

POTOMAC VALLEY RADIO CLUB

est. 1947

President - Fred Laun K3ZO

Vice President - John Pescatore WB2EKK
Secretary - Roger Kaul K3TM

Vice President - Don Daso WA8MAZ
Treasurer - Bill Hider N3RR

The Potomac Valley Radio Club meets the second Monday of each month, from September through May. All radio amateurs interested in contesting and HF operating are invited to attend and apply for membership. Meetings alternate between College Park and Temple Hills MD. Anyone on the 147.00 repeater can provide directions or other information.

PVRC members have established a packet radio based DX spotting system on 145.51 (WØYVA), .57 (N2FB), .59 (W3LPL), and .63.(K3NA). Try it out and contact KN3P to support the system.

BULLETIN EDITOR

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Send me your comments
articles, opinions, etc.
Deadline: 20th each month.

September Bulletin

SPECIAL PVRC MEETING AT THE GAITHERSBURG HAMFEST:

**1100 Sunday 9 September at
Table 132 in Building 2**

This year PVRC will hold a Club meeting at the Gaithersburg hamfest to make it easier for everyone to attend two club meetings per year. Remember: if you don't attend at least two club meetings per year, your scores in any ARRL contest will not count towards the Club total. Even worse, your participation in a multi-op effort may cause the entire multi-op score to not count.

PVRC will have a table (table 132 in Building 2) at the Hamfest, and we will be giving out materials to try and attract some new members. We need people to man the table for an hour at a time. Contact WB2EKK or WA8MAZ to help, or just show up in the morning. Stop by at 1100 to attend the meeting and if you have any friends who might be interested in joining, bring them by.

Just think, in the space of 36 hours (the Gaithersburg meeting and the regular meeting the following day in Temple Hills) you can fulfill the attendance requirements and go back to watching Monday Night Football. See you there.

DIRECTIONS TO THE SEPTEMBER PVRC MEETING

**Monday 10 September 7:30 PM
Temple Hills, MD**

From Maryland: Take your favorite road to the Washington Beltway 495 and head towards Andrews Air Force Base. Exit onto Rt 5 East, Branch Avenue. Stay in the right lane and turn right at the first traffic light. About 200 feet after the turn the entrance to the Church parking lot will be on the left, with a small blue sign. Turn left there, parking is at the top.

From Virginia: Take your favorite road to the Washington Beltway 495 and head towards Maryland on the Outer Loop over the Wilson bridge. Exit onto Rt 5 East, Branch Avenue. Stay in the right lane and turn right at the first traffic light. About 200 feet after the turn the entrance to the Church parking lot will be on the left, with a small blue sign. Turn left there, parking is at the top.

Dinner after the meeting: Traditionally, pizza is consumed after the meeting at a nearby restaurant. If you can keep from wasting away until after the meeting, join the bull and beer session afterwards. No reservations required, check the Sunday Post listings of Health Department closings to see if the pizza place is open this week.

FROM THE PRESIDENT'S SHACK

Its time to focus in on the PVRC elections to take place at the October meeting. The normal way this has been handled in the past is to choose a Nominating Committee at the September meeting, which will spend a month looking for meritorious candidates for the next PVRC slate. I would prefer to have volunteers to serve on the Nominating Committee rather than having to draft members at the meeting, so please consider doing something for your club by serving on the Nominating Committee and come the the September meeting prepared to volunteer.

It was great to get a call from Carl Kratzer K3RV who was evacuated from Liberia along with most of the rest of the Embassy officials there, and is now safe and sound here in the Washington area. While we will miss the EL2CX multiplier, it will be nice to have Carl contributing to the Club score from this side of the pond again.

Another member transferring back from overseas is Tom Warren K3TW, who will join us in October after two radioactive years in Tanzania as 5H3TW and 5HØT. With the local QRM moving in again, I will have to readjust the antennas for maximum front-to-back.

Having despaired of ever receiving my 7O1AA QSL, what with the takeover of 9K2-land by the YIs, I was pleasantly surprised to receive it on August 10. There was no cancellation on the Kuwaiti stamp. Wonder where it was mailed from? On a more serious note, there is a rumor going around that one of the three 9K operators was assassinated by the YI troops for being a member of the extended royal family there — hope its not true.

