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HIS MASTER'S VOICE

MODEL 467D

did it have a model name?

•

Seven-Valve, Dual-Wave
Superheterodyne Receiver

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Technical Information and Service Data

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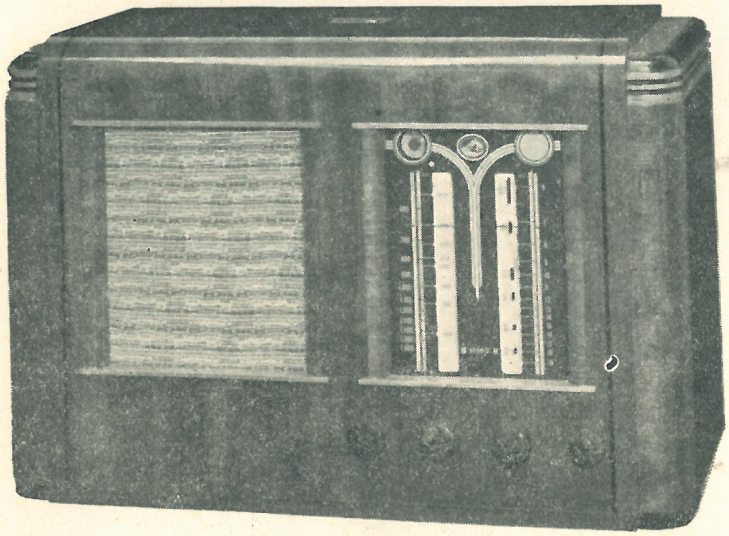
H-M-V

SERVICE DIVISION

HIS MASTER'S VOICE (New Zealand) LTD.
118-120 WAKEFIELD ST., WELLINGTON



Model 467D

HIS MASTER'S VOICE

MODEL 467D

Seven-Valve, Dual Wave
Superheterodyne Receiver (1946)

TECHNICAL INFORMATION

Electrical Specifications

FREQUENCY RANGES	
"Standard broadcast" (A)	540-1,750 K/cs.
"Short wave" (B)	5.5-19 M/cs.
ALIGNMENT FREQUENCIES	
"Standard broadcast" (A)	~~600 K/cs.~~ 1,400 K/cs.
"Short wave" (B)	~~6 M/cs.~~, ~~18~~ M/cs.
Intermediate Frequency	455 K/cs.
VALVE COMPLEMENT	
(1) 6K7-GT	R.F. Amplifier.
(2) 6K8-GT	First Det.-Oscillator
(3) 6K7-GT	Intermediate Amp.
(4) 6Q7-GT	Second Det., A.F. Amp. and A.V.C.
(5) 6V6-GT	Audio Power Amp.
(6) 6X5-GT	Full-wave Rectifier
(7) 6U5/6G5	Tuning Indicator
POWER SUPPLY RATING	230 V., 50 Cycles

Mechanical Specifications

Height	14¼ inches
Width	11 inches
Length	22 inches
Weight (net)	32 pounds
Operating Controls	(1) Tone-power Switch, (2) Volume, (3) Tuning, (4) Wave-change Switch
Tuning Drive Ratio	15 to 1

General Features

The 467D. Receiver is of the Superheterodyne type and has many distinctive features. The design includes iron cored I.F. transformers, resistance coupled audio system, 8-inch, dust-proof, electrodynamic loudspeaker, flood lit dial and visual tuning indicator. A balanced fly-wheel provides "Spin Tuning" while the pulley system is designed to enable the use of a double bearing pointer for accurate tuning. The variable tuning condenser is supported by a shock-proof mount which prevents chassis vibration from producing audio frequency "howl." A readily detachable plug type connector is used in the chassis to loudspeaker cable. ~~This~~ which permits ready removal for service. The handsome cabinet design is enhanced by its choice walnut veneer contours, and ~~suggests~~ has a distinctive air, characteristic of His Master's Voice Radios.

