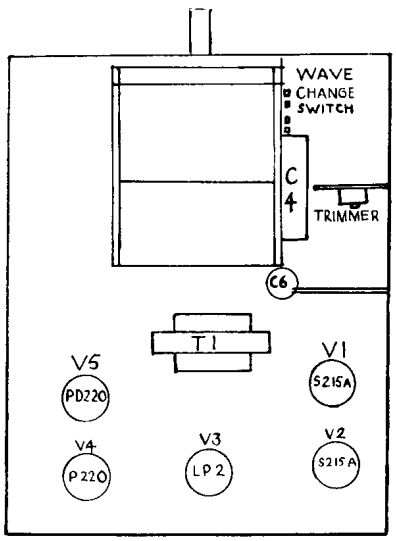
McMICHAEL LODEX BATTERY FIVE (cont.)

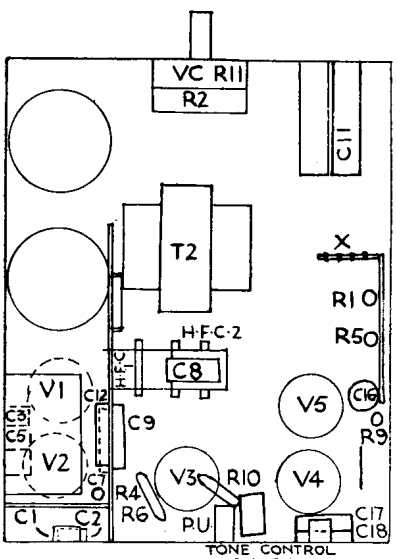
CONDENSERS

C.	Purpose.	Mfd.
1	A 1 aerial series condenser ...	.000005
2	A 2 aerial series condenser ...	.000017
3	A 3 aerial series condenser ...	.000017
4	Bias circuit of V 1	.25
5	Screen of V 1	.1
6	Decoupling anodes V1 and V2 ...	.25
7	Coupling to grid V 2	.0002
8	Tuning semi-aperiodic coupling V 2	.0002
9	Coupling to grid V 3	.0002
10	Decoupling P.U.	1
11	Decoupling screens V 1 and V 2 and anode V 3	1
12	Anode by-pass V 3	.002
13*	Auto-transformer coupling ...	.1
14	Across bias pot	8 Electrolytic
15	Tone control across grids of V 5	.03
16	Across H.T.	1
17	Compensator in one anode of V5	.002
18	Across H.T. (when two batteries are used	1

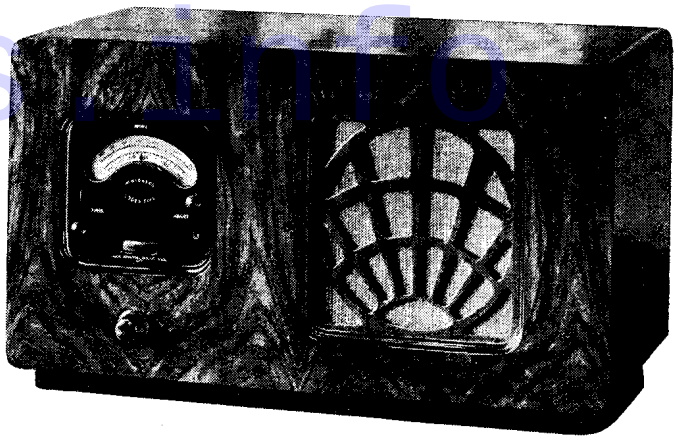
* See note under resistance table.



How the components are placed on the top of the "Lodex" chassis.



The under-chassis arrangement showing the resistances and condensers.



McMichael's Lodex receiver has modern horizontal construction which makes the chassis and speaker easily accessible.

RESISTANCES

R.	Purpose.	Ohms.
1	Decoupling grid V 1 (bias) ...	100,000
2	Volume control pot.	5,000
3	H.F. decoupling S.G. of V 1 ...	500
4	Grid leak V 2	2 meg.
5	Pick-up bias decoupling ...	100,000
6	Grid leak V 3	2 meg.
7	H.F. decoupling anodes V 1 and V 2	500
8*	Coupling to auto transformer T1	30,000
9*	Decoupling anode V 3	20,000
10	H.F. stopper grid V 4	100,000
11	Bias pot.	920+180

* In some chassis straight transformer coupling is used and R 8 is omitted. In such cases R 9 is 10,000 ohms. With auto transformer coupling R 8, R 9, C 13 and T 1 are in one unit.

(*Continued from previous page.*)

four screws from underneath, pull L.T. leads through aperture at back of L.T. compartment and lift chassis out. Chassis can be tested without disconnecting speaker.

