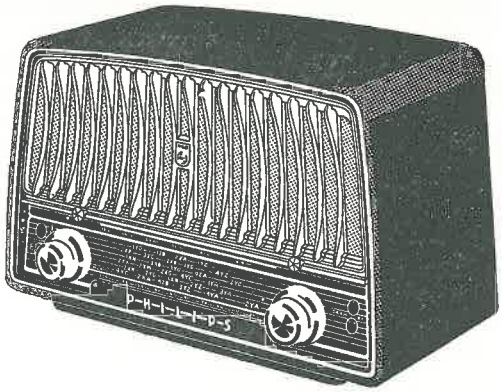
PHILIPS
"NEW YORKER"

MODEL BZ267U

5 VALVE SUPERHETERODYNE RECEIVER



Mains Supply: 210 - 250 volts. A.C. 50 - 100 c/s or D.C.

Input Power: 45 watts.

Tuning Ranges: 535 - 1740 Kc/s. 5.5 - 19 Mc/s.

Intermediate Frequency: 455 Kc/s.

Removing The Chassis from The Cabinet

Most service work can be carried out by removing the back and bottom plate assembly only. However, if it is essential to remove the chassis from the cabinet proceed as follows.

Remove the mains plug from the supply.

Remove the back and bottom plate.

Unsolder the speaker wires from the lug strip on top of the output transformer. Turn the tuning control to the low frequency end of the dial, and remove the four control knobs.

Remove the two ornamental screws from the dial and grille assembly, and lift out of position.

Remove the two chassis retaining screws located in the front skirt of the chassis. Slide the chassis partly out of the cabinet then pull the top of the pointer forward and push back into the slot in the cabinet. Slide the chassis clear of the cabinet. Before replacing the chassis in the cabinet, check that the two special mouldings which operate the tone switch and wave band/gram switch are correctly positioned. Place a piece of felt on the bench, and turn the cabinet upside down. Turn the tuning condenser to the low frequency end of the dial. Slide the chassis partly into the cabinet and position the pointer in the slot. Slide the chassis right into the cabinet, and replace the holding screws in the front skirt. Replace the dial and grille assembly, making sure that the bottom of the dial slides past the light shield, then refit the ornamental screws.

Replace the tone control knob, and wave band switch knob, and check to see that the indicator dots on these two knobs line up with the corresponding indications on the dial scale.

Replace the felt washers, and the volume and the tuning knobs.

Solder the speaker wires to the corresponding lugs on the lugstrip. Check that the pointer is correctly adjusted at the low frequency end of the scale. Replace the back and bottom cover.

Alignment of Receiver

Attention is drawn to the fact that the high tension supply is rectified from the mains supply, so that in the event of the mains flex being incorrectly connected, it is possible that the phase of the supply is connected to the chassis. Therefore before commencing work on the receiver it is advisable to check the mains plug for correct phasing.

Further checks may be carried out by connecting a neon lamp between chassis and earth, or measuring the potential of the chassis with respect to neutral or earth with a low consumption A.C. voltmeter.

A suitable 1:1 isolating transformer is recommended.

Set the pointer to the low frequency end of the dial scale. If the set is being aligned out of the cabinet, a paper scale will be seen fixed to the front of the chassis, and an auxiliary pointer should be attached to the drive cord. Switch on the receiver, and allow it to warm up for a few minutes. Turn the volume control to the maximum position, and the tuning condenser to the minimum capacity position. Turn the waveband switch to the broadcast position.

Unscrew the adjusting cores on the I.F. transformers nearly right out. Apply a signal of 455 Kc/s modulated 30 per cent through a capacity of 0.01 mfd to the control grid (pin No. 2) of the UCH81 valve, and adjust the cores for the maximum output in the following sequence (see trimmer position diagram).

1. Diode coil.
2. UF89 plate coil.
3. UCH81 plate coil.
4. UF89 grid coil.

If the above adjustments are carefully carried out no further movement of the adjusting cores should be made. The input required for a power output of 50 milliwatts should not exceed 30 microvolts.

