

# FERRANTI "NOVA" A.C. SUPERHET

**Circuit.**—The detector-oscillator valve, VHT4 met. (V1), has a band-pass aerial filter, and is biased by limiting cathode resistance and A.V.C. Tuning of the oscillator section is in the grid circuit and coupling to the next valve is by band-pass I.F. transformer (frequency 125 kc.).

The I.F. valve, VPT4 met. (V2), is also biased by A.V.C. and cathode resistance, and is followed by another band-pass I.F. transformer.

The combined second detector and output pentode valve, PT4D (V3), uses one diode anode for L.F. purposes and the other for A.V.C.

The volume control is the grid leak of the pentode section and the anode circuit is stabilised by R19 directly in the anode lead. Variable tone control is by condenser and variable resistance.

Mains equipment consists of transformer, full-wave R4 rectifier, the speaker field in the negative H.T. lead and electrolytic condensers.

The pilot lamp is a 6.2 volt .3 amp. type.

**Quick Tests.**—Between the upright con-

nectors on the mains transformer and chassis (note the colours and the polarity):—

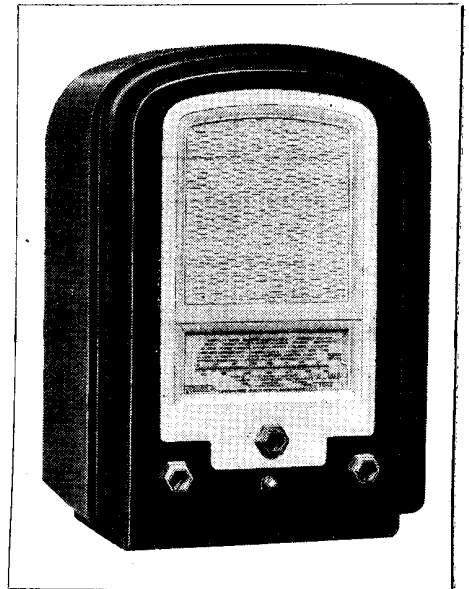
Front of cabinet: (1) Black, chassis 0 v.; (2) red, H.T. smoothed, +280 v.; (3) green, V3 anode, +276 v.; (4) blue, H.T.—100 v. The speaker field is 1,600 ohms.

**Removing Chassis.**—Pull off the knobs, release the connecting leads from the transformer panel and remove the four holding screws from underneath.

**General Notes.**—The block condenser C19, C20 has one positive lead connected to H.T.+, while the two negative leads are connected to the opposite ends of the speaker field.

The layout and assembly of this set is particularly simple and the controls are operated in the usual Ferranti method.

**Replacing Chassis.**—Lay the chassis inside the cabinet. Replace the holding screws and knobs and reconnect the speaker leads.



The "Nova" receiver by Ferranti, Ltd., utilises three high-efficiency valves and a rectifier in a typical modern superhet circuit. The set is housed in a black moulded bakelite cabinet and incorporates an original type of full vision scale.

## CONDENSERS

C.	Purpose.	Mfd.
1	Decoupling V1 grid .. .. .	.05
2	V1 cathode by-pass .. .. .	.05
3	Decoupling V1 osc. anode ..	.01
4	Decoupling V1 osc. anode el.	1 (500 v.)
5	Decoupling V1 anode .. .. .	.1
6	Decoupling V2 grid .. .. .	.05
7	V2 cathode by-pass .. .. .	.1
8	V1, V2 screen by-pass .. .. .	el. 4(350 v.)
9	Decoupling A.V.C. line .. .. .	.05
10	Decoupling V2 anode .. .. .	.1
11	I.F. by-pass from diode .. .. .	.00015
12	L.F. coupling .. .. .	.02
13	Decoupling V3 grid .. .. .	.25
14	I.F. by-pass .. .. .	.00015
15	V3 cathode by-pass .. .. .	el. 4 (50 v.)
16	I.F. feed to A.V.C. diode ..	.00015
17	Tone control circuit .. .. .	.05
18	Tone compensating V3 .. .. .	(1,000 v.) .002
19	H.T. smoothing .. .. .	8 (500 v.)
20	H.T. smoothing .. .. .	el. 8 (500 v.)
21	H.F. by-pass from mains ..	.002
22	Mains aerial .. .. .	(1,500 v.) .002
Ca.	Aerial coupling .. .. .	(1,500 v.) .000018

