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Tower Mounting A Wavelab 24 GHz Transverter

WB5ZDP

March 14, 2026

My 24 GHz Transverter History

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- A working, tripod-mounted transverter provided by Jim, KM5PO (thanks Jim)
- Made several Q's from the backyard.
- First Q was with Al, W5LUA. (as usual)
- Range limited due to trees and houses
- At microwave – the higher the antenna the better
- This presentation follows how I repackaged the transverter and tower mounted it up ~40 feet.

24 GHz Transverter Parts

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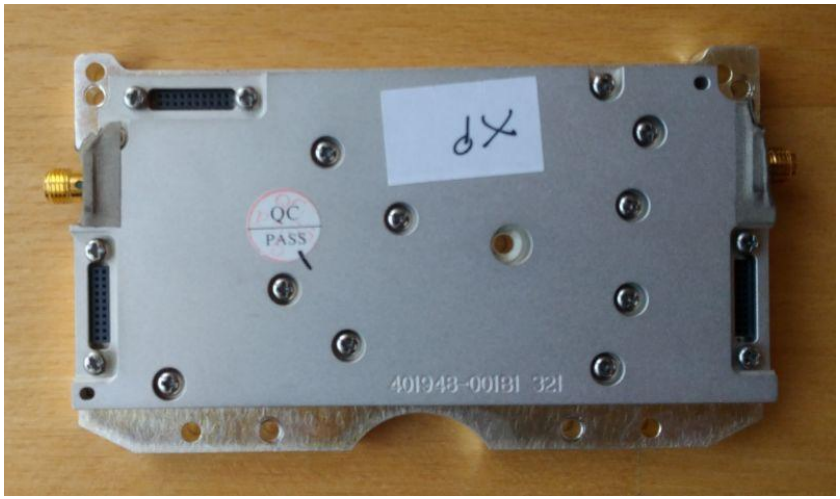
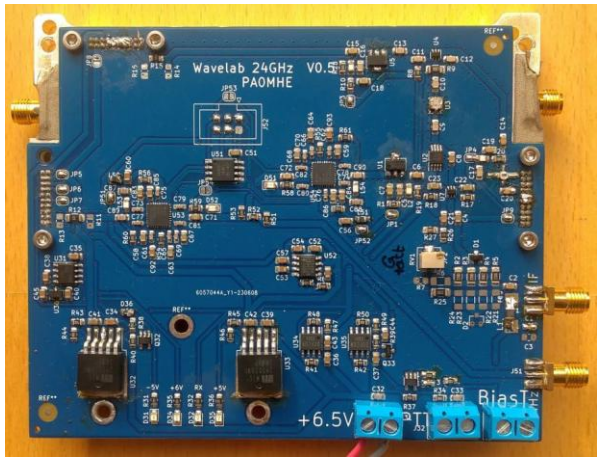


WaveLab Module

TX



RX

IF

10 MHz

Control Board

- Jim, KM5PO, has many presentations on how these work.
- The job now is to wrap all of the other necessary parts and enclosures around these modules.

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24 GHz Block Diagram

WR-42 Coax
to Waveguide

PTT Switch

Latching
Relay Driver

Sequencer

+ 12 V

+7.1 V

+V

RX TX

PTT

Transverter

+ 12 V

10 MHz

-V

-

+

432 MHz IF

Power / Voltage

Backside of RadioWaves Antenna

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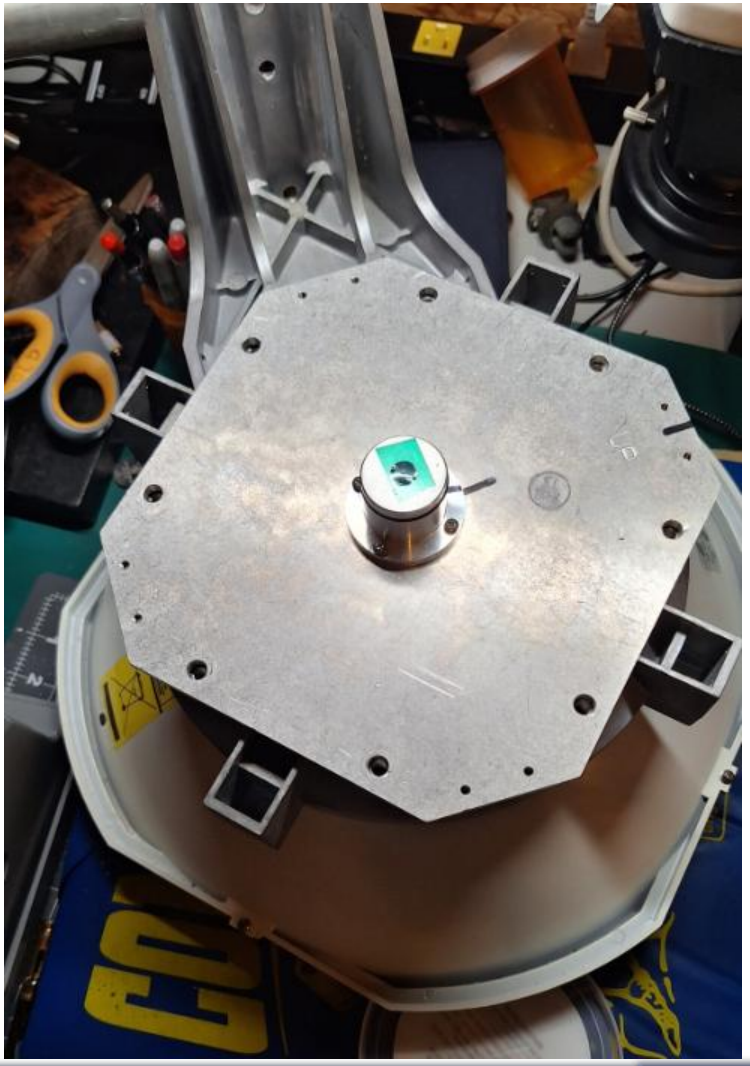

