

THE AUSTRALASIAN

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# Radio World

VOL. 6 . . . . . NO. 7

DECEMBER 15 . . . . . 1941

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SEVEN - VALVE BATTERY SET

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# THE AUSTRALASIAN RADIO WORLD

*Devoted entirely to Technical Radio*

and incorporating  
**ALL-WAVE ALL-WORLD DX NEWS**

Vol. 6. No. 7

DECEMBER 15, 1941

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## EDITORIAL

Christmas is here again!

This is our Christmas issue. Unfortunately, we are not able to make it a bumper issue, as we might have done under normal conditions. In fact, we feel quite happy and satisfied with being able to maintain our present standard in the face of the dozen and one little problems which arise at times like this.

Looking back over the year, too, we find plenty to be happy about.

The success of Parry's articles on acoustic compensation, the popularity of the special features for dealers, and particularly those on signal tracing, are all reflected in a substantial increase in circulation.

Since our ration of paper has to cover this increased circulation, we find that we can't have as many pages in each issue as we could readily fill, but we are doing the best we can under the circumstances.

It gives us great satisfaction to know that our readers appreciate the difficulties and maintain their loyal support, and so it is with the fullest sincerity that we wish you all —

**A Merry Christmas and a Happy New Year**

★ Proprietor —

★ Publisher —

★ Editor —

A. G. HULL

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Phone MA 2455

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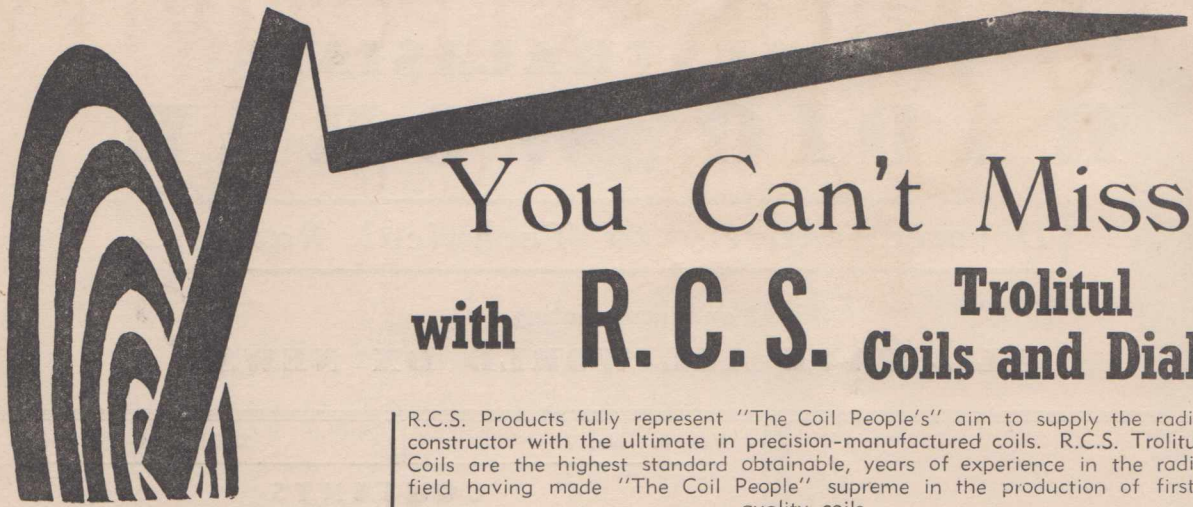
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Not open Saturday morning

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24 issues ..... £1  
Post free to any address

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R.C.S. Products fully represent "The Coil People's" aim to supply the radio constructor with the ultimate in precision-manufactured coils. R.C.S. Trolitul Coils are the highest standard obtainable, years of experience in the radio field having made "The Coil People" supreme in the production of first-quality coils.

For "My Own"—

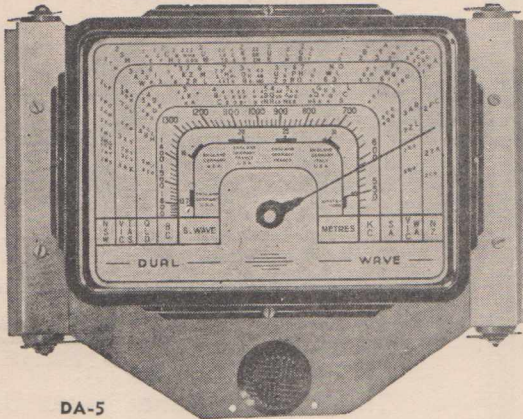
Coil Kit Code K193 D.W. Unit .....	27/6
1 Permeability I.F. ....	13/9
R.C.S. DA-5 Dial .....	22/6

## R.C.S. DIAL DA-5

DA-1, DA-2 are single-glass D/W Dials. The DA-1 is a standard dial for use with R.C.S. coils and "F" type condensers, and the DA 2 is for use with the "H" type. The DA-5 dial is for 1600 to 550 k.c. and 13.7 to 40 metres, with an "H" type condenser. All this series are edge-lit and wedge-driven, and the escutcheon aperture is approximately 7" x 4-7/8."

DA-1 Standard D/W Dial .....	22/6
DA-2 Communications Dial .....	22/6
DA-5 13.7 to 40 metres D/W Dial, "H" Condenser .....	22/6
DA-6 Mantel Set Dial, D/W "H" gang .....	18/9
DA-7 Portable Kit Dial, D/W "H" gang .....	9/-

DA-8 Same as DA-7, but ready assembled ..... 13/6  
A newly-released R.C.S. Kit Dial has 0-100 scale. This dial with all parts supplied is suitable for replacement and for crystal and small T.R.F. sets. Code DA-9 ..... 9/-



DA-5

## R.C.S. PERM. TUNED I.F.'s

The new R.C.S. permeability-tuned I.F.'s are wound on special Trolitul formers inserted the adjustable

into which are iron cores. These R.C.S. permeability-tuned I.F.'s are the most dependable and efficient I.F.'s it is possible to produce. They should be used whenever the optimum in results is required.

465 K.C. I.F.'s  
When two I.F.'s are used:

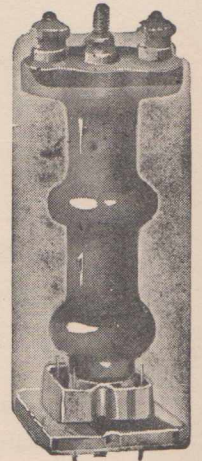
IF162 1st ..	13/9
IF163 2nd ..	13/9

When three I.F.'s are used:

IF164 1st ..	13/9
IF164 2nd ..	13/9
IF163 3rd ..	13/9

Air Core I.F.'s  
Air Core 465 K.C.  
IF107 1st .. 7/6  
IF108 2nd .. 7/6

Air Core 175 K.C.  
1E68 1st .... 7/6  
1E69 2nd .... 7/6



IF162

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## R.C.S. TROLITUL BROADCAST COILS

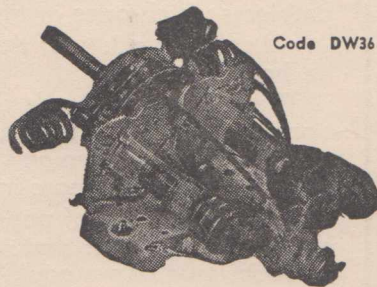
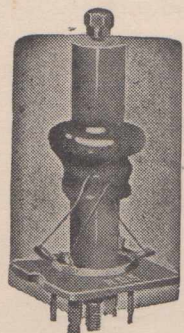
These coils are available in both Air Core and Permeability tuned types. The latter are adjusted to ensure maximum efficiency in our laboratories.

AIR CORE "H" GANG  
E342 Aerial 6/6  
E343 R.F. .... 6/6  
E344 Osc. .... 6/6  
PERM. TUNED "H" GANG

E345 Aerial 8/6  
E346 R.F. .... 8/6  
E347 Osc. .... 8/6

## T.R.F. TYPE-AIR CORE

T88 Aerial .....	6/6
T89 R.F. ....	6/6
T87 R.F. with reaction .....	6/6
T81 Reinartz .....	6/6



Code DW36

## R.C.S. D.W. UNIT

Type DW36, as illustrated, consists of Aerial and Oscillator Coils, Wave Change Switch, the necessary B.C. and S.W. Trimmers and Padder mounted together, wired up ready to assemble into a set utilising 465 k.c., the bands being S.W. 13.7 to 40 metres, and B.C. 1600 to 550 k.c.

Code DW36 ..... £1/7/6

# VARIABLE SELECTIVITY

## FOR THE

# ACOUSTIC COMPENSATED SUPERHET

LOOKING back over the year there are several outstanding features which come to mind, but probably none stronger than that of the success of the acoustic compensation circuits evolved by Mr. Parry and detailed by us in several issues.

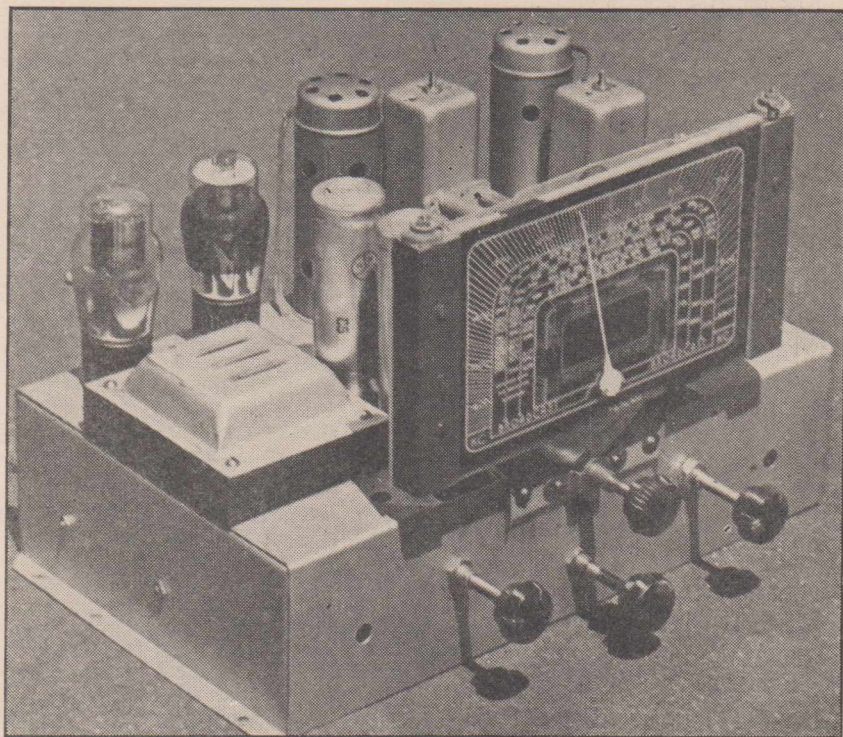
Most popular of these circuits was the "Acoustic Compensated" superheterodyne, which was described in

Modifications designed by

**CHARLES H. MUTTON**

of J. H. MAGRATH PTY. LTD.,

Melbourne.



The new chassis of the famous "Acoustic Compensated Superhet."

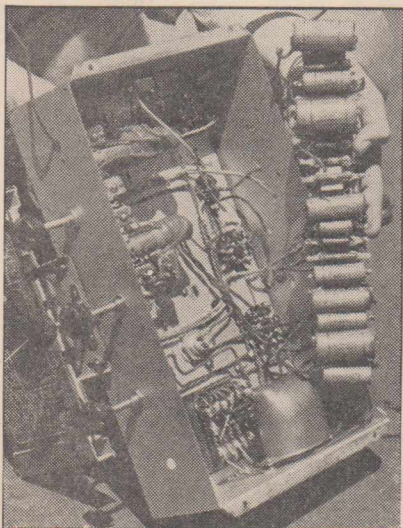
detail in our March issue.

Down Melbourne way, that bright firm of J. H. Magrath Pty. Ltd. made a specialty of this particular circuit, and, as a result, they handled many hundreds of kits of parts for it. Magrath's tell us that reports received from every quarter proved that the set was completely successful in every

way and the builders were all delighted with the results obtained. They found that the manner in which the audio response could be adjusted made it quite impossible for anyone to be

anything but satisfied with the quality of reproduction. Every listener could readily adjust the response to suit his

(Continued on next page)



A photograph to illustrate the strip mounting of the minor components, showing the strip before final assembly.

### Parts List — ACOUSTIC COMPENSATED SUPERHET

- 1—Base 14" x 8 $\frac{3}{4}$ " x 3" (Arcadian).
- 1—Coil kit, with intermediates and padder (Britannic, R.C.S., Crown, Radiokes).
- 1—Gang condenser (Stromberg).
- 1—Dial to suit (R.C.S., Radiokes, Crown).
- 1—Power transformer, 80 m.a. (Radiokes).
- CONDENSERS:
- 1—.00005-mfd. mica (T.C.C.).
- 2—.00025-mfd. mica (T.C.C.).
- 1—.0001-mfd. mica (T.C.C.).
- 1—.005-mfd. mica (T.C.C.).
- 1—.02-mfd. mica (T.C.C.).
- 5—.1-mfd. tubular (T.C.C.).
- 3—.1-mfd. tubular (T.C.C.).
- 3—.5-mfd. tubular (T.C.C.).
- 2—8-mfd. 500v. electrolytics (T.C.C.).
- 2—25-mfd. electrolytics, 25v. (T.C.C.).
- RESISTORS:
- 1—1,000-ohm potentiometer (I.R.C.).
- 1—.5-meg. potentiometer (I.R.C.).
- 2—250-ohm 1-watt (I.R.C.).

- 1—2,000-ohm 1-watt (I.R.C.).
- 1—3,000-ohm 1-watt (I.R.C.).
- 1—.02-ohm 1-watt (I.R.C.).
- 1—40,000-ohm, 1-watt (I.R.C.).
- 2—.05-meg. 1-watt (I.R.C.).
- 2—.25-meg. 1-watt (I.R.C.).
- 2—.5-meg. 1-watt (I.R.C.).
- 2—1-meg. 1-watt (I.R.C.).

#### VALVES:

- 1—6J8G, 1—6U7G, 1—6B6G, 1—6V6G, 1—80 (Mullard, Brimar, Philips, Radiotron).

#### SPEAKER:

- 1—12" 1,500-ohm with separate input transformer to suit single 6V6G (Rola, Am-phon).

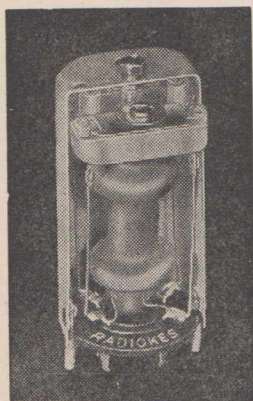
#### SUNDRIES:

- 4—Octal sockets, 2—4-pin sockets, 3—valve cans, 4—knobs, hook-up wire, terminal strips, solder lugs, screws, nuts, etc.

# RADIOKES

**"THE NAME TO KNOW  
IN RADIO"**

You, Mr. Constructor, can buy Radiokes components with the utmost confidence of receiving the ultimum of satisfactory results and maximum dependability. For the "MY OWN" you need the technical perfection that only Radiokes can give. Radiokes coils for the "MY OWN" ensure superior and dependable performance.



## RADIOKES D.W. COIL

Precision manufactured to ensure the highest standard of efficiency. The Radiokes Dual-wave Coil incorporates trolitul wherever possible. Litz wire windings; lugs already tinned. Short-wave range: 16-50 metres; B.C. range: 1,500 to 550 k.c.

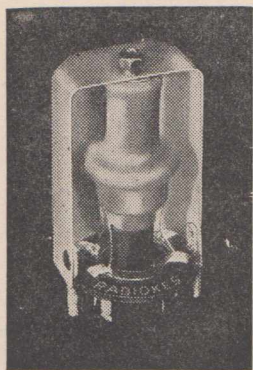
List Price 14/-

## RADIOKES DUAL-WAVE UNIT —

This is a highly selective unit with an exceptionally high range. The DWU-1 matches "H" type gang condenser, and incorporates 4-in-1 padder. Solidly mounted with coils.

Type DWU-1 ..... Price £17/6

Coil Kit CK1045 for "My Own" ..... £1 7 6  
1 Permeability I.F. .... 13/9  
DWD-5 Dial ..... £12/6



## RADIOKES BROADCAST COIL

Radiokes Broadcast Coil, trolitul rigid construction available in air-cored and permeability types. Types A.C.B., Aer., R.F. or Osc.

List Price, 6/6

AVAILABLE FROM ALL LEADING STORES  
**RADIOKES Pty. Ltd.**  
P.O. Box 90  
BROADWAY - - - SYDNEY

## VARIABLE SELECTIVITY

(Continued from previous page)

own taste by a fraction of a turn of the special tone control embodied in the design.

No matter how good anything may be, however, there are always those people with wide vision who will persist in pushing ahead for further and further development.

And so it happened that the chief engineer and technician for Magrath's should be a young fellow named Charles H. Mutton, who was once associated with the Lekmek Laboratory.

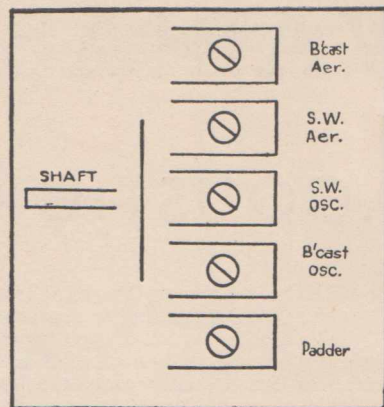
### A Great Improvement

Always on the look-out for something different and better to give the home-builder, he turned his attention to the r.f. end of this receiver, secured the wholehearted co-operation of the engineers of the Britannic coil factory, and, as a result, has produced something which we are sure will be of great interest to all readers, and more especially to those who have already had experience with acoustic compensation circuits and therefore appreciate the capabilities of this audio system.

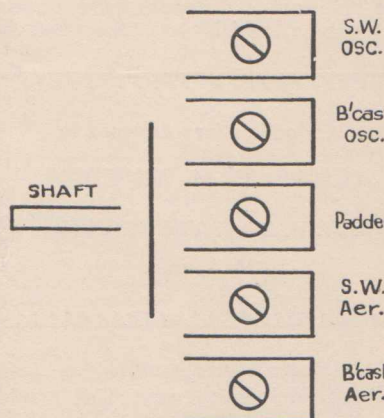
### Dodging the Distortion

According to Mr. Mutton, he found on going into the matter, that many builders of the original Acoustic compensated superhet were operating the tone control in the position to give the maximum high note response. At this particular position the feedback is not being employed to any great extent and, as a result, they were getting their desired high-note response, but they were not getting the lowest possible amount of distortion.

Going still deeper into this matter, Mr. Mutton discovered that the reason for this was comparatively simple, the



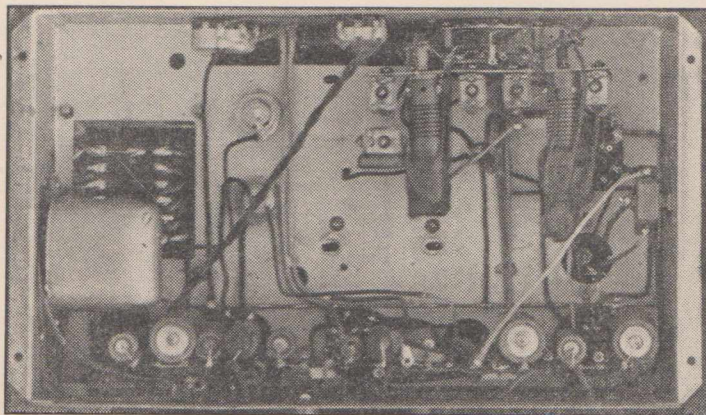
Trimmer layout for the "Crown" dual-wave bracket.



Trimmer layout for R.C.S. and Radiokes brackets.

true high-note response being spoilt by the extreme selectivity of the intermediate stage, and the listener trying to make compensation for this high-note loss by operating the audio amplifier in the position to accentuate the highs.

As most of us know, it is easy



Photograph of the simplified wiring which is possible with the strip arrangement.

enough to get selectivity, or to get high note response, but not to get both at the same time.

The answer to the problem is to use an intermediate stage with variable selectivity, but up till now most of the schemes suggested to give this desirable effect have been complicated, extravagant and of a doubtful nature.

We must now admit that the efforts of Mr. Mutton have brought to light a system for variable selectivity which is truly simple and yet thoroughly effective.

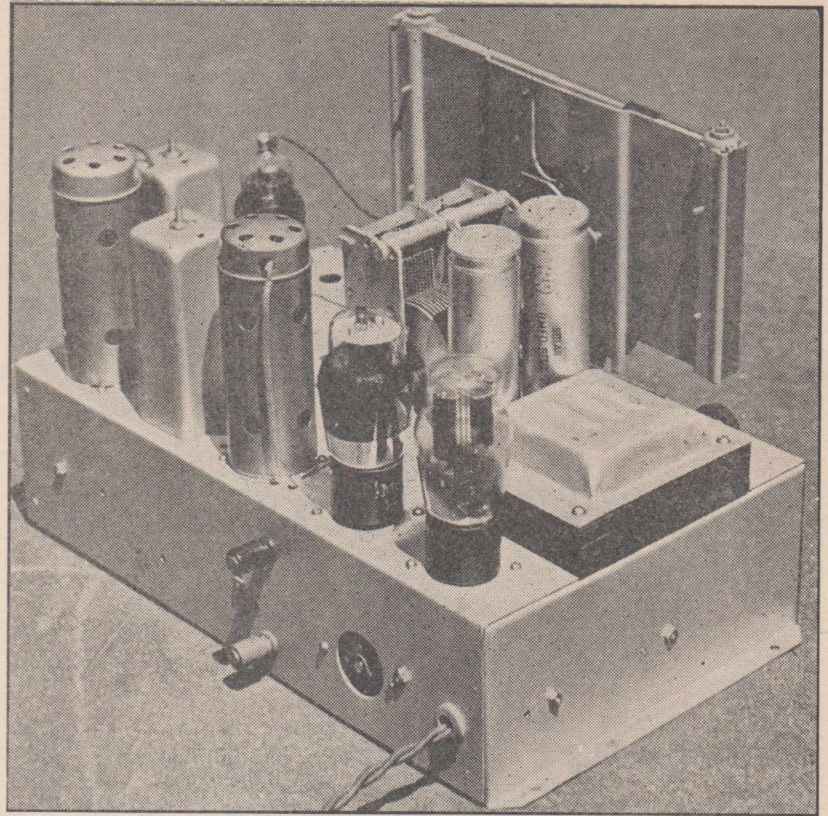
### A Popular Circuit

Having enjoyed such success with the Acoustic Compensated superhet, it is only natural that Magrath's have applied the scheme to this particular set, but it is also applicable to the majority of superheterodynes on the market at present.

Magrath's ran together a chassis to show us the practicability of the scheme and sent it up from Melbourne for our approval.

### Thoroughly Tested

We gave it a thorough try-out and we haven't the slightest hesitation in giving it our unqualified approval. We can thoroughly recommend it as a most important step in the direction of improved reproduction. In fact, we have given the original chassis several hours on the air since we received it, and we fail to see how the most fastidious could possibly fault it in any way. On the short-wave band it has plenty of range and selectivity, and the tone can be readily adjusted to muffle out some of the intensity of

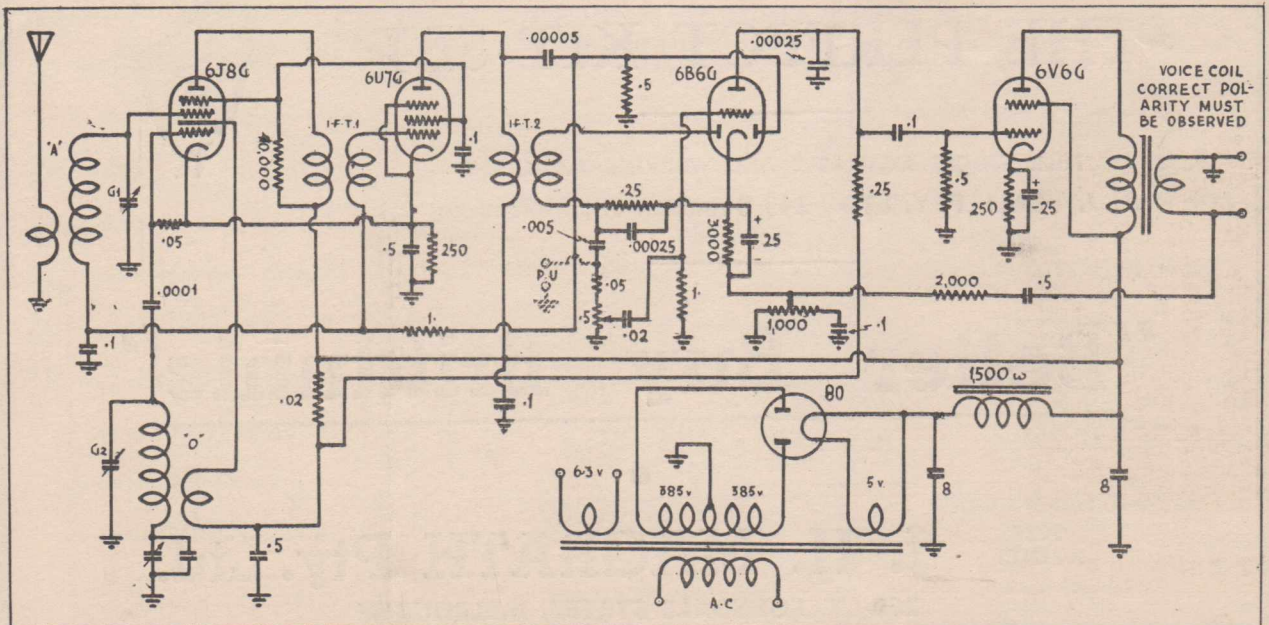


Another view of the new "Acoustic Compensated" chassis.

static. On the broadcast band the set operates just as well as the best, and then by throwing over the selectivity

switch the quality jumps up to real high-fidelity standard and brings

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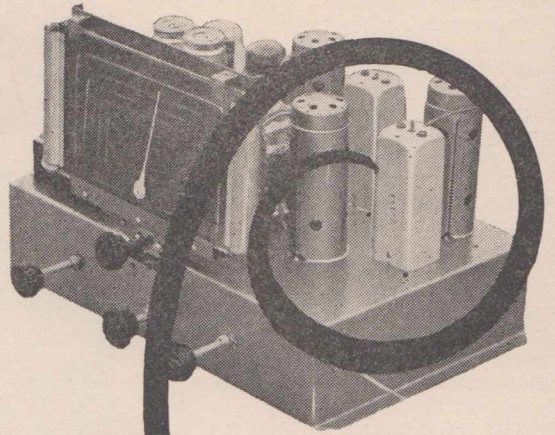


The original circuit of the "Acoustic Compensated" Superhet, which remains unaltered except for the different type of first intermediate transformer.

