

TECHNICAL INFORMATION

BULLETIN No. 124.

(TYPE)

TECHNICAL DESCRIPTION OF THE NEW STELLA

ELECTRICALLY-SELECTED RECEIVER.

RECEIVER

COLLIER & BEALE LTD.

WELLINGTON

TECHNICAL INFORMATION

BULLETIN NO. 122.

(TYPE)

TECHNICAL DESCRIPTION OF THE NEW "CROMWELL"

ELECTRICALLY-SELECTED RECEIVER.

RECEIVER

COLLIER & BEALE LTD.

WELLINGTON

TECHNICAL INFORMATION

BULLETIN No. 123.

(TYPE)

TECHNICAL DESCRIPTION OF THE NEW GOLDEN KNIGHT

ELECTRICALLY-SELECTED RECEIVER.

RECEIVER

COLLIER & BEALE LTD.

WELLINGTON

TECHNICAL DESCRIPTION OF THE NEW "GOLDEN KNIGHT"
ELECTRICALLY-SELECTED RECEIVER.

The New "Golden Knight" electrically-selected Receiver is a 3-band Unit, generally to the style of our last year's Model, Type AW.7, but arranged for automatic electrical selection. The various wave bands are :-

Broadcast 550-1600-Kc/s.

Intermediate Short-wave 2.2-7-M.C.

International Short-wave 20-7-M.C.

The new Receiver uses eight valves in the following arrangement :-

- 1 - Type 6K7 Signal-frequency Amplifier (all bands).
- 1 - " 6L7 Pentagrid Mixer
- 1 - " 6C5 High-frequency Oscillator
- 1 - " 6K7 Intermediate-frequency Amplifier
- 1 - " 6B8 Diode Detector, A.V.C. and Audio Amplifier
- 1 - " 6F6 Pentode Output Amplifier
- 1 - " 5Z4 Receiver Power Supply Rectifier
- 1 - " 82/83 Electric-selection Unit Rectifier

The radio frequency circuits are in general quite conventional, and reference to the schematic diagram attached will clearly indicate the various electrical features of this section. It is to be noted that only one iron-cored intermediate-frequency transformer is used, the first stage being an air-core unit possessing comparatively low "Q" coils, and providing an overall intermediate-frequency characteristic sufficiently broad to permit good fidelity, and to allow for minor discrepancies in the electrical selecting mechanism. It will be noted also that to provide for the requisite high order of frequency stability demanded by electrical-selection methods, a fixed capacitor of the Ceramic enclosed type has been permanently arranged in shunt with the broadcast frequency oscillator coil No. 104: the value of this condenser is 7.5-picofarads. The introduction of this high grade capacitor practically eliminates frequency drift, even at 1500-Kc/s.

An over-sized power transformer is fitted to this Receiver and simultaneously provides the usual high tension and heater supplies to the receiver circuits, and a high current source of D.C., a high current source of D.C. for the solenoid operating coils, and approximately 25-volts A.C. for the reversing type selecting motor.

The receiver power-supply circuit is entirely conventional, filtering being obtained by the use of the speaker field, and two 8-mfd. electrolytic condensers in the usual manner. Power supply for the selecting mechanism is obtained from an 83 type rectifier tube, a 500-mfd. electrolytic condenser constituting the filter.

Adjustment of the various tuned circuits of the receiver follows along conventional lines, and it is unnecessary to elaborate further on the preferred method to be adopted in the event of alignment being required. Reference to

the schematic diagram attached will clearly indicate the various circuits and the values of all components. The electrical-selection method used is both fast and positive, and as reference to the diagram will indicate, consists of eight solenoid operated plungers, a 4-part commutator, a holding relay and a D.C. supply of approximately 10 to 15-volts.

In the early Models of this Receiver the holding relay, as shown in the diagram, was used, but on later Units this relay has been removed from the circuit and direct control of the solenoids obtained from the push-button switches themselves. This was considered desirable, as in one or two isolated cases it was found that due to the high inertia of the entire tuning assembly, certain of the pins did not return after completing the selecting operation, and caused a certain amount of damage to the high tension transformer.

The removal of this relay does not in any way affect the performance or accuracy of selection of the Receiver, but does eliminate any possibility of damage in the event of one or more of the selecting pins sticking.

A further modification introduced at this time was the removal of the latch-bar from the switch assembly. This prevents any possibility of the selecting circuits being left in an energised condition.

Later Models shortly to be released and fitted with a much freer tuning assembly, will be again equipped with the holding relay and the circuit will then be exactly in accordance with that attached. No special adjustments should be necessary to this particular section of the Receiver, it being quite evident that almost any arrangement of stations can be made by suitably distributing the eight solenoid-operated plungers in the various circumferential slots provided in the solenoid mounting plates. Adjustment of the solenoids may be undertaken very readily; all that is necessary is to tune-in the required station manually in the usual manner, switch off the Receiver and loosen the solenoid that is closest to the division of the commutator faces, and with a pin or some similar object that may be inserted in the solenoid cap, depress the plunger and at the same time alter the position of the solenoid unit until the plunger falls in the indexing slot. Care should be taken in making this adjustment to see that the relative position of the dial or tuning condenser is not disturbed, and after the correct location has been obtained to tighten the solenoid by turning it as far as possible in a clock-wise direction, switching the receiver on and checking the calibration obtained. The various solenoids have been numbered; these agree with the push-buttons, taking the left-hand button as No. 1 and continuing to No. 8 on the right.

COLLIER & BEALE LIMITED,
66 CHUZNEE STREET,
WELLINGTON, C.2.
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8 AW ELECTRICALLY TUNED RECEIVER
1938.



