

S.P.A.R.K.

South Peninsula Amateur Radio Klub Newsletter

Vol. MCMXCVII No 1

Rptr:W6APZ/R 145.230(-.600)MHz - Club Str: WA6NKK

Thursday, June 3, 1999

The January 1998 Meeting...

Where: Space Systems/Loral
Bld 3 Auditorium
3825 Fabian Way, Palo Alto

When: Thursday, 8 January 1998
High Noon

Subject: Elections

REPEATER
REPEATER
REPEATER
REPEATER

HANG-TIME, ANNOUNCEMENTS, CROSS-BAND

Hang-time, is the time after a station drops its carrier until the repeater goes off the air. When I first became involved with the SPARK repeater, back when our call was WR6AIS (repeaters had WR calls back then), most repeaters were using vacuum tubes (you know, those transistors with little red lights in them that kept the machine warm). The COR (carrier operated relay) switched the repeater transmitter On/Off. This was frequently accomplished by switching B+ (the high voltage to the transmitter tubes). In normal use, the COR would switch dozens if not 100s of times per day. It does not take a rocket scientist to figure out that with the average relay life of even 100,000 operations, the COR had to be replaced frequently.

Enter the hang-timer. This was a circuit that kept the transmitter on for a number of seconds after one ham stopped talking (dropped the carrier) and the next ham began transmitting. Thus, instead of the COR switching with every exchange in a QSO, the COR would switch only at the beginning and end of a QSO. This greatly prolonged the life of the COR. In Europe, where a tone-burst is required for repeater access, the hang-timer permits a station without tone-burst to "piggy-back" on the repeater access of a station that is equipped with tone burst; i.e. once the repeater is on the air, someone without tone-burst can talk until the COR switches.

With modern day semiconductor FM repeaters, the COR function is performed electronically, so the hang-time is not critical the way it used to be. So why is the hang time so long on the 523 repeater? We have programmed a long hang-time due to co-channel repeaters and announcements. As long the repeater is transmitting, one does not hear the Sacramento or Fresno repeaters which are on the same channel as our Palo Alto repeater. That is one reason. The second reason concerns the design of the ACC controller. The "tail messages", those messages which the repeater broadcasts periodically at the end of a transmission, are timed to come on every 20 minutes, but ONLY after the carrier drops. With a short hang-time (which we have tried), the tail message frequently doubles with the next user who is responding to the prior ham's transmission.

A number of hams who work in buildings that prevent a 2 meter HT from communicating directly with the 523 repeater have tried another approach to access the machine. They make use of the cross-band capability of their mobile rigs. Generally, hams have tried to operate on 1296 or the 440 MHz band using their HT to talk to their mobile rig that cross-bands (rebroadcasts) what they say on 144.630 (the input frequency of the 145.230 repeater). The problem is that most rigs that are capable of cross-banding are designed to wait for the carrier to drop before switching from receive to transmit. With a long hang-timer, this makes communications difficult, especially if the station they are calling does not understand that they have to wait for the carrier to drop. What typically happens is that ham A announces his/her call saying they are monitoring. Ham B, who is cross-banding responds after the carrier drops. Ham A will hear the response and

December Meeting Minutes

The December 1997 SPARK meeting was held on Thursday, December 4 at SS/L in the Building 3 auditorium. The main focus of the meeting was the discussion of the nomination of officers for 1998. The absence of a presidential candidate was also mentioned. Tom Holden/KN6KL gave a presentation of circuit boards that he had collected as engineering samples from Motorola, and distributed them to the assembled attendees.

Collin Lim/KD6YCV

SPARK Web Site

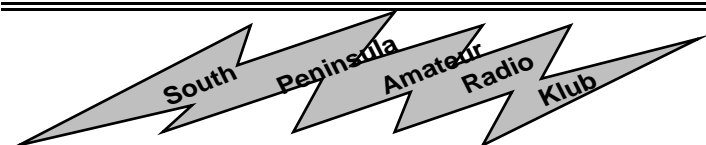
SPARK now has a very impressive World Wide Web site located at <http://www.macscouter.com/SPARK>, or <http://www.geocities.com/Yosemite/Trails/4024/>. If you have photo's, anecdotes, or anything that would show the world what SPARK is all about, please send it to the SPARK Webmaster Collin Lim, lim.collin@ssd.loral.com.

