

***XLogic***

**XLogic G Series Compressor  
Owner's Manual**



**Solid State Logic**



Super-Analogue™ Outboard  
Owner's Manual

## Solid State Logic

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# XLogic G Series Compressor



## Definitions

### *'Maintenance'*

All maintenance must be carried out by fully trained personnel. *Note: it is advisable to observe suitable ESD precautions when maintenance to any part is undertaken.*

### *'Non-User Adjustments'*

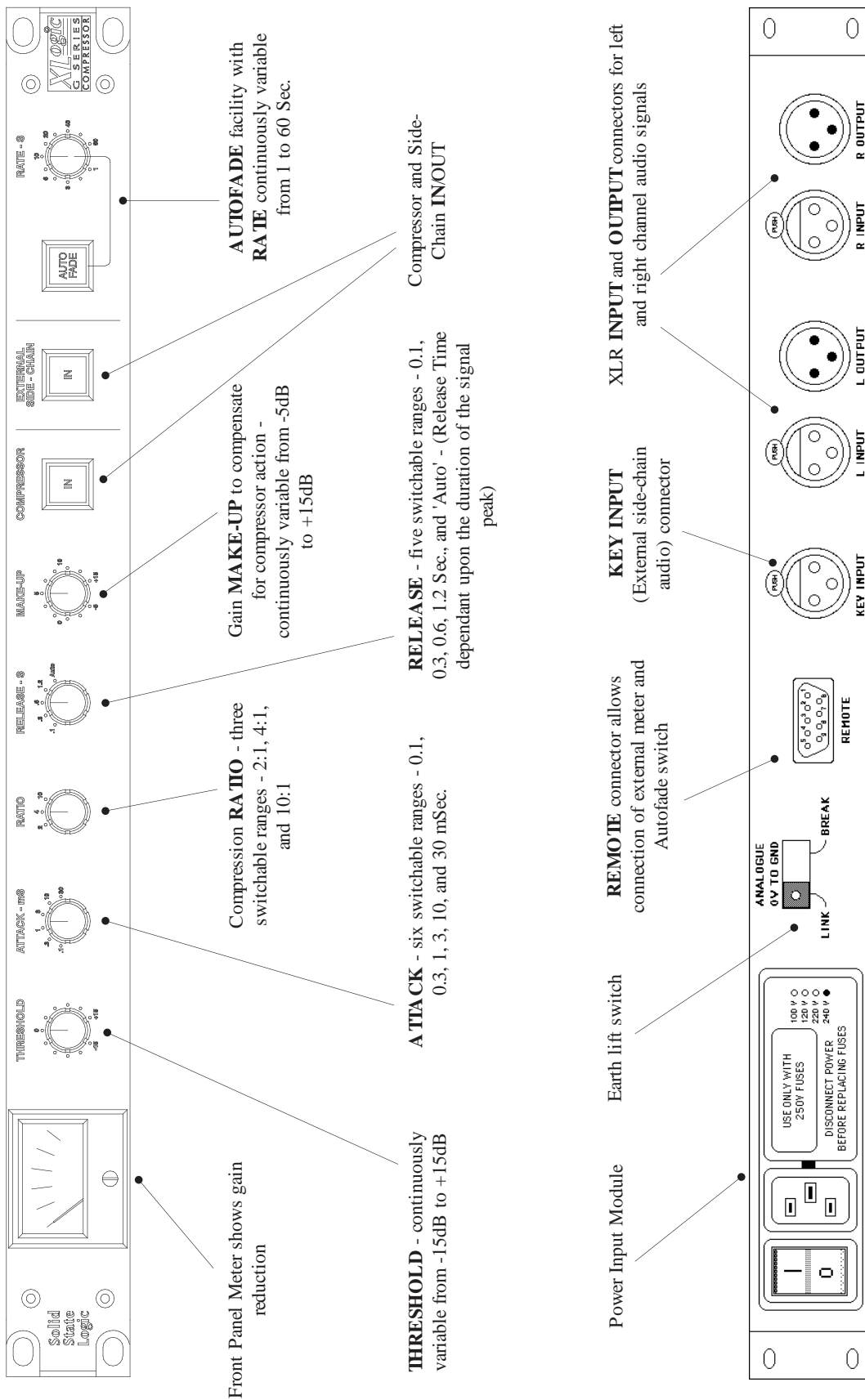
Adjustments or alterations to the equipment may affect the performance such that safety and/or international compliance standards may no longer be met. Any such adjustments must therefore only be carried out by fully trained personnel.

### *'Users'*

This equipment is designed for use solely by engineers and competent operators skilled in the use of professional audio equipment.

### *'Environment'*

This product is a class A product intended to form an integrated component part of a professional audio recording, mixing, TV, radio broadcast or similar studio wherein it will perform to specification providing that it is installed according to professional practice.



## 1. General Description

The XLogic G Series Compressor is a stand-alone unit which provides high quality stereo compression, giving the operator critical control over the dynamic range of audio signals. It is designed to combine the features of SSL G Series Consoles in such a way as to allow interfacing and use in a wide range of different applications. The unit is packaged in a 1U high 19" rack-mounted case. The depth of the case (excluding rear panel connectors) is 325mm (13").

Input and Output connections are all made via XLR Connectors on the rear panel.

Power requirement for the unit is 100, 120, or 230V ac., connection being via the rear panel Power Input Module. Section 3 of this manual describes the procedure for setting the Power Input Module for different operating voltages.

The main controls and facilities of the XLogic G Series Compressor are summarised and shown opposite.

Front panel switches allow the compressor and external side-chain signals to be switched IN or out of circuit. The AUTOFADE switch enables an automatic fade out of a duration set by the RATE control. When the AUTOFADE switch is released, the stereo signal will fade back up over the set time.

