A-2000 Linear Audio Console

TECHNICAL MANUAL

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A-2000 Linear Audio Console Technical Manual - 1st Edition

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Installation and Power

Unpacking the Console

The A-2000 console is shipped as two packages. One carton contains the console and documentation and the second carton contains the Power Supply and connecting cable.

Countertop Mounting

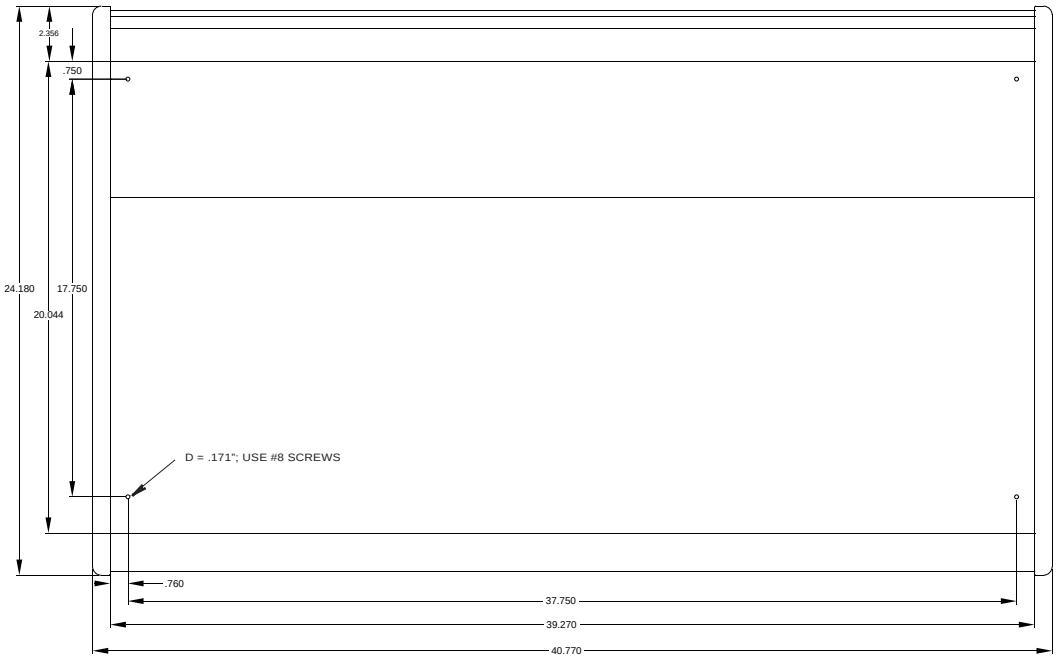
The A-2000 audio console is designed for countertop mounting. Console placement should avoid proximity to any electromagnetic fields, such as large power transformers, motors, and fluorescent lighting fixtures. If you will be securing the console to the counter top, you may want to pre-drill the mounting holes (see sketch below).

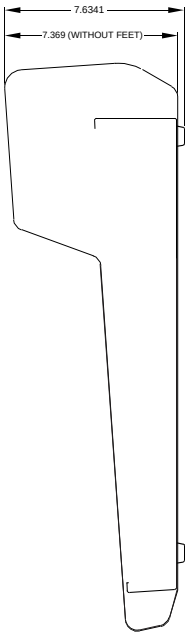
Set the console in place on the counter, and remove the screws that hold down the first and the last modules in place (two per module). Carefully remove those modules from the frame. Attach the console mainframe to the counter top, using the holes provided in the bottom of the chassis and screws appropriate to the counter material, and reinstall the removed modules.

NOTE: This console contains static-sensitive devices. Normal precautions against static discharge should be observed when handling individual modules.

The console extends approximately 7 5/8" above the countertop at the meterbridge. The hinged meterbridge will require 14" above the countertop surface and 4 3/4" behind the rear meterbridge to open freely.

Do not connect the A-2000 console to its power supply (and do not connect the power supply to the AC power line) until instructed to do so.





System Ground

The first step is to ground the console.

Note that as supplied from the factory, console rackmount power supply common, audio ground, and the A-2000 mainframe are connected together at the console, but are NOT connected to electrical ground and the chassis of the power supply. Safety requirements dictate that a positive connection from the console mainframe to electrical ground be made in the completed installation. Use the grounding lug on the rear of the mainframe to establish your system ground. The grounding lug may be found at the rear of the console, on the rear frame panel, to the left if you are looking at the rear of the console.

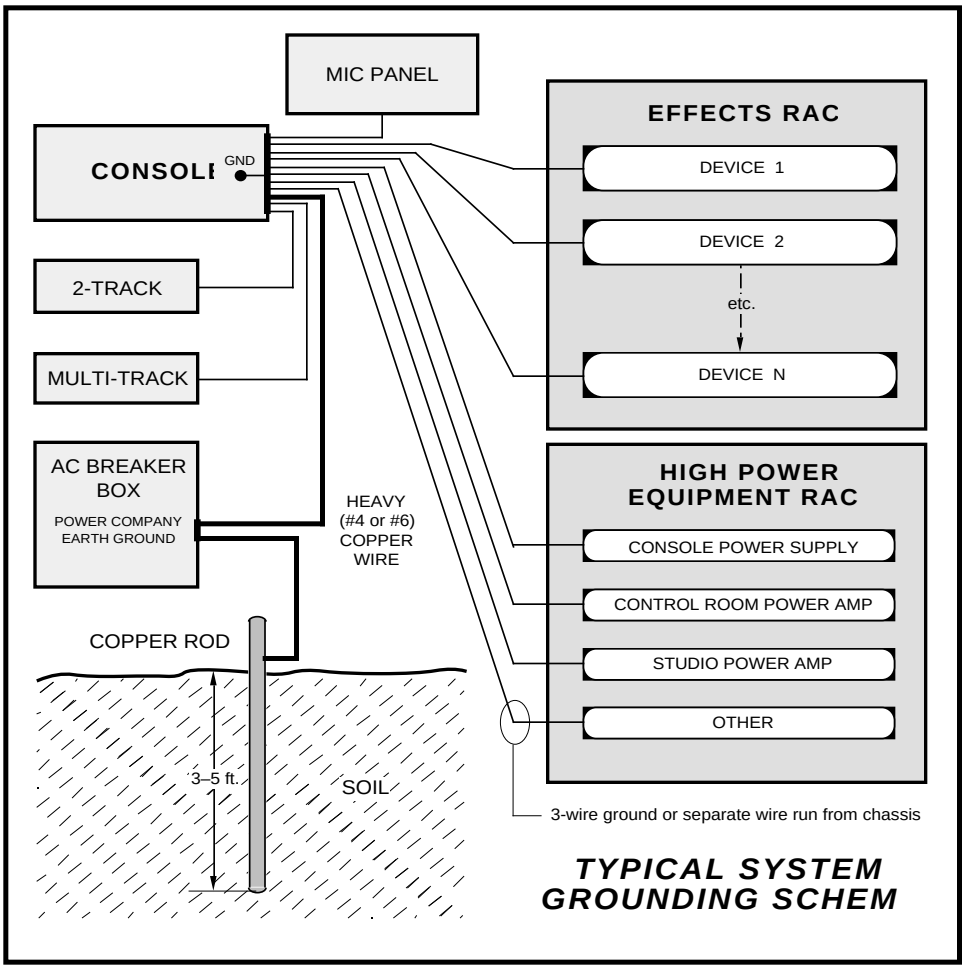
The system ground serves two important purposes:

(1) It provides a zero signal reference point for the entire audio system;

(2) It assures safety from electrical shock.

There exist two terms that one encounters in a discussion of ground:

(A) EARTH GROUND, which is usually a heavy copper rod driven into the soil adjacent to the building (around 6 feet down) or a connection to the copper water pipes leading into the building. Either is acceptable (unless, of course, the water pipe is made of plastic).



Tie the console ground lug terminal strip to the system earth ground. Tie every piece of equipment in the entire audio system to the console ground lug terminal strip.

(B) THE POWER COMPANY EARTH CONDUCTOR that enters the building at the power line breaker box; this conductor should be (and is often by code) tied to the above-mentioned earth ground at one point. This point is the SYSTEM EARTH GROUND.

TIE THE CONSOLE GROUND LUG TO THE SYSTEM EARTH GROUND. TIE EVERY PIECE OF EQUIPMENT IN THE ENTIRE AUDIO SYSTEM TO THE CONSOLE GROUND LUG. If the system earth ground point is inaccessible, tie the console ground lug to the power company earth conductor at the main breaker box (see drawing "Typical Grounding Scheme" on previous page).

Each piece of equipment should be connected by its own ground wire (usually the round third pin on the AC cord). This means that every AC outlet must have a separate conductor run to the console ground lug; the outlets cannot be daisy-chained as is normally encountered in commercial and residential AC systems. Any equipment not supplied with 3-wire AC cables must have individual ground wires (16 gauge or larger) connected to their chassis grounds and then run to the console ground lug terminal strip.

Further Grounding Details

Check all equipment to be absolutely certain that each unit is power transformer isolated from the AC mains to prevent safety hazards.

It is assumed that in each piece of audio equipment the audio ground and the chassis are tied together at some point. Any piece of equipment lacking a grounded chassis is likely to be prone to interference problems.

Locate all unbalanced audio equipment in the same rack if possible, to minimize chassis ground potential differences. It may also be helpful to insulate each piece of unbalanced equipment from its mounting rails in the rack by means of nylon 10-32 screws and insulating washers between rails and faceplates.

Once the system is properly grounded, proceed with the console power supply installation and connection (next section).

Power Supplies

The A-2000 console is powered by a Wheatstone Model PSC-D340 rackmount power supply. This heavy duty unit occupies three 19” wide rack spaces (total height 5-1/4”). Convection cooled, it requires ample ventilation space above and below it. The PSC-D340 generates a lot of heat in the course of normal operation — do *not* mount heat sensitive devices in the same rack cabinet.

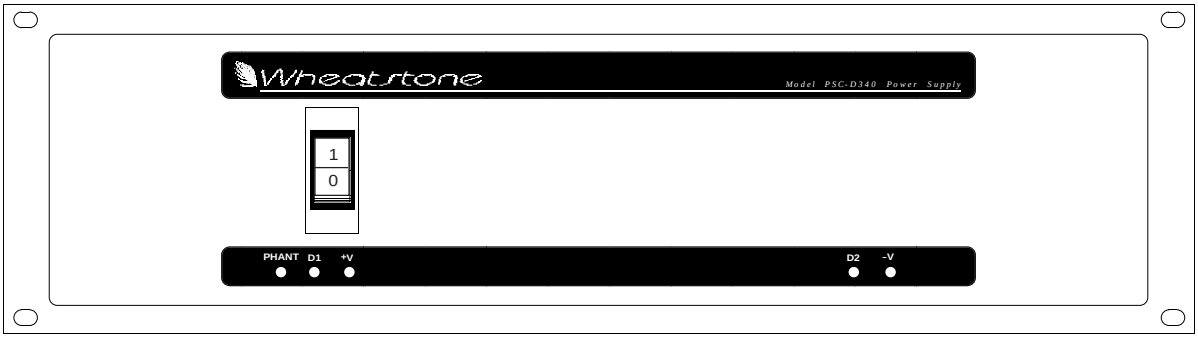
If failsafe redundant supplies have been ordered, you will be installing two units and an additional rackmount panel.

Note the power supply should be mounted in an equipment rack within fifteen feet of the console (but no closer than 3 feet). Avoid locating any high gain equipment (such as phono preamps, tape recorders, etc.) too near the rackmount supplies, to avoid magnetic interference into that equipment.

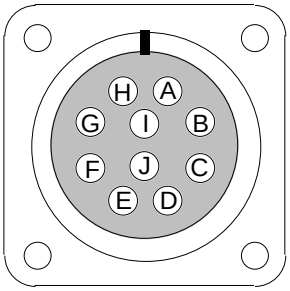
Once the supply is rackmounted, it should be connected to the console using the factory supplied cable. The console's power supply connector is located at the rear of the console, at the right end of the meterbridge bottom pan. If you are using one supply, connect it to the console connector. If you are using two supplies (failsafe option), connect the long power supply cable to the center connector of the rackmount failsafe panel. Then connect one supply with a short cable to either of the two remaining connectors on the failsafe panel and connect the second supply with a short cable to the last connector. Note that the power supply cable's 10-pin female connector has to be rotated until its locating pins match the male connector on the console. Do not force a connector on; it attaches easily when properly aligned. Connect the cable first to the console, then to the rear of the rackmount power supply.

Note each power supply is fitted with a 3-wire grounded AC cord that should be plugged into a "clean" AC power source, that is, an AC source that feeds only the control room audio gear. This source should be a separate feed from those powering lighting, air-conditioning, or any other non-audio machinery. The third pin ground wire of the AC source should be tied to the central system ground point. *Note that while the AC power cord ground wire terminates at the power supply chassis, it does NOT connect to the A-2000 console common; the console itself must be grounded separately. (See previous section, "System Ground".)*

The power feed recommended in the text is often installed and referred to in studios as an "isolated AC ground" outlet. It is usually orange in color.



The PSC-D340 Power Supply



TYPICAL POWER CONNECTOR
(10-pin)

A : audio/phantom common
B : +V audio
C : -V audio
D : digital common
E : phantom power
F : digital common
G : +digital
H : +digital
I : n/c
J : n/c

Failsafe Dual Redundant Supply

Wheatstone failsafe power supply systems use two separate rackmount power supplies for each piece of powered equipment. Though either is capable of running a full load on its own, in failsafe operation both units run in tandem: if one fails, the other takes over, assuring uninterrupted operation.

NOTE dual failsafe supplies have their outputs trimmed to entirely different settings than stand-alone single units, and are MEANT to be run in tandem.

In order for failsafe systems to perform as designed, always have BOTH rackmount supplies powered up and connected to their associated equipment.

Energizing

Assuming the A-2000 console mainframe is properly placed and grounded, and its PSC-D340 power supply correctly rackmounted and connected to the console, you may now energize the PSC-D340 rackmount power supply by plugging it into the AC mains. The five LEDs on the power supply front panel should light up to indicate the presence of their respective voltages. The console's LED meters will illuminate and individual module switches will assume factory default settings.

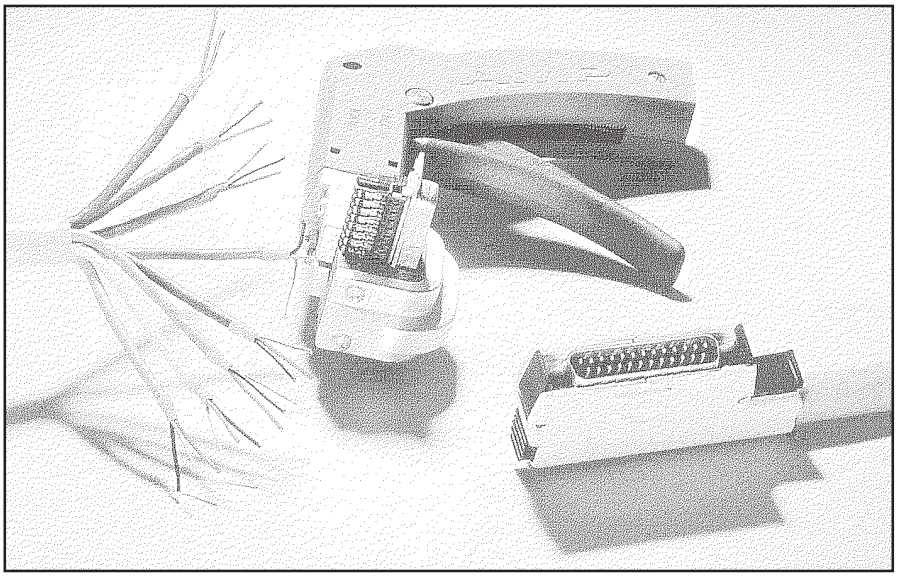
Once you have verified proper power-up, turn off the rackmount power supply to de-energize the console. You may now proceed to wire up audio and control connections.

Audio and Control Wiring

All audio and control I/O connections to the A-2000 console are made through multipin DB-25 connectors located on the top of each module. The output module also has a DB-9 connector.

The Insulation Displacement Connector System

The I/O wiring interface system is based on insulation displacement technology. A special AMP wiring tool is included with each console; it is auto-indexing, and allows individual wire connections to be positively made with a single squeeze of the tool's trigger. The trigger action is ratchet controlled, and will not release until a full connection is made. Once released, the multipin connector held in the tool's jaw automatically indexes to the next connector pin. The technology is such that no stripping, soldering or tinning



The AMP tool insulation displacement connector system. Note the right angle hood with self-locking tabs. The tool, multipin connectors (with gold plated pins) and latching hoods are supplied with each console.

of wire ends is required; all that is needed is for the wires destined for the connector be snub cut and laid out in order (although tubing should be used on bare drain wires). An empty DB-25 (or in the case of the optional LSR-500 rackmount line switcher, a DB-9) connector is inserted into the tool, indexed to the first pin, and the wires are inserted one by one into the jaw and the trigger squeezed. In this way a single multipin connector can be completely wired up in a minute or two.

In the event of a wiring error, connector pins may easily be removed from the shell with the wire still attached, and inserted into the correct position. Observe the side of the connector, with the metal part down. You will see a row of "Vees"—simply press the top of the vee together with a scribe or other sharp instrument; this will unlock the pin from the shell, and it can be removed and inserted into the correct position. Spread the vee apart to lock the pin in the new position. It should never be necessary to discard a connector due to a wiring error.

Note that mating hoods for each connector are also supplied with the console. These have locking screws that hold the connectors securely to the bottom of the console mainframe.

Connection Procedures

As supplied from the factory, the console requires no logic connections to function. Therefore an orderly installation begins with the audio wiring. Note this manual is organized by module type (inputs, outputs, monitor modules, etc.); each chapter contains detailed wiring instructions for its module type. Proceed through the manual, chapter by chapter, until all modules have been wired to suit your particular installation requirements. Once proper audio operation is verified, go back to each individual chapter and proceed with control wiring.

Analog Insert Points

The MONO MIC INPUTS (MM-2000) have insert patch points in their signal chains to allow outboard audio processing.

Normally these points are internally bridged at the factory (via PCB-mounted programming dipswitch) prior to shipment. If you intend to use outboard signal loops at these points, you must reprogram this dipswitch. See page 2-3 (mic inputs).

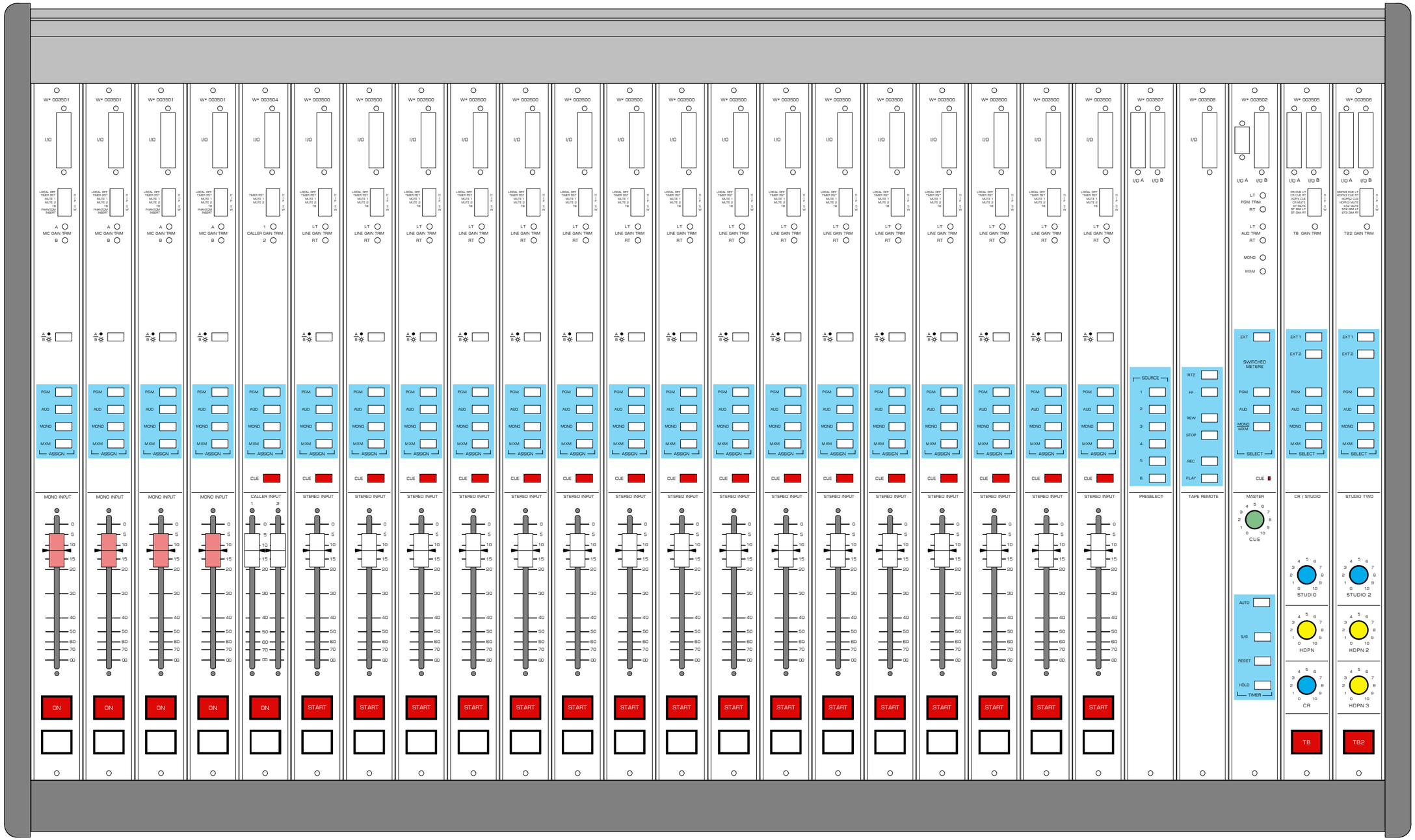
Unbalanced Connections (analog audio)

ANALOG INPUTS — Wire to the console with typical shielded two conductor cable (like Belden 9451), just as if you were connecting a balanced source. At the unbalanced source machine's output, connect the black wire (LOW) to the shield. If the machine has a -10 dBu output, don't hesitate to turn module input gain as high as is needed.

ANALOG OUTPUTS — A-2000 consoles use a balanced output circuit which behaves exactly like the secondary of a high-quality transformer, with no center tap—this output is both balanced and floating. Either the HIGH or LOW side of the output should be strapped to ground, with the output taken from the other side. (Normally you'd strap LOW to ground, and take HIGH to feed your unbalanced equipment.)

Modules Layout

The A-2000 console's mainframe comes supplied with 22 input modules, an output module, a control room/studio module, and a studio two module. Each module type has its assigned slot (see drawing on page 1-9). Also there can be optional modules: a superphone module, a line select module, and a tape remote module. Optional modules can be placed in any input slot.

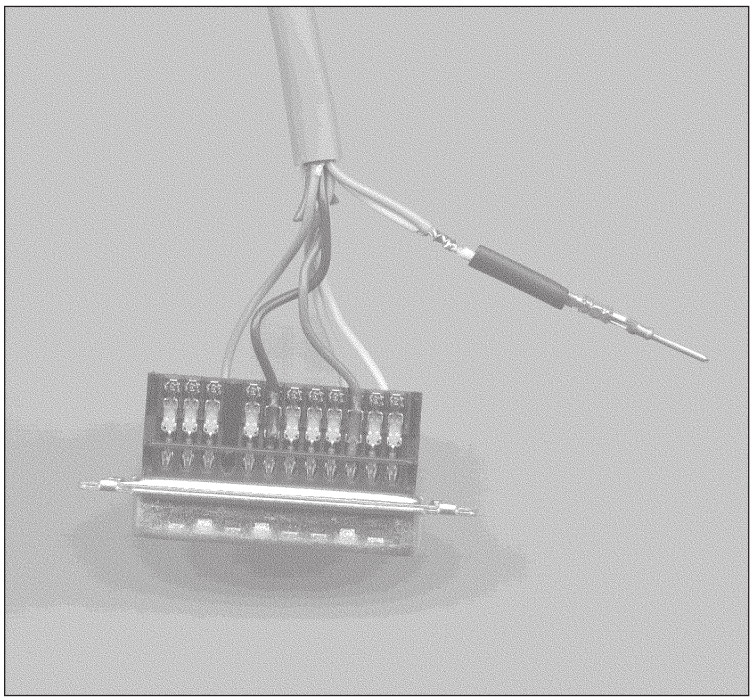


NOTE: 1. CONSOLE CAN ACCOMMODATE UP TO 23 INPUT OR ACCESSORY MODULES IN ANY COMBINATION.
2. OPTIONAL MODULES—SUPERPHONE, LINE SELECT, AND TAPE REMOTE—CAN BE PLACED IN ANY SLOT POS.1-23.

A-2000 CONSOLE - MODULES LAYOUT

Wiring Procedure - Double Connection to One Pin

ref: DB-25 male multi-pin connector



Most audio equipment machine interfaces (as well as Wheatstone consoles) use subminiature D-type connectors. Sometimes the interfaces require making two connections to a single DB pin. If the wiring has been set up using punchblocks, this is not a problem; however, for situations where direct machine-to-console wiring is used, Wheatstone recommends the following procedure:

1) **Connect the first wire to the desired pin as you normally would.**
2) **Note connector pins may easily be removed from the DB-25 shell with the wire still attached: Hold the connector with the metal part down and observe its side. You will see a row of "Vees"—simply press the top of the selected vee together with a scribe or other sharp instrument; this will unlock the pin from the shell, allowing it to be removed.**
3) **With the pin removed, strip out a short section of insulation from the connected wire and wrap and solder the second wire to the first as shown above.**
4) **A short piece of heatshrink tubing (pictured here before being slid into place) completes the connection.**
5) **Re-insert the pin into the DB-25 shell, spreading the vee apart to lock it in place.**

Mono Mic Input Module
(MM-2000)

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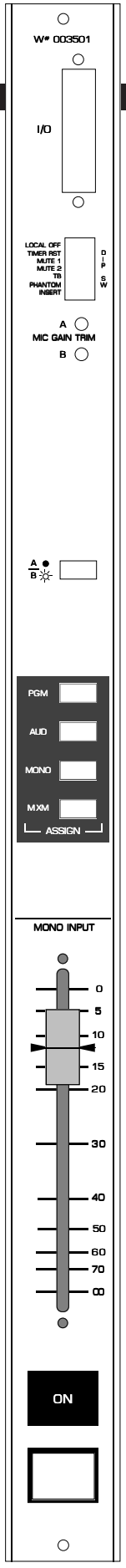


Mono Mic Input Module (MM-2000)

Module Overview

MM-2000 modules are for microphone input signals (-50dBu nominal). Each module accepts two mono sources: A and B, switched at the top of the module.

Phantom power is available at both input ports; it may be selectively activated by a dipswitch SW1 pos 2 (the factory default is OFF). Recessed front panel multi-turn trimpots (range 38dB) adjust the level of the A and B inputs independently.

> Example: with a microphone input of –60dBm @150Ω at the port, gain trim can set levels from -22dBu to +16dBu (note maximum preamp gain is +76dB).

An analog insert point (+4dBu balanced) is provided: it is post-trim and may be bypassed by a dipswitch SW1 pos1 (the factory default is BYPASSED).

Output switches assign the selected source signal to any combination of the console's four outputs: two stereo outputs—PGM (program) and AUD (audition); and two mono outputs—MONO and MXM (mix-minus). Note that the assignment to the MXM output is post-fader, pre-on, while the other assignments are post-fader, post-on.

Level is set by a long-throw fader.

The channel ON and OFF switches are at the bottom of the module. In addition to being controlled remotely, these can also be programmed (via dipswitch) to perform a variety of console control functions, including activating control room and studio mutes, external tallies, and timer restart.

All audio and control input and output signals are made via a multi-pin DB-25 connector mounted on the top of each individual module and located underneath the hinged meterbridge.

Internal Programming Options

Internal programming for the mono mic module is made via printed circuit board (PCB) mounted dipswitch SW1 located on the top of the module (beneath the DB-25 connector). Note that when a dipswitch position is thrown to the right it is ON.

Insert Bypass

Dipswitch SW1 position 1 will bypass the module's insert point in and out of the audio signal chain. Note that the factory default is "insert bypassed". In other words, when shipped from the factory SW1 position 1 is thrown to the right.

Phantom Power

Dipswitch SW1 position 2 turns phantom power on for the module's two microphone input ports.

Note the factory default setting for phantom power is OFF.

Mutes

When a microphone is live in a room, that room's monitor speakers must be muted to prevent feedback. The A-2000 console has two mute control lines: control room/ HDPN 3 and studio/studio two. Each of these is activated by an A microphone input. The dipswitch SW1 programs these muting functions:

SW1 position 4 mutes the studio/studio two when source A is ON

SW1 position 5 mutes the control room/HDPN 3 when source A is ON

Timer Restart

The console's digital timer can be programmed to automatically reset to zero and begin counting up when the module's ON button is pressed.

SW1 position 6 activates timer restart

Local/Ready

The module's channel OFF switch normally has its LED indicator controlled by the switch itself (Local). This is the factory default setting. However, should you wish to have the LED function as a Ready light for an external source machine, dipswitch SW1 position 7, when thrown to the left, passes control to the Ready input on the module's DB-25 connector. A closure between the Ready input (DB-25 pin 2) and Digital Ground (DB-25 pin 19) will activate the OFF switch LED. As long as the closure is maintained, the LED will be lit.

Talkback

Typically, one of the A-2000 console's input modules will be used for the control room (CRS) console operator's microphone. The third position of the dipswitch SW1 allows that microphone to also function as a talkback mic. It places the signal (pre-fader, pre-on/off) onto the console's talkback bus. When the console operator presses a TB switch on the console's CRS-2000 Control Room/Studio module, the talkback bus (which is carrying his microphone signal) will interrupt the regular monitor signal being fed to the studio and talent will hear his voice through the studio monitor speakers.

In order for the studio to reply to the console operator, the MM-2000 module controlling the studio's microphone signal must be routed to the console's cue bus, where it can interrupt the regular control room monitor feed and be heard by the operator. This is accomplished by a user-supplied TB switch in the studio. The switch provides a momentary closure between the module's DB-25 connector "TB to CR " control pin and Digital Ground (see page 2-6 for wiring details). As long as this closure is maintained (i.e., as long as talent holds down the studio TB button) the module's (pre-fader, pre-on/off) signal will be placed on the console's Cue bus.

Hook-Ups

As stated before, all user wiring to and from MM-2000 modules takes place at the DB-25 multi-pin connector mounted on the top of each module. A pinout drawing on page 2-7 shows all wiring connections at a glance.

Audio Connections

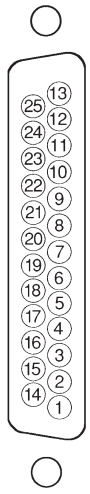
These include A and B mic inputs, and insert in and out. The mic input level is nominally -50dBu. Insert points are +4dBu balanced in and out. All signals are analog mono.

Pin 25 – Mic A In SH
Pin 24 – Mic A In HI
Pin 12 – Mic A In LO

Pin 11 – Mic B In SH
Pin 10 – Mic B In HI
Pin 23 – Mic B In LO

Pin 22 – Insert Out SH
Pin 21 – Insert Out HI
Pin 9 – Insert Out LO

Pin 8 – Insert In SH
Pin 7 – Insert In HI
Pin 20 – Insert In LO



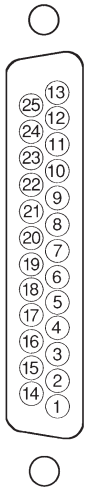
Typical DB-25 connector

Note the insert points are normally bypassed by PCB-mounted dipswitch SW1 pos 1 (see page 2-3). The Insert Out pins may be used as a channel direct output if desired.

Control Connections

These include remote on and off, cough, talkback and tally functions.

Pin 1 – Cough
Pin 2 – Ready
Pin 3 - Start
Pin 4 – Stop
Pin 5 – Start/Stop Com
Pin 6 – Tally B
Pin 14 – Remote On
Pin 15 – On Tally
Pin 16 – Remote Off
Pin 17 – TB to CR
Pin 18 – +5V Digital
Pin 19 – Digital Ground



Typical DB-25 connector

To Turn the Module ON & OFF from a Remote Location

REMOTE ON — Activates the module's channel ON switch. Provide a momentary closure between Pin 14 (Remote On) and Digital Ground (Pin 19). This will latch the module ON. (User-supplied momentary contact switch required.)

REMOTE OFF — Activates the module's channel OFF switch. Provide a momentary closure between Pin 16 (Remote Off) and Digital Ground (Pin 19). This will latch the module OFF. (User-supplied momentary contact switch required.)

COUGH — Temporarily Mutes the module. Provide a closure between Pin 1 (Cough) and Digital Ground (Pin 19). This will turn the module OFF. Note this is a non-latching mode; the module will turn ON again as soon as the closure stops. (User-supplied momentary contact switch required.)

To START and STOP Remote Source Machines Using Module ON/OFF Switches

EXTERNAL START — Hook up the remote machine's "start" control pins to the MM-2000 module's DB-25 connector control pins: for START wire to pins 3 and 5.

EXTERNAL STOP — Hook up the remote machine's "stop" control pins to the MM-2000 module's DB-25 connector control pins: for STOP wire to pins 4 and 5.

To Control the Module's OFF Switch LED with an External Source Machine

READY — Hook up the remote machine's Ready output to the MM-2600 module's DB-25 connector pin 2 (Ready) and pin 19 (Digital Ground). The module's Ready port is looking for a contact closure. As long as the closure is maintained the OFF switch LED will be illuminated.

Talkback to Control Room

If an MM-2000 module is being used for a studio microphone, this connection allows talkback from that studio to the console operator. Provide a closure between Pin 17 (TB to CR) and Digital Ground (Pin 19). This will cause the module's pre fader signal to be sent to the console's Cue bus, where it may be heard by the console operator. This non-latching condition continues until the closure is released. (Requires user-supplied momentary action TALKBACK switch at the studio microphone location.)

On Tally

Lets the module's channel ON switch control an on-air light or other "microphone on" indicator at a remote location. This control function provides a continuous +5 volt signal at Pin 15 (On Tally) whenever the module is ON.

This signal can be used to control an externally powered tally light that requires a continuous signal to function. Or an external tally light (i.e., LED) can be powered from the input module by connecting the external LED to Digital Ground (Pin 19) and the On Tally port. In either case, current should not exceed 30 milliamps.

Tally B

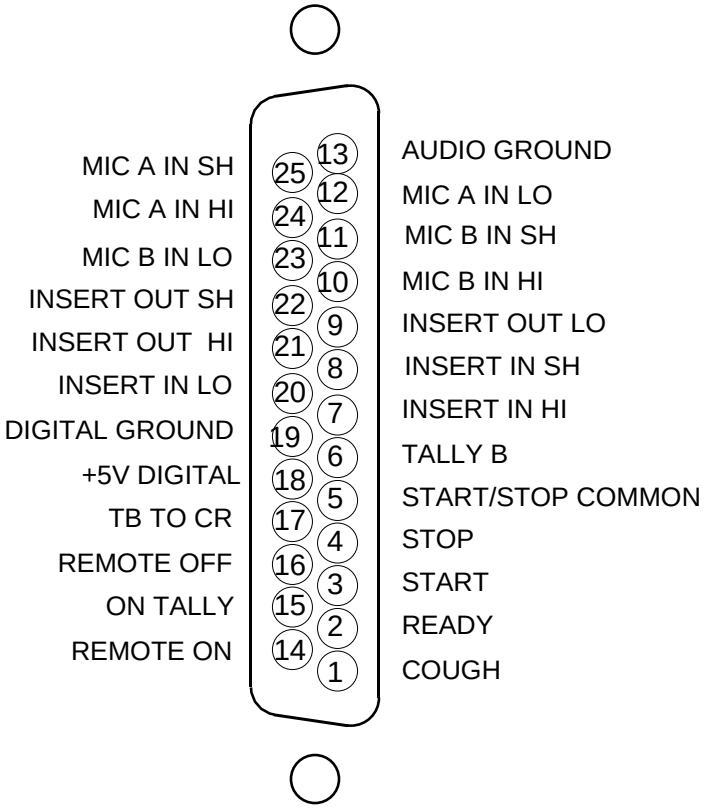
Provides a remote indication that the module's B source has been selected. This control function provides a continuous closure (open collector) between Pin 6 (Tally B) and Digital Ground (Pin 19) whenever the B source is selected.

This closure can be used to control an externally powered tally light that requires a continuous closure to function. An external tally light (i.e., LED) can be powered from the input module by connecting the external LED to +5V Digital (Pin 18) and the B Tally port. Current should not exceed 30 milliamps.

MM-2000 Mono Mic Input

DB Connector Pinouts

I/O PORTS ANALOG AND LOGIC



Stereo Line Input (SL-2000)

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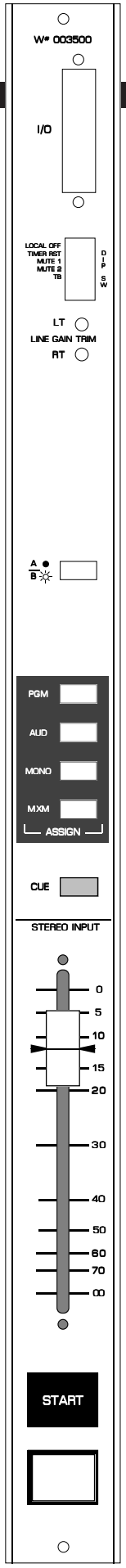


Stereo Line Input (SL-2000)

Module Overview

SL-2000 modules are for stereo line input signals.

Each module accepts two stereo sources: A and B, switched at the top of the module. Recessed front panel multi-turn trimpots adjust the left and right levels. Output switches assign the selected source signal to any combination of the console's four outputs: two stereo outputs—PGM (program) and AUD (audition); and two mono outputs—MONO and MXM (mix-minus). Note that the assignment to the MXM output is post-fader, pre-on, while the other assignments are post-fader, post-on.

A CUE switch places the module's signal on the console's cue bus, where it may be heard on the meterbridge mounted cue speaker and/or as an interrupt to the console operator's headphones and/or control room monitor speakers. The various cue interrupt modes are programmed at the console's CRS-2000 (Control Room/Studio) module via PCB-mounted dipswitch. See page 5-3.

Level is set by a long-throw fader.

Channel ON (START) and OFF (STOP) switches are at the bottom of the module. In addition to being controlled remotely, these can also be programmed (via internal PCB-mounted dipswitch) to perform a variety of functions, including starting and stopping external source machines, activating control room and studio mutes, external tallies, and timer restart. The STOP switch's LED can be controlled by an external source machine to act as a "ready" indicator.

All audio and control input and output signals are made via the multi-pin DB-25 connector mounted on the top of the module and located underneath the hinged meterbridge.

Internal Programming Options

All internal programming is made via PCB mounted dipswitch SW1 located on the top of the module (beneath the DB-25 connector). Note that when a dipswitch position is thrown to the right it is ON.

Mutes

Like MM-2000 inputs, an SL-2000 module can be programmed to mute speakers when the channel is ON. The A-2000 console has two mute control lines: control room/HDPN 3 and studio/studio two. Each of these is activated by an A input source.

SW1 position 4 mutes the studio/studio two when source A is ON
SW1 position 5 mutes the control room/HDPN 3 when source A is ON

Timer Restart

The console's digital timer can be programmed to automatically reset to zero and begin counting up when the module's ON button is pressed.

SW1 position 6 activates timer restart

Local/Ready

The module's channel OFF switch normally has its LED indicator controlled by the switch itself (Local). This is the factory default setting. However, should you wish to have the LED function as a Ready light for an external source machine, dipswitch SW1 position 7, when thrown to the left, passes control to the Ready input on the module's DB-25 connector. A closure between the Ready input (DB-25 pin 2) and Digital Ground (DB-25 pin 19) will activate the OFF switch LED. As long as the closure is maintained, the LED will be lit.

Talkback

Typically, one of the A-2000 console's input modules will be used for the control room (CRS) console operator's microphone. The third position of the dipswitch SW1 allows that microphone to also function as a talkback mic. It places the signal (pre-fader, pre-on/off) onto the console's talkback bus. When the console operator presses a TB switch on the console's CRS-2000 Control Room/Studio module, the talkback bus (which is carrying his microphone signal) will interrupt the regular monitor signal being fed to the studio and talent will hear his voice through the studio monitor speakers.

In order for the studio to reply to the console operator, the SL-2000 module controlling the studio's microphone signal must be routed to the console's cue bus, where it can interrupt the regular control room monitor feed and be heard by the operator. This is accomplished by a user-supplied TB switch in the studio. The switch provides a momentary closure between the module's DB-25 connector "TB to CR" control pin and Digital Ground (see page 3-5 for wiring details). As long as this closure is maintained (i.e., as long as talent holds down the studio TB button) the module's (pre-fader, pre-on/off) signal will be placed on the console's Cue bus.

Hook-Ups

As stated before, all user wiring to and from SL-2000 modules takes place at the DB-25 multi-pin connector mounted on the top of each module. There is one connector per module. Pinout drawings on page 3-7 show all wiring connections at a glance.

Audio Connections

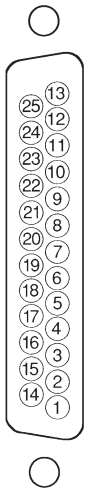
These include A and B source inputs; level is +4dBu balanced.

