

# FEEDBACK

The **OFFICIAL** Newsletter of the Georgian Bay Amateur Radio Club Inc.  
P.O. Box 113, Owen Sound, Ontario N4K 5P1

## ***Executive***

*President* Jim Vamplew VE3CRV

*Vice Pres.* Dick Shave VE3BIS

*Sec. Treas.* Cy Weaver VE3DQA

## ***Newsletter Editor***

Bill Hardie VE3EFX

The April meeting was attended by 28 members and guests, including K5EVE/VE3 who is now living in Kincardine. The minutes were read and the bank balance stands at \$132.66.

VE3BSF suggested that a letter be written to ARRL to have the date of Field Day changed in future as he feels that it conflicts with the July 1st holiday. A vote was taken and the suggestion was carried.

VE3FOT was appointed as a one man nominating committee for the executive elections to be held this month.

A thankyou card was received from Mrs P. Cox.

VE3CAB has requested a license to operate a beacon station on 10m.

A vote on a change of time for the net was defeated, there were those who wanted to have it earlier so that they could romp off to do their thing at the various religious establishments and others wanted to have it later so that they could sleep late after doing their thing the previous night at establishments of a different nature. As far as the majority was concerned 9.30am is a happy medium and doesn't involve getting up too early on a Sunday.

A 50mhz rig was given to the club by VE3HIN to be auctioned off and the highest bidder was VE5KW/1E3 who took it home for \$12.50. The auctioneer was Slippery Shave who is rather well known locally as a con artist.

There was a movie on electromagnetism and afterwards Terry showed a movie taken at the Ryerson club Field Day last year. Coffee and donuts were served, Rick, VE3HIO, was presented with his prize for winning the beginners CW contest last December. It was in the form of a plaque suitably inscribed. Sorry about the delay Rick, but it was due to various strikes in the postal service and also in the firm that we ordered it from initially.

It appears that the membership is not interested in a contest as no comments have been forthcoming since I mentioned it some time ago.

Information on the Balloon Launched Repeater at press time is as follows.

Dates, each weekend in May depending on weather.

Times, 10am Saturday or Sunday.

.Input: 144.03 - 144.13 mhz.

output: 145.85 - 145.95 mhz.

Power o/p: 5w pep or 3w AM and CW.

Telemetry beacon on 145.97mhz will run 250 - 300mW Locator beacon on 146.94mhz will run 30mw. There will be launches each weekend if the WX is favourable and they have a 432mb translator ready for the last two weekends. It's input is 432.0 - 432.2mhz and it's output is 145.2 - 145.3mhz.

The duration of flight will be 2-4 hrs depending on winds above 50,000ft. If wind is light it will operate till balloon burst occurs. Expected range of operation is 1,000 miles if the package reaches 100,000ft A 5 - 10 watt signal into a 10db gain antenna will be enough to work through the translator. All reports of stations heard and worked should go to VE3FKU.

As most of you will know by now the rally we were to assist with last month was cancelled due to impassable roads on the route.

Watch the Ontars and CJ nets as well as special announcements in the Stateside portion of 80m on Friday evenings for information on the above mentioned balloon launches. They will get computer forecasts for the weekend and hope to get one up each Saturday or Sunday in the month. If you can tune these frequencies the sponsors will be very glad to hear your reports.

VE3AYM was down here last weekend and was able to work into OSR with his / 2m rig from Underwood which is only 5 miles North of Tiverton. That antenna of Charlie's seems to be the answer.

Those who wish to take the Advanced exam should attend the classes at Georgian college in the navigation room starting on Tuesday May 6th at 7.30pm. The classes will run for four weeks and the exam will be held on the 3rd June. These classes are for theory as it is assumed that everyone can do any code practice they need on their own.

FOR SALE: A general coverage receiver type S40 with SM40 signal strength meter 550khz - \$0mhz. Price.... \$50 Call VE3HI0 or VE3HIN.

