CROSSTALK
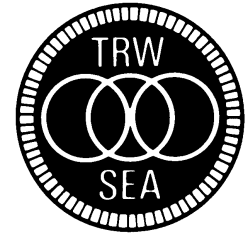## News Bulletin of the TRW Amateur Radio Club

Editor's Corner:

Crosstalk going electronic??

(Update: I've been receiving positive votes for an electronic version, Thank You. I will continue to discuss this with the Executive Board and will keep you posted.)

At a recent Executive Board meeting, there was mention of possibly creating a "Electronic only" version of the Crosstalk. One of the positive points that it could be emailed to the membership (assuming everyone is on email), and those members would have the option to either view it or print it. This also could also be a cost savings to the club. I like the idea for one because there are times when I like to publish graphic items/pictures, etc. in color, this option opens up for many possibilities, everything will also look better, pictures and graphics will have better detail, and if you own a color printer, this will really be a plus for you.
Format would be in Adobe PDF, you can get this reader free on the internet.

So I'm taking a poll from the membership, email me (duane.park@trw.com) or call me at 310-813-4219 and give me your vote.
I'm sure this subject will be discussed more in the near future.

Membership renewal

This is the last issue that will include a renewal form. See page 3

Duane Park, WA6EIK Crosstalk Editor

ARRL Files Partial Reconsideration Petition on Restructuring (March 16, 2000)

The ARRL has formally asked the FCC to reconsider and modify two aspects of its December 30, 1999, Report and Order that restructured the Amateur Radio rules. The League wants the FCC to continue to maintain records that indicate whether a Technician licensee 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.
See full article at www.arrl.org

In This issue:

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
April 1 & 2, 2000 (Sat. & Sun.) bldgs. 6 & 7, May 6 & 7, 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
April 29 & 30, 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
April 22 & 23, 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.)*

TRW AMATEUR RADIO CLUB
MEMBERSHIP APPLICATION
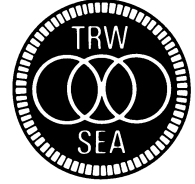
COMPLETE BOTH SIDES!

Name: _____   Date: _____

Amateur Call Sign: _____   License: EXT____ADV_____GEN____
                                             NOV____TEC +____TEC____

Student under age 18? _____   ARRL Member? _____
==
CURRENT TRW SPACE PARK EMPLOYEES ONLY:

Badge Number: _____   CCC: _____   Phone: _____

Mail Station: Building: _____   Room: _____

==
ALL APPLICANTS:

Home Address: _____

City: _____   State: _____   Zip: _____

Home Phone Number: (_____) _____-_____

Please provide ways to contact you or to send club bulletins, e.g.
email address (home and/or work), fax no. cell phone, pager, or
other:

==
*FAMILY MEMBERS OF TRW SPACE PARK EMPLOYEES AND RETIREES ***

Name: _____   Call: _____   Class: _____

       _____   _____   _____

Only family members of TRW Space Park employees are eligible for
family memberships on the employee's form. All others should submit
separate applications.
==
DUES   *TRW/ARC CLUB BADGE ORDER:*

TRW Employee ($5.00) $_____
TRW Retiree ($6.00) ** $_____
Non-TRW ($10.00) $_____   _____
TRW Family Members ($6.00) $_____   CALL
Club Badge ($5.00) $_____

                                            _____
TOTAL AMOUNT DUE: $_____   FIRST NAME

PLEASE INDICATE THE CLUB ACTIVITIES YOU WOULD LIKE TO PARTICIPATE IN DURING THE

* ===
Retirees - List TRW Badge No. _____

CONTINUED ON BACK --------->

COMING YEAR:

_____	W6TRW Field Day	_____	Monthly Club Meetings
_____	Contest (HF and VHF)	_____	Club Breakfasts
_____	Emergency Communications	_____	Using the Club Shack
_____	Picnics	_____	Club Library
_____	TRW/ARC Swapmeet	_____	Antenna Parties
_____	Technical Challenges	_____	Repeaters
_____	Training	_____	Other: _____

PLEASE INDICATE YOUR INTERESTS IN AMATEUR RADIO:

_____	HF	_____	SSTV
_____	VHF	_____	AMTOR
_____	UHF	_____	CW
_____	Microwave	_____	DX
_____	Packet	_____	Computers
_____	OSCAR	_____	DCS/RACES/ARES
_____	RTTY	_____	QRP
_____	ATV	_____	Other: _____

What do you like best about the TRW ARC?

