

# *DXing from a City Lot*

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# What is DXing and Why???

- *Wikipedia:* Amateur radio operators who specialize in making two way radio contact with other amateurs in distant countries are referred to as "DXers".
- It's a challenge! Not only is propagation required, there is a technique or skill involved. In addition an operator needs the ability to assemble a station which is capable of performing.

# My DXing History

	Worked	Confirmed	Need QSL	Entities Needed
Mixed	256	210	46	84
CW	150	89	61	190
Phone	225	179	46	115
Digital	84	59	25	256
160m	8	6	2	332
80m	37	19	18	303
40m	92	55	37	248
30m	25	10	15	315
20m	211	165	46	129
17m	55	26	29	285
15m	178	131	47	162
12m	61	27	34	279
10m	158	105	53	182
6m	1	1	0	339
2m	0	0	0	340
Challenge	826	545	281	2574

*Countries Worked since December 1, 2010*

# How do I reach the next plateau?

- At this stage of the game I had already:
  - upgraded to a dual receiver radio (FT-2000)
  - bought and refurbished an amplifier (Desperado)
  - Had a 40 foot tower with a tri-band beam.
  - Had a trap dipole for 40, 80 and 160 meters.
- The answer was the antenna system, but what more could I do on a city lot 120 feet wide and 90 feet deep?

*---And the wife doesn't want to move to the country!!!*

# But my Antenna System is working...

I was reminded of something I already knew while attending the W9DXCC convention in Chicago this year, and that was...

## ***All antennas work!***

- They don't need to be resonant...
- They don't need to be certain height...
- They don't necessarily need to be any particular shape...

***All you need is a good antenna tuner which will create a conjugate match, and they'll work!***

# *Efficiency* is the difference!

- How efficiently is the system actually working?
- How much loss is created by SWR?
- How much loss is caused by the tuner itself?
- Will a resonant antenna work better?
- Should it be a vertical or dipole in nature?

It is not just the antenna, transmission line or tuner...  
It is the antenna *SYSTEM* as a whole!

*Just ask the Curmudge!*

# System Evaluation by Band:

- 10, 15 and 20 meters: KT-34A 4-ele beam, excellent performance, old RG-8U solid dielectric coax. Element-to-boom connectors need replacement.
- 12/17 meters: No specific antenna. Have been matching tri-bander with mediocre results.
- 30 meters: No antenna
- 40, 80 and 160 meters: Trap dipole which works as expected. Narrow bandwidth and more of a cloud warmer than a DX antenna.

# Project Decision by Band

- 10, 15 and 20 meters: Lower KT-34A and replace element-to-boom connectors. Replace RG-8U coax with 7/8" hardline.
- 12/17 meters: Construct my own elements based on the Cushcraft A3WS, and attach to bottom of KT-34A boom. Share the 7/8" hardline with KT-34A and the below.
- 30/40 meters: Construct half-Slopers using the tower and burying a radial system into the lawn. Share 7/8" hardline with beam.

The 7/8" hardline will be switched via a mechanical rotary switch utilizing "N" connectors

