

Mutual filing for new satellite system

Arlington Va...Within the next few weeks, Mutual Broadcasting System (MBS) will be filling a new satellite system application with the FCC. The application will be patterned after the already approved National Public Radio (NPR) system in an attempt by Mutual to get prompt, and positive, FCC action. The proposed MBS system will consist of 200 earth stations located at Mutual affiliates in the top radio markets. Each earth station will use a California Microwave Inc (CMI) 4.5 meter dish with associated electronics, and if approved, MBS hopes to have the initial systems in and operating by mid-1980.

History of MBS Satellite Programs

Mutual began to seriously evaluate the advantages of going to satellite distribution in 1976. While the theoretical technical advantage was obvious (increased system frequency response), the earth stations available at that time were too expensive for a project of this type. Western Union, working with Hughes, funded

a project to develop a reasonably inexpensive, small aperture earth station and came up with a small terminal for about \$12,000 each. Simultaneously, the technology for the up-link terminal was advancing to the point where a network could justify having its own transmitting system without using any land-lines.

CMI then decided to get into bidding for the small dishes, and after serious evaluation by MBS, they were selected as contractor. By 3 March 1978, MBS was in a position to file its application with the FCC for a national, satellite distribution network for its programming. The system as proposed, and still before the FCC, envisaged 500 small 10 foot earth stations located across the country in markets served by Mutual.

System Advantages

While MBS still desires FCC approval for their 500-unit system application the 200-unit system (using larger dishes) may be implemented

first. In either case, using satellite distribution, MBS will be able to deliver a superior signal to its affiliates. System bandwidth of 15KHz, with plus or minus 0.5db across 50-15KHz, and a signal to noise ratio of 70db is expected. This compares to a 5KHz signal or even 3.5KHz signal at many affiliates using the current telco line system.

From the point of view of cost, MBS will also be ahead. With an AT&T bill in excess of \$2 million per year, MBS expects to be spending only \$250,000 per year for satellite time on Western Union's Westar I. Of course, this cost will increase if Mutual decides to add more channels and services. The complete system of earth stations will be installed, maintained and owned by Mutual at an initial capital outlay of \$10 million. Even if this is capitalized over a 10 year period (or \$1 million per year), MBS is still ahead versus using AT&T.

According to Dr. Raymond Rask, Mutual's Director of Satellite and Corporate Engineering, the straight cost savings are only one aspect of



CMI Earth Station

Mutual's thinking. The improved quality of service opens up the potential for all types of new programming for Mutual. In fact, MBS plans on maintaining the same rate structure in dealing with its affiliates, but hopes that the new services will increase Mutual's sales to advertisers and increase Mutual's appeal to its affiliates (current and future).

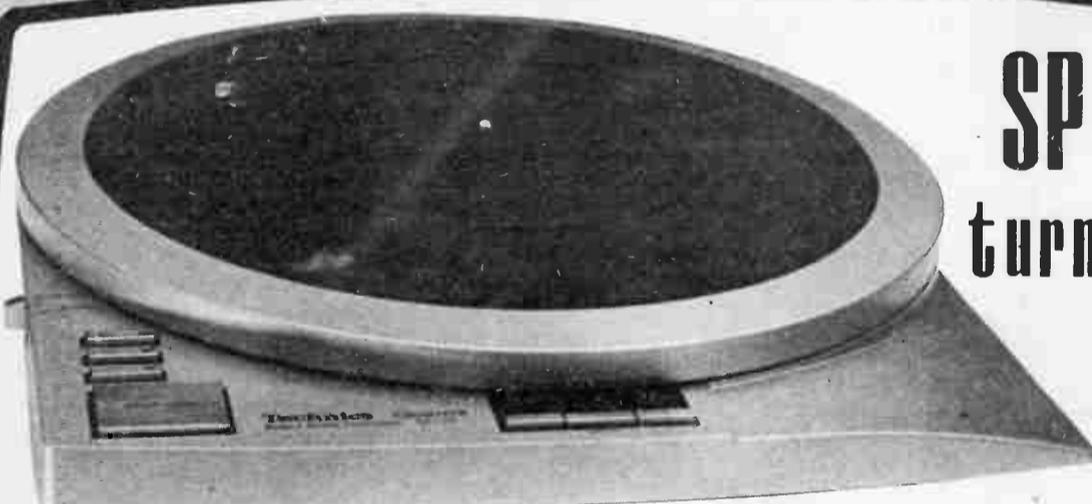
Some Other Comments

Ted Peloubet, General Manager of WRCI/Midland MI, thought the satellite system would be a tremendous benefit to his station. Since he suffers with 3.5KHz delivery, the increased bandwidth means a lot. In fact, with satellite, he felt he might buy more MBS programming. Similar comments were heard from Lee Steele, CE at WRCQ/New Britain CT. He cited reliability of service (versus telco) as well as the fidelity of service as being important to his station. "Mutual benefits by maintaining system control, and by putting up the system, they are demonstrating a commitment to radio that other networks don't seem willing to give," he said.

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SP-15 turntable

Setting High Standards for Professional Performance and Flexibility

When you are looking for the best turntable your money can buy, it makes sense to see what professionals choose. In a vast number of cases that means a turntable from Technics, the originator of direct drive and quartz synthesizer pitch control systems. For example, the SP-10MKII and other Technics models are used by broadcasters in over 25 countries around the world, including Britain's BBC.

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Circle 141 on Action-gram

Harris: Troubleshooting AM modulators

by Karl D. Lahm/
formerly with Harris Corp.

Last of a Three Part Series

Quincy IL...There are times when all small-signal attempts to locate a fault in a conventional parallel supply modulator fail, especially if your transmitter is an older type with numerous interstage audio transformers and feedback loops. At this point, many technicians will resort to full-power modulator troubleshooting, especially in lower-power transmitters. This technique involves two steps. First, the modulator is isolated from the RF power amplifier and is tested at power with the supply voltage to the PA disconnected. Second, the PA is connected to the power supply independent of the modulator in order to ascertain if there are any power supply faults.

The procedure must be undertaken carefully and is somewhat hazardous if proper safety rules are not obeyed. Always be sure that all equipment is properly grounded, main power is disconnected from the transmitter every time the transmitter wiring is to be disrupted, and all contacts are grounded with grounding sticks before touching any transmitter connections.

1. Calculate the load impedance seen by the modulation transformer

secondary. This is simply plate voltage divided by plate current of the PA stage. For older Harris/Gates transmitters, values are given in the sixth line of Table 1. Obtain power resistors to make a load of this value. The power rating of such resistors should be sufficient so that no resistor is stressed at full modulator power. To be on the safe side, the load should have a net power rating equal to transmitter carrier power.

2. Disconnect the transmitter's modulation reactor and place the load resistance across the modulation transformer secondary. Insert a small resistance, 15 or 20 ohms, between the load and ground. It should be rated at 50 watts. This sample will allow monitoring of modulator power and measurement of response and distortion. The modulation transformer secondary blocking capacitor should be moved from the low side of the transformer to the high side, with the low side of the transformer returned to ground.

3. Calculate the power output of the modulator for 100% modulation as follows:

$$P_m = \frac{P_{rf}}{2 \text{ Eff.}}$$

where: P_m = modulator power
 P_{rf} = transmitter rated output
 Eff = transmitter PA efficiency

The voltage across the 15 or 20 ohm resistor (R_2) is found as follows:

$$E_{100} = \frac{R_2 \sqrt{\frac{P}{2 \text{ Eff.}} (R_1 + R_2)}}{(R_1 + R_2)}$$

When E_{100} is measured across the small resistor, full 100%-equivalent modulator power is obtained.

4. Values for all components on several transmitters should be checked against Table 1.

5. Response and distortion measurement can now be conducted. If low frequency response is poor, the blocking capacitor may be faulty. If the transmitter is to be tested over its full audio bandwidth, it is also advisable to place a capacitor equal to the RF power amplifier plate RF choke input bypass across the modulation transformer secondary.

6. The modulation reactor may be checked by simply placing it temporarily in parallel with the modulation transformer secondary. Shorted windings will increase low frequency distortion and cause excessive modulator current draw. The reactor should not be left in the circuit during other measurements.

7. Now connect the input of the PA plate RF choke to the high voltage power supply output at the point the modulation reactor normally connects. This will allow modulator and PA to both load the power supply.

8. Repeat the measurements conducted in (5). If significant performance differences are noted, the power supply is probably at fault. Likely sources of trouble are old filter capacitors, open rectifier stacks in one phase, imbalance of three-phase power transformer winding taps, insufficient kVA capability of pole transformers or in-house voltage regulators, and change in value of supply current sensing resistors.

9. Should the above measurements indicate within-specification modulator operation, the PA stage is at fault. First, check the efficiency of the transmitter. Low efficiency will require more power than the modulator was designed to deliver. The PA stage grid drive should be checked; low grid drive and improper fixed bias (if used) are primary contributors to carrier shift and poor audio performance. Finally, check the neutralization of the RF power amplifier. Many specific procedures will be found in your transmitter's instruction book.

10. When finished, double-check to see that all transmitter connections have been restored to proper places. It is best to have an assistant check your work to prevent possible component damage when normal operation is resumed.

Note: This high-power modulator troubleshooting procedure should not be attempted unless the attack on the modulator problem outlined in Part I of this series has failed.

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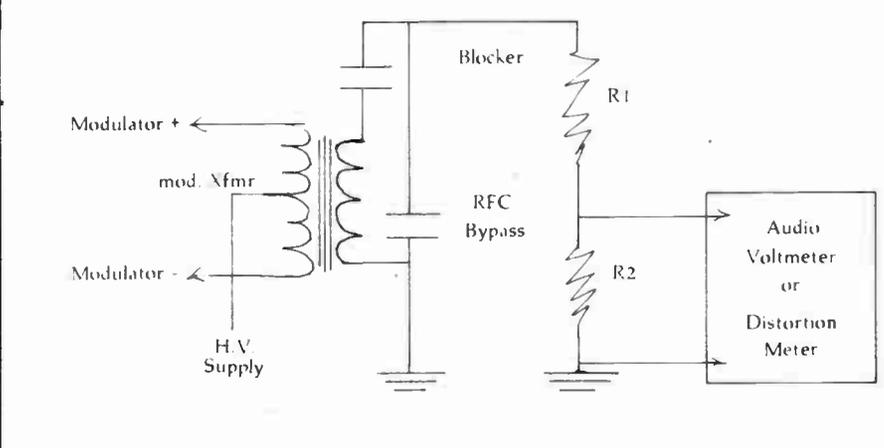
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Circle 118 on Action-gram

Table 1

Parameter	BC-250GY	BC-1G	BC-1H	BC-5P	BC-5H	Units
Epa	130	2600	2900	5200	5200	volts
Ipa	.25	.56	.43	1.25	1.12	amperes
Eff.	.78	.76	.80	.77	.86	
PO	250	1100	1100	5000	5000	watts
Pm	162	730	625	3250	2911	watts
R1	5200	4600	6700	4160	4640	ohms
	175	750	750	3500	3000	watts
R2	15	15	15	20	20	ohms



Consultant's Corner:

Something on AM system bandwidth

Potomac MD...This month's Consultant's Corner features an interview with John H. Mullaney Consulting Radio Engineers, Inc. The topic is bandwidth, and in the future we expect to have more information on the "Howard Sideband Matrix" system which Mr. Mullaney mentions in one of his answers. If you are a consultant yourself, and would like to be interviewed for this feature, call or write, and we will schedule a time and issue. Readers with comments can write BEE or contact Mr. Mullaney directly.

BEE: What do you mean when you speak of AM system bandwidth?

JHM: We refer to the overall bandwidth of the system from transmitter to antenna, and we limit our main concern to plus or minus 10 KHz, in which band we desire to have at least 1.0 dB response.

BEE: Will such a sideband response provide adequate power in the sidebands?

JHM: Yes, because this will allow for equal power in the sidebands, and it is well within the usual manufacturer's design of plus or minus 3 dB.

BEE: Do most stations meet your desired response?

JHM: No!

BEE: How many stations would you estimate have good sideband response?

JHM: That's a tough question to answer because we know of no one who keeps such records for standard broadcast stations; but based on our experience over the last 30 years we would not be surprised to find only about 20% of the stations having adequate sideband response.

BEE: What do you believe the reason is for so many stations having poor sideband response?

JHM: The reasons are many. First, up until the last four or five years the industry did not talk much about the problem. We were all aware of band-

width problems, especially in "tightly tuned" DA's; however reasonable techniques had not been developed until recently to try and compensate a system to enhance sideband response, therefore because once a DA was adjusted within the allowable M.P. limits on the construction permit very few engineers tried to adjust bandwidth vs. keeping the array in adjustment. The cost and time factor also entered into the picture. As long as a station could be heard and it's audio noise and distortion proof met the rules most stations did not want to explore the problem further. Another reason is that the present rules of the Commission do not require a showing as to

bandwidth response. They are primarily concerned that a station match its antenna to the coax at the operating frequency, and beyond that little is ever said about the steepness of the reactance vs. frequency on either side of the operating frequency. Probably the real reason for concern today is with the advent of the new "pulse" type of modulated transmitters. In a given market everything is status quo, then a competitor buys one of these new transmitters. If that station has the good fortune of having a good system overall bandwidth (or has adjusted the system to obtain one) a distinct difference in their sound is noted. So much so in certain cases that some of these stations are

accused of running over power. The difference in the loudness and sideband response of these stations has now brought the need for bandwidth control to the forefront.

BEE: We assume from your previous comments that you do not feel that a station which has a satisfactory audio noise and distortion proof necessarily has good overall system bandwidth. What is your reason for this position?

JHM: Quite simple. The sample of the modulated r.f. is taken off of the transmitter output circuit (all transmitters have a built-in provision for sampling the modulated r.f.), and at this point you can have a reasonable
(Continued on page 5)

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Publisher
Stevan B. Dana

Editor:
Simone Lesser

Computer Consultant:
Larry D. Hughes

BEE

Clover Reach Park, Peachtree City GA 30269
404-487-9559

Gold plating a tin ear

by John Price
Radio Arts

Part I of 3 parts

"When you've seen one painting,
you've seen 'em all..."

---Michelangelo

"Just open some cans. It all tastes the
same anyway..."

---Julia Child

"It sounds OK to me, but I've got a tin
ear..."

---Radio professional

You would never expect to hear to first two statements from a famous painter or a gourmet cook. So why is the third so commonplace among radio managers, program directors and chief engineers?

Maybe it's because we never learned to *listen*. If that's the case, they are about as well equipped to judge the product of their craft as a color-blind artist or a chef addicted to Twinkies.

The title of this piece could just as well have been "How To Listen To Your Radio Station," but such a basic statement might not have made you

read this far. Since you *have* read this far, let's talk about why and how you should listen, what to listen for, the common problems you may hear, and how to correct them.

The ad reprinted in Figure 1 may be a shocker. It was to me when it appeared several years ago. Here, a major manufacturer of loudspeakers is telling his future customers not to use our sound as a source of high fidelity. He is also inferring that, once you have purchased your new stereo system, it still won't sound very good when you're listening to the radio.

The problem is, that ad is right. It was righter two years ago than it is now, but it is still right. So much so that the speaker manufacturer has seen fit to market a special series of loudspeakers designed for control room use, in an effort to provide us with a better means of listening to our radio stations.

If you travel about the land, you will hear many kinds of sound on the radio dial—very little of it *good* sound. And if you're going to the Big City to hear how good it can sound, forget it. In Los Angeles, for example, there are only one or two addresses out of

40+ on the FM dial that give good enough sound to, say, warrant the purchase of an expensive FM tuner.

That's *why* you should listen: If you can make your station sound good, you may be alone in the crowd. And don't tell me that it doesn't make a difference with your "average listener." Consumer audio gear is getting to sound doggone good. Even the lower priced package systems—even the good auto stereo systems—are sounding better and better. Many modest stereo rigs have surpassed the sound quality of many FM stations.

A client station forwarded this letter from a listener to its programming syndicator a few months ago:

"I recently purchased my first truly fine FM stereo receiver and have been scanning the (Houston) area FM stations at various times of the day. I have found, very much to my surprise, that the FM rock stations, to which I have usually listened, have signals so trashy (i. e. hum, noise and distortion) as to be virtually unlistenable..."

I wonder how many others make a similar purchase every day, then make the same discovery?

Item: Look around your own station, and notice how many pieces of "consumer" gear you yourself are using: speakers, amps, receivers, turntables, equalizers. Such a thing was unheard of twenty years ago. It's another result of the refinement of "home" equipment versus outdated "broadcast" units.

So now we must make sure we're doing the very best with what we have—just to sound decent on modest-to-good home gear. True, the top-rated station in your market may not sound the best, but they may have overcome bad sound with other activities that attract listeners: heavy promotion, great music selection or professional jocks. Why not have it all? It may just be that the high cumes and low quarter-hours in your book may be the result of repulsed listeners who love your music, can't stand your sound, and dial away when your audio flaws get to them.

So Much for the Why. Now the How.

Do not listen to your station at your station. I have tried this often enough to be able to generalize. I have never visited a radio station that had a good *comparative* (I'll explain that word later) sound system at the station. Wait—there was one station in Moorhead, Minnesota. The rest of you are suspect.

Find a good stereo system. If you can't locate a personal one that hasn't been loused up ("Yeh, it sounds a little fuzzy, but that's OK, 'cause I have a tin ear anyway..."), go to a stereo

store. The best one in town. With a listening room. Borrow that room, or rent if necessary. Close the door and lock it.

Once in the comfortable womb of the listening room, patch together a system similar to the one outlined in Figure 2: Make sure the antenna system is good enough to receive all stations that you will want to hear with adequate strength (most good receivers have meters for this purpose), and with no multipath reception for FM stations. Make sure that the VU meters on the recorder are true VUs (most semi-pro machines have them), and that there is no "auto-level" or "ALC" device switched in—it will make all levels look "right" and destroy some of our later tests.

Try different sets of speakers until you find the ones that are satisfying. That's basically a personal choice.

Now, by tuning across the radio band—either FM or AM, you will be able to *compare* one station against another over equal equipment, in an equal listening environment, with equal perception, while looking at a pair of VU meters (that's important).

We have just defined *comparative* listening.

How many people, you may ask, will ever listen that critically to my station? Excellent question, and we both know the answer: practically no one. But Michelangelo got closer to the Sistine ceiling than any tourist, and Julia worries more than any guest about the quality of the vanilla. It's up to us to listen down *into* the sound of our station farther than any member of our vast audience, so that we may detect and correct a flaw before it comes to their conscious or subconscious attention.

Now, that tin ear of yours will get a plating job, because we have removed most of the variables from the subjective sense that we call hearing. An artist, asked "is that redder?" will ask, "Redder than what?" For the same reason, the question "Does our station sound brighter?" deserves the same answer. We will compare your station against others, overcoming the very short memory of our ears. That short listening memory contains most of the tin.

The Comparative Listening Test

First, find a "standard." In most cases, there will be one station on whichever dial is to be explored that is unusually clean, balanced (if stereo) and beautiful. If there is an FM station programmed by a major syndicator known for nit-picking, it should be tried as your listening standard first.

AM listening may be limited by the poor quality of the AM section in even high-quality receivers, but comparisons will still be valid, because the

(Continued on page 8)

Figure 1

Bring your own music.

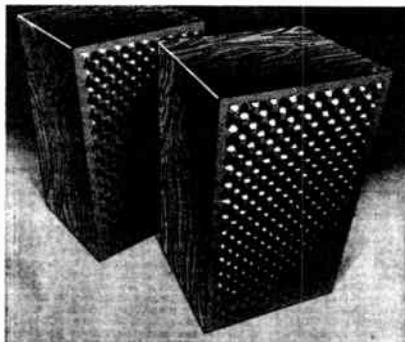


Don't buy any loudspeaker until you test drive it. Challenge it.

If you're buying a tape deck or a turntable or a receiver, look at it for looks, read the spec sheet and take any honest expert's word. That's all you need to do.

But loudspeakers are different. They have character. They have personality. And no one can tell you what you like. Except you.

How do you find out what you like? Here's one way:



JBL's new L196. The most accurate bookshelf loudspeaker JBL has ever made. It's like nothing you've ever heard before. Nothing. \$399 each.

Bring your own music. March right into the store with your favorite record or tape reel or cassette. Something you know by heart.

If you listen to that music on a new loudspeaker and hear shadings and detail and depth and texture you've never heard before—you've probably just found yourself a new roommate.

The other reason to bring your own music is that you're wasting your time evaluating a loudspeaker by listening to AM or FM radio.

Some of our best friends are radios.

But broadcast sound doesn't have any high highs and low lows. They're clipped off at the station. Then the signal is strained through generations of electronics before it gets to you. For all those reasons, it's no way to test a loudspeaker.

One more idea: You shouldn't have to judge a loudspeaker while you're listening to three other speakers, six other conversations and a partridge in a pear tree.

If you're serious about sound, find someone who's serious about helping you. Find a dealer with proper demonstration facilities. That's easy.

If it says "Authorized JBL Dealer," relax, friend. You've come to the right place.



High fidelity loudspeakers from \$168 to \$3510.

"... broadcast sound doesn't have any high highs and low lows. They're clipped off at the station. Then the signal is strained through generations of electronics before it gets to you."

3M: Short-cut to compatability

New York NY...The mastering tapes used in today's recording studios produce a quality of sound that is markedly superior to that of their predecessors. But these acoustical triumphs have been purchased at a price. As mastering tapes have gotten better, they've become less compatible.

What can studio engineers do to cope with this situation? To understand the available solutions, it helps to understand the nature of the problem.

Modern magnetic recording tapes are highly complex systems, both from a design and a manufacturing point of view. Simply described they consist of coatings of magnetic particles bonded to plastic backings. That's where the simplicity ends.

Much of the improvement in sound quality achieved in recent years results from innovations in the magnetic oxides that reproduce acoustical patterns. A steady stream of these new oxides has issued from the laboratories and made its way into tape production: chromium dioxide, ferri-chrome, cobalt-encapsulated and others.

In general, the trend has been toward the development of tapes that employ magnetically harder particles

and thicker oxide coatings. Such tapes are capable of delivering higher output, lower tape noise and less harmonic distortion.

Each magnetic recording tape represents a combination of elements that, when brought into balance, functions as a system. An oxide's electromagnetic characteristics, combined with the characteristics of coating and bonding agents, tape surface finishing and other aspects of manufacturing, determine the quality of sound that a tape will produce.

Tape suppliers exert their technical and manufacturing capabilities to the utmost to achieve and maintain an appropriate balance between the elements that determine sound quality. Sometimes the achievement of one desired characteristic necessitates some sacrifice of another. It's a balancing act worthy of the most gifted juggler.

Each manufacturer seeks a solution that best matches his technical expertise to the demands of the market-place. Unfortunately, such a solution is not necessarily compatible with those of every other manufacturer.

What to do?

Beyond these technical difficulties

lies the subjective world of acoustical reproduction. The technical specifications of tapes and their subjective sound qualities often appear to be unrelated. In fact, mastering tapes with similar technical specifications can produce significant differences in sound quality.

Where does this leave the studio engineer who is faced with such problems as over-dubbing and mixing tracks cut on a variety of mastering tapes? The classical solution, of course, is to set up and adjust each tape for optimum performance between each cut, a time-consuming procedure.

The two critical elements in establishing tape compatibility are bias and equalization. These two elements effect such tape properties as sensitivity, distortion and print level. If there were no need to adjust bias and equalization levels between tapes, according to the engineers, the tapes would be compatible.

Some tape properties improve as bias is increased. Others deteriorate. Optimum bias represents a compromise between gains and losses in sound quality.

As bias is increased the sensitivity of a tape rises rapidly until its maximum output is reached. If bias is increased beyond this point, output

at high frequencies declines until these frequencies progressively drop out. Further increases in bias cause the erasure of lower and lower frequencies.

According to 3M's engineers, equalization can be used to counteract the loss of higher frequencies due to bias. In a recent laboratory demonstration they employed this technique to achieve compatibility between Scotch 250 and another leading brand of mastering tape. According to technical specifications, the optimum operating requirements of the two tapes are quite different.

In the tests, a standard signal was recorded on each tape at the other's bias and equalization settings. By plotting the resulting frequency response curves, 3M's engineers demonstrated that a compromise bias current could be derived that would make the two tapes interchangeable.

They concluded that in studio use the counter effect of bias and equalization could be employed to gain acceptable results from all tapes, eliminating the need to set up each tape individually. In situations where time or other limitations preclude setting up and adjusting each tape for optimum performance, a compromise bias setting will produce satisfactory results.

CONSULTANT'S CORNER

from page 3

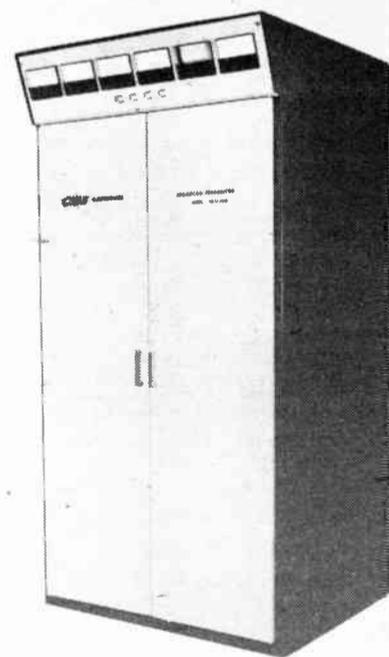
response. However by the time the r.f. signal passes through the transmission line to the antenna, and then through the antenna tuning unit to the antenna, the signal can be modified by the circuit Q of the components. Keep in mind that a transmission line is only matched at the operating frequency. That is if we have a 50 Ohm line we adjust the antenna coupling unit to provide a 50 j0 or no reactance at this frequency. At plus or minus 10 KHz from the operating frequency we no longer have a resistive match. Really, the length of transmission line, the phase shift and type of network used at the base of the tower will determine what the response will be off of the operating frequency. Generally speaking, if you have a short line and a reasonably good bandwidth on say a non-directional tower, and your transmitter output Pi-L network has a Q of about 6, and is properly adjusted, you will have good sideband response. But if you have a line on the order of 140 degrees long and you are using a lagging 90 degree T-network, it is quite possible that your sideband response will be altered enough to unbalance the sideband power, which in turn will result in poor modulation. When we speak of a DA system the problem is substantially compounded.

