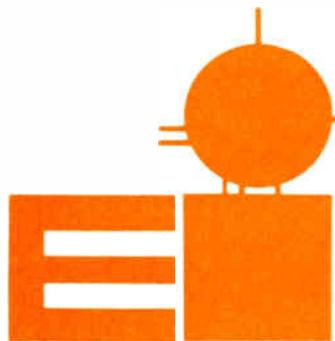


Sept. 1987

KFXX Radio
3222 S. Richey
Tucson AZ 85713
AZ - 857

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Winneconne, WI 54986



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 SEARCHFM Computer Program— (Yes Mom searching can still be fun!)

The value of good FM facilities in today's market is sky rocketing, but buying takes big money. Here is a do it yourself option that promises to make searching for an FM facility, upgrade or new channel, as easy as falling off a small tower. A new computer program gives you the capability to run searches on your own computer. The program is particularly useful as a replacement for those of you who are already using an expensive, on-line, data service. Charge for these services is by the channel and the time spent on-line. With SEARCHFM you can do as many searches as you want for as many locations around the country, without having to pay any extra for each search.

Running on an IBM compatible XT or AT, (with color as an option, if you have an EGA card) SEARCHFM gives you the same printed reports as the an on-line channel search service but with much greater speed and flexibility. The real excitement of the SEARCHFM program is in its ability to provide fast and flexible channel search separation studies. With this program, you can generate a single-channel station separation study print-out on your own computer in less than a minute. Type in the coordinates for a location anywhere in the U.S. and add the class of the station you wish to check for and the computer takes over from there. From the coordinates you supply, the program determines which of the

State ordered files it needs from your data base and prepares a new file called the "job file" which contains only the stations you need for the search. Once you have plugged in your coordinates, you can ask the computer to display as little as a single channel separation study or as much as all of the separation studies for each channel of the FM spectrum. When you ask for a channel check, it takes only about a second to display everything you need to know about the channel. Your video or line printed display will list the call letters, channels, classes, cities, states, bearings, distances, FCC distance spacings required and the margins available. The stations are listed in ascending order of available margin, so the most critical relationships are shown first. If you wish, your channel separation studies can be displayed on video or printed out in the long form which also includes, station coordinates, power and antenna height, polarization, beam tilt, licensee type, file number and cutoff dates.

Searching power is at the heart of this system as it virtually performs magic with the FM data base. Once you have made a job file you can change the reference coordinates or the station class and within seconds get a channel display for another transmitter location or for another station class type. Since you control the data base, you can do this as many times as you want without

being charged. You may also change any of the parameters of stations in the job file. For example, perhaps you find a class C2 facility that almost works, except for the class A station which is a couple kilometers shortspaced.

Just call up the class A station and change its coordinates and it will appear on the display as if it were at the coordinates you gave it. This will allow you to experiment with the possibility of moving a class A station to get a new class C2 facility. You may also change the class or channel of any station in the job file database.

If your computer has an EGA card, in addition to seeing very colorful screens, you may also get a video graphic display of each station which appears in a separation study. The transmitter sites appear on the screen as little yellow pixels plotted exactly where they exist according to their coordinates. Eminating from the pixels are colored circles which represent the F.C.C.'s required channel spacing distance based on a station's class. Your proposed transmitter site is located at the little white cross in the screens center. Red circles cross over your transmitter site and represent a less than available required spacing which therefore makes the channel unuseable, yellow represents a spacing circle which comes within 20 km, green 40 km and blue 60 and over. Areas shown on the screen where the required spacing circles do not cross are available as transmitter

(Cont. to page 2)

REMOTE CONTROL . . . FROM ANYWHERE!

GENTNER™
RF PRODUCTS DIVISION

VRC 1000



The VRC-1000 Voice Remote Control operates on the dial-up telephone system to allow you the freedom of remote control from anywhere. You communicate with the VRC-1000 by listening to its synthesized voice and commanding it with a Touch-Tone® (DTMF) key pad or portable automatic dialer.

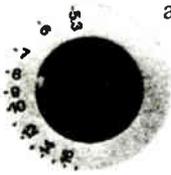
- * Synthesized voice reporting
- * Dial-up telephone interconnection
- * "Smart" operation
- * 16 Metering Channels
- * Audio monitoring of transmitter site
- * Full Automatic Transmission System (ATS) Capability
- * Can be used with any computer or PC w/modem option
- * Absolute security
- * Priced right

AM BROADCASTING - HIGH FIDELITY Are these terms mutually exclusive?

YES NO DON'T KNOW

Suprisingly, many broadcasters may not know that the correct answer to this question is no. Large sums of money are spent each year to purchase new transmitters, new studio equipment, new audio processing equipment and to modify antenna systems for improved AM sound. Unfortunately, until now, there has been no such thing as a professional quality AM monitor receiver. As a result, the perceived fidelity of an AM signal has been severely restricted by receiver performance.

Potomac has developed the SMR-11 Synthesized Monitor Receiver which will let you hear and measure the quality of your transmitted AM signal ... perhaps for the first time. Features include: Crystal Stability; 60 dB Signal to Noise Ratio; Audio Frequency Response ± 0.5 dB, 20 Hz to 8 kHz; Total Harmonic Distortion less than 0.2% (95% Modulation) at audio frequencies above 40 Hz ... please write for complete descriptive brochure.



THIS DIAL WILL TUNE YOU IN TO THE
NEW SOUND OF AM BROADCASTING

POTOMAC INSTRUMENTS

932 PHILADELPHIA AVE.
SILVER SPRING, MD 20910
(301) 589 2662

SEARCHING

(Cont'd from page 1)

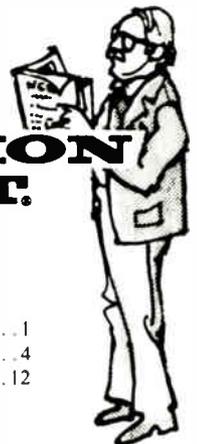
sites for the class of the station being sought. Tokens mark the location of cities or other prominent landmarks. You can quickly toggle back and forth between a standard separation listing and plotted graphic display. The graphic display shows at a glance, if a channel has possibilities at the reference coordinates or anywhere up to a couple hundred kilometer away.

Your searches will only be as accurate as the data you use to prepare them. If you choose not to maintain your own database, Broadcast Data Services of Arlington, Virginia will provide you with their fully complete digitized database. Updates for this database are available each week by modum from B.D.S., so your database can always be fresh. (Data-World) does not provide a weekly update service.) Once you have downloaded the B.D.S. update file, SEARCHFM applies the changes to your FM files automatically, so you never have to worry about the mechanics of updating. Under the SEARCHFM data format, your database exists on individual files organized by U.S. and Mexican States and Canadian Provinces. These files can be altered by SEARCHFM. For example, you can bring up any given station by simply typing its call letters at the command prompt. Your screen will display all pertinent technical information including such juicy tidbits as whether the station has translators, operates with beam tilt or is directional, its polarization, power and antenna height, licensee, file number and cutoff date. If you are constructing or keeping your own database, you can easily change any of the parameters of a data file station or add to the file, you can list stations on video or by printer organized in such combinations as station types, city, state, class, channel, file number and others. For example, if you wish a list of all

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SEARCHING

(Cont'd from page 2)

applications for new facilities or changes currently on file with the Commission in a given state you would type at the command line "I.TYAP", which means list the file by type with the type being identified as all "applications."

