

John Moyle Field Day 2012

17 March 2012



This was to be the first outing for the “newly revised” VK4ADC/P field day setup, this one with a difference : HF + VHF+ UHF instead of the normal VHF + UHF + microwave. The last few years have shown up the shortcomings of setting up a temporary shelter of some sort, subject to the usually inclement weather that seems to accompany most recent field day events in Australia. The Summer VHF/UHF Field Day ([/~vk4adc/web/index.php/field-day-activities/76-2012fds/157-2012sfd](http://~vk4adc/web/index.php/field-day-activities/76-2012fds/157-2012sfd)) back in January was the first of the outings with the “first phase” of the change-in-concept setup but it then revealed a number of issues/shortcomings that have steadily been worked on ever since.

My FD setup is now based around a ‘converted’ 6’x4’ (i.e. 1.8m x 1.2m) box trailer. The trailer now has a cage (of sorts) added, with a sloping top so that the top polytarp cover doesn’t fill with rainwater, with mesh sides so the wind doesn’t allow the side tarp to move much and thus allow rain to blow inside etc. There are two rotator mounts, one at passenger side front and the other at the driver’s side rear corner, a table top insert mounts across the inside and the radio gear itself is fixed into a removable “equipment box” which is held down by bolts (with wingnuts) through the table top. The battery box containing 2 x 12v car batteries is underneath, as well as the transport location for the petrol generator and plastic fuel container. The entire station can be created at home, external antennas excepted, and transported to the FD venue almost ready to use. The coax feeds to the various antennas are already connected through to the radio gear and left coiled ready to be extended to the feed points on the antennas. Likewise the 12V charging lead to the petrol generator is coiled and ready to be plugged into the ‘genny’ once on site. That all makes for a rapid setup – and a rapid pull-down too. The setup took under an hour and for a single person operation to set up the VHF, UHF and HF antennas, that is really quite quick. Photos showing the actual arrangements are shown further down the page.

The only aspect that I hadn’t had a lot of time to confirm this time around was the computer function for logging. I had bought an EeePC 10.1” netbook via eBay only a week and a half beforehand but after loading VKCL3 and Omnirig etc onto it, I discovered that it did not always want to power up from cold each and every time (to be investigated further). That left me with a need to return to the old Compaq Armada 1700 that I had used in previous/earlier outings, noisy as it was and very hungry for power. I did a quick modification to a PWM-based power inverter to get the required 15.5V output to suit the 14.4V battery pack voltage so that I could recharge it from the 12V battery bank. That was done on the Friday, the FD was the next day so I didn’t get a real opportunity to evaluate how it was going to work out. As it turned out, the battery power ran out about 2 hours and 43 contacts into the outing (the PWM charger didn’t work properly) so I was forced into ‘paper logging’ mode for the next 4 hours and 116 contacts ! The time detail for the log was as read from my homebrew PICAXE rotator controller running in GPS Read Mode with the actual serial GPS receiver mounted on the trailer’s drawbar. For info, it also showed the position info as 27°35.43S, 153°04.36E plus the grid as QG62mj.

My portable location this time around was in an adjacent suburb, Algester, some 600-700m away from the home QTH as the crow flies : minimal travel time but enough space to set up the HF antenna and a bit higher and with a better take-off to the south and west than from home. The station itself worked out well and the operating position was comfortable although I could have done without the torrential downpour lasting about ½ an hour that made it hard to hear the audio coming out of the radios (note to self : new headphones required for FD setup box). Who knows what it sounded like at the other end! I looked out of the trailer at one stage to see about 20-25mm of water surrounding me – a virtual trailer island - and the petrol generator on the ground out in the open still continued to run and charge the battery bank throughout! The good thing was that I didn't get wet, and didn't have to make sure that the gear wasn't going to get wet either..