Remove the 0.01 mfd condenser from the control grid of the UCH81 valve, and connect the signal generator, by means of a standard dummy aerial to the aerial and earth sockets of the receiver.

Turn the waveband switch to the Broadcast position.

Apply a signal of 600 Kc/s to the aerial socket, and turn the pointer to the 600 Kc/s position on the dial.

Adjust the broadcast padder until the signal is tuned in, and with an insulated rod adjust the aerial coil on the Ferroxcube rod for maximum output and fix temporarily in place with a piece of cellulose tape. Turn the pointer to the 1500 Kc/s position on the dial scale and apply a signal of 1500 Kc/s to the aerial. Adjust the broadcast oscillator trimmer until the signal is tuned in, and adjust the broadcast aerial trimmer for maximum output.

Check at 600 Kc/s and 1500 Kc/s, and adjust the broadcast oscillator padder and trimmer until the calibration is correct at both ends of the dial. Check the calibration at 950 Kc/s. If 950 Kc/s tunes in at a lower frequency on the dial scale then the oscillator coil adjusting core should be screwed in, and screwed out if 950 Kc/s tunes in at a higher frequency on the dial scale. When making the adjustment, slightly over correct, to compensate for calibration adjustments at 600 Kc/s and 1500 Kc/s.

When the calibration is correct over the dial, finally adjust the broadcast aerial coil on the rod, and seal in position, then adjust the broadcast aerial trimmer at 1500 Kc/s.

The input to the receiver from the signal generator for an output of 50 milliwatts should be less than 5 microvolts.

Turn the wave band knob to the short wave band position. Screw the oscillator trimmer to the maximum capacity position, and the short wave oscillator padder to the half way position.