model 467D

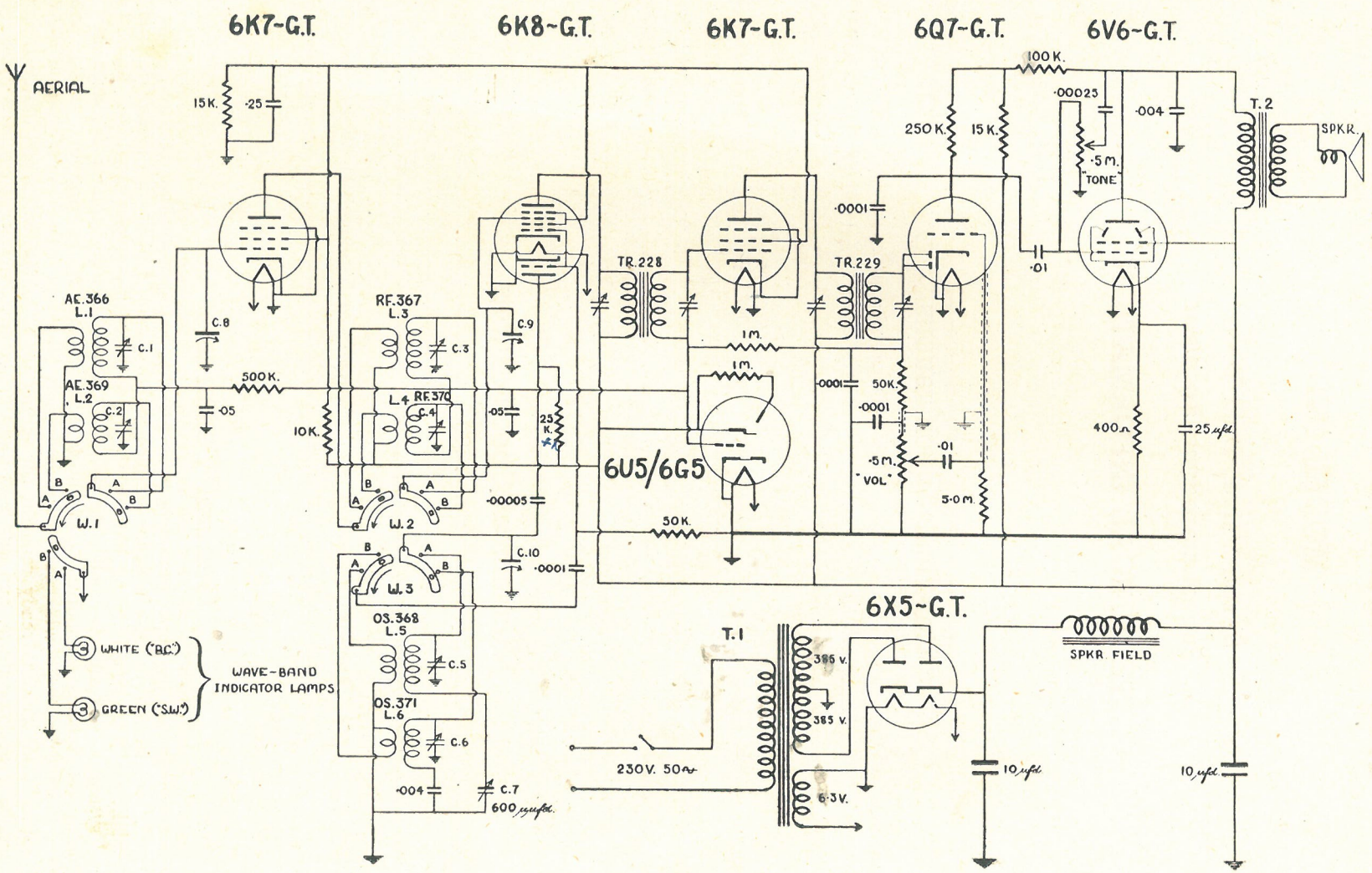


Figure 1 – Circuit Diagram

chassis finished in brown crinkle enamel no nameplate or model number on case.

