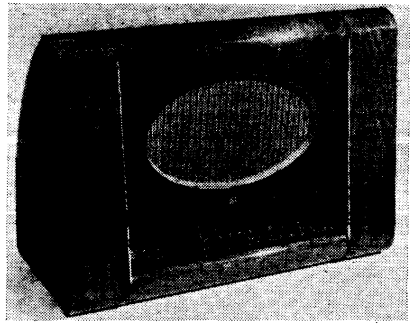
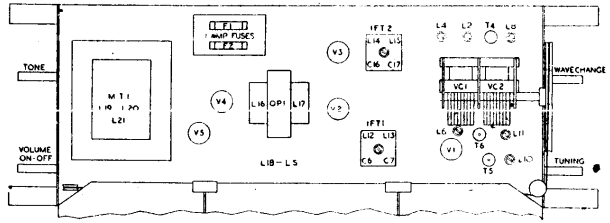
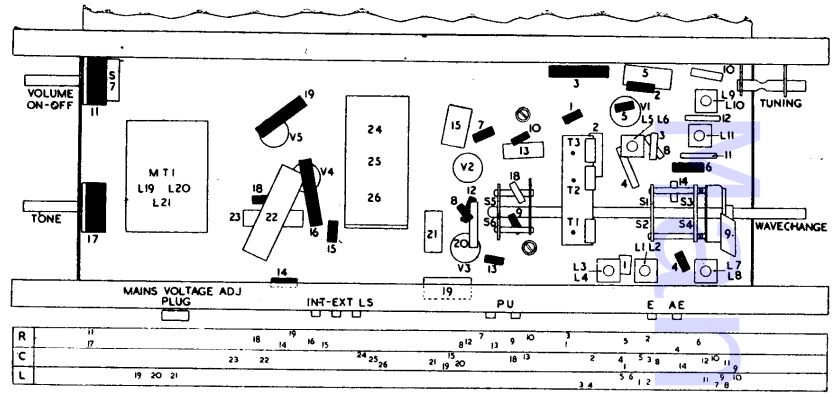
HMV 1122

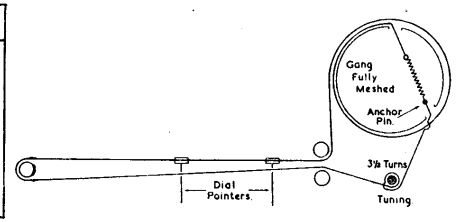
Five-valve three-waveband superhet with internal plate aerial and sockets for external aerial, earth, high-resistance pickup and low-impedance extension speaker. Housed in walnut-finished table cabinet. Suitable for 195-255V 50-100c/s. Marketed by The Gramophone Co., Ltd., Hayes, Middlesex.







V1 — X 78	V2 — W77	V3 — DH77	V4 — N 78	V5 — U 78	DIAL LAMPS
H/K O.V, H, Ah 190V 2MA, G1, At 100V 4·5MA, G2 G4 70V 2·7MA, Gt	H, H, A 190V 7·3MA, K O.V, G3, G1, G2 155V 2MA	H, H, D, K O.V, D, G1, A 75V 1MA	H, H, A 240V 24MA, K 5·5V, G3, G1, G2 248V 4·3MA	H, H, A 280V RMS, A 280V RMS, K 305V 54MA	6·5V ·3A

