

# Q U A D 66

## Preamplifier

### Service Data

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V 1.2



# QUAD 66 Preamplifier service data

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### INTRODUCTION

The Quad 66 is a high quality preamplifier system with full remote operation. It comprises two units; a mains operated preamplifier to which the various sound sources are connected and a separate battery operated control panel incorporating all the main function controls for operating the preamplifier and CD player, or any other CD player using the same remote control language. If the battery fails the control unit can be directly powered from the preamplifier.

A display, on the preamplifier, shows all functions selected.

The preamplifier unit will accept inputs from to seven sources; Disc, CD, Radio, A-V, Aux 1, Aux 2, and Tape ( with off-tape monitoring). A second tape recorder may be connected to the Aux 2 input and both the A-V and Aux 1 inputs have anti hum-loop circuitry.

The control panel has rotary Volume and Balance adjustment plus press buttons for Disc, CD-Play, Radio, A-V, Aux 1, Aux 2, Tape, Tilt (2), Bass Step (2), Filter (2), Cancel, Stand-By, Search (2), Track, Pause, Stop and Store.

The Stand-by facility enables the 66, and any equipment connected to the AC auxiliary outlet, to be switched on and off via the remote control panel.

### BRIEF OPERATING INSTRUCTIONS

Fit the PP3 battery supplied into the control panel. Connect the preamplifier to the AC power supply with the main cable supplied (fit suitable mains plug). Connect power and signal cables (supplied with the amplifier) to the Quad power amplifier. Connect input sources.

- Switch preamplifier on with the ON/OFF switch.
- Use the CONTROL PANEL to select the required sound source.
- Adjust VOLUME and BALANCE as required.
- Set TILT, BASS STEP and FILTER if necessary.
- When you have finished listening use the STAND-BY button to switch off.
- To switch on again, from STAND-BY, press any input selector button.
- The Quad CD player can be operated via the CD FUNCTION buttons.
- For more details on the operation of the 66 please refer to the main instruction book.

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### SPECIFICATION

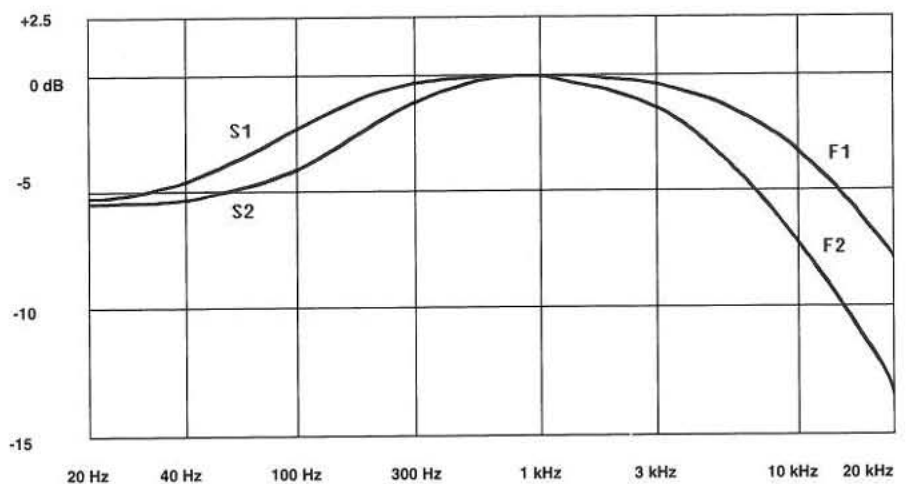
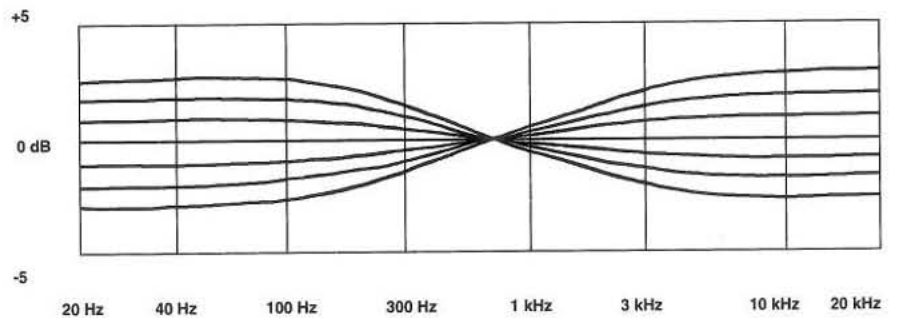
<b>Preamplifier</b>	Operation:	Full function by infrared remote control panel.		
	Control Functions:	Volume, Tilt, Bass Step, Balance, Filters, Input selection and Standby. All operated from infrared remote control panel. No controls on preamplifier.		
			S/N: Vol Max.	Vol 23
Inputs:	Disc*;	3 mV/ 47 k $\Omega$ /220 pF	75 dB	90 dB
	CD;	300 mV/100 k $\Omega$	99 dB	105 dB
	Radio;	100 mV/100 k $\Omega$	93 dB	104 dB
	A-V;	300 mV/ 33 k $\Omega$ (anti-hum)	93 dB	104 dB
	Aux 1;	300 mV/ 33 k $\Omega$ (anti-hum)	93 dB	104 dB
	Aux 2;	300 mV/100 k $\Omega$	99 dB	105 dB
	Tape;	300 mV/100 k $\Omega$	99 dB	105 dB
		(Noise figures 'A' weighted, in dB below 500 mV output)		
Outputs:	Amplifier;	500 mV/940 $\Omega$ (1.5V max).		
	Aux 2;	300 mV/3k3 $\Omega$ (tape record).		
	Tape;	300 mV/3k3 $\Omega$ (tape record).		
	Distortion:	Worst case, any input 0.05%.		
	Residual Noise:	'A' weighted. Volume control at minimum -105 dB.		
	Frequency Response:	Any input (except Disc) $\pm$ 0.2 dB from 15 Hz - 20 kHz. Disc RIAA flat within 0.5 dB from 30 Hz - 20 kHz.		
	Interchannel Balance:	$\pm$ 0.5 dB volume control settings max. to -60 dB.		
	Channel Separation:	>75 dB from 20 Hz - 20 kHz.		
	Filters,Bass Step and Tilt (+3 to -3):	See graphs.		
	Remote Control Interface:	Quad system with dedicated microprocessor.		
	Mains voltage:	100-120V or 200-240V (changed by links on PCB) 50-60 Hz: see rating plate on back of control unit.		
	Power consumption:	6 VA approx.		
	Fuse:	100 mA anti-surge, 100-240V.		
	Dimensions:	Width 321 mm; height 80 mm; depth 255 mm approx. (plus connectors)		
	Weight:	3.3 kg approx.		

\* Other options available.

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Control Panel	System:	Dual infrared; Quad system with dedicated microprocessor.  Philips RC-5 system for Quad CD Player or any other player using this system.
	Controls: Rotary;	Volume and Balance.
	Press Button;	Disc, CD-Play, Radio, A-V, Aux 1, Aux 2, Tape, Tilt (2), Bass Step (2), Filter (2), Cancel, Stand-By, Search (2), Track (2), Pause, Stop and Store.
	Dimensions:	Width 241 mm; depth 175 mm; thickness 50 mm approx.
	Weight:	0.76 kg (inc battery) approx.
	Battery life:	One year approximately with normal operation, using an alkaline battery.
	Battery type:	Alkaline PP3 size.

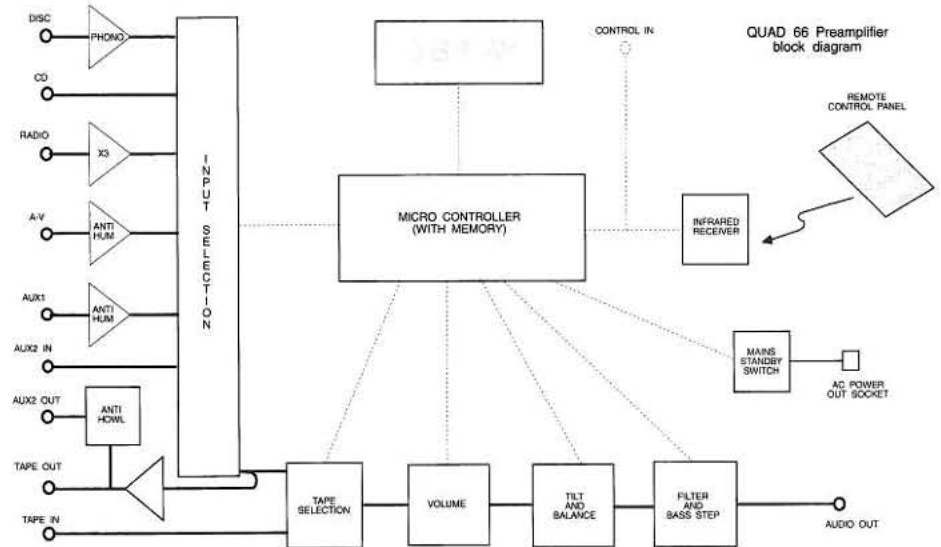


*The right is reserved to alter performance and specifications as required.*

*This equipment complies with the radio interference requirements as laid down in EEC (European Economic Community) regulations.*

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## SIMPLE BLOCK DIAGRAM



## TEST PROCEDURE

The 66 preamplifier contains no internal presets or adjustments. Routine servicing should be carried out by a service technician reference being made to the information supplied. Standard test equipment should be used, the following should be considered a minimum requirement enabling the unit to be tested to the published specification.

- a) Twin channel 20 MHz Bandwidth oscilloscope.
- b) DVM 20 k $\Omega$ /V.
- c) Signal generator 20-20 kHz sine/square wave 10 mV-20V.
- d) Anti RIAA filter network (optional).
- e) AC millivoltmeter.

## DISMANTLING FOR SERVICE

Dismantling is straightforward and only basic service tools are required.

### Top Cover

- a) Lay unit upside down, on a soft material to prevent damage, and remove the 4 screws. The cover may now be lifted off. Note on reassembly that the cover will only fit one way round, the longer cut-out to the rear.

