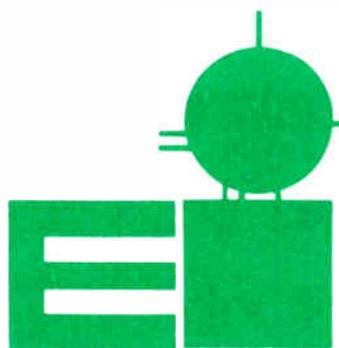


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# COMMON POINT®

A MONTHLY NEWSLETTER FOR BROADCASTERS

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## RADIO-ONLY DEREGULATION BILL IS OVERDUE

by Abe J. Voron, Senior Vice President, NRBA

Almost a year ago the Tauke-Tauzin Bill was introduced as a proposed broadcast deregulation measure. It is a combined radio and television bill, which while not its only defect, is one of the most damaging. Now, after nearly a year of discussion and negotiation, it appears almost certain that no meaningful broadcast deregulation legislation will emerge in the House during the current session of Congress.

NRBA has never been enthusiastic about the Tauke-Tauzin Bill, mainly because it provides for license renewal based on "operation in the public interest," without defining "the public interest" in any way. This vagueness and uncertainty is exactly what NRBA seeks to eliminate, not perpetuate. Tauke-Tauzin would permit any three future FCC Commissioners to define "operation in the public interest" to suit their particular philosophies. This, in our view, is not deregulation. The other major problem with Tauke-Tauzin is that it is much more a television bill than it is a radio bill, and we have said all along this coupling of radio and television would prove fatal to both interests. That is exactly what has happened.

Tim Wirth and Al Swift have been trying to put together a bill that would supersede Tauke-Tauzin, but the measure they propose contains all sorts of clauses that we simply find unacceptable. Wirth and Swift have not been able to establish a consensus on the Subcommittee and even if they do, it's obvious that we would have to oppose things like petitions to

revoke, FCC re-entry into regulation and increase EEO requirements.

Because we did not want to hamper, in any way, whatever forward progress might come out of Tauke-Tauzin and the other proposals, we restrained our public criticism and involved ourselves behind the scene in an effort to convert a very weak deregulation measure into something meaningful for radio.

We have been stymied by the much too conservative approach that is being taken toward radio deregulation and, most of all, by the insistence on coupling radio and television deregulation in one bill.

We hope that this is the last time that anyone will try to tie radio and television deregulation together. The television interests now seem ready to accept the argument we've been making for years--which is that radio deregulation will inevitably lead to future television deregulation, but that radio needs to be freed to take advantage of the natural sympathy which exists for it in the Congress.

\*\*\*\*\*

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by Ed Duellman
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- Page 10 Memo From Metz
- Page 12 Talkback
- Page 15 Persons' Post Scripts

## NAB WRAP UP

by Todd Harrington

The 62nd Annual Convention which drew over 30,000 members featured the world's larger display of broadcast equipment. The exhibits, which numbered over 600, occupied 300,000 square feet of the Las Vegas Convention floor. In keeping with the election year theme of "You Got What It Takes If You Can Find What You Were Looking For" at the NAB Convention, either you weren't looking or they do not make it.

The radio broadcasters seemed to focus much of their attention in three major areas, of course the AM Stereo battle led the inquires, followed by FM SCA usage and digital audio.

NAB President Edward O. Fritts officially opened the convention during a general assembly on Sunday, April 29. Otis Freeman, Vice President/Director of Engineering of WPIX, New York City, accepted the Engineering Award presented by FCC's James McKinney who addressed the engineering luncheon on Tuesday, May 1.

The most difficult items to locate were bath towels, due to the fact that the hotel workers union was on strike. A minor inconvenience at best.

Next year---it's on to Dallas with bigger and better things.

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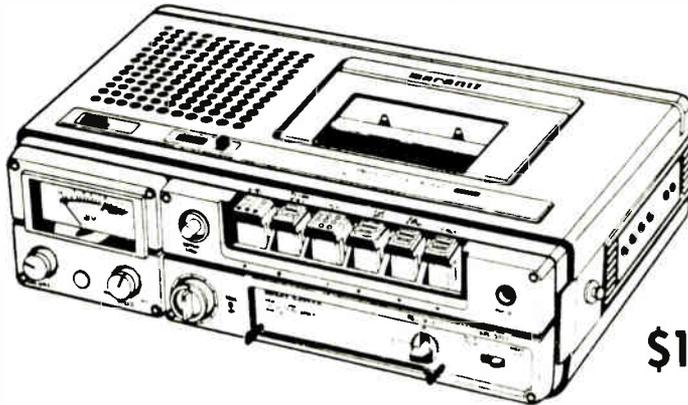


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## Editor's Notebook

When this issue of Common Point goes out in the mail, the NAB will still be in convention in Las Vegas and we'll be involved in meeting after meeting with the many vendors we work with through the year. This coming month we should have a report on the convention for Common Point with our view of what has happened as well as reports on any new or interesting equipment changes.

**Sorry Jack!** . . . A "Talkback" from New Mexico says . . . "You lost sight of the original idea . . . Common Point . . . A newsletter for broadcasters . . . Maybe you should change the name to 'Ham Point.'" No change was intended . . . there are a lot of engineers with a hobby on the ham band. Perhaps enough for now.

**TTC/Ampro-Scully** . . . and it seems things are picking up more



Ye Olde Editor

each month as things become more organized. There are three service centers . . . Electronic Ind. here in the mid west . . . as well as one on the west and the east coast. We will be building

our inventory of parts, which through UPS/next day delivery, will enable us to place parts in customers hands in most parts of the country on the "next day basis".

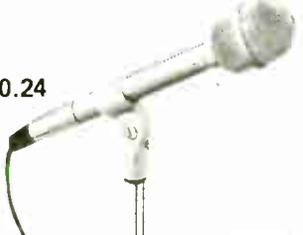
**Still a few left** . . . We advertised a few shelf stale carts a couple of months ago for just \$2.00 ea. These have various lengths of tape . . . and most are still in good condition. A great buy while they last.

