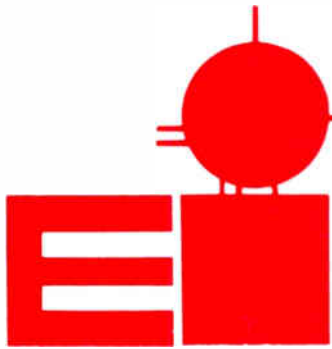


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# COMMON POINT®

A MONTHLY NEWSLETTER FOR BROADCASTERS

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## A.M. STEREO SURVIVES 1984... '85 LOOKS TO BE DECISIVE YEAR!

Like the Middle East situation and the Southeast Asian conflict of the late 1960's and early 1970's, the A.M. stereo war trudged on through 1984 without a clear cut winner emerging from the confusion. Yes, the battle lines were more clearly defined, and the actual participants narrowed, and the receiver manufacturers actually got involved. The momentum seems to be building to what could be the accord broadcasters were looking for since Leonard Kahn opened the debate. However, the broadcaster will be the final judge. Many agree that all of the effort, time and money thrown into the ordeal could have been avoided if the F.C.C. would have made THE CHOICE and named the industry standard A.M. stereo exciter. Just think of all the fun we would have missed.

Some of the questions still to be answered are, which direction is best for receiver manufacturers to go in producing quality A.M. stereo receivers? Should they build single or multi mode detectors, narrow or wide bandwidth? Are the consumers aware of and ready for A.M. stereo? Will they purchase an A.M. stereo receiver or convert their present equipment, and be convinced to listen? Will the program content and technical quality be equal to that of the F.M. band? Does it need to be?

### RECEIVER MANUFACTURERS UPDATE

Recently the NRBA conducted an

open survey of receiver manufacturers to determine marketplace infiltration. The results tend to lean fairly heavily in one direction. The survey points out that every major receiver manufacturer plans to include A.M. stereo capabilities in its product line for 1985. The actual commitment ranges from 100% involvement to supplying a stereo jack. One thing is concrete, the producers are willing to protect their competitive positions and commit to A.M. stereo.

Here is what most of the manufacturers are up to. The BIG 3 automakers, Ford, Chrysler and General Motors are all committed to the Motorola C-QUAM system. Chrysler seems to be the most enthusiastic of the three, providing A.M. stereo as standard equipment on its two top of the line models with it being made available across the board. Great confidence is being displayed here.

General Motors will make A.M. stereo available on all models with the exception of those where space is a factor. Large A.M. stereo volume is anticipated.

Ford seems to want to hold off to see how well A.M. stereo sells before jumping into the marketplace. Ford will have receivers available on their entire line but only on a dealer installed basis.

Volkswagen, and Mitsubishi are also committed to Motorola and plan availability and promotional back up.

Home receiver manufacturers may

be the single most important ingredient in the success or failure of A.M. stereo. This is the area which most concerns the broadcaster at this point. The NRBA survey did include results from those manufacturers as well.

McIntosh, Marantz, Pioneer, Sherwood and Arvin are all, again committed to the single mode system receiver...Motorola C-QUAM.

Marantz will introduce a new line of digital receivers. Marantz feels that the single system is the best way to go. Decoders will be made available as plug in for maximum flexibility.

Pioneer will have one auto receiver in 1985 with more on hold following consumer interest tests. The home receivers will be equipped with an A.M. stereo jack to accommodate a provided adaptor.

Sherwood would make home receivers available in the future but plans are not definite. They will most likely hold off following consumer tests of its auto receivers.

Arvin which manufactures receivers for other retailers will obviously produce large quantities of receivers.

Other manufacturers committed to the Motorola system and plan receivers in the future are Jensen Concord, Potomac and Sansung.

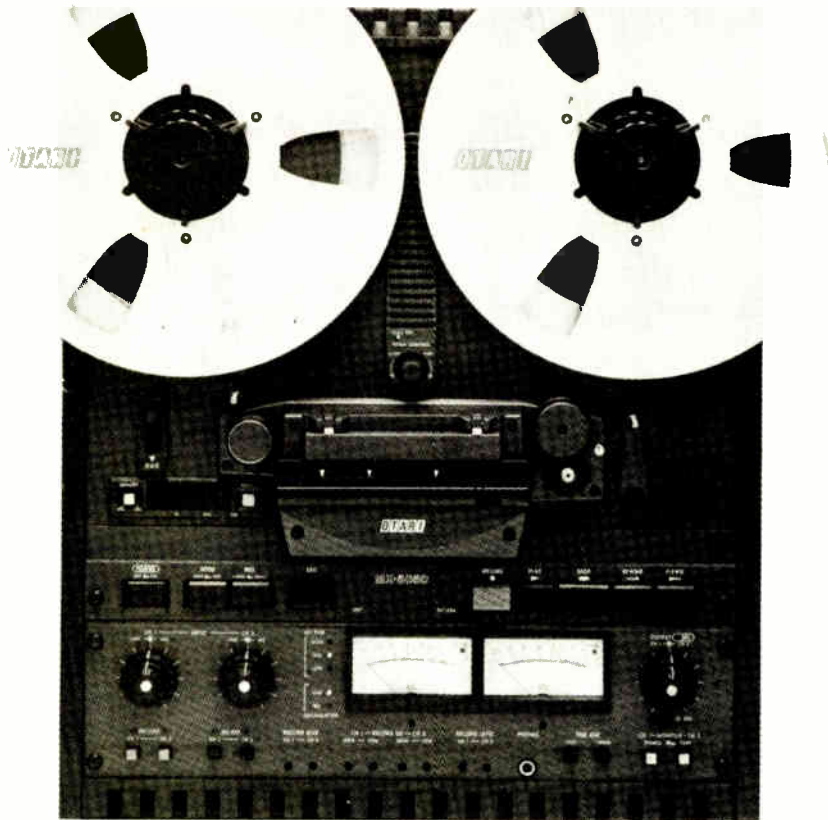
The NRBA survey revealed that only three companies are committed to the multiple mode receiver

(cont. on page 14)

**OTARI**

Model 5050 B-II

1/4" Two Channel Recorder



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.

