CROSSTALK
News Bulletin of the TRW Amateur Radio Club

Editor's Corner:

FIELD DAY 2000

Field Day is rapidly approaching us, see article from our FD Chairman Dennis Santiago, KQ6KR.

Crosstalk going electronic??

This issue will be also sent electronically to the current paid membership. You'll need Adobe Reader to view it.

ARC Banquet 2000

I realize this is pretty early to talk about the Annual Awards Banquet, but I want to say to keep tuned, we have a excellent Guest Speaker lined up this year…….not that previous ones were bad, but this years program will be a terrific way to bring in the new millennium. Stay tuned for further details.

Note of Thanks

Recently our ECT Coordinator, Wendell Young's father passed away. Enclosed is a card that he sent us.

Thank You

To My Friends in the TRW ARC,

Thank you for the beautiful flowers. The family really appreciated your thoughtfulness.

My Father passed very peacefully & is w/ God.

Thank you again,

Wendell

Duane Park, WA6EIK Crosstalk Editor

TRWARC Monthly Calendar of Events

First Tuesday of each month	5:30 pm	**Executive Board Meeting, R4/2041** (All Club Members are invited)
Second Tuesday of each month	5:30pm	**Club Meeting** **Round Table Pizza, (Redondo Bch. & Hawthorne)**
Second Tuesday of each month	12:00 noon	**Emergency Communications Team Meeting** R3 Emergency Operations Center
Last Saturday of each month	7:00 am	**TRW/ARC Swap Meet** Marine and Aviation (Southeast Corner)

Weekly Events

Every Monday Night (Except the 1st & Holidays)	7:30 pm	**Disaster Communication Systems (DCS) Net** DCS Members: Check in on 2 Meter Repeater
Every Wednesday	12:00 noon	**ECT Net on 2 meter Repeater** All Amateurs Welcome
Every Thursday	7:00 pm	**Space Hams Net on 2 meter Repeater** with N6SHI and W6EKK
Every Mon, Wed, Fri	2:00 pm	**TRW Retirees Net** 7185 KHz
Every Friday Morning	7:30 am	**TRW Amateur Radio Club Breakfast** Building S Cafeteria - Everyone is invited Talk-in on 2 Meters

Other Events

Computer Fair   *Hours: 10:00 to 17:00* (get a $25.00 annual pass see:
http://www.lacomputerfair.com/annpass.html)
POMONA $6.00 admission
Live Broadcasts: KFWB, KFI, KLOS
May 6 & 7, 2000 (Sat. & Sun.) bldgs. 6 & 7; June 3 & 4, 2000 (Sat. & Sun.) bldgs. 6 & 7
Fairplex Exposition Complex Exit Highway 10 at Fairplex Drive.
Go north to McKinley Avenue, turn right. Turn left on White Avenue to Gate 14.
RESEDA $3.00 admission
May 27 & 28, 2000 (Sat. & Sun.)
Sherman Square Entertainment Center From the 101 Freeway take the Reseda offramp,
go north to Sherman Way and turn right. Go one block to Canby Street. 18430 Sherman Way.
BUENA PARK $5.00 admission
Live Broadcasts: KFI, KFWB
May 20 & 21, 2000 (Sat. & Sun.)
Sequoia Conference Center Take the Beach Blvd. exit off the 91 Freeway.
Go one block north to 7530 Orangethorpe.
All Shows Open to the Public 10:00 a.m. to 5:00 p.m.
Call for more information (408) 778-5200 or 800-800-5600 Fax# (408) 779-1374

Other Ham Swap meets:
Inland Empire ARC - 2nd Sat. ea. mo. 7:00 to 11:30 AM @ A.B. Miller High School, Walnut & Oleander in **Fontana** Talk-in 145.480 (-600 pl=77.0hz)
El Cajon ARC - 1st Sat. ea. mo. 6:00 AM @ Santee Drive-in Theater, Woodside Ave. @ Hwy 67 in **Santee** Talk-in 146.52
CAL POLY -3rd Sat. ea. mo. 7-11am in lots F8,F9 and F10 @ CAL Poly Pomona at 3801 West Temple. Talk-in TBD *(if you know, please email me… ed.)*

