

SKYWIRE

THE CANADIAN RADIO AMATEURS' JOURNAL

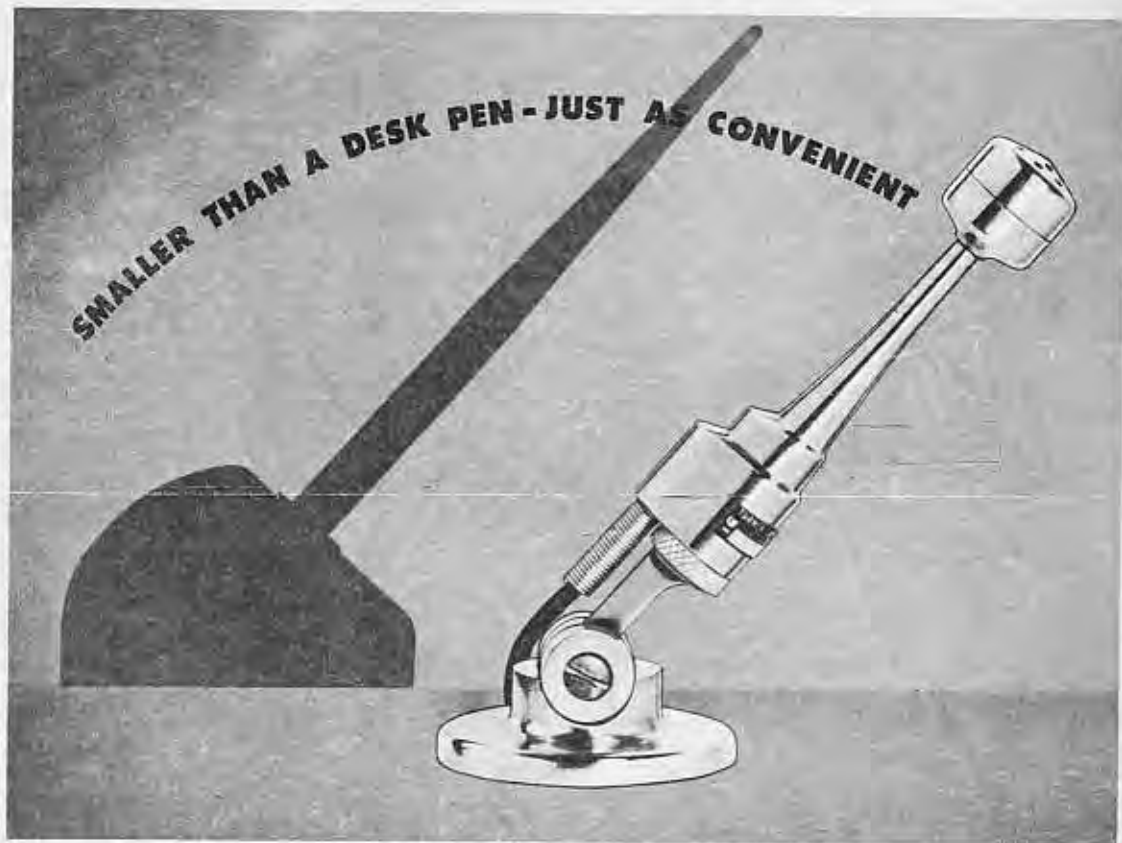


JANUARY, 1953

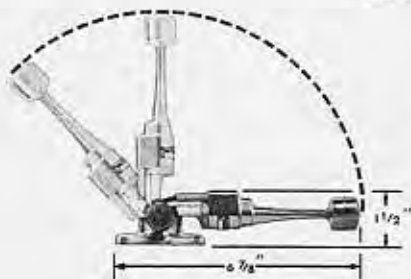
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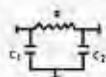
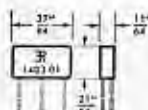


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1403-01

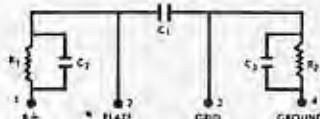
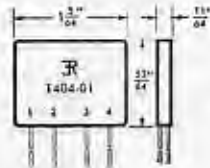
$R = 47K$
 $C_1 = 150 \text{ mfd}$
 $C_2 = 150 \text{ mfd}$
 Lead Wire # 24

1403-02

$R = 47K$
 $C_1 = 50 \text{ mfd}$
 $C_2 = 50 \text{ mfd}$
 Lead Wire # 24

1403-03

ERIE TRIODE PLATE COUPLERS

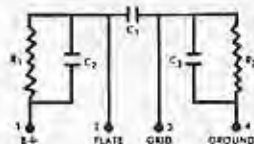
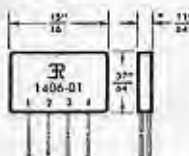


$R_1 = 500K$
 $R_2 = 500K$
 $C_1 = 01 \text{ mfd}$
 $C_2 + C_3 = 250 \text{ mfd}$
 Lead Wire # 22

1404-01

$R_1 = 250K$
 $R_2 = 500K$
 $C_1 = 01 \text{ mfd}$
 $C_2 + C_3 = 250 \text{ mfd}$
 Lead Wire # 22

1404-02



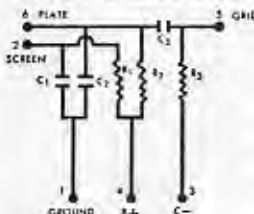
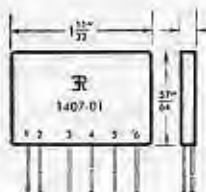
$R_1 = R_2 = 500K$
 $C_1 = 005 \text{ mfd}$
 $C_2 + C_3 = 250 \text{ mfd}$
 Lead Wire # 24

1406-01

$R_1 = 250K$
 $R_2 = 500K$
 $C_1 = 005 \text{ mfd}$
 $C_2 + C_3 = 250 \text{ mfd}$
 Lead Wire # 24

1406-02

ERIE PENTODE PLATE COUPLERS



$R_1 = 4.7 \text{ megohm}$
 $R_2 = 1 \text{ megohm}$
 $R_3 = 2.2 \text{ megohm}$
 $C_1 = .005 \text{ mfd GMV}$
 $C_2 = 50 \text{ mfd}$
 $C_2 = .002 \text{ mfd}$
 Lead Wire # 22

1407-01

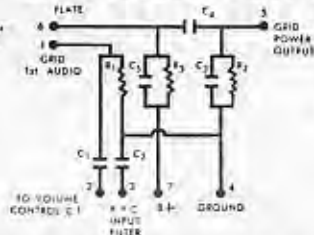
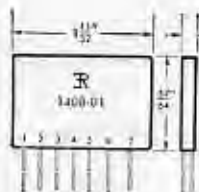
$R_1 = 4.7 \text{ megohm}$
 $R_2 = 1 \text{ megohm}$
 $R_3 = 2.2 \text{ megohm}$
 $C_1 = .005 \text{ mfd GMV}$
 $C_2 = 100 \text{ mfd}$
 $C_3 = .002 \text{ mfd}$
 Lead Wire # 22

1407-02

$R_1 = 4.7 \text{ megohm}$
 $R_2 = 1 \text{ megohm}$
 $R_3 = 2.2 \text{ megohm}$
 $C_1 = .005 \text{ mfd GMV}$
 $C_2 = 100 \text{ mfd}$
 $C_3 = .005 \text{ mfd}$
 Lead Wire # 22

1407-03

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$R_1 = 6.8 \text{ megohm}$
 $R_2 = R_3 = 470K$
 $C_1 = .002 \text{ mfd}$
 $C_2 = 220 \text{ mfd}$
 $C_3 + C_4 = 250 \text{ mfd}$
 $C_4 = .003 \text{ mfd GMV}$
 Lead Wire # 22

1408-01

$R_1 = 6.8 \text{ megohm}$
 $R_2 = R_3 = 470K$
 $C_1 = .005 \text{ mfd}$
 $C_2 = 220 \text{ mfd}$
 $C_3 + C_4 = 250 \text{ mfd}$
 $C_4 = .005 \text{ mfd GMV}$
 Lead Wire # 22

1408-02

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- Fewer soldered connections mean less installation time
- One installation unit replaces several components
- Fewer connections mean fewer wiring errors
- Circuit stability is improved through simplification
- Lower costs for procurement, inspection, and stock maintenance.
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558 Kit Complete kit with instructions \$119.50
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HAMILTON, ONTARIO

SKYWIRE

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No. 1

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JANUARY 1953

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SIDEBANDS

All hell ought to break loose on the top part of 40 meters on February 20th. For that's the date on which 7200 to 7300 kc is opened to U.S. phone operation.

The Canadian D.O.T. released this part of the band for VE use the first week of January and there have been a few boys who have given it a whirl. But the Voice of Moscow, the CW and the foreign phones have discouraged almost everyone. It's the noisiest hunk of band you've ever spun a dial across.

But, come the latter part of February, the U.S. Kilowatters will move in, and if they can't move the debris aside, no one ever will. There's plenty of comment about the opening, and from the sound of things, everyone's going forty. A nice evening up of the QRM could occur on 75 and perhaps the signals won't be layered quite so deep for a short time.

This opening to phone is another step ahead for ham radio, and although the Old Brass Pounders won't agree, has been due for a good many years. The current split of operating time between fone and CW makes such a division of the band no less than mandatory.

I was turning over some of the things that have happened in the past nineteen years since I heard my first squeak of CW. There's been plenty of water under the bridge, and a lot of changes made in ham radio in that time.

Back in the early thirties, almost all, if not all the hams used a 46 or 210 in the final. The receivers were all home grown, with the exception of the few hams loaded enough to be able to buy a January, 1953

commercial job like National. Bill Halligan had yet to market his first Halli-crafter then, and today he's sold countless thousands of them, and become a wealthy man in the process.

Ideas change. Take 160 for a moment. No one seems very interested in the oldster any more. Loran is a bad competitor and BCI is worse today than ever before.

Ten meters used to be dead for days on end. It's rapidly getting to be that way again now. We predicted that ten would be of less and less use until 1957 or so and this is now being borne out. And yet a number of letters blew in after that column, berating us for saying this.

Ten is going sour. You might say the other bands are too in many TV areas. In the Hamads this month, there are several rigs for sale. Most in TV areas! If TVI doesn't get 'em, the picture does, and they watch the networks instead of this amateur spectrum of ours. Their hi-powered commercial rigs and delicious factory built Signal Sniffers gather dust from disuse.