The Prez Sez...

The first SPARK meeting of 1998 will be on January 8, 1998 in the Building 3 auditorium. The first order of business will be elections of 1998 officers. We still do not have a presidential nominee. I hope that one of our members will volunteer. I believe that with the support of other members, the position of President of SPARK will not be as difficult as imagined. I have accepted a new job, here in LORAL and I do not believe that I will have the time nor can I guarantee that I will be available for meetings, so the position must be filled by someone else.

As for a program at the January 1998 meeting, I'll open the floor for anything that the members have to present. I know that this is short notice.

73, Ian, AF6K



begin the conversation which ham B can't hear because the carrier hasn't yet dropped, so when ham A finishes talking, and listens for ham B, ham B may have missed the entire transmission, and so ham B perceives no response and the QSO is over before it even starts.

Stated simply, the problem is an incompatibility of user goals and the hardware.

73 de Rich, W6APZ <w6apz@svpal.org

Nominating Committee Report

According to the SPARK Constitution, the nominating committee is required to publish a slate of candidates in the January Newsletter. This slate is as follows:

President: No Nomination
Vice Pres: Mike Spate
Treasurer: Rolf Klibo
Secretary: Collin Lim

Nominations are still open, and will be accepted at both the December and January SPARK meetings.

Treasurer's Report

SPARK income and expense summaries occurring during 1997 are listed in the table along with a comparison from 1996. A proposed budget for 1998 is included for review, and will be discussed at the January meeting.

SPARK has 54 members on the roster, 39 of which were paid up during the 1997 period, and one Honorarium member. Member dues continue to be the main source of income for the Klub. The Klub is presently in a condition of slight financial decline because of the reduction in paid membership. (The Company (SS/L) Recreation Committee, in the past, has donated funds to help with non-equipment related expenses.) At the present rate of expenditure, without external donations, at least 47 annually paying members are needed to maintain a level yearly balance of the Klub treasury.

No major purchases were made during 1997.

Rolf Klibo, Treasurer 1997, SPARK

ARRL Pacific Division Update

January 1997

by Brad Wyatt, K6WR, Director, Pacific Division, ARRL
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 Packet: K6WR@N0ARY.#NOCAL.CA
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 Pacific Division Home Page: <http://www.pdarrl.org/>

FCC Asks for Comments Concerning Potential Changes to Morse Waiver Rules:-

On Nov. 26, 1997, the FCC announced that the public Comment period on the ARRL Petition for a Changes to Morse Waiver Rules, now called RM-9196, will end on Dec. 29, 1997. Basically this proposal asks for "rather minor changes" in the Rules so that a candidate at least would have to attempt the Morse code test -- with any and all necessary accommodations--before being granted an exam waiver based on a physician's certification.

Also, Volunteer Examiner Coordinators (VECs) would be entitled to request medical information pertinent to an applicant's handicap from the certifying physician. VECs also would be required to have this information on file before the application is forwarded to the FCC for processing.

In its original petition, the League also said it believes the procedural changes alone will help to deter those who might abuse the process while still allowing exemptions to deserving applicants.

The original petition by ARRL was submitted on Sept. 23, 1997, and has been dormant at FCC until now. Apparently, there was no warning as to when the petition would be given an RM number and the comment period would start.

The ARRL July 1997 Board meeting motion which initiated this petition can be found at Minute 28 on page 65 September 1997 QST. QST for December 1997 on page 75 has an article on this matter, as does the November issue of the Pacific Division Update. See also the editorial "It Seems to Us" by David Sumner, K1ZZ, QST, Oct. 1997, page 9. Unfortunately, the text of RM-9196, itself, is not available in machine readable form as it has not been found yet on any of the expected web sites. The text of the original ARRL Petition is available now on the Pacific Division web site at <http://www.pdarrl.org/pdu/rm9196.html>, thanks to the efforts of Glen Lokke, KE6NBO, for conversion to machine readable, and the Pacific Division Webmaster Paul Wesling, KM6LH, and his crew.