Pin 25 – Line A In Lt SH
Pin 24 – Line A In Lt HI
Pin 12 – Line A In Lt LO

Pin 11 – Line A In Rt SH
Pin 10 – Line A In Rt HI
Pin 23 – Line A In Rt LO

Pin 22 – Line B In Lt SH
Pin 21 – Line B In Lt HI
Pin 9 – Line B In Lt LO

Pin 8 – Line B In Rt SH
Pin 7 – Line B In Rt HI
Pin 20 – Line B In Rt LO



Typical DB-25 connector

Control Connections

All control ports (except Tally) are opto-isolated. Functions include remote on and off, tally, ready, and start/stop for remote source machines.

Pin 1 – Cough
Pin 2 – Ready
Pin 3 – Start

Pin 4 – Stop
Pin 5 – Start/Stop Com
Pin 6 – B Tally
Pin 14 – Remote On
Pin 15 – On Tally

Pin 16 – Remote Off
Pin 17 – TB to CR
Pin 18 – +5V Digital

Pin 19 – Digital Ground

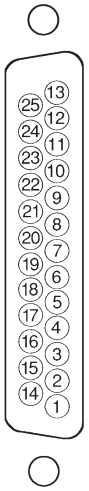
To Turn the Module ON & OFF from a Remote Location

In the case of stereo line input modules, "remote location" can also refer to a remote source machine that is feeding its audio to the module in question. A contact closure (which may be sourced by the external machine), will activate the module's channel ON and OFF switches.

REMOTE ON — Activates the module's channel ON switch. Momentary connect Pin 14 (Remote On) and Digital Ground (Pin19) to latch the module ON.

REMOTE OFF — Activates the module's channel OFF switch. Momentary connect Pin 16 (Remote Off) and Digital Ground (Pin 19) to latch the module OFF.

COUGH — Temporarily Mutes the module. Provide a closure between Pin 1 (Cough) and Digital Ground (Pin 19). This will turn the module OFF. Note this is a non-latching mode; the module will turn ON again as soon as the closure stops. (User-supplied momentary contact switch required.)



Typical DB-25 connector

To START and STOP Remote Source Machines Using Module ON/ OFF Switches

EXTERNAL START — Hook up the remote machine's "start" control pins to the SL-2000 module's DB-25 connector control pins: for START wire to Pins 3 and 5.

EXTERNAL STOP — Hook up the remote machine's "stop" control pins to the SL-2000 module's lower DB-25 connector control pins: for STOP wire to Pins 4 and 5.

To Control the Module's OFF Switch LED with an External Source Machine

READY — Hook up the remote machine's Ready output to the SL-2000 module's DB-25 connector pin 2 (Ready) and pin 19 (Digital Ground). The module's Ready port is looking for a contact closure. As long as the closure is maintained, the module's OFF LED will be illuminated.

Talkback to Control Room

If an SL-2000 module is being used for a studio microphone, this connection allows talkback from that studio to the console operator. Provide a closure between Pin 17 (TB to CR) and Digital Ground (Pin 19). This will cause the module's pre fader signal to be sent to the console's Cue bus, where it may be heard by the console operator. This non-latching condition continues until the closure is released. (Requires user-supplied momentary action TALKBACK switch at the studio microphone location.)

On Tally

Lets the module's channel ON switch control an on-air light or other "microphone on" indicator at a remote location. This control function provides a continuous +5 volt signal at Pin 15 (On Tally) whenever the module is ON.

This signal can be used to control an externally powered tally light that requires a continuous signal to function. Or an external tally light (i.e., LED) can be powered from the input module by connecting the external LED to Digital Ground (Pin 19) and the On Tally port. In either case, current should not exceed 30 milliamps.

Tally B

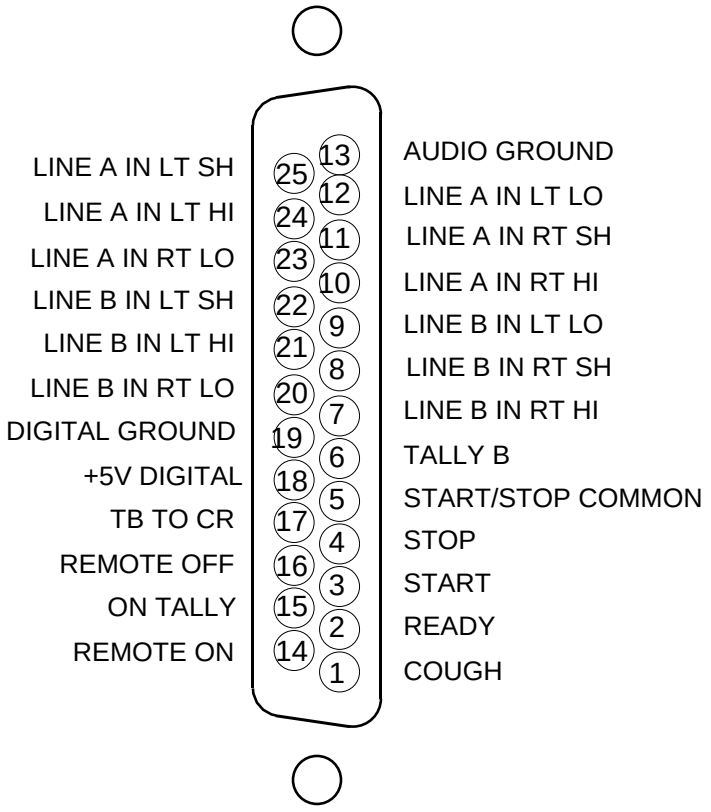
Provides a remote indication that the module's B source has been selected. This control function provides a continuous closure (open collector) between Pin 6 (Tally B) and Digital Ground (Pins 19) whenever the B source is selected.

This closure can be used to control an externally powered tally light that requires a continuous closure to function. An external tally light (i.e., LED) can be powered from the input module by connecting the external LED to +5V Digital (Pin 18) and the B Tally port. Current should not exceed 30 milliamps.

SL-2000 Stereo Line Input

DB Connector Pinouts

I/O PORTS ANALOG AND LOGIC



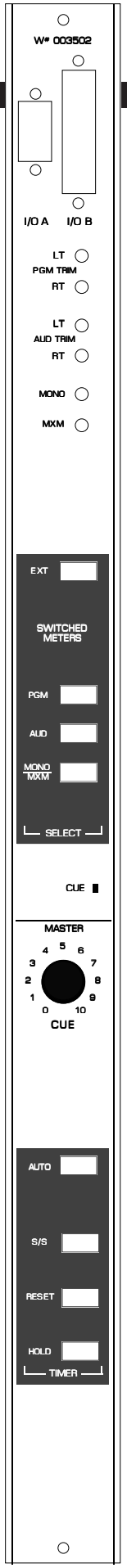
Output Module

(OM-2000)

Chapter Contents

Output Module

(OM-2000)



Module Overview

The master output module handles the console's Program, Audition, and Mono/Mix-Minus outputs. All outputs are calibrated with recessed front panel multi-turn trimpots.

Each A-2000 console has two pairs of left-right VU meters: PGM and SWT (switched) located on the console's meterbridge. The switched meter follows the SELECT switching, allowing the console operator to meter PGM, AUD, MONO and MXM, and an external stereo line signal (analog, +4dBu balanced), which may be brought into the module on its DB-25 connector.

The OM-2000 module houses the master Cue LED. Whenever Cue is activated anywhere on the console this LED will illuminate and the CUE signal will automatically appear on the switched VU meter pair. When cue is de-activated, the switched meter pair goes back to its previously selected signal.

The CUE master level control sets the level of the console's cue signal.

Whenever CUE is activated elsewhere on the console (stereo line inputs, the superphone module, or for studio talkback) its signal will appear at the console's built-in cue speaker mounted in the meterbridge. Depending on how the CRS-2000 module has been programmed, cue can also interrupt the control room monitor speakers. The way Cue interrupts the control room/studio outputs is determined by PCB-mounted dipswitch. See "Cue Interrupt" on page 5-3.

The OM-2000 module also generates the console's monitor signals, which feed the Control Room and Studio modules.

At the bottom of module are the timer control buttons (the timer display is mounted in the righthand end of the console meterbridge):

AUTO – enables timer restart functions from programmed input modules' ON buttons.

S/S - START/STOP - halts the timer, holds the last count, and then restarts and accumulates the count when depressed again.

RESET - return to zero (if the timer is stopped it will hold at zero; if it is running it will reset to zero and immediately begin counting up).

HOLD – when held down freezes the timer *display* (the counter keeps on going); when released the display catches up to the current count.

All user wiring to and from the OM-2000 module takes place at DB-25 and DB-9 multi-pin connectors mounted on top of the module and located underneath the hinged meterbridge. All analog audio is +4dBu balanced. Pinout drawings on pages 4-5 show all wiring connections at a glance.

Hook-Ups

As stated before, all user wiring to and from the OM-2000 modules takes place at DB-25 and DB-9 multi-pin connectors on the top of module.

DB-25 Connector – Audio

Handles External input and Program, Audition, Mono, and Mix-minus outputs. All signals are +4dBu balanced.

Pin 25 – PGM Lt Out SH
Pin 24 – PGM Lt Out HI
Pin 12 – PGM Lt Out LO

Pin 11 – PGM Rt Out SH
Pin 10 – PGM Rt Out HI
Pin 23 – PGM Rt Out LO

Pin 22 – AUD Lt Out SH
Pin 21 – AUD Lt Out HI
Pin 9 – AUD Lt Out LO

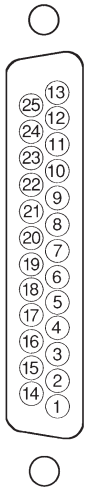
Pin 8 – AUD Rt Out SH
Pin 7 – AUD Rt Out HI
Pin 20 – AUD Rt Out LO

Pin 19 – MONO Out SH
Pin 18 – MONO Out HI
Pin 6 – MONO Out LO

Pin 5 – MXM Out SH
Pin 4 – MXM Out HI
Pin 17 – MXM Out LO

Pin 16 – EXT Lt In SH
Pin 15 – EXT Lt In HI
Pin 3 – EXT Lt In LO

Pin 2 – EXT Rt In SH
Pin 1 – EXT Rt In HI
Pin 14 – EXT Rt In LO

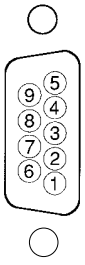


Typical DB-25 connector

DB-9 Connector – Audio

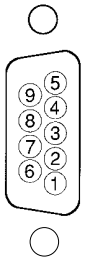
Handles CUE output.

Pin 5 – CUE Out SH
Pin 4 – CUE Out HI
Pin 9 – CUE Out LO



Typical DB-9 connector

DB-9 Connector — Control



Typical DB-9 connector

Handles Tally 1 and Tally 2 control connections.

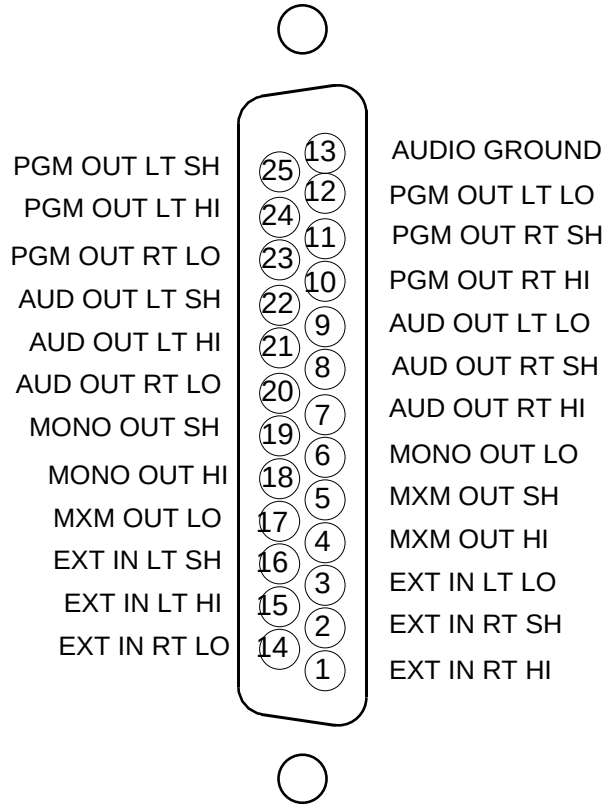
Pin 3 – Tally 1 N.O.
Pin 7 – Tally 1 Com
Pin 6 – Tally 2 Com
Pin 1 – Tally 2 N.O.
Pins 2 and 8 - Audio Common

These are simple relay closures that activate whenever programmed input modules are turned ON (see pages 2-3 and 3-3). The Tally 1 closure is activated whenever the CR mute is activated, and the Tally 2 closure is activated whenever the studio mute is activated. The ports can be used to control externally powered tally lights that requires a continuous closure to function.

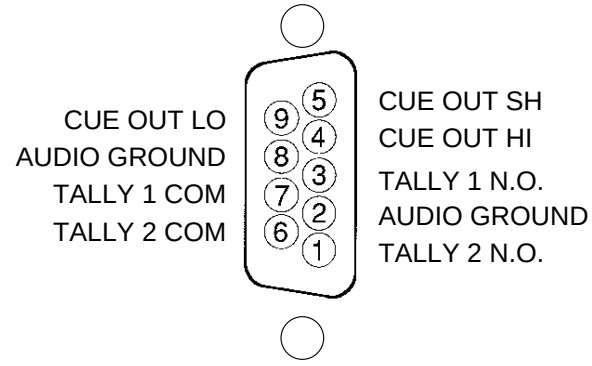
OM-2000 Output Module

DB Connector Pinouts

I/O PORTS ANALOG (DB-25)



ANALOG OUTPUT PORTS



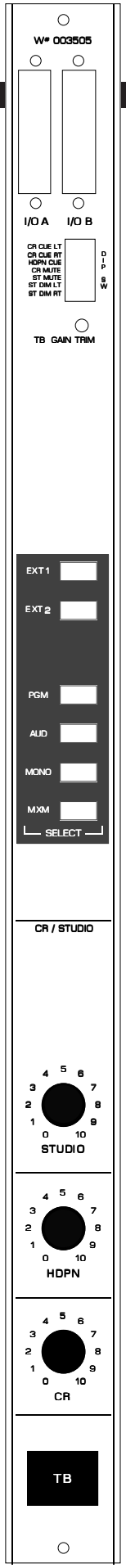
Control Room/Studio Module

(CRS-2000)

Chapter Contents

Control Room/Studio Module

(CRS-2000)



Module Overview

The CRS-2000 module is the A-2000 console operator's monitor module. It allows the operator to listen to the console's two stereo (PGM & AUD) outputs, two mono (MXM & MONO) outputs and two external stereo line level inputs brought directly into the module.

A recessed front panel multi-turn trimpot adjusts talkback level.

The CRS-2000 module also houses three console monitor circuits, which follow the source selection switches. They are:

CONTROL ROOM (CR)—a dedicated output designed to drive a separate, user provided power amp/speaker system in the main control room;

STUDIO—a second stereo output intended for a remote (i.e., non CR) studio power amp/speaker system;

HEADPHONE (HDPN)—an additional output (w/built-in power amp) that drives the console operator's headphones. There are two types of headphone output: the +4dBu balanced output at the module's right DB-25 connector (B), and the headphone jack mounted in the right-hand corner of the console, which is actually the output from a built-in headphone amplifier.

MONITOR OUTPUT—a monitor source select (without CUE or MUTE interrupt) independent output.

The CRS-2000 module has a talkback switch. When the talkback switch is pressed (it is momentary action), any microphone assigned to talkback bus (see pages 2-4 and 3-3) will interrupt the regular monitor signals being sent to the studio.

All user wiring to and from the CRS-2000 module takes place at the DB-25 multi-pin connectors mounted at the top of the module and located underneath the hinged meterbridge. There are two connectors: the left one accepts the external 2 source input and handles audio outputs; the right accepts the external 1 source input and handles audio outputs. All audio connections are stereo line level analog signals (+4dBu balanced). A pinout drawing on page 5-6 shows all wiring connections at a glance.

Internal Programming Options

Internal programming for the control room/studio module is made via printed circuit board (PCB) mounted dipswitch SW1 located on the top of the module (beneath the DB-25 connectors). Note when a dipswitch position is thrown to the right it is ON.

Cue Interrupt

Dipswitch SW1 pos. 5-7 determines how the console's Cue function will interrupt regular monitor signals:

SW1 position 7 sends cue to CR left
SW1 position 6 sends cue to CR right
SW1 position 5 sends cue to HDPN*

*factory default settings

CR/Cue Mute

The audio from both the control room speakers and the console's built-in meterbridge speaker can easily be picked up by the console operator's microphone. This is a potential source of feedback. For this reason the console provides muting to the control room output and the built-in cue speaker whenever a mic programmed for control room/HDPN3 mute is turned ON with A selected as the input source (see pages 2-3 and 3-3).

SW1 position 4 will mute cue and the CR output whenever an input channel set to activate the CR mute is ON

Studio Mute

When SW1 pos 3 is activated, it automatically mutes talkback out and the console's studio output whenever an input module programmed for studio/studio 2 mute is turned ON with A selected as the input source. This is used to prevent feedback from studio mics.

Studio Dim

Input modules controlling studio microphones can be programmed to MUTE a studio whenever the module is turned on (i.e., it's microphone is live). If you wish, you can have a studio DIM (drop -20dB in level) instead of MUTE:

SW1 positions 1 causes Studio right to DIM

SW1 positions 2 causes Studio left to DIM

Note the DIM functions also affect the talkback interrupt. Note also if the studio is muted, talkback cannot be heard. However, if the studio is programmed to DIM instead of MUTE, talkback audio could presumably make it from the studio monitor speakers to the open studio mic.

Hook-Ups

As stated before, all user wiring to and from the CRS-2000 module takes place at the two DB-25 multi-pin connectors mounted at the top of the module.

Left DB-25 "A" Connector — Audio

Handles module's External 2 Stereo inputs and studio pre, headphone pre, and monitor pre outputs. All audio signals are +4dBu balanced, analog stereo.

Pin 25 – Ext 2 Lt In SH
Pin 24 – Ext 2 Lt In HI
Pin 12 – Ext 2 Lt In LO

Pin 11 – Ext 2 Rt In SH
Pin 10 – Ext 2 Rt In HI
Pin 23 – Ext 2 Rt In LO

Pin 22 – St Pre Lt Out SH
Pin 21 – St Pre Lt Out HI
Pin 9 – St Pre Lt Out LO

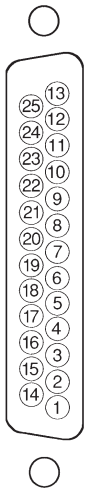
Pin 8 – St Pre Rt Out SH
Pin 7 – St Pre Rt Out HI
Pin 20 – St Pre Rt Out LO

Pin 19 – HDPN Pre Lt Out SH
Pin 18 – HDPN Pre Lt Out HI
Pin 6 – HDPN Pre Lt Out LO

Pin 5 – HDPN Pre Rt Out SH
Pin 4 – HDPN Pre Rt Out HI
Pin 17 – HDPN Pre Rt Out LO

Pin 16 – Mon Pre Lt Out SH
Pin 15 – Mon Pre Lt Out HI
Pin 3 – Mon Pre Lt Out LO

Pin 2 – Mon Pre Rt Out SH
Pin 1 – Mon Pre Rt Out HI
Pin 14 – Mon Pre Rt Out LO



Typical DB-25 connector

Right DB-25 "B" Connector — Audio

Handles module's External 1 Stereo inputs and studio, headphone, and control room outputs. All audio signals are +4dBu balanced, analog stereo.

Pin 25 – Ext 1 Lt In SH
Pin 24 – Ext 1 Lt In HI
Pin 12 – Ext 1 Lt In LO

Pin 11 – Ext 1 Rt In SH
Pin 10 – Ext 1 Rt In HI
Pin 23 – Ext 1 Rt In LO

Pin 22 – St Lt Out SH
Pin 21 – St Lt Out HI
Pin 9 – St Lt Out LO

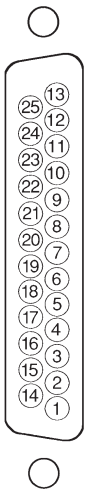
Pin 8 – St Rt Out SH
Pin 7 – St Rt Out HI
Pin 20 – St Rt Out LO

Pin 19 – HDPN Lt Out SH
Pin 18 – HDPN Lt Out HI
Pin 6 – HDPN Lt Out LO

Pin 5 – HDPN Rt Out SH
Pin 4 – HDPN Rt Out HI
Pin 17 – HDPN Rt Out LO

Pin 16 – CR Lt Out SH
Pin 15 – CR Lt Out HI
Pin 3 – CR Lt Out LO

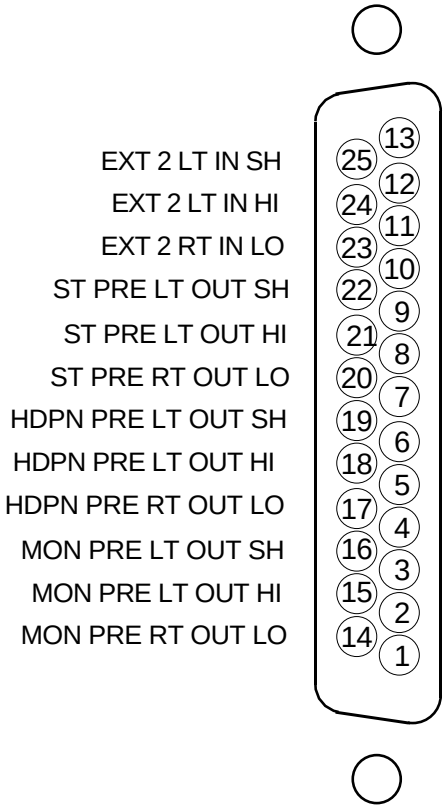
Pin 2 – CR Rt Out SH
Pin 1 – CR Rt Out HI
Pin 14 – CR Rt Out LO



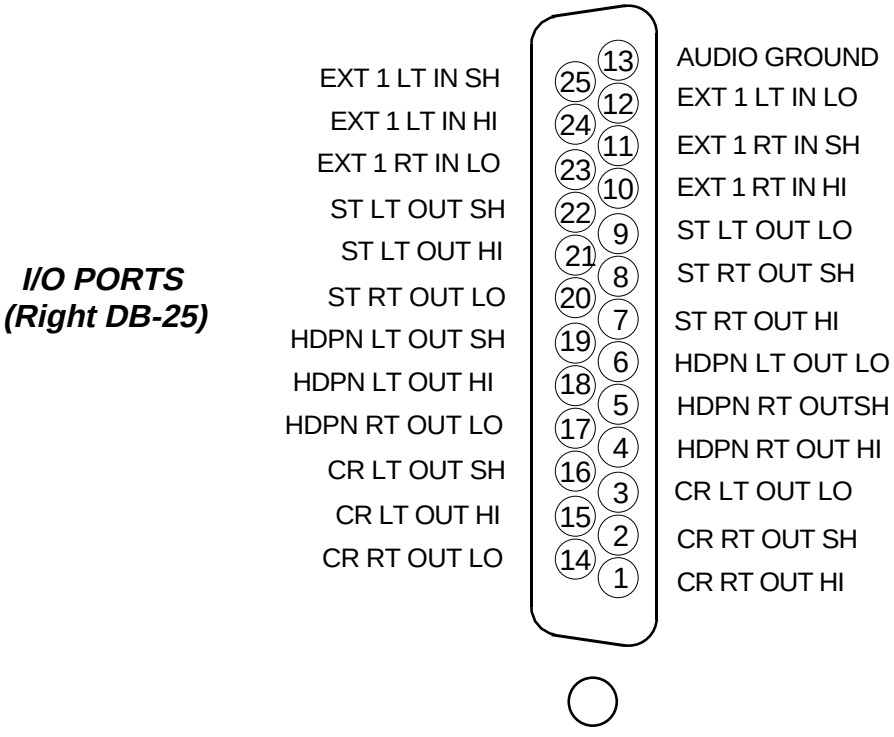
Typical DB-25 connector

CRS-2000 Control Room/Studio Module

DB Connector Pinouts



I/O PORTS (Left DB-25)

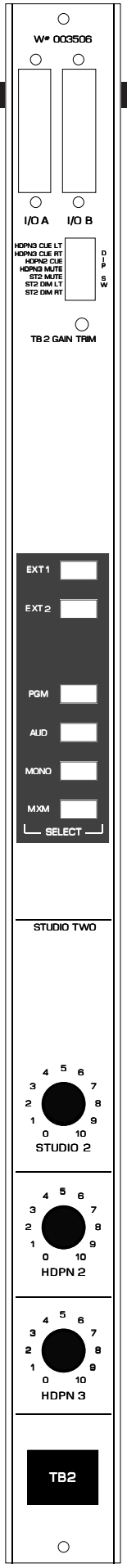


I/O PORTS (Right DB-25)

Studio Two Module

(SS-2000)

Chapter Contents



Studio Two Module

(SS-2000)

Module Overview

The SS-2000 module is similar to the CRS-2000 module. The monitor signal being sent to this studio follows the source select switching. This switching is indentical to the control room/monitor module's and includes the console's two stereo (PGM & AUD) outputs, two mono (MXM & MONO) outputs and two external stereo line level inputs brought directly into the module.

A recessed front panel multi-turn trimpot adjusts talkback level.

The SS-2000 module also houses three console monitor circuits, which follow the source selection switches. They are:

STUDIO—a stereo output intended for a remote studio power amp/ speaker system;

HEADPHONES (HDPN2 & HDPN3)—an additional line level balanced outputs to drive power amplifiers for guest or produce headphones. Both pre and post fader outputs are provided.

MONITOR OUTPUT—a monitor source select (without CUE or MUTE interrupt) independent output.

The SS-2000 module has a talkback switch. When the talkback switch is pressed (it is momentary action), any microphone assigned to talkback bus (see pages 2-4 and 3-3) will interrupt the regular monitor signals being sent to the second studio output.

All user wiring to and from the SS-2000 module takes place at the DB-25 multi-pin connectors mounted at the top of the module and located underneath the hinged meterbridge. There are two connectors: the left one accepts the external 2 source input and handles audio outputs; the right accepts the external 1 source input and handles audio outputs. All audio connections are stereo line level analog signals (+4dBu balanced). A pinout drawing on page 6-6 shows all wiring connections at a glance.

Internal Programming Options

Internal programming for the control room/studio module is made via printed circuit board (PCB) mounted dipswitch SW1 located on the top of the module (beneath the DB-25 connectors). Note when a dipswitch position is thrown to the right it is ON.

Cue Interrupt

Dipswitch SW1 pos 5-7 determines how the console's Cue function will interrupt regular monitor signals:

SW1 position 7 sends cue to HDPN 3 left
SW1 position 6 sends cue to HDPN 3 right
SW1 position 5 sends cue to HDPN 2*

*factory default settings

HDPN 3 Mute

When SW1 pos 4 is activated, it automatically mutes the console's headphone 3 output whenever an input module programmed for control room/HDPN 3 mute is turned ON with A selected as the input source.

Studio 2 Mute

When SW1 pos 3 is activated, it automatically mutes talkback out and the console's studio 2 output whenever an input module programmed for studio/studio 2 mute is turned ON with A selected as the input source. This is used to prevent feedback from the studio mics.

Studio 2 Dim

Input modules controlling studio microphones can be programmed to MUTE a studio whenever the module is turned on (i.e., it's microphone is live). If you wish, you can have a studio DIM (drop -20dB in level) instead of MUTE:

SW1 positions 1 causes Studio 2 right to DIM
SW1 positions 2 causes Studio 2 left to DIM

Note the DIM functions also affect the talkback interrupt. Note also if the studio is muted, talkback cannot be heard. However, if the studio is programmed to DIM instead of MUTE, talkback audio could presumably make it from the studio monitor speakers to the open studio mic.

Hook-Ups

As stated before, all user wiring to and from the SS-2000 module takes place at the two DB-25 multi-pin connectors mounted at the top of the module.

Left DB-25 "A" Connector — Audio

Handles module's External 2 Stereo inputs and studio 2 pre, headphone 2 pre, and monitor 2 pre outputs. All audio signals are +4dBu balanced, analog stereo.

Pin 25 – Ext 2 Lt In SH
Pin 24 – Ext 2 Lt In HI
Pin 12 – Ext 2 Lt In LO

Pin 11 – Ext 2 Rt In SH
Pin 10 – Ext 2 Rt In HI
Pin 23 – Ext 2 Rt In LO

Pin 22 – St 2 Pre Lt Out SH
Pin 21 – St 2 Pre Lt Out HI
Pin 9 – St Pre 2 Lt Out LO

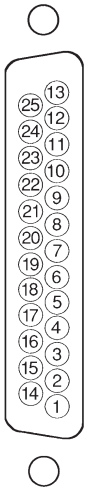
Pin 8 – St Pre 2 Rt Out SH
Pin 7 – St Pre 2 Rt Out HI
Pin 20 – St Pre 2 Rt Out LO

Pin 19 – HDPN 2 Pre Lt Out SH
Pin 18 – HDPN 2 Pre Lt Out HI
Pin 6 – HDPN 2 Pre Lt Out LO

Pin 5 – HDPN 2 Pre Rt Out SH
Pin 4 – HDPN 2 Pre Rt Out HI
Pin 17 – HDPN 2 Pre Rt Out LO

Pin 16 – Mon 2 Pre Lt Out SH
Pin 15 – Mon 2 Pre Lt Out HI
Pin 3 – Mon 2 Pre Lt Out LO

Pin 2 – Mon 2 Pre Rt Out SH
Pin 1 – Mon 2 Pre Rt Out HI
Pin 14 – Mon 2 Pre Rt Out LO



Typical DB-25 connector

Right DB-25 "B" Connector — Audio

Handles module's External 1 Stereo inputs and studio 2 and headphones 2 and 3 outputs. All audio signals are +4dBu balanced, analog stereo.

Pin 25 – Ext 1 Lt In SH
Pin 24 – Ext 1 Lt In HI
Pin 12 – Ext 1 Lt In LO

Pin 11 – Ext 1 Rt In SH
Pin 10 – Ext 1 Rt In HI
Pin 23 – Ext 1 Rt In LO

Pin 22 – St 2 Lt Out SH
Pin 21 – St 2 Lt Out HI
Pin 9 – St 2 Lt Out LO

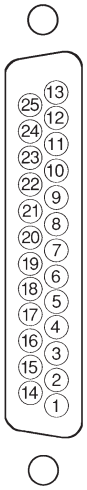
Pin 8 – St 2 Rt Out SH
Pin 7 – St 2 Rt Out HI
Pin 20 – St 2 Rt Out LO

Pin 19 – HDPN 2 Lt Out SH
Pin 18 – HDPN 2 Lt Out HI
Pin 6 – HDPN 2 Lt Out LO

Pin 5 – HDPN 2 Rt Out SH
Pin 4 – HDPN 2 Rt Out HI
Pin 17 – HDPN 2 Rt Out LO

Pin 16 – HDPN 3 Lt Out SH
Pin 15 – HDPN 3 Lt Out HI
Pin 3 – HDPN 3 Lt Out LO

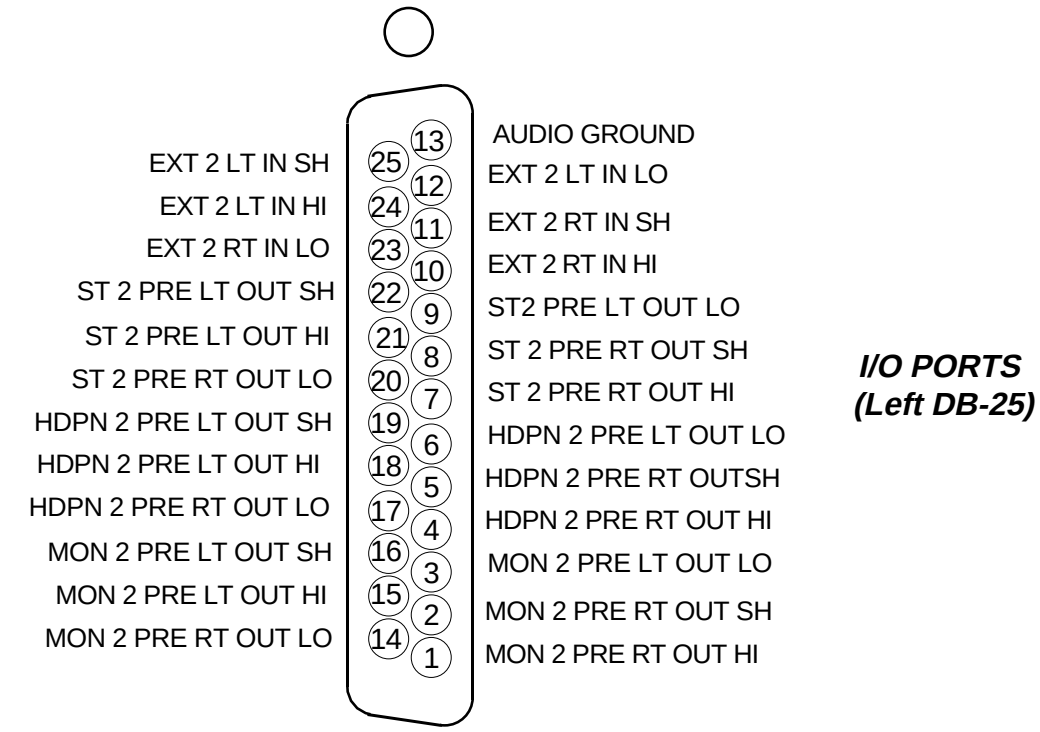
Pin 2 – HDPN 3 Rt Out SH
Pin 1 – HDPN 3 Rt Out HI
Pin 14 – HDPN 3 Rt Out LO



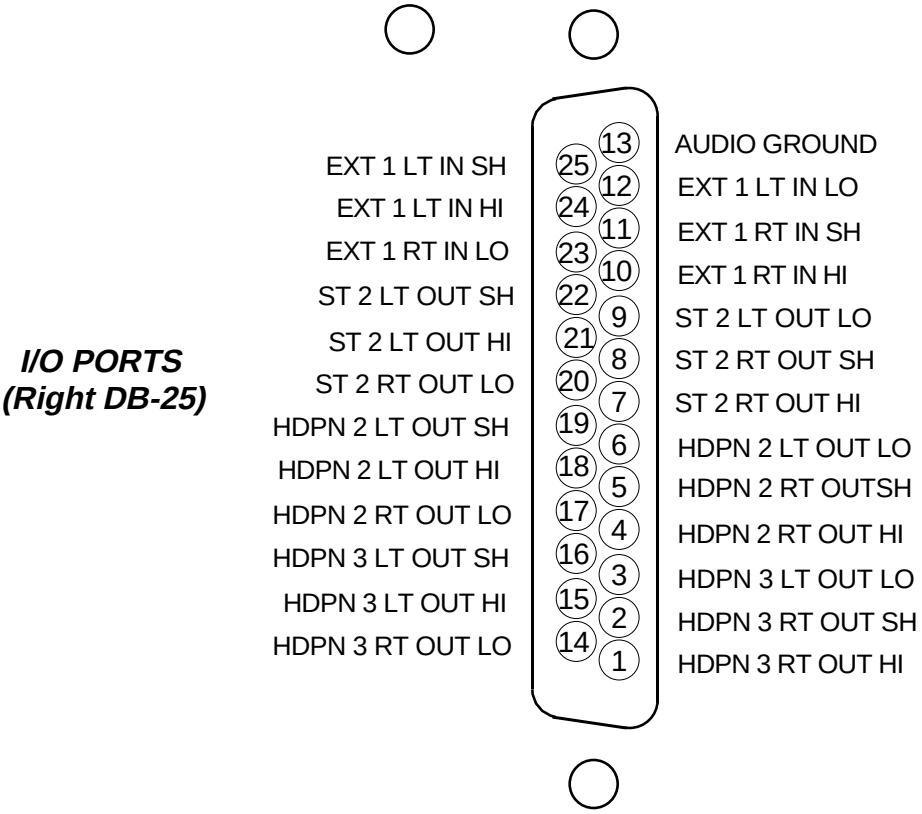
Typical DB-25 connector

SS-2000 Studio Two Module

DB Connector Pinouts



I/O PORTS (Left DB-25)



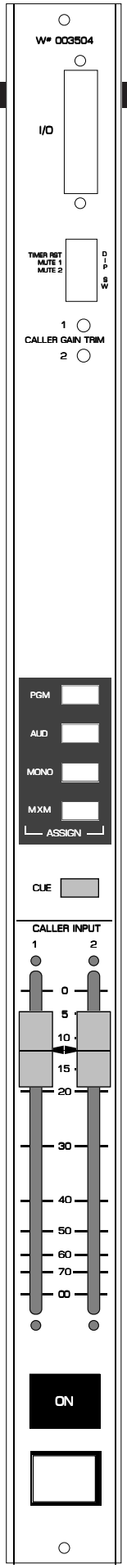
I/O PORTS (Right DB-25)

Superphone Input

(SPN-2000; optional)

Chapter Contents

Superphone Input (SPN-2000)



Module Overview

The SPN-2000 input module is used for telephone call-ins, and can handle two callers. Caller signals enter the module from your station hybrid; each caller has its own long-throw fader that controls the level of the caller's voice.

Output switches assign callers to any combination of the console's four outputs: PGM (program), AUD (audition), MONO and MXM (mix-minus).

Two recessed front panel trimpots at the top of the module adjust the console's CALLER levels.

The channel ON (red) and OFF (amber) switches are at the bottom of the module. These can be programmed (via PCB-mounted dipswitch) to activate control room and studio mutes, and timer restart.

All audio and control signals hook-ups are made via a multi-pin DB-25 connector mounted on the top of the module and located underneath the hinged meterbridge.

Caller Set-Ups

Pre-air segment communication between the console operator (DJ) and callers is via CUE button which places the callers' voices on the console's cue speaker (or control room speakers/operator's headphone if the CRS-2000 module's cue interrupt function has been so programmed).

A typical call-in segment might proceed as follows:

Caller phones in, DJ picks up off-air during a track play to set up the call. He assigns his mic channel and the phone module to MXM, places the caller in CUE, and talks to the caller. Neither the DJ mic nor the phone module need to be ON for two-way communication.

When he is ready to take the call on-air, the DJ makes sure both modules (his mic and phone) are assigned to PGM and turns them ON. He then deactivates caller CUE to hear the normal feed.

Internal Programming Options

Internal programming is accomplished via printed circuit board (PCB) mounted dipswitch SW1, located on the top of the module (beneath the DB-25 connector). Note when a dipswitch position is thrown to the right it is ON. The SPN-2000 PCB card contains PCB-mounted trimpots which may be used to set the module's output feed levels.

Mutes

When the SPN-2000 phone channel ON switch is pressed, it can activate console mute functions. Dipswitch SW1 determines which of the console's two mute lines will be activated:

SW1 pos 5 mutes the control room when the phone module is ON*
SW1 pos 4 mutes studio when the phone module is ON

*factory default settings

Timer Restart

When the module is turned ON, the console's digital timer can be programmed to automatically reset to zero and begin counting up.

SW1 pos 6 activates timer restart when the phone module's ON/ START switch is pressed

Gain Trimpots

There are two PCB-mounted trimpots. They are used as follows:

CR1 - sets Callers 1 In port input gain
CR2 - sets Callers 2 In port input gain

Hook-Ups

As stated before, all user wiring to and from SPN-2000 modules takes place at a multi-pin DB-25 connector mounted on the top of the module.

Audio Connections

These include callers 1 & 2 inputs and outputs. All are +4dBu balanced analog mono.

Pin 25 – Call 1 In SH
Pin 24 – Call 1 In HI
Pin 12 – Call 1 In LO

Pin 11 – Call 2 In SH
Pin 10 – Call 2 In HI
Pin 23 – Call 2 In LO

Pin 22 – Call 1 Out SH
Pin 21 – Call 1 Out HI
Pin 9 – Call 1 Out LO

Pin 8 – Call 2 Out SH
Pin 7 – Call 2 Out HI
Pin 20 – Call 2 Out LO

Control Connections

These include remote on and off, and on tally functions.

Pin 3 – Start
Pin 4 - Stop
Pin 5 - Start/Stop Common

Pin 14 – Remote On
Pin 15 – ON Tally
Pin 16 - Remote Off
Pin 18 - +5V Digital
Pin 19 - Digital Ground

To Turn the Module ON & OFF from a Remote Location

REMOTE ON — Activates the module's channel ON switch. Provide a momentary closure between Pin 14 (Remote On) and Digital Ground (Pin 19). This will latch the module ON. (User-supplied momentary contact switch required.)

REMOTE OFF — Activates the module's channel OFF switch. Provide a momentary closure between Pin 16 (Remote Off) and Digital Ground (Pin 19). This will latch the module OFF. (User-supplied momentary contact switch required.)

To START and STOP Remote Source Machines Using Module ON/ OFF Switches

EXTERNAL START — Hook up the remote machine's Start control pins to the SPN-2000 module's DB-25 connector control pins: for START wire to pins 3 and 5.

EXTERNAL STOP — Hook up the remote machine's Stop control pins to the SPN-2000 module's DB-25 connector control pins: for STOP wire to pins 4 and 5.

When the module's ON/START switch is pressed, a closure takes place between START/STOP COMMON and START; when the module's OFF switch is pressed, a closure takes place between START/STOP COMMON and STOP. These may be used to control a remote tape machine for recording phone segments.