## RESISTANCES

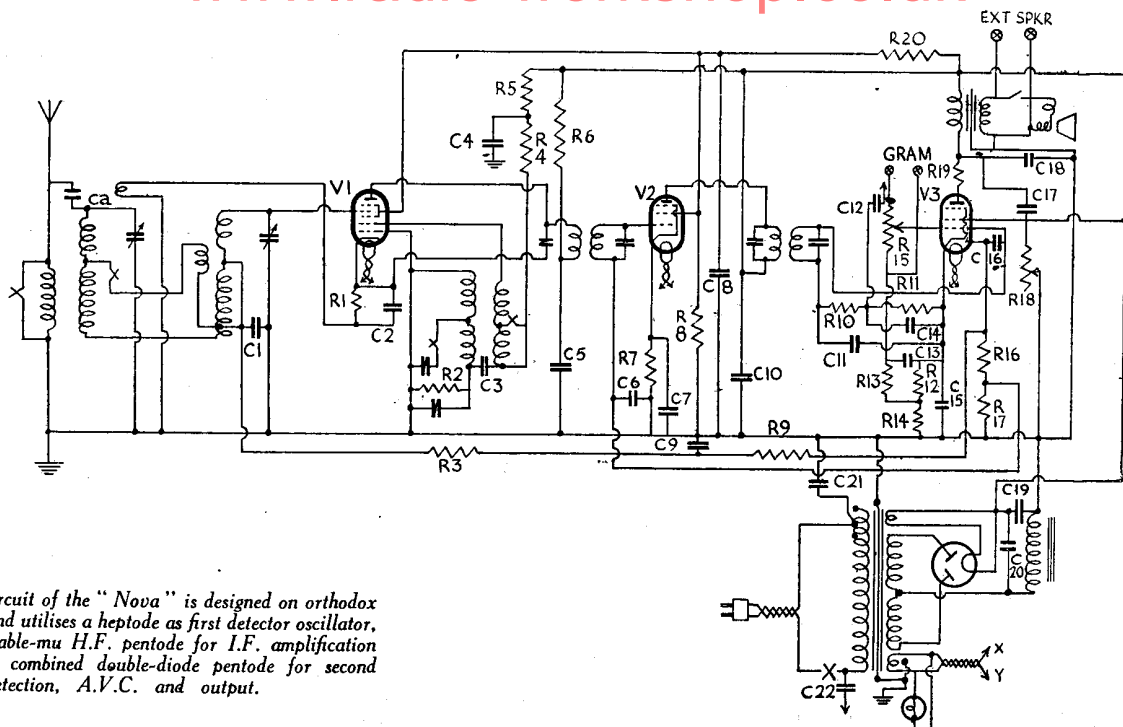
R.	Purpose.	Ohms.
1	V1 cathode bias .. .. .	300
2	V1 osc. grid leak .. .. .	50,000
3	V1 grid-A.V.C. decoupling ..	.25 meg.
4	V1 osc. anode decoupling ..	50,000
5	V1 osc. anode decoupling ..	50,000
6	V1 anode decoupling .. .. .	1,000
7	V2 cathode bias .. .. .	450
8	Lower part of V2 screen ptr.	50,000
9	A.V.C. line decoupling .. ..	1 meg.
10	I.F. stopper from diode .. ..	100,000
11	Diode load .. .. .	.5 meg.
12	Part of V3 bias ptr. .. .. .	140
13	Decoupling V3 grid .. .. .	100,000
14	Part of bias ptr. .. .. .	600 (1 w.)
15	Volume control .. .. .	1 meg.
14	Diode A.V.C. ptr. .. .. .	4 meg.
17	Diode A.V.C. ptr. .. .. .	1 meg.
18	Tone control .. .. .	50,000
19	V3 anode stabiliser .. .. .	140
20	Top part of screen ptr. .. ..	25,000
		(2 w.)
	L.S. field .. .. .	1,600

## VALVE READINGS

No signal.

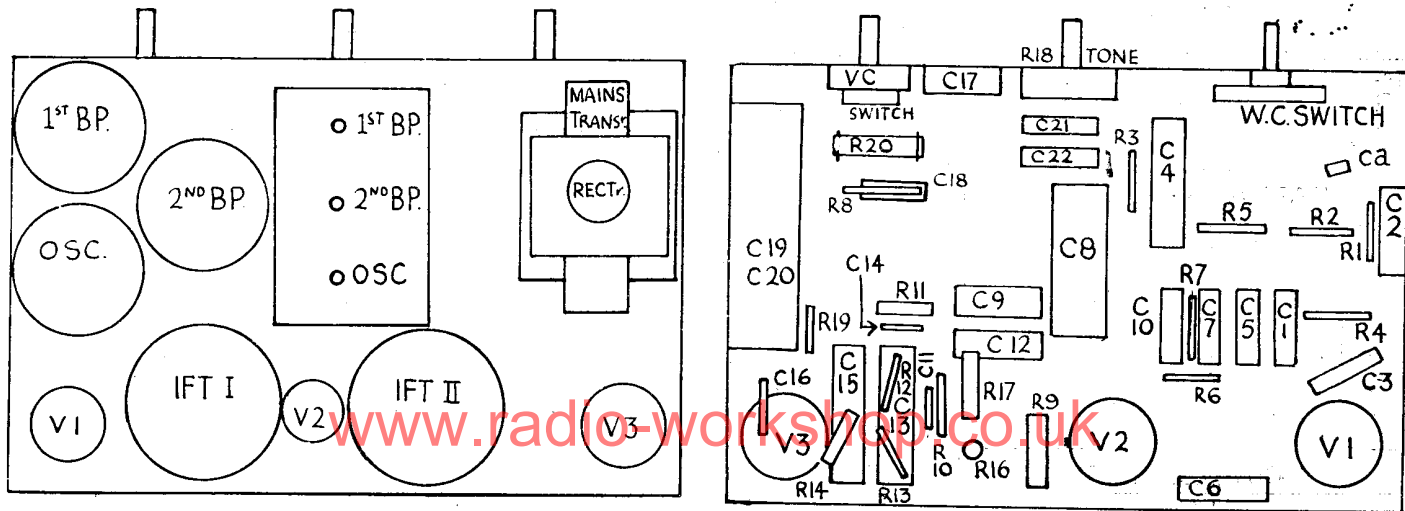
Valve.	Type.	Electrod e.	Volts.	Ma.
1	VHT4 met. (7)	anode ..	275	4.1
		screen ..	90	
		osc. anode	95	
2	VPT4 met. (5)	anode ..	275	4
		aux. grid	90	2
		anode	276	34
3	PT4D (7)	anode	280	7.25
		aux. grid.		

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The circuit of the "Nova" is designed on orthodox lines and utilises a heptode as first detector oscillator, a variable-mu H.F. pentode for I.F. amplification and a combined double-diode pentode for second detection, A.V.C. and output.

## CHASSIS DIAGRAMS OF FERRANTI "NOVA" SUPERHET



The I.F. trimmers project above the screening cans and are easily adjusted from the top of the Ferranti "Nova" chassis. The circuit simplicity is reflected in the open under-chassis layout (right).