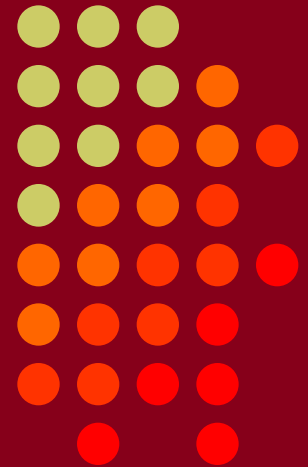


# Efficient Operating Techniques, Tactics, and Secrets

N6TV@ARRL.NET



• CTU •  
CONTEST  
UNIVERSITY

ICOM®



# Brief Background

- First Contest: 1973 ARRL Novice Roundup
- Crystal-controlled Heathkit HW-16
- Hy-gain 18AVQ Vertical on Roof
- WB6OLD (KR6X) supplied extra crystals and many **operating tips**
- Result:

Los Angeles	
WN6RF X	45.000-600-75-
WN6PEA	18.084-259-66-29
WN6UEW	15.982-262-61-20
WN6UDA	9828-189-52-29
WN6TLV	9558-157-54-15
WN6SMS	8112-198-39-20
WN6OYD	6681-121-51-13
WN6SEP	3300-100-33-
WN6SWY	2775- 60-37-12



# Brief Background (cont.)

- Next Contest: “Novice Tent”, 1973 ARRL FD
- **Observed the Masters**
  - WB6OLD (KR6X), WB6ZVC (N6TR), K6OVJ (K5YA), WB6VZI (N6VI)
- Result:

		4A		
WA6LXN/6 (+WN6TLV)	West Valley ARC	3002-	B-22-	6504
W7YE/7*	Arizona Mt. Moguls	2713-	B-20-	5926
W9LM/9*	Northwest ARC	2187-	B-25-	4874
W4CVY/4	Columbus ARC	1997-	B-25-	4549
WØERH/Ø* (+WNØFSL)	Johnson Co. RAC	1966-	B-35-	4432

# After 53 Years of Contesting



- Won a few:
  - ARRL Sweepstakes CW, NA Sprint, IARU CW, California QSO Party
- “Top 10” is cool
- Learned a lot
- This talk tries to summarize it all
- **Experience is the best teacher**



# When you're a "Little Gun"

- Invest in antennas first
  - Not transceivers
- On the high bands
  - A small beam (C3S, TH2-MK3) is so much better than a vertical or EFHW
- On the low bands
  - Dipole half-wave high (outperforms Inv. V)
  - Resonant vertical with adequate radials



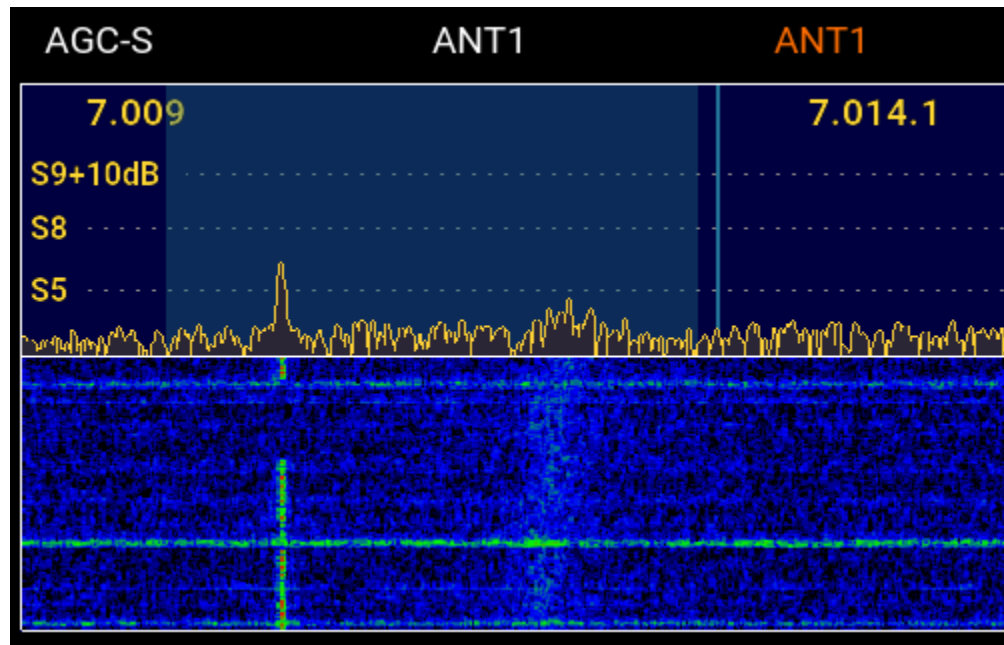
# When you're a "Little Gun"

