

July 2014



Newsletter of the County of Orange Radio Amateur Civil Emergency Service

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**The Next
OCRACES
Meeting Is**

July 7, 2014
1930 Hours

840 N. Eckhoff Street,
Suite 104, Orange

Technical Details on
800 MHz Countywide
Coordinated Commu-
nications System



Orange County Sheriff's Department
Communications & Technology Division

Captain's Corner

by RACES Captain Ken Bourne, W6HK, Chief Radio Officer

Gamma Match or T- Match?

As I write this article, I just finished testing my new Arrow Antenna Model 52-4S four-element 6-meter yagi, which I purchased mainly for using at the OCRACES Field Day. The yagi uses a gamma match, which I don't like as much as the T-match that was on my old five-element Telrex 6-meter yagi. Using my RigExpert Model AA-54 graphic antenna analyzer (how did I ever live without that fine instrument?) and the built-in SWR meter on my Icom IC-7100 transceiver, I spent some frustrating time trying to tune the gamma match for lowest SWR at the low end of 6 meters (most SSB activity occurs between 50.125 MHz and 50.200 MHz during a contest, especially if there is a band opening), and concluded, after not being able to lower the center frequency below 51 MHz while maintaining an SWR below 1.7:1, that the driven element might be a tad short. The two sections of the gamma match seemed to interact with each other too much, compared to the ease of tuning that I had experienced with the T-match. With well over 50 years of experience in tuning T-matches and gamma matches, I thought I would share some of my observations. Some antenna designers will disagree with me, but antenna matching systems are somewhat of a black art anyway.

A gamma match is normally fed with unbalanced coaxial cable, which makes it more convenient than a T-match, which is balanced and requires a 1:1 balun for use with coax. The center conductor of the coax

taps into one side of a solid rod, while the shield is connected to the shorted center of the driven-element dipole. When the center-conductor tap is moved along the rod away from the center, the input resistance increases (as I observed on my antenna analyzer). Moving the tap dipole tap capacitively (series) tunes the inductive reactance. These two taps reduce the antenna's bandwidth as the input impedance is raised, because the combined series capacitor onto the dipole and the shunt inductive stub (rod) increases the antenna's stored energy and Q.

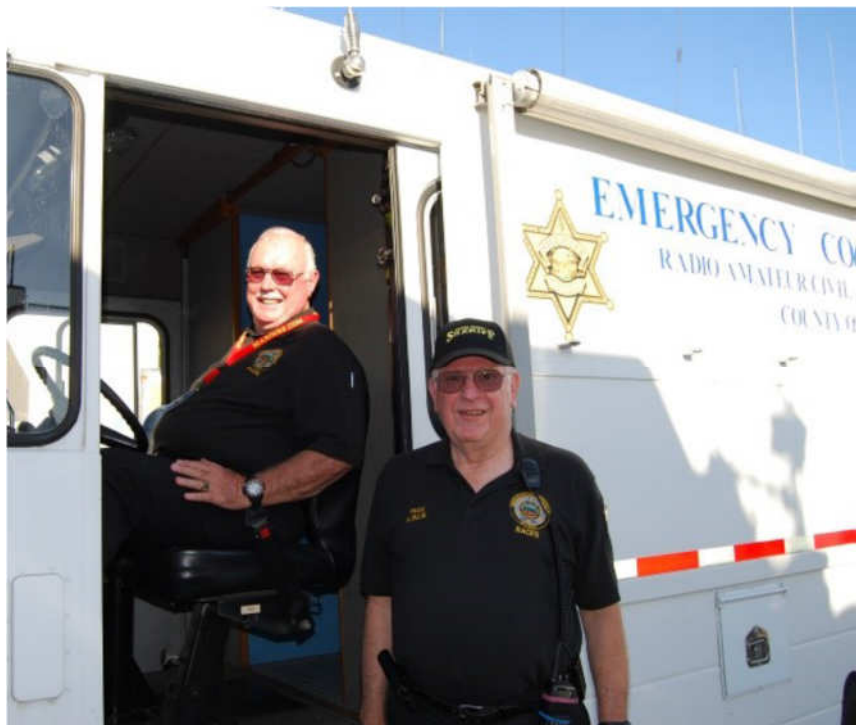
A T-match looks like a folded dipole when the matching sections are tapped to the ends of the driven element. However, the taps need to be moved toward the center. When first moving the taps to the center, the dipole's impedance dominates, because the shunt stub's admittance in the odd mode is small and the input impedance is capacitive. When moving the taps even more toward the center, the stub's inductive admittance cancels the dipole's capacitive admittance, resulting in antiresonance with its high input resistance. This peak resistance location and level depend on rod diameter in the T-match section and the radiator diameter. Moving the tap even closer to the center decreases the input resistance, after the feed point passes the antiresonance point. The input impedance is inductive, and symmetrical series capacitors provide a match. The center short produced by the T-match on the driven-element dipole allows direct connection of the dipole to ground.

