

W6VIO Calling



Jet Propulsion Laboratory Amateur Radio Club
PO Box 842, La Canada CA 91012-0842



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Director at Large:	Jim Marr, AA6QI	3-1528	WR6AZN Trustee:	Bill Wood, W6FXJ	760-256-9576

Upcoming Events:

- Every Monday: Emergency Communications Net: Noon, on WR6JPL 224.08/(-)/156.7 & 445.20/(-)/103.5, or WR6AZN 223.96/(-)/156.7 on Table Mountain.
- JPLARC Board of Directors (BOD) meetings: Normally, the first working Friday, every month, from Noon to 1pm in 180-703C. Call-in: 818-354-3434 ID 7373. **Next is July 4th.**
- **QST, QST, QST**: JPLARC Regular Membership meetings: Second working Friday every month from Noon to 1pm in 180-703C. Call-in: 818-354-3434 ID 7373. Slides (if any) broadcast via meetingplace.jpl.nasa.gov, ID=7373. **Next is June 20th. Guest speaker: Jim Marr AA6QI discussing "Field Day 2014 Preparations".**

In this issue:

This issue covers:

- May regular membership meeting (May 23rd).
- Board of Directors meeting (June 9th).
- JPLARC Generator repair.
- Balun adventure.
- Key click & NB mods on our 2nd FT-1000D.
- Field Day 2014 Preparations.
- Emergency communications.
- ARRL Membership
- For Sale.
- Future membership meetings & speaker topics.

May 23rd Regular Membership Meeting:

By Rob Smith W6GRV

Present were: Bob Cesarone WA9JIB, Courtney Duncan[†] N5BF, Mark Lysek[†] AG6TD, Jim Marr[†]* AA6QI, Steve Noland[†] WA6KLC, Rob Smith[†]* W6GRV, Mike Tope[†] W5EF, Steve Townes[†]* WB5ILW, Fred Vescelus[†] N6FV, Bill Weber[†] N6CI,. On the phone: Chris Carson[†]* KE56ABQ and Walt Mushagian K6DNS[†].

Note: [†] indicates a regular member, and * Indicates BOD member. For a regular meeting quorum, the JPLARC Bylaws require a majority of the BOD (4) and at least five other regular members, so we had a quorum.

Field day:

Field Day (FD) is June 28th & 29th, only two weeks away. JPL is providing the CW station in a joint FD exercise with the Pasadena radio club at the Art center. Plans are that there will be 2 or 3 SSB stations; a satellite station; a VHF/UHF station; a digital station (PSK-31); and an NTS traffic station. Setup begins at 7:00 am Saturday; Field Day operations are from 11 a.m. Saturday to 11 a.m. Sunday. Tear down starts at 11 a.m. Sunday. At 6 p.m. Saturday evening, there will be a potluck dinner. At 8 a.m. Sunday morning there will be a pancake breakfast.

PRC runs Field Day as a fairly informal activity to encourage participation. If you want to try a new operational mode or just see what Field Day is all about, come on down. Any participation welcome.

Additional Comments:

Steve Townes reported that he is handing out membership cards. If you haven't received yours, see Steve.

Treasurer report - Current balance is \$4,338.14.

Jim Marr: Email has been sent out for the Field Day setup teams (five of them; looking for volunteers).

Mike Tope will be looking into the option of using the CITARC mobile tribander/tower trailer for this year's Field Day.

Jan & Bob are going to test their newly provided access

to the JPL MESA to check on the equipment status. Jim Lux may be leading a repeater work party in the near future.

A question was asked as to whether there was a repository for past JPLARC presentations and, if so, is it available for off lab access? The current answer is no but that is a pending activity for the Internet Services Committee once we find a leader for that committee. We have all of the back presentations for the past year, we just need a place to put them that has external access (a Yahoo group?).

Guest Presentation:

Doug Millar K6JEY is ill and could not be here for his previously scheduled talk on "Sidewalk EME". We plan to work with him to reschedule for a later date. [ed: Done, now scheduled for September 26th.]



Figure 1: Courtney Duncan N5BF giving his talk: "Software Radios, an Enabling Technology for Satellite, Space, and Ultra-weak Signal Applications."

Courtney Duncan N5BF filled in for Doug giving an outstanding presentation on "Software radios, and enabling technology for Satellite, Space, and Ultra weak signal applications." This was a talk that he had given at an AMSAT Symposium in October 2006 that is still quite relevant today. Even a compressed .pdf version of the talk is too big to send via email so, for anyone interested, please send an email to Courtney and he can send you

the presentation via JPL's large file transfer tool. The corresponding symposium paper is available directly from the author's website at http://cbduncan.duncanheights.com/HamRadio/Dsp10/PhaseFive/SDR_AMSAT_2006_Submitted.pdf

A brief summary of the presentation follows (just to whet your appetite for asking Courtney for a copy!).

Courtney began by asking "What are Software Radios good for? Why Bother? His answer: Audio filtering; Speech processing; Noise reduction; "sound card" modes; Modems; Mod/Demod schemes; Software defined transponders; "arbitrary" protocols, adaptable; ALE protocol; Autonomy; Ultra QRP; RADAR; Navigation - direction finding.

For Courtney, he wanted to get away from 'appliance' type radios, to have detailed control of the radio, to have the construction experience, and to explore unusual capabilities.

His adventure with the DSP-10 (Figure-2), a mostly electronic (not mechanical) radio, began with building a kit over the period 2002 to 2005, requiring about 50 hours of construction and about 25 hours of debugging.