# **B** BRITANNIC

"Rules the Radio Waves"

Thanks to  
BRITANNIC  
and  
AUSTRALASIAN  
RADIO WORLD



## **MAGRATH'S PRESENT**

THE ACOUSTIC COMPENSATED SUPERHET

INCORPORATING

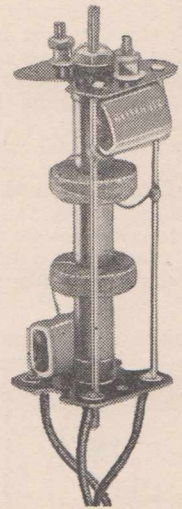
# **Variable Selectivity**

COMPLETE KITSETS AND PARTS

TURN TO PAGES 5 TO 10 FOR FULL INSTRUCTIONS

## **THE PERFECT KIT-SET**

FULL STOCKS AVAILABLE AND WORKING MODEL AT—  
A. J. VEALL PTY. LTD., 243 Swanston St., Melbourne, C.1



# **"Better Buy Britannic"**

SOLE  
AGENTS

**J. H. MAGRATH Pty. Ltd.**  
208 LT. LONSDALE STREET, MELBOURNE



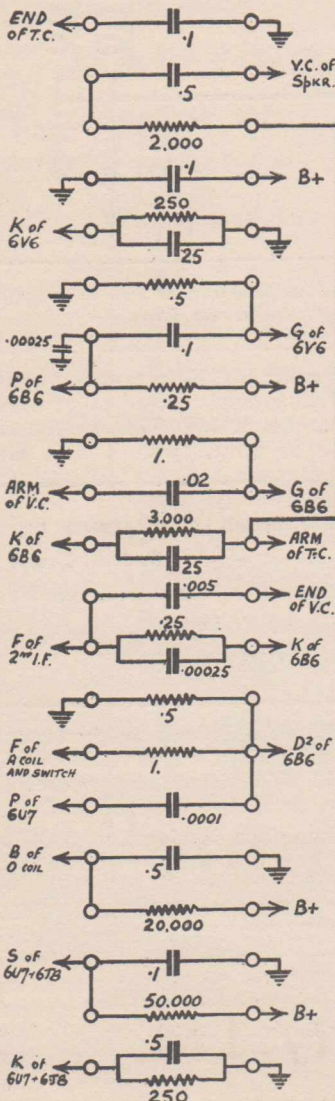
# VARIABLE SELECTIVITY

(Continued)

through the better of the local stations in a manner which is a revelation to those who have only heard them through an ordinary set.

## How Is It Done

The method of obtaining the variable selectivity is interesting. In short, the first intermediate stage is of special design and consists of three windings, the extra one being known as the tertiary winding and provides a means of actually coupling the usual two windings closer together, which, in effect, as most readers will know, spreads the tuning with a resultant passing of a much broader band of frequencies through the I.F.



Schematic to show the wiring arrangement of the strip.

amplifier. The change is made by means of a simple double pole switch, which, in effect, either switches the tertiary winding in series with the secondary winding or leaves the normal winding in the circuit. A precautionary measure to be remembered is that the alignment of the I.F. channel is done with the switch in the normal or sharp position and left at that. Then the switch is thrown to the broad position while tuned to any type of recorded music or live artist show, and the difference in the high-note response and detail in the recording is really good.

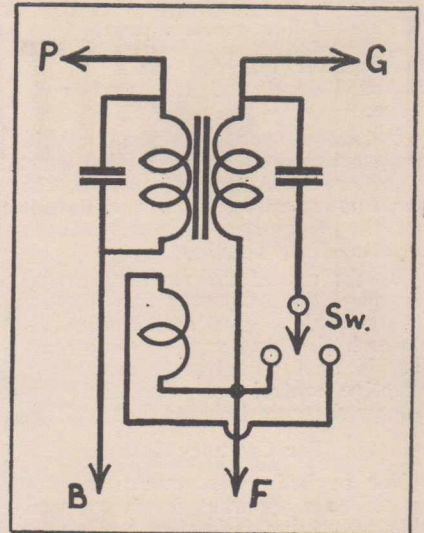
In order to get the tone effect it is necessary to first tune-in accurately in the sharp or normal position and then turn the switch to the broad position.

## Added Attraction

Another step taken by Magrath in order to make the Acoustic Compensated superhet even more attractive for the amateur set-builder is the provision of a special kit with a wired-up mounting strip to carry practically all the minor components. Using the chassis sent to us from Melbourne we have taken photographs to show the way in which this strip is mounted up from the rear of the inside of the base, so that all the components fall exactly where required to allow the shortest of wiring, and yet they are all mounted on this strip in a most rigid and efficient manner.

We have also prepared a special diagram to show the connections to the components, and it will reveal what a grand scheme this is and how much it does to simplify the construction and make wiring errors almost impossible.

The only minor components not mounted on the strip are the grid leak and grid condenser of the oscillator



Arrangement of the first intermediate transformer switching. A special unit is necessary, being fitted with a tertiary winding as shown.

section of the converter valve. These two little items are mounted directly to the terminals of the valve socket.

## The Circuit

The circuit used is exactly the same as the original circuit published in our March issue, and any minor amendments can be considered more as alternatives than as alterations.

The circuit follows accepted practice for the most popular commercial receivers insofar as it consists of a converter valve, followed by a single stage of i.f. amplification and then a two-stage audio amplifier with resistance coupling and ending with a beam power valve.

The big feature, however, is the system of inverse feedback which is taken from the actual voice coil of

(Continued on next page)

CROWN COLOUR CODE				BRITANNIC COLOUR CODE			
AERIAL COIL				AERIAL COIL			
A	Green	G	Brown	A	White	G	Blue
E	Braid	F	Black	E	Purple	F	Black
OSCILLATOR COIL				OSCILLATOR COIL			
G	Blue	P	Yellow	G	Yellow	P	Green
E	Braid	B	Red	E	Purple	B	Red
INTERMEDIATES				INTERMEDIATES			
P	Green	G	Brown	P	Green	G	Purple
B	Red	F	Black	B	Red	F	Black
R.C.S. COLOUR CODE				RADIOKES COLOR CODE			
AERIAL COIL				AERIAL COIL			
A	Black	G	White	A	Black	G	White
E	Braid	F	Cut busbar	E	Braid	F	Cut busbar
OSCILLATOR COIL				OSCILLATOR COIL			
G	Yellow	P	Red	G	Yellow	P	Red
E	Braid	B	Green	E	Braid	B	Green
INTERMEDIATES				INTERMEDIATES			
Lettering embossed in moulded base				Lettering embossed in moulded base			

## VARIABLE SELECTIVITY

(Continued from previous page)

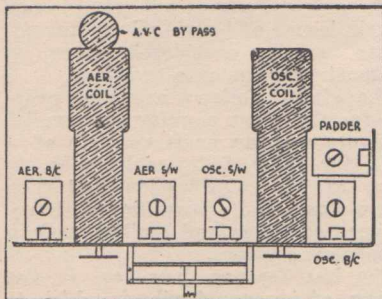
the speaker and fed back to the cathode circuit of the first audio stage.

Not only does this feedback eliminate practically all the distortion which is otherwise difficult to avoid with beam power valve, but it also flattens out the frequency response characteristic of the amplifier.

By the use of the variable control, however, the frequency response can be modified to give accentuation for either highs, lows or the middle register, in fact, it gives a remarkably effective control over the whole frequency characteristics of the amplifier.

### For Ordinary Sets

For anybody who wants to alter an ordinary superhet to give it variable selectivity, it is simply a matter of replacing the first intermediate transformer with the special Britannic unit and its tertiary winding. The switch is fitted to the three wires coming from the intermediate and mounted in some convenient position in the base so that the leads are not unduly long and yet the switch is in an accessible position. The switch is then put in the position to give nor-



Layout of the trimmers on the Britannic coil bracket.

mal selectivity and brought into correct alignment with the other transformer.

Using a circuit in which inverse feedback is not employed, it may be found that the full high-note response is not desirable, on account of the harmonic distortion which becomes noticeable when the highs are reproduced, but with a set having a really good audio amplifier the broad selectivity of the special intermediate results in a definite improvement in reproduction.

### Demonstrations

Down in Melbourne, Magraths are making a special feature of this receiver, and working in conjunction with that fine radio store of Vealls at 243 Swanston Street, they have a

## MODIFICATIONS TO VIBRATOR SET

**I**N LAST month's issue we published an essay on battery circuit design by Mr. R. Brown, of Taree. We have now received a further contribution from Mr. Brown in which he gives some suggestions which will prove helpful to those who are using his original circuit from which to build a powerful vibrator-operated receiver. Here is what Mr. Brown writes:—

"Since writing the essay we have received completely new stocks of coils, valves and gang condensers. The first thing I noticed was that the gangs have no longer brass rotor shafts and wipers.

"On completing the first set I noticed low grid current on both bands, as I have a meter built on the bench for this purpose only. I was forced to alter the oscillator anode supply as under, after sundry experiments, and as I note that your laboratory is overworked, I thought this letter may be of some use to you.

"I also admit to the 'crime' of occasionally selecting 1C7G's especially on the short-wave band, but, on trying every one in the place (some twenty-odd), they all performed satisfactorily on this hook-up. I am also sorry to admit that some twelve broadcast oscillator coils BRP3/Osc. were all colour-coded incorrectly. Connections should be plate = inside out of small coil (silk-covered, single-strand wire B+ = outside of same grid = outside of large litz wire coil padder = inside of same).

"In view of the above, I would be prepared to give my labour free of charge to anyone bumping undue headaches and, as I work some twelve hours' daily, I could not guarantee same-day service, but it would be within a very reasonable time.

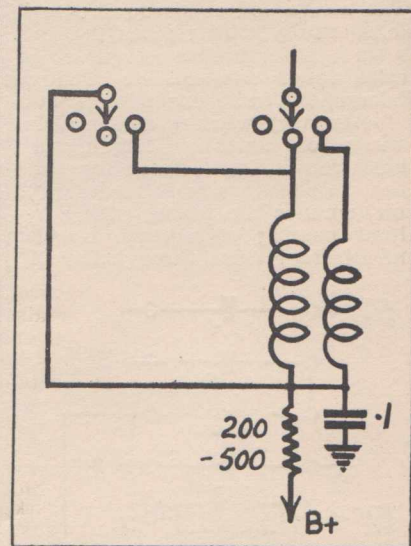
"There were a few small errors in the published circuit.

"Both condensers at aerial primaries were .0005 mfd., but I do not think .00025 will make any appreciable

difference. For the pickup switching the two positions linked together should have been broadcast and short-wave.

chassis in operation so that all those interested can hear for themselves the way in which the tonal quality can be adjusted to suit individual taste by the operation of the acoustic compensation, and also the vast improvement in high-note response which is made possible by throwing over the variable selectivity switch to the "broad" position.

All our readers who are visiting Melbourne at Christmas-time are invited to drop in at Vealls and hear this demonstration.



Modified oscillator current feed as suggested by Mr. Brown.

The grids of 1J6 in circuit are returned to ground instead of to negative filament of 1J6. This, as you are sure to be aware, puts 4 volts bias

Further battery circuit essays and full results of our Battery Circuit Contest will appear in next month's issue.

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on 1J6 and holds back maximum output considerably, but as vibrators will stand 35 M/A without any appreciable voltage drop, the zero bias is O.K.

"I have since developed a stock line of 5 valve mantel dual-wave vibrator sets, using no stage of R.F., but double I.F., namely, 1C7G, 1M5G, 1M5G, 1K9G, 1L5G, with permagnetic speaker and vibrator box located on the end of the chassis for ease of adjustment. The sensitivity is approximately 5 m.v. flat, with low noise level and no apparent snags and much simpler than the one published. You are very welcome to the circuit any time.—Yours, etc.,

R. BROWN.

# "MY OWN"

# DESIGNED TO GIVE FULL RESPONSE OF THE HIGH FREQUENCIES

OVER the past few years there has been a steady demand for better high-note response in the reproduction of radio receivers. The commercial receivers of to-day are pitched considerably higher than they were about five years ago.

Brilliance in reproduction need not mean harshness if the audio amplifier is correctly designed.

With a single-ended pentode or beam power valve in a simple circuit there is a considerable amount of harmonic distortion in the reproduction. If the high-note response is lopped off by the use of a condenser across the speaker or some such tone control, then the harmonic distortion is also lopped and the quality becomes tolerable. If the lows are also lopped a bit to balance up the reproduction the ears will eventually become accustomed to it and you get an impression that the tone is satisfactory.

If the harmonic distortion is curtailed by the use of inverse feedback, or push-pull output or both, then a higher response can be permitted and the quality of reproduction will not be unduly harsh. On the other hand, it may attain a brilliance which is most attractive when you become accustomed to it, making the announcer's voices clearer and giving them more personality. Orchestral and dance-band music becomes much truer to real life.

We have little hesitation in claiming that those who prefer boomy reproduction do so in order to get away from harshness caused by distortion, and not clean high-note response.

## Practical Experiment

With a view to making some practical experiments to find out just how far this search for improved high-note response could be carried, we recently designed and built a receiver to really handle highs, but at the same time taking considerable precautions to avoid harmonic distortion, in fact, distortion of any kind.

In some ways it has provided problems which we feel can only be effectively dealt with by the fitting of a tone control to limit the amount of high-note response under certain conditions.

On the other hand, it has provided some music which has been an absolute revelation in its realism and fidelity.

Music lovers who have heard the set in operation do not fail to appreciate just how much they have

(Continued on next page)

## PARTS LIST

### TUNING UNIT

- 1—Base, size 10½" x 9½" x 3" (Arcadian).
- 1—Coil kit (R.C.S., Radiokes, Crown, Britanic).
- 1—Dial to suit (R.C.S., Radiokes, Crown).
- 1—3-gang condenser, with trimmers.

### RESISTORS:

- 1—750-ohm, 20-watt (I.R.C.).
- 1—4,000-ohm, 1-watt (I.R.C.).
- 1—10,000-ohm, 1-watt (I.R.C.).
- 1—15,000-ohm, 2-watt (I.R.C.).
- 1—25,000-ohm, 1-watt (I.R.C.).
- 1—50,000-ohm, 1-watt (I.R.C.).
- 2—.1-megohm, 1-watt (I.R.C.).
- 1—.25-megohm, 1-watt (I.R.C.).
- 2—.5-megohm, 1-watt (I.R.C.).
- 2—1-megohm, 1-watt (I.R.C.).
- 1—2,500-ohm potentiometer (R.C.S., Radiokes).
- 1—.5-megohm potentiometer (I.R.C., Radiokes).

### CONDENSERS:

- 1—.00005-mfd. mica (T.C.C.).
- 1—.00025-mfd. mica (T.C.C.).
- 1—.01-mfd. mica (T.C.C.).
- 6—.1-mfd. tubular (T.C.C.).
- 1—.5-mfd. tubular (T.C.C.).
- 2—25-mfd., .25-volt electrolytic (T.C.C.).

### SUNDRIES:

- 4—Octal, 2—UX, 1—UY sockets, terminals, knobs, dial lights, screws, hook-up wire, etc.

### SPEAKER:

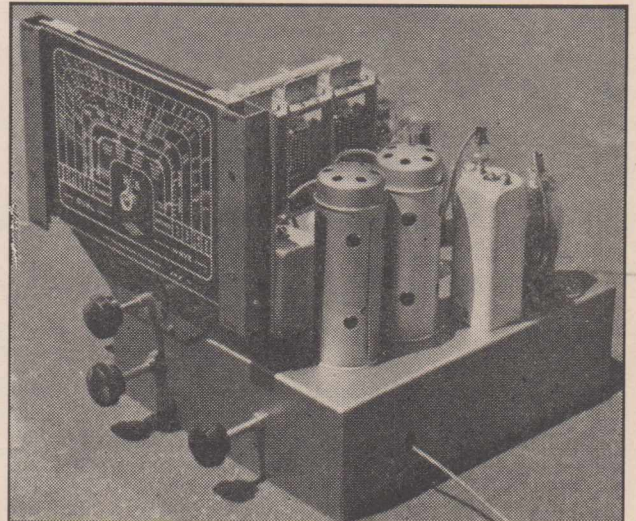
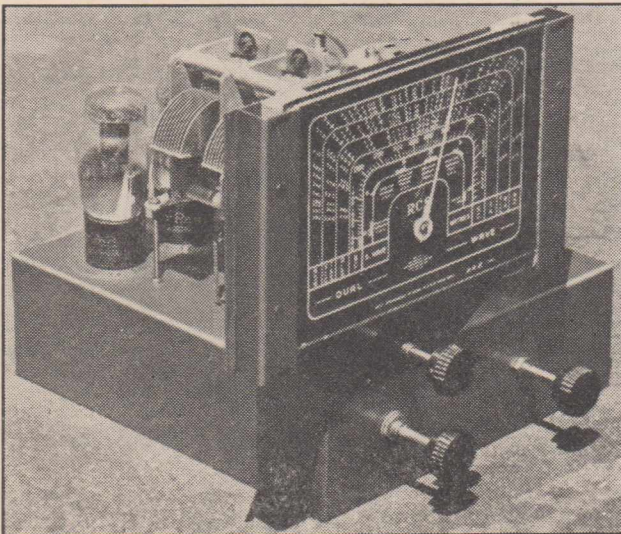
- 12" dynamic with 1,500-ohm field coil, 10,000-ohm plate-to-plate load (Rola, Amplion).

### VALVES:

- 1—6U7G, 1—6J8G, 1—6B6G, 1—6J7G, 2—45 (Brimar, Philips, Radiotron, Mullard).

### POWER SUPPLY:

- To deliver a good 400 volts of high tension at a current of 100 milliamps, well filtered and with good regulation.



Two views of the tuner unit, which has an off-centre layout to make it suitable for fitting alongside an independent power supply unit.



superheterodyne with an r.f. stage of amplification, but without intermediate amplification.

The idea sprang from observations noted when we were working on a set some time ago. We had occasion to short-out the intermediate amplifier in an effort to trace an intermittent fault. When the plate leads were changed over to get the desired effect we found that the quality of reproduction was changed to a most noticeable degree. Every technician knows that keen selectivity does not go hand in hand with good high-note response, but we feel that few appreciate just how startling the difference can be, until it is brought home forcibly as in a case like this.

And so this particular set was specifically designed to operate without an intermediate amplifier at all, only a single intermediate transformer being used to couple the converter and detector valves.

#### Intermediate Transformers

Even this intermediate transformer was selected to give the widest possible selectivity, being a unit intended for use with push-button tuning.

Later when we found that the Britannic type 45 intermediate with variable selectivity had been made available, we changed over to one of these, wired in on the broad tuning position without worrying about the fitting of a switch. This gave us a still stronger high-note response, making the reproduction brilliant in the extreme. Such brilliance of reproduction has its problems, however.

#### The Audio End

For the audio amplifier we aimed at a particularly wide frequency response, together with a minimum of distortion. Knowing full well that distortion-free quality can be obtained by beam power valves in a suitable circuit and with properly adjusted feedback; nevertheless, we dodged valves of that type. We were afraid that we might run into trouble with parasitics or from some other obscure source that might upset results in a way difficult to trace. So we fitted the old-style triodes, a pair of 45's in push-pull, in fact, running them with ample high-tension voltage, and driving them through a resistance-coupled phase-changer.

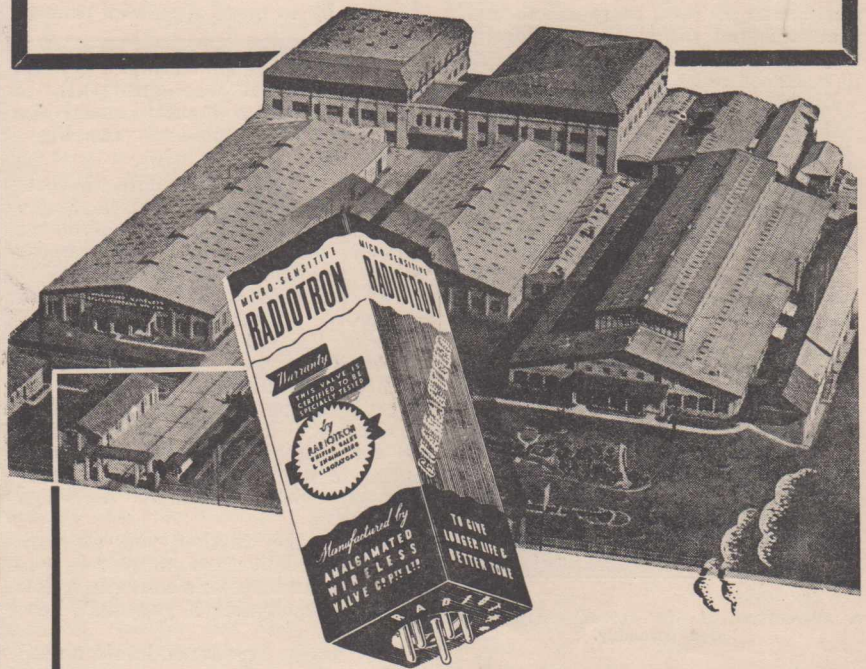
#### Speaker Equipment

In order to handle the full response at the speaker end, we used a pair of speakers, a good 12" speaker to handle the lows and middle register, with a filter network to feed the highs into a separate permagnetic speaker having characteristics making it suitable to handle the really high highs.

With this arrangement it made it

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# RADIOTRON

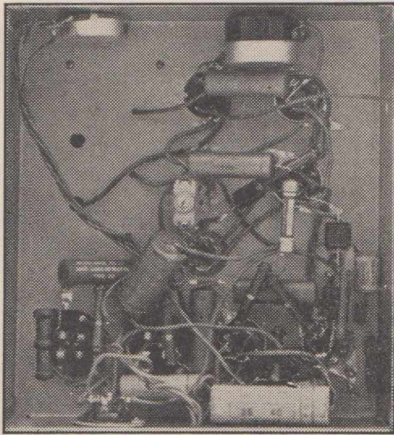
Advertisement of Amalgamated Wireless Valve Co. Pty. Ltd.

## MY OWN (Continued)

easy to put a cushion over the "high" speaker to get an immediate impression of the work it was doing and the difference which it made to the overall effect.

### Problems

Extreme fidelity is not without its drawbacks; in fact, there are so many that it is not difficult to understand why commercial receivers seldom aim to handle a wide band of frequencies. Improved reproduction of the high



A photograph of the rather rough wiring and assembly.

notes means improved reproduction of static and interference noise. The main difficulty is to define the word "improve." The static is reproduced with a degree of fidelity which is

## NEW AMPLION PERMAG.

### 30-oz. Magnet Model With High Fidelity Characteristics

Amplion have released a new permag. type speaker with 30-oz. Alni magnet, for high fidelity reproduction. This speaker has a 1 1/4" voice coil, with an impedance of 12.5 ohms. The voice coil suspension and centring is secured by a large diameter concen-

tric spider. The diameter of this spider suspension is 4," and the speaker is completely dust-proof. The cone is identical with that used in the well-known Amplion 8P83 Cine Perm., and likewise the speaker is fitted with the largest type of input transformer, having an insulated core and the whole being hermetically sealed.

### Flat Response Curve

The voice coil air gap is designed to give exceptional magnetic damping, resulting, in combination with the special cone, in a very flat response curve. Special steel for the end plates and pole pieces ensures maximum magnetic efficiency. Likewise, only the highest grade of electrical steel sheet is used for the transformer core, with very low power loss and non-ageing qualities.

The list price of this speaker is £3/15/-.

positively nerve-shattering. On an evening when it was quite O.K. to use an ordinary mantel model the static was intolerable on the high-fidelity set.

Man-made static is equally disturbing when high-fidelity is used, and a refrigerator motor which was never noticed with an ordinary set became a terrific problem on this job.

The high-fidelity shows up the lack of quality in the broadcasting, too. Some of the old microphones around the studios must be well overdue for replacement. Likewise some of the recordings need only a few more runs and they will be playing both sides at the same time! Such matters are revealed in a most distressing manner by a set with a brilliant high-note response.

In fact the further you go with true high-fidelity the more you appreciate grandmother's contention that life is a lot happier if you don't hear too well.

Yet we can recommend this circuit to the radio enthusiast as something well worth building, something that will prove of outstanding interest even to the man who has built lots of good sets and amplifiers in the past.

## C.R.O & B.F.O.

The articles on cathode ray oscilloscopes and beat frequency oscillators, intended for this issue, have been held over until the next.

## FOR CERTAIN SATISFACTION



No piece of equipment is better than the valves it uses . . . no one can afford to take the risk of breakdowns or unreliability. That is why every set-builder should —

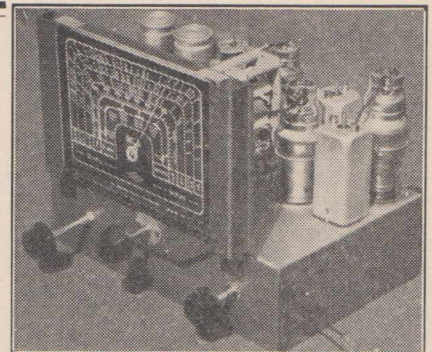
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# Mullard



For the "Acoustic Compensated Superhet" the following MULLARD valves are recommended: 1—6J8G converter, 1—6U7G intermediate amplifier, 1—6B6G diode-triode detector, 1—6V6G beam power output valve and 1—80 rectifier.