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FULL RELEASE OF ALL CLAIMS

In consideration of my participation in the TRW/SEA Amateur Radio Club and any and all of its events, I, the undersigned, intending to be legally bound, for myself, my heirs, executors and administrators, do hereby fully and finally waive, release and hold harmless the TRW/SEA Amateur Radio Club, TRW Space Park Employees Association, TRW, Inc., and Ohio corporation, and their respective directors, officers, employees, members, agents and assignees from any and all responsibility, liability, claims, causes of action, injuries, judgments or other damages of any nature whatsoever, including, but not limited to, any personal injuries I might suffer, directly or indirectly resulting from my participation in, or travel to and from the aforesaid activity.

I acknowledge that I am engaging in the aforesaid activity, and knowingly executing this Release, at my insistence and request and that I voluntarily do so without any coercion whatsoever.

Signature: _____ Date: _____

===
The membership year runs from February 1st to January 31st. Dues are payable in January and are prorated on a quarterly basis thereafter. Please make checks payable to **TRW AMATEUR RADIO CLUB** and send to:

TRW AMATEUR RADIO CLUB
Membership Chairman, S/1156
One Space Park Drive
Redondo Beach, CA 90278

111299

N6ED wins his class in CQ WW WPX

by Jim Harrison K6OUE

Our own club secretary, **Craig Gullickson N6ED**, won the USA Tri-band/Single-element class in the 1999 CQ World Wide Prefix SSB contest, as reported in the March 2000 issue of CQ Magazine. This is one of the biggest HF contests of the year and attracts top operators from all over the world. The goal is to contact as many different stations with as many different prefixes as possible on the 160, 80, 40, 20, 15, and 10 meter bands. Craig made 4,000,752 points (2042 QSOs, 756 prefixes) which placed him number one in the USA in the Tri-band/Single-element class, 7th in the world in T/S, and 14th among all single operators in the US. This is also a new record for this class in the US. Says Craig, "Hopefully I can recreate that feat, I operated like a wildman last year as I recall." Contestants are allowed to operate 36 hours of the total 48 hours of the contest and Craig operated by himself for 36 hours.

And though Craig had a great station to work with, don't make the mistake of thinking that anyone could walk into the shack and perform the same feat. "I have been working the CQ WW WPX contest for years, it was one of the first contests I competed in." Craig placed 5th in the US T/S class in 1998. And for those who have never been in a real HF contest, they make Field Day look like a walk in the park. Craig's average QSO rate over the entire 36 hours was one QSO per minute, so he never had the luxury of kicking back and taking it easy.

"Our station is great, but there are stations out there with acres of antennas on mountain tops. They invite the top contest operators to operate these stations and these guys can run two radios at the same time. While they are making QSOs on one radio they will be listening for band conditions on another radio," said Craig. "Also, the stations on the east coast have a big advantage over us west coast stations, because they have easier access to all of the prefixes in Europe. It is not very common to see west coast stations among the top scorers, so I am proud of that," said Craig. "The Tri-band/Single-element category was created for the 'little guys' who couldn't compete with the giant stations. It is limited to a 10, 15, 20 meter tri-band beam and single element antennas on 40, 80, and 160 meters. Once we get the rotatable 80m dipole on tower 2 working, we will really have a competitive advantage over the stations with only wire antennas."

Is Craig going for number one in the world some day? "The top contesters are like star athletes. No matter how much you practice and desire to be as good as they are, if you weren't born with the talent, you will never get there. I don't know if I could do that, I am just going to try to do what I can while I am still single and have the time to pursue it."