### IMPORTANT

*Before powering up the unit, check that the correct fuse is fitted and that the voltage selection setting corresponds to the available Mains Supply. Adjust if necessary, following the procedure described in Section 3 of this manual.*

The XLogic G Series Compressor is supplied with the following accessories:

- IEC Mains Cable
- Owner's Manual

## Warranty

The warranty period for this unit is 12 months from date of purchase.

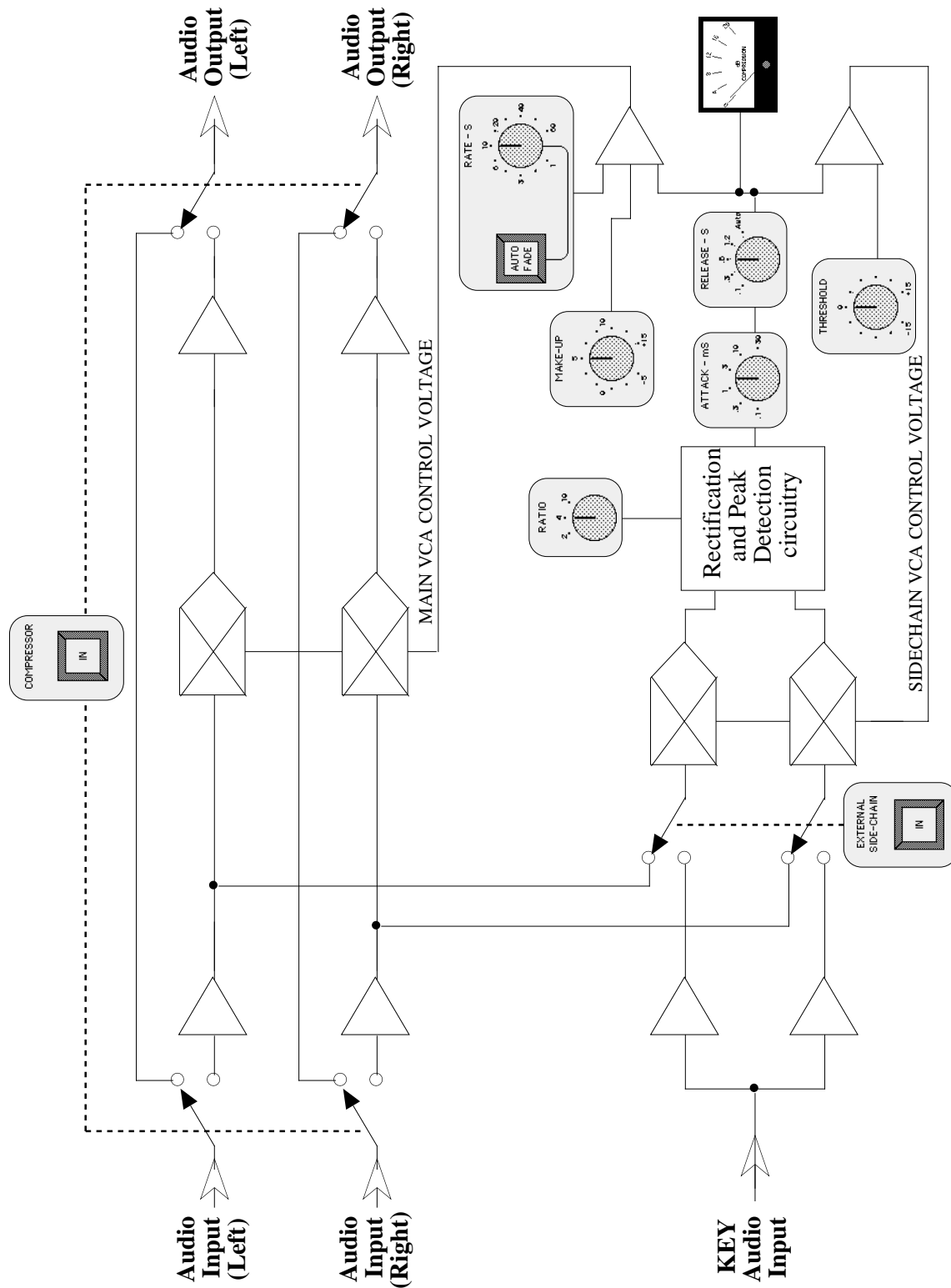
### In Warranty Repairs

In the event of a fault during the warranty period the unit must be returned to your local distributor who will arrange for it to be shipped to Solid State Logic for repair. All units should be shipped to Solid State Logic in their original packaging. Solid State Logic can not be held responsible for any damage caused by shipping units in other packaging. In such cases Solid State Logic will return the unit in a suitable box, which you will be charged for. Please do not send manuals, power leads or any other cables - Solid State Logic can not guarantee to return them to you. Please also note that warranty returns will only be accepted as such if accompanied by a copy of the receipt or other proof of purchase.

### Out of Warranty Repairs

In the event of a fault after the warranty period has expired, return the unit in its original packaging to your local distributor for shipment to Solid State Logic. You will be charged for the time spent on the repair (at Solid State Logic's current repair rate) plus the cost of parts and shipping.

