

SERVICE SHEET FOR



Mozart FM TUNER

MODEL HFT108M—with metal cover

MODEL HFT108—chassis only

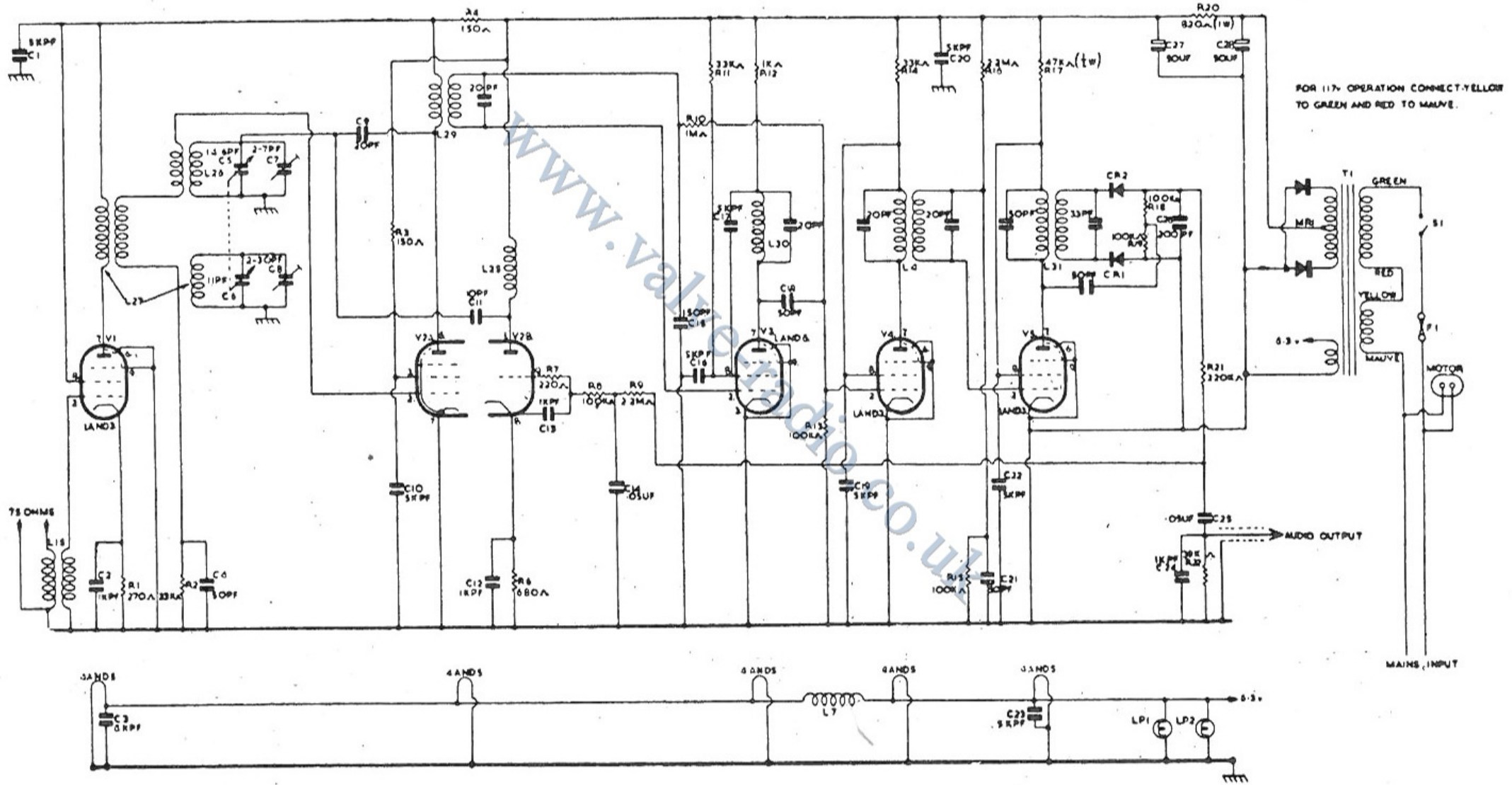
CIRCUIT ANALYSIS

Mains input 240 v. 50 c.p.s. into two halves of primary in series.
All measurements with Avometer Model 8; 20,000Ω per-volt on D.C. ranges.

