

# K-B 632 ALL WAVE A.C.-D.C. SIX

**CIRCUIT.**—The aerial is coupled to the grid of V1, a triode-hexode frequency changer, *via* a set of band-pass coils on the medium and long wave bands and *via* an H.F. transformer on the short wave band.

Output of the frequency changer then passes through an I.F. transformer to the first I.F. amplifier, V2, an H.F. pentode.

V2 is coupled to the second I.F. amplifier, V3, another H.F. pentode, through a further I.F. transformer. The signal then passes through another I.F. transformer to the demodulating diode of V4, a double diode valve. The other diode provides a D.C. potential that is utilised in operating the A.V.C. network to the preceding stages.

V5, the last valve in the radio stages, is an output pentode, and has a manual volume control in the grid coupling arrangements. A variable resistance and condenser connected in series in the anode circuit provide a tone-control; this is supplemented by a pentode compensator condenser between anode and chassis.

Output passes to the loud speaker *via* the usual speaker matching transformer.

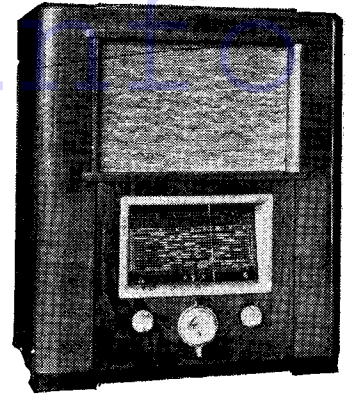
Mains equipment consists of a half-wave rectifying valve, V6, electrolytic smoothing condensers, smoothing choke, and mains dropping resistance.

**Special Notes.**—The single dial light is of the bayonet base type, and is mounted in a shielding holder at the side of the wavelength dial assembly. It is a 230-volt 15-watt lamp, and connected across the mains supply.

The mains input leads are led to a twin H.F. choke mains suppressor arrangement. The heaters of the valves are connected in series in the usual manner adopted in universal receivers.

A resistance located on the chassis deck has several tappings that enable the receiver to be adjusted for various mains voltages.

A pair of sockets at the rear of the chassis enable an external speaker to be operated. This should be of the per-



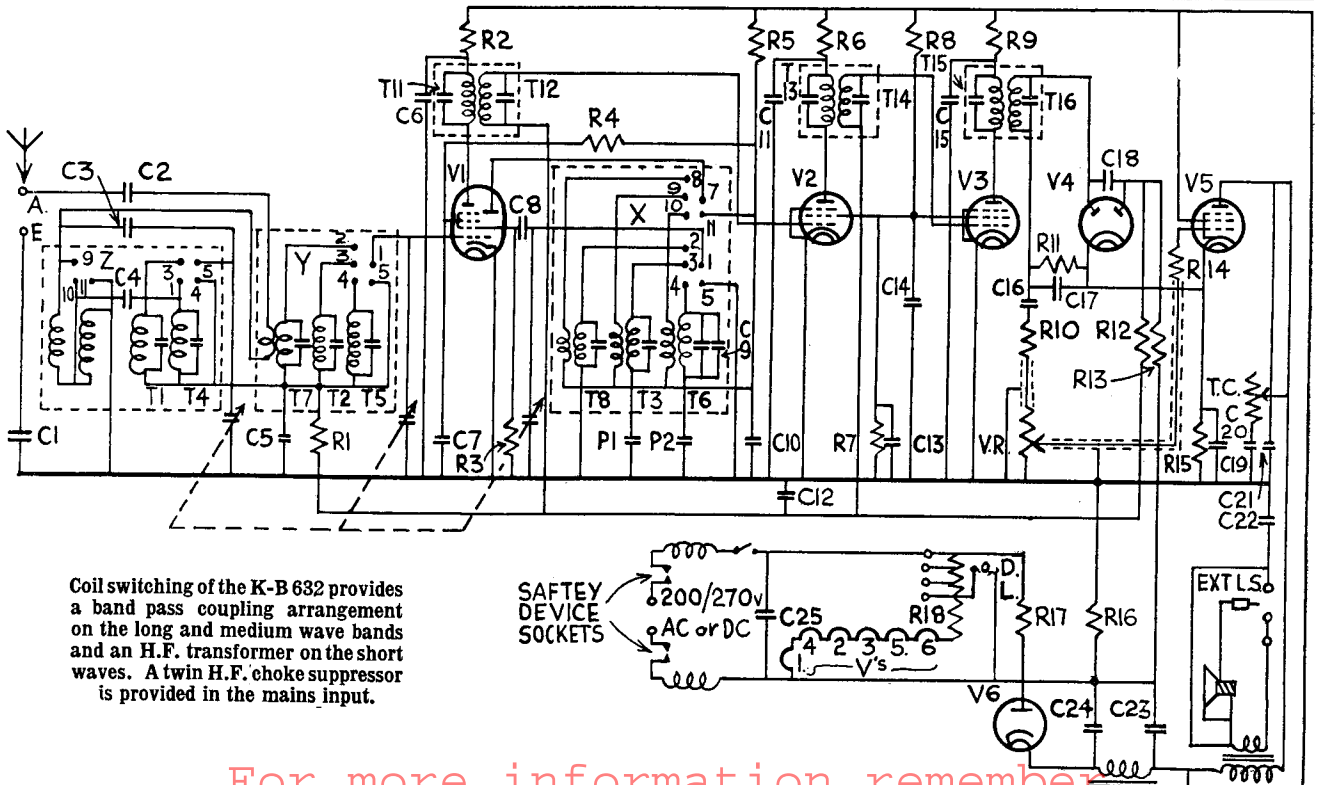
Reception on three wavebands is provided by the K-B 632, an AC/DC superhet.

