MANUFACTURERS AWA SUPERVISED SERVICE

AWA TRANSISTOR CAR RADIOS

MODELS

942-A **943-A** **979-A**

942-AZ **978-A** **979-AZ**

ISSUED BY AMALGAMATED WIRELESS (AUSTRALASIA) LTD.

GENERAL DESCRIPTION

Each of these models is a six valve and one transistor permeability tuned superheterodyne car radio designed for the reception of the Medium Wave Band. These receivers operate directly from a six-volt negative earthed battery without a vibrator high voltage supply.

The model 942-A is a manually tuned car radio designed for use in the 1958-1962 Volkswagen Sedans.

The model 942-AZ is similar to the 942-A, but uses a different tuning coil assembly with associated circuit changes.

The model 943-A is a push-button car radio, designed for use in 1958-1962 Volkswagen Sedans.

The model 979-A (Volkswagen model VA137) is a manually tuned car radio designed especially for Volkswagen (Australia) Pty. Ltd.

The model 979-AZ (Volkswagen model VA137) is similar to the 979-A, but uses a different tuning coil assembly with associated circuit changes.

The model 978-A (Volkswagen model VA136) is a push-button car radio, designed especially for Volkswagen (Australia) Pty. Ltd.

ELECTRICAL AND MECHANICAL SPECIFICATIONS

Frequency Range .. 525-1650 Kc/s (567-182 metres)
Intermediate Frequency ..... 455 Kc/s
Battery Voltage ..... 6 volts, negative earth
Battery Consumption ..... 5 amps.
V.C. Impedance ..... 15 ohms at 400 C.P.S.
Loudspeaker 39931
Audio Transformer 21455A

Controls:

942 and 979 Series: Manual Tuning, Volume, Tone, Power.

943 and 978 Series: Manual Tuning, Volume, Tone, Power and set of 5 Press-Buttons Tuning.

Valve and Transistor Complement:

R.F. Amplifier ..... Radiotron 6BA6
Converter ..... Radiotron 6BE6
I.F. Amplifier ..... Radiotron 6BA6
Detector, A.G.C., A.F. Amplifier .. Radiotron 6AV6
Output ..... Radiotron 6AQ5
Rectifier ..... Radiotron 6X4
Inverter—Transistor ..... A.W.V. 2N301

ALIGNMENT PROCEDURE

Manufacturer's Setting of Adjustments:

The receiver is tested by the manufacturer with precision instruments and all adjusting screws, except the aerial trimmer, are sealed. Re-alignment should be necessary only when components in tuned circuits are repaired or replaced, or when it is found that the seals over the adjusting screws have been broken.

It is especially important that the adjustments should not be altered unless in association with the correct testing instruments listed below.

For all alignment operations connect the "low" side of the signal generator to the receiver chassis, and keep the generator output as low as possible to avoid a.g.c. action.

When the generator is connected to the aerial terminal, use the dummy aerial as shown in the diagram.

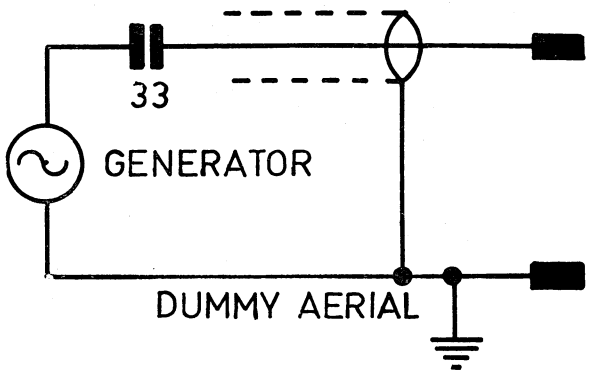
Testing Equipment:

Signal Generator—modulated 400 c.p s. or Modulated Oscillator.

Dummy Aerial—see diagram.

Output Meter—15 ohms impedance.

Aerial Cable No. 28213



ALIGNMENT TABLE

NOTE: The replacement of any valve in the receiver will not affect the alignment of the tuned circuits in any way providing the recommended Radiotron type is used.