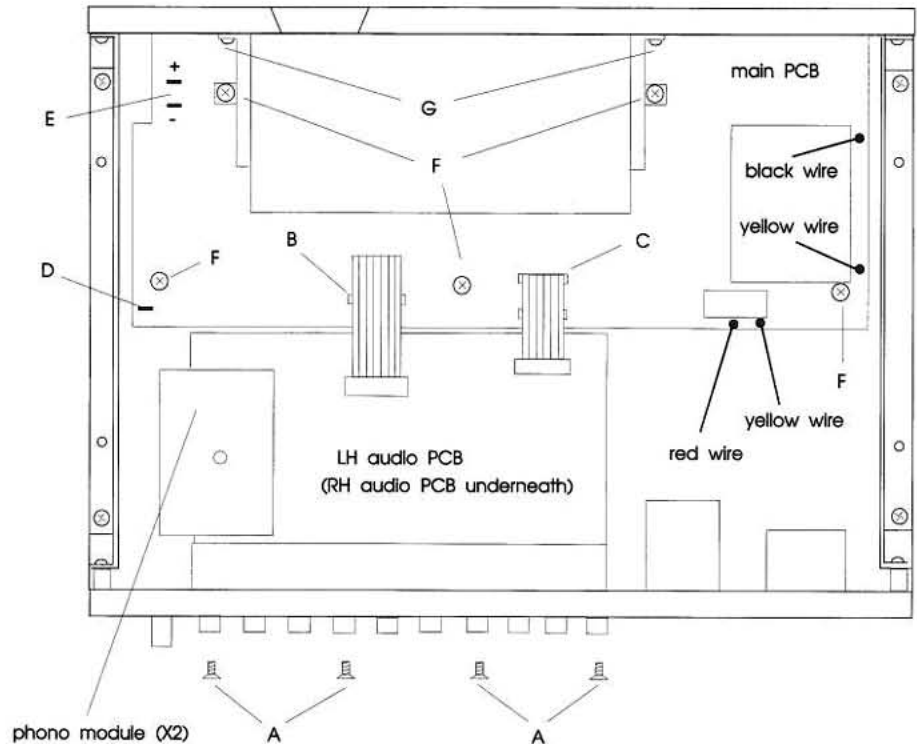
### Removing PCB's

- a) To release the top audio PCB assembly (LH channel) remove the 4 screws (A) through the rear panel and unplug the connectors (B) and (C) the PCB can now be tilted to one side. To remove completely also unsolder the green/yellow earth wire from its solder tag.
- b) The lower audio PCB (RH channel) can then be removed in the same way.
- c) To release the main processor/display/power supply PCB remove the 5 screws (F) and the 2 screws (G), into the front panel, noting any

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washers or spacers used. Unplug the connectors (D) and (E), the PCB can now be tilted to one side. To remove completely, unsolder the 4 wires to the mains switch and the red wire next to the relay. For issue 2 PCB and above also disconnect the 2 yellow fuse wires and the black neutral wire.



### Replacing Display Bulbs

- First remove the main processor/display/power supply PCB, as explained in ***Dismantling For Service***, to gain access to the bulb retaining screws.
- The bulbs should be turned approx 1/4 turn anticlockwise to release, they can be quite tight.

When replacing bulbs make sure they are turned 1/4 turn fully clockwise to ensure correct fit.

### Replacing Disc Modules

- Two modules are required, follow steps described in ***dismantling for service***.
- Replace the module on the upper audio PCB first (LH channel).
- Remove the fitted disc module by gently squeezing the nylon retaining lug through the centre of the module with a pair of long nose pliers and lift the module clear of the pins.
- Fit the replacement module by locating it over the nylon lug and pushing it firmly home ensuring that the six connecting pins are correctly aligned.
- Repeat for RH Channel (bottom PCB).

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## Changing Audio Output Level

The output level is normally 500 mV, but can be adjusted as follows:

- |    |                                |               |                 |
|----|--------------------------------|---------------|-----------------|
| a) | To increase output:            | 0.77V (+3 dB) | 1.35V (+8.5 dB) |
|    | R47 (2K7 $\Omega$ ) change to: | 2k4 $\Omega$  | 1 k $\Omega$    |
|    | R49 (1k6 $\Omega$ ) change to: | 1k8 $\Omega$  | o/c (remove)    |

The above refers to driving a power amplifier with an input impedance of 22k $\Omega$ . A further 6dB increase is possible giving an output of 2.7V (+14.5 dB). This is achieved by adding a 3k3 $\Omega$  resistor between pin 2 of IC7 and earth, a convenient point being pin 6 of IC6.

- b) To reduce the output connect a suitable resistor across R49 as follows:

- 1k0 $\Omega$  for 6 dB attenuation (0.25V output)
- 470 $\Omega$  for 9 dB attenuation (0.18V output)
- 180 $\Omega$  for 15 dB attenuation (0.09V output)
- 100 $\Omega$  for 20 dB attenuation (0.05V output)

## Changing Mains Voltage

**Issue 1 PCB:** First remove the main processor/display/power supply PCB, as explained in *Dismantling For Service*, to allow access to the track side of the PCB. Change the links on top of the PCB to the required voltage setting as shown.



**Issue 4 PCB:** The voltage taps are accessible from the top of the main PCB. Change the links to the required voltage setting as shown.



**Note :** Ensure that the ratings plate is changed to indicate the operating voltage range to which the unit is set. It is not necessary to change the mains fuse rating in either case.



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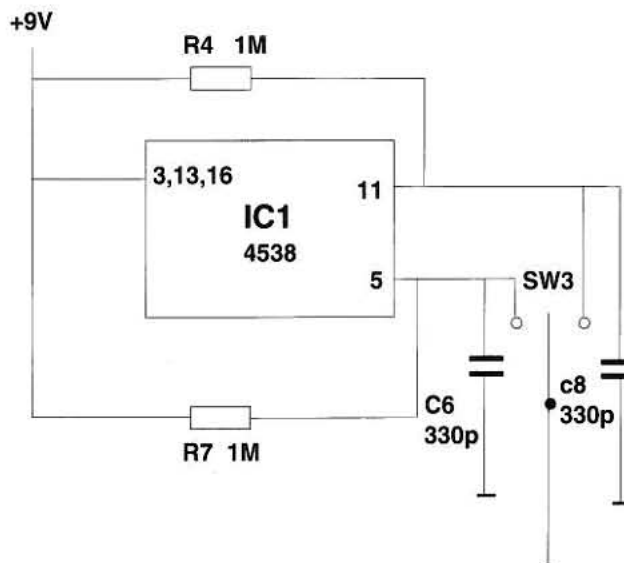
### MODIFICATIONS

- Preamplifier**
- 1) C12/13 added to AV and AUX1 inputs to reduce the possibility of RF breakthrough.
  - 2) Muting components TR300 (ZTX750), IC6 (TLP521-2A), R309 (2k $\Omega$ ) and R311 (10 k $\Omega$ ) removed to reduce clicks at high volume settings.
  - 3) Issue 4 receiver/main PCB introduced, allowing standby LED to be mounted on receiver PCB.
  - 4) Plug/socket and retaining clip fitted (item 5) from issue 2. New window also fitted to maintain alignment.

Please note: issue 1 receiver/main PCB's are not interchangeable with later issues and should repair be necessary to issue 1 boards component replacement is advised (items 32 & 49).

- 5) Standby LED (item 46) changed from green to yellow, on receiver PCB from issue 2.
- 6) FFS301, FS302 added on issue 4 main/processor PCB.
- 7) PCB connectors (item 29) changed from spade connectors to a 2-way plug/socket.
- 8) Audio board earth screens changed to complete assembly (interchangeable, items 15 & 22).
- 9) Mains voltage adjustment on top of main/processor PCB (from issue 4 PCB).

- R1 Remote Control**
- 1) Volume control circuit modified from S/no 308000 to prevent erratic operation. Original circuit details shown below.



volume control circuit before S/no 308000

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### ORDERING SPARE PARTS

To allow for modifications etc please quote component reference, value and description as well as the part number, when ordering spares. Also product model and serial number.

#### 66 Preamplifier Mechanical Parts (exploded view)

<i>Ref</i>	<i>Description</i>	<i>Qty</i>	<i>Part No</i>
1	Switch ac mains	1	SF4OFFA
2	Suppressor PMR209M-547-100	1	NPMR20A
3	Fibre washer red M3	4	TDM3NFZ
4	Screw M3x6 mm sup pan st bzp	9	TM306PA
5	I/R receiver retaining brkt	1	I30441A
6	66/CD side rails	2	M22192A
7	66/CD cover	1	Q66COVG
8	66 mains transformer	1	L22061A
9	Relay G2R-117P-V-RP 12V DC 16A	1	SMG2R1B
10	Relay G2E-182-PM 12V DC	1	SMG2E1A
11	Solder tag single end M3	2	FTM331A
12	Washer shakeproof M3 internal	6	TDM3NLA
13	Nut M3 full hex st bzp	2	TM3FHPA
14	66 chassis screen	1	M22451A
15	PCB audio earth screen (short)	2	I223811
16	66 audio PCB	2	Q66ACB1
17	Plug/fuse 3 pin ac snap in	1	PPF333C
-	Fuse 20x100 mA delay	1	UMA10DA
18	Skt ac Euro moated panel	1	PSP695S
19	66 voltage label 220/240V 100 mA	1	M66V240
-	66 voltage label 110/127V 100 mA	1	M66V120
20	Screw drive No4x10 mm csk poz	8	TC410CB
21	Sockets phono 3 way PCB	6	PS5295A
22	PCB audio earth screen (long)	2	I223812
23	66 module 3mV	2	Q66MMIM
24	Socket phono single PCB	2	PS5295C
25	Terminal screw+earth symbol (c/w 25A/B)	1	PQ1124A
26	Socket phono white (c/w 26A/B/C)	1	PSPHOG9
27	66 rear panel screened	1	M66RPS1
28	Richco PCB support LNCBS3	2	FPLNCB3
29	AMP self retaining skt 2 way	2	PAM0358
-	Early versions used	3	PAM0352
30	66 chassis painted grey	1	M21435A
31	Cover screw M3x10 mm sup pan st bzp	4	TM310PA
32	66 processor/display board	1	Q66PCB1
33	Plain rubber foot insert	4/5	M20172A
34	Screw M3x8 mm sup pan st bzp	2	TM308PA
35	Remote lifeline socket assy	1	Q66RSKT
36	66 light box	1	M21324A
37	66 16-way cable assy to L+RHC	1	Q66CABB
38	Light box bulbs	5	BB515MB
39	66 14-way cable assy to RHC	1	Q66CABR
-	later versions use	1	Q66CABL
40	66 display mask	1	M22921A
41	66 14-way cable assy	1	Q66CABL
42	Sponge rubber packing 6x6x30 mm	1	IFVP6AA
43	66 top PCB for display	1	Q66TCB1
44	66 display diffuser	1	M22052A

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<i>Ref</i>	<i>Description</i>	<i>Qty</i>	<i>Part No</i>
45	66 LCD display	1	DISP66A
46	LED T1 green 3 mm dia (iss 1 PCB only)	1	BLG124T
-	LED side view yellow	1	BLY4371
47	Mains ON/OFF button	1	M22242A
48	IR filter	1	EFA4RED
49	66 I/R receiver PCB 2181-3	1	Q66ICB3
50	CD/66 window	1	MCDDW1S
51	Front panel assy	1	Q66FPAG
52	66 window (issue 1 only)	1	M21391A
-	66 window (issue 2 onwards)	1	M21392A