Because Craig's father is in the hospital, Craig will not be able to operate in the 2000 edition of the contest the weekend of March 25 and 26. "There have been some solar storms recently which may keep the scores down this year, and prevent someone from breaking from my record," said Craig. "So I may have another chance at it next year."

Contest Calendar

2m Spring Sprint	7 PM to 11 PM PDT, Monday April 10
222 MHz Spring Sprint	7 PM to 11 PM PDT, Tuesday April 18
440 MHz Spring Sprint	7 PM to 11 PM PDT, Wednesday April 26
CQ VHF Weak Signal Weekend	6 PM PDT April 28 to midnight PDT April 30
900, 1200, and up Spring Sprint	6 AM to 1 PM PDT, Saturday May 6
6m Spring Sprint	2300Z May 13 to 0300Z May 14
CQ VHF Specialty Modes Weekend	6 PM PDT May 19 to midnight PDT May 21
CQ WW WPX CW	0000Z May 27 to 2400Z May 28
ARRL June VHF QSO Party	June 10 to 12
Field Day	June 24 to 25

President's Letter

Welcome to the New Century, yes I am president again and for some of us it hasn't been long enough. Well I think we will both find out what my task as president is for this year. For the past two years I wasn't able to get involved in club activities, I was TOO involved with TRW work (AXAF). But now I am involved in club activities and loving it. One of the first tasks that I have put on my plate is to try and generate more interest in your club.

I don't know how many of you have taken a trip up to the TRW Amateur Radio Shack in Building S, but I have and there are a lot of neat things up there to play with, at least from a ham's view point. In the past few years we have gotten more radio equipment and that is for the use of club members at large.

The problem as I see it is that we have all this neat new stuff but still I see the same few active members using it. I would like to be able to provide some incentive for new members or members that have been with the Club for a while (old members) to come out and participate and have lots of fun. I would think if you have taken the trouble to learn the material to get a license, you must find some JOY in amateur radio. Now my proposal, since the club has radio money that most of us don't, the club should be able to provide more fun for the licensed amateurs.

I am taking it on as my goal this year to find out what our club can do to get more radio amateurs involved in club activities. So I am asking you for ideas on projects or facilities that you would like for your club to provide. "Don't ask what you can do for your club, ask what your club can do for you" to make your life a little more fun. And this should involve all classes of amateur, just because you are not an extra class that doesn't mean you have less of a voice in what happens in the club, we all pay the same dues (more or less). All the club resources should be available to you, there are some problems if a member is not an employee but those can be worked around.

Please let me know what I can do to make this club meet your expectations, to provide the most benefit to the most members. I will take responses by E-mail, phone, catch me at work or events or whatever it takes to let me know what TRW Amateur Radio Club members want to see happen within their club.

Thanks and I hope we have a great year,
     Bob Briggs (KD6WYQ)

HF Digital ... New Software Makes It Fun

by Dennis Santiago KQ6KR

How many of you have a PC with a soundcard in the same room as your HF radio? Well open a browser window, download a couple of programs and start enjoying the world of amateur radio's digital modes. In the last year a host of new programs have appeared that use your sound card equipped PC to read the tried and true RTTY as well as the up and coming PSK31 modes. What's really intriguing about these programs is how easy they make using these modes.

Those of you who have worked RTTY or even PSK31 know about fiddling with the tuning knob to get the tones lined up "just right" so the TNC could decode the signal. Those days are gone. With today's software, you can see the signals on spectrum displays. You click on the signal you want to listen to. The software automatically starts tracking the signal within the audio passband. It's awesome compared to software of even a year ago. I recently tried a couple of the ones that seem to be popular in the digital sub-bands.

TrueTTY written by UA9OSV decodes both RTTY and PSK31 and runs on Windows 95/98/NT. It presents the audio passband as a signal intensity versus frequency display so it's easy to see where the mark and space tones are. You can use the mouse to point-and-shoot at the pair you want in the case of RTTY or the single spike when dealing with PSK31. The software compensates for drift and variations in mark-space separation on RTTY. TrueTTY is shareware so there's a small registration fee that enables the Save features of the software. The only drawback is that all the documentation is written in Russian English with it's peculiar idioms.