See you at the September meeting.

73 Fred K3ZO

SEPTEMBER SPRINTS

The Fall 1990 Sprints are coming up, CW on Saturday 8 September and SSB the following weekend, Saturday the 15th. We are going to have PVRC teams again this year and hope to put in a big score. If you are interested in being on a team, give me a call at the numbers on the front page of the bulletin or leave me a not on the packet cluster. **Howie K4PQL, remember to send in your log!!!**

If you are a little hazy on the rules:

- **Contest period:** 0000 - 0400
- **Exchange:** Both calls, serial number, name, state
- **Multipliers:** states, VE provinces, NA countries
- **Bands:** 20/40/80
- **Special rule:** after every QSO you solicit via a CQ or QRZ, you must QSY at least 5 Khz

CONTEST CALENDAR

September 8-9	WAE CW
September 8-9	VHF Contest
September 8	CW Sprint
September 15	SSB Sprint
September 15-16	Scand. CW
September 22-23	Scand. SSB

FAR SCHOLARSHIP WINNER

Congratulations to Andrew Faiola N3GLA, son of Tony K3WX, for being awarded one of the Baltimore Amateur Radio Club 1990 scholarships. Andrew will be a sophomore at Washington University this fall and is keeping his nose to the ~~hemline~~ grindstone as editor of the Business School newsletter.

DONT FORGET TO PAY YOUR PVRC DUES!!

If the date on your label says 1989, this will be the last issue of the bulletin you will receive. If it says 1990 you are OK for the rest of the year, but why not pay up for 1991?

In-area members send \$10 to N3RR, out-of-area \$5. Checks or money orders only, please.

THE ORIGINATION OF THE BENCHER PADDLE

by Bob Locher W9KNI

The Bencher Iambic Paddle, represented by the BY-1, BY-2 and BY-3 models as well as the special Japanese models JA-1, JA-2 and JA-3, are derivations of the legendary FYO paddle series, originated by the late Joe Hill, W8FYO. Mr. Hill, a talented designer and machinist, designed his first paddle as a traditional single lever non-iambic paddle for the popular keyers of the day. The most notable keyer of the time was the famous W9TO keyer, as developed by former FOC member Jim Ricks, and marketed by the Hallcrafters Company.

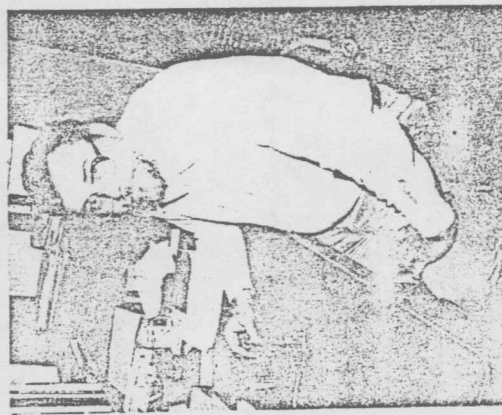
The original FYO design featured a tension spring attached to a lead screw at one end for tensioning adjustment, with the other end attached to a finger pad pivot frame, with the pivot frame resting on hardened steel pivot points. The paddle offered a smoothness and responsiveness unmatched by other designs on the market, and quickly achieved cult status among CW operators. Although evidence today is sketchy, it appears that only a limited number of these models were ever built and sold. Mr. Hill eventually obtained a patent for his innovative design.

Shortly after these paddles became available, the iambic technique of keying was developed, and began to become popular. Paddles such as the original FYO design and the like, although usable with iambic keyers, did not allow the use of iambic keying techniques. None the less, of all the paddles available on the market commercially at that time, only the FYO design lent itself to easy modification to become iambic paddles, and a number of existing FYO paddles were so modified.

Mr. Hill then began the manufacture of iambic model paddles of similar design to his original FYO series, but only a few were ever sold, and for reasons unclear Mr. Hill abandoned the business. As a result, the existing paddles became eagerly sought after on the used equipment market, often commanding significant

premiums over their original selling price. Original and unmodified single lever FYO paddles became collector's items.

