PHILCO
MADE IN NEW ZEALAND

Model 656

SPECIFICATIONS

Type of Circuit and General Description

Six-tube A.C. Superheterodyne circuit with five tuning bands having continuous frequency coverage of 540 K/cs. to 22 MC on the first three bands. The last two bands are spread, frequency coverage being 9.4—12 MC and 14.9—18 MC.

A tuned R.F. stage is used on all bands except band-spread where the R.F. circuit is untuned. A frequency converter followed by a high gain I.F. amplifier and diode detector completes the R.F. section of the receiver. The second diode of the 6Q7G tube is used for A.V.C. and controls R.F. and I.F. tubes. Bias for these tubes and delay voltage is supplied by a voltage divider network across the filter circuit which is in the negative lead of the power supply. Tone control is effected by inverse feedback voltage from the plate of the output tube to the centre tap of the tone control potentiometer which is the grid resistor of the 6V6G.

TUBES:

R.F. Amplifier 6U7G.
Converter 6K8G.
I.F. Amplifier 6U7G.
Detector and 1st Audio 6Q7G.
Output 6V6G.
Rectifier 80.

TUNING BAND FREQUENCIES:

Broadcast	540—1600 KC
Short Wave 1	2.3—7.5 MC
Short Wave 2	7.0—22 MC
Band Spread 1	9.4—12 MC
Band Spread 2	14.9—18 MC

INTERMEDIATE FREQUENCY: 455 KC

Power Supply—230 volt A.C., 50 cycle.
Power consumption—50 watts.

VOLTAGE CHECKS

All the following voltages were measured with a 20,000 O.P.V. meter and if an instrument of lower sensitivity is used, allowance must be made for the fact.

It is pointed out that these voltages are for an average receiver with supply voltage at 230V and departure from these figures does not necessarily indicate a fault; variations will be noted due to differing mains voltage and normal circuit tolerances.

All measurements are taken between point indicated and chassis.

Measuring Point.	Chassis fitted with P.M. Speaker.	Chassis fitted with E.M. Speaker.
Power Transformer Secondary	300-0-300 A.C.	360-0-360 A.C.
H.T. Max. (Rectifier fil.)	260	245
6V6G—Cathode	14	12
6Q7G—Plate	80	75
6U7G—(R.F.) Plate	165	145
6K8G—Osc. Plate	150	140
6K8G—Cathode	3	2
R.F. Osc. and I.F. Screens	90	85
R.F. and I.F. Bias (at junction point of network across choke or field)	−3	−2
Voltage across choke	−40	
Voltage across field		−120

ALIGNMENT PROCEDURE

EQUIPMENT REQUIRED:—

All-wave signal generator and output meter.

(N.B.—Before commencing alignment it should be remembered that the receiver has been correctly aligned at the factory and in general only small adjustments will be required except in cases of oscillator coil or trimmer replacements.)

1—Connect output meter across output transformer primary and signal generator to mixer grid of 6K8G through a .1 mfd condenser—set generator at 455 K.C.—turn volume control to maximum.

2—With wave switch in broadcast position and gang fully open, adjust trimmers 1, 2, 3 and 4 in that order. Repeat the procedure and check for correct alignment by tuning generator through resonance to observe that there is only one peak of correct frequency.

3—For correct alignment of R.F. stages of the receiver a standard dummy aerial should be used. If this is not available use a 400 ohm resistor between generator and receiver for all shortwave ranges, and a 200 mmfd. condenser for broadcast frequencies.

4—See that dial pointer is correctly lined up. It should be set at the extreme low frequency end of the dial with gang fully closed.

5—For all subsequent adjustments the generator is connected to the aerial terminal of the receiver through the appropriate termination. (See 3.)

