TECHNICAL INFORMATION AND SERVICE DATA

MANUFACTURERS AWA SUPERVISED SERVICE

Issued by Amalgamated Wireless (Australasia) Limited

A.W.A. SOLID STATE 2.5 WATT MODULAR STEREOGRAM SYSTEM MODEL B82 Series

Variations between models are mainly due to the type of record changer fitted. The most extensive change concerns Model B82M. This model has separate Bass and Treble controls in place of the single Tone control of other models. As a result, Model B82M has a new front escutcheon and a new Balance control now placed concentric with the Tuning control.

MODEL SUMMARY

Model No.	Changer	Bass and Treble
B82	BSR MA55	No
B82Y	BSR C110	No
B82X	BSR C123/A/2	No
B82W	BSR C123/A/1	No
B82M	BSR C123/A/1	Yes

SPECIFICATIONS

Tuner

Type
Solid state with in-built ferrite rod aerial for low noise reception
Semiconductors ..... 3 transistors and 3 diodes
Intermediate Frequency ..... 455 kHz
Frequency Range ..... 525-1650 kHz

Amplifier

Type
Solid state stereo amplifier featuring a passive tone control system and low noise pre-amplifiers for ceramic cartridges
Semiconductors ..... 12 transistors and 4 diodes
Output Power ..... 2.5 watts r.m.s. per channel
Peak Music Power ..... 12 watts total
Frequency Response 30Hz-20kHz
Automatic bass compensation
Tone Control Range ..... 26dB at 10kHz
Power Consumption ..... 12 watts
Speaker Impedance ..... 15 ohms

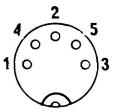
Record Changer

Type ..... Four-speed automatic changer
Speeds ..... $16\frac{2}{3}$, $33\frac{1}{3}$, 45 and 78 r.p.m.
Driving System ..... Rimdrive
Cartridge Type ..... Ceramic
Stylus Force ..... 5 grammes (nominal)
Power Consumption ..... 20 watts

Operating Voltage

Range ..... 200-260V a.c.
Nominal ..... 240V a.c.
Frequency 50Hz

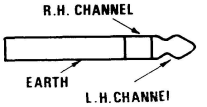
Tape-P/B Socket



VIEWED FROM CABINET FRONT

Pin 1 Record LH } Output=0.2V r.m.s. Load: Not less than 10KΩ.
Pin 4 Record RH }
Pin 2 Earth
Pin 3 Playback LH } 1V r.m.s. required for full output. Input Imp. 6KΩ.
Pin 5 Playback RH }

Phones Jack



The circuitry is designed for headphone impedances from 8Ω to 600Ω.

N.B.: On some early receivers the wiring of the phones jack was reversed to that indicated above and on the circuit (see over).

Dimensions

CENTRE UNIT
Height (over lid) ..... $9\frac{1}{2}$" (24.1 cms.)
Width ..... $16\frac{3}{4}$" (42.5 cms.)
Depth ..... $15\frac{1}{8}$" (38.4 cms.)

SPEAKER BOX
Height ..... $15\frac{7}{8}$" (40.3 cms.)
Width ..... $8\frac{7}{8}$" (22.5 cms.)
Depth ..... 9" (22.8 cms.)
Weight (total packed) ..... 54 lbs. (24.5 kgms.)

CHASSIS REMOVAL

Close the tinted plastic cover. Remove cover by lifting the complete cover straight up.

Screw the record changer mounting screws right out, so that the record changer is firmly clamped. Secure the pick-up arm.

Remove the two self tapping screws securing the speaker socket plate and pass the plate assembly inside the cabinet.

Stand the cabinet up on its back and remove the cabinet base:

(a) feed the Aerial and Earth leads through the base board during removal;

(b) ensure that the gang capacitor is in the fully closed position.

Remove the pull-off knobs from the controls but leave the press buttons in place.

As the escutcheon is held by internal spring loaded pins, the recommended method of removal is as follows:

(a) Slide the escutcheon towards the left side of the cabinet and spring the left hand edge clear of the pins.

(b) Slide the escutcheon towards the right of the cabinet and spring the right hand end clear of the pins.

(c) Lift the escutcheon clear.

Unplug the record changer power cord and pick-up leads, and release the clips off the lead dress.

