

SERVICE MANUAL
for
Systemline S4.3 Controller



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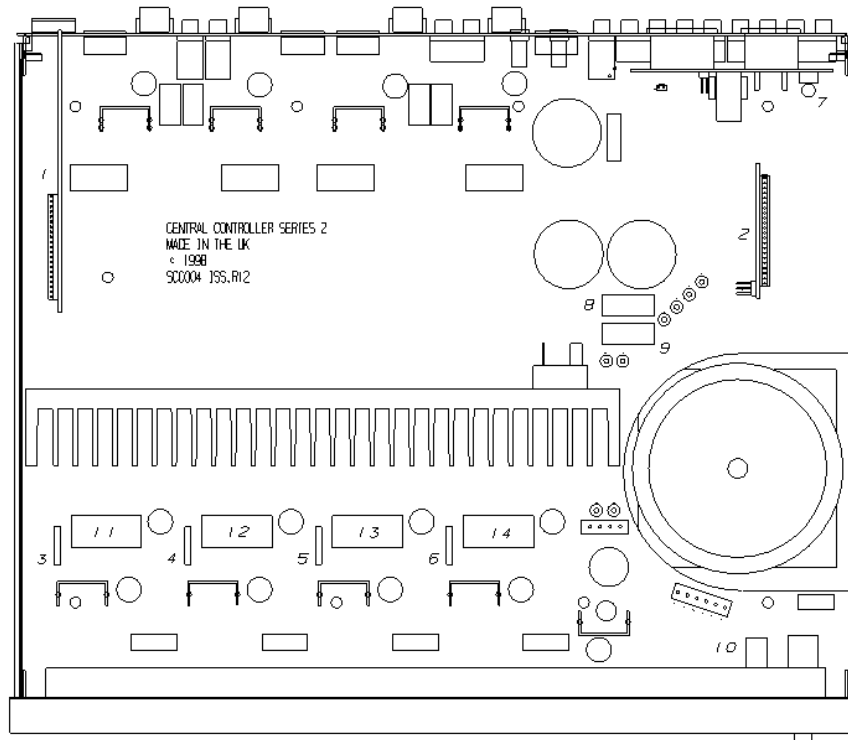
The information contained in this service manual may be subject to change without prior notice.

WARNING:

Dangerous voltages, capable of causing death are present in this unit. ONLY qualified personnel should attempt repair of this unit. Use extreme caution when the cover is removed, when testing and adjusting internal components.

1.0 MAIN ASSEMBLY

To remove the lid of the controller, remove the two screws at the rear of the unit on the top flange, and then the four side screws, which require a 2.5mm hexagonal allen key.



NOTE: Some of the components can be affected by static shocks. Service personnel should be earthed when handling these items.

WARNING:

Dangerous voltages, capable of causing death are present in this unit. ONLY qualified personnel should attempt repair of this unit. Use extreme caution when the cover is removed, when testing and adjusting internal components.

The figure above shows the location of the important components within the controller. The list below details these items.

1. Translator Card
2. TX Card
3. Zone A Line Driver / Pre-Out Card
4. Zone B Line Driver / Pre-Out Card
5. Zone C Line Driver / Pre-Out Card
6. Zone D Line Driver / Pre-Out Card
7. Mains Card Fuse (located under black cover)
8. 10(T)A Fuse
9. 10(T)A Fuse
10. Mains Fuse ((3.15(T)A for 220V & 6.3(T)A for 115V))
11. Zone A TDA7318 Chip
12. Zone B TDA7318 Chip
13. Zone C TDA7318 Chip
14. Zone D TDA7318 Chip

2.0 MOTHERBOARD AND DAUGHTER PCB'S

2.1 Motherboard

The main controller circuit features 4 identical IR control and audio processing circuits for each of the 4 zones.

Infra Red control signals are received via SK3 and inputted to a monostable IC1 (4047) which stretches the IR signal pulse without affecting the time between rising pulse edges. This reduces the possibility of interference causing an IR decoding problem, and also improves performance with various IR receivers. Each Zone has two dedicated IR decoders IC2 & IC3 that decode 32 five-bit PPM words. These decoders operate at two different data rates to extend the number of commands to a total of 64. When a valid Systemline command is received one of the DR Data Ready pins of IC2 (pin10) & IC3 (pin10) goes low. The uController IC4 reads the command data from the bus (A-E) and carries out the required operation. IC4 places control data onto the I²C bus (when allowed by U1 data TX card); this can be either source commands that are detected by the Translator Card or Audio Control commands that are actioned by the TDA7318 audio processor IC5. The TDA7318 processor controls the selected audio input and the volume level. Operations such as mute are achieved by the zone's uController ramping the 7318's volume attenuator up and down via the I²C bus. IC4 is a darlington line driver that interfaces the Data TX card I²C lines to CAT-5 cable for transmission to the remote DMS display modules.

Each Zone has its own clock source (4MHz) which is driven by the internal oscillator circuit of the uController IC4. Both the speaker and pre-amp anti-thump relays are activated by the RB7 output of IC4 (pin 13) driving transistor T2 ON.

The stereo audio output of IC5 is fed to an integrated IC power amplifier. This is a low distortion device with internal thermal and short circuit protection. It operates in a conventional negative feedback configuration with its gain and low frequency roll-off determined by the feedback components. The audio output connects to the speakers via a high current relay. This disconnects the speakers when a zone is off, and also when the controller is powered up or down to prevent unwanted thumps through the speakers.

The S4.3 features fully buffered audio inputs formed around the quad OpAmps IC1/1A-IC2/2A. Each of the four audio inputs passes through a low pass filter before entering two unity gain buffers. One output is fed to the loop through outputs, and the other to the Audio Signals Bus that feeds each of the zones' IC5 audio processors.

The paging trigger enables all zones to be muted, and at the same time allows audio to be broadcast over the zones via the phono sockets connected to RLA3. The Data TX card switches RLA3 when the paging trigger is pulled low. Depending on the position of SW1, the zone uController IC4 will either switch to Input 4 (paging audio is shared with this input via RLA3), or will ignore the paging request and continue to operate in its present mode.

For details of the PCB, items list and circuit diagram of the motherboard, mains card please refer to Appendix B.

2.2 Front Panel

This PCB contains the LED indicators for each zone and also a Flood IR transmitter to re-transmit command codes to the source equipment. Three high power Infra Red diodes are driven in parallel by darlington transistor T1. This circuit also contains overload protection and a fault indicator. Should the Infra Red relay system be subjected to very prolonged interference, causing the diodes IRD1-IRD3 to conduct continuously, a silicon based resettable 'PolySwitch' increases its resistance; severely limiting the drive current to the IR diodes. This condition is indicated by LD14 which illuminates when FS1 is operating. Once the fault is removed the 'PolySwitch' resets itself after a short period.

For details of the PCB, items list and circuit diagram of the front panel PCB please refer to Appendix C.

2.3 Translator Card

This card contains the code bank PIC (the centre one with the software version and an issue on it). It also has the four way switch that is used when setting up the controller for the first time when using certain pieces of equipment. Please refer to your installation manual for these switch settings.

The translator is a plug in PCB card that enables the controller to transmit a variety of IR command codes for different source brands.

When the controller receives a source control command from a zone, one of the four micro controller IC's (IC7,8,9 or 10) will decode the I2C command (data & clock) via its RA2 & RA3 inputs. The serial command is converted to parallel data IC7 - 10, which then requests that an IR command be generated by the IR code bank IC11. Only one of the four zone IC's (IC7-10) can put data onto the parallel data bus at any one time. When the code bank IC11 is ready it enables Zone data to be placed on the bus by pulling low the RA0 line of the relevant zone. Data is allowed onto the bus for as long as the control command is active. Should a command be received from another zone whilst code generation is in progress, the code request is held within the Zone IC until the bus is clear. At this point IC11 will see the request RA1 (IC7-10) (High) and enable zone data onto the bus once again.

The installer at the point of installation configures the translator card. Set-up data is held within IC7 which contains EEPROM memory. During power-up IC7 transfers set-up data to IC11 via the bus. This can be checked as LD1 flashes when the controller is turned on. Four LED's on the translator card (LD1-LD4) indicate when a Zone's IR command data is present on the bus. DIP Switch SW1 is used to notify IC11 which 'Bank' of source codes is being transmitted for each of the four inputs.

The translator card also processes IR data which comes directly from the IR receivers in the remote zones. It should be noted that all commands, which are not Systemline specific, are re-transmitted via the IR outputs SK1-SK4. IRD1-4 lines carry the raw IR signals from each of the zones A-D. IC1 & IC2 act as buffers and control switches. If the controller recognises a command as Systemline specific the translator will block re-transmission of the IR signal by driving the output enable pins of IC1 & 2 high.

Note: lines TXOR1-4 enable the Individual zones to disable IR retransmission of their IR input when in standby. However, this feature is disabled on current production.

IC3 OR's together translated IR codes (IC3 pin 5) and external IR codes from other controllers (IC3 pin 13), before being outputted via T1. U6:A and surrounding components D6, C5, & R20 form a demodulator which strips IR codes of their carrier. This is necessary for RC5 codes to operate RC5 components via their RC5 Bus Link. Transistor T2 grounds the input of U6:A when non RC5 codes are being transmitted by U11.

For details of the PCB, items list and circuit diagram please refer to Appendix D.

2.4 TX Card

The function of the Data TX card is to act as a Master device in the I2C bus system, and also to coordinate data transfer to the remote Zone DMS displays.

Note: The I2C transfer to the remote zone displays is uni-directional. All control data is transferred from the zones via the serial IR data link.

U1 is a uController running from a 10MHz crystal. I2C data and clock signals are received from each of the Zone uControllers via the RB0-RB7 pins on U1. To ensure that only one zone can

communicate on the I2C bus at any one time, U1 enables each Zone's uController by toggling its I2C clock input high every 140uS for a period of 32uS (all other zones are therefore Low). If the uController has Data it wants to transfer it takes control of the clock line by pulling it low. Data is then transferred onto the bus. Once a complete address & data byte have been detected, U1 resumes control of the bus and toggles through the other zones uControllers to see if data is waiting. If not, further address & data words can be transmitted until the message is complete.

Transistor Q2 enables U1 to operate the Mains Relay (Switched AC Output), this is done via an SR Flip Flop. This ensures that under conditions of interference the Mains Relay does not drop out causing source equipment to be turned OFF when the controller has active zones.

To enable control of the AC mains relay from another controller and to allow a complete system shutdown, a two-wire bus transfers control signals between systems via J2.

Note: Because the Data TX card is the Master device in the I2C system, no zone will operate if this card is faulty or unplugged from the main controller board.

For details of the PCB, items list and circuit diagram please refer to Appendix E.

2.5 Line Drivers

Check that these are in the correct way round and pushed home well. Ensure that the line drivers are set around the right way for the application required. The components should face towards the left hand side as you look at the front of the controller.

Each Line driver plugs into a 15-way socket that is situated between the output of the TDA7318 audio processor and the input of the power amplifier. The plug in board can be inserted in two ways. In 'Pre-Out' mode the Volume Controlled signals from IC5 are fed directly into the power amplifier. In this configuration the pre-out sockets are fed with the same volume controlled signal as the power amplifiers.

In 'Line Driver' mode signals are fed directly from the 'audio selected' buffered output of IC5 to a unity gain dual 5532 OpAmp IC4. This buffers the signal and provides a low source impedance to the pre-out sockets for use with an external audio processor. This output is not volume controlled.

For details of the PCB, items list and circuit diagram please refer to Appendix F.

2.6 Fuses

The three fuses on the motherboard have plastic covers on, which will need to be removed before the fuse can be changed. **CHECK THE SUPPLY VOLTAGE BEFORE CHANGING THE FUSE NEAR THE MAINS SWITCH.** For 230V it has to be a 3.15A fuse and for 110V a 6.3A fuse is required.

2.7 TDA7318 Audio Processors

Zone Faults may be caused by this item. To check for faults, change the suspect TDA7318 with one from a known working zone. See static warning in introduction.

