

FEEDBACK

THE OFFICIAL NEWSLETTER OF THE
GEORGIAN BAY AMATEUR RADIO CLUB INC.

Sponsoring

VE3OSR FM REPEATER 146.940- Mhz BARROW BAY
VE3OST FM REPEATER 145.290- Mhz OWEN SOUND
VE3GBT FM REPEATER 146.895- Mhz MARKDALE
VE3IJD PACKET BBS 145.630 Mhz KEADY

Nov 1995

REGULAR EVENTS

GBARC MEETINGS:
FOURTH TUESDAY OF EACH
MONTH

BREAKFAST MEETINGS:
SECOND AND LAST SATURDAY
OF EACH MONTH

GBARC INFORMATION:
INFORMATION REGARDING
MEMBERSHIP SHOULD BE
DIRECTED TO TOM VE3NEM
519-371-9499

Minutes of GBARC meeting October 1995

TWENTY-ONE MEMBERS ATTENDED THE OCTOBER MEETING.

THE MINUTES OF THE LAST MEETING WERE ACCEPTED AS PRINTED, SECONDED BY MARV VA3ACI.

TOM VE3NEM MADE A PROPOSAL REGARDING INSURANCE AND WAS ASKED TO LOOK INTO IT FURTHER. IF HE COULD GET THE SAME COVERAGE ELSEWHERE AT THE SAME PRICE HE WAS TO GO AHEAD, BUT IF NOT THEN HE WAS TO GO BACK TO THE PRESENT COMPANY.

GENE VE3IJD SAID THE PACKET STATION WAS UP AND RUNNING WELL AND THAT WE NOW HAVE A NEW PACKET GROUP NAME "BITNET".

BOB VE3X0X TOLD THE CLUB ABOUT THE CANWARN MEETING THAT WAS HELD IN LONDON. HE SAID THAT SEVERAL WEATHER STATIONS ARE SLATED FOR CLOSING.

BILL VE3HMZ ASKED THE CLUB MEMBERS IF HE COULD HAVE A SPEAKER FOR THE GOLDEN K CLUB TO TALK ABOUT AMATEUR RADIO. BOB VE3X0X VOLUNTEERED TO SPEAK TO THIS CLUB.

THE OWEN SOUND AREA FLEA MARKET WILL BE DISCUSSED AT THE NOVEMBER MEETING.

THE CLUB IS TRYING TO GET BACK ONTO THE WAITING LIST FOR THE OWEN SOUND COMMUNITY BINGO.

JOHN VA3JRF IS STILL LOOKING FOR VOLUNTEERS FOR THE SANTA CLAUS PARADE ON NOVEMBER 18, 1995. VA3JRF, JOHN, ADDED THAT WE NEED MORE NET CONTROLLERS FOR THE TWO-METER THURSDAY NIGHT NET.

NOMINEES FOR AMATEUR OF THE YEAR ARE: JOHN VE3TXB; BOB VE3X0X; TOM VE3TSA; IAN VE3HIP; TOM VE3NEM; GENE VE3IJD; JACK VE3DTS; RICHARD VE3WUD.

THE DRAW FOR THE "COPPER CACTUS" WAS HELD WITH THE WINNER BEING JIM VE3OVV. THIS DRAW RAISED \$69.00 FOR "BITNET".

TOM VE3TSA WON THE 50-50 DRAW.

FROM THE PRESIDENT ----- Where does it all go?

Have you ever wondered where GBARC spends the money we take in? I got some unaudited figures from our treasurer, Tom VE3NEM, and distilled them down to the essentials. These are for the year from 1 June 1994 through 31 May 1995:

INCOME

Dues	\$1179.00	
Radio course	\$ 779.38	(net income after expenses)
50-50 draw	\$ 122.00	

EXPENSES

Insurance	\$ 405.00	
Licenses	\$ 72.00	(for repeaters)
Meetings	\$ 315.00	
Newsletter	\$ 306.01	
Field Day	\$ 135.00	
Packet	\$ 110.00	
Other	\$ 166.62	(bank and legal fees, office supplies, and flowers)

It's probably fair to say that the club spends \$477 to provide the three repeaters, since they are the main reason we need insurance. (Of course, the insurance also covers events like Field Day, so maybe we should divvy it up somehow.) Remember also that the packet group is separate now, with its own budget.

