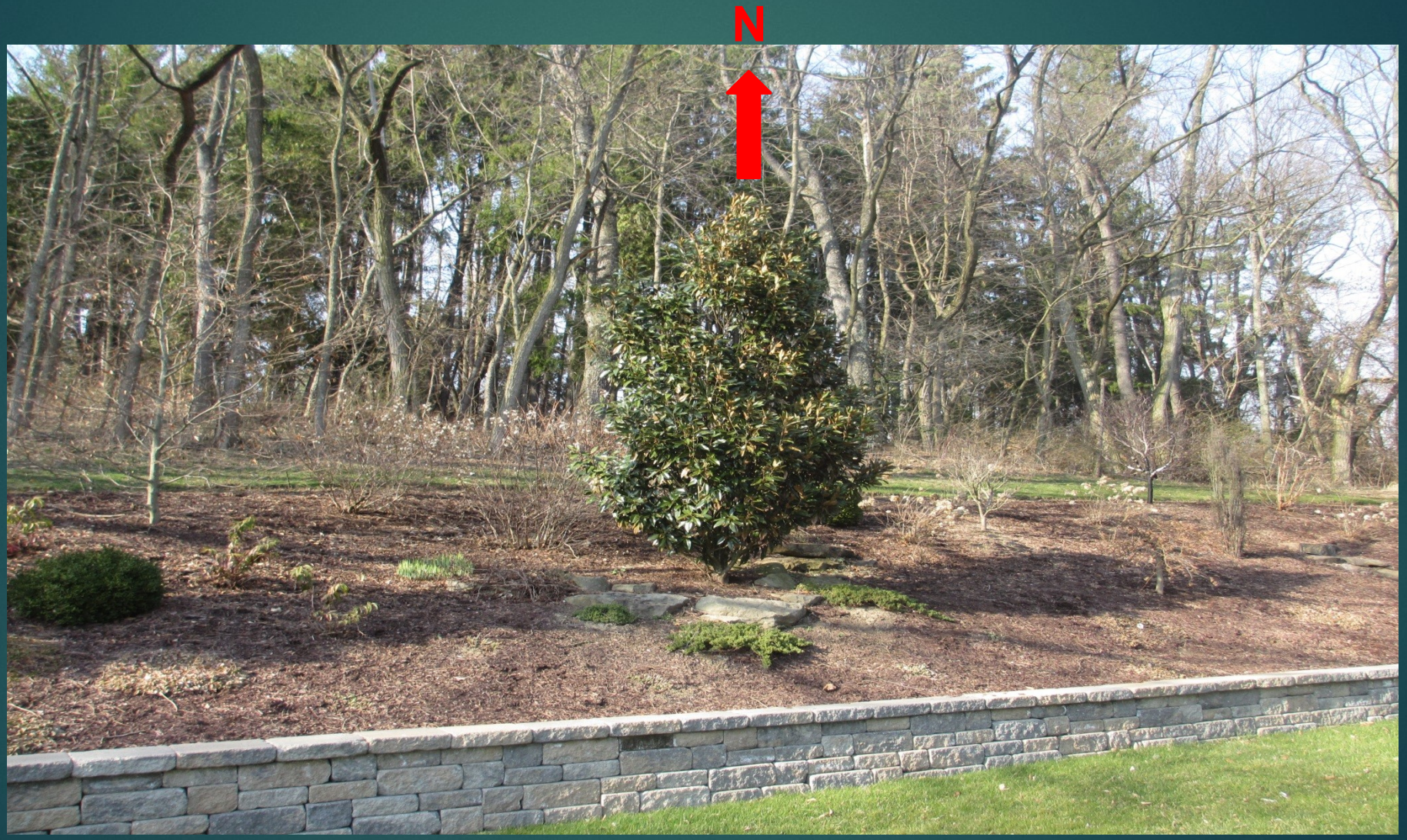
10 Band Rover Control Box

44TH EASTERN VHF/UHF/MICROWAVE CONFERENCE
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Some have great locations….