- You'll have more fun on CW than Phone
- You'll have more success operating *unassisted* (avoiding the "packet pileups")
- Start with the highest band that is open
- Start around xx.070 kHz and Tune DOWN the band instead of UP the band (Search and Pounce), with 400 to 500 Hz CW Filter, and *LSB CW*
- If you find a clear frequency, send "QRL?"  
If no response, call CQ!

# Try LSB CW for Tuning **DOWN** the band (high to low)



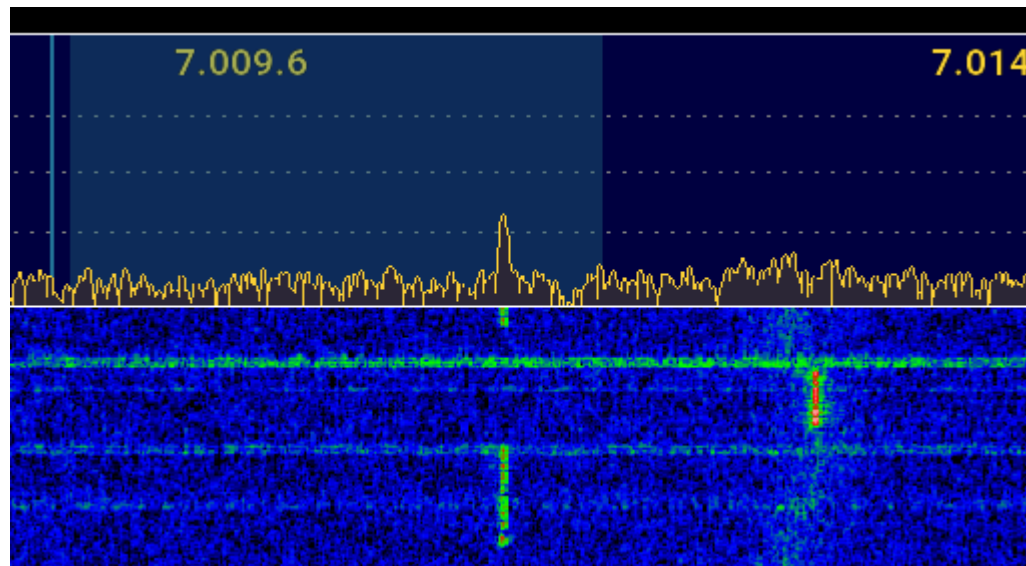
- Pitch goes down when VFO frequency goes down (CW NORM on Elecraft and Icom):