The text of RM-9196 is available in hardcopy form only from FCC in Washington DC. With the Comment deadline set at Dec. 29, 1997, it may be difficult to obtain the actual RM-9196 text in time.

Please comment in a positive fashion to help encourage FCC to issue a Notice of Proposed Rule Making (NPRM) on this matter.

NOTE: Based on extensive investigation, the FCC has apparently made NO provision to receive e-mail messages on RM-9196, so all Comments MUST be in hardcopy format. Please send an original and four copies of your Comments to the FCC.

It's always best to write using your own thoughts, expressed using your own words. However, as a guide, here's a sample letter:

Secretary (date)
 Federal Communications Commission
 1919 M St. NW, Room 222
 Washington DC 20554.

RE: RM-9196

I support the ARRL Petition to have the FCC develop "rather minor changes" in the Rules so that an examination candidate at least would have to attempt the Morse code test -- with any and all necessary accommodations -- before being granted an exam waiver based on a physician's certification. Also, Volunteer Examiner Coordinators (VECs) would be entitled to request medical information pertinent to an applicant's handicap from the certifying physician. VECs also would be required to have this information on file before the application is forwarded to the FCC for processing.

Please issue a Notice of Proposed Rule Making on this matter.

Signed (your name, call, address)

Good luck to all of us. Thanks for participating.

Ham RF Exposure Guidelines Effective Jan. 1, 1998:-

Compliance with the new guidelines should be relatively easy for the vast majority of hams and should require few changes in current operating practices. These Amateur Radio rules will deal with the general public for the first time in a new substantial manner; therefore, compliance is very important.

There are numerous information resources - an excellent summary of the guidelines is contained in October QST, pages 51 and 52. An article titled "How To Do a Routine Evaluation," starting at page 50 in the January 1998 QST, will answer most questions. Also, an ARRL book on this subject should be available soon.

Recent Pacific Division Updates have contained "run-up" articles. These documents are available on the Pacific Division web site at <http://www.pdarrrl.org/>.

FCC has published OET Bulletin 65, "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields," Edition 97-01, August 1997, and Supplement B, "Additional Information for Amateur Radio Stations."

For the latest news on this matter and linkage to related Web sites, visit the ARRL RF-Safety Web page at <http://www.arrl.org/news/rfsafety>. To obtain the FCC documents directly refer to the FCC site at <http://www.fcc.gov/oet/rfsafety>.

As part of the implementation of these new guidelines, there is a new Form 610 series, dated Sept. 1997. There are three new forms in this series: Form 610 is for basic transactions, Form 610-A is for operating privileges for foreign nationals, and Form 610-B is for club stations. These new forms MUST be used for all licensing transactions after Jan. 1, 1998. The new forms all contain a statement to the effect that the applicant understands and complies with the new RF Safety regulations. The new 610 form series can be obtained on the FCC WWW site at <http://www.fcc.gov>, the ARRL Web page at <http://www.arrl.org>, by contacting the FCC Central Phone Service at 1-888-CALLFCC (225-7245), by writing FCC at 1270 Fairfield Road, Gettysburg PA, 17325-7245, or by contacting the ARRL at (860) 594-0200 or at 225 Main St., Newington CT, 06111-1494.

Here are the key dates to remember:

1. New licensees after Jan. 1, 1998, must be in compliance with the new regulations at the time of first licensing. The applicant will certify compliance by the very act of signing off on the new 610.
2. All those licensed prior to Jan. 1, 1998, will have to be in compliance with the new RF exposure regulations whenever a new Form 610 is filed for license renewal, upgrade, or other modification.
3. All licensees, new or old, must be in compliance with the new regulations no later than Sept. 1, 2000. This date must be met whether a Form 610 has been filed previously or not.

