



Scuttlebutt

No. 90 December 1990

President	Dave Robbins	KY1H	413-655-2714
VP-Activities Manager	Stu Santelmann	KC1F	603-672-2509
Secretary-Treasurer	Charlotte Richardson	KQ1F	508-562-5819
Editor	Paul Young	K1XM	508-562-5819

Captain's Cabin Dave Robbins, KY1H

Well, we are halfway through the CQWW contests as I write this and already it has been an interesting season. W3LPL has been beaten (twice in one contest), the battle of the PJ's was absolutely amazing with over 50Meg each for PJ1B and PJ9W, K1AR M/S almost beat my M/M team, and the contest is only half over. What can CW bring us???? I won't try to make any short term predictions about sunspots or propagation for CW since this does not make it to your mail boxes until after the contest. In case this does make it in time, GET OUT THERE AND KICK BUTT IN CW.

Personally I am still recovering from CQWW SSB. We blew up an antenna switch on 10 meters and instead of replacing it I decided just to move the stack to a higher tower and make a new phasing system. Plus it's that time of year when everything has to be doubled checked to make sure it will last through the winter, not a small job here in New England. over the next few weeks we should all be checking tightness of bolts, re-taping feedlines, checking guy points, cutting down trees near towers before they can come down on their own (ask K1DG about this), and that other stuff that keeps antennas ready to go for the year. Of course this must be sandwiched in with all the regular house maintenance and holiday preparations also.

Remember to send your scores in ASAP to Jeff (see club info listing for address). I am still working on

awards that will probably be presented at the February meeting. if you have any suggestions for special recognitions please send them to me by the end of the year so I have a chance to prepare something appropriate.

73, and Happy Holidays - Dave

Next Meeting Paul Young, K1XM

The next meeting of the Yankee Clipper Contest Club will be on Sunday, December 2, 1990, at the Sheraton Sturbridge, beginning at 1 pm. This meeting includes the K2WR Awards program. Information will be given on the WAN (Worked All Nets), MCR (Most Cards Returned), and other interesting awards.

The Sheraton Sturbridge Resort and Conference Center is located on Route 20 in Sturbridge, Massachusetts, $\frac{1}{2}$ mile West of I-84 (first exit off I-84 when coming South from the Mass. Turnpike). Directions to the Sheraton are easy: Exit I-84 on to Route 20 West. You will pass through two sets of stoplights while noticing several motels on your right. Make a right turn just prior to the Burger King sign. This is the entrance to the Sheraton, and there is plenty of parking in front of the hotel.

The meeting dates for 1991 are:

DATE	DAY
February 3, 1991	Sunday
April 7, 1991	Sunday
June 2, 1991	Sunday
August picnic	TBD
October 13, 1991	Sunday
December 1, 1990	Sunday

Secretary's Report Yankee Clipper Contest Club

The October, 1990, YCCC meeting was held at the ARRL New England Division Convention in Boxboro, Massachusetts, on October 13th. In the interests of saving time, at K2WR's suggestion, the 137 members and many guests present introduced themselves simultaneously. Also, to save time, the reading of the Treasurer's Report was waived (the treasury balance stood at \$1778.09), and Club President Dave, KY1H, introduced the first speakers, John, K1AR, and Doug, K1DG, who told the entertaining story of their first place finish at the World Games in Seattle.

Doug, K1DG, who had just lost his replacement tower after almost exactly one year to another tree falling on the guy wires, then optimistically read us a list of ten GOOD things about losing your tower... Rich, K2WR, produced a list of the ten most annoying things heard on 20 meters. A list of callsigns having QSL cards on hand at the W1 QSL BURO was circulated during the meeting. John, K1AR, repeated the ordering information for club QSL cards (still \$45 for 2000 cards). Some more contest expeditions were announced: K1RX will be operating at IQ2A for the CQ WW SSB and at BV2A/BV2B for the CQ WW CW, and N1AU and KC1F are returning to FS for both modes.

Rich, K1CC, gave us an update on matters currently before the ARRL Contest Advisory Committee (CAC). Sweepstakes this year will have a suggested slow-speed cw band segment in the Novice bands for under 10 wpm speed, and lapel pins will be available as achievement and participation awards for \$2 with your log submission. There has been a big increase in requests for SS log forms. The CT program now supports SS. The ARRL 160 and 10 meter contests have new QRP and low-power categories starting this year. The CAC is recommending that the VE1/VO1 multipliers be split up for DX entries in the ARRL DX Contest, producing five new multipliers. Also under consideration: limited time SS operation (10 out of 12 hours on Sunday only) as a new category, allow working a station on more than one band in SS (to increase activity), and a Sweepstakes plaque program. The ARRL 160 contest needs new ideas to increase interest, as does the RTTY contest. Discussions continue about modifications to the ARRL club competition rules, to modify the 2/3 rule for multi-op stations to encourage potential members to attend multis, and the "local club" 20 mile radius may be increased.

Tom, K1KI, discussed operations of the W1 QSL BURO, now managed by the club. Tom has a list of available volunteers for individual letter sorters, but is still in need of a bureau manager, preferably in the Springfield area because of the current post office box. Volunteers should contact Tom.

During the meeting, the club welcomed a record 30 new and returning members. See "New Crew" for a complete list. Contest Cookbooks were available for pickup, with remaining copies to be mailed.

Immediately following the club meeting, Kenny, K1EA, gave a presentation about CT and about VHF contesting with K1TR, and then many club members adjourned to a party at Kenny's nearby QTH.

