

PHILCO
MADE IN NEW ZEALAND

Model 816

SPECIFICATIONS

Diagram of Circuit and General Description:

Five tube A.C. Superheterodyne circuit with four tuning bands having frequency coverage of 550-1600 K.C. on the broadcast band and continuous coverage on short-wave from 3 MC to 22 MC. A gramophone pick-up outlet is fitted and for this function provision is made to short circuit the aerial section of the gang when fully meshed. The pick-up must be disconnected when the set is in normal use.

Tubes:

Frequency Converter	6J8G
I.F. Amplifier	7B7
Detector and 1st Audio	7C6
Output	6K6
Rectifier	7Y4

Tuning Band Frequencies:

Broadcast	550 — 1600 KC
SW1	3 — 9.5 MC
SW2	9.4 — 12 MC
SW3	12 — 22 MC

Intermediate Frequency: 455 KC.

Power Supply—230V A.C. 50 cycles.
Power Consumption—40 watts.

VOLTAGE CHECKS

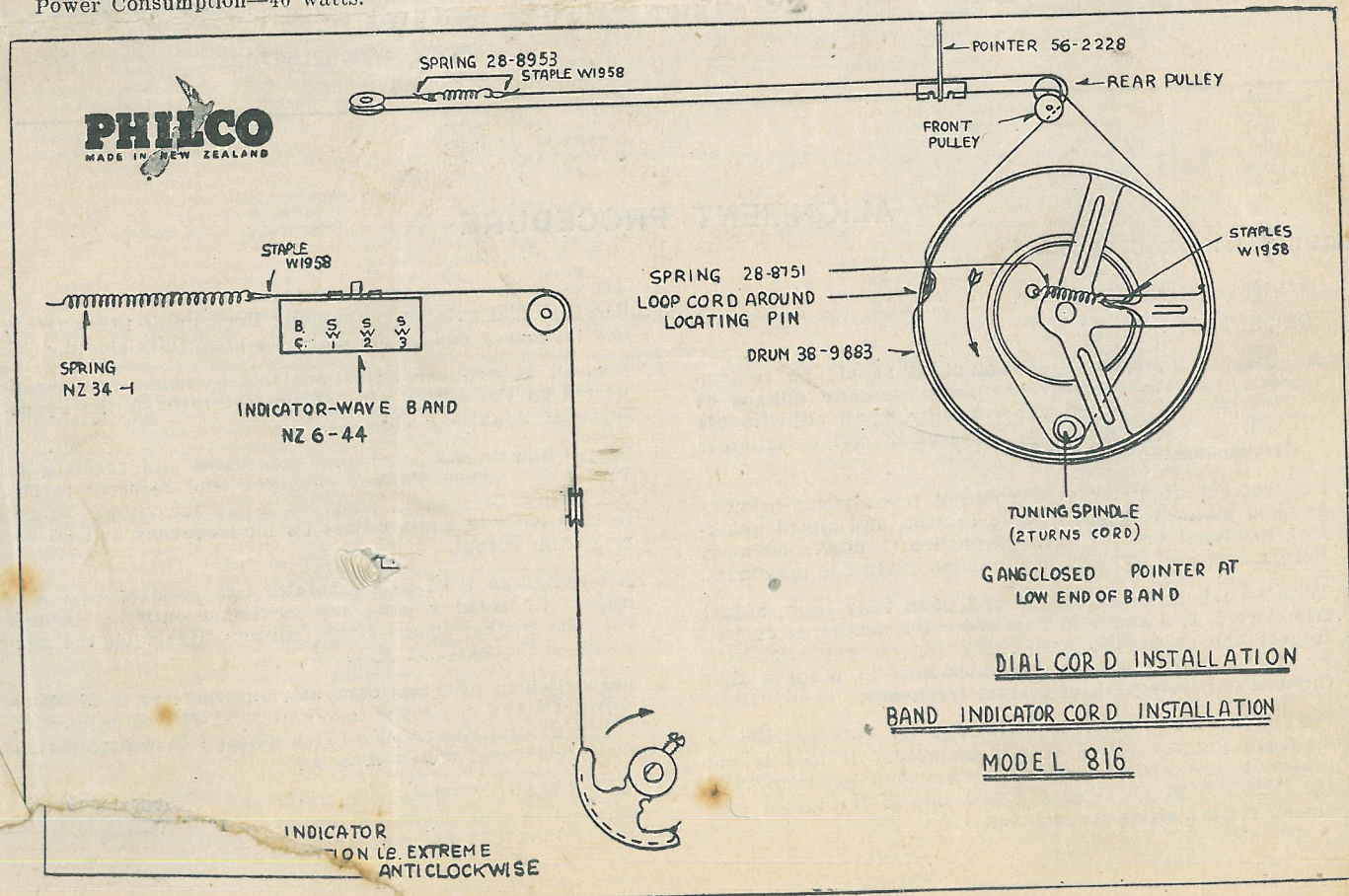
The following voltages were measured with a 20,000 O.P.V. Meter and, if an instrument of lower sensitivity is used, allowance must be made for the fact.

