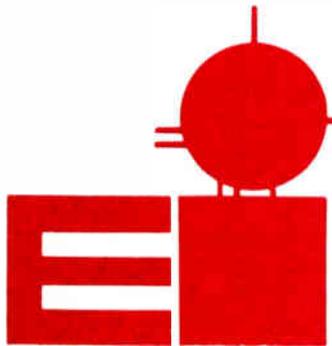


World Radio History
c/o 9464 E. Golden West
Tucson, AZ 85710

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COMMON POINT®

A MONTHLY NEWSLETTER FOR BROADCASTERS

50 cents
per copy

800-558-0222 Distributed by Electronic Industries Inc., 19 E. Irving, Oshkosh, WI 54901 414-235-8930

SEASONS GREETINGS

1983 - 1984

Busy For Broadcasters

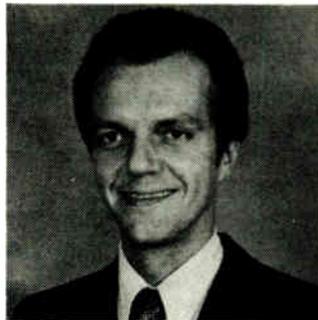
Daytimers Expand Broadcast Hours - More Later For Some

The telephone calls were but a trickle on Friday, Oct. 21st, but by Monday, the deluge had struck. Broadcasters . . . Daytime broadcasters wanted to know. Word had been received. Finally the FCC had said "Yes" . . . you can broadcast after sunset . . . this is your post sunset authority. Jim Wychor in his letter to the DBA told members the lower powers are available by using a "black box" distributed by Electronic Industries.

"Black Box" would not have been our choice because broadcasters always question "Black Boxes." What was being referred to was the Eagle Hill PSA Adaptor.

The PSA Adaptor, designed and field tested by David Metz of KWPC, Muscatine, Iowa, enables a station to lower its power . . . as low as one watt without detuning the transmitter and the resulting distortion. It's all done automatically through the station's Remote Control, or with the single touch of a button. There are other ways of doing it . . . this has been proven. But we vote no for "Black Box" . . . we vote yes for "Better Mousetrap".

- Spokeshaven



by
Michael
Gerth

**Michael Gerth, Pres.
Electronic Industries**

1983 . . . the networks moved off landline to satellite service. The Federal Communications Commission

opened up hundreds of new channels for FM Broadcast . . . Daytime Broadcasters were finally given their PSSA . . . it was a year things were happening.

The next few months we expect to be busy ones. Delivery on the Eagle Hill PSA Adaptors are currently running four to six weeks but we hope to improve delivery time to less than four weeks shortly.

Another item we will be watching with interest for the next few months is the SI-TEX Radar. Available on a lease/purchase arrangement . . . this unit is ideal for the small market or farm market station and can easily gross an additional \$20,000.00 plus each year, and mainly because national weather radar is too slow and, in most cases, too far away for one specific area. Your morning farm director can tell his listeners exactly what the weather is doing in your county or the county next door . . . what to expect, and when to expect it. During the tornado season . . . your listeners will depend on you and the local civil defense if severe weather is heading your way.

Yes, 1983 was a busy year and it looks like 1984 will be even busier. In the meantime, many thanks to you all for this past year and our best wishes for the coming year.

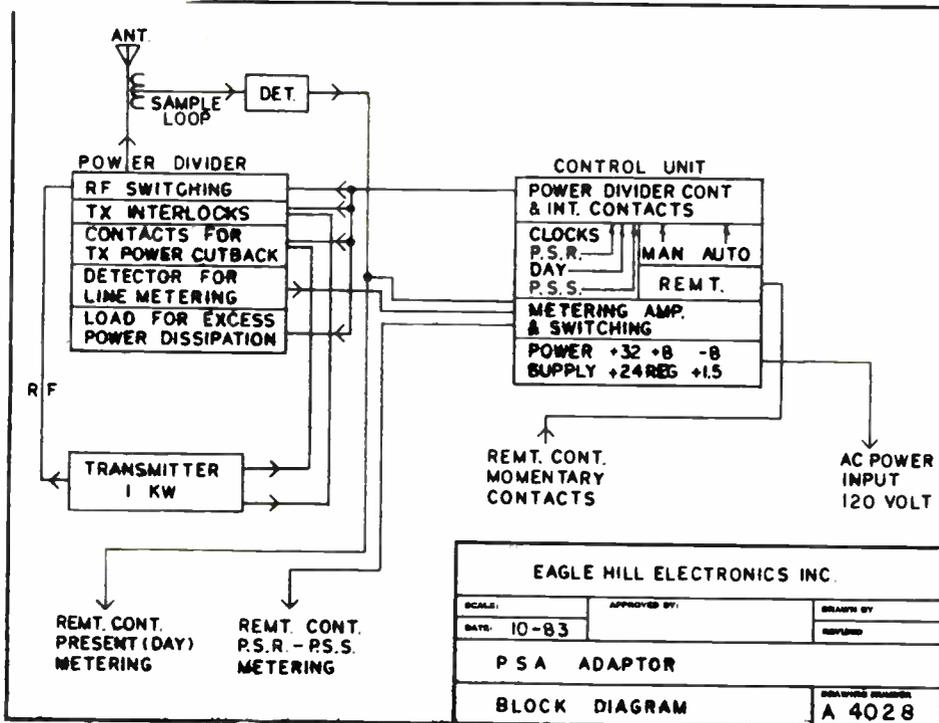
COMMON POINT READINGS

- Page 4 Shepler Says...
- Page 6 Memo from Metz
- Page 7 Crosstalk
- Page 15 Persons Post Scripts



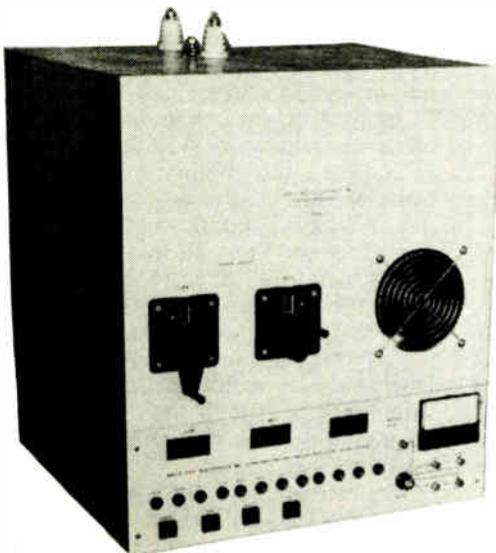
The Eagle Hill PSA Adapter

Now Available From Single Manual Cutback
To Automatic 3-Power Control



GENERAL DESCRIPTION

The Eagle Hill Pre-Sunrise Adaptor (PSA) is a device that allows reduction of a transmitter's power to an extremely low level without modification to the transmitter or monitoring



equipment. Thus type acceptance is not violated.

