



founded 1970

THE BULLSHEET

Official News Bulletin of the
Texas DX Society
An ARRL Affiliated Club



April 1986
Volume X
Number 4

Officers and Contributors

President:	W5ASP	Joe Staples	Repeater Chairman:	K5TU	Kim Carr
V. President:	N5JJ	Dave Busick	Bullsheat Editor:	K2TNO	Bill Schrader
Secretary:	KE5IV	K. Grabenstein	Legal Chairman:	KE5FI	Chuck Dietz
Treasurer:	KC5M	Frank Wyatt	Field Day Chairman:	W5SJS	Bob Burns
Contest Chairman:	KN5H	Steve Nace	Outgoing QSL's:	N5AF	Sam Neal
DX Chairman:	WA9VLI	Steve Smothers	Bullsheat Publisher:	NR5M	G. DeMontrond

Columns by: KN5H, W5ASP, WA9VLI, N5WW, K2TNO, KB5FU

ANNOUNCEMENTS

MEETING NOTICE- The Texas DX Society meets the second Friday of each month except when changed by the Board of Directors. The next regular meeting will be on Friday, April 11th, at the Bellaire Hospital Professional Building, 6550 Maple Ridge at 7:30 p.m. The Board meeting will start at 6:30 p.m.

NEW MEMBERSHIP APPLICATIONS- Sponsors proposing new members must submit the application and **APPEAR AT THE APRIL BOARD MEETING.**

BULLSHEET MAILING LIST- It is the club's desire to provide the Bullsheat free to all amateurs in the area with an interest in DXing and/or contesting. If you would like to receive our newsletter, simply send your name, call, and mailing address to the Texas DX Society, P.O. Box 540291, Houston, Texas 77254-0291. Visitors at the regular club meeting can request the monthly newsletter by providing their mailing address on the sign-in sheet. Articles or other news-worthy items from club members and other interested amateurs are hereby solicited by your editor.

WEEKLY DX & CONTEST NET- Just a reminder that each Tuesday night at 9:00 p.m. the Club sponsors a net on 147.96/.36. Participation by non-members as well as members is welcomed. The purpose of the net is to facilitate the exchange of DX, contest, and Club information within the amateur community. Your active support of this activity is encouraged.

THE PRESIDENT'S CORNER
de Joe Staples, W5ASP

The April TDXS meeting promises to be a "REALLY BIG ONE" with both Kim, K5TU and the "dazzling duo of the Carolines", Holly and Dennis, KC6HM/KC6DM, on the agenda. Kim will give us a quick look at the new TDXS repeater installation and its features, while the KC6's will fill the golden screen with their exploits of skill and daring while traveling amongst the distant isles of the Pacific. Try not to miss this one...and pass the word to anyone who might enjoy the evening's festivities.

April is going to be a big month for our new membership efforts. Sponsors must have their applications on file with the board prior to the special TDXS Board Meeting on April 24th. They must then attend this board meeting to present their prospective member's qualifications. Anyone in need of the necessary application forms should contact Bob, AK5B, or any Board member...ASAP! Presentation of the prospective new members to the full TDXS will take place during the May meeting and ballots will be mailed in June.

Lots of activity is on tap for the coming months...San Jacinto Day, the Phone and CW County Hunter weekends, several interesting contests and, of course, Field Day. I hope each of you will plan to be a part of one or more of these events. Let Galen, KB5FU, know if you can put in some time on the Armadillo trail, or get with Bob, W5SJS, to get an early start on Field Day plans. We've lots to do, so lend a hand wherever you can.

A couple of final comments and you can get on to the really GOOD STUFF...TDXS has an agreement among its members that there will be no smoking in the meeting room. We've been a little lax in this regard, but as a favor to the majority, let's keep the burning embers outside!

And please, remember to pick up the odds and ends after our meetings. We are very fortunate to have such a fine meeting facility available for our use. But cleaning up is the price we must pay, each and every meeting! Thanks...

