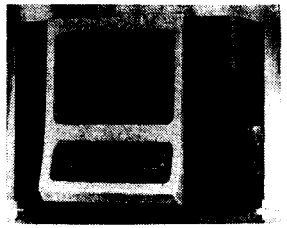
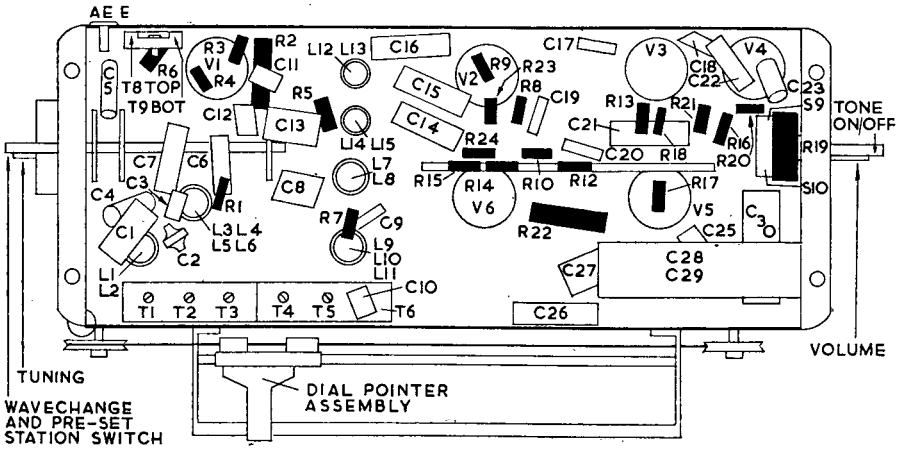
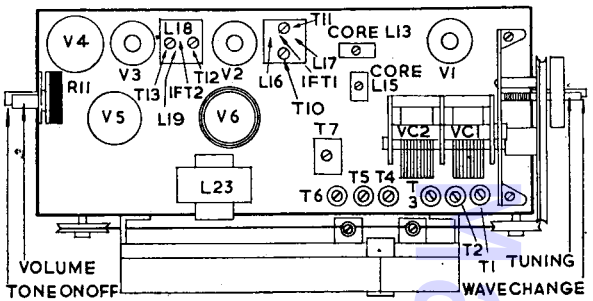
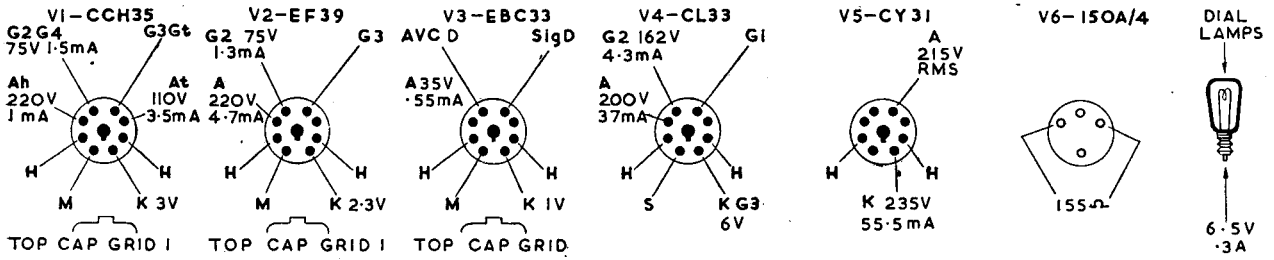
FERGUSON 207U



Five-valve, three-waveband superhet for AC or DC mains, 200-250 volts. Extra switch positions are provided for two selected stations on MW. In walnut veneered cabinet. Manufactured by Ferguson Radio Corporation Ltd., Enfield, Middlesex.