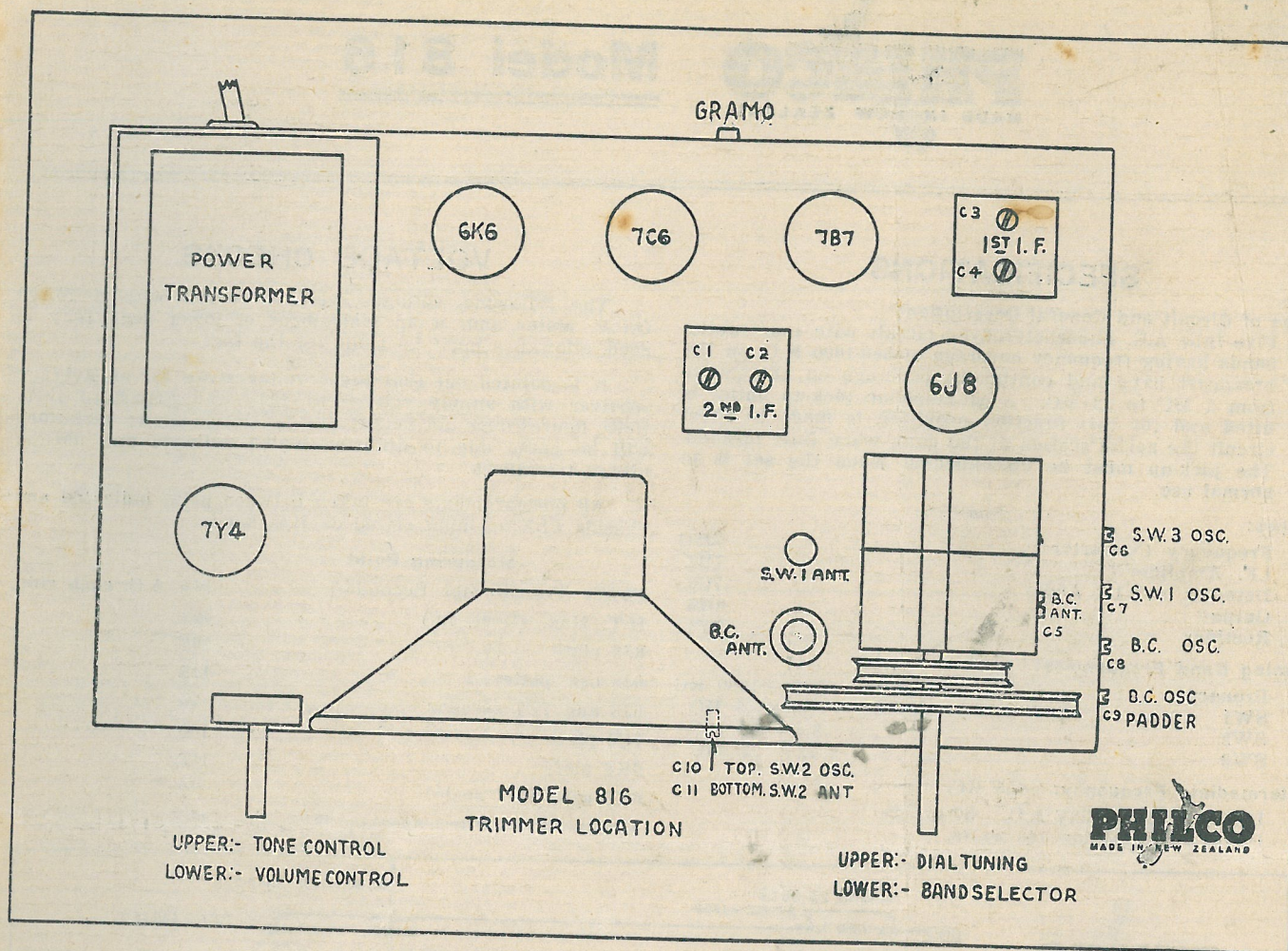
It is pointed out that these voltages are for an average receiver with supply voltage at 230V and departure from these figures does not necessarily indicate a fault; variations will be noted due to differing mains voltages and normal circuit tolerances.