For the more sophisticated user with an X-Y plotter, SEARCHFM will also create a standard ASCCI sequential data file for any of the channels of a job file separation study. These files include the required separations and available distances for the channel under study which when fed to a plotter can be used to create a scaled separation study, overlaid against a map of your choice. Maps made in this way can tell you precisely where a transmitter tower can go to avoid bumping in to man-made physical objects like building, roads and airports.

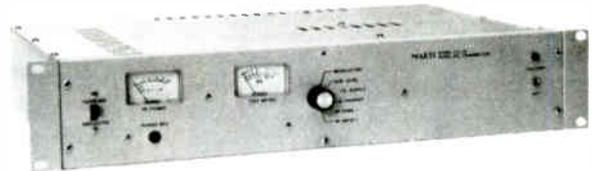
There are many more features too numerous to mention including a quickly addressable on-line help screen, which is rarely needed because the program is so straight forward with its "English like" commands. However, one feature which deserves a special mention is the "Track" command. When you hit the "T" key at the command line, the SEARCHFM will automatically search each of the 101 channels for you, beep as it finds one that works, and list the channel number to the screen. In fifteen or twenty seconds when it's finished, it will take you to a video display of the first available channel and its separations. Pressing enter moves you to the next channel and as you track these channels you can toggle back and forth to the graphics display.

Searching for FM channels was never as easy and as affordable as it can be now. (Even Mom would have fun using this program!) The price has been set comparable to some low end traffic and logging programs which more and more stations are buying. Perhaps its time for you to think about the new opportunities in FM facilities just waiting to be discovered...you can do it yourself with SEARCHFM.

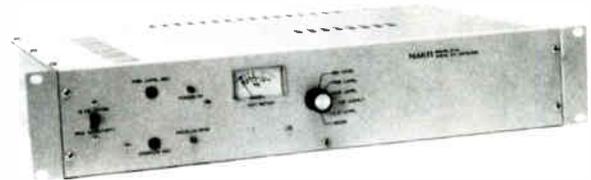
(Cont. to page 7)

MARTI

Put An End To Telco Line Charges And Save Thousands Of Dollars On Equipment With The Marti STL-10 System.



STL-10 TRANSMITTER



R-10 RECEIVER

A comparison of STL-10 specifications to other brands of STLs on the market shows the STL10 to be equal or superior in critical areas such as receiver selectivity and sensitivity, system signal to noise ratio, stereo separation, distortion, frequency response and redundancy. Considering Marti's 30 year reputation for high quality and great service, many are surprised that Marti STLs sell for thousands of dollars less than the overpriced competition. In today's economy, broadcasters are choosing Marti—the performance-value leader in broadcast equipment.

- FCC approved under Parts 74 and 94
- Available NOW for new FCC narrow band channels
- Unexcelled stereo separation, noise and distortion specs
- Four user programmable pre-emphasis options
- Five receiver bandwidths available for domestic and international
- Four program channels available in 500 KHz bandwidth

PRICED TO PLEASE
BSW SPECIAL

Mono System \$2,990.00
Stereo System *\$5,980.00

*Stereo system may require TX & RX combiners

MEMO FROM METZ



by
David L. Metz

“Building a Skimmer”

PART TWO

By David L. Metz

Last month we showed how to convert a digital controlled cassette deck into a skimmer. This month I'll show how to convert the audio section.

This circuit can be used not only for the skimmer, but for any application where you have to couple balanced audio from the “real world” to home entertainment equipment.

The problem is converting the 10K ohm unbalanced cassette input to a 600 ohm balanced input. At first glance a 600 ohm to 10K ohm transformer seems to be the simplest solution. That is till you try to find a high quality transformer that doesn't cost an arm and a leg.

Our old friend the op'amp is the solution. It's cheap, simple and offers gain if we need it. The new JFET input types such as the LF412 I used are rugged, have low noise and wide band width.

The circuit shown in FIG. 1 is a textbook classic differential amplifier. Resistors R1 & R2 set the input impedance of the amp. By using 10K ohm resistors, we have a bridging input that draws no current from the source. That means when you connect the skimmer to your audio system, the levels won't drop like they would if you used a 600 ohm transformer. Another reason to use a op-amp!

R3 sets the gain of the stage. If R1 equals R2, the gain is zero. R4 balances the input. It must equal R4. Since its hard to get perfectly matched resistors in the real world, I made part of the value of R4 a small trim pot.

This pot is the “Common Mode Adjustment”. The reason we've used transformers for so long, is that they will reject noise (hum) that has the same phase (Common Mode) on both wires. This is the important advantage of using balanced audio. Your op-amp will have better CMR (Common Mode Rejection) then most good transformers if you make the “Common Mode Adjustment” correctly.

After building the circuit as shown, connect both the + & - input terminals of the one of the left channel together. Then connect the shorted input to a audio oscillator set to the famous but boring one kilohertz tone.

Power up the circuit, connect a AC voltmeter or oscilloscope to the output terminal of the op-amp and adjust the R4 trimmer for a null. Remember if both inputs are in phase, and all the resistances are balanced, the negative input signal will perfectly subtract the positive input signal.

If the null occurs, remove the short and feed the amp a balanced signal. The output should be the same voltage as the input. If your cassette deck needs more audio, you can increase the amplification of the op-amp by increasing the values of R3 & R4. Be sure to proportion the value of the trimmer used in R4 as well.

Don't forget to adjust the CMR of both channels and check the phase of the outputs as well!

Be sure you use a high quality silver mica or polystyrene capacitor for C1! It has to be an effective bypass at RF frequencies. If you have a RFI problem, try ferrite beads between the input terminals and R1 and R2.

Next month, another classic circuit, we convert the unbalanced output of our cassette (CD, reel to reel, etc.) deck to balanced output!

(cont. to pg. 5)

Fritts Says Ad Tax Proposal Would Harm Broadcasting, Business

WASHINGTON, July 7. -- Edward O. Fritts, president, National Association of Broadcasters, urged a Congressional committee to reject any attempt to reduce the deductibility of advertising expenses because it would cause serve harm to the sales programs of American business and to the broadcasting industry.

Congress, in an effort to reduce the national deficit, is considering raising revenues by reducing or eliminating legitimate business deductions for advertising.

Testifying today before the U.S. House of Representatives' Committee on Ways and Means, Fritts said that “advertising, in its most basic form, is designed to inform the consumer of the availability of goods and services. The sale of those goods and services is the bedrock of our economy.”

He said the success of a broadcast station “is a direct function of advertising sold. Unlike other forms of communication, commercial over-the-air broadcasting is supported solely by the sale of advertising time. Any action which creates a disincentive to advertise will be most harmful to thousands of local radio and television outlets.”

Broadcast stations, in performing their public interest responsibilities, give the public local and national news, public affairs programming, public service campaigns and community outreach programs. “Loss of advertising revenue,” he said, “will, of necessity, mean a reduction in our ability to serve our communities.”

