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The Zaxcom Cameo Digital Mixer



A completely self-contained, portable, 24-bit/96k Digital Mixer

Rarely has film production audio equipment been so eagerly anticipated as the Deva recorder and its companion mixer, the "Cameo". Even more interesting: Those waiting with orders in hand are the established mainstream professionals known for making conservative, long term, calculated investments in their tools. The Cameo is a completely self contained, portable, 24-bit/96k digital mixer complete with low noise, high gain mic pre's. Inputs can be a combination of digital and/or analog signals, as can the outputs. At first glance, it resembles other high-end portable mixers built for film production such as those

by Cooper, Sonosax, Audio Developments, PSC and Soundcraft. It has eight inputs, input trim and pads, assign switches, and Penny & Giles vertical faders as smooth as they come. But one more look will tell you it's different. Very different. Being a

digital mixer, the Cameo offers the following benefits:

1. A single knob can easily do the job of many, so the clutter has been reduced.
2. Offers features and flexibility that could not be available with analog mixers.
3. Extremely comprehensive and versatile EQ: Flexible EQ shaping, Completely variable low cut and notch filter, Graphic curve display for all, 5 memory presets (example: store settings for different microphones or different actors).
4. Text may be entered to the Deva recorder (title, location, scene number... whatever.)
5. Complete remote access to the Deva recorder.
6. Signal routing is extremely versatile and quickly done with a mouse.
7. All signal routing can be seen at a glance on the meter bridge/display.
8. Inputs can be a combination of digital and/or analog signals, as can the outputs.
9. No discernable noise is added to the record chain when using a digital recorder.
10. No discernable noise is added when using the digital inputs.

The list can go on, but you get the idea. The **Zaxcom Cameo** Digital Mixer is now available and in stock at Trew Audio.

The Zaxcom DEVA II Recorder



Location sound recordists are bound to fall into one of three categories: (1) Hanging on to their love affair with their Nagra. (2) Using a DAT until

something really better comes along. (3) Like me, both. Guess what? The wait may be over. Those that have recently invested in a DAT recorder need not anguish; there are far too many DAT's in the field to become obsolete overnight. But for those who have been waiting for a new generation of dream machine, that time is now. When asked by Audio Media magazine to review the new Deva-II recorder, reluctance set in because I feared the truth I would have to tell. But the guarded bias I started out with now only adds credibility to my final impression of the Deva-II. Here is a reprint of the Deva-II article: The Zaxcom DEVA II by Glen Trew (For Audio Media magazine, USA & UK September editions)

Film production in general, and film production sound in particular, has always been slow to change standards, and only then with the reluctance of retiring a cherished old leather jacket. While portable DAT recorders have had a short life in film production, for most of the last thirty years the undisputed standard, "The One", has been the Nagra. For me, operating a Nagra is still like putting on my old leather jacket.

The possibilities that the current state of digital technology finally offer us mandate that we do, indeed, need a standard other than open reel analog recorders. Only in the last few years have production mixers reluctantly allowed Nagra's spot to be shared by portable DAT recorders, and while DATs have not been all bad, they do suffer from quality limitations and reliability concerns that will always keep them from becoming a long lived standard. To those that use them, it's no surprise. In fact, it's fair to say that production sound mixers have always assumed that the DAT was a short-term answer to the need of new technology. So for now, there has yet to be a new standard embraced. Deva hopes to change that.

While the DAT manufacturers were happy to profit from supplying their short term answer, Zaxcom designer, Glen Sanders, was building his long term answer, the Deva recorder, which is now enjoying an increasing acceptance of it's second version, the Deva II. From the drawing board, Sander's intent was to produce a portable recorder specifically for synchronous film and television production; not a device that would be stocked by music super stores or a machine that could be priced for the home studio. To eliminate the masses right from the start not only took courage, but also an understanding of the special requirements of production sound mixers, not to mention an understanding of the rewards that would surely come if his recorder is accepted as "The One".

The recorder that wins this spot in film production must meet certain unique criteria. It must be small and portable, rugged, simple, internally and externally battery powerable, four recording channels, a built in mixer, selectable mic or line level, high gain mic pre's, 48V phantom, selective headphone monitoring, removable recording media, complete time code versatility, and reliable, reliable, RELIABLE! Notice that price was not mentioned in this list. While cost is admittedly a fact of life to be dealt with, it's usually the last question successful professional sound mixers ask.

While the Deva is to be commended on a layout that makes the transition from analog tape recorder as painless as possible, it's still a computer and while many of us grumble when making this transition we might as well grin and bare it as another fact of life. Yes, the earth is round, and yes, reels of tape will eventually be looked at like the Gramophone and the rotary dial telephone. That being said, the only option is to make the best of what the new technology has to offer, which is considerable. So, let's take a look at the Deva II.

Using The Deva II

In a word, it's a breeze. Let's assume for a moment that all of the user options have been selected, levels have been set, and it's all ready to go. Press REC, STOP, or PLAY to, well, record, stop, and play. It's actual possible to go through the entire day doing nothing else. Its complexity only comes into play when considering the possible options, which are available from selections in eleven different menus. With a little familiarization, even these become simple. I was able to become familiar with and understand every option on the Deva in about three hours. After a few days of occasional use, I was an expert.

Probably the single most useful and unique feature on the Deva is its ability to maintain a pre-record buffer of up to 10 seconds. If this option is chosen, the Deva automatically starts the recording 10 seconds before the record button is pressed. Nice trick. Not only does this give a preroll for postproduction use, but also it makes clipping the beginning of a take nearly impossible. In documentary production, where sometimes you don't know that there's something worth recording until after it's already happened, this feature would be indispensable.

Resolution

The Deva II uses high quality 24 bit, 48K AD/DA converters and records uncompressed, putting it well above any of the DAT recorders and up there with the Nagra analog recorders (finally), and arguably, equal to the Nagra D. The next step up would be to 96K sampling, but no doubt being limited to 2 channels.

The Media

The largest obstacle that Deva has to overcome is in the minds of those leery of recording to hard drive. Today, with recording to hard drive being commonplace in studios, this would seem like an archaic phobia. Maybe it is, but when considering the process that film sound goes through, it is at least understand-

least understandable. For one thing, the day's work is sent to a transfer facility at the end of every day. Originally with the Deva, the only option as to hand over the \$500+ hard drives to a 2nd AD or production assistant at the end of each day to be shipped to the transfer facility as casually as we had with a \$10 DAT cassette. After a couple of days, the drives are returned and recycled back into service for more recording. This presented two problems, again, mostly in the mind: (1) Shipping the original recording with no back up on expensive drives back and forth, sometimes internationally, every day for months, and (2) even more unsettling, erasing the original recording when putting the drives back into service. In our little world as mixers, it's got to be the equivalent of the big red button on the President's desk. There is a loud voice in the back of our mind that says, "Don't do it!".

This phobia has been nicely addressed by the Deva II with the installation of a SCSI port that allows duplicates to be made to JAZZ (2G), MO (5.2G), DVD (4G), or the storage media of your choice, even in the file format of your choice. These duplicates can be made while recording the original or they can be downloaded at 8X real time at the end of the day. The latter would be the preferred choice in the case of shoulder strapping or high-speed car scenes because of the motion sensitivity of the backup drives. So, the Deva system has evolved into what seemed like too much to ask for: Originals and simultaneous backups from a single recorder.

This presents a choice to be made: Which to ship, the original or the duplicate? The less expensive option would be to ship the duplicates for transfer while keeping just two hard drives to rotate on the set, but so far, most mixers prefer shipping the original hard drives and keeping the backups for safety.