RESISTORS

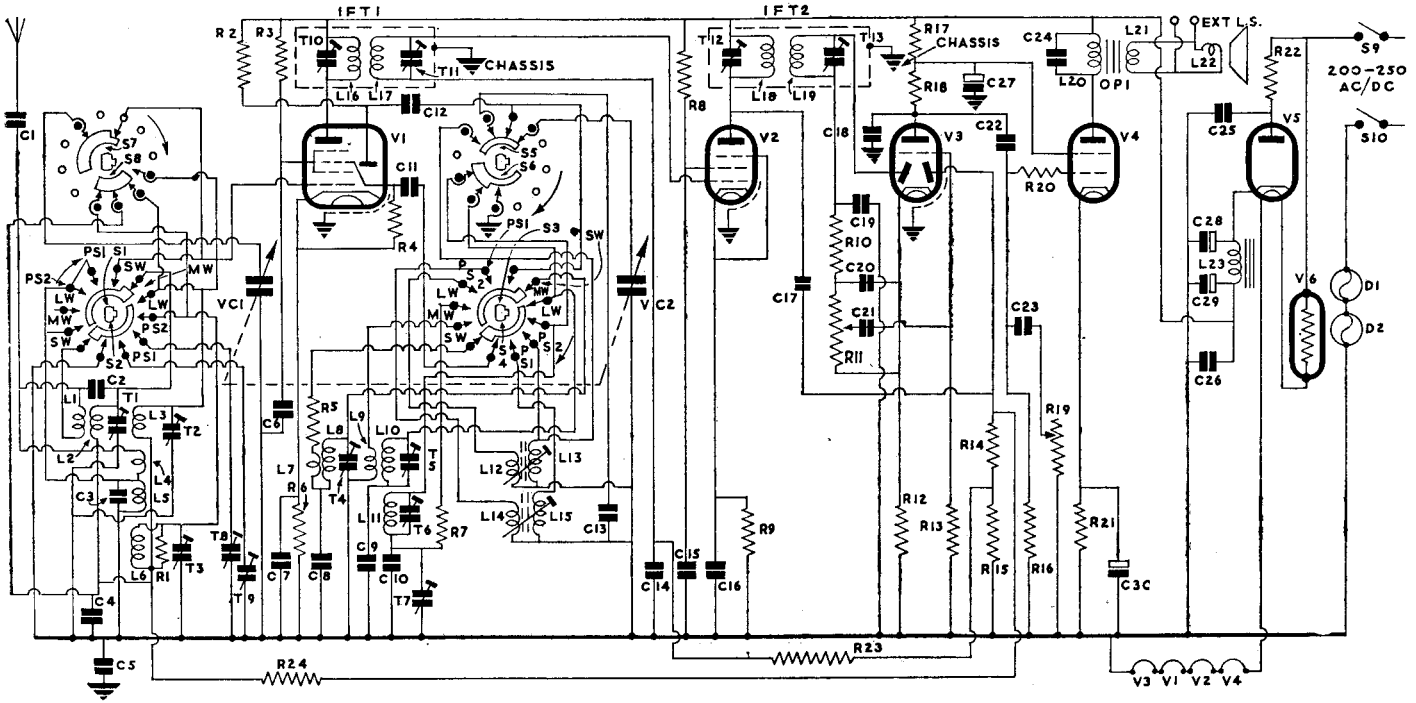
R	Ohms	Watts
1	51 k	½W
2	25 k	1W
3	100 k	½W
4	47 k	½W
5	20	½W
6	470	½W
7	8.2 k	½W
8	100 k	½W
9	470	½W
10	100 k	½W
11	500 k	Potentiometer
12	3.3 k	½W
13	2 m	½W
14, 15, 16	680 k	½W
17	10 k	½W
18	220 k	½W
19	100 k	Pot.(with switch)
20	4.7 k	½W
21	150	½W
22	100	1W
23	1 m	½W
24	1 m	½W