If you're like me, you may stop to wonder if this is the end of another era. Will ham radio, as we've known it, continue, or is it on the wane. There are those who hold for the latter school of thought and say ham radio is dying out. I say it isn't - no question about it! Ham radio is, today, more vigorous and popular than ever before. This great hobby will be around for a long time to come. And as the saying goes - you ain't seen nothin' yet.

de VE3W0

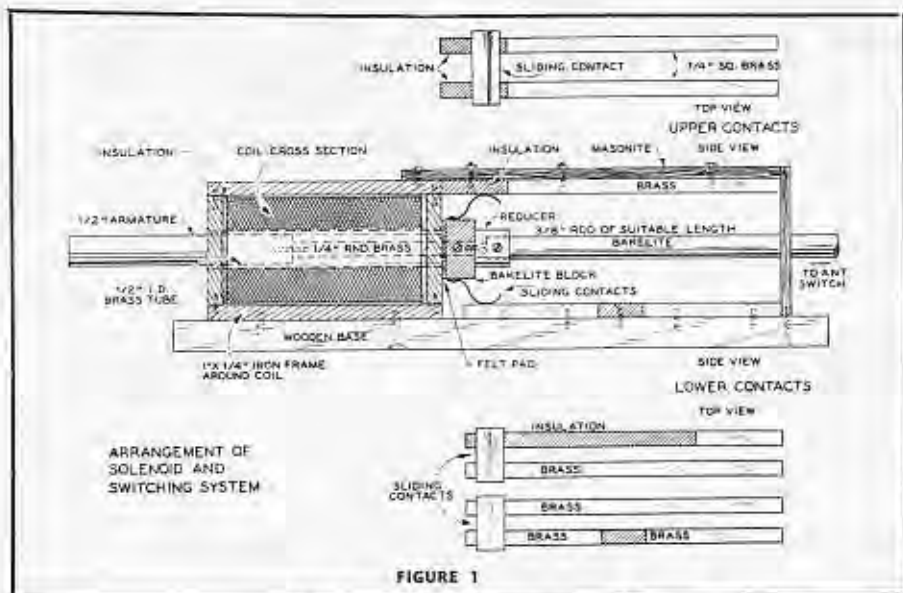


FIGURE 1

Solenoid-Type RELAY CONSTRUCTION

In modern station design it is becoming more and more common to see relays accomplishing the job of feeder switching and transmitter control. In the interests of improved and simplified operation relays are being used to accomplish many of the jobs that were previously switched by hand. However, multi-contact relays are expensive and an increasing number of amateurs are resorting to "roll your own" methods to obtain the desired relays. Heretofore, most of the home-constructed relays have been of the closed magnetic circuit or "clapper" type. The solenoid type of contactor has been more or less neglected. But it is also well suited to the job.

To accomplish the dual job of feeder switching and transmitter control in this station a solenoid-type relay has been constructed. It is comparatively simple in design, accomplishes its assigned jobs with no difficulty, and can be duplicated, with variations perhaps to suit it to individual needs, by any amateur with a mechanical turn of mind.

Construction

The heart of the system is, of course, the solenoid. The coil is $3\frac{1}{4}$ " long by $1\frac{3}{4}$ " in diameter and is wound on a $\frac{1}{2}$ " inside diameter

brass tube. The two end flanges can be made of fiber, bakelite or tempered masonite. The form is then wound full of no. 20 d.c.c. wire.

The moving armature is a piece of $\frac{1}{2}$ " iron shafting (it must be enough smaller than the inside diameter of the brass tube in the center of the coil so that it will slide freely) $3\frac{3}{4}$ " long and tapped in one end. A piece of $\frac{1}{4}$ " diameter brass shafting $4\frac{1}{2}$ " long and a $\frac{3}{8}$ " to $\frac{1}{4}$ " reducer in series make up the balance of the moving system. These various parts are fastened together with short lengths of 6-32 brass stud. The various junctions are indicated in the layout diagram. The piece of $\frac{1}{4}$ " shaft is tapped at both ends, and the $\frac{1}{2}$ " iron shaft and the reducer are tapped at one end. The best method of joining the various sections is to screw a 1" 6-32 machine screw into one of the ends until it is tight, then cut off the head of the screw and screw the two sections to be joined together until they are tight.

Then, as can be seen in figure 1, there is a bakelite or fibre block $2" \times 1" \times 1\frac{1}{2}"$ mounted upon the end of the $\frac{1}{4}$ " brass rod and just below the $\frac{3}{8}$ " to $\frac{1}{4}$ " reducer. It is upon this block that the sliders that turn on and off the plate transformers and control the action of the

relay are mounted. These sliders are fastened to the bakelite block and contact the $\frac{1}{4}$ " square brass strips that go to make the switch circuit. The positioning of the contacts is shown in figure 1. Figure 2 shows the method of connecting these contacts so that the movable bar in the solenoid coil will throw to one position when the start button or key is pressed and will return to its original position when the stop button is operated. A three-wire cable is run from the control position to the solenoid contactor.

The coil of the solenoid is enclosed by strap iron, $1\frac{1}{2} \times \frac{1}{4}$ ", on two sides and both ends. The two end pieces of iron have holes large enough to pass the outside diameter of the $\frac{1}{2}$ " i.d. brass tubing. The iron frame around the coil is bolted together and is used as the mounting for the other parts of the contactor as set of two contacts is mounted on the upper

The Power-Control Contacts

Mounted upon the wood base that holds the entire assembly are the contacts that control the power to the transformers and the solenoid. Four brass strips are used, two for controlling the motion of the switch and two for controlling the transformer primaries. As can be seen from the center drawing of figure 1, the sliding contacts that are mounted upon the movable bakelite block merely short these various brass bars together to complete the circuit. This is also the case with the "upper contacts" as labelled in the drawing. These latter contacts are used to control the primaries of the intermediate and low-power plate transformers. This

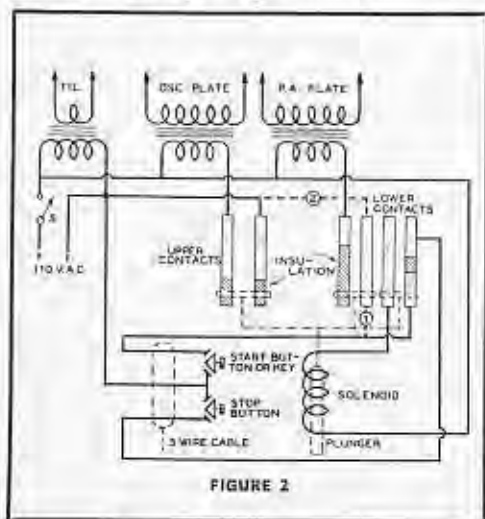


FIGURE 2

January, 1953

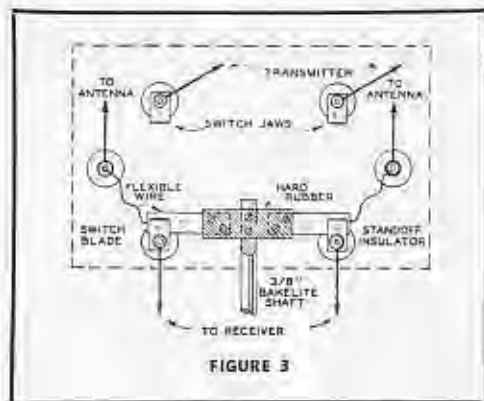


FIGURE 3

set of two contacts is mounted on the upper side of the solenoid from the set of four contacts that are mounted upon the baseboard.

The bakelite block that carries the sliders is drilled and tapped on one side to take a set screw to hold it to the $\frac{1}{4}$ " shaft extension of the armature. Also, the brass reducer has a set screw to secure the $\frac{3}{8}$ " bakelite shaft from the antenna change-over switch to it.

The Change-Over Switch

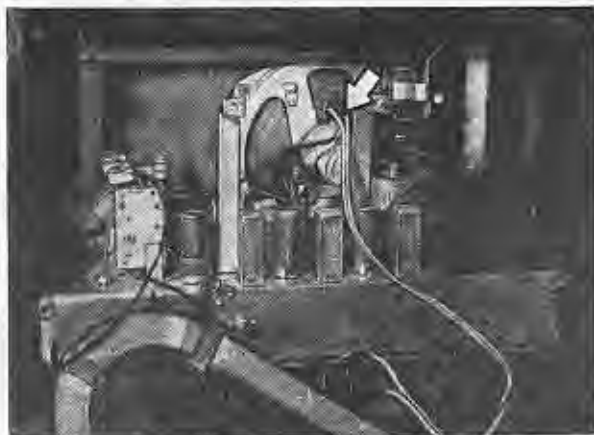
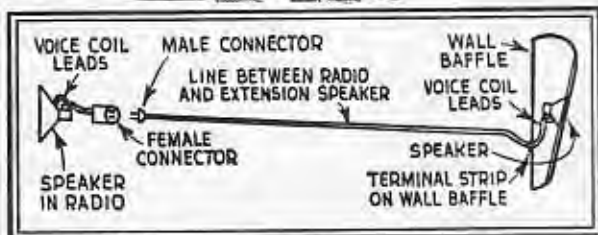
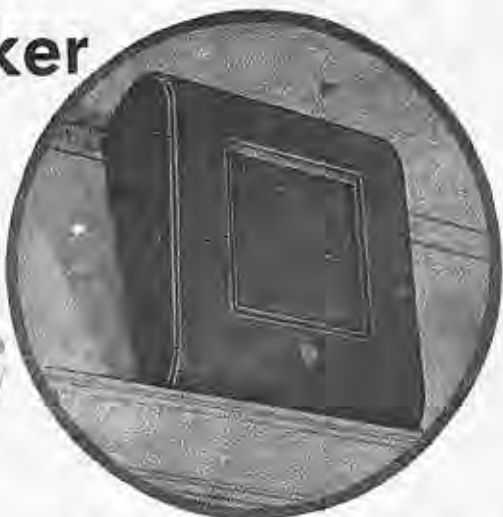
The antenna change-over switch is quite simple, consisting mainly of six standoff insulators, four with switch jaws on them and two with flexible leads going to the movable arms as in figure 3. The $\frac{3}{8}$ " bakelite rod connecting the a.c. portion of the switch to the antenna change-over portion can be any length convenient up to a couple of feet or so. Also, the switch can be single pole or three pole instead of two pole. Incidentally, a piece of felt under the movable bakelite block at the solenoid will help materially in quieting the contactor on the return stroke.