ARMADILLO COUNTY
de KB5FU

The next TDXS Field Day to Armadillo County will take place from the San Jacinto Battleground on Saturday, April 19. We'll operate from an RV using one rig (either mode-your choice) and an all-band vertical. We'll be set up near the Harris County Sheriff's Department site courtesy of arrangements (or is that arraignments? - ed.) of K5YCP. We'll try to be on the air by 0930, and run until dark. This is a more laid-back show than the first effort, so it's a good opportunity for you easy going types to make an appearance.

If you won't be there, we'd sure appreciate a QSO - look for K5DX/A on CW (50 KHz up from the bottom) and on SSB (3865, 7240, 14280, and 21300).

SALES ARE UP, AD BUDGET IS DOWN
de K2TNO

I've been hearing quite a bit of "advertising" on the repeater lately. Remember it is illegal to discuss business on the ham bands, even if your product is of interest to hams. I know sometimes the rest of the pack may coax you into talking shop, but please save it for the landline! When in doubt, change the subject.

THE OTHER FELLOW'S SHACK
de K2TNO

Here's a gem QSP'ed to us from an anonymous source recently QSY from HZ. (excerpts only; the un-expurgated version will be at the April TDXS meeting). It's TRUE, not a joke, from the Supervisor General, General Presidency for Public Morality Committees, Eastern Province Branch, HZ:

"In community Haii, the play fields and recreation centers are packed with expatriate men and women practicing various sport games..while in their short pants, exposing thereby to spectators most of their private parts. They also mix, mingle and hold, hand-in-hand, each other."

Anybody want to volunteer for TDY in HZ? The line forms at the right.

DAYTON AMATEUR RADIO ASSOCIATION SCHOLARSHIPS

The Dayton ARA has announced \$1000 scholarships to qualified, licensed amateurs graduating from high school in 1986. Write to DARA, Box 44, Dayton, OH 45401 Attn: Scholarship committee for further info.

MILE HIGH DX ASSOCIATION "NEWSLETTER", February 1986:
(abstracted by K2TNO)

At the November 1985 IARU regional conference in Auckland, New Zealand the New Zealand Association of Radio Transmitters (NZART) came out with an unbelievable salvo entitled "DXpeditions and their effect on amateur radio." The gist of their propoganda is that DXpeditions and the open-ended DXCC list foster illegal power use, and "deny the amateurs in the smaller (and therefore rarer) countries their right to normal amateur operation." I won't bore you with the rest, except for this remaining "truth": "Some (DXpeditions) even invite participation by local amateurs but generally nothing is done to involve them or help in any way. So, it cannot be claimed that DXpeditions help to promote amateur radio in developing countries."

The manifesto comes from NZART, the national ham organization of ZL! Their paper is beautifully countered by Kirsti, VK9NL, in a companion article - and I'm sure NZART doesn't represent the thinking of many, many ZL's.

SRI FER POOR SIG OM - IS ALL I CAN AFFORD
DE K2TNO

I happened to go down to the Emporiuor the other day to watch the Madison Rodeo sheep-shearing team warm up by fleecing customers. One guy was a Frenchman who was busily buying everything in sight including a new TS-430. (I lost count at thirteen when he was buying slugs for a Bird 43 watt meter.) I wondered why anyone would come so far to be worked over by N5JJ, and so I got from the visitor Jean-Francois a catalog from a big radio store in France. I thought you might be interested to see what an F6 has to pay for ham gear. Here are some prices, converted to US dollars at the current exchange rate:

Kenwood	PS 430 power supply	\$210.00
YK88C	500 Hz filter	62.00
TS-930	(no filters, no tuner)	2287.00
TS-940	(no filters, no tuner)	2698.00
TH-21	2M Hand held	287.00
YG-455C	500 Hz filter	144.00
AT-930	tuner for '930	265.00
Hy-Gain	205BAS 5 e1 20	722.00
TH5-DX		465.00
14 AVQ	Vertical	181.00
CDE Rotater	Ham IV	513.00
Tail twister		601.00
PL259	Coax connector	2.60

Anybody wanna help set up a multi-multi in France? See your broker.

