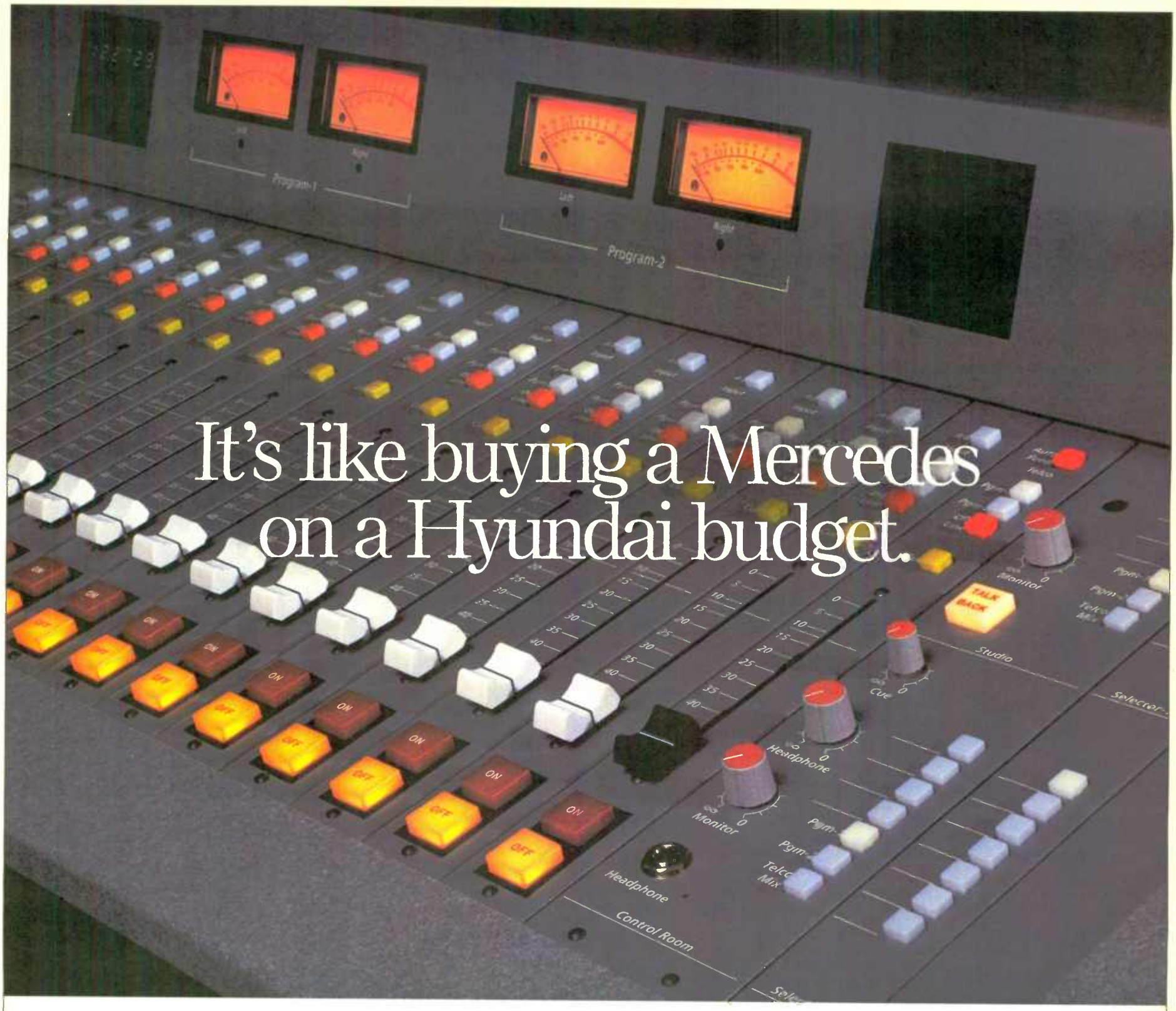

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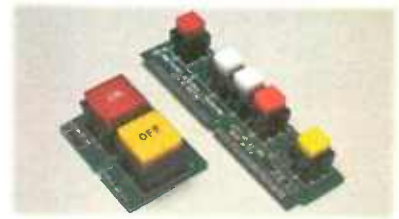

Sealed, LED illuminated buttons are designed so you can remove the switch assembly without unsoldering, in case of a coffee spill.

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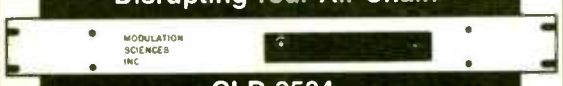

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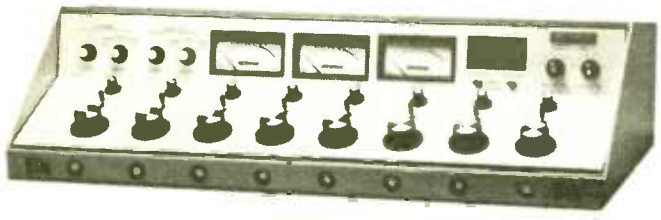

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World Radio History

How to Manage With Nobody Home

Ed Montgomery

This is the 12th and final installment in a multipart series intended "to make the new generation of FM broadcast station managers aware of the equipment for which they are responsible and to help them periodically review how the equipment is operating." The previous article appeared June 11.

In this age of deregulation and multiple ownership, the responsibility of the day-to-day operations has fallen on the station manger. This additional job description may be accepted reluctantly but it must be assumed.

No one wants to be notified that the station is off the air. Engineering assistance may be hours away. If station personnel followed the same procedures that have been presented in this series, many of the events that could put a station off the air could be avoided or predicted.

Today's studio and transmitting equipment is reliable. It does not need the nearly constant attention older equipment does. However, newer equipment should not be ignored.

If an engineer is not at a station full-time, then a manager should be a keen observer of how everything is operating. Radio engineers believe that the more you know about how the system operates, the better off you are.

Save with consumer products

Other responsibilities include the purchase of equipment for the station. In recent years, the audio fidelity and distortion characteristics of consumer-grade equipment have improved to the point of being comparable with professional gear. It seems sensible to buy a consumer-grade compact disc or tape machine for a fraction of what a professional machine would cost. If the machine breaks, replace it; it costs too much to fix.

This idea is not all bad. However, remember that when you purchase consumer-grade equipment you are buying a machine with a low-level(-10 dBm), high-impedance output. High-impedance lines are susceptible to interference from adjacent audio and electrical lines. If a high-impedance line parallels several feet of AC power cord, a 60 Hz hum can be induced into the audio line.

Consumer-grade equipment for the studio usually require an interface amplifier to change the output to a balanced, low-impedance line that the audio console will accept. A quick glance at an audio console manual will reveal the input levels. They are usually balanced inputs at +4 dB — levels much higher than a consumer-grade piece of equipment can deliver.

The balanced line inputs on an audio console often are on terminal strips, but can also be XLR plugs or quarter-inch tip-sleeve-ring (TRS) jacks and plugs or amphenol/molex receptacles. These connections are far more reliable than unbalanced RCA "phono" plugs, friction-fit connectors which can corrode over time, compromising the connection. They can also be accidentally pulled out, creating numerous additional problems that station managers really do not need to face.

EAS operation

Another area of responsibility for local management is the Emergency Alert System (EAS). Management must be familiar with the national, state and local plans, then make decisions regarding what emergency announcements will and will not be broadcast.

All operating personnel need to know how EAS operates and what their responsibility is when the message is received. EAS is quite an advance over EBS. There should be no reason why emergency notifications are not properly received and transmitted — something that could not be said for the previous systems.

As equipment is replaced, stations are becoming "tapeless" facilities, employing specially formatted computers to play back all music, commercials and other programming elements. These systems can intercept network feeds from satellites and telephone lines and permit unattended operation.

Music, spots and sounders are entered into these systems as audio files, similar to any other computer file you would create. If a file is corrupted, it can produce dead air or lock up the system. Corrupt files can affect all music, spots, sounders, network feeds or anything.

This can be extremely embarrassing to

See MANAGER, page 44 ▶

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PROMO POWER

More Than Remotely Important

Mark Lapidus

Summertime! The warmer weather brings with it longer days and a flurry of sales remotes from car dealerships, furniture stores and other retail outlets across much of North America. Sure, many parts of the country are warm the year around (I hate you!), but stay with me — this article will apply to you, too. Even a casual listen to radio stations reveals a clear misunderstanding of how to promote and execute sales remotes.

Go where the action is

Are sales remotes a good thing? My unorthodox answer is "yes." I am an enormous believer in personally connecting with an audience. To do that, you must go where your audience goes.

Guess where your audience goes? Concerts? Some. Sporting events? Maybe. Places where they can buy stuff they need on a regular basis? Bingo!

Many PDs ignore the fact that consumerism drives our culture. If you won't do a remote from the local K-Mart or gas station because one isn't cool enough and the other sells an environmentally bad substance, you've been working too many hours locked up in your ivory radio station.

Good or bad is a moot point for many stations. Sales remotes must be done just for the money. With investors paying 15 to 20 times cash flow for a property, even stations that did not do on-air sales remotes before are certain to revisit this subject.

Any GSM having read this far already has the scissors out of her desk, ready to cut out this article and make 10 copies for the PD and GM. But let's look at some of the problems.

While endorsing sales remotes, I do so only because I know that they can be done well. More often than not, however, stations do a horrible job. Common problems include inept pre-promotion, badly structured broadcasts, little or no listener incentive to attend, and no on-site planning.

Pre-promotion: Let's stop pretending that people will actually mark their calendars to join Big Joe the DJ at Bobby's Ford this Sunday from noon to 3 p.m. for free hot dogs and a tee-shirt. Although this pitch makes you laugh, hundreds of stations are saying almost those exact words as you read this. Why? Because salespeople will tell the client that they will receive 30 *free* promos to tell listeners about this incredible appearance. If this same station sells three remotes in one weekend, they're cluttering their station with 90 meaningless promos.

Impulse decisions

After years of doing sales remotes, I am convinced that people attend them when they hear them being broadcast. If you don't believe me, go watch your next sales remote. The DJ does a break, and five minutes later people walk in. What a shock! The decision to drop by is made completely on impulse. Your listener happened to be in the neighborhood, is thinking about buying a car anyway and wants the free stuff you're passing out.

So, how do you placate the client that is used to getting 30 *free* promos with his schedule? Make his paid schedule all 60-second spots, with 50 seconds about his product and 10 seconds about the appearance. If he doesn't buy that, give him the

See SALES, page 46 ▶

Manage Your Unattended Station

▶ MANAGER, continued from page 43

the station if it occurs during a time of unattended operation. Think of the system failing during morning or evening drive without anyone at the station knowing what to do about it.

It is not recommended that every person know everything about the system. However, have some written procedure for the person on-duty — or the person responsible for the station when it is unattended — to get the system running again.

The hard drive arrives

One thing all broadcasters must realize is that the standard media for spots, sounders and music — the cartridge — has changed. The era of compressed audio on a hard drive is here. Ultimately, every broadcasting station will have some form of computer system recording and playing audio.

There are several computer terms helpful in determining how a computerized system will operate.

MTBF is the Mean Time Between Failures, suggesting the average life span of a hard drive. It is normally tracked in thousand-hour increments, such as "100,000 hours MTBF."

RAID is a Redundant Array of Inexpensive Disks. Two or more disk drives work together, defining the amount of redundancy built into the system. It illustrates how much data can be stored and backed up within the system.

Other terms like Transfer Rate, Latency, Seek Time, Command Overhead and Access Time define how quickly the system can access or record files.

In this age of technology, a radio station can almost run totally unattended.

Computers need to be isolated from power surges and intermittent losses of electricity. They do wonderful things, but they are not people. They will produce exactly what is entered into them.

The only thing a computer-based audio system may have in common with traditional studio equipment is that it records and plays voice and music. Keep all audio levels constant when creating files. In many cases, there will be no person on duty to "ride the gain" on the console.

Good training programs and reliable service/support from the manufacturer are requirements. The economics of purchasing one of these systems is a major consideration as well. The machine that is state-of-the-art today will be obsolete in a few years. Estimate the cost/savings and revenue gain over a three-to-five year period. Something new will be on the market.

U.S. News and World Report recently reported that computers tend to lose their "newness" sooner than most other products. The computer industry's obsession with rapid innovation often leaves businesses and consumers with machines that cannot be upgraded.

When considering all the possible changes that could affect a specific system you plan to acquire, consider some form of lease arrangement that would guarantee upgrades. Also consider the operating systems. Is the manufacturer using hardware and software that has been proven over the years? Who manufactured the computers, the hard drives, other critical components?

These systems might have the broadcast supplier's name on them, but inside they probably look and operate just like the stock Pentium you use for word processing, billing or the Internet. Because of this rapid devaluation, you may decide that upgradable proprietary systems would be a better choice.

Wrapping up

In conclusion, the broadcast engineering functions at today's radio stations depend quite heavily on computer knowledge and training. Be constantly aware of the studio and transmitter facilities. Keep records on how they are functioning. Keep the studio and transmitter facility clean. Make sure there is an adequate circulation of cool air around all equipment. Good records and observations will keep you on the air and indicate when further technical assistance is necessary.

This concludes the "Broadcast Basics: Frequency Modulation" series. A test and answer sheet will be mailed to all individuals who registered for this class. Mark your answers with a No. 2 pencil and mail the answer sheet back to Northern Virginia Community College. Certificates will be mailed back to those who passed the test on or about Aug. 1.

■■■

Ed Montgomery is lab director at Thomas Jefferson High School for Science and Technology in Alexandria, Va., and a part-time radio engineer. He also taught college-level broadcast engineering technology and writes educational columns for ***RW****. Contact him via e-mail at* emontgom@lan.tjhsst.edu

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Blues Hour Has Award Power

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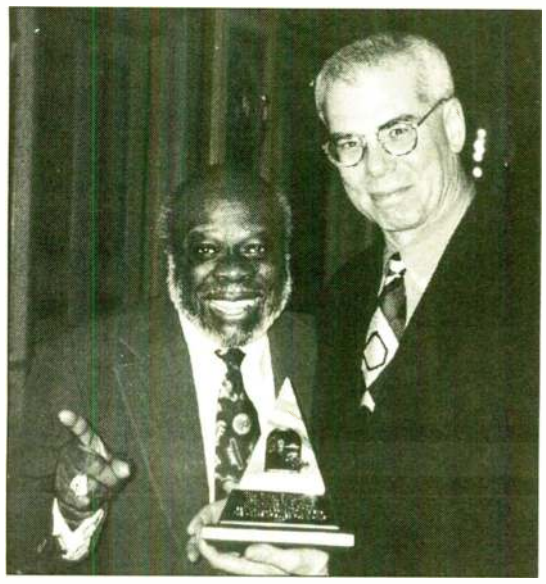
"The House of Blues Radio Hour," hosted by Dan Akroyd (a.k.a. Elwood Blues) and heard by more than 1.5 million listeners each weekend, was honored by



Blues artist Rufus Thomas (L) with Ben Manilla at the W.C. Handy Awards in Memphis, May 2, 1997.

The Blues Foundation with a "Keeping the Blues Alive" award, recognizing "significant contributions to the perpetuation of the American Blues culture."

BMP has received awards from UPI, Billboard Magazine and the Associated Press.

"The House of Blues Radio Hour" is produced by BMP in conjunction with House of Blues Productions and CBS Radio Networks.

For information contact Megan Seielspad at BMP, (415) 421-1220; or ***circle Reader Service 84.***

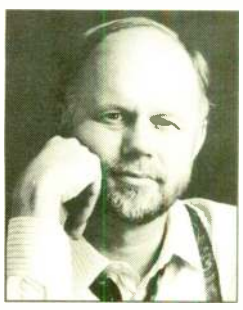
Travel Across the Nation

Travel tips courtesy of Public Radio International will be available nationwide beginning Aug. 9.

"The Savvy Traveler" is hosted by Rudy Maxa, who offers "tips on how to travel successfully with parents, children, friends and pets."

Features include "Deal of the Week," "Ask the Savvy Traveler," "The International Culture Club" and "A Word for the Road: thoughtful, insightful and humorous quotes from the world's best travel writers."

Travel is the third largest industry in America, ringing up $467 billion a year.



Rudy Maxa

Maxa is best known for his travel commentaries on public radio's "Marketplace."

For information contact Janet de Acevedo at PRI in Minnesota, (612) 330-9230; or circle ***Reader Service 156.***

Science Center Studio

The Liberty Science Center, an interactive museum in Jersey City, N.J., soon will have a new addition: a radio studio.

The Children's Broadcasting Corp. (CBC) plans to use the facility to produce programs for the Aahs World Radio network of stations. Visitors to the museum can watch as the programs are prepared for broadcast.

The studio also will serve as the broadcast home for WJDM(AM), the Aahs World Radio affiliate for the New York City area. WJDM will serve a broader coverage area upon completion of its new tower site, scheduled to be ready by the time the new CBC studio is finished.

CBC President Christopher T. Dahl said the collaboration between the museum and Radio Aahs is a natural. "Where Liberty seeks to engage and remind folks of the wonder of science, CBC and its Aahs World Radio seek to engage and remind people of the joy of radio," he said.

For information contact Media Relations Manager Joy Plaschko at the CBC in Minnesota, (612) 330-9524; or ***circle Reader Service 60.***

'Garden' Will Launch Next Year

Home- and garden-related programs are springing up like summer grass these days. A new network devoted to these subjects will soon blossom on your radio dial.

The Home & Garden Radio Network is set to debut in the first quarter of 1998, with 20 hours of programming each weekend.

An offshoot of Home & Garden Television (HGTV), the radio network will be anchored by the same personalities, complemented by additional expert advice.

Ken Lowe, president/chief executive

HGRadio
HOME & GARDEN RADIO NETWORK

officer of HGTV said, "We're always looking to expand our presence in the home and garden category through different distribution mediums. Radio is just a natural extension of taking that brand one step further."

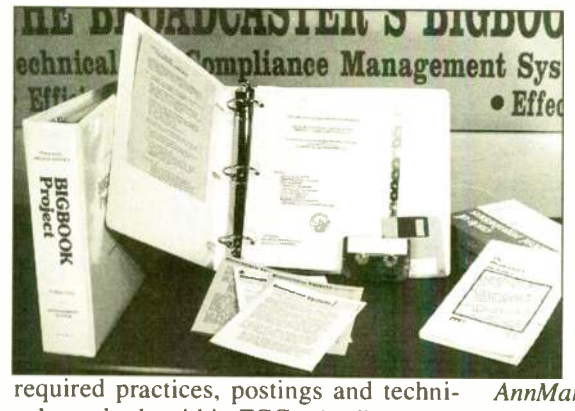
For information contact Carol D. Hicks at HGTV in Tennessee, (423) 470-3976; or circle ***Reader Service 108.***

Revised Bigbook for Broadcasters

An industry resource is now improved.

Such is the case with the Bigbook project, released as a four-volume set in 1992. The Bigbook has been revised, repackaged and reduced in price to make it more attractive to cash-strapped broadcasters.

For $199, the two-volume Bigbook offers "a radio station technical/operations/regulatory workbook system which allows the licensee to quickly, easily and inexpensively handle all



required practices, postings and technical standards within FCC rules."

Improvements to the original Bigbook include sturdier binders, improved and expanded instructions, technical and regulatory tutorials, a free year of technical support and newsletters and revised forms incorporating new FCC rules and practices.

For information contact Jim McDonald at the Wind River Broadcast Center in Colorado, (800) 669-3993; or ***circle Reader Service 180.***

'Daybreak' Anniversary, New Co-host

Changes await "Daybreak USA" as it approaches its first anniversary July 15.

The USA Radio Network program, heard on 160 affiliates in the United States, gains a new co-host with the addition of Richard Stevens. Stevens previously worked for KPLX(FM) and KKDA-FM, both in Dallas. Television game show fans may remember Stevens as the announcer for the "New Hollywood Square." He'll share hosting duties with Al Lerner.

"Daybreak USA" airs weekdays from 5 to 10 a.m. (ET).

Additionally, Tom Tradup's conservative commentaries, heard twice a day on "Daybreak USA," will be syndicated internationally over Armed Forces Radio to a potential audience of 750,000 men and women in the military.

Tradup, director of Talk Programming at USA Radio Network, is enthusiastic about the reach of "Daybreak USA."

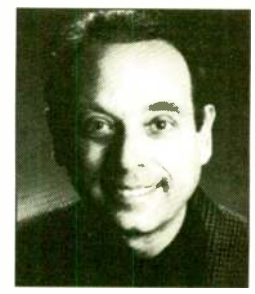
"Given that we only launched 'Daybreak USA' 10 months ago, I am encouraged that we already have 160 stations clearing this product, and we will announce several additions in the exciting days ahead," he said.

For information contact AnnMarie Pettito at USA Radio Network, (972) 484-3900 (ext. 143); or ***circle Reader Service 78.***

Radio Vet Talks to America

Talk show host and former radio station owner Mike Siegel can now be heard across the nation on the Talk America Radio Networks.

"The Mike Siegel Show" airs from midnight to 5 a.m. (EST) weekdays.



Mike Siegel

Siegel was dubbed one the 100 most important talk show hosts in America by Talker's magazine.

And in the morning, Talk America listeners can tune in for "America, Good Morning," a news magazine featuring headlines, tips on travel fares and medical advice. Regular guests include Armstrong Williams and Jack Anderson.

Broadcaster and author Tony Trupiano hosts the program, airing from 5-9 a.m. (EST).

Contact Tom Star at Talk America Radio Networks in Massachusetts, (617) 828-4546; or ***circle Reader Service 132.***

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Getting to Know Generation X

Mark Lapidus

Take this quiz about the demo known as "Generation X" and win big!

