



The Wireless

December 2025

The Garden City

Amateur Radio Club

PO Box 482 • Garden City, MI 48135-9998



Next Meeting:

Tuesday, January 20, 2026

7:00pm

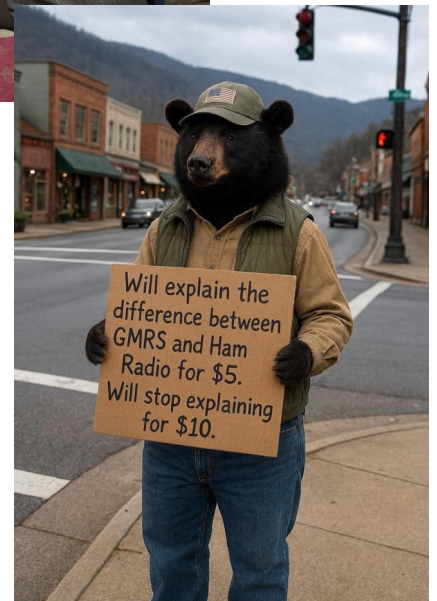
Garden City Presbyterian Church

1841 Middlebelt (just south of Ford)

Garden City, MI 48135

Holiday Dinner:

15 club members and guests gathered last month to celebrate the holidays at DeLuca's Restaurant. Rather than banquet-style, the restaurant allowed us to order individually from their main menu. Everyone present seemed to enjoy the evening, and some have already begun discussing plans for next year.



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Mat-Matics # 126: HyGain Omni DX-88 Upgrades and Repairs

-Mat Breton, N8TW

This article is really a series of short experiences regarding my HyGain Omni DX-88 antenna. This is another addition to series of articles on antennas I've recently submitted. The DX-88 has been my primary HF antenna since I replaced my old HyGain AVT-18S. I have multi-band fan-dipole in my attic as a backup.

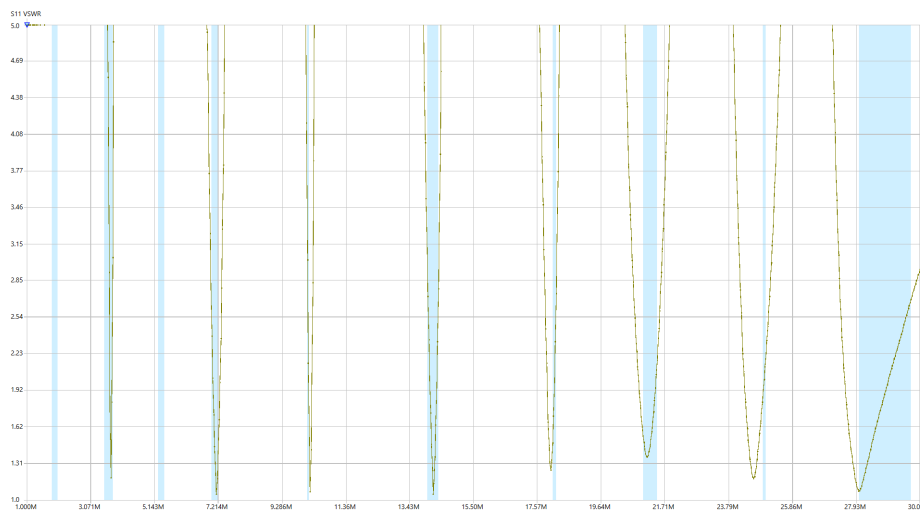
17M Trap Repair: One day, I noticed erratic SWR (Standing Wave Ratio) readings when transmitting on the 17M band, although reception seemed unaffected. Using a nanoVNA to take an S11 measurement (which shows SWR versus frequency), everything appeared normal. Since I rarely operate on 17M, I couldn't pinpoint when the issue began. After ruling out problems with my rig, antenna switches, lightning protection, and feedlines, I focused on the antenna itself.

Having done only occasional tune-ups since installing the DX-88 in 2019, I decided it was time for a thorough cleaning. Upon disassembling the antenna, I discovered arcing inside the trombone capacitors of the 17M trap—likely caused by an insect or contamination that created a conductive path. This arcing persisted during transmission, leaving behind carbonized remains.



17M Trap Showing the Damage

I thoroughly cleaned all the parts and made sure any carbon was removed. I reassembled the entire antenna. During the process I also fixed a couple other concerns in different parts of the antenna. Upon testing the 17M (and all the bands) worked correctly even under max power.