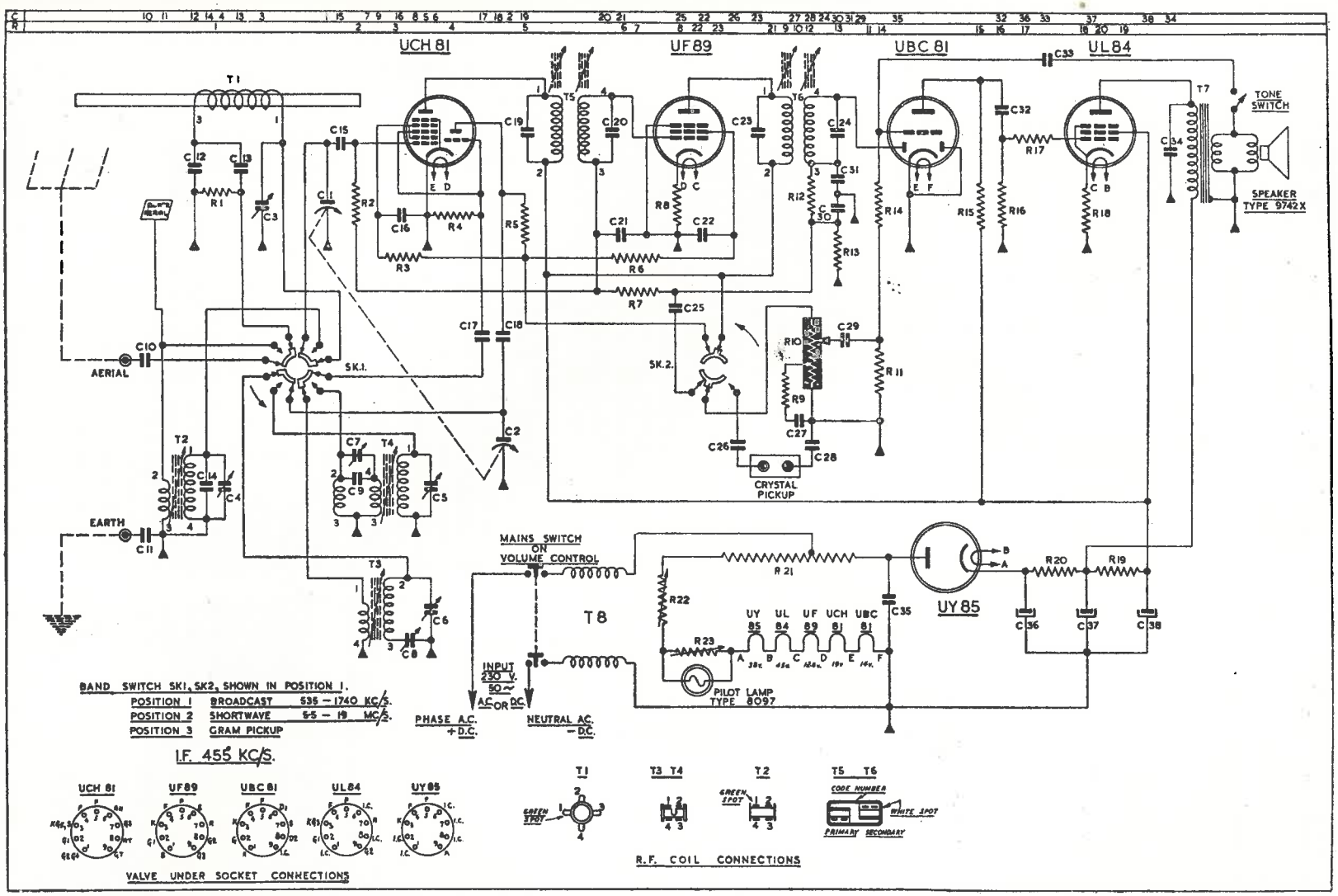
Turn the pointer to the 17 Mc/s position on the scale, and apply a signal of 17 Mc/s to the aerial. Turn the short wave oscillator trimmer out until the second signal is tuned in, and adjust the short wave aerial trimmer for maximum output, rocking the tuning either side of the signal as the aerial adjustment is made. Turn the pointer to the 6 Mc/s position on the scale, and apply a signal of 6 Mc/s to the aerial socket.

Adjust the short wave oscillator inductance until the signal is tuned in and adjust the aerial inductance for maximum output. Apply a signal of 10 Mc/s to the aerial socket, and check the calibration at 10 Mc/s on the dial. If the calibration is not correct the oscillator inductance should be adjusted, slightly over-correcting as in broadcast, adjusting 17 Mc/s with the oscillator trimmer, and 6 Mc/s with the short wave oscillator padder until the calibration is correct at all three points. The oscillator padder must be adjusted with an insulated trimmer tool as the outside plates are at the oscillator grid potential (see circuit diagram C7). Finally adjust the short wave aerial inductance, and trimmer at 6 Mc/s and 17 Mc/s respectively, and seal all trimmers and adjusting cores. The input to the aerial terminal for an output of 50 milliwatts should be less than 10 microvolts.

Replacing The Gang Drive Cord

Turn the tuning condenser to the maximum capacity position, and fix the spring A3 646 40 securely to the drum. Pass one end of the drive cord assembly VK 448 02 through the hole in the side of the tuning condenser drum and attach to the free end of the spring. Pass the cord round the drum in a clockwise direction to the top, and place the brass ferrule, and the end of the bowden cable in the front slot of the pulley bracket fixed to the top of the tuning condenser.

