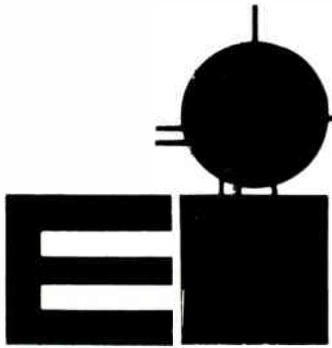


November 1984

Radio / AM radio  
c/o 9464 E. Golden West  
Tucson, AZ 85710

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# COMMON POINT®

A MONTHLY NEWSLETTER FOR BROADCASTERS

50 cents  
per copy

Out-Of-State 800-558-0222 Distributed by Electronic Industries Inc., 19 E. Irving, Oshkosh, WI 54901 In-State 800-445-0222

## THE "ICE KRACKER"™ ELIMINATES GUY LINE ICE DAMAGE

As the old saying goes, necessity is the Mother of Invention. We in the engineering world live by this clause day in and day out. The following story is evidence of that fact, and hopefully very timely. It comes to us from Jim Newbanks who is the chief engineer at WSSR, in Springfield, Illinois.

-----  
During an ice storm in Illinois on March 24, 1978, several towers collapsed and several others experienced major difficulties. Fortunately, our tower did not fall but came precariously close to that point. Ice, which had formed on the guy lines, started to melt. At a critical point, the cylinders of ice became loose and slid down the lines, loosening other pieces of ice. Some of the ice broke up but larger pieces slammed into the preformed grips and securing hardware, which released tension on the lines. The tension was maintained sufficiently so that our tower did not fall, but it was closer to disaster than I care to remember.

This situation, one in which I would not like to face again, led me to experiment. In my spare time and with the assistance of my father and his woodworking equipment, I began to make patterns for iron casting a device to protect guyline grips and associated hardware. The first series of the split cone device, which I call the

"ICE KRACKER"™, were produced and installed on the WSSR tower and the Illinois State Police tower.

The theory behind the "ICE KRACKER"™ cone is, of course, to protect sliding ice from damaging preformed grips, u-bolts and other mounting hardware by attaching one to each guy line just forward of the anchor. As large cylinders of ice slide down the guy lines, they will fracture on impact with the "ICE KRACKER"™, thus preventing this damage which could loosen the lines, causing the tower to collapse. The "ICE KRACKER"™ may also be used further up the guy lines to provide protection for the tops of buildings located under the guy lines.

The cone which is pictured on page four, weighs approximately three pounds for smaller guy wires and is, therefore, very substantial. The cone will take a severe beating and should never have to be replaced. They are hot dip galvanized and are bolted together with four bolts. The hole passing through the center of the cone has gripping nodules offset in each half of the cone. This will insure that the cone will not slip down the guy line, when the bolts are torqued properly.

The cones are being mounted on each guy line at a minimum of three feet forward of the mounting hardware. This insures that the splintering

ice will not hit the hardware below.

The "ICE KRACKER"™ is sized according to guy line diameters. Each model fits two different sizes of lines, which reduces the number of models necessary to fit guy lines up through one and one quarter inches. This project has been very rewarding to me and after three years the United States Patent office has issued me patent number 4435931. The "ICE KRACKER"™ cones are now available commercially. For further information, Jim Newbanks can be reached by calling 217-786-6516 or by writing to 273 Circle Drive, Springfield, Illinois 62703.

\*\*\*\*\*

**COMMON POINT READINGS**

- Page 6 Shepler Says...
- Page 8 Memo From Metz
- Page 10 Crosstalk... by Ed Duellman
- Page 15 Person to Persons





## 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**

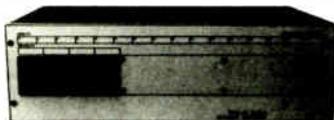
- ★ 16 in by 12 outputs mono
- ★ 8 in by 12 outputs stereo
- ★ Control-by twelve 16 position thumbwheels. One per output
- ★ Size - 5¼" x 19" rack mount
- ★ Expandable - more outputs only, no additional inputs
- ★ Remote control - 4 bit binary



#### 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**

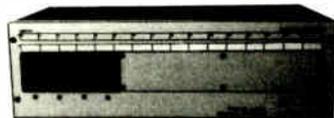
- ★ 16 in by 8 outputs stereo
- ★ Control - by eight 16 position thumbwheels. One per output.
- ★ Size - 5¼" x 19" rack mount
- ★ Expandable - yes, in and out
- ★ Remote control - 4 bit binary plus enable



#### 2100A-RS

**\$1695**

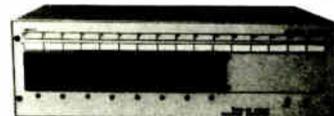
- ★ 32 in by 4 outputs stereo
- ★ Control - by four 16 position thumbwheels and four A/B select switches. One each per output
- ★ Size - 5¼" x 19" rack mount
- ★ Expandable - yes, in and out
- ★ Remote control - 4 bit binary plus enable.



#### 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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## Editor's Notebook

Here it is November already. In this area we begin to prepare for deer hunting, cold and snowy weather and the Holiday season. Of course those outside projects need to be completed by now and the inside jobs get full attention.

**RECORD . . .** a record number of broadcasters attended the Radio Convention and Programming Conference held in Los Angeles September 16-19. Slightly over 5000 found their way through the maze. Although there was confusion at times, the NAB and NRBA termed the joint adventure a success.

