

# Short Circuit



January 1987

Address correspondence to:  
Arctic Amateur Radio Club  
Newsletter Editor  
P.O. Box 83231  
Fairbanks, AK 99708

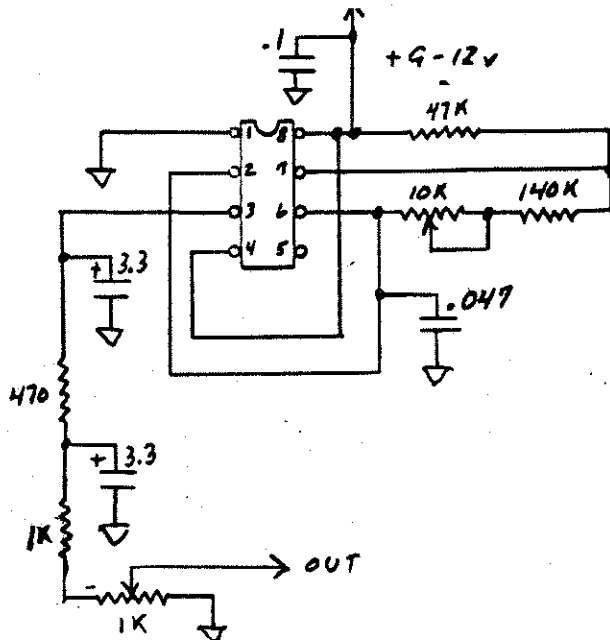
President - Bill Connor, AL7FQ  
Vice Pres - Kurt Torgerson, NL7GW  
Treasurer - Jim Gilmore, KL7SW  
Secretary - Lewis Overton, NOSN

## Technical Interest

*Tone Encoders*  
by courtesy of  
Hank Hove (KL7HPR)  
Mike Rice (KL7YU)

The low cost tone encoder diagrammed below can be built from parts available locally for only a couple of bucks. It doesn't offer the choice of multiple tones, and may not fit in the smaller radios. On the other, you can't beat the price.

The chip is a 555, which produces a harmonic rich square wave output. The network on the right side of the diagram provides some wave shaping to keep the tone at least mostly sub-audible.



Hank and Mike have offered to help with installation and construction hints if you need them. They also have a layout for a PC board if you want to get fancy. Otherwise, vertical mounting on perf-board will produce a compact, workable tone generator, and will open up 28/88 for you.

## New Company Formed to Sell Ham Gear

Ken Holladay (K6HCP) and Everett Gracey (WA6CBA), the two original co-founders of Mirage Communications, have formed a new company called RF Concepts, or "RFC." Their objectives include quality products, good cooperation between factory and dealers, excellent warranty and service. They will sell only through dealers.

According to a letter from Messrs. Gracey and Holladay, their initial product offerings include VHF, UHF and repeater amplifiers, a "very affordable repeater controller," and a dual band amplifier not yet in production.

The address for RF Concepts is:

2000 Humboldt St.  
Reno, NV 89509  
(702) 827-0133

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Repeaters

34/94 Autopatch: unavailable (no phone)

28/88 Access: requires 103.5 Hz. tone

Packet Radio

Status Report

"Although packet has been around for a number of years, it has only recently reached epidemic stages. A little over a year ago, only about four packet boards were in use around the Fairbanks area. Today, about fifty packet controllers of one kind or another exist here."

So write Jerry Curry (KL7EDK) and Tom Walyer (KL7GNG) in the introduction to their plan for the development of local support for packet radio inter-connections. Jerry and Tom are developing the plan at the direction of Arctic ARC president Billy Connor (AL7FQ).

Although packet is uniquely suited for relaying messages among hams, it is a mode which requires planning and coordination if we are to avoid frequency congestion, confusion, and near chaos. Jerry and Tom have undertaken the task of developing a plan for making use of packet and publishing their work for comment.

As Jerry and Tom said in their discussion of our local activities, "Perhaps the single most important enhancement was the addition of a Bulletin Board System. Acting like a Radio Post Office, messages are sent, retrieved, filed and discarded.

"Other things happen on the BBS as well. Computer programs can be stored and 'downloaded' to the local user for use on his/her computer. Important messages

to all hams are also stored in bulletin form and can be read from time to time or as necessary."

Mike Rice (KL7YV) said, almost a year ago, in a talk to the Arctic ARC membership, packet radio has moved hams from the world of talking to "whomever is there at the moment" to a world of messages sent and received, error free, without requiring hams to be present simultaneously at both ends of the communications link. The packet BBS initiated this "time independent" form of on-the-air communications.

Now, as Jerry and Tom point out, "Because of packet's protocol, which allows any packet station to act as a digital repeater (digipeater), we have closed the gap between distant stations. Much like voice repeaters extend our range of communications, so do digipeaters, only at a fraction of the cost."

