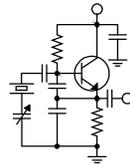


# The Local Oscillator



*The Newsletter of Crawford Broadcasting Company Corporate Engineering*

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## **Translator Window**

As I mentioned last month, we filed one translator application in the Auction 99 window (July 26-August 2). That application was for WRDT(AM), which is the only station we have that was eligible in that window.

While we haven't heard anything official yet, a new engineering study that I ran after the FCC updated the CDBS database with all the 1,000 or so short-form window applications shows that there are no applications that are mutually exclusive (MX) with our application. That makes our application a "singleton," and it should be quickly grantable.

At some point soon, I am told, the FCC will issue a Public Notice containing a list of all the singleton window applications along with instructions of how to file the full application containing all the engineering showings, etc. not contained in the short-form applications. Hopefully that notice will be issued early this month. I have everything ready to upload and file. If the FCC keeps to the schedule it kept in the first two AM translator windows, we can probably expect fairly fast processing and grant. I would love to get the translator built out and on the air before winter.

## **AM Revitalization?**

I have read with interest some of the opinions offered in the trades about FM translators as they pertain to "AM Revitalization." By and large, the industry (and AM licensees in particular) see FM translators for AM stations as a real shot in the arm

for AM stations. They provide stations with a higher-fidelity medium, a 24-hour presence and a means of reaching those listeners, particularly younger ones, who would not otherwise tune to a station on the AM dial.

It's true that translator coverage is often

limited and most times does not come close to replicating the coverage area of the parent AM, but there is still value in adding the low-power FM signal. I recently overheard a station manager telling someone that just having the FM frequency on the letterhead has resulted in airtime buys that probably would not have otherwise happened. There's just something about having an FM presence that appeals to

advertisers.

The other camp says that giving AM stations FM translators is not AM revitalization at all, and in the strictest sense, that is true. Real AM revitalization has to take place in the AM band on AM signals. Adding FM signals to AM stations is nothing more than a stopgap measure that does nothing at all to revitalize AM. In fact, it may have just the opposite effect – AM licensees, particularly those in smaller markets that are well served by the FM translator signal, may well pay very little attention to the AM signal, since their primary listenership is likely tuned in to the FM.

So which is true? Do or do not FM translators really have any revitalizing effect on the parent AM stations? I think they do. Sleepy, dying AM stations in hundreds of small markets all over the U.S. have suddenly become re-energized, with



renewed listenership, sales and revenue. Programming that was lackluster because of falling listenership is itself revitalized, playing to the tastes of the local populace and business community. I have heard this myself in small markets around my home state, and I can only infer that it is also occurring elsewhere. In the sense that adding an FM signal can truly revitalize a dying AM station, AM-on-FM translators are definitely “AM Revitalization.”

On the other hand, if the AM band is to remain (or become) viable for the long term, we’ve got to do some work in that band. There are a number of proposals on the table right now, and I about half expect Chairman Pai to make some kind of announcement in that regard at the Radio Show this month.

We have a signal-to-noise ratio problem in the AM band, and to fix it, we have to either increase the signal or reduce the noise (or both). While I strongly support efforts to reduce manmade noise, my pragmatic nature tells me that the noise train left the station a long time ago and it ain’t coming back. Or to employ another familiar metaphor, the noise camel is all the way in the tent. Getting rid of all those consumer devices that produce AM band hash and replacing all the faulty power line insulators that are arcing or producing corona is not going to happen in the short term. The FCC may take steps to roll back noise producers over the long term, but it can’t happen quickly, and I don’t believe it will happen soon enough to save the AM band.

We can, however, take measures to increase the signal in the short term. I think that we need to view AM stations as purely local and regional outlets and adjust the allocation scheme accordingly. Step one is to recognize that the current daytime protected contour (500 uV/m) is *worthless* in all but the most rural locations, and even out in the hinterland, one CFL bulb or arcing power line insulator can render a

signal with that field strength unlistenable. A more realistic figure is 2 mV/m. If the FCC increased the value of the protected contour to 2 mV/m, many stations could make a 16-fold power increase and provide their listeners with a noise-free signal.

