R-55 Audio Console

AUDIOARTS ENGINEERING

TECHNICAL MANUAL
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R-55 Audio Console Technical Manual - 1st Edition

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R-55 Technical Manual

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Installation and Power

Unpacking the Console

The R-55 console is shipped as two packages. One carton contains the console and the second carton contains the power supply, connecting cable, connector kit and documentation.

Countertop Mounting

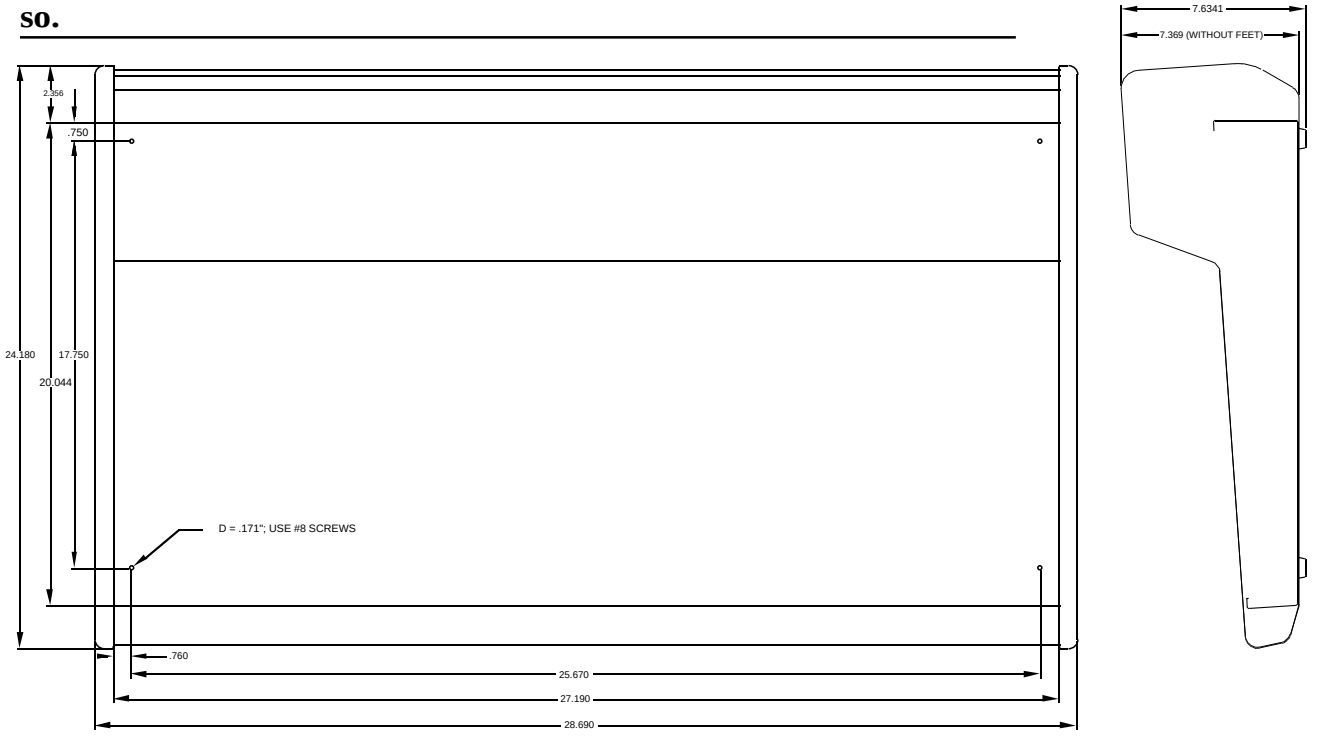
The R-55 audio console is designed for countertop mounting. Console placement should avoid proximity to any electromagnetic fields, such as large power transformers, motors, and fluorescent lighting fixtures. If you will be securing the console to the counter top, you may want to pre-drill the mounting 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 R-55 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 R-55 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.

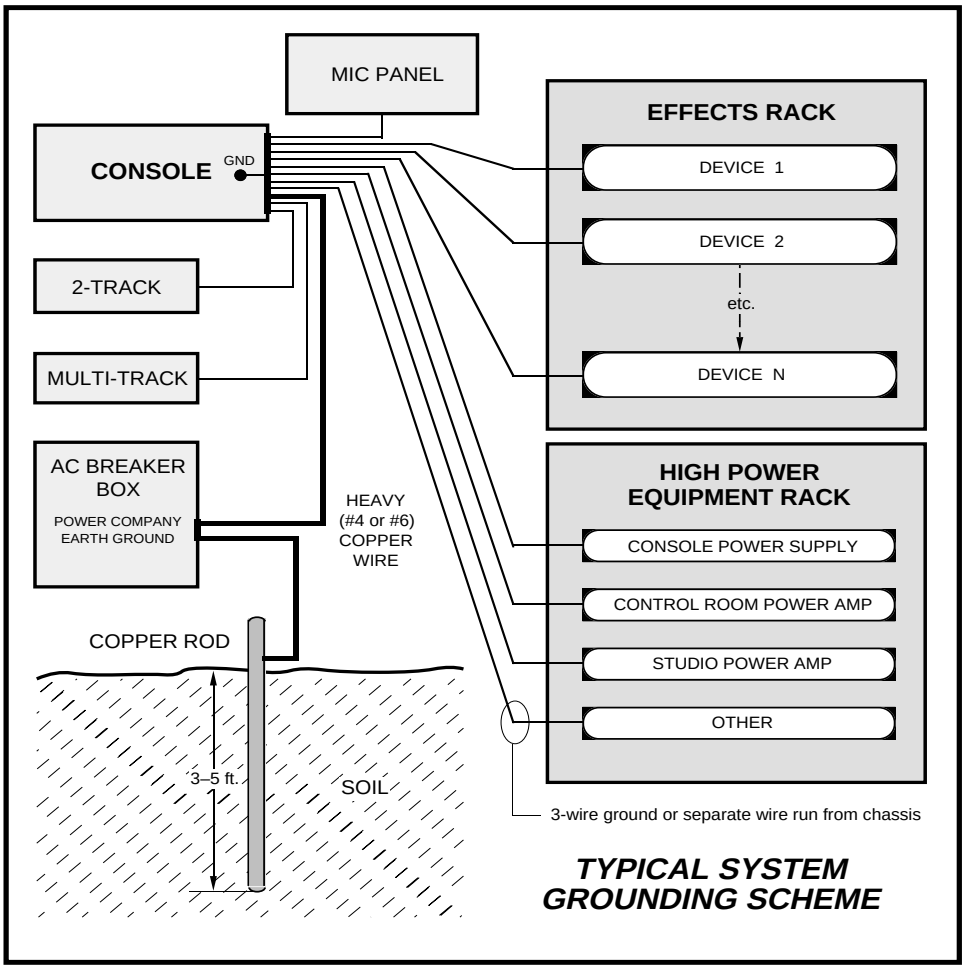
The system ground serves two important purposes:

(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 Supply

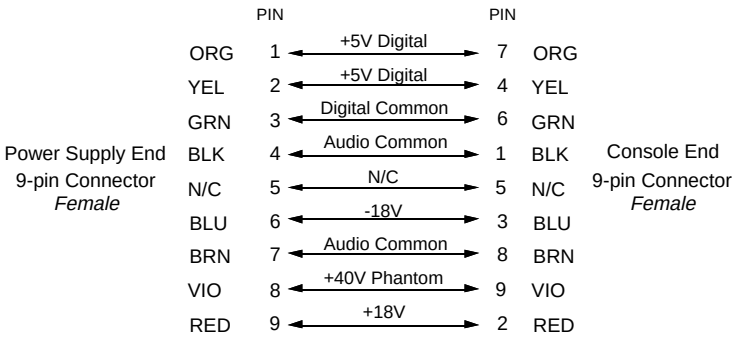
PS-6040 Power Supply

The R-55 console is powered by a model PS-6040 power supply. Mount the PS-6040 power supply in a standard 19" equipment rack, keeping in mind that adequate ventilation is necessary to prevent heat build-up within the rack.

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

Once the supply is rackmounted, it should be connected to the console using the factory supplied cable. The cable has two different types of 9-pin connectors on its end: a plastic shell connector that connects to the console's power supply connector, and a multi-pin cable-mount connector that plugs into the PS-6040 power supply. The console's power supply connector is mounted on the right side of the console meterbridge rear.

PS Cable Pinout



Note that the power supply cable's 9-pin female connector has to be rotated until its locating pins match the male connector on the power supply. 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.

If you are using two supplies (failsafe option), connect the long power supply cable's round power supply connector 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 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 R-55 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.

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.

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 R-55 console mainframe is properly placed and grounded, and its PS-6040 power supply correctly rackmounted and connected to the console, you may now energize the PS-6040 rackmount power supply by plugging it into the AC mains. The four LEDs on the power supply front panel should light up to indicate the presence of their respective voltages. The console's VU 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 R-55 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 factory supplied hand crimping tool is used for all I/O wiring connections to and from the console (see instruction on page 1-8).

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.

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.

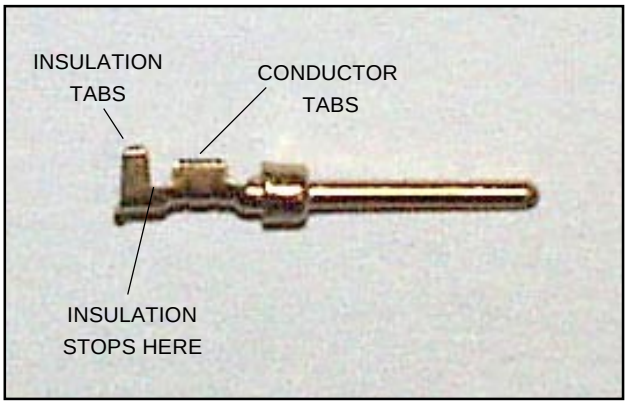
ANALOG OUTPUTS — R-55 consoles use an electronically balanced output circuit. Care must be exercised when connecting them to an unbalanced system. While temporarily shorting the low side of the output signal to ground will not cause any problems, continued operation will result in increased distortion, decreased reliability, and possible oscillation problems. If you must connect the output to an unbalanced system, be sure to leave the low side unterminated, and connect the unbalanced system to the high side output and shield connections.

Modules Layout

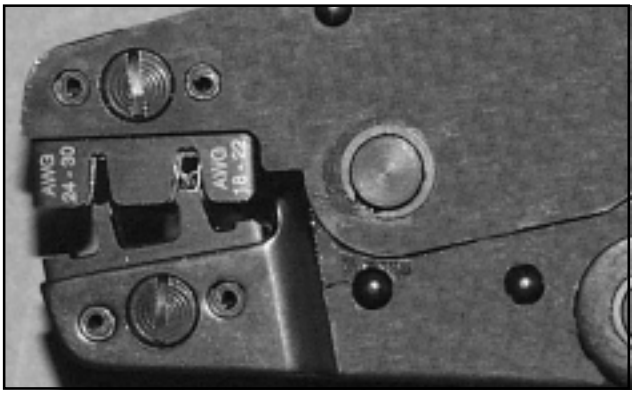
The R-55 console's mainframe comes supplied with 12 line level input modules, an output module, and a control room/studio module. Each module type has its assigned slot (see drawing on page 1-10). To handle mic level inputs, a quad mic preamp is included. Also there can be optional modules: a superphone, a line select module, and a tape remote module. Optional modules can be placed in any input slot.

HAND CRIMP TOOL WIRING INSTRUCTIONS

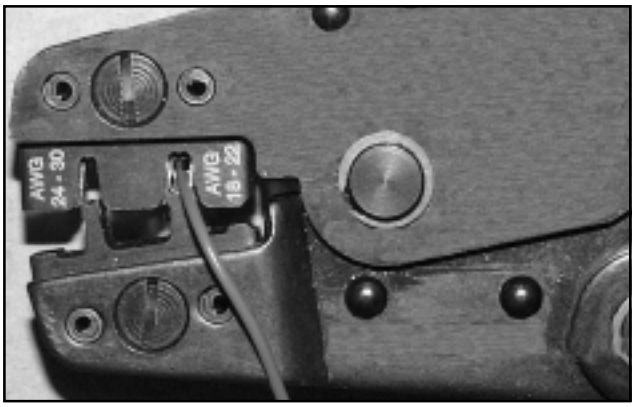
The supplied hand crimping tool (W/S#850067) is used for all I/O wiring connections to and from the console. It is to be used with the supplied pin (figure 1) intended for 22"-28" gauge wire.



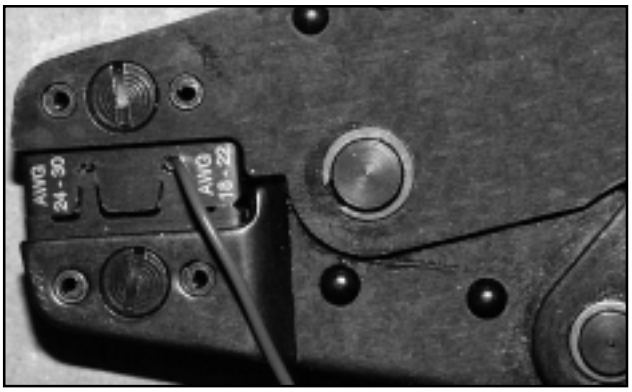
(1) Pin crimp terminal



(2) The terminal conductor tabs (pointing UP) are placed in anvil 18-22; the terminal's insulation tabs extend in front towards the camera.



(3) The stripped wire is placed into the terminal and crimped. Note the wire's insulation must stop just short of the conductor tabs (detail)



(4) Final step: jaws fully closed; the insulation tabs have been crimped.

1) Strip wire approximately 3/16" (insert in proper wire stripper, rotate one half turn, and pull insulation off wire).

2) Leaving wire aside for the moment, with crimping tool fully open (engraved side toward you) bring a terminal into position from the unmarked side of the tool. Place the conductor tabs (inner set as shown in figure 1) on the "18-22" or "24-30" (depending on the wire) anvil (slightly curved surface) so that the circular portion of the tabs rests in the curved surface of the anvil and the two tabs face up into the walls of the female jaw. The insulation tabs will be flush with the top of the tool (figure 2).

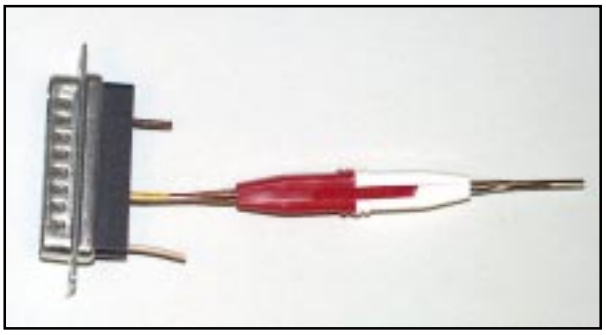
3) Close tool very slightly, only to the point of holding the terminal in position (figure 2).

4) Insert wire into terminal until wire insulation is stopped by conductor tabs (figure 3). CRIMP by squeezing handles until jaws are fully closed (figure 4).

5) If there is an insertion error or if a circuit change is needed, you'll need to use an extractor tool to remove terminals (see next page).

Note that metallized plastic hoods for each connector are also supplied with the console.

EXTRACTOR PIN INSTRUCTIONS

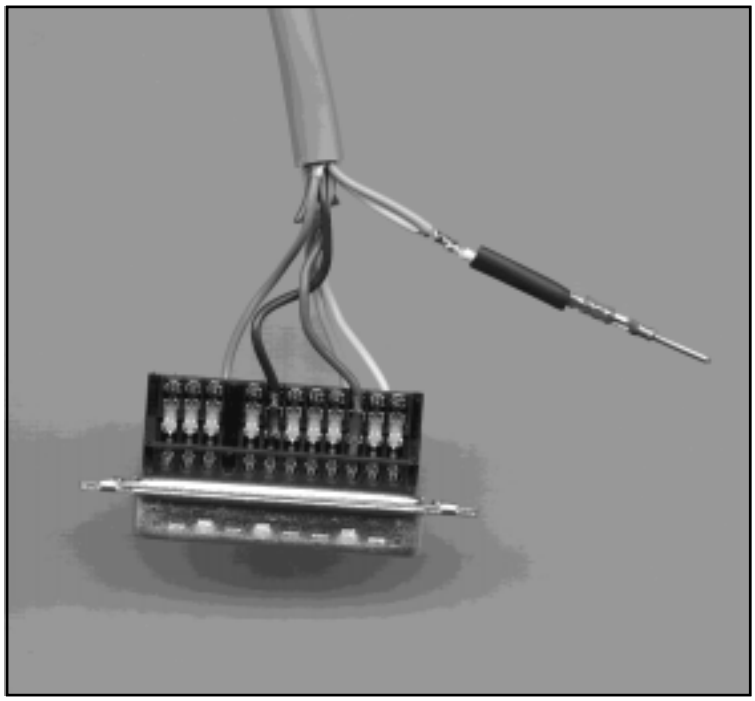


(5) Place extractor tip over pin terminal to be removed.

If you accidentally insert a crimp terminal pin into the wrong socket, you'll need to use the supplied pin extractor tool (W/S#850069) to remove terminal pin, and correct your mistake without having to sacrifice a connector. Place extractor tip (red side) over terminal pin to be removed (figure 5), and press it downwards motion until tip rests upon Housing. Then pull out the terminal pin from Housing. It should never be necessary to discard a connector due to a wiring error.

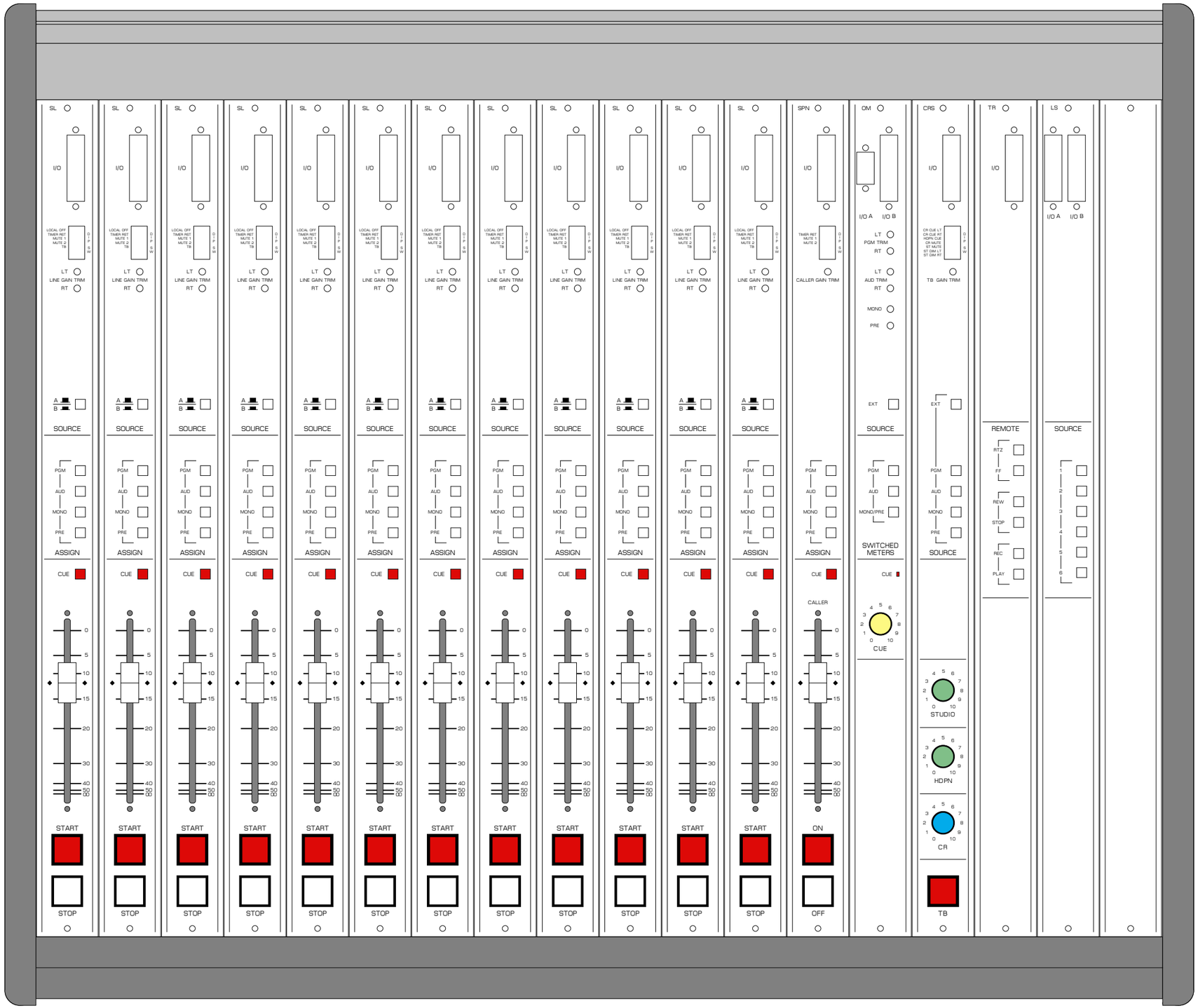
Wiring Procedure - Double Connection to One Pin

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.**



NOTE: 1. CONSOLE CAN ACCOMMODATE UP TO 13 INPUT MODULES (LINE AND OPTIONAL SUPERPHONE—SLOTS 1-13).
2. MASTER OUTPUT AND CONTROL ROOM/STUDIO MODULES HAVE THEIR DEDICATED SLOTS (AS SHOWN).
3. LAST THREE SLOTS AT THE RIGHT END OF THE FRAME SHOULD BE USED FOR OPTIONAL TAPE REMOTE OR ANY NON-POWERED OPTIONAL MODULES.

R-55 CONSOLE - MODULES LAYOUT

Stereo Line Input (SL-55)

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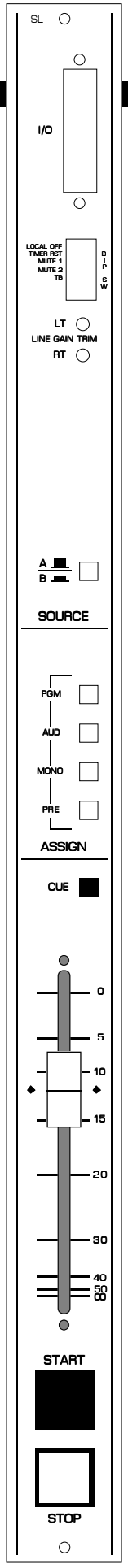


Stereo Line Input (SL-55)

Module Overview

SL-55 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 PRE. NOTE: the module does not need to be ON to feed the PRE output.

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-55 (Control Room/Studio) module via PCB-mounted dipswitch. See page 4-3.

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

An SL-55 module can be programmed to mute speakers when the channel is ON. The R-55 console has two mute control lines: control room and studio. Each of these is activated by an A input source. The dipswitch SW1 programs these muting functions:

SW1 position 4 mutes the studio when source A is ON
SW1 position 5 mutes the control room 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 R-55 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-55 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-55 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 (DB-25 pin 17) and Digital Ground (DB-25 pin 19). 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-55 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 2-7 show all wiring connections at a glance.

Audio Connections

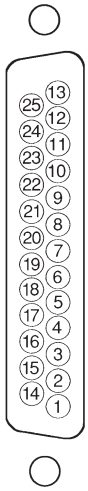
These include A and B source inputs; level is +4dBu balanced.

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

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

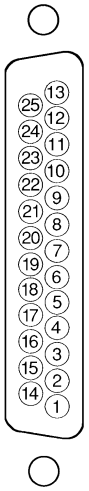
To Turn the Module ON & OFF from a Remote Location

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-55 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-55 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-55 module's DB-25 connector pin 2 (Ready) and pin 19 (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-55 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

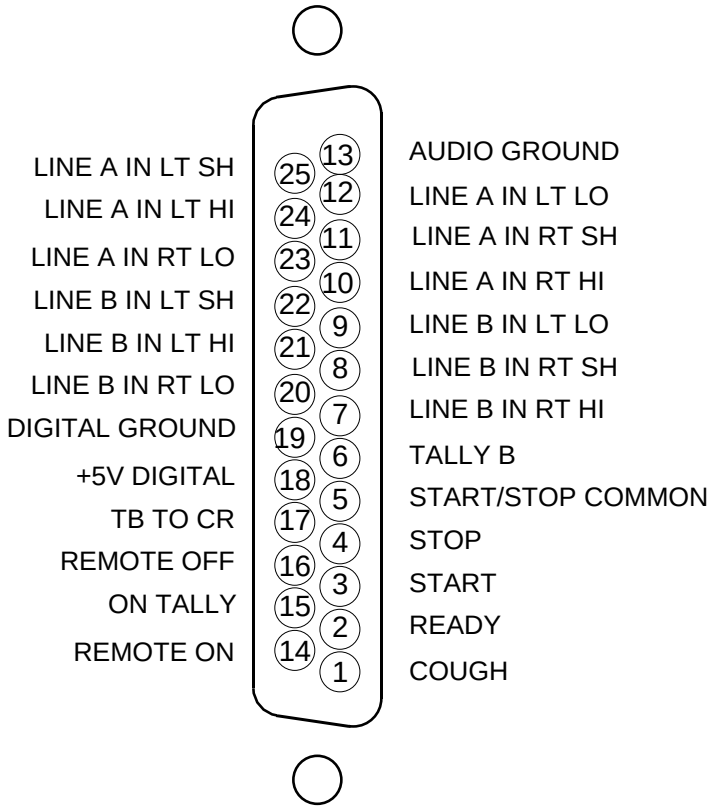
Provides a remote indication that the module's B source has been selected. This control function provides a continuous closure (open collector) between Pin 6 (Tally B) and Digital Ground (Pins 19) whenever the B source is selected.

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-55 Stereo Line Input

DB Connector Pinouts

I/O PORTS ANALOG AND LOGIC



Output Module

(OM-55)

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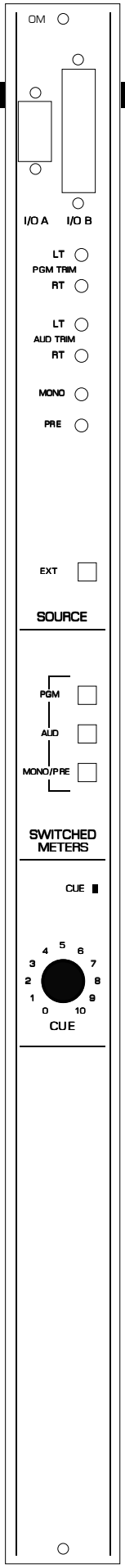


Output Module

(OM-55)

Module Overview

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

Each R-55 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 PRE, and an external stereo line signal (analog, +4dBu balanced), which may be brought into the module on its DB-25 connector.

The OM-55 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 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-55 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 4-3 page.

The OM-55 module also generates the console's monitor signals, which feed the Control Room/Studio module.

All user wiring to and from the OM-55 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 3-5 show all wiring connections at a glance.