\*\*\*\*\*

The Worked All States table standings are shown as of the beginning of May.

### **HIDDEN TRANSMITTER HUNT**

VE3BIS and VE3DQA have organized a hidden transmitter hunt for icy 11th and all club members are invited to participate.

Operation of the TX will be on 146.94 mhz and 146.52 mhz with the first transmission being made at 10am . The transmitter will be in the area bordered by Hwy 21, Hwy9, and Hwy6.

There will be a QSL card in a prominent place near the position of the TX and the one who picks it up first is the winner. Each car involved will pay \$1 to enter and payment can be made at the club meeting. There will be a prize for the winner. Talk to Dick or Cy on the repeater for any further information you may require. Terry plans to go up in a plane and bomb the Tx and operators with bags of flour so if your rig fails you can just drive around looking for a white spot or a couple of ghostly figures high tailing it for home.

Rick, VE3HIO, has worked a couple of German stations on 20m lately. Tess, VE3HIR has 5 continents worked and 4 confirmed. VE8RA/CX is her best DX to date, and a QSO with Asia will give her WAC.

I received a nice letter from Art, VE3AKC, and he extends an invitation to all the club members , their wives and families to come up to his cottage at Woodland each on Saturday, August 23rd for a picnic. All those wishing to go should take along a picnic lunch and Art will set up picnic tables etc.

You can take advantage of the swimming facilities, operate the rigs, or just enjoy a ragehew in very pleasant surroundings. I'd suggest that we let Art know how many are going by the end of July at the latest.

By the time you get the next issue of Feedback , the Amateur and Advanced exams will be over and hopefully all the participants will have passed the test.

We must make up our minds whether to operate two or three rigs on Field Day at the May meeting so let your intentions be known if you are going to be able to come out and do some operating. Info to be in my possession by the meeting night.

How many of you read the account of the club operation on the Snowmobile Marathon

In QST last month ? I sent a report in to the SCM and it came out right on sked.

Did you know that Terry, VE3CAB , played hooky from school to attend the club meeting last month ?

Ian, VE3HIP, crept crabwise into the meeting after a hernia op last month. Hope you are feeling OK now Ian but if you work all the other States you need during the convalescence, that should ease the pain.

VE3EFX is mobile on 2m now with a HR212 and it is getting out fine apparently. Contacts have been made through OSR, KSR, LAC,GOD, SAR, RPT and VE3EYN's machine.

Rick, VE3HIO, built up the Octopus from last month's Feedback and got it into operation the day he got the newsletter. Good for you Rick.

Terry, VE3CAB, will be giving a talk on SWR at the meeting so perhaps he will be able to clear up some of the mystery that appears to surround this subject for any of the club members. Antenna matching is a lot more important than increasing the power when it comes to putting out a good signal. A good example of what can be done with low power and efficient antenna systems is the record of W2QHH, who has an impressive list of certificates and awards all obtained with about 25 watts. By the way you can work Howie almost any day on Ontars, and his QSL is covered with the list of awards he has collected.

President VE3BIS,DICK SHAVE  
Vice President VE3DXO,DAVE DIXON  
Secretary / Treasurer VE3DQA,CY WEAVER  
Technical Director VE3FFN,WALT STOYKO  
Programme Director VE3HIP,IAN TRENHOLME  
Newsletter EditorVE3EFX,BILL HARDIE

If you have other nominations , you can let VE3FOT know or voice your opinions at the meeting. If you cannot attend the meeting you may send in your vote or other comments by mail. the election will be held at the meeting and the new executive will take over on the night of the June meeting.