Remove the screws securing the chassis to the cabinet. N.B. In early chassis two screws were used at each end to provide the dual functions of chassis mounting and escutcheon spring clip location. Later chassis have the spring clip assemblies rivetted to the chassis and use a single screw at each end to mount the chassis. The two types of chassis are therefore not interchangeable.

Remove the nuts or screws holding the power supply in place and disconnect the green lead connected to the hum shield.

Lift the chassis, power supply and speaker socket plate clear of the cabinet.

REPLACING A CHASSIS

Re-assembling the chassis into the cabinet is the reverse of the above procedure but the following precautions should be taken:

(a) For chassis with removable spring clip assemblies: Position the receiver in the cabinet and loosely fit the spring clips and chassis mounting screws. Pull the spring clip brackets towards one another (i.e. inwards) and tighten the screws.

(b) Connect up all leads but ensure that correct phasing of the pick-up leads is maintained by referring to the colour coding of leads.

(c) Check pointer travel and calibration. This can be done by holding the escutcheon in position and adjusting the pointer where necessary.

RECORD CHANGER REMOVAL

Remove the chassis as above.

Screw the record changer mounting screws in and hinge their retaining clips parallel to the screws.

Lift the record changer clear.

DIAL CORD REPLACEMENT

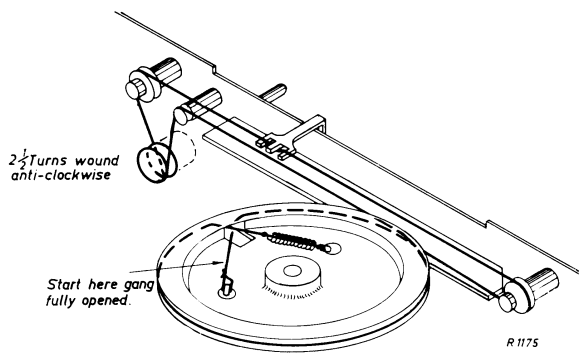


Figure 1.

Figure 1 shows the route of the dial cord and the method of attachment. A minimum of 35 inches of dial cord will be necessary.

ALIGNMENT PROCEDURE

Testing Instruments:

I.F. Alignment Tool No. 39463.

Signal Generator (modulated with 400 Hz) or Modulated Oscillator.

If a modulated oscillator is used, connect a 220K ohms non-inductive resistor across its output terminal.

Output Meter—15 ohms impedance:

To avoid damage to output transistors and associated circuitry when the chassis is being tested, it is advisable to provide a load on both amplifiers. A 15 ohm 3 watt resistor should thus be connect to the amplifier which is not loaded with the output meter.

Set balance control to that position which gives maximum audio output on the output meter.

For all alignment operations keep generator output as low as possible to avoid a.g.c. action and set volume control to maximum position.

ALIGNMENT TABLE

ORDER	CONNECT GENERATOR TO:	GENERATOR TO:	TUNE RECEIVER TO:	ADJUST FOR MAX. PEAK OUTPUT
1	Aerial Section of Gang	455 kHz	Gang fully closed	Cores in T5, T4 and T3
Repeat adjustments until maximum output is obtained.				
2	Inductively coupled to Rod Aerial*	600 kHz	600 kHz	L.F. Osc. Core Adj. (T2)†
3	Inductively coupled to Rod Aerial*	1,650 kHz	Gang fully opened	Osc. Trimmer (C4)
4	Inductively coupled to Rod Aerial*	1,500 kHz	1,500 kHz	Aer. Trimmer (C2)

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

* A coil comprising 3 turns of 16 gauge D.C.C. wire about 12 inches in diameter should be connected between the output terminals of the test instrument, placed concentric with the rod aerial and distant not less than 1 foot from it.

