

ML3

LIVE PERFORMANCE
CONSOLE



MIDARS

a MARK IV company

DESIGNED FOR A PURE PERFORMANCE

XL3

LIVE PERFORMANCE CONSOLE

THE XL3: TOTAL VERSATILITY FOR MONITORS OR FRONT-OF-HOUSE

The XL3 Live Performance Console exemplifies the thinking which has given Midas its reputation for dedication to excellence in Console design.

Combining the uncompromising Midas design philosophy with Klark-Teknik's state-of-the-art technology, the XL3 is unique in providing one Console which is equally suited to front-of-house or monitor applications.



Its unparalleled facilities – in particular a total of 18 mix sends with routing to Mix outputs and Masters, via 8 VCA groups – allows it to be used in any application without practical compromise.

UNCOMPROMISING QUALITY

Designed stringently for high end application, the XL3 gives sound reinforcement rental owners and installation engineers a totally versatile Console which can be hired for any situation – and a place of work for the engineer that instantly looks and feels right.

The control surface is ergonomically designed with clearly marked colour coded controls for rapid identification. By sub-dividing the modules into logical zones, an engineer will be able to quickly and confidently understand the Console's functions.

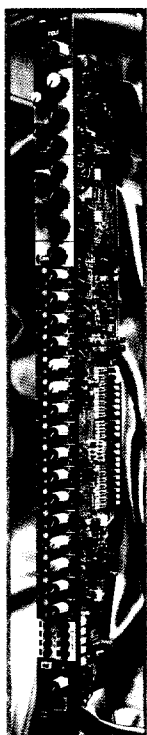
And with Klark-Teknik's input at every stage of the design, innovation is matched by sonic quality of the highest possible level.

THE INPUTS

The newly designed and extremely quiet input stage provides the subjective transparency demanded of a top class Mixing Console – whilst retaining excellent stability and common mode rejection, along with very low distortion.

THE INPUT METERING

This peak-reading meter receives signals from both the input gain stage and the equaliser's output, registering whichever is the higher. It has a range of $\pm 12\text{dB}$ in 3dB steps



Advanced console

and a 'signal present' indicator with a threshold of -25dB .

Since the channel insertion point is pre-equalisation, the metering will make it immediately obvious to the engineer if there is disparity caused by an externally inserted device, extreme equalisation or incorrect setting-up of the control gain input.

THE EQUALISER

The legendary Midas musical equalisation is, of course retained, but is enhanced with the Klark-Teknik equaliser accuracy to provide a sonically superb four band design which provides the best possible combination of both corrective and creative frequency control. The two parametric mid controls have 'Q' ranges of 1/6 to 2 octaves which overlap generously in the most critical region of the audio band.

THE INSERT POINTS

Each channel has a pre-equaliser half-normalised fully balanced insertion send and return point which may be switched in or out. The return can also be used as an alternative 0dBu line input. This feature is particularly useful for recording work where the insert returns may be used as tape inputs and the insert in/out functions as a record/mix switch. This method of operation can also be used to cover multiple stage set-ups in theatrical work.

DIRECT OUTPUT OPTION

Each input may be equipped with a user specified fully balanced direct output, which may be internally linked to be either pre or post fader.

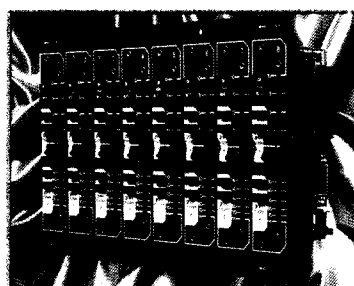
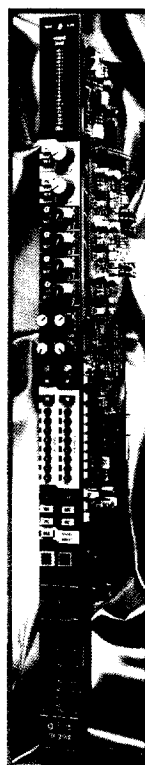
This facility provides applications in recording, broadcast etc, and greatly enhances the versatility of the XL3 system.

MIX GROUP DIRECT INPUTS

Each mix group has a fully balanced direct input with level control, PFL and mute, allowing Consoles to be easily linked, or another 16 channel line level source to be injected into the mix.

THE OUTPUT METERING

All outputs are equipped with a 20 segment L.E.D peak-reading meter, having a dynamic range of -36dBu to $+21\text{dBu}$.



The technology with the Midas touch

22 OUTPUTS FOR TOTAL FLEXIBILITY

The XL3 mixing system allows the 16 mixes to be used as either output mixes, sub groups or auxiliary master outputs. With all inputs also routable direct to masters, grouping via 8 VCA masters, along with a two-way matrix and two ancillary record outputs, this offers a total of 22 outputs, providing a totally flexible Console which is at home in any environment.

THE MATRIX

The XL3 has a two-way matrix derived from mix groups, with each variable send being switchable pre/post fader and on/off.

If more output mixes are required, the Midas XL88 stand-alone modular Matrix Mixer provides additional line level 8-into-8 mixing. (See separate data sheet for full information).

THE MASTER

The master module houses the main master and matrix output faders along with the ancillary record outputs. Also incorporated, is a solo to masters switch. This simple inclusion greatly simplifies sound checks and provides the engineer with an enhanced working environment.

16 MIXES PLUS DIRECT TO MASTERS: EQUALLY POWERFUL FOR FRONT-OF-HOUSE, MONITOR OR THEATRE

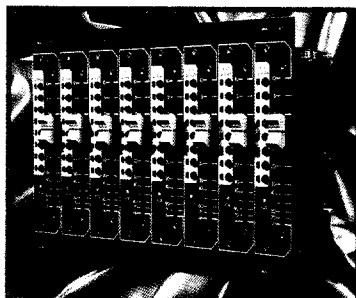
Each input channel is equipped with 16 discrete, individually switchable (pre/post, on/off) mix sends. Inputs can also be individually assigned into the masters, making the Console truly flexible in any front-of-house, monitor or theatre application.

The master section also offers an additional stereo record output with a level control and metering switch.

THE VCA SYSTEM

The VCA system allows inputs to be assigned to 8 VCA masters. Inputs may be assigned to any number of VCA masters to provide the maximum possible system versatility. Each VCA master is equipped with an on/off and mute switch to further enhance flexibility.

Two grand master VCA groups are provided enabling any



combination of the 16 master mix outputs to be assigned via these two VCA scenes. A truly comprehensive control system.

THE FLEXIBLE MIX GROUP MUTING SYSTEM

The XL3's group mutes can be configured for three different modes of operation:

- To mute the group output completely.
- To mute the group output signals, but not the signals to the main stereo buss.
- To mute the mix to stereo buss signals, but not the mix output.

AUTOMUTE

The input channels and groups have eight mute assign switches, each of which is under the control of a master mute on the communication module.

Output mixes also have a 'mute safe' for panic operation.

THE SOLO/PFL

Solo/PFL buttons are fitted on all inputs and outputs.

Depending on the solo/PFL switch status, the headphone and local monitor outputs are fed with a PFL or a 'solo in place' signal whenever one or more solo buttons are pressed.

Solo/PFL signal levels can be monitored on a twin meter arrangement.

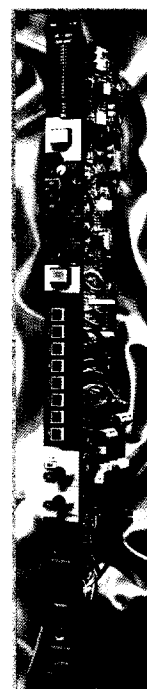
THE COMMUNICATIONS SYSTEM

The XL3 has an advanced communication system which is designed to be fully compatible with all commercially available standard three-wire systems.

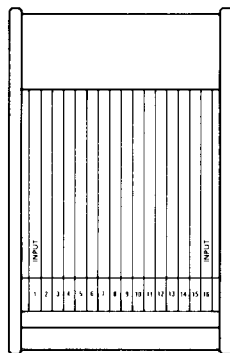
Communications can be independently routed to either individual outputs or to all of the outputs.

An internal pink noise generator can be slated to all outputs, including the talkback output, allowing external use of the noise signal – but is automatically over-ridden when talkback is activated.

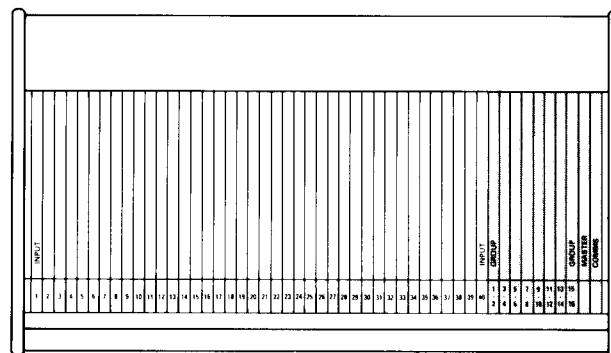
The communications module has integral sockets for microphone, stereo headphones and a communications headset.



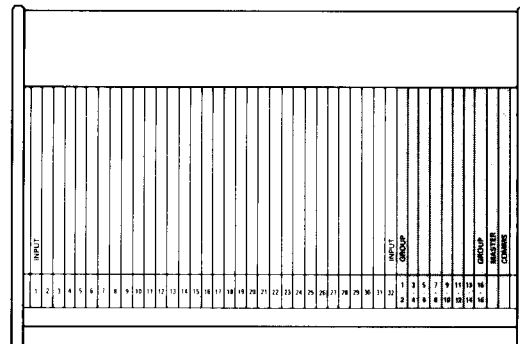
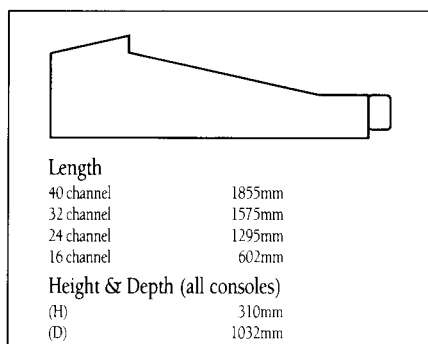
Formats and Dimensions



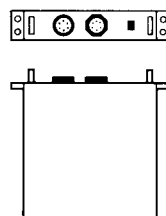
16 Input Extender



40 Inputs

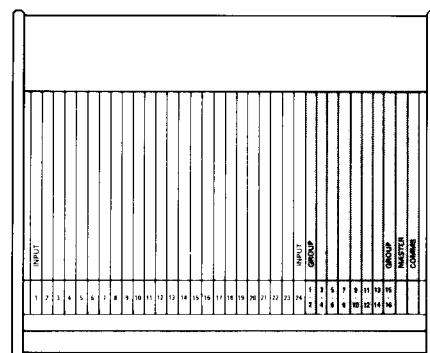


32 Inputs



PSU Dimensions

Height 89mm
 Depth 418mm
 Width 483mm



24 Inputs

Flight cases

Consoles are normally shipped in standard flight cases and PSU's in export packaging material. Alternatively, customers can supply their own flight case.

Weights

40 channel approx. 280 kilos
 32 channel approx. 240 kilos
 24 channel approx. 200 kilos
 16 channel extender approx. 100 kilos
 PSU approx. 10 kilos

TECHNICAL SPECIFICATIONS

Input Impedance Microphone: 1k2 Line: 10k

Gain Microphone: (Channel input to Mix output) >100dB
 Line: (Channel input to Mix output) >70dB

Frequency response Microphone to Mix: 20Hz-20kHz +0-0.5dB
 Line to Mix: 20Hz-20kHz+0-0.5dB

Noise (20Hz-20kHz) Microphone: (ref 150ohms)-129dB equivalent input noise

Distortion Microphone: 0.02% Line: 0.02%

Output Impedance All outputs 50ohms Headphone output 8ohms

Output capability All outputs +21dBu

Crosstalk Adjacent channels @ 1kHz 100dB Mix to mix 90dB
 Note: 0dBu = 0.775 volts

Midas reserve the right to alter the design and specification of its products without prior notice.

MAIN OPTIONS

- Chassis mounted multi-pole connectors (to customer specification).
- Centre masters configuration.
- Meter bridge.
- Transformer balanced input/output.
- Direct output from each channel.



MIDAS XL3:

The product of two legendary reputations

The Midas XL3 live performance console is the latest in a line of innovative products to emerge from the combined forces of Midas and Klark-Teknik.

Midas consoles have been renowned in sound reinforcement for over a decade. Since the first Midas console was launched, the marque has acquired an enviable reputation amongst professional users for embodying the highest standards of sonic performance, reliability and sound ergonomics. The classic Midas consoles are still regarded by many leading sound engineers as setting the standard for sound reinforcement mixing and often appear as the number one choice on the

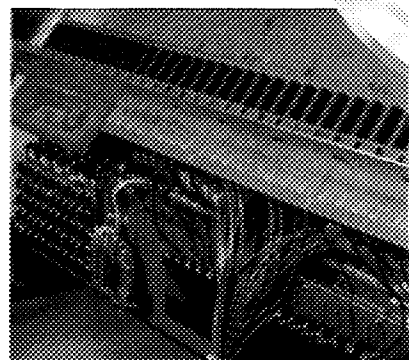
riders of numerous tours around the world.

Klark-Teknik's resources and innovative electronics design expertise has made it a worldwide leader in sound control and processing technology, with a host of "industry standard" products to its name.

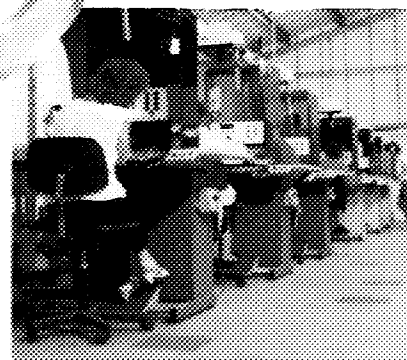
The collaboration of Midas and Klark-Teknik has brought to sound reinforcement technology the benefits of specialised engineering facilities, sophisticated CAD/CAM techniques and extensive reliability and durability testing procedures.

With the XL3 live performance console, Midas is once again at the forefront of sound reinforcement technology.

Klark-Teknik's headquarters in Kidderminster, England where Midas consoles are designed and manufactured.



Workmanship of the highest quality is incorporated into each Midas product.



Quality engineering production.



DESIGNED FOR A PURE PERFORMANCE

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An Introduction to the Midas XL-3 Console

Prepared by,
Bob Doyle
Dana Roun
Bradford Benn

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Introduction

NOTES FROM BOB DOYLE of MIDAS:

Practical House and Monitor Operation- When first addressing the XL-3, you will notice that the general layout is quite familiar and until it's functions are firmly established in the engineers mind it should initially be approached as he or she would a conventional console and set up as a 16 aux/8 stereo sub group (VCA section)/2 format. The description below is to help the engineer grasp the full design philosophy and operation of the XL-3.

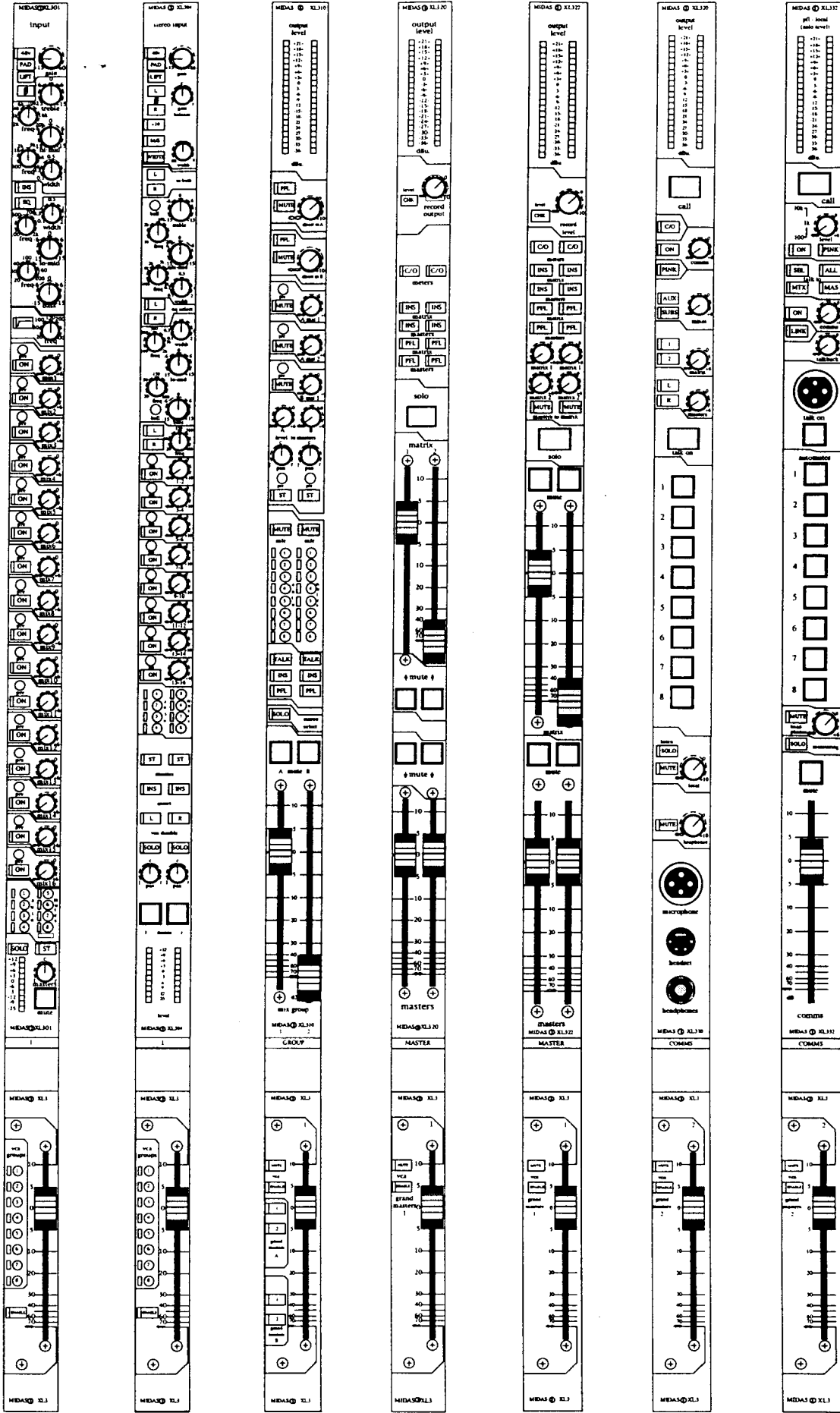
Mix Outputs - The 16 mix outputs (or auxiliaries) per input channel differ from conventional consoles in so much as the master send controls are situated on the output section are sliding faders as opposed to rotary controls. When used as auxiliaries, the outputs are conventional in operation allowing outboard processing equipment to be driven directly from the mix output XLR connectors on the rear panel. This layout is also suitable for stage monitoring functions as it is intrinsically (in the case of an XL340) a 40x16 matrix.

Analog Subgroups - Any combination of mix outputs can be routed directly into the stereo master output by way of the "ON" push switches situated below the panpots on each output. Once this function is assigned, the output can be placed into the stereo image via these panpots and also the gain structure adjusted if necessary via the level to master rotary faders above. The "pre" switches in this section will route the output to masters pre or post fader. Once this assign is chosen, a stereo routing can be selected from the input channel mix outputs which once setup, will configure those selected outputs into the subgroup format.

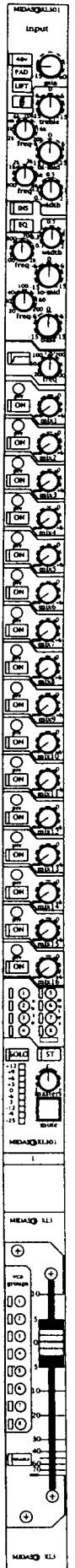
NOTES FROM DANA ROUN*: When introducing an avid audio enthusiast like yourself to a console of this caliber, I hope to add to the experience. To me the world of show equipment is part of daily life and a good latch that fits snug is somehow helping to win the battle! The first time I saw an XL-3 was several years ago at an A.E.S. trade show. Did it have the famous sound of the earlier Midas Consoles? I knew somehow I had to get on *that* console and mix! As I walked away from the trade show booth my mind was filled with my brief encounter with excellence.... the room went dim as I imagined engineering a live show behind the controls! Several moments of sheer bliss only to be interrupted when I bumped into a sharp corner of a neighboring booth. Since that day I have pursued this console and today I have the opportunity to give you the chance to share my dream! Let's look and listen and judge for ourselves as we learn the many features this console has to offer!

* The following overview of the Midas XL-3 console was originally written by Bob Doyle of Midas. This document assembled and edited by Dana Roun (Director of Sound Reinforcement @ Full Sail, Winter Park, Fl.) and Bradford Benn (Full Sail "Live Sound" Intern). Console graphics by Bradford Benn.

MIDAS XL-3



MIDAS XL-301 INPUT MODULE



XL-301 Input Module

48V Phantom Power for condenser mics, this is DC power.

Mic/Line PAD switch provides 30dB of attenuation

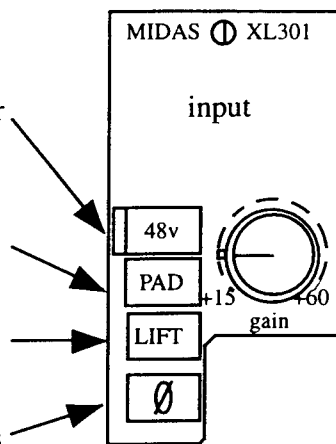
Earth Lift (Ground Lift) switch eliminates pin 1 input XLR.

Phase Reversal (Ø) switch reverses the phase of the input XLR by switching pins 2 and 3.

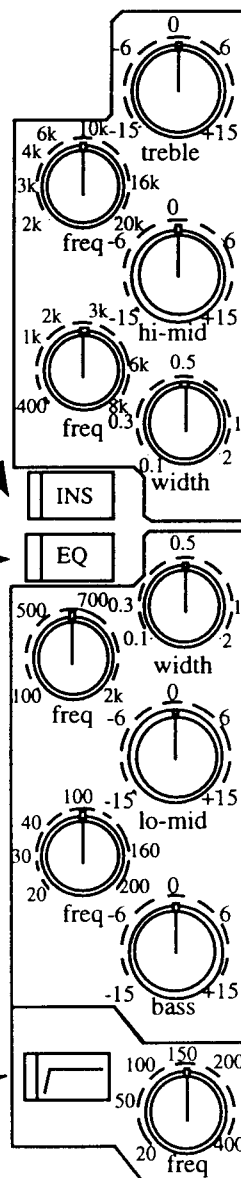
Insert Signal is always available through the insert send patchpoint on the TT patchbay, however to be able to receive this button must engaged. The insert send and return is electronically balanced.

EQ this switch engages or bypasses the equaliser.

HPF Engage This button must be pushed in order to engage the high pass filter.



Gain Program input via an XLR connector on rear panel. Rotary fader attenuates or boosts the input signal over a range of +60dB to -15dB



Treble Band equaliser displays "Butterworth" shelving characteristics with a frequency select of 2KHz to 20KHz and a cut and boost of -15dB to +15dB.

Hi-Mid band equaliser Fully parametric frequency select (400Hz to 8KHz), bandwidth control of 0.1 to 2 octaves and a cut and boost of -15dB to +15dB

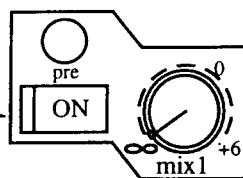
Lo-Mid band equaliser Fully parametric frequency select (100Hz to 2KHz), bandwidth control of 0.1 to 2 octaves and a cut and boost of -15dB to +15dB

Bass band equaliser also displays "Butterworth" shelving characteristics with a frequency select of 20Hz to 200Hz and a cut and boost of -15dB to +15dB.

High Pass Filter The assignable high pass filter rotary fader control is continuously variable from 20Hz to 400Hz. It has a slope of 12dB per octave

XL-301 Input Module continued

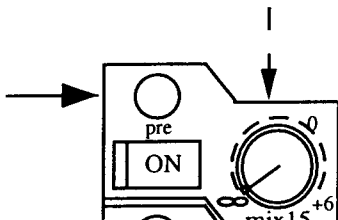
Mix Send On This button allows signal from that module to be sent to the corresponding mix buss.



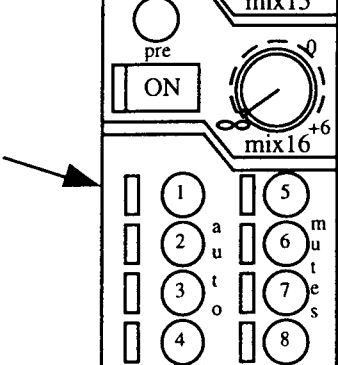
MIX 2 thru 14

Mix Sends 1-16 This rotary fader controls the amount of signal being sent to the corresponding mix buss, it has a range of from infinity to +6dBu.

Pre Button allows one to send signal to the mix buss pre VCA fader.



Auto Mute Group Scenes eight pushbutton switches assign the input channel mute function to any combination of eight mute group masters.

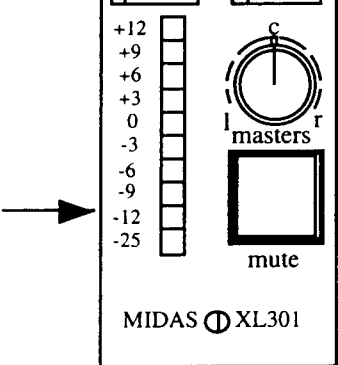


Solo/PFL assigns either pre fader listen or stereo after fader listen (solo/AFL) functions to headphones (which are in mono) and the solo buss outputs on the rear panel.



"ST" pushbutton switch assigns that module to the stereo buss.

Input Metering a 10 segment LED meter. The bottom (red) LED at -25dB serves as a signal present indicator. The remaining LED's track the level up to +12dB *Note: Channel Clip is +21dBu thus giving a further 9dB of headroom above the metered +12dB maximum.*



Panpot places the signal assigned to the stereo buss within the 180° stereo image.

Input Channel Mute this factory preset mute, mutes all channel functions.

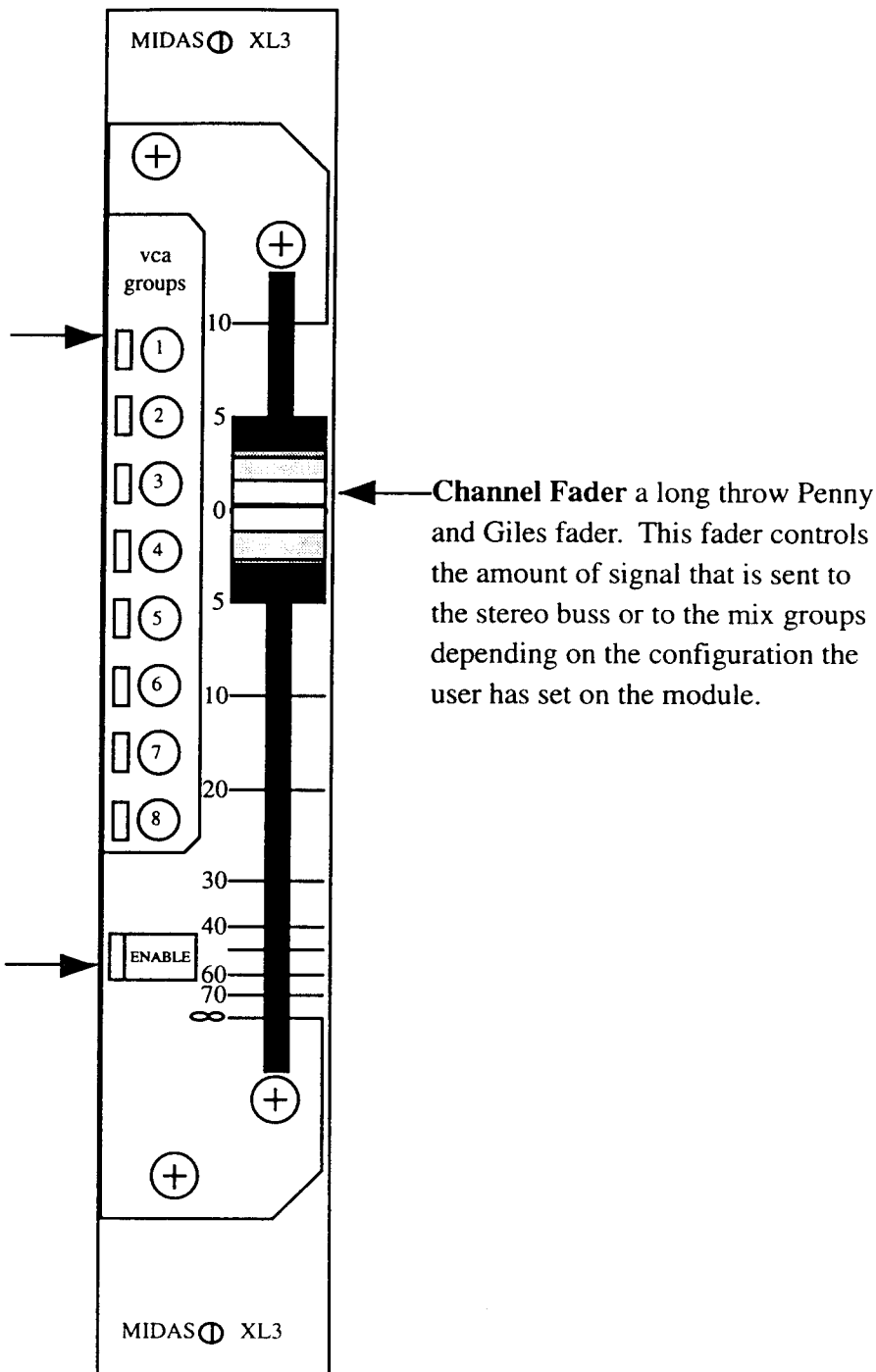
MIDAS XL301

XL-301 Input Module continued

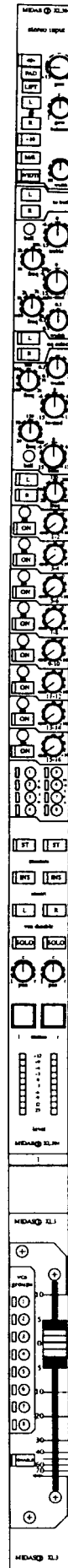
VCA Group these pushbuttons assign that module to one of eight Voltage Controlled Amplifier groups.

VCA Enable this button allows that module to be placed into a VCA Group.

Note: No analogue audio signal is present in the fader at all, gain control is achieved by VCA's.



MIDAS XL-304 STEREO INPUT MODULE

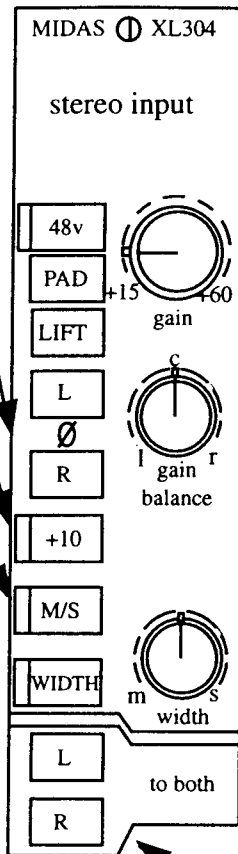


XL-304 Input Module

Phase Reversal (Ø) switch reverses the phase of the input XLR by switching pins 2 and 3. One can change the phase on each input independently.

+10 switch adds an extra 10dB of gain to the channel. This can come in handy when working in simulcast situations.

M/S switch enables one to easily accept a Mid Side (M/S) microphone. An M/S mic has two capsules, a bidirectional and cardioid position so that the pickup patterns are perpendicular to each other, in a single case this allows you to obtain a true stereo image from a single mic position. (see diagram) Another advantage is that the signal retains its mono compatibility. However you must decode this signal properly for it to be heard. When the two mic signals are connected to the module and M/S assigned, one channel is phase reversed and the two out of phase signals then fed through an electronic matrix which enables the stereo source to be spread across the stereo spectrum via the width control. After this treatment, the channels are re-matrixed and phased together for their return down the remainder of the module. This signal can then be spread as desired across the stereo spectrum.

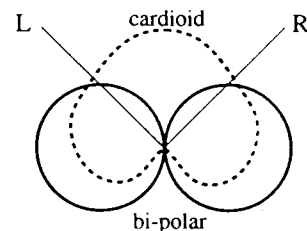


The stereo input module is very similar to the mono module, the major differences and new controls are pointed out in this section. A stereo module is very helpful for such things as CD players, DAT players, stereo MIDI modules, sub mixers, etc. The XL-340 console is typically shipped with 48 insert send and return patchpoints so that one may "short load" the console and add stereo modules easily at a later date.

Gain Balance This rotary fader allows one to compensate for uneven signal level. One can add more gain to one side or another as needed.

Width This potentiometer allows one to control how much of the stereo spectrum the Mid Side signal will take up. The Width button next to it must be engaged to make the pot active. One can choose between the range of stereo and mono.

L & R switch allows one to use a mono source to feed both sides of the module.



This figure represents the basic polar pattern of a M/S mic system.

XL-304 Input Module continued

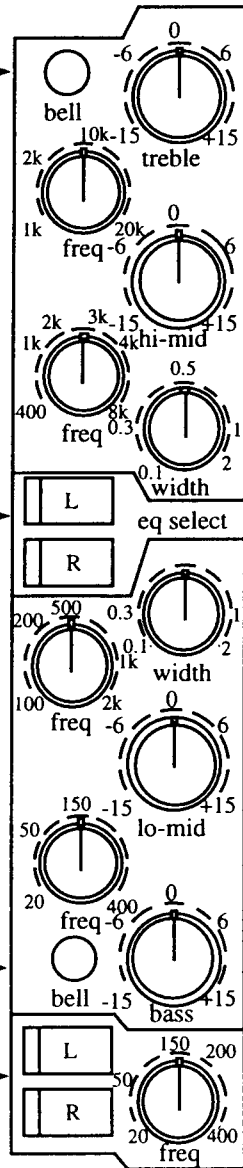
The main difference between the stereo equaliser and the mono version is the frequency ranges for each bandwidth. However it is still operated in the same manner.

Bell this switch changes the treble bandwidth between bell and shelving.

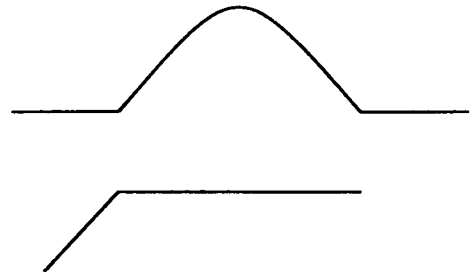
L & R these buttons assign the equaliser to affect the corresponding channel.

Bell this switch changes the bass bandwidth between bell and shelving.

L & R these buttons assign the high pass filter to affect the corresponding channel.



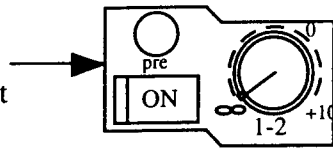
A bell curve on an equaliser will have a peak at the center frequency and then will roll off on both sides. The amount the equaliser affects the signal is rated in dB per octave, this is the slope of each side of the curve.



A shelving equaliser is described by the frequency where the plateau starts, or knee frequency. It affects all frequencies the same amount above the knee frequency, it has a slope rated in dB/octave which is how much the equaliser affects the sound before the plateau. After the knee frequency the amount of boost or cut is simply measured in dB.

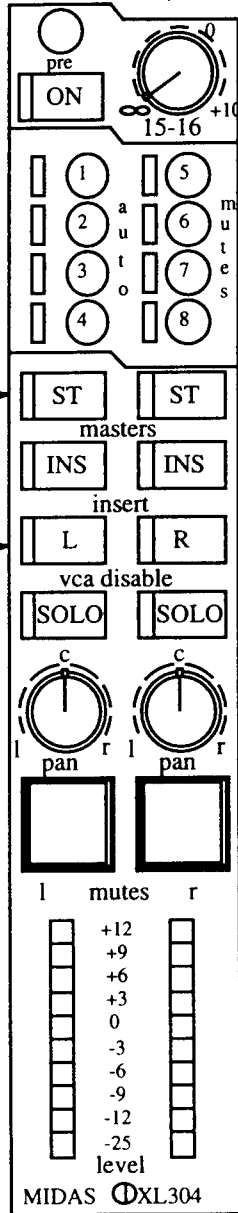
XL-304 Input Module continued

Aux Sends this section works like the mono module, except for the fact that the left channel feeds the odd and the right feeds the even.



MIX 3 thru 14

I



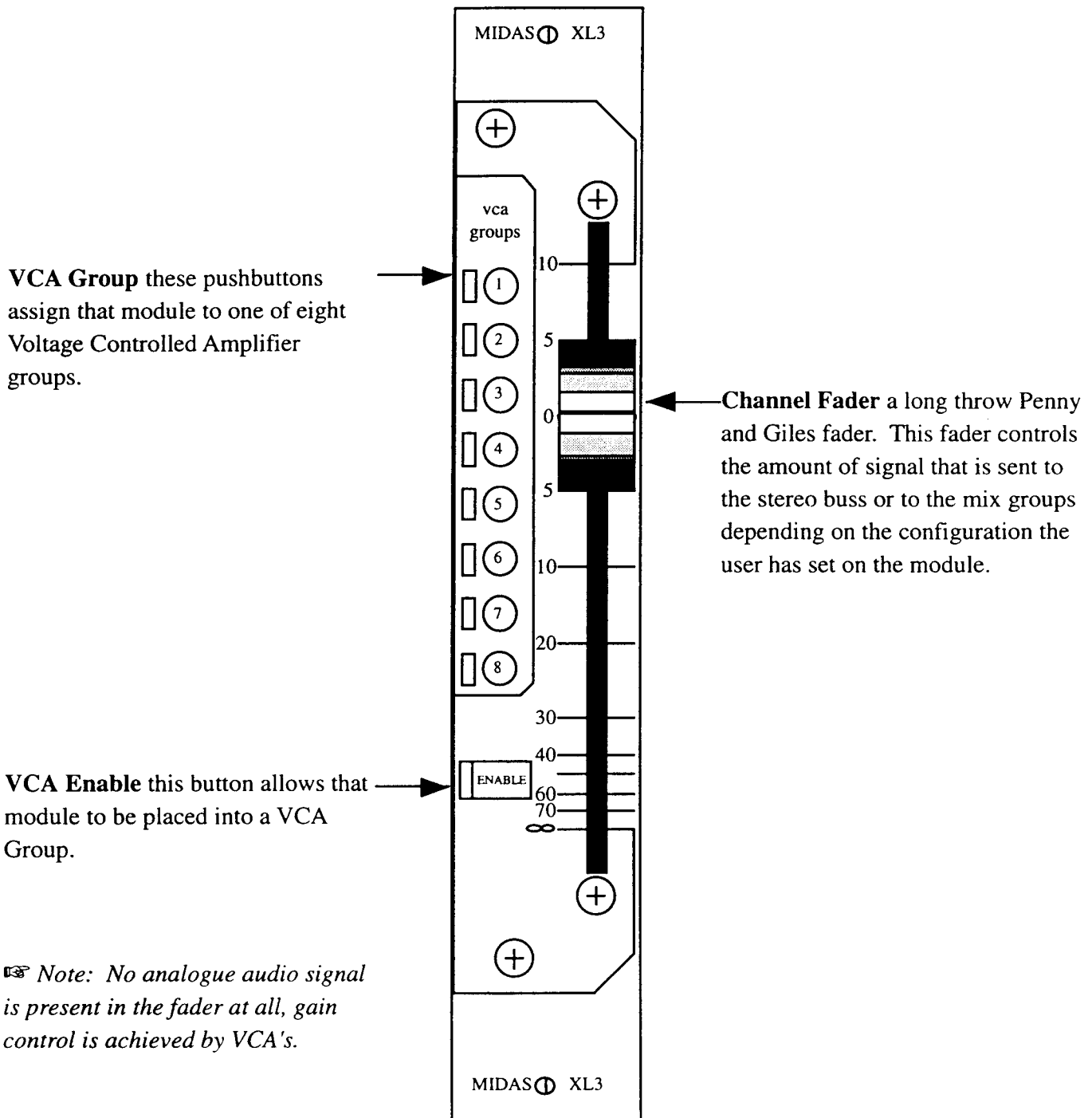
ST this button assigns that side of the channel to the stereo buss.

L & R these switches are used to control the VCA grouping. As one channel fader controls signal, the VCA enable assign will effect both channels. This VCA disable function de-assigns individual channels from VCA controls

INS this button engages the insert return for that channel of the module.

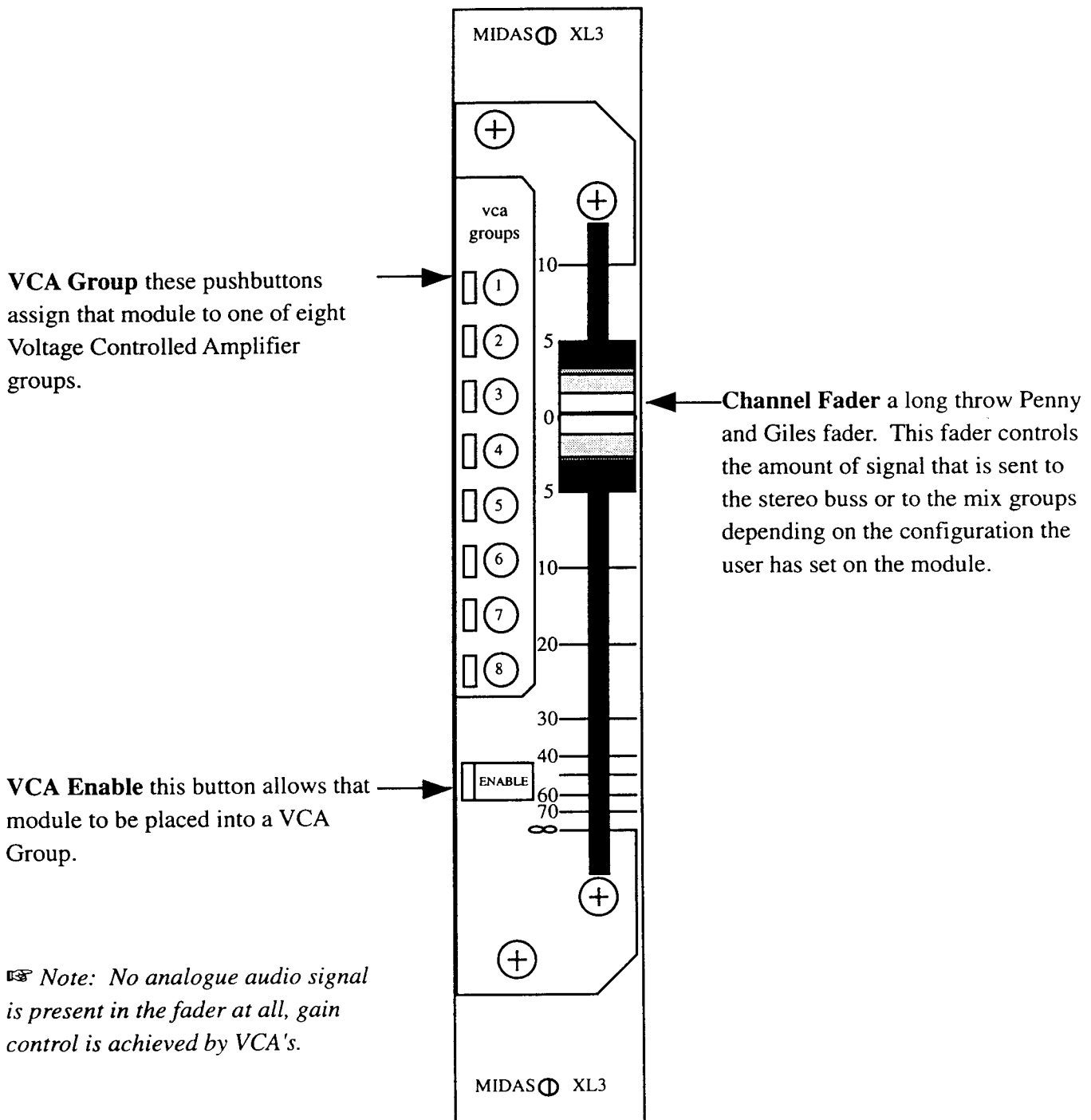
Pan this pot also allows one to pan the signal in the stereo spectrum to offer even more control over placement.

