
Building a Go Box

RICHARD AUSTIN MS, CISSP – RETIRED, AUXC

W4BYT

Credit where credit is due

- ▶ Many people have given me ideas for go box designs but a special thanks to Stephen "The Packet Man" Price KK4YQV

So what is a go box?

- ▶ It's a portable radio station that is easily packed up and transported to an operating location.

Go boxes can range from

- ▶ An ammo can with your HT, headset, spare batteries, etc.
- ▶ A full size communication truck.
- ▶ And everything in between.



Cardinal design rule #1

- ▶ You're going to have to carry it!
 - ▶ Sounds silly right? But when there's a quarter mile or five flights of stairs between the parking lot and the station location, it becomes rather important.
 - ▶ Little luggage-case wheels don't roll on muddy ground!
 - ▶ We'll come back to this disaster later.



Designing the station

- ▶ On which bands will you operate?
 - ▶ HF, VHF, UHF?
- ▶ How will you operate? With a HT at a parade? From your car using your mobile radio? Complete deployable station?
- ▶ Which modes will you use?
 - ▶ Sound card digital?
 - ▶ Packet?
 - ▶ DSTAR?
 - ▶ C4FM?
 - ▶ DMR?

Sizing your equipment

- ▶ Equipment case heights are sized in rack units (1 rack unit equals 1 ¾ inches).
- ▶ Cases are 19 inches wide (standard rack width) and a full-size case is 16 inches deep.
- ▶ 4U is likely about as large as you want to go (remember rule # 1).



Shelves

- ▶ Your equipment will attach to rack shelves.
- ▶ For a 4U box, I'd recommend two but you can decide after you finish the layout.

How many boxes do you need?

- ▶ You can put all your equipment in one huge box but, remembering rule #1, you'll potentially be lugging radios you won't need on a given deployment.
- ▶ Consider having a "core function" box that covers the most common needs and an auxiliary box that covers the less common.

Layout your equipment

- ▶ After picking your bands and modes, prepare a list of equipment you will need and then get yourself a piece of poster board and lay out the front of your case on it.
- ▶ Look at equipment specs and get dimensions for the ones you like.
 - ▶ Cut out actual size paper models of each piece of equipment.
 - ▶ Don't forget to include the mounting bracket.
 - ▶ Allow space for connectors on sides of the unit.
 - ▶ DON'T skip this step!!
 - ▶ Arrange the equipment models on the case layout until you find an arrangement that suits you.
 - ▶ Use multiple shelves to provide more mounting space.
 - ▶ Doing this step with care prevents having to rebuild later!!

Did you include accessories?

- ▶ If you're operating HF, did you include a HF tuner?
- ▶ Do you need a power / SWR meter?
- ▶ Did you include a USB hub?
 - ▶ If you're using a Signal Link, it will need to be a powered hub!
 - ▶ Not kidding about this one!!!
- ▶ Did you include power distribution?
 - ▶ For multiple radios, you'll need a DC power distribution block.
- ▶ Did you include provision for cooling? Multiple radios in a confined space will generate a lot of heat.

Power – Internal or External?

- ▶ Your box will typically run from either a battery or a power supply.
- ▶ I'm a minimalist so power is external (just a single Anderson Power Pole connector on the back of the box) and I power it from battery or supply as the situation demands. You can go either way (it's your box after all).
- ▶ The power supply should be a switching power supply!!!! Remember rule #1.

External Connections

- ▶ Power
- ▶ Headphones / Headset – it is noisy as heck in a command center so be prepared
- ▶ USB – if you're operating digital modes, you'll need a way to connect your PC
- ▶ Antennas
- ▶ Ground – some sites do require that radios be grounded (regardless of whether there is any need) so be prepared

Antenna Connections

- ▶ When using your own antenna, you know the connector type but you might need to connecting to a pre-existing antenna.
 - ▶ Personally, I use BNC connectors on my boxes.
 - ▶ A handful of adapters allow me to connect to just about anything.
 - ▶ All my extension cables can be of one type – BNC.
 - ▶ The goal is maximum flexibility with minimum weight.
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Enclosed or open?

- ▶ Will you enclose the back of your case or leave it open?
 - ▶ Personally, I prefer enclosed as it looks neater and keeps Hammie Hambone from sticking his hand in there.
 - ▶ A ventilated back panel also makes a good place to mount a cooling fan.
 - ▶ Nothing fancy – just a 4" computer case fan works fine.

Now build it!

- ▶ While many items have mounting brackets, some don't.
 - ▶ Gorilla double-sided tape works well.
 - ▶ Remember that your box will be in many positions during transport so secure the internal wiring and make sure things can't flop around.
 - ▶ If you use multiple shelves, be careful of inter-shelf connections.
 - ▶ They will complicate removing shelves for maintenance.
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Critique this design



Accessory Kit

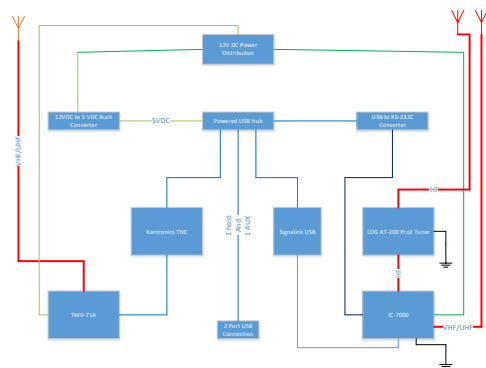
- ▶ There are odds and ends in addition to your go box:
 - ▶ Headphones/headset
 - ▶ Power distribution block
 - ▶ Replacement fuses (Mr. Murphy rides shotgun on radio deployments as well)
 - ▶ Power supply (if needed)
 - ▶ Interconnecting cables (antennas, USB, power)
 - ▶ Table for the operating position
 - ▶ Chairs
 - ▶ Shelter

And an antenna



- ▶ You'll also need a portable antenna

My Main Go Box





► Questions???