RESULTS, TDXS OLD-NEW CALL QUIZ

From Our March 86 Contest

WA3OVC (KN5H); K5RLW (N5WW); WB5QDW (K5ZD); WA5ZNY (N5JJ); W5NMA (K5DX);
WA5NGH (N5DU); WA5LES (K5RC); WB5IFY (AA 5Y); W5WZQ (W5UN); K2TNO (K2TNO).

TECHNICAL CORRESPONDENCE

Feedback regarding the platypus electroreceptor (March 86 'Sheet):

Dear Bill:

I am not surprised to learn that researchers have discovered another animal species with electronic tendencies. I have long suspected that the Duckbill Platypus might possibly qualify as a member of the genus "Mammotron electroimpulsius". The very fact that it is an oddball of nature is an obvious tipoff. Laying eggs and sniffing out dead coppertops may seem odd, but for a thing that looks as strange as the Platypus anything is possible.

You probably are not aware that the DL/VK researchers have not discovered a scientific first. Until this time I have hesitated to disclose the contents of a report which has been in my possession for some time. Now that you have finally opened the way for further discussion of this subject I feel it is my duty to let the world know about the existence of a special set of electronic/electrical components that could mean advances as important as the invention of the transistor.

Enclosed is a copy of this report for possible publication. Please be aware that the origin of this document is shrouded in secrecy. I am strictly forbidden to reveal the source.

Sincerely,

Wes Whiddon, N5WW

After carefully researching the works of pioneers such as Tesla, Westinghouse, Steinmetz, Faraday, and Darwin, the writer wishes to announce that his hypothesis has indeed been confirmed. Literally hundreds of species exhibit characteristics spanning the entire range of electronics.

Perhaps the most interesting of these is the moose transformer. The moose, that prized trophy of the hunter, actually exhibits theoretical coefficients of coupling that rival the finest iron core assembly line products. Maybe Chicago can make transformers, but only God can make a moose! The moose transformer (MT) is actually a four terminal device with the powerful legs acting as the input and output connection points. Versatility is the strong suit of this species when it comes to impedance matching. Strapping is of course accomplished at the antlers. A typical MIL-spec adult moose is capable of a range of input impedances from 2 ohms all the way up to 20,000 ohms. On the output side, the range is from 2 ohms to 5 ohms. Sporting its own matched speaker system, the typical adult can be fed from a current, voltage, or foliage source with excellent (though monotonic) results. With the speaker disconnected, our moose inductor can be used to run loads ranging from power tools to extremely long metallic pair circuits. Preliminary research shows only two drawbacks to full acceptance. One is of course size. However, moose transformers are excellent devices where sturdiness and reliability are needed. Intended for outside installation, the MT is self cooling as well as self repairing to a limited extent. Not even the venerable backbone of electrical distribution industry, the "pole pig", can equal this performance, so necessary in unattended service in remote, backwoods locations.

The writer envisions the day, hopefully not too far in the future, when MT's, tethered humanely to live trees, are an integral part of our high voltage distribution system. The call of the wild will then crackle with new vitality, as well as voltage.

The giraffe attenuator is yet another find worthy of mention. Though suffering from spotty performance at the top end, this sturdy protoplasmic component offers wide range, and an excellent noise to weight ratio. A component that really stands out in the crowded world of passive carbon and wirewound devices, the giraffe attenuator has been second sourced since Noah's Ark.

Hybrid devices, common now, have been lying virtually at our feet for thousands of years. CMOUSE technology using rodent substrates and flea implantation, have proven to be both potent ion and rabies carriers. Though dangerous to fabricate, the risk is well worth the price when the day arrives when MICE are not only input devices, but powerful, efficient number crunchers as well. This technology is changing daily. Before microfabrication techniques were perfected, experiments were carried out using Great Danes. In fact, researchers at the Gaines Institute documented this strange phenomenon over 20 years ago when they noted one of their research Danes, Bruce of Sunnybrook Farms, sustaining self oscillation while hunting for an implanted flea. Spectrum analysis and a magnifying glass yielded the amazing fact that these sustained and stable oscillations extended beyond 18 gigaHertz! The discovery of the kibble-powered tail-tuned microwave oscillator is now a matter of history.