APPENDIX A

Main Assembly

Drawing Number: Q10053/IL

Items List for: Q10053/AS
S4.3 FINAL ASSEMBLY

Approved for Production: _____



Issue: 3

Date: 09/11/2000

Change Number: CR00075

Item No.	Part No.	Description	Manf. Part No.	Qty	Iss	Remarks
A	ZINS004	S4.3 INSTALLATION MANUAL		1		ENCLOSE IN PACKAGING
B	ZINS482	S4.3 WARRANTY CARD		1		ENCLOSE IN PACKAGING
C	E510	RHS3 HANDSET		1		
D	ZMIS016	AAA BATTERY ALKALINE		4		
E	ZINS092	RHS3 SET-UP CARDS BANK 1 & 2		1		
1	ZTXA002	SUPER CONTROLLER TRANSFORMER		1		
2						
3	ZMET021	TRANS SUPPORT PLATE 4.3/ROTEL	Q10114/DE	1	2	
4	ZENC201	S4.3 BASE PANEL METALWORK	Q10104/DE	1	6	
5	ZENC200	S4.3 PAINT/PRINTED REAR PANEL	Q10047/DE	1	4	
6	ZENC202	S4.3 TOP COVER METALWORK	Q10077/DE	1	5	
7	ZENC203	S4.3 FRONT PANEL	Q10069/DE	1	2	
8	ZENC190	S4.3 WINDOW SILK SCREENED	SL006/ISS2	1	2	
9						
10						
11	ZSCI107	TDA7318 AUDIO PROCESSOR		4		FIT IN 1IC5 TO 4IC5
12						
13						
14	ZFUS007	3.15A (T) CERAMIC FUSE	649-319	1		
15	ZFUS005	2A A/S 20MM FUSE CERAMIC	649209	1		
16	ZFUS002	20MM 10A ANTISURGE CERAMIC	649100	2		
17	ZFUS004	FUSE COVER FOR 20MM HOLDER	FC-2540	4		
18						
19	ZPLA049	2 WAY PLUG IMO STYLE	BU9502	8		TO BE BAGGED
20	ZPLA012	CAT 5 CONNECTOR	1300106426	4		TO BE BAGGED
21	ZPLA052	R/A SCREW IEC PLUG PX0686/SE	PX0686/SE	1		TO BE BAGGED
22						

Production Cross Reference: WR116
Grayed out items indicate ZKIT005

Drawing Number: Q10053/IL

Items List for: Q10053/AS
S4.3 FINAL ASSEMBLY

Approved for Production: _____



Issue: 3

Date: 09/11/2000

Change Number: CR00075

Item No.	Part No.	Description	Manf. Part No.	Qty	Iss	Remarks
23	ZSKA018	3.5MM STEREO JACK SKT P/MOUNT	JS-3580	2		
24						
25	ZSKA027	MAINS INLET IEC PX0575/15/63		1		
26	ZSKA028	MAINS OUTLET IEC PX0695/15/63		1		
27						
28	ZMIS018	MAINS SWITCH BUTTON	KB1510	1		PAINTED ZPRT001
29	ZMIS000	FEET CONTROLLER / AMP		4		
30	ZMIS402	JIFFY FOAM		1		
31						
32	ZMIS403	NYLON TIE WRAP		5		
33	ZMIS015	3MM SPONGE SELF ADHESIVE BACK		1		FIT ON TRANSFORMER
34						
35	ZCAB100	3 CORE MAINS WIRE		1		
36	ZCAB104	4MM SLEEVING		4		
37	ZCAB112	RUBBER SLEEVING		7		
38						
39						
40	ZCAR007	MAINS CARD COVER(S/CONTROLLER)		1		
41	ZCAR018	S4.3 CARTON INC END CAPS		1		
42	ZBAG000	4 X 6 POLY BAG	46500	1		
43						
44						
45						
46						
47	ZSRW057	M6 X 75 SLOT PAN SCREW BLACK	AA0011060X0075D	1		TRANSFORMER FIXINGS
48	ZSRW018	M3X6 PANHEAD POZI - BRIGHT		10		MOTHERBOARD FIXINGS
49	ZSRW060	M6 STEEL WASHER	AZ071060B	1		TRANSFORMER FIXINGS
50	ZSRW061	M6 HEX NYLON INSERT NUT	AA052060B	1		TRANSFORMER FIXINGS

Production Cross Reference: WR116
Grayed out items indicate ZKIT005

Drawing Number: Q10053/IL

Items List for: Q10053/AS
S4.3 FINAL ASSEMBLY

Approved for Production: _____



Issue: 3

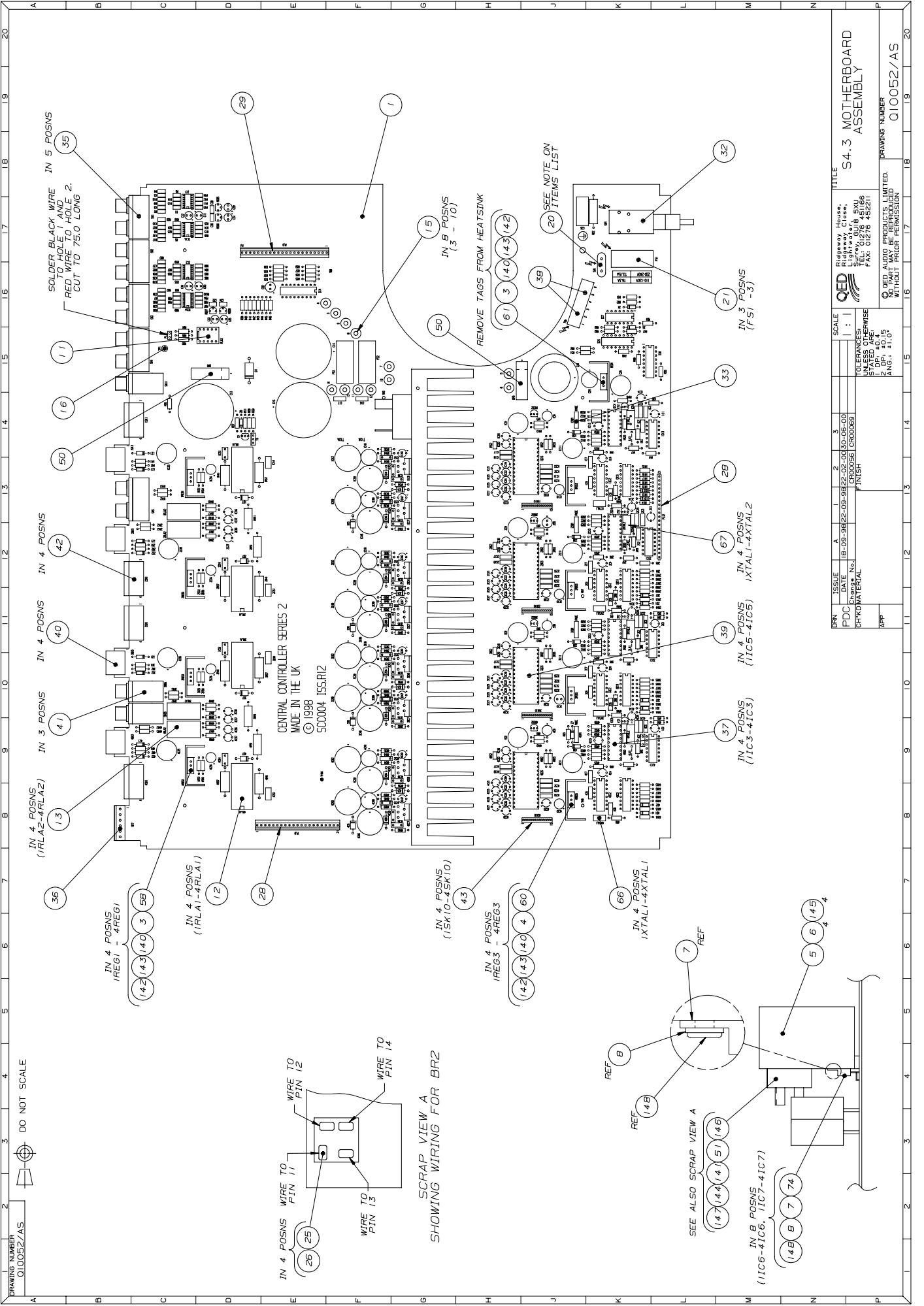
Date: 09/11/2000

Change Number: CR00075

Item No.	Part No.	Description	Manf. Part No.	Qty	Iss	Remarks
51						
52	ZSRW030	M3 SHAKEPROOF WASHER	AZ090030B	1		EARTH FIXING
53	ZSRW062	M4 NYLOC NUT	GNYLTM040B	2		REAR PANEL FIXING
54	ZSRW063	M4 WASHER PLAIN	EWFMAM040B	2		REAR PANEL FIXING
55	ZSRW064	M4 X 6MM HEX HEAD SCREW	TBHHSM040000A	4		FRONT EXTRUSION FIXING
56	ZSRW065	M4 CRINKLE WASHER	NWCR1M040	4		FRONT EXTRUSION FIXING
57	ZSRW054	M4 X 10 HX SKT CSK HEAD ST ST	JSCOUM040010A	4		COVER FIXING
58	ZSRW066	M3 NYLOC	GNYLTM030B	4		FRONT PCB FIXING
59	ZSRW067	M3 PLAIN WASHER	EWFMAM030B	4		FRONT PCB FIXING
60	ZMIS014	M3 X 3MM SPACER		4		FRONT PCB FIXING
61	ZSRW056	4 X 3/8 SELF TAP POZI BRIGHT	AZ127040X0024D	13		FIT ON REAR
62						
63	ZKIT005	S4.3 FINAL ASSEMBY KIT		1		REFER TO GRAYED OUT ITEMS
64	WR061	LINE DRIVER (SET OF FOUR)		1		
65	WR063	S4.3 TRANSLATOR CARD		1		
66	WR062	S4.3 MOTHERBOARD		1		
67	WR064	S4.3 MAINS CARD		1		
68	WR065	FRONT PANEL LED PCB ASSEMBLY		1		
69	WR066	ROTEL DMTX CARD ISS 1.1		1		
70						
71	ZSCI099	PIC 16F84-04/P		1		FIT ON MOTHERBOARD 4IC4 (A)
72	ZSCI111	PIC 16C62B-20/SP		1		FIT ON TX CARD
73	ZSCI088	PIC 16C54C-04P		3		FIT ON TRANSLATOR CARD IC7, 8, 10
74	ZSCI115	PIC 16F84-04/P		1		FIT ON TRANSLATOR CARD IC9
75	ZSCI127	PIC16C63A-20/SP SDIP 300MIL		1		FIT ON TRANSLATOR CARD IC11
76	ZSCI100	PIC 16F84-04/P		3		FIT ON MOTHERBOARD 1IC4-3IC4

APPENDIX B

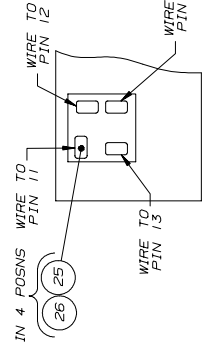
Motherboard and Mains Card



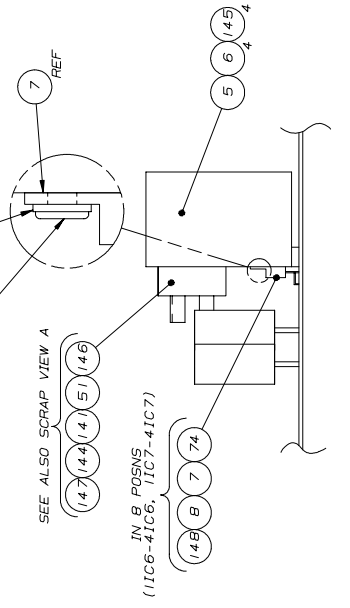
DRAWING NUMBER
010052/AS



DO NOT SCALE



SCRAP VIEW A
SHOWING WIRING FOR BR2



REV	ISSUE	A	1	2	3
PDC	DATE	18-09-98	22-09-98	22-02-00	30-06-00
CHKD	MATERIAL	CR000561	CR000561	CR000561	CR000609
APP		FINISH			