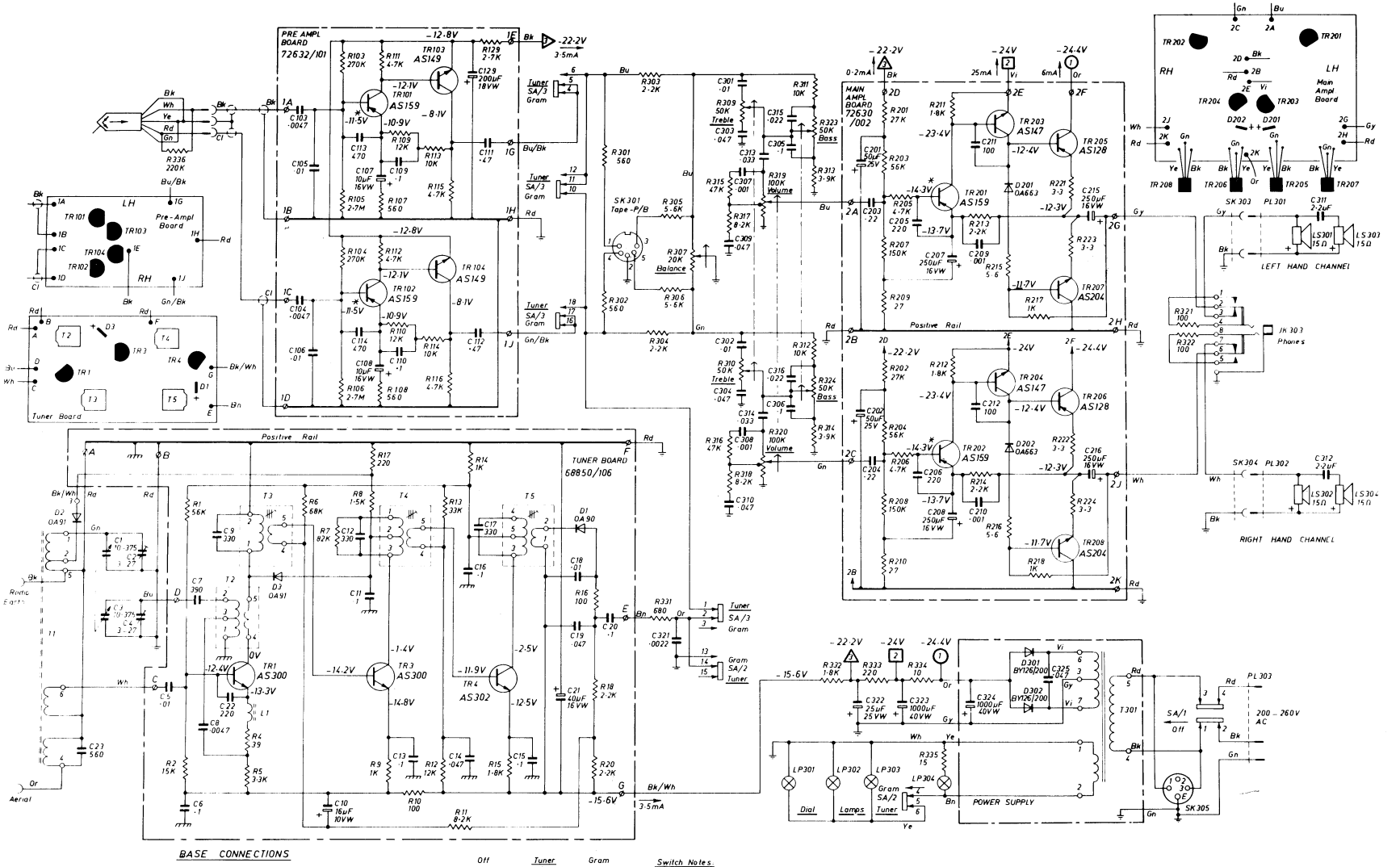
MECHANICAL REPLACEMENT PARTS

Item	Part/Code No.
CABINET FITTING	
Badge, A.W.A. (Speaker Box)	72648/002
Base, Cabinet (Centre Unit)	72656
Cabinet, Centre Unit	68553/001
Cabinet, Speaker Box	68553/002
Escutcheon and Insert Ass'y (B82, Y, X, W) Comprising:	72639/001
Escutcheon, Screen Printed	65091/001
Insert, Metal Cal 72640	407096
Escutcheon and Insert Ass'y (B82M) Comprising:	74628
Escutcheon, Screen Printed	74626
Insert, Metal Cal 74627/001	407069
Fret Cloth, Speaker	212192
Hinge, Moulded (2)	72655/001
Knob, Balance Control (B82M)	74623/001
Knob, Push Button (3)	72645/001
Knob, Slider Controls (3)	72644/003
Knob Assembly, Tuning (B82, Y, X, W)	72641
Knob Assembly, Tuning (B82M)	74522/001
Lid, Plastic, Screen Printed	72653
Record Changers:	
B82, BSR, Type MA55, 72667	201256
B82Y, BSR, Type C110, 74231	201257
B82X, BSR, Type C123-A-2, 74640	201242
B82W, BSR, Type C123-A-1, 74641	201243
B82M, BSR, Type C123-A-1, 74641	201243
Including:	
Cartridge	C1 or SC5M
Stylus Replacement (respectively)	ST4/D88 or ST14/D442