Now compare this with the survey Tom VE3TSA took earlier this year:

ACTIVITY	"OF INTEREST"	"FAVOURITE"
Meetings	15	4
Field Day	13	5
2m net	12	1
Tours	10	
80m net	7	1
Hamfest	7	1
Breakfast	6	3
Radio Course	5	1
Santa Claus parade	2	
Fox hunt	2	
JOTA	1	

("Newsletter" wasn't an activity on the questionnaire, but everyone said they like the style and content.) We spend most of our money on repeaters, meetings, the newsletter, and Field Day....and it looks like these are what these are what our members most want.

- Brad VE3RHJ

Subject: news flash for Feedback

Cale Enterprises has announced that it will no longer publish the Amateur Market Place (a buy & sell newsletter for ham gear). Instead, they will publish an "on-line" version on the World Wide Web. You can find it at <http://www.entrepreneurs.net/cale/amp.htm>

(If you're not on the Internet, don't worry...I checked it out, and right now it's just a compilation of all the "swap shop" listings that appear on packet. You can get it all from BITNET. - VE3RHJ)

QUESTIONNAIRE - Club Projects

Many club members have never built a piece of ham equipment, and would like to learn how. So, at the October meeting we talked about making some future club meetings "electronic project days." We had a short "brainstorming" session to think of project ideas. [And I've added a few ideas I've come across since then. - VE3RHJ]

Now we'd like to know which of these you'd like to do! Please check off one or more of the following...and add ideas some of your own if you like. Use this form, or write on a piece of paper, and send it to our Program Director: Dave Strobel VA3DSI, Box 771, Durham, ON, NOG 1R0.

Please note: some of these projects are simple; some are complex; and some require special-order parts and circuit boards. The simple ones we can do soon. The complex projects will require some advance planning.

- Basic construction skills
- Fixing broken equipment
- Equipment testing/calibration
- Refurbishing old ham gear
- Adapting Mocom 35 to ham use

- G5RV, Windom, or other multiband HF antenna
- HF antenna tuner
- HF SWR meter
- VHF SWR meter
- "twinlead" 2-metre J-pole antenna
- 2-metre beam or quad antenna
- Direction Finding (fox hunt) antenna

- audio filter
- DTMF (touch-tone) decoder
- code practice oscillator
- electronic keyer
- SSTV/FAX modem for PC
- "Poor Man's Packet" TNC for PC

- crystal calibrator (marker generator)
- frequency counter
- two-tone audio generator (for SSB rigs)
- Lead-acid/gel-cell battery charger
- Ni-Cad battery charger
- Ni-Cad battery zapper (rejuvenator)

- 12 volt power supply (___ amps?)
- 2-metre power amplifier ("brick")
- transverter (___ to ___ band?)
- QRP transmitter or transceiver

- _____
- _____
- _____
- _____

Your call _____ What do you consider your skill level:
 Complete beginner Built some simple stuff
 Fair Reasonably advanced Expert

GBARC DUES

Please consider this as a friendly reminder that Dues for GBARC membership will be gratefully accepted by our illustrious secretary Tom VE3NEM any time now for the upcoming 1996 year. Remember that dues for regular members are a paltry \$20.00 up to and including December 31st 1995. After that you get stung for an extra five bucks. editor

From: Jim Coverley

Hi to all... Below is a form to copy messages or traffic in the ARRL format....

If you want to practise using this form please listen to the Ontario Phone Net on 3.742 mhz at 7:00 pm local time every evening.

Have fun....