XL-304 Input Module continued

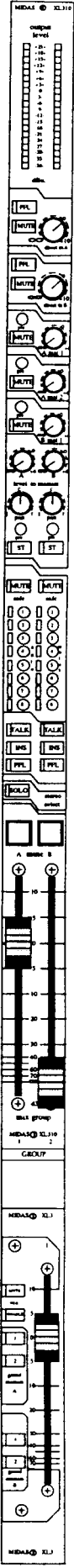


Note: No analogue audio signal is present in the fader at all, gain control is achieved by VCA's.

XL-304 Input Module continued

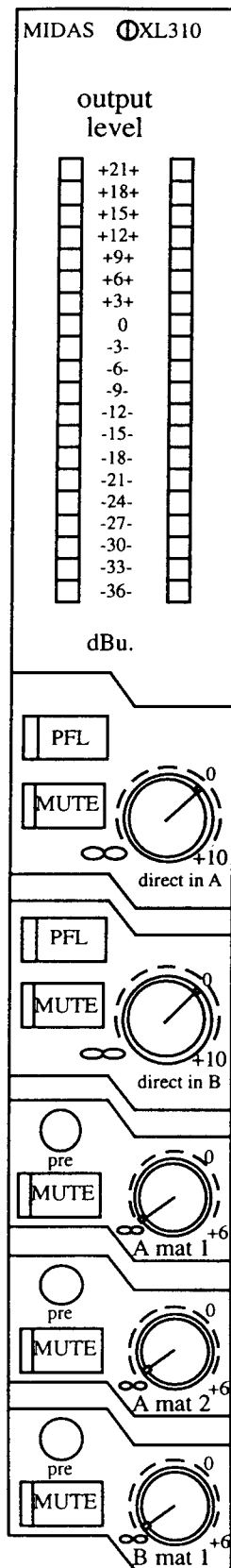


MIDAS XL-310 MIX GROUP OUTPUT MODULE



XL-310 Group Output Module

Signals routed from input channel mix sends 1 through 16 are summed in corresponding order in mix group modules 1 through 8, each output being fader controlled and each module containing two mix groups, or busses. Signal can be routed either pre or post fader to the stereo buss or to the output XLR connectors on the rear panel in order to drive outboard processing gear (like an auxiliary send), for stage monitor mixes, or routed via the onboard 2 by 16 matrix section. Matrix master output controls are located on the Master Output Module.



Dual Output Meters 20 segment output meters track the level from -36dBu to +21 dBu.

Direct Inputs Each Direct Input has its own PFL and Mute capability and are controlled by rotary faders. This facility allows one easy access of external program sources to be fed into the mix group. Once the additional signal has been added it can then be processed and assigned in the same way as an internal program source. This point is useful for auxiliary returns.

Stereo Matrix These rotary faders allow one to route signal to the two matrixes (A and B). Each fader has its own mute control, and can also be bypassed entirely by using the pre button. The "A mat 1" pot feeds the odd group to Matrix A, the "A mat 2" pot feeds the even group to Matrix A, the "B mat 1" pot feeds the odd group to Matrix B, and the "B mat 2" (which is not shown) pot feeds the even group to Matrix B. The matrixes are summed and controlled in the Master Module.

XL-310 Group Output Module continued

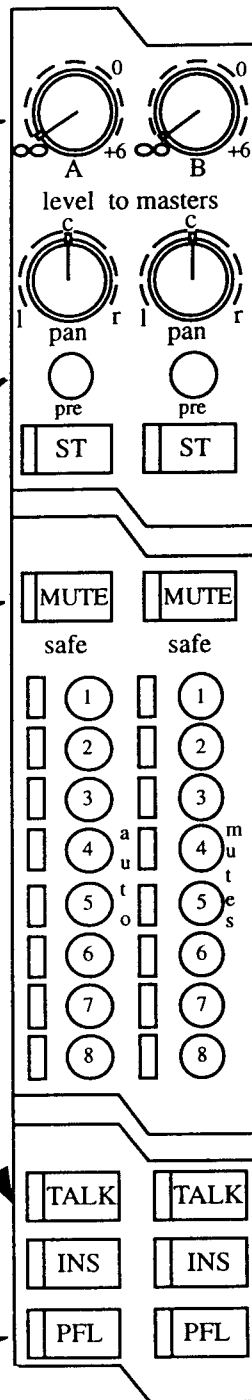
Level to Masters These control the level to the stereo buss. A is the odd group of the module and B is the even one. These allow one to set up groups on the console in addition to the VCA groups in the fader trays. This control must be set above infinity if one is using the direct in as an auxiliary return, as well as the direct in level.

Pre These buttons allow one to assign the output of the group to the stereo buss prefader.

Mute Safe this button allows one to make place a group in mute safe. In this mode the group can not be muted, this is mainly a safety measure. This function is useful for auxiliary returns, this allows you to mute the original source and still allow the effect die away naturally.

Talk This button allows the operator to send signal from the communications module to the selected outputs. This button allows you to route either the talkback, oscillator, or pink noise to the group output.

PFL When depressed, this function routes a prefader post insert signal to the headphone output socket located in the communications module. The signal is also routed to the Solo Output XLR's on the rear panel.



Pan to masters These pan pots allow one to place the subgroup anywhere in the stereo field. For these pots to be active the signal must first be assigned to the stereo buss.

ST The ST buttons allow one to assign the Mix Group output to the master stereo output buss. By using the controls in this cluster one can place the Mix Group module in *subgroup operation*.

Auto Mute Group Scenes eight pushbutton switches assign the group to any of the eight mute group or scene masters.

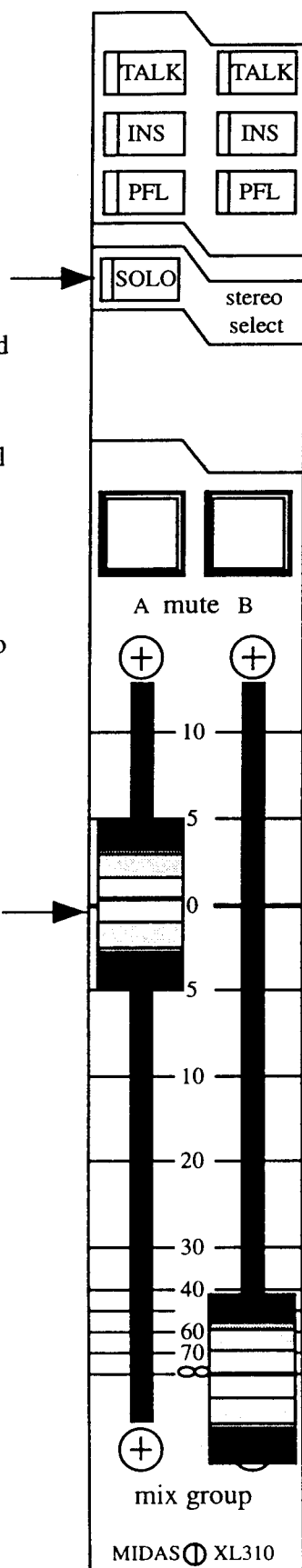
INS this button is how one engages the insert return for the group. The insert send and return are accessed via the TT patchbay on the rear, each send and return is electronically balanced.

XL-310 Group Output Module continued

Solo (Stereo Select) When depressed in conjunction with the solo listen pushbutton switch located to the left of the "local" rotary fader on the communications module, configures the group mix PFL signal together with the input channel solo select signal from mono (L&R) prefader to a post fader stereo. This signal appears at the headphone output jack (in mono) and at the solo output XLR's on the rear panel.

Mix Group Output Faders These faders control the mix group signal output to the XLR connectors on the rear panel. The signal can also be routed to the master stereo buss selected via pushbutton switches labelled ST.

Mix Group Mute This switch, in the factory preset mode, mutes the Mix Group post output metering. Pre output metering muting can be accomplished by relocating jumper switches on the circuit board.

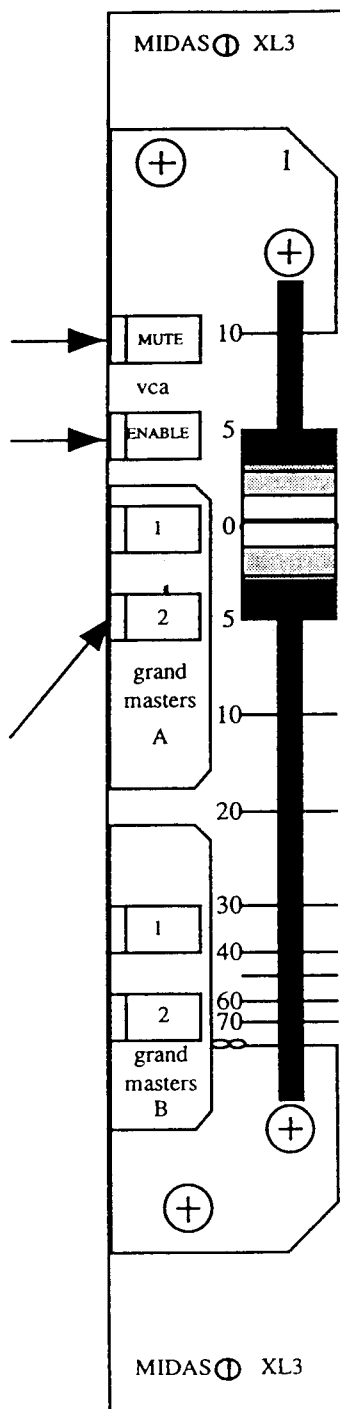


XL-310 Group Output Module continued

VCA Mute Group This button mutes all signals that have been routed through that VCA Group.

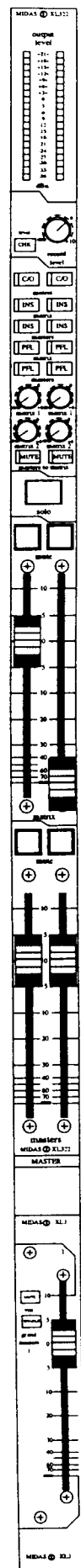
VCA Group Enable This button must be depressed in order to make the VCA group active. With this button depressed the fader to its right now acts as a master for the VCA Group.

Grandmaster Buttons These buttons allow one to assign the Mix Group Output Faders (not the fader to the right of the buttons) to either VCA Grandmaster A or B. Once again 1 represents the odd channel of that module and 2 the even channel.

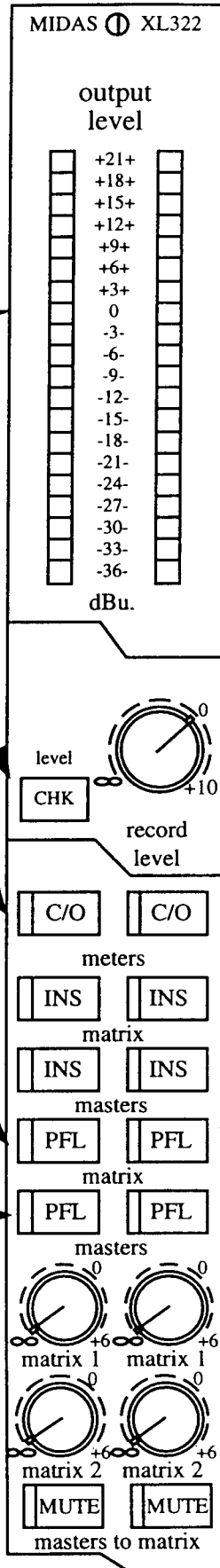


VCA Group Fader This fader is the master fader for the VCA group. It has no affect until the VCA Group Enable button is pressed.

MIDAS XL-322 MASTER MIX OUTPUT MODULE



XL-322 Master Module



20 Segment Meters These meters track from -36dBu to +21dBu and can perform many functions via the switches on this module.

CHK The Check button allows you to check the Stereo Record Output using the 20 segment meters.

Changeover (C/O) Switches typically the meters display the *master stereo outputs*. When the button is depressed the meters display *the master matrix outputs*.

PFL These switches will send the matrix (as a mono L&R) to the headphone amplifier.

PFL/Solo These switches perform two functions in conjunction with the solo monitoring switch farther down the module. When assigned, the headphone and local solo busses will default to the stereo mix. When unassigned, the headphone and local PFL/Solo busses will default to silence.

Record Level This fader follows the stereo buss, and allows one to easily record the output of the console. There are separate XLR's on the rear panel where this signal can be accessed

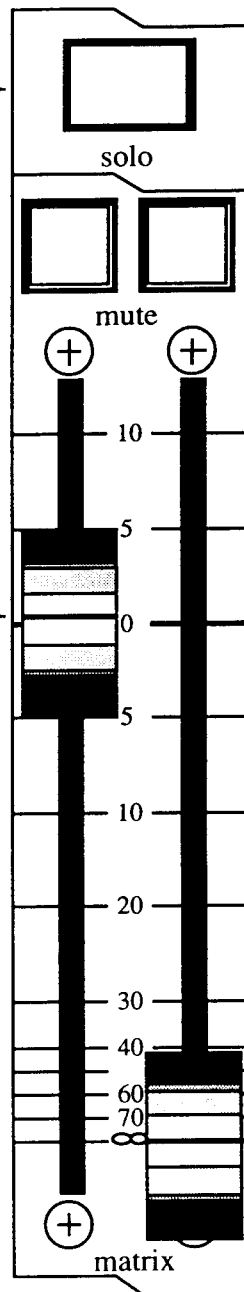
INS These switches allow the insert return to receive signal. The top ones introduces the insert into the matrix, and the bottom ones are for the stereo buss.

Master to Matrix This section of the master section is new in the XL-322 module. It allows one to route either master buss to either matrix. The level is controlled by the rotary fader, and can be muted entirely by pressing the **Mute** button below the rotary faders.

XL-322 Master Module continued

Solo This is a latching switch with a protective cover. When it is depressed it routes whatever signal is soloed/cued to the stereo buss. *This will override the master mix!* It truly solos an instrument when active. When it is not depressed soloed modules are routed to the headphone amplifier.

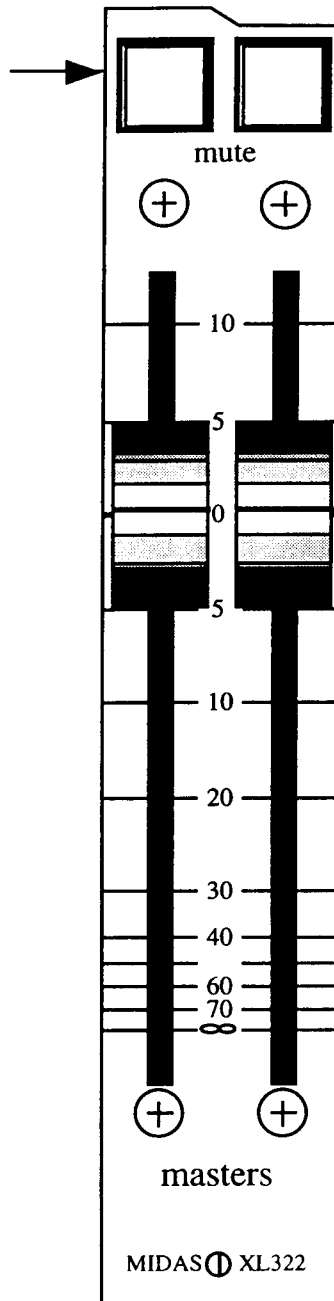
Matrix Output Faders These faders control the overall output level for each of the matrixes. The output is available as XLR's on the rear panel.



Matrix Mutes These mute buttons allow one to easily mute the output of the matrix XLR's. The meters are still able to show the matrix output level though.

XL-322 Master Module continued

Stereo Buss Mutes These mutes affect either the Left or Right channel of the stereo buss. These mutes are post meter and fader.



Stereo Buss Output Faders These faders provide overall control of the master output level. The output is available at two XLR's on the rear panel.

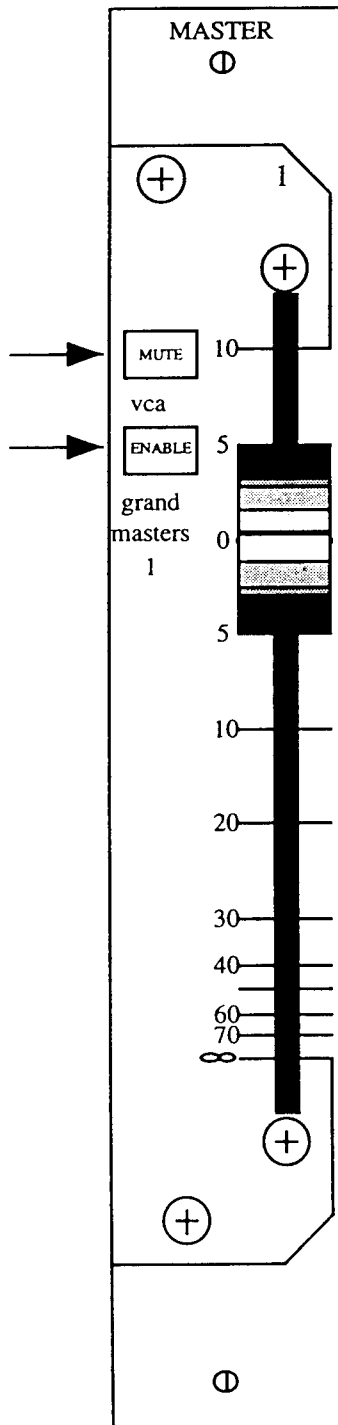
XL-322 Master Module continued

Grand Master VCA Operation

Two separate VCA control systems are operating in the XL-3, the first system controls input channels. The second system, Grand Masters, controls the actual mix group outputs. The two VCA grand masters can be used to control any combination of mix outputs when for example, multiple stereo outputs are created in the mix outputs to drive balcony fills, delay systems, etc.

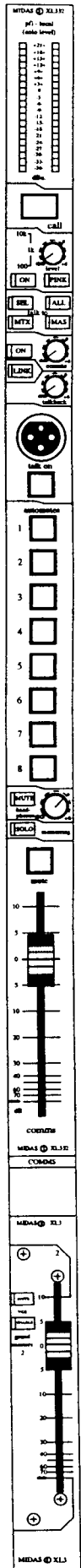
Grand Master VCA Mute This button will mute the output of that VCA group.

Grand Master VCA Enable This button must be pressed to make the Grand Master active and control the VCA's in that group.



Grand Master VCA Fader This fader is used to control the overall level of the VCA group. In order to make it active, the Enable button must be pressed.

MIDAS XL-332 COMMUNICATIONS MODULE

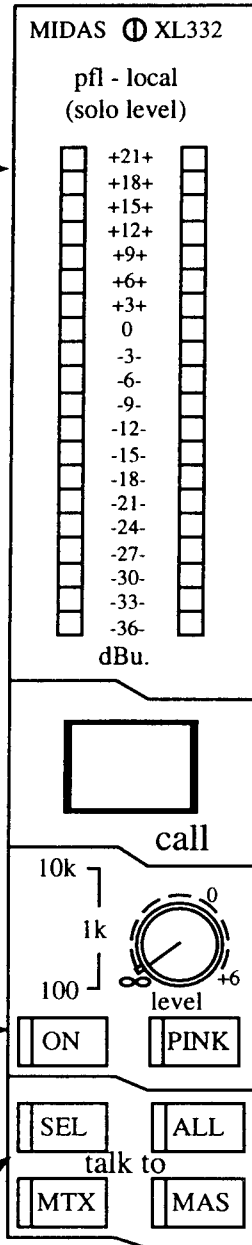


XL-332 Communications Module

Output Metering Two 20 segment output meters track level from -36 to +21 dBu. The meters perform a dual function and in the default mode the left meter will track any PFL level selected while the right meter tracks local output level. In the meter change over mode (see below) both meters will track stereo solo level output.

ON This button engages the onboard oscillator. The tone will appear via rotary level control prefader and premeter on the matrix and stereo outputs. It will also be present at 0dB prefader and post meter at the mix group functions. The tone is also available at the "Talk External" XLR on the rear panel and can be routed to console functions via the SEL, ALL, MTX, and MAS switches.

"Talk to" These buttons allow you to assign the talkback, oscillator, or pink noise to various outputs of the console. One can assign it to all outputs, stereo masters, matrices, or the selected group buss. The mix group is assigned by having their TALK switch assigned.



Call Light & Switch A white call light will illuminate to attract attention when a call signal is being sent on the headset communication system. One also uses this button to call other stations of the communication system.

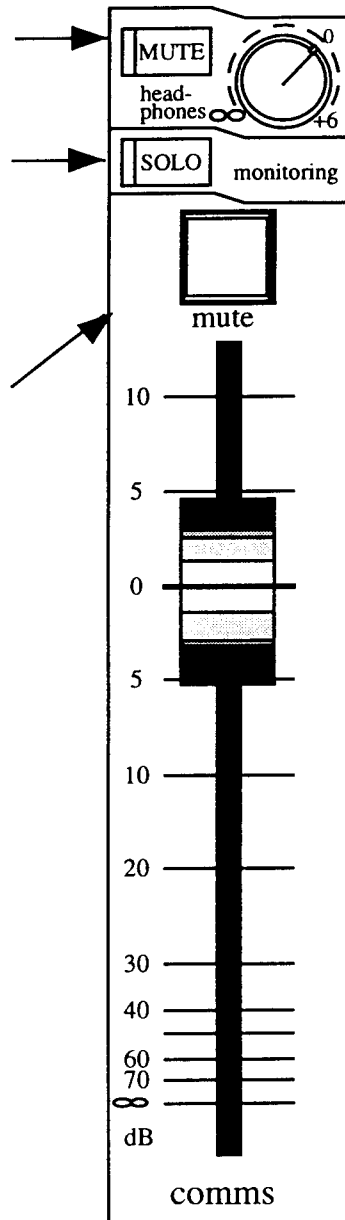
Pink This button causes pink noise to be generated by the console. Pink noise will appear at 0dB prefader and premeter on the matrix and stereo outputs. It will also be present at 0dB prefader and post meter at the mix group functions. Pink noise is also available at the "Talk External" XLR on the rear panel.

XL-332 Communications Module continued

Mute This button cuts the signal to the headphone jack.

Solo Listen This button reconfigures all console prefader listen (PFL) functions into stereo post fader listen mode.

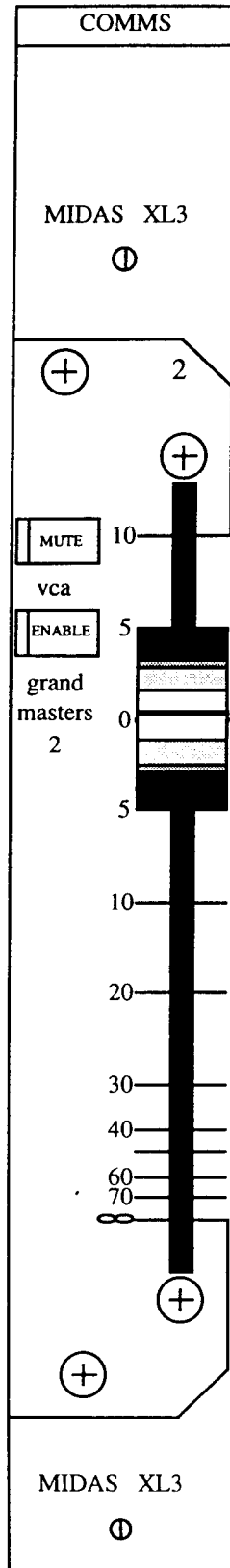
Mute This button cuts the local output.



Headphones This rotary fader controls the program level in the headphones. This is useful for cueing a source up and making sure that it is working properly.

Local This fader controls the output level of the local XLR outputs on the rear panel. Anything that has been routed to the solo buss is also routed to the local outputs.

XL-332 Communications Module continued



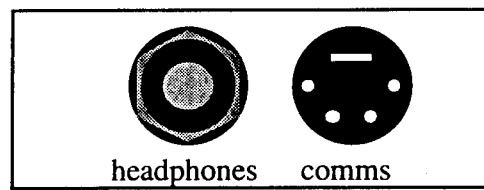
Grand Master VCA Operation

Two separate VCA control systems are operating in the XL-3, the first system controls input channels. The second system, Grand Masters, controls the actual mix group outputs. The two VCA grand masters can be used to control any combination of mix outputs when for example, multiple stereo outputs are created in the mix outputs to drive balcony fills, delay systems, etc.

Grand Master VCA Fader This fader is used to control the overall level of the VCA group. In order to make it active, the Enable button must be pressed.

XL-332 Communications Module continued

This panel is located in the armrest.



Headphone This 1/4" jack is where you would plug in headphones to be able to listen to selected, soloed, items. Keep in mind that this is a mono output

Communication This XLR4 jack is where one is able to plug in a headset for communication systems.

MIDAS XL-3 ADDITIONAL DRAWINGS

Technical Specifications

SYSTEM TOTAL HARMONIC DISTORTION

Microphone @ -60dB Input, 60dB Output	<0.03%
Line @ -30dB Input, 0dB Output	<0.03%

CROSSTALK

Channel to Channel @ 1KHz	>100dB
Group to Group @ 1KHz	>90dB
Channel muting @ 1KHz	>100dB
Maximum fader attenuation @ 1KHz	>70dB

NOISE

(measured 22Hz - 22KHz bandwidth unweighted)

Mic. Input @ max gain ref. 150 Ohms	-128.5dB
Line Input @ 10dB gain ref 50 Ohms	-100dB

SYSTEM NOISE

All faders at minimum position	<-98dB
1 input and 1 master fader @ 0dB	<-92dB
12 inputs and 1 master fader @ 0dB	<-88dB
24 inputs and 1 master fader @ 0dB	<-84dB

FREQUENCY RESPONSE

Mic or Line input to any output (20Hz-20KHz)	+0,-1dB
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Technical Specifications continued

INPUT AND OUTPUT LEVELS

Microphone (variable) (nominal)	-60 to -15dB
maximum Pad off	+5dB
maximum Pad on	+25dB
Line (variable)	-10 to +21dB
All Outputs (nominal).....	0dBu
All Outputs (maximum).....	+21dBu
Headphones (nominal).....	+10dBu
Headphones (maximum).....	+21dBu

INPUT AND OUTPUT IMPEDANCES

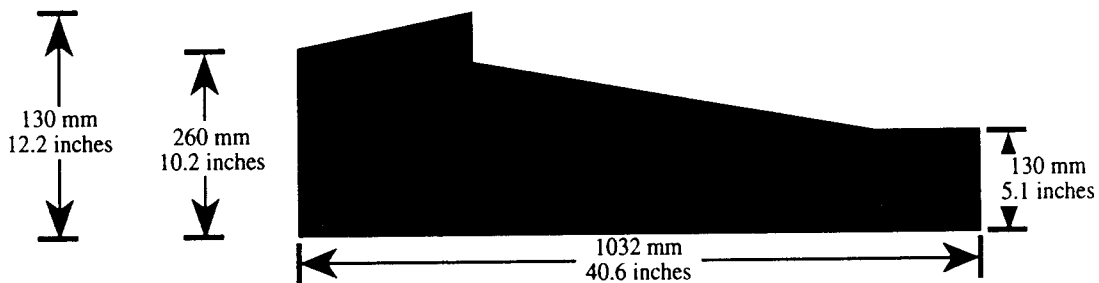
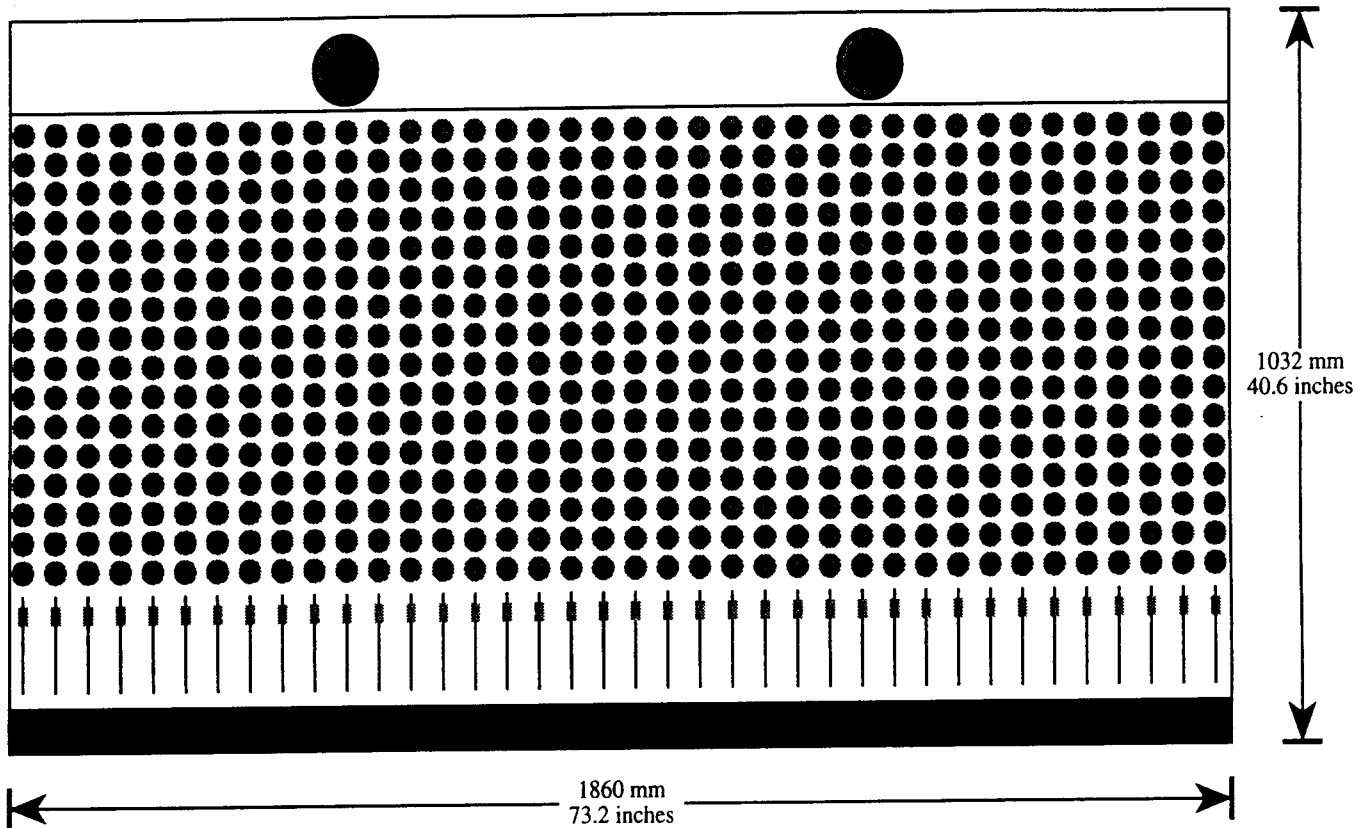
Microphone.....	>3 Kohms
Line Inputs	>10 Kohms
Insert Sends.....	>60 Ohms
Insert Returns.....	>10 Kohms
All Outputs	>60 Ohms
Headphones (minimum)	4 Ohms

EQUALISER

Treble (shelving variable 2-20KHz)	+/-15dB
High Mid (peaking variable 400Hz-8KHz)	
(bandwidth variable 0.1 - 2 octaves)	+/-15dB
LowMid (peaking variable 100Hz-2KHz)	
(bandwidth variable 0.1 - 2 octaves)	+/-15dB
Bass (shelving variable 20-200Hz).....	+/-15dB
Lo-Cut (variable 20Hz-400Hz)	12dB/octave

Prepared by Bob Doyle; Friday, May 8, 1992

SIZE & WEIGHT SPECIFICATIONS



Weight (in case): 350kg/771.75 lbs.

**Service
Information**

MIDAS

XL3

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SCHEMATIC DIAGRAMS	

Introduction

The Midas XL3 series of consoles has been designed not only to provide the highest possible quality sound processing facilities, but also the greatest possible degree of reliability. However, no unit of such complexity can be expected never to need service, and to help anyone undertaking such work circuit descriptions will be found below. The less experienced technician or operator may find the following notes useful in emergency fault finding when more experienced help may not be available.

The priority in console fault finding is to adopt a logical approach, as this is the quickest way to identify the precise source of a problem. For instance, if an input module appears to have failed, it will be helpful to establish with greater accuracy where the failure is. Does the signal return if the equaliser is switched out? [Failure in equaliser section]. Is it present at PFL? Does it route to all mixes but not to the masters? [Fault in pan buffers or pan pot]. Are mix sends affected both pre- and post-fader? In this way a particular circuit block can be identified as faulty, and a careful inspection will often reveal a disconnected wire, a damaged component, or a suspect IC can be changed. Furthermore, if help is sought over the telephone, it will be helpful to have the greatest possible amount of detail for the technician to work with.

When performing tests on the console, it is tempting to take modules in or out of the console frame without switching off the power supply. **THIS MUST NEVER BE DONE, AS IT NOT ONLY DESTROYS SOME COMPONENTS AT ONCE, BUT LEADS TO THE EARLY FAILURE OF MANY THAT APPEAR TO HAVE SURVIVED.** The power supply is designed to bring the console to full power gradually, which protects sensitive components from damage caused by voltage spikes created by sudden powering up.

In the optional spares kit will be found two extender card sets which allow active tests to be performed on modules while they are out of the frame but powered up. Care must be taken that the bottom of the p.c.b. is not allowed to rest on anything metal which could short-circuit the tracks.

INPUT MODULE

Diagram XL301_1.DGM

The input signal enters via the relevant XLR connector on the console back panel at pins 7 and 8 on connector 'A' (ST1), where pin 7 is hot [pole 3 of the XLR in standard format], and pin 8 is cold [pole 2 of the XLR in standard format]. Input ground [pole 1 of the XLR] is on pin 9 on module connector 'A', which, on the single input version, is grounded only through to the EARTH LIFT switch SW2. [See later section for details of the dual input version]. SW1 supplies +48V phantom power for condenser microphones etc. via current limiting and decoupling components R10, R11, R12, and C7 to pins 2 and 3 of the XLR connector with reference to pin 1. When SW1 is depressed, pin 1 of the xlr connector is grounded regardless of the position of SW2 (ground lift) The MIC/LINE switch SW3 offers a balanced attenuator and impedance changing network before the signal arrives at the balanced input stage.

In standard format, this is of an electronically balanced design, where RF decoupling is achieved by C10, C11 and C12, input gain is adjusted by RV1, and a typical Common Mode Rejection Ratio of 85dB at 100Hz is set by VR1. DC blocking for the input amplifiers Q1 and Q2 is provided by C8, C9, C19 and C20, and the diode bridge network D4, D5, D6 and D7 blunts any spikes in excess of rail voltages. IC1 debalances the input signal and feeds it to the phase reverse switch and high pass filter via C24.

If input balancing is by transformers, these will be fitted to a bracket which runs the length of the console beneath the motherboards. They are wired via pins on connector 'A': 19 [hot, primary], 20 [cold, primary], 21 [cold, secondary], and 22 [hot, secondary]. The transformer secondary is RF decoupled by C15, C16 and C17. It is then fed into the same input stage as the electronic balanced input stage built around IC1.

When the module is equipped for electronic balanced input, splash links are used in the four E locations on the pcb. When a transformer balanced input is used, these links are in the four T locations to select the alternative route and also adjust the gain of the input stage to match the transformer.

Diagram XL301_2.DGM

The PHASE REVERSE switch SW4 controls the inversion mode of IC2a, and passes the signal to the 12dB/octave high pass filter around IC2b and IC3a controlled by SW5 and RV2a/RV2b. From the wiper of SW5 the signal is fed to three different points:-

- [a] The INSERT switch SW6 to provide the insert return by-pass.
- [b] The insert send balancing network. This is built around IC4 as a unity-gain, phase-contrasting amplifier whose common mode rejection ratio is set by VR3 [typically 85dB at 100Hz]. Diodes D9, D10, D11 and D12 are provided to protect the insert send circuitry from damage by excess voltage.
- [c] The input channel meter via connector ST3 pin 1.

The insert return appears at connector A pins 15 [hot] and 16 [cold]; it is protected from R.F. contamination by R48/C41 and R53/C44, and from over-voltage by diode bridge D13-16. IC5 is a differential amplifier whose common mode rejection is factory set by VR3 to maximum at 100Hz, typically 85dB. The insert return is fed via C47 to SW6 (INSERT) and from here to the EQ in/out switch SW7. After returning from the equaliser section, a signal is fed to the meter via ST3, the SOLO switch SW8 via buffer IC6b and the VCA section via either Jumper ST4/pre or IC19a.

VCA and Mute

The mute control is detailed later. Two mutes are associated with the vca stage, pre-fade and post-fade. These can be selected as required by jumpers in ST4 and ST5. The options are shown on diagram XL301_LK.DGM.

The vca is based around IC6a, IC7 and IC8a in the audio path and IC8b in the control path. The control voltage from either the internal module level control RV3 (if fitted) and the fader tray level control are summed with an offset voltage by IC8b. This offset voltage adjusted by VR6 is used to define the available vca control range. It has been preset in the factory and should not require adjusting unless the vca has been replaced. The output voltage of IC8b, and therefore the control range of the vca, is further clamped by D58 and D59 to prevent overshoot.

The VCA output is routed either pre or post mute (dependent upon ST5) to the pan control RV14a/RV14b which offers 3dB of attenuation at pan centre [Diagram XL301_4.DGM]. The pan control is buffered by IC16a and IC16b and then fed to the left and right master busses via the fet switches Q27-30 activated by SW5 (MASTER ON) [Diagram. XL301_M.DGM]. The outputs from IC16a and IC16b are also fed to the SOLO switch SW8 for routing to the solo busses.

The feeds for the mixes are derived from the VCA input (Pin 1 of IC6) and the muted vca output. These are buffered by IC17a & b for Mix 1 to 8 [Diagram XL301_5.DGM] and IC18a & b for Mix 9 to 16 [Diagram XL301_6.DGM]. Each Mix can be selected pre or post fade (vca). The mixes are turned on and off by a combination of mechanically breaking the feed to the level control and effectively isolating the level controls output from the mix buss with the fets (Q11 to 26). The fets control voltage is arranged to ramp up or down to provide a click free transition.

Mute control [Diagram.XL301_4.DGM].

The channel mute circuit can be activated from either the channels own MUTE switch SW13 or any of the 8 automute circuits. The eight automute lines enter the module via connector 'B' (ST2) pins 29 to 36. They are isolated by diodes and fed to the eight automute selection switches. SW9 to SW12 for automute 1 to 4 and SW1 to SW4 on pcb no. B2715 [Diagram XL301_M.DGM], linked via ST8, for automutes 5 to 8.

The common output from these nine switches is the main mute line. A second mute line is also required for operation of the mute control circuit. This is derived from the collector of Q9 whose purpose is to invert the mute signal and also to provide a current sink for D35 the mute indicator. The two signals mute and mute-inv are fed to the quad analogue switch IC19 [XL301-2.DGM].

IC19 is used to selectively (see earlier) mute the vca input and/or output. Under normal (unmuted) operation, mute will be low (0V) and mute-inv will be high (+ VC). IC19a and IC19c will therefore be closed with IC19b and IC19d open. When the mute circuit is operational mute will be high and mute-inv will be low, IC19a and IC19c will be open and IC19b and IC19d will be closed, holding the vca input and the muted output (post-sig) from the vca at 0V.

Equaliser [Diagram XL301_3.DGM].

The Treble and Bass controls each provide 15dB of boost and/or cut by varying the feedback parameters at selected frequencies between the output and the inverting input of IC9a and IC10b respectively. The frequency can be swept over a 10:1 range by RV5a/R94 and RV5b/R95 in conjunction with C77, C78 and IC11 for Bass and RV13a/R122 and RV13b/R123 in conjunction with C98, C99 and IC15 for Treble. These sections operate at a fixed selectivity of 12dB per octave.

The two mid controls are configured to provide continuously variable boost and/or cut of 15dB with sweepable frequencies and adjustable selectivity. Taking the low mid as the example, the boost and cut are provided at IC9b by the same mixing of output and inverting input signals as was used on the Treble and Bass controls: the frequency setting is determined by RV8a/R103 and RV8b/R105 working in conjunction with C82 and C83. The bandwidth is adjustable by RV7 in conjunction with IC12a between 0.1 and 2 octaves.

Channel level meter [Diagram XL3_M10.DGM].

The pre insert and the post insert/post eq signals are both fed via ST3 to their own full wave rectifiers on pcb B2706. The rectifier outputs (IC1a for pre insert and IC1b for post eq) are summed by IC1c and fed to the main led drive IC2 as well as the -25dB signal present circuit IC1d via level trim preset RV1.

Transistor Q2 and its associated components form a constant current source for the LED chain D2 to D10. Transistor Q1 is used to provide a stabilised voltage for the LM3915. The calibration preset for the meter RV1 should be adjusted with a signal of 0dB [monitored at the insert] so that D5 (0dB) is just activate. IC1d is used as a comparitor to activate D1 when the level equals or exceeded -25dB.

Switch LED Powering [All diagrams].

The status LEDs are powered by three constant current sources based round Q3, Q4 and Q5 [Diagram XL301_1.DGM]. The order for the first chain starting from Q3 is: PHANTOM, INSERT, EQ, FILTER, mix 1 thro 6 ON. The order for the second chain starting from Q4 is: mix 7 thro 16 ON. The order for the third chain starting from Q5 is: AUTOMUTE 1 thro 4, SOLO, AUTOMUTE 5 thro8, MASTERS ON. All three chains finish at the negative rail (-V).

INPUT MODULE OPTIONS.

Direct output buffer.

When fitted, this buffer can be assigned pre or post fade by inserting the appropriate link in ST6. It is built around IC20 as a unity-gain, phase-contrasting amplifier whose common mode rejection ratio is set by VR5 [typically 85dB at 100Hz]. Diodes D53, D54, D55 and D56 are provided to protect the direct output circuitry from damage by excess voltage. The output is routed via connector A17 to the channel direct out socket on the mixer rear panel.