Research progressed as success was next achieved with poodles and miniature schnauzers. The bold leap into rodent technology was made in 1981 by a small company, now a wholly owned subsidiary of Walt Disney Enterprises. Although research has not yet solved the problem of powering CMICE with cat batteries, theoretical veterinary physics has predicted success may be just over the horizon by adding small amounts of Librium and lithium to the feline diet. This true doping technique may open up a new era in component coexistence for this new technology.

Deer exhibit great promise in antenna technology. A mobile 450 Mhz .12 point deer radiator exhibits typical gains of 18.5 to 23.4 dB. over a theoretical unicorn monopole. Strangely, deer antennae have a sharp cutoff frequency of 499.99 MHz., giving new meaning to the old bromide, "the buck stops here."

Touching briefly on other categories of live circuitry, I note only that snake resistors, antelope inductors, fish capacitors, and duck diodes have been fabricated. While all breed true, leading to a new industry termed Component Farming, opposition is expected from the existing industry structure that has a tremendous investment in plant, personnel, and inventory.

So, don't expect to see these components tomorrow at your pet store or electronic supply house. However, hope may be on the horizon from groups such as the USDA, the ASPCA, and animal lovers throughout the world. The groups already yearn for the day when furry and feathered creatures, linked by reliable squid connectors, are commonplace. Maybe the NBC peacock was prophetic. We may really see living color in our time. Then we'll see the fur fly!

DX REPORT
by WA9VLI

MOUNT ATHOS	DL7FT/SV/A, the sudden appearance of Mount Athos was a surprise to everyone during the WPX phone week-end. He was reported locally at 1500 UTC on 21295, 1600 UTC on 21005, and at 2100 UTC on 14195. Apparently he was complaining that there weren't many takers. As usual, documentation may be in doubt, but work 'em first, worry later.
ALBANIA	More rumors seem to be adding credibility to the scheduled operation headed by OK2AOP. Date mentioned now is starting September 23 or 24 for 9 days using the callsign ZA2AOP. Keep your fingers crossed!
CAMEROON	TJ1CH was reported locally on "snooky's" net at 2105 UTC on 14183.
TAIWAN	BV2DA is active on CW. Look for them at 1300 UTC on 7005.
SUDAN	6T2MG is still active on 14196 around 2300 UTC operating QRP.
SAIPAN	W9GW/AHO is expected to be active April 20-26 10-80 meters CW. A possible operation from Yap has been mentioned.
TOKELAU ISLANDS	Not much heard from ZK3RR and ZK3RW during WPX phone week-end. ZL1AMO and ZL1BQD are scheduled to depart April 20 for another short operation from Western Samoa, but this may have been moved up.
CHAD	TT8CW should be active starting April for 2 months on CW 10-80 meters.
OGASAWARA	JALZLO/JD1 was worked by several local DX'ers on 40 and 80 meter CW before WPX phone. They were not reported during the contest however.

YEMEN 5T5CW says he has a permit to operate from 4W-land when he arrives. No dates mentioned.

RUSSIANS Lots of Soviets are being worked locally on 20 meter phone starting around 0300 UTC. Prefixes worked include UM8, RM8, UL7, UWO, UZ9, UZO, UI8.

BELIZE Our very own N5JJ has mentioned a possible operation during WPX-CW. This is still in the planning stage.

EGYPT SUIER was reported at 0400 UTC on 3790.

CHAGOS VQ9WM was worked locally at 0030 UTC on 3512.

73
Steve, WA9VLI

CONTEST CORRAL
de KN5H

Happy Vernal Equinox to all! Yes, spring fever has affected your contest chairman. Your Bullsheet should be a lot lighter due to this short contest report.