BEE: What can a station do to check their overall system bandwidth?

JHM: For a non-directional station we recommend that they plot their antenna impedance on a Smith Chart normalized to 50 Ohms or the coax impedance. Generally a station will have measurements plus or minus 30 KHz in 5 KHz steps. This gives one enough data to obtain the bandwidth of the antenna. You then have to decide what you consider a desirable response to be, that is either use our suggested 1.0 dB or as much as 3 dB for your standard. Then set your compass to a radius of the response selected. Using the center point of the Smith Chart as the origin point then draw a circle on the chart with the desired response. All plots falling within the circle are within your selected bandwidth. If you find that one of your sideband frequencies falls outside of your desired reference it is possible by network technique to rotate one or more frequencies within the desired response. Unfortunately until recently it was not possible to compute with any degree of accuracy the different methods of approaching the problem. The technique for making computations for overall AM system bandwidth control was developed by George P. Howard of Sarasota, Florida. His

(Continued on page 12)

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La fórmula de eficiencia de CSI es muy simple...

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EN MEXICO

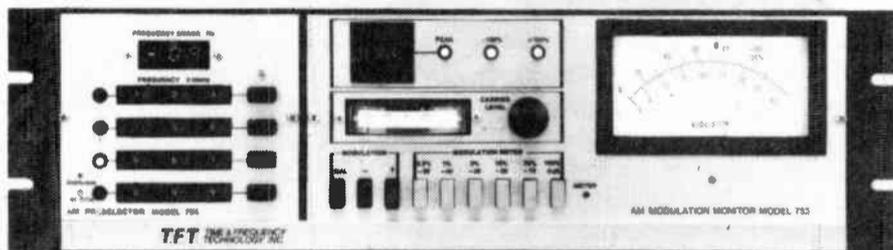
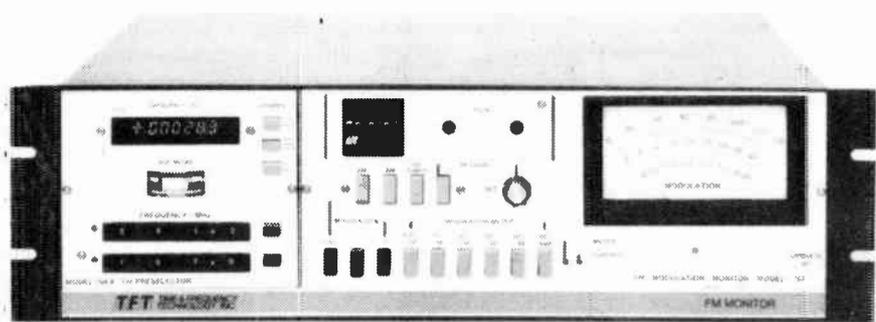
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TFT

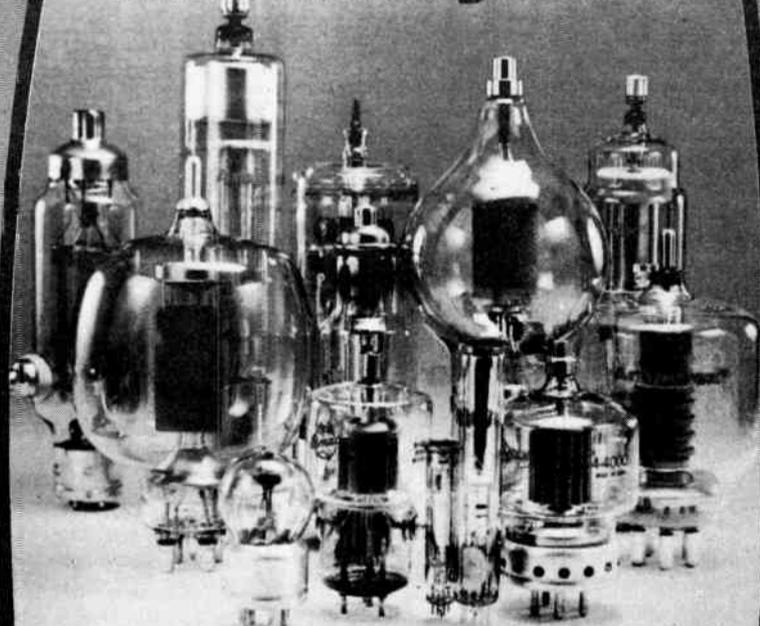
Los monitores TFT (La linea mas grande en aparatos electronicos, del mundo) incluyen: frecuencias y monitores de modulación, como tambien monitores de modulación aural para television, preselectores, SCA y monitores de estereo.

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Report on May FCC developments

by B. Jay Baraff

Baraff, Koerner & Olander, P.C.

FCC Goes Full Throttle Toward Deregulation For Radio. The FCC has directed its Staff to look toward potential elimination of the current radio processing standards for commercial levels, news and public affairs programming, and ascertainment requirements. Data on hand revealed that stations program far in excess of the current FCC guidelines (6% FM; 8% AM) and the a majority of the stations were not approaching the maximum 18 minute commercial load. Furthermore, with the specialization in radio formats, the FCC questions a full formal ascertainment process.

Program Duplication Requirements.

Please remember, effective June 1, 1979, that duplication of AM and FM programming as specified in Section 73.240 of the Commission's Rules, in communities of over 25,000 in population, cannot be more than 25% of the average program week.

FCC Staff To Act On Regional Concentration Of Control Issue.

The FCC has now authorized the Broadcast Bureau, without Commission consultation, to act on questions involving regional concentration of control issues in which there is no primary service contour overlap between the commonly-owned stations.

FCC Still Inquiring Into Fraudulent Billing.

The FCC has designated for hearing Station WKND, Windsor CT, and WXL5-FM, Willimantic CT, on questions concerning fraudulent billing practices. Thus, despite the rumor that this Commission is going to be more tolerant of fraudulent billing questions, this does not presently appear to be the case.

Station Designated For Payola

The FCC designated for hearing Radio Station WOL, Washington DC, to determine whether its station employees were involved in payola which the FCC feels subordinates the public interest to the employees' interests in selecting program content. Thus, here is another instance where the FCC is still involved in strict controls over licensee practices.

FCC Approves Broadcast Of Horse Racing Information.

The FCC allowed Station WIZR-FM, Johnson NY, authority to use its Subsidiary Communications Authorization to transmit timely horse racing information to legal off-track

Broadcast Policy and Rules Division Chief Named.

The FCC has named Frank C. Washington as Acting Chief of the Policy and Rules Division replacing Roscoe S. Long, who recently retired. Mr. Washington was the Legal Assistant to FCC Chairman Ferris who appears to be making a number of changes in the Commission's Division heads.

Willard R. Nichols has been named Acting Chief of the Cable Television Bureau replacing Philip L. Verveer who was recently named Chief of the Broadcast Bureau to replace Wallace E. Johnson. Mr. Nichols has had considerable prior FCC experience and most recently was an attorney advisor of the Chief of the Commercial Carrier Bureau. Mr. Verveer was one time in the Justice Department on their ITTT task force.

FCC Establishes Instant Radio Operator License.

The FCC, within a few months will be giving immediate radio licenses to those applying for restricted radio-telephone operator permits for a 60-day period until the regular permit is processed to allow for immediate use.

Broadcast Actions.

The FCC will no longer permit under the standard comparative issue, an inquiry into the relative need for a specialized programming as opposed to general programming. Such of showing can only be made on a predesignation issue demonstrating that the proposed specialized format is not substantially available in the market.

MBS

...from page

Herb Granger, Director of Broadcast Services for Western Union, is hopeful that Mutual's latest application gains quick FCC approval, and agrees with their concept of patterning it after the NPR application. He also brought up the so-called, "One-Dish Concept." Simply stated this implies that once a national satellite distribution system is set up, it doesn't seem practical to install other similar systems, but instead to share one system amongst users. This shared usage concept almost implies a common-carrier posture by Mutual. Both Dr. Rask and Gary Worth, Mutual Executive VP, deny this is Mutual's intention, but who knows what the future may bring.

(Editor's Note: Since we at BEE feel that the satellite question is so important to radio, we plan on following up this report with future articles on other network activities in the satellite area, etc.)

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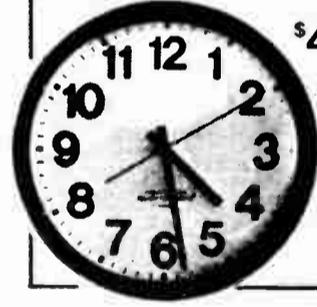
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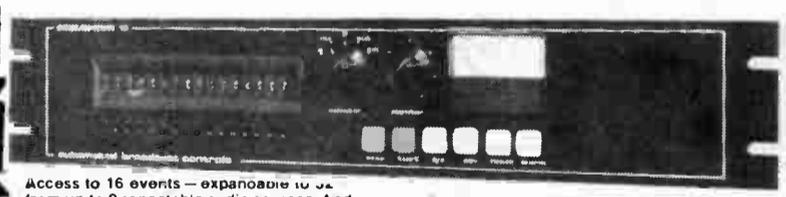


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TIN EAR

...from page 4

audio will all come through the same chain.

Tune your "standard" station carefully, adjust the volume, balance and tone controls to the satisfaction of all concerned. Then, switch the tape machine to "input" and set its VU meters to peck 0-VU on program peaks in both channels. 0-VU. On peaks, not valleys. Since a clean-sounding station often employs very little limiting, this may take a while, since soft passages will stay soft. Only an occasional peak will give tell-tale evidence of maximum modulation.

Listen to your "standard" station long enough to become fully acquainted with its sound. Listen through several different tunes—everybody's source material varies in quality. Listen at three different levels. You will be able to hear distortion better at *low* levels—that's the way God built our ears. Noise problems will show up better during pauses when listening at *high* levels. Operating flaws, level variations and frequency response problems are best noticed at *medium* levels.

Now, dial across the band, comparing station after station against your standard. Return to the standard between each listening session—remember the short memory span of your ears. Cut some tape on each station, and keep the reel for future reference.

Once you start comparing, you may find a better-sounding station than your previous "standard." Don't worry about your change in allegiance. Your *comparative listening* is sharpening your newly-plated ears,

and that's good. Now, *compare* everyone against your *new* benchmark.

Problems Heard By The Gold-Plated Ear

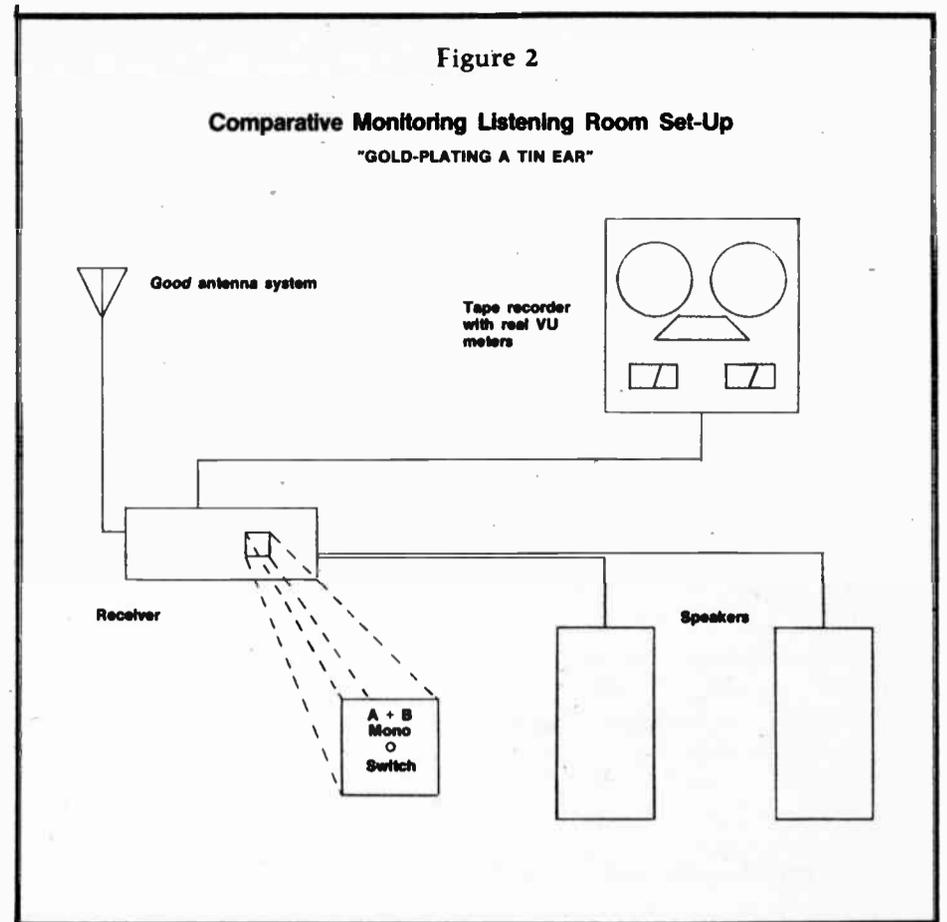
Distortion: One of the sneakiest problems in modern radio for many reasons. Most stations have so many elements in their audio chain (our loudspeaker friends call them "generations of electronics") and each one can generate, or add, distortion. Isolating its source can be a true lesson in frustration. The result is most often *harmonic distortion*.

Listen at low levels for fuzzy highs. Listen to solo french horns or trombones—if you don't usually program such music, you may want to arrange to have some played during your test. If you hear a "whisker" or buzzing, which rides along on top of the mellow horn's notes, you're hearing harmonic distortion in its most audible form.

Now listen at higher levels with the treble control turned down. Are bass notes clean and pure, or do they fuzz up, break up and never quite make up? Another good way to hear harmonic distortion.

Noise: It can take many forms, and will always be more audible during soft passages, or during pauses. At some stations, it may almost never be audible due to a total absence of both, so you may want to engineer some into your programming during the test.

Noise may take one of three forms: Continuous hiss or hum, usually part of the basic audio chain; intermittent noise, usually traceable to one or



more pieces of source equipment, and transient noise, often associated with starting and stopping source equipment. You may be amazed at the click-pop-humbugs which your operator or automatic adds to your programming.

And the improperly-erased carts that spew bits of a previous commercial into a new one.

And the control-room air conditioner that sounds like a freight train. How about the mike stand, clamped to the console table, that thumps and bumps by transmitting foot noises up to the mike?

Or the announcer, working his mike too closely, that thumps and bumps his way through every p, w, t and b.

Compression/limiting: There is one station in Los Angeles that uses enough peak limiting to render speech almost unintelligible. Yet I'm sure its salesmen are quick to point out the wholesale "reach" that their station's signal enjoys. The relentless limiting is coupled with enough compression that, should there ever be a pause of more than two seconds, the entire station will be sucked up through the console, out the microwave and off the top of the tower.

Curiously enough, this is an FM station, and all that audio squashing does nothing to increase the station's signal strength. Nor will it yours, Mr. FMer. Three kilowatts is three kilowatts, whether you are airing absolute silence or the Rolling Stones.

AM, while it is a different beast, is often overcompressed, too.

So listen for over-use of limiting and compression. Listen for background noise swooping up before, during and after program elements that are overly compressed. I have heard affiliates of a major network in the Rocky Mountain states which have a sort of drum-roll added to the front of each network news logo. Actually, it's just all the compressors opening up along the way. The system hiss registers full level until audio knocks all that compression back down to normal levels, and heaven help the net newscaster who pauses to breathe. He'll get sympathy cards from the asthma foundation.

Today's disco music can completely confuse any compressor or limiter that looks at the whole audio spectrum. Frequently, bass drum concussion is the loudest sound on the recording. Listen to your Mantovani-designed limiter grab each drumbeat and pull it down to 100% modulation, then relax until the next one. As a result, the rest of the band will keep appearing and disappearing.

(Continued on page 9)

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Perhaps no one is better qualified to have written this book than Hubert Bermont. He has served as consultant to more than 70 major corporations and trade associations, including the U.S. Chamber of Commerce, McGraw-Hill, the Electronic Industries Association, Evelyn Wood Reading Dynamics and the Smithsonian Institution. Yet he made the decision to become a consultant only after being fired from an executive position at the age of 43. You'll learn first-hand how he did it — and how you can do it, too!

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...from page 8

Again, defer to your standard. Often you will find a station with no compression and little or no peak limiting. To paraphrase an old song, the louds get loud and the softs get softer.

Bear this in mind: Peak limiting can only be accomplished by chopping off peaks. There is no other way, and that, friend, is distortion. The more you limit, the more you distort. Compression is used to squash dynamic range. Since most records are heavily compressed to begin with, most stations use compression to squash the counterfeit dynamic range that comes from hyperactive deejays with their widely varying levels.

Listen for this: If you are heavy on the compression/limiting, you'll hear it as fade-ins and outs; the former as a low-level element replaces a hot one, the latter as a hot element jumps on a normal or weak one. Your programming will show a lack of "flow," even though the VU meters band away at the zero mark.

I once dragged the owner and chief engineer of a major mountain-states AM-FM to the local Lafayette dealer for a listening test after backing off the FM's limiting by something like 100db. I dialed to a competitor's wall-of-sound signal just as the store owner's daughter came into the listening room. She leaned out of the doorway and yelled, "Dad, the big Marantz has gone out!" Her ears were right; only the diagnosis was faulty. But she helped my client realize how clean his station was without all that processing. Less was indeed more.

Frequency response: Again, this problem may manifest itself when certain source machines are on the

air, or it may be a lingering condition. The latter is harder to notice, unless it is at an extreme. The former should be tracked down by checking with the man on duty to see which machine is on the air.

Stereo balance: A quick check before writing this paragraph showed as much as six db difference between L. A. FM stations in individual channel balance settings. Better than it used to be, but still not good. Watch your VU meters.

Separation: More subjective than most problems, but you will often find several "stereo" stations with so little stereo that the red light is a farce. Some rock stations will ungang their compressor and/or limiter. Now both channels will always be at full level (louder! louder!) because the audio processing is working like fury to make mono sound out of stereo program material.

Listen for the "floating soloist" syndrome: If a singer is accompanied by instruments mainly in one channel for a time, the quiet channel will open up, and the singer will seem to drift to that side. When audio comes back in the quiet channel, our singer will jump back to stage center. This can be mildly nauseating if you're listening in good headphones. It's a sign of ungang processing somewhere along the line.

Modulation: Over or under-modulation still occurs with some degree of regularity, but our listening test is not designed to get much of a handle on any but an extreme case. Our VU meters are looking at average, not peak, program levels. The station that has efficient multi-band limiting may have chopped off so many peaks that their average levels are hotter than anyone else's. But listen: their audio distortion will almost always give them away.

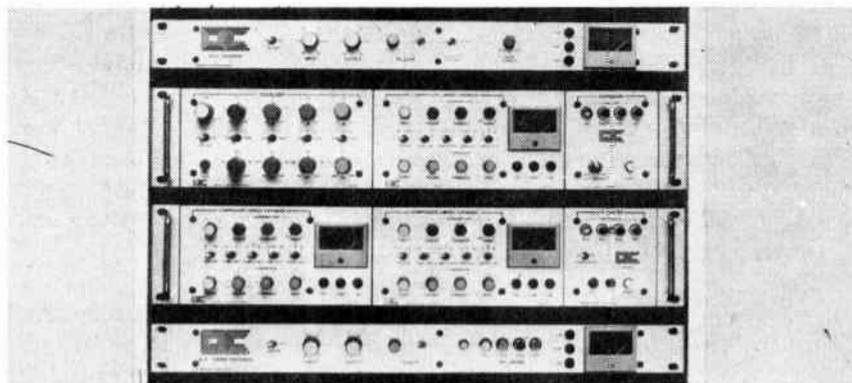
(Continued on page 23)



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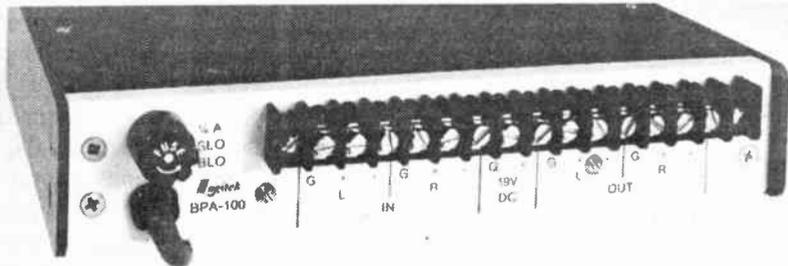
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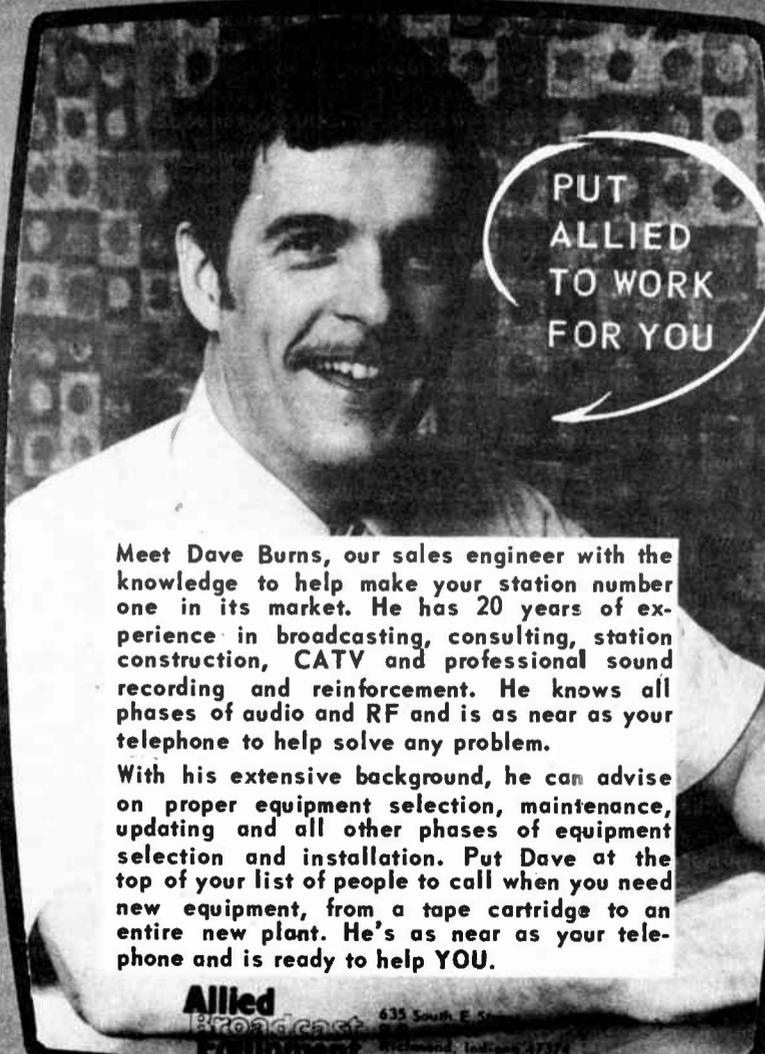
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Headwheel lock logic compares the alignment of reference and tape vertical. Extra tape vertical pulses caused

by dropout or other noise will generally not cause this coincidence circuit to mis-trigger. Extra pulses would only increase the chances of coincidence. In the capstan framing circuits, however, one out-of-phase pulse can cause a 2 second reframing to occur. This modification inhibits capstan reframing if the headwheel is locked.

Proper headwheel speed and phase

control can be achieved using three phase sampling circuits as shown in Figure 1.

Phase comparator #1 provides velocity or initial speed control. Number 2 produces phase control. With only velocity control, a headwheel will be out of phase by hundreds of microseconds. Adding

phase control from reference vertical sync will reduce phase errors to the 2 microsecond range. Adding the comparison of tape and reference horizontal provides control of headwheel rotation in the range of 100 nanoseconds. The timing of MV #1 and #2 which produces coarse speed control is shown in Figure 2.