On the antenna end of the shaft the switch arms can be mounted by filing the $\frac{3}{8}$ " shaft flat for about 2" and drilling for two bolts to hold a hard rubber or bakelite separator for the switch arms. These arms can be made from $\frac{1}{16}$ " by $\frac{1}{2}$ " copper strip and should be mounted so as to make good contact with the jaws at either end of the throw.

The switching arrangement can, of course, be modified in almost any way to make it more suitable to different installations.

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Extension Speaker



LISTENING to radio programs in a noisy kitchen, or the cellar, darkroom, laundry or playroom, isn't easy if the radio is located in another room. But one radio can serve 2 locations with the addition of another speaker.

For about 30 minutes of your time and something less than \$8 (or, if a homemade baffle is used, less than \$5), you can install an extension loud speaker at any location within about 25 feet from the radio. You'll need a good quality

5 in. PM speaker, with as large an Alnico V magnet as you can obtain, a wall baffle of the proper size for the speaker, a length of ordinary lamp cord to reach from the radio to the baffle, insulated staples for fastening connecting wire picture hanging wire, a nail, and a 2-contact male and female cord connector.

Remove back cover from radio. Locate leads from voice coil which come from the cone close to the magnet and terminate on an insulated strip. Cut a piece of lamp cord long enough to reach from this strip to a point about a foot outside of the radio. Solder 2 wires from one end to voice coil terminals on insulated strip. To other end of wire attach female cable connector.

Now mount your speaker unit with the wall baffle. With a short piece of lamp cord, make a connection between voice coil terminal strip and a dual terminal strip mounted on wall baffle. Plug in connectors and turn on radio to check the operation. After checking, turn off radio and disconnect the wire while you attach speaker. If you install it over a door, you can rest baffle on top of door frame. Drill a nail part way into wall at the appropriate spot and use picture frame wire to support wall baffle in position. Adjust wire length to allow top of baffle to tilt slightly downward.

Starting at the radio end, fasten connecting wire along baseboard and door frame with insulated staples. Then cut end of wire nearest wall baffle to proper length and connect it to the terminal strip.

YARN *of the* MONTH

REMINISCING

Thanks for the memory of twenty-seven years of radio. I have had many a headache and many a heartache, but I've never been bored.

Memories of my first earphone and crystal, and the faint signals of a far off navy station (120 miles). Of trees, chimneys and poles used to support long stretches of aeriels. Of ships with one-wire aeriels, and ships with four masts and an aerial 350 feet long with thirteen wires.

Memories of irate captains and worse passengers, of broadcast listeners as impossible as both. Of storms that battered us for days and days until we ached all over from the very effort of trying to hang on to chairs, tables, bunks, receivers and rails. And a frantic captain demanding weather reports.

Memories of trips I have made across the North Atlantic in midsummer when the whole sea was as smooth as the quietest harbor. Memories of a winter trip from Rotterdam to New York when we took 21 days for the voyage, with provisions for only 14, and the second day out the refrigerator broke down and we dumped all the fresh meat over the side. Twenty-one battered, shaken days they were, when we ran full speed ahead but were pushed back five miles a day.

Pleasant memories of a thirty-two-day run from New York to Buenos Aires, days of calm lazy weather, warm days with sunny skies. When for five days off the eastern tip of South America I couldn't hear a signal on the receiver. Which recalls those funny static-like sounds made by the French Carpentier sets, a twenty-five cycle spark, straight gap. What a honey that was; decrement way up in the thousands.

Memories of the beautiful clear bell-like tones of a Federal Arc on 600 meters, with a chopper. If you listened with a good crystal, it was almost music. Of the powerful blast of those British naval sparks that always started up with a high power warning as they pulled the gap open and turned on the air blast. About fifteen kw. on 600 meters,

Malta, Lands End, and Gibraltar. And the broadness of the Telefunken sparks and the Japs. Or maybe it was our receivers. I recall the operator on the Chilean ship who asked me, "Please repeat the last part as my magnetic detector ran down."

With a pet crystal, I have copied press and war warnings from old NAA, 100-kw. spark, at distances of 2000 miles. And that old war-time press. "The American troops have taken hill 61." It had been ten months since we had seen any American newspapers. From old NAA I have copied the time signal off both coasts of South America, when I had to lie in my bunk, put a pillow over my head and hold my breath, praying that a static crash wouldn't knock out the crystal. All that just to get the faint time tick, so vital to navigation.

What a struggle we operators had to sell the idea of the radio compass to the captains. Only when we nearly hit the coast of Ireland was I able to convince one skipper he was two hundred miles north of his dead-reckoning course.

I recall the beauty of the river and its majestic sweep at Buenos Aires, the calm grandeur of the harbor at Rio de Janeiro. And I have lain five miles at sea and loaded oil on tankers from hoses stretched out on the shallow bottom. I recall the wondrous beauty of the Panama Canal, with its green mountains and immaculate cleanliness, in contrast to the heat and dust and winding route of the Suez and the cold and steep sides of the Kiel.

I have ridden camels to the Pyramids, climbed the Andes, visited the Shrines at Kyoto, burned prayers in the temples of China, looked down into the volcano at Kilauea, surf boarded at Waikiki, been to the Lido at Venice, hunted alligators in Florida, and walked up the Mount of Olives.

All because of this radio business, I have gambled at clubs in New York, at Rio de Janeiro, Monte Carlo, Montevideo, Havana Shanghai, Alexandria and Tampico.

I have eaten the finest foods of Europe, and I have been a beachcomber. I have lived at the Adlon in Berlin and the Claridge in Paris

and the Astor House in Shanghai. I have walked among the starving thousands of Europe and Asia, stricken with famine and plagues. I have lived in luxury and I have worn the finest tailored clothes. I have been down to my last dime when I didn't even own a coat.

I can still hear the clatter of heels on the stone streets of the Rio Branco, and the clump of the wooden shoes of Holland and Belgium. I relax at the very thought of the calm, slow movement of the waters of the river at Bordeaux, France, after a war-weary crossing. And the seventeen SOS and ALLO calls we received on our last trip across, just as the armistice was signed. I'll never forget the first great thrill of that armistice message, and then the reaction, "What will I do now?"

So I stuck to radio and traveled, 176,000 miles in the next three years. I recall a Christmas dinner on the Western Ocean (North Atlantic to you), when for three days we ate nothing but cold corned beef and canned peaches and tea. I recall one steward that fed us tapioca pudding for lunch dessert twenty-one days in succession. I hope I never, etc.

Once I grew fat on the elaborate menus of a transatlantic liner. Once I ate the best food on a coal boat. Once I ate the least on a destroyer. (Too seasick.) We once spent sixteen days crossing from Southampton to New York, with 1300 passengers on an old wreck that should have been burned before I was born, and my friends wondered why I drank (so much).

I can remember my first radiophone signal, from an airplane, in 1917. I have heard arc transmitters modulated and sounding presentable. A lot of ham rigs sound worse today. I have zealously guarded the one bit of galena that really worked, and I have just as carefully guarded the one carbon mike at an early broadcast station.

I have memories of long watches at sea, of the listening to distant signals and the feel that they were just next door. Of friends of the air that I knew by their fists but never met. Of friends that I saw die of disease and disaster. I once read the funeral service for a dead passenger when the captain was too drunk and the mate couldn't speak good English. And where the weights came off the sack, the body floated away on the waves.

I have seen the poverty of many of the peoples of the world and wondered at the hopelessness of their fate. I have waded in the Mother Ganges, seen the dead floating down the river at Shanghai, seen the blood of innocent people running in the gutters of Italy, Germany and the Argentine after revolutions. And I laughed at the dignity and seriousness of a Mexican general and his ragged army at Tampico.

It's been fun to ride the two decker busses on Fifth Avenue, the trams in England, bicycles in France, airplanes in France and Germany, gondolas in Italy, and horse cars in Chile.

I have been a seaman, quartermaster, messman and oiler, but more often a radioman, and it is radio I thank for my most interesting reminiscences. Memories of countries and peoples, of majestic liners on trial trips, memories of the thrills of a new radio record, of standing watch for forty-eight hours at a stretch when the weather was bad or when my assistant was too drunk to sit his.

I have many wonderful memories, but I hope most of all that others will remember me when they hoist one over the bar at the Typhoon Anchorage, the Hong Kong Hotel Bar, Kelly's in Panama, Esmeralde in Buenos Aires. Wherever operators gather, to talk of old memories, I'll be drinking with you and saying, "Thanks for the memory."



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Milliammeters, Voltmeters, Tube Testers,

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BRITAIN'S BEST

the "VARI-SLOPE"

Designed for plugging into TL/12 and TL/25A amplifiers.

The "Vari-Slope" replaces the RC/PA/U pre-amplifier, which is discontinued.



RECENTLY NEW PRE-AMPLIFIERS FOR LEAK "POINT ONE" POWER AMPLIFIERS

embodying

A UNIQUE FEEDBACK CIRCUIT DEVELOPMENT

giving the user

AUDIBLY BETTER REPRODUCTION

from records and radio

DISTORTION : 0.1%

LEAK "POINT ONE" AMPLIFIERS



**TL/12 12W. TRIPLE LOOP
POWER AMPLIFIER**

Standard U. S. Tubes

The new "Vari-Slope" pre-amplifier has a refinement which will doubtless set the pattern for future high-fidelity reproducing amplifiers. This advance consists of variable-slope "electronic" low-pass filters operating on negative voltage feedback principles.

NO INDUCTORS ("CHOKES") ARE USED and all their disadvantages are completely eliminated.

An original feedback tone-control circuit.

No resonant circuits employed.

- Will operate from Audak, G.E. or Pickering Cartridges; from any moving coil microphone; from any radio unit.
- Equalization circuit: Proper equalization positions for LP records, Foreign or American recordings of all speeds.
- Switching for Pick-up, Microphone and Radio, with automatic alteration of tone-control characteristics.
- Controls: Input Selector; Bass Gain and Loss; Treble Gain and Loss; Volume.

Output Impedance: 0-30,000 ω at 20 kc./p.s.