<sup>1</sup>Trademark dbx, Incorporated

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## Editor's Notebook

**THIS IS IT**, the final month of what hopefully was a good year for all. Looking back it sure was a wide open affair in the broadcast world. '85 promises to be just as exciting if not more so. All of us at Electronic Industries and Common Point hope that the holiday season is trouble free and enjoyable for all of you and that 1985 is your best.

**80-90 . . .** The first list of 80-90 drop ins will be released sometime this month. The FCC allocations branch received about 2,500 comments, not counting replies. Good luck, applicants.

**OVERSTOCKED . . .** We at E.I. are over-stocked on Amphenol cable to cable type, 50 contact, receptical connectors. Part#157-825003. We'll sacrifice at \$3.00 each.

**NRB CONVENTION . . .** The 42nd annual National Religious Broadcasters convention will be held at the Sheraton Washington Hotel in Washington D.C. February 3-6 1985. Advance registrations are being accepted through Jan. 18th.

**MAKING ROOM . . .** I have several hundred Fidelipac 300 series cartridges :100 sec. 2.5 min. and 4.5 min. in length that have aged on the shelves. Still new but wiser. Need to make room for new stock. Willing to sell by the dozen only at \$2.00 each.

\*\*\*\*\*

## COMMON POINT READINGS

- Page 6 Memo From Metz
- Page 8 Shepler Says . . .
- Page 11 Crosstalk by Ed Duellman
- Page 15 Persons Post Scripts



Also . . . New from CRL

# THE CRL MONEY MACHINE.



## Introducing: The New CRL "Model A:"

Now that the FCC has relaxed the rules pertaining to SCA use, your station can benefit from this new income source. Last year CRL introduced the SCA 300 that vastly improved the loudness and quality of background music services. But we found that many of our customers were using them for paging and were excited about the results they obtained.



There was no main channel interference and coverage was excellent. As a result, the CRL SCA 300 has become a "hot" new product. But here at CRL we are always looking for ways to make our products even better. So we are proud to announce the "MODEL A:"

The CRL SCA 300A offers improved performance and some new features. The MODEL "A" will accommodate a wide range of telemetry and digital signals. There is a rear panel RS 232 connector as well as a standard BNC connector to allow insertion of digital or FSK signals directly into the modulator.



The carrier can be deviated by any signal from DC to 30 kHz with excellent linearity, low distortion and exceptional frequency stability.

Chances are, you'll find the "MODEL A" perfect for your application. We would love to talk with you about it. Better yet, we will be happy to arrange our famous two week trial. Just call Bob Richards at 800-535-7648. We'll do the rest.

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Common Point/December 1984  
Page 3

## THE CURE FOR FM SCA CHANNEL PROBLEMS

This unit was specifically designed to solve the problems associated with older SCA equipment. The result is a state of the art unit that brings a new quality to SCA signals. Using the new CRL unit, a station would gain increased coverage without increasing injection levels; improved protection of the main channel signal, increased stability of the whole subcarrier operation, and greatly improved fidelity and intelligibility. Replacing existing equipment with the SCA 300 will result in a dramatic improvement in quality.

This integrated SCA system includes audio processing, low distortion crystal controlled oscillator, non-overshooting low pass filters, pre-emphasis and a DC coupled data input port.

## The Input Unit of the SCA-2: APP-400 Audio Preparation Processor

The unique design of the **APP-400** allows it to automatically correct for errors in audio source program levels, tonal balance, and other qualities most AGC's simply cannot handle. Totally unlike any other AGC, the **APP-400** actually enhances transient musical qualities and punch while maintaining perfect level control.

### MAIN FEATURES:

**ASYMMETRY REMOVAL** (optional). The APP-400 first passes the audio through a harmonic phase rotator in order to reduce any exaggerated asymmetry in the program content which could adversely affect later processing and cause distortion.

**MULTIBAND GAIN CONTROL.** The audio is next split apart into two bands for independent level conditioning. The splitting frequency and patent gain control designs eliminate "pumping and hole punching" found in normal AGC's.

Sudden bass and other tonal bursts are prevented from causing unnatural level changes in vocals and other instruments.

**USER CONTROLLED LOUDNESS.** Program dependent gain control action is user controlled in three ranges allowing your programmer to safely and easily tailor your station's sound needs.

**USER CONTROLLED OUTPUT EQUALIZING.** The low and high frequency bands are recombined back together by a unique control circuit which lets you custom tailor the output tonal balance without affecting the output level of the unit.

**DE-ESSING.** Aggravating sibilance and essing are greatly reduced in voices and commercials by special transient limiters.

**DYNAMIC EQUALIZATION.** Program audio which is extremely deficient or excessive in bass or highs is automatically re-balanced and improved while normal program audio is unaffected.