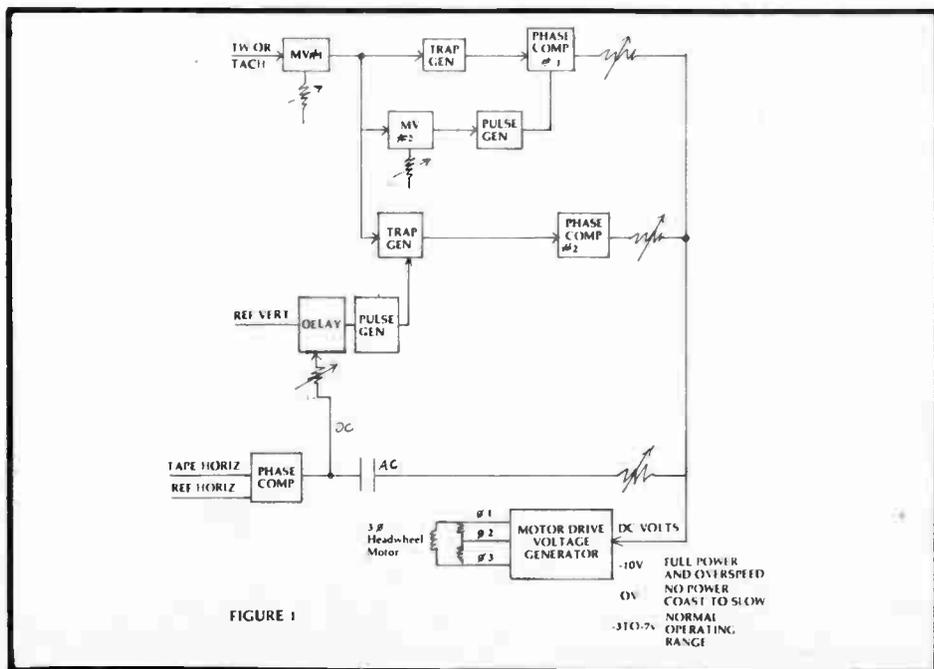
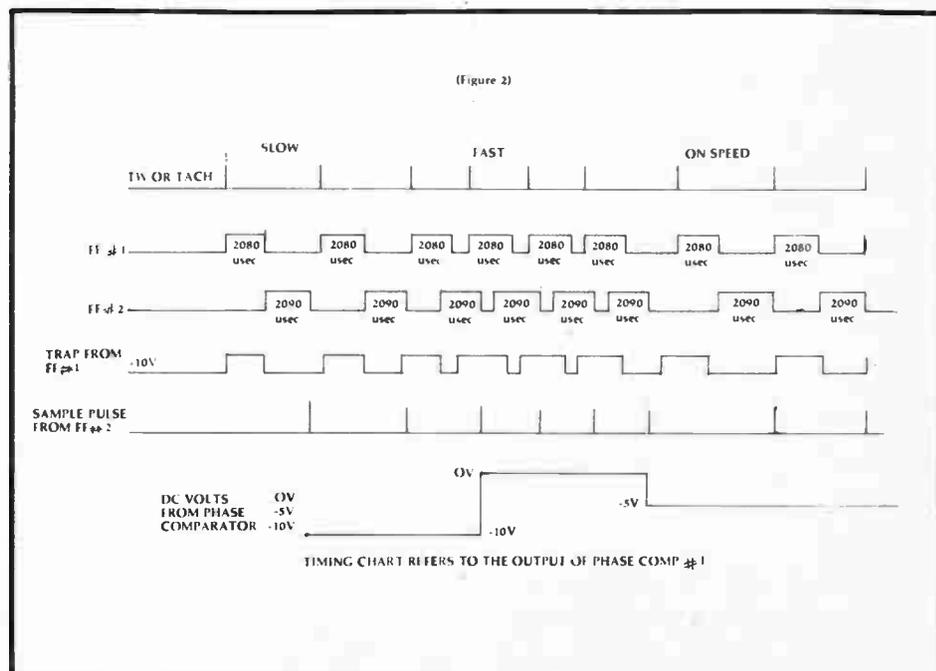


FIGURE 1



(Figure 2)

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Sierra/Billboard Dinner for Industry Leaders Was AES Highlight!



Sierra's Kent Duncan,
Dinner Co-Host

Top recording studio and equipment people gathered in LA Thursday evening during the AES as dinner guests of Sierra Audio's Kent Duncan and Billboard Magazine's Jim McCullough. Participants in the "east meets west" dinner and far ranging discussions included Harry Hirsch (Soundmixers, NYC), Howard Schwartz (of the studios of the same name, NYC), Dave Tieg and Tom Cahill (Atlantic Records, NYC), Ham Brosious (Audiotechniques, NYC), Mack and Danny Emerman (Criteria, Miami), Jeep and Joyce Harned, Lutz Meyer (MCI, Ft. Lauderdale, FL), Chris Stone (Record Plant, LA), Jim Stern (Fantasy Records, LA), Ike Benouin (Audio Industries, LA) and the hosts and their staffs. Based on enthusiastic comments of the group, repeats of the dinner on both coasts are a certainty

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If you plan to get a Lexicon Digital Reverb this year, better get your order and deposit in now. Our first 24 units are already committed and the next 24 will go fast as sensational performance reports continue to come in from users. Price is \$6,900 and deposit required to get on the list is \$690. Send it now for late summer or early fall delivery.

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National Recording Announces a BIG Move!

National Recording partners Irv Kauffman and Hal Lustig just recently announced acquisition of the West Side Terminal Building on 42nd Street between 9th and 10th. Plans for the over 75,000 sq. ft. NYC landmark include 2 king-size sound stages, 15 video facilities and 6 complete audio recording studios.

According to Irv Kauffman, the completed project will not only be the largest of its kind in the East, but also one of the largest complete multi-media audio/visual centers in the world.

Preliminary demolition contracts were awarded in late May and construction is slated to get under way in early summer. No plans have yet been announced for National's 730 Fifth Avenue facility, present home base for the 20-year-old firm.

SUMMERTIME IS RENTAL TIME!

A/T Rentals Manager Kurt Fleischer reports early bookings for summer rentals are heavier than ever. If you're going to need equipment for a remote gig or whatever, give Kurt enough advance warning to take care of your needs. A deposit (10%) works wonders.

Now available for rent:

- Trident Flexi-Mix 24 track
- BTX, MCI SMPTE Interlocks
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- Big Red, Little Red Monitors
- Mike Snakes, H/H 500 Amps

Rumor Mill . . .

What's the hottest selling used equipment this summer? (24 track recorders, according to our man in the control room, as sync 24 sessions spread like a good rumor!)

How cum those new discs from digital recordings seem to be missing all the highs? (Just one of the problems as hype struggles against reality in the confused digital world.)

Will used EMT plate prices take a nosedive as state-of-the-art variations hit the market? (You better believe it, and add Kepex, too, as Scamp system gate sales soar.)

When will studio owners realize the stupidity of having high priced recording engineers in the control room and bargain basement hacks in the maintenance department? (Not until they try to figure out why the act didn't come back for the next album.)

What's behind the NYC jingle studios move into music album dates? (Elementary, my dear Watson. The ad biz stops dead at 6 pm!)

SHORT TAKES

54th Street's Booming

Nice to hear all the good things going on on 54th between B'way and 8th Avenue in NYC. Janet Rosenblatt's Sound Palace with 2 Golds already and solid booking, now readying another 24 track room. Across the street, Charles Benanty's Sound Works has taken over the location of ODO Recording with a complete overhaul and lots of new gear. And upstairs in the same building (254 W. 54th St.), Elliott Rossoff and John Gomez report a strong surge in bookings for their automated Opal studio. (And watching it all from his lair across the street is Eventide's Richard Factor, maker of superb audio goodies for all the world!) It's a busy street.

La Tierra Goes 24

Top-ranked NYC Latin studio La Tierra bites the bullet and goes 24 track. Our installation crew did the upgrade job on the 16 track MCI setup and added 8 more tracks of Dolby. Best wishes to Jerry Masucci and all the La Tierra crew.

And up in Westchester County

Well-known musicians Jon Hammer and Gene Perla have finally retired their old Scully 8 track and replaced it with a shiny new . . . MCI 8 track! Gene says that 8 tracks are just fine for their Red Gate Farm studio, but they need that MCI sophistication and tape quality.

Scamp's Rolling, Too!

Recent deliveries of Audio & Design Recording's Scamp modular system include: Regent Sound (NYC); A&R Studios (NYC); Sound Works (old ODO, NYC); Howard Schwartz Recording (NYC); Phil Ramone Productions (NYC). Scamp's Auto Panner, Expander Gates and Compressor Limiter fast becoming standards in NY area.

Digital Reverbs for Sigma and Soundmixers

First NYC area delivery of the Lexicon Digital Reverb went to Soundmixers, as Harry Hirsch continues policy of being first with the best. Meanwhile, in Philadelphia, Joe Tarsia's Sigma Sound received the first of their 3 Lexicon's on order. And from both studios, nothing but highest praise for the new reverbs.

And out in Lotus Land

A/T recently sold a previously owned MCI 500 console to Hal Zeiger's El Dorado Studio in Hollywood, Cal. Hal's an old friend, and it's nice to see an automated MCI console in this veteran studio. Good luck to all.

Allen & Heath's resident U.S. demonstrator Chuck Augustkoski shows off the remarkable new Syncon at A & H's always packed demo suite. Syncon consoles, loaded with 28 inputs, producer desk, and patch bay, still cost under \$30 K . . . and have better than 26 db headroom!

OUR LOS ANGELES AES REVIEW (or . . . who stole the show at L.A.?)

Calling the show the way we say it, nothing new. A few new boxes, the usual hasty prototypes, but certainly no breakthroughs! Digital seems to be the buzz word, with none of the early users evidencing any enthusiasm. A slick new way to mount Auto Locators on MCI consoles caused more comment than anything else. Here are the show superstars from our vantage point. (Somewhat biased, we'll admit since we're dealers for all.)



MCI's Ultimate system demonstrations were packed . . . and why not? They had two 24 trackers sync'd with MCI's SMPTE Autolock, and the new 556-56 automated console working like a breeze. This probably is the ultimate step between current single 24 technology and that wonderful day when digital finally gets its act together. In the photo, MCI's Steve Beverley (l.) shows off the 556 to interested audience.



The "Miracle on 54th Street" continues to come up with at least one new box each show. This time it was the H949 Harmonizer with a whole array of new features and improvements. Eventide's Tony Agnello sets up a new effect on the new Harmonizer.



Lexicon's Marketing Manager, Keith Worsley, explains digital reverb remote control to Danish engineer, Freddy Hansson. Lexicon's 224 DR was a "must hear" for show visitors and is currently pro audio's most-in-



A & DR's Len Lewis (beard) and Nigel Branwell (standing) feeling rather jolly about the Scamp system as sales of the popular English modules continue to soar. Newly introduced at AES, A & DR's stereo Express Limiter was also a big hit.

USSR selects Ampex for Olympics coverage

Redwood City CA...Ampex Corporation announced it has signed contracts to supply the USSR with broadcast videotape recorders and related equipment worth more than \$7 million for coverage of the 1980 Moscow Olympics. The contracts are in addition to an agreement announced by Ampex in January to supply the National Broadcasting Company with broadcast video equipment and support services worth \$4 million for NBC's coverage of the Olympics. Under the new contracts with the Organizing Committee for the 1980 Olympics, Ampex will supply 12 AVR-3 and five VR-3000 quadplex VTRs, 40 HS-100C slow motion disc recorders, two EDM-1 computerized editing systems, and 15 BCC-4 portable broadcast cameras.

Henrikus Juskevitchus, vice chairman of the USSR State Committee for Radio and Television, said Ampex

was selected to supply the USSR because the company has been known in Soviet television for more than 20 years for recording technology. The equipment will be used during the Games to supply direct picture feeds and edited material to the several networks that will broadcast the competition throughout the world.

"Ampex is pleased to continue its association with the Olympic Games" said Arthur H. Hausman, president and chief executive officer of the corporation.

"Ampex equipment has been used to broadcast every Olympic competition held since 1960, and we are proud to continue the tradition of creating greater understanding among people through the communication of visual images."

In March 1978, Ampex was named the official supplier of videotape recorders, slow motion disc

recorders, and magnetic recording tape for the Olympics by the Organizing Committee and the Soviet State Committee for Radio and Television.

Ampex History

Starting with the Rome Olympics in 1960, Ampex has supplied an estimated \$25 million in television cameras and recorders to the worldwide networks involved in coverage of previous Summer and Winter Games. Eleven Ampex VTRs, all black and white, were used sparingly at the Rome Games. But four years later at Tokyo, VTR coverage was increased to 46 machines, all but two black and white. Thanks to the Telstar satellite, more people saw the Japanese Games on their home sets than all the previous Olympic competitions.

In 1968, the ABC Television Network went to Mexico City prepared

CORNER

...from page 5
method is known as the Howard Sideband Matrix. Using his technique it is possible to go through an entire system, that is from the transmitter to the antenna and design a compensating network to produce either equal sideband power or something very close to this. Using the Howard method one can achieve good bandwidth control with minimum of three components. Once the value of the components have been determined its is quite simple to adjust the network.

Getting back to your question, let's consider a DA of say three towers. We will assume that the station's chief engineer has received reports of poor modulation or a lack of "loudness" etc. What's the best way of checking this out? We would during experimental hours set up an audio oscillator and feed a 1,000 cycle tone into the transmitter, then adjust the percentage of modulation to about 50%. Now disconnect one of the sam-

(Continued on page 23)

to air more than 47 hours of coverage during the 16-day spectacle. It brought a staff of 460 people, 45 cameras (32 color) stationed at 18 locations around the city, 12 videotape recorders, 100,000 feet of cable, and several custom built mobile vans.

ABC added a new dimension to television coverage by seeking unique closeup action during its coverage of the general spectacle. Supplied with new hand-held color broadcast cameras and back-pack videotape recorders produced by Ampex, its crews roamed the stadium floor to get eye level views of the action. The result was an intimate picture of runners gasping for breath, vaulters straining at their poles, and a complete story that was more believable than ever before.

A new instant replay disc recorder, the Ampex HS-100, was linked with cameras at poolside and finish lines to capture in spectacular slow motion the ecstasy and agony of winners and losers, often replaying frame by frame pictures of margins of victory too close even for the judges' eyes.

The Mexico City Games became television's biggest remote, with 50 worldwide broadcasting organizations bringing international sport to more than 800 million people in every corner of the world. That performance was topped four years later at Munich, West Germany, when an army of over 3,000 engineers and technicians brought some \$30 million worth of television equipment, a major portion supplied by Ampex, to cover the biggest Olympiad yet.

More than 100 color cameras and 90 color videotape recorders were deployed at the Olympics to provide 61.5 hours of live color coverage, making Munich the first Olympics to be broadcast entirely in color. Of the recorders, 78 were manufactured by Ampex and were designed to operate on both U.S. and European broadcast standards.

BEE EMPLOYMENT SERVICE

For Help Wanted

Any company or station can run technical Help Wanted ads at the flat rate of \$12 per month, per insert (for each 50 word increment). Payment is preferred with insert, but if invoice is necessary, there will be an extra \$1.00 charge. Blind box numbers can be provided at an extra charge of \$10.00 per insert, and the responses will be forwarded to the listee, unopened, upon receipt.

For Positions Wanted

Any individual can run a Position Wanted ad, FREE of charge, at any time. Simply send in your listing, 50 words maximum, and it will appear in the following 3 issues of BEE. Contact information will be provided, but if a box number is required, there is a \$10.00 fee which must be paid with the listing (there will be NO invoicing). Responses will be forwarded to the listee, unopened, upon receipt.

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Signature _____

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Text (50 words maximum): _____

EMPLOYMENT CLASSIFIED

HELP WANTED

Regional Sales Manager. Immediate opening in Central Region. Responsibilities include distributor and direct sales. Experience in technical video sales and a basic technical understanding of VTRs, time base correctors and other related equipment is essential. Salary plus commissions and excellent company benefits. Please send resume to: Personnel Manager, Microtime Inc, 1280 Blue Hills Ave, Bloomfield CT 06002. EOE/MF.

Are you ready to move to Florida? Chief Engineer needed for Directional AM facility that's also concerned about audio fidelity. Send complete resume and salary requirements to Charlie Fernandez, General Manager, WKXY Radio, Box 2500, Sarasota FL 33578. EOE.

POSITIONS WANTED

1st Class. Experience includes: 2 years directional, 6 years with non-commercial stations, fund raising, management, programming, instruction, complete design, operation and installation of 2 stations, CCTV experience. Prefer school station position but will look at others and will re-locate. Box PW 6-1.

Chief Engineer at Midwest AM/FM (stereo) automation station looking for advancement from a small-market facility to medium or large-market station. Love the station/work but I have to eat. Send replies to Box PW 6-2 for mutual exchange of information.

For listings with Box numbers, reply to
Box _____, c/o BEE, PO Box 1238, Arlington VA 22210

Aviso Importante

Para Radiodifusores de Mexico!

Usted ahora tiene acceso a la lista de equipo de radiodifusión mas extensa en el mundo.

Ofrecemos mas de 1,000 referencias en cada publicación.

Debido a un acuerdo exclusivo con esta publicación. Broadcast Equipment Exchange (BEE). Guarantee Radio se complace en ofrecerle a usted y a los demas radiodifusores de México esta gran oportunidad.

En las siguientes paginas usted encontrará, convenientemente catalogadas, mas de mil referencias de equipo usado de radiodifusión.

Con esta extensa selección. Guarantee Radio le permite comprar equipo de uso con la misma facilidad como si lo comprara nuevo.

Examine nuestra lista y convenase de que este servicio que le ofrece Guarantee Radio le ahorrara largas horas y dinero en su búsqueda de equipo usado.

Para mas información, incluyendo precios llamenos al telefono:

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Estimados clientes y amigos:
El campo de la electrónica dia con dia nos brinda nuevos descubrimientos; descubrimientos de gran utilidad para la industria de la Radiodifusión y el mundo de la Electrónica.
Nosotros aqui en GUARANTEE RADIO nuestro principal objetivo durante mas de 50 años ha sido la superación en servicio y atenciones para nuestros clientes y amigos.
En esta ocasión nos es grato llamar su atención para extenderles la más atenta de las invitaciones a que nos visite y vea como GUARANTEE RADIO tiene siempre a su alcance los últimos adelantos electrónicos tanto en equipos de prueba como en transmisores AM, FM. (nuevos o usados) y lógicamente en partes y refacciones siempre los mejores el más amplio; garantizando nuestro stock es el más amplio; garantizando siempre los mejores precios. Asimismo ponemos a sus ordenes nuestro catalogo de equipo usado.
Si en algo podemos servirle nos seria muy grato poner nuestra experiencia a sus ordenes.
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The Exchange The Exchange The Exchange

AMPLIFIERS

WANT TO SELL

RCA BA-12A Line Amp, 3 units. \$25 each. Key Code 6-20.

RCA BX-1E Power supply for BA11 pre-amps, 3 units. \$20 each. Key Code 6-20.

Sparta stereo preamps TEP-3, 2 available at \$50 each. Key Code 6-79.

RCA BA-4C Line Amp. \$20. Key Code 6-20.

Altec P518A power supply. Key Code 6-42.

Dyna 120 Basic Amplifier, 60 watts per channel, excel. cond. Best offer. Key Code 6-59.

McMartin LT-80-B, 4 each \$75. Key Code 6-70.

Phase-Linear model 2000 preamp, excellent cond. with manual. \$80. Key Code 6-19.

RCA BA-13 Line Amp. 6 Units. \$40 each. Key Code 6-20.

GE Uni-Amp BA9-B. \$20. Key Code 6-20.

RCA BA-14 Monitor Amp. 7 units. \$60 each. Key Code 6-20.

Altec 1569A amplifier. Key Code 6-36.

RCA BA-2C Line Amp. \$20. Key Code 6-20.

RCA BA11-A Pre-Amps. 13 units. \$20 each. Key Code 6-20.

G.E. model 48A10A utility amp. Key Code 6-42.

Spotmaster AD-1B Audio D.A., 1 in, 5 out, excel. cond. \$256. Autodyne, Box 13036, Orlando FL 32809. 305-855-6868.

McMartin TBM-2500 RF amplifier, good cond. Key Code 5-27.

Gates M6244 pre-amplifier, two available, good cond. Key Code 5-27.

Spotmaster PLA-20/Marti PGM-20 line amp, mint cond. \$95. Autodyne, Box 13036, Orlando FL 32809. 305-855-6868.

Gates M6442 pre-amp, two available, good cond. Key Code 5-27.

Dynair DA-230A Video D.A., 1 in, 4 out, like new \$175. Autodyne, Box 13036, Orlando FL 32809. 305-855-6868.

Fairchild/Robins DA-1520, Audio D.A., 1 in 15 out, good cond. \$195. Autodyne, Box 13036, Orlando FL 32809. 305-855-6868.

McIntosh ML40 (tube). Good condition \$150. Key Code 4-44.

Harris Audio line amplifiers, (quantity-2). Key Code 4-74.

Sony 100 watt stereo amp in road case. Used by former Beach Boy for instrument amp. \$500 or best offer. Key Code 4-85.

Ampex 620 Amplifier/speaker unit w/carry case. Includes spare parts, solenoids, mike transformers etc. Key Code 4-63.

Langavin M130 amplifiers \$10 each. Key Code 4-49.

McIntosh MC5Q 50 w mono amp., good condition, \$125. Key Code 4-46.

Tunnel Diode pre-amplifiers 7GHZ. 15DB gain, 5DB noise figure. Used. 2 available. Will sell or trade. Key Code 3-13.

Don McGohan MG-20B audio amplifier. 20 watts. Best offer plus shipping. Key Code 3-5.

Stromberg-Carlson AP-50, 50 watt tube type audio amplifier. Two available in working condition. Best offer plus shipping. Key Code 3-5.

Newcomb H-50, audio mixer amplifier. 3 microphone inputs, low Z, 1 phone input. Best offer plus shipping. Key Code 3-5.

WANT TO BUY

RCA type BR-2 or 36-B rack shelves wanted. Key Code 6-19.

Turntable preamp, working, reasonable price. Key Code 5-58.

Marantz Model 5, any condition (need one). Key Code 5-8.

McIntosh MC-60 tube amplifier. Key Code 4-58.

Peak limiting amps. Used condition, will repair if necessary. Key Code 4-41.

Langavin model 5117 amplifier mounting trays, need two. Key Code 4-80.

Power Amps, tube type. Any condition. Cheap. Key Code 3-42.

Pre-amp for Mono Turntable. Minority College Radio Station, will accept donations. Key Code 3-86.

RCA Amps and Preamps. BA-1 through BA-12 series, also need rack shelves. Key Code 3-40.

Collins 12Z or similar, remote amps. Key Code 3-42.

ANTENNAS & TOWERS

WANT TO SELL

Tower sections (to form 100 to 200 ft. towers), 24" face or larger. Key Code 6-16.

Crouse-Hinds DCB-24R rotating beacon. \$100. Key Code 6-83.

Rotary Joints 2 each, for 7/8" complete with Andrew fittings \$100 each. Key Code 6-4.

Tower, 320 ft. heavy duty, 36 in. triangular, lighted, immediately available. Key Code 6-17.

Harris FMC-2, two bay antenna tuned to 100.1 MHz, circular polarized. \$750. Key Code 6-29.

Self-supporting tower, 200 ft. 4 leg. Includes base insulators, top light and flasher. Former use-AM and FM on ground. \$6000 f.o.b. Key Code 6-82.

Jampro 4 bay FM antenna. Key Code 5-36.

Collins 4 bay FM antenna. Key Code 5-36.

Guyed Tower, 150 ft, on ground, good condition. \$800. Key Code 5-11.

Andrew 10.7-13.2 GHz rigid waveguide type WC-109, (54346-240), new, unused, w/hardware, 190 feet, best offer, plus shipping. Lists at \$2,544. Key Code 5-31.

Utility Tower 200 ft. guyed Type 2201. Key Code 5-36.

329 feet Andrew 1 1/2" HJ7-50A Heliac with connectors. Good condition. Key Code 4-43.

Jampro JA-2V/2B w/power divider 2H, 2V bays, tuned to 96.7 MHz. Need to replace 2 inner bay cables. Key Code 4-42.

Windcharger tower, 300 feet, with 20 ft. pole at top. Lights and wiring for lights and deicers. Tower to be available on the ground April 1, 1979. Key Code 4-43.

Tower lighting chokes. 3 Wire, 2000 watts AC. Some new, some used. Some used available in weatherproof metal boxes. 6 available \$25-\$100. Key Code 4-24.

Crouse-Hinds Tower light flasher unit. Mercury bulb type. In working condition, but dirty. \$25. Key Code 4-24.

Gates 23-A tower lighting choke. 2 wire open type. \$55. Key Code 4-60.

Shively 6810 CP Antenna. 8 Bay tuned to 101.1 and 102.1 used for duplexing. Deicers open. Key Code 4-12.

Parts chassis. Were part of antenna switching-failsafe system. Many relays, latching relays, small AC contactors, indicators, etc. Well worth \$15 each. Key Code 4-24.

Harris FMC-2, Two Bay FM Broadcast antenna with deicers, tuned to 100.9 Mhz. Excellent condition. Station moved to new frequency. Key Code 4-43.

WANT TO BUY

Tower 200 plus ft, 3 leg. Key Code 6-63.

Heliac 3" Transmission Line-150 to 250 feet. Will consider longer line. Key Code 6-16.

TV antenna for Channel 29 or 45. Key Code 5-50.

Six bay antenna or four vertical antenna for 106.1 with power divider. Key Code 5-51.

Wincharger Type 101 tower or 20ft sections of Type 101. Key Code 5-36.

Collins 37M-8 antenna tuned to 99.1 MHz with 1-1/2" coax or other horizontally polarized antenna, 6 or 8 bay on 99.1 MHz in good cond. Key Code 5-38.

Bays (stacks), quantity-2, Ch 12 Alford Stand-antennas would take ch 11 or 13. Key Code 4-22.

300' 3/4" diameter foam filled coax with 3/4" flanges. Key Code 4-67.