FCC Electronic Renewal Form 900 Works Well:-

The FCC's Wireless Telecommunications Bureau (WTB) has consolidated eight renewal forms for various services into one. Form 900, "Application for Electronic Renewal of Wireless Radio Services Authorizations," is an interim measure to permit all licensees of the WTB, including hams, to renew their licenses on-line.

Form 900 is only for renewals within 120 days prior to license expiration. You can only enter changes (e.g., name, address).

I was able to renew my license on line in December (my license was due to expire on Jan. 19, 1998). Based on my experience, it's best to first go to <http://www.fcc.gov/wtb/amateur/amrenw.html> for directions on what to do. You will then be lead to <http://www.fcc.gov/wtb/electcom.html>. One of the choices in this page is to go to the "Production Page for Electronic Commerce Applications" which contains the Form 900 entry button. There are also instructions for a Renewal Query so you can learn if the Renewal was made. Finally, I also found that my license appeared as renewed on QRZ.com within a day or so. Thanks, ARRL Letter and Paul Burton, AA6Z.

WRC-97 Is Over; Ham Radio Came Out Unscathed:-

While we did well at WRC-97, it is likely that we may have to fight the "Little LEO" matter all over again at WRC-99. Also, WRC-99 may be postponed.

Further, the entire ITU Amateur Radio licensing and rules and the 40 meter band harmonization matters have been postponed by the ITU until WRC 2001 at least.

FCC Asks for Comments Concerning Potential Changes to Morse Code Waiver Rules:-

In late November the FCC announced that the public Comment period on the ARRL Petition for a Changes to Morse code Waiver Rules, now called RM-9196, will end on Dec. 29, 1997. Basically this proposal asks for "rather minor changes" in the Rules so that a candidate at least would have to attempt the code test - with any and all necessary accommodations - before being granted an exam waiver based on a physician's certification. Also, Volunteer Examiner Coordinators (VECs) would be entitled to request medical information pertinent to an applicant's handicap from the certifying physician. VECs also would be required to have this information on file before the application is forwarded to the FCC for processing.

Please comment (in hard copy format only) in a positive fashion to help encourage FCC to issue a Notice of Proposed Rule Making (NPRM) on this matter.

QST for December 1997 on page 75 has an article on this matter, as does the November issue of the Pacific Division Update. See also the editorial "It Seems to Us" by David Sumner, K1ZZ, in QST for October, 1997, page 9. The Pacific Division web site contains the petition text, more details, and a sample letter.

Latest Congressional News:-

Congress has recessed until at least Jan. 26, 1998. As a result, there has been no action on HR 2369, the Wireless Privacy Enhancement Act, after it was rewritten to reflect the concerns of Amateur Radio operators, volunteer fire fighters, scanner enthusiasts, and others. The ARRL worked with a coalition of other organizations to make sure your voice was heard on The Hill.

Similarly, there has been no action on S. 1350 or other bills. See DC Currents in Jan. QST, for more details.

Vanity Call Sign Gate 4 Opened Dec. 2, 1997:-

General, Technician Plus, Technician and Novice Class amateur operators may now request a vanity call sign. The details for requesting a vanity call sign follow the pattern used on the previous gates. QST, Pacific Division Updates and other publications detail the use of Forms 610-V and 159 for filing electronically and in paper document format. The fee is \$50 for the 10 year license.

Handi-Ham Camp in California Announced:-

The next session of HANDI-HAM Radio Workshop (Camp) will be held at Camp Joan Mier, Malibu, from February 24 to March 1, 1998.

This camp will provide ham radio instruction at all levels for persons with severe physical (not learning) disabilities and/or sensory impairments.

The camp in 1998 will be FREE for California residents who are going for a first ticket or upgrade. All normal care, food, lodging, and Amateur Radio instruction for the session will be provided AT NO COST to the campers.

If you or anyone you know is interested, contact Jane Rova, Secretary, Courage HANDI-HAM System, 3915 Golden Valley Road, Golden Valley, MN 55422; (612) 520-0512; e-mail handiham@mtn.org.