Position	Valve function	Type	Ea	Ia	Es	Is	Ek	Ik	Ea	Triode Ia	Ek
V1	R.F. Amplifier	EF80	108	4.5	110	1.0	1.5	5.5	—	—	—
V2	Self oscillating mixer and reactance valve	ECF80	101	5.0	111	1.5	—	6.5	107	6.0	4.0*
V3	1st I.F.	EF89	105	4.5	62	1.5	—	6.0	—	—	—
V4	2nd I.F. and limiter	EF80	43	1.5	47	0.5	—	2.0	—	—	—
V5	2nd limiter and discr.	EF80	44	1.1	45	0.4	—	1.5	—	—	—
MRI	HT rectifier (Westinghouse)	16 RE 2-1-8-1	Voltage across H.T. winding 246 v rms.			Voltage from rectifier 134 V.D.C.			Voltage after 820Ω smoothing 112 V.D.C.		

*These conditions of the triode reactance valve are for an 'on tune' state, i.e. no D.C. being fed back from discriminator.

CIRCUIT DIAGRAM OF HFT108FM TUNER



FOR 117V OPERATION CONNECT YELLOW TO GREEN AND RED TO MAUVE.

MAINS INPUT

AUDIO OUTPUT

COMPONENTS LIST

CAPACITORS						VALVES		
	Specification		±	No.		Type		No.
C1	5.000 μ F 316 K	...	20%	653190	V1	EF80	...	860175
C2	1.000 μ F 310 K	...	20%	651131	V2	ECF80	...	860324
C3	5.000 μ F 316 K	...	20%	653190	V3	EF89	...	860457
C4	50 μ F Silver Mica	...	10%	666188	V4	EF80	...	860175
C5	14.6 μ F Osc.	Gang Capacitor		9080000	V5	EF80	...	860175
C6	11 μ F R.F.			9070088				
C7	2.7 μ F Trimmer	...		800415	TRANSFORMER & INDUCTANCES			
C8	2.30 μ F Trimmer	...		666702	Specification			
C9	20 μ F Silver Mica	...	10%	653190	No.			
C10	5.000 μ F 316 K	...	20%	652679	T1	Transformer Mains	...	9077046
C11	10 μ F Tubular	...	10%	651131	L4	I.F. Green Code—includes two 20 μ F Capacitors	...	9078000
C12	1.000 μ F 310 K	...	20%	651131	L7	R.F. Choke	...	9078001
C13	1.000 μ F 310 K	...	20%	651131	L15	Aerial Coil	...	9078002
C14	0.05 μ F Tubular	...		669139	L25	Reactance Coil	...	9078003
C15	150 μ F Silver Mica	...	10%	666165	L26	Oscillator Coil	...	9078004
C16	5.000 μ F 316 K	...	20%	653190	L27	R.F. Coil	...	9078005
C17	5.000 μ F 316 K	...	20%	653190	L29	I.F. Blue Code—includes one 20 μ F Capacitor	...	9078006
C18	50 μ F Silver Mica	...	10%	666188	L30	I.F. Brown Code—includes one 20 μ F Capacitor	...	9078007
C19	5.000 μ F 316 K	...	20%	653190	L31	Disc. Red Code—includes two 50 μ F and one 33 μ F Capacitor	...	9078008
C20	5.000 μ F 316 K	...	20%	653190	Miscellaneous			
C21	50 μ F Silver Mica	...	10%	666188	Item			
C22	5.000 μ F 316 K	...	20%	653190	F1	Fuse 0.5 Amp.	...	700487
C23	5.000 μ F 316 K	...	20%	653190	MR1	Metal H.T. Rectifier Type 16 RE 2-1-8-1	...	709070
C24	1.000 μ F 310 K	...	10%	653170	CR1	Crystal Diode G.E.C. GEX34	...	704522
C25	0.05 μ F Tubular	...		669139	CR2	Crystal Diode G.E.C. GEX34	...	704522
C26	200 μ F 310 K	...	10%	653171	LP1	Lamp 6.3 volts 0.11 amp.	...	704578
C27	50 μ F	Electrolytic		680021	LP2	Lamp 6.3 volts 0.11 amp.	...	704578
C28	50 μ F			680021	No.			