1) In what part of the country do most Xers live?
2) What percentage of Xers earn more than $40,000 a year?
3) What percentage of 20-to-24-year-old men still live with Mom and Dad?

The answers:

1) 34 percent live in the South; 24 percent in the West; 21 percent in the Midwest; and 20 percent in the Northeast.
2) 48 percent have household incomes of 40 grand or more! In fact, 7 percent have household incomes over $100,000 annually.
3) 50.2 percent live with at least one parent.

Okay, some of their parents are divorced, so it was kind of a trick question. If you got all three answers correct, you either work for a research company or you've already seen Interep's new study. To be a winner in capturing the ever-elusive 18-34 year old cell, read on.

Insights, not hype

Interep's Research Division has released a compelling new study titled, "Generation X Without the Hype." Michele Skettino, Interep's research director/marketing communications, has gathered enough to fill 33 pages with facts about income, spending, nesting, marriage and kids. The study also offers us insight into how Xers feel about certain issues, how they use media and what works in advertising.

"Generation X has come of age at a time when jobs are not as readily available as they were to boomers," Skettino said. "It's not for lack of ambition that Xers are having a more difficult time. The study shows they are working ... they have fairly good household incomes for their age ... and they do have a set of values that are fairly traditional."

How many are there? Approximately 17 percent of the U.S. population is between 18 and 34. The baby boomers comprise 30 percent, those under 19 years comprise 28 percent, those 50-62 comprise 12 percent, and age 63 or higher make up 14 percent of the population.

Generation X is sandwiched between the baby boomers and the baby boomlet (boomer's kids). These young adults, age 18 to 34 year, number about 66.7 million.

Diversity! Gen X is 66 percent white, 14 percent black, 14 percent Hispanic, 4 percent Asian and 3 percent other.

Education: The younger end of Generation X is still in college, and enrollment figures are on the rise. In 1993, 62 percent of people age 16 to 23 who were high school grads in the previous 12 months were in college, compared to 50 percent in 1980.

Spending: People 18-34 account for slightly less than one-fourth of all U.S. household spending. Some 28 percent are householders. People under 35 spend disproportionately on alcohol, rental property, baby apparel and education.

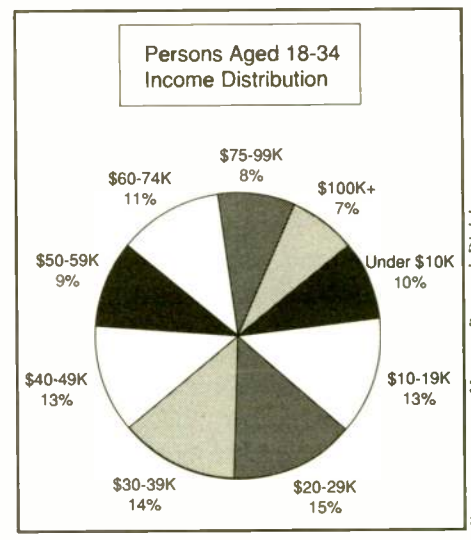

Figure courtesy of Interep Research Division

Marry me — later in life. The median age for first marriages is 24.5 for women and 26.5 for men. Among 18-34's, 49 percent have never tied the knot. For 18-24's, 78 percent fly solo. There's a big change for 25-34's, of which only 32 percent have never married.

Kids! The majority of 18-34's have rug rats. Many are not married. There is a rising trend in unmarried parents, with 49 percent of those 18-24 having at least one kid. A full 58 percent of those 25-34 also have opted to raise kids alone. Regardless of what you may be reading about the trend of older childbirth, 77 percent of all births are still to mothers between 20 and 34.

Issues: Just over half — 52 percent — of this group say they like to be outrageous. Twenty percent say they like unconventional things. What this means is open to interpretation. Seventeen percent buy what the neighbors approve of; 28 percent spend money without thinking (P.T. Barnum was right!), and 13 percent change brands often.

Media use: Thankfully, Xers are 26 percent more likely to be heavy radio users than the average adult. Radio indexes higher than magazines, cable, broadcast television and newspapers. With radio, we reach 94 percent of this target every week. Television beats us slightly at 96 percent. Newspapers only nab 68 percent of this population weekly.

Finally, here's how formats index, with 100 as the norm:

Alternative	207
CHR	197
AOR	190
Urban	173
Jazz/NAC	158
Classic Rock	149
Adult Contemp.	138

For the complete study, call Interep's report request line at (212) 309-9344.

■ ■ ■

Mark Lapidus writes regularly for ***RW*** *about station promotions in his column* Promo Power.

Remotely Important

▶ SALES, continued from page 44

whole 60 for his product and do a 10-second tag anyway. At least you'll unclutter your clock.

Pointers

The broadcast: Your sales remote will work better if the broadcast is partially scripted, but scripting is rare because it takes effort. For one thing, the salesperson must find out in advance what the client wishes to sell. Given a chance, the DJ might actually be ready with the right sound effects, interviews with experts on the subject or other techniques that can make sales information entertaining. Also, instead of using the DJ at the studio, toss it over to the DJ at the car dealer. Let the remote jock do the whole show.

This takes talent and discipline. It means the jock only talks about the retail product when it's scheduled on the log. For example, the DJ does a normal show, except that the first 60-second spot in each stop set is solely about the client remote.

Having one DJ on the air also means less talk. Have you ever met two jocks who could resist talking to each other for two minutes about nothing?

Technically speaking, equipment now on the market for less than $6,000 allows you to get 7 kHz audio over a regular phone line.

Incentive: If there is no listener benefit, you seriously endanger attendance. Trade lots of picnic-type food: Always have hot dogs, hamburgers, pizza and soft drinks. Free balloons are a must for kids. How about giving away 10 bucks every 10 minutes? Isn't it worth $100 to draw another 50 people?

The larger the discount on merchandise you can convince a client to give, the more people you'll get. For example: "While we're at Ed's Furniture, everything in the store is 30 percent off. After we leave, the sale is over."

Use common sense here. What would motivate *you* to attend?

On-site planning: Every station needs a sales remote on-site checklist. This will get you started: (1) Dedicated phone line, (2) Tables and chairs, (3) A place for banners, van and mascot to attract attention from the road, (4) Power, (5) Prizes and bumper stickers, (6) Tools, (7) Emergency telephone numbers, (8) Some method for collecting database information.

Follow-up: Someone other than the salesperson should call the client the next day and find out how the event went. Imagine how surprised a client would be if the general manager or owner actually called to express interest.

On several occasions I've had listeners in blind focus groups talk about meeting DJs at sales remotes. It makes a lasting impression. Dress well. Be polite. Entertain.

■ ■ ■

Mark Lapidus is president of Lapidus Media. For marketing and programming consultation, call him at (703) 383-1805, or e-mail him at lapidus@erols.com

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World Radio History

COLE'S LAW

The Gospel According to EEO

Harry Cole

As faithful readers have figured out, one of the evergreen topics, always appropriate for comment by Team Cole's Law, is EEO. It has long been, still is, and probably will continue to be a major area of FCC broadcast regulation. It affects (or should affect) each broadcaster almost every day.

A recent decision by the commission provides yet another angle on the equal employment opportunity process and the FCC's involvement in it.

Hiring practices

It all starts with an AM-FM combination in beautiful downtown Clayton, Mo. The AM has been on the air since 1924 (so it predates the FCC by 10 years), while the FM is a relative youngster, having signed on in 1948. The AM has a religious format, and the FM is classical with some religious programming.

The emphasis on religious programming is not surprising. The licensee is the Lutheran Church/Missouri Synod.

The 1989 renewal applications by the church were the target of a petition to deny by the NAACP. The latter claimed that the church didn't undertake sufficient minority recruitment efforts. In truth the church's employment profile was not rainbow-hued, with a notable dearth of black employees.

The church explained that many of its employees came from the student body of a local seminary, with which the church had a reciprocal arrangement (trading training for studio space). The church also noted that its specialized formats (religious and classical) had to be filled by people with classical music expertise or theological training. According to the church, few minorities with these particular qualifications were available.

The church figured, for example, that minorities with classical music training comprised only about 0.1 percent of the overall population of the St. Louis market, of which Clayton is a part.

The commission didn't buy this rationale. Instead, it concluded that the church explanation — including the training-for-studio-space arrangement, as well as reliance on Lutheran training and classical music expertise — was unacceptable. The renewal applications were designated for hearing.

An administrative law judge and the FCC's Review Board concluded that, among other things, the church had violated the FCC's EEO rules by improperly giving preferential treatment to persons with Lutheran training. The judge also found that the "classical music expertise" rationale was not convincing because church records seemed to show that such expertise, while "highly desirable," apparently was not an absolute "requirement."

In January, the full commission weighed in, affirming the earlier decisions and imposing a $25,000 fine and EEO reporting conditions on the church. The church is appealing that decision.

As with just about any case, things are by no means cut-and-dried. In addition to the alleged EEO problems, the FCC found that the church may have engaged in misrepresentation or lack of candor in the information it filed. (Let this be a lesson — just about any allegation of misconduct before the FCC can explode if there is any hint of misrepresentation, even if the licensee in question is a church.)

Still, the EEO aspects raise interesting questions for the broadcast industry, and particularly radio, which in recent years has tended toward specialized formats. Here was a licensee with a long track record of good behavior and readily understandable, long-established, specialized formats. This licensee sought to hire employees who were personally familiar with matters relating to one or another of those formats, and the FCC said that, to the extent that such efforts led to EEO imbalance, the licensee's hiring criteria were "unacceptable."

There are sensitive constitutional questions regarding how far the government can go in dictating to a religious organization how it can conduct its affairs. The First Amendment arguably speaks to that. We hear that a move may be afoot in Congress to give the FCC some direction in how to address those particular questions.

Let's look at the format question. A station with a specialized format understandably would want to staff itself with folks familiar with the format. After all, choice of a format reflects a determined effort by the licensee to attract an audience with certain demographic characteristics and an advertiser base seeking to reach that audience.

It makes sense, then, that the licensee would want programmers, promotion people, and sales people — indeed, an entire staff — knowledgeable in the format. Who better to reach the target audience, and attract the target advertisers seeking that target audience, than people who know the format?

'Unacceptable' criterion

But according to the Lutheran Church case, if such a hiring criterion has the effect of reducing the pool of available

See CHURCH, page 48 ▶

World Radio History

Duopoly Benefits: Maybe Later

Are you making more money thanks to station mergers? A recent report suggests that the much-ballyhooed revenue benefits of in-market consolidation remain largely unrealized.

Duopoly-plus stations generate more revenue than non-duopoly stations, but revenue increases are no greater than the growth in revenues in their respective markets.

In the top 10 markets alone, revenue share for the duopoly-plus stations does not match overall market increases.

These and other findings reported in the BIA's "State of the Industry 1997" report, led the BIA to tone down its prediction of industry growth during the next few years.

"Overall," the report states, "our radio growth projections are less bullish this year than last year."

Speculating on future benefits from super-duopolies, the report states, "We are uncertain if a significant spurt in revenues will occur as a result of super duopolies. We tend to think not."

The BIA compared revenues for stations between 1993, the first year the BIA tracked revenue data, and 1996, after these same stations became part of duopolies. The conclusion: "Average station revenues grew at almost identical rates as for the markets. This implies no discernible revenue benefit, on average, for the combined stations."

BIA President Thomas Buono said, "(The study) raises questions about ... the impact of duopoly. There's been so much hype, and we certainly understand the strategic benefit to people who are doing it. It allowed them to aggregate and get into stronger positions.

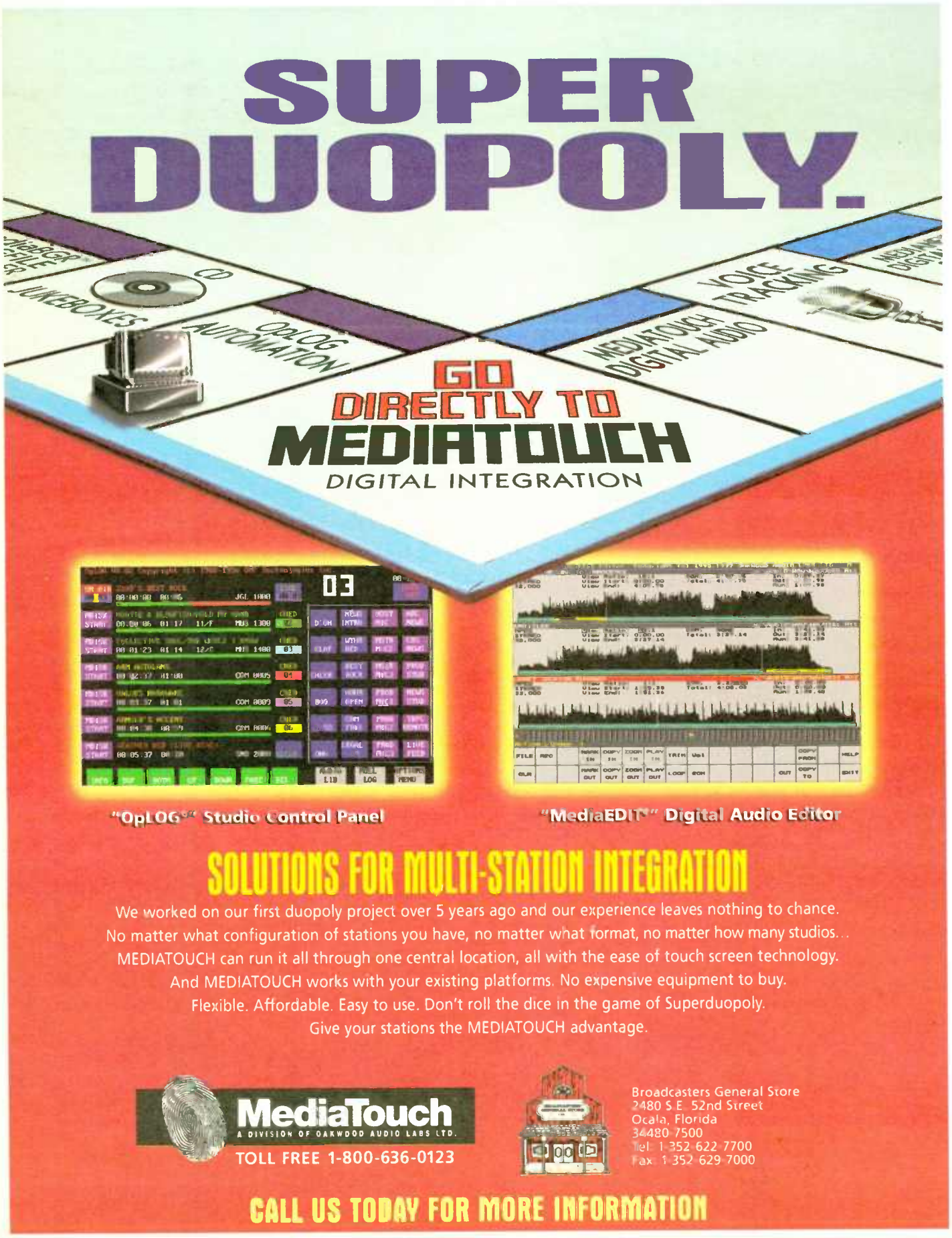
"But to this point we haven't been able to see a discernible increase in revenues, and that may be due to the fact that the consolidators are spending so much time on consolidating that they're not spending the time operating the stations. But we haven't seen the jump in revenues, for whatever reason."

The study also shows that radio advertising continues to grow but no longer exceeds or even matches the pace of total advertising growth, a reversal from the trend during the past five years.

At the same time, BIA research supports the fixed-cost nature of the radio business, and the resulting increase in profitability, particularly for radio groups.

"The elimination of certain costs have aided margin growth for most consolidators," the report states. "Margins in the 30 percent-plus range are more common. We speculate that 40 percent-plus margins will be common for radio groups in the latter half of the decade."

— Chris Hamaker



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A Church EEO Lapse?

▶ CHURCH, continued from page 47

job applicants in an apparently discriminatory manner, that criterion is "unacceptable," even if the licensee does not have a discriminatory bone in its body.

As noted, the church is appealing the commission decision, and the courts may shed some light on this subject in the next year or so. But even if it does, the gurus in the Office of Conjecture and Surmise here at Cole's Law World Headquarters suspect not much will change. The FCC's commitment to rigid EEO enforcement, regardless of reasonable real-world considerations, appears well-established. If such considerations are to be accorded any weight, that job will likely be one for Congress or, possibly, the courts.

In that regard, we have the Lutheran Church to thank for having the dedication to its own values to litigate its case through the FCC and the courts. As a practical matter, most other licensees would probably have simply cut their losses, paid the fine, filed the reports and gotten on with life. The church — which is not, as far as we know, a hotbed of any kind of discrimination — is obviously motivated more by principle than money. It has been willing to go to the mat in the interest of vindicating its hiring approach, which, one suspects, many broadcasters could easily support — not because it might be used to discriminate, not because it might lead to a less-than-perfectly-balanced employment profile, but because it makes sense.

If you have any questions about this case or its potential impact on your own EEO efforts, you should consult with your communications counsel.

■■■

*RW welcomes other viewpoints from our readers. Write to: Readers Forum, **Radio World**, P.O. Box 1214, Falls Church, VA 22041.*

Harry Cole is a principal in the Washington-based law firm of Bechtel & Cole, Chartered. Reach him at (202) 833-4190 or via e-mail at coleslaw@erols.com

World Radio History

Check Out the DAD$_{PRO}$ From ENCO, Inside

SPECIAL REPORT

The Orban AirTime Takes DDS to New Level

SAN LEANDRO, Calif. When **Orban** starts shipping its new AirTime digital delivery system this summer, a lot of stations that have been taking a wait-and-see attitude with on-air digital delivery will be paying attention.

Until now, real-time, multitasking, networked on-air digital delivery for both live assist and automated broadcast environments has been more promise than fulfillment. Until now, Orban says.

Orban is betting that its engineering skills have taken the kernel of a great idea — Radio Systems' Digital Delivery System (DDS), which Orban acquired in 1996 — and turned it into a product that will stand up to real-world, traffic-intensive broadcast demands.

The good idea at the heart of DDS was that it used the advanced QNX operating system. QNX is based on UNIX, the system that runs the Internet. QNX allows far more data throughput than Windows-based systems, and real-time operation, multitasking, and networking are built in.

QNX can simultaneously manage all critical functions of a broadcast enterprise, whether a single-market small station, or a multichannel, multi-station network. But "Orbanizing" DDS and turning it into AirTime has meant more advanced engineering and new features.

For one thing, Orban rewrote all the code to make AirTime "bulletproof," according to Amy Huson, Orban vice president for marketing and customer service. That effort, said Customer Service Manager Chris Holt, makes AirTime "a robust, crash-proof system." Orban also used QNX's Photon Graphical User Interface (GUI) to rework the user screens to make AirTime easier, more intuitive, and better-looking.

A major Orban innovation to DDS is Sound Exchange, an Orban proprietary solution that maximizes audio quality and performance. By handling all audio outside the delivery system's CPU, any possibility of computer noise is eliminated.

Orban is emphasizing how AirTime can be incorporated into existing broadcast environments. The modular architecture of AirTime makes it both adaptable and expandable in current environments.

More important is the ease with which station personnel, from engineers to on-air talent, can get comfortable with AirTime. That is where those new user interfaces play a key role.

AirTime offers four types. Sound Cube is entirely digital, yet mimics the functions of familiar analog cart machines while fitting into the same rack space. Sound Slate gives on-air staff instant access to sound libraries, with up to 99 configurable "scenes" available for push-button recall. Sound Screen uses touch-screen technology for both on-air and administrative tasks.

Finally, keyboard and mouse can be used for production, program entry and traffic management tasks.

It's AirTime.

With AirTime's reliability and friendly interfaces, Orban figures even the most computer-phobic air talent can be up and running on the system in two or three days.

For more information from Orban, contact the company in California at (510) 351-3500; fax: (510) 351-0500; or circle ***Reader Service 10.***

USER REPORT

AEV Finds Home in Slovenia

Digital Automation System Allays Engineer's Concerns at Radio Viva

by Smiljan Mekicar
Director of Engineering
Radio Viva

MURSKA SOBOTA, Slovenia When I was approached to write an article about Virtual Radio from **AEV**, I have to admit I was a little anxious. What should I write about? There are many things you can do with Virtual Radio, but let me start with the basics.

We are Radio Viva (102.1 MHz), a local station with studios in Murska Sobota, located in the northeastern part of Slovenia. Our audience numbers between 80,000 and 100,000. We are a mobile station, in the sense that we use many field reports. Our program consists of music, health and news geared toward a young audience. Our advertisers are primarily small businesses.

I had a few doubts about using computers to run the station 24 hours a day. After finding the right hardware solution, we searched for the software. It was more difficult than we thought because, while there were companies devoted to digital, many offered only a partial solution to our problems.

The basic configuration of Virtual Radio is a combination of different programs that work together as one system. The individual elements consist of on air, recording, music storage, scheduling, advertising and editing.

A minimum of three PCs are needed to run Virtual Radio. A server is used to store all recorded material. The standard configuration — depending on your budget — consists of a Pentium 166 MHz, 32 MB RAM, 3.5-inch floppy disk, 10 MB network card, SCSI hard-disk system (10 GB or more) and Windows NT.

Minimum configuration for the on-air computer should consist of a 133 MHz Pentium, 32 MB RAM, 3.5-inch floppy, a network card, minimum 15-inch monitor, 2 GB IDE hard disk, Windows 95 and two Digigram PCX 20 soundcards.