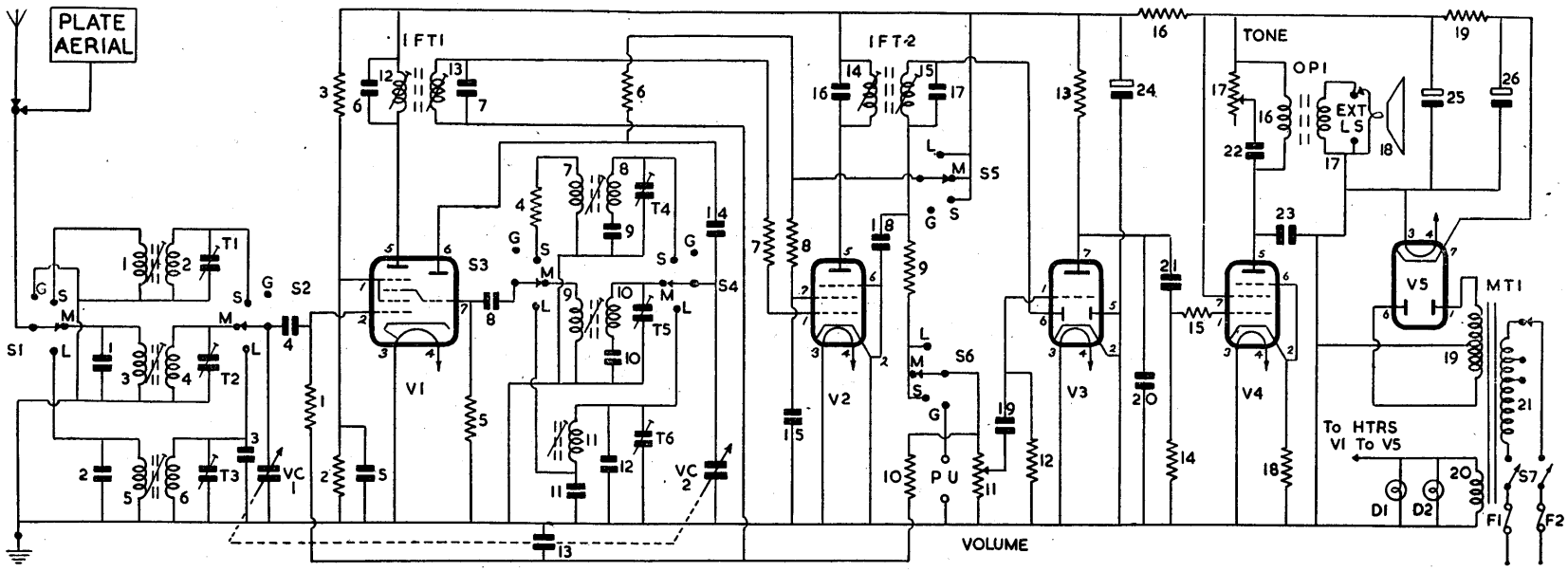


INDUCTORS

L		Ohms
1	... ...	.25
2	... ...	Very low
3	... ...	30
4	... ...	3.25
5	... ...	62
6	... ...	24
7	... ...	.5
8	... ...	Very low
9	... ...	3.2
10	... ...	3.75
11, 13-15	... ...	7
12	... ...	8.5
16	... ...	300
17	... ...	.7
18	... ...	4
19	... ...	800
20	... ...	Very low
21	... ...	52 Total

RESISTORS

R	Ohms	Watts
1	... 470K ...	½
2	... 12K ...	1
3	... 15K ...	1
4	... 100 ...	1
5	... 22K ...	1
6	... 22K ...	1
7	... 10K ...	1
8	... 15K ...	1
9	... 100K ...	1
10	... 1·5M ...	1
11	... { 500K Potr. with DPST switch	
12	... 3·3M ...	1
13	... 100K ...	1
14	... 220K ...	1
15	... 10K ...	1
16	... 2k ...	WW 5W
17	... 20K ...	Potr.
18	... 200 ...	½
19	... 1K ...	WW 5W



CAPACITORS

C	Capacity	Type
1	... 22pF	Silver Mica
2	... 220pF	Silver Mica
3	... 68pF	Silver Mica
4	... 220pF	Tub. Ceramic
5	1	Tubular 350V
6	... 100pF	Silver Mica
7	... 100pF	Silver Mica
8	... 100pF	Tub. Ceramic
9	... 3900pF	Silver Mica
10	... 510pF	Silver Mica
11	... 180pF	Silver Mica
12	... 100pF	Silver Mica
13	... .047	Tubular 350V
14	... 100pF	Tub. Ceramic
15	1	Tubular 350V
16	... 100pF	Silver Mica
17	... 100pF	Silver Mica
18	... 100pF	Tub. Ceramic
19	... .047	Tubular 350V
20	... 220pF	Silver Mica
21	... .047	Tubular 350V
22	... .05	Tub. 300V-AC
23	... .005	Tub. 300V-AC
24	... 16	Electrolytic 350V
25	... 32	Electrolytic 350V
26	... 32	Electrolytic 350V

Continued on page 28

VACTRIC DUSTER

Hand-type electric vacuum cleaner suitable for operation on 200-250V AC/DC mains. Supplied complete with accessories.

THE Vactric Duster (Fig. 1) is a lightweight, hand-type vacuum cleaner for domestic use. Its applications include cleaning and dusting upholstery, curtains, stairs and staircarpets, etc. With a weight of approximately 4½ lb. combined with its small dimensions and low current consumption, the Duster is a convenient appliance.

The Duster is supplied with upholstery nozzle, crevice tool and an oval brush and is fitted with approximately 6 yards of rubber-covered flex terminating in a two-pin 5-amp plug with cord attached bayonet socket convertor.

The body of Duster consists of a fluted circular aluminium casting (Fig. 2).

The fabric dustbag, which has piped leather reinforced seams, is fastened to a circular flanged ring which fits into open end of body and is retained by slots in ring engaging with studs on opposite sides of interior of body.

