

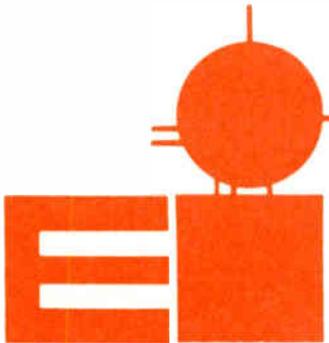
October 1981

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A MONTHLY NEWSLETTER FOR BROADCASTERS

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TWO MAJOR BROADCASTER CLINICS FOR OCTOBER —

BROADCASTERS CLINIC
MADISON, WIS. -- PAGE 1

TRI-STATE SBE CONVENTION
INDIANAPOLIS, IND. -- PAGE 4

UNIVERSITY OF WISCONSIN - 27th ANNUAL COMMUNICATIONS PROGRAM

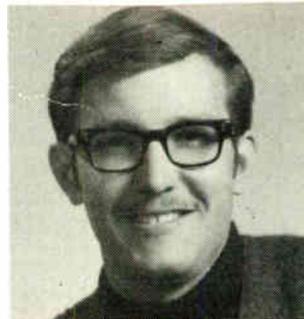
Starting October 13th, the University of Wisconsin-Extension Communication Program gets underway in Madison, Wisconsin, again with an agenda that will draw hundreds of broadcasters from throughout the midwest. Over the past 27 years the clinic has been the Fall focal point for engineers meeting on the University of Wisconsin campus. Because of its ever increasing popularity, this year's Broadcasters Clinic has outgrown the available room on campus, causing

(cont. on page 9)



Sheraton Hotel - Madison, Wis.

ENGINEERING — NOT A NECESSARY EVIL!



by Doug C. McDonell
Engineering Consultant

COMMON POINT. READINGS

- *Engineering -- Not a Necessary Evil by Doug McDonell Page 1
- *The Mastercard II by Art Constantine Page 2
- *Audio Consoles (Part II) by Mark Persons Page 3
- *NRBA -- Don't Count The Lilies Yet by Abe Voren (Letter to Editor) Page 4
- *ABES -- Who, What, Why by Wallace Johnson Page 5
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- *CP Winner Page 2



I noted with great interest Mark Persons' comments in the June issue of **Common Point** and could only sympathize with his stated position and the position of many small market broadcasters. I have known Mark for years and recognize his abilities and the tremendous pressures he is under. Having a large number of station that rely on your ability and relative "closeness" in a tough situation can be a very taxing situation that only leads to a bit of frustration and a lot of sleepless nights.

As an Engineering Consultant dealing mostly with the
(cont. on page 15)

MASTER CART II

-- FIRST, A LITTLE HISTORY --

In 1975, FIDELIPAC introduced the Master Cart Tape Cartridge. As a stereo phased cartridge, it was innovative and unique due to its neutral method of handling tape.

At that time, after 19 years of cartridge design research, FIDELIPAC engineers were convinced that precise tape positioning, at the critical front area of the cartridge, could best be controlled not by the cartridge, but by the cartridge machine. Examine any other well used cartridge and you can observe wear patterns caused by the sharp and abrasive edge of the tape cutting into the front corner post top and/or bottom cartridge tape limit. In light of the requirements for consistent cartridge stereo phase uniformity, FIDELIPAC decided that plastic cartridge elements can not provide long term precision tape control.

The Master Cart was designed to present the tape to the cartridge machine in a neutral, unstressed attitude so that the tape guides in the machine could support and guide the tape. Since machine guides are (with few exceptions) made of metal and are (with a few more exceptions) capable of being accurately set to precise NAB standardized positions, the idea worked. Minor variations in plastic cartridge molding and unavoidable variations due to cartridge wear were reduced to negligible limits or eliminated entirely as engineers utilized test tapes and gauges available from FIDELIPAC and carefully adjusted their machines to provide the tape controlling accuracy that no cartridge could deliver.

-- ONWARD INTO THE PAST --

The FIDELIPAC Model 350 Cartridge, introduced in 1971, has an adjustable front corner post containing a brass tape guide which is tuneable to provide extremely precise tape positioning. Although a number of engineers still contend that it is the best cartridge ever made, it is still necessary for someone at the station to adjust the screw.

-- THE ULTIMATE TAPE CARTRIDGE --

On approximately 15 October, Master Cart II will be available. As a descendant of the original Master Cart, Master Cart II has all of its advantages and none of its idiosyncrasies. Master Cart, because of its requirement for close guidance from the cartridge machine, often was unuseable in machines with poor or minimal cart guidance. Because of Master Cart's dependence on a carefully adjusted and maintained machine, many broadcasters with older machines or machines with inadequate tape guidance were unable to enjoy the benefits of Master Cart.

With the introduction of Master Cart II, FIDELIPAC offers a cartridge that will work in any machine--including multiple slot automation devices--while

(cont. on page 17)

Editor's Notebook

The month of October is always a favorite for broadcast time sales . . . getting those Christmas schedules lined up and copy written. Station engineers, or whatever you call them, are staying pretty close, knowing everything has to be working just right.

TWO MAJOR EVENTS are scheduled for this month here in the mid west. The new Tri-State SBE Convention in Indianapolis is slated for October 7 & 8, and of course, the grandfather of all conventions, the University of Wisconsin Extension Communications Program gets underway on October 13th. You make the choice . . . but do plan to attend.

VOTE OF CONFIDENCE . . . the monthly FCC vote of confidence still shows the commission in deep trouble with 63% of those answering, voting "no confidence". If the FCC was considered the executive branch of a broadcast bureau to which all stations were members, it appears Mr. Fowler

and his people would be back on the street already. Maybe it's just as well it isn't that way . . . think of the unemployment insurance you would have to pay.

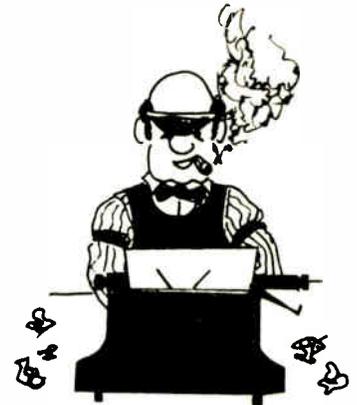
Common Point Winner . . . turns out to be radio station KTOQ located in Rapid City, South Dakota. Remember, there is no obligation to buy. The winner is chosen from those stations who return their acknowledgement cards.

Talkback . . . is growing in popularity each month as time goes on. We've increased its size to a full page now and we still have a back log of opinions. We try to take a cross section of opinions from different states. We identify those responding only by state, so let's hear your opinion.

The Radio World . . . a newspaper that is also growing in popularity has picked up on the "Hotline" idea. They've been running full page ads the last couple of months, and I wish Steve Dana and his crew every success. It may be a little slow starting but I do think it's a good idea.

Attention Wisconsin . . . we have been informed that the FCC plans social calls on 48 stations before renewal time. Make sure your public file is in good shape (see 73:25:36 of the rules). Check for things like your application . . . ownership . . . procedure manual. Be sure documentation goes all the way back to the year 1965. It can be a royal pain especially during this busy time in the year but it's better than having to pay a fine.

TWO ABES?? Not really. One for real -- another only suggested by Mark Persons. See info on Wally Johnson's ABES on page 5.

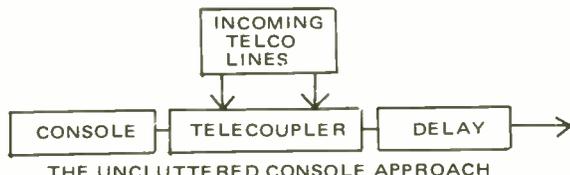


YE OLDE EDITOR

YOU TAKE THE CALLS . . . TELECOUPLER HAS THE ANSWER!



The Telecoupler is designed to interface the telephone to an audio console during two-way conversation such as telephone interviews, telephone talk shows or "on-the-spot" news coverage.



- * Cost effective - facilitates high quality telephone news interviews
- * Hands off after initial setup.
- * Makes possible high quality transmission of telephone material while causing NO degradation to normal programming.
- * Optimum intelligence made possible by equalization of telephone audio.
- * No additional inputs are required on the console, thus relieving the usual overcrowding of console inputs.
- * There is no possibility of audio feedback and coloration due to hybrid circuits.
- * An accessory may be added to allow two-way "on-the-scene" communication to remote transceiver in lieu of phone line (Eng. interface).
- * By simple connection outside the audio console the Telecoupler is in operation.
- * On telephone remotes it removes the need for a second telephone for communications by feeding Program material back down the line during Commercial Breaks.
- * Removes necessity for headsets on Television Call-in talk shows.
- * RF proofed for greater reliability.
- * Status Lites to indicate condition of phone line.
- * Makes possible "Shouting Match" conversation on the air.
- * May be used in teleconference applications (closed circuit, Two-way - TV)
- * May even be used without an audio console to perform high quality news telephone interviews.
- * Reasonably priced at **\$895⁰⁰**