UA9OSV also wrote another program CWGet which is designed to be the best CW copy tool ever. I'll have to download it and see if it works. Imagine what a tool like that would do to help enable hams work CW if we a field day radio's audio out jack plugged into one of these things.

TrueTTY can be downloaded at: http://www.dxsoft.com/

DigiPan is a freeware program written by Howard Teller, KH6TY. It also runs on Windows 95/98/NT. This is quite honestly the most exciting ham communications program I have encountered in a while. DigiPan presents the audio passband using a spectral waterfall format. How many PSK31 conversations do you think are typically going in within one 2.4kHz SSB audio passband on a typical Saturday evening on 14.075MHz? The answer is around 6 to 8 and you can see them all sitting around 150 Hz apart with DigiPan. Point the mouse at any one of the lines and see perfect copy appear in the decoded text window. DigiPan also autotracks the PSK31 signal once it's been clicked. No fuss, no worry.

DigiPan can be downloaded at: http://members.home.com/hteller/digipan/

You can listen to digital mode HF radio simply by plugging the external speaker OUT from your radio to the LINE IN connection of your soundcard. Be sure to note that you are changing from a 2 connector mono outlet on most radios to a 3-conductor stereo input jack on most soundcards. Wire accordingly. Here's a trick to keep in mind. Most amateur software only reads the left channel which happens to be the tip connector on a stereo plug.

If you want to transmit you'll need to assemble a couple of items.

One is an attenuator that will cut the typical 1.2v signal coming from a

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soundcard speaker outlet and cut it back to a few millivolts at the radio's
DATA IN port.  Radios do not like being overdriven is which what happens
when you put a 1200mV signal into a MIC IN jack designed for 10 to 30 mV.
That's very bad and often overlooked by people trying to get on the air for
the first time.  Attenuation is important.
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(HF Digital ... New Software Makes It Fun Cont.)

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TIP:  You will need to pay close attention to the divider network to make
sure the signal going into the radio is in the correct mV range.  I had to
change my resistor network to alter the delivered voltage from a 10mV
average to a 30mV average signal strength.  That's what a Yaesu FT-920
expects to see at the AUX IN port.  Who am I to argue with the machine.

The other is a keying line that goes from the COM1 or COM2 port of your
computer into the PTT line of your radio.  The key line uses the RTS pin of
the serial connector which is pin 4 on a DB9 connector.  The ground on a DB9
is at pin 7.  The amateur software takes advantage of the fact that the RTS
pin normally shows -11.5 volts but transitions to +11.5 volts when activated
by the software.  This is perfect for triggering the base of a small signal
NPN switching transistor to close the collector to emitter path.  That's
effectively the same as pressing the PTT key on a radio.

Circuits to build both of these are on in the DigiPan documentation.  All
the parts are available from the local Radio Shack.  Once you are set up
communication is a snap.  It is efficient especially on PSK31.

PSK31 has the signal energy concentration characteristics of CW.  You can
work the world with a 50 watt transmitter.  The CONUS takes 25 watts to
consistently get 599 reports.  I got a 599 from Texas the other night with
my power knob all the way down on the FT-920 and the audio into the radio
from the PC attenuated 18mV too low.  I'm pretty sure I was QRPP, under one
watt.  Nothing was registering on my watt meter.  That was a pleasant
accident.

But please remember that you do not have to set up the transmit hardware to
enjoy these modes.  It's just as much fun to appreciate what the latest
generation of HF digital software as a listener.  Watching the waterfall
display on DigiPan is captivating especially when many signals are on the
air.  Try it!  It's free.
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Iridium QRT, but suitors still knocking: *Reprinted from the ARRL Letter Volume 19, Number 12*