Item	Part/Code No.
CHASSIS FITTING	
Bracket Assembly, Spring (Escutcheon retaining)	72664
Clamp Body, Power Cable	208056
Clamp Lock, Power Cable	208057
Cord, Dial Drive	39421/009
Diffuser, Light, Dial Scale	72626
Drum Assembly, Dial Drive	72616
Gang Mounting:	
Grommet, 36826/002 (3)	389262
Screw, 4BA x 5/16" Ch./Hd. Steel (3)	714110
Spacer (3)	35923
Washer, 4BA I.T.L.	921204
Washer, 4BA Plain	13156
Indicator, Bezel	72624/001
Coupled with: Nut, Speed	492077
Insulator, Phono Motor Socket, 31847	646173
Pointer, Moulded	72625/001
Pully, Dial Cord	17716
Spindle Assembly Tuning (B82, Y, X, W)	72618
Spindle Assembly, Tuning and Balance Control (B82M) 74629	115721
Spring, Tension, Drive Cord, 44189	798159

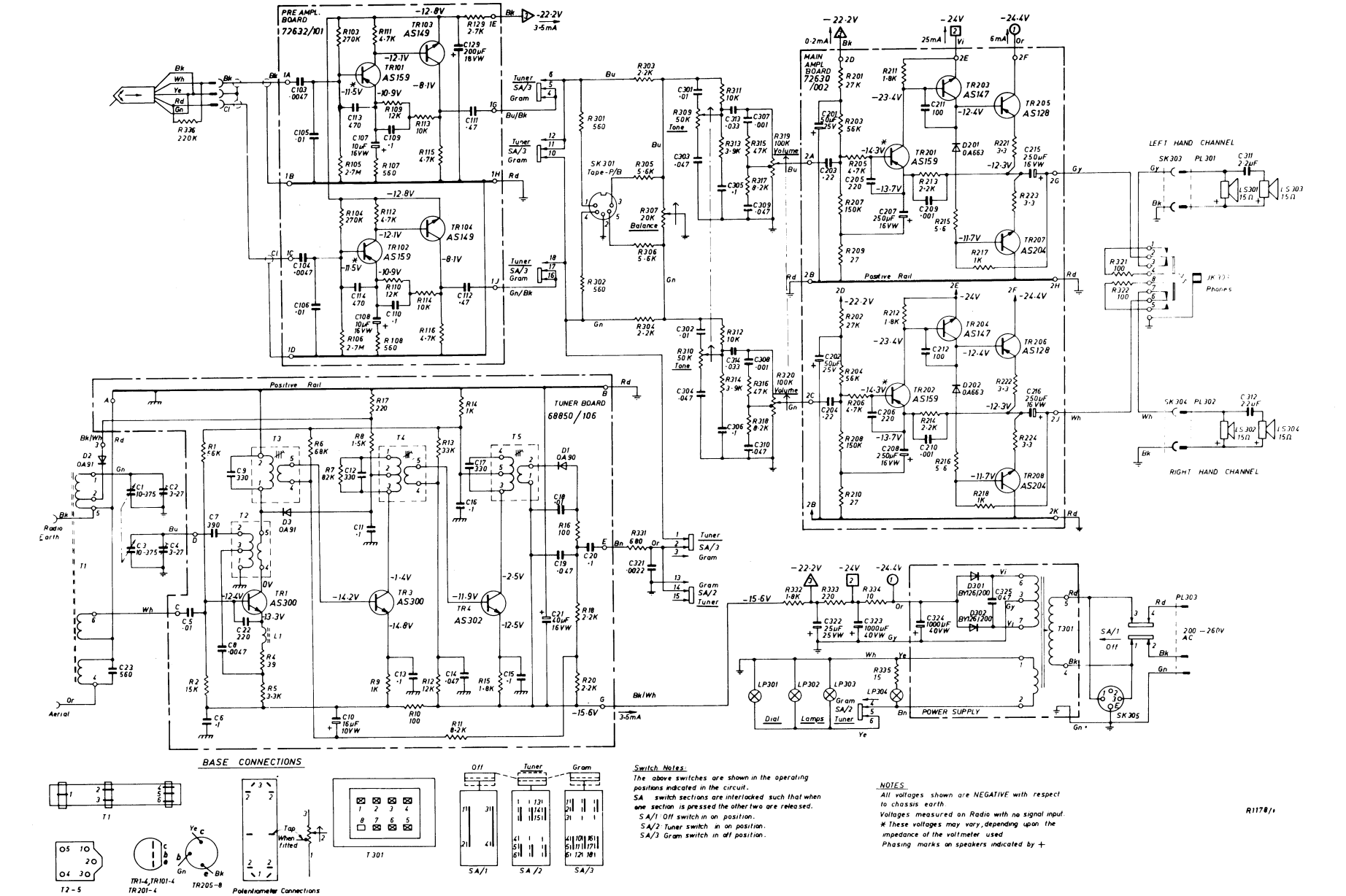
NOTE: When ordering spares, always quote the above Part Numbers, and in the case of coloured parts, such as knobs, etc., also quote the colour.