RACES Provides Ballot Transportation

With the help of over 40 City and County RACES and MOU members, plus 66 drivers, over 80 Deputies, and 15 Command Post staff, all 1,135 precincts were accounted for by 1:00 AM on June 4, 2014, following the June 3rd Primary Election. Every ballot cast in an Orange County Polling Place made it safely to the Vote Tally Center. OCSD Next Generation 800 MHz Project Manager Marten Miller, KF6ZLQ, managed the Ballot Transportation Team, and will be in touch with us again, through OCSD Emergency Communications Manager Delia Kraft, KF6UYW, for the November 4, 2014, General Election.

OCRACES Training Sergeant Tom Tracey, KC6FIC, was in charge of the OCRACES crew at the RACES Command Post (van) at the Vote Tally Center. Net control operators included Brian Turner, KI6WZS, Fran Needham, KJ6UJS, and Tom Riley, K6TPR. Lt. Ralph Sbragia, W6CPS, ran paperwork from the van to the OCSD command vehicle, and checked all van electronics and power. "Shore" power was supplied from the OCSD command vehicle. Applicant Ryan Wakefield, KD6CIO, substituted as a net control operator when anybody needed a break. Traffic Control was handled by Sgt. Jack Barth, AB6VC.

The following Collection Centers were covered by the indicated RACES and MOU units and members: Anaheim Police Station (Anaheim RACES), Canyon Hills Library (Anaheim RACES), Buena Park Police Station (OCRACES Member Sue Mickelson, KJ6LCJ), Costa Mesa Civic Center (MESAC), Santa Ana Unified School District Officer (SART), Fountain Valley Police Station (Fountain Valley RACES), Fullerton Police Station (Fullerton RACES), Garden Grove Police Station (David West, KI6EPI), Huntington Beach Police Station (HBRACES), Irvine Police Station (IDEC), Laguna Beach Police Station (Laguna Beach RACES), Laguna Woods Village Clubhouse 2 (Laguna Woods RACES), La Habra Police Station (Fullerton RACES), Los Alamitos Police Station (Samuel Sher, KK6HMP, and Rebecca Katzen, KI6OEM), Orange Police Station (COAR), Rancho Santa Margarita Fire Station #45 (OCRACES Member Randy Benicky, N6PRL), Placentia Police Station (Paul Broden, K6MHD), San Clemente City Hall (Tri-Cities RACES), Saddleback Valley USD Office (Jay Center, AD6AT), Tustin Police Station (OCRACES Capt. Ken Bourne, W6HK), Westminster City Hall (Westminster RACES Radio Officer Chi Nguyen, KE6MVS), Laguna Niguel Fire Station #49 (Tri-Cities RACES), Aliso Viejo Library (OCRACES Sgt. Bob McFadden, KK6CUS, and Joe Selikov, KB6EID), South Coast Christian Assembly (Tri-Cities RACES), West Anaheim Youth Center (Anaheim RACES), St. Michael/All Angels Episcopal Church in Corona Del Mar (OCRACES Member John Bedford, KF6PRN), Orange Unified School District Office (COAR), Faith Lutheran Church in Huntington Beach (HBRACES), Boeing (HBRACES), University High School (IDEC), Mission Viejo City Hall (Mission Viejo Radio Officer Charley Speelman, WA6RUZ), Placentia/Cornerstone United Methodist Church (Jon Schaffer, W6UFS), and Saddleback High School (SART). Tri-Cities RACES Chief Radio Officer adds that their operators consisted of Ed Ginn, K6MFI, Clark Croisette, KI6IZD, Kevin Barry, KJ6OCM, Bill Dunham, KJ6VCR, and John Stewart, AG6RG.



Tom Riley, K6TPR (left), and Fran Needham, KJ6UJS, arrived early at the Vote Tally Center to set up the van as the OCRACES Command Post. Also at the van were Sgt. Tom Tracey, KC6FIC, Brian Turner, KI6WZS, and Lt. Ralph Sbragia. Nearby, Sgt. Jack Barth, AB6VC, directed traffic.