With the advent of store and forward messaging between bulletin boards, we now have linked interior Alaska with south-central Alaska. A message can be left at one bulletin board and automatically forwarded to another for pickup by the ham at the other end when pickup is convenient.

That much is working now. There are already two routes between the interior and south-central, with a third route to be added soon. The "mail train" runs messages electronically between the boards on a regular basis. And the packet frequencies are getting busy.

The time has come to shift frequencies, separating the mail run from local BBS access, and both of those from ham-to-ham direct chatter. Long range linking will use the Network Node Controllers (NNC's) and several innovative long-range linking techniques to tie together different areas of the state.

Jerry and Tom are working closely with the Anchorage group and with people in

southeast to decide on frequencies, routes, techniques and technologies. As decisions are made, they will be published in Short Circuit. If you have comments or suggestions, send them to the newsletter, or contact Jerry Curry or Tom Walyer directly.

Operating Events

*Request for Schedule*

Norman Hanson (W0RSD) writes: "I am working for WAS and have been unable to work any Alaska stations in the last several months. It is the last state I need. Would someone in the club be willing to schedule a contact with me? It certainly will be appreciated. I am retired so any time any day will likely be OK that is convenient with you. Make the time in Zulu. 80, 40, 20 meters probably will be best. I am sending a stamped self addressed envelope for your reply. I look forward to hearing from you."

Norman Hanson W0RSD  
PO Box 285  
Lawrence, KS 66044

*Fairbanks Ice Festival*

The Fairbanks Ice Festival will again sponsor an on-the-air "QSO Party" in March. Hams are encouraged to talk about Fairbanks and about the Ice Festival with other hams around the world.

This special operating event is not a contest. There are no awards other than a QSL card. A nice, four-color QSL card is provided by the Ice Festival Committee for confirming contacts made during the QSO Party.

Contact Bill Hunstein (KL7TC) or Ed Hunstein (KL7XD) at 488-3291 for more information.

*Yukon Quest International  
Sled Dog Race*

The following letter was received by the Secretary of the Arctic ARC in December:

Dear Sirs:

We at the Yukon Quest would like to thank the Arctic Amateur Radio Club for the energetic and enthusiastic support you gave our organization during the running of the 1986 race.

We also apologize for neglecting to thank you and recognize you publicly for your contribution. To make up for this oversight, we would like to present you with a framed print of the "Quest Aurora" at your convenience. Please let us know how we can best accomodate you with this award. Once again, thank you.

We would like to thank you for your expressed interest in working with the 1987 race; however, at this time, the Yukon Quest Board of Directors has come up with an alternative race communication plan which should prove more cost effective for the specific needs of the 1987 race. This new system will take a heavy burden off your organization and the individuals who have participated in prior Yukon Quest races. Again, thanks very much for everything you've done. We hope to see you on the trail.

(signed)  
Dick Underwood  
President, Board of Directors  
Yukon Quest International, Ltd.

. . .

It is the understanding of the Board of Directors of the Arctic ARC that amateur radio will not be used in Quest communications, and that hams will not be needed at checkpoints. We have informed the U. S. Air Force that such is the

case, and that the FCC waiver permitting communications between USAF observation aircraft and hams at the checkpoints will not be needed. The solar powered packet digipeater, currently being cold tested on Eagle Summit will be released for other uses. Questions may be addressed to the Yukon Quest International Sled Dog Race:

PO Box 75015  
Fairbanks, AK 99707  
(907) 452-7954

PO Box 5555  
Whitehorse, YT  
Y1A 4H5

Club News

*January Meeting and Program*  
7:30 pm Friday, 9 Jan 87  
Geophysical Institute

Kurt Torgerson (NL7GW) will talk about the electrical resistivity of grounds, including the effects of resistivity on antennas, on the safety of equipment grounds, and on the use of resistivity in mapping permafrost.

*Spring Radio Classes*

According to Kurt Torgerson (NL7GW), head of the Arctic ARC education committee, classes will again be offered on a credit basis through Tanana Valley Community College. The shift from non-credit to credit status permits better room scheduling, and a firmer commitment from TVCC to the class, Kurt said.

The novice and the upgrade classes will be combined into a single 3-credit course with one credit for the morse code lab, and two credits for the theory portion. Total cost will be \$90. The class is open to adults meeting the requirements for admission to TVCC classes.

Kurt expects that excluding students from public schools (junior and senior high schools) will make for a more

homogeneous student group, and result in a higher completion and pass rate.

*Directors' Meeting*

From the December meeting of the Board of Directors of the Arctic Amateur Radio Club. Lewis Overton (N0SN), Secretary.