A number of firms and individuals are believed to have approached Mr. Hill about securing a licence to his patent, with an eye towards bringing the paddle back to the market. However, Mr. Hill seemed unwilling to enter such an agreement with anyone, and the FYO paddle remained a very scarce item. During this time, iambic paddles were otherwise being offered by Vibroplex, Brown Brothers, and Ham Radio Centre.



Bob, W9KNI in his office at Benchner Inc.

George Zielinski, W9OA, then W9OAH, was one of the people trying to secure such a licence from Mr. Hill, but without success. Frustrated by Mr. Hill's apparent lack of co-operation, Mr. Zielinski secured a copy of Mr. Hill's patent, and had it examined by a professional patent attorney, Bill Serp, W9RER, now W9RT, and asked for a professional opinion. Mr. Serp reached the conclusion that the original patent was certainly valid, but only covered a single lever non-iambic paddle. Under US patent law, Mr. Hill would have been able to patent the iambic paddle as an improvement to the original design within a year after offering the improved model for sale, but for whatever reason had not done so. Mr. Serp's professional opinion was that there was no patent barrier to prevent Mr.

Zielinski from bringing an iambic model of the FYO design to the market without Mr. Hill's approval. On the basis of this information, and with no comparable paddle on the market, Mr. Zielinski designed a paddle similar to the original FYO iambic model and entered production.

However, unknown to Mr. Zielinski, the highly respected firm HAL Communications of Champaign, Illinois, had managed to secure a licence from Mr. Hill to produce a paddle under Mr. Hill's patent. HAL Communications was at that time offering an iambic electronic keyer, and had decided that offering the keyer with an iambic paddle would help sales. Licence in hand, HAL initiated their first production run.

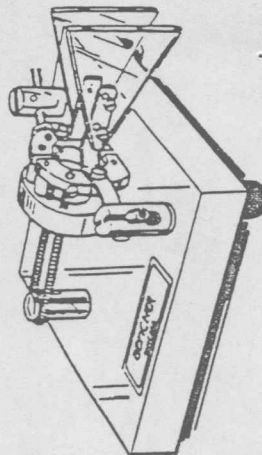
By considerable coincidence, both HAL and Mr. Zielinski decided to introduce their new paddles at the 1975 Wheaton Hamfest, a winter hamfest held in the Chicago area. Needless to say, a confrontation quickly occurred, with HAL possessing a legitimate licence for which they had paid money giving them the exclusive right to manufacture the FYO paddle, and Mr. Zielinski holding a professional legal opinion that the patent was not valid for iambic paddles. (There never was a dispute over the validity of the patent for non-iambic models.)

While there was of course no question of HAL's right to manufacture their product, at issue was whether Mr. Zielinski had any right to offer the product he was demonstrating and selling. It should be noted as well that there was a considerable difference in price at that time as well, with Mr. Zielinski product being significantly cheaper, adding to HAL's ire. The confrontation ended in a standoff, with HAL threatening legal action against Mr. Zielinski should he continue to promote his product.

It should be noted at this point that Mr. Zielinski's personal fortunes began to change in other areas. The death of a relative brought a need for Mr. Zielinski to quit his prior job and take over the management and eventual ownership of a hot forging firm. This change placed a considerable drain on his time. Further, with the threat of legal action hanging over him, Mr. Zielinski elected to take a very low profile in marketing his paddle, and once his initial production runs were sold, Mr.

Zielinski discontinued offering his paddle, having sold a few hundred units.

HAL in the mean time continued to market their paddle, offering it only in conjunction with their electronic keyer. However, sales proved disappointing to HAL, and at the same time an internal costing study revealed to them that they were losing money on the product at the offered selling price. With sales already at a disappointing level, HAL felt that they could not raise the price to a level where they could make an adequate profit margin, leading them to quietly discontinue the manufacture and sale of their model of the paddle. Once again a paddle built to the FYO design was no longer available on the market.