### ADDITIONAL FEATURES:

**EASY PROGRAMMABLE AGC'ING OF LOW INPUT LEVELS.**

**SELECTABLE AGC GATING ACTION.**

**MAINTENANCE FREE, HIGH TECHNOLOGY INTERNAL CIRCUITRY.**

**INTERNAL PINK NOISE GENERATOR FOR EASY SYSTEM SET UP.**

**ACTIVE BALANCED INPUT AND OUTPUT CIRCUITRY.**

## The Output Unit of the SCA-2: SCA-300 Modulation Controller

The **SCA 300** will improve the received fidelity and absolutely prevent main channel interference. It provides both the final audio peak control for maximum coverage and loudness PLUS a very low distortion generator.

### MAIN FEATURES:

**QUARTZ CRYSTAL CONTROLLED, LOW DISTORTION OSCILLATOR.** AFC controlled, digitally synthesized. The carrier wave form is also digitally synthesized. Frequency may be changed by moving internal jumpers. No nulling or balancing required. No filter changes necessary.

**USER PROGRAMMABLE DEVIATION.** The deviation range may be selected by internal jumpers that allow 2, 4, 6, and 8 kHz deviation. There is a front panel deviation peak flasher.

**SPECIAL FREQUENCY SHAPING FILTERS.** Internal jumper will select low frequency rolloff below 100 Hz. Another jumper will provide a small "presence" boost in the 3kHz range if desired.

**PROGRAMMED CONTROLLED MUTING.** This circuit will remove carrier in the absence of programming. Adjustable delay from 2 to 30 seconds.

**AUDIO BYPASS POSITION.** This switch bypasses all internal audio processing and feeds signal directly to the modulated oscillator. It may then be used for second data input, or for a compander system.

**DATA INPUT PORT.** This is a rear panel BNC connector with injection level adjusted by front panel control. It is DC coupled.

**UNIQUE MULTIBAND PRE-EMPHASIS CONTROL.** The audio is separated into two bands for optimum high frequency equalization.

**DISTORTION ANTICIPATING ACG.** The low and high frequency gain reduction bands are controlled by the characteristics of the audio source material in a way that anticipates the action of the clipping filter. This allows maximum loudness with minimum distortion.

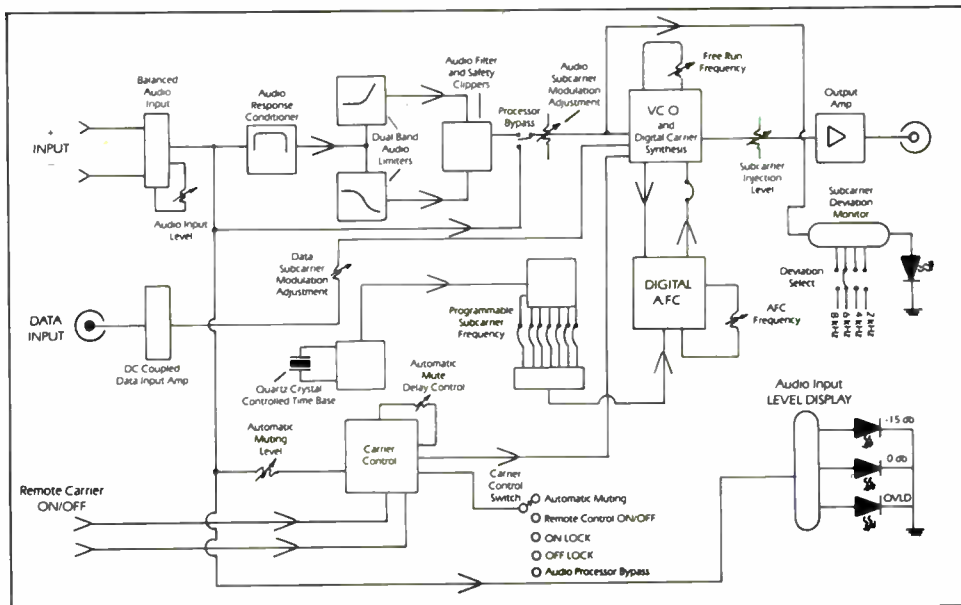
### ADDITIONAL FEATURES:

**OPTIONAL REMOTE CONTROL OPERATION.**

**PATENTED, NO OVERSHOOT LOW PASS FILTERS PROTECT MAIN CHANNEL.**

**ACTIVE BALANCED INPUT. NO TRANSFORMER.**

**FRONT PANEL INJECTION LEVEL CONTROL WITH 20 TURN POT.**



# MEMO FROM METZ



by  
David L. Metz

## METZ BUILDS A NEW STUDIO

This summer our old production studio console finally died. After years of having a second rate production studio, it was decided to build a new one, and do the job right.

KWPC/KFMH is located in a much remodeled 100 plus year old farm house. The room that the studio was located in has a rather weird "L" shape as the result of some poorly planned remodeling years ago. There was no outside window, and a large wooden ceiling support post was located right in the middle of the floor.

The original studio furniture was built out of plywood and 2x4's about 30 years ago, it really looked awful! The sales staff had been ashamed to show clients the room where their spots were produced. Because of the post, the equipment layout was cramped and uncomfortable for the operators to work in. You can't expect your air staff to turn out a good product on junk equipment in dismal surroundings.

Your rate of success or failure in designing a new studio is determined primarily by how much time you spend planning.