A. General

ORDER	CONNECT HIGH SIDE OF GENERATOR TO:	TUNE GENERATOR TO:	TUNE RECEIVER TO:	ADJUST FOR PEAK OUTPUT:
1	6BE6 Pin 7*	455 Kc/s	L.F. Limit (525 Kc/s)	TR2 Sec. Core (Top)
2	6BE6 Pin 7*	455 Kc/s	L.F. Limit	TR2 Prim. Core (Bottom)
3	6BE6 Pin 7*	455 Kc/s	L.F. Limit	TR1 Sec. Core (Top)
4	6BE6 Pin 7*	455 Kc/s	L.F. Limit	TR1 Prim. Core (Bottom)
Repeat above adjustments until maximum output is obtained.				
5	Aerial terminal via Dummy Aerial	1650 Kc/s (accurate)	H.F. Limit	H.F. Osc. Adj. (C13)
6	Aerial terminal via Dummy Aerial	1500 Kc/s	1500 Kc/s	H.F. R.F. Adj. (C8)
7	Aerial terminal via Dummy Aerial	1500 Kc/s	1500 Kc/s	H.F. Aerial Adj. (C1)
8	Aerial terminal via Dummy Aerial	600 Kc/s	600 Kc/s	L. F. Osc. Padder Adj. (L5)† (on 942AZ, TR5)
Repeat steps 5, 6, 7 and 8 until no further adjustment is possible.				

9. Calibration Alignment:

With the receiver connected to an aerial, the dial scale calibration should now be checked and corrected if necessary. The pointer can be moved relative to the dial scale by turning the eccentric stud, located underneath the rear end of the pointer arm.

On the 942-AZ, 979-AZ models, the pointer is moved by sliding it along the drive cord.

*A 0.01μf capacitor should be connected in series with the high side of the test instrument.

†Rock the tuning control back and forth through the signal.

Tuner Alignment:

The adjustment of the three tuning cores will be necessary only if a tuning core or coil has been replaced. To make this adjustment proceed as follows:—

(1) On the 942-A, 943-A, 978-A and 979-A models, adjust the manual drive control until a 0.560" gauge can be slipped into the left rear slot in front of the carriage lug. On the 942-AZ and 979-AZ models, adjust the manual drive control until a 0.560" gauge can be slipped between the core carriage and the front end of the slot in the tuner frame. Use the 0.560" gauge in the manner of a feeler gauge.

(2) Tune the signal generator accurately to 1000 Kc/s and connect it to the aerial terminal via the dummy aerial.

(3) Adjust the oscillator core, then the aerial and R.F. cores until the maximum output is obtained.

(4) Proceed with adjustments 5, 6, 7 and 8 in Table "A" and then repeat adjustment 3, above, if necessary.

(5) Seal the tuning core studs.

MECHANICAL REPLACEMENTS

Item	Part No.
Tuning Unit. Models 942, 979:	
Bush Ass'y, Crown Gear	35979
"C" Clip, Pointer Retaining	4885
Core, Tuning	35102
Pointer Assembly	35969
Spindle Ass'y, Tuning	39983
Spring, Pointer Tensioner	797739
Tuning Unit Ass'y	39982
Tuning Unit. Models 942-AZ, 979-AZ:	
Cord, Dial	250007
Core Tuning, Aerial	64060
Core Tuning, R.F. and Osc.	39962
Grommet, Core Mounting	389261
Plate, Tension, Tuning Spindle	39966
Pointer	61346
Spindle Tuning	61837
Spring, Dial Cord	60717
Tuning Unit Ass'y	63271
Tuning Unit. Models 943-A, 978-A:	
Buffer, Rubber	36380
Bush Ass'y, Gear and Clutch	34688
"C" Clip, Pointer Retaining	4885
Core, Tuning	35102
Pointer Ass'y	36537
Press-Button	36595
Spindle Ass'y, Tuning	39928
Spring, Pointer Tensioner	797739