Respectfully submitted,
Charlotte L. Richardson, KQ1F
Secretary/Treasurer
15 October 1990

Score Rumors ARRL SS CW:

Call	Qs	Ss	Score
K1BG	B 799	75	119850
K1EA	B 359	62	44516
W1ECH	A 840	75	126000
NX1H	A 957	75	143550
KZ1M	A 731	75	109650
KA1T	A 701	74	103748
K1TR	A 867	75	130050
W1WEF	B 1075	77	165550
K1ZM	B 1175	77	180950
K1ZX	B 1050	76	159600
N2AZS	B 1086	74	160728
NQ2D	A 1129	74	167092
W2GD	Q 704	75	105600
KM2P	B 816	75	122400
KD2RD	A 790	75	118500
W2RQ	? 1153	75	172950
NY3A	A 789	73	115194
K3LR	B 1244	76	189088
KE3Q	B 1204	75	180600
N4AA	A 850	75	127500
WC4E	A 863	75	129450
AA4FF	A 607	74	89836
KB4GID	Q 435	74	64380
K4VX	B 1195	74	176860
K4XU	A 1013	75	151950
N5AU (WN4KKK)	B 1348	75	202200
AA5B	? 1180	75	177000
NT5D	? 1053	76	160056
AA5DX	B 1084	74	160432
KM5H	A 770	73	112420
N5RZ	A 1118	75	167700
K5TA	? 1200	76	182400
W5WMU (K5GA)	B 1278	75	191700
K5ZD	B 1205	75	180750
K6LL	? 1241	75	186150
N6RO	? 1112	75	166800
KY7M	? 1128	76	171456
K7MM	? 1039	74	153772 multi
K7SS	Q 753	72	108432
W7XR	? 1137	75	170550
KJ8A	A 730	74	108040
K8CC	B 1165	75	174750
K8DD	A 674	75	101100

KU8E	B 201	65	26130
W8LT	B 257	66	33924
KW8N	B 1132	75	169800
AJ9C	A 744	75	111600
W9JP	A 789	75	118350 multi
KM9P	A 1069	76	162488
W9WI	? 557	74	82436
W9XT	B 1036	74	153328
N0AT	? 1159	76	176168
W0AVO	A 653	72	94032
KV0I	A 915	74	135420
KM0L	B 995	75	149250
WB0O	Q 735	72	105840
K0RF	B 1270	75	190500
WD0T	B 1084	76	164768
N0XA (K0VBU)	A 750	75	112500

**CQ WW SSB:
Single-Op:**

Call	Qs	Zs	Cs	Score
AG1C	?	?	?	3.75M
W1CB	?	?	?	314K
AA1M	75	14	47	12566
KN1M/qrp	715	77	224	606K
W1PH	2030	132	433	3.3M
W1RR	1803	39	158	1.03M
K1RU	2727	144	455	4.65M
K1ST	1730	139	389	2.57M
N1TZ	1153	128	385	1.67M
K1VSJ	650	80	250	650K
W1WEF	2073	137	444	3.4M
K2DM	2258	132	435	3.6M
KF2O	?	?	?	1.25M
KM2P	2235	140	414	3.53M
K2PS	1704	123	380	2.4M
KR2Q/qrp	1069	106	303	1.24M
K3OO	3205	149	471	5.7M
K3ZJ/8	1833	122	352	2.45M
K3ZO	2832	149	419	4.56M
N4DW	517	86	213	432K
W4MYA	2566	160	567	5+M
N4RJ	2643	144	471	4.66M
K4XS	1700	370	132	2.2M
KM4YY	718	277	93	753K
K5ZD/3	2669	146	494	4.93M
WM5G (KR0Y)	3266	159	511	6.28M
K8PO	2600	?	?	4.1M
XM2ZP	3518	102	306	3.79M
XM3EJ	5380	609	172	10.2M
KP2A	9345	141	470	13.3M
VP5T	6000	?	?	6.5M

Single-Op Unlimited:

Call	Qs	Zs	Cs	Score
KA1ION	?	?	?	1.4M
WB1K	917	118	355	1.159M
K1KP	1247	132	446	1.98M
WB1S	907	103	310	1.03M
KA1SWJ	1147	128	420	1.572M
K1TO	2156	148	509	4.1M
K1VR	1512	143	480	2.6M
W2GD	1494	152	504	2.767M
KR2J	1041	121	439	1.6M
WB2K	1514	145	509	2.8M
K8LT	1675	118	352	2.17M

Single-Op Single-Band:

Call	Band	Qs	Zs	Cs	Score
KM1C (AD1C)	10	1781	38	149	912K
KA1CB	10	340	87	23	125K
K1DG	10	1739	35	149	932K
NX1H	10	1594	34	137	765K

K1IU	10	1263	34	145	644K
NR1R	10	123	29	70	36531
K1VUT	10	1418	33	131	633K
NR5M	10	2093	37	152	1.15M
W6NV (WB6SHD)	10	1917	39	138	877K
K8AZ	10	1413	35	139	700K
W0ZV	10	1912	35	140	975K
K1RM	15	867	33	104	350K
K2SX	15	1227	36	137	598K
W2CXM (AA5GS)	15	1000	35	112	420K
NG2X	15	1806	38	140	943K
NB1H	20	1650	38	153	902K
K2VV	20	1770	38	150	940K
NQ2D	40	447	28	97	147K
WA4SVO	40	258	27	91	88K
ZF2JR	40	2278	33	123	877K
AD1G	75	288	18	70	62K
K3ZH	75	322	22	77	79.9K

Multi-Single:

Call	Qs	Zs	Cs	Score
*K1AR	4445	170	706	11.2M
W1BK	727	124	395	1.4M
W1GIH	1765	134	415	2.7M
KB1H	2000	147	544	3.6M
K21M	1781	129	437	2.87M
K1NG	2670	169	615	6.04M
N3RS	3379	166	637	7.75M
K2SG	1954	141	512	3.575M
K2TR	2626	169	621	5.85M
N4AA	1355	131	403	2.024M
K5NA	2712	166	637	6.2M
W18L	1232	124	371	1.696M
AA9A	1435	144	414	2.2M
K59K	3040	177	651	7.1M
W0CP	1380	135	389	1.9M
K0RF	?	?	?	6.2M
V31K	?	?	?	19.5M
VP9AD	7423	151	499	10.9M

Multi-Multi:

Call	Qs	Zs	Cs	Score
*KY1H	174	674	11.44M	
N2RM	7421	171	722	18.2M
W3LPL	6810	179	704	16.78M
NQ4J	4419	172	626	9.88M
N5AU	6811	188	696	17.16M
N6RO	?	?	?	8.5M
W7XR	?	?	?	12.5M
K8CC	4675	180	625	9.8M
PJ1B	21105	189	806	60M
PJ9W	20574	180	750	52M