He said that broadcasters will suffer a double penalty from any attempt to reduce the deductibility of advertising as a proper business ex-

(Cont. to page 10)



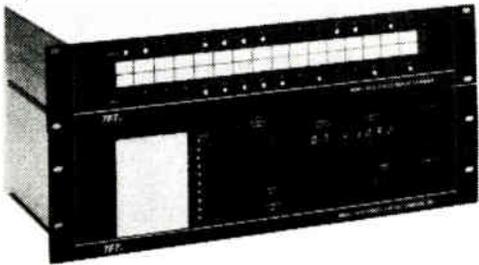
...Where new things are happening!

8610 SERIES

DIGITAL REMOTE CONTROL SYSTEM

Features

- Start with 10 channels each of Raise, Lower, Telemetry, and Status.
- Expandable to 70 channels of Raise, Lower, and Telemetry.
- Expandable to 42 Channels of Status and Alarm.
- Built-in relays for control and telemetry interface.
- Interfaces with STL, SCA, TSL and phone lines.
- Complete line of accessories for transmitter and monitoring interface.



AUDIO INTERFACE FOR SKIMMER
BRIDGING BALANCED INPUT
TO UNBALANCED HI-Z IN

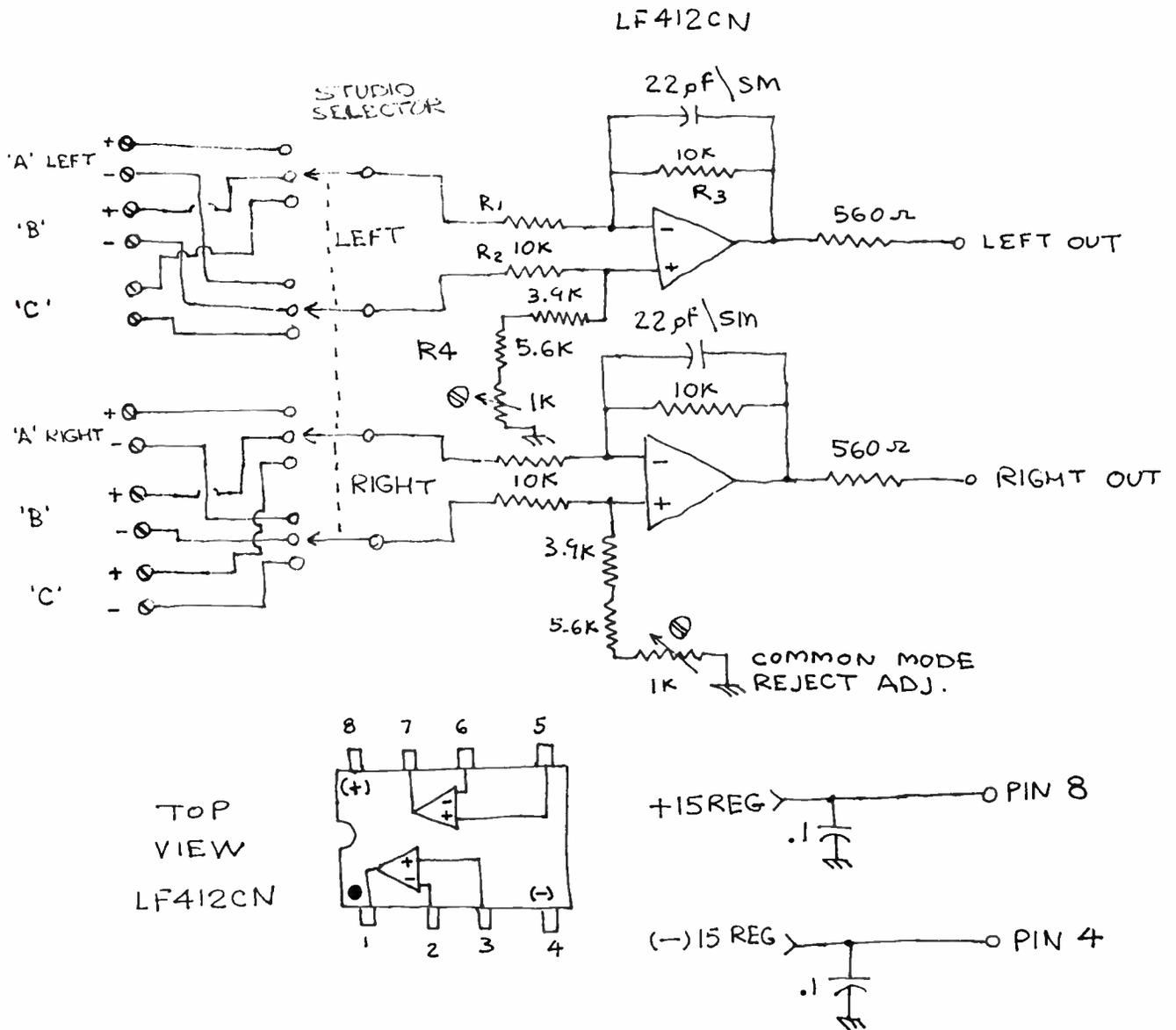


FIG. 1

FCC Modifies Main Studio Rule Effective July 16

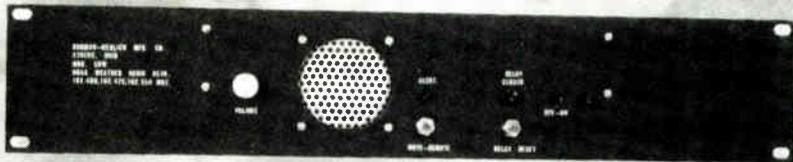
Under new FCC rules issued last week, stations will be given added flexibility on location of main studio, effective July 16. Under new rules, main studio may now be placed anywhere within principal community contours of station. For AM station--5 mV/m daytime contour; FM--3.16 mV/m; TV channels 2-6--74 dBu; channels 7-13--88 dBu; channels 14-69--80 dBu contours. Moreover, FCC has eliminated its program origination rule. Therefore, a licensee will no longer be required to originate more than 50% of its non-network programming from main studio or other points within community of license.

A licensee will, however, be required to maintain his public inspection file within his community of license and maintain a local or toll-free number in his community of license. In addition, licensee must still place requisite signal over community of license. Main studio changes to points within principal community contours do not require specific FCC authorization, but notification by letter should be made promptly to FCC.

Efficiency Expectations Exceeded In Tests Of UHF-TV Transmitter Tube

WASHINGTON, May 14--The experimental electric power reducing klystron tube has been successfully built by Varian Associates, Palo Alto, CA, and initial efficiency measurements exceed expectations, the National Association of Broadcasters announced today.

The tube promises to cut in half the power consumption, with a corresponding reduction in electric bills, of UHF television transmitters. NAB, along with the Public Broadcasting Service, the National Aeronautics and Space Administration, transmitter manufacturers and Varian, has supported this three-year project. The more efficient tube uses technology developed by NASA for its space program.