**12-12-7 ??? . . .** Now with the expanded rules on group ownership for radio, what will be the long term effects, who will profit and who will lose? I see very little activity by the big corporations to add on at this point anyway. Should it be 12 for T.V., too?

### HOLIDAY

**RUSH . . .** Now is the time to stock up on commercial cartridges for that Christmas advertising rush. We have plenty of both Fidelipac and Capitol Audiopak in stock ready to ship. Give us a call.



Ye Olde Editor

### ACTION . . .

FCC Mass Media Bureau Chief

James McKinney came up with an itinerary of approximately 40 items to receive attention by year end. The list which was compiled at the end of September includes the release of the final list of the new FM allotments resulting from Docket 80-90, implementation of the cable dereg. bill, and the compromise between the Association for Broadcast Engineering Standards and the Daytime Broadcasters Association on post-sunset authorizations. And on and on. Can all this be accomplished by year end? If it is, what will the bureau do come January 1985?

**OVER PROCESSED . . .** Happen to have one used Optimod 8000A in great shape. Interested? Give me a call at 1-800-558-0222.

\*\*\*\*\*

**Pre Sunrise . . . Post Sunset Powers**

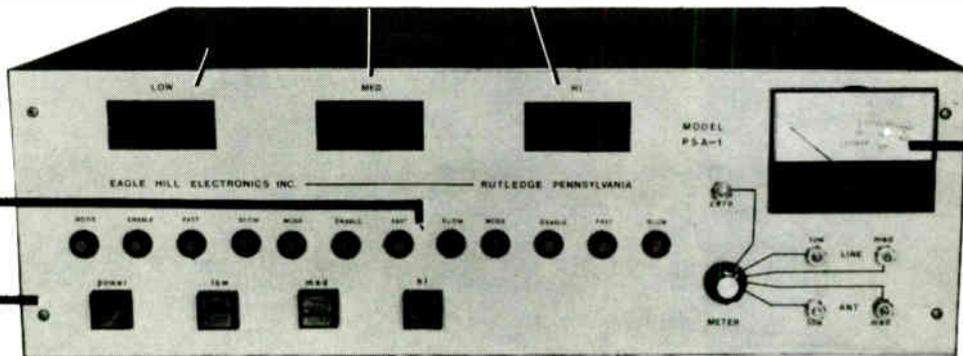
**The EAGLE HILL PSA Adaptor Switches Manual or Automatic From Pre Sunrise Power—To Regular Power—To Post Sunset Power**



**You Get . . . . .**

- 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 Hundreds Of The Best  
Broadcast Hours

**POWER CONTROL CLOCKS**



**CLOCK  
ADJUSTMENTS**

**MANUAL  
CONTROLS**

**ABSOLUTE  
POWER  
METER**

- |              |   |                   |
|--------------|---|-------------------|
| <b>PSA-1</b> | 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..... | <b>\$3,995.00</b> |
| <b>PSA-2</b> | Same as PSA-1 except controls are set up to work push button or through station Remote Control System.....  | <b>\$2,995.00</b> |
| <b>PSA-3</b> | Single manual cutback to power levels below that available on transmitter. Can be set up to work through Remote Control System.....   | <b>\$1,695.00</b> |

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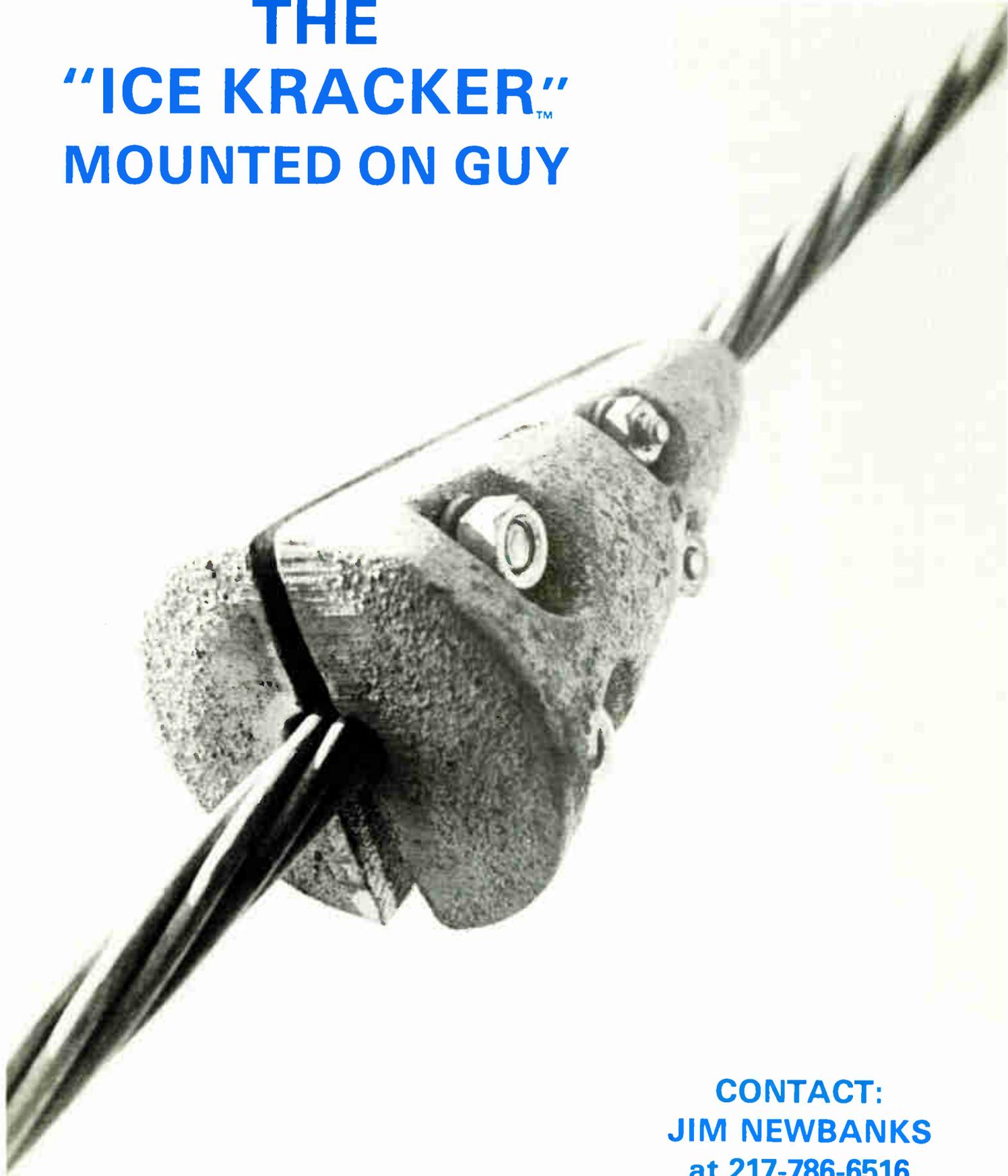
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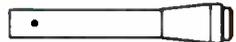
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# THE "ICE KRACKER" MOUNTED ON GUY