***CQ WW SSB Score Breakdowns:**

K1AR M/S:			
band:	Qs	Zs	Cs
1.8	33	12	30
3.8	197	18	76
7	158	26	95
14	1374	39	167
21	1163	38	166
28	1520	37	172
TOTAL	4445	170	706 = 11.2M

KY1H M/M:			
band:	Qs	Zs	Cs
1.8	134	13	28
3.8	446	17	75
7	338	26	90
14	1325	40	158
21	1806	40	165
28	1026	38	158
TOTAL	5075	174	674 = 11.44M

K1RU S/O:

band:	Qs	Zs	Cs
1.8	13	7	7
3.8	100	14	48
7	116	20	62
14	552	36	108
21	730	33	106
28	1216	34	124
TOTAL	2727	144	455 = 4.65M

N2RM M/M:

band:	Qs	Zs	Cs
1.8	80	13	26
3.8	533	19	82
7	472	24	95
14	2246	40	173
21	2120	39	173
28	1970	36	173
TOTAL	7421	171	722 = 18.2M

K2TR M/S:

band:	Qs	Zs	Cs
1.8	49	13	42
3.8	115	17	61
7	98	26	83
14	503	39	131
21	912	36	146
28	949	37	158
TOTAL	2626	169	621 = 5.85M

K3OO S/O:

band:	Qs	Zs	Cs
1.8	22	8	16
3.8	128	15	53
7	105	20	62
14	992	36	114
21	624	36	109
28	1334	34	117
TOTAL	3205	109	471 = 5.7M

W3LPL M/M:

band:	Qs	Zs	Cs
1.8	92	16	37
3.8	495	21	83
7	547	28	102
14	1808	39	165
21	1923	39	157
28	1945	36	160
TOTAL	6810	179	704 = 16.78M

N3RS M/S:

band:	Qs	Zs	Cs
1.8	23	10	20
3.8	115	18	69
7	217	26	92
14	1208	39	158
21	769	37	144
28	1047	36	154
TOTAL	3379	166	637 = 7.75M

K3ZO S/O:

band:	Qs	Zs	Cs
1.8	14	6	6
3.8	118	18	54
7	151	22	67
14	716	33	91
21	575	34	91
28	1258	36	110
TOTAL	2832	149	419 = 4.56M

NQ4J M/M:

band:	Qs	Zs	Cs
1.8	89	11	27
3.8	118	25	62
7	209	24	92
14	1235	39	147
21	1401	37	150
28	1367	36	148
TOTAL	4419	172	626 = 9.88M

N4RJ S/O:

band:	Qs	Zs	Cs
1.8	17	6	16
3.8	77	15	52
7	80	17	59
14	541	36	106
21	508	36	115
28	1420	34	123
TOTAL	2643	144	471 = 4.66M

N5AU M/M:

band:	Qs	Zs	Cs
1.8	53	12	27
3.8	197	27	73
7	588	31	95
14	1819	40	164
21	2234	39	168
28	1920	39	169
TOTAL	6811	188	696 = 17.16M

WM5G (KR0Y) S/O:

band:	Qs	Zs	Cs
1.8	15	7	11
3.8	67	18	43
7	126	25	72
14	896	36	129
21	427	37	123
28	1733	36	133
TOTAL	3266	159	511 = 6.28M

K5NA M/S:

band:	Qs	Zs	Cs
1.8	26	13	23
3.8	124	18	70
7	122	24	85
14	993	38	145
21	599	37	152
28	845	36	160
TOTAL	2712	166	637 = 6.2M

K5ZD/3 S/O:

band:	Qs	Zs	Cs
1.8	20	8	13
3.8	73	14	42
7	179	22	78
14	656	35	119
21	753	34	121
28	988	33	120
TOTAL	2669	146	494 = 4.93M

K8CC M/M:

band:	Qs	Zs	Cs
1.8	131	14	24
3.8	393	25	69
7	352	29	82
14	1124	38	145
21	1359	38	158
28	1316	36	147
TOTAL	4675	180	625 = 9.8M

KS9K M/S:

band:	Qs	Zs	Cs
1.8	27	12	25
3.8	65	25	60
7	169	31	97
14	655	30	152
21	1231	36	157
28	893	35	160
TOTAL	3040	177	651 = 7.1M

PJ1B M/M:

band:	Qs	Zs	Cs
1.8	571	19	49
3.8	1469	24	99
7	2166	31	118
14	5180	38	180
21	5900	38	180
28	5819	39	180
TOTAL	21105	189	806 = 60M

PJ9W M/M:

band:	Qs	Zs	Cs
1.8	354	14	43
3.8	1311	22	92
7	2319	31	130
14	5440	37	165
21	5750	38	165
28	5400	38	155
TOTAL	20574	180	750 = 52M

Network Report

Ken Wolff K1EA

THANK YOU

Many thanks to all those who have donated to the YCCC Packet Fund. We are nearing \$6,000 in contributions. I'd like each of you to know that your contribution is appreciated.

Over 20enthusiasm for building our network. Good show you guys (and gals)!

News

Since writing to you, a new node has been established at K2TR (Altamont, NY - near Albany). K2TR got the XT from the KY1H location. KY1H then received a 12 MHz AT. A point-to-point 1200 baud link on 450 MHz has been installed from KY1H (Peru, MA) to K2TR. This has improved our speed and reliability into Eastern New York. The spare XT at K1EA has moved from Harvard, MA to WA1G, in Roslindale, MA (Boston). The YCCC Packet Fund paid for these purchases.

In other news, K1XX has installed a node in West Rindge, NH (145.71). Also, NO1A has added another user port on two meters. Please add them to the list of nodes you have posted in your shack. If you haven't posted such a list, you may get it by TYPE YCCC.MAP.

The K1EA (Harvard, MA) --- KB1H (Dayville, CT) link has been running solidly for over three months now, and appears to justify the project. It is both reliable and very fast.

The Future

K2TR is looking into a connection to the NEDA (New England Digital Association) network near Albany. The Western New York (Rochester and Utica) nodes now connect to K1EA via a private link to YCC-CDX (K1TR) in NH. A K2TR connection should make things better for both NEDA and the YCCC.

The radios, TNC's and modems for the W1RM --- KB1H 9600 baud link have been received and modified. Sad to say, smoke came out of one of the radios when it was first powered up. K1EA is working on it. We may have to get a warranty replacement.