For long projects such as features or television film productions, the shipping of hard drives is not nearly as much of an obstacle as it would be with commercials or, especially, with documentary production. With commercials, the transfer and editing process is often slower and I can easily imagine the return of hard drives getting delayed or even lost in the shuffle. Maybe the answer is for the production companies to own their own hard drives and present them to the sound department at the beginning of the shoot (sweet revenge). For documentaries, the preferred choice may be to download to Jaz or MO and ship off the duplicates. Even then, the safety of multiple hard drives would be needed for us media phobics. It's important to keep in mind that this media phobia has nothing to do with the reliability and ruggedness of the hard drives themselves. They can withstand 125-G's of shock while operating and the 24-second record buffer should survive more motion than the operator can take. The perceived need for backups was not originated with the Deva: Simultaneous backups have been commonplace since the introduction of the DAT recorder to film production. Now there's a phobia worth having.

Size Matters

Small is good, and measuring 8" x 3" x 7.25" the Deva is the

smallest entry yet; smaller than the Nagra, the Fostex PD-4 and even the HHB PortaDat. In fact, even though it was probably envisioned to live most of its life on a sound cart, its size and weight make it perfect for documentary work as well.

Powering

For internal battery power the Deva uses the now common NP-1 rechargeable battery, an excellent choice. It's nearly as common on most production sets as bagels and bottled water and the capacity of these batteries continues to increase. The Deva will run a minimum of two hours on a 12 volt, 2.3Ahr (27 Watt hours) NiCad NP-1 style battery, but if the higher capacity Nickel Metal Hydride version (50 Watt hours) is used, the record time would, logically, nearly double. Using the supplied wall-wart charger, an NP-1 can be recharged while remaining inside the recorder, though operating the recorder while charging is not recommended.

The low battery warning indicator is displayed when the internal battery drops to 10.5 volts which is fine for 12 volt NP-1's. But, more and more people are using the 13.2V and 14V version of the NP-1 and when these reach 10.5 volts, it's all over. In this case the warning is followed by shut down in just a few seconds. The remedy would be to have a setup function that allows the user to program the warning for NP-1 batteries of different voltages. Sanders is looking into including this feature in subsequent software.

With a current draw of only 800mA, the Deva can use a 12-14V DC battery or regulated power supply capable of 1A continuous as external power. Some modern switching type power supplies can introduce noise into the Deva, so the old standard linear type is recommended.

The external power and charger input connections are made on a side mounted 4-pin Lemo connector. This connector is a great choice for size and dependability, but if you ever need to buy one to make a cable you'll find out that Lemos are far from cheap. I hope it was a size consideration that dictated this choice because I would much prefer the industry standard four pin XLR, if it would fit. Most sound mixers already have block batteries and cables wired with the four pin XLR that would otherwise plug directly into the Deva.

The Mixer Section

Since a recorder of this type will often be used with an external mixer, only basic front panel mixing ability is needed and is even preferred over the optional clutter. So, Deva kept this section simple, but made excellent use of the microprocessor's power by offering some very useful user programmable options. The four analog inputs can be mic or line level, independently, and are assignable to any or all of the four recording tracks. 48V phantom power can be selected at each input. The microphone preamps have more than enough available gain, even when used with dynamic microphones, and are very quiet. A 12dB per octave low cut filter is adjustable from 30Hz to 220Hz in 10Hz increments and can be assigned to the four input channels

independently.

Something I consider very valuable is the Deva's ability to record the same mix to separate tracks at different preset reduced levels, down to -9dB. This feature, along with the already high headroom of 20dB, makes problems with digital clipping highly unlikely.

The Deva has an interesting option of assigning any combination of the inputs to be control by any of the input knobs, in effect creating a submaster. However, when using this feature the input knobs that are assigned to a submaster have no effect on their individual levels. So, while useful, this feature is probably limited to riding gain on predetermined mixes such as a stereo microphone or two. For example, if a stereo microphone is plugged into inputs #1 and #2, both the left and right outputs of the microphone can be controlled by input knob #2, but when this is done input knob #1 has no effect.

A very nice feature concerning the input knobs is the ability to set and electronically lock them, eliminating the possibility of unintentional adjustments. This would probably be my normal mode of operation when using an external mixer.

Monitoring

Headphone monitoring is selected from fourteen configuration choices (1 & 2 stereo, 3 & 4 stereo, 1,2,3,4 mono...etc.) though not quite as easily as turning a switch like we've been accustomed to. Just below the headphone level knob there are two buttons used to scroll up or down through the monitoring options, a process which could take a couple of seconds to check something and go back. To make up for this minor inconvenience the Deva allows any two of these options to be assigned to the F3 and F4 buttons for toggling back and forth between your two most often used choices. I normally use a monitoring switch to go from stereo, to ch1 mono, to ch2 mono, so I would like to have three choices programmable. Since the F2 button has no apparent other use while in the monitoring (HOME) display, maybe it could be used for a third preset (how 'bout it, Glen?).

Every potential owner of a Deva will ask if "confidence monitoring" is available (monitoring playback while recording). The answer is a definite, kinda-sorta. While the operator does not have the analog Nagra equivalent of monitoring off of the playback head, the microprocessor continually verifies that data is written correctly to the disk and gives a visual and audible warning if there is a problem. To my knowledge this has always been confidence enough and no data has been lost unknowingly.

Record Time & Tracks

The record time varies with the size of the hard drive and the number of recording tracks selected. The Deva price sheet includes drives with capacities of 1.3G (\$350), 2.2G (\$500) and 4G (\$550). With the 2.2 Gig hard drive, the Deva has a "track record time" of 4 hours. The number of recording tracks can be selected from 1, 2, or 4 (three track recording is not an option), so the available record time is interpolated logically; 4 hours of

mono, 2 hours of stereo, or 1 hour for 4 tracks. These numbers double when using the 4 Gig drive.

For productions such as feature films and television movies, two hours seems to be an optimum capacity for a storage media because rarely would more than two hours be needed for a day's work. This keeps it simple: pop in a drive each morning and ship out just one drive at the end of the day. No more waiting to reload the recorder in the middle of a scene and no "roll-outs" during that once in a lifetime a take. However, if four tracks are needed, the 2.2 Gig hard drive only gives one hour of record time. For this reason, I see the \$50 decision between the 2.2 Gig and 4 Gig drives a no-brainer.

Track Agility

Deva describes a "segment" as the disk space used for each take, or each record and stop sequence. To further manage the record time capacity of a hard drive, each segment can have a different number of available tracks selected with relative ease. So, in those sound stage scenes where we have the joy of using a single boom, there is no need to select more than one track. This machine is starting feel as comfortable as my old leather jacket.

A Real World Metering Concept

When we first started selling portable DAT recorders, nearly every other call I took involved where "zero VU reference" should be. Telling engineers that zero reference could really be anywhere they thought it needed to be to avoid digital clipping was very unsettling to most, even though I always recommended -18dB on the standard DAT peak meter for dialog recording. Well, consistent with the courage that gave birth to the Deva in the first place, Sanders took the bull by the horns and put a "0" where he thought it should be. So, "0 VU" equates to the "0" on the Deva. Thank goodness. My phone bill should start going down now.

The Deva standard for zero reference is actually 20dB below digital clipping, or the equivalent of -20 on a DAT meter. While this is 2dB below the now accepted standard for most DAT recordists, the increase in signal-to-noise ratio that comes with the Deva's 24 bit converters makes a zero reference of -20dB a logical choice. The extra 2dB of headroom will certainly be appreciated from time to time as well. As any sound mixer who's ever tried to sneak in a call on their cell phone while they were supposed to be watching levels (all of us) can tell you, a zero reference of -18 was still a little risky for dialog peaks anyway. For times when the Deva is used to master pop music or to make copies of music tracks for playback, one should feel free to set zero reference up as high as -12dB if the peaks allow.