This situation prevailed for over a year. Then, K9MM, John Becker, suggested to the author that the author's firm, Benchner Inc., might have an interest in purchasing Mr. Zielinski's design and tooling, and re-introduce his version of the paddle to the market. At that point, Benchner was a firm three years old, engaged in the manufacture of professional photographic and video copy stands, as well as graphic arts camera shutters. The suggestion offered immediate appeal, as the manufacture of a paddle would utilise comparable skills to those already possessed by Benchner employees. A contact was made with Mr. Zielinski, who was in fact willing to consider selling, and, after a careful review of the patent situation, negotiations to take over the line were successfully concluded. Thus the Benchner paddle was born.

After reviewing the design and the available tooling, Benchner decided to retool the product prior to manufacture, and took the opportunity to implement design changes suggested by

Mr. Zielinski and the author. Existing tooling was replaced with newer fixtures designed for higher production at lower cost. Suppliers of services such as screw machine parts, painting and plating were lined up, and production soon commenced. Advertisements were placed, dealers were appointed, and the first paddles were sold.

A meeting was held with the President of HAL Communications, and resulted in an understanding with HAL. While HAL felt they had a valid licence and that the Bencher product was in violation of the patent, they none the less indicated a recognition of Bencher's point of view, and indicated that they would not pursue legal action over an iambic paddle.



Seen here is Margaret, who has worked for Bencher Inc. on final assembly, adjustment and packing of all paddles since they were first made by the firm.

The product proved an immediate success, and for the first few months Bencher had difficulty meeting demand. Additional design improvements were implemented as production continued, and as sales further increased the tooling was again changed over to tooling allowing higher production at lower cost. (The initial capital cost of such tooling had caused Bencher to adopt a less expensive approach until the success of the product was assured.)

The first change made in the paddle was to use two screws to fasten the finger pad to the keyer lever arm. This eliminated a problem that occasionally occurred when the screw holding the fingerpad would come loose, generally in the middle of a QSO. Early Bencher paddles also suffered from two notorious failings upsetting to any operator. As long as the paddle was used properly,

everything worked very well. But, should the operator bump into the fingerpads from the wrong angle, all hell broke loose. The paddle would slip off the pivot points, invariably closing one or both contacts and sending a stream of dots, dashes or iambic pairs out over the air. And, frequently, as a result of being thus discombobulated, the tension spring holding everything together would come loose and go flying, generally ending up underneath the linear power supply case, there to remain safely hidden in spite of the most imaginative curses.

Curing the spring problem was simple - the spring end loops which rested on the tensioning screws were pinched down to force them to remain on the screws even when the paddle assemblies came off the pivot points. The solution to that problem took a little more ingenuity, since any cure could not be accepted that would reduce the responsiveness of the paddle. Finally a solution was developed by drilling and threading a pair of holes in the centre block. This screw allowed the frame to move around it without contact until the assembly might be moved enough to allow slipping off the pivot points. At the point the pivot frame would jam against the new cap-ture screw, and limit the movement away from the pivot points, thus keeping the paddle from falling apart.

These two "fixes" cured the major problems of the paddle, helping turn a skittish race horse into a dependable performer, yet without losing the responsiveness that the CW operator demands. But other changes were made in the paddle as time went on. The paddle base was changed from 1/2" steel plate to 5/8" leaded steel plate to give more weight on the operating table, and reduce any tendency for movement around the operating table. The pivot points were initially chrome plated brass, but went in progression from steel eventually to stainless steel and from conventional screw machine parts to Swiss screw machine parts. These moves solved minor production problems and further improved the quality of the product.

Fasteners on the paddle, originally steel plated, eventually all were changed to stainless steel, as was the tension spring. A special Fahnestock clip was ordered from a supplier to serve as a tool holder for the adjustment

hex wrench. Packaging the paddle was a problem until Ken Neuffer, W9ZA, a supplier of packaging materials, came up with a design that proved effective. Paddles no longer suffered shipping damage.