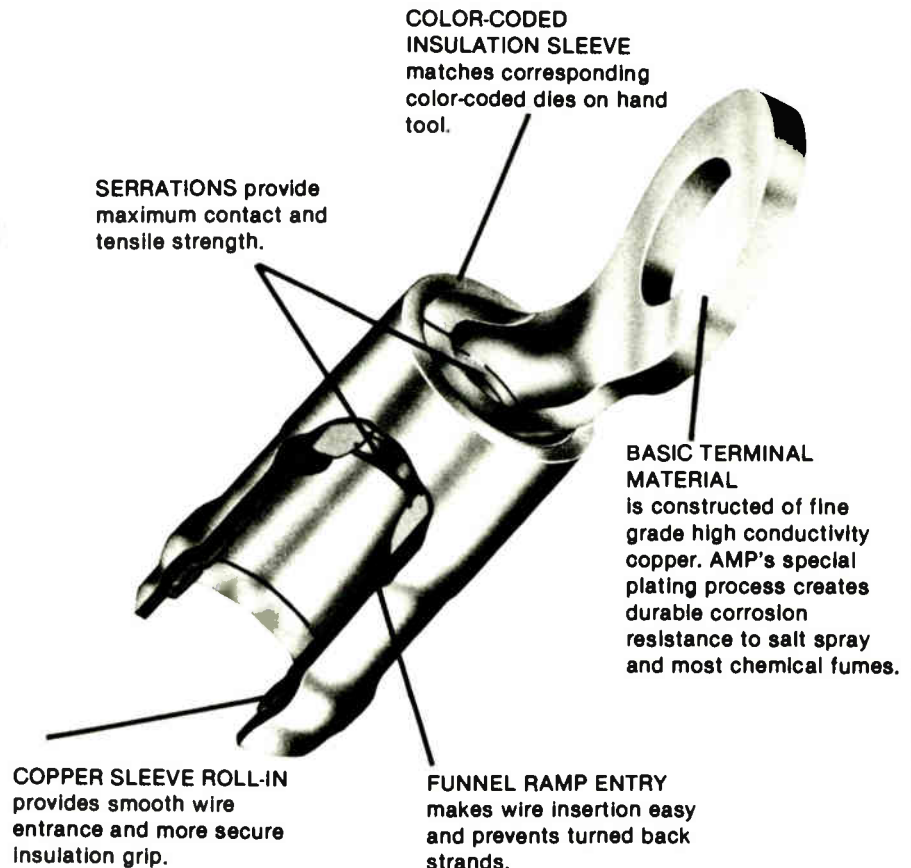
I started by procuring some 1/4" x 1/4" grid paper, dividers and a draftsman's scale. I very carefully measured the room and drew a scale drawing on the graph paper. In the process I discovered that the walls of the room were out of plumb and square! I made several copies of my floor plan on our office copies and layed out different plans on them, so I could compare different layout's side by side.

My plan was to develop a more attractive and functional studio layout, but there was no way I could fit anything around that damn post! At this point I knew that the post had to go. I had also decided that I wanted the

(cont. on page 13)

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# AMP ★ Pre-Insulated Terminals and Splices



### FEATURES

- Electrical/Mechanical Crimp
- Insulation Crimp (over insulation sleeve and copper wire support sleeve)
- Funnel Ramp Entry
- Mil. Spec. Copper Body
- Mil. Spec. Tin Plated Body
- Insulation Color Coded
- Internal Wire Barrel Serrations
- Specially Cured Durable Plastic
- Insulating Sleeve and Copper Wire Support Sleeve
- UL Listed and CSA Certified 105°C, 300 Volts MIL-T-7928 qualified
- Body stamped with commercial wire size, Bu-ship (mil) wire size and crimp tool reference

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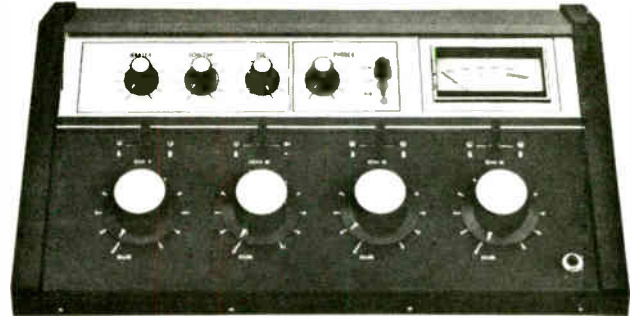
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# Series 50 Consoles

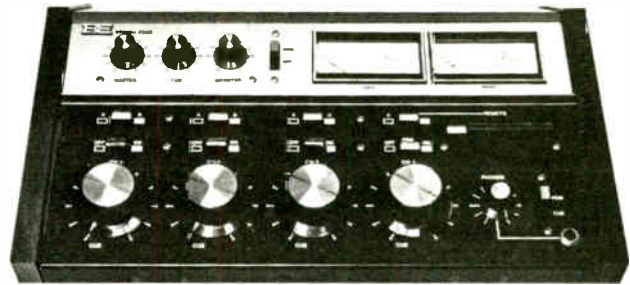
## 4-MIXER, MONO • MODEL 4M50

Incorporating modern solid-state technology, the Broadcast Electronics Model 4M50 4-Mixer Monaural Console affords professional performance at reasonable cost. Compact, yet uncluttered, the 4M50, with two inputs per mixer, can handle the selection and level control/mix of up to eight sources. Flexibility is a feature. Each mixing channel uses identical input preamplifier circuitry which can be prewired for either low-impedance microphone service or for use with high-level input equipment. Individual monitor, headphone and cue amplifiers with front panel input and level control insure aural monitoring capability of all critical functions. High quality performance and clean functional operation highlight the ideal console for production, on-air newsroom or remote broadcast purposes.