And some have to rove ….



Why Be a Rover?

- Ham radio + Outdoors
- Meet people, camaraderie, sun → activate grids
- You're wanted – '/R' brings you to top the pile!
- Opportunity to sell technology - STEM
    - Much more than Grandpa's Ham Radio
- Can start simply – and grow it through time
    - 1 - 4 bands – FM only or mixed modes
    - 5 + bands
- Sound interesting?
    - Rove with another ham
    - Just DO IT!

Perry Park, Lake Erie





Sunset Lake Erie



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    - Much more than Grandpa's Ham Radio
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    - 1 - 4 bands – FM only or mixed modes
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    - Talk with rovers
    - Rove with another ham

Simple & Effective Start – 4 bands

- 4 bands - VHF: 50, 144, 222, 432 – use what you have!
- Antennas
    - FM: verticals
    - SSB/CW: Omni, Quad, MOXON, Quagi. Cheap!
- Antenna Switch needed – UHF rotary works fine
    - ‘Protect thy front end’
- Can operate in motion – but safer to stop
    - Distracted driving law restrictions
    - Logging
- If you have a V/UHF rig, you can rove!

Considerations for ‘10 Bands’

- What is my objective in 10 band roving? Outcomes desired?
- Vehicle: Van / Truck / SUV / car
- Playtime & Budget: 10 bands = 10 stations
- Rig / Transverter acquisition: Builder vs operator
- Power: RF & DC
- Frequency accuracy / stability
- Antennas: Mounting / type / pointing
- Control system: ~5 signals – band, IF, LO, PTT, Feedback

- K0BAK: ‘*For rovers, everything is a compromise*.’
  - Beware of analysis – paralysis! Just DO IT!