**CONTACT:  
JIM NEWBANKS  
at 217-786-6516**

# ELECTRONIC INDUSTRIES IS YOUR HEADQUARTERS FOR ELECTRO-VOICE PROFESSIONAL MICROPHONES

 <p><b>RE18</b> Shock-mounted Variable-D® Cardioid</p> <p style="text-align: right;"><b>\$199.00</b></p>	 <p><b>RE20</b> Variable-D® Cardioid</p> <p style="text-align: right;"><b>\$349.00</b></p>
 <p><b>RE30</b> Omnidirectional Line/Mike Level Condenser</p> <p style="text-align: right;"><b>\$276.00</b></p>	 <p><b>RE34</b> Cardioid Line/Mike Level Condenser</p> <p style="text-align: right;"><b>\$276.00</b></p>
 <p><b>RE50</b> Omnidirectional Noiseless, Hand-held</p> <p style="text-align: right;"><b>\$108.00</b></p>	 <p><b>RE55</b> Omnidirectional</p> <p style="text-align: right;"><b>\$179.00</b></p>
 <p><b>RE85</b> Noiseless Lavalier</p> <p style="text-align: right;"><b>\$109.00</b></p>	 <p><b>635A</b> Omnidirectional</p> <p style="text-align: right;"><b>\$69.88</b></p>
<b>PROFESSIONAL CONDENSER MICROPHONE SYSTEMS</b>	
 <p><b>CO15P</b> Omnidirectional System</p> <p style="text-align: right;"><b>\$204.00</b></p>	 <p><b>CS15P</b> Single-D Cardioid System</p> <p style="text-align: right;"><b>\$190.00</b></p>
<p><b>C090</b> Tie Clasp Omnidirectional Lavalier <b>\$114.00</b></p> <p><b>C090E</b> Tie Clasp Omnidirectional mike capsule and cable <b>\$69.00</b></p> <p><b>C090P</b> Tie Clasp Omnidirectional Lavalier <b>\$126.00</b></p>	 <p><b>C094</b> High-output Tie Clasp Omnidirectional Lavalier <b>\$165.00</b></p>
<b>PROFESSIONAL CONDENSER MICROPHONE COMPONENTS</b>	
<p><b>CO15E</b> Omnidirectional mike capsule w/315A windscreen <b>\$83.00</b></p> <p><b>CS15E</b> Single-D cardioid mike capsule w/315A windscreen <b>\$65.00</b></p>	 <p><b>CO15E</b>      <b>CS15E</b></p>  <p><b>PE15A</b> Electronic preamp for use with CO15E and CS15E mike capsules <b>\$128.00</b></p>

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Common Point/November 1984  
Page 5

# Shepler Says.



by John Q. Shepler  
Technical Consultant

## THE TWO-FISTED TROUBLESHOOTER

Computer circuits can be pretty nasty to troubleshoot. I found out just how nasty while trying to get a pair of disc drives up and running. The operating system would load just fine when you pushed the reset button, but loading and saving files was another matter. About half the time, the process would hang up and the drive would just sit there with its LED on.

The next few hours were spent with the system in pieces on the workbench. The disc interface is a 12" square circuit board shared with extra memory and other circuits. Most of the chips are soldered in place.

Thinking myself a clever troubleshooter, I collected schematics and spec sheets for the chips and wheeled over a scope. Sure enough, hours later I determined that most of the functions relating to the 1771 disc controller were just as they were supposed to be. However, sometimes data was coming from the chip and sometimes it wasn't. Ok, is the \$20 controller chip bad or could it be one of the many smaller parts? What about the operating system disc? How about those drives? Why did the silly thing work better while kludged up on the work bench?

I was running low on both ideas and patience, so in frustration I grabbed a good sized hair dryer and a can of freeze spray and attacked the interface board. In about 3 minutes this low-tech test equipment gave me the answer that eluded hours of scope probing.