Place the brass ferrule and the other end of the bowden cable in the front slot of the drive shaft bracket, and pass the cord under the drive shaft, making two complete turns in a clockwise direction round the shaft, progressing towards the chassis. Pass the cord under the lower capstan, round the left hand capstan, under the upper right hand capstan, then over the tuning shaft, making one turn in a clockwise direction round the shaft, again progressing towards the chassis. Place the second bowden cable, with the ferrules at each end in the remaining slots in the drive shaft bracket and tuning condenser bracket. Do not pass the cord round the bakelite pulley as shown in the diagram, but pass it round the drum in a clockwise direction, through the hole in the side of the drum round the capstan, and hook the cord tag over the end of the spring. By turning the tuning shaft in a clockwise direction tension will be placed on the spring, so that slack will appear in the back cord, which can be taken up and placed round the bakelite pulley. Turn the tuning shaft a few times to equalise the tension over the cord, and if necessary adjust the turns on the shaft so that they do not bind.



CONDENSERS

C1 12—500 mmfd } ganged
C2 12—500 mmfd }
C3 2—20 mmfd ceramic trimmer
C4 2—20 mmfd ceramic trimmer
C5 3—30 mmfd air trimmer
C6 3—30 mmfd air trimmer
C7 5—60 mmfd air trimmer
C8 150—750 mmfd padder
C9 100 mmfd ceramic
C10 0.002 mfd 750v. paper
C11 0.01 mfd 750v. paper
C12 3300 mmfd 150v. styroflex
C13 1500 mmfd ceramic
C14 10 mmfd ceramic
C15 150 mmfd ceramic
C16 0.01 mfd 500v. paper
C17 47 mmfd ceramic
C18 150 mmfd ceramic
C19 110 mmfd ceramic
C20 195 mmfd ceramic
C21 0.05 mfd 500v. paper
C22 0.01 mfd 500v. paper
C23 110 mmfd ceramic
C24 195 mmfd ceramic
C25 0.01 mfd 500v. paper
C26 0.01 mfd 750v. paper
C27 0.01 mfd 500v. paper
C28 0.01 mfd 750v. paper
C29 0.005 mfd 500v. paper
C30 100 mmfd diode filter unit + R12
C31 100 mmfd diode filter unit + R12
C32 0.01 mfd 500v. paper
C33 100 mmfd ceramic
C34 0.005 mfd 750v. paper
C35 0.01 mfd 750v. paper
C36 40 mfd }
C37 40 mfd } 350v. electrolytic
C38 20 mfd }

RESISTORS

R1 33k ½w. carbon
R2 1 meg ½w. carbon
R3 15k ½w. carbon
R4 47k ½w. carbon
R5 15k ½w. carbon
R6 22k ½w. carbon
R7 2.2 meg ½w. carbon
R8 27 ohms ½w. carbon
R9 39k ½w. carbon
R10 2 meg tapped at 400k. carbon potentiometer
R11 4.7 meg ½w. carbon
R12 47k diode filter unit
R13 330k ½w. carbon
R14 47k ½w. carbon
R15 220k ½w. carbon
R16 680k ½w. carbon
R17 1000 ohms ½w. carbon
R18 150 ohms 1w. carbon
R19 1500 ohms 4w. wire wound
R20 150 ohms 4w. wire wound
R21 745 ohms tapped at 180 ohms 12w. w.w.
R22 Tempco resistor 49 379-62
R23 Tempco resistor 49 379-67

T1 Ferroxcube rod aerial coil VK 469-73
T2 Shortwave aerial coil VK 469-74
T3 Broadcast osc. coil VK 471-50
T4 Shortwave osc. coil VK 471-37
T5 1st. I.F. band filter A3 126-84
T6 2nd. I.F. band filter A3 126-84
T7 Output transformer VK 671-07
T8 Mains filter choke VK 460-63

VOLTAGE TABLE

All readings taken with a supply input of 230 volts 50 c/s. Full load input current should not exceed 250 M/A. Input power 45 watts.