ARRL Radio Coaches Program to Enhance Elmering:-

Over the years, countless letters and articles have been written in the pages of QST about Elmers, those patient, inspired souls who thoroughly enjoy bringing newcomers into the world of Amateur Radio. Now, the ARRL's new Radio Coaches program takes Elmering to new levels. Through the Radio Coaches program, you and your fellow club members can become part of a national effort to better the lives of youth using Amateur Radio. And ARRL will provide the game plan and materials!

Radio Coaches stems from the kickoff of America's Promise, the Alliance for Youth, a national campaign to improve the lives of the

nation's young people and put them on paths for brighter, more productive futures.

The mission will be to give young people an ongoing relationship with a caring adult and a marketable skill through effective education. Amateur Radio will be our chief tool.

Through Radio Coaches, we want to reinforce the idea that Amateur Radio is a "sport for the brain." Ham radio provides not only a lifetime of enjoyment, but also, potentially, a lifetime career.

To get involved contact Radio Coaches, c/o Field Services Department, ARRL, 225 Main St., Newington CT, 06111; or e-mail coaches@arrl.org. Thanks, ARRL Letter, Nov. 14, 1997.

Call for New Ham Education:-

If you will let me know when and where classes and code practices are to be held within the Pacific Division, I will post this information on the Pacific Division web site.

Information on "How to Become a Ham," education books and materials, instructors, etc., can be found by calling ARRL Education Activities Department at 1-800-32NEW-HAM or by visiting the ARRL web site at <http://www.arrl.org>. On the web site look under the category of "How to Become a Ham."

Some selected education information gathered to date - "one-on-one" code practice using MCW on the KM6DZ repeater in Monterey (146.655- after 9:00 PM Thursdays); KN6FR in Monterey teaches classes regularly; K5FO holds code practice on his web site at <http://reality.sgi.com/adams/>.

Coming Events:-

- Livermore Swap Meet - 1st Sunday of each month at Las Positas College in Livermore, CA, 7:00 AM to noon, all year. Talk in 147.045 from west, 145.35 from the east. Contact Noel Anklam, KC6QZK, (510) 447-3857 eves.

- The Naval Postgraduate School ARC is having its 7th Winterfest on Feb. 21, 1998, in Monterey. Visit <http://www.mcktech.com/wf98.htm> web site for details. It's a free public service event with the flea market paying for the event. Contact Doug McKinney at KC3RL@ mcktech.com, or phone at (H) (408) 663-6117 in Prunedale, CA.

Hoo's Hoo...**Officers:**

President:	Ian Kushner
Vice Pres:	Mike Spate
Treasurer:	Rolf Klibo
Secretary:	Collin Lim

SS/L Shack Trustee: Ian Kushner, AF6K

Newsletter Editor: Gary Hendra, W6NOE -- SS/L
3825 Fabian Way, MS-G86, Palo Alto 94303
E-mail to 'Hendra, Gary' on the Loral Network, or via Internet to 'hendra.gary@.ssd.loral.com' [<http://www.macscouter.com>]

Repeater Trustee/Control Operators(Primary):

Repeater Trustee: Rich Stiebel, W6APZ
Control Operators: John Buonocore, KD6ZL, Dan Connell, W6ASD, Robert Reiling, W6JHJ, Rolf Klibo, N6NFI, Tom Holden, KN6KL; Gregg Schlaman, WA6ECQ

Repeater Technical Committee:

Committee Chairman: Rich Stiebel, W6APZ
N6NFI - Rolf Klibo and KN6KL - Tom Holden

SS/L Training: Vacant

Picnic Committee:

Picnic Co-chairman: To be announced

Field Day Committee:

Chairman: To be announced.
Members: To be announced

Other positions to be filled:

Club historian: To be announced.
Retiree Representative: John Gibson, N6OM
Club emergency comm coordinator: Randy Bassett, N6RUR
Club ARRL Coordinator: To be announced
Club swap meet coordinator: To be announced.
Club Project coordinators: To be announced