K1EA has been Beta testing a synthetic squelch board from DRSI on his 144.95 frequency. It helps. It works so well that we have ordered 30 of the first 100 production boards for our network. All the DRSI-based nodes should receive them within a month.

Pavilion Software is adding support for up to four DRSI boards. This will allow us to use up to eight radios at a node. This will permit more point-to-point links between nodes.

For short-haul 9600 baud links, K1EA is now looking at digital radios from Motorola and Maxon. These should be less expensive than our current 9600 baud radios.

Certified Good Guys

The following stations have donated to the cause, and are hereby certified as good guys. We all owe them our gratitude, and Santa should remember that they were NICE!

K1DG	K2TR	KA1AE	KA1HGY	AB1U	W1BIH
NZ1M	KR11U	K2SS	N1GRM	NY1V	K1TO
K1CC	K1DH	KA1RRL	KC1AG	N1GLA	W1CKA
K1CPJ	KA1QAS	N1CBD	KA1NYH	WA1LOU	N1DCI
NX1Q	KB1AG	K1SF	N1GKX	KX1S	WA1W
W1FWW	W1ZLG	W1VRK	W1CB	WA1TNY	W1YY
N1CWA	WA1WTP	W1BK	KS1C	W1GWN	K1ZZJ
KA1T	K1CRR	NR1E	KA1EKR	NO1A	A1IN
AD1C	KO1O	WF1R	AB1A	W1GG	KB1W
N1FBG	NR1R	W1UC	W1NXW	KA1LD	AG1I
W1ZMJ	N1DAY	WA1PTZ	W1ZNY	KZ1D	W1TTQ
W1KSZ	K1NOK	K1YDG	WB3EJA	N1GIQ	KX1G
W1JZ	N1AJO	W1LMZ	KM3T	WA1URV	K1ST
W1HH	WB1GMA	K0TB	KB1FJ	KB1CD	K1OSG
KG1V	W1IW	W1DOH	K1BG	WA1HFF	WD1K
K1OYB	KD2EU/1	N1ENE	W1SD	KA1HXX	KN1M
NV1G	NO1V	K1AR	WA1PEL	KB1T	KB1FS
W1ENE	WA1ASL	KZ1T	WA1HXX	NK1F	W1IBI
W1FZ	K1MNS	W1JR	K1GW	WE1F	WA3ECT
NV1J	NO1I	AG1C	K8LT	KC1IY	KA1RYI
K1GQH	N1ECC	W1RR	K1ULI	NX1G	NX1W
K1NA	WG2E	W2JU	WA2LJW	K1ZM	KB2LV
N2DU	W2HKM	K2XA	N1EXH	KA1QP	WA1AYS
WB1AEL	K2VV	W1UKZ	K2UNP	W1YRC	KV1J/N1FOR
KA2EXB	KS9Z	KB1KA	K1THP	K1KA	KS1A
W1NIJ	W1RFB	NN1Y	WF1Q	WA1OEZ	N1FZP
NJ2L	K1MBO	N8RA	AA6DF	W1HSZ	K1MEM

Using "Math CAD"

Dave Robbins, KY1H

Since I started entering M/M contests I have been using coax stubs for filters to help separate stations. They have worked just fine and have provided around 30 to 40 dB of attenuation of harmonics. I have been curious about a few points of using them, though, like:

How much attenuation should a stub provide?

What kind of bandwidth should a stub cover?

How does the cable loss affect attenuation?

How much power gets dissipated in the cable? (I didn't consider this until a stub made out of RG-59 melted down in one contest.)

This 'document' was created by using "Math CAD". "Math CAD" is a program for IBM PCs and compatibles that provides the capability to write formulas and then plug in numbers to calculate results, solve equations, and plot results. The original equations for this calculation were from the "Math CAD" electrical engineering applications pack.

In this initial example I will attempt to answer the first two questions using a 1/4 wave shorted stub of RG-8 for attenuating the second harmonic of 20 meters that would interfere on 10 meters.

To get the calculations started I have provided the following characteristics of the cable itself:

Velocity Factor $V := .66$

Impedance $Z_0 := 50\Omega$

Loss $\alpha := \frac{1dB}{100ft}$

Termination Impedance $Z_L := 0\Omega$

Length $d := 11.5ft$

The frequency range I want to plot will cover the lower end of the 10 meter band that could be covered by a 20 meter harmonic.

$f_{min} := 28MHz$

$f_{max} := 28.7MHz$

Now the calculations begin. This is where "Math CAD" really does its job:

Define complex wave number: $\beta(f) := \alpha + 2i \cdot \pi \cdot \frac{f}{V \cdot c}$

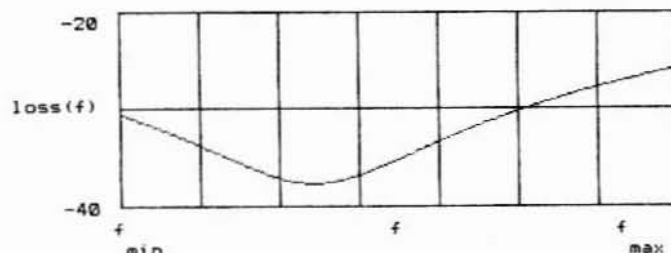
Define impedance as a function of frequency and distance to termination:

$$Z(freq, len) := Z_0 \cdot \frac{Z_L + Z_0 \cdot \tanh[\beta(freq) \cdot len]}{Z_0 + Z_L \cdot \tanh[\beta(freq) \cdot len]}$$

Define loss function. With stub in parallel with feed-line take the ratio of feed current to the current in the line to the antenna. Feed voltage cancels out leaving impedances.

$$loss(f) := -20 \cdot \log\left(1 + \frac{Z_0}{Z(f, d)}\right)$$

This is a plot of the attenuation provided by the stub. You can see that it provides almost 40 dB of attenuation at 28.25 MHz. The bandwidth seems much narrower than I had expected, but I don't really have anything to measure it that accurately. I have seen over 30 dB of attenuation in some rather crude tests here so the overall result seems reasonable.



From these results I am considering making two sets of stubs, or providing a way to add or remove a few inches between CW and SSB contests since there could be over 10 dB attenuation difference across the band. Using a better cable would make the attenuation better, but would also make the bandwidth even narrower.