Replace R18 on all IRC sets.

Circuit Arrangement

R.F. Amplification is accomplished by a triple-grid super-control amplifier, a 6K7-GT. The input of this valve is coupled to the aerial through a tuned R.F. transformer, while its output is coupled to the next stage through a further tuned R.F. transformer.

The first detector and oscillator functions are accomplished in a single tube, a 6K8-GT. The three section gang condenser C.8, 9 and 10 tunes the aerial transformer secondary, the coupling ("R.F.") transformer secondary and the heterodyne oscillator coil. The padding condenser C.7 in series with the "Broadcast" oscillator coil, and the trimmers C.1, 3 and 5 (in parallel with the gang) are for obtaining exact alignment on the "Broadcast" band, while trimmers C.2, 4 and 6 serve the same purpose on the "Short Wave" band.

The intermediate frequency stage also incorporates a 6K7-GT and is coupled to the 6K8-GT and to the 6Q7-GT by means of iron cored transformers which resonate with variable condensers. These transformers are adjusted to tune at 455 K/cs.

The modulated signal as obtained from the output of the I.F. system is detected by the diodes of the 6Q7-GT. Audio frequency secured by this process is passed on to the control grid of the same valve for amplification before final reproduction. The D.C. voltage, which results from the detection of the signal, is also used for Automatic Volume Control and is applied as grid bias to the R.F. Amp., 1st Det. and I.F. Amp. valves.

Manual volume control is effected by means of a potentiometer connected as a variable coupling element between the output of the 2nd Det. and the first audio control grid. After amplification by the 6Q7-GT, the audio signal is transmitted by resistance-capacitance coupling to the input of the 6V6-GT power output stage, which, in turn is transformer-coupled to the electrodynamic speaker. High frequency tone control is provided by means of a resistor and condenser combination from plate to control grid of the 6V6-GT, the resistor being the variable element.

The power supply system consists of a 6X5-GT rectifier valve which is supplied from an efficiently designed power transformer and which works into a suitable filter. The various potentials required for the plate, screen and cathode circuits are obtained from the output of the filter. The electrodynamic speaker field coil is used as a filter reactor.

SERVICE DATA

Alignment Procedure

There are six alignment trimmers and one padder provided in the aerial, R.F. and oscillator tuned circuits which cover the alignment of both bands ("A" Broadcast, "B" Short Wave). The I.F. transformer adjustments are made by means of screws attached to variable condensers. All of these circuits have been accurately adjusted during manufacture and should remain properly aligned unless affected by abnormal conditions or altered during servicing. Loss of sensitivity, improper tone quality and poor selectivity are the usual indications of improper alignment.

The correct performance of this receiver can only be obtained when the aligning has been done with adequate and reliable apparatus.

A test oscillator is required as a source of the specified alignment frequencies. Visual indication of receiver output during the adjustment is necessary and should be accomplished by the use of a good type of output indicator.

The procedure outlined below should be carefully followed in adjusting the various trimmer condensers. (Locations found on Figs. 2 and 3.)