Sgt. Tom Tracey, KC6FIC, was in charge of OCRACES communicators at the Vote Tally Center.

Next OCRACES Meeting: July 7th

The next County of Orange RACES meeting is on Monday, July 7, 2014, at 7:30 PM, at OCSD Communications & Technology Division, 840 N. Eckhoff Street, Suite 104, in Orange. Our featured speaker is Joe Saddler, WA6PAZ, who is the Assistant Director and chief engineer of OCSD's Communications & Technology Division. His presentation will cover fascinating technical details of the 800-MHz Countywide Coordinated Communications System (CCCS), which is Orange County's analog/digital trunked public-safety radio system. The system provides radio communications services to City and County law enforcement, fire services, public works, and lifeguard/marine-safety departments in Orange County. The 800-MHz CCCS also allows for interoperability among the various disciplines.

OCRACES Participates in COMEX

OCRACES exhibited its emergency communications response vehicle on Saturday, June 7, 2014, at COMEX, a communications exercise held at the U.S. Army Reserve Center in Costa Mesa. The event ran from 9:00 AM until 11:30 AM. The Young Marines participated, and this was an excellent opportunity to demonstrate amateur radio to these patriotic young people and talk about emergency communications and RACES, as well as the fascinating technical aspects



Ken Tucker, WF6F (seated) describes the responsibilities of OCRACES to Army Reservists at COMEX.



At the OCRACES van at COMEX were (left to right) Sue Mickelson, KJ6LCJ, Fran Needham, KJ6UJS, Sgt. Bob McFadden, KK6CUS, Applicant Ryan Wakefield, KD6CIO, Capt. Ken Bourne, W6HK, and John Bedford, KF6PRN (foreground).

of amateur radio. Many Army Reservists also visited our van. During the event, we interfaced with members of Costa Mesa RACES (MESAC—Mesa Emergency Services Amateur Communications) and the Hospital Disaster Support Communications System (HDSCS), who were active participants in COMEX.

OCRACES participants included John Bedford, KF6PRN, Capt. Ken Bourne, W6HK, Sgt. Bob McFadden, KK6CUS, Sue Mickelson, KJ6LCJ, Fran Needham, KJ6CUS, Ken Tucker, WF6F, and Applicant Ryan Wakefield, KD6CIO.



John Bedford, KF6PRN, talks to Young Marines about RACES.

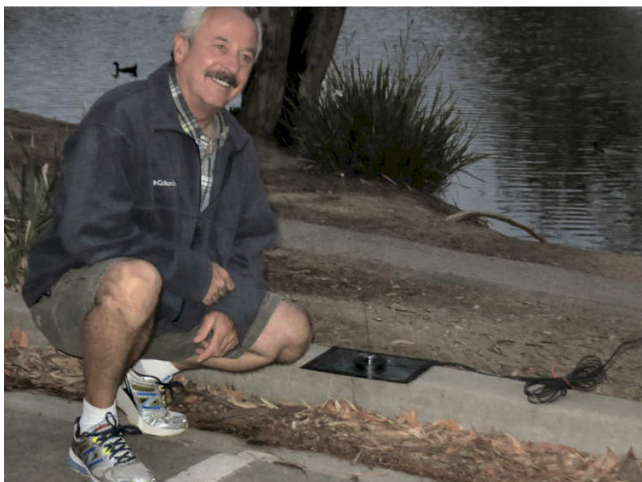
N6HAM Hides in Huntington Beach

Ron Allerdice, WA6CYY, from Costa Mesa, was the first hunter to find the fox on the cooperative T-hunt on Monday night, June 9, 2014. The fox was MESAC Member Tom Pastore, N6HAM, who hid by Lake Huntington in the Central Park area of Huntington Beach. Patrick Williams, KJ6PFW, with Terri Fuqua, KJ6QOC, both of MESAC, and Bill Rose, KA6HMS, of Huntington Beach RACES, came in second. Next was Bob McFadden, KK6CUS, of OCRACES, followed by Ken Bourne, W6HK, of OCRACES, with Don Bourne, KB6TVK. The fifth hunter to find the fox was Huntington Beach RACES Member Bill Prats, K6ACJ. This was Bill's first T-hunt, which he enjoyed, and now he plans to experiment with various direction-finding equipment and participate often on the cooperative T-hunts. All hunters compared bearings on the 449.100 MHz repeater. Another hunter was Jerry Fullerton, KD6JBL, from Fountain Valley RACES. He didn't find the fox, and urges all hunters to transmit their bearings more often on the 449.100 MHz repeater.