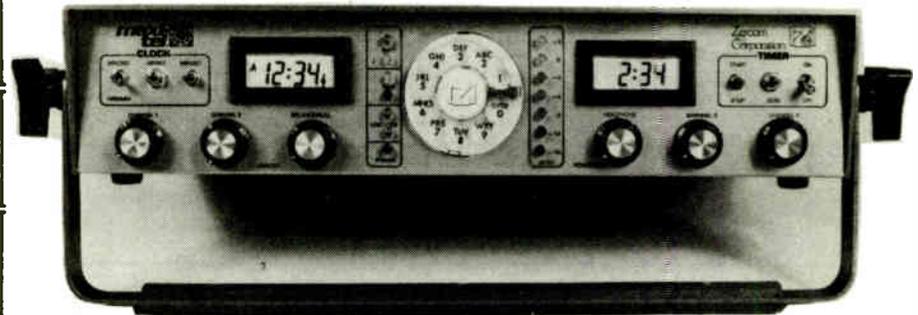
Yup, it was the controller chip. The freeze spray did nothing, but when the heat from the dryer hit the controller for a few seconds, the drives would suddenly hang up. When I

(cont. on page 11)

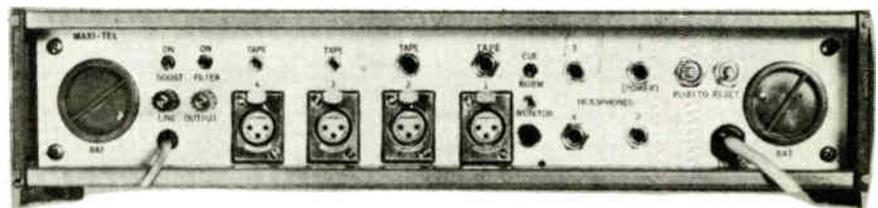
# NOW IS THE TIME TO TRADE UP TO

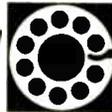
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by  
**zercom**



- Up to four microphones to allow you to accommodate every situation.
- Up to four tape inputs, both miniature and standard jacks to fit any tape system that you may want to use in the field.
- A monitor input so you can monitor off air along with your program output.
- Built in telephone complete with a dial that works with your standard headphone and microphones.
- 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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# LIVE ASSIST...THE BEST OF TWO WORLDS

Manufactured By:

**M. W. PERSONS AND ASSOCIATES**

**Use reel to reel music tapes in a live radio format with the Programmer 3A Live Assist Controller.**



**\$990<sup>00</sup>**

The Programmer 3A is the latest in a series of highly successful "Live Assist" radio music programming aids. The Programmer 3A allows stations to take advantage of music formats which have been recorded on reel to reel tape for automation systems. Up to four reel to reel tape decks can be controlled by the Programmer 3A.

**Audio:** New conductive plastic stereo level controls resistively sum audio from each source. Optoisolators silently gate audio on and off for each source as it is used. Outputs can be wired mono or stereo directly to program and cue buses of a studio console eliminating the need for additional console inputs.

**Memory:** A memory circuit allows the operator to select the music deck he will play next by touching the "next play" button for that deck. That button and the "common next play" button will light. [See center bottom button in photograph.] The system then stands ready. When the operator has finished running his commercials, weather, etc., he pushes the common play button and the selected deck starts. He does not have to remember which deck is next, the Programmer 3A does it for him.

**Auto:** The auto "One-Step" switch allows the Programmer 3A to segue to the next preset deck automatically.

**Timer:** The minutes/seconds timer resets to zero and starts counting up each time a deck is started. This allows the announcer to talk over an instrumental intro on a song right up to the vocal portion.

**Logic:** White lights tell the operator which deck is playing and amber lights tell the operator when a 25Hz cue tone is coming across during the last second of a song. The operator can start speaking with confidence when he sees the amber light knowing, for certain, that the song is ending.

***THE PROGRAMMER 3A...FOR THE BEST OF TWO WORLDS***

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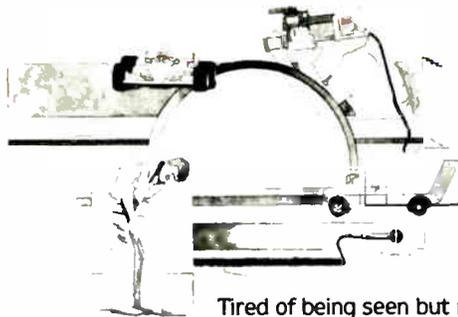
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Page 7

# MARTI

## RPT 2 Broadcast Quality Continuous Duty RPT 15 Portable Transmitter



Tired of being seen but not heard?

Many of today's live news and sports remotes present problems that call for new technology. MARTI has that technology, and it's available to television and radio broadcasters today.

We have developed a new generation of broadcast quality, continuous duty equipment that integrates into a high performance system of hand carried portables, mobile repeaters, fixed automatic repeaters, and base transceivers.



### HAND-CARRIED PORTABLE Model RPT2 Transmitter 2.5 watts continuous output

The RPT-2 has these additional features:

- ★ 3-way power option
- ★ Internal ni-cad battery
- ★ Internal charger and AC supply

### PORTABLE - MOBILE Model RPT15 Transmitter

15 watts  
continuous  
output



Both units have the following features:

- ★ Type accepted on all VHF-UHF RPU channels
- ★ Dual frequency provision
- ★ Sub-audible encoder
- ★ Built-in metering
- ★ FM Compressor-Limiter
- ★ Mixing mic and line inputs

The RPT-15 has been specifically designed for portable, mobile and Airborne remote broadcast service.