The Eagle Hill PSA Adaptor is built in two cabinets; either or both may be rack mounted or installed on a desk top if desired. They may be separated, one mounted in a rack, the other on top of a cabinet or the transmitter.

ELECTRICAL DESCRIPTION

The Eagle Hill PSA Adaptor uses a resistive power divider to reduce the input power by 75%, followed by a variable inductor to further reduce the power to the desired level, without causing interaction on the loading of the transmitter when in low power. The transmitter meter readings remain normal.

An RF current transformer is used to sample the line current being delivered to the antenna. This sample is detected and used to operate the front panel meter, which is adjusted to agree with an actual base current, or common point current meter, temporarily installed during calibration. This sample is also available for use

(cont. on page 11)

Editor's Notebook

This past month was a busy one for us with many telephone and written inquiries regarding the Eagle Hill PSA Adaptor. Many stations at first were disappointed with the low power they had for after sunset, but soon decided it was more than worthwhile and would pay for itself.

Delivery on the PSA Adaptor at first was running four to six weeks, but hopefully this will be improved as time goes on.

The Daytime Broadcasters Association should be complimented for a job well done. Just remember, it was an expensive job and they need your help to meet those expenses.

Ampro/Scully . . . We have located a source for repair parts . . . so if you have a sick Scully, give us a call.

Total station automation . . . hard to believe? It can be done . . . in fact it is being done right now with a B. E. Automation System and a Computer Concept computer set up. The beauty in this is that it is a closed loop set up that checks for errors automatically.



Ye Olde Editor

See the article by Dave Evers on page 11.

Audiopak AA-4 . . . First shown at the NRBA Convention in New Orleans . . . but now available. Same case as the AA-3 but with a hotter tape . . . 5db hotter. Slightly more expensive . . . but oh what a difference. See page 12 for specs.

Harris TE3 Exciter . . . replacement for PT3134E . . . anger . . . wow!! Since we said we had replacements for the PT3134E the phone has been busy because we were told Harris no longer had them available. We even had a very angry call from a design engineer at Harris saying we were not authorized to sell them . . . that they had sole rights, etc. and so on . . . for those interested . . . it is perfectly legit for Harris to stop supplying parts for an item of their manufacture after a period of time . . . however it is also legit for a distributor to supply a working sub from a vendor for an extended period. Just call 800-558-0222.

OTARI.

5050
SERIES

Model 5050 B-II 1/4" Two Channel Recorder

Preferred By Professionals



The Otari 5050 B-II is a compact recorder in the 1/4" two channel format. The optimized three head design and transformerless balanced inputs and outputs provide superior frequency response, distortion and signal-to-noise performance under professional studio conditions.

The capstan motor is under servo control and is switchable between 15/7.5 ips and 7.5/3.75 ips speed pairs. An integral microprocessor controls the real-time counter which features an HRS/MINS/SECS L.E.D. display that is tape accurate at all three speeds.

Front panel access is provided for record setup adjustments and a built in oscillator provides 1 kHz and 10 kHz tones.

The extremely rugged mechanical construction includes a 1/4" deckplate with cast aluminum side panels and steel support members. All circuit boards are designed to swing out or unplug for full service access.

The 5050 B-II is compatible with all dbx¹ noise reduction products.

A transport remote control (model CB-102) is available as an option.

Each 5050 B-II incorporates these standard features:

- Transformerless balanced inputs and outputs with XL type connectors.
 - Line output switch selectable for +4 dBm or -10 dBV level.
 - Mic input has switch selectable 20 dB pad and mute.
 - Mic/Line mixing on each channel.
 - Headphone monitor output.
 - Lighted VU meters with L.E.D. peak indication.
 - 3 speeds switch selectable in 15/7.5 ips or 7.5/3.75 ips speed pairs.
 - Record reference level switch selectable (185, 250, 320 nWb/m.)
 - Equalization switch selectable (NAB, IEC).
 - Reel Size switch selectable (5"-7", 10.5") EIA or NAB.
 - Low frequency reproduce eq. adjustable.
 - Fourth head switch selectable for 1/4 track stereo playback.
 - Plug-in head assembly with hinged cover for easy access.
 - Front panel record setup adjustments.
 - Integral splicing block.
 - Built-in test oscillator (1 kHz, 10 kHz).
 - Microprocessor-controlled HRS/MINS/SECS real-time counter with L.E.D. display.
 - Dump Edit and Cue (lifter defeat) modes.
 - D.C. capstan motor, servo controlled.
 - Variable speed control ($\pm 7\%$) usable in record and play.
 - Memory stop switch selectable to stop tape when rewinding past 0:00:00.
- The 5050 B-II Recorders are covered by a one year parts and six months labor limited warranty. Heads, pinch-roller, fuses and lamps have a 90 day parts warranty.

¹Trademark dbx, Incorporated

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Shepler Says.



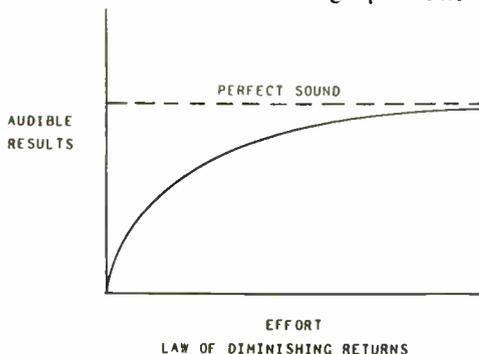
by John Q. Shepler
Technical Consultant

THAT ELUSIVE SOUND

Tom, a friend out East, called me to discuss some processing ideas. After a while, we got on the subject of why it is so difficult to get a decent, competitive sound. This month, I'd like to pass on a few thoughts on that topic.

If you're in a market where you have to worry about competitive processing, you may have noticed this effect: After a while, improvements in your sound are harder and harder to achieve.

This is the law of diminishing returns as shown in the graph. The



quick benefits come from buying a new processor, re-carting all of your music, doubling your antenna height, etc. But, once you have replaced the obviously inadequate equipment and your competition has done the same, then what?

As you keep trying to improve your signal, you'll be fighting what I call the chain effect and the amplification effect.