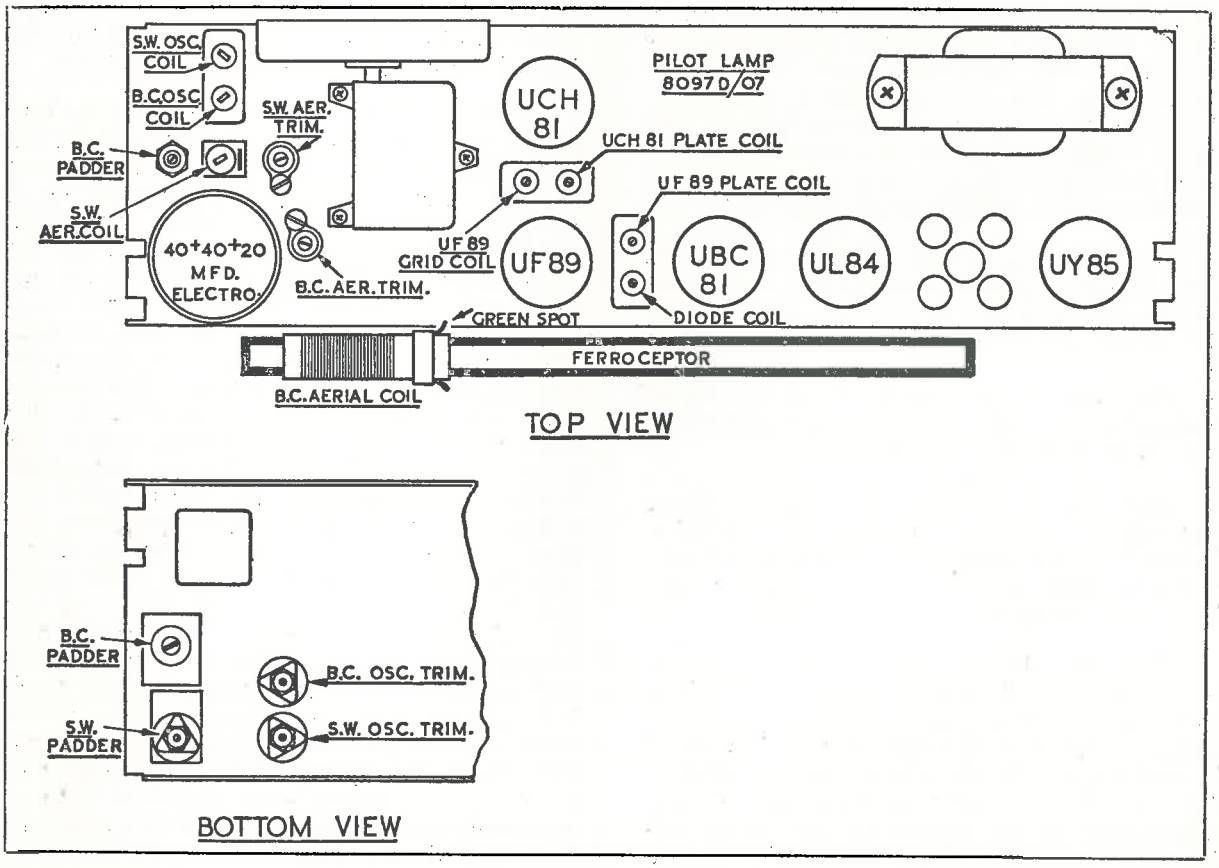
Valve	Function	Filament	Plate	Screen	Cathode
UCH81	Frequency converter and oscillator	[redacted] 19	Conv. 135 Osc. 75	65	—
UF89	I.F. amplifier	12.6	135	70	0.35
UBC81	Demodulation and audio voltage amplifier	14	55	—	—
UL84	Power output	45	165	135	9
UY85	Half wave rectifier	38	210	—	195
8097	Pilot lamp	19	—	—	—

The above voltages are measured between the points indicated and chassis except in the case of the filament voltages which are measured directly between the valve socket terminals, the meter used having a movement of 20,000 ohms per volt on D.C. ranges and 1000 ohms per volt on A.C. ranges. Variations up to ± 5% are permissible.