If you missed the WPX SSB contest over the Easter weekend it was your loss. Conditions proved to be above average making the contest a lot of fun. The hospitality was excellent at the QTH of K5LZO. I'm sure I speak for everyone who has ever spent a contest weekend at Chuck and Barbara's when I say thanks for the good times.

The NCJ QSO Parties are coming up April 12 (CW) and April 19 (SSB). Please try to get on for these. The exchange is your name and state; work the same station on all six bands.

SOME RESULTS:

1985 ARRL 160 M CONTEST

N5DU	162K	Nr 4 USA	Single Op
K5LZO	120K		Multi Op

SOME RESULTS:

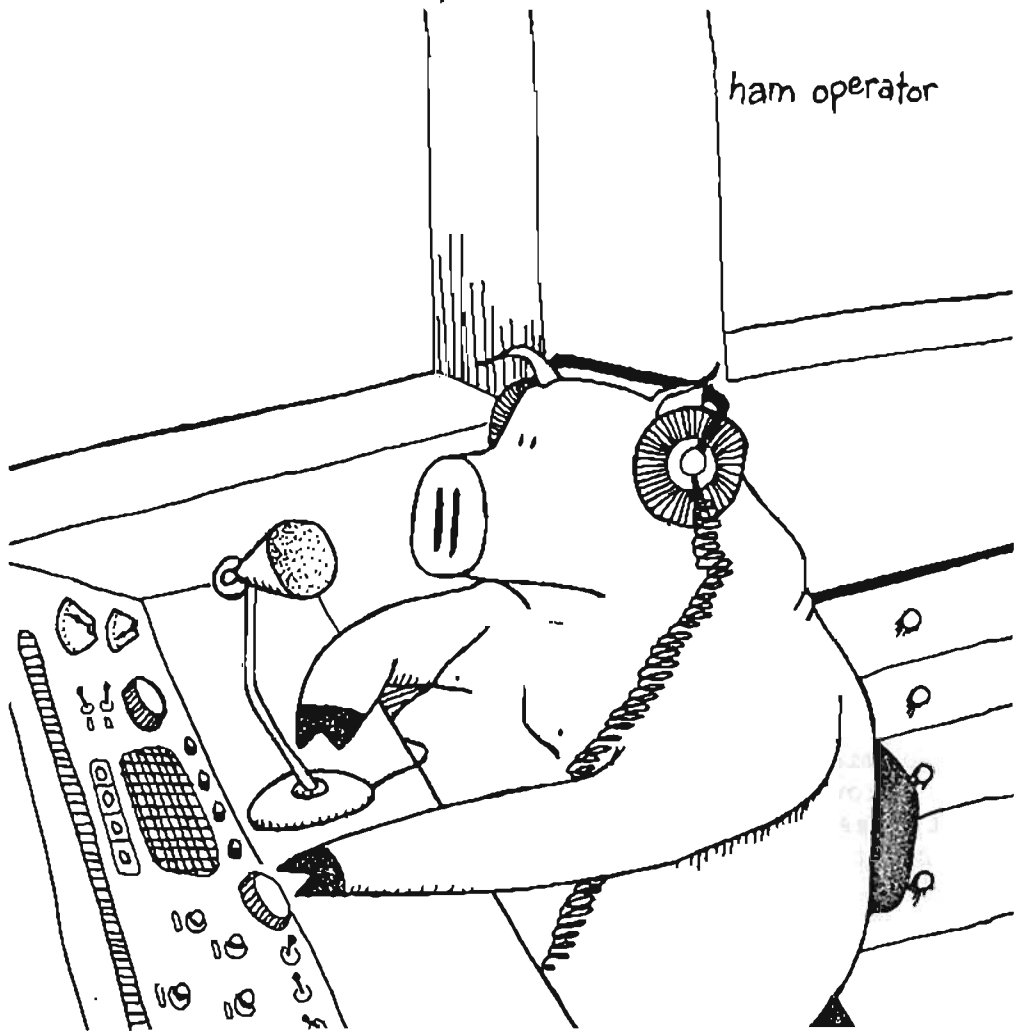
1986 CQ WW SPX SSB CONTEST

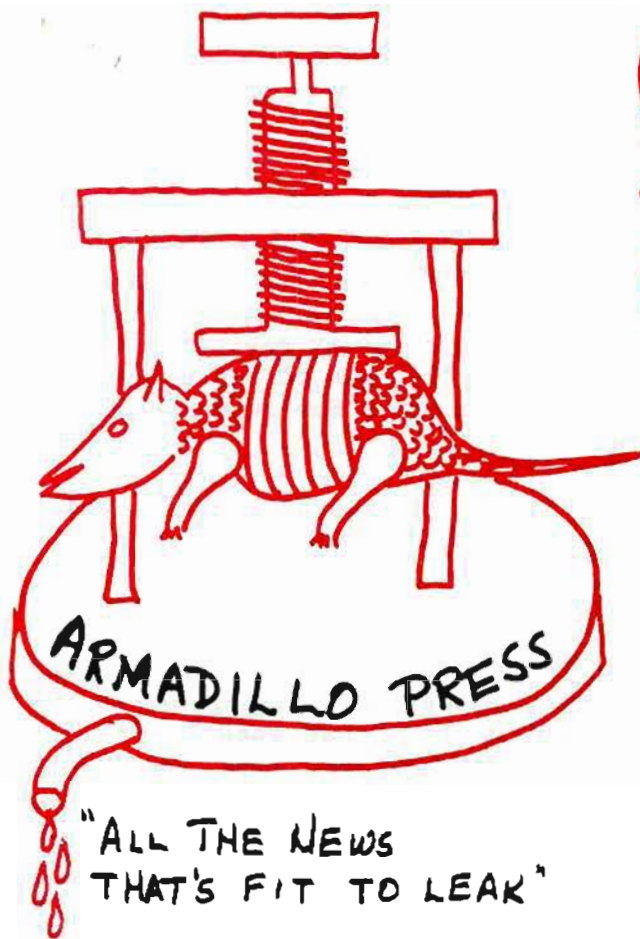
NT5D	3300/790	Multi-Multi
NZ5I	2000/600	Multi-Single

COMING ATTRACTIONS:

APR. 12-13	NCJ North American CW QSO Party
APR. 14	ARRL VHF/UHF Spring Springs
APR. 19-20	NCJ North American SSB QSO Party
APR. 26-27	Helvetia DX Contest
MAY 3 - 4	SSB Armadillo run
MAY 3 - 4	Florida QSO Party
MAY 10-11	CQ-M DX Contest

ham operator





PUBLISHED OCCASIONALLY
IN ARMADILLO COUNTY, TEXAS
by the
TEXAS DX SOCIETY

VOLUME: I
ISSUE: I
DATE: April 1986

ARMADILLO COUNTY RUNNER SETS NEW STATE RECORD

Local physical-fitness freak KB5FU recently shattered a number of track records in a warmup for the '86 Armadillo Run. Galen, who resides in a truck parked outside Jeanette Graff's home, set out last weekend in his pickup and was clocked at new records for the standing quarter mile, the flying mile, the enduro 500 miles and the Weekend Two Thousand Marathon. County Sheriff K5YCP said, "Did somebody put somethin' out?" He added, "I saw him going down the road and figgered I'd give him a contact. But he was going so fast away from me that his 20 meter signal was Doppler-shifted clear down to 10 MHz, and I couldn't work him crossband." In an interview after his heroic feat, Galen said he was proud of this record but really owed his success to computers. This reporter asked him to clarify that statement for our readers: "Shucks," said Galen, "I couldn't afford all the gas if I drove slow. But at these speeds I fill up so often that the Gulf billing computer can't keep up with all the transactions. I reckon those turkeys will still be toting up my gas bill just for last Friday long after I'm gone."