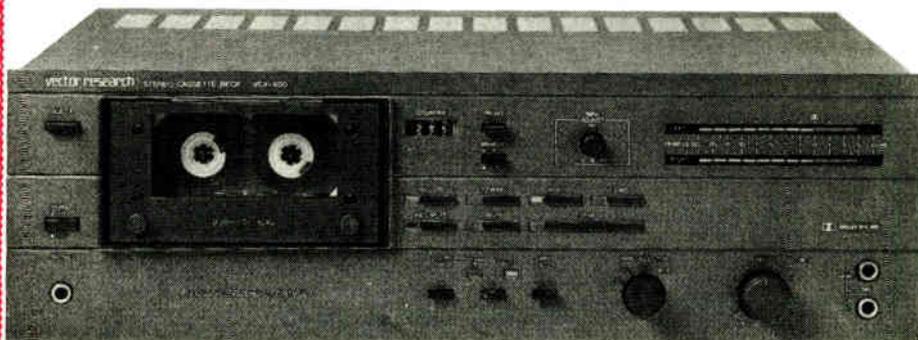
The chain effect results from all of your audio components wired together in an "audio chain" as shown in the diagram. Your audio can only be as good as the weakest link in the chain. This means that you will do better putting some money and effort

(cont. on page 8)

vector research

THE CASSETTE DECK YOU'VE BEEN WAITING FOR!

- **SOLENOID-CONTROLLED TRANSPORT**
- **RACK MOUNT**
- **REMOTE CONTROL**



STANDARD UNIT \$350.00

RACK MOUNT \$35.00

REMOTE CONTROL \$85.00

It's great news from Vector Research — the VCX-400. More than just a basic performer, this cassette deck offers outstanding reproduction quality with a host of convenience and control features that just aren't supposed to be on a deck with this kind of price tag. State-of-the-art technology, quality construction and human-engineering make the VCX-400 a standout performer.

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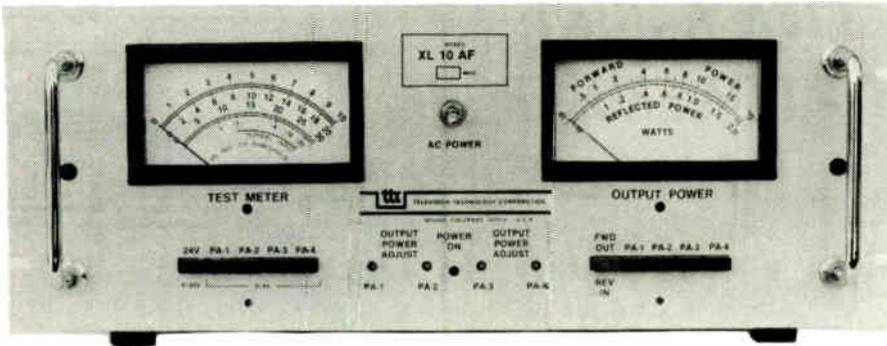
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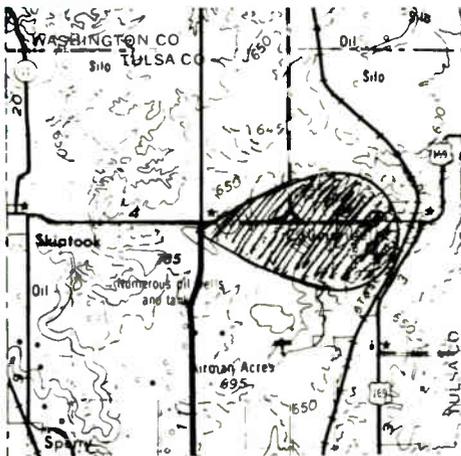
DON'T LET HIGH HILLS ORPHAN A CORNER OF YOUR WORLD!

PICK YOUR DIRECTION. . .COVER YOUR MARKET
WITH A TRANSLATOR FROM TTC

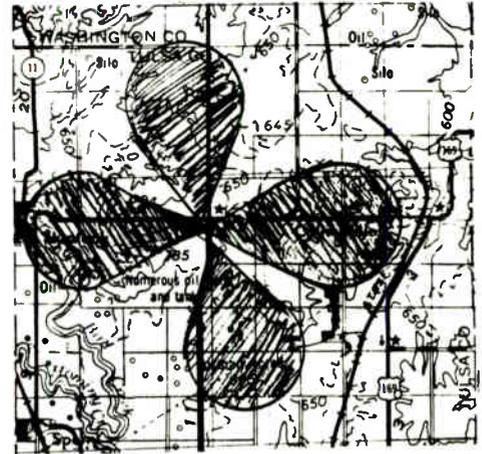


The TTC XL-1AF and XL-10AF Multiple Output FM amplifiers are designed to be used with type-accepted FM broadcast translators. They accept the output (from ½ to one watt) of the translator and provide four identical on-frequency outputs which can then be routed to antennas which can broaden the direction of your coverage pattern and substantially expand your market without suffering any loss of signal strength in any given direction. These units are powerful profit-building tools.

FROM THIS...



TO THIS!!



Specifications, XL-1AF and XL10AF...

Input signal: 88-108 MHz
F3, F9
0.5 to 1.0 Watts

Output signal:

88-108 MHz
Identical to 4 X input
1.0 Watts per output (XL-1AF)
or
10.0 Watts per output
(XL-10AF)



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MEMO FROM METZ



by
David L. Metz

TRANSMITTER GROUND CONSIDERATIONS

Poorly grounded transmitters are becoming common today according to factory technicians I have spoken to. Improper grounding not only leads to RF currents flowing where you least want them, but also increases the chance of severe lightning damage. With the advent of the solid state transmitter, lightning protection is even more important.

In 1981 the entire transmitting plant for both AM & FM was rebuilt. This gave the station the chance to "do it right". The ground was carefully planned out ahead of time. My goal was to make the ground bus as short as possible. The lower the induction and resistance, the better it would work. For this reason the bulk of the system would be 6" wide .032 copper strap. The wider the strap the lower the reactance it would exhibit.

The transmitter AM & FM are arranged in a row with the ground strap running underneath them at the rear edge of the transmitter. This allowed short 6" straps to be brought up into the transmitters to connect to their internal ground straps and frame. On one end of the transmitter row the ground strap passes under the carpet, through a 1/16" slot cut in the station wall to the ground rod system.

