



Newsletter of the
Twin City DX Association
www.tcdxa.org

Volume 12, Issue 3
September, 2015



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Gray Line Staff

**KØAD
KØIEA
KØJUH
WØBV**



KØMD's Rohn 55 Tower is Now Rotatable!

Dr. Scott Wright, **KØMD** tells us what led up to his decision to convert his 100-foot Rohn 55G tower to a rotating system.

His rotating tower (now 130 feet) resides at his home QTH near Rochester, Minnesota. Scott is an avid DXer, contester, and is one of Mayo Clinic's leading cardiologists.

He credits **WØGJ, WB9Z, KØIR** and many others with their advice given on the project. Networking with others always pays dividends.

See Scott's story, starting on page 16. All photos are courtesy of Don, **WØDJC**.



Member News

Lee Jennings, ZL2AL - SK



A Tribute to ZL2AL from KØIR

“My good friend Lee Jennings, ZL2AL became a silent key on June 13, 2015. Lee was an active DXer and contester.

He helped me as a pilot station on several DXpeditions. Lee operated from the contest stations ZM2M, ZM2K, ZL2T, and operated as ZL7AA, ZM7A, ZL8RI and ZL9CI.

He was a gracious host when Saundy and I visited he and his wife a number of years ago. Ham radio and the world have lost a good human being.”

- Ralph, KØIR

ed. - Lee was a member of TCDXA. See Lee’s Member Profile story in the [December, 2013 issue of the GrayLine](#).

Lee achieved DXCC Honor Roll Mixed (344/339 - needed Crozet), DXCC CW (333/329), DXCC Phone (339/335), DXCC Challenge, 8BDXCC, 5BWAZ, 5BWAS, WAE-TOP, IOTA, WAVE, WAA, WAJA, DUF-4, FOC and A-1 Op. He worked both SSB and CW (CW about 70%)



Member News



Dan, KBØEO Places 1st Worldwide in the 2014 CQ DX Marathon Competition!!

Here's a very happy KBØEO with his award for placing #1 in the world for his 2014 CQ Marathon, CW Only entry.

In 2013, Dan placed 4th worldwide in the Unlimited Category (full power, all bands, all modes). This year his strategy to enter the CW Only category sure paid off! Congrats Dan!!!



Ralph, KØIR Receives The DXCoffee Best Communication Award for the FT5ZM DXpedition

Ralph said:

“It is a great honor for the FT5ZM team to receive this award, and we thank DXCoffee very much for it.

I look forward to keeping the lines of communication open between DXCoffee readers and future DXpeditions.

If we share our experiences, our expectations, our suggestions and our dreams, we all win and we all will enjoy better DX.”



Hello Members,

The TCDXA fiscal year (September 1, 2014 - August 31, 2015) is now history. The club financials are maintained on a fiscal year basis which facilitates bookkeeping, while member contributions are credited on a calendar year basis.

During the past fiscal year, the TCDXA mission, *Dollars for DX*, supported nine (9) DXpeditions with financial donations made possible by member contributions.

Before we became a 502 (C) (3) non-profit organization, we referred to contributions as annual dues. The change in status triggered a change in our lingo, per IRS guidelines.

On behalf of the DXpeditions we help, I want to take this opportunity to thank the membership for their support, and hope we can count on it again in 2016.

Future business on the BOD agenda is officer elections. You can run for office by placing your name on the ballot when it's made available in November. Volunteering your time to help out the club is a sure way of receiving a boatload of attaboys!

After a summer break from meetings in July and August, we get going again on September 21st. Tom Weigel, **ABØJ**, and I have been working hard on a new agenda of speakers, and suggest you get ready for some great programs!

73, Mike Sigelman, KØBUD, President, TCDXA



TCDXA Treasury Report

August 31, 2015

For FY 2015: September, 2014 to August, 2015

Income:

Carryover from FY 2014	\$6,162.67
2015 dues and donations	4,834.80
Door prize ticket sales	814.00
Total YTD income	\$11,811.47

Expenses YTD:

Membership Recruitment	(158.25)
Website	(137.37)
Office supplies and misc.	(446.68)
Holiday party 2014	(278.57)
ARRL Spectrum Defense Fund	(100.00)
NCDXF Donation	(250.00)
MWA Plaque	(75.00)
DXpedition Donation, T30D	(250.00)
DXpedition Donation, VU4KV	(500.00)
DXpedition Donation, 3W3O	(200.00)
DXpedition Donation, K1N	(1,500.00)
DXpedition Donation, EP6T	(500.00)
DXpedition Donation, 3GØZC	(250.00)
DXpedition Donation, VP8STI/SGI	(1,000.00)
DXpedition Donation, TX3X (FK/C)	(500.00)
DXpedition Donation, VKØ Heard	(1,500.00)
Total YTD expenses	(\$7,645.87)

Current Checking Balance	\$4,165.60
PayPal balance	0.00
Cash on hand	0.00
Total current funds	\$4,165.60

Join TCDXA

Our mission is to raise *Dollars for DX*, used to help fund qualified DXpeditions.

Our funds come from annual member contributions (dues) and other donations.

TCDXA is a non-profit organization, as described in Section 501 (c) (3) of the Internal Revenue Code. All contributions from U.S. residents are tax-deductible.

Becoming a member is easy. Go to <http://tcdxa.org/> and follow the instructions on the home page.

All contributions (including annual dues) may now be paid on our secure site, using PayPal or credit card.

TCDXA Welcomes Our Newest Member!

Tom Hawko, **KC9RXI** - West Salem, WI



Street Rods

The Other Passion In a DXers Life

by Jim Junkert, KØJUH
The Old Duck Hunter

Since back in the 50s, I've had an ongoing love affair with street rods. Over the years, I've tried on several occasions to buy one, but never could reach an agreement with a seller on price.

Never one to give up easily, and a few days short of having 80 birthdays, the street rod bug bit me, again, thanks to Harry Williams, **WØLS**, and his '32 Ford Roadster. You can see his car at www.qrz.com/db/wØls. Once again, the hunt was on. And, at my age, it was now or never. I'm a great believer that things will happen if they're meant to be. And this time, it was meant to be.

My son Terry and I stopped by Route 65 Classics in Ham Lake, MN to check out their inventory of classic cars, and there it was, a 1935 Chevrolet 2-door sedan (think Bonnie & Clyde) in my favorite color, black. It was love at first sight . . . and only a few miles from home.

Terry is the chief motor head in the family, and after driving the car, gave it his thumbs up. I made an offer on the car, and it was accepted. In April of 2015, after trying for years, I finally owned a street rod.

Soon after, we became members of the Minnesota Street Rod Association, and attended the MSRA's **Back to the Fifties** event in June. My '35 Chevy was one of 12,000 cars registered for the show. I've been to the show many times in the past as a spectator, but this was the first time I've attended with my own street rod. Cool! The crowds are huge, and offer some of the best "people watching" available.

I'm living proof that, regardless of your age, you should never stop chasing your dreams.



Terry & Dad under the hood.