Time Code and Sampling Frequency

Time code for film production is a complicated, mandatory tool and should be a full semester class in film school (that would further reduce my phone bill). But briefly, suffice it to say that in film production there are special considerations and the Deva addresses all of these. The different frame rates are selectable

from 24, 25, 29.97DF, 29.97NDF, 30DF, and 30NDF. To accommodate the process of "pulling up" and "pulling down" for post production and sync playback on the set, the sampling frequency can be selected from 48K, 48.048K and 47.952K, adjusting the record or playback speed up or down by .1%. The clock that runs time code generator is powered by an internal lithium button battery so, in the free-run mode, the time code clock continues to run even without external power or NP-1, literally for years. Hallelujah! Requests for this simple feature had been made to the large manufacturers for the last fifteen years and no one listened. For this feature alone the Deva will get a standing ovation from everyone who's used any other portable time code recorder in the past.

Setting time code on the Deva is a snap. In the Time Code menu, simply select time code or user bits, type in the number you want and press the JAM key. There is no cursor and no flashing digits to scroll through. User bits may be set to "increment", which automatically advances the user bits by 1 each time a recording is begun, in effect putting the segment number on the slate. The standard options for "record-run", "free-run", and "external" are available, and there is a very nice additional option called "CONTINUOUS JAM". This feature looks at an external time code reference and re-jams itself every ten seconds. This option allows external time code to be used with interrupt protection and drift compensation. For example, with this feature multiple recorders in different areas of a venue could reliably use wireless receivers as a common time code source without the worry of drop outs, eliminating the drift concerns associated with jam-syncing.

There are a couple of time code features I would like to see included in subsequent software versions. Currently, when in the free-run mode, time code continues to be output while in stop. While this should certainly be an option, I would like to have the ability to not output time code while in the stop mode. Having this feature would allow the camera department to know when you are recording and when you are not simply by looking at the slate. With the Deva's unique 10-second pre-record buffer it is not likely that you would miss a slate from a hyperactive camera clapping the sticks before hearing "speed", but it can be a reassuring feature that I have begun using with time code DATs.

The second feature I would like to see added is for time code to automatically be output from playback when in the playback mode and automatically return to generator when in the record mode. Currently, from the time code menu you select either "DISK" or "GEN", and that's what you get on the output, regardless of recording or playing back. The problem is that it is too easy during playback to mistakenly send time code from the generator instead of from the playback track with no one being aware of the mistake until postproduction nightmares begin. Also, if set to "disk" time code and the machine is in the record mode, there is no time code output. This can often prompt a search for bad cables or placing new batteries in the Comtek system and allows very little way to cover up the fact that it was an operator error. So, my preference would be for time code to automatically follow the record and play mode unless another

option is selected. This is the way the Nagra IV-STC operated for many years and I can't think of an instance that it was a problem.

Finesse

Zaxcom has done an outstanding job building a machine that has the familiar features of the Nagra while adding some very nice ones that were impossible in the analog domain. Any negative criticism from me would have to be put in what I'll call "the finesse department", as is typical in any newly developed product, but worth mentioning.

The standard four pin XLR was already mentioned as being preferred over the 4 pin Lemo connector for power and charging. Along the same lines, since time code will be used every production day of this machine's life, I think time code deserves to have a dedicated connector instead of only being available on the RS422 "D" connector. The 5 pin Lemo has been long established as the time code I/O standard with field recorders and film cameras and is certainly small enough to fit somewhere on the Deva.

The edges of the Deva chassis offer protection to the connectors and controls, but are subject to damage themselves, so some sort of protective edging is called for here.

Mic level signals are connected to panel mounted XLR's, but line level inputs can only be made through a D connector shared by the analog outs. Instead, I would rather have the XLR inputs switchable mic or line level to eliminate at least one need for a D connector adapter and to clean up some of the spaghetti when mixing mic and line signals.

The input level controls do not have an infinity position (total mute) as the "(" labeling suggests, but instead only reduce the input signal by 57dB in their full counter clockwise position. This could be a big problem when an external mixer is not being used. For example, a slate mic could not be left plugged in to the recorder and opened only when needed unless it had a dedicated track on the hard drive. The small input knobs turn as smoothly as a P&G vertical fader; too smooth for this recorder because of the chance of accidental adjustment. This recorder has so much potential in documentary production that a little more friction on these controls would go a long way.

Summary

Well, let's add it all up. The **Deva** is a very small battery powered four channel 24 bit recorder with record times of up to 8 hours, built in mixer, very good mic pre's, 20dB of headroom, time code proficient, pull-up pull-down capable, records simultaneous backups, records 10 seconds before you push the button, impervious to motion, RS422 controllable for post production, and easy to use. That's not all, but that should be enough. The wait may indeed be over. — *Glen Trew*

Audio Media always devotes a portion of their magazine to reviews and articles pertaining to sound for film and television production. Free subscriptions are available to industry professionals, by request, on-line, at: www.audiomedia.com.

The Aspen Power Bag – Revisited

In our last newsletter we gave you a heads up on the **Aspen Electronics Power Bag** which was a new product from Aspen.

At the time we had specs and marketing information which made the Power Bag seem like a "What took you so long" product. Well, now that we have the product in hand and field tested, it seems that we were right on target. Although the 24 volt aspect of the Power bag has not materialized, this product is a wonderful thing for you guys that use NP-1 batteries and end up lugging around an additional large amp hr battery to cover your cart setups or some remote situation.

The **Power Bag** delivers 13.2 volts continuously with just under 19-Amp hrs. capacity when fully loaded with 5 Aspen NHP50 Nickel Metal Hydride batteries. For you guys that feel like your hauling someone's barbells around on every shoot, the weight of the Power Bag fully loaded is just over 11 lbs. One nice thing about the Power Bag is that you can go back and forth from single NP-1's to bulk power in seconds. The Power Bag does not have to be fully loaded. If you need a single battery, just pull it from the bag. The Power Bag just keeps right on track with no interruption.



True to doing things right, Aspen Electronics' construction on the Power Bag is excellent. This is not just a nylon bag with some NP-1 cups at the bottom. The bag is constructed out of tightly woven Cordura Nylon sewn around a metal framework which provides the stability for your NP-1 power slots. These slots run the entire length of the bag, providing rigid, secure mounting for solid electrical contact. A locking spring is also provided at the top. Output connections are made via two traditional 4 pin XLR connectors. These are mounted on a rigid, black anodized plate on the right side of the bag. There is nothing floppy about this

bag! An option available with the Power Bag is a heating element which keeps the batteries at optimum operating temperature for those cold weather shoots. This operates via (1) dedicated NP-1 slot which will power the thermal control for up to 8 hrs.

Aspen has been supplying the Power Bag with the thermal option to **The Ididarod** and the performance has been outstanding.

(The Ididarod is a sled race that starts in Anchorage and ends in Nome, Alaska. Funny thing is, there is a section which is too rough to cross, so the race stops. Everyone is transported to a small town by the name of Wasilla and the race starts again. Hey! We try to keep this educational. Mush!) — John Algee, Sales Dept.



Countryman's Tiny B6 Lav Mic

The latest entry in the already crowded field of lavalier microphones is the **Countryman B6**. With a diameter of approximately one tenth of an inch



(2.5 mm), it is the smallest microphone available. If you're mathematically challenged, by comparison the head of the microphone with the protective cap installed is only slightly larger than the cable of a TRAM TR-50. Although this is a microphone designed with concealment in mind, I feel that Countryman is somewhat misleading in their statement that you can "choose a protective cap near the color of a shirt and poke the B6 out through a button hole". The protective caps come in black, white, gray, light skin tone, and cocoa. As long as the shirt in question is one of those "colors" the B6 will blend in easily, however if the wardrobe leans toward some wacky color like red or blue it won't conceal quite as easily. In all fairness to Countryman, the B6 is so small that it wouldn't be noticed in a shot wide

enough to require RF microphones instead of a boom. As the microphone gains in popularity, perhaps more wardrobe friendly colors will become available.