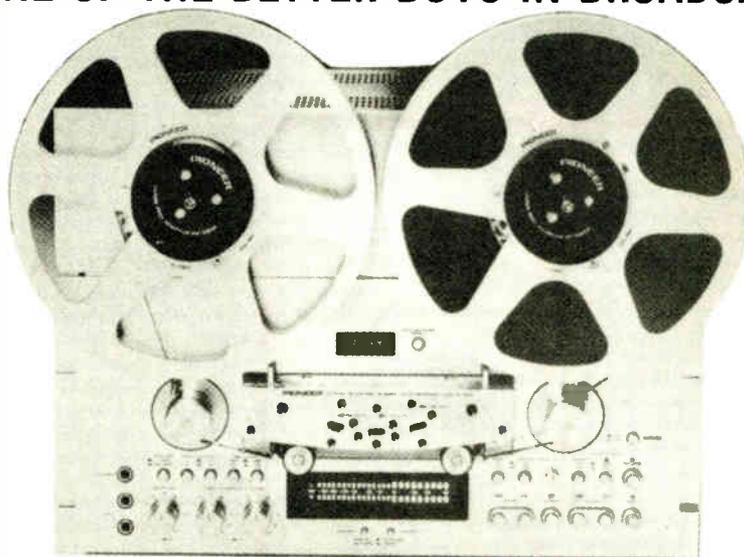
The ground rod system is located along the outside wall of the building. It had to be placed within an inch of the wall since this side of the building has a black top parking lot on it. Four twenty foot copperweld ground rods were driven along the thirty foot wall equally spaced apart. The rods were then connected together and to the

(cont. on page 13)

THE PIONEER RT-909

- LIVE ASSIST
- CONTROL ROOM
- PRODUCTION ROOM
- AUTOMATION

ONE OF THE BETTER BUYS IN BROADCAST



- CLOSED LOOP DUAL CAPSTAN TAPE TRANSPORT (3 3/4 & 7 1/2 IPS)
- FREQUENCY RESPONSE 20 - 30 KHZ AT 7 1/2 IPS
- DISTORTION NO MORE THAN 1%
- FLUORESCENT DISPLAY LEVEL METER WITH PEAK/AVERAGE SWITCH (-30 DB TO -8 DB)
- INDEPENDENT LEFT/RIGHT RECORDING MODE SWITCH
- OUTPUT LEVEL CONTROL
- PITCH CONTROL ($\pm 6\%$) IN PLAYBACK MODE
- "LITE-TOUCH" ELECTRONIC TRANSPORT SWITCHES
- TAPE HEADS—NORMALLY 4 TRACK—EASILY CONVERTIBLE TO 2 TRACK WITH TOUGH NORTRONIC HEADS
- CONVERTED TO 1/2 TRACK RECORD/PLAYBACK SINGLE DIRECTION FOR PRODUCTION ROOM — INCLUDING LONG LASTING NORTRONIC HEADS AND BALANCED OUTPUTS . . . \$1295.00
- FOR 1-7/8 AND 3-3/4 IPS ADD \$65.00
- CONVERTED TO 1/2 TRACK PLAYBACK ONLY FOR AUTOMATION SYSTEM . . . \$875.00

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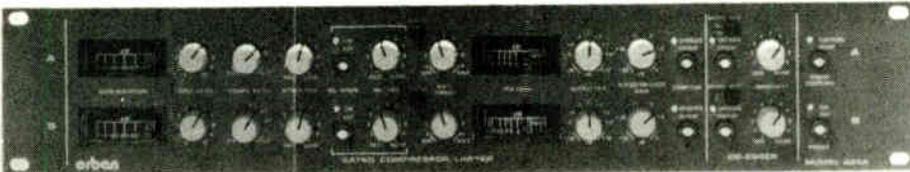
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THE ORBAN 424A

GATED COMPRESSOR/LIMITER/DE-ESSER



THE STUDIO OPTIMOD

\$899.00

Performance Highlights

- A Multi-function Compressor/Limiter/De-Esser featuring exceptional versatility and ease of operation
- De-esser characteristics similar to highly-accepted Orban dedicated de-essers
- Separate** compressor/limiter and de-esser control loops, each with optimized, program-controlled parameters
- Defeatable gate with adjustable threshold causes gain to move slowly toward user-adjustable value during pauses, preventing noise rush-up, pumping, or breathing
- Adjustable attack time, release time, and compression ratio permit extremely natural processing or special effects
- Selectable linear (general purpose) or exponential (special purpose) release time characteristics
- Major controls interact to speed setup by keeping output levels relatively constant as controls are adjusted
- Intuitive and natural operation
- Low-distortion operation achieved using clean class-A VCA and distortion-cancelling control circuitry
- Better than 25dB de-ess gain reduction available **in addition to** 25dB compressor/limiter gain reduction
- True peak-reading VCA LEVEL meter
- True peak-reading GAIN REDUCTION meter

Plus

- Rugged all-metal 19" rack mount package for ruggedness, roadworthiness, RFI shielding. Industrial-grade parts and construction
- Highly cost-effective; available in mono (model 422A) or stereo (model 424A)
- Multiple channels can be connected to track
- Extensive RFI suppression
- Balanced inputs and outputs, and 115/230V 50-60Hz power supply standard

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Crosstalk...



by ED
DUELLMAN

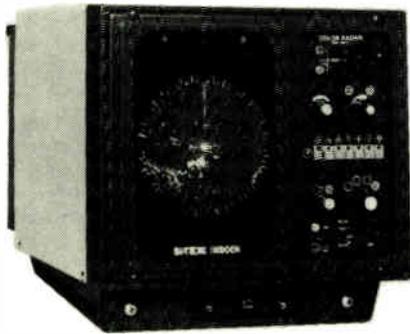
Jingle Bells--Shotgun Shells--Buck-shot all the way...Oh well Merry Christmas...I probably won't get that new shotgun anyway. Maybe the boss will have the new proof set I want under the tree in the lobby. Knowing my luck I'll get a mess of ties and handkerchiefs. I probably could put them with the ones I got last year and the wife can sew them together and make me a set of signal flags.

I am not down on Christmas, don't get me wrong and think I am one of those old humbug types, to the contrary. To see all those smiling faces on Christmas morning makes me feel good like Florida sunshine or that which comes from Tennessee.

Got a Christmas Flyer from a well know electronics outfit and saw an ad for a wireless mic that said something to the effect "Talk, sing, and broadcast your voice through any FM radio in the house." Now if your old enough and think real hard that may sound familiar to you. Remember the Johnson Smith Company Catalog? That was the place to buy those ties that light up in the dark and say "Oh You Kid;" the place that had the makings for that awful tasting beer, and the Hercules wristband. My favorite was the book of radio plans, which in the ad shows this guy with headphones on trying to electrocute himself by sticking his mitt into the gizzards of a tube type breadboard radio. Ah yes...The good old days of Christmas, Dad said "What would you like for Christmas", and I handed him a list from the Allied catalog, the one that used to be in Chicago, remember? Still have my 1959 issue, the one with the tubes in the spotlight, and a few of those funny three legged devices they called transistors.