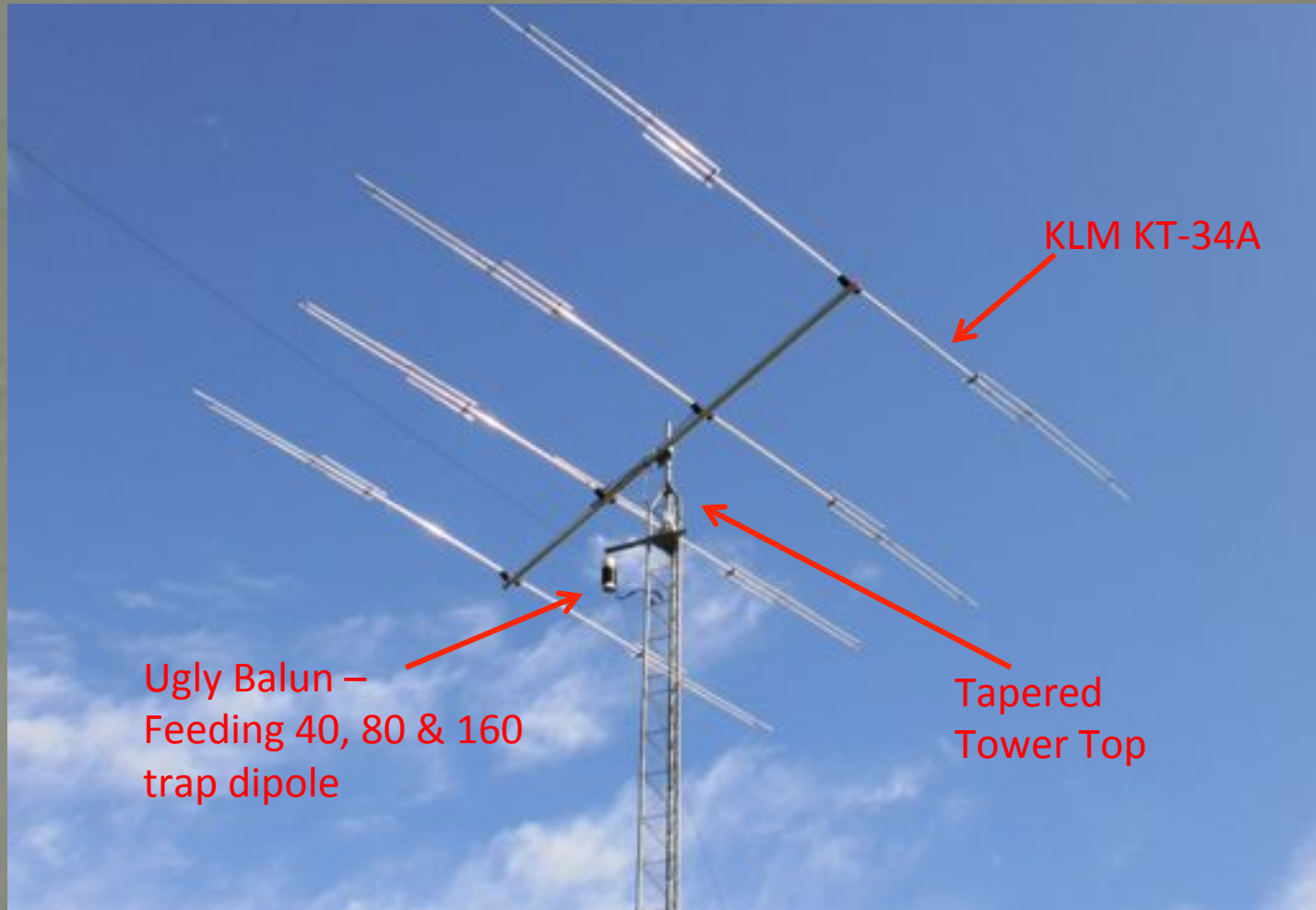


# Project Decision by Band (Continued)

- 80 meters: Construct an Inverted-L utilizing the in-ground radial system and an additional shared 7/8" hardline.
- 160 meters: Construct a Gamma Matched inverted-L utilizing the tower and the in-ground radial system. It will share the 7/8" hardline mentioned above.

Antennas will be matched and switched to the 7/8" at the base of the tower.

