

# CLIMAX MODEL S5 SUPERHET

**Circuit.**—The combined first detector oscillator valve, FC4 met. (V1) is an octode. It is preceded by a band-pass aerial circuit with suppressor coupling. Reaction tuning is in the oscillator grid circuit.

Volume is controlled by a variable resistance, common to V2, in series with a limiting bias resistance. The following coupling is a band-pass I.F. transformer (frequency 115 k.c.).

The I.F. valve, MM4V met. (V2) is biased as V1 and is followed by a second band-pass I.F. transformer.

A 354V valve (V3) operates on the power grid principle and is followed by straight resistance capacity coupling.

The output pentode, AC2 Pen. (V4) has a grid stabiliser and is tone compensated by a condenser between the anode and chassis. A safety resistance is included in the anode lead to protect the valve when an external L.S. is used.

Mains equipment consists of:—transformer full-wave 442B.U. rectifier and the L.S. field

in the positive lead for smoothing with electrolyte reservoir and by-pass condensers.

**Special Notes.**—In some sets an additional condenser CX may be found connected between the cathode lead common to V1 and V2, and chassis.

In cases where the V.C. is noisy this extra condenser of .5 mfd. should be mounted

between the terminal on the V.C. and the earthed soldering tag on the switch.

**Quick Tests.**—Between the terminals on the L.S. transformer and chassis:—

- Top. (1) and (2) H.T. smoothed, 260 volts.
- (3) Blank.
- (4) V4 anode, 250 volts.
- (5) H.T. unsmoothed, 350 volts.

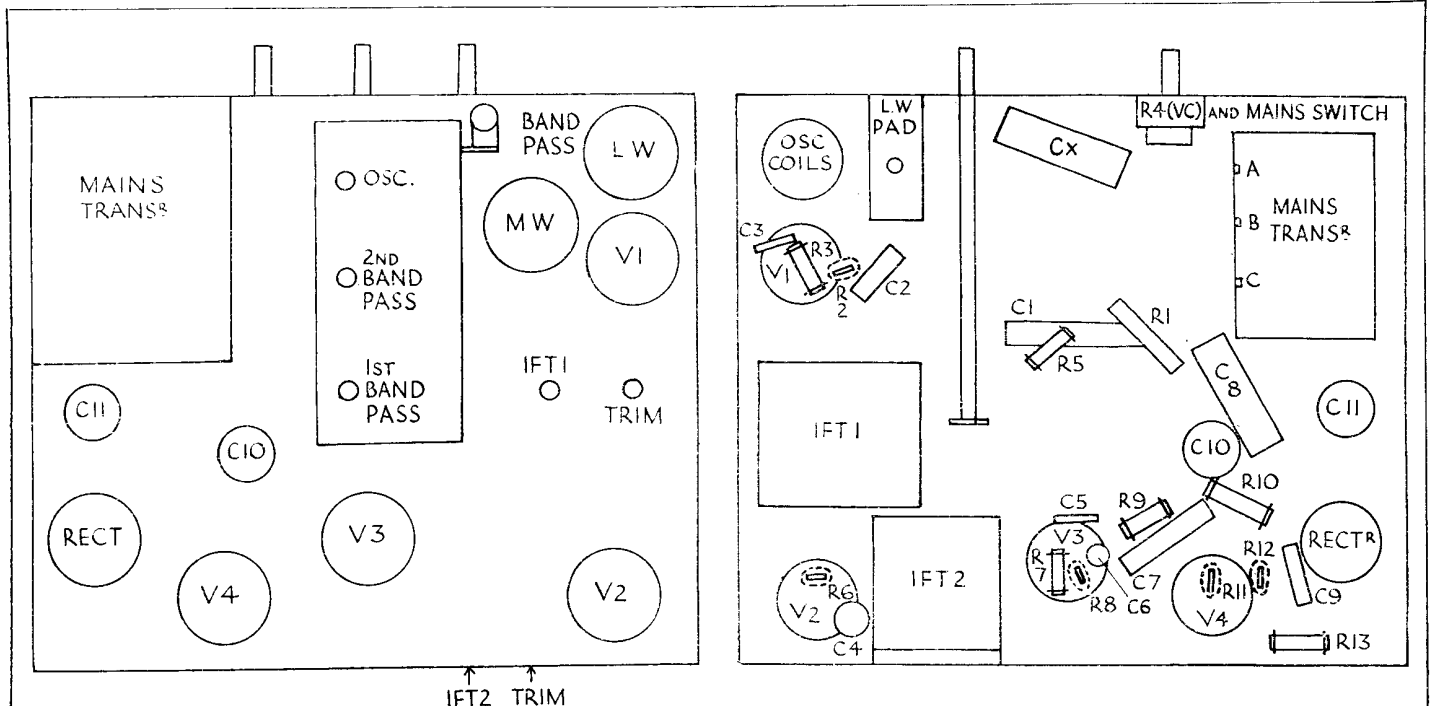
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## RESISTANCES