### Simplified Block Diagram of the XLogic G-Series Compressor



## 2. Specifications

<b>Input Impedance:</b>	20K $\Omega$	<i>Electronically balanced</i>
<b>Output Impedance:</b>	< 40 $\Omega$	<i>Electronically balanced</i>
<b>Frequency Response:</b>	20Hz to 20kHz $\pm$ 0.2dB	
<b>Max. Output:</b>	+24dBu	<i>Above 0 dBu, at onset of clipping. (0.1 % THD)</i>
<b>Noise:</b>	< -85dBu (-90dBu typical)	<i>R.M.S. 20Hz to 22kHz measured at output, input terminated with 50 Ohm resistor.</i>
<b>THD + N:</b>	< 0.004 % RMS 20Hz to 22kHz	<i>At +6 dBu, 1 kHz.</i>
<b>Crosstalk:</b>	< -95dB	<i>Below +20 dBu. (at 20 kHz.) Measured at output of undriven channel, input terminated with 50 Ohm resistor.</i>
<b>Key Input Impedance:</b>	20K $\Omega$	<i>XLR Electronically balanced</i>
<b>RATIO:</b>	1:2, 1:4, 1:10	
<b>ATTACK:</b>	0.1, 0.3, 1, 3, 10, 30 mSec.	
<b>RELEASE:</b>	0.1, 0.3, 0.6, 1.2 Sec., plus AUTO	
<b>THRESHOLD:</b>	-15 to +15dB	
<b>MAKE-UP:</b>	-5 to +15dB	
<b>AUTOFADE:</b>	1 to 60 Sec.	
<b>Compression Meter:</b>	Moving Coil, 0 - 20 dB gain reduction	
<b>REMOTE Connector:</b>	Autofade switch, external gain reduction meter	

*Note: 0dBu corresponds to a signal level of 0.775V rms.*

### 3. Checking Operating Voltage and Fuse

*Note: Before attempting to apply power to the unit, check that the correct fuse has been installed and that the operating voltage setting is correct. If necessary, adjust as described below.*

#### Fuse Selection and Replacement

The XLogic G Series Compressor is supplied configured for single-fuse ('Live/Line' only) operation. The appropriate fuse must be fitted – 1A for 100/120V operation, 0.5A for 230V operation.

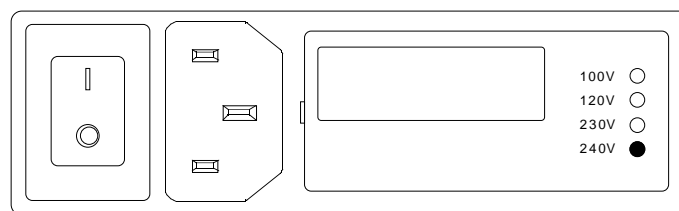
#### Operating Voltage Selection

The XLogic G Series Compressor is not fitted with an auto-ranging power supply and the input setting must be confirmed before applying power. The input module can be configured to be one of 4 voltage settings. The setting is indicated by a plastic pin protruding through the appropriate hole in the fuse panel.

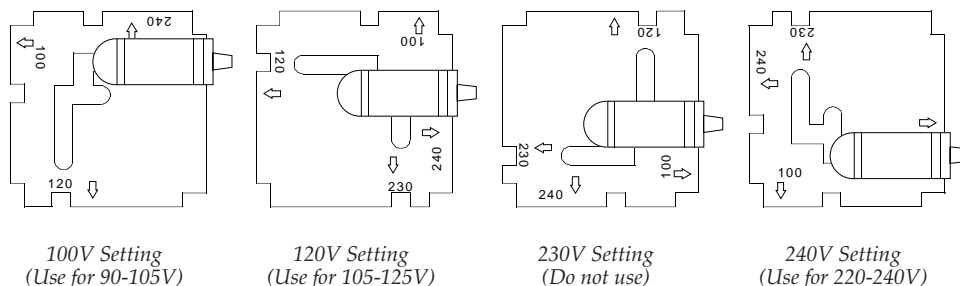
The setting is altered by a small vertical PCB which can be fitted in 4 positions.

To change the setting:

- i) Switch off and remove the IEC lead.
- ii) Using a small flat-bladed screwdriver, lever open the fuse panel to the right of the connector.
- iii) At the right hand side is a vertical PCB with a plastic key which indicates the setting. Using pliers, pull out the PCB.
- iv) The PCB has to be rotated until the desired voltage is shown along the edge which plugs into the module. The plastic key (and this bit is quite fiddly) must also be rotated so that it points out of the module and so that the round pin aligns with the appropriate hole in the cover panel; (refer to the diagrams below).
- v) Re-insert the PCB and replace the fuse panel. The plastic pin should project through the appropriate hole.



Mains Input Module



Mains Input Programming PCB

*These diagrams show the PCB arrangements for the different voltage settings. Note that if the mains voltage is a nominal 230V, the '240V Setting' should be used – not the '230V Setting'!*

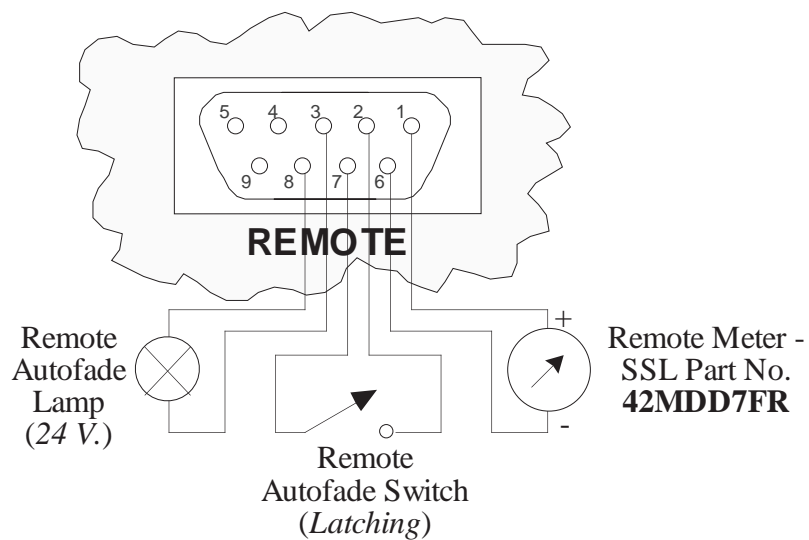
## 4. Features

### 4.1 Earth Lift Switch

This switch is located on the rear panel. It isolates the circuit 0V from the Earth cable of the Mains Input Connector. The case and the lid are always connected to the Earth cable. If the unit is to be connected to an installation with a Mains Earth, then it may be necessary to operate the switch in order to eliminate hum caused by earth loops.

