thrown into oscillation. Suitable coils for winding on to valve bases are as follow:—

| Band | Aerial coil | | Oscillator coil. | | |
|---|---|---|---|---|---|
| metres | L1 | L2 | L3 | L4 | L5 |
| 80 | 8 | 24 | 6 | 20 | 12 |
| 40 | 4 | 12 | 3 | 10 | 8 |
| 20 | 2 | 6 | 2 | 5 | 5 |

R.A.H. (Auckland): I recently completed, according to the specifications, the shortwave a.c. super het converter, and have been unable to get the set to function. Could you give me:—1. The approximate range in metres of each pair of coils?

A.: The commonest difficulties with super het. shortwave adapters are the failure of the oscillator to function and mistuning of the preselector provided by the broadcast set. Failure to oscillate may result from too low a plate voltage, insufficient reaction turns on reaction winding connected in a reverse manner. The remedies are obvious. Tuning of the preselector is fairly broad, and it is usually possible to hear something, even when mistuned, making it possible to adjust it for better results. In case of difficulty the aerial can be hooked on just ahead of the pre-selector and the weak broadcast stations tuned in, the pre-selector being adjusted on this. The ranges of the coils are as follow:—The 80 metre band from 65 to 100 metres; the 40 metre coils from 30 to 65 metres; the 20 metre coil from 15 to 30 meters.

2. What indication is given when the set is oscillating?

A.: Little indication is given when the oscillator is functioning except increased background noise. The milliammeter in the plate lead will, however, dip downwards when the valves commence to oscillate.

ZLICE (Auckland): How many turns and what gauge of wire should be put on a 2in. former to use with a midget condenser of 5 plates spaced a 1-16in., as used for an 80-metre wavemeter?

A.: 35 turns of 24 D.S.C. wire.

2. Can you give me the circuit of a monitor for the 80-metre band using a crystal detector?

A.: A satisfactory monitor for code work cannot be built to employ a crystal detector. The crystal will respond only to whatever modulation happens to be present in the transmission. If the monitor is required merely to keep a check on phone transmitter, a shielded crystal set (with a smaller coil, of course) with a small pick-up coil in series with the tuning coil, and outside the can, may be used.

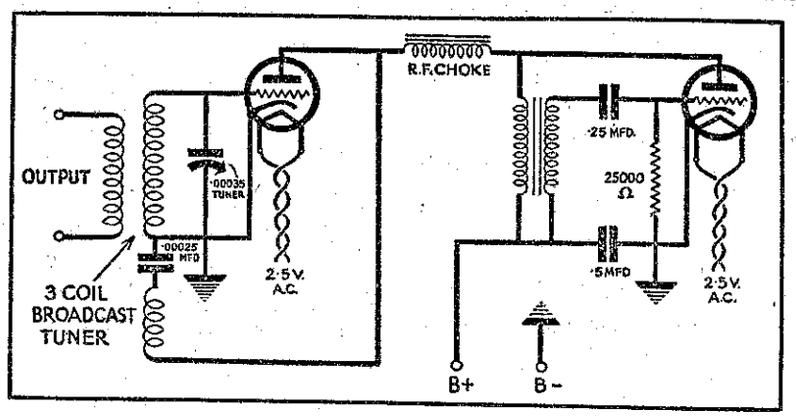
UK. (Te Kuiti): What inductance will furnish optimum load value for a 224 valve used as:—

1. A space charge a.f. amplifier, or following a screen grid detector?

2. Used in the ordinary way?

A.: While the a.c. resistance of a screen grid valve may vary considerably according to the use to which it is put, it is, in any case, extremely high. It is therefore not so much a matter of obtaining optimum load value as of maintaining a sufficiently high inductance with the a.f. choke in the plate circuit in carrying direct circuit to give satisfactory frequency response. It is doubtful whether there is any commercial choke which, when carrying the plate current of an a.g. valve will maintain an inductance higher than 200 henries. In any case a choke of higher inductance would be likely to have a self-capacity so high as to by-pass audio frequencies.

2. It is difficult to understand what is meant by "the ordinary way." The ordinary way to use a 224 is as an r.f. amplifier, in which case it is usually followed by a tuned circuit, the inductance of which is determined by the capacity of the tuning condenser employed and the waveband to be covered by the combination.




**A modulated oscillator suitable for aligning ganged condensers.**

R.G.R. (Frankton Junction): Could you forward me a diagram of a modulated oscillator for aligning ganged condensers? Would my circuit be satisfactory?

A.: The circuit submitted would be satisfactory if a constant source of a.f. current—e.g., a frequency test gramophone record and a pickup—were available. A pentode might be found desirable in a modulator seeing that there is no prior amplification from pickup or microphones. It is possible that if only one receiver is to be ganged equally satisfactory results could be obtained at less cost by temporarily wiring midget condensers in parallel with the tuning condensers and tuning them until the system is in resonance. Which ever of the midget condensers appears to require least capacity to bring the circuit into resonance, is an indicator as to which coil should have its turns reduced. The process must be continued until all the midget condensers are in line when the set is in resonance. For precision work a modulated oscillator in which the modulation is constant in frequency and extent is necessary. A suitable circuit is shown above and if further particulars of this are required, they can be furnished. Not every audio transformer suits this use, and two or three should be tried.