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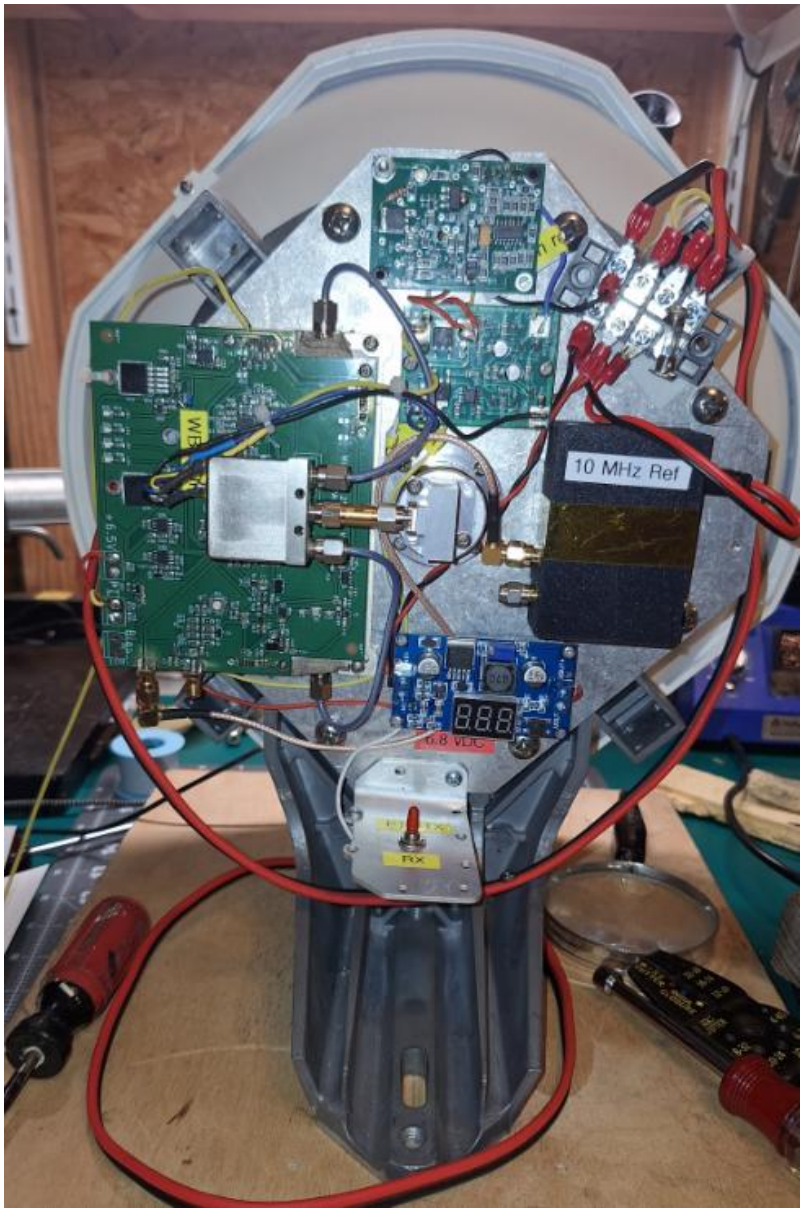
Assembled by Jim, KM5PO

Top to Bottom:

- Sequencer
- Latching Relay Driver
- Wavelab Module
- T/R Relay
- 10 MHz Reference
- Voltage Regulator
- T/R Switch



Portable Test With KM5PO EM12IL

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Guess which antenna has more gain……

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Backyard Portable

New System Building Blocks

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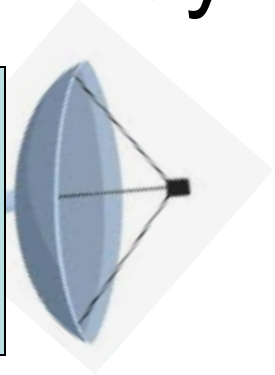
Tower
RF Box



Shack Voltage
And Control Box

Rotor Type Cable

IC-9700

432 MHz IF

50’ RG-213

Yaesu G-450A

Yaesu Rotor Cable

Tower Box Parts

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12 X 12 X 4

10 X 12 X 3/16

Mounting The Enclosure To The Antenna

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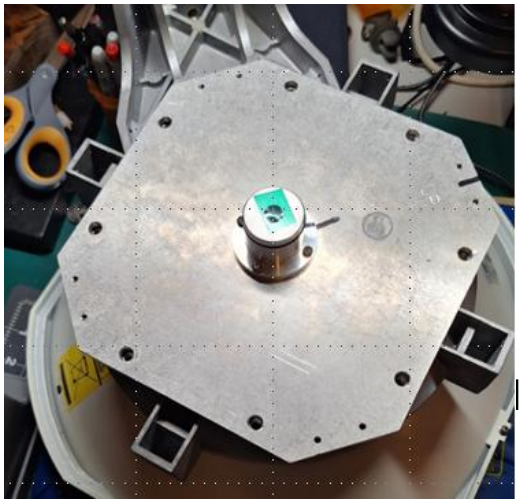