<b>R1 Remote Control Mechanical Parts (exploded view)</b>			
<i>Ref</i>	<i>Description</i>	<i>Qty</i>	<i>Part No</i>
1	Remote bottom moulding (inc item 20)	1	M21207A
2	PCB switch	21	S44INPA
3	CD PCB switch	1	S66023A
4	Foam insert	1	M22541A
5	CD button spacer	1	M22391A
6	Button mid-grey	8	M21153B
7	Remote top casting assy	1	Q66RTPA
8	Button light-grey	8	M21153A
9	Remote window	1	M21263A
10	Balance knob	1	Q66RBAL
11	Button black	6	M21153C
12	Volume knob	1	Q66RVOL
13	Battery foam	1	IFVP12A
14	LED I/R emitter	3	BL1485S
15	Volume/balance assy (c/w 15A/B)	2	Q66RVBA
16	Remote PCB	1	Q66RCB1
17	Rubber foot insert	2	IG3758A
18	Remote lifeline	1	PS30227
19	Screw M3x6 mm sup pan st bzp blk	4	TM306PF
20	Battery cover	1	M21255A
21	Battery connector/lead	1	PSP3AA
22	Battery 9V alkaline	1	N4022AA
23	Screw M3x6 mm sup pan st bzp	3	TM306PA
24	Screw M6x10 mm pan pozi black	1	TM310PB

<b>R1 Remote Control Electrical Parts</b>			
<i>Ref</i>	<i>Description</i>	<i>Qty</i>	<i>Part No</i>
<b>Resistors</b>			
R1,2,3,6,8,9	1 M $\Omega$ 5% 0.25W c.film	6	R1M00J4
R11	15 k $\Omega$ 5% 0.25W c.film	1	R15K0J4
R12,18,19,22-24	10 k $\Omega$ 5% 0.25W c.film	7	R10K0J4
R13,16	100 k $\Omega$ 5% 0.25W c.film	2	R100KJ4
R14	2k2 $\Omega$ 5% 0.25W c.film	1	R2K20J4
R17	47 $\Omega$ 5% 0.25W c.film	1	R47R0J4
R26	100 $\Omega$ 5% 0.25W c.film	1	R100RJ4
R27	0R68 $\Omega$ 5% 0.25W m.ox	1	RR680J4
RV1	47 k $\Omega$ cermet horizontal	1	RP47K0B

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	<i>Ref</i>	<i>Description</i>	<i>Qty</i>	<i>Part No</i>	
<b>Capacitors</b>	C1,12	100 nF 5% 100V	2	C100NJA	
	C2,3,9	10 nF 5% 630V	3	C10N0JB	
	C4,7,14	330 pF 10% UP125	3	C330PKJ	
	C5	33 nF 10% 100V	1	C33N0KA	
	C6,C8	220 nF 10% 100V	2	C220NKB	
	C11	1.5 $\mu$ F 10% 25V tant	1	C1U50KT	
	C13,17	2.2 $\mu$ F 20% 25V axial	2	C22U0MA	
	C16	1000 $\mu$ F 20% 10% axial	1	C1KU0MA	
<b>Integrated Circuits</b>	IC1	4538BP	1	DEF4538	
	IC2	4011BP	1	DCD4011	
	IC3	4016BP	1	DCD4016	
	IC4	UAA4000S R/C transmitter	1	D4000SA	
	IC5	SAA3006P	1	DSA3006	
<b>Transistors</b>	T1	BC214C	1	DBC214C	
	T2	BC413C	1	DBC413C	
	T3	ZTX650K	1	DZTX650	
	T4	ZTX750K	1	DZTX750	
<b>Diodes</b>	D1,2,3,4,6	1N4148	5	D1N4148	
	D7,8,9	LED I/R emitter SFH485-2	3	BLI485S	
	D11,12	LED red diffused 3 mm dia	2	BLR124T	
	D14	SB14D SCHOTTKY 1A	1	DSB140X	
<b>Switches</b>	SW1	Switch remote CD	1	S66023A	
	SW4	Switch	21	S44INPA	
<b>Miscellaneous</b>	XL1	Ceramic resonator CSB 429P	1	NR429PA	
	Z2	Lifeline remote	1	PS30227	
	Z3	A formed wire link	15	WLINK06	
<b>Main Processor/ Display PCB</b>	<i>Ref</i>	<i>Description</i>	<i>Qty</i>	<i>Part No</i>	
<b>Resistors</b>	R300,321	100 $\Omega$ 5% 0.25W c.film	2	R100RJ4	
	R301,2,6,7,8 11,12,14,16, 17,22,29,31	10 k $\Omega$ 5% 0.25W c.film	13	R10K0J4	
	R304	4k7 $\Omega$ 5% 0.25W c.film	1	R4K70J4	
	R309,13,18	2k2 $\Omega$ 5% 0.25W c.film	3	R2K20J4	
	R319,333	27 $\Omega$ 5% 0.25W c.film	2	R27R0J4	
	R323	33 k $\Omega$ 5% 0.25W c.film	1	R33K0J4	
	R324	1k1 $\Omega$ 1% 0.25W m.film	1	R1K10F4	
	R326,7	7k5 $\Omega$ 1% 0.25W m.film	2	R7K50F4	
	R328	2k $\Omega$ 1% 0.25W m.film	1	R2K00F4	
	R340,1,2	1 M $\Omega$ 5% 0.25W c.film	3	R1M00J4	
	R332	750 $\Omega$ 5% 0.25W c.film	1	R750RJ4	
	<b>Resistor Networks</b>	N300-303	1 M $\Omega$ x7 sil 8 pin	4	RN1M07J
		N305	10 k $\Omega$ x8 sil 9 pin	1	RN10K8B
		N306	10 k $\Omega$ x9 sil 10 pin	1	RN10K9J
N307		10 k $\Omega$ x7 sil 8 pin	1	RN10K7J	

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	<i>Ref</i>	<i>Description</i>	<i>Qty</i>	<i>Part No</i>	
<b>Capacitors</b>	C300	100 $\mu$ F 20% 6.3V K mat	1	C100UME	
	C301	680 nF 10% 63V	1	C680NKA	
	C302,11,12	100 nF 5% 100V 7.5 mm	3	C100NJA	
	C303	4.7 $\mu$ F 10% 50V bi polar	1	C4U70KJ	
	C304	2.2 $\mu$ F 10% 50V non polar	1	C2U20KJ	
	C306,7	100 $\mu$ F 25V smvb	2	C100UZN	
	C308,9	1000 $\mu$ F 16V smvb	2	C1K0UZN	
	C310	680 nF 35V tant	1	C680NKT	
	<b>Integrated Circuits</b>	IC300,1	LM339	2	DLM339N
IC303		LM387 voltage regulator	1	DL387XX	
IC302		66 processor M38SH74AKB1	1	DM3874A	
IC305		LF356N	1	DLF356N	
IC306		CA3140	1	DCA3140	
IC320,21, 23,24		4051BP	4	DEF4051	
IC322,25		4016BP	2	DCD4016	
<b>Transistors</b>		TR300,1,2,3	ZTX750K	4	DZTX750
	TR304,6	ZTX650K	2	DZTX650	
	TR305	BC214C	1	DBC214C	
<b>Diodes</b>	D301,2	Diode Zener 3V3 500 mW	2	D79C3V3	
	D303,7	1N4003 1A 200V	2	D1N4003	
	D304,5	Diode Zener 7V5 500 mW	2	D887V5A	
	D306	Bridge rectifier DF02M	1	DVM18XX	
<b>Miscellaneous</b>	L300	Choke 22 $\mu$ H 10% axial	1	L4T220K	
	L301	Mains transformer 120/240V	1	L22061A	
	LB300	Light box lamps	5	BB515MB	
	M21324A	Light box housing	1	M21324A	
	N304	LCD display	1	DISP66A	
	PL300	IDC assy 16-way	1	M22962A	
	PL301,2	IDC assy 14-way	2	M22972A	
	PL303,4	AMP post header 2 pos straight	2	PAM3702	
	PL305	PCB straight header 5-way	1	PP05PCB	
	RL300	Relay G2R-117P-V-RP-12VDC-16A	1	SMG2R1B	
	RL301	Relay G2E-182-PM-12V DC	1	SMG2E1A	
	SW300	Switch ac mains	1	S44OFFA	
	F301,2	Fuse T315 mA type TR5	2	UM315DA	
	XL300	Crystal 4 MHz HC49/U	1	NX4M000	
	Z300	IC Socket 40-way	2	PIA40LC	
	Z301	Cable jumper 10-way	1	M22271A	
	Z302	Processor PCB issue 4	1	I22074A	
	Z303	Socket horizontal 22-way	2	PS2206A	
	<b>Top Display PCB</b>	<b>Ref</b>	<b>Description</b>	<b>Qty</b>	<b>Part No</b>
	<b>Resistors</b>	R350,361	33 k $\Omega$ 1% 0.25W m.film	2	R33K0F4
R351,362		68 k $\Omega$ 1% 0.25W m.film	2	R68K0F4	
R352,363		150 k $\Omega$ 1% 0.25W m.film	2	R150KFN	
R353,364		330 k $\Omega$ 1% 0.25W m.film	2	R330KF4	

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	<i>Ref</i>	<i>Description</i>	<i>Qty</i>	<i>Part No</i>
	R354,365	680 k $\Omega$ 1% 0.25W m.film	2	R680KF4
	R356	1M5 $\Omega$ 5% 0.25W c.film	1	R1M50J4
	R357,360	15 k $\Omega$ 1% 0.25W m.film	2	R15K0F4
	R366,374	47 k $\Omega$ 5% 0.25W c.film	2	R47K0J4
	R367	1 M $\Omega$ 5% 0.25W c.film	1	R1M00J4
	R370,376	4k7 $\Omega$ 5% 0.25W c.film	2	R4K70J4
	R371,2,3,7	10 k $\Omega$ 5% 0.25W c.film	4	R10K0J4
<b>Capacitors</b>	C351,352	22 $\mu$ F 20% 25V axial	2	C22UOMA
	C366	330 pF 10% UP125	1	C330PKJ
	C374	10 nF 5% 250/160V	1	C10N0JA
<b>Integrated Circuits</b>	IC350	4050BP	1	DEF4050
	IC351	LM393N	1	DLM393N
	IC352	4060BP	1	DEF4060
	IC353	MM5452	1	DM5452N
<b>Miscellaneous</b>	Z301	Cable jumper 63 mm 10-way	1	M22271A
<b>IR Receiver PCB</b>	<i>Ref</i>	<i>Description</i>	<i>Qty</i>	<i>Part No</i>
<b>Resistor</b>	R400	47 $\Omega$ 5% 0.25W c.film	1	R47R0J4
<b>Capacitors</b>	C400	15 nF 10% 100V 5 mm	1	C15N0KA
	C401	680 pF 10% 100V 5 mm	1	C680PKM
	C402	6.8 $\mu$ F 20% 10V tant	1	C6U80MT
	C403	68 $\mu$ F 2% 6.3V radial	1	C68U0MR
	C404	33 nF 10% 100V 5 mm	1	C33N0KA
	C405	4.7 nF 10% 100V 5 mm	1	C4N70KA
	C406	150 nF 10% 100V 5 mm	1	C150NKA
	C407,8	100 $\mu$ F 20% 6.3V K mat	2	C100UME
<b>Diodes</b>	D400	I/R detector diode BPW41D	1	DPBW41D
	D401	LED yellow side view diffused	1	BLY4371
<b>Integrated Circuit</b>	IC400	SL486DP	1	DSL486D
<b>Miscellaneous</b>	SK405	PCB socket 5-way	1	PS05PCB
	Z401	PCB receiver	1	I21816A
	Z403	Nylon spacer R908-1	1	IMR9081
<b>Audio PCB</b>	<i>Ref</i>	<i>Description</i>	<i>Qty</i>	<i>Part No</i>
<b>Resistors</b>	R1,3,17,19	33 k $\Omega$ 1% 0.25W m.film	4	R33K0F4
	R2,4,8,16	3k $\Omega$ 1% 0.25W m.film	4	R3K00F4
	R5,7,10			
	14,31	100 k $\Omega$ 5% 0.25W c.film	5	R100KJ4
	R9	3 k $\Omega$ 5% 0.25W c.film	1	R3K00J4
	R11,13,25			
	40,41	3k3 $\Omega$ 5% 0.25W c.film	5	R3K30J4
	R15	1k5 $\Omega$ 1% 0.25W m.film	1	R1K50F4

