

S.B. *5

Model
8

^{N.Z.} Courtenay

DEALERS' SERVICE DATA

No. 5

MODEL 8
DUAL WAVE

D195

WITH IMPROVED VOLUME CONTROL CIRCUIT
AND INTER-STATION NOISE SUPPRESSION.

(ganged RF, IF
& audio)

FIRST EDITION, OCTOBER, 1935.
CIRCUIT D195.

TURNBULL & JONES LTD.

Head Office : Wellington.

AUCKLAND, HAMILTON, PALMERSTON NORTH, CHRISTCHURCH, DUNEDIN.

Model 8
11

ELECTRICAL SPECIFICATIONS.

Mains operated for	200-250 volts A.C. 50 cycles
Power consumption	65 watts
Undistorted output	3 watts
Valves used	1-80, 1-42, 1-6B7, 1-6A7, 2-6D6
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, 1490, 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 6A7 mixer, and take care that $\frac{1}{2}$ M.F. condenser is between 6A7 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 procedure 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 padder until 600 K.C.

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

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

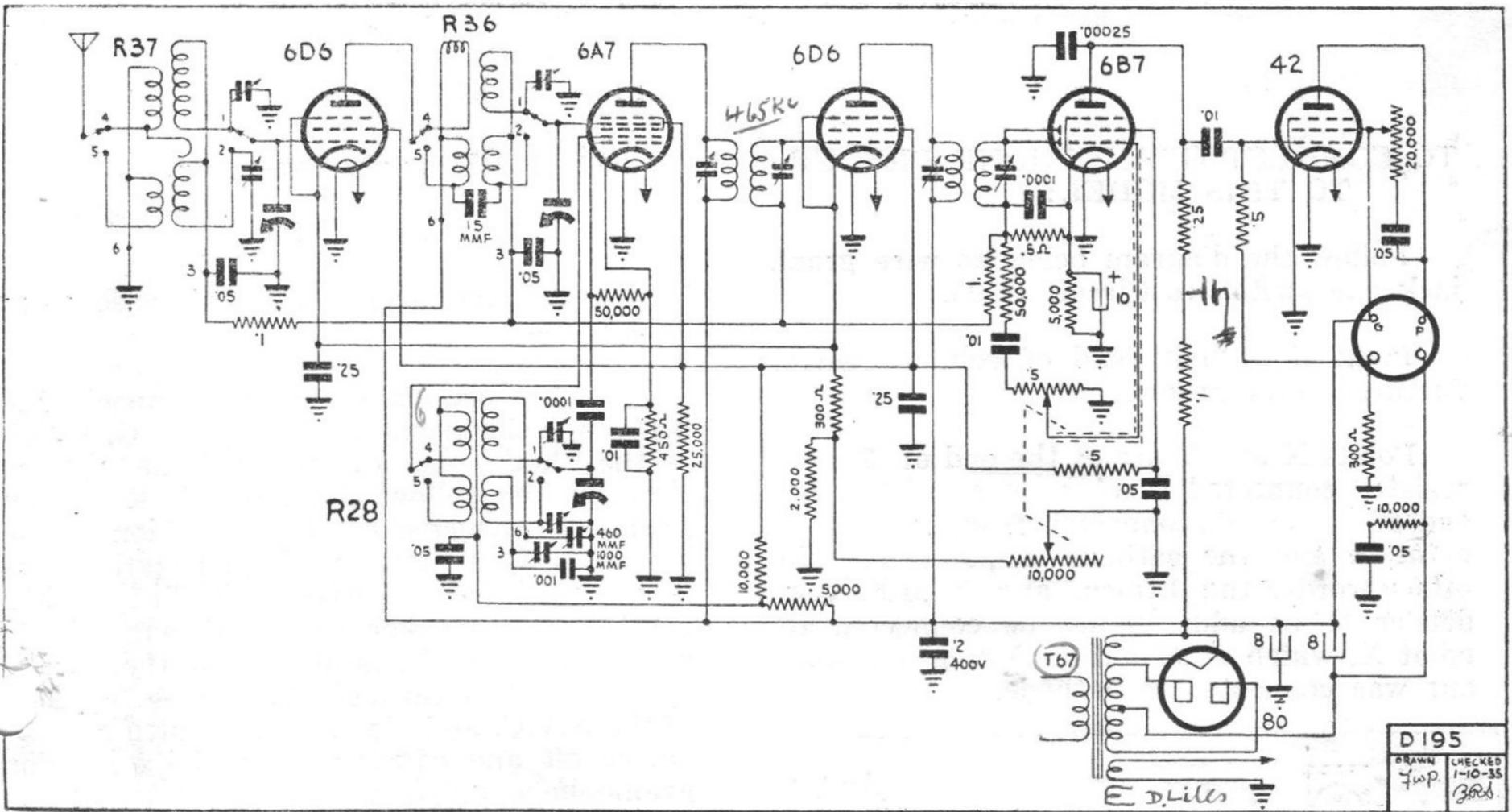
(4) Re-set receiver dial to 1400 K.C. position. Re-align R.F. trimmers only for maximum output of 1400 K.C. signal, and check sensitivity with chart. No further adjustment should be necessary for the broadcast band.