Figure 2: N5BF's DSP-10

DSP-10 modes include CW, USB/LSB/FM, LHL-7, PUA43, EME2, LTI, and whatever someone writes (Google for explanation of the modes that you're not familiar with). Other DSP-10 features include: scrolling waterfall with many modes and rates; all the usual controls; numerous other controls; and DOS key combinations (i.e., scr1-shift-F4). The user interface (Figure-3) is entirely handled via the screen and keyboard of a PC (at least a x386) running DOS and talking to the radio via RS-232. The only control available at the radio itself is PTT on the microphone, when set up properly for QSOs from the PC.

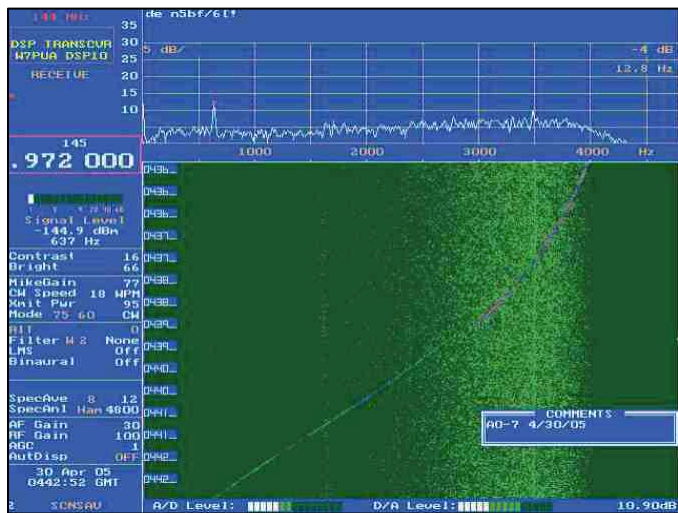


Figure 3: DSP-10 interface, showing an AO-7 satellite pass.

What does he do with the DSP-10? As built, using available group-developed software, it is a 2m all-mode radio enabling working AO-7, doing some beacon DXing (LTI mode), and winning an ARRL VHF/UHF contest.

Courtney goes on to describe his interest in QRP EME, his station setup (Figure-4), and his experiences (this is really interesting stuff but the details would be lost if I tried to summarize it here). He also described his interest in attempting E-planet-E communications, discussing Venus, Mercury, and Mars as possibilities.

Then there's the ultra-weak frontier, including radar and "below the noise" QSOs, where signals are 20-30dB weaker than traditional CW/SSB. Courtney also imagines an AMSAT tracking network and in-house tracking capability based on SDR technology. Courtney gave a brief orbit-determination 101 and discussed using that for AO-7 and other amateur satellite orbit determination, along with navigation issues like stable oscillators and system coherence.

Much of the ultra-weak signal ground pioneered by experiments such as the DSP-10 have been advanced since this 2006 paper through the K1JT developed weak signal sound card modes, which have been widely adopted. See

<http://physics.princeton.edu/pulsar/K1JT/index.html> and linked pages for further information. Courtney's current interests include participation in the various "JT Modes" and the advanced radio and radar possibilities enabled by them and he still uses the DSP-10 routinely, as a 2 meter IF to a 23 cm EME station, on 2 meters directly, and as test equipment.

Why would anyone want to do EVE or an AMSAT tracking network? Why would about ten people spend >\$0.5M on 3YOX (Peter I., Antarctica)? Answer: because

DXCC exists (you knew that!). DXCC is a well orchestrated "game" that's easy to start, kind'a easy steps forward, can get very involved if you care to, has a critical mass of participation, and no one would care about Peter I. without it (as an end in itself).

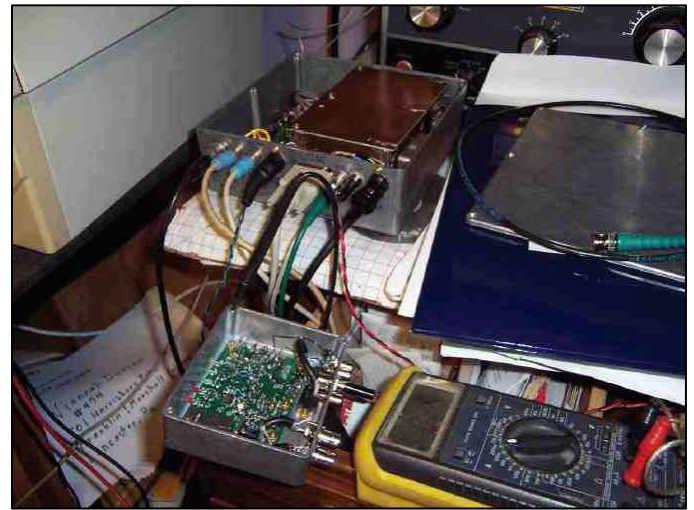


Figure 4: N5BF's "EME Station"

Other technical "games" include: frequency-measuring tests, ZRO test, fox hunting (via satellite?). Umbrella organizations such as AMSATs, ARRLs, TAPR, WCWSS-central states VHF, and QRP ARCI cold-sponsor such graded certification programs to promote these goals and identify talent and resources.

Courtney concludes that amateur radio is not dying out, becoming obsolete, or irrelevant, only parts are. But not this part! We are limited only by our collective imagination.

As a 2014 epilogue, Courtney mentioned that K6JEY's "Sidewalk EME" talk will be rescheduled, noting that K6JEY does the sorts of things described in this talk using JT modes (no CW or SSB ... but we'll talk about that someday). 23cm EME at N5BF... we'll talk about that someday, too. Significant progress in the last 8 years: JT modes (EME on the moon 24/7, other bands regular, starts about 2005); Doppler OD on USRPs (JPL/Kempke/Gustafson); no (known) good new technical competitions...