	Single Freq.	Dual Freq.
RPT 2 w/battery	\$855	\$885
RPT 15	\$895	\$925

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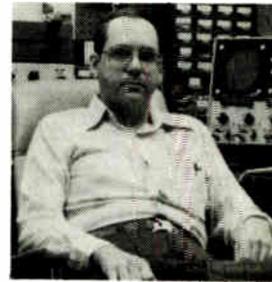
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## MEMO FROM METZ



by  
David L. Metz

### MORE TOWER MAINTENANCE, FM PROBLEMS

Leo Deters, owner of Deters Tower Service, told me of several trouble calls that went sort of like this: First, the station would call in a panic because the transmitter plate overload had tripped and now it wouldn't go back on the air. Upon arrival they would find pieces of FM transmitting bay laying at the base of the tower or maybe a hundred feet of coax burned off.

How could something like this happen? In every case there was no VSWR overload trip on the transmitter. Or in cases where there was one, it was shut off!! WHY? Well, at some stations management felt that the optional VSWR trip was a waste of money (I wonder if they still feel that way). Or since they fired the engineer no one knew what the trip circuit did, so they shut it off to keep the transmitter on the air.

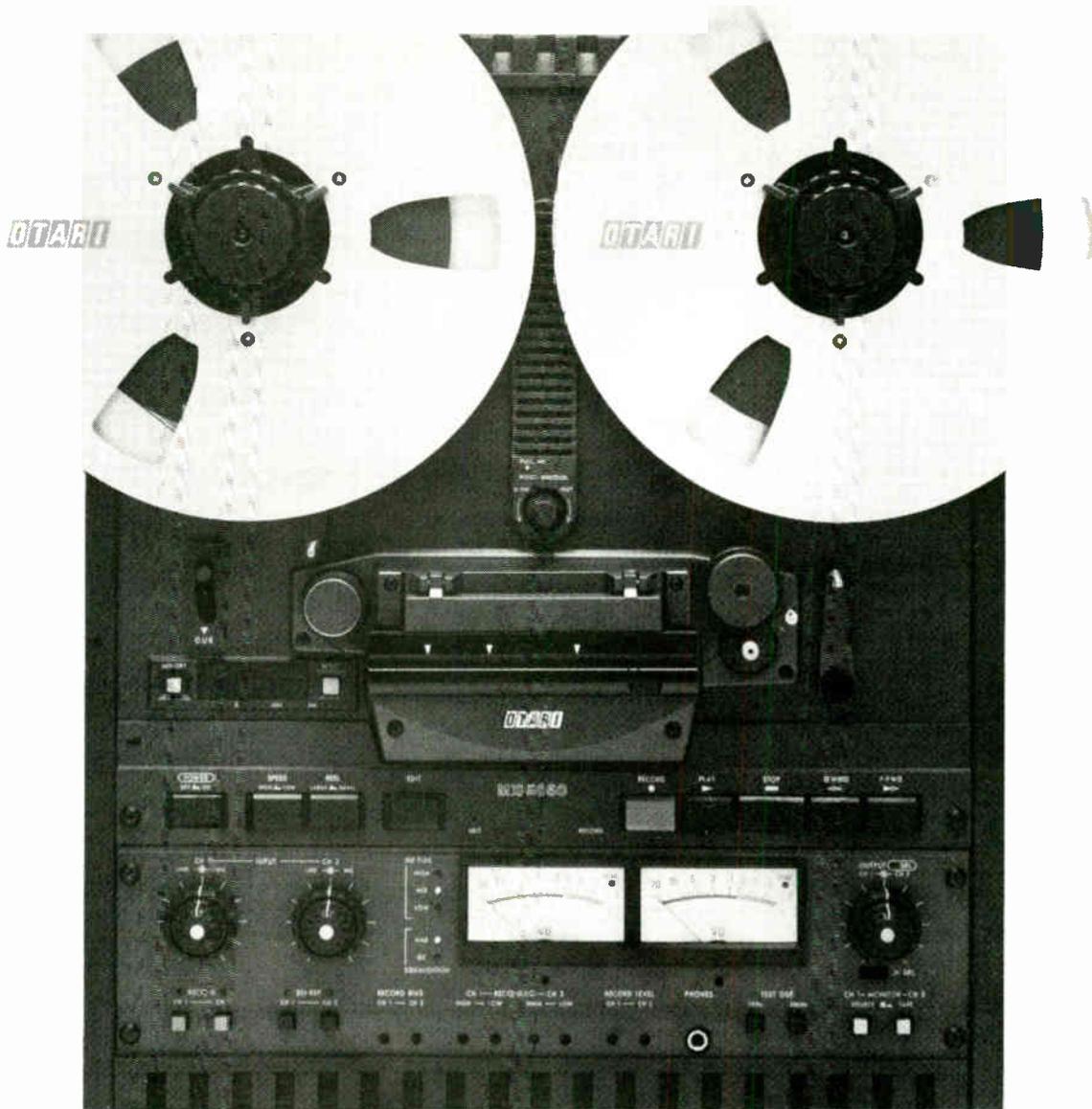
Most of the serious VSWR problems occur in the winter when radomes and deicers fail. The best policy is to have the air staff check the VSWR every hour when they read the meters. This requires some training of the staff. They have to understand how important this test is to their job. You'll have to motivate them to actually read those meters, not just copy down the last shifts readings.