ARRL WEB ACCESS DISRUPTED BY CYBER-VANDAL

Access to the ARRL Web site (http://www.arrl.org/) was disrupted early on Monday, April 24, when an unknown individual managed to hijack the League's "arrl.org" domain name and redirect visitors to a bogus Netfirms site in Canada. ARRL system managers were alerted to the illegal modification within hours and had the change reversed. But the aftereffects continued to reverberate across the Internet throughout the week, affecting access for some to the League's Web pages.

The ARRL Web site itself was not "hacked," and no ARRL files were damaged as a result of the vandalism. "Our domain was hijacked at Network Solutions," ARRL Information Systems Department Manager Don Durand emphasized. "At no time was our Web server compromised." Network Solutions is a company that registers Internet domain names.

"Network Solutions was promptly notified of the illegal change, and they, in turn, returned our record to the correct settings," Durand said.

Some who attempted to access the site Tuesday were greeted by an obscene message and the statement "Pirate radio 4 life baybee." In addition to affecting access to the site, the vandalism disrupted e-mail service to League staff and officials. Mail service also returned during the week as servers were updated. The ARRL E-Mail Forwarding Service was not affected.

Durand said that while Network Solutions was alerted to the breach Monday morning, it takes up to 48 hours--and occasionally longer--for the various name servers on the Internet to update their records.

ARRL President Jim Haynie, W5JBP, said the League intends to investigate the disruption through all possible means. Haynie promised that the perpetrators, if caught, would be prosecuted to the fullest extent of the law.

Durand said the League has beefed up its level of security at Network Solutions to help prevent a recurrence.

RESTRUCTURING RECONSIDERATION PETITIONS ON PUBLIC NOTICE

The FCC has put on public notice five petitions for partial reconsideration of the Commission's amateur "restructuring" *Report and Order* WT Docket 98-143. The list includes a petition filed by the ARRL. Interested parties may file opposition comments. The FCC does not solicit supporting comments for such petitions, and it's under no obligation to consider them.

In addition to the League's, petitions put on public notice April 18 were filed by Alan J. Wormser, N5LF, Frederick V Adsit, NY2V, and Michael J. Dinelli, N9BOR; by Fred A Duran, W4NKI; by Millard H. Qualls, K9DIY, and by Stewart Teaze, N0MHS. The petitions were put on public notice April 25 in *The Federal Register*.

The League's petition, filed in mid-March, asks the FCC to continue to maintain records indicating whether or not a Technician has Morse code element credit. It also seeks permanent Morse element credit for any Amateur Radio applicant who has ever passed an FCC-recognized Morse exam of at least 5 WPM.

The Wormser, Adsit, Dinelli and the Qualls petitions also call on the FCC to rethink its plan to eliminate the "Plus" designation from the license class of Technicians who have passed the 5 WPM Morse code examination. Wormser et al say that essentially merging Technician and Tech Plus licensees into a single database would hamper enforcement.

Two petitioners also ask the FCC to retain the 20 WPM Morse code requirement for the Extra. Wormser, Adsit, and Dinelli contend the FCC's December 30, 1999, *R&O* "unnecessarily reduces the speed of the Amateur Extra Class telegraphy examination as a way to avoid code waivers." The petitioners argue that the General class license with its 5 WPM code test offers "reasonable accommodation to disabled persons" claiming an inability to pass the higher code test. As an alternative, the petitioners suggest that the FCC allow applicants claiming an exemption "to certify their own impairment under oath." Qualls requests retention of the 20 WPM test or at least a 12 WPM requirement for the Extra ticket.

Wormser et al also want the FCC to ban the practice of allowing applicants to retake a failed examination element at a single test session. Their petition says amateur applicants should be restricted to one exam session in any 24-hour period. It further asks the FCC to not extend exam element credit beyond the current two-year license expiration grace period.