I.F. Transformer Adjustments

The four adjustment screws of the two I.F. transformers (on top of cans) are located as shown by Fig. 2. Each circuit must be aligned to a basic frequency of 455 K/cs. To do this attach the output indicator across the loudspeaker voice coil or across the output transformer (T.2) primary. Connect the output of the test oscillator to the control grid of the 6K8-GT through a .05 mfd. condenser. Connect the test oscillator ground terminal to the ground terminal of the receiver chassis. The wave-change switch should be in Band "A" position. Tune the test oscillator to 455 K/cs. Advance the receiver Volume Control to its full-on position and adjust the receiver tuning control to a point on the low frequency end of the dial where no interference is encountered, either from local broadcast stations, or from the heterodyne oscillator, shorting the aerial and ground terminals if necessary. Increase the output of the test oscillator until a slight indication is present on the output indicator. Adjust the two condensers, located on the 2nd I.F. transformer, to produce maximum indicated receiver output. Then adjust the two condensers, located on the 1st I.F. transformer, in the same manner. During these adjustments regulate the test oscillator output so that the indication is always as low as possible. By doing so, broadness of tuning due to A.V.C. action will be avoided. It is advisable to repeat the adjustment of all I.F. variable condensers to ensure that the interaction between them has not disturbed the original adjustment.

R.F. Trimmer Adjustments

"Broadcast"

(*a*) Attach the output of the test oscillator to the receiver aerial through a 200 mmfd. condenser. The ground terminals remain connected together. Check the pointer adjustment by setting it to the arrow at the low frequency end of the dial (three gang condenser in full mesh). The output indicator should be left connected to the system. Adjust both the test oscillator and the dial pointer to 1,400 K/cs. Leave the volume control of the receiver at its maximum position. Make sure that the wave-change switch is in the Band "A" position. Carefully align the oscillator, R.F. and aerial trimmers C.5, 3 and 1 respectively, so that each brings about maximum indicated receiver output. During all adjustments, care should be taken that the test oscillator output is kept as low as is practicable. (*b*) Shift the test oscillator to 600 K/cs. and tune the receiver to pick up this signal, then, disregarding the dial reading at which it is best received, rock the tuning control backward and forward through the signal, simultaneously adjusting the oscillator padder C.7, for maximum receiver output. After completing this adjustment the trimmers C.5, 3 and 1 should be aligned as in (*a*) to correct any change brought about by the adjustment of C.7.

"SHORT WAVE"

Adjust the test oscillator to 18 M/cs. and set the receiver tuning control to a dial reading of 18 M/cs. Make sure that the wave-change switch is in the Band "B" position. Adjust the trimmers C.6, 4 and 2 of the oscillator, R.F. and aerial coils, so that each produces maximum receiver output. Two positions of maximum will be found with the trimmer C.6. The one of minimum capacitance is correct and should be used. This can be checked by tuning the "image" signal, which will be received twice the I.F. frequency (910 K/cs.) away (i.e. at 17.09 M/cs. on dial). Now adjust the test oscillator to 6 M/cs. and tune the receiver. With no further alignment the dial reading should correspond.