R.	Purpose.	Ohms.
1	Top part of screen ptr.	20,000
2	Limiting V1 cathode bias	300
3	V1 osc. grid leak	.25 meg.
4	Volume control	8,000
5	Lower part of screen ptr.	20,000
6	Limiting V2 cathode bias	500
7	V3 grid leak	.25 meg.
8	V3 cathode bias on "gram"	1,000
9	V3 anode, LF coupling	20,000
10	V4 grid leak	50,000
11	H.F. stopper V4 grid	1,000
12	V4 cathode bias	140
13	Protecting V5 when using external L.S.	50,000

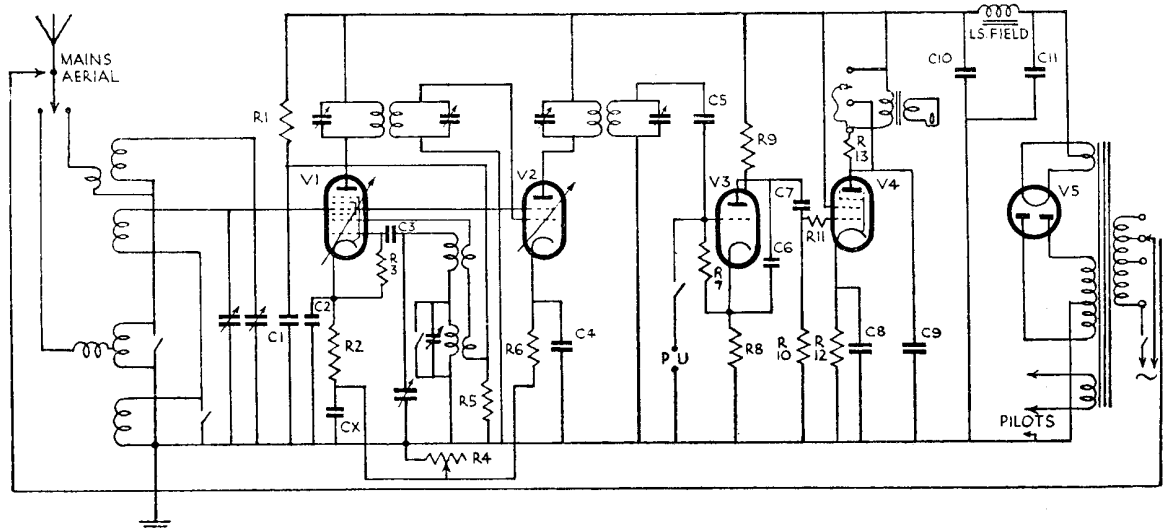
## CONDENSERS

C.	Purpose.	Mfd.
1	By-pass from V1 and V2 screens	.1
2	V1 cathode by-pass	.01
3	V1 osc. grid	.0001
4	V2 cathode by-pass	.1
5	V2 grid	.0001
6	V3 anode, HF by-pass	.006
7	LF coupling V3 to V4	.1
8	V4 cathode by-pass	50 el.
9	Tone compensating V4 anode	.01
10	HT smoothing	8 el.
11	HT smoothing	16 el.
CX	V.C. by-pass	.5



Above are the two layout diagrams showing how the components are placed above (left), and below (right) the chassis of the Climax S5 receiver.

An octode-frequency-changer is used in the S5 and a triode second detector is resistance capacity coupled to an output pentode.



### CLIMAX MODEL S5 SUPERHET (Cont.)

(1) and (5) are L.S. field. (2) and (4) are primary of output transformer.