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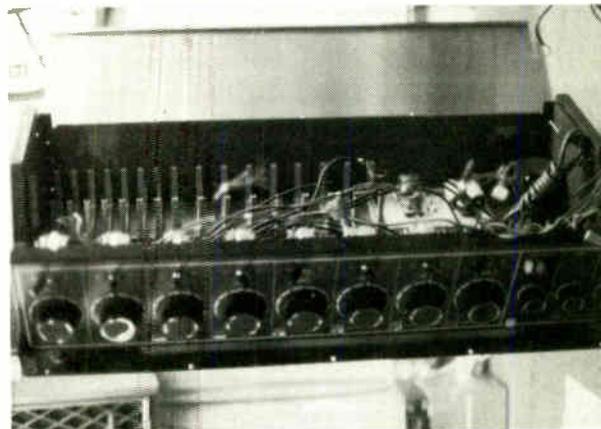
PERSONS' POST SCRIPTS

by Mark Persons

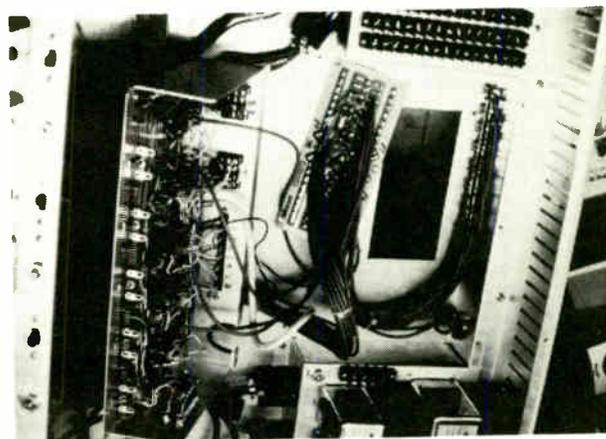
AUDIO CONSOLES (Part II)

Last month we talked about what can be done to modify new or used audio consoles to make them more operator oriented for each application.

This month's photo #1 shows a new BE 8S250 console with the top portion of its front panel removed and one third of its wiring disconnected. Photo #2 shows the audition and program amplifiers lifted back on the inside of an Autogram AC-8 console and additional wiring run to its program buses. That wiring allowed mono sources to be run thru a stereo synthesiser before they mixed with the stereo sources for airing. Note the next wiring.



BE8S250 CONSOLE



AUTOGRAM AC-8 CONSOLE

Before any modifications are made, we should visually inspect the console wiring for any signs of broken (cont. on page 10)

Letters to the Editor



The Editor
Common Point

Dear Editor:

The report of our demise is greatly exaggerated.

Don't buy the lilies just yet.

Your August issue predicts the possible demise of NRBA because of the growth of NAB's Programming Conference. I can only assume you got tangled-up in your rhetoric because you surely do not believe that NRBA's existence depends on one annual convention. We are a full service radio trade association serving 1800 members every day of the year. Our convention is competitive enough to stand on its own but our convention is only one small part of NRBA's multitude of activities. Not that we expect any diminution of our convention which grows larger each year. By tying the fate of our flourishing organization to a once-a-year meeting is pretty faulty logic. Or is it wishful thinking.

You may be interested to know that the association you so hastily relegate to a state of "demise" increased its membership by 50% during the past 18 months . . . and the pace is picking-up.

I suspect that NRBA will be around when **Common Point** is only a faint memory.

Sincerely,
Abe J. Voron
Executive Vice President
NRBA

Gentlemen,

I have just received a copy of the July 1981 issue of **Common Point**.

In the issue are two references to A.B.E.S. One is an article entitled "A.B.E.S. Fire Departments — No Answer For Broadcasting". The other reference is in a column entitled "Talkback" and refers to a Mark Persons' A.B.E.S. program.

The Association for Broadcast Engineering Standards, Inc. (ABES) is a trade association, formed in 1963, and incorporated as a non-profit membership corporation. The membership consists of licensees of radio stations of all classes serving all parts of the country.

We would appreciate receiving information from you at the earliest possible date regarding details of the manner in which A.B.E.S. is being used in your publication and the Mark Persons A.B.E.S. program.

I have enclosed a promotional item "ABES - WHO? - WHAT? - WHY?" which briefly described the activities of our Association.

Your early response to this letter would be appreciated.

Sincerely,
Wallace E. Johnson
Executive Director
ABES



SOCIETY OF BROADCAST ENGINEERS
Indiana, Kentucky & Ohio Chapters

presents

TRI-STATE SBE CONVENTION '81

at

INDIANA CONVENTION-EXPOSITION CENTER
100 South Capitol Ave.
Indianapolis, Indiana

The NAB Conventions have been away from the Midwest for several years, and unfortunately, attendance from the Midwest was restricted due to distance, especially by smaller stations and educational units. For this reason — —

The SBE CHAPTERS OF INDIANA, KENTUCKY & OHIO HAVE AGREED TO HAVE A ROTATING ANNUAL CONVENTION.

The First TRI-STATE SBE CONVENTION — —
October 7 & 8 - Indiana Convention Center,
Indianapolis

The 1982 TRI-STATE SBE CONVENTION — —
(date to be announced) - Cincinnati, Ohio

The 1983 TRI-STATE SBE CONVENTION — —
(Kentucky area)

These regional two-day conventions will include presentation of engineering papers and exposition of broadcast equipment of a caliber approaching that of NAB.

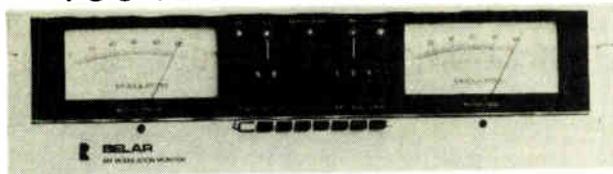


The Indiana Convention Center - Indianapolis



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MODEL AMM-3 **\$1400.00**

- Two modulation meters - one for positive and one for negative modulation, independent of carrier level
- Separate 100% negative and 125% positive peak modulation indicator LED'S, independent of carrier level
- Two adjustable peak modulation indicators - positive 1 to 199% and negative 1 to 99%. Both adjustable in 1% increments and independent of carrier level
- True peak reading modulation meters respond to the shortest duration program peaks
- Built-in carrier limit alarm
- Built-in modulation calibrator
- Phase linear filter with no overshoots permits true negative modulation indications
- Outputs for listening as well as test functions

DESCRIPTION

The AMM-3 Modulation Monitor sets new standards in accurate AM monitoring - the first AM monitor to incorporate true ratio-type peak indicators, as well as ratio-type metering circuits. The AMM-3 contains a unique modulation cancellation scheme to recover unmodulated carrier to reference the modulation peaks to. Thus the instantaneous program peaks are referenced to the instantaneous carrier without the need of time-constants, as with AGC devices. True carrier is indicated with asymmetrical modulation encountered in today's high positive peak modulation, and peaks are automatically referenced to this true carrier to give the most accurate indication of program peaks. FCC Type Approval No. 3-231

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Wallace Johnson

ABES

ASSOCIATION FOR BROADCAST
ENGINEERING STANDARDS, INC.

- WHO?
- WHAT?
- WHY?

Association for Broadcast Engineering Standards, Inc. (ABES) is a nonprofit membership corporation whose purpose is to work for the adoption and maintenance of sound engineering standards for AM and FM stations.

WHAT IS ABES?

ABES is a trade association whose members are licensees of radio stations of all classes serving all parts of the country.

WHAT DOES ABES DO?

ABES provides leadership to the radio industry through participation in FCC Rule Making and Inquiry proceedings on matters affecting AM and FM allocations, station assignments standards, interference protection criteria, technical operating rules, operator requirements, directional antenna design and related matters. ABES argues the case for sound engineering principle before the FCC, Congress and the Courts. It provides expertise and support to United States delegations to international radio conferences.

WHY IS ABES NECESSARY?

Because there can be no quality radio service unless based on allocations and technical standards which are in accord with sound scientific principles. ABES stands for the idea that these principles should not be ignored when resolving controversial technical issues.

Because this concept of allocations and technical standards based on sound scientific principle is under attack from many quarters today.

Because there is no other organization which can be counted on regularly to provide effective leadership when controversial technical issues threaten to divide the several classes of broadcast stations. But for ABES many station licensees would have no one to represent their interests and those of their listeners when proposed changes in allocations and other technical standards threaten to degrade the quality of service to the public.

Because ABES stands for effective action on behalf of radio licensees and the improvement of the technical rules governing AM and FM station operations.

WHAT HAS ABES DONE IN THE PAST?

Since its formation in 1963, ABES has consistently fought for sound technical standards to benefit the radio listening public and the radio broadcast industry.

- It fought successfully for a more efficient and equitable use of Class I Clear Channel frequencies.

(cont. on page 16)

THERE'S TWO...THEY'RE NEW...THEY'RE

M267

Professional Microphone Mixer

- **For Professional Broadcasting**
Both TV and Radio — in the studio and for remote broadcast applications.
- **For Professional Recording**
- **For Professional Sound Reinforcement**
For more complex public address systems.



Suggested List \$395.00

OCTOBER SPECIAL -- **\$295.00**



IMPROVED! Low Distortion Tone Oscillator—1 kHz signal with front panel switch Gold contacts!

NEW! Active Gain Controls—lower noise, greater dynamic range, and automatic input attenuation through the use of feedback-type volume controls.

NEW! LED Peak Indicator—faster than any VU meter, it warns user when program levels approach overload or indicates the onset of limiting.

IMPROVED! Battery Check Function—check battery condition without interrupting the program.

NEW! Headphone Level Control—adjusts monitor volume to user's need.

IMPROVED! More Headphone Power—improves headphone monitoring under noisy conditions use headphone output to drive a tape deck or power amplifier.

IMPROVED! Mic/Line Switch—XLR output and all four XLR inputs are switchable to Microphone or Line Level. Gold contacts!

NEW! Simplex (Phantom) Power—switchable 30 Vdc on all microphone inputs to power condenser microphones.