The protective cap not only keeps sweat and make up out of the element but is also used to alter the frequency response of the microphone. With the Flat cap, the frequency response curve is +/-3db from 30 Hz to 20 kHz. There is a slight low frequency roll off starting at approximately 60 Hz. The element is so small, I was surprised at the fullness of the lows. One complaint I've heard from the field is that the low frequency response makes the microphone overly susceptible to wind noise and breath pops, especially when used exposed. The first time I listened with the Flat cap, I thought the B6 was a little dull or lifeless, but that was because I'm accustomed to the 5 or 6 kHz peak of the TRAM, the Sanken COS-11, and the Sonotrim.

The Bright cap has a +4db peak at 15 kHz. The curve starts at approximately 3 kHz. In a side by side comparison with the Sanken COS-11, the two microphones are comparable. The Very Bright cap is has a +8db peak at 15 kHz and starts its stratospheric climb at approximately 1.5 kHz. This response curve was entirely too "crisp" for my taste, although it may have some usefulness buried beneath heavy clothing. The caps are small, less than one eighth of an inch in length, and when dropped are not easily found. I recommend putting some kind of small tray in your sound kit and ALWAYS work over the tray when changing caps. A few spare caps would be advisable, too. In my opinion, the Countryman B6 is an excellent microphone system with very few sonic limitations. A microphone designed to be concealed should come with a few more color options, but that is probably just wishful thinking. With the exception of windscreens, most lavalier microphones are only available in basic colors. My biggest concerns are the fragility of the cable and the noise when concealed under clothing. Fortunately, the B6 is so small that in many situations it can be exposed but not noticeable.

Give the **Countryman B6** a serious listen. While this may not be the right microphone in all lavalier situations, it is a good "tool" to add to your sound package. For some problems, the B6 will be the perfect solution. — *Terry Hillman, Sales Dept.*

Rental Dept. Gets Frequency Agile With 205Ds

You may have been itching to try out the new **Lectrosonics 205D Systems**.

Well, now you can. We have just added them to our rental stock. These systems are especially useful for multiple locations. For those of you not familiar with them, the 205D systems are frequency-agile. Inside a little door (made by wee people) are a couple of dials. Using a small flathead screwdriver and the accompanying chart, you can set the microphones to transmit and receive on any of the 256 possible frequencies. That should give you some options, even in New York City. Our systems are also in the UHF range from 614.400 MHz - 639.900 MHz (otherwise known as block 24).

In addition to the flexibility this gives you on a shoot with unexpected RF, you also get the benefits of a diversity system. This allows the receiver to choose between two antennas for the strongest signal, thus greatly reducing the number of dropouts. You can also request a couple of dipole antennas that can be mounted on microphone stands or just about anywhere with the adapter kit. These are included at no charge when you rent our systems. If you are one of those radioheads that will be using 4 or more systems at once, we also offer a multicoupler. This device allows you to mount 4 systems into a carrying case, combine the signals from all 4 receivers, and connect only two antennas instead of 8. It also has a 4-pin DC connector for your battery packs.

Rental includes a Tram TR-50 lavalier microphone with clips and assorted accessories, a transmitter (either bodypack or plug-on), a receiver with an NP-1 adapter clip for power, and a lovely faux leather case in any color you want (as long as it is black). We also include the manual and a frequency chart, so you aren't in the dark when you have to make last minute adjustments.

Of course, we will still be offering the 195 non-agile, non-diversity systems in our rental department and are still more than happy to coordinate these frequencies for you in whatever city (or lack thereof) that you may find yourself.

— Matt Hamilton, Rental Manager

Genex Mixing with Bela Fleck

As you may or may not have noticed, we rent more than just location sound equipment. We also have the unparalleled CEDAR Series X Systems, and the venerable **Genex GX8000 MO Recorders** to name a few. Recently, we rented the Genex to **Seventeen Grand Recording** located here in Nashville, Tennessee.

The project? **Bela Fleck's** critically acclaimed album, *The Bluegrass Sessions: Tales From The Acoustic Planet, Volume 2*. Bela wanted to remix the album in surround sound. The idea was to give the sensation of actually being at the center of a bluegrass jam, just like one of the players. The Genex proved to be the ideal machine for the project.

Jake Niceley, studio co-owner, engineered the surround mix. It was recorded and mixed at 24-bits for release in the DVD-Audio format. When asked why he chose the Genex, Niceley explained, "I had experience with the Genex. I haven't really used the some of the other systems. Really, the Genex was the best choice for 8 tracks of 24-bit audio. We also needed a portable medium to take the mix to mastering. The MO disc was ideal. By renting the Genex, we had the advantage of using the machine without a large expenditure up front. We could use a newer format without committing to buying a new machine."

Once the mix was finished, it was taken to **Mastermix** for completion. Studio owner, Hank Williams, contacted Trew Audio, Inc., at this stage. Once again, our Genex was used in the final stages of the recording process to allow playback of the surround sound format.

Speaking of format, **the magneto-optical disc** is a relative newcomer to the long line of audio storage media. The discs come in three sizes: 1.3 Gig, 2.6 Gig, and 5.2 Gig. They are two-sided (hmm . . . now where have we seen that before?), and will hold 30 minutes of 8 tracks at 44.1 kHz/16 bits *per side*. This concept of two-sidedness has freaked-out more than one person already.

The medium is very robust. A laser basically heats an alloy on the disc. Then, as the disc is recording, a magnetic field is applied which polarizes this alloy. Now here's the cool part, once the writing is finished, the alloy cools back down. The thing is, it won't respond to a magnetic field once it cools off. Hot = Writeable (influenced by magnetic field). Cold = Unwriteable (*not* influenced by magnetic field). Even during playback, the disc does not heat up enough to be a problem. The writing laser is a higher intensity than the reading laser. One produces more heat than the other. So, theoretically, you could record an hour's worth of music on 8 tracks, then take the media out of the drive, and lay it directly on top of your 250 Watt subwoofer. (Although I wouldn't recommend this if you are a second engineer. Producers and first engineers aren't too keen on Mr. Wizard experiments, and would probably fail to see the blinding insight you were trying to convey to them. Don't give them my number, either). Since the MO disc is not in a magnetizeable (is that a word?) state, it won't be affected. If you've ever received a DAT or reel of tape only to find that the courier has set it on top of the new monitors you just purchased, I'm sure you can see the value in a storage medium that is not subject to the winds of chance. (Why is it that speaker cabinets seem to scream, "Set things on top of me, especially that master you just finished!?")

If you would like to rent the Genex for your next session or just have some questions about it, feel free to give me a call or email me. I also have a handy little book by HHB that I can send to you free of charge. It goes into a little more detail about the technology in addition to a pretty exhaustive survey of all digital formats. It's a good little reference. We also carry the MO discs.

We currently have Genex GX8000's in rental. However, we will soon be upgrading them to the new Genex GX8500 model. Among the new features will be the ability to record in the DSD (Direct Stream Digital) format, and the ability to use sampling rates up to 192 kHz.

— Matt Hamilton



The Case of the Missing Sounds

It is a pleasant evening. You have just arrived in Nashville, gotten off the plane, and are collecting luggage. There are a million things running through your mind. You have a shoot tomorrow covering the Nashville Titans at their new football stadium. Their fans are fanatical, almost zealous in their following. As you daydream, you can picture the crowd, the excitement, and the sun on the field. You come out of your reverie of a perfect shoot, only to realize that there is a case missing from your stack of baggage. You think, "I must have just missed one on the belt. I'll wait for it to go around again." As the baggage claim belt continues to circulate in front of you, a sense of dread begins to set in. You count your cases, for the third time. Ah, hell! Where's the microphone? Where's the slate!?! Suddenly, you see yourself being burned in effigy and dragged through the streets of Nashville. You see . . . you work for NFL Films. You'll be covering the game for not only Nashville, but the rest of the country as well. What will you do?