Item	Part No.
Miscellaneous:	
Cable Assembly, Aerial	38213
Dial Scales:	
942-A (N.S.W., Q'ld., Vic. & Tas.)	32296
942-A (Vic., Tas., S.A. & W.A.)	32297
942-AZ	37968
943-A, 978-A.	
N.S.W.	32246D
Vic., Q'ld., S.A., W.A. & Tas.	32246E
979-A (N.S.W., Q'ld., Vic. & Tas.)	37941
979-A (Vic., Tas., S.A. & W.A.)	37941A
979-AZ (N.S.W., Q'ld., Vic. & Tas.)	37971
979-AZ (Vic., Tas., S.A. & W.A.)	37971A
Escutcheon Assemblies:	
942-A (Eastern States)	63050A
(Southern States)	63050B
942-AZ	63275
943-A	39016
978-A	63029
979-A, 979-AZ	39990
Knob Assembly, Tone—AWA Models	39085
VW Models	39920
Knob Assembly, Tuning—AWA Models	39087
VW Models	39921
Knob Assembly, Volume—AWA Models	39083
VW Models	39923
Socket, Pilot Lamp	4194
Socket, Power Transistor	793276
Plate, Dial Scale Backing, 942-A, 979-A	39993
942-AZ, 979-AZ	60708A
Plate, Light Diffusion, 943-A, 978-A	35188A

NOTE: When ordering spares, always quote the above Part Numbers, and in the case of coloured parts, such as knobs, etc., also quote the colour.

