

*Being drawn by Garnett*

# TECHNICAL INFORMATION

BULLETIN NO. 101

(TYPE)

6-L.S. RECEIVER - SERIES 2.

## RECEIVER

## COLLIER & BEALE LTD.

WELLINGTON

TECHNICAL DATA  
OF THE NEW SERIES  
TYPE "6LS" RECEIVER.

This Receiver uses six Tubes in a modern Superheterodyne Circuit.

Tubes used are :-

- 1 - Type 6D6 R.F. Amplifier
- 1 - " 6A7 Oscillator and 1st Detector
- 1 - " 6D6 I.F. Amplifier
- 1 - " 6B7 Diode Detector and Audio Amplifier
- 1 - " 42 Power Amplifier
- 1 - " 80 Power Supply Rectifier

SENSITIVITY:- A tuned radio frequency stage is used on both broadcast and short-wave ranges, providing maximum useful sensitivity under almost any conditions of aerial effectiveness. The intermediate frequency used is 465-Kc/s.

This high intermediate frequency permits definitely one spot tuning on short-wave signals, even with carriers of abnormal intensity. Greater sensitivity than has previously been possible is now available on the short-wave range by the introduction of controlled reaction in the radio frequency stage.

This controlled reaction condition is obtained by utilising a small common coupling inductance between the R.F. and interstage coils, made up in the form of a length of the chassis. Under certain conditions it may be found that with the aerial disconnected, oscillation may take place on the upper part of the short-wave band. This is generally caused by particularly good tubes, and in no way should it interfere with the satisfactory operation of the Receiver, when connected to an outdoor aerial.

Actually such a condition is desirable, as it permits of the greatest amount of useful reaction to be obtained under normal receiving conditions.

SELECTIVITY:- As is usual, it is more difficult to obtain what is generally known as sharp tuning from high intermediate frequency transformers.

In this particular Receiver, we have decided on a design that provides a satisfactory band width without too great a loss of sensitivity, and further, which permits of good fidelity.

The overall characteristic of the 2 I.F. transformers does not produce a resonance curve with a very sharp peak, but with a distinct flat top, which is generally called for in modern high fidelity Receivers.

ALIGNMENT:- The alignment of this Receiver is generally similar to our last year's Receiver, and others of a similar type. In all cases the broadcast section should be treated first. Gang condenser adjustments should be undertaken at 1,400-Kc/s. and at 600-Kc/s.

Rarely, however, is it necessary to make any adjustment to the gang condenser trimmers, but generally it is found that adjustments to the padding condenser are necessary, more particularly when the Receiver has just been unpacked, or when it has been subjected to extremes in temperature.

The padding condenser, which is found on the top right hand corner of the chassis in this particular Receiver, is of such a comparatively small capacity that any fair vibration or temperature change, as stated above, can produce a very large capacity change with consequent misalignment of the low frequency end of the Receiver.

Short-Wave Adjustments:- On the new Receiver all the additional trimming condensers are found at one end of the chassis. Starting from left to right, with the controls of the Receiver in front.

- No. 1 is the short-wave antennae coupling condenser
- " 2 is the R.F. stage high frequency trimmer
- " 3 is the interstage " " "
- " 4 is the broadcast oscillator trimmer
- " 5 is the short-wave oscillator trimmer

The 6th screw available is the short-wave padding condenser.

The short-wave high frequency trimming condensers should only be adjusted after the broadcast frequency adjustments have already been made.

The

High frequency adjustments should be made at about 15 M.C., whereas the low frequency padding condenser should be adjusted at 6 M.C. Rarely will it be found necessary to make any adjustments to either of these condensers.

A new type 5-gang switch is used, which not only permits greater isolation of the various circuits, but through additional contacts permits the short circuiting of all the unused coils.

Circuit and component details are shown on separate leaf.

COLLIER & BEALE LIMITED,  
WELLINGTON, C.2.  
29th May, 1935.

TYPE 6-LS RECEIVER - CONDENSER CAPACITIES.

C. 1)	
C. 2)	
C. 3)	30 to 50 M.M.F. Trimmers
C. 4)	
C. 5)	
C. 6)	
C. 7)	3-Gang 450 MMF. Variable condenser
C. 8)	
C. 9	.05-mfd. A.V.C. filter
C.10	.1-mfd. R.F. bias by-pass
C.11	.05-mfd. A.V.C. filter
C.12	S.W. padding condenser, total .005-mfd.
C.13	B.C. padding condenser, total 550-mmfd.
C.14	.25-mfd. 1st detector, and I.F. By-pass
C.15	.00025-mfd. Oscillator grid condenser
C.16	.0001-mfd. Diode load By-pass
C.17	.01-mfd. 6B7 coupling condenser
C.18	25-mfd. Audio bias filter
C.19	.01-mfd. Audio coupling condenser
C.20	.00025-mfd. 6B7 plate filter
C.21	.25-mfd. 6B7 Audio plate filter
C.22	.1-mfd. Penthode grid bias filter
C.23	.1-mfd. 6B7 Screen By-pass
C.24	.5-mfd. Tone control
C.25	.1-mfd. High tension By-pass
C.26)	8-mfd. Electrolytic
C.27)	
C.28	Screen By-pass