FM Circularly polarized 4 bays tunable 88 to 90 Mhz, that will accept 1KW R.F. Maximum. Key Code 4-38.

Parabolic dishes, 8 feet or larger. Any condition. Key Code 4-47.

1 1/2 to 3/4" taper reducer. Key Code 4-67.

220' Towers, 4 each. Tuning houses, 4 each. Also 400' Tower for FM installation. Key Code 3-94.

Phasing Unit for 4 tower directional. 10KW on 1110 KHz. Key Code 3-94.

Guyed Tower, 300' for CATV head end. At least a 33" cross section. Key Code 3-74.

AUDIO PRODUCTION (OTHER)

WANT TO SELL

Pultec EQP-1A Program Equalizer. Mint cond. \$500. Key Code 6-51.

Dorrough Discriminate Model 310 with most recent updates made. \$1200. Key Code 6-1.

Collins 116F equalizer, exc. cond. \$25. Key Code 6-2.

AK6 BX20E stereo reverb excellent cond. \$3500. Key Code 6-66.

2 UREI 813 Time Aligned Control room monitors. Brand New. \$2200. Key Code 6-66.

MIC MIC Master Room II Reverb like new cond. \$875 or best offer. Key Code 6-66.

International Contact Section

For more information on any product listed in BEE contact the following companies:

In Canada: United Video Ltd 1485 Triole Street Ottawa, Ontario K1B 3S4 or Canada 613-741-5554	Norbec Video Ltee 4315 Girouard Montreal, Quebec H4A 3E5 Canada 514-481-3483
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En Mexico: Exclusivo, para mas informacion, llamen:

Guarantee Radio Supply Corp
1314 Iturbide Street
Laredo TX 78040 E.U.A.
512-723-6913

In Australia: Contact the closest office of Audio Telex Communications,

Sydney (Head Office): 54 Alfred Street Melbourne: 7 Essex Road Brisbane: 394 Montague Road	Milsons Point 2061 Tel: 929-9848	Mt. Waverley 3149 Tel: 277-5311	West End 4104 Tel: 44-6328
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In Other Countries:
Broadcast Equipment Exchange Tel: 703-525-0400
PO Box 1238 TELEX: IMASINC 64593
Arlington, VA 222.0 USA Cable: IMASINC ARLINGTON VA

RCA amplifiers (2 sets) and audio processors available each set contains 2 RCA BA-43 program amplifiers with BA46 limiter and BA47 clipper. Each set is contained in wired rack mount unit, \$500 per set or best offer, Key Code 6-79.

Telex CS-45 headsets (3), like new, \$49 each. Autodyne, Box 13036, Orlando FL 32809. 305-855-6868.

Sony S777 SM audio mixer four mics in-stereo two lines in-stereo \$75. Key Code 6-73.

Lang PEQ-2A program equalizer, \$195. Autodyne, Box 13036, Orlando FL 32809. 305-855-6868.

One pair Altec 604E Control room monitor speaking in cabinets. \$550. Key Code 6-66.

MX-12 Sony mixers. Attenuation, pan, stereo-mono switch, hi-lo inputs and in mint condition. Quant 2 at \$80 each. Key Code 5-86.

MXR Compander Noise Reduction Unit, \$75. D. Abercrombie, Coyote Sound, 4318 Pan American Frwy. NE, #252, Albuquerque NM 87107. 505-883-0163.

Dolby A301, good cond, two available at \$500 each. Key Code 5-33.

Spotmaster, sound brightner. CLE-500 compressor-limiter-expander. Excellent condition. Quant 2 for \$500 each, or both for \$900, or best offer. Key Code 5-84.

Ampex AM 10 mixer, good cond, \$350. Key Code 5-33.

Fairchild 658A reverb-rarely used, good cond. Key Code 5-27.

Orban Optimod F.M. in exc. cond. Key Code 5-34.

Kepex module with enclosure and manual. New, still in original package. \$290. Key Code 5-15.

Garron Phase enhancer, Model STE-100. \$400/offer/trade for stereo modulation monitor/or???. Key Code 5-41.

Magna Tech model 31 Compressors, good condition, \$200 each. Key Code 4-44.

Inovonics, Orban, Technics, DBX, Lexicon Eventide, production tools, equalizers, reverb, limiters, amplifiers, monitor speakers, digital delay, broadcast mixers and more. New, demo and used equipment. Full Compass Systems, 55 N. Dickinson, Madison WI 53703. Tel. 608-257-7722 or TWX 910-268-2745.

DBX Noise Reduction (2 model 154), 8 channels. \$1200. Key Code 4-3.

RCA OP-7 Remote Mic Mixer \$40. Collins 212-Y remote amplifiers good cond., \$20 each. Key Code 4-49.

Lang PEQ2, solid state program equalizer, like new. \$225. Key Code 4-33.

Audio snake cable, 65' 12 pair w/box, never used, \$155 or best offer. Key Code 4-46.

Heavy duty cable, 1/4" phone plug ends, 20 & 50' lengths, also lo-Z mike cable. Key Code 4-46.

Ivie Audio Analyzers, IE-30s and IE-10s in stock. Triad Productions Inc, 1910 Ingersoll, Des Moines IA 50309. 515-243-2125.

Orban parametric equalizer. Rack mount, 2 channel. \$637. Only a few hours use. Key Code 4-85.

WANT TO BUY

Patch cords, twin-plug style, College Class D station will accept donation. Key Code 6-38.

Tape delay. Electronic delay or cart. Key Code 5-19.

EMT 140, mono or stereo. Key Code 4-21.

Audio switcher (stereo) for studio minimum 5 in x 4 out, illuminated. Key Code 4-81.

EMT 140 Reverb plates, mono or stereo, EMT 240 gold foil reverb. Key Code 4-83.

Quad Eight NS-120: Noise Gates (in any condition for good price). Key Code 4-10.

DBX 160 Compressor/Limiters. Key Code 4-10.

Urei, 1/3 octave or Altec Graphic Equalizer. Key Code 4-88.

Pre-1950 consoles, turntables, equalizers, microphones, amplifiers, etc. Also Pre 1950 Hi Fi equipment. Key Code 4-33.

In the U.S. call 800-336-3045
For any Key Code Names and Addresses.

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New Listings are in *Italics*

Instructions: Use this form to take advantage of any of the services provided by *Broadcast Equipment Exchange*. Always fill in the Contact Section below first, then fill in the appropriate service section(s). Remember, BEE provides a FREE listing service for end-users. Listings are printed *without* the listee's name and address... A Key Code is used instead. Paid subscribers receive their issues of BEE with the matching Key Code list. Non-paid subscribers do not; they pay for the Key Code only when they order it (see the Subscription Section below).

<p>CONTACT SECTION:</p> <p>Name _____</p> <p>Title _____</p> <p>Company/Station _____</p> <p>Address _____</p> <p>City _____</p> <p>State _____ Zip _____</p> <p>Telephone _____ <i>(Verifiable number must be provided)</i></p> <p>Signature _____</p>	<p>KEY CODE ORDER SECTION:</p> <p style="text-align: center;">TOLL FREE KEY CODE HOTLINE</p> <p style="text-align: center;">800-336-3045</p> <p style="text-align: center;"><small>In Virginia call 703-525-0400 collect.</small></p> <p>...our Hot Line telephone number. When you call, we will give you any Key Code names and addresses and send you the full list with an invoice for \$5.</p> <p style="text-align: center;">International Readers See International Contact Section on page 14</p>	<p>READER INQUIRY SECTION: 6-79</p> <p>If you are interested in receiving literature from any of the advertisers, in this issue of the <i>Broadcast Equipment Exchange</i>, then circle the numbers as shown at the bottom of the ads, and we will be happy to forward your request to the appropriate company.</p> <table style="width:100%; border: none;"> <tr><td>101</td><td>107</td><td>113</td><td>119</td><td>125</td><td>131</td><td>137</td><td>143</td><td>149</td></tr> <tr><td>102</td><td>108</td><td>114</td><td>120</td><td>126</td><td>132</td><td>138</td><td>144</td><td>150</td></tr> <tr><td>103</td><td>109</td><td>115</td><td>121</td><td>127</td><td>133</td><td>139</td><td>145</td><td>151</td></tr> <tr><td>104</td><td>110</td><td>116</td><td>122</td><td>128</td><td>134</td><td>140</td><td>146</td><td>152</td></tr> <tr><td>105</td><td>111</td><td>117</td><td>123</td><td>129</td><td>135</td><td>141</td><td>147</td><td>153</td></tr> <tr><td>106</td><td>112</td><td>118</td><td>124</td><td>130</td><td>136</td><td>142</td><td>148</td><td>154</td></tr> </table>	101	107	113	119	125	131	137	143	149	102	108	114	120	126	132	138	144	150	103	109	115	121	127	133	139	145	151	104	110	116	122	128	134	140	146	152	105	111	117	123	129	135	141	147	153	106	112	118	124	130	136	142	148	154
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SUBSCRIPTION SECTION: There are three ways of receiving BEE, so choose the way that suits you best:

<p>1. FIRST CLASS MAIL WITH KEY CODE LIST. Avoid delay... get in on the action faster! For \$25 per year, you get BEE 1st class WITH the matching Key Code number list. (Enclose your check with your order and get 3 BONUS issues!).</p> <p><input type="checkbox"/> Bill me \$25 for a 1 year, 1st class mail subscription to BEE including the Key Code list.</p> <p><input type="checkbox"/> Check enclosed for 3 BONUS issues!</p>	<p>2. THIRD CLASS MAIL WITH KEY CODE LIST. Save better than 50% by reducing our handling costs! For \$12 per year receive BEE via 3rd class mail WITH the KEY CODE list included. (Enclose your check with your order and get 3 BONUS issues!).</p> <p><input type="checkbox"/> Bill me \$12 for a 1 year, 3rd class mail subscription to BEE including the Key Code list.</p> <p><input type="checkbox"/> Check enclosed for 3 BONUS issues!</p>	<p>3. You receive BEE monthly WITHOUT THE KEY CODE LIST free via 3rd class mail if you send in this form at least once a year. You buy the Key Code lists for \$5 by using the Key Code order section above; only when you need it.</p> <p><input type="checkbox"/> Free without the Key Code list (I'll buy the list for \$5 only when I need it).</p>
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LISTING SECTION: *Broadcast Equipment Exchange* provides FREE listings for all broadcast or pro-sound end users. Send in your "Want to Sell" or "Want to Buy" requirements, and we will list them in BEE for three full months. Hundreds of stations and companies have used us successfully. Why don't you? The system is simple, just fill in your listing below, and send this form in by the 15th of the month preceding issue. Don't forget to fill in the contact section above before you mail the form. On each listing please circle either "Want to Sell" (WTS) or "Want to Buy" (WTB), and if possible please note in which category you would like the listing to be run.

<p>1. WTS or WTB, Category: _____</p> <p>Text: _____</p> <hr/> <p>2. WTS or WTB, Category: _____</p> <p>Text: _____</p> <hr/> <p>3. WTS or WTB, Category: _____</p> <p>Text: _____</p> <hr/> <p>4. WTS or WTB, Category: _____</p> <p>Text: _____</p> <hr/>	<p>5. WTS or WTB, Category: _____</p> <p>Text: _____</p> <hr/> <p>6. WTS or WTB, Category: _____</p> <p>Text: _____</p> <hr/> <p>7. WTS or WTB, Category: _____</p> <p>Text: _____</p> <hr/> <p>8. WTS or WTB, Category: _____</p> <p>Text: _____</p> <hr/>
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Classified listings with contact information are available to manufacturers, dealers, brokers, distributors, etc. on a \$12 per listing basis. Call or write for complete details.

IMAS BROADCAST EQUIPMENT EXCHANGE accepts no responsibility for the condition of the equipment listed. We make no attempt to evaluate equipment, but rather publish exactly what is sent to us by the listers.

FILL IN, REMOVE, AND MAIL THIS FORM TO... **BROADCAST EQUIPMENT EXCHANGE**
P.O. BOX 1238
ARLINGTON, VA. 22210 U.S.A.

The Exchange The Exchange The Exchange

AUDIO PROD....WTB...CONTD.

New or used boards, equalizers, limiters, amps, etc. Needed immediately. Key Code 4-65.

Burwen DNF 1000 in perfect condition, with manual. Key Code 3-93.

AUTOMATION EQUIP.

WANT TO SELL

Schafer Model 903 computerized automation system with ITC reel to reel playback units (4), audiophile units, cartridge playback units, 2 of which are set up for time announce. Extel logger printer teletype encoder, tone generator. System is capable of stereo operation and has studio manual control unit. Key Code 6-14.

Harris System 90, with 4 ITC 750 players, two random access 350 Carousels, and one Harris Criterion Compact III cart player. Key Code 6-26.

IGM 400 Programmer, excl. cond. Key Code 6-40.

Schafer 903 with 3 Revox reels, 3 carousels, time announce with 2 ITC decks \$24,000. Key Code 6-43.

IGM Ram automation, 16 months old. All updated modifications made. Includes 4 ITC reel desks, time announce, 3 carousels, 4 racks. Original cost new \$24000. Replacement cost \$27000. Asking \$20,000. Key Code 6-49.

Shaffer SA100 spotter control unit minus reel to reel. Make offer. Key Code 6-62.

Schafer 903, with 4 Ampex players and solid-state electronics, two random access Carousels, and one ITC RP cart player. Key Code 6-26.

Model 250 carousel. Good cond. Key Code 6-40.

Gates RA-10 1000 event, 10 source random access system, 2 each model 252 random access carousels, stereo, 2 each Scully model 270 playback decks, 14" reels, stereo 10 source model SSC control center, silence sensor, AA-1042 audio control (4) DCU-3 tone sensors, digital logging system with encoder. In two racks: \$12,000. (Station buying expanded system). Key Code 6-11.

Gates SC-48, with TPG-2 time controller, 25 Hz. filter, and silence sense. With three Revox A77 players and two Carousels, one random access. Key Code 6-26.

Sparta 726 automation brain. Good condition. \$450. Key Code 6-81.

Shafer 800 equipment including: tube type control panel w/clock; switching panel; silence sensor; automatic switcher w/digital clock; time gate; network switcher; spot locators w/M-50 memory; audio clock; power supply; detector; remote control boxes; cables. Most working when removed from service. Make offer, sold as a lot or separately. Key Code 6-11.

SMC 20 Hz High pass filters. Key Code 6-69.

IGM 400 control unit. Key Code 6-10.

Two SP-10 programmers w/cart machines. 1 AMS-10SB logging switcher, 1 GC-24 decoder (SCM), 1 AS-12 Audio switcher including remote control panel (SCM). Would rather have cash-or-Revoxes or VCR or 16mm cam-/projectors or TT1UB or Field strength meter or other test equip. Key Code 6-33.

CD-24-R Kartel. Less than 2 yrs old. Used for only 3 months. Two available. Key Code 6-45.

SMC, DP-1 system, 4 each 250 carousels, 4 each Revox 77, time announce, remote control, teletypes & encoders. Good cond, & in service. Key Code 5-55.

Harris SP-10 Automation System (complete) (no tape or cart eqmt), with manuals. Best offer. Key Code 5-89.

Autogram, all stereo, 2 carousel-R.A., 1 carousel-seq., 1 SMC PB cart, 1 SMC RPB cart, source brain & extras. Key Code 4-32.

SMC TAC-1 Time Announcer control with time announcer deck used 18 months. \$500. Key Code 4-45.

WANT TO BUY

ITC 750 series reel play back deck. Key Code 4-16.

Random Select Carousel, late model, 350 series mono. Quantity, 1 or 2. Key Code 4-16.

Schafer 800-T Stereo with at least 2 reel to reel playbacks, 2 R.S. Carousels. 2 single deck cart playback and time announce. Key Code 4-25.

Gates 55 or similar automation sequencing control cartridge playback. Key Code 3-58.

CAMERAS (VIDEO)

WANT TO SELL

Norelco PC-70 cameras in good condition. Complete except for lenses. Available from R & B Industries, 629 Grove St, Jersey City NJ 07302. 212-924-7910.

RCA TD-1 MI-26044 pedestals and cradle heads MI-26203, 2 each. Key Code 6-13.

RCA model TK-60A studio B&W in like-new condition with complete CCU, solid-state power supply, remote control, and 1 1/2", 3", 5" lenses, cables. \$1,300. Key Code 6-74.

Nikor Zoom Lens for IVC 90 cameras, 2 each. Key Code 6-13.

Many feet B & W camera cable, many connectors. Sell or trade. Key Code 6-48.

Ikagami HL-33 ENG cameras in good condition. Available from R & B Industries, 629 Grove St, Jersey City NJ 07302. 212-924-7910.

Asaca 7000 cameras complete. Never used. Four at \$39000 each. Best cash offer or will trade. Key Code 6-57.

Yoke assembly for 3" I.O. camera. New. Sell or trade. Key Code 6-48.

Shibaden tv cameras, 2 each, (FP 1200 & FPC 1000 AU) includes CU's, 3-50 ft. cords, one carrying case. Total \$13,000. Key Code 6-12.

Ikagami HL-77A w/13:1 lens, 3 mos. new. Key Code 5-42.

RCA Vidicon Cameras MI-3623A, \$75 ea, \$120 or best offer for two. Key Code 5-8.

RCA TK-60 with lenses, no CCU, gd cond, best offer. Key Code 5-47.

Varotal V, F4, 40-400 manual zoom lens with control, best offer. Key Code 5-47.

Hitachi/Shibaden FP100D, B & W cameras, 2 each, 10:1 lenses, cables, sync gen, CCU's cases, and manuals, reasonable. Key Code 5-57.

Sony AVC-4000A monochrome camera with 5-1 zoom lens and manual, perfect, \$750 or best offer. Key Code 5-68.

RCA TK-42, 3 each, complete with manuals, sealed bid for opening June 20. Mark envelope "TK 42 Bid". Minimum \$750/each F.O.B. Further info on request. Key Code 5-48.

RCA TK-60A studio B/W cameras, 2 each, zoom lenses, fixed lenses, manuals, many extras, in perfect shape, work gd, \$1250 or best offer or trade. Key Code 5-68.

TK-42 camera. Best offer. Key Code 5-25.

Sony DXC-1200 vidicon color cameras, quantity-2. Key Code 4-37.

Hitachi FP-1500 color vidicon camera. Key Code 4-37.

WANT TO BUY

Cameras, old color and black and white with lenses. Key Code 5-40.

Lens eight inch (203mm) for RCA TK-11. Key Code 4-6.

Portable b/w like AVC-3400 etc. Used or repairable but must be mechanically complete. Key Code 4-61.

CART MACHINES

WANT TO SELL

Gates M-5944 Cart Machines, 3 good units, 1 for parts. Plus Gates M-5952 rec. amp. \$125 total. Key Code 6-16.

RCA RT-7 cart machine with BA-7A record amp. Key Code 6-54.

Tapecaster 700 PS stereo-play-back, 5 yrs old; needs new heads for top quality perf. Make offer. Key Code 6-65.

Collins tape cartridge system. Units are complete. Appear to work but replaced with new equipment. Make offer. Has manuals. Key Code 6-55.

Spotmaster 400 series record/play, good cond, \$150. **Spotmaster 400 series play**, 2 available, good cond, \$100 each. Key Code 6-10.

Tapecaster 700P lever release. Two at \$150 each. Key Code 6-27.

Spotmaster 500 rec-play mono. Has new heads & extensive mods. Hums on play; otherwise ok. \$100 or trade for audio equip. of equal value. Key Code 6-52.

Tapecaster and ATC machines and ATC record amps. Key Code 6-17.

Collins Model BP-190 cart player. Key Code 6-42.

Collins 642A-1 cart machine with 216C-1 record amp. Key Code 6-54.

Spotmaster (older model) record/playback unit. Appears complete. Rack mount type. no manual. Make offer. Key Code 6-55.

Tapecaster 700 RPS, stereo, 5 yrs old, needs new heads for top quality perf. Make offer. Key Code 6-65.

Spotmaster 5300A triple-Deck mono PB machine. Brand new motor \$950. Key Code 5-1.

Gates Cartritape II playback unit. Out of service for 7 years. Works, best offer. Key Code 5-9.

Spotmaster, 2 available. One Rec and PB, one PB only. Key Code 5-13.

Harris Criterion compact (four). Key Code 5-21.

Tapecaster R.P., in gd. cond, heads like new, \$425. Key Code 5-70.

Tapecaster stereo 700 in gd. cond, \$300. Key Code 5-70.

Spotmaster, Gates, ITC, Tapecaster, Ampro, etc. Call or send for current information. Autodyne, Box 13036, Orlando FL 32809. 305-855-6868.

Gates Cartritape II with record amp in excellent cond., \$125. Key Code 4-64.

Spotmaster 5 spot cart tape deck w/150 Hz Q circuit. Good cond., recently refurbished. Key Code 4-76.

Record amplifier board for Gates Stereo Criterion. New-\$40. Key Code 4-29.

Spotmaster 5301 triple decker mono playback machine. New motor reconditioned, \$1100 or trade for good reel-to-reel. Key Code 4-54.

Spotmaster 500C. Key Code 4-1.

Spotmaster stereo play backs, (quantity-2). Key Code 4-74.

Spotmaster stereo R.P. Key Code 4-74.

Spotmaster Tape Cartridge Winder TP-1A average, not working condition. Key Code 2-76.

WANT TO BUY

RCA RT-7A or RT-7B Cart machine. Does not have to be working, needed for parts only. Key Code 6-38.

Spotmaster "5 spot". Prefer a unit that needs repair. Key Code 6-28.

Collins 642 Record unit. Key Code 6-35.

Collins 642 Record Amp in any condition. Key Code 6-35.

A T C AB190 Record Amp in any condition. Key Code 6-35.

ITC 3-D with record, all tones. Key Code 5-49.

Rack mounting for old ATC or Gates Criterion. Key Code 5-49.

ITC 303DS stereo cart machine. Key Code 5-51.

Record-Playback (mono) cart machine, inexpensive. Key Code 5-43.

Anything working or close to it. Preferably not rack mounted, but I'm flexible. Key Code 5-58.

Collin 642, complete or non-working, also record amp for same. Key Code 4-79.

Mono-play/record/delay 1976-79. Model in good condition. Key Code 4-31.

Cartridge machines. Key Code 4-38.

New or slightly used cart machines, ITC preferred. Key Code 4-65.

CASSETTE & REEL-TO-REEL RECORDERS

WANT TO SELL

Uher 4000 Report L, 5 each, some parts missing, all for \$100. Autodyne, Box 13036, Orlando FL 32809. 305-855-6868.

Ampex 600 full track recorder in portable leather case. exc. cond. \$250. Key code 6-2.

Ampex 351-1, stereo \$1300. **Ampex AG-350**, full track, \$1000. **Shafer model SL330** two channel logger, \$850. All now in use. Key Code 6-11.

Ampex 403 electronics with power supply in good working cond. \$60. Key Code 6-19.

Nakamichi 1000-II cassette recorder 3 months old. \$1650 new, sacrifice for \$1150. Key Code 6-34.

3300-2S-2 trk stereo decks (2 each); salvage quality; Make offer over \$50. Key Code 6-65.

Revox A777 half track 7 1/2-15 with sel sync, vari-speed, remote control, rack mount and portable case. \$900. Key Code 6-66.

Scully 280-4 track-mod. 502-400-400 (no motion sense or servo motor) has sync-sync master, \$2900. Key Code 6-70.

UHER 4000 report, \$100 w/leather carrying case and accessories. Key Code 6-73.

Sony TC-252 stereo, with speakers, works OK, \$50. Autodyne, Box 13036, Orlando FL 32809. 305-855-6868.

UHER 9500 slow-speed logger 1/4 track, 7 1/2-15/32 I.P.S. stereo or 4 mono channels. \$300 or trade. Key Code 6-6.

Ampex 354, stereo, 2 track, single unit tube electronics, good cond, \$975. Key Code 6-8.

Ampex 350 Tape Recorder carrying cases, 4 each. Good cond. Key Code 6-16.

Tascam 80-8 w/DX-8 and roll-around console (mtd); 60 hrs use. \$4000. Key Code 6-65.

Ampex headbox with 2 PB headcables. Key Code 6-69.

Magnecord 1022 stereo transport, 3 3/4-7 1/2, excell cond, \$395. Autodyne, Box 13036, Orlando FL 32809. 305-855-6868.

Revox A77 1/4 track stereo 3 3/4-7 1/2 with remote control, rack mount and portable case. \$600. Key Code 6-66.

Sony S777, \$250. Stereo-2 track (4 track record). (\$300 w/mixer unit). Key Code 6-73.

Ampex 601 very good condition, leather case excellent. \$275 or make offer. Key Code 6-76.

Wollensack portable model 10W tape recorder-5" reels-counter 1 1/2-3 3/4. Key Code 6-42.

Sony TC-357-4 monophonic tape recorder, good cond. \$100. Key Code 6-7.

Ampex FR-1100, 1/4 in. tape transport; 7 1/2-15 ips two 2-chan. hds., 10 1/2 in. reels only, no elect. As-in in short rack. \$300 you pick up. Key Code 6-52.

Sony TC-850-2 and Sony TC-850-4, 150-200 has mixdown mstr. use; Exc. cond. \$600 each. Key Code 6-65.

Crown-10 1/2 reel deck for stereo playback, manual only, can be modified for mono record. Best offer. Key Code 6-73.

Ampex 351 Mono, Reconditioned. \$1195. Autodyne, Box 13036, Orlando FL 32809. 305-855-6868.