Car details: All steel body, 350ci small block Chevy V-8, Dyno at 380 hp, GM 700R4 automatic transmission, A/C, power windows, power moon roof, custom gray tweed interior, Stewart Warner gauges, aluminum wheels, billet aluminum firewall, pulleys, valve covers, and air cleaner, Porter mufflers and Kenwood stereo AM/FM/CD radio.



Strong Winds = A Bad Tower Day at WØZX



We often hear folks refer to windy days as bad hair days. In **WØZX's** case, the strong winds that hit Eden Prairie on May 31st did more than mess up Tom Traugher's hair. At times, Mother Nature can be cruel to hams. And, on that day, she was not nice to Tom. The 52 mph wind gusts were too much for the top 10 foot section of the 17 year-old Universal tower that had a wind load rating of 21 square feet.

Mounted on a steel mast at the top of the 60-foot aluminum tower was an M2 log periodic array (135 lbs.), a M2 6 meter beam (20 lbs.) and a VHF/UHF vertical (20 lbs.). The M2 rotor was also mounted at the top of the tower, and according to the people at Universal, it should have been mounted at the bottom of the top 10-foot section. This would have reduced the "moment of force" at the top of the tower, effectively increasing the wind load rating. For more details on wind loading, visit the Universal Tower website at <http://universaltowers.com/>.

And now the good news. Tom called Universal to order a new top section, fully expecting to pay for it, and was informed there would be no charge – they even covered the cost of shipping.

Now that just has to make you *feel good* !



XYL Kris, **NØJHL**
and OM Tom Traugher, **WØZX**



All's well that ends well. After repairs,
Tom is back on the air with new antennas.



2015 ARRL Field Day at Blue Lake

by NØAT and friends



The Blue Lake Brothers - l to r: Al, **KØAD**; Vlad, **NØSTL**; Ron, **NØAT**; Glenn, **WØGJ** & Kirk, **NØKK**.

After skipping FD last year, our group returned to the former Blue Hollow Resort on the south end of Blue Lake, near Park Rapids, MN. The location has hosted our FD operations for many years.

We operated class 2A, again, this year, using wire HF antennas and three IC-7600 radios.

For the most part, Murphy stayed away, except for a couple of minor problems. The center insulator on the 80 meter dipole failed, and one of the laptops refused to talk to a USB keyboard.

Conditions were poor at the beginning of the operation. For the first 5 hours, we made just a few 6 meter contacts. 10 meters was dead, and 15 meters was very slow. 20 meters performed well.

Conditions improved towards evening on 40 and 80 meters. Sunday morning conditions were somewhat improved. 6 meters was intermittently open, and 10 meters provided some QSOs. 20 meters was still going strong.

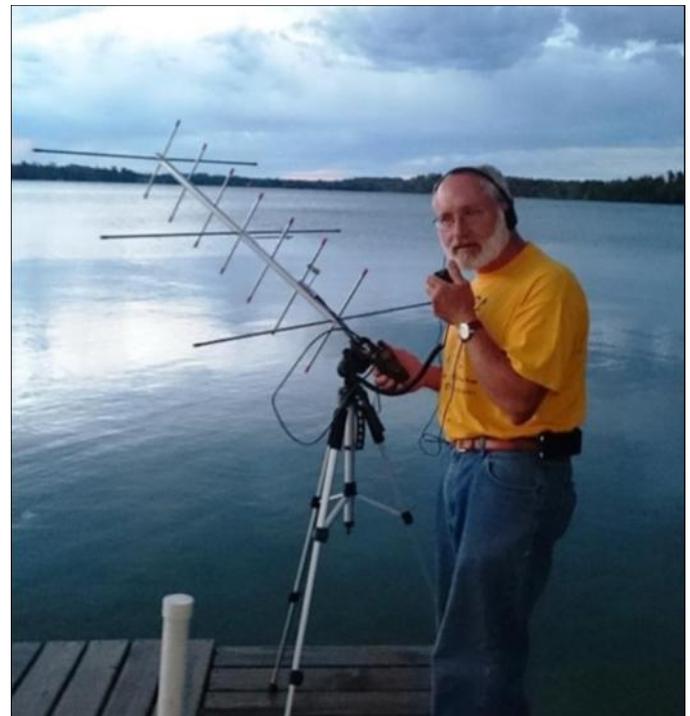
Some of the highlights include Glenn completing satellite QSOs on the first pass, and the WX was not an issue, with very little QRN during the night.

Many thanks to my friends **KØAD**, **NØKK**, **NØSTL**, **WØGJ**, and Michael Pengelly for making this year's FD an enjoyable experience.

73, de Ron, **NØAT**

Score Summary

QSOs	CW	Phone	Digital	Total
80m	307	9	0	
40m	546	23	0	
20m	768	189	0	
15m	103	5	0	
10m	82	0	0	
6m	49	56	0	
2m	0	2	0	
Total QSOs	1855	284	0	2139
Total Points	3710	284	0	3994
Claimed Score - Bonus Points TBD				7988



WØGJ talking to the satellite on 2m uplink and 70cm downlink. *ed: Glenn is a Vice President of the NCDXF and Chairman of the Board of ROMEO, the Iowa chapter of Retired Old Men Eating Out.*



2015 ARRL Field Day

by Roger, KØMPH



This year, I ran FD from my deck using my mobile setup. The generator was tucked away on the walk-out level under the deck that overlooks Fish Lake (Maple Grove, MN). I connected the home station antennas and a new 40 meter inverted V. The 40 meter inverted V is “experimental,” and was supported by a 45-foot fiberglass pole. I plan to add it to my arsenal of portable (FD) antennas. It generally worked about the same as the 40 meter vertical, especially for close-in stations.

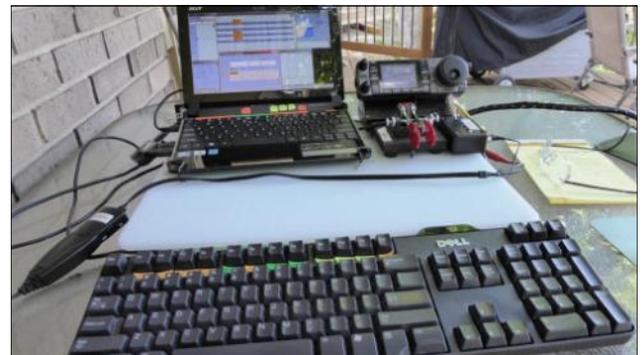
I noticed right away that the QRM from the neighbor’s leaf blower, the neighbor’s weed trimmer and the power boats on the lake was an added “benefit” at this location. At dusk, someone down the lake started a fireworks show to add to the QRM. Generally, it was possible to get a run going on CW. Phone was a lost cause.

The 20/15 meter dipole had better coverage to both coasts than the hex beam, so I used the dipole most of the time. Highlights were working **NØAT** (**NØKK** operating?), **AEØEE** and **KØHB**. An Argentine station called in for the only DX.

I was hoping the generator would run out of gas before I did. At about 10:45pm Saturday, I could see lightning flashes in the sky and occasionally hear thunder. So, I hauled the equipment inside before a few sprinkles came.

Good fun for less than a gallon of gas!

73, de Roger, KØMPH



2015 ARRL Field Day

by Gary, WØDYD



Hello all,

Hope you had a successful Field Day. My grandson, Jonathan Kemper (on the right, above), assisted me in the setup and logging of contacts through about 1pm on Sunday, from his location in Little Sauk, MN. He is studying for his license exam.