Again, contact Courtney to obtain a full copy of his presentation.

BOD Meeting June 6th

By Jim Marr AA6QI

Present: Courtney Duncan* N5BF, Jim Marr* AA6QI, Steve Townes* WB4ILW.

Phone: Chris Carson* KE6ABQ, Walt Mushagian K6DNS.

* indicates a BOD member; a BOD quorum was present (requires 4 of the 6 BOD members to be present).

Meeting opened by President Steve Townes.

Committee membership discussion:

Station Facility: Still no committee chair identified but Jim Marr agreed to serve temporarily until a chair can be identified.

EmComm: Jim Erickson N6PGC has agreed to chair this committee and is working setting up a time for the committee to meet regularly. Jim and Jan Tarsala WB6VRN have already met over lunch for an initial discussion.

Field Day: Jim Marr reported on Field Day preparations status. He briefly went through a list of expenses that he had turned in to Treasurer Chuck Sarture. He also reported that he had taken Walt Mushagian's advice and added a 40m dipole to the 80m dipole and that we now plan to use the CITARC trailer with the crank up tower and Force-12 C3S 20/15/10m Yagi. The tower has a side arm that will be used as the apex for the 80m/40m dipole. A work party is planned for 9 a.m. Friday, June 13th at the Caltech maintenance yard on Holliston to prepare the trailer. Mike Tope will bring the trailer to the Art Center Field Day site. A six-person team has been identified to put up and take down these antennas. Good progress is also being made on lining up people for the remaining four teams.

Internet Services: We discussed the importance of the work of this committee for the future of the club and the need to identify a chair. Jim Marr agreed to enumerate the tasks for this committee. Courtney Duncan has some ideas for who might be willing to undertake specific tasks once they're identified.

Other topics discussed included:

- The need for status on the repeaters (has the 445.20 antenna been replaced yet?).
- We still need to solve the 80m/40m noise problem in building 310 and plan to get to that sometime after Field Day.
- No new news about the pending building 173 radio shack move.
- Courtney Duncan will talk to Doug Millar to see if he can give his talk on Sidewalk EME for September 26th. [ed, Doug Millar agreed.]
- We need to start thinking about whether there will be a December meeting, either on or off Lab.
- We also need to start thinking about lining up 2015 guest speakers.

Generator Repair

By Jim Marr AA6QI

Part of preparing for our upcoming Field Day was preparing the Club's two generators (Figure-5). What

was planned to be routine maintenance (oil change, gapping spark plug, cleaning/oiling the air intake filter, draining fuel line sediment, and cleaning the exhaust spark arrester screen) turned out to be a bit more complicated than anticipated. Neither generator would start and one of them had ancient fuel in the tank that had partially solidified. Since the lessons learned in restoring these two generators to operational status might be useful to Club members who have generators or other gasoline driven equipment in similar shape, I thought that it was worth passing them along via this article.

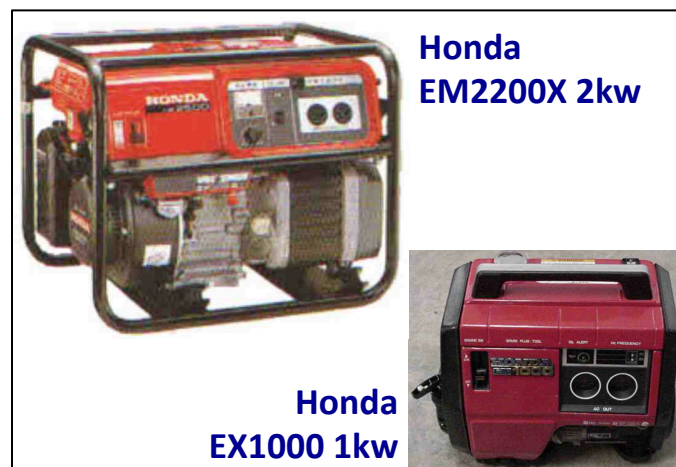


Figure 5: Our two generators

Three of us (Bill Weber, Jorge Gonzalez, and me) set out to service the generators on Friday, May 2nd.

Honda EM2200X 2kw Generator:

The first of our generators is a Honda EM2200X 2kw generator from the 1980's. A note on the generator indicated that it was configured per the manual for long-term non-usage in 2001. The fuel was properly drained so we thought that this generator would be easy to get running.

We found that the air cleaner had disintegrated in LA's wonderful air and the generator would not start. We verified that fuel was making it to the carburetor float bowl and I came in the next day with a spray can of starter fluid and verified that the generator would start and run with the starting fluid, so it was clear that the fuel was not making it through the carburetor into the engine. To make a long story short, after buying replacement gaskets for the carburetor, I pulled the carburetor off the engine, disassembled it, and found that the fuel main jet (Figure-6, part 19) that supplies fuel from the float bowl to the carburetor throat was completely plugged. After unplugging it, cleaning the rest of the carburetor with spray carburetor cleaner, and reinstalling the carburetor on the engine, the engine started and ran perfectly. Whew! One down, one to go.