RESISTORS					
	Ohms	Type	Watts	±	No.
R1	270	16	1/4	20%	675536
R2	33,000	16	1/4	20%	671806
R3	150	16	1/4	20%	671786
R4	150	16	1/4	20%	671786
R5	Not Used				
R6	680	16	1/4	20%	670648
R7	220	16	1/4	20%	675501
R8	100,000	16	1/4	20%	670633
R9	2.2 meg.	16	1/4	20%	670640
R10	1 meg.	16	1/4	20%	670618
R11	33,000	16	1/4	20%	671806
R12	1,000	16	1/4	20%	670662
R13	100,000	16	1/4	20%	670633
R14	33,000	16	1/4	20%	671806
R15	100,000	16	1/4	20%	670633
R16	2.2 meg.	16	1/4	20%	670640
R17	47,000	8AD	1/4	10%	676194
R18	100,000	16	1/4	20%	670633
R19	100,000	16	1/4	20%	670633
R20	820	2	1/4	10%	670137
R21	220,000	16	1/4	20%	670665
R22	39,000	16	1/4	20%	675537

ALIGNMENT PROCEDURE

HFT108FM Tuner

EQUIPMENT REQUIRED

1. An FM Signal Generator with a sweep frequency of 1Mc/s.
2. A Cathode Ray Oscilloscope.

I.F. ALIGNMENT

1. Inject signal at 10.7 Mc/s via 3.3 pF capacitor to V2a signal grid at junction of R2 and C4.
2. Connect Indicator (Oscilloscope) via 100K Resistor junction of R15 and C21.
3. Balance L4, L30, L29. I.F.T. Cores for maximum gain with bandwidth of 200 kc/s about the mid frequency (10.7 Mc/s.).

R.F. ALIGNMENT

1. Set pointer to 90 Mc/s and inject signal via aerial socket at this frequency.
2. Set generator for 15 kc/s deviation and adjust L26, L27 for maximum output.
3. Set pointer to 106 Mc/s and adjust trimmers C7 and C8 for maximum output.
4. Set pointer to centre of frequency band in use and adjust L15 for max.

NOTE 1.

FM transmissions may be used where frequencies are reasonably close to the above.

NOTE 2.

Final adjustment of I.F. should be checked with back-plate in position.