**Price increases** . . . it seems are always in the works each time the NAB convention comes around and this year is no excuse. Doing a cross check . . . it seems the increases are averaging between 5% and 10%.

**Si Tex weather radar fastest** . . . according to reports from stations who had been depending on the government radar. Because of the procedures followed . . . Si Tex radar is up to 30 minutes faster, and that can mean all the difference in the world when the weather really gets rough in your coverage area.

\*\*\*\*\*

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# Crosstalk...



by ED  
DUELLMAN

Must be a case of spring fever (that's when the iron in your blood turns to lead in the seat of your pants) because I only have one little burr in my back pocket. How come when I tune across the dial so many stations sound the same? I am referring to programming. I look in the big book and some say AC, CHR, top 40, dirty thirty, and so on. I can't tell too much difference. Must be the music being put out these days. Seems on some of the stations I listened to, the format changed when the DJ shift changed. Heard an AC station rocking harder than one that called itself CHR. For those of you that don't get into talking to the announcers, AC is adult contemporary and CHR - contemporary hit radio. Humm . . . now that I look at those titles it looks like two different ways of saying the same thing; O-well, I just make the boogie box work, Herb Tritz plays the tunes.

A number of readers have asked what kind of computer that I use, and what do I think is the best buy for the money? As you may have gathered previously, I have a Commodore 64. I also have a disk drive, color monitor, and a Star 10X printer. I find this to be a good combo for me and the rest of the family. My sons have saved the galaxy many times, my wife unbalances the checking account, and I am writing this masterpiece using a word processing program. The last part of the question can best be answered this way: First decide what you want to do with a computer and who besides yourself will use it and what for. Second is how much you want or have to spend. For instance an Atari (cont. on page 14)

## vector research

**THE CASSETTE DECK  
YOU'VE BEEN WAITING FOR!**

- **SOLENOID-CONTROLLED  
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**STANDARD UNIT \$350.00**

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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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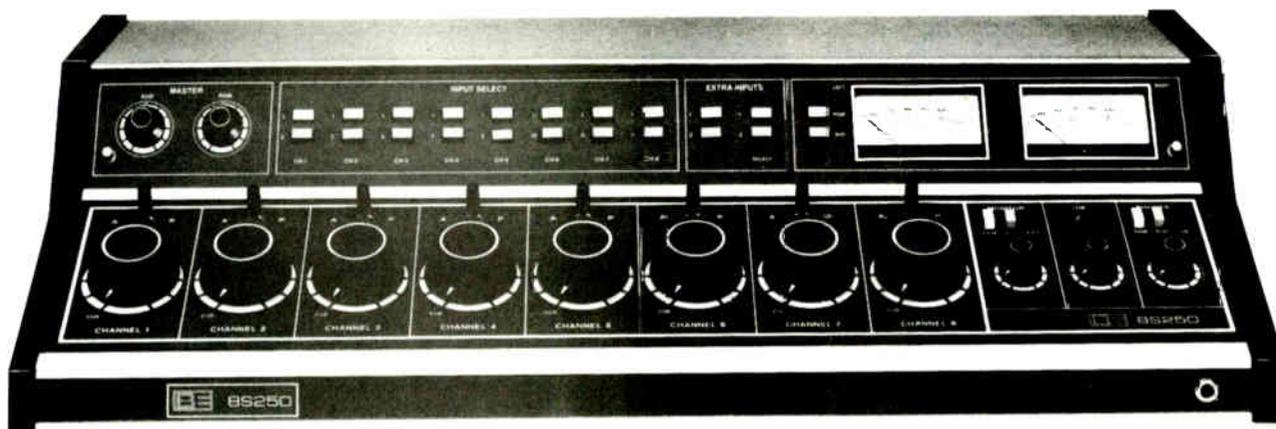
**WHEN YOU BUY A CONSOLE --  
BUY A WORKHORSE.  
BACKED BY THE BEST IN SERVICE.**

**FEATURES**

- Ladder Step Attenuators
- Modular Plug-In Electronics
- Contact-Free Bus Selection
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- Four Line-Level Outputs
- Mono Mix-Down Option
- Durable Front Panel



MODEL 5S250



MODEL 8S250

**GENERAL DESCRIPTION**

**THE COMPLETE STEREO CONSOLE** — The Broadcast Electronics 250 Series Dual Stereo Consoles, available with either five or eight input mixing channels feature identical line-level output stereo program and audition channels, with VU meter switching to either stereo channel pair. Mixing controls are maintainable, step-type dual ladder attenuators. Quiet-operating, telephone-type channel select switches are used.

**DURABLE STYLING** — styling adds durability and enhances the attractiveness of the 250-series consoles. The front panel features crisp, clean graphics under a laminated polycarbonate overlay. This tough protective surface makes it virtually impossible to scratch or wear the lettering away. The front panel should look as clean and fresh after years of normal usage as it did the day it was purchased!

**MONO- MIX-DOWN OPTION** — For applications requiring a summed L+R mono signal in addition to the stereo program outputs, the consoles are prewired to accept an optional plug-in module for this purpose.

**INTEGRAL HIGH/LOW LEVEL AND MONO/STEREO MODE SELECTION** — Identical stereo preamplifier modules are used in all mixing channels. Modules may be pre-programmed for mono or stereo operation; and for

either low impedance microphone, or line-level input service. The user can thus assign mixing channel functions to meet current operating requirements and can readily change them to satisfy future combinations, without obsolescence.

**DUAL CHANNEL DESIGN** — A 600 ohm balanced audition channel is equal in performance to the program channel.

**STEREO MONITOR AND HEADPHONE AMPLIFIERS** — High-quality control room and studio stereo monitoring of program, audition or an external input is afforded by 8-watt per channel monitor amplifier modules. Terminated in a front panel jack, headphone monitoring at up to a 1-watt level, of stereo program and audition channels, plus a summed L+R cue bus signal, insures full aural access to critical portions of the console system.

**PREFADER PREVIEW, ALL INPUTS** — A built-in cue amplifier-speaker system is fed from a summed-stereo bus. Bus signals are applied by dual cue switches on each mixer control, actuated in the detented closed-fader position.