Installation of Virtual Radio is not difficult. But in the event you encounter trouble, an AEV technician is just a phone call away.

As we approach the end of the century, with an eye toward all digital broadcasting, the Virtual Radio system from AEV is the future of radio.

For more information from AEV Srl, contact the company in Italy at +39-51-950249; fax: +39-51-950201; or ***circle Reader Service 34.***

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World Radio History

USER REPORT

AudioVAULT Scores in California

by Paul Cavanaugh
Operations Manager
KSBL(FM), KYTD(FM)
& KQSB(AM)

SANTA BARBARA, Calif. If you were to compare the **Broadcast Electronics** AudioVAULT and AVAir to computer operating systems, perhaps the best analogy would be Windows 3.0 to Windows 3.11.

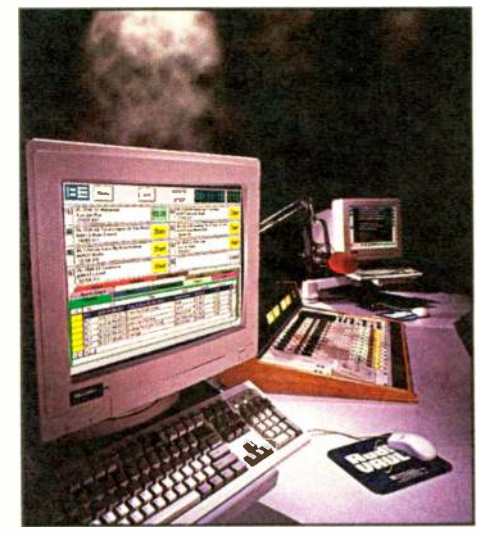
This analogy is not a mere coincidence. Both are Windows-based systems.

In terms of graphics, AudioVAULT may require more keystrokes and have more screens in less obvious places. AVAir complements this system as it brings to the forefront an easy-to-use array (desktop). It is perfect to place in a control-room setting where your on-air personalities need not be too computer literate. They only need to know how to use a mouse to navigate.

Right now, Criterion Media Group Inc., my parent company, is using the Broadcast Electronics AudioVAULT/AVAir system for KSBL(FM). We are in the process of setting up another system for KTYD(FM). The KSBL system has been in place for 10 months.

Automation is not unfamiliar to the Criterion group. At KQSB(AM) and KTYD, we have been using two Format Sentry systems. These DOS-based systems have been workhorses and have allowed us more flexibility both on-air and in the field. But, for a music format (KTYD is an album rock station), the Format Sentry has some limitations.

Some limitations we had faced were the length of the end-of-message (EOM) tone that restricted cross-fade abilities and the lack of a ready list of available commercial inventory and program manipulation restrictions. Also, if jocks are voice-tracking an unfamiliar song, a CD should be available for them to hear (while most of our CDs are available, one sprouts legs now and then).



AudioVAULT from Broadcast Electronics

When Criterion initiated the purchase procedures for KSBL, I started checking into a variety of state-of-the-art automation systems. Seeing the AudioVAULT/AVAir system at the World Media Expo trade show last September, and having dealt with both Sentry and Broadcast Electronics (they merged a few years back), my decision was much easier. The limitations are eliminated with the AudioVAULT/AVAir.

AudioVAULT allows our on-air personalities to preview the beginning, end or entire song while they are recording their shows. The AVAir desktop is arranged in such a way that, for example, by simply clicking an inventory tab, the morning show sees the list of sound effects they have to work with. Simple drag-and-drop allows jocks to place the effects where they want in the event list or fire them independently as a "quick start" cart.

One of my chief concerns with a hard-drive system is the finite amount of space. A variable rate of compression addresses that issue just fine without any obvious loss of audio.

AudioVAULT allows our on-air personalities to preview the beginning, end or entire song while they are recording their shows.

At the WME show, Digital Customer Service Manager Allen Range mentioned the cooperative development of an interface between the AudioVAULT and the Orban DSE 7000. By the time I was ready to place my order in June, the development process between Orban and B-E had produced a DSE 7000 that was LAN-ready and offered compression variability that was previously unavailable. Both of these features were important to me. One eliminates the need for an analog/digital dub; the other saves space on the AudioVAULT hard drive. Working closely with Jeff Stedman from

See VAULT, page 51 ▶

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World Radio History

USER REPORT

Digilink: One Size Fits All

by Bill Nolan
Director of Engineering
LS Radio Network/Mid America AG Network

WICHITA, Kan. A little more than four years ago, I began to research the possibilities of jumping into the PC-based production and automation world. The task was a large one.

I was ready to do away with cart machines entirely while trying to satisfy our satellite news network as well as all nine markets where my company owned stations.

Because our company's markets are primarily small- and medium-sized, price was also an issue.

Was a system available in this fledgling field that could fulfill my requirements in varied markets with an economical investment? Could this system satisfy these markets for the next 10 years or more without the need for major upgrades or replacements? After considerable research, the answer for me became the **Arrakis** Digilink.

One false start

After a disagreeable experience with one of the many systems popping into the market, the support of a well-established company with excellent technical support was essential for a project of this magnitude.

Arrakis is known for an extensive line of cost-effective audio consoles with features that rival the "Cadillacs." Over one year, we purchased and installed more than 20 Arrakis Digilink workstations.

Digilink is a flexible system that can be revised as a station's needs change. The machines are space-efficient, allowing rack installation or tabletop placement.

One of my favorite features of the Digilink is the integral four-channel audio switcher. The unit is mounted on the rear of the chassis and dramatically simplifies installation. One of the few options on the Digilink is a four-channel record input switcher that would be useful if you need to record multiple sources with no operator intervention.

Digilink supports networking, allowing the transfer of audio files between studios without the need for diskette media. Arrakis chose Artisoft Lantastic as its network environment.

Lantastic is an inexpensive peer-to-peer networking solution that has been proven over time in office environments. I have linked the Digilink workstations to office computers via Lantastic for traffic solutions as well as backup purposes. Having one network in a building dramatically simplifies maintenance issues.

Furthermore, Lantastic has been upgraded by Artisoft several times since 1992, and the Digilink software continues to perform flawlessly with the latest (v7.0) Lantastic release.

All in one

Arrakis Digilink actually allows a station to operate its entire production and on-air facility with one workstation. It offers a keyboard and monitor extension for setup in a second studio, permitting operation of the workstation from a remote location. Because Digilink can multitask, full production work can be done while the unit is playing commercials on-air or responding to satellite closures from your network source.

A second SCSI drive can be added to the base system to double the storage capacity. Several compression levels are supported, and mono or stereo recording modes satisfy the need for conservation of the hard disk.

Arrakis Digilink also includes two-track, graphical cut-and-paste editing in the basic unit. Even in today's digital workstation marketplace, most machines only offer electronic editing as an option.

The workstation is capable of automated recording, which allows the user to record a program from a network source, and play it on-air at another time.

There are some minor limitations on the one workstation configuration previously described. I recommend the single workstation solution for a small-market station that is using a satellite music service. Two workstations give the user the ability to store backup copies of audio inventory. You could store audio on reel tape as a backup, but this defeats the purpose of going digital and becomes cumbersome in an emergency. Audio transfer between studios must be accomplished manually, which is one of the shortcomings of the software.

An automated transfer solution would eliminate the problems associated with the production staff forgetting to transfer commercials into the control room; however, good training practices can make this a minimal issue.

Arrakis Digilink in use.

Swapping units

Scheduling can be duplicated on the second machine, so the production machine could be moved to the air studio in an

See ARRAKIS, page 53 ▶

AudioVAULT Leaps Over The Competition

▶ VAULT, continued from page 50

Orban, I was able to get the exact machine I needed.

Upon receipt of all the components, the timeframe for getting the whole system up and running for adult contemporary KSBL was three days. I strongly urge anyone considering this equipment array not to give yourself such a narrow window. We did accomplish our goal without problems, but we put in very long days.

The DSE 7000 was plug-and-play, for all intents and purposes, and required little configuration manipulation. Because we were under a tight time constraint, the two crucial element types to load were the songs and commercials.

To my pleasant surprise, simultaneous loading of those elements was possible due to the LAN-capable DSE 7000. I loaded all the spots and related information via the LAN while others were loading the music straight into the AudioVAULT.

Basically, what is created on the DSE 7000 can be sent via the LAN directly into the AudioVAULT with the compression ratio set to your requirements. In my case, I require that all commercial inventory be recorded at a 4:1 ratio and all music inventory at 3.2:1.

Even though the Broadcast Electronics AudioVAULT/AVAir has been up and running on KSBL for 10 months now, I am still discovering ways to use the system in a more efficient manner. Eventually, my KTYD morning show will be using the new system not only for drops, effects and sounders, but also for phone bits.

For more information from Broadcast Electronics, contact the company in Illinois at (217) 224-9600; fax: (217) 224-9607; via the Web at: www.bdcast.com; *or circle* ***Reader Service 58.***

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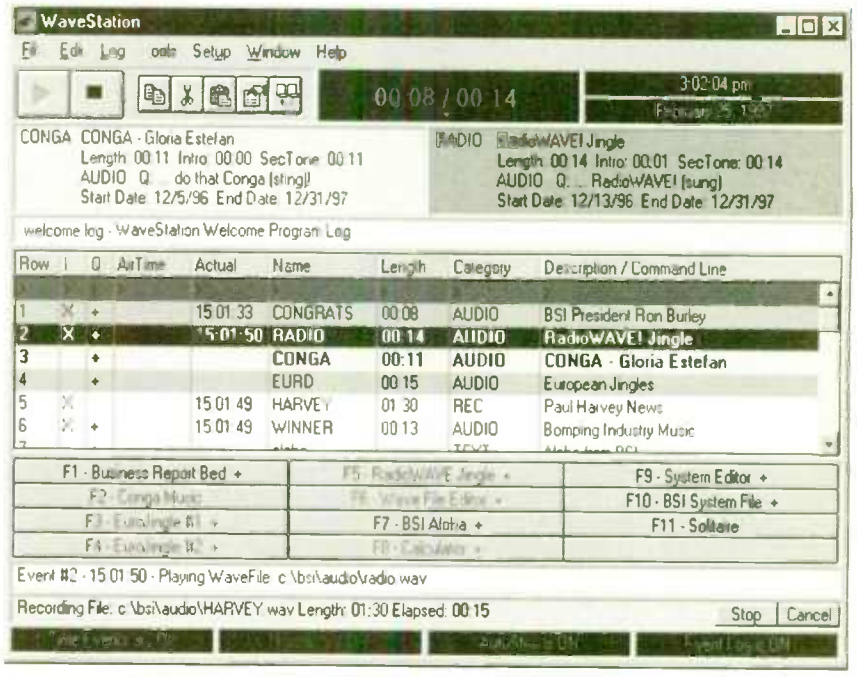

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Circle (172) On Reader Service Card

World Radio History

USER REPORT

Station 'Auto-Mates' on a Budget

by Randy Wachter
Owner
KNSX(FM)

ST. LOUIS Occasionally, an engineer will run across a product or software package that is so good, he is compelled to share his discovery with others in the broadcast industry. **Auto-Mate** audio software is one of them.

My facility is KNSX(FM), a new 50 kW station serving the St. Louis Metro West areas. In need of a quick source of non-stop audio to test the station, we grabbed Auto-Mate and pressed it into service the same day the crew finished hanging our antenna. Auto-Mate is so simple, it can be installed and operating in less than 30 minutes.

The system is also versatile and can function as a non-stop audio delivery source, or as the operating system for satellite-assisted facilities.

Affordable auto-pilot

The basic software price is less than $300. The manual is detailed and user-friendly, covering every detail of installation and operation. Best of all is the simplicity and inexpensive nature of the product: Auto-Mate will work with any 386 or better, DOS-based PC and a Creative Labs SoundBlaster soundcard.

Once installed, talent can start using Auto-Mate in less than 15 minutes. It requires only basic computer knowledge.

By using the "Simple-Sat" Mode Version 3.0, Auto-Mate can control two satellite sources through the internal clock, switching them back and forth as programmed.

Auto-Mate offers other features. A ducker can be used to lower network audio when a liner is played over music. Screen adjustable gain, bass and treble is standard on Auto-Mate. Inputs are through the audio card, DB9 connector, or the optional relay card.

We know of many stations that use the Auto-Mate as a cart machine replacement by engaging the pick-list and live assist mode. The Pick-List or Random Playback modes allow the Auto-Mate to function as a non-stop source of continuing audio.

Easy selections

An off-the-shelf 4 GB hard drive will hold more than 100 songs plus liners and commercials. Simple commands can start music playing randomly back-to-back, inserting liners and commercials between a specified number of songs.

However, if you are particular about the order of your music, it is easy to pick your selections and start Auto-Mate. It will then play the selections in a continuous loop.

If the general manager needs non-stop audio for a special event or exhibit, an engineer need only reach for the Auto-Mate. Operation is easy and anyone at the station can program the order of liners, spots and magic calls.

If you are in the audio business, you can find a use for the Auto-Mate.

Jeremy Porter of KYRO(AM) in Potosi, Mo., uses the Auto-Mate to its fullest capacity. He goes around town with his laptop computer and SAW editing software, recording live messages and tags from merchants. He edits and produces the spots back at the studio, downloading the completed .WAV files into the Auto-Mate.

During the day, he uses the Auto-Mate as a cart machine. In the evening, it controls programming from two satellite services. This affords him total walkaway operation from 6 p.m. to 6 a.m.

Auto-Mated combos

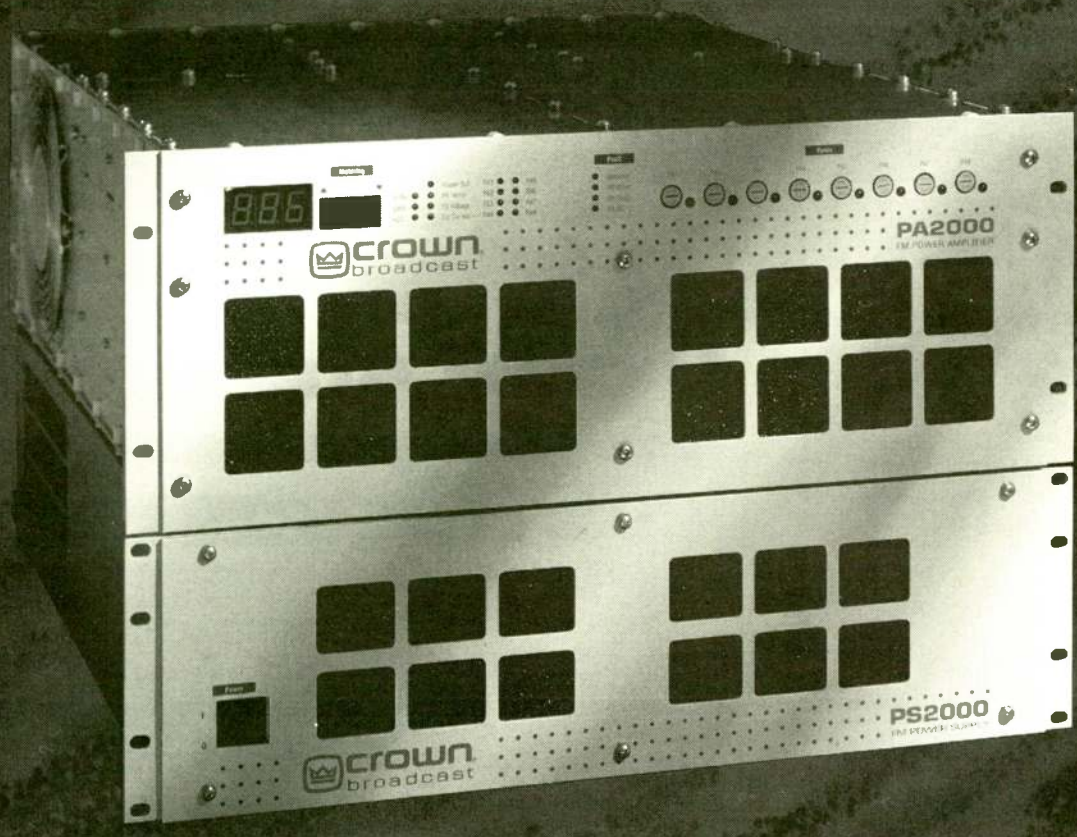
In short, if you are in the audio business, you can find a use for the Auto-Mate. The Auto-Mate can handle other applications, too, including shopping center background music with in-house advertising, high school or college training facilities and Web radio stations, just to name a few.

We have combined our Auto-Mate system with a Mackie mixer, SAW editing software and simple log traffic and billing. We also have it standing by at our transmitter building, ready to go on the air in case of studio or STL failure.

We are pleased with the performance of the Auto-Mate system. I think the Auto-Mate is a must for a small- or medium-market station. Even major-market stations could have a computer equipped with Auto-Mate standing by as an instant hot audio source. Auto-Mate gives you expected results while working within a reasonable budget.

For more information from Auto-Mate, contact John Zolkoske at (503) 769-2886; visit the Auto-Mate website at www.wvi.com/~automate*; or circle* ***Reader Service 82.***

Efficiency: *(e-fish'en-see) n.* 1. the most effective use of available resources; 2. great things in small packages; 3. Crown's new FM 2kW amplifier.



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World Radio History

USER REPORT

Automation: The Smarts Way

by Steve Newberry
CEO
Commonwealth Broadcasting

GLASGOW, Ky. Here at Commonwealth Broadcasting, we had an idea: consolidate many inherently inefficient operational aspects of multiple stations into a single city while preserving the community presence and identity of each station operation.

We needed a technical infrastructure that would provide the cost savings, while retaining great operational flexibility.

Consolidate

To create cost savings, we would have to take automation to a new level and find ways to consolidate operations, without creating huge costs for satellite feeds or landlines to tie the operations together.

We had experienced excellent results in three of our original stations with the digital automation company, **Smarts Broadcast Systems.**

Smarts had recently completed a major project in Europe involving a similar idea: a satellite feed and computer control on a new national radio network in Sweden that virtually eliminated operational personnel at affiliate stations. We approached Smarts with our idea.

By working with Smarts, we created the design for a system that would use the Internet as the link between stations to move broadcast-quality audio, traffic and financial data across the network.

In January, we began the first phase of the system. We created a programming hub at Glasgow to handle production, traffic and billing operations. Then we acquired four stations in Glasgow, two in Campbellsville and two in Lebanon; all in Kentucky and all within a 75 mile radius of our headquarters.

Hub-and-spoke

Those eight radio stations became the first spokes of the Internet based hub-and-spoke-system, later known as "The Spider."

The Smarts system has four major parts. The first is the production operation that uses a conventional screen-based digital editor. The editor produces our spots and we load them into a Smartcaster production unit.

For correct station dispatching, we can use the same spot designation code or change it at each station if necessary. From the user's perspective, the only additional operation required over standard production is telling the system which stations need that spot.

From that point on, the entire system is automated and The Spider takes over.

The Spider consists of two computer units tied to the existing LAN-networked Smartcaster digital audio systems at each location. It creates a fully automated path for production and audio traffic information

See SMARTS, page 54 ▶

Arrakis: A Reputable Choice

▶ ARRAKIS, continued from page 51

emergency. Molex plugs are used throughout the unit for audio connections, again enhancing the ability to rearrange machines when necessary.

Reliability of the Digilink has been phenomenal. With more than 20 in service, I have only seen two actual machine failures in four years. Both of these failures were related to lightning, and the units were returned to service the next day, thanks to the quick response of Arrakis digital support. The only routine failure I have experienced is the power supply fan, but the machines continue to run, even with this cooling failure. This speaks volumes for the rugged design of the workstations.

Point-and-click

Your on-air staff will quickly be comfortable with the software interface. The graphical interface, though not Windows-based, is an intuitive point-and-click model. Manual, satellite, production and automation modes are chosen with a click and all modes use a virtually identical interface, making it friendly for even the most novice user.

Arrakis offers several options for the unit, including full CD automation for the ultimate do-it-yourself, single-vendor studio solution, and software for off-site remote control.

I chose one of the new generation "Gemini" workstations for our satellite network origination studio. The unit is basically a Digilink, with dual audio outputs and enhanced software.

Arrakis Digilink has gotten the job done for my stations and the best recommendation I can give you is this: If I had to do it all over again, I would choose the Digilink series of products.

For more information from Arrakis, contact the company in Colorado at (970) 224-2248; fax: (970) 493-1076; or circle ***Reader Service 106.***

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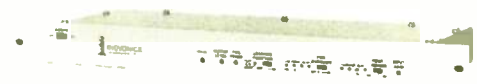
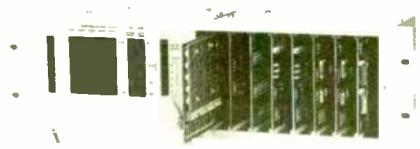
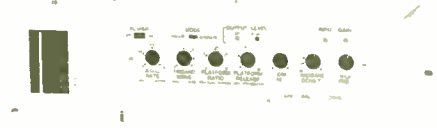




250 - Programmable 5-band Stereo Processor
Gated AGC, 5-band Compression and EQ, split-spectrum Limiting–all with colorless, quasi-digital PWM gain control. Manually pre-program several processing presets or place the unit entirely under RS-232 control.



255 - "Spectral-Loading" FM Processor
A very aggressive Triband-PWM Stereo Processor tailored for contemporary music formats. Broad parameter control over the gated AGC and 3-band Compressor/Limiter.

260 - FM/TV "Utility" Processor
Stereo "gain-riding" AGC and a split-spectrum Compressor/Limiter control average and peak levels. Ideal for TV-aural and budget FMs.