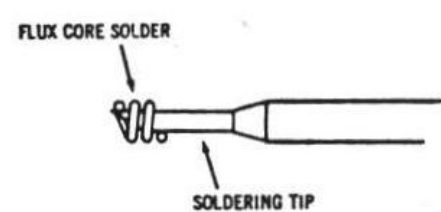
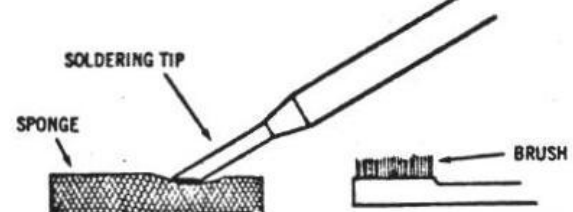
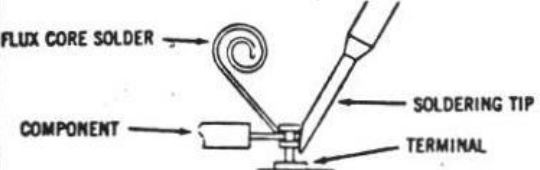
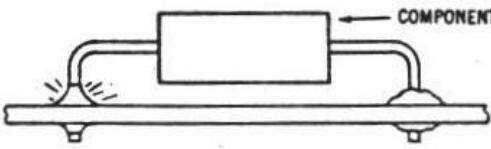
The movie "HAM'S WIDE WORLD" will be shown at the May meeting so plan to attend and Its sure you will enjoy the show.

The repeater developed a bout of problems on the weekend of April 19th and 20th and we are indebted to Ken Slack for going out thereon his Sunday off to fix it.

The Ontario Hamfest that is being hosted by the Burlington club on July 11, 12, & 13th looks like being an interesting affair.

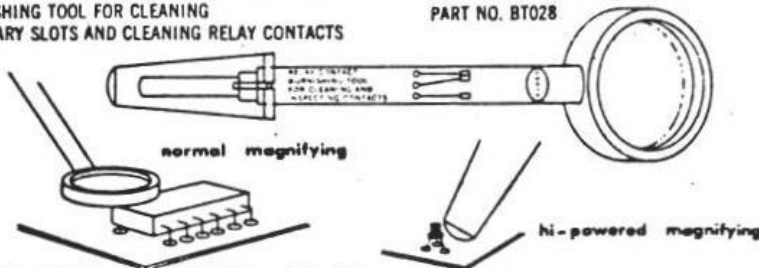
# SOLDER (EDSYN) ABILITY -- HINTS

For most efficient solder flow, use iron of sufficient wattage to heat entire connection to solder melting point within approximately 2 to 5 seconds.

 <p><b>FLUX CORE SOLDER</b> <b>SOLDERING TIP</b></p> <p>A new tip may be efficiently tinned by wrapping several turns of solder around tip of cold iron and allowing the iron to come up to temperature.</p>	 <p><b>SOLDERING TIP</b> <b>SPONGE</b> <b>BRUSH</b></p> <p>To keep tip in proper condition when soldering, wipe tip clean frequently with dry cloth or damp sponge. A brass wire brush is also commonly used. However, a teflon bristle brush is ideal to prevent tip wear.</p>
 <p><b>FLUX CORE SOLDER</b> <b>COMPONENT</b> <b>SOLDERING TIP</b> <b>TERMINAL</b></p> <p>For most efficient heat transfer, "wet" tip by melting a small amount of solder on tip before soldering. Place "wetted" tip to terminal and simultaneously apply solder to opposite side. The solder as it melts will flow around the joint towards the hot iron tip. Remove tip from connection as soon as solder reaches it. Do not remove or disturb solder connection until solder has solidified as this will result in a cold or imperfect connection. A cold joint results in an unreliable or intermittent connection.</p>	 <p><b>COMPONENT</b></p> <p>A good solder joint has a bright non crystalline metallic appearance. The solder fillet thins out at the edges and assumes the general contour of the wire or terminal.</p> <p>A cold joint may have a shiny appearance but does not flow around the connection to form a fillet. In the case where the connection has been disturbed before the solder has solidified, the solder joint will be rough or irregular and will appear dull.</p>

**BURNISHING TOOL FOR CLEANING CAPILLARY SLOTS AND CLEANING RELAY CONTACTS**

PART NO. BT028



## TYPES OF SOLDER AND THEIR USES

In the electronics industry, two types of solder are commonly used, namely SN60 and SN63. SN63 is a 63/37% combination of tin and lead with an inner core of rosin flux. This type has a very short melting range of 364°F completely molten, 362° completely solid. SN63 is used where temperature requirements are very stringent.