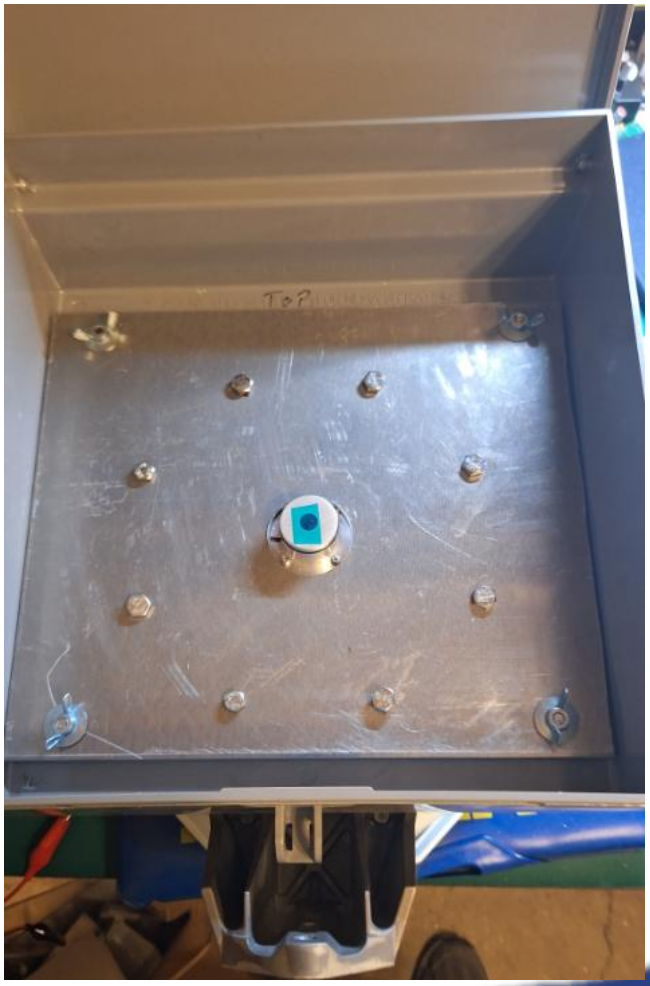

Start Mounting Parts on Plate

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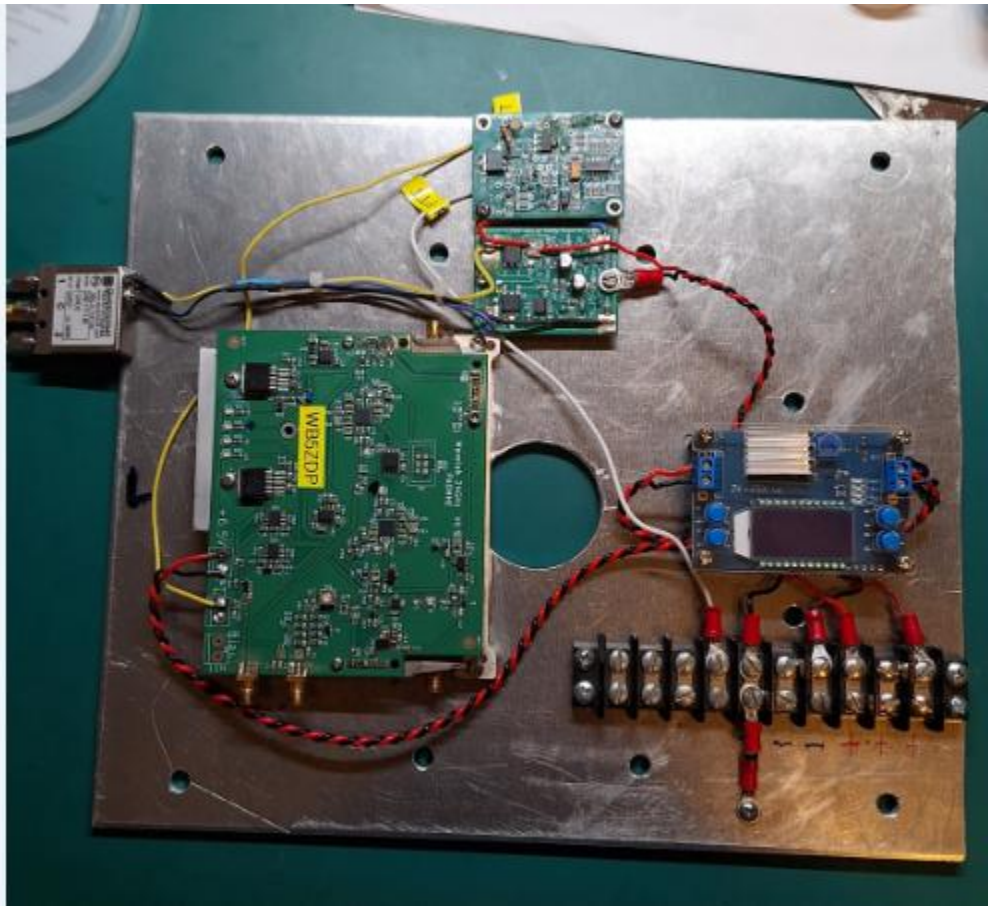