SPARK Budget Review for 1997, and Proposed for 1998

2 Jan 98

Description	Actual 1996	Proposed 1997	Actual 1997	Proposed 1998
Balance on January 1	1018.01	1051.12	1051.12	1013.2
Income				
Donations	\$5.00	\$0.00	\$0.00	\$0.00
Interest Received	\$22.76	\$22.00	\$24.14	\$23.00
Member Dues 1999/2002	\$0.00	\$0.00	\$0.00	\$20.00
Member Dues 1995	\$50.00	\$0.00	\$0.00	\$0.00
Member Dues 1996	\$330.00	\$50.00	\$10.00	\$0.00
Member Dues 1997	\$30.00	\$330.00	\$370.00	\$0.00
Member Dues 1998	\$0.00	\$50.00	\$20.00	\$370.00
QST Subscriptions	\$0.00	\$0.00	\$0.00	\$0.00
Other	\$25.00	\$0.00	\$0.00	\$0.00
Total Income	\$462.76	\$452.00	\$424.14	\$413.00
Expense				
ARRL Equipment Insurance	\$205.70	\$205.70	\$207.70	\$207.70
ARRL Handbooks	\$0.00	\$0.00	\$0.00	\$0.00
Address Label Supplies	\$32.31	\$40.00	\$0.00	\$40.00
Field Day	\$0.00	\$0.00	\$0.00	\$0.00
Meeting Support/President	\$0.00	\$50.00	\$5.40	\$50.00
NARCC Dues	\$20.00	\$20.00	\$20.00	\$20.00
NARCC Meeting Expense	\$0.00	\$40.00	\$0.00	\$0.00
Newsletter Publishing	\$0.00	\$0.00	\$0.00	\$0.00
Periodical Subscriptions	\$0.00	\$25.00	\$0.00	\$25.00
Picnic	\$0.00	\$0.00	\$0.00	\$0.00
Post Office Box	\$20.00	\$40.00	\$40.00	\$40.00
Postage	\$0.00	\$150.00	\$152.77	\$155.00
Promotion	\$0.00	\$30.00	\$0.00	\$30.00
QSL Cards	\$0.00	\$0.00	\$0.00	\$0.00
Repeater-Backup	\$0.00	\$200.00	\$0.00	\$100.00
Repeater Maintenance	\$40.70	\$50.00	\$0.00	\$50.00
Shack-S&RS (Item will be removed)	\$0.00	\$0.00	\$0.00	\$0.00
Shack-WDL (Item will be removed)	\$0.00	\$0.00	\$0.00	\$0.00
Shack-SS/L	\$110.94	\$50.00	\$21.64	\$50.00
Training Materials/Books	\$0.00	\$50.00	\$14.55	\$50.00
Total Expense	\$429.65	\$950.70	\$462.06	\$817.70
Balance December 31	\$1,051.12	\$552.42	\$1,013.20	\$608.50