Shortwave radio conditions were very poor during the period, and we had to shut down Saturday night due to a lightning storm.

We also had to overhaul the gas generator (emergency power) that failed to start at the beginning bell, giving us a 3-hour delay, while we installed a new spark plug (from Walmart) and repaired a defective shutoff valve. The generator had worked a week earlier.

In spite of the problems, we contacted 145 stations on CW and 4 stations on SSB. Our contacts included 39 states, 47 sections, including Hawaii and 4 Canadian provinces, using a G5RV and FT100D at 100 watts.

73s, de Gary, WØDYD

South Sandwich & South Georgia



At this time, we wish to inform the Global DX Community of our intended QRV dates from each island. We will depart Port Stanley, the Falkland Islands on January 9th, 2016. Approximately five days later, we will arrive in King Edward Point, South Georgia, where we will meet with the Government of South Sandwich and South Georgia, and undergo a safety and biodiversity briefing. We will then voyage three more days south to Southern Thule Island in the South Sandwich chain of Islands.

We expect to arrive at South Sandwich on January 17th. However, that is dependent on the weather and sea conditions. Our ship Captain tells us that it is common to encounter rough seas on the way to South Sandwich, and that rough seas and bad weather can prevent our landing by several days. We plan to be on South Sandwich for ten days operating as **VP8STI**. We will then break down our camp, and voyage three days back to Husvik Bay, South Georgia, where we expect to land and set up operations on or about February 1st. We will operate from South Georgia Island as **VP8SGI**.

Our main priority is to greatly reduce the need for South Sandwich, and we will sacrifice our time at South Georgia to ensure that it happens.

We expect to return to Stanley, the Falkland Islands on February 14th. We will be QRV from Port Stanley as **VP8IDX** until our flights home on February 20th.

-The Intrepid-DX Group VP8 Team-





The MWA Contest Corner

Adding an Amplifier to a Low Power Contest Station

by Al Dewey, KØAD



One might think that the subject implied by the title of this column is a no-brainer. You simply purchase an amplifier, insert it between the transmitter and the antenna, and you are set to go. For me, however, it was a bit more complicated.

First, I'll give a little background. Prior to 2007, I did a lot of contesting using my trusty Heathkit SB220 amplifier and wire antennas. I would get the occasional call from a neighbor about interference, but had no major problems. In 2007, I received permission from our homeowners' association to put up a 50-foot tower. One of the conditions was that, if I had any major interference issues,

I would deal with them. Sure enough, after operating the CQ WPX CW contest that year, I heard from the homeowner's association president that eight people had called and complained about TVI, RFI, etc.

I decided, now that I had a tower and Yagi, the easiest solution would be to simply stick with low power. I sold my SB220 the next week. However, I have been itching to increase my power a little, lately, but maybe only to about 400 to 500 watts, rather than a full gallon. This would allow me to run 150 watts in an ARRL Contest with my Icom 7600 (which is allowed). Of course, in most other contests the low power limit is 100 watts, so I would run barefoot in these. A little more juice might also allow me to get those last few countries on 80 meters for 5BDXCC. Finally, I might do an occasional contest (such as ARRL 160 Meter Contest) in the High Power category, using 500 watts.

What I Looked for in an Amplifier

As mentioned above, I was looking for a 500-watt amplifier. When I sold my SB220, I also removed the 220V circuit from my shack, so the amp had to run on 115 Vac. I wanted something that was compact in size, as space in my shack is at a real premium. I wanted it to be fully automatic and self tuning, so that a band change on the rig would be all that was necessary to move that amp to another band.

I also wanted a high-power automatic antenna tuner, as I would no longer be using the auto tuners in my rigs when using the amplifier. Finally, I didn't want to break the bank. With all this in mind, I decided on the Elecraft KPA500 amplifier and the matching Elecraft KAT500 antenna tuner. By purchasing these at Dayton as kits with free shipping and a "Dayton Discount," the bottom line for both units came to \$2,719.



Figure 1: The new Elecraft amplifier and tuner fit into my shack, where space is at a premium.



Building the Amplifier and Tuner

I purchased both the amplifier and tuner as kits, both to save a few dollars, and to have the fun of building them. As advertised, there was no soldering. Both kits can be built with a Phillips screw driver and small wrenches or sockets. There were a couple times when it was necessary to make some measurements with a VOM to make sure a specific installation was not shorted. I took my time. I assembled the amplifier in three evenings and the tuner in an afternoon.

As recommended, I did a complete inventory of all parts before I started construction, and sorted the parts into a partitioned bin. There were hundreds of small nuts and bolts with just minor differences in size. It was important to pay close attention to the instructions (which are well written, by the way) to make sure you were always using the right size hardware. The only problem was a missing small spacer from the KPA500 kit. I phoned Elecraft, and they had it sent out the next day (good customer service).

Both units performed flawlessly the first time I fired them up. The auto-tuner took a little more getting used to. There is an optional programming utility which I downloaded from Elecraft, and used (via a USB connection to the KAT500) to adjust some thresholds for auto-tuning. All in all, the kit building process was a lot of fun, and I'm glad I did it.

Protecting my Triplexer

In the [December, 2012 issue of the GrayLine](#), I described how I implemented an Inrad triplexer to allow me to use my Force 12 Yagi with two radios at the same time for SO2R operation. It's been awesome being able to listen on 15 meters, while transmitting at the same time on 20 (and vice-versa). It's almost like having two separate beams. The problem is that the triplexer is only rated for 200 watts. One solution would be to purchase a high-power triplexer. Unfortunately, high-power triplexers are very expensive.

I decided the best solution would be to simply bypass my triplexer when running the amplifier on 10 through 20. After some thought, I came up with the circuit shown below. This circuit totally bypasses my triplexer when I'm running my amplifier into the Yagi. I have a small switch box located just below the amp. When I flip this switch up, the triplexer is bypassed. I can run my new amplifier at the full 500 watts without worrying about damaging the triplexer. The only minor downside of this solution is that my second radio (a Yaesu FT2000D) cannot use the Yagi when the bypass is engaged. In fact, I switch the second radio into a dummy load just to be safe. It means I give up the opportunity to run SO2R using my Yagi, if I ever decide to run high power in a contest.

Deciding I could live with this restriction, the only other possible downside is if I "forget" to throw the bypass when running more than 200 watts into my Yagi. I added a red LED on the switch box so I get a better visual indication when the triplexer is bypassed.