Discuss this problem with your transmitter and antenna manufacturer and post instructions on at what point and how far power is to be reduced. Better to lose a little coverage for a few days than to be off the air completely.

(cont. on page 13)

**OTARI**

# 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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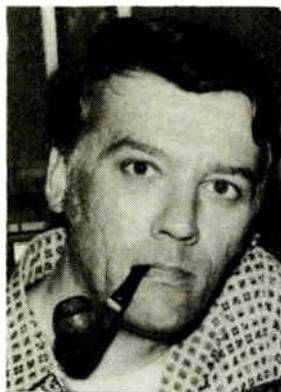
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# Crosstalk...



by ED  
DUELLMAN

OK . . . I opened my big mouth, and you held me to it. You shall get what you wanted . . . the how-to-do-it home satellite receiver. Thank you all very much for great letters. When you get mail like that, it makes it a lot easier to put together this piece of literary art. If all goes well, the construction article will start in the January 1985 issue. Just like my heroes, the Cubs, will do it next year. The reason for the delay is that I doubt is that I doubt that the receiver could be duplicated by most, as the one you saw in *Common Point* was built out of my junk box and mine is bigger than most. If you have a good sized junk box, the receiver can be built for probably less than \$50.00! If I recall correctly, I have about \$14.00 in mine as you saw it, that was what I paid for the UHF tuner that is used in it. I have started building a copy of the receiver using commonly available parts.

A good place to start this whole thing is at the beginning and that is at the dish. The dish you can buy, build or scrounge a surplus job. The LNA is next. Let me address this LNA right off the bat . . . unless you have some experience in microwave and the patience of a saint, don't bother trying to build one. I did that trick twice and there ain't going to be a third. I bought two Drake 85 degree jobs for \$195.00 each. The measured noise figure for the second homebrew job was 115 degrees K. If you insist on doing it all yourself, let me refer you to a good article on how to do it . . . in the February 1982 issue of 73 magazine is an article titled Jobs own LNA and should be available at your library. I have not built that one, so I don't know how well it works. The one I built used four MGF1412 FET's, was built on glass Teflon circuit board and put in a machined aluminum box.

The next step in the chain is the downconverter. Here again you can build or buy. I have both a store bought job and a homebrew. The

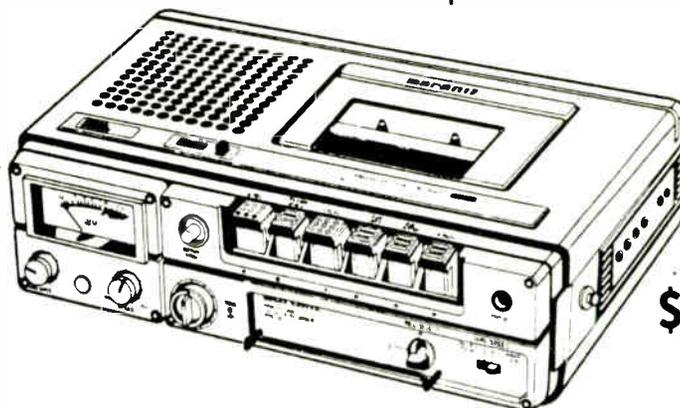
(cont. on page 14)

## marantz®

### PMD-200 PORTABLE TWO-SPEED CASSETTE RECORDER

Two Speeds 1 7/8 and 15/16 IPS

- One Touch Record
- Cue and Review
- PA/Play Mix
- Vari-Speed Pitch Control
- Record Level/Battery Strength Meter
- Auto/Manual/Limiter Record Level
- 4-Way Powering
- Volume and Tone Control
- Dual Flywheel Design
- Auxiliary Input
- External Speaker Output
- Line Out
- External Microphone Input
- Built-in Electret Condenser Microphone
- Total Mechanism Shutoff
- Impact Resistant Lexan™ Case



\$169.95

### PMD-220 DELUXE PORTABLE TWO-SPEED CASSETTE RECORDER

Two Speeds 1 7/8 IPS and 15/16 IPS

- One Touch Record
- Memory Rewind and Replay
- Cue and Review
- Separate Tape Bias and Equalization Switch
- Vari-Speed Pitch Control
- Ambient Noise Control
- Record Level/Battery Strength Meter
- Auto/Manual/Limiter Record Level
- 4-Way Power
- Tape Monitor
- Dual Flywheel Mechanism
- Total Mechanism Shutoff
- Automatic Mic/Line Switching
- Volume and Tone Control
- Built-in Electret Condenser Microphone
- Tape Counter
- Headphone Jack
- External Speaker Jack
- External Telephone Pickup Jack
- Impact Resistant Lexan™ Case



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

started freeze spraying the various parts, the drives would instantly start working as the controller cooled. That explains why the interface worked better when removed from the heat retaining confines of its cabinet.

The point is that some problems are too complicated to be analyzed in a reasonable time. This certainly applies to complex LSI chips that form the heart of many computer systems. Unless you have spare parts or a board tester, it's hard to know for sure which part is bad. A scope and logic probe can take you just so far.

The hot/cold stress test is a valid troubleshooting technique. It works especially well on problems that are intermittent. You can even buy heat guns that will heat up only one chip at a time and can also be used with heat-shrink tubing.

Next time you have a troubleshooting problem that defies solution, try the two fist stress test. If the hot/cold cycle fails, maybe a good rap to the side of the cabinet will get things working.