LIST OF SPARE PARTS

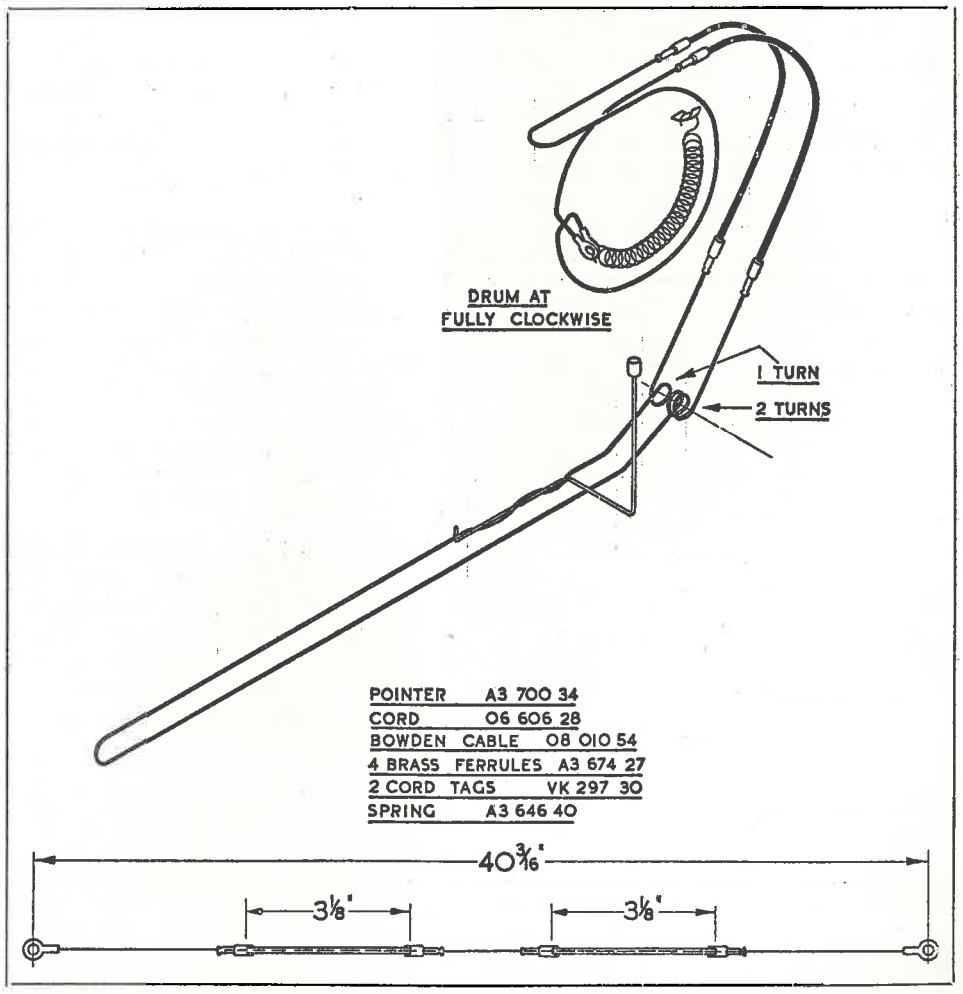
Cabinet	A3 751 32	Back and Bottom Cover Assembly	VK 369 91
Light Shield for Pilot Lamp	A3 470 65	Aerial and Earth Socket	A3 388 29
Spring Clip for Mounting Back Cover	A3 461 85	Pickup Socket	VK 881 34
Perforated Aluminium Panel	A3 554 36	Tuning Condenser	49 001 42
Pointer	A3 700 34	Volume Control	49 904 60/DL/M4 + 1M6
Bakelite Coupling (Tone Switch)	P4 076 74		
Bakelite Coupling (Wave Band Switch)	P4 076 73	Tone Switch	VK 421 47
Dial Scale and Grille	VK 852 21	Ferroxcube Rod	56 681 23/22B
Knob (Tone and Wave Band)	A3 752 65	Wave Band Switch	VK 421 46
Knob (Volume and Tuning)	A3 752 66	Gear Plate	A3 663 61
Grub Screw	A3 324 16	Tuning Shaft Assembly	VK 068 74

For Drive Cord Part Numbers see diagram. For Coils and Transformer Part Numbers see circuit diagram.