Dual inputs.

If the dual (A and B) input option is fitted, relay RL1 is used to select the currently active input. This selection can be made by either the Earth lift switch or the mic/line switch depending upon the settings of option links SL1, SL2 and SL3. Refer to drawing no. XL301_LK.DGM for details.

A dual concentric gain control option is also available when dual inputs are used. When fitted, a relay RL2 is used to select the section of the gain control active on the alternate inputs. On standard single input versions this relay is replaced by a link R25 and the gain control is wired as RV1b only.

GROUP MODULE

This is a double module for use as either two independent output groups or one stereo output group. It is constructed on two interlinked pcbs. Only one of the groups is described except where operations affect both groups simultaneously.

Direct Input [Diagram XL310_A1.DGM].

The signal appears at connector 'A' (ST1) pin 19 [hot] and pin 20 [cold] from the XLR socket on the console back panel. First order R.F. filtering is provided by R14/C16 and R19/C17, and over-voltage protection by D2/D3 and D4/D5. IC2 operates as a differential amplifier whose common mode rejection is set by VR1 at the factory for maximum rejection [typically 85dB] at 100Hz. The signal then passes through C21 to the direct input PFL/solo switch S1 and via C20 and the level potentiometer RV1 to the inverting buffer IC3b. A feed is taken from this point to the solo routing system (detailed later) as well as via the direct in mute circuit Q3 and Q4 to IC1b where it is summed with the mix buss signal. The direct in mute circuit is controlled by S2 which is used to switch the fets gates between 0V and Vref. The voltage ramps up or down at a rate controlled by R32/C44 and R31/C24 to provide a clickless transition.

Group Mix input [Diagram XL310_A1.DGM].

The group mix buss signal arrives via connector 'B' (ST2) pin 24 at the virtual earth summing stage IC1a, and is reinverted and summed with the direct input signal by IC1b. It is fed via the insert stage to non inverting buffer IC6a and then to the vca stage as well as the pfl switch S4 [Diagram XL310 - A2.DGM]. The insert or by-pass is selected by S3. The insert consists of IC4 as the balancing network for the insert send which appears at connector 'A' pins 8 [hot] and 9 [cold], it is protected from excess voltage by the diode bridge D7-10, and set for maximum common mode rejection at 100Hz by VR2 [typically 85dB]. The insert return appears at connector 'A' pins 6 [hot] and 7 [cold]. It is protected from R.F. contamination by R36/C35 and R41/C36 and from over-voltage by diode bridge D11-14. IC5 is a differential amplifier whose common mode rejection is factory set by VR3 to maximum at 100Hz, typically 85d.

VCA and Outputs [Diagram XL310_A2.DGM].

The vca is based around IC6b, IC7 and IC8a in the audio path and IC8b in the control path. The control voltage from the internal module level control RVX and the fader tray level control via connector 'B' pin 9 is summed with an offset voltage by IC8b. This offset voltage adjusted by VR7 is used to define the available vca control range. It has been preset in the factory and should not require adjusting unless the vca has been replaced. The output voltage of IC8b, and therefore the control range of the vca, is further clamped by D55 and D56 to prevent overshoot.

The vca output is routed to ST6 and ST7 for master and matrix, post fade pre mute output options as well as the main group mute circuit consisting of analogue switch IC9a and IC9b. It also appears at the modules internal meter connector (ST5 pin 1) as well as on connector 'A' pin 18s for connection to the optional meter bridge. An alternative link point for pre-mute solo send is also fitted. Note: if this is used, it is out of phase with any direct input.

The mute output from the vca is summed with any talkback signals from the communications module by IC12a and then fed to the solo switching circuit (see later) as well as the group output stage. This is built around IC13 as a unity-gain, phase-contrasting amplifier whose common mode rejection ratio at 100Hz is set by VR6 [typically 85dB at 100Hz]. Diodes D16-19 are provided to protect the circuitry from damage by excess voltage. The group output appears on connector 'A' pins 10 [Hot] and 11 [Cold], from where it connects to the rear panel xlr group output connector. Two talkback lines are available from the comms. module on connector B21. Talk_All on the solder side of the connector and Talk_Select on the component side of the connector. Talk_All is always summed into IC12a, Talk_Select only if S11 the talk switch is on.

Master and Matrix [Diagram XL310_A2.DGM].

The master buss signal level is controlled by RV2 and selected to be either pre or post vca by S5. If the signal is pre-vca, the option to mute or not with the main group mute is determined by the link in ST3. If post-vca, the location of the link in ST6 will determine if the signal is pre or post mute (see diagram XL310_LK.DGM for link locations). The signal is routed via the non-inverting buffer IC212b to the pan control RV3a/RV3b which offers 3dB of attenuation at pan centre. The pan control is buffered by IC14a and IC14b and then fed to the master busses left and right via the master on circuit Q5/Q19 and Q6/Q20 activated by S6 (Master on).

The matrix buss signal levels are controlled by RV4 and RV5 and selected to be either pre or post vca by S7 and S9. If the signals are pre-vca, the option to mute or not with the main group mute is determined by the link in ST4. If post-vca, the location of the link in ST7 will determine if the signals are pre or post mute (see diagram XL310_LK.DGM for link locations). The signals are routed via R103 and R105 to the two matrix mix busses. The feeds can be muted with S8 and S10.

Mute control [Diagram XL310_A2.DGM & XL310_A3.DGM].

The groups mute circuit can be activated from either the groups own mute switch S12 or any of the 8 automute circuits. The eight automute lines enter the module via connector B pins 29 to 36. They are isolated by diodes and fed to the eight automute selection switches. S14 to S21 for module group A and via ST8 to module group B. The common output from the eight automutes are connected to S12 and the main mute line via the Mute Safe switch S13. A second mute line is also required for operation of the mute control circuit. This is derived from the collector of transistor Q7 whose purpose is to invert the mute signal and also to provide a current sink for D40 the mute indicator. The two signals mute and mute-inv are fed to the quad analogue switch IC9. IC9 is used to selectively (see earlier) mute the pre and post vca signals. Under normal (unmuted) operation, mute will be low (0V) and mute-inv will be high (+VC). IC9b, IC9c and IC9d will therefore be closed with IC9a open. When the mute circuit is operational mute will be high and mute-inv will be low, IC9b, IC9c and IC9d will be open and IC9a will be closed, breaking the signal feed to the master and matrix pre/post switches (depending upon the links in ST3 and 4) and holding the output from the vca at 0V.

Output Meter [Diagram XL20M.DGM].

IC3a and b receive, rectify, and calibrate the signal fed from the group module connector ST5. The signal, now a varying positive voltage, is fed to IC3c and d; IC3c has 30dB of gain, which enables D1-D10 to turn on 30dB ahead of D11-D20. Transistor Q1 provides a regulated power source for the LM3915s and transistors Q2 and Q3 are constant current sources for the LED chains. To calibrate the meter, a signal of -30dB is applied at pin 1 of ST1 [the level can be externally verified at whichever output is driving the meter, selected by the meter change-over switch S34], and the cathode of D23 is monitored by an oscilloscope. When a symmetrical trace is obtained by adjusting VR1, the level is increased to 0dB and VR2 is adjusted so that D13 [the 0dB yellow LED] just illuminates. Then the signal is reduced to -30dB, when the LED chain should have only the first three LEDs [D1-D3] illuminated. If the calibration appears to be wrong, the symmetry should be rechecked.

Solo Routing [Diagram XL310_A3.DGM (both groups)].

Each of the four pfl switches, two per group (mix PFL and direct in PFL), provide a gate signal to select the appropriate fet switches for the source. These four gate signals are summed by diodes D51 to D54 and are used to turn on fet Q14 routing the pfl signal to the pfl buss via connector 'B' pin 10. They are also used to route the left and right solo buss feeds from IC15 via fets Q10 and Q13 to connector 'B' pins 11 (left) and 12 (right). In addition to this the signal is inverted by transistor Q15 in order to drive transistor Q16. Q16 is used to activate the Solo_Gate line via connector 'B' pin 13.

In the case of channel A, the two group solos are switched by Q8 and Q9 into the summing input of IC15a via R111 and R112 to give unity gain. Likewise for channel B with Q11 & Q12 with R123 and R124 into IC15b. Under normal (two separate groups) operation, the SOLO STEREO SPLIT switch is in the off position. This allows Q17 and Q18 to turn on whichever solo is selected to ensure that channel A and channel B solo outputs are crosscoupled to each other for monitoring through both left and right solo monitor channels. If the SOLO STEREO SPLIT switch is on, this crosscoupling does not occur and so the group solo monitoring is as a stereo pair.

Switch LED Powering [All diagrams].

The status LEDs are powered by three constant current sources based round Q1, Q2 and Q201 [Diagrams XL310_A1.DGM & XL310_B1.DGM].

The order for the first chain starting from Q1 is: Direct in A PFL, Direct in A MUTE, Direct in B PFL, Direct in B MUTE, A Matrix 1 MUTE, A matrix 2 MUTE, B Matrix 1 MUTE, B Matrix 2 MUTE, A Level to Masters ON, A Automute Safe ON.

The order for the second chain starting from Q2 is: A Automutes 1 thro 8, A TALK, A INST, A PFL, SOLO Stereo Split.

The third chain from Q201 is: B Level to Masters ON, B Automute Safe ON, B Automutes 1 thro 8, B TALK, B INST, B PFL.

All three chains finish at the negative rail.

Remote Volume Options [Diagrams XL310_A4.DGM & XL310_B4.DGM].

The remote volume control is based around IC10a, IC11 and IC12b in the audio path and IC10b in the control path. The control voltage from the external level control enters the module via connector B pin 5 (pin 6 on ch B).

No internal clamping or range adjustments are provided.

MASTER MODULE

This module is constructed from two identical printed circuit boards, each of which contains the circuitry for one master output, one matrix output, one auxiliary to masters summing stage, and one half of the solo-to-masters facility [both halves are controlled by S10, however]. The following description applies equally to each half of the module, except where specific exception is made. Each function of the module will be considered separately.

Master Output [Diagram XL320_1.DGM].

Master signals arrive via connector 'B' pins 8 and 9 [signal] and 7 [ground] at the virtual earth summing stage IC2b, and are reinverted by IC2a before arriving at the master/solo changeover relay RLY1, which is activated by the solo-to-masters switch S10 [which operates only if there is a voltage on the solo gate derived from any solo/PFL switch being switched on]; this transposes the signals from the solo and master summing stages. IC4 is the balancing network for the insert send which appears at connector 'A' (STA) pins 19 [hot] and 20 [cold], it is protected from excess voltage by the diode bridge D1-4, and set for maximum common mode rejection at 100Hz by VR1 [typically 85dB]. The insert return appears at connector 'A' pins 21 [hot] and 22 [cold]; it is protected from R.F. contamination by R21/C18 and R26/C21, and from over-voltage by diode bridge D5-8. IC5 is a differential amplifier whose common mode rejection is factory set by VR2 to maximum at 100Hz, typically 85dB. Block b of the insert switch S2 selects pre-insert signal from RLY1 or post-insert signal from C24 and feeds it to block b of the master output PFL switch S3 [change to diagram XL320_3.DGM], and via JPA to the master output fader RV1. The non-inverting buffer IC12a feeds both the meter [via the meter changeover switch S8] and the mute switch S4. The inverting input of IC12a is fed via connector 'B' pin 12s [solder side only] with talk signals from the communications module. The mute switch [S4] wiper feeds the output stage IC6, which is protected from excess voltage by the diode bridge D9-12, and set for maximum common mode rejection at 100Hz by VR3 [typically 85dB].

Matrix Output [Diagram XL320_2.DGM].

Matrix signals arrive via connector 'B' pins 10 and 11 [signal] and 7 [ground] at the virtual earth summing stage IC7b, and are reinverted by IC7a. IC8 is the balancing network for the insert send which appears at connector 'A' pins 6 [hot] and 7 [cold], it is protected from excess voltage by the diode bridge D13-16, and set for maximum common mode rejection at 100Hz by

VR4 [typically 85dB].

The insert return appears at connector 'A' pins 8 [hot] and 9 [cold]; it is protected from R.F. contamination by R50/C47 and R55/C50, and from over-voltage by diode bridge D17-20. IC9 is a differential amplifier whose common mode rejection is factory set by VR5 to maximum at 100Hz, typically 85dB. Block b of the insert switch S5 selects pre-insert signal from C37 or post-insert signal from C53 and feeds it to block b of the matrix output PFL switch S6 [Diagram XL320_3.DGM], and via JPC to the matrix output fader RV2. The non-inverting buffer IC13a feeds both the meter [via the meter changeover switch S8] and the mute switch S7. The inverting input of IC13a is fed via connector B pin 12 [component side only] with talk signals from the communications module. The mute switch [S7] wiper feeds the output stage IC10, which is protected from excess voltage by the diode bridge D21-24, and set for maximum common mode rejection at 100Hz by VR6 [typically 85dB].

Record Output [Diagram XL320_2.DGM].

The record outputs share one level control and one level check switch [which overrides whichever input has been selected by the meter changeover switch S8 on diagram XL320_3.DGM]. The controls are linked by the ribbon connector between ST2a on the lower (left) PBC and ST2b on the upper (right) PCB, but in all other respects each output is entirely separate. Signal is derived from the wiper of the master mute switch S4 [diagram XL320_3.DGM] and fed to the top of the level control RV3a (left) or b (right), from the wiper of which it passes through a non-inverting buffer IC14b. From here the signal is fed both to the check level switch S9a or b via C66, and to the output stage IC11a, which is protected from excess voltage by the diode bridge D25-28, and set for maximum common mode rejection at 100Hz by VR7 [typically 85dB].

Output Meter [Diagram XL20M.DGM].

IC3a and b receive, rectify, and calibrate the signal fed from the master module via connector ST1. The signal, now a varying positive voltage, is fed to IC3c and d; IC3c has 30dB of gain, which enables D1-D10 to turn on 30dB ahead of D11-D20. Transistor Q1 provides a regulated power source for the LM3915s and transistors Q2 and Q3 are constant current sources for the LED chains. To calibrate the meter, a signal of -30dB is applied at pin 1 of ST1 and the cathode of D23 is monitored by an oscilloscope. When a symmetrical trace is obtained by adjusting VR1, the level is increased to 0dB and VR2 is adjusted so that D13 [the 0dB yellow LED] just illuminates. Then the signal is reduced to -30dB, when the LED chain should have only the first three LEDs [D1-D3] illuminated. If the calibration

appears to be wrong, the symmetry should be rechecked.

LED Powering [All diagrams].

The status LEDs are powered by a constant current source based round Q2 [Diagram XL320_1.DGM]. The order for the chain starting from Q2 is meter changeover, matrix insert, master insert, matrix PFL, master PFL, matrix mute, and master mute. The chain finishes at the negative rail.

COMMUNICATIONS MODULE

Centred in this module are the controls for the intercom, talk and pink noise generator functions, the automute system, and the signal monitoring facilities, as well as the headphone amplifier.

Intercom [Diagram XL330_1.DGM].

The intercom shares much of its circuitry with the monitoring and talkback facilities; the intercom switch [S3] selects the routing and function of the microphone amplifier and headphone signal. In intercom mode, microphone signals arrive through either the headset or microphone connectors [both mounted on the modules front panel], pass through the a.g.c. amplifier IC5 and IC6a and to the remote station via the isolating transformer T1 via block d of the intercom switch S3. VR3 adjusts the amount of microphone signal fed to the headphones by varying the common mode rejection ratio of the microphone input to IC6b without varying the gain structure for signals arriving from the remote station via T1. Overall intercom level is adjusted by RV3 before it passes through blocks a and e of the intercom switch, the headphone level controls RV1 and the headphone mute switch to the headphone amplifier [see diagram XL330_5.DGM] and the headphone jack socket on the module front panel. IC7 and IC8 are isolating networks which ensure that ground loops are avoided when the intercom is used with an actively powered station. When the intercom is switched on, a negative voltage is applied via block f of the intercom switch S3 to the anode of the LED in IC7, causing a positive voltage to be applied to pin 14 of connector 'A' (ST1) via D18 and R52; when a call is received, the positive voltage on pin 14 energises the photo-transistor within IC8 and turns on Q1, which illuminates the intercom call light [LP1]. In the event that the console is to be used as the slave station, the intercom can be decoupled completely from the consoles power supply by applying the master stations power rail via the unused pin on the intercom XLR connector and edge connector A pin 15 to RLY1, which disconnects the intercom ground completely from the console.

Talk Facility [Diagram XL330_1.DGM].

Microphone and headset signals arrive at block d of the intercom switch S3 as previously described for the intercom: however, with the switch in its normal [non-intercom] position, talk signals pass through block c to block b of the pink noise generator switch S6 [change to diagram XL330_2.DGM]. From the wiper of this switch the signal passes both via buffer IC10b to connector 'A' pin 12 [and thus to the talk external XLR connector on the console back panel] and to the talk master switch S13. When this switch is on, signal is fed to the three talk level pots [RV4-6]; a further 10dB of gain is provided by IC10a, IC12a, or IC12b before the individual talk switches [S7-S12] enable signals to pass to their respective busses. The LED indicators for these switches are wired in parallel between +VA and ground via limiting resistors R58-R63, with +VA appearing on each wiper of the LED switching blocks; all the normally open contacts are joined and fed to the second block of the talk master switch S13. This means that whenever a talk route is open [i.e. the talk master switch and any individual talk switch both on] a gate voltage is fed from the talk master switch to Q2 and Q3, which dims the local outputs to avoid the feedback which would otherwise result if the talkback microphone and a loudspeaker driven from a local output are close together.

Pink Noise Generator [Diagram XL330_3.DGM].

IC9 is the noise source; R92/C62, R93/C63, and R94/C64 provide the necessary colouration and IC11a corrects the gain structure and provides a buffer stage before the pink noise is fed to its switch S6 [Diagram XL330_2.DGM], from which point it follows the same path as the talk signals.

Automute Master Controls [Diagram XL330_3.DGM].

The eight illuminated MUTE GROUP switches [S14-21] feed positive rail voltage current-limited by R111 and decoupled by C69-768 and R103-110 to DC buffers IC13 to IC16. The outputs of these feed the automute busses on connector 'B' (ST2) [pins 15-22].

Signal Monitoring [Diagram XL330_1.DGM].

PFL signals arrive at connector B pin 1 where they are summed by the virtual earth stage IC1b and reinverted by IC1a. The solo listen switch S2 blocks c and d select either PFL signals from C3 or solo signals from the master module via connector B pins 13 and 14 and feed them through the intercom switch S3 blocks a and e to the headphone level control RV1 and headphone mute switch S4, and thus to the headphone amplifier [see diagram XL330_5.DGM]. In addition to driving the headphone level control, the wipers of S3 blocks a and e feed the local output level control RV2 [change to diagram XL330_2.DGM]: signals pass through the local output mute switch S5 and buffers IC2a and b to the balanced local output stages IC3 and IC4, which are protected from excess voltage by the diode bridges D6-9 and 10-13, and set for maximum common mode rejection at 100Hz by VR1 and VR2 [typically 85dB].

Headphone Amplifier [Diagram XL330_5.DGM].

R19/C17 and R20/C18 are the power supply decoupling networks; RF protection is afforded by R2/C1 and R4/C2. Connections to the module are hard-wired.

Signal Metering [Diagram XL330_1.DGM].

The two meters are controlled by changeover switch S1. In solo mode [switch on], blocks c and d are fed with solo left and right signals respectively from connector B pins 13 and 14 and pass them to the meters via ST3 and ST4. In PFL mode [switch S1 off], block c is fed with PFL signals from C3 and passes them to the left meter via ST3; block d is fed with left local output post-fader signals from the junction of R17 and C6 [diagram XL330_2.DGM] and passes them to the right meter via ST4.

LED Powering [All diagrams].

The status LEDs [with the exception of all the talk switches] are powered by a constant current source based round Q4 [Diagram XL330_3.DGM]. The order for the chain starting from Q4 is meter changeover, intercom, pink noise, mute group masters 1-8, solo listen, local output mute, and headphone mute. The chain finishes at the negative rail.

VCA CONTROL

The internal mixes vca control voltages are derived either on the individual modules or more commonly from the fader tray circuitry.

Grand Master VCA Control [Diagram XL321.DGM].

DC power for the fader tray pcbs are linked to the Grand Master 2 board via connector ST4. From here it is distributed to all other master and channel control cards via the VCA Control Buss ribbon cable linked to ST1. A stable vca reference voltage is also derived on this board from D2 via IC2b. It is adjusted with VR2 to give the required control range and distributed via the VCA Control Buss.

This reference voltage is buffered and inverted by IC1a and fed to the Grand Master fader RV1. Dependent upon the status of SW1 (VCA MUTE), either the attenuated voltage from RV1 or the inverted reference voltage is summed with an offset voltage derived from the reference voltage via VR1. Provided SW2 (VCA ON) is in the on state, this summated voltage will have the output voltage from IC3a (see later) summed with it before buffering by IC1b ready for distribution to the group and channel control cards.

A set of splash links allow this output control voltage to be assigned as one of four grand master or one of eight group control lines. Links will be inserted in Grand Master 1 and 2 (GDM-CTL-1 & GDM-CTL-2 on the diagram) respectively for the two Grand Master boards.

Master/Slave buffering.

Facilities are fitted to allow this console to act as either a master or slave console to another for vca control.

When used as a master, the modules control voltage, as well as being distributed to the fader tray boards, is buffered by IC3b and, with the appropriate splash link made, connected to the DC CONTROL OUT connector on the mixer rear panel via ST2.

For situations where then console is to be used as a slave, the DC control voltage from the master console is connected to the DC CONTROL IN connector on the mixer rear panel. From here it connects into the board(s) via ST2 and via the appropriate splash link to IC3a. IC3a is connected as a ground compensated differential buffer and provides a dc voltage which is summed into IC1b with the internally derived control voltages.

Group (Master) VCA Control [Diagram XL311.DGM].

The VCA Group control boards combine two internal desk control functions as well as interfacing to external master/slave desks.

The two associated group channels (A & B), can each have their vcas controlled not only by the internal channel fader but also a combination of one or both the Grand Master controls.

Considering channel A, The two Grand Master inputs from ST1 pins 11 and 12 are selected by switches SW3 and SW4 for Grand Masters 1 and 2 respectively. The signals are summed and inverted by IC2a and connected to the group module via ST2. Channel B is similar using SW5, SW6 and IC2b.

The second function of the module is the control for one of the eight VCA Groups. The reference voltage from the Grand Master 2 board is sourced via the VCA control buss connector ST1 pin 9. It is buffered and inverted by IC1a and fed to the Master fader RV1. Dependent upon the status of SW1 (VCA MUTE), either the attenuated voltage from RV1 or the inverted reference voltage is summed with an offset voltage derived from the reference voltage via VR1. Provided SW2 (VCA ON) is in the on state, this summated voltage will have the output voltage from IC3a (see previous details on master/slave linking) summed with it before buffering by IC1b ready for distribution to the channel control cards.

A set of splash links allow this output control voltage to be assigned as one of the eight VCA Group control lines. Links will be inserted in the appropriate location (VCA-CTL-1 to VCA-CTL-8 on the diagram) on the eight VCA Group boards.

Channel VCA control [Diagram XL302_VC.DGM].

All eight Group VCA control lines are available on the channel control module. These enter via the VCA Control Buss connector ST1 pins 1 to 8 and are selected by switches SW1 thro SW8 for groups 1 to 8 respectively.

The reference voltage on ST1 pin 9 is buffered and inverted by IC1b and fed to the channel vca level control RV1. The wiper of this level control is summed with the combined group level control voltage (as selected by SW1 thro SW8) by IC1a. The Group control voltage is only effective when the VCA ON switch (SW9) is in the on position. The output of IC1a is fed to the channel module vca input via ST2.

LED Powering [All diagrams].

The status leds are powered by constant current sources, one on each vca control board. These are based round transistor Q1. The order for the chain starting from Q1 can be clearly seen on the appropriate diagram. Each chain ends at the -v rail.

POWER SUPPLY

The Midas XL3 has an external 19" rack mounting power supply to provide the three voltage rails to power the console, +18V and -18V DC at 12 amps per rail and +48V phantom power at 500mA for capacitor microphones and direct injection boxes. It is fitted with two fully protected outputs through polarised 19 pin multipin connectors, one female for connection to the console and one male for connection to an additional power supply if used for fail-safe operation. The two connectors are parallel wired and the three power modules incorporate blocking diodes, so that the power supplies can share the load but never feed power into each other in the event of one unit failing. Each 18 volt block incorporates an over-temperature sensor which switches off the affected unit. If this occurs while two power supplies are connected, there will be no effect on the operation of the console since load sharing and switchover is automatic; however, the relevant monitoring LED on the front panel will be extinguished. The relevant block will reset automatically on cooling and the LED will come back on when this happens.

Connection of the power supply to the console is via a 5 meter multiconductor cable fitted with polarised 19 pin connectors, one male and one female.

PLEASE NOTE THAT THE POWER SUPPLY CONTAINS CIRCUITRY WHICH GENERATES LETHAL VOLTAGES. NOT ONLY IS IT POWERED BY HIGH VOLTAGE, BUT THE SWITCH MODE BLOCKS FOR THE 18v RAILS CREATE VOLTAGES FAR IN EXCESS OF THE MAINS INPUT. ALL SERVICING OF THESE UNITS MUST BE REFERRED ONLY TO AUTHORISED SERVICE AGENTS OF KLARK TEKNIK. ON NO ACCOUNT MUST SERVICE WORK BE ATTEMPTED BY ANYONE ELSE. IF IT IS, THE WARRANTY WHICH COVERS THE EQUIPMENT BECOMES INVALID, AND KLARK TEKNIK ACCEPT NO LIABILITY FOR CONSEQUENT DAMAGE TO THE CONSOLE OR ANCILLARY EQUIPMENT. QUALIFIED SERVICE PERSONNEL ONLY MAY UNDERTAKE THE SERVICE WORK DETAILED BELOW.

Voltage Change-over.

There are five steps involved in this operation. It is most important that all five are carried out together, and that power is not applied to the unit when change-over procedures are incomplete, and that the power is disconnected by unplugging the mains lead before work is commenced.

1. Change the fuse.

The fuse holder is located on the back of the unit below the

mains input plug. The correct fuse ratings are as follows:-

220/240 volt operation: 5A.

100/110 volt operation: 10A.

The fuse is 20mm, HRC type.

2. Rejumper the +18 volt block.

The lid of the power supply must be removed by taking out all the relevant screws: four from the front panel, four from each side at the bottom of the unit, and three from the back panel. The voltage change-over jumper may now be moved to the appropriate position. [see diagram]

3. Rejumper the -18 volt block.

This procedure is identical to the +18 volt block.

4. Selector, Phantom power module.

The voltage change over switch is located on the phantom power pcb, its setting is clearly marked on the pcb.

5. Replace lid before reconnecting the mains supply.

Indicator Module. [Diagram XL293_2.DGM]

The pcb for this module (BRD:2690) is mounted behind the front panel and houses led indicators for each of the P.S.U. output voltages. Also mounted on this pcb is the ground lift switch S1. This disconnects earth from the 0V rails. Earth remains connected to all the console metalwork.

Regulator Assembly. [Diagram XL293_1.DGM]

This contains the linear regulators for both 18V supplies. Both negative and positive regulators are identical utilising a series power fet (Q3 & Q6 respectively). Output voltages are factory set at 18V with VR1 and VR4 respectively. D3 and D7 allow fail safe linking.

Phantom power supply. [Diagram XL293_2.DGM]

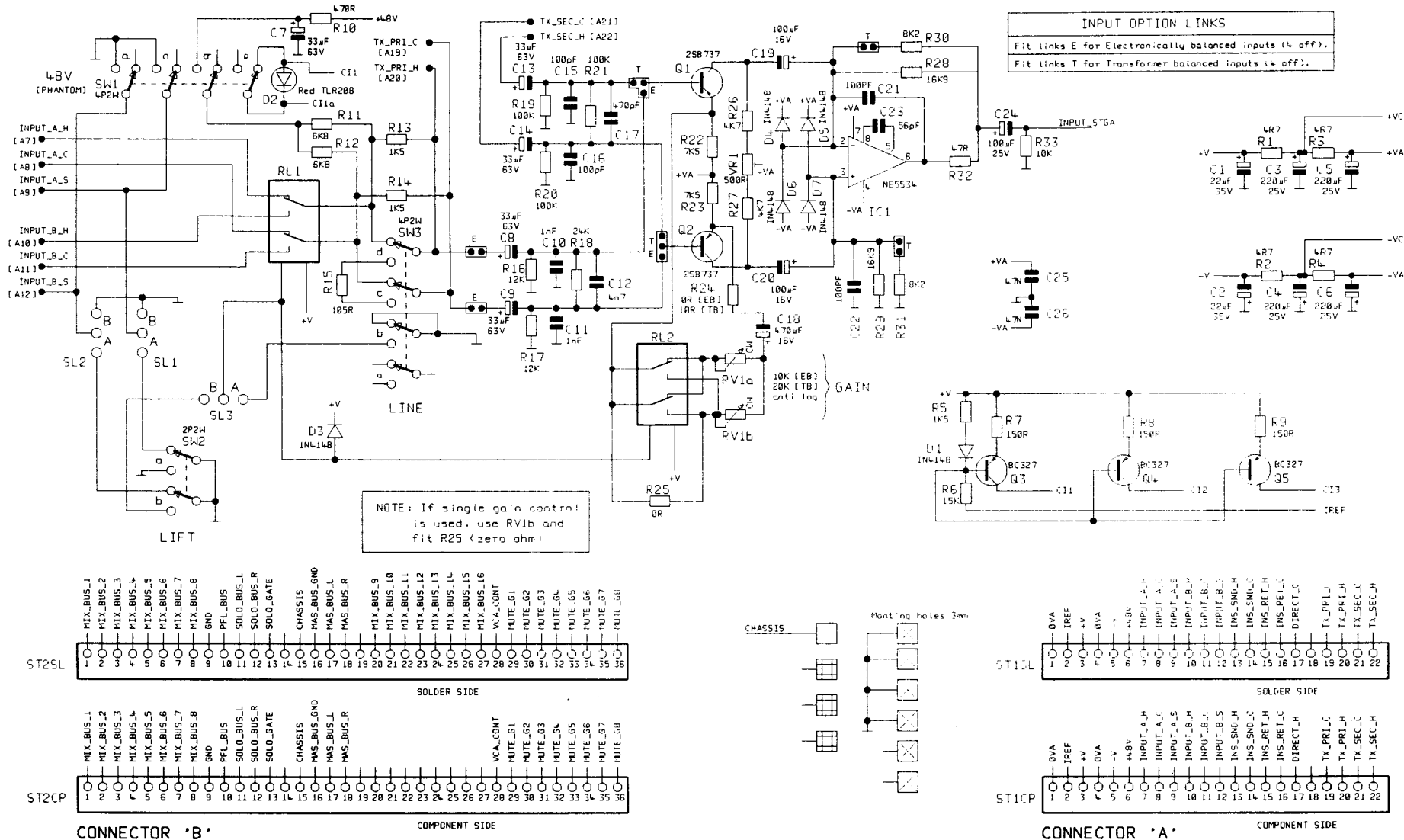
The 48V phantom supply is derived from transformer TX1, The primary supply voltage is selected by SW1. The secondary voltage is rectified by D1 to D4 and regulated by IC1. The output voltage being set by R1 and R2. D6 allows fail safe linking.

The power supplies cooling fans are also powered from the phantom power module. Two alternatives types are catered for, 110V AC and 24V DC. When equipped for 110V AC fans, connector ST2 is fitted. If 24V DC fans are used, the additional regulator IC2 with its associated components and connector ST4 are fitted. Both types are not normally available simultaneously on the same module. In the unlikely event of a replacement fan being required, the correct type should be ascertained by checking on the pcb for ST2 (110V) or ST4 (24V).

DRAWINGS

DWG No.	REFERS TO	SECTION	ISS	DATE
XL301_1	Input module	Inputs & Connectors	5	4.9.91
XL301_2	Input module	Filter, Insert & Vca	5	4.9.91
XL301_3	Input module	Equaliser section	5	4.9.91
XL301_4	Input module	Mutes, Master & Dir.	5	4.9.91
XL301_5	Input module	Mix outputs 1 - 8	5	4.9.91
XL301_6	Input module	Mix outputs 9 - 16	5	4.9.91
XL301_M	Input module	Mute add-on board	4	4.9.91
XL301_M10	Input module	10 Led meter	3	26.10.90
XL301_LK	Input module	Option links	3	4.9.91
XL304_1	St. Input module	Inputs, Phase & Filters	2	17.9.93
XL304_2	St. Input module	M-S Control & Hi-Pass	2	17.9.93
XL304_3	St. Input module	Solo Select & Inserts	2	17.9.93
XL304_4	St. Input module	VCA's & Stereo Pan	2	17.9.93
XL304_5	St. Input module	CH A Equaliser Section	2	17.9.93
XL304_6	St. Input module	CH B Equaliser Section	2	17.9.93
XL304_7	St. Input module	Mix Outputs	2	17.9.93
XL304_8	St. Input module	Mutes & Direct Outputs	2	17.9.93
XL304_9	St. Input module	Edge Connectors & PSU	2	17.9.93
XL304_VC	St. Input module	XL302 Input VCA Contr.	6	6.9.93
XL310_A1	Group module	Buss & dir inputs A	8	4.9.91
XL310_A2	Group module	Vca, Routing & O/P A	8	4.9.91
XL310_A3	Group module	Automutes & Solo Sel	8	4.9.91
XL310_A4	Group module	Remote volume opt A	8	4.9.91
XL310_B1	Group module	Buss & dir inputs B	8	4.9.91
XL310_B2	Group module	Vca, Routing & O/P B	8	4.9.91
XL310_B3	Group module	Ch B Automutes	8	4.9.91
XL310_B4	Group module	Remote volume opt B	8	4.9.91
XL310_LK	Group module	Mute link options	1	29.10.90
XL20M_3	Group module	20 Led meter	2	11.1.91
XL320_1	Master module	Sum & master insert	2	6.9.91
XL320_2	Master module	Matrix & record	2	6.9.91
XL320_3	Master module	Master & matrix O/P	2	6.9.91
XL320_4	Master module	Edge connectors	2	6.9.91
XL330_1	Comms module	Comm, Pfl & Phones	2	6.9.91
XL330_2	Comms module	Talkback & local	2	5.9.91
XL330_3	Comms module	Noise, Mutes & Psu	2	6.9.91
XL330_4	Comms module	Edge connectors	2	6.9.91
XL330_5	Comms module	Stereo phones amp	2	6.9.91
XL321	Grand master	Vca control	6	6.9.91
XL311	Master	Vca control	6	6.9.91
XL302_VC	Input	Vca control	3	29.10.90
XL3FR_1	XL3 Mainframe	Power I/P pcb	1	30.10.90
XL3FR_2	XL3 Mainframe	Jackfield layout	1	30.10.90
XL3FR_3	XL3 Mainframe	Motherboard 'B' wiring	2	9.9.91
XL3FR_4	XL3 Mainframe	Motherboard 'A' wiring	2	9.9.91

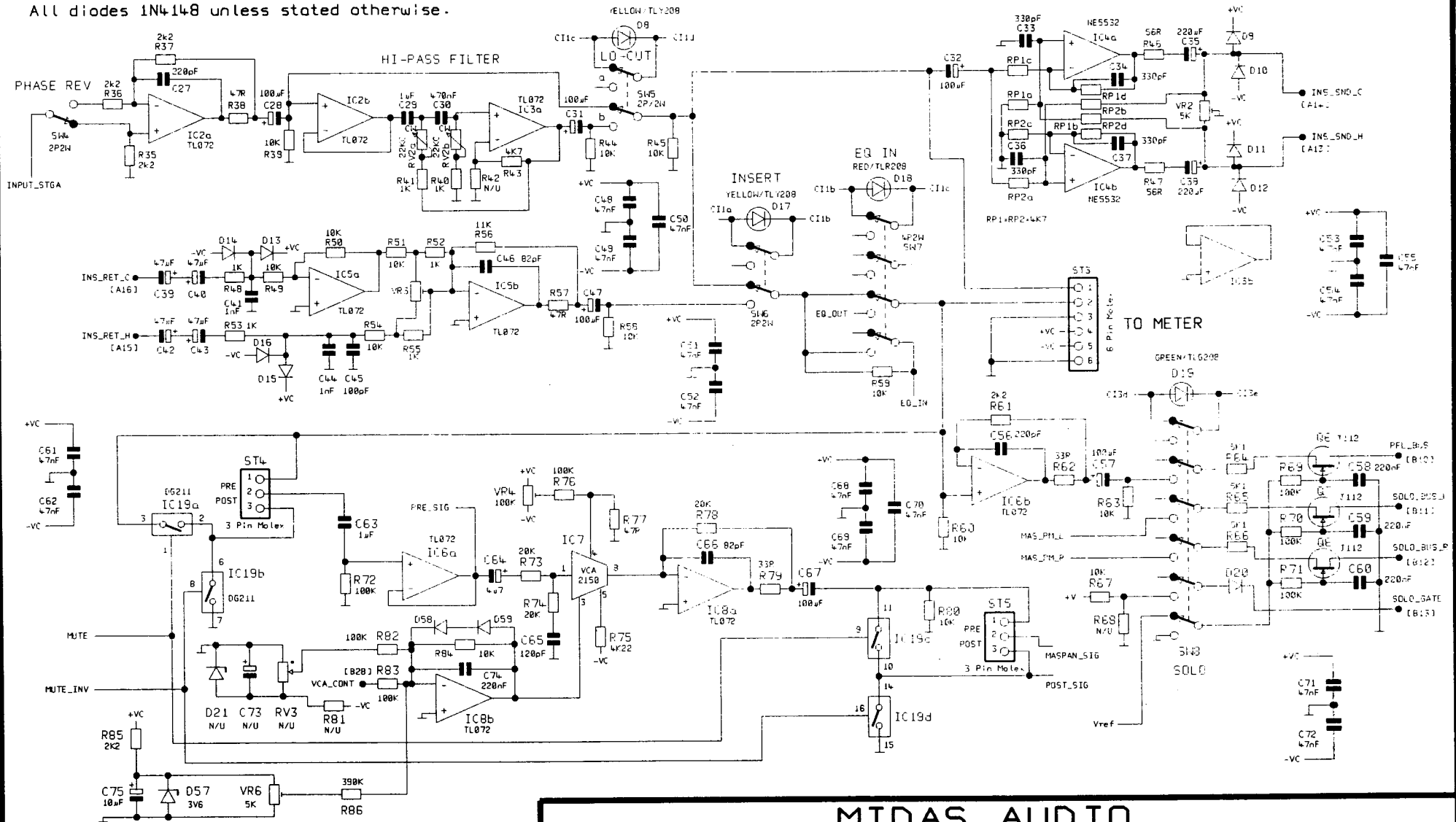
XL3FR_5	XL3 Mainframe	Connectors 'A'	2	7.9.91
XL3FR_6	XL3 Mainframe	Connectors 'B'	2	7.9.91
XL3FR_7	XL3 Meterbridge	Connector pin assign.	2	7.9.91
XL3FR_8	XL3 Meterbridge	Motherboard connections	2	7.9.91
XL3FR_9	XL3 Mainframe	DC link connections	1	9.9.91
XLBUSS_A	XL3 Mainframe	DC Buss link board	2	24.9.91
<hr/>				
XL390_1	Power supply	Twin linear regulator	2	24.9.91
XL390_2	Power supply	48V & Fans PSU & status	2	24.9.91
XL390_3	Power supply	Block diagram	2	24.9.91
XL390_4	Power supply	Connector pin assignment	2	24.9.91
XL390_5	Power supply	Power supply linking	2	24.9.91
XL390_6	Power supply	Linking two consoles	2	24.9.91
XL390_7	Power supply	Switch mode block	2	24.9.91



MIDAS AUDIO

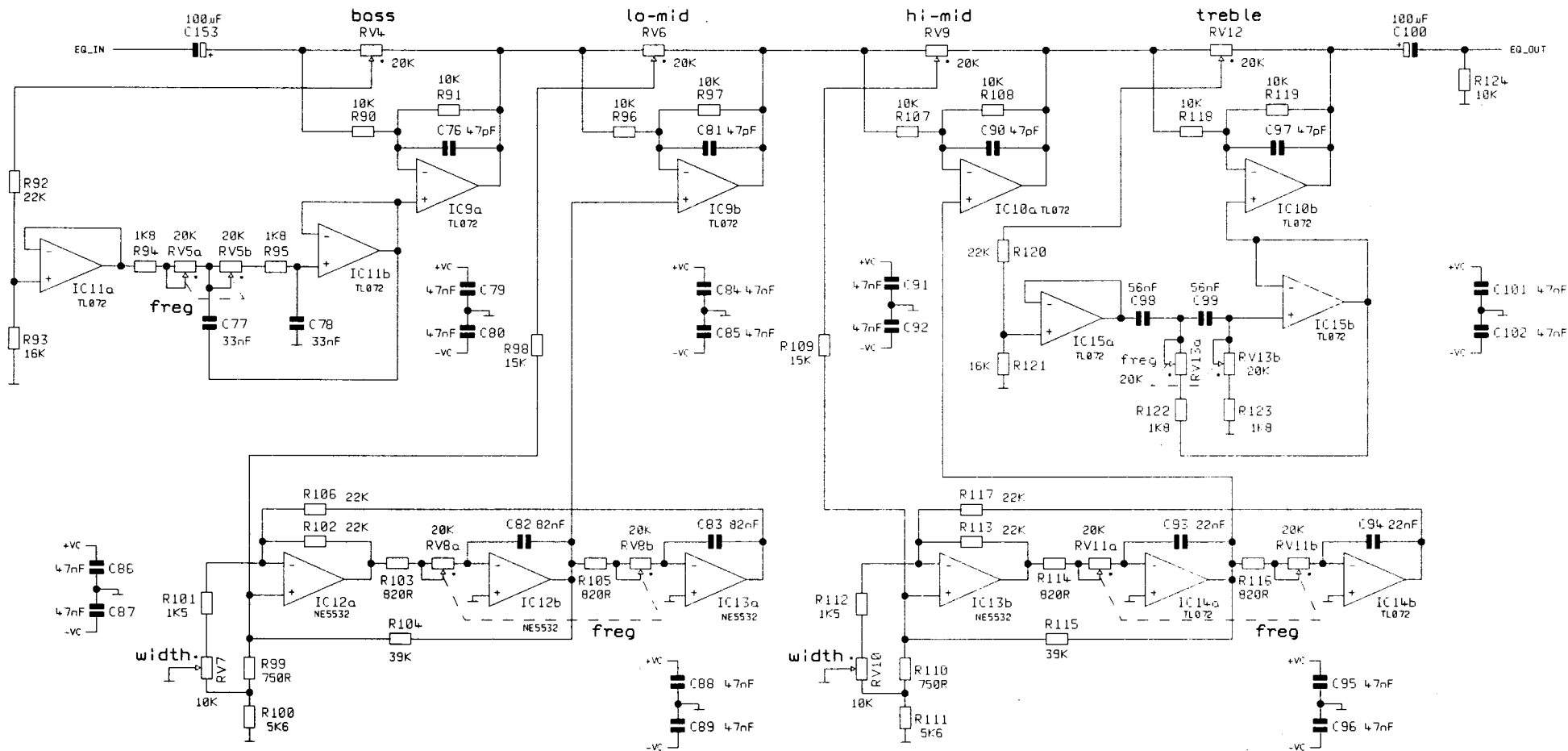
Drawn: DGT	Checked:	XL301.1 INPUT MODULE	INPUTS & CONNECTORS	1 OF 6
BOARD No. B2716 issue 5		DWG No. XL301_1.DGM		ISSUE: 5
DATE: 4.Sept.91				

All electrolytics 25V working unless stated otherwise.
 All diodes 1N4148 unless stated otherwise.