Board actions:

Accepted the recommendation to retain the tone access for 146.28/88 repeater.

Agreed to defer action on the 146.34/94 telephone line while the borough attempts to reconnect the line.

Discussed and accepted the draft packet radio plan from Jerry Curry and Tom Walyer.

Approved motion to accept a poster from the Yukon Quest.

Appointed Lewis Overton repeater coordinator for interior Alaska, primarily to coordinate paper work. Dick Atwood (KL7B) and Eric Nichols (KL7AJ) will continue to provide technical repeater support.

Approved participation in the Fairbanks Ice Festival.

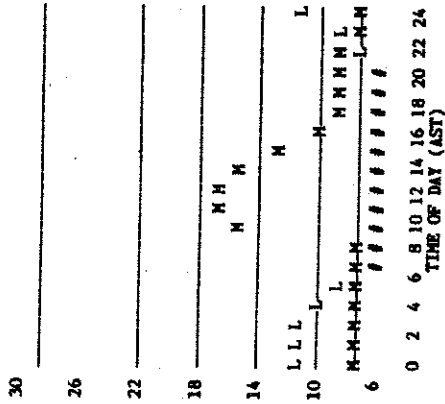
The next meeting of the Board of Directors will be held at 7 pm, Thursday, January 15 at the Conference Room in the Mary Siah Center. Kurt Torgerson will preside.

*At Last*

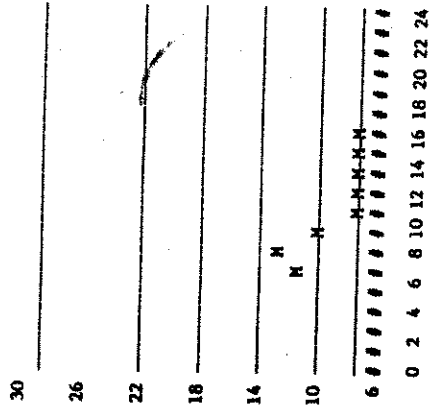
The officers and directors of the Arctic Amateur Radio Club and the editor of Short Circuit wish all of you a happy and prosperous new year. May you discover your amp is on standby AFTER you work that rarest of rare ones. Enjoy!

**PROPAGATION FORECAST FOR JANUARY 1987**  
Prepared by Rod Comballick, K7VJA

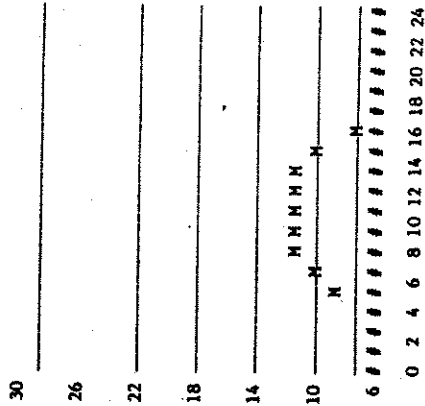
**FAIRBANKS TO CENTRAL AFRICA**  
TO: 9Q  
10 DEGREES & 8273 MILES  
DATE: 1-21 TIME: AST  
FLUX: 73 PLOT: MUF



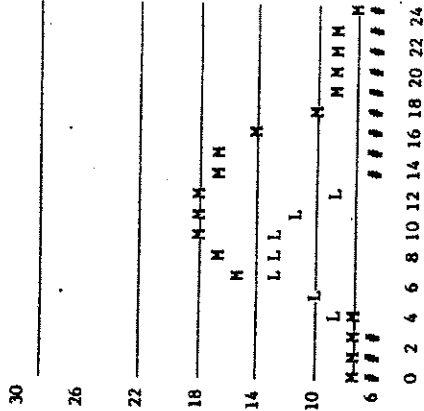
**FAIRBANKS TO EUROPE**  
TO: EA  
28 DEGREES & 4932 MILES  
DATE: 1-21 TIME: AST  
FLUX: 73 PLOT: MUF



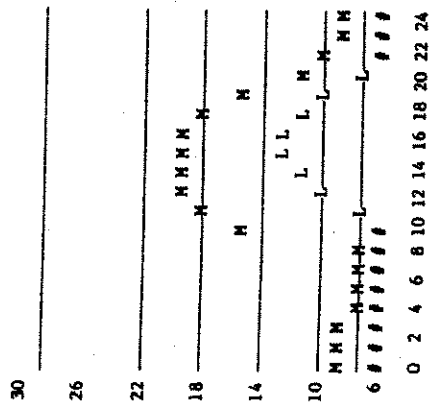
**FAIRBANKS TO EASTERN U.S.**  
TO: W3  
87 DEGREES & 3271 MILES  
DATE: 1-21 TIME: AST  
FLUX: 73 PLOT: MUF