Hook-Ups

As stated before, all user wiring to and from the OM-55 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 Pre 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

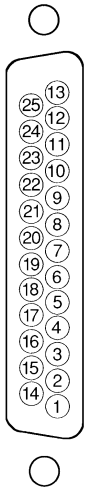
Pin 8 – AUD Rt Out SH
Pin 7 – AUD Rt Out HI
Pin 20 – AUD Rt Out LO

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

Pin 5 – PRE Out SH
Pin 4 – PRE Out HI
Pin 17 – PRE 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

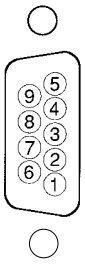


Typical DB-25 connector

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

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

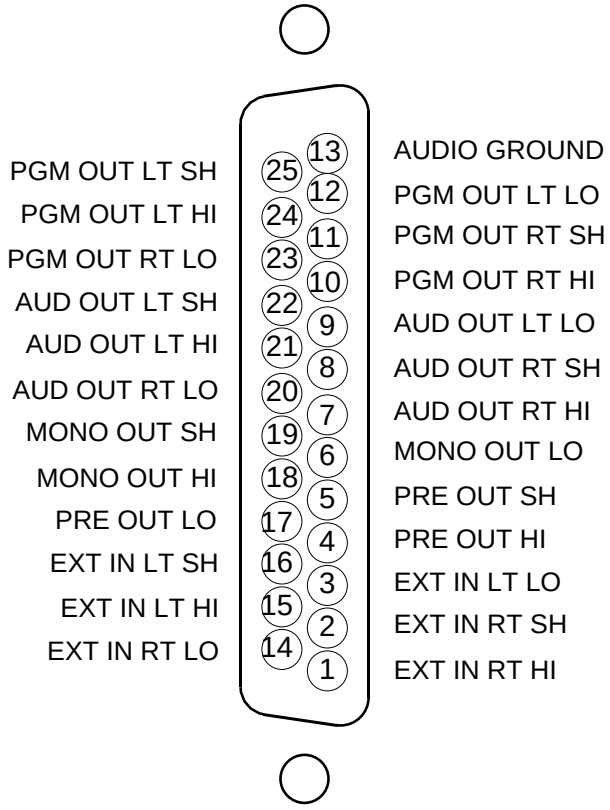
Tally 1 and Tally 2

These are simple relay closures that activate whenever programmed input modules are turned ON (see page 2-3). 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.

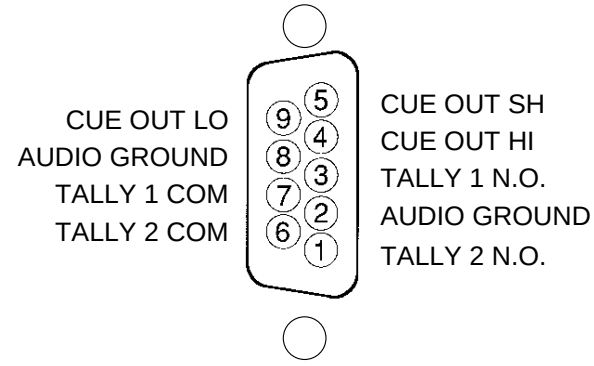
OM-55 Output Module

DB Connector Pinouts

I/O PORTS ANALOG (DB-25)



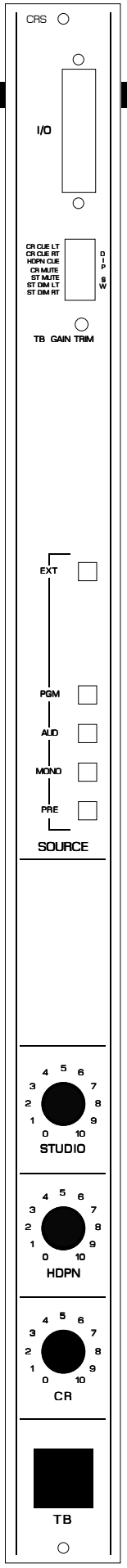
ANALOG OUTPUT PORTS



Control Room/Studio Module

(CRS-55)

Chapter Contents



Control Room/Studio Module

(CRS-55)

Module Overview

The CRS-55 module is the R-55 console operator's monitor module. It allows the operator to listen to the console's two stereo (PGM & AUD) outputs, two mono (MONO & PRE) outputs, and an external stereo line level input brought directly into the module.

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

The CRS-55 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 -2dBu unbalanced output at the module's DB-25 connector, and the headphone jack mounted in the right-hand corner of the console, which is actually the output from a built-in headphone amplifier.

The CRS-55 module has a talkback switch. When the talkback switch is pressed (it is momentary action) the console operator's microphone signal will interrupt the regular monitor signals being sent to the studio.

All user wiring to and from the CRS-55 module takes place at the DB-25 multi-pin connector mounted at the top of the module and located underneath the hinged meterbridge. All audio connections are stereo line level analog signals. A pinout drawing on page 4-5 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 that 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 the input module is turn ON (see page 2-3).

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 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

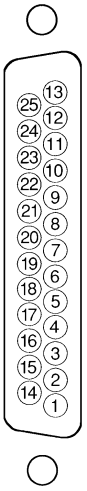
Note the DIM functions also affect the talkback interrupt. Note also if the studio is muted, talkback cannot be heard. However, if the studio is programmed to DIM instead of MUTE, talkback audio could presumably make it from the studio monitor speakers to the open studio mic.

Hook-Ups

As stated before, all user wiring to and from the CRS-55 module takes place at a DB-25 multi-pin connector mounted at the top of the module.

DB-25 Connector — Audio

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



Typical DB-25 connector

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

Pin 11 – Ext Rt In SH
Pin 10 – Ext Rt In HI
Pin 23 – Ext 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 – N/C

Pin 5 – HDPN Rt Out SH
Pin 4 – HDPN Rt Out HI
Pin 17 – N/C

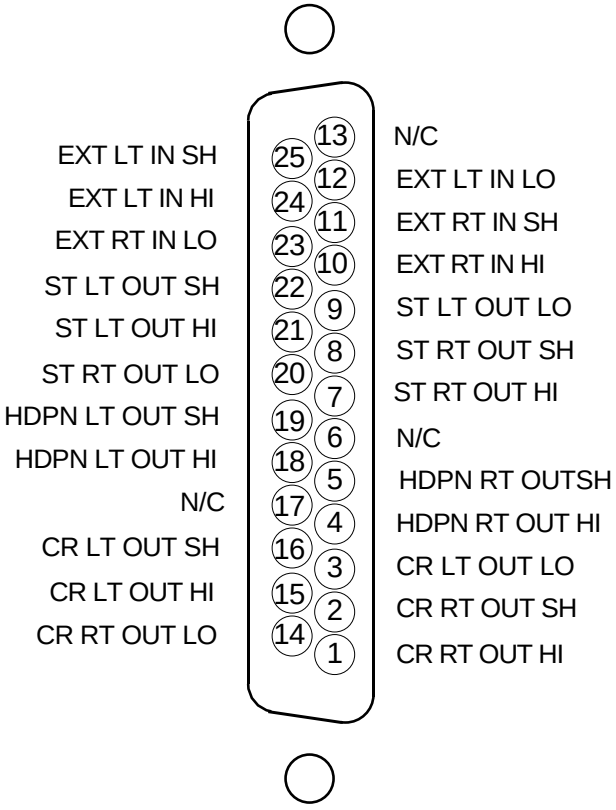
Pin 16 – CR Lt Out SH
Pin 15 – CR Lt Out HI
Pin 3 – CR Lt Out LO

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

CRS-55 Control Room/Studio Module

DB Connector Pinouts

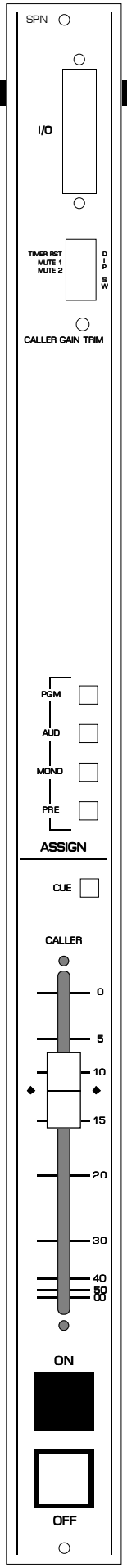
I/O PORTS (DB-25)



Superphone Input

(SPN-55; optional)

Chapter Contents



Superphone Input

(SPN-55)

Module Overview

The SPN-55 input module is used for telephone call-ins. Caller signals enter the module from your station hybrid. The long-throw fader 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 PRE.

A front panel trimpot at the top of the module adjusts the console's CALLER level.

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 caller's voice on the console's cue speaker (or control room speakers/operator's headphone if the CRS-55 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 PRE, 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.

Mutes

When the SPN-55 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 Trimpot

There is a PCB-mounted trimpot that sets Caller In port input gain.

Hook-Ups

As stated before, all user wiring to and from SPN-55 modules takes place at a multi-pin DB-25 connector mounted on the top of the module.

Audio Connections

These include caller inputs and outputs. All are +4dBu balanced analog mono.

Pin 25 – Call In SH
Pin 24 – Call In HI
Pin 12 – Call In LO
Pin 22 – Call Out SH
Pin 21 – Call Out HI
Pin 9 – Call 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-55 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-55 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

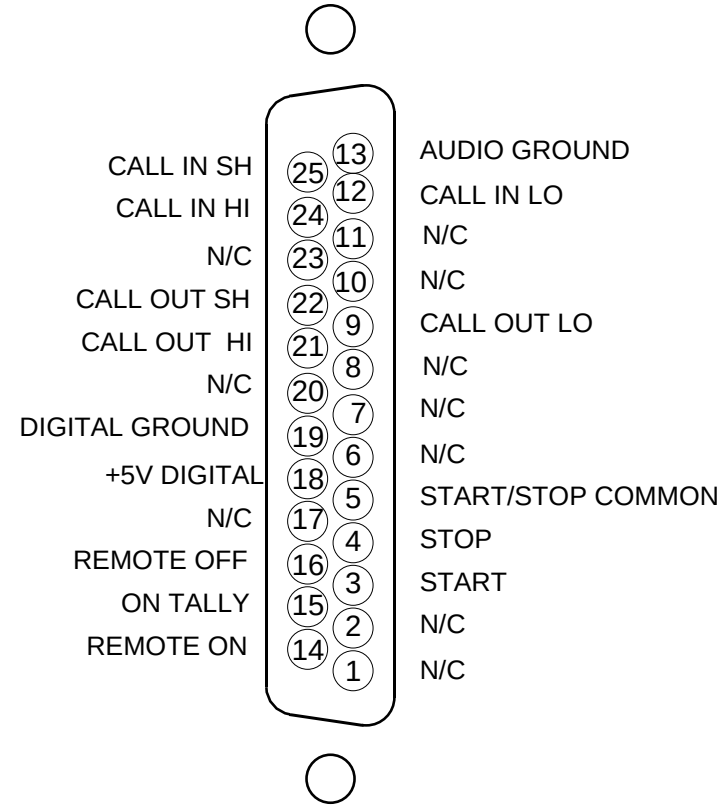
Lets the module's channel ON switch control an on-air light or other "microphone on" indicator at a remote location. This control function provides a continuous +5 volt signal at Pin 15 (On Tally) whenever the module is ON.

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-55 Superphone Module

DB Connector Pinouts

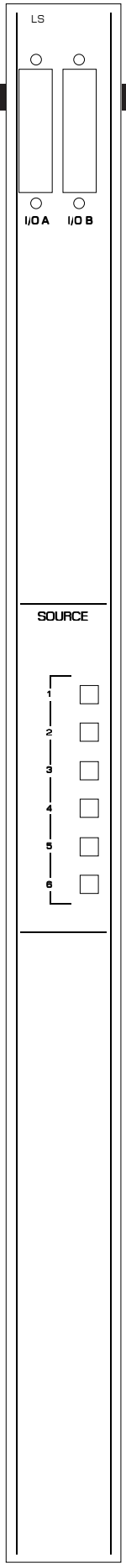
I/O PORTS ANALOG AND LOGIC



Line Preselector Module

(LS-55; optional)

Chapter Contents



Line Preselector Module

(LS-55; optional)

Module 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-55 module.

Hook-Ups

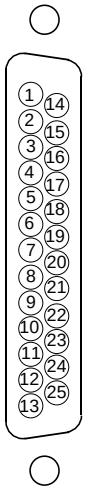
Left DB-25 “A” Connector - Audio Inputs 5, 6

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

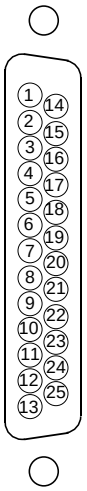
Pin 22 – Line 2 Lt In SH
Pin 21 – Line 2 Lt In HI
Pin 9 – Line 2 Lt In LO

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

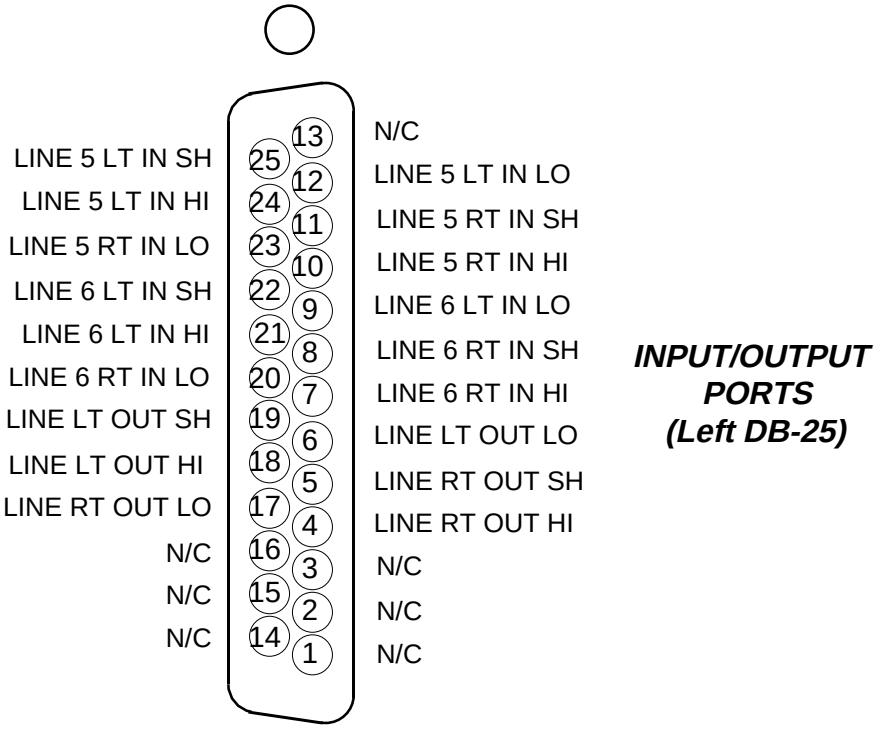
Pin 16 – Line 4 Lt In SH
Pin 15 – Line 4 Lt In HI
Pin 3 – Line 4 Lt In LO
Pin 2 – Line 4 Rt In SH
Pin 1 – Line 4 Rt In HI
Pin 14 – Line 4 Rt In LO



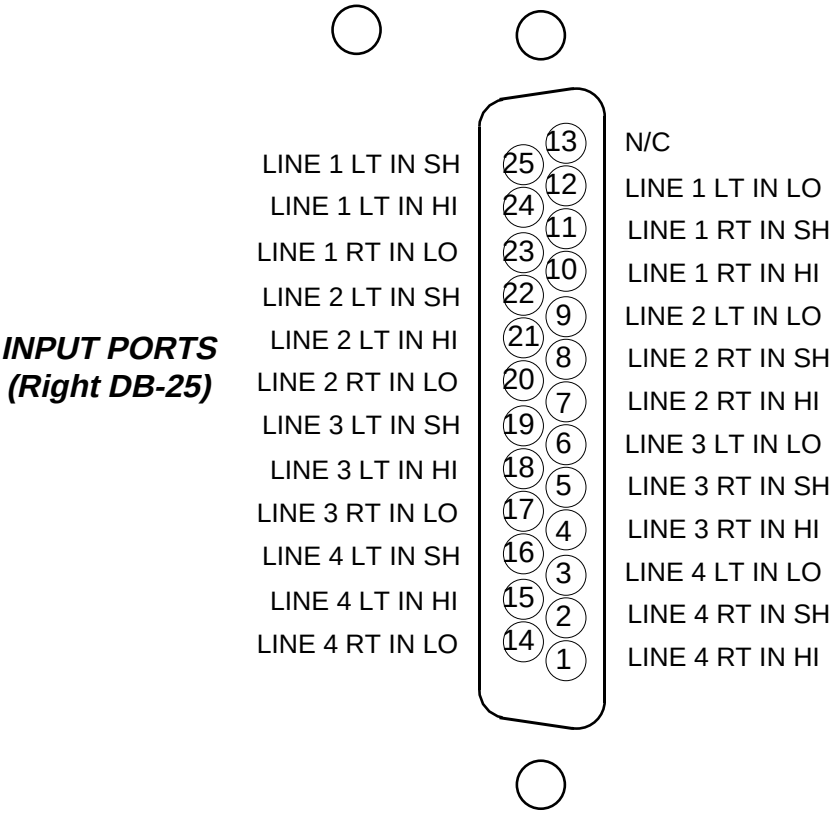
Typical DB-25 connector

LS-55 Line Selector Module

DB Connector Pinouts



INPUT/OUTPUT PORTS (Left DB-25)

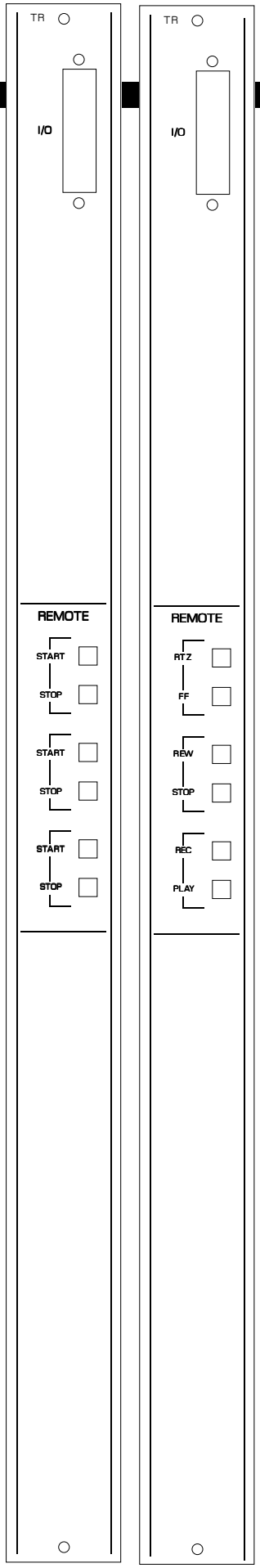


INPUT PORTS (Right DB-25)

Tape Remote Module

(TR-55; optional)

Chapter Contents

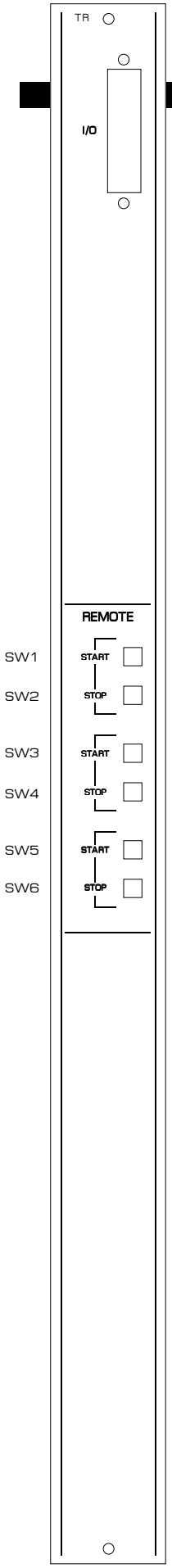


Tape Remote Module

(TR-55; optional)

Module Overview

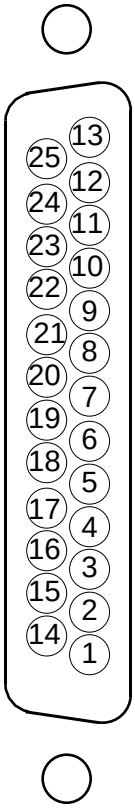
This optional module is available in two versions. The START/STOP version offers three sets of START and STOP buttons to provide start-stop control of three remote reel-to-reel machines. The full function version provides RTZ, FF, REW, STOP, REC, and PLAY buttons for a single machine. LED indicators 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.



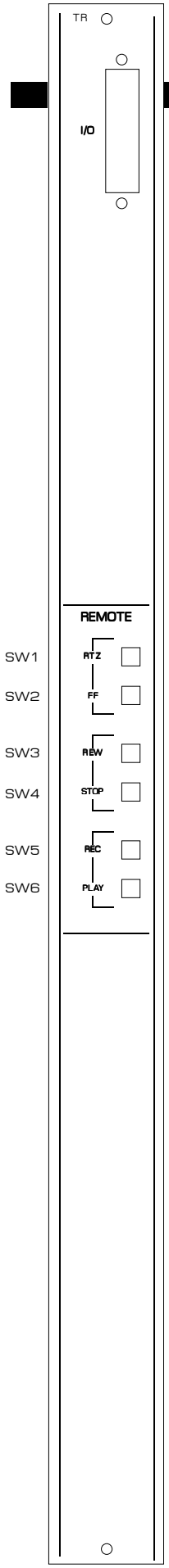
TR-55/SS Tape Remote Module

DB Connector Pinouts

I/O CONTROL PORTS (DB-25)



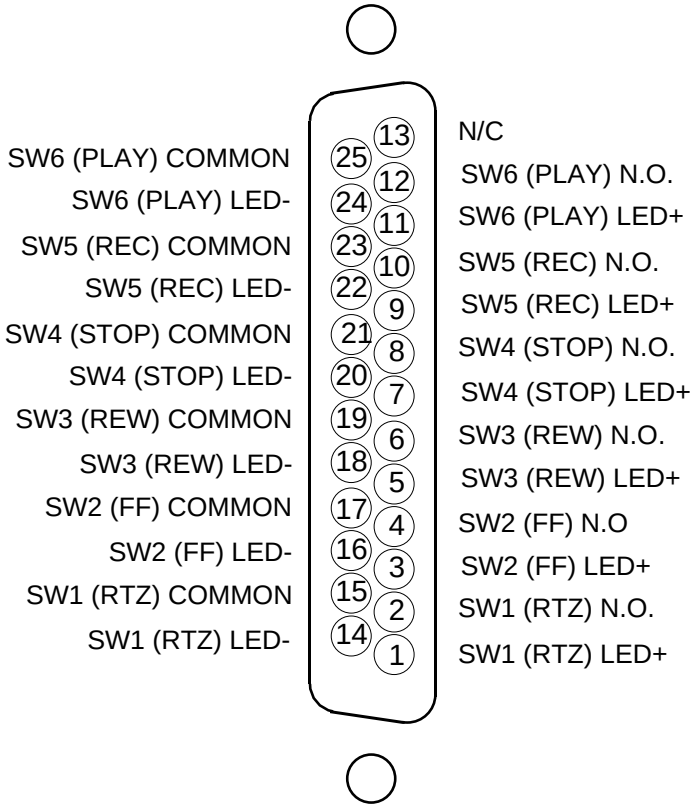
SW6 (STOP) COMMON	25	13	N/C
SW6 (STOP) LED-	24	12	SW6 (STOP) N.O.
SW5 (START) COMMON	23	11	SW6 (STOP) LED+
SW5 (START) LED-	22	10	SW5 (START) N.O.
SW4 (STOP) COMMON	21	9	SW5 (START) LED+
SW4 (STOP) LED-	20	8	SW4 (STOP) N.O.
SW3 (START) COMMON	19	7	SW4 (STOP) LED+
SW3 (START) LED-	18	6	SW3 (START) N.O.
SW2 (STOP) COMMON	17	5	SW3 (START) LED+
SW2 (STOP) LED-	16	4	SW2 (STOP) N.O
SW1 (START) COMMON	15	3	SW2 (STOP) LED+
SW1 (START) LED-	14	2	SW1 (START) N.O.
		1	SW1 (START) LED+



TR-55/FF Tape Remote Module

DB Connector Pinouts

I/O CONTROL PORTS (DB-25)



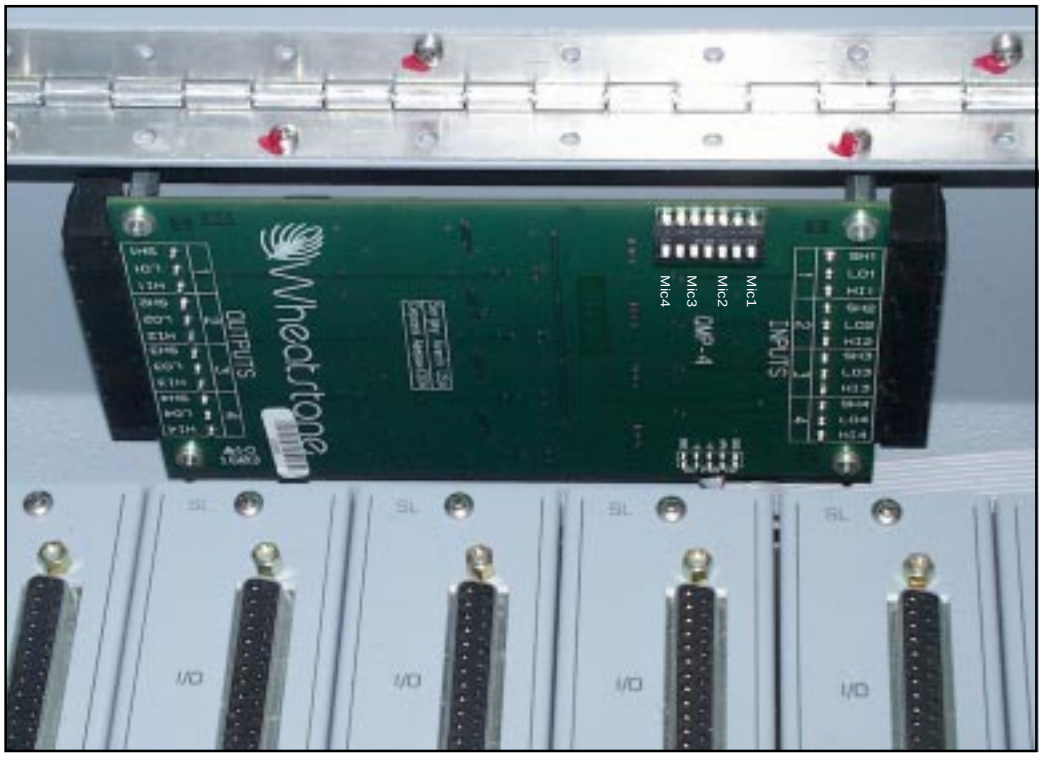
Quad Mic Preamp

(QMP-4)

Chapter Contents

Quad Mic Preamp

(QMP-4)



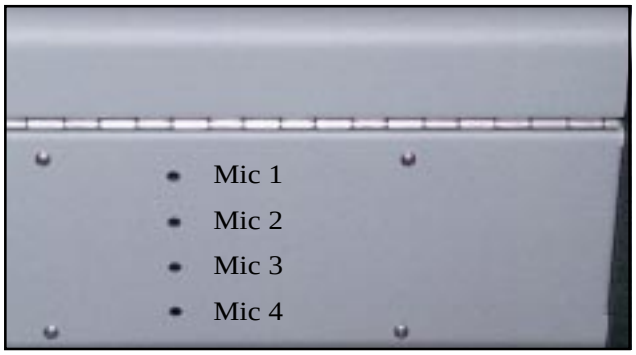
Overview

The QMP-4 is a quad mono microphone preamplifier and is mounted in the left side of the console meterbridge rear. Mic level sources are wired to QMP-4 mic preamp inputs. QMP-4 output signals are then wired to input pins of individual SL-55 input modules. Consoles are normally supplied as though the outputs of the mic preamp will be wired to A inputs of SL-55 modules 1-4.