**FOUR EXTRA INPUTS ON 8-MIXER MODEL** — The Model 8S250 has four extra unwired switches to aid the broadcaster with any future expansion plans.

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# Shepler Says.



by John Q. Shepler  
Technical Consultant

## A RECEIVER FOR THE STUDIO

Normally, you buy a stereo receiver for your home or office. It may sound strange to put receivers in your air and production studios, but there are some reasons why that can be a very good idea.

Most stations have modulation monitor in the studio or just outside. It's a simple matter to tap the audio from the monitor and use it to drive the monitor amps within the control board and perhaps other speakers around the building. This provides a very high quality air monitor, but it doesn't leave you with much flexibility.

If instead, you get a fairly good stereo receiver and wire the speaker output to the monitor input of your board, you can now monitor both your own signal and your competition. If you also wire the receiver audio to a spare input on the board, you can compare yourself and your competition with raw audio from records and tapes.

It's hard to get a good point of reference for making audio adjustments. Every car radio sounds different. Portables have the same problem. They are useful for finding out what the audience hears on small radios, but they don't let you hear all of the details in the signal. Home stereo can also be deceiving. Every set of speakers and every room will alter your sound.

One way around this dilemma is to control the listening environment. You already have good monitor speakers and a soundproof studio, so why not use them to best advantage. You know how your own stations sounds in the studio. By adding a receiver, you get a fast A/B comparison with the competition by simply tuning them in.

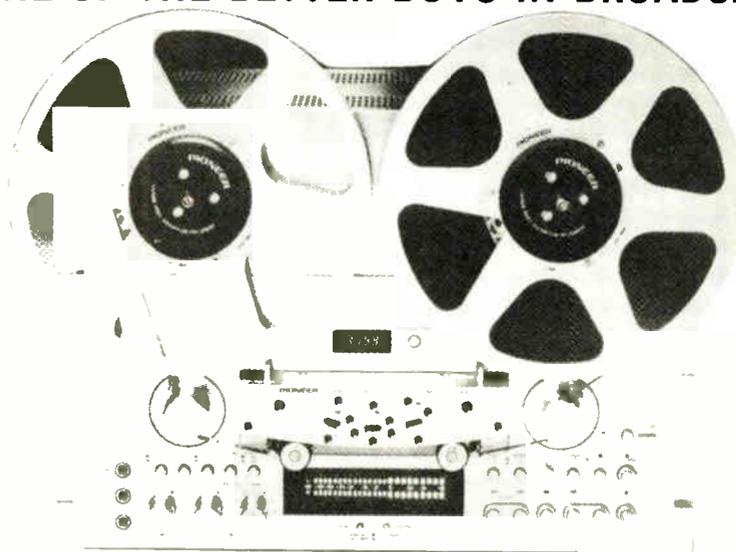
Sometimes you want to compare signals with stations in other markets. You can do this by installing an outside antenna and rotor. Swing the antenna around until the station you want to compare with has a solid

(cont. on page 13)

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- LIVE ASSIST
- CONTROL ROOM
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- CLOSED LOOP DUAL CAPSTAN TAPE TRANSPORT (3¾ & 7½ IPS)
- FREQUENCY RESPONSE 20 - 30 KHZ AT 7½ IPS
- DISTORTION NO MORE THAN 1%
- FLUORESCENT DISPLAY LEVEL METER WITH PEAK/AVERAGE SWITCH (-30 DB TO -8 DB)
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- TAPE HEADS—NORMALLY 4 TRACK—EASILY CONVERTIBLE TO 2 TRACK WITH TOUGH NORTRONIC HEADS
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- FOR 1-7/8 AND 3-3/4 IPS ADD \$65.00
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# FOR STATIONS WHO NEED THAT SOMETHING EXTRA



The new Orban 8100A/XT Six-Band Limiter Accessory Chassis for OPTIMOD-FM (Model 8100A) has been created to provide aggressive multiband processing for stations that desire bright, loud, "highly-processed" audio. Derived from the OPTIMOD-AM Model 9100A, the "XT" consists of a six-band limiter cascaded with the exclusive Orban distortion-cancelled multiband clipping system.

The "XT" is particularly suited for highly competitive pop music formats such as AOR, CHR, AC, and Urban Contemporary. When added to the basic OPTIMOD-FM system, the unit creates a dense, consistent sound without the pumping or other obvious side-effects which often occur when other processors are cascaded with OPTIMOD-FM.

The new unit is interfaced through

a multipin connector added to the 8100A. Most of the existing OPTIMOD-FM circuitry is still employed when 8100A/XT is installed. This makes the entire system maximally economical, protecting the investment of the many OPTIMOD-FM Model 8100A owners who feel that they now need more aggressive processing to successfully compete within their formats and markets.

8100A/XT Six-Band Accessory Chassis  
\$2295.00

8100B Package consisting of 8100A/XT and OPTIMOD-FM 8100A/1 shipped at one time  
\$6595.00

RET-27 Kit to convert 8100A to accept 8100A/XT Accessory Chassis  
\$395.00

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# SI-TEX RADAR LETS EVEN SMALL MARKET ST GOVERNMENT RADAR AND WEATHER WIRE SER WHEN YOU NEED THEM MOST

SI-TEX has developed the CR 1011 Color Radar System for the TV and Radio marketplace. This complete unit, designed to operate in the rugged marine environment, has obvious applications as a land based weather radar. The CR 1011 can define and display the intensity of frontal systems, severe weather or plain old rain, to assist your meteorologist and station personnel in identifying problem areas for your audience. The CR 1011 is currently being used by the U.S. Coast Guard and the Florida Department of Water Management to warn of oncoming severe weather. With 10 kilowatts of transmit power and the color display, your presentations are crisp clear. There are 8 ranges to 64 nautical miles to allow you to select the scale that best covers your area.

The Plot feature allows you to chart the relative distance, speed, direction and size of storms.

The Variable Bearing and Range Marker, as standard equipment, assists you in your calculations. The CR 1011 also has a variable warning zone that will trigger an alarm and alert you to any targets with red intensity that have intruded into your preset limits.