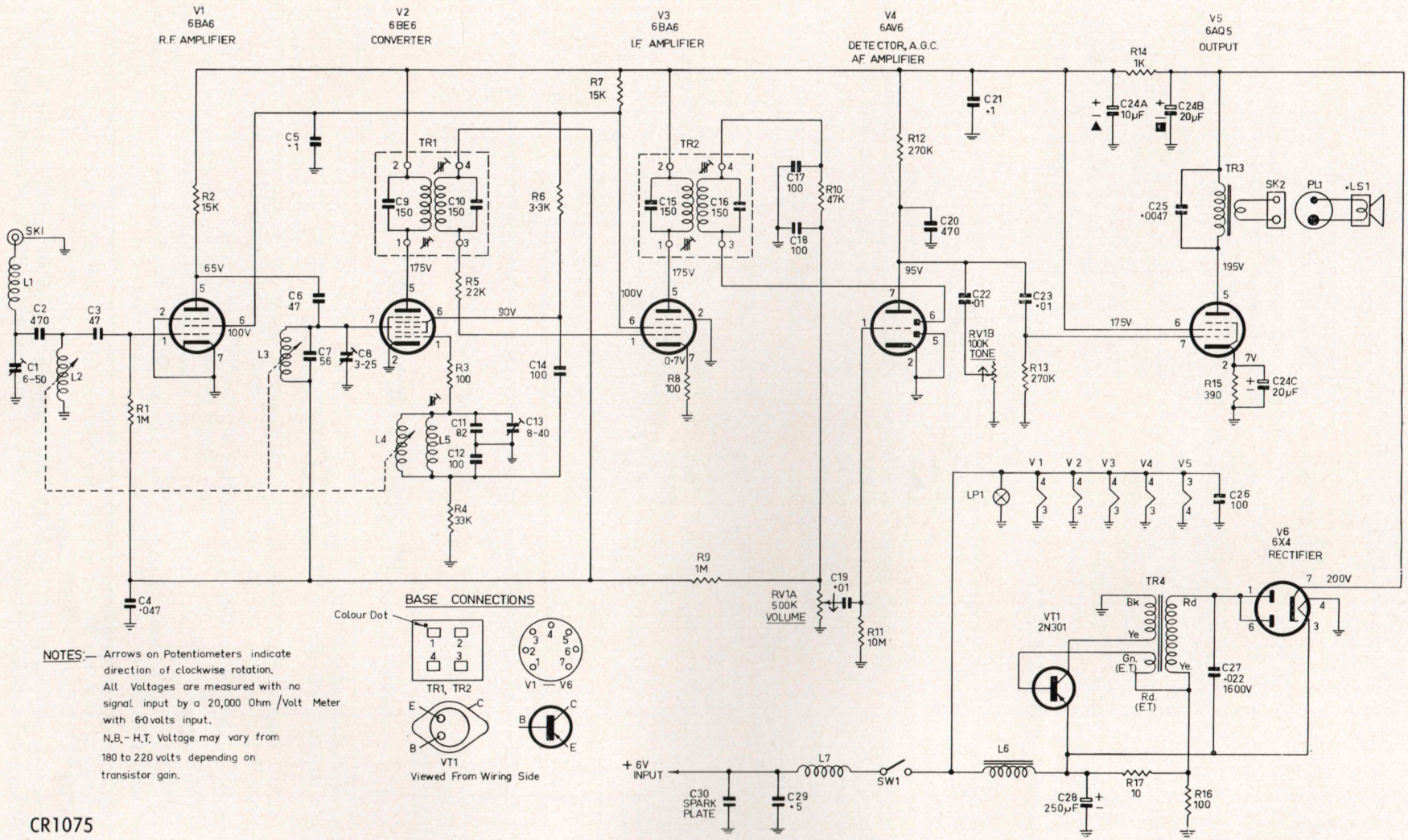
DC RESISTANCE OF WINDINGS

WINDING	RESISTANCE IN OHMS
Aerial Choke (L1)	1.2
Tuning Coils (L2, L3, L4)	9
Oscillator Padder Coil	19
L.T. Choke (L6, L7)	*
I.F. Transformers (TR1, TR2)	16
Audio Transformer (TR3)	
Primary	400
Secondary	1.3
Power Transformer (TR4)	
Primary, Tertiary	*
Secondary	58

*Less than one ohm.

The above readings were taken on a standard chassis but substitution of materials during manufacture may cause variations and it should not be assumed that a component is faulty if a slightly different reading is obtained.

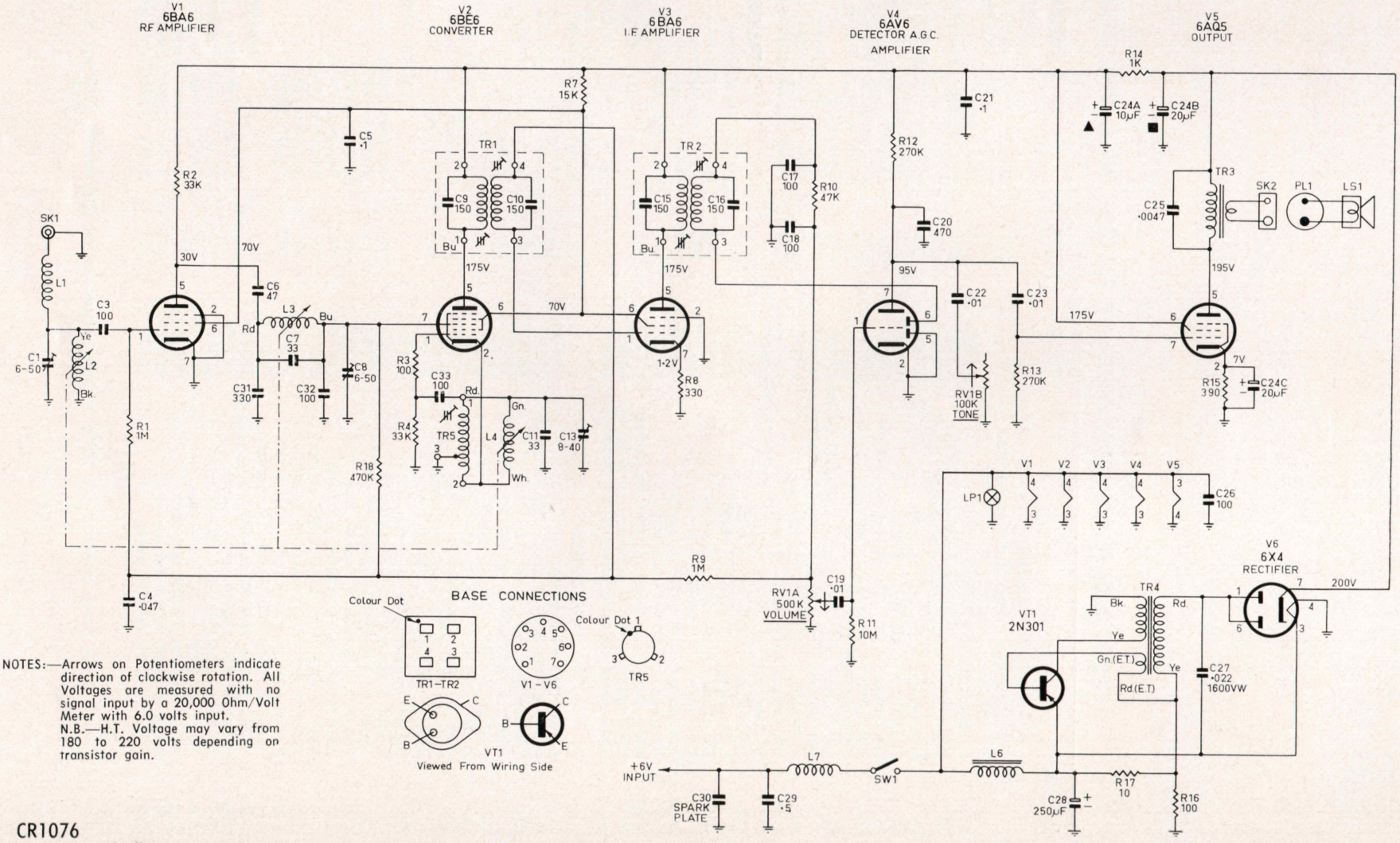
CIRCUIT A.W.A. MODELS, 942-A, 943-A, 978-A, 979-A.