The Wormser et al and Qualls petitions also ask the FCC to set the number of questions at 50 for the Technician and General class test and at 100 for the Extra test. Wormser et al further request that the FCC "retain sufficient question pool categories to maintain or increase the proportion of technical and theoretical questions on each written test."

The Teaze petition calls upon the FCC to institute a new entry-level Communicator license class. Under his proposal, Communicator licensees could be no older than 16, must use fixed antennas no more than 20 feet above ground or above the building or tree they're mounted on, and use not more than 2.5 W ERP. Channelized voice and digital operation would be in the range of 445 to 446 MHz. The exam would consist of "25 fairly simple questions."

The Duran filing requests that the FCC elevate former "Class A" operators licensed prior to 1951 to Amateur Extra, instead of leaving them at Advanced class--something the FCC's *Report and Order* specifically said it would not agree to do.

The window to file opposition comments to any of these petitions remains open through May 10. Replies to opposition comments are due 10 days later. Copies of all petitions may be viewed on the FCC Web site. Visit http://www.fcc.gov/e-file/ecfs.html, click on "Search the ECFS System" and type "98-143" in the "Proceeding" field.

FIELD DAY 2000

Come join us at Friendship Park for Field Day 2000

Operating hours are 11AM Saturday
June 24 to 11AM Sunday June 25

Come early to help set-up or
stay late to tear-down
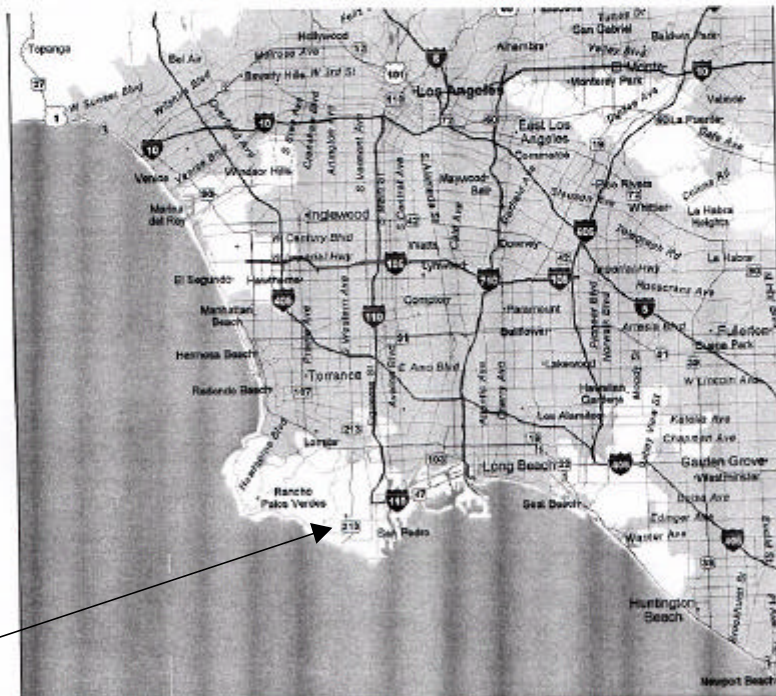
Location of FD 2000

Direction are:

Western Avenue to 9th street
Right on 9th street to
park entrance
Left into park and watch for signs

CQ FD DE W6TRW 7A-LAX

By Dennis Santiago, KQ6KR

Greetings everyone. We are two months away from ARRL Field Day 2000. Mark your calendars for the weekend of June 24-25, 2000. This is our traditional starting point for Field Day preparations. Do plan to join us at Friendship Park in San Pedro this year for some of the best comradeship and radio operations yet.

Last year was a great year for us and we plan on more of the same. We placed second in our class running seven primary HF stations plus three additional ones for VHF/UHF, satellites, and Novice. Everyone had a lot of fun and we placed second in our class. This was no small feat for our team, which by the way was a 100% W6TRW club effort. We pulled off a great performance sans our traditional aerospace industry partners who experimented with their own field day efforts last year.