NEW! Headphone Amp/Line Switch—choose Amplifier position for high level monitoring or Line position for talkback. Gold contacts!

IMPROVED! Low Distortion—less than 0.35% at line level output.

NEW! Electronic Power Supply Regulation—improved performance on low or high ac line voltage.

ACCESSORIES

- A268R Rack panel for mounting either the M267 or M268
- RKCI69 Accessory bracket for mounting an M267 or M268 in an M67 or M68 rack (A68R)
- A268B Battery power supply for the M268.

Don't Miss Out on the

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FOR YOU FROM...



M268

Value-priced Microphone Mixer

- **For Public Address and Paging**
In hotels, schools, churches, community centers, hospitals, etc.
- **For the Serious Tape Recording Enthusiast**
- **As an Add-On Mixer for Expanding Current Equipment**

The M268 is a microphone mixer with many of the features found on the M267, including simplex power. It is a significant improvement over its best-seller predecessor, the Shure M68, in terms of increased gain and reduced distortion, and it also offers lower noise and greater dynamic range through the use of the same active gain controls found on the M267.

When used with the separate battery pack (A268B), the M268 switches to dc power automatically if there is an interruption in ac line current.

New Features

- Simplex power
- Mix Bus
- Automatic muting circuit
- AC to battery automatic silent switchover
- Active gain controls
- Electronically regulated power supply

Improved Features

- Gold contact Hi/Lo Z switches
- Lower distortion (typically less than 0.2%)
- Higher output level
- Lower hum and noise, and all the famous M68 original features

The M268 makes an ideal add-on to the M267. The two are matched in terms of performance and styling, and the mix bus makes it possible to use the peak indicator and metered output of the M267 to monitor the outputs of both mixers.

NEW! Automatic Muting Circuit—prevents annoying clicks and thumps when unit is turned on or off.

NEW! Peak Program Limiter—eliminates overload distortion by monitoring program levels AND power supply level.

NEW! Built-In Battery Pack—operates on three readily available 9-volt alkaline batteries and switches automatically to battery power if ac fails.

All the features shown at left and above Plus all these:

Shure M67 Mixer Features

- Transformer balanced inputs and outputs
- XLR and binding post outputs
- Mix Bus
- Illuminated VU meter
- Low cut filters
- Low RFI and line noise susceptibility
- Small size and light weight
- Wide 30 to 20,000 Hz frequency response +2 dB
- Listed by UL and listed by CSA as Certified

The new Shure M267 compact professional microphone mixer does it all, etc., with the addition of two brackets, it will fit into an M67 rack panel!

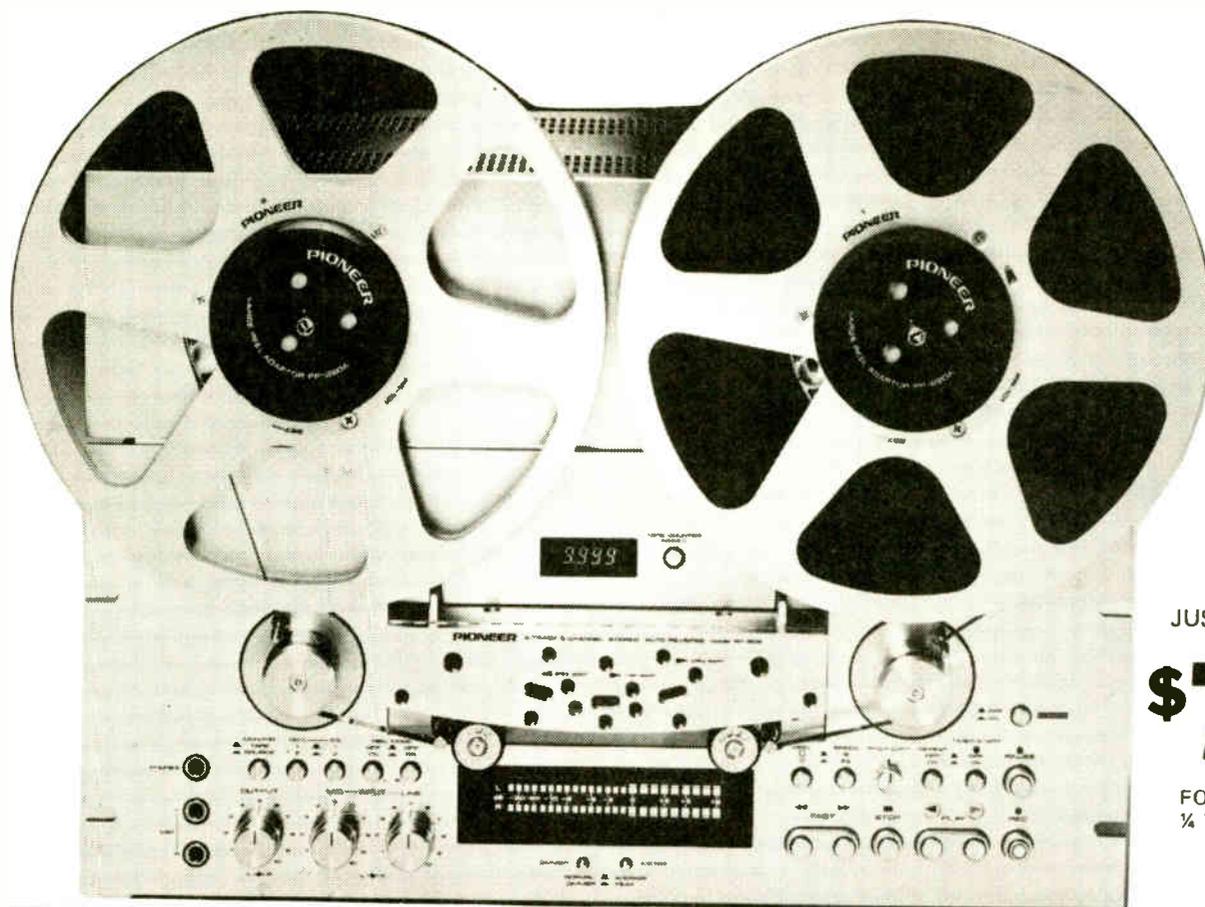
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THE COMPANY WORKHORSE . . .



JUST

\$725

FOR STANDARD
¼ TRACK

THE PIONEER RT-909

- 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)
- INDEPENDENT LEFT/RIGHT RECORDING MODE SWITCH
- OUTPUT LEVEL CONTROL
- PITCH CONTROL ($\pm 6\%$) IN PLAYBACK MODE
- "LITE-TOUCH" ELECTRONIC TRANSPORT SWITCHES
- TAPE HEADS—NORMALLY 4 TRACK—EASILY CONVERTIBLE TO 2 TRACK WITH TOUGH NORTRONIC HEADS
- TWO TRACK CONVERSION BY OUR SERVICE DEPT.

INCLUDES BRIDING INPUT -- 600 OHM BALANCED OUTPUT -- INSTALLATION OF BOOSTER OSCILLATOR FOR HEAVIER DUTY ERASE HEAD -- TERMINALS FOR REMOTE START/STOP -- COMPLETE CHECK TO ORIGINAL SPECIFICATIONS -- FULLY WARRANTED -- TOTAL COST \$1295.00 PLUS SHIPPING CHARGES.

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UW PROGRAM
(cont. from page 1)



the program to move to the commercial facilities provided by the Sheraton Hotel. Starting at 11 a.m. on Tuesday, the 13th, and continuing on through Thursday afternoon on the 15th, broadcasters will again find an agenda that has drawn greater interest each year. Rooms that have been made available for the clinic include the South Ballroom on the Mezzanine level . . . the Evergreen Room on the first floor, North Wing . . . and the Gateway Room for equipment exhibits.

In a formal invitation sent out to hundreds of broadcasters by Don Borchert, WHA Radio/TV, acting as coordinator for the program committee, he again stressed the dedication to do the best job possible to disseminate technical information to the broadcast engineering profession.

The program has been expanded this year to 21 individual speakers presenting a broad spectrum of technical subjects . . . question and answer panel discussions . . . and a special "nuts and bolts" bull session. Both Tuesday and Wednesday afternoons, starting at 4:30 . . . the Gateway Room in the South Wing on the Main Floor will be open for equipment exhibits.

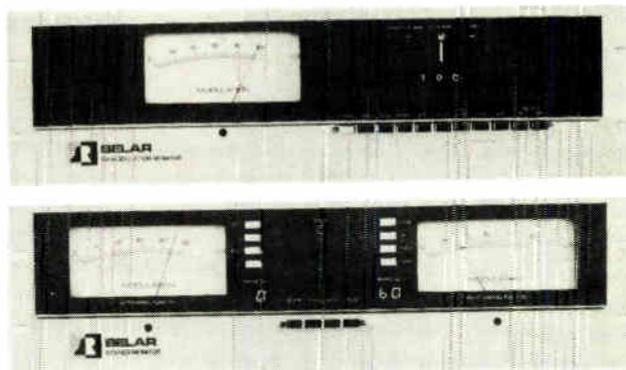


Keynote Speaker —
JIM LOUPAS

The program committee this year includes Don Borchert, WHA Radio/TV as coordinator . . . Elmo Reed, Post Corporation, Green Bay . . . Warren Shulz, WFYR, Chicago . . . Ray Hernday, WTMJ, Milwaukee . . . and Stephen Brown, WCCO-FM, Minneapolis.