The unit will mount on motor-board through a column of 10 $\frac{1}{8}$ x 3 $\frac{1}{8}$ in., or it can be bolted to the power amplifier, when, with a top cover, the whole assembly becomes portable.

The Leak triple loop feedback circuit (the main loop giving 26 db feedback over 3 stages and the output transformer) results in the following major advantage:

In the TL/12 amplifier the hum and noise levels fall within -80 db and -72 db relative to 10 watts. This amount of power, as hum and noise, is inaudible from the most efficient loudspeakers. Notice particularly that feedback is taken from the low side of the output transformer. Many circuits show it as taken from the anode side, which will result in higher hum levels than without feedback.

In this amplifier, due to magnitude of feedback, there can be no rise of voltage to cause "boom" in the loudspeaker at the frequency of bass resonance, and the capability of a loudspeaker to reproduce transients, especially low-frequency transients, is astonishingly improved.

SEE IT AT YOUR LOCAL JOBBERS

AVAILABLE IN BOTH 25 AND 60 CYCLE MODELS

EASTERN CANADA

**ASTRAL ELECTRIC CO. LTD.,
44 DANFORTH ROAD
TORONTO 13.**

January, 1953

WESTERN CANADA

**CHAS. L. THOMPSON LTD.,
132 W. HASTINGS ST.
VANCOUVER B.C.**

Page 11

- Push-pull triode output stage, 400 V. on anode.
 - No H.T. electrolytic smoothing or decoupling condensers.
 - Impregnated transformers; tropically finished components.
 - H.T. and L.T. supplies for pre-amp, and radio units.
 - Distortion: at 1,000 c/s and 10 W. output, 0.1%; at 60 c/s and 10 W. output, 0.19%; at 40 c/s and 10 W. output 0.21%.
 - Hum and Noise: -72 to -80 db on 10 W.
 - Frequency response: ± 0.1 db, 20 c/s-20 kc/s.
 - Sensitivity: 160 mV.
 - Damping Factor: 20. Input impedance: 1 Meg.
 - Output impedances: 2 ω ; 7.9 ω ; 15-20 ω ; 28-36 ω .
 - Phase margin 20' = 10°; Gain margin 10 db \pm 6 db.
- 35 W. model available.

Mrs. Ham's Charter

By the Wife of an Active One

Reprinted by numerous requests

(1) The Household Broadcast Receiver is *MINE*—thou shalt not interfere with it in any way, neither shalt thou cause it to emit clicks, thumps, whistles nor the sound of thy voice. Neither shalt thou lay thy thieving fingers on the valves without my express permission. And if I *do* lend a valve, and later ask for its return, thou shalt replace it with good grace and a word of thanks, not hand it to me with a scowl.

(2) Thou shalt not drop solder on the carpet.

(3) Thou shalt not wake me at 3 a.m. to discourse on the night's activity in thy quest of DX.

(4) If it be thy desire to erect an aerial mast, thou shalt not put it in the middle of the lawn, but shall endeavour to fit it into my plans for the garden. Neither shalt thou steal my clothes-line for a halyard, nor erect a counterpoise where I or the children can get hurt by it.

(5) Thou shalt not have more than one radio periodical on the newsagent's bill each month, but shall take them on subscription (as an annual birthday present perchance).

(6) Thou shalt not pull up the floorboards without prior arrangement. Especially shalt thou not do this just after I have finished cleaning a room, nor when I am expecting a visitor.

(7) Not more than once in any month shalt thou come home hours late for a meal, bringing a friend without warning, else thou canst get thy food thyself—and wash up afterwards.

(8) If a ham comes to tea, and I and the children are at the table, thou shalt encourage polite conversation, and not huddle at one end discussing that which I

wot not of until such time as I and the children have left you to it.

(9) If thou leavest valuable gear where the children can get it, the results be on thine own head, and thou shalt not try to dock the house-keeping or the children's pocket money to replace breakages.

(10) Should it so happen that a spiv steals the contact that thou didst desire, thou shalt not swear or curse at me, not abuse me, nor beat me, but thou shalt take the dog for a walk and return in better humour.

And in return for all this will I put up with thee and be a good and faithful spouse and lavish on thee my care and attention. And thou shalt be free to attend club nights and field days without hindrance, and thou canst stay up half the night chasing DX so long as thou dost not wake the family. And that part of our home which thou callest *shack* shall be sacred to thee and I will do my best to keep the children out and shall refrain from cleaning up in thy absence.

Thus shall we live happily ever after.



"...I have decided to give you some white mice, Henry..."

6D

Switches from 33-1/3 or 45 RPM records to standard 78 with turnover knob at base.

Plays both types of records at only eight-gram needle pressure, thus has no extra mechanism to change pressure when knob is turned, eliminating a potential source of trouble and varying reproduction quality. Employs LOD-1 Double-Needle Cartridge. Mounts seven inches from turntable center, die-cast curved arm finished in dark brown Hammerlin.



ASTATIC PICKUPS

TRANSCRIPTION PICKUPS FOR SLOW-SPEED AND STANDARD 78 RPM LATERAL TRANSCRIPTIONS

FLT-33

Never before, a pickup of such professional instrument quality and precision. Like the FL-33, this sleek transcription model employs the U-1 Crystal Cartridge with one-mil tip-radius needle, instantly replaceable with the U-78-1 for playing 78 RPM records. In addition, the U-TR Cartridge with 2.5-mil tip-radius may be inserted to play standard lateral broadcast transcriptions. Special ball-bearing, anti-resonance base is adjustable to desired height, as is the unique arm-rest. Feather-touch needle pressure of five grams is accomplished by a revolutionary hinged division of the arm, which also contributes to perfect tracking and elimination of surface noise. Die-cast arm and base look their fine instrument part, with finish in telephone black. All three "U" Series Cartridges are available with diamond stylus tips instead of the regular sapphire.



U Series



U Series

400-D

Turnover type transcription pickup adapted from famous Astatic Studio Master "400" conventional transcription arm. Plays 33-1/3, 45 or standard 78 RPM recordings at eight-gram needle pressure. Employs LOD-1 Double-Needle Crystal Cartridge. Notable excellence of frequency response, particularly at low frequencies. Gracefully curved, die-cast arm in light brown Hammerlin finish.



LOD Series Double-Needle Turnover Type

MODEL 8-D TURNOVER ASSEMBLY AND DOUBLE-NEEDLE CARTRIDGE, MOUNTED IN WEBSTER-CHICAGO TONE-ARM

Offers improved quality of reproduction for all record types. Installation is the easiest and speediest job of its type... you replace entire tone arm and the cost is no more than a cartridge alone. No alterations to record changer are required... all you need is a screwdriver. Simple instructions with each unit. FOR WEBSTER-CHICAGO CHANGER MODELS: 246, 256, 255, 262, 264, 346, 356, 355, 362, 357, 364.



CARTRIDGES AND

PICKUPS FOR SLOW SPEED AND STANDARD 78 RPM RECORDS

CANADIAN



LIMITED

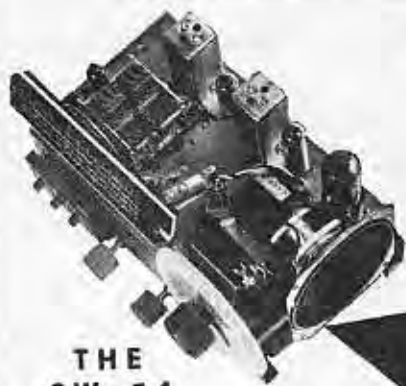
2273 DANFORTH AVENUE

TRADE MARK

REGISTERED

TORONTO 13 CANADA

IT'S **NEW!** IT'S A **NATIONAL!** THE SW-54



THE
SW-54



***Sleek, Low-Priced Beauty is Most Compact
General Coverage Receiver Ever Built!***

SIZE: 11" wide 7" high, 7" deep.

**USES MINIATURE TUBES
AND UNIQUE BANDSPREAD DIAL**

New miniature tubes make possible new sensitivity and performance. Unique plastic bandspread dial is adjustable to assure complete logging accuracy.

TUBE COMPLEMENT: 12BE6, converter; 12BA6, CW osc.—IF amp.; 12AV6, 2nd det.-1st aud.—A. V. C.; 50C5, audio output; 35Z5, rectifier.

Here is National's latest engineering triumph! A complete superheterodyne receiver covering all major broadcast and shortwave bands that is smaller than the average table radio! New design makes possible a standard of performance never before achieved in so compact a receiver!

COVERAGE: Entire frequency range from 540 kc. to 30 mc. Voice, music or code.

FEATURES: Sensitive and selective superhet circuit. Slide rule general coverage dial with police, foreign, amateur and ship bands clearly marked. Separate bandspread logging scale usable over entire range. Built-in speaker.

CONTROLS: Main tuning, Bandspread, On-Off and Volume, Receive — Standby, Bandswitch, AM-CW, Speaker-Phones.



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VANCOUVER WINNIPEG MONTREAL HALIFAX ST. JOHN'S Nfld.



NATIONAL

- **P**roven
- **D**ependable
- **Q**uality



MB-40SL



MB-150

AVAILABLE IN STOCK

MULTI-BAND TANK ASSEMBLIES

The unique MB-150 high-power and new MB-40SL low-power multi-band tank assemblies will tune all bands from 80 to 10 meters with a single 180° rotation of the capacitor without changing coils. The MB-150 is intended for use in plate tank circuits with inputs of up to 150 watts (pair of 807's, 809's or single 829B). The MB-40SL can be used in grid circuits with approximately 20 watts input and in final plate circuits when input to the stage does not exceed 40 watts loaded. Now includes new swinging link for varying inductance. Output can be taken from the variable shielded link when coupling to antenna or next stage.

Write for drawings and specifications.

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VANCOUVER WINNIPEG MONTREAL HALIFAX ST. JOHN'S Nfld.



DX PREDICTIONS

Prepared by C. R. McKee, Engineering Division, CBC International Services

Skywave frequency predictions are for amateur communications on various circuits to almost any part of the world. These tables are for five major areas in Canada, and amateurs who are operating reasonably close to the cities indicated will find these predictions quite adequate.

Figures shown are in megacycles and indicate the band to be used. They are for normal F layer transmission and don't consider Sporadic E which may provide unusual DX openings!