The plastic fingerpads themselves had an interesting history. George Zielinski had selected them from a catalogue of stock plastic parts from a plastics jobber in Chicago, and Bencher continued to order from that source. Even though the quantity of parts ordered rose considerably after initial production was begun, the price remained unattractively high. None the less, the actual manufacturer of the part could not be located in spite of a search through industry catalogues.

However, an order of parts coming in supplied a lucky break. The local jobber had received his order from his supplier, and simply used the supplier's shipping box to reship the parts to Bencher. Unfortunately for the local supplier, the original manufacturer had taped the box closed with packing tape overprinted with his name and telephone number. A quick phone call found a new supplier whose per piece cost was, by remarkable coincidence, exactly half of the prior supplier's price.

Eventually, none the less, Bencher invested in an injection mold tool, and began to have the fingerpads custom manufactured for the paddle, which has resulted in more uniform parts and better quality. One other note of interest on the fingerpads remains. When Bencher first offered the paddle, several calls were received from amateurs stating that they like the looks of the paddle, but couldn't it be supplied with RED fingerpads? The author can personally attest that it required some summoning of tact and patience to be able to respond politely, if negatively, to such requests.

As the iambic paddle became well established, Bencher began to receive requests that Bencher supply a single lever paddle as well; one similar to the original FYO design. Unfortunately, at that time the FYO patent was still valid, and licensed to HAL Communications. Discussions were held with HAL on the subject, and, although the HAL people proved cordial and open-minded, no agreement was ever reached. None the less, the requests continued, and finally, when the original patent expired, Bencher introduced the ST series of

paddles. Though never as popular as the iambic BY series of paddles, the ST series of paddles have added to the success of the line.

Bencher paddles are now used world wide, and though competitive information is not available, appear to be the sales leader for paddle type mechanisms. This surely reflects the genius of the original design by Joe Hill, W8FYO. Though Joe is a silent key, it would surely give him satisfaction to know how much pleasure the fruit of his work gives to CW operators everywhere.

Don C. Wallace, W6AM

This book describes the history of amateur radio, as experienced by Don Wallace

He was on the air in 1911, before the first radio regulations

Don was the radio operator for President Wilson at the Versailles Peace Conference

He was the winner of the Hoover Cup, for the Best home-built Amateur Radio Station

Don was a charter member of WAC in 1926

He went on to install 16 rhombic antennas on 120 acres in Rolling Hills; at that time the largest and most powerful amateur radio station in the world. By 1957 W6AM achieved the top of the ARRL DXCC Honor roll, a spot he occupied most of the next 28 years.

By Jan D. Perkins, N6AW

Hardbound, 350 pages

Prepublication price: \$19.95

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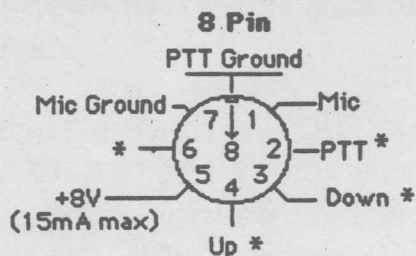
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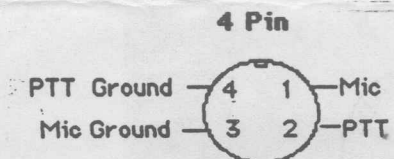
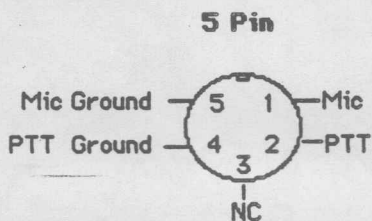
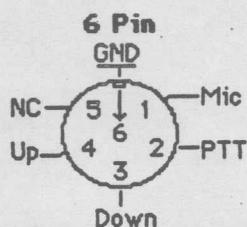
Kenwood Microphone Pinouts

(Looking at the female end of the plug)



* ON TM-221/321/421/521/621/721

- Pin 2 is also Serial data output to an external controller.
- Pin 3 is also Serial data input from an external controller.
- Pin 4 is also Serial clock to/from the external controller.
- Pin 6 when DC high indicates that a remote controller is connected. This pin also supplies receive audio to the remote controller (100mV/10k Ω).