Ampex 351-2 transport rebuilt like new with new capstan and new stereo head stack assembly, \$1450. Key Code 5-15.

Scully 280 SP, 2 track recorder, with remote control, exc. cond, \$1850. Key Code 5-26.

Ampex AG-600 stereo tape recorder, two available, good cond. Key Code 5-27.

Magnecord PT6-6 tape recorder, works o.k., except for brakes, \$100. Key Code 5-30.

Ampex AG440-4 in portable cases with 2 and 4 track head stack, good cond, \$3500. Key Code 5-33.

Revox A-700, 2-track recorder, 3 speeds, remote control, exc. cond, \$1800. Key Code 5-39.

Ampex AG500, exc. cond, 2 tracks, 7 1/2 and 15 ips, 1/2 track stereo, \$1000. Key Code 5-46.

In the U.S. call 800-336-3045
For any Key Code Names and Addresses.

800-336-3045

New Listings are in *Italics*.

The Exchange The Exchange The Exchange

CASSETTE...WTS...CONTD.

Magnecorder 1024, needs some work, in cases, quarter-track stereo, 7½-3¼ ips, four heads, \$550. Key Code 5-54.

Ampex AG 300-4, walnut cabinet, exc, \$1100. Key Code 5-61.

Ampex 351-2 tape transport only, \$600, gd. working cond. Throw in repairable mono electronics free. Key Code 5-62.

Revox B 77 demonstrator, 2 track stereo, 7½-3¼ ips, cabinet, \$1200. Revox A 77, 2 track stereo, 7½-3¼ ips, new heads, \$700. United Tapes of America, 303-242-0405.

Magnecord 1028-24 Stereo 2T, 7.5-15, excel cond. \$750. Autodyne, Box 13036, Orlando FL 32809. 305-855-6868.

Ampex 351 full track recorder, new heads, exc. cond, \$995. Key Code 5-26.

Ampex AG-500 2HS tape recorder, good cond. Key Code 5-27.

Ampex PR-10 mono transport and electronics, fair cond, \$200. Key Code 5-30.

Tascam 701-4, half inch 4 track recorder (works fine but sold as-is) includes home-built roll-cabinet if wanted, was \$2000 new, complete with ALL manuals (bound) for \$1200, excel. prod. machine. Key Code 5-74.

Ampex 351-1 stereo, tube type, 7½-15 ips, original and perfect, \$1500. Key Code 5-76.

UHER Teaching Machine, Model 5500, New \$350. Model 4000, complete \$90. Key Code 5-80.

Ampex 602-2. \$720. Key Code 5-87.

Magnecord PT6 Decks \$35, Electronics \$35, both \$50, clean, low mileage, need some work or excellent for parts. Autodyne, Box 13036, Orlando FL 32809. 305-855-6868.

Crown SX-824 Stereo/Quad (Special), 10½ in. reels, 3.75-7.5, with extra Crown stereo preamp, presently set up for: 2ch, 4T pbk & record (FT erase); 4ch, 4T pbk; 2ch, 2T pbk; and can be set up for Delay mode (for telephone talk shows, etc). In portable case (can be rack mounted). Excel cond. \$1375. Autodyne, Box 13036, Orlando FL 32809. 305-855-6868.

Ampex 300-1 full track with electronics for stereo; new ½ trk play head, \$350. Key Code 5-49.

Head stack for Scully 380, 3 heads, two-track stereo, exc. \$250. Key Code 5-54.

Magnecord 1024 quarter track ERP Rack Mount \$400, Excel. Key Code 5-76.

Scully 284, 8 track recorder. Key Code 5-81.

Ampex 351-2, 300 top plate, 7½-15, fair cond, \$600. Key Code 5-61.

Sony 777-4 portable professional 3¼-7½ ips machines excel. cond. \$250 each. Key Code 5-82.

Roberts 192 HT, mono. excel. cond. \$125. Autodyne, Box 13036, Orlando FL 32809. 305-855-6868.

Magnecord Model 1021 R-R recorders (four), gd. cond. Key Code 5-21.

Ampex 602 mono tape recorder, fair cond. Key Code 5-27.

Ampex 300-2 7½-15, P.B. Only, runs o.k., \$500. Key Code 5-61.

3M prof. recording deck 150 mil tape, convertible to any size tape. \$900. Key Code 4-33.

Roberts 1770 D, 4 track, Key Code 4-40.

TEAC A-3340S 4-track, simul-Sync, 15-7½ ips, 10" reels, mint condition, \$895, or best offer. Key Code 4-46.

Ampex 350 recorder, (quantity 2) rack mt w/preamps, 7½-15 ips, Key Code 4-63.

ITC 850 reel to reels, (quantity-6), 6 months old. \$3,400 each. Record-playback, ½ track stereo. 7½-15 ips. 855-0005 model. Key Code 4-71.

Transports, 350, (quantity 2). Key Code 4-74.

3M Contata tape player, background music, one 26 hr. tape, works. \$100. Key Code 4-80.

Maggie PT6 Rack mount (2 each), operational when removed from service. Best offer. Key Code 4-82.

Ampex 351 console cabinet, regular black slant face, good condition, \$200. Key Code 4-81.

Tascam 70H2, 2 track stereo 7½ & 15 ips Master recorder, set up for Scotch 250, excel. cond., new heads. \$1,100. Key Code 4-10.

Ampex 300 3 track & 4 track playback only. In console cabinet, \$900. Key Code 4-33.

Ampex 601-2 Recorder, Rack mount w/preamps, 7½-15 ips. Key Code 4-63.

Lang playback electronics, no P.S., (quantity-4). Key Code 4-74.

Berlant 10½ mono broadcast recorder, 3 motors run, heads worn, separate 4 mike mixer, lot \$100. Key Code 4-80.

Scully 250-2 track, rack mount. Showroom machine. Warranty. \$1900. 7½-15 ips, half track. Key Code 4-85.

Ampex Master Recorder, 8 Track, 350 series in operation with remote switches. \$5000. Key Code 4-3.

Magnecord (PT6 type) 3 transports, 1 electronics & 1 ex-transport for parts. \$200. Two like new. Key Code 4-32.

Ampex 351 ½ track mono, 7½-15 ips. Electronics fine, some problems with transport. Key Code 4-42.

Magnecord 10-22. Key Code 4-74.

Scully 280B-2 track, rack mount. Excellent cond. Showroom machine. \$3000, firm. Key Code 4-85.

Ampex Master Recorder, 4 Track, 350 series in operation. \$2,200. Key Code 4-3.

Scully 280-B 8 track reel to reel recorder, 1" tape, in console, With remote syncmaster panel. Good condition. Need to sell. Key Code 4-52.

Teac 91 Recorder 10" cap, 7½-15 ips made f/Concertone and Teac AR-12 Preamp. Key Code 4-63.

Ampex 601, full track mono recorder in portable case, excellent condition, \$350. Key Code 4-64.

Ampex 351 Master electronics. Very clean, were working when removed from service. 3 available. \$150 each or all 3 for \$400. Key Code 4-24.

TEAC A7030 solid state 10½ inch reel, 7½-15 ips, 2 track & ¼ track play. Like new. \$600. Key Code 4-33.

Roberts 720A, 4 track. Key Code 4-40.

Ampex 600 reconditioned & upgraded to 601. In rack mount adapter. \$450. Key Code 4-44.

ITC Model 750 in console, good cond, \$1250. Key Code 4-52.

Roberts 1700 Recorder (quantity-2) 7" cap, 7½-15 ips, full track. Key Code 4-63.

Ampex 602-2, 2 track stereo recorder in wooden case, very good condition, \$375. Key Code 4-64.

Sony TC-640B ¼ track stereo deck in showroom condition, solenoid control, \$200. Key Code 4-64.

Revox A77 Portable ½ tr. with Dolby 7½ & 3¼, like new. \$800. Key Code 4-75.

TEAC recorders. Demo units. 20% off A2300SX, 3300SX & SR. Warranty. Key Code 4-85.

Otari Reel to Reel full track, 2, 4 and 8 track and highspeed duplicators. MX-5050B in stock. Authorized service. Also demos and used recorders. Full Compass Systems, 55 N. Dickinson, Madison WI 53703. Tel 608-257-7722 or TWX 910-286-2745.

Electroponic TD-50, 8-track player and recorder. Portable Panasonic 8 track, case too. \$45 for all. Key Code 3-61.

Technics RS 1500, RS 1520, RS M85, etc. Reel-to-reel and cassette, portable and rack-mount. High performance pro gear, \$200-2300. Also demo and used recorders. Full Compass Systems, 55 N. Dickinson, Madison WI 53703. Tel. 608-257-7722 or TWX 910-286-2745.

Monitor/Viking audio tape players-decks only. 7½ ips, ½ track stereo heads. 10 available as is. Best offer plus shipping. Key Code 3-5.

WANT TO BUY

Teac 70-8 recorder any condition. Key Code 6-2.

Ampex full track 601 or 602, good cond. Key Code 6-23.

Gates ST-101-need not be in good cond. but repairable and intact. Key Code 6-28.

Ampex 350/351 portable transport case, good cond. minimum metal corrosion, tears & holes. Key Code 6-30.

Sony TC-850 10½" reel to reel ¼" tape decks. Key Code 6-46.

Reel to reel tape recorder (½ track or ¼ track) 2 speed for production room. Key Code 6-28.

7" reel to reel decks that operate on 12 volts DC with or without record or play electronics. Key Code 6-46.

Cassette tape loaders used for winding ¼" cassette tape into C-O cassettes with or without automatic splicers. Key Code 6-46.

8-channel record-playback erase head stacks (3m Min Com machine). Key Code 6-72.

Ampex 300 and 3200 10½ and 14" 3 motor transport with or without electronics. Key Code 6-46.

Cassette Duplicator, stereo at least two slaves (prefer four) any condition. Key Code 6-2.

Bias amplifiers (½ MHZ) for Ampex 3200 high speed duplicating system. Key Code 6-46.

Norelco Carrycorder cassette recorders model #150. Key Code 6-46.

Ampex 350 or 351 series, FT, 7½/15 IPS w/tube electronics, AS-IS OK. Key Code 6-77.

Recorder 2-track, late model. Key code 5-81.

Otari 1-inch, 8-track with return to zero memory. Key Code 5-39.

Conversion equipment to rack-mount two Revox A-77's, presently in walnut cases. Will swap cases for conversion or buy outright. Key Code 5-72.

Tascam 4-channel electronics Model 702, for Series 70 recorder. Also Tascam 8-track head stack. Key Code 5-39.

Rack mounts for Ampex 601 recorders. Key Code 5-11.

Ampex 601, gd. or easy to repair cond., even if it doesn't work. Price negotiable, but be reasonable. Key Code 5-58.

Reel-to-Reel, 2 TR stereo, inexpensive. Key Code 5-43.

Cassette Duplicating machine. Key Code 5-45.

Revox A77, half track stereo, 7½-15 ips. Late models only in excellent cond. Key Code 4-57.

New or slightly used full and half track recorders. Key Code 4-65.

Magnecord 728, Electronics & power supply. Also looking for 2 track rec. & Play heads and VU meters. Key Code 4-21.

Ampex tape decks wanted for parts. Key Code 4-28.

Garner or Magnefax reel to reel duplicators, half track stereo, good or better condition. Key Code 4-57.

Slow speed logger in good working condition. Multi track if possible. Key Code 4-81.

Magnecord 728/1028, for parts, working or not. Key Code 4-21.

Ampex 350, 351 or solid state amplifiers. Old style head for Ampex 200. Ampex 400 good cond. Key Code 4-33.

B. 16, 24 multitrack decks needed. New or slightly used equip. only. Key Code 4-65.

Bell RT-360 recorder/duplicator. Key Code 3-29.

CATV-MATV EQUIP.

WANT TO SELL

Finco G-144, UHF broadband amplifier, new, never used. 45db gain, 75 ohms input and output. \$100. Key Code 6-80.

Finco G-532-FM, weatherproof FM trap, new, never used. 75 ohms input and output. \$12. Key Code 6-80.

Dynair solid state CH 2 CATV modulator. FB cond. with book. \$400 or offer. Key Code 4-72.

Jerrold \$2300 VHF broadband amplifier. Four units available in working condition. Best offer plus shipping. Key Code 3-5.

B.T. MLA-C, VHF broadband amplifier. Masterline, channel amplifier, five units available in working condition. Best offer plus shipping. Key Code 3-5.

B.T. MCS-FM, VHF broadband amplifier. Masterline, channel amplifier, two units available in working condition. Best offer plus shipping. Key Code 3-5.

Output Channel Amplifier, FM Hi output with AGC Jerrold Model HPM. Two units available in working condition. Best offer plus shipping. Key Code 3-5.

WANT TO BUY

HBO converter needed for 2.1 GHz, top price paid. Key Code 5-53.

Need MDS down-converter, preferably with subscriber antenna; cost is unimportant for functioning unit. Key Code 5-53.

CATV Equipment needed for new franchised cable system. Construction head end and line equipment required. Key Code 3-74.

CONSOLES

WANT TO SELL

Two MX10 tube type mixers (4-2) Mint cond. \$550/pair. Key Code 6-47.

RCA BC-2B studio console and power supply. Used and modified, however lots of good parts. Still worked when removed. Make offer. Key Code 6-55.

Preamp cards (3) for Gatesway 80 console, should be ok. Make offer. Key Code 6-59.

Gates studioette 4 channel mono fair condition as is \$275 or best offer. Key Code 6-62.

Gates executive console, M6158A, Ten gain controls, with 40 inputs total stereo console 4 yrs old \$3500 or best offer. Key Code 6-79.

Sony MX-16 mike & line mixer, 4 outputs, excellent condition. \$450. Key Code 4-25.

RCA BC-7A 10 Channel stereo console, \$2500 or will trade for 5 Channel Harris in good cond. BC-7A is in very good cond. Key Code 6-39.

SSI Console, 24 input, 16 bus, adapted to 24-track monitoring; 40 faders; separate monitor mix; 2 cue busses; 4 echo sends; 550 audio accessories jack field; 40 vu meters, plus 27 dBm out, plug together installation. \$30,000. Key Code 6-41.

Sony MX-16; 8 in, 4 out; good cond. 4 yrs. old; \$300. Key Code 6-65.

Electrodyne Console 20 in, 16 out, exc. cond. stereo echo. Patch bay. Many extras. \$8000. Key Code 6-68.

Gates "Yard" and Gatesway M-5133A tube type audio consoles. Both operational. Key Code 6-17.

RCA Console BC-6B. Key Code 6-40.

8 Channel type BC-3C RCA Standard console M1-11641-A. \$300. Key Code 6-53.

Gatesway Console Heavily used and modified. Good for parts. Make offer. Manual included. Key Code 6-55.

Sparta PS-6A power supply card for A-15B console and Sparta monitor amplifier card, #1025-A for A-15B console. Make offer. Key Code 6-59.

Lamb PML 420 mixer with power supply, 4 channel stereo with sensitivity, three band EQ, pan, reverb send on each channel. Limiters on each output. Perfect except VU's don't work. New \$675 priced \$295. Key Code 6-64.

GE 8-mixer dual channel transistor console model 4BC-21A1 with built in patch panel. Good cond., currently in use. \$1000. Key Code 6-51.

Ramko DC8MS (2yrs old) stereo bd. with monitor amp and LC-4 remote control relay unit. Bd. still in service. Available July 1979. \$2500 new, asking \$1100 for pkg. Key Code 6-58.

Budweiser console, Input Section: 20 inputs, Monitor Section (solid state) 24 in and 2 out. The console uses discrete solid state components throughout with the exception of the tube input modules. Call or write for complete details. \$18000. Key Code 6-70.

Custom Heil 12 x 4 Mixing Console w/Duncan Faders. Used. Key Code 5-88.

See page 14 for International Contact Instructions

The Exchange The Exchange The Exchange

CONSOLES...WTS...CONTD.

Sony MX-20 8 x 4 Mixer, like new w/tape monitor switch added balanced in/out, \$500. Key Code 5-74.

CM-607 (CM Laboratories) Disco Mixer. New. Key Code 5-88.

Tangent Mixing Console 12 x 2 x 1. New. Key Code 5-88.

Russco mixer, Studio Master 505, mono with Canon XLR connectors. \$500. Key Code 5-10.

MM Electronics 16 x 2 x 1 Mixing Console. New. Key Code 5-88.

Gates producer board. Four pots, 12 inputs, vu meter, mono, good cond. Key Code 5-27.

Tascam Model 10, used under 10 hours. Quad pan, input cue/solo, monitor mixdown plus more 8 in, 4 out. Key Code 5-52.

Fairchild 16 in, 4 out, plus Q-mixing console with equalizers, tone generator and all transformers, in and out, reconditioned. Key Code 5-73.

Spotmaster Consoles. New. Send for literature. Best package prices on trade-in of surplus equipment. Autodyne, Box 13036, Orlando FL 32809. 305-855-6868.

Gates 4 channel, solid state Producer Console, mono, rough but works, best offer. Key Code 5-9.

Collins 212F-2, 6 mixer, 17 input mono console. Includes manuals, spare Pgm amp, built-in limiter. Price negotiable. Key Code 5-24.

Biamp #1282 Mixer, new. Key Code 5-88.

Gates Dynamote Portable remote mic mixer amp, good cond, \$70. Autodyne, Box 13036, Orlando FL 32809. 305-855-6868.

Wilkinson TSC-4, 7 mixer stereo board. Key Code 5-51.

Collins 6 channel model 212-S stereo console. 24 inputs, \$900. Key Code 4-25.

Bogen PA Mixer, model LOM Series E-97, brand new. Key Code 4-40.

GE BC-11-A console, 9 pot/dual out w/12 preamps & power supply, requires some work. Key Code 4-63.

Bogen MXM-5 input mixer with input & output transformers, good condition, \$100. Key Code 4-64.

Bogen MTM Preamp/mixer, 4 lo-Z Mike/2 Hi-Z inputs, new. Key Code 4-63.

Altec 1567 (2 each) \$150 & \$200 w/case, Cannons, xfmrs. Key Code 4-80.

Gates CS-52 Studioette, fair cond. Best offer, includes manual; ideal production tool. Key Code 4-35.

MCI 42B professional console 28 x 24, light meters, excellent condition, \$25,000. Key Code 4-56.

Sony MX-14 6 in, 2 out with mike, line & phono on each, excellent condition, \$125. Key Code 4-64.

Stevenson Interface Board 9 in/4 out with compression module. \$2,800. Key Code 4-3.

Bogen Sound Systems JOL mixer. Four mic., one phone input, output, Hi-Z or Low Z. Best offer plus shipping. Key Code 3-5.

WANT TO BUY

Gates M-5235 phono pre-amps. tube type, mic input transformers for old G.E. BC-1A console and plug in condensers. Key Code 6-56.

Microphone input transformers for G.E. type BC-1-A console, need two or three. Also need plug in condensers for same. Key Code 6-22.

Console 4 or 5 pot stereo, inexpensive. Key Code 5-43.

RCA BC-7a, BC-8, and BC-10 Consoles. Must be in good shape. Key Code 4-2.

Electrovoice Eliminator 2: Loudspeaker system. Key Code 4-10.

Sparta 4 or 5 channel mixer. Key Code 4-16.

Gates M-4880 Dynamote 4-channel remote amp—complete, but not working, for the parts. Key Code 4-19.

Pre-1950 RCA Western Electric, Collins, Laegevin, etc. also related equipment. Key Code 4-33.

Tascam Model 10 Input Modules #101. Key Code 4-5.

Manual for old tube type Gates Studioette console. Key Code 4-49.

Recording and broadcast consoles needed immediately. Key Code 4-65.

Tascam 16 Monitor Mix Module. Key Code 4-5.

Mono console: tube or solid state. Key Code 4-41.

Collins 212-E in any condition also RCA BC-6 in any cond. Key Code 4-79.

DISCO & SOUND EQUIP.

WANT TO SELL

Altec 16 in. coaxial speaker and Altec crossover network in enclosure. \$100. Key Code 6-78.

Pair of Altec A-7's 500 HZ X-over, 8 ohms, current model used once. Key Code 6-36.

Grampain Feedback Cutter and 150 watt amplifier. exc. cond. \$300. (Grampain Amplifier) Key Code 6-2.

Pair of small voice of the Theatre speakers good cond. Key Code 6-36.

Altec 9845 6 for \$375 each plus shipping. Key Code 6-41.

Custom built 8-track cartridge loop mixer used to record a stereo mix onto an 8-track master loop (1" tape). \$500. Key Code 6-70.

Biamp EQ 210-Stereo graphic 10 Band. New. Key Code 5-88.

Matrix PPI-16 Electronics. New. Key Code 5-88.

SP-108 (Concertaudio) Floor Monitor. New. (6). Key Code 5-88.

Klipsch Model B Corner Horns (pair), cost \$2500 new, excel. cond. \$1495 for pair. Autodyne, Box 13036, Orlando FL 32809. 305-855-6868.

Fisher Series 80 AM Tuner, good cond, \$59. Autodyne, Box 13036, Orlando FL 32809. 305-855-6868.

Pace 1/3rd octave Pro SR-271 Graphic EQ's. New. (five). Key Code 5-88.

Snakes, 9 Pair x 100ft. New. (two). 15 pair x 100ft, 17 pair x 100ft, 19 pair x 100ft, and 27 pair x 100ft. Key Code 5-88.

Mic cables. New 25, 50, and 100 foot in quantity. Key Code 5-88.

Electro-Voice EVX-44, 4 chan matrix decoder, excel. cond, \$69. Autodyne, Box 13036, Orlando FL 32809. 305-855-6868.

Small Community horns w/Altec 808-8A & 80 Drivers (used) (three). Key Code 5-88.

Ashly SC-66 Parametric Stereo EQ. Used. Key Code 5-88.

DBX units, Model 122, \$225. Model 124, \$325 (2 avail.) or all 3 for \$800. Key Code 5-49.

De Coursey Stereo Electronic Crossover-800HZ. New. Key Code 5-88.

Bose Model 2201 Corner Horns (4 ea) with built-in 50W. amps. Walnut and hand carved Indian Sheeshamwood cabinets, hand loomed Tussah raw silk grille cloths. Cost \$3944 new. Like new, \$2750 for 4. Send for brochure. Autodyne, Box 13036, Orlando FL 32809. 305-855-6868.

ElectroVoice Interface: B speaker system. In factory carton. \$675/pair reduced to \$550. Owner will ship anywhere in U.S. Key Code 4-85.

DBX 124, 4 channel noise reduction system, Mint condition \$319 or best offer. Key Code 4-46.

Ampex, entire 8 & 4 track studio, with complete wiring with mikes and speakers. \$14,000. Key Code 4-3.

Bogen M303 PA amplifier, 3 mic channels one line channel tape out jack new cond. \$50. Key Code 4-49.

Altec 604 speaker, new woofer cone, \$150. Key Code 4-79.

Stromberg-Carlson RP-44, 4 trump speaker. Includes drivers, and 600 feet speaker wire with connectors. Working condition. Best offer plus shipping. Key Code 3-5.

WANT TO BUY

Marshal Time Modulator, Eventide harmonizer, Kepex and Gain Brain, UREI 1176 LN, Neumann & AKG condenser mics. Key Code 6-66.

EMT or AKG reverb or plate. Key Code 4-28.

ALTEC Drivers: for 203B horns. Key Code 4-10.

Pultec, Lang, API or any other active EQ. Key Code 4-28.

JBL LE85/HL91, other JBL drivers considered. Key Code 4-61.

Any Digital delay or misc. effects gear. Key Code 4-28.

Disco Speakers, 100 to 150 watt range. In good condition, will accept any reasonable offer. Key Code 3-73.

LIGHTING EQUIP.

WANT TO SELL

Portable stage lighting for group, need used gear in good cond. Key Code 4-10.

WANT TO BUY

Houston Fearless portable dolly-light in good order with friction head never used \$50. Key Code 4-78.

LIMITERS

WANT TO SELL

FM volumax 410 automatic peak controller \$250. Key Code 6-79.

RCA BA-6A Limiter. 2 units. \$100 each. Key Code 6-20.

CBS 4450A. Audimax (stereo AGC) great condition \$900 or best offer. Key Code 3-93.

Spectra Sonics 610 complimiter. \$250. Key Code 6-27.

Spotmaster Sound brightener. Exc. cond. Key Code 6-40.

Roger Meyer, RM-58 stereo or dual mono limiter. \$400. Key Code 5-78.

Collins 26U-3 Auto-Limiting Amplifier, excel. cond, \$395. Autodyne, Box 13036, Orlando FL 32809. 305-855-6868.

Gates Dual Peak limiter, M6144, good condition, with manual. Key Code 5-4.

Gates Sta-Level, Model M-5167, exc. cond, \$100, FOB. Key Code 5-59.

Wilkinson TAMM-1A AM Modulation monitor with PPF-1A Positive Peak Flasher. Like new, \$695. Autodyne, Box 13036, Orlando FL 32809. 305-855-6868.

ETSS Audiomax III Mod 444. Key Code 5-13.

Ashley solid state peak limiter compressor, 1 yr. old, exc. cond, \$200, FOB. Key Code 5-59.

RCA BA6A, clean checked out, \$50/each. Key Code 5-61.

Gates SA-38 and SA-39B Limiting Amps, not checked out, look ok, \$65 ea. Autodyne, Box 13036, Orlando FL 32809. 305-855-6868.

Spectrasonics Model 610 limiters, (2), exc. cond, sell or trade for two(2) Urei 1176LN limiters. Key Code 5-41.