GORMAN-REDLICH

Model CRW WEATHER RECEIVER

- .28 MICROVOLT SENSITIVITY for CLEAR, RELIABLE RECEPTION.
- CRYSTAL and CERAMIC IF FILTERS, DUAL GATE MOSFET FRONT END for EXCELLENT INTERFERENCE REJECTION.
- ALL METAL ENCLOSURE.
- RELAY CLOSURE BY 1050 HZ. "ALERT" TONE for AUTOMATED RECORDING of EMERGENCY MESSAGES or TO SET OFF A REMOTE BELL OR LIGHT.
- ONE YEAR WARRANTY and IMMEDIATE DELIVERY.
- 1050 HZ. "ALERT" TONE DEMUTES RECEIVER, GATES AUDIO TO REAR TERMINALS, and ENERGIZES A FLASHING LED for LOCAL and/or REMOTE ALARM.
- JACK for 50 OHM OUTDOOR ANTENNA.
- FALSE ALARMS and MISSED ALERTS ELIMINATED BY HIGH Q, INDIVIDUALLY TUNED ACTIVE FILTERS, and a CIRCUIT THAT REQUIRES AT LEAST FOUR SECONDS OF CONTINUOUS TONE SIGNAL TO TRIGGER.
- MIL SPEC P.C. BOARD, SOCKETED ICs, CONSERVATIVE COMPONENT RATINGS for LONG MAINTENANCE FREE PERFORMANCE.

\$475⁰⁰

ELECTRONIC INDUSTRIES INCORPORATED
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LPB[®] AUDIO CONSOLES



LPB CITATION SERIES

Most versatile audio consoles. Available in 8 mixer dual stereo or 10 mixer dual stereo. Options include additional VU meters, linear faders, digital timers and clocks.

- | | |
|---|----------------------|
| C-8S 8 ch dual stereo
w/rotary faders | list price \$8495.00 |
| C-8SL 8 ch dual stereo
w/linear faders | list price \$9195.00 |
| C-10S 10 ch dual stereo
w/rotary faders | list price \$8995.00 |
| C-10SL 10 ch dual stereo
w/linear faders | list price \$9995.00 |

LPB accessories available for Citation Series

LPB ALPHA SERIES

LPB Alpha-series broadcast audio consoles are designed to be cost effective, yet completely "state-of-the-art." VCA level control and DC solid-state switching keep the audio signal path short to virtually eliminate signal degradation through the console.

Three inputs per mixer, user-programmable monitor and cue muting, transformerless design (output transformers optional), mono mixdown output, built-in 8-watt per channel monitor amplifier, headphone and monitor switching, +8dBm/600 ohm auxiliary outputs, all input plug-ins capable of mic or line level, screw barrier terminal input and output connections, long-life pushbuttons, LED status indicators, fluorescent level meters, 15dB output headroom above +8dBm, momentary remote start pushbuttons, tally contacts.

8 channel list price \$3995.00

SEARCHING

(Cont'd from page 3)

DOUG VERNIER BROADCAST CONSULTANT
1600 PICTURESQUE DR. CEDAR FALLS IA. 50613

Searching at Milwaukee, Wisconsin

Sample Print Out

REFERENCE 43 2 18 N CLASS A DISPLAY SEARCH DATE
87 54 48 W 07-02-87
----- CHANNEL 251 - 98.1 MHz -----

CALL	CH#	CITY	STATE	BEAR'	D-KM	R-KM	MARGIN
WMGN	251B	MADISON	WI	266.0	119.8	163.0	-43.2 *
WFMR	252A	MENOMONEE FALLS	WI	305.9	21.1	64.0	-42.9 *
WLUP	250B	CHICAGO	IL	169.3	128.8	105.0	23.8
WSPT-A	250C	STEVENS POINT	WI	320.9	214.6	169.0	45.6
WWJR	249A	SHEBOYGAN	WI	10.8	77.1	27.0	50.1
WZOK	248B	ROCKFORD	IL	227.6	124.8	69.0	55.8
WFMT	254B	CHICAGO	IL	169.3	128.8	69.0	59.8
WAVX	252A	NORTH MUSKEGON	MI	79.0	138.1	64.0	74.1
WDUZ-A	253C1	GREEN BAY	WI	357.6	152.3	74.0	78.3
WGRD	250B	GRAND RAPIDS	MI	98.3	186.8	105.0	81.8
WGRD-C	250B	GRAND RAPIDS	MI	98.3	186.8	105.0	81.8
WXXQ	253B	FREEPORT	IL	239.7	159.6	69.0	90.6
WCSY	252A	SOUTH HAVEN	MI	121.0	159.0	64.0	95.0
WCSY-C	252A	SOUTH HAVEN	MI	121.0	159.0	64.0	95.0

Doug Vernier is a Broadcast Technical Consultant and the Director of Broadcasting, KUNI/KHKE at the University of Northern Iowa, Cedar Falls, IA. He is also the unabashed author of the program he describes. For further information, call Electronic Industries at our toll free numbers.

NAB Opposes Senate License Renewal Bill, Cites High Cost of Responding to Challenges. Attacks Government Second-Guessing of Broadcasting Content

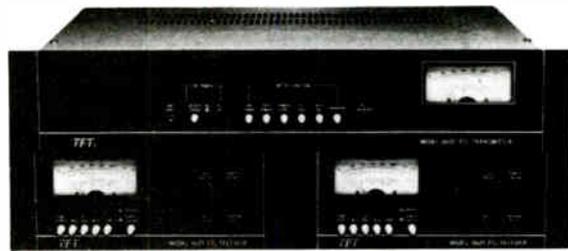
WASHINGTON. Broadcasters oppose "a wholesale return to unneeded and overly restrictive federal regulation," NAB President and CEO Edward O. Fritts told the Senate Communications committee today. He testified against S. 1277, the "Broadcasting Improvements Act of 1987."

"There seems to be a growing perception that the public interest standard has been gutted, that broadcast deregulation has been a disaster for the public...Nothing could be further from the truth...Nothing that has resulted from the past decade of deregulation warrants such a turning back of the clock," Fritts said.

"The present structure, within which broadcasters can serve the public without unnecessary paperwork, and within which they have broad editorial discretion, comports with the First Amendment, the Communications Act, and with economic realities. It also comports with common sense."

Fritts said, "Comparative renewal is an inherently unfair procedure because it permits a challenger to throw the incumbent into a full scale renewal hearing merely by filing a com-

(Cont. to page 11)



Budget Winner
8600 Aural STL System
(950 MHz)

System shown above includes dual link, redundant receivers. At the studio or transmitter only 3½" of rack space required.

New High Quality
New Low Price

Features

- Designed to utilize the new FCC narrowband spectrum allocations.
- Optimized for single channel or dual monaural operation.
- Front panel accessible subcarrier SCA generator and demodulator for supervisory or data link.
- Spurios-free, on-channel power amplification.
- Built-in adjustments for phase and gain matching between dual links.
- Two Year Limited Warranty.

General Description

The Model 8600/8601 is an economical, high-quality Studio-To-Transmitter (STL) system which is specifically designed for either single channel or dual monaural channel radio broadcast applications.

FCC rulings permit 100 KHz "drop-ins" in the 950 MHz STL band. The 8600 system meets the FCC criteria which permits broadcasters to use a monaural link between two composite links. It is an ideal narrowband system which is optimized for operation in congested STL environments. The system is designed to deliver superlative audio quality without signal degradation or adjacent channel interference.

Spectacular Prices

System C Mono \$2,995.00

8600/8601 Mfg. list \$3,195.00

System E Stereo *\$5,990.00

8600/8601 Mfg. list \$6,390.00

*Stereo system may require combiner/splitter

Order separately

Shepler Says. .



by John Q. Shepler
Technical Consultant

The Law of Crunching

A question that's often asked is: "What's the matter with my audio processing?"

The person asking that question is usually a disappointed engineer, program director, or station manager who has just shelled out a bundle for the latest processing tool or transmitter. They felt so certain that only a purchase order was standing between them and success. What went wrong?