On Tally

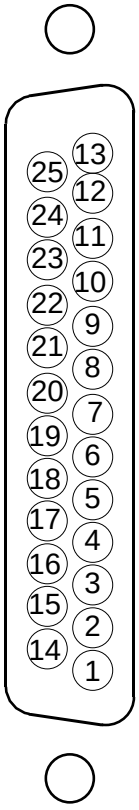
Lets the module's channel ON switch control an on-air light or other "microphone on" indicator at a remote location. This control function provides a continuous +5 volt signal at Pin 15 (On Tally) whenever the module is ON.

This signal can be used to control an externally powered tally light that requires a continuous signal to function. Or an external tally light (i.e., LED) can be powered from the input module by connecting the external LED to Digital Ground (Pin 19) and the On Tally port. In either case, current should not exceed 30 milliamps.

SPN-2000 Superphone Module

DB Connector Pinouts

I/O PORTS ANALOG AND LOGIC



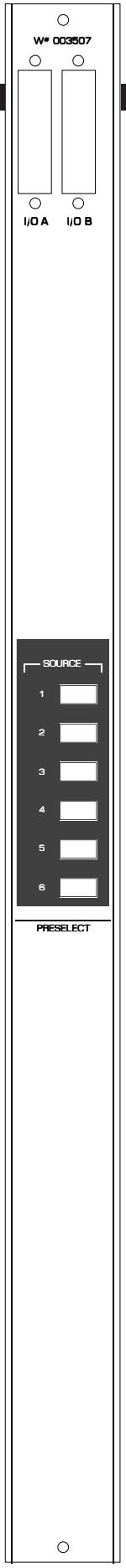
CALL 1 IN SH	25	13
CALL 1 IN HI	24	12
CALL 2 IN LO	23	11
CALL 1 OUT SH	22	10
CALL 1 OUT HI	21	9
CALL 2 OUT LO	20	8
DIGITAL GROUND	19	7
+5V DIGITAL	18	6
N/C	17	5
REMOTE OFF	16	4
ON TALLY	15	3
REMOTE ON	14	2
		1

AUDIO GROUND
CALL 1 IN LO
CALL 2 IN SH
CALL 2 IN HI
CALL 1 OUT LO
CALL 2 OUT SH
CALL 2 OUT HI
N/C
START/STOP COMMON
STOP
START
N/C
N/C

Line Preselector Module-Analog

(LS-2000; optional)

Chapter Contents



Line Preselector Module-Analog

(LS-2000; optional)

Overview

This optional module electronically selects one of six stereo line sources and routes it to one stereo output, allowing you to expand the source capability of an input channel or monitor module.

All audio input and output signals are made via two DB-25 multi-pin connectors mounted at the top of the module and located underneath the hinged meterbridge.

Internal Programming Options

There are no internal programming options on the LS-2000 module.

Hook-Ups

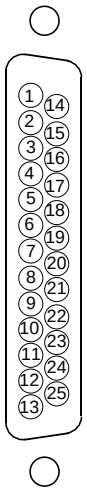
Left DB-25 “A” Connector - Audio Inputs 5, 6

Pin 25 – Line 5 Lt In SH
Pin 24 – Line 5 Lt In HI
Pin 12 – Line 5 Lt In LO

Pin 11 – Line 5 Rt In SH
Pin 10 – Line 5 Rt In HI
Pin 23 – Line 5 Rt In LO

Pin 22 – Line 6 Lt In SH
Pin 21 – Line 6 Lt In HI
Pin 9 – Line 6 Lt In LO

Pin 8 – Line 6 Rt In SH
Pin 7 – Line 6 Rt In HI
Pin 20 – Line 6 Rt In LO



Typical DB-25 connector

Left DB-25 “A” Connector - Audio Outputs

Pin 19 – Line Lt Out SH
Pin 18 – Line Lt Out HI
Pin 6 – Line Lt Out LO

Pin 5 – Line Rt Out SH
Pin 4 – Line Rt Out HI
Pin 17 – Line Rt Out LO

Right DB-25 “B” Connector - Audio Inputs 1-4

Pin 25 – Line 1 Lt In SH
Pin 24 – Line 1 Lt In HI
Pin 12 – Line 1 Lt In LO

Pin 11 – Line 1 Rt In SH
Pin 10 – Line 1 Rt In HI
Pin 23 – Line 1 Rt In LO

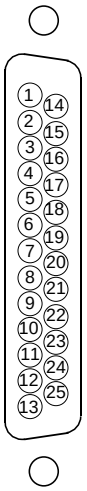
Pin 22 – Line 2 Lt In SH
Pin 21 – Line 2 Lt In HI
Pin 9 – Line 2 Lt In LO

Pin 8 – Line 2 Rt In SH
Pin 7 – Line 2 Rt In HI
Pin 20 – Line 2 Rt In LO

Pin 19 – Line 3 Lt In SH
Pin 18 – Line 3 Lt In HI
Pin 6 – Line 3 Lt In LO

Pin 5 – Line 3 Rt In SH
Pin 4 – Line 3 Rt In HI
Pin 17 – Line 3 Rt In LO

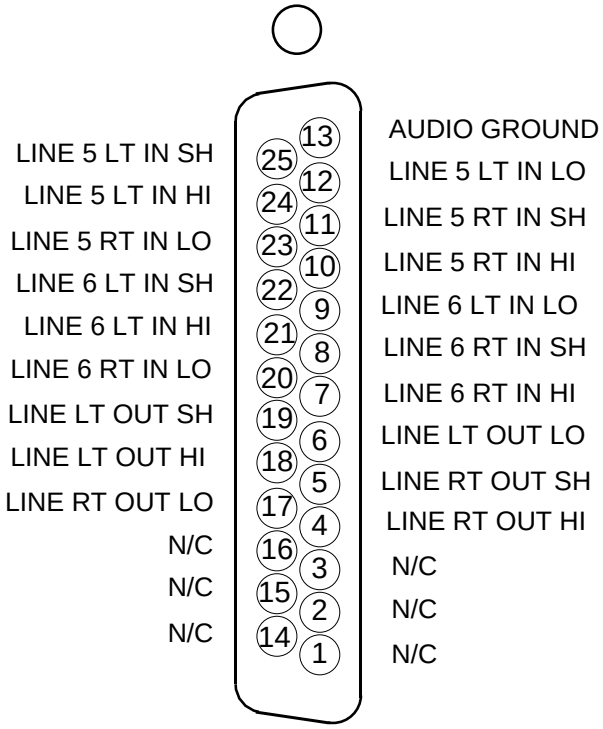
Pin 16 – Line 4 Lt In SH
Pin 15 – Line 4 Lt In HI
Pin 3 – Line 4 Lt In LO
Pin 2 – Line 4 Rt In SH
Pin 1 – Line 4 Rt In HI
Pin 14 – Line 4 Rt In LO



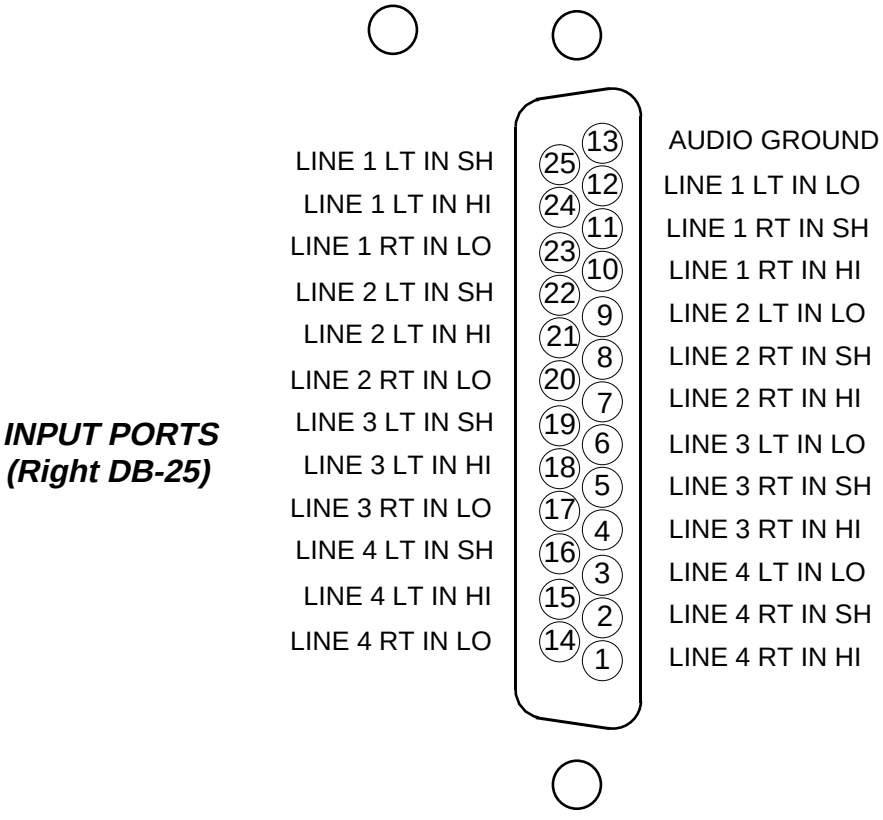
Typical DB-25 connector

LS-2000 Line Selector Module

DB Connector Pinouts



INPUT/OUTPUT (Left DB-25)



INPUT PORTS (Right DB-25)

Tape Remote Module

(TR-2000; optional)

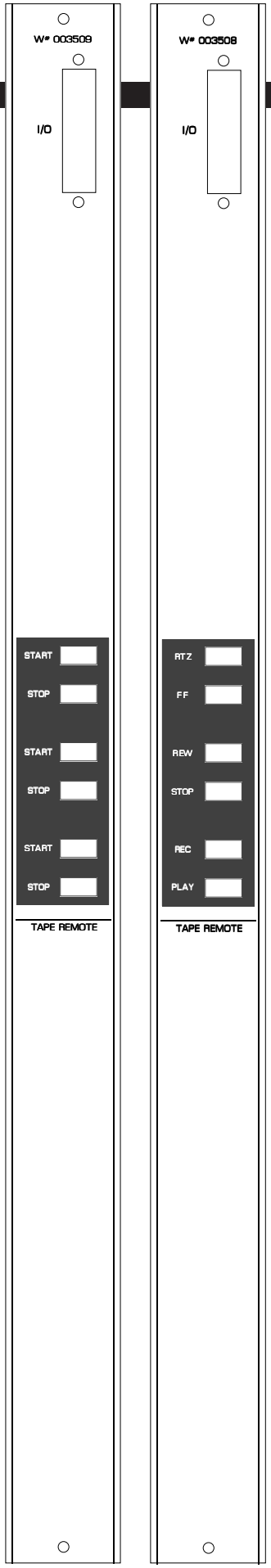
Chapter Contents

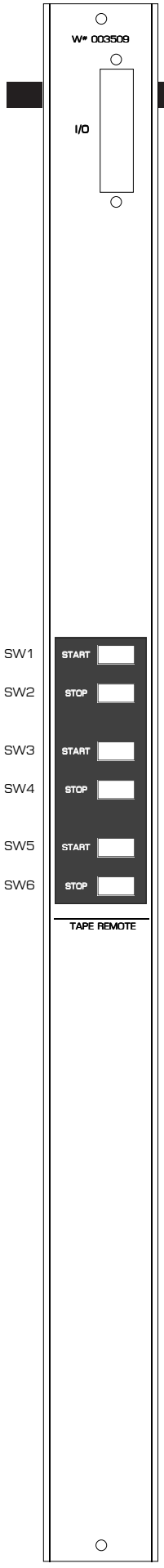
Tape Remote Module

(TR-2000; optional)

Module Overview

This optional module is available in two versions. The START/STOP version offers three sets of START and STOP buttons to provide start-stop control of three remote reel-to-reel machines. The full function version provides RTZ, FF, REW, STOP, REC, and PLAY buttons for a single machine. LED indicators in each switch function as tallyback indicators and are powered by the source machine. There are no internal connections between the tape remote panel and the console's power rails.

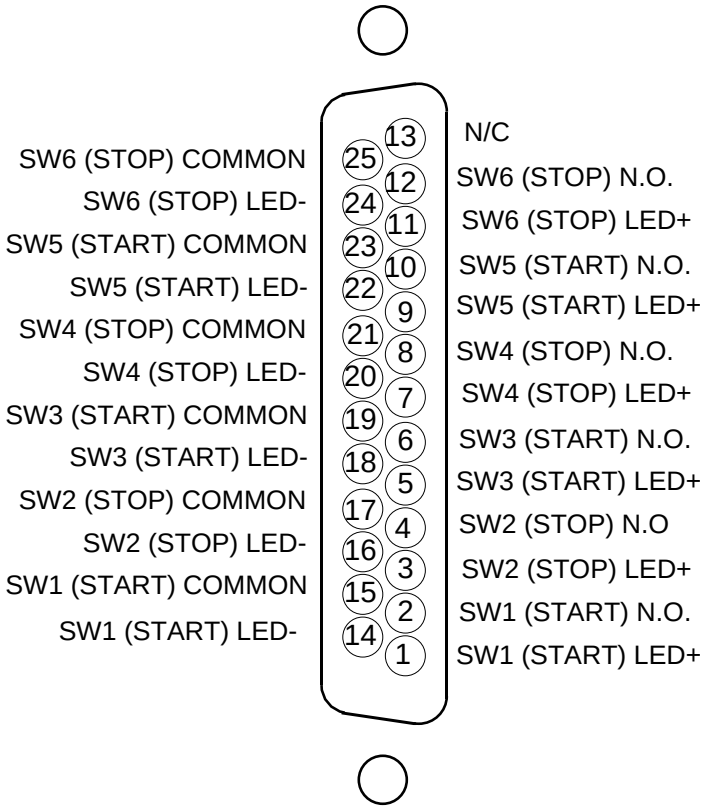


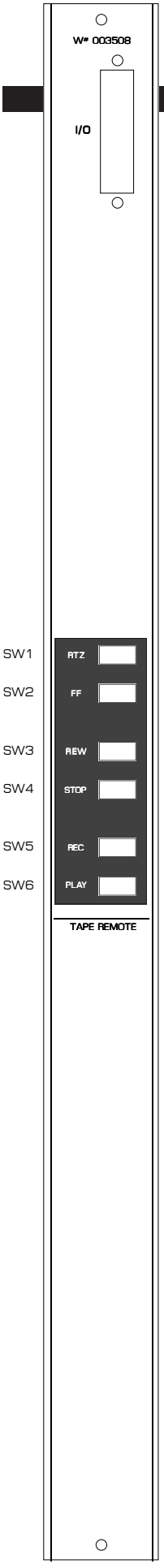


TR-2000/SS Tape Remote Module

DB Connector Pinouts

I/O CONTROL PORTS (DB-25)

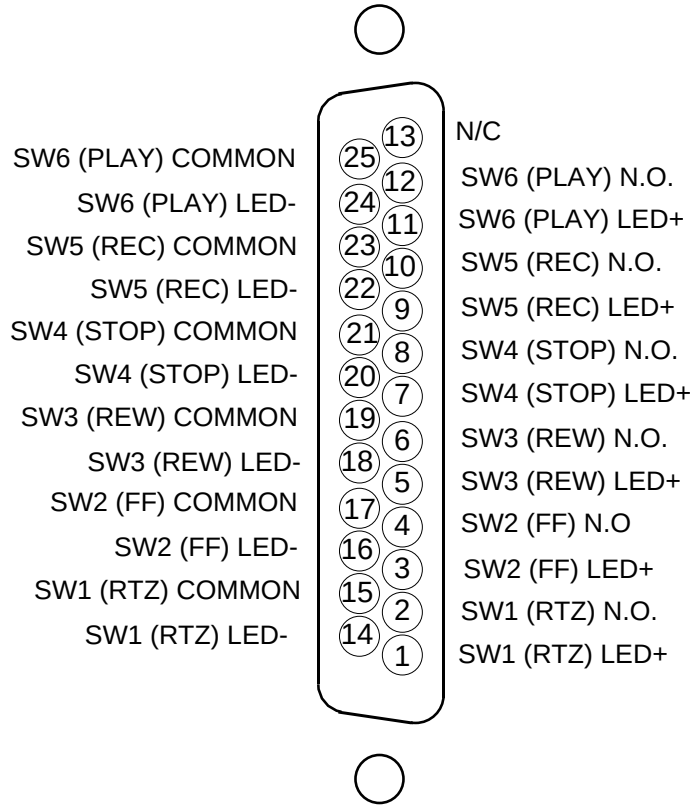




TR-2000/FF Tape Remote Module

DB Connector Pinouts

I/O CONTROL PORTS (DB-25)



Meterbridge

Chapter Contents

Meterbridge

Overview

The console's meterbridge houses two pairs of left-right VU meters (Program and Switched; see "Output Module" Chapter 4), the digital timer display, the cue speaker, and the console clock.

The meterbridge assembly hinges open for easy access (VU meter lamp replacement, setting the clock). Simply swing the bridge up and back until it rests in a fully opened position.

Digital Timer

The console timer control buttons are located on the OM-2000 Output Module (see page 4-2).

The timer is provided with an AUTO-RESTART function so programmed input modules can automatically reset the timer display to zero and start a new count, allowing the announcer to easily track his own pace.

The START/STOP button halts the timer, holds the last count, and then restarts and accumulates the count when depressed again—perfect for compiling tapes of desired duration.

RESET has a dual-mode capability:

- if you depress it while the timer is counting, the display will instantly reset to zero and start a fresh count;

- if the timer is already stopped, depressing this button will reset the timer to zero, where it will hold until start is pressed, or until an auto restart is activated.

HOLD button allows you to hold the display for a longer viewing duration, while still allowing the counter to continue in the background. Releasing the button will then display the current count.

Console Clock

The Wheatstone digital clock is a six-digit time-of-day clock with LED display. The clock is designed with CMOS circuits and an on-board crystal-controlled time base oscillator. There are two basic parts to the clock: a main PCB containing the clock circuits and clock set controls (also may include capacitor backup) and a second PCB containing displays. Clock set controls may be accessed by opening the meterbridge cover.

Controls

The clock is controlled by a trimmer and two switches; the trimmer and switches are mounted on the main clock PCB assembly.

The trimmer alters the frequency of the quartz-controlled oscillator, which in turn causes the clock to run slightly slower or faster. In order to keep accurate time, the oscillator must run at 4.096 MHz. The oscillator is set to this frequency at the factory. However, due to the nature of quartz/crystal-controlled oscillators, there may be a slight change in the frequency of the oscillator during the first few months of operation due to the aging effect of quartz crystals. A minor readjustment of the trimmer will compensate for this effect.

A buffered output of the oscillator is available at TP1 to assist in adjusting the oscillator.

Setting the Time

The setting controls consist of two switches: MODE and SET. To set the clock, open the meterbridge cover:

1) The control switches (mounted on the main clock PCB assembly) are labelled "M" and "S". "M" (Mode) is used to scroll from seconds to minutes to hours; "S" is used to Set the time. The procedure is to set the clock slightly ahead of the current time, hold the second count at "00" until the current time catches up, and then release the count.
2) Press the MODE button until the hour digits blink. Depress the SET button until the desired hour is displayed.
3) Press the MODE button until the minute digits blink. Depress the SET button until the desired minute count is displayed.
4) Press the MODE button until the second digits blink. Depress and hold the SET button; the seconds display will hold at "00". When the current time catches up to the display, release the SET button. The clock will start counting. Hit the MODE button three more times to place the clock into working mode.

Capacitor Backup

With the meterbridge open note the super capacitor at C25. This super capacitor is self charging. Note that the super capacitor does NOT light up the clock display; it powers the clock crystal to keep it from losing count (it will do this for about one hour).

Operational Modes

The standard factory default clock configuration is crystal-controlled, 12 hour mode, stand-alone operation. However, the clock will operate either from the internal crystal controlled time base or from an ESE master (TC-76, TC-89, TC-90, autodetect) signal. Because crystal time bases are subject to drift over time, Wheatstone recommends operating the clock in the ESE slave mode for those applications where the exact time is critical.

It can also be programmed to count in either 12 hour or 24 hour modes. Connect an ESE master at connector CT3 (Pin 1 - Signal, Pin 2 - Shield). Switch #4 on SW3 sets 12/24 hour mode (Off - 12 hour, On - 24 hour).

Parts List

Chapter Contents

MM-2000 MONO MIC INPUT MODULE PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
	FACEPLATE	1	***003521***
CT1	RIGHT ANGLE 25 PIN PC MOUNT CONNECTOR .318	1	***220120***
	6 PIN .098" PLUG FOR #26 AWG	2	***230031***
	9 PIN .098" PLUG FOR #26 AWG	1	***230032***
U1	8 PIN .3" DIP SMT SOCKET	1	***245001***
CT5, CT6	6 PIN .098" HEADER	2	***250065***
CT3	9 PIN .098" HEADER	1	***250066***
U3	74ACT00 TTL SMT Quad 2-Input NAND	1	***305004***
U1	2017 MIC PREAMP IC	1	***320003***
U2, U4	NE5532 DUAL LINEAR OP-AMP SMT	2	***325001***
Q1, Q2	MMBTA55 PNP SMT TRANSISTOR	2	***345002***
Z7	6.2V 1W ZENER DIODE	1	***350013***
D6, D7	1N4002W RECTIFYING 1AMP SMT DIODE	2	***355001***
Z1-Z6	5.1V SMT ZENER DIODE C5V1	6	***355002***
D1-D5, D8	1N4148 FAST SWITCHING SMT DIODE	6	***355003***
U5-U7	74VHC4053 SMT Triple 2-Channel Analog Mux	3	***385001***
C1	CAPACITOR, 2200µF 25V ELECTROLYTIC	1	***400015***
C3, C5, C12	CAPACITOR, 10µF 50V ELECTROLYTIC SMT	3	***405001***
C6, C18, C22, C27, C33	CAPACITOR, 22µF 25V ELECTROLYTIC SMT	5	***405002***
C7, C19, C28, C29	CAPACITOR, 100µF 25V ELECTROLYTIC SMT	4	***405003***
L1, L2	FERRITE BEAD SMT 1206 PACKAGE	2	***405010***
C9, C15, C25, C30	CAPACITOR, 10pF 100V CERAMIC SMT	4	***415001***
C17	CAPACITOR, 33pF 100V CERAMIC SMT	1	***415002***
C13	CAPACITOR, 330pF 100V CERAMIC SMT	1	***415004***
C2, C11	CAPACITOR, .001µF 50V CERAMIC SMT	2	***415005***
C35	CAPACITOR, .01µF 50V CERAMIC SMT	1	***415006***
C4, C8, C10, C14, C16, C20, C21, C23, C24, C26, C31, C32, C34, C37	CAPACITOR, .1µF 50V CERAMIC SMT	14	***415007***
C36	CAPACITOR, .22µF 50V CERAMIC SMT	1	***415009***
R15, R17-R19, R28, R33, R51, R53, R59	10 OHM 5% .25W MC1206 RESISTOR	9	***435002***
R8, R49, R52, R61, R62	100 OHM 5% .25W MC1206 RESISTOR	5	***435007***
R23	150 OHM 5% .25W MC1206 RESISTOR	1	***435008***
R10, R21, R25, R27	220 OHM 5% .25W MC1206 RESISTOR	4	***435009***
R11, R60	1.00 KOHM 1% .25W MC1206 RESISTOR	2	***435015***
R32, R48	1.30 KOHM 1% .25W MC1206 RESISTOR	2	***435016***
R13, R14, R46, R47, R57, R58	2.43 KOHM 1% .25W MC1206 RESISTOR	6	***435020***
R50	3.92 KOHM 1% .25W MC1206 RESISTOR	1	***435022***

MM-2000 MONO MIC INPUT MODULE PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
R1, R4, R5, R31, R36-R39, R40-R44	4.99 KOHM 1% .25W MC1206 RESISTOR	14	***435023***
R2, R3, R6, R7, R9, R12, R20, R22, R24, R26, R29, R45, R54-R56, R63	10.0 KOHM 1% .25W MC1206 RESISTOR	16	***435028***
R35	22.1 KOHM 1% .25W MC1206 RESISTOR	1	***435036***
R34	88.7 KOHM 1% .25W MC1206 RESISTOR	1	***435043***
CR1, CR2	1K 15 TURN TRIM POT	2	***500025***
SW4	4 POLE PUSHBUTTON SWITCH, ALTERNATE ACTION	1	***510085***
SW2, SW3, SW5, SW6	2 POLE PUSHBUTTON SWITCH, ALTERNATE ACTION	4	***510097***
ON/OFF SWITCH	31 SERIES PUSHBUTTON ON/OFF SWITCH	2	***510112***
SW1	7 POSITION RIGHT ANGLE DIP SWITCH	1	***510282***
FADER KNOB	RED FADER KNOB FOR CPA SERIES FADERS	1	***520033***
ON SWITCH CAP	RECTANGULAR TRANSPARENT RED CAP FOR 31 SERIES SWITCH	1	***530101***
OFF SWITCH CAP	RECTANGULAR TRANSPARENT YELLOW CAP FOR 31 SERIES SWITCH	1	***530102***
A/B/PGM/AUD/MOMO/MXM SWITCH BUTTON	CUSTOM WHITE LIGHT PIPE BUTTON	5	***530268***
FADER	MONO AUDIO TAPER FADER	1	***540050***
ON SWITCH LAMP	T 1 3/4 MIDGET GROOVED BASE SINGLE CHIP RED LED 5V	1	***600026***
OFF SWITCH LAMP	T 1 3/4 MIDGET GROOVED BASE SINGLE CHIP YELLOW LED LAMP REPLACEMENT	1	***600030***
DS1	HIGH INTENSITY AMBER SMT LED RIGHT ANGLE	1	***605010***
DS2	ULTRABRIGHT RIGHT ANGLE RED SMT LED	1	***605017***
DS3	ULTRABRIGHT RIGHT ANGLE GREEN SMT LED	1	***605018***
DS4, DS5	ULTRABRIGHT RIGHT ANGLE YELLOW SMT LED	2	***605019***
PCB_MM2000	PRINTED CIRCUIT BOARD	1	***700654***
	PEM FASTENERS	3	***821009***
F1-F3	FUSE/ POLYSWITCH .3AMP SMT RESETABLE	3	***835001***

SL-2000 STEREO LINE INPUT MODULE PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
	FACEPLATE	1	***003520***
CT1	RIGHT ANGLE 25 PIN PC MOUNT CONNECTOR .318	1	***220120***
	6 PIN .098" PLUG FOR #26 AWG	2	***230031***
	9 PIN .098" PLUG FOR #26 AWG	1	***230032***
CT5, CT6	6 PIN .098" HEADER	2	***250065***
CT3	9 PIN .098" HEADER	1	***250066***
U5	74ACT00 TTL SMT Quad 2-Input NAND	1	***305004***
U1-U4	NE5532 DUAL LINEAR OP-AMP SMT	4	***325001***
Q1, Q2	MMBTA55 PNP SMT TRANSISTOR	2	***345002***
Z3	6.2V 1W ZENER DIODE	1	***350013***
D6, D7	1N4002W RECTIFYING 1AMP SMT DIODE	2	***355001***
Z1, Z2	5.1V SMT ZENER DIODE C5V1	2	***355002***
D1-D5, D8	1N4148 FAST SWITCHING SMT DIODE	6	***355003***
U6-U10	74VHC4053 SMT Triple 2-Channel Analog Mux	5	***385001***
C1, C12, C24-C28, C33, C37, C39, C42	CAPACITOR, 22µF 25V ELECTROLYTIC SMT	11	***405002***
C2, C3, C11, C32, C40, C41	CAPACITOR, 100µF 25V ELECTROLYTIC SMT	6	***405003***
C5-C7, C9, C10, C14-C16, C18, C19, C21, C29	CAPACITOR, 10pF 100V CERAMIC SMT	12	***415001***
C22, C31	CAPACITOR, 33pF 100V CERAMIC SMT	2	***415002***
C44	CAPACITOR, .01µF 50V CERAMIC SMT	1	***415006***
C4, C8, C13, C17, C20, C23, C30, C34-C36, C38, C43, C46, C47	CAPACITOR, .1µF 50V CERAMIC SMT	14	***415007***
C45	CAPACITOR, .22µF 50V CERAMIC SMT	1	***415009***
R34, R36, R37, R46, R78	10 OHM 5% .25W MC1206 RESISTOR	5	***435002***
R27, R80, R81	100 OHM 5% .25W MC1206 RESISTOR	3	***435007***
R41	150 OHM 5% .25W MC1206 RESISTOR	1	***435008***
R26, R29, R39, R43, R45, R48, R50	220 OHM 5% .25W MC1206 RESISTOR	7	***435009***
R30, R32, R33, R76, R77, R79	1.00 KOHM 1% .25W MC1206 RESISTOR	6	***435015***
R70, R71	2.43 KOHM 1% .25W MC1206 RESISTOR	2	***435020***
R56, R73, R75, R84	3.32 KOHM 1% .25W MC1206 RESISTOR	4	***435021***
R1, R3, R4, R7, R8, R14, R16, R17, R20, R21, R57-R60	4.99 KOHM 1% .25W MC1206 RESISTOR	14	***435023***
R2, R5, R6, R9, R15, R18, R19, R22, R28, R31, R38, R40, R42, R44, R47, R53, R61-R69, R72	10.0 KOHM 1% .25W MC1206 RESISTOR	26	***435028***
R74, R82, R83	10.0 KOHM 1% .25W MC1206 RESISTOR	3	***435028***
R23, R35, R52	22.1 KOHM 1% .25W MC1206 RESISTOR	3	***435036***
R54, R55	40.2 KOHM 1% .25W MC1206 RESISTOR	2	***435039***
R24, R49	88.7 KOHM 1% .25W MC1206 RESISTOR	2	***435043***
R25, R51	221 KOHM 1% .25W MC1206 RESISTOR	2	***435046***
CR1, CR2	50K 15 TURN TRIM POT	2	***500015***

SL-2000 STEREO LINE INPUT MODULE PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
SW2-SW7	2 POLE PUSHBUTTON SWITCH, ALTERNATE ACTION	6	***510097***
START/STOP SWITCH	31 SERIES PUSHBUTTON ON/OFF SWITCH	2	***510112***
SW1	7 POSITION RIGHT ANGLE DIP SWITCH	1	***510282***
FADER KNOB	WHITE FADER KNOB FOR CPA SERIES FADERS	1	***520057***
START SWITCH CAP	RECTANGULAR TRANSPARENT RED CAP FOR 31 SERIES SWITCH	1	***530101***
STOP SWITCH CAP	RECTANGULAR TRANSPARENT YELLOW CAP FOR 31 SERIES SWITCH	1	***530102***
A/B/PGM/AUD/MONO/MXM SWITCH BUTTON	CUSTOM WHITE LIGHT PIPE BUTTON	5	***530268***
CUE SWITCH BUTTON	CUSTOM RED LIGHT PIPE BUTTON	1	***530269***
FADER	STEREO AUDIO TAPER FADER	1	***540051***
START SWITCH LAMP	T 1 3/4 MIDGET GROOVED BASE SINGLE CHIP RED LED 5V	1	***600026***
STOP SWITCH LAMP	T 1 3/4 MIDGET GROOVED BASE SINGLE CHIP YELLOW LED LAMP REPLACEMENT	1	***600030***
DS1	HIGH INTENSITY AMBER SMT LED RIGHT ANGLE	1	***605010***
DS2, DS6	ULTRABRIGHT RIGHT ANGLE RED SMT	2	***605017***
DS3	ULTRABRIGHT RIGHT ANGLE GREEN SMT	1	***605018***
DS4, DS5	ULTRABRIGHT RIGHT ANGLE YELLOW SMT	2	***605019***
PCB_SL2000	PRINTED CIRCUIT BOARD SMT	1	***700656***
	PEM FASTENERS	4	***821009***
F1-F3	FUSE/ POLYSWITCH .3AMP SMT RESETABLE	3	***835001***

OM-2000 OUTPUT MODULE PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
	FACEPLATE	1	***003522***
CT2	THREADED 9 PIN DB CONNECTOR-IDD9	1	***200031***
CT1	RIGHT ANGLE 25 PIN PC MOUNT CONNECTOR .318	1	***220120***
	10 PIN RIBBON PLUG	1	***230020***
	3 PIN .O98” PLUG FOR #26 AWG	1	***230028***
CT4	3 PIN .098" HEADER	1	***250062***
CT2	10 PIN PC MOUNT STRAIGHT UP SMT HEADER	1	***255005***
U7	74ACT00 TTL SMT Quad 2-Input NAND	1	***305004***
U6, U21	74ACT74 TTL SMT Dual D-Type Pos-Edge-Triggered Flip-Flop	2	***305021***
U1-U5, U8-U16	OP-275 DUAL LINEAR OP-AMP SMT	14	***325002***
Q1, Q2	MMBTA55 PNP SMT TRANSISTOR	2	***345002***
Z3	6.2V 1W ZENER DIODE	1	***350013***
D3-D6	1N4002W RECTIFYING 1AMP SMT DIODE	4	***355001***
Z1, Z2	5.1V SMT ZENER DIODE C5V1	2	***355002***
D2	1N4148 FAST SWITCHING SMT DIODE	1	***355003***
D1	SS14 SCHOTTKY SMT DIODE	1	***355004***
U17-U20	74VHC4053 SMT Triple 2-Channel Analog Mux	4	***385001***
C22, C25-C27, C60-C62	CAPACITOR, 22µF 25V ELECTROLYTIC SMT	7	***405002***
C20, C63, C64	CAPACITOR, 100µF 25V ELECTROLYTIC SMT	3	***405003***
C5, C6, C12, C13	CAPACITOR, 10pF 100V CERAMIC SMT	4	***415001***
C1-C3, C7, C14-C16, C18, C29, C30, C32, C33, C35, C36, C38-C40, C42, C43, C48, C50-C53	CAPACITOR, 33pF 100V CERAMIC SMT	24	***415002***
C56, C58	CAPACITOR, 33pF 100V CERAMIC SMT	2	***415002***
C4, C8, C9-C11, C17, C19, C21, C23, C24, C28, C31, C34, C37, C41, C44-C47, C49, C54, C55	CAPACITOR, .1µF 50V CERAMIC SMT	22	***415007***
C57, C59	CAPACITOR, .1µF 50V CERAMIC SMT	2	***415007***
R1, R2, R4, R5, R7, R8, R36, R37, R71, R73, R75, R76, R79, R83, R95, R99, R103, R107, R109	10 OHM 5% .25W MC1206 RESISTOR	19	***435002***
R111, R113, R114	10 OHM 5% .25W MC1206 RESISTOR	3	***435002***
R14-R25, R126, R127	100 OHM 5% .25W MC1206 RESISTOR	14	***435007***
R46	150 OHM 5% .25W MC1206 RESISTOR	1	***435008***
R41, R44, R48, R65-R69	220 OHM 5% .25W MC1206 RESISTOR	8	***435009***
R53	475 OHM 1% .25W MC1206 RESISTOR	1	***435011***
R3, R6, R9, R29-R31, R93, R121	1.30 KOHM 1% .25W MC1206 RESISTOR	8	***435016***
R88, R91, R118, R120	2.43 KOHM 1% .25W MC1206 RESISTOR	6	***435020***
R122-R125	3.32 KOHM 1% .25W MC1206 RESISTOR	4	***435021***
R90, R92, R116, R119	3.92 KOHM 1% .25W MC1206 RESISTOR	4	***435022***
R11, R12, R26-R28, R33, R34, R38, R52, R54-R64, R70, R72, R74, R77, R80-R82, R84-R87	4.99 KOHM 1% .25W MC1206 RESISTOR	31	***435023***
R89, R94, R96-R98, R100-R102, R104-R106, R110, R112, R115, R117	4.99 KOHM 1% .25W MC1206 RESISTOR	15	***435023***

OM-2000 OUTPUT MODULE PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
R10, R13, R32, R35, R78	10.0 KOHM 1% .25W MC1206 RESISTOR	5	***435028***
R39, R40, R42, R43, R45, R47, R49, R50, R108	40.2 KOHM 1% .25W MC1206 RESISTOR	9	***435039***
R51	88.7 KOHM 1% .25W MC1206 RESISTOR	1	***435043***
CR1-CR6	10K 15 TURN TRIM POT	6	***500014***
CUE POT	10KΩ SINGLE AUDIO CONDUCTIVE PLASTIC, BOURNS	1	***500058***
CR7-CR10	10K TRIM POT SMT	4	***505002***
SW1	2 POLE PUSHBUTTON SWITCH, ALTERNATE ACTION	1	***510097***
SW2-SW8	2 POLE PUSHBUTTON SWITCH, MOMENTARY	7	***510113***
CUE KNOB	1/8" COLLET KNOB, NO POINTER, NO LINE	1	***520053***
CUE CAP	PASTEL GREEN CAP W.BLACK LINE FOR 15MM KNOB	1	***530079***
EXT/ PGM/AUD/MONO/AUTO SWITCH BUTTON	CUSTOM WHITE LIGHT PIPE BUTTON	5	***530268***
RESET SWITCH BUTTON	CUSTOM RED LIGHT PIPE BUTTON	1	***530269***
HOLD SWITCH BUTTON	CUSTOM YELLOW LIGHT PIPE BUTTON	1	***530270***
START/STOP SWITCH BUTTON	CUSTOM GREEN LIGHT PIPE BUTTON	1	***530271***
K1, K2	DPDT RELAY,5V	2	***550006***
DS1, DS6	HIGH INTENSITY AMBER SMT LED RIGHT ANGLE	2	***605010***
DS4, DS8	ULTRABRIGHT RIGHT ANGLE RED SMT	3	***605017***
DS3, DS7	ULTRABRIGHT RIGHT ANGLE GREEN SMT	2	***605018***
DS5, DS9	ULTRABRIGHT RIGHT ANGLE YELLOW SMT	2	***605019***
PCB_BPSA1000	PRINTED CIRCUIT BOARD	1	***700299***
PCB_OM2000A	PRINTED CIRCUIT BOARD	1	***700655***
	D SUB STANDOFFJACK HARDWARE 3/16" LONG	2	***820047***
	PEM FASTENERS	5	***821009***
F1-F3	FUSE/ POLYSWITCH .3AMP SMT RESETABLE	3	***835001***

CRS-2000 CONTROL ROOM/STUDIO MODULE PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
	FACEPLATE	1	***003525***
CT2	25 PIN DB CONNECTOR	1	***200018***
CT1	RIGHT ANGLE 25 PIN PC MOUNT CONNECTOR .318	1	***220120***
	3 PIN .098" PLUG FOR #26 AWG	1	***230028***
	6 PIN .098" PLUG FOR #26 AWG	3	***230031***
	26 PIN RIBBON PLUG	1	***250043***
CT3	3 PIN .098" HEADER	1	***250062***
CT5-CT7	6 PIN .098" HEADER	3	***250065***
CT2	26 PIN PC MOUNT STRAIGHT UP SMT HEADER	1	***255003***
U8, U25, U26	74ACT74 TTL SMT Dual D-Type Pos-Edge-Triggered Flip-Flop	3	***305021***
U20-U22	LM675 POWER OP AMP	3	***320007***
U1-U7, U9-U12, U23, U24	OP-275 DUAL LINEAR OP-AMP SMT	13	***325002***
Q1	MMBTA55 PNP SMT TRANSISTOR	1	***345002***
Z3	6.2V 1W ZENER DIODE	1	***350013***
D1, D2	1N4002W RECTIFYING 1AMP SMT DIODE	2	***355001***
Z1, Z2	5.1V SMT ZENER DIODE C5V1	2	***355002***
D4	1N4148 FAST SWITCHING SMT DIODE	1	***355003***
D3	SS14 SCHOTTKY SMT DIODE	1	***355004***
U13-U19	74VHC4053 SMT Triple 2-Channel Analog Mux	7	***385001***
C1-C3, C19-C28, C31-C33, C47, C48, C50, C65-C68, C97-C99, C102, C105, C109-C112	CAPACITOR, 22µF 25V ELECTROLYTIC SMT	32	***405002***
C29, C30, C95, C96, C101	CAPACITOR, 100µF 25V ELECTROLYTIC SMT	5	***405003***
C49, C53	CAPACITOR, 330µF 25V ELECTROLYTIC SMT	2	***405004***
C69, C71, C73, C83, C86, C89	CAPACITOR, 1µF 35V ELECTROLYTIC SMT TANTALUM	6	***405005***
C4, C6, C7, C9, C11, C13, C14, C16, C34, C36, C39, C41, C43-C45, C51, C56, C58, C59, C61	CAPACITOR, 10pF 100V CERAMIC SMT	20	***415001***
C63, C75, C77, C78, C80, C82, C93, C94, C106, C108	CAPACITOR, 10pF 100V CERAMIC SMT	10	***415001***
C70, C72, C74	CAPACITOR, 33pF 100V CERAMIC SMT	3	***415002***
C85, C88, C91	CAPACITOR, 330pF 100V CERAMIC SMT	3	***415004***
C5, C8, C10, C12, C15, C17, C18, C35, C37, C38, C40, C42, C46, C52, C54, C55, C57, C60	CAPACITOR, .1µF 50V CERAMIC SMT	18	***415007***
C62, C64, C76, C79, C81, C92, C100, C103, C104, C107	CAPACITOR, .1µF 50V CERAMIC SMT	10	***415007***
C84, C87, C90	CAPACITOR, .22µF 50V CERAMIC SMT	3	***415009***
R147-R152	3.3 OHM 5% .25W MC1206 RESISTOR	6	***435001***
R6, R9, R10, R15, R20, R27, R42, R44, R55, R60, R68, R70, R106, R115, R118, R119, R131, R140	10 OHM 5% .25W MC1206 RESISTOR	18	***435002***
R156, R157, R160, R161	10 OHM 5% .25W MC1206 RESISTOR	4	***435002***
F1, F5, F6	47 OHM 5% .25W MC1206 RESISTOR	3	***435005***
R3, R4, R7, R12, R13, R16-R18, R21, R46, R48, R49, R52, R53, R57, R62, R103, R104, R107	100 OHM 5% .25W MC1206 RESISTOR	19	***435007***
R112, R113, R116, R133, R142	100 OHM 5% .25W MC1206 RESISTOR	5	***435007***