CIRCUIT A.W.A. SOLID STATE 2.5 WATT MODULAR STEREOGRAM SYSTEM MODEL B82M



CIRCUIT A.W.A. SOLID STATE 2.5 WATT MODULAR STEREOGRAM SYSTEM

MODELS B82, B82Y, B82X and B82W



CODE NO.	DESCRIPTION	PART NO.
	TUNER PRINTED BOARD	
R1	56K ohms ± 5% ¼ watt	
R2	15K ohms ±10% ½ watt	
R3	Not used.	
R4	39 ohms ±10% ½ watt	
R5	3.3K ohms ±10% ½ watt	
R6	68K ohms ± 5% ¼ watt	
R7	82K ohms ±10% ½ watt	
R8	1.5K ohms ±10% ½ watt	
R9	1K ohms ±10% ½ watt	
R10	100 ohms ±10% ½ watt	
R11	8.2K ohms ±10% ½ watt	
R12	12K ohms ±10% ½ watt	
R13	33K ohms ±10% ½ watt	
R14	1K ohms ±10% ½ watt	
R15	1.8K ohms ±10% ½ watt	
R16	100 ohms ±10% ½ watt	
R17	220 ohms ±10% ½ watt	
R18	2.2K ohms ±10% ½ watt	
R19	Not used.	
R20	2.2K ohms ±10% ½ watt	
C1	10-375pF Tuning Aerial	60090
C2	3-27pF Trimmer Aerial	231136
C3	10-375pF Tuning Oscillator (ganged to C1)	
C4	3-27pF Trimmer Oscillator	231136
C5	0.01μF ±10% 100VW polyester	
C6	0.1μF +80% —20% Hi-K disc	
C7	390pF ±2½% 100VW polystyrene	
C8	0.0047μF ±10% 100VW polyester	
C9	330pF +10% —7.5% N750 disc	
C10	16μF 10VW Electrolytic	228878
C11	0.1μF +80% —20% Hi-K disc	
C12	330pF +10% —7½% N750 disc	
C13	0.1μF +80% —20% Hi-K disc	
C14	0.047μF ±10% 100VW polyester	
C15	0.1μF +80% —20% Hi-K disc	
C16	0.1μF +80% —20% Hi-K disc	
C17	330pF +10% —7½% N750 disc	
C18	0.01μF ±10% 100VW polyester	
C19	0.047μF ±10% 100VW polyester	
C20	0.1μF ±10% 100VW polyester	
C21	40μF 16VW Electrolytic	229552
C22	220pF ±20% K1-3000 disc	
C23	560pF ±5% 100VW polyester	
T1	Ferrite Rod Aerial Assembly	69153
T2	Oscillator Coil Assembly	54157
T3	1st I.F. Transformer	54161
T4	2nd I.F. Transformer	54163
T5	3rd I.F. Transformer	54165
L1	Ferrite Beads (3)	132011
TR1	AS300	
TR2	Not used.	
TR3	AS300	
TR4	AS302	
D1	OA90	
D2	OA91	
D3	OA91	
	Printed Board Assembly C/W Components	68850/106
	Printed Board, Blank	68851