Gates Level Devil, exc. Cond, \$100-FOB. Key Code 5-59.

Urei 175-B, clean, gd as new, \$150. Key Code 5-61.

Gates Solid Statesman AGC, good cond, \$395. Autodyne, Box 13036, Orlando FL 32809. 305-855-6868.

Gates 'Solid Statesman' FM limiters. Matched for stereo, excellent cond, pair for \$850. Key Code 5-23.

CBS Volumax 4110 four years old, exc. cond. Key Code 5-27.

Gates Limiter, fair cond., Model M-35298, \$50, FOB. Key Code 5-59.

CBS 710 Automatic Loudness Controller, excel. cond, \$535. Autodyne, Box 13036, Orlando FL 32809. 305-855-6868.

CBS Audimax 4450A, four years old, exc. cond. Key Code 5-27.

Kahn Symmetrapeak Model SP-58-1A, exc. cond, \$100, FOB. Key Code 5-59.

CBS Volumax. \$150. Key Code 4-1.

Gates Solid Statesman FM Limiters 994-6631-001. Quantity, two. In good condition. \$150 each. Key Code 4-11.

CLE-500 Compressor-expander. \$300. Key Code 4-1.

Spectra-sonics Complimiters 610. Quantity, two. \$250 each. Key Code 4-11.

Mono Audimax 4440 \$600. Stereo Audimax 4450, \$900. Key Code 4-13.

Gates Radio Compression limiter model M-3529-B. Key Code 4-40.

Electrodyne Compressors, quantity 2, Model CA 700, excellent cond. \$600 each. Key Code 4-44.

UREI BL-40 modulimiter. Demo unit, \$591.50, warranty. Key Code 4-85.

Urei LA-3A Leveler Amplifier. Key Code 4-1.

LPB S-2 Audio Compressor/Limiter with variable compression threshold & limiter defeat. Key Code 4-7.

CCA Model LA-1D Limiting Amplifier (Tube Unit). Key Code 4-1.

Gates SA 39A limiting amp. Fair cond. Best offer includes manual. Key Code 4-35.

Urei BL-40 Modulimiter, prefect operating condition. One year old, but used less than 6 months. \$525 or best offer. Key Code 3-54.

CBS FM Volumax 4111 stereo, excellent condition. \$750. Key Code 3-55.

WANT TO BUY

Service/operating manual for RCA BA-6A limiter, original or good complete copy o.k., must be complete. Key Code 6-22.

CCA LA-1D limiter compressor amplifier, good cond., used. Key Code 5-28.

Urei 1176-LN limiters (2), trade for two (2) Spectrasonics Model 610 limiters. Both exc. cond. Key Code 5-41.

CBS 4100 limiter, must be in good cond. Key Code 4-34.

Spectrasonics Complimiter 610. Key Code 4-88.

CBS Audimax II AGC for Stereo. Two wanted. Must be in good shape. Key Code 4-2.

CBS 4110 limiters, must be in good cond. Key Code 4-34.

FM Limiter. Key Code 4-38.

DBX 162 Stereo compressor/limiters. Key Code 4-10.

Teletronix or Urei limiter/compressor. Key Code 4-28.

Teletronix LA2A. Universal Audio 175 and Fairchild Tube Limiters. Urei 1176. Key Code 4-83.

Kahn-SP-5B-1A Symmetra-peak for carrier current station. \$30, plus shipping tops. Key Code 3-59.

Volumax, or Solid State limiter. Will pay up to \$125 or trade. Key Code 3-70.

Stereo Optimod compressor/limiter. Key Code 3-18.

MICROPHONES

WANT TO SELL

RCA-matchbox ribbon type, \$25. Key Code 6-73.

RCA 44BX with desk stand (mint), 3 early Altec condensers originally used by CBS, several WE/ALTEC 639 B, Key Code 6-17.

RCA-44BX, \$50. Key Code 6-73.

Western-Electric model 633A Saltshaker mike, working \$80. Key Code 6-19.

Calrad 10-21 mics, 4 eac very good cond. w/orig. boxes. Dual-Z; wired 200 ohms-dynamic. W/cables & clamps. \$25 each. or all 4 for \$87.50. Key Code 6-52.

Astatic-77A, \$10. Key Code 6-73.

Electro-Voice model RE-20 professional microphone, new, in factory box. \$250. Key Code 6-74.

Synchron AU-7A condenser mic's \$169 each. Autodyne, Box 13036, Orlando FL 32809. 305-855-6868.

Stands-basic Atlas, weighted base. (2) \$25. Key Code 6-73.

In the U.S. call 800-336-3045
For any Key Code Names and Addresses.

800-336-3045

New Listings are in *Italics*

The Exchange The Exchange The Exchange

MICROPHONES...WTS...CONTD.

Electro-Voice model CS-15 professional electret condenser microphones. Two available, new, never used, in factory cartons. \$17C each. Key Code 6-74.

Neumann U-67, Sony C37A, ADG D-900 system, ADG D202 and many more used, demo, and new microphones for sale, mostly trades on our new equipment. Call or write for our used equipment list. Full Compass Systems, 55 N. Dickinson, Madison WI 53703. Tel: 608-257-7722 or TWX 910-286-2745.

Shure SM-7 mike \$200. Key Code 5-75.

Sony, Shure, Sennheiser, ElectroVoice, AKG, AudioTechnica, JVC and Clear-Corn condenser, dynamic microphones and intercom headsets. Parabolic, Lavalier and wireless in stock now. New demo, rebuilt and used. Also rentals. Full Compass Systems, 55 N. Dickinson, Madison WI 53703. Tel: 608-257-7722 or TWX 910-286-2745.

Marti microphones (2)-MCD-70. 'Push-to-Talk' type. Require four prong jack, exc. cond., \$50 ea. Key Code 5-23.

Sennheiser MD-421 Dynamic Studio Cardoid, excel. cond., \$195 ea. (3 available.) Autodyne, Box 13036, Orlando FL 32809. 305-855-6868.

Electro-Voice microphone. 652-long neck style, good cond., \$15. Key Code 5-23.

RCA 44 (quantity 2) recently ribboned and reconditioned. One with original floor stand and one with original piano boom. Key Code 4-63.

Beyer M-320 Ribbon/Dynamic, NEW, w/cable, Cannon conn. beautiful sound. \$50. Key Code 4-80.

Sennheiser MKH415T mini shotgun \$400 or trade for Neumann. Key Code 4-28.

Electro-Voice 643, 7 foot long super "shotgun" as used on Presidential News Conferences, "like new", \$800. Key Code 4-44.

Shure PE 588's, quantity (3), \$40 each. Kay KCM-44 condenser, quantity (4) \$20 each, \$190 all 7 or best offer. Key Code 4-46.

Neumann tube microphones, various. Assorted AKG, Telefunken, Sennheiser & Neumann. Key Code 4-83.

Sony Paraboloid #PBR 400, NEW, makes a mike into a shotgun, \$40. Key Code 4-80.

WANT TO BUY

Wireless microphone, any condition, prefer Hi Band, transistorized. Key Code 6-2.

RCA BK-11 or Western Electric 639. Also RCA Model 91 desk stand. Key Code 6-31.

RCA 77 DX Microphones, non working, also parts, yokes, shells, sure-mounts, magnet assemblies, etc. must be reasonable. Key Code 6-22.

Telefunken VF-14 tube, for Neumann U47 microphone. Also, Telefunken AC701 or AC701K tubes, Neumann Power supplies and cables. Key Code 5-79.

Neumann U-67s microphones. Key Code 5-81.

Neumann U-47, U54, U64 and KM 84, also tubes for 47. Key Code 5-29.

RCA desk stand Model 91-D (MI-4092G). Key Code 5-37.

Western Electric 639 A/B microphone. Key Code 5-37.

Neumann U47, U48, U67, M49, M50, KM-54, KM-56, AKG C-12, C-12A, C-24, and VF-14 tubes. Key Code 4-20.

PRE 1950 condenser, carbon, dynamic. RCA, Western Electric, ALTEC, Neumann, AKG, Universal, American. Key Code 4-33.

Neumann condensers, tubes or solid state models. Key Code 4-21.

Neumann microphones of all styles in any cond. Also extra parts, power supplies, literature, etc. Key Code 4-28.

Telefunken U47, U48, M251. Key Code 4-83.

Sony: ECM-377, ECM-280, ECM-33P, need several of each in good cond. Key Code 4-10.

RCA 77 or 44; EU 666 or 667; quality mics of all types. Key Code 4-28.

Electrovoice 643, long range microphone. Key Code 4-55.

Electrovoice RE-20, good condition. Key Code 4-57.

Neumann M49, 249, U47, U48, U67, M50, 269, KM 54, KM 56, 256 KM 66, SM-2 tube microphones, AKG C-12, C-12A, Telefunken 251 & VF-14 tubes for U47-48. Key Code 4-83.

Atlas BS36W and B536 Booms and Stands. Key Code 4-83.

RCA 77D or 77DX. Two needed in working condition, preferable with desk stands. Key Code 4-42.

Broadcast and recording mics needed immediately. New equipment only. Key Code 4-65.

RCA 77DX, 44 BX, BK 5, 10001-KU3A Ribbon microphones. Beyer M 88. Key Code 4-83.

Schematics for any Neumann Mics or power supplies. Key Code 4-28.

Shure 55 Old-Fat Type, swap newer thin 55S or \$? Key Code 4-79.

Beyer M-500, Shure SM57, Sennheiser 421. Key Code 4-88.

MISCELLANEOUS

WANT TO SELL

Ampex ABR parts. Send for list. Key Code 6-69.

Factory manuals for the following: RCA RT-7B Cart/Playback machines, Gates M 4885 Console, Gates PC-150-190 and AC 150-190 Playback amplifier. Key Code 6-55.

SMC Spotter parts. Send for list. Key Code 6-69.

Custom metal cabinetry with console mounting board 2 single bay cabinets and cartridge storage racks \$1000 or best offer. Key Code 6-79.

8 Mic cables 50' long with Cannon XLR3 connectors \$10 each. Key Code 6-66.

Capitol switch assemblies, 21 switches, DPDT on 3 1/2 panel. Key Code 6-69.

60 UTC PC-08 transformers (similar to Ouncer series) 600 ohm to 15 Kohm. \$3.50 each. Key Code 6-69.

Apeco copier, single sheet type. \$500. Key Code 5-87.

Warehouse Cleanout: Ashland A84HCEZU-8A 600/1200 rpm sync. & G.E. 5KCP12BG22 4 pole motors. All new, never used. Best offer. Key Code 5-5.

Dual rack cabinet. Two standard 19" racks side-by-side, blue armorhide, removable formica desk top at front. Two adj. sets of rack channels. Side and rear doors. Three sets chassis slides, a-c box mounted. Size less desk 48 1/2 x 26 x 75 inches high on heavy duty casters. New, some shopwear. \$200/each. You pay shipping. Key Code 5-44.

Texas Electronics 'Mark IV' weather station, complete, requires some service, \$75. Key Code 5-23.

Uninterruptible power system. Charger-Inverter provides 115VAC at 300 VA up to 24 hrs, from 24 volt battery (not supplied) if power fails. Battery voltage and current meters, max. output 5 amps, new, with manual. \$100/each. You pay shipping. Key Code 5-44.

Multiple output power supply. Input 115 VAC, outputs (plus/minus) 50 VDC at 500 ma, -24 VDC at 1 amp, -18 VDC at 2 amps, -12 VDC reg at 3 amps, (plus/minus) 9 VDC at 300 ma, +6 VDC at 600 ma (adjustable to 5 volts). Outputs individually rectified, filtered, fused, common ground. With selectable output voltage meter. New. \$100/each. You pay shipping. Key Code 5-44.

MICA Transmitting and phasor capacitors. Many different ratings and values. Call with your requirements. Key Code 4-24.

Ampex 440 cabinet. Key Code 4-74.

Altec, VU meters, large type used in 250-230 console fits Gates & RCA as well. \$30. each. Key Code 4-79.

Bay 6' Rack Emcor, Quantity 2, door on 1 side, \$100. You pay freight & crating. Key Code 4-4.

Pyrex bowl feedthrough, 7 inch. Several available. With stud, \$8, without, \$5. Key Code 4-24.

Angle iron sample loops. Type 'N' output. With mounting hardware and insulators. Heavily galvanized, and in excellent condition. 4 available. \$50 each. Key Code 4-24.

60 double patchpoint jackfield wired to barrier strips. \$50. Key Code 4-24.

Pyrex bowl feedthrough, 6 inch. Several available, with stud \$5, without, \$3. Key Code 4-24.

Daven 250, pots for old RCA-Gates—G.E. boards. \$10 each. Key Code 4-79.

Jennings Vacuum Variable's UCSLPA 750. \$50. each. Key Code 4-4.

Phasor and LTU RF Coils by E.F. Johnson several types available. ribbon and ceramic core. Fixed and variable. Call for details. Priced \$10 to \$50. Key Code 4-24.

Plate Transformer & mod. reactor for BC 1, new. Key Code 4-32.

Gates radio switch & fuse panel, model 994-4242-001. Key Code 4-40.

UTC Effects filter, good condition, \$35. Key Code 4-49.

Phasemaster 7000 single-phase to 3-phase converter, 100 amp output. \$3,298.40. Key Code 4-70.

Circuit board & panel meter for Gates M-4990 AM freq. monitor. \$12 for both trade for something of equal value. Key Code 4-19.

Capacitors: nitrogen pressurized phasor capacitors by E.J. Johnson. Some fixed, some variable. Call with your requirements. Key Code 4-24.

Moseley RFK-1 sample units. New and as-new condition. 5 available. \$25 each, or all 5 for \$100. Key Code 4-24.

Gates Radio switch & fuse panel model MO-3005. Key Code 4-40.

McCurdy Roll-around cabinets, (quantity 3), for reel to reel machines. Key Code 4-74.

Sangamo G-59.1 amp. .00015 MFD. 2 available. New in box. Will sell or trade. Key Code 3-13.

WANT TO BUY

Wanted for non-commercial educational station; 2 mics, cartridges (any cond.), easy listening or gospel music; tape equip.; tax receipts for donations. Key Code 6-18.

Surplus Blank Records—must be usable, 12 inch small hole and 7 inch large hole only. Seconds o.k. Key Code 6-22.

Patch Cords, double plug each end, two or three foot long, shielded type, can be shorts or opens, will repair, need 10 or 20. Key Code 6-22.

Equipment racks, price negotiable. Key Code 5-58.

Dummy load for 10KW AM, must be in gd. cond. and reasonable. Key Code 5-60.

Studio Warning ("On the Air") Lights/fixtures made prior to 1960. Key Code 4-6.

EBS System 2 tone. Key Code 3-94.

MONITORS

WANT TO SELL

McMartin TBM-2500 FM RF Amplifier \$250. Key Code 6-51.

GE BM-1A mono FM frequency & modulation monitor with manual on 95.9 MHz. \$100 or trade. Key Code 6-6.

GE 5A FM Monitors, 2 each, exc. cond. Key Code 6-16.

Belar SCA monitor, good cond. Key Code 5-27.

RCA 1181 frequency monitor. Key Code 5-36.

RCA 66A modulation monitor. Key Code 5-36.

Nems Clarke 108E, 3 tower phase monitor, good cond, \$95. Autodyne, Box 13036, Orlando FL 32809. 305-855-6868.

HP 335 FM modulation monitor (3). Key Code 5-36.

Andrew 40-C Phase Monitor, \$95. Autodyne, Box 13036, Orlando FL 32809. 305-855-6868.

Andrews AM phase 40C monitor. Key Code 5-36.

General Radio Frequency Monitor Model 1181-A, 1430 KHZ. Good condition, best offer. Key Code 5-77.

TFT 713 AM Frequency and modulation monitor. Like new cond. Calibrated by TFT in summer of 1977. Will have TFT tune and test on your frequency as part of purchase price. \$1250. Key Code 4-24.

Gates M-4990 frequency monitor, near new condition. Make offer. Key Code 4-27.

Gates 2890 freq. monitor, needs some work. Best offer includes manual. Key Code 4-35.

Johnson Air FM & SCA Tuner (tuned for 97.7 Mhz) Model 1C-1. Key Code 4-40.

Gates M4990 AM Freq. tuned to 710kc. New condition \$50. Non-commercial, needs money. Key Code 4-49.

Nems-Clarke Phase Monitor, Type 108E for 3 towers. \$200. Key Code 4-60.

Gates 2369 mod-monitor. fair cond. Best offer includes manual. Key Code 4-35.

Potomac Instruments, RMP-19, remote meter panel. \$160. Key Code 4-60.

Gates Radio Modulation Monitor Model M-2639. Key Code 4-40.

Miratel Air Alert model AA1. Key Code 4-40

Gates SCA Monitor GTA 6741. \$50. Key Code 4-11.

Gates Radio Frequency Monitor model M4990 tuned to 1350 KHz. Key Code 4-40.

General Radio 1181-B Freq. Mon. AM \$55. Key Code 4-60.

Gates Radio Frequency Monitor Model MO-2890, tuned to 1420 Khz. Key Code 4-40.

General Radio 1931 B., AM Mod. Mon. \$100. Key Code 4-60.

McMartin TBM-2000 SCA monitor modulation & injection. \$100. Key Code 4-80.

Gates GTM 88F frequency monitor. Key Code 3-65.

WANT TO BUY

FM modulation monitor, RF amplifier, stereo monitor, SCA monitor. Key Code 6-77.

Metron 506B-1 A.M. modulation monitor, good cond., used. Key Code 5-28.

RCA BW-43 AM modulation monitor, good cond., used. Key Code 5-28.

F.M. Modulation monitor. Key Code 4-38.

FM—RF Amplifier to drive FCC approved modulation monitor. Key Code 4-67.

MOVIE PRODUCTION EQUIP.

WANT TO SELL

Cineflex 35mm movie camera 200 and 400 ft magazines, 3 lens turret, completely overhauled, 4 lens in fitted case, 12 volt D.C. operated, age unknown, but may be military, case was prior to re-finishing. Make offer. Key Code 6-22.

Boom Stands, Shot-Gun, Lavalier and wireless microphones, intercom headsets, Otari and Technics recorders, parametric equalizers, limiters, noise reduction, mixers, special effects equipment and custom equipment. Full Compass Systems, 55 N. Dickinson, Madison WI 53703. Tel: 608-257-7722 or TWX 910-286-2745.

General Precision/Graflex 16mm film sound projector. Needs sound P.C. board. Otherwise appears complete. \$100. Key Code 6-78.

Film Editing machine Moviola 35mm black model Mag and Opt sound \$700. Key Code 3-90.

Entire 16mm Film System. Equip. includes: Splicers; Timers; Jamieson film processor; B & H Cameras; Beaulieu, Auricon, Mitchell & Cinema Cameras; and much more. Equip in excell cond, call or write for details. Key Code 6-5.

RCA 16mm film, sound projector model-400. \$200. Key Code 6-78.

Camera Movie Super 8 Bauer C5X1 zoom electric eye pistol grip cassette \$105. Key Code 3-90.

Kodak AF Carousel Slide Projectors (4); (1) Five Channel Encode/Decode controller; (1) Automatic dissolve control for two carousels. All in new condition. \$700. Key Code 6-25.

See page 14 for International Contact Instructions

The Exchange The Exchange The Exchange

MOVIE PROD...WTS...CONTD.

Auricon Pro-600, exc. complete in case, 2 mags, no amp or mag heads. Angineux 12-120 zoom, tripod & dolly. Package \$1600. Key Code 5-54.

Bell & Howell 200EE 16mm movie w/case. Fair-to-good cond. Sold 'as is'. \$17.50. Key Code 4-19.

Arriflex 35mm Key Code 4-78.

Auricon Pro 600 with separate film recorder. Key Code 4-78.

Moviola Edit Mac. 16mm picture only. Like new \$275. Var. Sennheiser microphones. Key Code 4-33.

Auricon Pro 1200 complete with cases and mag head never used. Key Code 4-78.

Magna-Tech Model 31 compressors, good cond. \$200 each. Key Code 4-44.

Bell & Howell 240EE 16mm movie camera w/case and extra reel & 4 rools K-25, B-W film. \$205. Key Code 4-19.

Eastman Kodak K110 16mm camera with turret. 25mm F1.9, 15mm F2 and 63mm Kodak Ektar Lenses. Excellent condition \$350. Key code 4-8.

Houston Fearless Carpera Dolly, portable and in excellent condition. Best offer. Key Code 3-90.

Spindler and Sauppe Selectroslide Jr., with 7-inch f-4.9. Single drum 35mm slide projector in working condition. Best offer plus shipping. Key Code 3-5.

WANT TO BUY

Zeiss Moviscop 16mm picture viewer complete in good cond. Reasonable price paid. Key Code 6-52.

Neumade Dynamic film rewinder, 2000 ft., 16mm, two geared ends. Prefer well-used units in good cond. Reasonable price paid. Key Code 6-52.

Optical-magnetic sound reader; single unit portable-type in good cond. and complete, for use mainly on 16mm. Reasonable price paid. Key Code 6-52.

16mm "soundies". These are short productions by singers, etc. on film. Reverse image, or normal ok. Answered immediately, reasonable. Key Code 6-32.

16mm Sound Films, color or black & white, fair-to-good condition. Features documentaries, TV shows, short subjects, cartoons, commercials, promos, PSA's, news items, etc. Extra prints and/or discards graciously accepted; anything you can spare at a reasonable price. Key Code 3-51.

Projector, 16mm., may need work. Okay. Key Code 4-4.

Neumade-Griswold model R-3 splicer for 16mm film. Well-used needed, complete in good cond. Key Code 4-19.

Neumade Showmaster film timer-footage counter combo. Single hub, left-to-right teeth in back. Well-used, but good cond. Key Code 4-19.

Schneider Zoom camera lens with C-mount. Key Code 4-78.

RECEIVERS & TRANSCEIVERS

WANT TO SELL

Johnson Z42-540 remote transceiver, four years old, good cond. Key Code 5-27.

Dymek AM-5 long dist. AM receiver, DA-5 antenna. Practically new; cost \$580 will sell \$365. Key Code 5-16.

Motorola HT-220, 4-channel VHF Hand-Talkie, 5 watt, with charger, remote mike and touch-tone signalling, \$400. Key Code 5-53.

Moto, GE, KAAR Aerotron, etc. Some Tube, some transistor send for list. Key Code 4-4.

National NC175, a battleship, all new tubes align. \$50. Key Code 4-32.

Health AR 3 looks like factory wired, works okay. \$25. Key Code 4-32.

SCA Tuner with 92.7 xtal not working, no info. \$20. Key Code 4-32.

Motorola 2-way UHF Tube Type. In the way, make offer. Key Code 4-36.

McMartin SCA Receivers... tube type, 6 each TN 66CB, 7 each TN 77CB, 5 each TN 88B. All were working when removed from service, tune to 101 Mhz. \$1000 plus shipping takes all. Key Code 4-36.

Realistic 30-50 MC, look unused. \$35. Key Code 4-32.

Marti old type receiver 161.7, 162.4 xtals complete but bad looking \$25. Good for hams. Key Code 4-32.

WANT TO BUY

AM tuner for minotoring AM Broadcast Band. Key Code 6-61.

NOAA weather receiver with alert circuit; 162.475 MHz. Key Code 5-49.

ITFS Receiving System or Down Converters, 2500 to 2690 MHZ Range, Plus Dishes. Key Code 4-4.

REMOTE & MICROWAVE EQUIP.

WANT TO SELL

Moseley PCL-505-C 950 MHZ, composite S.T.L., SGC-9 stereo generator. 2 yrs. old, now in service. Price for all: \$3990. Key Code 6-11.

Gates RDC-10 AC remote control units, two both in good cond. \$500 each. Key Code 6-29.

Studio end PBR-30 AR with Data Receiver. Key Code 6-69.

Moseley RRC-10 remote control units for use w/26 KHZ STL system, needs tubes. \$450 or trade. Key Code 6-6.

Rust Remote Transmitter Control system. Key Code 6-16.

Two 7GHZ tunnel diode preamps 15DB gain 5DB N.F. Sell or trade. Key Code 6-48.

CCA RPT 150-40W remote transmitter, four years old, good cond. Key Code 5-27.

RCA Model BN-6 transistorized remote amplifier, \$95. Key Code 5-26.

CCA RPR-540 remote receiver, four years old, good cond. Key Code 5-27.

Marti 960 MHZ STL without antennas. Best offer. Key Code 5-89.

Microwave Assoc. 2 GHz, STL, MA-28 with built in 7.5 & 8.5 MHz sub-carriers, A-1 condition. Key Code 5-66.

Rust 108 remote control system. 1 transmitter unit; 3 tower interface; 2 studio units and duplexer for 2 control points. \$600. Key Code 4-60.

Gates Radio Remote Control Unit, studio unit model M5864, transmitter unit model M5663. Key Code 4-40.

Rust ALR-100 Autolog Studio Unit. \$200 as is. Key Code 4-81.

Moseley remote control studio, transmission, telemetry units, worked fine when removed from Service. Make offer. Key Code 4-27.

WANT TO BUY

Gates M-5870, RDC-200-A remote control metering system. Key Code 6-3.

STL, stereo, with or w/out remote control. Key Code 5-49.

Moseley PCL-303C or PCL-505C composite STL, 947 MHz. Key Code 5-71.

Dish antennas 8 feet or larger, any condition. Key Code 4-47.

Remote transmitter/receiver including antennas. Key Code 4-16.

Rust 108 remote control or spare relays needed urgently. Key Code 4-73.

