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# COSSOR 220 D.D.

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## 2-VOLT DOUBLE DIODE

The 220 D.D. is a valve designed primarily for use in sets in which automatic volume control is to be provided and is the only battery indirectly heated valve made. It consists of two diodes, one of which is intended for detection of the signal, while the other provides the voltage necessary for A.V.C. These derive their electron current from the same cathode. The 220 D.D. in many cases should be followed by a stage of L.F. amplification which precedes the output valve ; for this purpose the user has a wide choice of valves (e.g. triode, variable- $\mu$  screened pentode, etc.) to suit the particular conditions imposed by the output valve. If the diode is used in combination with the high sensitivity Cossor output pentode 220 H.P.T., however, the L.F. stage may be dispensed with and the 220 H.P.T. may be fed directly from the diode. This method is particularly recommended. By using one of the diodes to provide the A.V.C. voltage, it becomes possible to prevent the A.V.C. System from coming into operation unless the signal would overload the output valve in its absence. In this way the sensitivity of the receiver is in no way impaired by adding automatic volume control to it. Such a system, in which A.V.C. only comes into use on a signal exceeding some pre-arranged strength, is called "delayed A.V.C."

In the 220 D.D., voltage delay is arranged by a small positive voltage on the cathode obtained from a high resistance potentiometer across the H.T. supply. No current will flow until the peak voltage of the signal exceeds the delay voltage, after which rectification will take place in the normal way, providing a D.C. voltage change which can be passed back to the grids of the preceding variable- $\mu$  amplifier valves to control the sensitivity of the set. The return circuit for the signal diode is made to cathode so that it is not affected by the delay voltage.

It is to be noted that no useful purpose is served in fitting automatic volume control to sets with inadequate H.F. gain as no L.F. overloading will occur in these cases.