	01	03	05	07	09	11	13	15	17	19	21	23
Sackville to: <i>AST</i>	4	4	7	7	7	7	7	7	7	7	7	7
Europe	7	4	7	7	14	14	14	14	7	7	7	7
Africa	7	-	-	-	-	-	-	-	14	14	14	7
Caribbean	7	7	7	7	14	14	14	14	14	14	7	7
S. America	7	7	7	14	14	-	-	14	14	14	7	7
Australia	-	-	7	7	7	7	-	-	-	-	-	-
U.S. - West	7	7	7	14	7	14	14	14	14	14	14	14
U.S. - Central	7	7	7	7	14	14	14	14	14	14	14	14
U.S. - South	7	7	7	7	14	14	14	14	14	14	14	14
Vancouver	7	7	7	7	7	14	14	14	14	14	14	14
Montreal	4	4	4	7	7	7	14	14	14	14	14	7
Toronto	4	4	4	4	4	7	14	14	14	14	7	7
Montreal	4	4	4	4	4	7	7	7	7	7	7	4

	00	02	04	06	08	10	12	14	16	18	20	22
Montreal to: <i>EST</i>	7	4	7	7	14	14	14	14	7	7	7	7
Europe	7	4	7	7	14	14	14	14	7	7	7	7
Africa	7	-	-	-	-	-	-	-	14	14	14	7
Caribbean	7	7	7	7	14	14	14	14	14	14	7	7
S. America	7	7	7	14	14	-	-	14	14	14	7	7
Australia	-	-	7	7	7	7	-	-	-	-	-	-
U.S. - West	14	14	14	7	7	14	14	14	14	14	14	14
U.S. - Central	7	7	7	7	7	14	14	14	14	14	14	7
U.S. - South	7	7	7	7	7	14	14	14	14	14	14	7
Vancouver	7	7	7	7	7	14	14	14	14	14	14	14
Montreal	7	7	7	7	7	14	14	14	14	14	14	7
Toronto	4	4	4	4	4	7	14	14	14	14	7	7
Sackville	4	4	4	4	4	7	7	7	7	7	7	4

	00	02	04	06	08	10	12	14	16	18	20	22
Toronto to: <i>EST</i>	7	4	7	7	14	14	14	14	7	7	7	7
Europe	7	-	-	-	-	-	-	-	14	14	14	7
Africa	7	-	-	-	-	-	-	-	14	14	14	7
Caribbean	7	7	7	7	14	14	14	14	14	14	7	7
S. America	7	7	7	14	14	-	-	14	14	14	7	7
Australia	-	-	7	7	7	-	-	-	-	-	-	-
U.S. - West	14	7	7	7	7	14	14	14	14	14	14	14
U.S. - Central	7	7	7	7	7	14	14	14	14	14	14	7
U.S. - South	7	7	7	7	7	14	14	14	14	14	14	7
Vancouver	7	7	7	7	7	7	14	14	14	14	14	14
Montreal	4	4	4	4	4	7	14	14	14	14	14	7
Sackville	4	4	4	4	4	7	14	14	14	14	14	7

	00	02	04	06	08	10	12	14	16	18	20
Montreal to: <i>EST</i>	7	7	7	7	7	14	14	14	14	14	7
Europe	7	7	7	7	7	14	14	14	14	14	7
Africa	7	-	-	-	-	-	-	-	14	14	14
Caribbean	7	7	7	7	7	14	14	14	14	14	14
S. America	14	7	7	7	14	-	-	14	14	14	14
Australia	-	-	7	7	7	7	-	-	-	-	-
U.S. - West	7	7	7	7	7	7	14	14	14	14	14
U.S. - Central	7	7	7	7	4	4	14	14	14	14	14
U.S. - South	14	14	14	7	7	7	14	14	14	14	14
Vancouver	7	7	7	7	7	7	14	14	14	14	14
Toronto	4	4	4	7	7	7	14	14	14	14	14
Montreal	4	4	4	7	7	7	14	14	14	14	7
Sackville	4	4	4	7	7	7	14	14	14	14	14

	21	23	01	03	05	07	09	11	13	15	17	19
Vancouver to: <i>PST</i>	7	7	7	7	7	7	14	14	14	14	14	7
Europe	7	7	7	7	7	7	14	14	14	14	14	7
Africa	7	7	7	7	7	7	14	14	14	14	14	14
Caribbean	7	7	7	7	7	7	14	14	14	14	14	7
S. America	7	7	7	7	7	7	-	-	14	14	14	14
Australia	-	-	7	7	7	7	-	-	-	-	-	-
U.S. - West	7	4	4	4	4	4	14	14	14	14	14	14
U.S. - Central	7	7	7	7	7	7	14	14	14	14	14	14
U.S. - South	14	14	14	7	7	7	14	14	14	14	14	14
Vancouver	7	7	7	7	7	7	14	14	14	14	14	14
Montreal	7	7	7	7	7	7	14	14	14	14	14	14
Toronto	7	7	7	7	7	7	14	14	14	14	14	14
Sackville	7	7	7	7	7	7	14	14	14	14	14	14

HAMADS

Skywire Hamads must pertain to amateur radio. Rates are 20 cents per word, per insertion for commercial advertisements for profit, and 4 cents per word for all non-commercial, non-profit advertisements by experimenters or licensed radio amateurs. Full remittance MUST accompany copy. Print plainly and count address in the total. Do NOT send personal checks unless exchange is included. Mail to Skywire, Toronto.

19 SET MARK THREE, new and complete. VE3Z, 60 George St., Smiths Falls, Ont.

COMPLETE TRANSMITTER - 500 volt, 300 mil power supply with 300 mil chokes, 866's, 5% at 10a filament, built-in line filters. Modulator AB2 pr 6L6's, with 6SJ7, 6CS, 6N7, self-contained power supply. Perfect quality, 60 watts. VGO, 6V6, 807 50 watts on 10, 20, 40, 80. Ceramic condensers, regulated, cost \$50.00 to build. Housed in Hammarlund cabinet, coax to final, or makes 50 watt rig complete. Final is 815, 75 watts on phone. Has best of parts, spare tube and 6Y6 clamper. The antenna tuner is coax type. Entire rig is completely screened, fitted with TVI filter, and is TVI proof, housed in gray six foot rack and panel enclosure. Well metered and completed with three element rotary beam and coax cable. The full price for everything is \$125.00. Write Roy Oakes, % 10 Harrow Ave., Malton, Ont. or call VE3VR. Ancaster, Ontario.

FOR SALE - Harvey Wells TBS-50-D with pre amplifier, new in 52. Morrow 3BR-S converter, with steering mount. Controlled reluctance hi-impedance mobile mike, Master Mobile Antenna, complete with 75 and 20 meter coils, 6 volt dynamotor, 600 volts at 200 mils output, complete with filters, relay, Panadaptor, as new. Apply E.M. Broadfoot, VE6FF, Camrose, Alta. for further information.

EXPERT ALIGNMENT AND GENERAL SERVICE ON all makes of communication receivers. Write or phone VE3ACC. Jim Doble, 147 Howland Avenue, Toronto, MIDway 8575.

FOR SALE - a Hallicrafter S-77A receiver, like new, used only six weeks. Second speaker and tuning condenser 5 sections at 30 mmf each. CASH - \$130.00. Write to H. Zingel, 106-A McCaul St. Toronto, or phone EM4-5568.

QSL's - 2 color, \$7.00 a thousand, plus 10% sales tax. Sample - 10 cents. VE3LG, G. Lafleur, 25 Queen Mary St., Ottawa.

FOR SALE - 1155A receiver with built in AC power supply and separate 12 inch speaker, \$50.00. VE3DPF, A. Foss, Geraldton, Ontario.

TRANSMITTER FOR SALE COMPLETE. In operating condition, consisting of Meissner Signal Shifter exciter, with Meissner Phase Modulator FMX and new speech clipper, Electro Voice Model 1000, installed. Final amplifier, 807's with MB-1020 installed. Power supplies for Signal Shifter and final. Approximately 90 watts. \$135.00 takes the lot. VE3WJ, A.F. Hollinsworth, 93 Queens Drive Weston, Ont.

FOR SALE - complete amateur station, 50-75 watt transmitter in Hammon cabinet. Two 807's in final, xtals for all bands. First class order, Hammarlund Comet Pro receiver, all bands, 10 meters to BC. A very good performer in first class shape. Complete with speaker. 2C RCAF frequency meter, new, with instruction manual. One Simpson 77 wave and modulation meter, new and National SW-3 receiver with coils. In addition, there is at least \$75.00 worth of separate ham gear. The first certified check for \$250.00 gets this bargain. VE5BI, R.J. Rowley Noyes, Lloydminster, Sask.

HAVE TWO STANDARD COIL TV tuner-front ends. These are latest model with 6J6 mixer-oscillator and 6BC5 RF. For the intercarrier type of TV set, they have clip out coil sections for UHF conversion and are brand new. Easily modified to a hot 2 meter front end. \$11.00 each. Write E.F. Job, 4 South St., Brampton, Ontario.

Skywire Hamads get proven results. Use them to dispose of your surplus gear.

A TWO SPEED TURNTABLE OF OUTSTANDING PERFORMANCE. PLAYS STANDARD 78 AND LP 33'S BETTER THAN ANYTHING YOU CAN COMPARE IT WITH. 12 INCH PRECISION MACHINED TABLE KEEPS RUMBLE BELOW AUDIBILITY. YOU WANT THE FINEST FOR YOURSELF. BUY CONNOISSEUR. PICK OF THEM ALL.
PRICE - \$60

CONNOISSEUR -



ASTRAL ELECTRIC CO. LTD.
44 DANFORTH ROAD
TORONTO 13.

60 CYCLE ONLY.

Suitable for playing standard recordings, transcription recordings, and the micro-groove long-playing recordings.

THE FINEST!!

Manufacturers
of all types of
fixed capacitors
for all radio
and electrical
needs

AEROVOX
Capacitors

Manufacturers of fixed capacitors for all radio and electrical uses

WANTED:

Capable, personable man with good background in radio is wanted for the position that offers to give plenty of opportunity for advancement.

Sales experience would be helpful.

This is a salaried position. Call for interview

RADIO TRADE SUPPLY LTD
595 Yonge St.
Toronto

HOW'S UR OBS IQ?