All measurements are taken between point indicated and chassis with no input signal on B.C. band.

Measuring Point

Power Transformer Secondary	140	A.C. each side.
H.T. Max. (Rect. fil.)	200	
6J8 plate	195	
6J8 osc. plate	115	
6J8 and 7B7 screens	70	
7C6 plate	100	
6K6 plate	185	
6K6 grid (50V scale)	10	
Voltage drop across speaker field	135	





ALIGNMENT PROCEDURE

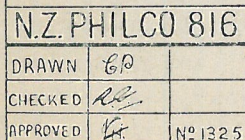
EQUIPMENT REQUIRED:—

All-Wave Signal Generator.

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 coil or trimmer replacement.)

1. Connect output meter across output transformer primary or from plate of output tube to chassis, and signal generator to signal grid of 6J8G through a .1 mfd condenser. Set generator at 455 KC, turn volume control to maximum.
2. With switch in B.C. position and gang fully open, adjust trimmers 1, 2, 3 and 4 in that order for maximum output. 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 alignment of the R.F. section 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 short-wave bands and a 200 mmfd condenser for broadcast frequencies.
4. See that dial pointer is correctly lined up 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 wire of the set through the appropriate termination. (See 3.)
6. Set switch to B.C. and tune generator and receiver to 1200 KC. Adjust C8, set generator and receiver to 600 KC, adjust C9 rocking gang for maximum output—return to 1200 KC and again adjust C8 for frequency and C5 for maximum output.
7. Set switch to SW1 and generator and receiver to 8 MC. Adjust C7 rocking gang for maximum output. (Check that the weaker image signal appears higher on the generator scale, i.e., 8.91 MC.)
8. Set switch to SW3 and generator and receiver to 20 MC—adjust C6 and check for image at 20.91 MC on generator, adjust C12 for resonance. (This trimmer is located across SW3 aerial coil under chassis.)
9. Set switch to SW2 and generator and receiver to 12 MC. adjust C10 and check for image at 12.91 MC on generator, adjust C11 for resonance.



1.F. - 455 KC.
SWITCH IN BC. POSITION
WHITE ROTOR AT FRONT OF WAFER
BLACK ROTOR AT REAR OF WAFER
WAFERS VIEWED FROM REAR OF CHASSIS

PHILCO
MADE IN NEW ZEALAND

DOMINION RADIO & ELECTRICAL CORP LTD AUCKLAND N.Z.

RADIO & ELECTRICAL ENGINEERS & MANUFACTURERS

Broadway, Newmarket,
Auckland, New Zealand

26th March, 1947.

SERVICE BULLETIN TO ALL FRUITCO DEALER SERVICE DEPARTMENTS

SUBJECT : PHILCO Radio Receiver Model 816
Reduction in Hum.

Although the hum level of Model 816 is well within the limits and standards prescribed for receivers of this type, the method of reducing hum level outlined below is recommended in cases where it is necessary or desirable that a reduction in hum should be made.

The modification is quite simple and merely consists of increasing the total value of the 6K6 output tube bias voltage divider network. The 25,000 ohm resistor should be increased to 150,000 ohms, and the 180,000 ohm resistor should be changed to 1 megohm (see illustration below).

This change should not be made until all other possible causes of excessive hum have been carefully checked, i.e. loss of capacity in the electrolytics.