## BATTERY SET (Continued)

least an additional R.F. stage on the set, both from the point of view of noise reduction and signal amplification. Details of suitable aerials for the average dual-wave receiver, such as the "doublet," are available in practically any book or magazine dealing with short-wave reception.

Enclosed is a circuit of an excellent battery-operated receiver, taking all general points into consideration. This receiver will give exceptional performance, notwithstanding the fact that its battery current consumption is low. It is not intended in this essay to give full constructional details of this machine, but rather to emphasise the advantages of the finer points in its design.

### Automatic Volume Control

A special A.V.C. circuit has been adopted to enable the receiver to function satisfactorily without overloading, even when closely situated to a transmitting station. In order to prevent distortion due to overloading and to obtain maximum efficiency, the converter valve is operated on fixed bias, the A.V.C. voltage being applied

to the R.F. and I.F. amplifiers only. It has been arranged for the R.F. stage to have very rapid A.V.C. action and for the I.F. stage to have a much less severe action, as it is generally found that the overloading is most serious in the latter stage. Thus the

Full list of prize winners and further essays will appear in next month's issue.

Order now!

major A.V.C. control is applied to the R.F. stage, which, since it operates with smaller signal grid voltages, is capable of giving more effective control without overloading. To provide the most effective A.V.C. action the screen voltage of the R.F. valve is maintained practically constant, by directly connecting it to the screen of the 1C6 which operates on fixed bias, and therefore draws a constant screen current through its dropping resistor. The screen voltage for the

I.F. 1C4 is applied through a dropping resistor, thus providing a more remote cut-off and preventing overloading in this stage. In addition the A.V.C. circuit incorporated provides better fidelity than the simple A.V.C. method generally used, in which the shunting on the diode load resistance is more severe.

### Short-wave Coverage

For the reasons mentioned previously, this circuit has been designed to operate between 16 and 33 metres, only, for short-wave purposes, this allowing effective bandspreading, which is one of the most important characteristics of a short-wave receiver. It has not been attempted to include the 13-metre band, as such practice would result in unsatisfactory oscillation, unless a separate oscillator were added, which would mean an additional valve. Reception on the 13-metre band is generally fairly free from static, but, as a rule, stations operating on this band broadcast simultaneously on the 16 or 19-metre band, on which their programmes can be received with equal

(Continued on page 29)



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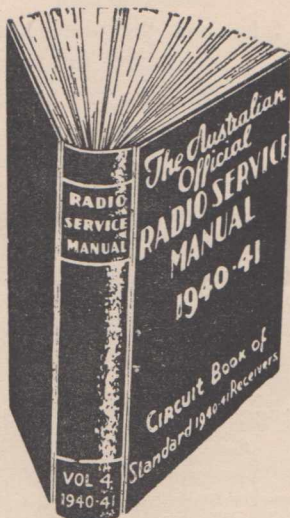
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**JUST  
OUT**

THE AUSTRALIAN OFFICIAL  
**Radio Service  
Manual**  
Vol. 4, 1940/41  
**Circuits**



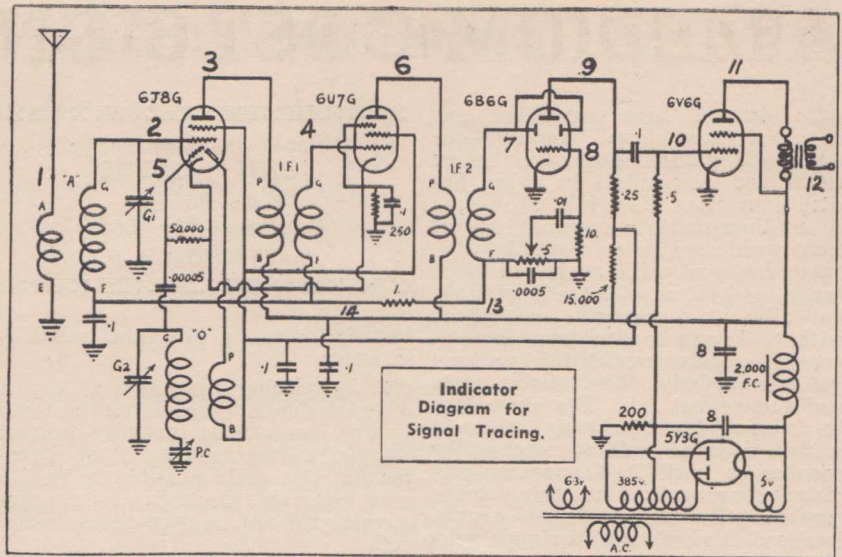
Bigger and better than ever, this year's Australian Official Radio Service Manual covers both 1940 and 1941 national receivers — and there is no **increase in price** — 15/- stiff covers, 12/6 limp.

Clear, concise, accurate, this book is specially compiled for quick reference — there is **no other way** of securing complete year-by-year reference of every national model.

A small quantity of previous issues is available: Vol. 3 (1939 circuits), 15/- and 12/6; Vol. 2 (1938 circuits), 10/- and 7/6; Vol. 1 (1937 circuits), 7/6, in limp covers only. Postage, 8d. per volume extra.

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**SIGNAL TRACER (Continued)**

or 15,000-ohm resistors and 6B6G valve.

Now turn probe switch to low audio.

10. Any signs of a fault could usually be traced to 1 condenser going to plate of 6B6G or 5 resistor going to centre tap of power transformer.

11. The signal reaches its loudest point here. No signal usually denotes burnt-out speaker transformer or 6V6G valve.

12. No signal — could be open or short-circuit secondary of speaker transformer or voice coil.

**Searching for Troubles**

This diagram is not intended to show every fault that can be located, but as a guide as to where the signal may be picked up with the signal tracer.

When looking for the source of hum, motor-boating, oscillation or noise, the probe should also be placed on the suppressor grids, cathodes and screen grids.

In numbers of cases the trouble can be traced to these elements. A loud signal on any of these usually denotes an open resistor or condenser. The only section of this signal tracer that needs any further discussion is the output indicator. This gives a rough visible check of gain per stage, etc.

**The Neon Indicator**

This indicator is made from a 3-watt neon lamp. These are used for pilot lamps on power mains and are obtainable from practically any elec-

trical dealer. To make the indicator, first remove the brass base from the lamp. Inside this base there is a small wire-wound resistor. Remove this resistor and connect the two remaining leads coming through the glass across the speaker transformer. An ordinary magic eye escutcheon can be used for the panel. This system can also be used across the speaker of any radio set and makes a fairly successful noise eliminator. Heavy bursts of static will light the lamp very brightly and at the same time create a partial short-circuit across the speaker.

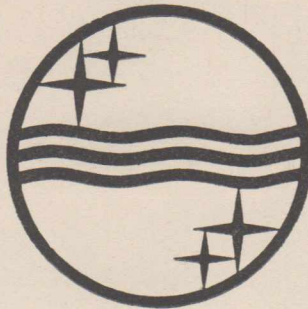
**A Precaution**

It is necessary, however, to remove any by-pass condenser or tone control connected to the plate of the output valve, as these would be charged and discharged by the ionising effect of the neon lamp and create a noise worse than the original static.

In conclusion, do not overlook the fact that one of the secrets of signal tracing is the low capacity probe and cable. If ordinary shielded wire is used the results will not be satisfactory. The directions for using this instrument are similar to those shown in the September issue.

**THERE'S AN**  
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# Christmas Greetings

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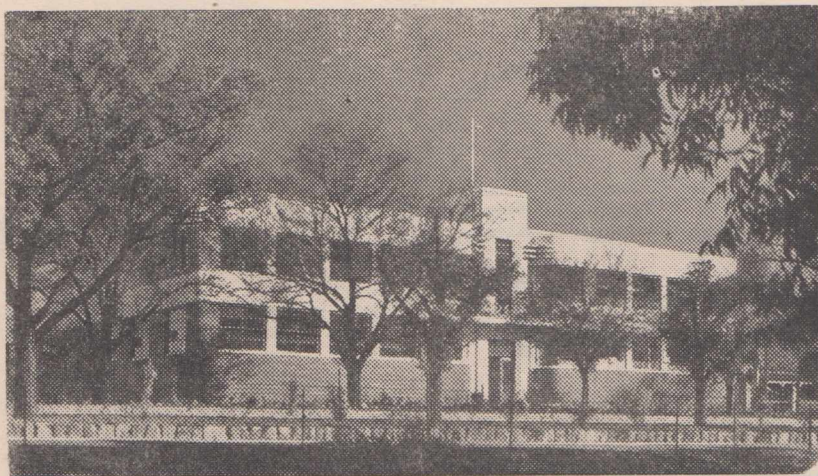
To their friends and customers, PHILIPS extend the heartiest of Christmas Greetings, and express the hope that the New Year will bring happier days of peace and prosperity to all.

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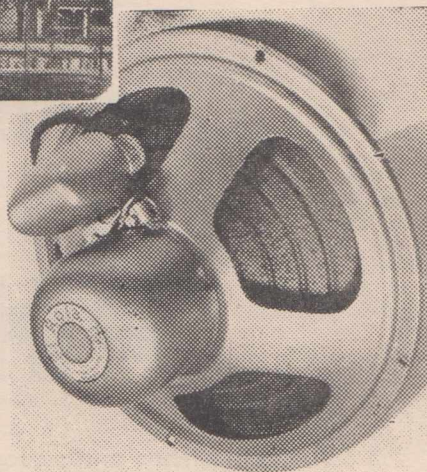
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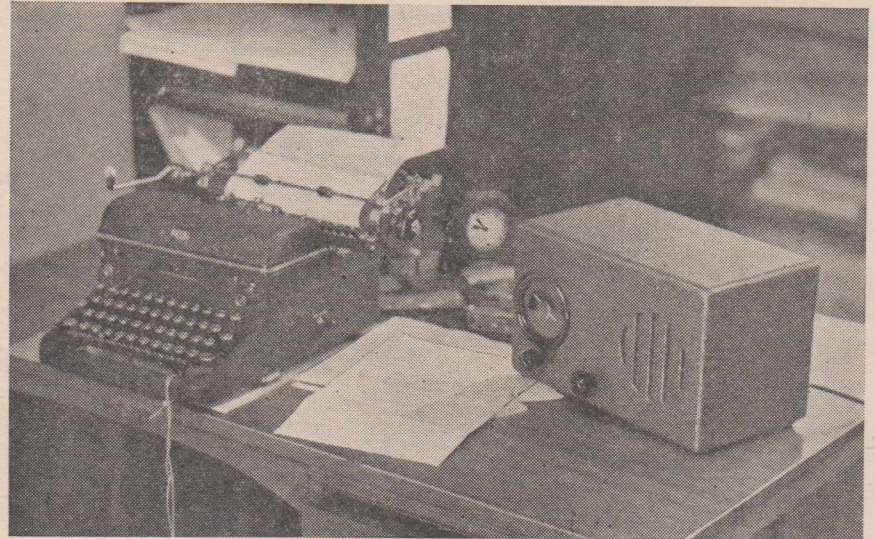
# THE 1942 VERSION OF "TIP TOP"

An ideal circuit for a mantel model.

ONE of our most popular circuits was the "Tip-Top," which was first published in our issue of July, 1940, and later reprinted in the December issue of that year. Much to our sorrow, however, was the need for a rather unusual type of triode-pentode for the intermediate valve. These valves are no longer standard in the sense that they can be readily purchased for use in new receivers. A limited quantity of the type is imported for replacement purposes only, and some of our advertisers still maintain adequate stocks of them. However, as the 6F7 is not a standard type of valve and as it has also been mentioned to us that the 6K8G converter valves are sometimes scarce, we think it is opportune to introduce a new and improved version of this popular little set.

## Improvements

Looking round for scope for improvements, we ran through all the commercial circuits for sets of this type, through all the contemporary magazines and did quite a bit of practical work in the laboratory.



The "Tip-Top" on the job.

As a result we can offer this circuit with the strongest of recommendations as we know that it is thoroughly reliable in every way, most satisfactory in a practical sense and capable of giving splendid results which are out of all proportion to the modest amount of money required for the

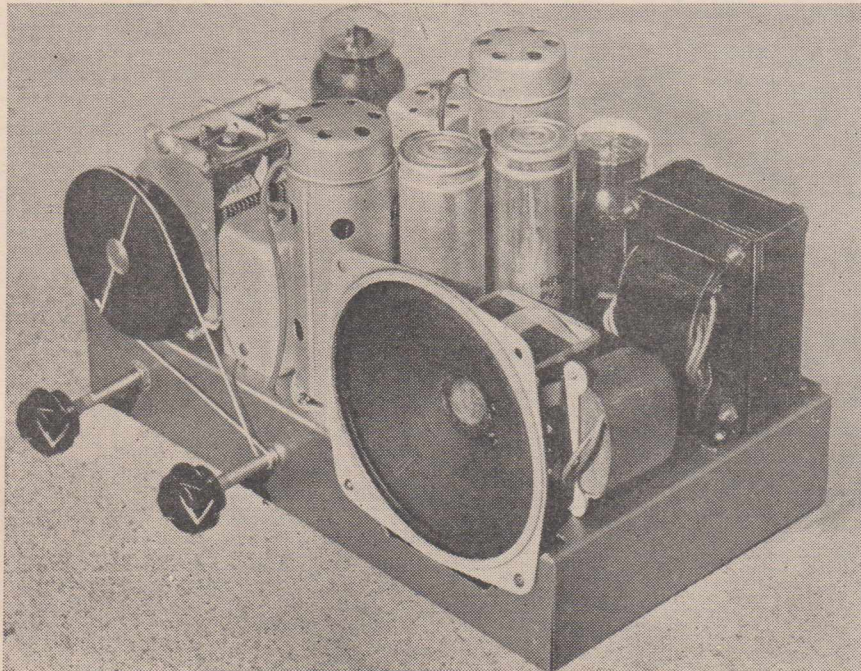
purchase of a kit of component parts.

## More Effective Control

For improvements we have been able to arrange a much sweeter volume control action by the introduction of automatic volume control, together with even better tone and less hum than the original. Overall gain is slightly lower than with the original set, but there is still ample to play all the local stations at full strength and also bring in a handy assortment of interstate stations. What more can anyone ask of a broadcast receiver?

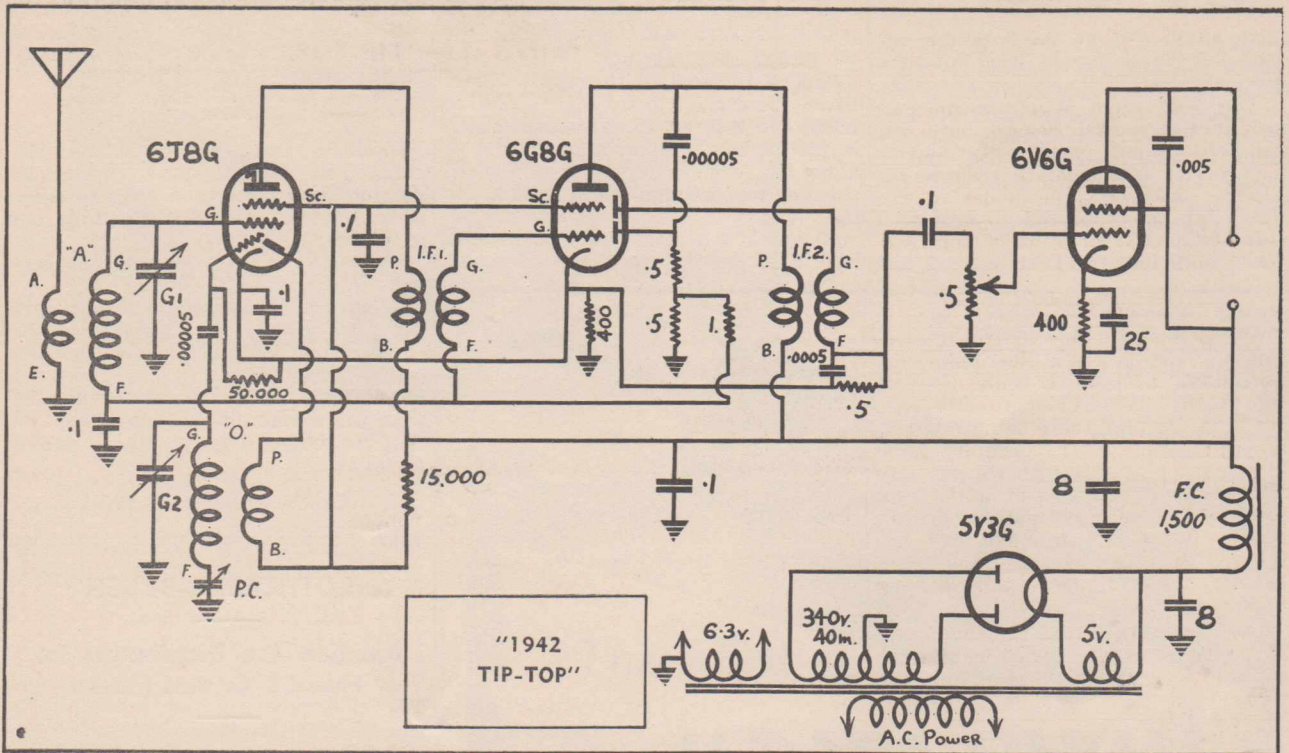
## The Circuit

The set is designed for broadcast reception only, and no attempt has been made to adapt the circuit for short-wave or dual-wave reception. There is the usual type of converter stage, using the 6J8G type valve which is now recognised as standard by all the Sydney coil manufacturers. Although the circuit for the converter stage does not quite follow the valve manufacturers' recommendations, it is one which has been thoroughly tried and tested and found to be completely satisfactory for the broadcast band. It has the great attraction of requiring only one voltage-dropping resistor to provide suitable potentials for both screen and oscillator plate and also for the screen of the intermediate amplifier. The fact that these elements can be tied together means fur-



A general view of the chassis.





The circuit diagram for the modernised "Tip-Top" shows that there are only a few components, yet nothing has been skimped.

cloth, which is most serviceable in use and keeps its finish and appearance for years.

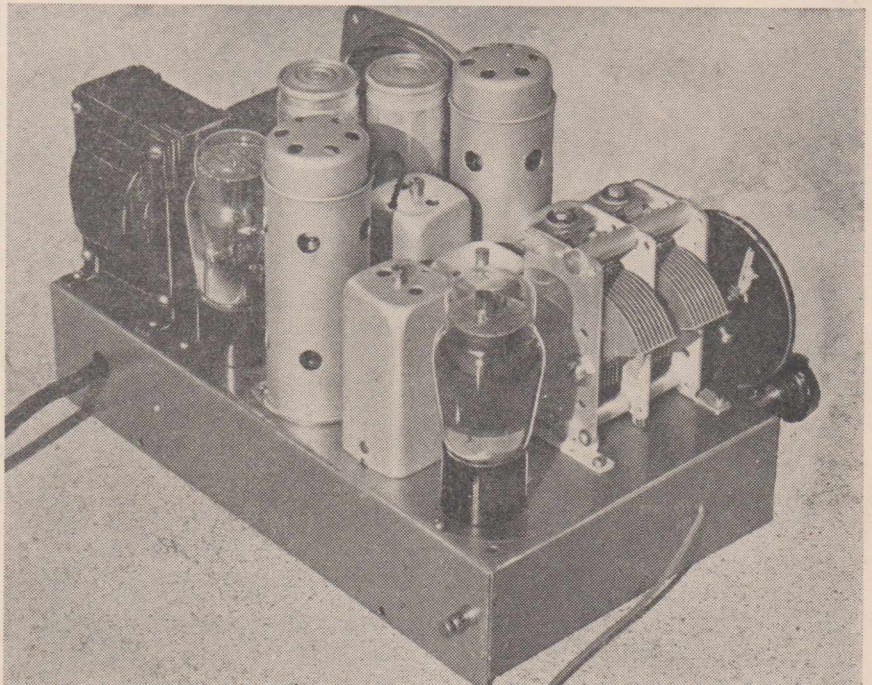
### The Layout

For our layout we have adhered strictly to the original layout which was designed for the 1940 version of "Tip-Top." This layout is not as compact as could be thought up by any ingenious designer with a strong imagination, but it has the definite advantage of allowing the use of full-sized components on a straight-forward layout, without mounting coils down among the wiring tangles. At the same time the size is still quite compact, measuring only 11½ inches by 6½ inches. Even with the big size of electrolytic condensers, the overall height can be kept down to 6½ inches, so that the whole receiver, including the speaker, can be comfortably mounted in a cabinet measuring about 12½ inches by 7½ inches by 7½ inches.

The straight-forward layout, together with the use of a fairly shallow base, means that point-to-point wiring can be carried out quite easily, with ample space for the mounting of component parts at their most efficient locations. Every soldered joint is readily accessible to the soldering iron, which means simpler construction in the first place and ease of

servicing right throughout the entire life of the set. The assembling and wiring of this set is definitely simpler

than is found with most of the other compact receivers described in recent times. Some of them have been



Another view of the chassis, which gives a good idea of the layout.

## "TIP-TOP" (Continued)

squeezed into smaller space, but we cannot see any justification for such squeezing. For a square inch or two we achieve much easier assembly and wiring, better performance on account of improved stability, and a much more attractive little job for the amateur builder.

### The Power Transformer

The high tension current drain has

been kept low in order to make it possible to use one of the small type of power transformers which are available for sets of this type. These little power transformers deliver about 340 volts at 40 milliamps, which is just a handy amount of power to allow the proper energising of a small speaker and enough high tension for the output valve to allow ample volume. The output valve is biased back a bit more than normal in order

to keep the current drain down, but this does not in any way affect its ability to deliver good tone and plenty of volume.

### Assembly

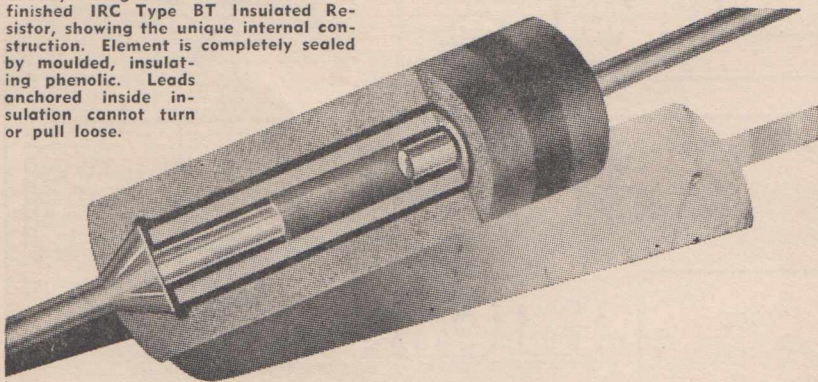
With a ready-drilled base, the actual assembly is just as simple as playing with a Meccano set, and there is no chance of anything being out of place.

First step is to fit the coils, sockets and power transformer.

When fitting the sockets make sure that the socket terminals face the correct way, as indicated by the picture diagram of the wiring. Likewise it will help if the coils are mounted with the terminals the same way, so that the wiring diagram will be easier to follow.

(Continued on next page)

Greatly magnified cross-section of finished IRC Type BT Insulated Resistor, showing the unique internal construction. Element is completely sealed by moulded, insulating phenolic. Leads anchored inside insulation cannot turn or pull loose.



## ROTHERMEL-BRUSH

### Amplion Are Distributors for New S8 Crystal Pickup

Amplion announce that they have stocks of a range of English-made crystal pickups and microphones, manufactured by Rothermel-Brush.

The standard S8 type of Rothermel pickup has a bent-arm with the head offset to the correct angle, which ensures minimum tracking error. The output of the crystal at 1,000 cycles is 1.7 volts and the response throughout the range is exceptionally good.

Also available is the Rothermel-Brush D104 microphone, with many improvements in crystal unit suspension and special diaphragm. Listing at £6/15/- is a bullet-type of crystal microphone, with black crystalline finish. Both the D104 and the bullet-type are diaphragm-actuated crystal microphones.

Two sound-cell types of crystal microphones are also available, the 1B, a handsome, upright microphone of true high fidelity characteristics, and the BR2S, another sound-cell type, enclosed in a globular mesh housing. The B1 microphone is listed at £15/10/-, and the BR2S at £16/10/-. These sound-cell type units have a superior response due to there being no diaphragm required to operate the Piezo-electric crystals, and therefore suffer from no resonances introduced by diaphragms.

S8 type crystal replacement cartridges are also available, and further information may be secured from Amplion (A/sia) Pty. Ltd., 382 Kent Street, Sydney.

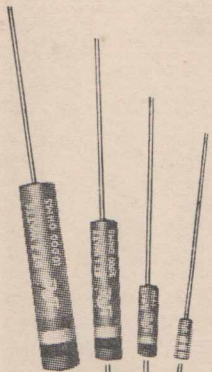
# INSULATION (AS SUCH) is only Part of the Story

The IRC Insulated Resistor was designed from the ground up for what it is — an integral, scientifically constructed unit offering a new and distinctly different approach to resistance engineering problems.

IRC resistor insulation did not come in the nature of an afterthought. It did not come as something added to an old and possibly outmoded type of resistor construction.

IRC insulation is far more than an insulator. It assures humidity characteristics hitherto unobtained. It facilitates rapid, low cost resistor manufacture. It anchors the leads. It seals the unit from end to end. Above all, it simplifies and modernises the use of an exclusive resistance principle that has proved its superiority since the early days of Radio — the famous filament type of resistance element.

Insulation is highly important in itself, to be sure. But it is only part of the story. Not this protection but what it protects is the final determining factor of quality — and here IRC Insulated Resistor construction reigns supreme.



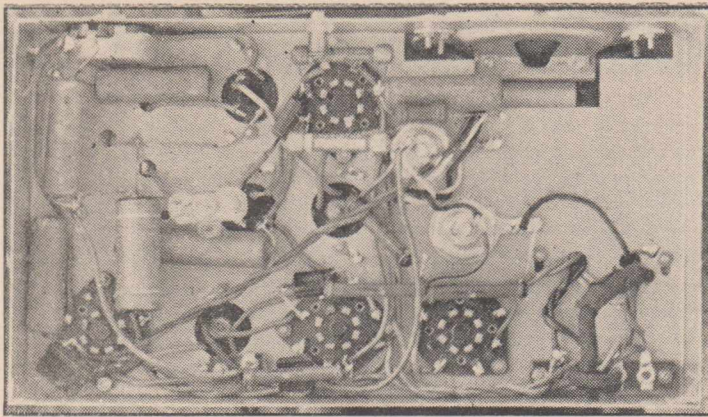
## INSULATED Type BT RESISTORS

SOLE AGENTS FOR AUSTRALIA:

Wm. J. McLELLAN & CO.