SN60 is a 60/40% combination of tin and lead with an inner core of rosin flux. It is very similar to SN63 but having a wider range of 374° completely molten and 362° completely solid.

For the handyman there is SN50 (50/50 tin lead) which is used for bit soldering, sweating joints on plain, tinned or galvanized iron or steel, copper, etc.

Caution must be used regarding flux. Around electronics (PC boards, terminal boards, radio-TV, etc.) NEVER USE AN ACID FLUX as it is corrosive and will damage the components. In addition it leaves a conductive residue. For safety, use a type R or RMA rosin flux. Edsyn's resoldering flux is non-corrosive, non-hygroscopic and non-conductive.

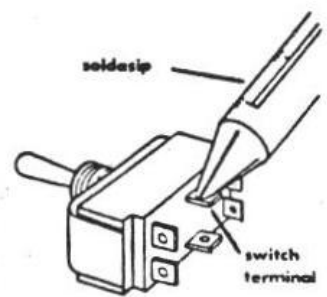
## GENERAL CARE OF YOUR SOLDERING IRON

Before inserting a soldering tip on your iron, remove any oxidation scale which may have formed through previous use by tapping tip on the edge of a table. Also use steel wool or brass or wire brush on the element shaft over which tip will be slipped.

ERSADUR permanent plated tips should never be filed. Dress with steel wool or a brass wire brush.

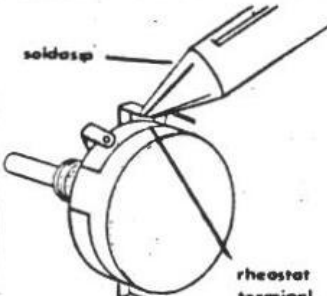
Your iron should be unplugged when not in use. This will lengthen the life of the heating element and tips.

Line cords should be unplugged at the outlet. To prevent internal damage or shorting to the wiring of your iron, do not pull line cord free with your iron.



**Soldsap**  
**switch terminal**

Use your Soldsap resoldering tip to clean out terminals on reusable switches.



**Soldsap**  
**rheostat terminal**

Use your Soldsap resoldering tip to clean out terminals on controls and rheostats.

## **THE EDUCATION OF RADIO AMATEURS IN POLAND**

The Polish Amateur Radio Society (Polski Związek Krotkofalowcow - PZK) is continuing its training programme in close cooperation with the Polish PTT Administration. This cooperation is based on the well-known fact that the field of amateur radio is one of the best training schools for highly qualified radio and telecommunication specialists. And what is also important - this specialized training is provided by the amateurs themselves, without any expensive buildings, equipment or teachers.

The PZK also carries out its amateur educational programme in cooperation and alliance with two other youth organizations in Poland: the Polish boy scouts (ZHP) and the League of Home Defence (LOK). The first of these unites hundreds of thousands of schoolboys and girls; the second has multiple activities, such as motoring, competition shooting, the building of ships or aircraft models, telephone and radio training etc. Each has its own radio clubs, operating amateur radio stations.

The educational programme of the PZK is orientated in the following three directions:

1. The propagation of the basic principles of amateur radio among a wide public, especially among boy scouts and school children.
2. The technical and general education, of newcomers, both shortwave listeners and novices;
3. The specialized training of experienced amateurs, helping them to be "au courant" with the latest state of the art in telecommunications.