Once again, my practical side tells me that most stations won’t make the upgrade even if they can. It will simply cost too much, both in short-term capital outlay and in long-term operating costs. And if those stations have an FM translator that is really working for them, chances are the owners don’t care that much about the AM signal (or what’s left of it), anyway. Those stations that can afford it, particularly those in medium and large markets, likely will do the upgrade (or some upgrade, anyway), and the sad fact is that their spectrum neighbors that don’t do the upgrade will find their coverage further degraded by the increased interference from those stations that do. The reality is that the upgrade only truly works if *everyone* does it; otherwise, there are winners and losers.

So, that begs the question: should we change the protected contour at all, or should we leave things as they are? That’s a fair question, and I’m quite certain that because the answer is anything but clear is the reason it has taken the FCC so long to act on the remainder of the AM Revitalization proposals.

What does Crawford Broadcasting Company want to see happen here? That is another very good question, and I’m not sure I have the answer other than to say that we will take the best advantage of whatever happens if/when it happens.

In the meantime, we will continue to enjoy our own FM translator signals, watching for any opportunities to improve them and even add more. And we will maintain our AM signals as primary, making them the very best that they can be. I think that would be pretty good advice for any AM broadcaster.

**The New York Minutes**  
By  
**Brian Cunningham, CBRE**  
Chief Engineer, CBC – Western New York

Hello to all from Western New York! I cannot believe how fast this summer has flown by. Here it is the first of September, and I still have outdoor projects yet to be completed! The WDCX-FM studio remodel this spring/summer took so much of my time that I just didn't have enough hours (or energy) to get everything done. I am hoping for a mild fall season, that will allow me some extra time to get my to-do list completed before the snow flies.

This time of year is always especially busy for me, as my wife and I take the first week after Labor Day off for some down time in Gettysburg, PA. This means that I must complete all my inventories for both markets and think about next year's budget requests and needs for our facilities. Once the cap-ex list is compiled, then comes contacting vendors/contractors for pricing, then going over the quotes again to insure that nothing has been omitted and everything is complete.

Next year looks like it will be a light year in the area of repairs/improvements of our facilities. All of our towers are in excellent shape, no painting or tower lighting needed, and the transmitter buildings are likewise in excellent condition. With the station remodeling at WDCX earlier this year, we pretty much included all studio equipment needs in the project, so we are in good shape there also.

The one area that we have concerns about is our STL system in Buffalo. We are still using analog Moseley STL equipment, which defeats the purpose of having an all-digital platform in our studios. Cris and I have discussed our options, and he has given me several things we can pursue to upgrade our STL equipment to handle a digital/IP audio system. We are looking to replace the STL system for both WDCX-FM and our sister AM station, 970 WDCZ, which simulcasts the FM on a full-time basis.

As I mentioned earlier, the week

immediately following Labor Day is the week we set aside for some much-needed R & R. It never fails, each year as the time nears to take this vacation,



something major happens to one of our stations. This year is no exception! At the time of this writing, we are preparing on the replacement of the 200-amp electrical service at the WDCX-FM transmitter site. This problem started in the early morning hours on Saturday, August 26. The remote control called me with a “Generator On” status, meaning we had lost all or a portion of our commercial

electrical service.

Once I arrived at the transmitter site and evaluated the problem, I simply replaced a blown 200-amp fuse, and all seemed well. It was not more than 24 hours later, however, when the problem surfaced again. This time it was a different phase that failed, and again, I replaced the fuse and all seemed well. In less than 48 hours, we again had the same scenario, but this time, both fuses I recently replaced failed!

Knowing that these were good (new) fuses, I looked further into what could have caused the premature failure. When I pulled the fuses, I noticed that the top blades were discolored, indicating that the fuse was getting hot. I removed the protective cover over the fuse blades and found that the slots that hold the fuses were discolored as well on the top (incoming) set of contacts. Using an infrared laser digital thermometer, I found the fuse blades to be 180-240 degrees Fahrenheit! We had replaced this disconnect several years ago after having similar problems. This all started soon after we purchased and installed the Nautel NV-40 transmitter. The total amperage draw of the entire transmitter plant using the Continental transmitter averaged around 100-115 amps per leg, so the 200 amp rated fuses were adequate for the service demand. With the Nautel transmitter running at licensed power, and the Bard

air conditioners running simultaneously, the measured amperage draw is better than 150 amps per leg. Figuring in the inrush current level, I suspect that the amp draw is occasionally exceeding 200 amperes, weakening the fuse each time there is inrush current.