The interview ended with KB5FU sitting in his truck giving a lesson to a neighbor youngster in proper operation on 14,336. "Rifle shots, rifle shots," he screamed. I ducked under the seat. "We need a triple relay, TRIPLE RELAY, old man!!" Just then his XYL appeared from the house with a straight jacket and muzzle. Soon he was hogtied, and Jeanette dragged him to the house. It was late on Sunday night, and the work week was about to begin. Poor Galen; the joke was on him: he was no longer getting out.

NEW PRODUCTS
The Super-Sprint Multiplier Enhancer
Model QRX

Every once in a while, somebody comes up with a new gimmick that is so obviously useful that you say to yourself, "Why didn't I think of that years ago?" The QRX Enhancer is such a device. Designed expressly for the dedicated contester, the box promises to become a standard feature on every operating table. My sample for evaluation arrived just in time for 1985 SS, and it was with great enthusiasm that I uncrated it and got it fired up. First, a few words to answer the questions you're no doubt thinking right now:

What the hell is it? - Simply put, this box is a delay line run in reverse, which lets you achieve a QSO with a station before the station has had a chance to QSY. Sound fantastic? Read on!

The idea was born in the minds of two well-known contesters whose favorite 'test is the North American Sprint. In that contest series, you must QSY after initiating a QSO and relinquish the frequency to the answering station. These two contesters got together after several Sprints, and noticed that each had missed several multipliers that the other had snagged. Furthermore, tape recordings revealed that upon occasion each had stumbled upon a needed mult, only to have him QSY in accordance with the rules. From that sense of frustration came the impetus to design the Model QRX. Both designers are electronics engineers with special interest in signal processing; they choose to remain anonymous because since perfecting the circuit, they've won every contest they've entered. The secret is in the staggeringly high multiplier totals they can achieve.

How does it work? - Basically, the plan (like all elegant new ideas) is simple. The reader should refer to Figure 1. The heart of the circuit is the Bilateral Delay Line, L1. This line is switched by the contacts of S1a,b so that it accepts signals from the QRX amplifier when K1 is not energized. In this condition, signals begin to travel down the line toward the terminating resistor, which presents a 50 ohm load.

By proper choice of the length and velocity factor of L1, the signal can be made to spend any desired transit time between the input terminal of L1 and its output (in this model, the transit time is 1.05 seconds, since calculations by the authors showed that on average you are always about a second late in getting your call out to a missed multiplier).

O.K., now we have a signal in transit down the line. If push button PBI is pressed, flip-flop FF1 is actuated, which keys relay K1 through the transistor switch. This relay closure reverses the connections to Line L1, so that Terminal 2 (previously the input) is connected instantly to the Difference Amplifier in the main IF strip. Simultaneously, Terminal 1 (previously the output) is connected to the QRX amplifier. The result of this switching is that the field present in the Delay Line instantly reverses its polarity, at a speed set by crystal Y1. Since Y1 is the same frequency as the IF frequency of the receiver, the field reversal occurs in phase with the IF strip waveform.

The reversed field of line L1 stops further propagation of the signal, which had been traveling down the line. Instead, the QRX amp now provides the power necessary to send the signal back in the direction from which it came, where it exits the line and appears at the input of the Inverter/Reverser buffer amplifier. This stage's function is not obvious, so it will be described. Let's imagine a CW signal entering the delay line (relay K1 not energized), and for simplicity, let's imagine it's the character "A". The dot would be some milliseconds ahead of the

dash, and hence the dot would have traveled farther into the line. Now, when the field reversal occurs (relay K1 energized) and the signal is pumped out of L1 by the action of the QRX amplifier, the dash (being the last to enter L1) is the first to exit, followed later by the dot. If these two pulses were simply amplified and detected at this point, the character "N" would be perceived rather than an "A". Thus, the function of the inverter/reverser buffer amplifier is to convert each "dash" to a dot", and each "dot" to a "dash", thereby maintaining correct code characters. (as can be seen by the symbol for this chip, it was designed by an Israeli firm and the exact internal circuitry is proprietary.-ed.)