The ease of operation and the SI-TEX reliability factor make this system sensible and attractive to all stations, large and small.

The CR 1011 is supplied with 15 meters of interconnect cable between the antenna and display unit. Longer runs are available at additional cost.

Put a SI-TEX weather radar to work at your station. Fully sponsored weather reports take on real meaning. While others are passing along the weather bureau "Chance of Rain" ..you're telling your listeners exactly where that rain shower is..how heavy it is..how fast it's moving and in what direction. Listeners know your SI-TEX radar proximity alarm let you warn them when there isn't time for "one more hole at the golf course" .. when to delay that ball game and cover the infield" .."When to get those small boats off the lake and head for the dock".

**SI-TEX RADAR WITH SINGLE MONITOR .....\$7995.00**  
**CFI SECOND MONITOR POINT .....\$3995.00**

AVAILABLE WITH UP TO 5 YR. PAY PLAN --  
 CALL FOR DETAILS!

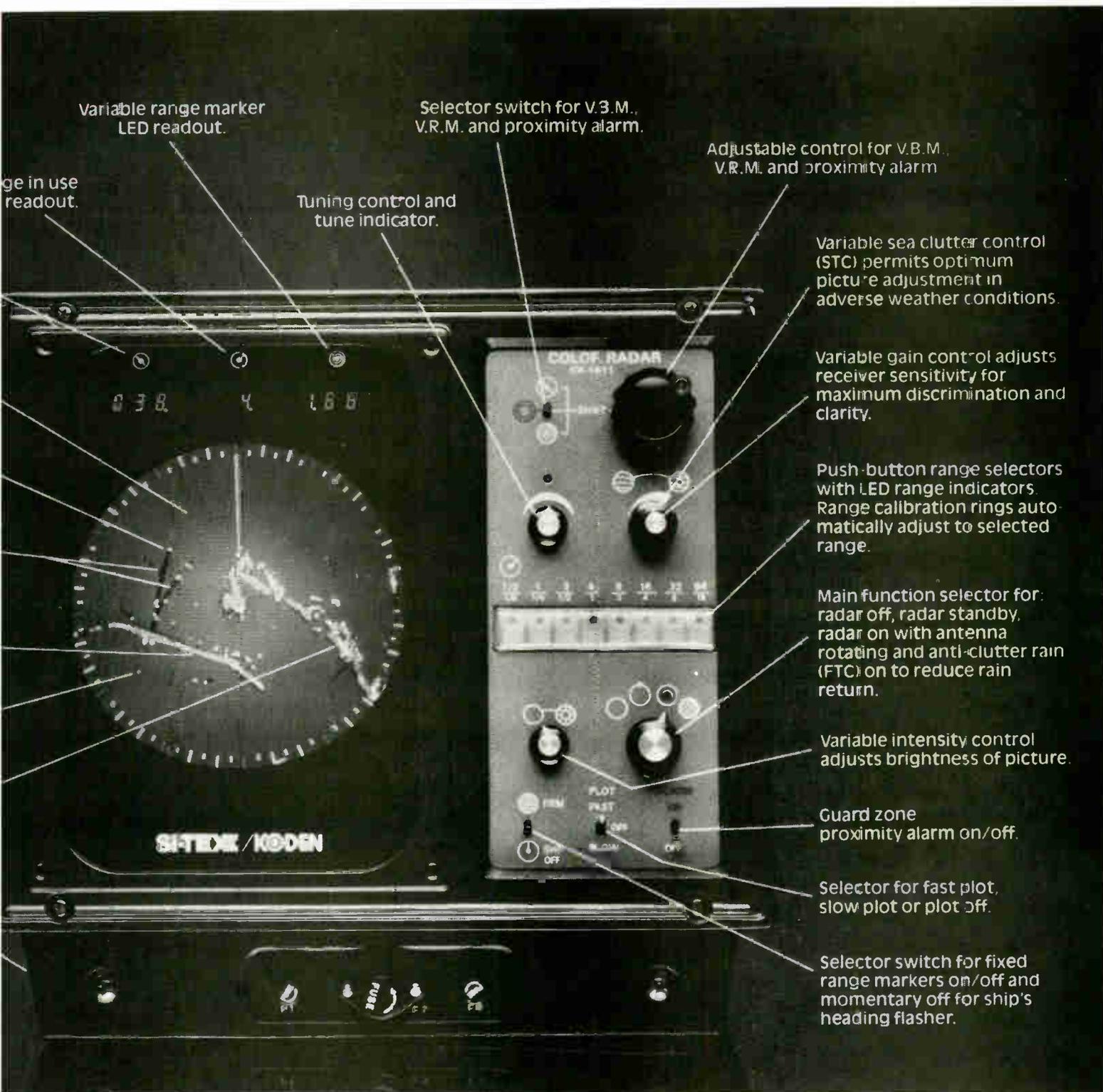
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## MEMO FROM METZ



by  
David L. Metz

### RFI ELIMINATION HINTS - - Part Two

Often you cannot obtain the desired degree of RFI suppression you require with bypass capacitors. Many pieces of audio equipment built of printed circuit boards lack a ground plane of low enough impedance for capacitors to work properly. In these cases the ferrite bead is often the best solution.

The bead is simply a small tube of ferromagnetic material that forms a one turn choke when slipped over a wire. The beads are made of different ferrite formulations in order to enhance their operation at different frequencies. Their size determines their magnetic saturation point and thus their power handling ability.

J.W. Miller makes the beads in three frequency ranges 0 to 40 MHz, 40 to 200 MHz and 200 MHz up, for example. Others make their beads at different frequency ranges. Check the spec sheet carefully before you decide which bead to use.