We are looking to increase the size of the disconnect wiring and the fuses to make the circuit more efficient and allow us some headroom. Wire Electric will be replacing the service disconnect shortly, so next month I will report on how this went.

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**The Motown Update**  
by  
**Brian Kerkan, CBTE, CBNT**  
**Chief Engineer, CBC – Detroit**

Greetings once again from the Motor City. September will be a busy month preparing for the launch of our new 50 kW AM. A lot of activities are happening, including the addition to the automation system, STLs, a new transmitter and remote control system, all while finishing up this year's inventory and having our four-tower array painted at WRDT.

I have been preparing for the installation of the Nautel NX50 at the new station, and starting to unravel the past history of the remote control system. Sometimes the easiest way to do things at the time comes back to haunt the person that has to follow you.

After some investigation, I found that the old Potomac remote control system was still in place, and the "new" Burk ARC-16 system was paralleled off of the old Potomac system. There is a remote relay panel that is connected to the Kintronics antenna control system, but it is undocumented. I will have to figure out the functions and trace everything out. I am going back to the original Kintronic schematics to get it sorted out. That is the nice thing about Kintronics -- they have great documentation.

With 10 towers, we have 32 channels of remote control data and control. I have been getting the ARCPlus ready to go. I am making sure the interlocks and lockouts are in place and tested.

We prepared the space for the transmitter, and changed flanges on the antenna switch on the phasor to ready it for installation of the 3-1/8" rigid transmission line.

At the studio, the new Nexgen audio server

has been built and is installed and ready. We are using Wheatstone blades as utility switches to feed the STL. The new STL will be setup as an end-to-end IP link. 11 GHz Trango Apex Lynx microwave radios will be linked to the studio and transmitter via IP bridges.

We will be installing the Wheatstone blades as our end devices in place of codecs. This will provide flexibility with routing and source management. There is also built-in silence sense, allowing for backup source switching that will come in handy. We are going to VLAN the network to keep the audio

prioritized over the STL link.

Power for the microwave system is one of those areas that needs additional attention. We will have to power the dish and bridge on an insulated AM tower that was not lit previously. We plan on installing a Kintronics lighting choke to provide the isolation we need at the tower base. Before and after impedance measurements are very important in order to keep the tower within the allowable values, and to properly document changes. We don't want to do more than we have to on this 10-tower array!

I have been enjoying using my new Alpha loop antenna in the field. It works surprising well, and is convenient for quick setup operations. It was a great find at the Dayton (Xenia) Hamfest. Tuning is sensitive, but once its set I get a perfect match. I have worked overseas with only 5 watts. I enjoy getting out to the lake and working DX. I look forward to providing an update for our new station which will be on the air next month.

Until then, '73 and God bless.



**News from the South**

by

**Stephen Poole, CBRE, AMD  
Chief Engineer, CBC–Alabama**

As I write this, the remnants of Harvey are creeping into our area. We don't anticipate anything remotely like what poor Texas has experienced, but we're as ready as we can be. We've actually had a couple of relatively dry weeks before this.

The fiber line on 101's data link at the Red Mountain end, on WDJC-FM's tower, has been replaced. The first time the tower crew put the new fiber in place, the LC connector popped off on the tower end. Heh. We called the local artisan who'd installed it for us and he made it good. The second time was the charm.

In the Never Ending Story department, 101 remains under a NOTAM. We've had the tower crew try everything except cabinets and paint on that AOL, and it just refuses to sync. I checked the FAA regulations just to confirm, and sure enough: if you have flashing strobes, all of them MUST be in sync, or you have to call in a NOTAM. The manufacturer, TWR, has been very helpful with phone support, but if we need additional parts, there's a small complication. They're in Houston. Heh again. Of course.

If there's any good news, it's that we believe we've finally found the problem. We thought that perhaps the parts that TWR had sent were defective (whence my concern about them being in Houston), but it turns out that the tower crew only replaced the high voltage portion of the "cone" assembly. TWR's instructions weren't clear on that, so we're going to try again. This time, they're going to hump the entire "cone" up to the top of that tower, and I'm pretty sure that will fix it.

850's Exporter (Plus?) is still out of service. I've been wrangling with Nautel over that one. They seem to be confused by the fact that we have a newer CPU card than their records would indicate. I've explained to them that this unit has already been back to Nautel once already, and was upgraded at that time. At any rate, and also as usual, I hope to report success on this next month.