This year the plan is to once again deploy a 7A (Seven Alpha) station. These will include the seven primary stations:

#1	10/80m SSB
#2	15m SSB
#3	20m SSB
#4	40m SSB
#5	20m CW
#6	15/40m CW
#7	HF Digital

As well as the following incentive stations:

VHF/UHF Terrestrial
Satellite
Novice
ATV
Solar

This year promises to provide a few milestones for W6TRW Field Day.

This is probably the last year of the free Novice station. The FCC ceased issuing new Novice and Technician Plus licenses on April 14, 2000. I called the ARRL Contest Division and was informed that they had decided not to change the rules for 2000 but acknowledged that the incentive for the Novice station had become moot. They advised me to find a Novice or Tech Plus and basically bribe him or her not to upgrade until July. I am happy to report that I took that advice and have inked Roy Schwarz, KE6GJI, to wait until July to upgrade so we can once again use his call sign for our Novice station.

W6TRW was among the first Field Day competitors to replace a CW station with a Digital station. We now run two CW stations and one Digital in our HF mix. This is probably the year that we will see significant activity on two digital modes on HF. The dominance of RTTY has begun to be challenged by newcomer PSK31.

If the talk on the bands is any indicator, there will be traffic on these two modes on Field Day.   Only two years ago, RTTY was an experimental incentive station on the Field Day score sheet. One year ago, PSK31 was literally an experimental mode. Today it is the fastest growing segment of HF operating.

The words TRW and satellite go together like bread and butter. We have what I think is the best Thursday evening Space Net in Southern California operating on our 145.320 Mhz repeater. Last year this crew of space hounds came together and held a mini-convention in the satellite station tent at Field Day. Beyond making contacts, these guys had fun sitting and talking about satellite operations. They also had every operating slot for the entire 24 hours planned out with a list of satellites to work every few minutes. That was some ground station. I am happy to report that it looks like it's about to become an annual tradition.

Our SSB and CW crews were outstanding last year. We are blessed with great band captains and awesome operators. Interestingly, quite a number of these operators were fairly new to contesting. Well they were on Saturday morning anyway. By Sunday morning I dare say everyone had improved his or her skills at the radio arts just the way that test question on the FCC exam says we should.

There's lots of work to be done to make this a successful Field Day. That work is a healthy mix of the hobby's pleasures. We have lots of room for the people who enjoy assembling radio installations and those who enjoy operating radio stations. The W6TRW team has a blend of both strains of ham in our club. The erector set crowd works on Friday and Sunday. The microphone and paddle crowd works on Saturday and Sunday morning. The truly demented among make Field Day a long weekend adventure vacation. It's one of the few opportunities one gets to camp at a scenic location like Friendship Park.

This year we'd like to involve as many people as we can in all aspects of Field day.   I hope you can join us for what I anticipate will be our best year ever. Now is the time to make contact to get you penciled in for field day.   Whether your interest is site assembly, operating, or both, please contact me. The best way to get me is via e-mail at kq6kr@pacbell.net. You can also leave me a message at (310)676-3300 or look for me on the 145.320 Mhz repeater. I'll be happy to answer any questions you have about Field Day 2000.

73,
Dennis Santiago, KQ6KR
W6TRW Field Day Chairman

I am sure that everyone has seen the big splashy ads for Icom's new IC-2800 FM mobile radio. The color LCD screen with video display capability certainly made it the most unique (and expensive) dual band mobile rig on the market when it came out about one year ago. (Kenwood now has the distinction of the most expensive dual-band with their new TM-D700A with a built-in TNC and APRS capability.) I bought an IC-2800 in October 1999, and have been using it every day in my car, so I now have some real-world experience with this radio.