SCALE
1 : 1

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TITLE
S4.3 MOTHERBOARD ASSEMBLY

DRAWING NUMBER
010052/AS

Drawing Number: Q10052/IL

Items List for: Q10052/AS
S4.3 MOTHERBOARD ASSEMBLY

Approved for Production:



Issue: 4

Date: 30/06/2000

Change Number: CR00069

Item No.	Part No.	Description	Manf. Part No.	Qty	Iss	Remarks
A	Q10052/TS	Super Controller S4.3 Test Specification		REF	1	
B						
C						
1	ZPCB111	S4.3 MOTHERBOARD PCB		1	R12	
2						
3	ZHSA001	TO220 FINNED HEATSINK	TV1505	4		USE ON 1REG3 - 4REG3
4	ZHSA002	H/S TO220 13C/W	TV65	5		USE ON 1REG1 - 4REG1 & REG4
5	ZMET000	DRILLED HEATSINK	ZHSA007	1		MAIN HEATSINK
6	ZMIS015	NYLON H.SINK SPACERS	M78224GF	4		UNDER ITEM 5
7	ZMIS005	TO220 INSULATION PAD	K177NA353	8		USE ON ITEM 74
8	ZMIS004	TO220 TOP HAT GLAS FILLED BUSH	3-37-11GF	8		USE ON ITEM 74
9						
10						
11	ZRLA001	DPCO LOW PROFILE 12V RELAY	EA2-12NU	1		1RLA3
12	ZRLA002	2PCO 5A MAINS RELAY	G2R-12DC	4		1RLA1, 2RLA1, 3RLA1, 4RLA1
13	ZRLA003	TYPE 47 2PDT 12V RELAY	47W/6	4		1RLA2, 2RLA2, 3RLA2, 4RLA2
14						
15	ZMIS016	TURRET TAGS	356-0200	8		3, 4, 5, 6, 7, 8, 9, 10
16	ZMIS000	SINGLE SIDED PINS ****	433-624	1		TP1
17	ZMIS034	TAG LABEL ****		1		
18						
19						
20	ZSCI002	6A 10R INRUSH SUPPRESSOR	210-746	1		SA1 (MOUNT 5MM OFF BOARD USING 1MM DIA SLEEVING)
21	ZFSE000	FUSE HOLDER 20MM	FH2540	3		FS1 - FS3
22						

Drawing Number: Q10052/IL

Items List for: Q10052/AS
S4.3 MOTHERBOARD ASSEMBLY

Approved for Production:



Issue: 4

Date: 30/06/2000

Change Number: CR00069

Item No.	Part No.	Description	Manf. Part No.	Qty	Iss	Remarks
23						
24						
25	ZPLA028	PUSH ON TERM.FOR CEILING SPKR	433-113	4		USE ON BR2 (SEE SKETCH ON DRG)
26	ZPLA036	CRIMP TERMINAL COVER	534-783	4		USE ON BR2 (SEE SKETCH ON DRG)
27						
28	ZPLA050	21 WAY FRICTION LOCK HEADER	MEP1093801M	2		PL8, PL12
29	ZPLA051	22 WAY FRICTION LOCK HEADER	MEP1093802M	1		PL9
30						
31						
32	ZSWA007	2 POLE MAINS SWITCH	4352	1		SW1
33	ZSWA018	2 POSIT. SUB-MIN SLIDE SWITCH	NK236	4		1SW1, 2SW1, 3SW1, 4SW1
34						
35	ZSKA003	QUAD JALCO GOLD PHONO SOCKET	PS-320G	5		SK1 - SK5
36	ZSKA007	MINI 6 WAY TERMINAL BLOCK	464406C	1		SK7
37	ZSKA008	18 WAY I.C. SOCKET	634018	4		USE IN POSN 1IC3, 2IC3, 3IC3, 4IC3
38	ZSKA014	3 WAY TERMINAL BLOCK	462203C	2		TB1 (6 WAY)
39	ZSKA024	28 WAY DIL I.C. SOCKET	634028	4		USE IN POSN 1IC5, 2IC5, 3IC5, 4IC5
40	ZSKA040	6 WAY S-LINE SOCKET R/A MALE	1100-22-106	4		1SK3, 2SK3, 3SK3, 4SK3
41	ZSKA055	3 WAY VERTICAL PHONO SKT	3371G	3		SK6A, SK6B, SK11
42	ZSKA063	4 WAY R/A SOCKET IMO STYLE	ST0804	4		1SK1, 2SK1, 3SK1, 4SK1
43	ZSKA059	15 WAY 0-05" SOCKET	SMS11501TS	4		1SK10 - 4SK10
44						
45	ZSCD040	IN4148 DIODE SIGNAL	035207C	12		1D1, 1D2, 2D1, 2D2, 3D1, 3D2, 4D1, 4D2, 1D8 - 4D8
46	ZSCD042	IN4005 DIODE	IN4005S	21		1D3 - 4D3, 1D4 - 4D4, 1D5 - 4D5, 1D6 - 4D6, 1D7 - 4D7, RLA MOD
47	ZSCD108	IN5401 DIODE	IN5401	1		D1

Drawing Number: Q10052/IL

Items List for: Q10052/AS
S4-3 MOTHERBOARD ASSEMBLY

Approved for Production: _____



Issue: 4

Date: 30/06/2000

Change Number: CR00069

Item No.	Part No.	Description	Manf. Part No.	Qty	Iss	Remarks
48	ZSCZ038	BZX55C5V1 ZENER 500mW	BZX55C5V1	11		1Z1 - 4Z1, 1Z2 - 4Z2, Z5 - Z7
49	ZSCZ000	BZX55C12V ZENER 500MW	BZX55C12	1		Z8
50	ZSCB062	4A RECTIFIER KBU04	KBU04	2		BR1, BR3
51	ZSCB065	25A RECTIFIER BRIDGE	KBPC2501	1		BR2
52						
53	ZSCT015	BD139 TRANSISTOR M.POWER	BD139	1		T3
54	ZSCT022	BC546 TRANSISTOR SIGNAL	BC546B	4		1T2, 2T2, 3T2, 4T2
55	ZSCT023	BC556 TRANSISTOR SIGNAL	BC556B	1		T2
56						
57						
58	ZSCR001	LM317T REGULATOR	LM317T	4		1REG1 - 4REG1
59	ZSCR002	LM317LZ REGULATOR	073669A	4		1REG2 - 4REG2
60	ZSCR005	7805 T0220 REGULATOR	418340F	4		1REG3 - 4REG3
61	ZSCR007	7812 REGULATOR	418390H	1		REG4
62	ZSCR004	78L15 REGULATOR		2		REG5, REG7
63	ZSCR006	79L15 REGULATOR		2		REG6, REG8
64	ZSCA046	TLO64CD SURFACE MOUNT	418540A	4		IC1, IC1A, IC2, IC2A
65						
66	ZSCI106	500KHZ CERAMIC RESONATOR	607250	4		1XTAL1 - 4XTAL1
67	ZSCI116	4Mhz CERAMIC RESONATOR	607209	4		1XTAL2 - 4XTAL2
68						
69						
70	ZSCI066	4503 CMOS LOGIC	4503B	2		IC5, IC6
71	ZSCI072	4047 CMOS LOGIC	4047B	4		1IC1 - 4IC1
72	ZSCI081	4072 CMOS LOGIC	4072B	1		IC7
73	ZSCI086	MV601 PLESSEY I.R. DECODER	MV601BADPAQ	8		1IC2 - 4IC2, 1IC3 - 4IC3
74	ZSCI093	LM1875T POWER AMP	701702D	8		1IC6 - 4IC6, 1IC7 - 4IC7

Drawing Number: Q10052/IL

Items List for: Q10052/AS
S4.3 MOTHERBOARD ASSEMBLY

Approved for Production:



Issue: 4

Date: 30/06/2000

Change Number: CR00069

Item No.	Part No.	Description	Manf. Part No.	Qty	Iss	Remarks
75						
76	ZSC1105	ULN2803A DARLINGTON DRIVER	419463A	1		IC4
77						
78						
79						
80	ZRES016	RES 1K 5% 0.25W 1206	RC102	24		R2, R4, R11-R14, R17, R23, R24, R28, R73, R74, R78, R80, R83, R84, R86, R87, R90, R92, R94, R95, R98, R99
81	ZRES023	RES 100R 5% 0.25W 1206	RC101	4		1R52 - 4R52
82	ZRES028	RES 220R 5% 1206	169-064	8		R1, R3, R5, R18, R75, R79, R89, R91
83	ZRES019	RES 10R 5% 0.25W 1206	RC100	8		R15, R16, R25, R26, R85, R88, R97, R100
84	ZRES026	RES 100K 5% 0.25W 1206	RC104	8		R6, R7, R9, R10, R27, R81, R82, R93
85	ZRES003	RES 150R 1W CARBON FILM	003151A	4		1R51 - 4R51
86	ZRES004	RES 10R 2.5W 5% WIREWOUND		1		R72
87	ZRES009	RES 47R 1% 0.25W M/F	006470D	1		R69
88	ZRES012	RES 75R 1% 0.25W M/F	006750D	8		R39 - R46
89	ZRES014	RES 100R 1% 0.25W M/F	006101D	20		1R49 - 4R49, R51, R52, R54, 1R1 - 4R1, R70, 1R2 - 4R2, 1R50 - 4R50
90	ZRES017	RES 220R 1% 0.25W M/F	006221D	4		1R8 - 4R8
91	ZRES018	RES 270R 1% 0.25W M/F	006271D	8		1R10 - 4R10, 1R31 - 4R31
92	ZRES027	RES 1K 1% 0.25W M/F	006102D	29		1R6, 1R7, 2R6, 2R7, 3R6, 3R7, 4R6, 4R7, 1R28 - 4R28, 1R29 - 4R29, 1R35 - 4R35, 1R39 - 4R39, 1R4 - 4R4, R67
93	ZRES030	RES 1K5 1% 0.25W M/F	006152D	8		1R44 - 4R44, 1R45 - 4R45
94	ZRES032	RES 1K8 1% 0.25W M/F	006182D	4		1R9 - 4R9
95	ZRES033	RES 2K 1% 0.25W M/F	006202D	8		1R22 - 4R22, 1R46 - 4R46

Drawing Number: Q10052/IL

Items List for: Q10052/AS
S4.3 MOTHERBOARD ASSEMBLY

Approved for Production:



Issue: 4

Date: 30/06/2000

Change Number: CR00069

Item No.	Part No.	Description	Manf. Part No.	Qty	Iss	Remarks
96	ZRES034	RES 2K2 1% 0.25W M/F	006222D	8		R47 - R50, 1R30 - 4R30
97	ZRES036	RES 2K7 1% 0.25W M/F	006272D	4		1R20 - 4R20
98	ZRES038	RES 3K3 1% 0.25 M/F	006332DK	2		R65, R66
99	ZRES042	RES 4K7 1% 0.25W M/F	006472D	40		R31 - R38, 1R13 - 4R13, 1R14 - 4R14, 1R15 - 4R15, 1R16 - 4R16, 1R17 - 4R17, 1R18 - 4R18, 1R19 - 4R19, R59 - R62
100	ZRES044	RES 5K6 1% 0.25W M/F	006562D	8		1R32 - 4R32, 1R33 - 4R33
101	ZRES048	RES 9K1 1% 0.25W M/F	006912D	12		1R12 - 4R12, 1R25 - 4R25, 1R26 - 4R26
102	ZRES049	RES 10K 1% 0.25W M/F	006103D	6		R68, R71, 1R3 - 4R3
103	ZRES053	RES 22K 1% 0.25W M/F	006223D	16		1R34 - 4R34, 1R36 - 4R36, 1R38 - 4R38, 1R40 - 4R40,
104	ZRES054	RES 27K 1% 0.25W M/F	006273D	16		1R42 - 4R42, 1R43 - 4R43, 1R47 - 4R47, 1R48 - 4R48
105	ZRES058	RES 47K 1% 0.25W M/F	006473D	1		R63
106	ZRES060	RES 68K 1% 0.25W M/F	006683D	5		1R5 - 4R5, R64
107	ZRES091	RES 1R 5% 2.5W WIREWOUND	011109E	8		1R37 - 4R37, 1R41 - 4R41
108						
109						
110	ZCAP017	2N2 10% 50V CE 1206 SURFACE	MW222	8		C5, C6, C36 - C39, C42, C43
111	ZCAP006	100NF 10% CERAMIC 1206 CAP	499-389	4		C28, C30, C32, C34
112	ZCAP000	22pF 10% CERAMIC RADIAL 5mm	099117A	8		1C15 - 4C15, 1C54 - 4C54
113	ZCAP003	220pF 10% CERAMIC RADIAL	099529A	8		1C5 - 4C5, 1C6 - 4C6
114	ZCAP009	2n2 10% CERAMIC RADIAL	099541A	8		1C52 - 4C52, 1C53 - 4C53
115	ZCAP010	3n3 10% CERAMIC 5MM	099543A	8		1C17 - 4C17, 1C18 - 4C18
116	ZCAP018	850C 22uF 20% R.E.16V	22UFO16VERNMSR	8		1C4-4C4, 1C16 - 4C16
117	ZCAP026	850C 100uF 20% R.E. 25V	53030	13		C22, 1C10 - 4C10, 1C34 - 4C34, 1C8 - 4C8