NOTES:— Arrows on Potentiometers indicate direction of clockwise rotation.
All Voltages are measured with no signal input by a 20,000 Ohm /Volt Meter with 6·0 volts input.
N.B.- H.T. Voltage may vary from 180 to 220 volts depending on transistor gain.

CR1075

CIRCUIT A.W.A. MODELS 942-AZ, 979-AZ.



NOTES:—Arrows on Potentiometers indicate direction of clockwise rotation. All Voltages are measured with no signal input by a 20,000 Ohm/Volt Meter with 6.0 volts input.
N.B.—H.T. Voltage may vary from 180 to 220 volts depending on transistor gain.

CR1076

CIRCUIT CODE OF CAR RADIO MODELS 942-A, 942-AZ, 943-A, 978-A, 979-A and 979-AZ.

CODE No.	DESCRIPTION	PART No.
	RESISTORS	
	All Resistors composition type unless otherwise stated.	
R1	1 Megohm ± 20% ½ watt	618020
R2	15K ohms ± 20% 1 watt (A Series)	612929
	33K ohms ± 10% 1 watt (AZ Series)	614464
R3	100 ohms ± 10% ½ watt	604031
R4	33K ohms ± 10% ½ watt	614460
R5	22K ohms ± 10% ½ watt (A Series)	613653
R6	3.3K ohms ± 10% ½ watt (A Series)	610304
R7	33K ohms (2 off) ± 10% 1 watt	614464
R8	100 ohms ± 10% ½ watt W.W. (A Series)	602061
	330 ohms ± 10% ½ watt (AZ Series)	605959
R9	1 Megohm ± 20% ½ watt	618020
R10	47K ohms ± 10% ½ watt	614961
R11	10 Megohms ± 20% ½ watt	619409
R12	270K ohms ± 20% 1 watt	616960
R13	270K ohms ± 10% ½ watt	616954
R14	1K ohms ± 10% 2 watts	600881
R15	390 ohms ± 10% 1 watt	606258
R16	100 ohms ± 10% ½ watt	604031
R17	10 ohms ± 10% ½ watt	601001
R18	470K ohms ± 20% ½ watt (AZ Series)	617358
RV1A	500K ohms curve 'C' volume } (A Series)	620871
RV1B	100K ohms curve 'C' Tone W/S } (AZ Series)	620873
	CAPACITORS	
C1	6-50pf trimmer (Aerial)	31954
C2	470pf ± 5% 600VW plastic film (A Series)	224212
C3	47pf ±5% N750 tubular (A Series)	220554
	100pf ± 20% 600VW plastic film (AZ Series)	222225
C4	0.047μf ± 20% 200 VW paper	226834
C5	0.1μf ± 20% 400VW paper	227017
C6	47pf ± 10% N750 tubular	221434
C7	56pf ± 5% N750 tubular (A Series)	221771
	47pf ± 5% N750 tubular (AZ Series)	220554
C8	3-25pf trimmer (R.F) (A Series)	33304
	6-50pf trimmer (R.F.) (AZ Series)	31954
C9	150pf ± 5% 600VW plastic film } in 1st I.F.	222688
C10	150pf ± 5% 600VW plastic film } in 1st I.F.	222688
C11	82pf ± 5% N750 tubular (A Series)	222128
	33pf ± 5% N750 tubular (AZ Series)	221532
C12	100pf ± 5% NPO tubular (A Series)	222232
C13	8-40pf trimmer (Oscillator)	231185
C14	100pf ± 10% 500VW mica (A Series)	226814
C15	150pf ± 5% 600VW plastic film } in 2nd I.F.	222688
C16	150pf ± 5% 600VW plastic film } in 2nd I.F.	222688
C17	100pf + 80% — 20% Hi-K disc	221605
C18	100pf + 80% — 20% Hi-K disc	221605
C19	0.01μf ± 20% 200VW AEE W99	228609
C20	470pf ± 20% K2000 tubular	221972
C21	0.1μf ± 20% 400VW paper	227017