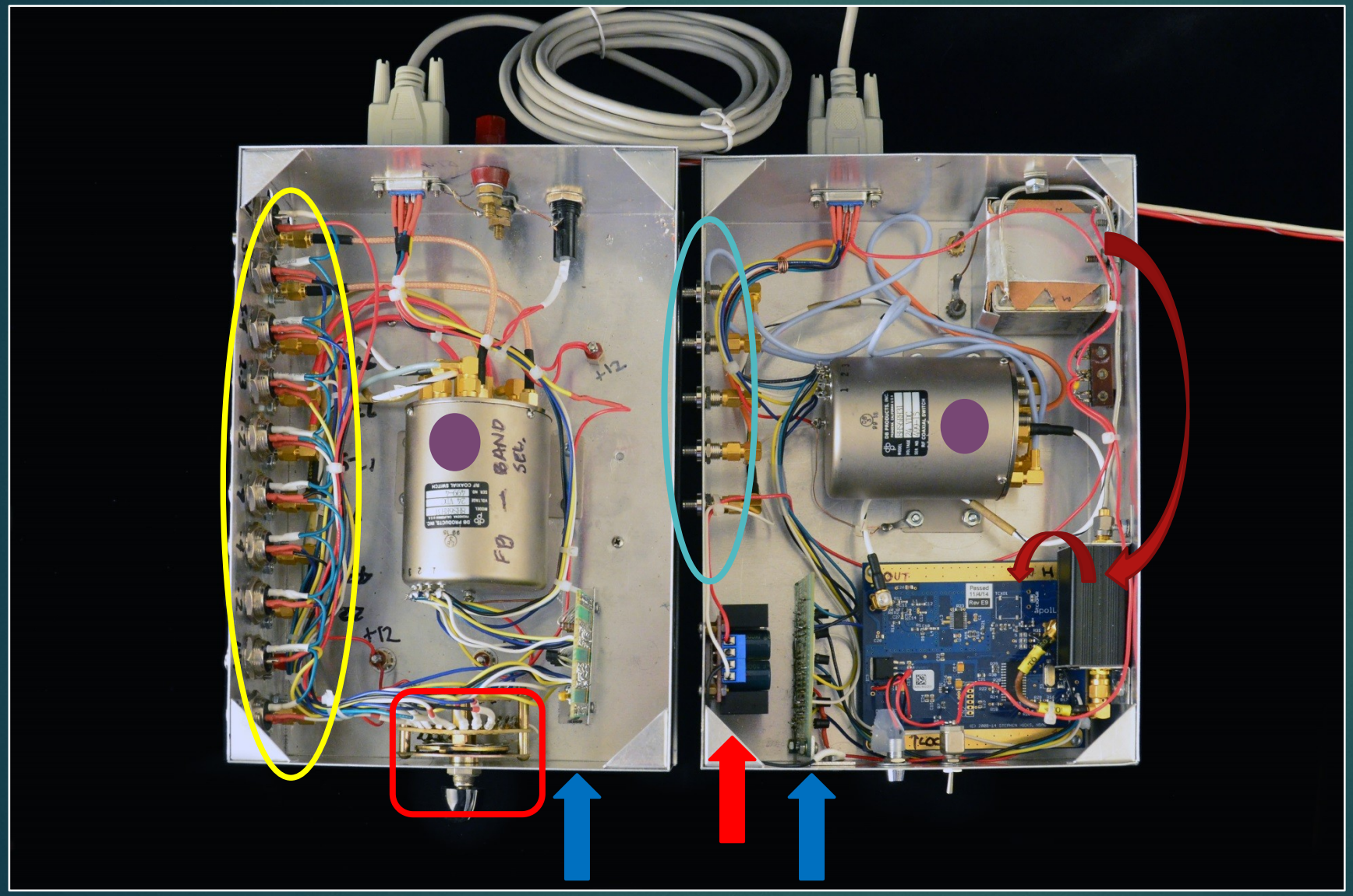
The Box



Considerations: Building the Box

- Passenger car. No roof rack nor hitch. ☹
- Change bands quickly -- < 30 seconds : logging?
- # bands: 10 less 144, 5760, 10368
- Transverter/Power: W1GHZ boards; Pout: 50+ except $$$ bands
- LNA protection: LNA = $$. Spend $ to protect.
- Local oscillator: centralized A32 with Morion OCXO
  - Accuracy / Stability -- SSB/CW vs. FT-8
- IF rig (FT817) control: bands, frequencies, Pout
- Sequencing: at the transverter. Feedback -> ‘done’
- Logging / integration: I’net - sporadic coverage ☹
  - N3FJP instead of N1MM, ON4KST
- Reliability vs. complexity: Wires / computers complex