Link Equipment 2 GHz, new or used for video. Key Code 3-84.

Remote Control System for AM station. Day-time, 10 KW and tower-directional. Key Code 3-94.

STEREO GENERATORS

WANT TO SELL

RCA BTS-1A stereo generator with manual. \$300. Key Code 6-6.

CCA Stereo Generator, SG-1E, modular model, good condition, with manual. Key Code 5-4.

Gates stereo generator (for use with Gates TE-3 exciter). Exc. cond. \$300. Key Code 5-23.

Wilkinson stereo generator. Key Code 5-51.

CCA SG1E, only 2 years old, replaced by Optimod, offers considered. Key Code 5-35.

Gates subcarrier generator FM 2H3 Model #994-6507-001. Freq 67 KHZ. Best offer. Key Code 4-11.

Moseley SCG-9 New Stereo Generator. Broadcast Export Association. 800-336-3045.

WANT TO BUY

Moseley SCG-9 stereo generator. Key Code 6-81.

RCA BTS 1-A in operating condition. Key Code 6-25.

SWITCHERS (VIDEO)

WANT TO SELL

Ampex monochrome switcher-dissolver, 2 input, rack mounted, solid-state, \$50 or best offer or trade. Key Code 5-68.

Sony SEG-2 monochrome switcher, with manual, perfect cond, \$650 or best offer or trade. Key Code 5-68.

Hitachi EA-103 color switcher and effects generator. Key Code 4-73.

TAPES, CARTS & REELS

WANT TO SELL

78 rpm records 1920's vintage, 42 available. Mostly, pop-type, some classical one or two children's record. Would like to trade for instrumental 78's any format made 1945 and later, in good condition. Key Code 3-51.

14" reels (3) 1/4" recording tape on metal reels with NAB hub, used but should be okay. Make offer. Key Code 6-59.

Classical music series. Details available. Key Code 6-75.

Approximately 1000 vocal 45 rpm records and a few vocal 78's to trade 45 and 78 instrumental singles and albums in good condition. Some big hits available in this stack; many promo copies, too. Some records scratched somewhat from many playings; most are ok, though. Key Code 3-51.

Basic beautiful music masters on ten reels with 25 Hz tones. Instrumental and vocals on separate reels. \$5.00 for a demo 10" reel. No announcements. Key Code 6-75.

Red Audio cassettes, C-8 high quality Audio magnetics tape, never recorded. Lots of 1000, 35¢ each, lots of 10,000 25¢ each. No labels, no boxes, you pay shipping. Key Code 6-37.

Music library hits from fifties and sixties, w/announcer. \$1.00 per reel. Send bucks for any amount you want. None repeated. 7" reels of vocals and instrumentals intermixed. Key Code 6-75.

1" tape for IVC, Scotch 361, 10 new 60 min, 11 used 60 min, 3 used 30 min, 1 used 10 min. All for \$350. Key Code 5-48.

Huge inventory of used Scotch, Fuji and Sony 3/4" videocassette stock. 10:00 length only \$4.00/reel negotiable. Key Code 5-2.

3M and Fuji used 2" videotape stock. All reels cleaned and evaluated. \$25.00/reel negotiable. Key Code 5-2.

Easy listening music 1/2 trk stereo approx 95 reels, 25 Hz cue tones, \$1000 for all, metal and plastic reels. Key Code 5-49.

Bulk erased 2" tape precision reels, 1200' splice free, \$20. Key Code 5-61.

TDK SA60 cassettes almost new, bulk erased, labeled, includes box \$1/each, quantity price. Key Code 5-61.

Video Tape 2", 1" with features will swap for 3/4" cassettes, or best offer. Key Code 4-78.

3/4" Videocassettes. New and evaluated used. All major brands at competitive prices. Video Tape Exchange 212-695-6644.

Premium 5 screw cassettes by box 100. C-60 for 58¢. C-90 for 72¢. Key Code 4-23.

Viking & Fidelipac NAB 1200' carts w/music tape & empty, extra tapes & parts, 50 or more @ \$50. C-90 for 72¢. Key Code 4-23.

Ampex Video Tape Spooler for ACR-25 carts. Type 1370650-01. Make an offer. Broadcast Export Association. 800-336-3045.

Stereo FM music tape programs, automation cue tones, music lists, masters copied 6 times, low print tape, MOR vintage 1968, excellent quality, 70 hours +, \$500 for lot. Key Code 4-80.

AUDIO CASSETTES-Standard & custom lengths 5 screw shells (Made in U.S.A.) loaded with 3M or Agfa tape-COMMERCIAL USER PRICES-Call or write for catalog of supplies & services. Northwestern Inc, 1224 S.W. Broadway, Portland OR 97205. 503-226-0170.

10 1/2 reels of 1940-60 easy listening, (quantity, over 100), mixed \$200. Key Code 4-32.

Fidelipac Tape carts 1,200 40 sec-10 1/2 min. \$1000 for lot, or \$100 per 100. Key Code 4-52.

Ampex or Sony 2 inch for video tape recorder. 8-inch reels, 50 minutes, 80 available. 10 1/2-inch reels, 2 hours, 5 available. 4 hours, 26 available. Fair to good condition. Best offer plus shipping. Key Code 3-5.

WANT TO BUY

Video cassettes, 1/2" for Phillips/Norelco VCR-s. Used, any length. Key Code 5-40.

Old 16 inch electrical transcription. Key Code 4-81.

TEST EQUIPMENT

WANT TO SELL

Hewlett Packard 616B Microwave Signal Generator meets or exceeds new factory specs. Complete with manual. \$1000. Key Code 6-4.

H-P test set: rack, 204C oscillator, and 353A patch panel. \$500. Key Code 6-70.

B&W Mod. 400 distortion meter. \$100. Key Code 6-70.

Tektronix 545 oscilloscope with dual trace plug-in. \$300. Key Code 6-78.

Hewlett Packard 618C Microwave Signal Generator meets or exceeds new factory specs. Complete with manual. \$1200 or will trade for FIM-21, or WX2c Field Int. Meter or Nems-Clarke 120-E. Key Code 6-4.

Sencore: PS 148 scope. \$70, and PS 120 scope \$30. Key Code 6-70.

Sorensen model OSB-6-15 rackmounting 3 1/2" high, lab type regulated power supply variable 5 to 9 volts at 15 amps, 30 pounds. New, \$75 plus shipping charge. Key Code 6-74.

Oscilloscope, B&K 1471BP. Dual trace. Both probes included. less than 1 yr. old. Cost \$600 new. Make offer. Key Code 3-61.

Eico Capacitor tester, old but good. Make offer. Key Code 6-59.

H-P test set #3550B-like new, including rack, H20-204C oscillator, 353A patch panel, 403B VTVM. \$1200. Key Code 6-70.

Heathkit: Lab generator (RF); \$30. Hickok Tube Tester, \$20; RCA Senior Voltohmmyst; \$40; RF Generator, \$20; Simpson VTVM, \$20; Transistor Checker, \$20. Key Code 6-70.

H-P 331A distortion analyzer. \$700. Key Code 6-70.

Leeds-Northrup Resistance Decade Box, 1 ohm to 10k in one ohm steps. Make offer. Key Code 6-59.

Sencore MU-150 mutual conductance tube tester, just factory calibrated, exc. cond. Best offer. Key Code 6-59.

Room tuning package: including, GR #1382 random noise generator; B&K precision sound level meter #2203; B&K octave filter set #1613; B&K precision calibrated condenser mike. \$1800 for all. Key Code 6-70.

Tektronix #154-0562-00 replacement CRT for model 602 display scope. New, in factory box, \$165. Key Code 6-74.

Rutherford Electronics Co. model B16 Pulse Generator. Like new. \$85. Key Code 5-91.

H-P 202B Low Freq. Osc. 5HZ to 600 KHZ, 5 bands, as-is. \$50. Autodyne, Box 13036, Orlando FL 32809. 305-855-6868

HP 400D AC voltmeter. Calibrated, clean. \$75. Key Code 5-8.

B & K Dual Trace 15 MHZ scope model 1472B. Lkie New. \$450. Key Code 5-91.

Polyskop I model SWOB, 400 MHZ. \$400. Key Code 5-91.

In the U.S. call 800-336-3045
For any Key Code Names and Addresses.

800-336-3045

New Listings are in *Italics*.

The Exchange The Exchange The Exchange

TEST EQUIP...WTS...CONTD.

BC-221AA freq. meter, 125 KHz to 20 MHz, gd. cond., with manual and calib. charts, \$25. You pay shipping. Key Code 5-44.

H-P 211A Square Wave Gen. 1HZ to 1MHZ, Excel. Cond. \$195. Autodyne, Box 13036, Orlando FL 32809. 305-855-6868.

Hewlett Packard Model 200AB audio osc. (2 avail.), very gd cond. with manuals, \$75/each. You pay shipping. Key Code 5-44.

Tektronix 525 waveform monitor, perfect cond, \$500 or best offer or trade. Key Code 5-68.

Tektronix 316A 10MHZ scope. Good cond. and calib. \$200. Key Code 5-91.

H-P 330B Distortion Analyzer, 20HZ to 20KHZ, .03-300V, as-is. \$150. Autodyne, Box 13036, Orlando FL 32809. 305-855-6868.

Stoddart PRM-1 field intensity meter, \$300. Key Code 5-26.

Hewlett Packard Model 310A wave analyzer, exc. cond., with manual, \$1200. You pay shipping. Key Code 5-44.

Eico capacitor checker, Knight signal generator, old scope, all as is, all for \$50 plus freight. Key Code 5-74.

Leeds & Northrup 5430A, Wheatstone Bridge/cable fault finder, good cond. \$95. Autodyne, Box 13036, Orlando FL 32809. 305-855-6868.

Electronic test equipment and parts for sale. Write for list. Key Code 5-7.

Tektronix Model 514-D oscilloscope, good cond., with manual, \$150. You pay shipping. Key Code 5-44.

Tektronix RM31A, with dual trace plug in and calib. Rack mount. \$275. Key Code 5-91.

Bendix/Military BC221/MC Frequency Meter/Osc., 125KHZ to 20MHZ, with Cal. book, not checked out, as-is. \$50. Autodyne, Box 13036, Orlando FL 32809. 305-855-6868.

General Radio Distortion Analyzer, clean. 50-15K. \$175. Key Code 5-8.

Telonic Model HD-7 sweep generator, 100 KHz to 100 MHz, very gd cond., with manual, \$375. You pay shipping. Key Code 5-44.

BC-221 Freq. meter, good condition, \$20. Key Code 4-49.

Hewlett-Packard Model 130C oscilloscope, good cond. with manual. Key Code 4-66.

Tektronix 545A w/dual trace plug in. very clean cond. \$375. Key Code 4-68.

HP 330D distortion. Looks good, works OK. Needs calibration. With manuals. Make offer. Key Code 4-24.

Heathkit SB-610 Oscilloscope. Key Code 4-40.

Barker & Williamson Model 200 low distortion audio oscillator. Good cond., with manual. Key Code 4-66.

Tektronix 535A dual trace plug in. very good. \$350. Key Code 4-68.

Tek 310A scope, excellent cond. Tek probe, recent cal \$300. Key Code 4-72.

Nems-Clarke AM Field Strength Meter, Model FLM-135. Reads from 100 MV to 10V over AM Broadcast Band. Good condition, \$300. Key Code 4-7.

Eico metered audio gen. good cond. 600 ohm bal. term. or hi-Z output, \$50. Key Code 4-72.

Monsanto 1500 series counter plug-in, to 3 GHz. New \$125. Key Code 4-91.

Ballentine Audio Voltmeter. Type 302-C rack-mounted. Battery power supply type, batteries not included. \$35. Key Code 4-60.

General Radio AC VTVM new condition. \$35. Key Code 4-49.

Hewlett Packard 330-B noise and distortion analyzer. Excellent condition with manual. \$250. Key Code 3-30.

Leader LCG-389, color bar, croshatch generator, used little. Excellent condition. \$45 with manual. Key Code 3-61.

Tel-instrument 2123A channel 2. R.F. picture signal generator. Working condition. Best offer plus shipping. Key Code 3-5.

Meguro Deupa wow-fluter meter with frequency counter. Measures to .03 percent. Full scale. \$400. Key Code 2-51.

V.T.V.M., B & K 177, excellent condition. \$75 with manual. Key Code 3-61.

WANT TO BUY

Audio Oscillator, prefer HP-200CD. Key Code 6-61.

Oscilloscope, prefer solid state scope. Key Code 6-61.

Tektronix 528 Waveform Monitor. Key Code 4-18.

Tektronix 529 Waveform Monitor. Key Code 4-18.

Audio Tone Generator, transistorized. Key Code 3-11.

Variable AC power supply. Zero-to-full voltage, with meter, in good condition. Reasonable price paid. Key code 3-51.

TRANSMITTERS

WANT TO SELL

QEI Automatic Transmission service very good cond, currently in service. \$2250. Key Code 6-18.

Gates BFE-10C, mono. 91.5 mhz; 10-watt. Now operating. Make offer. Key Code 6-65.

RCA BTX-1A, 67KHZ sub-carrier generator with manual. \$300. Key Code 6-6.

Two high power FM isolation filters can be retuned. Key Code 6-43.

RCA UHF Filterplexers; CH. 31, 12.5 KW rated, 3-1/8" line; CH. 35, 12.5 KW rated, 3-1/8" line; CH. 40, 25-30 KW rated, 6-1/8" line. Key Code 6-16.

RCA BTA-5H 5000 watts AM on 1300kHz with extra crystal at 1240kHz. Beefed up solid state power supply. Very good cond. Key Code 6-51.

Moseley Model ADP-220 Transmitter Auto Logger with IBM Typewriter Model 3604. Key Code 6-13.

Gates TE-1 exciter with stereo generator. Rebuilt by Gates in 1974. \$1500. Key Code 6-29.

Gates M-6095 exciter, \$350. Key Code 5-75.

McMartin TBM 26000-C RF amplifier. Key Code 5-17.

Gates 3KW FM transmitter (2). Key Code 5-36.

Ratheon RA-1000. Excellent condition. \$1100. Key Code 5-18.

Wilkinson FM 1000-E broadcast transmitter. Key Code 5-17.

RCA BTA-50H1S 50 kilowatt AM ampliphase. BTE-20A solid state exciter with 5KW cutback. Exc. cond. \$35,000. Key Cond 5-20.

FM Transmitters (used), 20 KW, 15 KW, 10 KW, 5 KW, 1 KW, 250 W. AM Transmitters (used), 50 KW, 10 KW, 1 KW, 500 W, 250 W. Contact Communications Systems Inc, Drawer C, Cape Girardeau MO 63701. 314-334-6097.

Wilkinson FM-10 solid state exciter. Key Code 5-17.

Westinghouse FM 10KW final and power supply. Key Code 5-36.

ITA-Wilkinson, 10-watt exciter less power supply, new tubes, \$400. Key Code 5-49.

Gates M-6095 10 watt FM exciter, good cond., tuned 88.3 MHz. \$325. Key Code 4-29.

AM 1 KW Vanguard II, used on air until Sept. 78, spare parts and final tubes, 10 years old. Key Code 4-17.

10 KW RCA FM, complete 'B', was working when removed from service, now disassembled. As is, \$1,000 or offer. Key Code 4-72.

Western Electric 405-B2 5 KW needs some repair. Best offer includes manual. Key Code 4-35.

RCA BTA-50H1S 50 kilowatt AM xtr. 9 years old. With solid state exciter, spare tubes. Presently tuned to 1170 KHz. Make offer. Key Code 4-92.

RCA BTA-250K presently tuned to 950 KHZ, \$500. You haul. Key Code 4-13.

Western Electric 1937, 50 KW AM transmitter, \$11,000. Call (800) 336-3045.

Gates 250-Gy, AM 250/100 watt transmitter, with manuals. Some spare tubes, tuned to 1230 KHz. Replaced due to increase in power. Key Code 3-57.

Gates BC1-E 6000 watt transmitter. Mfg. 1948, inoperative. For sale, whole or parts. Key Code 3-72.

Collins 786W-1 SCA generator card used in 310 series FM exciters. Excellent condition. \$500. Key Code 3-17.

Gates M-6095 exciter. Made last proof. Factory rebuilt in 1976. \$350. Key Code 3-30.

Collins 40F oscillators in good condition. One recently overhauled. Key Code 3-60.

WANT TO BUY

FM transmitter 250 watt. Key Code 6-16.

Gates BC1G, BC1H or BC1T transmitter 1000 w/250w, good cond. Key Code 6-23.

TT 1UB in operating condition. Key Code 6-33.

High School wishing to increase power, needs 250 watt transmitter. Key Code 6-50.

RCA BTA 10-F used transmitter. Key Code 6-44.

Harkins & Hershfield manual needed for model FME-50 FM exciter. Key Code 6-19.

Collins 300 AM transmitter or parts. Key Code 5-36.

Gates FM-1H or **Gates FM-2.6H** FM xtr. Key Code 5-51.

FM transmitter, 250 watt, mono or stereo. Key Code 5-67.

FM stereo exciter, Collins 310Z-1 or similar. Key Code 5-69.

CCA FM10DS direct FM broadcast exciter. Key Code 5-38.

R.C.A. BTA-1R 1KW AM transmitter. Key Code 5-7.

RCA Harmonic filter MI-27967 tuned to 99.1 MHz (5000 watts). Key Code 5-38.

Collins 20V, 1KW transmitter or parts. Key Code 5-36.

Old Model Collins 6KW transmitter, parts, also transformers. Key Code 5-36.

TV translator 1KW or transmitter with 1 KW stage retunable for UHF. Key Code 5-50.

Wanting 250, 500, 1,000 and 5,000 watt AM FM transmitters. Guarantee Radio Supply Corp., 1314 Iturbide Street, Laredo, TX 78040. Richard Reyes, 512-723-3331.

RCA BTA-1R, BTA-5R, BTA-5S, BTA-5T, BTA-5U AM Transmitter. Key Code 4-9.

Equipment to outfit Class A FM Station. Need tower, transmitter, console, etc. Key Code 4-53.

ITA 1 kw in excellent condition A.M. Key Code 4-86.

Adler TV translators, any condition. Key Code 4-94.

Visual 3 kw FM transmitter in excellent condition. Key Code 4-86.

RCA BTA-1-R Transmitter. Key Code 4-15.

F.M. Broadcast Transmitter-500 watts 1kw or even 250 watt. Key Code 4-38.

Collins or Gates, used, any condition, 1kw AM xmitter. Will repair. Key Code 4-41.

ITA 5 kw in excellent shape AM. Key Code 4-86.

TUBES

WANT TO SELL

Six 3X2500A3 Tubes. Removed from transmitter & spares. Condition unknown. Key Code 6-16.

Receiving tubes (190) in large tube caddy, all tubes good, used in communications equipment. 110 are in boxes, 80 are loose but all are good. Make offer. Key Code 6-59.

4-400A transmitting tubes (4), used but ok for spares. Make offer. Key Code 6-59.

JAN-CBXT 8161 Eimac tubes (4-new). Key Code 5-36.

4-1000A (new). Key Code 5-36.

891 (3-used). Key Code 5-36.

872A mercury vapor rectifier tubes, (three), new, never used, half price. Key Code 5-65.

Tubes: Two each 845 and 872-A probably used, condition unknown. Make offer. Key Code 4-24.

WANT TO BUY

125A tubes (4). Key Code 5-36.

GTE color slide studio tube for Model CSS-1. Key Code 5-14.

250A tubes (4). Key Code 5-36.

400A tubes (4). Key Code 5-36.

Telefunken VF 14 for U-47, U-48 microphones. Telefunken AC-701. Key Code 4-83.

TURNTABLES & LATHES

WANT TO SELL

Pioneer PLA-35 turntable w/base, dustcover & cartridge. Like-new cond. \$85. Key Code 6-19.

Micro-Track Rosewood 12 inch tonearms with Stanton D5107 cartridges and stylus, 2 sets available. \$75 set. Key Code 6-79.

G.E. mode 47A12B2 transcription equalizer. Key Code 6-42.

Gray Research Tone Arms (older) 16 in. modified but good for parts. Less cartridges. Make offer. Key Code 6-55.

Sparta TEP-3M Monaural Turntable Pre-amplifier, excel. cond. Make offer. Key Code 6-59.

Rek-O-Kut B-12H 12 in TT w/320 arm will accept a trade of something. Key Code 6-35.

Gray model 208 16" viscous-damped tone arm. Key Code 6-42.

QRK (older) tone arms 12 in. One in good condition, one poor. All metal. Make offer. Key Code 6-55.

Russco studio pro model B with Shure tone arm and cartridge. \$100. Key Code 6-66.

Mastering Room Package, includes: Scully lathe #501, Scully 280-mastering tape recorder plus many other top brand items. Call or write for complete list. \$25000. Key Code 6-70.

G.E. Model 48A10A Pre-amplifier. Key Code 6-42.

Disc mastering mono Neumann lathe. \$5000. Key Code 6-70.

Rek-O-Kut Disc Recording Lathe & 16in. turntable. w/spiral crank and 120 LPI and 210 LPI feed screws. exc. cond. \$250. Key Code 6-2.

QRK 12 (2 ea.) turntables w/QRK arms & Shure M-44-7 carts; 5 yrs old rebuilt 6 mos. ago. \$150 each. Key Code 6-65.

Sparta 6T-12 turntables, 2 available at \$100 each. Key Code 6-79.

Rek-O-Kut 16 in. turntable, 33-1/3 & 78 RPM idlers needs felt pad. \$50. Key Code 6-2.

Rekocut Rondine turntable, fair cond. Key Code 5-27.

Microtrak 306 tonearms, two available, good cond. Key Code 5-27.

RCA BQ2B in cabinet with Shure M-236 arm. \$50. Key Code 5-22.

Collins twelve inch turntable, fair cond. Key Code 5-27.

Gates CB-500 16" turntable with mounted Grey tonearm, \$75. Key Code 5-23.

Rekocut A-60 tonearm, fair cond. Key Code 5-27.

Gray 208S tonearm, fair cond. Key Code 5-27.

CCA 12-72 turntables with Shure arms, 3 year old, 2 each, new motors. Best offer. Key Code 5-9.

Gates CB-500 turntables, four available, good cond. Key Code 5-27.

Rekocut S-260 tonearm, two available, good cond. Key Code 5-27.

Technics SL-20 Turntable. New condition \$100 w/spare plug in shell. Key Code 4-49.

Ortofon 16 inch tone arms with four pin removable head shell 2 each at \$25 or trade for 12 inch. Key Code 4-59.

See page 14 for International Contact Instructions

The Exchange The Exchange The Exchange

TURNTABLES...WTS...CONTD.

Technics direct drive. Dependable, quiet, low maintenance, well engineered. Also cartridges and preamps. Full Compass Systems, 55 N. Dickinson, Madison WI 53703. Tel. 608-257-7722 or TWX 910-286-2745.

Russco Studio Pro 33/45 with Microtrack arms, Stanton cartridges, 2 available. Key Code 4-57.

Russco turntable. Like new. Its a repo. \$150. Key Code 4-85.

WANT TO BUY

Gray old style 16" tone arms, viscous damped or Gates GR-16 arms. Need two. Service manual for RCA BA-6A limiter. Key Code 6-56.

Gates GR-16 tone arms or Gray equivalent, 2 each. Also need two or three Gates M-5235 pre-amps, tube type, reasonable. Key Code 6-22.

RCA Model BQ-1A turntable manual needed, or copy of same. Key Code 6-19.

Turntables, Russco & QRK 12", \$150 for (2) tops. Key Code 5-43.

Turntables and arms. Key Code 4-41.

Gates, HI-Watter series M-5202 16 inch less arms. Motor can be bad but rest of unit should be okay, or salvage condition. Key Code 4-77.

Collins, model TT 200-S. Key Code 4-21.

Pre-1950 turntables and arms. Western Electric, RCA, Gray, Fairchild, Presto, Reko-kut, etc. Key Code 4-33.

RCA 70-C1 16" turntables. For parts, not interested in the cabinets. Key Code 4-49.

Shure, model SE-1 phono preamps, quantity-2. Key Code 4-21.

Technics SP10 Direct drive, 2 needed, in good condition. Key Code 4-57.

Studio-pro Turntables, but will take any reasonable offer. Must be in good condition. Two needed. Key Code 3-73.

TV FILM EQUIPMENT

WANT TO SELL

TP-16 Film Projector. Key Code 6-13.

Canon DS-8 Super 8mm camera with F1.4, 7.5-60mm, 1-8 zoom, automatic aperture, carrying case, 2 synchronized cassette recorders, 3 filters, and extra NiCad power unit and charger. Cost over \$1700 new, excel. cond. \$795. Autodyne, Box 13036, Orlando FL 32809. 305-855-6868.

16mm Edit Bench Kit: Magnasync/Moviola frame counter/tuner and winders, Murray viewer, and Bolex splicer. Excel cond. \$295. Autodyne, Box 13036, Orlando FL 32809. 305-855-6868.

Telecine island with Laird 5300, FP 1200 camera, Bell Howell 16mm projector, Spindler-Saupe 35mm. Key Code 5-42.

Bolex SM-8 Super 8mm projector-with sound, excellent cond. \$225. Autodyne, Box 13036, Orlando FL 32809. 305-855-6868.