## CONDENSERS

C.	Purpose.	Mfd.s.
1	Chassis-earth isolating	.01
2	Aerial coupling	.01
3	Top aerial coupling M.W.	.000018
4	Top aerial coupling L.W.	.000018
5	Bottom band-pass coupling	.02
6	V1 anode decoupling	.1
7	V1 screen decoupling	.1
8	Osc. grid	.00005
9	L.W. oscillator fixed trimmer	.00007
10	Osc. anode decoupling	.1
11	V2 anode decoupling	.1
12	V2 A.V.C. decoupling	.1
13	V2 and V3 screen decoupling (part).	2.
14	V2 and V3 screen decoupling (part).	.1
15	V3 anode decoupling	.1
16	L.F. coupling	.02
17	H.F. bypass	.0005
18	A.V.C. diode coupling	.000015
19	V5 cathode shunt	25.
20	Tone control	.01
21	Pentode compensator	.0005
22	Speech coil shunt	.01
23	H.T. smoothing	16.
24	H.T. smoothing	16.
25	Mains suppressor	.01

## RESISTANCES

R.	Purpose.	Ohms. $\Omega$
1	V1 A.V.C. decoupling	100,000
2	V1 anode decoupling	5,000
3	Osc. grid leak	50,000
4	V1 screen decoupling	15,000
5	Osc. anode decoupling	10,000
6	V2 anode decoupling	5,000
7	V2 and V3 screen potr. (part)	12,000
8	V2 and V3 screen potr. (part)	20,000
9	V3 anode decoupling	5,000
10	H.F. filter	100,000
11	Demodulating diode load	500,000
12	V2 A.V.C. decoupling	500,000
13	A.V.C. diode load	500,000
14	V5 grid stopper	7,000
15	V5 cathode bias	150
16	A.V.C. delay voltage resistance	40
17	Rectifier safety resistance	30
18	Mains heater resistance	50,000
V.R.	Volume control	50,000
T.C.	Tone control	50,000



Coil switching of the K-B 632 provides a band pass coupling arrangement on the long and medium wave bands and an H.F. transformer on the short waves. A twin H.F. choke suppressor is provided in the mains input.

SAFETY DEVICE SOCKETS

manent magnet type with a speech coil impedance of 4 ohms.

The colour wiring of the receiver is blue and sometimes red for anodes, red for screens and H.T., and brown for the filament circuits.

C2 was found to have a value of .02 mfd. C3 and C4 are made by twisting together two pieces of enamelled wire.

**Chassis Removal.**—The receiver has a false bottom, held by four wood screws, that enables the underside of the chassis to be inspected and small components changed.

Remove the back of the receiver (held by sliding clips), and also the three control knobs and wavechange switch from the front of the cabinet. The volume, tone and tuning knobs are of the grub screw fixing type, while the wave selector switch is spring connected.

Then turn the cabinet on its side and remove the four bolts and washers that secure the chassis to the cabinet. These bolts and washers are beneath the two black wooden bars on the base of the receiver.

The chassis can then be withdrawn from the cabinet and is accessible for servicing. The speaker, secured by four bolts, can also be removed if desired, or, alter-

natively, the leads to the transformer unsoldered. For the reverse process, the green lead is connected to the lowest tag, yellow lead to the one above, the next is blank, and the red, blue, and black leads are connected to the next three tags in that order. The last two tags are blank with respect to the cable.