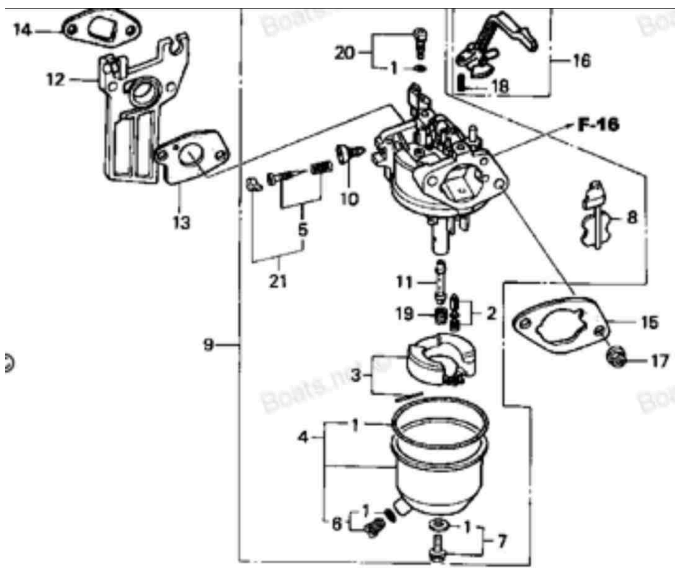


Figure 6: EM2200X carburetor parts blowup. The fuel main jet (part # 19) was found to be plugged (likely dried fuel residue). The main nozzle (part #11) and pilot jet (part #20) were clear.

Honda EX1000 1kw Generator:

Our second generator is a Honda EX1000 1kw generator and is the one in which gasoline has been left in the tank for a sufficiently long time that it had turned to sludge. After a bit of internet surfing, I found that lacquer thinner is a good solvent for gasoline sludge and purchased a couple of gallons. I then disassembled the generator sufficiently to allow me to remove the fuel tank from the generator for cleaning (Figure-7).

For a couple of weeks, I would fill the tank with lacquer thinner and would agitate it every morning and evening for a few days, then pour out the resulting mixture. After a couple of weeks, the gas level gauge (Figure-7, part #8) started working again and it was clear that a great deal of the sludge had dissolved, but not all.

I then purchased a small bag of aquarium gravel to act as a scouring agent, added some of that to the tank with the next batch of lacquer thinner, then vigorously agitated the tank to scour all inside surfaces. That worked really well, leaving a pretty clean tank inside.

I then pulled and cleaned the fuel gauge, which had acquired a bit of the aquarium gravel in the mechanism, preventing it from moving.

Next, I pulled the fuel outlet stopcock (Figure-7, part # 2) and found that it was completely plugged. After much effort at attempting to clean the stopcock and, in the process breaking the screen (Figure-7, part #3), I gave up and purchased a new one.

At this point, the gas tank was reassembled and ready to put back in service.

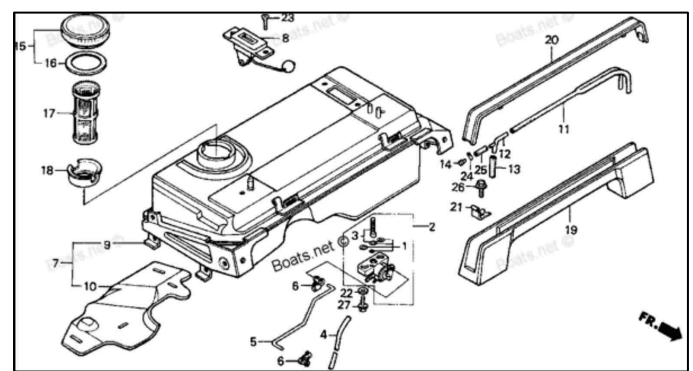


Figure 7: EX1000 Fuel Tank showing petcock assembly (part No. 2) that needed replacing.

Next, after my experience with the other generator, I pulled the carburetor and found the same problem with the plugged fuel main jet orifice and main nozzle (Figure-8 parts 25 & 11, respectively). After cleaning the main jet orifice, the main nozzle, and the rest of the carburetor with spray carburetor cleaner, I reassembled the carburetor, reinstalled it, put the whole generator back together, added some gasoline, and, presto, the generator fired right up. Since I had messed with the speed governor adjustment, I had to readjust that, which turned out to be a bit trickier than I thought it would be (I didn't have a service manual so had to figure out how to do it myself).

This generator also needed to have the gas tank gasket (Figure-7, part #16) replaced, a new air filter, and an oil change. After that, it was good to go for Field Day.

Long-Term Storage Procedure:

Given that both of these generators had plugged main jets in the carburetors, even the one that had been correctly prepared for long-term storage in accordance with the operating manual, I wondered whether there might be a way to prevent that. The cause, I believe, is a small amount of fuel that remains in the main jet orifice (due to surface tension) after the fuel has been drained from the gas tank through the carburetor, as the manual instructs. This fuel would eventually dry and might be the source of the clogged main jet orifice.

After thinking about this a bit, I think that a way to prevent this might be to pull air through the carburetor after the fuel has been drained and while the carburetor fuel bowl drain is still open so that air will be drawn in through the fuel bowl and thus through the main jet orifice and the main nozzle. This can be done by pulling on the starting cord several times just after draining all of the gas from the generator but before closing the carburetor fuel bowl drain. I intend to try this after Field Day to see how well it will work but won't know the results until we next try to put the generators back in service, perhaps for Field Day 2015.

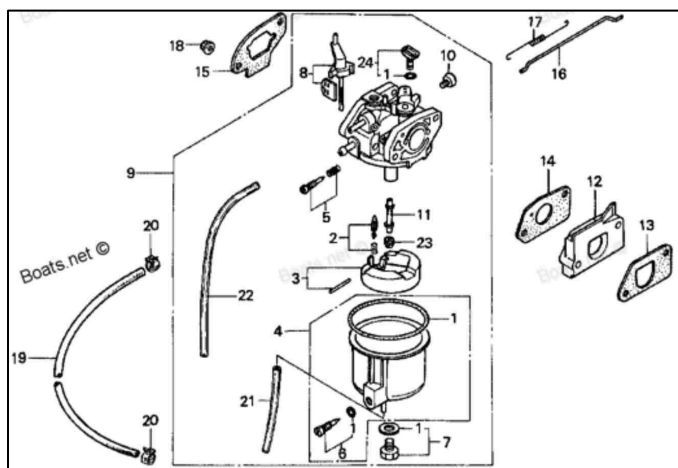


Figure 8: EX1000 Carburetor parts blowup showing the plugged main jet (part #23), and plugged main nozzle (part #11). The pilot jet (part #24) was clear.