CRS-2000 CONTROL ROOM/STUDIO MODULE PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
R37	150 OHM 5% .25W MC1206 RESISTOR	1	***435008***
R28, R30, R36, R38, R39	220 OHM 5% .25W MC1206 RESISTOR	5	***435009***
R123, R126, R128	1.00 KOHM 1% .25W MC1206 RESISTOR	3	***435015***
R32, R87, R98, R174, R194	1.69 KOHM 1% .25W MC1206 RESISTOR	5	***435017***
R40, R72, R188, R189	2.00 KOHM 1% .25W MC1206 RESISTOR	4	***435018***
R74, R120	2.43 KOHM 1% .25W MC1206 RESISTOR	2	***435020***
R90, R92, R94, R162, R164, R166, R168, R170	3.32 KOHM 1% .25W MC1206 RESISTOR	8	***435021***
R23, R24, R31, R33, R65, R66, R88, R89, R99, R102, R109, R110, R136, R137, R175	4.99 KOHM 1% .25W MC1206 RESISTOR	15	***435023***
R96, R100	6.19 KOHM 1% .25W MC1206 RESISTOR	2	***435025***
R5, R8, R11, R14, R19, R22, R25, R26, R43, R45, R47, R50, R51, R54, R56, R58, R59, R61, R63	10.0 KOHM 1% .25W MC1206 RESISTOR	19	***435028***
R64, R67, R69, R75-R86, R91, R93, R95, R105, R108, R111, R114, R122, R125, R130, R132	10.0 KOHM 1% .25W MC1206 RESISTOR	26	***435028***
R134, R135, R138, R139, R141, R143-R145, R153, R154, R163, R165, R167, R169, R171	10.0 KOHM 1% .25W MC1206 RESISTOR	15	***435028***
R185, R186, R191, R192	10.0 KOHM 1% .25W MC1206 RESISTOR	4	***435028***
R158, R173, R187	15.0 KOHM 1% .25W MC1206 RESISTOR	3	***435032***
R97, R101	20.0 KOHM 1% .25W MC1206 RESISTOR	2	***435034***
R1, R2, R29, R34, R35, R41, R71, R73, R117, R121, R124, R127, R129, R146, R155, R159	40.2 KOHM 1% .25W MC1206 RESISTOR	16	***435039***
R172, R177-R184, R190, R193	40.2 KOHM 1% .25W MC1206 RESISTOR	11	***435039***
R176	88.7 KOHM 1% .25W MC1206 RESISTOR	1	***435043***
CR1	10K TRIM POT	1	***500021***
STUDIO/HDPN/CR POT	10K POT, DUAL AUDIO	3	***500029***
TB SWITCH	31 SERIES PUSHBUTTON ON/OFF SWITCH	1	***510112***
SW2-SW7	2 POLE PUSHBUTTON SWITCH, MOMENTARY	6	***510113***
SW1	7 POSITION RIGHT ANGLE DIP SWITCH	1	***510282***
STUDIO/HDPN/CR KNOB	15mm GREY COLLET KNOB FOR 1/4" SHAFT	3	***520038***
STUDIO/CR POT CAP	11mm BLUE CAP W/WHITE LINE FOR 15mm KNOB	2	***530045***
HDPN POT CAP	CREAM CAP W. BLACK LINE FOR 15MM KNOB	1	***530080***
TB SWITCH CAP	RECTANGULAR TRANSPARENT YELLOW CAP FOR 31 SERIES SWITCH	1	***530102***
EXT1/EXT2/PGM/AUD/MONO/MXM SWITCH BUTTON	CUSTOM WHITE LIGHT PIPE BUTTON	6	***530268***
DS1, DS2	HIGH INTENSITY AMBER SMT LED RIGHT ANGLE	2	***605010***
DS3	ULTRABRIGHT RIGHT ANGLE RED SMT LED	1	***605017***
DS4	ULTRABRIGHT RIGHT ANGLE GREEN SMT LED	1	***605018***
DS5, DS6	ULTRABRIGHT RIGHT ANGLE YELLOW SMT LED	2	***605019***
PCB_CR2000A	PRINTED CIRCUIT BOARD SMT	1	***700649***
	PEM FASTENERS	4	***821009***
U20-U22	HEATSINK FOR T-220 WITH MOUNTING PIN	3	***825010***
F1, F5, F6	FUSE/ POLYSWITCH .17 AMP RESETABLE	3	***830043***

CRS-2000 CONTROL ROOM/STUDIO MODULE PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
F4	FUSE/ POLYSWITCH .3AMP SMT RESETABLE	1	***835001***
F2, F3	FUSE/ POLYSWITCH 1.0AMP SMT RESETABLE	2	***835002***

SS-2000 STUDIO TWO MODULE PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
	FACEPLATE	1	***003526***
CT2	25 PIN DB CONNECTOR	1	***200018***
CT1	RIGHT ANGLE 25 PIN PC MOUNT CONNECTOR .318	1	***220120***
	3 PIN .098" PLUG FOR #26 AWG	1	***230028***
	6 PIN .098" PLUG FOR #26 AWG	3	***230031***
	26 PIN RIBBON PLUG	1	***250043***
CT3	3 PIN .098" HEADER	1	***250062***
CT5-CT7	6 PIN .098" HEADER	3	***250065***
CT2	26 PIN PC MOUNT STRAIGHT UP SMT HEADER	1	***255003***
U8, U25, U26	74ACT74 TTL SMT Dual D-Type Pos-Edge-Triggered Flip-Flop	3	***305021***
U20, U21	LM675 POWER OP AMP	2	***320007***
U1-U7, U9-U12, U23, U24	OP-275 DUAL LINEAR OP-AMP SMT	13	***325002***
Q1	MMBTA55 PNP SMT TRANSISTOR	1	***345002***
Z3	6.2V 1W ZENER DIODE	1	***350013***
D1, D2	1N4002W RECTIFYING 1AMP SMT DIODE	2	***355001***
Z1, Z2	5.1V SMT ZENER DIODE C5V1	2	***355002***
D4	1N4148 FAST SWITCHING SMT DIODE	1	***355003***
D3	SS14 SCHOTTKY SMT DIODE	1	***355004***
U13-U19	74VHC4053 SMT Triple 2-Channel Analog Mux	7	***385001***
C1-C3, C19-C28, C31-C33, C47, C48, C50, C65-C68, C97-C99, C102, C105, C109-C112	CAPACITOR, 22µF 25V ELECTROLYTIC SMT	32	***405002***
C29, C30, C95, C96, C101	CAPACITOR, 100µF 25V ELECTROLYTIC SMT	5	***405003***
C49, C53	CAPACITOR, 330µF 25V ELECTROLYTIC SMT	2	***405004***
C69, C71, C73, C83, C86, C89	CAPACITOR, 1µF 35V ELECTROLYTIC SMT TANTALUM	6	***405005***
C4, C6, C7, C9, C11, C13, C14, C16, C34, C36, C39, C41, C43-C45, C51, C56, C58, C59, C61	CAPACITOR, 10pF 100V CERAMIC SMT	20	***415001***
C63, C75, C77, C78, C80, C82, C93, C94, C106, C108	CAPACITOR, 10pF 100V CERAMIC SMT	10	***415001***
C70, C72, C74	CAPACITOR, 33pF 100V CERAMIC SMT	3	***415002***
C85, C88, C91	CAPACITOR, 330pF 100V CERAMIC SMT	3	***415004***
C5, C8, C10, C12, C15, C17, C18, C35, C37, C38, C40, C42, C46, C52, C54, C55, C57, C60	CAPACITOR, .1µF 50V CERAMIC SMT	18	***415007***
C62, C64, C76, C79, C81, C92, C100, C103, C104, C107	CAPACITOR, .1µF 50V CERAMIC SMT	10	***415007***
C84, C87, C90	CAPACITOR, .22µF 50V CERAMIC SMT	3	***415009***
R147-R152	3.3 OHM 5% .25W MC1206 RESISTOR	6	***435001***
R6, R9, R10, R15, R20, R27, R42, R44, R55, R60, R68, R70, R106, R115, R118, R119, R131, R140	10 OHM 5% .25W MC1206 RESISTOR	18	***435002***
R156, R157, R160, R161	10 OHM 5% .25W MC1206 RESISTOR	4	***435002***
F1, F5, F6	47 OHM 5% .25W MC1206 RESISTOR	3	***435005***
R3, R4, R7, R12, R13, R16-R18, R21, R46, R48, R49, R52, R53, R57, R62, R103, R104, R107	100 OHM 5% .25W MC1206 RESISTOR	19	***435007***
R112, R113, R116, R133, R142	100 OHM 5% .25W MC1206 RESISTOR	5	***435007***

SS-2000 STUDIO TWO MODULE PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
R37	150 OHM 5% .25W MC1206 RESISTOR	1	***435008***
R28, R30, R36, R38, R39	220 OHM 5% .25W MC1206 RESISTOR	5	***435009***
R123, R126, R128	1.00 KOHM 1% .25W MC1206 RESISTOR	3	***435015***
R32, R87, R98, R174, R194	1.69 KOHM 1% .25W MC1206 RESISTOR	5	***435017***
R40, R72	2.00 KOHM 1% .25W MC1206 RESISTOR	2	***435018***
R74, R120	2.43 KOHM 1% .25W MC1206 RESISTOR	2	***435020***
R90, R92, R94, R162, R164, R166, R168, R170	3.32 KOHM 1% .25W MC1206 RESISTOR	8	***435021***
R23, R24, R31, R33, R65, R66, R88, R89, R99, R102, R109, R110, R136, R137, R175	4.99 KOHM 1% .25W MC1206 RESISTOR	15	***435023***
R96, R100	6.19 KOHM 1% .25W MC1206 RESISTOR	2	***435025***
R5, R8, R11, R14, R19, R22, R25, R26, R43, R45, R47, R50, R51, R54, R56, R58, R59, R61, R63	10.0 KOHM 1% .25W MC1206 RESISTOR	19	***435028***
R64, R67, R69, R75-R86, R91, R93, R95, R105, R108, R111, R114, R122, R125, R130, R132	10.0 KOHM 1% .25W MC1206 RESISTOR	26	***435028***
R134, R135, R138, R139, R141, R143-R145, R153, R154, R163, R165, R167, R169, R171	10.0 KOHM 1% .25W MC1206 RESISTOR	15	***435028***
R185, R186, R191, R192	10.0 KOHM 1% .25W MC1206 RESISTOR	4	***435028***
R158, R173, R187	15.0 KOHM 1% .25W MC1206 RESISTOR	3	***435032***
R97, R101, R188, R189	20.0 KOHM 1% .25W MC1206 RESISTOR	4	***435034***
R1, R2, R29, R34, R35, R41, R71, R73, R117, R121, R124, R127, R129, R146, R155, R159	40.2 KOHM 1% .25W MC1206 RESISTOR	16	***435039***
R172, R177-R184, R190, R193	40.2 KOHM 1% .25W MC1206 RESISTOR	11	***435039***
R176	88.7 KOHM 1% .25W MC1206 RESISTOR	1	***435043***
CR1	10K TRIM POT	1	***500021***
STUDIO/HDPN/CR POT	10K POT, DUAL AUDIO	3	***500029***
TB SWITCH	31 SERIES PUSHBUTTON ON/OFF SWITCH	1	***510112***
SW2-SW7	2 POLE PUSHBUTTON SWITCH, MOMENTARY	6	***510113***
SW1	7 POSITION RIGHT ANGLE DIP SWITCH	1	***510282***
STUDIO/HDPN/CR KNOB	15mm GREY COLLET KNOB FOR 1/4" SHAFT	3	***520038***
STUDIO2 POT CAP	11mm BLUE CAP W/WHITE LINE FOR 15mm KNOB	1	***530045***
HDPN2/HDPN3 POT CAP	CREAM CAP W. BLACK LINE FOR 15MM KNOB	2	***530080***
TB SWITCH CAP	RECTANGULAR TRANSPARENT YELLOW CAP FOR 31 SERIES SWITCH	1	***530102***
EXT1/EXT2/PGM/AUD/MONO/MXM SWITCH BUTTON	CUSTOM WHITE LIGHT PIPE BUTTON	6	***530268***
TB SWITCH LAMP	T 1 3/4 MIDGET GROOVED BASE SINGLE CHIP YELLOW LED LAMP REPLACEMENT	1	***600030***
DS1, DS2	HIGH INTENSITY AMBER SMT LED RIGHT ANGLE	2	***605010***
DS3	ULTRABRIGHT RIGHT ANGLE RED SMT LED	1	***605017***
DS4	ULTRABRIGHT RIGHT ANGLE GREEN SMT LED	1	***605018***
DS5, DS6	ULTRABRIGHT RIGHT ANGLE YELLOW SMT LED	2	***605019***
PCB_CR2000A	PRINTED CIRCUIT BOARD SMT	1	***700649***
	PEM FASTENERS	4	***821009***
U20, U21	HEATSINK FOR T-220 WITH MOUNTING PIN	3	***825010***

SS-2000 STUDIO TWO MODULE PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
F1, F5, F6	FUSE/ POLYSWITCH .17 AMP RESETABLE	3	***830043***
F4	FUSE/ POLYSWITCH .3AMP SMT RESETABLE	1	***835001***
F2, F3	FUSE/ POLYSWITCH 1.0AMP SMT RESETABLE	2	***835002***

SPN-2000 SUPERPHONE MODULE PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
	FACEPLATE	1	***003524***
CT1	RIGHT ANGLE 25 PIN PC MOUNT CONNECTOR .318	1	***220120***
	6 PIN .098" PLUG FOR #26 AWG	2	***230031***
	9 PIN .098" PLUG FOR #26 AWG	2	***230032***
CT6, CT7	6 PIN .098" HEADER	2	***250065***
CT2, CT4	9 PIN .098" HEADER	2	***250066***
U6	74ACT00 TTL SMT Quad 2-Input NAND	1	***305004***
U1-U5	NE5532 DUAL LINEAR OP-AMP SMT	5	***325001***
Q1, Q2	MMBTA55 PNP SMT TRANSISTOR	2	***345002***
Z3	6.2V 1W ZENER DIODE	1	***350013***
D5, D6	1N4002W RECTIFYING 1AMP SMT DIODE	2	***355001***
Z1, Z2	5.1V SMT ZENER DIODE C5V1	2	***355002***
D1-D4	1N4148 FAST SWITCHING SMT DIODE	4	***355003***
U7-U11	74VHC4053 SMT Triple 2-Channel Analog Mux	5	***385001***
C1-C3, C9, C23, C27, C29-C31, C35, C37-C39, C44	CAPACITOR, 22µF 25V ELECTROLYTIC SMT	14	***405002***
C10, C22, C28	CAPACITOR, 100µF 25V ELECTROLYTIC SMT	3	***405003***
C5, C6, C8, C11, C13-C15, C17, C19, C20, C24, C26	CAPACITOR, 10pF 100V CERAMIC SMT	12	***415001***
C41	CAPACITOR, .01µF 50V CERAMIC SMT	1	***415006***
C4, C7, C12, C16, C18, C21, C25, C32-C34, C36, C40, C43, C45	CAPACITOR, .1µF 50V CERAMIC SMT	14	***415007***
C42	CAPACITOR, .22µF 50V CERAMIC SMT	1	***415009***
R2, R5, R6, R20, R39, R41, R42, R79	10 OHM 5% .25W MC1206 RESISTOR	8	***435002***
R3, R4, R7, R8, R10, R13, R81, R82	100 OHM 5% .25W MC1206 RESISTOR	8	***435007***
R46	150 OHM 5% .25W MC1206 RESISTOR	1	***435008***
R44, R48, R50, R52	220 OHM 5% .25W MC1206 RESISTOR	4	***435009***
R80	1.00 KOHM 1% .25W MC1206 RESISTOR	1	***435015***
R12, R26, R29, R30	1.69 KOHM 1% .25W MC1206 RESISTOR	4	***435017***
R37, R38, R75-R78	2.43 KOHM 1% .25W MC1206 RESISTOR	6	***435020***
R55, R62-R68, R73, R74	4.99 KOHM 1% .25W MC1206 RESISTOR	10	***435023***
R11, R14, R28, R31	8.45 KOHM 1% .25W MC1206 RESISTOR	4	***435026***
R1, R21-R25, R36, R43, R45, R47, R49, R51, R56-R61, R69-R72, R83	10.0 KOHM 1% .25W MC1206 RESISTOR	23	***435028***
R33, R40, R54	22.1 KOHM 1% .25W MC1206 RESISTOR	3	***435036***
R35	40.2 KOHM 1% .25W MC1206 RESISTOR	1	***435039***
R9, R15, R27, R32	53.6 KOHM 1% .25W MC1206 RESISTOR	4	***435041***
R34, R53	88.7 KOHM 1% .25W MC1206 RESISTOR	2	***435043***
CR1, CR2	10K 15 TURN TRIM POT	2	***500014***
SW2-SW6	2 POLE PUSHBUTTON SWITCH, ALTERNATE ACTION	5	***510097***

SPN-2000 SUPERPHONE MODULE PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
ON/OFF SWITCH	31 SERIES PUSHBUTTON ON/OFF SWITCH	2	***510112***
SW1	7 POSITION RIGHT ANGLE DIP SWITCH	1	***510282***
FADER KNOB	BLUE FADER KNOB FOR CPA SERIES FADERS	2	***520032***
ON SWITCH CAP	RECTANGULAR TRANSPARENT RED CAP FOR 31 SERIES SWITCH	1	***530101***
OFF SWITCH CAP	RECTANGULAR TRANSPARENT YELLOW CAP FOR 31 SERIES SWITCH	1	***530102***
PGM/AUD/MONO/MXM SWITCH BUTTON	CUSTOM WHITE LIGHT PIPE BUTTON	4	***530268***
CUE SWITCH BUTTON	CUSTOM RED LIGHT PIPE BUTTON	1	***530269***
FADER	MONO AUDIO TAPER FADER	2	***540050***
ON SWITCH LAMP	T 1 3/4 MIDGET GROOVED BASE SINGLE CHIP RED LED 5V	1	***600026***
OFF SWITCH LAMP	T 1 3/4 MIDGET GROOVED BASE SINGLE CHIP YELLOW LED LAMP REPLACEMENT	1	***600030***
DS1, DS5	ULTRABRIGHT RIGHT ANGLE RED SMT LED	2	***605017***
DS2	ULTRABRIGHT RIGHT ANGLE GREEN SMT LED	1	***605018***
DS3, DS4	ULTRABRIGHT RIGHT ANGLE YELLOW SMT LED	2	***605019***
PCB_SPN2000	PRINTED CIRCUIT BOARD SMT	1	***700657***
	PEM FASTENERS	3	***821009***
F1-F3	FUSE/ POLYSWITCH .3AMP SMT RESETABLE	3	***835001***

LS-2000 LINE SELECT MODULE PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
	FACEPLATE	1	***003527***
CT2	25 PIN DB CONNECTOR	1	***200018***
CT1	RIGHT ANGLE 25 PIN PC MOUNT CONNECTOR .318	1	***220120***
	26 PIN PLUG	1	***250043***
CT2	26 PIN PC MOUNT STRAIGHT UP SMT HEADER	1	***255003***
U13-U15	74ACT74 TTL SMT Dual D-Type Pos-Edge-Triggered Flip-Flop	3	***305021***
U1-U6, U11, U12	OP-275 DUAL LINEAR OP-AMP SMT	8	***325002***
Z3	6.2V 1W ZENER DIODE	1	***350013***
D1, D2	1N4002W RECTIFYING 1AMP SMT DIODE	2	***355001***
Z1, Z2	5.1V SMT ZENER DIODE C5V1	2	***355002***
D4	1N4148 FAST SWITCHING SMT DIODE	1	***355003***
D3	SS14 SCHOTTKY SMT DIODE	1	***355004***
U7-U10	74VHC4053 SMT Triple 2-Channel Analog Mux	4	***385001***
C1-C4, C37-C40, C47-C49, C52, C54, C55, C65	CAPACITOR, 22µF 25V ELECTROLYTIC SMT	15	***405002***
C50, C51, C61, C62, C64	CAPACITOR, 100µF 25V ELECTROLYTIC SMT	5	***405003***
C5, C6, C8, C9, C11, C12, C14, C15, C17, C19, C22, C23, C25, C26, C28, C29, C31, C32, C34	CAPACITOR, 10pF 100V CERAMIC SMT	19	***415001***
C35, C41, C42, C44, C45, C56, C57, C59, C60	CAPACITOR, 10pF 100V CERAMIC SMT	9	***415001***
C7, C10, C13, C16, C18, C20, C21, C24, C27, C30, C33, C36, C43, C46, C53, C58, C63	CAPACITOR, .1µF 50V CERAMIC SMT	17	***415007***
C66-C68	CAPACITOR, .1µF 50V CERAMIC SMT	3	***415007***
R19, R23, R59, R62	10 OHM 5% .25W MC1206 RESISTOR	4	***435002***
R17, R20, R61, R65	100 OHM 5% .25W MC1206 RESISTOR	4	***435007***
R37-R42	619 OHM 1% .25W MC1206 RESISTOR	6	***435013***
R24, R66	2.43 KOHM 1% .25W MC1206 RESISTOR	2	***435020***
R2, R3, R6, R7, R10, R11, R14, R15, R18, R25-R36, R44, R45, R48, R49, R52, R53, R56	4.99 KOHM 1% .25W MC1206 RESISTOR	28	***435023***
R57, R60, R68, R69, R72, R73, R78, R79, R82, R83	4.99 KOHM 1% .25W MC1206 RESISTOR	10	***435023***
R1, R4, R5, R8, R9, R12, R13, R16, R21, R22, R43, R46, R47, R50, R51, R54, R55, R58, R63	10.0 KOHM 1% .25W MC1206 RESISTOR	19	***435028***
R64, R67, R70, R71, R74, R77, R80, R81, R84	10.0 KOHM 1% .25W MC1206 RESISTOR	9	***435028***
R75, R76, R86-R97	40.2 KOHM 1% .25W MC1206 RESISTOR	14	***435039***
R85	88.7 KOHM 1% .25W MC1206 RESISTOR	1	***435043***
SW1-SW6	2 POLE PUSHBUTTON SWITCH, MOMENTARY	6	***510113***
1-6 SWITCH BUTTON	CUSTOM WHITE LIGHT PIPE BUTTON	6	***530268***
DS1-DS6	ULTRABRIGHT RIGHT ANGLE RED SMT LED	6	***605017***
PCB_LS2000	PRINTED CIRCUIT BOARD SMT	1	***700650***
	PEM FASTENERS	3	***821009***
F1-F3	FUSE/ POLYSWITCH .3AMP SMT RESETABLE	3	***835001***

TR/FF-2000 TAPE REMOTE MODULE PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
	FACEPLATE	1	***003528***
CT1	RIGHT ANGLE 25 PIN PC MOUNT CONNECTOR .318	1	***220120***
R1-R6	1.00 KOHM 1% .25W MC1206 RESISTOR	6	***435015***
SW1-SW6	2 POLE PUSHBUTTON SWITCH, MOMENTARY	6	***510113***
RTZ/FF/REW BUTTON	CUSTOM WHITE LIGHT PIPE BUTTON	3	***530268***
STOP BUTTON	CUSTOM RED LIGHT PIPE BUTTON	1	***530269***
REC BUTTON	CUSTOM YELLOW LIGHT PIPE BUTTON	1	***530270***
PLAY BUTTON	CUSTOM GREEN LIGHT PIPE BUTTON	1	***530271***
DS1, DS3, DS5	ULTRABRIGHT RIGHT ANGLE RED SMT LED	3	***605017***
DS2, DS4, DS6	ULTRABRIGHT RIGHT ANGLE GREEN SMT LED	3	***605018***
PCB_TR2000	PRINTED CIRCUIT BOARD SMT	1	***700658***
	PEM FASTENERS	4	***821009***

TR/SS-2000 TAPE REMOTE MODULE PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
	FACEPLATE	1	***003529***
CT1	RIGHT ANGLE 25 PIN PC MOUNT CONNECTOR .318	1	***220120***
R1-R6	1.00 KOHM 1% .25W MC1206 RESISTOR	6	***435015***
SW1-SW6	2 POLE PUSHBUTTON SWITCH, MOMENTARY	6	***510113***
START /STOP BUTTON	CUSTOM WHITE LIGHT PIPE BUTTON	6	***530268***
DS1, DS3, DS5	ULTRABRIGHT RIGHT ANGLE RED SMT LED	3	***605017***
DS2, DS4, DS6	ULTRABRIGHT RIGHT ANGLE GREEN SMT LED	3	***605018***
PCB_TR2000	PRINTED CIRCUIT BOARD SMT	1	***700658***
	PEM FASTENERS	4	***821009***

MBR-2000 MOTHER BOARD (RIGHT) PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
CT2-CT5	62 PIN PC MOUNT CARDEDGE CONNECTOR	4	***220027***
CT1	60 PIN BOARD-TO-BOARD FEMALE CONNECTOR	1	***220075***
CT6, CT7, CT9, CT10	3 PIN .098" HEADER	4	***250062***
CT11	16PIN BOXED HEADER, STRAIGHT	1	***250075***
CT8	10PIN BOXED HEADER, STRAIGHT	1	***250077***
PCB_MBR2000	PRINTED CIRCUIT BOARD	1	***700653***

MBE-2000 MOTHER BOARD (EXTENDER) PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
CT2-CT12	62 PIN PC MOUNT CARDEDGE CONNECTOR	11	***220027***
CT13	60 PIN BOARD-TO-BOARD MALE CONNECTOR	1	***220074***
CT1	60 PIN BOARD-TO-BOARD FEMALE CONNECTOR	1	***220075***
PCB_MBE2011	PRINTED CIRCUIT BOARD	1	***700652***

MBE-2600 MOTHER BOARD PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
CT2-CT12	62 PIN PC MOUNT CARDEDGE CONNECTOR	11	***220027***
CT13	60 PIN BOARD-TO-BOARD MALE CONNECTOR	1	***220074***
PCB_MBE2011	PRINTED CIRCUIT BOARD	1	***700652***

CLK-70 CLOCK PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
U1, U4	8 PIN .3" DIP SMT SOCKET	2	***245001***
U6	14 PIN .3" DIP SMT SOCKET	1	***245002***
U1	20 PIN .3" DIP SMT SOCKET	1	***245004***
CT4, CT5	20 PIN DIL SOCKET	2	***250057***
CT1	10PIN BOXED HEADER, STRAIGHT	1	***250077***
U4	74AC14 TTL SMT TAPE & REEL ONLY Hex Schmitt Trigger	1	***305027***
U2	74LS74 TTL SMT Dual D-Type Pos-Edge-Triggered Flip-Flop	1	***305029***
U3	DS90C031 LVD DIFF LINE DRIVER SMT	1	***305051***
U6	LTC491 RS485/ RS422 INTERFACE	1	***310041***
U1	IC PIC16LC66-04/SP MICRO	1	***310064A***
U5	IC ADM690 POWER SUPERVISORY	1	***310065A***
Q2	LM2940 5V LOW DROP OUT VOLTAGE REGULATOR 2940	1	***330017***
Q1	MMBTA05 NPN SMT TRANSISTOR	1	***345001***
D7, D9, D10	1N4002W RECTIFYING 1AMP SMT DIODE	3	***355001***
D2-D6	1N4148 FAST SWITCHING SMT DIODE	5	***355003***
D1	SS14 SCHOTTKY SMT DIODE	1	***355004***
Y1	CRYSTAL 4.096 MHZ	1	***370022A***
E1	CAP 2.2F SUPERCAP 5.5V	1	***400069A***
C5, C9, C10, C16	CAPACITOR, 22µF 25V ELECTROLYTIC SMT	4	***405002***
C13, C14	CAPACITOR, 330µF 25V ELECTROLYTIC SMT	2	***405004***
C11, C17, C19	CAPACITOR, 1µF 35V ELECTROLYTIC SMT TANTALUM	3	***405005***
C3	TRIMMER CAPACITOR	1	***410001***
C4	CAPACITOR, 10pF 100V CERAMIC SMT	1	***415001***
C2	CAPACITOR, 33pF 100V CERAMIC SMT	1	***415002***
C1	CAPACITOR, 68pF 100V CERAMIC SMT	1	***415003***
C21-C26	CAPACITOR, .01µF 50V CERAMIC SMT	6	***415006***
C6-C8, C15, C18, C20	CAPACITOR, .1µF 50V CERAMIC SMT	6	***415007***
R21	100 OHM 5% .25W MC1206 RESISTOR	1	***435007***
R22, R23	619 OHM 1% .25W MC1206 RESISTOR	2	***435013***
R1	49.9 KOHM 1% .25W MC1206 RESISTOR	1	***435040***
R24	100 KOHM 1% .25W MC1206 RESISTOR	1	***435044***
R15, R20	10 MOHM 5% .25W MC1206 RESISTOR	2	***435050***
R13, R14, R19, R25, R27, R28, R31, R34, R35	20.0 KOHM 1% .25W MC1206 RESISTOR	9	***435058***
R2-R8, R10, R26, R29, R30, R32, R33, R36	53.6 KOHM 1% .25W MC1206 RESISTOR	14	***435060***
R9, R12	100 KOHM 1% .25W MC1206 RESISTOR	2	***435061***
R11, R16, R17	10 MOHM 5% .25W MC1206 RESISTOR	3	***435062***

CLK-70 CLOCK PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
SW1	PUSHBUTTON SWITCH GREEN LED/ NO CAP	1	***510094***
SW2	PUSHBUTTON SWITCH RED LED/ NO CAP	1	***510095***
SW3, SW4	4 POSITION SMT DIP SWITCH, TAPE SEALED	2	***515001***
	GREEN SWITCH CAP	1	***530001***
	CLEAR BUTTON WITH WHITE FRAME	1	***530266***
PCB_CLK220E	PRINTED CIRCUIT BOARD SMT	1	***700575***
Q2	HEATSINK FOR T-220 WITHOUT MOUNTING PIN	1	***825004***
F1	FUSE/ POLYSWITCH 1.0AMP SMT RESETABLE	1	***835002***

CLD-70 CLOCK DISPLAY PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
DS1-DS5	20 POSITION SNAP APART SOCKET, .1" SIL	5	***250014***
	40 PIN BREAKAWAY HEADER STRIPS, STRAIGHT .1" SIL	1	***250016***
U2	DS90C032 LVD DIFF LINE RECEIVER SMT	1	***305052***
U1, U3	IC ADSP2115 DSP PROCESSOR	2	***315044***
C1, C4	CAPACITOR, 100µF 25V ELECTROLYTIC SMT	2	***405003***
C2, C3, C5-C8	CAPACITOR, .1µF 50V CERAMIC SMT	6	***415007***
R6, R7	10 OHM 5% .25W MC1206 RESISTOR	2	***435002***
R2, R3, R5, R8	100 OHM 5% .25W MC1206 RESISTOR	4	***435007***
R9-R12	220 OHM 5% .25W MC1206 RESISTOR	4	***435009***
R1, R4	22.1 KOHM 1% .25W MC1206 RESISTOR	2	***435036***
DS5, DS6, DS7	DUAL DIGIT LED DISPLAY	3	***610003***
DS1-DS4	SINGLE DIGIT LED DISPLAY	4	***610004***
PCB_CLD220	PRINTED CIRCUIT BOARD	1	***700590***

A-2000 FRAME PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
	CLK-70 LOADED CLK/TMR CARD	1	***002780***
	CLD-70 LOADED CLK/TMR CARD	1	***002781***
	MBR-2000 LOADED CARD	1	***003549***
	MBE-2000 LOADED CARD	1	***003550***
	A2000 FRAME PAN	1	***003563***
	A2000 MB REAR	1	***003565***
	A2000 PAN BRACE	1	***003567***
	A2000 METAL ARMREST	1	***003569***
	A2000 MB COVER	1	***003576***
	A2000 MB FACE	1	***003577***
	A2000 MB POWER CONNECTOR BRACKET	1	***003579***
	A2000 CONNECTOR KIT	1	***003592***
	LED-3 LOADED CARD	4	***007104***
	CLK-220 LENS	1	***026057A***
	MBE-2600 LOADED CARD	1	***027086A***
	SIDEPLATE A2000 LEFT	1	***100090***
	SIDEPLATE A2000 RIGHT	1	***100091***
	ALUMINUM CONTINUOUS HINGE, 72"X1.06" X .040"	3.5	***110024***
	FELT STRIP	3.5	***130248***
	26 COND FLAT RIBBON CABLE	10	***150083***
	10 PIN PLUG	4	***230020***
	3 PIN .098" PLUG FOR #26 AWG	1	***230028***
	MULTIMATE PLUG CONTACT (LOOSE PACK)	8	***230068***
	PLASTIC SHELL CHASSIS CONNECTOR	1	***230070***
	16 PIN RIBBON PLUG	2	***250039***
	RTS JACK	1	***260005***
	PATCH CLIPS	8	***280004***
	PATCH CLIPS	7	***280007***
	VU METER	4	***630004***
	LIGHT BOX FOR AL29 METER WITHOUT LAMP OR LAMPHOLDER	4	***630008***
	FLAT WASHER	1	***822007***
	SHOULDER WASHER	1	***822008***
	4-40 X .250 HEX ZINC	34	***823016***
	#6 THUMB SCREW	1	***823029***
	4-40 X .50 ROUND NYLON SPACER	4	***823038***
	4-40 X .375 THREADED HEX NYLON STANDOFF	4	***823045***

A-2000 FRAME PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
	RECESSED BUMPER FOR #8 SCREW	4	***824032***
	METER TERMINAL	8	***826001***
	SPEAKER	1	***960000***

PSC-D340 POWER SUPPLY PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
	PSC-600 POWER SUPPLY COVER	2	***007087***
	PSC-600 POWER SUPPLY FRAME	2	***007088***
	PSC-600 POWER SUPPLY SWITCH BRK	1	***007096***
	PSC-D340 HEATSINK	2	***007108***
	PSC-D340 TRIM FACEPLATE	1	***007109***
	PSC-340 POWER SUPPLY XMER BRACKET	1	***007120***
	PSC-340 POWER SUPPLY FACEPLATE	1	***007122***
	PSC-340 POWER SUPPLY REAR	1	***007123***
	PSC-D340 ANGLE BRACKET	2	***007197***
	7 1/2' BLACK POWER CORD	1	***150017***
PS-220 CABLE	9 COND COMPOSITE CABLE, 7 COND 14 AWG, 2 COND 22 AWG, .55 OD BLACK OUTER JACKET, UL APPROVED	16	***150085***
	GROUND LUG	1	***230003***
	POWER SOCKET	2	***230006***
PS-220 CABLE	METAL SHELL MILITARY CABLE CONNECTOR	1	***230007***
	METAL PANEL MOUNT MILITARY CONNECTOR	1	***230008***
PS-220 CABLE	METAL MILITARY CONNECTOR STRAIN RELIEF	1	***230009***
PS-220 CABLE	MULTIMATE SOCKET CONTACT (LOOSE PACK)	8	***230067***
PS-220 CABLE	PLASTIC SHELL CABLE CONNECTOR	1	***230069***
410_PCB LT: Q4	LM317 POSITIVE ADJUSTABLE REGULATOR	1	***330012***
410_PCB LT: Q1, Q3, Q5, Q7 410_PCB RT: Q1, Q3, Q7	LT1084 4A POSITIVE ADJUSTABLE REGULATOR LOW DROPOUT VOLTAGE	7	***330042***
BRA1_PCB: Q1	MB3510 BRIDGE RECTIFIER 35 AMP 1000 VOLT	4	***350000***
410_PCB LT: D3-D12 410_PCB RT: D3, D12	1N4002 DIODE	12	***350003***
410_PCB LT: D1, D2, D13, D14 410_PCB RT: D1, D2, D13, D14	CR6A4 POWER DIODE	8	***350009***
410_PCB LT: V1	82ZA2 V VARISTOR	1	***360005***
BRA1_PCB: V1, V2	Z15L390 39V VARISTOR	8	***360006***
410_PCB LT: C9, C11, C22	CAPACITOR, 10µF 63V ELECTROLYTIC	3	***400012***
410_PCB LT: C1, C2, C4, C6, C7, C12, C13, C15, C17, C18	CAPACITOR, 1µF 35V TANTALUM ORANGE	10	***400014***
410_PCB RT: C1, C2, C4, C6, C7, C15, C17, C18	CAPACITOR, 1µF 35V TANTALUM ORANGE	8	***400014***
410_PCB LT: C21	470UF 100V AXIAL LEAD UL APPROVED ELECTROLYTIC CAPACITOR	1	***400031***
410_PCB LT: C19, C23 410_PCB RT: C19, C23	10000UF 50V ELECTROLYTIC CAPACITOR 105°C	4	***400032***
410_PCB LT: C26, C28 410_PCB RT: C26, C28	2200UF 35V ELECTROLYTIC CAPACITOR 105°C	4	***400033***
410_PCB LT: C8, C10 AC340_PCB : C1, C2	CAPACITOR, .0047µUF 1KV CERAMIC, UL RATED	4	***410015***
410_PCB LT: C27	CAPACITOR, .47µF 250V METAL FILM	1	***420032***
BRA1_PCB: C1	CAPACITOR, .47µF FILM UL APPROVED	4	***420033***
410_PCB LT: R2, R7, R14, R19 410_PCB RT: R2, R7, R19	.05 OHM 5% 5W RESISTOR	7	***430020***
410_PCB LT: R4, R17 410_PCB RT: R4, R17	47 OHM 5% .25W CARBON FILM RESISTOR	4	***430210***

PSC-D340 POWER SUPPLY PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
410_PCB LT: R16 410_PCB RT: R5	100 OHM 5% .25W CARBON FILM RESISTOR	2	***430212***
410_PCB LT: R10	220 OHM 5% .25W CARBON FILM RESISTOR	1	***430214***
410_PCB LT: R20 410_PCB RT: R1	330 OHM 5% .25W CARBON FILM RESISTOR	2	***430215***
410_PCB LT: R5, R9 410_PCB RT: R16	470 OHM 5% .25W CARBON FILM RESISTOR	3	***430216***
410_PCB LT: R6 410_PCB RT: R6, R15	620 OHM 5% .25W CARBON FILM RESISTOR	3	***430218***
410_PCB LT: R1 410_PCB RT: R20	1.0 KOHM 5% .25W CARBON FILM RESISTOR	2	***430221***
410_PCB LT: R11-R13	10 KOHM 5% .25W CARBON FILM RESISTOR	3	***430239***
410_PCB LT: R8	100 KOHM 5% .25W CARBON FILM RESISTOR	1	***430254***
410_PCB LT: CR2	10K TRIM POT	1	***500017***
410_PCB LT: CR1, CR3 410_PCB RT: CR3	500Ω TRIM POT	3	***500019***
410_PCB LT: SW1	4 POSITION DIP SWITCH	1	***510047***
410_PCB LT: DS1, DS4, DS5 410_PCB RT: DS4, DS6	RECTANGULAR GREEN DIFFUSED LED, TRANSPARENT SIDES	5	***600003***
PCB_PS410E	PRINTED CIRCUIT BOARD	2	***700259***
PCB_BRA1	PRINTED CIRCUIT BOARD	4	***700355***
PCB_AC340	PRINTED CIRCUIT BOARD	1	***700682***
	POWER TRANSFORMER	1	***800044***
	PHILLIPS PANHEAD SILVER SCREW	4	***820073***
	SCR_#10-32X1/2_PHI_FL8_MS_ZI	4	***820075***
	FLAT WASHER 1/4 USS F/L ZI	4	***822019***
	4-40 X .5 HEX ALUM.	6	***823006***
	INSULATOR_MYLAR	1	***825008***
	INSULATOR_KERAFOL	7	***825027***
410_PCB LT: F1	FUSE/ POLYSWITCH .4AMP RESETABLE	1	***830018***
	4 AMP CIRCUIT BREAKER	1	***830056***

A-2000 CONNECTOR KIT PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
	A2000 MANUAL	1	***003598***
	25 PIN DB PREWIRE CONNECTOR	30	***200022***
	25 PIN DB CONNECTOR HOOD	30	***200025***
	9 PIN HDE SUBMINIATURE D CONNECTOR MALE	1	***200033***
	9 PIN DB CONNECTOR HOOD	1	***200034***
	MALE SCREW RETAINER KIT	31	***200035***
	TOOL DIE	1	***850031***
	TOOL HANDLE	1	***850033***