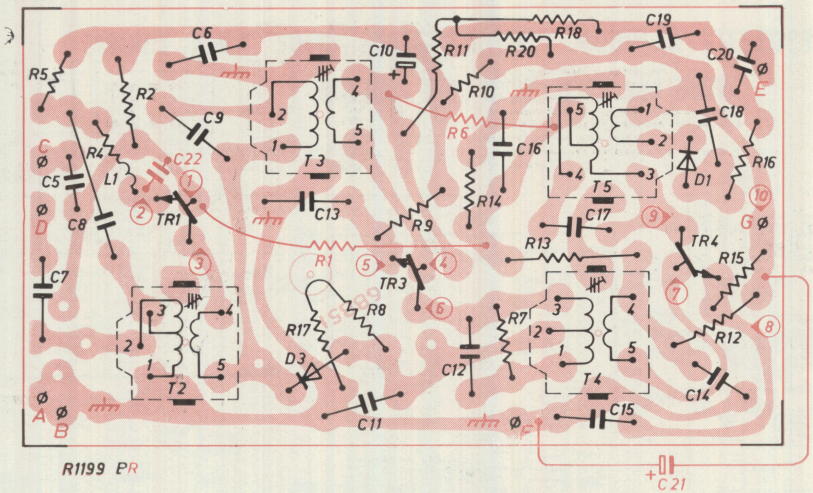
CODE NO.	DESCRIPTION	PART NO.
	PRE-AMPLIFIER PRINTED BOARD	
R101-2	Not Used.	
R103-4	270K ohms ± 5% ½ watt	
R105-6	2.7 Megohms ±10% ½ watt	
R107-8	560 ohms ± 5% ½ watt	
R109-10	12K ohms ± 5% ½ watt	
R111-12	4.7K ohms ± 5% ½ watt	
R113-14	10K ohms ± 5% ½ watt	
R115-16	4.7K ohms ± 5% ½ watt	
R117-28	Not used.	
R129	2.7K ohms ± 5% ½ watt	
C101-2	Not used.	
C103-4	0.0047μF ±10% 100VW polyester	
C105-6	0.01μF ±10% 100VW polyester	
C107-8	10μF 16VW Electrolytic	228756
C109-10	0.1μF ±10% 100VW polyester	
C111-12	0.47μF ±20% 50VW metallised polyester	
C113-14	470pF ±10% 500VW Hi-K disc	
C115-28	Not used.	
C129	200μF 18VW Electrolytic	229763
TR101-2	AS159	
TR103-4	AS149	
	Printed Board Assembly C/W Components	72632/101
	Printed Board, Blank	72631
	MAIN AMPLIFIER BOARD	
R201-2	27K ohms ± 5% ½ watt	
R203-4	56K ohms ± 5% ½ watt	
R205-6	4.7K ohms ± 5% ½ watt	
R207-8	150K ohms ± 5% ½ watt	
R209-10	27 ohms ± 5% ½ watt	
R211-12	1.8K ohms ± 5% ½ watt	
R213-14	2.2K ohms ± 5% ½ watt	
R215-16	5.6 ohms ± 5% ½ watt W/W	
R217-18	1K ohms ± 5% ½ watt	
R219-20	Not used.	
R221-22	3.3 ohms ±10% ½ watt W/W	
R223-24	3.3 ohms ±10% ½ watt W/W	
C201-2	50μF 25VW Electrolytic	229596
C203-4	0.22μF ±10% 100VW polyester	
C205-6	220pF ±20% K1-3000 disc	
C207-8	250μF 16VW Electrolytic	229760
C209-10	0.001μF ±10% 400VW polyester	
C211-12	100pF ±10% N750 disc	
C213-14	Not used.	
C215-16	250μF 16VW Electrolytic	229760
TR201-2	AS159	
TR203-4	AS147	
TR205-6	AS128	
TR207-8	AS204	
D201-2	AS9M or OA663	
	Printed Board Assembly C/W Components	72630/002
	Printed Board, Blank	72629