# QUAD 66 Preamplifier

## service data

<i>Ref</i>	<i>Description</i>	<i>Qty</i>	<i>Part No</i>
R20,26			
29,32,50	33 kΩ 5% 0.25W c.film	5	R33K0J4
R21,22,23	10 kΩ 5% 0.25W c.film	3	R10K0J4
R27	Sets tape level o/c (for 300 mV)	-	-
-	2k0Ω 1% 0.25W c.film (725 mV)	1	R2K00F4
R28,34,36	1 MΩ 5% 0.25W c.film	3	R1M00J4
R33,39	2M2Ω 5% 0.25W c.film	2	R2M20J4
R35,37	15 kΩ 5% 0.25W c.film	2	R15K0J4
R38,45,46	10 MΩ 5% 0.25W c.film	3	R10M0J4
R43,44	3k3Ω 1% 0.25W m.film	2	R3K30F4
R47	2k7Ω 1% 0.25W m.film	1	R2K70F4
R48	10 kΩ 1% 0.25W m.film	1	R10K0F4
R49	1k6Ω 1% 0.25W m.film	1	R1K60F4
<b>Capacitors</b>			
C1,2,3			
14,15,16	680 nF 10% 63V	6	C680NKA
C6	1000 μF 16V smvb	1	C1K0UZN
C7-11,19			
21,27,37	100 μF 10% bi-polar	9	C100UJJ
C12,13	47 nF 63V 10/20% 5 mm	2	C47N0MA
C14,C20	100 pF 160V 5% poly	2	C100PJL
C17	220 pF 50v 10% UP125	1	C220PKJ
C22,25	AP-33 nF 5% tested	2	C33N0JT
C23,26	AP-10 nF 5% tested	2	C10N0JT
C24	47 pF 10% UP125	1	C47P0KJ
C28,29	100 nF 5% 100V 7.5 mm	2	C100NJA
C31	470 pF 10% UP125	1	C470PKJ
C32	1.5 nF 2.5% 160V polyprop	1	C1N50HL
C33	5.6 nF 2.5% 160V polyprop	1	C5N60HL
C34	6.8 nF 2.5% 160V polyprop	1	C6N80HL
C35	680 pF 2.5% 160V polyprop	1	C680PHL
C36	220 nF 10% 63V	1	C220NKA
C38	1.5 nF 630V	1	C1N50JA
<b>Diodes</b>			
D1-8	Diode Zener 6V8 500 mW axial	8	D886V8A
D9-11	1N4148	3	D1N4148
<b>Integrated Circuits</b>			
IC1,5	TL074CN quad op amp	2	D074CNX
IC2	4051BP	1	DEF4051
IC3,4,8	4016BP	3	DCD4016
IC6	Opto coupler TLP521-2A (iss 1 PCB only)	1	DLP521A
IC7	TLO72CP	1	D072CPX
<b>Transistor</b>			
T1	ZTX750K	1	DZTX750
<b>Miscellaneous</b>			
N1	Digital volume control hybrid	1	Q20252W
N2	Digital balance control hybrid	1	Q20854A
PL1	PCB bump header 16 pin	1	PP16GS1
PL2	PCB bump header 14 pin	1	PP14GS1
SK0	Phono sockets 3-way	3	PS5295A
SK1	Phono sockets 1-way	1	PS5295C
Z4	PCB Screen (was I22381A)	1	M23041A

# QUAD 66 Preamplifier service data

Phono Module M/M 3 mV		<i>Ref</i>	<i>Description</i>	<i>Qty</i>	<i>Part No</i>
<b>Resistors</b>		R100	47 kΩ 5% 0.25W c.film	1	R4K70J4
		R101,2	10 kΩ 1% 0.25W m.film	2	R10K0F4
		R103,104	22 kΩ 1% 0.25W m.film	2	R22K0F4
		R106	2k2Ω 5% 0.25W c.film	1	R2K20J4
		R107	1 kΩ 5% 0.25W c.film	1	R1K00J4
		R108	75Ω 1% 0.25W m.film	1	R75R0FN
		R109	1 kΩ 1% 0.25W m.film	1	R1K00F4
		R111	4k7Ω 5% 0.25W c.film	1	R4K70J4
		R112	56 kΩ 1% 0.25W m.film	1	R56K0F4
		R113	4k99Ω 1% 0.25W m.film	1	R4K99F4
		R114	715 kΩ 1% 0.25W m.film	1	R715KF4
		R116	732Ω 1% 0.25W m.film	1	R732RF4
		R117	27 kΩ 1% 0.25W m.film	1	R27K0F4
		R118	2R2Ω 5% 0.25W c.film	1	R2R20J4
<b>Capacitors</b>		C100	220 pF 5% 50V UP125	1	C220PJJ
		C101	100 μF 5% 6.3V	1	C100UME
		C102,3	4.7 μF 10% 20V tant	2	C4U70KT
		C105	2.2 μF 10% 50V non polar	1	C2U20KJ
		C106	47 nF 1% polyprop	1	C47N0FA
		C107,9	15 nF 1% polyprop	1	C15N0FA
		C108	47 pF 10% UP125	1	C47P0KJ
		C110	680 nF 5% 63V 7.5 mm	1	C680NJA
<b>Diode</b>		D100	Diode Zener 5V6 BZY5V6	1	D795V6A
<b>Transistors</b>		T100	BC214	1	DBC214C
		T101	BC413	1	DBC413X
<b>Integrated circuit</b>		IC100	TLO72CP	1	D072CPX
<b>Miscellaneous</b>		Z101	Phono PCB RIAA 3 mV	1	Q66MMIM
		Z102	Receptacle omnitact M-8063	6	PAM0456
		Z103	3 mV label	1	M22662A
<b>Miscellaneous/ Accessories</b>		1	Screw kit main assembly	1	Q66SCR1
		2	Instruction book (English) issue 2	1	OI661EC
		3	Carton 66 and R1 remote	1	ZC66RCA
		4	Carton 66/CD only	1	ZC6CD1A
		5	66/CD Troncell inner pack	set	ZXCD1AA
		6	Carton R1 remote control	1	ZC6RC1A
		7	Remote control Troncell end caps	pair	ZX6RC1A
		8	Moving coil module 100 μV	pair	Q66DMKB
		9	Moving coil module 200 μV	pair	Q66DMKA
		10	Moving coil module 400 μV	pair	Q66DMKC
		11	Moving magnet module 3 mV (standard)	pair	Q66DMKM
		12	Line level in module 300 mV	pair	Q66FMKA

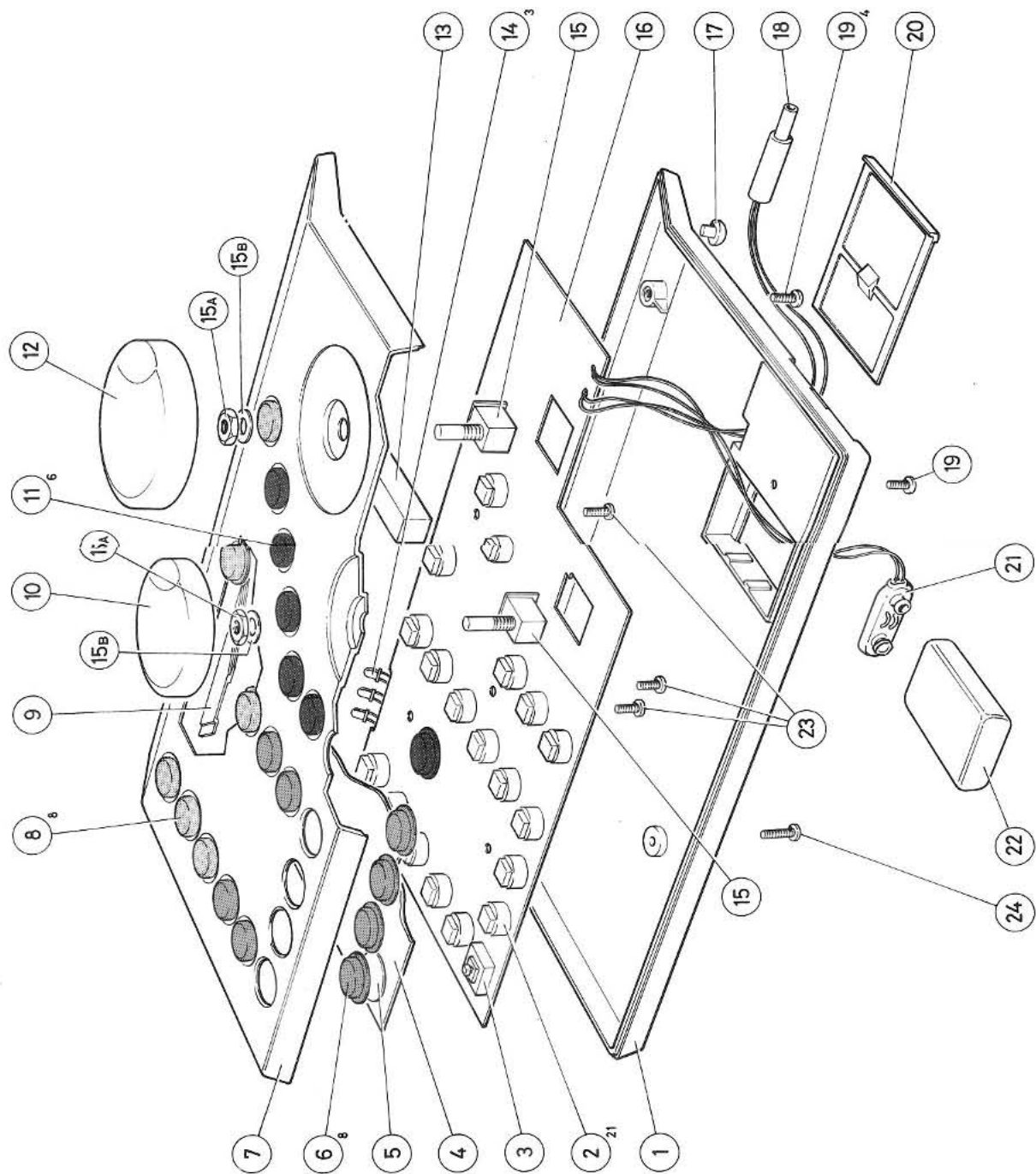
**Note:** For module options see circuit diagram 2158-3-66 page 21.