COIL AND TRANSFORMER RESISTANCES

T1	Ferroxcube Rod Aerial Coil	VK 469 73		1.1 ohms
T2	Short Wave Aerial Coil	VK 469 74	Primary Secondary	0.4 ohms 0.31 ohms
T3	Broadcast Oscillator Coil	VK 471 50	Tuned Feedback	5.95 ohms 2.66 ohms
T4	Short Wave Oscillator Coil	VK 471 37	Tuned Feedback Padder	0.17 ohms 0.345ohms 1.5 ohms
T5	1st I.F. Filter	A3 126 84	Primary Secondary	8.4 ohms 4.7 ohms
T6	2nd I.F. Filter	A3 126 84	Primary Secondary	8.4 ohms 4.7 ohms
T7	Output Transformer	VK 671 07	Primary Secondary	325 ohms 0.7 ohms
T8	Mains Filter Choke	VK 460 63	Each Winding	3.7 ohms



INTERIM CIRCUIT — Philips New Yorker — Model BZ267U

C1	12-500 mmfd	ganged condenser
C2	12-500 mmfd	ganged condenser
C3	2-20 mmfd	ceramic trimmer
C4	2-20 mmfd	ceramic trimmer
C5	3-30 mmfd	air trimmer
C6	3-30 mmfd	air trimmer
C7	5-60 mmfd	air trimmer
C8	150-750 mmfd	padder
C9	100 mmfd	ceramic
C10	0.002 mfd	750v paper
C11	0.01 mfd	750v paper
C12	3300 mmfd	150v styroflex
C13	1500 mmfd	ceramic
C14	10 mmfd	ceramic
C15	150 mmfd	ceramic
C16	0.01 mfd	500v paper
C17	47 mmfd	ceramic
C18	150 mmfd	ceramic
C19	110 mmfd	ceramic
C20	195 mmfd	ceramic
C21	0.05 mfd	500v paper
C22	0.01 mfd	500v paper
C23	110 mmfd	ceramic
C24	195 mmfd	ceramic
C25	0.01 mfd	500v paper
C26	0.01 mfd	750v paper
C27	0.01 mfd	500v paper
C28	0.01 mfd	750v paper
C29	0.005 mfd	500v paper
C30	100 mmfd	diode filter unit + R12
C31	100 mmfd	diode filter unit + R12
C32	0.01 mfd	500v paper
C33	100 mmfd	ceramic
C34	0.005 mfd	750v paper
C35	0.01 mfd	750v paper
C36	40 mfd	350v electrolytic
C37	40 mfd	350v electrolytic
C38	20 mfd	350v electrolytic

R1	33k	¼w carbon
R2	1M	¼w carbon
R3	15k	¾w carbon
R4	47k	¼w carbon
R5	15k	¾w carbon
R6	22k	¾w carbon
R7	2.2M	¼w carbon
R8	27 ohms	¼w carbon
R9	39k	¼w carbon
R10	2M	tapped at 400k carbon pot.
R11	4.7M	¼w carbon
R12	47k	diode filter unit
R13	330k	¼w carbon
R14	47k	¼w carbon
R15	220k	½w carbon
R16	680k	¼w carbon
R17	1000 ohms	¼w carbon
R18	150 ohms	1w carbon
R19	1500 ohms	4w wire wound
R20	150 ohms	4w wire wound
R21	745 ohms	tapped at 180 ohms 12w W. W.
R22	Tempco resistor	49 379-62
R23	Tempco resistor	49 379-67