(cont. on page 9)

FULL COLOR WEATHER RADAR WILL MAKE YOU THE WEATHER CENTER FOR YOUR AREA



THERE WILL BE NO MORE READING THE LOCAL WEATHER FORECAST — WITH SI-TEX WEATHER RADAR YOU CAN GIVE THE FORECAST.

A REAL MONEY MAKER AND AVAILABLE WITH NO MAJOR CASH INVESTMENT — THE SI-TEX WEATHER RADAR IS AVAILABLE FOR AS LITTLE AS \$210.00 PER MONTH ON A LEASE/PURCHASE PLAN WITH ONLY \$420.00 DOWNPAYMENT.

FEATURES:

- Variable gain controls adjusts receiver sensitivity for maximum discrimination and clarity.
- Push-button range selectors -- 1/2 mile to 64 miles with LED range indicators. Range calibration rings automatically adjust to selected range.
- Main function selector for: radar off, radar standby, radar on with antenna rotating and anti-clutter rain (FTC) on to reduce rain return.
- Variable intensity control adjusts brightness of picture.
- Warns when severe weather approaches.
- Electronic bearing marker (EBM) LED readout showing direction of storm center in relation to station.
- General coverage area displayed in blue.
- Distant and local light rain show on display in green color.
- As storm area intensifies, color changes from blue to yellow.
- Major storm cells on SI-TEX radar indicated in red.

Reg. \$8,495.00

STILL \$7,495.00*

*Subject to change

**PUT A SI-TEX WEATHER RADAR
TO WORK FOR YOU...**

SI-TEX

WEATHER RADAR

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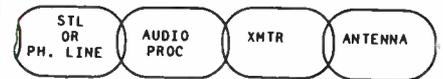
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SHEPLER SAYS...
(cont. from page 4)

into improving each piece of equipment rather than spending megabucks on a new transmitter, only to broadcast muddy sounding carts.

The amplification effect is more or less a product of today's processing techniques. Loudness is bought by raising average modulation which is done by reducing dynamic range. Background noise that was inaudible in the production studio comes to the foreground on the air. Processing also tends to amplify record pops, tape and phono distortion, and any raspiness in a person's voice. On AM, processing makes it tougher to tune your radio for a clear sound.



AUDIO CHAIN

There are other factors that make it hard to achieve that elusive sound. People have varying tastes on how much bass or treble is right. How open and natural should the music sounds? Some broadcasters feel that a punchy sound attracts listeners. Other feel that processing effects drive them away.

Too much concentration on your signal can be worse than none at all. After a few hours or days of intense effort, your ears will start to play tricks on you and it will be harder to stay objective. The best approach I've found is to develop a long term step by step plan for making improvements.

You need lots of time to ferret out all the little noise, distortion, and response problems that combine to limit your signal's performance. You also need time to evaluate new equipment and continually tweak the old gear back into alignment.

I'm interested in hearing what other bugaboos you might have run into while trying to achieve your own elusive sound.

A.V.E. BROADCAST CARTRIDGE REBUILDING SERVICE

- **COMPLETELY
CLEANED**
- **ONLY APPROVED
TAPE**
- **72-HOUR TURN-
AROUND SERVICE IF
REQUIRED**

| | |
|---------------|---------------|
| 40 SEC | \$1.45 |
| 70 SEC | \$1.50 |
| 100 SEC | \$1.60 |
| 2½ MIN. | \$1.70 |
| 3½ MIN. | \$1.80 |
| 4½ MIN. | \$2.00 |
| 5½ MIN. | \$2.10 |
| 7½ MIN. | \$2.20 |
| 10½ MIN. | \$2.40 |

*prices shown for Audiopak A2 and Fidelipac 300 Series cartridges

*for specified lengths use next higher price shown

*add \$.10 to above prices for Aristocarts - Audiopak AA3 and Fidelipac 350's and 380's

*all carts reloaded with new double lube tape per mfg. specifications

*cartridges reloaded with Fidelipac Hot Tape - add 15% to above prices

*all carts pretested under actual broadcast conditions

*like new cart 90-day warranty with approved replacement of pad

SHIP TO
A.V.E. ELECTRONICS

520 W. 14th Street
Oshkosh, Wi 54901

CROSSTALK . . .
(cont. from page 7)

I see digging in the mail bag that there has been quite a good response from the ham radio operators among the ranks. If there is a continued interest in ham related topics, they can be published in this column or a separate column. Let us know on your talkback cards. When you send in your card put your amateur call sign on it also. At the end of this masterpiece you will see the calls of Hams that have replied. Also received some comments to the contrary as far as amateur radio is concerned. Well there are some that think Hams are a bunch of wire cobblers. I will admit there are a few of those types around along with a few lids and space cadets, but we have those types in the broadcasting business also. As for my pipe, well I have very few vices left anymore. In my younger days it was wine, women, and song; later after marriage it was Metracal, same old gal, and sing along with Mitch; now it's just a beer or two and my pipe.

Here is something that can give all the Hams a reason to hold their head up high. The following is a bulletin copied from American Radio Relay League Station W1AW. Mark Baretella, KA20RK/J3 was one of the Ham operators that was in Grenada at the time of the invasion of that island.

*QST DE W1AW
HR ARRL Bulletin NR 105
from ARRL Headquarters
Newington Ct, October 28, 1983
To All Radio Amateurs BT*

In a news release dated October 28, the FCC has high praise for radio amateurs and the role they played in the recent Grenada situation. The commission waived some of its rules to facilitate communication by Mark Baretella, KA20RK/J3, and other assisting operators. In the commission's words, quote, At all times the paramount interest of this agency was the safety and welfare of the medical students on the Grenada Campuses. Mr. Baretella and the amateur operators assisting him provided valuable services in relaying information as to the safety of the medical students and their families and as to the general situation existing at the Grenada Station, unquote. AR

That's -30- for this year...Merry Christmas to and your family. Going to help the old gal put the tree up, suppose I'll have to get those %?&*? lights working.