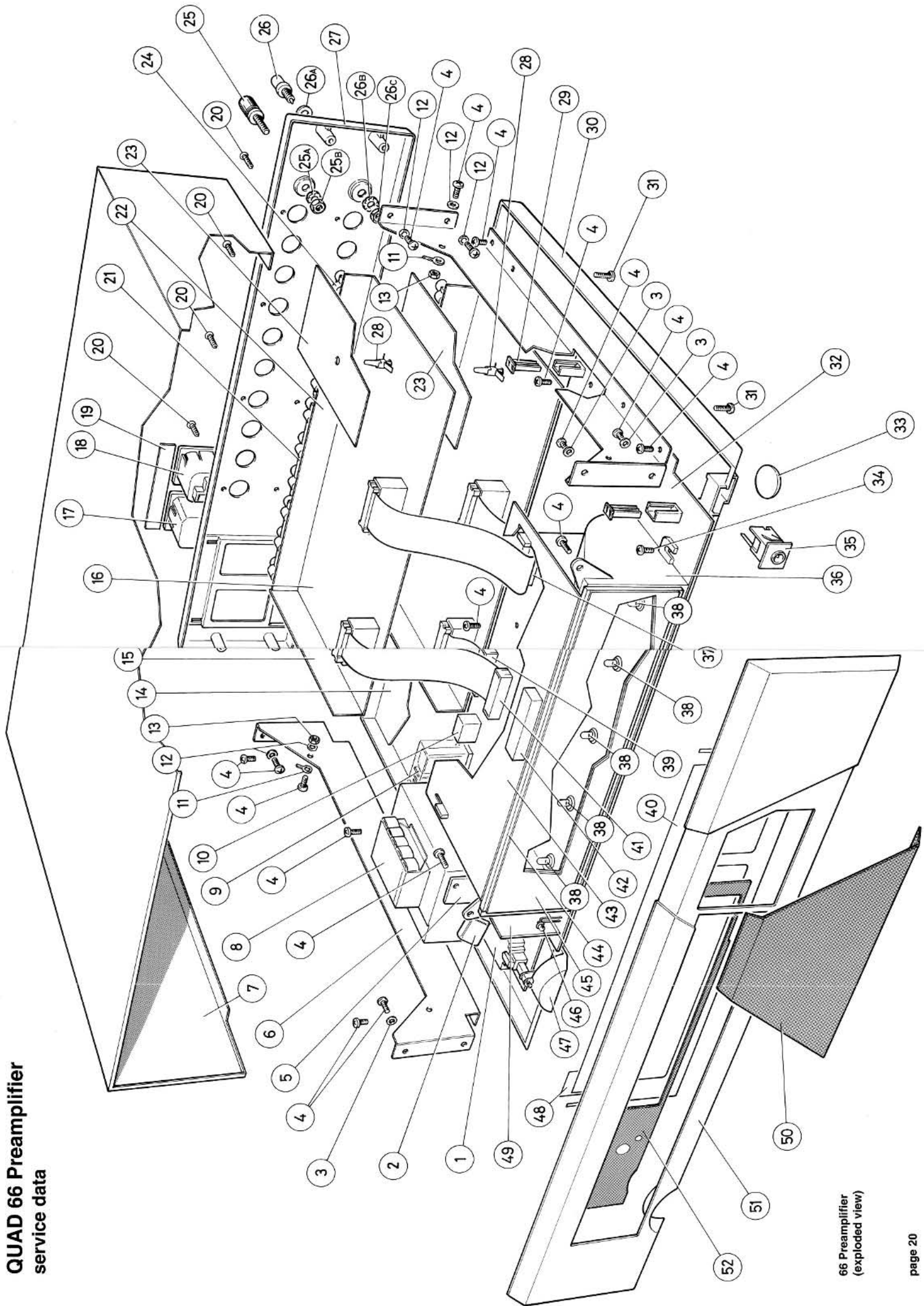
**QUAD 66 Preamplifier**  
service data

**NOTES**

QUAD 66 Preamplifier  
service data

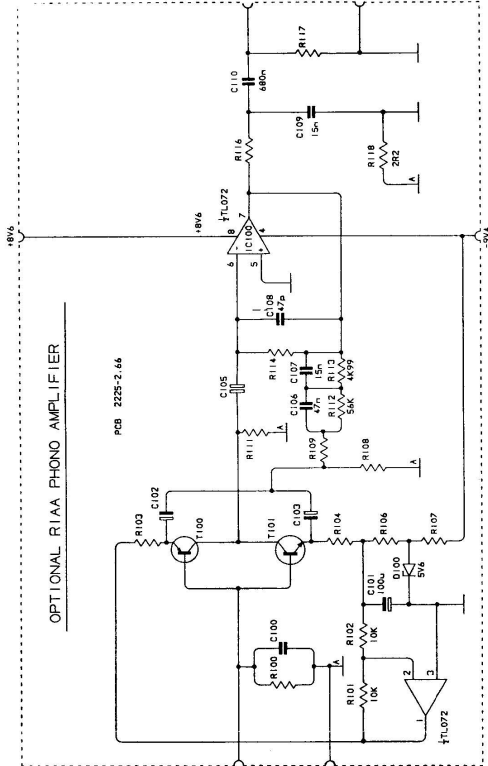


**QUAD 66 Preamplifier**  
service data

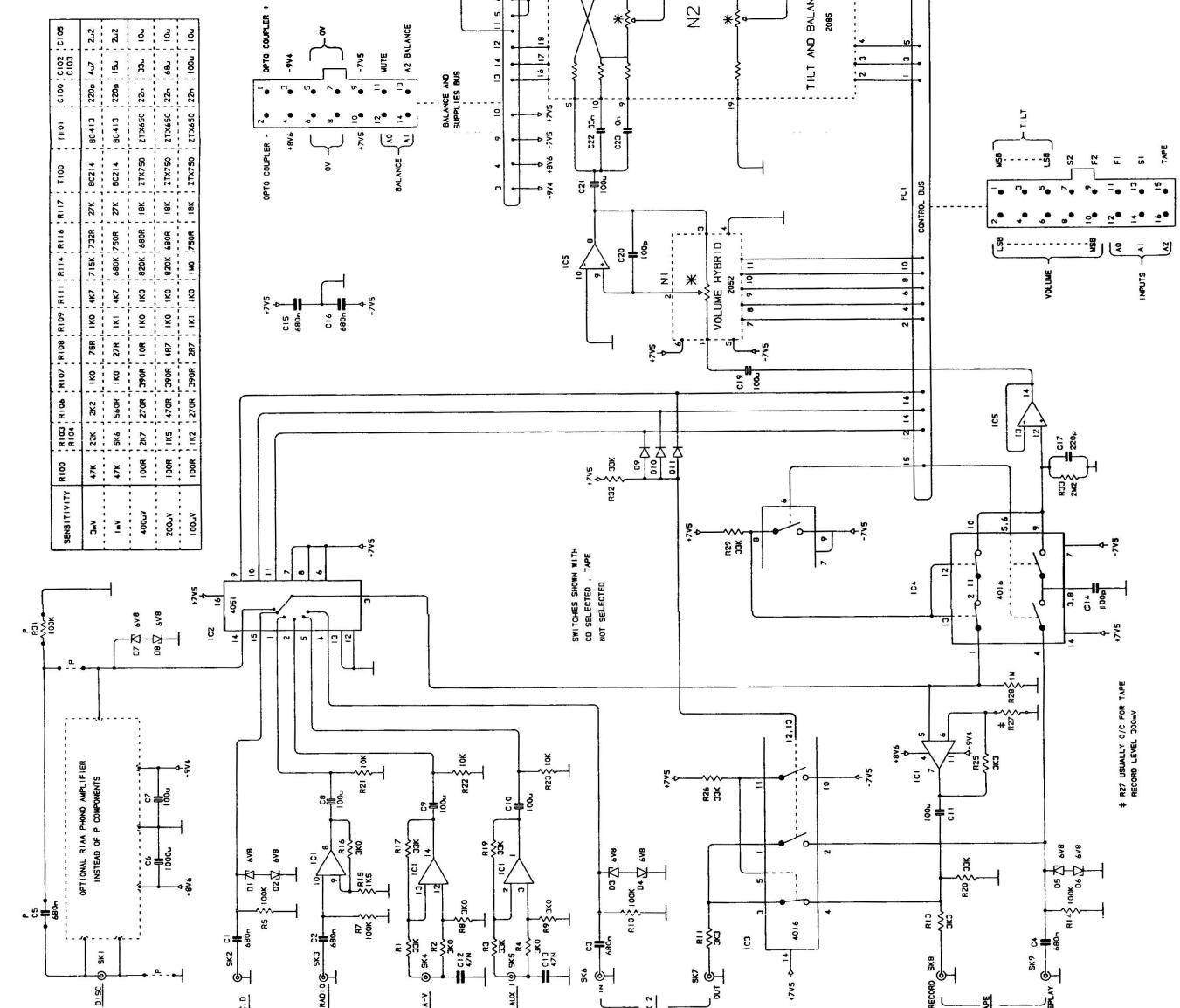
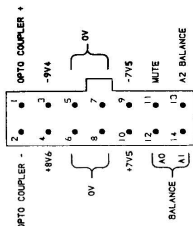