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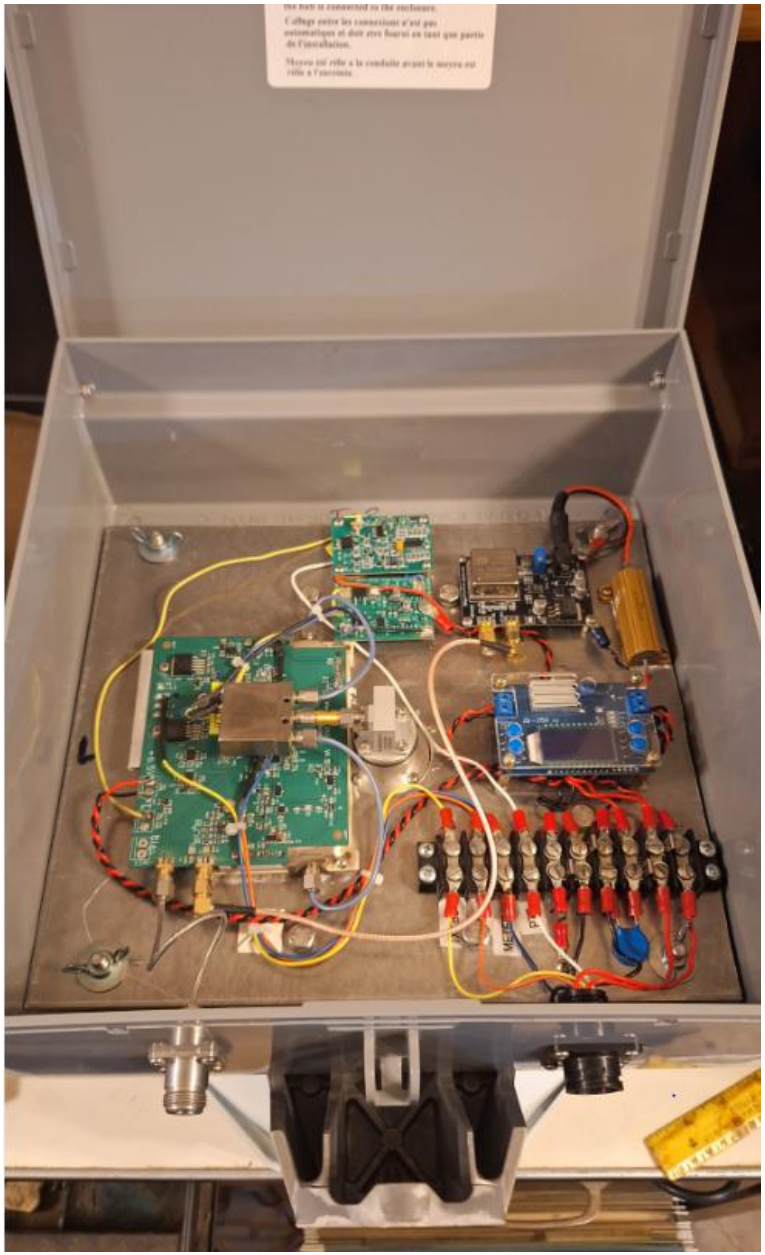
Complete Tower Box



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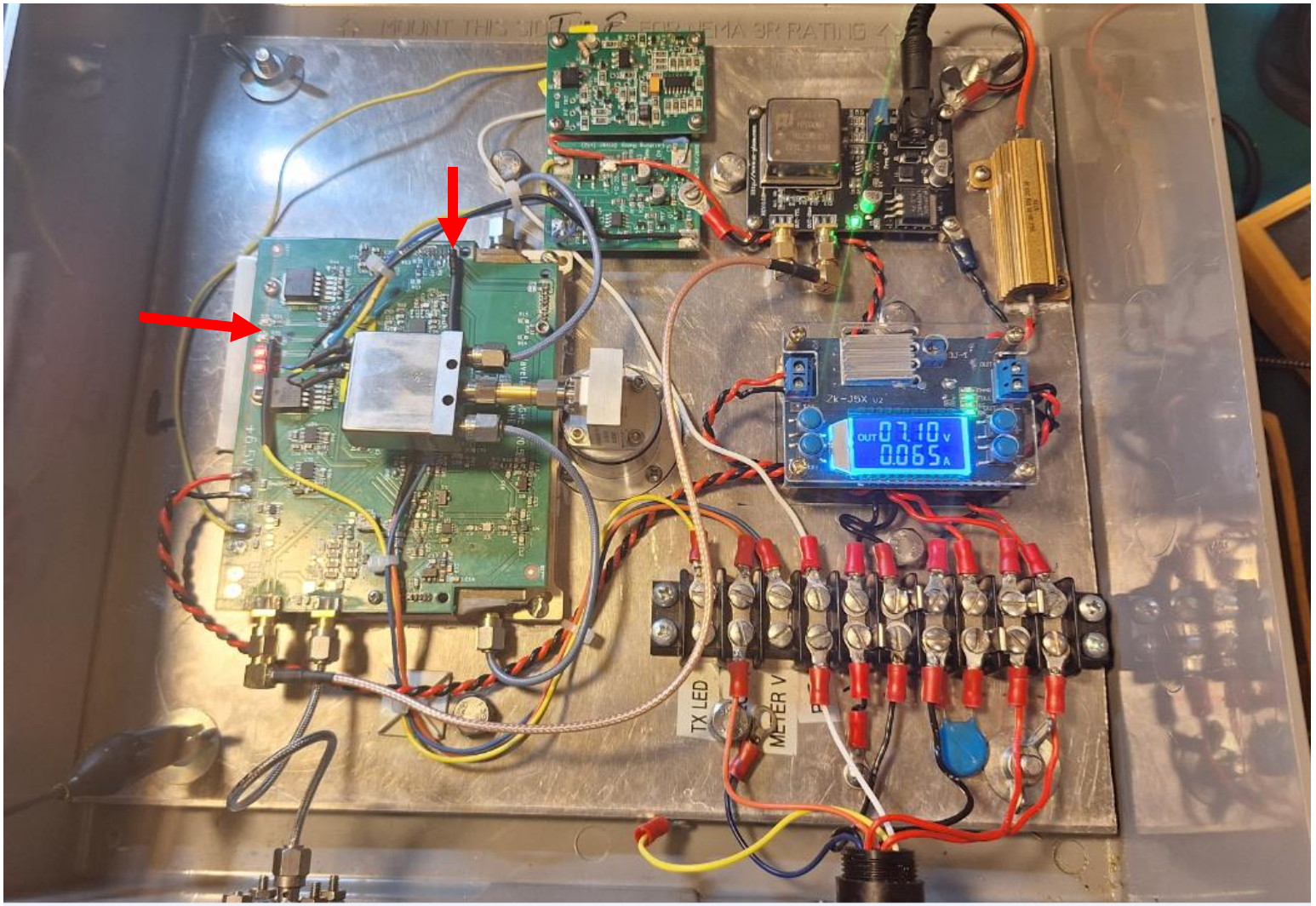
With Power On