That's where I come in. The name's Hamilton. Matt Hamilton. Rental Manager at Trew Audio, Inc. It was a morning like any other morning. A haze of late night coffee drinking had left its toll on me. As I stared at my haggard face in the yellowing mirror, I felt the sun creeping in through the blinds, subtle as a double espresso, threatening to start up a new series of headaches for the day. Resigning myself to a slow day of boredom, I heard a buzzing like a large insect on the edge of my consciousness. It could only mean one thing. I was getting a page and had left my pager in silent mode. I grabbed its black bug-like body as it skittered across my desk, and read the number. It didn't ring a bell, but then, my bells were a little muffled this morning. I dialed.

"This is Matt. What can I do for you?"

"This is NFL Films. We need your help. We need a 416 shotgun mike with a zeppelin, suspension and windjammer as soon as possible. Can you help us?"

I looked at my watch. It was 9 a.m. "I can have it to you in an hour."

"Okay, the drop off will be at the Nashville Stadium."

"It's a big place. How will I know you?"

"Just find the stadium. You do know how to find a stadium don't you? Just put your kit together and blow on over."

"Okay, I'm on my way."

As I hung up the phone, my mind ran through all the scenarios. I wasn't a big football fan, and had never been to the stadium. But, you can't miss a stadium. They were throwing out a line, and I had bit. I threw on my Trew Audio T-shirt, ran a brush through the mess of hair on my head, made a different mess of it, and headed for the car.

As I pulled up at Trew Audio, I felt a vibration on my leg like a jolt of electricity. It was my pager again. I checked the number. Still no bells. I let myself in and fired up the computer. As it came to life, I put a call in to the Unknown.



"This is Matt. You paged me."

"This is NFL Films."

"Yes, I'm at the office now. I . . ."

"Good. Listen. We need a Denecke Smart Slate."

"Wireless or jam sync?"

"Wireless. Oh, and we'll need . . ."

"A zeppelin, windjammer, and suspension for the mike?"

". . . yeah, that's right."

"I'll include a 48 volt phantom supply and 25 feet of cable, too. You never know when it might come in handy. Now, about this drop-off. How will I get in without a pass?"

"We've arranged all that. There will be a pass for you at the Will Call window."

With that, we hung up, and I started generating paperwork, and gathering equipment. As I was packing the gear, I threw in some 9 volts and a few AA's for them. It's better to be safe than sorry, and after the day they'd been having, I didn't want to be the one to make them sorry. Besides, they could just return the batteries unopened and be none the worse for it. Now comes the part I wasn't looking forward to. The drive through the pre-game crowd.



I hit the Interstate. After a few exits, ramps and near collisions, I saw the stadium through the haze that hung like tension in the air. I turned off the radio. The noise was only making me more aware of my jittery nerves and the thick film on my tongue. Missing my morning cup of Joe was a mistake I wouldn't make a second time.

In the sea of metal and exhaust fumes, a traffic cop stood waist deep. She was a siren to me. I pulled up to the intersection, and leaned out the window.

"Where's the Will Call window?"

“Where’s the Will Call window?”

“I don’t know. Drive up to the next entrance. They’ll know.”

My mermaid had led me deeper into the ocean. I followed the line of cars. Next cop, same story. No one knew where the Will Call was. I decided to take a more aggressive approach, this time with the parking attendant blocking my way. I pulled up anyway.

“I’m with Trew Audio, where’s NFL Films? I have a delivery.”

“Do you have a pass?”

“No. They told me to meet them. I have audio equipment.”

“Well, you might try over at the Media Lot. Gate othis road and you’ll find it.”

I had finally asked the right questions to the right people. Leaving behind the suspicious stare of the attendant, I continued to circle the stadium. I began to feel like the first cosmonaut, floating slowly around the planet, except for the occasional blast of an air horn and the smell of barbecue roasting in the hot sun. I flicked on the AC. As the numbers on the gates were counting down, I knew I was nearing my destination. I came to a road block. This was stadium security. They didn’t mess around. This time, he asked the questions.

“Do you have a pass?”

“No.”

“You need one to enter this area.”

“I’m with Trew Audio, we have a drop off for NFL Films. They didn’t give me a pass.”

“They should have given you a pass.”

“Yeah, they were in a hurry.” I guess he thought I had an honest face, or didn’t want to hear anymore of my sob story. After a few suspicious glances, he motioned me on.

“Go down this ramp. I’ll give you 15 minutes.”

I knew when to shut-up and drive. I nodded agreement and proceeded into the depths of the underground passageways of the stadium. I found an empty space near the CBS Sports truck. Success seemed only moments away. That was my first mistake.

After roaming around like a lost dog among the CBS Sports crew, I realized I was barking up the wrong tree. I walked to the Security Offices. I opened the door and stepped into Frenzy Central. Among the chatter of radio frequencies and strategic plans that looked like atomic theory, I found a man with a radio plugged into his head jotting down quick notes. He was looking at something on the other side of the wall that no one else but him could see. He was an alright guy. Through halting sentences, interrupted by the bursts of information entering his head through the wire, I found out that Security didn’t know where NFL Films had set up. This case was shaping up to be more than I’d bargained for. I started to get a bad feeling that my mystery caller had disappeared like so much promised audio vaporware. He was kind enough to put a request into the radio for someone to look for the NFL Films crew. I thanked him and headed back for the CBS truck.

At the truck, I was a broken record that couldn’t stop

playing. I sang my sad song one more time for a different set of ears. Just then, a big, bear of a man stepped forward.

“We’ll get this straightened out. Come with me.” He was a tall man with a confident stride, good-humored, and talkative. “You’ll be okay. You’re with The Coach, now. We’ll get you where you need to go.”

I hadn’t recognized him, but got the feeling I was playing with the big boys, now. As we walked down the corridor leading to the field, I noticed the NFL ring on his hand. Police officers, football players, security guards, and even sportscasters parted for us like I was following Moses. After the day’s events, I felt like I was following Moses with a ring instead of a staff.

We stepped out on the field, teaming with camera crews, sound guys, and a few confused mugs like me. Finally, my companion spotted the NFL Films logo and I was shaking hands with the sound guy.

“Okay, you’ll be alright now. You just call on The Coach if you need anything else. Just let me know.”

With that I shook his hand and turned to the sound guy. I gave him the equipment and had him sign for it. Sure it was company policy, but I wanted to know the name of the mystery caller. He thanked me, and I realized that he wasn’t the same guy from the phone call. The voice was all wrong. Not being one to question, and too tired from circumnavigating the stadium, I weaved my way back to the car. My 15 minutes were definitely up. I hoped I wouldn’t be bumming a ride home.

Still, the worst was over. I had told the sound guy to get the equipment back to us by FedEx or courier or whatever means was possible. He had seemed agreeable enough. As I swung back by the CBS truck, I decided to thank The Coach one last time for his help. He told me it was no problem and to let him know if there was ever anything else he could do for me. I eyed Craft Services.

“A cup of coffee would be nice.”

— Matt Hamilton, Rental Manager.



(Matt, who sometimes is known to take flights of fancy after one too many cups of coffee, wants you to know that the actual details of the story are correct, while the film noir aspects of the day are somewhat embellished.)

changes and new setups very fast. Mounted in the cart was two Fostex PD-4 time code DAT recorders, four Lectrosonics UCR-205 diversity wireless receivers housed in a single rack-space unit, a drawer for the transmitters and lav mics, a Cooper CS-106 mixer, and because this movie had 13 scenes requiring sync music playback: a 250W amplifier. The ability was needed to record and playback simultaneously because most of the playback occurred in the middle of dialog scenes, thus, the second Fostex PD-4. Being relatively lightweight even when loaded (the cart, not me), my boom operator and I could manage the cart up and down flights of stairs by ourselves. Both Fostex PD-4's worked without a single glitch. The more I use them, the more impressed I become.