Phantom power is available at each input port; it may be selectively activated by a dipswitch SW1 (the factory default is OFF).

Reccesed meterbridge rear multi-turn trimpots (range 38dB) adjust the level of each input 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).



All audio input and output signals are made via two 12-position plug terminals mounted on the QMP-4 PCB.

Internal Programming Options

Internal programming for the quad mic preamp is made via printed circuit board (PCB) mounted seven-position dipswitch SW1. Note that when a dipswitch position is thrown to the right it is ON.

Phantom Power

Dipswitch SW1 turns phantom power on for the four microphone input ports.

SW1 position 7 activates phantom power for microphone 1
SW1 position 5 activates phantom power for microphone 2
SW1 position 3 activates phantom power for microphone 3
SW1 position 1 activates phantom power for microphone 4

Note the factory default setting for phantom power is OFF.

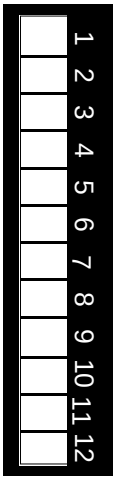
Hook-Ups

As stated before, all user wiring to and from QMP-4 takes place at the 12-position plug terminals mounted on the QMP-4 PCB. A pinout drawing on page 8-6 shows all wiring connections at a glance.

Audio Input Connections (CT3)

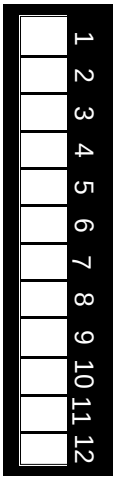
All signals are analog mono. The mic input level is normally -50dBu, balanced.

Pin 1 – Mic **1** In SH
Pin 2 – Mic **1** In LO
Pin 3 – Mic **1** In HI
Pin 4 – Mic **2** In SH
Pin 5 – Mic **2** In LO
Pin 6 – Mic **2** In HI



Typical 12-position plug terminal

Pin 7 – Mic **3** In SH
Pin 8 – Mic **3** In LO
Pin 9 – Mic **3** In HI
Pin 10 – Mic **4** In SH
Pin 11 – Mic **4** In LO
Pin 12 – Mic **4** In HI



Typical 12-position plug terminal

Audio Output Connections (CT4)

All signals are analog mono. The mic output level is normally +4dBu, balanced.

Pin 12 – Mic **1** Out SH
Pin 11 – Mic **1** Out LO
Pin 10 – Mic **1** Out HI
Pin 9 – Mic **2** Out SH
Pin 8 – Mic **2** Out LO
Pin 7 – Mic **2** Out HI
Pin 6 – Mic **3** Out SH
Pin 5 – Mic **3** Out LO
Pin 4 – Mic **3** Out HI
Pin 3 – Mic **4** Out SH
Pin 2 – Mic **4** Out LO
Pin 1 – Mic **4** Out HI

Note that each output wires in parallel to the left and right input channels of an input stereo module (SL-55).

For example:

Pin 12 – Mic 1 Out SH wires to
- Pin 25 - Line A Lt In SH
- Pin 11 - Line A Rt In SH

Pin 11 – Mic 1 Out LO wires to
- Pin 12 - Line A Lt In LO
- Pin 23 - Line A Rt In LO

Pin 10 – Mic 1 Out HI wires to
- Pin 24 - Line A Lt In HI
- Pin 10 - Line A Rt In HI

Power Connections (CT7)

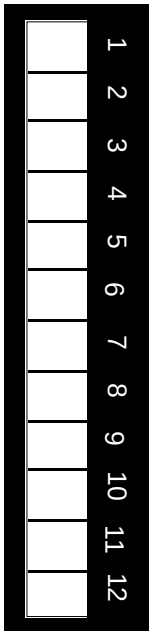
A ribbon cable connects the 10-pin connector on the QMP-4 (CT7) to the power supply connector mounted on the right side of the console meterbridge rear to provide power to the microphone preamplifier.

Pin 1 – Analog Ground
Pin 2 – Analog Ground
Pin 3 - +Phantom V
Pin 4 – +Phantom V
Pin 5 – +V In
Pin 6 – +V In
Pin 7 – -V In
Pin 8 – -V In
Pin 9 – Analog Ground
Pin 10 – Analog Ground

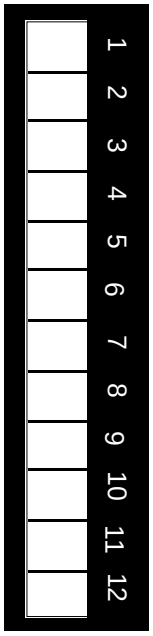
QMP-4 Quad Mic Preamp

Plug Terminal Pinouts

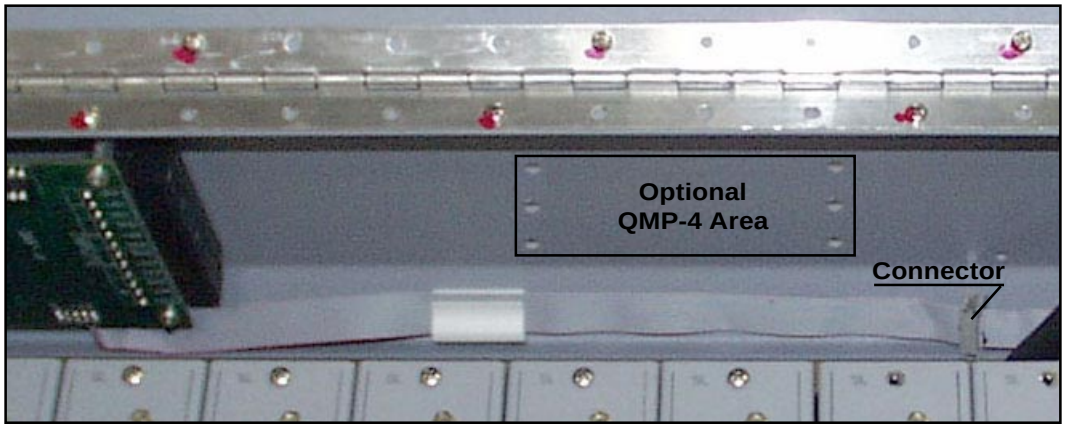
INPUT PORTS ANALOG



OUTPUT PORTS ANALOG



Installing the Optional QMP-4 Mic Preamp



The optional QMP-4 comes complete with mounting hardware. The ribbon cable, installed at the factory to provide power to the pre-installed QMP-4 card, also includes a second plug ("Connector" on the picture above) for connecting the optional QMP-4 card. Handle the 10-pin plug on the ribbon cable assembly with care; the pins are sharp and fragile. Perform the following steps to install the QMP-4:

• turn off the power to the console;

• swing the meterbridge up and back until it rests in a fully opened position;

• attach the QMP-4 preamp assembly directly to the right of the factory installed preamp (located at the lefthand end of the meterbridge), using four type 4-40x1/4 pan head screws and four nylon standoffs through the four predrilled holes on the meterbridge rear ("Optional QMP-4 Area" on the picture above); orient it to match the factory installed QMP-4;

• plug in the ribbon cable connector to the 10-pin boxed header on the QMP-4 board (CT7);

• connect the required audio wiring to the 12-pin plug terminals on the QMP-4 card, referring to the "Hook-Ups" chart (see pages 8-3 - 8-5);

• close the meterbridge.

This completes the optional QMP-4 installation procedure.

Meterbridge

Chapter Contents

Meterbridge

Overview

The console's meterbridge houses two pairs of left-right VU meters (Program and Switched; see "Output Module" Chapter 3), the digital timer, and the cue speaker.

The meterbridge assembly hinges open for easy access. Simply swing the bridge up and back until it rests in a fully opened position.

Digital Timer

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 stay until start is pressed.

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.

Parts List

Chapter Contents

SL-55 STEREO LINE INPUT MODULE PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
SL-55	FACEPLATE	1	***005520***
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	TL072 DUAL LINEAR OP-AMP SMT	4	***325003***
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	4053 SMT	5	***385000***
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***
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, R46	10 OHM 5% .25W MC1206 RESISTOR	3	***435002***
R27, R80, R81	100 OHM 5% .25W MC1206 RESISTOR	3	***435007***
R26, R37, R50, R78	220 OHM 5% .25W MC1206 RESISTOR	4	***435009***
R41	332 OHM 1% .25W 1206 RESISTOR SMT	1	***435010***
R29, R39, R43, R45, R48	619 OHM 1% .25W MC1206 RESISTOR	5	***435013***
R30, R79	1.00 KOHM 1% .25W MC1206 RESISTOR	2	***435015***
R32, R33, R70, R71, R76, R77	2.43 KOHM 1% .25W MC1206 RESISTOR	6	***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***
CR1, CR2	POT TRIM 100KBECKMAN 72XLR100K	2	***500078A***
START/STOP SWITCH	DPDT PUSHBUTTON SWITCH, MOMENTARY ACTION, GRAY HOUSING	2	***510063***

SL-55 STEREO LINE INPUT MODULE PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
SW2-SW7	2 POLE PUSHBUTTON SWITCH, ALTERNATE ACTION	6	***510097***
SW1	7 POSITION RIGHT ANGLE DIP SWITCH	1	***510282***
FADER KNOB	WHITE FADER KNOB WITH BLACK LINE	1	***520051***
START SWITCH BUTTON	LB STYLE RED BUTTON	1	***530057***
STOP SWITCH BUTTON	LB STYLE YELLOW BUTTON	1	***530060***
A/B/PGM/AUD/MONO/PRE/CUE SWITCH BUTTON	CUSTOM WHITE LIGHT PIPE BUTTON	6	***530083***
FADER	10K DUAL AUDIO TAPER SELMARK CARBON FADER 100mm	1	***540028***
START SWITCH LED	RED LED FOR R5 ON/OFF SWITCH	1	***600027***
STOP SWITCH LED	YELLOW LED FOR R5 ON/OFF SWITCH	1	***600031***
DS1	HIGH INTENSITY AMBER SMT LED RIGHT ANGLE	1	***605010***
DS2, DS6	ULTRABRIGHT RIGHT ANGLE RED SMT LED	2	***605017***
DS3	ULTRABRIGHT RIGHT ANGLE GREEN SMT LED	1	***605018***
DS4, DS5	ULTRABRIGHT RIGHT ANGLE YELLOW SMT LED	2	***605019***
PCB_SL2000	PRINTED CIRCUIT BOARD SMT	1	***700656***
	D SUB STANDOFFJACK HARDWARE 3/16" LONG	2	***820047***
	PEM FASTENERS	4	***821009***
F1-F3	FUSE/ POLYSWITCH .3AMP SMT RESETABLE	3	***835001***

OM-55 OUTPUT MODULE PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
OM-55	FACEPLATE	1	***005522***
CT2	THREADED 9 PIN DB CONNECTOR-IDD9	1	***200031***
CT1	RIGHT ANGLE 25 PIN PC MOUNT CONNECTOR .318	1	***220120***
	10 PIN PLUG	1	***230020***
	3 PIN .098" 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	332 OHM 1% .25W MC1206 RESISTOR	1	***435010***
R41, R44, R48	475 OHM 1% .25W MC1206 RESISTOR	1	***435011***
R53	619 OHM 1% .25W MC1206 RESISTOR	3	***435013***
R3, R6, R9, R29-R31	1.30 KOHM 1% .25W MC1206 RESISTOR	6	***435016***
R88, R91, R93, R118, R120, R121	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-55 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 TRIM POT	6	***500021***
CUE POT	10KΩ SINGLE AUDIO CONDUCTIVE PLASTIC, BOURNS	1	***500058***
CR7-CR10	10K TRIM POT SMT	4	***505002***
SW1-SW4	2 POLE PUSHBUTTON SWITCH, MOMENTARY	4	***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 SWITCH BUTTON	CUSTOM WHITE LIGHT PIPE BUTTON	4	***530083***
K1, K2	DPDT RELAY,5V	2	***550006***
DS1	HIGH INTENSITY AMBER SMT LED RIGHT ANGLE	1	***605010***
DS2, DS4	ULTRABRIGHT RIGHT ANGLE RED SMT LED	2	***605017***
DS3	ULTRABRIGHT RIGHT ANGLE GREEN SMT LED	1	***605018***
DS5	ULTRABRIGHT RIGHT ANGLE YELLOW SMT LED	1	***605019***
PCB_BPSA1000	PRINTED CIRCUIT BOARD	1	***700299***
PCB_OM2000	PRINTED CIRCUIT BOARD SMT	1	***700655***
	D SUB STANDOFFJACK HARDWARE 3/16" LONG	4	***820047***
	PEM FASTENERS	4	***821009***
F1-F3	FUSE/ POLYSWITCH .3AMP SMT RESETABLE	3	***835001***

CRS-55 CONTROL ROOM/STUDIO MODULE PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
CRS-55	FACEPLATE	1	***005525***
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***
CT3	3 PIN .098" HEADER	1	***250062***
CT5-CT7	6 PIN .098" HEADER	3	***250065***
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, U4-U7, U12, U23, U24	OP-275 DUAL LINEAR OP-AMP SMT	8	***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	4053 SMT	7	***385000***
C1-C3, C19, C20, C22-C28, C32, C33, C47, C48, C50, C65-C68, C97-C99, C102, C105	CAPACITOR, 22µF 25V ELECTROLYTIC SMT	26	***405002***
C109-C112	CAPACITOR, 22µF 25V ELECTROLYTIC SMT	4	***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, C11, C13, C14, C16, C34, C36, C41, C43-C45, C51, C63, C82, C93, C94, C106, C108	CAPACITOR, 10pF 100V CERAMIC SMT	18	***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, R14, R20, R27, R42, R44, R54, R56, R58,R60, R68, R70, R118, R119, R156, R157, R160, R161	10 OHM 5% .25W MC1206 RESISTOR	18	***435002***
F1, F5, F6	47 OHM 5% .25W MC1206 RESISTOR	3	***435005***
R3, R4, R7, R12, R16-R18, R21, R46, R62	100 OHM 5% .25W MC1206 RESISTOR	10	***435007***
R37	150 OHM 5% .25W MC1206 RESISTOR	1	***435008***
R28, R36, R38, R39	220 OHM 5% .25W MC1206 RESISTOR	4	***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***

CRS-55 CONTROL ROOM/STUDIO MODULE PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
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, R175	4.99 KOHM 1% .25W MC1206 RESISTOR	11	***435023***
R96, R100	6.19 KOHM 1% .25W MC1206 RESISTOR	2	***435025***
R5, R19, R22, R25, R26, R43, R45, R47, R59, R61, R63, R64, R67, R69, R75-R86, R91, R93	10.0 KOHM 1% .25W MC1206 RESISTOR	28	***435028***
R95, R122, R125, R144, R145, R153, R154, R163, R165, R167, R169, R171, R185, R186	10.0 KOHM 1% .25W MC1206 RESISTOR	14	***435028***
R191, 192	10.0 KOHM 1% .25W MC1206 RESISTOR	2	***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	PUSHBUTTON SWITCH, 2 POLE MOMENTARY (LUGS)	1	***510080***
SW2-SW7	2 POLE PUSHBUTTON SWITCH, MOMENTARY	5	***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***
TB SWITCH BUTTON	AMBER BUTTON	1	***530048***
HDPN POT CAP	CREAM CAP W. BLACK LINE FOR 15MM KNOB	1	***530080***
EXT/PGM/AUD/MONO/PRE SWITCH BUTTON	CUSTOM WHITE LIGHT PIPE BUTTON	5	***530083***
DS1	HIGH INTENSITY AMBER SMT LED RIGHT ANGLE	1	***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_CR2000	PRINTED CIRCUIT BOARD SMT	1	***700649***
	D SUB STANDOFFJACK HARDWARE 3/16" LONG	2	***820047***
	PEM FASTENERS	4	***821009***
U20-U22	HEATSINK FOR T-220 WITH MOUNTING PIN	3	***825010***
F2-F4	FUSE/ POLYSWITCH .3AMP SMT RESETABLE	3	***835001***

SPN-55 SUPERPHONE MODULE PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
	FACEPLATE	1	***005524***
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***
CT6, CT7	6 PIN .098" HEADER	2	***250065***
CT4	9 PIN .098" HEADER	1	***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***
C2, C3, C23, C27, C29-C31, C35, C37-C39, C44	CAPACITOR, 22µF 25V ELECTROLYTIC SMT	12	***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	10 OHM 5% .25W MC1206 RESISTOR	6	***435002***
R7, R8, R10, R13, R81, R82	100 OHM 5% .25W MC1206 RESISTOR	6	***435007***
R42, R52, R79	220 OHM 5% .25W MC1206 RESISTOR	3	***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, R22, R24, R25, R36, R43, R45, R47, R49, R51, R57, R58, R69-R72, R83	10.0 KOHM 1% .25W MC1206 RESISTOR	18	***435028***
R40, R54	22.1 KOHM 1% .25W MC1206 RESISTOR	2	***435036***
R35	40.2 KOHM 1% .25W MC1206 RESISTOR	1	***435039***
R15, R32	53.6 KOHM 1% .25W MC1206 RESISTOR	2	***435041***
R34, R53	88.7 KOHM 1% .25W MC1206 RESISTOR	2	***435043***
CR1	10K TRIM POT	1	***500021***
ON/OFF SWITCH	DPDT PUSHBUTTON SWITCH, MOMENTARY ACTION, GRAY HOUSING	2	***510063***
SW2-SW6	2 POLE PUSHBUTTON SWITCH, ALTERNATE ACTION	5	***510097***

SPN-55 SUPERPHONE MODULE PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
SW1	7 POSITION RIGHT ANGLE DIP SWITCH	1	***510282***
FADER KNOB	BLUE FADER KNOB WITH WHITE LINE	1	***520052***
ON SWITCH CAP	LB STYLE RED BUTTON	1	***530057***
OFF SWITCH CAP	LB STYLE YELLOW BUTTON	1	***530060***
CUE SWITCH BUTTON	CUSTOM WHITE LIGHT PIPE BUTTON	1	***530083***
PGM/AUD/MONO/PRE SWITCH BUTTON	SOLID WHITE LUMA-230 BUTTON	4	***530272***
FADER	10K SINGLE AUDIO TAPER SELMARK CARBON FADER 100mm	1	***540027***
ON SWITCH LAMP	RED LED FOR R5 ON/OFF SWITCH	1	***600027***
OFF SWITCH LAMP	YELLOW LED FOR R5 ON/OFF SWITCH	1	***600031***
DS5	ULTRABRIGHT RIGHT ANGLE RED SMT LED	1	***605017***
PCB_SPN2000	PRINTED CIRCUIT BOARD SMT	1	***700657***
	D SUB STANDOFFJACK HARDWARE 3/16" LONG	2	***820047***
	PEM FASTENERS	3	***821009***
F1-F3	FUSE/ POLYSWITCH .3AMP SMT RESETABLE	3	***835001***

LS-55 LINE SELECT MODULE PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
LS-55	FACEPLATE	1	***005527***
CT2	25 PIN DB CONNECTOR	1	***200018***
	DB25 INDIVIDUAL CRIMP PIN PLUG FOR 220 CONNECTOR KIT	2	***200100***
	MALE PIN FOR DB25 PLUG, W/S 200100	50	***200101***
	25 POSITION PLASTIC HOOD, 4-40 JACK SCREWS AND STRAIGHT CABLE EXIT	2	***200108***
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***
R1-R12	10.0 KOHM 1% .25W MC1206 RESISTOR	12	***435028***
SW1-SW6	6 STATION 4 POLE INTERLOCKED SWITCH, 12.5MM SPACING	1	***510040***
1-6 SWITCH BUTTON	SOLID GREY LUMA-230 BUTTON	6	***530273***
PCB_LS2600	PRINTED CIRCUIT BOARD	1	***700679***
	D SUB STANDOFFJACK HARDWARE 3/16" LONG	4	***820047***
	PEM FASTENERS	3	***821009***

TR-55/FF TAPE REMOTE MODULE PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
TR-55/FF	FACEPLATE	1	***005528***
	DB25 INDIVIDUAL CRIMP PIN PLUG FOR 220 CONNECTOR KIT	1	***200100***
	MALE PIN FOR DB25 PLUG, W/S 200100	25	***200101***
	METALIZED PLASTIC STRAIGHT HOOD FOR DB25 PLUG, W/S 200100	1	***200102***
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/STOP/REC/PLAY BUTTON	CUSTOM WHITE LIGHT PIPE BUTTON	6	***530083***
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-55/SS TAPE REMOTE MODULE PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
TR-55/SS	FACEPLATE	1	***005529***
	DB25 INDIVIDUAL CRIMP PIN PLUG FOR 220 CONNECTOR KIT	1	***200100***
	MALE PIN FOR DB25 PLUG, W/S 200100	25	***200101***
	METALIZED PLASTIC STRAIGHT HOOD FOR DB25 PLUG, W/S 200100	1	***200102***
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	***530083***
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***

QMP-4 QUAD MIC PREAMP PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
U2, U4, U6, U8	8 PIN .3" DIP SMT SOCKET	4	***245001***
CT7	10PIN BOXED HEADER, STRAIGHT	1	***250077***
CT3, CT4	12 POSITION PLUG ON BARRIER STRIP	2	***260045***
CT3, CT4	12 POSITION BOXED HEADER RIGHT ANGLE	2	***260057***
U2, U4, U6, U8	2017 MIC PREAMP IC	4	***320003***
U1, U3, U5, U7	NE5532 DUAL LINEAR OP-AMP SMT	4	***325001***
Z1-Z16	5.1V SMT ZENER DIODE C5V1	16	***355002***
C1, C10, C11, C13, C19, C23, C27, C29, C34, C36, C40, C46	CAPACITOR, 10µF 50V ELECTROLYTIC SMT	12	***405001***
C6, C18, C30, C42	CAPACITOR, 22µF 25V ELECTROLYTIC SMT	4	***405002***
C12, C35	CAPACITOR, 100µF 25V ELECTROLYTIC SMT	2	***405003***
L1-L8	FERRITE BEAD SMT 1206 PACKAGE	8	***405010***
C2, C7, C14, C20, C24, C31, C37, C43	CAPACITOR, 33pF 100V CERAMIC SMT	8	***415002***
C5, C17, C28, C41	CAPACITOR, 330pF 100V CERAMIC SMT	4	***415004***
C4, C9, C16, C22, C26, C33, C39, C45	CAPACITOR, .001µF 50V CERAMIC SMT	8	***415005***
C3, C8, C15, C21, C25, C32, C38, C44	CAPACITOR, .1µF 50V CERAMIC SMT	8	***415007***
R2, R9, R12, R16, R23, R26, R32, R38, R41, R47, R52, R55	10 OHM 5% .25W MC1206 RESISTOR	12	***435002***
R10, R11, R24, R25, R39, R40, R53, R54	47 OHM 5% .25W MC1206 RESISTOR	8	***435005***
R6, R20, R29, R43	1.30 KOHM 1% .25W MC1206 RESISTOR	4	***435016***
R1, R3, R4, R7, R14, R15, R17, R18, R21, R28, R30, R31, R33, R34, R36, R44, R45, R46, R48	4.99 KOHM 1% .25W MC1206 RESISTOR	19	***435023***
R49	4.99 KOHM 1% .25W MC1206 RESISTOR	1	***435023***
R5, R13, R19, R27, R35, R42, R50, R56	10.0 KOHM 1% .25W MC1206 RESISTOR	8	***435028***
R8, R22, R37, R51	13.3 KOHM 1% .25W MC1206 RESISTOR	4	***435030***
CR1-CR4	1K TRIM POT SMT	4	***505001***
SW1	7 POSITION DIP SWITCH	1	***510048***
PCB_QMP4	PRINTED CIRCUIT BOARD SMT	1	***700768***
F1, F2	FUSE/ POLYSWITCH .3AMP SMT RESETABLE	2	***835001***

MBE-55 MOTHER BOARD (EXTENDER) PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
CT2-CT12	62 PIN PC MOUNT CARDEDGE CONNECTOR	6	***220027***
CT13	60 PIN BOARD-TO-BOARD MALE CONNECTOR	1	***220074***
CT13	60 PIN BOARD-TO-BOARD FEMALE CONNECTOR	1	***220075***
PCB_MBE2006	PRINTED CIRCUIT BOARD	1	***700651***

MBR-55 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***

TIMER PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
U1	FIRMWARE PROGRAM FOR CLK-220 U01	1	***092601A***
CT3	HEADER MTA 02 POS .1CC CHAIR	1	***230064A***
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***
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***

TIMER PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
R11, R16, R17	10 MOHM 5% .25W MC1206 RESISTOR	3	***435062***
SW3, SW4	4 POSITION SMT DIP SWITCH, TAPE SEALED	2	***515001***
PCB_CLK220E	PRINTED CIRCUIT BOARD SMT	1	***700575***
F1	FUSE/ POLYSWITCH 1.0AMP SMT RESETABLE	1	***835002***

TIMER DISPLAY PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
DS1-DS6	20 POSITION SNAP APART SOCKET, .1" SIL	3	***250014***
CT1, CT2	40 PIN BREAKAWAY HEADER STRIPS, STRAIGHT .1" SIL	1	***250016***
U2	DS90C032 LVD DIFF LINE RECEIVER SMT	1	***305052***
U1	IC ADSP2115 DSP PROCESSOR	1	***315044***
C1, C4	CAPACITOR, 100µF 25V ELECTROLYTIC SMT	2	***405003***
C2, C3, C5-C8	CAPACITOR, .1µF 50V CERAMIC SMT	6	***415007***
R6	10 OHM 5% .25W MC1206 RESISTOR	1	***435002***
R9-R12	220 OHM 5% .25W MC1206 RESISTOR	4	***435009***
R1, R4	22.1 KOHM 1% .25W MC1206 RESISTOR	2	***435036***
S/S/RESET/HOLD SWITCH	PUSHBUTTON SWITCH RED LED/ NO CAP	3	***510095***
AUTO SWITCH	PUSHBUTTON SWITCH YELLOW LED/ NO CAP	1	***510096***
AUTO/S/S/RESET/HOLD SWITCH CAP	WHITE SWITCH CAP	4	***530004***
DS1-DS6	SINGLE SEGMENT GREEN LED DISPLAY	6	***610018***
PCB_CLD220D	PRINTED CIRCUIT BOARD	1	***700590***