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.



VALVE VOLTAGES.

Valve.	Function.	Heater.	Plate.	Screen.	Grid.	Cathode.	Plate MA
80	Rectifier	5.2	(See note ‡)				
42	Output	6.3	205	225	-18	0	26 MA
6B7	Det. & Aud.	6.3	80†	40†		2.	
6D6	I.F. Amp.	6.3	225	80	A.V.C.	4.	
6A7	Mixer-Osc.	6.3	225	80	A.V.C.	4.	
6D6	R.F. Amp.	6.3	225	80	A.V.C.	4.	

* Read on 100 volt scale, 1000 ohm/volt voltmeter.
 † Read on 500 volt scale, 1000 ohm/volt voltmeter.
 ‡ High tension secondary measured from each 80 plate to can of insulated Elec. Con., 80 removed: 375 A.C.
 Total D.C. measured from 80 fil. to can of insulated Elec. Cond.: 350 V.D.C.
 Filtered D.C. 80 fil. to earth 225 Volts D.C.

COIL RESISTANCES.

Coil:	Measured at:	Ohms.
Primary Power Trans.	Across power cord.	50
High Tension Secondary.	Each 80 plate to Center tap.	400-450
Speaker Field.	"Fil." Speaker socket.	1500
Speaker Input Trans.	"Grid to Plate" Speaker socket.	600
All I.F. Transformers.	(See circuit).	12
R.F. Coil Sec.	Nos. 1 to 3 of R36.	7
R.F. Coil Pri.	Nos. 4 to 6 of R36.	45
Ant. Coil Sec.	Nos. 1 to 3 of R37.	7
Ant. Coil Pri.	Nos. 4 to 6 of R37.	30
Oscillator Coil.	Nos. 1 to 6 of R28.	4
Oscillator Coil.	Nos. 4 to 7 of R28.	3

STAGE TO STAGE SENSITIVITY TO GIVE 18.7 VOLT OUTPUT.

465 K.C.	20,000	Micro-volts to grid of I.F. amplifier.
465 K.C.	30	Micro-volts to grid of Converter.
1400 K.C.	1.	Micro-volts to set's antenna (through dummy antenna).
1000 K.C.	1.5	Micro-volts to set's antenna (through dummy antenna).
600 K.C.	1	Micro-volts to set's antenna (through dummy antenna).

Note: lack of min loop on R.F. I.F. self-brasses

*Remove in dummy tank
Missing decoupling cap 6B7 plate*

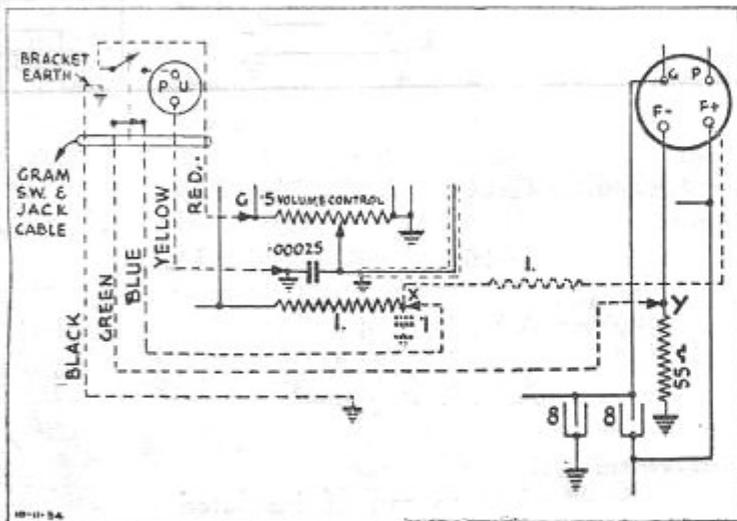
*8-56293
white paper stickers
52304
Does not have dual volume control*