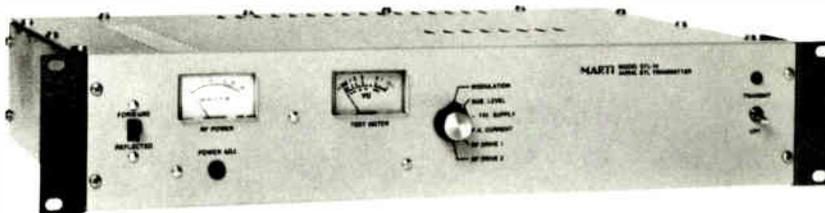
I have found the beads most useful at the FM frequency band. The LM381 I.C. for example makes a wonderful FM detector. Simply placing a single bead over the IC end of the output coupling capacitor lead eliminated the RFI. I have also eliminated RF from individual transistors by placing a single bead on each lead between the body of the transistor and the printed circuit board.

If you require greater induction, say for an AM band problem, you can either increase the number of beads over the wire or increase the number of turns. You can make very neat, tiny, cheap RF chokes by winding a few turns of fine magnet wire through the hole in the bead.

(cont. on page 13)

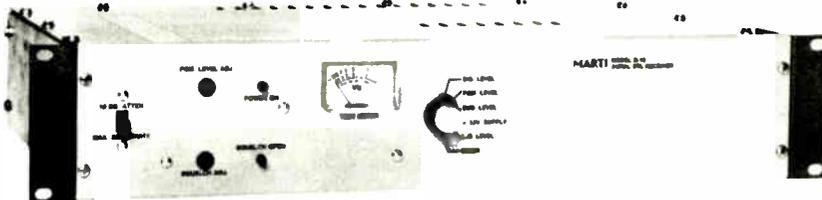
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## STL-10 The Answer To All Your Audio Links



### STL-10 TRANSMITTER

- ★ Excellent square wave response.
- ★ User selectable audio processing provides 0, 25, 50 or 75 microsecond pre-emphasis options.
- ★ Low pass filters designed to eliminate overshoot on complex audio waveforms.
- ★ Calibrated RF watt meter for forward and reflected power.
- ★ Test meter on front panel indicates main channel peak modulation, subcarrier level, supply voltage, P. A. current, RF Driver 1 and RF Driver 2.
- ★ Built-in automatic switching capability by addition of optional plug-in logic board.
- ★ Accessory plug for external DC power, remote control, remote metering, etc.
- ★ Low power consumption for operation on AC, solar cell, battery or other single polarity DC source.
- ★ Terminal strip for 600 ohm balanced audio input, BNC jacks for unbalanced audio input, Sub 1 input and Sub 2 input.



### R-10 RECEIVER

- ★ Excellent square wave response.
- ★ User selectable audio processing provides 0, 25, 50 or 75 microsecond de-emphasis options.
- ★ Low pass filters designed to eliminate overshoot on complex audio waveforms.
- ★ Helical resonator pre-selector and double balanced mixer.
- ★ Three IF bandwidths available to meet domestic and international requirements.
- ★ Computer designed bandpass filters for high selectivity with optimum phase and group delay.
- ★ Test meter on front panel indicates signal level, main channel audio level, sub-carrier level, supply voltage, L. O. level and mixer level. Additional test points inside receiver.
- ★ Sensitivity switch on front panel provides optional 10 dB RF attenuation for interference rejection.
- ★ Built-in automatic switching capability.
- ★ Accessory plug for external DC power, remote control, remote metering, etc.
- ★ Low power consumption for operation on AC, solar cell, battery or other single polarity DC source.
- ★ Terminal strip for balanced 600 ohm audio output, BNC jacks for unbalanced audio output, Sub 1 output, Sub 2 output.

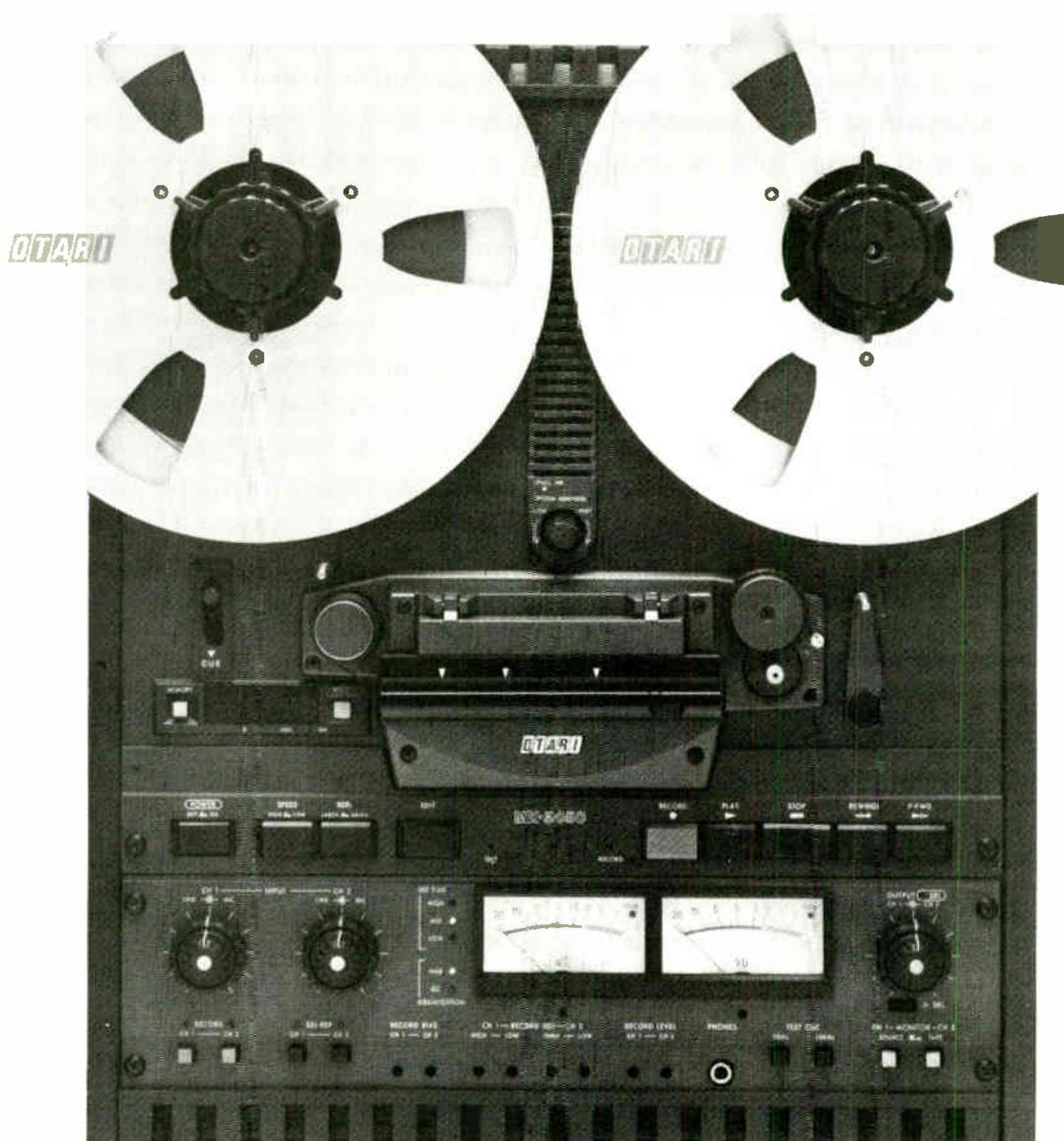
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# Model 5050 B-II 1/4" Two Channel Recorder