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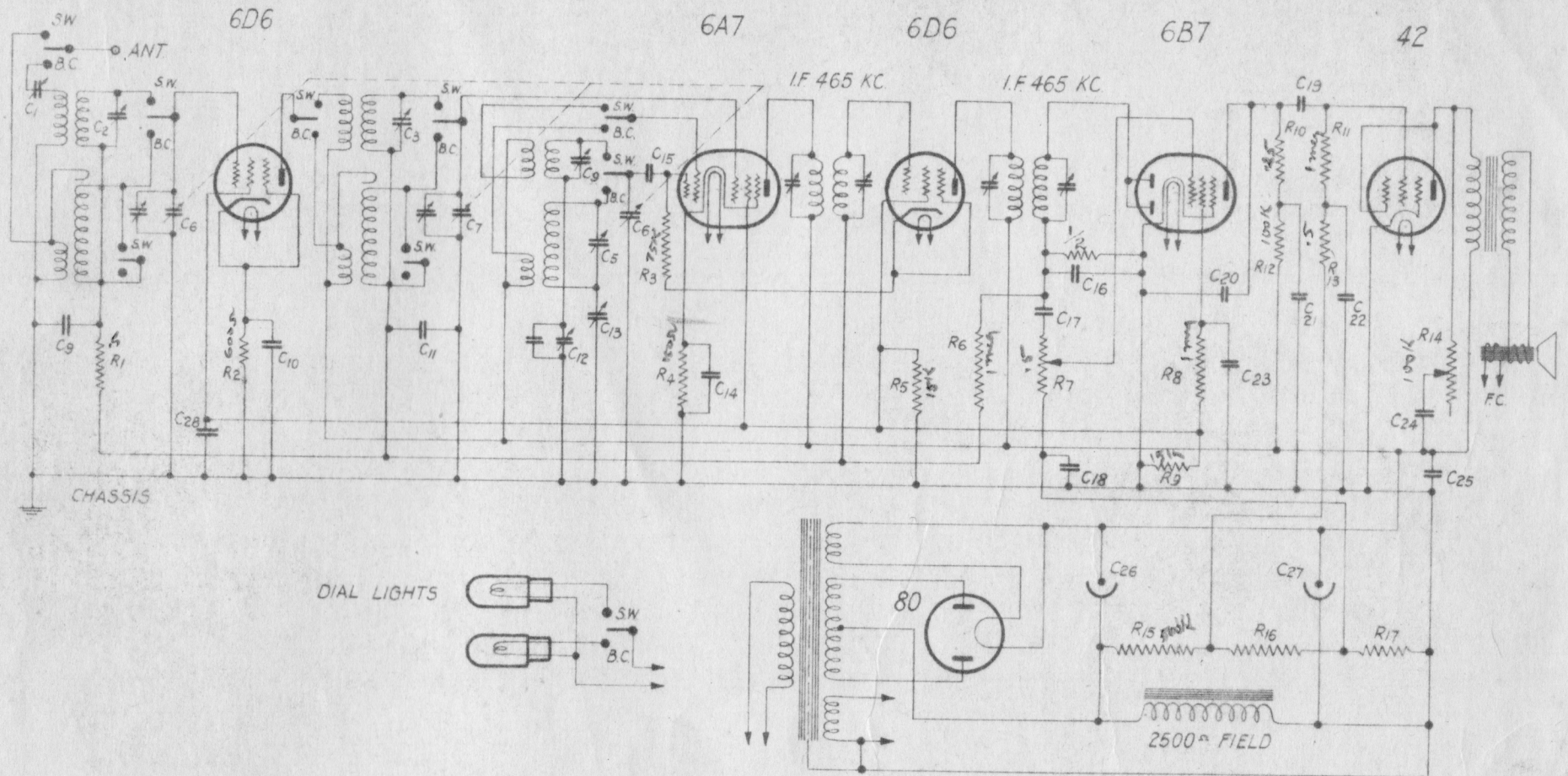
TYPE 6-LS. RECEIVER - RESISTOR

DETAILS.

R. 1	.5-megohm, A.V.C. Filter
R. 2	600-ohms. R.F. Bias
R. 3	75,000-ohm. Oscillator Grid leak
R. 4	150-ohm. 1st Detector and I.F. bias
R. 5	15,000-ohm. Screen dropping
R. 6	1-megohm. A.V.C. filter
R. 7	500,000-ohm. Volume control
R. 8	1-megohm., 6B7 Screen dropping
R. 9	15,000-ohm. Screen bleeder
R.10	.25-megohm. 6B7 Plate load
R.11	1-megohm. Grid leak
R.12	100,000-ohm. 6B7 Plate filter
R.13	.5-megohm. Audio grid filter
R.14	100,000-ohm. Tone control
R.15)	
R.16)	Bias potentiometer
R.17)	

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# TYPE 6L.S. RECEIVER SERIES 2



THIS APPLIES TO SERIAL N <sup>o</sup> .....	
OUR REFERENCE N <sup>o</sup> .....	
DRAWING N <sup>o</sup> .....	268 A
COLLIER & BEALE LTD. WELLINGTON.....	
DATE.....	