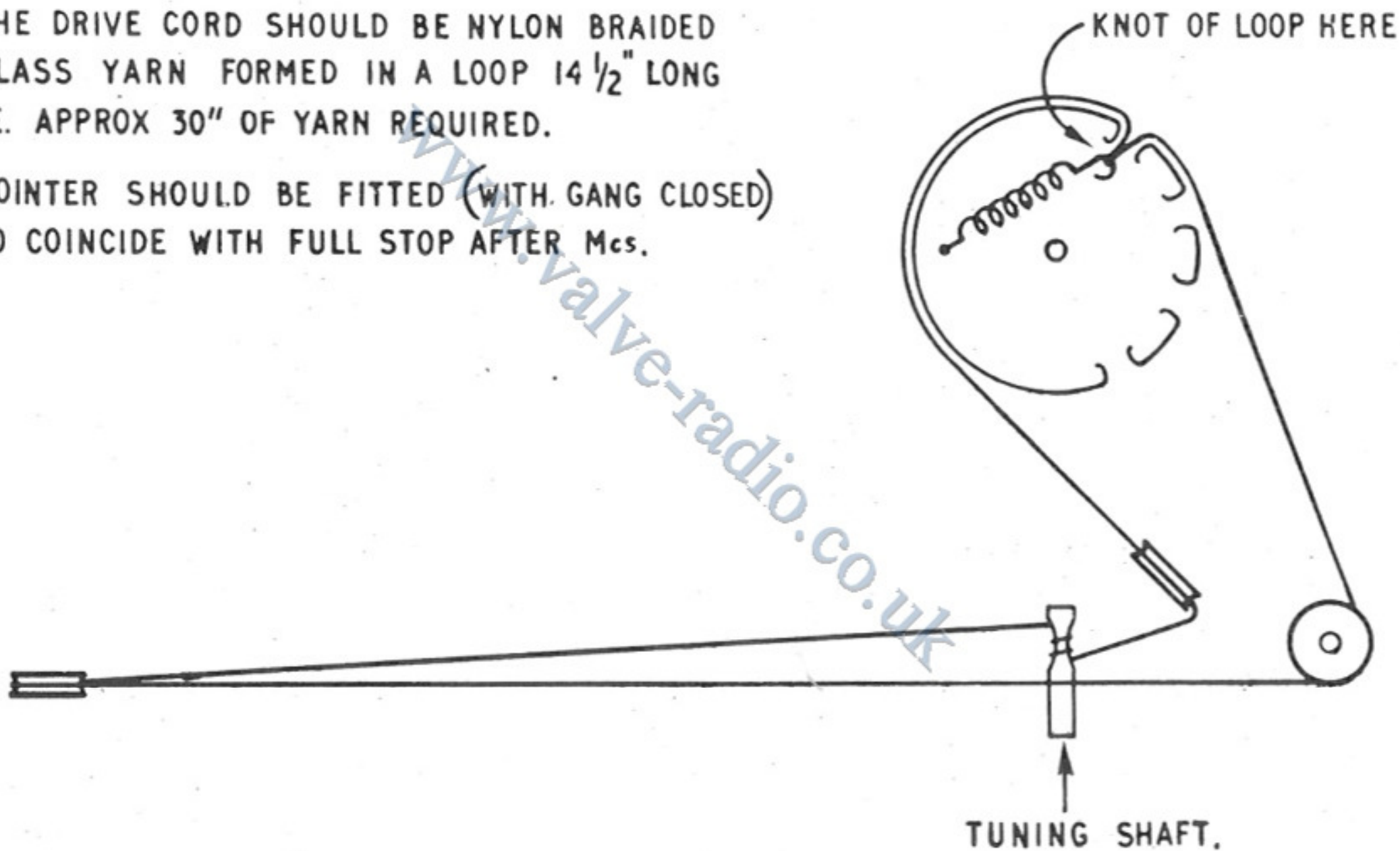
DISCRIMINATOR ALIGNMENT

1. Transfer C.R.O. to junction of R21/C26.
2. Adjust L31 secondary for balance of S shaped curve.
3. Adjust primary L31 for maximum amplitude consistent with balance.

PLAN VIEW OF DRIVE CORD WITH GANG FULLY CLOSED.

THE DRIVE CORD SHOULD BE NYLON BRAIDED
GLASS YARN FORMED IN A LOOP $14\frac{1}{2}$ " LONG
I.E. APPROX 30" OF YARN REQUIRED.

POINTER SHOULD BE FITTED (WITH GANG CLOSED)
TO COINCIDE WITH FULL STOP AFTER Mcs.



NOTES ON TUNER

1. To gain complete access to valve bases etc. the blue back plate can be moved out of position merely by undoing the two screws at the ends of the panel. One by aerial socket and the other by the fuse.
2. To remove the front panel assembly:
 - (a) Pull off knob and remove screw found under it.
 - (b) Remove 6 BA screw going into black escutcheon, found at left hand end of front panel.
 - (c) Remove two 6 BA nuts holding bracket to backing plate at right hand end of set.
 - (d) Remove panel complete with escutcheon end scale.
3. **To change to 117 v. operation.**
 - (a) Turn set over so that tag board under ON/OFF switch is visible.
 - (b) Cut off red and yellow wires from fourth tag from left (counting from switch connection end).
 - (c) Connect red wire to mauve wire (tag 1).
 - (d) Connect yellow wire to green wire (tag 5).
4. The audio output of the tuner is designed to suit the Mozart 10 watt amplifier and many other HI-FI amplifiers, and as such has been reduced by approx. 8 times. An increase of the tuner output can thus easily be obtained, if desired by increasing the value of R22 and at the same time decreasing C24 until sufficient output is obtained.