Using the New Amplifier

The amplifier and tuner are compact, and fit well into my station, as shown in Figure 1. Even though both the amplifier and the tuner had an SWR indicator, I still used my Daiwa meter to get a better

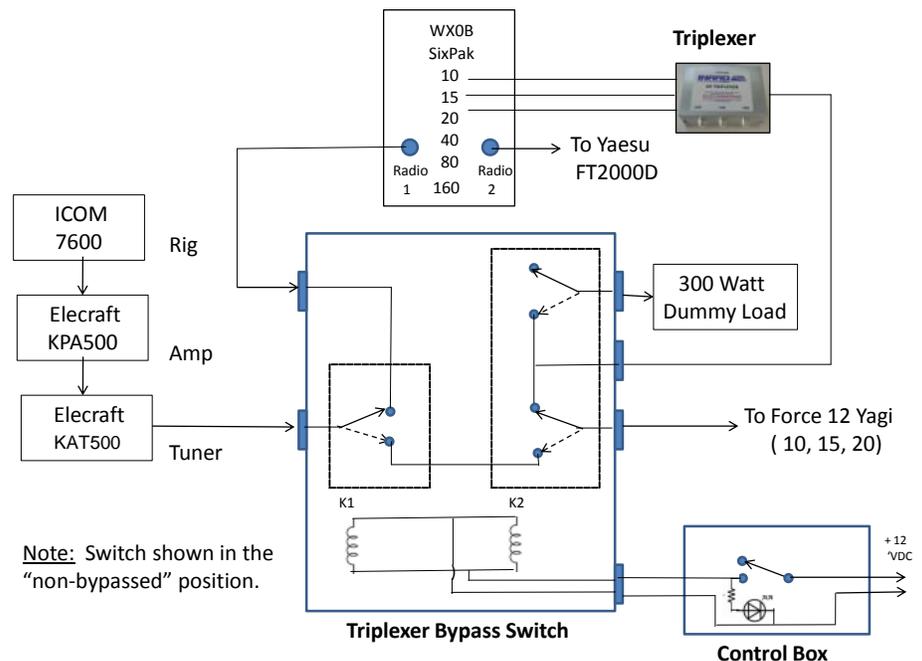


Figure 2: The triplexer bypass switch shown here allows me to bypass my Inrad triplexer when I am running more than 200 watts.



reading of the actual output of the amplifier.

I smoke-tested the new amplifier and tuner in the **July, 2015 IARU HF Championship**. Being an ARRL sponsored contest, I ran the amp at only 150 watts. It performed flawlessly. To change bands, all it took was a single DIT of RF to sense the band. A few times during the contest, the KAT500 searched a little, but I think that has to do with getting all the settings right.

Outside of contesting, I've used the amp a few times at high power to call some DX, and it worked fine. I haven't used it enough to be able to quantify the difference between 100 watts and 500 watts. Using the reverse beacon, I seem to get reports about 10 to 15 db stronger with the amplifier. Of course, it depends on band conditions. I also noticed on the reverse beacon site that more nodes in Europe would hear me when I was running 500 watts, compared to 100 watts.

It's hard to tell whether running 150 watts vs. 100 watts is helping me much in ARRL contests. Prior to adding the amplifier, I tended to use my Yaesu FT1000D, because I could run it at 150 watts. However, I believe that my Icom 7600 has a better receiver, and is easier to listen to in a contest. With the amplifier, I now have the option of running with 150 watts using my 7600.

So, that's my amplifier story. As long as the neighbors stay happy, I think I'm going to have some fun with it.

See you in the pileups,
Al, KØAD

SAVE THE DATE!

The 2015 Annual MWA Meeting is scheduled for Tuesday, September 22nd. The location is the same as the last several years: [Broadway Pizza in Fridley](#). We will be meeting in the banquet room in the lower level.

Social Hour 5:00 - 6:00pm
Pizza Buffet 5:45 - 6:30pm
Meeting & Program 6:30pm

Cost for meal (pizza, salad, soft drink):
Winning Team North members - \$8 for salad bar and soft drink (pizza paid for by the other teams).

All others: \$18 (includes paying for the winning team member's pizza).

Please bring exact change!

Meeting Agenda:

- Introductions
- Treasury Report
- MWA Team Competition Report
- MNQP Report
- CAC Report
- MWA Contesting Report 2014/2015 Season
- MWA Achievement Awards
- General Announcements

Program:

Selecting a Transceiver for Contesting and DXing by Dr. Scott Wright, KØMD



**DXers Have
a Choice!**



The Daily DX - is a text DX bulletin that can be sent via email to your home or office Monday through Friday, and includes DX news, IOTA news, QSN reports, QSL information, a DX Calendar, propagation forecast and much, much more. With a subscription to The Daily DX, you will also receive DX news flashes and other interesting DX tidbits. *Subscriptions are \$49.00 for one year or \$28.00 for 6 mos.*

The Weekly DX - is a product of The Daily DX that can be sent weekly to your home or office via email in the form of a PDF (portable document format). It includes DX news, IOTA news, QSN reports, QSL information, a DX Calendar, propagation forecast and graphics. *Subscriptions are \$27.00 for one year.*

Get two weeks of The Daily DX or a sample of The Weekly DX free by sending a request to bernie@dailydx.com, or at <http://www.dailydx.com/trial.htm>.



Bert Benjaminson

WBØN

I was born in Glenwood, MN in 1953, and lived there until 1962, when my family moved to Wolf Point, MT. In 1964, we moved to Minneapolis where we live today.

In 1996, I married my 2nd wife, Denise, **KCØIWB**, and adopted her daughters Jennifer and Angela. My first XYL was anti-ham, so that marriage didn't last.

I've been a dispatcher in the courier profession since 1978, back when we dispatched using two-way radios. Talking on the radio all day at work left me with little interest in talking on the ham bands. Eventually, though, ham radio and computer technology won me over.

I first got interested in electronics and radio in early 1965, when I started fixing old broadcast band radios, shortwave radios and TVs. One of the radios I worked on was a CB 5-watt walky-talky, and that got me hooked on 11 meters.

For high school, I went to Minneapolis Vocational. While at Vocational, my electronics teacher, John Cina, **KØDRD** had a ham station there. He tried to interest me in ham radio, but my friends and I were having too much fun on 11 meters. For us, studying for a ham license was a waste of time. After high school, I enrolled at Brown Institute (back when it was located across from the Red Barn). At Brown, I studied for and earned my Commercial Radiotelephone License. Taking the test in St. Paul was my first introduction to the FCC. I never used that license for a job, and have long ago let the license lapse.

I still had my shortwave receivers: a Knight R-100, a Radio Shack DX150, and a Lafayette (I don't remember the model). Adding a MOSFET to the Radio Shack DX150 made it a hot receiver in its day. I was still listening to the ham bands, mostly at night on 80m SSB.

In 1976, I was working at a warehouse with a ham, Bill Johnson (I'm not sure of his WAØ call). He got me interested in getting a ham license. I worked hard on the Morse code, and made it all the way to 5 wpm. Wow! So I took the test, and got my Tech-plus license, **WBØTNH**. The theory came easy, but not the code. Now, I at least had a ham license, and could work my way up to 13 wpm for the General class license. For all you phone guys struggling like me to learn CW, don't be afraid to try a code reader. It can be a real friend when you're trying to improve your wpm.

During the winter of 1977-1978, I had a Tempo 1, which was my first transceiver. I still had a Knight T-150 and a R-100. It was too cold to do anything but ham radio; this was a good time to work on my CW. After a little effort at increasing my code speed, I decided to try working a station. I struggled to keep up with his sending. After he sent his name and QTH, he sent his age...5 years old! If I can't keep up with a 5 year old, I'm going back to listening on 80m SSB and working 2m and some 10m SSB.