The last step in putting the generator to sleep (always) is to pull the starting cord until resistance is felt, indicating the start of the compression stroke when both intake and exhaust valves are closed, protecting the internals of the cylinder from exposure to the atmosphere.

Balun Adventure:

By Jim Marr AA6QI

On Friday, May 16th, Bill Weber N6CI, Steve Townes WB4ILW and I went down to our antenna container C7111 at the West end of the Arroyo parking lot, just south of building 306 and pulled out some coax and an 80m dipole to use for Field Day.

Later that day, I set up the 80m dipole in my back yard to find out whether the dipole was resonant at 80m or 75m. Using my MFJ-259B antenna analyzer, I was unable to find any resonance at all, anywhere. An ohmmeter check showed that all ports of the W2AU balun (Figure-9) were shorted together at DC. Since I wasn't seeing any resonance at RF, I assumed that the W2AU balun had been internally damaged and replaced it with a brand new MFJ-918 1:1 current balun (Figure-9) that I had purchased for a project that I hadn't gotten around to yet. Retesting the antenna with this new balun showed that the antenna was resonant at 3.500 MHz, with a 2.0:1 bandwidth high point at 3.550 MHz, good enough for the CW portion of the band where we plan to use it during Field Day. We can always tweak it to be a little shorter to raise the resonance a little bit once we get it up where we want it at our Field Day site.

Next, I wanted to investigate what was wrong with the W2AU balun. Doing some more internet research, I found that I wasn't the only one who didn't understand how to test this balun but did find some answers. Putting a pair of 25 ohm resistors in series across the output of the balun and then testing with the MFJ-259B

antenna analyzer showed the correct 50 ohm impedance at RF, and shorting the center between the two 25 ohm resistors or on either side of them to ground showed no change in measured impedance, all as it should if the balun is OK.

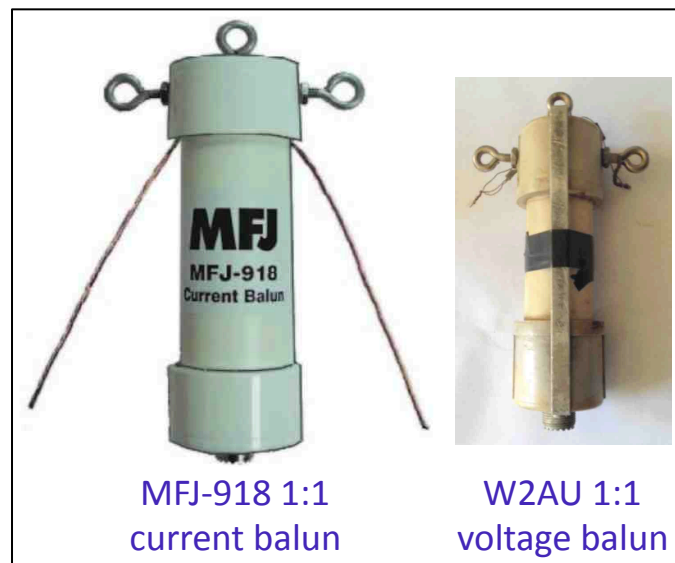


Figure 9: W2AU balun removed from the 80m dipole and the MFJ-918 balun added to the 80m dipole

That left me wondering why the balun didn't work when installed in the antenna. Since I had already broken configuration, I couldn't go back and check it again. I can only conclude that the cause might have been corrosion between the balun pigtails and the antenna wires inside of the wire nuts that were used to connect the pigtails to the antenna wires (instead of being soldered as they are now with the MFJ balun).

I then set off to understand what the difference was between the MFJ-918 and the W2AU baluns. I started by reading the balun sections in the [ARRL Handbook, 2014 edition](#), and the [ARRL Antenna Book, 22nd edition](#). Next, I ordered a copy of Jerry Sevick W2FMI's book [Understanding, Building, and Using Baluns and Ununs](#).

These helped me understand that the MFJ-918 is a 1:1 current balun and the W2AU is a 1:1 voltage balun (where the 1:1 means there is no impedance matching going on in these baluns). A current balun makes sure that the current in the two arms of the dipole are the same (thus eliminating any current on the outside of the feedline coax) while a voltage balun only makes the voltage at the dipole wires the same where they tie to the balun. With a voltage balun, if the antenna is unbalanced (say due to proximity of one side to a structure) or the feedline doesn't come away from the dipole exactly perpendicular to the antenna, then current can still be present on the outside of the feedline coax. Since the whole purpose of using a balun in a dipole is to keep those currents off of the outside of the

coax shield, a voltage balun isn't the right kind of balun to use for this application (even though many hams still use one for that purpose). An excellent discussion of balun testing, including a table that demonstrates why the W2AU balun is a poor choice for this application, is http://www.w8ji.com/balun_test.htm.

Why do you want to keep currents off of the outside of the feedline coax shield? There are number of reasons. First, those currents can cause problems in the shack, depending upon what the current's path to ground is (RF burns or RF feedback into station equipment or home entertainment equipment). These currents can also radiate as another leg of the antenna, changing the radiation pattern of the antenna. For a stand-alone dipole, the radiation pattern won't change very much but for a dipole that is part of a Yagi (beam) antenna, feedline radiation can significantly degrade the radiation pattern of the antenna (e.g., front to back ratio).