Now, for the great Hollywood Caper ...

**Hollywood For a Day**

I'm no stranger to the Visual Arts (pronounced "ahhhts," of course). I've worked around television and film crews many times over the years. A 30-second television commercial can take several hours to record and movies are much worse. Most people don't realize that movies are not filmed in sequence. To keep the cost down (and more on that in a moment), scenes are shot on location, without regard to where they're going to appear in the final film. They also shoot each scene several times, and then different "clips" are edited together for the final product.

This helps explain why actors and actresses sometimes seem a bit insane, I think. Even leaving aside the spiritual aspects (Hollywood is called "Sin City" for a reason), think about it. They might film a happy "falling in love" scene that morning, then do a desperately depressing funeral scene at lunchtime, and finish up with a big fight scene as the sun is going down. That would have to mess with your head.

But our staff got a chance to see some of this



**Figure 1 - Travolta's home away from home while he's not on set.**



**Figure 2 - The crew wanted an older board with analog meters. We temporarily dropped in an R60 from storage.**

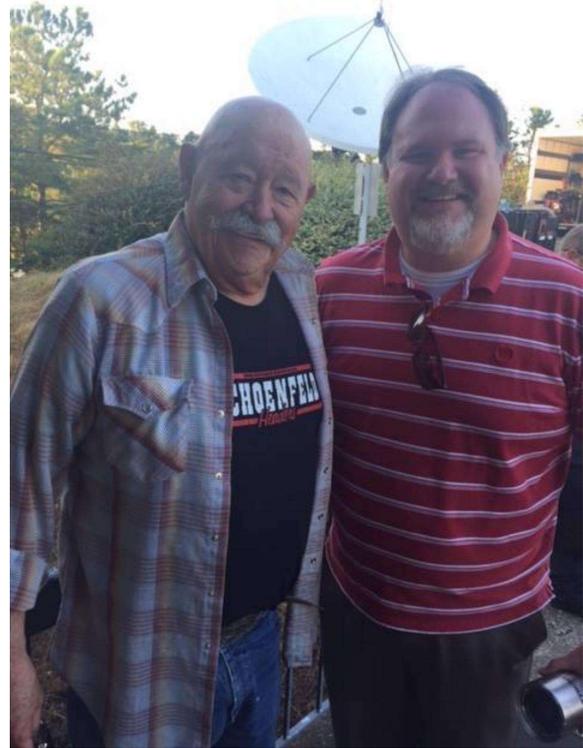
first hand on one Wednesday in July, when the cast and crew of the upcoming film, “Trading Paint,” used our studios for a couple of scenes. The movie stars John Travolta, Shania Twain, Barry Corbin, and of course, Toby Sebastian, who plays Trystane Martel in HBO’s Game Of Thrones. The scenes at our studios were with Travolta and Corbin.



**Figure 3 - John Travolta on one of the director’s monitors.**

Both of them were very friendly. Todd was waiting at the door when Travolta walked in, and he immediately stuck out his hand and said, “Hi, I’m John Travolta.” Barry Corbin, who plays the radio

talk show host who interviews Travolta’s character, had plenty of time to chat. He stood out front, waiting for his call and talked with us for quite some time.



**Figure 4 - Barry Corbin posed for a picture with WDJC’s Justin Brown.**

By the way, I didn’t recognize him. He has aged considerably, bless his heart. But as soon as he started talking, I thought, “Where have I heard that voice?” Then it came to me: the general in the 80s movie War Games, Brenda’s father in the TV series The Closer, and so on. That deep Texas drawl is a defining feature of most of the characters he’s ever played.

Anyway, back to the shoot. Travolta had his own “Star Waggon” (Figure 1) and stayed in it until it was time for his scene. There were also a couple of big rigs filled with equipment and a dozen additional cars. Needless to say, our parking lot was crowded. In fact, one glance at all the people running around confirmed why movies cost so much to make: there were staff, handlers, grips, gophers and you name it. Electricians, sound guys, continue to name it. For one scene.

### The Shoot

The crew felt like the Wheatstone G6 console looked too “modern” for the small-town

radio station called for in the script. I think they were also surprised that there wasn't more equipment with old-style meters. We temporarily swapped in an older R60 board that we had in storage, along with some cassette decks and a DAT machine. See Figure 2. A couple of older Denon CD players and a Shortcut, of all things, completed the look. Our receptionist, Bridget Gardner, played the board operator as an extra.