MIDAS AUDIO

Drawn: DGT	Checked:	XL301 INPUT MODULE	FILTER, INSERT & VCA	2 OF 6
BOARD No. B2716 issue 5		DWG No. XL301_2.DGM		ISSUE: 5
				DATE: 4.Sept.91



MIDAS AUDIO

Drawn: DGT

Checked:

XL301 INPUT MODULE

EQUALISER SECTION

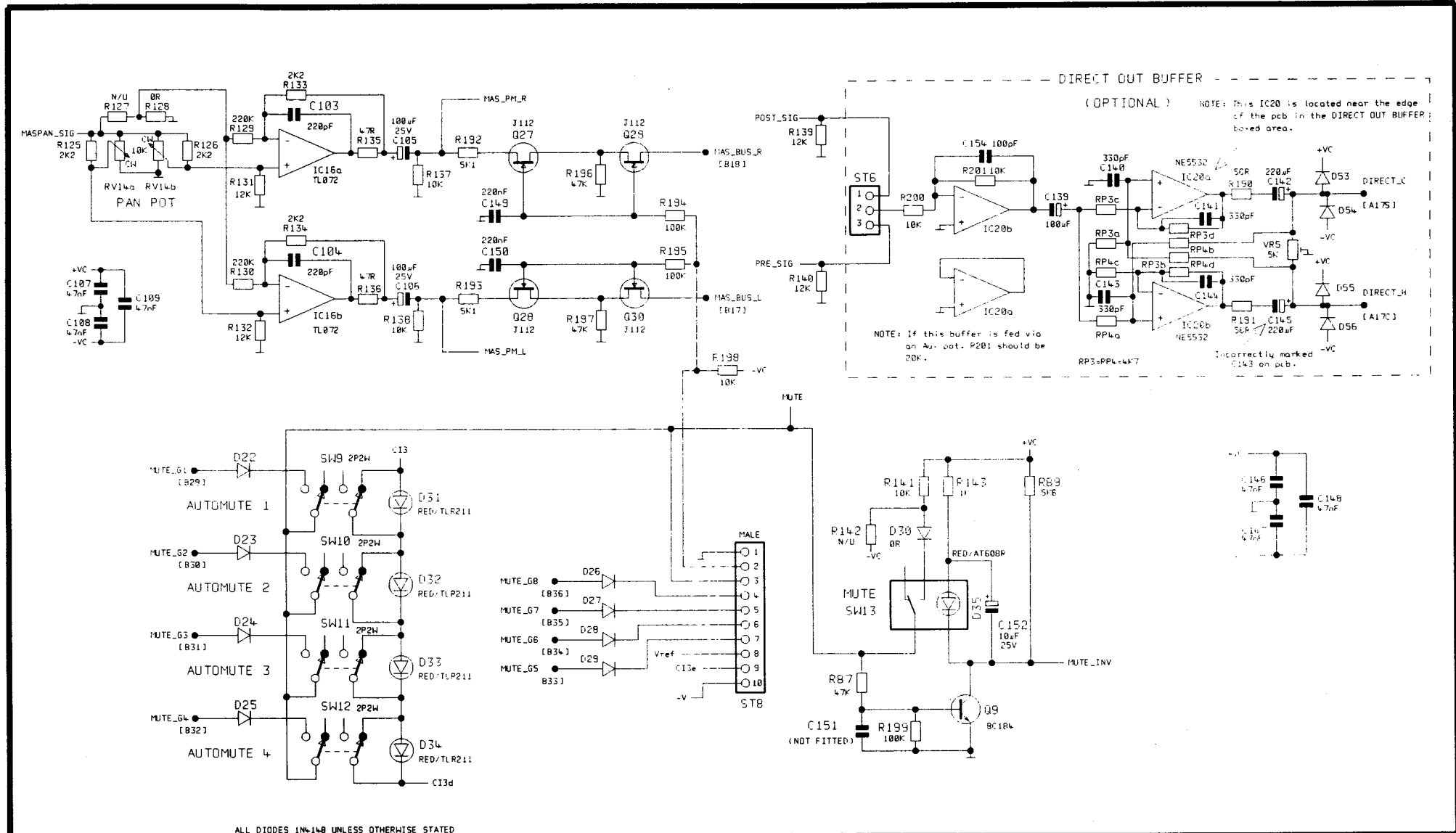
3 OF 6

BOARD No. B2716 issue 5

DWG No. XL301_3.DGM

ISSUE: 5

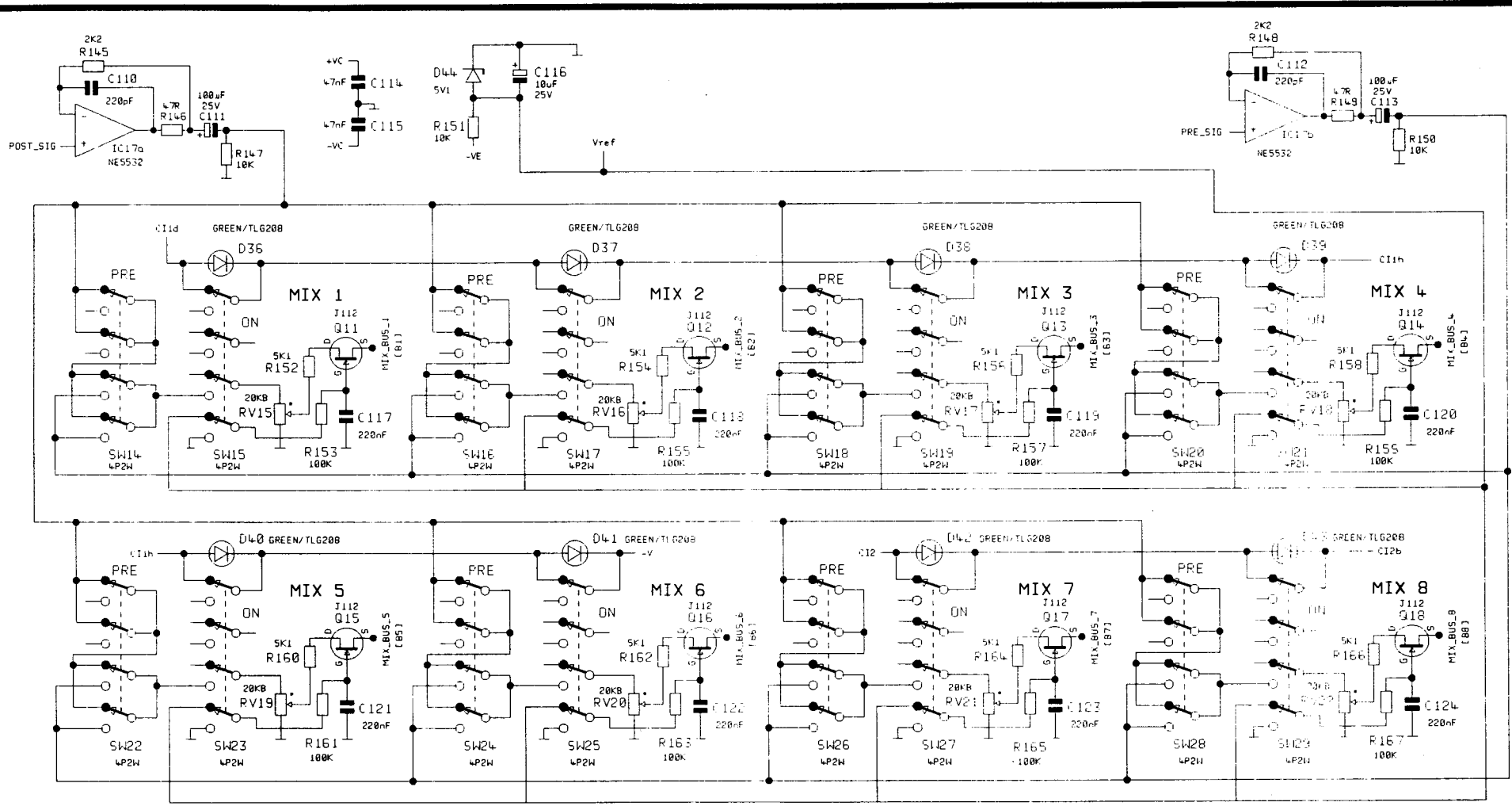
DATE: 4.Sept.91



ALL DIODES 1N4148 UNLESS OTHERWISE STATED

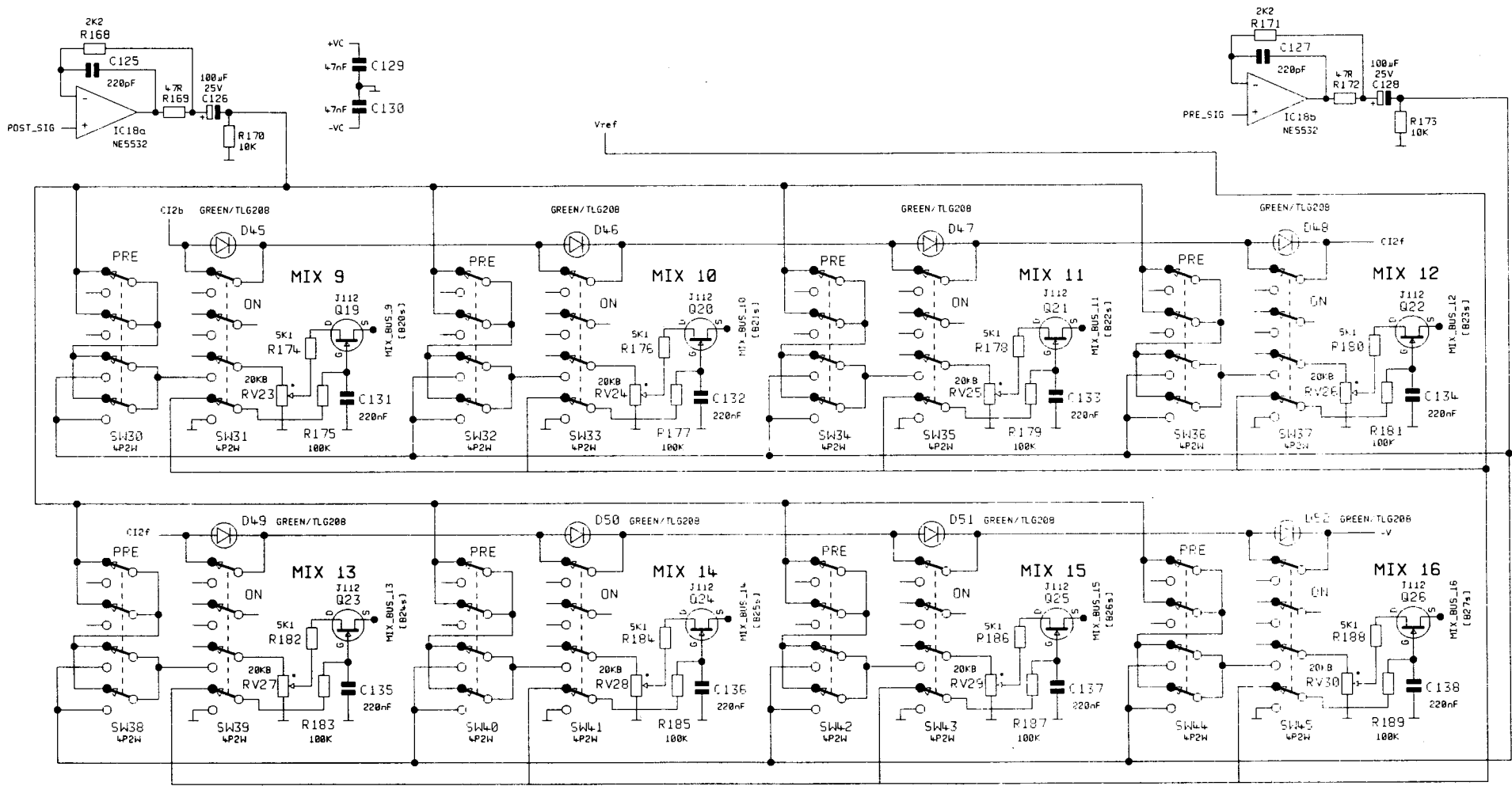
MIDAS AUDIO

Drawn: DGT	Checked:	XL301 INPUT MODULE	MUTES, MASTER & DIR OUT	4 OF 6
BOARD No. B2716 issue 5		DWG No. XL301_4.DGM		ISSUE: 5
			DATE: 4.Sept.91	



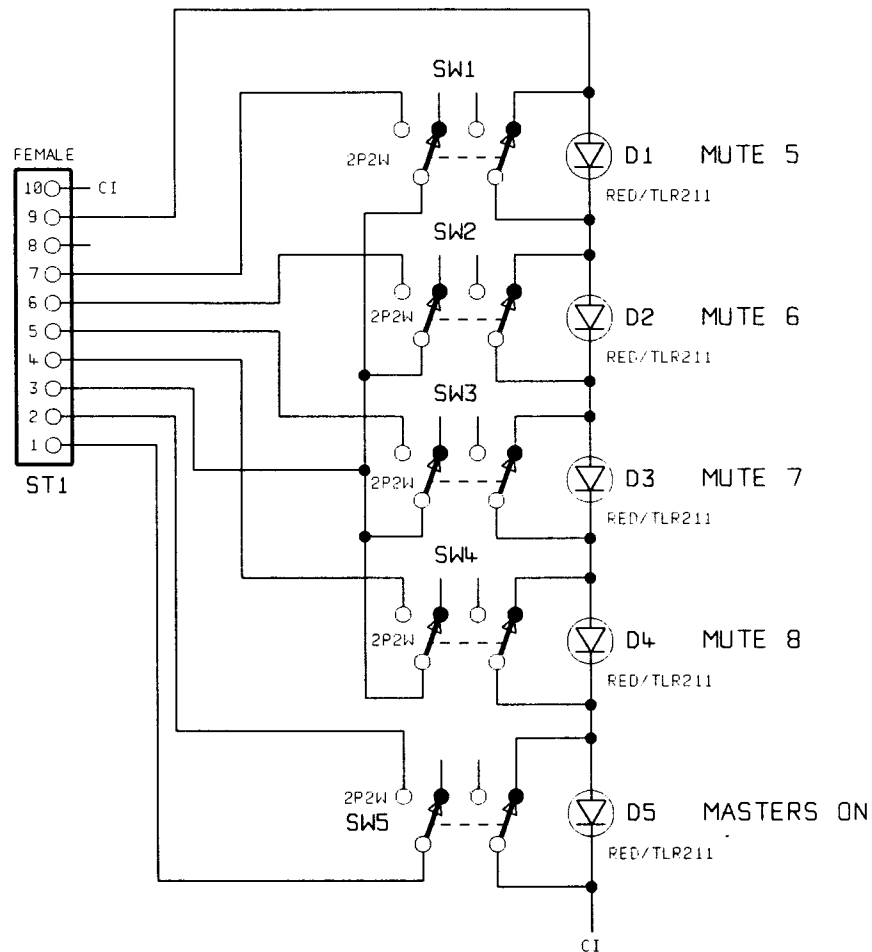
MIDAS AUDIO

Drawn: DGT	Checked:	XL301 INPUT MODULE	MIX OUTPUTS 1 - 8
BOARD No. B2716 issue 5		DWG No. XL301_5.DGM	ISSUE: 5
			5 OF 6
			DATE: 4.Sept.91



MIDAS AUDIO

Drawn: DGT	Checked:	XL301 INPUT MODULE	MIX OUTPUTS 9 - 16
BOARD No. B2716 issue 5		DWG No. XL301_6.DGM	ISSUE: 5
			6 OF 6
			DATE: 4.Sept.91



3.5mm mounting holes



MIDAS AUDIO

Drawn: DGT

Checked:

XL301 INPUT MODULE

MUTE ADD-ON BOARD

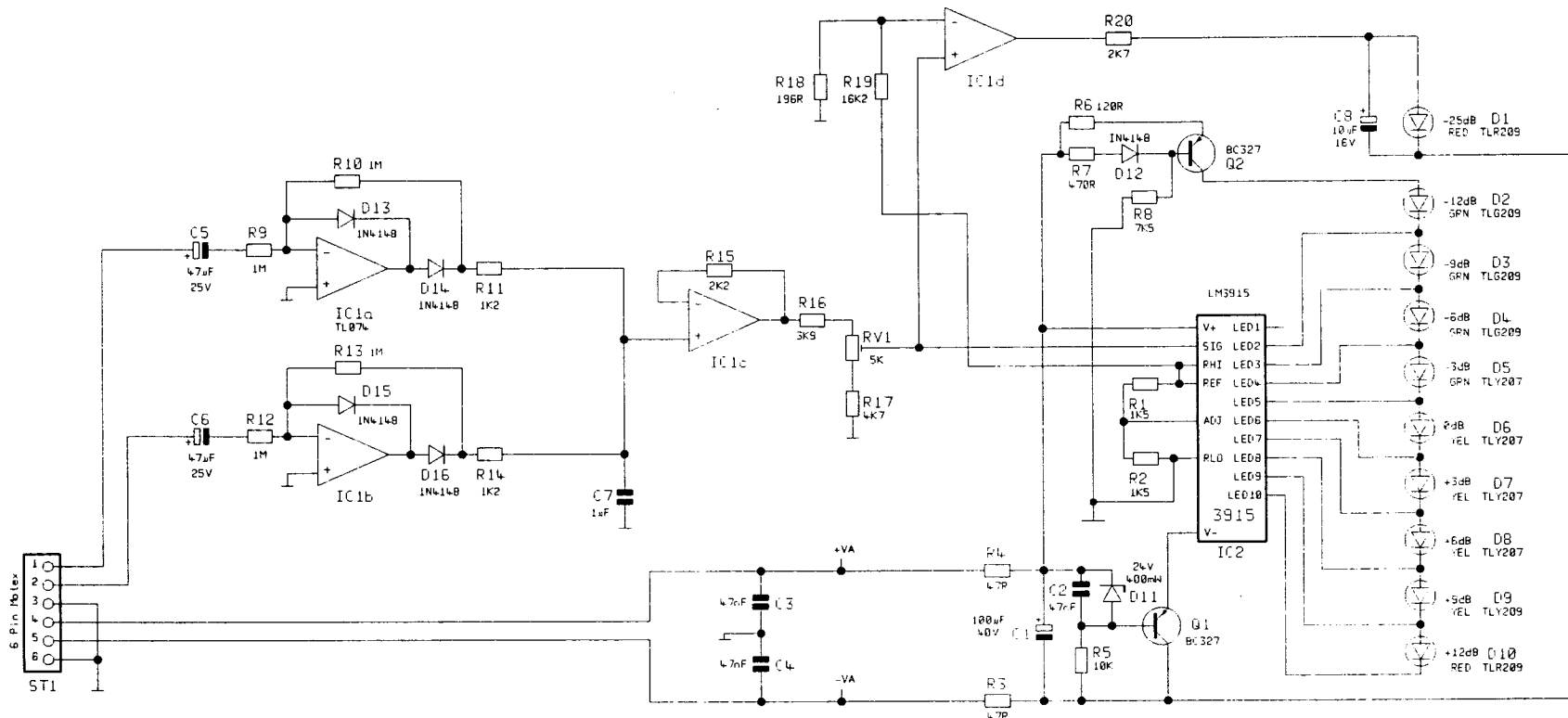
1 OF 1

BOARD No. B2715 issue 2

DWG No. XL301_M.DGM

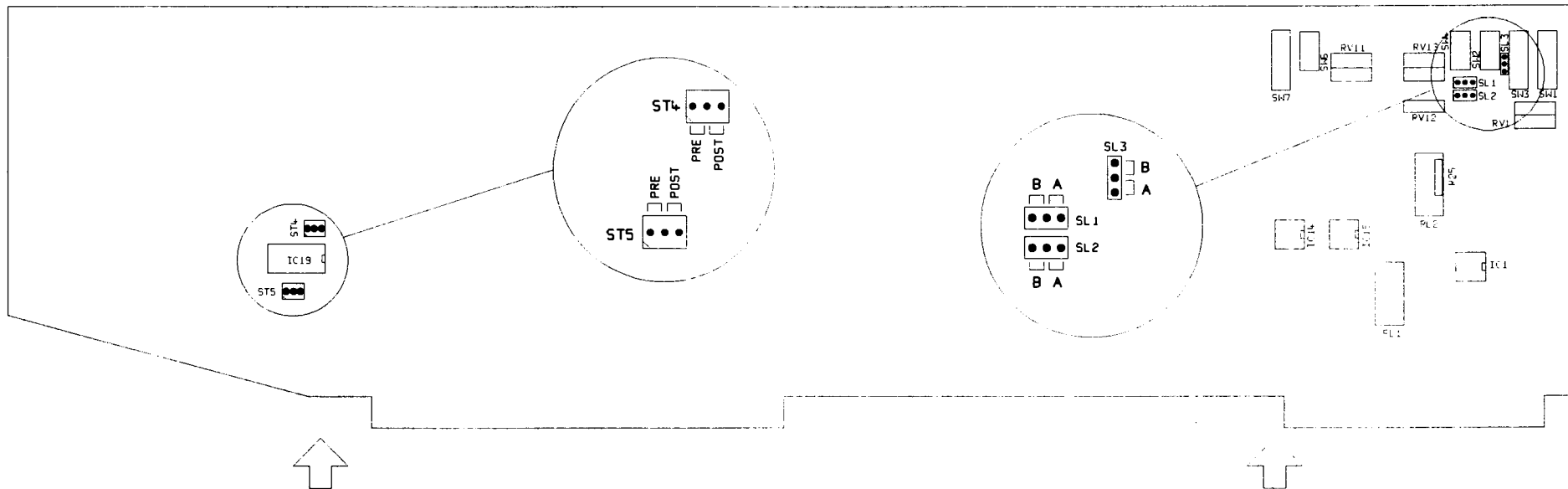
ISSUE: 4

DATE: 4.Sept.91



MIDAS AUDIO

Drawn: DGT	Checked: CJR	XL301 INPUT MODULE	XL3 10 LED METER	1 OF 1
BOARD No. B2706 issue 2		DWG No. XL3_M10.DGM		ISSUE: 3
DATE: 26.0ct.90				



MUTE OPTIONS

NOTE: The post fade signal is always muted.

SIGNAL		LINK	
PRE FADE	MASTER	ST4	ST5
MUTE	MUTE	POST	POST
MUTE	NOT	Not available	
NOT	MUTE	PRE	POST
NOT	NOT	PRE	PRE

INPUT OPTIONS

Single input versions - no options.

Dual input versions

SL1, SL2 & SL3 in 'A' positions:-

Earth lift push - Earth lift.

Line push - Select input with pad on input B.

SL1, SL2 & SL3 in 'B' positions:-

Earth lift push - Select input.

Line push - Select line pad only.

MIDAS AUDIO

Drawn: DGT

Checked:

XL301 INPUT MODULE

OPTION LINKS

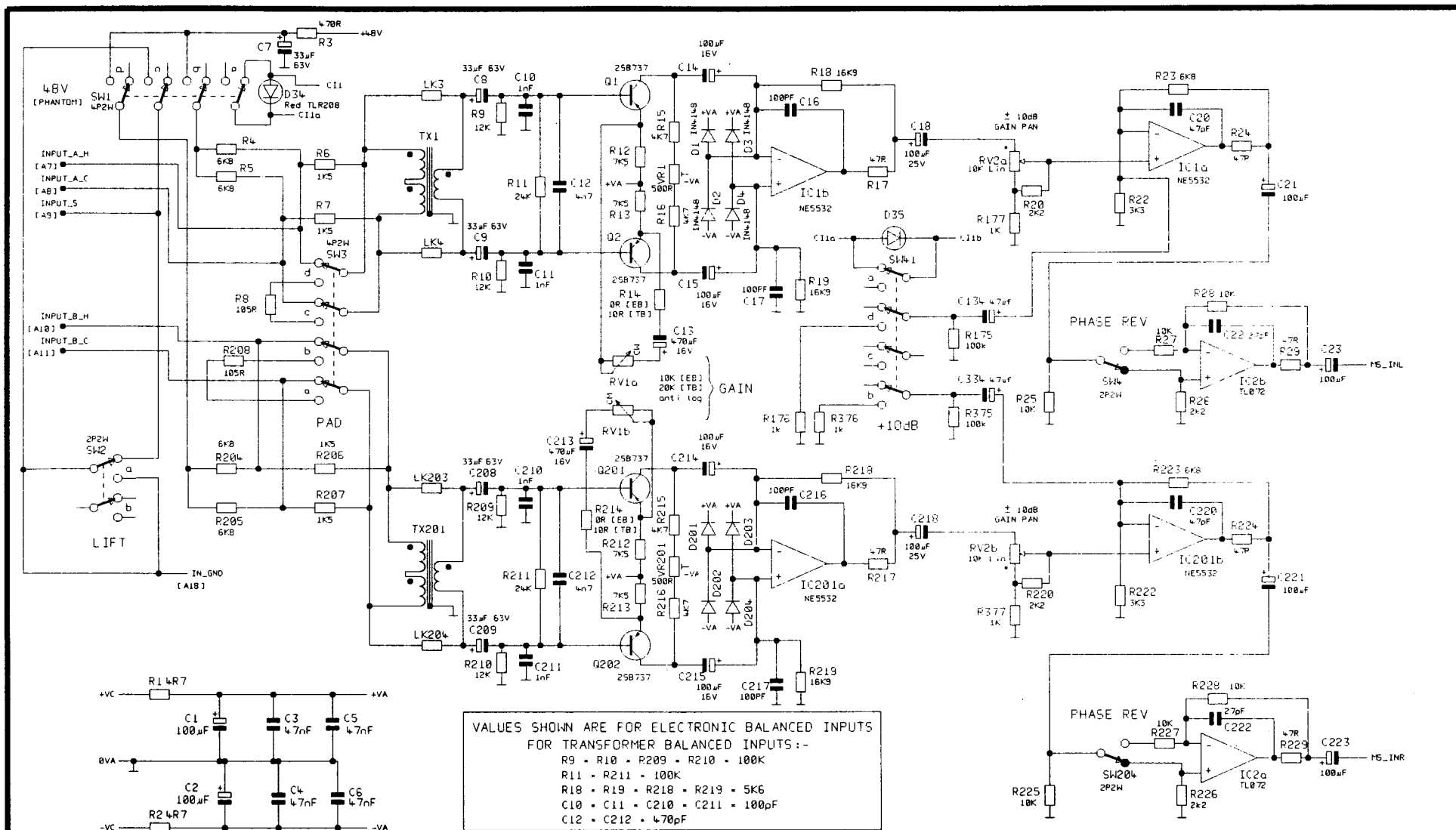
1 OF 1

BOARD No. B2716 issue 5

DWG No. XL301_LK.DGM

ISSUE: 3

DATE: 4.Sept.91



MIDAS AUDIO

Drawn: DGT

Checked:

XL304. INPUT MODULE

INPUTS. PHASE & FILTERS

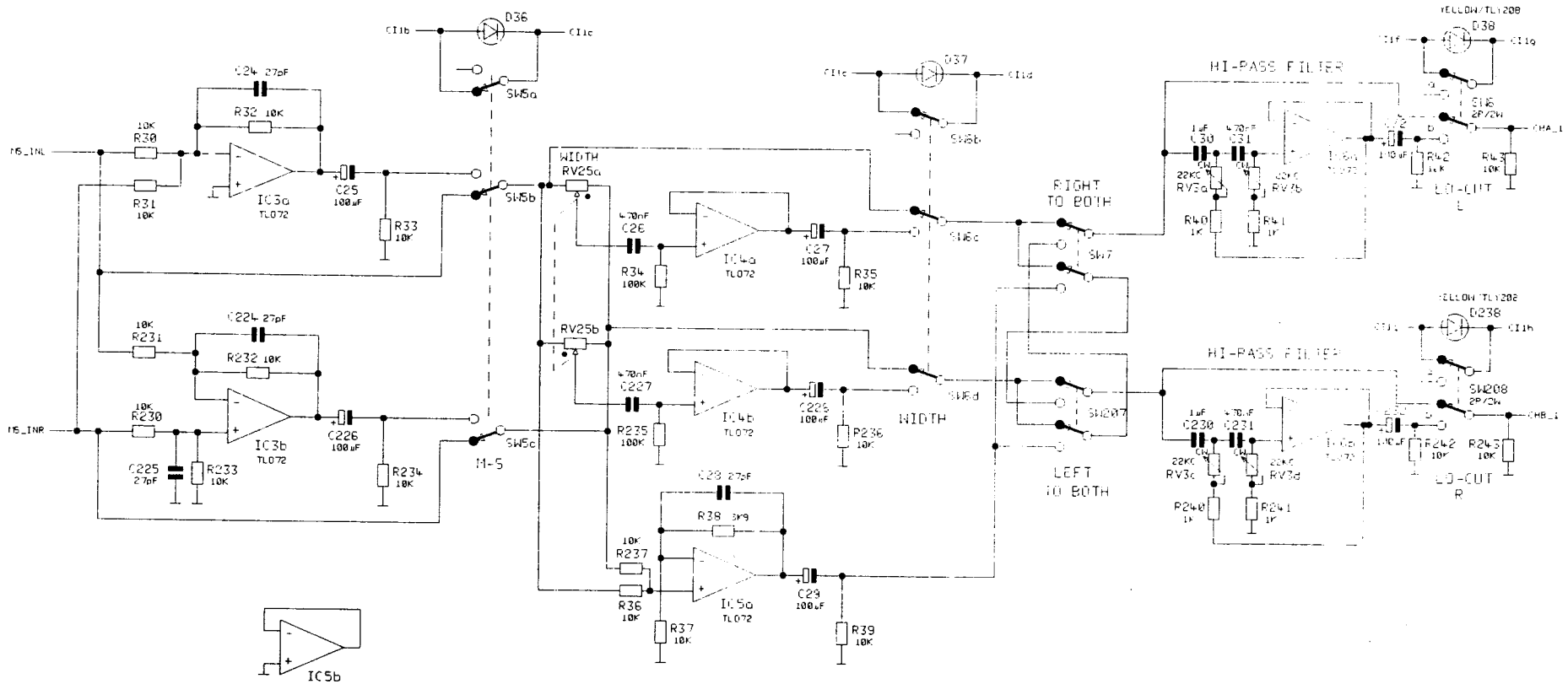
1 OF 9

BOARD No. B2762 iss 2

DWG No. XL304_1.DGM

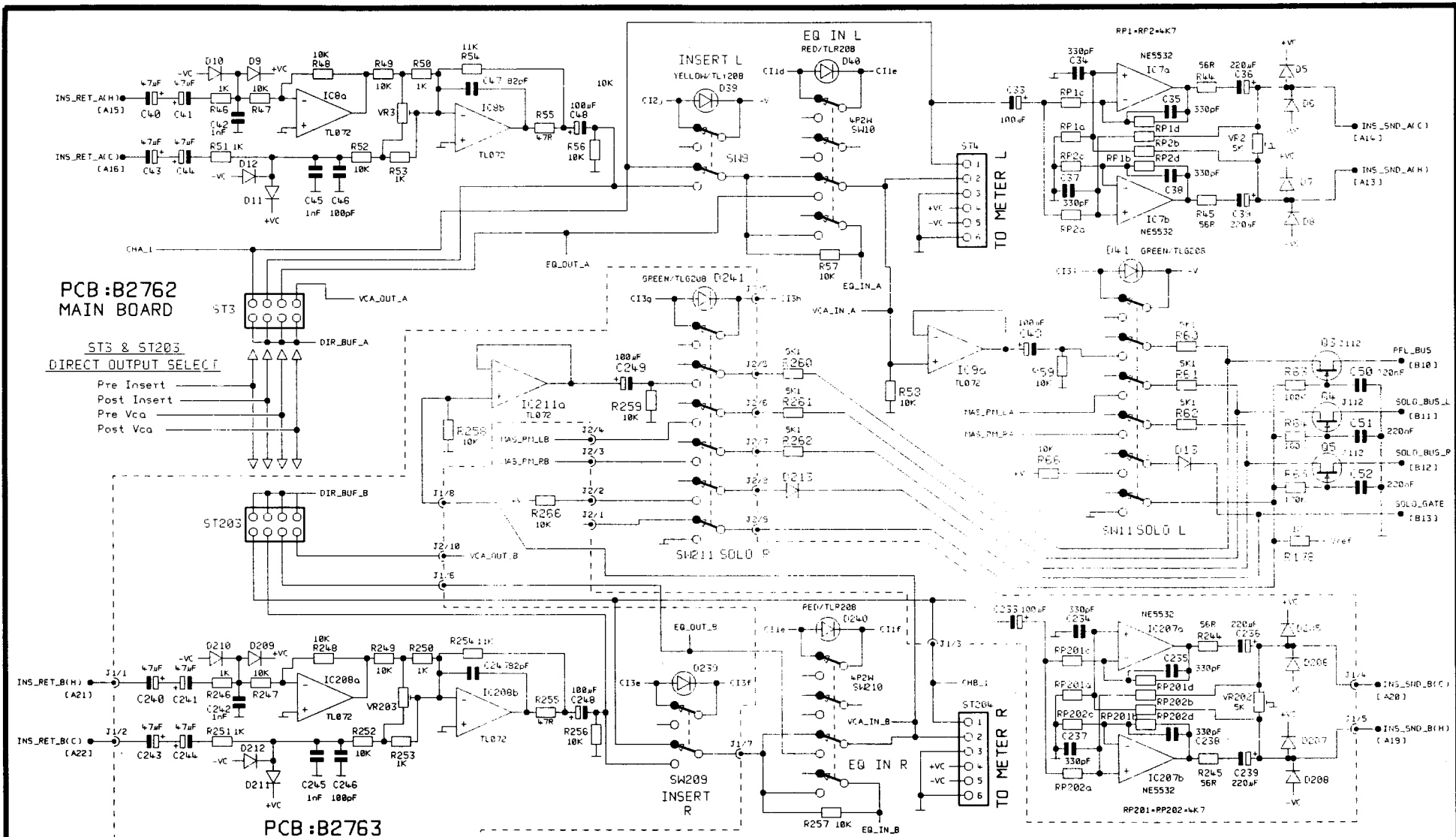
ISSUE:2

DATE:17.Sept.93

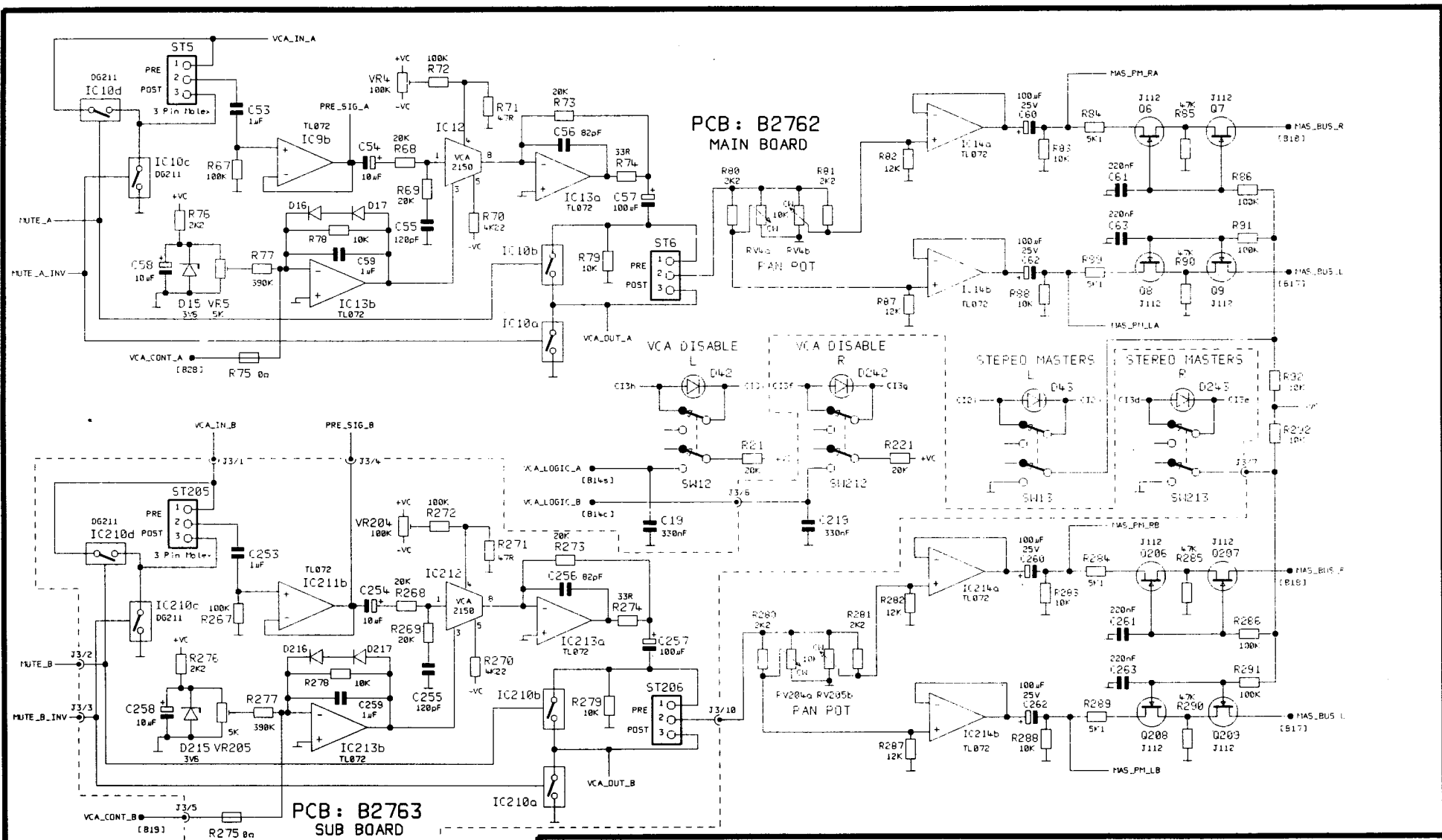


MIDAS AUDIO

Drawn: DGT	Checked:	XL304 INPUT MODULE	M-S CONTROL & HI-PASS	2 OF 9
BOARD No. B2762 iss 2		DWG No. XL304_2.DGM		ISSUE: 2 DATE: 17.Sept.93

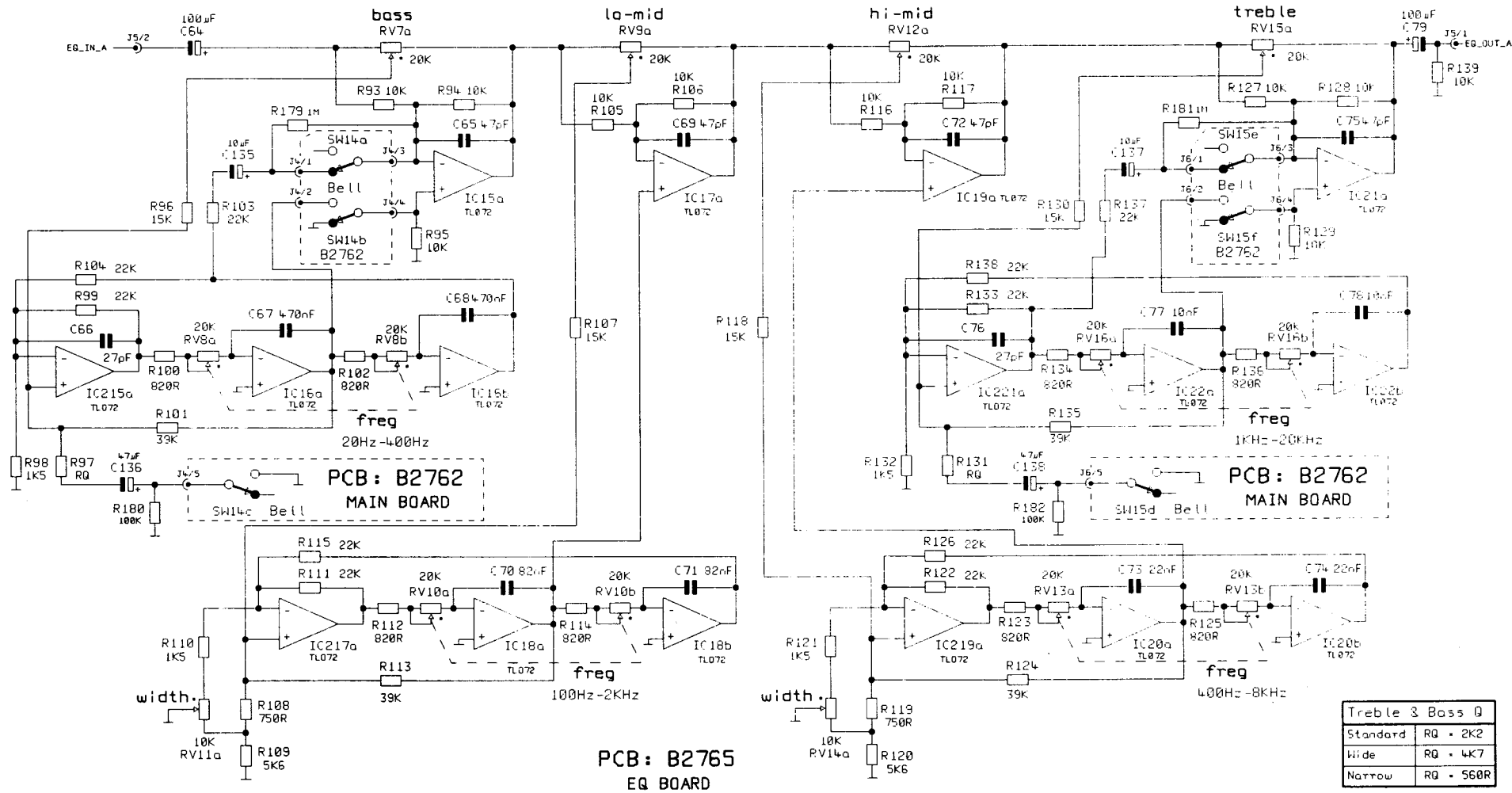


Drawn: DGT	Checked:	XL304 INPUT MODULE	SOLO SELECT & INSERTS	3 OF 9
BOARD No. B2762 & B2763		DWG No. XL304_3.DGM		ISSUE: 2
				DATE: 17.Sept.93