The body is fitted with a " pistol grip " Bakelite handle on the outer surface of which is a polished aluminium escutcheon to which is attached a thumb operated ON/OFF switch (Fig. 2).

The motor is a series-wound universal type with an armature speed of 13,000 RPM. Field coils are wound for voltage ranges of 200-220, 230-250V AC-DC.

Motor is mounted in a cylindrical housing formed by a cast aluminium cover with a loose fitting circular end-plate. Spindle of motor is fitted with a seven-blade cast aluminium suction fan.

Motor is cooled by air drawn in through front end-plate gap. The motor in its housing is supported in the body on a moulded rubber block which is keyed into both housing and body. Housing is fastened in position by two bolts which pass through Bakelite handle and rubber block into tapped holes in side of housing. The connecting leads of motor are brought out through rubber grommeted clearance hole and connected, one to switch terminal and the other to one side of mains lead, which is fed in at opposite end of handle. Other side of mains is connected to remaining switch terminal.

MAINTENANCE

The motor is fitted with a grease packed roller bearing at fan end of shaft and an oil impregnated Oilite bearing at the other end. With normal usage these should not need any attention whatsoever. Carbon brushes should be renewed when they are worn down to approximately ¼ inch. To replace or examine brushes it is necessary to dismantle the appliance as described below.

If motor appears to be revolving too slowly, the fan should be examined for obstruction such as thread or string coiled around shaft.

DISMANTLING

Remove dustbag by giving it a slight turn in anti-clockwise direction and withdrawing downwards. With a Philips screwdriver undo and remove the screw located on underside of handle and withdraw switch and escutcheon plate.

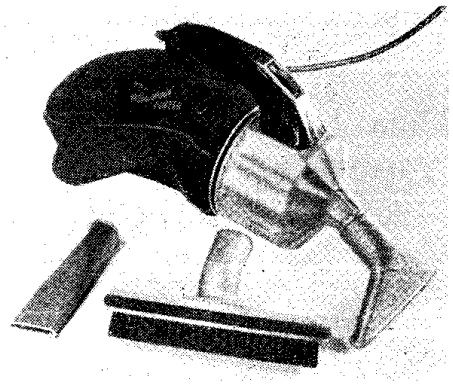


Fig. 1.—The Vactric Duster with accessories

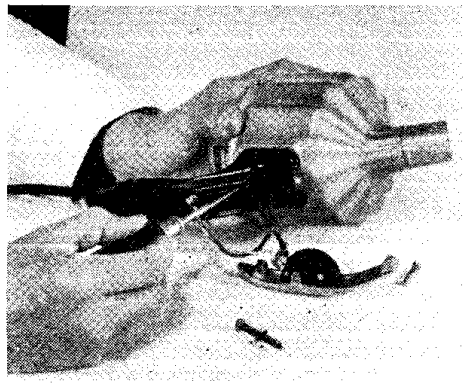


Fig. 2.—First stage in dismantling is removal of switch

Next, undo and remove the two screws in switch cavity in handle which pass through body into motor housing (Fig. 2).

Remove leads connected to switch terminals and roll back rubber sleeve over joint between motor and mains lead. Unsolder and separate the two leads. Withdraw motor in its housing from body, being careful to feed connecting leads through brush into body as housing is withdrawn. Difficulty may be experienced in freeing the rubber support block positioned in between motor housing and body but if this is prised out first then the housing can usually be removed quite easily.

Undo the two nuts on end of housing and withdraw motor.

To remove fan undo large nut on end of spindle and slide off fan.

HMV 1122—*from page 33.*

AERIAL.—Signal from the internal plate aerial or from an external aerial is switched by S1 to aerial coupling coils L1 (SW), L3 (MW), L5 (LW). The MW and LW coupling coils are of the high-impedance type and are shunted by C1, C2 respectively.

The grid coils L2 (SW), L4 (MW), L6 (LW), trimmed by T1, T2, T3—C3 respectively, are switched by S2 to aerial tuning capacitor VC1 and coupled by C4 to frequency-changer V1. Cathode is internally strapped to heater connection which is earthed to chassis.

AVC decoupled by R10, C13 is fed through R1 to grid of V1. Screen voltage is obtained from potential divider R2, R3 across HT line and decoupled by C5. Primary L12, C6 of IFT1 is in the hexode anode circuit.

On Gram position of S1, S2 aerial input is earthed to chassis and tuned circuits are disconnected from V1.