TR2400

Cable

- 2.5 mm - Tip PTT - Sleeve Gnd
- 3.5 mm - Tip Mic - Sleeve Gnd
- * Caution!
- 2.5 mm - Tip Speaker - Sleeve Gnd

* This blank space straddles the charging jack. On some radios shorting this jack can damage the radio. DO NOT SHORT THE JACK!

TR2500/3500

- Cable
- 2.5 mm - Tip Speaker - Sleeve Gnd
 - 3.5 mm - Tip Mic - Sleeve PTT

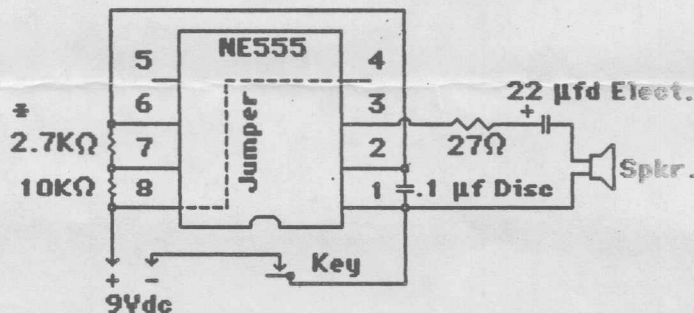
TR2600/3600 and all TH Series

- Cable
- 2.5 mm - Tip Speaker - Sleeve Gnd
 - 3.5 mm - Tip +5VDC - Ring Mic - Sleeve PTT



I want YOU
(to recruit more hams)

Code Practice Oscillator



NE555 Viewed from the top

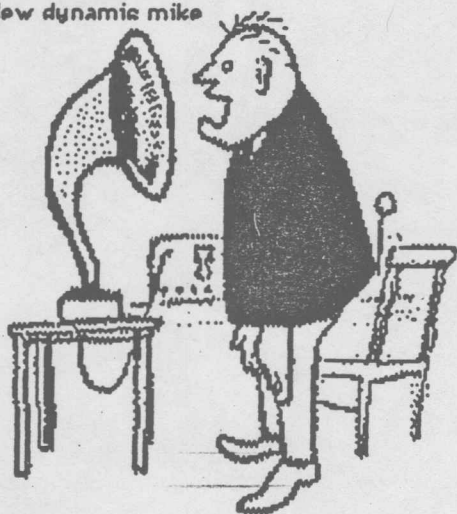
* Replace with a 10K Ω pot for adjustable tone.

What are toroids really made of ?

According to the list of ingredients on a box of Nabisco biscuits made in France "Amidon" is the French word for "cornstarch"! (We have the empty box in the service shop to prove it). Now if toroids come from Amidon then

WA8MCQ

New dynamic mike



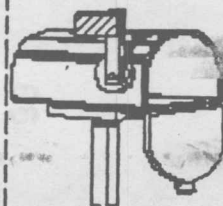
Service turnaround minimal

Our service department has caught up with demand and is presently taking only one or two days to get to your radio. If we have to order parts, it could be longer, but generally one or

two days from the date you drop it off, you can expect to hear from us.

Effective immediately.....

We cannot do estimates for repairs which are less than \$60.00. It is just too time consuming to do an estimate because we have to diagnose the problem just as if we were going to repair it. If the repair is less than \$60.00 we will fix it without an estimate.



Sure.. Put a copy of this sucker in my mailbox each month.

Here's five bucks for a years' subscription.

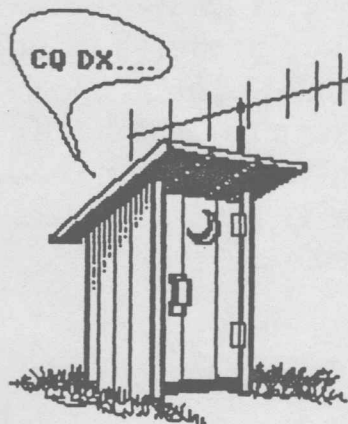
I'm _____

And my address is _____

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