



SLATS



St. Louis Amateur Television Society

DECEMBER 2024

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-ON THE NEWS FRONT-

SLATS offer to loan gear for prospective STL area ATV hams

SLATS has ATV equipment for loaning out to prospective hams expressing an interest in getting on ATV. If this is you, then click (<https://slatsatn.net/want-to-try-atv/>) .

SLATS newsletter is published monthly on the 15th as the official newsletter for the St Louis Amateur Television Society.

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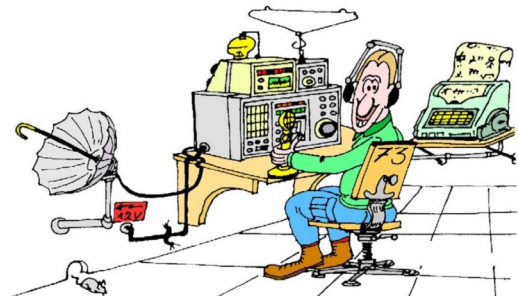
Gary, NØGL
 Webmaster slatsatn.net
n0gl@slatsatn.net

Weekly Nets
 7pm Fall/Winter
 8pm Spring/Summer
 WØATN/R 440in 426out
 Talk-back radio: 144.34 MHz



Typical Digital ATV Station. Just add a TV, camera and antenna.

WØATN NET CONTROLLER FOR DECEMBER



**GARY
 NØGL**

NEXT MONTH : JANUARY 2025

MEL : KØPFX

December							2024
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	
1	2	3	4 SLATS NET 7: 00 P.M	5	6	7	
8	9	10	11 SLATS NET 7: 00 P.M	12	13	14	
15	16	17	18 SLATS NET 7: 00 P.M	19	20	21	
22	23	24	25 POST PONE	26	27	28	
29	30	31					

FROM THE PRESIDENTS DESK

(Article submitted by: Mel KØPFX)



Spectrum Modem Replaced at Repeater Site

Armand, KDØPXF and I visited the repeater site at WD0FCH, Earle's QTH this week to replace the "self- install" modem with a new "upgraded" one provided by Spectrum. Armand and Earle worked with Spectrum's Tech Support and the install came off without any issues. We were in hopes the UPLOAD speed would increase immediately but it did not. Armond reasoned that Spectrum would increase the speed (probably around 20x faster than it is now) after all the customers in Earle's area had their modems updated too. This may take another month or more, but it will be worth the wait. The extra speed should improve the performance of repeater user's uplink streaming connection since we'll have much more "bandwidth."

While Armand and Earle were installing the modem, I took the opportunity to replace the dead "media player" on port 3 of the repeater. Earlier, I found the player no longer had any HDMI output signal. I ordered another but slightly different one (this is the 2nd one that has failed). I found one in Amazon's "refurbished" stock for about half the price of a new one. It came looking like a new and performs just fine (so far). The current Player file describing the repeater, net times and short video of several users could use an update. Several changes have been made at the repeater and probably the user's ham shacks, so if members will send a minute or two of video describing the shack, the update would be useful. Send your video to KB0CCL and he'll put together the update and I'll install it in the repeater's media player. If you have any other video content appropriate for the media player, please send it to Rich also. Rich's email— rknode12@gmail.com

(Article submitted by: Mel KØPFX)

WiFi / Multi-function Timer with 10 Amp Control Output



WiFi Multi-function Timer with 10Amp Control Output

The timer consists of many commonly used *timer delay* signal processing functions. It has over thirty different timing functions. Including are functions that can use trigger voltages or dry contacts. It can operate anywhere between 6 and 28 volts and handle loads up to 10 amps. The timer draws very low (1.5ma) current and with timing durations from a tenth of second to 400 days. Configuration of the timer is made using WiFi and an app for your smart phone. An internet connection is only needed for firmware updates.

I built this one for a friend who needed a timer to control a furnace motor's heating cycle (30 second delay time on start and another delay after heating then minute later motor before shutting off. Other models are available and all can be found on Amazon or from the Timers Shop.com