Drawing Number: Q10052/IL

Items List for: Q10052/AS
S4.3 MOTHERBOARD ASSEMBLY

Approved for Production:



Issue: 4

Date: 30/06/2000

Change Number: CR00069

Item No.	Part No.	Description	Manf. Part No.	Qty	Iss	Remarks
118	ZCAP027	850C 470uF 20% R.E. 25V	CAPXON	1		C24
119	ZCAP028	850C 1000uF 20% R.E. 25V	CAPXON	9		C25, 1C9 - 4C9, 1C11 - 4C11
120	ZCAP029	850C 2200uF 20% R.E. 25V	53435	4		1C35 - 4C35
121	ZCAP030	850C 4.7uF 20% R.E. 40V	53236	8		1C40 - 4C40, 1C47 - 4C47
122	ZCAP031	850C 22uF 20% R.E. 40V	53061	8		C11, C12, C29, C31, C33, C35, C40, C41
123	ZCAP036	850C 1.0uF 20% R.E. 63V	CAPXON	4		1C13 - 4C13
124	ZCAP037	850C 2.2uF 20% R.E. 63V	53069	8		1C19 - 4C19, 1C28 - 4C28
125	ZCAP039	850C 100uF 20% R.E. 63V	056024S	8		1C41 - 4C41, 1C48 - 4C48
126	ZCAP043	1050C 2200uF 20% R.E 25V 7.5M	CAPXON	16		1C39 - 4C39, 1C42 - 4C42, 1C46 - 4C46, 1C49 - 4C49
127	ZCAP045	850C 10,000uF 10mm SNAP IN 35V	54204	3		C13 - C15
128	ZCAP046	850C 4700uF 10mm SNAP IN 25V	50050	1		C18
129	ZCAP050	850C 4.7uF DIPPED TANT 16V 5mm	058019A	36		1C1 - 4C1, 1C21 - 4C21, 1C22 - 4C22, 1C23 - 4C23, 1C24 - 4C24, 1C25 - 4C25, 1C26 - 4C26, 1C27 - 4C27, 1C29 - 4C29
130	ZCAP051	850C 10uF DIPPED TANT 16V 5mm	058021A	8		1C36 - 4C36, 1C37 - 4C37
131	ZCAP052	850C 22uF DIPPED TANT 16V 5mm	071109J	8		1C14 - 4C14, 1C20 - 4C20
132	ZCAP056	47nF 5MM BOXED POLYESTER 63V	71013	8		1C2 - 4C2, 1C3 - 4C3
133	ZCAP057	100nF 5MM BOXED POLYESTER	71015	20		1C30 - 4C20, 1C31 - 4C31, 1C32 - 4C32, 1C33 - 4C33, 1C7 - 4C7
134	ZCAP058	220n 5MM BOX POLYESTER 63V 10%	80308	26		C16, C17, 1C38 - 4C38, 1C43 - 4C43, 1C45 - 4C45, 1C50 - 4C50, 1C44 - 4C44, 1C51 - 4C51
135	ZCAP078	0.1uF 250Vac CLASS X 15MM	106764	1		C26
136						

Drawing Number: Q10052/IL

Items List for: Q10052/AS
S4.3 MOTHERBOARD ASSEMBLY

Approved for Production: _____

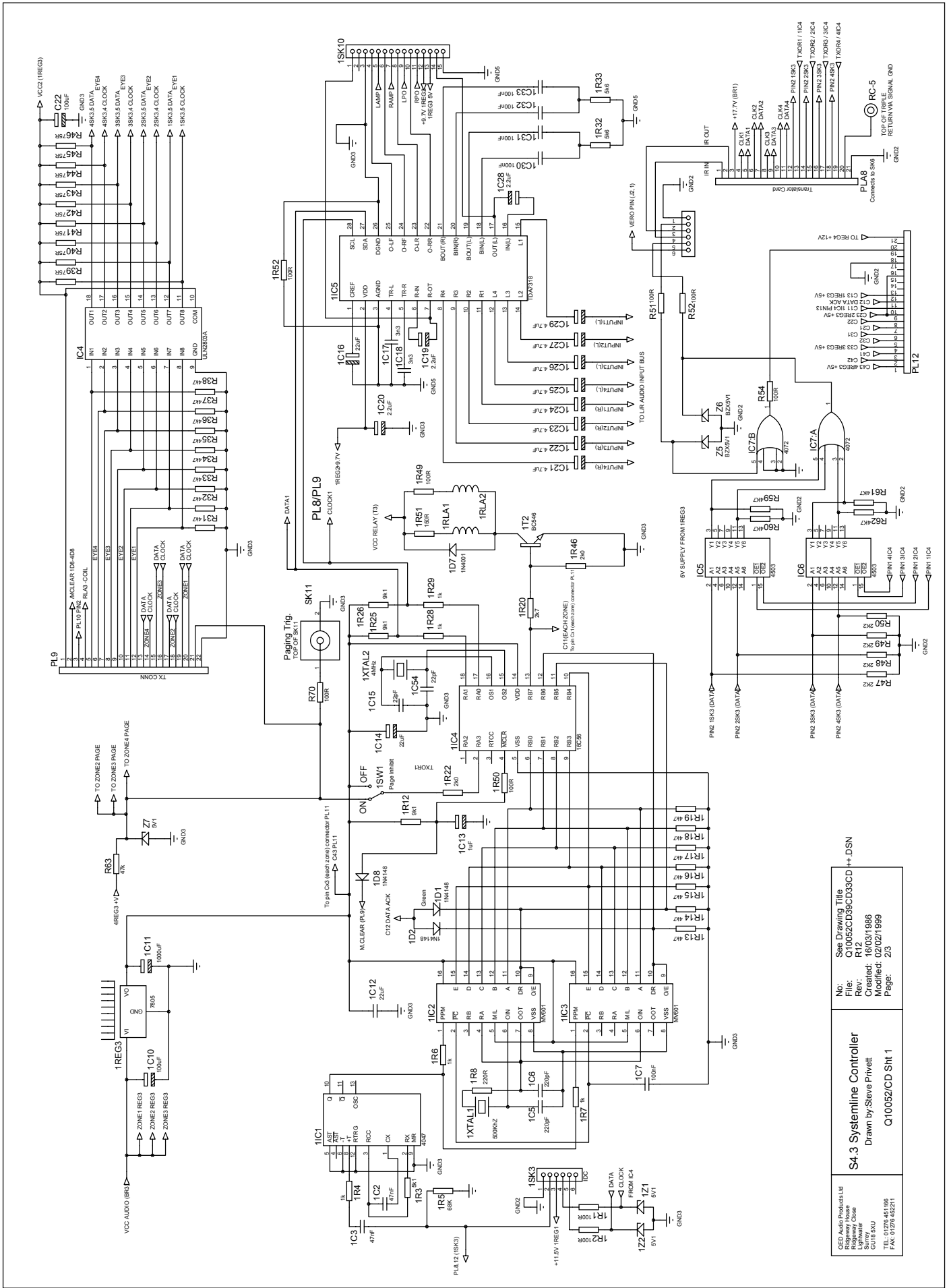


Issue: 4

Date: 30/06/2000

Change Number: CR00069

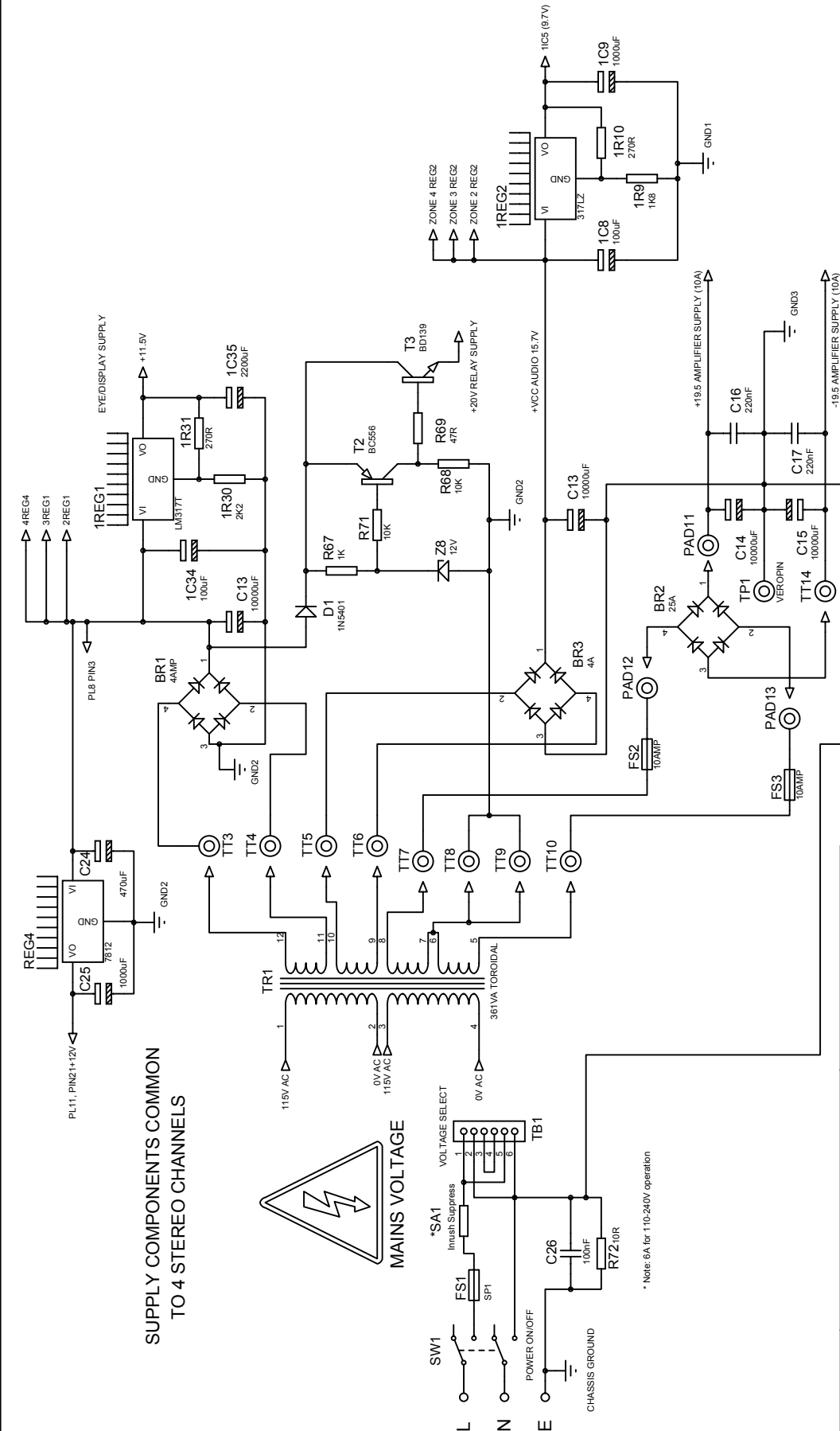
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138						
139						
140	ZSRW002	M3X6 PANHEAD POZI - BRIGHT	AY079008B	9		SECURES ITEMS 58, 60 & 61
141	ZSRW034	M4 WASHER PLAIN		1		USE ON ITEM 51 (BR2)
142	ZSRW004	M3 FULL NUT	AZ090030B	8		USE FOR ITEMS 51, 58, 60 & 61
143	ZSRW005	M3 SHAKEPROOF WASHER	AZ142040X00	8		USE FOR ITEMS 51, 58, 60 & 61
144	ZSRW036	M4 CRINKLE WASHER	0080729/1000	1		
145	ZSRW008	M3 X 12 POZI - BLACK	EMSPAM03503	4		FOR HEATSINK (ITEM 5)
146		HEATSINK COMPOUND		As Reqd'		USE BETWEEN BR1 AND HEATSINK
147	ZSRW009	M4 x 25 PANHEAD POZI		1		SECURES ITEM 51 (BR2)
148	ZSRW018	M3 X 5 BRIGHT POZI PANHEAD	60616	8		SECURES ITEM 74
149						
150	ZCAB072	WIRE 24/0.2 (0.75MM) YELLOW PVC	356-713	0.50m		CUT TO 110MM LENGTH
151						
152						