## Circuit Alignment Notes

**I.F. Circuits.**—Connect an output meter across the primary of the loud-speaker transformer, and a service oscillator between the top grid cap of V1 and chassis. Turn the wavechange switch to medium waves and fully engage the vanes of the gang condenser. Turn the volume control to the maximum volume position and the tone control to the "high" position.

Tune the service oscillator to 464 kcs. and adjust first the trimmers of I.F.T.3 and then I.F.T.2, and then I.F.T.1 for maximum response, reducing the input from the oscillator as the circuits come into line so as to render the A.V.C. inoperative.

**Signal Circuits.**—Leave the output meter connected as before, but connect the service oscillator to the aerial and earth sockets of

(Continued on page 24)

**THREE** exact service replacement condensers for the K-B632 are available from A. H. Hunt, Ltd., of Garratt Lane, Wandsworth, London, S.W.18. These are: For C23 and C24, a single unit type 3807 at 10s. 6d.; for C13, type 3479 at 1s. 9d.; and for C19, type 1797 at 1s. 10d.

## K-B 632 on Test

**MODEL 632.**—For A.C. and D.C. operation on 195-270 volts, 40-60 cycles. Price, 13 gns.

**DESCRIPTION.**—Three-waveband, 6-valve (including separate diode and rectifier) table model super-het.

**FEATURES.**—Standard K.B. Alpha-dex scale with two-speed tuning control. Master switch combined with tone control. Safety switch on back and loudspeaker cut-out plug. No pick-up connections.

**LOADING.**—70 watts.

**Selectivity and Sensitivity**

**SHORT WAVES (16.5-52 metres).**—Good gain and selectivity. Easy handling and no drift. Main stations logged during test.

**MEDIUM WAVES (195-565 metres).**—Good gain fairly well maintained; excellent selectivity. Small local station spread, good background.

**LONG WAVES (970-2,300 metres).**—Good gain and average selectivity. Some overlap between 5XX and Radio-Paris. All main stations easily received. Good background.

**Acoustic Output**

Ample volume for an ordinary room. Tone definitely full, but at the same time quite good top response. Slight colouration on speech and pleasing tone on orchestral reproduction. Tone control fairly vigorous in action.

### QUICK TESTS

Quick tests are available on the 632 on the leads to the speaker transformer. The voltages measured between these and the chassis should be:  
Red lead, 208 volts.  
Blue lead, 200 volts.

### VALVE READINGS

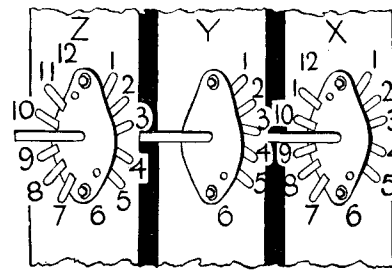
No signal; volume maximum; medium wave-band. 200 volts A.C. mains.

V.	Type.	Electrode.	Volts.	M.A.
1	Mullard TH22C (7)	Anode ..	192	.7
		Screen ..	80	1.9
		Osc.anode	110	7.4
2	Brimar 9D2 (7)	Anode ..	189	2.
		Screen ..	69	.5
3	Brimar 9D2 (7)	Anode ..	189	2.3
		Screen ..	69	.5
4	Brimar 10D1 (5)	Diodes only.	—	—
		Anode ..	192	24.
5	Brimar 7D6 (7)	Screen ..	202	4.9
		Filament	215	—
6	Brimar 1D5 (5)	—	—	—
		—	—	—