# My Starting Point

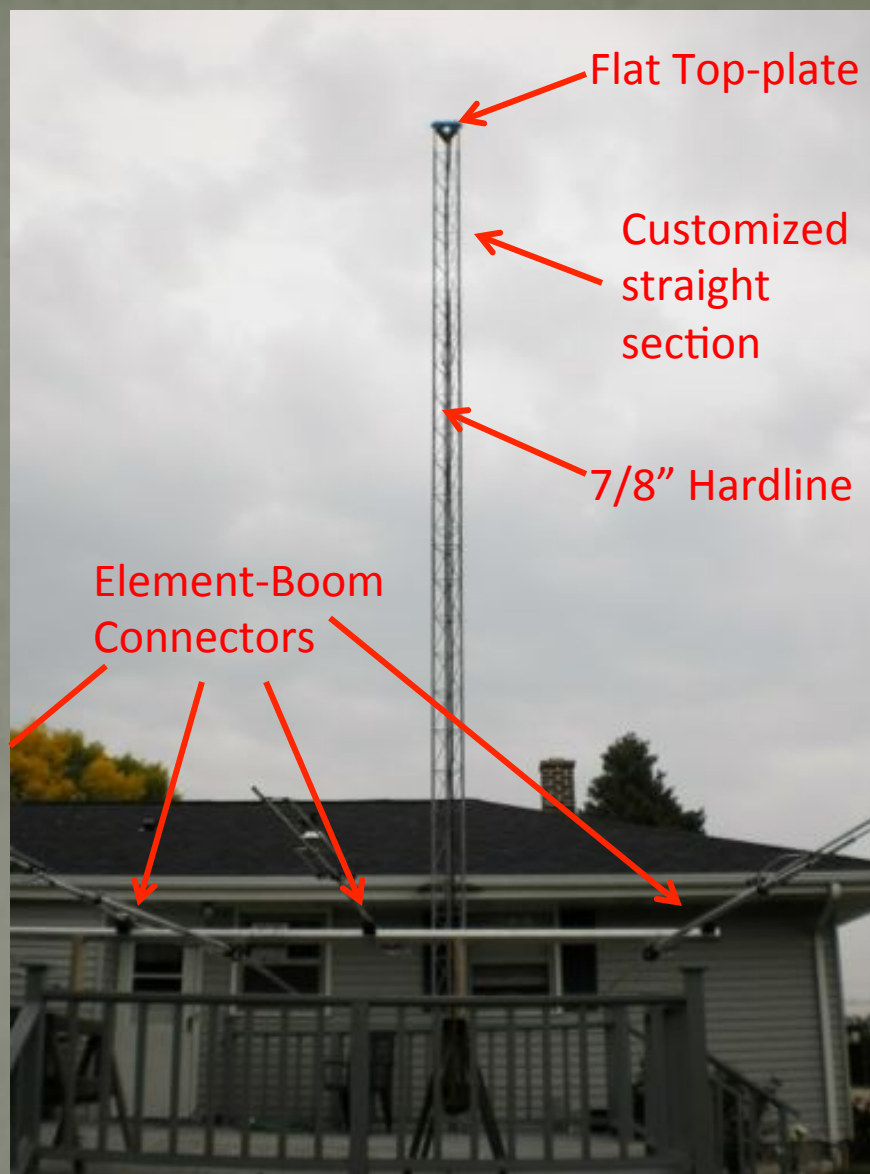


# Off the Air...

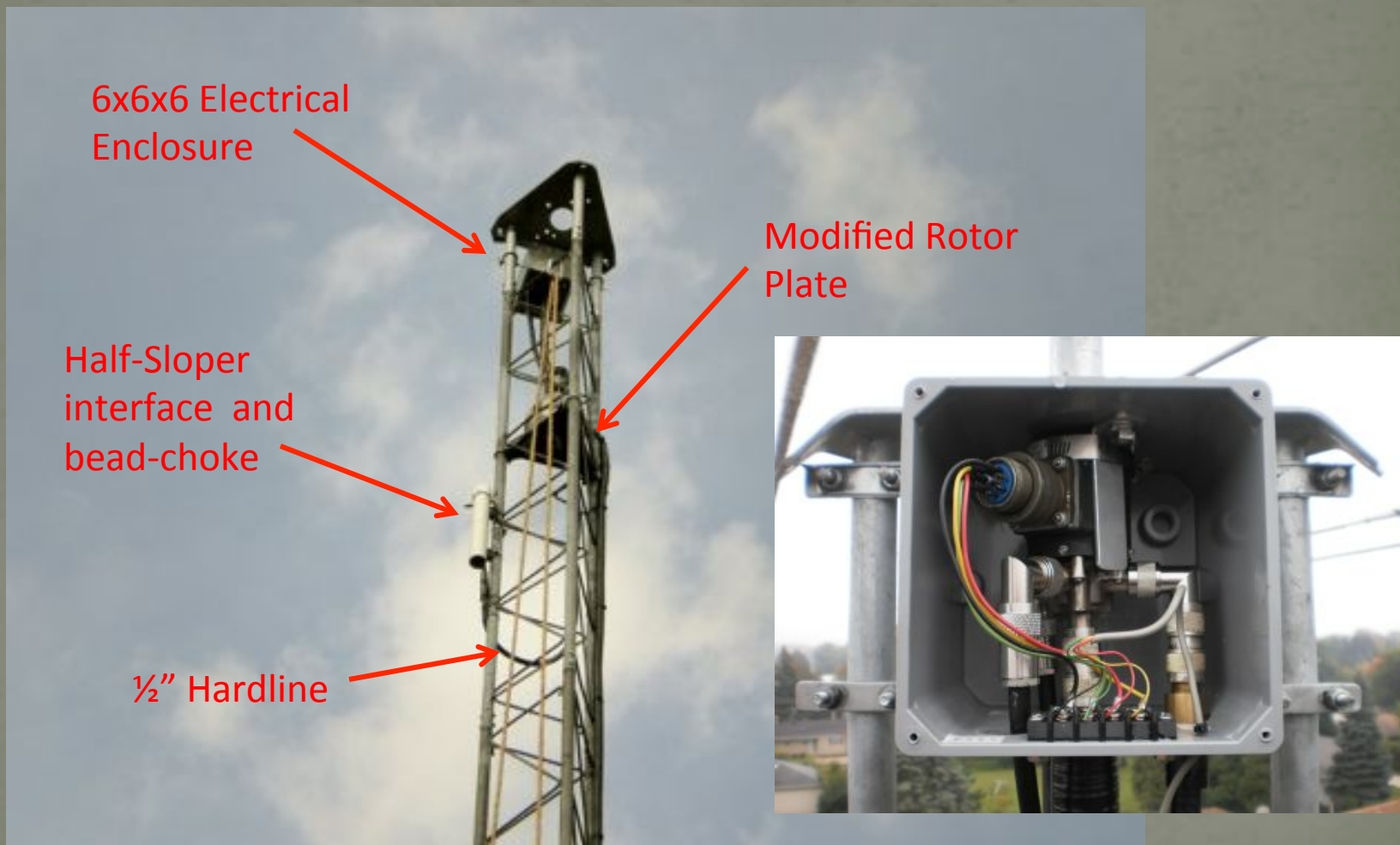
Removal of tri-bander and tower modifications