I had decided early in the planning phase that I would run the set of 3 turnstiles for 6M, 2M and 70cM in lieu of the normal set of yagis and mounted at the back of the trailer, the VHF/UHF whips from the front corner mount but would not run any frequencies above 439MHz FM, and would set up for 80M, 40M, 20M, 15M and 10M using the homebrew trapped inverted-V ([/~vk4adc/web/index.php/hf-projects/45-hf-antennas/104-trap-inv-v-for-hf](http://~vk4adc/web/index.php/hf-projects/45-hf-antennas/104-trap-inv-v-for-hf)). My original plan was to use the 7M long telescopic fibreglass squid pole as the centre support but I discovered that it had too much bend to provide an acceptable height so made up a simple halyard arrangement with a pulley supported from the VHF/UHF whip mount instead. My previous-FD-used white PVC tubes and concrete-filled buckets were the end supports for the inverted-V and these were placed so that the maxima lobes were basically just west of a North-South line. My original intention was to get on site fairly early so that I could check the tuning of each HF band segment but simply didn't get a chance to do that. Instead, the LDG Z100 autotuner sorted out any SWR irregularities across HF. I must state that the lack of antenna gain (turnstile versus yagi) probably caused a lower contact count at VHF and UHF but, then again, the turnstiles did not have to be oriented into the correct direction like a yagi would have needed. It didn't really matter what direction they were from - if I could hear a station then I could usually work them. The greatest distance worked at VHF was 288KM on 2M FM to VK2SRC portable. I could have also set up for 160M using a base-loaded whip but given the early finish time (0800Z), it was just going to be an extra antenna with minimal use contemplated.

How did it all go? My 6 hours of operation from 0200Z to 0800Z encompassed some 159 QSOs and provided a calculated 539 points, with contacts made on 80 SSB, 40 SSB, 20 SSB, 15 SSB, 10 SSB, 6 SSB, 6 FM, 2 SSB, 2 FM, 70cM SSB and 70cM FM. Not bad frequency coverage for a portable station... The breakdown of contacts per band was : 80M : 3; 40M : 61; 20M : 32; 15M : 2; 10M : 2; 6M : 14; 2M : 31; 70cM : 14, so all bands set up for were actually used.

The last QSO was at 0759Z (5:59PM) and I drove off at 6:36PM and, realistically, I would have been quicker if I hadn't been holding an umbrella in one hand while I disassembled the antennas... It was still raining lightly when I pulled them down, stowed them and the mounting pipes coiled the coax feeders and drove off.

Photos from Saturday 17 March 2012, mouse over the image for a larger view....



The packed trailer/shack mostly ready to go, front view. The mounting pipes protrude front and rear and are supported by angled tube frame inside the top of the trailer frame. The option exists for the pipes plus yagis to be placed on both sides at the top for transport etc..



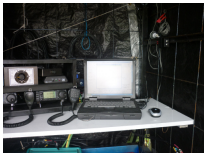
Side view... The winch at front right is used for erecting the heavy pipe on the rear rotator normally used for mounting the set of yagis. This time around that pipe had the turnstiles attached. The front rotator is at the RHS of the trailer and it is normally used for the microwave antennas. The rotator at the rear is usually used for the 5 x VHF/UHF/23cm yagis. By the way, that is a 12V or manual winch so I can actually use the remote control to lift up the 'array' if needed.



Inside view.. The white PVC pipes at left are the end mounts for the HF inverted-V. Behind the generator at right are the two concrete-filled buckets used with these 2 PVC pipes. At rear right is the red battery box containing 2 x 12V car batteries plus a 70 Amp circuit breaker. The 4 coax feeds to the yagis or the turnstiles is visible coiled at the rear RHS , ready to be fed out and attached to the "rear" set of antennas. The blue and green carry boxes have spare bits : ropes, velcro straps, cables, spare wingnuts and bolts... The old blue workstool is for "short-ish people" to reach the retaining bolts in the mast-retaining Y-shaped saddles!



The equipment "box" contains the operating equipment with the exception of the computer used for logging. It is held down onto the table top by a couple of 1/4" bolts plus wingnuts and can stay in position if the travel to the FD site is not too far or over rough roads..



Right hand view of the operating table showing the Compaq notebook etc.. Note the coaxes coiled and roped to the outside of the front mesh for quick attachment to the various antennas.



The serial GPS receiver is mounted on the draw bar of the trailer with a magnetic mount so the position read is accurate at that geographic point..