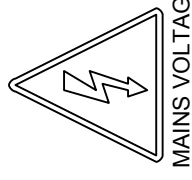
QED Audio Products Ltd
 Ragsway House
 Lightham
 GURU, SNU
 TEL: 01276 45196
 FAX: 01276 452211

S4.3 Systemline Controller
 Drawn by Steve Privett
 Q10052/CD Sht 1

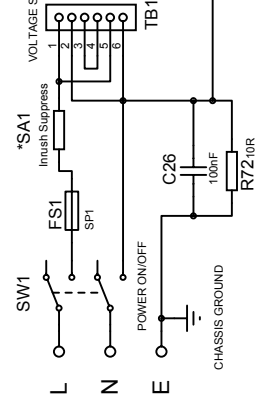
No: See Drawing Title
 File: Q10052CD39CD33CD++-DSN
 Rev: R12
 Created: 16/03/1986
 Modified: 02/02/1999
 Page: 23



SUPPLY COMPONENTS COMMON TO 4 STEREO CHANNELS

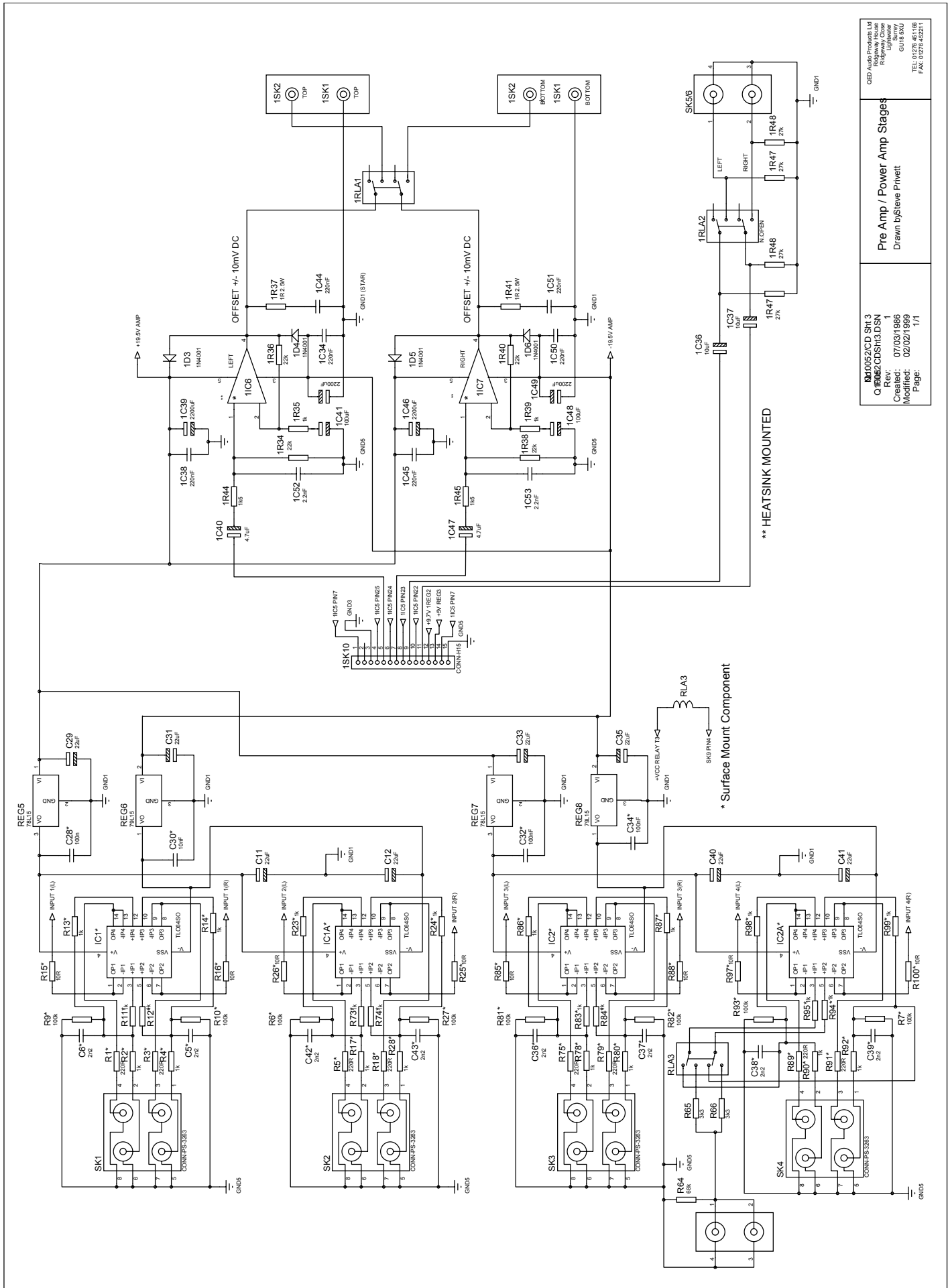


MAINS VOLTAGE



* Note: 6A for 110-240V operation

<p>QED Audio Products Ltd 10 Ridgeway Close Lightwater, Surrey GU18 5XU TEL: 01276 451166 FAX: 01276 452211</p>	<p>S4.3 Power Supplies Drawn by: Steve Pirvett</p>	<p>No: Q10052/CD Sht 2 File: Q10052/CD/SHT2.DSN Rev: 1 Created: 13/03/1986 Modified: 02/02/1999 Page: 1/1</p>
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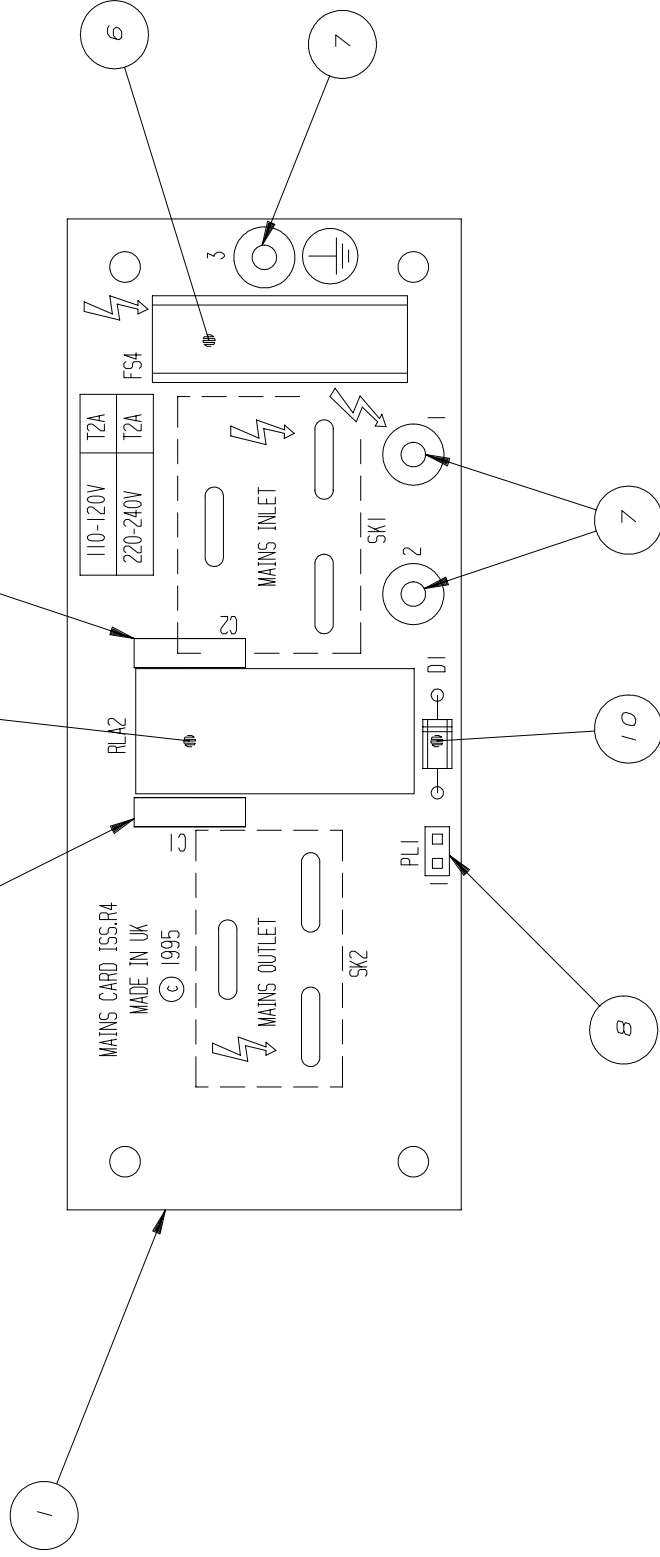
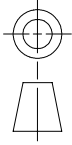
QED Audio Products, Ltd
 1000 Highway 108
 Ridgetown, Ontario
 Canada N0R 1G0
 TEL: 519-778-4511
 FAX: 519-778-4521

QED002/CD-SH-3
QED002/CD-SH3.DSN
 Rev: 1
 Created: 07/03/1986
 Modified: 02/02/1999
 Page: 1/1

Pre Amp / Power Amp Stages
 Drawn by: Steve Privett

DRAWING NUMBER
Q10039/AS

DO NOT SCALE



DRN	ISSUE	4	SCALE		TITLE		
PDC	DATE	16-06-98	2 : 1		MAINS CARD ASSEMBLY		
CH'KD	Change No.		TOLERANCES:		Ridgeway House, Ridgeway Close, Lightwater, SXU Surrey, GU18 5XU TEL: 01276 451166 FAX: 01276 452211		
APP	MATERIAL	FINISH	UNLESS OTHERWISE STATED ARE:		© QED AUDIO PRODUCTS LIMITED. NO PART MAY BE REPRODUCED WITHOUT PRIOR PERMISSION		
			1 DP: ±0.4		DRAWING NUMBER		
			2 DP: ±0.15		Q10039/AS		
			ANG.: ±1.0°				