Preventative Maintenance



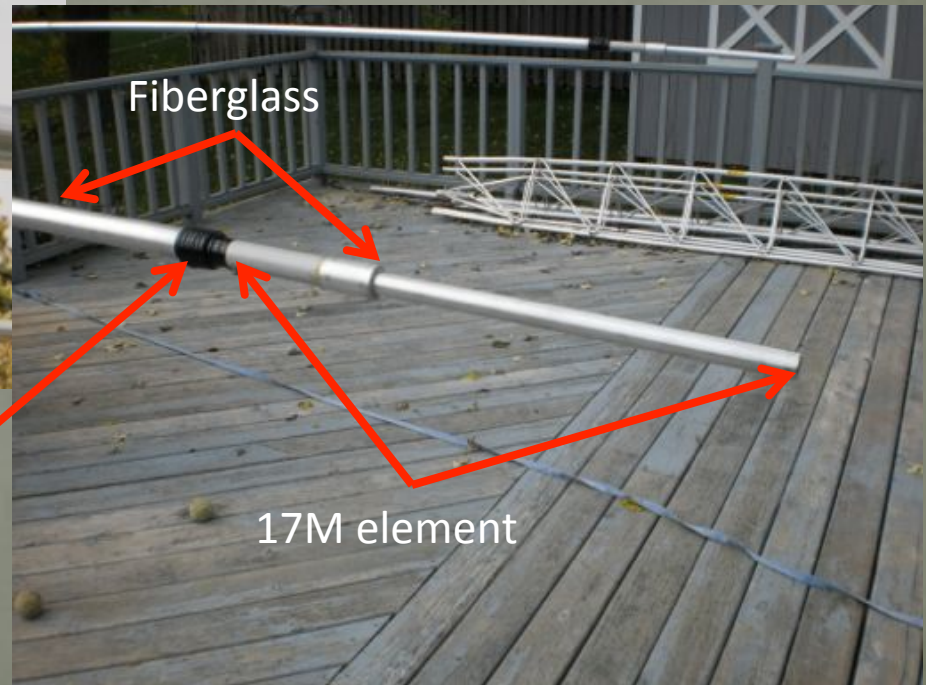
# Rotor and Switch Installation...