**Figure 5 - "... and Travolta posed with several of our staff, including Roxanne from WDJC's morning show.**

A stand-in who resembled Travolta was there for most of the setup, which took hours. They used this look-alike to adjust the lights, mikes, and cameras. They don't use the big cameras and "clackers," nowadays, of course; everything is digital. Scene numbers and other identifying information are imbedded in the recording. Todd became fast buddies with the producer, who was glad to show off all of the gadgets he used. Each day's shoot, which can equal hundreds of gigabytes, is

stored in several different places for safe keeping. The files are also uploaded to a secure server elsewhere.

When it was time for the shoot, Travolta came in. Todd and Justin Brown, midday host on WDJC-FM, helped with mic placement so that it would look more realistic. Figure 3 shows Travolta on one of the monitors that the director used while recording. Figure 4 is Justin posing with Barry Corbin. Like I said, I instantly recognized his voice, but couldn't place who he was without the standard cowboy hat that he usually wears.

Naturally, my key concern was that our stations should be able to operate normally while this was going on. They had already filled the parking lot with crew, security, equipment and trucks. About 4 PM, a generator pulled up and the driver found a space large enough to park. I got a little nervous about that one. But the producer said that they were going to shoot one more night scene, one in which Travolta's truck breaks down and must be towed away. They needed the generator to power the lights outside.

Eventually, it was over. While we didn't get an on-air interview with Travolta or Corbin, several of the staff took pictures with them. We got our parking lot and studios back, and by the next day, things had returned to normal.

If you see Trading Paint when it comes out, look closely at the R60: there's obviously a bad op-amp in there, because the left channel meter was pegged. It was simply a prop. There was no audio hooked up to the board, and all of the other meters were flat to the left. I doubt that most movie goers will ever notice, but you might get a kick out of it. I'm always amused at what people think a radio studio should look like.

I think it'll be quite a while before I want to become Hollywood In Homewood again. But until next time, keep praying for this nation, pray for the folks in Texas, and if you could donate, please do so.

Until next time!

**The Chicago Chronicles**  
by  
**Rick Sewell, CSRE, CBNT, AMD**  
**Engineering Manager, CBC–Chicago**

I am a sucker for a suffering animal. Even more than that, I hate watching inefficient work. Since being here in the Chicago, one of the most inefficient operations I noted was the way we did breaks for the jocks in our Rockford office/studio.

For the most part, our Rockford station is run through the Hammond studios. Which is a good bit of distance from the Rockford market. However, we do have talent living and participating in Rockford. Part of that is that they work from the office and studio there.

When I first got here they were working in that studio with an old and very noisy, eight channel Autogram mixer. The talent would record their breaks on air with Adobe Audition, edit the break and then email it to the board operator in Hammond.

From there the operator would download the break into the local VoxPro computer, and the folks in Hammond would perform any final necessary edits and then dub it into the NexGen automation system for air play. Alternatively, they might skip the dubbing process and play the VoxPro live on air. Still, automobiles on an assembly line are almost built more quickly than this process.

Now, if the Rockford talent wanted to interact with a caller for something like a contest, it would get even more convoluted. The board operator in Hammond would answer the call and record their interaction with the contest winner into the local VoxPro. They would then have the Rockford talent record and email vocals to replace their own voice. Yeah... that actually is a thing they're doing on a regular basis.

My first goal was to at least improve the sound of what they were doing. We had one of the Rockford jocks use his own microphone with a USB mixer attached to his laptop because he felt the sound was better than the old mixer. So, we targeted that mixer for replacement, my first budget request.

Since we were converting a good portion of the Hammond operations to the WheatNet IP/Blade infrastructure at that same time frame, we decided to

use that same equipment in Rockford. We chose to install the WheatNet IP12 surface with a Blade 3 mix engine. This was really more affordable than some of the analog mixers on the market. We ended up doing the installation at the same time that we moved the office/studio to a new building in Rockford. This installation has been trouble free since day one. The sound is vastly improved over its noisy predecessor.