The cooperative T-hunts are held on the second Monday of each month (except September), immediately following the OCRACES 7:00 PM 2-meter net (or about 7:20 PM), on the input (146.295 MHz) of the repeater. Hunters compare bearings on the 449.100 MHz repeater, to help each other find the fox quickly. This provides monthly practice in working together to quickly locate interference to our repeaters and to public-safety operations. The fox hides in a preannounced city or sector within Orange County, on paved public property. No tolls or fees are required to drive to the fox. Because the hunt is held on a weekday evening, the objective is to find the fox quickly and conclude the hunt no later than 9:30 PM. The fox for the next cooperative T-hunt on Monday, July 14th, will be OCSD Emergency Communications Manager Delia Kraft, KF6UYW. She plans to hide ("with a VIP," she says) in an area of Anaheim. Our growing list of participating RACES and MOU units includes OCRACES, MESAC, Huntington Beach RACES, and Fountain Valley RACES, plus Orange County SKYWARN on a previous hunt (and planning to hunt again). We hope that some Anaheim RACES members will participate in the July 14th hunt, since Delia will be hiding in that City. HDSCS indicated that they will be hunting on July 14th as well.



At the fox's den in Huntington Beach are (left to right) Bill Rose, KA6HMS, Ron Allerdice, WA6CYY, Don Bourne, KB6TVK, Patrick Williams, KJ6PFW, Tom Pastore, N6HAM (the fox), Bob McFadden, KK6CUS, and Terri Fuqua, KJ6QOC.



Tom Pastore, N6HAM, the fox, checks the antenna for his fox box (out of view to the right).



Ken Bourne, W6HK (left), and Bill Prats, K6ACJ, share hunting experiences at the fox's den.

OCRACES Exhibits Van at HRO's Ham Jam

Seventeen OCRACES members, applicants, and program coordinator showed up at Ham Jam at Ham Radio Outlet in Anaheim on Saturday, June 21, 2014, to exhibit our emergency communications response vehicle and to talk to a large crowd of radio amateurs about RACES. Those participating included John Bedford, KF6PRN, Randy Benicky, N6PRL (and his wife Lee Anne, KI6VUH), Chief Radio Officer Ken Bourne, W6HK, Radio Officer Scott Byington, KC6MMF, Applicant Clint French, KY6T, OCSD Emergency Communications Manager Delia Kraft, KF6UYW, Martin La Rocque, N6NTH, Assistant Radio Officer Bob McFadden, KK6CUS, Sue Mickelson, KJ6LCJ, Fran Needham, KJ6UJS, Radio Officer Harvey Packard, KM6BV, Tom Riley, K6TPR (who drove the van to Ham Jam), Radio Officer Ralph Sbragia, W6CSP, Applicant Jeff Snoddy, KK4IUZ, Ken Tucker, WF6F, Applicant Ryan Wakefield, KD6CIO, and Applicant Tom Wright, KJ6SPE.



Left to right at Ham Jam are Randy Benicky, N6PRL, Lt. Scott Byington, KC6MMF (foreground), Ken Tucker, WF6F, Sgt. Bob McFadden, KK6CUS, Tom Riley, K6TPR, John Bedford, KF6PRN, and Martin La Rocque, N6NTH.

FCC Revises Rules on Testing and TDMA

The FCC's recently announced revisions to the Part 97 Amateur Radio rules governing exam credit to former licensees, test administration, and emission types will go into effect on Monday, July 21, 2014. The new rules were published in *The Federal Register* on June 20.

In a wide-ranging *Report and Order (R&O)* released June 9, the Commission announced that it would grant examination credit for written elements 3 (General) and 4 (Amateur Extra) to holders of "expired licenses that required passage of those elements." The FCC will require former licensees falling outside the 2-year grace period to pass Element 2 (Technician) in order to be relicensed. The Commission declined to give exam credit to holders of expired *Certificates of Successful Completion of Examination (CSCEs)* or to extend lifetime validity to CSCEs.

The FCC also embraced the use of remote testing methods, allowing volunteer examiners and volunteer examiner coordinators "the option of administering examinations at locations remote from the VEs." The National Conference of Volunteer Examiner Coordinators (NCVEC) in 2002 endorsed experimental use of videoconferencing technology to conduct Amateur Radio testing in remote areas of Alaska. The Commission dropped its earlier proposal to permit two VEs to administer exams; the requirement remains at three VEs. The Commission did not spell out the "mechanics" of remote testing, however, which it said would "vary from location to location and session to session." VEs administering examinations remotely must grade such examinations "at the earliest practical opportunity," rather than "immediately," as the current rule for conventional exam sessions requires.

