

THE
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JULY 15 1942

Special Features



**Interesting Circuit Suggestions
for Radio Experimenters and
Amplifier Enthusiasts.**



**What a Radioman should know
about small Screws and Screw-
Threads.**



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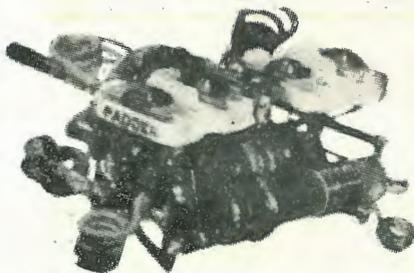
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No. 2

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EDITORIAL

In times like these we are prepared to bear our extra burdens with a smile. But we feel sure our readers will join with us in raising a bit of a squeal about the new law which insists on extra licence fee if more than one radio set is installed in the home.

If the money were to be used for a good purpose, we might feel better about it, but all of us know only too well of the way in which the A.B.C. has insisted on maintaining their worthless "A.B.C. Weekly", which drags nearly £1,000 a week from the licence revenue, is not read by three per cent of the listeners, and cannot even be considered as good publicity for the A.B.C. or its programmes.

We feel sure that the A.B.C. would be making a far wiser move if they abandoned the "A.B.C. Weekly", even if they have to square off with Editor Deamer by paying out his contracted salary (and what a salary, too!).

The money saved would be ample to allow the Commission to carry on with its efforts to provide programmes without this extraordinary licence fee, which can only have a negative effect on the popularity of broadcasting.

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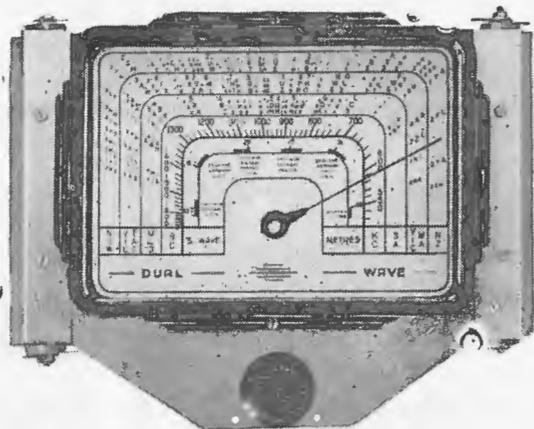
When two I.F.'s
are used:
IF162 1st .. 13/9
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The new R.C.S. permeability tuned I.F.'s are wound on special Trolitul formers into which are inserted the adjustable, iron cores. These R.C.S. permeability-tuned I.F.'s are the most dependable and efficient I.F.'s it is possible to produce. They should be used whenever the optimum in results is required.

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IF167 2nd .. 7/6	



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E343 R.F.	6/6
E344 Osc.	6/6

PERM. TUNED "H" GANG

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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



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Cat. No.	Retail Price
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TB5 Push-pull "A" Class, bakelite case	21/-
TB6 Input "B" Class, bakelite case	18/6
TB35 "A" Class High Fidelity, steel case	67/7
TB36 "B" Class Input High Fidelity, steel case	67/6
TB37 "AB" Class, bakelite	28/6



TB6—"B" Class

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What a Radio Man Should Know ABOUT SCREWS and SCREW-THREADS

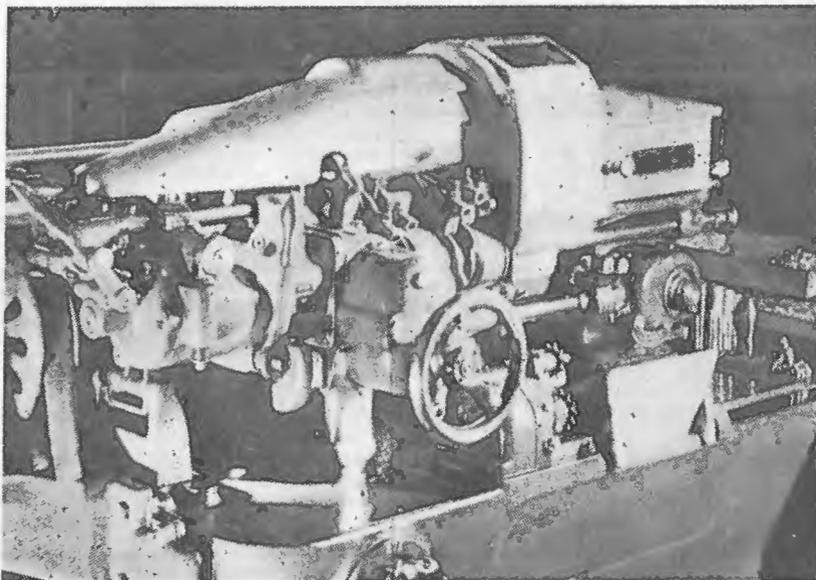
IN these days of high-pressure learning it is seldom possible for any one man to be a specialist in several different trades or professions. It is not surprising, therefore, to find that the average radioman is hopelessly at sea when he comes across a screw which is not an ordinary "radio screw". The idea was deeply impressed on me the other day when I happened to hear a well-known radio technician enquire whether the "BA" threads indicated on an English blueprint were an abbreviation for a well-known term which might infer that the screws were, well, let us be polite and say—orphans.

Infinite Variety

Actually there is an infinite variety of different screws and screw-threads, and what is commonplace to one trade may be a curiosity to another. On this page we have drawn up a list of most of the small screws likely to be encountered in radio work, varying in size from one-sixteenth of an inch to a quarter. To explain this list let us run over the abbreviations used on the chart. Along the top we have, first, the diameter of the outside of the thread. In other words, this indicates the size you should read when putting a micrometer across the threaded portion. In many cases it will be found that this size is not strictly adhered to, many screw manufacturers preferring to make screws about three to five thousandths of an inch undersize in order to allow a freer fit.

In the next column we show the same diameter, but this time in millimetres.

Then, under the heading of "Threads", we give the number of threads per inch. Thread gauges are available which will give an indication of the number of threads per inch, but you can also check up on this by holding a ruler alongside the screw and counting the threads, or by screwing the screw into a nut a certain number of turns, and then noting how far the head has moved towards the nut.



An "Index" automatic lathe, as used in A.W.A. factory to manufacture small screws

Next column indicates the angle of the faces of the threads, which will be easily understood on reference to fig. 1, which is a sketch of a cross section of a screw thread.

In the last column we give a rough idea of the correct drill for use when making a nut, or tapping a hole to take a screw. However, this column should be treated with a certain amount of caution, as various types of metals need different sized holes before tapping, and other factors have to be considered.

Standard Types

Of all screw threads the best known is the British Standard Whitworth, shown on our list as "Wh.", but often enough indicated just with a plain "W." I can't tell you the whole history of this famous thread, but it dates way back down the centuries, and is the same now as then. It is the standard thread for the one-

eighth inch "radio screw" previously referred to. Whitworth threads are a bit on the coarse side, however, especially in the larger sizes.

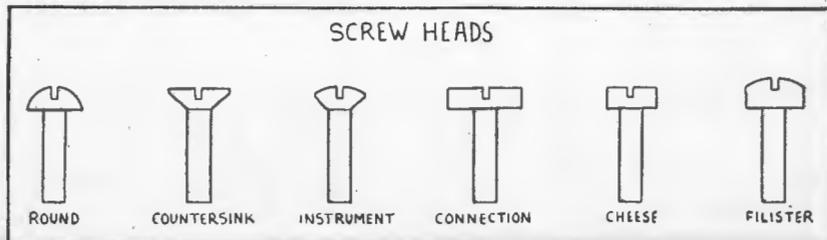
Students of design tell us that the Whitworth thread is too coarse to be efficient. Finer threads have greater strength, other things being equal, and theoretically, the British Association threads, shown on our list as "B.A." have many advantages. These "BA" threads are based on metric sizes, and are indicated by numbers rather than sizes, and the sizes do not have any close relation to inches, even the number of threads per inch being odd, again due to the metric influence.

The Americans

Likely to be encountered in radio products from the United States are the National threads, National Fine and National Coarse. We show these as "NF" and "NC", and it is well to remember that these two types are now replacing the "S.A.E." and "U.S.S." types respectively.

In case you have doubts about our term when we say replacing, we mean that the "S.A.E." and "A.S.M.E." range of screws are now known as "NF", although there has been no change in the screws or their threads, it being purely a matter of title.

(Continued on next page)

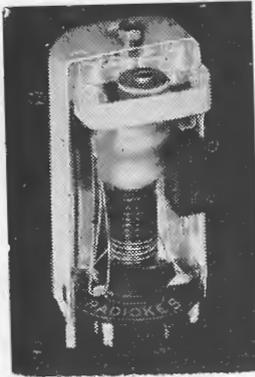


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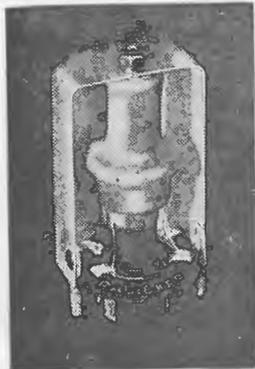


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SCREWS (Continued)

Other Threads

There are many other types of screws and threads. For example, there is a complete range of metric threads, including System International, French Standard and Lowen-hertz. These do not concern us greatly, although they may be encountered in pick-ups and motors of European origin. System International may also come to popularity in the future, it being rumoured that it may be adopted as standard by American aircraft manufacturers.

The "Brass" thread is an interesting one, as no matter what size the diameter, the number of threads remains standard at 26 to the inch. In radio work these threads are encountered on potentiometer and other shaft mounting lock nuts. Usually these are either five-sixteenths or three-eighths of an inch in diameter, always with 26 threads to the inch. Another thread not to be overlooked, although not popular in the

radio trade, is the "B.S.F." The initials stand for British Standard Fine, and offer a full explanation. In the "B.S.F." range, about the only two sizes likely to be encountered are the three-sixteenth, which has 32 threads to the inch and the quarter inch, which has 26.

Rolled Threads

There is a tricky little point about screw threads which is likely to catch the novice. This is the matter of rolled threads. Normally we consider a thread as being cut into the original bar. For example, a three-sixteenth screw is made by turning down a suitable piece of bar until the shank portion is a three-sixteenth in diameter. Then the thread is cut into this shank. However, it is possible to make screws by rolling the thread. A suitable tool ploughs into the shank and rolls up a portion of the metal. The finished thread is similar to a cut thread, but is not so strong. The process is popular because of its cheapness, and many of the screws used in radio work are of this type.

SMALL SCREWS.

Type	Diam.	M/m	Threads	Angle	TapDrill
1/16 Wh.	.062	1.5	60	55	No. 56
10 BA	.066	1.7	72	47½	55
NF 1	.073	1.8	72	60	53
NC 1	.073	1.8	64	60	53
9 BA	.074	1.9		47½	1.5 mm
8 BA	.086	2.2	59	47½	51
NF 2	.086	2.2	64	60	50
NC 2	.086	2.2	56	60	50
3/32 Wh.	.093	2.3	48	55	49
7 BA	.098	2.5	52.9	47½	48
NF 3	.099	2.5	56	60	45
NC 3	.099	2.5	48	60	47
6 BA	.11	2.8	48	47½	44
NF 4	.112	2.8	48	60	42
NC 4	.112	2.8	40	60	43
1/8 Wh.	.125	3.1	40	55	40
NF 5	.125	3.1	44	60	37
NC 5	.125	3.1	40	60	38
5 BA	.126	3.2	43.1	47½	40
NF 6	.138	3.5	40	60	33
NC 6	.138	3.5	32	60	36
4 BA	.141	3.6	38.5	47½	34
5/32 Wh.	.156	3.9	32	55	31
3 BA	.161	4.1	34.8	47½	30
NF 8	.164	4.1	36	60	29
NC 8	.164	4.1	32	60	29
2 BA	.185	4.7	31.3	47½	26
3/16 Wh.	.187	4.7	24	55	28
NF 10	.190	4.8	32	60	21
NC 10	.190	4.8	24	60	25
1 BA	.208	5.3	28.2	47½	19
NF 12	.216	5.4	28	60	14
NC 12	.216	5.4	24	60	16
0 BA	.236	6	25.4	47½	12
1/4 Wh.	.250	6.3	20	55	10

SELF and MUTUAL INDUCTANCE EXPLAINED

Inductance, self induction and mutual induction are all explained in this article—the fourth of a special series for beginners.

LAST month it was stated that if a current is passed through a straight wire, a magnetic field is set up surrounding it, which can be greatly strengthened by winding the wire in the form of a coil.

If direct current is used, the lines of force surrounding the coil build up when contact is made and remain steady until the circuit is broken, when they collapse and disappear. If alternating current is employed, the field builds up and collapses twice for every complete cycle, because the current grows to a maximum and diminishes to zero twice every cycle.

The Meaning of Inductance

Now this magnetic field does not appear or disappear instantaneously.

There is a kind of electrical inertia which the field has to overcome before it is established, or if it is established, before it can disappear. This inertia is termed the inductance of the circuit.

Induced Counter E.M.F.

It is developed in this way. When the current through a coil is rising from zero to maximum, as it would if a battery connected in series with the coil were switched on (or during the first half of an alteration in the case of a.c.) the magnetic lines of force around the coil are expanding outwards. In so doing they cut the turns of wire comprising the coil, and the result is that they induce in the coil itself a counter electro-motive force that bucks, or opposes, the e.m.f. establishing the field.

When the circuit is broken (or when the second half of an alternation is taking place, in the case of a.c.) the lines of force collapse. In so doing they again cut the turns of the coil, but in the opposite direction, and so an e.m.f. of opposite sign is induced in the coil, this time tending to prevent the original e.m.f. from falling to zero.

Thus, whether the current (or e.m.f.) applied to an inductance is on or off, there is always present a force that tends to oppose any change in the current (or e.m.f.).

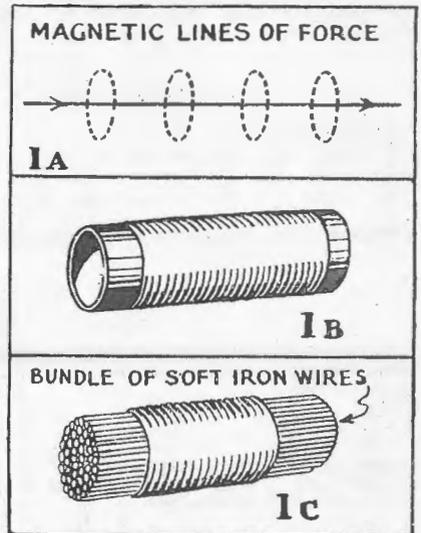
More Turns Mean Higher Inductance

The greater the number of turns on the coil, i.e., the higher the inductance, the greater is this magneto-motive force, as it is called.

The force varies with the number of turns, the size of the coil, and the current. A high current flowing through a few turns can give the same magnetising effect as a low current flowing through a great many turns. If six amperes flow through six turns the magnetising effect is 36 ampere-turns. If one ampere flows through 36 turns, the magnetising effect is the same.

A Fly-wheel Analogy

A useful analogy which will help beginners to understand the meaning of inductance is the fly-wheel. Just as inductance resists the action of an applied e.m.f. in setting up a magnetic field, so the inertia of a fly-wheel hinders the force that is applied to set it in motion.



A straight wire (fig. 1 (a)), has inductance but only a very small amount. It can be greatly increased by winding the wire in the form of a coil (fig. 1 (b)), and still further by providing the coil with an iron core (fig. 1 (c)).