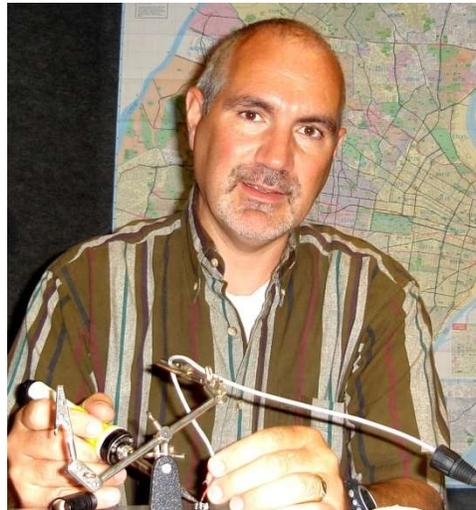
Still, even though the sound was greatly improved, the inefficiency of emailing the break was still an issue. Here we

are with WheatNet Blades in Hammond and in Rockford. They're both IP based audio systems. Geez, shouldn't there be some way to get these connected and stop the insanity?

The cost of a QOS-type Internet connection between the two sites was out of the question, which was probably the only way to make the connection directly between the sites. I knew the only way this was getting done was to use some sort of IP codec. Voice tracking through NexGen might have worked for the breaks, but still wouldn't solve the issue with interacting with callers. We needed to get the Rockford talent much closer in their remote operation to the feel of actually sitting in the Hammond studio.

Thankfully, someone must have had the same idea that I had, because the perfect product was created. Tieline has two different codecs with a Wheatnet card installed. We decided to go with the Tieline Genie with the WheatNet card because we could send and receive three stereo streams or six mono streams. This would give us enough audio connections to perform most of what the talent in the Rockford studio would need.

The installation of the two units turned out to be fairly easy. Once you download Razor



software, you can configure the WheatNet portion of the unit, i.e. the IP address and assigning the unit to a host blade with the WheatNet Navigator software. From there, you can use the crosspoint portion of the Navigator software to make the connection to your audio sources and destinations.



**On top, the Tieline Genie used to convey audio between Hammond and Rockford.**

In Rockford, we didn't need anyone to physically connect anything more than the power cord, the WheatNet Ethernet cable to the WheatNet port, and the regular Ethernet cable to the codec part of the Genie. Since it was all WheatNet at that site, no audio wiring was needed. The Rockford talent just needed to dial up the audio coming from Hammond on the IP12 surface faders to hear the Hammond audio.

In Hammond, since we have a hybrid operation (we are still using the Wheatstone bridge router TDM system in the control rooms), we had to do some physical wiring between the legacy bridge router system and the WheatNet blades. Once that was finished, it was just a matter of connecting the audio between the blade sources and destinations and the Tieline Genie sources and destinations in the Navigator software.

We did experience some problems in making the connection through the Internet for the two Genies. At first, we were only able to connect two of the three streams. This was a problem with a configuration in the programming of the connection. Then we couldn't connect at all. This was due to "too many cooks in the kitchen," several people configuring port forwarding in the Internet router in Rockford. Once these issues were resolved, the connection was perfect and the sound was great.

We are using all three audio streams coming from Hammond. We are using the control room mic in the utility bus of that control surface. This is configured for pre-fader, pre-on. This is primarily for communication purposes. If the Rockford talent puts this audio into cue, they can hear the Hammond mic without the operator in Hammond having to push a talkback button. We are also sending a caller out directly from the Telos telephone hybrid in the Hammond studio. This is so talent in Rockford can

directly interact with the callers in Hammond. Finally, we are sending a mix-minus the board audio so that the mic in Rockford could be put directly on the air.

From Rockford, we are sending the mic audio using the off-line bus. Again, this is pre-fader and pre-on. The talent just needs to sit down and talk and the operator can record voice tracks on the VoxPro for dubbing or direct play purposes. No email necessary. Communication between the two sites is as simple as each side putting the other person's mic in cue. Since each side is pre-fader and pre-on, they can hear each other in cue without having to push a talkback button. This is as close to making the experience as if they were sitting across from each other as possible. Some experimentation with the cue speaker levels was necessary to stop the eternal feedback loop from going on. If they need to have a private conversation locally, they just need to turn off the off-line bus on their microphone channel.



**This is the WheatNet Navigator crosspoint screen showing the crosspoint connections for the Genie. Look Ma! No wires!**

The Rockford talent can interact with callers, provided the Hammond operator switches the caller on, by putting that audio on a fader and in cue. Alternatively, they could use headphones with the fader turned up and on. Again, the Hammond operator can record both parts of the telephone call to the VoxPro, or even go live if needed.