TO CONNECT GRAMOPHONE PICK-UP TO THIS MODEL:

Follow the diagram below to wire gram. jack and switch to Circuit D195.

Point G is "hot" 'end of volume control furthest from ground.

Points X and Y are at the end of .5 meg. resistor connected to cathode of 6B7. The end of $\frac{1}{2}$ meg. disconnected from cathode is point X and the cathode is point Y. In other words, the 1 meg. and .1 M.F. condenser to be added must be connected to point X, which is at end of .5 meg. resistor, but was connected to cathode.



The above circuit illustrates method of connecting gramophone pick-up jacks and radio-gramophone switch to this Model. We find so few customers really desirous of gramophone connection that we prefer not to burden all sets with same, but to supply, at a nominal charge upon special request the additional feature of switching from radio to gramophone, and completely "killing" radio reception when switched to gramophone.

Parts required for connecting gram. are:—

- (1) Standard switch and pick-up jacks, with 5 wire cord attached.

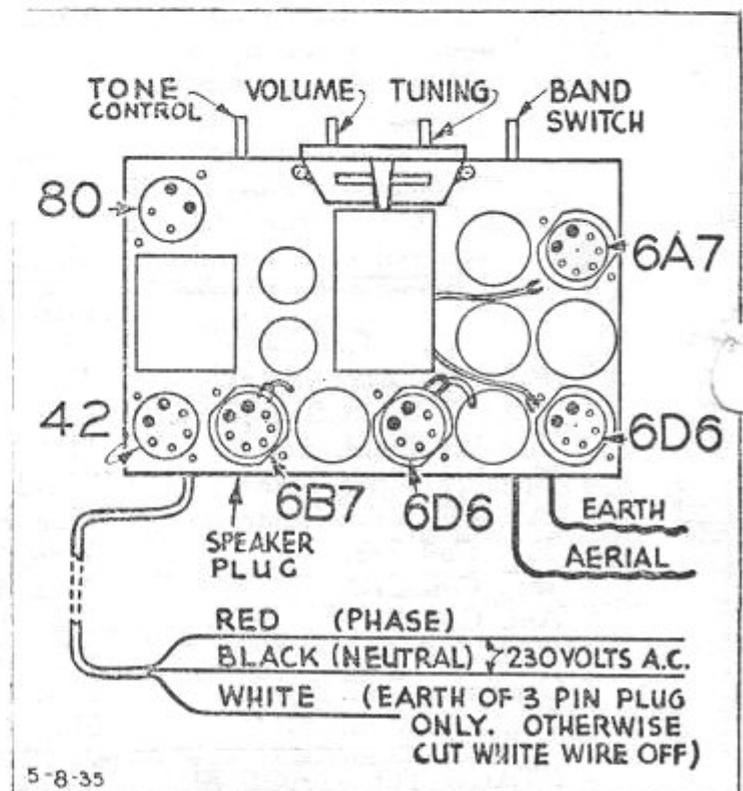
- (2) .1 MF. paper condenser.

- (3) 1. Megohm resistor.

The change-over switch functions as follows:—

The top section of switch connects the pick-up jacks from earth to point G, which is the "hot" end of the volume control through the yellow and red wires. When gram. is connected the lower section of the switch is open and very high negative bias flows from the negative side of speaker field (F + of speaker socket) through the 1 meg. resistor to X, is filtered by the .1 M.F. condenser, and through the 1 meg. resistor to the A.V.C. and bias circuits, cutting these valves off and causing set to be quiet for gramophone playing.

The only mechanical work required to mount this gram. connection is to drill a $\frac{8}{32}$ inch hole beneath warning plate at rear of chassis and $15/32$ inch hole in side of cabinet for mounting switch.



5-8-35