Battle of the Giants

A Review of the FT1000, IC765, TS940 and Others

Rick Lapp, KC2FD

I recently had the opportunity to evaluate one of the newest and finest HF rigs on the market. The Yaesu FT1000 was announced a while ago but there have only been a few in the hands of lucky hams in the northeast and I was lucky enough to have Joe, W2HPM, offer to compare it with my IC765. During the tests I also recalled my impression of other HF rigs I've operated and I'll give you these subjective comments, for what they're worth.

Here's the background on the "other" rigs:

TS940: owned one for 3 years

IC765: presently own one— about 1 year

IC735: this is my backup/portable/mobile rig

FT767: operated a few contests with Yaesu's last attempt at an HF rig

IC751A: operated several hours at a friend's QTH

I operate 90% CW, 5% AMTOR and very little SSB. Obviously my priority in an HF rig is how it operates on CW.

Initial Impressions:

Weight:

The first thing you notice about the FT1000 is that the rig is HEAVY!! 50 plus lbs. I thought I was picking

up a DX100 as my back started to strain. I guess the weight is mostly a result of a hefty power transformer for this 200 watt rig as compared to a smaller and lighter switching power supply in the 100 watt ICOM IC765. The 38 lb. IC765 power supply has had a good reliability record, runs quite cool, and ICOM has done a good job at keeping the switching square waves and all their odd harmonics out of the receiver. The TS940 on the other hand has a relatively small power transformer and I know of several 940s that have had power transformer and other power supply component failures. In addition, the top of the line ICOM 781, which was introduced before the IC765, had an early history of switching power supply failures, so it appears that ICOM has the power supply situation under control now. In summary, the power supply design in the FT1000 is heavy, conservative and straightforward in design. It should be quite reliable.

A Busy Front Panel

The front panel of the FT1000 is well laid out. Certainly more crowded than the other rigs but this is understandable because of all its extra features. More on the front panel later.

At turn on, the yellow display is bright and clear. It is larger than the TS940 but not as big as the IC765. ICOM also went out of their way on the large, heavy and smooth-feeling VFO/tuning knob. The FT1000's tuning knob is a bit smaller and does not have the same heavy flywheel feel to it. It feels very much like the TS940.

VFO Tuning Rate Is Quick

I might as well get my only serious complaint about the FT1000 out of the way. I like a SLOW tuning rate. I modified my TS940 with an International Radio add-on board which changed it from the stock 10 KHz per revolution to 2.5 KHz per rev. The ICOM 765 is settable with dip switches for either 5 KHz or 2.5 KHz per rev. The FT1000 on the other hand is FIXED at a quick 10 kHz per rev! What a disappointment for an otherwise flexible and feature-packed radio. My guess is that some up hacker out there, Yaesu, or International Radio will figure out a way to change this tuning rate in the future. The result of this is that the VFO knob is practically useless when the 500 Hz or 250 Hz filters are "in" and one must use the clarifier knob (RIT) with its finer resolution to easily tune a CW signal without overshooting. Joe tells me that Yaesu in Japan knows of a mod to change the tuning rate but no one here in the U.S. has seen it yet.

Receiver Characteristics

As receivers go, all of the tests we ran resulted in a dead heat between the IC765 and the FT1000 although one of the local guys who also listened to both of them at a club meeting swore that the IC765 was noticeably more quiet. Sensitivity, adjacent channel rejection,

phase noise, filter response, noise floor and dynamic response were all done by ear and eye only with no sophisticated test equipment. I remembered turning my IC765 on for the first time and hearing the difference immediately. As compared to the TS940, the 765 was remarkably CLEAN! It's hard to describe the purity of the CW and SSB signals but I understand that it is a result of the DDS (direct digital synthesizer) which produces almost no detectable phase noise. This is quite audible in the TS940. If I were to combine all of the receivers' characteristics above, I would rate them in the following order:

FT1000 and IC765: excellent receivers. Both similar, although a critical ear gave the nod to the IC765.

IC751A and IC735: good, clean receivers.

TS940: exhibits phase noise compared to others.

FT767: not the best rig for CW.

More Front Panel

Back to the front panel. The FT1000 is loaded with features! I had no complaints with any of the functions or the layout. A big problem with the IC765 is non-existent on the FT1000. This is the fact that many of the push button switches do not clearly indicate whether they are on or off. I find myself actually having to feel the switch to determine if it is detented "in" or "out". Even the 940 has LEDs for most functions near the switches or on the main display. The switches on the 765 that have this problem are: compressor, monitor, NBN, BNW, keyer speed, VOX, QSK, IF shift, 250Hz CW filter, and notch. Whew! All of these functions on the FT1000 have nice LEDs above the switches or in the main display. A few features that are missing from the FT1000 that ARE on the IC765:

Front panel MIC tone control

Front panel receiver tone control

Front panel VOX control

Front panel VOX delay (very important for CW ops!)

Antenna Tuners

The antenna tuner on the FT1000 is FAST. However we tried to tune the FT1000 into some "worst case" combination of bands and antennas. The 765 consistently tuned up all of them but the FT1000 would NOT tune on very poor mismatches. This was just a relative test to see which tuner was better. I would not expect a rig to match up to all of the combinations we tried but it's interesting that the 765 gave us a 1:1 SWR for even the worst combinations.

AGC

The FT1000 AGC control gives you four selections: off, fast, MEDIUM, and slow. I like the medium position and wish I had it on the IC765. I would like a continuously variable AGC control on my dream rig.

Audio Filtering

Another feature I like on the 940 and the 1000 is the APF audio peak filter. Kenwood did theirs right by putting this function on a concentric knob with the CW pitch control. The CW operator can grab both knobs and rotate them together allowing the pitch and audio filter to track perfectly. The IC765 doesn't have an audio filter at all unless you buy the matching SP-20 speaker that only has four switches for high pass and low pass filtering. This does NOT give you the same effect as the narrow bandpass audio filters on the 1000 and 940.