Many hams (myself included) often don't even use a balun of any kind on their dipole antennas, without incident, especially if the feedline is in the plane perpendicular to the line of the dipole. Others use a coil of coax (6" to 8" in diameter with 8 to 10 turns of coax) near the feedpoint, forming a current balun that is effective from 20m through 10m but not very effective at longer wavelengths due to it's air core.

I intend to spend much more time studying balun theory and construction now that my interest is peaked but, at least for now, our 80m dipole (now an 80m/40m dipole, following the addition of a 40m dipole) is good to go for Field Day with the a reasonable 1:1 current balun installed.

Key Click & NB Mods installed in 2nd FT-1000D:

By Jim Marr AA6QI

On Friday, Mayt 30th, I installed the W8JI key click and noise blanker modifications into our second FT-1000D (the one targeted for use in our Field Day CW station). These mods were installed in our other FT-1000D way back in 2004 by Mike Tope W4EF (see Mike's excellent writeup in the March 2004 issue of W6VIO Calling at: <http://jplarc.ampr.org/calling/2004/mar04call.pdf>).

These mods fix two significant problems in the original FT-1000D design: (1) The FT-1000D runs an essentially unshaped CW waveform into the filters, causing unnecessary key clicks from almost 1 kHz below to 2 kHz above the transmit frequency; and (2) The FT-1000D heavily forward-biases the noise-blanker's first FET whenever the blanker is turned OFF, causing the FET hanging on the IF system to have high gain so that strong signals within the roofing filter bandwidth saturate the FET's drain. This results in mixing products

(IM) that feed back into the 8MHz IF section, creating interference to any desired weak signals (these appear as 'phantom' signals that sound like normal CW signals).

W8JI built two 'plug in' boards (Figure-10) that address these two issues. Installation of these two boards was pretty simple, given the clear installation instructions provided along with the two boards we purchased from Tom Rauch W8JI. Installation of the two boards is shown in Figure-11.

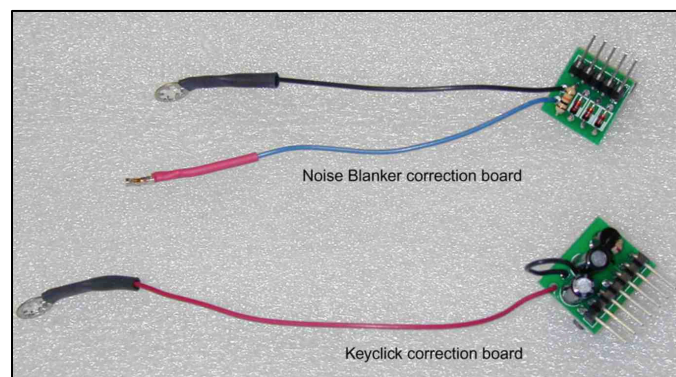


Figure 10: W8JI FT-1000D key click and noise blanker fix boards

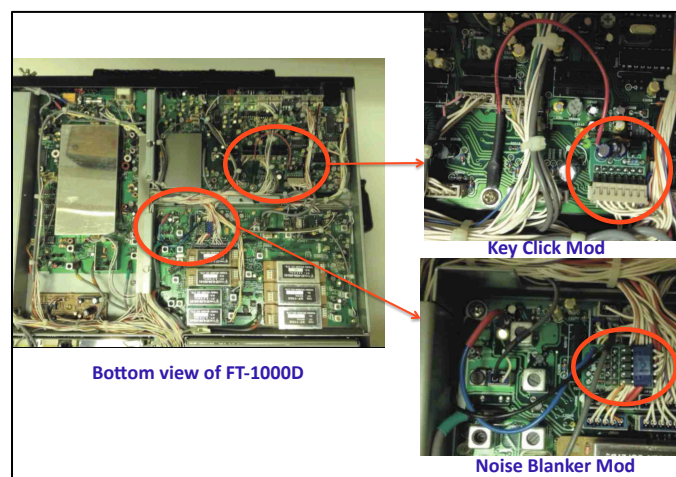


Figure 11: The W8JI key click and NB mod boards installed in our second FT-1000D.

To view the effectiveness of these mods, see Mike Tope's 2004 write-up referenced above, which includes before and after waveforms.

Installation of these mods was considered (by me) to be essential for Field Day use of this FT-1000D since it will be operated in close proximity to four or five other HF transmitters (therefore needing the NB mod) and we certainly don't want to be generating key clicks that interfere with the other Field Day stations. Now that they're installed, we're good to go for Field Day!



Figure 12: ARRL Field Day 2014 Logo

2014 Field Day Planning Update:

By Jim Marr AA6QI (& the FD Committee)

Field Day (FD) 2014 (Figure-12) is now just a couple of weeks away and plans are firm for our joint FD with the Pasadena Radio Club (PRC) and Caltech ARC in the large parking lot of the Art Center off of Lida Street (Figure-13) just a hop-skip-&-jump on the other side of the 210 freeway from JPL.

The PRC plans to have a VHF/UHF station, two or three SSB stations, and a digital station (PSK-31), and will be operating class 6A (six active transmitters on emergency power). Lunch (Saturday only) and restrooms are at the Art Center (Figure-14), there will be a Saturday evening potluck dinner at 6 p.m. and a Sunday morning pancake breakfast at 8 a.m.

Setup will begin at 7 a.m. Saturday morning, contest operations begin at 11 a.m. and run continuously through Sunday 11 a.m., followed by teardown.

