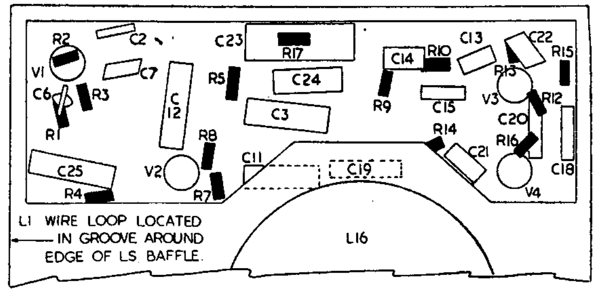
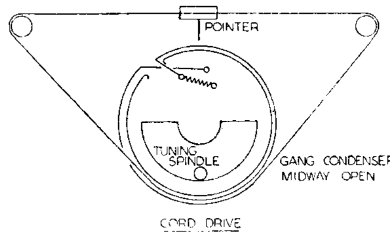
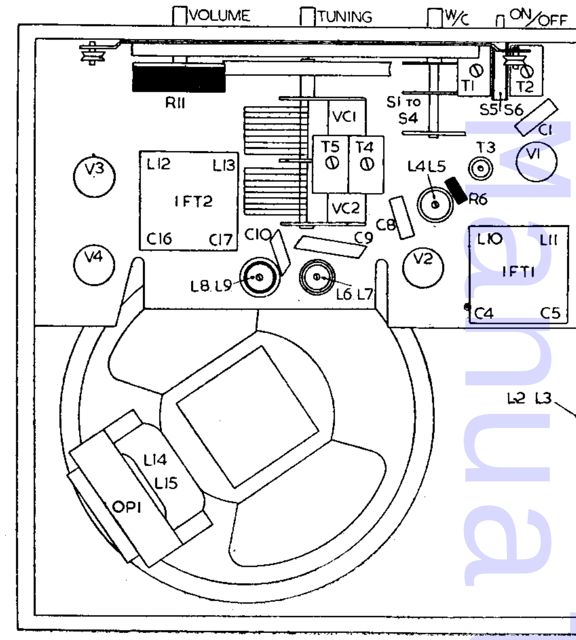
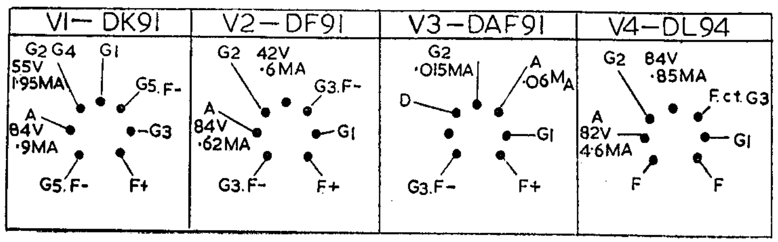
VIDOR 'RIVIERA' CN379

Four-valve three-wave-band all-dry battery superhet in green leatherette-covered case, with cream moulded fret and escutcheon and leather carrying handle. Weight with batteries 21 lb. Made by Vidor, Ltd., Erith, Kent.









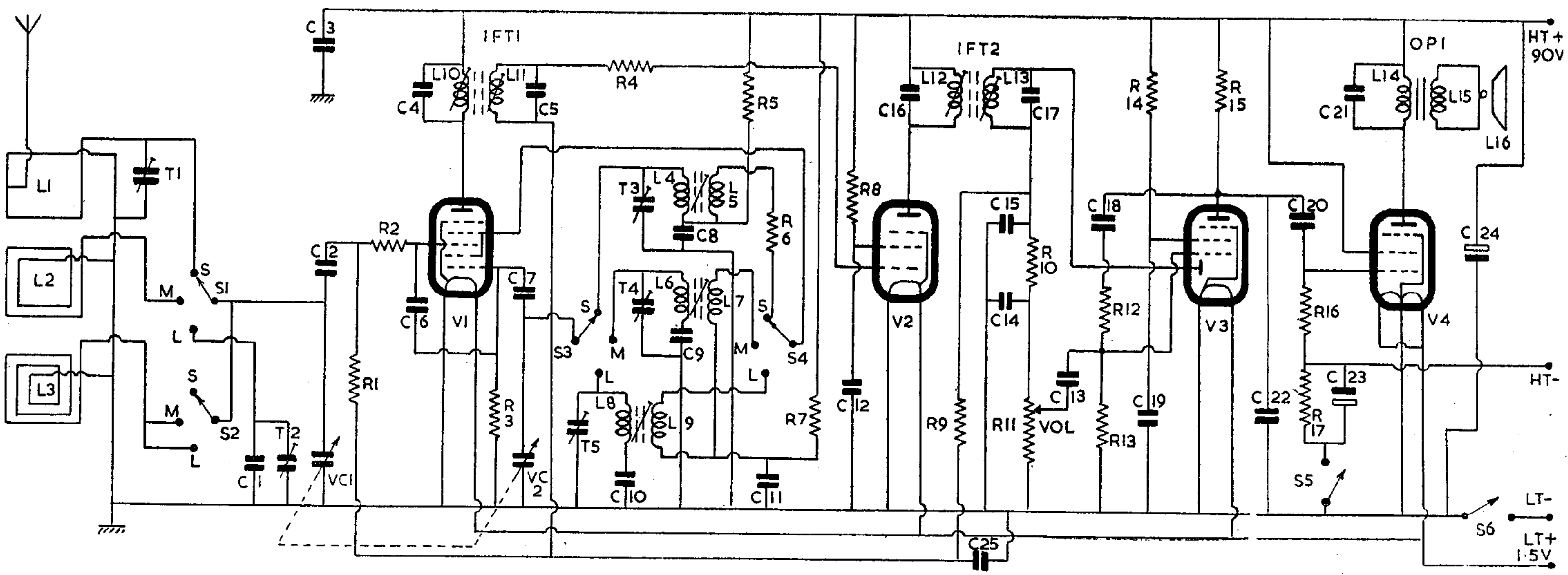
BIAS ACROSS R17 = 6·2V.