A-2000 CONSOLE PARTS LIST

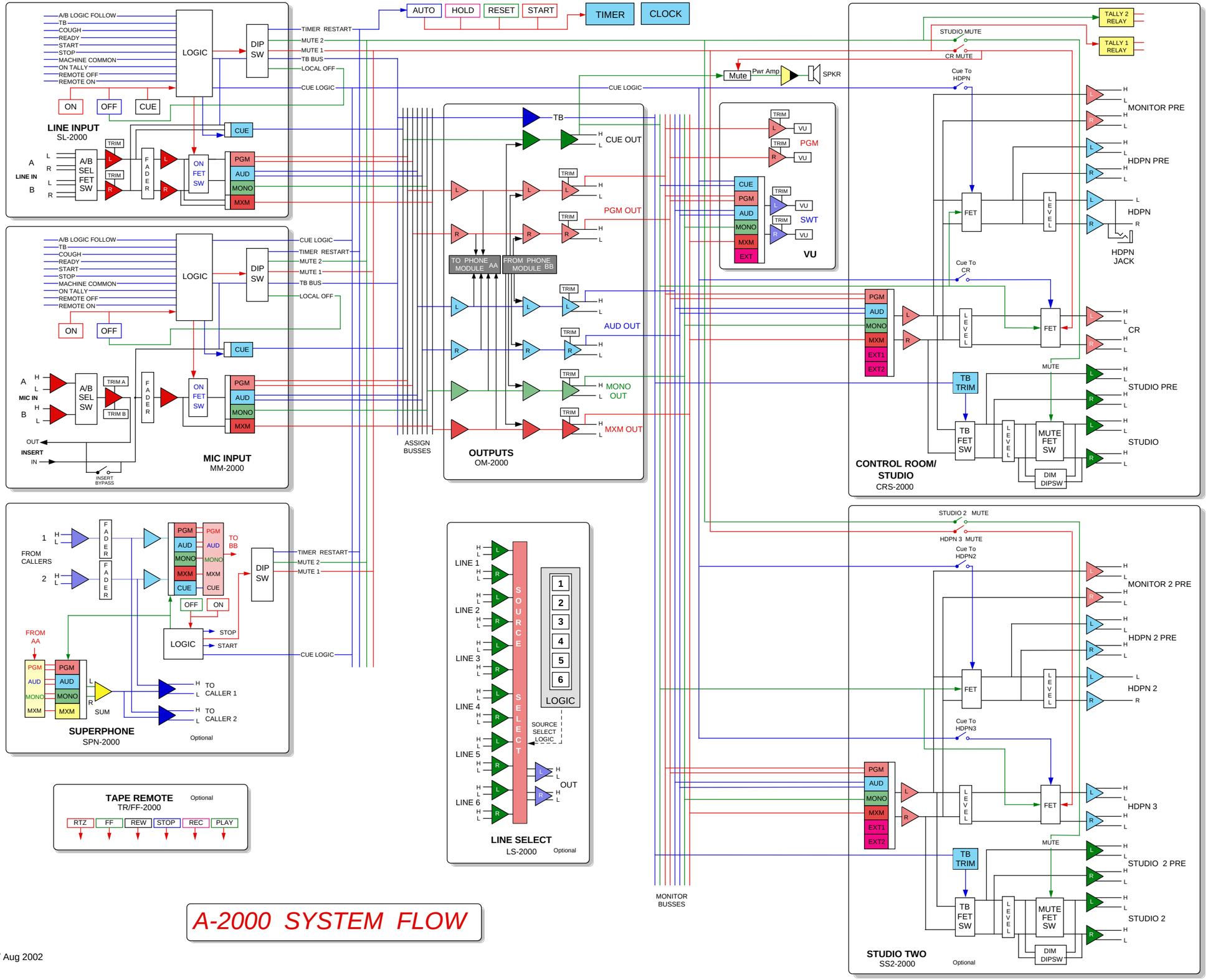
ITEM#	DESCRIPTION	QTY	W#
	CLK-70 LOADED CLK/TMR CARD	1	***002749***
	SL-2000 STEREO LINE MODULE	1	***003500***
	MM-2000 MONO MIC MODULE	1	***003501***
	OM-2000 OUTPUT MODULE	1	***003502***
	SPN-2000 SUPERPHONE MODULE	1	***003504***
	CRS-2000 CONTROL ROOM/STUDIO MODULE	1	***003505***
	SS-2000 STUDIO TWO MODULE	1	***003506***
	LS-2000 LINE SELECT MODULE	1	***003507***
	TR-2000FF TAPE REMOTE MODULE	1	***003508***
	TR-2000SS TAPE REMOTE MODULE	1	***003509***
	BK-2000 BLANK MODULE	1	***003539***
	A2000 MAINFRAME - WIRED	1	***003560***
	PSC-D340 POWER SUPPLY	1	***007220***
	PS-220 POWER SUPPLY CABLE	1	***026053A***
	OPTIONAL SPARE PARTS FOR A2000	1	***053575***

A-2000 SPARE PARTS KIT PARTS LIST

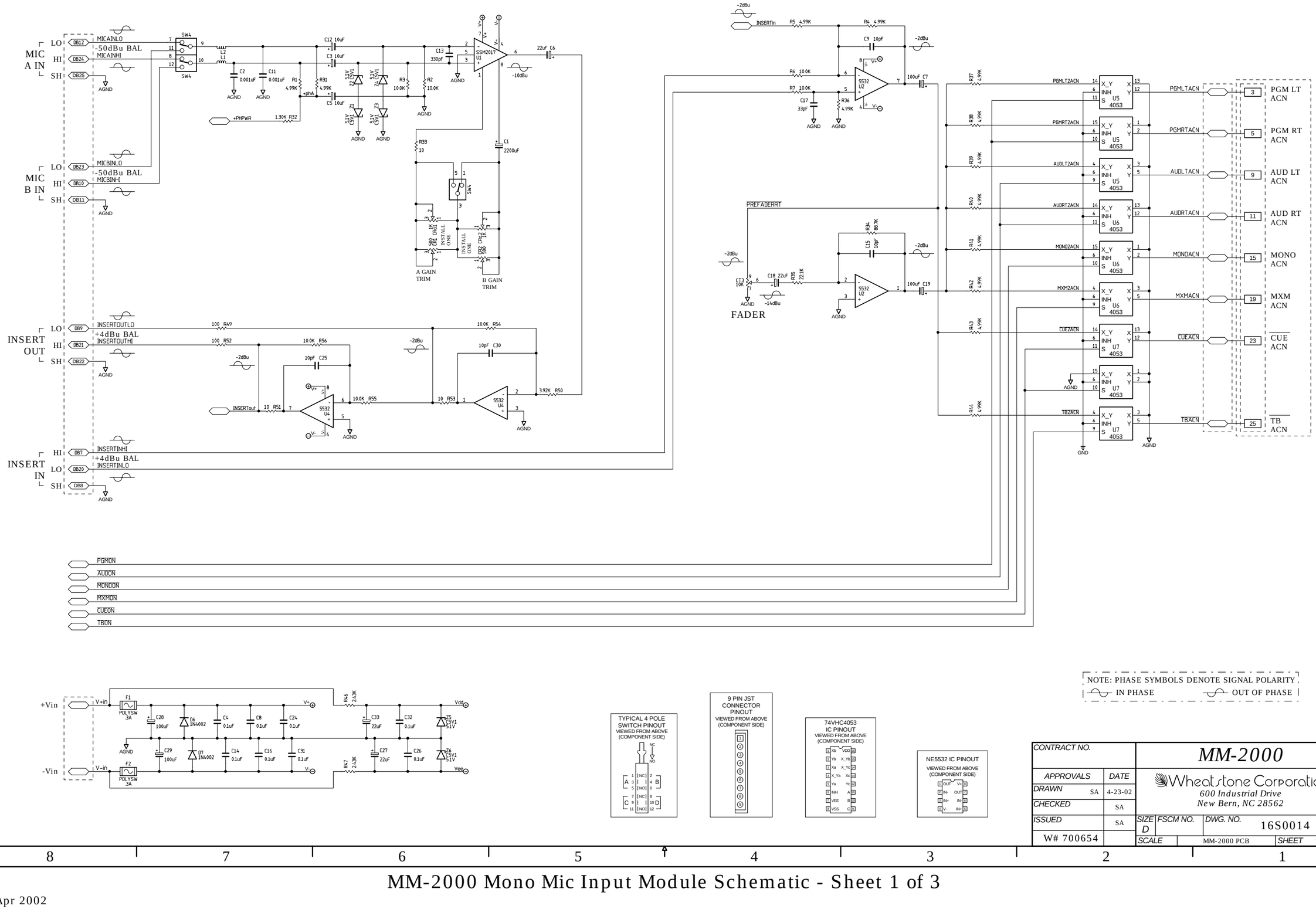
ITEM#	DESCRIPTION	QTY	W#
	UTILITY BOXES	1	***160021***
	MALE PIN	10	***200023***
	2017 MIC PREAMP IC	1	***320003***
	10K POT, DUAL AUDIO	1	***500029***
	2 POLE PUSHBUTTON SWITCH, ALTERNATE ACTION	2	***510097***
	2 POLE PUSHBUTTON SWITCH, MOMENTARY	1	***510113***
	DPDT RELAY,5V	1	***550006***
	T 1 3/4 MIDGET GROOVED BASE SINGLE CHIP RED LED 5V	1	***600026***
	T 1 3/4 MIDGET GROOVED BASE SINGLE CHIP YELLOW LED LAMP REPLACEMENT	1	***600030***
	PHILLIPS SERRATED PANHEAD S/S SCREW	10	***820106***

Schematic Drawings

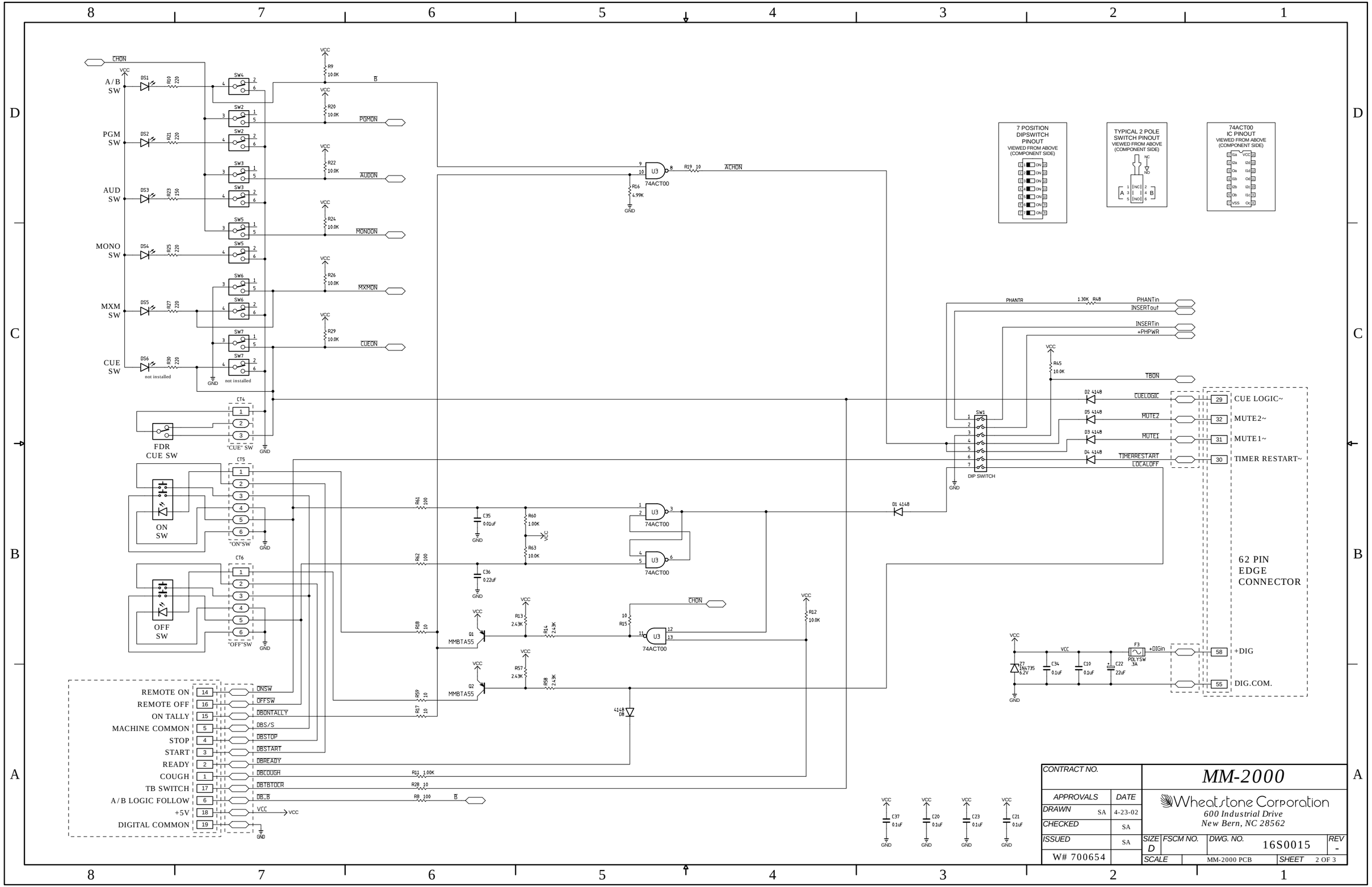
Chapter Contents



A-2000 SYSTEM FLOW



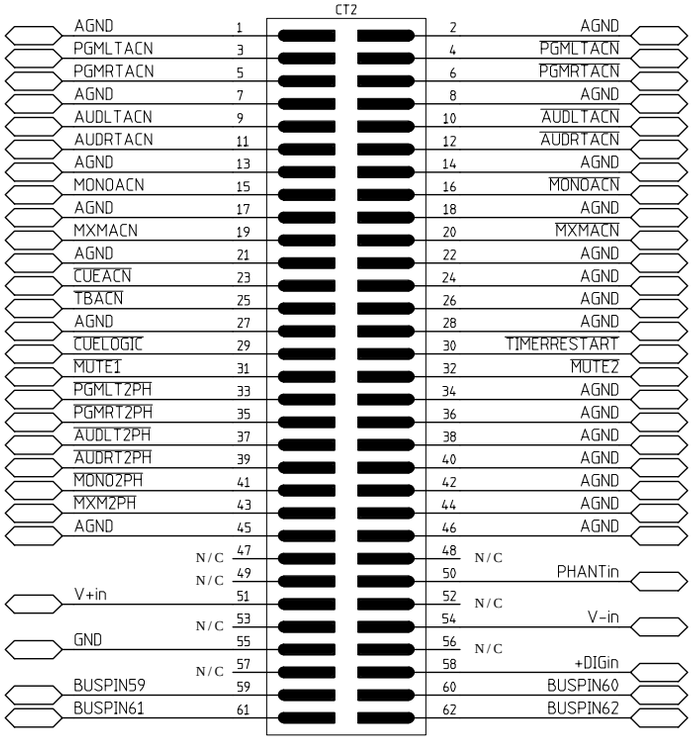
MM-2000 Mono Mic Input Module Schematic - Sheet 1 of 3



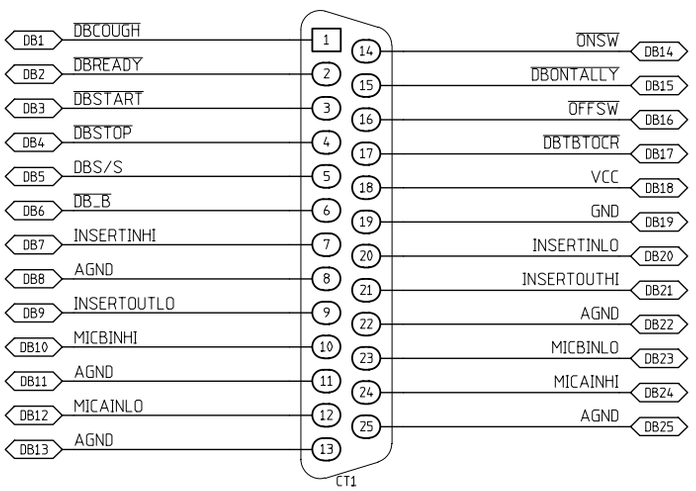
CONTRACT NO.		MM-2000	
APPROVALS	DATE	Wheatstone Corporation 600 Industrial Drive New Bern, NC 28562	
DRAWN SA	4-23-02		
CHECKED	SA		
ISSUED	SA		
W# 700654		SIZE D / FSCM NO. / DWG. NO. 16S0015 / REV -	
		SCALE / MM-2000 PCB / SHEET 2 OF 3	

MM-2000 Mono Mic Input Module Schematic - Sheet 2 of 3

EDGE CONNECTOR BUSS CHART



DB-25 CONNECTOR



AGND

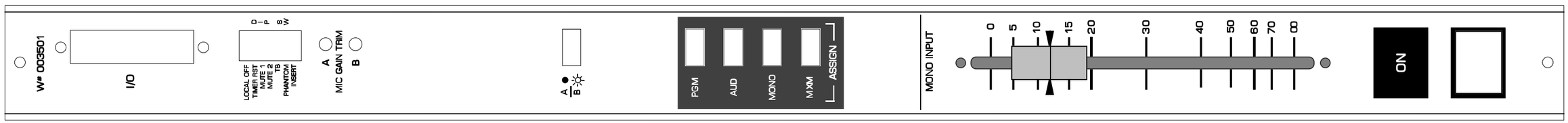
AGND

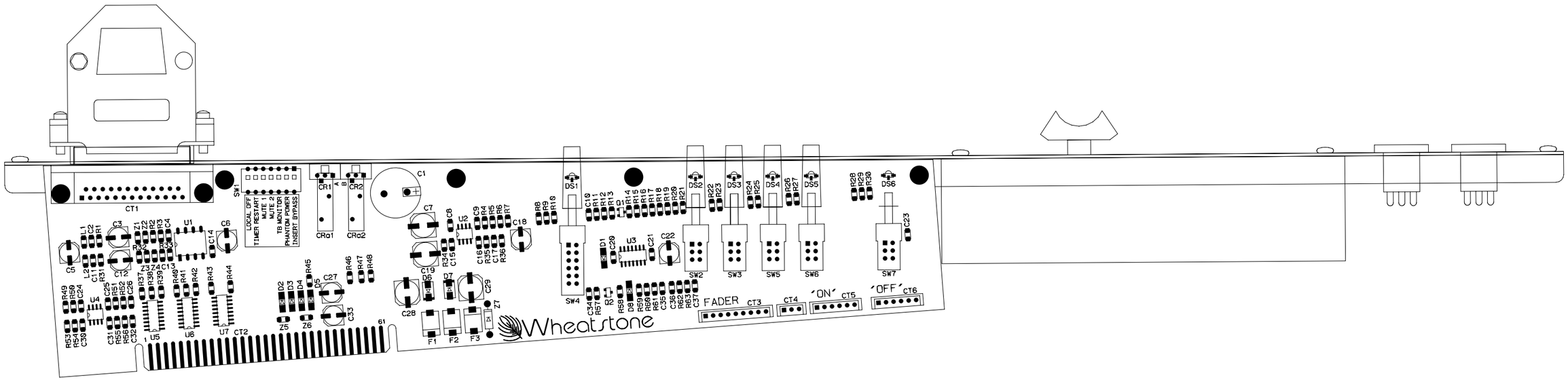
AGND

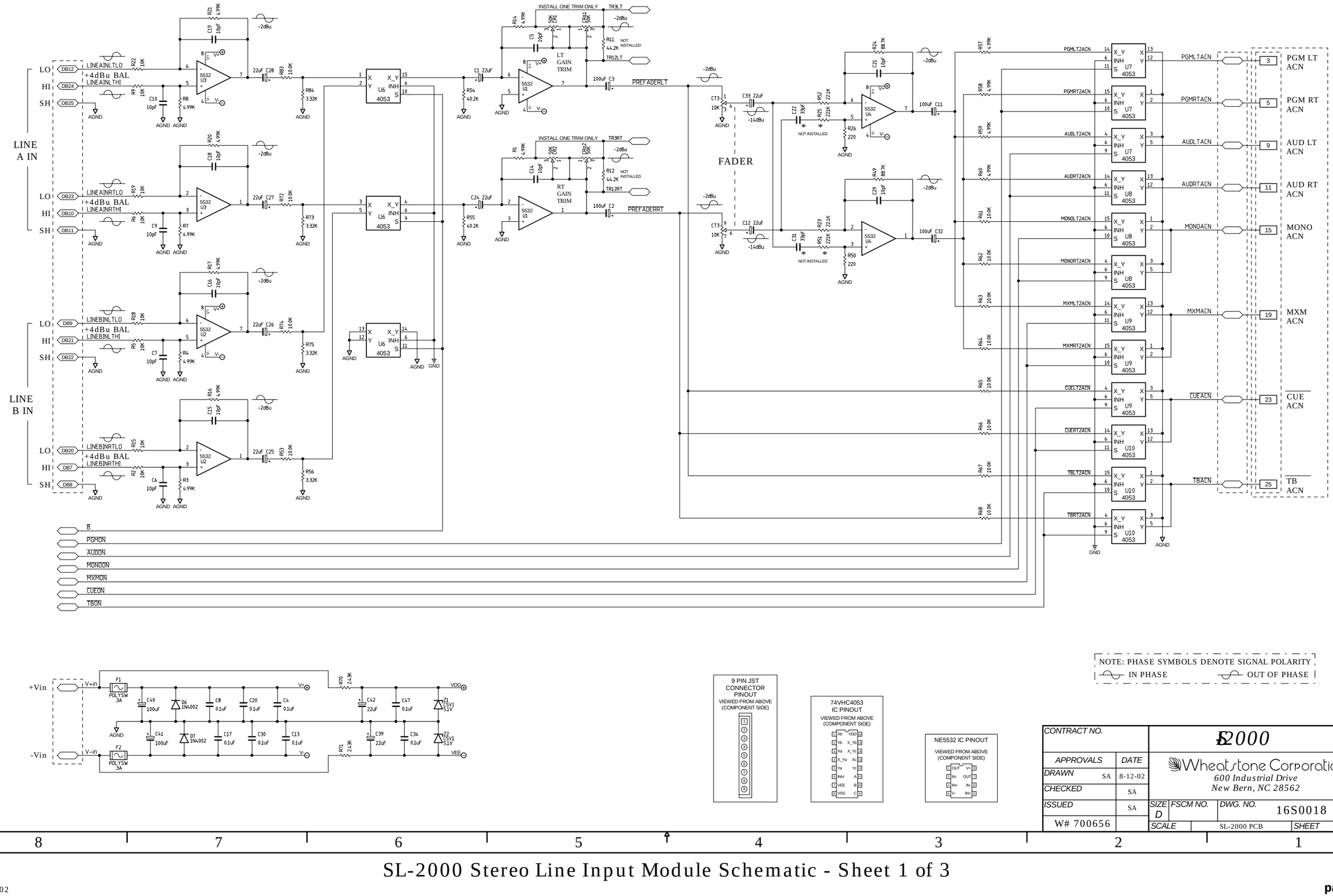
AGND

CONTRACT NO.		MM-2000			
APPROVALS	DATE	Wheatstone Corporation 600 Industrial Drive New Bern, NC 28562			
DRAWN SA	4-23-02				
CHECKED	SA				
ISSUED	SA	SIZE B	FSCM NO.	DWG. NO. 16S0024	REV -
W# 700654		SCALE	MM-2000 PCB	SHEET 3 OF 3	

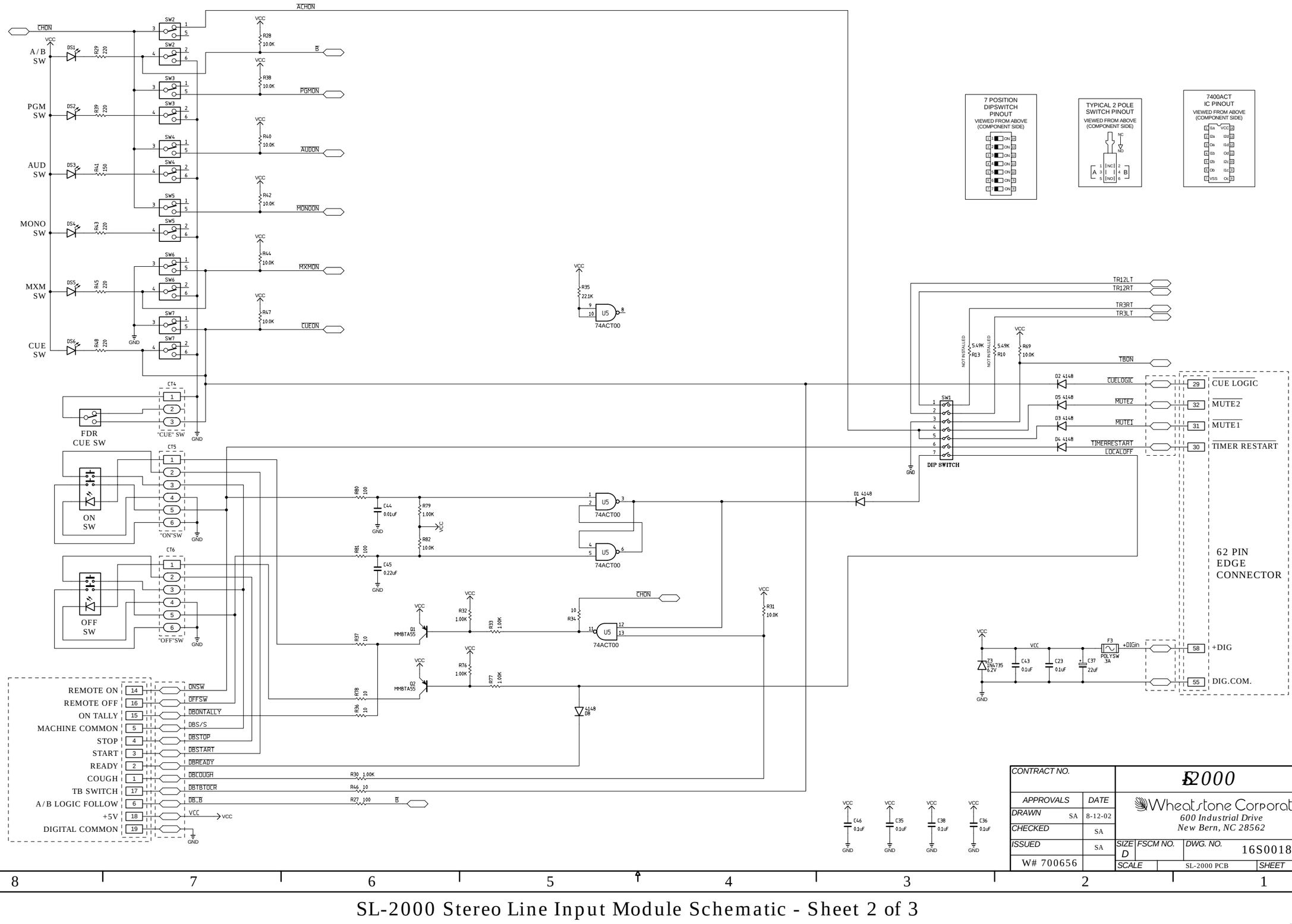
MM-2000 Mono Mic Module Schematic - Sheet 3 of 3


W# 003501
I/O
LOCAL OFF
TIMER RST
MUTE 1
MUTE 2
TB
PHANTOM
INSERT
DIP SW
A
B
MIC GAIN TRIM
A
B
PGM
AUD
MONO
MIX
ASSIGN
MONO INPUT
0
5
10
15
20
30
40
50
60
70
00
ON


CT1
SW1
LOCAL OFF
TIMER RST
MUTE 1
MUTE 2
TB MONITOR
PHANTOM POWER
INSERT BYPASS
CR1
CR2
CRa1
CRa2
C1
U1
U2
U3
U4
U5
U6
U7
CT2
SW2
SW3
SW4
SW5
SW6
SW7
DS1
DS2
DS3
DS4
DS5
DS6
F1
F2
F3
FADER
CT3
CT4
ON
CT5
OFF
CT6
Wheatstone



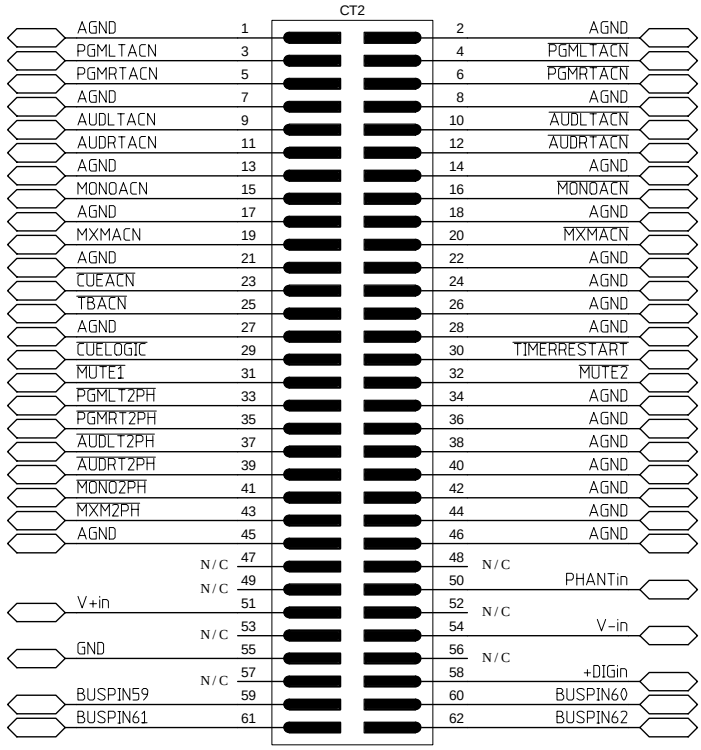
SL-2000 Stereo Line Input Module Schematic - Sheet 1 of 3



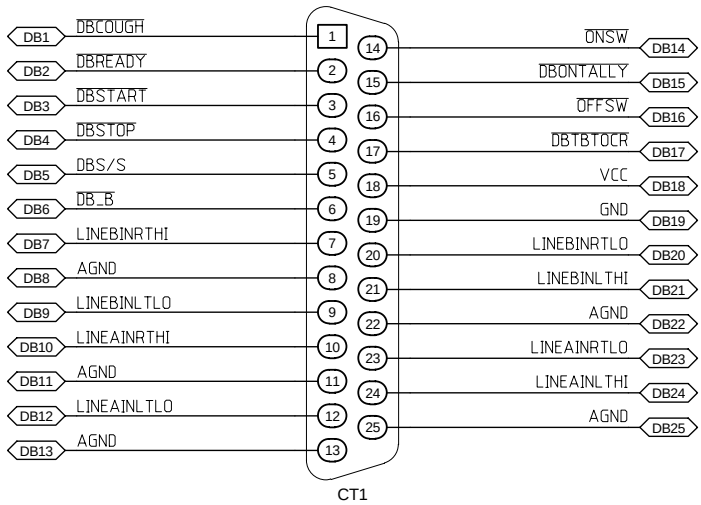
CONTRACT NO.		SL-2000
APPROVALS	DATE	Wheatstone Corporation 600 Industrial Drive New Bern, NC 28562
DRAWN SA	8-12-02	
CHECKED	SA	
ISSUED	SA	SIZE D · FSCM NO. · DWG. NO. 16S0018 · REV -
W# 700656		SCALE · SL-2000 PCB · SHEET 2 OF 3

SL-2000 Stereo Line Input Module Schematic - Sheet 2 of 3

EDGE CONNECTOR BUSS CHART

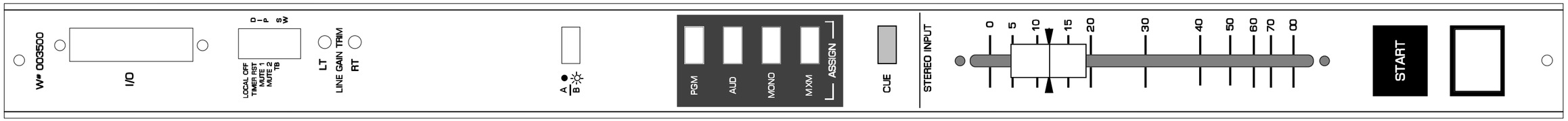


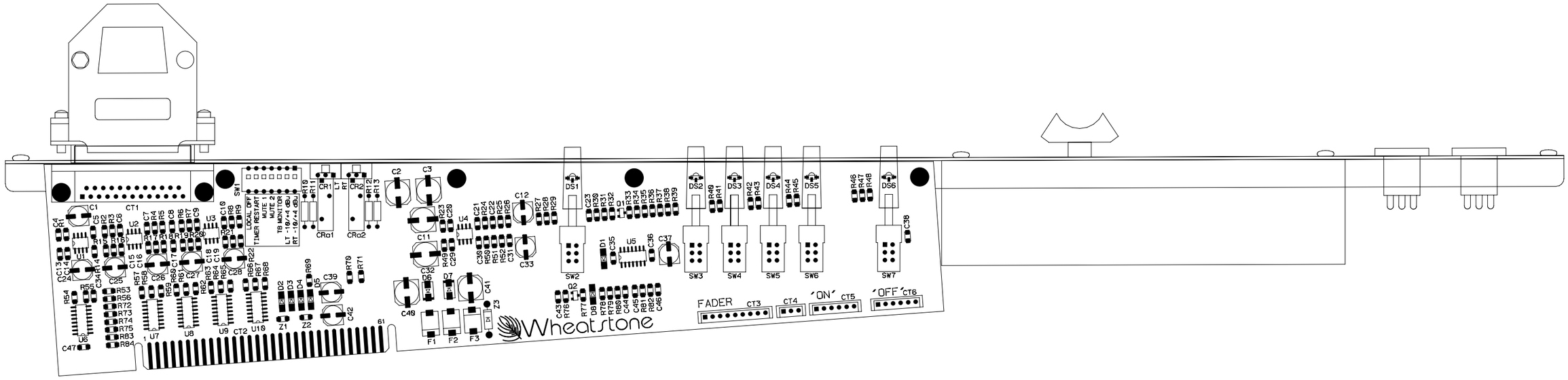
DB-25 CONNECTOR



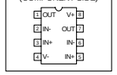
CONTRACT NO.		SL-2000			
APPROVALS	DATE	Wheatstone Corporation 600 Industrial Drive New Bern, NC 28562			
DRAWN SA	8-12-02				
CHECKED	SA	SIZE B	FSCM NO.	DWG. NO. 16S0019	REV -
ISSUED	SA				
W# 700656		SCALE	SL-2000 PCB	SHEET 3 OF 3	

SL-2000 Stereo Input Module Schematic - Sheet 3 of 3


W# 003500
I/O
D I P S W
LOCAL OFF
TIMER RST
MUTE 1
MUTE 2
TB
LT
LINE GAIN TRIM
RT
A
B
PGM
AUD
MONO
MXM
ASSIGN
CUE
STEREO INPUT
0
5
10
15
20
30
40
50
60
70
00
START

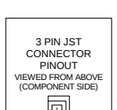

SW1
CR1
CR2
DS1
DS2
DS3
DS4
DS5
DS6
SW2
SW3
SW4
SW5
SW6
SW7
FADER
CT3
CT4
ON
CT5
OFF
CT6
Wheatstone

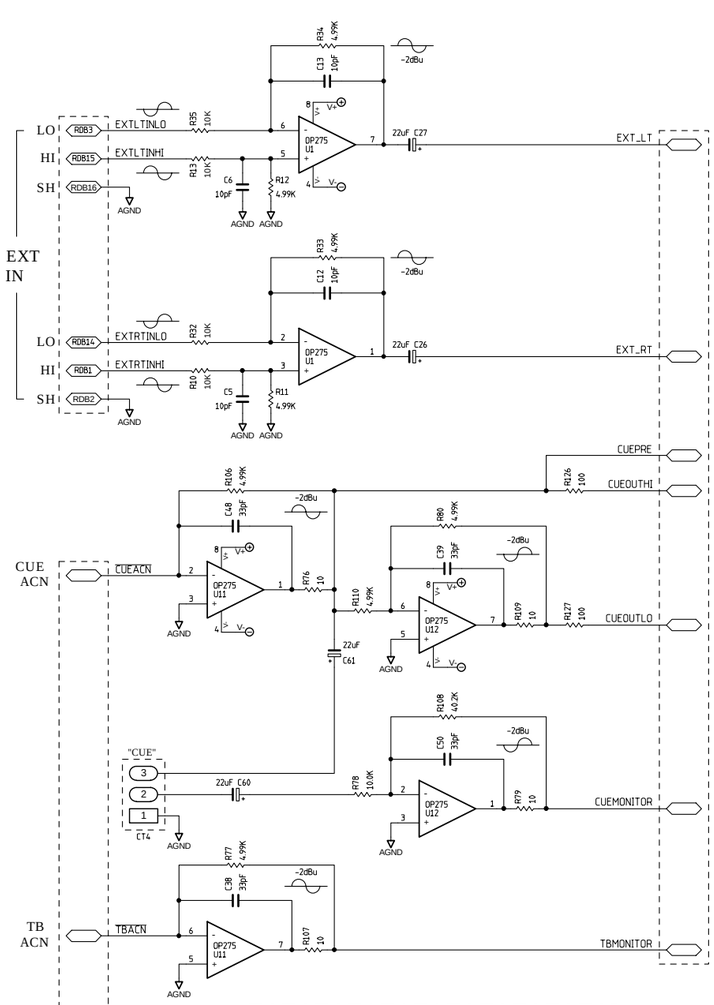
OP-275 IC PINOUT
VIEWED FROM ABOVE (COMPONENT SIDE)

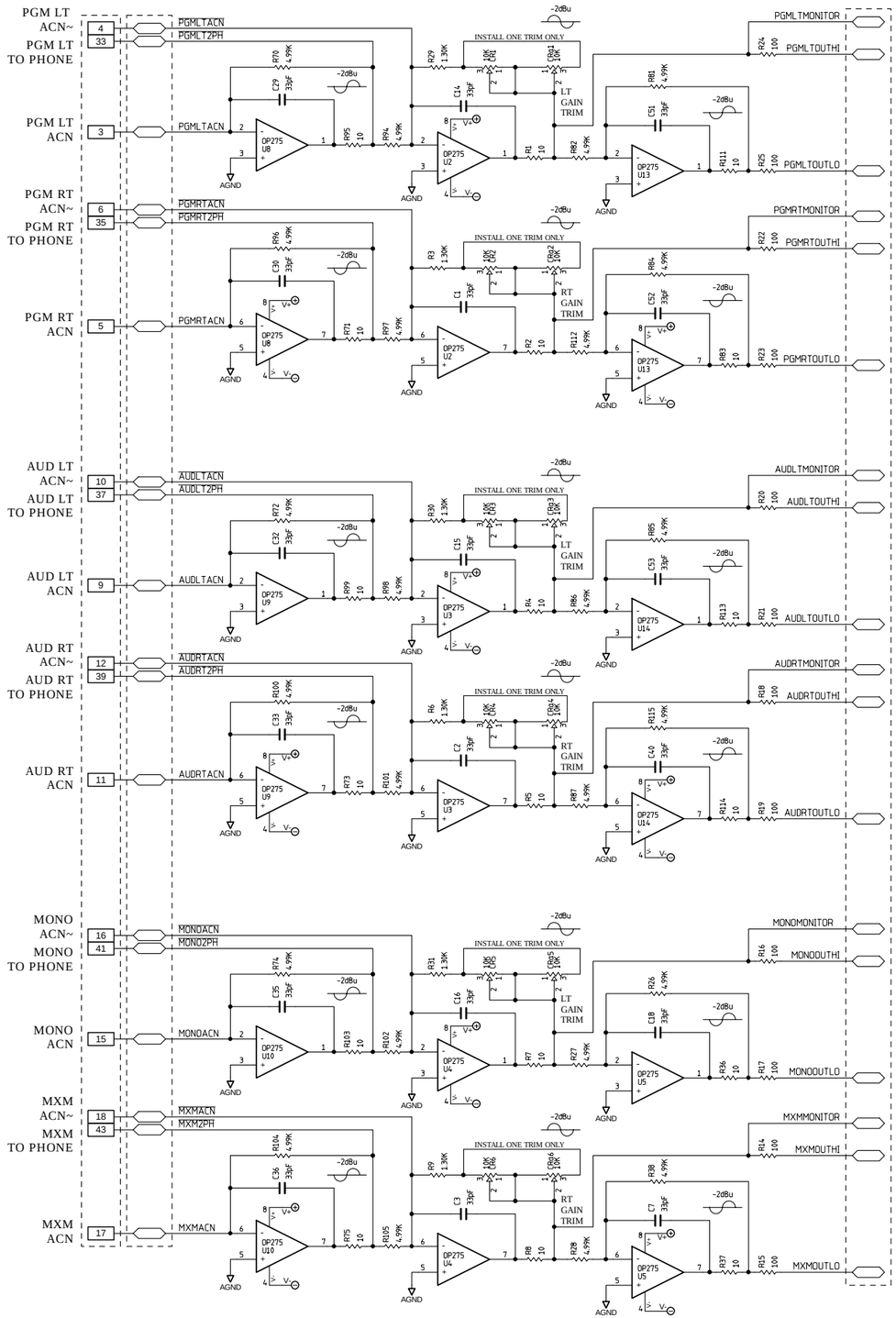


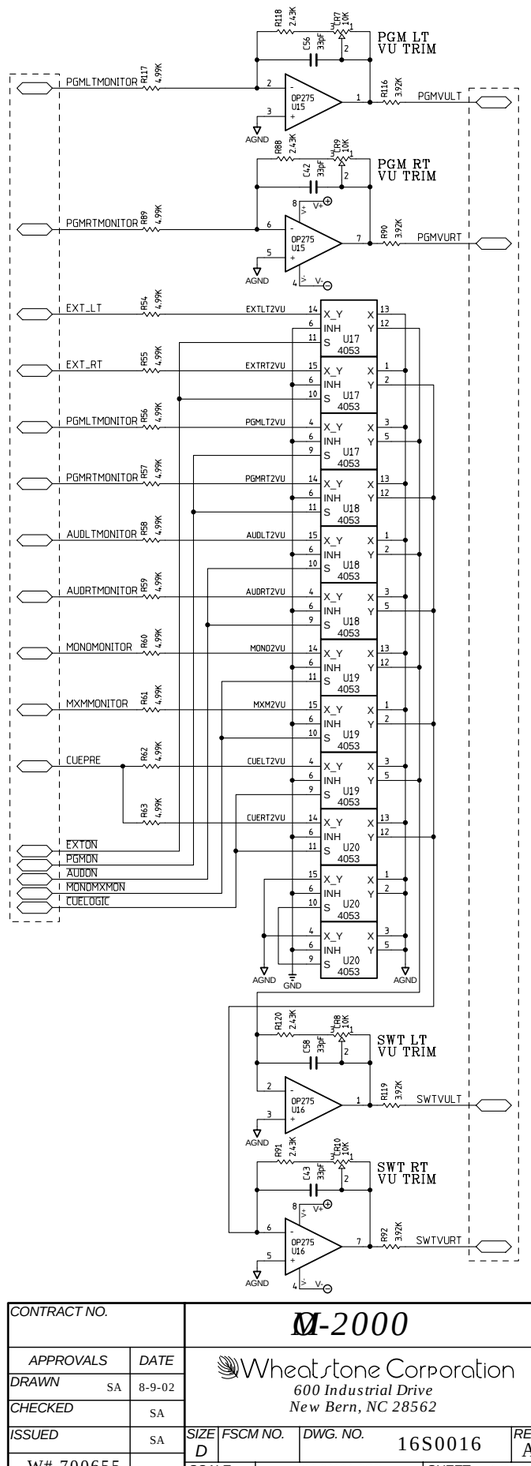
74VHC4053
IC PINOUT
VIEWED FROM ABOVE (COMPONENT SIDE)