TV Film, Shot-Gun Microphones, Lavaliers and wireless. Sony, Shure, Sennheiser, ElectroVoice, AKG, AudioTechnica and Clear-Com. Sales, rentals, new, used and demo. Also mixers and recorders for sale and rent. Full Compass Systems, 55 N. Dickinson, Madison WI 53703. Tel: 608-257-7722 or TWX 910-286-2745.

WANT TO BUY

Sony 3/4" Recorders/Players, Film Chain Equipment and Color Monitors.

Ronald Phillips, P.O. Box 19149
Kansas City, Mo. 64141 816-221-2720

Kodak TV M-100-A Super 8 projector for film chain or normal use. Like new, sealed bid to open June 20. Mark outside envelope "Super 8 Bid", minimum bid \$750. Key Code 5-48.

WANT TO BUY

35 mm Film projector with television three to two pulldown. Key Code 6-67.

Slide projector for film chain. Key Code 6-16.

O'Connor Tripod head. Key Code 4-78.

VIDEO PRODUCTION EQUIP.

WANT TO SELL

Vital Processing Amps, V-500 (2 units); V-100 (2 units). Key Code 6-16.

RCA TA-9 Stab Amps, 2 units available. Key Code 6-16.

RCA TG-25 special effects generator complete with 6' rack. Sell of trade. Key Code 6-48.

Telemet RGB Color Keyer Model. Key Code 6-13.

Advent video beam 1000 A with screen. Best cash offer. Key Code 6-57.

I.O. camera chains, 3 inch. RCA TK-14 with zoom lenses. Key Code 5-83.

Sony VTR system: 21" B/W monitor with tuner, 7" x 1/2" reel recorder, camera (B/W), tripod, microphone, cases, cables, \$650 for package. Key Code 5-74.

RCA TG-2 sync generator. Key Code 5-83.

Houston Fearless pedestal, PD-3, perfect condition, \$500 or best offer or trade. Key Code 5-68.

Concord MR750 Receiver-monitor, 9 inch solid state. \$150. Key Code 5-91.

Davis & Sanford floating action tripod "B" & head, excel. cond. \$175. Autodyne, Box 13036, Orlando FL 32809. 305-855-6868.

RCA TR-22 monochrome, worked fine when removed from service, \$1000 or best offer over. Key Code 5-64.

Conrac KNB9 monochrome 9" monitor with manual, \$125 or best offer or trade. Key Code 5-68.

RCA Waveform TO-2. Very clean. Like New. \$300. Key Code 5-91.

Kodak AF-2 Ektagraphic Slide projector with auto-focus and timer, excel. cond. \$195. Autodyne, Box 13036, Orlando FL 32809. 305-855-6868.

International Nuclear Corp. Model TVM-2 video modulator to feed TV receiver IF strip bypassing tuner, \$50. Key Code 5-15.

Conrac CQF-14 monochrome monitors, 2 units, high resolution, with manual, 2 for \$150 or best offer or trade. Key Code 5-68.

Ampex AC-116, SEG. \$150. Key Code 5-85.

Reynolds/Leteron Mod LE-200 Tittler machine with 3 alphabets. In carrying case, excel. cond. \$225. Autodyne, Box 13036, Orlando FL 32809. 305-855-6868.

Chyron IIIB stand alone font create system. 1 yr. old in excellent condition. Call for list of components. Key Code 5-12.

Advent 7" projection TV/monitor, Videobeam 1000A. Retail approx. \$4400, sell for \$2600. Key Code 5-53.

Hitachi SG-108 color sync generator. Key Code 4-37.

Bud Classic II equipment rack, video distribution amp., and Telemation unipler. Key Code 4-37.

Panasonic rack triple, loop sync/video or term, inter/ext sync. just overhauled by Panasonic. 3 separate monitors in unit. \$200. Key Code 4-72.

Panasonic TR-910VN 9" video monitor-receiver, interfaces with NV-3020SD VTR, \$100. Key Code 4-64.

Dage Tube Type Sync. Gen. B&W, G.E. TG-2 Solid State Sync. Gen. Cheap with manuals. Key Code 4-4.

Panasonic WV-200P b&w camera, very small size w/new vidicon, excellent cond. \$150. Key Code 4-64.

Monitor Conrac C2B8, good cond, \$150. Key Code 4-68.

Rack of video DA's, 8 cards, loop input, 4 output each, plus monitor, ps. all in card frame, new \$1500. Key Code 4-72.

Dage 14" B&W monitor. \$40. Key Code 4-4.

International Nuclear TC1 clamp amplifiers, quantity-2, \$50. each. Key Code 4-18.

Monochrome TSG-200 sync gen. solid state, good cond. \$200 or offer. Key Code 4-72.

Remote Van, 1970 GMC Boyertown 20' step van, with A-16 track audio console and 3 ea 6' rack cabinets. Contains complete set of video equipment. Also intercom system and complete set of mikes. No recorders currently on board, but colorpack cameras are available. Will sell as package or as components. Call or write for complete list. Key Code 4-93.

WANT TO BUY

Kodak Supermatic VP-X player. Must be in excellent working condition. Key Code 5-6.

RCA monoscope camera. Any condition. Key Code 5-91.

Synthesized 2 MTR FM and 1/2" b&w portapack w/camera, have various audio & video gear to swap. Key Code 4-64.

VIDEO TAPE RECORDERS

WANT TO SELL

Panasonic 3/4" editing system, two 9500's, one 9200, NUA950 controller. Key Code 6-9.

JVC-U-matic 3/4" full editing system, one RM-83U, 2 pc CR300U, mint cond. in original cartons. \$9000 firm. Key Code 6-21.

IVC-870 Video Tape machines, 2 each, one working and one needs repair. Key Code 6-13.

Ampex VR-7500 VTRs. 1", 3 units available. Key Code 6-16.

See ad on next page for listing of quad VTRs.

GE (Sony CV2000) 4TD1B2 1/2" B&W VTR. Pre-EIAJ, compatible w/Videorover I, etc. Used less than 10 hours. Good cond. \$150 plus shipping. Key Code 6-60.

Sony 1" 320F VTR. Key Code 6-9.

Panasonic Model NV-3085. Battery operated, AC adapter. B/W with camera, Zoom lens, tripod, extra tape reels, 12" B/W TV set (with off-the-air recording capability), 16 ft. camera extender cable, extra batteries. Plays through any TV set. perfect cond. Original cost over \$2000. Sacrifice at \$1175. Key Code 6-15.

Sony 2860 VCR 3/4" U-matic modified for Convergence editing system, 3 each. Like new cond. Will sell individually or all three. Key Code 6-71.

Panasonic Tape-A-Vision Portable Video Tape Recorder-Model NV-8100. Just removed from service. Exc. cond. Complete w/B&W camera, monitor, mic and all wire and cables. Complete instruction books, factory repair manuals and extra reels of video recording tape. Key Code 6-55.

Ampex VR-5100, \$245; VR-7550, \$295; IVC 800 AS/M, \$495. Autodyne, Box 13036, Orlando FL 32809. 305-855-6868.

JVC videotape CR-6300U, new, w/warranty, remote control unit, Bretford rolling-base production cabinet, \$1500. Key Code 5-53.

AKAI, 1/4" VTR, B/W R-R Portable with camera tuner & monitor like new. \$500. Key Code 5-80.

Ampex 5100, one inch VTR-needs head. Best offer. Key Code 5-85.

Sony 1000 VCR 3/4" U-matic player. Key Code 5-32.

AKAI 700 Deck complete electronics, 1/4" VTR like new. \$375. Key Code 5-80.

Sony 1200 VCR 3/4" U-Matic player. Key Code 5-32.

Sony CV 2200 plus tapes, \$200. Key Code 4-47.

Panasonic NV-3020SD 1/2" EIAJ reel to reel VTR in excellent condition, \$200. Key Code 4-64.

Concord VTP-360 1/2" color reel-reel video tape player. Key Code 4-37.

Sony 3/4 inch cassette editing unit 2850, \$2500. Key Code 4-78.

Used RCA Low-Band modules, \$30. each. Key Code 4-18.

VPR-1, one with portable case, one with rack mount. \$21,000 or an offer. Key Code 4-30.

Ampex MK X Video heads, some unused since refurbishing. Best offer accepted in 30 days. Key Code 4-62.

Ampex 7800 color VTR. Needs head. \$400. Key Code 4-68.

Sony portable 3/4" professional recording unit, complete, \$2500. Key Code 4-78.

VPR-1 AST/TBC-1 portable case \$45,000 or offer. Less than 200 hours on each. Key Code 4-30.

Ampex MK III video heads, 10 mil and 5 mil available, all used. Best offer accepted in thirty days. Key Code 4-62.

Ampex VR-1000B less monitoring, trade for character gen. Key Code 3-9.

Ampex VR660B. Dual audio and manual, in working condition. Have three other units without video and servo P.C. boards. May be used for parts. Best offer plus shipping. Key Code 3-5.

Ampex Video Tape Spooler for ACR-25 carts. Type 1370650-01. Make an offer. Broadcast Export Association. 800-336-3045.

Sony PV-120 Helical VTRs. All operate but need video heads, with 60 used 90 minute tapes. All 3 available for \$600. Key Code 3-16.

WANT TO BUY

Service/Operational manual for the IVC 760 or photocopy of same. Key Code 6-60.

Panasonic NV8000 or equiv, (have old tapes that need dubbing to cassette). Key Code 6-24.

Norelco Video Head for model EL3401/54 1 inch recorder, also need original type T.V. connector cable for same. Head Part No. EL 1953. Key Code 6-22.

VHS format video recorder/player. SP and LP mode, any brand in good cond. Key Code 5-40.

Ampex VP4900 VTP, need rotary transformer and head assembly. Key Code 5-40.

RCA TR-3 or TR-4 quad machines, low band or high band, will pay cash or trade. Key Code 5-68.

Portable E1AJ like AV 3400, NV 3082, PU4500, etc. Must be mechanically complete. Key Code 4-61.

Panasonic NV 5000 color disc recorder/reproducer. Key Code 4-89.

JVC 4100 Portable VHS recorder, new or demo. Key Code 4-61.

VR-1200 B or C with all or most of goodie options. Will trade 1 or 2 VPR-1's as part of deal. Key Code 4-30.

Westel one inch color VTR, Model WRR350. Key Code 4-89.

Westel one inch color record only portable-VTR Model WR 201. Key Code 4-89.

Sony two inch helical production VTR w/editor and D.O.C.-Model MV 10,000. Key Code 4-89.

VHS format video recorder/player. RCA preferred, but will take any reasonable offer. Key Code 3-73.

Instant cash for your used TV broadcast equipment. Urgently needed transmitters, antennas and color studio equipment.

Call Now!

Bill Kitchen

Quality Media Corp.
Box 7008
Columbus, GA 31908
800-241-7878

Circle 109 on Action-gram

In the U.S. call 800-336-3045
For any Key Code Names and Addresses.

800-336-3045

New Listings are in *Italics*.

...from page 9

Stereo-mono compatibility: The bugaboo of FM will soon rear its nasty head in AM-land too. Ninety-nine per cent of all compatibility problems center around the changing phase characteristics of stereo cartridges. So activate your mono switch (See Figure 2) and listen for the telltale high-frequency loss and swishing, particularly when stereo carts or tapes are on the air.

Fortunately, some new and deceptively simple solutions for this problems are on the scene. More on this in the fixit section.

The complete phase reversal of one channel in a stereo station will have

an immediate and dramatic effect when listening in mono. Because of this, reversed phasing is often noticed long before our formal listening test gets underway. But if Neil, Olivia or Carly disappear before your ears when the mono switch is on, better check it out...

Tape saturation: Here is a new form of distortion that greeted us when we began to base broadcasting on magnetic tape. A little history is in order: In 1946, recordings were made by hanging a single microphone above a conductor's head. The cymbal player may have been twenty feet away.

At speeds below 15ips, the crude magnetic tape tended to hiss like an

overwrought radiator. Since the high frequency content of the audio was much lower than mid or low frequencies, the tape engineers hit upon a great idea. At 7½ ips or slower, turn the highs up when recording, and down by a like amount in playback, thus turning down the hiss. So was born pre-emphasis.

1978 recording techniques have changed: a brilliant little dynamic is placed about two inches from the drummer's ride cymbal, and fed at God knows what level into the final mix.

The recording engineer doesn't care; his tape machines are running at 15 or even 30ips. The disc mastering engineer doesn't care, he has a more

forgiving medium.

But now you try to dub Issac Hayes' "Theme From Shaft" to your 7½ips cartridge. That great cymbal intro comes back like a tree full of blackbirds, and you've discovered tape saturation. You tape system just can't take that high-frequency energy.

You'll hear it often in the listening room: Sparkling "s" sounds that turn into "f" sounds, muted trumpets that seem to be dragging chains behind them. Make a note; we'll deal with it later.

(Next month: some solutions to problems heard by the gold-plated ear.)

CORNER

...from page 12

pling lines from the D.A. Phase Monitor and connect this sampling line to the modulation monitor. Note the percentage of modulation. You would like to see 50% or something real close, but in quite a few cases you will see something much lower. This tells you that the network at the base of the tower and possibly the line and interconnecting networks in the phasor, are in such high Q that they are modifying the modulation response. Do the same thing for each of the towers. Now you have a good idea of where your problem is. Curing the problem will take time and careful adjustment of your base networks and in certain cases phase shift networks in the phasor. Generally however, depending upon the amount of mismatch on the transmission line, you can compensate the antenna base networks to correct the response. Your compensating has to be able to maintain the proper phase shift and impedance matching, hence you have your work well cut out for you. The Howard technique is again an excellent method of first determining exactly what has to be done and then how to make the corrections.

BEE: Do you feel that a plus or minus 10 KHz bandwidth response will be sufficient for good AM stereo?

JHM: We do not know for sure what system will be adopted, but if greater bandwidth is required, we shall now be able to compensate most antenna systems for a reasonable response.

DISTRIBUTOR DIRECTORY

The following is a listing of distributors that serve the broadcast industry and who would be glad to help you with any of your equipment needs. Contact any of them directly, or circle the appropriate number(s) on the Reader Inquiry Card and send it to IMAS today. We will forward your request to the distributors, and they will send you their literature or line cards.

<p>Audio Production Equipment Sales and Services</p> <ul style="list-style-type: none"> • TASCAM • AKG • Tannoy • Ampex Tape • Omnicraft • Ivie • Revox • Technics • Atlas • Delta Lab • BSC • Beyer <p>TRIAD PRODUCTIONS INC. 1910 Ingersoll Des Moines, IA 50309 515-243-2125</p> <p>Circle 131</p>	<p>FREE FLYERS LISTING VIDEO EQUIPMENT (New and Used)</p> <p>Color & B&W cameras monitors, SEG color enhancers, lenses, test equipment, vidicons, etc.</p> <p>Denson Electronics PO Box 85 Rockville CT 06066 203-875-5198</p> <p>Circle 150</p>	<p> NORTHEAST BROADCAST LAB, INC.</p> <ul style="list-style-type: none"> • Potomac • LPB • Inovonics • Tapco • Belar • Technics • Otari • ESE • Moseley • B.E. • Phelps Dodge • Cablewave • Q.E.I. • Ampro • QRK • Autogram <p>Equipment Sales</p> <p>P.O. Box 1176 S. Glens Falls NY 12801 518-793-2181</p> <p>Circle 104</p>	<p>Detroit's Pro-Audio Warehouse</p> <ul style="list-style-type: none"> • Ampro • Stanton • Electro Voice • Cetec • Technics • Shure Bros <p></p> <p>7641 19 Mile Road Sterling Heights, MI 48078 313-739-7020</p> <p>Circle 117</p>																																							
<p>Colorado Magnetics</p> <table border="1"> <thead> <tr> <th>Length</th> <th>Fid. 300</th> <th>Fid. 380</th> <th>Aud. AA3</th> </tr> </thead> <tbody> <tr> <td>40 sec</td> <td>2.16</td> <td>2.21</td> <td>3.20</td> </tr> <tr> <td>70 sec</td> <td>2.19</td> <td>2.25</td> <td>3.27</td> </tr> <tr> <td>100 sec</td> <td>2.25</td> <td>2.32</td> <td>3.38</td> </tr> <tr> <td>2.5 min</td> <td>2.48</td> <td>2.56</td> <td>3.51</td> </tr> <tr> <td>3.5 min</td> <td>2.59</td> <td>2.67</td> <td>3.66</td> </tr> <tr> <td>4.5 min</td> <td>2.72</td> <td>2.75</td> <td>3.81</td> </tr> <tr> <td>5.5 min</td> <td>2.89</td> <td>2.96</td> <td>3.97</td> </tr> <tr> <td>7.5 min</td> <td>3.06</td> <td>3.14</td> <td>4.21</td> </tr> <tr> <td>10.5 min</td> <td>3.48</td> <td>3.56</td> <td>4.61</td> </tr> </tbody> </table> <p>Call or Write for our Competitive Rate Card (Prices based on 100 plus)</p> <p>Colorado Magnetics, Box 713, Colorado Springs CO 303-596-0684 80901</p> <p>Circle 120</p>	Length	Fid. 300	Fid. 380	Aud. AA3	40 sec	2.16	2.21	3.20	70 sec	2.19	2.25	3.27	100 sec	2.25	2.32	3.38	2.5 min	2.48	2.56	3.51	3.5 min	2.59	2.67	3.66	4.5 min	2.72	2.75	3.81	5.5 min	2.89	2.96	3.97	7.5 min	3.06	3.14	4.21	10.5 min	3.48	3.56	4.61	<p>BROADCAST EQUIPMENT</p> <p>OPTIMOD, BELAR MOSELEY, ITC MICRO-TRAK FIDELIPAC ELECTRO-VOICE INOVONICS GORMAN-REDLICH TELEX, AKG ELECTRO IMPULSE ... AND MORE</p> <p> Gene Bidun & Associates BOX 861 Columbia, Maryland 21044 301-992-4444</p> <p>Circle 139</p>	<p>SURCOM ASSOCIATES</p> <ul style="list-style-type: none"> • CORNELL-DUBILIER MICA CAPACITORS • ITT JENNINGS VACUUM CAPACITORS • AMPEREX VACUUM CAPACITORS • C.S.P. COILS & ACCESSORIES <p>- MANY VALUES IN STOCK - 305 Wisconsin Ave. Oceanside, CA 92054 714-722-6162</p> <p>Circle 144</p>
Length	Fid. 300	Fid. 380	Aud. AA3																																							
40 sec	2.16	2.21	3.20																																							
70 sec	2.19	2.25	3.27																																							
100 sec	2.25	2.32	3.38																																							
2.5 min	2.48	2.56	3.51																																							
3.5 min	2.59	2.67	3.66																																							
4.5 min	2.72	2.75	3.81																																							
5.5 min	2.89	2.96	3.97																																							
7.5 min	3.06	3.14	4.21																																							
10.5 min	3.48	3.56	4.61																																							

PAL Standard Video Equipment

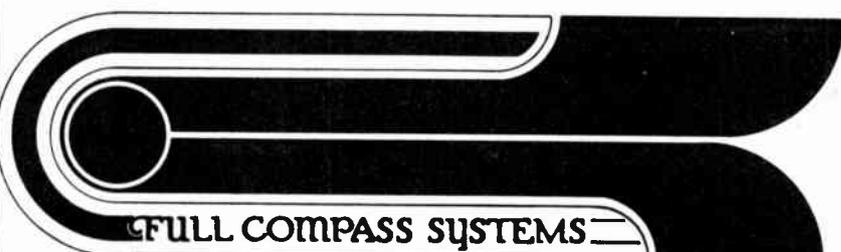
Foreign TV station updating complete operation disposing of large variety PAL-standard video equipment. Items include:

- RCA TR-600, 3 each
- Ampex AVR-2, 4 each
- RCA TR-60, 2 each
- RCA TR-70, 2 each
- RCA TR-61, 1 each
- RCA TK-28 system, 1 each

Plus a variety of cameras, lenses and other equipment.

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THE TRADING POST

We buy — sell — trade all types and makes of used broadcast and cable TV equipment.

For Sale

American Data switcher with custom cab
 Ampex KHH-25 colour monitor
 Danscoll TSP-101 proc. amp.
 Eddor wireless microphone and receiver, new.
 Electrohome ETV-7 monitor/receiver
 Eumig Super 8 projector
 Hitachi FP-100 camera, good cond.
 IVC-100 camera
 Mac Lab 824 audio mixer
 McCurdy 710U intercom system, like new.
 NEC VC-7401 VTR
 Quick Set tripod, Gibraltar 6312 cradle head, Hercules 5602 dolly
 Richmond Hill EVS-7 switcher
 3 Richmond Hill VDA-41 video distribution amps.
 Sony CVM-192 monitor
 4 Sony CBM-920U colour televisions, excellent cond.
 Sony CVM-1920 19" colour television
 Sony VPP-2000 video projection system w/ screen
 2 Sony AV-3600
 Sony AV-3200 camera kit w/viewfinder
 2 Sony VP-1000 playback VTR's
 2 Sony VO-1600 3/4" rec/play videocassette
 Topaz frequency changer, exc. cond.
 Viscount 5V2FE video mixer
 Zeimark 3100 multiplexer
 RCA TR-3 black and white video tape recorder, playback only.
 RCA TR-4 black and white video tape recorder rec/play.
 Tektronix 525 waveform monitor, needs some work.
 McMartin TBM-3000 FM frequency monitor 92.7
 RCA BW-73A FM multiplex monitor.
 Hewlett-Packard 3358 frequency monitor.
 Miscellaneous IVC equipment and accessories
 3 Ampex VR-7900 video tape recorders, 2 good cond., 1 fair.
 Fluke 910A true R.M.S. voltmeter 10hz to 7mhz
 Ballantine 340 R.F. millivoltmeter 300uv to 3v to 1000 mhz.
 J. Fluke B21AR differential DC voltmeter 0 to 500V accuracy .01%
 H.P. 5214L counter

For Sale

H.P. 310A wave analyzer
 Sierra selective voltmeter NEKS range 40khz to 600khz.
 H.P. 562A digital recorder used with 5245L frequency counter
 H.P. 150A oscilloscope
 H.P. 650a oscillator frequency range 10 hz to 10mhz metered output.
 Polarad FIM-2 field intensity meter
 Marconi OA-1094 spectrum analyzer
 2 Ampex VR-1100 video tape recorders.
 Ampex 5800 video tape recorder
 Ampex 5200 video tape recorder
 Ampex 7500, 7100, 5100 and 7000 video tape recorders.
 Ikegami ITC-7001 3 tube self contained high resolution, 6 X 1 zoom lens rear control color camera, good cond.
 Ikegami VR-624 camera with Silicon or Vidicon tube option, good cond.
 Panasonic mobile c/w 3 camera, 2 WV-350, 1 WV-220, 1 switcher WV-600 audio mixer/monitor/etc., good cond.
 Sanyo 2000C video tape recorder /playback EIAJ color, good cond.
 Sanyo 2000 rec/playback video recorder, good cond.
 ITC VF-2020 black and white camera w/5" viewfinder, remote panel, 50' cable and 2-1 sync generator, good cond.
 ITE VF-301 camera w/5" viewfinder, 2-1' remote panel, 50' cable, option of self-cont., good cond.
 Audiotronics camera w/4" viewfinder, 12V DC/110V AC int. ext.
 Hitachi TIE 15R camera.
 Philips EL-000 camera, int./ext. w/7" viewfinder
 Hitachi VMF-104 switcher, good cond.
 Philips B X 2 switcher w/ preview and intercom.
 Ramco audio mixer, 6 input, good cond.
 RCA 4532 1" tubes Tivicon, Saticon.
 Akai 700 video tape recorder
 Sony AV-3610 video tape recorder
 Sony EV-210 VTR
 Sony EV-310 VTR
 Sony EV-320 VTR

For Sale

Sony CV-2100 VTR
 2 Sony CLP-18 colour pack
 Sony PV-120U VTR
 Philips/Grundig LDL-1000 1/2" VTR
 MVR disc VTR
 Conrac 23" B & W monitor, tube type, qty. 23
 Shibaden SP-2000 camera
 Topaz 1000 frequency changer
 Hitachi FP-100 camera
 Koler generator 115/230V on stand w/ radiator, output 10KW, good cond.
 Panasonic JV-1520 VTR
 2 Sony AV-3400 portapak
 Strand Century lighting, CPD-1 six pak w/ 6-3.6 KW modules, 12 TLE 20A Rec. 1 control console SC-6/2
 Electrohome EVM-23 23" black and white monitor
 Sony AVC-3400 camera kit
 2 Sony AV-3650 video tape recorders, needs heads.
 CDL 30 X 40 video routing switcher w/ audio follow
 Sony PVM-9100 monitor
 Ampex 350 video tape recorders
 Tektronix 527 waveform monitor
 Orban Sound stereo synthesizer, unused cond
 Sony DXC-5000B colour camera with Plumbicons, good cond.
 Sony 340 1" VTR, exc cond.
 Shure SR-101 B channel mixer w/ 3 Shure 565SD microphones, exc. cond.
 Koss HV-ILC headphones, exc. cond.
 CBS Dynamic Presense Equalizer.
 RCA RT-27
 New coils for ATU's.

WANT TO BUY

CVS-504B time base corrector
 Gates M6244 turntable pre-amp
 Tektronix 520A Vectorscope
 Video Enhancer to TK- 27 4 tube telecine camera
 CBS-527 video enhancer or equivalent for a 4 tube camera
 Jerrold SRR-3 microwave receiver freq: 2500 to 2686mhz.

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Call For Details (613) 741-5554

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 Au Québec, communiquer avec Norbec Vidéo Ltée.,
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