In-Shack Voltage & Control Box

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- Supplies DC to the Tower Box
- Power on switch and fuse
- Lock LED
- TX LED
- +12 V and +5 V LED (the more LEDs the better the project !)
- DC Amp meter
- RF power indicator meter
- PTT switch

In-Shack Voltage / Control Box

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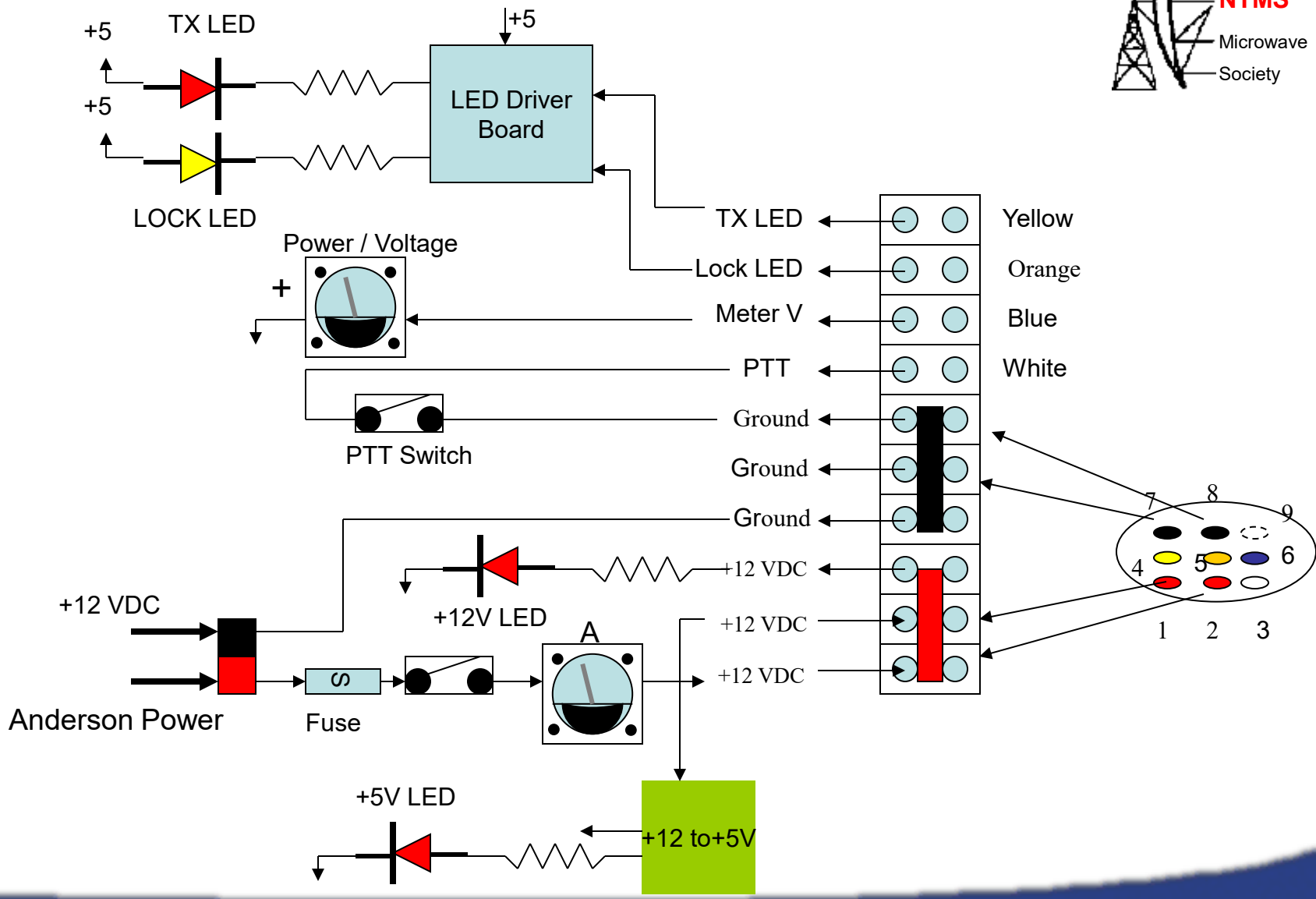
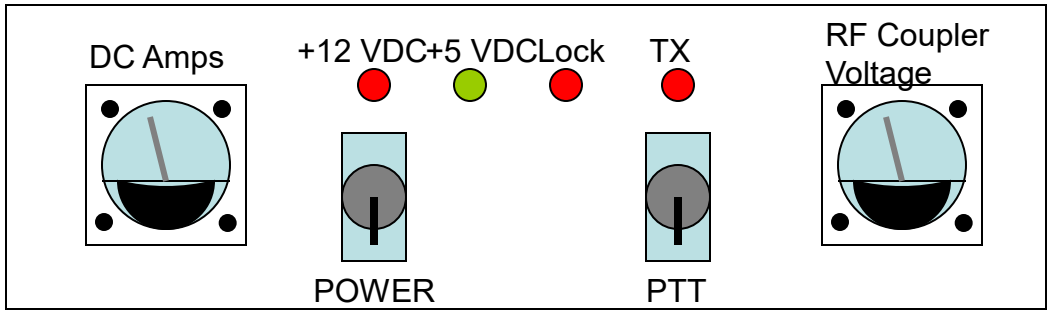