CODE NO.	DESCRIPTION	PART NO.
	CHASSIS WIRING	
R301-2	560 ohms ±10% ½ watt	
R303-4	2.2K ohms ±10% ½ watt	
R305-6	5.6K ohms ±10% ½ watt	
R307	20K ohms Curve W, Balance (B82, Y, X, W)	620232
R307	20K ohms Curve A, Balance (B82M)	*74629
R308	Not used.	
R309-10	50K ohms Curve B, Tone (B82, Y, X, W)	620859
R309-10	50K ohms Curve B, Treble (B82M)	620859
R311-12	10K ohms ±10% ½ watt	
R313-14	3.9K ohms ±10% ½ watt	
R315-16	47K ohms ±10% ½ watt	
R317-18	8.2K ohms ±10% ½ watt	
R319-20	100K ohms Curve B, Volume	620875
R321-22	100 ohms ± 5% ½ watt	
R323-24	50K ohms Curve B, Bass (B82M)	620859
R325-330	Not used.	
R331	680 ohms ±10% ½ watt	
R332	1.8K ohms ±10% ½ watt	
R333	220 ohms ±10% ½ watt	
R334	10 ohms ±10% ½ watt	
R335	15 ohms ±10% ½ watt W/W	
R336	220K ohms ± 5% ½ watt	
C301-2	0.01μF ±10% 100VW polyester	
C303-4	0.047μF ±10% 100VW polyester	
C305-6	0.1μF ±10% 100VW polyester	
C307-8	0.001μF ±10% 100VW polyester	
C309-10	0.047μF ±10% 100VW polyester	
C311-12	2.2μF ±10% 50VW metallised polyester	
C313-14	0.033μF ±10% 100VW polyester	
C315-16	0.022μF ±10% 100VW polyester (B82M)	
C321	0.0022μF ±10% 100VW polyester	
C322	25μF 25VW Electrolytic	222914
C323	1000μF 40VW Electrolytic	229918
C324	1000μF 40VW Electrolytic	229918
C325	0.047μF ±10% 100VW polyester	
	MISCELLANEOUS	
D301	1N3193 or BY126/200	
D302	1N3193 or BY126/200	
T301	Power Transformer	55734
LP301	12V 2.2 watt Dial Lamp	428147
LP302	12V 2.2 watt Dial Lamp	428147
LP303	12V 2.2 watt Dial Lamp	428147
LP304	12V Miniature Lamp	428156
SK301	Socket, 5 Pin, DIN 41524M	793206
SK302	Not used.	
SK303-4	Socket, Speaker	794534
SK305	Socket, Record Changer Power	67237
PL301-2	Plug, Speaker, 2 Pin	581234
PL303	Plug, 3 Pin, Power	
JK303	Phones, Jack	417032
SA	Switch Assembly, Type 700	72000/057
LS301-2	6" Speaker, Type 6TBC15	56326/003
LS303-4	3" Speaker, Type 3LB15	53418

* 74629 is Balance Control and Tuning Spindle A'ssy

TUNER BOARD

Voltage Chart		
Point	P/B6885Q/106	P/B6885Q/107
1	−12·4V	−10·9V
2	−13·3V	−11·8V
3	0V	0V
4	−14·2V	−12·4V
5	−14·8V	−13V
6	−1·4V	−1V
7	−11·9V	−10·8V
8	−12·5V	−11·4V
9	−2·5V	−2V
10	−15·6V	−13·7V



Notes: The board diagram represents the view from the copper track side.

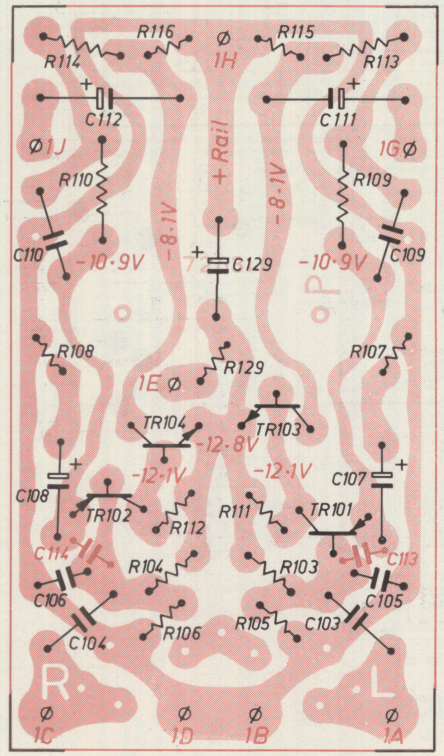
Stiple indicates the copper track.

Black indicates items mounted on component side of the board.

Red indicates components and leads mounted on the copper track side.

Voltages measured under the same conditions that apply on the circuit diagrams.

PRE-AMPLIFIER BOARD



MAIN AMPLIFIER BOARD