Official Bulletin Nr 374, Dec 20, 1952. Participation is invited in a series of 20 meter DX tests to be held on February 8th and 22nd. Attempts at DX work should be made between 0500 and 0800 GMT each day. W and VE stations should call CW at the hour and each succeeding ten minutes thereafter. DX stations will be calling W and VE at five minutes past the hour and each succeeding ten minutes until the calling period ends. Reports from all participating stations will be forwarded to Stewart Perry, W1BB, 36 Pleasant Street, Winthrop, Mass. direct. Results of the effort will be published as soon as they are known.

Official Bulletin Nr 375, Dec 22, 1952. FCC today announced final action on the most discussed Docket 10237. The proposal for calling and answering frequencies has been completely dropped, which is in accord with the request of ARRL. The proposal for revision of regulations dealing with operation in emergencies has been modified in general accordance with ARRL requests and is effective Feb 2.

Official Bulletin Nr 378, Dec 23, 1952. FCC finalized proposals in Docket 10073 and 10173 with following results. Effective February 18, 1953. General and Conditional class licensees are permitted 75 and 20 meter voice operation. Effective February 20th, 1953 voice is authorized in 7200 to 7300 kc by all amateurs except Novice and Technician. Novice is permitted CW operation on 7175 to 7200, frequency shift keying, including radio teletype is permitted in non-voice parts of 80, 40 and 20 meters, new standards are adopted for teletype operation, and procedure for signing of amateur calls is made more strict. Note that these changes are not effective until Feb. 18 and 20 respectively. Details in February QST, or refer to June, 1952 issue for the essential details.

Official Bulletin Nr 375, Jan 2, 1953. You are invited to participate in ARRL's January, 1953

Frequency Measuring Test on February 11 and 12. Signals for measurement will be transmitted from W1AW at 9.30 p.m. EST. February 11 on approximately 3529, 7286, and 14,096 kc and at 12.30 a.m. EST Feb. 12 on approximately 3611, 7210 and 14034 kc. All participants will receive report of a professional frequency measuring laboratory. The most accurate measurements will be reported in QST. Full details concerning the Frequency Measuring Tests will appear in February QST.

Official Bulletin Nr 380, Jan 8, 1953. You are cordially invited to take part in the 19th ARRL International DX Competition. Contest periods for phone are February 6 and 8 and 20 to 22. 7 mc fone contacts, where permitted by government regulations, may be counted in logs. CW competition is scheduled for March 6 to 8 and 20 to 22. Complete rules may be found in January QST. Though not required for entry, convenient reporting sheets for phone, CW, or both sections of this competition will be supplied by ARRL on request.

Official Bulletin Nr 381, Jan 15, 1953. Additional stations are needed in the current ARRL program of on-the-air code practice for persons wishing to learn in Continental Code. Schedules may be arranged to suit the convenience of co-operating amateurs and will be published in QST. A combination of voice and code transmissions is considered to be most effective. Suggestions for conducting code lessons over the air are available from ARRL. If you are willing to assist in this program, notify CD at ARRL of your interest and complete details will be furnished you.

Official Bulletin Nr 382, Jan 22, 1953. ARRL announces availability of a Reference Guide for Code Trainees. Copies will be sent gratis to those learning the code, to amateurs or clubs assisting others, to learn Continental Code. Address your requests to CD, ARRL, W. Hartford.

CLAROSTAT Greenohms

ADJUSTABLE
FIXED
TAPPED
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5 to 200 watts



WIRE-WOUND
POWER RESISTORS

FEATURES...

- ★ The exclusive Clarostat cold-setting inorganic cement coating. Won't flake, peel, crack, even under serious overloads.
- ★ Roughened surface for greater radiation of heat.
- ★ Will handle heavy overloads without flinching.
- ★ Jam-type brackets of special Clarostat design, are standard for larger units. Other mounting means available on special order.
- ★ Wide choice of resistance values and taps. One or more slider bands for adjustable units.

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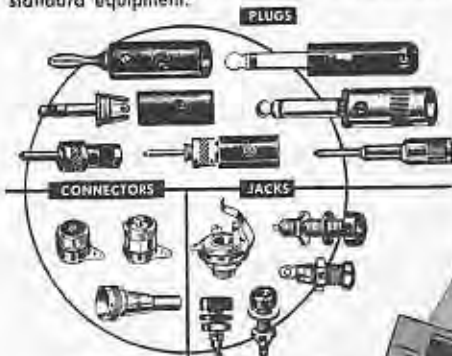
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LEADS**
and
PROBES



Multiple Probe

• INSULINE has been the leading maker of test leads and probes (standard and special types) for 32 years. Over 2000 items . . . including tools, hardware, components, metal goods, antennas, accessories . . . for every electronic requirement. INSULINE jacks, plugs and connectors are used by practically every major manufacturer as standard equipment.



Write Dept. RN-10 for latest catalog illustrating and describing complete line.



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TORONTO, ONTARIO,

VANCOUVER WINNIPEG MONTREAL HALIFAX ST. JOHN'S

RCA-NBC "FIRSTS" IN TELEVISION

1923

V. K. Zworykin, now Vice President and Technical Consultant of RCA Laboratories, applied for patent on the iconoscope, television's "eye." (December 25.)

1929

V. K. Zworykin demonstrated an all-electronic television receiver using the kinescope, or picture tube, which he developed. (November 18.)

1930

Television on 6 x 8-foot screen was shown by RCA at RKO-Proctor's 58th Street Theater, New York. (January 16.)

NBC began operating W2XBS, pioneer experimental television station in New York. (July 30.)

1931

Empire State Building, world's loftiest skyscraper, was selected as site for RCA-NBC television transmitter.

1932

RCA initiated field tests with 120-line, all-electronic television. (May 25.)

1936

Television outdoor pickups demonstrated by RCA at Camden, N. J., on 6-meter wave across distance of a mile. (April 24.)

1937

RCA announced development of electron projection "gun" making possible television pictures on 8 x 10-foot screen. (May 12.)

Mobile television vans operated by RCA-NBC appeared on New York streets for first time. (December 12.)

1938

Scenes from Broadway play, "Susan and God," starring Gertrude Lawrence, telecast from NBC studios in Radio City. (June 7.)

1939

RCA and NBC introduced television as a service to the public at opening ceremonies of New York World's Fair, featuring President Roosevelt as first Chief Executive to be seen by television. (April 30.)



Improved television "eye," the "Orthicon" was introduced by RCA. (June 7.)

Major league baseball was telecast for the first time by NBC, covering a game between the Brooklyn Dodgers and Cincinnati Reds at Ebbets Field. (August 26.)

First college football game—Fordham vs. Waynesburg—televised by NBC in New York. (September 30.)

RCA receiver in plane over Washington picked up telecast from NBC station in New York, 200 miles away. (October 17.)

Portable television equipment demonstrated to FCC by RCA on December 1, 1939, supplemented with motor truck mobile stations.

1940

RCA demonstrated to the FCC, at Camden, N. J., a television receiver producing images in color by electronic and optical means employing no moving mechanism. (February 6.)

New York televised from the air for the first time by a plane equipped with RCA portable television transmitter. (March 6.)

Television pictures on 4½ x 6-foot screen demonstrated by RCA at annual stockholders meeting in Radio City. (May 7.)

Television program broadcast from NBC station, New York, received on USS President Roosevelt while 250 miles at sea on return voyage from Bermuda. (May 14.)

Coaxial cable used for first time in television program service by NBC in televising Republican National Convention at Philadelphia and transmitting scenes over New York station. (June 24.)

Election returns on November 5, 1940, telecast for the first time as RCA-NBC showed teletypes of press associations reporting the news, as well as commentators at the microphone.

Buy THE X'MTR
you will USE
FOR YEARS



Harvey-WELLS 40 to 50 WATTS
BANDMASTER THE
THE WORLD'S MOST VERSATILE X'MTR FOR MOBILE OR FIXED OPERATION, NOVICE OR EXPERT
BANDMASTER SENIOR . . .

A complete ready-to-go phone transmitter including new crystal-oscillator—vfo switching circuit—Phone or CW—100% break-in-operation—Eight bands: 80, 40, 20, 15, 11, 10, 6 and 2 meters—No plug-in coils—completely wired and tested. Tubes: 6AQ5 Crystal Osc., 6AQ5 Buffer Mult., 807 Final, 2-6L6 class B Modulators. Sturdy Steel Cabinet 12" x 5182.00
8" x 8"

BANDMASTER DELUXE . . .

The last word in a versatile small transmitter for home or commercial use. Thousands now in use in foreign countries for important applications and now adopted by many of our communities for civilian defense. Has built-in three tube preamplifier for use with crystal mike PLUS all the features 5224.00
of the Bandmaster Sr.

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supply house to
reserve one for you

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BANDMASTER

NOW IN PRODUCTION

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FULL EFFICIENCY ON ALL BANDS
THIS IS IT
OCCUPIES NO MORE DESK SPACE

Available at
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ESTABLISHED 1903

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VANCOUVER WINNIPEG MONTREAL HALIFAX ST. JOHN'S Nfld.

1941

Demonstrating television progress to the FCC, RCA exhibited the projection-type home television receiver featuring a screen $13\frac{1}{2} \times 18$ inches.

Television pictures including a prize fight at Madison Square Garden and a baseball game at Ebbets Field, Brooklyn, were projected on a 15×20 -foot screen in the New Yorker Theatre. Scenes at Camp Upton, Long Island, were automatically relayed by radio to New York establishing a record as the first remote pick-ups handled by radio relay stations. (January 24.)

Color television pictures in motion were put on the air by NBC in the first telecast in color by mechanical means from a television studio. (February 20.)

RCA-NBC made successful tests with first projection-type color television receiver using mechanical methods. (May 1.)

NBC's television station WNBC became the first commercially licensed transmitter to go on the air. (July 1.)

1942

First mass education by television was initiated by RCA-NBC in training thousands of air-raid wardens in the New York area. (January 28.)

1943

NBC televised major sports and other events at Madison Square Garden for wounded servicemen in television-equipped hospitals in the New York area. (October 25.)

1944

NBC announced plans for nation-wide television network to be completed possibly by 1950. (March 1.)

1945

RCA demonstrated projection-type television home receiver featuring screen approximately 18×24 inches. (March 15.)

RCA Image Orthicon tube of supersensitivity was introduced as solution to major problems in illumination of television programs and outdoor pickups. (October 25.)

Greatly improved black-and-white television pictures and color television in three dimensions featuring live talent were demonstrated by RCA at Princeton, N. J. The color system was mechanical; the black-and-white all-electronic. (December 13.)

1946

Airborne television as developed during the war by RCA and NBC in cooperation with U. S. Navy, U. S. Army Air Forces and the National Defense Research Council was demonstrated at Anacostia Navy Air Station. (March 21.)

January, 1953

First world's heavyweight championship fight to be seen on television featured Louis-Conn at Yankee Stadium, New York, televised by NBC and transmitted to Washington, D. C., via coaxial cable. (June 19.)

Post-war television receivers introduced by RCA Victor Division. (Sept. 17.)

Color television pictures on 15×20 -inch screen produced by all-electronic means were demonstrated publicly for the first time by Radio Corporation of America at RCA Laboratories, Princeton, N. J. A simple radio frequency converter was announced that enables black-and-white receivers to reproduce in monochrome the programs of color television stations operating on high frequencies. The converter also enables all-electronic color receivers to receive the programs of low or high frequency black-and-white transmitters. This will make it possible to introduce all-electronic color without causing obsolence of black-and-white television receivers. (October 30.)

1947

Philadelphia audience saw color television pictures produced on $7\frac{1}{2} \times 10$ -foot theater screen by RCA all-electronic system. (April 30.)

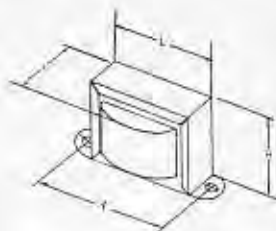
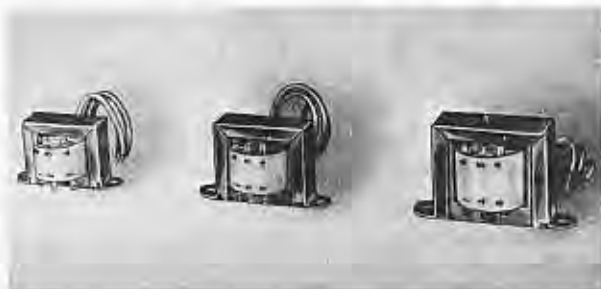
First demonstration of American television in Europe conducted by RCA at Milan (June 9), and at Vatican where Pope Pius XII was televised (July 12).



Televised pictures of surgical operations were transmitted through the air for the first time by RCA Victor from operating room in New York hospital to television receivers viewed by members of the American College of Surgeons at the Waldorf-Astoria, presaging television as "medical lecture hall" of the future. (Sept. 7 to Sept. 12.)

Intensified NBC television activities included the following historic pick-ups: first telecast from Congress (Jan. 3); first pick-up from White House (Oct. 5); first televising of World Series (Sept. 30 to Oct. 6); arrangement with Theater Guild to telecast dramatic adaptations, starting with St. John Ervine's "John Ferguson"; the Louis-Walcott championship prize-fight in Madison Square Garden, New York (December 5).

UNIVERSAL OUTPUT TRANSFORMERS



Type	Core Size	A	H	L	W	Watts
MU-12	1/2 X 1/2	2"	1 5/16	1 41/64	1 7/32	3.5
MU-58	5/8 X 5/8	2 3/8	1 9/16	1 57/64	1 7/16	6.5
MU-34	3/4 X 3/4	2 13/16	1 7/8	1 17/64	1 5/8	10

VOICE COIL IMPEDANCES

	1.0	1.2	1.5	2.0	2.5	3.2	4.0	5.0	6.0	8.0	10.0	12.0	15.0
1-2	12500	15200	19000	25400									
2-3	9600	11500	14400	19200	24000								
3-4	6900	8300	10400	13900	17320	22100							
4-5	5250	6300	7900	10500	13200	17000	21000	26300					
5-6	3900	4700	5900	7900	9850	12600	15700	19600	23600				
1-3	2700	3300	4100	5500	6850	8700	11000	13800	16400	22000	27300		
2-4	2000	2400	3000	4000	5000	6400	8000	10000	12000	16000	20000	24000	
3-5	1500	1800	2250	3000	3750	4800	6000	7500	9000	12000	15000	18000	22500
4-6			1700	2270	2840	3600	4500	5650	6800	9000	11300	13600	17000
1-4				2070	2580	3300	4140	5170	6200	8270	10300	12400	15500
2-5				1550	1770	2470	3100	3860	4640	6200	7740	9300	11600
3-6						1840	2300	2870	3440	4600	5740	6900	8600
1-5							1500	2000	2500	3000	4000	5000	6000
2-6								1500	1870	2240	3000	3730	4480
1-6										1620	2150	2700	3250

Marconi Universal Outputs allow correct matching of a wide range of voice coil impedance to any tube. Full directions and charts for the most commonly used output Tubes, both Single and Push-Pull, are provided with each transformer. Only three sizes of outputs are needed to cover the majority of replacements. Excellent frequency range, high transformer efficiency, ruggedness, plus Marconi's full year guarantee assures you of the best value for 95% of your output replacements.

SECONDARY TERMINALS

AT YOUR LOCAL JOBBERS

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CANADIAN MARCONI COMPANY
ESTABLISHED 1923

830 BAYVIEW, TORONTO, ONTARIO
VANCOUVER WINDYBEE MONTREAL HALIFAX ST. JOHN'S Nfld.

NEWLY DEVELOPED "PRINTED TUNER" FOR TELEVISION RECEIVERS SHOWING THE NARROW REMOVABLE STRIPS WHICH REPLACE THE USUAL CYLINDRICAL TUNING COILS.



TUNERS ARE QUICKLY ASSEMBLED BY INSERTING STRIPS CONTAINING THE PRINTED CIRCUITS FOR EACH OF THE 12 TV CHANNELS AROUND THE OUTSIDE OF THE TURRET.



DEVELOPMENT of a television tuning unit in which certain of the most important circuit elements are produced by a photo-etch "printing" process—in contrast to the usual wire-wound coils—has been announced by the RCA Tube Department. This unit, which is heralded as a major accomplishment in home-receiver design, provides greatly improved performance of television receivers installed in fringe areas, particularly when the instruments are operated from built-in antennas.

In design, the new RCA unit is a cylindrical turret-type tuner. The turret assembly employs individual coil strips or segments, each containing the printed circuit for a separate television channel. The strips are easily removed for service or replacement. All the tuned circuits are printed with the exception of the oscillator coils for channels two to six.

Tuning is accomplished by rotating the turret by means of a conventional channel-selector switch which connects with the proper coils for each channel. Special features have been incorporated in the tuner to insure durability and trouble-

free service. These include stator contact springs of solid hardspring silver, and turret contact rivets of solid coin silver. The unit is capable of withstanding well over 40,000 complete revolutions of the turret.

Initial designs of the new tuner are intended for use in picture systems of the type employed in the 630TS model television receiver. This receiver may be changed over to the new tuner with only two minor electrical changes and only minor mechanical modifications.

Provides Uniform Gain

The new printed circuit tuner provides high and substantially uniform gain on all channels under typical operating conditions. Other features include an excellent noise factor, high rejection of spurious responses, very low radiation and a temperature-compensated, stable oscillator circuit. These character-

istics make the new RCA printed-circuit tuner especially suited to receivers using indoor antennas. The new RCA tuner is also the first to use a type 6CB6 tube as the RF amplifier. Characteristics of this tube include high gain, low noise, and low grid-plate capacitance.

Intensive research leading to the adaptation of printed circuits to television tuners was undertaken by RCA engineers shortly after the end of the war to meet the needs of the rapidly expanding television industry, faced with problems of mass manufacture of intricate units. In addition to eliminating the mechanical winding of multiple coils, printed circuits provide precision inductance and reproducibility in the oscillator circuits and the RF amplifier.

The photo-etch process developed for the RCA printed-circuit tuner begins with the photographing of

"Printed" Tuners for TV

New Unit Developed by RCA Will Give Better Performance When Built-in Antennas Are Used

SMASH SALE!

SUPREME TEST EQUIPMENT

THE FIRST REAL BARGAINS OF 1953.



Regular Net price -- \$165.00

Our Special price -- \$125.00

Here's your big chance to get that tube tester you need at a really sensational bargain price. Order now and be sure of yours. Quantity is limited.

MODEL 616 TUBE & BATTERY TESTER

CHECKS AM FM TV RECEIVING TUBES AND PORTABLE RADIO BATTERIES. The Supreme Model 616 cannot be beat for EFFICIENT bench or counter tube testing. Minimized obsolescence by use of Supreme patented element selector system. Special facilities for all AM, FM and TV receiving tubes. ILLUMINATED ROLL CHART with hundreds of types listed. TUBE SETTING DATA on future tubes supplied by Supreme as they come into use. Quality test readings for both tubes and batteries on "Resisto-Load" series of beautiful BIG SEVEN INCH FULL VISION METER. Non-removable window. Also checks portable radio batteries UNDER PROPER LOAD. Tests batteries with rated voltages of 1.2, 4.2, 6, 4.5 and 90 volts. Hammered finished metallic case with detachable cover. Approx. dimensions 11 x 15 x 6 1/2 inches. Shipping weight 20 pounds.

Regular Net Price -- \$120.00

Our Special Price -- \$99.50

MODEL 600 TUBE & SET TEST

SUPREME'S Time Tested Emission Tube Tester with all Multi-meter functions—Battery Tester (including the 67.5 volt), Sockets for all tubes (including nine pin) and a spare.

METER—7" Clear Plastic. Over 6" of illuminated scale plus mirrored arc for accurate readings.

FLEXIBLE—SUPREME'S patented Filament Return selector switch insures only one socket for each type tube.

ROLL CHART—Illuminated—double width—ample room for all tube listings. Plus one year free tube setting service.

MULTI-METER RANGES—Operate at the touch of a button.

CASE—Metal in beautiful Hammered finish with removable cover, new type leather carrying strap.

DC VOLTS—7 ranges of 0.5/10/50/250/500/1000/2500 volts. Lowest reading of .1 volts. All ranges 1000 ohms per volt.

AC VOLTS—6 ranges of 0/10/30/250/500/1000/2500 volts. Rectifier guaranteed as any other part. Double bridge circuit affords maximum of scale linearity and rectifier protection.

DC CURRENT—7 ranges: 0-1000 microamperes 1/5/10/50/250/500/1000 milliamperes and 1/10 ampere. Lowest reading 1 microampere. All slants wire wound.

OUTPUT VOLTS—6 ranges of 0.5/10/50/250/500/1000 volts. Ideal for receiver alignment. No wet condensers.

OHMMETER—5 ranges of 0/200/20,000/200,000 ohms and 2/20 megohms. Center scale of low range 3.5 ohms. Lowest reading 0.1 ohms. Ideal for checking low resistance coils such as voice coils and oscillator coils.

BATTERY TESTS—Provides proper loads for most commonly used A and B portable batteries.

POWER SUPPLY—100-133 volts—50/60 cycles. Special voltages and frequencies on request.

Note: Test Leads furnished with this instrument.

Size—11" x 15" x 6 1/2". Shipping Weight—20 pounds.



SPECIAL CABINET DEAL

Carrying case for that Utah Amplifier and Tape Recorder Unit that so many of you bought recently (less trimmings) \$1.75

Complete case with all trimmings -- \$9.75

The
RADIO CENTRE

PARTS FOR AMATEURS AND SERVICEMEN

72 CRAIG ST. WEST, MONTREAL

contact drawing. A contact print is made from the negative in a copper-clad sheet of phenolic resin which is coated with a light-sensitive material. The print of the sheet is next developed and placed in an etching solution. The solution etches away that part of the copper not covered by the pattern of the circuit, leaving the required copper circuit on the plastic sheet. The sheet is then placed in a mold and cut into separate sections and stored.

Especially suited to television production, the photo-etching

process is conducive to continued improvement and circuit development, since all that is necessary when a change is to be made in a circuit is to make a new photographic negative. Reproducibility is excellent, with detail and precision of the lines in the circuit approaching photographic accuracy.

The new RCA printed circuit tuner, which has already been subjected to extensive field tests, is now available to manufacturers of television receivers. It will also be available for replacement purposes through RCA parts distributors.

ber of factors important to reception. The ruler is scaled for use with all picture tube sizes.

The Microstick may be used to measure the bandwidth of a television receiver; calibrate vertical wedges in test patterns, determine the beat frequency of interference, and measure the air-path distance of "ghosts" or other reflected signals. In addition, the ruler is useful for determining the frequency of "ringing" in video circuits and for measuring the duration of sync pulses, horizontal blanking, and other types of video signals.

Conceived by John Meagher, RCA Tube Department television specialist, the Microstick is designed to aid technicians, students, and others in gaining a clearer understanding of the important time factors in television. Mr. Meagher is the author of the widely used TV "Pict-O-Guide" for television troubleshooting.

Design of the Microstick is based on the fact that the electron beam in a kinescope is deflected from the left to the right-hand edge of the picture in approximately 53.3 microseconds, forming one horizontal scanning line. Because of this, a ruler made equal in length to the width of the picture and divided into approximately 53 equal divisions, each division representing one millionth of a second, is capable of measuring the duration of any signal present in picture. Knowing the duration of the signal or the number of cycles of signal that occur in a given time, it is easy to compute the frequency of the signal.



AN OPERATOR LOWERS A COPPER-CLAD SHEET OF PLASTIC, CONTAINING A PHOTOGRAPHIC PRINT OF THE TUNING CIRCUITS, INTO AN ETCHING VAT.

Simple "Ruler" Measures Speed of TV Signals

An ingenious television "ruler", called a "Microstick", which can actually measure the millionths of a second it takes for a television sig-

nal to travel across the face of a kinescope, has been devised by the RCA Tube Department as an aid to servicemen in television picture analysis.

The Microstick is a transparent plastic ruler which in use is held flat against the safety glass of a television receiver to check a num-

JOHN MEAGHER OF THE RCA TUBE DEPARTMENT, DEMONSTRATES THE "MICROSTICK", A TRANSPARENT PLASTIC RULER WHICH HE DEVELOPED TO SIMPLIFY TELEVISION PICTURE ANALYSIS.

January, 1953



IT'S NEW!
THE JOHNSON

Viking II

TRANSMITTER KIT

VE3XB

Greater Power — TVI Suppressed



240-102 VIKING II TRANSMITTER KIT, COMPLETE WITH TUBES, LESS CRYSTALS, KEY AND MIKE
AMATEUR NET

\$374.50
NET

ADDITIONAL FEATURES

- Amateur Bands—10 to 160 Meters
- 100% Amplitude Modulation
- VFO Input Provision
- Dual Power Supplies
- Self Contained—No Plug-in Coils
- Pi-Network Coupling Output Amplifier
- 135 Watts Phone Input
- 180 Watts CW Input
- Instant Bandswitching

NATIONAL HRO-60 RECEIVER



All the features of the famous HRO-50T1 plus 12 permeability-tuned circuits in the 456 kc stages, and dual conversion on all frequencies above 7 mcs. Current regulated heaters in hi-frequency oscillator and 6BE6 mixer, and voltage regulation in hi-frequency oscillator and 5-meter amplifier.

Complete with Built-In power Supply and Coils (A through D)

\$705.00 net

NATIONAL



MODEL 5W-54 RECEIVER

Outperforms receivers twice the size and twice the price. Covers entire frequency range from 540 kc to 30 in 4 bands. Police, Foreign, Amateur and Ship bands clearly marked. Unique plastic bandspread dial is adjustable to assure logging accuracy over entire range. Built-in speaker. Size, 11x7x7". Wt., 15 lbs.

98F318. NET. \$79.95



TVI SUPPRESSION MEASURES . . .

The Viking II is enclosed in a heavily copper plated, steel cabinet; perforated top and bottom. Lid bonded with silver plated, phosphor bronze contact fingers. Special shields for meter, dial window, and VFO power socket. Filters at: keying jack, microphone connector, VFO power receptacle, power cord, and antenna relay connector.

high fidelity

by craftsmen

means distinctly

better listening

We have a complete range for the hi-fi

man of leading makes of equipment. Craftsman, Bogen, Leak Williamson, Scott, MacIntosh and Electro-Voice, Vitavox and Jensen speakers.

FM-AM tuner



Please write for prices.

WHOLESALE RADIO & ELECTRONICS LIMITED

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TORONTO, ONT.,

PHONE KI 5131

HUNTS Twist Prong or Screw Base Electrolytics

FOR EVERY REPLACEMENT

T.K

Max. Temperature 71°C.

150v. working 200v. surge

Catalogue No.	Cap. μ f.	D.C. Wkg. Volts.	Dimensions	
			D.	L.
TK 20-20/150	20+20	150	1	2
TK 40-40/150	40+40	150	1	2 $\frac{1}{2}$
TK 40-40/25 150/25	40+40+25	150/25	1	2 $\frac{1}{2}$
TK 50-50/25 150/25	50+50+25	150/25	1	2 $\frac{1}{2}$

450v. working 525v. surge

Catalogue No.	Cap. μ f.	D.C. Wkg. Volts.	Dimensions	
			D.	L.
TK 14/450	16	450	1	2
TK 20/450	20	450	1	2
TK 40/450	40	450	1	3
TK 10+10/450	10+10	450	1	2
TK 10+10+10/450	10+10+10	450	1	2 $\frac{1}{2}$
TK 20+20/450	20+20	450	1	3
TK 40+40/450	40+40	450	1 $\frac{1}{2}$	3 $\frac{1}{2}$
TK 10+10/25 450/25	10+10+25	450/25	1	2 $\frac{1}{2}$
TK 20+20/25 450/25	20+20+25	450/25	1	3
TK 20+20+20/20 450/25	20+20+20+20	450/25	1 $\frac{1}{2}$	3 $\frac{1}{2}$

H.K

Max. Temperature 71°C.

450v. working 525v. surge

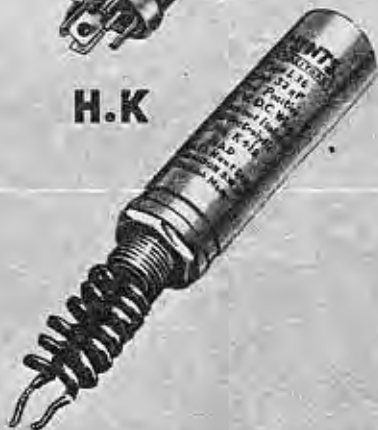
Catalogue No.	Cap. μ f.	Dimensions	
		D.	L.
HK 8/450	8	1	2 $\frac{1}{2}$
HK 16/450	16	1	2 $\frac{1}{2}$
HK 24/450	24	1	3 $\frac{1}{2}$
HK 32/450	32	1 $\frac{1}{2}$	3 $\frac{1}{2}$
HK 8-8/450	8+8	1	2 $\frac{1}{2}$
HK 24-24/450	24+24	1 $\frac{1}{2}$	3 $\frac{1}{2}$

DESIGNED FOR SERVICE

This range of capacitors has been developed by Hunts to meet the demand for a simple and quick method of mounting. Types T.K. and H.K. are of strong, all aluminium construction, hermetically sealed with a rubberised bakelite disc — small in size and low in price.



T.K



H.K

TRADE MARK
HUNTS
CAPACITORS

Represented in Canada by
CANADIAN MARCONI COMPANY
Established 1903

VANCOUVER WINNIPEG MONTREAL HALIFAX ST. JOHN'S, NFLD

TRADE MARK
HUNTS
CAPACITORS

'SERVICE ENGINEERED' TEST EQUIPMENT FOR SERVICEMEN



MODEL 707 *DYNAMIC CATHODE RAY TUBE ANALYZER

The Model 707 Cathode Ray Tube Analyzer is the ONLY CRT Analyzer that completely and accurately tests ALL Television Picture Tubes including both magnetic and electrostatic deflected types. It also will analyze oscilloscope, radar, or any other special purpose cathode ray tube—without removal from chassis or carton.

This "Dynamic Tube Analyzer" incorporates the most advanced features of design and accuracy. The test method is the newest, most up-to-date means of truly testing and analyzing the condition of a cathode ray tube. This new instrument is another development following in the JACKSON tradition, a reputation of excellence, established over many years of manufacturing instruments of superior design and performance.

DOUBLE CHECK THESE OUTSTANDING FEATURES:

- BEAM CURRENT TEST TO FINAL ANODE
- CONTROL GRID TEST
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