CAPACITORS

C	Mfds.	Type
1	250pf	silver mica
2	5pf	ceramic
3	100pf	silver mica
4	.05	tubular 350 v
5	.005	tubular 1000 v
6	.1	tubular 500 v
7	.1	tubular 500 v
8	5000pf	silver mica
9	515pf	silver mica
10	100pf	silver mica
11	100pf	silver mica
12	100pf	silver mica
13	250pf	silver mica
14	.05	tubular 500 v
15	.1	tubular 500 v
16	.1	tubular 500 v
17	100pf	silver mica
18	100pf	silver mica
19	100pf	silver mica
20	100pf	silver mica
21	.02	tubular 1000 v
22	.02	tubular 1000 v
23	.005	tubular 1000 v
24	.002	tubular 350 v
25	.01	tubular 1000 v
26	.1	tubular 500 v
27	4	electrolytic 350 v
28	16	electrolytic 350 v
29	16	electrolytic 350 v
30	25	electrolytic 25 v

INDUCTORS

L	Ohms
1	2
2	very low
3	3
4	16
5	24.5
6	20
7	.15
8	very low
9	1.6
10	2.6
11	6
12	2
13	1.5
14	1.5
15	1.2
16	8
17	8
18	8
19	8
20	550
21	4
22	2.25
23	250



TRIMMING INSTRUCTIONS

Apply signal as stated below	Tune Receiver to	Trim in Order stated for Max. Output
1) 470 kc/s to top cap V1 via .01 capacitor	Gang at minimum capacity on MW Band	T13, T12, T11 and T10
2) With gang at max. ca	pacity check with ends of	that dial pointer is
vertical and coincides		wavelength scales.
3) 18 mc/s to aerial socket via dummy aerial	18 mc/s calibration	T4 and T1
4) 1.5 mc/s as above ..	200 metres	T5 and T2
5) 400 kc/s as above ..	750 metres	T6 and T3
6) 160 kc/s as above ..	1875 metres	T7. Repeat (5) and (6)
7) *Preset Stations* PS1—200 to 325 metres as required	—	Core L15 and T9
PS2—325 to 545 metres as required	—	Core L13 and T8

Continued on next page

FERGUSON 207U—*Continued*

CIRCUIT consists of a triode-hexode frequency changer V1 coupled by capacity-tuned air-cored IF transformer to a variable-mu RF pentode IF amplifier V2. A second capacity-tuned air-cored IF transformer couples V2 to a double-diode-triode V3 which provides signal rectification, AVC and AF amplification. V3 is resistance-capacity coupled to the pentode output valve V4. Output is fed into an 8-inch PM loudspeaker. On AC mains HT is provided by an indirectly-heated half-wave rectifier V5. A barretter V6 is used to regulate the heater current from the mains supply.

Aerial is connected through C1 to coupling coils L1 (SW), L4 (MW) and L5 (LW). S2 is used to connect the bottom end of the SW coil L1 to chassis and to short-circuit the LW coil L5 when set is switched to MW and preset positions. L2 (SW), L3 (MW), L6 (LW) are the aerial tuned coils. These are switched by S1 to G1 of V1 and by S7 to manual aerial tuning capacitor VC1. T1 (SW), T2 (MW) and T3 (LW) are trimmers.

C2 provides capacitive aerial coupling in addition to inductive coupling on SW band, and R1 damps the LW coil L6. C3 is shunted across the LW aerial coupling coil. On PS1 and PS2 positions of the wavechange switch, T9 and T8 the adjustable preset tuners are connected by S1 and S7 across the MW tuned coil L3 and at the same time VC1 is switched out of circuit. S8 is used to short out the unused aerial tuning coils when on manual tuning.

Maximum AVC voltage is applied to G1 of V1 through the tuned circuits. R24 and C4 decouple the AVC line to V1. Cathode bias is provided by R6 decoupled by C7. Screen (G2G4) voltage is obtained from R3 decoupled by C6. L16 and T10, which form the primary of IFT1, are in the hexode anode circuit.

Oscillator is connected in an anode-tuned parallel-fed HT circuit. L8 (SW), L10 (MW), L11 (LW) are the tuned coils switched by S3 through coupling capacitor C12 to oscillator anode (At) of V1, and by S5 to the manual oscillator tuning capacitor VC2. T4 (SW), T5 (MW), T6 (LW) are trimmers, and C8, C9 and C10 fixed padders. T7, which is shunted across C10, provides adjustment for LW padding.