- 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.

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## RS SERIES—AUDIO ROUTING SWITCHERS

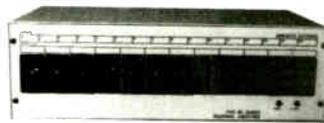
Switching systems of up to 64 stereo inputs x 32 stereo outputs can be easily configured from standard plug-in RS family components. Ask for a factory quote.

## MODELS

### 100RS—

**\$1500**

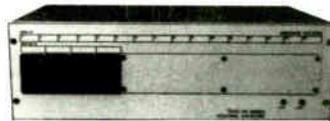
- ★ 16 in by 12 outputs mono
- ★ 8 in by 12 outputs stereo
- ★ Control-by twelve 16 position thumbwheels. One per output
- ★ Size - 5¼" x 19" rack mount
- ★ Expandable - more outputs only, no additional inputs
- ★ Remote control - 4 bit binary



### 1100A-RS

**\$995**

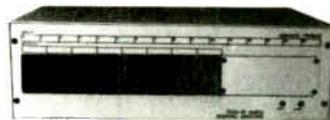
- ★ 16 in by 4 outputs stereo
- ★ Control-by four 16 position binary thumbwheels. One per output
- ★ Size - 5¼ x 9" rack mount
- ★ Expandable - yes, in and out
- ★ Remote control - 4 bit binary plus enable



### 1100B-RS

**\$1695**

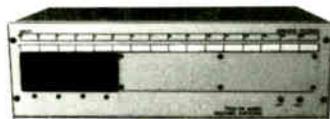
- ★ 16 in by 8 outputs stereo
- ★ Control - by eight 16 position thumbwheels. One per output.
- ★ Size - 5¼" x 19" rack mount
- ★ Expandable - yes, in and out
- ★ Remote control - 4 bit binary plus enable



### 2100A-RS

**\$1695**

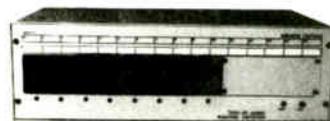
- ★ 32 in by 4 outputs stereo
- ★ Control - by four 16 position thumbwheels and four A/B select switches. One each per output
- ★ Size - 5¼" x 19" rack mount
- ★ Expandable - yes, in and out
- ★ Remote control - 4 bit binary plus enable.



### 2100B-RS

**\$3495**

- ★ 32 in by 8 outputs stereo
- ★ Control - by eight 16 position thumbwheels and eight A/B select switches. One each per output.
- ★ Size - 10½" x 19" rack mount
- ★ Remote control - 4 bit binary plus enable.



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**Ohio** . . . Really enjoyed "Shepler Says" on MOV for rural transmitters . . . having difficulties . . . with stereo generator . . . limiters at transmitter being damaged by storms.

**Missouri** . . . To Ed Duellman . . . I don't care if Dennis Patrick has 2 years or 20 years in communications . . . What I hate is the fact that there are no engineering sensitive members on the commission.

**Utah** . . . Look forward to each issue . . . have really enjoyed Memo From Metz and Shepler Says. I think Ed Duellman was born with a ground rod through his side, is there nothing he likes?

**Washington** . . . Enjoyed Metz Tower Story, part 3. Very resourceful.

**Texas** . . . Re: Ed's Crosstalk . . . FCC appointment . . . besides the commissioner chair . . . (a former broadcaster) . . . Is anyone qualified to hold the post? Re: Metz . . . last April strong winds blew thru west Texas area. Other stations reported that our tower was down and we were off the air. Our tower was safe but power poles were down. Wishful thinking maybe?

**Wisconsin** . . . Ed Duellman in Crosstalk is right about appointment of FCC Commissioner Dennis Patrick. Also the consulting firm that wants to install FM Translators for everybody at their expense may hurt the future of FM translators.

**Oklahoma** . . . Enjoyed article by Shepler about transmitter safety. Memo from Metz was good but wish a picture or two could have been included to show actual progress especially "hammering out" the FM tuning port.

**Michigan** . . . Whoopie!! Ampro is back . . . now we can get our AC-8 back in operation. Do you . . . or will you have pots and switches available? (Ed. . . . close as your phone.)

**Michigan** . . . Re: EIA selection for TV stereo . . . had the FCC done its job . . . AM stereo would . . . for better or worse . . . be two years ahead of the game. At this point . . . I think it still "iffy".

\*\*\*\*\*

SHEPLER SAYS...  
(cont. from page 6)

meter reading. Signal strength on FM won't affect audio loudness as long as both of your signals are well above the limiting threshold.

A studio receiver is an excellent tool for adjusting you audio processing. If the processing is close by, you can make adjustments and immediately tell if you are getting better or worse than your competitor. If you have a remote transmitter site, you can give someone directions over the phone, and they can adjust the processor controls while you listen to the results. This method is far faster than trying to guess the proper adjustments while listening to a small radio blasting above the transmitter noise.

