

'IN A SPHERE OF ITS OWN'

**PACIFIC RADIO**

**DEALERS' SERVICE DATA  
AND INSTRUCTIONS**

No. 7

7 VALVE, BATTERY OPERATED.  
SHORT WAVE AND BROADCAST.  
WITH ECONOMY SWITCH.

7B1

SECOND EDITION, OCTOBER, 1935.  
CIRCUIT D168A.

**PACIFIC RADIO COMPANY LIMITED.**

HUDDART PARKER BUILDINGS, WELLINGTON, N.Z.  
BRITISH CHAMBERS, HIGH ST., AUCKLAND, N.Z.

South Island Distributors:  
L. B. SCOTT LTD.

196 MANCHESTER STREET

CHRISTCHURCH



## BATTERY OPERATED.

"B" Batteries required .....	135 volts 15-25 MA
"A" or filament battery .....	2 volts, drain 780 MA
"C" batteries (mounted on chassis) .....	1 x 4½ volts, tap at 1½ volts
Undistorted output .....	2 watts
Valves used .....	1-1C6, 1-34, 2-32, 2-30, 1-19, 2 p.l. lamps, 2 V. 1A
Intermediate frequency .....	465 K.C.
Broadcast Band frequency .....	550-1500 K.C.
Short Wave Band coverage .....	5.5-15.5 M.C.
Line-up and test frequencies .....	465, 1400, 1000, 600 K.C., 15, 12, 9, 6 M.C.

## GENERAL INSTRUCTIONS FOR LINING UP DUAL WAVE MODELS.

This method of line up presumes the possession of a standard signal generator covering all frequencies.

First, connect output from signal generator to grid of 1C6 mixer, and take care that ½ MF. condenser is between 1C6 grid and signal generator output, as otherwise bias would be short-circuited in this valve.

Set standard signal generator to 465 K.C. and align up I.F. transformers. These are aligned from top of chassis in the cans at back of chassis. Read microvolts absolute input as required to give standard 50 milliwatts output as shown on accompanying chart. Next, to line up the broadcast bands, set must be removed from cabinet. The broadcast and short wave trimmers are mounted underneath chassis both for convenience and efficiency in electrical layout and to avoid customers tampering with adjustments. The short wave trimmers are marked with RED SPOTS, AND SHOULD NOT BE TOUCHED EXCEPT IF ONE HAS STANDARD TEST OSCILLATOR OR CAN LISTEN TO SHORT WAVE STATIONS OF KNOWN FREQUENCY.

TO LINE UP BROADCAST BAND proceed as follows:—

(1) See that pointer is adjusted in a horizontal position when condensers are full in, that is, full capacity.

(2) Tune receiver dial to 1400 K.C. position. Adjust receiver oscillator and R.F. trimmers until 1400 K.C. signal from standard sig. gen. gives maximum output.

(3) Set receiver dial to 600 k.c. position. Adjust broadcast paddler until 600 K.C.

signal from generator gives maximum output. Check sensitivity with chart.

**Important:** Make no further adjustment on oscillator trimmer or paddler condensers.

(4) Re-set receiver dial to 1400 K.C. position. Re-align R.F. trimmers only for maximum output of 1400 K.C. signal, and check sensitivity with chart. No further adjustment should be necessary for the broadcast band.

