MAINTENANCE HINTS

Versatile Valve Adaptors

THE testing of anode and screen currents of present-day valves requires a variety of plug-in adaptors, owing to the number of different types of bases in use.

The writer has avoided this difficulty by making up a number of single-pin adaptors as shown in Fig. 1. Each adaptor consists of a valve pin (obtained from a " dud " valve), to which a short length of wire (4 to 6 ins.) is soldered. The other end of the wire is soldered to a tubular type of valve socket (obtained from an old valve-holder). The wire used should be insulated, and may very well consist of rubber-covered flex.

In order to be able to test any valve with pins up to nine in number, eight of these adaptors will be required. The ninth consists of a pin soldered to a length of wire terminating in a spade tag and a socket soldered to a similar length of wire. The two tags are connected to a suitable milliammeter.

Fig. 1 shows how the adaptors are used. The socket of the " split " adaptor (with the milliammeter in series) is plugged on to the anode pin of the valve (where the anode current is required), the pin being plugged into the anode socket of the valve-holder. All the other valve pins and the corresponding valve-holder sockets are then fitted with the requisite number of " through " adaptors. The valve is supported so that the pins cannot make contact with the chassis, and when the set is switched on, the current indicated by the milliammeter will be the anode current of the valve.

Obviously, since the " split " adaptor can be fitted to any pin, currents in other circuits can be just as easily measured. The connecting wires should be kept as short as possible, to avoid the possibility of introducing instability. Care should also be taken to see that the sockets which fit on to the pins of the valve are not of such an external diameter that they touch, particularly in the case of 9-pin valves.

With some types of adaptor, it is impossible to test some valves with the chassis inside the cabinet owing to insufficient clearance between the top of the valve and the cabinet. The adaptor described avoids this difficulty. Further,

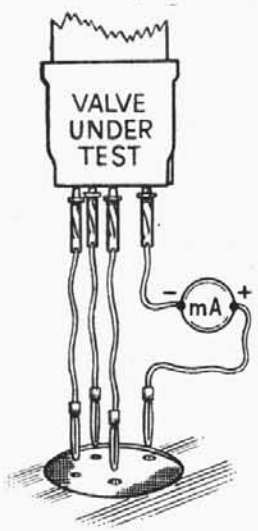

Fig. 1—Sketch showing the construction and use of the simple valve adaptors described in the text.

English valves may be tested in American sets and vice versa, if adaptors with suitably sized pins and sockets are made up. Naturally, the valve voltages must be similar in each case.

Instead of flexible wire, insulated solid wire leads may be used in the adaptors, and the valves are then supported during the testing.

R. B. F.

NEW PHILCO EQUIPMENT

Signal Generator and Set Tester

THE Philco Radio and Television Corporation of Great Britain, Ltd., of Perivale, Middlesex, have just announced a new combined all-wave signal generator and set tester. The complete equipment is known as Model 099, and comprises two units built into a single cabinet. One of these is the Model 088 All-Wave Signal Generator, and the other the Model 025 Circuit Tester.

The new signal generator has several features new to Philco equipment, the outstanding one being that it operates on fundamental frequencies on all ranges. There are five ranges in all, brought into use by a rotary switch. Direct calibration in KC/S on a large semi-circular scale is used. All ranges are continuous, and frequencies of from 110 KC/S (2,730 m.) to 20 MC/S (15 m.) are covered. Naturally, all the usual intermediate frequencies are included in the various ranges. The generator is fitted with an attenuator control, and an on-off switch. The batteries are contained within the case.

The circuit tester comprises a high-class moving coil meter, with an arrangement of sockets and switches enabling measurements of voltage, current, resistance, capacity and output to be made. A.C. voltage ranges are provided, there being five A.C. and five D.C. voltage ranges, three direct current ranges, and three resistance ranges. All the usual requirements are covered, and the ranges are controlled by a rotary switch. The circuit tester, when connected as an output meter, may be used with the signal generator for receiver alignment.

The prices are as follow: Model 099, 15 gns.; Model 088, £5 15s.; Model 025, £9. Special prices are available to Philco dealers and R.M.S. members only, these being £15, £5 5s. and £8 13s. respectively.

The new Philco Model 099 combined all-wave signal generator and set tester. The two units, the 088 generator and 025 tester can be obtained separately if desired.

MULLARD MA3—(*Contd.*)

Voltages were measured on the 1,200 V scale of an Avometer, with chassis as negative.

GENERAL NOTES

Switches.—**S1** and **S2** form one section of the wavechange switch, with **S3** as the other. Each switch consists of two spring fingers between which the moving contact slides when the switch is closed. **S1, S2** and **S3** are closed in the M.W. position and open in the L.W. and " Off " positions.

S4 and **S5,** which form a double-pole Q.M.B. mains switch, are of the same construction and are ganged on the same spindle. These, of course, are closed in the M.W. and L.W. positions and open in the " Off " position.

The positions of all five switches are indicated in our under-chassis view.

Coils.—**L1** is the Droitwich filter coil, mounted on a unit fitted to the side of the cabinet.

The tuning coils, **L2** to **L9,** are in two large screened units mounted on the chassis deck. These units are sealed, and in case of faults, should be returned to the makers.

L10 is an H.F. choke, seen in the under-chassis view.

Scale Lamps.—There are two of these, in special bayonet-type holders. The lamps are Philips 6 V 3 W S.B.C. types, with centre contacts, and frosted bulbs.

Condenser C1.—This is a small fixed condenser, formed by the metallic screening wound round empire tubing over one of the wires.

Condensers C16, C17.—These are two 8 μF dry electrolytics in a single unit. This has a common negative (black) lead. The positive of **C16** is the red lead and that of **C17** the yellow lead.

Condensers C19, C20, C22.—These are special tubular type trimmers which are sealed.

External Speaker.—This should be plugged into the two sockets provided at the rear of the chassis. A high resistance type (8000 O) should be employed.