The Saint Louis & Suburban
Radio Club
W0SRC



Colinsville, IL
January 18, 2025



WES SCHUM, W9DYV
W9DYV SYMPOSIUM

SLSRC Winterfest – January 18, 2025 – 8 am – 1 pm

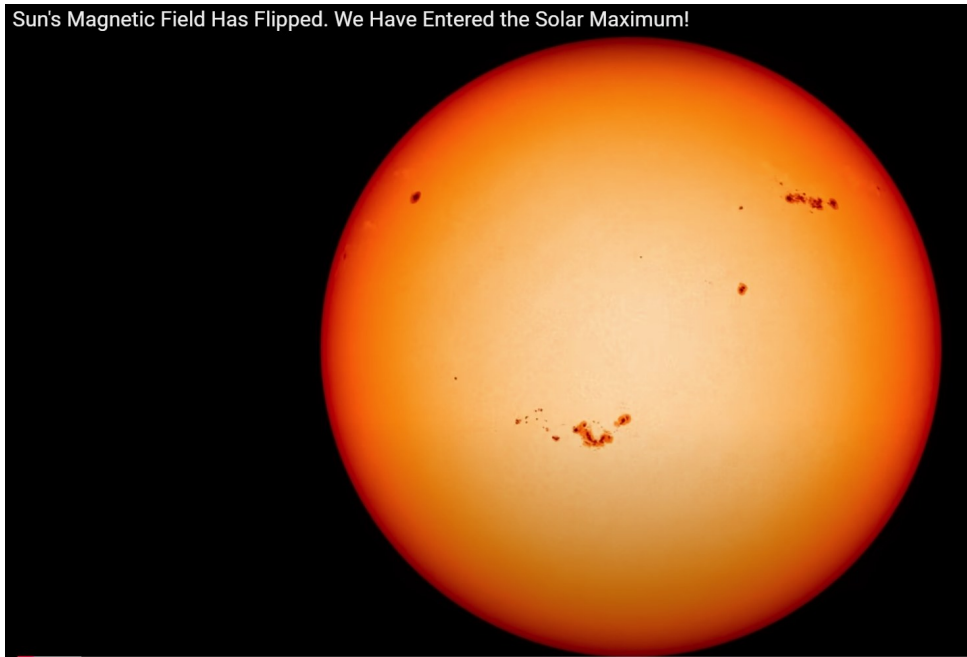
A big thank you to everyone who attended and volunteered at Winterfest-2024.

We wish to thank all of our vendors, speakers, and vendors for a great day!

A special thanks go to The Winterfest Volunteers for spearheading and organizing a successful event.

[CLICK HERE TO SEE MORE INFORMATIONS](#)

We Have Entered the Solar Maximum



[Sun's Magnetic Field Has Flipped. We Have Entered the Solar Maximum!](#)

QST Article on N206KY HF Radio Installation

Co-Authors

Gary Leu NØGL & Paul Koebbe KCØCBL

(Part 1 – Gary Leu, NØGL)

Have you ever wanted to install an HF radio in a small airplane in order to facilitate requirements for International Trans-Caribbean Aeronautical Communications? Or, to meet the in-country regulations for HF aeronautical mobile communications for a certain South American Country? And, at the same time, equip an humanitarian ministry with essential mission critical emergency HF communications operating in the jungles of a remote area of the world? If you answered yes to any of these propositions, then sit back and enjoy the journey.

The story begins at a local humanitarian Non Governmental Organization.

Several of the volunteers have an Avionics, engineering, or electronics background and among those are a few amateur radio operators. When we got the call to brainstorm the possibility of equipping one of the WOH aircraft for deployment to Guyana, South America with an HF radio, we immediately jumped at the opportunity. Zoom meetings were conducted with the future pilots and the team of volunteers.

Soon we formulated a list of priorities that included decisions on which radio to choose, antenna, antenna tuner, feedline, power source, equipment locations, wire and cable runs, and most importantly, documentations. Many of us are also licensed Airframe and Powerplant technicians well acquainted with the Federal Aviation Regulations and requirements for modifications and installations. Safety is always a priority.

Team members began dividing up into areas of their own experiences and expertise. John, KDØCWR, and I took on most of the grunt work which involved opening up the cockpit area to facilitate relocating some of the equipment and old wiring. Later, we would install the new equipment and its associated wiring including the long wire antenna.

The required equipment criteria were based on weight, size, and robust construction. Once the brand and features of the equipment was unanimously agreed upon, procurement was the next big step. The Yaesu FT-891 was considered the best radio for the assignment. Next would be deciding on and purchasing a compatible random wire antenna tuner. Ham Radio Outlet was the chosen vendor since they had the radio and the Yaesu FC-40 antenna tuner in stock at a good price. The wire antenna must be an FAA approved and certified system. For this we chose the Dayton-Granger 45ARM300-109SA. The kit included strain relief insulators, a fuselage feed through, and a special insulation stripping tool. The frequency range is 0.4 to 30 MHz, well within our expected international calling frequencies for the flight to and into the Republic of Guyana.