TOTAL. HT. CURRENT. = 9·6MA

TOTAL. LT. CURRENT = 250MA

CAPACITORS

C	Capacity	Type
1	15pF	Silver Mica
2	100pF	Silver Mica
3	.1	Tubular 350V
4	65pF	Silver Mica
5	65pF	Silver Mica
6	4pF	Ceramic
7	100pF	Silver Mica
8	.005	Mica
9	635 pF	Silver Mica
10	230pF	Silver Mica
11	.1	Tubular 350V
12	.1	Tubular 350V
13	.01	Tubular 350V
14	100pF	Silver Mica
15	100pF	Silver Mica
16	65pF	Silver Mica
17	75pF	Silver Mica
18	.01	Tubular 350V
19	.05	Tubular 350V
20	.01	Tubular 350V
21	.003	Tubular 350V
22	100pF	Silver Mica
23	50	Electrolytic 12V
24	2	Electrolytic 200V
25	.1	Tubular 350V



RESISTORS

R	Ohms	Watts
1	1M	1/4
2	33	1/4
3	110K	1/4
4	820	1/4
5	10K	1/4
6	33	1/4
7	15K	1/4
8	68K	1/4
9	2.2M	1/4
10	47K	1/4
11	1M	Potr.
12	8.2M	1/4
13	2.2M	1/4
14	4.7M	1/4
15	1M	1/4
16	2.2M	1/4
17	680	1/4

INDUCTORS

L	Ohms
1	very low
2	2.25
3	22
4	very low
5	very low
6	1.2
7	1
8	3.5
9	2.5
10	8
11	8
12	8
13	8
14	350
15	very low
16	2.5

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BAIRD PORTABLE TELEVISOR—*Continued*

duration interference pulse appears at anode of V11, the charge on C31 is unable to follow and on the positive swing the rectifier will cease to conduct, thus removing the interfering pulse.

Sync. separator.—Sync. pulses are taken from anode of video amplifier V6 and fed by C35 to grid of sync separator valve V13. The positive sync. pulses drive V13 into grid current and so produce steady negative bias across R44. The negative going video signal drives its grid beyond cut off and only the positive sync. pulses are produced in the anode.

Frame trigger pulses are developed across integrating circuit C37, R49, R50, and are fed through V14A to grid of frame oscillator V15.

Frame scan oscillator is a power tetrode V15 operated as a grid blocking oscillator with anode to grid transformer back coupling. Frequency-determining components are R52, C39.

Line trigger pulses are developed by differentiating circuit R47, C38, R51 and are fed through V14B to grid of line oscillator V8. Control of frequency is given by R53 which varies the cathode potential of V15. Amplitude is controlled by adjustment of HT voltage to anode by means of R56. The frame transformer FT1 laminations are extended to form frame deflecting pole pieces on either side of neck of CRT. To counteract the effect of DC flowing in L30, frame shift coils L20 are placed on the pole pieces. Energising current for these coils is obtained by connecting them in series with one of the HT supplies.

Line scan oscillator is also a power tetrode V8 operated as a grid blocking oscillator with anode to grid transformer back coupling. Frequency of oscillation is determined by the time constant of R21, R24, C18. R24 is made variable to give control of frequency. Line deflection coil L16, damped by R20, is fed from grid circuit through DC isolating capacitor C17.