Another good monitoring trick is to compare your air signal on an audition channel to raw audio on the program channel. For this to work, you need to switch the board meters from PGM to AUD so that you can match levels exactly. Otherwise, the volume difference will give you a false impression of the tonal balance. A processed signal doesn't necessarily sound exactly like raw audio, but the comparison can help you track down clipping distortion and loss of frequency response.

Other advantages of studio receivers include being able to adjust the tone controls to compensate for speaker placement, and having an independent monitor when your modulation monitors has to be repaired or recalibrated. Stations getting into AM stereo also need higher quality monitor receivers.

\*\*\*\*\*

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10½ MIN. ....	<b>\$2.40</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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MEMO FROM METZ  
(cont. from page 10)

Balanced inputs can be suppressed by using a single bead, a large size one, as a bifilar wound choke.

Broadcast Electronics designer Bill Ammons showed me this trick. Take a ¼" size bead and wind two pieces of fine magnet wire about 6 inches long through the hole. This gives you a several turn two winding transformer that makes a super RF choke. The RF impedance is very high over a wide frequency range and they are quite cheap to make. The exact size of the core and the number of turns is not critical.

Since ferrite beads are magnetic devices, you must stay within their limits of power handling capacity. If, for example, you would use the above described ferrite choke on the output of an audio power amplifier, the distortion could be as high as 15%! Be very careful when using beads in output stages. I have never had an induced distortion problem caused by ferrite beads in an input or low level audio stage yet. But I have heard some awful audio from equipment where I had tried them in the power stages where the core saturated.

Always proof your equipment both before and after you have put any RF suppression devices in its circuitry.

\*\*\*\*\*

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PART NUMBER	TYPE/USE	FREQUENCY RESPONSE <sub>2</sub>	MAX. OPER. LEVEL <sub>3</sub>	IMPEDANCE, OHMS
9K-600-2	1:1 ISOLATION	17Hz~50KHz±0.5dB	+24dBm	600:600Ω
9K-600-3	1:2 ISOLATION SPLITTING	17Hz~50KHz±0.5dB	+24dBm	Z in:600x2
9K-600-6	1:5 ISOLATION DISTRIBUTION	17Hz~50KHz±0.5dB	+24dBm	IMP IS CONFIGURATION DEPENDENT. (NOTE 4)
9K-600-2SF	LINE LEVEL OUTPUT MATCHING	20Hz~50KHz±0.4dB	+18dBm	600:600Ω
9K-600-15KP <sub>1</sub>	SHIELDED INPUT, LINE LEVEL, ISOLATION	20Hz~50KHz±0.25dB	+20dBm	600:15K(R <sub>L</sub> =27KΩ)
9K-150X2-150P <sub>1</sub>	MICROPHONE COMB 200Ω, SHIELDED	20Hz~20KHz±0.5dB	∅ LEVEL	150/200X2:150/200 Bal.
9K-300X2-15KP <sub>1</sub>	INPUT, SHIELDED, DUAL PRIMARY, SERIES-PAR.	20Hz~50KHz±0.25dB	+20dBm	300x2: 15KΩ(R <sub>L</sub> =27KΩ) (150/300/600Ω INPUT)
9K-600-2P <sub>1</sub>	1:1 LINE LEVEL SHIELDED INPUT	20Hz~20KHz±0.4dB	+18dBm	600:600Ω
9K-600-6SMT	1:5 DISTRIBUTION, SHIELDED, ISOLATION	10Hz~20KHz±0.25dB	+30dBm@10Hz	Z IN AND Z OUT IS CONFIGURATION DEPENDENT (NOTE 5)
9K-600-2SMT	1:1 MATCHING SHIELDED, ISOLATION	20Hz~20KHz±0.35dB	+26dBm	600:600Ω
9K-300X4SMT	REPLACES WESTERN ELECTRIC, 111C	20Hz~30KHz±0.5dB	+26dBm	MULTI-MATCH 150/600:150/600

1. Denotes octal base, plug-in type

2. Measured at +10dBm except 9K-150X2-150P rc:0=0.775Vrms

3. Measured @ 20Hz, except where noted.

4. Insertion loss =5dB all sec loaded 600Ω

5. Insertion loss =3dB all sec loaded 600Ω

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CROSSTALK  
(cont. from page 4)

400 may be a good buy, but it would be lousy for using for anything that requires typewriter style use of the keyboard. If you plan on using word processing program, look for a good keyboard that is layed out like a typewriter and has a good feel. Another thing to look at is the magazine rack in your favorite book store, and see if the computer you have chosen has a magazine supporting it and not one put out by the company that makes the computer. If it does, then you will have a good source of programs and input from other users. A good example of this is the word processor that this article is being written with. It came from Compute's Gazette, a magazine that supports the Commodore 64 and VIC-20. If I would have purchased a similar program, it

would have cost me about \$70.00, not bad for a \$20.00 subscription. If you choose a computer brand with a supporting magazine, look through the ads placed by software dealers. If there is a good variety, you're probably in business. Some of the well supported brands are: Commodore, Radio Shack, Apple, and IBM, to name a few. If there is no software available you have two choices, write you own or watch that pretty box collect dust.

Accessories are another important part of your choice. Does the manufacturer have what you want, and if not, will your computer function with other devices? As an example: I did not like the Commodore printer. I purchased a Star Micronics printer with a Cardprint graphic interface. This operates with the same commands as the Commodore printer and

handles friction feed and pin feed paper. It also does a better job of printing out program listings, and runs faster.

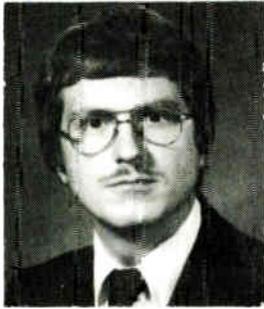
I might add here that if you have children and they will get there hands on your new toy, better get a joy stick and plan on a color monitor.

