

Circuit diagram of the Ferranti Nova 1936-37 receiver. The Magna has a similar circuit, but with the addition of a moving iron tuning indicator in series with the common H.T. feed circuit to the anodes of V1 and V2. The coils for the S.W. band are L9, L10, L15, L16.

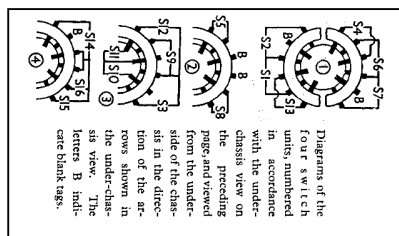
COMPONENTS AND VALUES

Condensers	Values (μF)
C1 Aerial coupling ..	0.000016
C2 Band-pass coupling ..	0.05
C3 V1 tetrode anode decoupling ..	0.1
C4 V1 cathode by-pass ..	0.05
C5 V1 cathode by-pass (S.W.) ..	0.0005
C6 V1 A.V.C. line decoupling ..	0.05
C7 V1 osc. C.G. condenser ..	0.00005
C8 Oscillator L.W. trimmer ..	0.000018
C9 V1 osc. anode coupling ..	0.01
C10* V1 osc. anode decoupling ..	2.0
C11 V2 C.G. decoupling ..	0.05
C12* V1 and V2 S.G.'s by-pass ..	4.0
C13 V2 anode decoupling ..	0.1
C14 V2 cathode by-pass ..	0.1
C15 I.F. by-pass ..	0.00015
C16 I.F. coupling to vol. control ..	0.00015
C17 V3 C.G. decoupling ..	0.25
C18 V3 cathode by-pass ..	4.0
C19* V3 A.V.C. diode coupling ..	0.00015
C20 Fixed tone corrector ..	0.002
C21 Part of T.C. filter ..	0.05
C22* H.T. smoothing ..	8.0
C23* Mains H.F. by-pass ..	8.0
C24 Band-pass primary tuning ..	0.002
C25 Band-pass primary trimmer ..	—
C26 Band-pass secondary trimmer ..	—
C27 Aerial circuit trimmer (S.W.) ..	—
C28 Band-pass secondary tuning ..	—
C29 Oscillator tuning ..	—
C30 Oscillator trimmer (M.W. and L.W.) ..	—
C31 Oscillator M.W. tracker ..	0.0039
C32 Oscillator L.W. tracker ..	0.0007
C33 Oscillator trimmer (S.W.) ..	—
C34 1st I.F. trans. pri. tuning ..	—
C35 1st I.F. trans. sec. tuning ..	—
C36 2nd I.F. trans. pri. tuning ..	—
C37 2nd I.F. trans. sec. tuning ..	—

Switch	S.W.	M.W.	L.W.
S1	O	C	C
S2	C	O	O
S3	O	C	C
S4	O	C	C
S5	O	C	C
S6	O	C	C
S7	C	O	O
S8	C	O	O
S9	C	O	O
S10	C	O	O
S11	C	O	O
S12	C	O	O
S13	C	O	O
S14	C	O	O
S15	C	O	O
S16	C	O	O

Resistances	Values (ohms)
R1 V1 tetrode C.G. decoupling ..	250,000
R2 V1 cathode resistance ..	100
R3 V1 tetrode anode decoupling ..	1,000
R4 V1 osc. C.G. resistance ..	100,000
R5 V1 A.V.C. line decoupling ..	1,000,000
R6 V1 oscillator anode decoupling ..	1,000
R7 V1 and V2 S.G.'s H.T. potential divider ..	30,000
R8 V1 and V2 S.G.'s H.T. potential divider ..	150,000
R9 V2 cathode resistance ..	25,000
R10 V2 cathode resistance ..	50,000
R11 I.F. stopper ..	450
R12 V3 signal diode load ..	100,000
R13 Manual volume control ..	500,000
R14 V3 C.G. decoupling ..	1,000,000
R15 V3 G.B. and A.V.C. delay ..	100,000
R16 V3 anode circuit stabiliser ..	140
R17 V3 anode circuit stabiliser ..	600
R18 V3 A.V.C. diode load ..	140
R19 V3 A.V.C. diode load ..	4,000,000
R20 V3 A.V.C. diode load ..	1,000,000
R21 Variable tone control ..	50,000