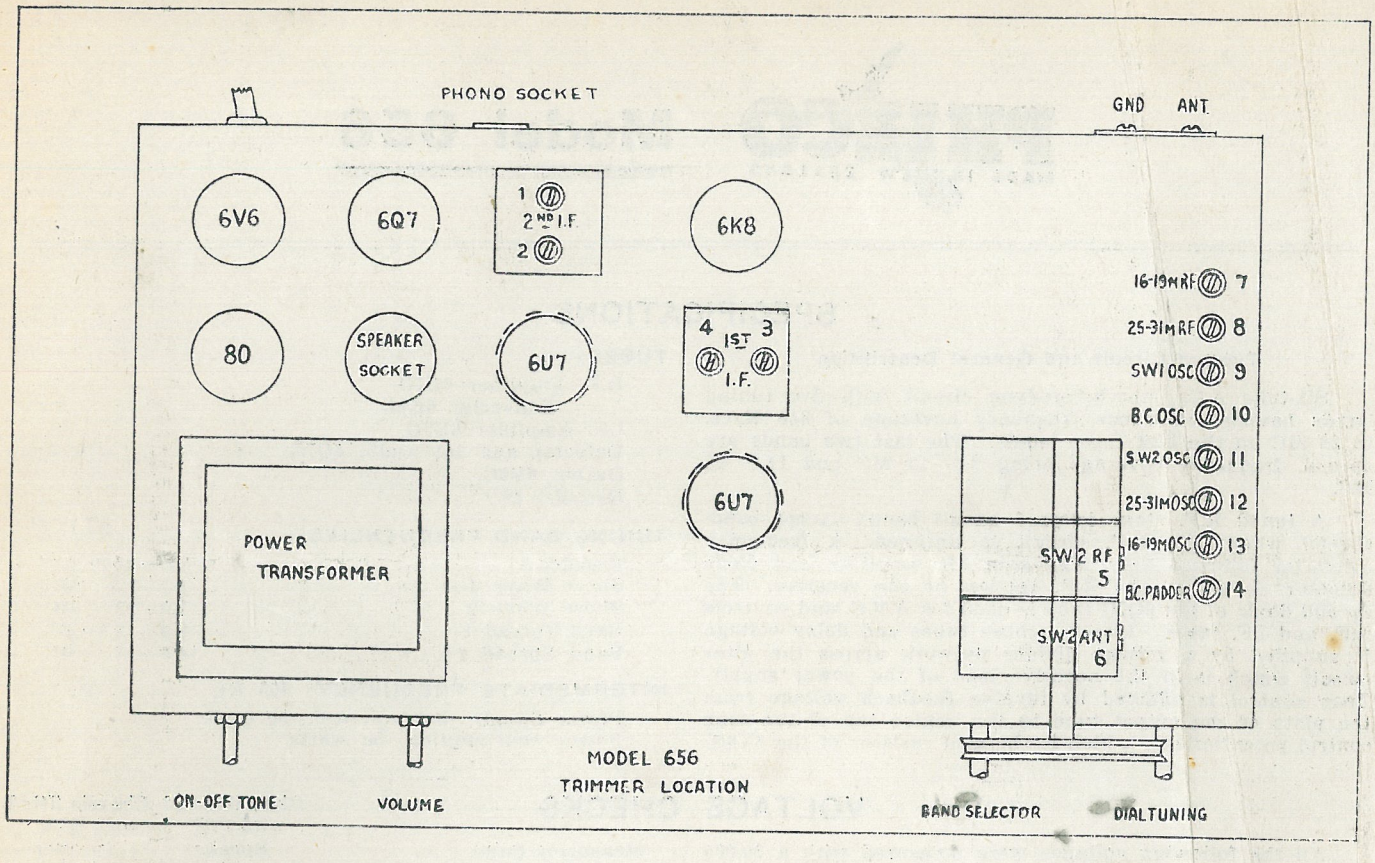
6—Set waveswitch to S.W.2 and tune generator and receiver to 17 MC. Adjust C11 (Check that the weaker image signal appears higher on the generator scale, i.e., 17.91 MC). Adjust C5 and C6 for resonance.

7—Set waveswitch to Broadcast and generator and receiver to 1400 KC. Adjust C10 rocking gang for maximum output. Set generator and receiver to 600 KC—adjust C14 rocking gang for maximum output—again adjust C10 at 1400 KC.