PS-6040 POWER SUPPLY PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
	PS-60 POWER SUPPLY FACEPLATE	1	***007074***
	CHASSIS	1	***007075***
	COVER	1	***007076***
	HEATSINK	1	***007077***
	CARD BRACKET	.1	***007078***
	HEATSINK FIN	1	***007084***
	2600-18 POWER SUPPLY CABLE	1	***027095A***
	GRAY POWER CORD	1	***150016***
	GROUND LUG	1	***230003***
	CHASSIS MOUNT MULTI-PIN CONNECTOR	1	***230011***
	MULTIMATE PIN CONTACT (LOOSE PACK)	9	***230015***
	PATCH CLIPS	1	***280000***
Q4	LM317 POSITIVE ADJUSTABLE REGULATOR	1	***330012***
Q1-Q3	LM338 POSITIVE ADJUSTABLE REGULATOR	3	***330014***
D1-D10, D14	1N4002 DIODE	11	***350003***
D11-D13, D15-D17	CR6A4 POWER DIODE	6	***350009***
VR7, VR8	18ZA1 VARISTOR	2	***360000***
VR3-VR6	39ZA1 VARISTOR	4	***360002***
VR1, VR2	82ZA2 VARISTOR	2	***360005***
C18	CAPACITOR, 10000µF 35V ELECTROLYTIC	1	***400006***
C13, C15	CAPACITOR, 10µF 63V ELECTROLYTIC	2	***400012***
C4, C5, C7-C10	CAPACITOR, 1µF 35V TANTALUM ORANGE	6	***400014***
C1-C3	CAPACITOR, 22µF 25V ELECTROLYTIC	3	***400017***
C16, C19	CAPACITOR, 4700µF 35V ELECTROLYTIC	2	***400019***
C12	470UF 100V AXIAL LEAD UL APPROVED ELECTROLYTIC CAPACITOR	1	***400031***
C6, C11, C14, C17	CAPACITOR, .0047µUF 1KV CERAMIC, UL RATED	4	***410015***
R5, R8, R13, R18, R19	1.00 KOHM 1% .25W METAL FILM RESISTOR	5	***430107***
R12	5.49 KOHM 1% .25W METAL FILM RESISTOR	1	***430140***
R1, R4, R7, R15-R17	10.0 KOHM 1% .25W METAL FILM RESISTOR	6	***430153***
R2, R3, R6, R9	100 OHM 5% .25W CARBON FILM RESISTOR	4	***430212***
R14	220 OHM 5% .25W CARBON FILM RESISTOR	1	***430214***
R10, R11	330 OHM 5% .25W CARBON FILM RESISTOR	2	***430215***
CR1-CR3	500Ω TRIM POT	3	***500019***
DS1-DS4	RED LED	4	***600017***
	PRINTED CIRCUIT BOARD, PS6040	1	***700205***
T1	POWER TRANSFORMER	1	***800005***

PS-6040 POWER SUPPLY PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
	SOCKET HEAD CAP SCREW	4	***820007***
	PHILLIPS PANHEAD MACHINE SCREW S/S (440X1/4)	2	***820016***
	PHILLIPS PAN HEAD MACHINE SCREW S/S (440X3/8)	18	***820021***
	HEX SOCKETHEAD S/S SCREW BLK	6	***820034***
	PHILLIP PANHEAD STAINLESS STEEL SCREW	7	***820035***
	1/4" HEX KEPNUTS S/Z	18	***821005***
	SMALL PATTERN KEPNUT	10	***821006***
	ZINC KEPNUT	4	***821008***
	PEM FASTENERS	2	***821009***
	PEM FASTENERS	1	***821013***
	ID=.125_OD=.187_H=.12 NYLON SPACER	6	***823049***
	RUBBER GROMMET	4	***824005***
	STRAIN RELIEF	1	***824009***
	INSULATOR	3	***825008***
	FUSE HOLDER	1	***830010***
F1	1.25 AMP SLOW BLOW FUSE	1	***830053***

LED-3 METER LED LAMP PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
Q1-Q5	MMBTA05 NPN SMT TRANSISTOR	5	***345001***
C1, C2	CAPACITOR, .1µF 50V CERAMIC SMT	2	***415007***
R2-R4, R7	3.3 OHM 5% .25W MC1206 RESISTOR	4	***435001***
R5, R6,R8, R9	39 OHM 5% .25W MC1206 RESISTOR	4	***435004***
R1	1.00 KOHM 1% .25W MC1206 RESISTOR	1	***435015***
DS1-DS8	HIGH INTENSITY YELLOW SMT LED VERTICAL	8	***605013***
PCB_LED3	PRINTED CIRCUIT BOARD SMT	1	***700292***

R-55-12 FRAME PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
	BLANK FACEPLATE FOR R-55	4	***003539***
	MBR-2000 LOADED CARD	1	***003549***
	R90-12 FRAME PAN	1	***003562***
	R90-12 MB REAR	1	***003564***
	R90-12 PAN BRACE	1	***003566***
	A2000 MB POWER CONNECTOR BRACKET	1	***003579***
	QMP-4 LOADED CARD ASSEMBLY	1	***005549***
	R55-12 METERBRIDGE COVER	1	***005575***
	R55-12 METAL ARMREST	1	***005576***
	R-55 CONNECTOR KIT	1	***005593***
	LED-3 LOADED CARD	4	***007104***
	CLK-220 LENSE	1	***026057A***
	TIMER CARD ASSEMBLY	1	***027038A***
	MBE-2606 LOADED CARD	2	***027087A***
	PAINTED MDF LEFT SIDEPLATE	1	***100090***
	PAINTED MDF RIGHT SIDEPLATE	1	***100091***
	ALUMINUM CONTINUOUS HINGE, 72"X1.06" X .040"	0.45	***110024***
	3/8" WIDE X 1/16" THICK X 100' LONG BLACK FELT STRIP	.022	***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	24	***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***
	RECESSED BUMPER FOR #8 SCREW	4	***824032***

R-55-12 FRAME PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
	METER TERMINAL	8	***826001***
	SPEAKER	1	***960000***

R-55-12 CONNECTOR KIT PARTS LIST

ITEM#	DESCRIPTION	QTY	W#
	R-55 MANUAL	1	***005599***
	DB25 INDIVIDUAL CRIMP PIN PLUG FOR 220 CONNECTOR KIT	14	***200100***
	MALE PIN FOR DB25 PLUG, W/S 200100	359	***200101***
	METALIZED PLASTIC STRAIGHT HOOD FOR DB25 PLUG, W/S 200100	13	***200102***
	9 POSITION PLASTIC HOOD, 4-40 JACK SCREWS AND STRAIGHT CABLE EXIT	1	***200107***
	25 POSITION PLASTIC HOOD, 4-40 JACK SCREWS AND STRAIGHT CABLE EXIT	1	***200108***
	DB9 INDIVIDUAL CRIMP PIN PLUG FOR R-55 CONNECTOR KIT	1	***200109***
	CRIMP TOOL FOR 220 DB PLUG	1	***850068***
	PIN EXTRACTOR TOOL FOR 220 DB PINS	1	***850069***

R-55 CONSOLE PARTS LIST

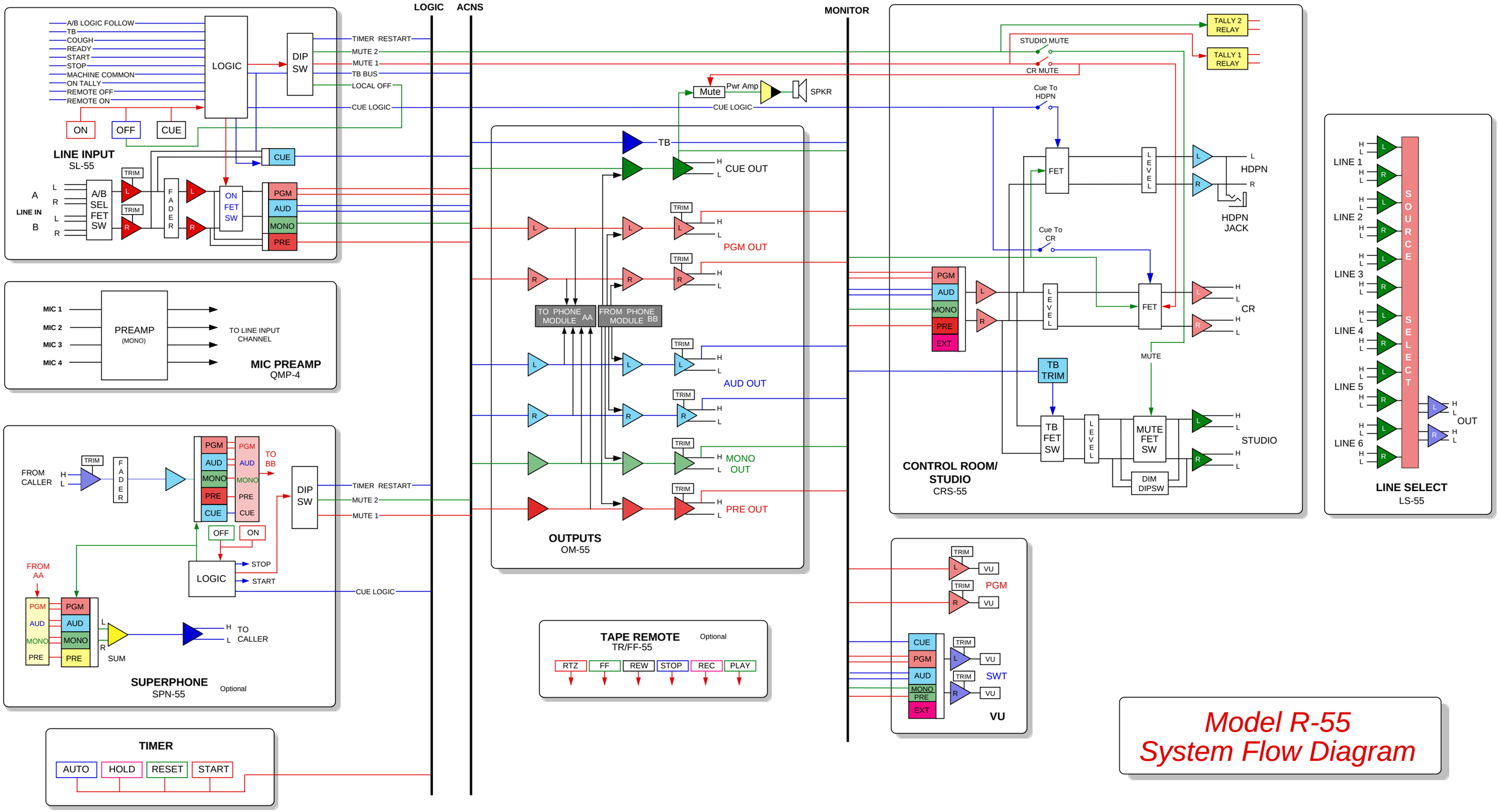
ITEM#	DESCRIPTION	QTY	W#
	BLANK FACEPLATE		***003539***
	SL-55 MODULE		***005500***
	OM-55 MODULE		***005502***
	SPN -55 MODULE		***005504***
	CRS-55 MODULE		***005505***
	LS-55 MODULE		***005507***
	TR-55/FF MODULE		***005508***
	TR-55/SS MODULE		***005509***
	R55-12 WIRED FRAME		***005560***
	R60 POWER SUPPLY		***007010***
	POWER CABLE FROM CONSOLE TO PS-6040 POWER SUPPLY		***027096A***
	OPTIONAL SPARE PARTS KIT FOR R-55		***055575***

SPARE PARTS KIT PARTS LIST

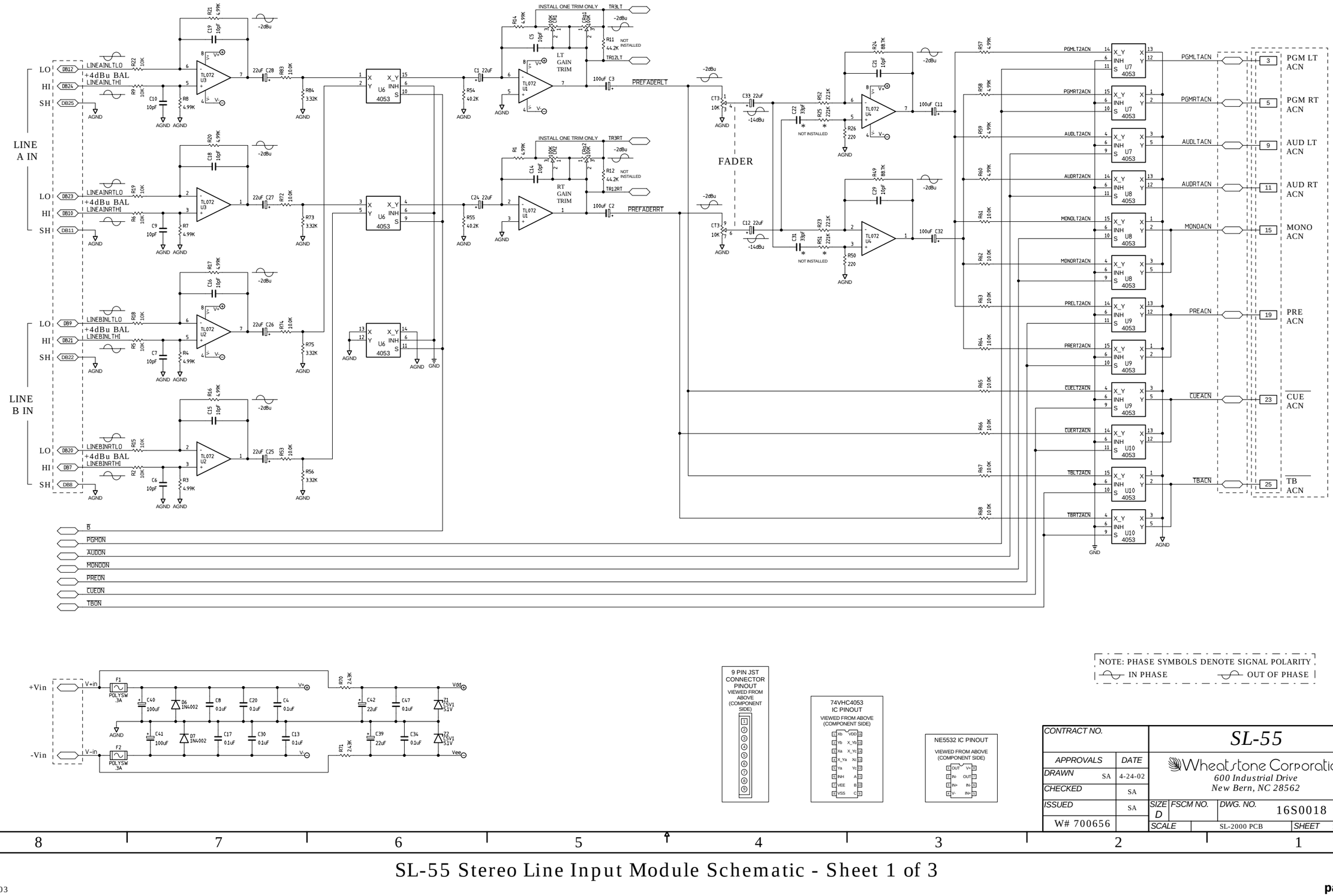
ITEM#	DESCRIPTION	QTY	W#
	WIRED SELMARK CARBON STEREO FADER FOR R-55	1	***053578***
	DB25 INDIVIDUAL CRIMP PIN PLUG FOR 220 CONNECTOR KIT	1	***200100***
	MALE PIN FOR DB25 PLUG, W/S 200100	10	***200101***
	METALIZED PLASTIC STRAIGHT HOOD FOR DB25 PLUG, W/S 200100	1	***200102***
	2017 MIC PREAMP IC	1	***320003***
	LM675 POWER OP AMP	2	***320007***
	10K POT, DUAL AUDIO	1	***500029***
	DPDT PUSHBUTTON SWITCH, MOMENTARY ACTION, GRAY HOUSING	2	***510063***
	2 POLE PUSHBUTTON SWITCH, ALTERNATE ACTION	2	***510097***
	2 POLE PUSHBUTTON SWITCH, MOMENTARY	1	***510113***
	LB STYLE RED BUTTON	1	***530057***
	LB STYLE YELLOW BUTTON	1	***530060***
	DPDT RELAY,5V	1	***550006***
	YELLOW LED FOR R5 ON/OFF SWITCH	1	***600031***
	RED LED FOR R5 ON/OFF SWITCH	1	***600077***
	PHILLIPS SERRATED PANHEAD S/S SCREW	10	***820106***

Schematic Drawings

Chapter Contents

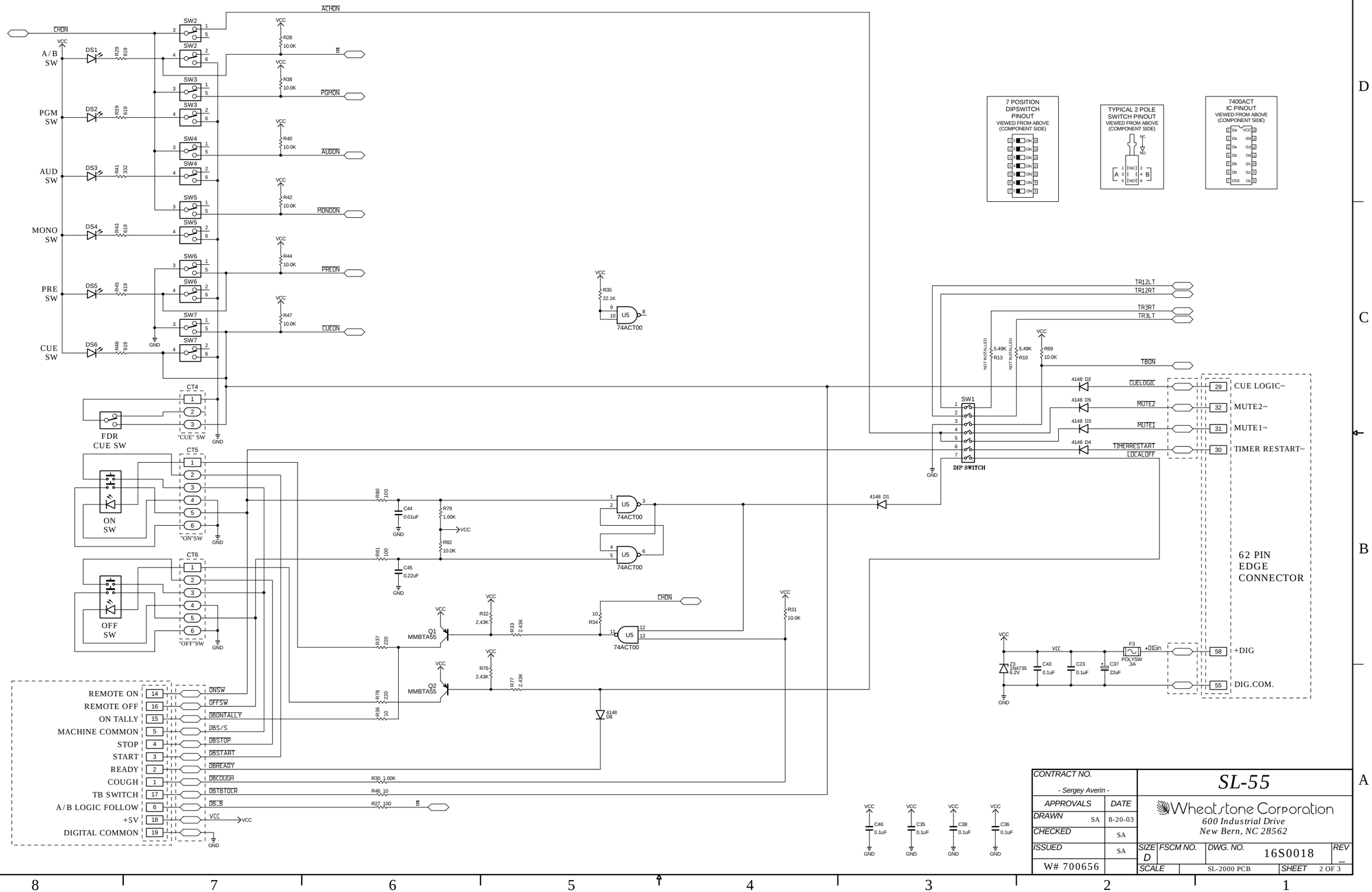


Model R-55
System Flow Diagram



CONTRACT NO.		SL-55		
APPROVALS	DATE	Wheatstone Corporation 600 Industrial Drive New Bern, NC 28562		
DRAWN SA	4-24-02			
CHECKED	SA			
ISSUED	SA	SIZE D	FSCM NO.	DWG. NO. 16S0018 REV -
W# 700656		SCALE	SL-2000 PCB	SHEET 1 OF 3

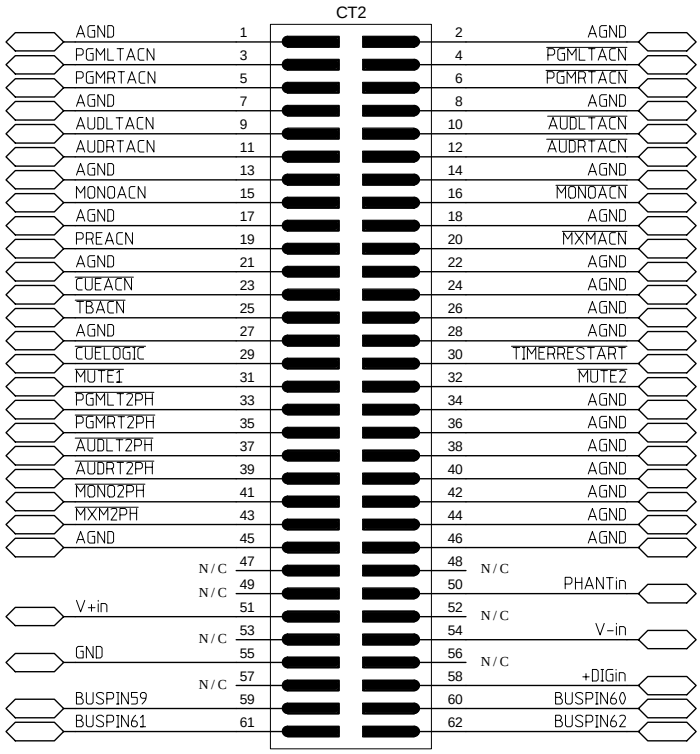
SL-55 Stereo Line Input Module Schematic - Sheet 1 of 3



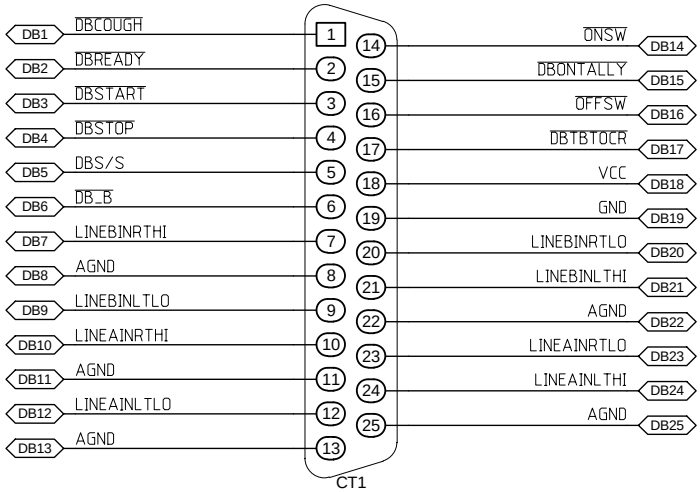
CONTRACT NO.		*SL-55*	
- Sergey Averin -			
APPROVALS	DATE	Wheatstone Corporation	
DRAWN SA	8-20-03	*600 Industrial Drive*	
CHECKED	SA	*New Bern, NC 28562*	
ISSUED	SA	SIZE D / FSCM NO. / DWG. NO. 16S0018 / REV —	
W# 700656		SCALE / SL-2000 PCB / SHEET 2 OF 3	