Inside the Box



PTT, Band, FB
IF hidden below

LO output

2 x 8P coax switch

Band switch

Logic boards

12 -> 24 V booster

LO chain

Considerations: The Box as Built

Yellow = Done

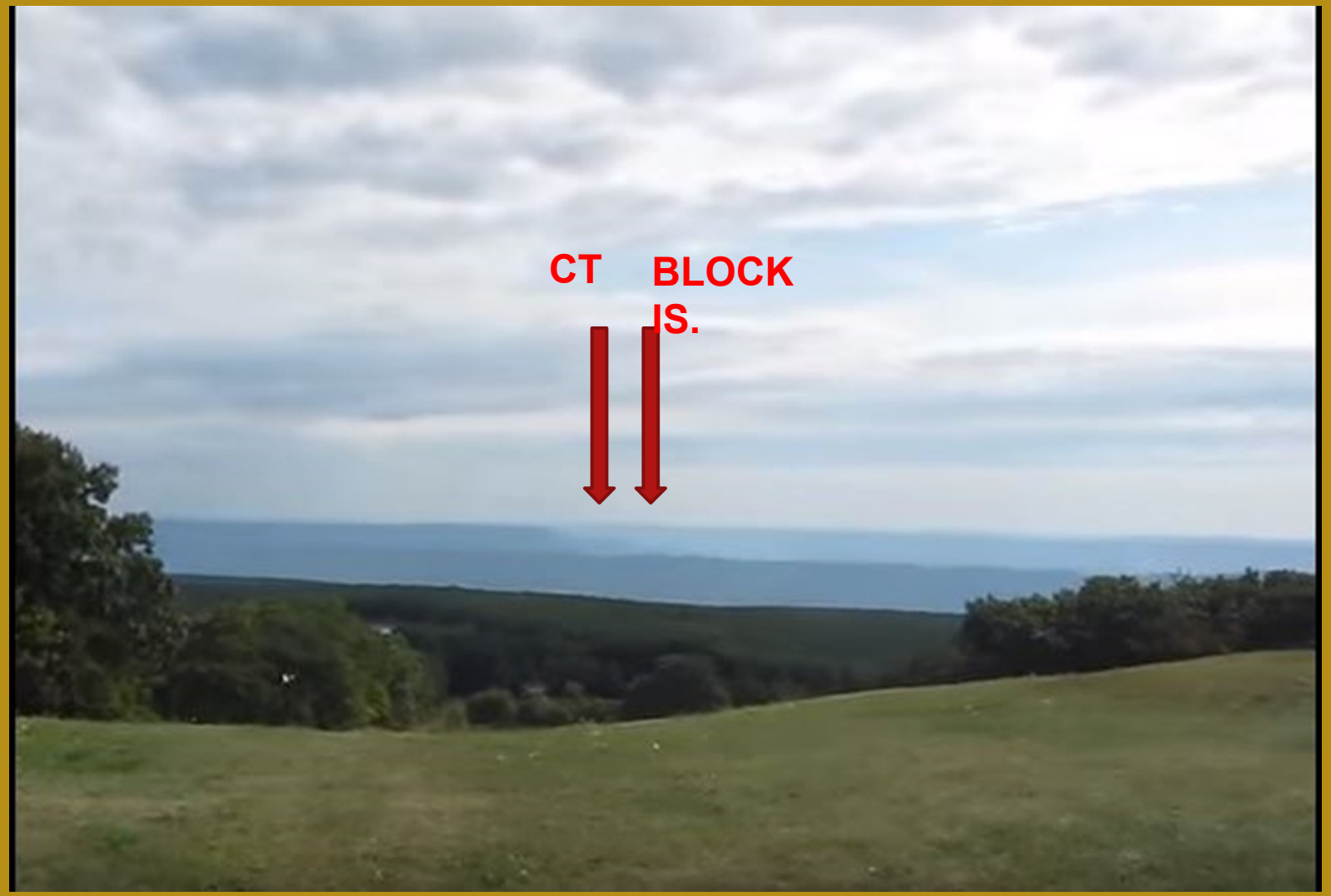
- Change bands quickly -- < 30 seconds : logging problem
- # bands: 10 less 144, 5760, 10368
- Transverter Power: 50+ except $$$ bands
- LNA protection: LNA = $$
- Local oscillator: generally centralized / few decentralized
  - Accuracy – on frequency
  - Stability: SSB/CW vs. FT8
- IF rig (FT817) control: IF freqs, drive power: manually FT817
- Sequencing: at the transverter. Feedback final step done.
- Logging integration: **internet - sporadic coverage**
  - N3FJP instead of N1MM, **ON4KST** ☹ - Home stations: call CQ!
- RELIABILITY vs. complexity: Switch & Wires / computers problematic
- Built for change: can add a 7”x10” box third level

Let's Do It ….

- Talk to a ham that roves. Look at the setup.
- Accompany a rover.
- Use your existing VHF/UHF rigs – 1 gets you started!
- If you rove already, how about adding a band?
- Search internet for 'ham radio rover'. Lots of content.
  - K0BAK, W1GHZ, K8GP, KA2LIM, N6NB, K0NR ……
  - ARRL contest rules. Sprints. MADs.

- Roving is a journey, not a destination
  - ALWAYS something to learn / improve
  - 10 bands is 91% of 11; 83% of 12 …..

73 & See ‘Yinz’ on VHF, 222UP & 10UP !



de FN00rg
&
W2RMA/R