716 - "DAVID-II" FM Processor / Stereo Gen
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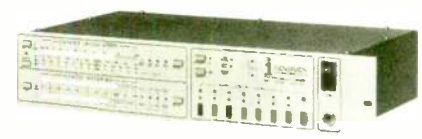
A basic Stereo-Gen with impeccable specifications. Includes front-panel metering, internal subcarrier combining and a built-in Composite Processor.

530 - Off-Air FM Modulation Monitor
Accurate, easy-to-read display shows total modulation, pilot injection, stereo separation and crosstalk. RF signal strength and multipath distortion. Alarm outputs for overmodulation, carrier and program audio loss. Eight station presets facilitate quick modulation comparisons.



630 - FM "Relay" Receiver
A *professional* receiver for translator (re-broadcast) and other demanding off-air pickups. Features composite MPX *and* balanced stereo program outputs, synthesized tuning, selectable bandwidth, metering, alarms and remote control.

710 - RDS Encoder
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510 - RDS Decoder/Reader
Use with any mod-monitor to decode and display all RDS/RBDS data groups, and to measure subcarrier injection level with digital precision. An RS-232 interface allows data archiving and analysis.

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World Radio History

USER REPORT

KNAK Automates With WireReady

by Sam Bushman
Owner
KNAK(AM)

DELTA, Utah I am a radio station owner who was tired of having to pay someone to sit at the board 24 hours a day. I decided it was time to go digital.

Automating a radio station can cost from $200 to beyond $50,000. After many hours of searching, I found an excellent product that gets the job done without incurring a huge debt. **WireReady NSI**, located in Northboro, Mass., has an excellent suite of software products to accomplish your automation needs: ControlReady, CartReady and ReelReady.

My programming is via several satellite networks, hard drives, consoles and phone links. Although my demands are unique and reasonably complicated, ControlReady's easy-to-use programming language give me the flexibility to create the programs I need to automate.

Multi-feeds

My format includes eight satellite networks. I take "Chuck Harder" on an RL Drake 1450 receiver and "Focus on the Family" on FM2. These channels are connected to a Broadcast Tools 8 x 2 switcher/router that connects to the computer via an RS 232 serial cable.

CartReady and ControlReady software lets me set up an automation schedule to switch networks on and off according to their respective clocks, and place breaks and IDs off the hard-drive. The switcher uses front-panel pushbuttons to allow direct access to the system. The 8 x 2 switcher has a second output to background-record programs, which I segment and play back at later times.

The computer in my control room has both a SoundBlaster and Card-D Plus soundcard. One card plays on the air while the other card lets me edit, audition and background record. The software handles both cards, enabling me to simultaneously play two things at once as well as play and record.

For relay detection, I use a Broadcast Tools USN1616 relay controller. It has 16 opto-isolated relay inputs and 16 DPDT output relays. It connects to a serial port on the same computer as the switcher. I use this primarily to detect the various closures that come from the satellite networks.

I sometimes need to call into the station and do a phone remote or create unattended recordings from home. For these purposes I use a Broadcast Tools DC-8. Triggered by telephone DTMF tones, ControlReady lets me auto-record local news and weather or switch to another satellite channel in an emergency.

I do not like compression, so I store all my audio uncompressed on a 2 GB hard drive. For backup and production, I run the software on a second computer and use Iomega Zip disks to move audio from one machine to another.

Because the system is .WAV compatible, I also have a few contractors who send me .WAV files over the Internet. In this fashion, I can download audio files digitally and load them onto my computer without having to decompress or convert the files beforehand.

The station is unattended at times. In case of computer malfunction, I use a Broadcast Tools Watchdog. This device monitors the computer 24 hours a day and resets the computer in case of lockup or breakdown. If it does not resume, it throws a relay closure that picks up the phone and pages me.

Quick edit

I also use a built-in editor called ReelReady that is quite helpful. Along with the regular cut-and-trim editor, I can quickly splice audio without first highlighting regions of a wave form or using a mouse.

Not only am I able to control my environment, but because WireReady uses standard PCs and audio cards, I am able to fix any problems locally without paying through the nose for proprietary hardware.

After installation, I was concerned about training my staff to use the new system. The easy-to-use interface of the WireReady products resolved those fears in minutes.

Finally, WireReady's 24-hour technical support is truly 24-hour. One weekend at 2 a.m., I called WireReady for assistance. A technician was paged and my problem was solved within 20 minutes.

Being a visually impaired person, I use the WireReady products with a Double Talk voice synthesizer as well as the Automatic Screen Access Program by MicroTalk. If you would like to know how these products work for the visually impaired, feel free to call me at (801) 864-2005.

I have been using WireReady for almost two years. I for one am "Wired" and "Ready" for incredible digital audio well into the future.

For more information from WireReady NSI, contact the company in Massachusetts at (800) 833-4459; fax: (508) 393-0255; or circle ***Reader Service 130.***

Smarts Streamlines Kentucky Stations

▶ SMARTS, continued from page 53

from our hub to the individual stations. It also serves as a means of retrieving verification data from each station.

Our production facilities in Glasgow are not tied directly to the four local Glasgow stations. We wanted one operational procedure for production, so we could see the entire transfer process and know if any problems developed.

Both components

As a result, we have both components of The Spider, "The Shepard" at the hub and "The Lookout" at each spoke system in the same building.

The Shepard prepares the audio for the Internet and retrieves audio destined for any of the spoke stations on the local Smartcasters for air play.

After the information reaches The Shepard that a spot has been produced, The Shepard retrieves information about that spot and packages it with the actual audio. The audio — now in digital form — is also a computer file. This repackaged file is then dumped into a special subdirectory in the LAN system.

The Internet link has been exclusively configured so that a particular subdirectory is visible only by a distinct distant spoke operation.

Once The Lookout system sees the audio package, it simply copies the file to its own subdirectory and deposits them onto the local Smartcaster LAN. The spot is then immediately available to any system connected to the LAN.

Because the transfer is entirely digital, the spot arriving at the distant spoke is exactly the same as the one that left. As the Internet transfer is not real time, there is no audio degradation.

Smart Touch = real time

We can accomplish real time, however, with another Smarts invention, the Smart Touch.

The Smart Touch is a computer-based device connected to a standard phone line that can control the Smartcaster automation systems via DTMF tones.

Using the Smart Touch, we can do remote broadcasts on any of our stations, even while it is unattended. We can also break into programming for news events or emergency announcements.

Should the Internet go down, a back-up system using dial-up phone lines can be put into service to handle spot and data transfer.

Even if there is a short interruption of Internet service, the systems are designed to detect network disconnection and to continue dialing the Internet until they reconnect. Fortunately, we have yet to use that system.

We think our system's best design feature is its flexibility. We are not locked in to any particular process and can reprogram any units from the station or the Glasgow hub.

We are looking to add more communities and more stations to the operation. This expansion will involve simply adding Smartcasters to each station, and a Lookout system to each community. The system is designed to accommodate whatever size we want.

For information, contact Smarts Broadcast Systems in Emmetsburg, Iowa at (800) 747-6278; fax (800)498-0618; visit them on the Web at smarts@ncn.net; *or* ***circle Reader Service 154.***

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World Radio History

USER REPORT

MediaTouch Assists S.D. Combo

by Scott Smidt
Chief Engineer
Midcontinent Radio of South Dakota

SIOUX FALLS, S.D. Eight months ago, we were a leading AM/FM facility in a town of 100,000. Like many other stations, we were about to consolidate with another AM/FM combo.

When you put four stations into the same building, you are sure to find some duplication. The consolidation process requires some global thinking from all of the departments. I, for one, had to become more of a general contractor, understanding all internal functions as well as the new technology and what it could offer us.

MediaTouch facilitated our consolidation by making it possible for us to streamline the business operations as well as the actual broadcasting procedures.

Our requirements

We required a system that could streamline at least four radio stations and a news department. We also needed to integrate Programming, Traffic, Continuity and Production. All audio — music, commercials and outside sources — had to be available to all stations at all times.

We also wanted a walkaway time of at least 10 hours while maintaining our format of music and live talk. From a technical standpoint, the system had to be reliable and have built-in redundancy.

After reviewing my goals with the MediaTouch representative, it was obvious that the source for music would need to be addressed. The two main options were a group of CD changers or a hard-drive system for mass access and storage.

Knowing that all stations would want to share any source, including the ability to access 5,000 titles of music, we opted for the computer hard drive. With that decision made, our MMIS department contacted a local networking company for network and server options.

The network running the MediaTouch system is a combination of hardware and software designed for optimum speed and reliability. Behind the scenes is a Bay Systems network environment controlled by a Baystack 28115 - 10/100 Ethernet Bay switch.

Scott Smidt is proud of his MediaTouch system.

The servers, production machines and on-air machines all run 100 MB Ethernet connections to the Bay switch, allowing for maximum throughput over the network.

Two identical redundant dedicated application servers are driven by the Novell 4.1 operating system with System Fault Tolerance (SFT) Level III. We keep both servers on-line at all times. If one system fails, the other takes over without missing a beat.

In addition, both servers are configured with 90 GB of RAID Disk Array Storage using dual RAID Array controllers and 27 four-gig drives per system. If any single drive fails, another drive is standing by and the remaining drives rebuild the information from the failed drive to the spare resulting in zero downtime.

When the bad drive is replaced, it is automatically rebuilt and placed back into the array. In fact, we experienced a failed drive within the first week of operation; it took 24 hours before we noticed.

Power-down is unnecessary; drives are hot-pluggable.

Where do we go from here?

The next step was finding a central routing system that would make all audio sources available to all stations. The MediaTouch staff went to work on the block layout for the central control system and audio routing. They developed a design using three combined routing switchers to provide 48 audio inputs and eight outputs.

Each routing switcher maintains constant contact with the four stations via serial communication, taking requests for audio and routing them appropriately. Most of the music is put into the system through the workstations in the program director's offices.

To accommodate additional workstations, hubs of 10 MB and 100 MB are connected to the Bay switch, allowing more than 60 devices on this network.

A Compaq DLT tape drive, functioning unattended, backs up the system. We programmed the tape drive for automatic backup for the operating system daily and full backup of the music and commercials weekly.

All of these systems are on UPS power to allow continuous operation during power failures for up to 30 minutes.

Keeping in time

To keep everything operating in sync, we needed a timepiece. We use the Novell Time Source function in conjunction with Cadence software, connected to a server with an Internet link to the atomic clock at the Bureau of Standards.

With the increase in workloads for departments, the MediaTouch system allows the air staff time to juggle other responsibilities. Traffic produces a commercial log. Programming generates a music log and the MediaTouch System combines both and runs with it on the air. The air talent sees the entire log on a touchscreen and can let it go in automatic mode or make any adjustments they wish.

We provided another computer in the control room that enables them to call up any audio source for instant play on-air or use it for recording.

The on-air talent can voice out their show at anytime, at a rate of 20 minutes per six-hour airshift and listen to the show as it will actually air. Currently, we voice-track various dayparts and overnights. Commercials and music need only be produced one time and they are available to all stations.

The system we put together is, by far, one of the most challenging projects with which I've been involved. Though it required a dozen specialists, extensive planning with the MediaTouch staff and a huge learning curve for me, the system we developed accomplishes every goal we set. It runs so well that I have yet to find anyone that can tell if it's live ... or MediaTouch.

For information on MediaTouch contact Dave Kerstin in Florida at (800) 636-0123; fax: (352) 629-7000; via its website at www.omt.net, *or* ***circle Reader Service 178.***

USER REPORT

SALSA From LPB Adds Spice to Christian Station

by Jennings Dotson
President
WBCV(AM)

BRISTOL, Tenn. Every small business owner looks for ways to solve the problem of escalating expenses, especially in equipment upkeep and employee costs.

In my search for such solutions, I heard that a colleague had automated his station. In fact, he became a one-man show, with the help of a computer. I investigated and found a similar solution that would be viable for Bristol's Christian Voice.

WBCV(AM), a 5 kW Christian-formatted station with a blend of music and block programming, is located in the birthplace of country music, Bristol, Tenn. The station has broadcast from sunup to sundown since 1980. We consider ourselves a small but growing business.

In the process, we had taken every precaution to keep expenses down, yet we remained encumbered with increasing employee-related costs. Then we found SALSA from **LPB**.

SALSA allows me to automate my station between noon and sundown each weekday and all day Saturday. The system contains about 1,500 popular music cuts, commercials and public service announcements, and much of our block programming.

SALSA even has the capability to transfer from in-house productions to network programs, such as news. Seven-day advanced programming is another important feature that allows me to take an uninterrupted vacation.

Initially, we needed $15,000 to purchase the software and related equipment. The initial configuration and programming took several days to complete. After the start-up period, though, SALSA requires only a minimum amount of time. In fact, after a one-hour daily programming session, I am free to conduct the other affairs of my business, including making sales and looking for other ways to keep costs down.

Having used SALSA for more than a year, I find the system to be reliable and efficient. The computer is smoother and more reliable than much of my past "live" help. Our listeners are not even aware when our "live" day ends and our automated day begins.

For more information from LPB, contact John Devecka in Pennsylvania at (610) 644-1123; fax:(610) 644-865; or via e-mail at LPBINC@aol.com; or ***circle Reader Service 202.***

TECHNOLOGY UPDATE

MEDIATRON

MUNICH, Germany **Mediatron GmbH** has introduced AirControl NT, a studio software package for digital radio station automation. AirControl NT is designed for stations that broadcast 24 hours a day. The system supplies around-the-clock program automation and allows creative work and production.

CD-quality music, jingles, news and commercials are stored and played back from redundant hard disk arrays (RAIDs). Each user at the station has instantaneous and simultaneous access to the audio data. The on-air talent can cue to the end of a title while it is playing on air, with one-hundredth second accuracy.

The shifting and insertion of program elements, as well as reaction to live events, are simplified by Air Control NT's drag-and-drop editing and accelerated by mediatron's fast-running system. Loading time is almost nonexistent.

By automating dayparts, users can reduce station operating costs considerably. Stations do not have to abandon a live on-air sound; voice tracking can be prepared during the day in a fraction of the time of the actual shift and be broadcast later.

As an operating system, Air Control uses standard Windows NT 4.0. The company recognizes NT for its security, reliability, and easy operation.

AirControl NT has been developed as an exclusive 32-bit application and is the foundation of new software that can be expanded piece by piece with mediatron plug-in technology.

For more information from mediatron, contact the company in Germany at +49-0-8131-8305-0; fax: +49-0-8131-8305-25; or circle ***Reader Service 11.***

World Radio History

USER REPORT

CartWorks Made the Transition Simple

by Joe Pollet
Technical Director
WLTS-FM/WTKL(FM)

NEW ORLEANS In radio's increasingly competitive environment, there is no time like the present for local stations to upgrade their studio operations to digital. This is especially true when it comes to digitally integrating commercials, jingles, background music beds, liners and promotions-related programming into a station's established CD operation.

Enter the CartWorks Digital Audio Systems from **dbm Systems Inc**. The overriding goals for any station owner moving to a total digital workplace should be to make live-assist functions as efficient and effective as possible. At the same time, there must be a comfortable and positive transition from manual to digital operations for your on-air personalities. I can say that CartWorks digital audio system accomplishes these tasks and more.

We considered many exceptional features of CartWorks as competitive advantages over other comparable systems.

I have been the technical director for Phase II Broadcasting's adult contemporary WLTS-FM and oldies-formatted WTKL(FM), New Orleans, for three years. It was nearly two years ago that the decision was made to fully digitize our station operations.

Initially, 12 digital audio systems were reviewed by Steve Sutter, program director for WLTS, and Bob Mitchell, then program director of WTKL, along with me. We eventually narrowed the field down to three.

We considered many exceptional features of CartWorks as competitive advantages over other comparable systems. Based upon that data, we made it our final selection.

We currently operate three CartWorks digital audio workstations, one for each of the station's control rooms, and one for a shared production studio, where commercial spots and other audio files are created. All are easily connected by a local area network.

Through this interface, the CartWorks system in our production studio also functions as our digital audio backup unit in the event either system in the main control studios falters. Within minutes, the production system can be moved to the control room and serve as a temporary replacement. However, we have never faced this situation. Aside from occasional file maintenance, our three CartWorks systems have been operating virtually trouble-free since the first day.

One of the major advantages of CartWorks is that it is a Windows 95-based system. What really defines the CartWorks digital audio system is a user-friendly software design that allows a natural transition away from manual cart machines.

Easily done, because one of the system's main screen designs is formatted just like a multi-deck cart machine.

To simplify procedures, we use our old cart numbers as the code numbers for the new, corresponding automated audio files. This provides our station personalities with a smooth learning curve for adapting to the CartWorks system.

Another plus for CartWorks is its "instant access" feature. Here, station personnel can pre-load up to 48 different files — their jingles, liners and effects — at one time for the entire air shift that day, week or even the foreseeable future.

This feature, when combined with the optional 48-button Remote Start Box, is useful particularly for morning drive shows involving a lot of on-air activity.

In addition to live-assist cart replacement systems, CartWorks is also available for simple or complex automation, all without scaring the air staff. When pre-programmed via a script file, the system has the ability to control complete station or network operations unattended.

Meanwhile, CartWorks interfaces with most traffic systems to track commercial spot placements accurately. Your existing traffic system can be networked with CartWorks or data can be transferred via diskette.

As I mentioned above, CartWorks has worked reliably at our duopoly operation in New Orleans. I can also tell you one strong selling point: its dedicated support staff, that, in a word, has been fantastic. Our questions are answered expeditiously by knowledgeable broadcast engineers.

For station executives and chief engineers still contemplating the move to a fully digital studio, I highly recommend CartWorks as the one system for meeting all of your daily operational needs.

The only caveat when ordering CartWorks is to double your anticipated hard-drive storage requirements. Once your air staff discovers the functionality and flexibility of the CartWorks system, the hard-drive storage space will begin to fill up fast with new ideas.

For more information from dbm System, contact Bob Buie in Mississippi at (800) 795-7234; fax: (601) 853-9976; via e-mail at: gthomas@cartworks.com; *or circle* ***Reader Service 35***.

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World Radio History

USER REPORT

Juventus Casts Vote for Nautilus

by Mark West
Technical Director
Rádió Juventus

BUDAPEST, Hungary East European countries are catching up in the commercial radio business. Metro Media International owns and operates a few stations in the region, including the most popular station in the country, Rádió Juventus in Budapest, Hungary.

One year ago, we moved to the capital city, to new studios and equipment. As a 24-hour commercial operation, we thought automation seemed a natural choice and a potentially handy tool.

Which one?

We looked at systems from different manufacturers. Choosing a local company was a logical choice, as repairs and possible upgrades could take place much faster. We chose the **Nautilus** Jukebox system as our on-air delivery solution.

Nautilus Ltd. is a supplier of professional audio products in Hungary and offers a range of equipment for radio stations. Its specialists design and build the studios according to customer needs and install the equipment as well.

The software division of Nautilus offers an innovative and easy-to-use Jukebox package. We had everything we needed from the same source.

Jukebox software runs on Windows and uses industry-standard Digigram PCX cards with MPEG Layer II data compression. We have two main studios with two small editing suites, so we set up a network where audio files are exchanged among different workstations.

Nautilus supplied us with the Microsound system from Micro Technology Unlimited (MTU). We use this for commercial production. Output files are converted automatically into compressed form and entered into the audio database for instant access.

For on-air operations, we have two bigger studios that are almost identical. Studio 1 is our main workhorse; Studio 2 is for recording talk shows, reports and other programming. This studio also serves as a backup in case of technical problems or periodic maintenance.

We have identical control computers in both studios. These PCs run the Jukebox software and control the mixing board in the control rooms.

In a special technical room where all signal processing is done, we installed the Sound Server. There are two PCX 9 soundcards in the server along with a 16 GB SCSI hard drive. Any of the two control computers can drive the server, so switching between the studios can be carried out within seconds.

Familiar buttons

All music, spots and jingles are stored on Jukebox, with archiving to magneto-optical (MO) disks. To avoid problems arising from potential hard-disk failures, we use the built-in Nautilus software mirroring feature.

Though Nautilus offers its own music scheduling software module, we use the RCS Selector for compatibility reasons. The system translates RCS output files automatically and combines them with the Traffic Log coming from Adline, the Nautilus traffic scheduling software. All information appears on the screen and Jukebox plays music and commercial blocks accordingly.

Playlists, commercial blocks, and additional information such as news copy are generated in the background on different computers running different modules of Jukebox.

The talent sees the whole picture. The monitor screen displays the player units with the familiar buttons. Special counters show elapsed, remaining and intro times of the given item. Playlist, jingle sets and a number of interesting functions appear on the monitor in a comprehensive manner.

The system is controlled remotely from the board, so keyboard or mouse actions are kept to a minimum. Even the PFL function is used to cue into any items appearing on the screen.

We can listen to the outro of a song while it is playing on the air, an impossible feat with conventional players.

Loading music on hard drives is an enormous task. We use a separate computer, a PCX-9 card with AES/EBU option and the Record software module of Jukebox to do this. The AES/EBU input assures that all audio remains digital throughout the process. All music loaded into the database can be used by the scheduling software and is available for instant access by the on air talent.

We had some worries concerning our particular needs, but the system is versatile and all configuration requirements are handled by the installation software. Our air talents love the system because it does not require computer skills from its operators.

We have found Nautilus support to be great. They have 24-hour service and the capability for custom modifications.

We have been using Nautilus Jukebox for almost two years and it has performed faultlessly.