73 DE Jim VE3OVV

RADIOGRAM							
NO. »	PRECED »	HX	ORG STN »	CHECK »	PLACE OF ORIGIN »	TIME FILED »	DATE »
TO: »						THIS MESSAGE WAS RECEIVED AT »	
TEL. NO. »							
»							
RECEIVED FROM »					SENT TO »		
DATE »		TIME »			DATE»		TIME»

BLUE MOUNTAIN AMATEUR RADIO CLUB

P. O. Box 273
Collingwood, Ontario L9Y 3Z5

September, 26 1995

Brad Rodriguez
President
Georgian Bay Amateur Radio Club
Owen Sound, ON

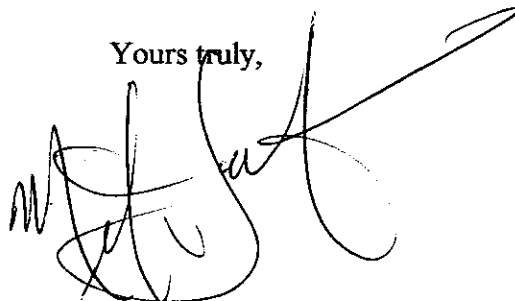
Dear Brad:

Please accept this letter as a sign of friendship and cooperation between the Blue Mountain Amateur Radio Club and the Georgian Bay Amateur Radio Club. It is the hope of the board of directors, the executive and the members of BMARC that today will mark the beginning of a new and exciting relationship between our clubs.

As president of the Blue Mountain Amateur Radio Club let me congratulate you and your members on the splendid work you are doing in your community. Providing vital communications, covering a broad spectrum of need, is what amateurs do best. We in BMARC wish to acknowledge the many contributions to the education, both of local government and the public in general, that your club has made in the name of and for the benefit of amateur radio.

We at the Blue Mountain Amateur Radio Club look forward to a long and productive relationship that can only add to the well-being of both our clubs.

Yours truly,

A handwritten signature in black ink, appearing to read 'Mike Yanocko', written over a circular stamp or mark.

Mike Yanocko
President

MY:ly
cc: BMARC Board

Rechargeable alkaline batteries for portable two-way radios

New recharging technology makes alkaline batteries even more attractive as an alternative to nickel-cadmium batteries than before. A higher power density-to-weight ratio and less toxicity are among the advantages.

Mobile Radio Technology May 1995

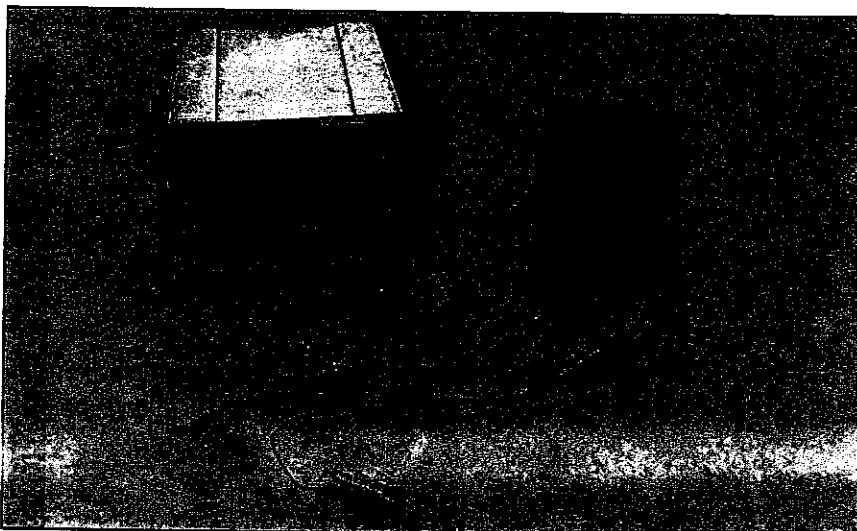


Photo 1. The test voltage was monitored by a digital voltmeter, and the current by a precision Fluke Model 8000 milliammeter.