Many times the disappointing results are not the fault of the new equipment. They are due to problems that were always lying dormant in the system. The problems were simply not noticed until forced into the foreground by a transparent transmitter or high power processing scheme.

Processing, especially, is subject to this effect. In fact, it's possible to state the following as a general rule:

AUDIO PROCESSORS WILL AMPLIFY NOISE AND DISTORTION AND ACCENTUATE FREQUENCY RESPONSE PROBLEMS IN DIRECT PROPORTION TO THE INTENSITY OF THE PROCESSING.

This "law of crunching" says that the harder you push your audio, the more your problems will stick out like a sore thumb. It stands to reason. That extra loudness and high end energy had to come from somewhere. Where it comes from is the dynamic range of your signal.

In a practical sense, this means that you must have an actual excess of linearity, headroom, frequency response, stereo separation, noise floor, etc. if you intend to do a good processing job. This is especially important for stations that want to sound clean and natural while still maintaining a competitive position on the dial.

Subtleties are more critical that you might think. For instance both albums and compact discs have excellent specs - specs that often

exceed those of the receivers. However, even casual listeners can tell the difference when a CD is aired following an album or cart.

So, if you are disappointed in your own signal and have not been able to achieve that elusive sound you desire by purchasing new equipment, it is time to examine the rest of your facility from stylus to antenna. Standards that were adequate ten years ago may have to be exceeded by a factor of 10 to really shine in today's competitive markets. Be sure that your new processor has the inputs it needs to give you the results you want.



**TRY BEFORE
YOU BUY!
CALL FOR DETAILS**



Model 400 Mic Processor
How do you emphasize your on-air personalities' impact? Give them a Model 400 Mic Processor from Valley People! To begin with, the Model 400 contains a high quality mic preamp so you can go line level into your console.

Other features include:

- 3 band EQ section
- Compressor/Expander
- Noise gate
- De-esser

The Model 400 from Valley People offers the ultimate vocal mic control and dynamics processing capability.

Mfg. list \$649.00
Call For BSW Price
1-800-426-8434



CALL

ELECTRONIC INDUSTRIES

19 EAST IRVING - OSHKOSH, WI 54901

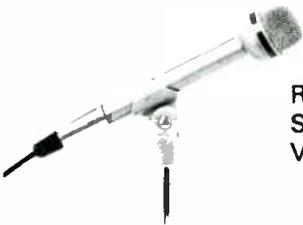
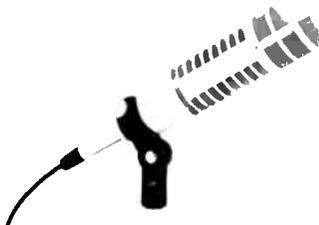
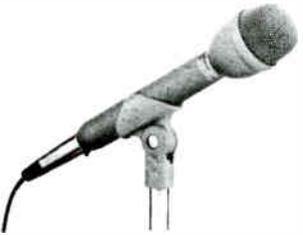
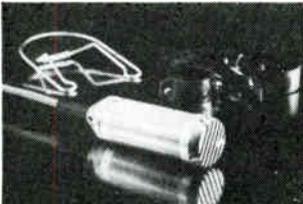
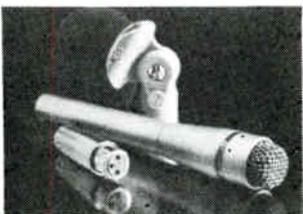
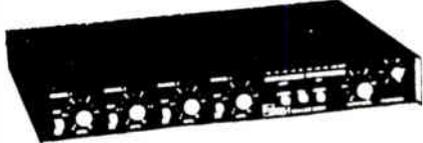
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 <p>RE18 Shock-mounted Variable-D® Cardioid</p> <p style="text-align: right;">\$204.00</p>	<p>RE20 Variable-D® Cardioid</p> <p style="text-align: right;">\$360.00</p> 
 <p>644 SOUND SPOT® DUEL-Z DYNAMIC</p> <p style="text-align: right;">\$188.00</p>	<p>RE15 VARIABLE-D® SUPER-CARDIOD</p> <p style="text-align: right;">\$189.00</p> 
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 <p>RE85 Noiseless Lavalier</p> <p style="text-align: right;">\$109.00</p>	<p>635A Omnidirectional</p> <p style="text-align: right;">\$74.00</p> 
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 <p>CO15P Omnidirectional System</p> <p style="text-align: right;">\$219.00</p>	<p>CS15P Single-D Cardioid System</p> <p style="text-align: right;">\$190.00</p> 
 <p>658L CARDIOD DYNAMIC WITH SWITCH</p> <p style="text-align: right;">\$47.69</p>	<p>PROFISSIONAL MICROPHONE MIXER</p> <p style="text-align: right;">\$374.00</p>  <div style="font-size: small; margin-top: 10px;"> <p>Features</p> <ul style="list-style-type: none"> • 4 mic or line inputs • Phantom power • Peak Limiter • AC/DC power • Headphone amplifier • 1 khz tone oscillator • balanced inputs/outputs </div>

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Technics

Everybody's Talking About The New Technics Compact Disc Player



SL-P1200

Technics developed the SL-P1200 to serve as a reference CD player for broadcast and other situations where the highest possible sound quality is demanded. To this end, Technics has put its most advanced technology into this unit, including such innovations as the FFI laser pickup, High Resolution Digital Filter, and Class AA circuitry. Experienced listeners will notice the difference in sound quality. The SL-P1200 has features broadcast professionals demand

- Automatic cueing to music
- Pitch control $\pm 8\%$
- Search dial cueing
- Built to take 24 hour a day operation
- 20 selection random access programming
- Wireless remote control standard
- Wired remote capability
- Anti-vibration cabinet

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Fritts

(Cont'd from page 4)

pense. He pointed out that they not only rely on ad revenue to sustain their business, but they also advertise to build audiences.

Fritts disputed the notion that there is a residual value to advertising which would justify deferral of its taxdeductibility. "There is little or no evidence to support the idea of an extended benefit in advertising. In fact, common sense would seem to dictate the contrary," he stated.

Fritts also said that treating the deductibility of advertising differently than any other ordinary and necessary business expenses would be discriminatory. Business expenses such as job training, research and development and public relations are fully deductible. "Is there any business or tax purpose to be served by discriminating against advertising?" he asked.

He noted that the proposals, by creating a disincentive to advertising, exacerbate a trend toward more promotion and less advertising. Promotion budgets are growing at a rate of 20 percent a year whereas advertising grew at 7.9 percent in 1985 and an estimated 7.6 percent in 1986. "Any disincentive to purchase advertising will lead to greater expenditures in promotional activity," he said.

Concerning proposals to deny any deduction for advertising and promotion of tobacco or alcohol, he said NAB opposes both. While tobacco advertisements on radio and television are prohibited by law, the beer and wine portion would have a severe financial impact on broadcasters. In addition, "loss of deductibility for these product categories would set a precedent for similar actions in other product categories that raise health or social policy concerns."

Fritts pointed out that broadcasters nationally and locally have been leaders in alerting the public to the dangers of alcohol abuse. The critical difference between alcohol and tobacco products, he said, is that "consumption of tobacco is per se harmful; it is the abuse or misuse of beer and wine which creates societal concern."