JPLARC as CW Station Provider:

This year, JPLARC will be providing the CW station (and serving as the CW Station Captain), including antennas, & some infrastructure items (generator, table, tent, etc.). The radio will be our second FT-1000D, that we just installed the W8JI modes into, as discussed above. We plan to have three antennas: an 80m/40m dipole, a Cushcraft R-7000 40 through 10m vertical and, just recently we decided to include the CITARC's Force-12 C3S triband Yagi with portable crank up tower.

Power will be provided by one or both of our two generators (we'll probably only need the Honda EM2200X 2kw generator, but we'll bring both along).



Figure 13: Map to the 2014 Field Day site in the Art Center parking lot.

The PRC will provide the logging computer running the N3FJP Field Day logging program. This computer will also be set up with macros for a Winkeyer to allow sending Field Day exchanges from the keyboard.

Training on the N3FJP logging program, the Winkeyer, and the FT-1000D will be provided at the June 20th JPLARC regular membership meeting (see header above) and will be broadcast over MeetingPlace so those who can't physically make it to the meeting can still follow along. Instructions will also be available at the CW station table during Field Day.

We plan to have four, two-or-more-person teams and one, four-or-more-person team. Having this many teams will make the setup from 7 a.m. to 11 a.m. an easy, stress-free activity. These five teams are (so far... but **anyone is welcome to come and help with setup Saturday from 7 a.m. to 11 a.m. or teardown on Sunday - which starts at 11 a.m.!**):

- Facilities: Tent, table, chairs, lights (all to be provided by Jim Marr, but to be set up by this team). Team: Jim Longthorne WA6KPW, (Bob Deen N5DPU is a possible).

- Power: Generators, gasoline, extension cords, and fire extinguisher. Jim Marr will move the generators and extension cords from 173 to the FD site and provide the fire extinguisher and gasoline. The sets them up at an appropriate location, fuels them, runs the extension cords, and ensures that the generators are fueled throughout the FD exercise. Team: Walt Ciszcon KK6DUL and Nasrat Raouf KI6NAR.

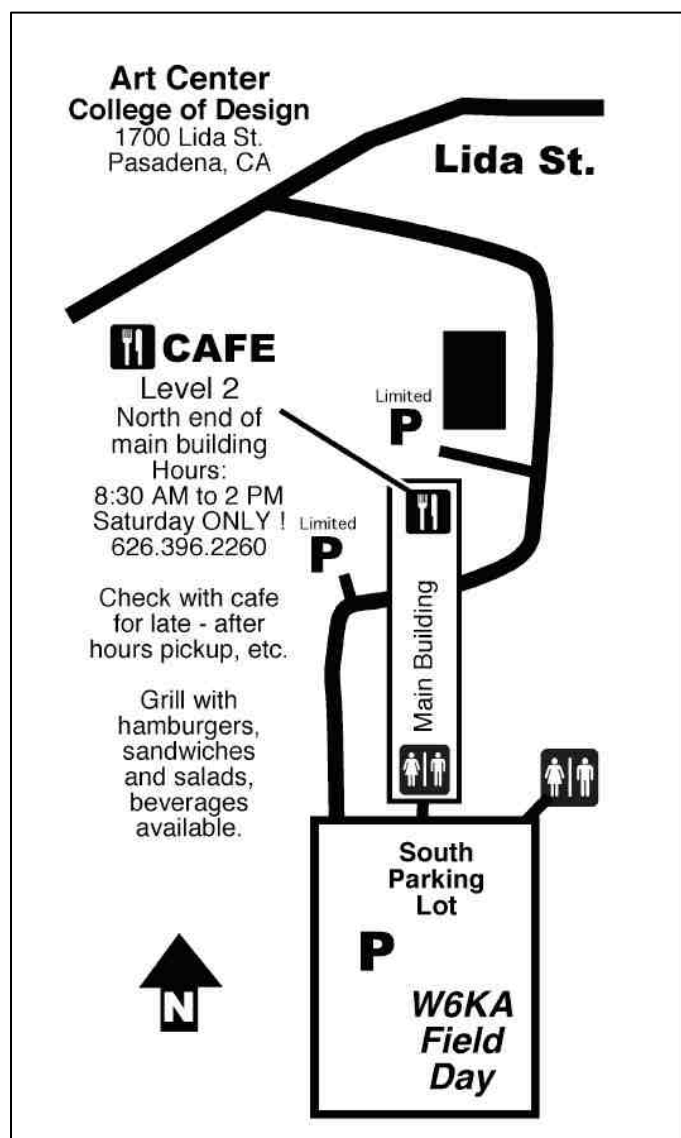


Figure 14: Art Center layout showing our Field Day site (lower right) and where the restrooms and cafeteria are located.

- Station: Radio, Bencher BY-1 paddles, straight key, Winkeyer, headphones, CAT cable, instructions. Jim Marr will transport the above equipment to the site. The team sets it up, and tests it. Team: Rob Smith W6GRV and Jim Marr. Jim Marr will also provide a Yaesu FT-847 backup radio in case there is a problem with the FT-1000D.

- Cushcraft R-7000 40m-10m vertical antenna: R-7000, support base, support mast, guy ropes, coax, assembly tools and CAA-500 antenna analyzer. Jim Marr will transport the materials for this team to the FD site for assembly by the team. Team: Chuck Sarture KG6NF & Jorge Gonzalez KI6BJB.

- Force-12 C3S 20/15/10m tribander and 80m/40m dipole: All components will already at the FD site for setup by this team. Team: Mike Tope, Walt Mushagian

K6DNS, Bill Weber N6CI, Elaine Chapin KJ6YYP, Linda Taddeo KK6LEO, and Jim Erickson N6PGC.