So by now you made your choice, got all the goodies hooked up, played with a few programs in the instruction book, and saved the planet Momgo, you are ready to do something useful. Well, I got one for you. How about a program to calculate an STL path? This one lets you play with all the what ifs, and even gives you the bearing and milage between points. One catch, you have to wait until next month.

73

ED K9FWR

\*\*\*\*\*



# PERSONS' POST SCRIPTS

by Mark Persons

I recently received a phone call from a station that had been off the air for a half hour that afternoon. Their remote controlled transmitter had shutdown, but they were able to turn it back on by switching to "local." Their remote control is a Gates RDC-10 and they immediately suspected problems with the transmitter end of the system. The filament/failsafe relay was not pulled in, but the "lower" relay was pulled in instead. I immediately knew what the problem was and set about to do the repair which took just fifteen seconds.

Have you caught on yet? Well, those who have worked on the RDC-10 will remember that there are two telephone pairs used to link the studio and transmitter sites of the system. One pair is for metering and the other pair for control. The metering pair is balanced and does not rely on ground to work as the control pair does. Filament On and Plate On are two levels of positive DC voltage sent, from the studio to the transmitter end, on one wire of the control pair. Earth ground is used to complete the circuit. The other wire of the pair carries Raise, Lower, and Reset commands by different voltages and polarities of DC voltage again with respect to ground.

All that was needed was to reverse the control pair at either end of the remote control system. As you might have suspected, the telephone company was at fault for the problem. A cable crew had cut over cable pairs to a new cable without first checking to see which ones might be dedicated uninterruptible service. Polarity of a telephone pair means nothing to most phone people.

If this happens to you, I recommend you check the voltages that pull in the control relays at the transmitter end of the system. If the telephone company has added or subtracted to the cable length or if they have substituted higher gauge wire, then the loop resistance will be different.

The control voltages, as seen by the relays on the transmitter end of the remote control, will be different as well. Check and adjust as necessary according to the instruction manual for the remote control.

You'll want to check the equalization of any program audio lines as well. Switching cable pairs around is bound to have an effect on their high frequency response.

"Radio Rey" Lark of Amery, Wisconsin ran into another interesting problem with the Gates RDC-10 Remote Control. The stepper switch at the transmitter end of the system would step twice for every single step at the studio end. He measured the loop resistance, then took the studio end to the transmitter and inserted a resistor to simulate the phone line. However, the system worked fine then. What could the difference be? Well, it was excessive inductance in the telephone line. An oscilloscope would show the original step pulse followed by a weaker, but very significant second pulse. You can adjust the relay sensitivity of the transmitter end of the system, but it would be better to have the telephone company cut off the excess cable pair length. You see, telephone companies do not like to upset their cable pairs any more than they have to when adding new customers. A cable pair that runs from a downtown studio, through the telephone office, and then to a transmitter at the edge of town also probably runs another ten miles out in the country. A station may be using only a small portion of the line they are connected to. The transmitter site may be just bridged onto this long long line that in turn offers a lot of inductive kickback when stepping pulses are put on it.

Newer remote control systems use audio tones in the 300 to 3 KHz range. They, of course, are not affected by polarity reversals, moderate changes in loop resistance, or high values of inductance.

\*\*\*\*\*

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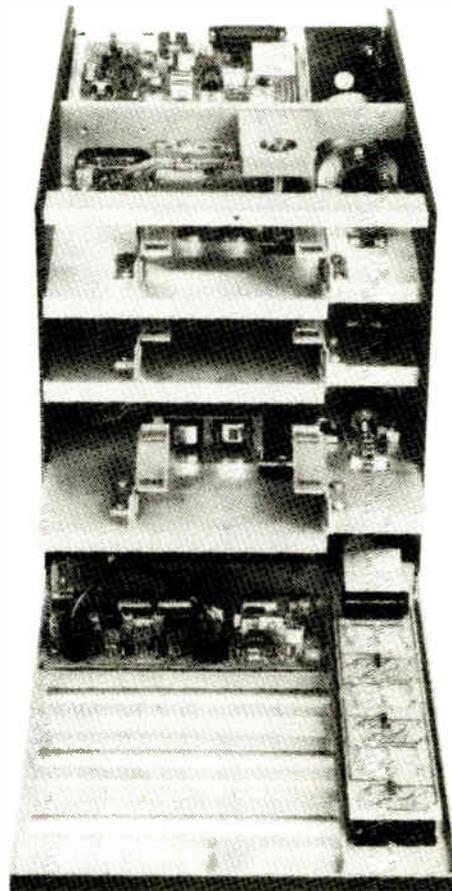
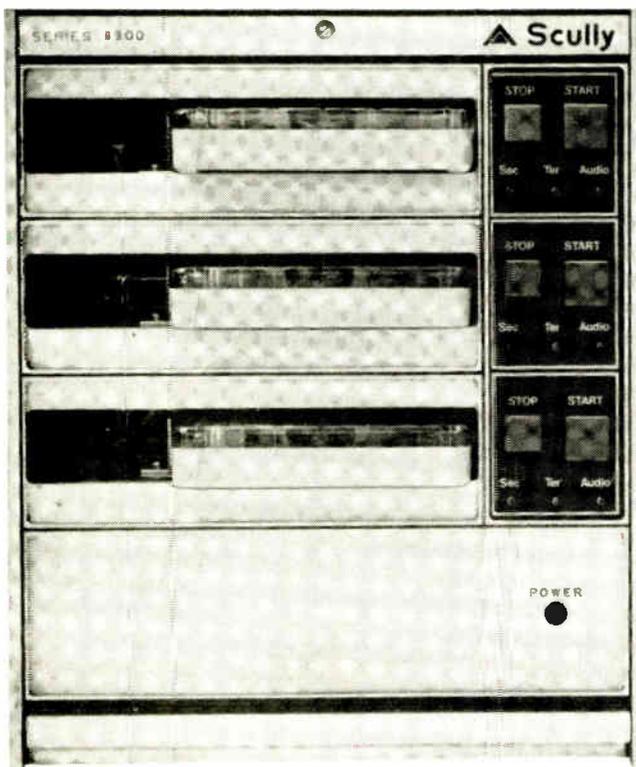
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