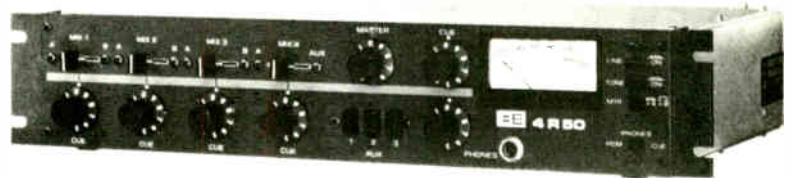
## 4-MIXER, STEREO • MODEL 4S50

The stereo performance characteristics of the 4S50 are excellent and make it an ideal tool in the production of stereo taped material, or where a modest, yet flexible control room/studio operation is involved, totally suited for on-air stereo FM broadcast use. Two stereo inputs, either high or low level, can be accommodated by each of the first three channels. Channel four can be preselected to a single high or low level stereo input or to one of five high level remote/utility stereo inputs. The high reliability, low-noise sealed dual potentiometers used for mixer level control are fitted with cue switches.



## **NEW!** 4-MIXER RACK MOUNT • MODEL 4R50

The Broadcast Electronics 4R50 rack-mount, four-mixer Console brings, in a self-contained, compact package, operating versatility usually expected only in larger, desk-top units. The first three mixing channels are identical, accepting either low-impedance microphone or high-level inputs through rear panel preset switching. Two inputs may be selected for each mixer by adjacent switch operation. Mixer 4 has additional high-level input capability. It will accept one low-level input or three pushbutton-selected high-level inputs. Thus, a total of ten sources may be selected for up to four simultaneous "mixes." Mixers are long-life sealed potentiometers, each equipped with cue switches. This permits preview of input sources through the built-in cue amplifier and



speaker. An internal tone generator facilitates quick and accurate output level adjustment. Either program output or cue bus information may be monitored through the headphone amplifier with front panel jack output. Program material appears on a rear panel high-impedance output terminal for feeding external PA or monitoring equipment.

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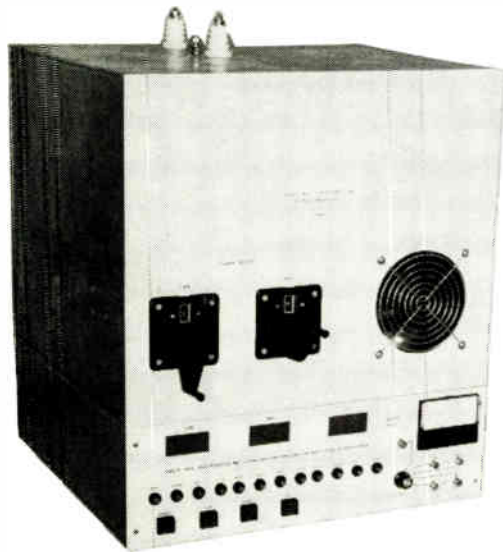
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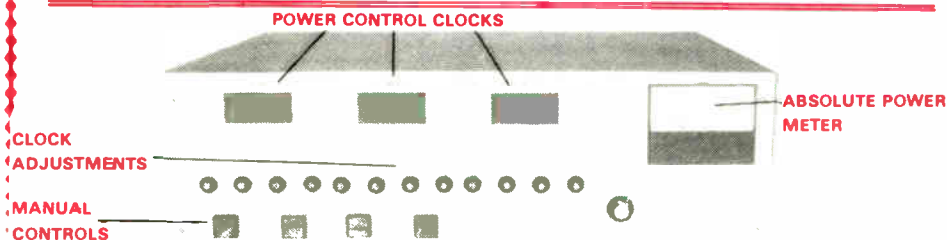
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# Eagle Hill PSA Adaptor



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Plus FCC Required Readings  
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- 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



- |       |  |          |
|-------|--|----------|
| PSA-1 | Capable of three-level power control with completely automatic clock control. Clocks have to be adjusted monthly for local sunrise - local sunset per station. License Power Control up to 1,000 watts ..... | \$3,995. |
| PSA-2 | Same as PSA-1 except controls are set up to work push button or through station Remote Control System .....  | \$2,995. |
| PSA-3 | Single manual cutback to power levels below that available on transmitter. Can be set up to work through Remote Control System .....   | \$1,695. |
| PSA-5 | For stations with power up to 5 KW .....   | \$4,495. |

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*Shepler Says. .*



by John Q. Shepler,  
Technical Consultant

## WATCH OUT FOR COUPLING CAPS

Capacitors can be sneaky little devils. Sometimes they are chosen with particular values in mind in order to create a given filter response. Most often, though, a capacitor's job is simply to keep the DC bias of one circuit from affecting another. Consequently, the capacitance value is relatively unimportant as long as it is large enough and stays that way.

Here's a typical experience with a dying coupling capacitor. Last week all of the automation cart machines sounded the same. This week, the ID sounds a bit thinner than usual. Has the tape gone bad? A re-dub doesn't seem to help. Time to pop in the tone cart. Ah-ha....the low frequency response is about 5db below what it should be. Let's pull the deck and find out why.

Probing around with an amplified voltmeter (Heathkit distortion meter) and headphones shows that the response is different at the output of the preamp stage than at the output of the booster amp.

The accompanying diagram shows how the resistor and capacitor couple the amplifier stages while blocking DC. Normally, the frequency response and level will be the same on either side of the capacitor. In this case, the aging capacitor has lost enough capacitance that it is starting to act like a high pass RC filter in conjunction with the input resistor of the next amplifier. The result is a gradual loss of low frequency response.