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FMM-2 FEATURES

\$2950.00

- Ultra-linear digital discriminator to insure low intermodulation distortion for best stereo and quadraphonic performance
- Exclusive sample-hold peak modulation meter circuit, independent of polarity, allows the meter to respond to program peaks of the shortest duration
- Digitally set peak indicator, adjustable in 1% increments from 1 to 199%, independent of modulation polarity.
- 100% peak indicator, independent of modulation polarity, suitable for ATS
- Built-in modulation calibrator
- Built-in voltmeter for simplified AM and FM noise measurements, front panel select
- Rear illuminated meter eliminates shadows for easy viewing
- Balanced audio output, +10 dBm
- Output for proof-of-performance measurement
- Remote output for one or more modulation meters
- Carrier-fail alarm with front panel indicator
- Optional carrier level limit alarms, adjustable for ATS
- Optional loss of program alarm
- Add-on capability for stereo, SCA and quadraphonic operation

FMS-2 FEATURES

- Two independent peak modulation meters for simultaneous monitoring of left and right channels or L+R and L-R
- Two independent auto-ranging voltmeters with LED displays for range for simplified automatic measurement of channel separation, crosstalk, sub-carrier suppression, and noise
- Front panel switchable de-emphasis for noise measurements
- Pilot alarm with front panel indicator
- Rear illuminated meters eliminate shadows for easy viewing
- Balanced audio outputs, +10 dBm
- Outputs for proof-of-performance measurements
- Remote outputs for two or more meters

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insulation, frayed wires, and poor solder connections. On the bench, run the console into a distortion analyzer and write down the results of the tests. Order spare modules to allow for quick repairs in the future. One spare of each kind of module is probably sufficient.

Put masking tape over areas of the console to be modified. Mark locations of new switches and lights with a square and sharp pencil. Mark the approximate outline of each new accessory and check behind the panel to see that they won't interfere with other parts of the console. Make a visual observation of your proposed modifications to see that they are where you want them and that they are in line, square and properly spaced so as not to upset the neat appearance of the console. Plan space for the new labels that will be required.

If possible, use a drill press with a small bit to put a hole exactly where each new switch and knob will go. Then use larger bits to enlarge to the correct size. Square pushbutton switches require a square Greenlee punch operated by a hydraulic ram on thick panels. Put a #10 bolt in the bottom of the console chassis, if it doesn't already have one, for connection to a heavy strap to the station's ground system. Use lockwashers on hardware whenever possible. Use a vacuum cleaner and hose to clean metal filings from the console after each drilling session.



Photo #3

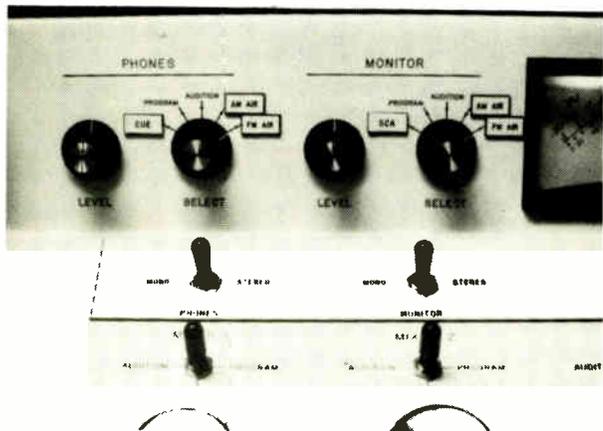


Photo #4

Photo #3 shows two digital timers that reset to zero each time a cartridge or turntable is started. It also shows switches allowing any

one of twelve inputs on mixers seven and eight. This console did not have a cue level control so I moved it to the front panel. In photo #4 we see that additional engraved labels were added to the Phones and Monitor select controls. I added switches so that Phones and Monitors can be run in mono to hear mono phase problems. Photo #5 shows the mono and stereo audition-program switches which were moved up front from where the timers are now. Also note the square lighted pushbuttons associated with each mixer. Labels were added above each meter so that the operator knows which one is which.

Install the new switches, clocks and other devices making sure that everything is square and true. Carefully measure for engraved plastic labels. Have them made with double faced tape on the rear. They are rugged and yet can be replaced as future modifications are made. Label everything on the inside of the console with a Sharpie pen. The Sharpie will write on anything and its printing can be removed with alcohol.

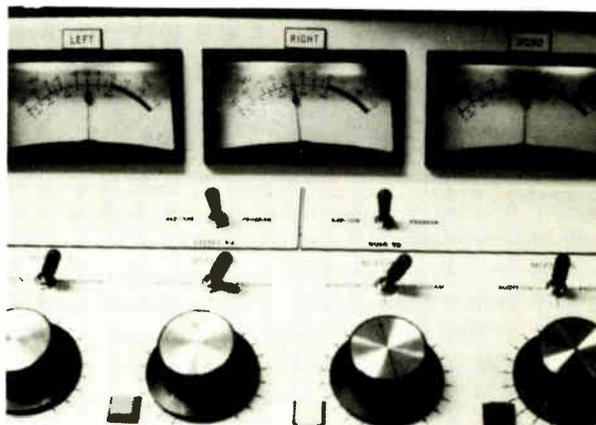


Photo #5

Use a temperature controlled soldering iron, if available, for wiring in the console. I use a stranded grey jacket shielded pair cable that is smaller and more flexible than Belden 8451 for this kind of wiring. Use the Sharpie pen to mark each end of all new wiring. Use a small piece of heat shrink tubing on the drain wire of each shielded pair cable and a larger piece of heat shrink tubing to protect the shield at the cable end. This will prevent the shield from touching any hot exposed connections accidentally. Remember also that the shield of an audio pair is to be connected at one end only. It is not to be used to carry a ground from one place to another. Lay cables neatly and tie wrap them together.

Keep records of your modifications. Schematics should be added to the console's instruction book for future reference. Run a new set of audio tests after the modifications to confirm that audio performance has not been compromised. The proof is in the pudding. Modifications can yield great improvements in operation and reduced operator errors.

I really enjoy rebuilding a console the right way making modifications that are as good or better than the original manufacturer could provide.



FIDELIPAC
BROADCAST TAPE CARTRIDGES

THE STANDARD

A Message From The President of Fidelipac

FIDELIPAC CORPORATION brings more than a quarter century of experience to the broadcast industry through its tape cartridges, test equipment, and accessories.

These are products that have been accepted by professional broadcasters to help maintain a quality of sound that reflects their station's commitment to excellence.

That, too, is the goal of Fidelipac Corporation. From an engineering group who must maintain state-of-the-art awareness, to the manufacturing team whose pride in craftsmanship is evidenced by the top-quality products it delivers,

Fidelipac is professional men and women, dedicated to excellence in all they do...and committed to doing it responsibly, reliably, and consistently for the radio and television broadcast community.

The name "FIDELIPAC" is synonymous with excellence in broadcast tape cartridges. To a point, in fact, where FIDELIPAC is the standard by which all cartridge products are gauged.

Fidelipac cartridges are used in an estimated eight out of ten radio stations worldwide.

Through its range of proven tape cartridges, test equipment and

accessories, Fidelipac provides performance that parallels the equipment of the 80s, and at a price that proves that excellence is not a level of cost, but rather a level of concern.

Price and performance. For more than a quarter of a century. In millions of tape cartridges in use throughout the world. In radio and television, as well as in many other broadcast and industrial environments. And all at a level of excellence that has made Fidelipac products the standard.

How the standard remains the standard

Fidelipac pays careful attention to all the products it supplies to the broadcast industry. The many steps leading to the long life and top performance of all Fidelipac products can be seen in the production of a Fidelipac tape cartridge.

First, premium grade plastic resins are inspected, sifted, cleaned and dehumidified prior to being injection-molded at the company's molding locations. Fidelipac maintains molding tools to close tolerances and constantly monitors molding machine output for any evidence of tool or machine malfunction.

Pre-inspected parts are delivered to Fidelipac where they are aged to allow for post-molding dimensional changes. Following this, random samples are checked for conformity with specified dimensions. Sample molded parts are checked for compositional purity by GPC (Gel Permeation Chromatography) analysis. Complete assemblies are loaded with tape, and tested for electrical and mechanical performance parameters.

When incoming parts are approved, quantities are placed on the assembly line where they undergo individual tests as they are fitted into jigs and fixtures during assembly. Empty bases (less reel assembly) and covers are visually inspected and stamped with a manufacturing code number. They are then stored in a staging area to be used in loaded cartridge production.

Incoming blank tape is allowed to stabilize for a minimum of 48 hours and then spot checked on a reel-to-reel recorder for conformity to manufacturer's specifications. When approved, the tape is wound into cartridges and spliced. Cartridges are run at high speed to pre-condition the tape and expose bonding and adhesive anomalies in tape manufacture that might not otherwise become apparent.

Cartridge covers are then screwed down and the cartridges are run at normal speed and inspected again for smooth operation. This also helps to "settle" the tape pack following extremely high speed operation so that a final quality assurance check can be

expediently performed.

The routine final quality assurance check consists of the following tests:

1. Tape sensitivity
2. Wow and Flutter check
3. Camer post height check
4. Warpage test
5. Stereo phase, where applicable
6. Frequency response check
7. Pressure pad alignment
8. Complete visual inspection

When a cartridge has passed all of the tests, and only then, the Fidelipac quality assurance label is applied over the cover screw and the cartridge is packed.

Only those cartridges that pass every quality assurance step receive a Fidelipac quality assurance label. The cartridges are then sent to the stockroom prior to delivery to radio and television stations throughout the world.