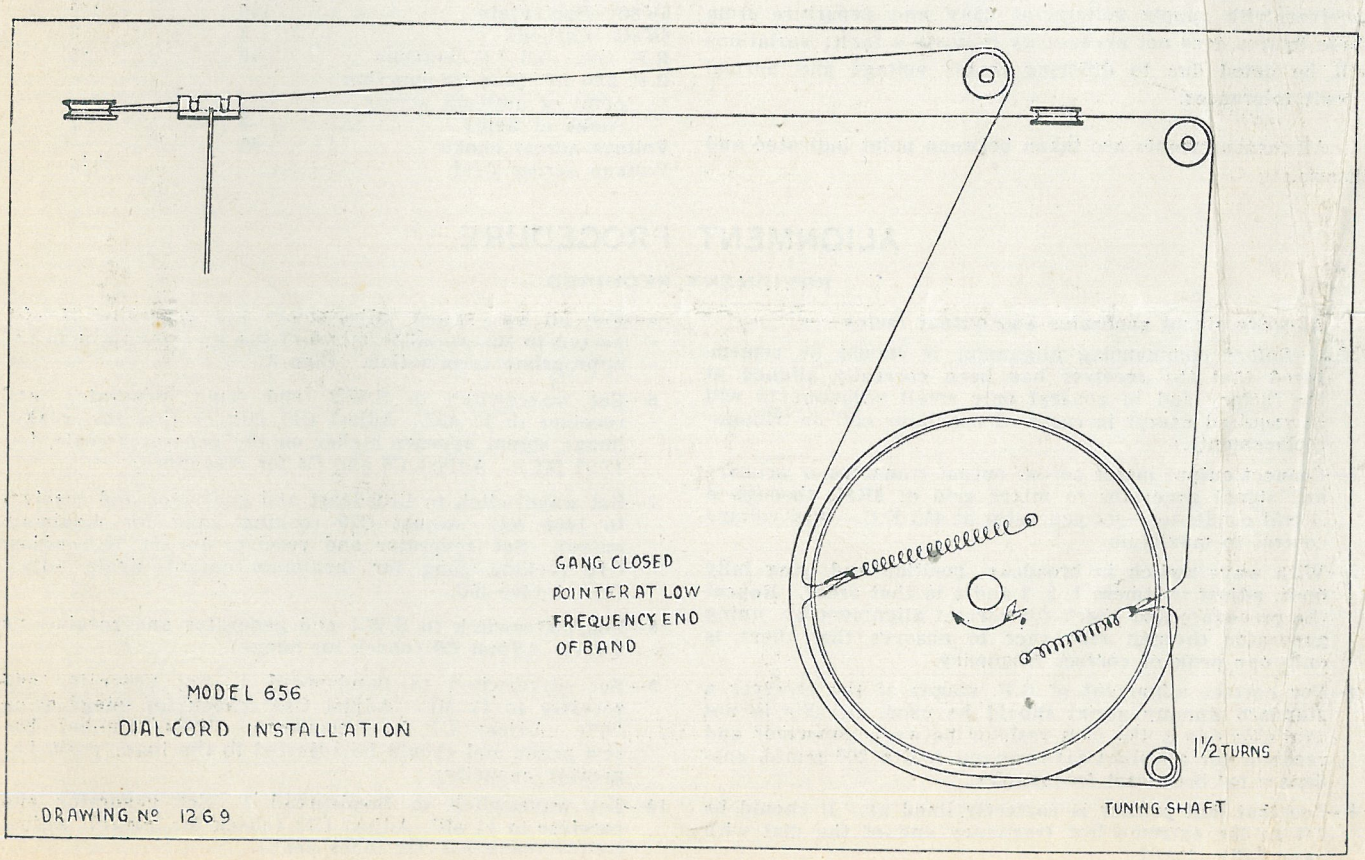
8—Set waveswitch to S.W.1 and generator and receiver to 6 MC. Adjust C9 (check for image).

9—Set waveswitch to Bandspread 2. Set generator and receiver to 17 MC. Adjust C13 (check for image as in "6"). Adjust C7 for resonance. (This trimmer has two peaks and should be adjusted to the inner peak, i.e., greater capacity).