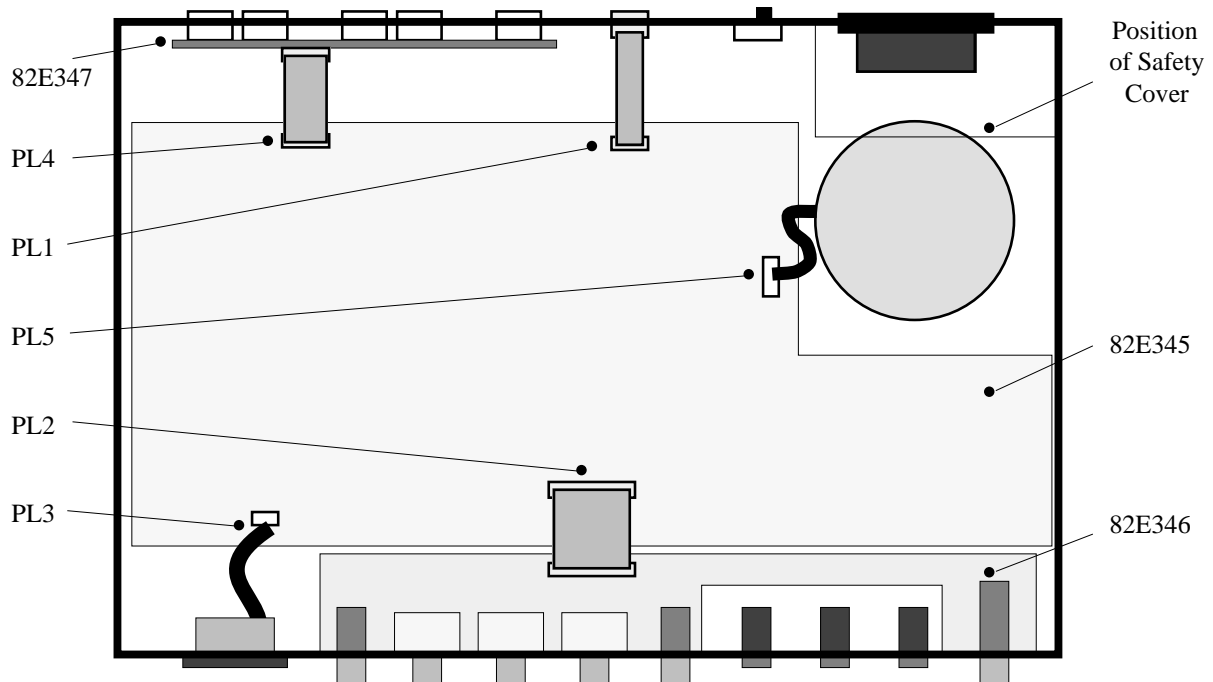
### 4.2 Remote Connector

The rear panel REMOTE Connector allows the connection of an external gain reduction meter and Autofade switch and lamp. The diagram below shows the required connections.



## 5. Connection Details

The picture below identifies the PCBs and shows the locations of the various connectors which are referred to in this section.



### 5.1 Connections from 82E345 Card to Front/Rear Panel

The rear panel REMOTE connector allows the use of an external meter and/or AUTOFADE switch (see Page 5). The connector is a 9-way 'D'-type; at the PCB end is a 10-way ribbon connector, PL1. The meter connector, PL3, is a 5-way Molex type. Designations for each connector are as follows:

PL1: 82E345 Main Card to REMOTE Connector on Rear Panel		
PL1 Pin	Function	'REMOTE' Connector Pin
1	External Meter +ve	1
2	External Meter -ve	6
3	Ext. <b>AUTO FADE</b> Switch - A	2
4	Ext. <b>AUTO FADE</b> Switch - B	7
5	Ext. <b>AUTO FADE</b> Lamp - A	3
6	Ext. <b>AUTO FADE</b> Lamp - B	8
7	n/c	—
8	n/c	—
9	n/c	—
10	n/c	—

**PL3: 82E345 Main Card to Meter**

Pin	Function
1	Meter +ve
2	Meter -ve
3	Meter Backlight +ve
4	Meter Backlight -ve
5	n/c

**5.2 Inter-Card Connectors.**

There are two connectors in this category. PL2 is a 26-way ribbon connector, and interfaces the 82E346 Switch Card to the 82E345 Main Card. PL4, a 16-way ribbon connector, carries all of the audio signals between the 82E347 XLR Connector Card and the 82E345 Card.

**PL2: 82E345 Main Card to 82E346 Switch Card**

Pin	Function	Pin	Function
1	<b>THRESHOLD</b> Pot CW	14	<b>RATIO</b> Switch Left 1:10
2	<b>THRESHOLD</b> Pot Wiper	15	<b>MAKE-UP</b> Pot CW
3	<b>THRESHOLD</b> Pot ACW	16	<b>MAKE-UP</b> Pot Wiper
4	Control Voltage In	17	<b>MAKE-UP</b> Pot ACW
5	Control Voltage Out	18	+18V
6	0V	19	-18V
7	<b>RATIO</b> Switch Right Wiper	20	Compressor <b>IN</b> Switch/Lamp
8	<b>RATIO</b> Switch Right 1:2	21	Ext. Side-Chain <b>IN</b> Switch/Lamp
9	<b>RATIO</b> Switch Right 1:4	22	<b>AUTOFADE</b> Switch
10	<b>RATIO</b> Switch Right 1:10	23	<b>AUTOFADE</b> Lamp
11	<b>RATIO</b> Switch Left Wiper	24	<b>AUTOFADE</b> Pot CW
12	<b>RATIO</b> Switch Left 1:2	25	<b>AUTOFADE</b> Pot ACW & Wiper
13	<b>RATIO</b> Switch Left 1:4	26	n/c