Other Components	Approx. Values (ohms)
L1 Aerial coupling coils (M.W. and L.W.) ..	18.0
L2 Band-pass primary coils ..	70.0
L3 Image rejector coil ..	4.5
L4 Band-pass coupling coil ..	45.0
L5 Band-pass secondary coils ..	0.25
L6 Aerial coupling coil (S.W.) ..	0.2
L7 Aerial tuning coil (S.W.) ..	4.5
L8 Oscillator tuning coils (M.W. and L.W.) ..	40.0
L9 Oscillator reaction coils (M.W. and L.W.) ..	1.3
L10 Oscillator tuning coil (S.W.) ..	0.05
L11 Oscillator reaction coil (S.W.) ..	8.5
L12 Oscillator reaction coil (S.W.) ..	43.0
L13 1st I.F. trans. { Pri. ..	7.2
L14 1st I.F. trans. { Sec. ..	8.0
L15 2nd I.F. trans. { Pri. ..	0.05
L16 2nd I.F. trans. { Sec. ..	0.8
L17 Speaker speech coil ..	80.0
L18 Hum neutralising coil ..	80.0
L19 Speaker field coil ..	80.0
L20 Speaker input trans. { Pri. ..	3.8
L21 Speaker input trans. { Sec. ..	0.25
L22 Speaker input trans. { Pri. ..	1,600.0
L23 Speaker input trans. { Sec. ..	200.0
T1 Mains trans. { Pri. total ..	0.5
T2 Mains trans. { Heater sec. ..	32.0
T2 Mains trans. { Rect. fil. sec. ..	0.05
T2 Mains trans. { H.T. sec. total ..	0.1
S1-S16 Waveband switches, ganged ..	380.0
S17 Mains switch, ganged R14 ..	—



VALVE ANALYSIS

Valve voltages and currents given in the table below are those measured in our receiver when it was operating on mains of 225 V, using the 230 V tapping on the mains transformer. The volume control was at maximum and the receiver was tuned to the lowest wavelength on the medium band but there was no signal input.

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

Valve	Anode Volts	Anode Current (mA)	Screen Volts	Screen Current (mA)
V1 VHT4*	300	0.9	90	5.4
V2 VPT4	310	4.1	90	2.1
V3 PT4D	290	35.0	310	6.8
V4 R4	305†	—	—	—

* Osc. anode (G2) 78 V, 1.1 mA.

† Each anode, A.C.

GENERAL NOTES

Switches.—S1-S16 are the waveband switches in four ganged rotary units beneath the chassis. For the sake of clarity the contacts have been separated into single-pole units which are clearly shown in the separate switch diagrams. These give the contact positions as seen looking at the underside of the chassis from the rear. The table below gives the switch positions for the various settings of the control knob, O indicating open, and C closed.

Coils.—All tuning coils, with the exception of those for aerial coupling and tuning on the S.W. range, are in five screened units mounted on the chassis deck. L9 and L10, the S.W. coils referred to, are wound on a tubular former mounted underneath the chassis immediately below the M.W. and L.W. aerial coil unit (band-pass primary). The oscillator unit contains S.W., M.W., and L.W. coils, and also the trackers C33 (M.W.) and C34 (L.W.), which comprise fixed and pre-set condensers in parallel. The first I.F. transformer unit L17, L18 contains its trimmers C36, C37, while the second unit L19, L20, apart from trimmers C38, C39, contains resistances R12, R13 and fixed condensers C15, C16 and C20.