# The Making of 12/17 Meter Elements



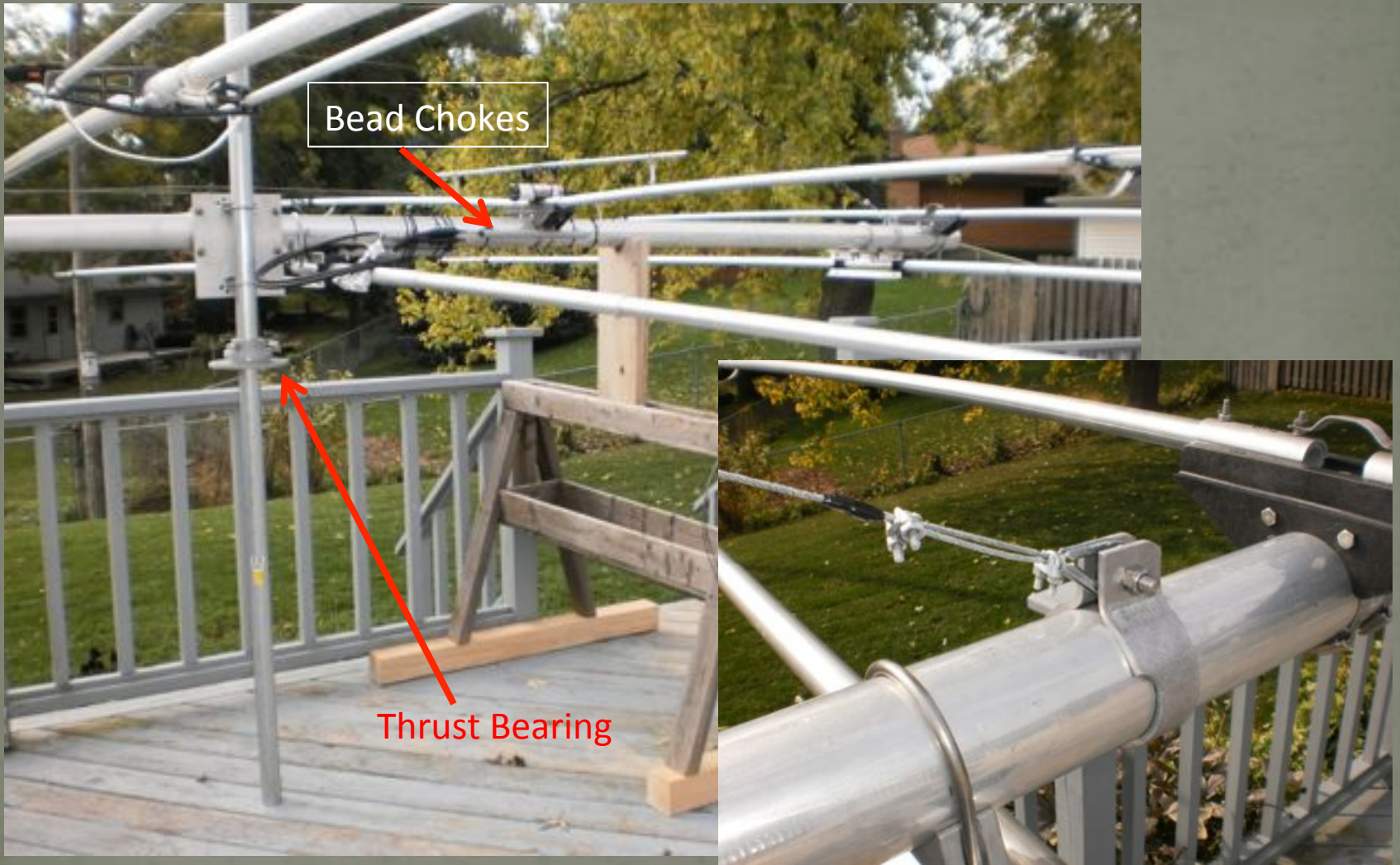
Homebrew 12M  
Coaxial Trap



Fiberglass

17M element

# 12/17 Elements, Truss and Thrust Bearing



Ready to go back up!!!



11/25/2013

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# Raising it back up!!!



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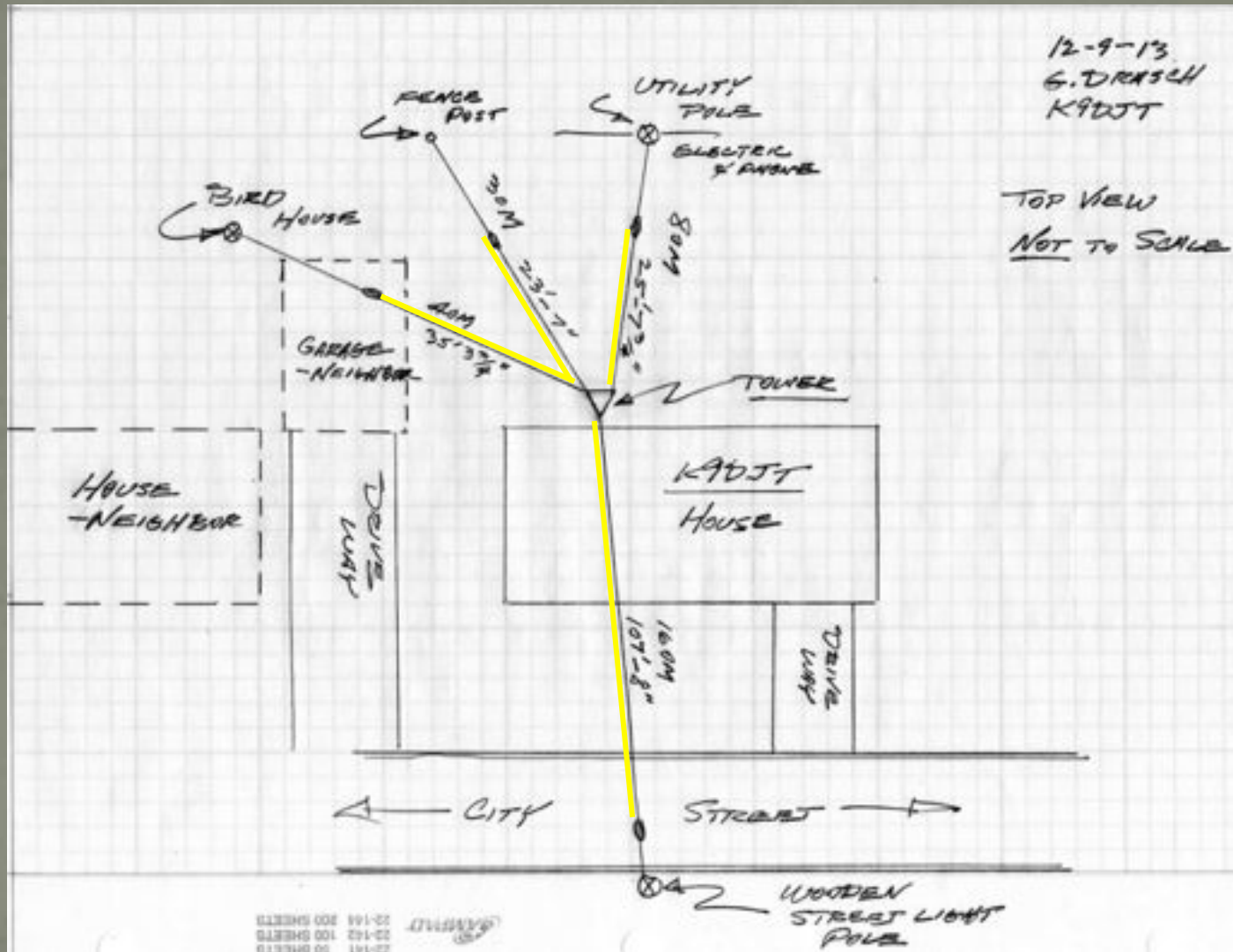
# Fastening the Thrust Bearing