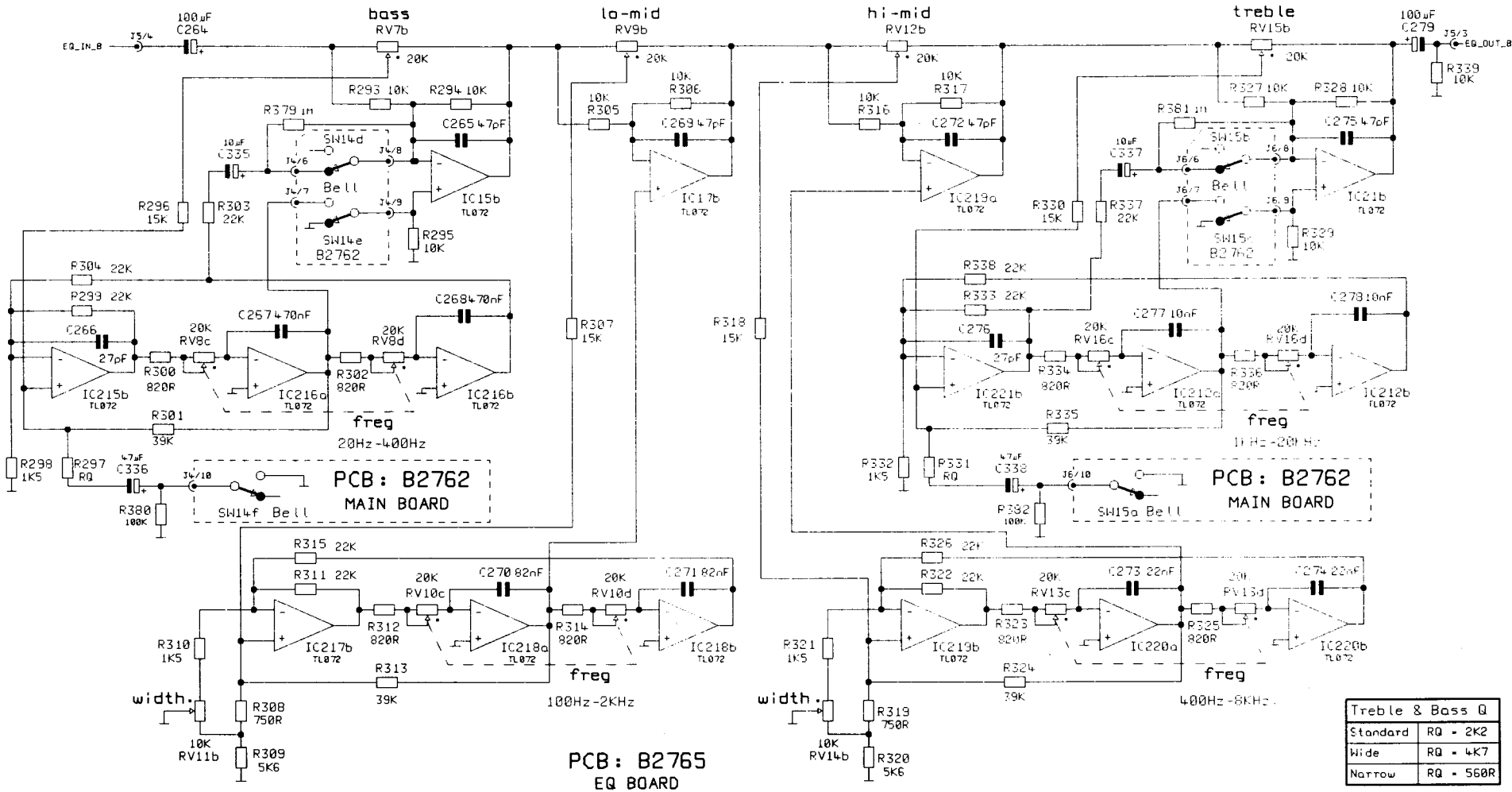
MIDAS AUDIO

Drawn: DGT	Checked:	XL304 INPUT MODULE	VCA'S & STEREO PAN	4 OF 9
BOARD No. B2762 & B2763		DWG No. XL304_4.DGM	ISSUE: 2	DATE: 17.Sept.93



MIDAS AUDIO

Drawn: DGT	Checked:	XL304 INPUT MODULE	CH A EQUALISER SECTION	5 OF 9
BOARD No. B2762 & B2765		DWG No. XL304_5.DGM		ISSUE: 2
				DATE: 17.Sept.93



MIDAS AUDIO

Drawn: DGT

Checked:

XL304 INPUT MODULE

CH B EQUALISER SECTION

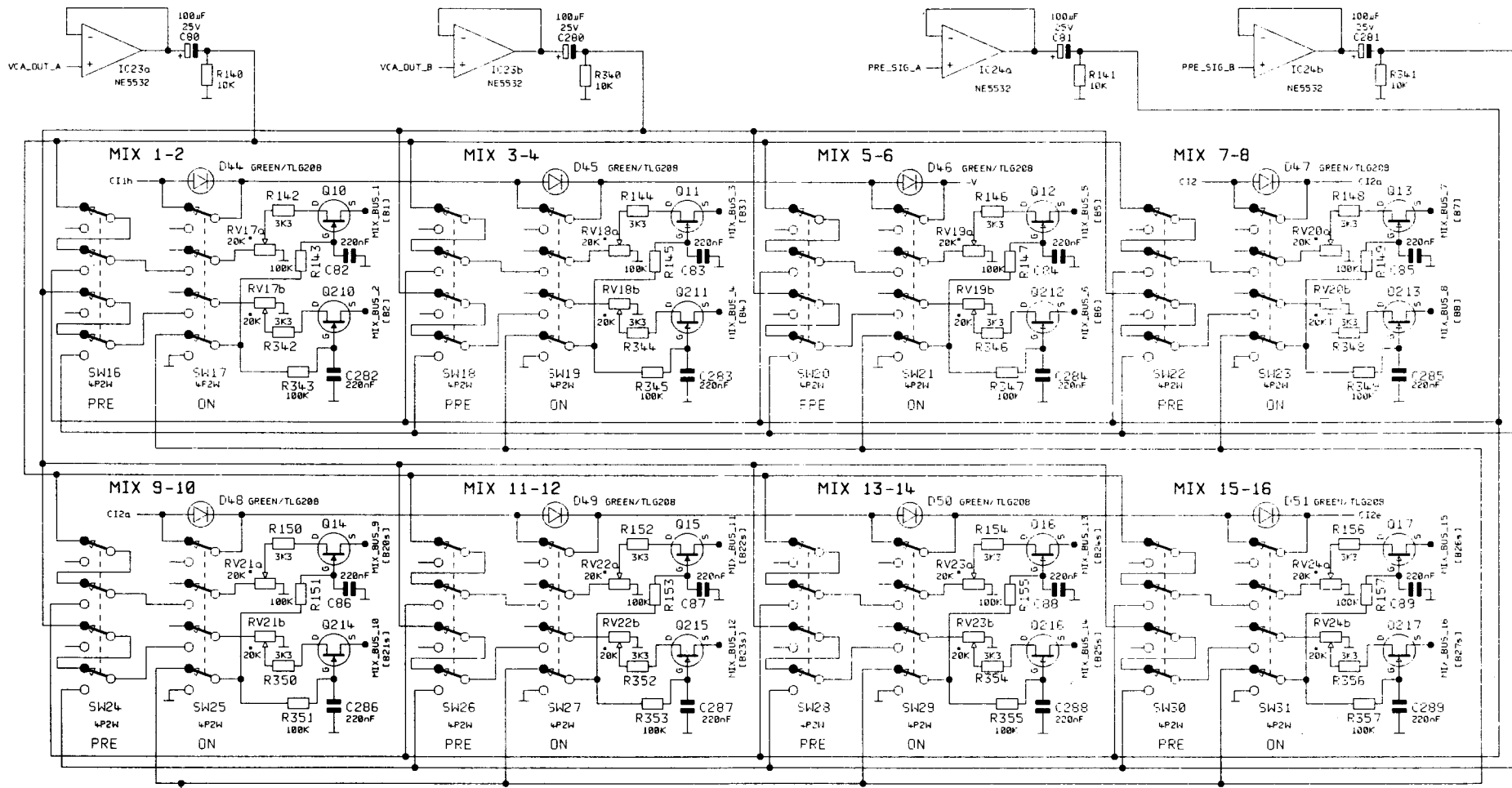
6 OF 9

BOARD No. B2762 & B2765

DWG No. XL304_6.DGM

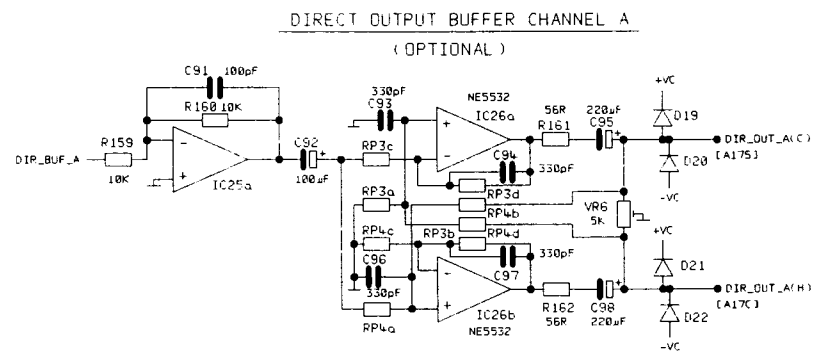
ISSUE: 2

DATE: 17.Sept.93



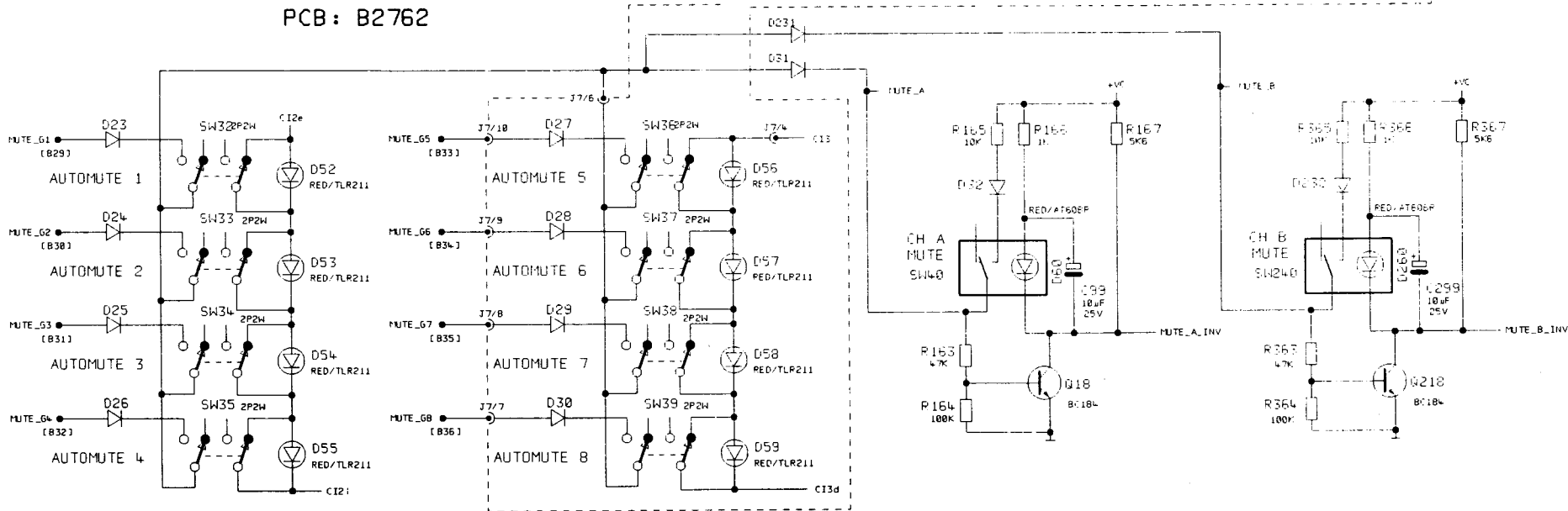
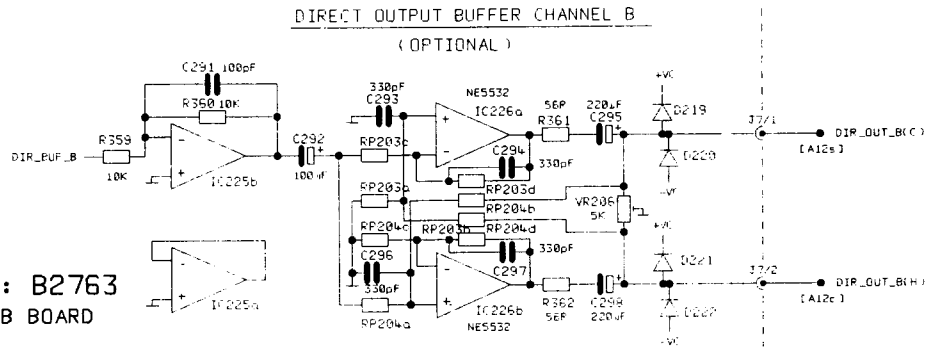
MIDAS AUDIO

Drawn: DGT	Checked:	XL304 INPUT MODULE	MIX OUTPUTS	7 OF 9
BOARD No. B2765		DWG No. XL304_7.DGM	ISSUE: 2	DATE: 17.Sept.93



PCB: B2762

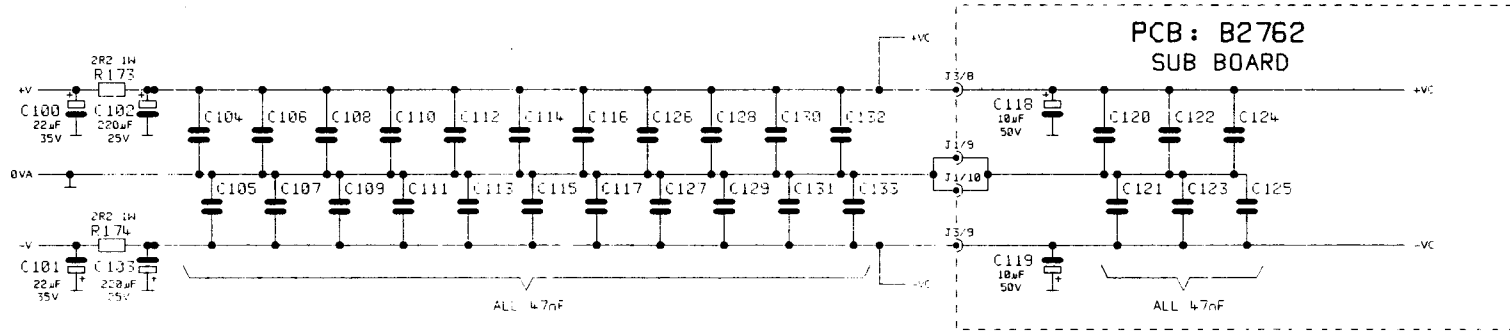
PCB: B2763
SUB BOARD



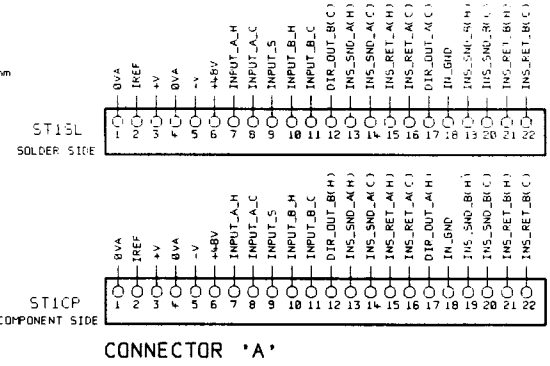
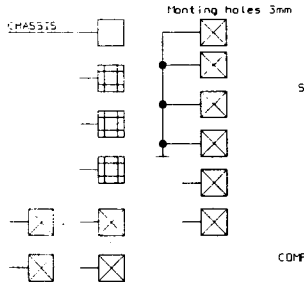
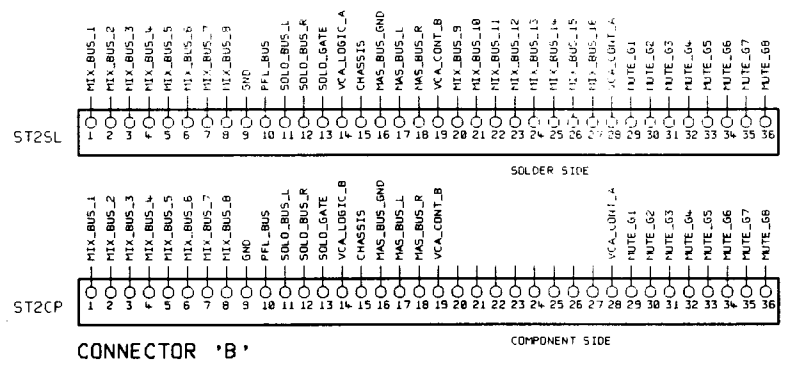
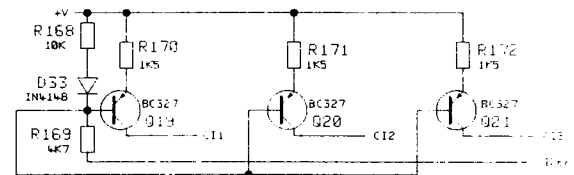
ALL DIODES 1N4148 UNLESS OTHERWISE STATED

MIDAS AUDIO

Drawn: DGT	Checked:	XL304 INPUT MODULE	MUTES & DIRECT OUTPUTS	8 OF 9
BOARD No. B2762 & B2763		DWG No. XL304_8.DGM		ISSUE: 2
				DATE: 17.Sept.93

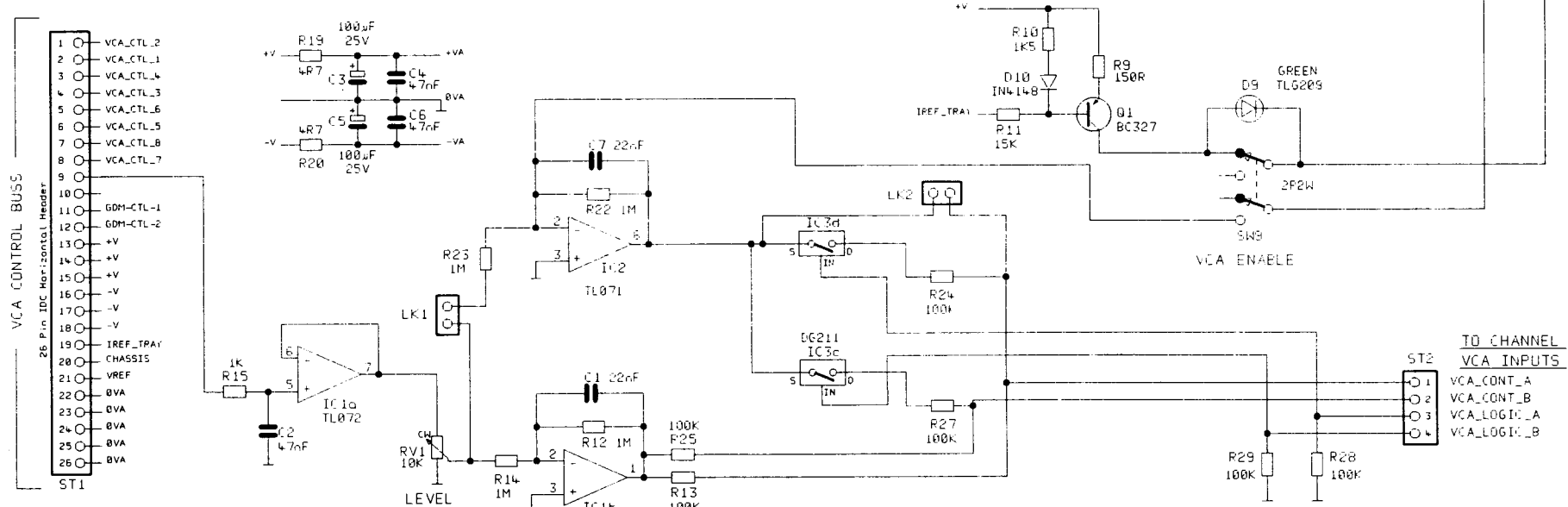
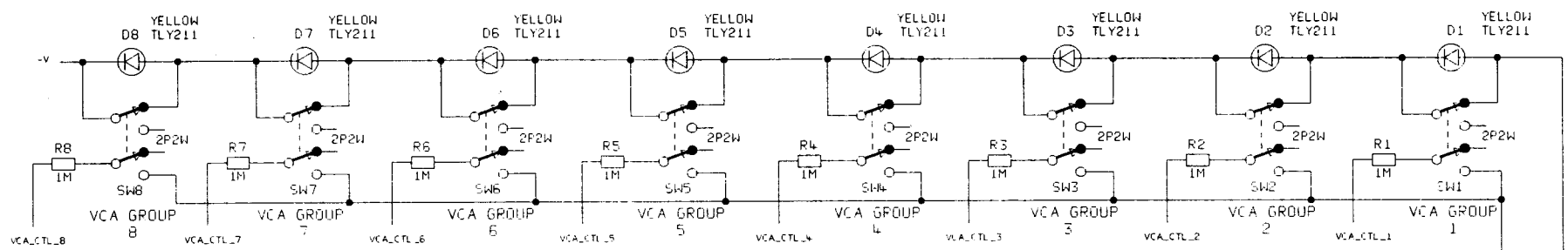


PCB: B2762
MAIN BOARD



MIDAS AUDIO

Drawn: DGT	Checked:	XL304. INPUT MODULE	EDGE CONNECTORS & PSU	9 OF 9
BOARD No. B2762 & B2763		DWG No. XL304_9.DGM	ISSUE: 2	DATE: 17.Sept.93



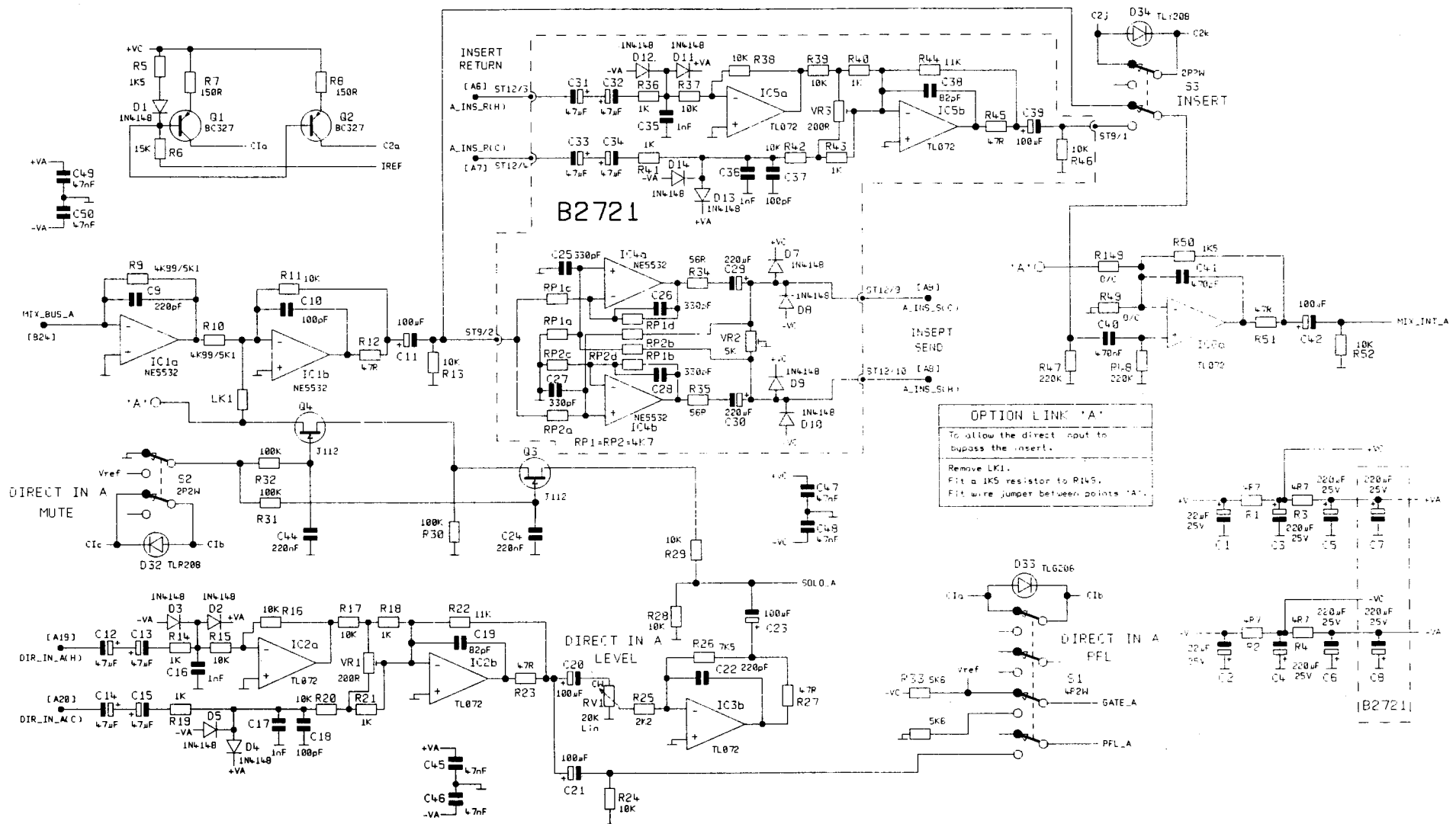
FOR STEREO INPUT MODULE (XL304)
 Remove LK1 & LK2.
 Fit IC3 (DG211)

FOR MONO INPUT MODULE (XL301)
 Fit LK1 & LK2.
 Remove IC3 (DG211)

CHASSIS

MIDAS AUDIO

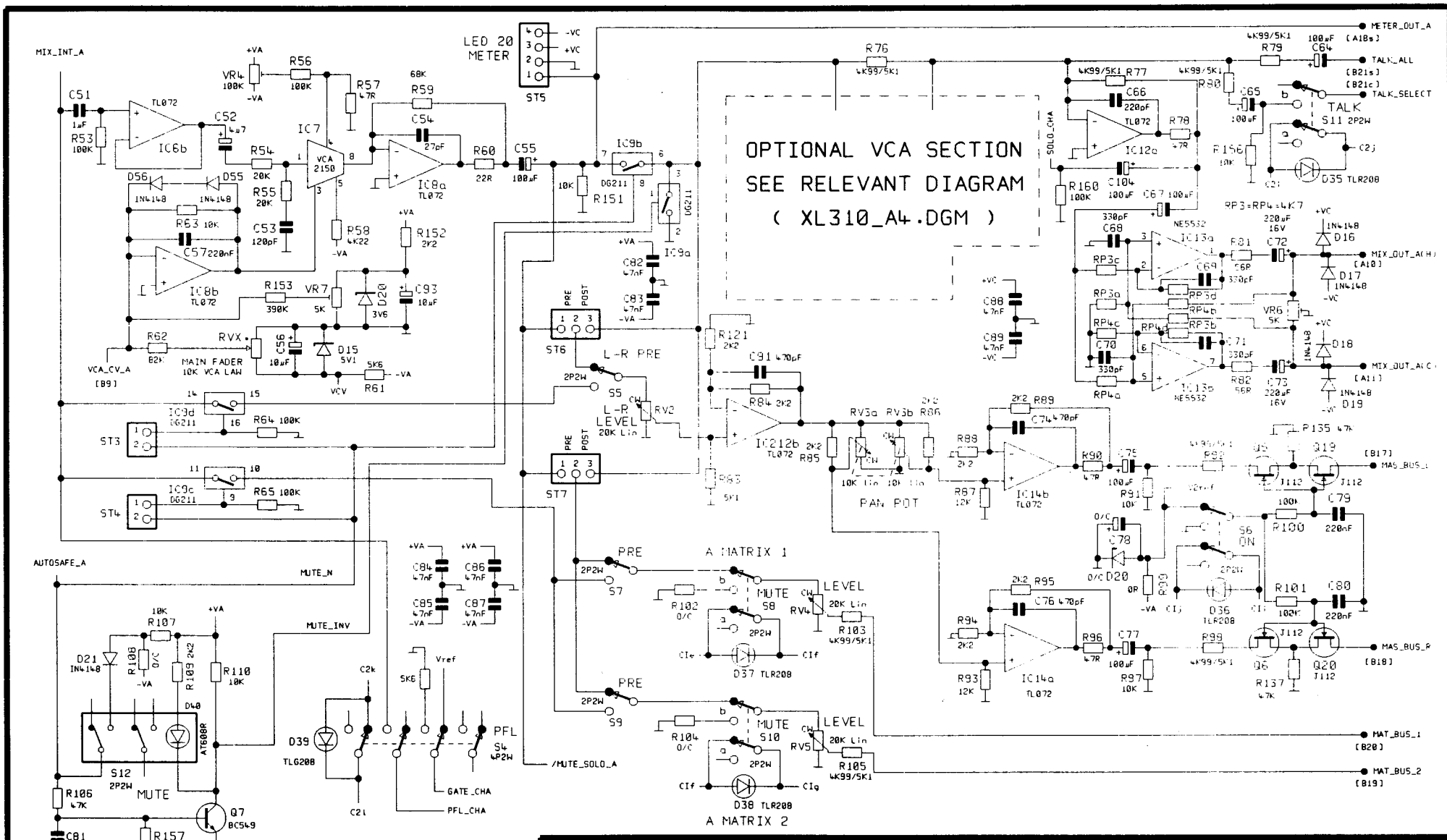
Drawn: DGT	Checked:	MIDAS XL3	XL302 INPUT VCA CONTROL	1 OF 1
BOARD No. B2710 iss 5	DWG No. XL302_VC.DGM	ISSUE: 6	DATE: 6.Sept.93	



All electrolytics 25V working.

MIDAS AUDIO

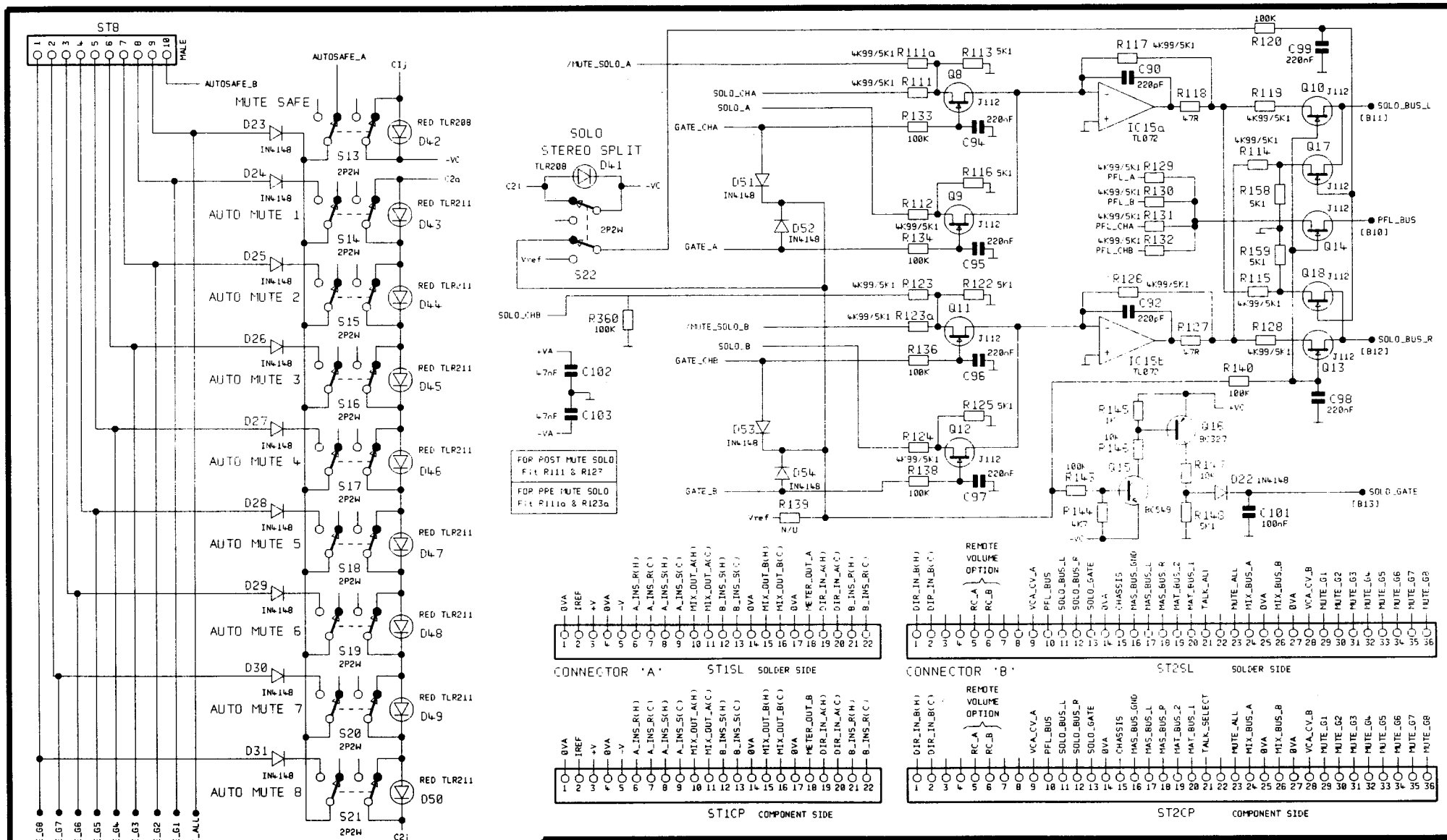
Drawn: DGT	Checked:	XL310 GROUP MODULE	BUSS & DIRECT INPUTS 'A'	1 OF 8
BOARD No. B2720/3 + B2721/3		DWG No. XL310_A1.DGM	ISSUE:8	DATE: 4.Sept.91



OPTIONAL VCA SECTION
SEE RELEVANT DIAGRAM
(XL310_A4.DGM)

MIDAS AUDIO

Drawn: DGT	Checked:	XL310 GROUP MODULE	VCA, ROUTING & OUTPUT 'A'	2 OF 8
BOARD No. B2720 iss 3	DWG No. XL310_A2.DGM	ISSUE: 8	DATE: 4.Sept.91	



FOR POST MUTE SOLO
Fit R111 & R127

FOR PPE MUTE SOLO
Fit R111a & R123a

CONNECTOR 'A' ST1SL SOLDER SIDE

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
GVA	IREF	+V	GVA	-V	A_INS_R(H)	A_INS_R(C)	A_INS_S(H)	A_INS_S(C)	MIX_OUT_A(H)	MIX_OUT_A(C)	B_INS_S(H)	B_INS_S(C)	GVA	MIX_OUT_B(H)	MIX_OUT_B(C)	GVA	METER_OUT_A	DIR_IN_A(H)	DIR_IN_A(C)	B_INS_R(H)	B_INS_R(C)

CONNECTOR 'A' ST1CP COMPONENT SIDE

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
GVA	IREF	+V	GVA	-V	A_INS_R(H)	A_INS_R(C)	A_INS_S(H)	A_INS_S(C)	MIX_OUT_A(H)	MIX_OUT_A(C)	B_INS_S(H)	B_INS_S(C)	GVA	MIX_OUT_B(H)	MIX_OUT_B(C)	GVA	METER_OUT_A	DIR_IN_A(H)	DIR_IN_A(C)	B_INS_R(H)	B_INS_R(C)

CONNECTOR 'B' ST2SL SOLDER SIDE

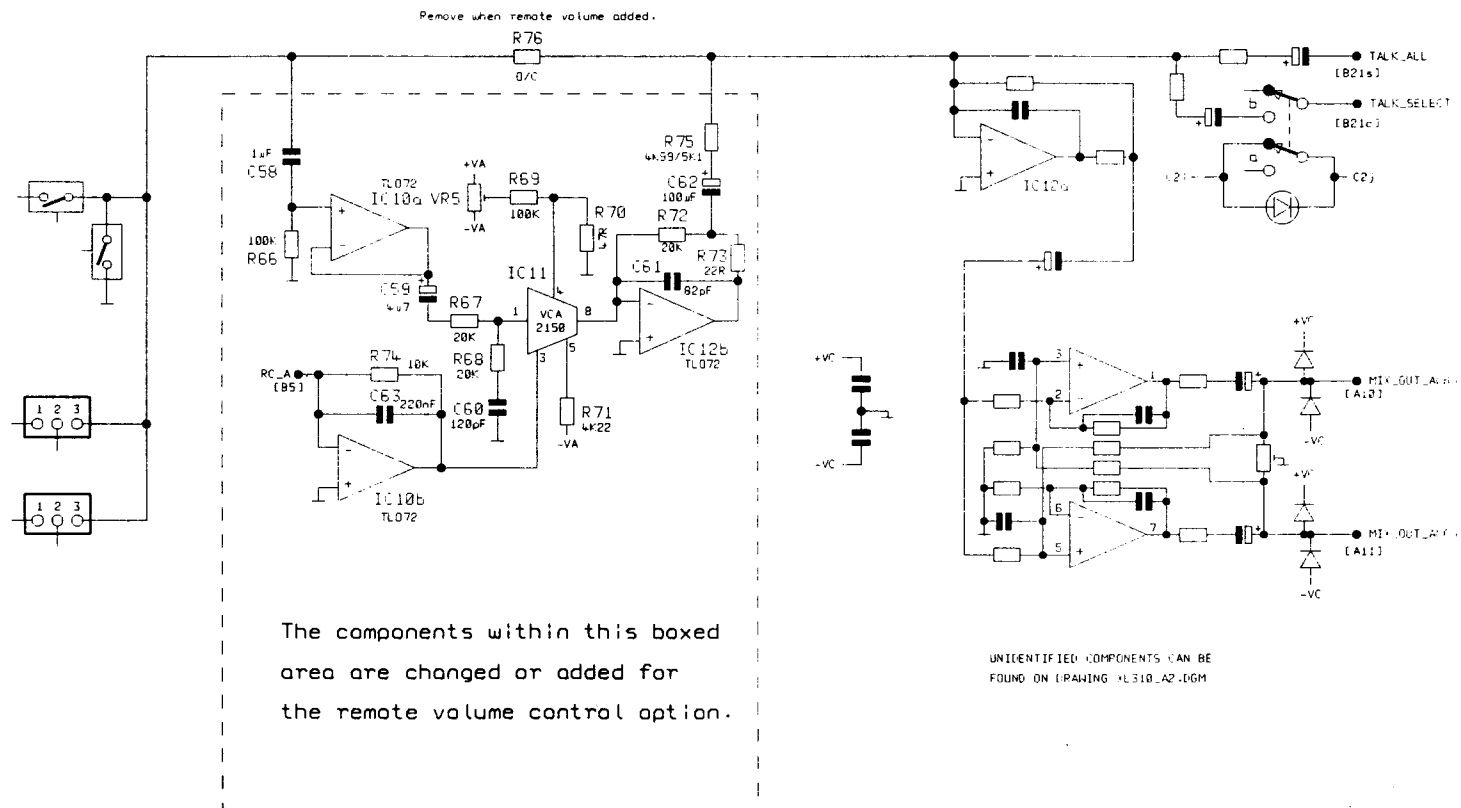
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
DIR_IN_B(H)	DIR_IN_B(C)	REMOTE VOLUME OPTION		VCA_CV_A	PFL_BUS	SOLO_BUS_L	SOLO_BUS_R	SOLO_GATE	GVA	CHASSIS	MAS_BUS_GND	MAS_BUS_L	MAS_BUS_R	MAT_BUS_2	MAT_BUS_1	TALK_SELECT	MUTE_ALL	MIX_BUS_A	GVA	MIX_BUS_B	GVA	VCA_CV_B	MUTE_G1	MUTE_G2	MUTE_G3	MUTE_G4	MUTE_G5	MUTE_G6	MUTE_G7	MUTE_G8					

CONNECTOR 'B' ST2CP COMPONENT SIDE

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
DIR_IN_B(H)	DIR_IN_B(C)	REMOTE VOLUME OPTION		VCA_CV_A	PFL_BUS	SOLO_BUS_L	SOLO_BUS_R	SOLO_GATE	GVA	CHASSIS	MAS_BUS_GND	MAS_BUS_L	MAS_BUS_R	MAT_BUS_2	MAT_BUS_1	TALK_SELECT	MUTE_ALL	MIX_BUS_A	GVA	MIX_BUS_B	GVA	VCA_CV_B	MUTE_G1	MUTE_G2	MUTE_G3	MUTE_G4	MUTE_G5	MUTE_G6	MUTE_G7	MUTE_G8					

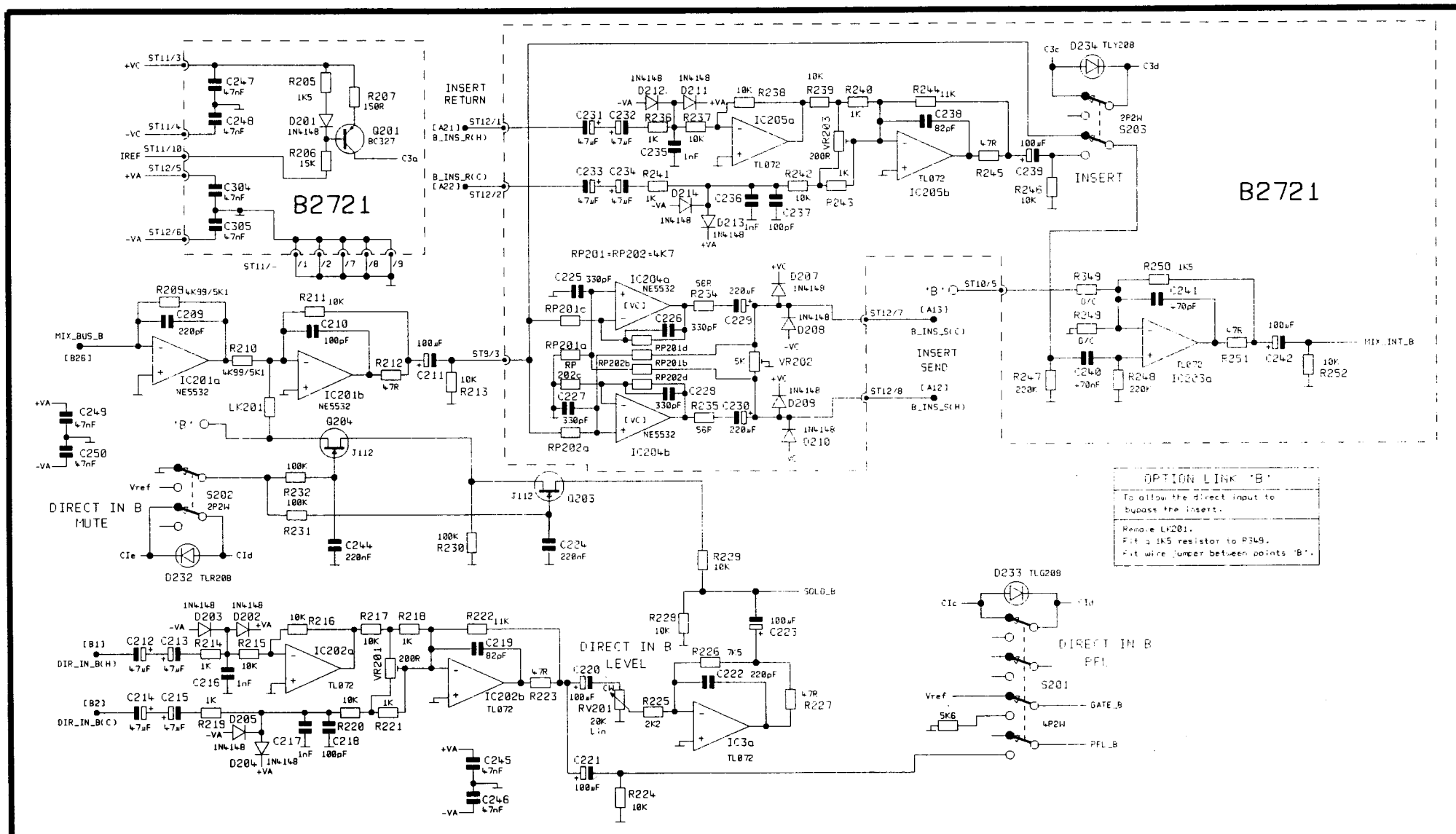
MIDAS AUDIO

Drawn: DGT	Checked:	XL310 GROUP MODULE	AUTO-MUTES & SOLO SELECT	3 OF 8
BOARD No. B2720 iss 3	DWG No. XL310_A3.DGM	ISSUE: 8	DATE: 4.Sept.91	



MIDAS AUDIO

Drawn: DGT	Checked:	XL310 GROUP MODULE	REMOTE VOLUME OPTION CH.A	4 OF 8
BOARD No. B2720	iss 3	DWG No. XL310_A4.DGM	ISSUE: 8	DATE: 4.Sept.91



OPTION LINK 'B'

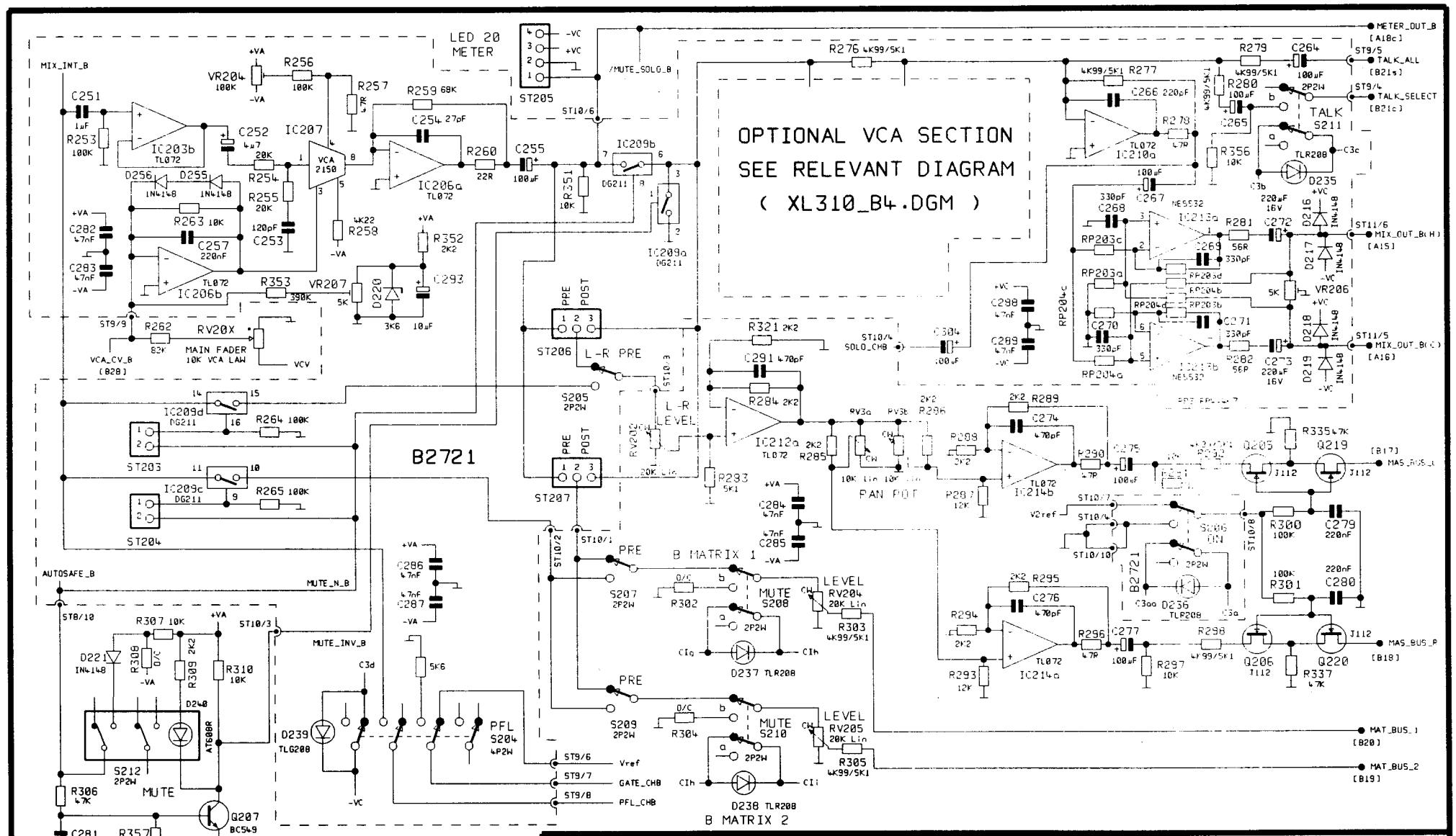
To allow the direct input to bypass the insert.