I almost let my license lapse, but Paul, **KBØN**, talked me into renewing right at the deadline. In addition, I also cleared up a last name issue with the FCC. With the change in the code requirements, earning an Extra class license was easy. Now we're talking!

I installed a 3-element beam on the roof at about 25 feet, and a 40/80m inverted-V at 40 feet. Now the fun started, using slow code and Extra class SSB only. In September 2002, I changed my call to **WBØN**, and eliminated the T and H.

I liked chasing DX, but hated waiting in the big pile-ups (still do). So, I started cherry-picking the DX contests for new ones, and I was happy to work one or two new entities. I didn't care about the contest points. Who cares? I got the DX.

Then, I joined the Twin Cities FM Club (TCFMC) and met Al, **KØAD** and Mike, **KØBUD**. Next, I joined the Minnesota Wireless Association (MWA) contest club. And, with their relaxed DXCC requirements, I joined TCDXA in March of 2003.

In September of 2006, I worked my 100th entity for DXCC, all on SSB. Larry, **WØPR** checked the cards and said, "SSB only, no CW, what's this?" Also, at that time, I lost my house. So, no more beam antenna. MWA ops were telling me real contesters do CW too. With a lousy antenna, and tired of being a SSB-only op, I figured CW would be a more effective mode.

After becoming a Vice president of TCFMC, I took over running Field Day from **KØAD**, who was a tough act to follow. Because Al had everything so well organized, the transfer of duties to me and co-chair Paul, **WGØG** was a simple matter of plug and play.



Bert on the right explaining Field Day operations to members of the St. Louis Park, MN fire department.

I organized the **WØEF** contest team for TCFMC, and did my best to train the ops. My job was made easy by the many great MWA and TCDXA ops that operated FD with us. Jim, **KEØL**; Roger, **KØMPH** and Mike, **WGØM** deserve special recognition for their help with scheduling the ops.



Bert getting in some operating time at the **WØEF** Field Day

Thanks to all the FD volunteers. The **WØEF** team operating 3A has always finished in the Dakota Division top five, and had two top ten National finishes: 6th in 2011, and 3rd in 2012.

In 2014, I stepped down from organizing FD, as it was getting too stressful, and I was burned-out. It was fun while it lasted.

My first CW contest was ARRL SS. Talk about jumping into the deep water; I survived, but my call at 25 wpm was just a musical note. I picked a good CW call and can copy my call at slow speeds. With the faster speeds in contests, I have to listen carefully before calling. For me, it's all S&P... a slow code Extra having fun at 25 wpm.

Then, I decided to give the digital modes a try. They will help me with 5-band WAS, triple play and other band awards. I'm currently working on 17m DXCC. Maybe, with a new Butternut 40/80m vertical, I can reach 100 worked on 80m this winter (160m isn't happening from here).

My current equipment includes: An Icom 756 pro, Yaesu FL2500 Amp (500w), LDG AT-1000 auto tuner, MFJ 949G tuner, Ameritron RCS-4 remote switch and a Yaesu YS-60 wattmeter. The antenna is the driven element from my 3-el beam. It's fixed at 20 feet, and faces





10, 15 and 20m are covered using the driven element of my 3-element Yagi mounted up 20 feet.



Hiding in the trees is my Hustler 5-BTV 80-10m vertical. I recently swapped it for a Butternut HF-2V 40/80m vertical.



This is a 30-in mast with a 6m Hamstick dipole and a longwire sloping to the back yard. I use the longwire on 12, 17, 30, 40, 80 and 160m. It works best on 12 and 17m, and helped me work 12m DXCC.

NE/SW. I just put up the Butternut 40/80m vertical. It needs a few more radials, but still seems to play nicely. For 6m I have two ham sticks, one at 25 feet and the other at 30 feet. On 12 and 30m I'm using a wire sloper which works well, but just warms the clouds on 160m. On 17m I have an inverted V with the apex at 10 feet.

So, I keep plugging away. Each year I average 40% digital, 40% CW and 20% SSB. It's hard to believe I was once 100% SSB. Small antennas make for expanding horizons, and the guy with the biggest boat doesn't always catch the biggest fish. Sometimes it's us in the rowboats and canoes. And, in DXing or contesting, there is no substitute for BIC (Butt In Chair) time. See you all in the pileups!

73, Bert, WBØN

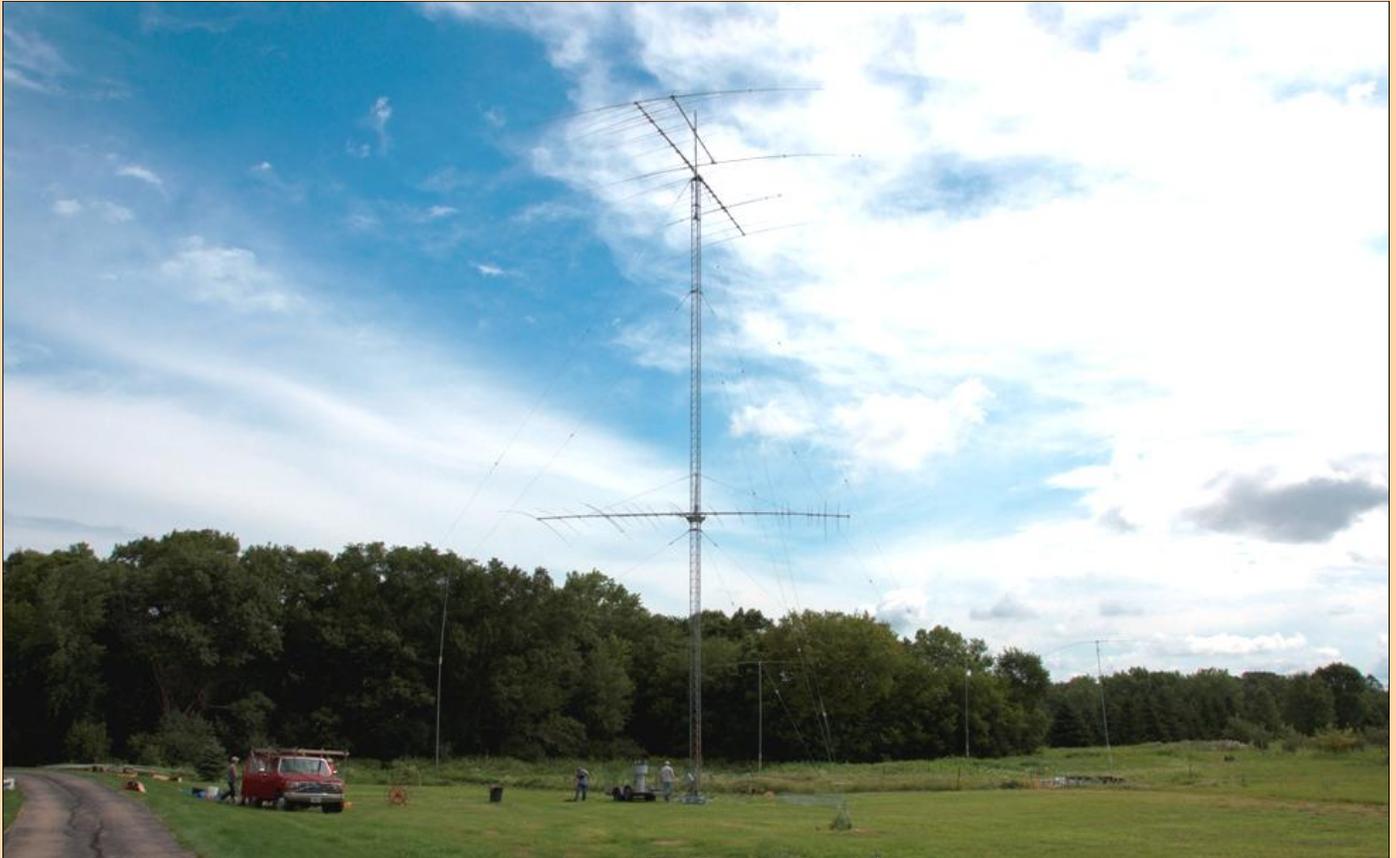
Here are my current DXCC totals - still small, but building as I go (the new ones are from Feb. 25th to June 20th of this year).