Preliminary Box Concept



How It Turned Out

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Could Have Used A Smaller Box (But It's what I had)

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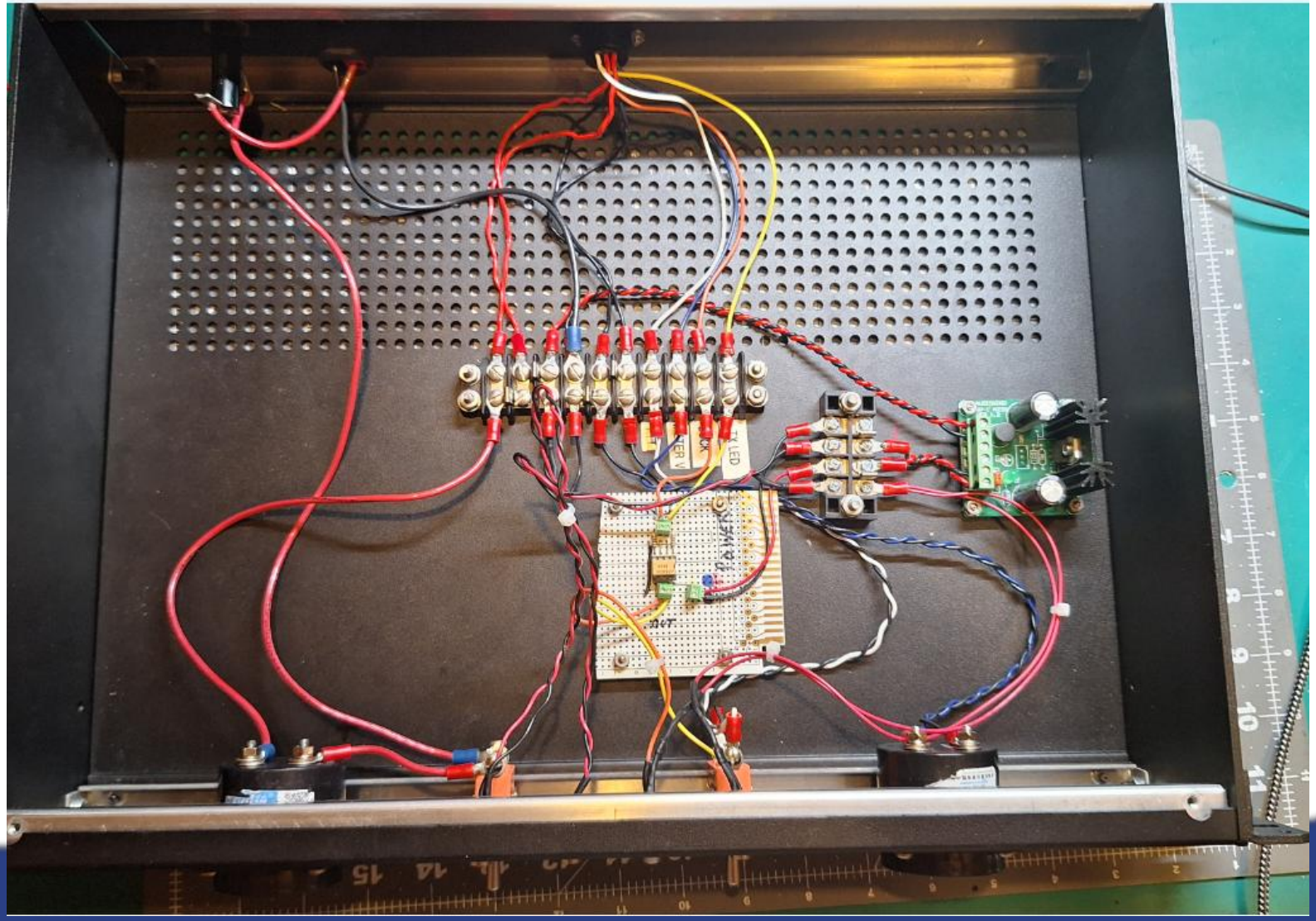

Tower Mounting Issues

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- Mounted on Rohn 25 at about 40 feet up
- Bracket must support the antenna away from the tower (~2+ feet) (Rotor turning radius)
- Must support the Tower Box and rotor weight. (Not very heavy)
- Must use existing antenna base attachment points (Not ideal)