Besides the mic, we are also sending the program bus from Rockford to Hammond. By doing this we can put the Rockford board directly on air through the WheatNet switching to the Hammond STL and out to the transmitter site.

This system was just installed, so the staff is in that "getting used to it" mode. I am fairly sure that once the learning curve is accomplished, they will be a lot more efficient than they were using email.

**The Portland Report**  
by  
**John White, CBRE**  
**Chief Engineer, CBC–Portland**

Solar eclipses, angry daemons, and hungry wolves. During a solar eclipse, some northern European cultures thought the sun was being eaten by a wolf. Others thought that an eclipse predicted future events.

In northern and central Oregon, responders expected transportation gridlock as visitors by the thousands came to view the eclipse. One event, an affiliation of Burning Man, sold 30,000 tickets in less than a few hours.

While AM radio reported the event, propagation began to change. In the sky, the moon raced to bask in the glory of the sun while casting its shadow upon the earth. Below, the D-layer of the ionosphere, robbed of the sun's influence in the shadow of the moon, began to dissipate. AM radio signals began to reach out beyond the normal day groundwave coverage. As solar eclipse research continues, the radio propagation effects are a major research area.

With its appetite whetted by the sun, the wolf hungers to gorge on power. Thus, as Shakespeare once said, "Power, power wherefore art thou, power?"

KKPZ's primary shore power is 277/480-volt three-phase. At the end of the power lines, KKPZ normally experiences power bumps, dumps and spikes. Power distribution within the building is provided by step down transformers, providing 240-volt three-phase and 120-volt single-phase power. Along with bumps, dumps and spikes, phase dropouts are a common problem.

Over the years, we have placed uninterruptable power supplies (UPS) with power conditioners for mission-critical equipment at the station. For normal conditions, a power drop will activate the generator backup power. For power or

phase loss, the generator delays are set for 30 seconds. The UPS will easily keep equipment protected for that short delay.



Older transmitters, such as the Continental 315R "Power Rock," employ older technology and are less sensitive to power problems. Newer Nautel transmitters are protected by three-phase power conditioners. Even with UPS and power conditioning, we occasionally see damage or failure, primarily for the computer-based gear that is becoming more common.

Almost exclusively, power problems at the facility happen during winter storms. And then along comes the power wolf, producing power bumps during August and creating problems for computerized equipment.

Now here is where I generally quote an old forgotten 45: "And then along came Jones." And then along came the power-wolf, eating the power and littering the station with bumps, spikes, and dumps. This August we have had several power events which knocked mission-critical equipment off line – even equipment protected by a UPS.

Generally, a UPS should protect its load from voltage drops – "brown outs," brief dropouts and spikes. When these are rapid, the UPS may not be able to react quickly enough to protect computerized equipment. Determining the kind of power defect is difficult, which complicates selection of the appropriate kinds of power protection. As power defects change, installed power protection systems may no longer be adequate. Protection systems which allow power defects through to the protected equipment in reality provides no protection at all.

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**Rocky Mountain Ramblings**  
**The Denver Report**  
by  
**Amanda Hopp, CBRE**  
**Chief Engineer, CBC - Denver**

August always seems to be a slow month, mainly because I miss a full week of work due to vacation. Darn the bad luck. I typically don't plan any big projects for the beginning of the month, as I am gone, and when I get back, we are in the middle of inventory. For the most part, this year is no different.

**KLTT Drifting**

We've been noticing two towers in the KLTT night array drifting from time to time. We go out and inspect everything, but cannot find the issue. We have gone through the coils and made sure all the connections are tight. We've had to adjust things three times now. Perhaps the third time is the charm, as we have not had issues since this last adjustment. I continue to monitor it daily, or should I say nightly.

**Inventory**

Every August, we engineers at CBC get the honor of going through all our stuff and making sure it is marked in inventory. In Denver, this can prove to be difficult, as we have a lot of stuff. The KLZ transmitter site has been a storage facility for the entire company for many years. We have spare parts/equipment for any of our stations to use, as well as a ton of test equipment. We also have spare equipment at the studio for our own use in Denver.

In years past, I have had Keith do the time-consuming inventory update. That allowed me to focus on other work. This year, I decided to do it myself. I wanted to be 100% sure of where everything is. I actually got things done a lot quicker than I anticipated, with only one item that I could not locate. I will spend some time over the next month,

as I make trips to the various sites, looking for that item.