# Try USB CW for Tuning UP the band (low to high)



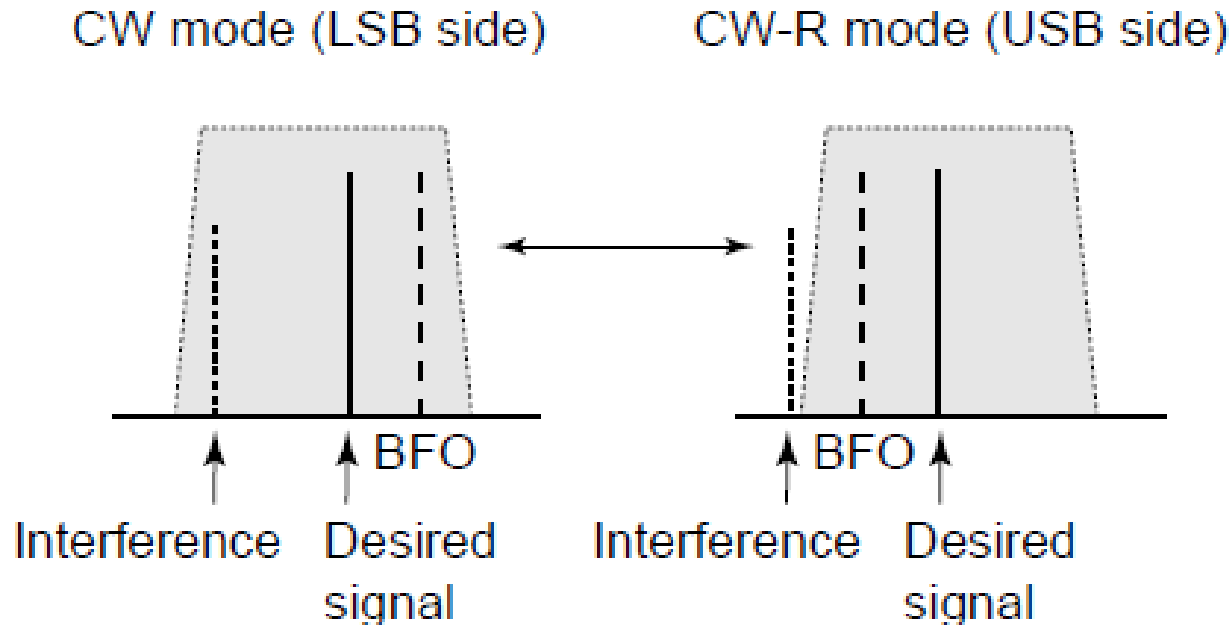
- Pitch goes down when VFO frequency goes up (CW-R on Elecraft and Icom):





# CW (LSB) vs CW-R (USB)

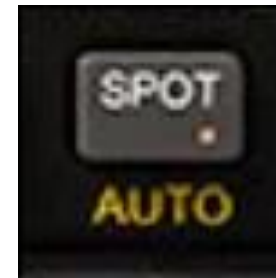
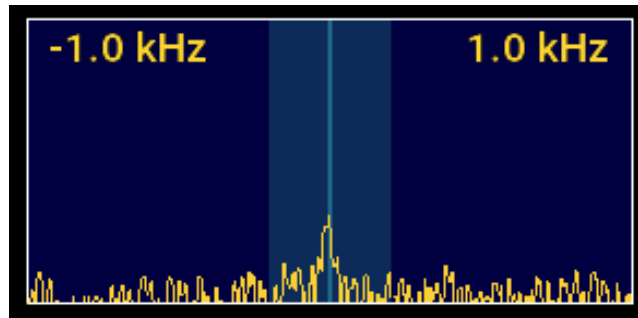
- From ICOM manual:





# S&P Techniques

- When no pileup, call **on frequency**
- Set both **RIT** and **XIT OFF**, or to **0.00**
- Try to match pitch
  - If your sidetone is the same as the DX, then you're on frequency (aka "zero beat")
- If you have no musical ear for that, use the tuning indicator or the AUTO feature:





# S&P Techniques (cont.)

- When there's a CW pileup all zero beat, *call a little off frequency*:  
Set **RIT OFF** and **XIT ON** to **+/- 0.07 to 0.10**
- Using full break-in (QSK) is a big advantage
- Sending your call *with paddles* can be an advantage
  - Timing is better, plus you can stop instantly
- You can be *aggressive*, without being obnoxious
- Send call once (pause), call again (pause)



# S&P Techniques (cont.)

- Sometimes this works better in a pileup:
  - Pause, then send your call once (out of sync)
- Don't send "DE" ("DE N6TR")
- Please do NOT send your call TWICE with no pauses in every pileup:  
N3ADN3AD
- Make sure you TX DLY isn't truncating the first letter of your call (especially using CW VOX)
- If you're a VE, don't use a radio with too much RX / TX latency (don't call late)

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# S&P Techniques (cont.)

- After several tries without getting through, save the call in the Band Map
  - N1MM: **Alt+O**
  - Win-Test and DXLog.net: **Ctrl+Enter**
  - Writelog: Right Click > **Add to Band Map**
- If it's a needed mult, go back 3 to 5 minutes later and try again



# S&P Techniques (cont.)

- If you're a little gun, and a big gun is struggling to hear you, don't make it worse
- Biggest fear of Big Gun: losing a clear run frequency because of a very slow, very weak caller
- Do NOT slow down (unless there is auroral flutter). With QSB or intermittent QRM, sending fast works better.
- Do NOT "talk slower" (ugh)
- If runner asks for confirmation, "KB6QOJ?" or "MI?" just send "RR" or "C" or say "Roger Roger". Nothing else.
- Do NOT send "QSL", "OK", "YES", or repeat anything that was already copied correctly



# S&P Techniques (cont.)

- “He never sends his call!”
- After one or two minutes, send “CALL?” or say “What’s your call?!”.
- Repeat
- Or just call him, and when he comes back to you, reply with an annoyed tone “I need your call you’re Five Nine New Mexico”.

