

Osram Power Valves.

Two interesting valves have been given us for test by the British General Electric Company, Wellington. They are Osram PS625 and P625A. The former is an excellent example of the 171A type of valve with the following characteristics, the valve is eminently suitable for the last stage of a medium receiver. Used in push-pull it gives very fine household strength in a suitable amplifier, such as that described in other pages of this issue.

P625A is a representative of the 245 type of valve, and is one of the first of its type to appear on the New Zealand market. It has the decided advantage of giving a volume step-up as well as being capable of handling considerable voltage swing without any trace of distortion. The writer was impressed by a very simple experiment made with a three-valve set. This set had shown itself capable of very fine performances, and it was known just what it could accomplish. The last valve was removed shortly before 3 o'clock one afternoon, and P625A substituted, the requisite 250 volts being applied to the plate. 3YA's carrier was tuned in and at 3 o'clock the chimes and the following announcements came over with wonderful strength. It was impossible to believe that this was Christchurch and not Wellington. Disbelieving that a power valve could make such a wonderful improvement, the writer replaced it by an ordinary power valve. Volume immediately dropped.

The 245 valve is enjoying wonderful popularity in the States. It is being featured in most of the newest radio receivers. Unfortunately the writer was unable to test these valves in the power amplifier. Undoubtedly they would give very fine results if a bias resistor of about 750 ohms were used.

Pilot Radio Products.

ABEL SMEETON LTD., Auckland, have submitted a very comprehensive range of Pilot products. These have been given an extensive test both from the mechanical and the electrical point of view. The general conclusion is that the line is first quality. A constructor who uses these products may be certain that as far as the products themselves are concerned, trouble cannot arise, for most of the trouble encountered by constructors has its origin in defective parts. Undoubtedly the best proposition is first grade components, and Pilot are first grade.

Pilot-Centra Line Condensers.

Constructed of brass plates, supported by an aluminium frame, Pilot condensers are both accurate in their movement and of good appearance. They have three terminals, two to the fixed plates, and one to the moving. This latter is connected to the frame, and this to the moving shaft by a rat-tail connection, ensuring perfect noiseless operation. The condensers are of the straight line frequency type, and are made in the following capacities:—.00016, .00025, .00035, and .0005 mfd. maximum capacity. The minimum capacity of each condenser is about .00001. By the use of a special coupler, the condensers may be ganged.

Illuminated Drum Dials.

With the modern tendency towards single drum dial control, in view, Pilot Electric Company have brought out a full range of illuminated drum dials. When mounted on a panel, the covering

plate looks very much as though hand-tooled from a solid block of metal. A single artistic knob about the size of a shilling, is mounted on this, and this controls the drum. The movement is very smooth and fine. A six-volt lamp hidden from sight illuminates the dial.

Pilot Transformers.

A wide range of these is manufactured. They include inter-valve transformers, output filters and transformers, push-pull transformers, and B eliminator chokes. A special feature is that the whole winding and laminations are encased in a moisture proof bakelite case. One of the tests that these transformers have to go through is an immersion test, in which, for a period of thirty days they are immersed in water. The transformers under test were inadvertently left in the wet, and then put back into an amplifier with no loss to tone or quality. A very true over-all reproduction results through the use of these.

A Battery Eliminators.

WE have tested, with quite considerable success, an A eliminator comprising the "Wellmayde" trickle charger with one of the new type electrolytic condensers shunted across the output terminals. These condensers have a capacity of approximately 2500 mfd., and in consequence have a great smoothing effect. The A eliminator thus constructed will deliver about 35 amps of reasonably smooth A current. This is suitable for a three-valve set.

It was found that there was a slight ripple which disappeared when an audio frequency choke wound with 22 D.C.C. wire was placed in series with the positive lead from the terminals; this slightly lowered the voltage, and it was necessary to use 4-volt valves, with the six-volt tapping. A variable resistance allowed the final output to be accurately adjusted.

This small charger and the electrolytic condenser is an excellent combination for supplying power for the field windings for a 6-volt dynamic speaker, the condenser smoothes out all tendency to ripple, giving an almost perfectly silent background.

Ceco Valves.

BOND and Bond, Ltd., Auckland, have submitted to us for test types of their "Ceco" A.C. valves.

Type N27 is a valve of the indirectly heated cathode type, with the following characteristics: Heater voltage, 2.5; F. current, 1.7 amps.; plate current, 2 milliamperes; impedance, 8000 ohms; amplification factor, 8; anode voltage, 45. This type of valve which we have selected as a first audio stage, for the A.C. amplifier described this week, has been designed to eliminate hum. This may be claimed for the Ceco valve that we have tested, for in all respects, it has come up to the very high standard that has been set for it. It is interesting to note that this type of valve is coming very much into prominence in A.C. sets.