General Notes.—The sockets for V1 and V2 are underneath the screening plate. Remove the two bolts holding this to the side of the chassis and ease the plate out.

Replacing Chassis.—In reassembling the chassis remember the earthed lead under one of the bolts on the screening plate.

Before pushing the chassis back into the cabinet, lay the H.T., L.T. and speaker leads over the *top* of the front panel and pull them through afterwards.

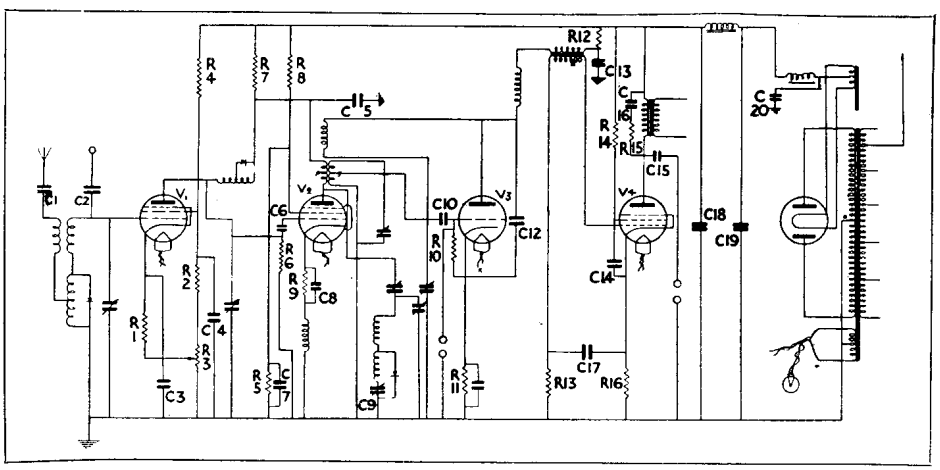
VARLEY A.C. MAINS FOUR-VALVE SUPERHET

Circuit.—*An H.F. valve* (*V1*) *VP4 met.* is preceded by a single tuned aerial circuit. Tuned anode coupling is used to the next valve. *The combined oscillator first detector* (*V2*), *SP4 plain*, is employed with cathode reaction, and is followed by a special *I.F. transformer* (*frequency* 110 kc.) in which reaction is included. There is no intermediate valve.

The *second detector* (*V2*), *354V*, works as a full power grid detector, and is followed by straight transformer coupling to *the output valve* (*V4*) *AC/Pen.*, which is tone compensated. Both the aux. grid and grid are properly decoupled.

Mains equipment consists of the transformer, full-wave rectifier DW3, and both a smoothing choke and the L.S. field are connected in the H.T.+ lead with three 8 mfd. electrolytic condensers.

Special Note.—Owing to the efficiency of the H.F. stage the inclusion of long meter leads in the anode circuit of the H.F. valve may cause instability. Short leads should be used.



There is no intermediate frequency stage in the Varley Superhet Four as the frequency-changer (V2) is followed immediately by the second detector (V3). Another feature to note is that reaction is applied to the I.F. transformer.

VARLEY SUPERHET FOUR (Contd.)

Removing Chassis.—Pull off the spring knobs. Undo two screws from underneath and remove four wood screws at the corners of the terminal panel. Remove two screws holding speaker clamp to top of cabinet, hold up carrying handle, and slide chassis out carefully. Stand on the mains transformer end.

General Notes.—The lay-out is comparatively simple, and with few exceptions, such as C6, all parts are accessible. To reach the components at the back, the three screws can be removed from the control panel and the panel eased out to the extent of the wires.

The pentode compensator resistance and condenser, R15, C16, are mounted on the speaker underneath the terminal panel.

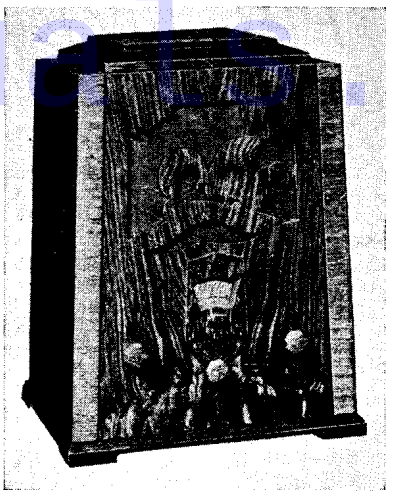
The terminals on the speaker panel, looking from rear, left to right, are :—1, junction of smoothing choke and L.S. field; 2, H.T.+ (set); 3, pentode anode; 4, connected to 1 on C18.

Replacing Chassis.—First see that wave-change switch is in the same position as escutcheon and that coil cans are pressed home.