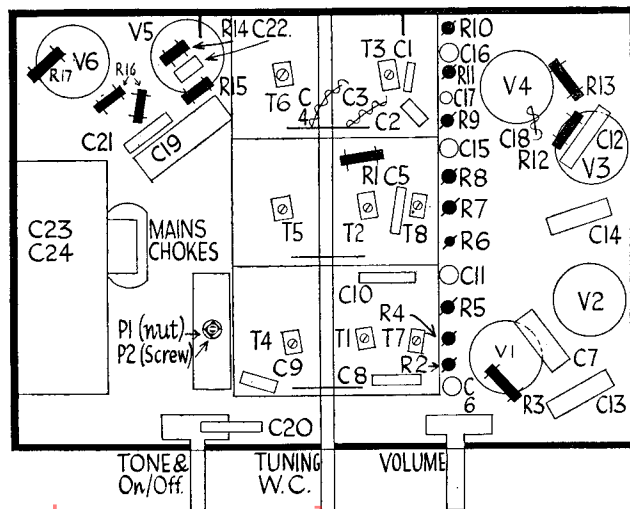
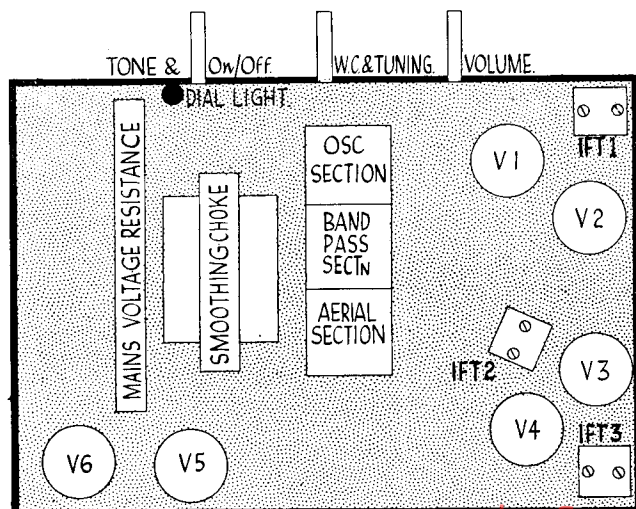
### WAVECHANGE CONTACTS

The contacts specified on the right connect when the switch is in position shown below.

	X 6 & 12 Not used	Y 6 Not used	Z 2, 6, 7, 8 & 12 Not used
Long wave ..	1 to 4 7 to 10	1 to 4	1 to 4
Medium wave	1 to 3 5 to 4 7 to 9 11 to 10	1 to 3 5 to 4	1 to 3 5 to 4 11 to 10
Short wave ..	1 to 2 5 to 3 & 4 7 to 8 11 to 9 & 10	1 to 2 5 to 3 & 4	5 to 3 & 4 11 to 9 & 10



FRONT OF CHASSIS →



Top right drawing shows the wavechange switch connections in the K-B 632. Above left shows the top of the chassis, and right the neat underside arrangement.

# Marconi 561 Alignment

(Continued from page 23.)

**I.F. Circuits.**—Connect an output meter to the external L.S. sockets or across the primary of the speaker transformer. Switch set to M.W., set gang half way and short the grid of V3 to chassis. Set volume control to maximum, bass control fully anti-clockwise and tone control as far anti-clockwise as possible without switching to high fidelity.

Connect a modulated oscillator between top grid cap of V5 (leaving set connection "made") and chassis. Only feed sufficient input from the oscillator to obtain definite peaks in the output meter, so as to render the A.V.C. inoperative.

Tune the oscillator to 465 kc. and adjust T3A and T4A (third I.F.T.) for maximum.

Connect oscillator between top grid cap of V2 (leaving set connection "made") and chassis and adjust T1, T2, T3 and T4 for maximum.

**Signal Circuits.**—The scale pointer should be horizontal at both maximum and minimum of the gang and line up with the marks on the scale. Connect the service oscillator to aerial and earth sockets. Only feed sufficient input from the oscillator to obtain definite peaks on the output meter.

**Long Waves.**—Set gang to minimum, tune oscillator to 725 metres (413.8 kc.) and adjust T5, T6 and T7 in that order for maximum.

Tune set and oscillator to 1,900 metres

oscillator to 11.3 metres (26.5 mc.), and adjust T14 for maximum.

Tune set and oscillator to 30 metres (10 mc.) and adjust the spacing of the end turns of L22 for maximum.

Set gang to minimum, tune oscillator to 11.3 metres and adjust T15 and T16 for maximum.

Repeat operations until no further improvement is noticed.

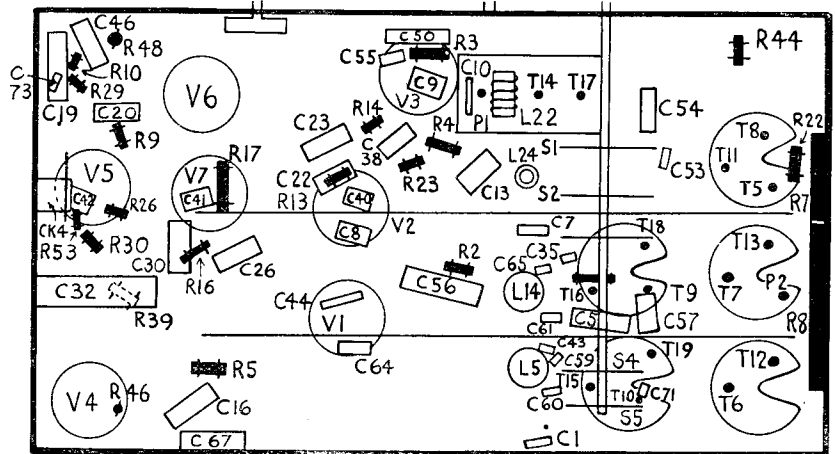
S.W.3.—Tune set and oscillator to 5.5 metres