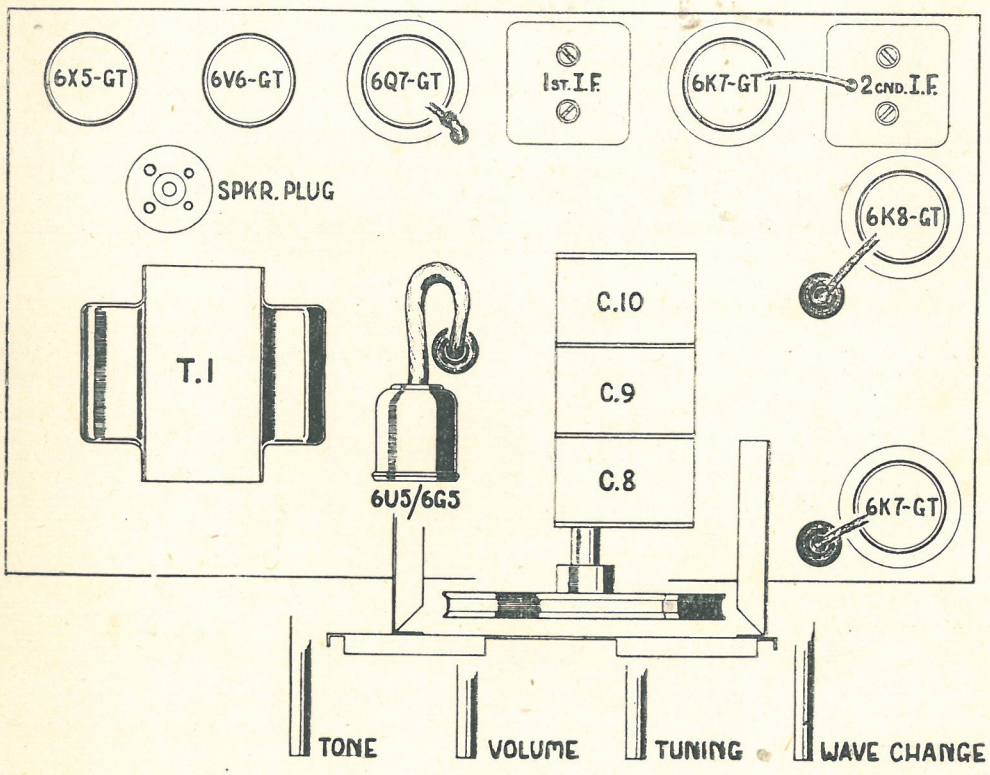


Figure 2

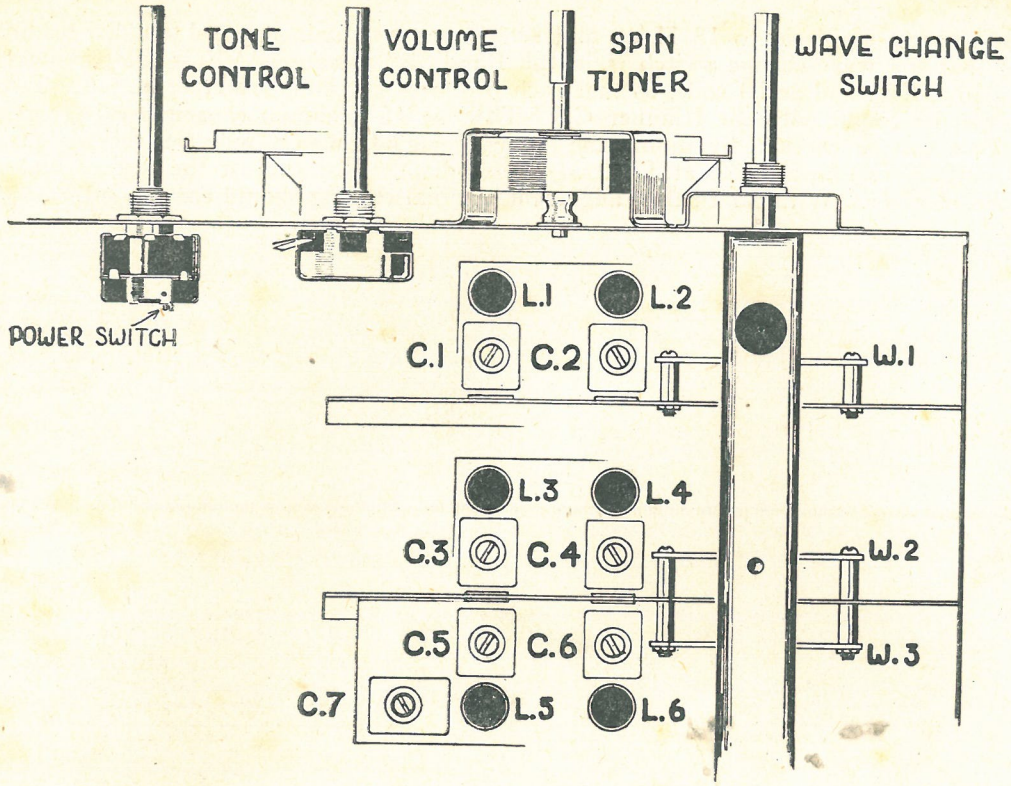


Figure 3

Modifications and Service Notes