ENGINEER/HAM START UP LIST

K0H1P
Jim Alexander
Arkansas

K0KE
Keith Ericson
Colorado

W0QDH
D. A. Engelhardt
Kansas

KD5MN
Pat Shirley
Louisiana

N8BQN
Scott Gilmore
Michigan

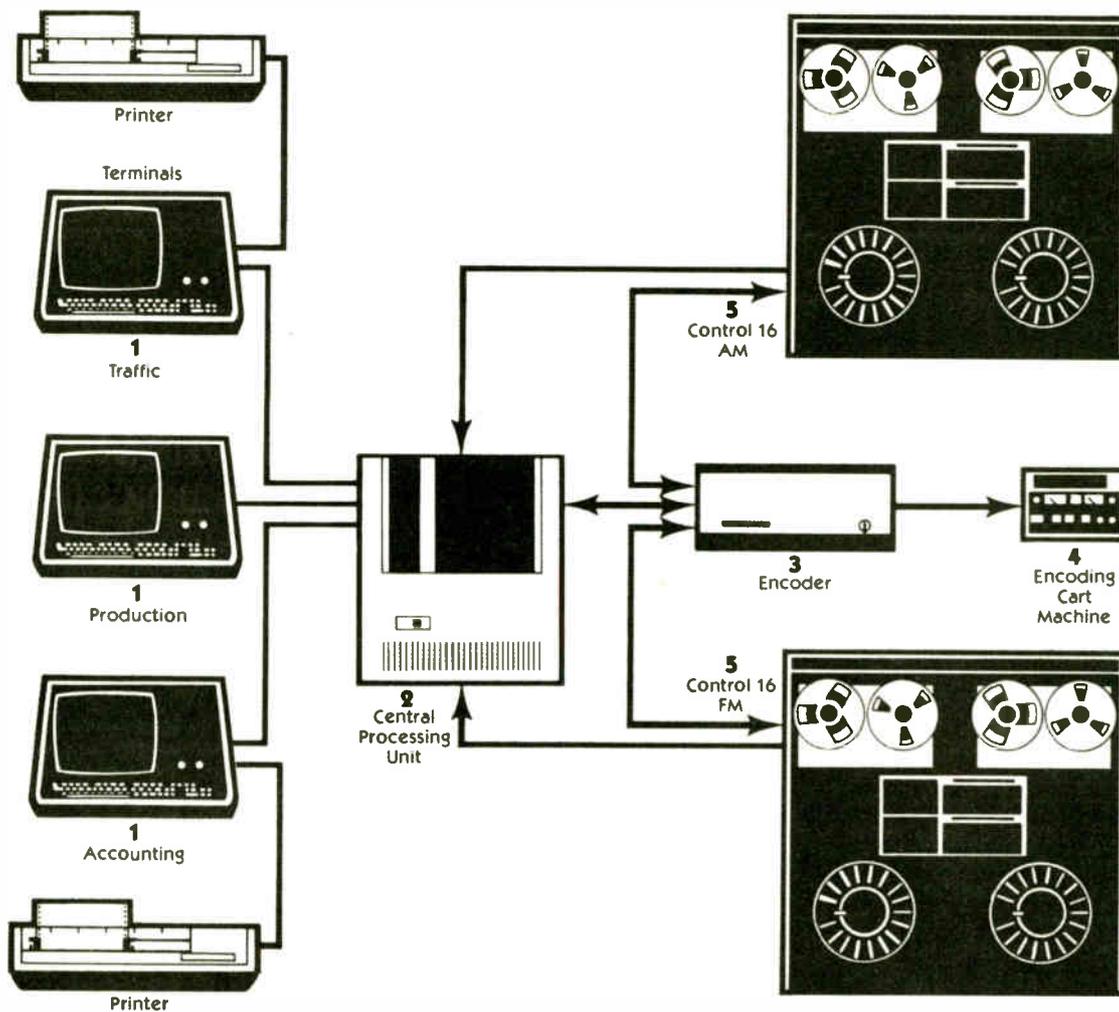
WD8ETI
Gregory Urbiel
Michigan

WA7ZMC
John Webber
Montana

W0VA1
Harvey Van Grem
North Dakota

WB9ATV
John Collinson
Kansas

TSA is the Only Closed Loop Interface in



1. **Terminals** – As few as one, or as many as 12 terminals can be added to the basic Computer Concepts Broadcast System configuration. THESE TERMINALS ARE AVAILABLE AT ALL TIMES FOR FULL BUSINESS FUNCTIONS. TSA will not interfere with normal business computer functions at any time.
2. **Central Processing Unit (CPU)** – The Brain of the Broadcast System that also contains the diskette drive that archives the logger output of the Control 16s.
3. **Encoder** – The device that encodes a message at the beginning of each cart, and that also routes load and dump traffic between the Control 16s.
4. **Encoding Cart Machine** – Used in production and recording of spots and also to place an identifying log message at the beginning of each cart.
5. **Control 16** – The program automation by Broadcast Electronics that receives the load list from the Broadcast System, airs the events as specified, and reports each event when aired through the logger output channel.



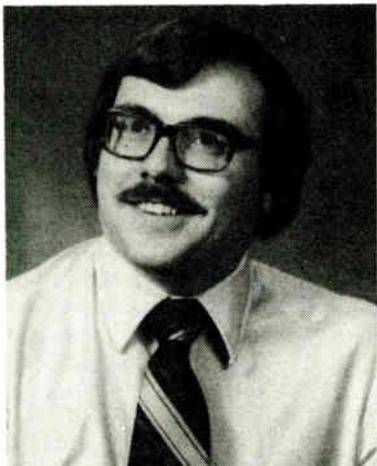
Call Electronic Industries - 800-558-0222

the Industry.

Here's How it works . . .

by David Evers - Broadcast Electronics

TSA is a cooperative effort between two of the major Program Automation and Business Computer suppliers today: Broadcast Electronics and Computer Concepts. The integration of the Broadcast Electronics Control 16 and the Computer Concepts Broadcast System represents the first closed-loop interface available to the Broadcasting industry; and it is available today!



David Evers

By closed-loop, I mean the entire system, both business and automation, is tied together into a complete circular format that follows a commercial order from initial entry into the system, through scheduling and performance to actual billing. In order to fully appreciate the power of this system, a step by step description of the entire interface is in order.

1. The station salesman fills out a spot on one of the terminals of the Computer Concept Broadcast System. He types in information about the client, such as name, address, and the desired spot schedule. This information goes into a data base along with all the other customers of

the station.

2. The Broadcast System then handles all of the scheduling of commercials for a particular day; following a sophisticated set of rules for product and sponsor separation.

3. At the desired time, the Broadcast System will download all of the spots scheduled for a particular day into the Control 16 memory. At the conclusion of the loading process (which can be accomplished at speeds of up to 9600 baud and thus can take only a few seconds), the Control 16 sends back a "chart", giving information such as the number of events loaded, whether any were not accepted or "flagged" because of some error. This allows the Broadcast system to know whether the load was successful. This loading procedure can take place at any time, even when the Control 16 is running program on the air.