# CW Timing –

## Use 3:1 dash/dot ratio



- What you hear in sidetone may not match what you transmit over the air
- Use a WebSDR or second receiver to hear or record your transmitted CW
- Lots of keying is way too light, or way too jittery, especially at high speed (Elecraft K3)
- If keying weight is too heavy, you will be impossible to copy when there is heavy auroral flutter. Send with extra spacing.



# Where to call CQ?

- Domestic big guns fill up the Extra band (below .025) in DX Contests
- DX big guns fill up the bottom edge of the General band (.025 to .035 on CW)
- Use a band scope or band map (if assisted) to quickly locate clear frequencies *with your eyes*
- Set Band Scope mode to “Fixed” – you want the VFO cursor to move, not the entire band
- CW Scope SPAN: 30 to 40 kHz when tuning, 10 to 20 kHz when running
- SSB Scope SPAN: 100 kHz tuning, 20 kHz running

◦ GTU ◦

# Calling CQ (Big or Little Gun)



- What's wrong with calling CQ like this?  
CQ DE N8XXX <<TEST>>
- Sending DE is a waste of time
- Sending your call only once means you'll get spotted much less easily by CW Skimmers
- Speeding up the "TEST" confuses Skimmers and Code Readers
- Sending TEST at the end makes everyone call at the same time, or causes doubles



# Calling CQ Effectively

- Before sending CQ on a new frequency, send “QRL?” once, wait a few seconds
- Then try this: CQ N8XXX N8XXX
- Skimmers will spot you almost immediately
- Before the first answer, if you hear “QRL” or “CQ”, just move a bit up or down. Be a “Flexible Flyer,” not a stubborn mule.



# Holding a run frequency

- Keep it occupied (challenging when SO2R)
- Once you're set, tap **A=B** to save run frequency in VFO B
- Later, if you hear "QRL?" or "Is this frequency in use?" a little off frequency, immediately move VFO A to their frequency, send "QRL" or "Frequency in use", tap **A/B** and CQ again.
- Use 400-500 Hz passband for CW, 2.0 to 2.8 kHz passband for SSB
- Use 200 Hz passband only rarely – you have to hear the off-frequency callers



# Off frequency callers

- Is he calling me or someone else?
- Timing seems off a bit?
- Send just “?” or partial call “VE?” (even if you copied full call)
- If the timing is wrong, he’s calling someone else



# On frequency CQers

- “He just came right onto my run freq. and called CQ!”

CQ N8LID N8LID

N8LID 5NN 31

?

N8LID 5NN 31

5NN WV

TU KH6J



# Encroachers

- “I had this nice clear frequency then this guy moves in 200 Hz away and won’t move”
- Keep cool
- Tighten up your filters (200 Hz say)
- It’s OK to move up or down a little so you can hear again.
- Carry on
- If he’s got really bad key clicks, send “CLIX”, or note his call and the band and let him know later that he’s at risk of a DQ if he doesn’t clean up his transmissions.

◦ CTU ◦



# DQRM

- Deliberate QRM happens, mostly on Phone
- Ignore as long as possible: “Don’t feed the Trolls”
- If it persists too long, just QSY
- Most “tuner uppers” are not DQRMers
- Just keep CQing through the carriers
- Learn how to quickly activate the Auto Notch feature, but only activate when needed.



# Efficient running techniques

- Send as fast as the pileup will bear
  - Beginning of contest: QRQ (36+ WPM)
  - End of contest: QRS (28 WPM)
- Lots of callers? Do not sign your call after every QSO, just send “TU”.
- Program a key for this “TU + Log it” (no callsign)
- Sign call about once a minute or every 3 QSOs
- You’re the best judge of when you need to sign your call, not your logging software, but two minutes without signing is way too long.