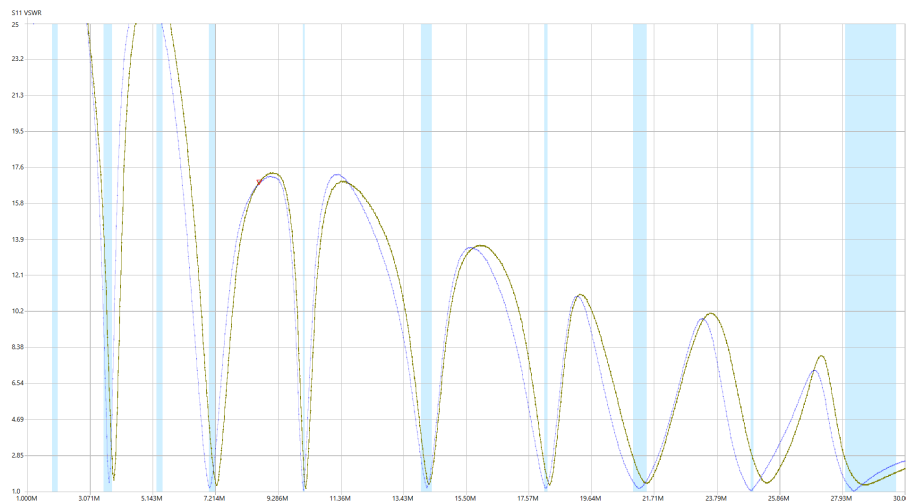
Reassembled antenna, before tuning: VSWR Chart

This experience highlights the importance of regular maintenance and inspection, especially when unexplained performance issues arise. Addressing contamination and ensuring clean components can prevent recurring problems. **Ground Plane Upgrade:** In June 2011 I installed my original wired fence ground plane. I decided to “upgrade” it with another set of welded wire fencing, laid out 45 degrees apart. The idea was at a minimum to ensure that any corrosion happening to the original didn’t have a negative impact, and perhaps to lower the antenna’s takeoff angle and make a more uniform gain pattern.



Original (left), Upgraded (right)

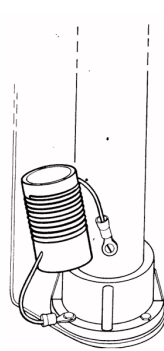
As one would expect, there was minimal effect on overall SWR. Shown below are VSRW plots from a recent measurement before the upgrade, and after. There was a slight shift in the resonance points which necessitated re-tuning.



Original in blue, upgraded in green

Based on this behavior, I believe the new ground plane increased the capacitance effect of the antenna with respect to ground, electrically shortening it slightly. This would seem to make sense as the larger surface area of the ground plane *should* result in additional ground capacitance.

Base Shunt-Coil Experiments: Unlike the AVT-18S antenna, the DX-88 does not have a native “DC” connection between ground and the signals at the antenna. The AVT-18S has a shunt coil built into the base. However, in the instruction manual Hy-gain describes how one can be constructed from wire and a plastic form. Besides providing protection from static build-up, the coil is supposed to improve the match on 40M/80M. Theoretically a shunt inductor (across the feed point) can be used to cancel a capacitive/reactive match.

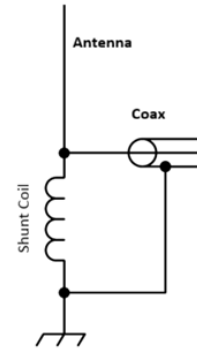


DC SHORTING COIL

The VSWR on the 40 and 80 Meter bands may be improved by the construction and installation of a matching coil. This coil will also provide a DC ground for the antenna, which may help to prevent precipitation static. This coil is included in the GRK-88

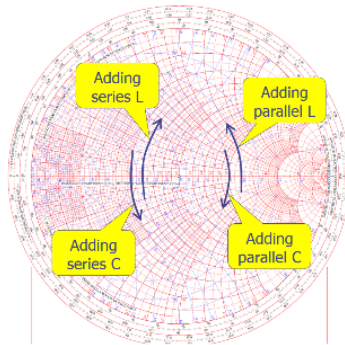
A coil consisting of 9 or more turns of No. 12 insulated copper wire should be wrapped on a 1 inch diameter coil form and connected between the radiator and the ground (shunt).

If this antenna is modified to operate on 160 meters, this coil may be replaced with another coil of the proper value.