The FCC also adopted an ARRL proposal to authorize certain Time Division Multiple Access (TDMA) emissions in the Amateur Service. The Wireless Telecommunications Bureau in 2013 granted an ARRL request for a temporary blanket waiver to permit radio amateurs to transmit emissions with designators FXD, FXE, and F7E, pending resolution of the rulemaking petition. That waiver becomes permanent on July 21. This action confirms the legality of using Digital Mobile Radio (DMR) equipment on amateur radio frequencies, which had been debated on DMR forums.

The Commission also made "certain minor, non-substantive amendments" and corrections to the Amateur Service rules.

RACES/MOU News from Around the County

"RACES/MOU News" provides an opportunity to share information from all City & County RACES/ACS units and MOU organizations in Orange County.

**Please send your news to
NetControl Editor
Ken Bourne,
W6HK, at:**

**w6hk@
ocraces.org**

Buena Park RACES

John Eng, KI6BWU, is the new Buena Park RACES Chief Radio Officer. John reports that their monthly meetings are held on the first Tuesday of the month at 1900 hours at the Buena Park Police Department. Corporal Andy Luong is the Department's Public Information Officer and is the RACES Coordinator. Lance Charnes is the Emergency Services Coordinator for the City.

Costa Mesa RACES (MESAC)

Ted Bohrer, N7QY, is now the Chief Radio Officer of Costa Mesa Emergency Service Amateur Communications (MESAC), replacing Mike Oviatt, KE6IWM, who served as CRO for six years. Patrick Williams, KJ6PFW, is the Assistant Radio Officer/Operations.

Huntington Beach RACES

Huntington Beach RACES will provide communications backup for the annual Independence Day Parade in their City.

La Palma RACES

La Palma Police Department Corporal Les Parsons, KJ6JBS, hopes to get between 8 and 10 radio operators and a net control operator to assist with the La Palma July 4th Run for Fun. Contact Les at 714-690-3385 or lesp@cityoflapalma.org

Orange County SKYWARN

Orange County SKYWARN conducted a free spotter training recruitment class on the evening of Thursday, June 19, 2014, at the Santa Ana EOC. Attendees learned to identify and report hazardous local weather to the National Weather Service.

Orange County Amateur Radio Club

Arnie Shatz, N6HC, will present a program on the recent FT5ZM DXpedition to Amsterdam Island in the South Indian Ocean, at the next Orange County Amateur Radio Club meeting on Friday, July 18, 2014, at 7:00 PM, at American Red Cross, 600 Parkcenter Drive, in Santa Ana.

Wayne Barringer, KB6UJW, Silent Key

We are very sad to report that Wayne Barringer, KB6UJW, passed away on May 10, 2014.

Wayne is a former Anaheim RACES Chief Radio Officer. He had also been the Community Emergency Response Team (CERT) Program Coordinator and Instructor with Anaheim CERT. He developed materials to implement the Incident Command System for Category "Z" (Volunteer) Radio Communications (or ZRICS) and served as the Editor of the monthly *COAX Connections* online magazine. He also assisted various City RACES units with their training programs.



Wayne was a Fire Information Officer with the California Department of Forestry and Fire Protection. He was "on call" for deployment anywhere in South Region, but also donated his time in the CAL FIRE Volunteer in (fire) Prevention program.

Wayne was a U.S. Marine Corps combat veteran of two tours during the Vietnam conflict and retired from the I-MEF (Camp Pendleton) as a Master Gunnery Sergeant (E-9) in June 2002 after almost 30 years of enlisted service in the USMC ground, air, and expeditionary forces.

After Hurricane Charley struck Florida in 2004, Wayne drove to Punta Gorda (Charlotte County), Florida, and deployed with local area ARES/RACES groups to provide emergency communications in the affected disaster area.

Wayne is survived by his wife Hiroko, KG6LFZ, with whom he enjoyed operating "motorcycle mobile."