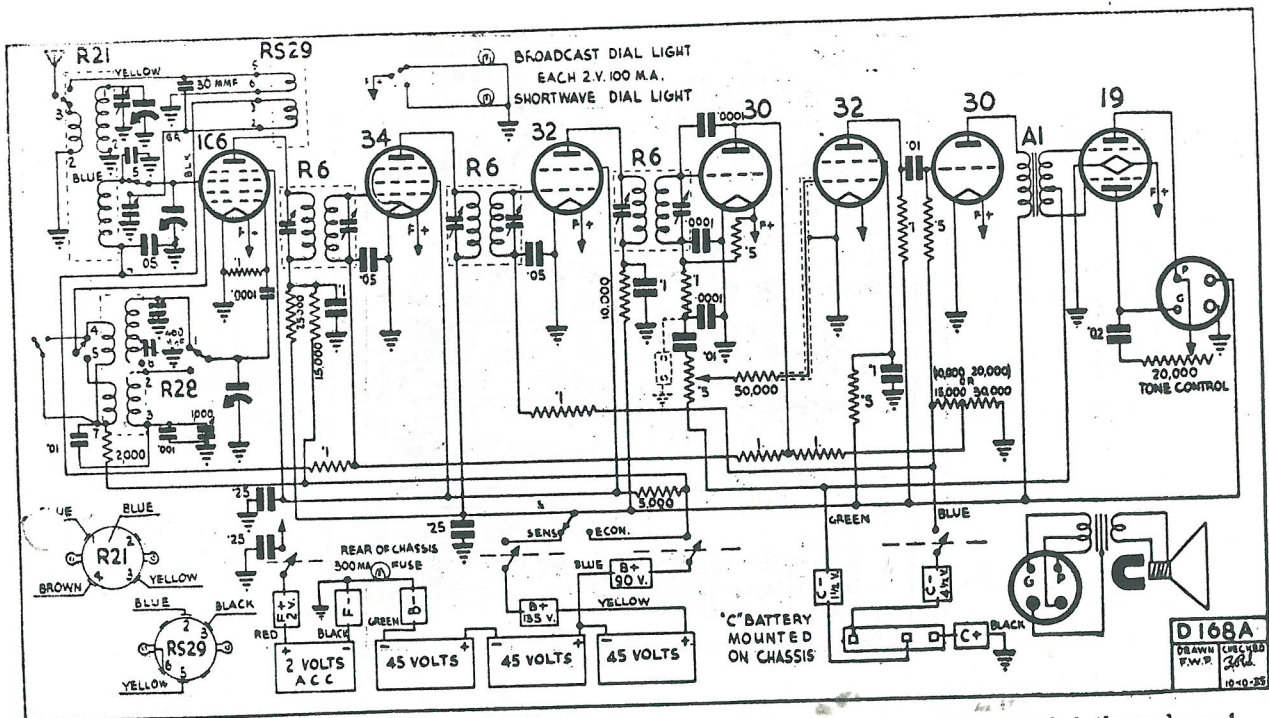
### TO LINE UP SHORT WAVE BAND:

Switch to short wave band as shown by indicator on dial, but do not adjust pointer, as this would upset broadcast dial readings. Short wave trimmers are marked with red spots. Set dial pointer to bring in 12 M.C. signal. The oscillator must be set at a higher frequency than the R.F. circuits. To check this, tune to 11 070 M.C. and the weak image-repeat point should be heard. Note the condition that when the oscillator is set correctly at 465 K.C. (the I.F. frequency) higher than the R.F. signal received the image repeat will be 930 K.C. (i.e. 2 x I.F. frequency) lower than the received signal.

### TO LINE UP SET WITHOUT STANDARD SIGNAL GENERATOR:

Line up of short wave band requires very delicate adjustment and had best be attempted only when calibrated oscillator is available. However, a clever serviceman can make a fairly acceptable line-up by using as a signal source stations whose frequencies are as near as possible to the suggested line-up frequencies mentioned above, and following the same procedure.





**WARNING:** When applying signal to grids of I.F. or mixer valves signal must be coupled through a .1 MF Cond. to avoid shorting Bias.

### AVERAGE SENSITIVITY.

465 K.C.	20,000	Micro-volts absolute to grid of 32 I.F. Amp.
465 K.C.	450	" " " " " 34 " "
465 K.C.	15	" " " " " 1C6 Mixer.
1400 K.C.	2.6	Micro-volts absolute to sets Ant. (through Dummy).
1000 K.C.	4.	" " " " " " "
600 K.C.	8.	" " " " " " "
12 M.C.	10.	" " " " " " "

### SPECIAL WARNING FOR SERVICE OF BATTERY SETS.

Care must be exercised in the service, adjustment and transport of this model battery set, as the valves are designed for the greatest economy in filament battery consumption, and are necessarily delicate and sensitive to excessive voltage. Filament supply may be obtained from any of three main sources:—