Drawing Number: Q10039/IL

Items List for: Q10039/AS
 MAINS CARD ASSEMBLY

Approved for Production: _____

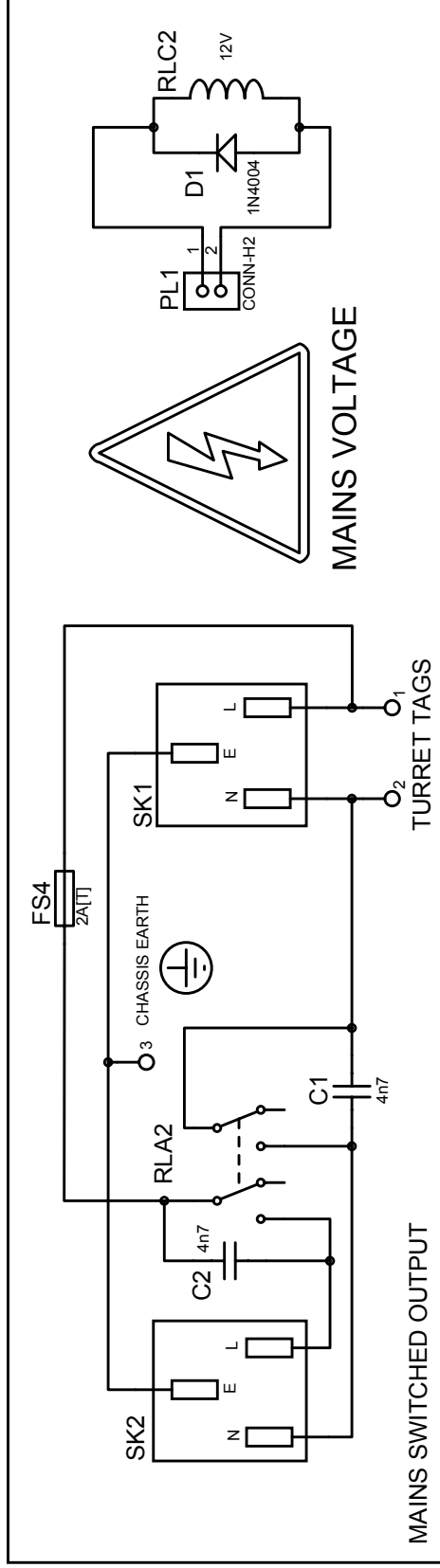


Issue: 4

Date: 16/06/1998

Change Number: _____

Item No.	Part No.	Description	Manf. Part No.	Qty	Iss	Remarks
A						
B						
C						
1	ZPCA069	S/CONTROLLER MAINS CARD PCB R4		1		
2						
3						
4						
5	ZRLA002	2PCO 5A MAINS RELAY	G2R-12DC	1		RLA2
6	ZFSE000	FUSE HOLDER 20MM	FH2540	1		FS4
7	ZMIS016	TURRET TAGS	356-0200	3		1, 2, 3
8	ZPLA029	2 WAY HEADER 0.1"	2100-02-PST	1		PL1
9						
10	ZSCD042	IN4005 DIODE	IN4005S	1		D1
11						
12						
13						
14						
15	ZCAP079	4N7 250VAC CLASS X 7.5MM	106764	2		C1, C2
16						
17						
18						
19						
20						
21						
22						



QED Audio Products Ltd
 Ridgeway House
 Ridgeway Close
 Lightwater
 Surrey
 GU18 5XU

TEL: 01276 451166
 FAX: 01276 452211

S4.3 Systemline Controller

Drawn by: Steve Privett

Q10039/CD

No: See Drawing Title

File: Q10052CD39CD33CD ++.DSN

Rev: R12

Created: 16/03/1986

Modified: 02/02/1999

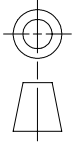
Page: 1/3

Mains Card PCB ISS R4

APPENDIX C

Front Panel PCB

DRAWING NUMBER
Q10033/AS



DO NOT SCALE

LD1, 4, 9,
12 & 14

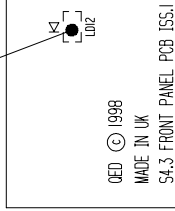
(10)

LD3, 6,
7, 10

(12)

(23)

(11)



QED © 1998
MADE IN UK
54.3 FRONT PANEL PCB 155.1

THIS TO BE
LEFT BLANK

(5)

(8)

(1)

(6)

(13)

DRN	ISSUE	A	1
PDC	DATE	29/06/98	22-07-98
CH'KD	Change No.		
APP	MATERIAL	FINISH	

SCALE	1 : 1
TOLERANCES: UNLESS OTHERWISE STATED ARE:	1 DP: ±0.4 2 DP: ±0.15 ANG.: ±1.0°

QED
Ridgeway House,
Ridgeway Close,
Lightwater,
Surrey, GU18 5XU
TEL: 01276 451166
FAX: 01276 452211

FRONT LED PCB
ASSEMBLY

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NO PART MAY BE REPRODUCED
WITHOUT PRIOR PERMISSION

DRAWING NUMBER
Q10033/AS

Drawing Number: Q10033/IL

Items List for: Q10033/AS

FRONT PANEL LED PCB ASSEMBLY

Approved for Production:

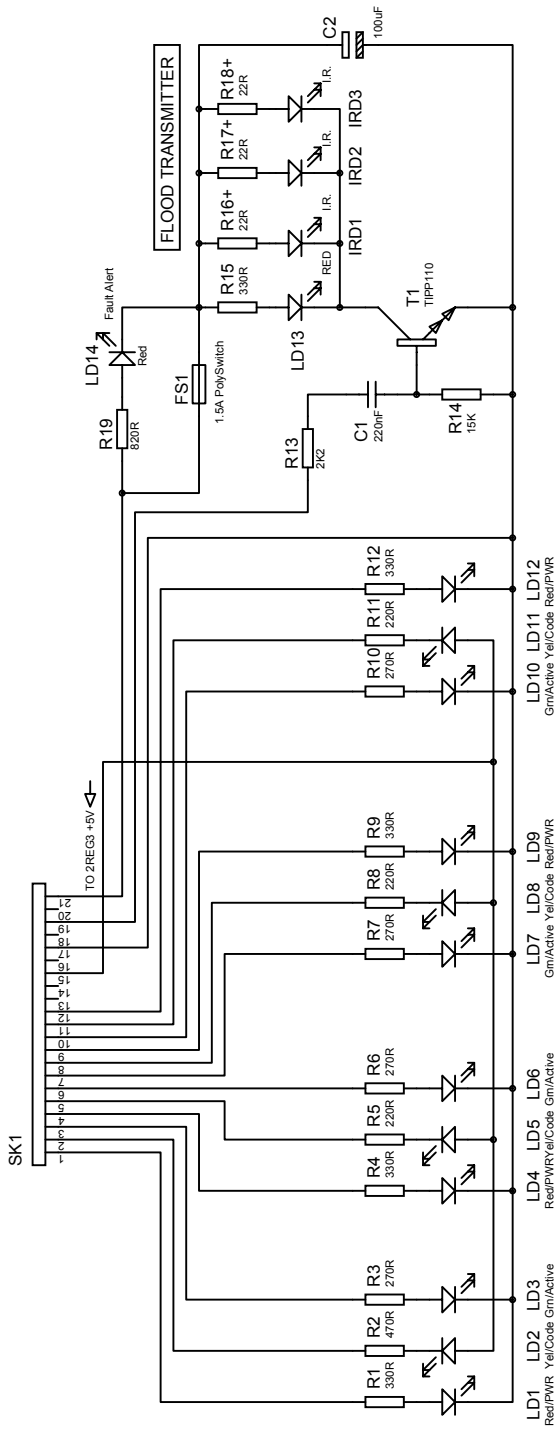


Issue: 2

Date: 17/09/1998

Change Number: CR00011

Item No.	Part No.	Description	Manf. Part No.	Qty	Iss	Remarks
A						
1	ZPCB121	FRONT PANEL LED PCB		1	A	
2						
3						
4						
5	ZSCI103	WM14 CURRENT TRIP	RXE090	1		FS1
6	ZSKA052	21 WAY R.A SOCKET	10001212103	1		SK1
7						
8	ZSCT020	TIPP110 TRANSISTOR DARLINGTON	TIPP110	1		T1
9						
10	ZSCL040	LED RED RECTANGULAR	FAR 323-330	5		LD1, LD4, LD9, LD12, LD14
11	ZSCL041	LED YELLOW RECTANGULAR	FAR 323-354	4		LD2, LD5, LD8, LD11
12	ZSCL042	LED GREEN RECTANGULAR	FAR 323-342	4		LD3, LD6, LD7, LD10
13	ZSCL059	I.R LED (HP)	TSUS5402	3		IRD1 - IRD3
14						
15	ZCAP026	850C 100uF 20% R.E. 25V	53030	1		C2
16	ZCAP058	220n 5MM BOX POLYESTER 63V 10%	71015	1		C1
17						
18	ZRES020	RES 330R 1% 0.25W M/F	006331D	5		R1, R4, R9, R12, R15
19	ZRES017	RES 220R 1% 0.25W M/F	006221D	4		R2, R5, R8, R11
20	ZRES018	RES 270R 1% 0.25W M/F	006271D	4		R3, R6, R7, R10
21	ZRES034	RES 2K2 1% 0.25W M/F	006222D	1		R13
22	ZRES025	RES 820R 1% 0.25W M/F	006821D	1		R19
23	ZRES013	RES 22R 5% 6W W22	FAR 343-043	3		R16 - R18
24	ZRES051	RES 15K 1% 0.25W M/F	006153D	1		R14



+ Mounted OFF PCB. 5mm Gap

Front Panel PCB ISSUE 1

GED Audio Products Ltd
 2000 Parkway Close
 Lightwater
 Surrey
 GU18 5XU
 TEL: 01276 451166
 FAX: 01276 452211

S4.3 Systemline Controller
 Drawn by: Steve Privett
 Q10033/CD

No: See Drawing Title
 File: Q10052CD39CD33CD
 Rev: R12
 Created: 16/03/1986
 Modified: 02/02/1999
 Page: 3/3

APPENDIX D

Translator Card PCB

Drawing Number: Q10029/IL

Items List for: Q10029/AS

Approved for Production: _____



S4.3 TRANSLATOR CARD ASSEMBLY

Issue: 4

Date: 08/01/1999

Change Number: CR00026

Item No.	Part No.	Description	Qty	Iss	Remarks
A	Q10029/TS	S4.3 TRANSLATOR CARD TEST SPECIFICATION	REF		
B	Q10029/SW	S4.3 TRANSLATOR CARD SOFTWARE LISTING	REF		
C	Q10030/CD	S4.3 TRANSLATOR CARD CIRCUIT DIAGRAM	REF		
1	ZPCA024	S4.3 TRANSLATOR CARD PCB	1	R1.3	
2					
3					
4					
5	ZSKA052	21 WAY R.A SOCKET	1		SK6
6	ZSKA054	3.5mm PCB JACK SOCKET JS-3570	4		SK1 - SK4
7	ZSCI117	4MHz CRYSTAL HC49/U	1		X1
8	ZSWA026	SW DIP4 4-WAY DIP SWITCH	1		SW1
9					
10	ZSKA045	28 WAY 03." IC SOCKET	1		USE FOR IC11
11	ZSKA008	18 WAY I.C. SOCKET	4		USE FOR IC7-10
12	ZRES152	9 PIN 22K NETWORK RESPAK-8	2		RN1, RN2
13					
14					
15	ZSCL051	1.8MM RED 12.5 MCD	4		LD1 - LD4
16	ZSCD040	IN4148 DIODE SIGNAL	6		D1 - D6
17	ZSCZ038	BZX55C5V1 ZENER 500mW	1		Z1
18	ZSCZ039	3V6 500mW ZENER DIODE	1		Z2
19					
20	ZSCI066	4503 CMOS LOGIC	2		IC1, IC2
21	ZSCI068	4075 CMOS LOGIC	1		IC3
22	ZSCR007	7812 REGULATOR	1		IC4
23	ZSCR005	7805 T0220 REGULATOR	1		IC5