CW Pitch Control

Speaking of pitch control, I have to give the 940 another plus. The pitch control on the 940 works great - it varies the received signal AND the sidetone. The FT1000's pitch control is stable ONLY through dip switches though the top cover access panel. I couldn't believe it! At least it appears that it does vary both the received signal and sidetone. I believe the IC781 pitch control varies both and I can't understand why ICOM didn't do this on the 765 and 761. The result is that if you happen to move the 765/761 CW pitch control off its 12 o'clock detent and you try to tune a station in by matching the sidetone with the received station's pitch, you wind up OFF frequency by the amount you have moved the pitch control. AND here again... there is no LED reminding you that the pitch control is not in its normal detent 12 o'clock position.

CW Spot and Tune Functions

Two more nice features on the FT1000 are the CW SPOT control and CW TUNE indicator. As I described in the previous paragraph, to be EXACTLY on the received station's frequency, one usually matches the sidetone with the received signal's pitch while tuning the VFO. But, to hear the sidetone, you have to switch the VOX switch off so you don't cause QRM, then hold your paddle down... dah...dah...dah... as you match up the two tones. Now you hit the VOX switch on again and you're ready to go. Yaesu however, added the SPOT control that allows you to sound the sidetone without hitting your paddle or actually transmitting. Nice! We used to have this feature on the transmitters of 20 years ago so we could tune the VFOs without transmitting. (These were the days of separate receivers and transmitters.) But that's not all Yaesu did to make CW tuning easier. They put a LED on the front panel that lights when the received signal's pitch is exactly the same as the sidetone...without doing anything but tuning the VFO. This appears to be nothing more than a 700 Hz bandpass filter/tone decoder with a bandpass of about 30-100 Hz. What a simple and clever idea! So simple in fact, that a day after I played with the FT1000, I designed my own tone decoder/LED circuit that plugs into the DIN jack of the IC765 and lights a LED when I'm on frequency. It works the same as the FT1000 CW tune indicator and cost me about \$10 in parts. The whole thing, includ-

ing the LED fits in a 2x2x1 mini box that sits on top of the radio. If anyone is interested in a schematic or design details, send me some Email and I'll ship you out a copy.

Digital Voice Recording Option and AUX ANT Input

The digital voice recording system option sounds like a nice feature for phone operators and DXers but was not installed in Joe's FT1000. Also for this group of operators is a separate RX ANT switch on the front panel for quickly switching in a Beverage or other receiving antenna. This saves you from building a separate switch or relay box in the back of the rig somewhere.

IF/Filters

I feel that there is a lot more flexibility in the selection of filters on the FT1000 than any of the other rigs. This goes for any one of the filters (250, 500, 2.0K and 2.4 KHz) on ANY mode.

The FT1000 has separate WIDTH and IF SHIFT controls on concentric knobs. This beats both the 940 (slope tuning on SSB or VBT on CW, with no IF SHIFT) and the IC765 which comes stock with only an IF shift control. I really miss the variable width control on my 765 and was lucky to see a simple mod in the latest International Radio ICOM newsletter. By adding a diode and cutting two wires, the IF SWITCH ON/OFF switch becomes an IF SHIFT/PBT switch. The IF SHIFT knob now controls either the IF SHIFT or PBT depending on the position of the switch. Why didn't ICOM do this in their original design? It works great!

Receive Audio

The IC765 receive audio sounds crisper in my opinion, particularly with the receiver tone control at about 3 o'clock. This I believe is a combination of the FT1000's receiver and the little internal speaker. On an external speaker or earphones, I still liked the sound of the 765 better on both SSB and CW.

QSK Operation

As I've mentioned several times, my priority in a rig is how it sounds and "feels" on CW. The 940 sidetone in my opinion is one of the smoothest sounding and results in a radio that is pleasant to operate on QSK. I've never operated a TEN-TEC but I understand they are also excellent in QSK. The IC765 is also good but is a bit noisier because of the amplifier keying relay that is quite audible during CW operation. This relay on the 940 is only enabled when a rear aux DIN plug is plugged in. It closes a switch contact built into the DIM jack and then the relay is audible. I modified my 940 so that this relay is only enabled when the SEMI/QSK switch on the front panel was in SEMI making the rig perfectly quiet during barefoot QSK

operation. My criticism with the FT1000 on CW is that the sidetone is VERY "THUMPY". Rather than having a smooth, pleasant and almost soft sidetone like the 940, the FT1000 has a loud, unpleasant CLIK, THUMP, or WUMP every time a character is sent. I suppose this is a result of the AGC or maybe interstage coupling capacitors charging and discharging when the sidetone is sounded. If I owned an FT1000 I would probably be digging into the schematic now looking for a way to "soften up" the sound of the sidetone.

One way to determine how fast a transceiver switches while in the QSK mode is to switch between full break-in (QSK) and semi/VOX or MOX while sending a fast string of dits and monitor the transmitted signal in a separate receiver. With the 940, the 765 and 735 there is only a slight difference, with the dits being slightly lighter while in QSK. The FT1000 on the other hand becomes noticeably lighter while in QSK. This can be easily compensated for with a keyer weight adjustment if you have a very critical ear.

RIT

The RIT on the FT1000 and the TS940 in my opinion works like it should. The IC765, on the other hand, does something different. When the RIT is moved, the main display reads only the transmitting frequency. This is a problem when you want to tune the RIT to a particular frequency. With the FT1000 and TS940, you simply turn the RIT until the main display reads the desired receiving frequency. With the IC765 however, the operator has to mentally calculate how many KHz lower or higher that is from the transmitting frequency and adjust the RIT to the difference frequency. You do NOT have a display of the absolute receiving frequency. I don't know why ICOM had to be different here.

Display

The FT1000's display DIM function allows a continuous range of brightness using the FAST button and the clarifier knob.

Memories

The memories of the 765 and 1000 are quite similar except that the FT1000 has a feature that allows viewing of the setting of a particular memory channel without actually switching the receiver to that channel. Both the FT1000 and IC765 store mode, filters and antenna tuning position.

Dual VFOs

The SUB VFO can be fed with the aux antenna input and then mixed with the main VFO signal at the audio stage allowing for diversity reception. Very nice. Even nicer is the audio that can be fed in stereo, the main VFO to the left earphone and the sub VFO to the right earphone. Joe has been playing with this and he says it must be heard to be appreciated!