10—Set waveswitch to Bandspread 1. Set generator and receiver to 11 MC. Adjust C12 (check for image). Adjust C8 for resonance (to inner peak).

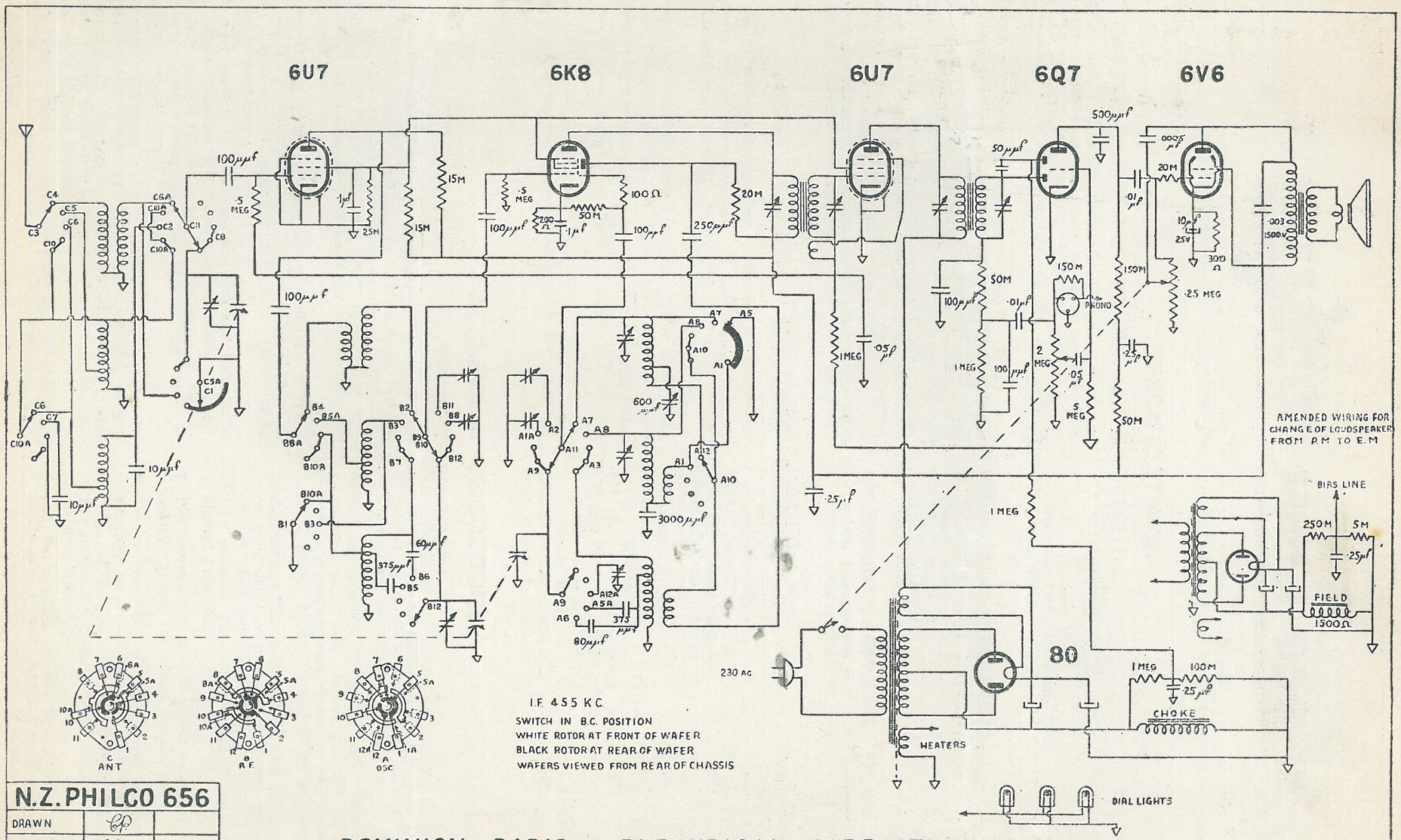


MODEL 656
TRIMMER LOCATION



MODEL 656
DIAL CORD INSTALLATION

DRAWING Nº 1269