# Efficient running (cont.)

- Having a huge pileup slows you down
- Ideal pileup: one caller at a time.
- If it gets really big, listen up or down a bit for the smart ops using XIT
- If you only get a partial call, send just the partial call and nothing more: “N6” or “TJ”
- If it becomes totally unmanageable, move and call CQ on a fresh clear frequency



# Efficient running (cont.)

- When running, if you don't transmit anything until you've entered the complete callsign, you're doing it wrong
- Ideally, answer a caller as soon as the last letter of a callsign is sent to you, without delay
- Enter the prefix, press Enter or Semicolon or Insert (starts sending call + exchange), *then* quickly finish typing remainder of the callsign before the exchange is transmitted.
- Reduces “dead air” time, improves rate
- Easier for touch typists
- You can talk faster than you can type
- Talk first, type later

# Pulling out a callsign from a big CW Pileup



- Takes practice and patience
- Use a low pitch for sidetone (400 to 500 Hz) and center the passband there (NORM button on Elecraft)
- Compare 1000 Hz pitch to 400 Hz pitch
- A caller 100 Hz “high” will be only 10% off frequency at 1000 Hz pitch, but 25% off frequency with 400 Hz pitch
- Low tones make it easier to distinguish between callers in a CW pileup
- Do not use narrow CW filter or Audio Peaking

# Pulling out a very weak CW caller



- Try peaking with APF or narrow CW filter
- Use logger hot keys or outboard K-POD to toggle filtering on/off quickly, instead of reaching for tiny radio buttons
- You can waste a lot of time on a very weak caller, ruining the rate. Often not worth it.
- If they're not a mult "SRI NO CPI, TRY LATER".



# Phone contest do's a don't

- **Do** use standard phonetics
  - Sometimes a little fun is OK when running:  
“CQ W 7 Radio Macaroni!”
- **Do** use phonetics with your FULL CALLSIGN, no partial calls.
  - Long callsigns can be advantage sometimes:  
“Ending in Bravo Whiskey”?
- **Do not** say “Please copy” or even worse:  
“Thanks for the Five Nine New Mexico,  
please copy my Five Nine Utah” (ugh)



# Phone contesting with VOX?

- I prefer using a footswitch on phone
- It's mandatory at a multi-op in a small room
- If I cough or sneeze or swear, or the dog barks, it doesn't get transmitted, and I don't lose the audio of someone calling me
- If I get really tired, I may use VOX for a while, but VOX can truncate things

# When running, touch typists have another advantage



- Eyes glued to the “Check Partial” window instead of the keyboard
- Can figure out full callsigns faster
- Type wildcards in logging window:

JA3YK?

D?1QQ



# Should you work dupes?

- Most folks just work every dupe that calls in
- Exception: ARRL Sweepstakes (very long exchange)
- I don't like working dupes when others are calling:  
"N8LXX we worked before, who's the Tango Charlie?"
- On CW, I let software send "N8LXX QSO EE" ("dit dit").
- Works much better than "QSO B4" or "B4" or "DUPE".
- 80% of the time I get a "dit dit" back (or "SRI")
- If they say "NO" or "NIL" or send an exchange, I'll send the exchange and log the dupe



# Improving your results

- Listen to the techniques of the super ops like N6KT (PJ4K), N6MJ (ZF1A)
- Record audio of the entire contest (built-in feature of Win-Test and DXLog.net, or use QSOrder by K3IT for N1MM)
- Download or request your Log Check Reports and go back and listen to what happened
- Learn from your mistakes, but forgive the apparent mistakes of others (“stuff happens”).



# Prefill databases

- N1MM “Call History Files” should be treated as “questionable suggestions”
- People change QTHs. “Trust but verify.”
- Many QSOs are lost in the log checking process through over-reliance on prefilled exchanges.
- Never sacrifice accuracy for rate



# Final thoughts

- When stuff goes wrong, remain calm

“Work the problem. Don’t make it worse by guessing” – Gene Kranz, NASA

“The difference between Champions and others is how they react when things go wrong.” – Susan Butcher, Iditarod winner

# Key Points to Remember

- Make QSOs as efficiently as possible
- Learn from others
- Listen to recordings and learn from your mistakes
- Keep calm and carry on



# References

- <https://www.qrz.com/db/n6tv> - Links to this and other presentations
- [n6tv@arrl.net](mailto:n6tv@arrl.net)



# Q&A