SL-55 Stereo Line Input Module Schematic - Sheet 2 of 3

EDGE CONNECTOR BUSS CHART



DB-25 CONNECTOR



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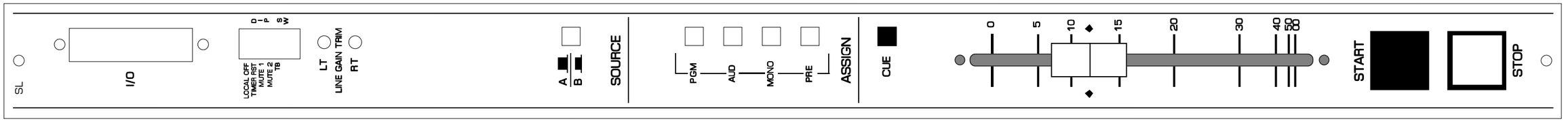
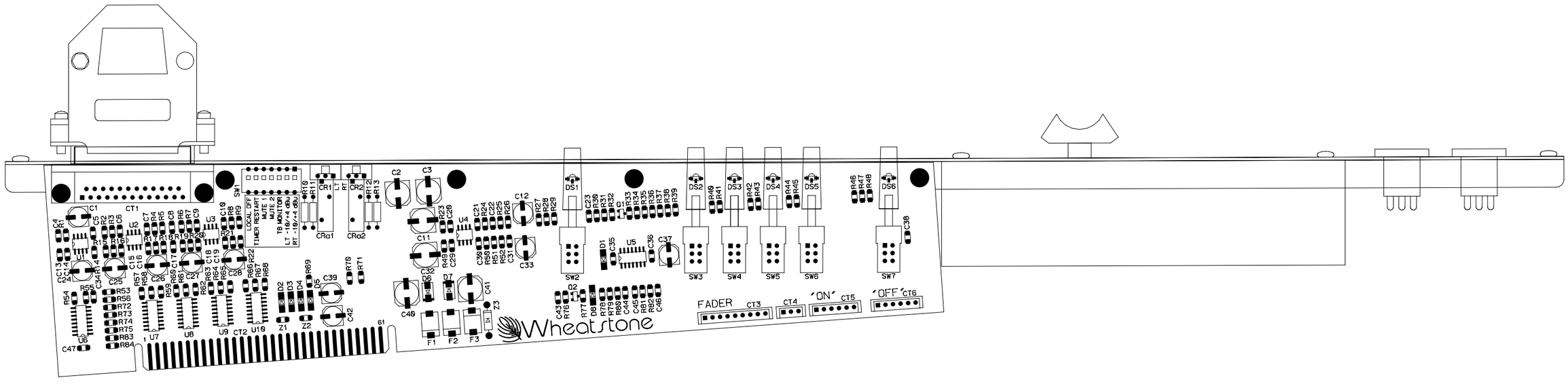
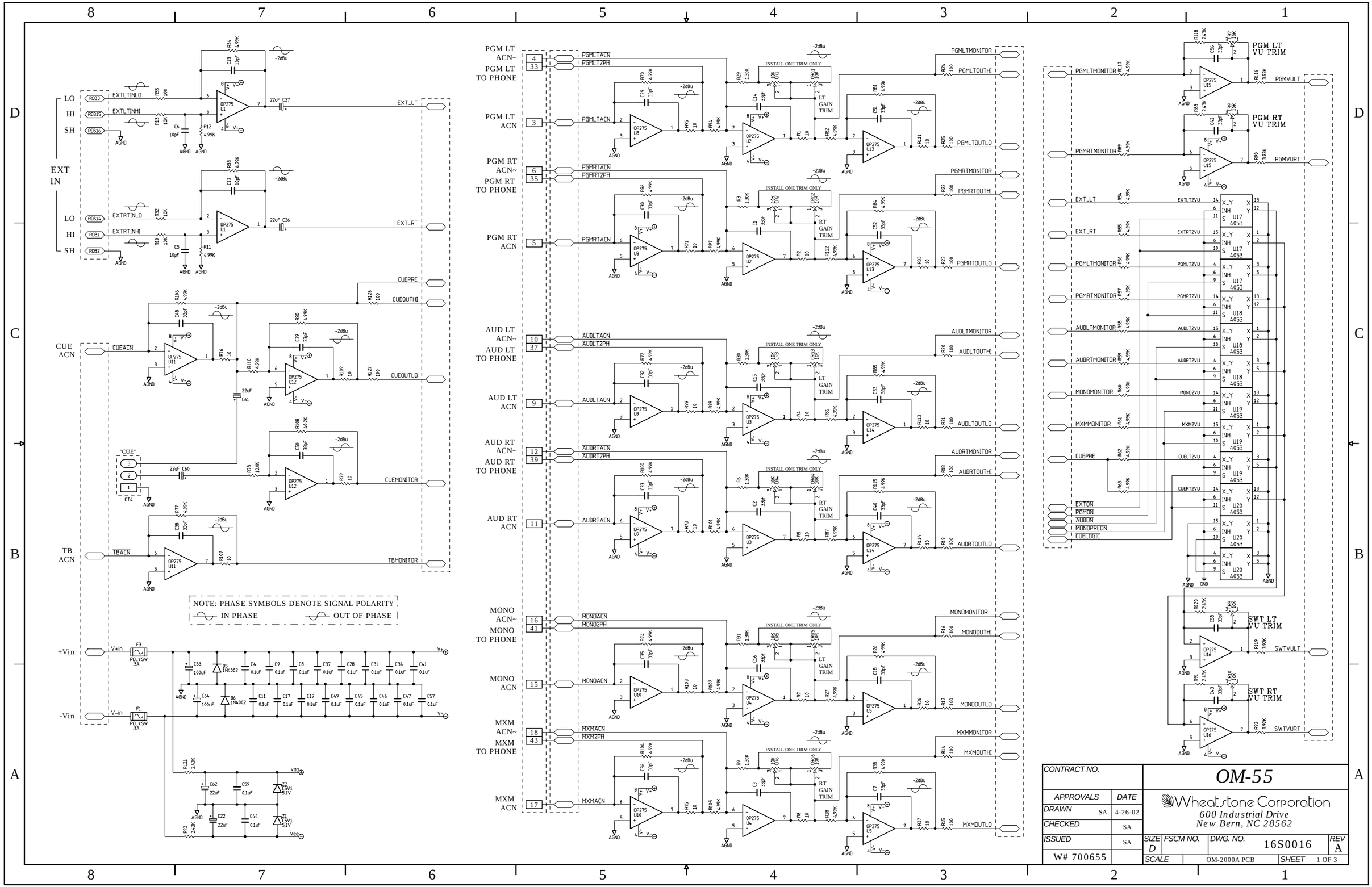
CHECKED	SA		
ISSUED	SA	SIZE B / FSCM NO. / DWG. NO. 16S0019	REV –
W# 700656		SCALE / SL-2000 PCB	SHEET 3 OF 3

SL-55 Stereo Input Module Schematic - Sheet 3 of 3


SL
I/O
D I P S W
LOCAL OFF
TIMER RST
MUTE 1
MUTE 2
TB
LT
LINE GAIN TRIM
RT
A
B
SOURCE
PGM
AUD
MONO
PRE
ASSIGN
CUE
0
5
10
15
20
30
40
50
60
START
STOP


Wheatstone
FADER
ON
OFF



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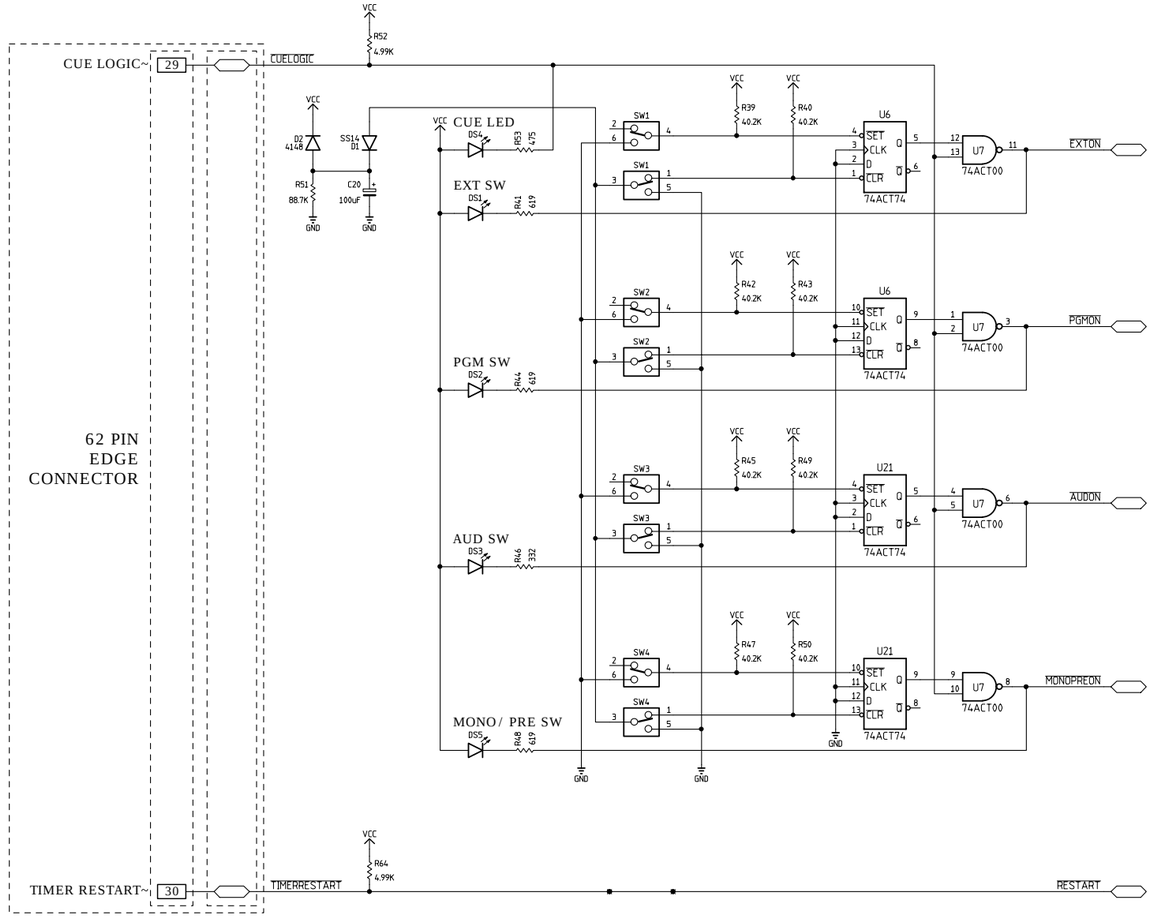
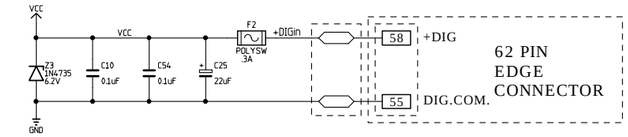
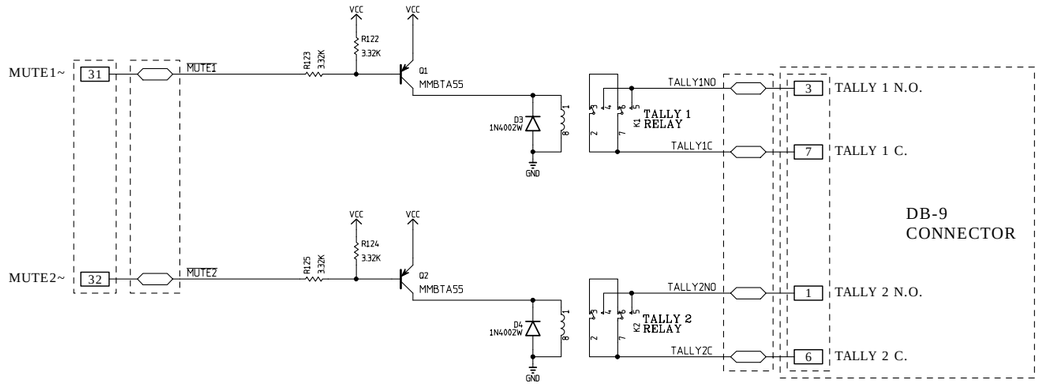
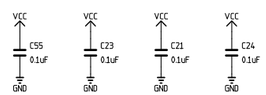
CHECKED	SA				
ISSUED	SA	SIZE D	FSCM NO.	DWG. NO. 16S0016	REV A
W# 700655		SCALE	OM-2000A PCB	SHEET 1 OF 3	

OM-55 Output Module Schematic - Sheet 1 of 3





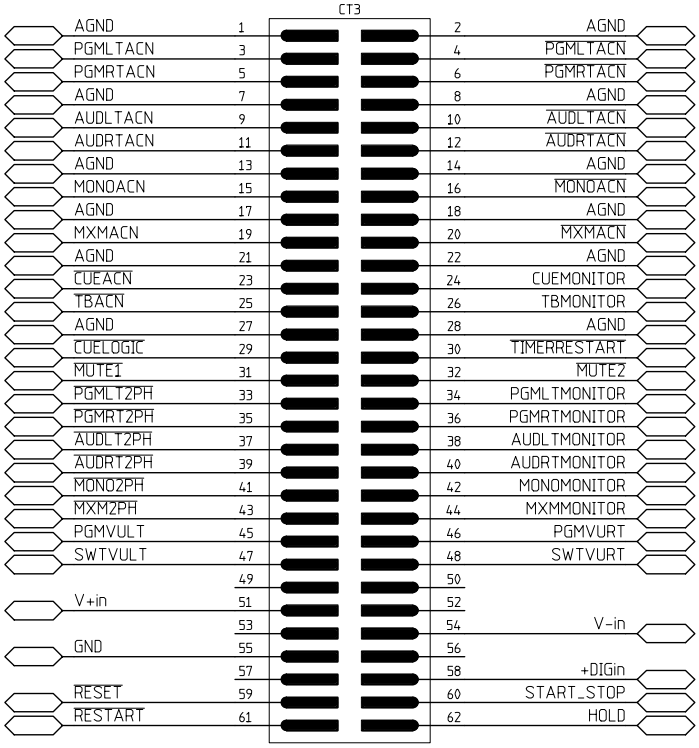




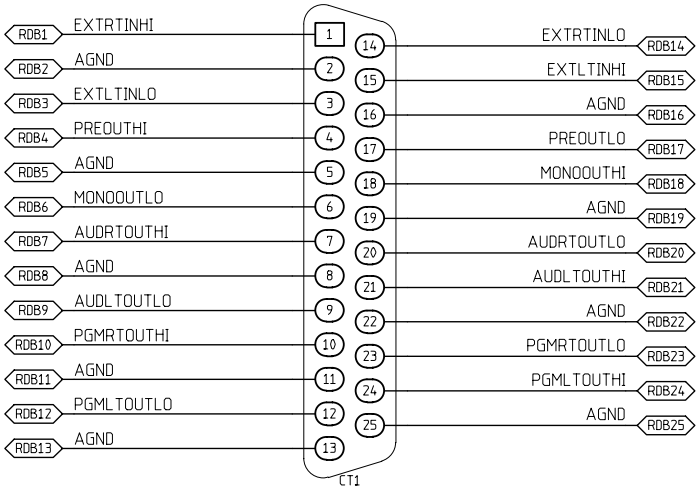
CONTRACT NO.		OM-55	
APPROVALS	DATE	Wheatstone Corporation 600 Industrial Drive New Bern, NC 28562	
DRAWN SA	4-26-02		
CHECKED	SA		
ISSUED	SA		
W# 700655		SIZE D / FSCM NO. / DWG. NO. 16S0017 / REV A	
		SCALE OM-2000A PCB / SHEET 2 OF 3	

OM-55 Output Module Schematic - Sheet 2 of 3

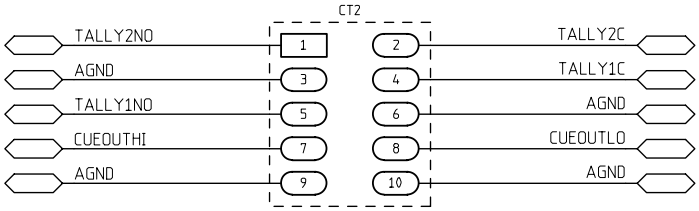
EDGE CONNECTOR BUSS CHART



RIGHT DB-25 CONNECTOR

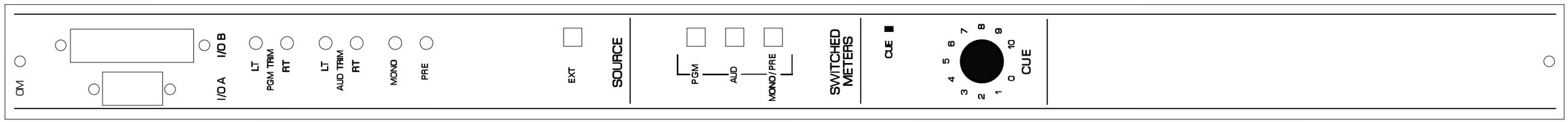


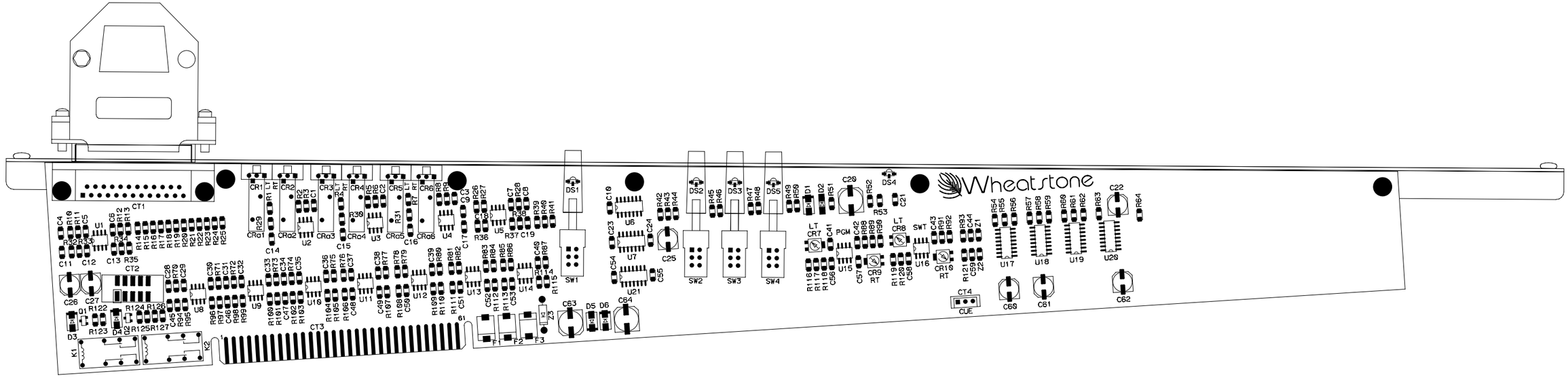
TO LEFT DB-9 CONNECTOR

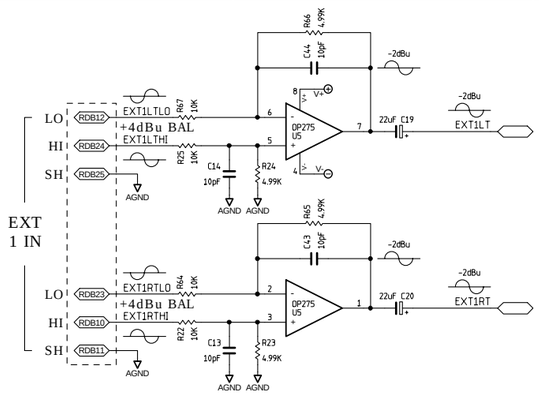


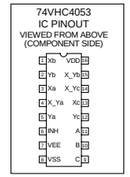
CONTRACT NO.		OM-55	
APPROVALS	DATE	Wheatstone Corporation 600 Industrial Drive New Bern, NC 28562	
DRAWN SA	4-26-02		
CHECKED	SA		
ISSUED	SA	SIZE B / FSCM NO. / DWG. NO. 16S0008	REV A
W# 700655		SCALE / OM-2000A PCB	SHEET 3 OF 3

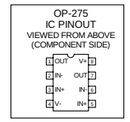
OM-55 Output Module Schematic - Sheet 3 of 3

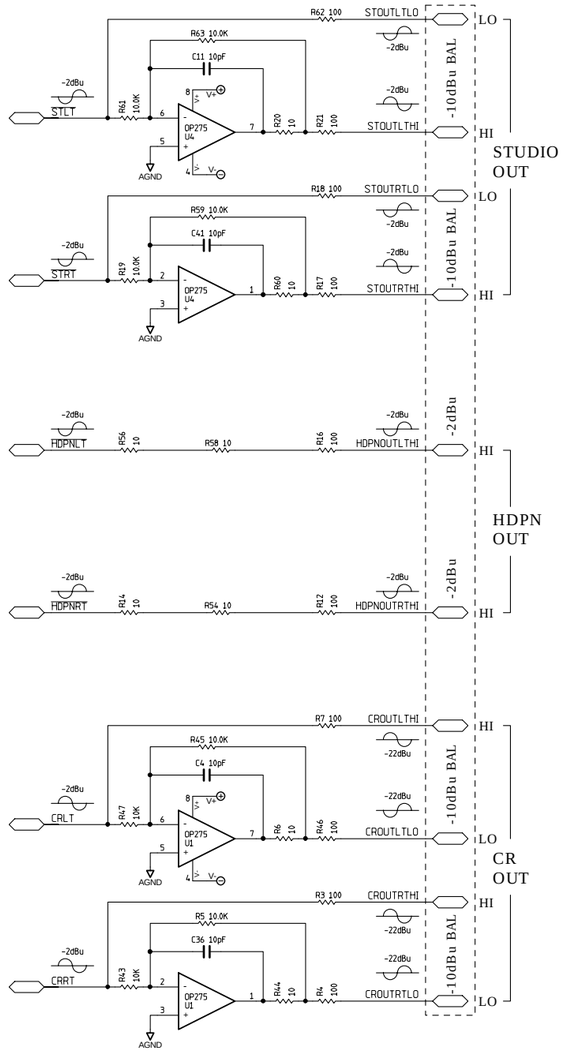

CM
I/O A
I/O B
LT
PGM TRIM
RT
LT
AUD TRIM
RT
MONO
PRE
EXT
SOURCE
PGM
AUD
MONO/PRE
SWITCHED METERS
CUE
CUE

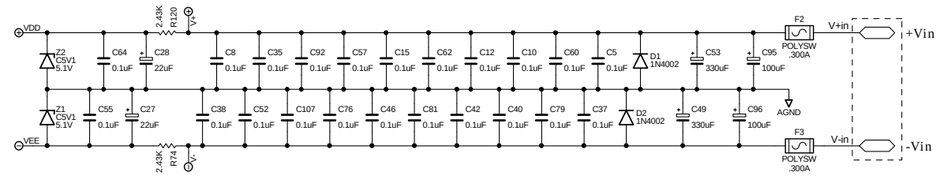

Wheatstone
CT1
CT2
CT3
CT4
SW1
SW2
SW3
SW4
CUE

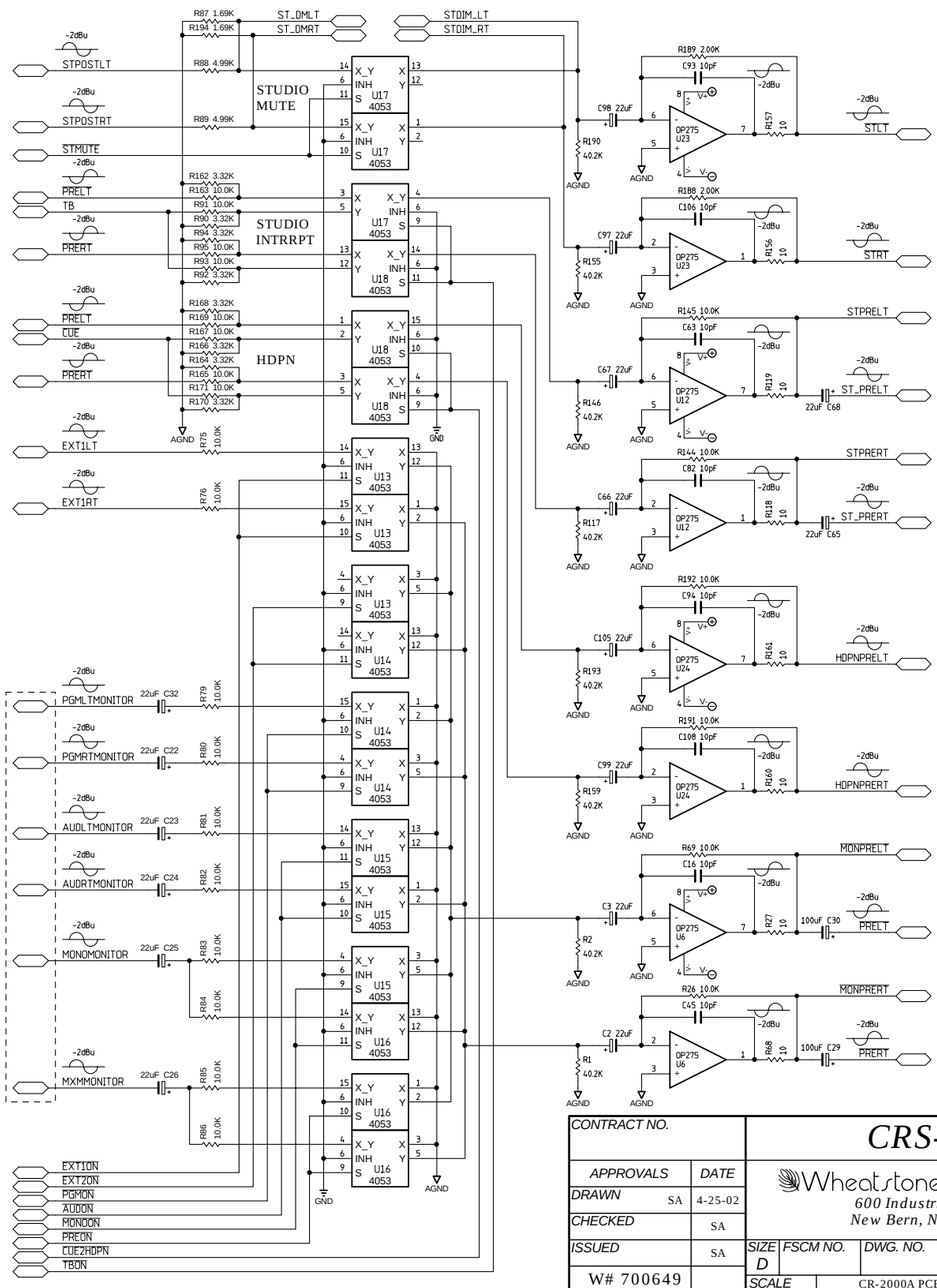






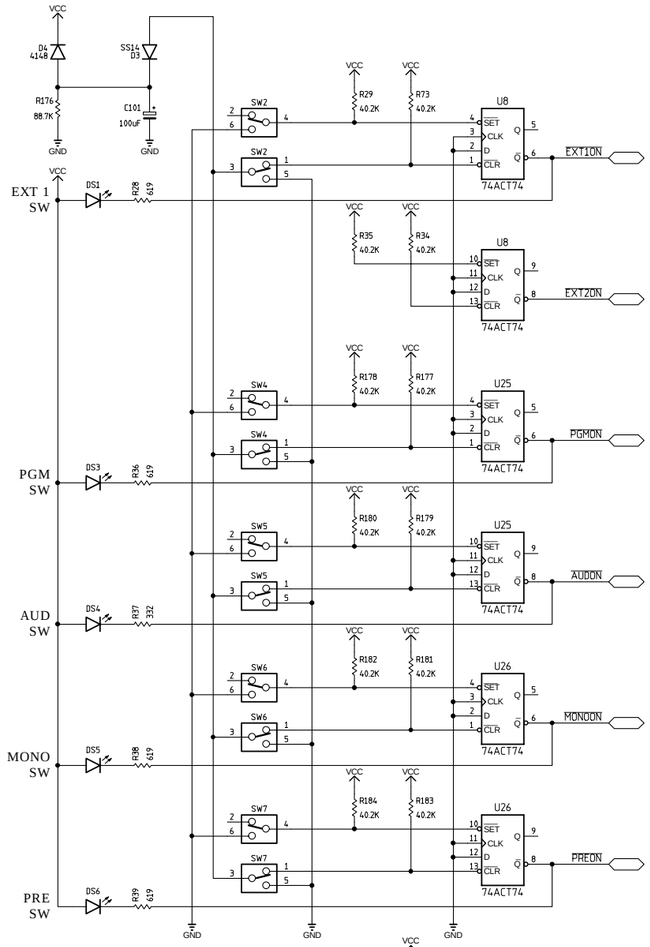


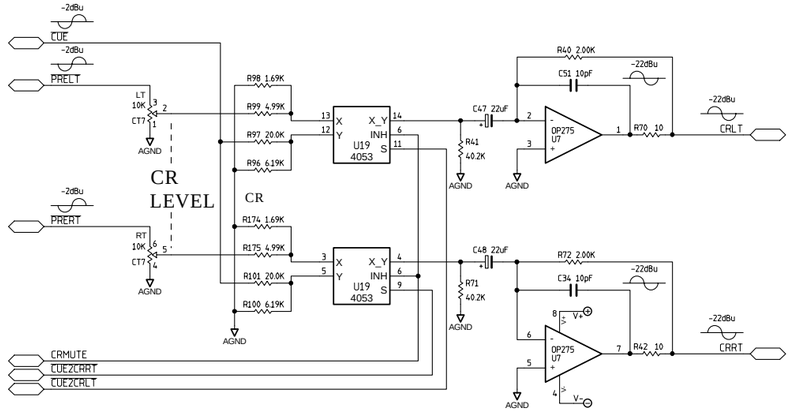


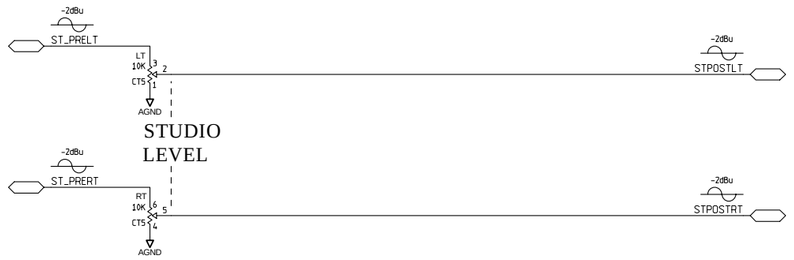


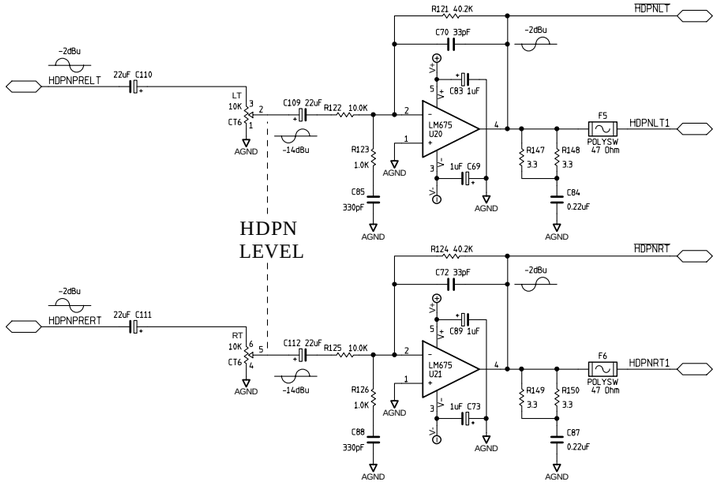
CONTRACT NO.		CRS-55		
APPROVALS	DATE	Wheatstone Corporation 600 Industrial Drive New Bern, NC 28562		
DRAWN SA	4-25-02			
CHECKED	SA			
ISSUED	SA	SIZE D	FSCM NO.	DWG. NO. 16S0001 REV A
W# 700649		SCALE CR-2000A PCB		SHEET 1 OF 3