Yaesu provided for separate connectors for RTTY and HF packet on the FT1000. This is convenient when you have a dedicated HF packet TNC and a separate terminal unit for the other modes.

The dual receive is probably the most unusual feature of the FT1000 and is also available on the TS950 and IC781. The Yaesu however, allows CROSSBAND receive while the others do not. The dual receive has a nice RX MIX control and although I didn't play too much with the second receiver, I'm sure that I would find a lot of use for it if I had one in my shack now. It can be particularly useful for DX spotting, contest multiplier spotting or monitoring a frequency for a sked or net while working someone on the main VFO. Opponents of dual receive radios claim that it's still cheaper to own two (or three!) IC751s rather than one FT1000, IC781 or TS950 and you would then have completely independent rigs - not just a spotting receiver. The choice is yours but I feel that the dual receive is just one feature on the FT1000 and it's almost worth the money without the dual receive.

How Much \$\$\$

The FT1000 with all the filters is selling for \$2600 to \$3800 mail order, compared to about \$2700 for the IC765. You have to add a couple of hundred for a full set of filters on the 765.

The question asked of me is "Which rig would you buy?" Well, I really like my IC765 but had the FT1000 been out for a year or so and had all the "early production bugs" worked out then when I was ready to buy, I most certainly would try to find the extra Kilo-buck for the FT1000. The Yaesu FT767 and FT757s in my opinion were disasters on CW and I swore that I would not own a Yaesu CW rig because of that. My three hours with the FT1000 made me change my mind quickly! Who knows, I may own a 1000 this time next year.

I also wish we had a TS950, an ICOM IC781 or a TEN-TEC Paragon to compare with these other fine rigs. Maybe some of you who have had experience with them could get back to me with your impressions.

If I've made any errors in describing features or performance on the radios described here please correct me. I'm also interested in YOUR opinion of the radios. Drop me a note or send packet mail to KC2FD@KC2FD.NY.USA.NA.

Movers and Shakers

Please update your club roster to include the following changes:

Guy, K1BB, has moved:
Guy Huse, K1BB
3 Pioneer Way

Westford, MA 01886
Home phone: (508)692-0162

Garry, ex-WB1DGV, is now WD1K.

Correct address for Steve, KT1O, is:
Steve Wedge, KT1O
6 Vose Hill Road
Westford, MA 01886

New address for Bob, N1RC:
Robert Clarke, N1RC
119 Washington St. #1
Marblehead, MA 01945
New work phone: (617)937-2250

New address for Gerry, AK4L, is:
Gerry Hull, AK4L
RFD 1 Francistown Road
Greenfield, NH 03047

New work phone for Paul, K1XM, is (508)486-2244.

New Crew

Please welcome the following new and returning members who joined at the October Boxboro meeting:

Dale M. Darling, N1BBY
100 Harris Avenue, Portland, ME 04103
Phone: (207)797-5292 (home) (207)874-8240 (work)

Dorothy M. Jodice, K1BUF
P. O. Box 616, Manchester-by-the-Sea, MA 01944
Phone: (508)526-4075 (home) (617)271-5265 (work)

Joe Marcin, K1ETT
475 Foster Street, North Andover, MA 01845-2211
Phone: (508)687-7879 (home) (617)937-1434 (work)

Ben Akins, KB1FJ
P. O. Box 1159, 88 Main Street, Pepperell, MA 01463
Phone: (508)433-9227 (home) (508)256-4113 (work)

Bruce T. Marshall, WA1G
52 Cornell Street, Roslindale, MA 02131
Phone: (617)327-3666 (home) (617)935-1120 (work)

Jason Corriveau, N1GKI
Dragon Road, Webster, MA 01570
Phone: (508)943-9624

Joseph S. Blinier, K1JB
Box 10067, Portland, ME 04104
Phone: (207)797-7513 (home) (207)871-2402 (work)

Kathleen Georgens, KA1JJR
3 Chapin Road, Upton, MA 01568
Phone: (508)634-3078 (home) (617)435-0900 x 7339 (work)

David Guy, NY1L
10 Donnell Road, East Walpole, MA 02032
Phone: (508)668-8134 (home) (617)329-7700 (work)

Richard P. San Antonio, K1MD
60 Seacrest Lane, Warwick, RI 02889
Phone: (401)732-4026 (home) (401)738-2601 (work)

Tom Wagner, N1MM
301 Box Mountain Drive, Vernon, CT 06066
Phone: (203)643-5463 (home) (203)683-7261 (work)

Joseph M. Kozak, WA1N
P. O. Box 358, Manchester, ME 04351
Phone: (207)623-5107 (home) (207)622-6311 (work)

Ann M. Santos, WA1S
11 Second Street, Portsmouth, RI 02871
Phone: (401)683-1648

Don Haney, KA1T
73 Myrick Lane, Harvard, MA 01451
Phone: (508)772-4126 (home) (603)881-1195 (work)

Jeffrey Fowler, KA1TMA
945 Marion Road, Cheshire, CT 06410
Phone: (203)272-0470

Bob Eslinger, KR1U
20 Gary School Road, Pomfret Center, CT 06259
Phone: (203)928-2628

John L. Gaffey, K1ULI
6 Greenwood Drive, Nashua, NH 03062
Phone: (603)889-7659 (home) (508)657-2802 (work)

Don Mikes, AA1V
32 Summer Street, Scituate, MA 02066
Home phone: (617)545-2880

Ernest Cote, NO1V
17 Shady Lane, Nashua, NH 03062
Phone: (203)888-1772 (home) (603)885-2454 (work)

Martin Cox, KA1VDY
210 Federal Street, Wilmington, MA 01887
Phone: (508)658-5410 (home) (508)658-5410 (work)

Charles (Paul) Corbett, W1WMO
88 Meetinghouse Road, Windham, NH 03087
Phone: (603)432-9486 (home) (508)470-7053 (work)

Brad Charbonneau, NZ1Y
22 Latham Lane, Reading, MA 01867
Phone: (617)942-1884

Gary G. Young, K2AJY
1 Sutton Place, Swampscott, MA 01907
Phone: (617)581-6659 (home) (617)578-8740 (work)

Don Greenbaum, WB2DND
250 Standish Street, Duxbury, MA 02332
Home phone: (617)934-7518

Bill E. Vandiveer, K2DW
Box 396 Coltonwood Dr., Lincolndale, NY 10540
Phone: (914)248-7024

Joseph Sand, K2GX
45-45 46 Street, Woodside, NY 11377
Phone: (718)729-6860

Fred A. Brown, K2RIH
414 Zena Road, Woodstock, NY 12498
Phone: (914)679-7488 (home) (914)246-3615 (work)

Ed Deichler, K2TE
86 Wire Road, Merrimack, NH 03054
Phone: (603)429-0466 (home) (617)377-6943 (work)

Joe Green, K2VUI
8 Wedgewood Road, Wellesley, MA 02181
Phone: (617)239-1370 (home) (617)536-0020 (work)

Ed Stratton, AD8V
93 Castle Drive, Groton, MA 01450
Home phone: (508)448-9356

Excess Cargo

N1TZ is looking for ops for a multi-single effort in the CQ WW CW.