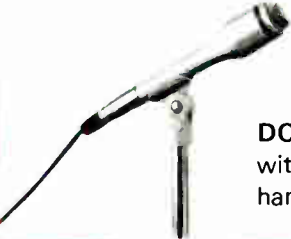





The worst offenders are electrolytic capacitors. Even tantalums which cost an arm and a leg can develop this problem. Age is a possible cause, but heat trapped inside a cartridge machine or control board can reduce ca-

(cont. on page 12)



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 <p><b>635A</b> Omnidirectional \$69.88</p>	 <p><b>649B</b> Lavalier 105.85</p>
 <p><b>667A</b> Variable-D® Cardioid 405.86</p>	 <p><b>DL42</b> Cardiline® 405.86</p>
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**A2  
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10 SEC. TO 100 SEC.....	<b>\$3.00</b>
140 SEC. TO 4.5 MIN.....	<b>3.36</b>
5.0 MIN. TO 10.5 MIN.....	<b>3.72</b>

**AA3  
with Capitol Q17 HOLN**

10 SEC. TO 100 SEC.....	<b>\$3.84</b>
140 SEC. TO 4.5 MIN.....	<b>4.32</b>
5.0 MIN. TO 10.5 MIN.....	<b>5.04</b>

**AA4  
with Capitol SGS-4**

10 SEC. TO 100 SEC.....	<b>\$4.20</b>
140 SEC. TO 4.5 MIN.....	<b>4.78</b>
5.0 MIN. TO 10.5 MIN.....	<b>5.69</b>

# Crosstalk...



by ED  
DUELLMAN

Well, here it tis, my favorite month. Now I suppose some of you are glad when the holiday season is over, but that's the time of the year that I like. Sure, I get tired of chasing my tail too, but for all you pessimists there is a bright side, December 21st is the shortest day of the year and every day gets longer after that. What's that Rick Nelson song...Here Comes Summer. Then, on the other hand, December 21st is the first day of winter!

So...it is the Christmas season and time of gifts and goodies. How would you like to have a good quality AM tuner? Now as much as I would like to, I can't give you one. Remember I am a broadcast engineer also. The next best thing is to put you on to a neat little gadget, a ZN414. This gizzmo is a 10 transistor TRF radio in a package the size of a transistor, a TO-18 case size to be exact and only costs about two bucks! This little IC contains a R.F. amplifier, detector and AGC circuit. The ZN414 needs only three capacitors, two resistors and a coil to give a good quality tuner. All this thing needs is a penlite battery for power, plug the output into a good amp and tune in your favorite station...the one playing Jingle Bells by the Barking Dogs. Figure 1 is the diagram of a basic tuner using the ZN414. This is taken from the data sheet that can be purchased with the device.

Where can you get one of these? I was just getting to that. The device is made by Ferranti and is available from Circuit Specialists Inc., P.O.

(cont. on page 13)

## Microtel

### A NEW GENTNER PRODUCT

Gentner's Microtel is a handheld, battery-operated telephone interface that allows you to simultaneously feed and receive information from the telephone line. Microtel is simple to use: simply unplug the handset of the phone and plug Microtel in its place.



#### Microtel is ideal for:

- In-the-field News Mixer/telephone feeding
- Portable Mixing
- Telephone Interface
- Studio Talkback
- Sports Console/Back-up Sports Console
- Mic to Line Driver

# \$175<sup>00</sup>

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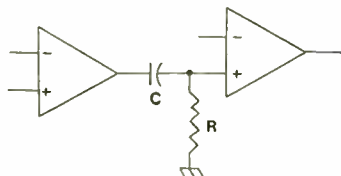
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**SHEPLER SAYS...**  
(cont. from page 8)

pacitor life drastically. You can clip lead a good capacitor in parallel with the bad one to confirm the cure, but the defective part should be replaced on the spot.



**COUPLING CAPACITOR**

Coupling caps can play an even dirtier trick. They can start to leak DC between circuits and upset normal bias levels. The symptoms appear to be a bad transistor or IC but are really a faulty capacitor. If bias levels look funny, try lifting one side of the coupling cap and see if DC levels return to normal.

It's hard to eliminate coupling capacitors from circuit designs. They are valuable in protecting equipment from failures upstream. It is better to design circuits that have a high enough input impedance to use plastic, mica, or ceramic caps. These have far fewer problems than their electrolytic cousins. In other cases, you just have to recognize the symptoms and keep a large box of replacements close by.

\*\*\*\*\*

**COMPUTEMP 2**



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40 SEC .....	<b>\$1.50</b>
70 SEC .....	<b>\$1.55</b>
100 SEC .....	<b>\$1.65</b>
2½ MIN. ....	<b>\$1.75</b>
3½ MIN. ....	<b>\$1.85</b>
4½ MIN. ....	<b>\$2.05</b>
5½ MIN. ....	<b>\$2.15</b>
7½ MIN. ....	<b>\$2.25</b>
10½ MIN. ....	<b>\$2.45</b>

\*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 warrantee with approved replacement of pad

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**TALKBACK**

**ARKANSAS . . .** Ed Duellman's Crosstalk column in Sept. issue complains of BMI and ASCAP charges to radio stations for playing their artist's music. I think he overlooks the fact that many listeners record to cassette and don't pay. This is the record company's way to recoup some of that loss.

**OHIO . . .** I like the columns, opinions and comments of both broadcasters and manufacturers in C.P. It is vital that open lines of communication exist among broadcasters throughout the country. Keep it coming...

**IDAHO . . .** Suggest that Metz add inspection of anchor pods to antenna maintenance. Some soils are more corrosive and electrolysis may eat away at galvanizing below the surface. Magnesium slugs connected to anchor pods will alleviate this. See local gas Co. corrosion experts for consultation.

**MISSOURI . . .** Another great piece from Persons on MW-1 problems, too bad we'll only hear from him every other month.