4. The Control 16 will then execute the program it has been instructed to follow. During this time (and at all times, for that matter), the Broadcast System is monitoring the Log Printer output of the Control 16, archiving the complete program log as the system continues throughout the day. This is the key to the "closed-loop" feature of the TSA system. As every event is executed, the log provides the exact time the spot was aired, the source and shelf number of the spot, and any English information encoded into the cue track of the spot. This information is then fed back into the business computer for storage on floppy disk, which ends the awkward "miles of paper" that usually have to be stored for reference at billing time.

5. The monitoring of the log also provides another important feature. Should any event be aborted because of an error in programming,

EAGLE HILL . . .
(cont. from page 2)

by remote control systems, so all monitoring systems will read in their normal ranges without modification.

AUTOMATIC CONTROL UNIT

Three digital clocks are used to assure accurate time switching. The "P.S.R." clock sets the system in the pre-sunrise low power mode, usually at 6 a.m. The "day" clock switches to high power at local sunrise. The "P.S.S." clock switches to the post sunset power. All three clocks operate in the 24 hr. time mode so there is no confusion between AM & FM when setting the clocks. High and low switching can always be done from the local controls. The clocks can be disabled if desired, you always have control.

The Eagle Hill PSA Adaptor protects your equipment. Transmitter interlocks are provided to assure that the transmitter is turned off during the switching sequence. The switching is accomplished rapidly, usually without being noticed from the on air monitor.

Transmitter power cutback contacts are provided. If your transmitter is equipped with a power cutback mode, full advantage can be taken of the AC power savings afforded by this feature.

There's an Eagle Hill PSA Adaptor for your specific requirements.

PSA-1.

| | |
|-----------------------------------|-----------|
| Fully Automatic-time control unit | \$3995.00 |
| Manual Unit - 3 powers | 2995.00 |
| Manual Unit - 1 power | 1695.00 |

Don't lose valuable broadcast hours with the Eagle Hill you have

- Normal Transmitter Readings - No Internal Changes Needed
- Normal Monitor Readings Plus FCC Required Readings for Absolute Power
- Operate With Authorized Power As Low As One Watt
- FCC Authorized And Field Proven For Over A Year
- Adds Up To 150 Hours "Prime" Time Each Year

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(cont. on page 14)

AA-4 BROADCAST CARTRIDGE



| LENGTH | REG. | SPECIAL | LENGTH | REG. | SPECIAL |
|---------|------|---------------|----------|------|---------------|
| 40 SEC | 5.90 | \$4.20 | 5 ½ MIN | 7.90 | \$5.69 |
| 70 SEC | 5.90 | 4.20 | 7 ½ MIN | 7.90 | 5.69 |
| 3 ½ MIN | 6.60 | 4.78 | 10 ½ MIN | 7.90 | 5.69 |

THE WRAPS ARE OFF!

We are pleased to introduce to you the best sounding and the most reliable broadcast cartridge — the new Audiopak AA-4!

The key feature of the AA-4 is the new SGS-4 broadcast mastering tape. When recorded on a high quality cartridge recorder, the SGS-4 tape can produce virtually identical copies of the best analog or digital master tapes. The SGS-4 tape, available exclusively in AA-4 cartridges, offers nearly 5 dB higher saturation headroom at 16 KHz (7 ½ ips) compared to the HOLN tape in AA-3 cartridges. No bias adjustment is usually necessary when recording on machines optimized for HOLN or other "hot" tapes. If the high end is overly bright, a touch up of record equalization will restore flatness and further improve the signal to noise ratio. The new binder formulation used in the SGS-4 tape also has improved physical properties, which result in longer life, less maintenance and a cleaner sound than is obtainable with most other broadcast cartridges.

The AA-4 cartridge consists of SGS-4 tape loaded into the reliable and time proven AA-3 plastic case. The plastics are tinted to a lighter blue shade than AA-3 to provide a clear distinction between the two products. The combination of the SGS-4 tape and AA-3 plastics results in an unbeatable recording performance and the longest life with the same ruggedness and exceptional phase stability as the AA-3.

Try an AA-4 and hear the dramatic difference!

CAPITOL BROADCAST CARTRIDGES — FOR STATIONS WHO CARE HOW THEY SOUND.

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TALKBACK

WISCONSIN . . . Would like to know what type computers engineers are using . . . I have Commodore 64.

SOUTH DAKOTA . . . With no first . . . no logs, etc. . . . How long before AM/FM/TV Bands become like CB mess?

TEXAS . . . Hurrah for little processing and a clean sound. It's hard to make an optimod sound bad but some people sure try. FM's don't drive listeners away by hitting them with a constant wall of sound. Keep up good work . . . more articles on practical tips.

KANSAS . . . Here's from another ham . . . (WB9ATV/0). Too busy doing radio and TV to do much hamming. A 400 foot shunt fed tower after sign off is one heck of a vertical for 75 meters.

MISSOURI . . . Articles needed . . . job potential for radio engineers in the future? Retaining necessary? Methods to distribute signals without expensive matching transformers. Interfacing Telco with studio equipment . . . more circuit designs or schematics.

ILLINOIS . . . ABES reply to 80-90 . . . making sense. Addition of more FM stations will be a loss to consumer as result of more interference. Harris AM Stereo Exciter is a real embarrassment to them . . . in my opinion it puts question mark on all their FCC submissions . . . things of that nature must be watched carefully or else you will find yourself in jail. (Ed...have been dealing with Harris (Gates) for over 20 years. Have both made mistakes.)

IOWA . . . Your comments on AM Stereo seem to be missing point. As commercial radio evolved it seems no one talks about quality of AM over FM. Many are switching to FM because the quality most resembles the records they play at home . . . not so with AM. Instead of controversy over AM Stereo . . . how about a little more concern for sound of AM (Ancient Modulation).

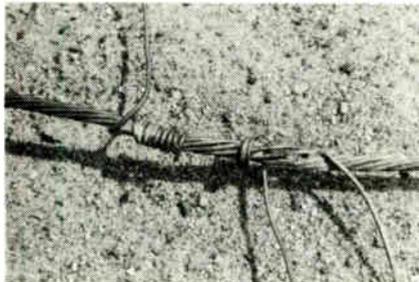
NORTH DAKOTA . . . The 80-90 rule would allow new FM slots . . . yes! But many cheap translators and boosters serving rural areas with good programming now would disappear. (Ed. . . possibly so in some cases but don't forget someone has to pay the light bill and that means many commercials every year.)

MEMO FROM METZ...
(cont. from page 6)

ground strap with a 1" copper pipe. I would have liked to have used strap throughout the system, but I didn't want to dig up the parking lot either!

At the other end of the transmitter row the ground strap was connected to the old station ground system. This consisted of 2" copper strap that bonded all of the equipment racks, cold water pipes, and electrical boxes together.