The Ceco valve is of robust construction, and almost without hum, gives distortionless reproduction.

M26: This is also an A.C. valve, but has a directly heated filament which requires 1.05 amps at 1.5 volts. With

an impedance of 7400, amplification factor of 8.2, this valve compares favourably with others of its type; 135 volts are needed on the plate, with 5 volts grid bias. The directly heated type of valve is much simpler in its application to use than the 227, but there is slightly more hum. With the valves tested, hum was very indistinct, and well to the background.

J71: This valve is of the familiar 171A type, the characteristics of which are well-known to all, as a final stage power valve. J71 will be found equal to anything of its type. It can handle a wide voltage swing without trace of distortion, and does not drop volume more than any other power-valve. To obtain maximum results when using 180 volts on the plate, grid bias of 40 volts should be employed. A.C. or D.C. can be applied to the filament with equally good results.

Our test has convinced us that Ceco valves can justly claim position among first quality valves.

Radiokes Coils.

COIL winding with the amateur is usually a difficult task, and very many shirk from set-building because of this, but with the wide range of commercial coils now obtainable this need no longer be a hindrance.

Abel Smeeton, Ltd., have sent us three types of Radiokes coils for use in our circuits, and they have given every satisfaction.

Mechanically they are excellent pieces of work, wound in green double silk-covered wire and mounted by narrow strips of bakelite on the low loss principle, they are electrically perfect.

The wide range of coils allows the constructor to build all the usual types of circuits—the Neutrodyne set neutralising from the primary is probably the safest for the amateur constructor to use. The construction of a neutrodyne is, by the use of commercial coils, rendered a very simple operation.

The Browning-Drake coils have a diameter of 2½ inches, and when widely spaced, render shielding unnecessary. Neutralisation is carried out in the latest style devised by Glenn Browning, the originator of this circuit, that is, by an extra winding to the secondary. This eliminates a great deal of the trouble formerly encountered in the Browning-Drake.

A set of screen grid coils enables an amateur with a little experience to construct a highly efficient screen grid receiver, using two stages R.F. In addition, full ranges of shortwave coils are manufactured and these can be used in the ordinary shortwave set.

Pilot Resistograds.

THIS is a high-value variable resistance ranging from 40 ohms to 10 megohms. This piece of apparatus is able to handle 20 watts, that is, at 200 volts it can pass 100 milliamperes. This makes it highly suitable for eliminators designed to handle heavy current at high voltage. While on test, the resistograd was used in an apparatus of this type, and at 250 volts the resistograd passed 105 milliamperes. It is thus perfectly suitable for all types of eliminators. As a volume control Pilot Resistograd functions perfectly.

Radio and Musical Appreciation

Stimulating Interest

RADIO is bringing about an increased study of instrumental and vocal music throughout the country, says "Wireless Weekly." The best of our artists performing frequently over the air, are inspiring many listeners to develop their own musical talents.

Evidence of this is assembled from correspondence sent by listeners-in. All kinds of requests for musical advice are made. Can you put me into touch with a good teacher of the cornet? Can an English horn be played by a girl? And other questions of a similar nature are asked.

The better known performers appearing at the broadcasting stations whose profession it is to give musical instruction find that many of their pupils are directed to them as a result of listening-in.

Also the playing of a record over the air will inspire the listener with a desire to play the same instrument as the artist of the disc. Others already adept at playing the instrument listen to the interpretations given by artists over the air and practise compositions accordingly.

Sudden waves of musical interest are often experienced after the visits of famous musicians, but seldom outside those circles which attend the Town Hall concerts. The influence of broadcasting, far wider and more permanent than this, reaches people who may possibly be unaware of the existence of visiting musicians.

It is in this direction that broadcasting exercises its greatest value as an educational medium. Without a doubt the next generation will have a much more intimate knowledge of music, not only because they are hearing more, but because many are studying it themselves.

This will not necessarily result in a greater number of professional artists to glut the musical market, but it does mean that there will be a deeper appreciation of the art, since personal study cannot help but make for greater understanding.

Here lies the true educational work of broadcasting. Organised properly it can become both entertainment for some and instruction for others. Besides this influence, its use as an educational medium in other directions falls into insignificance.

Popular Lecturettes

THE lecturette on the hair and skin recently given by a visiting English lady doctor from 2YA, Wellington, was about the most interesting heard from the big station for some weeks past. The care of the hair and skin is a subject which concerns every one of us, young and old, and as the doctor spoke in the plainest language, avoiding scientific terminology, there was not the slightest difficulty in understanding everything that was said. Lecturettes with such a popular appeal are bound to enhance the attractiveness of broadcast listening.