	New LoTW QSLs	LoTW QSLs in Process	DXCC Credits Awarded	Total (All)	Total (Current)
Mixed *	2	0	235	237	235
CW *	3	0	203	206	205
Phone *	4	0	206	210	208
Digital *	6	0	133	139	138
160M	0	0	11	11	11
80M	4	0	62	66	65
40M *	4	0	137	141	140
30M	1	0	60	61	61
20M *	2	0	206	208	206
17M	5	0	70	75	75
15M *	3	0	189	192	191
12M *	3	0	100	103	103
10M *	4	0	169	173	172
6M	0	0	2	2	2
Challenge *	26	0	1000	---	1026



The KØMD Tower Project

*by Dr. Scott Wright, KØMD
Photos by Don Currier, WØDJC*



The original tower.

Five

years ago, I made a significant investment in my radio station. I installed a 100-foot Rohn 55G tower, and added new Yagis to cover 10-40m. A year or so later, I added a ring rotator and a second tribander for 10-20m to phase with my initial Yagi. I chose the Force 12 C49XR series – the world’s largest tribander, with 24 elements on a single 49-ft boom. Each Yagi has 4 elements for 20 meters, 7 elements for 15 meters and 14 elements for 10 meters. Together, when phased, they produce a strong signal from my station on transmit, and are potent receiving antennas. I often hear stations long before others do in the upper Midwest, and I have to wait for the DX to hear me when I call, because their antennas are not as good as mine. The 40m Yagi is the Force 12 Magnum 240N; the old fashioned model built by **N6BT**. It has two essentially full-sized elements on 40m, and covers the entire band with a reasonable SWR. I can work nearly everyone I hear. I thought when I put up these antennas I would have a durable setup.

Then, in September, 2013, I noticed some rotation of my top Yagis. I became worried that something was wrong. I filmed the rotation with my iPhone, and sent the short video off to three hams with large arrays for their analysis: **WØGJ**, **K3LR** and **W3LPL**. All agreed that my rotator was slowly stripping, likely from the large array slowly torquing in the wind.

The tower had an Orion 2800 M2 rotator – a workhorse among ham rotators. It was built to handle 35





The failure: Three bolts are missing, and a mounting hole in the rotor plate is torn by movement of the remaining bolt.

square feet of wind load, which I thought was sufficient for my two Yagis. Their wind load together added up to 27 ft²: C49XR (18 ft²) and Magnum 240N (9 ft²). W3LPL, Frank Donovan, pointed out to me that wind load specifications are simply estimates for such large arrays. Most of the time, one needs to significantly increase the manufacturer's wind load rating when it comes to choosing a rotator to handle the stack wind load.

Fortunately, the **KØXG** ring rotator on my tower at 40 feet was working fine with the second C49XR. As expected, the XG ring rotator was as solid as a rock. I believe it would turn a small car if one were mounted to it.

I began planning in earnest to replace the Orion 2800 rotator. I asked a number of ham friends who are contesters what issues I should consider. It was pointed out that contesters often want to have one Yagi pointed to Europe, while having a second Yagi pointed to Asia. This was especially true with my stack. My 40m Yagi would work EU stations in the late afternoon/early evening during CQ WW, while the 15/20m Yagi should be pointed to Asia to take advantage of grayline propagation to Asia. I could not do that at the moment, as both were turned by the Orion 2800 rotator. Perhaps I should consider options to separate what devices turned those two top Yagis. Maybe I should put the 40m Yagi on a rotator and the top C49XR on a ring rotator at 100 feet(?)

I was also advised that phased Yagi arrays offered the best gain for DXing, and a rotating tower would align the antennas best, and likely be the most durable. I wanted durability, stability, flexibility and minimal

maintenance with whatever upgrade I installed. I was getting a little gun shy about having to spend significant \$\$ on the tower and antenna system every couple of years.

I reviewed a number of options for the upgrade, including: (a) replacing the rotator with a rotating tower base, (b) replacing the Orion 2800 with a second Orion 2800 rotator as a quick, short-term fix, until I could sort out what I really wanted to do and could afford to do it, (c) replacing the Orion 2800 with a **K7NV** prop pitch, and just keep things as-is, except for the upgrade to the prop pitch rotator, (d) replacing the rotator with a second Orion 2800 rotator for the 40m Yagi, and putting a second XG ring rotator at the top for the C49XR and, (e) replacing the Orion 2800 with a Prosisstel rotator.

I contacted a number of contester and DXer friends again in the ham community about their experiences and advice. Nearly all recommended that I go with a rotating tower system for ease of future repairs. Since the rotating mechanism is at the ground level, a rotating tower offered the most flexibility with Yagi stacking and scalability, and the **KØXG** rotating system was considered very high on the durability scale among tower rotators. I already knew Richard, having bought one of his ring rotators several years ago.

I seriously considered purchasing a second **KØXG** ring rotator to put at the top of my tower so that any of my Yagis could be pointed independently during a contest. Eventually, though, I realized that the risks of a ring at 100 feet needing repairs during contesting season made such flexibility less appealing and not practical, especially since any repairs needed from November through March would have to wait until our warm weather season arrived.

Richard Bennett, **KØXG**, was immensely helpful, as I thought through the decision. He offered to hold one of each option until I decided. He didn't want to tell me what to do, but did offer thoughts regarding the pros and cons for each option.

I had planned to do the upgrade in 2014. But, unfortunately, the finances did not materialize for the repairs. I knew I was pushing my luck to postpone things until 2015, but, without the funds there is no mission! Sure enough, in early December 2014 my luck ran out; the Orion 2800 stopped rotating. I made sure (every day prior to that) to leave it pointed to EU just in case it broke. I also left the XG ring rotator pointed 120 de-



grees (SE) so that one Yagi would always be available for the upcoming Navassa DXpedition! Well, where was the Yagi pointed on the day the rotator stopped working? It was pointing about 150 degrees SE, luckily toward Navassa, but essentially not usable for the winter contest season, except to SA and the Pacific Rim. As the winter and its winds rolled through SE Minnesota, the antenna turned further SW, and ultimately stayed pointing 210 degrees most of the time. I had had enough by March, 2015, and made the decision to proceed with repairs. Richard and I corresponded and set a date for the rotating base to be delivered after Dayton in the spring.