**PL4: 82E345 Main Card to 82E347 XLR Connector Card**

Pin	Function	Pin	Function
1	Right O/P +ve	9	Left I/P -ve
2	Right O/P -ve	10	Left I/P +ve
3	Right I/P -ve	11	0V Left
4	Right I/P +ve	12	0V Left
5	0V Right	13	0V Key
6	0V Right	14	0V Key
7	Left O/P -ve	15	Key I/P -ve
8	Left O/P +ve	16	Key I/P +ve

### 5.3 Power Connector to 82E345 Card

This connector carries AC power from the transformer secondary to the 82E345 Main Card.

**PL5: A.C. to 82E345 Main Card**

<b>Pin</b>	<b>Function</b>
1	Transformer Secondary - A
2	Transformer Secondary - 0V
3	Transformer Secondary - B
4	Reserved for future use
5	Reserved for future use

## 6. Circuit Description

Internally, the unit comprises three cards:

- 82E345 Main Card
- 82E346 Switch Card
- 82E347 XLR Connector Card

The Power Supply circuitry is contained on the 82E345 Main Card, and is fed from a transformer mounted at the rear of the unit.

Circuit descriptions for each of the PCB sub-assemblies follow. Circuit diagrams for each card are located immediately after the corresponding circuit description.

### 6.1 The 82E345 Main Card (Drgs. T82345.71-3, T0384G.71)

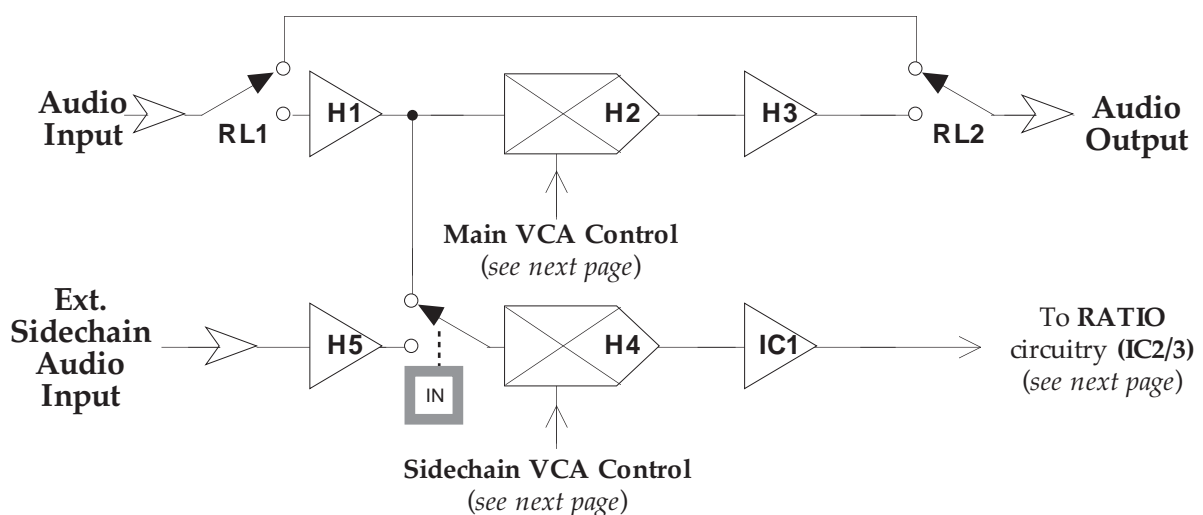
This card contains (from left to right when viewed from the front of the unit) two identical compressor stages for right and left channels, control circuitry common to both channels, and the Power Supply circuitry.

#### Compressor Circuitry

The two compressor stages are identical, and component references for the right and left hand channels differ only in the use of an 'R' and 'L' suffix respectively. The diagram below shows the audio signal path in simplified form.

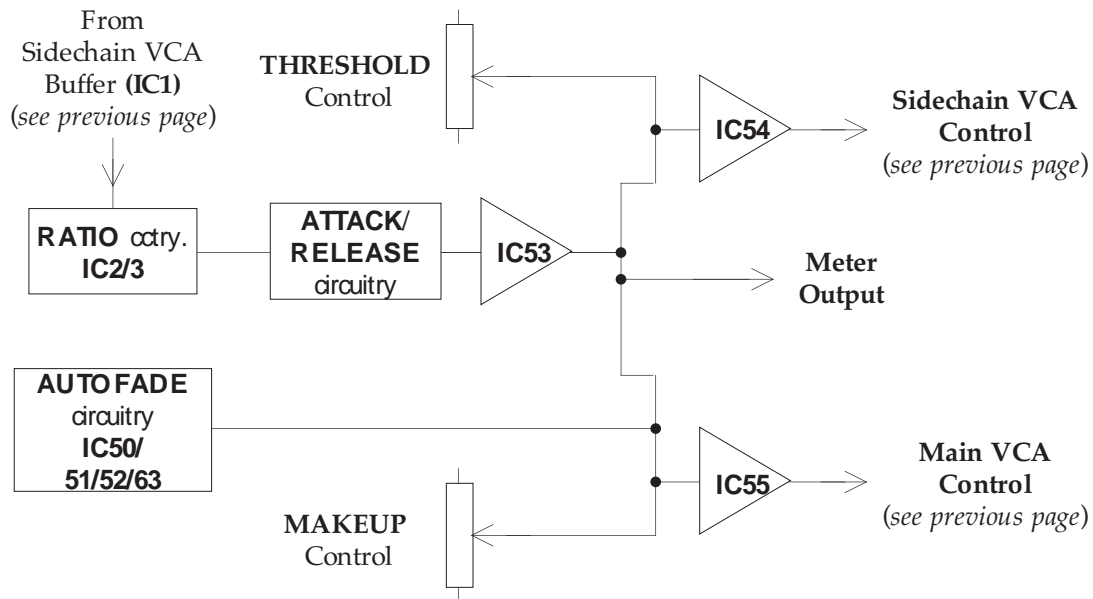
The balanced input signal passes via input bypass relay RL1 through H1, providing an unbalanced output. This signal feeds the input of the main VCA, H2, via gain trim preset VR1. The output of H2 drives hybrid H3 to provide a balanced output which feeds via output bypass relay RL2. VR2-3 are used to set VCA symmetry and output signal balance respectively; these are factory set and should not require further adjustment.