The first line of action is administered by the Public Relations Commission of the PZK HQ Council, directed by Vice-President SP5JE who is Director of the Technical Department in the Polish PTT Ministry. The commonly used methods are: amateur programmes in broadcasting and television articles concerning amateur radio in newspapers and popular magazines, and PZK's own publications and leaflets, such as: "How to become a Radio Amateur," "Amateur Radio" (intended for boy scouts etc.)

At the end of 1970 the second TV programme came into operation in Poland and the PZK has commenced weekly amateur lectures at a popular level. In addition, the weekly bulletins, dedicated not only to amateurs, are transmitted on 80 and 40 meters by our HQ station, SP5PZK.

The most important activity in the second direction is aimed at converting the young newcomer, who is just starting to listen in on the amateur bands, into an experienced operator ready to construct a do-it-yourself station and to operate it under various conditions. This part of our programme is supervised by the HQ Commission for Amateur Education and managed by PZK Vice-President SP5JH (who is also Chief of Communication in the Boy-Scouts' Headquarters).

The newcomer's training programme is based on the fact that our Society is responsible not only for strictly technical education, but also helps schools and parents in the general education of young people. The training programmes of the PZK are officially accepted by the PTT Ministry and are coordinated with the official requirements for amateur examinations.

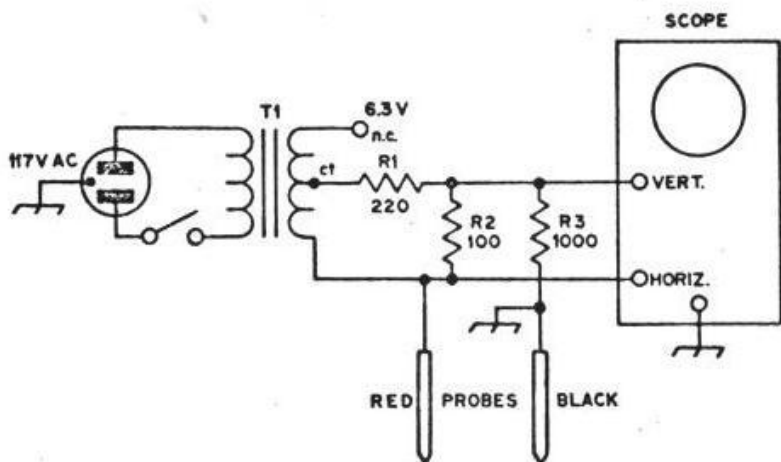


Fig. 1 — Circuit diagram of the Octopus in-circuit component testing device. T1 can be any small 6.3-volt unit. If one having no centertap is used, resistor R1 should be 560 ohms. Resistors can be 1/2-watt composition.

# THE OCTOPUS

An Overall Component Tester  
for In-Circuit Troubleshooting

BY DAVID L. LUDLOW,\* W7QHX

LOOKING FOR TROUBLE in equipment built on circuit boards usually involves removal of components, one at a time, for testing. This is a time-consuming procedure at best, and one runs the risk of damage, not only to the part being checked but to the board itself, and to adjacent components. The likelihood of making trouble for yourself increases as the size and spacing of parts decrease.

Moreover, ohmmeter testing cannot detect a shorted coil or an open capacitor, even after such parts are lifted from the board circuits. Also, some ohmmeters pass enough current at low resistances to damage solid-state components during the testing process. Obviously, some safe form of in-circuit testing is highly desirable.

The method described here is used with the equipment turned off, and uses voltages and currents low enough for safe testing of almost any transistorized circuit-board assembly. The needed tests can be made in most instances without removing the board from the equipment. The overall component tester, quickly dubbed "Octopus," is inexpensive to build and simple to use, involving only an oscilloscope as an auxiliary device.