Oscillator is connected in a tuned-anode shunt-fed circuit. The anode coils L8 (SW), L10 (MW), L11 (LW), which are padded by C9, C10, C11 and trimmed by T4, T5, T6 respectively, are switched by S4 to oscillator tuning capacitor VC2 and coupled by C14 to oscillator anode of V1 of which R6 is the load resistor.

Grid reaction voltages are developed on L7 (SW), L9 (MW) and capacitively across padder C11 on LW and are switched by S3 through C8 to oscillator grid of V1. R4 is SW limiter resistor. Automatic bias for grid is developed on C8 with R5 as leak resistor.

On Gram position of S3, S4 grid and anode coils are switched out.

IF amplifier operates at 465kc/s. Secondary L13, C7 of IFT1 feeds signal, and AVC voltages decoupled by R10, C13 through stopper R7 to g1 of IF amplifier V2. Cathode and suppressor are strapped and earthed to chassis. Screen voltage is obtained from R8 and decoupled by C15. Primary L14, C16 of IFT2 is in the anode circuit.

Signal rectifier.—Secondary L15, C17 of IFT2 feeds signal to one of diodes of V3. R11, the volume control, is the diode load and is switched into circuit on the three radio positions of S6. IF filtering is by R9, C18. Second diode is earthed to chassis.

AVC.—The DC component of the rectified signal across R11 is decoupled by R10, C13 and fed to V1, V2 for AVC.

Pickup sockets are fitted at rear of chassis for any high-resistance magnetic or crystal pickup. Pickup signal is switched by S6 in its GRAM position to volume control R11.

To prevent radio breakthrough aerial input is earthed and aerial and oscillator coils are switched out of circuit. In addition HT feed to oscillator anode V1 and screen of V2 is disconnected by S5.

AF amplifier.—C19 feeds signal from volume control R11 to grid of triode amplifier section of V3. Cathode being connected down to chassis, bias for grid is developed on C19 with R12 as leak. R13 is anode load and C20 anode RF bypass capacitor.

Output stage.—Signal at anode V3 is coupled by C21 to pentode output amplifier V4. R15 is grid stopper and R14 grid load. Cathode bias and negative feedback is provided by R18. Screen voltage is obtained direct from HT line, decoupling being given by C25. Suppressor is externally connected to cathode.

Primary L16 of output matching transformer OP1 is in the anode circuit. C23 prevents rise in impedance of L16 at the higher frequencies, whilst R17 with C22 provides variable top-cut tone control. Secondary L17 feeds signal to a 10½-in. elliptical PM speaker L18.

Sockets are provided for connection of a low-impedance extension speaker and provision is made to disconnect internal speaker if desired.

HT is provided by an indirectly-heated full-wave rectifier V5. Its anode voltages are obtained from HT secondary L19 of mains input transformer MT1 and its heater current from LT secondary L20 in common with other valves. Resistance-capacity smoothing is given by R19, C25, C26. HT feed to V1 to V3 is further voltage dropped and smoothed by R16, C24. Reservoir rmoothing capacitor C26 is rated to handle 100mA sipple current.

Heaters and dial lights are wired in parallel and obtain their current from secondary L20 of MT1. Primary L21 of MT1 is tapped for inputs of 195-215, 216-235, 236-255V 50 to 100 c/s **AC.**

S7, which is ganged to volume control spindle, is the ON/OFF switch.

TRIMMING INSTRUCTIONS

Apply signal as stated below	Tune receiver to	Trim in order stated for maximum output
(1) 465kc/s to g1 of V1 via .01mF	MW-Gang condenser at min. cap.	Cores L15, L14, L13, L12
(2) 6mc/s to AE socket via dummy aerial	50 metres	Core L7, L2.
(3) 17.8mc/s as above	16.8 metres	T4, T1, and repeat 2 and 3
(4) 588kc/s as above	510 metres	Core L9, L4
(5) 1.605mc/s as above	186.9 metres	T5
(6) 1.427mc/s as above	210 metres	T2. Repeat 4, 5 and 6
(7) 162kc/s as above	1,850 metres	Core L11, L6
(8) 300kc/s as above	1,000 metres	T6, T3

FAULTS IN PREWAR EKCO'S

PREWAR Ekco sets, mains and battery: symptoms — inexplicable loss of signal strength although all components are in order.

Where these sets are fitted with IF transformers that are tuned with screw-in cores it is found that the trimming is very flat. There seems to be some effect due to age that causes these coils to lose their Q and the only remedy is to replace them.

I have found a similar effect in those sets that have bandpass aerial coils on waxed wood rods.

Another puzzling fault in old Ekcos is intermittent leakage in the various 140 pF condensers that are fitted in large numbers. This causes queer noises that are hard to pin down. When such a fault is encountered it pays to replace all these condensers.—S. L. H.