(54.5 mc.) and adjust T17, T18 and T19 in that order for maximum, using the peak obtained with T17 at the greater capacity. If the noise to signal ratio is excessive turn down volume control and increase input from oscillator.

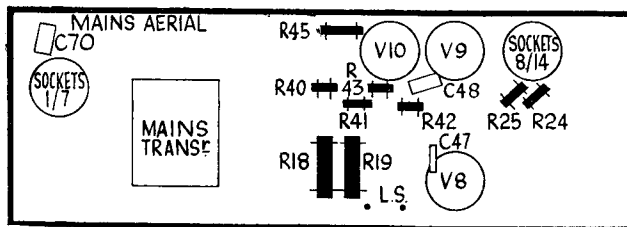
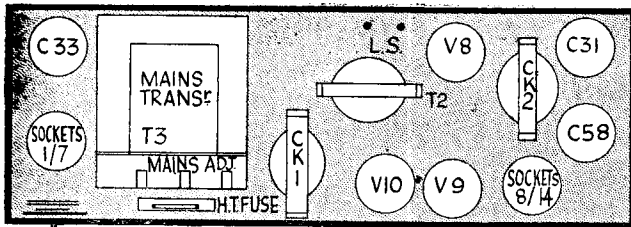
Set oscillator to 9 metres (33.3 mc.) and tune in on set. If scale calibration is more than .25 metres out, then trim L24 by altering the point at which the crossed soldered leads connect and resolder. (This operation is only necessary when L24 is replaced or repaired.) Adjust L5 and L14 for maximum.

Repeat both operations until no further improvement is noticed.

Make certain that the correct peak of T17 is used by injecting a fairly strong signal and noting that the image of the signal is obtained at a lower point in wavelength than the signal itself.



Above and below are the underside and top layout diagrams of the Marconiphone 561 main chassis. Corresponding diagrams of the output chassis are on the left.



(157.9 kc.) and adjust P1 for maximum, simultaneously rocking the gang.

Repeat both operations until no further improvement is noticed.

**Medium Waves.**—Set gang to minimum, tune oscillator to 195 metres (1,538 kc.), and adjust T8, T9 and T10 in that order for maximum.

Tune and set oscillator to 530 metres (566 kc.) and adjust P2 for maximum, simultaneously rocking the gang.

Repeat both operations.

**Short Waves.**—S.W.1.—Tune set and oscillator to 35.2 metres (8,511 kc.) (this as marked with a spot on the dial) and adjust T11, T12, and T13 in that order for maximum. If noise signal ratio is excessive, turn down the volume control of the receiver and increase input from oscillator.

S.W.2.—Set gang to minimum, tune

the receiver. Feed only sufficient input to obtain definite peaks in the output meter, so as to render the A.V.C. inoperative.

**Medium Waves.**—Tune the set and oscillator to 214 metres (1,400 kc.) and adjust T1 then T2 and T3 for maximum response.

Tune the set and oscillator to 500 metres (600 kc.) and adjust P1 (the nut of the padding condenser) for maximum response, simultaneously rocking the gang to ensure optimum results.

Repeat until no further improvement can be obtained.

**Long Waves.**—Tune the set and oscillator to 1,200 metres (250 kc.) and adjust

T4 then T5 and T6 for maximum response.

Tune the set and oscillator to 1,714 (175 kc.) and adjust P2 (the screw of the padding condenser) for maximum response simultaneously rocking the gang to ensure optimum results.

Repeat the above operations until no further improvement is obtained.

**Short Waves.**—Tune the set and oscillator to 17.6 metres (1.7 mcs.) and adjust T7 and then T8 for maximum response.

Tune the set and oscillator to 50 metres (6 mcs.) and check the calibration. If calibration is very much out then compensate with T7 and then adjust T8 on a 17.6 metre oscillator signal.

## K.-B. 632 Alignment Notes

(Continued from page 3.)

For more information remember