FIDELIPAC ... THE STANDARD BY WHICH ALL CARTRIDGE PRODUCTS ARE GAUGED

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Common Point/Oct. 1981
Page 137

Professional Tape Cartridges



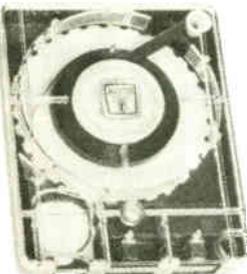
MODEL 300



MODEL 350



MASTER CART



MASTER CART II

*Prices are based on Standard Packaging (10) and are subject to change without notice.

** Extended Length Model 600 and 1200 available in (2) pack. Call for current price.

414-235-8930

MASTER CART (AA)

380-C	Empty		3.20
380-13	13	20 Second	3.44
380-25	25	40 Second	3.52
380-44	44	70 Second	3.61
380-57	57	90 Second	3.70
380-63	63	100 Second	3.75
380-88	88	140 Second	3.88
380-94	94	2½ Minute	3.93
380-113	113	3 Minute	4.04
380-132	132	3½ Minute	4.13
380-150	150	4 Minute	4.22
380-169	169	4½ Minute	4.31
380-188	188	5 Minute	4.42
380-207	207	5½ Minute	4.52
380-282	282	7½ Minute	4.80
380-300	300	8 Minute	4.94
380-375	375	10 Minute	5.21
380-394	394	10½ Minute	5.33

All Master Carts are loaded with standard tape . . . Add 15% for Hot Tape

Additional Savings Of
5% Are Available To
Common Point Subscribers
Subject To Terms

**Fidelipac Cartridges Sold By Electronic Industries
and Guaranteed By Fidelipac**

MASTER CART II

550-13	13	20 Second	3.19
550-25	25	40 Second	3.24
550-44	44	70 Second	3.32
550-57	57	90 Second	3.39
550-63	63	100 Second	3.47
550-88	88	140 Second	3.53
550-94	94	2½ Minute	3.60
550-113	113	3 Minute	3.68
550-132	132	3½ Minute	3.78
550-150	150	4 Minute	3.85
550-169	169	4½ Minute	3.92
550-188	188	5 Minute	4.00
550-207	207	5½ Minute	4.08
550-282	282	7½ Minute	4.35
550-300	300	8 Minute	4.43
550-375	375	10 Minute	4.68
550-394	394	10½ Minute	4.77

All Master Cart II cartridges are loaded with Hot Tape . for standard tape. . . add 20 cents to price shown.

Prices Shown Are
Based Only On Fidelipac
Standard Packaging
(10) Per Box.

FIDELIPAC . . . The Standard By Which

Distrib

ELECTRONIC INDUSTRIES

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Professional Tape Cartridges

300 (A)

140-C	Empty		2.89
140-13	13	20 Second	3.20
140-25	25	40 Second	3.28
140-44	44	70 Second	3.37
140-57	57	90 Second	3.43
140-63	63	100 Second	3.50
140-88	88	140 Second	3.61
140-94	94	2½ Minute	3.66
140-113	113	3 Minute	3.76
140-132	132	3½ Minute	3.85
140-150	150	4 Minute	3.96
140-169	169	4½ Minute	4.05
140-188	188	5 Minute	4.15
140-207	207	5½ Minute	4.26
140-282	282	7½ Minute	4.56
140-300	300	8 Minute	4.65
140-375	375	10 Minute	4.96
140-394	394	10½ Minute	5.07

Additional Savings Of
2% Are Available To
Common Point Subscribers
Subject To Terms



MODEL 300



MODEL 350

**Are Only Those Manufactured - Loaded - Tested
Look For The Fidelipac Seal**

350 (A)

350-C	Empty		3.02
350-25	25	40 Second	3.98
350-44	44	70 Second	4.07
350-57	57	90 Second	4.12
350-63	63	100 Second	4.14
350-94	94	2½ Minute	4.28
350-113	113	3 Minute	4.36
350-132	132	3½ Minute	4.42
350-150	150	4 Minute	4.50
350-169	169	4½ Minute	4.58
350-188	188	5 Minute	4.65
350-207	207	5½ Minute	4.73
350-282	282	7½ Minute	5.00
350-300	300	8 Minute	5.07
350-375	375	10 Minute	5.33
350-394	394	10½ Minute	5.41

Prices Shown Are
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Standard Packaging
(10) Per Box



MASTER CART



MASTER CART II

h All Cartridge Products Are Gauged

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OSH, WISCONSIN 54901



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BROADCAST TAPE CARTRIDGES

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FIDELIPAC[®] ACCESSORIES

Professional Products for Audio Cartridge Systems

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- Program Delay Cartridges
- Cartridge Labels

- Tape Splicing Supplies
- Head-Cleaner Fluid
- Bulk Lubricated Tape

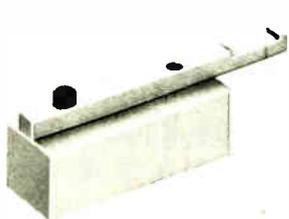
PART NUMBER	DESCRIPTION	PRICE
WORLD STANDARD STUDIO WARNING LIGHTS		
340	ON AIR	43.15
340 S	ON AIR in French German Greek, Japanese, Polish, Russian, Spanish or Swedish. Specify when ordering	43.15
340 REC	RECORDING	43.15
340-REC-S	GRABANDO (RECORDING in Spanish)	43.15
NEW AND REDESIGNED CARTRIDGE RACKS		
WR-25	Wall Rack—Holds 25	23.40
MRB-1	Mobile Rack Base—Holds 8 WR-25 Racks	53.00
MR-200	Mobile Cartridge Rack—Holds 200	240.00
TR-48	Table Top Cartridge Rack—Holds 48	67.10
TR-96	Table Top Cartridge Rack—Holds 96	115.20
CARTRIDGE MACHINE PRECISION ALIGNMENT EQUIPMENT		
390	Wow & Flutter Meter	398.00
401	Cartridge Equipment Test System—Mono	535.00
402	Cartridge Equipment Test System—Stereo	535.00
450	Alignment Cartridge—Monophonic	48.30
451	Alignment Cartridge—Stereophonic	48.30
452	Wow & Flutter Cartridge—3150 Hz	33.00
455	Fast Sweep Cartridge—Monophonic	40.60
456	Fast Sweep Cartridge—Stereophonic	40.60
457	Cue Tone Test Cartridge	44.70
326	Height Gage	25.90
328	Head Insertion Gage	7.00
387	Right Angle Zenith Gage	30.80
CARTRIDGE MAINTENANCE & TAPE ITEMS		
395	BLANK IT Bulk Eraser, Hand Held (110 volt)	59.95
395-2	BLANK IT Bulk Eraser, Hand Held (220 volt)	64.50
TAS 431	Splicing Tape—7/32 wide x 100 feet long roll (2400 1/2" splices)	9.50
406	Professional Splicing Block, for 1/4" Tape	16.30
310	Professional Splicing Kit—1/4" TAPE	20.15
FIDELIPAC INSPECTED & CERTIFIED LUBRICATED CARTRIDGE TAPE		
TAS 434*	4200 ft 10" hub lubricated tape (bulk packed)	9.00
TAS 436	2100 ft 7" reel lubricated tape (individually boxed)	5.75
TAS-437	4200 ft 10" hub lubricated tape (individually boxed)	10.20
FIDELIPAC HIGH PERFORMANCE LUBRICATED TAPE—HOT TAPE		
TAS 500*	4200 ft 10" hub (bulk packed)	12.60
TAS-501	2100 ft 7" reel (individually boxed)	6.90
TAS-502	4200 ft 10" hub (individually boxed)	13.80
DELAY CARTRIDGES		
140-5DL	Model 300 8 seconds, Curved Pressure Pads and Special Reel Lubrication	7.70
140-6DL	Model 300 10 seconds, as described above	7.70
149-5DL	Model 600 8 seconds, Curved Pressure Pads and Special Reel Lubrication	9.60
149-6DL	Model 600 10 seconds, as described above	9.60



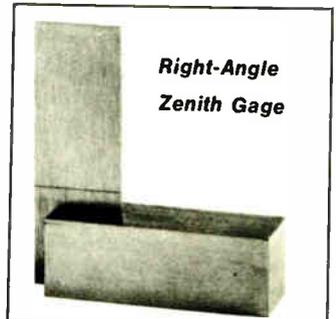
Mobile Cart Rack—MR-200



ON-AIR Light



Guide Height Gage



Right-Angle Zenith Gage



Head Insertion Gage



Cue System Test Tape—350STQ



Wall Cartridge Rack—WR-25

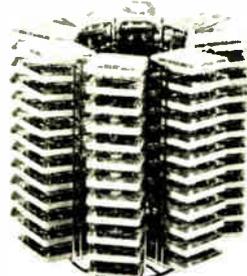


Table Top Cart Rack—TR-96



Table Top Cart Rack—TR-48



Alignment Tape—350STA



Wow and Flutter Test—350STF

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application and FCC paperwork side of engineering, I have been called on to do the annual audio proof of performance and antenna system verification reports for stations. In some cases, the station is well maintained by either a full time engineer, an announcer/newsman with technical background, or a part-time engineer with other responsibilities in his full time job. In these cases, the audio proof or antenna proof go well . . . the results of a desire to keep the system operating properly at all times.