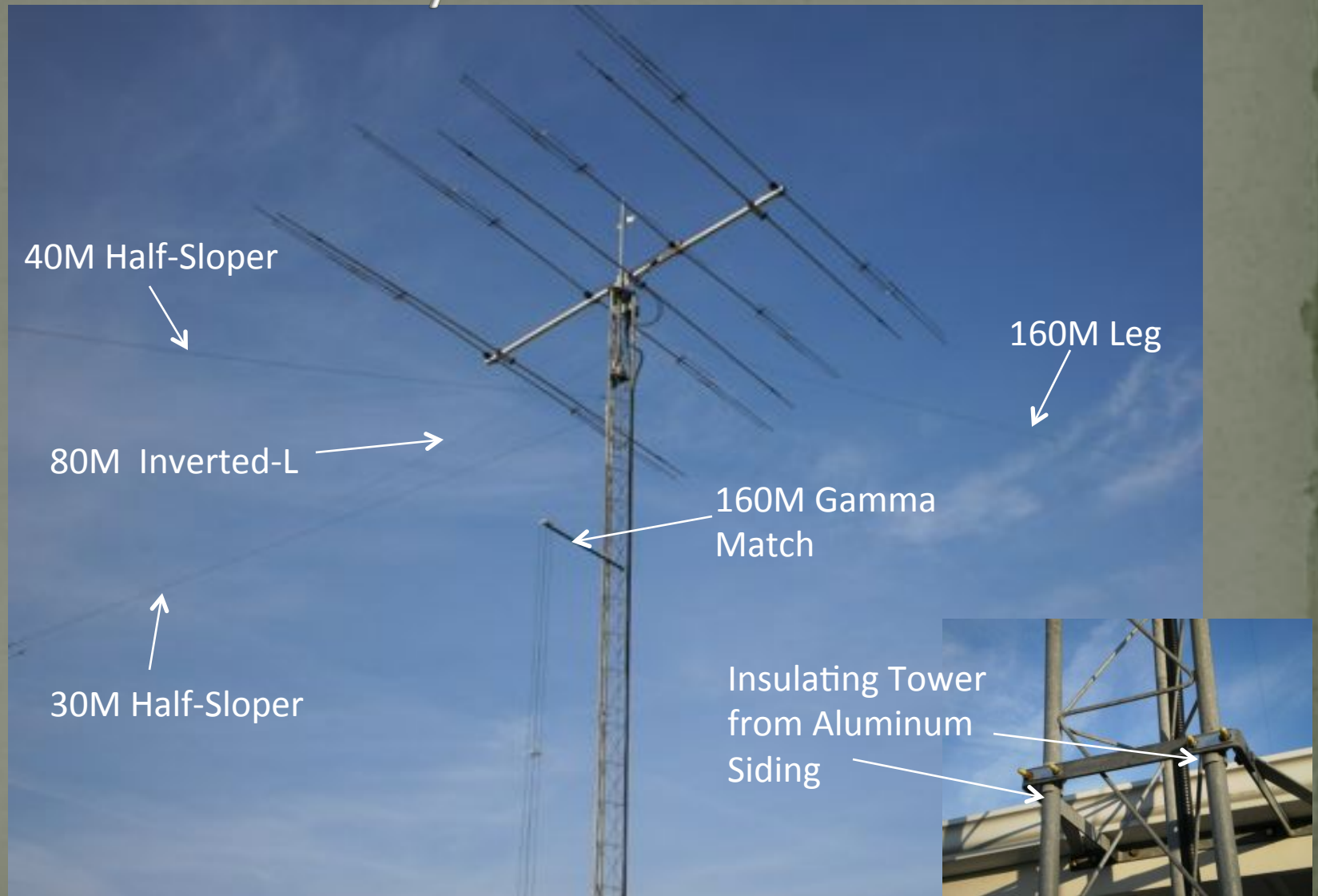
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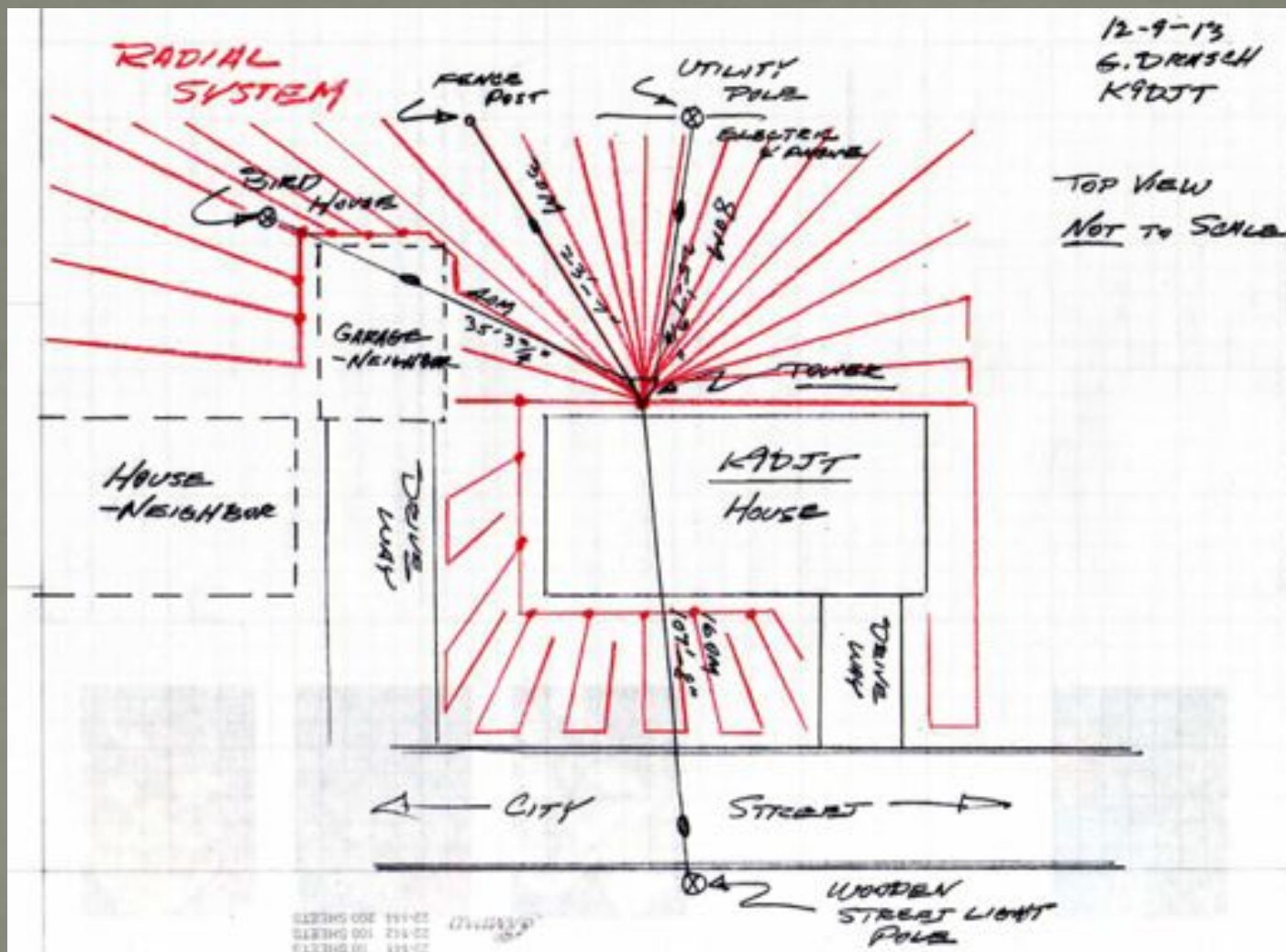
# Adding the Low-Bands