Separate permeability-tuned coils L13 (PS2), L15 (PS1), are used on the preset ranges switched by S3 to oscillator anode through C12. The manual tuning capacitor VC2 is switched out of circuit on preset ranges by means of S5. S6, which on manual tuning short-circuits unused coils, is used, on preset positions, to connect capacitor C13 across the permeability-tuned coils L13 and L15.

Grid feedback voltages are developed inductively across L7, L9, L12 and L14 for SW, MW, PS2 and PS1 ranges respectively. On LW, however, the feedback voltage is developed across the padding capacitors C10, T7. R5 and R7 are series limiting resistors. S4 switches feedback voltages to oscillator grid Gt, through C11. R4 is the oscillator grid leak and automatic bias for the grid is developed on C11.

IF Amplifier operates at 470 kc/s. L17, T11, the secondary of IFT1, feeds signal to G1 of variable mu IF amplifier V2. Approximately half the full AVC voltage developed on AVC diode V3 is applied through L17 to G1. R23 and C14 are for AVC line decoupling. Cathode bias is provided by R9 decoupled by C16. Screen (G2) voltage is obtained from R8 decoupled by C15. The suppressor grid (G3) is externally connected to cathode. L18, T12, forming the primary of IFT2, are in the anode circuit.

Signal Rectifier. L19, T13, the secondary of IFT2, feeds signal to one diode of V3. R11, the volume control, is the signal diode load and R10, C19 and C20 constitute an IF filter circuit.

AVC. C17 feeds signal at anode V2 to the second diode of V3. R14 and R15 form the diode load. Full AVC is applied to G1 of V1, and approximately half to G1 of V2. R24, R23, C4 and C14 decouple the AVC lines. Cathode bias is developed on R12 provides AVC delay voltage.

AF Amplifier. C21 feeds rectified signal to grid of triode section V3. R13 is its grid resistor. Cathode bias for triode section is provided by R12. R18 is the anode load and C18 RF bypass capacitor.

Output Stage. C22 feeds signal, through grid stopper R20, to G1 of pentode output valve V4. R16 is its grid resistor. C23 and R19, across R16, provide a variable tone control. Cathode bias is provided by R21 decoupled by C30. Screen (G2) voltage is obtained from R17 decoupled by C27. R17 also acts as voltage dropper for HT to anode V3. L20, the primary of output matching transformer OP1, is in the anode circuit of V4. C24 prevents rise in impedance of L20 at the higher frequencies. L21, the secondary of OP1, feeds into an 8-inch PM loudspeaker L22. Sockets are fitted to secondary L21 for connection of low impedance (2 ohms) external speaker in parallel.

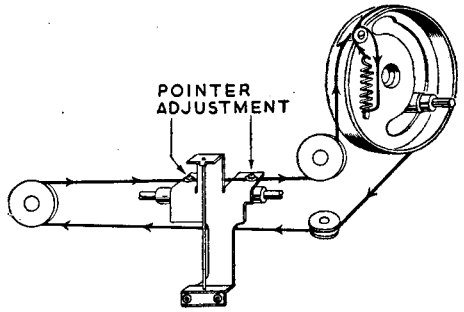
High Tension. On AC mains HT is provided by an indirectly-heated rectifier V5. Its anode voltage is obtained from the mains input through current limiter R22. C25 is fitted to eliminate modulation hum. L23, C28 and C29 provide choke-capacity smoothing of the HT supply and C26 is for RF bypass.

Heaters of V1 to V5 are connected in series and obtain their current through a regulating barretter V6 which exercises control on any input voltage between 200 and 250. S9 and S10 ganged to the tone control, is the mains DP on/off switch.

Removal of chassis. Remove the four control knobs. They are fixed by two grub screws per knob accessible from the *inside* of the cabinet.

Slide the two pilot lamp holders from their respective brackets. Remove the four chassis retaining bolts on the underside of the cabinet. The heads are protected by insulating washers.

Replacement Cord Drive. Drive drum should be



locked to gang spindle with the condenser set to its mechanical minimum (vanes unmeshed). With the drive cord fitted, the condenser should be rotated to maximum and the pointer carrier locked to the cord by the two clamp screws.