Pull mains lead through large middle aperture, hold up the carrying handle and slide chassis into cabinet.

Replace the speaker clamp in the top of the cabinet in the same position. Replace the four wood screws on terminal panel and replace two screws underneath and clip the mains lead.

Replace knobs.



A novel point regarding the Varley Superhet Four receiver is that the escutcheon is moved up and down in order to change the wavelength. This feature does not introduce any difficulties, however.

VALVE READINGS

Valve.	Connections.	Volts.	M.A.
V1 VP4 met	anode ...	180	3.5
	screen ...	100	—
V2 SP4 plain	anode ...	180	1
	screen ...	70	—
V3 354Vplain	anode ...	105	3.75
V4 AC/Pen	anode ...	205	26
	aux-grid ...	175	4.5

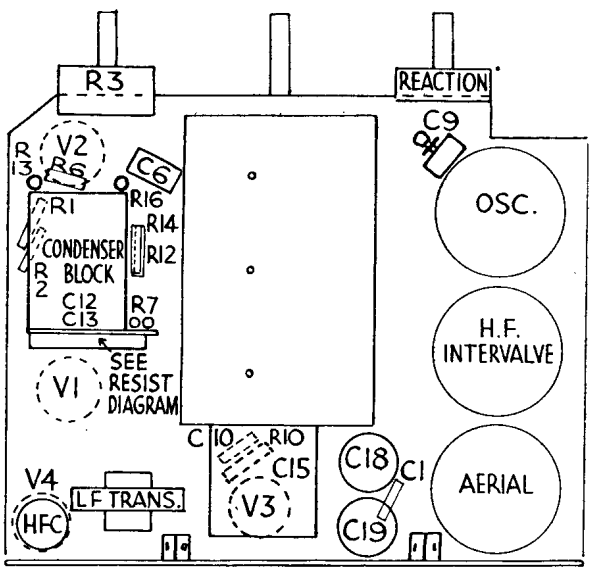
RESISTANCES

R.	Purpose.	Ohms.
1	Bias resistor V 1	300
2	Part of screen ptr. V 1 ...	7,500
3	Var. VC, screen and bias ptr. V 1	10,000
4	Top of screen ptr. V 1 ...	12,500
5	Lower part of screen ptr. V 2 ...	25,000
6	Grid leak V 2	5 meg.
7	Decoupling anode V 1	5,000
8	Top of screen ptr. V 2 ...	50,000
9	Cathode V 2	20,000
10	Grid leak V 3	.5 meg.
11	Cathode V 3	800
12	Decoupling anode V 3	30,000
13	Decoupling grid V 4	50,000 or 100,000
14	Voltage drop to aux. grid V 4 ...	10,000
15	Tone compensator V 4	5,000
16	Cathode V 4	300

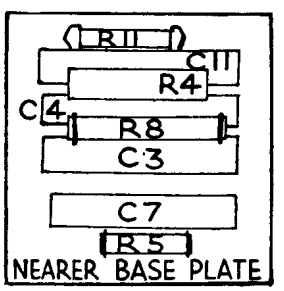
CONDENSERS

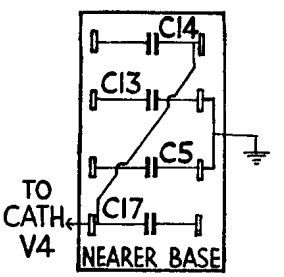
C.	Purpose.	Mfd.
1	Aerial series condenser	.00005
2	Mains aerial	.0001
3	Cathode V 1	.1
4	Screen V 1	.1
5	Decoupling anode V 1	1
6	Grid coupling V 2	.0001
7	Screen V 2	.1
8	Cathode V 2	.003
9	Padding L.W. on osc. coil ...	.0005 max.
10	V 3 grid condenser	.0001
11	Cathode V 3	.1
12	Anode by-pass V 3	.0005
13	Decoupling V 3	1
16	Aux. grid V 4	1
15	Filter to Ex L.S.	1
16	Tone compensator V 4 ...	.01
17	Decoupling grid V 4	1
18	Electrolytic smoothing	8
19	Electrolytic smoothing	8
20	Electrolytic smoothing	8

The near diagram on the right clearly shows how the resistances and condensers are situated on the "resistance panel" of the Varley Superhet Four. The connections of the condenser block are given on the extreme right.



The Varley chassis from below. Detailed diagrams of the resistance panel and condenser block situated on the left side are given above. Before replacing the chassis, the wave-change switch should be placed in the same position as the escutcheon and the coil cans should be pressed home.





Below, is the layout diagram of the Superhet Four looking from above. The resistance and condenser connected across the output transformer for tone correction are actually mounted on the speaker.