SPARK Roster, 1 Jan 98

Call Sign	First Name	Last Name	Company	Mail Stop	Preferred Phone	Status 1998	E-mail
K6PU	Kenneth	Anderson	Retired				k6pu@volcano.net
W6BIP	W. E.	Bachman	Retired		(415) 239-7151	Hon'm	
KD6PPJ	Joseph	Barela	LM/S&RS	S60			
N6RUR	Randy	Bassett	LM/WDL	S34	(408) 734-6036		rbassett@bassett.com
KC6UTN	Martin	Bittner	SS/L	G10	(650) 852-7527		
K6SMH	Jerry	Bliss	Retired		(408) 378-7777		
W6ASD	Dan	Connell	Retired		(650) 968-8998		ttvc78a@prodigy.com
NM6J	Fred	Dietrich	GlobalStar	G82	(408) 933-4436	Paid	
SM5UR	Bjorn	Forsberg	SS/L	G18	(650) 852-6926		
W6SKO	Dominick	Garofano	Retired		(650) 967-0604		
N6OM	John	Gibson	Retired		(408) 245-3369		
KD6UD	Warren	Gillera	Retired		(408) 988-2706		
KK6US	Dave	Grybos	SS/L	G54	(650) 852-7464		
AA6SB	Al	Hadad	Retired		(408) 257-6875		
KD6ALH	V.E.	Harkins	LM/WDL		(408) 737-0215		
N6QCD	Ron	Haymore	SS/L	PS1	(650) 852-6056		
W6NOE	Gary	Hendra	SS/L	G84	(650) 852-5649		hendra.gary@ssd.loral.com
KN6KL	Tom	Holden	SS/L	G14	(650) 852-4519		
W6THI	Lyn	Holsclaw	LM/WDL	T15	(408) 473-7942		
K8SNX	Dave	Honkala	Retired		(408) 578-9395		
W6XZ	John	Hudick	SS/L	G36	(650) 852-4808		mtnmann@aol.com
KD6LHL	John	Hutchinson	LM/WDL	N01	(408) 473-4438		
KE6FTO	Bill	Jimenez	SS/L	H07	(650) 852-6815		jimenez.bill@ssd.loral.com
WA6ONT	Walter	Kaufman	SS/L	G17	(650) 852-5195		
K6EFB	Layard	Kirby	SS/L	G16	(650) 852-6395		kirby.layard@ssd.loral.com
N6NFI	Rolf	Klibo	SS/L	G16	(650) 852-7633		klibo.rolf@ssd.loral.com
N6HM	Howard	Krawetz	Retired		(408) 739-7936		
AF6K	Ian	Kushner	SS/L	H21	(650) 852-6790		kushner.ian@ssd.loral.com
KC6VAF	Edward	Lam	SS/L	H21		Paid	lam.ed@ssd.loral.com
KG6AC	Milo	Larsen	SS/L	G16	(650) 852-7284		larsen.milo@ssd.loral.com
W6KH	Dick	Le Massena	SS/L	G43	(650) 852-5912		
KD6YCV	Collin	Lim, Jr.	SS/L	H15	(650) 852-6615		lim.collin@ssd.loral.com
N6BLR	Tosh	Matsukuma	LM/WDL	X61	(408) 473-4229		
WA6BOJ	Mike	McClary	LM/WDL	X82	(408) 473-6051		
KF6HHL	Brad	Morris	SS/L	G82	(650) 852-5731		
K6IVR	J. T.	Nawrocki	SS/L	T50	(650) 852-4020		
KD6ZXT	Valerian	Popkoff	LM/Randtron		(650) 326-9500		
W6JHJ	Robert	Reiling	LM/WDL	T30	(408) 473-7305	Paid	rrr@wdl.lmco.com
KH6PR	Phil	Reyes	LM/S&RS	S34	(408) 734-6069		
KD6SU	Jack	Rowe	Retired		(408) 733-9131		
KB6VMQ	Harry	Salvini	LM/WDL	X50	(408) 473-6410		
K6JBR	Thomas	Scherf	SS/L	H22	(650) 852-7917		
WA6ECQ	Gregg	Schlaman	SS/L	G55	(650) 852-4402		
KD6FWG	Todd	SeCoy	SS/L	H22	(650) 852-6201		
WA6JAO	Sam	Shankle	Retired		(408) 245-0858		
KD6DC	Mike	Spate	SS/L	H41	(650) 852-4130		
W6APZ	Rich	Stiebel	Retired		(650) 494-0128		w6apz@svpal.org
W6QZE	Kieth	Trammell	Retired		(408) 257-2464		w6qze@juno.com
KD6PLD	Steve	Walch	Associate		(650) 962-0896		
K6PKT	John	Walther	Ret'd (te	G69	(650) 852-6020		
WO3B	Robert	White	SS/L	L15	(650) 852-5313		
KB6NRB	John	Wilkerson	SS/L	L27	(650) 852-6077		
W6TKH	Samuel	Zuckswert	Retired		(650) 852-6340		
R. K. Klibo, 01-Jan-98 Send corrections to R. Klibo, MS G-16							.

For Address Changes, or If Undeliverable, Return to:

Gary Hendra MS-G86

SPACE SYSTEMS/LORAL

3825 Fabian Way

Palo Alto, CA 94303-4604