THE CLUB RESOURCES PAGE

THE Place to Find Club Information

DUES are due at the April election meeting, which begins our club "contest year", with a grace period until the end of June. Membership in the club will lapse at the end of the grace period if dues are not paid up. In order to re-join the club, a lapsed member must attend a meeting, like any new member, and be welcomed back into membership, or may become a subscriber to the **Scuttlebutt** by paying up (see below). Club members who move out of club territory and so are not eligible to contribute to club aggregate scores automatically become subscribers. New members who join at the last meeting of the club's contest year (February) are credited with dues for the following year (that is, the contest year beginning that April). You can tell if you owe dues by checking your **Butt** mailing label. Only paid-up members are eligible to contribute to the the club score in contests.

FAMILY MEMBERS Members of the same family living at the same address may elect to receive only one copy of the **Butt**. One member of the family must pay full dues, enabling the rest of the family to join as family members. Being a family member is currently free.

STUDENT MEMBERS Full-time students are eligible for dues at half the regular rate.

SCUTTLEBUTT SUBSCRIBERS Anyone may subscribe to the club newsletter, the **Scuttlebutt**. A subscription currently costs \$10 per year. At the present time, overseas subscriptions cost the same as domestic (we have very few overseas subscribers). The subscription period begins at the beginning of the club year, in April. New subscribers who begin their subscriptions after the December issue are considered to have paid for the following year (that is, they receive as many issues as new members joining at that time do). You can tell if your subscription is current by checking your **Butt** mailing label. The grace period for late subscriptions is the same as for late memberships.

SCUTTLEBUTT ARTICLES should be sent to the **Scuttlebutt** editor, Paul Young, K1XM, 11 Michigan Drive, Hudson, MA 01749, home phone (508)562-5819. The deadline for each issue is usually three weeks before the next meeting.

CLUB JACKETS are available through Ed Kritsky, NT2X, 580 East 17th Street, Apt. 2F, Brooklyn, NY 11226, home phone (718)284-4493.

CLUB QSL CARDS are ordered through John Dorr, K1AR, 2 Baldwin Street, Windham, NH 03087, home phone (603)434-5661.

PACKET NET information is available from Dick Newell, AK1A, 8 Golden Run Rd., Bolton, MA 01740, home phone (508)779-5198, or Dave Robbins, KY1H, Baumann Road, Peru, MA 01235, home phone (413)655-2714.

CONTEST SCORES are sent to the club scorekeeper, Jeff Detray, NK1F, P. O. Box 524, Troy, NH 03465, home phone (603)242-7995.

CLUB ROSTER appears in the summer issue of the **Scuttlebutt** every year. Updates are published when members move or change callsigns. If you want a new copy of the club roster, contact the club secretary/treasurer, Charlotte Richardson, KQ1F, 11 Michigan Drive, Hudson, MA 01749, home phone (508)562-5819.

CONTRIBUTIONS The YCCC welcomes your contributions, be it money to help offset the cost of the **Scuttlebutt** and club operations, scores for the club aggregate score, time spent helping other members, articles for the **Scuttlebutt**, or presentations at club meetings.

DXCC LIST The club maintains a one-page version of the ARRL DXCC Countries List. To get a copy, send an SASE to the club secretary, Charlotte Richardson, KQ1F, 11 Michigan Drive, Hudson, MA 01749. Complete DXCC rules are only available from the ARRL.

ARRL LIAISON For ARRL matters, contact Tom Frenaye, K1KI, PO Box 386, West Suffield, CT 06093, home phone (203)668-5444.

The Scuttlebutt is the newsletter of the Yankee Clipper Contest Club and is mailed six times per year to all paid up members. Dues are \$15 per year, payable 1 April with a grace period through 30 June. Non-members may subscribe to the Scuttlebutt by sending \$10 to the Treasurer: Charlotte Richardson, KQ1F, 11 Michigan Drive, Hudson, MA 01749. Subscribers who subsequently become members will be credited as having paid \$10 towards dues.

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The Yankee Clipper Contest Club (an ARRL Affiliated Club) holds six official meetings per year, on the Saturday or Sunday afternoon of the first full weekend of every even month, usually in the Sturbridge, Massachusetts, area. The deadline for article submission to the Scuttlebutt is usually three weeks before the next meeting date. The next meeting will be on Sunday, December 2, 1990. Attendance at an official meeting is required in order to become a member. Club members congregate on 3830 KHz after contests. The packet frequencies are 144.95, 145.69, 144.93, and 144.97 MHz.

Rosters are mailed to all paid members each summer. For more information and/or assistance, contact the area manager nearest you on the following list:

Area	Call	Name	Home	Work
CT/RI	K1RU	Gene Frohman	(203) 393-1772	(203) 386-6137
EMass	N1AU	Bill Santelmann	(617) 862-1753	(508) 692-6000
WMass	KY1H	Dave Robbins	(413) 655-2714	(413) 494-2023
VT/NH	K1GW	Glen Whitehouse	(603) 673-6290	(603) 627-7877
ME	K1SA	Bernie Cohen	(207) 773-6589	(207) 797-3585
NLI	NQ2D	Jim Metcalf	(516) 744-9422	(516) 467-4800
NY/NJ	K2EK	Bill Gioia	(914) 221-1672	(914) 697-3250

YCCC
11 Michigan Drive
Hudson MA 01749

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