**NEBRASKA . . .** Appreciated "Metz" making the decision on Phillystran/no phillystran right now.

**MICHIGAN . . .** Thanks to Shepler . . . Just lost an AM transmitter and all UPI sat. receiving equipment to lightning in May. All ABC receiving equipment went along, the bill? About \$45,000.

**MISSOURI . . .** Since Duellman mentioned shortage of info. on AM stereo receivers, how about a list of what's available on the market today? Would also like to see the rest of the story on Ed's homebrew satellite receiver. Enjoyed the Metz article on transmission lines..

**WASHINGTON . . .** Ed was RIGHT ON this time!

**MONTANA . . .** Thanks to Mark for tips on MW-1.

\*\*\*\*\*

**CROSSTALK**  
(cont. from page 11)

Box 3047, Scottsdale, AZ 85257. The ZN414 is priced at \$2.00 and the data sheet is 25 cents. By the way, for those of you who are planning to

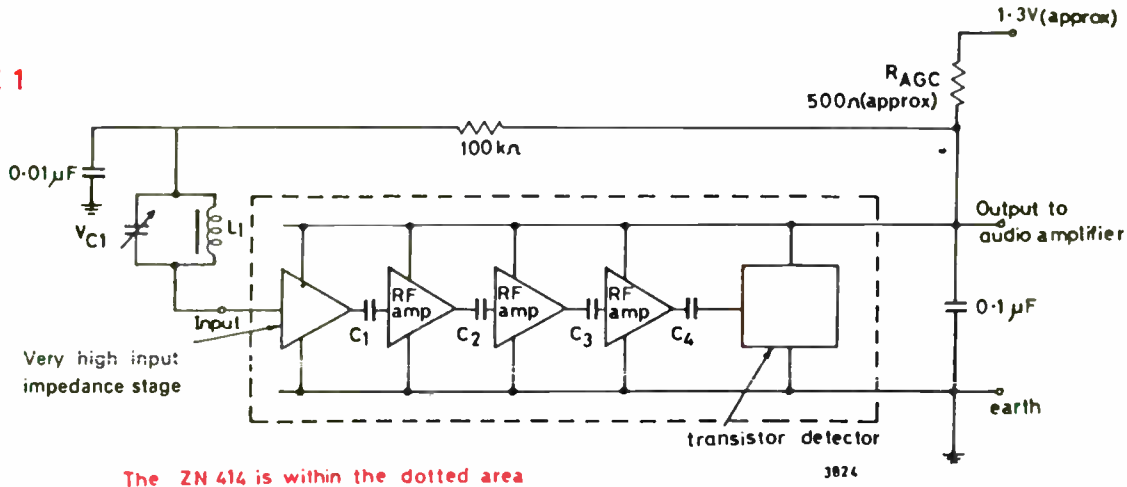
build the satellite receiver that is coming up, the circuit Specialists catalog is a good one to have.

That's it for this year, I hope it has been a good one for all of you and my best wishes for a Merry Christmas and a Happy New Year. Hey Ed!!!

you going to change the tubes in the transmitter?? Ya boss, I'll get to it tonight even if it is Christmas...

73 Ed  
K9FWR  
\*\*\*\*\*

**FIGURE 1**



The ZN 414 is within the dotted area

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

worn paneling and the saggin dropped ceiling replaced and a window put in the outside wall.

I called every contractor that did home remodeling listed in the phone book. Most were too busy to even bid on the job. The four that did, gave me bids as high as \$4,000!!! With a little effort I got this cut down quite a lot.

First the station supplied all of the building materials. I got them on a trade out with a local lumber yard. If the contractor had supplied material, he would have bought the materials at the same yard and then marked them up 30%. I saved several dollars a sheet by buying discontinued paneling. The combination window for the outside wall I got below cost, someone had ordered it custom made, and then never picked it up. If you ask, the counter men at most yards will be glad to fix you up with "bargains" that they want to get rid of.

One very important cost control is letting the contractor know exactly what he is to do. Remodeling projects have a way of growing on you. First you want just a few things done, then someone else wants something changed, and soon the project is way over bid (and budget).

I was very careful to have everything down on paper before any work started. The contractor knew exactly what was to be done, nothing else.

When the ceiling was taken down, we learned the secret of the post in the middle of the room. It turned out it wasn't really supporting anything! That explained the sag in the floor of the second floor sales office. The post was replaced with two 2x12's ceiling beams that are supported by the outside walls of the building.

If I hadn't decided to remodel the studio, the floor might have collapsed in the sales office!

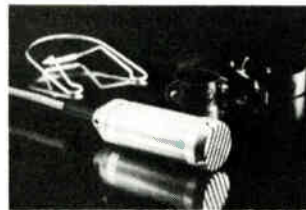
(Part 2 of "Metz Builds A Studio" next month)

\*\*\*\*\*

**ELECTRO VOICE**

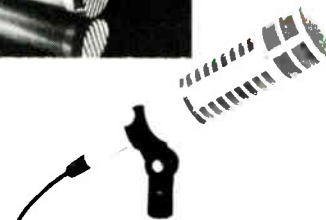
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system...Sony, Sansui and of course Kahn.

Sony is manufacturing two A.M. stereo receivers and sales are strong, mainly due to excellent quality. Sony has no plans at this time to manufacture single system receivers.

Sansui also has no plans to switch to the single mode system as they believe that multiple system A.M. stereo coincides with excellent A.M. receiver quality.

Kahn was issued a patent in January of 1984 to cover its multiple system A.M. stereo receiver and pilot signal detector.