Center Stack opened up

Leading up to February of 2023, we intensely scrutinized the Cessna 206 for the optimum placement of every component. To say the cockpit instrument panel has limited space is a vast understatement. There was absolutely no room for the FT-891 without making some major modifications to the layout of the existing radios and instruments. Keeping in mind convenience for the flight crew and the space we needed for the new radio, it was apparent that we had to relocate two critical engine monitoring instruments from the “center stack” to the pilots’ instrument panel. The “center stack” is between the pilot’s and copilot’s instrument panels and literally stacked with redundant VHF communication and navigation radios, a transponder, intercom, audio selector panel, and GPS equipment.

Believe it or not there is a method to the arrangement of just about every piece of electronics in the cockpit of every airplane. The wiring behind the instrument panels is not for the faint hearted. It’s cramped, it’s dark, it’s laden with knuckle busting hardware and not one wire has any slack. After countless hours of disassembling the center stack, rerouting numerous wires, repositioning equipment trays, and relocating the two engine instruments, a “hole” was made for the FT-891 at the bottom of the stack. A special aluminum bracket fastened to the tray above was designed and fabricated on site to securely attach the radio.

The plane incorporates a 14-volt DC system, perfect for our needs. However, current requirements for the FT-891 are quite substantial at 100 watts input key down. We wanted to allow the flight crew, while on the ground, to be able to use the HF radio without turning on the normal Master Avionics DC switch, thus sparing excess current drain on the ship's battery without the engine running. So, we integrated a 25-amp switch/breaker in line with the power going to the radio. All aircraft power is supplied by "Master Power" switch connected to the battery bus. The only other black box we needed to power up was the main intercom/communications panel. This would enable the receive audio from the HF radio to be selected to the external cabin speaker or the pilot's headphones. To prevent the 14-volt DC from feeding back into the normal Avionics bus while on the ground, a pair of reverse current protection diodes were used ahead of the power terminal for the intercom panel.



Coax and Control Cable Run

Installing the FC-40 in the overhead ceiling just behind the pilot's seat was a bit tricky but, we were able to manufacture additional bracketing between the structural stringers. The RF output connector was then only about six inches from the antenna feedthrough. A short piece of the inner conductor of the RG-142 coax that we ran from the radio to the tuner was used to connect to the antenna. The 14-volt power and control cables were routed with the coax to the tuner.



FC-40 & Antenna Feedthrough

From the aircraft wing tip mounting bracket, through an RF insulator, to the tension insulator at the tip of the vertical stabilizer and terminating at the antenna feedthrough, the "long wire" antenna ended up being around 36.5 feet long.

The wire had to be sufficiently "stretched" to provide enough spring tension to keep the antenna taut even at high airspeeds.

FC-40 to Coax & Control Cable



Before we applied power, a thorough continuity check was performed on all the new wiring following the diagrams prepared by Paul, KCØCBL. Power ON checks with no equipment installed were subsequently followed up by the

complete reassembly and installation of all the gear. To our great pleasure, all the ground operational checks appeared to be normal. Mark, KMØA, took charge of setting up the Yaesu FT-891 by preprogramming the list of HF frequencies, modes, and antenna tuner memories required for the flight to and inside Guyana. He also prepared a simplified operating and troubleshooting manual for the pilots. The crucial test was yet to come: the test flight.



Installation Complete

(fast forward one year)

(part 2 – Paul Koebbe KCØCBL)

The flight test proved to be as challenging as the initial installation. During the time used for design, installation and configuration of the HF system political challenges developed for the intended users and as a result there was no urgency in performing the flight test. It is well recognized that a project without a deadline will drag on forever, this proved to be the case. Additionally, all aircraft are required to have a current annual inspection in order to be legal to fly in the USA. The delay caused by the uncertainties of the final deployment exceeded the time frame on the annual inspection which lead to further delays. Finally, in August of 2024 the aircraft was ready to test fly the new radio.

The key objectives of the flight test were identified by the team. These objectives included; SSB operation on 20 meter and 40 meters, evaluation of the transmit/receive audio quality, and QSO's at a minimum of 300 miles. In order to maximize the potential

for multiple QSO's the test flight was promoted to local hams via 2 meter net and also via Facebook STLHAMS group.

All of the delays appeared to be addressed so the flight was scheduled for August 6, 2024. Unfortunately , the pilot that was to fly the test mission was required to fill in on a different flight and the test flight was scrubbed until the next week.

On August 13, the pilot, Dick, KAØLPL was confirmed, the weather was marginal, but still reasonable to achieve the objectives. However, our good friend Mr. Murphy popped up his head and the aircraft battery had been accidentally discharged. So again the mission was scrubbed for an additional week.