We hope that JPLARC members will come out and participate. This is a great opportunity to meet new local hams and to get on the air with modes that you might not normally use. Last year's FD with the PRC was a lot of fun and I expect that this year's will be even more fun. Why not come out and see for yourself.

JPL ARC EmComm

By Jim Marr AA6QI

This month being ARRL Field Day month, I thought that it would be worth talking about Field Day's (Figure-12) relationship to emergency communications. The regular thread of this column will pick up again in the next issue.

The ARRL web site characterizes Field Day as "*Field Day is part educational event, part operating event, part public relations event – and ALL about FUN!*" ARRL's stated objective for Field Day is "*To work as many stations as possible on any and all amateur bands (excluding the 60, 30, 17, and 12-meter bands) and to learn to operate in abnormal situations in less than optimal conditions.*"

In the event of a real, wide area disaster, such as 'the big one' we may all be operating in 'abnormal situations in less than optimal conditions' and you can bet that the bands will be incredibly crowded with all kinds of traffic. Repeaters that are still operating will be loaded with traffic and probably not very available for your call home to check on your family, at least not for a while (although here at JPL we enjoy several repeaters that are likely to be available for our local use, assuming that we have net control operators to run our nets on them). These days, with most served agencies having their own NIMS-compliant communications systems and dedicated personnel, I suspect that much of the ham band and repeater traffic will be 'health and welfare' traffic (check on family and friends) rather than emergency or priority traffic, but I could be wrong.

Practicing communications under these kinds of conditions (heavy traffic) is an important aspect of being able to 'get the message through' when other means of communication are not available. Field Day provides the perfect opportunity to have a little fun and practice this skill while roughing it a little.

Why not come out to our Field Day even at the Pasadena Art Center at 1700 Lida St, just across the 210 from JPL. As I've said before, this joint event with the Pasadena Radio Club and the Caltech Amateur Radio Club is intended to be a fun event, not a serious contest event, so if having radio fun is something you'd like to experience, come on out and join us!

ARRL Membership:

By Jim Marr AA6QI

As an ARRL affiliated club, at least 51% of our membership must be ARRL members. Today, we have 65% as either Life (7) or Regular (23) ARRL members. That leaves sixteen 2014 members who are not ARRL members. While there are no requirements to maintain ARRL membership, there are some clear advantages to having ARRL membership. Some of these are:

- Receiving the monthly QST magazine and having access to all back issues electronically.
- Being able to subscribe to weekly ARRL news, propagation forecasts, and satellite ephemeris notifications.
- Being able to subscribe to the electronic monthly Amateur Radio Emergency Service (ARES) newsletter that may be of interest to members who wish to stay current on emergency communications.
- Member discounts on materials and training. For example, the ARRL Introduction to Emergency Communication Course is \$85 for non-members but only \$50 for members.
- You support ARRL, the only significant amateur radio advocacy organization in the U.S. that is fighting to protect our access to the airwaves.

Should those of you who are not already members and may wish to join, please do so through the Club rather than joining directly through ARRL. Why? If you join through the Club (new members), the Club retains \$15 of your membership fee to support Club activities. From your point of view, the amount you pay is the same either way. Even if you are member who is just renewing, doing so through the Club nets the Club \$2, again, without changing your costs at all.

To renew through the Club, see Jim Marr who will help you with the paperwork (don't worry, it's really simple!).

Thanks in advance for considering joining ARRL.

For Sale

By Jim Marr AA6QI

As reported in the February issue, the JPLARC membership approved selling a number of JPLARC equipment items as shown in February's Figure-13. At the time of this writing, only three items remain, as listed below.

- MFJ-8621 VHF Data Radio 2m/9600Baud (with power supply and xtals for 145.09MHz - which, paired with a TNC and computer, could give you a way to get on 2m packet radio. This is still a current MFJ product that sells for \$189.95+tax+S&H. Brand new, in original box. Has crystals for 145.01 and 145.09. Asking \$20.00 or best offer.

- Quantity=2, Cushcraft 13 element 220MHz Yagi Antennas. Asking \$40.00/each or best offer.

Your wants or gear for sale?

Send your listing to me (Jim Marr via email or snail mail at 180-704) and I'll see that it gets into the next issue.

Future Meetings

By Jim Marr AA6QI

All JPLARC meetings are being held on non-RDO Friday's from Noon to 1 PM in 180-703C. Call in is via MeetingPlace 818-354-3434 with ID 7373. Slides, if any, will be broadcast via <http://meetingplace.jpl.nasa.gov> also with ID 7373. Upcoming talks (subject to change):

June 20th: Jim Marr AA6QI will lead the Field Day committee report (final meeting before Field Day itself).

June 28th & 29th: Field Day with the Pasadena Radio Club W6KA at the Art Center in Pasadena.

July 18th: Field Day pictures and lessons learned discussion. Initial planning for 2015 Field Day.

August 15th: Gary Wong W6GSW will discuss the new 2.4GHz Broadband Hamnet (formerly known as Ham Meshnet).

NEW! September 26th: Dr. Doug Millar, EdD, K6JEY, "Sidewalk EME" (rescheduled from May).

October 24th: Steve Townes WB4ILW, Software Defined Radios & introduction to the 2015 Officer Nominating Committee.

November 21st: N5BF, Bicycle Commute APRS & Introduction of 2015 Officer Candidates.

December 19th: Club holiday celebration at TBD.

Advertisements:



<http://www.hamradio.com>

The Burbank HRO store is offering a 5% discount on ham radio "accessories" to JPLARC members, upon presentation of a valid JPLARC membership card.