In other cases, little attention is given to the system and it is a once a year, very costly, recapture of the losses due to a year of neglect. I've tried analyzing this situation several times with differing sets of input. However, the bottom line still comes out that it is really cheaper to pay a \$1500.00 bill once a year combining that with a \$5,000.00 bill to a local engineer to "keep the station on the air" than it is to pay the \$18,000 bill that Tim Metzger suggests in his article in the July issue. Mr. Metzger has a very valid point in his assessment of "most" engineers he knows. It's the others that have allowed the present situation to exist.

This past May a seminar was hosted by the University of Wisconsin here in Madison for Engineers and Engineering Management personnel that was attended by some of the best engineers in the Midwest. The bottom line of two days of sessions was that engineers in the communications field suffer from a lack of communication skill in dealing with management. One must communicate with management and ownership that engineering is not a necessary evil or expense but something that keeps the dollars rolling in. Just being "on the air" should not be enough to keep the advertiser happy and willing to pay his bill.

While a regional "fire department" to serve a group of stations may be a reasonable method of keeping stations operating, it should not be used as a way to eliminate the local staff technician. It should not be used as a way of holding off payment from the engineering budget because the "fire department" may not be needed for the next six months. Mark's service is not geared to replacing all the engineers in the country. There are many more like him that provide essentially the same service and do it well. I trust he and all the others would be a lot happier to be able to

provide a support service rather than the first line of defense. Here again comes the ability of the local engineer or technician to communicate with his boss.

The elimination of the First Class license and its replacement with a General Radiotelephone license will allow some very talented but unlicensed technicians to be legal in what they have been doing for a long time. It will also allow management to recognize talent in maintaining equipment and, hopefully, allow them to pay the cost of getting a job done well. Communication of this very vital fact is laid on the shoulders of this individual technician or engineer.

The engineering community cannot wait "until folks discover" that technical help is needed in every station. It is very hard for some management to accept paying an individual the \$18,000 per year for doing very little. After all, if someone is worth that kind of outlay each year, they have all the bugs wrung out of the systems and should have little to do. Here again, it is necessary to communicate the fact that little has to be done because the person is worth every penny he has been and will be paid.

The University of Wisconsin seminar provided very valuable input to those in attendance. The consensus was that a similar seminar be held for management and ownership to help them communicate with their employees be it programming, technical, and sales. The first step is that technicians and engineers begin the process by communicating effectively on all facets of the stations technical operation. Management and ownership may not understand the subtlety of the vast mystery of electrons but the fact that time was taken to communicate is a beginning.

All of this is predicated on the fact that the technician or engineer is worth his salt and has kept up on advances in the industry. If he is not capable, no amount of communication will help. However, here is the perfect chance for the less than capable technician to use the "fire department". Communicate the need for a "fire prevention inspection" by Mark or his parallel to begin on the road to capability. This might be the best role for the engineering "fire department" and will allow Mark a few more nights of sleep.

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622B Parametric Equalizer



A two channel parametric equalizer for use where continuous, non-interacting control over center frequency, bandwidth, and amount of peak boost or cut is desired. Four peaking bands per channel with "constant-Q" curves

providing notching capability; individual channel and band in/out switches; GAIN control; overload lamp. Line-level balanced input and unbalanced output. Output can be balanced by addition of optional transformer.

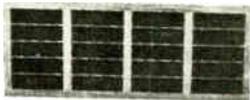
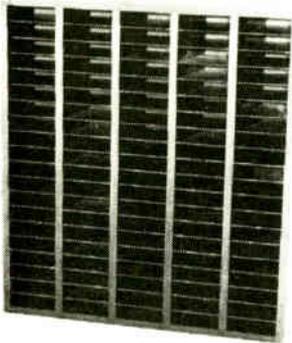
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		Wide	High		
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KK 40	40	25 1/4" x 11"	5w x 8h	37.00	
KK 50	50	25 1/8" x 15 1/4"	5w x 10h	46.00	
KK 60	60	25 1/8" x 18"	5w x 12h	55.00	
KK 100A	100	25 1/8" x 29"	5w x 20h	80.00	
KK 100B	100	50 1/4" x 15 1/4"	10w x 10h	80.00	
KK 150	150	50 1/4" x 22 1/8"	10w x 15h	123.00	
KK 200	200	50 1/4" x 29"	10w x 20h	163.00	

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ABES
(cont. from page 5)

- It provided leadership in finding a compromise to the AM Presunrise Operating crisis of the mid-1960's.
- It successfully resisted efforts to permit Daytime-only stations to operate under nighttime conditions without adequate interference protection standards.
- It fought for ratification of the 1950 NARBA Treaty which provides the basis for our system of AM broadcasting.
- It sent representatives to Mexico to assist the United States in negotiations leading to the 1968 AM Broadcasting Treaty with that country.
- It helped the FCC in the work preparing for the 1979 World Administrative Radion Conference (WARC) at Geneva.
- It participated in many rule making and inquiry proceedings and contributed toward the adoption of sound rules governing such matters as directional antenna design and maintenance, operator requirements and standards, modulation standards, antenna monitoring and sampling systems, and deregulation.

WHAT IS ABES DOING NOW?

Today ABES continues to lead the efforts of the broadcast industry to preserve our system of radio allocations on the basis of sound scientific principle in the face of attempts of some to substitute economic and social theories for the laws of physics. ABES is actively participating in proceedings initiated by the National Telecommunications and Information Administration (NTIA) for sweeping changes in the allocations and assignment standards in the FM Broadcast Service. ABES opposes the reduction of AM channel spacing from 10 to 9 kHz unless the costs to the broadcasters and the public are thoroughly assessed, together with the new assignments possible, and the gains will clearly outweigh the costs. ABES has played a major role in the Region 2 Administrative Radio Conference activities which includes the 9 kHz channel spacing matter and looks to a new AM Agreement for our hemisphere. The Executive Director and Secretary, William J. Potts, Jr., have been active participants in the Industry Advisory Committees and Working Groups. The Executive Director was a member of the U.S. delegation to the 1st Conference in Buenos Aires and the Inter-American Telecommunications Conference (CITEL) meeting of the Working Group on Radiobroadcasting and Panel of Experts meeting in Fortaleza, Brazil in January. The Executive Director will also be an industry representative on the U.S. Panel of Experts delegation to Geneva for an eight week period starting April 22nd. This meeting will identify and evaluate interference problems presented by proposed assignments from other countries and attempt to resolve the incompatibilities. A comparative study will also be made of 10 kHz spacing versus 9 kHz spacing (both the 9/4 and the 9/9 plans), which study will be presented to all countries in the hemisphere for consideration at the 2nd and concluding Conference in Rio de Janeiro in November.

WHY DOES ABES NEED YOUR SUPPORT?

The answer is simple. As a broadcast licensee, you cannot exist without a station facility capable of pro-

(cont. on page 23)

TALKBACK

UTAH . . . What do you think about an MW1 that just acts "tired" . . . can't get 100% on High Power (Audio Driver is fine).

Ed. -- Each Module has Tuning Adjustment . . . Be sure to Peak (courtesy M.P.)

TEXAS -- received June issue on 29th . . . this issue on 21st . . . hope you receive this by ME.

Ed. -- talk to your Post Master. Bulk Mail is last to go . . . but should not take more than 10 days-2 weeks.

CALIFORNIA -- re ABES a la Metzger . . . don't see ABES replacing experienced, well paid, full time C.E. See ABES as aide to rookie or combo CE/DJ.

MONTANA -- Too much advertising. Not enough else to make reading worthwhile.

KENTUCKY -- With elimination of 1st and 2nd Class Licenses PLUS 3rd with B Endorsement . . . radio is ruined for good! FCC will rejoice with abundance of Fines.

KANSAS -- re SUBSONIC article . . . had problems with our MW1-A until I installed 30 Hz High Pass Filter . . . obtained from IGM . . . they use to eliminate cue tone from program. Works great. No effect of Proof.

MISSOURI -- re July Q.O.M. . . . AM is Local Live MOR . . . FM is Live Assist Rock . . . so far AM out-does FM.

ILLINOIS -- Great article on antenna arcing. We use Phillystran and one choke at Base to Ground and are totally satisfied.

ARKANSAS -- a sad day August 7. The day the FCC sold out the Broadcast Industry.

CONNECTICUT -- re July Q.O.M. . . . a no answer question. All programming types work when properly executed. Decision depends on local variables; market position; management objectives, resources, plant facilities, personnel and their attitudes. These factors and others determine which program works for any given station . . . NOT THE TYPE OF PROGRAM.

CALIFORNIA -- Satellite music distribution sounds like fun; but how the heck do they allow for different amounts of commercial time . . . Floyd Cramer records??? Any suggestions for making a QEI ATS keep you on the air consistently?

Ed. -- ATS problems usually caused by "set up". Call the factory back East to walk you through correct set up, or, call Dick Tyner in Minnesota for "in-house help".

NEW HAMPSHIRE -- re Mark Persons' notes on the 807's in a Gates BC-1 . . . Using only RCA 807's will save a lot of time and trouble. Any tube marked "Great Britain" seems to have much shorter life in those transmitters . . . good issue again this month.

MISSOURI -- Look forward to each issue . . . enjoy Persons' Post Sprints.

MONTANA -- Enjoy info in **Common Point**. The death of 1st should up FCC "Fine Income" if complete inspections are still carried out. It will not improve station sounds or excellence.

NEW YORK -- How about more articles on improving Broadcast Signal Quality?? Identifying the problems . . . implementing the solutions, etc.