Also, just as the effect of inductance is to delay the decay of an e.m.f. after the circuit has been broken, so the energy stored up in a fly-wheel in motion tends to keep it going when an effort is made to stop it.

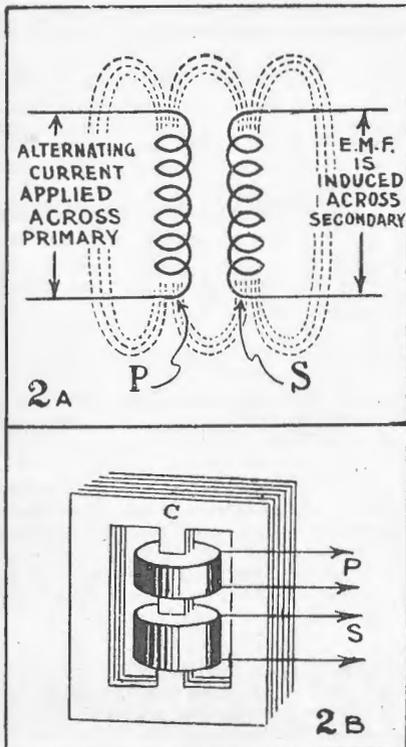
Self and Mutual Induction

There are two kinds in induction—self and mutual induction. Self-induction, which has been explained above, can be defined as that electro-magnetic property of a circuit by virtue of which an e.m.f. is induced in the circuit itself whenever the current is changing.

Mutual induction is a similar effect that occurs when two coils are in proximity to one another, and a current is passed through one of them. When this happens, an e.m.f. is induced in the second coil by the magnetic field set up by the first. As with self-induction, mutual induction occurs only when a conductor (in this case, a second coil) is cut by lines of force passing through it from the original, or primary, winding.

If two coils were close together and direct current was passed through one of them, there would only be a momentary e.m.f. induced in the second winding as the lines of force from the primary cut through it when the circuit was made.

(Continued on next page)



The principle of mutual induction is illustrated in fig. 2 (a), which shows how a magnetic field set up by the primary winding "P" cuts the nearby secondary "S," inducing in it an e.m.f. of magnitude governed largely by the relative number of turns on "S" compared with "P," and on the proximity of the two windings. Fig 2 (b) is a sketch of an ordinary audio transformer. The core is made up of a number of soft iron laminations clamped tightly together.

INDUCTANCE

(Continued from page 7)

Afterwards, so long as the primary current remained steady, there would be no induced voltage developed across the secondary, because the primary magnetic field would be constant. This explains why transformers will not work on direct current.

Iron Core Increases Inductance

The intensity of the magnetic lines of force (i.e., of the magnetic flux) can be greatly increased by providing the coil with an iron core.

Iron, and certain alloys, have high magnetic permeabilities compared with air, which means that they provide a much easier path for the lines

of force. Because of this, an iron core within a coil will greatly increase the intensity of the magnetic field, because the core offers the lines of force a much easier path for them than the air. Hence they become concentrated in the core.

It follows that to obtain a coil of given inductance, far less turns are required if an iron core can be used.

Unit of Inductance

The unit of inductance, which is usually designated in formulas by the symbol "L," is the henry. It can be defined as the inductance present if the current flowing in a circuit changes by 1 ampere when a potential difference of 1 volt is applied for 1 second.

In radio work, the henry is a suitable unit to use for specifying the inductance of iron-cored components such as smoothing chokes and audio chokes. It is, however, far too large for other purposes, such as for giving the inductance of r.f. coils or r.f. chokes, and so the milli-henry (one-thousandth of a henry) or micro-henry (one-millionth of a henry) is used instead.

As typical examples, an ordinary filter choke for "B+" smoothing purposes has an inductance in the neighbourhood of 30 henries, while the secondary winding of a tuning coil to cover the broadcast band has an inductance of about 300 micro-henries.

Inductances in Series and Parallel

Coils can be connected in series, parallel, or series-parallel, and providing their fields do not inter-link, the resultant inductance is calculated in exactly the same way as it would be for resistances similarly connected, with, of course, the proper inductance values substituted for resistance values.

Thus, the total inductance "L" of two coils connected in series, having inductance values of "L1" and "L2," is given by the formula:—

$$L = L_1 + L_2$$

If the coils were connected in parallel, the value of "L" would be given by

$$\frac{1}{L} = \frac{1}{L_1} + \frac{1}{L_2}$$

Inductive Reactance

We have seen how a coil offers a resistance (more correctly termed impedance or reactance) to alternating currents that is far in excess of the D.C. resistance of the wire comprising the coil.

A further very important fact is that a coil with a fixed amount of inductance will retard the flow of a high frequency alternating current to a far greater extent than it will a low frequency alternating current. Thus, the retarding effect depends on both the inductance and the frequency of the alternating current applied.

This combined effect is termed reactance, or inductive reactance. The inductive reactance formula is:

$$XL = 2\pi fL$$

Where XL is the inductive reactance in ohms, π is 3.1416 f is the frequency in cycles per second, and L is the inductance in henries.

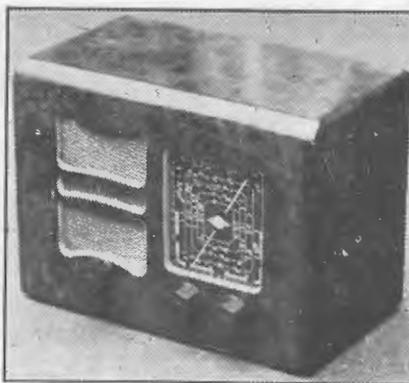
Some Practical Examples

As an example, take a smoothing choke rated at 20 henries. It might have a D.C. resistance of 250 ohms, but this is negligible compared with its impedance to 50-cycle A.C., which, from the above formula, is equal to:

(Continued on page 26)

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MODERN SET BUILDING METHODS

Useful Hints for Novices and Experts

IN this article an endeavour has been made to set out all information which experience has shown to be most helpful to the home constructor concisely and in such a manner that information on any problem which may arise may be located and pursued with a minimum of delay. Roughly, the subject is covered under three headings. First, details of actual construction; next, comments on various components; and finally, how to adjust the completed receiver.

If you are a newcomer to radio it will be worth your while to read these notes through several times. Even "oldtimers" at the game will lose nothing by refreshing their memory and bringing their knowledge up to date. To the newcomer who contemplates taking up radio construction as a hobby, and a very fascinating and instructive hobby it is, the best possible advice is to begin with something small and fairly simple. A small battery set for preference since this does not require a power-rack nor present any difficulties in the way of eliminating power noise. Do not attempt to use old parts along with new ones. In any case, older parts are usually unsuitable for mounting in the modern chassis or will not work satisfactorily under the present day method of compact layout. A sound plan is to buy your components as a complete kit-set. The best of sets can be utterly spoiled by the inclusion of one dud or unsuitable part. Pence saved thus is poor economy.

General Construction

The following pointers apply to all sets, large or small, electric or battery.

(1) Study the circuit and wiring diagrams thoroughly and make sure you have all the necessary parts on hand before beginning to build. It is annoying to be held up in the middle of the job because something has been overlooked. Don't attempt to use condensers or resistors of different values to those specified. The chap who designed the circuit probably tried many different values before using that specified.

(2) Start construction by mounting all valve sockets. See that these are correctly placed for most convenient wiring. Usually sockets are all placed with the heater, or filament terminals, facing towards the back of the chassis. When a wiring diagram is supplied study it thoroughly.

(3) Now put in the heater, or fila-

ment wiring. In some Short Wave sets where separate Earth wiring is used this also can be put in. In battery sets one side of the filament may be earthed to the nearest socket mounting bolt, the other sides being linked together by a single wire. In connecting the heaters (filaments) in electric sets two wires twisted together must be used.

(4) Mount all components, coils, gang condenser, transformer, etc. Mount "above chassis" components first. See that sufficient room is left at the front to mount the dial. (And speaker, if this is also to be mounted on the chassis.) See that the gang is mounted at exact right angles to the front of the chassis and the height uniformly adjusted so that no undue strain will be placed on the dial mechanism. Incidentally, the dial should not be mounted now. This

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should be one of the last jobs done on the completed receiver.

It may be necessary to wait until part of the wiring is completed before such under-chassis components as volume and tone controls are mounted.

Handle coils, IF's, etc., with reasonable care. It is also a sound plan to check over the leads of such components for continuity before mounting. The writer has come across several instances where these have been incorrectly marked or coded. It may save time in the long run to make sure.

See that all components are firmly bolted down. Many an annoying set noise has been traced to a loose shield can.

(5) Proceed with the wiring, closely following the wiring diagram and marking off on it each wire with coloured pencil as it is put in place. As a further check do the same with the circuit diagram also. Keep all grid and plate leads short, direct, and away from each other as far as possible. Where such leads must cross see that they do so at right angles. All Earth leads should be as short and direct as possible. It is a good plan to earth each section of the gang con-

denser directly back to its respective coil earth terminal. Keep all leads carrying voltage close to the chassis and those carrying radio frequencies up off it. Keep the aerial lead as much away from the rest of the wiring as possible.

Resistors, condensers, and other small parts are usually suspended by their own bare wire pigtailed. See that there is no risk of these coming in contact with other nearby wiring causing a short circuit which may prove disastrous to the set. If there is, slip on short pieces of spaghetti before mounting.

Smaller Sets

In building some of the smaller sets occasionally components will be met with which use screw-down terminals instead of the usual solder lug. Slip lugs under these and screw down firmly. If no lugs are available make a small loop in your wire and slip this under the head in such a way that the screwing action will cause the loop to close tightly round the bolt. If put on the wrong way this action would cause the loop to open out and come off. A final word on terminals. Screw up as tightly as you can by hand and then give two or three extra turns with the pliers. More turns will not improve the joint and may result in breaking the terminal screw right off.

(6) A word about mounting by-pass condensers and RF chokes. Connect these as close as possible to the point to be filtered. This is particularly important with the leads coming out of shield cans, coil boxes, etc. Connect right up against the shield. Tubular non-inductive by-pass condensers, semi-wet electrolytics, and wet electrolytic condensers all have a definite polarity which must be observed. Tubular by-pass condensers have the negative indicated by a black or coloured band. This end should be connected to earth or to the lowest earth potential. Wrong connection will not damage them. The same system of marking is used on semi-wet electrolytics, but these will be ruined if connected the wrong way round, as would also wet electrolytics. In addition the wet type must not be used in any but an upright position. To do otherwise will damage them and probably the set also. In the wet type the can is the negative terminal and should be firmly locked to the chassis by the locking nut supplied. In some circuits it is necessary to insulate the condenser from the chassis and for this purpose two fibre and one metal washers are usually supplied. In most cases, however, these will be discarded. The solder lug on the bottom

SET BUILDING

(Continued from previous page)

of the condenser is, of course, the positive.

Unlike the previously mentioned types, small mica condensers have no polarity and may be connected either way. Do not mount them flat against the metal chassis, however, since this would alter their capacity. Keep them up at least 1/4-inch from the metal, or if this is not possible, mount them edgewise to it.

(7) As a final point in these general instructions, before going on to detailed comments on particular components, mention must be made of shielded leads. Where an audio volume control is used with a diode second detector leads from it to the control should be shielded by metal braid earthed to the chassis at both ends. The same procedure should be followed with any lead likely to cause unwanted feedback, but in general grid and plate leads should not be shielded unless thus made necessary.

IMPORTANT COMPONENTS

Coils and Coil Units

The coils and associate tuning condensers are the heart of the set. For fine performance buy the best you can afford. Do not attempt to use coils of different makes or different type numbers together; they will not "track". See that you use the type and make of gang condenser for which the coils were designed, otherwise they may not cover the entire band. For Broadcast work iron-core Aerial and R.F. coils will give considerably more gain than air core types,

but in superhets nothing is gained by using an iron core in the Oscillator coil so the ordinary air-core type is used.

Where the constructor is building a Dual-wave or All-Wave set one of the many good complete tuning units on the market is strongly advised. Not only is much delicate and, for the amateur, very difficult wiring avoided, but also these units are already aligned at the factory with a degree of accuracy impossible to obtain without the use of costly instruments not usually available to the home constructor. This consideration in itself is well worth the extra cost of these unit.

The method of mounting these units differs with the different types and makes, but points to remember are: (1) See that it is so placed that the leads from it can be as short as possible in reaching their respective points of contact. (2) See that the unit is rigidly mounted in the chassis and that this mounting, or other additional means, provides good electrical earth connection between the unit and the chassis. (3) See that the coil trimmers are easily accessible should it be necessary later to make any adjustments. (4) When mounting is complete test the wave switch and see that it still turns freely.

Intermediate Frequency Transformers

IFs, like coils, can be had either in iron-core or air-core types. Though iron-core have much greater gain their use depends to a large extent on the circuit and valves used. Where a high gain 1st Detector is used, or where two or more stages of IF are contemplated, the first IF transformer

should be of relatively low gain, a high gain iron-core type being used to feed the 2nd Detector. Where a Pentagrid valve such as 6A7, or 1C6 in battery sets, is used the first IF may be a high gain iron-core, followed by a second iron-core feeding the 2nd Det.

In mounting IFs they must be rigidly bolted to the chassis and so placed that all leads can be as short as possible. Also see that the trimmers are readily accessible for later adjustment. Leads from IFs should on no account cross each other and should not be bent into fancy shapes. Keep them straight and direct. Remember it is in the IF stages where most superhet troubles originate. A limiting resistor of approximately 300 ohms should be connected in the cathode leads of all IF valves. By-pass condensers should be connected direct to the cathode terminal of the valve socket. Where an Intermediate or RF gain control is incorporated the resistors will connect between the volume control and the cathode, and where audio control is used they will connect between the cathode and earth.

As a final word on IFs, it is hardly necessary to point out that all IF transformers must be of the same frequency and that this must be the one for which the Oscillator coil and padder condenser have been designed.

Padders

Padders are small semi-fixed condensers designed to cover a particular frequency range and used to make the coils and condenser track. See that the padder is so located that it can be easily got at later when ad-

(Continued on page 11)

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SET BUILDING

(Continued from page 10)

justments are made. It should be mounted at least $\frac{1}{4}$ -inch off the chassis by stand-off bolts and insulating washers. In circuits where one side of the padder goes to earth the moving plates should be the ones earthed, as with any other variable condenser.

Dials

There are many different types with a wide variety of mounting methods. Whatever the type, however, it should rotate quite freely when mounted. See that the pointer or other indicating device does not rub against the dial at any part of its travel. Set the pointer at 550kc and the condenser plates full in, then lock in position. Where the dial has station frequencies shown it may be necessary to adjust the pointer slightly to correspond to these, but this should not be done till the set has been aligned.

Dial Lights

These should be connected across the filament winding of the power transformer and be the same or slightly higher voltage than the valve heaters (i.e., 2.5v, 6.3v, etc.). On no account should they be connected across the winding, which heats the rectifier valve as this is connected to the full-high voltage and dangerous shocks might result. Many All-wave dials use a number of different coloured bulbs. These are wired to the wave-switch and instructions for wiring are usually supplied with the dial.

In battery sets the number of bulbs used should be kept to a minimum and some means of switching them off when not actually in use provided in order to save the "A" battery.

Valve Shields

Metal and metal-coated valves do not require shields. Neither do glass valves used in the audio stages nor the rectifier. All others should be shielded. Shield bases should be mounted when the valve sockets are. Bolts are passed through the shield base, then the chassis and finally the socket. Shields should all fit tightly to their bases. Looseness will cause crackling noises. (The same also applies to grid clips on the valves themselves.)