NAB serves a membership of more than 5,000 radio and 940 television stations, including all the major networks.

NAB

(Cont'd from page 7)

peting renewal application."

He said an NAB analysis of 20 representative renewal challenges of radio and TV stations from 1970 through 1983 showed that the challenges lasted an average of 7 years and 10 months and involved more than 5,000 pages each of testimony, exhibits, letters, positions, decisions and other statements.

"The average cost for legal fees in the sample of comparative renewal cases amounted to \$830,000 per incident (\$595,000 for radio and nearly \$1.2 million for television), exclusive of station revenue lost while cases were pending and of agreement in which the incumbent assumed the debt of the challenging party."

Fritts added, "Small market station costs ran an average of \$257,000, while larger market station legal expenses topped \$1.25 million."

The public, too, is ill-served...A station whose financial and human resources are being siphoned off by a comparative renewal challenge cannot provide the full measure of service to which the public is entitled."

He praised sections of the Senate bill that establish a two-step renewal process, eliminate the five-year sunset on the FCC's must-carry decision, and prohibit payoffs to renewal challengers. He said NAB generally favors the minority policies embodied in the bill.

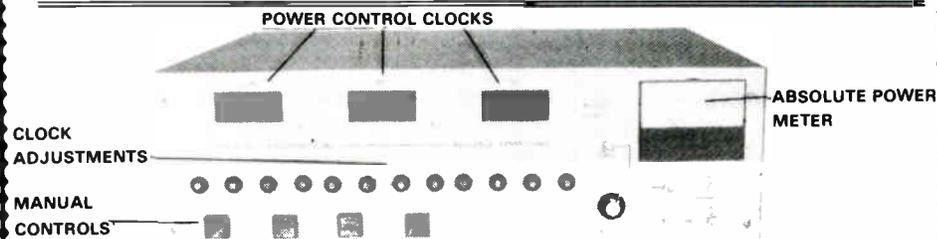
However, Fritts said that, overall, "NAB strongly opposes the current bill, because unlike previous Senate bills, S.1277 presents to the broadcasting industry a 'price tag' for needed reform that is prohibitively high."

NAB serves a membership of more than 5,000 radio and 940 television stations, including all the major networks.

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- Normal Monitor Readings
Plus FCC Required Readings
for Absolute Power
- Operate With Authorized
Power As Low As One Watt
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Proven For Over A Year
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"Prime" Time Each Year



- PSA-1** Contains control unit and power divider. Capable of three-level (day-psr-pss) power control with completely automatic clock operation for Pre-sunrise/ Post-sunset powers to 1000 watts. Clocks are adjusted monthly for local Sunrise-Sunset times. Local and remote control can override clocks at any time without losing clock settings. Clocks can be disabled locally without losing remote/local control. Clock and current operating mode is not lost in event of power failure **\$3,995**
- PSA-2** Contains control unit and power divider. Same as PSA-1 except no clock operation, controls are set up to work manually or through remote control with no additional relays needed **\$2,995**
- PSA-3** Contains power divider only. Single manual cutback to power levels less than available on transmitter. Can be set up to work through remote control with addition of latching relays. Includes RF Detector for sampling power output. Requires local manual control and metering panel. **\$1,695**
- PSA-4** Contains power divider only. Same as PSA-3 except two power cutback levels **\$1,945**
- PSA-5** Contains control and power dividers. For stations with power of 2500/ 5000 watts. Includes PSA-1 with additional load type power divider with control. Not needed if transmitter cuts back to 1000 watts or less **\$4,495**

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The Big Broadcasters of 1939

By Bill Bragg

Editor's note: Bill Bragg is Founder/Director of THE NATIONAL BROADCAST MUSEUM, INC., a non-profit tax-exempt organization. The Museum will re-open in early 1986, and is not accepting donations of cash and broadcast related artifacts. For more information, please write or call THE NATIONAL BROADCAST MUSEUM, 2001 Plymouth Rock, Richardson, TX 75081, (214) 556-1234.

I live in the Dallas/Ft. Worth area, and like many other communities around this nation, our Radio Stations are among the best in the world. They've got more helicopters, color radar units and computers than some small countries. Several of our DJ's earn more than President Reagan and one jock does mornings in Dallas and flies to Chicago to do his afternoon show. But back in 1939, things were just as exciting as today.

Dallas' WFAA had a live show every morning than ran for 30 years. "THE EARLY BIRDS", as they were called, had a cast of about 10 regulars plus a full orchestra. Some

of the many scripts written for the program were recently donated to the Museum and are stacked 6 feet high in our warehouse. Dale Evans and Sonny James got their start here, as did many others. FAA's Staff Orchestra contained 11 full time members plus a director. They had a 10 member band too, and no less than 24 "live" acts which performed daily. There were 10 announcers, 4 newsmen, a sound effects man and a full time music arranger. The music library contained 4,000 sound recordings and 6,000 pieces of sheet music for the orchestra, and required the services of a Librarian. Management had a staff of 5, there were 9 engineers, and the Office Manager had a crew of nine. The mobile unit was a 1937 1½ ton Chevy panel truck, with six short wave transmitters, assorted receivers and a public address system. According to the 1941 "Family Album", which was 65 pages of pictures, the truck had its own call sign, a power plant large enough for a city of 500 and the 35 foot antenna mast gave it a range of 50 miles. They shared a 50,000 watt clear channel transmitter with WBAP, and every 8 hours, they would ring a cowbell and changed

frequencies. That way, both stations could have a clear channel frequency ... at least part of the day.

Over in Ft. Worth, the headquarters for WBAP, the story was about the same. In those days, the stations worked together and there was room for both. They were each Network affiliates, plus members of the "TQN", the TEXAS QUALITY NETWORK. The "TEXAS SCHOOL OF THE AIR" was a supplement to classroom instruction, the "BABY PULLET MAN" reported on the poultry industry, there were "live reports from the Grain and Cotton Exchange plus daily stock market quotations. There was a full time Live Stock Reporter, a Farm and Ranch Reporter and an Oil Editor to report on the petroleum industry. There were also "live" reports from the Dallas Cotton Exchange and the Weather Bureau and once each day, Mr. Haling would read articles from out of town newspapers.

Sunday's were big too, with two "live" church remotes. Uncle Scooter would sit on the floor of Studio A and read the funny paper to an estimated 50,000 youngsters, and the

(Cont. to page 14)

MAX-Z

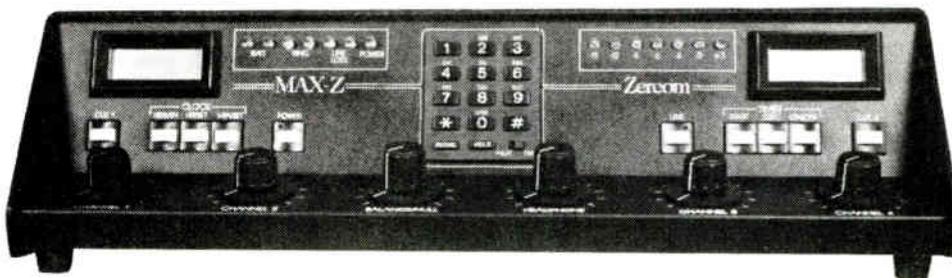


MAX-Z comes complete with its own custom made carrying case.

10% REBATE OFFER!