Features

Except for the display, the IC-2800 is a standard 2m/440 FM mobile radio, with specifications and functions similar to most mobile, dual-band rigs. (The model number is actually IC-2800H, but I will drop the H for convenience since the radio is only available in one configuration.) It transmits a maximum of 50W on the 2m band and 35W on the 440 band, with lower settings of 20W, 10W, and 5W. Like most dual band rigs it has wide band receive on the 2m band, from 118MHz to 174MHz so that you can listen to such things as the NOAA weather channels at 162 MHz and aircraft in the 118 to 136 MHz band. The radio automatically switches to AM mode in the aircraft band and the AM audio quality is excellent. Again like most ham radios, on the 440 band the radio only receives from 430 to 450 MHz, the FM portion of the ham band. The IC-2800 does not have super wide-band receive like some radios that claim they will receive up to 1 GHz. However, this should give the radio more resistance to intermod since it filters out signals outside of its receive range. This would seem to be borne out in the magazine reviews which rated the IC-2800 very good in its resistance to intermod. For you knob twiddlers, the 2800 has separate analog knobs for volume and squelch on each band, and a separate frequency or memory selection knob for each band. The microphone has a DTMF pad and can also change the volume and squelch and just about everything else on the radio. There are 100 memory channels for each band, and the radio can be programmed by computer. There is a data port to connect a 1200 or 9600 baud TNC. It has a fan which runs whenever you start transmitting and then runs for a minute or two after transmitting. The fan makes very little noise.

Dual-band

When I started comparison shopping for a dual-band radio, I learned that there are two kinds of "dual-band" radios and that the ads don't always make it clear which is which. I am referring to whether the radio can actually receive two bands at the same time. Each of the major manufacturers produces a low cost dual-band radio that can only receive one band at a time. These mobile radios tend to sell at around $350. If you want to be able to monitor both bands at the same time, you will have to spend around $450. When the IC-2800 first came out, it sold for $580, but I have seen it lately selling for as low as $500. Most of the true dual-band radios can monitor a 2m frequency and a 440 frequency, or two 2m frequencies, or two 440 frequencies. The manufacturers refer to this as V/U, V/V, and U/U operation. My HT is capable of this operation and I have found it handy when I wanted to listen to the space shuttle audio on 448.5 and monitor the TRW 447.0 repeater at the same time.

I was a little disappointed after I bought the 2800 when I found out that it is not capable of V/V or U/U operation. This is certainly not mentioned in any of their advertising. However, this is not something that I need very often, and it may mean that the receivers will have less intermod and interference problems since the two receivers must have filtering for each band that prevent them receiving on the other band. So my hope is that this is a good thing.

Cross-band repeat

Another mode that most dual-band radios are capable of is cross-band repeater mode. Although I have never used this capability in my HT, I was disappointed when I bought my IC-2800 to find no mention in the manual of a cross-band repeater mode. However, just a month later I saw a short article in CQ VHF magazine that showed how to put the 2800 in cross-band repeater mode with a sequence of button pushes. Apparently ICOM was uncomfortable advertising this capability in the US because its legality is somewhat questionable. Legally, the repeater needs to ID itself every 10 minutes. (Why didn't they just program the microprocessor in the radio to generate a morse ID? It seems like this would be a trivial programming job.) Anyway, I have noticed that ICOM now mentions the cross-band capability in their ads for the 2800.

RF Attenuator

I used to use my HT in my car and the intermod in Los Angeles and Orange counties can be absolutely terrible with all of the cell phones, pagers, and commercial radios, not to mention all of the hams. I could hardly leave the radio on, because it would constantly be breaking squelch on intermod. So I really wanted a mobile rig that would be very resistant to intermod. I haven't used any other mobile rigs, so I can't really compare them, but the 2800 is definitely a lot better than my HT. But then any mobile rig should be. The 2800 rarely breaks squelch due to intermod on the 2m band, but it does have some problems on the 440 band in certain areas, such as near the Long Beach Airport. However the 2800 has a nifty feature to battle this problem, and I don't know of any other FM radio with this feature. The 2800's squelch knobs act like normal squelch up to the 12 o'clock position. However, if you continue to turn the knob past 12 o'clock, it dials in RF attenuation, up to 10dB in the fully clockwise position. I have found this to completely eliminate intermod, and it still allows repeater signals to come thru, unless they are very weak.