All of the joints in the system were



brazed together using phosphor copper rod. This welding rod is designed specifically for bonding copper to copper. It produces a ductile pure copper joint that has low resistance and will not corrode. An acetylene torch is required to melt the rod. Normally no flux is used.

The alloy offers considerable cost savings over the traditional silver solder used before. Locally, silver solder sells for about \$140.00 a pound. All state #23 copper alloy rod sells for \$18.00 a pound. Quite a savings!

In any case, never use common soft solder in outdoor ground systems. Soil moisture and minerals will induce galvanic corrosion that will dissolve the joints away, rendering your ground system useless.



SPECIAL
\$75.00

Reg. \$99.00

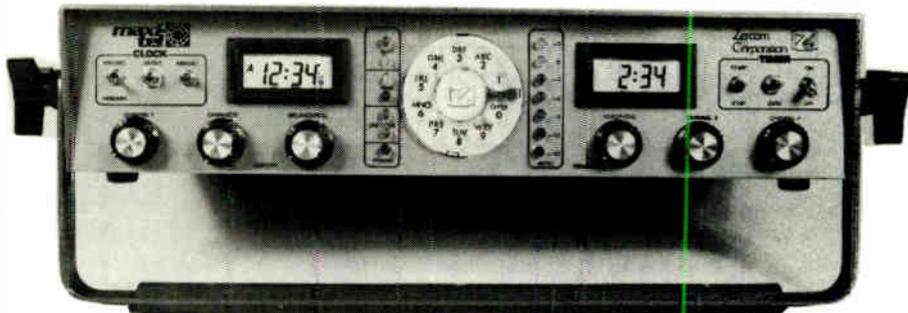
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MAGNETIC TAPE ERASER**

— SPORTS SPECIAL —

MAKE 1984 SPORTS A MONEY MAKER...

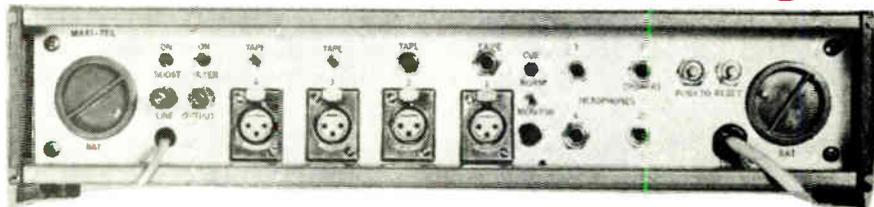
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- Record output so you can tape any event for future use or feed a PA system.
- A Hi/low boost function to compensate for those long phone lines.
- A super sharp notch filter to prevent spurious crowd noises from disconnecting you when you are on a long distance line.
- A cue circuit for both tape and microphone.

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If you can operate an office paper copier, you can operate a Telex Copyette. No technical knowledge or training is required. Simply insert the cassette with the information you want to copy in one slot. Put blank, or previously erased cassettes in the other. The Copyette then copies at high speed. A standard one-hour C-60 cassette can be copied in under two minutes. Cassettes are automatically re-wound, ready for instant use or distribution. The Copyette even turns itself off automatically.



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in Stereo**



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TSA...How It Works
(cont. from page 11)

power failure, or other reasons, a message to that effect will be printed on the log; and of course, on the disk. This "flags" this event so that it can be easily found later on.

6. At the end of the day, the operator can run a "Verification Program" on the data collected from the log. This program checks each event executed by the Control 16 against the original schedule prepared by the Broadcast System. Any aborted events which resulted in the logs of a spot can then be detected, and the sports rescheduled or else deducted from the sponsors bill. As an even further step, the Broadcast System can detect when the wrong cart has been put in a particular source and shelf, or if some other discrepancy exists which the Broadcast System should be aware of.

7. When the broadcast month is over, the Broadcast System will then prepare the bills for the client. The exact time information stored on the disk also serves to fill affidavit requirements. At this point, both you and your sponsor can be assured that the billing data is correct.

Hundreds of man-hours were expended in the design, testing, and de-bugging of the TSA system. The result is the most complete, totally automatic business computer/automation interface available today. Of course, in addition to TSA both the Control 16 and the Broadcast System offer many other features that make station operation so much easier. But the integration of these two fine systems into the TSA system represents the ultimate in utilization of the technology of today.

BLANK-IT

The multi-format magnetic tape eraser



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PERSONS' POST SCRIPTS

by Mark Persons

SBE CERTIFIED

I recently passed the exam for and was certified a Senior Engineer by the Society of Broadcast Engineers (SBE). The story for this achievement goes back to the beginning of the SBE in the early 1970's. At that time, I wasn't interested in joining anything. The FCC First Class Radio Telephone License was king and there seemed to be no need to prove again my abilities. As time went by, I attended a few SBE meetings because they had good speakers and subject material. Other attendees proved to be interesting as well. It wasn't long before I joined and was attending meetings as often as possible. Later I served as Vice President of the Minneapolis/St. Paul SBE chapter and gave short talks at some of the meetings. Being a SBE member has been a good learning and sharing experience.

More recently, the FCC has reduced operator and engineer licensing requirements to near zero. In order to stay current with other engineers around, I elected to "Take The Test." You will remember there were study guides and cram courses for those preparing for the FCC tests. There are no such aids for those taking SBE tests. However, the SBE does publish a list of sample test questions so that one can become familiar with the test format.

SBE exams determine if a person is qualified to work as a broadcast engineer by asking a broad spectrum of questions. It is a "Real World" test requiring the participant to solve problems rather than give memorized answers. Because there are no cram courses for SBE exams, they have virtually eliminated the unqualified from being certified. No longer will we hear someone say, "I have the license, but I don't know anything about repairing and maintaining a radio station." You would be hard pressed to find a certified SBE member who is not qualified.

Now a word about the exam. Retired WCCO-AM Chief Engineer, Chuck Kunze, proctored my exam. Chuck was grandfathered into the SBE by virtue of his lifelong experience in the industry. It took me a little over two hours to complete the 50 question multiple choice test. I was also given a large sheet of paper on which to draw a schematic diagram. The test was very fair and well rounded. My advice to all SBE non-certified engineers is to take the exam. It's a feather in your cap when you pass.

By the way, the SBE certification is good for only five years. For recertification, an engineer must accumulate credits by doing any or all of the following: take educational courses, give speeches, write articles, and attend technical seminars. There is more but there isn't room to go into detail here. Let's just say that obtaining and keeping a certification with the SBE is a good reflection of one's work in the broadcast industry.

Now all I need to go along with the Senior Broadcast Engineer certification is white hair. Is there a Grecian formula that works in reverse?

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