(cont. on page 18)

MASTER CART II (cont. from page 2)

providing the highest possible level of stereo performance. The key to Master Cart II's universal application is in its front corner post design. Where Master Cart's front corner post had no upper or lower limit--tape was free to run well above or below NAB height specifications--Master Cart II contains a precision molded upper and lower tape limiting device. This addition does not interfere with the original neutral tape handling concept, but provides an upper and lower limit to tape travel when the cartridge is used in less-than-perfect machines.

Other improvements have been evolutionary: wider pressure pads for longer wear and better tape-to-head contact; a new bearing-supported one-piece reel assembly for longer tape life and less wow and flutter; thicker walls and more rigid construction for even greater durability. And--perhaps best of all--all Factory-loaded Master Cart II Cartridges come equipped with FIDELIPAC TAS-500 Series H.O.T. Tape at no additional cost. Of course, Master Cart II is available with standard output tape if you wish, but we invite you to try the ultimate tape cartridge loaded with the ultimate cartridge tape. It's available through Electronic Industries.

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EMPTY**

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- Every cassette copy delivers a complete program; nothing is forgotten, changed or deleted.
- Make as many copies as you need, when you need them.
- Copy complete programs for the price of blank cassettes.



Place a cassette copier in a central office location, as you would a paper copier, for use by all departments.

- A time saver for setting up spec spots
- A production room time saver for sending out multiple station runs.
- Great to copy Sunday services for shut-ins.
- News room actualities and programs.

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TALKBACK
(cont. from page 17)

VERMONT -- Let's have some "HOW TO" data on TELCO interface projects.

MICHIGAN -- How about a list of Ham Operatos i.e. Steve Messer KD8S WHFB AM-FM

OREGON -- Quit the politics and keep info on technical track. If I want the RIGHT WING view . . . I can listen to Paul Harvey.

Ed. -- Sorry, been a Missouri Democrat for so many years, sometimes it just sneaks in.

NEW MEXICO . . . Decent paper! Looking forward to more articles on what (FCC) has in store for us.

MINNESOTA -- Don't agree with Fowler CHAIRING the FCC. Sounds like a Reagan payoff.

LOUISIANA . . . re Q.O.M. . . . nothing can touch LOCAL LIVE, especially in small market. ROBOT RADIO is FAIR in Larger Market.

SOUTH DAKOTA -- re Q.O.M. . . . my vote is for Automation only because I have no experience with Satellite. Automation with proper controls can be used LIVE ASSIST.

Ed. -- Satellite very new. Started Sept. 1.

MINNESOTA -- What is FCC VOTE OF CONFIDENCE?

Ed. -- Believe Robert's Rules use this to kick out "Leaders" who are not doing their job. Ours is to get your opinion on our FCC each month.

IOWA . . . re Q.O.M. . . . best way is Live Assist . . . You can get a variety of people who will sound professional.

INDIANA -- Tim Metzger is right. ABES is not the answer. We have allowed management to "short change" professional engineers too long.

Ed. -- Be sure to see Notebook re ABES and article by Wallace Johnson on page 5.

NEW MEXICO -- Most small market stations with minimum equipment and minimum budget cannot hire full time engineer . . . local electronics handyman working on station equipment need resources of an ABES.

MISSOURI -- How far off for AM stereo? Costs?

Ed. -- I'm not holding my breath. All the tests have been run. All the reports have been filed . . . the silence at the FCC is deafening.

OHIO -- 3 cheers for TOM METZGER! Also . . . Ky TALKBACK about Regional Engineer . . . has many stations . . . does mediocre job for all and other enginners are jobless. Would you hire a Regional P.D. or Sales Manager?? Certainly not/ . . . of course you have no info on Ms Dawson's qualifications for commercial broadcasting . . . SHE HAS NONE!

MICHIGAN . . . Let's hear it for Tim Metzger's column. I'm a manager and I agree. re Q.O.M. . . . Live Assist.

TEXAS -- Sorry for being critical, but your paper has had a consistently Small Market AM approach. It has very little application to my TOP 50 station. About Engineering . . . even if it takes 18,000 a year . . . \$18K is a ridiculously low salary for a Chief Engineer . . . \$35K annually is minimum in this market.

Ed. -- Big D . . . MY OH YES.

COMMON POINT CLASSIFIEDS

FOR SALE: Marti STL — Mono — approx. 6 years old — factory rebuilt 2 years ago, asking \$1700.00. Call Don at 517-265-1500.

GOOD AS NEW -- TWO -- that's right! — two IGM Stereo Insta-Carts, one year old, \$9,500.00 each. First come/first served. Contact Chuck Tiff, Meyers Broadcasting, 701-223-0900.

THE PRODUCTION ROOM WORKHORSE —



DEMO MODEL (original carton)

\$475.00

Call Electronic Industries

CLEANING HOUSE: Vintage equipment — Schaeffer 800 Brain — AM antenna tuner — presently 1490 kHz's — make offer. Call Don at 517-265-1500.

FOR SALE: McIntosh MR-78 tuner, 4 yrs old. I'll take \$300.00 loss. Contact C.E., WDST, Woodstock, NY.

FOR SALE: Two Marti CLA-40 A/N limiters \$300 ea. Two EV RE-51 microphones. Hickock 123A tube tester \$60. 24GA Telco quad cable with grey jacket \$15/500 ft. 22GA shielded pair similar to 8451 \$60/1000 ft. Gates M4990 AM frequency monitor \$25. Mark Persons, Route 8, Box 406, Brainerd, MN 56401 218-829-1326.

FOR SALE: Telex TMS-100, new, in original carton, load with 8-track, set sequential or random and let it go! Ideal for background music. Discontinued model but fully warranted. \$495.00

Why Subscribe When I Get It FREE!

COMMON POINT SUBSCRIBERS SAVE AN ADDITIONAL 2% ON EACH AND EVERY INVOICE PLUS A ONCE A YEAR SPECIAL SAVINGS OF UP TO 10%. IT'S WORTH IT!! SEND YOUR \$6 TODAY!!

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7½ MIN.	\$2.20
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*prices shown for Audiopak A2 and Fidelipac 300 Series cartridges

*for specified lengths use next higher price shown

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

*cartridges reloads with hot tape — add 15% to above prices

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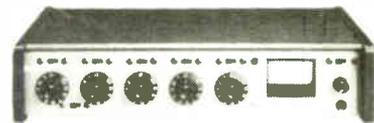
*like new cart 90-day warrantee with approved replacement of pad

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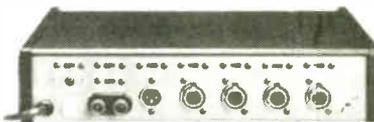
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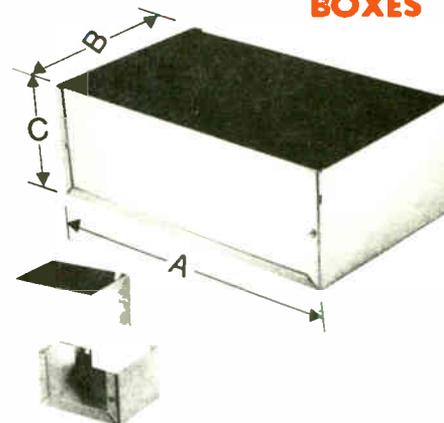
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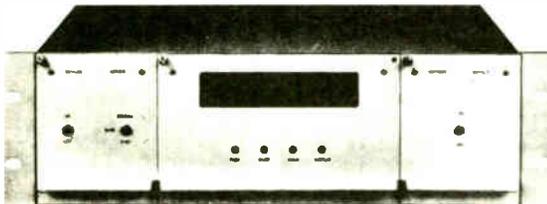
SPRAGUE

MODULAR ENCLOSURES

COMMON POINT CLASSIFIEDS

ESE

Perfect Timing



ESE Masters provide a means of keeping all time displays in the system in agreement, through the use of a Serial Time Code. Only one pair of wires is needed to distribute the time code to all remote serial input displays.

An ESE Master Clock System can operate digital displays, clocks with sweep second hands printers and, in addition, tell your computer what time it is.

Twelve hours of standby battery operation is standard in ES 160, 160/1 and 190.

MASTER CLOCKS

ES 160 Mounted in a 5" relay rack panel and chassis, displays six digits of time information on 3" LED displays, in 12 hour format.

ES 160 has three second per month accuracy. Its standard output is serial BCD, CMOS compatible, and can drive ES 161, 166, 171, 991 or 993 Remote Displays without buffering. All inputs and outputs are through rear-mounted connectors.

Dimensions: 5" High x 19" Wide x 15" Deep \$1005

ES 160/1 One second per month version of ES 160. **\$1225**

ES 190 The ultimate in accuracy! Similar to ES 160, with special circuits for receiving and decoding a 1000 Hz tone at the start of each minute. The decoder output resets the seconds counters in the clock each minute except the first minute of every hour. These tones are transmitted by radio Station WWV, with an oscillator accuracy of ± 1 part in 10^{10} . ES 190 has an antenna and internal WWV receiver with audio-output. Displays are 3" red LEDs. Serial output drives ES 161, 166, 171, 991 and 993 Remote Displays.

Dimensions: 5" High x 19" Wide x 15" Deep **\$1225**

ES 192/194 The most economical Masters, ES 192 (12 Hr) and ES 194 (24 Hr) are constructed using ES 112 or ES 124 digital clocks and adding the ES 167 Serial Time Code Generator to provide the output needed to drive Remote Serial Displays ES 161, 166, 171, 991 and 993. Displays are 6" incandescent type.

