

A.: An ammeter and a heavy duty rheostat to control the charging current. Some means should also be provided for cutting in the generator when the charging rate becomes sufficient, and also for cutting it out when the charging rate becomes too high.

"RADEX" (Waitara): I can log only one American station, KFI, which comes in at full volume. Should I be able to hear more?

A.: Yes. It is chiefly a matter of knowing when and where to look for them. Study the dx pages.

2. Reception from all stations has lately become distorted.

A.: Have your valves tested, and the alignment of your condensers checked. Possibly the trouble is due to unfavourable reception conditions.

F. W. (Auckland): Could I use the method of volume control employed in the "Quality Six" (described in the 1933 "Radio Guide") in a set employing 232 r.f. valves?

A.: No—these valves are not of the multi-mu type and bad distortion would result when the bias was increased much over 1.5 volts.

Note.—The plate of the English screen-grid valve is connected to the cap, but in the American type it is the grid which is taken to this connection.

J. F. (Cambridge): The plates of my 280 rectifier become red-hot. Could you tell me which condenser has broken down?

A.: One of the filter condensers, more likely that before the smoothing choke.

2. The r.f. filament voltage has dropped. Why is this?

A.: This is due to the very heavy load thrown on the transformer by the broken down filter condenser.

3. Could you outline the method of aligning the condenser gang of a receiver, using a milliammeter?

A.: First of all connect the milliammeter in the detector plate lead. Then tune in a station somewhere near the middle of the band, say 3YA, and adjust the trimmer on the detector section of the gang for maximum signal. Repeat the process with the second and first r.f. sections in that order.

"OMSK" (Whakatane): You would need to pass a special examination, the Broadcast Operators' Examination, before you would be permitted to operate a station on the broadcast band. Full particulars may be obtained from the Post and Telegraph Department.

2. What would be the approximate cost of a 15-watt amateur transmitter?

A.: About £8 to £10 for the transmitter only.

Note.—1400 volts is far too high for 212 D's employed as oscillator. Do not use more than 1000 volts. Modulating the amplifier, the power of your proposed transmitter would be from 15 to 20 watts.

"BUDDY" (Christchurch): Since fitting new valves in my 5-valve commercial T.R.F. set, noisiness and instability have developed.

A.: Evidently the special control employed in your set has become defective, and the r.f. valves are now operating without bias. This would explain the broadness of tuning of which you complain.

2. How can I re-align my set?

A.: Tune in a station operating somewhere near the middle of the broadcast band and turn the volume down. Then with a screwdriver carefully adjust the trimmer of the detector section of the gang until volume is greatest. Then do

likewise with the second r.f. trimmer, and finally the first. A "peak" position should be obtained with each trimmer, i.e., when turned a fraction either way, volume should diminish. If it is found that one trimmer screws right in or out without giving a peak, screw the other two a turn or so in the opposite direction and repeat the process.

3. How is volume controlled in my set?

A.: A special type of volume control is employed, which operates as a potentiometer across the first r.f. primary and also varies the bias on the r.f. valves.

"HERE'S HOPING" (Wellington):

Between 4.30 p.m. on Sundays, when 2YA closes down, and 5.30 p.m., when 4YA commences the children's session, I cannot pick up any station at all, even

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with the volume control full on. From 550 k.c. to 950 k.c. all I can hear is a slight hum. From there on to 1200 k.c. static and other noises are heavy, but from there on to 1500 k.c. a hum is all that can be heard.

A.: We have tested out the particular model you are using and found it a splendid dx set. It appears almost certain that your set is badly out of alignment, and we suggest you get in touch with the local agents.

"N.O." (Ngaruawahia): In "ham" parlance, 73's means "best regards," and 88's "love and kisses." There are only three figure abbreviations used, the third being 99, which means "keep out."

T.C. (Christchurch): Do not earth your second aerial when it is not in use. To comply with the Underwriters' Regulations, however, it must be connected to a lightning arrester.

"PUZZLED" (Livingstone): The type 19 valve will not be available in New Zealand for several months yet, so your best plan would be to use two 230's instead. The switch and battery cable could be shifted, as you suggest, without affecting the performance. The speaker you have can be connected directly to the output terminals. If you have difficulty in making the set oscillate, reduce C6 to .00005 mfd.

"MOGUL" (Hokianga): I have a three-valve battery set. Can I connect the headphones and speaker to the set without damaging it in any way?

A.: Yes.

"AUDIO" (Auckland): I wish to add a stage of audio to my 1-valve set. What would be the best ratio for the transformer?

A.: 5 to 1, or with a good quality transformer, 7½ to 1.

2. What "B" voltage would be required to operate a small cone speaker?

A.: 120 to 135 volts.

3. Does oscillation affect neighbours' reception to any extent if the set is operated on an indoor aerial?

A.: Yes. A broadcast set such as yours should never be allowed to oscillate under any conditions.

"READER" (Horotua): My reception is spoiled by crackling and hissing noises caused by generators and motors in the locality. At times it is almost impossible to use the set as the noise drowns all reception. Can this be rectified?

A.: We doubt it. The articles on eliminating power interference published in the "Radio Record" dated July 21 and July 28 may help you.

"SPARKS" (Rangatua): Would a 201A be suitable to use in a one-valve amplifier to be added to a crystal set?

A.: Yes. Your circuit is correct.

Note: You will find that sensitivity would be slightly improved by tapping the crystal down the coil in the way shown in the circuit of the "Selestra" crystal set, described in the August "Radio Times."

"EAST COAST" (Gisborne): Use 4 32's, 2 30's, and 1 33. A two-volt 40 amp-hour accumulator will be satisfactory for "A" supply.

219A (Auckland): I am enclosing a diagram of my two-valve all-wave set. What is the maximum voltage for B+?

A.: You can apply anything up to 150 volts, though you will probably find the set will operate best with 45 volts.

2. What should B max. be?

A.: 120 to 135 volts.

Note: Your circuit is quite in order, though you will probably find that reception will be improved by connecting the grid leak from G to A+ instead of across the grid condenser.

"UNTUNED" (Timaru): Would it be possible to add a stage of untuned screen grid r.f. to my commercial three-valve battery set?

A.: Yes, though it mean rather expensive alterations to the set.

J.H.H. (Taihape): I have a seven-valve commercial battery set which oscillates rather badly.

A.: We suspect you are using the wrong type of valves in the r.f. stages. The set was designed for 201A's.

2. I have constructed the wave-trap described in the July "Radio Times," but cannot get it to operate satisfactorily.

A.: If the condensers of your set are badly out of alignment the trap will certainly not make much difference.

G.R. (Nelson): How can I prevent the whistle which results when two stations operating on practically the same frequency are tuned in? Would a wave-trap be of any assistance?

A.: No. This phenomenon is called heterodyning, and is caused by interference between the two carriers.

H.L.M. (Milton): What is the approximate trade-in value of my set?

A.: It is impossible for us to tell you. Any dealer would be pleased to give you the information.

2. Which is the better for short-wave reception, an a.c. all-wave set or an a.c. set employed with a converter?

A.: This depends on the type of set. If both are well designed and constructed there would be very little to choose between them.