Finally on August 20, 2024 all the variables were addressed and the aircraft departed Spirit of St. Louis Airport (KSUS) at approximately 1230 hours. The flight plan was for the aircraft to fly to the west and attain an altitude of approximately 2500 ft AMSL. Amateur operations began once the aircraft had cleared all controlled airspace. KCØCBL issued a CQ call on 14.275 MHz, NØGL replied that he had 59 copy. KMØA also replied with 59 copy and then posted the Traffic on a DX bulletin board. In order to provide for greater signal range the pilot increased the altitude to 9000 AMSL. Following the increase in altitude, multiple contacts were made with operators in New York, Florida, Western Ohio, Pittsburgh, Mid Missouri and additional operators in the metro St. Louis area with signal reports ranging from 53 to 59. While descending from 9000 ft AMSL radio operations QSY'ed to 7.250 MHz to validate the operation of the antenna tuner. Many of the same stations had additional QSO at this frequency. Total flight time during on air HF operations was 45 minutes.



Figure 1: View from right seat during ascent

The flight objectives were met with the multiple QSO's from distances within the defined needs of 300 miles as well as several significantly longer in range. The audio quality was acceptable, however one operator indicated the background noise of the aircraft was significant and that it made the audio a bit difficult to copy.

As a result of this flight test, the installation was declared operational and ready for deployment. Depending on the time and funding availability, the marginal audio maybe addressed. However until such time the aircraft is given a clearly defined mission, the investigation into the mic audio will be delayed.

(Addendum – Gary Leu, NØGL)

The following is a list of the required equipment installed to accomplish this project.

1. HF Transceiver Yaesu FT-891 All Mode 1.9 – 50 Mhz. 100 watt 13.8 vdc
2. HF Automatic Antenna Tuner Yaesu FC-40 1.6 – 54 Mhz.
3. Dayton-Granger 45ARM300-109SA FAA certified HF Antenna System
4. 15 ft RG-142, 50 ohm double shielded coax
5. 25 Amp Switch/Breaker, 5 Amp fuse
6. Misc. fabricated Aluminum brackets, wire, terminals, hardware, sealant.

Preliminary HF Operating Frequencies:

<ul style="list-style-type: none">• 5300 Khz Mutual Aide• 5895 Khz Base Station 2• 5735 Khz Region 7 Comm	<ul style="list-style-type: none">• 6735.5 Khz ATC Georgetown• 6920 Khz Base Station 1• 8855 Khz Aero Mobile Calling
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Unfortunately, the aircraft is yet to be deployed due to bureaucratic red tape in the country of Guyana. Having border disputes with neighboring Venezuela since mid 2023 until now leaves the future of the plane’s departure date uncertain. Take heart, though, the airplane will still be flying periodically over the St. Louis area for routine maintenance and airworthiness checks. Perhaps one day you will be tuning across an HF band and hear “CQ, CQ... this is aeronautical mobile KCØCBL.”



Ready for the Mission

ITEMS FOR SALE OR GIVE-AWAY

FREE

Armand, KDOPXF has a free **42" monitor** for anyone to pickup. It is a Gaming or Computer Monitor, not a TV monitor. It has the standard Component video input and works fine! Any questions or to arrange a pick-up please contact Armand armandh@sbcglobal.net



Panasonic® Wide Plasma Display Operating Instructions

Model No. **TH-37PWD4**

GREEN SCREEN – PULL DOWN 75" X 79"

I want to:
Sell an item
Name
Mel Whitten
Call Sign
Empty
Phone (optional)
+13147391108
Email
mel@melwhitten.com
Brief Description of item
75in x 79in pull down green screen
Details, price, condition, etc.
See details of screen here:
<https://www.amazon.com/excelimage-Pull-Down-Auto-Locking-Wrinkle-Resistant-Photography/dp/B08RJJ2DPK?th=1>
Never used, still in original box.
Pick up at my QTH only.
\$50.00