3 PIN JST CONNECTOR PINOUT
VIEWED FROM ABOVE (COMPONENT SIDE)



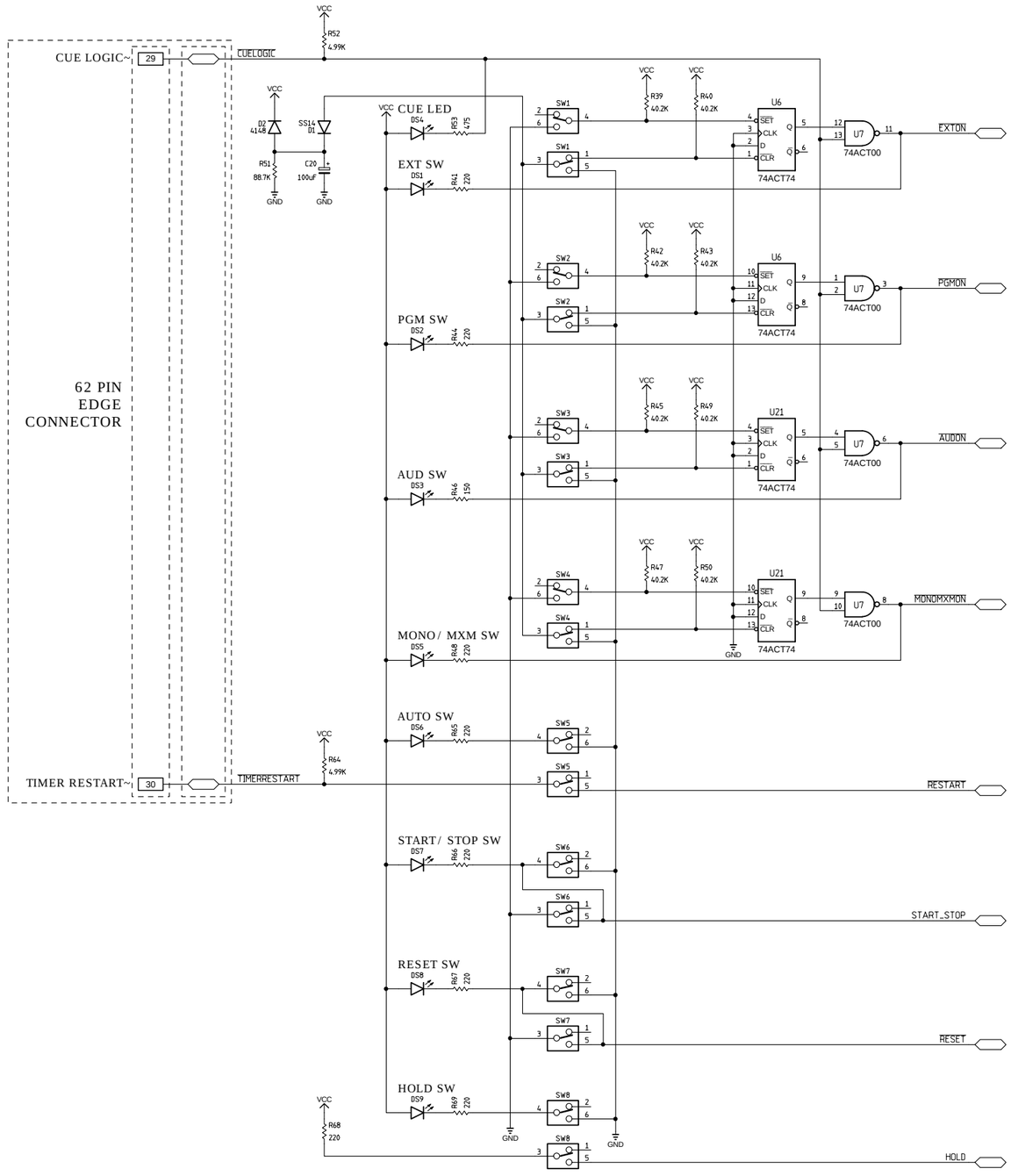






CONTRACT NO.		OM-2000	
APPROVALS	DATE	Wheatstone Corporation	
DRAWN	SA 8-9-02	600 Industrial Drive	
CHECKED	SA	New Bern, NC 28562	
ISSUED	SA	SIZE D / FSCM NO. / DWG. NO. 16S0016 / REV A	
W# 700655		SCALE / OM-2000A PCB / SHEET 1 OF 3	

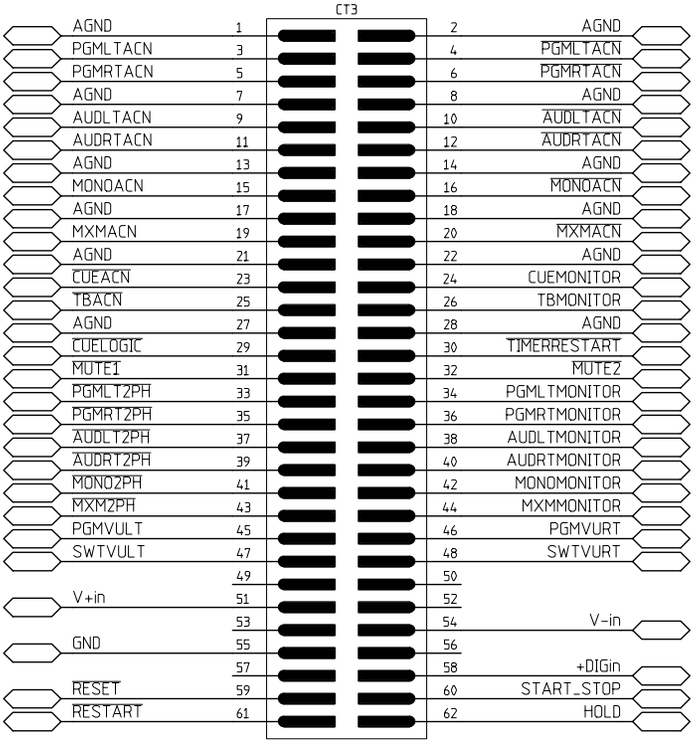
OM-2000 Output Module Schematic - Sheet 1 of 3



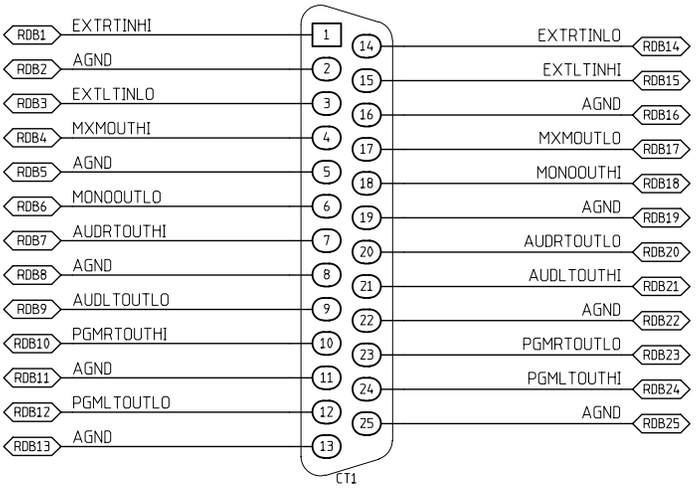
CONTRACT NO.		OM-2000	
APPROVALS	DATE	Wheatstone Corporation	
DRAWN SA	8-9-02	600 Industrial Drive	
CHECKED	SA	New Bern, NC 28562	
ISSUED	SA	SIZE D / FSCM NO. / DWG. NO. 16S0017 / REV A	
W# 700655		SCALE OM-2000A PCB / SHEET 2 OF 3	

OM-2000 Output Module Schematic - Sheet 2 of 3

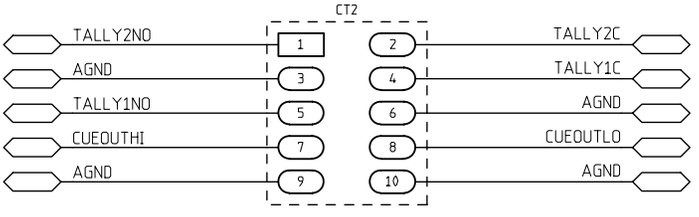
EDGE CONNECTOR BUSS CHART



RIGHT DB-25 CONNECTOR

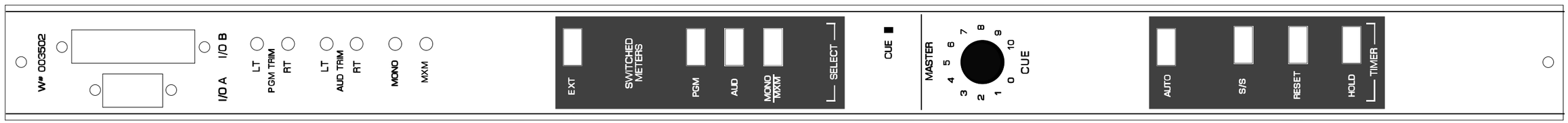


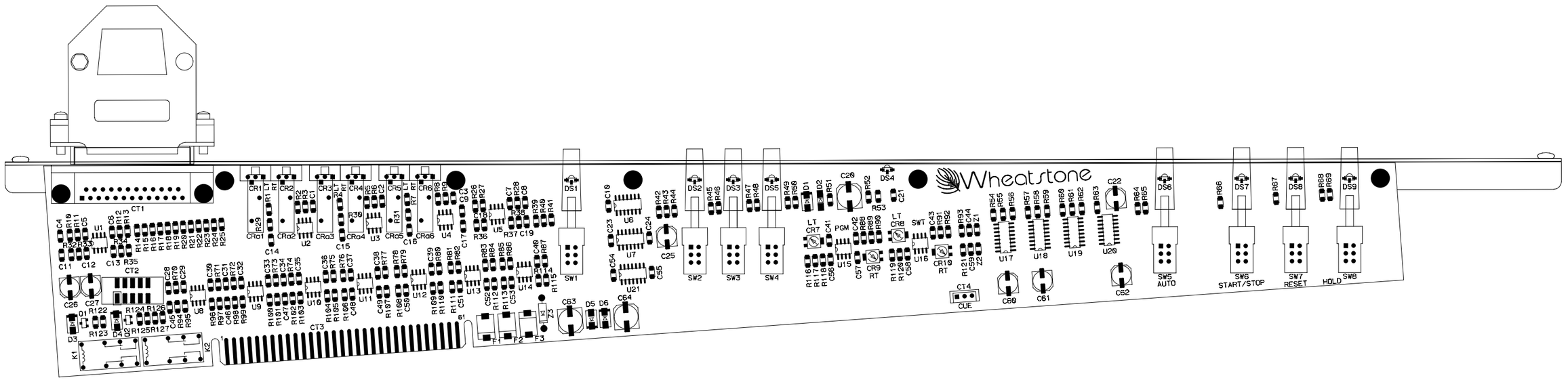
TO LEFT DB-9 CONNECTOR

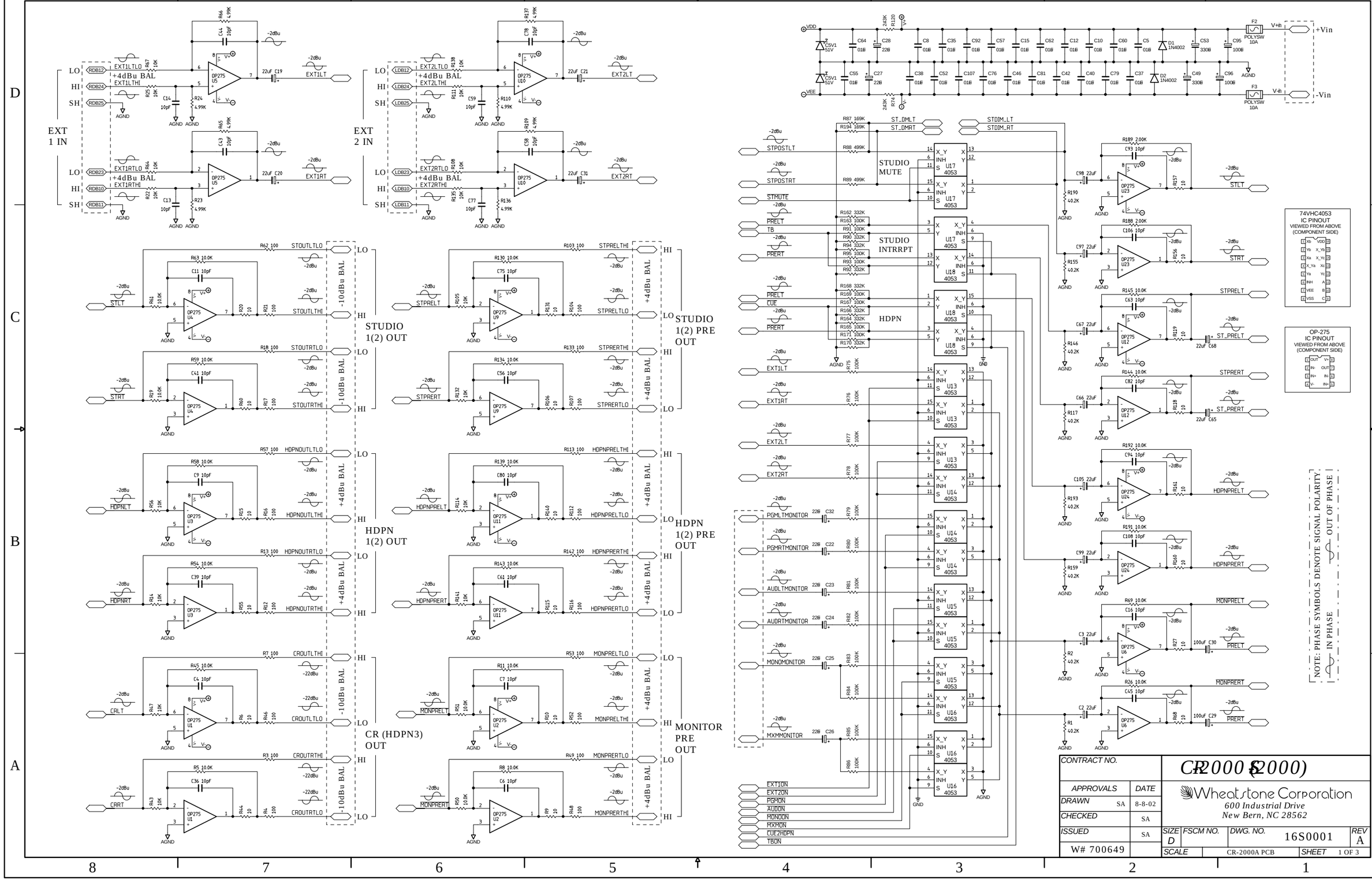


CONTRACT NO.		OM-2000	
APPROVALS	DATE	Wheatstone Corporation 600 Industrial Drive New Bern, NC 28562	
DRAWN SA	8-9-02		
CHECKED	SA		
ISSUED	SA	SIZE B / FSCM NO. / DWG. NO. 16S0008 / REV A	
W# 700655		SCALE / OM-2000A PCB / SHEET 3 OF 3	

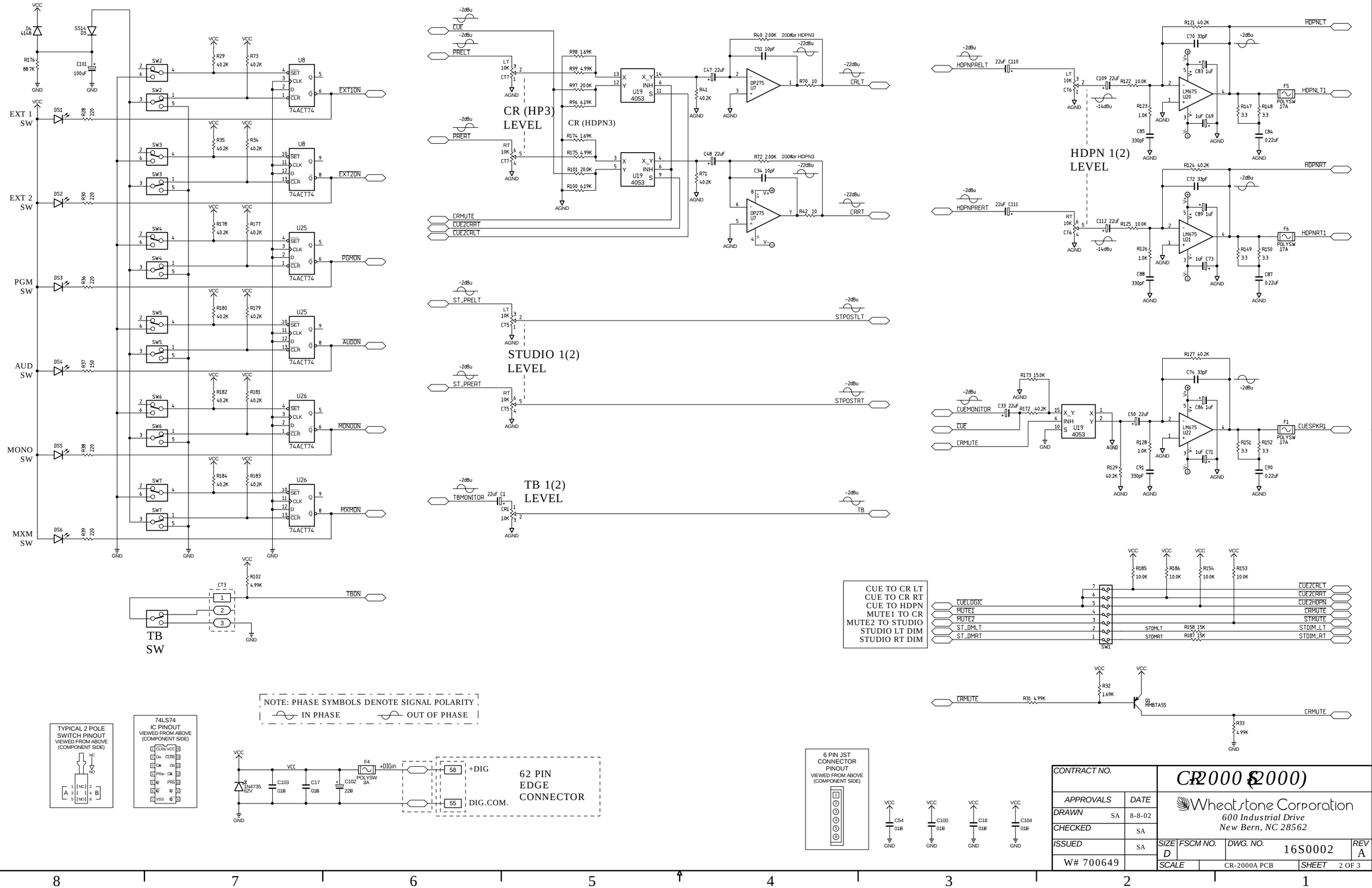
OM-2000 Output Module Schematic - Sheet 3 of 3


W# 003502
I/O A
I/O B
LT
PGM TRIM
RT
LT
AUD TRIM
RT
MONO
MXM
EXT
SWITCHED METERS
PGM
AUD
MONO MXM
SELECT
CUE
MASTER
0
1
2
3
4
5
6
7
8
9
10
CUE
AUTO
S/S
RESET
HOLD
TIMER


Wheatstone
SW1
SW2
SW3
SW4
SW5 AUTO
SW6 START/STOP
SW7 RESET
SW8 HOLD
CUE



CR-2000 (SS-2000) Control Room (Second Studio) Module Schematic - Sheet 1 of 3



CONTRACT NO.	
APPROVALS	DATE
DRAWN SA	8-8-02
CHECKED	SA
ISSUED	SA
W# 700649	

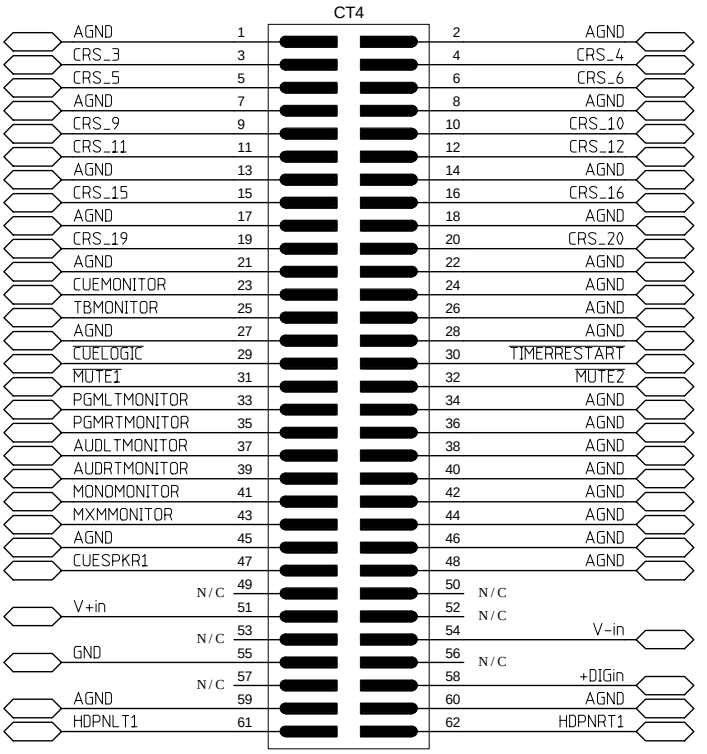
CR-2000 (SS-2000)

Wheatstone Corporation
600 Industrial Drive
New Bern, NC 28562

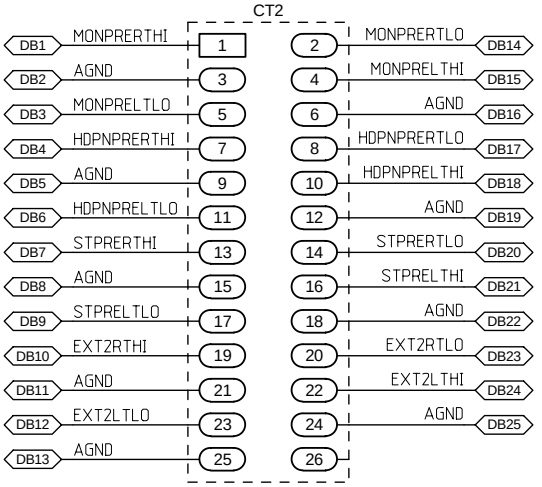
SIZE	FSCM NO.	DWG. NO.	REV
D		16S0002	A
SCALE	CR-2000A PCB	SHEET	2 OF 3

CR-2000 (SS-2000) Control Room (Second Studio) Module Schematic - Sheet 2 of 3

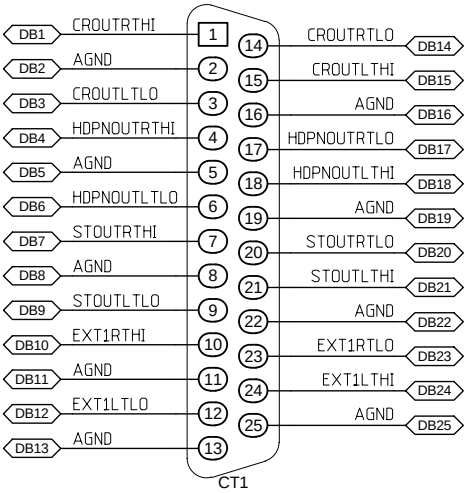
EDGE CONNECTOR BUSS CHART



To Left DB-25 CONNECTOR

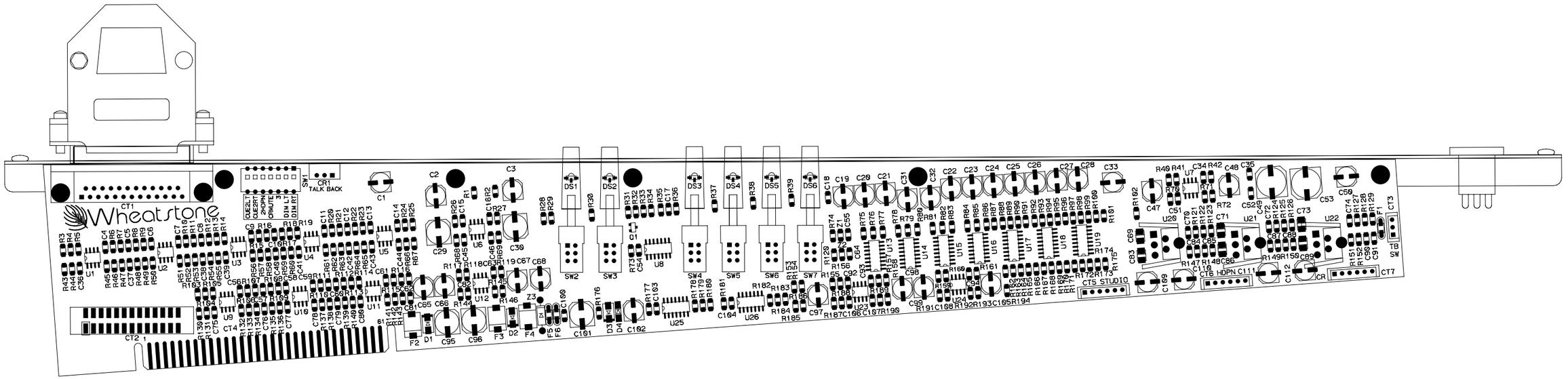


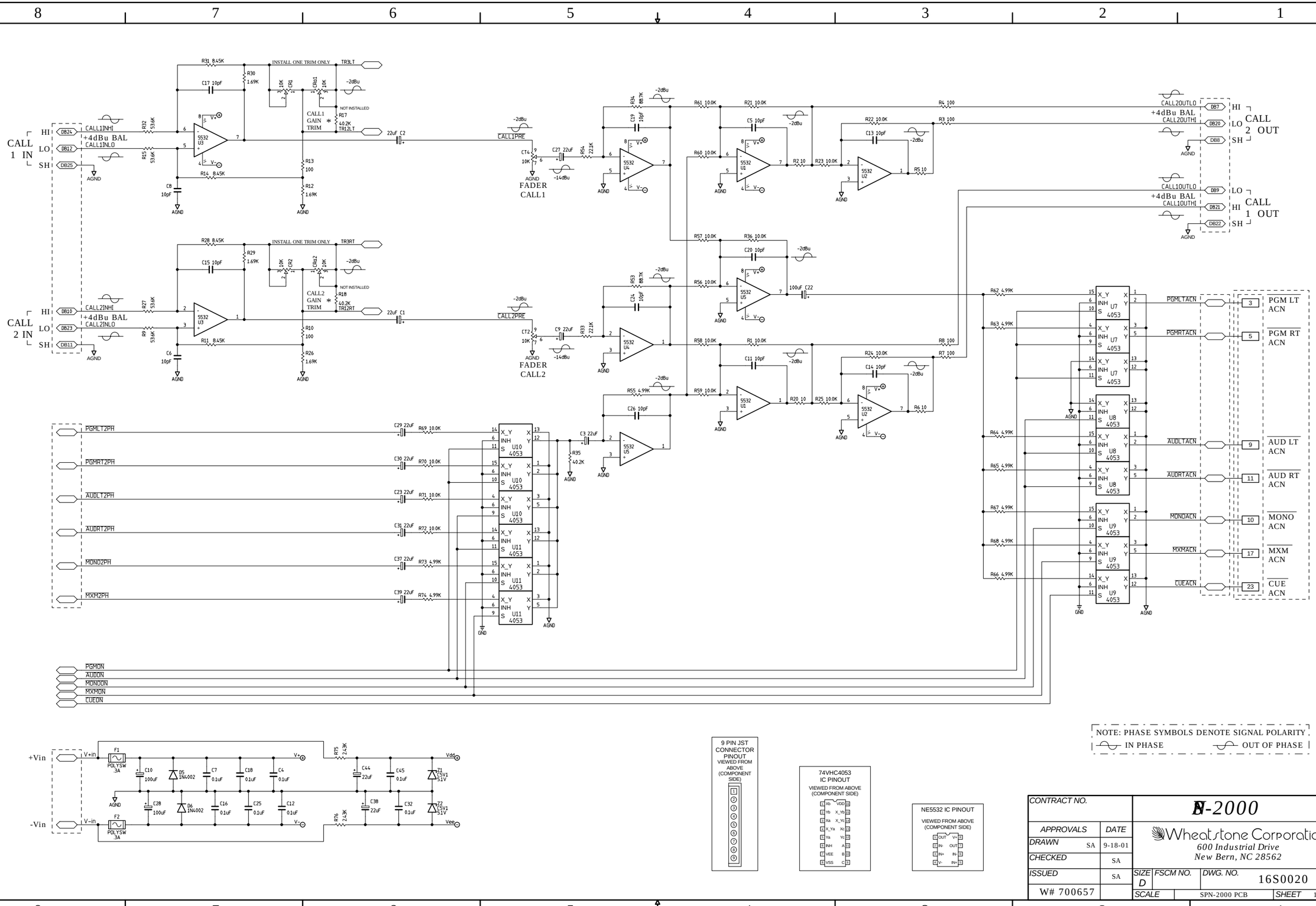
Right DB-25 CONNECTOR



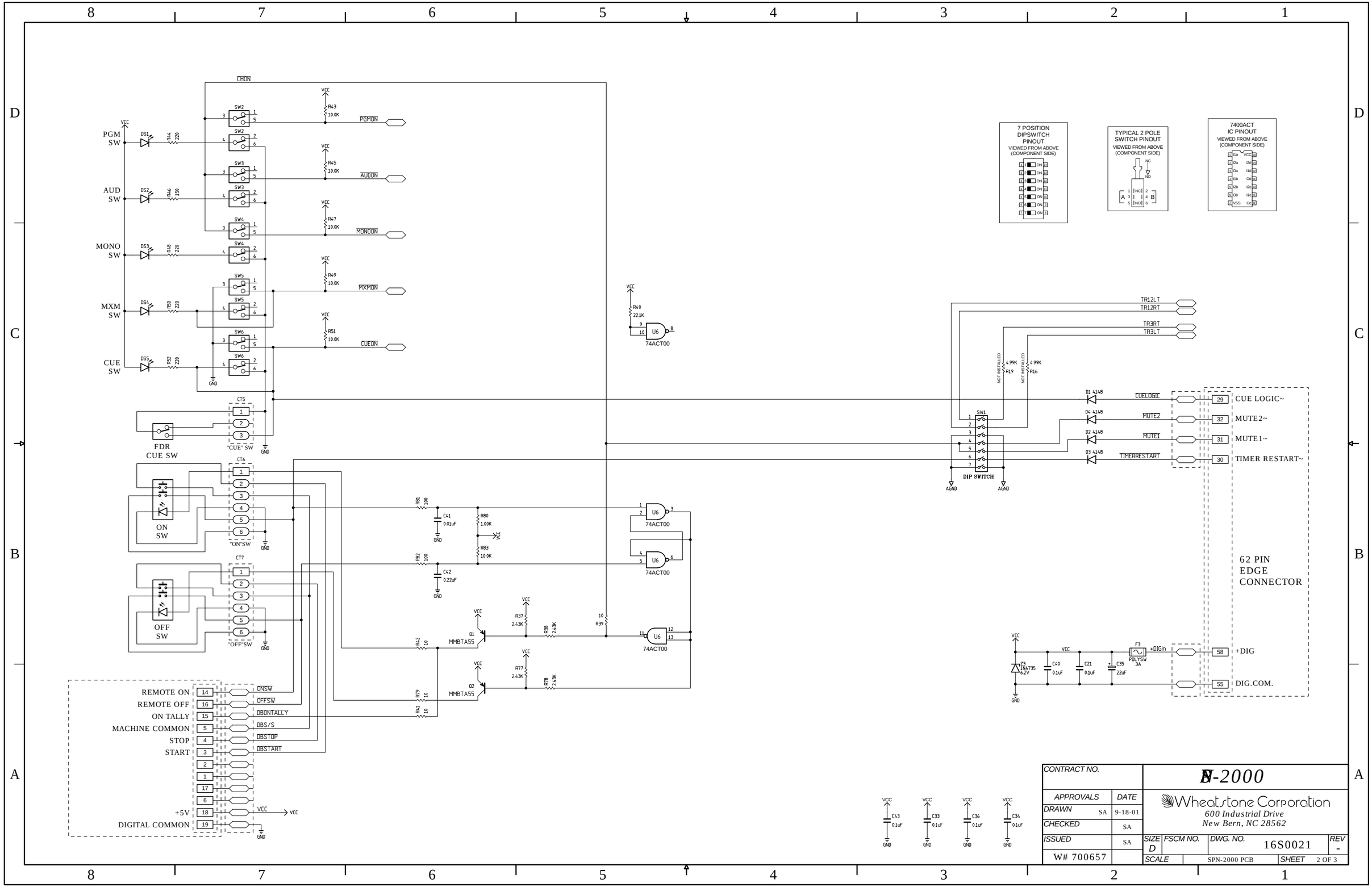
CONTRACT NO.		CR-2000 (SS-2000)	
APPROVALS	DATE	Wheatstone Corporation 600 Industrial Drive New Bern, NC 28562	
DRAWN SA	8-8-02		
CHECKED	SA		
ISSUED	SA	SIZE B / FSCM NO. / DWG. NO. 16S0013	REV -
W# 700649		SCALE / CR-2000A PCB	SHEET 3 OF 3


W# 003506
I/O A
I/O B
HDPN3 CUE LT
HDPN3 CUE RT
HDPN2 CUE
HDPN3 MUTE
ST2 MUTE
ST2 DIM LT
ST2 DIM RT
TB 2 GAIN TRIM
EXT 1
EXT 2
PGM
AUD
MONO
MXM
SELECT
STUDIO TWO
STUDIO 2
HDPN 2
HDPN 3
TB2
W# 003505
CR CUE LT
CR CUE RT
HDPN CUE
CR MUTE
ST MUTE
ST DIM LT
ST DIM RT
TB GAIN TRIM
CR / STUDIO
STUDIO
HDPN
CR
TB


CT1
CT2
SW1
CR1
TALK BACK
CT5 STUDIO
CT6 HDPN
CT7 CR
SW2
SW3
SW4
SW5
SW6
SW7
SW8

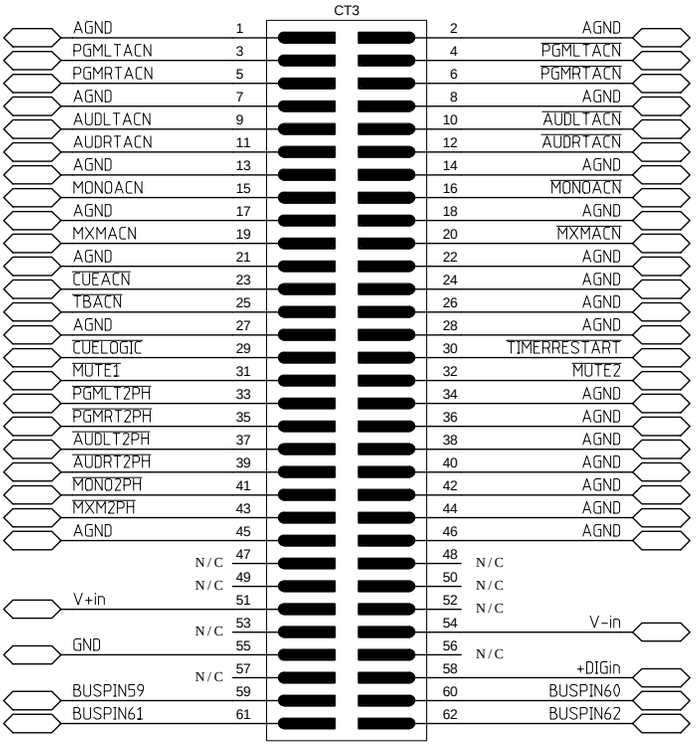


SPN-2000 Super Phone Module Schematic - Sheet 1 of 3

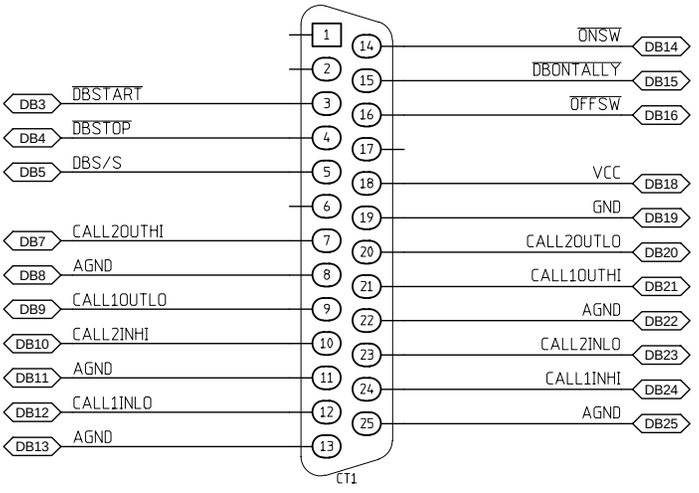


SPN-2000 Super Phone Module Schematic - Sheet 2 of 3

EDGE CONNECTOR BUSS CHART



DB-25 CONNECTOR



AGND

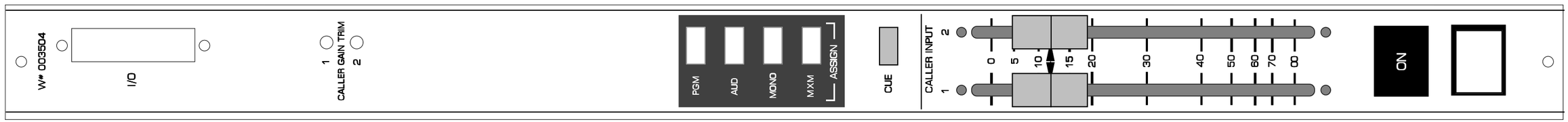
AGND

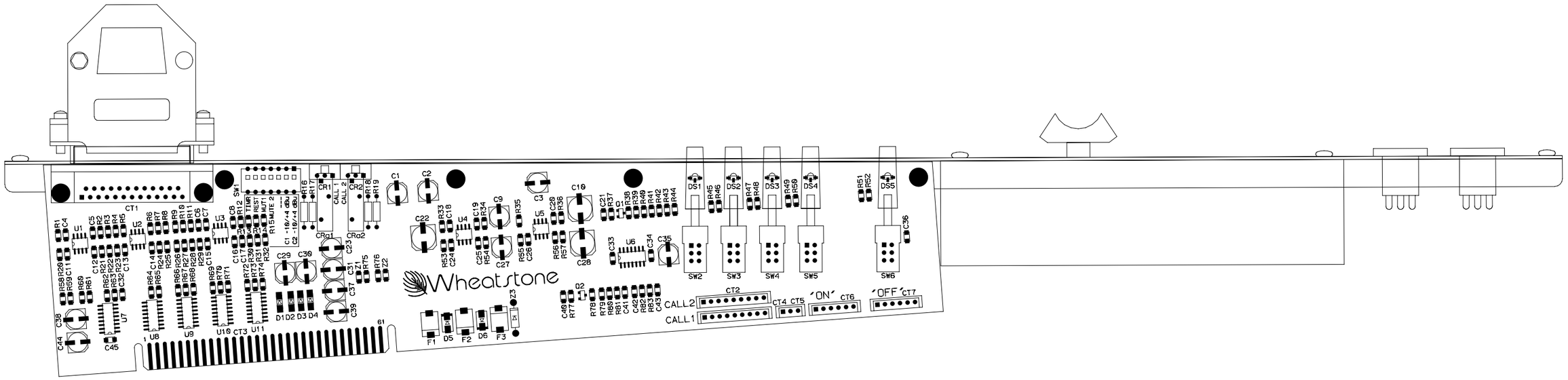
AGND

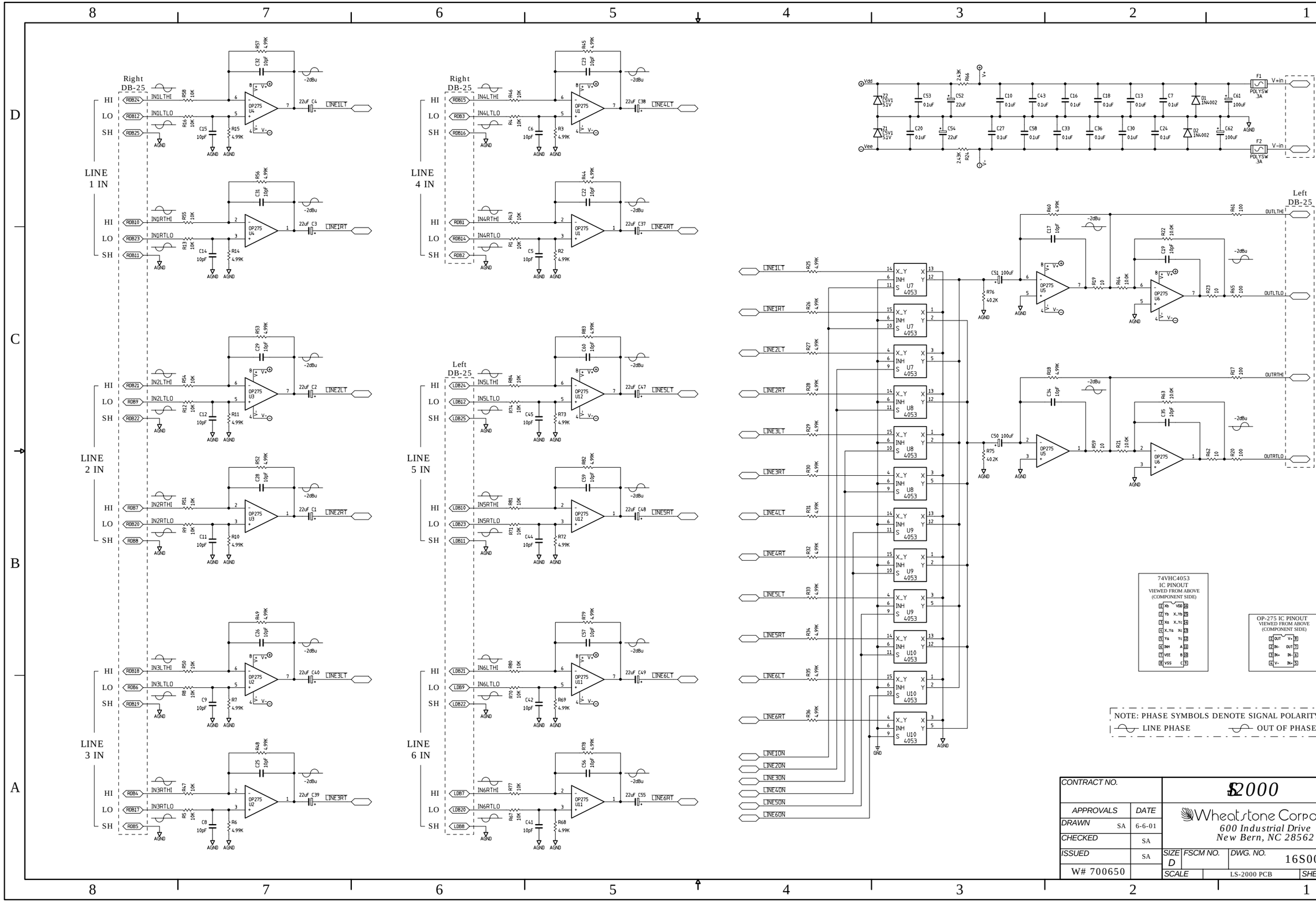
AGND

CONTRACT NO.		SPN-2000	
APPROVALS	DATE	Wheatstone Corporation 600 Industrial Drive New Bern, NC 28562	
DRAWN SA	9-18-01		
CHECKED	SA		
ISSUED	SA	SIZE B / FSCM NO. / DWG. NO. 16S0021x / REV -	
W# 700657		SCALE / SPN-2000 PCB / SHEET 3 OF 3	