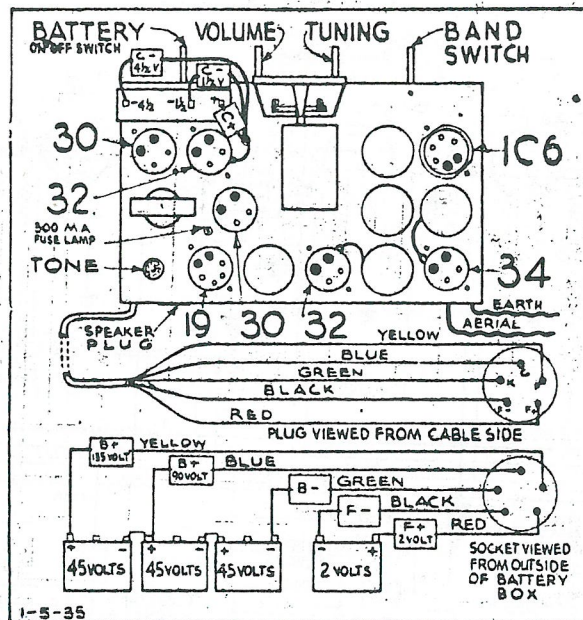
- (1) The most desirable and economical source is a 2 volt accumulator which can be re-charged. In which case, no external series filament resistor need be incorporated. The rating of the 2 volt accumulator should be 90 ampere-hour or higher to ensure a few weeks' use without too frequent charging.

- (2) Two, four, or any number of 1.5 volt

dry cells may be connected in series parallel arrangement to give at battery terminals 3 volts. IT IS NECESSARY TO HAVE A VOLTMETER TO READ 2 VOLTS ACROSS FILAMENT LEADS TO SET AND A SERIES FILAMENT RHEOSTAT BETWEEN ONE SIDE OF BATTERIES AND FILAMENT. NOT MORE THAN 2 VOLTS SHOULD BE APPLIED TO FILAMENTS, or their life will be shortened or even burnt out.

- (3) Certain types of 2 volt dry "air cells" are available, but their initial voltage when new is slightly above 2 volts, and a special resistor should be added to prevent damage to valves.





The safest and most economical filament supply is 2 volt accumulator as in paragraph 1.

Care must be exercised that neither of the filament wires come in contact with any part of the "B" supply.

The 300 mil. fuse lamp mounted at rear of chassis will protect the valve filaments from at least half of the possible wrong or accidental cable connections as it will allow only the "B" current (15-25 mils.) to flow in normal connection, and blows out instantly if one of the wires to the filaments is accidentally connected to any part of "B." HOWEVER, IF BOTH FILAMENT WIRES BECOME ACCIDENTALLY CONNECTED TO ANY PART OF "B" OR "C" BATTERY, INSTANT BURNOUT OF FILAMENTS WILL RESULT.

The On-Off battery switch disconnects both high tension positive and filament positive, so that it is comparatively safe to repair a set if one is certain BATTERY SWITCH IS OFF, but a safer plan is to remove battery cable plug from battery box before touching any internal connections.

Gramophone connection can be made as indicated in circuit diagram. An external switch should be provided for disconnecting gramophone when radio is required.

"B" batteries must not become wet inside of metal battery box or they will short circuit through same and shorten their life. Water and acid should not be allowed to run out of "A" battery and come in contact with "B's".

#### SPECIAL FEATURES OF THIS SET.

A unique scheme is incorporated whereby the switch mounted at the rear of chassis, and appropriately marked "Economy" and "Sensitivity," gives a ready change from full sensitivity for listening to distant stations to a local set giving adequate output and saving about 50% of the "B" drain.

The accompanying chart illustrates the average conditions of "B" drain sensitivity and power output.

Economy Switch Position.	"Economy"	"Sensitivity"
"R" Voltage:	90 volts.	135 volts
"B" Drain:		
Not tuned to station*	13 M.A.	22 M.A.
Tuned to station*..	11 M.A.	20 M.A.
Sensitivity:		
1400 k.c. ....	.3†	.25†
1000 k.c. ....	6.5†	.5†
600 k.c. ....	25.†	1.8†
Power Output:		
Undistorted .....	250 milliwatts	1.5 watts
Maximum .....	600 milliwatts	2. watts
*Volume off.		†Microvolts per meter.



Model 7B1