Drawing Number: Q10029/IL

Items List for: Q10029/AS

S4.3 TRANSLATOR CARD ASSEMBLY

Approved for Production: _____



Issue: 4

Date: 08/01/1999

Change Number: CR00026

Item No.	Part No.	Description		Qty	Iss	Remarks
24	ZSC118	TLC3702 COMPARATOR		1		IC6
25						
26						
27						
28						
29						
30	ZSCT020	TIPP110 TRANSISTOR DARLINGTON		1		T1
31	ZSCT022	BC546 TRANSISTOR SIGNAL		1		T2
32	ZSCT023	BC556 TRANSISTOR SIGNAL		1		T3
33						
34						
35	ZRES129	RES 18K 1% 1/8W M/F		5		R5, R18, R21, R31, R32
36	ZRES137	RES 82K 1% 1/8W M/F		1		R10
37	ZRES117	RES 2K 1% 1/8W M/F		35		R11-R17, R36, R37, R38, R40, R41, R49-R52, R62 - R68, R70, R72-R76, R82-R84, R88, R97, R98
38	ZRES139	RES 100K 1% 1/8W M/F		1		R19
39	ZRES136	RES 68K 1% 1/8W M/F		1		R20
40						
41	ZRES118	RES 2K2 1% 1/8W M/F		1		R22
42	ZRES135	RES 56K 1% 1/8W M/F		2		R23, R34
43	ZRES015	RES 120R 15 0.25W M/F		4		R24-R27
44	ZRES122	RES 4K7 1% 1/8W M/F	017472K	2		R28, R35
45	ZRES123	RES 5K1 1% 1/8W M/F	409936X	1		R29
46	ZRES132	RES 36K 1% 1/8W M/F		1		R30
47	ZRES110	RES 100R 1% 1/8W M/F		5		R33, R39, R53, R77, R89
48	ZRES011	RES 3K 1% 0.125W M/F	164-334	1		R54

Drawing Number: Q10029/IL

Items List for: Q10029/AS

S4.3 TRANSLATOR CARD ASSEMBLY

Approved for Production: _____



Issue: 4

Date: 08/01/1999

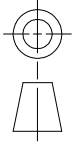
Change Number: CR00026

Item No.	Part No.	Description		Qty	Iss	Remarks
49	ZRES112	RES 470R 1% 1/8W M/F		5		R42, R55, R71, R85, R99
50	ZRES115	RES 1K 1% 1/8W M/F		20		R43-R48, R56-R61, R69, R78-R81, R86, R87, R101
51	ZRES127	RES 10K 1% 1/8W M/F		5		R90-R93, R100
52						
53						
54						
55	ZCAP020	850C 100uF 20% R.E. 16V		3		C1-C3
56	ZCAP037	850C 2.2uF 20% R.E. 63V		1		C4
57	ZCAP009	2n2 10% CERAMIC RADIAL		1		C5
58	ZCAP050	850C 4.7uF DIPPED TANT 16V 5mm		2		C6, C7
59	ZCAP000	22pF 10% CERAMIC RADIAL 5mm		3		C10, C17, C18
60	ZCAP057	100nF 5MM BOXED POLYESTER		5		C9, C11, C13, C15, C16
61	ZCAP016	33Pf CERAMIC 5MM		3		C8, C12, C14
62	ZCAP013	10n 10% CERAMIC RADIAL	096519A	1		C19
63						
64						
65	ZSRW002	M3X6 PANHEAD POZI - BRIGHT		2		USE WITH IC3 & IC4
66	ZSRW005	M3 SHAKEPROOF WASHER		2		USE WITH IC3 & IC5
67	ZSRW004	M3 FULL NUT		2		USE WITH IC3 & IC6
68						
69						

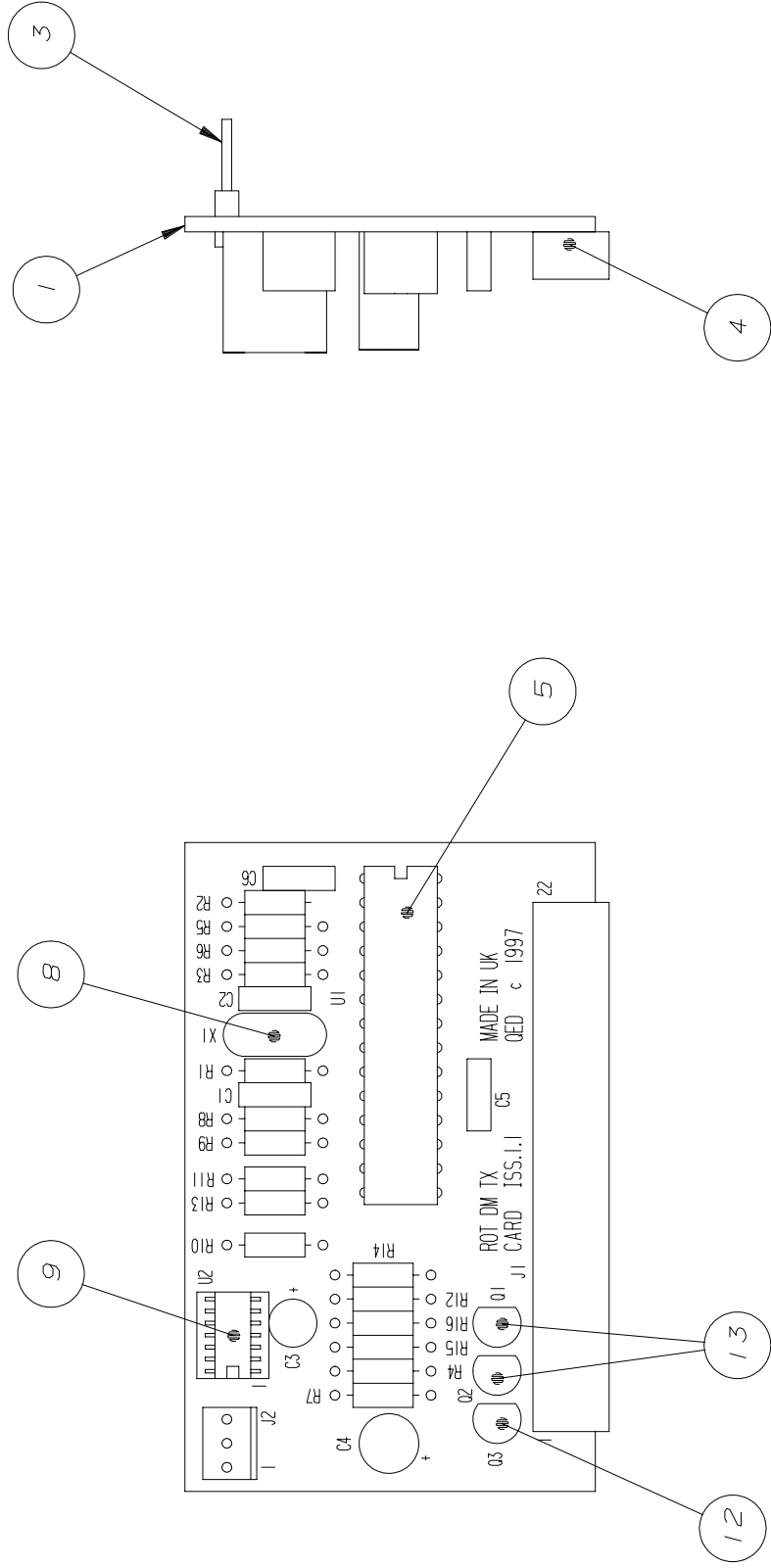
APPENDIX E

TX Card

DRAWING NUMBER
Q10040/AS



DO NOT SCALE



BREAK TRACK BETWEEN R12 & R16
ADD LINK BETWEEN R12 & R15

DRN	ISSUE	1
PDC	DATE	19-06-98
CH'KD	Change No.	
APP	MATERIAL	FINISH

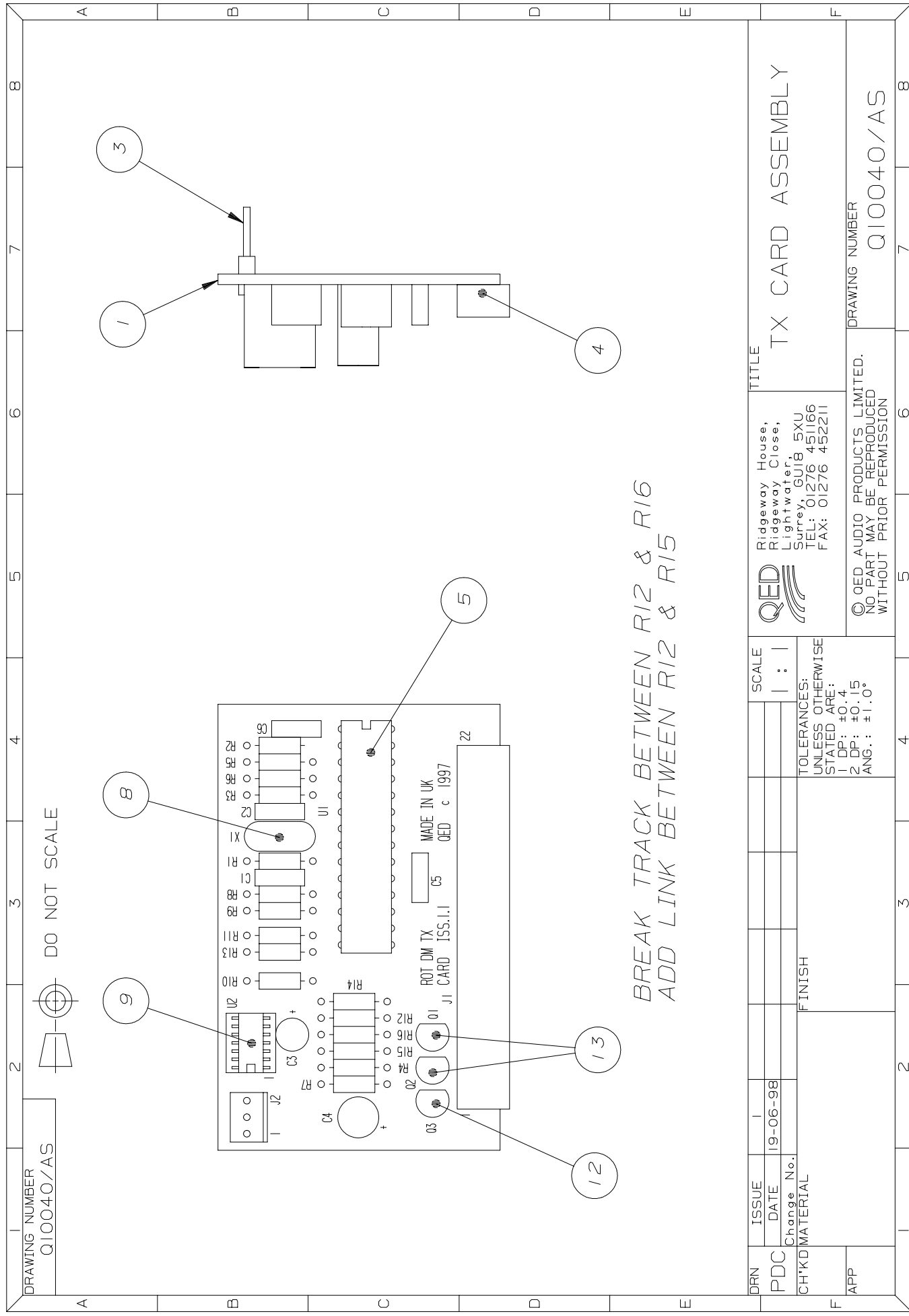
SCALE	1 : 1
TOLERANCES:	UNLESS OTHERWISE STATED ARE:
	1 DP: ±0.4
	2 DP: ±0.15
	ANG.: ±1.0°

QED
Ridgeway House,
Ridgeway Close,
Lightwater,
Surrey, GU18 5XU
TEL: 01276 451166
FAX: 01276 452211