Receiver

The receivers seem to be quite good, I can hear the TRW 2m repeater all the way from TRW to Cypress, which I couldn't do with my HT with the same antenna. I have tried to use the 2800 to listen to FM satellites, but with the squelch off I continually hear lots of low level interference which masks the satellite signals much of the time. On my satellite rig at home all I hear is white noise, so the 2800 is still not up to the quality of a good base station. Also, the minimum tuning step on the 2800 is 5KHz, whereas my base station will tune in 1KHz steps on FM, which is better for keeping up with the doppler shift of satellites. I have used the 2800 in contests for FM simplex and it does quite well. With 50W on a mountain top people have told me that I have a very good signal.

Autopatch

I have used the 2800 to access the autopatch on the 447 repeater and it works very well. Having a good mobile rig with a good speaker makes autopatch work really enjoyable. Using memory dialing is a little awkward though. You push the DTMF button on the radio which puts a little telephone icon on the screen on the active band. Then each time you press PTT, it will transmit the current DTMF memory sequence. I have no idea why anyone would want to transmit DTMF tones every time they transmit. So I have to remember to turn off the telephone icon after it dials and before I start talking. Then to hang up (on our repeater, a # hangs up), I have to hit the DTMF button on the mic, and then hit #. The radio has 14 DTMF memories which allows me to store all of our repeater's emergency numbers (my HT only has 4 DTMF memories). And the display makes it very easy to program them, they are all displayed and you can scroll up and down to select the one you want. But I was disappointed to find that I cannot store names for the DTMF memories. This means I have to remember what each DTMF sequence is, and if I have to do that why even store them in memory?

Display

Now to the part of the 2800 that makes it unique, the display. First of all, whereas many radios now have front panels that can be detached from the radio, the 2800's display cannot be attached to the radio at all. The radio itself is just a black box that you mount under the seat or in the trunk, and the display unit has all the controls. The microphone connects to the black box, so if it is mounted very far from your operating position you will have to get a microphone extension cable that ICOM sells. The display unit also contains the speaker. I was hoping that this would provide good audio since I was going to mount the display high up on my car's dash. However, the speaker is still rather small and it faces to the rear of the display, pointing into the dash, so in a car going 70 MPH it is not quite adequate. I solved this by mounting an external speaker to the sunvisor right over my head.

The 2800 has two external speaker jacks, if one of them is used it carries the sum of the two channels, if both are used the audio for the two channels will be separated. If the 2800 is used as a base station I am sure the internal speaker would be fine.

The display is a color TFT LCD display just like the ones used on cam-corders and lap-top computers. The first concern was how visible would the display be in daylight. I have never had any trouble seeing the display in any driving conditions. The visibility does not seem to be affected by wearing polarized sunglasses. I have taken the display out of the car with the sun shining right on the display, and then the smaller text cannot be seen but the large frequency numbers can still be seen. The display is also excellent at night, both the brightness and the contrast are adjustable. There are also four different displays to choose from, with different colors and fonts. I have found some displays are better at night and others better in daylight. I really appreciate the large colorful display while I am driving, it makes operation in a car much easier. The display also makes the radio much easier to program. For instance, pressing edit changes the display to a screen that shows all the information for the current memory channel: the frequency, PL tone, offset, name, etc. Then each of these fields can be selected and edited. Most radios can only display one item at a time, so programming them can be very tedious. Also, in normal operation, the display shows the channel memory, the frequency, and the alphanumeric name of the channel all at the same time.