66 Preamplifier  
(exploded view)

# QUAD 66 Preamplifier service data

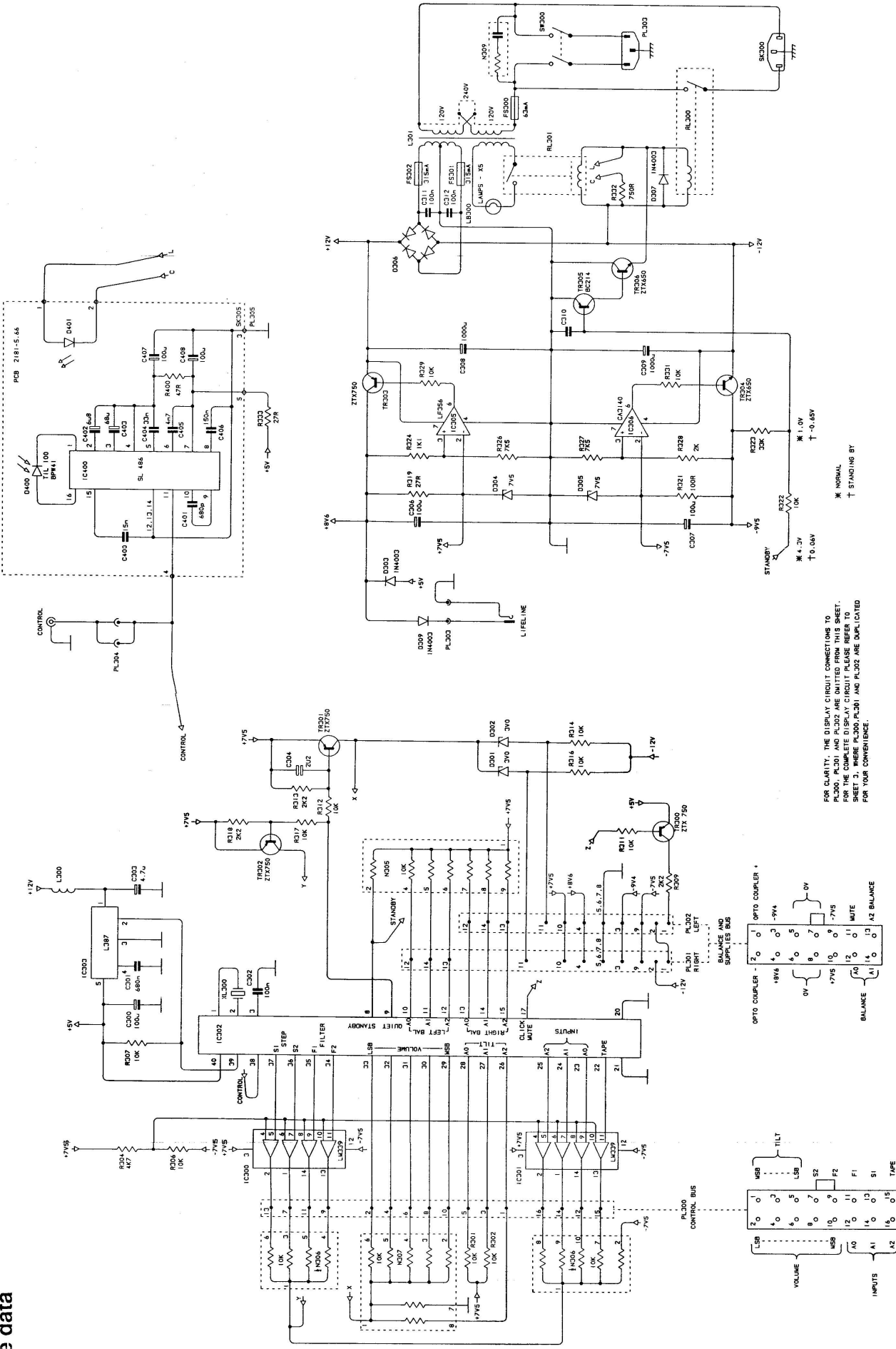


	R100	R103	R106	R107	R108	R109	R111	R114	R116	R117	T100	T101	C100	C102	C105	C108	C109
SENSITIVITY																	
3mV	47K	25K	25K	1K0	75K	1K0	4K7	715K	732R	27K	8C214	8C214	220n	4u7	2u2	2u2	2u2
1mV	47K	56K	56K	1K0	27R	1K1	4K7	680K	750R	27K	8C214	8C214	220n	5u	2u2	2u2	2u2
400uV	100K	20K	270R	390R	10R	1K0	1K0	820K	880R	18K	27K50	27K50	22n	25u	10u	10u	10u
200uV	100K	15K	470R	390R	10R	1K0	1K0	180K	180R	18K	27K50	27K50	22n	15u	10u	10u	10u
100uV	100K	15K	270R	390R	20K	1K1	1K0	1M0	750R	18K	27K50	27K50	22n	100u	10u	10u	10u



# QUAD 66 Preamplifier

## service data



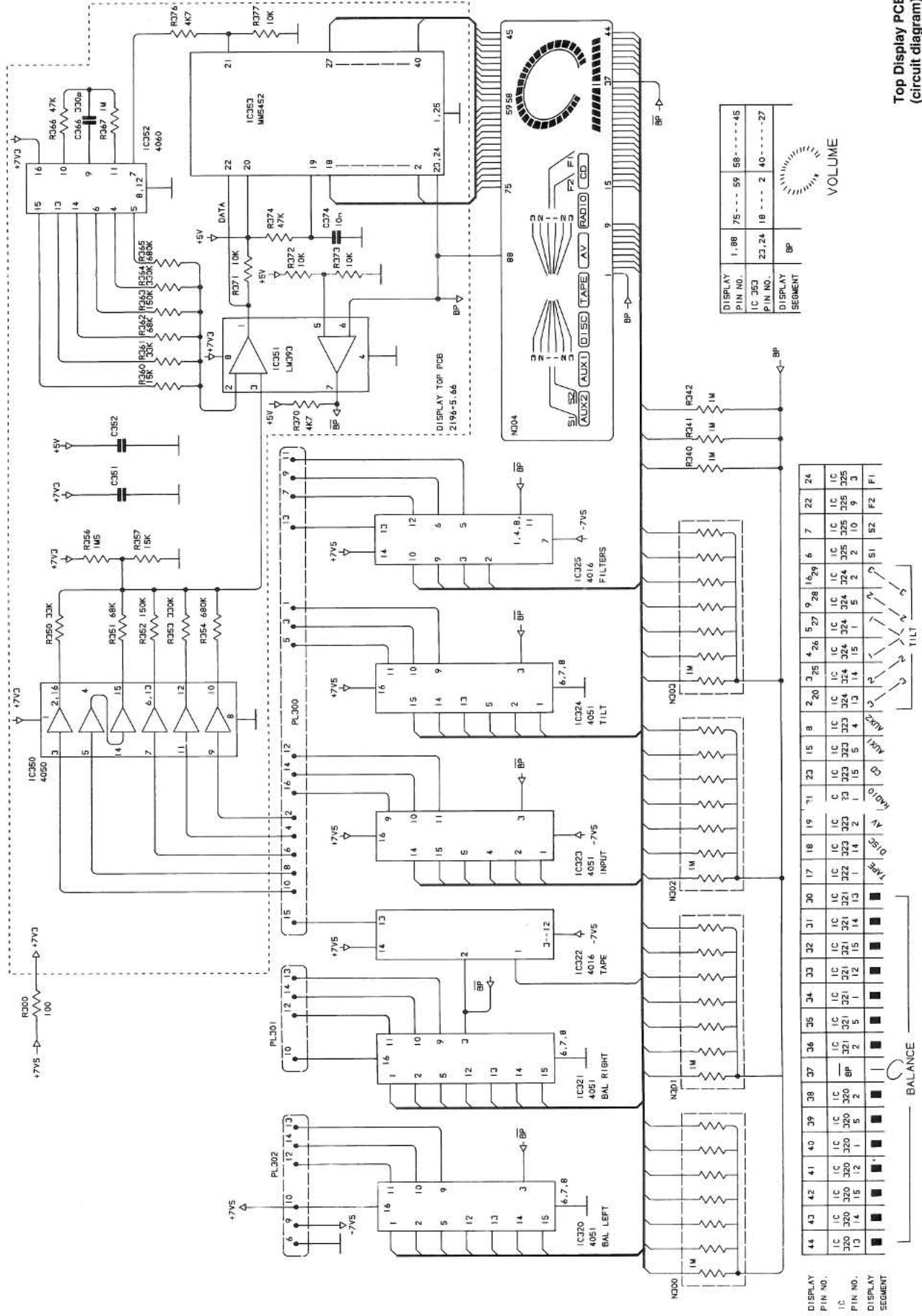
FOR CLARITY, THE DISPLAY CIRCUIT CONNECTIONS TO PL300, IC301 AND PL302 ARE OMITTED FROM THIS SHEET. FOR THE COMPLETE DISPLAY CIRCUIT PLEASE REFER TO SHEETS 2158-3-60 AND 2158-3-61 AND PL302 ARE DUPLICATED FOR YOUR CONVENIENCE.

\* NORMAL  
† STANDING BY

PDB 2158-3-66  
SEE ALSO SHEET 3

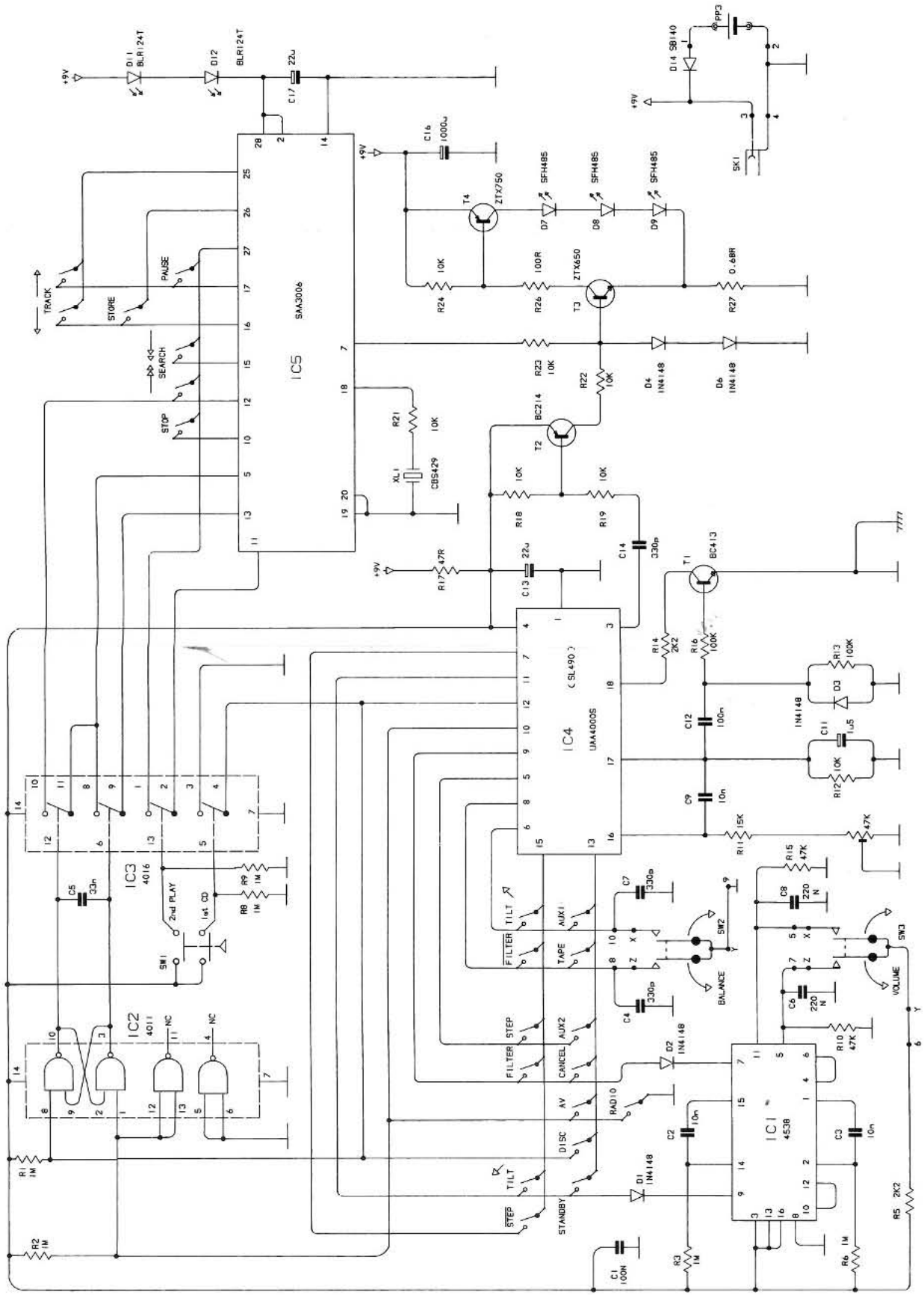
Main PCB/Processor 2158-3-66  
(circuit diagram)