CODE No.	DESCRIPTION	PART No.
	CAPACITORS (Con't.)	
C22	0.01μf ± 20% 400VW paper	226311
C23	0.01μf ± 20% 400VW paper	226311
C24A	10μf 350VW } Electrolytic	229304
C24B	20μf 450VW } Electrolytic	229304
C24C	20μf 25VW } Electrolytic	229304
C25	0.0047μf ± 20% 600VW paper	225985
C26	100pf ± 10% 500VW mica	226814
C27	0.022μf ± 20% 1600VW paper	226656
C28	250 μf 16VW Electrolytic	229760
C29	0.5μf ± 20% 200VW AEE W48	229116
C30	Spark Plate	
C31	330pf ± 5% 600VW plastic film (AZ Series)	223712
C32	100pf ± 5% 600VW plastic film (AZ Series)	222222
C33	100pf ± 20% 600VW plastic film (AZ Series)	222225
	TRANSFORMERS	
TR1	1st I.F. Transformer	35458A
TR2	2nd I.F. Transformer	35458A
TR3	Audio Transformer	21455A
TR4	Power Transformer	51575A
TR5	Oscillator Padder Coil (AZ Series)	51643
	INDUCTORS	
L1	Aerial Choke (A Series)	34336
	Aerial Choke (AZ Series)	51089
L2	Tuning Coil (Aerial) } A Series	34383
L3	Tuning Coil (R.F.) } A Series	34383
L4	Tuning Coil (Osc.) } A Series	34383
L2	Tuning Coil (Aerial) } AZ Series	51080A
L3	Tuning Coil (R.F.) } AZ Series	51080B
L4	Tuning Coil (Osc.) } AZ Series	51080C
L5	Oscillator Padder Coil (A Series)	35471
L6	L.T. Choke	35472
L7	L.T. Choke	36926
	VALVES AND TRANSISTOR	
V1	Radiotron 6BA6	
V2	Radiotron 6BE6	
V3	Radiotron 6BA6	
V4	Radiotron 6AV6	
V5	Radiotron 6AQ5	
V6	Radiotron 6X4	
VT1	A.W.V. 2N301	
	MISCELLANEOUS	
LP1	6 Volt Pilot Lamp	428105
LS1	7" x 5" P.M. Speaker	50055W
SW1	On/Off Switch (on RV1)	
SK1	Aerial Input Socket	792975
SK2	2 Pin Wafer Socket (Output)	793038
PL1	2 Pin Wafer Plug (Speaker)	581215

Note: Later receivers use three separate capacitors for C24 namely C24A and B—24μf 300VW 222812
C24C —25μf 25VW 222914

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