Note The “L” Bracket On The Bottom

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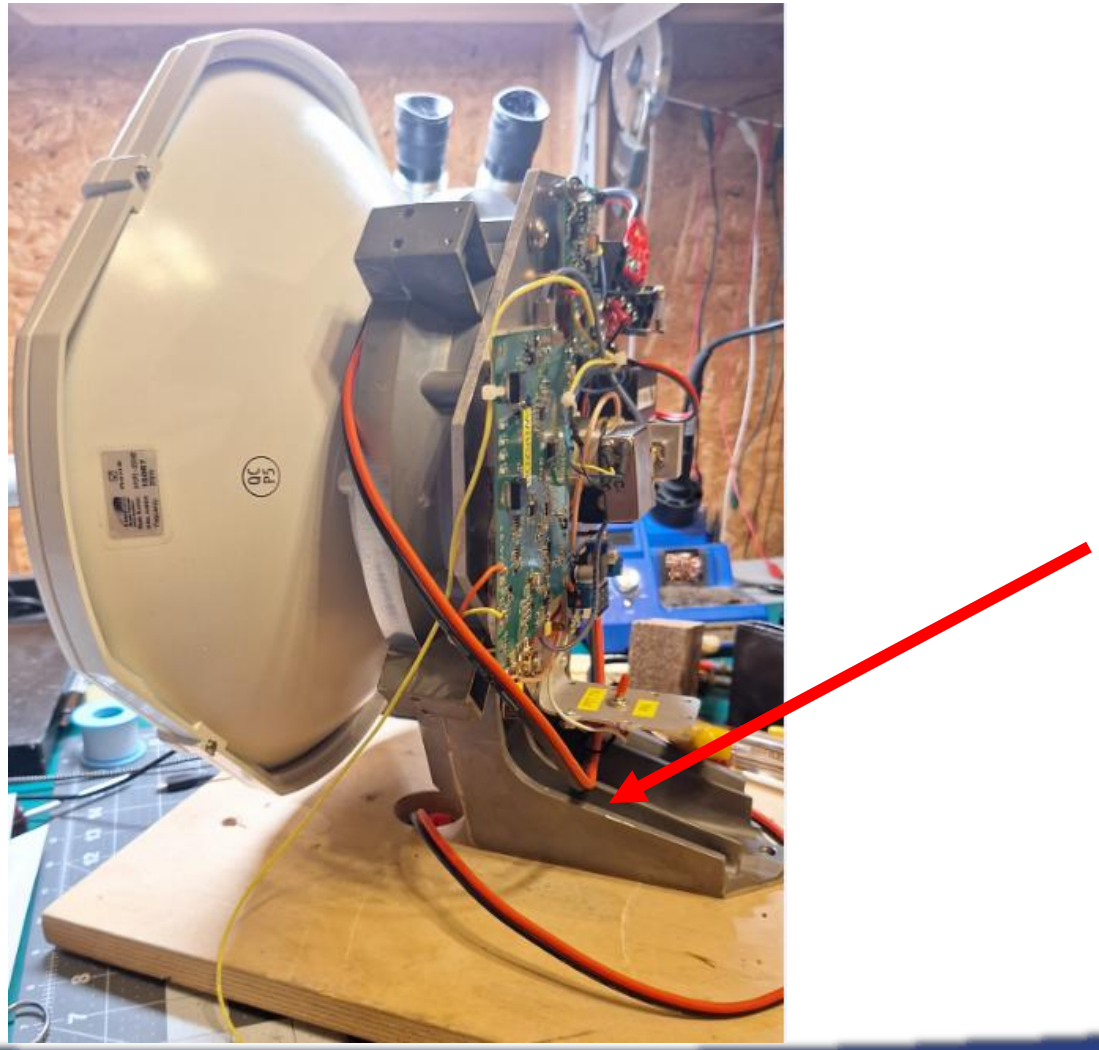

Angle Aluminum Attaches to “L” Bracket

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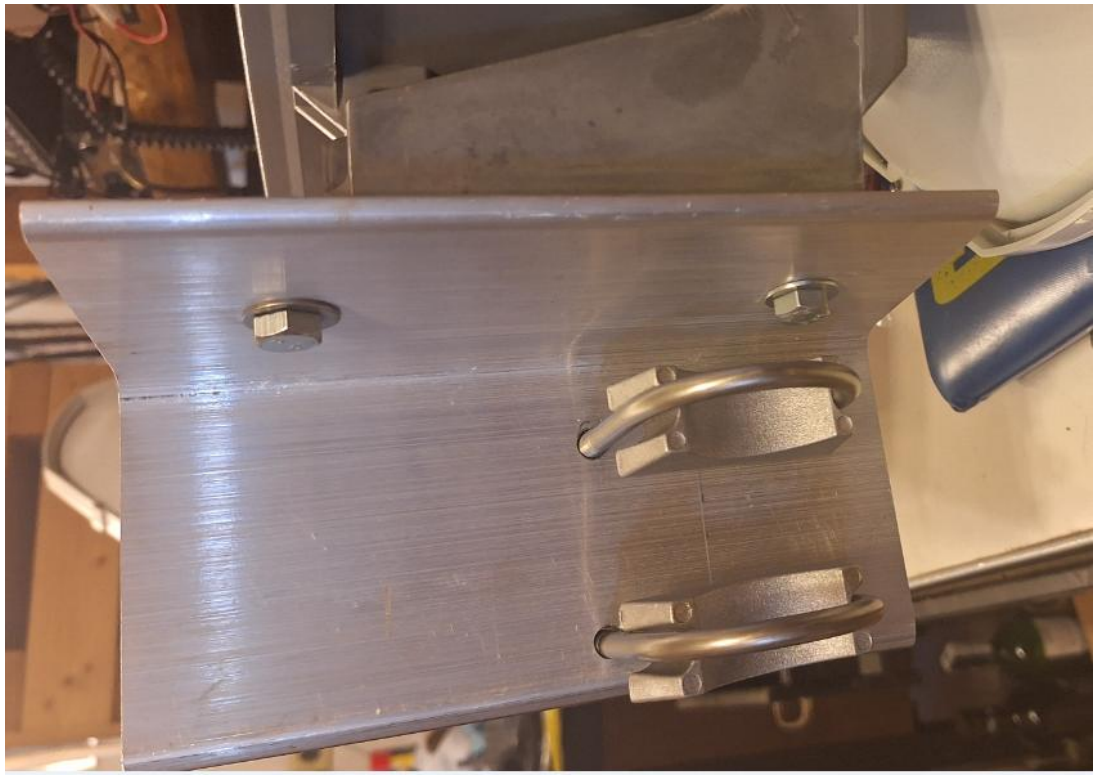