For more information from Nautilus, contact the company in Hungary at +36-30-418-367; fax: +36-1-121-7608; via e-mail at: nautilus@mail.elender.hu*; or circle* ***Reader Service 59.***

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World Radio History

USER REPORT

AXS Revives New Orleans Station

by Mike Costello
General Manager/Co-Owner
Fleur de Lis Broadcasting Inc.

NEW ORLEANS As a kid growing up in the Bayou, I practically worshipped the driving, breakneck pace of New Orleans top-40 station, WTIX(AM): those hot jingles, tight segues, "chime time" and temperature checks, lots of reverb on the mic and the jocks hitting the post on every song.

Remember when?

Recreating the old WTIX format on an upgraded FM stereo signal in a major market with today's technology was the goal of my partners and myself.

We wanted not just an Oldies format, but that same "fun 40" and unmistakable sound of the old WTIX. The new WTIX had to relate well to the audience, be super-energized with lots of hits, be topical and sound great all the time. Plus, we had to do it on a small budget — a very small budget.

When I told my partner we should automate certain dayparts, he objected, "You can't automate a radio station like this. There's too much 'human' interaction required."

I hoped he was wrong, because we could not afford to run the station the way it was done in 1965. I had to see if a new digital system could help us without compromising the format's energy and focus.

We looked at several digital audio systems and chose an AXS system. We bought our AXS from the company that developed it, Electric Works Corp. Recently, **Scott Studios Corp.** purchased the AXS line from Electric Works and hired their programmers and support staff.

Our AXS system uses 100-disk CD jukeboxes for the music and hard drives to store the jingles, commercials and voice tracks. The Pioneer jukeboxes cost considerably less than the huge, industrial CD changers, but they seem more reliable and convenient than the six- or 18-disk changers.

The AXS system was also easy for us to learn. We operate it both in live-assist and sweep modes. Because I am the morning drive jock, my show is usually live. The AXS presents me with all the tools I need to execute a fast-paced morning show. It makes it easy to play phone calls, weather and traffic beds, news, sports, jingles, sound effects and our whole oldies library.

Frankly, I am not a computer geek and, although I like high-tech toys, I do not want to worry about how they work — I just want to use them. The AXS is high-tech and definitely useful.

More than meets the ear

The TIX-FM midday, evening and overnight shifts are pre-recorded and play back unattended. One of our best announcers has a full-time job working for the IRS. He comes in three nights a week to cut new liners and chatter for his upcoming shifts.

Our breaks are local, topical and current. So much so that it really sounds like there is always a jock at the station. Our guys record numerous reads of weather forecasts, temperatures, time, song intros and outros plus the usual local patter so we sound like we have our finger on the pulse of New Orleans.

We then quickly edit the schedule a few minutes or a few hours before each shift and insert key liners in just the right places. This takes only a few minutes for each jock's shift and the results are nothing short of incredible.

The three biggest benefits of using the Scott Studios AXS system at WTIX are the live-sounding execution of the format, the tight control I have over the station's sound and the cost-effectiveness.

Tight control of the station's format is absolutely critical to me. One of our jocks, while talented, is a loose cannon. With this digital audio system I have total minute-by-minute control over our format.

Finally, the cost-effectiveness of our Scott Studios AXS system is just wonderful. Our AXS system lets our programming sound like a million bucks while we operate inexpensively. Plus, it lets us put our few talented jocks to the best use. They are on-air quite a bit, but they spent less than an hour each day to do their air shifts. They spend more time doing spec spots, making personal appearances and promoting the station.

One of the happiest moments came when my partner took me aside and asked me why we had not automated the station as planned. He was stunned when I told him it was automated — even as we were listening!

For more information from Scott Studios Corp., contact the company in Texas at (800) SCOTT-77; fax: (972) 620-8811; via e-mail at: info@scottstudios.com; *or circle **Reader Service 83**.*

GM and morning DJ Mike Costello is shown with the AXS system.

Our AXS system lets our programming sound like a million bucks while we operate inexpensively.

USER REPORT

Wizard Wows Them in Colorado

by Pat Hardesty Santistevan
Traffic Director
KKCS-AM-FM

COLORADO SPRINGS, Colo. Our relationship with **Prophet Systems** started about four years ago. We started out small with one file server, audio server and workstation. At that time we had a lease management agreement with a satellite-fed FM station.

The Audio Wizard from Prophet Systems allowed us to interface with our satellite provider and play commercials where they were needed, without assistance from a board operator. It also allowed us to put commands in the computer to run pre-produced liners for the correct on-air announcer.

The digitally produced commercials sounded so much better than the antique carts we had been using that we decided to go to digital in that control room. After adding a workstation, we decided almost immediately that we needed a second production room. The production needs for two radio stations were not being met by one production room.

Format change

I become more involved with Prophet Systems in October 1996 when KKCS changed the format of our AM station to a news/talk format. KKCS(AM) has unique needs we never had to deal with before. Prophet System gave us the ability to fulfill those needs.

At least two-thirds of our programming is satellite playback, one third is a combination of live local and live satellite feed. Recording and playback is accomplished by using the digital "reel-to-reel" equipment; a combination of computer software and satellite switcher boxes.

KKCS uses two satellite switcher boxes that allow us to record simultaneously. The software portion allows me to set up the record commands any time of day to record any satellite program available to KKCS.

The control room features on the Wizard are more extensive than our stations presently require. We basically use the control room to play back commercials. The on-air talent has the ability to move commercials around easily with the mouse, or add and delete commercials with a few simple keystrokes.

Another control room function includes record and playback of phone conversations, handy for contests and on-air promotions. There is a Button Bar function that allows the talent to play bumper music and liners without fumbling with carts. For all-music formats, all the station's music can be recorded into the Wizard and played back with one function key.

Production rooms can be used to dub from reel tape and from our DGS and DCI delivery modules. Interviews can be recorded on the phone or in the studio. We have multiple audio tracks to allow for music and sound effects.

Most of the problems we have experienced have been attributed to inexperienced users on the system and, believe it or not, static. Colorado air is especially dry which causes havoc on computer equipment. We now have a humidifier in each control room and our problems have subsided considerably.

20/20

Hindsight is 20/20. Here is what I would do differently if I could do it over: analyze the needs of the station carefully and install everything at the same time. I believe we have had minor setbacks because of the way we pieced the stations together.

I would also call in a computer expert to work alongside my engineer. After all, Prophet Systems is computer technology, and when it comes to computers, I would prefer someone whose living depends on working intelligently with computers.

For more information from Prophet Systems, contact the company in Nebraska at (800) 658-4403; fax: (308) 284-4181; or visit its website at: http://www.prophetsys.com; *or circle **Reader Service 107**.*

World Radio History

USER REPORT

Maestro Works Its Magic at Cox

by Greg Hahn
Chief Engineer
WRKA(FM)/WRVI(FM)/WHTE(FM)

LOUISVILLE, Ky. Three Cox Broadcasting-owned FMs — WRKA, WRVI and WHTE — are networked using Maestro and Audio Central Plus (ACP) as part of the **Computer Concepts** DCS system.

We use DCS for both music and commercials. We have three-on air DCS units with Maestro, three production units with VoiceTracker and the ACP. This setup represents a lot of computer power.

The Computer Concepts system has given us the advantage of recording a commercial or song once and having it appear simultaneously in all studios. It is certainly an efficient use of the station's manpower.

The Maestro screen is intuitive and easy to operate. It gives us on-air flexibility with the ease of a trackball. The playlist appears in front of the on-air person who can change the order easily or load events into the on-screen "cart machines." It interfaces directly with our audio console so the talent can start events from the console rather than the computer keyboard.

A helpful feature is the ability to look back or ahead in the on-air log. It also "talks" to our Selector music scheduling system and almost any traffic software. Overall, Maestro frees up our air talent and allows them to be more creative.

Who's on air

We have also benefited from the convenience afforded by VoiceTracker, which lets the air staff record their entire shifts for playback at a later time. A four-hour air shift can be recorded in 20 minutes.

Now our receptionist frequently complains that she goes looking for someone who is "on air," only to be frustrated that they aren't at the station anymore!

Configuring our DCS systems with the central ACP file saved us money and hard-disk space. More importantly, everything recorded has instant redundancy; one copy remains on the recording computer and one goes on the central server. With ACP, any cart can be edited at any workstation.

If the server develops a problem, the control rooms can operate independently. If our control room unit were to ever develop a problem, I could take the DCS from a production room and put it right on the air, with access to everything on the playlist. With 13 components and 27 hard drives, that is a big relief.

That situation actually happened to us. A production machine with no hard drive space was reconfigured — the audio was accessed through the ACP — and it kept the station on the air for about a week without any noticeable difference.

Too close for comfort

When we had a problem with a bad hard drive, the Computer Concepts people were cooperative. We did not know which of two possible hard drives might be the problem, so the company sent replacements for both, arriving in a "care package." For a computer company, its tech support has been good.

If I could ask Computer Concepts to change anything, it would be the location of a couple of command buttons in the cart library. "Close" — the button that closes the window to the cart library — is too near the "End of Queue" button, and this has caused frustrations for inexperienced staff. We also have not been able to completely voice-track all of our dayparts.

Overall, the systems have seamlessly integrated into our operation. Everybody at the station likes the system and I agree that it has solved problems and allowed us to put our best talent in all of our dayparts.

*For more information, contact the company in Kansas at (800) 255-6350; fax: (913) 541-0169; or circle **Reader Service 131.***

TECHNOLOGY UPDATE

DATAWORLD

BETHESDA, Md. **Dataworld** combines the latest software technology with the most popular features of current packages in its new digital automation system, the DDS 2000.

The DDS 2000 produces two individual radio programs from a common central storage library, with the ability to "station-part" and daypart for each track. Using a Windows NT platform and off-the-shelf computer hardware, it features the ability to record phone calls from any workstation. The system interfaces with music, traffic and third-party production software systems.

Record with Dolby AC2, MUSICAM and aptX. DDS 2000 has fully automated, satellite and live assist mode capabilities.

*For more information from Dataworld, contact the company in Maryland at (301) 652-8822; fax: (301) 656-5341; or circle **Reader Service 162**.*

Scott Studios Acquires

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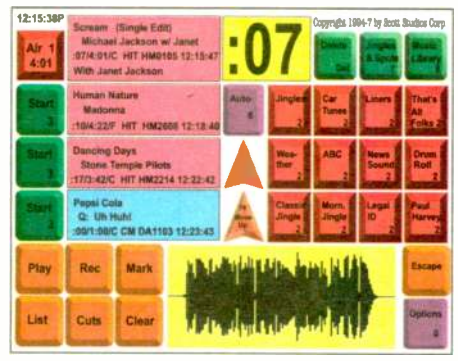
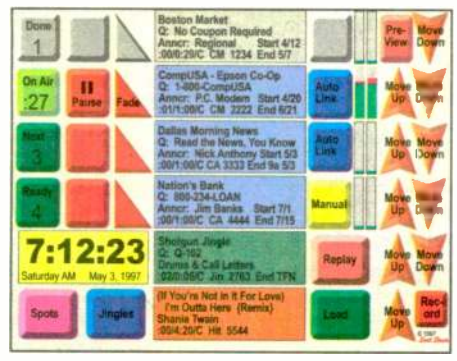


The Scott System is radio's top-of-the-line digital studio for music on hard drive. Its touch screen is the *easiest* and most powerful for live jocks.

AXS (pronounced ax'-sess) Pro is a live jock's dream, with more features than any other moderately priced digital system. Runs on Win95 and NT.

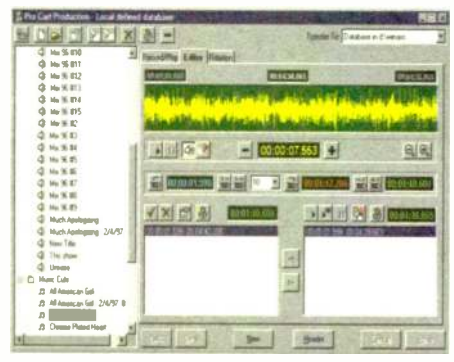
AXS is radio's premier digital unit at an affordable price. It runs satellites, CD and hard drive, has Power Fill, substitutes satellite voices and sounds great!



The Scott Spot Box hard drive digital has great audio quality like compact discs, but Spot Box looks and works like "carts"—at low "cart" machine prices.

The Scott Hot Box gives jocks 43 sets of 53 Hot Keys that instantly play sound effects, jingles and comedy. Priced less than "cart" decks.

Scott's Voice Trax in the jocks' lounge lets them pre-record a great show quickly. They hear song and spot starts and ends so their shows air smoothly.



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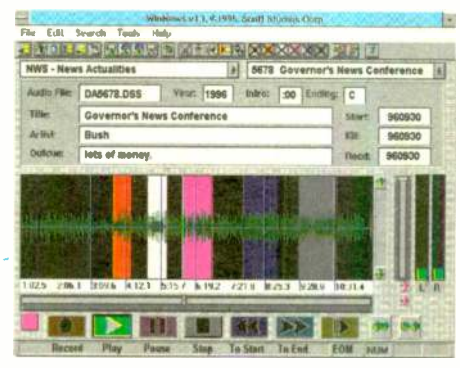

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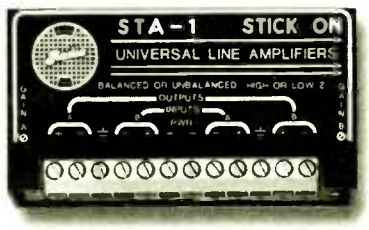

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World Radio History

USER REPORT

RCS NT Number One for WONE

by Jeffrey Bennett
Regional Chief Engineer
American Radio Systems

DAYTON, Ohio Jan. 1 not only marked the start of 1997, but also marked the worldwide launch of the **Radio Computing Service Inc. (RCS)** Master Control NT beta release on American Radio Systems station WONE(AM) in Dayton, Ohio.

Following its debut on WONE, Master Control NT is being installed on the five stations in the ARS Dayton cluster, WONE(AM), WTUE(FM), WMMX(FM), WXEG(FM), WLQT(FM) and WBTT(FM).

Master Control NT can operate completely unattended in the automated mode or varying levels of live assist. American Radio Systems installed the RCS Master Control (v.12) in several of its markets over the last three years. This previous version used a pair of Novell servers operating in a SFT3 configuration. Utilizing Ethernet topology, these servers store and direct audio files over a network to workstations in the air studios. The Master Control NT has been rebuilt by RCS from the ground up using Microsoft NT as the foundation operating over a 100VG AnyLAN network.

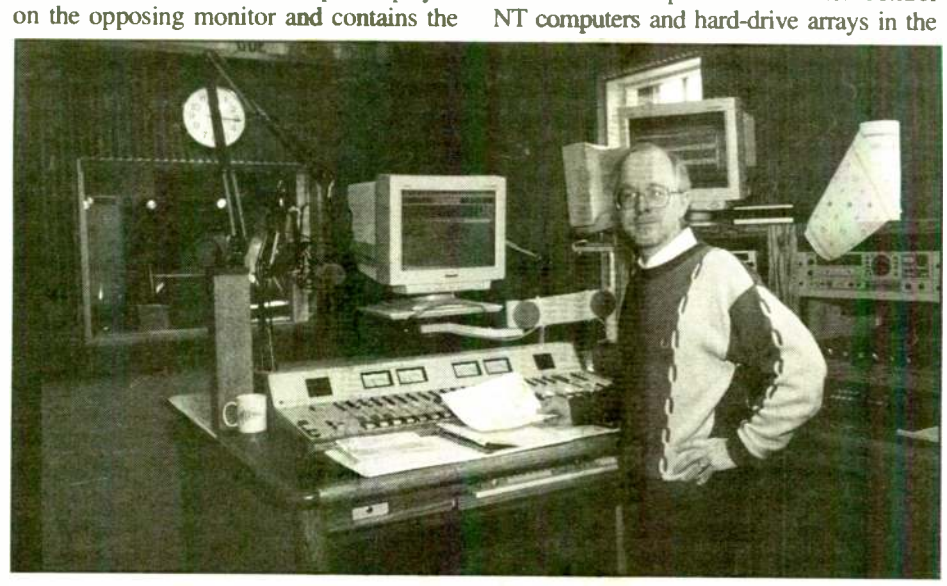
All audio files required by each station are stored on the computer assigned to that station's air studio. The central NT server maintains a live copy of each station's audio files and directs the automated file replication and system maintenance functions. Each station remains independent of the network equipment and the computers in each sister station. This allows immediate audio playback.

Master Control NT has a feature set that exceeds anything else on the market. The operator interface is clean, attractive and easy-to-use. Using a dual-port video card in the air studio machines, the desktop is split over two monitors.

One monitor primarily displays the Manual Scheduler, where immediate changes to the play sequence are made in Windows drag-and-drop style. Play sequence insertions from the cart library and deletions can be made on this side of the desktop.

The talent can audition any element in the log by listening to the beginning, the hook, the end or the entire element at any time. Upcoming segues can be auditioned and modified using the Segue Editor.

The other side of the desktop is displayed on the opposing monitor and contains the Master Control Sequencer, which shows the actual item playing as well as the next three items in the immediate sequence. The user-definable Hot Key button field allows immediate access to popular live elements such as traffic sounders, weather beds or jingles.



Jeff Bennett, chief engineer for ARS, poses with his Master Control NT.

The Voice Tracking facility in Master Control NT is nothing short of phenomenal. From the live air studio — or any other — the talent can display the play sequence for the time they are voice tracking and move to a predefined spot on the log or select a position of their choice. Once started, Master Control will play the last few seconds of the element preceding the voice track position while recording the voice track.

The actual Dayton installation has proceeded smoothly with few problems, considering the beta nature of the Master Control NT. We placed the Master Control NT computers and hard-drive arrays in the consolidated rack room. The computer monitors, keyboards and mouses were remoted to 14 studios over Cybex extenders while keeping fan noise and heat away from the talent.

The traffic system integration was easy and Selector/Linker integration is native to the system. The technical interface to the studio also was easy, as all control inputs are isolated optically and all control outputs are relay-isolated.

The control inputs are used to start the four audio playback channels from the studio's console. The control outputs turn the corresponding console channels off at the end of that element. Another set of outputs ready upcoming channels on the console.

One control input accepts a pulse from the facility master clock system that, in turn, synchronizes the time on all Master Control machines and studio displays. Another control input accepts a closure for a "next event" button. Unused control inputs and outputs can be mapped to custom functions.

The analog stereo input and four analog stereo outputs are balanced, and the standard AES/EBU digital input lets transfers in the studio take place in the digital domain. AES digital outputs are optional.

Because the foundation is strong and the system robust, RCS has only just begun to explore what will develop over the years on this new platform.

For more information from Radio Computing Service Inc., contact the company in New York at (914) 723-8567; fax: (914) 723-6651; or circle ***Reader Service 155.***

TECHNOLOGY UPDATE

POWER-LINK

JACKSONVILLE, Fla. **Power-Link** Software Systems offers radio stations —both home and abroad — software to interface with most traffic and digital audio playback (automation) systems.

The bi-directional communication features of the software include direct input of program and commercial logs to digital audio devices, post log editing, music and commercial merging, dynamic templates for special programming, logic checking to ensure that spots actually air and interactive and automatic reconciliation.

For more information, contact Brian Rowland at (909) 584-5247, or visit the website at www.power-link.com; *or* ***circle Reader Service 179.***

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World Radio History

USER REPORT

DigiCenter Serving Many Stations

As Consolidation Sweeps the Industry, Broadcasters Look for Ways to Streamline Their Operations

by Brenda Conrad
Vice President
Premier Broadcasting Inc.

EFFINGHAM, Ill. I work for Premier Broadcasting, owners of WXEF(FM) and programmers for WXET(FM) in Mattoon-Charleston, Ill., and WKJT(FM) in Effingham. We purchased our first DigiCenter in 1993 for WXEF and have been happy with its performance.

Our initial system consisted of one server for on air and two workstations for news and production. We opted for a 2.1 GB hard drive in the server, which was big at that time, and a CD control interface for 25 Pioneer six-pack CD changers. The system served us well with little or no human intervention necessary.

We use the DARTS traffic system and Results Plus for music scheduling. With the Tamio and PD Mate interface options, we can load as many days in advance as we choose across the network, making weekends and holidays a snap.

Along the way we have added a 21-inch touchscreen, giving us instant access to 256 hot buttons for liners, jingles and voicers. We also added an NSM 100 CD changer for greater flexibility.

Growth spurt

This has been a growing year for our company, with the pending purchase of WXET and an LMA with WKJT. We have expanded our facilities to three studios, with one acting as a second production room when not on air. Of course, we needed to expand our DigiCenter to handle the load, and we were nervous when we found out ITC was out of business.

The Satellite Automation Control in DigiCenter is simple to load.

When I met with the new owner, **Audio Pro Technologies (APT)**, I was pleased to discover that it was the original developer of the system and that ITC was its marketing partner. APT is upgrading the system, and after careful consideration, we decided to continue to expand our DigiCenter.

WKJT is a stand-alone station with its own server for music commercials and satellite programming. We opted to put the music library on two 9 GB hard drives, with two 4 GB drives for current music, commercials and liners. This studio is live from 5:30 a.m. until 7 p.m.

DigiCenter has worked wonderfully in live-assist mode for our country format. The logic interface to our console makes it easy for the announcers to start the events without having to move a mouse or trackball. We never miss ABC News or Paul Harvey.

At 7 p.m., we change smoothly to the CD country format from Jones Satellite Networks. DigiCenter has an internal "virtual console" that allows us to leave the system operating worry-free until the next morning.

The Satellite Automation Control in DigiCenter is simple to load, interfaces with our traffic system, never misses a liner and even switches audio sources for us, allowing automatic overnight recording from multiple sources.