Volume and Tone Controls

Volume controls are of two types, wire-wound and carbon, the carbon type being most frequently met with. Where the circuit calls for insulation of the moving arm from the chassis care should be taken to discover whether the shaft is directly connected to the control or insulated from it internally. Most carbon types are insulated and may then be

mounted directly on the chassis, if not, however, they must be insulated by fibre washers. Where the moving arm is earthed do not rely on the mounting for this but earth the centre terminal of the control directly.

The above remarks also apply to tone controls, which usually consist of a volume control with a fixed condenser in series. Most tone controls do not need to be insulated from the chassis since their centre terminal is at earth potential. Keep leads from the tone control well away from other wiring.

Power Transformers

The first thing to see about your power transformer is that it is of

suitable primary voltage for your local supply since this varies in different parts—240 volts is the most usual, and many transformers have tapped primaries allowing voltages from 220 to 260 volts to be used. See also that it is of sufficient current capacity. If overloaded it will overheat and cause trouble later. Whether the transformer is of the upright or flat type see that it is bolted firmly to the chassis and is rigid in position, otherwise it will rattle or hum in operation. Mount the transformer with the primary terminals towards the power flex hole. Connect the various filament windings to their respective points of contact. If these

(Continued on page 13)



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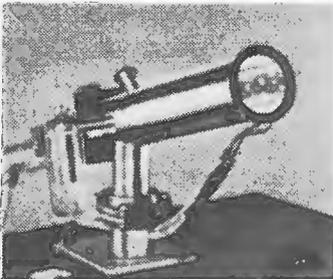
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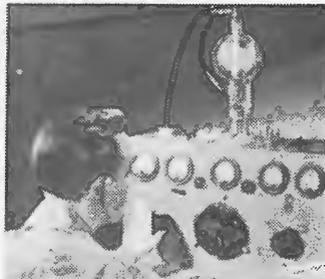
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SET BUILDING

(Continued from page 11)

are centre tapped connect terminal marked "C.T." to earth, unless the circuit diagram indicates otherwise. Where the transformer incorporates an electric static shield the terminal lug for this will be marked "E"; connect this to earth.

Voltage Dividers

Mount these with two bolts to the chassis. When adjusting the tappings take great care not to damage the fine wires. When adjustment is complete screw the clips up tight.

Speakers

Don't spoil a good set by using a poor speaker. For electric sets electro-dynamic types are best. See that it has the right output transformer to suit your output valve. See also that it is large enough to carry the full output of your set without distortion. Small speakers will usually not handle high voltage. Where a single output valve is used in the set the speaker cable will have four wires. The two centre terminals on the speaker-transformer will connect to the field and the two outer ones to the set output. Where a receiver uses pushpull output an additional terminal in the centre of the terminal strip on the speaker-transformer will be connected to H.T. positive. Never switch on an electric set while the speaker is disconnected. If you do so you will damage the electrolytic condensers.

For battery sets, in the case of small sets up to three or four valves, ordinary magnetic cone speakers are quite satisfactory and are considerably cheaper than permanent magnet dynamic ones. For large sets, however, or where high quality reproduction is required, the dynamic type should be used. In sets using a pentode output valve such as ID4 on no account disconnect the speaker while set is in operation; to do so may ruin the valve.

Soldering

There is nothing more important in set construction than good soldering. One bad joint can spoil a set and give endless trouble and disappointment before it is located and remedied. An electric soldering iron is most convenient, but if one cannot be used the ordinary cheap type, sold everywhere for about a shilling, heated in the kitchen fire and properly cleaned and tinned can do equally good work. The writer built several sets recently with just such an iron and could not have done any better with his electric one. The chief thing is to keep the iron clean no matter what type it is. An old pocket knife or file should be used

for this purpose. On no account rush the work. Use only proper radio solder. A lot of solder does not necessarily mean a good joint, in fact, the less on the joint the better. See that both parts to be joined are cleaned and scraped bright then apply a little

seconds, then apply the solder. Do not hold the solder up in the air and expect it to drip into the joint; apply it direct to the joint itself and see that it runs well in.

Testing and Alignment

With mechanical construction complete and having carefully checked over the wiring against the circuit and/or wiring diagram to see that no errors have been made, the next step is to plug in all valves and switch on the power. Watch the rectifier. If there is a flash therein switch off immediately and check through the wiring for the short circuit. Listen also to the electrolytic condensers. (Where the wet type is used.) These may sizzle or splutter for half a minute after the power is turned on, but if they continue to do so for any longer switch off and locate the trouble.

Providing instructions have been carefully followed as to the wiring, etc., no trouble should be experienced and the constructor can go ahead with the important job of alignment. Upon the accuracy with which this is done largely depends the future performance of the receiver. In the case of superheterodyne circuits this is considerably more complicated than with a T.R.F. This fact inclines the writer to advise the Radio newcomer to start with a T.R.F. circuit. The only adjustment required here is that of the coil trimmers. All adjustments

(Continued on next page)

RADIO FEVER

The use of high frequency radio waves in diathermy equipment to produce artificial fever is not news. However, 300 k.w. of 1,500,000 cycle current is now being "broadcast" through 14 inch thick piles of 4 feet x 8 feet plywood to set the glue between the sheets of wood, in perhaps the first industrial production use of this process. The plywood is now bonded in 5 to 10 minutes as against 8 hours in the former cold press method.

solder to both surface and "sweat" them together. Do not touch or move them until the solder is quite set. See that both parts are evenly heated and that the solder runs freely into joint. When soldering pigtails from any type of condenser or other small parts, apply heat for as short a time as possible consistent with the making of a good joint in order to avoid possible damage to the component. Apply the iron to the joint for a few

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SET BUILDING

(Continued)

should preferably be made with a non-metallic screw-driver, or one with as little metal in it as possible. Turn the trimmers half way out then tune in a station about the middle of the dial and adjust each trimmer in turn, starting from the aerial end

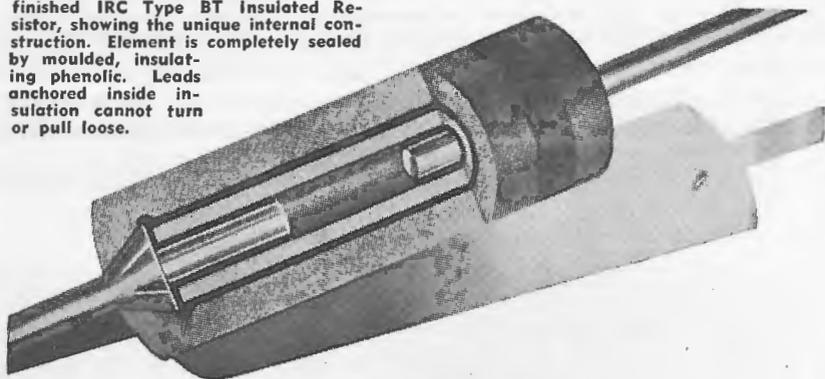
of your set until signals are as loud as you can get them.

Superhet Adjustment

In the case of the superhet there are two distinct portions of the circuit to be aligned—first the tuner; that is the coils and tuning condensers; and secondly the intermediate frequency amplifier. In the case of large all-wave sets, or where ut-

most performance is required for DX work, the writer strongly advises proper alignment with a signal generator, etc., carried out by an experienced serviceman. However, Coil units and IF transformers are factory peaked with a fair accuracy nowadays, and if care is used constructors should be able to make an excellent job of the alignment.

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.



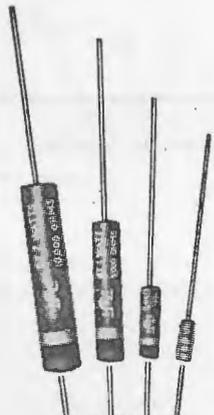
INSULATION (AS SUCH) is only Part of the Story

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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.

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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.



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All adjustments are made on the Broadcast band to start with. Proceed as follows:—(1) Switch on set. See that aerial and earth are connected and that the set is working correctly. (2) Screw in the Padder tight then release about two turns. Screw the Broadcast coil-trimmers (or gang trimmers, if any) up tight and release three turns. (3) Now tune in a weak station near the bottom of the dial (about 1400 k.c.) and roughly adjust the aerial and R.F. (if any) trimmers for maximum volume. If the aerial trimmer has to be screwed right out for best results then screw the Oscillator trimmer one turn and adjust the preceding trimmers again. If the aerial trimmer has to be screwed right in on the other hand, screw the Oscillator trimmer out one turn and adjust. Repeat these adjustments until no further improvement can be gained. (4) Every adjustment of the Oscillator trimmer will shift the position of your station on the dial which will have to be adjusted accordingly. Make sure you stick to the one station. Should its volume become too great as these adjustments are made reduce it by turning the volume well back. (5) When aerial and R.F. stages have been made to peak on this station, rock the dial slowly back and forth across it at the same time adjusting the Oscillator trimmer very, very carefully (not more than half a turn either way), finally leaving the trimmer at the position giving greatest volume. (6) Now readjust the aerial and R.F. trimmers and again very slightly adjust the Oscillator one until any further adjustment of any trimmer causes a decrease in volume. (7) Where a set has Automatic Volume Control, as most sets have today, the AVC lead must be disconnected during the above adjustments, or else a very short aerial, or none at all, must be used so that it is necessary to have the volume control turned full on all the time during the alignment. The writer strongly advises the disconnection of the AVC line and the use of the actual aerial to be used with the set, however. (8) The next step is the adjustment of the Padder condenser. Tune in a station near the top of the dial, 2FC for example, and keeping the volume down by use of the volume control, if necessary adjust the pad-

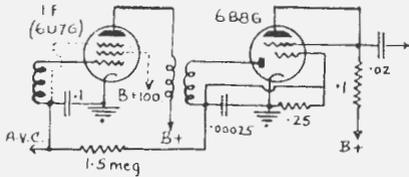
(Continued on page 18)

Interesting Circuit Suggestions

A series of articles showing unusual features
in circuit design.

A. Diode-biased I.F. and A.F.

The D.C. portion of the voltage developed across the diode load resistor can be used to provide bias for the first A.F. stage, thereby saving the cost of a resistor and by-pass con-

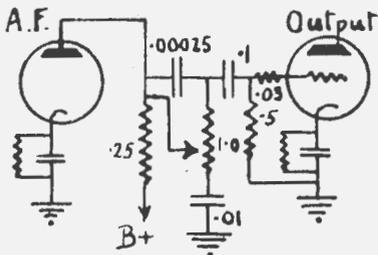


1A Diode bias for I.F. and A.F.

denser. The same voltage can be used as an A.V.C. voltage by applying it to the control grid of the I.F. stage. The arrangement is shown in fig. 1a. For best results, the A.V.C. should also be applied to the converter valve, or else a bias-type of volume control should be used. The A.F. tube is preferably a low impedance type, such as 6c5, or the triode part of a55. Diode-biasing is critical if a high-gain sharp cut-off A.F. tube is used. Instead of the whole voltage, only a portion of it may be applied—the diode load may be the volume control resistor.

B. Fidelity Control

For the reception of distant stations it is often advisable to chop the higher audio-frequencies, reducing at the same time the mush, or noise, due



1B. Fidelity Control.

to the extreme sensitivity. This gives a rather boomy dull tone owing to the bass end of the audio spectrum being still present. In figure 1b, a

By —

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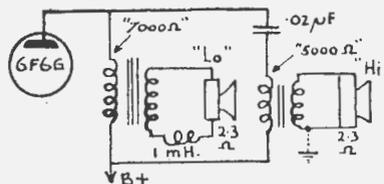
simple 1/2-megohm potentiometer is shown connected so that both highs and lows are reduced together.

The same idea is of value when an amplifier is to be played "flat out". At very high volume levels the ear is more sensitive to lows and highs and these should be reduced.

The circuit shown is not critical and may be used between a driver tube such as 75, 6B8, or 6J7, and an output pentod or tetrode.

C. Simplified Network for Twin Speakers

Usually inductance-capacity networks to divide an audio-frequency



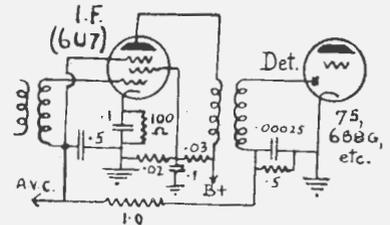
1C. Simple Speaker Net.

spectrum between two speakers, require either very large inductances, large capacities or both. By placing the capacities in the primary or high impedance circuit, these may be reduced. The inductances are reduced by placing them in the secondary circuit. The circuit shown in figure 1c gives a very gradual change-over at approximately 500 cycles per second. The values given are for a 7000-ohm effective load using a 2.2 or 2.3 ohm voice coil. The transformer is the usual standard type. For a 5000-ohm load, the transformer is, of

course, changed, but the inductance and capacity values are still near enough for all practical purposes,

D. More Effective A.V.C.

The usual type of automatic volume control can never completely iron-out fading, but its effectiveness is greatly increased if the suppressor grid of the first I.F. stage is connected to the A.V.C. line. This results in a slight loss in gain which may be compensated for by reducing the value of



1D. More Effective A.V.C.

the usual bias resistor, or by omitting it altogether. A.F. stages can also be controlled by the A.V.C. voltage by tying the suppressor and control grids to the A.V.C. line, but distortion is likely, owing to the A.F. grids becoming too negative. The circuit in figure 1d can be applied to most 4/5 superhets.

(Continued on next page)

MERCURY AMPLIFIER

A new type of mercury switch designed like a thermometer has electrical contacts sealed in the column, spaced about 1/16 inch apart. A stainless steel bellows replaces the familiar glass bulb. A change of .05 watt in the coil driving the bellows can control 5,000 watts power. Thus, in effect, the device is a power amplifier providing amplification of 100,000.

ATOM SMASHER

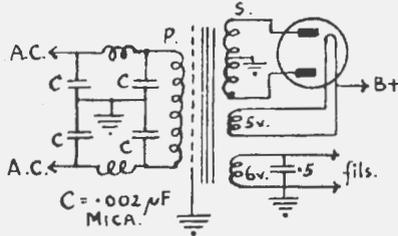
The new giant cyclotron, or "atom smasher" now being constructed at the University of Southern California, is expected to produce a beam whose voltage will range from 100,000,000 to perhaps 300,000,000. The beam from the largest cyclotron now operating penetrates in air about five feet; the beam of the new instrument will penetrate 140 feet.

Interesting Circuit Suggestions

(Continued from page 15)

Mains Filtering

Most power transformers have an electrostatic shield between the prim-

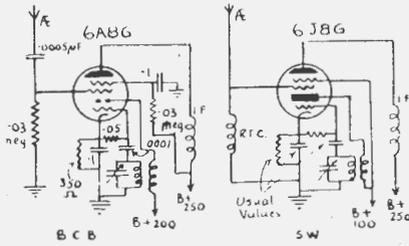


2A Mains Filter.

ary and secondary windings, but even this may not prevent hum and static entering a set via the mains lead. Additional filtering may be of several kinds, one of the simplest methods being to connect each side of the mains to the chassis with a small condenser (which must be of high voltage rating). Capacities of .002 microfarad are suitable for the prevention of static, but larger capacities (not over .02 microfarad) sometimes help to cure an obstinate case of hum. In addition to condensers across the mains leads, small inductances in series in each lead are of assistance. These R.F. chokes could each consist of 100 turns of 22 gauge d.c.c. wire wound in a bunch about 1 inch diameter. Don't use ordinary R.F. chokes, as these will not carry the current.

Aperiodic Aerial Coupling

To avoid alignment troubles, the coupling between the aerial and grid of first valve may be made "aperiodic"



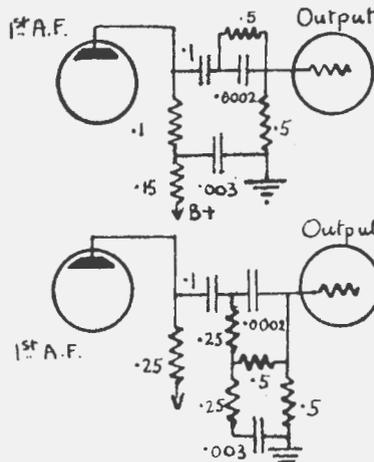
2B. Aperiodic Aerial Coupling

in character. Coupling may be by an inductance or a resistor. This system

is very satisfactory on short waves. Some manufacturers tune the aerial circuit to the centre of the waveband covered by the receiver. Although aperiodic coupling is used chiefly for short-wave reception, it may be used for a local station receiver on the broadcast band, but whistles may be heard if the IF is not absolutely correct. The coupling should be by a 30,000 ohm resistor. It is a good circuit to try if your set breaks down, and you suspect the aerial coil.

Coupling for High Fidelity

Ordinary resistance coupling gives a surprising frequency range if constants are correctly chosen. The coupling condenser (of 600 volt rating, or higher) should be large (say .1 up), to avoid bass loss, while the anode

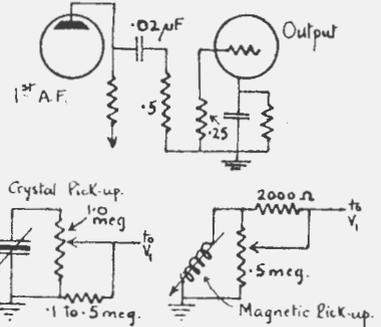


2c. High-Fidelity Coupling.

load resistor should be reasonably low, especially in the case of pentodes. To "gild the lily" and raise the extreme lows and extreme highs, the circuit shown may be used. Alternatively an inverse feed-back system may be modified to give high and low boost by reducing the amounts of feed-back there. A condenser in series with inverse feed-back line reduces degeneration of the lows. A condenser from the feed-back line to the chassis boosts the highs.

Bass Compensation

The ear's frequency response varies with the volume level. At low volumes, more bass is usually desired; at high volumes, less. A very simple way of arranging this is to shunt a resistor across part of the volume



2D. Coupling for Tone Compensation

control. For a radio set using condenser couplings, or for a volume control across a crystal pick-up, connect a fixed resistor between the moving contact and the chassis. At full volume the effective resistance in the grid circuit is lowered and the coupling condenser cuts the bass. For a magnetic pick-up, a fixed resistor is connected between the moving contact and the "hot" end. At low volumes the effective resistor is reduced and the extreme highs are chopped, giving a "bass" effect. The values shown in the circuits are those chosen to suit particular conditions, and may require changing.

METAL FROM SEA WATER

It is likely there will never be a shortage of magnesium. This strategic metal which is only two-thirds as heavy as aluminium, is now obtained from sea water in greater quantities than from all other sources. There are about four and a half million tons of magnesium in a cubic mile of sea water. This is enough to furnish 90 million pounds of metal each year for 100 years.



KEEP COOL!

To air condition the new mammoth windowless Douglas Bomber assembly plant being built at Tulsa, Oklahoma, a mechanical refrigeration plant with a cooling capacity equal to the melting of 7,000 tons of ice daily will be required. This amount of ice would form a column 6½ feet square and one mile high.



Wireless alone can
meet the exacting
needs of communication
for Mobile Units...

**INSTANT * CONSTANT
CERTAIN**

AUSTRALIAN-MADE

RADIOTRON*
RADIO VALVES

* STANDARD TO ARMY TRANSMITTERS & RECEIVERS

(Continued from page 14)

Wave Trap To Improve Sensitivity

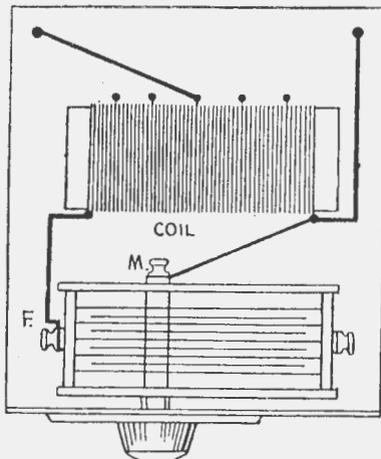
der screw a quarter of a turn at a time, rocking the dial slowly back and forth across the station after each adjustment until a peak, or maximum volume, is secured. It may be necessary to turn the screw a full turn in or out before this peak is found. (9) The final alignment process is the adjustment of the IF transformers. These should not require very much adjustment, and the job should be done with extreme care. IF oscillation is 90 per cent. of the troubles encountered in superhets and this must be avoided. Tune in a weak station around 1400 k.c. again and carefully adjust the transformer trimmers, starting with the transformer immediately preceding the second detector valve. Adjust the grid trimmers first then the plate one. Should the volume from the station become too great while adjustments are being made reduce it with the volume control. If IF oscillation should occur while adjusting any trimmer, that is to say should the set become unstable, leave this trimmer just off the oscillation point and adjust all the others before coming back to the one which caused the oscillation. The above adjustments should be repeated several times until any further adjustment of any trimmer results in a decrease of volume. All adjustments on IF trimmers should be made with a non-metal screwdriver. A metal one would affect the capacity of the trimmer condensers and make really sharp adjustment impossible.

Conclusion

With the above adjustments completed the set should now be ready to give many happy hours of entertainment. To the Radio enthusiast the time spent on actual construction is perhaps the best enjoyment of all, but if this happens to be his first set he will no doubt experience the desire to get the job completed as quickly as possible. If the writer may offer one final piece of advice it is to warn the constructor against this. Take plenty of time over the job. Read these notes through carefully and follow them intelligently. Check and double-check each section of the work as it is completed. This may mean taking a few hours longer over the job, but the constructor will be well rewarded for his patience in having his set work perfectly right from the start; a set which he will be proud to own and proud to exhibit as his handiwork.

WE make no excuses for repeating this circuit. It was a success right from the start and dozens of letters have been re-

short piece of flexible wire the other end of which goes to the input terminal. The other terminal is connected to the end of the coil as shown.



Winding the Coil

ceived telling us of the wonderful difference this little wave trap makes.

Should your set be too broad in tuning, that is, receiving two or more stations at the same time, or unable to receive a station owing to a powerful local station, the difficulty can be overcome by installing a Wave Trap.

Anyone without Radio knowledge can make one.

WAVE TRAP

Parts Required

- 1 Alligator Clip.
- 1 .0005 Condenser and Knob.
- 2 Terminals.
- 1 Piece Former, coil wire, panel, baseboard, connecting wire, screws, etc.

Bore a hole about 1/2-in from one end of the former, thread the coil wire through and wind on about sixty turns. At about every 8th or 10th turn make a small loop (or tap). The condenser is mounted on the panel and the coil on the baseboard.

Wiring

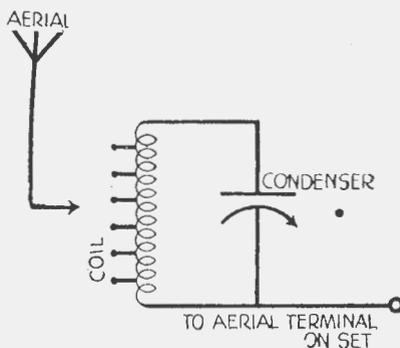
The two ends of the coil are connected to the condensers as shown in the illustration. Secure the clip to a

Operation

It is very simple to fit to the set, the aerial being connected to one terminal on the Wave Trap, and the other terminal of the Wave Trap connected to the aerial terminal on the set. To operate, you tune the set to the station that is causing interference, then rotate the dial of the Wave Trap, and at one point it will be found that the unwanted station will almost completely disappear.

By trying the Clip on the different tappings, you can determine which is most suitable for your location and aerial.

Leaving the Wave Trap, the Receiver can now be tuned to any other station desired.



Wave Trap Circuit Diagram

How to Strengthen Weak Stations

This useful device can be used as an Aerial Trimmer, leaving the connections exactly the same as for use as a Wave Trap.

Tune the set to a weak station, then tune the Wave Trap to a point where it is found that the signals will be greatly increased. The final adjustment of the Receiver's controls may now be necessary.

The difference in reception is sometimes remarkable, and an efficient Aerial Trimmer is in many cases quite as effective in increasing signal strength as adding another valve, and it is well worth trying.

—N.Z. "Radiogram."

Shortwave Review

CONDUCTED BY
L. J. KEAST

NOTES FROM MY DIARY

Those fortunates who have an opportunity of using their sets during the day-time certainly have an excellent number of stations to choose from, and what signals. I do not remember signal strength and clarity being better than this winter.

Realising that they have the world as an audience, short-wave stations are everlastingly testing, just to get a better signal out a bit farther, or into a country not previously reached, and the number of new frequencies brought into operation quite recently shows the amount of research that has been made.

However, with the loss of so many of our old-time Eastern friends, we had anticipated a very quiet winter evening, but thanks to the Americans, we have some splendid stations to tune to, and excellent programmes to listen to.

In addition to WJQ and KGEI, we can now hear W GEO, Schenectady, on 9530 k.c., 31.48 metres, from 8 p.m. till 10 p.m. At 9.45 p.m. news is given and at 10 p.m. station particulars are given, reports asked for and a promise to return to the air at 7 a.m. Sydney time. Reception right through is good, excepting for some local morse.

A great signal at mid-day can be heard from GRG, London, on 11,680 k.c., 25.68 m., and for an interesting thirty minutes listen to "Tommy Handley's Half Hour," commencing at noon on Sundays.

Heard on the Short Waves:
Australia: See-Bas-ta-Pool.
London: Se-bas-ta-pol.
America: Sebbar-star-pol.

Many readers of these columns will remember, years ago (I think it was 1928), where in the quiet of the Dandenong Ranges, 3LO Melbourne recorded the song of the Australasian Lyre-bird. Now we read that the B.B.C., a few nights ago, recorded the song of the Nightingale — not in Berkeley Square, but in an English woodland. However, the broadcast was not made on the night it was made, as R.A.F. bombers were passing over on their way to attack Germany, and to have done so would have given the Germans a great warning.

It has since been broadcast, and the shrill notes of the Nightingale were heard in Sydney against a background of the roaring motors of the big bombers that were on their way to drop "eggs" on the Ruhr.

With evening reception so poor from so many stations, I find myself tuned to WJQ, New York, almost nightly, and for long periods at that. On their wave-length of 30 metres, or 29.97 by our reckoning, from 8 p.m. till 12.15 a.m., one can feel assured of an interesting programme.

With many, unusual items, to say nothing of their novel way of presenting news, they have quickly made a large audience in this country.

The other night they took us to Willowran, Michigan, where Henry Ford has built his wonder factory to produce bombers. In the plant, 26 miles from Detroit, (the one roof would cover an eighteen hole golf course), we heard the first broadcast from Willowran, where 60,000 employees are turning out a bomber an hour.

A letter in front of me says: "I would draw your attention to a paragraph in the 'Month's Loggings'"

Short Wave section of your magazine, dated 15th May, which mentions an "Indian Freedom Station".

"To give a name like this to the station is distinctly bad form. It implies belief that the Japs, who, no doubt, operate the station are fighting for Indian freedom. The writer of this paragraph made a definite 'faux pas'."

My reply is: "The station under review call themselves 'The Indian Freedom Station', and also refer to 'The Voice of Free India'. The appellation, 'Freedom', is the usual thing with most stations working "under cover". Early in the war we had 'The German Freedom Station', whose location was never disclosed, but believed to have been somewhere in Czechoslovakia, and who led the German Gestapo a merry dance. Since then there have been many Freedom stations. I don't give names to stations, although I once, when writing for

(Continued on page 26)

The MONTH'S LOGGINGS

ALL TIMES ARE AUSTRALIAN EASTERN STANDARD TIME

Pressure on space does not permit of full loggings, but those considered of most interest, together with unusual items, are noted.

Reports from readers are welcomed and notes for following issue should be addressed to L. J. Keast, 26 Honiton Avenue West, Carlingford, and posted to arrive not later than 27th of month.

AUSTRALIA

VLG-6, Melbourne 15,230kc, 19.69m
2.25 p.m. to 3.10 p.m. for Western States of North America. 3.55 to 4.40 p.m., French session for Tahiti. 2 to 2.30 a.m. for British Isles. 6.15 p.m. to 6.30 p.m., for New Guinea (in Japanese).

VLG-7, Melbourne 15,160kc, 19.79m
National Programme from 6.30 a.m. to 8.10 a.m., 12 noon to 2 p.m.; 7 p.m. to 7.18 p.m., news. Strength varies quite a lot in South Australia (Condon).

VLR-3, Melbourne 11,880kc, 25.25m
Nat. Prog., noon to 6.15 p.m. daily. 12.50 p.m. to 6.15 p.m., Sundays

VLQ-2, Sydney 11,870kc, 25.27m
8.40 p.m. to 9.15 p.m. for North-East Asia. 1 a.m. to 1.45 a.m., for Western States of North America.

VLW-3, Wanneroo 11,830kc, 25.36m
Heard daily from 8 a.m. to 11.45 a.m. Fair signal (Condon).

VLR-8, Melbourne 11,760kc, 25.51m
Nat. Prog., 6.30 a.m. to 10.15 a.m. daily. 6.45 a.m. to 12.45 a.m. Sundays.

VLG-3, Melbourne 11,710kc, 25.62m
At 3.55 p.m. for Tahiti (Condon).

VLW, Perth 9680k, 30.99m
Heard nightly around 9 p.m. B.B.C. News at 9 p.m. and 11 p.m., Sometimes interfered with by nearby station (Condon).

VLW-2, Perth 9665kc, 31.04m
11.15 p.m. to 12.55 a.m., for South-East Asia (in Dutch, Malay, French and English).

VLQ, Sydney 9615kc, 31.21m
R max. at 6.30 p.m.
Programme for New Caledonia and French Oceania in French from 6.25 pm. to 7.25 p.m.

VLQ-6, Sydney 9580kc, 31.32m
For British Isles from 2 to 2.30 a.m.

VLR, Melbourne 9580kc, 31.32m
Nat. Prog., 6.45 p.m. to 11.30 p.m. Closes at 11 p.m. on Sundays.

VLG-2, Melbourne 9540kc, 31.45m
9.25 p.m. to 10.10 p.m., for Eastern States of North America. For South-East Asia in Dutch, French and English, 11.15 p.m. to 1 a.m.

VLQ-4, Sydney 7220kc, 41.55m
To N. America, from 12.25 a.m. till 1.10 a.m. Heard at 6.50 p.m. on French session to New Caledonia, appears to have replaced VLQ (Perkins).

AFRICA

Algeria:
TPZ, Algiers 12,120kc, 24.76m
"Radio Algier" (pronounced Radio Alzhay). Broadcasts Vichy-French programme from 5 to 9 a.m., and 5.45 p.m. till 6.15 p.m.

TPZ-2, Algiers 8960kc, 33.48m
Vichy-French programme from 7.05 a.m. to 9 a.m.

Bechuanaland:
ZNB, Mafeking 5895kc, 50.90m
R† at 6.45 a.m. with B.B.C. news.

(Continued on next page)

LOGGINGS

(Continued)

Belgian Congo:
OPM, Leopoldville 10,140kc, 29.59m
 Being heard weakly. Asking for reports.
 Closes at 5.45 a.m. with Belgian National
 Anthem.

Egypt:
Radio Cairo, Cairo 5980kc, 50.17m
 Music till 6 a.m. News in English till 6.15
 a.m., when some News is given in French.
 Closes at 6.30 a.m.

SUX, Cairo 7865kc, 38.15m
 Fair signal at 6 a.m. No English (Condon).

SUP-2, Cairo 6320kc, 47.47m
 Awkward hour but good signal at 2.30
 a.m.

Ethiopia:
 —, Addis Ababa 9625kc, 31.17m
 Heard closing at 1.30 a.m. 2R03 inter-
 ferer a bit. (Condon)

French Equatorial Africa:
FZI, Brazzaville 11,965kc, 25.06m
 Schedule: 1.45 p.m. to 2.30 p.m., 4 p.m.
 to 4.30 p.m. Transmits Free French pro-
 grammes.

Kenya Colony:
VQ7LO, Nairobi 6060kc, 49.5m
 2.15 to 5.15 a.m. News, 2.30 a.m. and
 4 a.m.

Madagascar:
Radio Tananarive, Tananarive
 6063kc, 49.48m
 The war has brought this country into the
 limelight. Now being heard from 2 to 3
 a.m.

Morocco:
CNR, Rabat 8035kc, 37.34m
 4 a.m. to 10 a.m. Will get better as win-
 ter draws on.

Portuguese East Africa:
Mozambique:
CR7BE, Lourenca Marques 9840kc, 30.48m
 News at 6 a.m. Closes 7.20 a.m. Have re-
 ceived verification (Gaden). Good at 7
 a.m. (Condon).

Portuguese West Africa:
CR6RA, Luanda Angola 9470kc, 31.68m
 Mon-day, Tuesday, Wednesday and Thursday,
 5.30 a.m. and 6.30 a.m.

CR7BD, Lourenca Marques 15,250kc, 19.66m
 From 7-8 a.m. (Gaden).

Senegal:
FGR, Dakar 9410kc, 31.88m
 Opens at 5.15 a.m. and often heard till
 8 a.m. Announces "Allo allo ici Radio
 Dakar." French talks and operatic music.
 Signs off with "Marsellaise." (Dissinger)

Transvaal:
ZRH, Johannesburg 6007kc, 49.95m
 Schedule: 1.30 a.m. to 7 a.m. News 5.30.
 News in Afrikaans at 5.45 a.m. B.B.C. News
 at 6.45. R5 at 6.45 a.m. with re-broadcast
 of B.B.C. News (Perkins). Good at 6.30
 (Condon.)

Southern Rhodesia:
Post Office Station, Salisbury .. 7317kc, 41m
 Schedule: 3 to 6 a.m. (Mr. Perkins ad-
 vises having received verification.—Ed.)
ZRK, Capetown 6097kc, 49.20m
 Heard June 22nd at 6.45 a.m. with B.B.C.
 News. Weak signal (Condon).

AMERICA

Central:
Costa Rica:
TIEMC, San Jose 11,900kc, 25.21m
 Heard around 11 p.m. Fades by m/n. Call
 letters easily read. (Condon)

TI4NRH, Heredia 9740kc, 30.80m
 Heard with an excellent signal on the
 schedule noted in "A.R.W." (Dissinger,
 U.S.A.) (Mr. Dissinger is referring to 2
 p.m. on Sundays, Wednesdays and Friday.
 —Ed.). Calls listeners 2.45 to 3 p.m.
 (Cushen). Mr. Condon, Laura, S.A., heard
 them at 10.10 p.m.

TIPG, San Jose 9620kc, 31.19m
 Was off the air for about three weeks
 but heard again at 10 p.m. (Condon)

El Salvador:
HUB, San Salvador 5560kc, 54.00m
 Heard on same schedule with YSD and
 same programme. (Dissinger, U.S.A.)
 (Schedule of YSD, 37.99m, is 10 a.m. to
 2 p.m. so unlikely here.—Ed.)

Guatemala:
TGWA, Guatemala City 9685kc, 30.98m
 2 p.m. till 2.45 p.m. Very good signal just
 as they closed. Said they were also on
 TGWB, but I could not hear them there
 (Gaden).

TGWB, Guatemala City 6480kc, 46.30m
 Said to be on from 2 p.m. to 2.45 p.m.

Honduras:
HRP-1, San Pedro Sula 6357kc, 47.20m
 "El eco de Honduras" heard 9 a.m. to 1
 p.m. with strong signal. (Dissinger,
 U.S.A.)

HRN, Tegucigalpa 5875kc, 51.11m
 "La voz de Honduras" is being heard 9
 a.m. to 2 p.m. (Dissinger, U.S.A.) (By
 the way, Mr. Dissinger says this station
 now verifies. I'll bet Arthur Cushen has
 one.—Ed.)

Nicaragua:
YNRS, Managua 8585kc, 34.95m
 "Radio Nicaraguense." Heard about 11 p.m.
YNZFT, Granada 7490kc, 40.05m
 "La voz de la Sultana." 11 a.m. to 1
 p.m. Verifies with a beautiful card. (Dis-
 singer, U.S.A.)

YNOW, Managua, 6860kc, 43.73m
 "La voz de America Central" heard from
 10 a.m. with fair signal. A real catch for
 Australia—verifies. (Dissinger, U.S.A.)

Panama:
HP5G, Panama City 11,780kc 25.47m
 2 p.m. till 3 p.m.

HP5A, Panama City 11,700kc, 25.64m
 Can be heard in morning and late at
 night.

HP5J, Panama City 9607kc, 31.12m
 10 p.m. till 11.30 p.m.

North:
WCDA, New York 17,830kc, 16.83m
 This 10 k.w. station is beamed to Europe
 from 5.30 to 6.45 a.m., and from 7 to
 9.45 a.m. directed to Central America.
 Mr. Cushen, N.Z., writes that he has heard
 this station, but he does not mention time.

WNBI, New York 17,780kc, 16.87m
 Carries same programme at 11.30 p.m. as
 on 19.81 but not quite so loud.—Ed.

WRUW, Boston 17,750kc, 16.9m
 11.56 p.m. to 12.55 a.m. News at midnight.

KGEI, San Francisco
 15,330kc, 19.57m: News 11 a.m. and
 1 p.m. Closes at 2 p.m. Nearly mid-
 day before pleasant signal at present.
 11.56 p.m. till 12.55 a.m. News at
 midnight.

WCW, New York 15,850kc, 18.93m
 This is a sister station to WJQ. Opens in
 early morning. Audible from 7 a.m. to 9
 a.m. News at 8 a.m. (see "New Stations").

WRUW, Boston 15,350kc, 19.54m
 Special session for U.S. troops from 2 to
 2.30 p.m. Opens at 11 p.m. with news.

WGEA, Schenectady 15,330kc, 19.57m
 Listen to "March of Time," 7 a.m. to 7.30
 a.m. Sundays. Closes at 8.30 a.m. with
 fair signal.

KWID, San Francisco 15,290kc, 19.62m
 11 a.m. to 7 p.m. Foreign programme till
 1 p.m. News 1 p.m., 3 p.m. and 6 p.m.
 Baseball matches at 3 p.m. Good signal
 from midday, but spoilt towards evening
 by Delhi.

WCBX, New York 15,270kc, 19.64m
 9.30 p.m. till 1 p.m. News at 11 a.m.

WLWO, Cincinnati 15,250kc, 19.67m
 11.30 p.m. till 3 a.m., 8.30 a.m. to 9.45
 a.m., 2.30 p.m. to 4.30 p.m. News at 3
 p.m. and 4 p.m. Good signal at 3 p.m.
 (Cushen).

WBOS, Boston 15,210kc, 19.72m
 11 p.m. to 3 a.m. News at midnight and
 1 a.m.

WRCA, New York 15,145kc, 19.81m
 11 p.m. till 7.30 a.m. News at midnight.

KKZ, Bolinas 13,690kc, 21.91m
 Heard on some mornings around 11 a.m.
 with same prog. as KGEI, 19.56m. Comes
 in better here than KGEI. (Condon, South
 Australia).

KKQ, Bolinas 11,950kc, 25.11m
 Heard at 4 p.m. when News from Fair-
 mount Hotel is given.

WNBI, New York 11,890kc, 25.23m
 8 a.m. to 3.10 p.m. News at 1 p.m. Very
 good at 1.45 p.m. (Gaden).

WBOS 25.26m
 Heard well at 9-9.30 a.m. in English
 (Gaden).

WBOS, Boston 11,870kc, 25.27m
 6 a.m. till 3.10 p.m. News at 9, 9.45 a.m.
 and 1 p.m.

WCRC, New York 11,835kc, 25.35m
 Opens at 8 p.m. with news. Fair signal, but
 fades after 9.30 p.m. (Dr. Gaden says he
 heard them closing at 9.45 p.m.).

WRUL, Boston 11,790kc, 25.45m
 6 a.m. to 8.25 a.m. "Calling Australia",
 7.15 a.m. Tues., Thurs., and Sat., but
 signal now very poor. Special session for
 U.S.A. Forces from 2 to 2.30 p.m. Some
 days opens before 2 p.m. (Gaden).

WRUL, Boston 11,730kc, 25.58m
 8.30 a.m. to 1.30 p.m. News from "Christi-
 an Science Monitor" at 8.45 a.m. Heard
 talk at 12.30 p.m. (Gaden).

WLWO, Cincinnati 11,710kc, 25.62m
 10 a.m. to 2 p.m. News, 10.30 a.m. read
 by Katherine Clark (Condon).

KJE-9, Los Angeles 10,750kc, 27.90m
 Opens about 1 a.m. (Perkins)

KEZ, Bolinas 10,400kc, 28.84m
 Has been heard here last few days with
 Fairmount Hotel programme. Think has re-
 placed KRCA, 43.73m, which has gone off
 the air (Condon).

WJO, New York 10,010kc, 29.97m
 "The voice of America." Present schedule
 is 8 p.m. till midnight. Novel way of
 presenting news at short intervals. Still a
 delightful signal. "Command Performance"
 at 8.30 p.m. on Sundays introduces well
 known radio artists.

WRUW, Boston 9700kc, 30.93m
 News at 8.45 a.m.

WRCA, New York 9670kc, 31.02m
 8 a.m. to 7 p.m. News 1 p.m., 4 p.m. and
 6.45 p.m. Heard well after 1.30 p.m. (Con-
 don). News at 4 p.m. and 6.45 p.m., splen-
 did French at 6 p.m., Spanish 6.15 p.m.
 (Gaden).

WLWO, Cincinnati 9590kc, 31.28m
 Very good at 10 a.m. (Gaden)

WGEA, Schenectady 9,550kc, 31.41m
 9 a.m. to 3 p.m. Mostly in Spanish for
 South America. News at 10.15 a.m.

WGOE, Schenectady 9,530kc, 31.48m
 6.55 a.m. till 3 p.m. News at 8 a.m. and
 10.15 a.m. Opens again at 8 p.m. in special
 prog. for Forces overseas. News at 9.45
 p.m., closes at 10 p.m.—Ed.

KRCA, San Francisco 9480kc, 31.65m
 Opens at 2.15 p.m. with news. Also news
 again at 4 p.m., 5 p.m., 6 p.m., 7 p.m.,
 9.30 p.m., and 10.30 p.m., 12.30 p.m. Only
 a fair signal at any time.

WDJ, New York 7556kc, 39.70m
 Heard at 5 p.m. Closes 5.30 p.m. Slogan:
 "Voice of America". Think another Press
 wireless station. (Condon, Hallett).

KGEI, San Francisco 7250kc, 41.38m
 News at 4 p.m. and almost every hour till
 midnight, when it turns Chinese till 12.30
 a.m. and news is given again. Final news
 at 1.30 a.m. Splendid signal afternoon and
 night.—Ed.

KGEI, San Francisco 6860kc, 43.73m
 Opens at 5 p.m. News at 6 p.m. In parallel
 with 41.38m, but not such a good signal.

WCDA, New York 6170kc, 48.6m
 This C.B.S. station at 8 a.m. not too good
 (Gaden).

WLWU, Cincinnati 6075kc, 49.38m
 Heard at 4.15 p.m. in some programme as
 WRCA 31.02m. (Hallett).

WRUS, Boston 6040kc, 49.66m
 Better than WCDA at 8 a.m. (Gaden).

Mexico:
XEQQ, Mexico City 9680kc, 30.99m
 Fair in afternoons till 4 p.m.

XEFT, Vera Cruz 9543kc, 31.44m
 Has a much improved signal now through-
 out the day. (Dissinger, U.S.A.) (Slogan:
 "La voz de Vera Cruz").

XEWW, Mexico City 9503kc, 31.57m
 Good in afternoon and at 11 p.m. (Per-
 kins).

XEXA, Mexico City 6170kc, 48.62m
 Heard around 11 p.m. with good signal.

XETW, Tampico 6045kc, 49.66m
 Is again being heard around noon (Dis-
 singer, U.S.A.)

South:
Argentina
LSX, Buenos Aires 10,350kc, 28.98m
 Heard Weakly.

LRX, Buenos Aires 9660kc, 31.06m
 Heard closing at 9.05 p.m.

Brazil:
PPH, 11,930kc, 12.15m
 Heard with special programmes for Blue Network at 1.15 p.m. on Saturdays (Cushen.) (This is a telegraph station, and was used to send programmes during Pan-American Convention.—Ed.)
PRE-9, Forteleza 6105kc, 49.14m
 Reported being heard around about 6 a.m.
PRA-8, Pernambuco 6010kc, 49.92m
 Heard at 5.30 a.m.

Chile:
CB-1180, Santiago 11,975kc, 25.05m
 Heard at good strength at 2.30 p.m. in languages, etc. (Gaden). Splendid at 9.30 p.m.

Ecuador:
HCJB 12,460kc, 24.08m
 Appears to have regular schedule and signal is quite good. 9-10 a.m., noon to 1 p.m., 10 to 11.30 p.m. Very good in English at noon. (Cushen). Heard relating the news from WBOS, 9.10 a.m. (Perkins, Condon).

Peru:
OAX4J, Lima 9340kc, 32.12m
 Nightly at 11 p.m., Sundays at 2 p.m.
OAX5C, Ica 9540kc, 31.45m
 This well known Peruvian station who has had many frequencies, is now heard at 3 p.m. on 9540kc. Slogan "Las ondas de Ica para tod el pais." ("The waves of Ica for all the country.")

Venezuela:
YV5RN, Caracas 9,850kc, 30.45m
 Received verification in form of one of the best cards I have seen. Slogan "Radio Caracas". Power 1kw (Cushen).

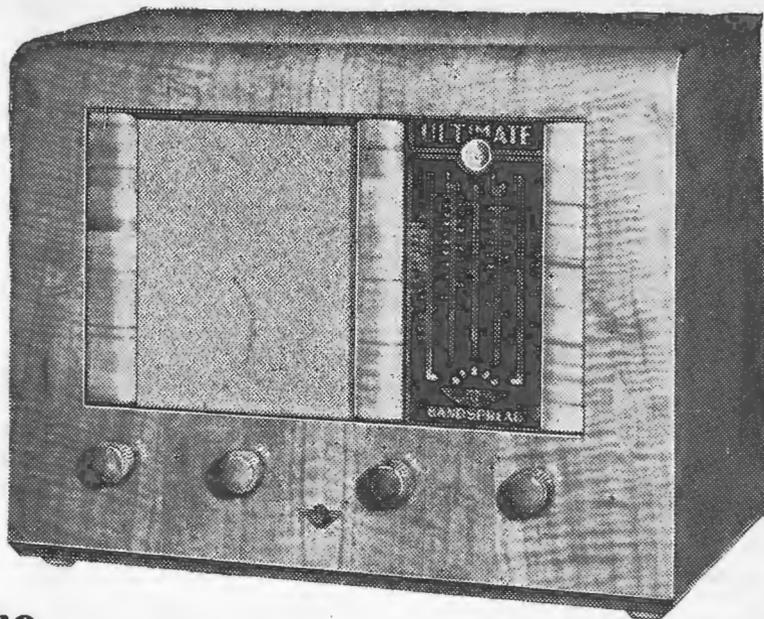
THE EAST

China:
XGOX, Chungking 15,190kc, 19.75m
 Heard calling KRCA at 9.09 a.m. Heard giving news in English, 9.30 to 9.45 a.m. (Perkins).
FFZ, Shanghai 12,068kc, 24.86m
 Gives news in Russian at 8.30 p.m. Talk in English at 9.15 p.m. At 8 p.m. French-English lessons.
XIRS, Shanghai 11,980kc, 25.02m
 Excepting for morse, this Italian owned station has good signal. News at 9.15 p.m.
XGOY, Chungking 11,900kc, 25.21m
 Good in early evenings. News at 8.15 p.m. and also news at 7.30 a.m.
KMHA, Shanghai 11,855kc, 25.3m
 This Jap-controlled station, "Call of the Orient," gives news at 8.30 p.m.
XGRS, Shanghai 11,675kc, 25.7m
 This German owned station still has a good signal nightly. News at 9.45 and 10.30. Heard well. (O'Brien)
XGAP, Peking 10,260kc, 29.24m
 Heard nightly from 9.30 p.m. till 1.30 a.m. Relays XGAP 640kc. I hear the Broadcast Band at midnight (Condon).
XGOA, Chungking 9720kc, 30.86m
 English News at midnight.
XGOI, Shanghai 9665kc, 31.04m
 News at 10.10 p.m.
XGOY, Chungking 9625kc, 31.17m
 News at 10.30 p.m., 11.30 p.m., m/n, and 1 a.m.
JTHK, Hongkong 9525kc, 31.49m
 Heard from 8 p.m. (Jap-controlled) News at 11.10 p.m.
XLMA, — 9370kc, 32.02m
 R4 around 10.30 p.m. (Perkins).
XPSA, Kweiyang 8465kc, 35.44m
 Heard at 9 p.m. and 6.45 a.m. (Perkins) Heard around 10 p.m., but uninteresting (Condon).
XGOY, Chungking 5950kc, 50.42m
 News at 9.30 p.m. and 11.30 p.m. Heard at 6.15 a.m. (Condon) R6 to 7 at 9 a.m. (Condon).

Portuguese China:
CR8AA, Macao 6250kc, 48.00m
 Generally noisy around 10.30 p.m.

French Indo-China:
Radio Saigon, Saigon 11,780kc, 25.47m
 News, 9.30 p.m. and 1.45 a.m. Closes at 2 a.m.

(Continued on next page)



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LOGGINGS

(Continued)

Radio Saigon, Saigon 6188kc, 48.48m
Opens at 10 p.m. Loud signal. News 10.15 p.m. and 1.45 a.m., closes at 2 a.m.

Dutch East Indies:

A13.C., Batavia 18,245 kc, 16.45m
English from 12 noon till 1 p.m. A woman announcer gives news at 12.30 p.m. strength is terrific (Cushen, Condon). Mr. Perkins writes: "R6 at 9 a.m., announcer (undoubtedly a Jap) stated station would be on air again in 2 hours 57 minutes. Heard him again at 12.05 p.m."

YDB, Soerabaya 9550kc, 31.41m
Splendid at 11.25 p.m. Dutch spoken (Gaden).

"The Voice of Batavia,"

8846kc, 31.92m
Heard closing at 2 a.m. It was directing anti-British programme to India. Closed with "Liberty Bell March." (Condon)

Caroline Islands, (Japanese controlled):

Palao 11,704kc, 25.55m
Schedule: 6.30 p.m. to 10.30 p.m. Often gives talks from Tokyo. Mr. Condon says he hears them opening at 5 p.m. with Japanese programme. When HVJ is on after 5 p.m. Palao is nearly swamped.

..... 9565kc, 31.37m
Schedules: 10.45 p.m. to 12.45 a.m. Like its sister station relays Tokyo, and using power of 10 kilowatts puts in a great signal.

India:

VUD-3, Delhi 15,290kc, 19.62m
Now that KWID Frisco continues till 7 p.m., Delhi is put out of business. Heard well at 8.30 p.m.

Voice of Free India, 14,750kc, 20.34m
Heard news in English at 1.25 a.m., but more interference bad.

Voice of Free India, 11,469kc, 26.16m
Same programme as 20.34 and very good signal.

VUD-4, Delhi 11,830kc, 25.36m
News, 10.30 p.m.

VUD-1, Delhi 11,790kc, 25.44m
Recently heard around 9.30 and 10 p.m. R8 with Burmese and other Asiatic programme (Hallett). Also heard at 12.30 a.m.

VUD-2, Delhi 9590kc, 31.28m
News 10.30 p.m. and 1 a.m.
Mr. Hallett reports hearing VUD-2 on 25.36m at 12.30 p.m. on May 25. When giving news in English signal was R-6.

VWY, Kirkee 9045kc, 33.17m
Announcing as "Radio Francais libre d'orient" is heard at 3.30 a.m. Received verification in form of a letter from the Free Frenchmen of Bombay at P.O. Box 49, stating the station is operated in the French Service of All India Radio (Cushen).

VUD-1, Delhi 7240kc, 41.44m
News at 10.30 p.m.

VUD-2, Delhi 6130kc, 48.94m
R5 at 1.15 a.m. (Perkins)

Japan:

JLU-4, Tokyo 17,790kc, 16.86m
News at 5.30 p.m. in German; 5.40 p.m. in Italian; 5.45 p.m. English.

JZK, Tokyo 15,160kc, 19.79m
News at 4 p.m.

JLG-4 15,105kc, 19.86m
Heard calling and talking Rome at 6.22 p.m. (Perkins)

JZJ, Tokyo 11,800kc, 25.42m
News at 7 p.m., 10 p.m. and 1 a.m.

J-1, Tokyo 9565kc, 31.37m
Good signal when giving news in Dutch at 11.30 p.m.—Ed.

JZ1, Tokyo 9530kc, 31.46m
Gives news at 7 p.m., 10 p.m., 1 a.m. and 5 a.m. News in Dutch at 11.30 p.m. Very strong signal.

JLG-2, Tokyo 9505kc, 31.57m
News at 5 a.m.

Malaya:

ZHJ, Penang 6095kc, 49.23m
Although English is heard till station closes at 9.45 p.m., remember Japanese-controlled.

Manchuria:

MTCY, Hsinking 9545kc, 31.43m
News at 7 a.m. News 11 p.m., 12.30 a.m. and 7.03 a.m. (Hallett) News at 10 p.m. is very strong. Announcement in English at 11.30 p.m.

WDJ, New York, 7556kc., 39.70m. This new American, which is most likely another of the Press Wireless Association transmitters, is heard around 4 p.m. with news in English. Slogan is, "The Voice of America." Mr. Condon and Mr. Hallett reported this. Another reporter, who does not give his name, says the same programme is on WRCA, 31.02m, and WLWO 19.70m, and at conclusion of news go into German. Off at 5.30 p.m.

—, Harbin (Manchuquo) 6030kc, 49.75m.:
At 11.45 p.m. announce "Here is Harbin Central Radio Station", and vary much pro-Axis news follows till 11.55 when records are played. At 12.06 a.m. a time check (11.06 p.m. Harbin time) and sign off at 12.07 a.m. with Russian announcement.

HVJ, Vatican City, 5972kc., 50.23m.: This new outlet of the Vatican City appears to be testing for the British Isles. Gives same programme as on 49.92m. News at 5.15 a.m. Reported by Mr. Roy Hallett.

WCW, New York, 15,850kc, 18.93m.: This is another Press Wireless Station, "Voice of America." Just audible on favourable days at 7 a.m. News at 8 a.m. Then music till closing at 9 a.m. This report is taken from "Wireless Weekly." On the occasion I tried I could only just faintly hear station.—Ed.

—, Harbin 6030kc, 49.75m
This new station is heard at 11.45 p.m. See "New Stations."

MTCY, Hsinking 5740kc, 52.28m
Heard around 12.30 a.m. with fair signal in English prog. Close 1 a.m. (Condon).

Philippines:

KZRH, Manila 9640kc, 31.12m
Heard from 6.30 p.m. till midnight. Very poor signal now.—Ed.

KZRH, Manila 11,600kc, 25.86m
Heard irregularly in same prog. as 31.12m (Condon).

Thai:

HSP-5, Bangkok 11,715kc, 25.61m
News at 10.55 p.m. and 11.35 p.m.

GREAT BRITAIN

"This is London calling."

African service opens at 1.30 a.m., closes 7 a.m. Radio Newsreel (Pacific edition) is heard at 5 p.m.

GRQ 18,030kc, 16.64m
Too hard to enjoy.

GRP 17,890kc, 16.77m
Eastern service 8.45 p.m.

GSV 17,810kc, 16.84m
Opens at 8.45 p.m. in Eastern service. R5-7 (Perkins).

GSG 17,790kc, 16.86m
Will gradually fade out. Heard last few days at 5.30 p.m. Fair signal (Condon).

GRD 15,440kc, 19.42m
Excellent signal in Eastern service opening at 8.45 p.m.

GRE, London 15,375kc, 19.51m
Appears to be on nightly now from 8.45 p.m.

GSF 15,140kc, 19.82m
News at 6.45 a.m. and 7.45 a.m. Closes 8.45 a.m. The news at 9 p.m. is now very zippy, improves at 11, but at 1 a.m., 2 a.m. and 4 a.m., O.K.

GRF 12,095kc 24.80m
This transmitter, mentioned in June issue, is used in Latin America service from 8.30 a.m. to 12.45 p.m. Good signal (Condon).

GRV 12,040kc, 24.92m
Special session for South America from 8.30 a.m. to 12.45 p.m. Opens at 4.45 p.m. Great strength.

GSN 11,820kc, 25.38m
Swedish at 3 a.m.

NEW STATIONS

EAQ, Madrid, 9850kc, 30.43m.: Although call-sign not given, it is on wave length of the old EAQ. At 3.30 a.m. local news in Spanish is heard. Reported by my Anonymous Friend. (American magazines say special news in English is given for North America at 8 p.m. E.W.T.—that would be 10 a.m. in Sydney and would only be heard in a few locations.—Ed.)

ABC. Batavia, wave length is given variously as 16.45m. and 16.54m. and 16.60m. Schedule is from 7.30 a.m. to 9 a.m.; 12 noon to 1.30 p.m., and 8 p.m. to 12.30 a.m. Reported by Mr. Perkins and Mr. Condon. Generally believed to be a Jap operated station. This is undoubtedly the same station as mentioned in May, heard for so long on 19.9 metres.

MTCY, Hsinking, 5740kc, 52.28m.: Mr. Condon, Laura, S.A., says he hears this station from 12.30 a.m. till closing at 1 a.m. English language—good signal.

WCDA, New York, 17,830kc, 16.8m.: This station, tipped off in June issue as likely to be heard, is now on the air from 7 to 9 a.m. The sister transmitter an 6170kc, 48.60m, from 10 a.m. till 1 p.m. is unsuitable for this country at that hour.

GSD 11,750kc, 25.53m
Probably the most consistent of the B.B.C. transmitters and one of the earliest of the after-lunch stations. N. America service heard from 11 a.m. till 2.45 p.m. News at 2.30 p.m. Pacific service now opens at 2.57 p.m. and is heard till 6.15 p.m. Opens again at 8.45 p.m.

GRG 11,680kc, 25.68m
Used in North American service. Excellent signal at 10 a.m. (Gaden). Me too—Ed.

GRH 9825kc, 30.53m
Another transmitter used in N. America service. News at 12.45 p.m.

GRX 9690kc, 30.96m
3-4 a.m. French, German, Dutch; English 6 a.m., but getting weak then. Not used in Latin American service now.

GRY 9600kc, 31.25m
Used in N. American session till 8.45 a.m.

GSC 9580kc, 31.32m
Signal now very good in North American session, opens 7.15 a.m.

GSB 9510kc, 31.55m
Good afternoon station for Pacific service 2.57 to 6.15 p.m., but weakens after 5 p.m. Tommy Handley's half hour at 3.30 p.m. on Fridays (Hooper).

GRU 9450kc, 31.75m
Excellent towards midnight.

GRI 9515kc, 31.86m
Not sure of schedule but heard occasionally around 9.30 p.m. Often very noisy.

GRJ 7320kc, 40.98m
Now used in North American service from 1 p.m. to 2.30 p.m.

GRM 7250kc, 41.38m
African service 1.30 a.m. to 2.15 a.m.

GSW 7,230kc, 41.49m
Good at 6 a.m.

GRK 7185kc, 41.75m
Home service, but often audible here early mornings and again late afternoon.

GRJ, 7,150kc, 41.96m
Good at 6.30 p.m.

GRS 7065kc, 42.49m
Reliable transmitter for Pacific service 2.57 p.m. to 6.15 p.m. (Condon).

GRN 6194kc, 48.43m
Good at 6.20 a.m. (Condon).

GRO 6180kc, 48.54m
Another of the African transmitters and in early mornings in foreign languages. News in English at 8 a.m.

GRW 6140kc, 48.86m
 Heard from after midnight and good signal at 6 a.m. Also heard in afternoons, news at 3 p.m. and 4 p.m.

GSL 6110kc, 49.10m
 Heard morning and evening in home service. Very good at 6.15 a.m. (Condon).

GRR 6080kc, 49.34m
 News at 5 a.m. Good signal at 6 a.m. Closes after news at 8 a.m.

GSA 6050kc, 49.59m
 Used in foreign languages. Good signal if not spoiled by interference. News in English at 8 a.m.

EUROPE

Bohemia:
DHE4A, Prague 11,840kc, 25.34m
 Heard at 6.30 a.m. Can be identified by old Czechoslovakian nine-note signal. No English.

France:
Radio Vichy, Vichy 15,245kc, 19.69m
 11.30 p.m. till 2.45 a.m., 2.45 p.m. till 3.30 p.m.

Radio Vichy, Vichy 11,880kc, 25.25m
 Heard opening at 5.45 p.m. Also good at 8.30 a.m. (Hallett).

Radio Vichy, Vichy 9520kc, 31.51m
 1.15 p.m. till 2.30 p.m. News at 1.15 p.m., 3.45 p.m. till 5.30 p.m.

Paris Mondial, Vichy of Paris, 6200kc, 48.39m
 Heard at 5 a.m. Good signal.

Germany:
DJR, Berlin 15,340kc, 19.56m
 News at 5 p.m., talk 5.45 p.m., news 10 p.m. Heard "Anzac Tattoo," closing at 5 p.m. on Saturday (Hooper).

DJL, Berlin 15,280kc, 19.63m
 News, 5 p.m., 10 p.m. and midnight. —Ed.

DJB, Berlin 15,220kc, 19.74m
 News at 11 a.m. Good signal, (Gaden). Also news at 11.30 p.m.

DJL, Berlin 15,110kc, 19.85m
 Lord Haw Haw 10.30p.m. News 11.30 p.m.

DZH, Berlin 14,460kc, 20.75m
 Have been heard at 1 p.m. in programme for Stn. America.

—, Berlin 12,775kc, 23.48m
 At 12.30 a.m. announces in English "This is Berlin calling," and then gives News in Hindustani.

DZE, Berlin 12,130kc, 24.73m
 Used for Latin America from 7.50 a.m. to 2.15 p.m. Good at 2 p.m. (Gaden).

DXL-7, Berlin 11,855kc, 25.30m
 This is a new one and is heard at 7.50 a.m.

DJP, Berlin 11,855kc, 25.31m
 Good signal in afternoons, late evening and early morning.

DJD, Berlin 11,770kc, 25.49m
 News for Africa at 5.15 a.m. Also news at 1 p.m.

DXR, Berlin 11,760kc, 25.51m
 Good at 3.15 p.m. Also heard at 6 a.m. (Condon).

DXC-2, Berlin 11,740kc, 25.55m
 News at 3 p.m.

DZD, Berlin 10,543kc, 28.45m
 Lord Haw Haw at 2.30 p.m. News at 6.30 a.m.

DZC, Berlin 10,290kc, 29.15m
 Good at 1.30 p.m. Good signal (Condon).

DJW, Berlin 9650kc, 31.09m
 News at 5 p.m. Talk, 5.45 p.m.

DXL-24, Berlin 9620kc, 31.18m
 Heard at 7.50 a.m. Heard around 1.45 p.m. with fair signal directed to South America (Condon).

DXZ, Berlin 9570kc, 31.35m
 Very strong signal at m/n. News, 1 a.m.

DJA, Berlin 9560kc, 31.38m
 Fair signal at 1.30 p.m.

DXM, Berlin 7270kc, 41.27m
 News at 2.30 a.m., 4.30 a.m. 6.30 a.m. and 7.30 a.m. (Condon).

DXJ, Berlin 7240kc, 41.44m
 News at 3.30 a.m., and in German at 4 a.m. News at 5.30 a.m.

DJC, Berlin 6020kc, 49.83m
 News at 5.15 a.m. for Africa.

Holland:
PCJ-2, Huizen 15,220kc, 19.71m
 This German-controlled station announces at 9.45 p.m., "Here is Holland calling." News at 9.45 p.m. and 10.45 p.m.

PCV, Amsterdam 18,070kc, 16.6m
 In parallel with **PCJ-2**.
 Not heard nowadays.

Italy:
Rome:
ZRO-17, 19,590kc 15.37m
 Russian at 10.30 p.m.

ZRO-6 15,300kc, 19.61m
 Programme for North America closes at 3.50 a.m. Good in News at 8.20 a.m. and terrific signal in News at 5.20 p.m. Excellent signal of 3 p.m. (Rogers).

ZRO-4 11,810kc, 25.40m
 News at 7.12 a.m. followed by names of prisoners of war at 7.25 a.m. Close at 7.30 a.m. and re-open at 8.20 a.m. 11,695kc, 25.65m
 Announces "Here is Italian Broadcasting Station," and news in Russian is given at 5.15 p.m. and 1.15 a.m.

ZRO-? 10,320kc, 29.07m
 Also good signal at 3.40 a.m.

IRF, 9835kc, 30.52m
 Heard with an R6 signal at 9.11 a.m. (Perkins). Not too strong in South Australia (Condon).

ZRO-18, Rome 9760kc, 30.74m
 Very good at 2.30 p.m. (Gaden).

ZRO-3 9630kc, 31.15m
 Talk, 7 a.m. News, 7.12 a.m., 8.20 a.m., 3 p.m., 5.20 p.m., 11.20 p.m., 1.40 a.m. 34.76m
 "Here is Italian Broadcasting Station." News in Russian 12.15 to 12.30 a.m.

ZRO-11, Rome 7220kc, 41.55m
 Heard of a morning around 7 a.m. with fair signal (Condon).

ZRO-, Rome 6300kc, 47.60m
 Nice signal around 7 a.m. Only just audible at 8.20 a.m. (Gaden). Good at 6.30 a.m. in French (Condon).

Vatican City:
HVJ 15,120kc, 19.84m
 Time of opening seems to vary, but generally around 4.30 p.m. and in Italian.

HVJ 11,740kc, 25.55m
 Prisoners-of-war announced at 5 p.m. Good signal. (Gaden).

HVJ 9660kc, 31.06m
 Information re English prisoners-of-war at 3.10 a.m. (Perkins).

HVJ 6005kc, 49.96m
 Heard in English from 5.15 a.m. to 5.30 a.m.

HVJ, 5972kc, 50.23m
 English at 5.15 a.m. Signal not as good as 49.92 (Hallett).

Portugal:
CSW-6, Lisbon 11,040kc, 27.17m
 Talk in Portuguese from 3.30 to 3.45 a.m. Closes at 6 o.m. Excellent signal.

CSW-7, Lisbon 9740kc, 30.8m
 Opens at 6.15 a.m. Also good signal till about 8.30 a.m.

CS2WD, Lisbon 6200kc, 48.38m
 Heard as early as 9.30 p.m. All announcements in Portuguese, and closes with Portuguese National Anthem at 11 p.m. Also heard occasionally at 7 a.m.

Roumania:
Radio Bucharesti, 9255kc, 32.41m
 2 a.m. to 8 a.m. News at 6.50 a.m. Heard pro-Axis news by man just before 7 a.m. (Gaden). R5 at 6.45 a.m. (Perkins). See memo under "Notes From My Diary."—Ed.

Russia:
 Transmission from either Moscow or Kuibyshev. Schedules are liable to change daily.

—, Kuibyshev 15,230kc, 19.69m
 U.S.A. programme at 10 p.m. Good morning session at 7.15. Also heard occasionally from 8.45 a.m. for about an hour. News 7.25 a.m., 8.45 a.m., 9.10 a.m., 11.15 a.m., and 1.15 p.m. Heard again at 9.40 p.m. News 10 p.m.

—, Kuibyshev 15,180kc, 19.76m
 Good from 11 p.m. till midnight. English programme from 7.15 to 7.40 a.m. for U.S.A.

—, Moscow 15,115kc, 19.85m
 News at 7.25, 8.45, 11.15 a.m. and 1.15 p.m. News again at 9.40 p.m.

—, Moscow 15,110kc, 19.85m
 Runs in parallel with Kuibyshev on 19.69m.

—, Kuibyshev 13,010kc, 23.06m
 Heard in afternoons with programmes for England at 3 p.m. Also programmes to America from 9.40 p.m. Special session for England at 11.30 p.m.

(Continued on next page)

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.)

LOGGINGS

(Continued)

- , Kuibyshev 13,010kc, 23.06m
News at 3 p.m. Male and female announcement (Gaden). News in French at 4.15 p.m. Heard again at 10.50 p.m. till 11.55 p.m. with slight interval at 11.10 p.m.
- , Sverdlovsk 12,225kc, 24.54m
Russian at 12.30 a.m.
- , Sverdlovsk 12,060kc, 24.88m
English from 11 p.m. to midnight.
- , Kuibyshev 11,885kc, 25.24m
Not a clear signal but loud at 10 p.m. Calls Columbia Broadcasting System. Says: "This is Kuibyshev" and time check is given, (female announcer.) C.B.S. representative spoke at 10.10 p.m.
- , Askabad 10,150kc, 29.50m
Name of station given at 9 and 10 p.m. But no call sign.
- , Kuibyshev 10,040kc, 29.88m
News at 3 p.m. and 11.30 p.m. Excellent at 3 p.m. (Cushen). News in English at 10.58 p.m. (Perkins).
- , Moscow 9870kc, 30.4m
4 a.m. till 4.30 a.m. News at 4.15 a.m.
- RV-96, Moscow 9,500kc, 31.58m
5 a.m. to 7.30 a.m. News 7 a.m.
- , Kuibyshev 8050kc, 37.27m
5 a.m. to 5.25 a.m.
- , Moscow 7770kc, 38.61m
English at 7 a.m.
- , Moscow 7630kc, 39.32m
5 a.m. to 7.30 a.m. News at 7 a.m.
- , Moscow 7310kc, 41.04m
English session at 6.30 a.m.
- , Moscow 7227kc, 41.51m
5 a.m. to 7.30 a.m. News at 7 a.m. Fair signal.
- , Moscow 6977kc, 43m
English at 5 a.m.
- Siberia:**
- , Khabarovsk 9566kc, 31.36m
7 p.m. till midnight. 9 to 9.30 p.m. Chinese. Strong signal. 9.40 p.m. opening in English transmission. At 10.30 p.m. call N.B.C., New York. At 10.55 p.m. Russian news is over-powered by Jap on 31.37m. 5.50 a.m. till 7.30 a.m. Exercises at 6.15 a.m.
- , Khabarovsk 5910kc, 50.76m
Relays Moscow at 10.55 p.m.—noisy. Closes at m/n.

Spain:

- EAQ, Madrid 9860kc, 30.43m
Heard on June 6 at 3.30 a.m. with local news in Spanish. Call sign is not given, but EAQ was the identification on this wave length for many years, and a fine signal at 5.30 a.m.—Ed.
- Radio Malaga, Malaga 7210kc, 41.61m
Good most morning. News in Spanish at 7 a.m. (Condon).
- EAJ-9, Malaga 7140kc, 42.02m
"Radio Silva" heard from 6 a.m. (Gaden)
- EAJ22, Oviedo 7130kc, 42.08m
Relays "Radio Nacional de Espana" 6.45 a.m.
Heard weakly at 7 a.m. relaying Radio Malago. Suffers from interference. (Condon).
- Radio Mediterraneo, Valencia, 70.35kc, 42.66m
Opens at 6 a.m. with march. Slogan, "Voz Espana." Signs off with "Valencia."

Switzerland:

- HCR-3, Schwarzenburg 6165kc, 48.66m
Heard closing at 7.30 a.m. (Condon).
- HBJ, Geneva 20.62m
Heard June 7, around 4.30 p.m., same prog. as HBO, but not as good (Condon).
- HBO, Geneva 26.31m
Heard June 7 with fair signal (Condon). Geneva broadcasts first Sunday in the month.—Ed.

Yugoslavia:

- YUB, Belgrade 6100kc, 49.18m
4 a.m. till 8 a.m. Heard well at 7.15 a.m. (Gaden).

SCANDANAVIA

Sweden:

- SE^P, Stockholm 11,710kc, 25.63m
Now being heard from 4.40 p.m. till 5.30 p.m. Heard again in early morning about 4 o'clock. Dr. Gaden reports hearing this station at 10 a.m.
- SBU, Motala 9530kc, 31.46m
Heard at 3 p.m. (Hallett).
- SBO, Motala 6065kc, 49.46m
Very good at 7.15 a.m. (Gaden)
- Finland:**
- OIX-3, Helsinki 11,785kc, 25.46m
Schedule: 1 a.m. to 9 a.m. News 2.45 and 8.15 a.m. 2 p.m. to 4.45 p.m.
- OIX-2, Helsinki 9500kc, 31.58m
Schedule: 1 a.m. to 9 a.m. News 2.45 and 8.15 a.m.
News at 2.45 a.m. and 4.15 a.m.

MISCELLANEOUS

Arabia:

- ZNR, Aden 12,110kc, 24.76m
R3 at 3.40 a.m., closed 3.45 (Perkins).

Canada:

- CBFY, Montreal 11,705kc, 25.63m
Heard at good strength with news at 9.30 p.m., 10 p.m., 11 p.m. and midnight. (Fades out about 11 p.m.—Ed.)
- CBFW, Montreal 6090kc, 49.25m
Now being heard on this frequency and Qrm'ing ZNS (Dissinger, U.S.A.) (Believe schedule is 9.30 p.m. till 3 p.m. ZNS-2, Nassau, closes at 11.15 p.m.—Ed.)
- CFRX, Toronto 6070kc, 49.42m
Opens around 9.30 p.m., but best at midnight.
- CJXC, Sydney (Nova Scotia) 6010kc, 49.92m

Still on the air until 1.15 p.m. Cannot be heard until PRA-8, Pernambuco, leaves the air. (Dissinger, U.S.A.)

- CBRX, Vancouver 6160kc, 48.70m
This is a new one opening at 12.30 a.m. News at 1 a.m. Relays CBR.

- CFVP, Calgary (Alberta) 6030kc, 49.73m
"The Voice of the Prairies" announce simply "CFCN, Calgary." CFNC is their long wave station. (Dissinger, U.S.A.) (Schedule according to my records is 1 a.m. to 5 p.m.—Ed.)

Iceland:

- TFJ, Reykjavik 12,235kc, 24.52m
American magazines refer to this station being on the air again from 8.17 a.m. on Fridays. On Monday heard around 7 a.m.

Iran:

- E—, Teheran 8110kc, 36.99m
Heard at 5 a.m. (Condon). See "New Stations".

- EQB, Teheran 6155kc, 48.74m
4 a.m. to 5.30 a.m. News at 4.50 a.m., followed by musical programme.

Turkey:

- TAP, Ankara 9465kc, 31.70m
Opens at 12.15 a.m. News at 4.15 a.m., closes at 6 a.m.

Location Unknown:

- 15,360kc, 19.53m
Transmitter of the friends of the S.A. (S.A. equals German abbreviation for Storm Troops). Another anti-Fascist station, location unknown, heard in German between 8.30 and 9 p.m.
- "Deutscher Volkssender," 15,310kc, 19.60m
This "German Peoples' Transmitter" whose location is unknown and uses German only from 12 to 12.30 a.m. Definitely anti-Fascist, announces on 32 metres from 4 to 5.35 a.m. Mr. Hallett reports hearing them on approximately 31.6m at 2 p.m. R6 signal all in German.

- 11,935kc, 25.14m
Heard from 9.30 to 9.50 p.m. in German. Good signal but suffers from interference. Concluding announcement in German. "Make an end of this war, make an end with Hitler. Freedom for the Sudeten Germans."

- "Radio Metropole," 11,735kc, 25.56m
This pro-Fascist station talking in Ukrainian and Russian is heard from 1.15 to 1.25 a.m. (Most likely a Jap.)

- 10,525kc, 28.50m
This anti-British station has now been heard on this frequency from 12.30 to 12.53 a.m. At 12.53 a.m. announcer says: "We are now signing off. Don't forget to listen on 9650kc at this is Broadcasting station."

- 9880kc, 30.36m
Sudeten German Freedom Station announcement in German or Czech ("Sudeten Deutsche Freiheits Station") 4 to 4.25 a.m. Czechoslovakian, 4.25 to 4.45 a.m. German.

- 9750kc, 30.77m
This Free French station heard signing at 3.30 p.m. Good strength. (Cushen).

European Revolutionary Station

- 9640kc, 31.12m
Invariably announce they are on 31.20m. Heard from 3 p.m. till 3.12 p.m. Closing announcement in German is "Finish the War; Down with Hitler; Down with Fascism; Long live the German and European Revolution."

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

9545kc, 31.43m
Slogan "Gustav Siefried Emit." This station supposed to be supported by German officers in Germany is being heard in America afternoons and evenings, ten minutes before each hour (approximately 4 a.m. to 1 p.m., Sydney).
6155kc, 48.74m
Slogan something like "Ici Radio Cavat". This anti-Vichy station is heard in U.S.A. from 4.10 to 4.20 p.m. (6.10 a.m. to 6.20 a.m., Sydney) and 11.50 p.m. to midnight (1.50 p.m. to 2 p.m., Sydney). They say "Voici la verite, econte," which means, "This is the truth, listen." I.S.W.

Location Unknown:

Radio Caledonia, 7007kc, 42.81m
Heard of a morning from 7.15 to 7.30, with good signal. Opens with "Auld Lang Syne." Anti-British station (Condon).

Syria:

Radio, Levant, Beirut 8035kc, 37.37m
Heard June 13 around 3.15 a.m. with good signal. Lady gives station identification, etc. (Condon). News in French at 3 a.m.—Ed.

West Indies:

Bahamas:

ZNS-2, Nassau, 6090kc, 49.25m
Puts in an excellent signal until 1 p.m. (Dissinger, U.S.A.) (I doubt if this station will be heard here as schedule is: 11 p.m. to 11.15 p.m., 4 a.m. to 4.30 a.m. and 9 a.m. to noon.)

By the way, no advertising is heard from ZNS, but general information particularly relating to approaching hurricanes (the dread period is July to October) is heard during their brief period on the air.

Radio Antiqua, Antiqua 7060kc, 42.49m
Said to be heard in French from 8 to 8.20 a.m. (This is an American report, but this band is so good of a morning it is worth trying.—Ed.)

Cuba:

COCY, Havana 11,740kc, 25.55m
R9 at 9.15 p.m. (Gaden).

COK, Havana 11,620kc, 25.82m
Good, morning, afternoon and night. English spoken frequently. Heard on most mornings around 7.30, and often heard around 1.45 p.m. Closes with fair signal at 2 p.m. Plenty of English (Condon).

COCH, Havana 9435kc, 31.80m
Heard at 9.45 p.m.

COCX, Havana 9270kc, 32.36m
Heard May 24 around 10.30 p.m. with fair signal. Very erratic station in mornings at present. (Condon).

COCC, Havana 8850kc, 33.9m
Can be heard morning, afternoon and night. Splendid at 8.45 p.m. and at 9.45 p.m. in Religious Programme in English. (Condon).

COCO, Havana 8700kc, 34.48m
Heard nightly from 10 o'clock.

COHI, Havana 6455kc, 46.48m
Heard around 10 p.m.

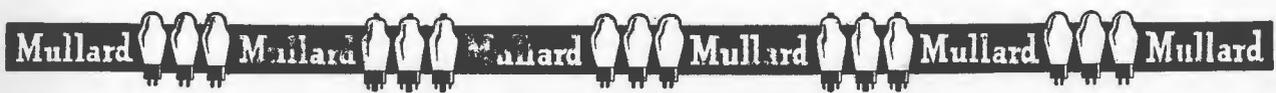
COCQ, Havana 6375kc, 47.06m
Fair from 9.40 p.m.

Haiti:

HH3W, Port au Prince 10,130kc, 29.62m
Good in morning around 6 a.m. Gives call in French and Spanish.

Dominican Republic:

H12G, Cuidad Trujillo 32.28m
Heard opening around 7.45 a.m., strength varies quite a lot. Plays Blue Danube Waltz on opening. Mainly a musical programme. (Condon).



FOR BEST RESULTS

—SENSITIVITY

—SELECTIVITY—

RELIABILITY—

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AND AUSTRALIA'S TOO!

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

Telephone: MJ 4688



SHORTWAVE NOTES

(Continued from page 19)

Smith's Weekly, dubbed the Berlin transmitters, "Station Ananias," a remark that was taken up and used by one of the American Short Wave magazines.

Moscow, on 7630k.c., 39.32 metres, gives News in English at 6.50 a.m. It can also be heard on 9500 k.c., 31.58 metres and 7227 k.c., 41.51 metres.

In addition to the many short wave stations providing news for the American Forces in Australia, a further service is provided by the A.B.C. at 5.20 p.m. each day except Thursdays, when it is given at 5.25 p.m. An American officer reads news received by cable. As most S.W. listeners seldom tune to the medium wave band, they will be interested to know it can be heard over VLR-3, 25.25 metres.

By the same token you may prefer to hear William Winter (some papers spell it Wynter) deliver his weekly summary on Saturdays at 7.23 p.m. per short wave. VLR, 31.32 metres, will provide the outlet and on Sundays when it is repeated at 12.55 p.m., tune to VLG-7, 19.79 metres.

On Sundays at 3.55 p.m. The Department of Information have a session for Tahiti through VLG-3, 25.62 metres.

A very good signal, and early in the night, is now coming from COHI, Havana. On 6455 k.c., 46.48 metres, they were heard at 8.45 p.m. on Saturday, June 27. Announcement in several languages, including English, at 8.57.

Radio Bucharest have been heard at 1.30 a.m. in Czechoslovakian; 1.40, Ukrainian; 1.50, Russian, At 2 p.m. they announce in Russian, "Here is Radio Bucharest, listen to us at 12.15 Bucharest time, that is, 1.1.15 p.m. Moscow time, on 1875 metres, 357 metres and 32.7 metres." I figure they are on 32.14 metres. Signal is very strong.

Have been advised by the Consul General for Switzerland, that Schwarzenburg are negotiating with Radio Nations at Geneva to broadcast once a week in winter time, and twice weekly during the summer.

It is quite likely an announcement will be made on Sunday, July 5, through HBO and HBJ, Geneva, as to call-sign, wave length and schedule.

The new station, ABC, in Batavia, has on occasions given a list of Australian prisoners of war and Mr. Condon of Laura S.A., on hearing same, was able to notify the wife of one soldier mentioned.

FOR SALE

Radiotron 4.5 watt amplifier with tone control (No. A505). New valves No speaker, £4.

LEN ALEXANDER,
21 Cheltenham Road, Cheltenham.
Phone: Epping 435

SPEEDY QUERY SERVICE

Conducted under the personal supervision of A. G. HULL

D.F. (Leichhardt) enquires about the position of supplies of gang condensers.

A.—So far as we know there is little chance of the position easing, and it seems quite likely that gangs will become unprocurable in the course of a few months. Necessity is the mother of

DELAYS

Owing to the fact that Mr. A. G. Hull is now working in Melbourne as production manager of his brother's repetition engineering factory, there may be some delay in the answering of queries. Those who wish to contact him urgently in Melbourne may do so at D. M. Hull & Co., 197-193 Berkeley Street, Carlton N3. Phone, F4136. This is only a temporary arrangement for the duration of the war, the Hull factory being solely engaged on urgent defence and aircraft contracts.

invention, however, and a little bird whispered to us the other day that something really startling in the way of inductance tuning is likely to crop up at any moment. The idea is to have a fixed capacity and to vary the inductance of the coil by means of sliding an iron core in it. The gang condenser is completely eliminated.

T.H. (Middle Brighton, Vic.) asks whether he can put two 80 milliamp power transformers in parallel to give

INDUCTANCE

(Continued from page 8)

$2 \times 3.1416 \times 50 \times 20$
= approximately 6000 ohms. If the frequency is doubled, the impedance is doubled too.

Again, an r.f. choke with an inductance of 250 milli-henries might have a D.C. resistance of 300 ohms. Its impedance to an alternating current of 1,000,000 cycles per second (equivalent to a wavelength of 300 metres) is equal to:

$$2 \times 3.1416 \times 1,000,000 \times 250$$

1000

(remember milli-henries must be converted to henries by dividing by 1000)

A full range of all types of new and used Radio Test Equipment, including Oscilloscopes, Oscillators, Multimeters, V.T.V. Meters, Valve Testers, odd Meters, etc. We trade in and buy all types of Test Equipment. DENHAM'S RADIO SERVICE, Box 145, Maryborough, Queensland.

a current of about 125 ma. for a big amplifier he is building.

A.—If the power transformers are of exactly the same type and brand it might be possible to get away with the scheme but it is not the kind of thing we would like to go around recommending as being anything like an ideal way out of the problem. Surely if you look around a bit you will find it possible to obtain a suitable power transformer, thereby avoiding what might be called a clumsy arrangement, even if only in a mechanical sense.

S.J.P. (West Brunswick, Vic.) writes about gramophone recordings.

A.—There is a tremendous difference in gramophone recordings and it is never safe to judge an amplifier on one particular recording. Even amongst the latest releases there are all sorts of recordings, in many cases due to the different studio conditions under which the recording process was carried out. We doubt if you can even co-relate the brand on the record with the technical merit of the recording on it. Not all of the Stokowski recordings were beyond reproach. One of the records we used at the Amplifier Championship a while back was H.M.V. C2915—"Nights at the Ballet," a recording of a symphony orchestra conducted by Walter Goehr. The amplifier enthusiasts who were present at this contest all seemed to agree that it was a pretty fair sample of nice recording technique. It also contains a variety of work which allows the amplifier to be judged on widely differing passages.

= approximately 1,500,000 ohms.

To an audio frequency of 1000 cycles, however, the impedance would be only 1500 ohms.

These examples show one important use of inductances in radio, in that an inductance coil or choke can be designed to provide an easy path for direct current, while offering considerable resistance to alternating currents. Again, by using a smaller inductance value, a negligible impedance will be offered to low frequency alternating currents, but a high impedance to currents of high, or radio, frequencies.

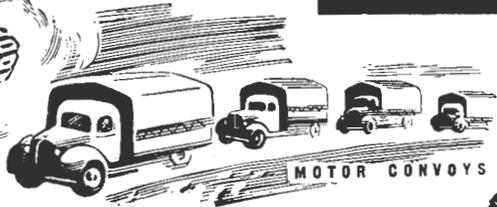
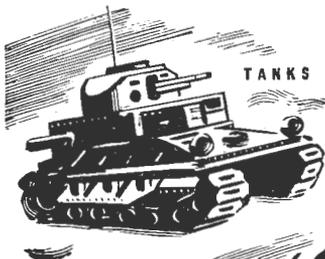
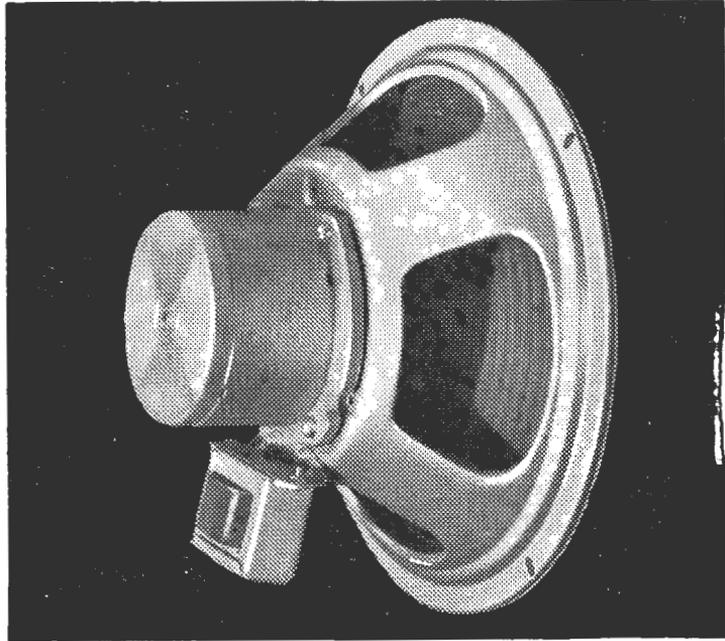
Next Month: THE CONDENSER AT WORK

Unobtainable in most places, but we can supply 1A7GT, 1A5GT, 1P5GT, 2A3, 3A3, 6L77G, 6L6G, 6N7, KT66, EK2P valves, and dozens of other types. Also hard-to-obtain odd type Valves, Transformers, Condensers, Dial Glasses, etc., both new and used. Write to us to-day for anything in Radio. DENHAM'S RADIO SERVICE, Queensland's Premier Radio Distributors, Box 145, P.O., Maryborough, Queensland.

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and they come
clear and undistorted
through

ROLA **LOUD SPEAKERS**



R.A.A.F. STATIONS



IN communication equipment for the Army's mobile forces, at R.A.A.F. aerodromes and training centres, with A.R.P. organisations, and in ships of war, Rola Speakers are serving with unfailing efficiency.

Rola Loud Speakers are selected because of their outstanding performance and unique ability to withstand extremely hard service conditions. They are made in the widest range of models available in Australia — a type for every purpose. The best sets invariably embody Rola — the world's finest Loud Speaker.



Listen to Rola Radio Newsreel, 7.15 to 7.45 p.m.
E.S.T. from 3XY, 2UE, 5AD-PI-MU-SE.

ROLA COMPANY (Australia) PTY. LIMITED

The Boulevard, Richmond, Victoria and 116 Clarence Street, Sydney

How John Stepped O



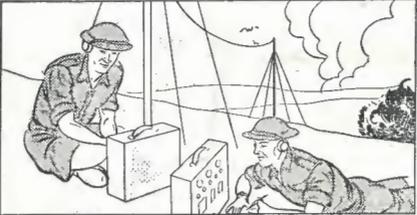
Not so very long ago, there was a young shop assistant named John, who wanted to do his best in the War effort. Being untrained, he did not know what to do about it.



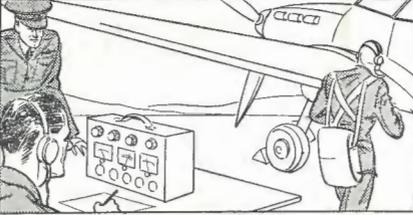
Until he heard about A.R.C. Radio Engineering training, and wrote for details of the course. He quickly saw the advantages of learning Radio Engineering, and started the A.R.C. course in his spare time.



John quickly learned enough to take a position at Radio Defence work, which was found for him by the College. This meant more money and good opportunities for advancement.



Had he wished at that time, he could have joined a Radio Unit in the Army at communications work, radio maintenance, or some other form of military radio work.



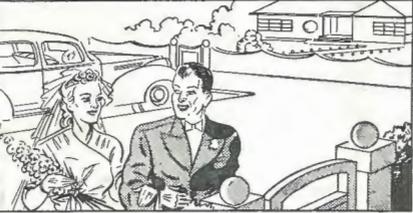
Or in the R.A.A.F. as a Radio Operator in air crew, or on the ground staff. Radio maintenance work, and radio location work, were also open to him.



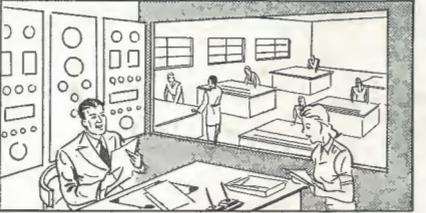
Still on Defence Work, he carries on with his spare-time Radio training with the Australian Radio College. All the time making himself more and more proficient at Radio work.



Soon, by reason of his training, he is promoted to take control of his section of the work. This means another rise and prospects of even more promotion.



This extra money means wedding bells for John, and a home of his own. He can see the fulfilment of his highest ambitions quickly taking shape.



When his Radio Training is completed he will be ready to take up an executive Radio position. This may come during or after the end of the War. What is most important—**HIS FUTURE IS ASSURED.**

★ John stepped out of the rut, so can you. Men with some radio training are wanted urgently in Industry and all branches of the Fighting Forces. Learn Radio quickly and be equipped to help your country during this vital period. Peacetime will also find you ready to succeed in radio, to-day's fastest moving profession.

Write for full information of this amazing course

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Send passport for free illustrated A.R.C. book, "Careers in Radio and Television." Read all about the jobs YOU can fill once you are trained.

PASSPORT TO PROSPERITY FOR ONE

To L. B. GRAHAM,
Principal of Australian Radio College,

Dear Sir,—

Please send me, without obligation on my part, the free book, "Careers in Radio and Television."

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