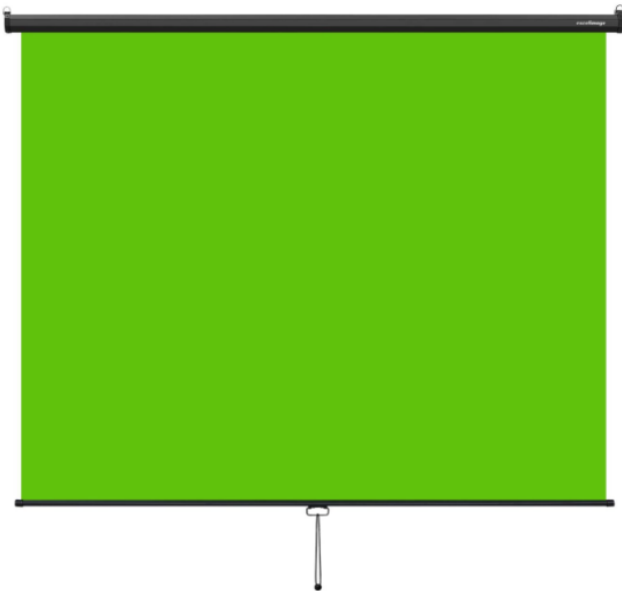
3219 Haas Avenue
Bridgeton, MO
63044
US

FREE SHIPPING Portable Brady BMP 21 + Plus Label Machine FREE SHIPPING

Sell an item
Name
Gary Leu
Call Sign
NOGL
Phone (optional)
+16367345914
Email
nogl@charter.net

Brief Description of item
Portable Brady BMP 21 + Plus Label Machine

Like new in excellent condition Brady BMP21-PLUS Label Printer is tough on the outside and smart on the inside. BMP21-PLUS has ultra rugged construction and world class materials combined in a toolbox-ready fit-in-your-palm label printer that produces continuous-only labels up to 3/4" wide. Choose from 70 label parts across 8 incredibly durable materials including self-laminating wire markers, **heat-shrink wire sleeves**, cable flags, 8-to-10-year outdoor vinyl, nylon cloth wire and panel labels, terminal block and patch panel labels, and chemical-resistant polyester and polypropylene. When it comes to durability, the BMP21-PLUS has heavy-duty molded-rubber impact bumpers, and it has been drop-tested to MIL drop-test standards. Industry-specific features include backlit display for low-light work areas, one-touch setup for aire, flagging, T-block, patchpanel and breaker box apps, and 125 symbols for electrical, datacom, A/V, smart home and safety. Unique features include a built-in label grabber device that prevents your cut label from falling to the ground after it's cut, one-handed label cut operation, and an optional magnet accessory for mounting the printer to a metal panel or surface for hands-free operation. Operates on (6) AA batteries included. Price: \$169. **SALE-\$135 Super Sale \$110 FREE SHIPPING WITHIN U.S.**



LINKS:

SOLAR UPDATE



[The K7RA Solar Update \(arrl.org\)](http://www.arrl.org)

SLATS REPEATER DVB-T WØATN

Technical Summary

Coordinates: 38.72126N -90.46454W, Grid Square: EM48sr [What3Words](http://www.what3words.com)
Elevation: 671 ft AMSL, 90 foot Rohn tower
Transmitter: HiDes HV-200Pro 426.000 MHz Vertical polarization, DVB-T 16QAM @ 4MHz Bandwidth, Video PID 641, Audio PID 642, DCI ATV BP RX/TX Filters
Output Power: 426.000 MHz: (DVB-T) 25w Average
Receiver: HV-110, 440.000 MHz, 4 MHz bandwidth, 16 QAM DVB-T
Antennas: (2) New-Tronics Hustler Spirits, 9db 426TX and 440RX
Talk-Back radio: 2 Mtr FM Diamond Antenna at 45 ft
Coordination: Missouri Repeater Council (MRC) 2016
Sponsor: SLATS – St. Louis Amateur Television Society (SLATS).

Popular off the shelf equipment for High Definition receiving and transmitting is available at the [HiDes Company](http://www.hides.com) and on [eBay](http://www.ebay.com)



Early plumbers
Earle and Rich...

Ham Radio Quick Links:

Amateur Television Network

<https://www.atn-tv.com/>

ATN Repeater video streaming

<https://www.atn-tv.com/events/streaming>

ATN on YouTube

<https://www.youtube.com/>

[AmateurTelevisionNetwork](https://www.youtube.com/AmateurTelevisionNetwork)

ATN on Whereby.com

<https://whereby.com/atn1>

TAPR - Tomorrow's Ham Radio

<https://tapr.org>

DIGITAL ATV

Digital Amateur Television D-ATV

[https://www.dxzone.com/catalog/Operating Modes/Digital ATV/](https://www.dxzone.com/catalog/Operating%20Modes/Digital%20ATV/)

YouTube Videos

Dave Casler KEØOG - YouTube

Videos <https://www.youtube.com/channel/UCaBtYooQdmNzq63eID8RaLQ>

Solar Index & Propagation Made Easy

The SmokinApe

<https://www.youtube.com/user/TheSmokinApe>