\*\*\*\*\*



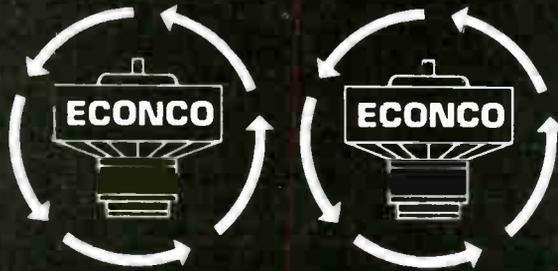
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# TALKBACK

**MINNESOTA** . . . I couldn't agree more with Ed about music licensing. We not only pay the fees but end up buying a lot of our records. That's a double slap in the face.

**TEXAS** . . . Like another Texas reader, would also like to see tips on building audio switchers. Keep up the great work.

**ILLINOIS** . . . Good troubleshooting on SCR problem from Persons. It's the little things that help us all. Thanks . . .

**NEBRASKA** . . . Appreciated the article on lightning. Also Persons comments on hot fuses.

**IDAHO** . . . What in the world has happened to manufacturers and suppliers? Any order for anything takes a minimum of two weeks or more. Shipments are seldom on time as promised, many are backordered and some are incomplete. When the manufacturer says "if you don't like the service, cancel the order", they are no credit to the broadcast industry. Too bad there is so little competition in these areas. Even so, there is no excuse for such an attitude.

**LOUISIANA** . . . Many people may find difficulty in running Ed Duellman's Commodore 64 STL program; if line 195 is changed to OPEN 4, and all print #3 control commands are changed to PRINT #4 (lines 196 thru 300) and line 381 is changed to PRINT #4,; CLOSE the program should run.

**WISCONSIN** . . . Especially enjoyed the Memo from Metz on transmission line maintenance. When we installed our tower we did not leave any extra coax on it. When our base insulator collapsed, the coax prevented it from going off the base. This could have caused an entire antenna collapse.

**NEBRASKA** . . . Duellman was RIGHT On about both BMI-ASCAP and AM STEREO promotion! Persons fuses item something I wish I'd know about a few years back but have learned in the mean time.

\*\*\*\*\*

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MEMO FROM METZ  
(cont. from page 8)

My present transmitter at KFMH has two VSWR indicators. One is the standard reflectometer/relative power output meter found on all FM transmitters. The other is a BIRD 460 in line directional wattmeter. The Bird is mounted on the output side of the harmonic filter. Note that the transmitter meter is not calibrated to anything. It's "relative". The Bird provides absolute calibration for the entire system. Bird also manufactures a VSWR/low power alarm panel that can be used to shut down the transmitter.

Radomes are another interesting problem area. In one recent case this winter ice falling from the top of a tall tower struck a FM radome located at a lower level. The radome bent downward and the elements of the antenna inside were broken off. To prevent this from occurring again a piece of insulating plastic rope was strung between the tower and the outer edge of the radome to support it.

In another case the radomes were defectively made and FM RF burned holes in them. The problem appears to be part of this antennas design. The radome was so small that arcing occurred between the antenna and the radome. The only cure was to take off the radomes or replace the antennas with ones that had heaters.

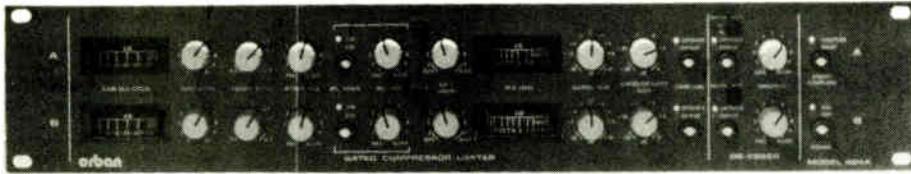
Note that there is a difference between a heater and a deicer. A deicer can generate enough heat to melt ice that has already formed off an antenna. All a heater can do is keep the antenna warm enough to prevent the formation of ice. Thus heaters must be turned on before the icing starts. Sounds like a job for a crystal ball to me.

What it all builds down to is this. There is no "cheap" way to build an antenna system. You either do it right the first time or get eaten up alive by repairs and lost air time.

\*\*\*\*\*

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CROSSTALK...(cont. from page 10)

homebrew works better, but it costs more to build. You will get the information to build one and the sources for the parts so you can take your choice. The store-bought downconverter is available from Anderson Scientific, Inc., Rapid City, South Dakota, phone 605-341-3781. The cost is around \$75.00. What the downconverter does is convert the 3720MHz to 4180MHz band down to 450MHz to 950MHz band that can be brought into the house with RG-6 coax cable, beats the heck out of using large expensive stuff. I have built an inexpensive downconverter using a diode mixer and an MRF901 transistor for the oscillator on FR-4 epoxy board and it worked, but with large temperature changes it drifted too much. Let me tell you that you can tolerate a lot of drift at these bandwidths, but this sucker headed for the next county with a 30 degree temp change.

Now that we got the whole satellite band into the house with a signal at a frequency that can be handled with more conventional means the rest is a piece of cake. What is to be described next is the receiver. The front end of this gizzmo is a surplus UHF tuner. The one I use is an Amnec EPU-202 and is available from Accessory Specialties, P. O. Box 486, Hawthorne, CA 90250, currently priced at \$12.95. The tuner is modified slightly and has a broadband transformer output. From here we go into an IF amp, a 70MHz bandpass filter, and two more stages of IF amplification. Now keep in mind that the TV signal you are dealing with is about 30MHz wide FM. The signal is now amplified and at 70MHz, and that feeds a MC10231 high speed flip-flop that divides the signal in half (35MHz) where an NE564 PLL demodulates the signal and gets you down to baseband video. Simple, huh? An emitter follower stage comes after the NE564 and this is the take off point for the audio demodulator and AFC. Next into a simple LC filter, a video amp and bingo, video you can feed into your VCR or separate RF modulator and onto your TV. The audio demod is nothing more than a TRF FM receiver that tunes 5 to 8 MHz.