To make a living as a freelance sound mixer working in the small film and television market of Nashville, Tennessee, I've had to work on every type of production there is: Commercials, Sports, Features Films, News, Music Variety Shows, Documentaries, Music Videos, Sitcoms, Soap Operas, Corporate... you name it and in the last 25 years I've done a lot of it. I share this fact only to give credibility to my opening statement: The TV Movie, often referred to as "M.O.W." (Movie of the Week) is the toughest and most professionally frustrating challenge a sound mixer can take on. I've always loved a challenge.

TV Movies generally have much lower budgets than feature films, but still need to fill about the same two-hour time slot. For the most part, producers and production managers accomplish this miracle by cutting back on things like expensive sets, elaborate stunts, special effects, the number of shooting days, etc., but the main way the budget is cut in the Sound Department is by eliminating the third position, the cable person. So, not only are you given more to do in a day's time, you also have fewer people to do it. This translates to a very fast production pace for the sound crew: few rehearsals, little or no time for adjustments, a lot of printing the first take then moving immediately to the next setup which is sometimes miles away.

To add to the adversity, money is also saved by using real locations instead of fabricated sets. In a recent TV movie the script called for the interior of a dilapidated abandoned shack overgrown by brush and woods, which is exactly what the Locations Department found, realistic right down to the snakes and Brown Recluse spiders.

This past July, I was the sound mixer on such a movie produced for The Lifetime Channel entitled "**Blue Valley Songbird**", starring Dolly Parton. With a lot of playback, lots of exteriors in the middle of a killer Tennessee summer, and a skeleton crew, I knew it would be a hard one. In fact, I might not have been up for it if I hadn't worked with Dolly many times before (always a good experience), and this script called for Dolly to be in almost every scene. If you have a chance to work with Dolly Parton, take it. She's a joy to work with, and her down to earth demeanor that inspires and allows everyone to do their best work adds more to the movie than just her presence on the screen. If that's not enough, her homemade chicken 'n dumplings that she served to the crew makes it all worthwhile.

Anyway, knowing what I was up against, here's how I tried to give it my best shot:

Equipment Package: Built for Speed

My cart is fairly unique in that it is a self contained, fully enclosed case with a fold down desk for keeping sound reports (and a paperback novel). All of the normally used equipment stays mounted and hooked up, ready to go, all ins and outs wired to a patch bay terminating to a rear mounted access panel making signal routing quick and neat. To secure the entire rig, all that's needed is to latch the front door, making location

For boom mics, I relied on the Sennheiser MKH-60 for most exterior scenes and the Schoeps MK-41 hypercardioid for most interiors, which, as always, was very sweet. One location in particular had very low ceilings so the Schoeps GVC swivel, which transforms the microphone in extreme "low profile mode", was indispensable.

The frequency agile Lectrosonics UCR-205 diversity wireless system's performance was very impressive. For the first time in my career, I became totally unconcerned about wireless dropouts within 300 feet. In fact, they worked so well and sounded so good we often used them for wireless boom mic rigs even when running a cable was possible but less convenient. The Lectrosonics folding dipole antennas mounted easily to my cart where they stayed for the entire three-week shoot.

Good communication with the boom operator is crucial, especially during a TV movie when a busted take can cause an embarrassing tantrum from the AD department. My boom cable system, by Remote Audio Products (www.remoteaudio.com), incorporates a talkback system that allows private 2-way communication between the boom operator and the mixer. Using this system, I was not only able to talk to the boom operator even while recording, letting him know when he's dangerously close to the frame, but he can also talk to me through his talkback mic without everyone else on headphones listening in.

Good For Sound! Who Cares?

The tight budget and time constraints challenged everyone on the cast and crew, led by director Ron Colla and his first assistant Jerram Swartz, who did an outstanding job bringing a printed script to life, converting it into a human story that could be seen, heard, and felt. Also, my hat's off to producer Freyda Rothstein who was always present with us no matter how tough the locations were.

But, the center stage of film production is so dominated by visual considerations that the sound department is kind of a mystery to everyone else on the set. Maybe it's because only the sound mixer and the boom operator actually hear what is being recorded, while most visual aspects are obvious to everyone on a movie set. Whatever the reason, the problem for the sound department is that, while an incredible amount of time can be patiently spent fine tuning lights, rehearsing focus pulls, working out dolly moves, etc, even the smallest delay for sound

adjustments can cause immense irritation and hysteria on any movie set. On a TV Movie, Oh man!

A perfect example during this movie involved a technically challenging but worthwhile audio feat for a music playback scene in an old country church:

It was 98 degrees F with a heat index of 115 F. Choosing the snakes and poison ivy over the Brown Recluse spiders, I was set up outside, and by now, knee deep in grenade pins. The scene called for a gospel quintet featuring a soloist who sang with a free style that was very difficult to lip-sync accurately. In discussing this with the director and the music supervisor, I recommended shooting the soloist's close-up first, recording her live on channel 1 with the rest of the quintet miming and re-record the playback track for reference onto channel 2. We would then make a copy of the keeper take for playback during the wide shot when lip-sync would not be so critical, mixing in channel 2 for the rest of the quintet. This was very tricky during the close-up because the soloist had to hear the track to maintain tempo and pitch, but her voice on the original playback track could not be allowed to bleed onto the new recording. I love this game.

The take began normally, with "ROLL SOUND!" (speed), "CAMERA!" (speed), "SLATE" (whack), then "PLAYBACK!". The count-off on the playback track had to be at full volume, but just after enough playback had been heard to establish pitch, I pulled the volume way back and switched in the EQ preset with all of the highs and mids rolled off. This created a makeshift "thumper" (low frequency only) that would not interfere with the voice range of the soloist's new track. She sang beautifully, and using the Schoeps wide cardioid element in the roomy wooden church was so sweet that if the heat index had dropped down to a mere 112 degrees I would have gotten chills.

The plan worked. After performing the sound mixer's equivalent of "Flight of the Bumblebee" on a trombone, we now had a very nice new lead vocal track, in perfect sync with the close-up shot and in perfect sync with the original studio multitrack for remixing. Do you think anyone noticed? Nope.

All there was to do next was make a copy of the keeper take to playback during the wide shot. It was hot and late, and the director wanted to shoot. Now. The first AD asked just how long it would take to make the playback copy. The song was just under three minutes long, so, duh, it would take about three minutes to make. After explaining this to the Director and the AD, one would think from their reactions that I had announced a ten-minute ice cream break for the sound department. The idea of waiting all of three minutes for the sound department to make the movie better was just about more than they could endure.

The event that immediately followed proves the point of this story. With the nice, new playback track now ready and loaded into the second PD-4, here we go: "ROLL SOUND!" (speed), "CAMERA!" (?)"CAMERA!!!!" (?). This command was immediately followed by something in the camera that sounded like an old bicycle with baseball cards flapping in the spokes. "CUT!". The 1st AD then cheerfully announces: "OK

everybody, that'll be about a ten minute break while we fix the camera! Let's all go outside and get some ice cream!" I love this business.

Every sound mixer I know is an artist at heart and is as genuinely concerned about the quality of their work as everyone else on the crew. Because what we do is sort of mysterious to the rest of the production, the obvious bares reminding: Getting good sound tracks, just like getting precise focus pulls, dolly moves, etc., takes rehearsals, adjustments, and (tick...tick...tick...tick...) time. — *Glen Trew*



*With Dolly
Every Shot's a "Dolly"Shot!*



*When you're getting ready to take a trip,
don't forget to take along your sound mixer!*

PortaDAT Stock Reduction SALE!