Just arrived on site.. Yes, that is an old tennis court under the car and trailer - on an area of land about to be re-developed for new housing..



Starting to erect antennas. The 3.6m rear mounting pipe is inserted into the top of the rotator, the wire rope from the winch attached, then the antennas and feeders are attached.



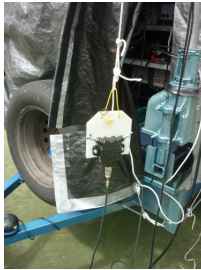
Once all is in place, wind up the winch to get the antenna mounting pipe vertical and use a 1/4" bolt in the Y-shaped saddle as a retaining pin to hold it there.



The set of turnstiles for 6M, 2M and 70cM up in the air.



Now it is time for the front mounting pipe. Similar story.. Insert 3m long pipe into the top of the rotator, attach nylon pipe-support sling ropes, attach the 2 whip antennas plus a ground plane for the dual band whip, then the feeders. Loop over the support rope of the pulley mount for the halyard and up it can go. Use a 1/4" bolt in the Y-shaped saddle as a retaining pin to hold it there.



The balun for the inverted-V is mounted on a nylon rope halyard for easy erection and the two wire-sides are readily detached by virtue of the wingnuts now on the balun.



The pipe up in the air.. The HF inverted-V balun plus extending wires is almost exactly at the middle of this photo. The 3-spoke ground plane for the dual-band whip is easy to spot too.



It isn't easy to see but the HF inverted-V is now in place. See if you can spot the 4 traps along each leg...



The inverted-V PVC pipe end-mounts plus a rope going off to a tent-peg set into the ground. Hey, I was not worried that it wasn't vertical - just that it was up !



The front and sides partially opened up to let a bit of breeze in... There are enough extra adjustable ropes in the FD kit to allow all of the sides to be pulled out on an angle and anchored via tent pegs if the station is set up on a grassed/earthy area. Obviously, a concrete tennis court surface doesn't allow for that to happen...



The rotator controller was not being used for rotators today, just a lat/long position indicator plus a real-time UTC clock (courtesy of the GPS signals). The exact location is 27°35.43S, 153°04.36E plus shows the grid as QG62mj.



The two-stroke petrol generator is only used to charge the 12V batteries. {The 240VAC is too rough a waveform to use for anything other than incandescent lights..} This was still running throughout the torrential downpour when it was surrounded by a small sea of water.



An overall external view of the VK4ADC/P station. The traps on the HF antenna are a bit easier to spot in this shot. The 40M helical whip on the magnetic base near the back of the wagon's roof was tested and found to give slightly lower signal levels than the inverted-V so was not actually used during the FD.

Note the cloudy skies changed to rainy skies that stayed with me the remainder of the outing...



A slightly better view of the radios part of the operating table...

The IC-706MK2G at left was used for 6M, 2M and 70cm operation on both SSB and FM on each band.

The IC-706 at right was used only on HF (80-10m) through the Z100 antenna tuner.

Both radios used CIV interfaces back to the notebook, and courtesy of VKCL and Omnirig, the frequencies and modes are logged.

The old Dowkey rotary coax switch at centre is used to select the relevant 2m or 70cm antenna and the small box above the Z100 was a quick-and-dirty homebrew antenna switch for HF use : 1xBNC to 3xBNCs..



The internal lighting was achieved by two reflector style 4watt MR16 12V 'cool' LED lamps attached to the overhead crossbar via magnetic assemblies. The angled bar at the far end is one of 4 installed at the top of the cage to support the long masting pipes, booms or 6m yagi elements. The steel mesh used throughout is 200mm square.



With all of the flaps down (front, side and back), it is quite dark inside. This is how the LED lighting works out in practice. The small esky contained lunch, drinks etc...

Just a few notes :

No hand tools are actually used in the erection or dismantling process.

All necessary 'nuts' have been replaced by wingnuts.

All coax connectors are either N-series or BNC.

The only thing actually on the ground is the generator - apart from the wheels on the car and trailer !!

Did I mention that the 'sides and top' are actually all bolted together so that it can actually be used as a standard box trailer when there aren't any field days due