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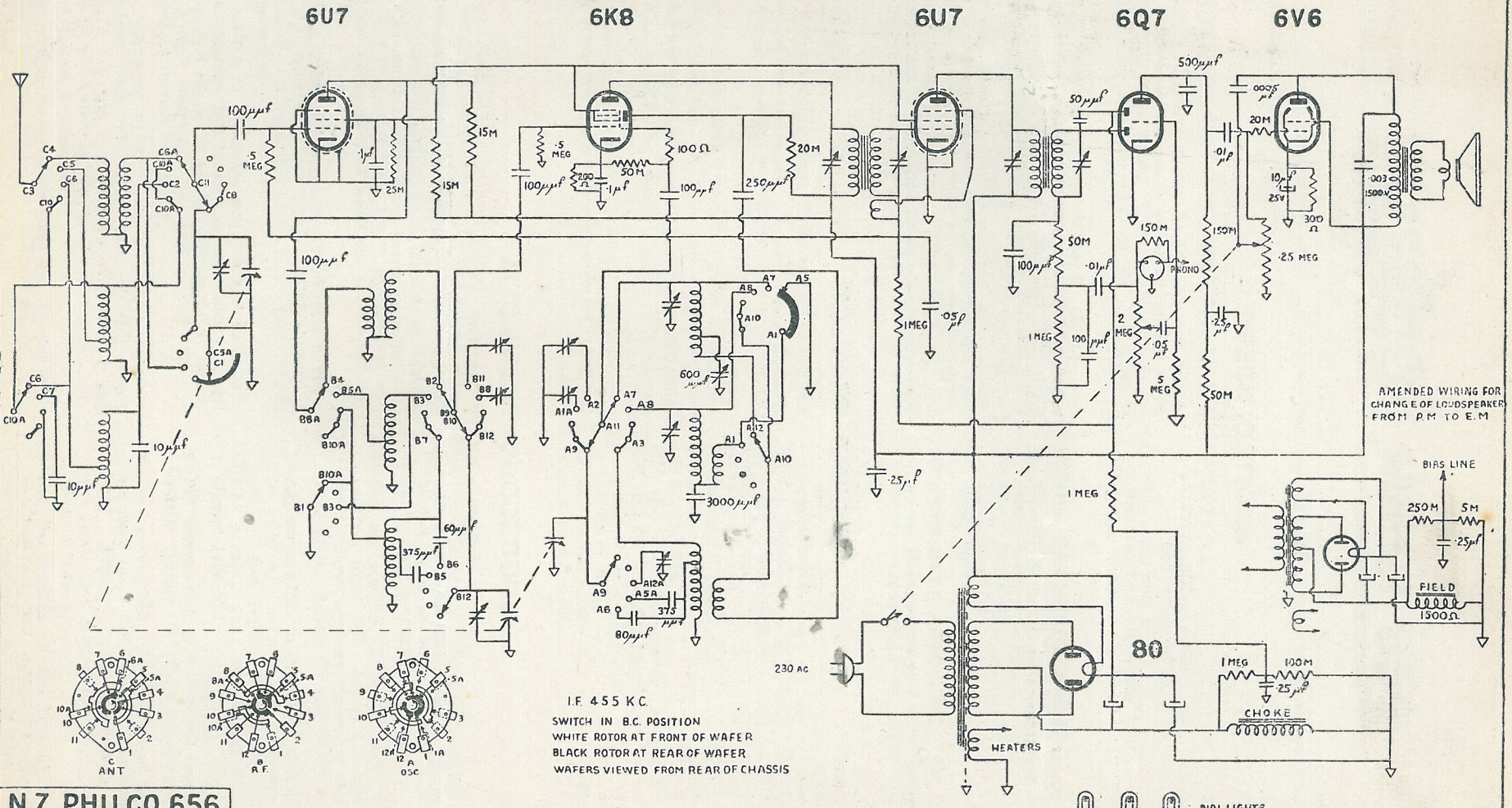
DOMINION RADIO & ELECTRICAL CORP. LTD AUCKLAND N.Z.



N.Z. PHILCO 656

Philco model 656 sn 9892. Photo: James Davidson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