## Construction

The Octopus uses low-voltage ac, and limits currents to less than 1 mA. It energizes circuitboard components without removal of any connections, in much the same way as they are used in normal service in the equipment under test. It tests for shorts and opens, and shows forward-reverse ratios on junction components (diodes and transistors). By use of Lissajous figures and other combination displays on the oscilloscope, the Octopus facilitates analysis of circuits involving reactive components, transistors, and ICs that defy ohmmeter testing. It can show up high-resistance solder joints or test continuity of switches, fuses, lamps, or circuit-board patterns. The resistor network assures that the voltage and current will be limited to safe values.

If much work is to be done, the Octopus can be left permanently connected to a simple oscilloscope. The test prods should have small needle points, for easy access to cramped places and sure penetration of plastic and other moisture-proofing coatings. Permanent test-lead connection is also desirable, so that the setup will be ready for use at all times. As can be seen in Fig. 1, the few parts that go into the construction of the Octopus are all commonly available items. Component values are not critical and any suitable substitute may be used. Since low voltages and currents are necessary in order to protect delicate components, the 1000- $\Omega$  resistor (R3) in series with the 1-V source voltage provided by the voltage-divider network (R1, R2) limits the current to 1 mA. A centertapped 6.3-V filament transformer can be used for T1 and the voltage from one half of the winding is dropped to 1 V by means of R1 and R2. The leads should be color coded for easy identification with black for ground and red for the "hot" side. Be care that the equipment being tested is disconnected from the power source to avoid possible injury or damage. Also, unless all circuit points in the unit (which are not being tested) are isolated from the common ground of the Octopus and scope, erroneous readings will occur in some instances. The unit was originally designed for in-circuit testing of Navy electronics equipment. Since the power cord, oscilloscope leads and probe cables protruding from various sides of the tester resembles an octopus, it is commonly called just that.

#### Operation

Each basic component projects a different scope display, making use of the Octopus a very simple matter. Connect the test leads across the component terminals or circuit points to be tested. A detachable clip for the black lead facilitates one-handed testing of many units. Because this is an ac device there is no need for lead reversal.

The six most common displays are shown in Fig. 2.

When observing transistors, check from the base to emitter and base to collector. A collector-emitter test would have to pass through two junctions in series, and therefore does not usually give a meaningful result, except to indicate a possible short.

A rough check on transistor condition is evident from the patterns of Fig. 3. An ideal single-junction pattern is the 90-degree step at the left (open in the reverse direction, short in the forward direction). A wider angle than 90 degrees indicates a less-than-perfect junction, with the quality degradation indicated by increasing angle.

Real trouble-shooting proficiency comes with the ability to sort out patterns resulting from combined components, as in the diode-capacitor circuit of Fig. 4. Here we have both a Lissajous figure and 90-degree junction step, informing us that the components are neither shorted nor open. A base emitter transistor test, where there is inductance in parallel with the junction, would look like Fig. 4, but with the loop at a wider angle because of the resistance of the inductor, the angle being characteristic of total base-emitter resistance, as in Fig. 3. Any shorted

transistor junction would show up as a vertical line, as at the upper left of Fig. 2.

To distinguish between npn and pnp transistors, move the red probe to the transistor base and the black to either emitter or collector. If the step pattern opens downward the transistor is npn (emitter arrow pointing downward in the schematic diagram). If the pattern opens upward the transistor is pnp (outward-pointing arrow). The same technique is useful for checking diode polarity, of course.

The effect of a dirty or otherwise noisy control is seen in Fig. 5. Connect one probe to the control arm and the other to either end. Move the control through its range. A quiet, smooth-working control will show a clean line. Fuzziness indicates erratic or noisy operation. Low-value capacitors and inductors may appear as "open" or "shorted"