The display can also accept an external video input. There is a phono jack on the side of the display that accepts a standard baseband line level video input (it does not have an audio input). This could come from a camcorder, VCR, or TV tuner. I bought a tiny color CCD video camera that runs off of 12V and mounted it in my car looking at the kid's car seats in the back seat. Now I can keep an eye on the kids while I am driving by just glancing down at the 2800's display. When the video is displayed you still hear the normal radio audio out of the speaker. Another application would be a backup camera on an RV. I am sure you can think up other fun applications. However, when I first tried the video I discovered a very irritating "feature" of the 2800. When video is being displayed, pressing any button will go back to the standard radio display. This includes the PTT switch on the mike! So when I am driving and watching my kids on the display, every time I talk to someone the display switches out of video. Then it takes two button pushes to get the video back. This really undermines the usefulness of the video display. I called up ICOM and asked them if there was some way to defeat this. "No." Are there any plans to modify the radio's software to fix this? "No." They really should do something about this since it seriously impacts any application I can think of for the video input.

Note that the 2800 does not have SSTV, or ATV capability, it does not have a TV tuner built in. It is really just a ham radio with a color video display tacked on it. It is a shame that ICOM didn't make use of the display to add some real capabilities to the radio. If they had built a TNC and APRS into it and then displayed a map with received locations on it, they would really have something exciting. I am hoping that maybe they will rewrite the radio's software adding new capabilities and then provide an upgrade ROM for it.

Summary

The bottom line is that the IC-2800 is an excellent dual-band FM mobile radio. The display is great for mobile operation and for people who may have trouble reading the smaller displays on some radios. If someone has a real need for a video display in their car, this is the radio for them, as long as they are aware of the limitations described above. Overall, I am pleased with the IC-2800, but I wish that ICOM had used the display to add some unique capability to the radio.

TRW AMATEUR RADIO CLUB

ELECTED OFFICERS

President	**Bob Briggs**	**KD6WYQ**	**01 / 2210**	**(310) 813-2622**
Vice President	**Stuart Gorsky**	**KF6QHV**	**R5 / 1060**	**(310) 812-0255**
Secretary	**Craig Gullickson**	**N6ED**	**R6 / 2529F**	**(310) 812-5389**
Treasurer	**Rod Scott**	**KE6PI**	**R7 / 2253E**	**(310) 813-1493**

APPOINTED STAFF

447 Repeater Autopatch	Duane Park	WA6EIK	M2N / 1384b	(310) 813-4219
Activities Chairman	Greg Martens	N6RRY	M1 / 1275	(310) 813-4049
Crosstalk Editor	Duane Park	WA6EIK	M2N / 1384b	(310) 813-4219
Emer. Comm. Coordinator	Wendell Young	KE6ASC	R5 / 1060B	(310) 813-7691
Librarian	Steve Papa	KO6VF	O2 / 1715	(310) 812-5305
Membership Chairperson	Dave Nelson	AB6DU	DH4 / 2461	(310) 764-3496
Past President	Greg Shreve	KE6YEX	Offsite	
Publicity Chairperson	Dave Nelson	AB6DU	R8 / 2144	(310) 813-9775
QSL Manager	Bryan DeAro	KN6OW	120 / 1020B	(310) 812-4789
S.P. Packet/Internet Sysop	Chris Wachs	WA2KDL	M4 / 2375	(310) 813-1506
SEA Representative	Rod Scott	KE6PI	R7 / 2253E	(310) 813-1493
Swap Meet Manager	Greg Martens	N6RRY	M1 / 1275	(310) 813-4049
Technical Chairperson	John Cheatham	KE6OJM	R9 / 2477	(310) 813-5903
Training Chairperson	Bryan DeAro	KN6OW	120 / 1020B	(310) 812-4789
Trustee of W6TRW License	Elizabeth Kunkee	KS4IS	D1 / 1024	(310) 813-0524

TRW ARC Hotline (Club Answering Machine) (310) 813-8569
W6TRW 2 Meter Repeater (Open Repeater) 145.32 (-600) PL 114.8Hz
W6TRW UHF Repeater (Open Repeater / Closed Autopatch) 447.00 (-5 MHz) PL 100 Hz
W6TRW-3 Packet Radio Internet Gateway and BBS (1200 Baud Port) 146.745 (-600)
W6TRW Internet Home Page http://www.w6trw.ampr.org/w6trw/

TRW Amateur Radio Club **FIRST CLASS**
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Redondo Beach, CA 90278

Deliver To: