

MODERN RADIO CIRCUITS

For A.C.
OPERATION

Supplement to
"Wireless Weekly"
August
14,
1931



*Constructional Details and Diagrams
for the*

DIRECT-COUPLED TWO

HI-POWER TWO

MIDGET THREE

The 1930-FOUR

The 1930-THREE

and the DE LUXE FIVE

As designed by Ross A. Hull and A. G. Hull

Specialising in Direct-Coupled Sets

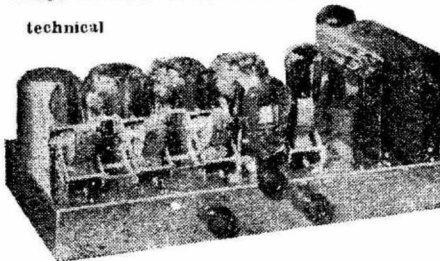
Hardy's Radio Stores specialise in the manufacture of direct-coupled receivers. All parts for the sets listed in this supplement can be supplied from stock. The assistance of our technical and mechanical staff is always available to our customers.

GECO A.C. VALVES

UY 227	12/-
UX 280	12/6
UX 245	14/6
UY 224	16/9

We can supply all Philips, Mullard, and Radiotron Valves, as used in direct-coupled sets, at competitive prices.

technical



A STANDARD 1930-FOUR CHASSIS

With band pass tuning, as manufactured in our workshops.

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POWER PACKS.

The Truvoice Pack, for direct-coupled sets.
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POWER TRANSFORMERS

1930-4, 1930-3, Wireless Weekly Midget, De-Luxe Five, etc. 32/6

Direct-coupled Two and Hi-power Two 30/-

Filter Chokes— 7/6, 14/6, 18/6

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'Phone, MA2775

Transformers --- Resistances --- Chassis --- Chokes

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30 Henry, 75 Mills.
7/6.
A Real Choke.

HEAVY DUTY "STANDARD" CHOKE.

30 Henry, 100 Mills.,
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CENTRE-TAPPED CHOKE.

60 Henry, 125 Mills.,
21/-.

CHASSIS,

In Polished Aluminium.
14 by 9 in. 6/9
18 by 10 in. 7/9
22 by 11 in. 8/9
All 2in. deep.

ALL STANDARD MAKES A.C. VALVES.

UX280	12/6
UY227	12/6
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Dynamic UX250's	25/-

IGRANIC R.F. CHOKES, 3/9.

TRANSFORMERS.

The Wallace "Universal" Full Wave 600 volts, centre tapped, with windings for UX280, UY227, UY224, and any 4-volt valve 22/6

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THE WIRELESS SHOP

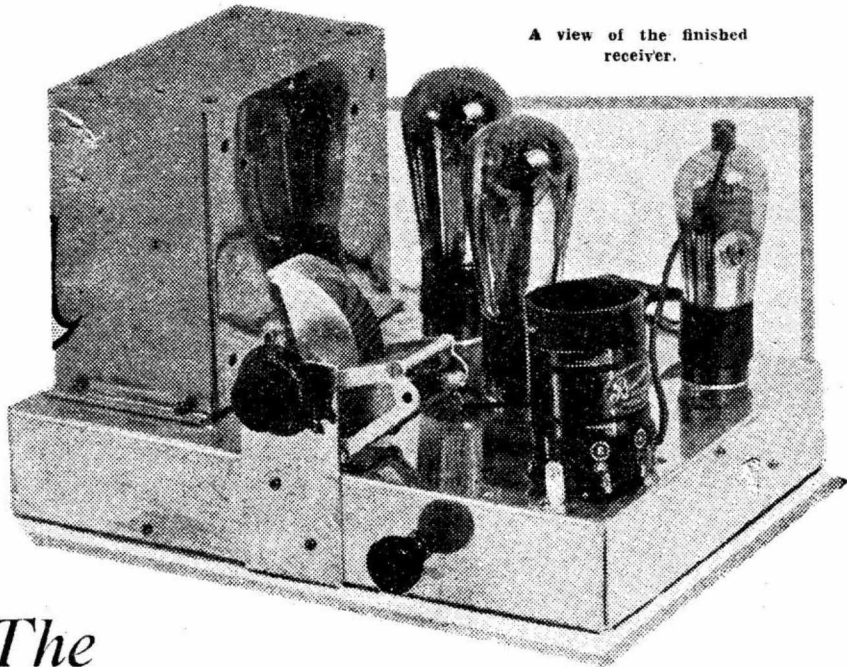
Miss J.V. Wallace

6 ROYAL ARCADE
OPP. Q.V. BUILDINGS

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Money Back Guarantee.



A view of the finished receiver.

The DIRECT-COUPLED 2

THIS set has excellent tone, plenty of volume, and is cheap and easy to build. All types of readers have had instant success with this set under the following conditions:—The set should be used within twenty miles of the transmitting stations, but may not have sufficient selectivity if used at Petts Point, Bondi, Cremorne, and one or two other spots where selectivity is essential. Otherwise it will give similar performance to sets costing twice the price. The only details requiring particular attention are the grid-leak resistors, R1, 2, 3, 4, and 5. These should be of the best quality available, and the whole success of the set depends upon their accuracy. In certain locations it may be found a good plan to fit the earth lead to the aerial terminal, operating the set without the usual aerial. It is quite essential to use the set with a dynamic speaker having a field coil with a resistance of 7500 or 8000 ohms. If this is not used the field coil

shown in the circuit must be replaced with a wire-wound resistor of this value and capable of carrying 25 milliamps.

COIL-WINDING DATA.

The coil former is two inches in diameter, and carries the three coil windings. All coils are wound with the same rotation. There are 15 turns for the aerial coil, 50 turns for the secondary, and 15 turns for the reaction. In each case the wire is 34-gauge enamelled copper. If a .00035 condenser is used, then about five extra turns will be needed for the secondary. If the set is located well away from the transmitting stations, the number of turns for the aerial coil may be increased indefinitely until the set becomes only sufficiently selective.

THE POWER TRANSFORMER.

The power transformer is a half-wave job delivering about 375 to 400 r.m.s. a.c. volts at 40 mills. Owing to the light drain, this is the voltage required to give a d.c. output from the filter of 425/475 volts.

PARTS REQUIRED For the DIRECT- COUPLED 2

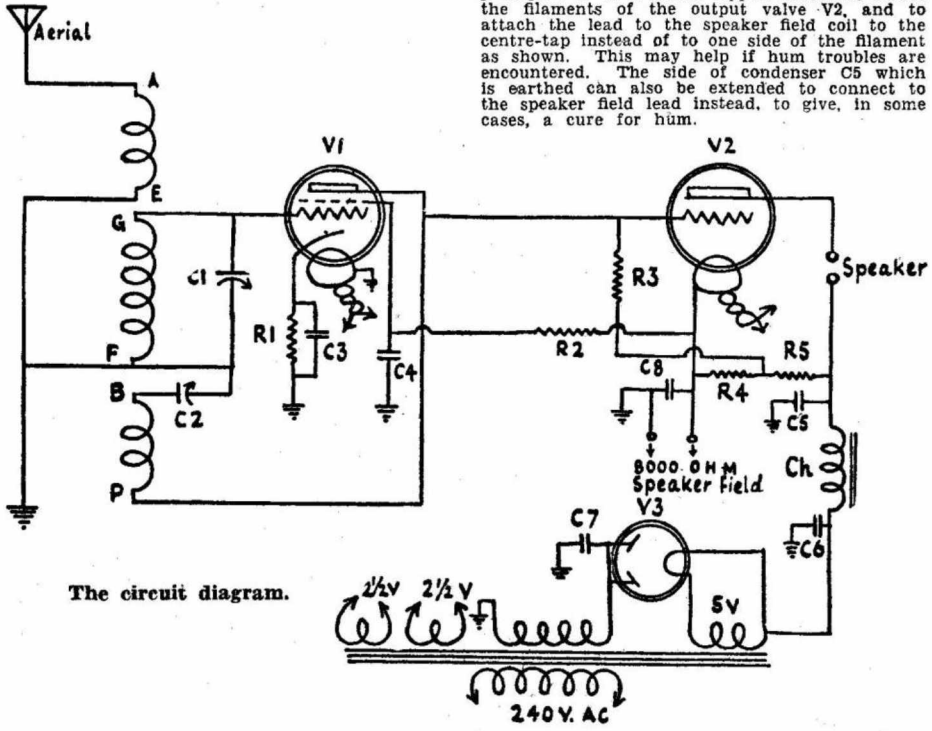
CHECK THE COIL CONNECTIONS.

It is advisable to make a point of checking up the connections on factory-wound coils. The grid always comes from the top of the secondary with the bottom earthed. The plate connection to the primary of an r.f. transformer will come from the top of the winding if fitted inside or on top of the secondary. The B plus connection should be the end of the primary nearest to the earth end of the secondary. With the Direct Coupled Two the connections are clearly shown in the circuit diagram. It is quite common to find coils with the reaction connections incorrectly marked.

- 1 Aluminium Base, size 12in. x 9in. x 2in. (Prima Donna, Radiokes).
- 1 Power Transformer and Choke, to deliver 425-475 D.C. volts after filter at 40 mills, 2½ volts at 1.75 amps or more, 2½ volts at 1.5 amps or more, 5 volts at 2 amps or more, 30 henry 50 mill. choke (Radiokes, Prima Donna).
- 2 4mfd. Fixed Condensers to stand 475 working volts (C5 and C6) (Chanex, Hydra).
- 1 .1 Buffer Condenser to stand 475 working volts (C7) (Chanex, Hydra).
- 2 .1, .25, .5, or 1mfd. By-pass Condensers to stand working at 200 volts (C3, C4) (Chanex, Hydra).
- 1 1mfd. or 2mfd. Fixed Condenser to stand working at 250 volts (C8) (Chanex, Hydra).
- 1 Reinartz type Tuning Coil (Radiokes, Prima Donna).
- 1 .0005 Variable Condenser (Radiokes) (C1).

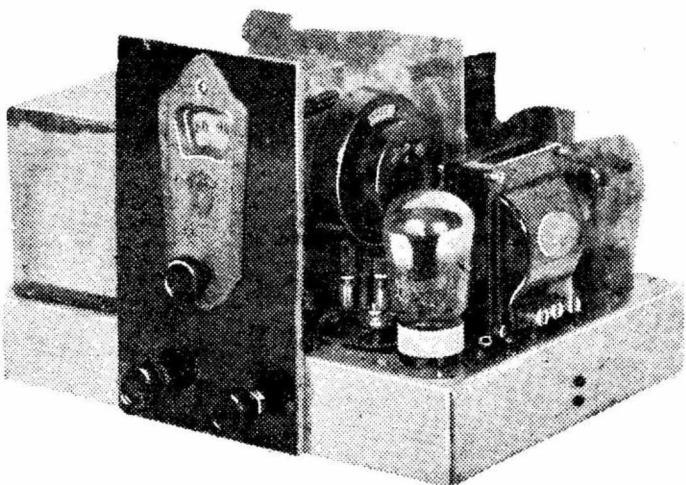
- 1 23-Plate Midget Condenser (Radiokes or Pilot) (C2).
- 1 15,000 (R1), 1 500,000 (R3), 2-¼ meg. (R4, R5, 1-2 megs. (R2), Grid Leaks (Durham, Renrade, Carborundum or Radiohms).
- 2 UX and 1 UY Sockets (Prima Donna, Pilot); 1 aerial terminal 1 earth terminal, 1 screen grid cap clip; 5 yards connecting wire; 2½ dozen ¼ x ½ screws and nuts; 1 piece aluminium 2in. x 4in.; 2 knobs for condensers; 5 yards lighting flex wire; 1 adaptor.
- Valves: 1 224 Screen Grid (V1), 1 245 Power Valve (V2), 1 280 Rectifier (V3).
- Speaker: 8,000 ohms D.C. type (Jensen).
- Cabinet: Suitable midget cabinet (Dickin or Prima Donna).

If a few shillings can be spared it is a good plan to fit a centre-tapped resistance across the filaments of the output valve V2, and to attach the lead to the speaker field coil to the centre-tap instead of to one side of the filament as shown. This may help if hum troubles are encountered. The side of condenser C5 which is earthed can also be extended to connect to the speaker field lead instead, to give, in some cases, a cure for hum.



The circuit diagram.

Although only a two valve set, this job is capable of giving results superior to the average three valve set, and many four valve ones. Although the cost of parts runs into a fair sum for a two-valve receiver, it is undoubtedly a sound investment



THE HI-POWER 2

ALTHOUGH not proving as popular as the "Direct-coupled Two," this set has achieved considerable success on account of its remarkably fine tone and general performance, and its positively astounding selectivity. Many enthusiasts will already have a number of the components on hand, as those used are all more or less standard lines, with the possible exception of the coils specified. If it is not desired to use these coils, however, there are many ordinary coils which will serve the purpose quite well, and all the usual coil winding factories turn out suitable coils of the more normal type. Practically the only difficulty ever reported by readers who built this set related to hum trouble, which was later traced to the detector valve being slightly microphonic. The later type of 354V detector valve, however, has a clearer bulb, a vertical filament, and is not so liable to hum trouble. With the new type detector the set represents the last word in quality sets, and can out-perform the average three and four valve sets. It is operating at its best when located right in the midst of the powerful local transmitters, the circuit requiring considerable strength of input to give the excellent

reproduction for which this set was originally designed.

THE ALUMINIUM SHIELD.

It is quite essential to arrange satisfactory screening between the coil units, and also, as shown in the diagram, to insulate the tuning condensers from the aluminium base. This can be managed by mounting them in a wooden panel, with a rear support consisting of the .01 mica condenser which forms part of the band-pass tuning system.

THE AUDIO TRANSFORMER.

The whole success of the set depends upon the quality of the audio transformer used. The type mentioned in the parts list is particularly suitable. Some experimenting may be necessary to find the correct connections to the audio transformer secondary.

CONNECTIONS TO THE AUDIO TRANSFORMER.

Considerable experimenting with the connections to the audio transformer is desirable to obtain the very fine results of which this set is capable. Owing to the differences in the windings of transformers there is no way of discovering the correct connections without a test under actual operating conditions.

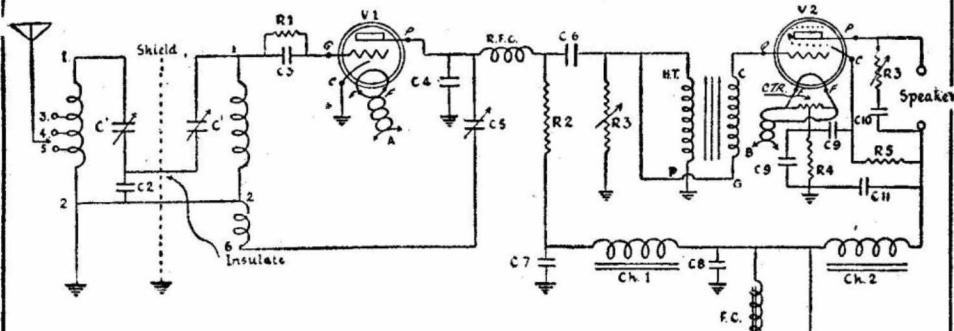
PARTS REQUIRED For the HI-POWER 2

- 1 Aluminium Base, size 12 x 9 x 2 (Radiokes or Prima Donna).
- 1 Power Transformer, 330 volts each side of centre-tap, with 1.5 volt and 2.4 volt filament windings. (Radiokes, Prima Donna).
- 2 Filter Chokes (Radiokes, Prima Donna, or A.W.A.).
- 1 Aluminium Shield, size 6in. square, with a 1/2in. flange along bottom.
- 1 Figured Bakelite or Veneered Wood Panel, size 6in. x 8in.
- 2 Tuning Coils with Bases and 1 Primary (Lewcos-2-CAC5 type, 1 P4, and two bases).
- 2 Variable Tuning Condensers (Radiokes) (C1).
- 1 5-plate Midget Variable Condenser (Radiokes or Pilot) (C5).
- 1 Ferranti Audio Transformer, Push-pull Type AF5C, with six terminals (A.T.).
- 2 Chanex Potentiometers, 50,000 ohms (R3).
- 1 .0001 Fixed Condenser (Renrade or Pilot) (C3).
- 1 .00025 ditto (C4).
- 2 .01 mfd Fixed Condensers (Chanex or Hydra) (C2-C10).
- 1 1 mfd. ditto (C6)
- 2 2 mfd. ditto (500 v.d.c. test) (C9).
- 2 2 mfd ditto (500 volt a.c. test) (C7) (C11).

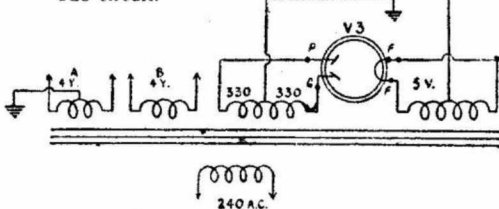
- 1 4 mfd. ditto (500 volt a.c. or 1000 volt d.c. test) (C8).
- 1 Radio Frequency Choke (Radiokes or Lewcos) (R.F.C.).
- 1 250,000 ohm Grid Leak Type Resistor (Durham, Renrade) (R1)
- 1 25,000 ohm Wire-wound Resistor (Mullard, Prima Donna, Renrade, or Radiokes) (R2).
- 1 15,000 ohm ditto (R5).
- 1 1000 ohm Wire-wound Resistor (Mullard, Prima Donna, Renrade, or Radiokes) (R4).
- 1 50 ohm Centre-tapped Resistor (Renrade or Radiokes) (C.T.R.).
- 1 Vernier Dial (Radiokes, Pilot, or Emmco).
- 1 Condenser Shaft, 9in x 1/4in.
- 2 UY and 1 UX Type Sub-panel Valve Sockets (Prima Donna).
- 2 Pin Jacks, necessary Wiring, Screws, Scrap Bakelite, Soldering Lugs, Wiring Wire, Spaghetti, Adaptor, Terminals, etc., etc.
- Valves: 1 each Mullard 354V (V1), PM24A (V2), and PM280 (V3).
- Speaker: 1 Dynamic d.c. Speaker, with 8000 ohm field (Jensen).
- 1 Cabinet to Suit (Prima Donna, Dickin).

TONE CONTROL.

The condenser C10 and the resistance R3 provide the effective tone control, which will vary the quality of the reproduction from brilliant to mellow. An infinite number of settings are available so that the tone can be varied to suit any taste. The value of the condenser C2 is a critical one and the set will not give satisfactory results with a condenser of different capacity in this position. If extreme selectivity is not desired then a single tuning coil and condenser as shown in the circuit of the Direct-Coupled Two can be used with this circuit.



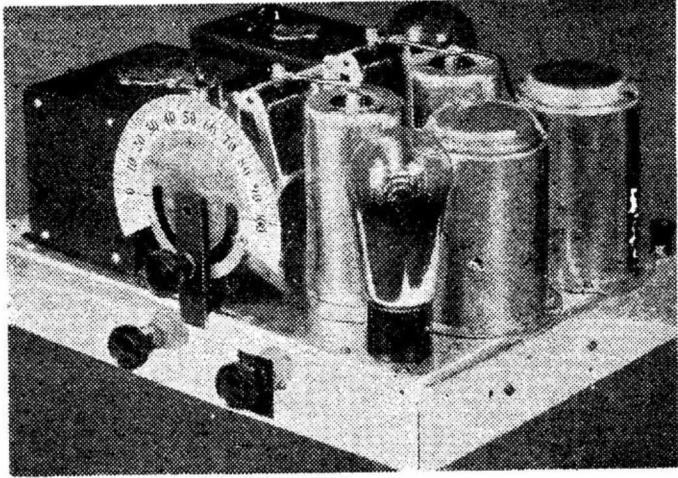
The circuit.



INFORMATION SERVICE.

If you need any further information about any of these circuits, write to The Radio Information Service, Box 3366PP, G.P.O., Sydney, N.S.W. Each inquiry should be accompanied by the coupon which appears in every issue of "Wireless Weekly."

The MID- GET 3 . .



A view of the completed receiver.

THE first "Midget" set to be described in Australia, the "W.W. Midget," soon gained in popularity, and to-day the mid-get receivers are the best sellers in many factory-built series. The "W.W. Midget" is a form of direct-coupled receiver, although not of the true Loftin-White type. It is capable of giving plenty of volume, tone, and selectivity without the use of reaction, which is considered objectionable by discerning enthusiasts. Although we would not go so far as to say that the reproduction is equal to the better types of direct-coupled receiver, it is far better than the average set in this respect.

ADJUSTMENT.

With this particular receiver it is possible to adjust the voltages throughout by means of the rheostat R1. When the set is completed this rheostat should be set at about half-way, and the set switched on. After it is tuned to a station, this should be adjusted to give the best all-round performance. It has quite an appreciable effect upon tone and sensitivity and may require a slightly different setting for best results from a gramophone pick-up. The value of the resistance R7 has also a big effect upon general performance, and can be varied to suit individual requirements. The value may be anything from 100,000 ohms to two megs, but the 1 meg resistor specified is the best for average conditions. The choke AT comprises the secondary of a Philips

audio transformer. Other transformers can be used in place of the brand specified, but unless they are of good quality the reproduction will be spoilt.

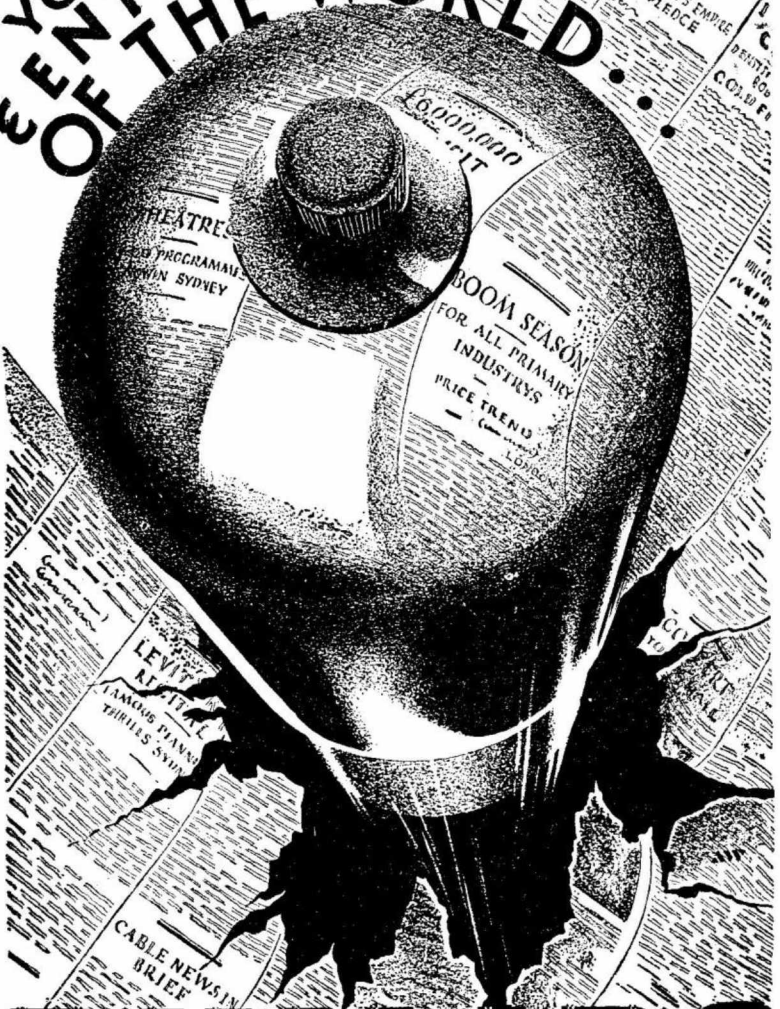
HUM.

It is sometimes found with this circuit that a hum is noticed only when the set is tuned to a station. This can be remedied by the fitting of a .1 mfd. fixed condenser between the plate of the rectifier and earth. The condenser must be of high voltage rating.

FITTING DYNAMIC SPEAKERS

IN all circuits where the field coil of a dynamic speaker is not shown it can be taken that the circuit is designed for the a.c. type speaker. If desired to use the d.c. type speaker the field should be fitted between the filaments of the rectifier and earth, with a series resistor to limit the current flow to about 25 milliamps. For example, with a high tension of 330 volts this resistor will not be essential if the speaker has a field of 7500 or 8000 ohms. However, if the h.t. voltage is 450 odd, then a resistance of 10,000 ohms will be required. With the "1930 Four" and "De Luxe Five" the value will be 20,000 ohms.

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THE NEWS. VIEWS
ENTERTAINMENT
OF THE WORLD



PHILLIPS
VALVES 1160

HERE'S THE ONLY CONDENSER FOR LOFTIN WHITE—

AND SIMILAR CIRCUITS

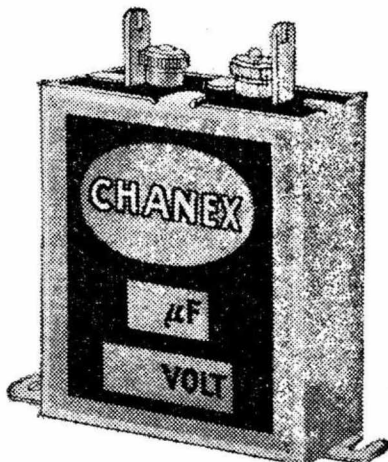
**"CHANEX" CONDENSERS
ARE SPECIFIED**
By the Technical Editor "Wireless Weekly" for all circuits featured in this Booklet.

The *New*

Chanex is designed for working voltages up to 600 volts D.C.

(Double, Tested 2000 Volts D.C.)

AVAILABLE IN ALL CAPACITIES.



This is the new Chanex Condenser, designed for working voltages up to 600 volts D.C. These are now available in addition to the familiar Chanex 1500 Volts (350 volts working).

CHANEX

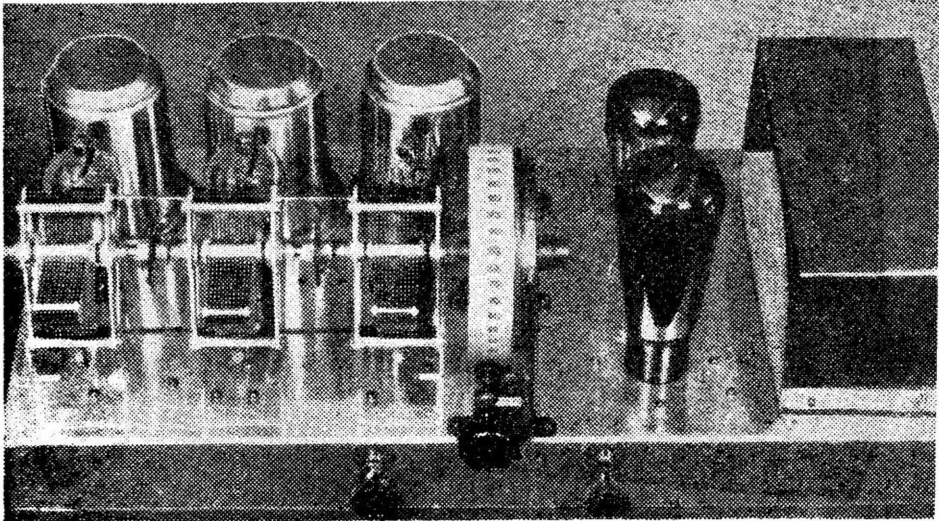
Capacity	Size	Price
.1 mfd.	15/45/50 mm.	3/-
.25 "	15/45/50 mm.	3/6
.5 "	15/45/50 mm.	3/9
1 "	35/45/50 mm.	4/-
2 "	55/45/50 mm.	6/3
4 "	100/45/50 mm.	10/9

OBTAINABLE AT ALL GOOD RADIO DEALERS

N.S.W. Distributors:
 Fox and MacGillycuddy, Ltd., York Street
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 Bloch and Gerber, Ltd., York Street,
 Sydney.
 Harringtons, Ltd., Clarence Street,
 Sydney.
 Noyes Bros. (Sydney), Ltd., Erskine and
 York Streets, Sydney.

Interstate Distributors:
 J. C. Price, Perry House, Brisbane.
 Trackson Bros., Ltd., 157 Elizabeth Street
 Brisbane.
 Carlyle and Co., 913 Hay Street, Perth.
 W. T. Mathews, 95 Grenfell Street,
 Adelaide.
 W. G. Genders Pty., Ltd.,
 Hobart and Launceston.

Factory Reps.: H. Hecht and Co., Sydney and Melbourne.



A view of the finished receiver.

THE 1930 FOUR

THIS circuit is the most outstanding design ever known to the Sydney radio trade. More kits of parts have been sold for this set than any set previously described in Australia. It is not difficult to understand the reason why—the set has performance which cannot be purchased in any other of the same size. Irrespective of cost, it is not possible to obtain better tonal quality. It has sufficient range to give excellent interstate results and enough volume to fill a small hall

TROUBLES.

What is more remarkable about the popularity of the "1930 Four" is the fact that it was built up, notwithstanding several troubles which were experienced with earlier models. The original pentode specified proved a failure, and soon gave trouble. Fortunately a far better pentode is now available, which can be operated at about half its rated power to give the same results with unlimited life.

The other trouble was the matter of grid-leak type resistors. As soon as the circuit became popular stocks of suitable grid-leaks became exhausted, and unsatisfactory types were pressed into service. To-day ample stocks of the better class grid-leaks are readily available, and we

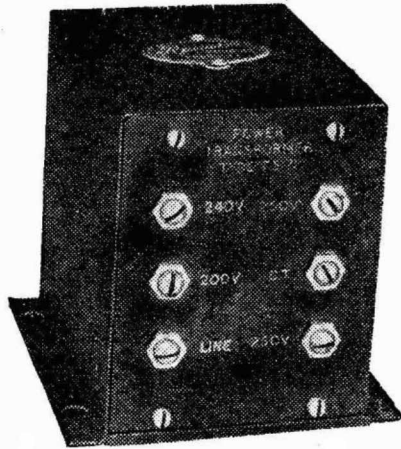
can give the "1930 Four" the limit of our recommendation. If the worst comes to the worst, and the grid-leaks are not accurate, there are several firms who specialise in the adjustment of the voltages in these sets, so that for a few shillings the home-builder can have his set checked-up with meters to ensure that he will get the best possible performance and entire satisfaction

THE SPEAKER.

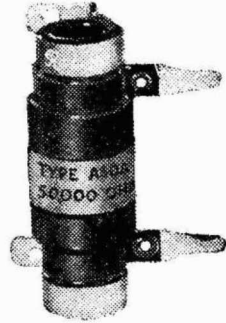
To obtain the best possible results it is essential to use a good quality speaker, the best obtainable for preference. It should be mounted on a large baffle-board.

THE POWER TRANSFORMER.

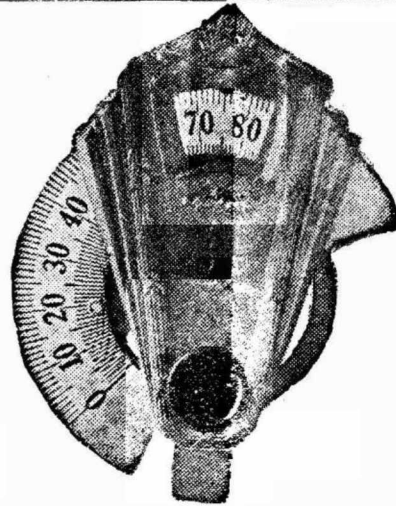
The secondary of the power transformer should supply about 575 r.m.s. a.c. volts. This will give a voltage of about 600 to 625 after filtration and rectification, which is quite sufficient, although an extra fifty volts or so are permissible. With this power transformer and the 550-volt pentode it is not possible for the valve to be overloaded, irrespective of the values of the grid-leak type resistors used. They can be varied to give the best performance without any chance of damaging the pentode.



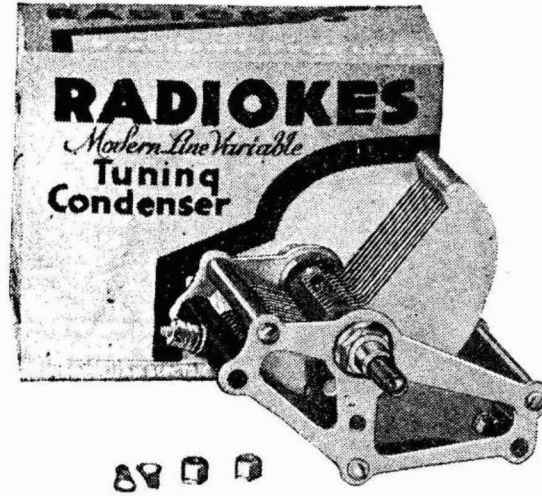
Radiokes Power Transformer.



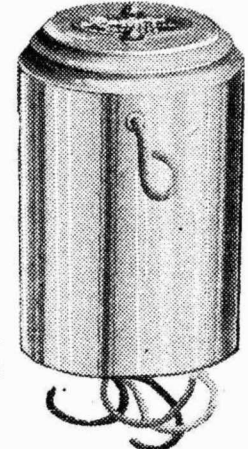
Radiokes Resistors.



Radiokes Illuminated Vernier Dial.



Radiokes Variable Tuning Condenser.



Radiokes Shielded Coils

Build These "Wireless Weekly" sets with Radiokes Guaranteed Parts

HI-POWER 2 Transformer.

- 1 Radiokes Aluminium Base, 12in. x 9in. x 2in.
- 1 Radiokes T5443 Power Transformer
- 2 Radiokes C50M Power Chokes.
- 1 Radiokes Shield, 6in. x 6in. (1/2in. flange).
- 1 Radiokes Standard Aerial Coil
- 1 Radiokes Standard High Power 2 Coil
- 2 Radiokes VC23 .0005 Variable Tuning Condenser.
- 1 Radiokes Y5 5-Plate Midget Condenser.
- 1 Radiokes RF85 Radio Frequency Choke.
- 1 Radiokes A250D Radiohm.
- 1 Radiokes A25A Radiohm.
- 1 Radiokes L15 Resistor.
- 1 Radiokes M10 Resistor.
- 1 Radiokes F50 C.T. Filament Resistor.
- 1 Radiokes ADV1 Art Vernier Dial.
- 1 Radiokes Condenser Shaft, 9in. x 1/4in.

DIRECT COUPLED 2.

- 1 Radiokes Aluminium Base, 12in x 9in. x 2in.
- 1 Radiokes T5243D Power Transformer.
- 1 Radiokes C30M Power Choke.
- 1 Radiokes KER1 Reinartz Tuner.
- 1 Radiokes VC23 .0005 Variable Tuning Condenser.
- 1 Radiokes Y23 23 Plate Midget Condenser.
- 1 Radiokes L15 Resistor.
- 1 Radiokes A500D Radiohm.
- 2 Radiokes A250D Radiohm.

"1930-THREE".

- 1 Radiokes Aluminium Base.
- 1 Radiokes KH03 1930 3 Soldered Coil Kit.
- 2 Radiokes VC23 .0005 Variable Tuning Condenser.
- 1 Radiokes 6in. Shaft for same.
- 1 Radiokes Y5 5 Plate Midget Condenser.
- 1 Radiokes T5245D Power Transformer.
- 1 Radiokes C30M
- 1 Radiokes MD729 Voltage Divider
- 1 Radiokes M20 Resistor
- 1 Radiokes H4A Resistor
- 1 Radiokes F20 C.T. Fil. Resistor.
- 1 Radiokes A25A Radiohm
- 1 Radiokes A50A Radiohm
- 1 Radiokes A100A Radiohm
- 1 Radiokes A500D Radiohm

ORIGINAL 1930-FOUR.

- 1 Radiokes Aluminium Chassis, 20 1/2 x 9 1/2 x 2 1/2
- 1 Radiokes KH04 1930 4 Coil Kit.
- 1 Radiokes T7243D Power Transformer.
- 1 Radiokes C30M Power Choke
- 3 Radiokes VC23 .0005 Variable Tuning Condenser.
- 1 Radiokes Y5 5 Plate Midget Condenser.
- 1 Radiokes A50A Radiohm.
- 3 Radiokes A100A Radiohm.
- 1 Radiokes A300D Radiohm.
- 1 Radiokes A500D Radiohm.
- 1 Radiokes MD565 Voltage Divider.
- 1 Radiokes L10 Resistor.
- 2 Radiokes M20 Resistors
- 1 Radiokes M90T C.T. Resistor.
- 1 Radiokes F50 C.T. Fil. Resistor.
- 1 Radiokes RF85 R.F. Choke.

ALTERNATIVE 1930 FOUR.

- 1 Radiokes Aluminium Chassis, 20 1/2 x 9 1/2 x 2 1/2
- 1 Radiokes KH04 1930/4 Coil Kit
- 1 Radiokes T7243D Power Transformer.
- 1 Radiokes C30M Power
- 3 Radiokes VC23 .0005 Variable Tuning Condensers.
- 1 Radiokes Y5 5 Plate Condenser.
- 1 Radiokes L10 Resistor
- 2 Radiokes M20 Resistor
- 1 Radiokes M11A Resistor
- 1 Radiokes M90T Voltage Divider
- 1 Radiokes MD565 Voltage Divider
- 1 Radiokes F50 C.T. Filament Resistor.
- 3 Radiokes RF85 R.F. Chokes
- 1 Radiokes AT3 Audio Transformer

"DE LUXE" FIVE VALVE.

- 1 Radiokes KL5 De Luxe Coil Kit
- 1 Radiokes T725H Power Transformer.
- 1 Radiokes TF742 Power Transformer
- 1 Radiokes CD30H Power Choke.
- 4 Radiokes VC23 .0005 Variable Tuning Condensers.
- 1 Radiokes Y5 5 Plate Midget Condenser.
- 1 Radiokes A50A Radiohm.
- 4 Radiokes A100A Radiohms.
- 1 Radiokes A250D Radiohm.
- 1 Radiokes A500D Radiohm.
- 1 Radiokes L20 Resistor.
- 3 Radiokes M20 Resistors.
- 3 Radiokes H4A Resistors.
- 1 Radiokes F50 C.T.
- 1 Radiokes RF85 R.F. Choke.

Radiokes Precision Products covering most of the needs of the modern set constructor are backed by a 12 months guarantee of accuracy, quality and reliability. You are sure of satisfactory results if you build strictly according to specifications—with Radiokes quality parts.

Power Transformers.

T5443, 52/6; T5245, 52/6; T5245D, 59/6; T7243D, 65/-; T725H, 82/6; TF742, 39/6

Power Chokes.

C30M, 22/6; C50M, 47/6; CD30H, 75/-.

Shielded Coils.

Small size wound on 1-inch diameter torques. Ready wired with colored leads. Use in different combinations for any standard R.F. circuit. Price, each, 9/11

New Standard Reinartz Tuner.

Neat, efficient little coil, 2in. diameter x 3in. long. Price, 5/6

Super Midget Condenser.

Mechanically and electrically accurate. 5-plate 4/11; 23-plate, 7/11

R.F. Choke.

Small size; minimum distributed capacity, 7/11

Illuminated Vernier Dial.

Non-slip spindle; velvet-smooth action; steel portions rust-proofed; simple fitting; handsome escutcheon plate. Price, 12/6

Resistors.

M10, 3/11; M11A, 3/11; M20, 4/3; H4A, 4/8; L10 5/9; L15, 7/11; F50, 2/6; F20, 2/6

Voltage Dividers.

MD729, 7/11; MD565, 7/11; RV1, 7/11; SD129, 7/11

Radiohms New Wire-Wound Resistors.

Guaranteed accurate within 4 per cent. High resistance; very small size. A100D, 8/11; A250D, 17/6; A300D, 18/6; A500D, 27/6; A25B, 4/11; A50B, 6/3

New Variable Tuning Condenser.

For mounting either clockwise or anti-clockwise. Single hole mounting. VC23 .0005 mfd capacity, 12/6

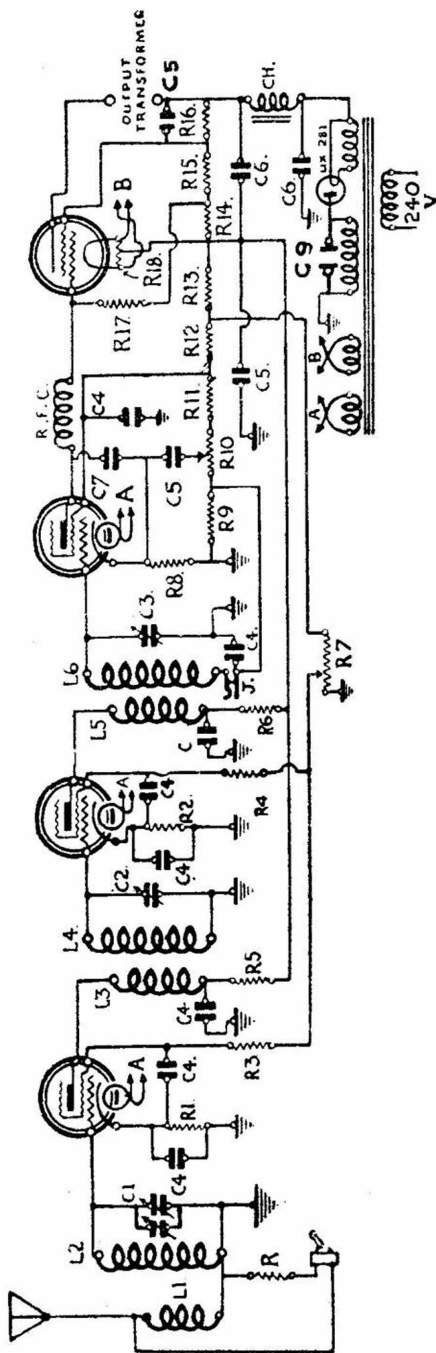
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PARTS REQUIRED For the 1930 FOUR



- 1 Aluminum Base, 20½ x 9½ x 2½; 1 set of coil units (L1, 2, 3, 4, 5, and 6) (Radiokes or Prima Donna).
- 1 Set of Coil Cans for same; 1 Power Transformer and Choke (Radiokes or Prima Donna).
- 3 Tuning Condenser, .0005, with couplings and mounts (C1, 2, 3,) (Radiokes or A.W.A.).
- 1 Single Drum Dial (Pilot); 1 5-plate midget Condenser (Cm) (Radiokes); 1 Fixed Condenser .1 mfd. (C9); 8 ditto, .5 (C4); 2 ditto, 1 mfd. (C5); 2 ditto, 4 mfd. (C6) (All Chanex or Hydra to stand 650 volts working); 1 fixed Condenser, .00025 mfd. (C7); Grid Leak type Resistors, 1 50,000 (R8), 3 100,000 (R3, 4, 14), 1 250,000 (R15), 1 500,000 (R17) (Carborundum, Durham, or Special Renrade), 1 200 ohm Potentiometer (R10), 1 200,000 ohm Potentiometer (R7) (Chanex); 1 special tapped Resistor (R9, 11, 12, and 13) (Radiokes, Prima Donna); 1 20,000 ohm wire-wound Resistor (R16), 2 2000 ohm wire-wound Resistors (R5, 6), 2 450 ohm ditto (R1, 2), 1 50 ohm c.t. Resistor (R18)
- 1 Radio Frequency Choke (R.F.C.) (Radiokes, Prima Donna). Sundries: Sockets, jacks, wire, lugs, screws, clips, terminals, solder, etc.
- Valves: 3 American-type Screen-grids (Philips, Cossor, Mullard, Radiotron, Osram, National Union, Ken-rad, etc); 1 281-type Rectifier, 1 F443 Philips 550-volt pentode.
- Speaker: 1 Jensen Concert or Auditorium model

COIL-WINDING DATA

For the "1930 Three," "1930 Four," "De Luxe Five," and "Midget Three," the following coils are suitable. Secondaries all 90 turns of 26 d.s.c. on a 1½ in. former. All primaries 30 turns of 34 d.s.c. wire on 1 in. former mounted inside earth end of secondary. Aerial coil tapped at 15th turn.

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THE fact that Prima Donna Premier Products have been consistently used and recommended by the Technical Editor of "Wireless Weekly" in the circuits featured from time to time proves that the same high standard in the products is always maintained. A glance at the parts list of the circuits reprinted in this supplement will reveal this consistency.

The following lists will give ready reference for the Prima Donna Premier Products recommended in all the circuits mentioned in this Booklet.

<p style="text-align: center;">Original 1930/4</p> <p>Al. Base 12/6 Power Pack 4/19/6 3 Coil Units 1/5/- 3 Coil Shields 4/6 Spec. Tapped Resistor 7/11 2—10,000 ohm Wire Wound Resistors 13/- 2—2,000 ohms do. 8/6 1—900 ohm C.T. ditto 3/11 1—R.F. Choke 7/11 1—50 ohm C.T. Wire Wound Resistor 2/6 5 Sockets 5/-</p>	<p style="text-align: center;">1930/3</p> <p>Al. Base 11/6 Power Pack 4/19/6 2 Coil Units 17/6 2 Coil Shields 3/- Spec. Tapped Resistor 7/11 1—2000 ohm Wire Wound Resistor. 4/3 1—450 ohm do. 3/6 1—20 ohm C.T. ditto 2/6 1—R.F. Choke 7/11 4 Sockets 4/-</p>	<p style="text-align: center;">De Luxe 5</p> <p>Alum. Base 12/6 Alum. Base 6/6 Power Pack 7/10/- 4 Coil Units 1/12/6 4 Coil Shields 6/- Spec. Tapped Resistor 7/11 2—10,000 ohm Wire Wound Resistors 13/- 2—25,000 ohm do. 19/6 3—2,000 ohm do. 12/9 3—450 ohm do. 10/6 1—50 ohm C.T. do. 2/6 1—R.F. Choke 7/11 7 Sockets 7/-</p>
<p style="text-align: center;">Hi Power 2</p> <p>Al. Base 6/6 Power Pack 5/10/- 2 Coil Units 17/6 1—25,000 ohm Wire Wound Resistor 9/9 1—15,000 do. do. 7/6 1—1,000 do. do. 3/11 1—50 ohm C.T. Resistor 2/6 1—R.F. Choke 7/11 3 Sockets 3/-</p>	<p style="text-align: center;">Midget 3</p> <p>Al. Base 6/6 Power Pack 4/19/6 2 Coil Units 17/6 2 Coil Shields 4/- 2 Valve Shields. 4/- Spec. Tapped Resistor 7/11 1—5,000 ohm Wire Wound Resistor 5/11 1—20 ohm C.T. Resistor 2/6 4 Sockets 4/-</p>	<p style="text-align: center;">Direct Coupled 2</p> <p>Al. Base 6/6 Power Pack .. 4/19/6 Reinartz Coil 5/6 3 Sockets 3/-</p>

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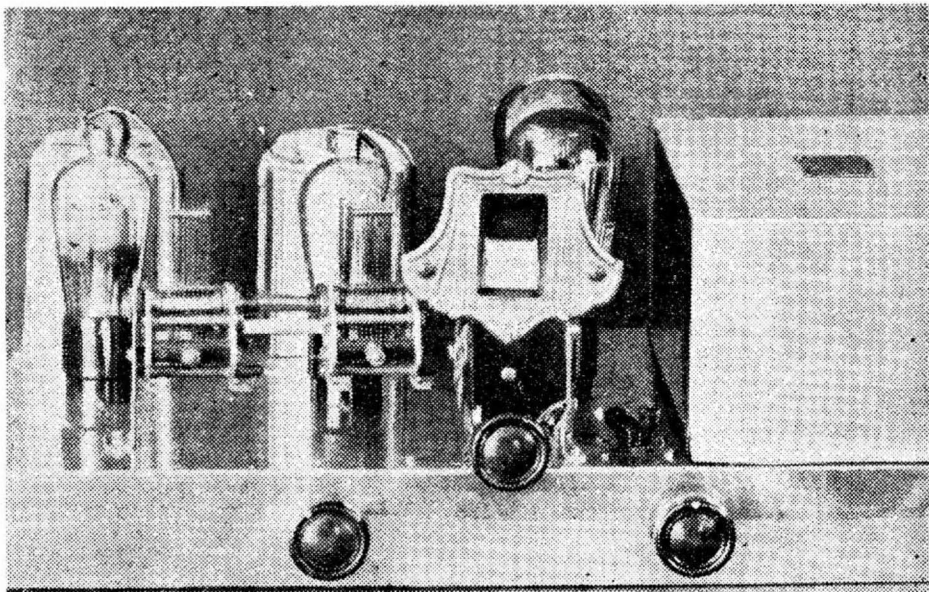
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A view of the completed receiver

THE 1930 THREE

RUNNING a close second to the "1930 Four" for popularity, this set provides the same excellent tonal qualities at a much lower cost. Owing to the power valve fitted, many readers prefer the tone of this set to that of the "1930 Four," as it is slightly more mellow. The only points where the "1930 Four" is superior to the "Three" are in regard to interstate reception and selectivity. Even so the "1930 Three" provides ample selectivity for normal requirements and will give interstate reception under favorable conditions.

The Circuit

The circuit is somewhat similar to those of the "1930 Four" and "De Luxe Five," particularly as regards the audio amplifier. On this account it is as well to study up the comments about these sets before starting upon the construction of this one.

The main points to watch are the grid-leak type resistors. These should be the power type of two or three watts

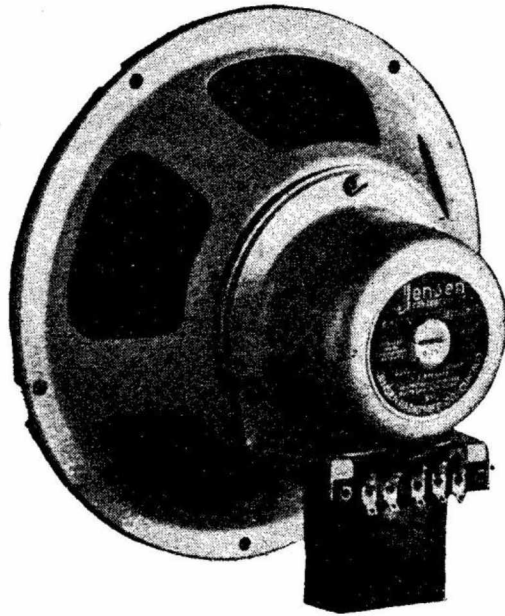
rating, or better still, should be wire-wound or spaghetti resist.

Gramophone Work

As an amplifier for use with a gramophone pick-up, the "1930 Three" is sure to please. Anyone who has not heard the electrical reproduction of electrically-recorded gramophone records cannot appreciate their remarkable musical value. In most cases it is infinitely preferable to the ordinary reception of records which have been transmitted from the broadcasting stations. Some readers report that better results with the gramophone pick-up can be obtained if the pick-up jack is fitted in the grid circuit, as shown in the circuit diagram of the "1930 Four," instead of in the cathode circuit, as shown in this diagram.

The Power Transformer

The high tension required after rectification and filtration will be between 400 and 475 volts. As the set only draws about 36 milliamperes in all, an a.c. voltage of about 400 r.m.s. will be required from the secondary of the power transformer.



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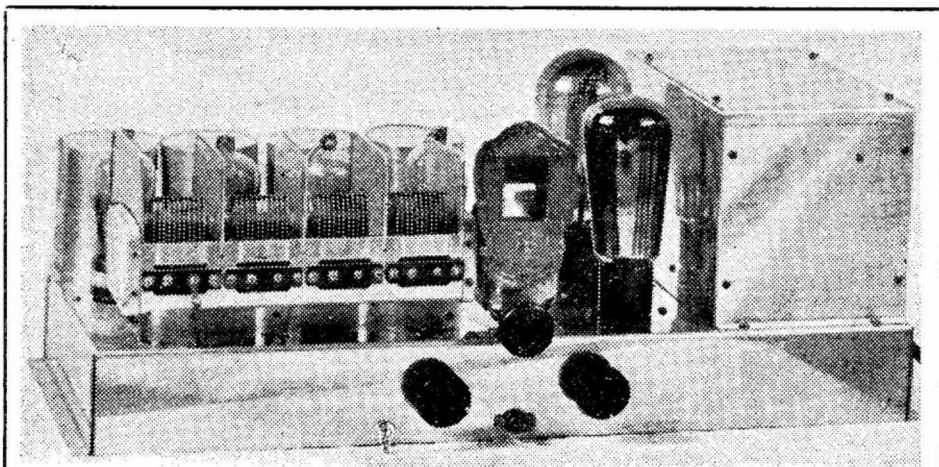
The "Wireless Weekly" Famous Battery Circuit with a log of 47 stations to its credit, including several American, Chinese Japanese, Asiatic, and Indian stations. The Technical Editor in "W.W." June 5, reports having received 157 letters of congratulations.

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THE DE LUXE FIVE

ALTHOUGH only a five-valve set, this circuit represents the most sensitive set practical. With the exception of some forms of super-heterodynes there is nothing which can out-perform this set, irrespective of the number of valves used. In fact, this set is so sensitive that we do not recommend it for city use. Owing to its almost perfect tonal quality it picks up all kinds of interference noises and amplifies them to an extent which will make reception unpleasant. For up-country towns, where a daylight range of several hundred miles is required, the set is particularly recommended. The actual cost of the construction of this set is only two or three pounds more than for the "1930 Four," but the range is far greater. The "De Luxe Five" was originally described with a more expensive arrangement for the power supply system, using two rectifying valves and a lot of added complication. As shown in the diagram in this booklet the "De Luxe Five" retains its performance, but the cost is considerably cheapened.

The Filter Condensers

The chief trouble with this set occurs through the use of filter condensers not capable of working under a pressure of 700 odd volts. A broken-down filter condenser means possible serious damage

to the rectifying valve and power transformer. The best condensers which can be purchased are not too good for the job. The condenser C8 is also called upon to withstand a high voltage and should be built up of two .1 mfd. condensers, fitted in series so as to double their voltage rating.

The Grid-leak Resistors

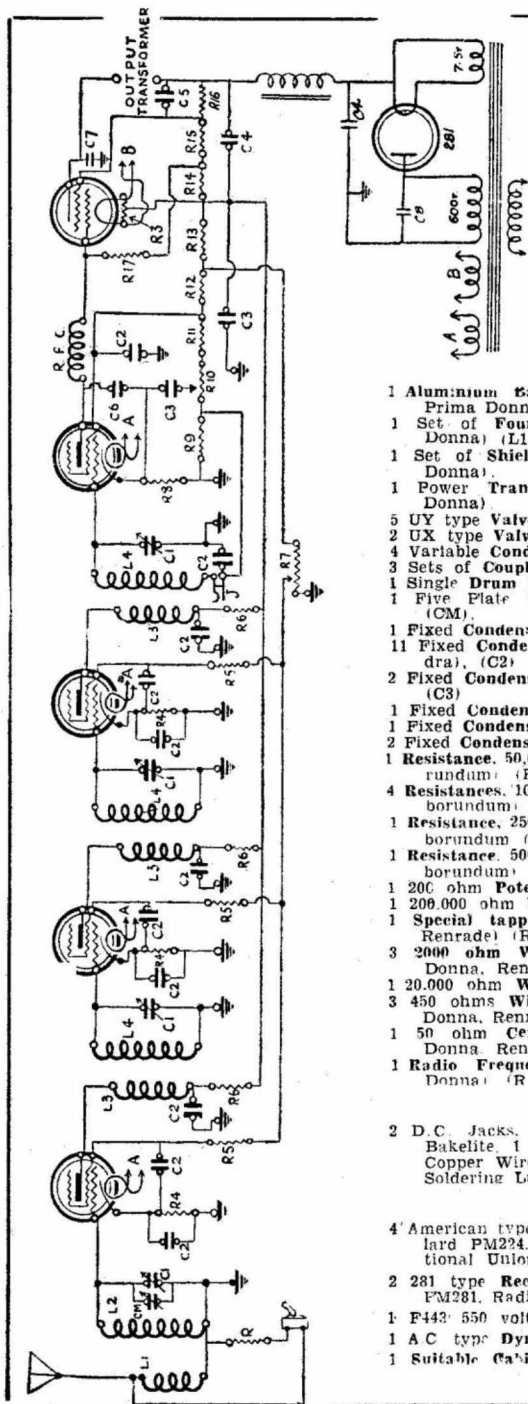
Again in this set the grid-leak type resistors are most important and for those who want to be assured of the finest results we can recommend the use of wire-wound resistances throughout.

The Power Transformer

The secondary of the power transformer should supply a voltage to the rectifier which will give from 600 to 650 volts after rectification and filtration.

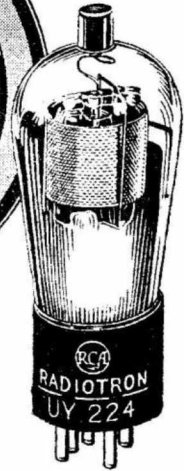
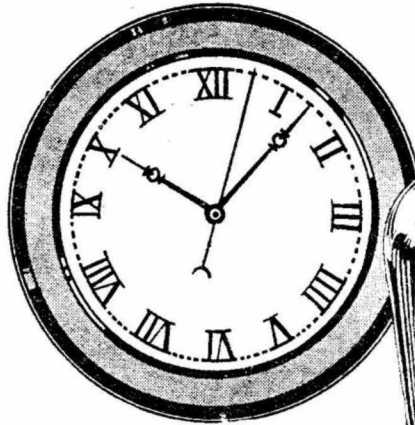
Local Distance Switch

In the "1930 Four" and "De Luxe Five" circuits, there appears a resistance R and switch. This is known as a local distance switch and is used to diminish the volume of local stations. If not fitted, selectivity will be affected when the volume control is at minimum. The resistance R is made of a bundle-wound piece of fine wire. Probably two yards of 34 gauge will be required, but the actual length can be best determined after actual tests. If the switch is not sufficiently effective then the wire should be shortened.



PARTS REQUIRED For the DE LUXE 5

- 1 Aluminum Case, size 20½ x 9½ x 2½—(Radiokes, Prima Donna)
 - 1 Set of Four Coils as specified—(Radiokes, Prima Donna) (L1, L2, L3, L4)
 - 1 Set of Shielding Cans for same—(Radiokes, Prima Donna)
 - 1 Power Transformer and Choke—(Radiokes, Prima Donna)
 - 5 UY type Valve Sockets—(Prima Donna, A.W.A., Pilot)
 - 2 UX type Valve Sockets (Prime Donna, A.W.A., Pilot)
 - 4 Variable Condensers, .0005 capacity—(A.W.A.) (C1)
 - 3 Sets of Couplings for same.
 - 1 Single Drum Dial—(Pilot, Emmco)
 - 1 Five Plate Midget Variable Condenser—(Radiokes), (CM)
 - 1 Fixed Condenser, μ x .1—(Chanex or Hydra) (C8)
 - 11 Fixed Condensers, .5, 500 volt test—(Chanex or Hydra), (C2)
 - 2 Fixed Condensers, 1, 500 volt test (Chanex or Hydra) (C3)
 - 1 Fixed Condenser, .001—(Pilot or Renrade) (C7)
 - 1 Fixed Condenser, .0005—(Pilot or Renrade) (C6)
 - 2 Fixed Condensers, 4—(Chanex or Hydra) (C4)
 - 1 Resistance, 50,000 ohms—(Radiohms, Renrade, or Carborundum) (R8)
 - 4 Resistances, 100,000 ohms—(Radiohms, Renrade, or Carborundum) (R5, R14)
 - 1 Resistance, 250,000 ohms—(Radiohms, Renrade, or Carborundum) (R15)
 - 1 Resistance, 500,000 ohms—(Radiohms, Renrade, or Carborundum) (R17)
 - 1 200 ohm Potentiometer—(Chanex or Federal) (R10)
 - 1 200,000 ohm Potentiometer—(Chanex) (R7)
 - 1 Special tapped Resistor—(Radiokes, Prima Donna, Renrade) (R9, R11, R12, R13)
 - 3 2000 ohm Wire-wound Resistors—(Radiokes, Prima Donna, Renrade) (R6)
 - 1 20,000 ohm Wire-wound Resistance (ditto) (R16)
 - 3 450 ohms Wire-wound Resistors—(Radiokes, Prima Donna, Renrade) (R4)
 - 1 50 ohm Centre-tapped Resistor—(Radiokes, Prima Donna, Renrade) (R3)
 - 1 Radio Frequency Choke—(Radiokes, Lewcos, Prima Donna) (R.F.C)
- SUNDRIES**
- 2 D.C. Jacks, 3 yards Flex and Adaptor, odd scraps Bakelite, 1 doz lengths Spaggetti, 1lb. 13g. tinned Copper Wire, 4 valve cap Clips, Terminals, Screws Soldering Lugs, Power Switches, Power Cables, etc
- VALVES**
- 4 American type Screen-grid Valves—(Philips F242, Mullard PM224, Radiotron UY224 Cosor Osram National Union equivalents)
 - 2 281 type Rectifying Valves—(Philips 1562, Mullard PM281, Radiotron UX281)
 - 1 F443 550 volt Pentode—(Philips F443)
 - 1 AC type Dynamic Speaker (Jensen)
 - 1 Suitable Cabinet



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	UX245	0	19	0
	UX250	3	10	6
For Battery Operation.	UX199	0	19	6
	UV199	0	19	6
	UX201A	0	11	6
	UX112A	1	0	0
	UX120	1	2	6
	*UX222	1	15	6
	RCA230	0	19	6
	RCA231	0	19	6
	*RCA232	1	8	6
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