The sidechain VCA, H4, is fed with an unbalanced audio signal either from H1 (see above) via TR1 or from the rear panel KEY connector via H5 and TR2, dependent upon the setting of the External Sidechain IN switch. The output of H4 is buffered by IC1.



## Compressor Control Circuitry

Most of the control circuitry is common to both right and left hand channels. The diagram below shows the control signal path in simplified form.



The output from the sidechain VCA buffer IC1 (see previous page) drives the Ratio circuitry based around IC2-3. This is essentially a precision rectifier circuit whose limits of linear operation may be altered by switching different voltages (derived from potential divider network R29-35) into the inverting input of IC3 via the RATIO switch. The output from IC3 is then fed to the Attack/Release circuitry. The resulting signal is finally buffered by IC53, and is used to drive the meter directly. This signal is available on the REMOTE connector, allowing a similar external meter to be driven. See Section 4 for details of a suitable meter.

The Autofade circuitry generates a variable rate voltage change (with a sharper 'knee' characteristic towards the end). When AUTOFADE is pressed, the output of IC58 goes low, causing the output of IC63 to go high. C54 thus begins to charge via the AUTOFADE pot and R61, causing the output of IC63 to gradually fall. This will affect the VCA Control Voltages after D54 is biased on. When C54 is sufficiently charged, IC63 switches low. Overall Gain Trim is provided by VR50.

IC54-55 act as summing amplifiers to produce the Sidechain and Main VCA Control Voltages respectively. IC54 sums the signals from IC53 (see above) and the THRESHOLD control, and IC55 sums the signals from IC53, the MAKEUP control, and from the Autofade circuitry output from IC52 (see above). The outputs of IC54-55 drive the control inputs of H2 and H4 respectively (see previous page). If LK5 is inserted, VR4 can be used to adjust VCA tracking between left and right channels.

Both 'hard' and 'soft' bypass options are available, configuration being via LK1 and LK2. (The required link positions for either option are clearly identified on the PCB.) In 'hard' bypass mode, when either the Compressor is not IN or power fails, the audio signal bypasses the compressor via relays RL1-2.

In 'soft' bypass mode, switching the Compressor IN switch off isolates all VCA control voltages and the external sidechain audio path via TR57-58 and TR3, reducing the unit function to that of a unity-gain amplifier.

Note: With the compressor in 'soft' bypass, the AUTOFADE facility remains available.