To reduce stock for the new year, we are pricing a Limited Supply of the **HHB Timecode PortaDAT**.

This is *not* "B" stock, demo stock, or display stock, but brand new, never-been-out-of-the-box, **PDR-1000TC/MS** inventory for immediate sale.



PortaDAT Sale Price Includes:

- "Master Sync" super-accurate clock option
- Selectable Headphone Monitor Matrix
- Battery
- 5-pin Lemo Timecode Connection
- 2-Bay Charger
- Carry case

Price: \$5,600

Additional batteries and accessories are available.

New from the Shop at Trew Audio!

HN-7506 & HN-7506-M High-Noise-Environment Headset Monitor

Sound mixers often find themselves in very high-noise environments such as helicopters, raceways, firing ranges, rock concerts, etc., left with ringing ears and wondering what was actually being recorded.

Providing extreme isolation from outside noise and using Sony MDR-7506 drivers with special baffling, the **Trew Audio HN-7506** allows accurate, full-range monitoring in loud environments and adds a high degree of protection from hearing damage while giving the user the familiar sound of the industry standard Sony headphones.

The special "M" version has a noise canceling boom mic allowing intelligible slate information or comments even in relatively close proximity to jet noise, gun fire, or a Van Halen solo.

According to **Jay Patterson, of ABC News** in Washington, "...they're indispensable around the jet noise of Air Force One and Marine One but I have been using the HN-7506 exclusively, even in quiet environments. By eliminating the outside noise I find myself monitoring at lower levels and being able to quickly identify problem noises." ENG sound veteran **Jay Patterson, of ABC News** in Washington, is shown above appreciating his Trew Audio HN-7506 headphones at Washington National.



"They're indispensable around the jet noise of Air Force One."

AUDIO TECHNICA Introduces the U100 Series



Recently, Audio Technica sensed a need in the world of wireless for a

compact, cost effective multi frequency diversity system and seems to have filled it admirably with the release of its U100 series.

This is a compact UHF frequency agile diversity wireless system that also gives you the option of a plug on transmitter for handheld mics. There are 100 selectable frequencies operating over 3 broadcast channels with true diversity antenna operation. The selectable frequencies are fast becoming a necessity with the addition of digital channels creating crowded RF environments.

The receiver Features Helical filters, balanced output with level controls, BNC mounted antennas, headphone jack, and operates on (2) 9 volt batteries or external 12-volt DC. To show you that these guys were thinking, the transmitter input connector is a TA5F (mini XLR). You can wire all of your favorite microphones for this system or you may already have lavs wired with

this popular connector. Battery power on the transmitter is 8-10 hrs. The U100 series is perfect for skinny budgets and those of you who want to back up what you already have with a similarly configured system at low cost. Pricing for the system with receiver and bodypack lists at \$1049.00. Please call Trew Audio for SPECIAL PRICING.

LECTROSONICS Releases New Agile Wireless! (No, it's NOT the 210)

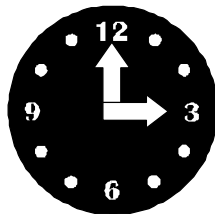


Lectrosonics has just released a new version of its frequency agile technology. The UCR 100 is a frequency agile system targeted for the DV camcorder world. It has 256-frequency capability over the same blocks as the broadcast UCR205 version. This is a single antenna system with the antenna being fixed on both the receiver and transmitter. Both run on (1) 9-volt battery each with a 30-minute warning on battery life on the transmitter.

There are a couple of major differences, as you would expect between this and the broadcast version. The size of the receiver is significantly smaller. In fact except for being about a 1/2" longer, the width and thickness of the casing is the same as the transmitter. An external power connector for the receiver is not provided. This is consistent with the intended use of this system for the DV camcorder but Lectrosonic's battery eliminator for the bodypack will fit into the battery compartment and provide power. An access hole for a power cable must be drilled through the battery door. This may sound like a trauma situation but it is actually quite simple and works very well. The audio output on the receiver is a line level unbalanced 1/8" mini connector. This can work with mic input levels as well by the addition of an adapter cable. The transmitter size is typical Lectrosonics body pack dimensions: very compact and lightweight, which of course is what you would prefer for the lighter weight and compact cameras. Input on the transmitter is connected via a TA5F (mini XLR) connector. Lectrosonics initially thought that they would make this connector an 1/8" mini but thankfully had better second thoughts. This connector is rugged, secure, inexpensive to replace, and by far the most common connector in use for lavalier microphones. An adjustable low cut filter is provided on the transmitter that provides help from 35Hz to 150Hz.

While not a replacement for the broadcast quality systems that Lectrosonics is famous for, this system may find wide use outside of the DV-Cam arena where digital is crowding us all and economy is the word of the day.

A-OK?, Y2K? — TREW AUDIO's TOP 10 MILLENIUM AUDIO RUMORS



- #10 At midnight December 31st PD4s revert back to analog.
- #9 SMPTE Drop-frame Time-code drops entire 20th century.
- #8 Sony's 1-bit technology stuck using only zeroes.
- #7 Goodbye Start, Rewind, Fast Forward.
- #6 *Hello, Pause.*
- #5 New Y2K Microphone. Records stuff that happened 100 years ago.
- #4 Everything Reverses Phase. But *nobody notices.*
- #3 Production delays abound cause stuff just won't work right. Lots of **Overtime!**
- #2 Problem is Payroll Dept. can't add anymore.
- #1 Sound waves stop working, too, leaving *nothing* to record...

TREW AUDIO

800.241.8994

615.256.3542

www.trewaudio.com

Fabrication & Shop Q&A



Q. Andrew, what is the heck is *Quad cable*?

A. *Quad* or *Star Quad* cable differs from standard audio cable in that it uses four conductors that, when properly terminated, provide greater rejection of electromagnetic noise. The four conductors are arranged in a spiral. When opposite conductors are paired, the "loop area" between twists is minimized resulting in

"double balancing" when used in a balanced signal application.

Quad cable can be used for all microphone and line-level

signals. The quad design is effective in reducing induced noise from dimmer packs, florescent lighting ballasts, and AC transformers by as much as 30dB over standard microphone cables.

The only drawback to quad cable is increased capacitance, due to greater spacing between conductors, resulting in high frequency loss. The combination of capacitance plus resistance constitutes a low pass filter. The longer the cable, the lower the cutoff frequency of the filter.

When choosing a type of cable, there are many different specifications to compare. These specs vary greatly among manufacturers and even between the different types of cables in a manufacturer's line. But what is most important is how it sounds. So consider your application and your environment, but ultimately, *trust your ears*.

— Andrew Gower, Shop Manager

10 Great GIFT IDEAS for the SOUND Dept.

Tradition mandates that the mixer show his or her appreciation to their hardworking crew with a gift at the end of the production (*don't neglect yourself, either*). Being aware of the pressure to keep up with other mixers your crew may work with, we offer the following suggestions.