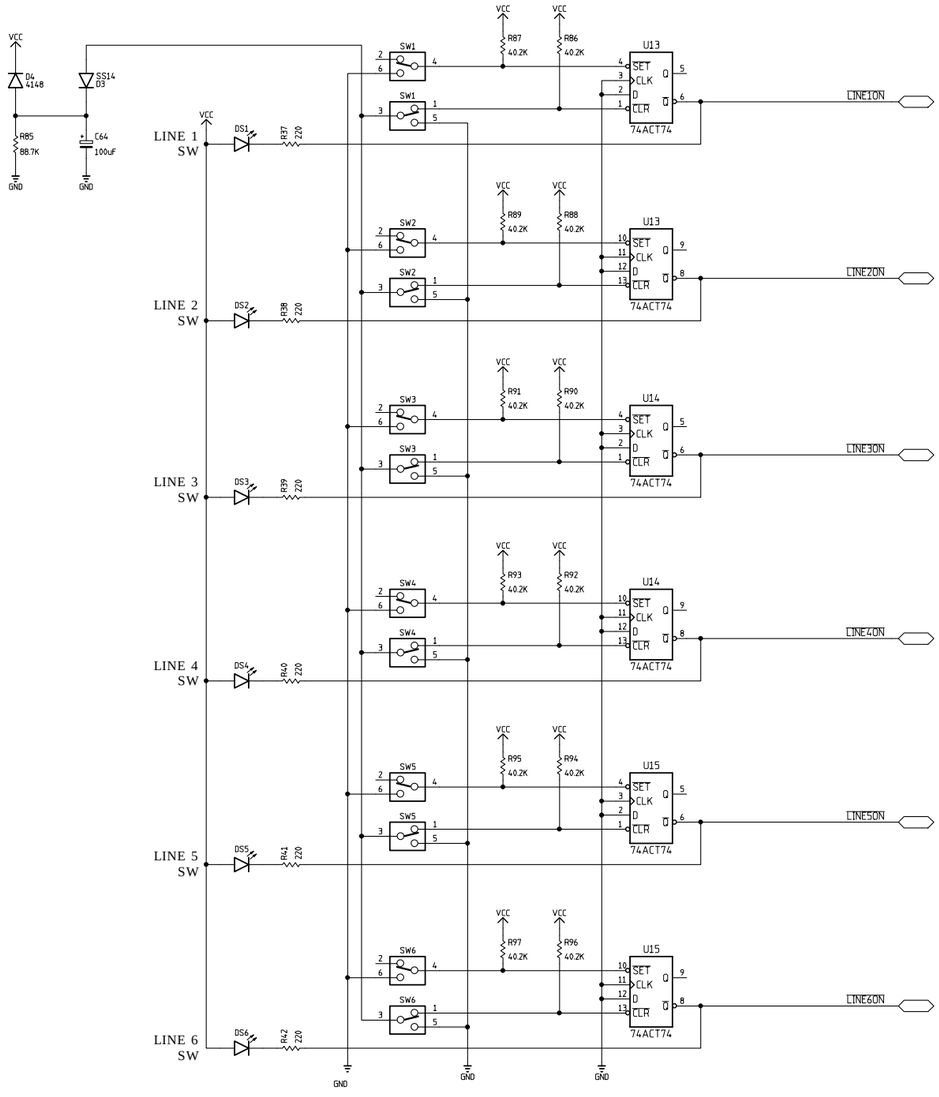
SPN-2000 Super Phone Module Schematic - Sheet 3 of 3

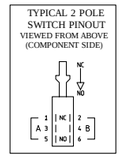

W# 003504
I/O
1
2
CALLER GAIN TRIM
PGM
AUD
MONO
MXM
ASSIGN
CUE
CALLER INPUT
1
2
0
5
10
15
20
30
40
50
60
70
00
ON

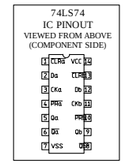

Wheatstone
CALL1
CALL2
ON
OFF
SW1
SW2
SW3
SW4
SW5
SW6
CT1
CT2
CT3
CT4
CT5
CT6
CT7
CRq1
CRq2
D1
D2
D3
D4
D5
D6
F1
F2
F3
DS1
DS2
DS3
DS4
DS5

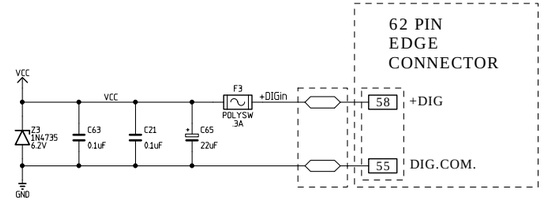


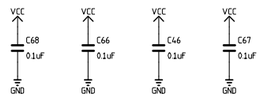
LS-2000 Line Select Module Schematic - Sheet 1 of 3





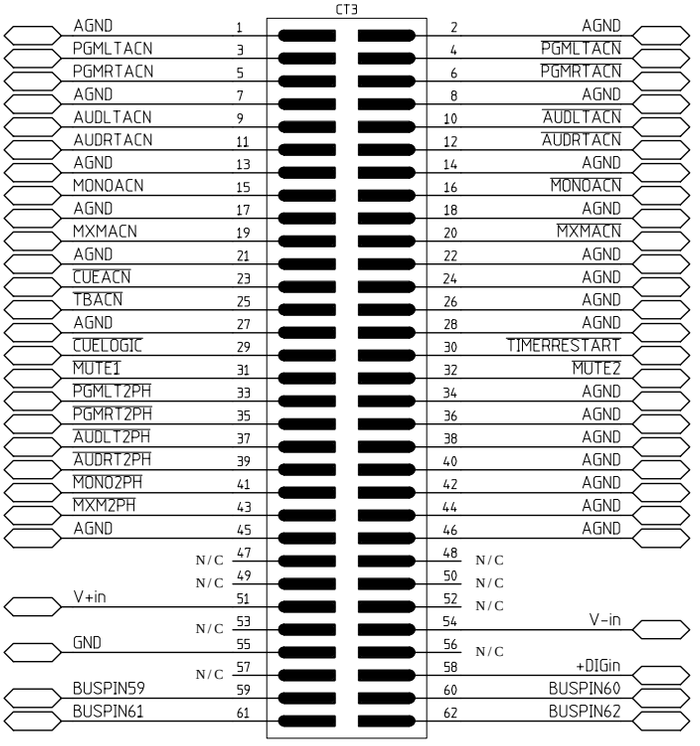




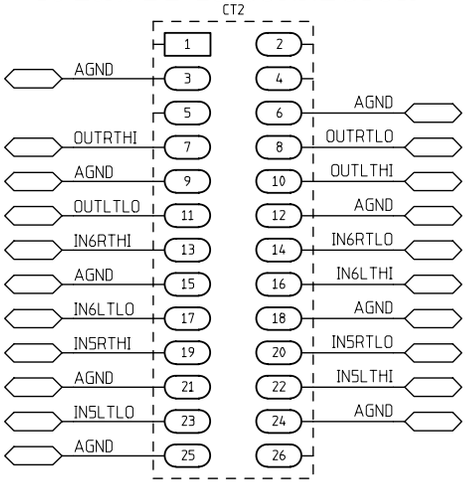


CONTRACT NO.		LS2000	
APPROVALS	DATE	Wheatstone Corporation	
DRAWN SA	6-6-01	600 Industrial Drive	
CHECKED	SA	New Bern, NC 28562	
ISSUED	SA	SIZE D / FSCM NO. / DWG. NO. 16S0005 / REV -	
W# 700650		SCALE LS-2000 PCB / SHEET 2 OF 3	

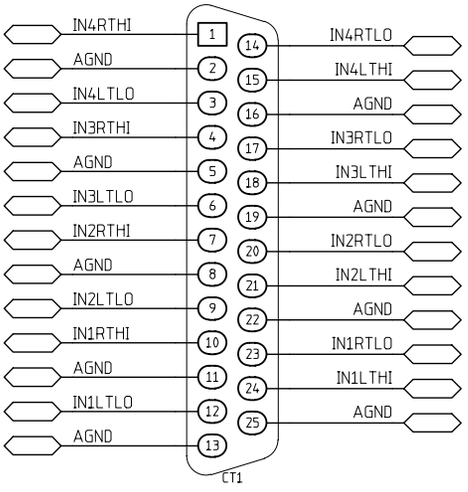
EDGE CONNECTOR BUSS CHART



To Leftt DB-25 CONNECTOR

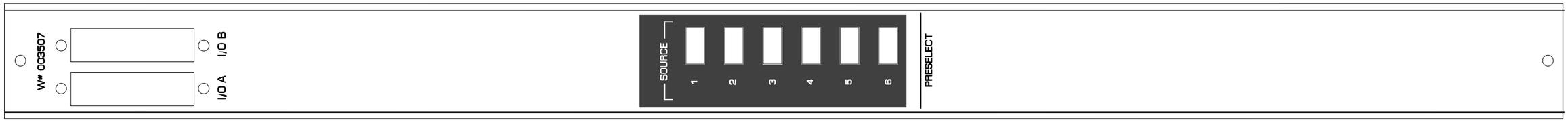


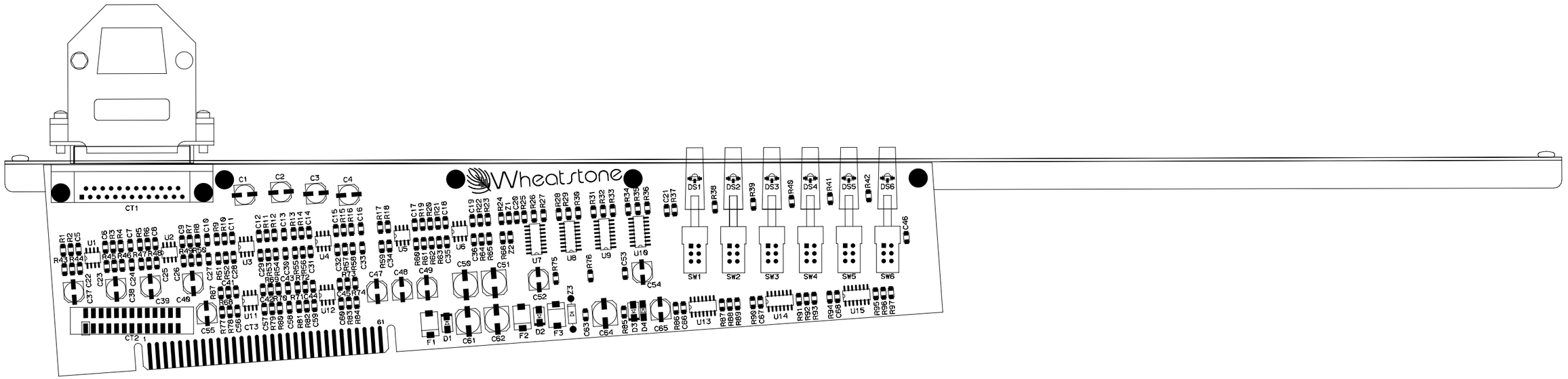
Right DB-25 CONNECTOR

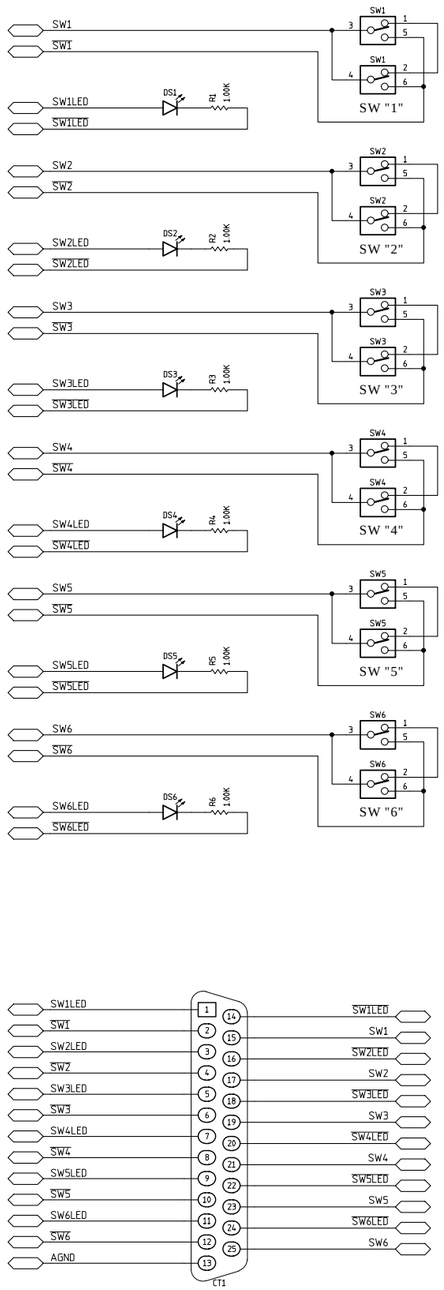


CONTRACT NO.		LS2000	
APPROVALS	DATE	Wheatstone Corporation 600 Industrial Drive New Bern, NC 28562	
DRAWN SA	6-6-01		
CHECKED	SA		
ISSUED	SA	SIZE B / FSCM NO. / DWG. NO. 16S0011 / REV -	
W# 700650		SCALE LS-2000 PCB / SHEET 3 OF 3	

LS-2000 Line Select Module Schematic - Sheet 3 of 3


W# 003507
I/O B
I/O A
SOURCE
1
2
3
4
5
6
PRESELECT

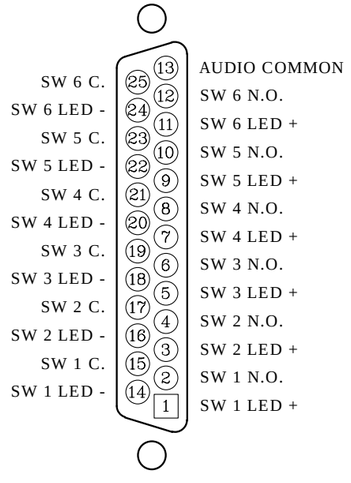

Wheatstone
CT1
CT2
CT3
SW1
SW2
SW3
SW4
SW5
SW6



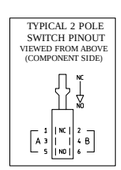
TR-2000 I/O

DB Connector Pinouts

I/O PORTS

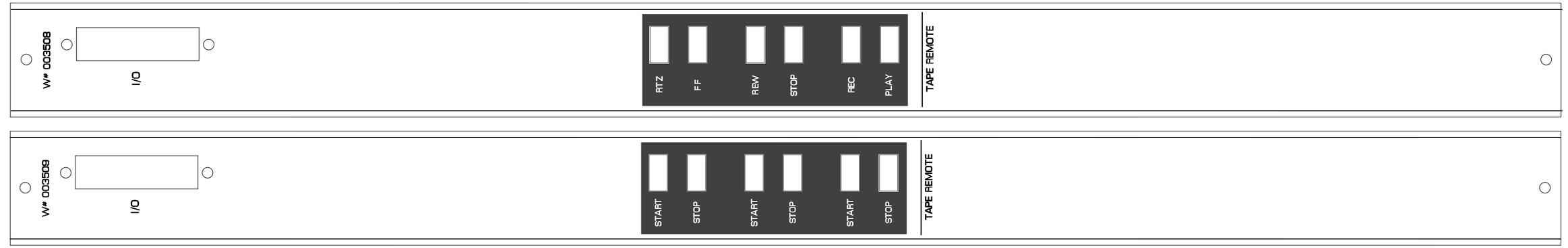


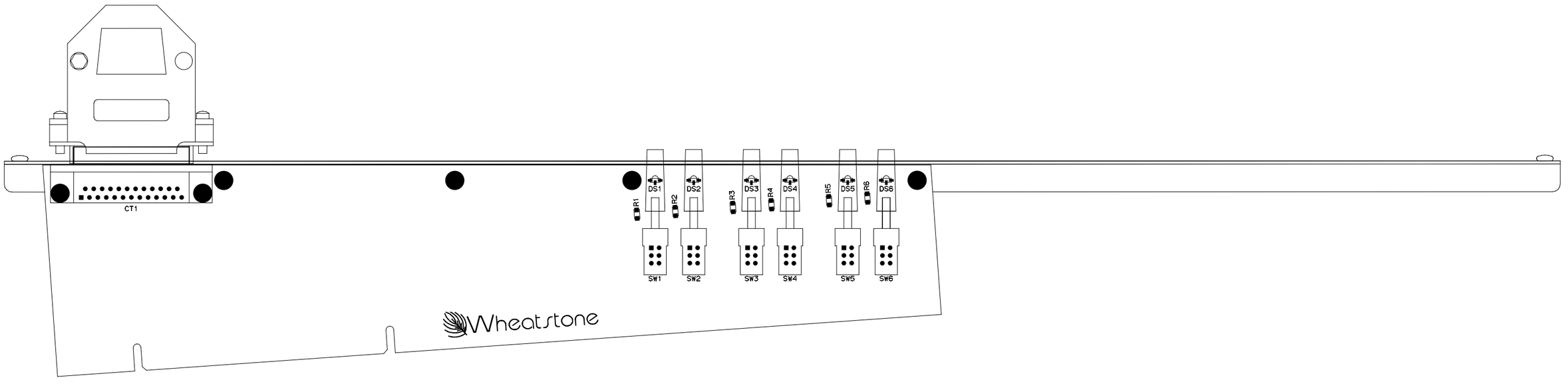
TYPICAL 2 POLE SWITCH PINOUT VIEWED FROM ABOVE (COMPONENT SIDE)

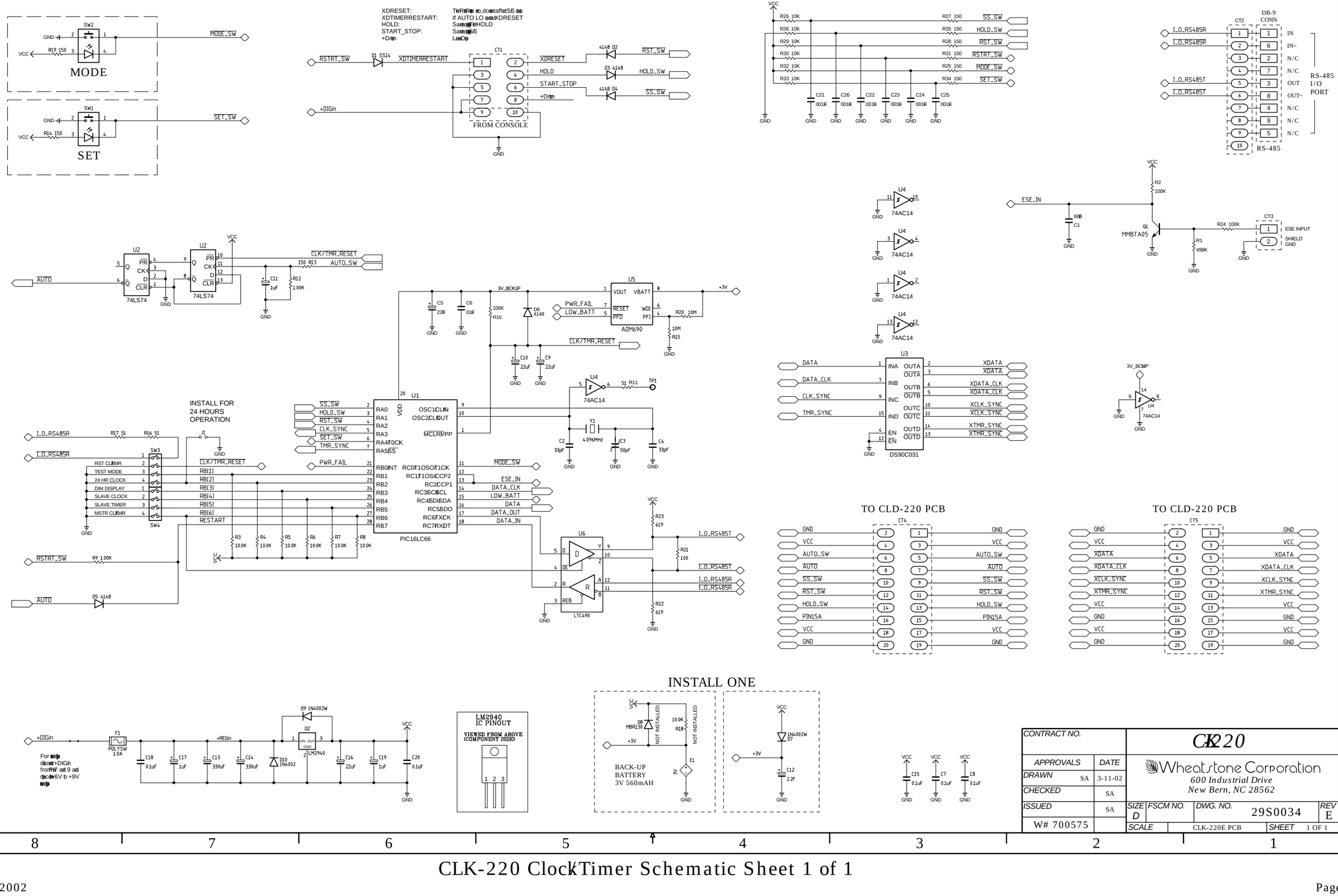


CONTRACT NO.		TR2000
APPROVALS	DATE	Wheatstone Corporation 600 Industrial Drive New Bern, NC 28562
DRAWN SA	1-3-01	
CHECKED	SA	
ISSUED	SA	SIZE D / FSCM NO. / DWG. NO. 16S0022 / REV -
W# 700658		SCALE / TR-2000 PCB / SHEET 1 OF 1

TR-2000 Tape Remote Module Schematic - Sheet 1 of 1

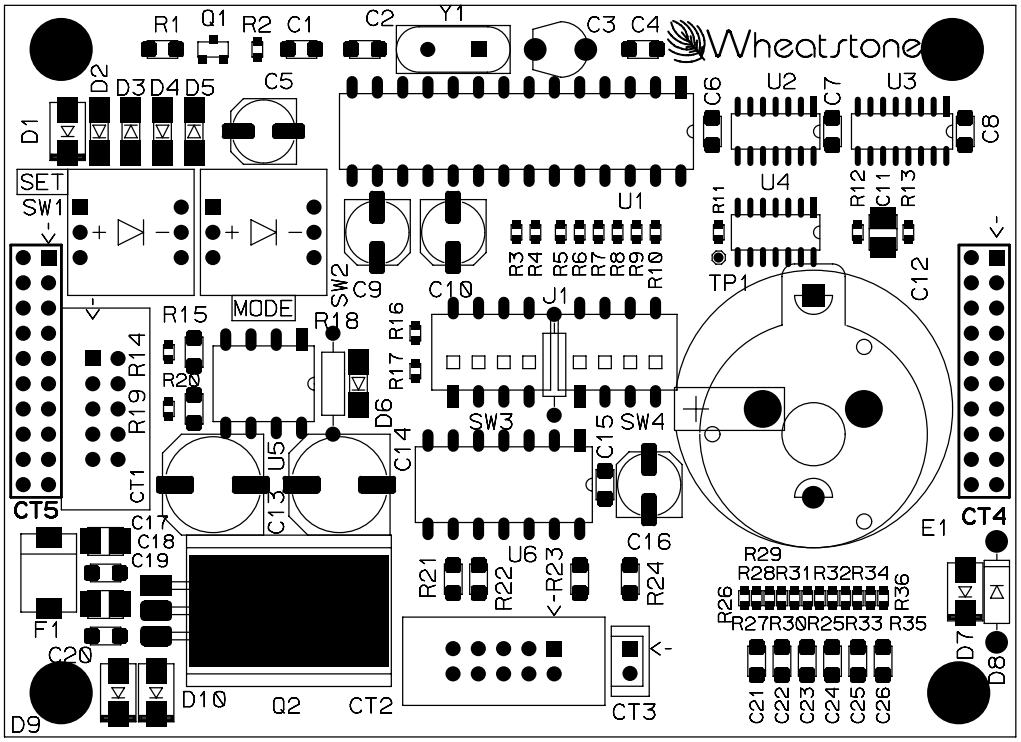

W# 003508
I/O
RTZ
F F
REW
STOP
REC
PLAY
TAPE REMOTE
W# 003509
I/O
START
STOP
START
STOP
START
STOP
TAPE REMOTE


CT1
DS1
DS2
DS3
DS4
DS5
DS6
R1
R2
R3
R4
R5
R6
SW1
SW2
SW3
SW4
SW5
SW6
Wheatstone



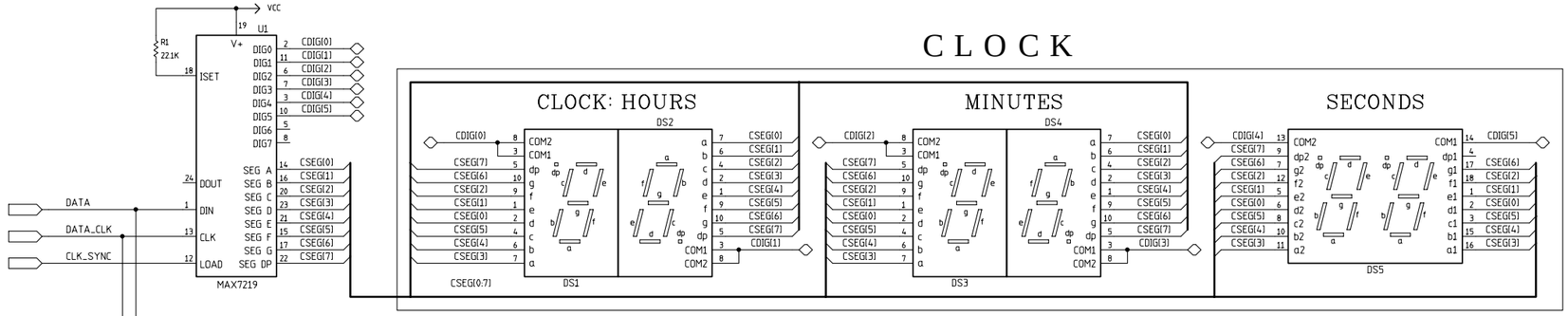
CONTRACT NO.		CLK220	
APPROVALS	DATE	Wheatstone Corporation 600 Industrial Drive New Bern, NC 28562	
DRAWN SA	3-11-02		
CHECKED	SA		
ISSUED	SA	SIZE D / FSCM NO. / DWG. NO. 29S0034 / REV E	
W# 700575		SCALE / CLK-220E PCB / SHEET 1 OF 1	

CLK-220 Clock/Timer Schematic Sheet 1 of 1

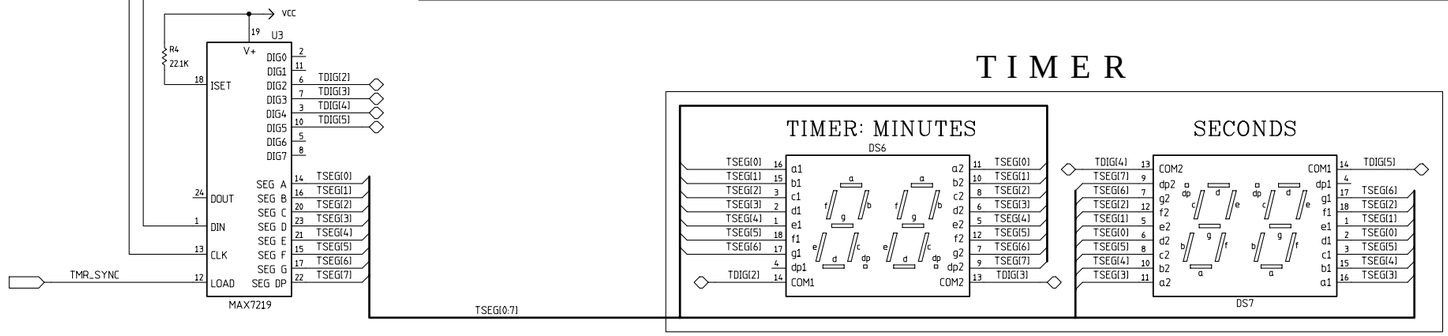


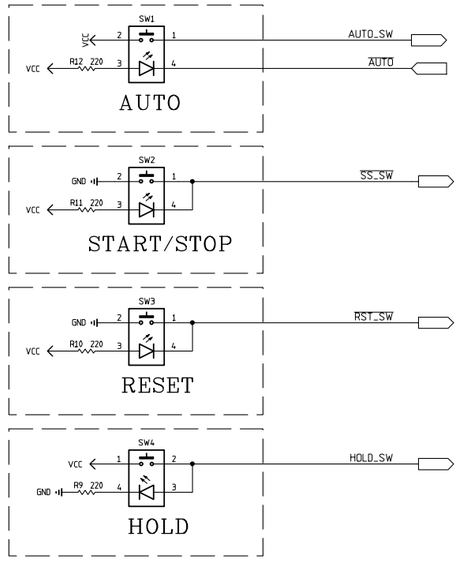
CLK-70 Clock/Timer - Load Sheet

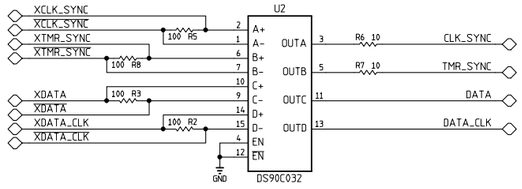
CLOCK

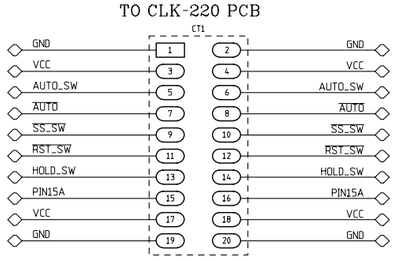


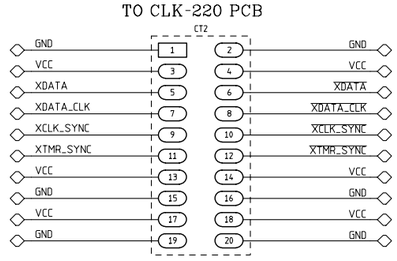
TIMER

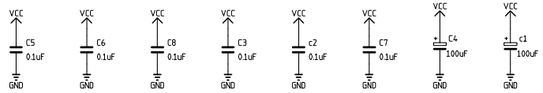










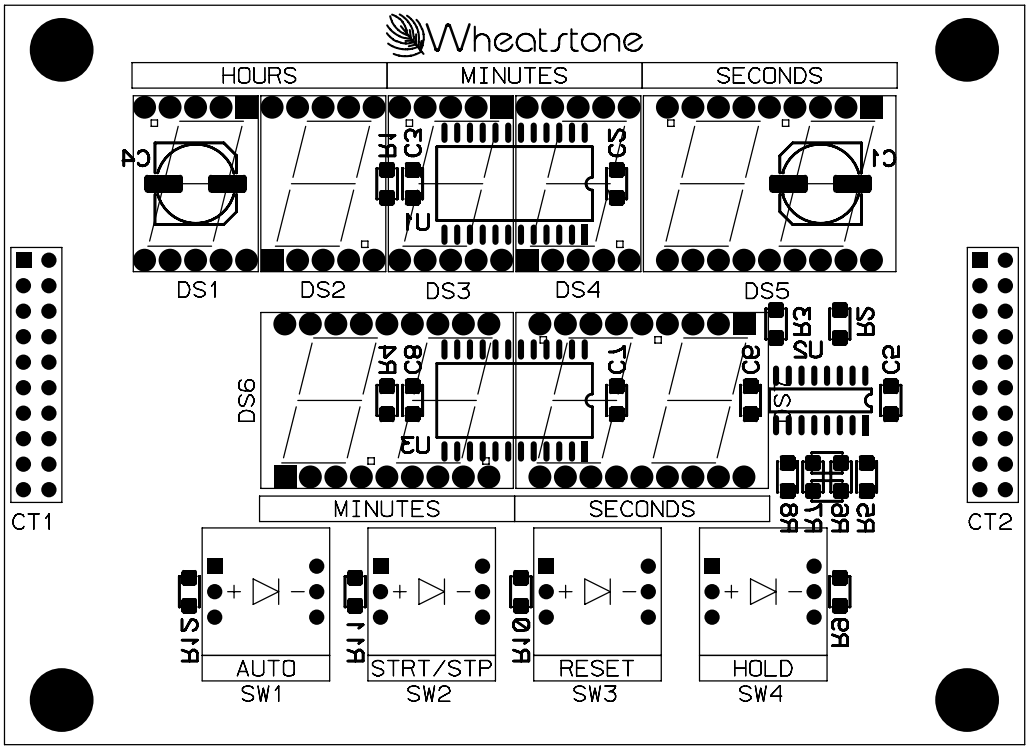


CONTRACT NO.	
APPROVALS	DATE
DRAWN JBB	9-26-00
CHECKED	SA
ISSUED	SA
W# 700575	

CD-220

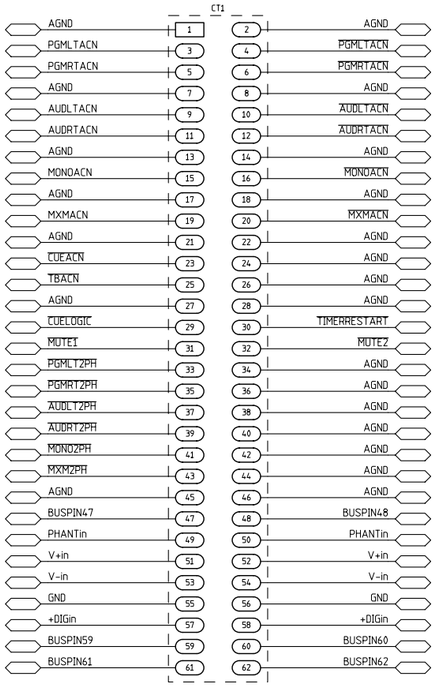
Wheatstone Corporation
600 Industrial Drive
New Bern, NC 28562

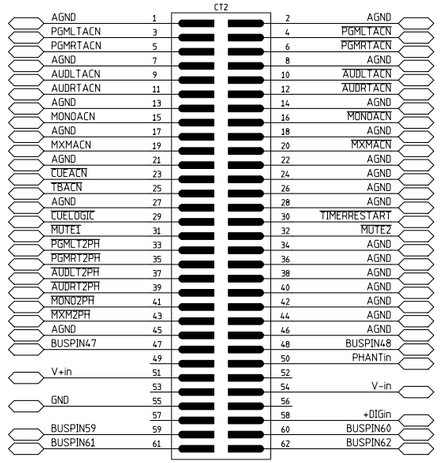
SIZE	FSCM NO.	DWG. NO.	REV
D		29S0024	B
SCALE	CLD-220B PCB	SHEET	1 OF 1