# QUAD 66 Preamplifier service data



Top Display PCB 2158-5-66  
(circuit diagram)

# QUAD 66 Preamplifier service data



R1 Remote Control 2112-4-66  
(circuit diagram)

# QUAD 66 Preamplifier service data

## QUAD 66 DIGITAL CONTROL SUMMARY

FUNCTION	INFRA RED CODE	MICROPROCESSOR <i>PIN NUMBERS</i> AND VOLTAGE LEVELS	CONTROL BUS <i>PIN NUMBERS</i> AND VOLTAGE LEVELS
INPUTS		25 24 23	16 14 12
PHONE	1 1 1 1 1	0V 0V +5V	-7V5 +7V5 +7V5
CD	1 1 1 0 0	0V +5V 0V	-7V5 +7V5 -7V5
RADIO	1 0 1 0 0	+5V 0V 0V	+7V5 -7V5 -7V5
AV	1 0 1 1 1	+5V +5V 0V	+7V5 +7V5 -7V5
AUX I	0 0 1 1 1	+5V 0V +5V	+7V5 -7V5 +7V5
AUX II	0 0 0 1 1	+5V +5V +5V	+7V5 +7V5 +7V5
DURING STANDBY		0V 0V 0V	-7V5 -7V5 -7V5
TAPE		22	15
ON	0 1 1 1 1	+5V	+7V5
OFF	0 1 1 1 1	0V	-7V5
VOLUME		29 30 31 32 33	10 8 6 4 2
MAXIMUM		MSB	MSB
ZERO	1 1 0 0 0	+7V5 +7V5 +7V5 +7V5 +7V5	+7V5 +7V5 +7V5 +7V5 +7V5
EACH CLOCKWISE CLICK	1 0 0 0 0	0V 0V 0V 0V 0V	0V 0V 0V 0V 0V
EACH ANTICLOCKWISE CLICK	1 0 0 0 0	ONE BINARY COUNT UP ONE BINARY COUNT DOWN	0V 0V 0V 0V 0V
TILT		26 27 28	1 3 5
ZERO	0 0 1 0 1	MSB LSB	MSB LSB
TILT ↗	1 1 0 0 1	0V +7V5 +7V5	0V +7V5 +7V5
TILT ↘	1 1 0 0 1	ONE BINARY COUNT UP ONE BINARY COUNT DOWN	0V +7V5 +7V5
FILTER		34 35	9
ZERO	0 0 1 0 1	MSB LSB	MSB LSB
MAXIMUM	1 0 0 0 1	0V 0V	-7V5 -7V5
MORE FILTER	0 1 1 0 1	+5V 0V	+7V5 -7V5
LESS FILTER	0 1 1 0 1	ONE BINARY COUNT UP ONE BINARY COUNT DOWN	-7V5 -7V5
STEP		36 37	7
ZERO	0 0 0 0 1	MSB LSB	MSB LSB
MAXIMUM	0 1 1 0 1	0V 0V	-7V5 -7V5
MORE STEP	0 0 0 0 1	+5V 0V	+7V5 -7V5
LESS STEP	0 1 0 0 1	ONE BINARY COUNT UP ONE BINARY COUNT DOWN	-7V5 -7V5
CANCEL	1 0 0 1 1	TILT, FILTER AND STEP, ALL SET TO ZERO AS ABOVE	
STANDBY	1 1 0 1 1	8 / 0V ALL FUNCTIONS ZERO	
RETURN FROM STANDBY	ANY INPUT CODE	4V2 ALL FUNCTIONS TO PREVIOUS SETTINGS EXCEPT INPUT WHICH IS AS PRESSED *	
BALANCE		MICROPROCESSOR <i>PIN NUMBERS</i> AND VOLTAGE LEVELS	
MAXIMUM LEFT	0 0 1 0 0	15 14 13	12 11 10
EACH CLOCKWISE CLICK	0 1 1 0 0	MSB LSB	MSB LSB
EACH ANTICLOCKWISE CLICK	0 1 1 0 0	0V 0V 0V	+7V5 +7V5 +7V5
CENTRAL	0 0 1 0 0	ONE BINARY COUNT UP ONE BINARY COUNT DOWN	NO CHANGE NO CHANGE
EACH CLOCKWISE CLICK	0 1 1 0 0	+7V5 +7V5 +7V5	+7V5 +7V5 +7V5
EACH ANTICLOCKWISE CLICK	0 1 1 0 0	NO CHANGE NO CHANGE	ONE BINARY COUNT DOWN ONE BINARY COUNT UP
MAXIMUM RIGHT	0 0 0 1 0	+7V5 +7V5 +7V5	0V 0V 0V
KEY	0 0 0 1 0	DISABLE ENABLE REMOTE FUNCTIONS	
DIAG	1 0 1 0 1	SINGLE DISPLAY TEST ROUTINE	
SOAK	0 0 1 1 0	CONTINUOUS DISPLAY TEST ROUTINE	

FOR ENGINEERING PURPOSE ONLY

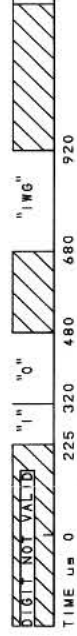
### I.R. CODE SPECIFICATION

### TRANSMITTER TIMING



A DATA PHRASE IS TRANSMITTED AS A 5 BIT WORD, INTER WORD GAP, 5 BIT WORD, INTER WORD GAP, ETC.  
NOTE: RECEIVER MUST RECEIVE AT LEAST 3 WORDS SEPARATED BY I.W.G. TO DECODE DATA

### RECEIVER WINDOWS

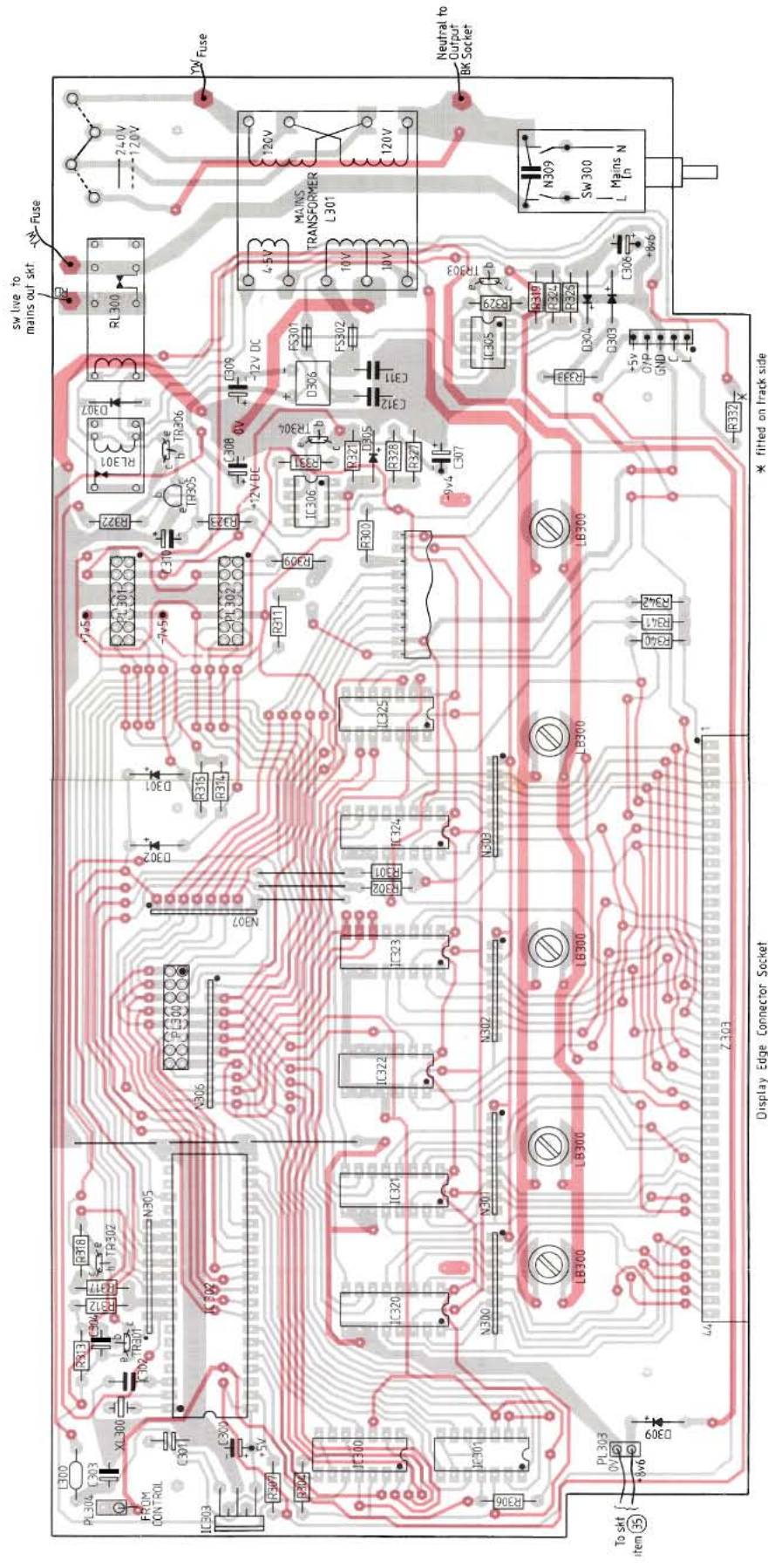


EACH PULSE RECEIVED RESETS THE TIMER TO 0 µs IF THE NEXT PULSE OCCURS IN ONE OF THE WINDOWS THEN THE RECEIVED DIGIT IS AS SHOWN

\* WHEN RETURN FROM STANDBY IS ACHIEVED BY PRESSING TAPE, THEN THIS INPUT WILL BE ACCOMPANIED BY THE PREVIOUSLY SELECTED INPUT.