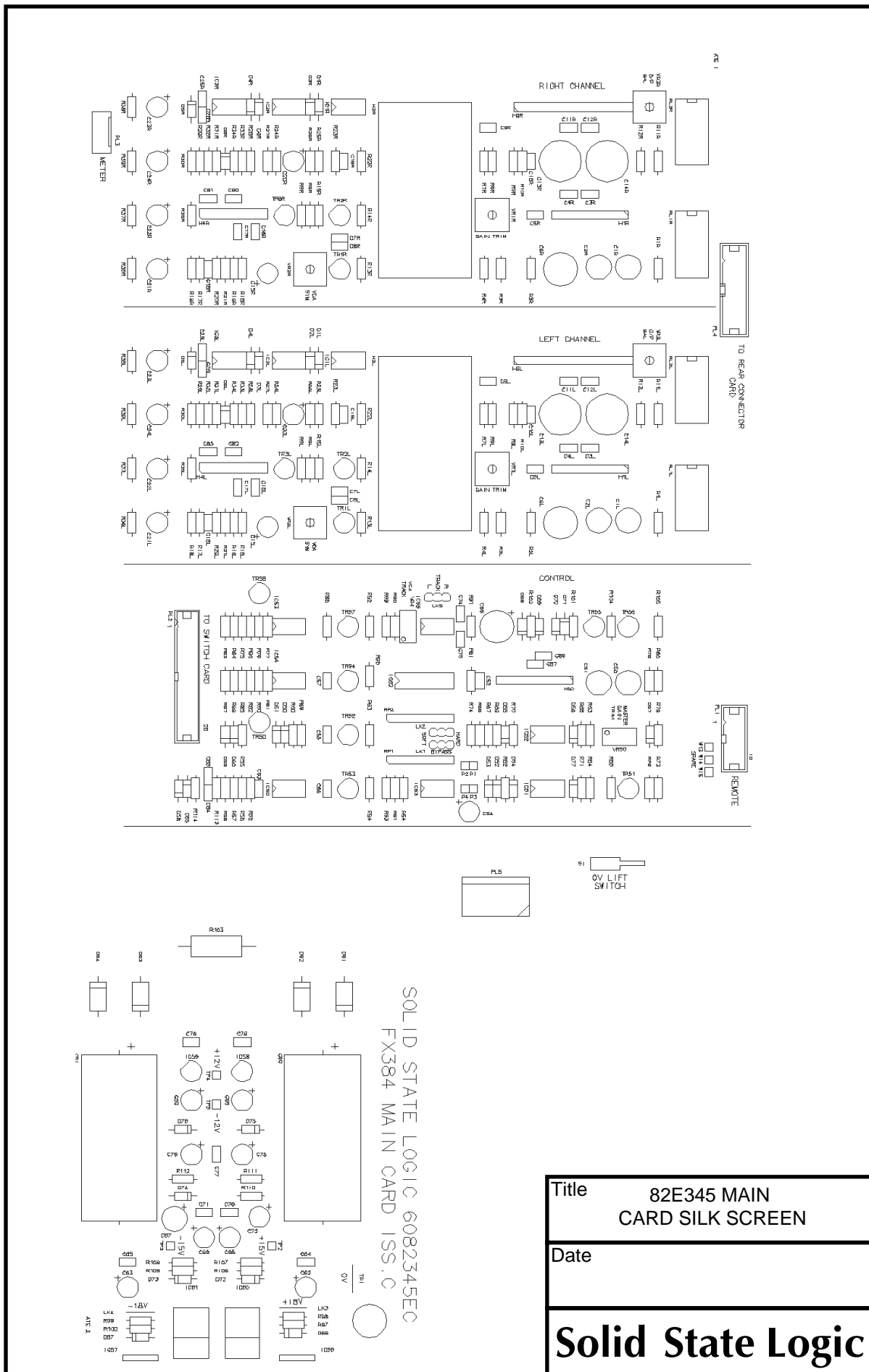
### **Power Supply**

The Power Supply comprises a primary regulator stage which produces +18V and -18V dc. lines, and secondary regulator stages, fed from these lines, which provide the various circuit voltage supplies.

The nominal 40V ac. from the centre-tapped secondary of T1 is rectified by D61-64. The +ve and -ve outputs from this bridge rectifier (referenced to the centre tap of T1) feed regulators IC56 and IC57 respectively to produce +18V and -18V lines from which all the circuit voltage supplies are derived. Briefly, these are as follows:

Regulators IC58 and IC59 are fed by the  $\pm 18V$  lines and provide outputs of  $\pm 12V$  which are used for the RATIO switch resistor chains. Regulators IC60 and IC61 are also fed by the  $\pm 18V$  lines. These provide outputs of  $\pm 15V$  which power the VCA circuitry. Supplies of  $\pm 18V$  for the control circuitry are decoupled from the main  $\pm 18V$  lines by R110-111 and C72-75. A further supply of +11V is derived from the +18V line via D74 and R112 and constitutes the negative supply for the logic circuitry. The  $\pm 18V$  analog supplies are decoupled from the main  $\pm 18V$  lines by R113-114 and C84-85.

Details of the transformer and operating voltage selection circuitry are shown on drawing T0384G.71.



Title	82E345 MAIN CARD SILK SCREEN
Date	
<b>Solid State Logic</b>	

Add schematics for T82345 and T0384G in place of  
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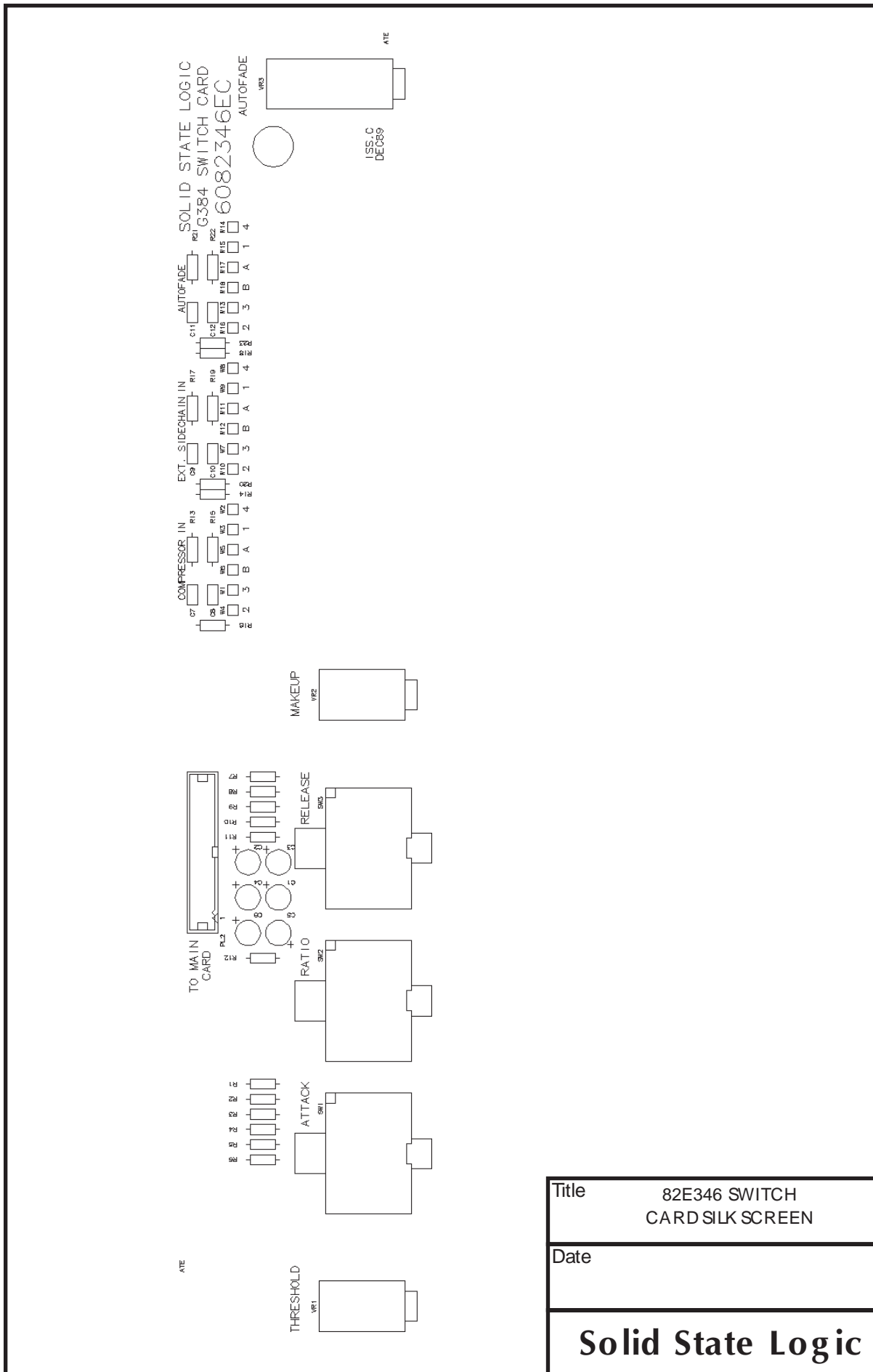
## **6.2 The 82E346 Switch Card (Drg. T82346.71)**