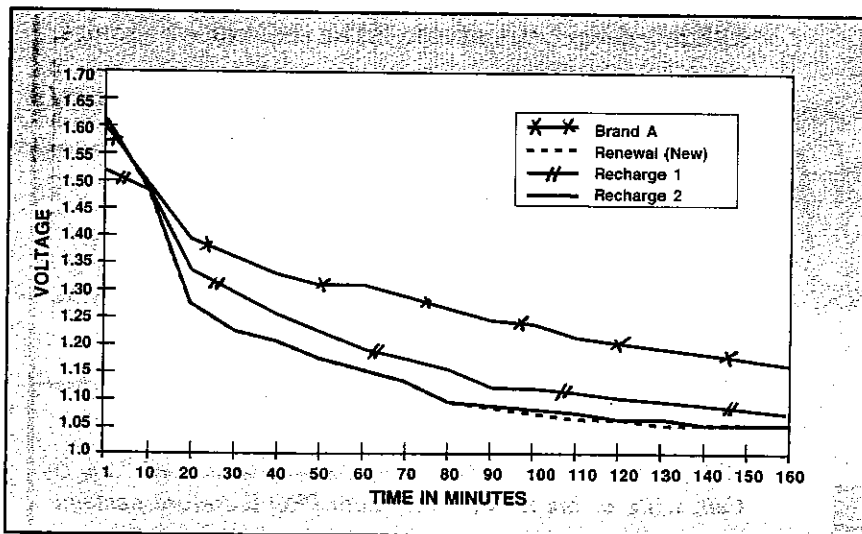


Figure 1. Voltage vs. time for the "Brand A" composite of values obtained from several tests of two brands of conventional alkaline batteries and the rechargeable battery tested fresh from the package, recharged overnight in the manufacturer's charger, and then repeatedly tested after several discharge and charge cycles.

By Donald E. Koehler

Portable radio users who need a high power density-to-weight ratio often prefer alkaline batteries to nickel-cadmium (NiCd) batteries.

Examples include people who have to carry all of their equipment with them in packs, on their belts or in their hands. Some search-and-rescue operations, law enforcement actions and firefighting assignments may require extended use of portable radios where extra batteries would add to the burden of necessary equipment.

Although alkaline batteries deliver more power for a given weight than NiCd batteries, some people have avoided using them in portable radios because the batteries could not be recharged. It costs much more to replace non-rechargeable alkaline batteries than to recharge NiCd batteries. Moreover, many environmentally conscious people do not want to add to the millions of disposable batteries that end up in landfills every year.

Rechargeable alkaline battery

Based on technology it purchased from a Canadian company, Rayovac has perfected a rechargeable alkaline battery.

It offers a power density comparable to conventional alkaline batteries at a reasonable cost and with none of the quirks of NiCd batteries. It even boasts several "green" features, such as almost no mercury content and no cadmium.

With a shelf life that the manufacturer puts at five years and the ability to be recharged, this battery is sure to be a hit with environmentalists.

The kind of battery-powered equipment

Koehler is the owner of Communication Specialties, Anchorage, AK.

people have and the way they use it differs, so to evaluate the new battery's performance, I designed a simple test to compare different types of batteries. Although the test may not directly relate to any specific piece of equipment, it allows a one-to-one performance test under controlled conditions. The test results also have the advantage of being easy to replicate.

Current sink

The battery under test, in this case a single AA cell, is hooked to a constant-current "sink." In this test, the current sink is a common flashlight bulb. It changes resistance and draws an almost steady current under varying voltage conditions. As the battery drains, the voltage drops, but the current draw in the test circuit remains essentially the same. The voltage and current in the circuit were monitored, and the results were recorded.

The test voltage was monitored by a digital voltmeter, and the current by a precision Fluke Model 8000 milliammeter. (See Photo 1 on page 77.) The resulting data plots are displayed in Figure 1 on page 77 and Figure 2 above. Please note the overall curves and not the absolute values.

"Brand A" is a composite of values ob-

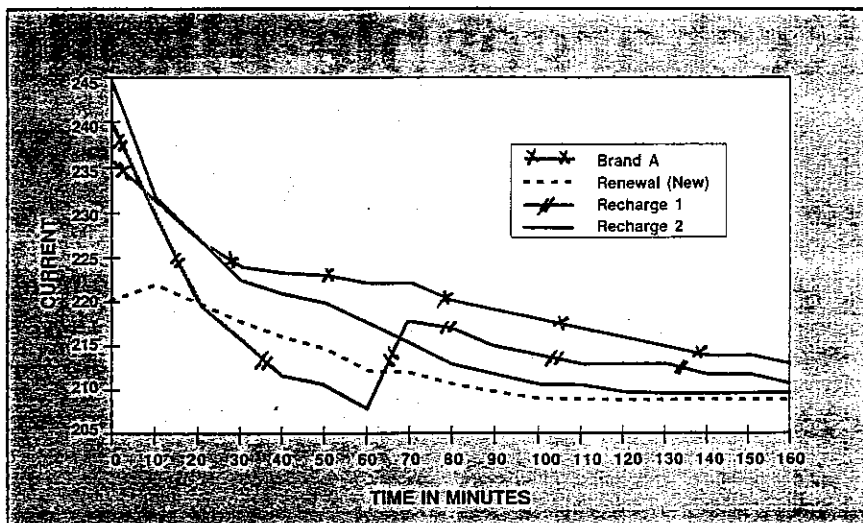


Figure 2. Current vs. time for the "Brand A" composite and the rechargeable battery. After several cycles, the rechargeable battery's test results remained essentially the same. The only anomaly in the series happened during the test following the first recharge, when a current spike showed about an hour into the test.

tained from several tests of two brands of conventional alkaline batteries. The rechargeable battery was tested fresh from the package, recharged overnight in the manufacturer's charger, and then repeat-

edly tested after several discharge and charge cycles.

After several cycles, the rechargeable battery's test results remained essentially the same. The only anomaly in the series

happened during the test following the first recharge, when a current spike showed about an hour into the test. It never occurred again. The data sets are otherwise unremarkable.

Battery performance

Table 1 below shows some common electronics equipment and the amount of current they use. You may infer battery performance in that equipment by comparing current draw to test results. In other words, the rechargeable battery produces

significant amounts of current (210mA) even after more than 2.5 hours of steady draw.

A member of Rayovac's technical staff suggested 1.0V is a good benchmark for removing the battery from service to begin recharging. Even so, the battery can be completely discharged without damage. I drained one cell until no voltage was indicated, and then recharged it overnight. After charging, the battery voltage reached 1.61V. Such a complete discharge is not recommended, but at least if it hap-

pens occasionally, it will not ruin the battery. Discharging a NiCd cell that way may ruin it.

Observations

Rechargeable alkaline batteries exhibit the same performance curve as conventional alkaline cells, although their absolute values are somewhat lower. Their performance clearly exceeds NiCd cells in the same working environment.

The failings of NiCd cells have been amply documented, such as the rapid drop-off of current vs. voltage and the dreaded memory effect that seems to depress cell voltage or charging capacity. Neither failing affects the rechargeable alkaline cell.

The shelf life is defined as the time required for a new, unused battery's charge to drop to 85% of a full charge. The manufacturer claims the shelf life exceeds five years, and I have every reason to believe it.

Even after repeated charges, the battery provided power for my portable equipment. How many times can it be recharged? As with NiCd batteries, it depends on how you use the cell. Twenty-five to 100 charges would be a reasonable expectation.

To recharge the batteries, you *must* use the manufacturer's recharger. One model

Table 1 - Some common electronic equipment types and the amount of current they use

EQUIPMENT	VOLTAGE	CURRENT DRAW	CONDITIONS
SG-789 shortwave receiver	4.5Vdc	60mA 33mA	w/o headphones w/ headphones
S2002 shortwave receiver	6.0Vdc	60mA 53mA	w/o headphones w/ headphones
IC-2AT VHF FM transceiver	9.0Vdc	45mA 265mA	Rx, squelch off Tx, high power
P-38 wideband scanner	7.5Vdc	75mA 42mA 38mA	squelch off Rx normal Scanning

is a compact, four-cell version for AAA and AA cells. (See Photo 2 to the right.) A second eight-cell "family" station handles cell sizes from AAA to D.

Both chargers use 117Vac and charge the cells with a proprietary pulse-current circuit. No provision has been made yet for a 12Vdc charging adapter. A 200W inverter to drive the chargers would suffice for remote operational needs until the manufacturer produces a 12Vdc vehicle charger.

CAUTION: If your equipment is configured to charge its batteries when connected to external ac or dc power, remove the rechargeable alkaline batteries before you connect the equipment to external power. If the batteries need recharging, charge them in the battery manufacturer's charger. This precaution will save both the cells and your equipment.

Bottom line

The battery pays for itself after the second recharge. Or, at prices in Anchorage, AK, with merely 25 charges or more, I save more than \$20 per cell. As a bonus, using rechargeable alkalines means fewer batteries are discarded as waste, and when a rechargeable alkaline battery does reach



Photo 2. To recharge the batteries, you *must* use the manufacturer's recharger. Here, the author's son, Robert, loads batteries into a compact, four-cell recharger for AAA and AA cells.

the landfill, it contains much less hazardous material than a NiCd battery.

Users of portable equipment and people

in remote locations will find the rechargeable alkaline battery an economical way to power their equipment.

AMATEUR RADIO WORDSEARCH PUZZLE,

}}}-> #037 <---{{{

P U Z Z L E

P	D	H	Y	T	X	I	S	E	N	O	Q	C	D	V	Z	Z	V	K	C
T	W	C	X	D	L	R	R	A	K	Z	E	Q	W	U	Q	F	K	Y	S
P	N	G	J	Y	K	A	R	F	L	F	Z	W	F	R	I	F	Z	I	U
C	Y	V	J	Y	B	D	Z	L	I	S	R	P	K	E	F	G	L	G	Z
D	E	O	U	F	X	E	B	E	O	R	B	X	M	C	Y	A	R	J	P
E	K	R	Q	X	E	T	L	M	T	W	W	C	W	I	U	T	J	S	C
A	Y	Z	K	M	L	D	N	E	Z	U	I	W	C	V	L	G	M	J	L
W	M	V	G	M	D	E	N	O	Z	H	V	O	V	O	U	N	P	Z	P
O	Z	K	K	A	T	M	I	L	R	U	R	A	I	N	Q	V	R	W	Y
S	K	F	Y	L	E	L	E	A	S	K	N	I	G	H	T	W	R	F	U
Q	J	K	R	T	L	K	P	Q	L	U	J	Q	U	J	C	T	L	B	U
F	L	R	E	N	C	E	Q	U	A	B	X	Y	T	R	A	P	O	S	Q
H	A	R	Q	M	K	T	J	Y	C	F	S	P	T	G	W	Q	L	S	L
V	T	G	B	S	S	X	D	W	W	Q	C	S	Q	S	B	O	S	X	M
Q	E	E	T	P	G	B	Q	L	C	C	K	P	X	M	S	R	H	P	Q
L	T	L	Z	O	T	P	E	U	P	J	U	T	O	D	W	A	A	W	Q
Z	H	Q	R	T	T	S	E	T	N	O	C	F	H	U	L	N	B	Q	R
C	Z	X	V	R	U	A	L	L	A	S	I	A	E	T	X	R	Z	C	F
R	H	M	H	Y	T	X	I	S	E	N	O	D	V	C	R	C	R	L	P
M	M	K	V	J	I	Q	T	S	E	T	N	O	C	E	M	E	P	A	A

C L U E S

FIELD DAY
CQWDX-SSB
SK NIGHT
QSO PARTY
CQWPX-SSB
ARRLDX-CW
IARU
ALL ASIA
ARRL-TEN
CQ ONE-SIXTY
ARRLDX-SSB
CQWPX-CW
TEN METER
VHF QSO
NOVICE RU
ONE-SIXTY
UHF CONTEST
WAEDC
VK-ZL
EME CONTEST

EXPANDED-RANGE DC AND AC VOLTMETERS

Here are some modifications to my article, "An Inexpensive Expanded-Range Voltmeter," (see Note 1). These changes do not affect the meter's accuracy, but do allow you to build a simpler expanded-range dc voltmeter and an expanded-range ac voltmeter.

The simplified expanded-range dc voltmeter schematic is shown in Fig 1A.² If you can't obtain D2, you can substitute the voltage regulator circuit of Fig 1B. The points marked X, Y and Z in Fig 1A correspond to the points of Fig 1B. Use R1 to set the meter's 11-V point; adjust R2 to set the 15-V point.

An expanded-range ac voltmeter (see Fig 1C) can be constructed using a voltage detector that approximately measures the average of the ac voltage. The average value better tracks the RMS value for complex (nonsinusoidal) waveforms than the more commonly used peak detector. This makes the meter's accuracy less dependent on the purity of the ac under measurement. Adjust R1 to set the meter to the minimum voltage (95) and adjust R2 to read the maximum ac voltage (140). As with the dc meter, the circuit of Fig 1B can be used to replace D2 in the ac meter (Fig 1C).

Construction

The PC board common to both of these meters is designed to mount directly on the

back of the Radio Shack meter. A small amount of glue holds the board to the center protrusion of the meter back; the positive and negative meter leads are soldered directly to the board. If the board is already attached to the meter back, the potentiometers can be more easily adjusted if they are mounted on the foil side of the board. All other components are mounted on the nonfoil side of the board.

Summary

This general design can be used to make an expanded-range voltmeter covering virtually any range. The accuracy of these meters is much better than you'd get from a full-range analog voltmeter. These meters are also easy to construct—and inexpensive.—John Grebenkemper, K16WX, 19490 Miller Ct, Saratoga, CA 95070