July 2014

Upcoming Events:

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3	4 <i>Independence Day</i>	5
6	7 <i>OCRACES Meeting & Weekly ACS Net</i>	8	9	10	11	12
13	14 <i>Weekly ACS Net & Cooperative T-Hunt</i>	15	16	17	18	19
20	21 <i>Weekly ACS Net</i>	22	23	24	25	26
27	28 <i>Weekly ACS Nets & SWACS Freq Test</i>	29	30	31		

- **July 4:** Independence Day (HBRACES at parade in Huntington Beach and La Palma RACES at City's Run for Fun)
- **July 7:** OCRACES meeting (presentation on 800 MHz CCCS technical details), 1930, 840 N. Eckhoff Street, Suite 104, Orange
- **July 14:** Cooperative T-hunt in Anaheim, 1920, input of OCRACES 2-m repeater (146.295 MHz), bearings compared on 449.100 MHz repeater
- **July 28:** 2-m/70-cm/6-m/1¼-m ACS nets and SWACS frequency/radio test
- **August 4:** OCRACES meeting (Severe Fire Weather Patrol training), 1930, Orange County EOC
- **September 8:** OCRACES meeting (presentation on 800 MHz CCCS operations), 1930, 840 N. Eckhoff Street, Suite 104, Orange



County of Orange RACES Frequencies

6 m: 52.620 MHz output, 52.120 MHz input, 103.5 Hz PL
 2 m: 146.895 MHz output, 146.295 MHz input, 136.5 Hz PL*
 2 m: 147.480 MHz simplex
 1.25 m: 223.760 MHz output, 222.160 MHz input, 110.9 Hz PL
 70 cm: 446.000 MHz simplex
 70 cm: 449.100 MHz output, 444.100 MHz input, 110.9 Hz PL (private)
 70 cm: 449.180 MHz output, 444.180 MHz input, 107.2 Hz PL (private)
 23 cm: 1287.650 MHz, 1287.675 MHz, 1287.700 MHz, 1287.725 MHz, 1287.750 MHz, and 1287.775 MHz outputs, -12 MHz inputs, 88.5 Hz PL
 *Primary Net—Mondays, 1900 hours



Mission Statement

County of Orange RACES has made a commitment to provide all Public Safety departments in Orange County with the most efficient response possible to supplement emergency/disaster and routine Public Safety communications events and activities. We will provide the highest level of service using Amateur and Public Safety radio resources coupled with technology, teamwork, safety, and excellence. We will do so in an efficient, professional, and courteous manner, accepting accountability for all actions. We dedicate ourselves to working in partnership with the Public Safety community to professionally excel in the ability to provide emergency communications resources and services.

RACES Program Manager

Delia Kraft, KF6UYW
 714-704-7979

Radio Officers (Lieutenants)

Scott Byington, KC6MMF
 Harvey Packard, KM6BV
 Ralph Sbragia, W6CSP

Chief Radio Officer (Captain)

Ken Bourne, W6HK
 714-997-0073

Assistant Radio Officers (Sergeants)

Jack Barth, AB6VC
 Ernest Fierheller, KG6LXT
 Bob McFadden, KK6CUS
 Tom Tracey, KC6FIC

County of Orange RACES

OCSD/Communications & Technology
 840 N. Eckhoff St., Suite 104, Orange, CA 92868-1021
 Telephone: 714-704-7979 • Fax: 714-704-7902
 E-mail: ocraces@comm.ocgov.com

County of Orange RACES

OCSD/Communications & Technology
840 N. Eckhoff St., Suite 104,
Orange, CA 92868-1021

Telephone – 714-704-7979
Fax – 714-704-7902
E-mail – ocraces@comm.ocgov.com

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Questions or Comments?
Contact *NetControl* Editor Ken Bourne, W6HK
w6hk@ocraces.org



**"W6ACS ...
Serving
Orange County"**

Meet your County of Orange RACES Members!



Ken Bourne
W6HK



Scott Byington
KC6MMF



Harvey Packard
KM6BV



Ralph Sbragia
W6CSP



Delia Kraft
KF6UYW



Marten Miller
KF6ZLQ



Robert Stoffel
KD6DAQ



Jack Barth
AB6VC



Jim Dorris
KC6RFC



Ernest Fierheller
KG6LXT



Bob McFadden
KK6CUS



Tom Tracey
KC6FIC



John Bedford
KF6PRN



Randy Benicky
N6PRL



Bill Borg
KG6PEX



Chuck Dolan
KG6UJC



Nancee Graff
N6ZRB



Ray Grimes
N8RG



Walter Kroy
KC6HAM



Martin La Rocque
N6NTH



Brian Lettieri
K16VPF



Sue Mickelson
KJ6LCJ



Fran Needham
KJ6UJS



Tom Riley
K6TPR



John Roberts
W6JOR



Joe Selikov
KB6EID



Ken Tucker
WF6F



Brian Turner
K16WZS