The expansion for WXEF was a little more complicated. We program WXEF and WXET from separate studios in the morning, but join the two stations for simulcast at noon.

While the announcer and music are the same, the commercials, liners, news and other material must be separate because the two cities of license — Mattoon-Charleston and Effingham — are 30 miles apart.

Help has arrived

DigiCenter to the rescue! We added a second server with two 9 GB hard drives for the music. This music server takes care of both live studios for the morning programming. Our original server has become the commercial server for both stations, with separate programming in the morning while feeding separate commercials to WXEF and WXET simultaneously for the rest of the day. At the same time we can produce and load new music without affecting the on-air operations.

DigiCenter has been instrumental in our success. Overnights are unmanned, but DigiCenter makes it easy to sound live. Most of our listeners don't have a clue that the voice tracking is done days ahead of airing, helping us remain competitive while saving payroll.

*For more information from APT, contact Jay Martin in Illinois at (800) APT-2050; fax: (217) 258-5558; or circle **Reader Service 203.***

USER REPORT

Pristine 'Straight Up' Reliable

by Rick Herrick
President/General Manager
KBHR(FM)

BIG BEAR CITY, Calif. Garbage in, garbage out.

When picking a digital automation system remember you are putting your station's sound on the line and there is no way to hide a bad automation system. This is exactly how I evaluated each digital hard drive storage and automation system before purchasing the Rapid Fire automated system from **Pristine Systems**.

Many digital automation systems have been created in the last few years. I took a hard look and demo'd nearly every system before making a decision. I chose the one I felt would hold up best in a demanding broadcast environment. Rapid Fire provided the straight-up reliability in a package that was affordable.

Time passages

Eighteen months later, Rapid Fire is still delivering what it promised. Time and money were saved in learning and teaching the system, even to our new announcers. We save money and human resources by allowing our on-air staff to produce a quality radio show while still providing the flexibility and time for other production projects.

I can program KBHR locally and get the tight professional sound our listeners expected to hear in this competitive Southern California resort market. And I cannot stress enough the importance of local programming and community involvement as some of the most important factors to our success.

When we purchased the Pristine System Rapid Fire package it included the automation, music scheduling, voice tracking and network software, computers, hard drives and soundcards that assure the quality and compression necessary in broadcasting. We unpacked the Pristine boxes, loaded the music on the hard drives and recorded the voice tracks. Immediately, we had programming that KBHR and this community could be proud of.

As our staff grew over the last year and our work space seemed to shrink, production and on-air was condensed into one studio in order to make room for a growing sales staff. The Pristine System proved to be perfect for multi-purpose studio applications.

I can program KBHR locally and get the tight professional sound our listeners expected to hear.

Now as we continue to grow, there is actually need for two production studios. This expansion will be accomplished simply by adding just one extra, 100-square-foot studio.

The Pristine System provides us with live assist automation as well as full walk-away automation. And with our Sage EAS interfaced to the automation, we are in full FCC compliance; even when the doors are locked up and the entire staff is home snoring the night away.

We utilize a Lantastic network and Windows for workgroups network. This combination has allowed me to program music, combine traffic and interface with the voice tracks at nearly any computer at KBHR.

We have a total of four full-time employees, eight computers, 30GB of hard drive storage and one laptop. This equipment has provided the horsepower needed to turn a profit within the first four months of operation.

Computer equipment, as any other type, needs attention to work at its best. A schedule of regular backups and weekly hard drive defragmenting ("defragging") is essential. A cool dirt-free studio and clean backup power all are essential to maintaining happy computers. And at KBHR, happy computers always means a happy general manager.

Testimonial

Jay Tunnell, KBHR sales manager, thinks working with the Pristine system is a good sales tool. Digital recording and playback is instant. When clients request copy changes or different copy rotations, the system can provide them instantly.

Jay agrees the quality and creativity possible in digital recording is as much a sales benefit as our demographics. I have seen the impressed looks of KBHR clients when the Pristine System is explained and demonstrated. We are perceived in this market as the leading edge in computer technology and this type of image enhances our value.

*For more information from Pristine Systems, contact Boyce Williams in California at (310) 670-7500; fax: (310) 670-0133; or circle **Reader Service 12.***

World Radio History

USER REPORT

The Phantom Steals the Show

by Shane Connor
Program Director
WWYN(FM)

JACKSON, Tenn. When WWYN (FM) purchased The Phantom automation system from **Register Data Systems** in the summer of 1996, it changed the way we work forever. We utilize it in every aspect and element of our on-air presentation.

The Phantom setup is relatively simple: enter your commercial and music clocks with the appropriate codes outlined by RDS. Afterwards, tell the Phantom how much time can be allowed for each break or program element.

If the new program matches your traffic and music computer logs, then the elements will fall right into place during the downloading. If a mismatch does occur, the Phantom automatically reports the mismatch and where it occurred. You can set up rotation schedules for each element to air at the time and frequency of your choosing.

Cover all the bases

Our basic setup contains a Fast Ethernet 100TX file server, LAN-connected to four workstations located in the control room, production room, production office and the traffic and program director's office.

The Phantom in the control room is fitted with redundant 4.2 GB removable hard drives, plus a third drive for supplemental storage. Overall, this triple drive arrangement provides double redundancy.

The bulk of the commercial inventory on the control room Phantom is automatically backed up on its local drive as well as on the network server. In the event of a server or network problem, the main Phantom can stand on its own indefinitely.

We use a Roland DM-80 workstation in the production room, transferring completed audio files directly to the server through the Phantom production workstation.

The production office unit — where all editing information, log downloads and other day-to-day activities occur — actually is an extension of the control room unit. It can be used even during a live shift by launching the split-screen feature.

The workstation in the traffic and program director's office allows traffic and music log downloading directly over the LAN.

Sneaky Phantom tricks

The Phantom allows stations to customize important features. We place overlap commands on all features, tightening the on-air sound. We have our on-air hard drive segmented into compartments that match our music categories, commercials, PSAs, liners, jingles and other voice elements.

From 6 a.m. until midnight, we use the Phantom for live-assist programming. All audio is played directly from the hard drive, eliminating carts, CDs and reels from day-to-day operations.

Our Phantom is connected to a "hot key" box with 12 keys, each assigned a different function. These keys can be programmed to be unique for each daypart. When the shift changes, so do the hot key designations.

The appropriate show drops are loaded automatically according to the pre-programmed Voice Schedule. All jingles, liners and sweepers are played straight from the hot keys.

During phoners and request shows, we record calls directly to the Control Room Phantom and edit them in the "splice audio" mode.

The Phantom's Split Screen mode is handy for these functions, allowing us to work in production or splice mode without ever losing sight of our on air program display. For playback, we quickly place the call before a song and enter the amount of overlap to put on the call. This automatically rolls the music under the caller to keep the flow tight.

The Phantom also efficiently runs our overnight satellite show, "After Midnite," inserting our local breaks and liners as activated by the network tones.

Timing is everything

The Phantom's automatic break-retiming function ensures all satellite breaks are tight without gaps and without stepping on the network during rejoins. The timer feature also is used to catch all network feeds and syndicated shows we receive via satellite.

Because the timer hits the network automatically, missed feeds and blown commercials are eliminated. The timer can automatically perform a system backup at a time of day when activity is at a minimum.

The secret to success is planning your format before you set up your system. Make sure your cart numbering system is a good one. At all costs, avoid duplicate cart numbers and similar problems that can wreak havoc in any computer system.

Should a problem actually arise, the Phantom does have alert features that will warn you.

WWYN 107's experience with the RDS Phantom has been positive. As with any system, problems will occur, but that is when RDS system support steps in to help. Any time we have experienced a problem, the tech support staff has been friendly and available. Best of all, they have been problem-solvers.

For more information from RDS, contact Brad Harrison in Georgia, at (800) 521-5222; fax: (912) 745-0500; or circle ***Reader Service 126.***

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NEW ORLEANS

World Radio History

USER REPORT

Dalet: Proven Automation

by Gregg Garcia
Chief Engineer
Journal Broadcast Group Inc.

TUCSON, Ariz. In late 1994, four Tucson radio stations decided to brave the ground of computer automation and live assist operation.

The management of KFFN(AM), KKHG(FM), KMXZ-AM-FM — then owned by Apogee Communications, since sold to Journal Broadcast Group of Milwaukee — had to replace aging cart machines and maintenance-prone CD players. Larry Holtz, then director of engineering for Apogee, chose the **Dalet** system.

After installation in late January of 1995, Apogee brought me in from California primarily to manage the implementation, operation and maintenance of the newly acquired system. Upon my arrival, I was asked to survey the Dalet system to determine if it was the right system for the company.

I was not familiar with Dalet and there were a number of problems. My first thought was to find a way out of the purchase and look for an American-built system that I already knew.

However, within the first few weeks of dealing with the folks in New York, I developed a greater comfort level with Dalet, and in working directly with the system I began to believe it was a superior product.

Eggs in one basket

The system was able to handle one station's transition from a music format to a satellite sports format. Before the sports format switch, the Dalet system was providing all audio (except for live announcers) on all four radio stations. Audio elements included music, commercials, jingles and telephone calls. All the eggs were in one basket and working well.

This is not to say we were without problems. With Dalet's competent support staff in New York and a couple of visits, we worked out most of the bugs with relative ease.

Many of the difficulties we experienced with the Dalet system were more related to user comfort and training. Where several users never experienced difficulties, less computer-savvy users experienced a greater number of problems.

Still, if I compare computer-generated errors to the errors we had before — carts failing, wrong songs or commercials airing, songs fading out — our radio stations are much tighter, with fewer miscues threatening our listeners and revenue.

Open shifts

Not only are there fewer on-air problems, but we have more flexibility when shifts are left unfilled. Dalet is the answer now when we cannot find a part-timer to fill in for someone out sick or on vacation.

One day while driving to the station, I was trying desperately to phone the jock on the air and was frustrated when he would not answer the hotline. I then found out the studio was empty and Dalet was running voice tracks. He even had canned phone calls running. I was embarrassed and impressed all at the same time.

Since the initial installation we have upgraded our system with a redundant server and RAID stack to cover the eventuality of a severe disk crash. Also, we have added smaller back-up workstations in each control room. These are used mainly for recording and editing phone calls using Surfer software, but can also act as a main workstation in case we lose a critical component.

Because of Dalet's configurability, we have been able to build up our backup and redundancy procedures as our budget has allowed and as the system ages.

I have looked at just about every system that is available and still believe that Holtz made the right choice. Dalet is robust with features and configurability.

As systems such as Dalet permeate the broadcast environment, one thing is certain: We need to look at how we do what we do. No system can replace four cart machines and three CD players without obliging us to make some adjustment to the way we work.

In the past, the industry had to make allowances to switch to records, carts and CDs. We need to reevaluate how things are done and how to fit the old technology of radio with the new technology of computers. They can and will make for better radio.

Dalet has proven to this engineer that these systems are the future and the future is now. A former employee now working in a bigger market is struggling with the old way and continually tells me how much he misses Dalet. One of our current employees said he could not dream of working anywhere without the Dalet. I concur.

For more information from Dalet, contact the company in New York at (212) 226-2424; via e-mail at: 100437.1536@compuserve.com; *or circle* ***Reader Service 102.***

Journal Broadcast replaced its antiquated cart machines with Dalet.

USER REPORT

Bloomington Blossoms With the ENCO DAD$_{PRO}$

by Ron Romine
Bloomington
Broadcasting Corp.
WJBC(AM)-WBNQ(FM)-
WBWN(FM)

BLOOMINGTON, Ill. Change is never easy and when Twin-Cities Broadcasting Corp., a subsidiary of Bloomington Broadcasting Corp., purchased WBWN-FM in 1996, we knew we faced big decisions.

We realized, among other things, that new studios had to be constructed to accommodate the new station. The toughest decision, however, was whether we should upgrade the equipment and bring each station into the digital age.

Bloomington Broadcasting has been in business for 50 years, owning and operating 17 radio stations in the Midwest and southern United States. In the late 1960s, WJBC was involved intimately in the pioneering development of the first endless-loop tape cartridge equipment.

Decisions, decisions

Our commitment to tape made conversion a particularly difficult and emotionally trying decision. We strongly felt we helped set the industry's operational standard for the last few decades. Abandoning that cornerstone was not easy. However, in keeping with our precedent for innovation and forward thinking, we decided in favor of the upgrade.

While other group-owned stations purchased competing digital audio systems that were adequate for the tasks, we felt our flagship stations deserved the best.

With that in mind, we initiated a search for a system that would ideally serve our present and future needs while staying within our budget.

Our list of requirements included ease of use, flexibility, range of available options, security, redundancy and complexity of installation. We wanted all three stations to have access to the library, increasing the efficiency of our production department by eliminating multiple copies and decreasing hard-drive storage requirements.

I was very impressed when I saw ENCO's DAD$_{PRO}$ Digital Audio Delivery System demonstration. However, I almost resigned myself to the fact that we would have to settle for something less, because I thought we could never afford a system with such sophistication.

I was pleasantly surprised when I saw the final quotation. The DAD$_{PRO}$ compared favorably in price with others that we looked at, and we soon placed an order.

We designated the new system — comprising a studio workstation, production workstation, and file server — for our first station, WBWN. I attended the free ENCO training school to learn everything possible about system operation and maintenance.

The set-up

We received the system in late 1996 and initially set it up in one of our conference rooms for familiarization and training. The location helped expedite loading the music libraries, spots, IDs and other material. It also allowed us to implement the interface to our scheduling and billing systems.

DAD is so user-friendly that the training progressed more rapidly than we had anticipated. In fact, the system premiered on the air in March.

Dan Westhoff, program director for WBWN, estimates that it took only one half-hour to train each member of the air staff thoroughly. They love the system because staff members can build Array Panels ("cart walls") unique to their show requirements, with liners, bits and promos color-coded and secured for their use only.

The Voice Tracking feature is so easy, it takes Westhoff only 30 minutes to track a six-hour weekend overnight shift that sounds remarkably live. Because we no longer need canned programs during weekend shifts, we can offer more unattended operations and therefore open more opportunities for the sales staff.

Glitches be gone

As with any new installation, there have been glitches. However, virtually every one of them has been traced back to operator error. On the occasions we have needed them, the ENCO technical support staff have been extremely responsive.

As the level of staff expertise increases, the glitches are being eliminated. We have since purchased two additional DAD workstations and are in the process of adding WJBC and WBNQ to the system.

Without a doubt, the DAD$_{PRO}$ system is a great asset to WBWN, and the entire staff is extremely happy with it. Would I again make the same decision to go with DAD$_{PRO}$? In a heartbeat!

For more information from ENCO, contact Larry Lamoray in Michigan at (800) 362-6797 or (248) 476-5711; fax to (248) 476-5712; or send e-mail to lamoray@enco.com; *or circle* ***Reader Service 36.***

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Phelps-Dodge 3 bay 6 kW FM on 100.3, excel cond, $1500; 300' AM/FM guyed tower w/guys, insulators, base insulator, top beacon, 2 sets side lights, free w/removal. C Jones, WMNY, 7620 Old #6, Santee SC 29142. 803-854-6396.

Shively 6813 3 bay tuned to 93.1, BO. G Kelley Jr, Merchants Bdctg, POB 230, Donalsonville GA 31745. 912-524-5123.

STL parabolic reflectors, (4) 6' & an 8'. R Rouse, Town & Country Comm, POB 20, California MO 65018. 573-796-4200.

CODE BEACON/OBSTRUCTION BULBS: manufactured in the USA! One year warranty! For more information fax Michael at 606-271-4132.

Want to Buy

6 bay CP FM on or near 98.5 MHz. B Campbell, KACO, 720 N Commerce, Ardmore OK 73401. 405-226-9850.

AUDIO PRODUCTION

Want to Sell

Fostex 3180 stereo reverb unit w/24 mS pre-delay rack mountable, vgc, will swap for a URE! Cooper Time Cube. E O'Brien, Imperial Sound Std, 383 N Studio

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Fax 800/644-5958 972/473-2578

Bogner LP51 476-482 chnl 15 antenna, beam tilt 0 degrees. D Blackwell, WQHL, 1305 Helvenston St, Live Oak FL 32060. 904-362-1250.

Shively 6813-3 3-bay medium pwr on 100.5 w/radomes, perfect cond, 2 yrs old, $6500 FOB Lebanon NH. D Jackson, WMEX, 19 Boas St, Terre Haute IN 47803. 812-877-2663.

Roland DM-80 8 chnl digital prod system w/Roland controller unit, excel cond, $1500. J Taddeo, WZNF, 400 N Broadway, Urbana IL 61801. 217-367-1195.

Ensoniq DP-4plus, $1095; Altec 438 tube compressor, $660; Altec 459 preamps, rack of 8 w/Altec transformer/pwr supply, $4000; Ampex MX-10 4 chnl tube mixer, repotted & tubed, excel cond, $950. J Vanore, Acoustical Concepts, 2548 Chester Pike, Ridley Park PA 19078. 610-328-6772.

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JBL 4410A (right only) studio 3-way monitor speaker, very flat 45 Hz-20 kHz @ 2 dB, like new, $240. R Evans, Evans Audio, 626 Laurel Lake Dr, Franklin NC 28734. 704-369-9196.

Kintronics 500-200 or less pwr reduction, $350. C Jones, WMNY, 7620 Old #6, Santee SC 29142. 803-854-6396.

Sony CDK-006 CD players (4); (2) 360 Systems Digicart random access w/manuals; (1) 360 System recorder/hard disk system; (2) ultimate digital studio interface and connection cable w/manuals; (10) 360 Systems Bernoieli digital audio disk. Randy Merren, 345-945-1166.

Orban DSE7000 analog & digital I/O, external DAT backup, 1.7G hard drive, 64M RAM, $81K/BO. T West, WKQI, 15401 W Ten Mile Rd, Oak Park MI 48237. 248 967-3750.

White Instruments Series 4000 1/3 octae EQs, 40 to 16 kHz, balanced by White, rack mountable, $600/pr + freight. J Block, Production Block Stds, 906 E 5th St, Austin TX 78702. 512-472-8975.

Tannoy 15" speaker pair, newly recond, $1450; vintage recond tube mic pre's & mixers, $300-$700; new ADC patch bays _" 52 points, $169; ADC TT bays, $129 up; new ADC TT or _" TRS cords, $9; Furman _" to _" patchbays, $95 ea; like new tape, _"x2500' 456, $15 ea; 1" 456, 226, 250, $25 ea; Digitec 3.6 sec delay, $150; new pwr dist/filter rack mt, $75. W Gunn, Box 2902, Palm Springs CA 92262. 619-320-0728.

Want to Buy

dbx 140X NR units (pair), clean. D Green, KTCU, Box 298000, Ft Worth TX 76129. 817-921-7630.

Neve, Api, Gates, Longevin, Collins, Lexicon & others, mic preamps, EQs, reverbs, delays. T Coffman, 3949 Ardmore Dr, San Diego CA 92111. 619-571-5031.

Compressors & EQs, tube and solid state. W Gunn, Box 2902, Palm Springs CA 92262. 619-320-0728.

AUTOMATION EQUIPMENT

Want to Sell

Arrakis Digilink & TracStar automation or live assist system w/Pioneer 300 disc jukebox, BO. B Stutzman, WKXP, Bloomsburg PA 17315. 717-784-5700.

BE AudioVault CD automation w/(3) NSM 100 shelf CD jukeboxes w/(2) prod/on air units & (2) Core storage units, comes w/complete successfulformat including CDs w/all cuts entered in PowerGold music program (optional), $13900 w/omusic setup or $14900 w/AAA music setup, FOB Lebanon NH. D Jackson, WMEX, 19 Boas Ln, Wilton CT 06897. 203-762-9425.

SMC automation system, (3) Carousels, (5) Otari r-r's, (3) racks, $500/BO. Scott, WWWY, 1333 Washington St, Columbus IN 47201. 812-372-9933.

Digital DJ system (upgraded) for satellite, switcher, 2 cards, software, pwr supply, manual, $3000. Nick or Eva, KCCC, 1011 W Mermod, Carlsbad NM 88220. 505-887-5521.

IGM EC System (3) 48-tray stereo Insta-Carts, 24 stereo Go-Cart & computer, $2000 for complete system, will consider selling individually. C Mandel, KAMP, 626 Main St, El Centro CA 92243. 619-352-2277.

Sentry FS12B System (2) 48-tray stereo Insta-Carts, (2) 24 stereo Go-Carts, (4) 42 Go-Cart machines & computer, $2000 for complete system, will consider selling individually. C Mandel, KAMP, 626 Main St, El Centro CA 92243. 619-352-2277.

SMC 3050 Brain, 2 cabinets, limiter, clock, remote control, 2 random-select w/racks, Carousels, gd cond, manuals u-haul, $500. C Jones, WMNY, 7620 Old #6, Santee SC 29142. 803-854-6396.

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CART MACHINES

ITC 3D cart repro (11); (4) Scully 270 14" r-r, spare motors & parts for both; Yamaha 1500 W pwr amp; JBL dual 18" sub-woofer; Sony 5600 3/4" VCR. All to be blown out cheap. For more info, call Pro Audio Repair Service, 609-926-2206.

Want to Sell

Spotmaster 500P (2) R/P, mono in excel cond, $450 ea. R Ritchey, Phagan Oliver Pro, 611 Broadway, San Antonio TX 78215. 210-680-0933.

Aristocart carts, 100 brand new; 124 used loaded Aristocart, assorted lengths; Ramko Research ACL25 cart loader; 14 pancakes of Dynamax 400 tape, brand new, 2 Sparta 800 CP cart machines, repro, needs work, all for $200. D Neuchterlein, WULX, 6130 S Dehmel Rd, Frankenmuth MI 48734. 517-652-6863.