With their $5 billion constellation of 66 satellites now on the verge of destruction, Iridium officials have been given approval by the US Bankruptcy Court in New York to begin shutting down the company's mobile phone system. Service was terminated last Friday, and Iridium has asked the Bankruptcy Court to release up to $8.3 million in company funds to cover the closing of the operation. But there's still some eleventh-hour interest in keeping the Iridium array intact. This week, two groups have stepped forward: One is a group of investors led by hotJump Inc, a privately held content network. A group spokesman says it's made an acquisition bid for Iridium. The second, Las Vegas-based Merit Studios Inc, has contacted Iridium's attorneys to discuss a plan "to salvage the failed venture." There's been no comment from

Iridium backer Motorola or from Iridium on either potential offer. Another potential suitor, Gene Curcio, of Crescent Communications Inc, last week expressed interest in buying the constellation and transitioning its management to General Dynamics if Motorola would agree to keep the birds in the air for another 60 to 90 days. Motorola reportedly declined, and Curcio didn't have the necessary up-front money. Barring the eventual emergence of a financial savior, Iridium will go forward with plans to deorbit and destroy the satellites. The de-orbiting process could take as long as two years.--press reports.

NASA Preparing Plans for Destructive Reentry to End Compton Gamma Ray Observatory's Mission

[14 Jan 2000] NASA is considering a deliberate deorbit (hence destruction) of the TRW built Compton Gamma Ray Observatory (CGRO). Some investigators have already been informed that CGRO may not be around much longer - and they have contacted NASA Watch. Sadly, CGRO was designed, as was Solar Max, to be repaired/refurbished on-orbit by a Space Shuttle mission. Apparently no one at NASA feels like fixing it.

NASA Watch has learned that Gyroscope Number 3 on CGRO experienced a complete failure on 6 December 1999. None the less, given that one gyroscope's failure, the spacecraft can still handle 3 axis control using the two remaining (and functional) gyroscopes. However, should an additional gyroscope fail, the spacecraft would not be able to maintain 3 axis control. This would preclude further scientific observations. It would also preclude the ability for CGRO to perform a controlled reentry. There is some work underway at NASA that examines whether alternative means of orienting the spacecraft could be used if another gyroscope fails.

There is a firm requirement levied on this mission that the return of CGRO be done in a controlled fashion - either by Space Shuttle or by virtue of being commanded to perform a targeted destructive reentry over non-populated areas. Given the size of the spacecraft (35,000 pounds - 15,876 kilograms), NASA Watch has learned that NASA has calculated that some of it will survive a destructive reentry and that program statistics show a 1/1000 chance of human casualty if the spacecraft were allowed to make an uncontrolled reentry.

In addition to guidance problems with CGRO, there are apparently long standing fuel line anomalies with the spacecraft that affect its ability to fire attitude control thrusters. These issues might also pose flight rule violations for a Space Shuttle visit and capture.

NASA is still examining its options. If no solutions to guidance, navigation, and control issues are found, it is almost certain that NASA will decide avoid the risk of further failures and the prospect of an uncontrolled reentry and will command the spacecraft to de-orbit. Apparently, the prospect of a Shuttle repair mission is simply out of the question.
The de-orbit is being planned for the middle of March 2000 with a projected impact point south east of Hawaii.

CGRO is a NASA cooperative program with participation from Germany, the Netherlands, the European Space Agency, and the United Kingdom. It was launched aboard the STS-37 Space Shuttle mission in April 1991. The spacecraft was designed to be refueled and serviced in orbit by a future Space Shuttle mission - indeed, according to NASA's STS-37 press kit, "The Gamma Ray Observatory is the first scientific payload with a refuelable onboard propulsion system."

According to the STS-37 press kit: "the instruments onboard GRO, with sensitivities 10 times greater than that of earlier instruments, will scan active galaxies for new information on celestial objects. GRO also can detect the very high temperature emissions from the vicinity of stellar black holes, thereby providing evidence for the existence of these exotic objects. GRO observations of diffuse radiation will not only help resolve questions relating to the large scale distribution of matter in the universe, but also about the processes that may have taken place shortly after the universe began in the theoretical energetic explosion or "Big Bang".

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**
S/1156
One Space Park
Redondo Beach, CA 90278

Deliver To: