

NORTH SHORE AMATEUR RADIO CLUB INC.

P.O. BOX #171, OSHAWA, ONT., L1H 7L1



April/88

First Class Première classe

VE3CRK

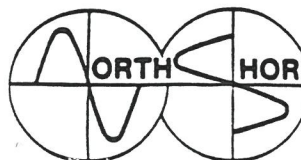
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Ralph Day
454 Holcan Ave
Oshawa

Ont. L1G 5X6



**N.S.A.R.C. meeting at the
Arts & Resource Centre
2nd Monday of each Month
8:00 PM**



NORTH SHORE AMATEUR RADIO CLUB INC.

P.O. BOX #171, OSHAWA, ONT., L1H 7L1

===== ELECTED DIRECTORS =====

| | | | |
|---------------------|----------------|---------|--------------|
| PRESIDENT | RALPH DAY | VE3 CRK | 416-576-8738 |
| SECRETARY | RAY ZAMBONELLI | VE3 OUB | 416-723-2467 |
| TREASURER | MIKE SHERBA | VE3 DKW | 416-723-7674 |
| PROGRAM DIRECTOR | JOE WHITE | VE3 IHS | 416-623-4069 |
| PAST/VICE PRESIDENT | RICK GIBSON | VE3 ASH | 416-434-2886 |

===== NON-ELECTED OFFICERS (SUBJECT TO CHANGES) =====

| | | | |
|--------------------------|-------------------|---------|--------------|
| REGISTRAR | KEITH WYARD-SCOTT | VE3 GDF | 416-723-5758 |
| SPECIAL EVENTS COORD. | RALPH DAY | VE3 CRK | 416-576-8738 |
| GET-WELL CARDS | COLIN BELL | VE3 GDF | 416-723-7482 |
| 2-METER NET CONTROL | ROY MILLER | VE3 AAF | 416-852-5447 |
| MEMBERSHIP LIST & LABELS | PAUL DALE | VE3 LHZ | 416-579-2877 |
| INSTRUCTION COORD. | RICK GIBSON | VE3 ASH | 416-434-2886 |
| AUDITOR | HARRY WESTWOOD | VE3 QG | 416-683-5104 |

=====
CLUB STATION.....VE3 NSR

CLUB REPEATER.....VE3 OSH 147.720 MHZ IN 147.120 MHZ OUT.
 2-METER NET HOSTED BY ROY (AAF) (OR A STAND-IN) CONVENES EVERY THURSDAY AT 19:30 LOCAL TIME ON THE CLUBS REPEATER (OSH). AS PART OF THE NET, CODE PRACTICE IS PROVIDED BY BERNIE (ATI) BEGINNING AT 20:30 LOCAL.

10-METER NET (UNOFFICIAL)- A GROUP OF LOCAL HAMS MEET SUNDAYS ON 28.200 MHZ USING CW FROM 09:00 TO 10:00 LOCAL THEN SWITCH TO SSB PHONE UNTIL EXHAUSTED OR XYL'S CALL DINNER

===== CONTRIBUTIONS TO NEWSLETTER =====

| | | | |
|----------|-------------------|---------|--------------|
| EDITORS- | KEITH WYARD-SCOTT | VE3 GDF | 416-723-5758 |
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CONTRIBUTIONS MAY BE MAILED (ATTENTION THE EDITOR) TO THE N.S.A.R.C., BOX #171, OSHTAWA, ONT., L1H 7L1 OR, IF URGENT, CALL ONE OF THE EDITORS DIRECTLY.

NOTE!- OPINIONS EXPRESSED ARE THOSE OF THE WRITERS AND DO NOT, OF NECESSITY, REFLECT THOSE OF N.S.A.R.C. MEMBERS IN GENERAL. ARTICLES DEEMED TO BE DEFAMATORY WILL NOT BE ACCEPTED.

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NEXT MEETING - MONDAY, APRIL 11, 1988 AT 20:00 LOCAL (8:00 P.M.) IN THE GREEN ROOM OF THE ARTS RESOURCE CENTRE (BEHIND CITY HALL - CENTRE STREET SOUTH- SEE ENCLOSED MAP ON PAGE 1)

PROGRAM-THIS MONTH THE MEETING WILL FEATURE A COUPLE OF VIDEO'S WHICH SHOULD BE PARTICULARLY INTERESTING TO NEW HAMS AND SWL'S BUT ALSO CONTAIN PERTINENT REMINDERS FOR OUR VETERAN HAMS. THEIR TITLES ARE 'AMATEUR RADIO'S NEWEST FRONTIER' AND 'NEW WORLD OF AMATEUR RADIO'.

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CREDIT DUE - PAGES 4,5,6,&7 ARE COURTESY OF GEORGE (VE3OZW) BUT WE KNOW NOT HOW IT CAME TO OUR PRESIDENT'S DESK. WE DO THINK IT WORTH REPRINTING. PARTIAL SOLUTION FROM SPLATTER (PAGE 7).

 MYSTERY UNRAVELLED

OVER THE YEARS THERE HAVE BEEN MANY THEORIES EXPOUNDED REGARDING THE DRIVE FORCE BEHIND UFO'S OR 'FLYING SAUCERS', ONE OF WHICH WAS THAT THEY WERE PROPELLED BY CROSSING MAGNETIC LINES OF FORCE. NOW ANY AMATEUR KNOWS THAT CROSSING LINES OF FORCE WITH A WIRE DOES INDEED GENERATE SOME ENERGY IN THE WIRE, BUT NO RADIO TECHNICIAN HAS EVER, AS FAR AS THE EDITOR KNOWS, EVEN IF THEY BELIEVED IN UFO'S, SUGGESTED HOW IT MIGHT MOVE ANYTHING THE SIZE OF A SPACE SHIP OR AT THE SPEED OF LIGHT AS IS USUALLY INDICATED IN UFO REPORTS. ACCORDING TO A RECENT ARTICLE IN 'LITTLE'S SCIENTIFIC DISCOVERER' A CHINESE STUDENT, NA PEN KA-TU. (WHO BY THE WAY HAS THE AMATEUR CALL VEØZZE) MIGHT HAVE THE ANSWER. HIS INSIGHT CAME EARLY ONE MORNING DURING A HIGH POINT IN THE LAST SUNSPOT CYCLE WHILE HE WAS WORKING ON AN EXPERIMENT BOUNCING LASER LIGHT OFF ONE OF THE SATELLITES USING A NEW TYPE OF ACCELERATOR INSTALLED ON A RESEARCH SHIP IN THE CANADIAN ARCTIC NEAR THE MAGNETIC POLE.

IT SEEMS THAT, DURING ONE OF MANY WAITING-FOR-THE-COMPUTER-TO-DIGEST-THE-DATA PERIODS, HE WAS UTILIZING THE TIME TO DARN HIS SOCKS AND HAD SET THE NEEDLE ON TOP OF THE HOUSING OF THE LAST LENS OF THE ACCELERATOR WHEN IT SUDDENLY TOOK OFF AND BURIED ITSELF IN THE HULL OF THE SHIP TO A DEPTH OF 1 1/4 INCHES. THE EYE OF THE NEEDLE, WHICH WAS STILL ON THE INSIDE OF THE HULL, HAD BEEN SPREAD BY THE INERTIA OF THE REAR END OF THE NEEDLE SO THAT THE THREAD, WHICH HE HAD HAD TROUBLE PUSHING THROUGH MOMENTS BEFORE, SLOWLY SLID OUT DUE TO JUST THE DIFFERENCE IN THE WEIGHT BETWEEN THE TWO ENDS, AND THE EYE WAS NOW LARGE ENOUGH TO PASS A PIECE OF BUTCHER CORD FREELY.

WHEN THE INCIDENT WAS DESCRIBED IN HIS REPORT TO THE JOINT INTERNATIONAL GROUP HEADQUARTERS, A RUSSIAN SCIENTIST, IGOR TUGA TINNONIT, CLAIMED THAT THIS WOULD EXPLAIN WHY A NAIL THAT HE HAD PLACED, HE WAS CERTAIN, IN A SIMILAR POSITION WAS MISSING WHEN HE LOOKED FOR IT THE NEXT DAY, WHILE HE FOUND A PECULIAR NAIL NEAR A PIECE OF ARMOUR PLATE WHICH HAD NO POINT ON EITHER END BUT A LARGE UPSET IN THE END WHERE A POINT SHOULD HAVE BEEN.

WHEN READING THIS ARTICLE, I (THE EDITOR) WAS PUZZLED BY THE FACT THAT NO FURTHER STUDIES WERE MENTIONED UNTIL I REALIZED THAT THIS WOULD IMMEDIATELY HAVE BECOME 'TOP SECRET' AND I SINCERELY DEBATED WHETHER I WOULD BE CONSIDERED A TRAITOR FOR PUBLISHING THIS. THAT IS, UNTIL I TOOK ANOTHER LOOK AT THE NAMES OF THE TWO REPORTERS AND REALIZED THAT THE CHINESE PUT THEIR LAST NAMES FIRST SO THAT 'NA PEN KA-TU' WOULD BE KA-TU NA PEN IN ENGLISH (PRONOUNCED 'CAUGHT YOU NAPPIN') AND THAT IGOR'S NAME ALSO REMINDED ONE OF APRIL 1. BESIDES, I HAVE NEVER HEARD OF 'LITTLE'S SCIENTIFIC DISCOVERER'-----HAVE YOU?

 REPAIR YOUR OWN ELECTRONIC INSTRUMENTS

THE FOLLOWING SIX STEPS ARE A SUMMARY OF SUGGESTIONS TAKEN FROM THE PEEL A.R.C. BULLETIN--DE KC2FI FRANK'S MAILBOX C/O VE3KOI -- DE VE3NXK. THE FIRST 5 ARE INTENDED TO IMPRESS THE INSTRUMENT WITH YOUR KNOWLEDGE AND SELDOM WORK; THE LAST IS OFTEN FATAL.(EDITOR)

1. APPROACH INSTRUMENT WITH CONFIDENCE.
2. WAVE HANDBOOK AT THE INSTRUMENT.
3. RECITE OHM'S LAW FORCEFULLY.
4. JAR THE INSTRUMENT SLIGHTLY.(3 TO 6 FT.DROP)
5. ADD A PCB (PRINTED CIRCUIT BOARD NOT POLY-CLORINATED BIPHENYLS)
6. AS A LAST RESORT----'THINK'.

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PCB'S IN DUMMY LOADS AND CAPACITORS

The hysteria created by the news media and some pseudo-environmentalists regarding PCB's has caused many radio amateurs to become concerned. Many suspect that their dummy load contains a PCB and that the same might be true of some of the oil-filled capacitors which many of us have from world war 2 and later surplus and often found on sale at hamfests.

I have had words with some journalists on the subject and my suggestions fell on stony ground. I concluded that the truth makes a dull story and not what they want to write about or that it does not help to sell newspapers. Correct information is available in most public libraries, not that which is contributed by journalists or some environmentalists but that which is contained in technical electrical and chemical handbooks. Of course the terminology in these books is such that a journalist is bound to conclude that is couldn't be anything but dull.

Anyhow during my working career I have relocated many times and found that movers will not accept a number of inflammable or corrosive items for transport for obvious reasons. Included in these are paints solvents oils and wet batteries.

This meant that I always had to empty my dummy load and buy some new coolant at the new location. It is not possible to purchase one gallon amounts of transformer oil and I always had to buy a 5 gallon or now 20 litre pail of it at the new location. I then had to sell or give away the balance after filling my one gallon Heathkit dummy load. Subsequently I was accused by some of the recipients of having sold them a PCB. This was caused by the use of improper terminology by certain writers especially those who are not capable of discerning the difference between a mineral oil and a PCB.

Now let's deal with some facts. PCB's in this case are not printed circuit boards but Poly-Chlorinated Biphenyls. The type most commonly produced in large volume was developed for use in the cooling of large electrical transformers. The purpose of such development was to create a fireproof liquid coolant to replace a mineral oil called transformer oil. Transformer oil has been around since near the turn of this century and is used in large power and smaller pole-type transformers. Primarily it convects the heat away from the winding and iron core which comes from the I squared R losses in the copper and the hysteresis losses in the iron. It also has a high dielectric strength and makes possible closer spacing between turns and windings within the transformer.

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The big problem with oil is that it is inflammable and would create a fire hazard in indoor installations. If such transformers are located indoors, the Canadian Electrical Code requires that they be in a tub capable of containing all the oil and be surrounded by a fire resistant vault. Of course all this is very expensive and there was an incentive to come up with a liquid coolant which would not burn and would have all the desirable characteristics of transformer oil. PCB's of another type had been developed for other purposes in the 1920's but the quantities required were small when compared with the volume required for transformer coolant. A PCB having the desired insulating and heat transfer characteristics was developed in 1932 but did not reach the market in any significant volume until after WW 2. Probably most installations were made during construction of industrial and commercial buildings in the 1960-1972 era. Although transformers cooled with it were considerably more expensive than oil filled types, it was more economical than building a vault.

This product was sold under various trade names, for example, GE called it Pyranol, Westinghouse called it Inerteen and many used the generic term of Askarel. The important thing to remember is that it is not an oil. It is a synthetic chemical compound created for a specific purpose.

Of course it was not known at the time that continued exposure at high levels of concentration of PCB's (and many other substances) produced cancer in rats. When this was established, an ideal subject for inflammatory journalism was created.

Here is a comparison of two important characteristics of the two liquids:

| | <u>Transformer oil</u> | <u>Askarel</u> |
|-----------------------|------------------------|----------------|
| Specific gravity | 0.88 | 1.56 |
| Flash Point (degrees) | 135 C (275 F) | None |

The specific gravity indicates that askarel is almost twice as heavy as oil and is heavier than water, oil of course is lighter than water. This provides a method of finding out what is actually in your dummy load. Put some water in a glass container and take the lid off your dummy load. Dip a piece of wire into it and shake a drop off the wire into the water. If it sinks, it is most likely a PCB. If it flattens out on the surface, it is oil.

The lack of a flash point indicates that it is very difficult to destroy a PCB but it can be converted to a different substance at extremely high temperatures.

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Askarel is a strong solvent for some of the varnishes and other materials used for insulation in oil-filled transformers so different materials had to be used for askarel filled transformers. This meant that it was not possible to simply drain the oil from an oil-filled unit and substitute askarel to obtain an indoor transformer. The reverse process is possible but some way to locate the transformer outdoors would then be necessary. There has been mention in the news media of oil contaminated with PCB's. The small number of parts per million found suggests that this may have been caused by the fact that during the early days of its use, the same hoses and pumps were used for both oil and askarel in many cases. This may have caused some journalists to create a new term - "PCB oil". There is no such thing.

Askarel for use in capacitors is more viscous than that used for transformers and has a higher dielectric constant. Although askarel was more expensive than oil, its use produced a smaller capacitor for the very large units required for power factor correction in industrial and utility applications.

The relatively small oil filled capacitors used in radio and electronic circuits (0.1 mf to say 10 mf) do not fall under the CSA and NEC code requirements for vaults etc. They are still made and may be purchased new today. It says "oil filled" on the case and that means mineral oil. PCB's are now forbidden by law. The cost of askarel was always higher than that of oil when it was permitted to be sold so small capacitors having no need for code requirements were not filled with askarel. Likewise because of cost, amateurs did not purchase askarel for use in dummy loads but some may have been sneaked out the back door of some industrial plants or utilities.

Power capacitors are used in industry and by utilities for power factor correction. We use smaller, usually variable capacitors in transmatches to do exactly the same thing but we call it cancelling out inductive reactance or impedance matching. Power capacitors at 60 Hz when required to be indoors, were filled with askarel and because of the advantages given above were also installed outdoors. The smallest of these would be about 10 KVA which at 60 Hz and on 600 volts would consist of three banks, each of 74 mfd, rated for 600 volts AC and connected in a three phase wye connection. Such capacitors are often 100 KVA and more in industrial applications and even larger at higher voltages in utility applications. You can see why the fire hazard develops if such large capacitors are installed indoors and use oil as a dielectric.

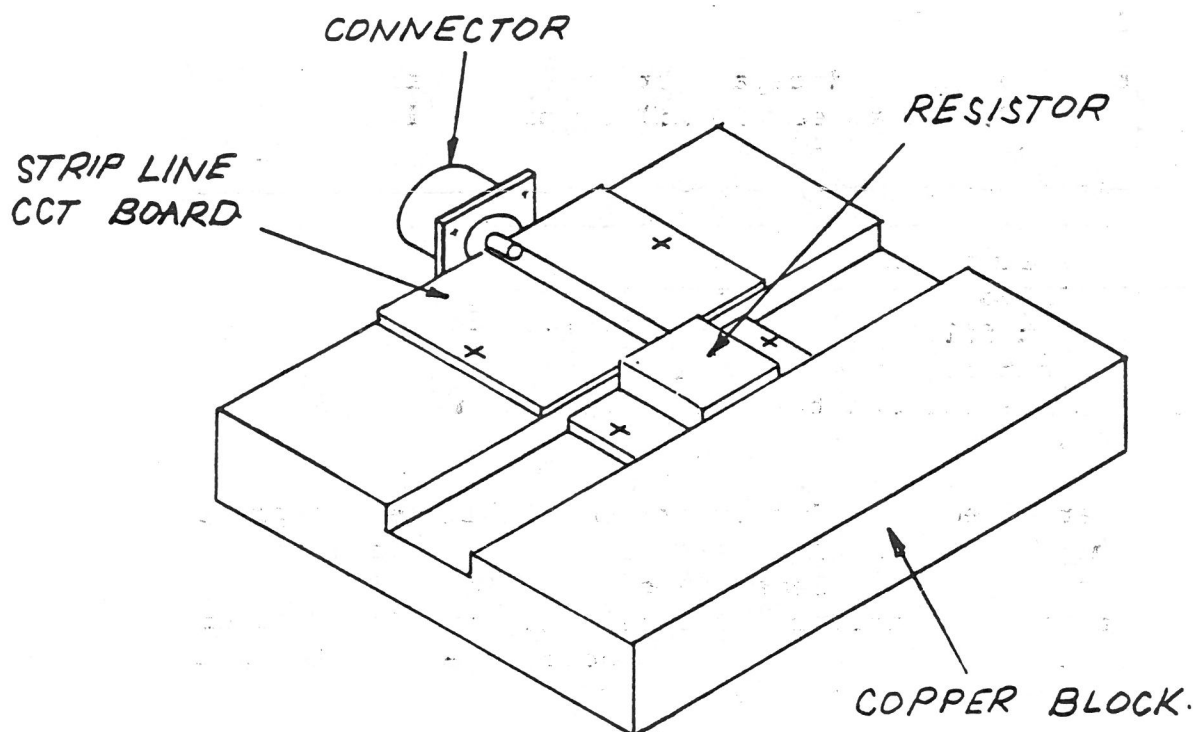
If you want some transformer oil for your dummy load, Imperial Oil and probably others have it in 20 litre pails. Imperial oil call theirs "Voltesso 35". Have a talk with someone in the sales department at a main distribution terminal. They will tell you that their product is pure mineral oil and does not contain any PCB's. Some may tell you that they have given up on trying to educate the news media.

George, VE30ZW

THE FOLLOWING MAY REMOVE ANY ANXIETY RE: PCB'S (SPLATTER JAN. 1988)

75 WATT DUMMY LOAD

BY STAN SMITH - VE3DDX



A nice little Dummy Load for anything from QRP HF to high power UHF can be made from resistors made by KDI Electronics, of 60 South Jefferson Rd., WIPPANY, N.J.

These resistors mount directly to a heatsink, are supplied from 10 to 800 watts, and have a frequency range from D.C to 4 GHz with a USWR of 1.35:1 D.C to 4.0GHz. I built a simple little one with a block of copper, connector, resistor and a small stripline CCT board. The resistors are designed for use with stripline CCT boards; for a 50-ohm stripline use a trace 1/8 inch wide on G10 fibreglass board double-sided. The trace can be as long or as short as possible. I used a 75-watt resistor # PPT-820-75-3 for use at 2 metres, and it works perfectly.

S(ome) W(ant) A(11) P(eruse)

THIS IS YOUR SWAP, SELL OR BUY COLUMN --TO HAVE AN ARTICLE LISTED, JUST MAIL INFORMATION TO THE EDITOR OR PHONE IT IN (723-5758)

FOR SALE--G.E. TERMINET DATACOM 300 PRINTER--300 BAUD (30 CPS)--SERIAL, IMPACT PRINTER WITH WIDE PAGE PIN FEED--LETTER QUALITY-- UPPER AND LOWER CASE-- MAKE AN OFFER TO FARNEY (VE3BHQ) ON 416-987-4511

WANTED---NO NEW ITEMS

NEXT MEETING

THE PROGRAM FOR THE MAY MEETING HAS, AS YET, NOT BEEN FINALIZED SO YOU WILL HAVE TO WATCH FOR THE NEXT BULLETIN

SILENT KEY

WE ARE SADDENED TO HEAR OF THE DEATH OF HOWIE (VE3DAX) WHO, WHILE NOT A MEMBER OF OUR CLUB, WAS WELL KNOWN TO OUR MEMBERS AS ONE OF THE DRIVING FORCES BEHIND THE DURHAM REGION FLEA MARKET FOR THE LAST FEW YEARS AND THE SPARC WILL SURELY MISS HIM.

PERMANENT REMINDER

IF YOU ARE READING THIS NEWSLETTER OVER THE SHOULDER OF THE HAM WHOSE NAME APPEARS ON THE MAILING LABEL BECAUSE YOU FORGOT TO MAIL IN YOUR RENEWAL OR BECAUSE YOU HAVE NEVER BEEN A MEMBER OF OUR CLUB, NOW'S YOUR CHANCE! PLEASE, USE THE FORM AND INFORMATION BELOW TO JOIN US. (IF THE OWNER WON'T PART WITH IT, USE A FACSIMILE (OR SOMETHING SIMILAR).

HELD OVER BY POPULAR REQUEST AND OUR LOVE FOR YOU!!

- FULL MEMBERSHIP-- \$15.00 CDN, (10.50 U.S.)-- INCLUDES FULL VOTING PRIVILEGES AND MONTHLY NEWS BULLETIN FOR ONE CALENDAR YEAR (JANUARY TO DECEMBER, JULY & AUGUST EXCEPTED)
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TO JOIN US, OR TO MAKE CHANGES TO MAILING ADDRESS, SIMPLY (YOU'RE A HAM AREN'T YOU?) FILL IN THE FOLLOWING FORM AND MAIL IT ALONG WITH THE APPROPRIATE FEE TO THE REGISTRAR OF THE N.S.A.R.C. AT HIS HOME ADDRESS (PREFERRABLY) 298 DOVER STREET, OSHAWA, ONTARIO, L1G 6G6 OR TO THE CLUB BOX #171, OSHAWA, ONTARIO, L1H 7L1.

NAME- _____ CALL- _____

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