Audi-Cord E-Series (2), stereo + record amp in rack mount shelf, $675; Audi-Cord C-Series A31 (3) side-by-side mono players in rack mount shelf, $550; Audi-Cord A Series stereo R/P, needs alignment, $200; ITC RP stereo R/P w/sec + tertiary tones, $375; ITC SP stereo PB, $250; (2) UMC Beaucart mono players, need minor work, $150/pr. D Jackson, WQQQ/WMEX, 19 Boas Ln, Wilton CT 06897. 203-762-9425.

SMC 712 (4) stereo, gd cond, $200 ea; BE 900-3202-001, excel cond $699; Gates 5909 stereo, fair, $75; Harris cart 3 deck, stereo, excel cond, $1200; ITC cart 3 deck, stereo, vgc, $500. J Coursolle, WPKR, 2401 W Waukau Ave, Oshkosh WI 54903. 414-236-4242.

ITC Delta - new pinch rollers: Mono playback (2), record/play (2), stereo record/play (1).

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CART MACHINES continued...

MOTIVATED! Spotmaster series 2000 record (1). Wes, 818-798-9128.

ITC upgrade PB to record, amps only-no deck, 3 tone, stereo, $175. W Gunn, Box 2902, Palm Springs CA 92262. 619-320-0728.

ITC, Harris and Collins (tube) cart machines, call for list. R Robinson, 860-276-8763.

Want to Buy

Used, reasonable, 3 pack mono PB unit and/or single play mono record unit, ITC, Fidel, Harris, etc. Sonny, POB 2475, Ventnor NJ 08406. 609-823-1370.

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Want to Sell

Arrakis 500-SCT-8S 8 chnl stereo board w/slide pots, $2075; LPB S-13 Signature Series 7 chnl stereo board, rotary faders, 24 inputs, $2295. D Jackson, WMEX, 19 Boas Ln, Wilton CT 06897. 203-762-9425.

Collins 8 pot board, $300. W Osenga, Pace Bdctg, POB 1369, Canton NC 28719. 704-648-3586.

McMartin stereo console, 8 chnl mixer w/18 inputs, excel cond, $1200. R Ritchey, Phagan Oliver Pro, 611 Broadway, San Antonio TX 78215. 210-680-0933.

Radio Shack SSM-1000 mixer board, 1 mic input, 4 stereo chnls w/2 inputs ea, all RCA; 7 band EQ for right & left, output switchable from 0 dB to +6 dB, $125. B Dixon, WAWC, 10129 N 800 East, Syracuse IN 46567. 219-457-8181.

Arrakis 12 pot stereo console; Tascam M308B stereo console. J Arzuaga, WLAZ, Box 980, Quebradillas PR 00678. 787-895-0000.

Continental Mark 8 stereo 8 chnl, rotary pot, stereo console, 1984 vintage, gd cond, $1000; RCA BC-3, 1954 tube type console, clean & working, 8 chnl, also other vintage consoles avail to sell/trade. S Horner, Salem Comm, 4880 Santa Rosa Rd, Camarillo CA 93012. 612-405-8800.

Sparta AS30B stereo, 5 pot, gd cond, $350; BE 10S350 stereo sliders aud pgm, vgc, $3500; RCA stereo 8 pots, gd cond, $500. J Coursolle, WPKR, 2401 W Waukau Ave, Oshkosh WI 54903. 414-236-4242.

Sparta RS-30 4 chnl stereo mixer, desk, 2 TT's, 2 pre-amps, 2 monitor speakers, cue speaker, mic, $500 u-haul. C Jones, WMNY, 7620 Old #6, Santee SC 29142. 803-854-6396.

Teac 3, 8x4x2 w/8x2 submix, EQ, assign, line/mic w/atten/phono inputs, $275/BO. M Bailey, creative rediffusions, 1245 Scenic Highway, Pensacola FL 32503. 904-433-4549.

Auditronics 110 consoles. One stereo on-air, one 4 track production. P&G faders in both. Complete or for parts. B. Hildebrand, Adlights, Inc., 314-428-5858.

Soundcraft 600 32x16 w/patchbay, mint, $4950; Tascam 512 12x8 mixer, $750; Tascam 520 20x8x16 mixer, $1750; Tascam 30 8x4, $450; Allen & Heath Syncon 28x24, great sounding, $5000. W Gunn, Box 2902, Palm Springs CA 92262. 619-320-9728.

DISCO-PRO SOUND EQUIP

Want to Sell

Klipsch LaScala speakers (2), split edition, fully loaded, high end & bass response extremely efficient w/wheels & handles, $975. J Green, J Green Rcdg Snd, 1078 Barbara Ct, N Bellmore NY 11710. 516-221-1344.

RCA automatic giant 5"x7" cassette, heavy duty, 2 motors. F Yonker, Penn State Univ, 1229 Inverary Pl, State College PA 16801. 814-867-1400.

Symetrix 571 automatic level controller, excel cond. $375. R Branske, Southwest Comm, POB 952, New Lenox IL 60451. 708-399-5444.

Want to Buys

Fender electronic bass pedals. B Neuse, Muse Audio Arts, 600 Rainbow Dr #107, Mtn View CA 94041. 415-969-2433.

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LIMITERS

Want to Sell

Behringer Mastercom MDX4000 stereo dual band compressor w/AGC, 5 mos old, packaging & manuals, $400. C Marion, JCR Prod, 3911 Glendale St, Phil PA 19124. 215-289-8295.

Gates Solid Statesman limiters (2) w/manuals & schematics, $50 ea; (5) Marti CLA 40 compressor/limiters w/manuals, $50 ea; Spotmaster compressor/limiter/expander, $50. S Eberhart, Eberhart Prod, 3205 Patriot Dr, Plano TX 75025. 972-491-2804.

Want to Buy

Teletronics or UREI (LA 2, 3, 4, 1176) Gates, RCA, dbx (160-165) Altec, Collins. T Coffman, 3949 Ardmore Dr, San Diego CA 92111. 619-571-5031.

UREI, dbx, WE, Gates, Collins, Altec, all tube types, etc. The Great Wireless Talking Machine, 419-782-8591.

Teletronix LA-2A's, UREI LA-3A's & LA-4's, Fairchild 660's & 670's, any Pultec EQ's & any other old tube compressor/limiters, call after 3PM CST, 972-271-7625.

MICROPHONES

Want to Sell

AKG D-25 w/suspension hanger, new cond in original box, $125; RCA BK-5 w/shock mount, stand mount & windscreen, excel cond, $125; Sony ECM-30 lavaliers w/pwr supply. J Dalton, Dalton Snd, 3374 NE 19 Ave, Ft Land FL 33306. 954-564-0014.

Microtech Gefell UM92 tube mic, less than 1 yr old, perfect cond w/pwr supply, cables, shock mount, extra EF86 tube, $1950. T O'Toole, Studio Two, 115 W 79th St, Burr Ridge IL 60521. 1-800-789-8666.

Sennheiser MD-421-U-5, perfect working cond, $200/BO. M Bailey, Creative Rediffusions, 1245 Scenic Highway, Pensacola FL 32503. 904-433-4549.

Sennheiser MKH 815T long shotgun mic, $500. P Cibley, Cibley Music, 166 E 35 St, NYNY 10016. 212-532-2980.

RCA 77DX, BK1A, $395; vintage PA mics, Shure 51 Elvis, $75, EV731, $95, EV 630 or 635, $75, RCA mini 77" shaped, $295. W Gunn, Box 2902, Palm Springs CA 92262. 619-320-0728.

Want to Buy

RCA 77 & 44 or other ribbon mics, dynamics & tube mics. T Coffman, 3949 Ardmore Dr, San Diego CA 92111. 619-571-5031.

RCA, Neumann, WE, all types, on-air lights, etc. The Great Wireless Talking Machine, 419-782-8591.

Mic's with slags (call letters), slags, on-air lights, clocks with call letters & other interesting old mics, etc. 1-800-727-2369.

Neumann, Sennheiser, AKG, many models. W Gunn, Box 2902, Palm Springs CA 92262. 619-320-0728.

RCA 77-DX's & 44-BX's, any other RCA ribbon mics, on-air lights, call after 3PM CST, 972-271-7625.

RCA 77-DX's, 44-BX's, WE KU-3A's On-Air lights, recording lights. Top price paid. Fast response. Bill Bryant Mgmt, 2601 Hillsboro Rd, G12, Nashville TN 37212. 615-269-6131, FAX: 615-292-3434.

MISCELLANEOUS

Want to Sell

B/W Johnson Cardwell-National roller inductors, counter dials, vacuum/air capacitors, Barker-Williamson 5-band output coils, + other parts; General Radio Variac, heavy duty, 115 V & 230 V, pwr supplies, 3000-4000 V at 1A. F Yonker, Penn State Univ, 1229 Inverary Pl, State College PA 16801. 814-867-1400.

Macrotel MT-16H telephone system w/KSU unit pre-wired to punch block, Macrotel electr key telephone w/LCD display, (8) addtl extensions, loaded w/state-of-the-art features, $1150. D Jackson, WMEX, 19 Boas Ln, Wilton CT 06897. 203-762-9425.

Memory PB device, cassette loaded, selectable scheduling, 150 units. Greg, ACTRADIO, PO Box 5102, Norwalk CT 06856. 203-840-5167.

Comdial Voice Express speaker phone, works on single line or 6 button system, works gd & clean, $25 +UPS. E Davison, 217-793-0400.

Dynamax ESD-10 splice loc & eraser, vgc, $500; (2) wall cart racks, 108 carts, excel, $50 ea; (3) wall cart racks, 100 carts, exce, $50 ea, Carousel cart rack, 200 carts, excel, $150. J Coursolle, WPKR, 2401 W Waukau Ave, Oshkosh WI 54903. 414-236-4242.

Microwave Radio Digipro encoders (2), cond unknown, $150 ea/BO; AP Teletype printer, mech monster w/floor stand, blk crackle finish, working when removed from service, BO all FOB CT; also misc antique radios, list avail by fax. D Jackson, WQQQ/WMEX, 19 Boas Ln, Wilton CT 06897. 203-762-9425.

TFT 760-04 EBS mon, excel, $50; Gorman Redlich CD EBS decoder, excel, $25; Shape Electronics CLC-1500-AAA pwr conditioner, excel, $350; Westwood One data demodulator, excel, $100; RA Com 1300 morse identifier, excel, $50. J Coursolle, WPKR, 2401 W Waukau Ave, Oshkosh WI 54903. 414-236-4242.

Rush SFM-19 monitor. R Robinson, 860-276-8763.

Want to Buy

Magnabelt, Dictabelt, Memovox machines, any cond, any info appreciated. R Norton, 527 Great Falls St, Falls Church VA 22046. 703-536-5329.

Gates, Collins, RCA equip books, old, from the 70's copies OK. S Eberhart, Eberhart Prod, 3205 Patriot Dr, Plano TX 75025. 972-491-2804.

Jennings CA-30-105 10 kW - 30 PF variable vacuum capacitor. J Bahr, VI Stereo, Box 6556, San Juan PR 00914. 787-756-5914.

Jazz record collections, 10" LP/12" LP be-bop, swing, dixie, highest prices paid. B Rose, Program Recdgs, 228 East 10th, NYNY 10003. 212-674-3060.

MONITORS

Want to Sell

Belar FMM-2 mod mon tuned to 94.3, FMS-2 stereo mod mon & extended meter panel, gd cond. R Rouse, Town & Country Comm, POB 20, California MO 65018. 573-796-4200.

Used Mod Monitors, McMartin & Belar, many to choose from, tuned and calibrated on your frequency, fully guaranteed. Goodrich Ent. Inc., 402-493-1886.

RECEIVERS & TRANSCEIVERS

Want to Sell

Realistic DX-160, new Radio Shack ham band/general coverage rcvr w/loudspeaker, manual, original packing, unused. F Yonker, Penn State Univ, 1229 Inverary Pl, State College PA 16801. 814-867-1400.

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Want to Buy

Need 67 kHz SCA decoders with built-in freq agile FM rcvr. T Peterson, WIQB, Box 300, Ann Arbor MI 48106. 313-930-0103.

RECORDERS

Want to Sell

Nagra III sync rcdr w/Jensen resolver, Nagra BM 4 position mixer, 7 in & 5 in tops, Nagra case, excel cond, $1000; Sony TC-388-4 stereo, 3 head, 4 chnl, 7.5 & 3.75 speed, excel cond, $165. J Dalton,

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RECORDERS continued...

Dalton Snd, 3374 NE 19 Ave, Ft Land FL 33306. 954-564-0014.

Otari 5050B III 2 trk r-r, like new; Panasonic 3900 DAT w/remote controller. J James, Marin Voice Std, POB 1641, Sausilito CA 94966. 415-331-9346.

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Nashville, TN 37203 (615) 244-6892

Otari MX5050 BII, w/floor stand, never used, excel cond, $2600. C Singleton, WFUV, Forham Univ, Bronx NY 10458. 718-817-4560.

Panasonic AG6500 (2) edit/rcdrs, AGA650 cntrlr, $2000; Tascam DA 30, digital audio tape, $600. Cozmic, 716-527-8642.

Pioneer RT-701 2 speed rack mountable r-r tape deck, as new cond, $350 +shpg. E O'Brien, Imperial Sound Std, 383 N Studio St, Terre Haute IN 47803. 812-877-2663.

Revox PR99 PB reel decks, (2) 3.75 ips, (1) 7.5 ips, FT stereo, $495 ea. D Blackwell, WQHL, 1305 Helvenston St, Live Oak FL 32060. 904-362-1250.

Roberts mono portable recorder, tube type, similar to the Ampex 600 series, $200; Akai M7 portable recorder, stereo, cross-field heads, $150/BO. M Crosby, 422 Avenida Abetos, San Jose CA 95123. 408-363-1646.

Ampex 440B 4 trk _" r-r R/P in custom console, $1500; Ampex AG-350 mono r-r w/solid state electr in custom console, $500; Gately 16x8 audio board, in custom console, $500. A Baker, Bdct Prod of America, 804 East 38th St, Indianapolis IN 46205. 317-925-7371.

ABE 900-3203-001, excel cond, $1000; SMC stereo, fair, $300; Tascam 38 _" 8 trk, excel, $1500; Ampex ATF7000 _" 2 trk, vgd, $900; Revox PR-44 _" 2 trk, excel, $1100; Otari MX5050 _" 2 trk, vgc, $1100; ITC 750 (4) _" 2 trk, fair, $150/ea. J Coursolle, WPKR, 2401 W Waukau Ave, Oshkosh WI 54903. 414-236-4242.

ITC stereo cart 3D PB, deck 3 w/record head, extra parts, $300. S Eberhart, Eberhart Prod, 3205 Patriot Dr, Plano TX 75025. 972-491-2804.

ITC triple deck cart player, $350. C Jones, WMNY, 7620 Old #6, Santee SC 29142. 803-854-6396.

Otari ARS 1000's (4), stereo r-r's, in gd cond w/25 kHz cue detectors. C Mandel, KAMP, 616 Main St, El Centro CA 92243. 619-352-2277.

Otari MX-5050 BII w/roller floor stand, $1995/BO; Teac 2000M, large reels, $1000/BO, both w/dual trk, 7.5 & 15 ips, new in orig box, shpg incl. C Hughes, 7513 Honesty Way, Bethesda MD 20817. 301-229-5757.

Revox PR-99 r-r & play, 7.5 & 15 w/digital meter, like new. J Arzuaga, WLAZ, Box 980, Quebradillas PR 00678. 787-895-0000.

Tascam MSR-16 16 trk _" w/dbx, RC-416 full remote, low hrs, mint, original boxes/packing, 3 reels new Ampex 456, $3500. D Sieb, Harvest Prod, 8297 Hillpoint Rd, Cross Plains WI 53528. 608-798-2223.

Teac 3340S 4 trk, sync, 25" tape, 10.5 reel (2), gd cond, one w/remote, $275/BO. M Bailey, Creative Rediffusions, 1245 Scenic Highway, Pensacola FL 32503. 904-433-4549.

MX70 video playback system, $900; Gd used _"x2500' 456 tape, $20, 1"x2500' 996 & 250, $35; new MRL short test tapes, $229 for 2", save $400. Save on all other formats too. W Gunn, Box 2902, Palm Springs CA 92262. 619-320-0728.

New & used Ampex 350 style tape transports, motors & parts, various prices. M Crosby, 408-363-1646.

Tascam ATR60-2, in stand, $1200; Tascam 58, 8 trk, $1950; Tascam 38 8 trk, $1650; Otari 5050-8 Mk III, $1900; Ampex 1200 PURC cards (5), $125 ea; Custom locator for any deck, $495; Sony 2 trks, $195 ea. W Gunn, Box 2902, Palm Springs CA 92262. 619-320-9728.

Otari MX-5050 MK-III 8 track + 8 channels DBX PRO I NR. Personal equipment in excellent condition! $1995 incl. shipping/OBO. 615-360-8826 before 8pm CT.

Want to Buy

Altec 13401 tray, tray & female recepticle for Altec 458A, 459A OK, 9475A preamps; manual or copy for Ampex 440C-4. F Hall, NE Recording, 17 Canna Dr, Shrewsbury MA 01545. 508-753-1335.

Fostex A-2 for parts. A Slaugh, Ski Areas of NY, 2144 Currie Rd, Tully NY 13159. 315-696-6550.

Pioneer RT-901 or 900 series, need not be working, only for mechanical parts. M Bailey, Creative Rediffusions, 1245 Scenic Highway, Pensacola FL 32503. 904-433-4549.

Ampex ATR100 taperecorders for parts. Circuit cards, heads, motors, machine parts, or electronic parts. Call 818-907-5161.

Ampex machines, recorder electronics, mixers. W Gunn, Box 2902, Palm Springs CA 92262. 619-320-0728.

REMOTE & MICROWAVE

Want to Sell

Burk ARC-16T remote control w/built in SCA gen at both studio & xmtr end w/relay panel, $1950. D Jackson, WMEX, 19 Boas Ln, Wilton CT 06897. 203-762-9425.

CRL PMC 450 peak mod controller, $400. W Osenga, Pace Bdctg, POB 1369, Canton NC 28719. 704-648-3586.

Comrex LX-T excoder for single line freq extension, like new cond, $450. A Slaugh, Ski Areas of NY, 2144 Currie Rd, Tully NY 13159. 315-696-6550.

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Equatonal 5100 data rcvr, excel, $100; Wegener DR185 QPSK, excel, $1200; Scientific-Atlanta 2.8 meter sat dish, gd cond, $750. J Coursolle, WPKR, 2401 W Waukau Ave, Oshkosh WI 54903. 414-236-4242.

Moseley THC-15, vgc, $600; Marti RMC-15, gd cond, $500; Marti RPT-15, shelf, rack, 15 W, 450.02 MHz, excel cond, $700; Marti SCD-10 67 kHz SCA demodulator, excel, $400; Marti SCG-10 STL data subcarrier gen, excel, $400; Moseley 110 kHz subcarrier demod, fair, $200; Marti SCD10 STL data subcarrier demod, excel, $400; Marti SGC10 67 kHz subcarrier gen, excel, $400. J Coursolle, WPKR, 2401 W Waukau Ave, Oshkosh WI 54903. 414-236-4242.

TFT Digital STL DMM92-E-100 encoder/DMM92-D-100 decoder w/(4) 15 kHz chnls, used less than 2 yrs, $5500. R Bell, WASE, POB 2087, Elizabethtown KY 42701. 502-766-1035.

CCS CDQ-2000 encoder, $1850. B. Hildebrand, Adlights, Inc., 314-428-5858.

Want to Buy

Gates RDC-10 AC remote control unit in gd working cond w/instruction book. A Wilkerkson, WLIL, 406 E Broadway, Lenoir City TN 37771. 423-986-7536.

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Collins 20V2 or 20V3 bdct xmtr wanted for amateur radio for use by vintage AM enthusiast. C Rippel, WA4HHG, 757-340-7143(W); 757-485-1992(H).

SATELLITE EQUIPMENT

Want to Sell

ICP DCR-951 digital sat rcvr w/CRC RMUX system for reception of AP all news radio, $4500; Wegener 1601 mainframe w/1608-321; 1689-04; 1610; 1610-01; 1644-02; 2046-07; 1605-3 modules, BO. B Draper, Straus Media, 12 Tucker Dr, Poughkeepsie NY 12603. 914-471-2300 x27.

Avcom PSA-37D portable spectrum analyzer. Excellent condition. Less than two years old. With case, $1750. B. Hildebrand, Adlights, Inc., 314-428-5858.

Complete Wegener/InterSat digital Ku Satellite uplink with 2 audio channels and 5 data channels. Includes 8 watt radio, Wegener Modulator, CCS CDQ-2000 encoder, all software, and 65 Wegener receivers with CCS decoders. $20,000 for entier system. B. Hildebrand, Adlights, Inc., 314-428-5858.

Comstream ABR-200 receivers. Reconditioned By Comstream. 90 day warranty. Like new! $1350.00, LNB's $375.00. 914-778-2402, john@riverc.com

Wegener 2662 BPSK Modulator and 2688 Agile Upconvertor in 1602 mainframe. $2500.00. B. Hildebrand, Adlights, Inc., 314-428-5858.

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License for AM daytime station for small NE GA town. L Gholston, WLOV, GA 30577. 706-779-3490.

10K AM in North Central AZ. 520-774-0864.

6 kW Oklahoma FM, excellent market with Computer Concepts system and near new transmitter. Galen Gilbert, 903-885-6122.