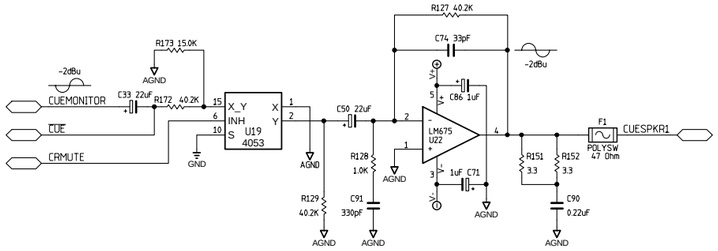
CRS-55 Control Room/Studio Module Schematic - Sheet 1 of 3

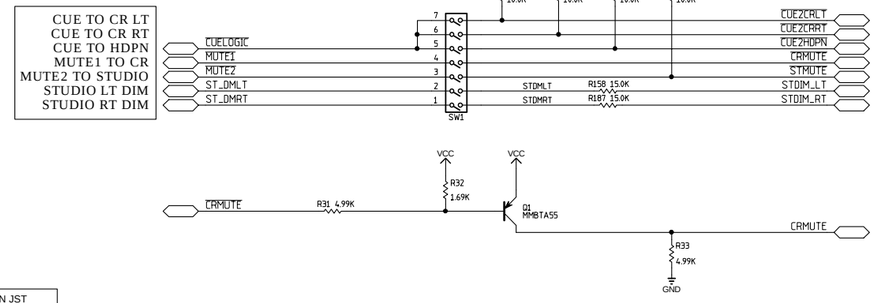


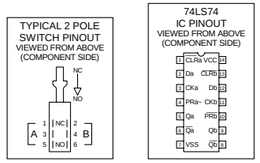




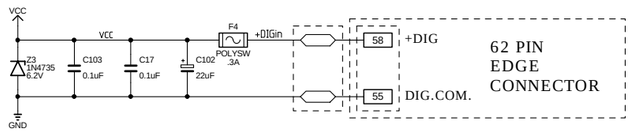


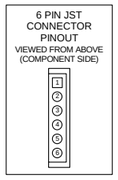






NOTE: PHASE SYMBOLS DENOTE SIGNAL POLARITY
IN PHASE OUT OF PHASE





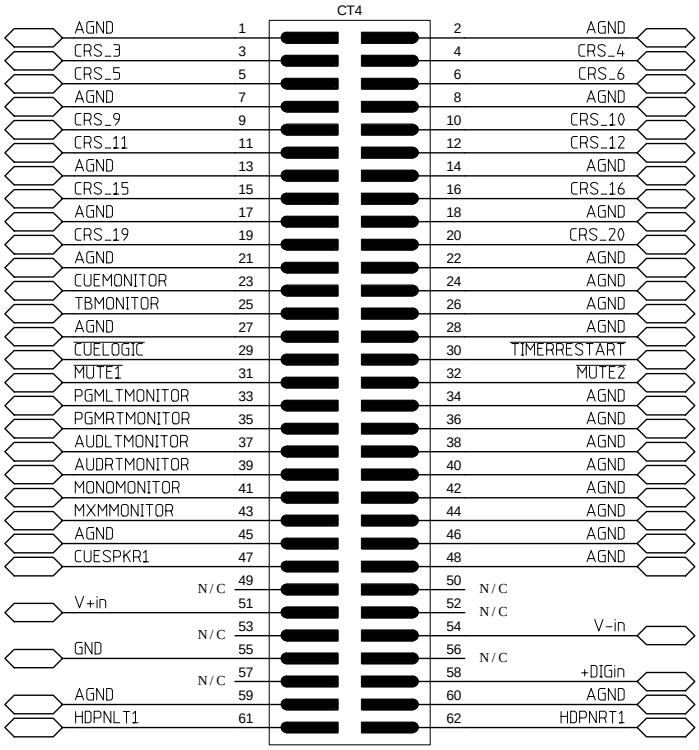
CONTRACT NO.	
APPROVALS	DATE
DRAWN SA	4-25-02
CHECKED	SA
ISSUED	SA
W# 700649	

CRS-55

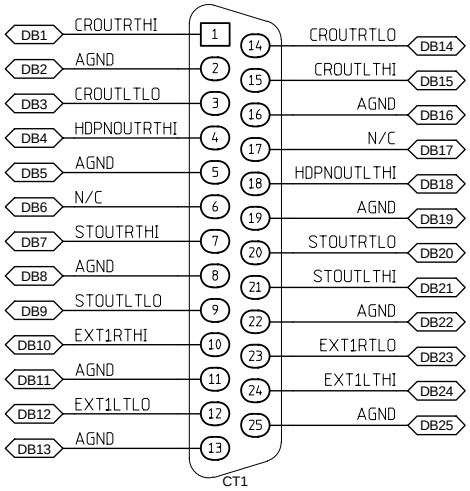
Wheatstone Corporation
600 Industrial Drive
New Bern, NC 28562

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

EDGE CONNECTOR BUSS CHART



DB-25 CONNECTOR



CONTRACT NO.		CRS-55	
APPROVALS	DATE	Wheatstone Corporation 600 Industrial Drive New Bern, NC 28562	
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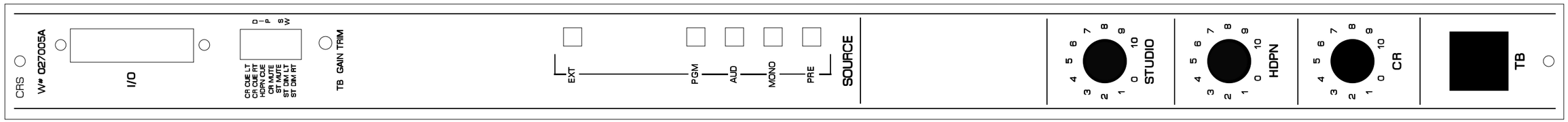
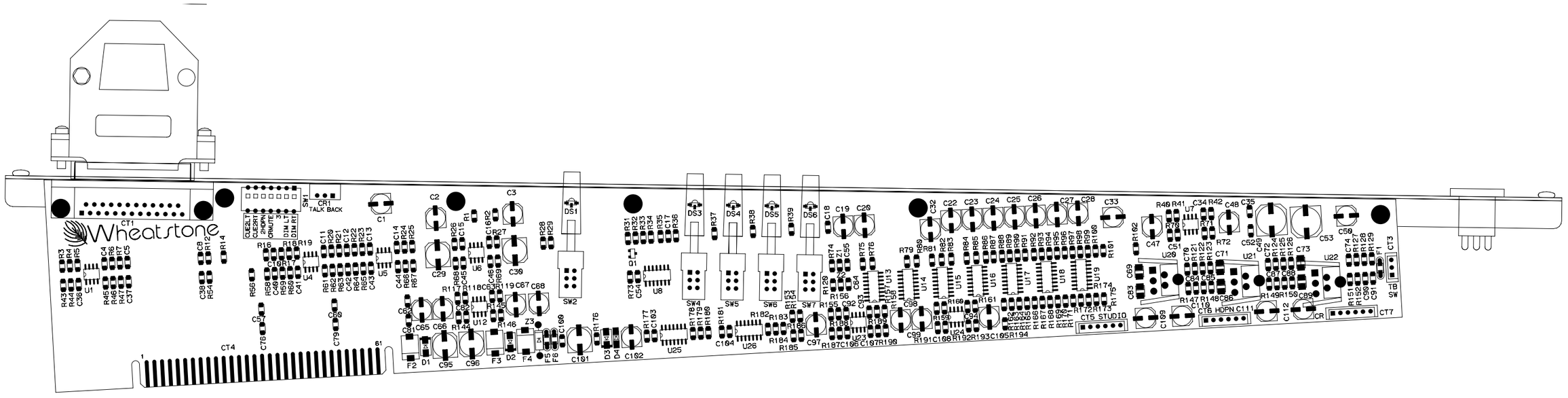
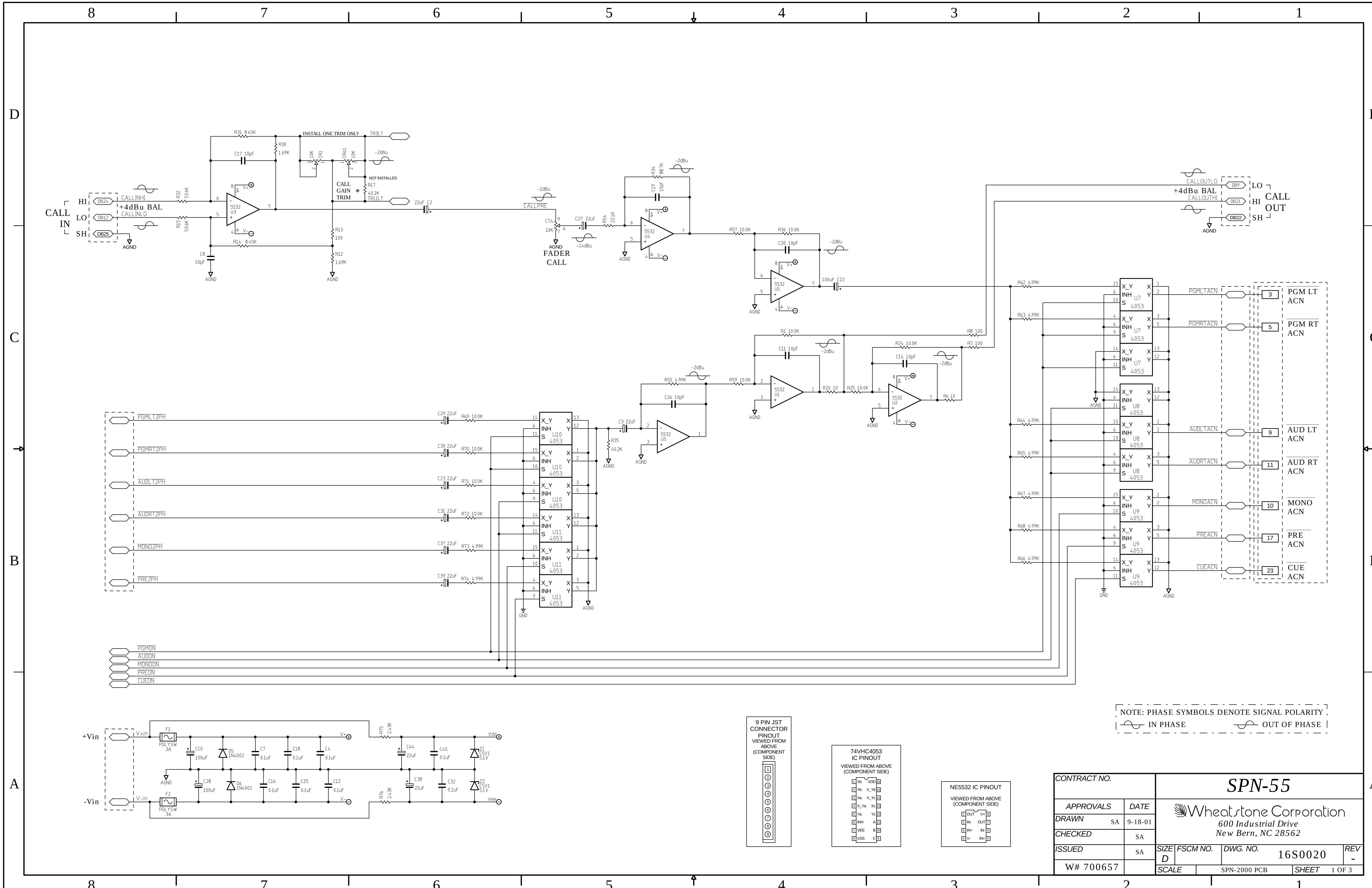
ISSUED	SA	SIZE B / FSCM NO. / DWG. NO. 16S0013	REV -
W# 700649		SCALE / CR-2000A PCB	SHEET 3 OF 3

CRS-55 Control Room/Studio - Sheet 3 of 3


CRS
W* 027005A
I/O
CR CUE LT
CR CUE RT
HDPN CUE
CR MUTE
ST MUTE
ST DIM LT
ST DIM RT
TB GAIN TRIM
EXT
PGM
AUD
MONO
PRE
SOURCE
STUDIO
HDPN
CR
TB


Wheatstone
CT1
CR1
TALK BACK
SW1
CT4
CT5 STUDIO
CT6 HDPN
CT7
SW2



CONTRACT NO.		SPN-55
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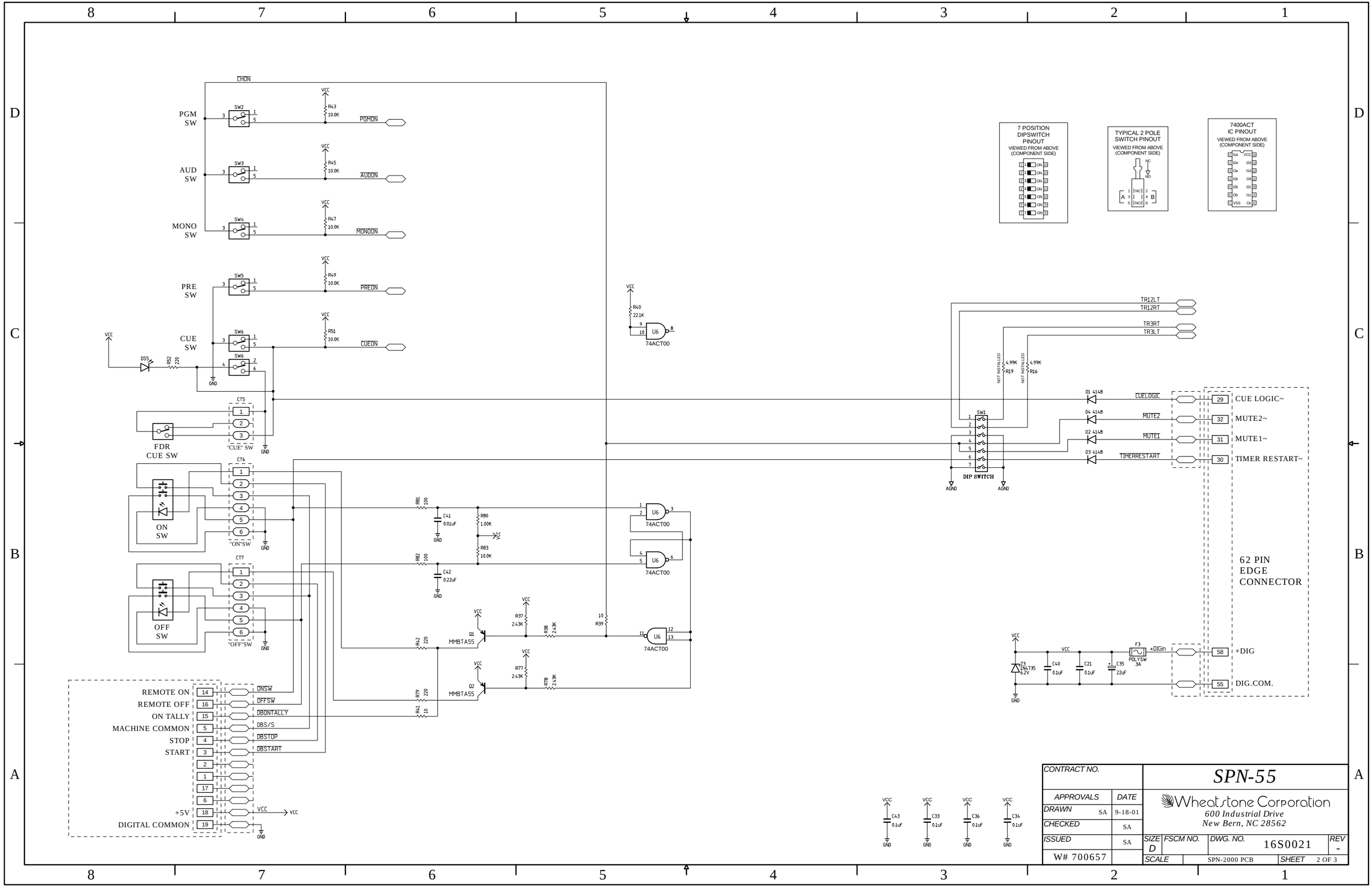
DRAWN SA	9-18-01	
CHECKED	SA	
ISSUED	SA	SIZE D · FSCM NO. · DWG. NO. 16S0020 · REV -
W# 700657		SCALE SPN-2000 PCB · SHEET 1 OF 3

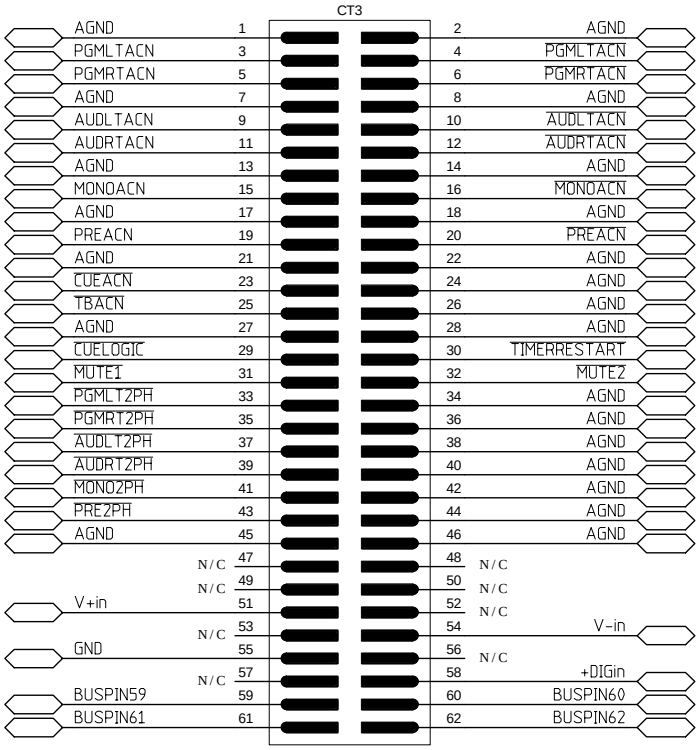
SPN-55 Superphone Module Schematic - Sheet 1 of 3



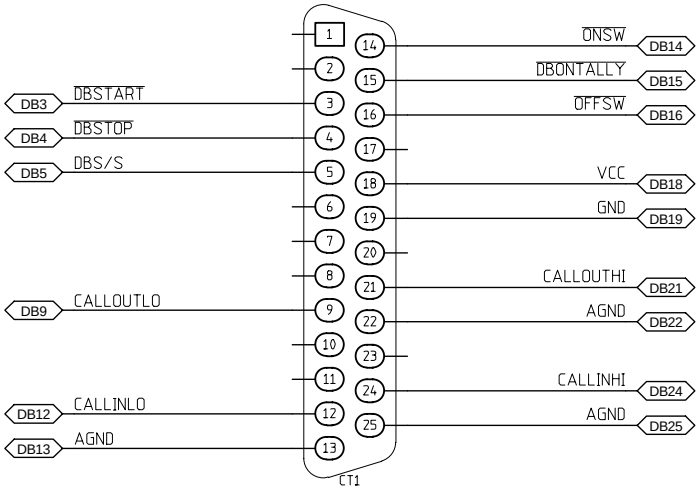
CONTRACT NO.		SPN-55		
APPROVALS	DATE	Wheatstone Corporation 600 Industrial Drive New Bern, NC 28562		
DRAWN SA	9-18-01			
CHECKED	SA			
ISSUED	SA	SIZE D	FSCM NO.	DWG. NO. 16S0021 REV -
W# 700657		SCALE	SPN-2000 PCB	SHEET 2 OF 3

SPN-55 Superphone Module Schematic - Sheet 2 of 3

EDGE CONNECTOR BUSS CHART

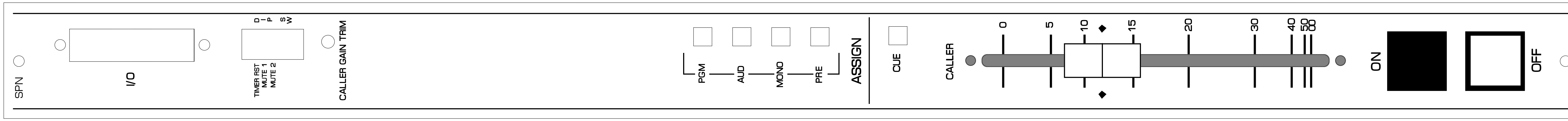


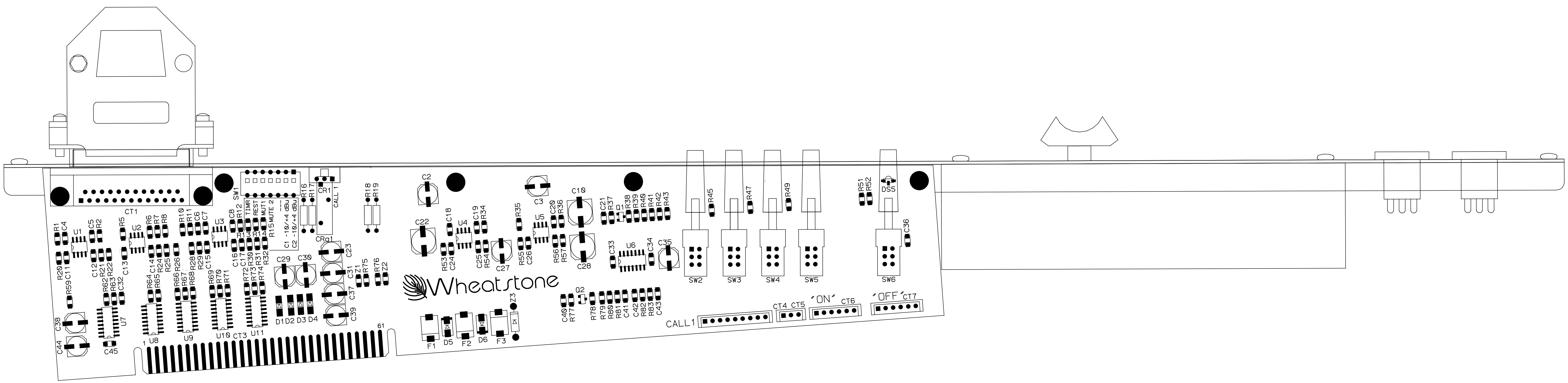
DB-25 CONNECTOR



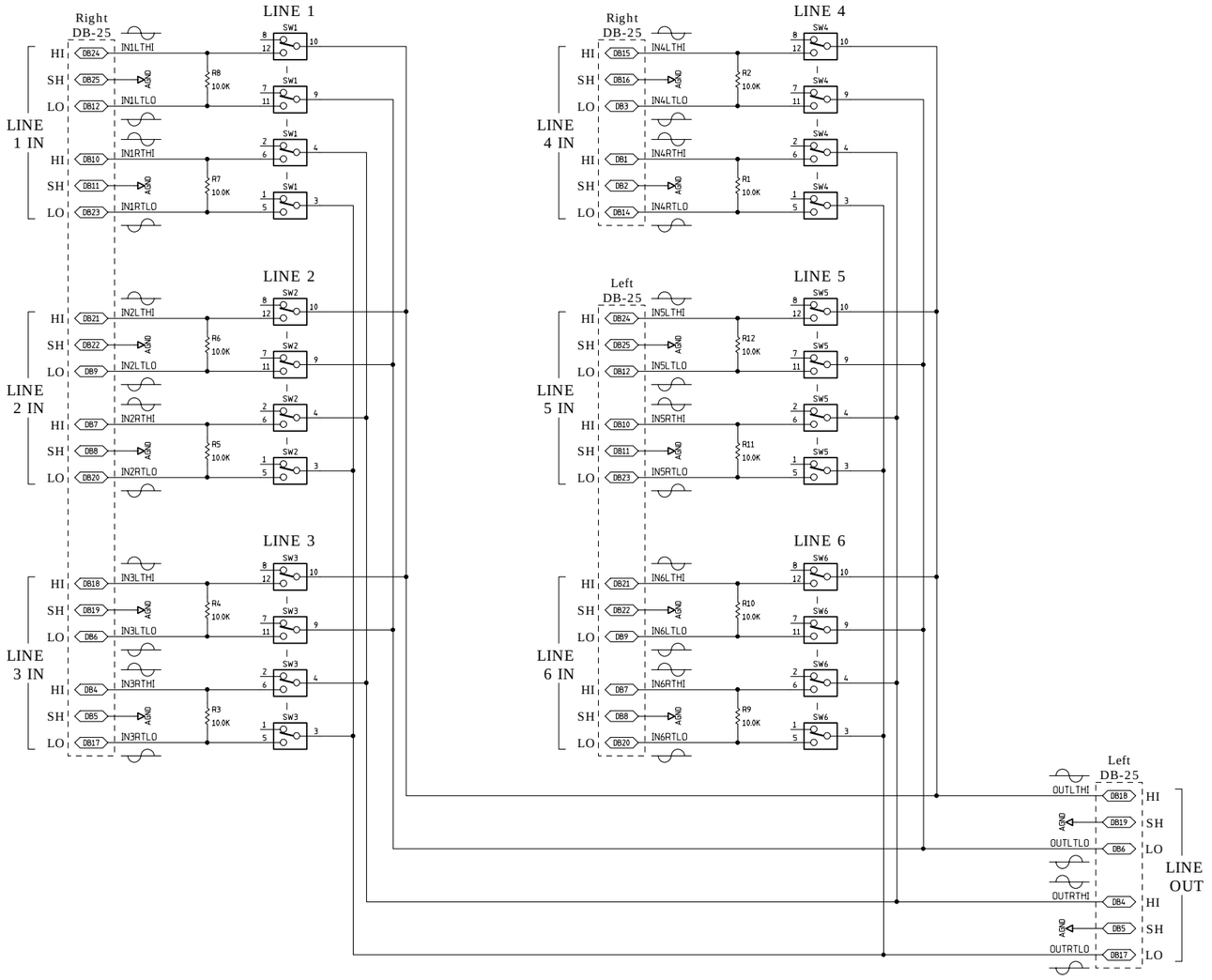
CONTRACT NO.		SPN-55	
APPROVALS	DATE	Wheatstone Corporation 600 Industrial Drive New Bern, NC 28562	
DRAWN SA	9-18-01		
CHECKED	SA		
ISSUED	SA	SIZE B / FSCM NO. / DWG. NO. 16S0021x	REV -
W# 700657		SCALE / SPN-2000 PCB	SHEET 3 OF 3