**Carpet**

We've been in need of new carpet in the common areas of the Denver studio and office leasehold for some time now. The carpet that was there was inherited from a prior tenant, and while it was in good shape when we moved in seven years ago, it was beginning to separate from the backing. We were hoping to wait until next year for this project, as things were still looking good at

budget time last year. Unfortunately, with all the traffic, the carpet did not hold up. We found ourselves with holes, bumps and loose spots that were unsightly as well as a real trip hazard. We ended up getting some bids and having it done in August. As I write this, the carpet installers aren't quite finished yet as I write this, but they should be done in another day or two.

One of the biggest issues with getting the carpet done was the cubicles. We have eight attached and two stand-alone cubicles. We were able to get things taken apart with no major issues, but putting things back together has proven to be a different story. The panels went back up with no issues. The issue we have is the desktops. These cubicles consist of three desktops. Two smaller ones on the outside and a bigger desk in the corner. The sides are not a huge deal, but because of how the brackets are done, getting the corner desk in place may prove to be a different story. Keith and I spent well over an hour working on one desk trying to figure it out with no luck. Thankfully, my dad was able to figure it out, so we should have this "Chinese puzzle" put back together shortly.



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**Upcoming**

I am not entirely sure what September will bring us. I have been so busy the last couple of weeks that I have not even had a chance to think about it. To be honest, I actually forgot to write this

column! Thankfully, my dad always sends a friendly reminder when he hasn't received anything.

That about covers it for this edition, so until next time... that's all folks!!!



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**KBRT • Costa Mesa - Los Angeles, CA**  
*740 kHz/100.7 MHz, 50 kW-D/0.2 kW-N, DA-1*  
**KNSN • San Diego, CA**  
*1240 kHz/103.3 MHz, 550W-U*  
**KCBC • Manteca - San Francisco, CA**  
*770 kHz/94.7 MHz, 50 kW-D/4.3 kW-N, DA-2*  
**KKPZ • Portland, OR**  
*1330 kHz/97.5 MHz, 5 kW-U, DA-1*  
**KLZ • Denver, CO**  
*560 kHz/100.3 MHz, 5 kW-U, DA-1*  
**KLDC • Brighton - Denver, CO**  
*1220 kHz/95.3 MHz, 660 W-D/11 W-N, ND*  
**KLTT • Commerce City - Denver, CO**  
*670 kHz/95.1 MHz, 50 kW-D/1.4 kW-N, DA-2*  
**KLVZ • Denver, CO**  
*810 kHz/94.3 MHz, 2.2 kW-D/430 W-N, DA-2*  
**WDCX • Rochester, NY**  
*990 kHz, 5 kW-D/2.5 kW-N, DA-2*  
**WDCX-FM • Buffalo, NY**  
*99.5 MHz, 110 kW/195m AAT*  
**WDCZ • Buffalo, NY**  
*950 kHz, 5 kW-U, DA-1*  
**WDJC-FM • Birmingham, AL**  
*93.7 MHz, 100 kW/307m AAT*

**WEXL • Royal Oak - Detroit, MI**  
*1340 kHz/96.7 MHz, 1 kW-U, DA-D*  
**WRDT • Monroe - Detroit, MI**  
*560 kHz, 500 W-D/14 W-N, DA-D*  
**WMUZ • Detroit, MI**  
*103.5 MHz, 50 kW/150m AAT*  
**WPWX • Hammond - Chicago, IL**  
*92.3 MHz, 50 kW/150m AAT*  
**WSRB • Lansing - Chicago, IL**  
*106.3 MHz, 4.1 kW/120m AAT*  
**WYRB • Genoa - Rockford, IL**  
*106.3 MHz, 3.8 kW/126m AAT*  
**WYCA • Crete - Chicago, IL**  
*102.3 MHz, 1.05 kW/150m AAT*  
**WYDE • Birmingham, AL**  
*1260 kHz/95.3 MHz, 5 kW-D/41W-N, ND*  
**WYDE-FM • Cullman - Birmingham, AL**  
*101.1 MHz, 100 kW/410m AAT*  
**WXJC • Birmingham, AL**  
*850 kHz/96.9 MHz, 50 kW-D/1 kW-N, DA-2*  
**WXJC-FM • Cordova-Birmingham, AL**  
*92.5 MHz, 2.2 kW/167m AAT*



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