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Want to Sell

CRL SCA300 gen. R Rouse, Town & Country Comm, POB 20, California MO 65018. 573-796-4200.

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Denon 970FA, top of line, like new, digital out/analog out, sounds great, $1200. K Thomas, Rebel Rcdg, 5555 Radio Ln, Jacksonville FL 32205. 904-388-7711.

Thunder Country effects library records, vgc, $50. J Coursolle, WPKR, 2401 W Waukau Ave, Oshkosh WI 54903. 414-236-4242.

Vintage black gospel, over 600 albums, $200 u-haul. C Jones, WMNY, 7620 Old #6, Santee SC 29142. 803-854-6396.

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TEST EQUIPMENT

Want to Sell

General Radio 1865 digital impedance meter w/go/no go set-up w/manual, some ranges not working, BO. M Crosby, 422 Avenida Abetos, San Jose CA 95123. 408-363-1646.

Kin-Tel 202-B microvolt meter, DC, 0.3 mV to 1000 V, tube type, meter mirror scale, zero center; WE Hickok KS 15750-L1 3 meter tube tester, navy gray, aluminum case, 1963 tube chart, mint cond. F Yonker, Penn State Univ, 1229 Inverary Pl, State College PA 16801. 814-867-1400.

Singer SSB-50 NRSC type spectrum analyzer w/TTG3 two-tone gen, RF8 tuning unit, RFC2 freq extender, HP3200B VHF oscillator, gd working cond, 10 Hz resolution, usable to 500 MHz, $1500. T Walker, WMVA, POB 3831, Martinsville VA 24115. 540-632-2152.

Tektronix 7633 100 MHz dual trace oscilloscope, gd cond, storage options. $500. R Lindahl, Lindahl Studios, 10680 SW Wedgewood, Portland OR 97225. 503-644-9643.

HP 330-C dist meter, HP audio osc, all cables, $250 u-haul. C Jones, WMNY, 7620 Old #6, Santee SC 29142. 803-854-6396.

Tektronix 524 AD oscilloscope in gd cond; A535 w/dual trace plug in, gd cond, $600/both will sell separately. D Neuchterlein, WULX, 6130 S Dehmel Rd, Frankenmuth MI 48734. 517-652-6863.

Want to Buy

Heathkit IO-10 small portable tube type oscilloscope from late 1960s. W Gunn, Box 2902, Palm Springs CA 92262. 619-320-0728.

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*Closing for listings is every other Friday for the next month's issue. All listings are run for 2 issues unless pressed for space or otherwise notified by listee.

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World Radio History

TRANSMITTERS

Want to Sell

CCA FM-5000 5 kW FM tuned to 100.5, single phase supply, minus exciter, perfect cond, 2 yrs old, $16900 FOB Lebanon NH. D Jackson, WMEX, 19 Boas Ln, Wilton CT 06897. 203-762-9425.

Continental AM 315-F 5 kW 980 kHz, spares, no PCB's, excel cond, in MN, 1984 vintage, $12000; Delta C-Quam ASM-1/ASE-1 AM stereo exciter & monitor, 1984 vintage, 980 kHz, gd cond, $5000/BO. S Horner, Salem Comm, 4880 Santa Rosa Rd, Camarillo CA 93012. 612-405-8800.

Collins 828E-1, 5 kW AM in service on 1430 at original station, power rock mdl w/only 2 tubes, $12,500. B Barry, WAMB, 1617 Lebanon Rd, Nashville TN 37210. 615-889-1960.

Gates BC1F, modulating 833's set up for 160 meters, PTT/ANT changeover remote, hi/low pwr, $3K/BO. R Schelar, WYWR, 710 Columbia St, Leetonia OH 44431. 330-427-2303.

Kahn Power-Side for any brand or size AM xmtr, like new w/4 mos srvc, $9500. B Barry, WAMB, 1617 Lebanon Rd, Nashville TN 37210. 615-889-1960.

Thordarson T-49936, $600. W Osenga, Pace Bdctg, POB 1369, Canton NC 28716. 704-648-3586.

CCA FM12000G3 w/60 W exciter, used less than 2 yrs, $24,000. R Bell, WASE, POB 2087, Elizabethtown KY 42701. 502-766-1035.

Continental 317C2 50 kW tuned to 1020 kHz, currently on air, spare parts incl spare finals, ready now. Don, KCKN, POB 670, Roswell NM 88202. 505-622-6450.

Harris 2.5 kW FM tuned to 106.3, on air now, $9500. G Kelley Jr, Merchants Bdctg, POB 230, Donalsonville GA 31745. 912-524-5123.

Harris/Gates FM-1H3, 1 kW FM on 104.9, TE-3 exciter w/Optimod interface, problem free unit, $5900. J McKinnon, KIDY, 406 S Irving, San Angelo TX 76903. 915-655-6006.

QEI 6951, 1 kW solid state FM w/QEI 675 exciter w/extended control & meter panel, gd cond. R Rouse, Town & Country Comm, POB 20, California MO 65018. 573-796-4200.

OMB EM-250 250W FM transmitter, solid state, new, full 18 mos manufacturer's warranty, 3 units left, need to sell, $3500 each. Call Raphael 954-574-9152 or beeper 305-268-3090.

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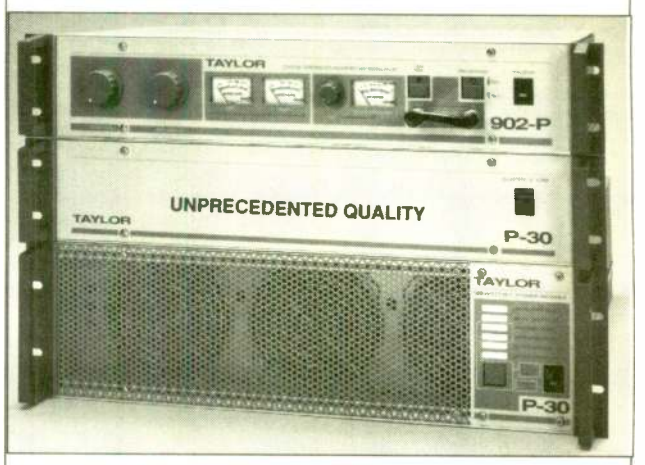

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100 W	FM	1985	Harris FM100K	1 KW	AM 1975 Harris MW-1
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20 KW	FM	1977	RCA BTF 20E1	5 KW	AM 1979 Collins 828E-1
20 KW	FM	1973	Collins 831G	50 KW	AM 1973 Continental 317C
20 KW	FM	1974	Harris FM20H/K	50 KW	AM 1978 Continental 317C-1
20 KW	FM	1967	Collins 830H-1B	50 KW	AM 1981 Continental 317C-1
				50 KW	AM 1981 Harris MW-50B
				50 KW	AM 1982 Harris MW-50B

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Circle (230) On Reader Service Card

Want to Buy

Crystal for Harris/Gates, CCA/CSI xmtr on 1430 kHz, Northern Engineering Labs type T-12A. B Barry, WAMB, 1617 Lebanon Rd, Nashville TN 37210. 615-889-1960.

Single phase FM capable of 5 kW in a single cabinet. B Campbell, KACO, 720 N Commerce, Ardmore OK 73401. 405-226-9850.

McMartin AM/FM xmtr, any model, exciter or stereo modules. Goodrich Ent., 11435 Manderson, Omaha NE 68164. 402-493-1886.

Radio World

5827 Columbia Pike, 3rd Floor • Falls Church, VA 22041
PHONE: 703-998-7600 • FAX: 703-998-2966

Call Simone Mullins, Classified Ad Manager,
to reserve space in the next issue.
Use your credit card to pay, we now accept VISA and MASTERCARD.

Select from these categories for best ad positioning:

Acoustics
Amplifiers
Antennas & Towers & Cables
Audio Production (Other)
Brokers
Business Opportunities
Cart Machines
CD Players
Computers
Consoles
Disco-Pro Sound Equip.
Financial Services
Leasing
Limiters
Microphones
Miscellaneous
Monitors
Receivers & Transceivers
Recorders
Remote & Microwave Equip.
Repair Services
Satellite Equipment
Software
Stations
Stereo Generators
Tapes, Carts & Reels
Tax Deductable Equipment
Test Equipment
Transmitter/Exciters
Training Services
Tubes
Turntables
Positions Wanted
Help Wanted

Classified Advertising Rates Effective January 1, 1997

	1x	3x	6x	13x
1-9 col inch (per inch)	$69	66	61	55
10-19 col inch (per inch)	$52	59	55	50
Distributor Directory	$105	100	95	90
Professional Card	$74	68	62	56
Classified Line Ad		$2.00 per word		
Blind Box Ad		$15 additional		

To compute ad costs: Multiply the number of ad inches (columns x inches) by the desired rate schedule for your per unit cost. Example: a 3" ad at the 1x rate is $207, at the 3x rate $195, at the 6x rate $183, at the 12x rate $165, etc.

WHEN YOU'VE GOT SOMETHING THIS GOOD, YOU CAN'T HELP BUT BLOW YOUR OWN HORN!

There comes a time when a company knows it has a break through product. And for Energy-Onix, that time is now.

The ECO 15-30, Single tube, High Power Grounded Grid Transmitters up to 32 KW.

- Soild State driver up to 2 KW serves as emergency transmitter
- Straight Forward field proven control system
- VSWR Protection & More
- BEST OF ALL THEY ARE ECONOMICALLY PRICED!

"The Transmitter People"
Energy-Onix
1306 River St, Valatie NY 12184
518-758-1690
FAX: 518-758-1476

Circle (229) On Reader Service Card

World Radio History

EMPLOYMENT

TURNTABLES

Want to Sell

Russco Studio Pro 33/45 w/tone arms & extra needles, $120 +shpg. CH McDonald, KKHJ, POB 807, Veradale WA 99037. 509-484-4531.

Russco TT's (3) w/Micro-Trak tone arms (wood), w/extra parts, $50 ea. S Eberhart, Eberhart Prod, 3205 Patriot Dr, Plano TX 75025. 972-491-2804.

Technics SL-150 MK2 in gd cond, digital speed read out, swap for Fluke 87 DVM or BO. D Neuchterlein, WULX, 6130 S Dehmel Rd, Frankenmuth MI 48734. 517-652-6863.

Want to Buy

Keith Monks record cleaning machine, working(better) or not(OK). George Blood Audio, 16 E Johnson St #10, Philadelphia PA 19144. 215-848-2040.

HELP WANTED

NATIONAL SALES MANAGER: New Jersey Broadcasting Inc. is presently interviewing for the position of National Sales Manager. Qualified applicants must have a minimum of five years in radio sales and strong contacts with large national accounts, both at the advertising agency level and the client level. Choice candidates are aggressive closers who maintain rate and inventory integrity, are knowledgeable of Arbitron, Maximiser and Scarborough, and have promotional creativity. Please submit resume with cover letter and earning requirements to: Director of Sales, WMTR/WDHA/WRAT/*WRDR, 55 Horsehill Road, Cedar Knolls, NJ 07927 or FAX to 201-538-3060. E.O.E. *WRDR is pending FCC approval.

BROADCAST SYSTEMS ENGINEER/STUDIO DESIGNER

Successful candidate will have the experience to design studio systems for radio broadcasting, provide project coordination and leadership between sales, manufacturing, engineering and customers, and be able to manage multiple priorities in a fast-paced environment. This position requires a high level of organization and attention to detail, computer literacy and good communication skills. We need a team leader with a min. 5 yrs related experience. Previous manufacturing experience is desirable. Send resume w/salary history to: Pacific Research & Engineering, 2070 Las Palmas Dr, Carlsbad, CA 92009. Attn: Patti Watson. Email: pwatson@pre.com

CHIEF ENGINEER - 4 STATIONS, AM, FM. Extensive transmitter and studio experience required. Excellent opportunity. Resumes to: General Manager, Champion Broadcasting, 1703 Avondale, Amarillo TX 79106. Telephone: 806-355-9777.

Broadcast Engineer

ASSISTANT CHIEF ENGINEER needed for WNCI-FM in Columbus, Ohio. Experience necessary in Component level electronics & DOS/Windows 95 based computer systems. Minimum 2 yrs experience in broadcast engineering preferred. Novell network experience & SBE Certification a plus. **Resumes only** to: Joe Ternovan, WNCI-FM, 2nd Floor, One Nationwide Plaza, Columbus OH 43215. EOE

Raytheon

LOGISTICS SUPPORT SERVICES

Kwajalein, Republic of the Marshall Islands

Range Systems Engineering, a Raytheon company, is actively recruiting for unaccompanied positions on its Kwajalein, Marshall Islands operation and maintenance contract.

ENGINEERING TECHNICIAN

We are seeking an experienced Engineering Technician to maintain, troubleshoot and install broadcast radio and television equipment. The successful candidate must be familiar with analog, digital and RFD equipment and theory, as well as testing and maintaining broadcast television, AM and FM stereo systems and transmitters. Two years of technical school and at least two years of related experience required.

Raytheon provides transportation, meals and housing and the opportunity to qualify for US Federal income tax exclusion.

If interested, please send or fax your resume to:

Employment Department - Code RW
Raytheon Range Systems Engineering
2 Wayside Road
Burlington, MA 01803
Fax: (617) 238-2598 or (617) 238-2976

An Equal Opportunity Employer

Raytheon Engineers & Constructors

POSITIONS WANTED

20 yr pro looking to program your station & take it to next level, solid principles, hard working, exper in all phases of business. Roger 423-235-6889.

35 yr radio veteran would like to represent your company at trade shows or seminars as a speaker, presently working. 414-262-1856.

Broadcasting grad looking to rock the world at your station with my new fresh sound. Bryan, 316-624-6363.

CE position wanted, 10 yr job lost to sale, exper w/computers, xmtrs, automations, DCS, UDS, digital studios, great references. Robert King, 801-334-8315.

CE seeks AM/FM station, exper in HP dir, studio & Tx, all areas considered, fast relocation. 919-514-0518.

Interactive Mix DJ avail for remixes, custom taped mixes & live mix show(s), 8 yrs club/mobile DJ & radio/prod exper, talented, hard working & many great ideas for spring/summer promos & live remotes for sales. Dave, 800-601-0398.

From DJ to sales to mgmt to owner, ready for new challenge, I know radio! Call Al Anthony your next mgr. 1-800-779-4737.

Many yrs of bdct exper sales/services, teaching/training expert, electr engr, audio, video, RF, english or french. R Quesnel, 8923 Cambridge #2604, Kansas City MO 64138.

Recent bdctg school grad, Dave "Beck" Harrison, seeking that first taste of bdctg, will relocate. 405-386-2034.

24 yr old pro w/8 yrs exper as APD/MD/AT looking for new attitude, new scenery, SE preferred. Donovan, 205-933-6326.

Fresh female voice ready to please the world of broadcasting, willing to relocate in the surrounding states of Oklahoma. Jessica Garrett, 405-799-7809.

Lets do something different w/your Southeast smaller market radio stations! Write: POB 14706, Greenville SC 29610.

News Anchor/Producer, commercial prod, air talent for adult formats avail now, VOA downsizing casualty. Alex Kuhn, 513-777-8423.

Station Engineer, currently PT station engineer for FM w/yrs of exper in various areas of digital, HF & microwave equipment maintenance. Military & civilian tech schools, will relocate. 715-831-1199 FAX: 715-839-5526.

Veteran programmer looking for challenge, experienced in all phases of business. Rober, 423-235-6889.

ABOUT OUR EMPLOYMENT SECTION

HELP WANTED: Any company or station can run "Help Wanted" ads for $2/word or buy a display box for $69/column inch. Payment must accompany insert, use your MasterCard or VISA; **there will be no invoicing**. Blind box numbers will be provided at an extra charge of $15. Responses will be forwarded to listee, unopened, upon receipt. Call 703-998-7600 for details.

POSITIONS WANTED: Anyone can run a "Position Wanted" ad, FREE of charge (25 words max), and it will appear in the following 2 issues of *Radio World*. Contact information will be provided, but if a blind box number is required, there is a $15 fee which must be paid with the listing **(there will be no invoicing)**. Responses will be forwarded to the listee, unopened.

Mail to: *Broadcast Equipment Exchange*
P.O. Box 1214, Falls Church, VA 22041 Attn: Simone Mullins

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This listing is provided for the convenience of our readers.
Radio World assumes no liability for inaccuracy.

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Production Manager ... Lisa Hoagland
Publication Manager ... Heather Nicholson
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Showcase Coordinator ... Vicky Baron
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Ad Traffic Assistant ... Anastacia Stornetta
Desktop Management ... James Cornett
Ad Coordination Manager ... Simone Mullins
Circulation Director ... Sheryl Unangst
Circulation Manager ... Robert Green
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U.S. West: Dale Tucker ... 916-721-3410 Fax: 916-729-0810
U.S. Midwest: Sandra Harvey-Coleman ... 765-966-0669 Fax: 765-966-3289
Other Regions: Stevan B. Dana ... 703-998-7600 Fax: +1-703-998-2966
Latin America: Alan Carter ... +1-703-998-7600 ext 111 Fax: +1-703-998-2966
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Free Subscriptions are available upon request to professional broadcasting and audiovisual equipment users. For address changes, send current and new address to RW a month in advance at P.O. Box 1214, Falls Church, VA 22041. Unsolicited manuscripts are welcomed for review: send to the attention of the appropriate editor.

World Radio History

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With nearly 30 years of supplying the Broadcast Industry with the best Audio Equipment, You will be getting the best Customer Commitment and Service available. Call today and find out just how affordable the 2500 Series from Auditronics really is.

TAKE A VERY GOOD LOOK, YOU WON'T FIND ANY BETTER

AUDITRONICS

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(901) 362-1350 FAX (901) 365-8629
GSA Contract #GS-03F-4032B

CE Compliant

Circle (221) On Reader Service Card

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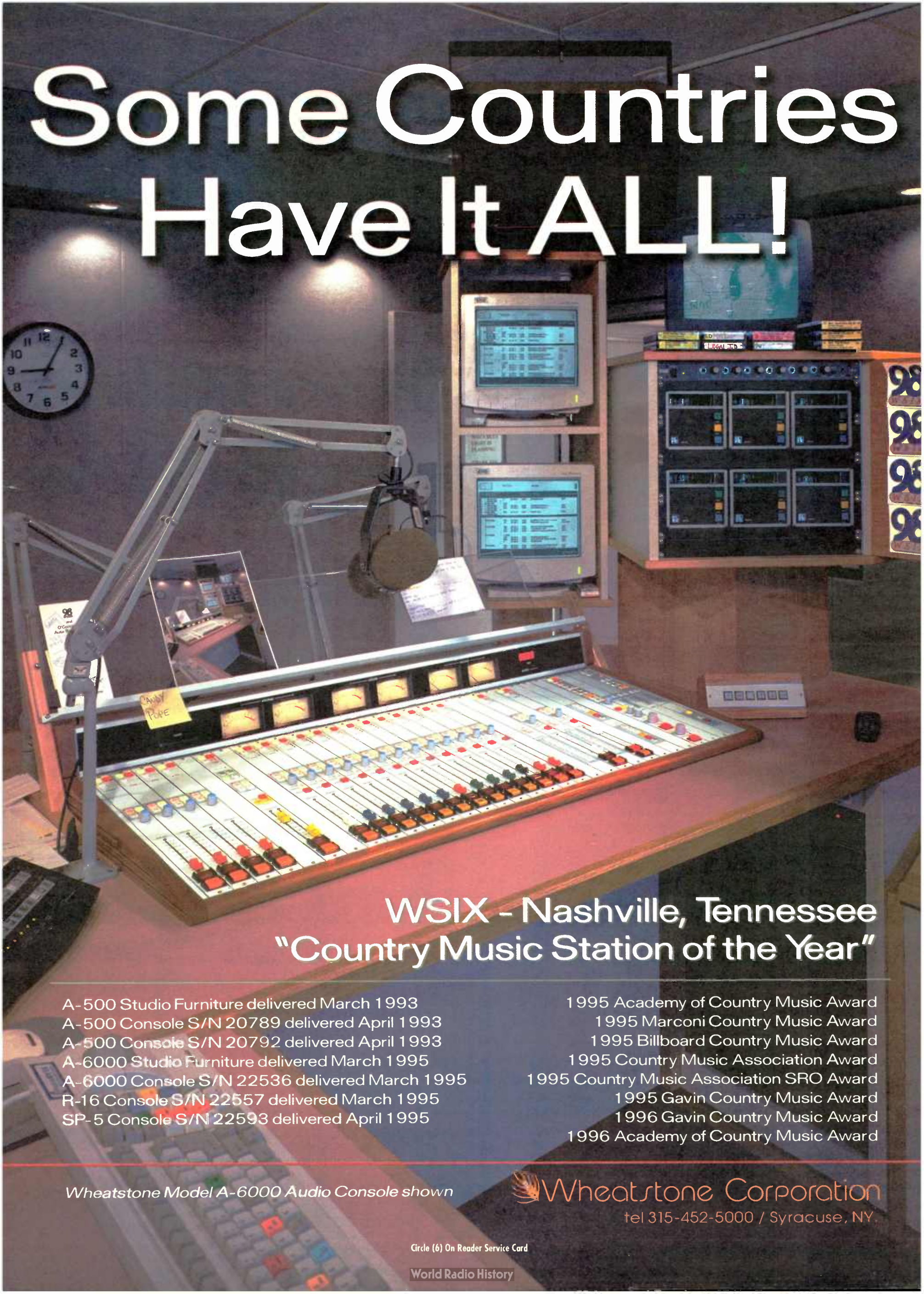

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