Dimensions: 2" High x 8" Wide x 6" Deep **\$325**

ES 190 TIME AND TEMPERATURE MASTER Basically the same as ES 192, but with gas discharge displays, panel mounting and separate serial BCD outputs for time and temperature. Displays 12 hour and *F format.

Dimensions: 3" High x 19" Wide x 8" Deep **\$766**

ACCESSORIES

ES 161 REMOTE DIGITAL DISPLAY Decodes serial time data and displays six digits of time on 55" Gas Discharge Displays, in either 12 or 24 hour format.

Dimensions: 8" Wide x 2" High x 6" Deep **\$165**

ES 162 IMPULSE DRIVER Plugs into the ES 160 chassis, can drive 20 Impulse Clocks. Designed so that, if power fails, impulse always comes on with the same polarity when power is restored. **\$200**

ES 194 REMOTE DIGITAL IMPULSE DISPLAY Similar to the ES 161 except that the ES 164 derives its count command from the ES 162 Impulse Driver, or any impulse clock drive circuits already installed.

Dimensions: 8" Wide x 2" High x 6" Deep **\$244**

ES 166 JUMBO 1" CLOCK DISPLAY Features six digits of one inch gas discharge displays in 12 or 24 hour format. Receives serial time code input from any ESE Master Clock or ES 167.

Dimensions: 10" Wide x 4" High x 6" Deep **\$254**

ES 167 SERIAL TIME CODE GENERATOR An integral part of ES 160, 190, 192/194 and 196 Master Clocks, this unit can be added to many other ESE products, including ES 112, 124, 182, 184, 992, 994, 750, 751, 753, 754 and all 780 Series Time Programmers. Drives ES 161, 166, 171, 991 or 993 Remote Displays. **\$146**

ES 169 TEMPERATURE SLAVE Receives serial code from ES 196, displays it on 55" Gas Discharge Displays.

Dimensions: 8" Wide x 2" High x 6" Deep **\$146**

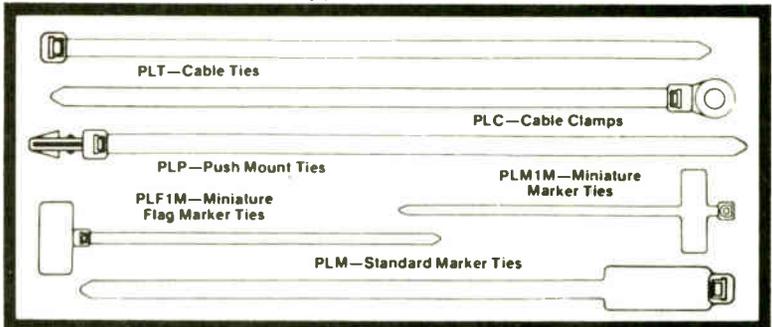
ES 171 CONSOLE MOUNT REMOTE DISPLAY Receives the serial time code generated by any ESE Master Clock, or any ESE product containing the ES 167 serial time code generator, and displays it on bright red 3" LEDs.

Dimensions: 2" High x 4" Wide x 4" Deep **\$158**

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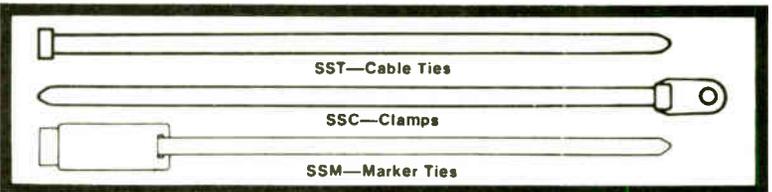
PAN-TY® Cable Ties

- **BENT TIP.** Provides easier threading around bundle and faster insertion of tip into cable tie head.
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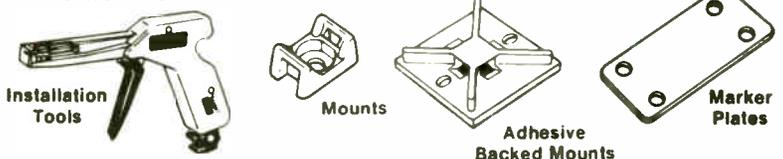


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\$195⁰⁰

COMMON POINT CLASSIFIEDS

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Features

- Fast application — one crimping operation terminates inner conductor, outer braid and cable support
- Two parts make up a complete plug or jack
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For All Your Connector Or Cable Needs — Call Spokeshaven -- person-to-person -- collect at
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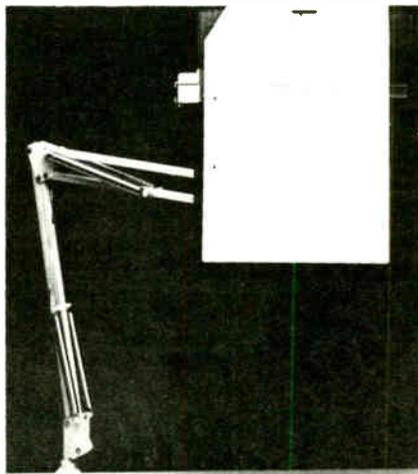
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EXTRA 5%
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FOR SALE: Demo Revox A77 2-tr stereo, metal cage, mint condition, \$1150.00; 1000-ft 50 pair 24 ga. telephone cable with gray jacket, \$420.00; Sparta A-15 five-channel mono console with new PGM and mon amp boards, \$500.00. Mark Persons, Rt 8, Box 406, Brainerd, MN 56401. 218-829-1326.

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16007 - JUST \$39.95 (line finder extra)

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MARTI RMC-15 DIGITAL REMOTE CONTROL



RMC-15S Studio Unit



RMC-15T Transmitter Unit



RY-15T Relay Control Panel

FEATURES: Fully Digital Command and Telemetry (FSK) • Single Push-Button Channel Select • Telemetry Accuracy 0.1% for Directional Antenna Monitoring. RMC-15 Does Not Require Operator to Calibrate Each Time Data Taken • 15 Channel Capacity • Quartz Clock Synchronized • Radio Link or Wire Line Operation • Large Digital LED Readout at BOTH Studio and Remote Unit • Decimal Point Location Can Be Selected for Each Channel • Optional RMC-30 Units Expand Capacity to 30 Channels.

MARTI TSL-25/450

TRANSMITTER-STUDIO LINK

The Marti TSL-25/450 Transmitter-Studio Link is a narrow Band point-to-point data/communication channel consisting of the FCC type accepted RPT-25P 25 Watt transmitter and FCC certified R-30/450 receiver with a directional antenna system. This system operates in the FCC Frequency group P channels (450.01-455.99 Mhz.) designated for signalling, tone and operational communications as authorized in Part 74, Subpart D, 74.402 (a)(7) of the FCC Rules and Regulations. A system frequency response of 20 Hz. to 3000 Hz. permits transmission of subaudible as well as voice band information.

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ABES
(cont. from page 16)

viding a quality signal to an audience large enough to ensure adequate financial support. If the government adopts unwise and scientifically invalid solutions to difficult problems on the basis of economic theory or other considerations which ignore the physical nature of radio propagation, your station and your audience will suffer. ABES is an important part of the industry's response to this threat. In some cases it is the industry's only spokesman capable of taking no holds barred positions in the face of demands by narrow interests. You can count on ABES to represent your interests. You can count on ABES to try to gain support for your views on these matters in the government and from sources within the industry. The issues are too important to leave the matter up to someone else. ABES provides you with a vehicle to make your views known and felt by the decision makers.

WHO SPEAKS FOR ABES?

ABES is led by officers and directors who are experienced in broadcast regulatory matters. Its Executive Director is Wallace E. Johnson, who retired from the FCC where he served for more than seven years as Chief of the Broadcast Bureau. Mr. Johnson was with the FCC for a total of 37 years and is well known for his views on the importance of sound engineering practice in broadcast regulation.

Assisting Mr. Johnson is the ABES Technical Committee which is composed of senior engineering executives of member companies who together provide a broad background of practical experience in broadcast station technical operations.

Info concerning ABES may be obtained by calling or writing Wally Johnson at the following address:

Mr. Wallace E. Johnson
Executive Director
Association for Broadcast
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(formerly Superscope C-207LP)

BY MARANTZ



STILL **\$184⁹⁵**

The Marantz PMD 220 three-head portable recorder is your personal information-processing tool. Combine its compact size and sophistication in features with its two-speed capability and you have the ideal recorder for broadcast journalists and others who demand outstanding sound reproduction and dependable performance of true broadcast quality.

The PMD 220's two-speed function lets you record at 1-7/8 ips, or for twice the recording time on your cassettes use 15/16 ips mode, cutting cassette expenditures in half.

The PMD 220 has separate record and playback heads so you always hear exactly what's going on the tape as you record — there's no guesswork, and you can instantly check recording progress any time. Three-head design also means each head is designed specifically for its function — record, playback/monitoring or erase — without sacrificing any performance for sake of compromise.

That's just for starters . . . check out all the other features that make the PMD 220 the choice of so many people who demand professional quality and performance.

Super-hard permalloy record and playback heads ensure a wide frequency response, low phase distortion and up to ten times longer life than ordinary heads.

Memory Rewind/Replay works in conjunction with the 3-digit tape counter to replay any selection on the tape — automatically. Just reset the counter to "000" at any point on the tape. Later, simply hit rewind. The tape will rewind to "000" and immediately start.

One-touch record allows instant recording with one-button ease, and lets you go directly from play into record mode.

Cue and review helps you find any point of sound on a cassette by enabling you to hear the tape while it's being advanced in fast-forward or in rewind.

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