SNOW (Timaru): I am desirous of constructing a four-valve portable radio set. Could you supply me with a suitable circuit?

A.: Circuits were described about 12 months ago in the "R.R." Our new model will be described in the course of a couple of months or so. What appears to us to be a fairly good four-valve set was described in



# Australian Programmes

## Times Corrected for N.Z.

### Wednesday, October 21.

STATION 2FC, 10 p.m.: A special concert has been arranged.

2BL, 10 p.m., 10.17 p.m., 11 p.m., and 11.30 p.m.: Harrison White's Banjo Band. 10.10 p.m., 11.25 p.m.: Will Clark and Norman Mann, vocal duet. 10.22 p.m. and 11.40 p.m.: Pat Crosby, contralto. 10.30 p.m.: "Banjo" Paterson will speak on "Word Pictures of Men and Manners Outback." 11.10 p.m. and 11.54 p.m.: John Stuart, comedian. 11.18 p.m. and 11.47 p.m.: Hilda Grace, novelty pianiste.

3LO—10 p.m.: Thirty minutes with Gounod. 11 p.m.: A series of sea sketches.

3AR—10 p.m.: Transmission from the Melbourne Town Hall of a concert by the Royal Victorian Liedertafel.

### Thursday, October 22.

STATION 2FC—10 p.m.: The A.B.C. Players present Oscar Wilde's "The Importance of Being Earnest." 11.10 p.m. and 11.39 p.m.: The Ramon Duo, vocalists. 11.18 p.m.: Alard Maling, bell solo. 11.21 p.m. and 11.56 p.m.: Cash and Carrie, entertainers.

2BL—10.10 p.m., 11.4 p.m., and 12.12 p.m.: Franco Izal, baritone. 10.13 p.m. and 11.11 p.m.: Harry Klass, violinist. 10.42 p.m. and 12 p.m.: Iris de Cairos Rego, pianiste. 10.35 and 11.45 p.m.: Muriel O'Malley, contralto.

3LO—10 p.m.: Dance items, interspersed with vaudeville numbers.

### Friday, October 23.

STATION 2FC—10.10 p.m. and 10.38 p.m.: Jack Lumsdaine, the "Radio Rascal." 10.28 p.m. and 11.1 p.m.: Dan Agar, comedian. 10.31 p.m.: Cornet solo. 11.15 p.m.: Relay from 3LO, Melbourne.

2BL—10 p.m.: Concert programme arranged by the Musical Association of N.S.W.

3LO—10 p.m.: Programme arranged by Miss Mary Campbell, of the Albert Street Conservatorium. 11.15 p.m.: Brass band and variety.

### Saturday, October 24.

STATION 2FC—10.12 p.m. and 11.37 p.m.: Bessie Blake, soprano. 10.19 p.m. and 11.44 p.m.: Lawrence Godfrey Smith, violinist. 10.47 p.m. and 12.8 p.m.: Clement Q. Williams, baritone. 10.54 p.m.: Gerald Walenn, pianist, in association with the National Broadcasting Orchestra.

2BL—10 p.m., 10.20 p.m., 11.45 p.m., and 12.8 p.m. The Sevilla Gypsies. 10.7 p.m., 11.38 p.m., and 12.13 p.m.: [illegible]er Jones, baritone. 10.30 p.m.: Description of boxing contest from Sydney Stadium. 11.30 p.m. and 12 p.m.: Frank Ryan, entertainer.

# Power Line Troubles

## Valuable Service by 4YA

ON Tuesday evening 4YA, Dunedin, rendered conspicuous service to the community. The city was experiencing trouble with its power supply owing to a very heavy wind storm which raged in the vicinity of the hydro-electric works. One transmitting line and all the telephone lines were carried away between Dunedin and the power station. At the conclusion of the children's session the power supply failed, and 4YA was off the air for three minutes.

During the dinner music session the power fluctuated badly, but no further distinct break occurred. As the telephone lines were down it was not possible for the city electrical engineer to get in touch with his officers in the country. At his request, therefore, as the whole of the district was in the danger of being deprived of power, a message to the engineers at Waipori was broadcast by 4YA, advising them of the location of the fault. This message was picked up and the damaged lines were repaired within half an hour.

### DX Programme

**IN connection with the programme broadcast from 2YA on Saturday evening last for the benefit of the members of the Round the World DX Club and other DX listeners in America, Mr. Spence R. Ellis, of Okato, Taranaki, the New Zealand Secretary of the Club, was listening to America on October 7 when he heard an interesting announcement broadcast by the N.B.C. chain of stations.**

**American listeners were advised to remember the date and the time of the special broadcast by 2YA. New Zealand was referred to as "the Paradise of the Pacific."**

**It is evident that 2YA's DX programme resulted in a good advertisement for this Dominion.**





## FOR SALE OR EXCHANGE

**The rate for small advertisements under this heading is 1/6 cash for 30 words, and twopence for every other word thereafter**

TWO Garrard 2-spring Gramo. Motors, one BTH Pickup, two Fairfax 6ft. Exponential Speakers, one LS5, three LS5A and three LS5B Valves. Also high voltage condensers. As new. What offers? "Public Address," C/o "Radio Record."