**Removing the Chassis.**—To reach the components underneath the chassis simply remove the cover from underneath the cabinet.

When the chassis has to be removed completely: Remove the knobs (grub screw), and remove four holding screws underneath.

**General Notes.**—Mains transformer connections: A and C, rectifier anodes; B, centre tap to chassis.

On outside, three in line next chassis:—

- (1) Front, mains O. to switch.
- (2) Middle, rectifier heater.
- (3) C.T. of rectifier heater winding (H.T.+ to C11).

Single lead 16 gauge set heaters.

On inside in slot: Lower (black) rectifier heater; upper, set heaters.

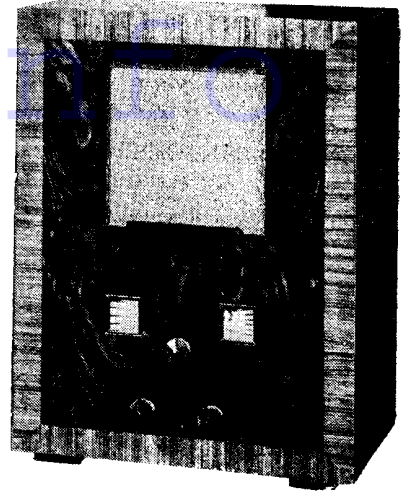
The rectifier and set heater wires can be differentiated by the gauges of the wire, the set heater being the heavier.

Small components are suspended in the wiring and are easily recognised.

The switch contacts are of the wiping type. To clean them use a little benzene on a fine brush, and, after turning switch to open circuit positions for contacts, rub insides of springs and rotate switch spindle.

When the oscillator anode voltage on V1 is much under the figure given check that the resistance R1 is in order. If a replacement is required use a 2-watt type.

**Replacing the Chassis.**—Place chassis inside cabinet. Replace holding screws and knobs.



Twin escutcheons are a feature of the S5 receiver by Climax Electric, Ltd.

#### VALVE READINGS

No signal. V.C. max.

Valve.	Type.	Electrode.	Volts.	M.A.
1	F.C.4 met. (7)	anode ..	250	1.3
		aux. grid ..	80	
		osc. anode ..	80	
2	MM4V or VP4 met. (5)	anode ..	250	1.5 4 or 2.3
		screen ..	80	
3	354V.met.(5)	anode ..	120	5
4	AC2 Pen.(7)	anode ..	250	3 1/2 7
		aux. grid ..	260	

## McMICHAEL MAINS TRANSPORTABLE

**Circuit.**—The H.F. valve, A.C./VP1 met. (V1) is preceded by the frame aerial, of which the long wave section is short-circuited during reception on the medium waves.

Bias is by fixed cathode resistance and A.V.C., which is fed to the grid through R19 and not through the frame aerial. The following coupling is a tuned secondary H.F. transformer.

Oscillator tuning in the oscillator anode circuit of the combined first detector oscillator, A.C./TP met. (V2) and the grid circuit contains a harmonic stopper, R13. Coupling to the next valve is by band-pass I.F. transformer (intermediate frequency 110KC).

The I.F. valve A.C./VP1 met. (V3) is also biased by fixed cathode resistance and from the A.V.C. line, and is followed by another band-pass I.F. transformer.

The combined second detector and L.F. valve A.C./HL/DD has one diode anode connected through a condenser to the primary of I.F.T.2, and provides A.V.C. for the pre-

ceding valves. L.F. impulses are fed from the low potential end of the secondary through the coupling condenser C6 to the potentiometer grid leak of the triode section.

The delay A.V.C. bias is made greater than that applied to the triode grid by taking the grid return to a tapping on the bias potentiometer consisting of R3 and R20. A resistance capacity filter forms the L.F. coupling to the output valve.

This is an A.C./Pen (V5), which is tone compensated by a fixed condenser between the anode and chassis as well as by a condenser in series with a variable resistance to form a tone control.