E.I. Low Price: **639.00**
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World-Class Remotes And Rebates Too!



A short list of standard features includes... carrying case, built in rechargeable batteries and charger, clock, stopwatch/timer, V.U. meter, wide range audio inputs (will match almost anything, cue channel, phone line alarms, memory dialing (tone or pulse), low battery indicator, ring indicator, line loss indicator, headset level, null, cue buttons, notch filter, high low boost, frequency response: 20 to 20,000 hz ± 0.5 db, signal to noise: 86 db (line level input) 70 db (mic level input), distortion: 0.15% typical.

NEW!!

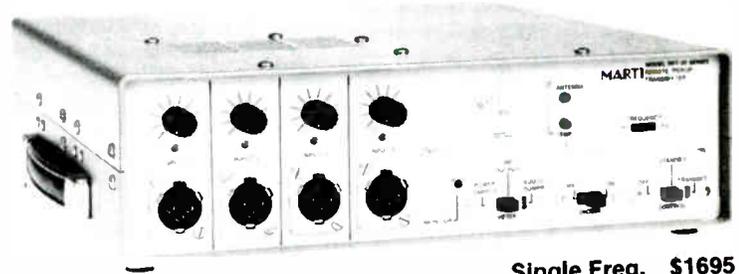
MARTI

MODEL RPT-30

REMOTE PICKUP BROADCAST TRANSMITTER

RPT-30 FEATURES

- ★ 20% more output power, 52% smaller, 40% lighter.
- ★ Subaudible encoder.
- ★ FM compressor-limiter.
- ★ Illuminated VU meter.
- ★ Dual-frequency capability.
- ★ Four balanced microphone mixing inputs, one switchable to balanced line level.
- ★ Flashing LEDs indicate antenna VSWR problems and over-temperature conditions.
- ★ FCC approved.
- ★ Continuous duty-broadcast quality.



Single Freq. \$1695
Dual Freq. \$1725

SPECIFICATIONS

- Frequency Range and Maximum Power Output 140-180 MHz - 45 Watts
200-260 MHz - 40 Watts
280-340 MHz - 35 Watts
400-480 MHz - 30 Watts
- RF Connector SO-239
- Operating Temp. Range -10°C to +45°C
- Modulation (Specify) 10F3 (± 1.5 KHz Deviation)
25F3 (± 4 KHz Deviation)
50F3 (± 8 KHz Deviation)
- Channels (Frequencies) Two frequencies selected by switch. Freq. separation 1.1% max.
- Frequency Stability Mobile .0005% Base .00025% (above 400 MHz)
- Spurious Emission Meets FCC Requirements
- Audio Inputs Four Balanced microphone (150 ohm) inputs (XLR3) with mixing controls. One input switchable to balanced line level at mic. No 4 input and "D" connector on rear.
- Modulation Control Broadcast quality Compressor/Limiter built in.
- Encoding Subaudible tone (27 Hz.) encoder built in.
- Metering/Indicators Illuminated meter indicates audio compression, relative RF output, relative supply voltage. Flashing LED's indicate "Antenna" (VSWR) and high "temp."
- Controls (4) input level, meter sw., encode sw., power sw., frequency sw., monitor jack.
- Power Requirements 110-125 V. 50-60 Hz. (220 V. 50 Hz. available on special order) DC operation on 11-13.5 V negative ground.
- Accessory Connector 9 pin "D" connector for DC power, remote control, encode, line level input.
- Weight 12.4 lbs. net, 16 lbs. shipping wt.
- Dimensions 11.5 in. wide x 3.5 in. high x 13.3 in. deep

NEW!!

The MODEL RPT-30 is a light, compact, but powerful transmitter designed for remote pickup broadcast service. It will operate in **continuous duty** while providing **broadcast quality** audio when used with the MARTI CR-10 or AR-10 receivers. Operating from internal regulated power supply or external 11 to 13.5V. DC (negative ground) power, the RPT-30 delivers high performance in mobile, portable or fixed station applications. The RPT-30 is designed to operate with other Marti equipment to function in mobile repeaters, fixed automatic repeaters, base stations and transmitter to studio links (TSL). Four balanced inputs with mixing are provided. Input number four may be switched to balanced line level if desired. Other advanced features include a high performance FM compressor/limiter, subaudible encoder, dual frequency operation, illuminated meter, warning lights for antenna VSWR and temperature.

System Specifications				
Type Emission	Receiver Model No.	System Freq. Response ±1.5 DB	Dist. %	S/N Ratio DB*
25F3	AR-10/150, CR-10/150	50-7.500	2	50
50F3	AR-10/450, CR-10/450	50-10.500	2	53
25F3	AR-10/450, CR-10/450	50-7.500	2	50
10F3	AR-10/450, CR-10/450	50-3.000	2	40
50F3	AR-10/450, CR-10/450	50-15.000	2	55

RPT-30 ACCESSORIES

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.

Part Number	Description	Price
Crystal	Factory installed with original order - second frequency of DF	\$30.00
MCD-70C	Microphone with 3-pin XLR-3 plug, 14' cord	\$80.00
MCD-70D	Microphone with 3-pin XLR-3 plug, 9' coil cord	\$80.00
TR-3	Antenna relay for RPT 30 for 2-way operation	\$35.00
700-251	Mobile mounting kit for RPT-30, 4 mtg. fasteners with DC power plug, fuse & cable	\$48.60
586-073	12' microphone cable for push-to-talk control of 700-251 mobile kit (requires MCD-70B mic.)	\$18.00
586-074	DC power plug, fuse, cable for RPT-30	\$19.50
585-037-1	Fixed repeat cable, CR-10 to RPT-30	\$27.50
585-037-2	Mobile repeat cable, AR-10 to RPT-30	\$27.50
700-253	Rack mounting kit for RPT-30	\$19.50

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Braggs (Cont'd from page 12)

prison series, "THIRTY MINUTES BEHIND THE WALLS", once generated 52,000 letters in a single week. Sunday nights were concluded with "live" reports from 4 commentators.

All of this is not to say that Dallas/Ft. Worth and WFAA/WBAP were the worlds' greatest. I'm sure that many other markets could do just as much "BRAGGING" (pardon the pun) too. However, it was time for another article... and the FAA/BAP Family Albums were on the top of my nearest stack of Museum "goodies".

The Amos and Andy Show

AMOS AND ANDY, one of America's longest running and most popular radio shows, first began in 1926 over station WGN in Chicago. The series was called SAM AND HENRY, but when they moved to WMAQ in 1928, the title was changed to AMOS AND ANDY. NBC picked up the program in 1929, and in 1954, it became THE AMOS AND ANDY MUSIC HALL; featuring the Jubalairs, The Four Knights and The Jeff Alexander Chorus. Some of the sponsors included; Pepsodent toothpaste, Campbell's soup, Rinso soap, Rexall and Chrysler.

The main characters were Andrew Halt Brown, president of the Fresh Air Taxi Company, Amos Jones, his cab driver/partner and George "Kingfish" Stevens, a con-artist and head of the "Mystic Knights of the Sea" fraternity. Amos and the "Kingfish" were played by Freeman Gosden, while Charles Correll played the part of Andy. Both actors were white, but began appearing in "black face" in Durham, NC in 1919.