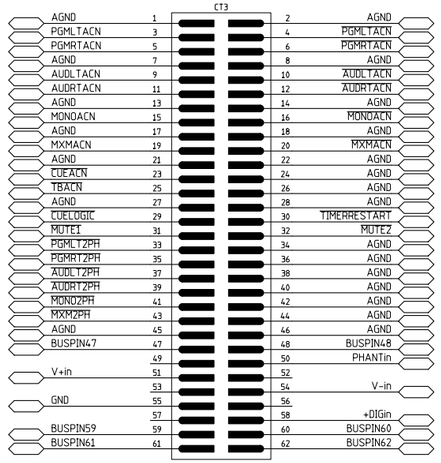


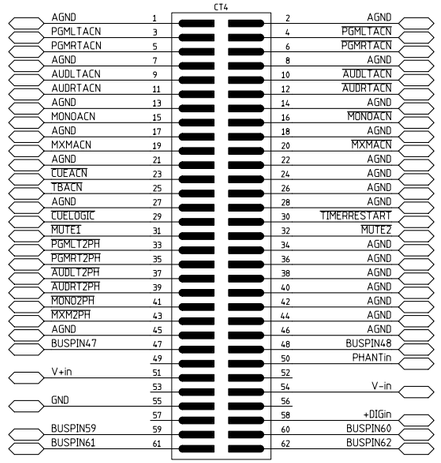
CLD-70 Clock/Timer Display - Load Sheet

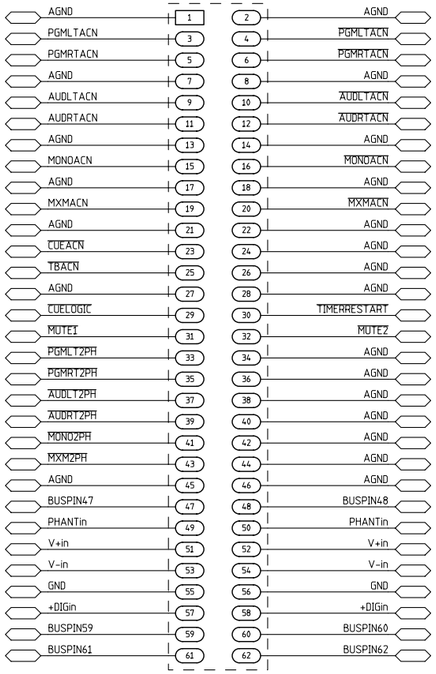
EDGE CONNECTORS BUSS CHART

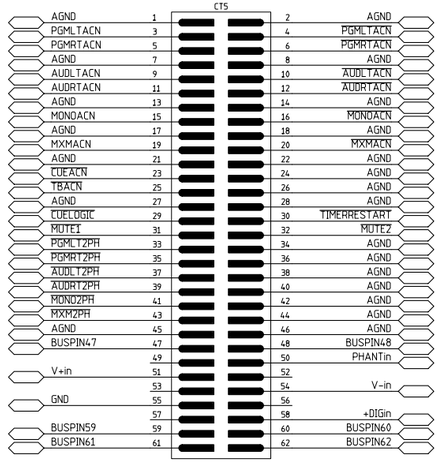


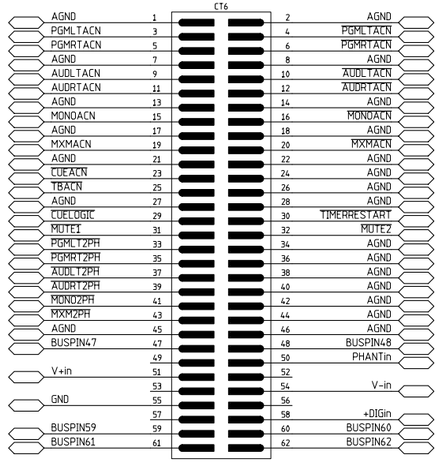


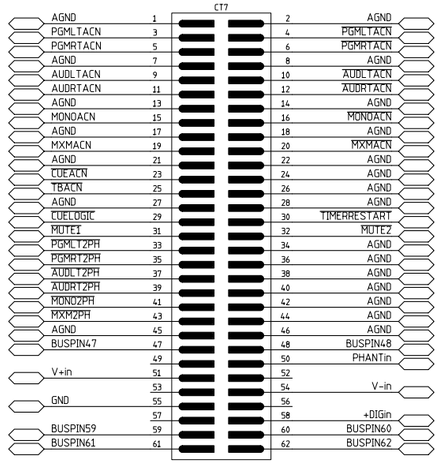








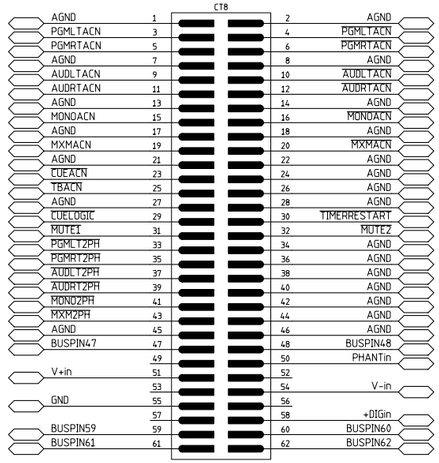


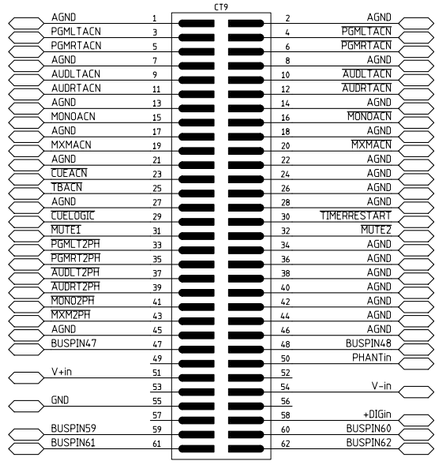


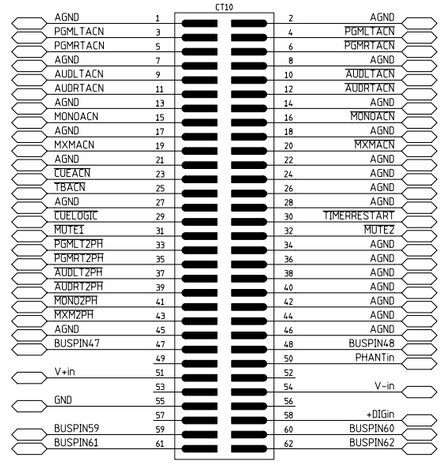
CONTRACT NO.		MBE-2011
APPROVALS	DATE	Wheatstone Corporation 600 Industrial Drive New Bern, NC 28562
DRAWN SA	11-14-00	
CHECKED		SIZE D · FSCM NO. · DWG. NO. 16S0008 · REV
ISSUED		SCALE · MBE-2011 PCB · SHEET 1 OF 2
W* 700652		

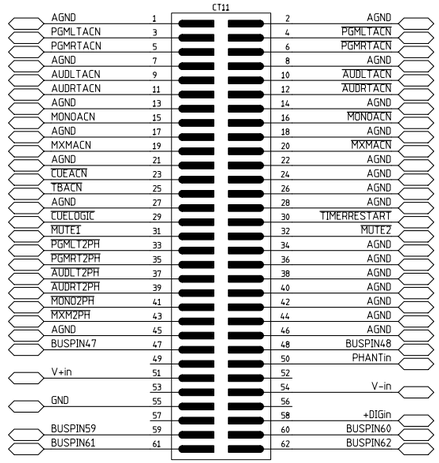
MBE-2011 11 Position Mother Board (Extender) Schematic - Sheet 1 of 2

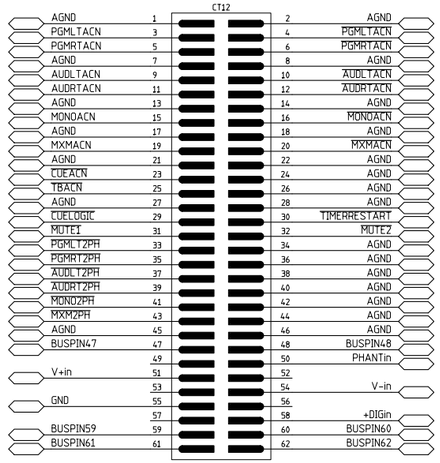
EDGE CONNECTORS BUSS CHART



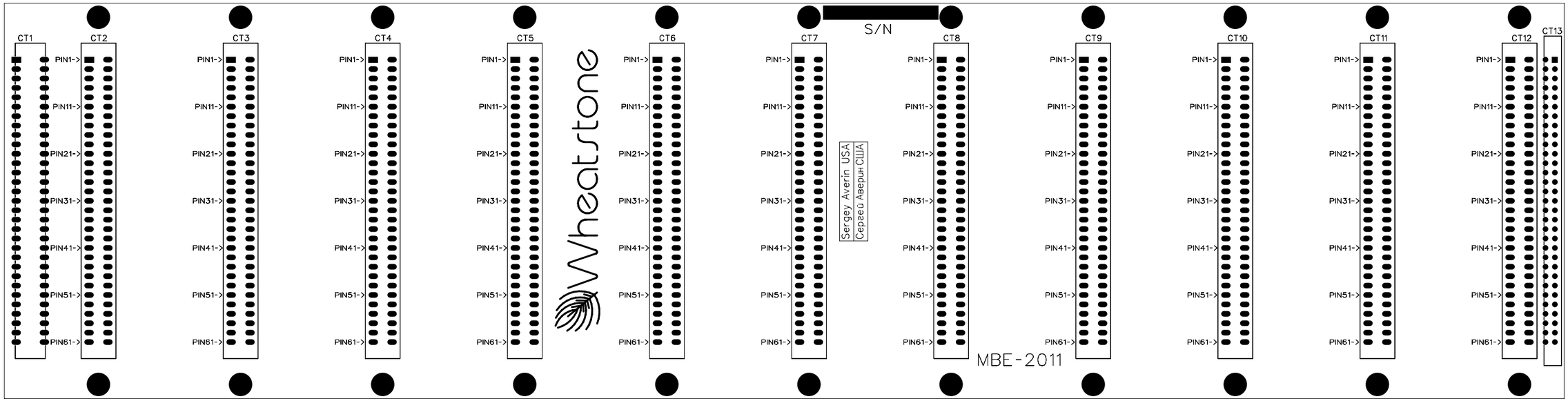






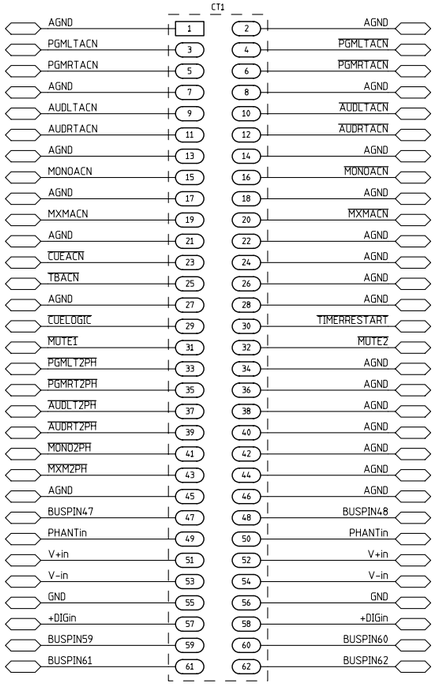


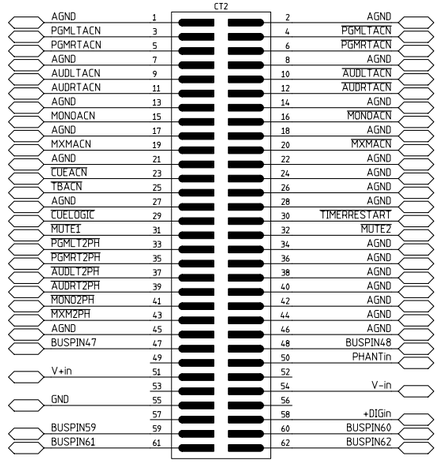
CONTRACT NO.		MBE-2011
APPROVALS	DATE	Wheatstone Corporation 600 Industrial Drive New Bern, NC 28562
DRAWN SA	11-14-00	
CHECKED		
ISSUED		SIZE D · FSCM NO. · DWG. NO. 16S0009 · REV
W* 700652		SCALE · MBE-2011 PCB · SHEET 2 OF 2


CT1
CT2
CT3
CT4
CT5
CT6
CT7
CT8
CT9
CT10
CT11
CT12
CT13
PIN1->
PIN11->
PIN21->
PIN31->
PIN41->
PIN51->
PIN61->
S/N
Wheatstone
Sergey Averin USA
Сергей Аверин США
MBE-2011

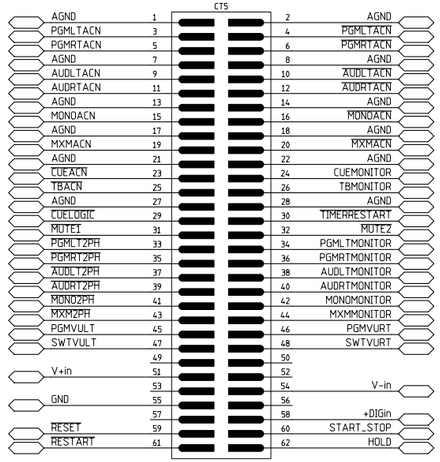
EDGE CONNECTORS BUSS CHART

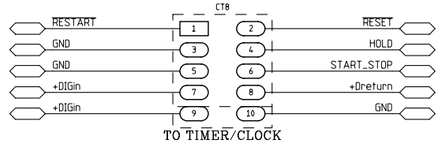
INPUT/SPN MODULE

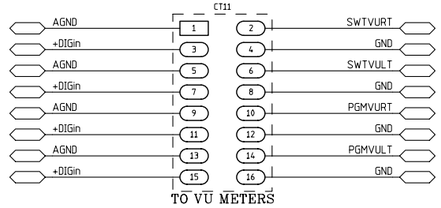




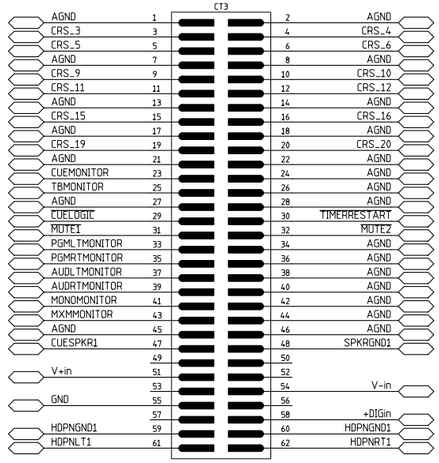
OUTPUT MODULE

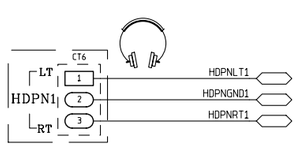


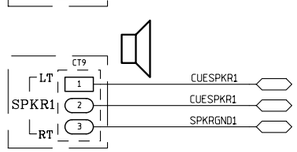




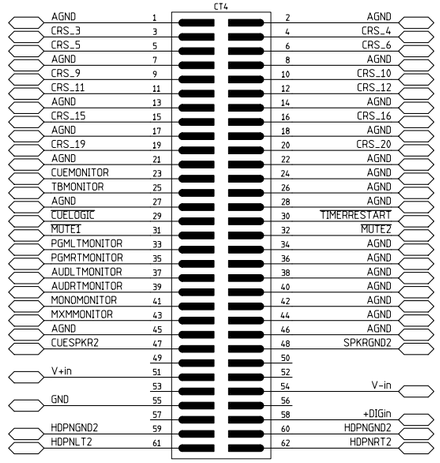
CR MODULE

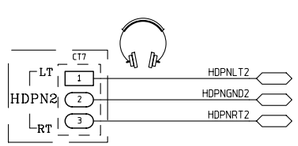


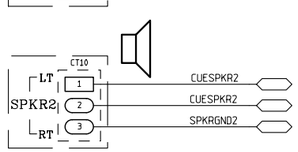




SC2 MODULE

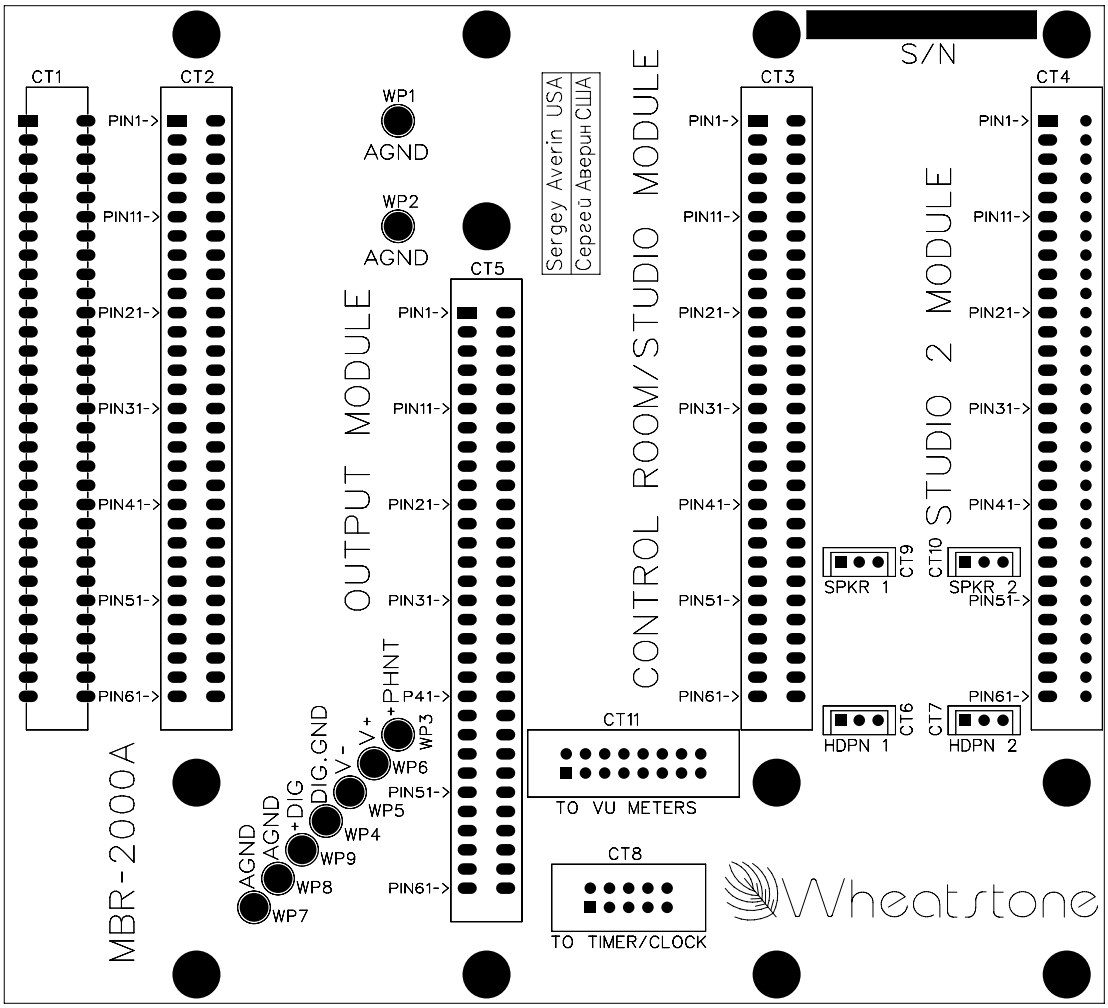




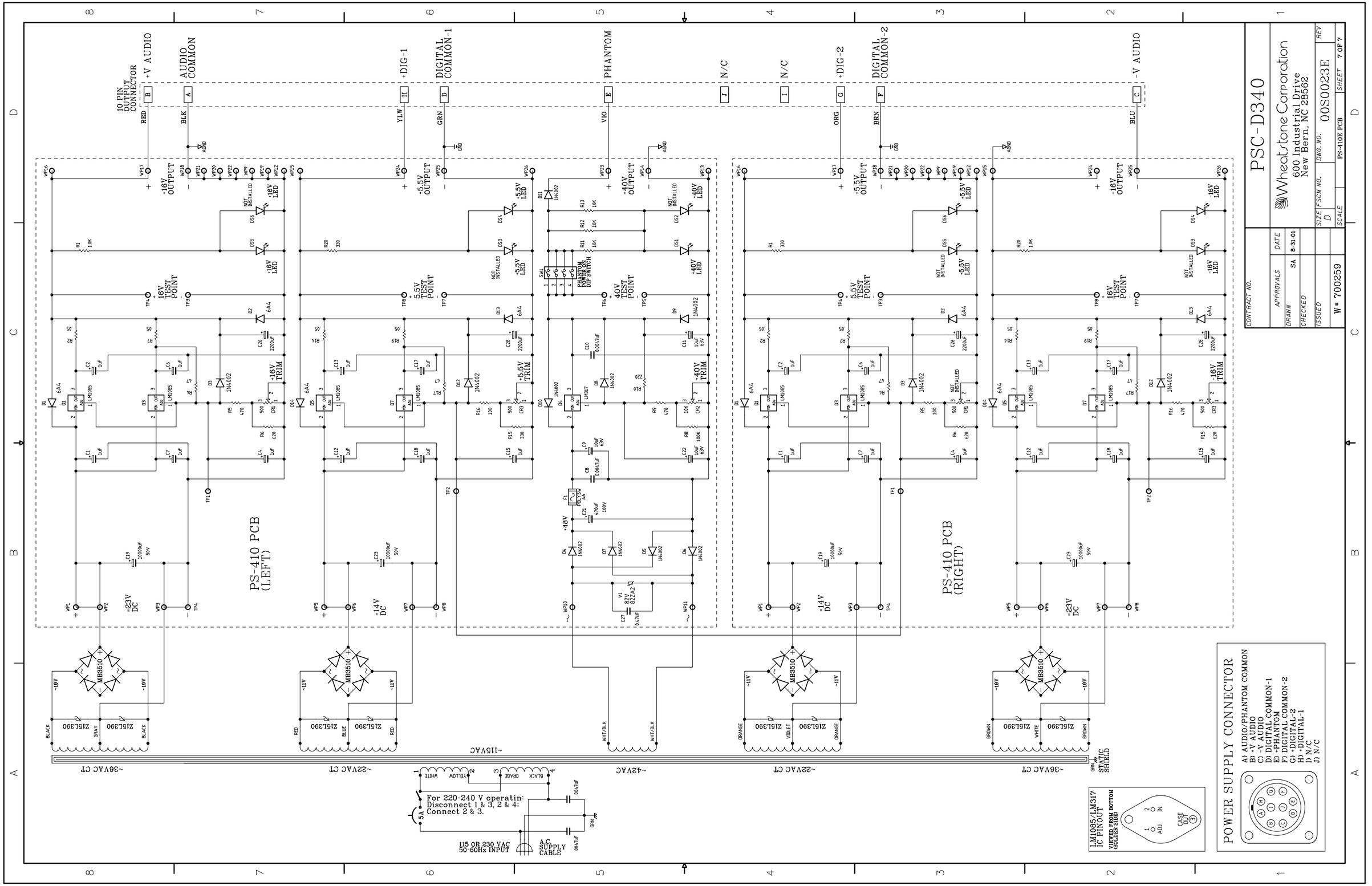


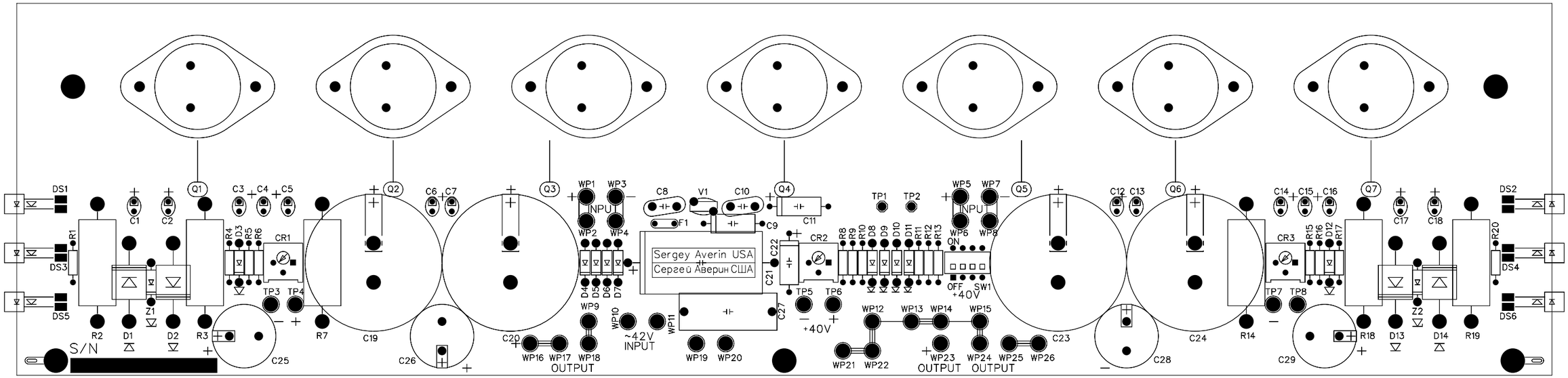
CONTRACT NO.		MBR-2000	
APPROVALS	DATE	Wheatstone Corporation 600 Industrial Drive New Bern, NC 28562	
DRAWN SA	10-18-01		
CHECKED	SA		
ISSUED	SA	SIZE D / FSCM NO. / DWG. NO. 16S0010 / REV A	
W# 700653		SCALE MBR-2000A PCB / SHEET 1 OF 1	

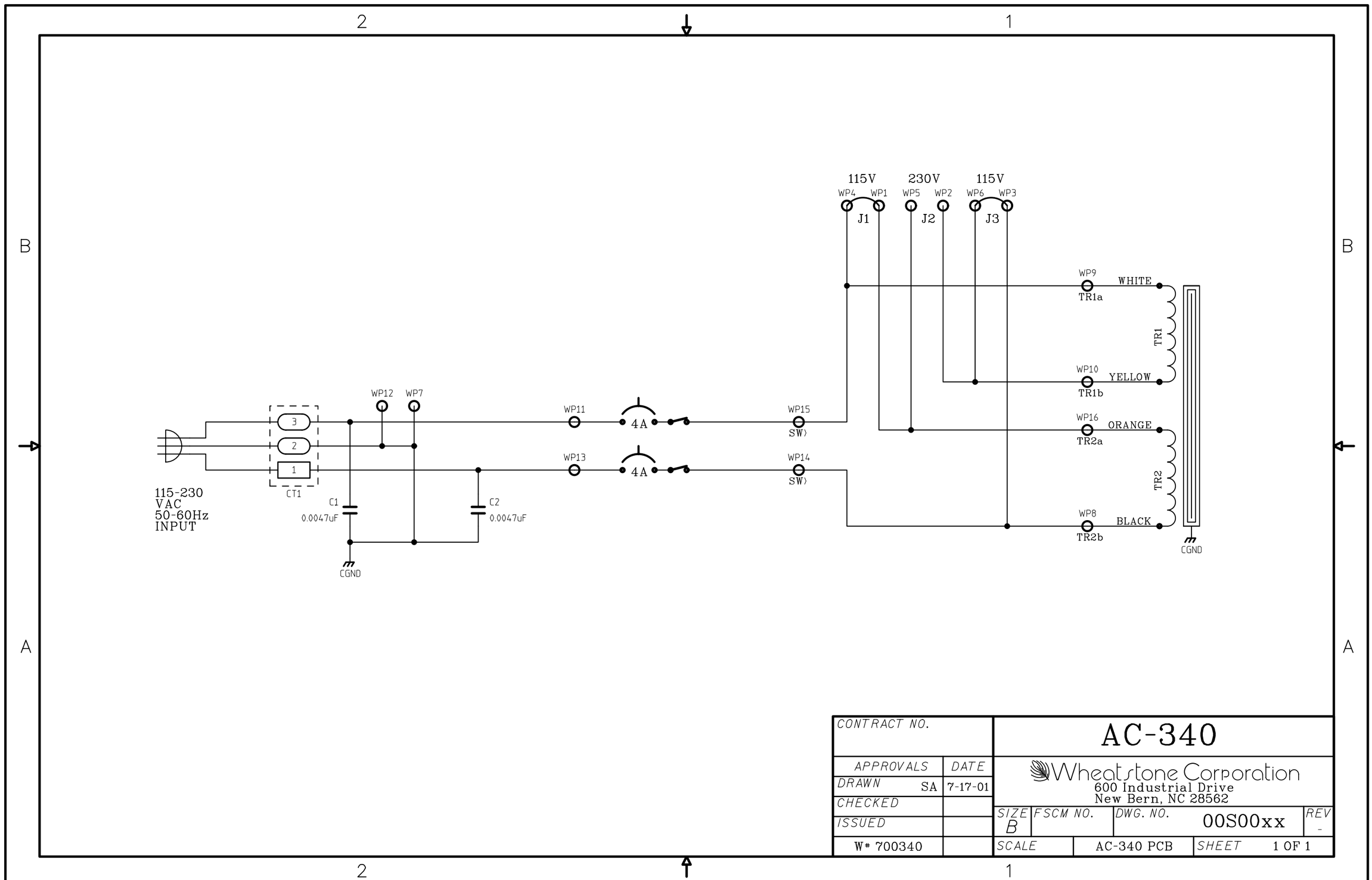
MBR-2000 4 Position Mother Board (Right) Schematic - Sheet 1 of 1



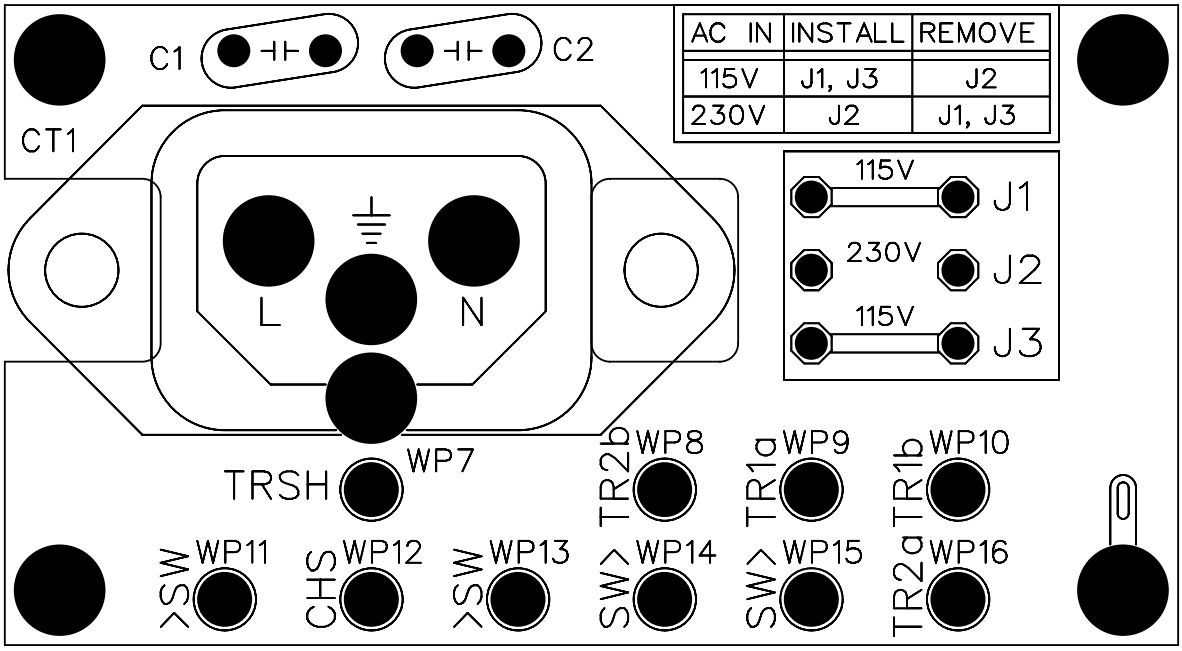
MBR-2000 4 Position Mother Board (Right) - Load Sheet


PSC-D340
Wheatstone Corporation
600 Industrial Drive
New Bern, NC 28562
CONTRACT NO.
APPROVALS
DRAWN SA 8-31-01
CHECKED
ISSUED
SIZE D
FSCM NO. 00S0023E
REV
SCALE
DWG. NO. PS-410E PCB
SHEET 7 OF 7
W# 7002259
10 PIN OUTPUT CONNECTOR
+V AUDIO
AUDIO COMMON
+DIG-1
DIGITAL COMMON-1
PHANTOM
N/C
N/C
+DIG-2
DIGITAL COMMON-2
-V AUDIO
RED
BLK
YLW
GRN
VIO
ORG
BRN
BLU
+16V OUTPUT
+5.5V OUTPUT
+40V OUTPUT
-5.5V OUTPUT
-16V OUTPUT
PS-410 PCB (LEFT)
PS-410 PCB (RIGHT)
=23V DC
=14V DC
MB3510
~36VAC CT
~22VAC CT
~42VAC
~115VAC
For 220-240 V operatin:
Disconnect 1 & 3, 2 & 4;
Connect 2 & 3.
5A
115 OR 230 VAC 50-60Hz INPUT
A.C. SUPPLY CABLE
STATIC SHIELD
POWER SUPPLY CONNECTOR
A) AUDIO/PHANTOM COMMON
B) +V AUDIO
C) -V AUDIO
D) DIGITAL COMMON-1
E) +PHANTOM
F) DIGITAL COMMON-2
G) +DIGITAL-2
H) +DIGITAL-1
I) N/C
J) N/C
LM1085/LM317 IC PINOUT
VIEWED FROM BOTTOM (SOLDER SIDE)
1 ADJ
2 IN
CASE OUT

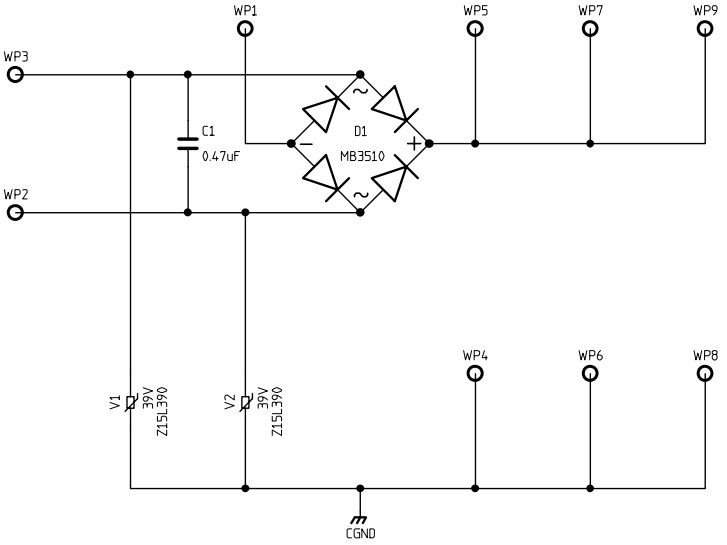

DS1
Q1
C1
C2
C3
C4
C5
R1
R4
D3
R5
R6
CR1
DS3
DS5
R2
D1
Z1
D2
R3
TP3
TP4
S/N
C25
Q2
C6
C7
R7
C19
C26
Q3
WP1
WP3
INPU
WP2
WP4
C20
WP16
WP17
WP18
OUTPUT
C8
V1
C10
F1
C9
Q4
C11
Sergey Averin USA
Сергей Аверин США
C22
C21
C27
WP9
WP10
WP11
~42V
INPUT
WP19
WP20
TP1
TP2
CR2
R8
R9
R10
D8
D9
D10
R11
R12
R13
TP5
TP6
+40V
WP12
WP13
WP14
WP15
WP21
WP22
WP23
OUTPUT
WP5
WP7
INPUT
WP6
WP8
ON
OFF
SW1
+40V
WP24
WP25
WP26
OUTPUT
Q5
C23
C28
Q6
C12
C13
C24
R14
Q7
C14
C15
C16
CR3
R15
R16
D12
R17
TP7
TP8
C29
C17
C18
R18
D13
Z2
D14
R19
R20
DS2
DS4
DS6



Power Supply AC in Card Schematic - Sheet 1 of 1

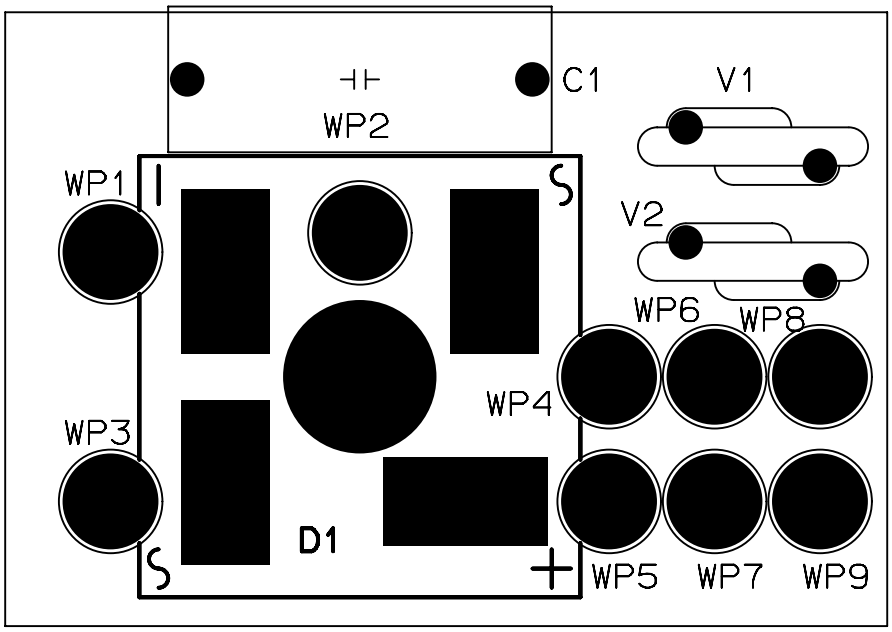


Power Supply AC IN Card - Load Sheet

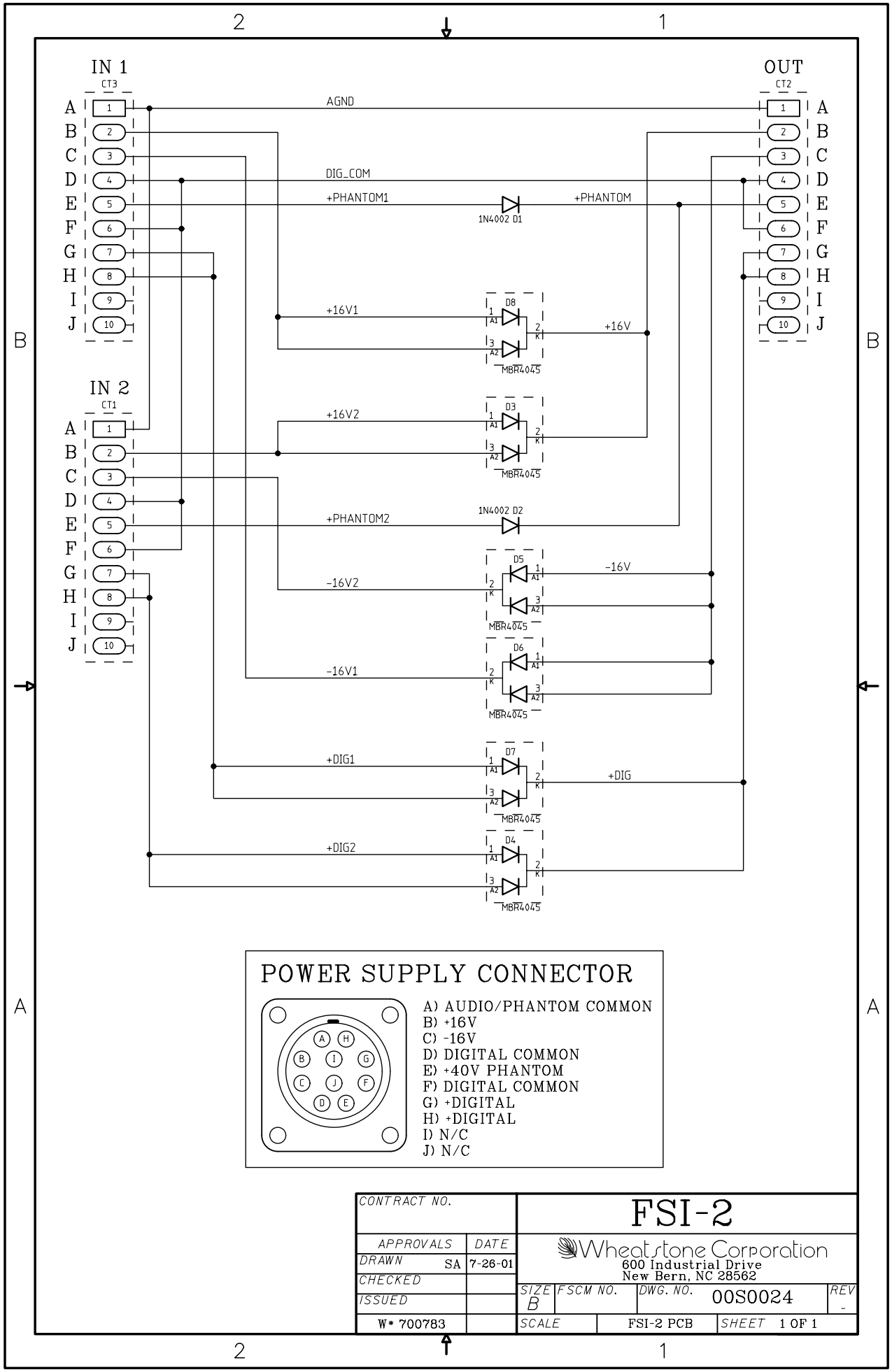


CONTRACT NO.		BRA	
APPROVALS	DATE	Wheatstone Corporation 600 Industrial Drive New Bern, NC 28562	
DRAWN SA	7-27-01		
CHECKED	SA		
ISSUED	SA	SIZE B / FSCM NO. / DWG. NO. 00S0021 / REV B	
W# 700355		SCALE / BRA-1B PCB / SHEET 1 OF 1	

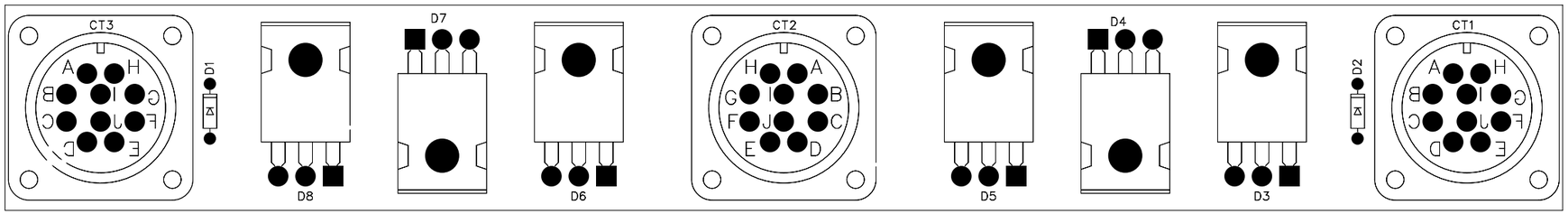
Bridge Adapter Card Schematic - Sheet 1 of 1



BRA1 Bridge Adapter Card - Load Sheet



Fail Safe Interface Schematic - Sheet 1 of 1


CT3
A
H
B
I
G
C
J
F
E
D
D1
D8
D7
D6
CT2
H
A
G
I
B
F
J
C
E
D
D5
D4
D3
CT1
A
H
B
I
G
C
J
F
E
D
D2