BRADBURY HOUSE, 55 YORK STREET, SYDNEY.





Photographs of the wiring, which should be compared with the diagram on page 22.

Don't assemble the dial, gang or speaker until the rest of the wiring has been completed, as these items may be damaged while the chassis is upside down on the bench.

### Wiring

First step with the wiring is to connect up the heaters of the 6J8G, 6G8G and 6V6G, and then apply the 6.3-volt transformer winding to this circuit.

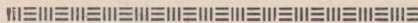
Next, the 340-volt leads (red flex) can be taken to the plates of the



Full details of a  
**BATTERY-OPERATED  
SIGNAL TRACER**

are scheduled for next month's issue.

Order your copy now



5Y3G socket, and the two 5-volt leads to its filament.

The 5-volt leads will be known by their green spaghetti covering, whilst the 6-volt winding has yellow spaghetti.

The black flex lead is the centre-tap of the high tension, and runs to the can of the first electrolytic condenser, which is mounted directly in the base.

### Care Needed

The a.c. power supply goes in to the two yellow flex leads, and, although it is possible to join the main power flex to these leads and then cover up each joint with insulation tape, wrapping the two lots of tape

together, it is neater to mount a little two-point terminal strip, and solder the power leads to the transformer leads at these terminals. In either case it is well to remember that these two wires are the most dangerous in the set, and they are capable of delivering a serious shock if grasped by mistake.

A knot should be tied in the power flex so that it is not possible for a pull on the flex to put a strain on the terminals or joints.

Leads about four inches long should be soldered to the insulated terminals of the gang condenser before it is mounted, and run through to the underside of the base.



## The Ideal Xmas Present For the Radio Enthusiast




**THE UNIVERSITY OSCILLATOR**

A valuable addition to any amateur or service man's test equipment and a present he will appreciate. The oscillator covers all frequencies necessary for the alignment of modern receivers. The range is from 144 k.c. to 26 megacycles in 5 bands. There is no annoying break in frequency between bands, and sufficient overlap is provided so that accurate calibration can be obtained. The instrument contains a built-in 400-cycle modulator. A double-purpose valve makes the oscillator extremely economical and gives it the performance of 2-valve instruments.

Model SOB — Built and calibrated ..... £8/8/- (plus sales tax)

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FOR ALL SERVICEMEN'S SUPPLIES  
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HEALINGS PTY. LTD., 263  
Swanston Street, Melbourne.  
HOMECRAFTS PTY. LTD.,  
145 Elizabeth St., Brisbane.

# In the considered judgment of leading engineers...

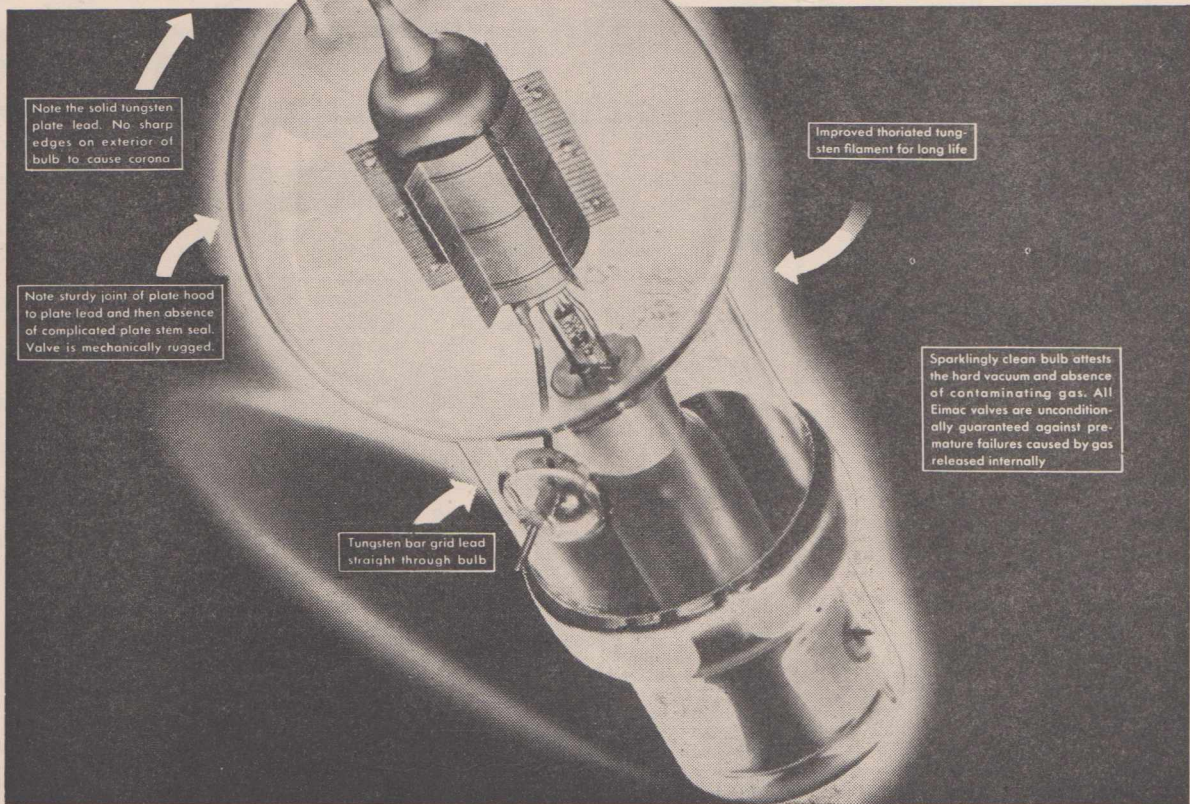
When important decisions are made about radio valves it is not uncommon for an Eimac valve to win the honors. *Reason:* the designers of Eimac valves have consistently held as their objective the anticipation of the future requirements of the radio industry. Efforts have not been confined to the production of a valve for yesterday's requirements.

This policy has kept Eimac valves ahead of the industry...a factor that is logical because the efficiency and progress of radio depends almost entirely upon the development of new ideas...new improvements in radio valve performance. Take the Eimac 250T, for example, which now possesses the most recently developed refinements. Check these features illustrated below and then check the performance of Eimac valves in your transmitter. You'll see then why Eimac valves are to be found in most of the important new developments in radio.

Follow the leaders to

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Eitel-McCullough, Inc.  
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Export Agent: FRAZAR & CO. LTD., 301 Clay Street, San Francisco, California, U. S. A.

# THE MEANING OF CONDENSER RATINGS

CONDENSERS are usually labelled with their capacity in microfarads and their safe working voltage. Sometimes a test voltage is also mentioned in the case of tubular condensers or a maximum peak voltage in the case of electrolytics. The test voltage should be at least three times the working voltage and is usually greater still.

## Voltage Ratings

For electrolytics, working voltages of 450 and 500 with peak voltages of 500 and 600 are common, but a "450-volt working" electrolytic may deteriorate rapidly (a sign of overloading) when the working voltage is only 400 volts. The reason, of course, is that the peak voltage across the condenser may be as high as 530 volts in the period before the set "warms up." Another factor not always realised is that when a condenser is connected to a pulsating-voltage supply, the peak voltage is much greater than the R.M.S. or effective voltage, depending on the nature of the fluctuations. For full-wave rectified A.C., the peak voltage is 1.414 times the final "smoothed" voltage, assuming the original A.C. was a pure sine-wave alternating current. The peak D.C. voltage cannot be greater than

Designed by —

**JOHN W. STRAEDE**

B.Sc., A.M.I.R.E.

7 Adeline Street, Preston, Vic.

1.414 times the original A.C. voltage, so an electrolytic of 525 peak-volts rating will work quite as well after a high-voltage-output 5V4G as after a less-efficient "80," providing the A.C. applied to the anode is of the same voltage.

## Peaks with Vibrators

The output of a vibrator, on the other hand, has enormous voltage peaks, and the first filter condenser may require to be 1,500-volt or 2,000-volt working. (The test voltage should be much higher, say, 4,000 to 5,000 volts.)

When a set is switched on, the valves take several seconds to warm up, and during this time the voltage across the electrolytics may rise after their rated value. In practice, there is generally some resistor across the H.T. supply (a "bleeder" resistor), which draws current at all times, the

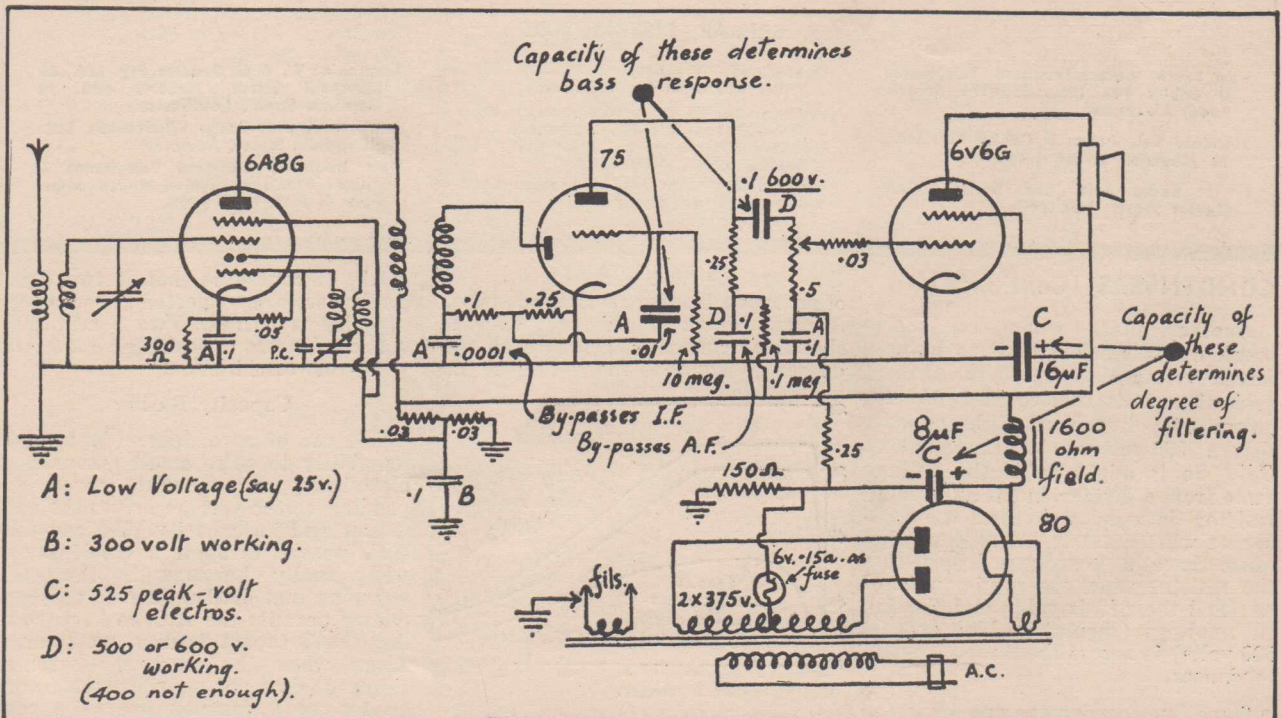
output valves may be directly heated and so draw current immediately, or the rectifier may be indirectly heated.

But, apart from this, the condensers take a certain time to charge, and during that time they draw current (apart from leakage current), so the actual rise in smoothed voltage is not to 1.414 the original A.C. value but to about 1.1 or 1.2 times, depending on the actual circuit. Again, wet electrolytics are to a certain extent self-healing and are less damaged by overloading — in practice, a 500-volt wet electro. seems just about equivalent to a 525-volt dry one.

Check up on your pet circuit or your own hi-fi super-bloopydne to see if one, two, three or more of the following features are present to prevent overloading of the electrolytics: (1) Indirectly heated rectifier; (2) bleed resistor; (3) directly heated output valve(s); (4) high-voltage electros (600-volt type).

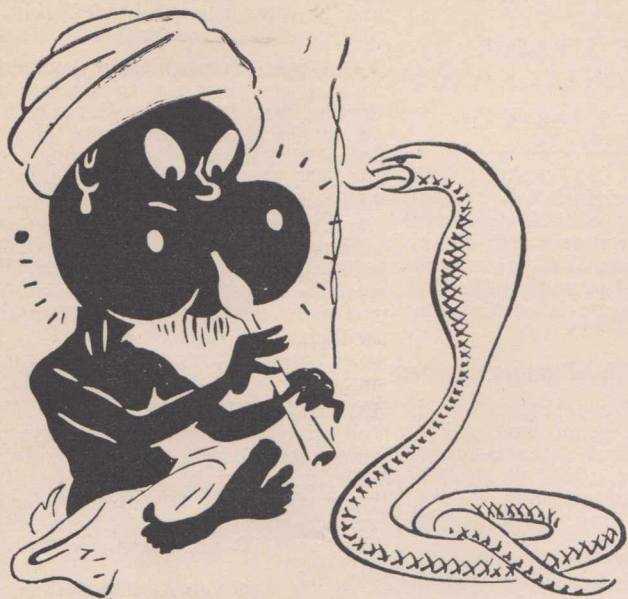
## Leakage Resistance

The voltage rating of a paper type condenser is also an indication of its leakage resistance. To withstand high voltages, three layers of waxed paper may be used as the dielectric, thereby reducing the leakage resistance.



Circuit of the "Scotchman's Super" to illustrate the condenser ratings. Incidentally the circuit is quite effective and embodies several interesting features.

# A TERRIBLE PREDICAMENT



Your nearest Brimar Distributor has ample stocks, and can assure you prompt delivery.

What's he to do? His reed pipe's blocked and that snake looks nasty. That's the way many set-builders feel after having bought "bargain" valves and found them to be faulty, with no replacement guarantee.

There is one sure way to avoid such a costly predicament, and that is to use only **BRIMAR VALVES** as recommended by the Editor of "Radio World" for all receivers described in its pages. You will avoid valve trouble, and gain prestige as a radio man who really knows his valves.

**BRIMAR VALVES** are available in every possible type, including a complete range of the new 1.4-volt series.

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New South Wales: Standard Telephones & Cables Pty. Ltd., 252-274 Boteny Road, Alexandria.

Standard Telephones & Cables Pty. Ltd., 71 Magellan Street, Lismore.

S.T.C. Radio Sales and Service, 389 Hunter Street, Newcastle.

Queensland: Trackson Bros. Pty. Ltd., 157-9 Elizabeth St., Brisbane.

Victoria: Noyes Bros. (Melbourne) Ltd., 597-603 Lonsdale St., Melbourne.  
Standard Telephones & Cables Pty. Ltd., Bourke Street, Melbourne.

Western Australia: M. J. Bateman Ltd., Milligan Street, Perth.

Tasmania: W. & G. Genders Pty. Ltd., 69 Liverpool Street, Hobart, and 53 Cameron Street, Launceston.

South Australia: Radio Wholesalers Ltd., 31 Rundle Street, Adelaide.

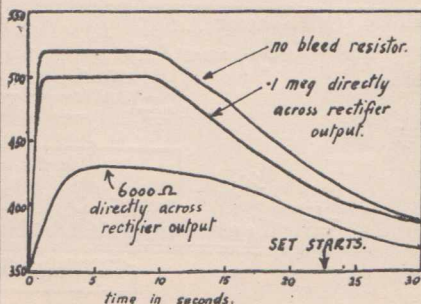
New Zealand: Standard Telephones & Cables Pty. Ltd., Trojan House, Manners Street, Wellington.

## CONDENSERS (Continued)

Another place where condensers break down is when used to by-pass screen voltages. Suppose the screen-grid of a resistance-coupled 6J7 requires 40 volts. You might suppose that a 200-volt condenser would be O.K. So it might be if the voltage came from a divider, but if a dropping resistor is employed then the condenser will certainly break down, because there is no voltage drop across the resistor when the set is switched on (and the 6J7 is cold) and the full H.T. voltage (then at its highest, say, 500 volts) is across the screen by-pass condenser.

Sometimes condensers are connected in series to increase the voltage rating. This is very satisfactory in

the case of wet electrolytics. For other types, bleeder resistances (about .1 meg. 1-watt or .25 meg. ½-watt) should be connected across each condenser to equalise the voltages. The



VOLTAGE SURGE in WARMING-UP PERIOD.  
(A.C. voltage: 370v. Filaments on 5.5 volts).

catch, of course, is that if two equal condensers are connected in series, the capacity is halved. Two 8 mfd. 500-volt condensers in series give a 4 mfd. 1,000-volt combination.

### Capacity Rating

The use of a condenser depends on its ability to store small amounts of electricity, the amount stored depending on the voltage across the condenser and its capacity. We say that A.C. passes through a condenser — what really happens is that the charging and discharging of the condenser permits the A.C. to keep flowing. D.C. (apart from a momentary surge when the condenser becomes charged) does not pass through a condenser, so a common use of a condenser is to separate A.C. from D.C. Smoothing condensers across the H.T.

supply by-pass the A.C. portions or the "ripple." The D.C. passes to the set.

The "reactance" or opposition of a condenser to A.C. depends on the size of the condenser and the frequency or rate of variation of the A.C.

To separate A.C. and D.C., the condenser should be as large as possible. In practice there are limits, the physical size and the leakage generally increasing with capacity.

### Radio Frequency

High-frequency alternating currents (R.F.) pass more readily than low-frequency (A.F.), so a condenser may be used to separate them. The size of

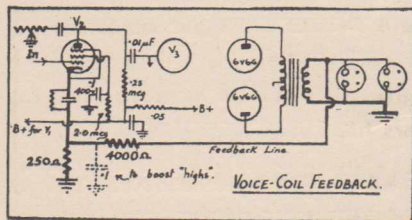


Diagram to show condenser features in feedback circuits.

the condenser here is important. If too large, too much A.F. gets through with the R.F. If too small, only part of the R.F. gets through, the remainder continuing with the A.F. In other words, there is always an "optimum size." A classical example of this is the condenser across the grid leak in the grid detector circuit. For many years this was .00025 mfd., which by-passed some of the higher audio-frequency signals. When the demand for quality slowly arose like some dinosaurs dragging itself out of

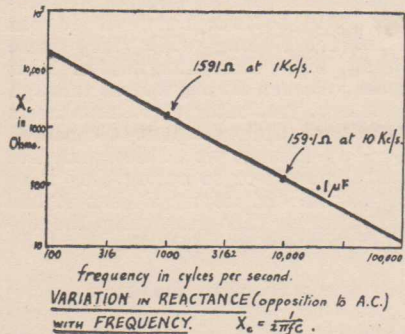


Diagram to show how reactance varies with frequency.

the primeval mud, people began to demand these "highs" and the condenser was reduced to about .0001 mfd. with a slight loss of volume because part of the R.F. did not "get through."

### Resistance-capacity Coupling

Because the reactance of a condenser varies with frequency, resistance-capacity coupling between valves tends to weaken the low notes. The actual loss at any frequency depends

on the size of the coupling condenser and the size of the grid resistor. The product of these two values (one in mfd., the other in megohms) gives an indication of the fidelity. The reciprocal of this product indicates the frequency at which response starts to fall off. (The response is approxi-

mately 3 db. down at a frequency six times the reciprocal, e.g., if  $C = .002$  mfd.,  $R = .5$  meg., then the reciprocal is 1,000. The response is 3 db. down at about 150 c/s.) The circuit shown has a total loss of less than 1 db. at 20 c/s. from diode load to output, excluding speaker losses.

## BATTERY SET

(Continued from page 16)

clarity. As bandspreading can never be overdone, it is recommended that the best high-ratio, anti-backlash tuning dial available be incorporated.

An effective battery switch has been included in the circuit, which, in the first position, switches the set off; in the second position, switches it on, and in the third position switches on the audio amplifier only and at the same time throws the pick-up into operation. This arrangement is advantageous to the country listener, who invariably gets bad static, and for musical entertainment prefers to listen to his own gramophone records. The switch is so connected that when a pick-up is being operated, no current is drawn by the first three valves of the receiver, thus saving a large amount of filament and plate current and thus giving a longer life to the "A" and "B" batteries. An ordinary dual-wave switch can be used in this position as it will carry the current effectively.

### The Output Stage

The writer has incorporated Class "B" push-pull amplification in the circuit for more than one reason. Firstly, this type of output stage will deliver 1½ to 2 watts of undistorted output, with a reasonably low total harmonic distortion. The undistorted output available from the usual pentode output stage is approximately only a third of this value, and even when inverse feedback is incorporated with it, the total harmonic distortion is little less than that produced with a pair of 30's in Class B.

Secondly, the Class B output stage has the advantage of drawing "B" battery current in proportion to the output from the speaker. In other words, the more the volume control is turned up, the larger will become the drain on the "B" batteries. An ordinary output pentode such as the 1D4 when delivering ¾-watt output draws a plate current of 9½ milliamps and a screen current of 2.3 milliamps, no matter whether the volume control is turned full on or off. However, a pair of 30's in Class B only drains 2 or 3 milliamps plate current with a zero signal applied to their grids and this plate current increases up to the vicinity of 24 milliamps at full output. Thus the Class B

system has the advantage of supplying nearly 2 watts if required, but only drains the same current as a normal pentode if the volume is held at a normal level.

In such a circuit as this the designer has the option of using a pair of 30's in push-pull or a single 19. Both give similar results. However, it appears that using the 30's is a better proposition, because, although they are more expensive to purchase than a single 19, they draw .14 amps less filament current, which is considerable, and thus increase the available number of hours' output available from the filament supply or accumulator. The only disadvantage of the Class B type of output is the initial cost of valves and the "B" class audio transformer.

As Class B push-pull has been incorporated in this circuit mainly to increase the available volume, and as the total harmonic distortion is reasonably small, it would appear to be detrimental to attempt to fit inverse feedback to the circuit for the following reasons:—

- (1) Although inverse feedback improves the tonal quality it materially reduces the receiver's output, and is thus not desirable in this circuit, as the 30 driver has a small amplification factor.
- (2) As the average country listener has to put up with a certain amount of static and fading, resulting in distortion which cannot be eliminated, it is felt that inverse feedback is not justified in this case.

### Tone Control Arrangement

Finally, a simple tone control, which is generally considered essential for short-wave reception, has been incorporated in the output stage, as in this position such a unit has a minimum effect on the gain of the receiver.

It is to be emphasised that particular attention must be paid to the layout, shortness of wiring, etc., in the construction of such a receiver as this, or instability may ensue.

Details of suitable coils will be found in "Radiotronics" No. 79, and the writer wishes to acknowledge that part of the circuit diagram and description of the 5-valve receiver described in "Radiotronics" No. 80 has been incorporated in this essay and accompanying circuit.

# Shortwave Review

CONDUCTED BY  
L. J. KEAST

## NOTES FROM MY DIARY

For quite a while it has been on my mind to have a frequency check and make it in the form of a contest.

In the issue of August, 1940, I printed a list of most of the stations of the world that were being heard at that time. I could publish another list and maybe a good number of our readers would be prepared to accept it as correct, while others may hesitate to draw attention to discrepancies. Therefore, I thought it would be a good idea for all of us to co-operate and make a check of one band at a time and see what short-wave stations are being heard in Australia and New Zealand.

Let us commence with the 19-metre band and results will be published in the February issue. You will see this provides a grand opportunity over the Christmas and New Year holidays to try the set out and at all hours. All that is required is a brief item regarding the stations logged and in order of frequency or wavelength for preference. For instance:

DJR, Berlin, 15.34 mc, 19.56m: Announces "This is Germany calling." News in English at 10 p.m.

KGEI, 'Frisco, 15.33mc, 19.57m: This is, etc. News at 10.45 a.m.

Of course, the remarks will be according to the time you listened.

I'm not offering any prize, at present, but if results are satisfactory we may figure out a scheme where the one with the biggest list will benefit. We have just over 700 members of the Club, so these good people, together with our many thousands of readers, should enable us to publish a long and accurate list.

Let us take advantage of that goodwill feeling associated with Christmas and include in our New Year resolutions a determination for closer cooperation in this grand hobby of ours.

Please have list in by January 24, 1942.

The month of November has certainly added a few new stations, but one thing that stands out is the number of "off-the-band" frequencies that are cropping up. Time was, when Postal Conventions were held and call-signs, etc., were allotted. International complications have made this impossible and the rules to-day savour of Kelly. But, after all, who cares?

I think we all get a thrill out of hearing a new station and, if the signal, is good, so much the better. A glance at "New Stations" will enable you to bring your lists up-to-date if those mentioned have not already been noted.

I am very pleased to note Suva has found a wavelength and a time that suits us admirably. I refer to VPD-2, 15.16mc, 19.79m, heard from 7.30 a.m. to 8.30 a.m. and again at 12.30 p.m. till 1.30 p.m.

The former is in English, while the mid-day session is in French.

From what they say, present transmission is an experiment and reports are asked for. I hope many will accompany mine already on the way, suggesting that this is a happy choice and that we will for a long time enjoy this delightful matutinal R-Max signal. Have a soft spot in my heart for Fiji, having been there once or twice.

From 7 p.m. on 31.46m they are now spoiled by JZI, which is a pity, as quite recently VPD-2 increased their time on the air by an hour and from 8 p.m. very often the native nurses' choir is heard.

So at last the American reporters have ceased to put over "news" through the Berlin short-wave stations. Am not surprised, as it was patent for a long while they were talking with their tongues in their cheeks. Warren Irving told us through the B.B.C. just after eight months in Berlin how their script was censored and that often it would be handed to them a minute or so before they were due on the air. Many a time it had been altered, thus conveying the opposite to what was intended.

By the way, with the holidays almost on us, doubtless some of the enthusiasts will be giving the receiver the once over. Remember to pay equal attention to both aerial and earth. There is always a chance of losing efficiency with these.

Re Russians. Since my exhaustive list in November issue, several new transmitters have shown up, while a number listed last month have faded out. Well, this can be expected with a country at war and particularly when the enemy, if correctly reported, is so near to principal stations. As a matter of fact, I would not be sur-

## ALL-WAVE ALL-WORLD DX CLUB

### Application for Membership

The Secretary,  
All-Wave All-World DX Club,  
117 Reservoir Street, Sydney, N.S.W.  
Dear Sir,



I am very interested in dxing, and am keen to join your Club.

Name .....

Address .....

(Please print both plainly)

My set is a .....

I enclose herewith the Life Membership fee of 3/6 (Postal Notes or Money Order), for which I will receive, post free, a Club Badge and a Membership Certificate showing my Official Club Number.

(Signed) .....

(Readers who do not want to mutilate their copies can write out the details required.)

prised to read later on that "This is Radio Centre, Moscow" has been operating from a mobile unit, signal strength of late suggesting something is different.

This month I am only showing those frequencies that have been heard since last issue.

Had a call from Roy Hallett, of Enfield. He showed me a letter from XGDN, Shanghai, and the station is now definitely established on the short-wave side, the letter being signed by the Station Supervisor, whereas my letter (to which they refer), it will be remembered, was signed by the Technical Adviser. The paper bears a big V in yellow, and the

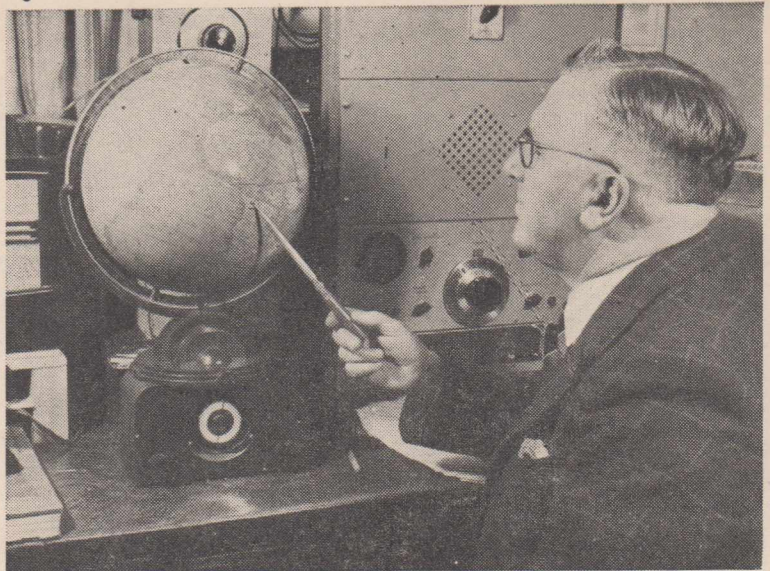
## WITH THE REPORTERS

At this time of the year one gets to reminiscing, and I call to mind those fine fellows who have been so good in sending along notes and thus enabling me to keep these columns up-to-date.

Here is a list of our correspondents for the last year:

Wm. Bantow, Edithvale, Vic.  
 A. Beattie, New Lambton, N.S.W.  
 John S. Beatty, Kavieng, T.N.G.  
 M. Bowser, Chullora, Sydney.  
 P. Byard, Launceston, Tas.  
 H. A. Callender, Hobart, Tas.  
 R. K. Clack, Chester Hill, Sydney.  
 A. T. Cushen, Invercargill, N.Z.  
 A. Deppeler, Edmonton, Q.  
 Ray Dissinger, Lawrence, Kansas, U.S.A.  
 J. J. Fitzgerald, Randwick, Sydney.  
 A. L. Flegg, Melbourne, Vic.  
 Dr. K. B. Gaden, Wallumbilla, Q.  
 R. Gallasch, Hahndorf, U.S.A.  
 N. Gandy, Wellington, N.Z.  
 Arthur J. Green, East Liverpool, Ohio, U.S.A.  
 R. Hallett, Enfield, Sydney.  
 D. J. Hastings, Ashgrove, Q.  
 J. Horn, Hurlstone Park, Sydney.  
 H. I. Johns, Nelson, N.Z.  
 R. Jennings, Wellington, N.Z.  
 B. W. Keats, Launceston, Tas.  
 E. Knewstubb, Lyttleton, N.Z.  
 Ollie A. Landgraf, Chilton, Wisconsin, U.S.A.  
 J. C. Linehan, Leabrook, S.A.  
 E. Miles Samuel, Wellington, N.Z.  
 K. B. Mitchellhill, Muswellbrook, N.S.W.  
 Chas. A. Morrison, Norman, Illinois, U.S.A.  
 G. Muller, Newtown, Sydney.  
 S. I. Nelson, Cairns, Q.  
 Charles C. Norton, Oakland, Calif., U.S.A.  
 M. J. O'Brien, Dockyard, Raymond Terrace, N.S.W.  
 Martin J. Olthoff, Independence, Kansas, U.S.A.  
 D. L. Overhue, Donnybrook, W.A.  
 W. H. Pepin, Maylands, W.A.  
 Hugh Perkins, Malanda, Nth. Q.  
 N. G. Phillips, Gympie, Q.  
 F. Pile, Macksville, N.S.W.  
 Charles Ramirez G., Radio Guia, Havana, Cuba.  
 M. Rogers, Hunter's Hill, Sydney.  
 C. Schodel, Brisbane, Q.  
 R. J. Schooth, Deagon, Q.  
 E. E. Seward, Marrickville, Sydney.  
 E. J. Shields, Boulder City, Calif., U.S.A.  
 P. L. Smith, Dunsborough, W.A.  
 E. J. Stanke, Mt. Gambier, S.A.  
 Max Stevens, Broadway, Sydney.  
 Leroy Swanson, Chariton, Iowa, U.S.A.  
 R. Taylor, Mosman, Sydney.  
 T. Whiting, Five Dock, Sydney.

Gentlemen, I thank you.



Great interest is centred in French Equatorial Africa by reason of the massing of Free French Forces ready for the Second Battle for Libya. Our Short-wave Editor, Mr. L. J. Keast, is shown pointing to Brazzaville, from where he has just received a verification of his report of November last year. The lower pin is Leopoldville (Belgium Congo), a verification having been received from there some time ago.

call-sign is definitely shown as XGDN.

In a magazine, "Radio Flash," which accompanied the letter, the call-sign of Radio Saigon is shown as FZS.

Talking of verifications, Hugh Perkins, of Malanda, Queensland, has received a QSL card from Bandoeng, confirming his report on PLG-8, 15,950kc, 18.81m. The N.I.R.O.M. for years would not even acknowledge a report, but now, in addition to a card -- and a nice one at that -- enclose a most informative booklet.

And, thinking of QSL cards, I am reminded of Mr. Clack, of Chester Hill, now Sergeant Clack of the Australian Defence Forces "somewhere in Australia," who, dreading the thought of having to miss listening to the short-wave stations, procured from me a portable dual-wave receiver, and the list of loggings he has sent me would make the average listener in a comfortable suburban home go green with envy. Don't forget, on 15 feet of aerial, he hears 25 Orientals every night and, in addition, brings in sufficiently well to "copy" such stations as HP5A, COCQ (8850kc), YNRS, YDX, TIPG and CBFY.

He was the first to report VPD-2, Suva, on 15.16mc, to this magazine, and a verification he has just received from VUM-2, Madras, completes the Indians with the exception of VUD-2, to which two reports have already been sent. Surely a "tiger" for verifications!

Some nice observations were made by Roy Hallett in an all-night sitting, and with commendable forethought he

has hurried this information on for the benefit of the "other enthusiasts." A run through "Loggings" will find his name appearing after quite a number of stations seldom reported at the times shown. Here is another member who is proud of his QSL cards; he brought them into me one day and I noticed a great many that had not arrived at 96 Frenchman's Road.

Sunday afternoon often provides surprises, but Sunday, November 15, which happened to be the fifteenth anniversary of the National Broadcasting Company gave WGEA, WRCA and KGEI (the latter on 31.48m for the afternoon) a grand chance to present such stars as Rudy Vallee, Connie Boswell, Burns and Allen, etc. All stations were R-Max at 5 p.m. and were going long after that.

### Brief Mention

KGEI, 'Frisco, 31.02m, now closes at 6 p.m. and opens again at 9 p.m. First news is given at 9.30 and, as has been the practice for ages, news is given at 10.30. At my location, the signal is very erratic in the night session and many a time I cannot hear them till well after 10.30.

Being told that Moscow was back again on 12mc, 25m, I hurried to check this, but at 9.25 p.m. I could find no sign of our old RNE. There was what seemed to me to be a very weak Chinese or Japanese station. I waited for quite a while but could not

(Continued on page 39)

# The MONTH'S LOGGINGS

ALL TIMES ARE AUSTRALIAN EASTERN STANDARD

## AUSTRALIA

- VLG-6**, Melbourne ..... 15,230kc, 19.69m  
Schedule: 6.30 a.m. to 2.45 p.m.; 5 p.m. to 6.45 p.m.  
Good at 9.30 a.m. (Gallasch).
- VLR-3**, Melbourne ..... 11,880kc, 25.25m  
Schedule: Noon to 6.15 p.m. Relays national programme.  
Very consistent (Cushen).
- VLG-5**, Melbourne ..... 11,880kc, 25.25m  
7 p.m. to 10 p.m.
- VLG-2**, Melbourne ..... 11,870kc, 25.27m  
10.25 p.m. to 11.10 p.m.; 11.15 p.m. to 1 a.m.
- VLW-3**, Perth ..... 11,830kc, 25.36m  
Schedule: Daily, 8.30 a.m. to 11.45 a.m.; 1.30 p.m. to 8.45 p.m.; Relays W.A. national programmes. Sundays, 9 a.m. to 8.45 p.m.  
Heard weakly at 2.30 p.m. (Cushen).
- VLR-8**, Melbourne ..... 11,760kc, 25.51m  
Schedule: 6.30 a.m. to 10.15 a.m.; Relays national programme.  
R6 at 9.10 a.m. (Gallasch).
- VLR**, Melbourne ..... 9580kc, 31.32m  
Schedule: 6.30 p.m. to 11.30 p.m. Relays national programme.  
Very good at present (Gallasch).
- VLW-2**, Perth ..... 9560kc, 31.38m  
Schedule: 9 p.m. to 1.30 a.m.; Relays W.A. national programme. To South-east Asia. Sundays: 9 p.m. to 1 a.m.

## Department of Information Broadcasts

- VLG-6**, Melbourne ..... 15,230kc, 19.69m  
Trans. F.1: To A.I.F. in Middle East, 3 p.m. to 3.30 p.m. Trans. F.2: To A.I.F. in Malaya, 6.15 p.m. to 6.45 p.m. Trans. F.3: To A.I.F. in Middle East: 2.25 a.m. to 2.55 a.m.
- VLQ-2**, Sydney ..... 11,870kc, 25.27m  
Trans. VI.: To North America (West), 3.55 p.m. to 4.40 p.m. (Also on **VLG-3**, 25.62m).  
Trans. II.: In English to North-east Asia, 8.40 p.m. to 9.15 p.m.
- VLG-3**, Melbourne ..... 11,710kc, 25.62m  
To North America (West), 3.55 p.m. to 4.40 p.m. (Also on **VLQ-9**).  
Great signal (Cushen).

- VLW-2**, Perth ..... 9650kc, 31.09m  
Trans. IV.: In Dutch, French and English to South-east Asia, 11.15 p.m. to 1 a.m. (also on **VLG-2**).
- VLQ**, Sydney ..... 9615kc, 31.2m  
Trans. I.: In French to New Caledonia and French Oceania, 6.25 p.m. to 7.25 p.m.
- VLG**, Melbourne ..... 9580kc, 31.32m  
Trans. V.: In English to North America (West Coast), 1.25 a.m. to 2.10 a.m.  
Only weak signal now at 1.30 a.m. (Cushen).
- VLG-2**, Melbourne ..... 9540kc, 31.45m  
Trans. III.: To North America (East Coast), 10.25 p.m. to 11.10 p.m. (Also on **VLQ-9**).  
Trans. IV.: To South-east Asia, in Dutch, French and English, from 11.15 p.m. to 1 a.m. (Also on 31.09.)
- VLQ-9**, Sydney ..... 7250kc, 41.38m  
Trans. III.: To North America (East Coast), 10.25 p.m. to 11.10 p.m. (Also on **VLG-2**).  
Trans. VI.: To North America (West Coast), 3.55 p.m. to 4.45 p.m. (Also on **VLG-3**).

## OCEANIA

- Fiji:**  
**VPD-2**, Suva ..... 15,160kc, 19.79m  
Schedule: 7.30 a.m. to 8.30 a.m. (News 8.15 a.m.); 12.30 p.m. to 1.30 p.m.  
R-Max at 8.15 a.m. in News (Gaden).  
Splendid signal (Hallett, Clack). (First heard at 1.20 p.m. on November 16. See "New Stations."—Ed.)
- VPD-2**, Suva ..... 11,895kc, 25.22m  
Seems to have replaced the 19.79 transmitter in mid-day session. Heard again from 6 p.m. to 8 p.m. Very good signal at night, but **VLG-5** spreads a trifle, and am inclined to think **XGOY** opens a little before 8 p.m.
- VPD-2**, Suva ..... 9535kc, 31.46m  
Schedule: 3 to 3.30 p.m. (French); 7 to 9 p.m., except Sunday.  
Only fair at 7 p.m. (Cushen). Plenty French after 8.30 p.m. (Gaden). (Night reception has been spoilt by **JZI** opening up at the same hour. Heard native nurses' choir at 8 p.m.—Ed.)

## New Caledonia:

- FK8AA**, Noumea ..... 6130kc, 48.94m  
Schedule: 5.30 to 6.25 p.m., except Sundays.  
On opening and closing plays "Marseillaise."

"God Save the King" and "The Star-Spangled Banner." Also uses " - - - " when opening.  
Still at good strength (Cushen, Perkins).  
(Static bad here.—Ed.)

## Papua:

- VIG**, Port Moresby ..... 15,770kc, 19.02m  
Reported heard around 10.30a.m.

## Tahiti:

- FO8AA**, Papeete ..... 7100kc, 42.25m  
Wednesdays and Saturdays, 2.30 p.m. to 3.15 p.m. (Cushen). (Note change of days.—Ed.)

## AFRICA

### Algeria:

- TPZ**, Algiers ..... 12,120kc, 24.76m  
Schedule: 4 a.m. to 9 a.m.  
Very weak around 7 a.m. (Nelson).
- TPZ-2**, Algiers ..... 8960kc, 33.48m  
Schedule: 4 a.m. to 9 a.m.  
Fair signal at 7 a.m. (Nelson, Fitzgerald).

### Belgian Congo:

- OPM**, Leopoldville ..... 10,140kc, 29.59m  
Schedule: 4.55 a.m. to 5.45 a.m.

### Egypt:

- SUV**, Cairo ..... 10,055kc, 29.84m  
Some mornings, round about 5.30. Fair signal.
- SUX**, Cairo ..... 7865kc, 38.15m  
Schedule: 4.30 a.m. to 6.30 a.m.  
R6 at 6.15 a.m. (Nelson).
- SUP-2**, Cairo ..... 6,320kc, 47.47m  
Schedule unknown, but heard from 2.30 to 3 a.m.  
Very good signal (Rodgers). News in English at 5.45 a.m., female announcer (Hallett).

### French Equatorial Africa:

- FZI**, Brazzaville ..... 11,965kc, 25.06m  
Despite static, signal is R7 at 4 p.m. (Gaden). (Also heard some days between 6 and 7 a.m. See note elsewhere re verification.—Ed.)

### Gold Coast:

#### British West Africa:

- ZOY**, Accra ..... 6000kc, 50.00m  
Relays B.B.C. at 4 a.m.  
R4 at 4.30 a.m. (Cushen, Fitzgerald).

### Kenya:

- VQ7LO**, Nairobi ..... 6060kc, 49.5m  
Schedule: 2.15 to 5.15 a.m. (News, 2.30 and 4 a.m.).

### South Africa:

#### Rhodesia:

- The Post Office Station**, Salisbury, 7317kc, 41m  
Schedule: 2 a.m. to 6 a.m. Relays Daventry at 4 a.m. Closes with "God Save the King." Fair signal just before closing.

#### Portuguese East Africa:

#### Mozambique:

- CR7BD**, Lourenco Marques ..... 15,250kc, 19.66m  
English by a woman, Portuguese by man, between 3 and 4 p.m. Chimes are given between various items.
- CR7BE**, Lourenco Marques ..... 9840kc, 30.48m  
Schedule: 5 to 7 a.m. except Mondays.  
News 5.55.  
Quite good at 6.30 a.m. on new frequency (Nelson, Fitzgerald).
- CR7AA**, Lourenco Marques ..... 6175kc, 48.58m
- Transvaal:**  
**ZRH**, Johannesburg ..... 6007kc, 49.95m  
Schedule: 1.30 a.m. to 7 a.m. News 6.45 a.m.  
South African Press News in English at 6.5 a.m. B.B.C. News at 6.45 a.m. (Nelson).  
Improving; now quite fair until 6.30 a.m. (Fitzgerald).

## AMERICA

### Central:

- T14RH**, Heredia ..... 9740kc, 30.80m  
Closes just before 3 p.m. on Sunday, Wednesday and Friday.  
(Note change in frequency.—Ed.)

### Costa Rica:

- TIPG**, San Jose ..... 9620kc, 31.19m  
Schedule: 10 p.m. to midnight.  
Loudest of the Central Americans and sometimes heard around 2 p.m.

## NOTICE TO DX CLUB MEMBERS

Members of the All-Wave All-World DX Club are advised that they should make a point of replenishing their stock of stationery immediately, as all paper prices have risen, and we expect that it will be necessary to increase prices by at least 25%.

Already it has been found necessary to abandon the log-sheets and club stickers. However, while stocks last, the following stationery is available at the old prices, as shown.

**REPORT FORMS.**—Save time and make sure of supplying all the information required by using these official forms, which identify you with an established DX organisation.

Price ..... 1/6 for 50, post free

**NOTEPAPER.**—Headed Club notepaper for members' correspondence is also available.

Price ..... 1/6 for 50 sheets, post free

ALL-WAVE ALL-WORLD DX CLUB, 119 Reservoir Street, Sydney



R7 at 10 p.m. (Nelson). R7 at 2.30, R9 at 10 p.m. (Cushen).

**TIEP**, San Jose .... 6696kc, 44.81m  
Weak, but can be heard about 10.30 p.m. (Rodgers).

**TILS**, San Jose .... 6165kc, 48.66m  
Opens at 10 p.m. with "Stars and Stripes."  
Good (Rogers).

**TIGPH**, San Jose .... 5910kc, 50.76m  
Good around 10.15 p.m. (Gaden).

**El Salvador:**

**YSM**, San Salvador .... 11,720kc, 25.62m  
Another Nacional. Schedule: 4-5 a.m. and occasionally 11 a.m. to 1.30 p.m. (Dissinger, U.S.A.).

**YSD**, San Salvador .... 7894kc, 37.99m  
"Radio Difusora Nacional Alma Cuscatleca."  
Schedule: 10 a.m. - 2 p.m. (Dissinger, U.S.A.).

**Guatemala:**

**TGWA**, Guatemala .... 15,170kc, 19.78m  
5 a.m. to 10 a.m. on Mondays, R6 at 8 a.m. (Nelson). **VPD-2**, Suva, now upsets things a little.—Ed.)

**TGWA**, Guatemala .... 9685kc, 30.98m  
Schedule: 2 p.m. to 3 p.m.  
Weak at 2.30 p.m. (Nelson), but O.K. in N.Z. (Cushen, Gandy).

**TGWB**, Guatemala .... 6470kc, 46.37m  
Opens at 11 p.m. with physical jerks.  
Hear this one at 2.45 p.m. (Cushen, Gandy). (The Shaky Isles are certainly good for radio.—Ed.)

**Nicaragua:**

**YNRS**, Managua .... 8585kc, 34.95m  
"Radio Nicaraguense," relays **YNCH**, "Radio Philips." Schedule: 11 p.m. to midnight, and 9.40 a.m. to 1.40 p.m.  
R4-5 when opening at 11 p.m.

**Panama:**

**HP5A**, Panama City .... 11,700kc, 25.64m  
Schedule: 2 p.m. to 3 p.m.; 9.40 p.m. to midnight.  
Weak signal 2.45 p.m. and 10 p.m. (Nelson, Gandy).  
Better than **WLWO** at 3 p.m., although interference from **CB-1170** and, till 2 p.m., from **CBFY** (Cushen).

**HP5J**, Panama City .... 9607kc, 31.22m  
Schedule: 10 p.m. till midnight.  
Fair at 10 p.m. (Nelson).  
Mr. Gandy, of Wellington, N.Z., hears this station at 5 p.m. (Sundays only).

**HP5B**, Panama City .... 6030kc, 49.75m  
"Radio Estacion Miramar."

**HP5K**, Colon .... 6005kc, 49.96m  
Heard occasionally from 10 p.m. English announcements.

**North:**

**WRCA**, New York .... 17,780kc, 16.87m  
No sign of a morning now but heard faintly just before midnight.

**WRUL**, Boston .... 17,750kc, 16.9m.  
Opens up at 12.30 a.m. and on favourable nights (mornings) can be heard till closing at 3 a.m. Full schedule in November issue.

**WRUW**, Boston .... 15,350kc, 19.54m  
Schedule: 5a.m. to 8.30 a.m. News, 6.30 and 8.15 a.m.  
Very good from 2 a.m. to 3.15 a.m. (Hallett).

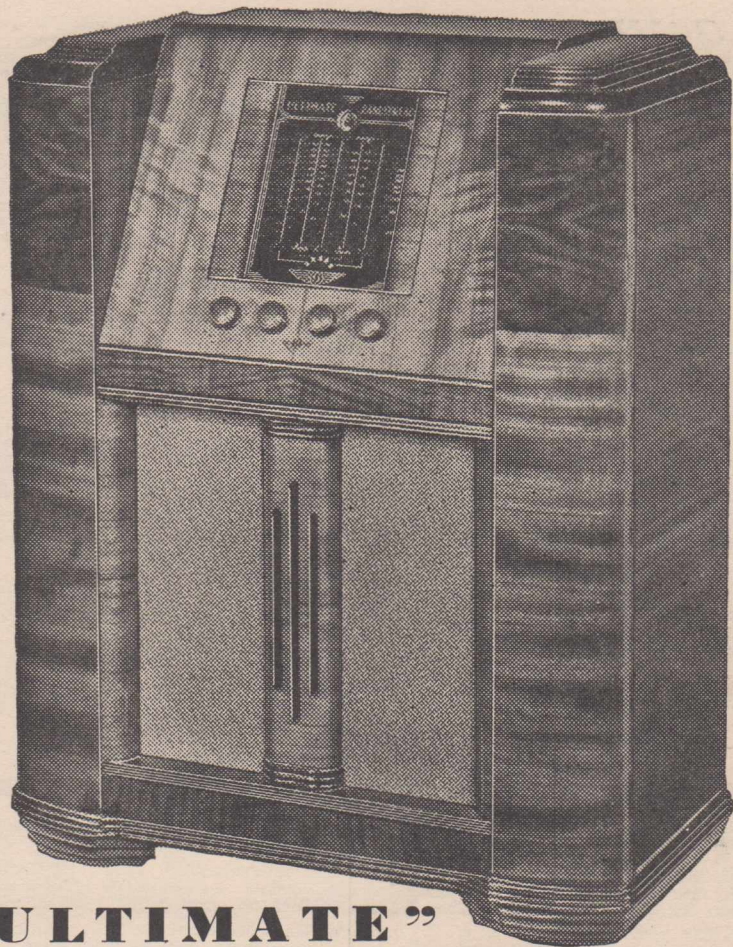
**KGEL**, Frisco .... 15,330kc, 19.56m  
Schedule: 10 a.m. to 3 p.m. News, 10.45 a.m. 2.55 p.m.  
R7 at 3 p.m. (Cushen, Fitzgerald). Fair at 2.45 p.m., but suffers a lot of interference (Gallasch, Nelson).

**WGEA**, Schenectady .... 15,330kc, 19.56m  
6.45 a.m. to 9 a.m., very weak.

**WCBX**, New York .... 15,270kc, 19.65m  
Opens at 11 p.m.  
Very weak. R7-8 some mornings at 7 (Nelson).

**WLWO**, Cincinnati .... 15,250kc, 19.67m  
Schedule: 1.30 a.m. to 10.45 a.m. News at 10.30.  
Very good at 7.25 a.m. in Spanish (Fitzgerald).

**WBOS**, Boston .... 15,213kc, 19.72m  
Schedule: 11 p.m. to 3.45 a.m. (News 11 p.m., midnight and 1 a.m.).  
Very fair at 2 a.m. (Hallett).



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## THE AUSTRALASIAN RADIO WORLD

117 RESERVOIR STREET, SYDNEY

### LOGGINGS (Continued)

**WNBI**, Boundbrook ..... 15,145kc, 19.81m  
Very fair at 2 a.m. (Hallett). Just a fair signal at 8 a.m. (Gaden). Good (Fitzgerald). (Seems to be improving.—Ed.)

**KKQ**, Bolinas ..... 11,950kc, 25.11m  
Sunday afternoons (Nelson, Fitzgerald).

**WNBI**, Boundbrook ..... 11,890kc, 25.23m  
Schedule: 10 a.m. to 11.45 a.m.  
Heard football talk at 11.15 a.m. Good call at 11.30 a.m., then Spanish (Gaden).

**WBOS**, Boston ..... 11,870kc, 25.26m  
Schedule: 4 a.m. to 4 p.m. News 6 a.m. and 9 a.m.  
Good with News at 9 a.m. (Gaden, Fitzgerald). Best signal on the band at 6 a.m. (Cushen, Nelson).

**WCBX**, New York ..... 11,830kc, 25.36m  
O.K. till **VLW-3** opens (Fitzgerald). Fairly loud at 6.30 (Rodgers).

**WRUL**, Boston ..... 11,790kc, 25.45m  
Schedule: 5 a.m. to 8.30 a.m. (News 6.30 a.m. and 8.15 a.m.)  
Usually weak at 7 a.m. (Nelson, Cushen).  
Went back to its European session at 7.30 a.m. (Gaden). (Improved tremendously last week.—Ed.)

**WRUW**, Boston ..... 11,730kc, 25.58m  
Schedule: 8.56 to 1.30 p.m. News 9.15 a.m. Good at 8 a.m. (Fitzgerald).

**WLWO**, Cincinnati ..... 11,710kc, 25.62m  
Schedule: 11 a.m. to 3 p.m. (News at 1 p.m.)  
Only fair when closing at 3 p.m. (Cushen).

**KGEI**, 'Frisco ..... 9670kc, 31.02m  
Schedule: 4.05 to 6 p.m. (News 4.05 and 5.45 p.m.); 8.55 p.m. to 2.15 a.m. (News at 9.30 p.m., 10.30 p.m. and 12.30 a.m.)  
R8 at 6 p.m. (Nelson, Fitzgerald). (Note change in schedule.—Ed.)

**WRCA**, Boundbrook ..... 9670kc, 31.02m  
Schedule: 9 a.m. to 4 p.m.  
Not so good in afternoons now (Fitzgerald).

**WLWO**, Cincinnati ..... 9590kc, 31.28m  
Schedule: 11 a.m. to 3 p.m.

**WGEA**, Schenectady ..... 9550kc, 31.41m  
Schedule: 8.15 a.m. to 11.15 a.m.  
Weak on opening at 8.15 (Nelson).

**WGEO**, Schenectady ..... 9530kc, 31.48m  
Schedule: 6 a.m. to 8.45 News 7.55 (except Sunday). Opens again at 9, closing at 3.  
Heard as early as noon (Cushen). This chap is a champion around breakfast time; excellent talks on scientific matters (Fitzgerald).

**KEI**, Bolinas ..... 9490kc, 31.61m  
Good on Sunday afternoons, but not as loud as **KKQ**.

**WCBX**, New York ..... 6170kc, 48.62m  
Good strength till signing at 4 p.m. (Cushen).

**WCAB**, Philadelphia ..... 6060kc, 49.5m  
Good till closing at 4 p.m. (Cushen).

**Mexico:**

**XEBR**, Hermosillo ..... 11,820kc, 25.38m  
"Radio Difusora de Sonora."  
Generally good till 3 p.m. (Rogers).

**XEQQ**, Mexico City ..... 9680kc, 30.99m  
Heard between 2 and 4 p.m.  
R4 at 2 p.m. (Gandy). R5 at 4 p.m. (Nelson).

**XEYU**, Mexico City ..... 9605kc, 31.24m  
Only just audible at 3 p.m. (Gaden).

**XEWV**, Mexico City ..... 9503kc, 31.57m  
2 p.m. to 4.30 p.m. R8 at 4 p.m. (Nelson, Cushen, Gandy, Fitzgerald).

**XEXA**, Mexico City ..... 6170kc, 48.62m  
Physical exercises at 11:30 p.m.

**XEUZ**, Vera Cruz ..... 6120kc, 49.02m  
Fair at 3 p.m. on favourable days.

**XEUW**, Vera Cruz ..... 6023kc, 49.78m  
Opens at 10 p.m. Very weak signal. Listen for four chimes.  
Erratic in afternoons (Fitzgerald).

**XEBT**, Mexico City ..... 6005kc, 49.96m  
Closes at 3.30 p.m.

Good (Cushen). Mr. Gandy, of Wellington, N.Z., hears this one at 9 p.m., relaying **XELO**.

#### South:

#### Argentina:

**LSX**, Buenos Aires ..... 10,350kc, 28.98m  
Appears to be only audible on Sunday mornings.

**LRX**, Buenos Aires ..... 9660kc, 31.06m  
R4 on opening at 8.30 p.m. English announcements (Nelson). Heard signing in English above **HHBM** at 10 p.m., also at 1 p.m. but weak then (Cushen).

#### Bolivia:

**CP-5**, La Paz ..... 6200kc, 48.39m  
Hear him at 10 p.m. occasionally (Gaden).

**CP-2**, La Paz ..... 6110kc, 49.10m  
Reported fair at 2.30 p.m.

#### Brazil:

**PR-8**, Pernambuco ..... 6010kc, 49.92m  
Heard around 6.30 a.m. at fair strength.

**PSF**, Rio de Janeiro ..... 14,690kc, 20.42m  
Heard in same programme as **PSH** between 9 and 10 a.m. Very seldom (Rogers).

**PSH**, Rio de Janeiro ..... 10,220kc, 29.35m  
Opens at 8.30 a.m.  
Still heard at 11 a.m. (Cushen).

#### British Guiana:

**VP3BG**, Georgetown ..... 6130kc, 48.94m  
Heard weakly at 7 a.m. (Gaden).

#### Chile:

**CB-1180**, Santiago ..... 11,975kc, 25.05m  
R7-8 opening at 9.30 p.m. C.W. interference at times (Nelson). Mr. Cushen classes **CB-1180** as the best Latin American at present at 9.30 p.m. At 3 p.m. is right on top of **Brazzaville**.

**CB-1174**, Santiago ..... 11,740kc, 25.55m  
Slogan: Radio Hucke. Schedule: 9.30 a.m. to 3 p.m. Very, very weak.

**CB-1170**, Santiago ..... 11,700kc, 25.64m  
Heard fighting it out with **HP5A** till 3 p.m. (Cushen).

**CB-970**, Valparaiso ..... 9730kc, 30.83m  
Radio la Cooperativa Vitalicia. Slogan is: "La Vuz de Chile para toda America."  
Opens at 9.30 p.m.

**CB960**, Santiago ..... 9600kc, 31.25m  
Reported heard at 3 p.m. and again at 10 p.m.

#### Colombia:

**HJCT**, Bogota ..... 9630kc, 31.15m  
Closes weakly at 2.30 p.m. just as **ZRO-3** opens up.

**HJCX**, Bogota ..... 6018kc, 49.85m  
Excellent at 4 p.m. Specialises in dance items Sunday afternoons.

#### Dutch Guiana:

**PZH**, Paramaribo, Surinam, 11,515kc, 26.05m  
Schedule believed to be: Tuesdays and Fridays, 9.30 to 10.30 a.m.  
Heard signing at 10.15 a.m. (Cushen). (See "New Stations.")

#### Ecuador:

**HCJB**, Quito ..... 12,460kc, 24.08m  
R7 at Invercargill at 3 p.m. (Cushen).  
Noon to 1.10 p.m., 9.55 p.m. to 11.30 p.m.  
Good at midnight and noon (Cushen). R8 at 8 a.m. Wednesdays, when Czech programme is broadcast. Closes 8.10 a.m.  
Announces in English, Czech and Spanish. Also R5 at noon on Sundays, when religious service in English is broadcast. At 11 p.m. on some nights, religious service in English (Nelson). (Was still going at 11.35 on November 17. Very good and clear. Listeners are reminded this is a missionary station. The letters HCJB stand for "Hail Christ Jesus' Blessing."—Ed.)

**HCQRX**, Quito ..... 5975kc, 50.21m  
"Radio Quito" opens at 9.45 p.m. with march.  
R6 at midnight, but fades (Cushen).

#### Paraguay:

**Peru:**

**OAX3A**, Huanuco ..... 6205kc, 48.35m  
Heard early in October, signing just after 3 p.m. (Cushen).

# NOW IS THE TIME

—TO MAKE THE

## NEW YEAR RESOLUTION

TO ENSURE SATISFACTION—

# USE ONLY MULLARD

THE CHOICE OF BRITAIN'S  
BETTER RADIO MANUFACTURERS!  
**AND AUSTRALIA'S TOO!**

# Mullard THE MASTER RADIOVALVE

Mullard-Australia Pty. Ltd., 367-371 Kent Street, Sydney, N.S.W.

Telephone: MJ 4688

**OAX4J**, Lima ..... 9340kc, 32.12m  
Still as reliable as ever. Very good strength on Sundays (Cushen).

**Uruguay:**  
**CXA-8**, Colonia ..... 9640kc, 31.12m  
Heard in morning around 8 and at 9 p.m. Generally overpowered by **KZRH**.

### THE EAST

#### Burma:

**XYZ**, Rangoon ..... 6007kc, 49.94m  
Schedule: 9.45 p.m. to 1 a.m. News at 12.30 a.m.  
Good signal on most nights. R8 in children's session at 9.15 Saturdays (Nelson).

**XZZ**, Rangoon ..... 3488kc, 86.00m

#### China:

**FFZ**, Shanghai ..... 12,068kc, 24.86m  
Schedule: 7 p.m. to 1.05 a.m. (News 11 p.m.).  
Fair, but plenty of noise (Cushen). Shows marked improvement (Fitzgerald).  
Good when free of interference.

**XGRS**, Shanghai ..... 12,029kc, 24.94m  
Schedule: 6.30 p.m. to 2 a.m. "The Voice of Europe." News 9.45 p.m., 10.30 p.m. and 12.15 a.m. News in Russian at 10.45 p.m.  
Splendid signal at 10.30 p.m. in News (Gaden, Nelson). (Note change in frequency. Power is 500 watts.—Ed.)

**XIRS**, Shanghai ..... 11,980kc, 25.02m  
Schedule: 8 p.m. to 11.30 p.m.  
News in English at 9.15 p.m.  
Much better signal of late (Gaden, Nelson, Cushen, Gandy).

**XGDN**, Shanghai ..... 11,920kc, 25.16m  
Schedule: 6.30 p.m. to 2 a.m. News 11 p.m. and 1 a.m.  
R8 at 9 p.m. C.W. interference at times (Nelson).

**XGOY**, Chungking ..... 11,900kc, 25.21m  
Schedule: 8 to 10.15 p.m. (News, 8.15 Good with News at 8.15 (Nelson, Cushen).

**XMHA**, Shanghai ..... 11,853kc, 25.31m  
Schedule: 6.30 p.m. to 1 a.m. News, 9 p.m. and 11.15 p.m.  
R5 at 9 p.m. (Gandy). R7 until Berlin opens (Nelson).

**XGOY**, Chungking ..... 11,790kc, 25.44m  
Heard at 7.30 a.m. with News for Europe. Signals only fair (Cushen).

**XGOK**, Canton ..... 11,650kc, 25.75m  
Schedule: 8 p.m.-midnight (News at 10.30). Weak at 10 p.m. (Nelson, Perkins).

**XGAP**, Pekin ..... 10,250kc, 29.23m  
R4-5 at 10 p.m. (Perkins).

**XOZS**, Peiping ..... 10,050kc, 29.85m  
R4 at 9 p.m. (Perkins).

**XGOA**, Chungking ..... 9720kc, 30.85m  
Fair at night (Nelson, Perkins, Gandy).

**XGOY**, Chungking ..... 9620kc, 31.17m  
Schedule: Midnight to 2 a.m. News at midnight and 1 a.m.  
R5-6 at midnight (Perkins). This is a special transmission to U.S.A.

**XGOY**, Chungking ..... 9635kc, 31.5m  
News at 12.5 a.m. and announced would be back at 1 a.m. (Hallett).

**XLMA**, ——— ..... 9240kc, 32.46m  
Heard from 10 p.m., but no English. R3 at 10.20 p.m. (Perkins). Said to have moved to 9370kc and closes at 11 p.m.

**XPSA**, Kweiyang ..... 8484kc, 35.36m  
Heard at 6.05 a.m. in Chinese programme (Hallett). Strong nightly (Nelson, Perkins).

**XGOY**, Chungking ..... 5950kc, 50.42m  
Schedule: 6-7 a.m.; 10.20 p.m. to 11.55 p.m. News at 10.30 and 11.30 p.m.  
Good at 10.30 p.m. with News in English (Nelson, Perkins, Cushen).

#### Dutch East Indies:

**PMA**, Bandoeng ..... 19,380kc, 15.48m  
10.15 p.m. to 11.15 p.m. News 10.45 p.m.  
R8 opening at 10.15 p.m. (Nelson).

## LOGGINGS (Continued)

**PLG-8**, Bandoeng ..... 15,950kc, 18.81m  
Received prompt verification (Perkins).

**YDB** ..... 15,315kc, 19.59m  
Fair in afternoons (Nelson).

**YDC**, Bandoeng ..... 15,150kc, 19.81m  
Schedule: 830 a.m. to 10.30 a.m.; 1.30 p.m. to 5 p.m.; 7.30 p.m. to 1.30 a.m. (Daylight signal now good.—Ed.)

**PLJ**, Bandoeng ..... 14,630kc, 20.51m  
Good night station.  
Heard from 7.30 p.m. to 3 a.m. in Malay programme.

**PLP**, Bandoeng ..... 11,000kc, 27.27m  
See **YDC** for schedule. Very good in afternoons.

**PLS**, Bandoeng ..... 10,365kc, 28.94m  
7.30 p.m. to 1.30 a.m.  
Excellent, nightly (Gaden, Cushen, Nelson).

**YDB**, Bandoeng ..... 9,550kc, 31.41m  
Fair signal nightly, usually QRM'd (Nelson).

**YDX**, Medan (Sumatra) ..... 7,210kc, 41.55m  
Schedule: 8 p.m. to 3 a.m.  
Weak (Nelson).

**PMH**, Bandoeng ..... 6,720kc, 44.64m  
Excellent at 5.30 a.m. (Cushen).

**PMY**, Bandoeng ..... 5,145kc, 58.31m  
7.30 p.m. to 1.30 a.m.  
Good at 8.30 p.m. (Nelson).

**YDA** ..... 4,900kc, 61.22m  
R8 at 9.15 p.m.

**YDE-2**, Solo ..... 4,810kc, 62.37m  
R7 at 9.30 p.m.

**YDE**, Temerang ..... 4,470kc, 67.11m  
Received verification for report sent last April (Cushen).

**YDA**, Bandoeng ..... 3,040kc, 98.68m  
7.30 p.m. to 1.30 a.m.  
Good but noisy, 9 p.m. (Nelson).

### French Indo-China:

**Radio Saigon**, Saigon ..... 11,780kc, 25.47m  
Schedule: 8.30 p.m. to 2 a.m. News, 9.30 p.m., 1.45 a.m. English session is now 9.15 to 9.45 p.m.  
Excellent signal nightly. Also good at 3 p.m. in French (Nelson).

**Radio Saigon**, Saigon ..... 6,180kc, 48.54m  
Schedule: 8.15 p.m. to 2 a.m. News at 9.15 p.m. and 1.45 a.m.  
R7 at 10 p.m. (Nelson).

### Hong Kong:

**ZBW-3** ..... 9,525kc, 31.49m  
Schedule: 7.30 p.m. to 12.15 a.m. Relays B.B.C. at 11 p.m.  
The "Old Reliable." Excellent nightly (Perkins).

### India:

**VUD-3**, Delhi ..... 15,290kc, 19.62m  
R-Max at 5 p.m. in News and music (Gaden).

**VUD-4**, Delhi ..... 11,830kc, 25.36m  
Schedule: 9 p.m. to 11 p.m. News, 10.30 p.m.  
R8 at 9.30 p.m. (Nelson). R6 at 10 p.m. (Gandy).

**VUD-2**, Delhi ..... 9,590kc, 31.28m  
Schedule: 9 to 2 a.m. News, 10.30 p.m., 1.50 a.m.  
R8 at 9.30 p.m. (Nelson, Gandy).

**VUD-2**, Delhi ..... 7,290kc, 41.15m  
Schedule: 9.30 p.m. to 1 a.m. News 10.30. R6 at 9.30 p.m. (Gandy).

**VUB-2**, Bombay ..... 7,240kc, 41.44m  
Opens at 9.30 p.m. Closes at 1.15 a.m.

**VUC-2**, Calcutta ..... 7,210kc, 41.61m  
R6 in English programme at 11 p.m. (Gandy).

Delhi ..... 6,130kc, 48.94m  
Heard from 11.15 p.m.  
Very good strength around 2.25 a.m. (Hallett).

**VUD-8**, Delhi ..... 4,920kc, 60.98m  
Schedule: 10.30 p.m. to 2 a.m.  
R7 at 10.30 p.m. News in English (Nelson, Gandy).

**VUB-2**, Bombay ..... 4,880kc, 61.48m  
R7 at 10.30 p.m. News in English (Nelson).

### Japan:

(Tokyo considered source of supply unless otherwise mentioned)  
Pressure on space does not permit of full schedules.

**JLU-4** ..... 17,795kc, 16.86m

**MTCY**, Hsinking ..... 15,320kc, 19.58m  
See 31.43m.

**JVW-4**, Tokyo ..... 15,235kc, 19.69m  
R6 at 10.35 p.m., Nov. 27 (Perkins). (Think discontinued now.—Ed.)

**JZK**, Tokyo ..... 15,160kc, 19.79m

**JLG-4**, ..... 15,105kc, 19.86m  
9 a.m. to 12.30 p.m. News 9 a.m.  
Splendid signal (Gaden).

**JVZ-2** ..... 11,825kc, 25.37m  
Schedule: 7 p.m. to 12.30 a.m. (See "New Stations.")

**JZJ** ..... 11,800kc, 25.42m  
Schedule: 7 p.m. to 12.30 a.m. News, 8 p.m. and 11.30 p.m.; 1 a.m. to 4.30 a.m. News 1.30 and 4 a.m.

**MTCY**, Hsinking ..... 11,780kc, 25.49m  
Schedule: 11 p.m. to midnight. News at 11.15.

..... 11,740kc, 25.55m  
Schedule: 4.30 p.m. to 5.30 p.m. News, 4.30.

Parallels with **JLU-4**, opening at 4.30 p.m. (Nelson). Parallels with **JVW-3** at 8.45 p.m. (Nelson).

**JVW-3** ..... 11,720kc, 25.6m  
Schedule: 6.45 a.m. to 8.30 a.m. (Exercises 7.7 a.m.). 6.45 p.m. to 12.30 a.m.

..... 10,274kc, 29.20m  
Opens with Japanese national anthem at 9 p.m.

**JIE-2**, Formosa ..... 9,690kc, 30.95m  
R5 at night. News at 12.15 a.m. (Nelson).

**MTCY**, Hsinking ..... 9,545kc, 31.43m  
Schedule: 6.50 a.m. to 8 a.m. (News at 7.3 a.m.).

Heard again on this wave-length at 7.41 a.m. (Nelson).

**JZJ** ..... 9,530kc, 31.46m  
4.30 p.m. to 6 p.m. (News 4.30 p.m.); 7 p.m. to 12.30 a.m. (News 8 p.m.); 1 a.m. to 4.30 a.m. (News 1.30 a.m. and 4 a.m.).  
Took over from **JVZ** as from November 1 (Nelson).

**JVW** ..... 7,257kc, 41.38m  
Schedule: 5 a.m. to 8.30 a.m. (News 5 a.m.).

**JLT** ..... 6,190kc, 48.47m  
Schedule: 5 a.m. to 8.30 a.m.

**MTCY**, Hsinking ..... 6,125kc, 48.98m  
Strong signal nightly (Nelson).

**MTCY**, Hsinking ..... 5,990kc, 50.08m  
Heard from 11 p.m. to midnight.

### Malaya:

**ZHN-3**, Singapore ..... 11,850kc, 25.32m  
Schedule: 7.30 p.m. to 1.15 a.m. Relays B.B.C. at 11 p.m.

Same programme as **ZHP-3** (Hallett). (Note change in call-sign and frequency.—Ed.)

**ZHP-1**, Singapore ..... 9,700kc, 30.92m  
Schedule: 7.30 p.m. to 1.15 a.m. B.B.C. News at 9 p.m. and 12.30 a.m.  
R4 at 9 p.m. (Gandy). Relays commentary from **KGEI** at 12.45 a.m. (Cushen).

**ZHP-3**, Singapore ..... 7,250kc, 41.38m  
R8 at 9.30 p.m. (Gandy).

**ZHP-2**, Singapore ..... 6,175kc, 48.58m  
Schedule: 7.30 to 1.15 a.m. (B.B.C. News at 9 and 11 p.m.).

Relays commentary from **KGEI** at 12.45 a.m. (Cushen). R7 at 9 p.m. (Nelson). Better than **ZHP-1** (Gaden).

**ZHJ**, Penang ..... 6,095kc, 49.23m  
Schedule: 8.35 p.m. to 11.45 p.m. News 9 p.m. and 11 p.m.

Fair when relaying B.B.C. News at 9 p.m. (Nelson). Great signal at 9 p.m. (Cushen).

## NEW STATIONS

**VLG-3**, Melbourne, 11,710kc, 25.62m: Used by Department of Information in Trans. VI., to North America (West), from 3.55 p.m. to 4.40 p.m. This new transmitter comes in with a great thump, and I expect some good reports will come in regarding it.

**VLQ-9**, Sydney, 7,250kc, 41.38m: This new transmitter came into operation on November 14 in Department of Information broadcasts to North America. Trans. VI., to West Coast, from 3.55 p.m. to 4.40 p.m. Trans. III., to East Coast, from 10.25 p.m. to 11.10 p.m. Heard opening at 10.25 p.m. with kookaburra. Singapore, on same frequency, spoils an otherwise good signal.

**VPD-2**, Suva, 15,160kc, 19.79m: First heard at 1.20 p.m. on 16/11/41 when records were announced in French by woman. Station closed at 1.30 with station announcements. Heard opening on November 17 at 7.30 a.m. Richard Wallace gave talk in French at 8 a.m., and at 8.15 a.m. Harold Huntly read News. On December 1, changed frequency and schedule. Now being heard on 11,895kc, 25.22m, from 12.30 p.m. to 1.30 p.m. and 6 p.m. to 8 p.m.

**Radio Vichy**, Vichy, 17,867kc, 16.79m: Another outlet of "La Voix de la France." 8.30 p.m. to 9.20 p.m. Heard at 9.10 p.m. giving News in French. Closed at 9.20 p.m. with usual Vichy announcement and "Ici la Voix de la France," followed by "Marseillaise." Very good signal.

**GRG**, London, 11,680kc, 25.68m.

**GRI**, London, 9,415kc, 31.86m: Another transmitter from Daventry and used in Eastern Service from 8.57 p.m. to 10.30 p.m. and African Service from 1.30 a.m. to 2.45 a.m.

**GRJ**, London, 7,320kc, 41m: Still another transmitter from Daventry. Used in service to Indian forces in Far East. Closed at 7 p.m. English and Hindustani. Also heard just before closing at 6.45 a.m.

**GRN**, London, 6,194kc, 48.43m: Still another Daventry outlet for African Service from 6 a.m. to 7 a.m.

**GRO**, London, 6,180kc, 48.54m: This transmitter is also used in African session between 1.30 and 7 a.m.

**ZHN-3**, Singapore, 11,850kc, 25.32m: This is the new call-sign and frequency for **ZHP-4**, 11,730 kc, 25.58m, mentioned in November issue.

**JVZ-2**, Tokyo, 11,825kc, 25.37m: This new outlet of the Nippon Hoso Kyokai (the Broadcasting Corporation of Japan) appears to have replaced **JVZ**, 11,815kc, 25.39m, which has been missing for some time. **JVZ** was used for China and the South Seas and also for Japanese soldiers at the front.

### Dutch Guiana:

**PZX**, Paramaribo, Surinam, 11,515kc, 26.05m: This is the mystery station mentioned under "Help Wanted" in August issue. Mr. Cushen, of Invercargill, through dint of perseverance, has at last heard them signing at 10.14 a.m. Well done, Arthur! Congratulations! According to latest American advices, they are on the air from 9.30 to 10.30 a.m. on Tuesdays and Fridays. Paramaribo, with a population of 46,000, is a seaport on the River Surinam, and capital of the Colony of Surinam. The Dutch Colony covers an area of 46,000 square miles, and has a population of 175,000. It is of terrific interest at present because of the arrival of United States troops, who have landed to aid the Dutch forces in the protection of the vital bauxite mines. Sixty per cent. of America's supplies of bauxite, from which aluminium is made, comes from Surinam. (Under "Loggings" I have shown call-sign as **PZH**, but American magazines say it is **PZX**.—Ed.)

**Philippines:**

(Manila, unless otherwise stated)  
**KZRB**, Manila ..... 11,840kc, 25.34m  
 Heard on two occasions at 9 p.m. (Nelson).  
**KZRH** ..... 9640kc, 31.12m  
 Schedule: 7.30 a.m. to 9.30 a.m. (News  
 8.15 a.m.); 6 p.m. to 2 a.m. (News 7.45  
 p.m. and 10.30 p.m.)  
 Mixed with **CXA-8** at 9 p.m. (Cushen). R7  
 at 8 a.m., R8 at night (Nelson).  
**KZRM** ..... 9570kc, 31.35m  
 Schedule: 6.45 p.m. to 1.30 a.m. News,  
 8.35, 10.45 and 11.45 p.m., also 12.45 a.m.  
**KZIB**, Manila ..... 9520kc, 31.58m  
 6 p.m. to midnight.  
 Often spoilt by noise.  
**KZND**, Manila ..... 8790kc, 34.13m  
 Schedule: 9.25 p.m. to 10.30 p.m. (News at  
 10.25 p.m.).  
 Best Philippine station (Cushen). Good and  
 in the clear now (Fitzgerald, Nelson).  
**KZRF**, Manila ..... 6140kc, 48.86m  
 Schedule: 7 p.m. to 2 a.m.  
 Strongest of the Philippines, but not the  
 best (Nelson).  
**KZRC**, Cebu ..... 6100kc, 49.18m  
 Very weak.  
**Portuguese China:**  
**CRSAA**, Macao ..... 6074kc, 49.39m  
 11 p.m. to midnight. English announcement  
 when closing.  
 Note change in frequency.

**Thai:**

**HSP-5**, Bangkok ..... 11,715kc, 25.61m  
 Schedule: 9 p.m. to midnight (News 10  
 p.m. and 11.15 p.m.).  
 Heard again O.K. (Cushen). R4-5 from  
 9.30 p.m. (Nelson).

**GREAT BRITAIN**

**"This Is London Calling"**

**GST** ..... 21,550kc, 13.92m  
**GSJ** ..... 21,530kc, 13.93m  
**GSH** ..... 21,470kc, 13.97m  
 8.57 p.m. to 1.15 a.m.  
 (Only audible on favourable nights.—Ed.)  
**GRQ** ..... 18,030kc, 16.64m  
 Heard at 10.15 (Gaden).  
**GRP** ..... 17,890kc, 16.77m  
 8.57 p.m. to 1.15 a.m.  
 No good yet (Gaden). R4-5 at 9 p.m.  
 (Perkins).  
**GSV** ..... 17,810kc, 16.84m  
 6 p.m. to 7.57 p.m.; 8.57 p.m. to 1.15 a.m.;  
**GSG** ..... 17,790kc, 16.86m  
 Session for China at 8.30 p.m.  
**GSP** ..... 15,310kc, 19.60m  
 5.30 p.m. to 7.57 p.m.; 5.30 a.m. to 7 a.m.;  
 Turkish at 8.30 p.m.  
 French at 9 p.m.  
**GSI** ..... 15,260kc, 19.66m  
 5 p.m. to 7.57 p.m.  
**GSO** ..... 15,180kc, 19.76m  
 10.15 to 10.45 p.m., Portuguese; 10.45 to  
 11.15 p.m., Spanish.  
 (Can be heard now Moscow is not using  
 frequency till 11.30.—Ed.)  
**GSF** ..... 15,140kc, 19.82m  
 6 p.m. to 7.57 p.m.; 8.57 p.m. to 1.15 a.m.;  
 1.30 a.m. to 5.15 a.m.; 6.35 a.m. to 7 a.m.;  
 Apparently **GRH** (30.53m) has replaced **GSI**  
 in North American Service from 7.15 a.m.  
**GRV** ..... 12,040kc, 24.92m  
 Eur., 2.55 a.m. to 4.15 a.m. (News at 4  
 a.m.).  
 Heard in French at 7 a.m. Spanish at 7.30  
 a.m.  
 Portuguese at 10.15 p.m. Spanish at 11 p.m.  
**GSE** ..... 11,860kc, 25.29m  
 3.55 p.m. to 7.30 p.m. (News 6 p.m.).  
**GSN** ..... 11,820kc, 25.38m  
 8.30 a.m. to 12.45 p.m. (Spanish and  
 Portuguese).  
 Intended for Latin America.  
**GSD** ..... 11,750kc, 25.53m  
 4.10 p.m. to 7.57 p.m.; 8.57 p.m. to 1.15  
 a.m.; 1.30 a.m. to 7 a.m.; 7.15 a.m. to  
 2.45 p.m.  
**GRG** ..... 11,680kc, 25.68m  
 Used in African Service.  
 Fair signal at 6 a.m., but not as good as  
**GRN**, 48.43m. (Mr. Hallett, of Enfield, sup-  
 plied call-sign.—Ed.)

**VERIFICATION FROM RADIO-BRAZZAVILLE**

I was very pleased to receive a reply on November 24 to my report of November 2, 1940. The letter is signed by Le Chef du Service de L'information du Haut-Commissariat de L'Afrique Francaise Libre and in reply to my enquiry as to exactly what their interval signal is he says, "Our interval signal is a native instrument called the Kissantzi. It is made of wood and is fitted with five strings attached to flexible pieces of wood. It is played with the thumb as the guitar is played."

Constructive criticism and comment is welcomed and a reply to reports is promised, so listeners would do well to "copy" this station while reception is O.K.

The full schedule (enclosed) is: 1 p.m. to 4.20 p.m.; 11.30 p.m. to 12.15 a.m.; and 5.45 a.m. to 7.15 a.m.

I doubt if the night session would be heard, but in the mornings and at mid-day and towards 4 p.m. **FZI** can be logged. In the letter under review, no mention is made of call letters, the station is simply referred to as "Radio-Brazzaville." Since my letter arrived, we have read in the papers that 100,000 Free French troops to-day stand ready in French Equatorial Africa, ready to join in the Second Battle for Libya.

**GRW** ..... 6145kc, 48.82m  
 Home service, 3.30 p.m. to 5.15 p.m. News  
 5 p.m. 2 a.m. to 8 a.m. News 3 and 6 a.m.  
**GSL** ..... 6110kc, 49.10m  
 4.10 p.m. to 5.45 p.m.  
**GRR** ..... 6075kc, 49.38m  
 3.30 p.m. to 7.30 p.m. News 5 p.m.  
 2 a.m. to 8 a.m. News 3 a.m., 6 a.m.  
**GSA** ..... 6050kc, 49.59m  
 Eur., 3.55 p.m. to 8 p.m., 1.55 a.m. to  
 8 a.m. News 6 p.m.  
 R9 at 6.30 a.m. (Perkins).  
**News:** 4.15 p.m., 6 p.m., 9 p.m., 11 p.m.,  
 2 a.m., 4 a.m., 6.45 a.m., 8.45 a.m., 11  
 a.m., noon, 2.30 p.m.  
**Radio Newsreel:** 1.30 p.m., 7.30 p.m.  
 All London transmitters are good excepting  
 8 a.m. to 1.30 p.m.

**EUROPE**

**Czecho-Slovakia:**  
**"Radio Bratislava,"** Bratislava 9525kc, 31.49m  
 Can just hear after 9 a.m. (Gaden).  
**France:**  
 (Of course, Nazi controlled)  
**Radio Vichy, Vichy** ..... 17,867kc, 16.79m  
 "La Voix de la France." Schedule, as far  
 as can be learnt, is: 8.30 p.m. to 9.20 p.m.  
 News in French at 9.10 p.m.  
 Good at 9 p.m. (Gaden). (Great signal.—  
 Ed.)  
**Paris Mondial** ..... 15,240kc, 19.68m  
 Between 3 p.m. and midnight.  
 (Now known as Radio National Vichy.  
 Heard opening at 11.30 p.m. Preceded by  
 tick-tock signal.—Ed.)  
**Radio Vichy, Vichy** ..... 11,840kc, 25.33m  
 Heard between 2.15 p.m. and 5.15 p.m.  
 Also sometimes between 1 a.m. and 3.30  
 a.m.  
 Heard well in afternoons (Nelson, Fitz-  
 gerald).  
**Radio Vichy, Vichy** ..... 9520kc, 31.51m  
 Schedule: 4 a.m. to 7.30 a.m.  
**"Y"** ..... 9520kc, 31.51m  
 Schedule: 7.50 a.m. to 2 p.m. (News 1.30  
 p.m.).  
 Heard with English call at 1.45 p.m.  
 (Cushen). R-Max around 5.30 a.m.  
 (Hallett).

**Germany:**

"Station Ananias," Berlin  
 Most Berlin transmitters put in very loud  
 signals for most part of the day, but from  
 early evening are subject to interference of a  
 swirling sound nature.  
**DJH** ..... 17,840kc, 16.81m  
 5.30 p.m. to 2 a.m. News 7.30 p.m. and  
 10 p.m.

(Continued on next page)

**FOR SALE**

My 10-valve Imported American Silvertone Professional Communication Receiver. Tuning Range, 9 to 176 metres in Four Bands. Wave-change Switch, High Sensitivity and Selectivity. Dial directly calibrated in megacycles. Completely shielded throughout. Housed in attractive crackle-finished steel cabinet. Truly a magnificent for one engaged in or anxious to explore short-waves. £25, including specially-matched speaker in separate cabinet.

L. J. KEAST.

96 Frenchman's Road,  
 Randwick.  
 'Phone: FX 6168.

## LOGGINGS (Continued)

**DJE** ..... 17,760kc, 16.89m  
4.30 p.m. to 9.30 p.m. News 5 p.m. and 7.30 p.m.

**DZG** ..... 15,360kc, 19.53m  
Reported being heard in late afternoons.

**DJR** ..... 15,340kc, 19.56m  
Schedule: 3 p.m. to 2 a.m. News 5 p.m. and 10 p.m.  
(Delightful meditation music follows 10 p.m. News on Sundays.—Ed.)

**DJQ** ..... 15,280kc, 19.63m  
3 p.m. to 2 a.m. News 5 p.m., 10 p.m. and midnight.

**DJB** ..... 15,200kc, 19.74m  
7.50 a.m. to 2.05 p.m. 9.30 p.m. to 11.45 p.m. News 9.30 p.m. and 11.30 p.m.

**DJL** ..... 15,100kc, 19.85m  
1.40 a.m. to 3.15 a.m. News at 2.15 a.m. 9.30 p.m. to 11.45 p.m. "Lord Haw-Haw" at 10.30 p.m. News 9.30 and 11.30 p.m.

**DZH** ..... 14,460kc, 20.75m  
Russian News at 2 p.m., 5.15 p.m., 1.15 a.m., 6.30 a.m., 7 a.m. and 8.15 a.m.

**DZE** ..... 12,130kc, 24.73m  
Very loud at 12.30 a.m. in Front-line News. (French session closed at 11.30 p.m., then Spanish followed. Very loud.—Ed.)

**DJP** ..... 11,855kc, 25.31m  
8 p.m. to 2 a.m. News at 10 p.m.

**DJD** ..... 11,770kc, 25.49m  
Schedule: 1.40 to 7.25 a.m. News, 2.15, 5.15 and 7.15 a.m. Talk at 3.30 a.m. 7.50 a.m. to 2.05 p.m. News 1.30 p.m.

**DXC-2** ..... 11,740kc, 25.55m  
Schedule: 3.40 a.m. to 7.25 a.m. News 6.15 and 7.15 a.m.

**DZD** ..... 10,530kc, 28.45m  
7.50 a.m. to 2 p.m. News 8.30 a.m. and 1.30 p.m. 5 a.m. to 7 a.m. News 5 a.m., 6.45 p.m. News for Ireland at 6.45 a.m. (Also on 31.35m).

**DZC** ..... 10,290kc, 29.25m  
Very loud before mid-day.

**DJX** ..... 9670kc, 31.01m  
1.40 a.m. to 7.25 a.m. News 2.15 a.m. and 7.15 a.m.  
(Good signal when closing.—Ed.)

**DJW** ..... 9650kc, 31.09m  
3 p.m. to 2 a.m. News at 5 p.m., 10 p.m. and midnight.  
Excellent signal at 10.30 (Perkins). (At 11 p.m. gives News in German very slowly and spells names. This is intended for front-line troops.—Ed.)

**DXB** ..... 9610kc, 31.22m  
Heard opening at 3.15 p.m. (Gaden).

**DXZ** ..... 9570kc, 31.35m  
1.40 a.m. to 7.25 a.m. News 2.15 and 7.15 a.m. 7.50 a.m. to 4 p.m. News 1.30 and 3 p.m. News for Ireland at 6.45 a.m. (also on 28.45m).

**DJA** ..... 9560kc, 31.38m  
Schedule: 3.30 a.m. to 6 a.m. News 3.30 and 4.30 a.m., and 5.30 "Lord Haw-Haw."

**DXM** ..... 9270kc, 41.27m  
Schedule: 4 to 8 a.m. "Lord Haw-Haw" 6.30 and 7.30 a.m.

**DJC** ..... 6020kc, 49.83m  
3.40 a.m. to 7.25 a.m. News at 6.15 and 7.15.

**Holland:**  
**PCV**, Kootwijk ..... 18,070kc, 16.6m  
Opens at 9.30 p.m., but plenty of noise (Cushen).

**PCJ-2**, Huizen ..... 15,220kc, 19.71m  
Heard nightly, but swirling noise makes listening unpleasant.

**Hungary:**  
**HAT-4**, Budapest ..... 9123kc, 32.88m  
Still heard at good strength at 11 a.m. (Cushen).

**Italy:**  
"This is Radio Roma"  
**IRW** ..... 19,590kc, 15.31m  
9 p.m. to 11.30 p.m. (News 11.20 p.m.).

**2R0-8** ..... 17,820kc, 16.83m  
Heard in Arabic at 8.30 p.m. French at 11.30 p.m.  
Poor signal (Gaden).

**2R0-6** ..... 15,300kc, 19.61m  
12.30 a.m. to 8.55 a.m.; 11 a.m. to 2.20 p.m.; 2.30 p.m. to 3.30 p.m.; 5 p.m. to 5.30 p.m.; 6.15 p.m. to 6.30 p.m.; 9 p.m. to 11.30 p.m. (News, 5 a.m., 7.12 a.m., 8.20 a.m., 1.30 p.m., 3 p.m., 5.20 p.m., 6.15 p.m., 11.20 p.m.)  
News at 5.20 p.m., good (Gallasch).

**2R0-4** ..... 11,810kc, 25.4m  
12.30 a.m. to 8.55 a.m., 11 a.m. to 2.20

son). (Note change in frequency.—Ed.)

## Russia:

"This is Radio Centre, Moscow, calling"  
It is very difficult to keep track of Russian transmitters, but here is a list of those actually heard during November and several of which were still operating as we go to press.

**RW-96** ..... 15,180kc, 19.76m  
Was heard opening at 11 p.m. for fifteen minutes and from midnight to 3.30 a.m. News at 1.10 a.m.

..... 15,100kc, 19.85m  
Splendid talk in English at 9.20 a.m. (9/11/41) from International Labour Office (Gaden). (Excellent station.—Ed.)

..... 12,090kc, 24.81m  
2.30 p.m., talk in English; 2.45 p.m., News in English; 6.20 p.m., Italian; 6.30 p.m., Dutch; 6.40 p.m., English; 10 p.m., Italian; 10.15 p.m., Dutch; 10.30 p.m., English.  
Often hear this chap (Gaden). (This is one of the best Russians.—Ed.)

..... 12,060kc, 24.88m  
3.30 p.m., Russian; 5 p.m., Italian; 6 p.m. to 7 p.m., English, with News at 6.40.

..... 11,790kc, 25.45m  
News for New Zealand at 3.34 p.m. (Cushen).

**RKF** ..... 11,740kc, 25.55m  
News in English at 6.40 p.m. News in Russian at 12.30 a.m.

..... 10,135kc, 29.60m  
10.30 p.m. to 11.30 p.m. News 11 p.m.

..... 10,040kc, 29.88m  
N.B.C. News Reporters, 11 p.m. to 11.15 p.m. Italian, 11.15 p.m. to 11.30 p.m. English, 11.30 p.m.  
(Gives wave-length before and after English News.—Ed.)

**RW-96** ..... 8050kc, 37.27m  
News at 6 a.m.

**RW-96** ..... 7520kc, 39.89m  
News in English at 4.30 a.m. (Cushen).

..... 5493kc, 54.61m  
News in English at 3.30, 4.30 and 5.30 a.m. (Hallett).

## Siberia:

**RW-15**, Khabarovsk ..... 9566kc, 31.36m  
Schedule: 5 p.m. to midnight; 5.50 a.m. to 8 a.m.  
Excellent always (Gallasch). (Exercises at 6.10 p.m.—Ed.)

**RW-15**, Khabarovsk ..... 6050kc, 49.59m  
5 p.m. to midnight.

**RW-15**, Khabarovsk ..... 4273kc, 70.2m  
Irregular, now. Old schedule was 5 p.m. to midnight.

## Spain:

**Radio Malaga**, Malaga ..... 7210kc, 41.61m  
Fairly good strength at 6.30 a.m. (News at 6.15 a.m. Weak.—Ed.)

**EAJ22**, Oviedo ..... 7140kc, 42.02m  
Being heard again in the mornings, opening at 6 (Gaden).

"Radio Mediterraneo" (Spain?)

..... 7130kc, 42.07m  
..... Malaga ..... 6993kc, 42.9m  
Between 6 and 7 a.m., good signal.

## Switzerland:

**HBH**, Geneva ..... 18,480kc, 16.23m  
Schedule: 11.45 p.m. Fridays to 1.10 a.m. Saturdays. Mostly English, little French. News 11.45 p.m. Mondays to 1.10 a.m.

**HBJ**, Geneva ..... 14,535kc, 20.65m  
First Sunday in the month. 3.45 p.m. to 5.10 p.m.  
Weak on November 2 (Gallasch).

**HER-5**, Schwarzenburg ..... 11,870kc, 25.28m  
Being heard between 11 and 11.30 p.m. Plenty of QRM (Hallett).

**HBO**, Geneva ..... 11,420kc, 26.31m  
Same remarks as **HBJ**.

**HER-3**, Schwarzenburg ..... 6165kc, 48.66m  
Schedule: 3.30 to 7.30 a.m.  
Only Swiss and French heard.  
Nice signal around 5.30 a.m. (Nelson).  
On Sundays can be heard from 5.45 p.m. to 6.30 p.m.

## CARD-SWAPPERS

Mr. Ollie A. Landgraf, 97 Park St., Chilton, Wisconsin, U.S.A., writes that he would like to swap SWL cards, photos, used commemorative stamps, picture view cards and beer labels.

(I am reminded by the censor that the exportation from Australia of postage stamps is prohibited except by consent in writing from the Minister of Customs.—Ed.)

Mr. Doug. K. Blakely, 688 Kingston Road, Toronto, Canada, would like to trade postcards.

p.m., 2.30 p.m. to 3.30 p.m., 6.15 p.m. to 6.30 p.m. News at 1.40 a.m., 7.12 a.m., 8.20 a.m., 1.30 p.m., 3 p.m., 6.10 p.m.

**2R0-15** ..... 11,760kc, 25.51m  
2.30 a.m. to 8.55 a.m.  
(Heard at 11 p.m. in Italian.—Ed.)

..... 11,695kc, 25.65m  
No call-sign is given, but at 5.15 p.m. announces in Russian: "Here is Italian short-wave station." Heard again at 1 a.m.

**2R0-18** ..... 9765kc, 30.74m  
11 a.m. to 2.20 p.m. News at 1.30 p.m.

**2R0-9** ..... 9670kc, 31.03m  
2.30 a.m. to 8.55 a.m. News at 5 a.m., 7.12 a.m.

**2R0-3** ..... 9630kc, 31.15m  
12.30 a.m. to 8.55 a.m.; 2.30 p.m. to 3.30 p.m.; 5 p.m. to 5.30 p.m. News, 1.40 a.m., 5 a.m., 7.12 a.m., 3 p.m. and 5.20 p.m.  
The finest signal on short-waves between 12.30 a.m. and 1.15 a.m. (Hallett).

**2R0-11** ..... 7220kc, 41.55m  
2.30 a.m. to 8.55 a.m. News, 5 a.m., 7.12 a.m. and 8.20 a.m.

**HVJ**, Vatican City ..... 15,120kc, 19.84m  
Talk on Wednesdays 1 a.m. to 1.15 a.m.

**HVJ**, Vatican City ..... 11,740kc, 25.55m  
Heard between 4 and 6 p.m. Wednesdays and Fridays, giving names of prisoners of war.  
Excellent strength (Gallasch, Cushen).

**HVJ**, Vatican City ..... 6190kc, 48.47m  
5.15 a.m. to 5.30 a.m. Talks.  
Early in October, heard on 5970kc. Now only heard on 6190kc (Cushen).

## Portugal:

**CSW-6**, Lisbon ..... 11,040kc, 27.17m  
Schedule: 3 a.m. to 7.30 a.m., except Sundays.

Still quite fair till 7 a.m. (Fitzgerald).

**CSW-7**, Lisbon ..... 9740kc, 30.8m  
Schedule: 7.40 to 9 a.m. Talks: On Wednesday, Friday and Sunday from 7.50 to 8 a.m.

**CS2WD**, Portugal ..... 6200kc, 48.38m  
Schedule: 6 to 9 a.m.  
Very faint and fades out by 6 o'clock.

## Rumania:

**Radio Bucharesti**, Bucharest ..... 9255kc, 32.41m  
5 a.m. to 8 a.m. News 6.50 a.m.  
Weak signal. Now closes at 8 a.m. (Nel-

**Yugo-Slavia** (now Nazi controlled):  
**YUC**, Belgrade ..... 9505kc, 31.56m  
 Broadcast in Russian at 2.25 p.m., 1.15 and 2.15 a.m.  
**YUB**, Belgrade ..... 6100kc, 49.18m  
 Heard almost every morning at 6.

**SCANDINAVIA**

**Denmark:**  
**Radio Denmark**, Copenhagen .... 9710kc, 30.9m  
 Very good strength at 3.30 p.m. (Cushen).

**Finland:**  
**OIE**, Lahti ..... 15,190kc, 19.75m  
 12.30 a.m. to 8 a.m. News at 4.30 a.m.  
 Female announcer heard at 7.  
**OFE**, Lahti ..... 11,780kc, 25.47m  
 Schedule: 12.30 a.m. to 8 a.m. News 4.30 a.m. 4 p.m. to 7.30 p.m.  
 R8 at 5 p.m. some days (Fitzgerald).

**OFD**, Lahti ..... 9500kc, 31.58m  
 Schedule: 12.30 a.m. to 8 a.m. News, 4.30 a.m.  
 R6 at 5 p.m. some days (Nelson). (O.K. at Randwick when **XEWW** closes.—Ed.)

**Norway:**  
**LKQ**, Oslo ..... 11,735kc, 25.57m  
 Schedule: 3.05 to 6 p.m.; 12.30 to 7.30 a.m.  
 Exercises at 3.10 p.m.  
 (Excellent afternoon signals, even heard in City.—Ed.)

**Sweden:**  
**SBT**, Stockholm ..... 15,150kc, 19.8m  
 Schedule: 6 p.m. Sundays to 7 a.m. Mondays. Daily: 3.56 a.m. to 7.15 a.m.  
**SBP**, Stockholm ..... 11,710kc, 25.63m  
 Schedule: 3.56 a.m. to 7.15 a.m. Opens again at 11 a.m. with News for U.S.A. 4.40 p.m. to 7 p.m. (Sundays 6 p.m. to 7 a.m. Mondays).

R7 opening at 5.58 p.m. on Sundays with English announcements (Nelson).  
**SBU**, Stockholm ..... 9535kc, 31.47m  
 Same programme as **SBO**, but weak.  
**SBO**, Stockholm ..... 6060kc, 49.46m  
 Schedule: 7.18 a.m. to 8 a.m. News, 7.20 a.m.

**MISCELLANEOUS**

**Arabia:**  
**ZNR**, Aden ..... 12,110kc, 24.76m  
 English call at 3 a.m., followed by News in French; 3.15 a.m., English call, News in Italian; 3.30 a.m., call in English, News in Somali; 3.45 a.m., call and sign off.  
 R4 and QSA3 at 3.45 a.m. (Hallett).

**Canada:**  
**CBFY**, Montreal ..... 11,705kc, 25.63m  
 Heard from 9.30 p.m. to midnight News 9.30 and 10 p.m.  
 Excellent when opening at 9.30 p.m. (Cushen). Heard R6-7 at 10.30 p.m., irregularly (Nelson). Heard in mornings around 8 (Gaden).

**CJRO**, Winnipeg ..... 6150kc, 48.78m  
 Heard till 3.30 p.m. on occasions (Cushen).  
**CKFX** ..... 6080kc, 49.34m  
 Fair, but interfered with at 5 p.m. (Cushen). (Interference is probably caused by **GRR**.—Ed.)

**CBFW**, Quebec ..... 6160kc, 48.70m  
 Heard opening in same programme as **CBFY** at 9.30 p.m. Good at 9.30 p.m. (Cushen).  
**CFRX**, Toronto ..... 6070kc, 49.42m  
 Opens at good strength at 8.45 p.m. (Cushen).

**Eire:**  
**Radio Eire**, Athlone ..... 9590kc, 31.27m  
 Can be heard on favourable days about 7.15 a.m., but they **must** be favourable.  
**Radio Eire**, Athlone ..... 15,120kc, 19.83m  
 Heard sometimes at 7 a.m., but very seldom.

**Iran:**  
**EQC**, Teheran ..... 9680kc, 30.98m  
 Schedule: 11.45 p.m. to 3.30 a.m. News 4.50 a.m.  
**EQB**, Teheran ..... 6155kc, 48.74m  
 Schedule: 4 a.m. to 6 a.m. (News 4.50 a.m.).  
 Man and woman announcers. Woman generally gives News. The Persian stations are of great interest now.—Ed.

**Turkey:**  
**TAQ**, Ankara ..... 15,195kc, 19.74m  
 Schedule: 8.30 p.m. to 10.30 p.m.  
 Listen for flute notes just before opening. R8 at 9.45 p.m. (Fitzgerald).

**TAP**, Ankara ..... 9465kc, 31.70m  
 Schedule is: 1.15 a.m. to 7 a.m. News at 5.15, and on Sundays English at 5.50. Excellent signals. Splendid dance records. R8 at 5.45 a.m. (Nelson, Cushen). Very good at 7 a.m. (Fitzgerald).

**Location Unknown:**

**Christian Peace Movement** ..... 9430kc, 31.84m  
 Heard singing hymns around 5.45 a.m.  
**European Revolutionary Station** ..... 9640kc, 31.12m  
 Heard from 7 to 7.20 a.m. and from 3 to 3.14 p.m.

**Radio Antoine** ..... 9750kc, 30.77m  
 (This station, which appears to be the same as **Unconnu**, is heard from 4 to 4.15 p.m., at good strength.—Ed.)

**WEST INDIES**

**Cuba:**  
 Havana unless otherwise mentioned  
**COGF**, Matanzas ..... 11,805kc, 25.41m  
 "Radio-Emisoras **CMGF** and **COGF**."  
 Schedule: Midnight to 2 p.m. occasionally. One you have to fish for (Dissinger, U.S.A.).  
**COCY** ..... 11,745kc, 25.54m  
 Closes at 4.15. (Note moved again.)  
**COK** ..... 11,620kc, 25.82m  
 Ministerio de Educacion, Direccion General Nacional de Deportes (National Sports Director). Schedule: 4 a.m. to 4 p.m. Best about 2 p.m.

**COCM**, Cadena Sauritos ..... 9810kc, 30.58m  
 9.30 to midnight.  
**COCH** ..... 9435kc, 31.82m  
 Signal strength both afternoon and night has dropped.  
**COBC** ..... 9360kc, 32.05m  
 R4-5 at 3.30 p.m. R7 at 10 p.m. (Nelson).  
**COCX** ..... 9270kc, 32.36m  
 Quite good on new wave-length some mornings (Nelson).  
**COBZ** ..... 9030kc, 33.32m  
 Opens at 10.45 p.m.

**Dominican Republic:**  
**H11N**, Trujillo ..... 12,480kc, 24.03m  
**H12G** ..... 9295kc, 32.28m  
 Schedule is 10.30 p.m. to 1.30 a.m.  
**H11J**, San Pedro Demacoris, 6025kc, 49.79m  
**H1G** ..... 6280kc  
**H13C**, Larumana ..... 6145kc, 84.82m  
 Fair from just after 10 p.m.

**Haiti:**  
**HBBM**, Port-au-Prince ..... 9660kc, 31.06m  
 Schedule: 10 p.m. to 11.30 p.m.; 3.30 a.m. to 5.30 a.m.; 6.30 a.m. to 12.30 p.m.  
 Heard opening at 10 p.m. with "Siboney" and until now confused it with **LRX** (Nelson). Heard at 10 p.m. but fades quickly (Cushen). (Best time is 10 p.m. to 11.30 p.m.—Ed.)

**Martinique:**  
**Radio Martinique**, Forte-de-France ..... 9705kc, 30.92m  
 Schedule: 8.30 a.m. to 11.30 a.m.

**SHORT-WAVES**

(Continued from page 31)

identify before noise made it impossible to hear anything.

It is very seldom I print anything without checking up, but I must confess that I accepted what I read as correct regarding **ZHP-4**, Singapore. As a matter of fact I should have known better as it is not unusual for a station to change their frequency even after tests that seem satisfactory. An alteration to call-sign is not unique, remember **XCDN - XGDN**? Hardly had the notes gone in than I was advised the Malayan station had decided on **ZHN-3**, and moved to 11,850kc, 25.32m. Call-sign can be heard about 11.33 p.m.

Often wonder why we do not hear more English from Batavia than the title of the records to be played or just played. However, **PMA**, on 15.48m, gives news in English at 10.45 p.m.

Mr. Nelson, of Cairns, is hearing a Jap on approximately 48.54m at 6.15 a.m. This is most likely **JLT**, 6190kc, 48.47m, which can be heard from 5 a.m. to 8.30 a.m.

**TAQ**, Ankara, 15,195kc, 19.74m, was in fine fettle on Sunday, November 30, in a description of a football match between the British Middle East Wanderers and the Turkish Military Academy. The commentator who was either an American or a Canadian, I

**COKG**, Santiago ..... 8920kc, 33.50m  
 Weak and only seldom heard at night.—Ed.  
**COCQ** ..... 8850kc, 33.9m  
 9.30 p.m. to midnight. Good signal on opening (Nelson). Now being heard in afternoons till closing at 4.15 p.m.

**COCO** ..... 8700kc, 34.48m  
 (Not listed in "Radio-Guia."—Ed.)  
**COCO** ..... 8700kc, 34.48m  
 Heard on a couple of nights in their advertising sessions. **CMCK** now appears to have an office in Chicago, Illinois (Nelson).

**COHI**, Santa Clara ..... 6455kc, 46.48m  
 Opens at 8.30 and is heard till 11.30 p.m. Ed.  
 Heard weakly some nights (Nelson).

**COCQ** ..... 6375kc, 47.06m  
 Schedule: 2 p.m. to 3.15 p.m.; 9.30 p.m. to midnight.  
 Heard weakly some nights (Nelson).

**COCW** ..... 6320kc, 47.47m  
 Very poor signal at night.

**Dominican Republic:**  
**H11N**, Trujillo ..... 12,480kc, 24.03m  
**H12G** ..... 9295kc, 32.28m  
 Schedule is 10.30 p.m. to 1.30 a.m.  
**H11J**, San Pedro Demacoris, 6025kc, 49.79m  
**H1G** ..... 6280kc  
**H13C**, Larumana ..... 6145kc, 84.82m  
 Fair from just after 10 p.m.

**Haiti:**  
**HBBM**, Port-au-Prince ..... 9660kc, 31.06m  
 Schedule: 10 p.m. to 11.30 p.m.; 3.30 a.m. to 5.30 a.m.; 6.30 a.m. to 12.30 p.m.  
 Heard opening at 10 p.m. with "Siboney" and until now confused it with **LRX** (Nelson). Heard at 10 p.m. but fades quickly (Cushen). (Best time is 10 p.m. to 11.30 p.m.—Ed.)

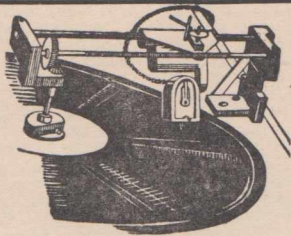
**Martinique:**  
**Radio Martinique**, Forte-de-France ..... 9705kc, 30.92m  
 Schedule: 8.30 a.m. to 11.30 a.m.

would think, referred to frost on the ground and the fact that it was slippery. One amusing incident happened when the ball landed in the President's box. He said he did not know whether it was the President or the British Ambassador who threw it back. At 10.40 p.m. the game was over, resulting in a win for the Wanderers by 5 to 2. A further game will be played next Sunday.

In November issue I mentioned where Sam Nelson, of Cairns, had reported **KZRB**, Manila. This is now more than of ordinary interest, as it transpires the mobile unit of the Far Eastern Broadcasting Corporation uses only 50 watts input from a Hallcrafters type HT-1 transmitter. The **N.Z. DX-TRA**, from which these notes are taken, goes on to say that the call letters have now been changed from **KZ-Relay** Broadcaster to **KZUM** (unit mobile). Reports are welcomed. The call-sign of the Russian on 11.74mc, 25.55m, is **RKF**, and the power 20 kws. (**N.Z. DX-TRA**).

Mr. D. L. Overheu, of Donnybrook, W.A., in an interesting letter tells me he has received three QSL cards from **XGRS**, Shanghai. The description of them suggests that any one would be a nice addition to an album.

This will be the last issue before Christmas, so here's wishing all readers of these pages a very Merry Christmas and a Happy and Prosperous New Year.

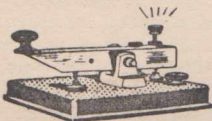


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NOW READY ..... 1/2 posted

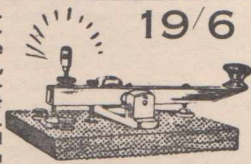
Also How to Build 1 and 2-Valve Battery Sets, 1/-. Now ready—All About Aerials, 1/-. Radio Dictionary, 1/-. Outline of Wireless, 1/-. 4-in-1 Metal and Bakelite Pocket Screw-driver Sets, 2/-.



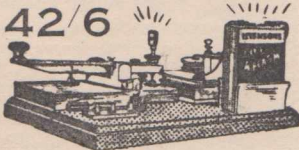
No. 1.—Adjustable Morse Code Key, with long or short taper arms, splendidly made and finished. Strong reliable.

heavy plated fittings mounted on bakelite moulded base, 12/6. P.M.G. Type Sounders 35/-.

No. 2.—P.M.G. Type adjustable Morse Code Key, strong and reliable; will last a lifetime. Heavy plated fittings on thick solid wooden base. Perfect action.



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No. 3.—Set comprising No. 2 Morse Code Key P.M.G. Type, with light. Professional De Luxe Buzzer Battery. Throw-over Switch for buzzer or light. Use as required. Mounted on baseboard. Complete.

The Superhet Manual, by Camm, 10/6. The Wireless Constructor's Encyclopaedia, by Camm. Nearly 400 pages. Cloth bound. Profusely illustrated. 7/6. Everyman's Wireless Book, by Camm. A splendid edition. 8/6. Wireless Terms Explained, by Decibel. 5/6. An Elementary Wireless Course for Beginners, by Reyner, 6/6. A most outstanding edition.

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Cosmocord Crystal Pickup  
British manufacture

List Price

84/-

Now 49/6

Special price to traders, lots of 6 or more.



COSMOCORD CRYSTAL TYPE BRITISH BUILT AND DESIGNED GRAMOPHONE PICK-UP DE LUXE, with volume control built in as illustrated, 59/6.

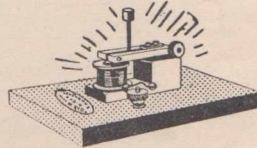
AMPLION British built Gramo-Radio Pick-up with volume control. Moulded bakelite tone arm. List Price 37/6 Now 32/6. Dealers write for wholesale price.

COLLARO Spring Gramophone Motor and Turntable, 27/6.

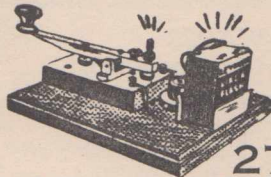


Reconditioned Hygrade 'phones, 15/-, 17/6, 20/-.

Headphones—13/6, 15/-, 17/6, 21/-, Ericsson's Professional 4,000-ohm 'phones, 47/6.

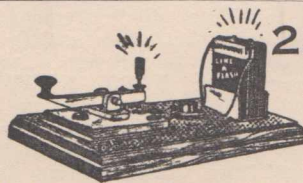


Highest-pitch Buzzer, finger-tip adjustment for professional or amateur use, 11/3.



27/6

No. 5.—Outfit comprises the P.M.G. No. 2 Morse Code Key, with adjustable buzzer and battery all mounted on a stained baseboard, ready for immediate operation. Battery included.



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No. 6.—A real good little outfit which incorporates the No. 1 adjustable Morse Code Key, in moulded bakelite base, with a smart little adjustable buzzer all complete to operate. Junior model, 13/6.

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The Book of Practical Radio, by Scott Taggart, 8/6.

The Wireless Service Manual, by "The Wireless World," 8/11.

The Australian Official Radio Service Manual, 12/6. Circuit book of all standard 1940 and 1941 receivers.

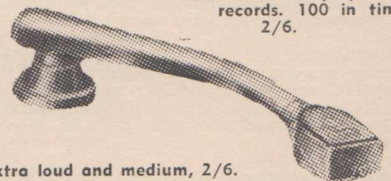
## MICROPHONES

Batteryless hand-holding type, 30/- Others, bench type, 15/-, 17/-, 21/-, 30/- and 45/-.



High-pitched "Stay Put" adjustable Tone Buzzer, 3/9. Adjustable Buzzers in Bakelite cases, 4/6, 5/6. Special price to traders. Write for lists.

Just arrived! British-made Gramophone Pickup Needles. Will play 10 records. 100 in tin, 2/6.



Extra loud and medium, 2/6.

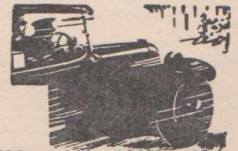
Collaro Highest Definition Pickup. New needle holder. Sturdy, compact, well made, with Volume Control. 50/-.



SET TESTING LEADS WITH SILK FLEX and METAL TIP ENDS. 3/9 value. NOW 2/6

Police Patrol Multi-Strand Rubber-covered Aerial. Needs no separate lead - in. 50ft., 3/3; 100ft., 6/6.

Man-o'-war Heavy Duty Insulated Aerial, multi-strand wires, 50ft., 6/6; 100ft., 13/-.





# SPEEDY QUERY SERVICE

Conducted under the personal supervision of A. G. HULL

**M.D. (Kingsford) asks about qualification examinations for servicemen.**

A.—There is nothing to stop you from starting up in business and operating without passing any examinations. You will, however, need a licence if you intend to do any alterations to power supply installations. For ordinary radio repair and service work no licence is required. To have qualifications, degrees after your name and all that sort of thing is helpful publicity, however, and we suggest that if you are so confident of your ability you should make a point of passing the I.R.E. Service Technicians' examination, which is to be held on February 7, as announced in last month's issue. For full details, apply to the General Secretary of the Institution of Radio Engineers at Box 3120, G.P.O., Sydney.

**W.L.K. (Ayr, Q.) enquires about the battery circuit contest.**

A.—Sorry, but you have missed the bus, as all entries had to be received by us on or before December 1. However, if you have a good article on battery sets which is likely to interest our readers, be sure to send it along. If approved by us we will be pleased to publish it and pay you for your trouble with a fee of a guinea or two.

**H.H. (Bondi) enquires about twin-speaker outfits.**

A.—It is a debatable point as to whether the single high-fidelity speaker would suit you better than two cheap speakers. If you get the big high-fidelity job you won't need the extra speaker to reinforce the highs. If you consider the big speaker as an investment you will not find it expensive, as it will last for years and always have considerable value as an asset. If you buy it you will not by any means throw your money away. If you are going to run the amplifier at a fairly high volume level for long periods you should find the single big speaker a more reliable proposition.

**C.N. (East Kew, Vic.) has a powerful receiver which gives much better tone on gramophone than on radio.**

A.—There is a chance that the distortion is being introduced in the detector circuit, but the extreme selectivity of the intermediate stage is the most likely cause of the trouble. We feel sure that you will find the article on variable selectivity of special interest for you and

we suggest that you make a point of changing over the i.f. plate connections in order to cut out the i.f. stage altogether and note results. If this step indicates that the selectivity is the trouble you can readily fit one of the variable selectivity intermediate transformers with switch. To suppress hfe line noise you should fit a pair of .1 mfd. condensers from each side of line to earth. A special unit in a tin can fitted with fuses is listed by Ducon for this purpose and your radio dealer should be able to get you one of these.

**B.C.B. (Dubbo) says he is having difficulty in getting parts for a crystal set.**

A.—We cannot understand why you should have this difficulty. Any of our advertisers should be in a position to supply you with the kit and also the necessary instructions. We know for a fact that Levenson's Radio are still handling crystal sets and putting them out in hundreds. They do a big business by mail order and should be able to fix you up without the slightest delay.

**P.A.M. (Waverley) enquires about valve equivalents.**

A.—Apart from the octal socket the 6C6 should be quite interchangeable with the 6J7G, and likewise the 6D6 should be O.K. for use in place of the 6U7G or 6K7G, even if the electrical characteristics are not exactly the same. A pair of 45 type triodes in parallel will give you the same performance as a single 2A3, in fact we suspect that some valve factories make a practice of putting a pair of 45 type elements in one glass envelope in order to make a 2A3.

**GENERAL.—It makes it easier for us if you keep your technical queries on one page and your short-wave reports or queries on a separate one.**

**F.H. (Casino) is having trouble with an accumulator.**

A.—We can only suggest you get some advice from a man who has had experience in this line, such as the local garage man. From the sound of it, the battery is in a bad way. It is never a good plan to allow the accumulator to run right down before re-charging. As soon as the battery drops low enough to spoil reception it is time to get it to the nearest charger.

**T.C. (Redfern) asks about a crystal set for taking away on a camping trip.**

A.—No, we don't think you would find the crystal set of much help. Even at night you would need to be awfully lucky to get even a single station. There is no saying just what

you will or won't get on a crystal set, especially if you can erect an efficient aerial and get hold of a good earth connection, but we would hesitate to advise you to be too optimistic. If you do go ahead with the scheme we would be most interested to hear how you get on. A photograph to illustrate the article would make it even more acceptable.

**G.A. (Coleraine, Vic.) writes to express disagreement with views expressed in last month's issue by Mr. Brown.**

A.—Of course, you are entitled to your own opinion, and we don't quite understand the reason for your letter. If you care to present a logical argument to express your opinion in a clear way, we will not have the slightest objection to publishing it, provided always that we feel that it will be suitable editorial matter and of interest to a large number of our readers. It is, however, of little use to print abusive generalities without a logical backing of proof or evidence. No hard feelings, of course.

**F.K. (Randwick) enquires about a two-valve circuit.**

A.—From your remarks we think that you are looking for the "Tiny Tim," which was described in our issue of May 10, 1939. This set used two 1.4-volt valves, with screen grid detector choke coupled to a pentode. It was built up in a small portable case and used by J. Ferrier, a prominent DX man in Victoria, to log 29 countries. Coil winding data was given in the article and we don't see that you could help but find sufficient data in this issue for your guidance. We have plenty of copies of this issue still in stock, price 6d. each, post free. We would think it would pay you to change over to 2-volt valves with this set, which could be done quite readily, improving results if anything. The main idea of the choke coupling was to get smooth regeneration control.

**J.H. (Brunswick, Vic.) wants details of a really powerful short-wave set with full coil-winding data.**

A.—The very set for you would be the big eight-valve job which was described in detail in the June and July issues for 1937. We still have these issues in stock at 6d. each, post free. The coil winding data is given in full and from reports we have received about this job there is no doubt about its performance, judged even by the latest standards.

**V.U. (Rockdale) enquires about building up a multimeter from a milliammeter which he has on hand.**

A.—Sorry, but we cannot help you unless you know the internal resistance of the meter. If this is not marked on the meter you may be able to get the resistance by writing to the maker, enclosing a stamped envelope for the reply. Once you have the internal resistance the rest is easy. A full article on the design of shunts and series resistors was given in the article in the issue of August, 1940.

Unobtainable in most places, but we can supply new 1A7GT, 1A5GT, 1P5GT, 2A3, 6A3, 6L7, 6L6, 6N7, 6F6, EK2P valves and dozens of other types.

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**DENHAMS RADIO SERVICE**  
Queensland's Premier Radio Distributors  
Box 145, P.O.  
MARYBOROUGH - - QUEENSLAND

## QUERIES (Continued)

**C.R.N. (City)** takes us to task for not publishing more club news.

A.—So far as we are aware, the radio clubs are having a rather quiet time of it at present. We have space available for interesting club news, but it must be many months since any publicity men from clubs offered us any news for publication. One of the essentials of any live club is a good publicity man. We can assure you that appointed publicity officers will receive every courtesy from us.

\* \* \*

**G.H.B. (North Queensland)** wants more articles on sets for use with d.c. power mains.

A.—Yes, there may be something in what you say about our neglect of this field. So far as we can trace, the best of the sets of the type you want was the a.c./d.c. model which appeared in the October, 1937, issue. This was a completely satisfactory set for use with d.c. mains. If you haven't got a copy of this issue on hand you can get one from our Back Dates department for 6d., post free.

\* \* \*

**D.M. (Parkes)** tells of a 100-watt amplifier which he uses for outdoor public address work, about which he says, "To hear this job on music at about 10 or 15 watts is something you would actually have to hear to realise."

A.—Will write you a personal letter as soon as circumstances permit. In the meantime, would much appreciate the suggested details of the big amplifier, as we feel sure they would be of great interest to many of our readers.

\* \* \*

**R.S.G. (Killara)** sends in a suggested circuit which he has designed. He is just 15 years of age and keen on radio technical subjects.

A.—The circuit is O.K. as far as it goes and is certainly something for you to have worked out at your age. In practice, however, it is found that high gain is not everything. There is no advantage in having extreme gain, and it is much better to have useful gain with low noise level. With regard to the r.f. stage it is not worth considering more than two stages; in fact, quite a few manufacturers now jib at putting in even one. A single i.f. stage will give you as much gain as can be comfortably used. In the audio end you will find that a single stage is ample with a sensitive pentode. Too much audio gain simply means hum trouble, distortion and instability. Generally speaking, the further you go and the more you see of modern radio circuits, the more you appreciate what a clever lot of guys have worked on the subject for the past twenty years, making it mighty hard to make any startling improvements.

For those hard-to-obtain odd type Valves, Transformers, Dial Glasses, Condensers, etc., both new and used, write to Queensland's Premier Distributors—

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## BACK NUMBERS

### SPECIAL CHRISTMAS OFFER

We have a limited number of sets of the 12 issues dated from August, 1940, to July, 1941, inclusive. These issues contain a wealth of technical data and will provide hours of interesting reading matter.

**Price 5/- the dozen**

Post free to any part of Australasia

Address orders—

**Australasian Radio World, 117 Reservoir Street, Sydney.**

**T.G. (Maylands)** wants a circuit to suit the valves he has on hand.

A.—Sorry, but we don't happen to have any circuit on hand that would fill the bill, as your valve types are quite a mixture. The 24A would not be recommended for use as an intermediate amplifier, and it would not be good practice to use an audio transformer after the 2A6. All back numbers are 6d. each, post free.

**R.C. (Crows Nest)** again brings up the question of why we do not publish valve socket connections when describing a circuit.

A.—It is our contention that the valve socket connections are clearly shown in the picture diagram of the wiring which is given with nearly every circuit description. These diagrams show the socket pins and also indicate the correct direction in which they should face to ensure the most efficient wiring. Even experts find it is often more convenient to work from these picture diagrams, keeping an eye on the schematic as well, in case of difficulties.

\* \* \*

## NEW ZEALANDERS

In order to subscribe direct to "Australasian Radio World" it is necessary to make application for a sanction for the necessary money order.

This matter is easily fixed up by obtaining an application form at any money order office, filling it in, and handing back at that office.

Usually within a week the necessary sanction is granted and the money order for the 10/6 is then issued in the ordinary way.

Subscribers should note that, although we have to pay extra postage, we do NOT make any extra charge to New Zealand subscribers.

**J.D.C. (Grafton)** enquires about the re-winding of a Ferranti radio transformer.

A.—Frankly, we doubt whether the trouble is really due to a breakdown in the primary as you suggest. This trouble is seldom encountered in these transformers. However, if you are quite sure, you could start to dismantle the job and then check the continuity of each bobbin. As the transformer is divided into bobbins you will only need to re-wind the one where the trouble is located. Having found it, you can unwind until the break is discovered and make a repair with solder, and then re-wind. The whole job is the last one in the world which we would recommend in the ordinary run, but apparently you appreciate what you are up against. Good luck!

**C.N.H. (Prospect, S.A.)** wants a circuit for a single-valver tuner to go ahead of an amplifier. At present he is using a crystal detector and getting reasonable satisfaction apart from the inconvenience.

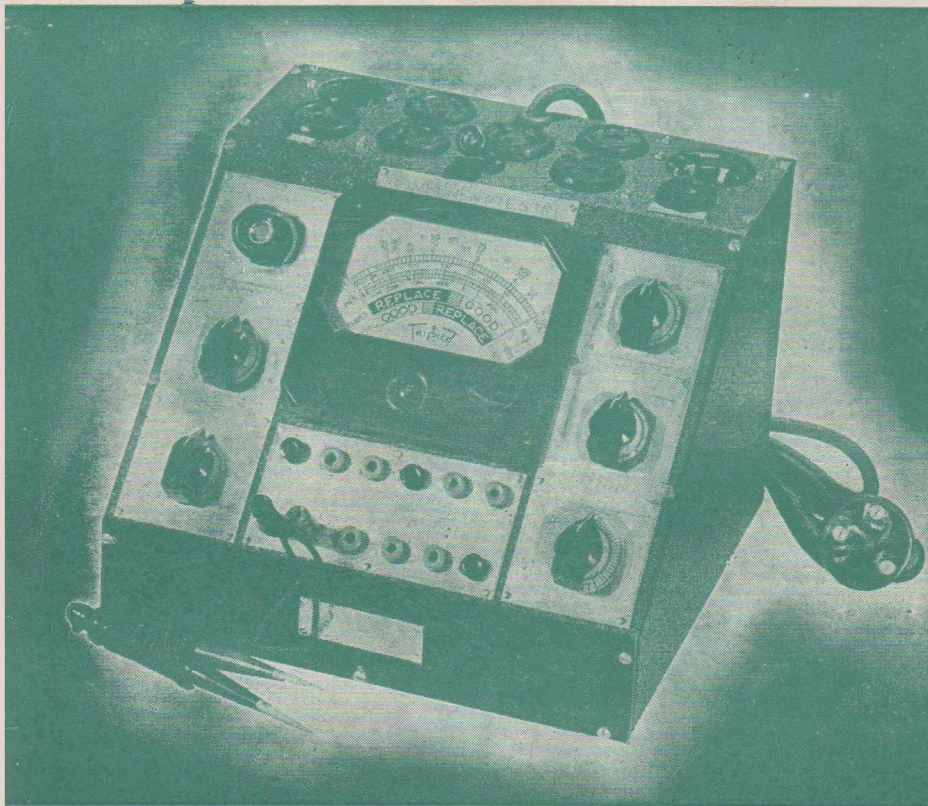
A.—Sorry, but we can't dig you up a back number with a circuit of a suitable detector only. We suggest that the best plan is to use a converter valve and a single i.f. transformer, as in the "My Own" circuit in this issue. The difficulty is that it does not provide detection. Good quality in the detector is hard to obtain at low signal levels and it would be best for you to have a converter of this kind to give you some gain, and then convert one of your audio stages into a plain diode detector, then using only two stages of audio amplification. Such an arrangement should have considerably less hum and distortion than an arrangement to give you a detector and then high audio gain.

\* \* \*

**G.A.O. (Elphinstone, Vic.)** enquires as to the meaning of the term "5 microvolts of sensitivity," and asks how it is calculated.

A.—The term refers to the signal voltage necessary from a signal generator, which when fed into the set through a standard dummy antenna will give an audio output from the set of 50 milliwatts or some other pre-arranged standard amount of output. Roughly it should also hold good that a set which has a sensitivity of 5 microvolts could be expected to give an output of about 50 milliwatts from a normal signal of 5 microvolts picked up in the ordinary way. In practice the sensitivity check is comparatively rough as it is found that there is a definite limit to the amount of sensitivity which can be effective under ordinary listening conditions and the ratio between noise and signal at a fairly sensitive setting of the volume control becomes the important factor.

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## THE Delta MODEL D1506 Component Tester

### PROVIDES TESTS FOR —

- The quality (emission) of valves.
- Shorts and leakages between valve elements.
- The efficiency of electrolytic condensers.
- The condition of electrolytic condensers.
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- Resistance tests from 5 ohms to 5 megohms.
- The condition of dry batteries by voltage test.
- Pilot lamp tests.

★ Meet the Delta component tester — Model D1506 . . . The best investments for any serviceman these days — an investment that's certain to bring big returns in increased profits.

Glance to the panel above and see the tests the D1506 will do. With this versatile instrument the serviceman can make all the tests enumerated — and make them to a high degree of accuracy.

The D1506 is extremely simple to operate and will quickly pay for itself in new business.

The D1506 is equipped with three-core connecting cable and plug for connection to A.C. 200/260v. 50-cycle mains. External power is required for all tests other than battery volts, high and low ohms. PRICE, £14/10/-.

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As principal of the Australian Radio College, the leading institution of its kind in the Southern Hemisphere, I can and will take you in hand, guide you, train you, and personally assist you to become a skilled radio engineer. Will you give me the privilege of showing just how rapidly and successfully I can put you on the right track?

To Mr. L. B. GRAHAM, Principal, Australian Radio College Pty. Ltd., Broadway, Sydney.

Dear Sir,

I am interested in getting into the Radio and Communications industry. Please send me, without obligation on my part, the free book, "Careers in Radio."

NAME .....

ADDRESS .....

A.R.W.16

*L. B. Graham.*

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