EHT supply for anode of CRT is obtained by rectifying the surge voltage generated across primary L18 of line transformer LT1 when V8 is cut off. L18 is used as an auto-transformer to step up the flyback voltage. Filament current of rectifier V16 is obtained from an auxiliary winding L17 on transformer. EHT voltage is fed direct to anode of CRT. Capacity between inner and outer metallic coatings of CRT is used to give smoothing.

HT supplies.—A double half-wave rectifier V9 with its anodes strapped and fed direct from the input mains is used to provide two separate HT supplies. Choke capacity smoothing is given by L21, L22, C20, C21, C22, C23. One half of rectifier provides HT for focus coil, sync. separator and scan oscillator valves, whilst other half feeds RF, sound and vision IF stages. In some receivers the focus coil current may be obtained from the HT supply for RF section.

Heaters of V1 to V15 are series connected and obtain their current of .3A from the mains through tapped dropper resistor formed by R26, R27 and thermal operates surge limiter resistor R29. V12 which has a .16A heater is shunted by R30. C19 is a heater bypass capacitor.

Cathode ray tube is a 9-in. triode giving a 7¼ by 5¾ in. picture. It is electro-magnetically focused by L23 on the neck of the tube. R23, which varies current through L23, gives control of focus. Picture brilliance is controlled by variation of grid bias by R23. Video signals are applied to its cathode. Anode voltage is approximately 5.5kV.

Alignment procedure.—Before any adjustment is carried out, verify beyond doubt that it is alignment that is required. First check valves in vision strip and sound section (V1-V12), preferably by substitution.

For alignment, the following equipment is necessary: an oscilloscope and a wobbulated oscillator with 6 mc/s sweep at 45 mc/s, an absorption wavemeter for 30-40 mc/s and a tuning wand.

First, switch on set and allow to warm up for twenty minutes. Check for good scan and focus. Set the wavemeter to 32.4 mc/s, then place the wavemeter four to six inches away from the oscillator coil L6, and tune the oscillator coil until there is a rise in the wavemeter indicator.

With normal all-wave signal generator set to television sound frequency adjust the coils L8 and T7 for maximum sound output in the loudspeaker.

Connect wobbulator output to aerial input sockets and oscilloscope "y" amplifier input to the video valve (V6) grid. Trim the tuning cores in order shown below :—

RFT1	AE coil, top
RFT1	AE core, bottom
RFT2	RF trans., top
RFT2	RF trans., bottom
IFT1	bottom
IFT2	bottom
IFT3	bottom
IFT1	top
IFT2	top
IFT3	top

Frequencies are not given for these adjustments but the cores should be set so that the final trace is a curve approximately 5 mc/s wide and located for upper sideband reception.

The flattish top of the curve should extend just beyond 45 mc/s before dropping sharply towards 42 mc/s.

On the other side the response should be well maintained to 47 mc/s before falling slightly to 48 mc/s, dropping more sharply beyond that frequency.

INSULATION RESISTANCE OF CAPACITORS

CAPACITORS of the paper tubular type may fall off in insulation resistance, and while this may not be sufficient to cause trouble in a broadcast receiver it may do so in a television set.

Non-linearity in the frame scanning may be caused by reduced insulation resistance in a capacitor coupling the time-base valves, while unsatisfactory triggering of line scan may be caused by the coupling to the sync. separator.

A good paper tubular of 0.1mF or less has an insulation resistance above 10,000 megohms, and if the value falls to about 100 megohms trouble may start.

Insulation resistance should be measured at twice the working voltage or 500V, whichever is the lower. Instruments for such testing should be part of the television engineer's test kit. Wax dipped capacitors may lose insulation resistance when stored a few months, but the metal-cased Neoprene-sealed type is less pervious to moisture.—J.M.

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AERIAL.—The receiver has frame aerials L1, L2, L3 with SW loop L1 tapped for connection of an external aerial. On MW range L2, L3 are connected in parallel, but for LW reception L3 only is used. S1, S2 switch the frame aerials to tuning capacitor VC1 and through C2, R2 to g3 of heptode frequency-changer V1.

L1 (SW) is trimmed by T1 and L3 (LW) by C1, T2, which are only switched in circuit across L3 by S2 when wavechange switch is in LW position. No trimmer is provided for MW aerial circuit. AVC, decoupled by R9, C25, is fed through R1, R2 to control grid of V1. Primary L10, C4, of IFT1 is in the anode circuit.

Oscillator is connected in a tuned-grid series-fed circuit. The grid coils L4 (SW), L6 (MW), L8 (LW), which are trimmed by T3, T4, T5 and padded by C8, C9, C10, respectively, are switched by S3 to tuning capacitor VC2 and coupled by C7 to oscillator grid (g1) of V1. Self bias for grid is developed on C7 with R3 as leak resistor. C6 is a neutralising capacitor.