TITLE
TX CARD ASSEMBLY

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WITHOUT PRIOR PERMISSION

DRAWING NUMBER
Q10040/AS



Drawing Number: Q10040/IL

Items List for: Q10040/AS
TX CARD ASSEMBLY

Approved for Production: _____



Issue: 1.1

Date: 19/06/1998

Change Number: _____

Item No.	Part No.	Description	Manf. Part No.	Qty	Iss	Remarks
A						
B						
1	ZPCA077	ROTEL DMTX PCB ISS 1.1	ROTEL 1.1	1	1.1	
2						
3	ZPLA007	3 PIN HEADER 0.1"	2.0506E+11	1		J2
4	ZSKA053	22 WAY R.A SKT	10001222103	1		J1
5	ZSKA045	28 WAY 03." IC SOCKET	634028A	1		USE IN U1
6						
7						
8	ZSCI110	10Mhz 30PPM HC-49U	607017	1		X1
9	ZSC1001	4013 SO14	4013BSM	1		U2
10						
11						
12	ZSCT020	TIPP110 TRANSISTOR DARLINGTON	TIPP110	1		Q3
13	ZSCT022	BC546 TRANSISTOR SIGNAL	BC546B	2		Q1, Q2
14						
15	ZRES005	RES 82K 1% 0.25W M/F	006823DK	4		R8, R10, R12, R13
16	ZRES006	RES 240R 1% 0.25W M/F		2		R11, R14
17	ZRES007	RES 1M 1% 0.25W M/F		1		R16
18	ZRES014	RES 100R 1% 0.25W M/F	006101D	2		R1, R9
19	ZRES036	RES 2K7 1% 0.25W M/F	006272D	3		R3, R6, R7
20	ZRES049	RES 10K 1% 0.25W M/F	006103D	2		R4, R5
21	ZRES051	RES 15K 1% 0.25W M/F	006153D	1		R2
22	ZRES064	RES 100K 1% 0.25W M/F	006104D	1		R15
23						
24	ZCAP000	22pF 10% CERAMIC RADIAL 5mm	099117A	2		C1, C2

Drawing Number: Q10040/IL

Items List for: Q10040/AS
TX CARD ASSEMBLY

Approved for Production: _____

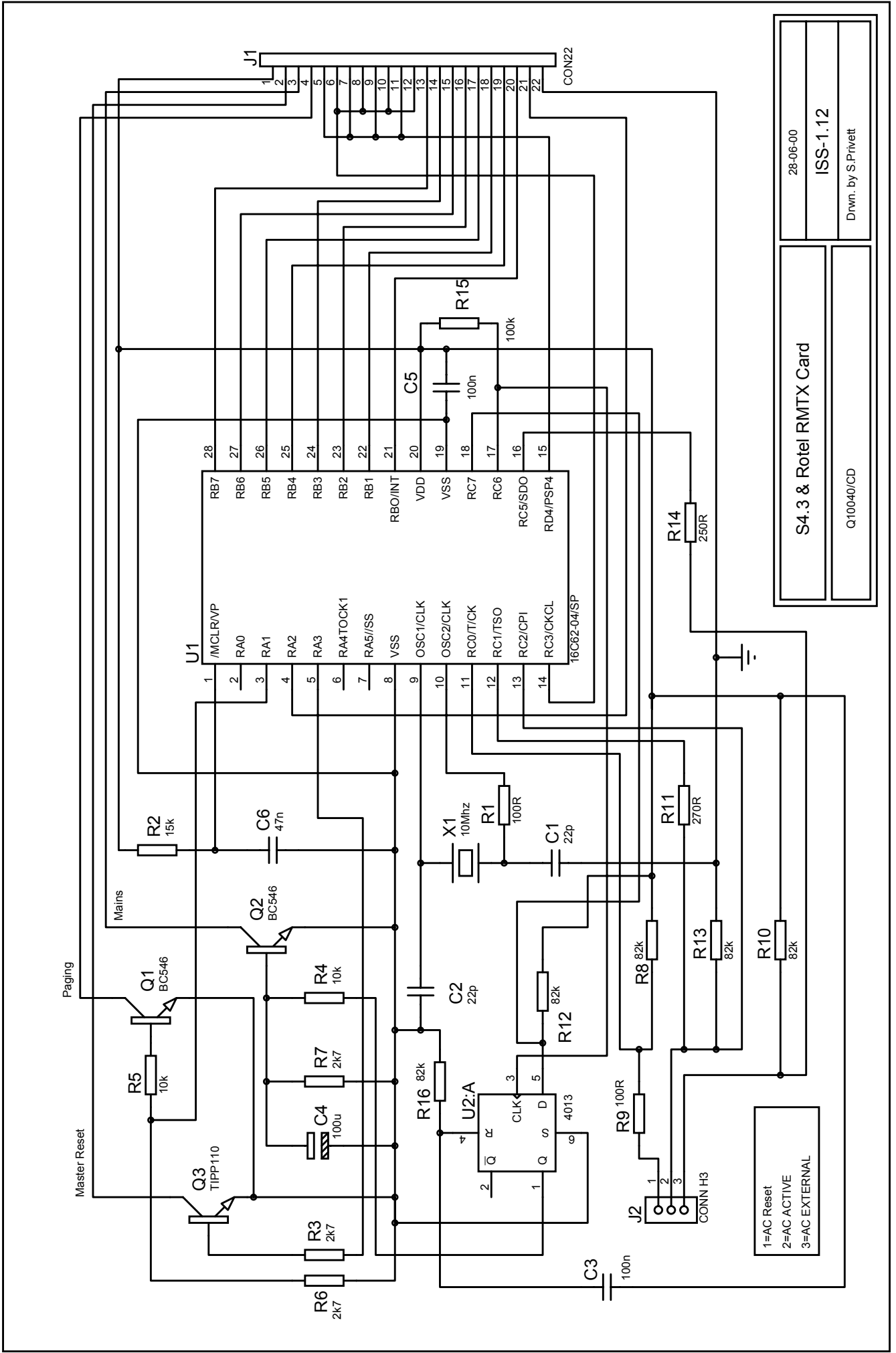


Issue: 1.1

Date: 19/06/1998

Change Number: _____

Item No.	Part No.	Description	Manf. Part No.	Qty	Iss	Remarks
25	ZCAP020	850C 100uF 20% R.E.16V	CAPXON	1		C4
26	ZCAP036	850C 1.0uF 20% R.E. 63V	53061	1		C3
27	ZCAP056	47nF 5MM BOXED POLYESTER 63V	71111	1		C6
28	ZCAP057	100nF 5MM BOXED POLYESTER	71013	1		C5
29						
30						
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49						



28-06-00
ISS-1.12
Drawn. by S.Privett

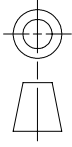
S4.3 & Rotel RMTX Card
Q10040/CD

1=AC Reset
2=AC ACTIVE
3=AC EXTERNAL

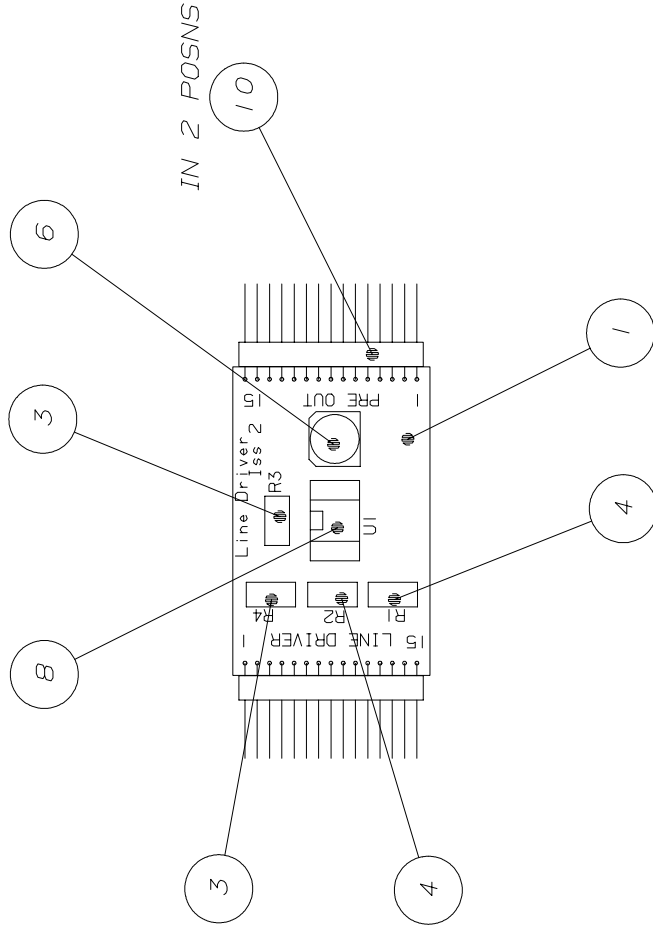
APPENDIX F

Line Driver PCB

DRAWING NUMBER
Q10066/AS



DO NOT SCALE



DRN	ISSUE	1	2
PDC	DATE	09-11-98	07-04-00
CH'KD	Change No.		
APP	MATERIAL	FINISH	

SCALE
1 : 1

TOLERANCES:
UNLESS OTHERWISE
STATED ARE:
1 DP: #0.4
2 DP: #0.15
ANG.: #1.0°



Ridgeway House,
Ridgeway Close,
Lightwater, SXU
Surrey, GU18 5XU
TEL: 01276 451166
FAX: 01276 452211

TITLE

LINE DRIVER PCB
ASSEMBLY

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DRAWING NUMBER
Q10066/AS

Drawing Number: Q10066/IL

Items List for: Q10066/AS
LINE DRIVER PCB ASSEMBLY

Approved for Production: _____

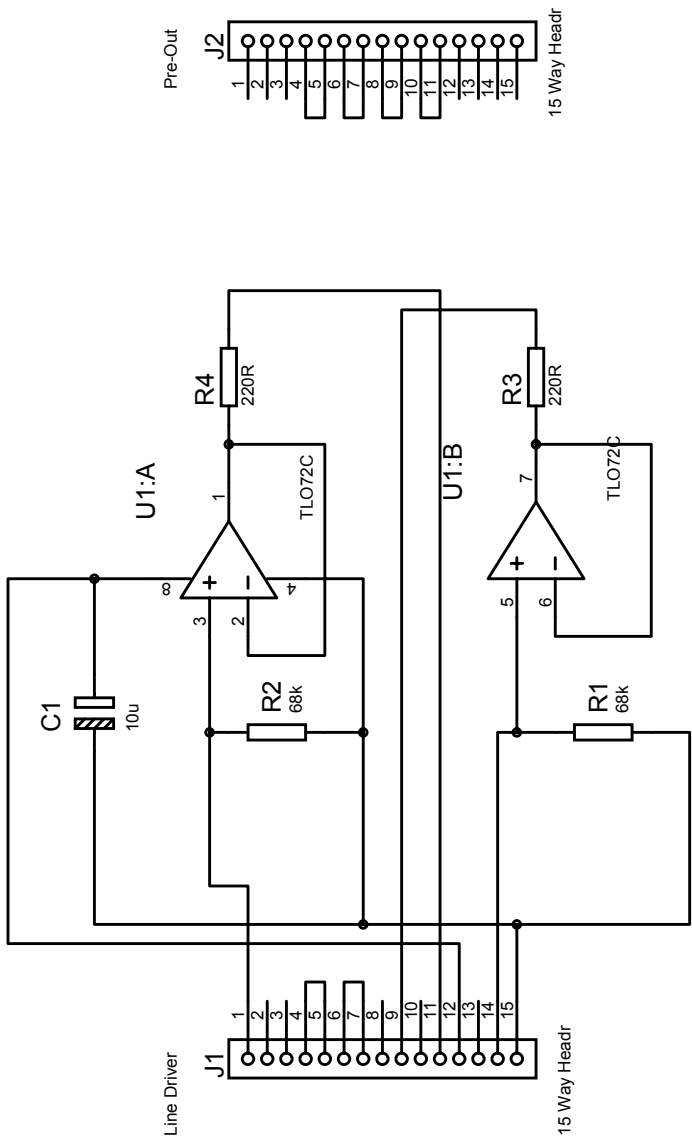


Issue: 3

Date: 06/12/2000

Change Number: _____

Item No.	Part No.	Description	Manf. Part No.	Qty	Iss	Remarks
A						
B						
C						
1	ZPCA061	LINE DRIVER PCB 1SS 2		1	2	
2						
3		RES 220R 5% 0.25W 1206	RS 169-064	2		R3, R4
4		RES 68K 5% 0.25W 1206	RS 169-193	2		R1, R2
5						
6		CAP ELEC 10UF +/-20% SMT 105C	RS 197-8409	1		C1
7						
8		IC OP AMP TLOT2CD S08	RS 857-907	1		IC1
9						
10	ZPLA053	15 WAY 0-05" HEADER	TMS11501TSRA	2		J1, J2
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						



Line Driver		Date: 7/12/00
Q10066/CD		Issue 2
		Drawn by: P. Cheney