SPN-55 Superphone Module Schematic - Sheet 3 of 3



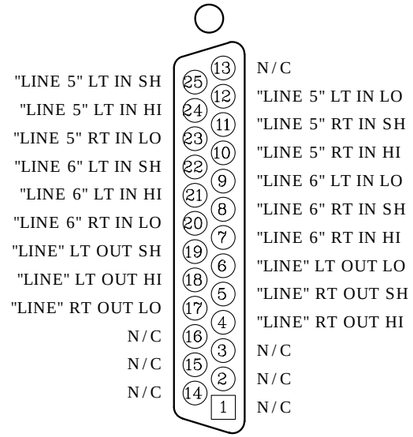


SPN-55 Superphone Module - Load Sheet

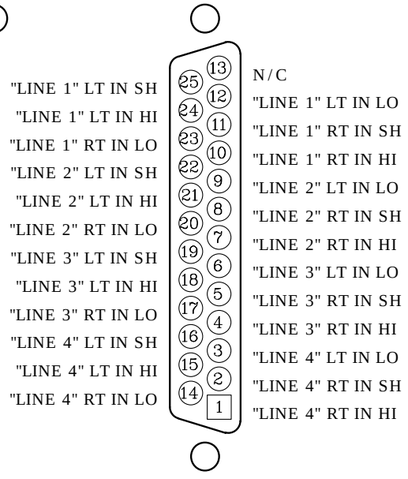


LS-55 Line Selector

DB Connector Pinouts

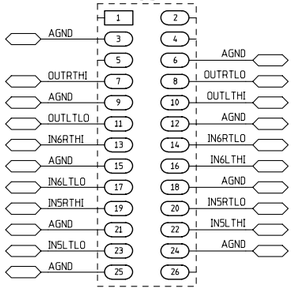


I/O PORTS
(Left DB-25)

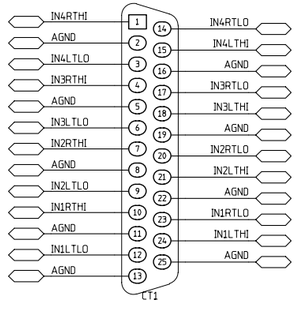


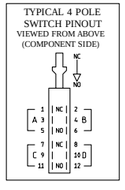
I/O PORTS
(Right DB-25)

To Left DB-25 CONNECTOR



Right DB-25 CONNECTOR

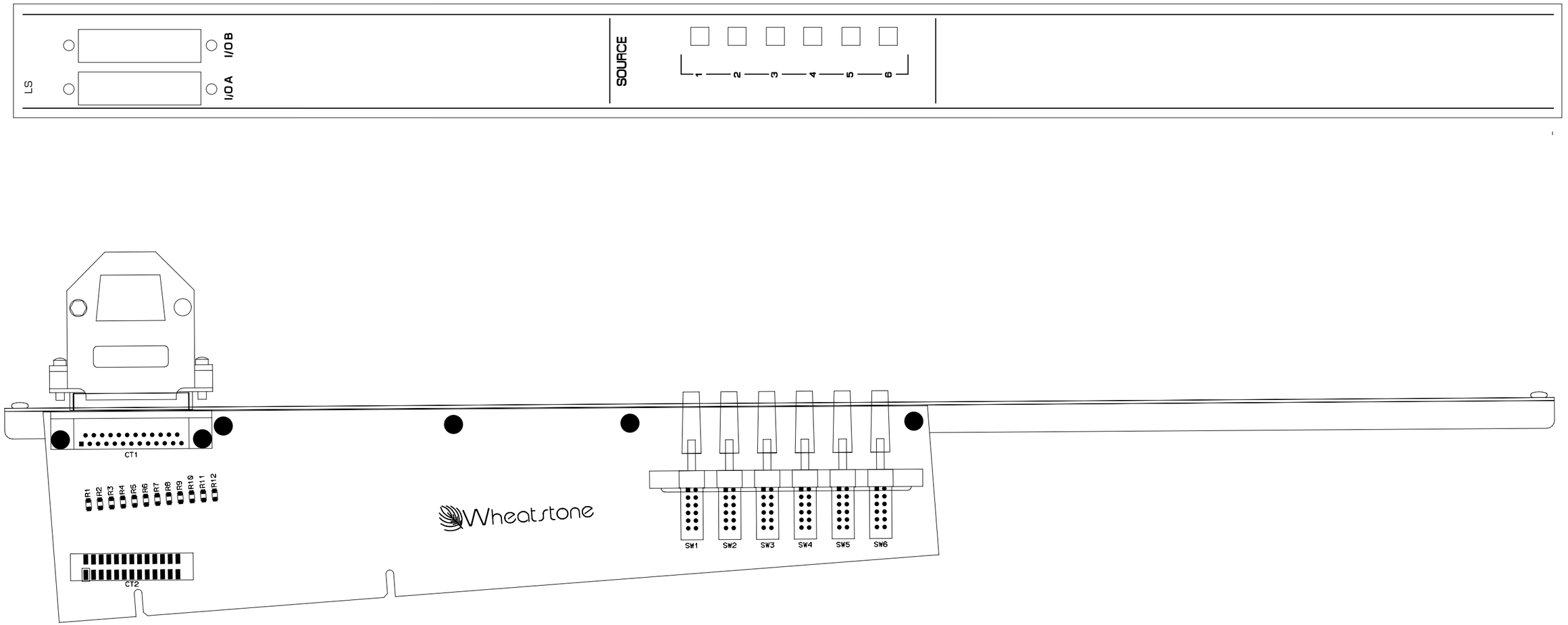


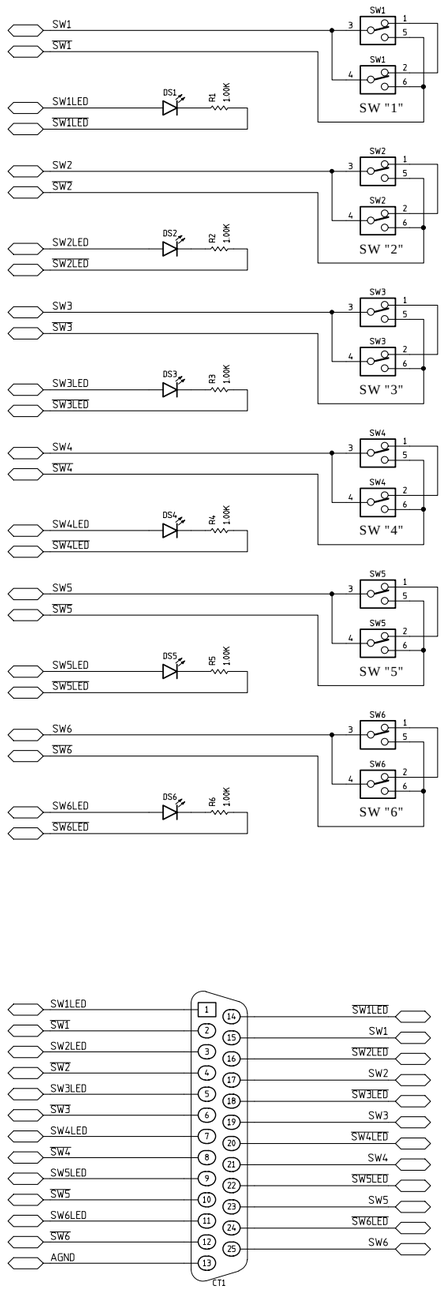


NOTE: PHASE SYMBOLS DENOTE SIGNAL POLARITY
IN PHASE — OUT OF PHASE

CONTRACT NO.		LS-55		
APPROVALS	DATE	Wheatstone Corporation 600 Industrial Drive New Bern, NC 28562		
DRAWN SA	6-6-01			
CHECKED	SA			
ISSUED	SA	SIZE D	FSCM NO.	DWG. NO. 16S0025 REV -
W# 700679		SCALE	LS-2600 PCB	SHEET 1 OF 1

LS-55 Line Select Module Schematic - Sheet 1 of 1

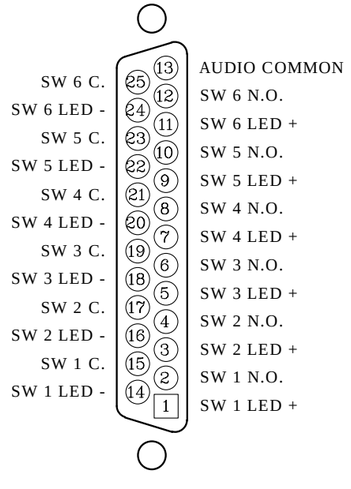

LS
I/O A
I/O B
SOURCE
1
2
3
4
5
6
CT1
CT2
R1
R2
R3
R4
R5
R6
R7
R8
R9
R10
R11
R12
Wheatstone
SW1
SW2
SW3
SW4
SW5
SW6

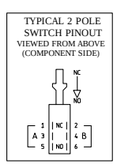


TR-55 I/O

DB Connector Pinouts

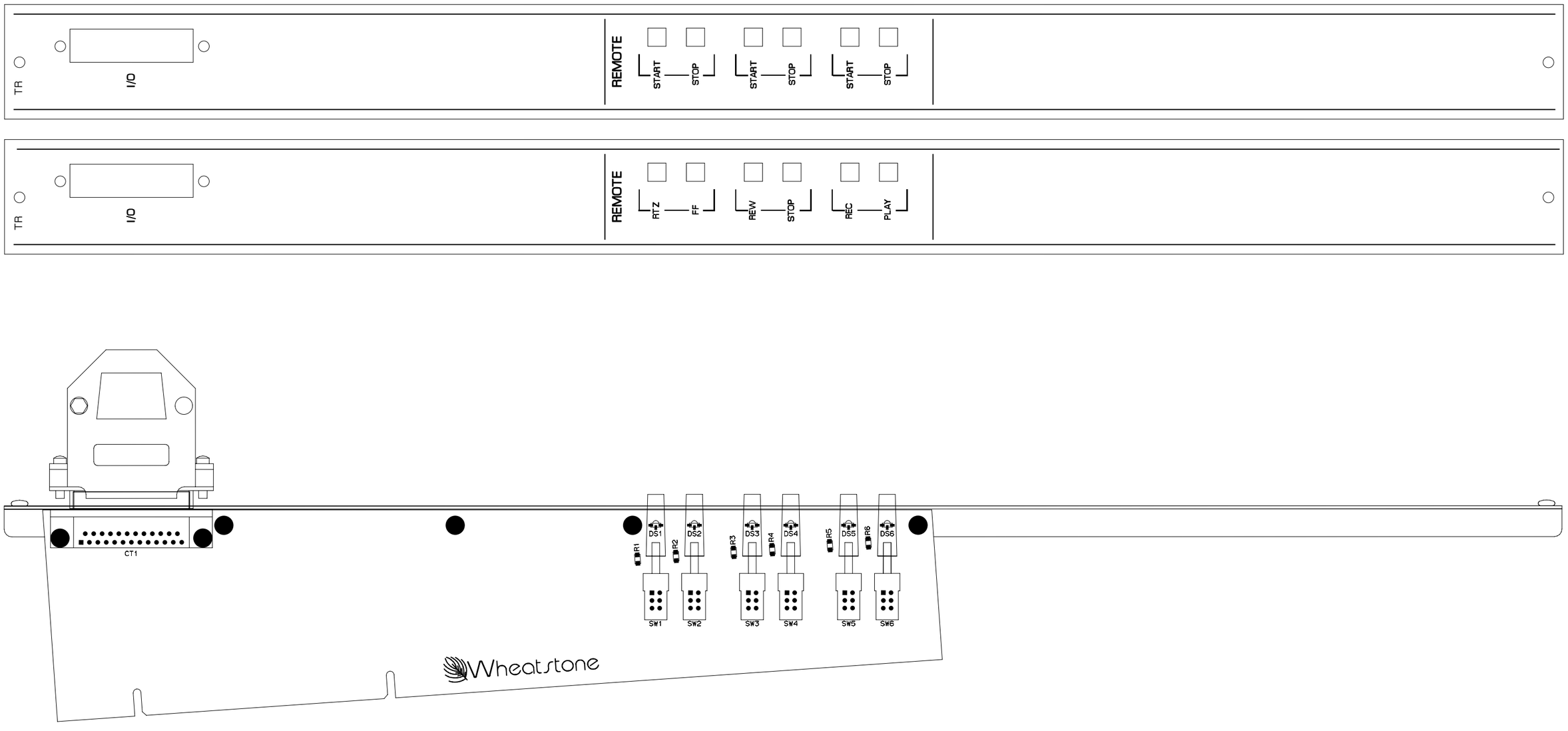
I/O PORTS

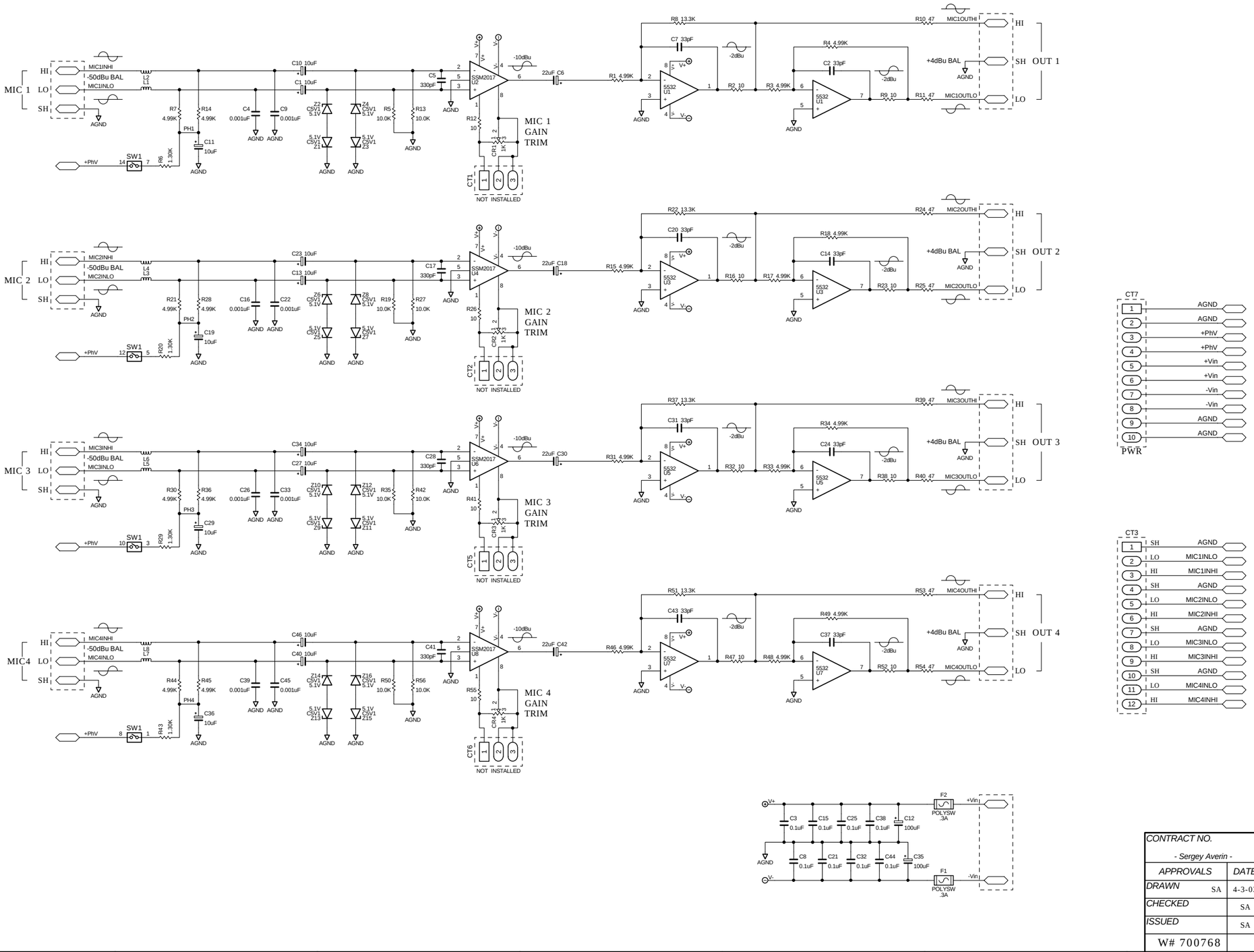




CONTRACT NO.		TR-55	
APPROVALS	DATE	Wheatstone Corporation 600 Industrial Drive New Bern, NC 28562	
DRAWN SA	1-3-01		
CHECKED	SA		
ISSUED	SA	SIZE D / FSCM NO. / DWG. NO. 16S0022 / REV -	
W# 700658		SCALE / TR-2000 PCB / SHEET 1 OF 1	

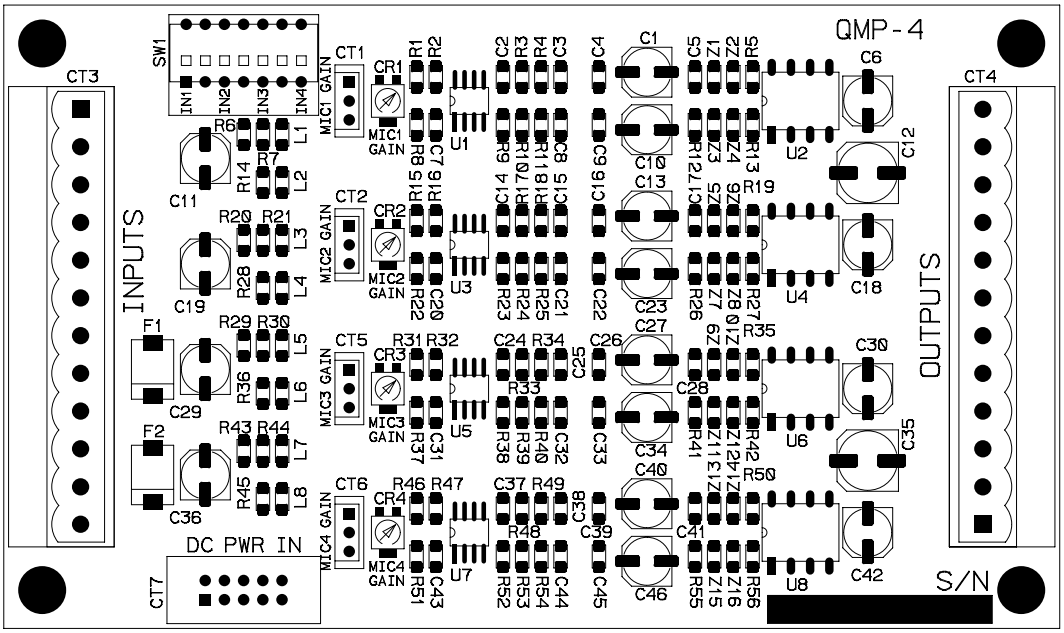
TR-55 Tape Remote Module Schematic - Sheet 1 of 1


TR
I/O
REMOTE
START
STOP
START
STOP
START
STOP
TR
I/O
REMOTE
RTZ
FF
REW
STOP
REC
PLAY
CT1
R1
DS1
R2
DS2
R3
DS3
R4
DS4
R5
DS5
R6
DS6
SW1
SW2
SW3
SW4
SW5
SW6
Wheatstone

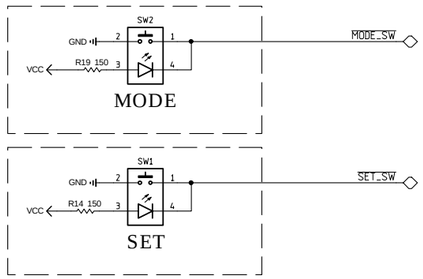


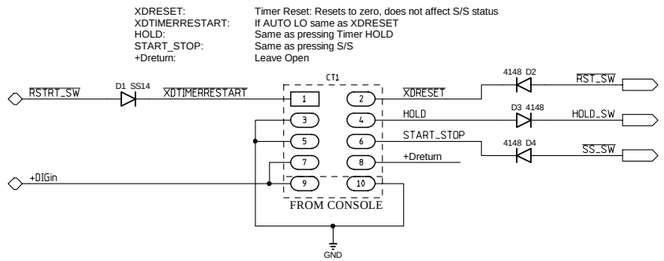
CONTRACT NO.	*QMP-4*
- Sergey Averin -	
APPROVALS / DATE	Wheatstone Corporation
DRAWN SA 4-3-03	600 Industrial Drive
CHECKED SA	New Bern, NC 28562
ISSUED SA	SIZE D · FSCM NO. · DWG. NO. 16S0026 · REV —
W# 700768	SCALE · QMP-4 PCB · SHEET 1 OF 1

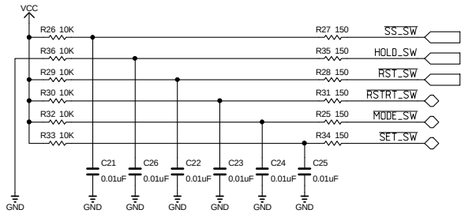
QMP-4 Quad Mic Preamp Schematic - Sheet 1 of 1