I had been modeling antenna gain and optimal stacking distances from November through the spring season, using the HFTA software from ARRL and Dean Straw, **N6BV**. I also watched a contesting webinar by **K9CT** on planning a contest station, and wrote him for advice. Craig suggested that any new stacking should provide 3db gain over what I had. I worked with the modeling, and decided I should go big. I had a 3rd C49XR in reserve, so I started modeling it on the tower, and ultimately realized that I could increase my 20m gain 3db by stacking three of them at 125, 80 and 50 feet. I learned that I would gain nothing by going higher. Indeed, my gain on 10 and 15m decreased at such heights, but the lower stacks would provide sufficient gain for my contesting and DXing efforts.

Next, I applied for a permit through my local township, and engaged them in the design process, as well. They approved the permit, and I was okay to start by Dayton 2015. I spent much of my time at Dayton buying surplus hardline and connectors for the new system, as well as looking for a second 40m Yagi to phase with my top one.

Ultimately, I ordered a custom-made 40/30m (2/2) Yagi from **N6BT** to be installed at 75 feet, and phased with my top 40m Yagi, which is at 130 feet. Together, they give me ~ 3db more gain on 40, and (finally) an antenna for 30 meters.

I also decided to move my WARC Yagi from my Rohn BX tower at 48 feet to my Rohn 55G tower and place the Yagi at 60 feet, so that I would have more gain on 17 and 12 meters for DXing efforts.

We took down my existing tower on a Monday in July, and put it back up on a Tuesday and Wednesday, once the rotating base was installed. I replaced my

guys with Phillystran at the recommendation of **WØGJ** and **WØAIH**. I hired Paul Bitter to be my project consultant, and the PK Antenna group from Dixon, Illinois to do the tower climbing and heavy lifting. Paul also climbed, and was instrumental in helping get everything resettled.

- story is continued on page 22 -



KØXG rotating tower base.



Preparing to lower the first antenna.





This work is not for the faint of heart!



The second antenna is away.



The first antenna is away.



Temporary steps in place to work on the mast mounted 40m antenna.



Prepping the second antenna for removal.



The 40m Yagi is away.





The tower is supported by the crane, so the guys can be removed.



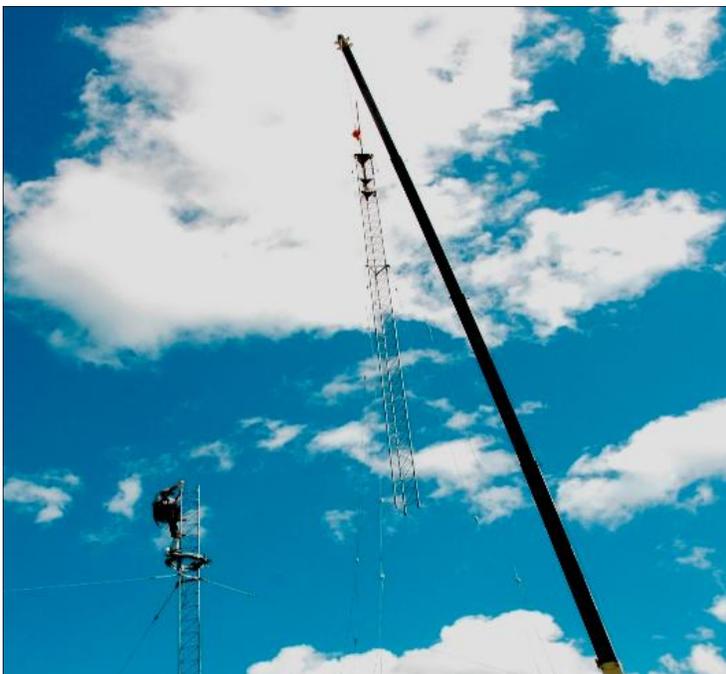
Lowering the bottom sections.



Paul, WØAIH removing the upper guys.



Setting the KØXG rotating tower base in place.



The top sections are coming down.



Richard and lead tower man discussing day two plans.





Preparing the tower for installation.



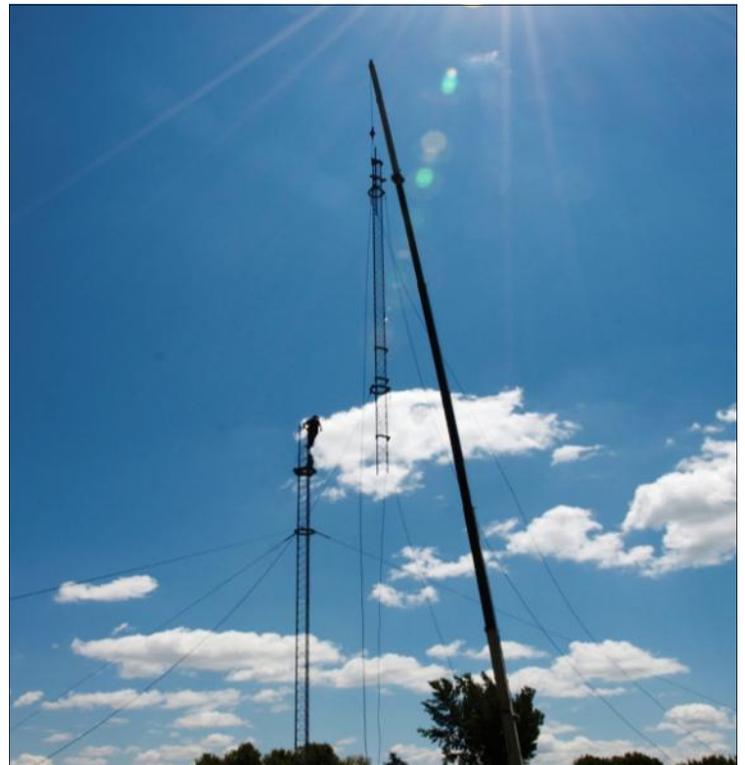
The crane supports the bottom half of the tower so the guys can be adjusted.



The bottom half of the tower going up.



Bolting the bottom half of the tower to the base.



Moving the top half of the tower into place.





The top half of the tower is guided into place.

The project is not finished. I'm still wiring the hardline to my house, and putting in a second NEMA box at the tower base for the coax to hardline transition. Also, I'm also working on the tower grounding system. Due to work responsibilities, I have not had a free weekend in August. I'm hoping to get the rest finished in September to be ready for the start of the contest season in October.

The third C49XR has not arrived. I hope it comes in September. The second 40m Yagi is also due in September. Hopefully, I will have time to assemble them before winter. I also bought a new Yagi phasing system. I will use my old Array Solutions Stack Match for the 40m Yagis, but bought a custom-built 3-Yagi stack match from DX Engineering. It is an amazing box.

It's really nice now to watch the Yagis stay put when the winds blow hard in SE Minnesota. It's also



130 feet of rotating tower is almost ready for antennas.

nice to have my 10-20m meter antenna array set up and ready for contest season. My plan is to put the stack boxes in my basement, so I have year-round access to them. I'm running coax or hardline from each Yagi to my house to facilitate this. I also can switch antennas around to change my station from an SO2R station to a Multi-1 or Multi-2 station, with separate Yagis for each rig.

