

Valve Protection

WHENEVER constructing battery sets provision should always be made for a fuse to protect the valves in case of an accidental short-circuit. The best place to insert this is between "A—" and "B—" which are usually joined inside the set. This wire should be broken and a flashlamp bulb holder, complete with bulb, should be wired in the break. Be careful, however, that you use a flashlamp bulb and not one of the heavy torch bulbs, which will take anything up to half an amp, and which will consequently not burn out before your valves.

A Potentiometer Warning

MANY present-day sets use potentiometers for controlling reaction, and for adjusting screen grid potential. It is not widely known, however, that there is a right and wrong way of connecting one up. It should be connected in such a way that the battery switch throws it out of action when this is turned to the "off" position. Quite often it is so wired that it is not cut out of the circuit when the switch is so turned. A 300 ohms potentiometer across a six-volt battery passes 20 m. amps continuously. The drain is small, but in time it will run the battery down. Matters are still worse where a potentiometer is connected wrongly across the "B" battery for adjusting screen grid potentials, for a few mills continuous drain will soon flatten the heaviest type "B" battery.

A Multi-range Voltmeter

A LOW-READING voltmeter can easily be adapted to read voltages outside its range by placing a compression type high resistance in series with it. First of all, however, measure the voltage of a grid bias battery—say, one of nine volts. Now include the resistance in the circuit and so adjust it that the meter reads 4.5 volts. The actual voltage is, of course, 9 volts, and so we must multiply the reading by two. Next take a "B" battery of the type having numerous taps. Place the voltmeter and resistance across 18 volts, when the reading will be, say, 9. Now increase the resistance till the reading is 4.5. As the actual voltage is 18, the scale readings must now be multiplied by 4. Proceed along these lines until the desired voltage range is obtained.

Jottings

WHEN using a multi-range voltmeter or ammeter always assume that the volts or amps. to be tested will be a little over rather than a little under the expected voltage or amperage, for whereas a shunt resistance can easily be altered for a lower value if necessary, the switching on of excessive volts or amps. may ruin the instrument.

ALTHOUGH a slavish adherence to makers' instructions regarding "B" voltage and grid-bias voltage is not necessary, it is as well to remember that such figures are worked out

Cuban Broadcasters

The following list of Cuban stations may be of interest to Dxers.—DX170C.

Call	Location	Watts	K.c.
CMBC,	Havana	100	887
CMBX,	Marianao	200	1064
CMBZ,	Havana	100	1027
CMC,	Havana	500	840
CMCE,	Havana	100	1098
CMCF,	Havana	250	644
CMCA,	Colon	300	834
CMHA,	Cienfuegos	200	1154
CMHC,	Tuinucu	500	791
CMHD,	Caibarien	250	920
CMJ,	Havana	500	815
CMK,	Havana	2000	730
CMW,	Havana	1000	600
CMX,	Havana	250	920
HHK,	Port au Prince, Haiti	1080	831
WKAQ,	San Juan, Porto Rico	500	890

for the benefit of listeners, and therefore they should only be departed from in cases where the valve owner is quite sure of the effect of the modification he is making.

ALL grid return and earth connections, etc., in an indirectly-heated A.C. valve circuit are made, not to the heater electrode itself, but to the electron-emitting cathode placed in close proximity to it.

WHEN connecting up voltmeters, am-meters, etc., remember that they are marked for polarity and should always be connected the right way round.

AS a "B" battery tends to recover a little when not in use, voltage tests should be made after it has been working a little while, or the reading may be misleading.

IF you are building a set embodying two audio-frequency transformers remember that these should be of different types, as all sorts of troubles are liable to arise if the same type of audio transformer is used in both cases.

A REDUCTION of the filament voltage on the detector valve of a short-wave set will often help to cure threshold howl.

A LITTLE lubricating oil rubbed in with the finger-tips and polished with a soft duster will often restore a discoloured ebonite panel.

THE incorrect adjustment of grid bias may cause an unnecessarily heavy drain upon the "B" battery and will bring about distortion.

IF you cut off a piece of cardboard strip of suitable length and push a small screw through it, the cardboard strip will enable you to hold the screw steady in what appears to be an inaccessible position while you are operating the screwdriver.

ONE of the great objections to swinging-coil reaction is the fact that by this method the tuning is not so independent of the setting of the reaction, as when a condenser is used for the latter.

WHEN a long passage or hall is not available for an indoor aerial and it has to be placed in a very small room, it is generally advisable to try the effect of different positions for the wires.

DEFECTS in the wiring of a set can often be detected easily by testing with a pair of 'phones and dry cell.

IF you are using a screen-grid set and have a variable high-resistance on hand, try connecting this in the B plus lead to the screening grid as very often a fine variation of the voltage to this point gives improved results.

OWING to its fairly high anode consumption, a pentode cannot be used successfully with small batteries, but should be run from the mains or from batteries of the large-capacity type.

IF a small disc, such as a cigarette tin lid, is threaded on to the aerial just before it reaches the lead-in tube, The rain running down the lead-in wire will be diverted at this point and, therefore, the insulation across the lead-in tube will be improved.

AN ordinary on-off switch fitted across the terminals of one loud-speaker wired in series with another will enable it to be switched into circuit without affecting the other speaker.

FOR "family" use one of the permanent types of crystal detector is generally more satisfactory than the "cat's-whisker" which easily gets out of adjustment.

DETECTOR or audio stages in which fairly high anode resistances are used will always need far more B voltage at the battery plug than it is intended to apply to the valve, owing to the drop in voltage across the resistances.

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