Suffice it to say that the amplified signal from L1 is delivered from the Inverter/Reverser to the Difference Amplifier in the main IF Strip. Since two additional amplification stages are used in the QRX portion of the signal pathway, the QRX signal (when fed to the difference amp) will always be stronger than the signal from the receiver mixer. Hence, no signal switching is required at this point. The QRX signal overrides all others, and drives the output of the IF strip to a high potential, maintained until the entire Bilateral Delay Line message has been detected. Finally, the end of the message in the Line is detected by diode D1 which resets FF1, releasing K1.

Doesn't this system just supply a delayed version of the received signal?

No, that's the beauty of it. Look again at the circuit diagram, and note the QRX mixer and local oscillator circuit. You will see offset capacitor C2 in the local oscillator circuit. This capacitor is the really ingenious part of the Model QRX. Both local oscillators are tuned by the same Main Tuning Capacitor, C1. However capacitor C2 provides a 1 KHz offset to the frequency of the QRX Local Oscillator. Hence, the signal output of the QRX Mixer will be 1 KHz different from that being listened to on the main receiver signal path.

So, signals entering the Bilateral Delay Line are from stations operating 1 KHz away from where you're tuning! Push the Actuate button, and you hear the station that was CQing up the band 1 KHz, and he was doing so up to 2.1 seconds ago! (1.05 seconds in the Line plus 1.05 seconds out = 2.1 seconds). This means that you get a chance to call that station even though you weren't even aware of him while he was calling. Hit the button and get down his call, then you can bang out your own call instantly. By moving your receiver up the band by exactly 1 KHz (easy to do with a digital readout), you will now be zero-beat with the desired station, and receiving him on his transmit frequency. since the flip-flop will have reset, the QRX circuit is busily hunting and storing another up-the-band signal while you complete the exchange.

How does this help my multiplier total?

"Any station on the band must be transmitting somewhere, otherwise it's not on the air." Sound reasonable? If so, then you are ready for the Model QRX. You will be able to encounter twice as many stations as an operator not equipped with the QRX. If you've already worked the station stored in the Bilateral Delay Line, fine--it will be replaced with the next signal in 1.05 seconds! Need the mult? No problem - his signal is stored and ready for you to copy at the push of a button.

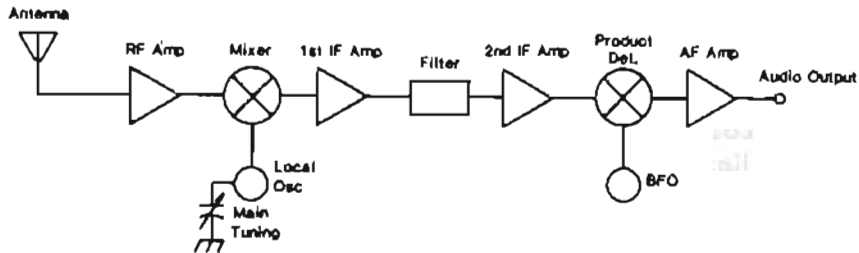
Future Directions - We understand that a computerized version of the QRX will be available soon. Featuring variable offset frequency and digitizing, it will allow the entire band to be stored and decoded at will. Details will be published as they are received.

Installation - Minor circuit modifications are required. Figure 1 shows the points at which the circuit of a typical receiver must be modified to accept the Model QRX. All interconnect cables are supplied with the unit. Installation by this reviewer was accomplished in a matter of days.

Specifications

Model:	QRX
Frequency range:	1.5 - 42 MHz
Operating speed:	5-60 w.p.m.
Power requirements:	5 volts, 80 watts
Cooling:	by heat removal
Dimensions:	1.5 cm x 3 inches
Weight:	Weighting internally controlled
Price class:	Very classy

A. Normal Receiver Block Diagram



B. Receiver Incorporating QRX Enhancer