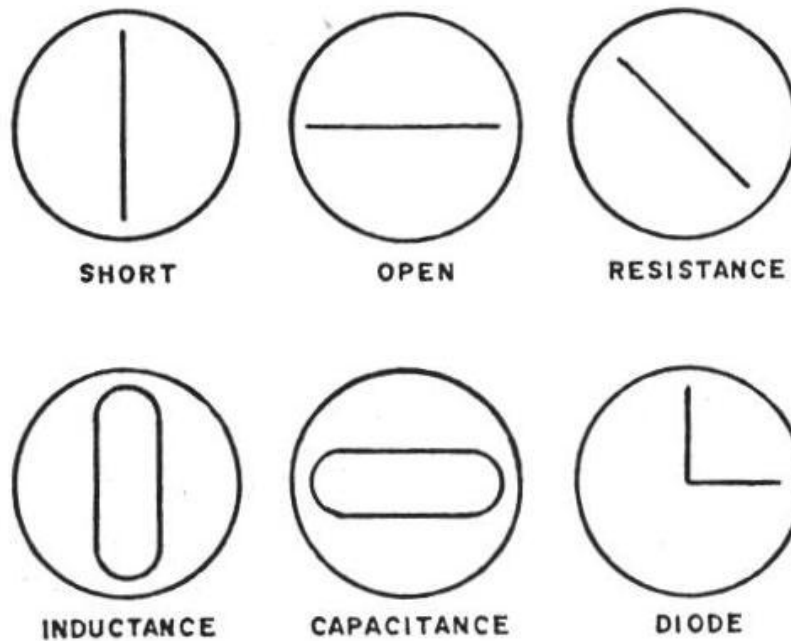


Fig. 2 — Typical oscilloscope displays for conditions most often encountered in equipment testing.

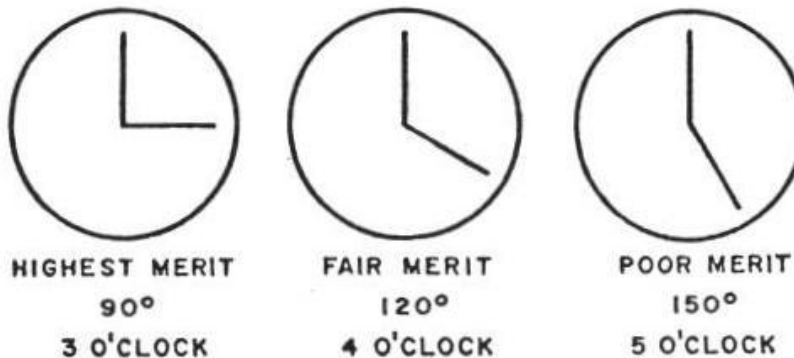
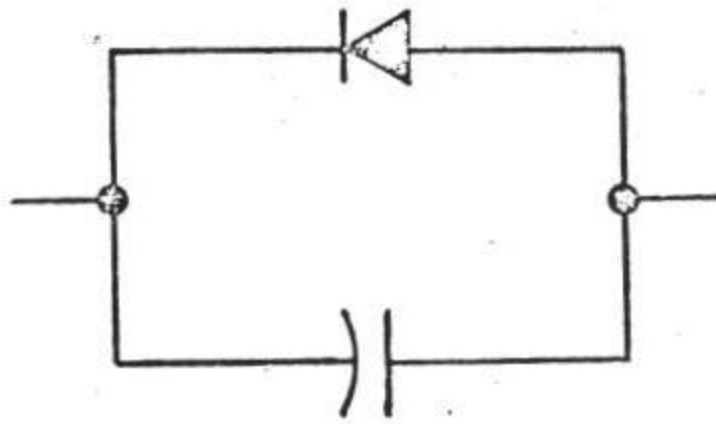


Fig. 3 — Transistor quality check, using the Octopus.





SCOPE  
PRESENTATION

Fig. 4 – Combination pattern, showing that the diode-capacitor circuit is neither open nor shorted.

EDITOR'S NOTE: Our thanks go to David Ludlow, W7QHX, who wrote up his Octopus in a naval publication, and to David Walsh, W1FYX, who sent us the material for adaptation to *QST*.

January 1975