There is a tad more to it than that and all will be covered in detail as the construction article progresses. The receiver itself is quite easy to build and can be put together on pre-punched plug-in boards from Radio Shack or you can make your own PC boards, as I hope to include actual size board layouts. Maybe next fall you can watch the Cubs win the World Series on your own satellite system. Right, Harry?

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

# Person to Persons

Letter to Mark Persons from:  
Howard E. Potts, C.E. of WNXT  
Postsmouth, Ohio.

Mark:

I would first like to compliment you on your column in *Common Point*, you relate a lot of hands-on practical ideas.

With reference to your July article and your meeting with the local constables . . . No, I have never been stopped by the police although I've been in this radio engineering business since 1958 and travel over a 100 miles radius, as you know, working all hours of the day and night.

I take a few precautionary steps to help prevent this from happening. If I am working in some location other than WNXT during off hours or on the weekends, I call the police, sheriff, whatever and advise them of the details. I make that call during the shift in which I will be working, to make sure that the right people get the message. For example, if I am running an audio proof in a station 30 miles away between the hours of midnite and 5 a.m., I will call the department at about 12:30 a.m. and give them the full details, including departure time. I make a note of the name of the officer who took my call and the time. This system has never failed me.

My son is a sargent on the local department and has been in law enforcement 10 years. Holding a masters degree in criminology he suggested I pass along a few additional tips.

1. Have all papers, such as drivers license, automobile registration and owner certificates readily available. Sometimes a business card comes in handy.

2. Have all of your equipment marked, in an out-of-the-way, hard-to-get-to-place. You could always

use your social security number.

3. Always treat the officers respectfully. Theirs is sometimes a difficult and nonrewarding job. Frustration is a part of their everyday routine. Sometimes, even before the paper work is finished, the criminals they do arrest are out on bond. In your case, imagine what could have happened if you would have been a thief and they would not have stopped.

4. A sign on your car, even a temporary sign, would help.

5. Make a point of knowing personally, a police supervisor in your home town. If you do get stopped, you would be able to use that supervisor's name. Suggest to the officer that detained you to call this person to vouch for your character, and the nature of your business.

It certainly helps to know as many of the officers in your immediate coverage area as possible. I know approximately 80 officers in the county I do most of my work in. Still, if I am scheduled in a different place, I call them.

Just recently I installed a large intercom system in a five story hardware store in Portsmouth over a period of several evenings. I made a point of calling each evening, because I knew that if they saw light or someone moving around after closing, suspicion would run high.

Hopefully some of the suggestions will help you and others in the future.

Best regards,

Howard E. Potts

\*\*\*\*\*

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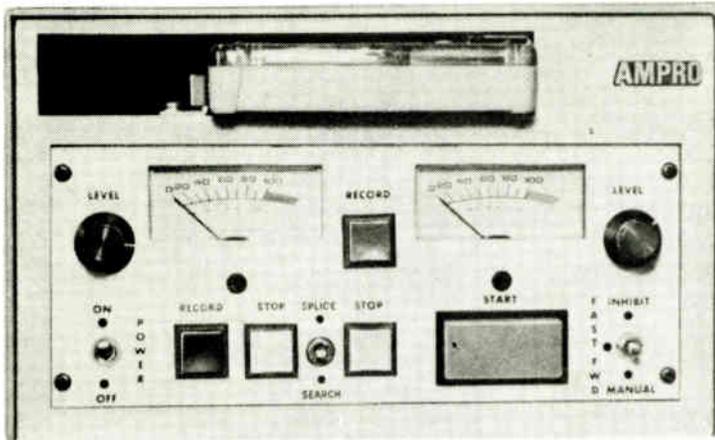
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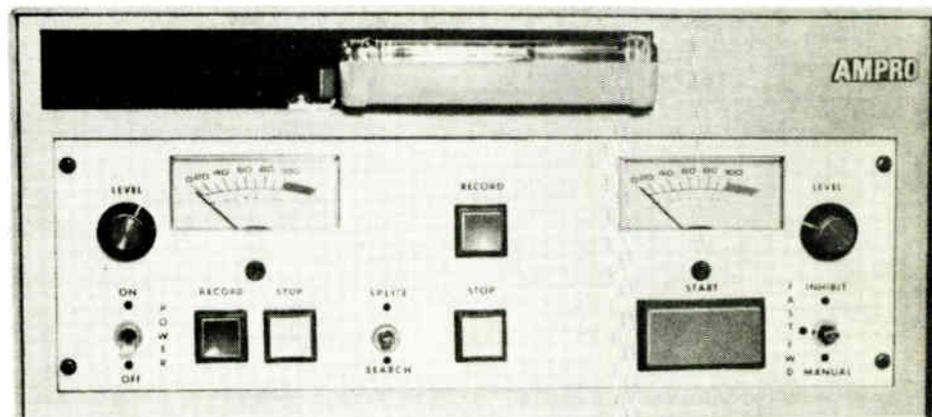
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