Special appreciation is extended to several TCDXA and MWA members, who helped me with my Yagi/tower/rotator project: **WØDJC** from Duluth; **WØVTT** from St. Charles, **WØVB**, **WØSHL**, **K4IU** and **KØUH** from Rochester; **NYØV** from Chatfield and, of course, **WØAIH** from his superstation near Eau Claire. I also want to publicly thank Glenn Johnson, **WØGJ** for hours of advice and analysis; Bob Naumann, **W5OV** at





The top two antennas are installed.



All four antennas are in place.

DX Engineering, who tirelessly helped me; K3LR, **KØIR**, W3LPL and **WB9Z** for advice and troubleshooting guidance; DX Engineering for superb customer service for the supplies I needed; Richard Bennett, KØXG for advice and troubleshooting assistance; **K4SV** for advice and counsel regarding multiple aspects of the project and Hawk and Sons Crane of Rochester, MN, who provided superb crane service. We invested 20+ hours of crane time and three and a half days of labor into the project with, thankfully, no injuries or accidents. Finally, I want to thank a number of others who I have not singled out for their advice, assistance and encouragement. And, I'm delighted that the readers of the *GrayLine* remain interested in antenna projects that can seem bigger than life.

I used to think that antenna projects would one day be completely done. I think I can now say the work is never really done, it is always in progress! Now, my bigger challenge is to actually operate and use the fantastic antenna station I have built.

73, de Scott, KØMD

Tower #1 (Force 12 models)			
<u>Height</u>	<u>Model</u>	<u>Bands</u>	<u>Elements</u>
130 ft.	Magnum 240N	40m	2
125 ft.	C49XR	10 - 20m	24
80 ft.	C49XR	10 - 20m	24
60 ft.	4BA	10/12/15/17m	12
Planned additions:			
75 ft.	240/230	30/40m	4
45 ft.	C49XR	10 - 20m	24

Tower #2			
<u>Height</u>	<u>Model</u>	<u>Bands</u>	<u>Elements</u>
60 ft.	Force 12 220	20m	2





TWIN CITY DX ASSOCIATION (TCDXA)

CLUB FACT SHEET

Who We Are:

The Twin City DX Association (TCDXA) is a 501(c) (3) non-profit amateur radio organization, whose members have an interest in DXing and in supporting the club mission: **Dollars for DX**. Bylaws and Articles of Incorporation govern the club's operation.

Club Mission:

The club mission supports major DXpeditions with financial donations. The source of operating income for this activity is an annual contribution (dues) of \$25 from each member.

DX Donation Policy:

The policy supports major DXpeditions that meet our requirements for financial sponsorship. All requests must be approved by the Board of Directors. Final approval is by vote of the full membership. Over fifty DXpeditions have been sponsored since 1997. Details are available on the website at: <http://www.tcdxa.org/sponsoredexpeditions.html#MenuBar1>.

Club History:

The club was formed in the early 1970s by a small group of DXers from the Twin Cities area. Over the years, the club has changed; most notably by opening its doors to anyone interested in DXing - from the casual to the very serious operator. Our membership now resides in numerous states and several countries.

Requirements for Membership

We welcome all hams who have an interest in DXing and hold a valid FCC Amateur Radio License. It doesn't matter whether you're a newcomer, or an oldtimer to DXing; everyone is welcome!

Meetings:

The club meets on the third Monday of each month (except July & August) at PUB 42 Restaurant in New Hope, MN. Members gather early in the bar for Happy Hour, and move into a private room at 5:00pm for dinner and a short business agenda, followed by a program. If you enjoy a night out on the town with friends, you'll enjoy this get together. Meeting attendance is NOT a requirement for membership.

Club Officers:

Four officers, plus one additional member make up the Board of Directors; currently: President Michael Sigelman, **KØBUD**; Vice President Tom Lutz, **WØZR**; Secretary-Treasurer Pat Cain, **KØPC**; DXpedition Funding Manager Matt Holden, **KØBBC** and Director Rich Goodin, **WØDD**.

Website:

We maintain a website at www.TCDXA.org that provides information about a variety of subjects related to the club and DXing. The site is maintained by our webmaster Pat Cain, **KØPC**.

Newsletter:

The **GrayLine Report** is the club newsletter, which is published on a quarterly basis. We're proud of the fact that 99% of the content is "homegrown" – written by our members. Past issues are on the website at: <http://www.tcdxa.org/newsletter.html>.

How to Become a Member:

An application for membership can be completed and submitted online, or printed and mailed in. (See <http://www.tcdxa.org/Application.html>) Contributions may be made by check or via the PayPal link on the homepage at www.TCDXA.org.

Visit us at a Meeting:

You are most welcome to attend a meeting, and look us over, before joining. Meetings are held at the PUB 42 Restaurant at 7600 Avenue North in New Hope (<http://pub42.com/>). Join us for happy hour at 4:00pm with dinner at 5:30pm, followed by the meeting at 6:30pm.



VKØIR
ZL9CI
A52A
T33C
3B9C
TX9
CP6CW
3YØX
K7C
5A7A
VU4AN
VU7RG
VK9DWX

K5D
VK9DWX
FT5GA
3D2ØCR
E4X
CYØ/NØTG
VP8ORK
VU4PB
STØR
3D2C
3CØE
TT8TT
9M4SLL

AHØ/NØAT
5X8C
K9W
XRØZR
T3ØD
3W3O
3W2DK
FT4TA
VK9MT
VK9DLX
VU4KV
EP6T
3GØZC

3W2DK
FT4TA
VK9MT
VK9DLX
VU4KV
EP6T
VP8STI
VP8SGI
TX3X
VP6DX
TX5C
9XØR
9U4U

K4M
TX3A
KMØO/9M6
YS4U
YI9PSE
ZL8X
4W6A
T32C
HKØNA
7O6T
NH8S
PTØS
FT5ZM



TCDXA DX DONATION POLICY

The mission of TCDXA is to support DXing and major DXpeditions by providing funding. Annual contributions (dues) from members are the major source of funding.

A funding request from the organizers of a planned DXpedition should be directed to the DX Donation Manager, Matt, **KØBBC**, k0bbc@arrl.net. He and the TCDXA Board of Directors will judge how well the DXpedition plans meet key considerations (see below).

If the Board of Directors deems the DXpedition to be worthy of support, a recommended funding amount is presented to the membership for their vote. If approved, the TCDXA Treasurer will process the funding..

Key Considerations for a DXpedition Funding Request

DXpedition destination
Ranking on *Most Wanted Survey*
Most wanted ranking by TCDXA Members
Logistics and transportation costs
Number of operators and their credentials
Number of stations on the air
Bands, modes and duration of operation
Equipment: antennas, radios, amps, etc.
Stateside and/or foreign QSL manager

Website with logos of club sponsors
QSLs with logos of club sponsors
Online logs and pilot stations
Up front cost to each operator
Support by NCDXF & other clubs
LoTW log submissions
Previous operations by same group
Valid license and DXCC approval
Donation address: USA and/or foreign

To join TCDXA, go to <http://tcdxa.org/>.