Remove LK201.
Fit a 1K5 resistor to R349.
Fit wire jumper between points 'B'.

All electrolytics 25V working.

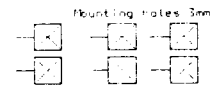
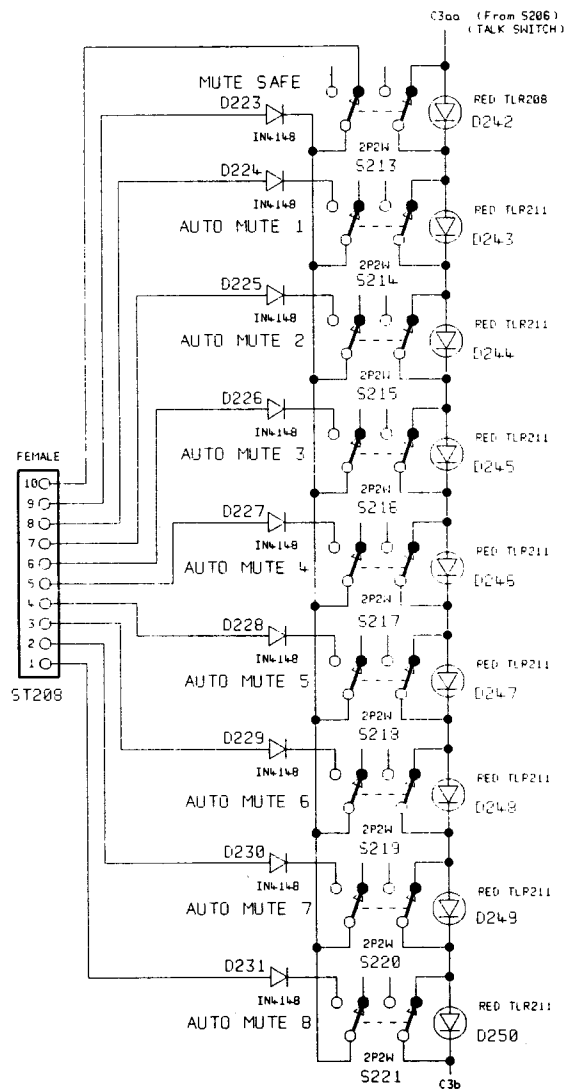
MIDAS AUDIO

Drawn: DGT	Checked:	XL310 GROUP MODULE	BUSS & DIRECT INPUTS 'B'	5 OF 8
BOARD No. B2720/3 + B2721/3		DWG No. XL310_B1.DGM		ISSUE:8 DATE: 4.Sept.91



MIDAS AUDIO

Drawn: DGT	Checked:	XL310 GROUP MODULE	VCA, ROUTING & OUTPUT 'B'	6 OF 8
BOARD No. B2720/3 + B2721/3		DWG No. XL310_B2.DGM		ISSUE:8 DATE: 4.Sept.91



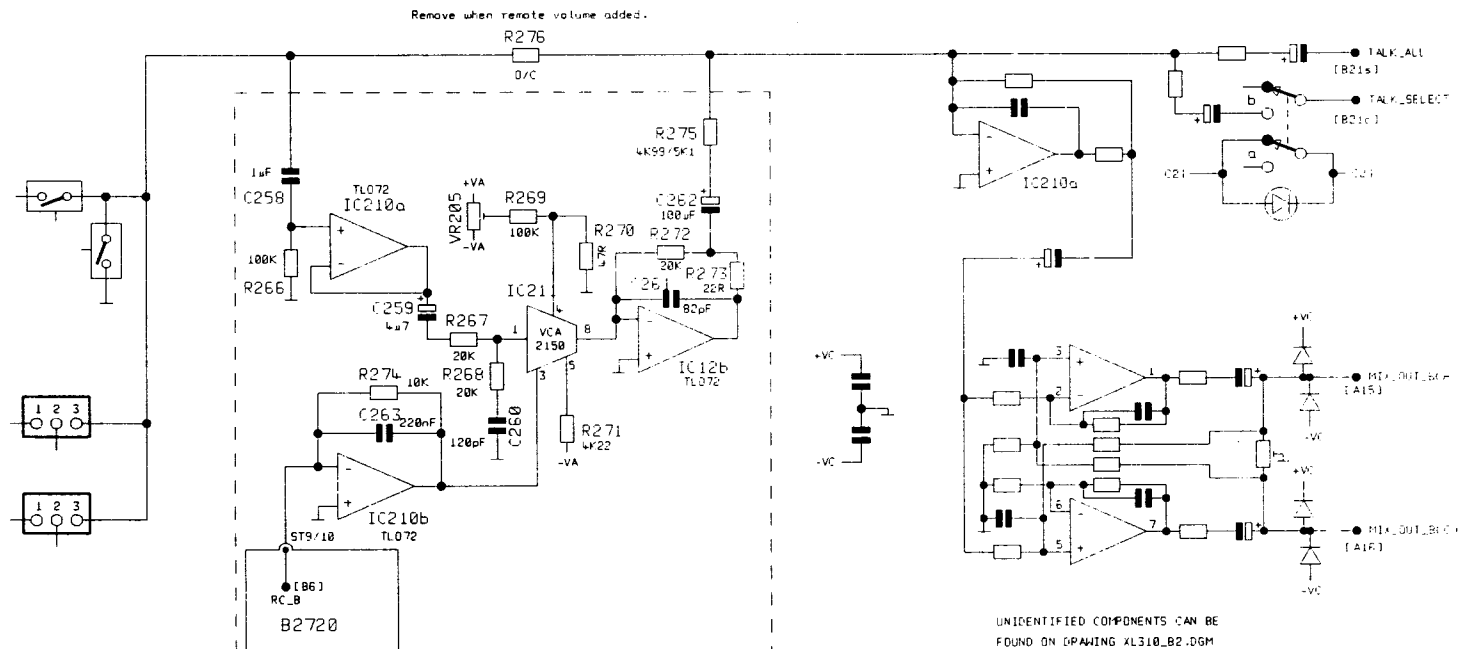
Mounting holes 4.2mm



CHASSIS

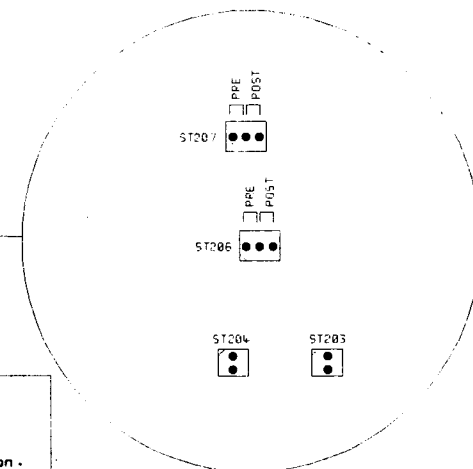
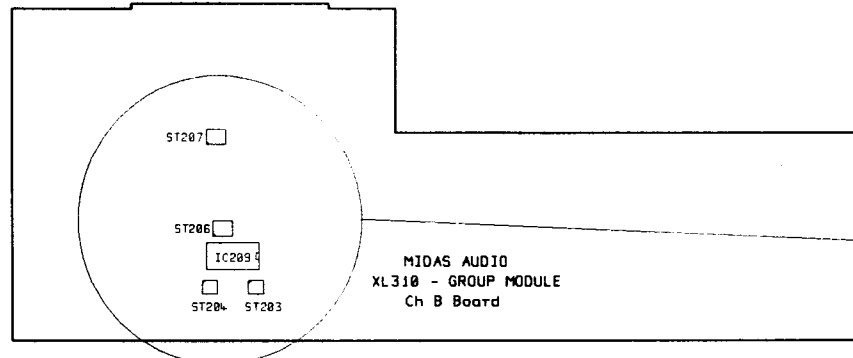
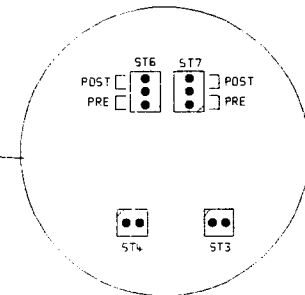
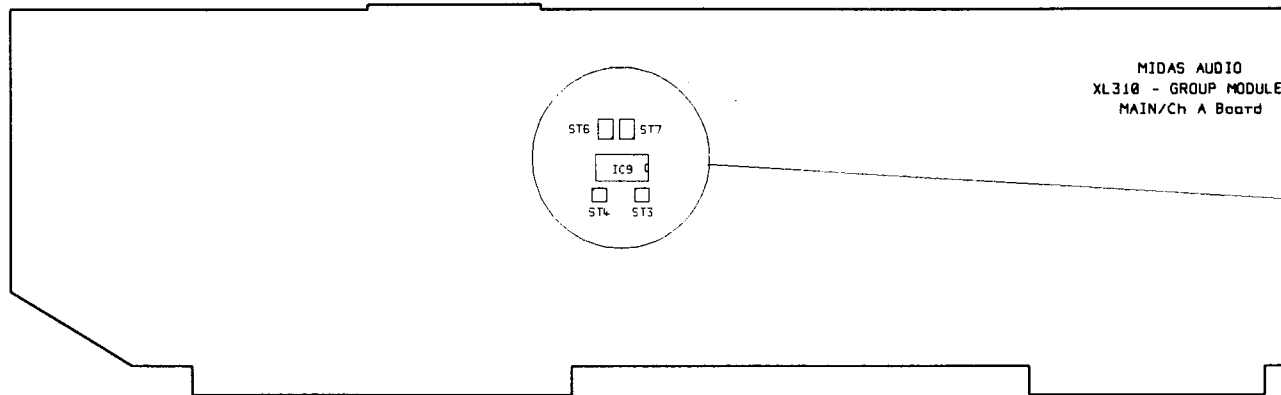
MIDAS AUDIO

Drawn: DGT	Checked:	XL310 GROUP MODULE	CH'B' AUTO-MUTES	7 OF 8
BOARD No. B2721 iss 2		DWG No. XL310_B3.DGM	ISSUE: 8	DATE: 4.Sept.91



MIDAS AUDIO

Drawn: DGT	Checked:	XL310 GROUP MODULE	REMOTE VOLUME OPTION CH.B	8 OF 8
BOARD No. B2721 iss 3		DWG No. XL310_B4.DGM	ISSUE: 8	DATE: 4.Sept.91

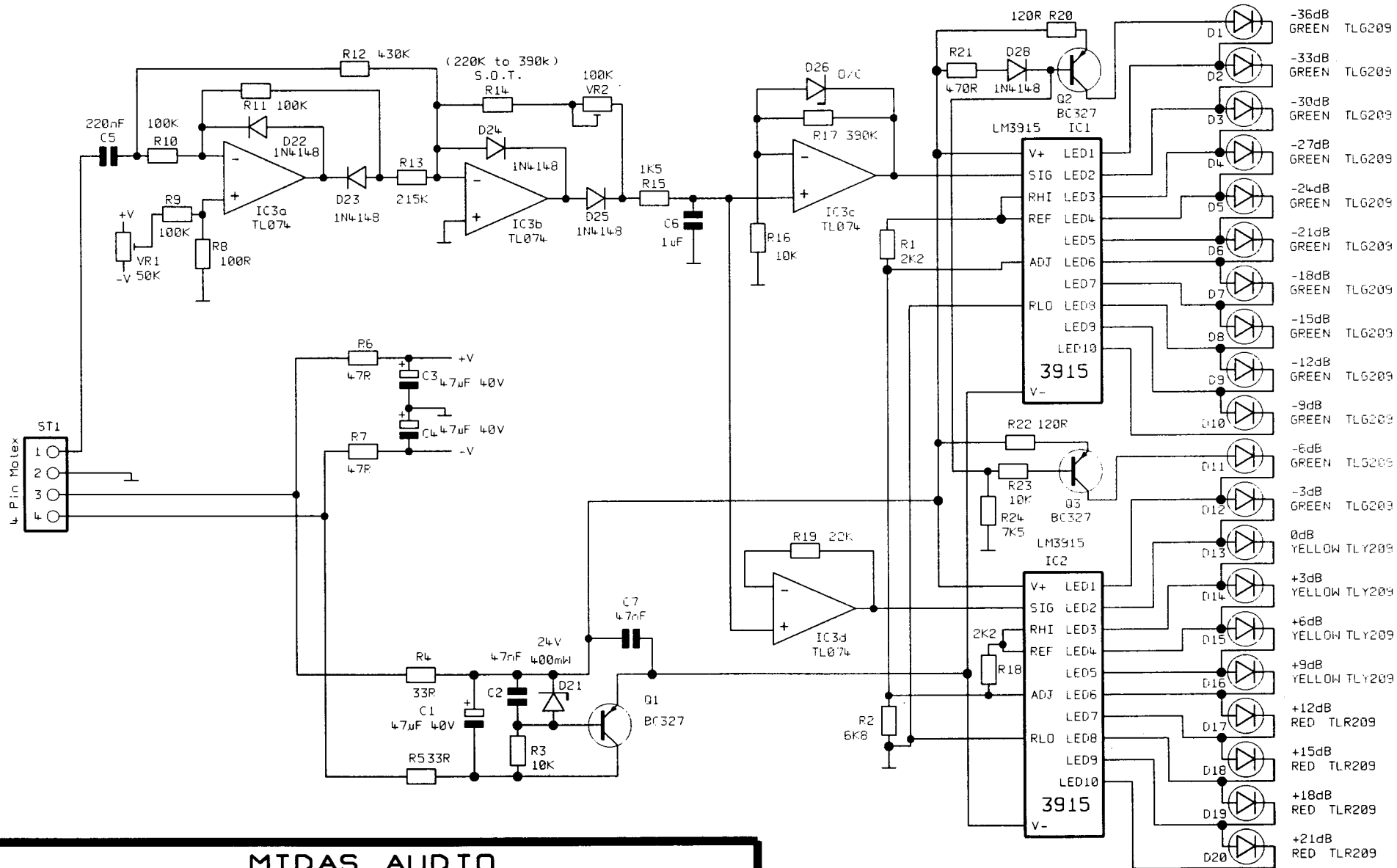


MASTER BUSS (L-R) FEED
SWITCH IN POST FADE POSITION
 Pre-mute. Insert link in ST6/ST206 'PRE' position.
 Post-mute. Insert link in ST6/ST206 'POST' position.
SWITCH IN PRE FADE POSITION
 Pre-mute. Insert link in ST3/ST203.
 Post-mute. No link inserted in ST3/ST203.

MATRIX BUSS (1&2) FEED
SWITCH IN POST FADE POSITION
 Pre-mute. Insert link in ST7/ST207 'PRE' position.
 Post-mute. Insert link in ST7/ST207 'POST' position.
SWITCH IN PRE FADE POSITION
 Pre-mute. Insert link in ST4/ST204.
 Post-mute. No link inserted in ST4/ST204.

MIDAS AUDIO

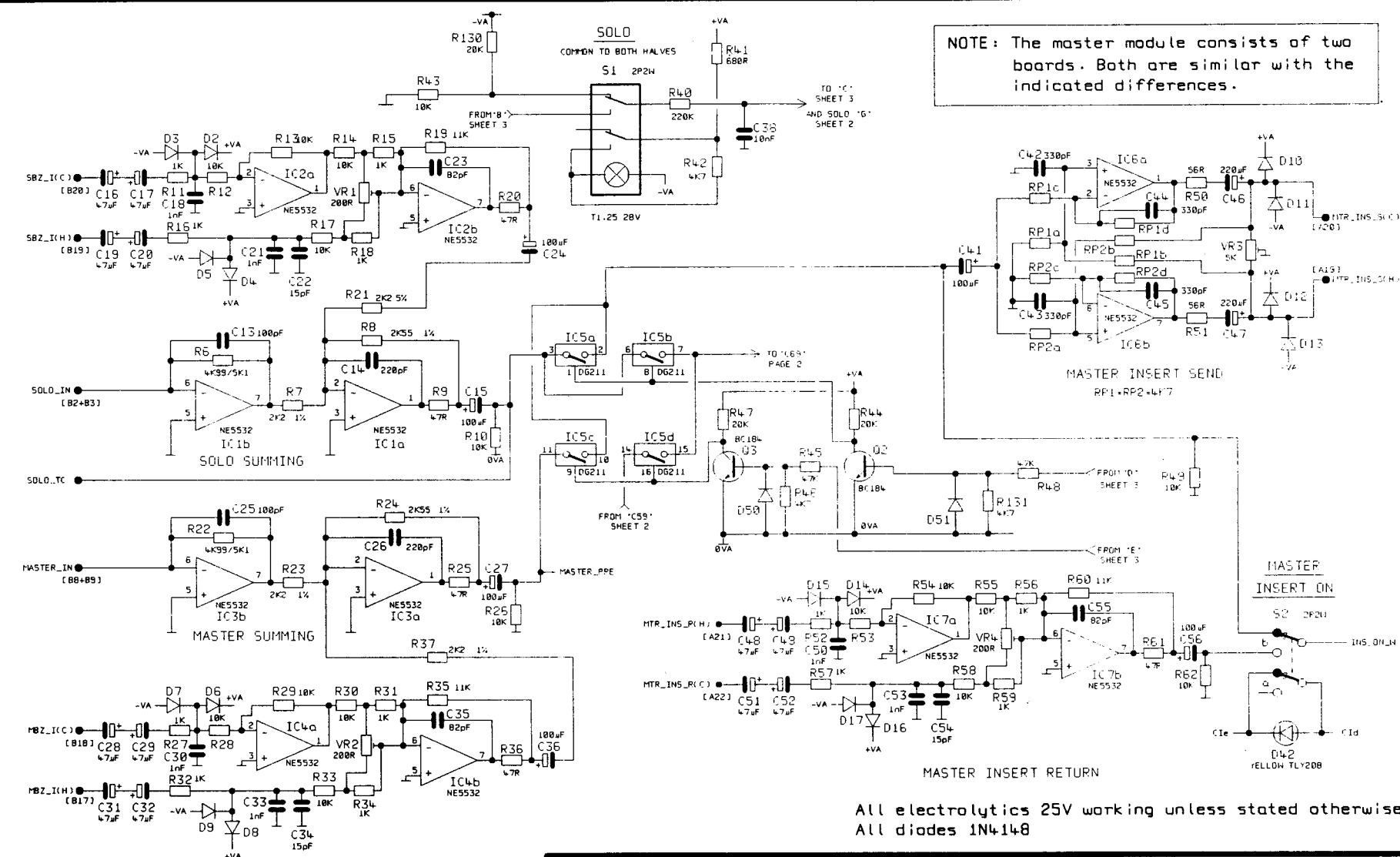
Drawn: DGT	Checked:	XL310 GROUP MODULE	MUTE LINK OPTIONS	1 OF 1
BOARD No. B2720 + B2721		DWG No. XL310_LK.DGM	ISSUE: 1	DATE: 29.OCT.90



MIDAS AUDIO

1 OF 1	XL2 & XL3 20 LED METER	Drawn: JDA	Checked: DGT
DATE: 25.Sept.91	ISSUE: 3	DWG No. XL20M.DGM	BOARD No. B2682 iss 3

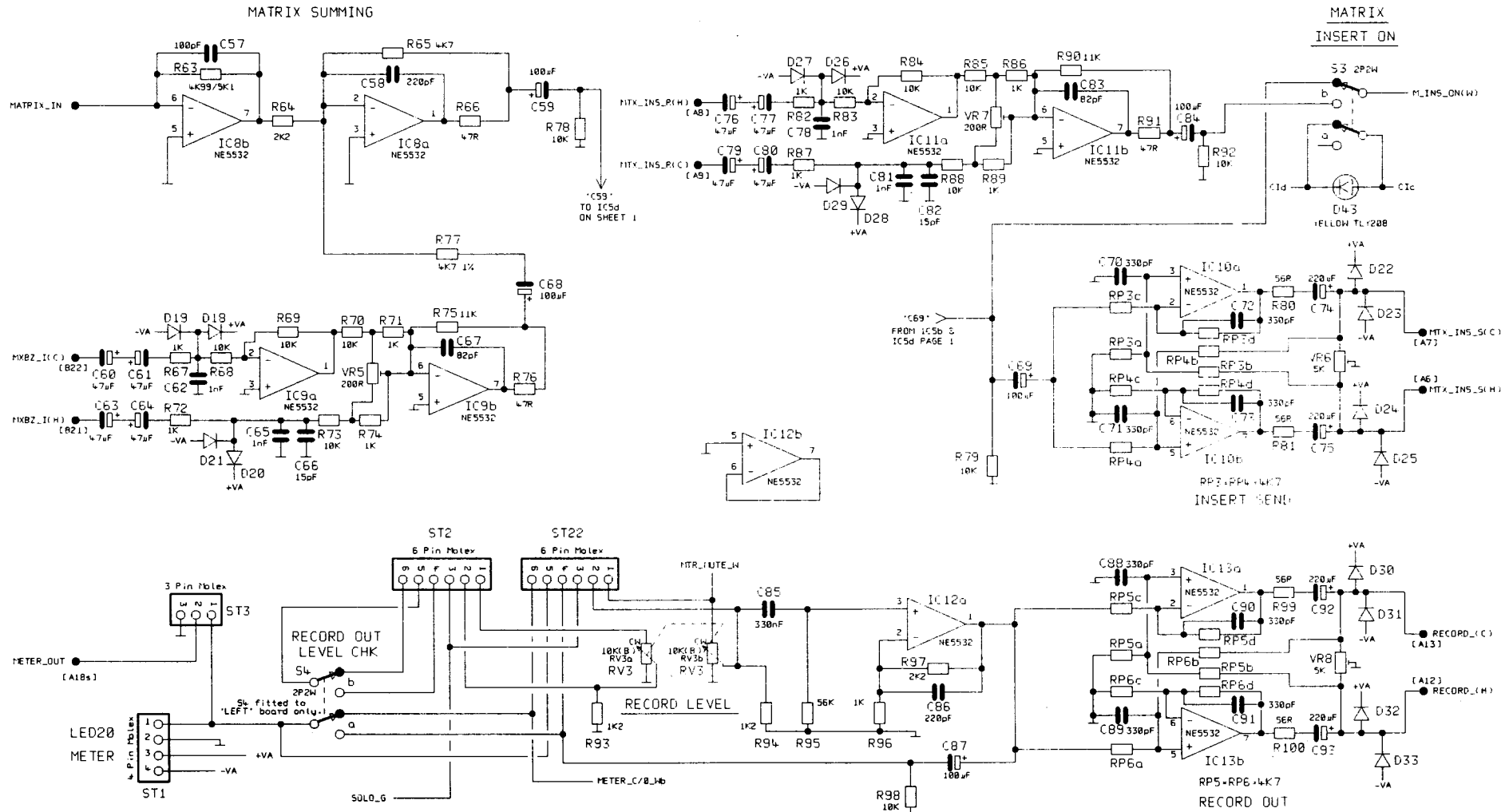
NOTE: The master module consists of two boards. Both are similar with the indicated differences.



All electrolytics 25V working unless stated otherwise.
All diodes 1N4148

MIDAS AUDIO

Drawn: JRC	Checked:	XL322A MASTER MODULE	SUMMING & MASTER INSERT	1 OF 4
BOARD No. B2735_3		DWG No. XL322_1A.DGM		ISSUE: 3
				DATE: 22 JUN 93



NOTE: ST2 on the 'LEFT' board links to ST22 on the 'RIGHT' board.

S1, S4 and RV3 are fitted to the 'LEFT' board only.

All electrolytics 25V working unless stated otherwise.

MIDAS AUDIO

Drawn: JRC

Checked:

XL322A MASTER MODULE

MATRIX & RECORD

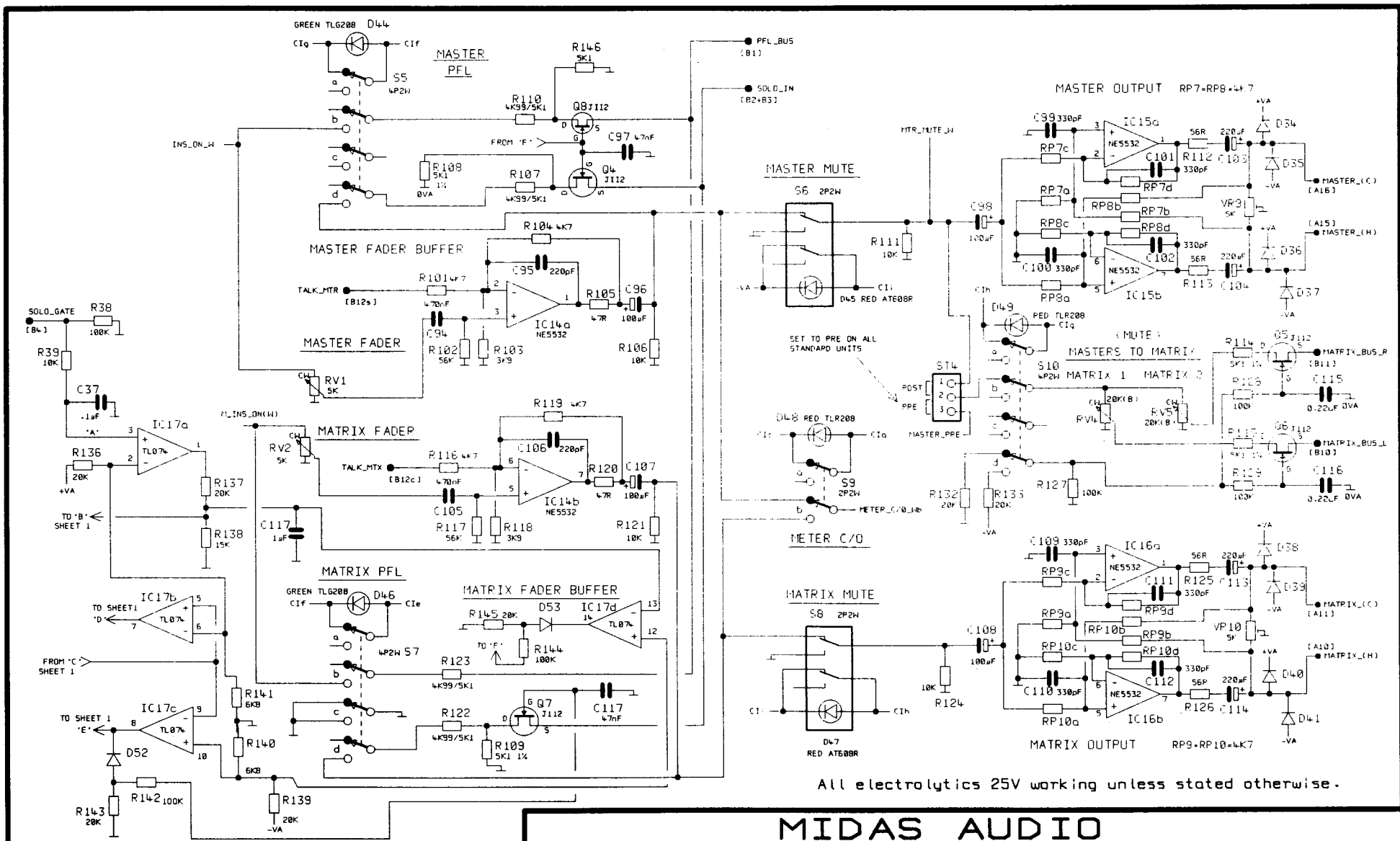
2 OF 4

BOARD No. B2735_3

DWG No. XL322_2A.DGM

ISSUE: 3

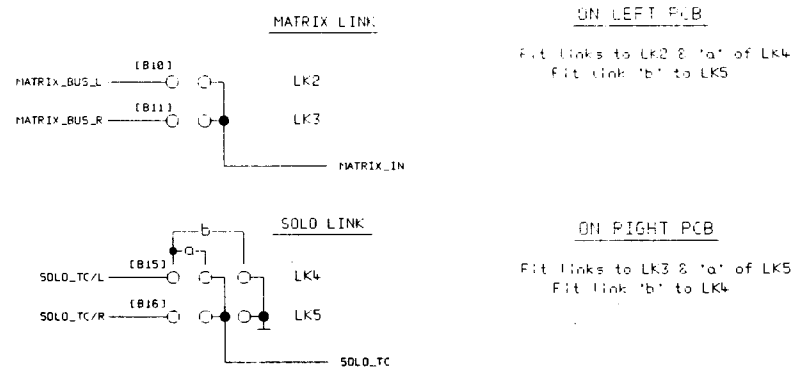
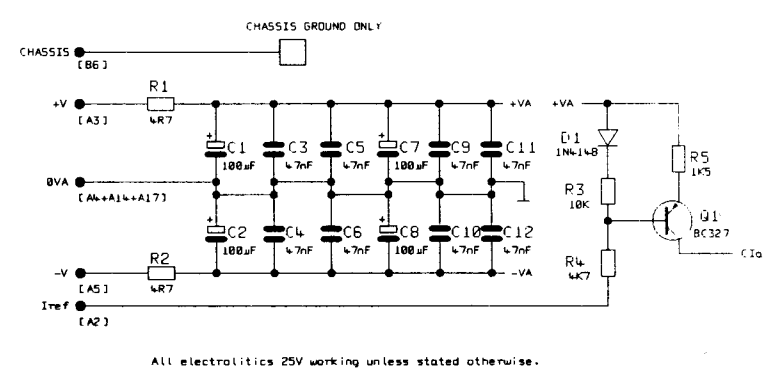
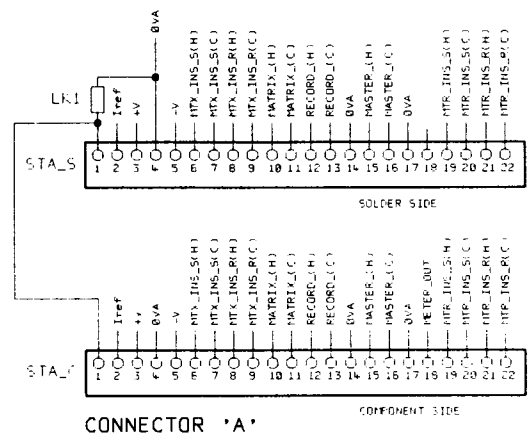
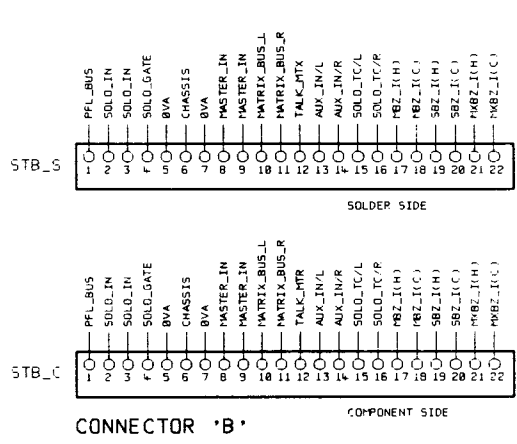
DATE: 22 JUN 93



All electrolytics 25V working unless stated otherwise.

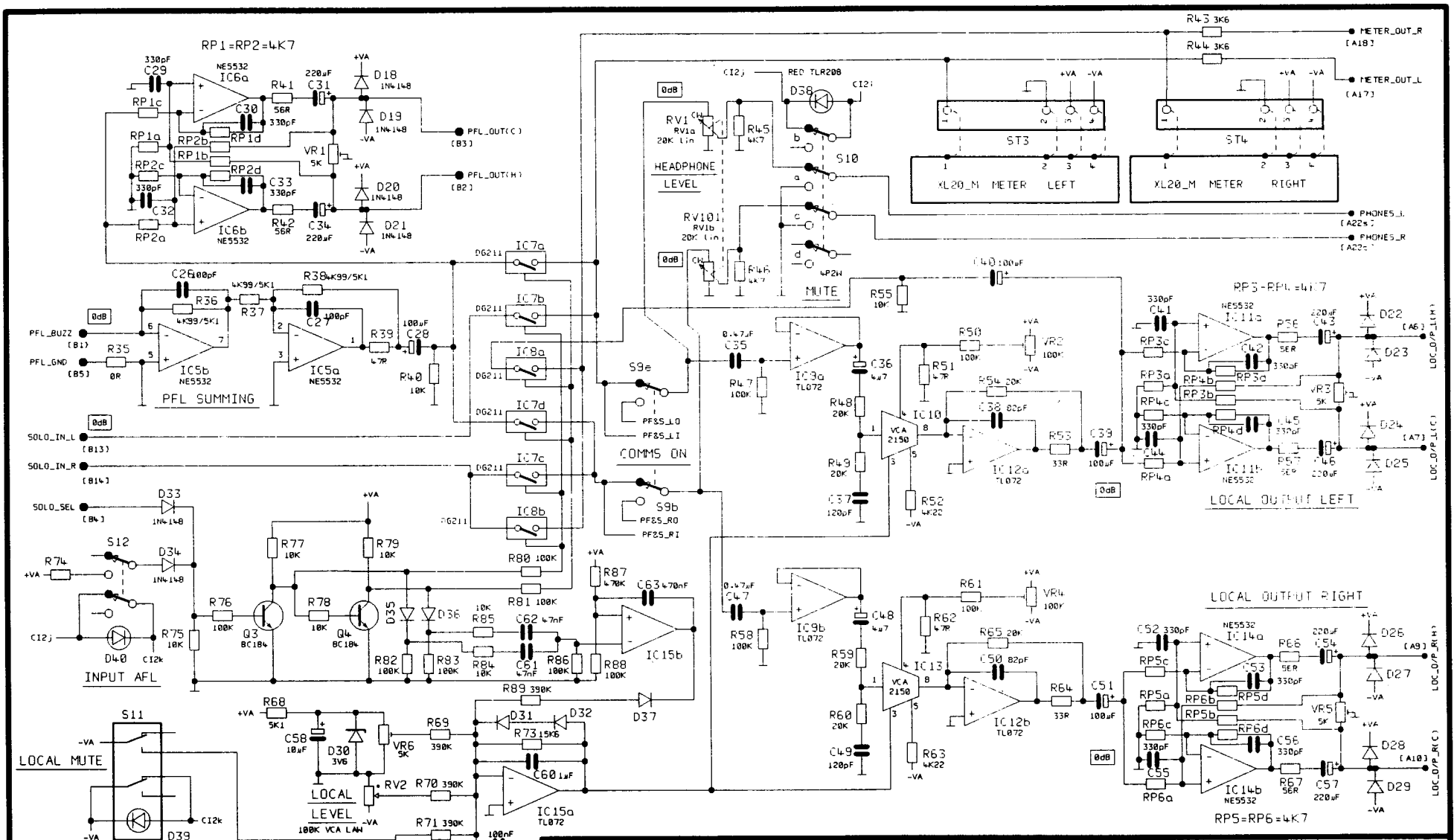
MIDAS AUDIO

Drawn: JRC	Checked:	XL322A MASTER MODULE	MASTER & MATRIX OUTPUTS	3 OF 4
BOARD No. B2735_3		DWG No. XL322_3A.DGM		ISSUE: 3
				DATE: 22 JUN 93



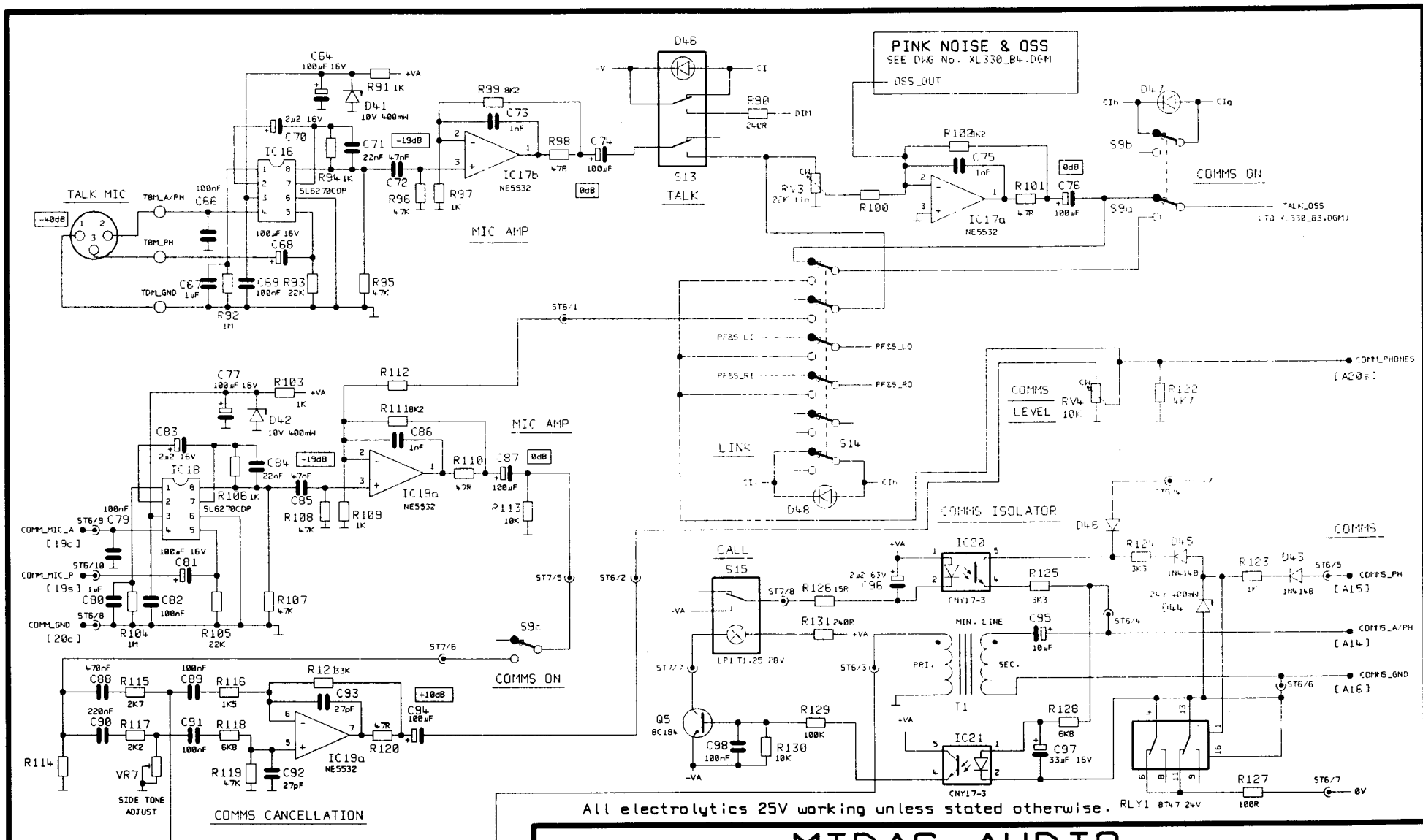
MIDAS AUDIO

Drawn: JRC	Checked:	XL322A MASTER MODULE	EDGE CONNECTORS	4 OF 4
BOARD No. B2735_3		DWG No. XL322_4A.DGM	ISSUE: 3	DATE: 23 JUN 93



MIDAS AUDIO

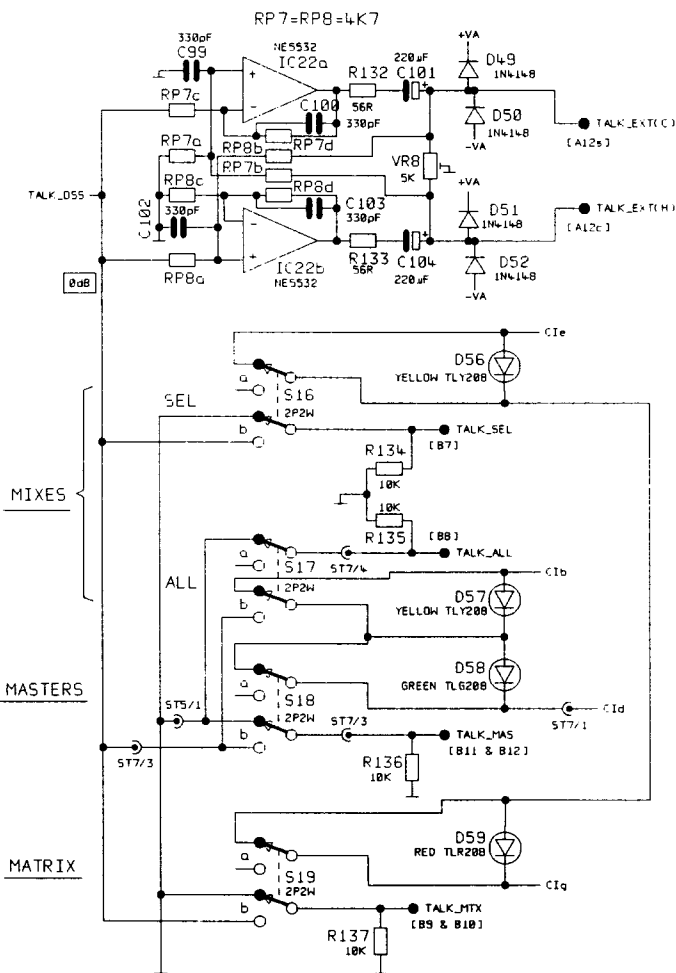
Drawn: DGT	Checked:	XL3 COMMS MODULE	PFL, PHONES & LOCAL OUTPUTS	1 OF 6
BOARD No. B2741 iss 2		DWG No. XL332_1.DGM		ISSUE: 3
				DATE: 16.Oct.92



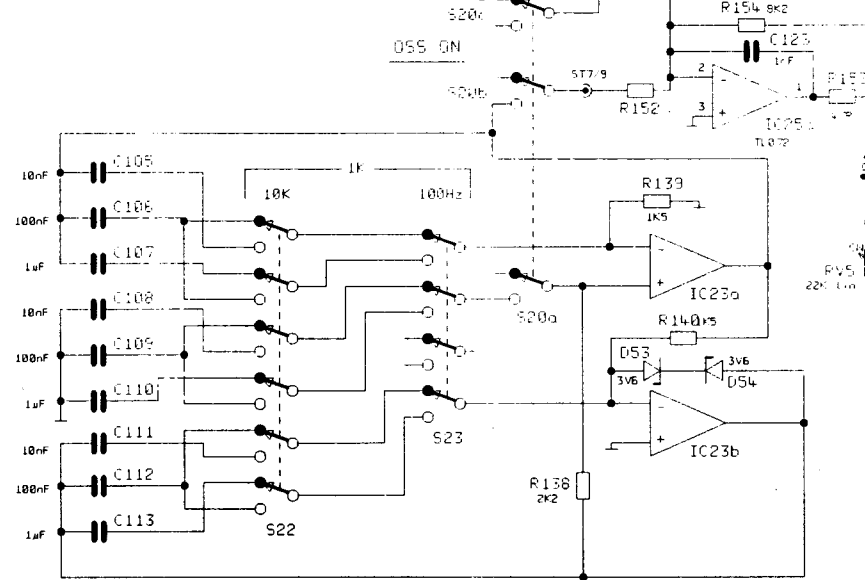
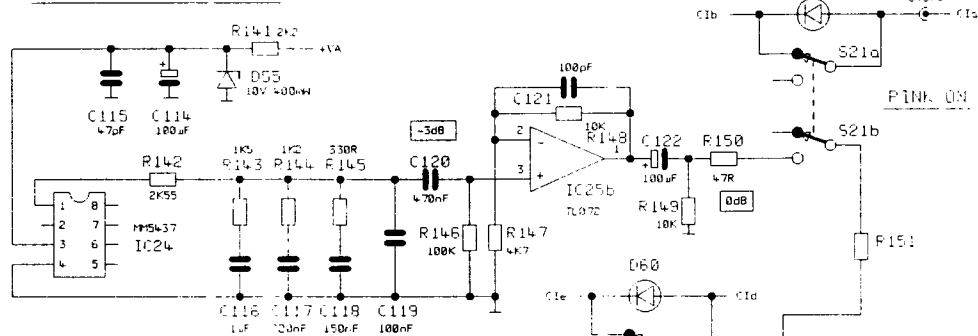
MIDAS AUDIO

Drawn: DGT	Checked:	XL3 COMMS MODULE	COMMS & TALKBACK	2 OF 6
BOARD No. B2741 & B2742		DWG No. XL332_2.DGM		ISSUE: 3
				DATE: 16.Oct.92

All electrolytics 25V working.