Amos' wife, Ruby, was played by Elinor Harriot and Terry Howard was Arbadella, their daughter. Andy's girl, Madame Queen, was Harriette Widmer, and Ernestine Wade was Sapphire Stevens. Freeman Gosden also played "Lightnin" the janitor.

When AMOS AND ANDY were on the air, everybody tuned in. Some theater owners would even stop the film and feed the program into the sound system. In Canada, station CHML signed off the air and sold 15 minutes of "blank air" to a lumber company, so their listeners could hear the program over WBEN in Buffalo. The radio version ended in November of 1960, and it was seen on TV for a brief period; but with a different cast.

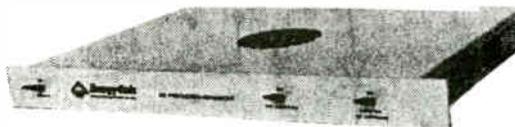
This information was compiled from the National Broadcast Museum Library, which now contains over 3,000 historical documents, books and schematic drawings.



Combining amp

Henry Engineering's Mix-Minus Plus is specialized combining amplifier designed to add a "Mix-Minus" output to broadcast audio consoles that lack this feature.

The unit subtracts the on-air telephoen audio from the program bus audio to provide a program mix *minus* caller audio, which is then fed back down the line to the caller. The unit can achieve a 40 dB null.



NRSC AM protector

Energy-Onix Broadcast Equipment has developed a line of equipment to meet the specific filter and pre-emphasis requirements recommended by the NRSC for AM.

The line includes the AM Protector-Enhancer, which incorporates a built-in switchable pre-emphasis circuit and a low pass filter.

The AM Protector has a proprietary circuit which compares the level of the high and low frequencies and prevents the hig frequencies from falsely triggering the limiter circuit. The company also offers a stand alone monitor de-emphasis unit and an independent NRSC filter mounted on a PC board.

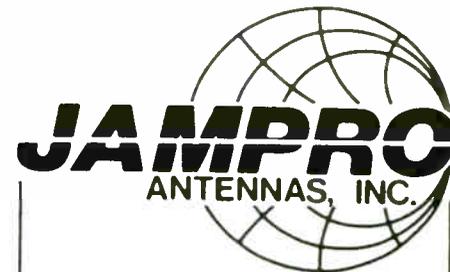


Cassette deck

Tascam's new 112 cassette deck features a two-head configuration coupled with high slew rate ICs and bi-polar power supplies to provide extended dynamic range and frequency response.

Dolby HX Pro noise reduction and pitch control complements Dolby B and Dolby C circuitry.

The result is improved signal-to-noise performance, according to the company.



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SPF-300

STANDARD PRE-EMPHASIS/FILTER FOR AM
BROADCAST TRANSMISSION



MDF-400/800

DE-EMPHASIS/FILTER FOR AM MONITORS



For the many AM Stereo stations that use our industry standard SMP-900 Matrix Limiter, an easy to install retrofit kit is available. The FL-1 PC board assembly mounts inside the SMP-900, and provides the low-pass filter response called for by the NRSC standard. Precise group delay equalized and patented overshoot-corrected filters ensure maximum high frequency separation.

For the transmission end of your mono AM station, we offer the SPF-300 Standard Pre-emphasis/Audio Low Pass Filter. The SPF-300 contains these functions as two separate loop-through ports, the first of which is the pre-emphasis function. This pre-emphasis function conforms to the NRSC curve, and is connected into the audio path directly in front of the station's final peak limiter. Your station's peak limiter then feeds the second section of the SPF-300, which contains a delay equalized and overshoot-corrected low pass filter. This CRL patented design allows the sharp filter response at 10 kHz called for by the NRSC standard without loss of peak modulation capability. In addition the SPF-300 includes a selectable tilt correction circuit, plus modulation asymmetry control. All functions of the SPF-300 may be bypassed for ease of system testing.

For the reception end of your AM station, we offer the MDF400/800. The CRL Monitor De-Emphasis/Filter provides all the functions required to update any AM modulation monitor or wideband receiver for the new NRSC standard. The MDF400/800 emulates the audio characteristic of the best-possible commercially produced radios. The MDF 400/800 consists of three selectable function blocks, which includes the standard AM de-emphasis curve, a high Q-10 kHz notch filter, and a switchable 9.5/11 kHz low pass filter. All of the function blocks are controlled from the front panel. The unity gain MDF400/800 is fed by your existing monitor source. The MDF 400 is for mono applications, the MDF 800 is for stereo applications.

The price of AM improvement is nice too! The SPF-300 list price is only \$495.00, the MDF-400 (Mono) \$295.00, and the MDF-800 (Stereo) \$395.00. The low pass filter (FL-1) kit for the SMP-900 is \$195.00. These units are available for purchase now. If you need more information on these units, or want to talk about the improvements that the new NRSC standard offers, please call us at (800) 535-7648, or write to us at the address below.

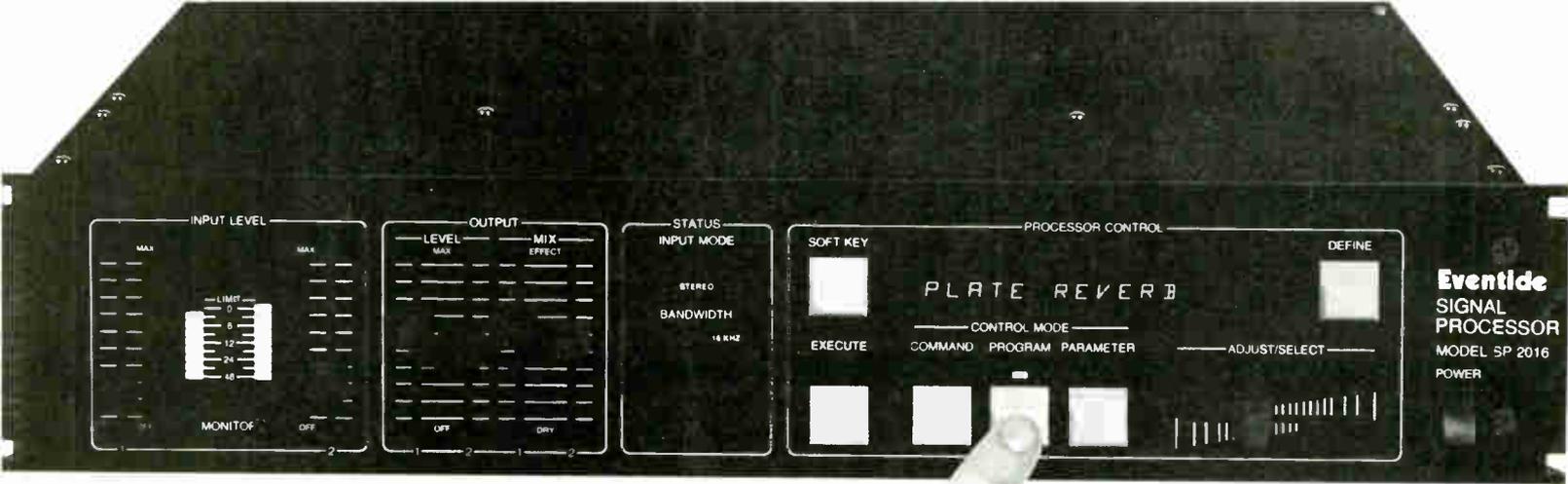
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