Mains equipment consists of transformer, Westinghouse rectifier, used as a voltage doubler, and the L.S. field in the positive

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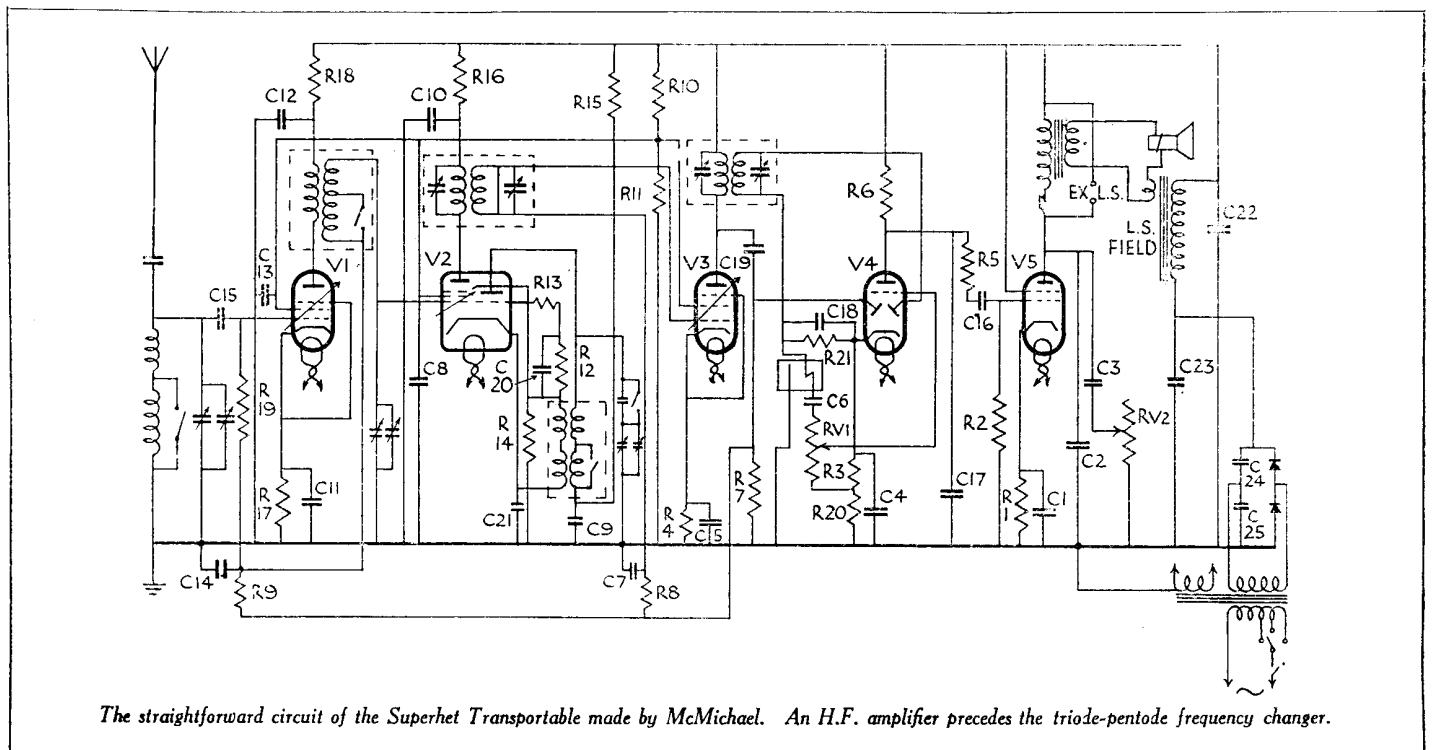
#### VALVE READINGS

(No Signal.)

V.	Type.	Electrode.	Volts.	M.A.
1	ACVP1 met (7)	anode ..	210	2
		aux.-grid..	105	
2	ACTP met. (9)	anode ..	220	1.1
		aux.-grid..	105	
		osc.-anode*	110	
		anode ..	240	
3	ACVP1 met. (7)	anode ..	240	2.85
		aux.-grid..	105	
4	AC/HL/DD met. (7).	anode** ..	70	1.7
		aux.-grid..	70	
5	AC Pen	anode ..	235	24
		aux.-grid..	250	

\* Stable reading.

\*\* High value of resistance in circuit; current is the important factor.



The straightforward circuit of the Superhet Transportable made by McMichael. An H.F. amplifier precedes the triode-pentode frequency changer.