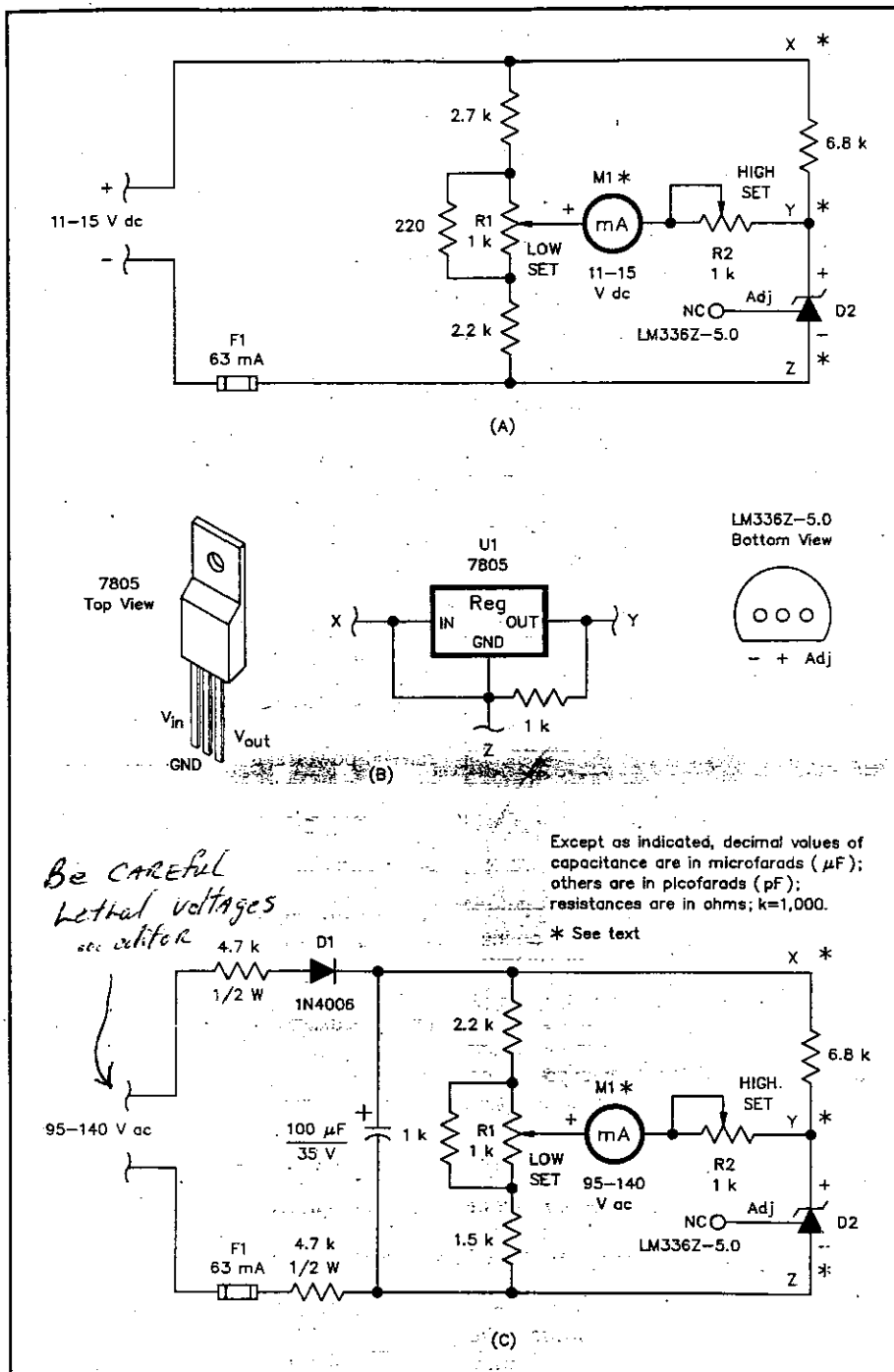
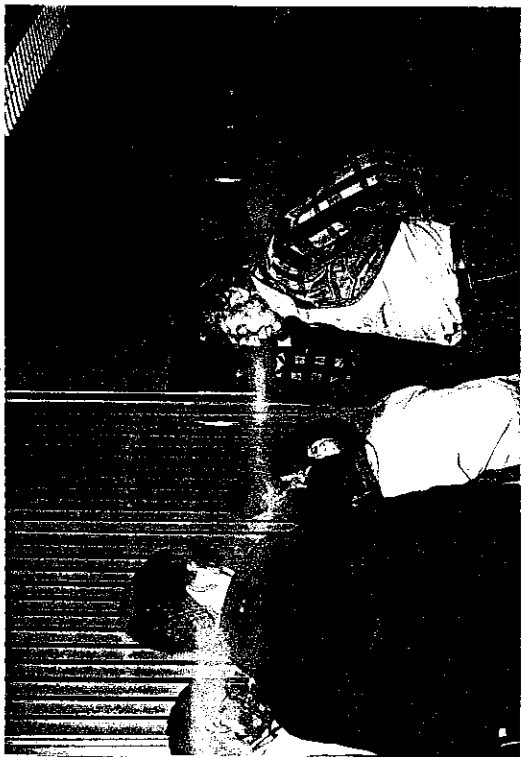


Fig 1—At A, the modified expanded-range dc-voltmeter circuit; the expanded-range ac-voltmeter circuit is at B. Part numbers in parentheses are Radio Shack; equivalent parts can be substituted. Unless otherwise specified, resistors are 1/4-W, 5%-tolerance carbon-composition or film units.

J. Grebenkemper, "An Expanded-Range Voltmeter," QST, Dec 1992, pp 52-54. See also Feedback, QST, Feb 1993, p 78.



A FEW VIEWS OF OUR CURRENT STUDENTS AT THE DURHAM RADIO COURSE



Steve VE3XKM, Jim VE3TFQ AND Dave VA3DSI ALONG WITH JOHN VE3TXB HAVE PUT A LOT OF EFFORT INTO THE DURHAM RADIO COURSE. THANKS