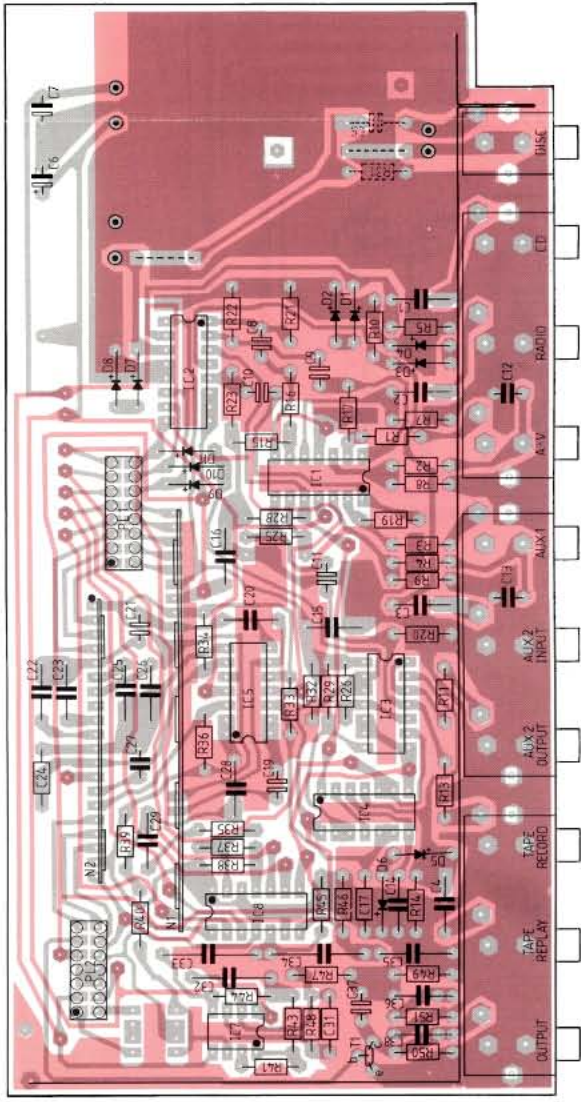


# QUAD 66 Preamplifier service data

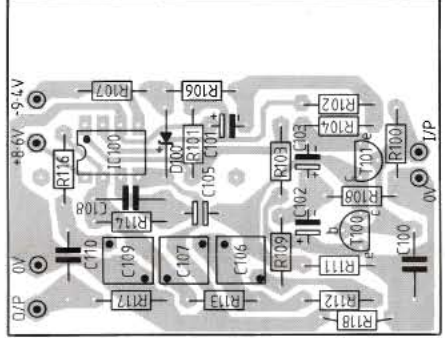


Main PCB/Processor 2207-4-66  
(component layout - solder side)

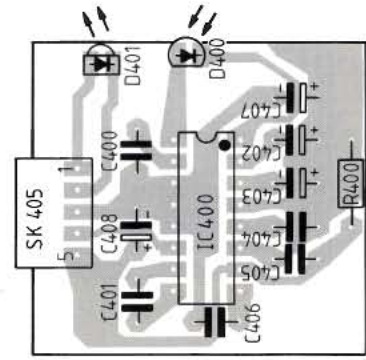
**QUAD 66 Preampifier  
service data**



**Audio PCB 2156-3-66**

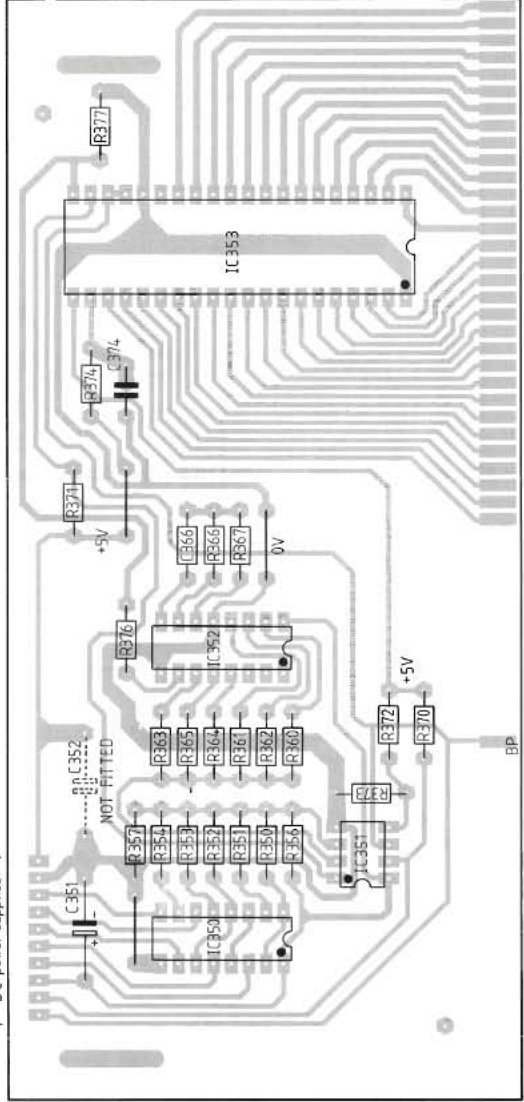


**Phono PCB 2225-2-66**



**Receiver PCB 2181-5-66**

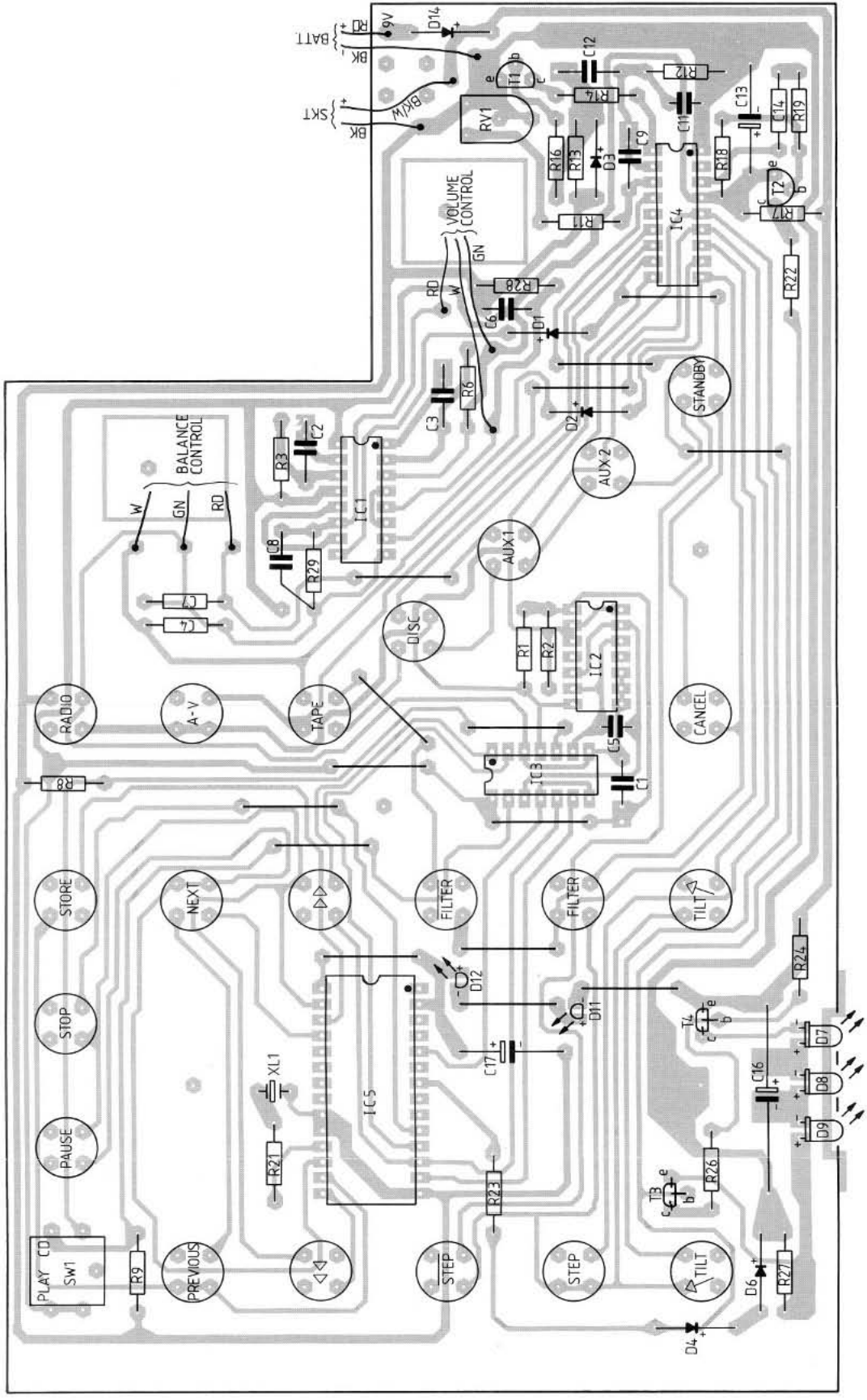
Control data and DC power supplies



**Top Display PCB 2196-5-66**

**Component Layouts - Solder Side**

**QUAD 66 Preamplifier**  
service data



R1 Remote PCB 2118-6-66  
(component layout - solder side)

# QUAD 66 Preamplifier service data

NOTES (circuit)

# QUAD 66 Preamplifier service data

NOTES (Circuit)

# QUAD

## 66 Preampifier - Programming Instructions (software version 1.04, from serial number 210600)

**Please read the main instruction book first, to become fully accustomed with your 66 preampifier operation, before trying to use the special programming feature explained below.**

There is a special programming feature which is not visible in normal operation. This allows you to programme and store specific settings of **step**, **tilt**, **filter** and **volume** for each input except **TAPE**.

You can move from the '**programmed**' mode and back by pressing any input button, except **TAPE**, 3 times. You are in the '**Normal**' mode when the '**STEP TILT FILTER**' icons, in the display, are lit and in '**programmed**' mode when they are not.

To programme an input press the input button 3 successive times followed by **STAND-BY** (da-da-da-dum). The '**STEP TILT FILTER**' icons and a single top segment of the '**volume**' display together with the '**flag**' for the input selected, will '**flash**' to show it is in the '**programming**' mode.

*If the 66 preampifier switches to stand-by you have got the timing wrong!. Possibly too fast or too slow. Don't worry just press the **STAND-BY** button again, to switch on, and repeat the above steps.*

**Step**, **tilt** and **filter** functions can now be set as required. The **volume** can also be adjusted by up to 4 notches above or below the nominal setting - this is shown by flashing segments either side of the flashing top segment. Press the input button again to store the settings and return to the '**programmed**' mode.

If required a number of inputs can be programmed consecutively by changing inputs between settings and pressing the last programmed input button a second time, to store all the chosen inputs and settings and revert to the '**programmed**' mode.

The 66 preampifier will go to its '**programmed**' mode (the display will stop flashing) and when any input is chosen the stored **step**, **tilt**, **filter** and **volume** settings will always be selected. These can of course be altered, if required, with the remote control. Switching to another input and back again will restore the stored settings.

If you want to clear all the stored settings from the memory and revert back to '**flat**' settings for all inputs, reselect the '**programming**' mode and press the **CANCEL** button. The 66 preampifier will go to '**normal**' mode with all stored settings cleared from its memory.

**Note:** To allow for **A - B** monitoring the **TAPE** input cannot be programmed and the volume does not decrease and increase on selection or if changing inputs when in the tape monitor mode. Neither is it possible to toggle between modes with the **TAPE** button.