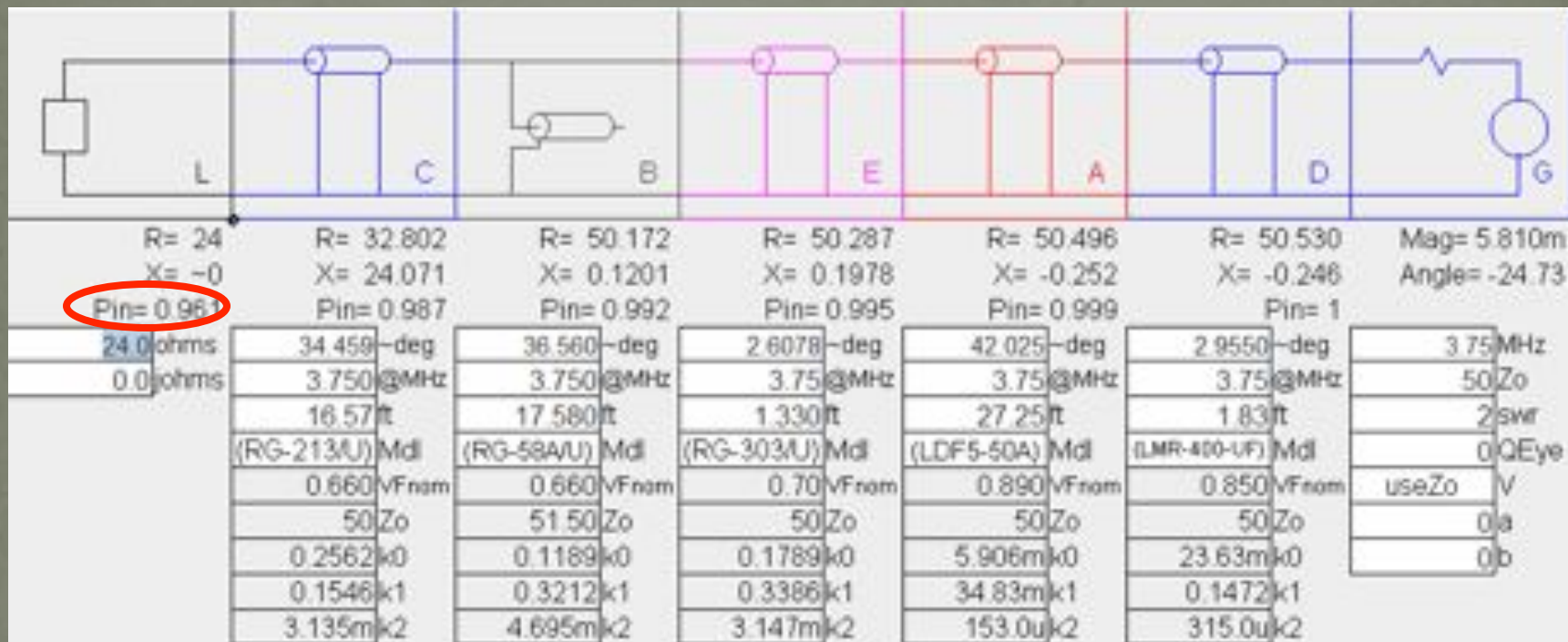
# What it Actually Looks Like!