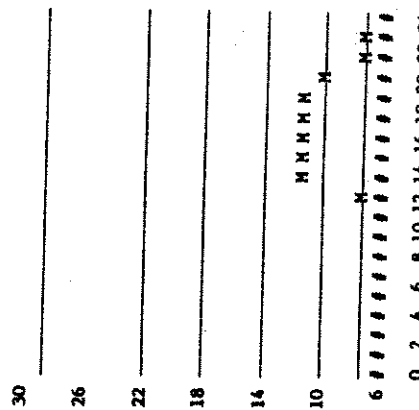
**FAIRBANKS TO SOUTH AMERICA**  
TO: CP  
106 DEGREES & 6988 MILES  
DATE: 1-21 TIME: AST  
FLUX: 73 PLOT: MUF



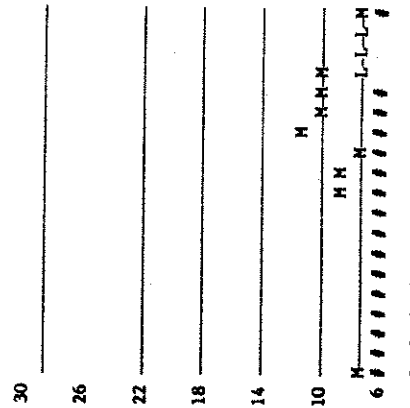
**FAIRBANKS TO SOUTH PACIFIC**  
TO: 3D2  
212 DEGREES & 5930 MILES  
DATE: 1-21 TIME: AST  
FLUX: 73 PLOT: MUF



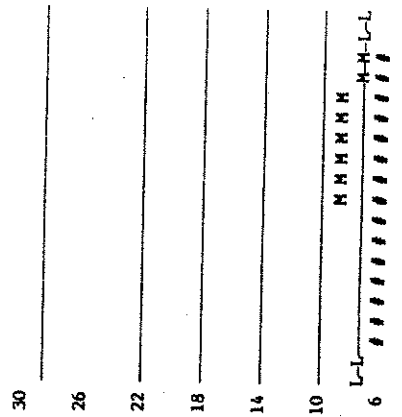
**FAIRBANKS TO EASTERN ASIA**  
TO: EN  
284 DEGREES & 3736 MILES  
DATE: 1-21 TIME: AST  
FLUX: 73 PLOT: MUF



**FAIRBANKS TO CENTRAL ASIA**  
TO: 9N  
314 DEGREES & 5422 MILES  
DATE: 1-21 TIME: AST  
FLUX: 73 PLOT: MUF



**FAIRBANKS TO MIDWINTER EAST**  
TO: RZ  
348 DEGREES & 6255 MILES  
DATE: 1-21 TIME: AST  
FLUX: 73 PLOT: MUF



27-day solar-flux forecast of Dec. 30, NOAA Space Environment Laboratory:  
Minimum S.F. = 71, Jan. 1 & 25  
Maximum S.F. = 75, Jan. 13  
Average forecast S.F. = 73, Jan. 6 & 21 (basis for plots)

M - Maximum Usable Frequency (MUF) --- frequency at which a signal will propagate at least 50 percent of the time under 'normal' conditions.

L - Lowest Usable Frequency (LUF) --- lowest frequency that will support propagation along the path. Path is closed if L is higher than M.

f - MUF or LUF off scale.

Geometric Activity Range	Geometric Level A*	AE**	Expected Propagation
Quiet	0-2	0-9	Above normal
Unsettled	2-3	10-29	Normal to high
Active	3-4	30-79	Normal to low
Minor storm	4-5	80-159	Below normal
Major storm	5+	159+	Poor

\*Obtain actual daily readings of flux, A and K indices from WWV at 18 past the hour. If actual flux is higher than 73, then MUF is higher than forecast.

\*\*Obtain actual daily readings of AK index from 552-2398 in Anchorage (recording).

General Meeting Friday  
 9 Jan 87 7:30 pm  
 UAF Geophysical Inst.  
 Board Meeting Thursday  
 15 Jan 87 7:00 pm  
 Mary Siah Center

Calendar of Upcoming Club Activities

Ham for lunch	Wednesdays	noon-ish	Bakery on College Road
Westlink News Meeting	Sundays	9 pm	146.88 (146.94 alt)
Ham Exam	Friday Jan 9	7:30 pm	UAF Geophysical Inst.
Board Meeting	Saturday Jan 10	1pm	Room 243 Duckering UAF
	Thursday Jan 15	7 pm	Mary Siah Center

Arctic Amateur Radio Club  
 PO Box 83231  
 Fairbanks, AK 99708



Joe Voelkelt  
 Box 82443  
 Fairbanks, AK

9/30/87

99708