All Together

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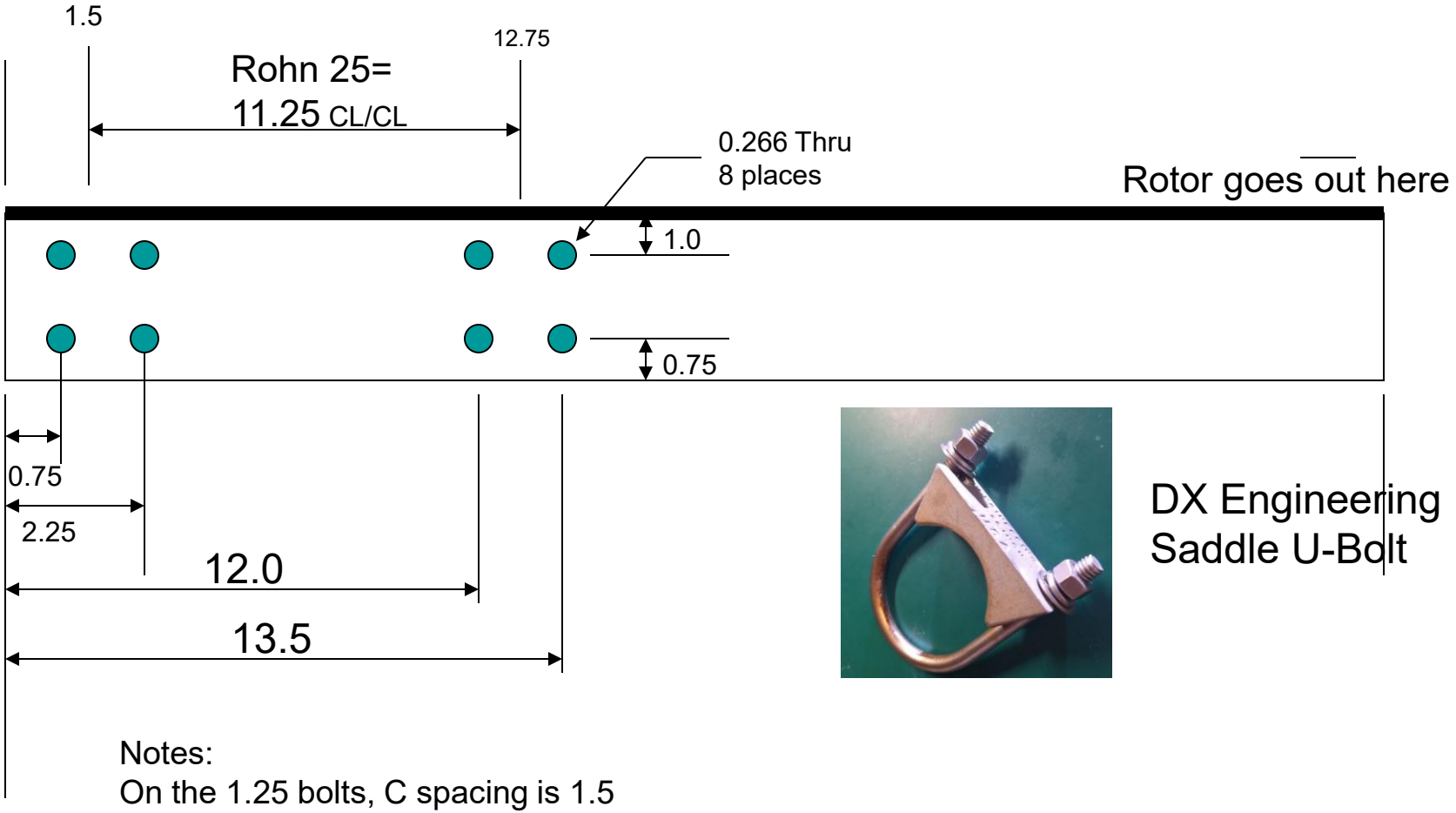
24 GHz Support Arm
4” x 4” x 36” Angle Aluminum



DX Engineering
Saddle U-Bolt

Notes:
On the 1.25 bolts, C spacing is 1.5
Half of 1.5 = 0.75

W5HN

On The Tower

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It Works!!!

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- I now have three whole grids on 24 GHz☺
- W5LUA → EM13
- KM5PO → EM12
- KM5PO → EM23

- Worked AA5C and AA5AM

- QUESTI0NS ????