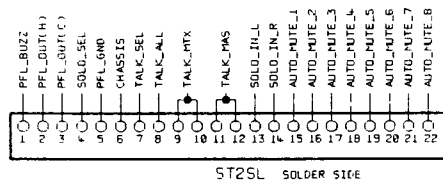


PINK NOISE GENERATOR

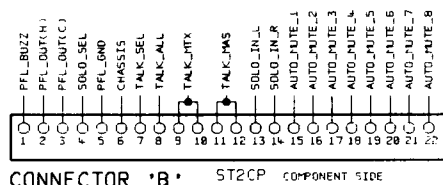


MIDAS AUDIO

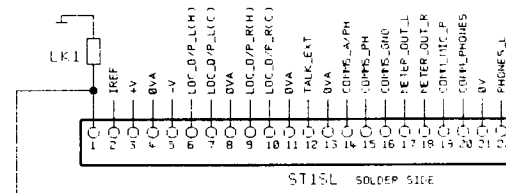
Drawn: DGT	Checked:	XL3 COMMS MODULE	TALK ROUTING, OSS & PINK	3 OF 6
BOARD No. B2741 & B2742		DWG No. XL332_3.DGM		ISSUE: 3
				DATE: 16.Oct.92



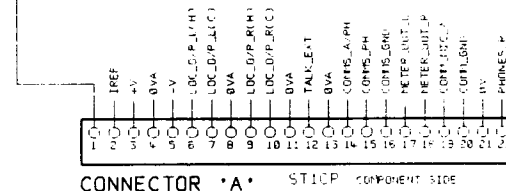
ST2SL SOLDER SIDE



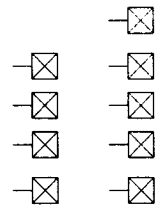
CONNECTOR *B* ST2CP COMPONENT SIDE



ST1SL SOLDER SIDE

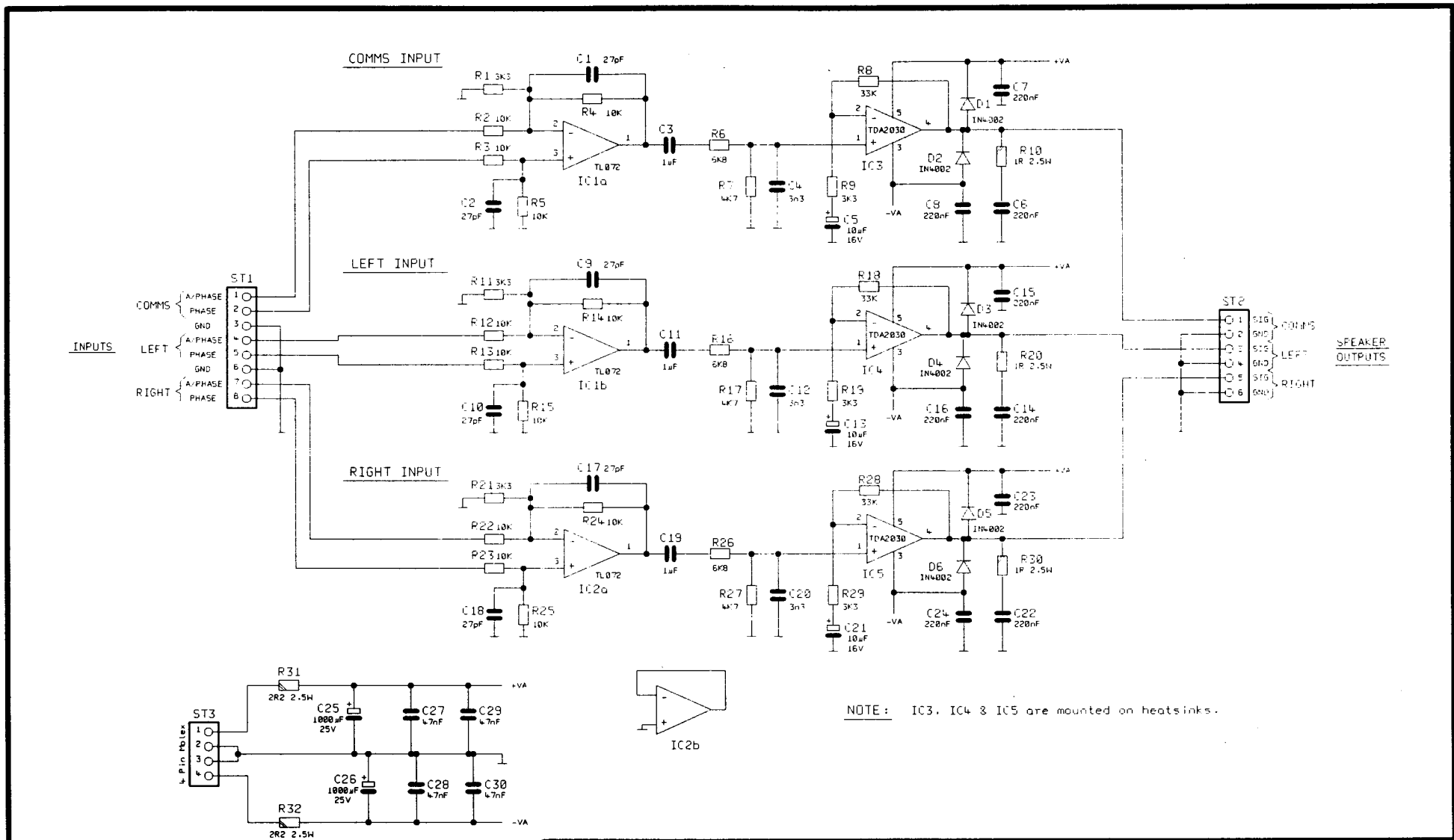


CONNECTOR *A* ST1CP COMPONENT SIDE



MIDAS AUDIO

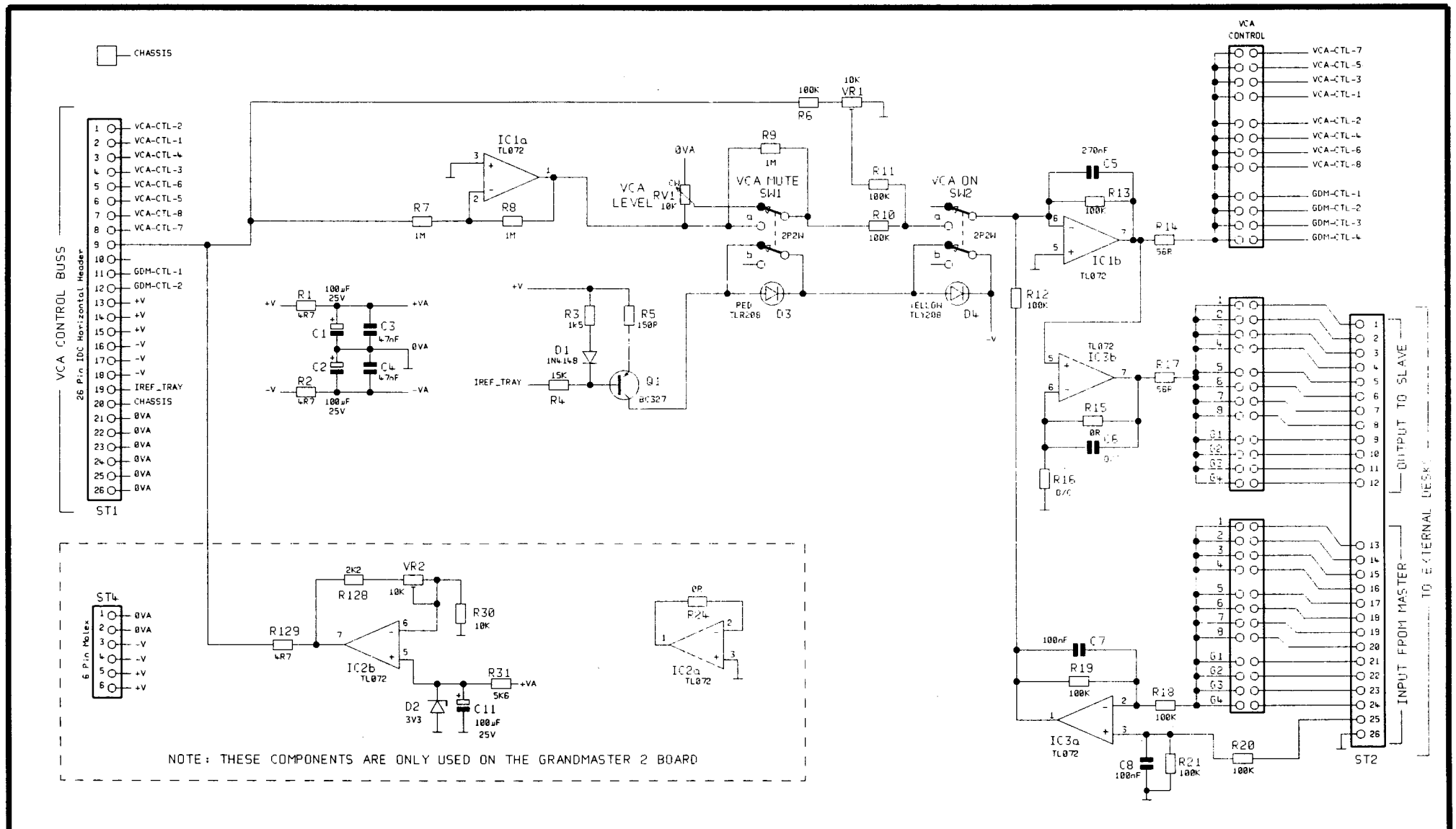
Drawn: DGT	Checked:	XL3 COMMS MODULE	EDGE CONNECTORS	5 OF 6
BOARD No. B2741 iss 2		DWG No. XL332_5.DGM	ISSUE: 3	DATE: 16.Oct.92



MIDAS AUDIO

XXX
 XXX
 XXX
 XXX

Drawn: DGT	Checked:	XL330 COMMS MODULE	HEADPHONE AMPLIFIER	6 OF 6
BOARD No. B2744 iss 1	DWG No. XL332_6.DGM	ISSUE: 3	DATE: 27.Oct.92	



MIDAS AUDIO

Drawn: DGT

Checked:

MIDAS XL3

XL321 GRAND MASTER VCA CONTROL

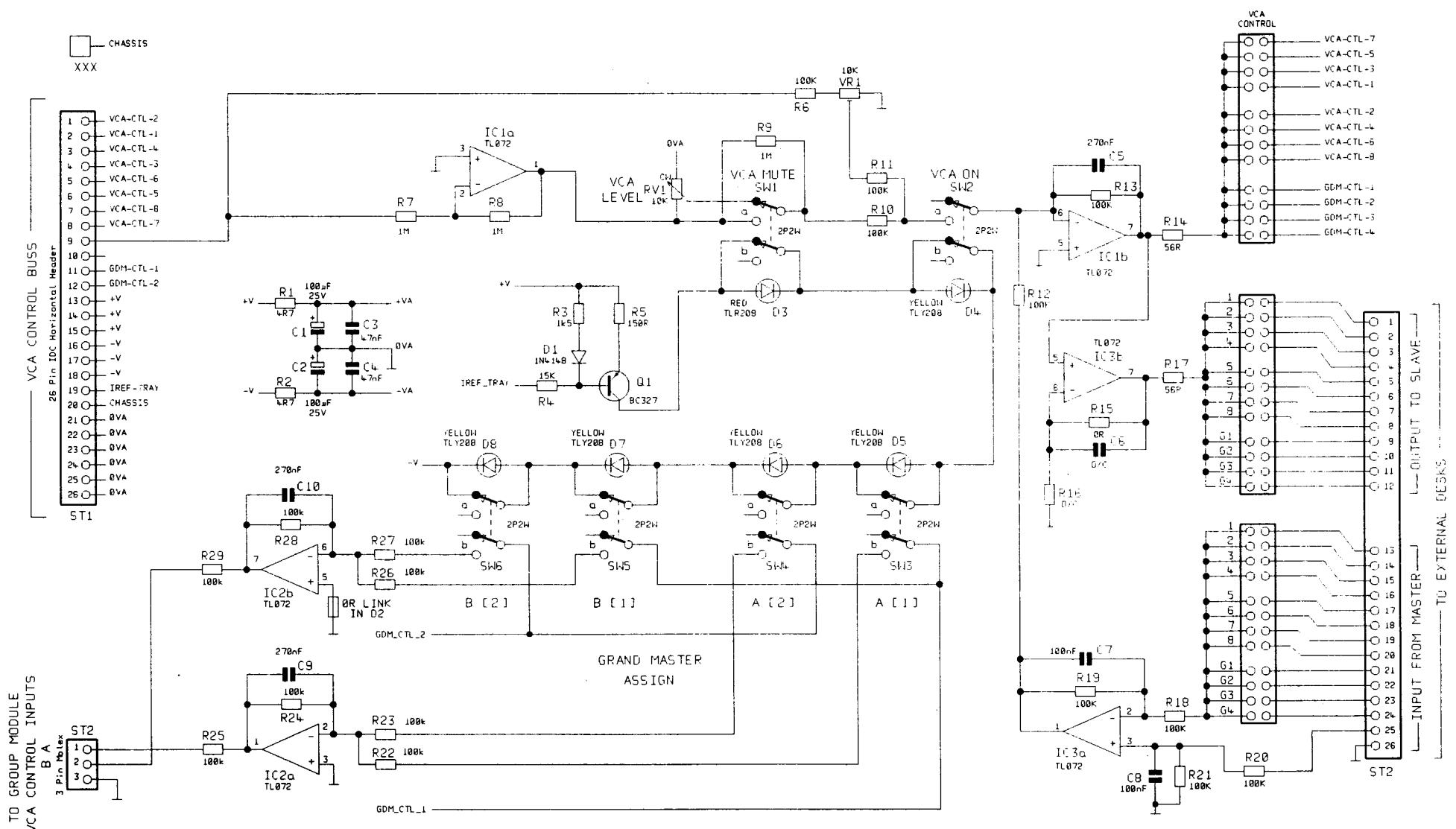
1 OF 1

BOARD No. B2712 iss 5

DWG No. XL321.DGM

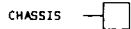
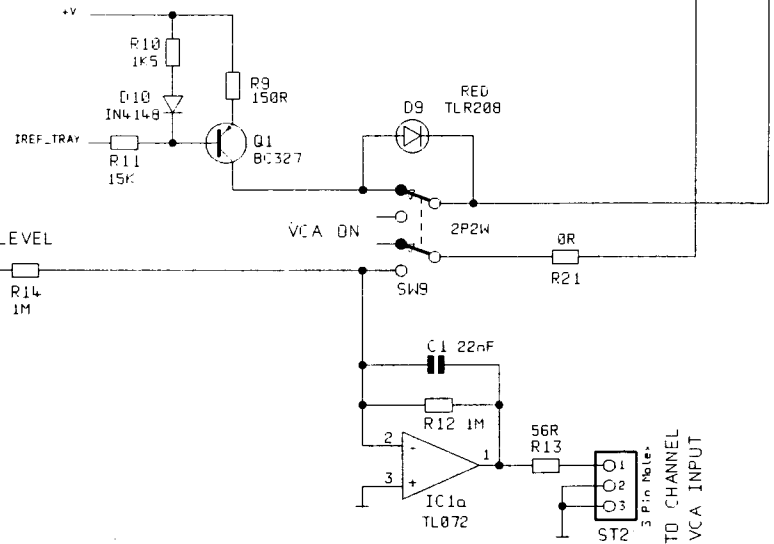
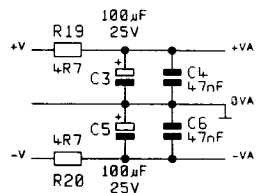
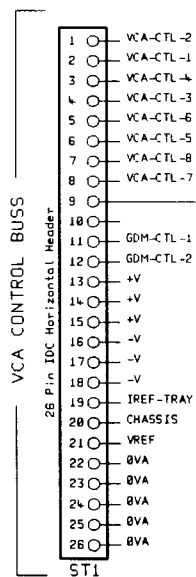
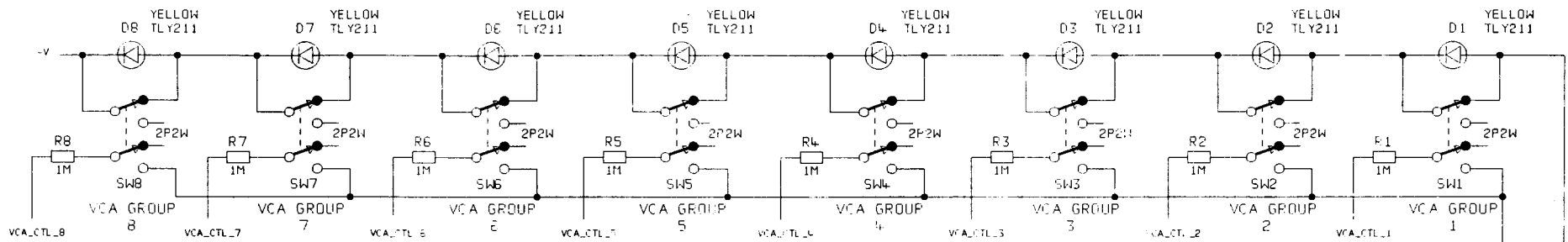
ISSUE:6

DATE: 6.Sept.91



MIDAS AUDIO

Drawn: DGT	Checked:	MIDAS XL3	XL311 MASTER VCA CONTROL	1 OF 1
BOARD No. B2712 iss 5		DWG No. XL311.DGM		ISSUE: 6
DATE: 6.Sept.91				



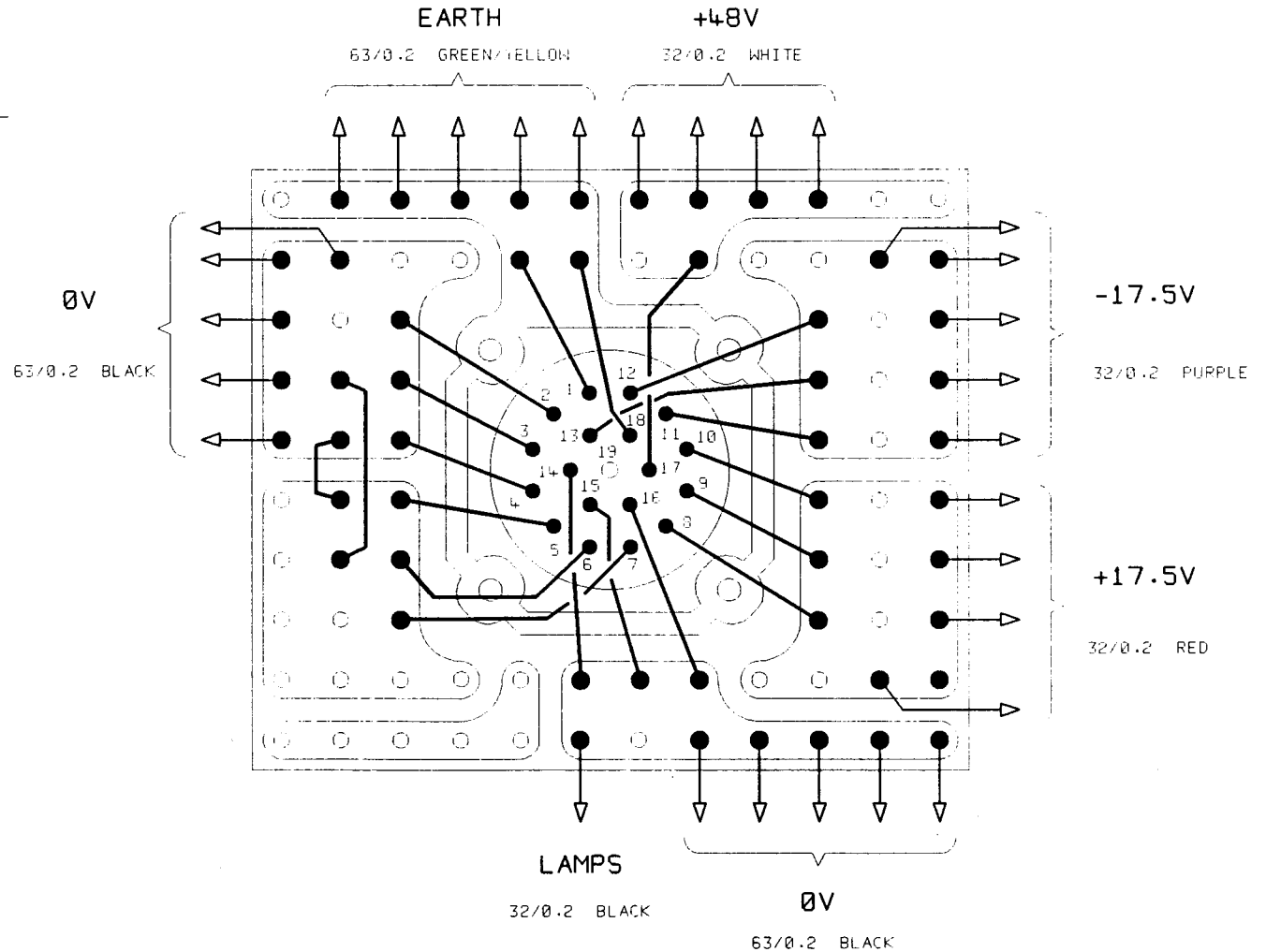
MIDAS AUDIO

Drawn: SAC	Checked: DGT	MIDAS XL3	XL302 INPUT VCA CONTROL	1 OF 1
BOARD No. 2710 iss 3	DWG No. XL302_VC.DGM	ISSUE: 3	DATE: 29.Oct.90	

REAR VIEW OF CONNECTOR

CONNECTOR PIN ASSIGNMENT

PIN 1:	EARTH
PIN 2:	0V
PIN 3:	0V
PIN 4:	0V
PIN 5:	0V
PIN 6:	0V
PIN 7:	0V
PIN 8:	+17.5V
PIN 9:	+17.5V
PIN 10:	+17.5V
PIN 11:	-17.5V
PIN 12:	-17.5V
PIN 13:	-17.5V
PIN 14:	0V
PIN 15:	0V
PIN 16:	0V
PIN 17:	+48V
PIN 18:	EARTH
PIN 19:	Not used



MIDAS AUDIO

Drawn: DGT

Checked:

XL2 & XL3 MAINFRAME

POWER INPUT PCB CONNECTIONS

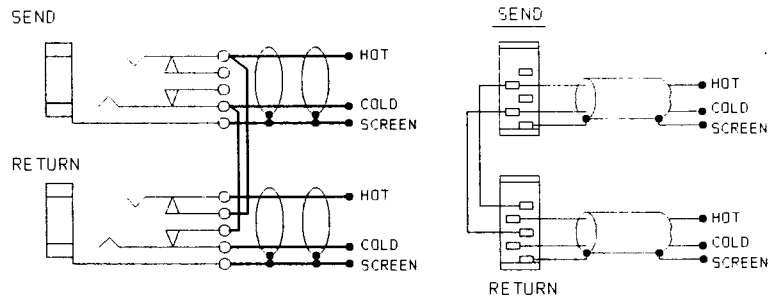
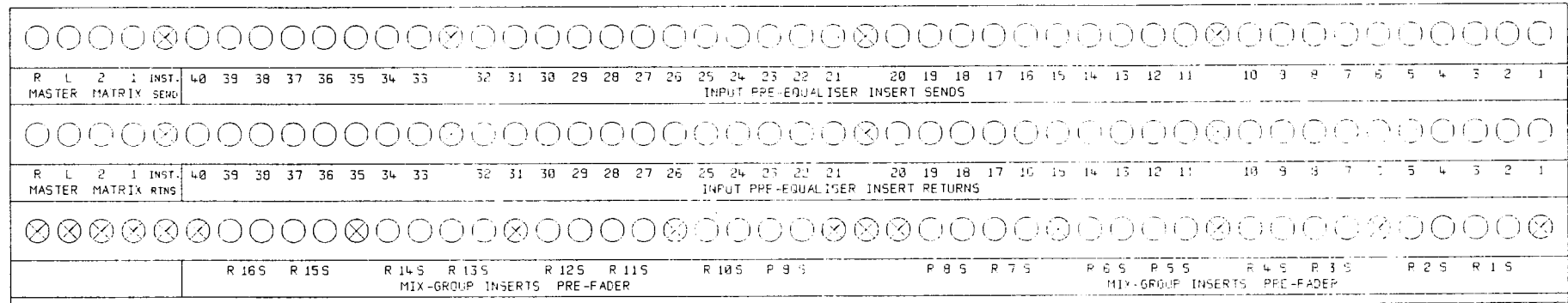
DATE: 30.OCT.90

ISSUE: 1

DWG No. XL3FR_1.DGM

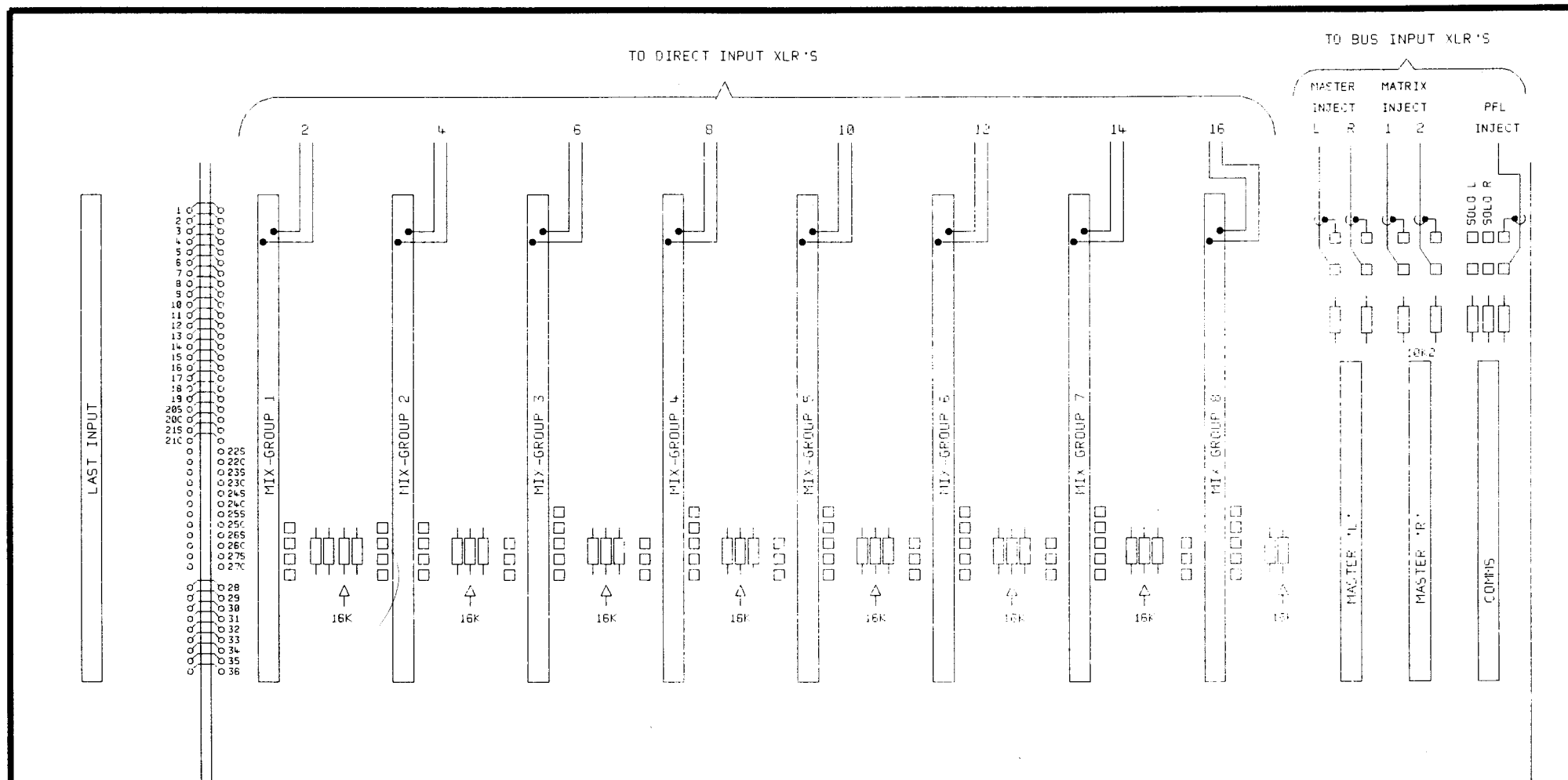
BOARD No. 4013 iss 1

1 OF 1



MIDAS AUDIO

Drawn: DGT	Checked:	XL3 MAINFRAME	JACKFIELD LAYOUT	1 OF 1
BOARD No.		DWG No. XL3FR_2.DGM	ISSUE: 1	DATE: 30.OCT.90



ALL RESISTORS ARE 5K1
UNLESS OTHERWISE STATED

MIDAS AUDIO

Drawn: DGT

Checked:

XL3 MOTHERBOARD CONNECTOR 'B' WIRING

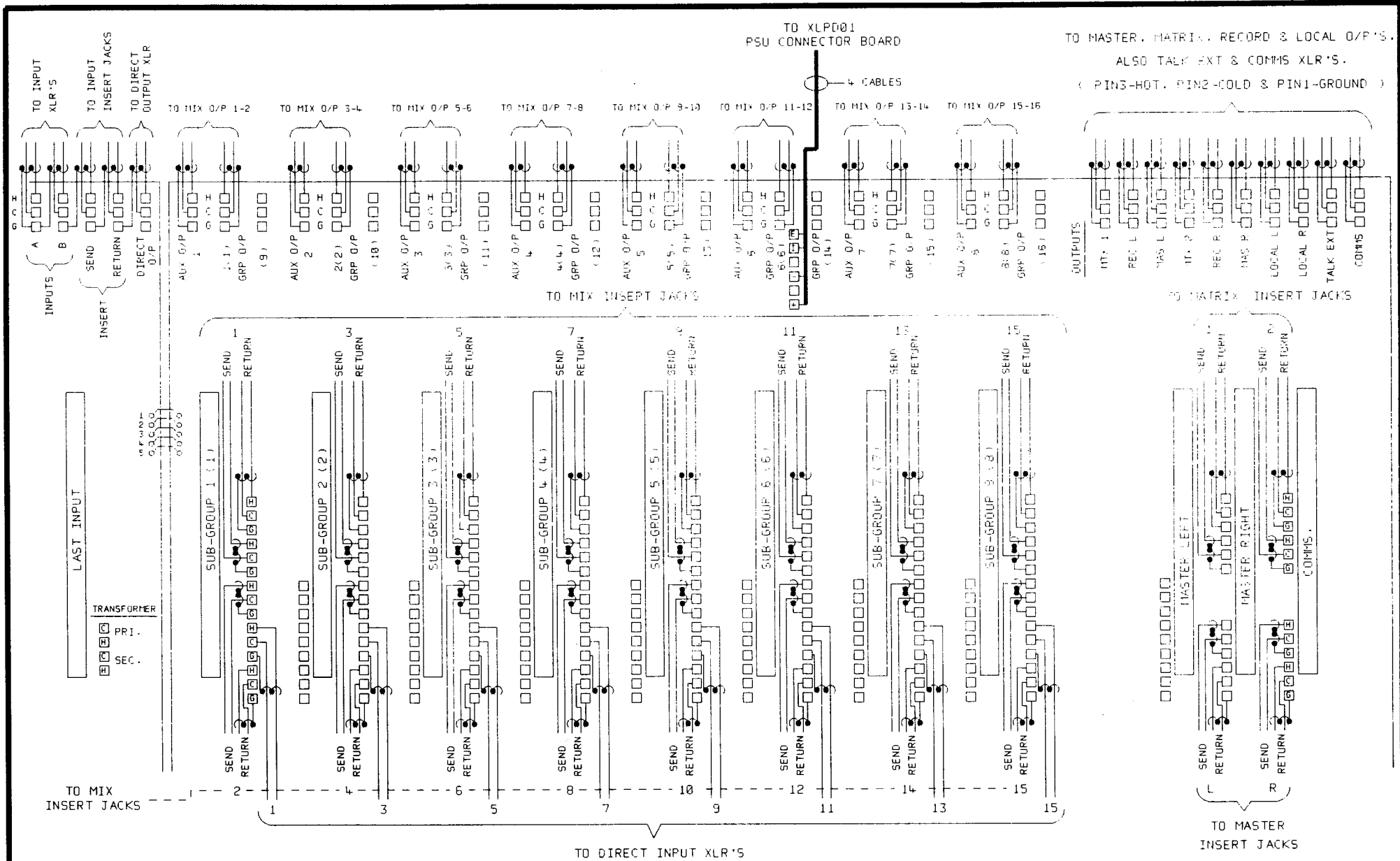
1 OF 1

BOARD No.