- 1. Headphones.** Probably the most common gift for the boom operator and cable person is a set of Sony MDR-7506 headphones. For the boom operator, consider a set customized by Trew Audio with a miniature talkback microphone.
- 2. Pelican Headlite.** Why is it that the electric department is always the first to wrap; leaving the sound department in the dark to finish up? Show your crew that you feel their pain by giving them a head worn flashlight made by Pelican (of Pelican cases). The Headlite is uniquely waterproof and focuses a super bright beam wherever it's needed.
- 3. Pelican Mini Light.** Everyone on in the sound department needs a flashlight in their pocket, and our new favorite is also made by Pelican. Waterproof and very lightweight, its xenon bulb shines a light so bright it defies the size of its two AAA batteries. The plastic housing is also easy on the teeth.
- 4. Pelican Case.** A way to carry and store personal items on a shoot is a must for things such as sunblock, sunglasses, raingear, camera, extra socks, paperback novel, the Trew Audio newsletter, etc. Pelican offers a variety of small sized, rugged, waterproof cases that are perfect for this use.
- 5. Portabrace Production Case.** If a soft case is preferred, Portabrace makes a variety of the best carry cases and belt packs. For a sound department gift, we recommend the TC-T (Tool kit case for hand tools, connectors, adaptors, etc.), SK-1 (Belt pouch includes Leatherman, Maglite, & Sharpie), or BP-2 (Waist belt w/2 general purpose pockets for tape, batteries, glasses, sun-screen, etc.)
- 6. Wolf Seeberg's handbook.** This up-to-date manual covers every aspect of every audio related synchronous recorder and accessory that you could encounter.
- 7. Choose a book from our Book-nook.** Order an audio related book from the Trew Audio Online amazon.com "Book Nook" (www.trewaudio.com/booknook.htm).
- 8. Trew Audio T-shirt.** Think you're alone in the small world of location sound? Try wearing a Trew Audio T-shirt in an airport and see how many audio pros introduce themselves.
- 9. Trew Audio Boom Cable System with Talkback.** The best gift for your boom operator that you'll ever keep for yourself. Just let your crew use it and they'll love you just the same (guaranteed).
- 10. Deva-II four channel digital recorder and Cameo digital mixer.** OK, you might want to keep these for yourself too, but what a gift they are!

Parts for the Nagra IS Recorder

Trew Audio has acquired a large inventory of parts for the **Nagra IS recorder**.

Regardless of what your Nagra IS parts needs may be, we have it all: Lids, latches, handles, carry cases, complete motor & drive assemblies, circuit boards, labels, meters, etc.; EVERYTHING, right down to the knobs, springs, and screws! These parts are *factory new*, but are offered at greatly reduced prices. Just call, FAX, or email for a quote.

If your Nagra IS, IV-L, 4.2, IV-S, or IV-STC is in need of parts or service, Trew Audio's Nagra Authorized Service Center will maintain your recorder in peak performance.

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Everybody Hollerin' Goat

In the summer of 1998, I received a phone call from Dolly Carlisle, a documentary Producer/Director that I had worked with many times before. She was producing a documentary in Como, Mississippi, on Othar Turner, a 90 year old man that plays the fife in a drum and fife band, and she wanted to know if I was interested in recording the sound for her film.

I figured this would be an easy enough assignment: record a few interviews, then set up a couple of microphones to record a couple of old farts tapping on their drums while Othar played his homemade cane fife. I envisioned the musicians in a tight semi-circle like a bluegrass band or maybe in a straight line, gospel quartet style. I packed my trusty Sennheiser 416's for the interview portions of the documentary. I packed a couple of Schoeps and some mic stands for the music. I also packed a few "just in case" microphones.

The first day of production began like most productions: arrive on location at 6 AM, slaughter a couple of goats, and boil the goat meat in a black cauldron over an open fire.

Actually, the goat slaughter was temporarily delayed. A "nanny" goat was accidentally put in the same stall overnight with the "billy" goats. Othar explained that he couldn't slaughter these goats because the meat wouldn't taste right because the goats had their "ambitions up". I understood the concept although I've never heard it described in those terms. Some standby goats were brought in from a nearby farm and "production" resumed.

The interviews were interesting but rather straightforward in technical terms. Interviews with Othar's family members, blues enthusiasts, and a few locals traced the history of traditional drum and fife music as it was melded with African rhythms during the period of slavery in America.

Othar had a makeshift concession stand on his farm where barbecue goat meat sandwiches and beer was for sale. Rumor had it that moonshine could also be purchased if one only knew the right person to ask. Folks started arriving shortly before sundown. They would gather around in small clusters and talk and drink out of paper sacks and laugh a little too loud.

Shortly after dark, the musicians were about ready to play; a snare drum tapping out a rhythm here, another tapping out a different rhythm over there, and a bass drum thumping a beat. Slowly they converged with Othar who was working his way through the crowd of about 200 people. When they began playing together, it was unlike any music I had ever heard before. Similar to traditional drum and fife music, but layered with rhythms of African origin.

This crowd didn't come to sit in rapt attention and relish the opportunity to hear a style of music that has been passed down

in families from the days of slavery, a style of music that only a handful of people in the world still play. Nope. They came to participate. The musicians serpentine through the crowd, sometimes single file, sometimes in tight circles with the crowd gathered in close. There's a lot of hand clapping and cheering. A few men and women were doing what I will politely call "dirty dancing" and I'm sure getting their ambitions up in the process.



Obviously my original plan of using microphones on stands would not function in this situation. I wanted to capture this event in stereo, but didn't have the right equipment to do a M-S with the Schoeps. My Plan B was one of the "just in case" microphones. I used a Sony ECM-MS5 stereo microphone in a pistol grip. DP Dave Gossard, AC Sandy Holmes, gaffer Suzanne Cobb who was holding a couple of battery operated lights, and I all had to choreograph our movements with the dancing crowd.

I tried to stay with the camera to maintain a stereo perspective that would match the shot, but frequently this would be impossible. We were attempting to document the experience and at the same time not interfere with the musicians or the listeners. A microphone on a boom pole would have been difficult, if not impossible under the circumstances. The ECM-MS5 did an excellent job under difficult circumstances, although in a few instances I would have preferred the "reach" of a stereo shotgun like the Sanken CSS-5. Being in close to the drummers, frequently I couldn't hear the signal in my headphones over the ambient level. (A set of Trew Audio HN-7506 headphones would have come in handy.) I could see the needles on my Nagra 4S-TC jumping, so I knew I was recording something!

I was naturally concerned that the ECM-MS5 couldn't handle the high SPL being generated by a couple of snare drums in close proximity, but it didn't distort. It produced a very lifelike spatial image. I was quite pleased with the sound when I recently saw the final edit of the documentary. If you ever have the opportunity to see "Everybody Hollerin' Goat" I know you will enjoy it. There is also a CD available entitled "Everybody Hollerin' Goat" by Othar Turner and the Rising Star Fife and Drum Band that Rolling Stone magazine named as one of the best Rhythm and Blues albums of the decade. It was produced and multi-track recorded on location by bottleneck guitarist Luther Wilkinson at Othar Turner's farm from 1992-1997.

I believe we can all apply Othar Turner's fife philosophy to sound recording, "You makes a fife do what it do. The fife ain't got but two whistles to it, high and low, you gots to catch somethin' yourself. Then know how to know it... You gots to know how to know it." — Terry Hillman



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Welcome to the Discussion Zone!

Trew Audio's website at www.trewaudio.com continues to add new features.

We recently launched **The Discussion Zone** — a place where all of us can hang out and exchange ideas on a variety of interesting topics, from gear likes and dislikes to production tips. We want our web site to be not only a way for us to keep in close touch with all our customers but for it to be a place where our customers can learn *about* and *from* each other. It's easy for you to start a new topic, or browse and add to an existing discussion thread. There is a direct link from our Home Page.

What is your Main Recorder?

Fostex	37%
HHB	30%
Nagra IV	22%
Nagra D	1%
StellaDAT	1%
Other	9%

In that same vein, we have also begun a series of informal **On-line Polls**. The first question sought to find out what mixers were using now as their main recorder. The results showed the Fostex PD-4 edging out the HHB PortaDat. Next, we asked what your favorite Short Shotgun mic was? Your answers? Check it out! As always you can get the latest Consignment info and much more at our web site.

What's your favorite Short Shotgun Mic?

Senn Mkh60	41%
Senn 416	28%
Neu KMR81	18%
Sanken CS-3	4%
Other	9%

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