# Radial System Layout



# Matching the 80M Inverted-L



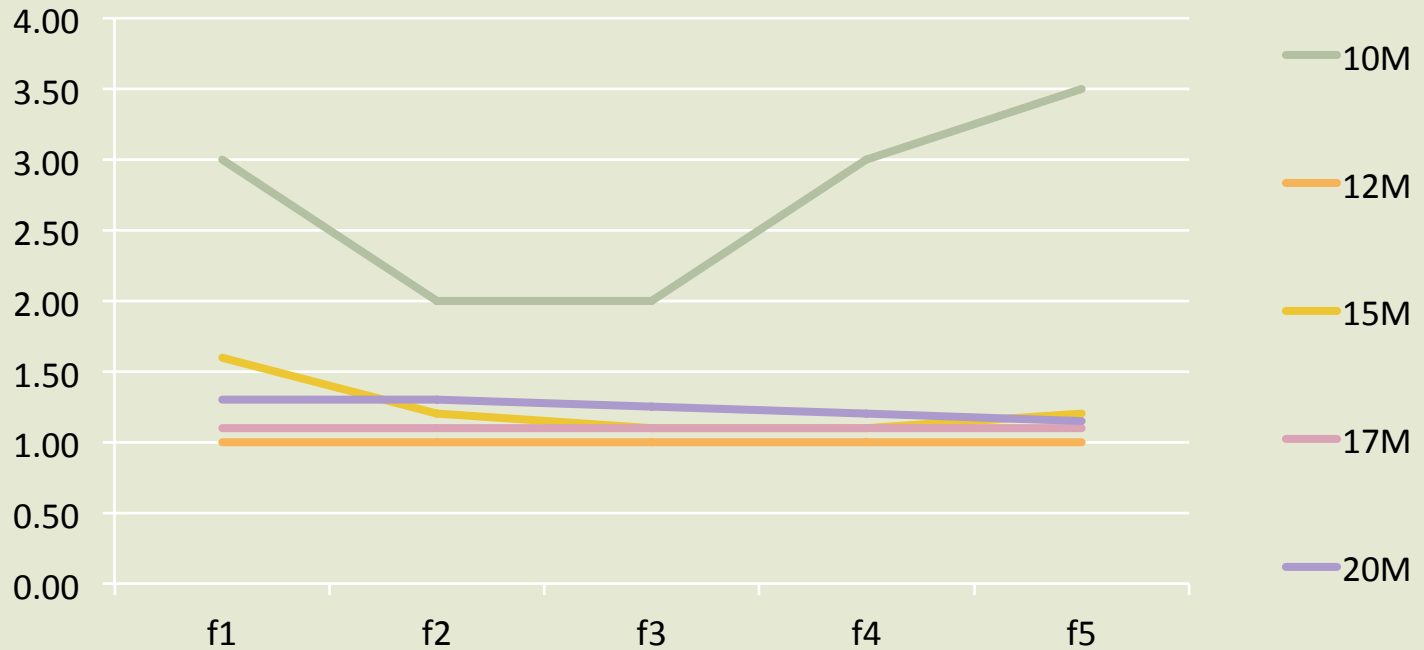
# Matching the 160M Gamma



Gamma and Length still need tweaking!

# SWR without a tuner...

**SWR**  
**KT-34A with 12/17M Elements**



# SWR without a tuner...





# End Result

- Total Transmission line loss (Including loss due to SWR)  
= .014 db @160M to .249 db @10M
- Antenna Tuner no longer required
- Instant Band Switching (*Almost...*)

***If I can hear em, I can work em!!!***

*Thank  
you...*



You are welcome to ask questions on the ORC Forum,  
or eMail me at [k9djt@sbcglobal.net](mailto:k9djt@sbcglobal.net)



**Dit Dit**