DWG No. XL3FR_3.DGM

ISSUE: 2

DATE: 9.Sept.91



XL3 INPUT/OUTPUT CONNECTORS 'A'

7.Sept.91

	XL301 'INPUT'	XL310 'SUB-GROUP'	XL320 'MASTER'	XL330 'COMMS'
1	0VA	0VA	0VA	0VA
2	Iref	Iref	Iref	Iref
3	+V	+V	+V	+V
4	0VA	0VA	0VA	0VA
5	-V	-V	-V	-V
6	+48V	MIX 'A' INSERT RET. HOT	MATRIX INSERT SEND HOT	LOCAL OUTPUT LEFT HOT
7	INPUT 'A' HOT	MIX 'A' INSERT RET. COLD	MATRIX INSERT SEND COLD	LOCAL OUTPUT LEFT COLD
8	INPUT 'A' COLD	MIX 'A' INSERT SEND HOT	MATRIX INSERT RET. HOT	0VA
9	INPUT 'A' SCREEN	MIX 'A' INSERT SEND COLD	MATRIX INSERT RET. COLD	LOCAL OUTPUT RIGHT HOT
10	INPUT 'B' HOT	MIX 'A' OUTPUT HOT	MATRIX OUTPUT HOT	LOCAL OUTPUT RIGHT COLD
11	INPUT 'B' COLD	MIX 'A' OUTPUT COLD	MATRIX OUTPUT COLD	0VA
12	INPUT 'B' SCREEN	MIX 'B' INSERT SEND HOT	RECORD OUTPUT HOT	TALK EXTERNAL
13	INSERT SEND HOT	MIX 'B' INSERT SEND COLD	RECORD OUTPUT COLD	0VA
14	INSERT SEND COLD	0VA	0VA	COMMS PIN 3 (SIG)
15	INSERT RETURN HOT	MIX 'B' OUTPUT HOT	MASTER OUTPUT HOT	COMMS PIN 2 (+24V)
16	INSERT RETURN COLD	MIX 'B' OUTPUT COLD	MASTER OUTPUT COLD	COMMS PIN 1 (GND)
17	DIRECT OUT: COLD / HOT	0VA	0VA	METER OUT LEFT
18	-	METER OUT 'A' / 'B'	- / METER OUT	METER OUT RIGHT
19	TX PRIMARY COLD	DIRECT INPUT 'A' HOT	MASTER INSERT SEND HOT	-
20	TX PRIMARY HOT	DIRECT INPUT 'A' COLD	MASTER INSERT SEND COLD	HEADPHONE LEFT (OPTION)
21	TX SECONDARY COLD	MIX 'B' INSERT RETURN HOT	MASTER INSERT RET. HOT	0V HEADPHONES
22	TX SECONDARY HOT	MIX 'B' INSERT RETURN COLD	MASTER INSERT RET. COLD	HEADPHONE RIGHT (OPTION)

XL3 CONNECTORS 'B'

7.Sept.91

XL301 'INPUT'			XL310 'SUB-GROUP'			XL320 'MASTER'			XL330 'COMMS'				
1	MIX BUS 1	DIRECT INPUT 'B' HOT	NOTE: Unless shown otherwise, both component and solder side of connectors are common. When not common, the convention is:- SOLDER SIDE / COMPONENT SIDE										
2	MIX BUS 2	DIRECT INPUT 'B' COLD											
3	MIX BUS 3	-											
4	MIX BUS 4	-											
5	MIX BUS 5	RC OPTION 'A'											
6	MIX BUS 6	RC OPTION 'B'											
7	MIX BUS 7	-											
8	MIX BUS 8	-											
9	ØVA	VCA CONTROL 'A'											
10	PFL BUS	PFL BUS	1	PFL BUS	PFL BUS								
11	SOLO BUS LEFT	SOLO BUS LEFT	2(1)	SOLO BUS LEFT IN	PFL OUT HOT								
12	SOLO BUS RIGHT	SOLO BUS RIGHT	3(2)	SOLO BUS RIGHT IN	PFL OUT COLD								
13	SOLO GATE	SOLO GATE	4	SOLO GATE	-								
14	-	-	5	SOLO BUS GND	-								
15	CHASSIS	CHASSIS	6	CHASSIS	CHASSIS								
16	MASTER BUS GND	MASTER BUS GND	7	MASTER BUS GND	TALK TO ALL								
17	MASTER BUS LEFT	MASTER BUS LEFT	8(1)	MASTER BUS LEFT IN	TALK TO SELECT								
18	MASTER BUS RIGHT	MASTER BUS RIGHT	9(2)	MASTER BUS RIGHT IN	TALK TO MATRIX 1								
19	-	MATRIX BUS 2	10	MATRIX BUS 2	TALK TO MATRIX 2								
20	MIX BUS 9 / GND	MATRIX BUS 1	11	MATRIX BUS 1	TALK TO MASTER LEFT								
21	MIX BUS 10 / GND	TALK TO ALL / TALK TO SELECT	12	TALK TO: MATRIX / MASTER	TALK TO MASTER RIGHT								
22	MIX BUS 11 / GND	-	13(1)	-	SOLO IN FROM MASTERS (L)								
23	MIX BUS 12 / GND	-	14(2)	-	SOLO IN FROM MASTERS (R)								
24	MIX BUS 13 / GND	MIX BUSS 'A'	15(1)	SOLO LEFT TO COMMS	MUTE GROUP 1								
25	MIX BUS 14 / GND	ØVA	16(2)	SOLO RIGHT TO COMMS	MUTE GROUP 2								
26	MIX BUS 15 / GND	MIX BUSS 'B'	17	-	MUTE GROUP 3								
27	MIX BUS 16 / GND	ØVA	18	-	MUTE GROUP 4								
28	VCA CONTROL	VCA CONTROL 'B'	19	-	MUTE GROUP 5								
29	MUTE GROUP 1	MUTE GROUP 1	20	-	MUTE GROUP 6								
30	MUTE GROUP 2	MUTE GROUP 2	21	-	MUTE GROUP 7								
31	MUTE GROUP 3	MUTE GROUP 3	22	-	MUTE GROUP 8								
32	MUTE GROUP 4	MUTE GROUP 4											
33	MUTE GROUP 5	MUTE GROUP 5											
34	MUTE GROUP 6	MUTE GROUP 6											
35	MUTE GROUP 7	MUTE GROUP 7											
36	MUTE GROUP 8	MUTE GROUP 8											

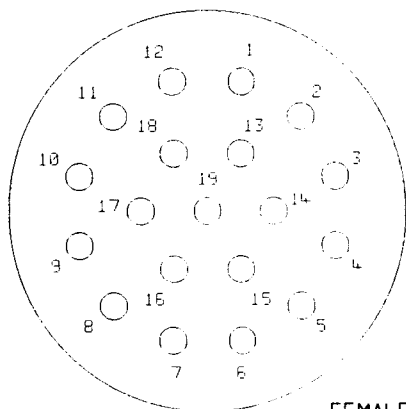
(1) TO LEFT CONNECTOR OF MODULE ONLY
 (2) TO RIGHT CONNECTOR OF MODULE ONLY

LEFT HAND CONNECTOR

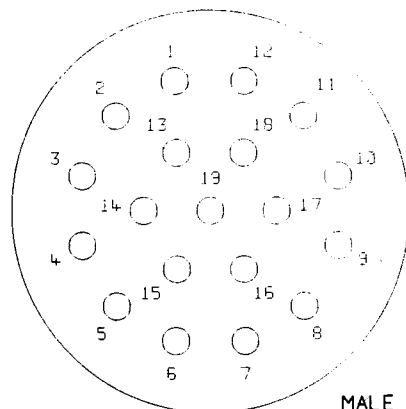
REAR VIEW OF CONNECTORS

PIN ASSIGNMENT

PIN 1: MAS. L
 PIN 2: MAS. R
 PIN 3: PFL
 PIN 4: LOCAL
 PIN 5:
 PIN 6: +V
 PIN 7: +V
 PIN 8:
 PIN 9: -V
 PIN 10: -V
 PIN 11:
 PIN 12:
 PIN 13: 0V
 PIN 14: 0V
 PIN 15: 0V
 PIN 16:
 PIN 17:
 PIN 18:
 PIN 19:



FEMALE
[MIXER]



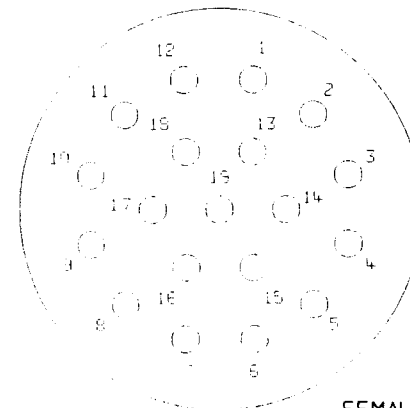
MALE
[METER BRIDGE]

RIGHT HAND CONNECTOR

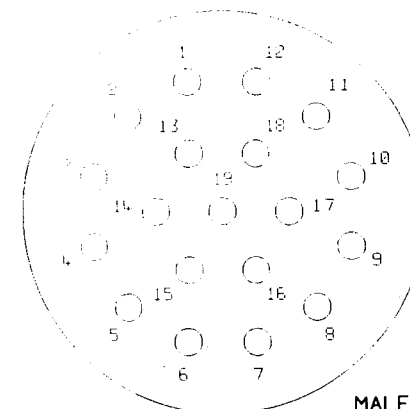
REAR VIEW OF CONNECTORS

PIN ASSIGNMENT

PIN 1: 1
 PIN 2: 2
 PIN 3: 3
 PIN 4: 4
 PIN 5: 5
 PIN 6: 6
 PIN 7: 7
 PIN 8: 8
 PIN 9: 9
 PIN 10: 10
 PIN 11: 11
 PIN 12: 12
 PIN 13: 13
 PIN 14: 14
 PIN 15: 15
 PIN 16: 16
 PIN 17:
 PIN 18:
 PIN 19:



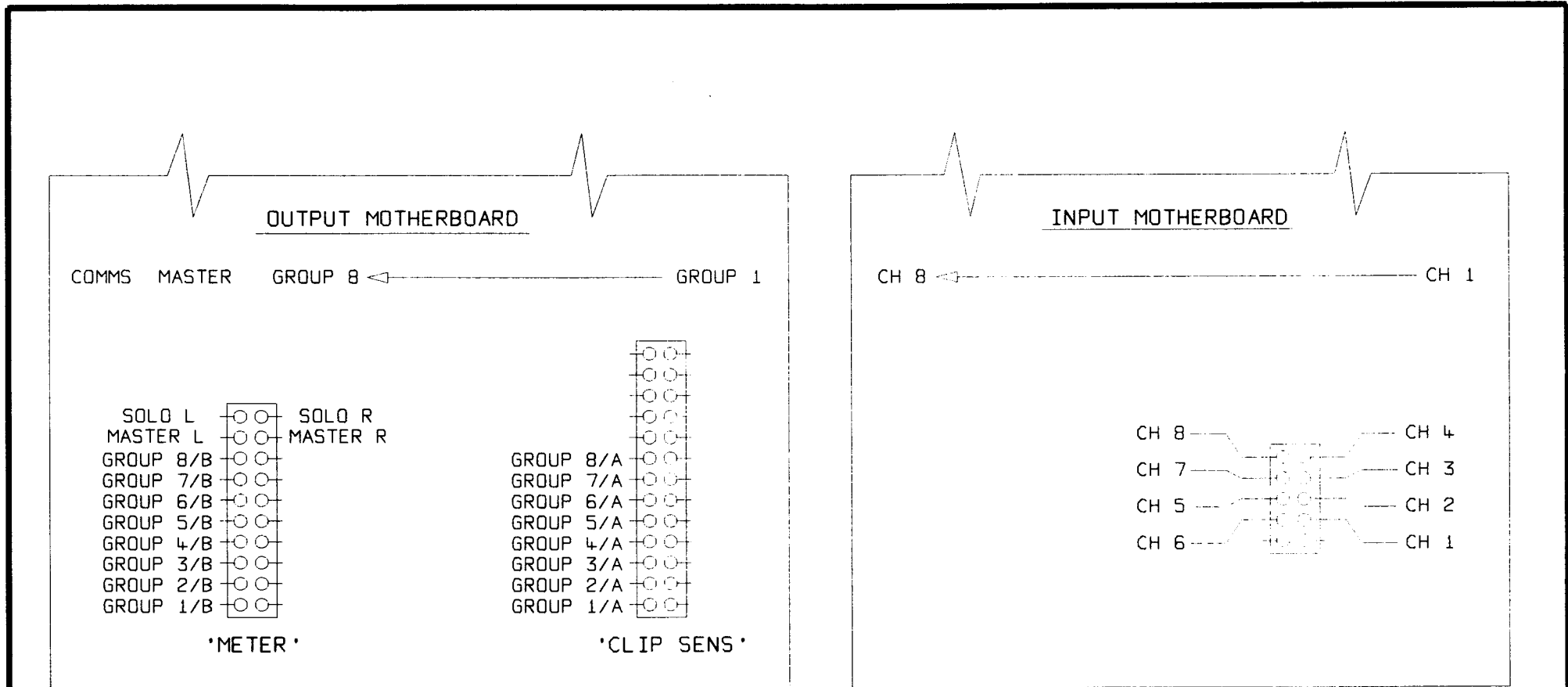
FEMALE
[MIXER]



MALE
[METER BRIDGE]

MIDAS AUDIO

Drawn: DGT	Checked:	XL3 METER BRIDGE	CONNECTOR PIN ASSIGNMENT	1 OF 1
BOARD No.		DWG No. XL3FR_7.DGM	ISSUE: 2	DATE: 7.Sept.91

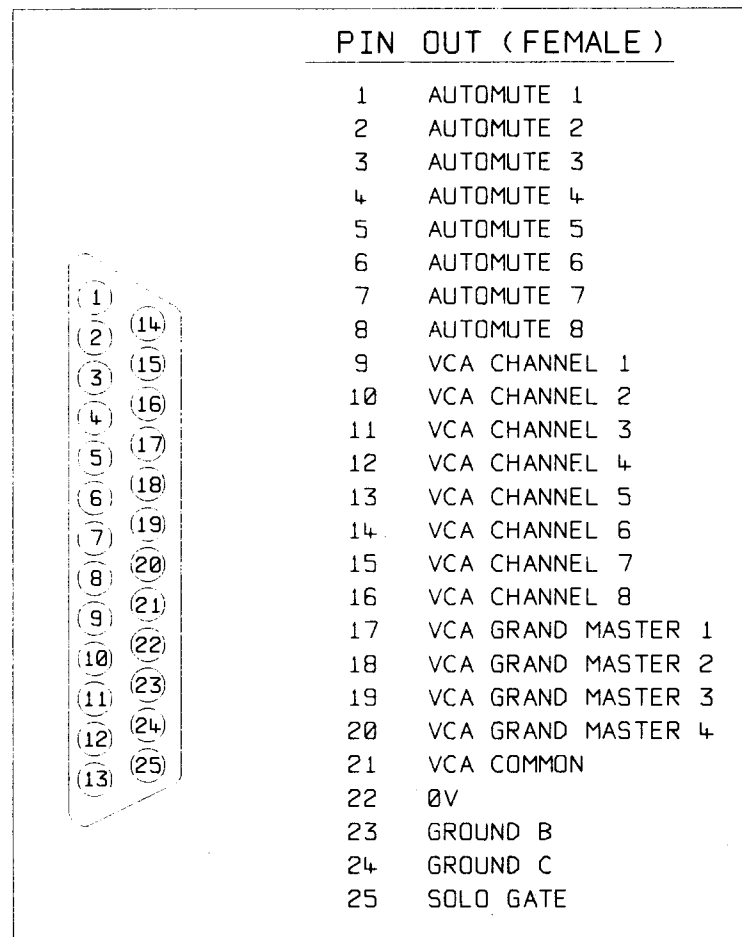
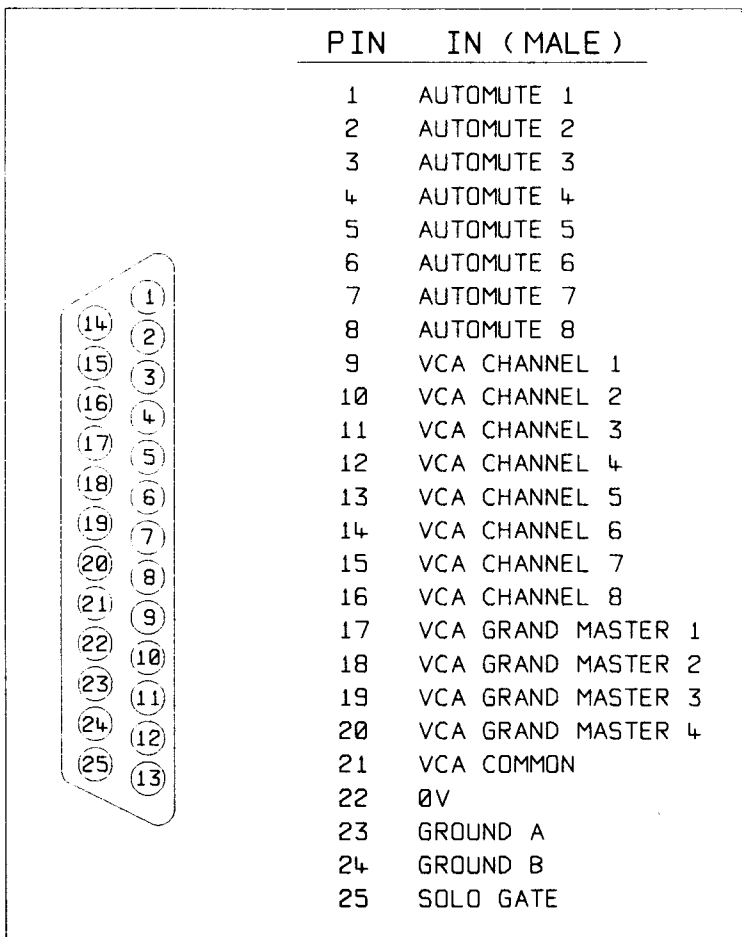


View of top edge of pcb from rear of console.

MIDAS AUDIO

Drawn: DGT	Checked:	XL3 METER BRIDGE	MOTHER BOARD CONNECTIONS	1 OF 1
BOARD No.		DWG No. XL3FR_8.DGM	ISSUE: 2	DATE: 7.Sept.91

XL3 - DC BUS LINKING CONNECTORS

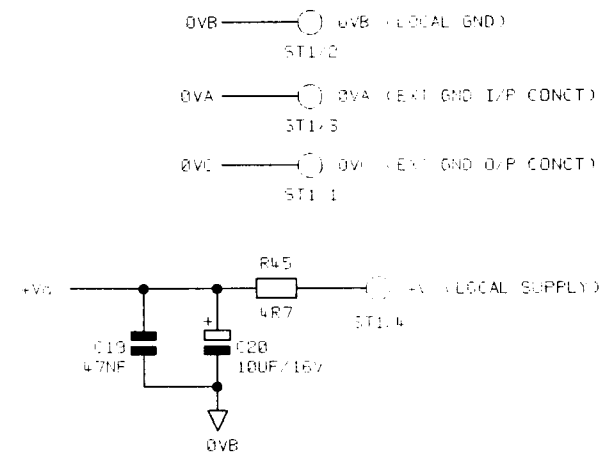
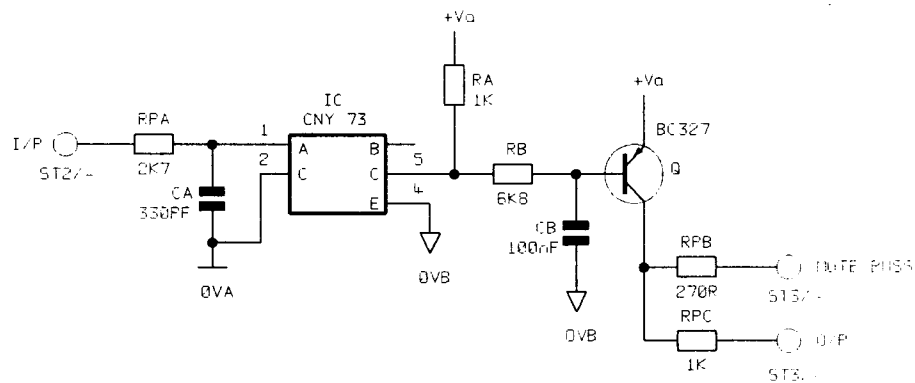


CONNECTORS VIEWED FROM
OUTSIDE CONSOLE

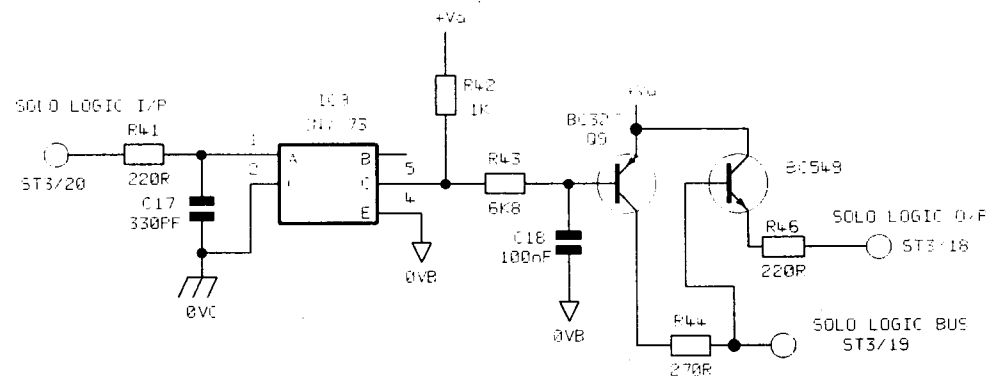
MIDAS AUDIO

Drawn: DGT	Checked:	XL3 FRAME	DC LINK CONNECTIONS	1 OF 1
BOARD No.		DWG No. XL3FR_9.DGM	ISSUE: 1	DATE: 9.Sept.91

EIGHT IDENTICAL INPUT STAGES
COMPONENT ASSIGNMENT AS PER TABLE



MUTE CH.	COMPONENT ASSIGNMENT									CONNECTOR		
	IC	RPA	RPB	RPC	RA	RB	CA	CB	Q	I/P	BUSS	O/P
INPUT 1	1	1a	7a	3a	2	3	C1	C2	1	2/1	3/15	3/3
INPUT 2	2	1b	7b	3b	7	8	C3	C4	2	2/2	3/14	3/5
INPUT 3	3	1c	7c	3c	12	13	C5	C6	3	2/3	3/13	3/7
INPUT 4	4	1d	7d	3d	17	18	C7	C8	4	2/4	3/10	3/9
INPUT 5	5	5a	8a	4a	22	23	C9	C10	5	2/5	3/11	3/2
INPUT 6	6	5b	8b	4b	27	28	C11	C12	6	2/6	3/12	3/4
INPUT 7	7	5c	8c	4c	32	33	C13	C14	7	2/7	3/16	3/6
INPUT 8	8	5d	8d	4d	37	38	C15	C16	8	2/8	3/17	3/8



SOLO LOGIC INPUT

MIDAS AUDIO

Drawn: DGT

Checked:

XL3

DC BUSS LINK BOARD

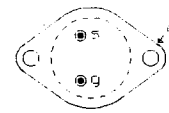
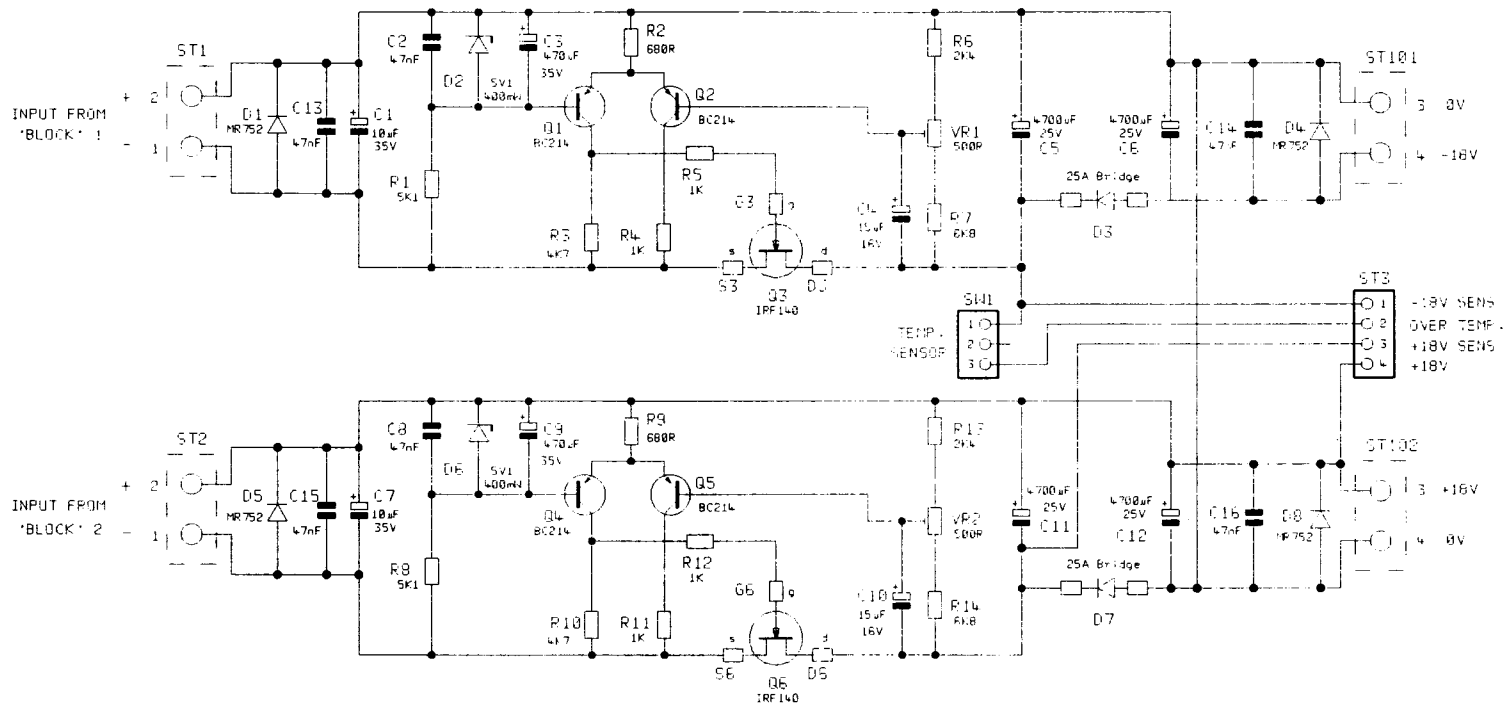
1 OF 1

BOARD No. B2703 iss 1

DWG No. XLBUSS_A.DGM

ISSUE: 2

DATE: 24.Sept.91



Q3 & Q6

MIDAS AUDIO

Drawn: DGT

Checked:

XL390 POWER SUPPLY

TWIN LINEAR REGULATOR

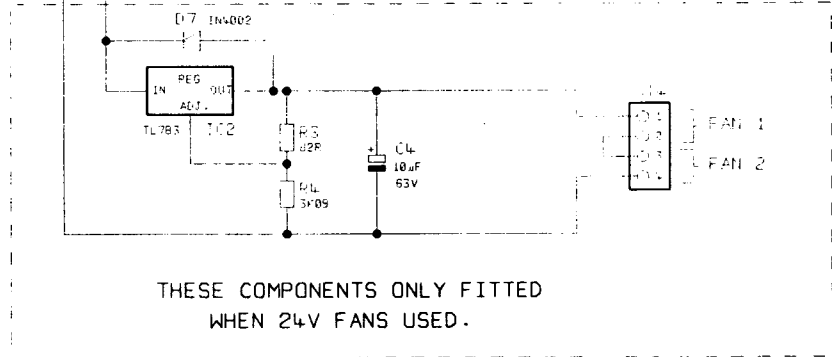
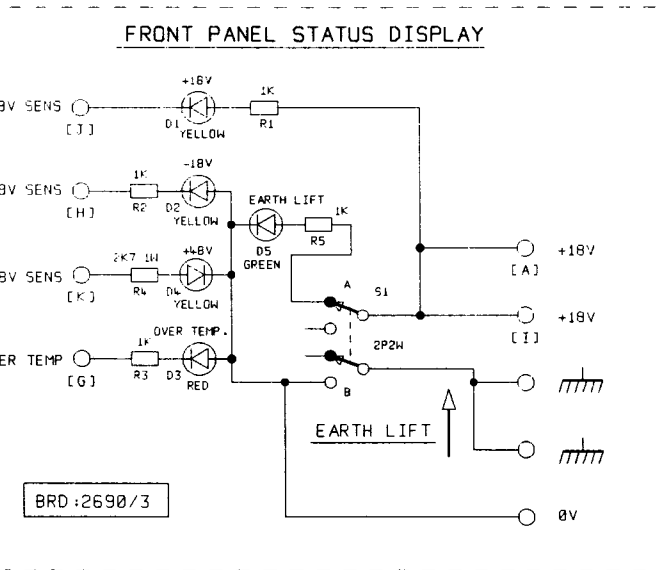
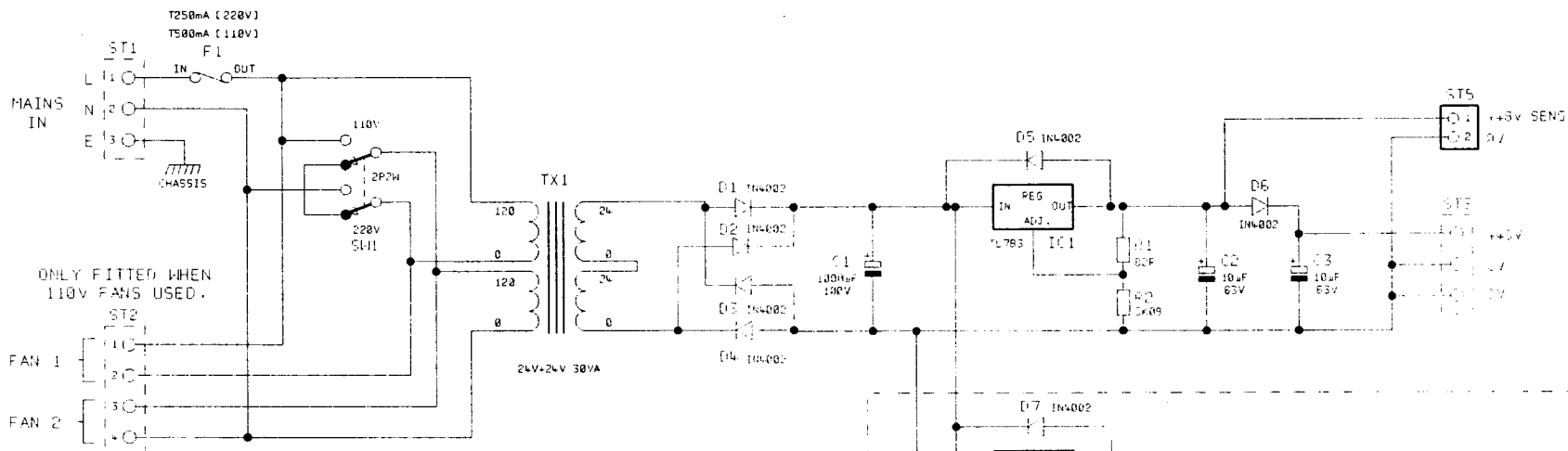
1 OF 1

BOARD No. B2729 iss 1

DWG No. XL390_1.DGM

ISSUE: 2

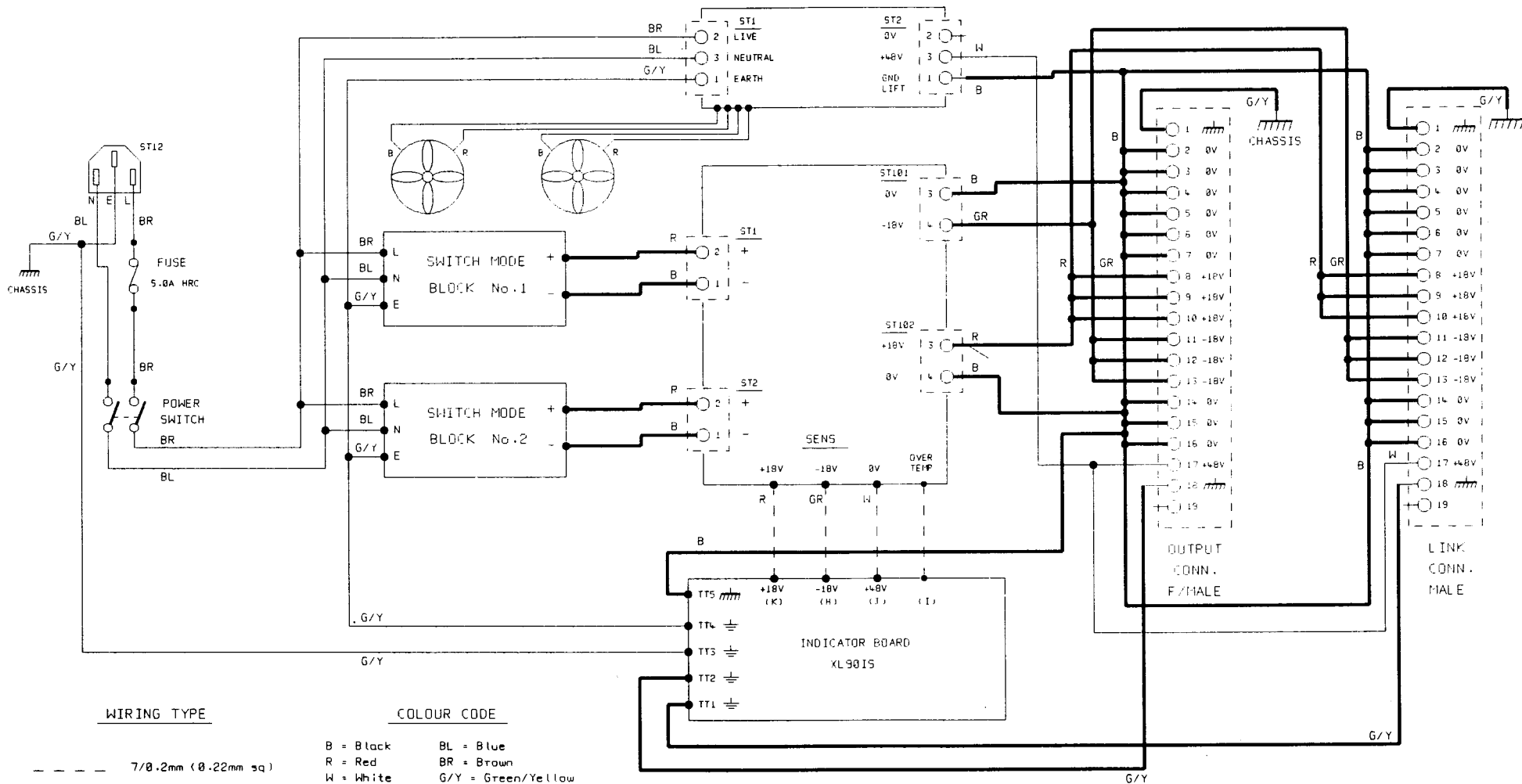
DATE: 24.Sept.91



BRD: B2730 iss 1

MIDAS AUDIO

Drawn: DGT	Checked:	XL390 POWER SUPPLY	48V & FANS PSU & STATUS DISPLAY
BOARD No. B2730 & 2690		DWG No. XL390_2.DGM	ISSUE: 2 DATE: 24.Sept.91



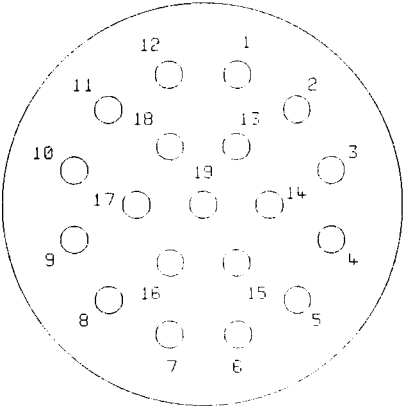
MIDAS AUDIO

Drawn: DGT	Checked:	XL390 POWER SUPPLY	BLOCK DIAGRAM
BOARD No.		DWG No. XL390_3.DGM	ISSUE: 2
			DATE: 24.Sept.91

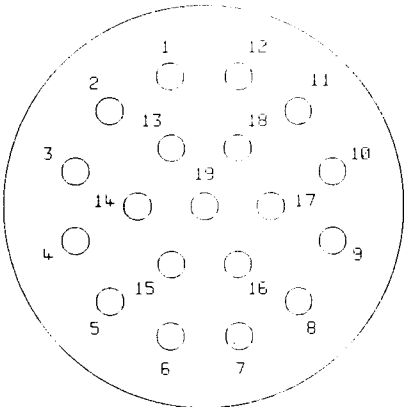
REAR VIEW OF CONNECTORS

CONNECTOR PIN ASSIGNMENT

PIN 1: EARTH
 PIN 2: 0V
 PIN 3: 0V
 PIN 4: 0V
 PIN 5: 0V
 PIN 6: 0V
 PIN 7: 0V
 PIN 8: +17.5V
 PIN 9: +17.5V
 PIN 10: +17.5V
 PIN 11: -17.5V
 PIN 12: -17.5V
 PIN 13: -17.5V
 PIN 14: 0V
 PIN 15: 0V
 PIN 16: 0V
 PIN 17: +48V
 PIN 18: EARTH
 PIN 19: Not used



OUTPUT
 FEMALE



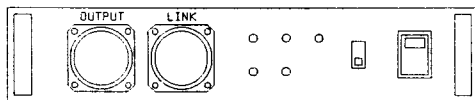
LINK
 MALE

XL390 CONNECTOR PIN ASSIGNMENT

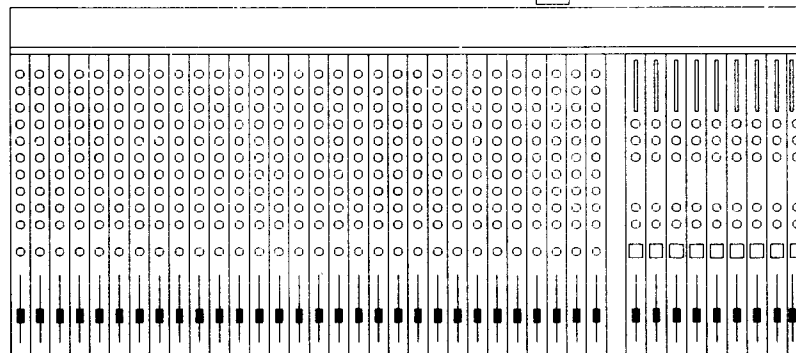
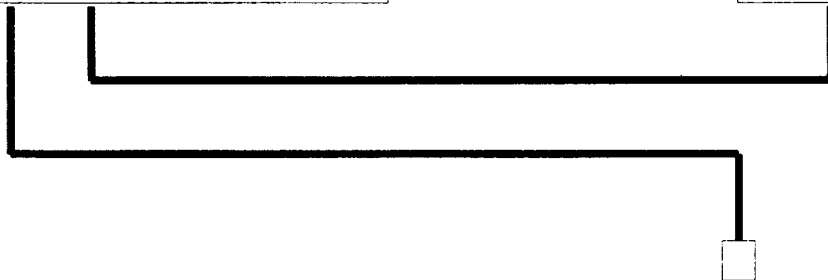
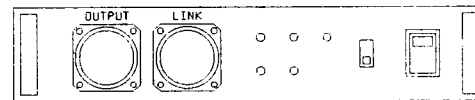
MIDAS AUDIO

Drawn: DGT	Checked:	XL390 POWER SUPPLY	CONNECTOR PIN ASSIGNMENT
BOARD No.	DWG No. XL390_4.DGM	ISSUE: 2	DATE: 24.Sept.91

POWER SUPPLY 1



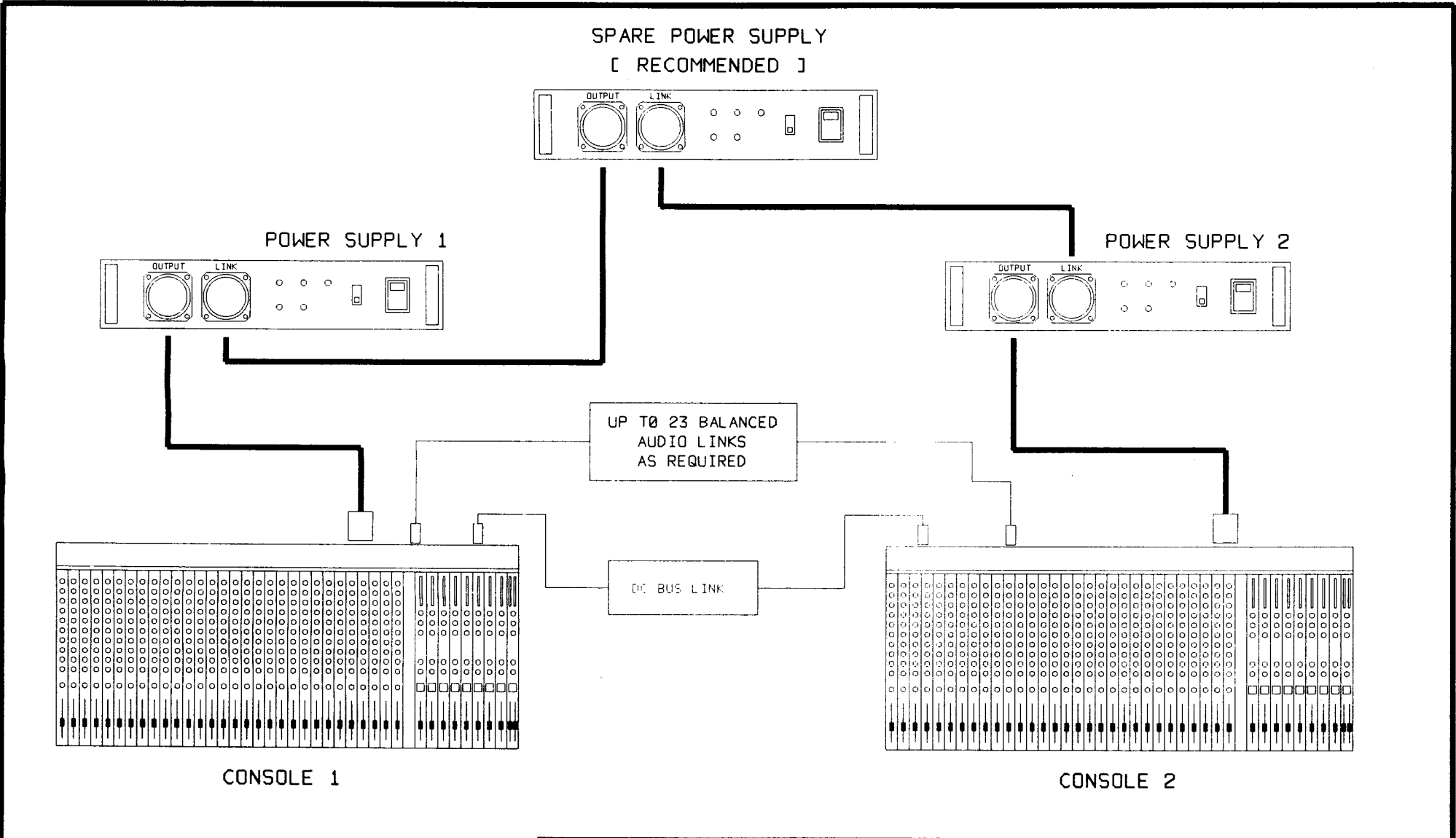
POWER SUPPLY 2



CONSOLE

MIDAS AUDIO

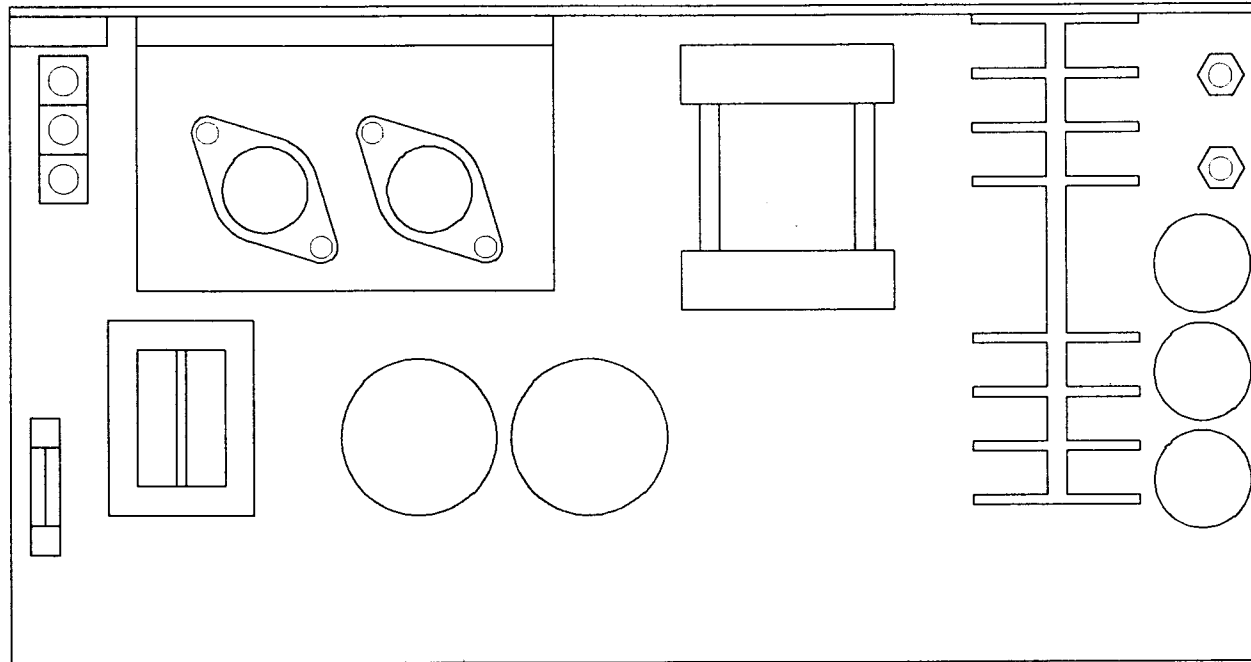
Drawn: DGT	Checked:	XL390 POWER SUPPLY	POWER SUPPLY LINKING	
BOARD No.		DWG No. XL390_5.DGM	ISSUE: 2	DATE: 24.Sept.91



MIDAS AUDIO

Drawn: DGT	Checked:	XL390 POWER SUPPLY	LINKING TWO CONSOLES
BOARD No.	DWG No. XL390_6.DGM	ISSUE: 2	DATE: 24.Sept.91

SUPPLY VOLTAGE JUMPER
↓



MIDAS AUDIO

Drawn: SAC	Checked:	XL390 POWER SUPPLY UNIT	SWITCH MODE BLOCK	
BOARD No.		DWG No. XL390_7.DGM	ISSUE: 2	DATE: 24.Sept.91