L1	Mains filter choke	VK 460-63

T1	Ferroxcube rod aerial coil	VK 469-73
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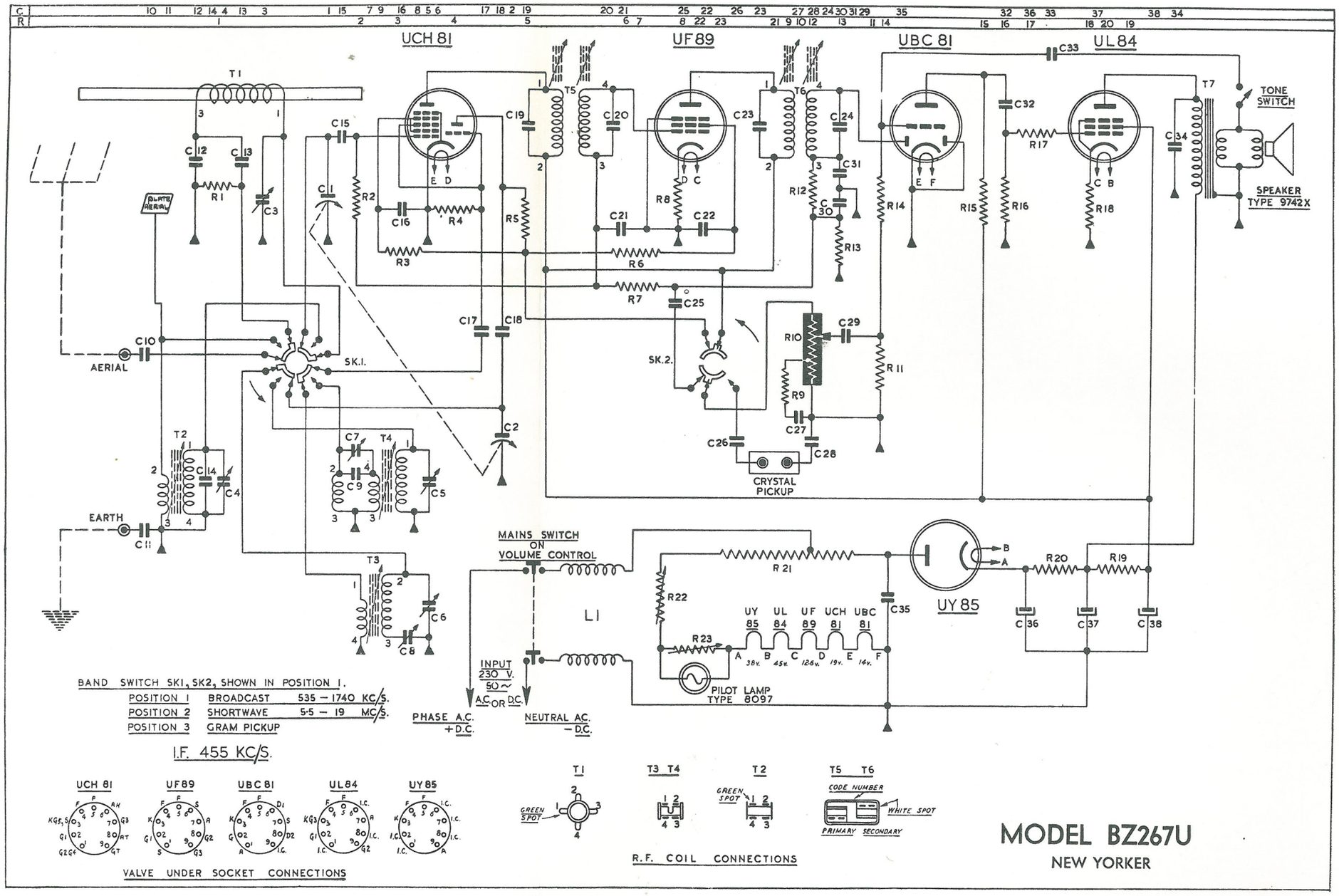
T6	2nd I.F. band filter	A3 126-84
T7	Output transformer	VK 671-07



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