It is fairly obvious from the results of the NRBA survey at least, that if the receiver manufacturers are to decide what the marketplace A.M. stereo standard will be, that the scales have been tipped heavily to Motorola's side of the court. That of course does not mean that things can't change.

Whatever happens in the next few months, it seems that the burden of the final decision rests squarely on the shoulders of the broadcasters. Most of the cards have been dealt and many have been played. It is time for the decision to be made. 1985 will find more and more A.M. broadcasters taking that step and running with the A.M. stereo ball. If A.M. stereo is to come alive, the broadcasters will have to make it happen.

\*\*\*\*\*

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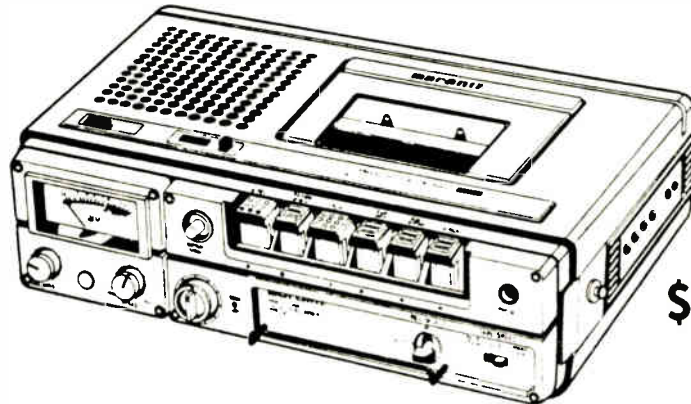
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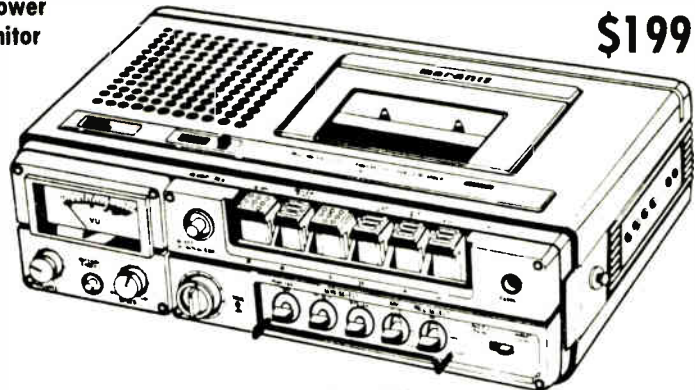


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- Volume and Tone Control
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- Headphone Jack
- External Speaker Jack
- External Telephone Pickup Jack
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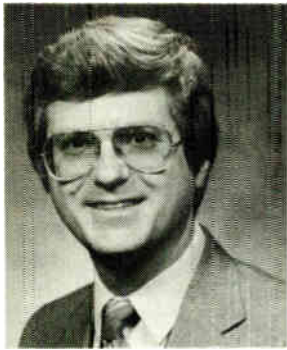
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# PERSONS' POST SCRIPTS

by Mark Persons

## CLASS IV 1Kw FULLTIME

So, you're a class IV local AM radio station and you're ready to reap the benefits of a night-time power increase from 250 watts to 1000 watts or whatever your daytime power is.

Let's look at the history of class four's. In the mid 1930's, the Federal Radio Commission (now known as the Federal Communications Commission) reorganized radio channels and moved some stations to new frequencies or wavelengths as was the expression then. Channel assignments fell into three major classes. There were clear channels which allowed a single 50 KW station on each frequency to be heard "coast to coast" more or less at night. There were a number of 5 KW regional channels and six local channels. Class IV local stations were allowed to run 100 watts day and night. Their purpose, as their name implies, was to serve a single community at a minimum of cost.

The first stations on local frequencies found coverage was just fine. Day and night they could be heard for a respectable distance. As an added benefit, they could be heard coast to coast especially after 10:00 P.M. when most stations signed off.

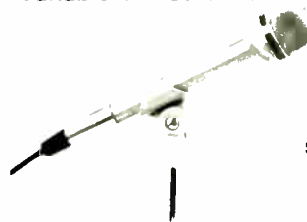
Class IV's were given a power increase to 250 watts day and night in the late 1930's. Night coverage was the first to suffer as more and more stations started using the local channels. The FCC authorized a daytime power increase to 1000 watts for class IV's starting in 1959. Most took advantage of the opportunity, but were required to accept interference from other stations on the frequency. This stipulation is found on every class IV license today. Power increases were granted even when significant coverage contour overlaps were indicated. The idea was to keep all local stations the same. More recently, however, the FCC has prohibited changes

which will cause NEW overlapping contours on local channels. That's why local stations, that have increased tower height recently, often operate at odd power levels below 1000 watts day. By the way, the 1000 watts day is called "limited service." Until the most recent FCC change allowing day power at night, class IV's were still officially classified as 250 watt stations.

So, what can class IV's expect for night coverage with their day power? Well, there are differing opinions among broadcast engineering consultants. My view is that the night coverage will stay the same. This is because power ratios between co-channel interfering stations will stay the same. Sure, the interference contours will be pushed further from a station which increases power. However, the interference contour is pushed back toward the station as all the other stations, on the frequency, also increase power. It looks like a dead heat except for one more factor. Increased night power will help overcome man-made noise such as fluorescent light buzz. This will help class IV's better serve their listening area. It's also possible that a station will enjoy increased night coverage when skywave interference is at a minimum.

\*\*\*\*\*

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Noise	75 db	75 db	72 db
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Receiver sensitivity for 60 db of Quieting	14 uV	60 uV	150 uV
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