Excerpts from the DX-88 Owner’s Manual, Electrical Diagram

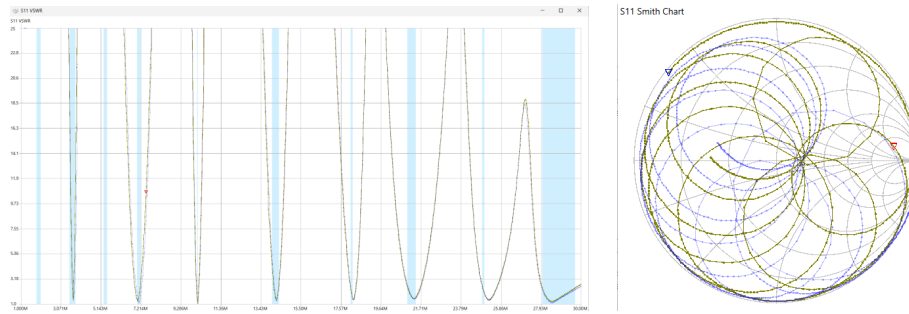
The Smith chart below shows that adding the shunt coil should shift impedande points upwards and to the counterclockwise. I originally tried adding the coil back in 2021 with the original ground plane. I made the coil to the HyGain specifications and did before and after installation measurements.



Shunt Coil Match (left), Smith Chart Showing Effects, Two Different Coils

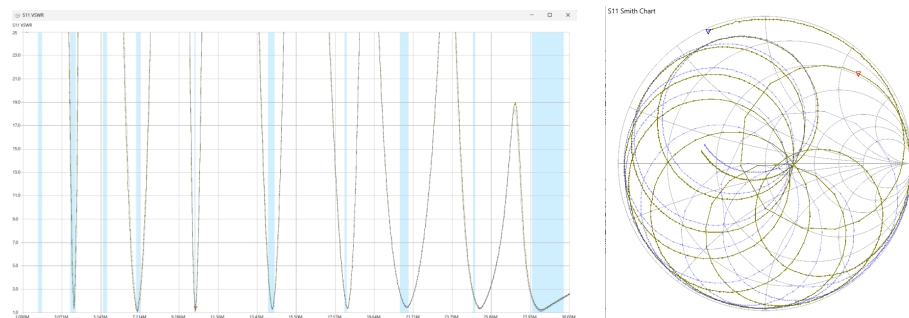


I originally tried adding the coil back in 2021 with the original ground plane. I made the coil to the HyGain specifications and did before and after installation measurements. The parallel (aka shunt) coil shifted the impedance as predicted. The overall effects are very minor and there is minimal, if any, improvement to VSWR. At the time I removed the coil.



Without (blue) and with (green) coil

Now years later I made a new coil with a higher inductance (more wire turns on the form). I then tried this new coil to see if I could see any improvement. There was none ... the differences between having the coil and not were even smaller ... predictable.



Before (blue) and after (green) with larger shunt coil

I decided to keep the larger shunt coil on the antenna: although it doesn't improve the lower-band VSWR as advertised, it does prevent static buildup and provides a local lightning path to ground.

Summary: The 17M band is working again. The ground plane has been improved. The antenna has been trimmed to work with the new changes. Besides highlighting how important maintenance is, it should be clear operating conditions like VSWR should be monitored for abnormal behaviors ... and these should be addressed before equipment is damaged.



Winter Field Day, cont'd:

We passionately believe that ham radio operators should practice portable emergency communications in winter environments as the potential for freezing temperatures, snow, ice, and other hazards present unique operational concerns. WFD is formatted to help increase your level of preparedness for disasters and improve your operational skills in subpar conditions.

If you are as serious about emergency communications as we are, we welcome you to join us during our yearly event. We are sure you will find WFD to be a challenging yet exciting and rewarding event!

If there are any questions, comments, suggestions, or complaints, don't hesitate to get in touch with us at: wfda@winterfieldday.com

The Livonia Amateur Radio Club



Swap-n-Shop

Saturday

February 21, 2026

Sale Hours: 8:00 AM to 12 Noon



Absolutely no buying or selling before 8:00 AM

Buy, Sell or Trade

Amateur Radio Gear

ARRL Sanctioned

**Volunteer Exam Session
by SLAARC**

*** Electronics**

*** Antennas**

*** Test Equipment**

*** Computers**

*** Ham shack accessories & more!**

SAME LOCATION!

**Ward Church, Knox Hall
40000 Six Mile Road
Northville, MI 48168
West of Haggerty Road**

Talk-In: K8UNS LARC Repeater
145.35 PL 100 Hz

Door Prizes from **ARRL**

· \$100 Cash Grand Prize! ·

ADMISSION: STILL ONLY \$5! (cash @ door)

Admission ticket pre-sales are available only to vendors/sellers with advance table purchases; visit the website for reservation info.

<https://livoniaarc.com/larc-annual-swap-and-shop/>

swap@livoniaarc.com

Phone: 734-648-6453

Same-day tables are subject to availability.