This card carries the ATTACK and RELEASE switches, SW1 and SW3, with their associated RC networks which alter the Attack and Release characteristics by modifying the VCA Control Voltage.

The card also carries the RATIO switch, SW2, and the THRESHOLD, MAKEUP, and AUTOFADE potentiometers, VR1, VR2, and VR3 respectively.

The Compressor and External Sidechain IN switches and the AUTO FADE switch connect to this card via flying leads. An RC network is provided for each switch to ensure a smooth switchover characteristic.

Connection to the 82E345 Main Card is via PL2.



Title	82E346 SWITCH CARD SILK SCREEN
Date	
<b>Solid State Logic</b>	

Add schematic for T82346 in place of this sheet



### **6.3 The 82E347 XLR Connector Card (Drg. T82347.71)**

The five rear panel XLR connectors are mounted on this card together with a 16-way ribbon connector, PL4. The card functions purely as an interface for the XLR connectors.

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## 7. Component List

The major components of the XLogic Stereo Compressor are listed below, together with their respective SSL Part Numbers and, where appropriate, an indication of where each component is used.

Part No.	Description	Reference
32K09PB5	CON RIBBON 9W D CHASSIS SOCKET	REAR PANEL
32K10GB5	CON RIBBON 10W FREE SOCKET	MAIN CARD
32K10GGX	STRAIN RELIEF - 10W RIBBON SKT	MAIN CARD
32K168B5	CON RIBBON 16W PC HEADER RT LP	PL4 ON XLR CARD
32K16GB4	CON RIBBON 16W FREE SOCKET	MAIN & XLR CARDS
32K16GGV	STRAIN RELIEF - 16W RIBBON SKT	MAIN & XLR CARDS
32K26GB4	CON RIBBON 26W FREE SOCKET	MAIN/SWITCH CARDS
32K26GGV	STRAIN RELIEF - 26W RIBBON SKT	MAIN/SWITCH CARDS
32PD03BE	CON XLR 3W PC CHASSIS PLUG	L AND R O/PS
32PD03CE	CON XLR 3W PC CHASSIS SOCKET	L, R AND KEY I/PS
32PMXXUQ	9W D CONNECTOR CHASSIS SCREW LOCK	REAR PANEL
32Q805LC	CON MOLEX 6471 5 WAY SKT SHELL	MAIN CARD TO METER
32Q8XXQ1	MOLEX SOCKET INSERT	METER
32Q907LC	CON MOLEX 7 WAY FREE SKT SHELL	MAIN CARD
32Q9X0LL	POLARISING KEY MOLEX 0.156"	
32Q9XXQ3	CON MOLEX SOCKET INSERT 0.156"	
32VGJ36D	CON IEC CHPL FIL/SL/FS/SW RT	REAR PANEL
33DMK118	PUSHBUTTON SQ SP LATCH GREY	FRONT PANEL
33FCD22C	SWITCH SLIDE 2PC0 4A 250V	REAR PANEL
34B153F8	KNOB RND 15mm X 1/8 LINE GREY	FRONT PANEL (VR1 - 3)
34B154F8	KNOB RND 15mm X 4mm LINE GREY	FRONT PANEL (SW1 - 3)
34B15FF8	KNOB CAP 15mm LINE GREY	FRONT PANEL
35FJJ250	FUSE 1 1/4" ANTI - SURGE 500mA	FUSE FOR IEC CON
36EGDDDC	TFMR 100/120/240 20 - 0 - 20 40VA	CHASSIS
413TAT3X	LAMP FILTER T5.5 AMBER	LAMPS ON P/Bs
41CPAT9J	LAMP T5.5 24V 30mA	P/B SWITCHES
42MDT7F4	METER DB COMPRESSION 14 LED ILLUM	FRONT PANEL
53783381	PLATE - MAINS PROTECTION	
53784371	PANEL FRONT - LOGIC FXG384 (SATIN SILVER)	
53784311	PANEL REAR - LOGIC FXG384	
53784321	CHASSIS - LOGIC FXG384	
53784341	INSULATOR POLYCARB FX384	FIT UNDER 82E345
53784361A	FRONT PANEL TO CASE BRACKET FRONT PANEL - FX384	
6082347EA	PCB FX384 XLR CARD	
622345E1	S/A FX384 MAIN CARD	
622346E1	S/A FX384 UPPER SWITCH CARD	
66B4D036	PUSHBTN SWITCHES HIGHLAND SQ WHITE "IN"	FRONT PANEL
66B4D064	PUSHBTN SWITCH HIGHLAND SQ WHITE "AUTO FADE"	FRONT PANEL

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