The anode reaction coils L5 (SW), L7 (MW), L9 (LW) are switched by S4 to oscillator anode (g2, g4) of V1. HT on SW range is obtained from R5 decoupled by padder C8. On MW and LW ranges, HT is obtained from R7 decoupled by C11. R6 is SW limiter resistor.

IF amplifier operates at 456 kc/s. Secondary L11, C5 of IFT1 feeds signal, and AVC voltages decoupled by R9, C25, to g1 of IF amplifier V2. R4 is grid stopper. Screen (g2) voltage is obtained from R8 decoupled by C12. Primary L12, C16 of IFT2 is in the anode circuit.

Signal rectifier.—Secondary L13, C17, of IFT2 feeds signal to diode anode of V3. R11 the volume control is the diode load and R10, C14, C15 form an IF filter.

AVC is provided by the DC component of the rectified signal and is fed by R9 to g3 of V1 and g1 of V2. C25 is decoupling capacitor.

AF amplifier.—C13 feeds rectified signal to g1 of pentode section of V3. Automatic bias for grid is developed on C13, with R13 as leak. Screen (g2) voltage is obtained from R14 decoupled by C19. R15 is the anode load and C22 anode RF bypass capacitor. Negative feedback from anode to g1 of V3 is given by C18, R12.

Output stage.—C20 feeds signal from anode V3 to g1 of pentode output valve V4. Negative bias for the grid is obtained by connecting earthy end of grid resistor R16 to bias resistor R17, which is in the HT negative lead to chassis. Bias voltage across R17 is decoupled by C23. L14 is primary of output matching transformer OP1 and C21 gives fixed tone correction. Secondary L15 of OP1 feeds into a 6½ in. PM loudspeaker L16.

HT of 90V is provided by a Vidor battery type L5039. Average total consumption is 9.5 mA. HT battery is decoupled by C3 and C24. S5, which is inserted in negative HT lead to chassis, is HT ON/OFF switch.

Filaments of V1 to V4 are connected in parallel and obtain their current of 250mA from a Vidor 1.5V heavy duty LT battery type L5050. S6, which is ganged to S5 and operated automatically when lid of receiver is opened or closed, is LT ON/OFF switch.

Chassis removal.—Remove back panel and batteries. Unsolder SW aerial connecting wire from tag on righthand side of frame and also the three leads from tag panel at top of frame. Remove the nuts from brackets on sides of frame and the nut from clamp at bottom of case. Withdraw the LW and MW frame aerial by springing the two brackets inwards, taking care not to damage aerial windings on outer side of frame.

Next remove the two nuts securing LS baffle to front of case and also the two nuts holding chassis to top of case. It is now possible to swing the complete baffle and chassis assembly backwards from the top and withdraw it from the case.

Alignment.—It is necessary to remove receiver from case. The MW and LW frame should be bolted back on the main chassis assembly and the various leads soldered to their tags. After alignment, the leads will again have to be unsoldered to re-assemble the receiver in its case.

Dial Drive.—Remove receiver from case as described. Remove the three control knobs. Undo the two nuts securing dial escutcheon to top section of chassis and lift off. Remove the two bolts holding dial nameplate in position and remove it to expose condenser drive wheel immediately below.

After renewing cord replace dial plate and check to see dial pointer is correctly positioned before fastening escutcheon on to chassis.

TRIMMING INSTRUCTIONS

Apply signal as stated below	Tune receiver to	Trim in order stated for max. output
(1) 456 kc/s to g3 of V1 via 100pF capacitor and with VC2 shorted	2000 metres	Cores L13, L12, L11, L10
(2) Check to see that with gang fully meshed dial pointer coincides with thin calibration line immediately to right of 550 metre mark.		
(3) 17.64 mc/s loosely coupled to L1	17 metres	T3, T2
(4) 6 mc/s as above ...	50 metres	Core L4. Repeat (3) and (4)
(5) 1.5 mc/s as above...	200 metres	T4. (No AE trimmer fitted)
(6) 545.45 kc/s as above	550 metres	Core L6. Repeat (5) and (6)
(7) 300 kc/s as above...	1000 metres	T5, T2
(8) 150 kc/s as above	2000 metres	Core L8. Repeat (7) and (8)

TELEPHONES FOR TELEVISION ENGINEERS

ENGINEERS concerned with the installation of television aerials should count a telephone set as part of their essential equipment. Speech communication is the only efficient way of ensuring that the engineer setting up a directional aerial, either for maximum gain or to reduce interference or images, lines it up in the best position as decided by an engineer watching the screen. At the present time Government surplus telephones are available, at a few shillings each, which are "sound powered" and need no batteries or other accessories.—J.W