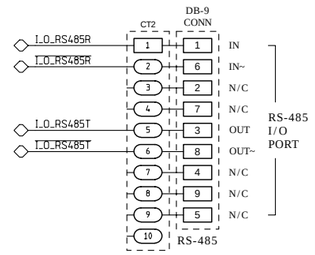


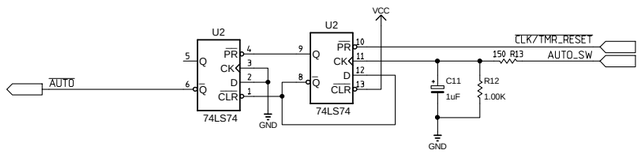
QMP-4 Quad Mic Preamp - Load Sheet

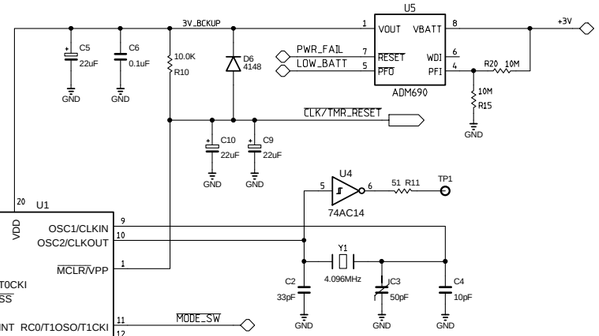


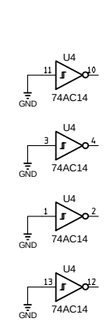


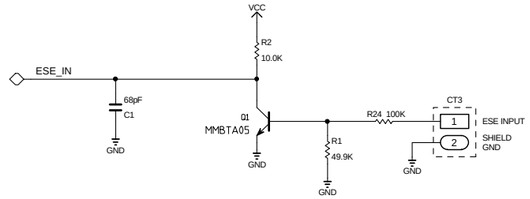


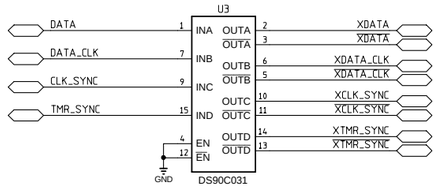


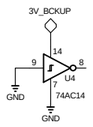


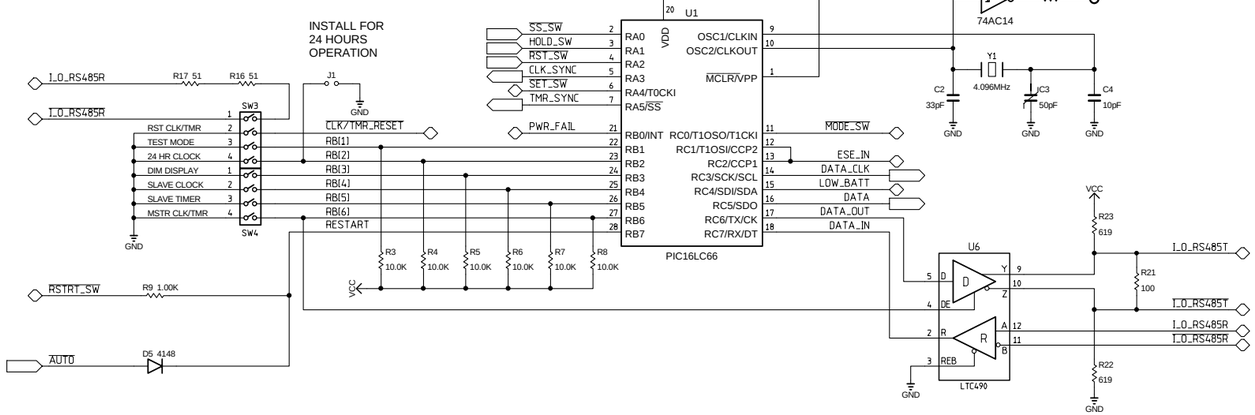


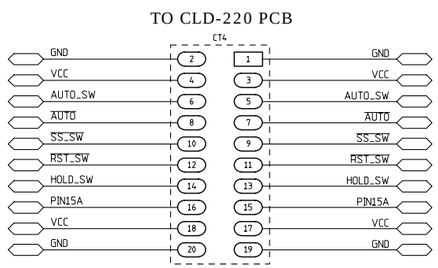


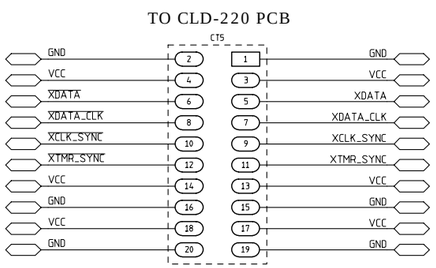


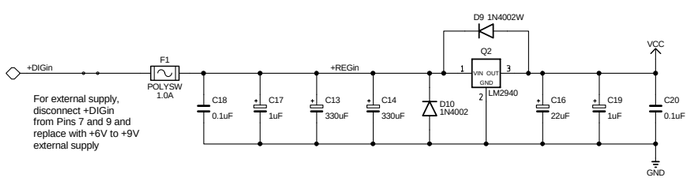


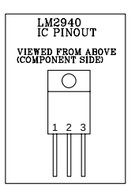


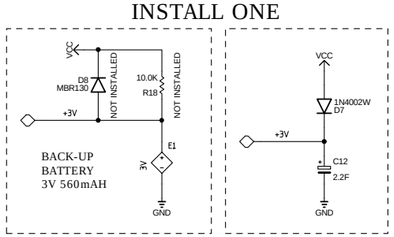


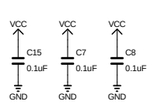




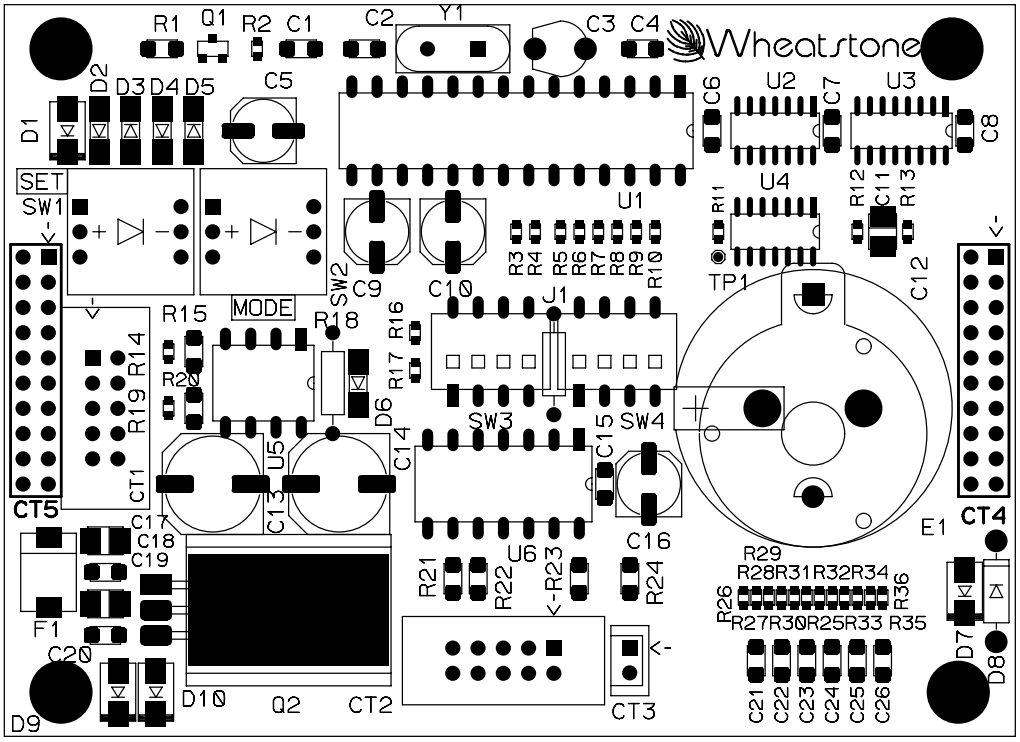




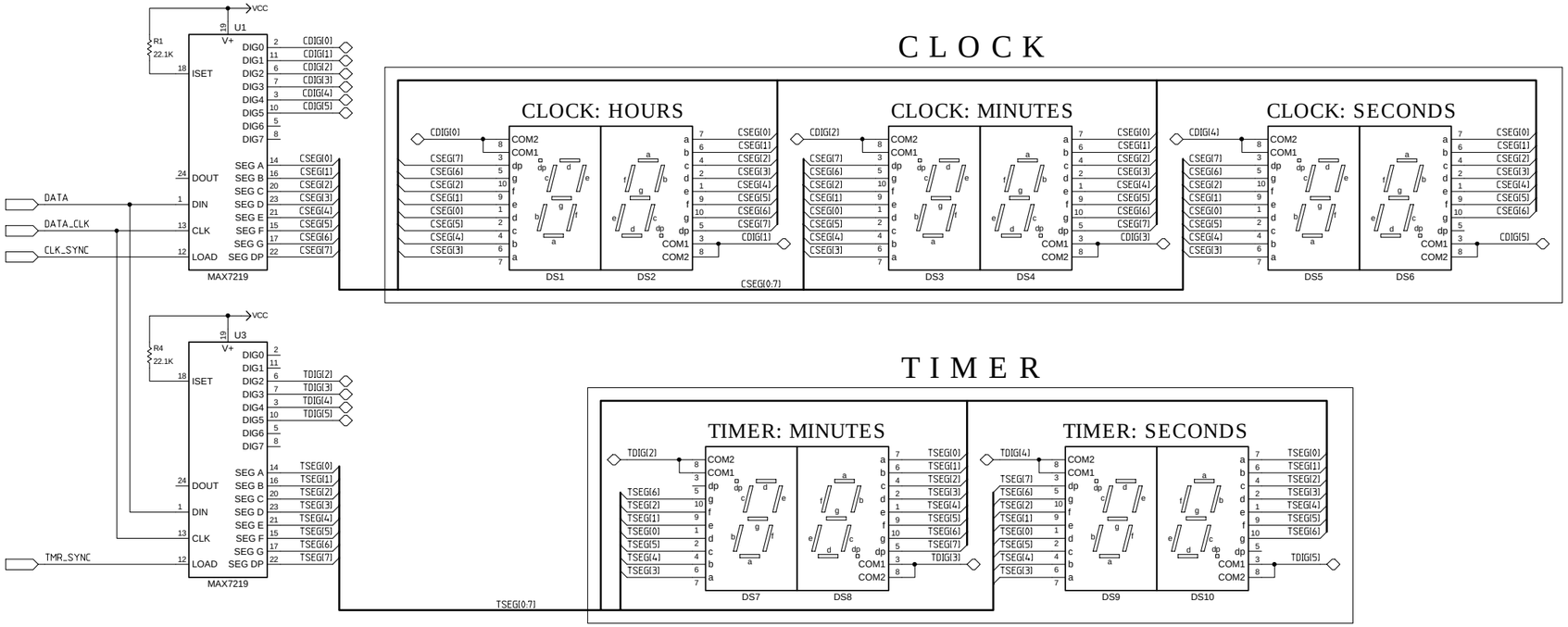


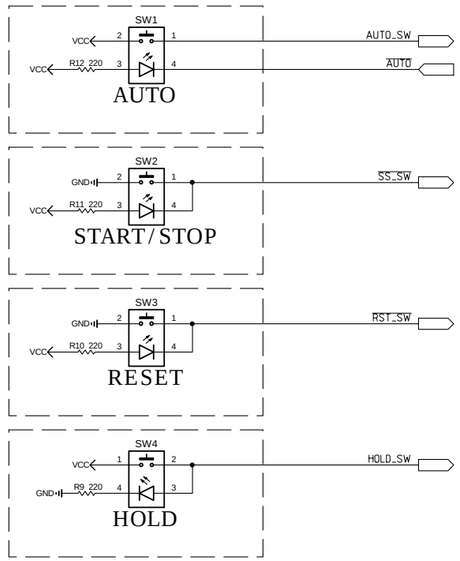


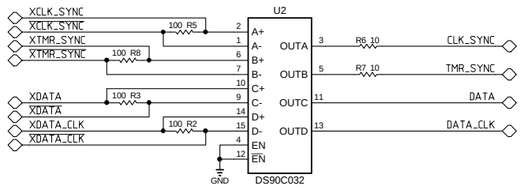
CONTRACT NO.		CLK-220	
APPROVALS	DATE	Wheatstone Corporation	
DRAWN SA	4-8-02	600 Industrial Drive	
CHECKED	SA	New Bern, NC 28562	
ISSUED	SA	SIZE D / FSCM NO. / DWG. NO. 29S0034 / REV E	
W# 700575		SCALE / CLK-220E PCB / SHEET 1 OF 1	

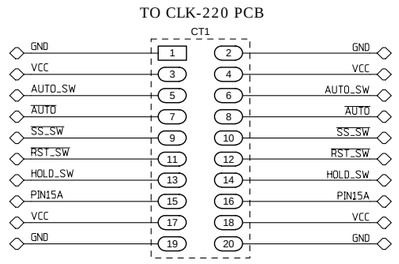


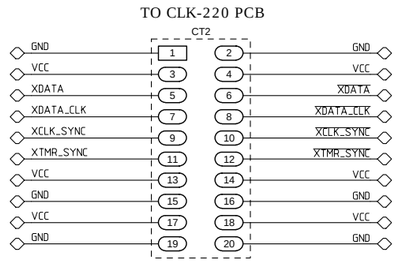
CLK-220 Timer - Load Sheet

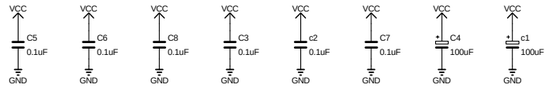






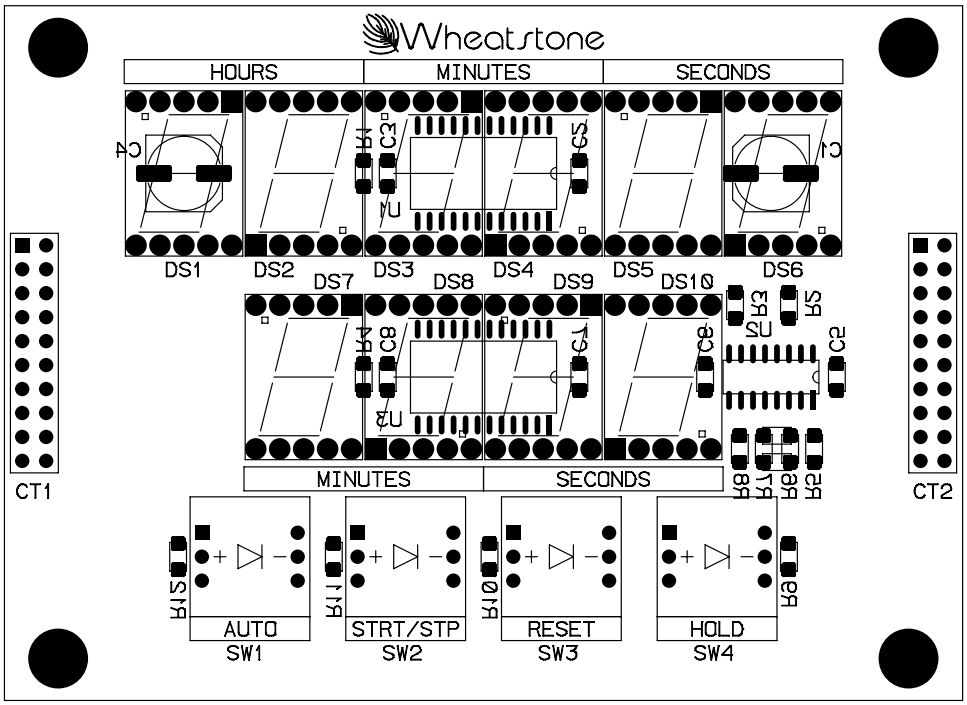




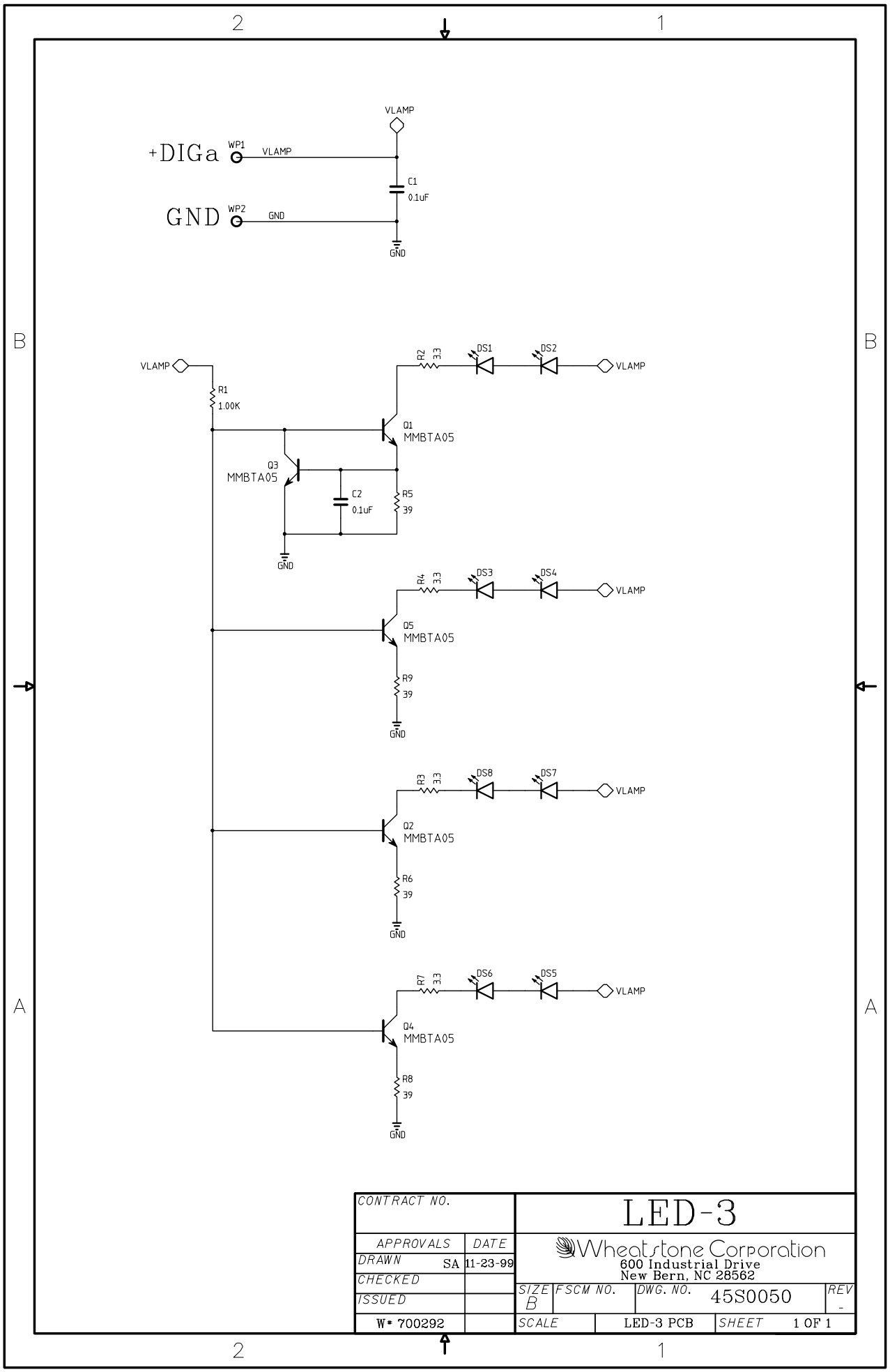


CONTRACT NO. - Sergey Averin -		CLD-220
APPROVALS	DATE	Wheatstone Corporation, 600 Industrial Drive, New Bern, NC 28562
DRAWN JBB	6-9-03	
CHECKED	SA	
ISSUED	SA	SIZE D / FSCM NO. / DWG. NO. 29S0024 / REV C
W# 700575		SCALE CLD-220D PCB / SHEET 1 OF 1

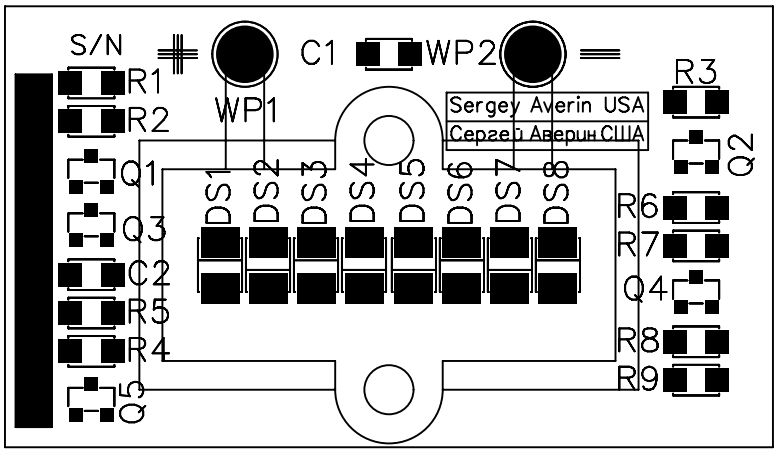
Clock/Timer Display Schematic Sheet 1 of 1



CLD-220 Timer Display - Load Sheet

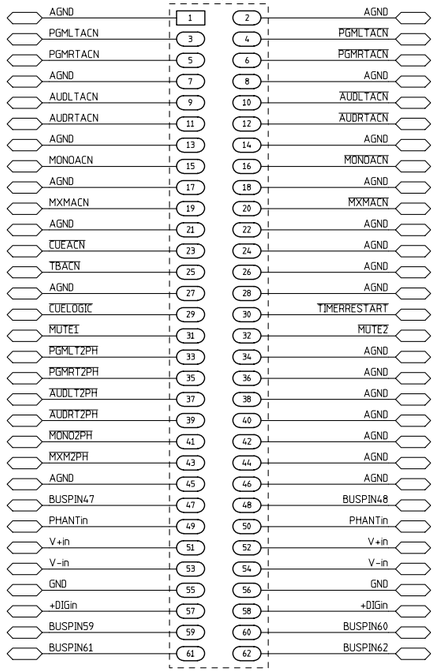


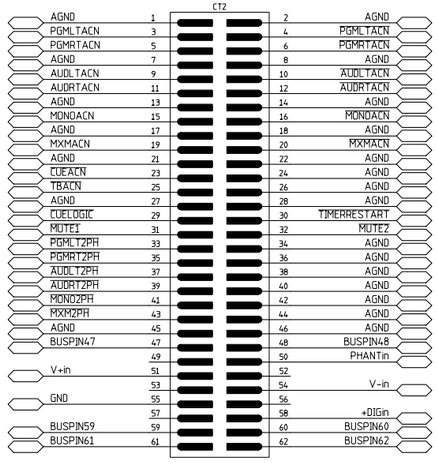
Meter Led Lamp Schematic - Sheet 1 of 1

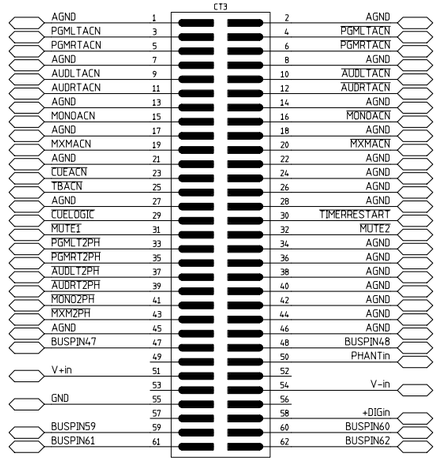


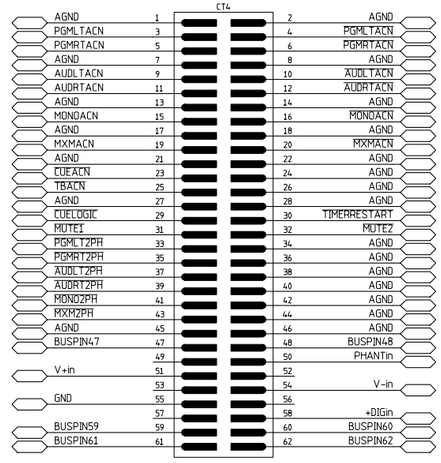
LED-3 Meter LED Lamp - Load Sheet

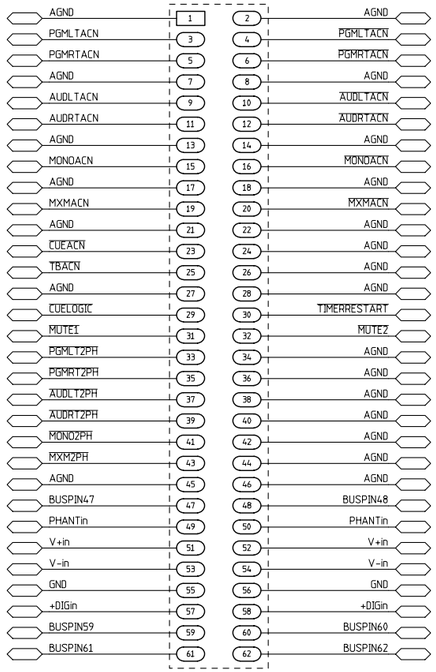
EDGE CONNECTORS BUSS CHART

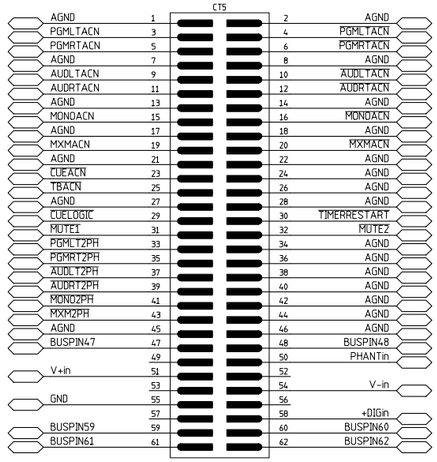


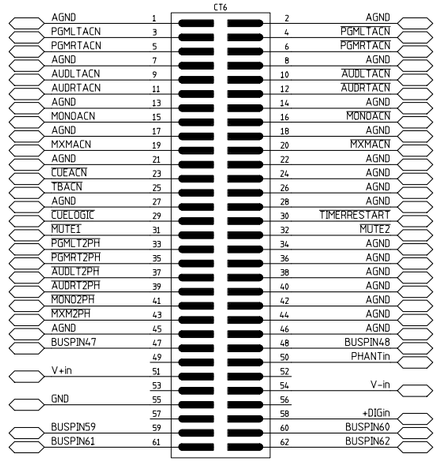


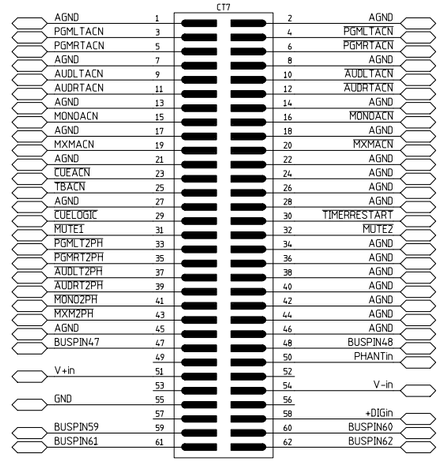




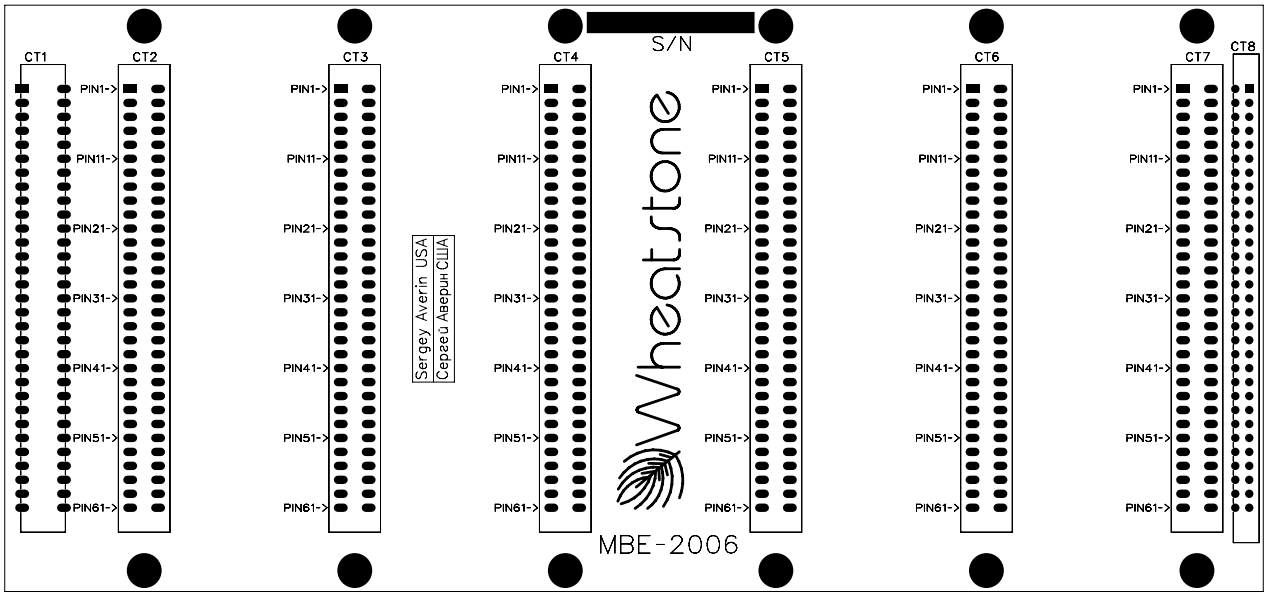








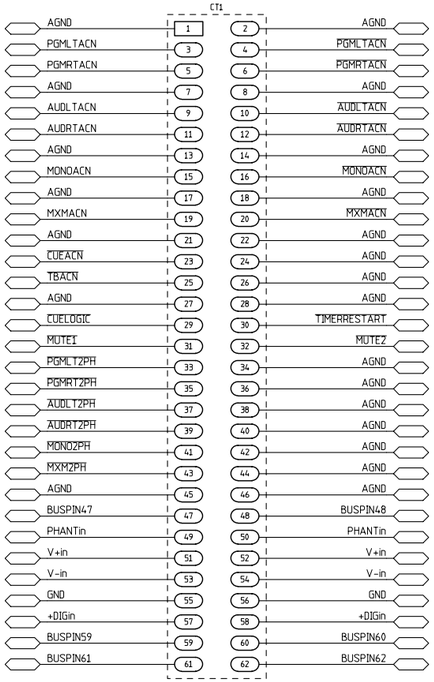
CONTRACT NO.		MBE-2606	
APPROVALS	DATE	Wheatstone Corporation 600 Industrial Drive New Bern, NC 28562	
DRAWN SA	10-19-01		
CHECKED SA			
ISSUED SA		SIZE D / FSCM NO. / DWG. NO. 16S0004 / REV —	
W# 700651		SCALE MBE-2606 PCB / SHEET 1 OF 1	

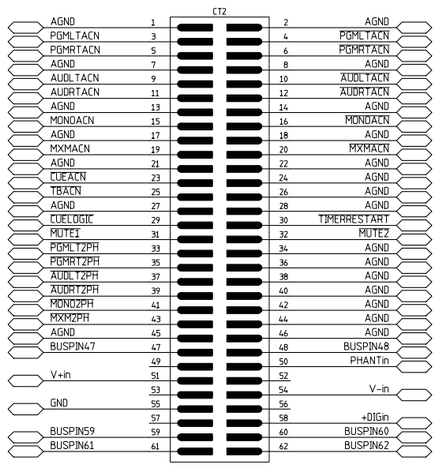


MBE-2006 6 Position Mother Board (Extender) - Load Sheet

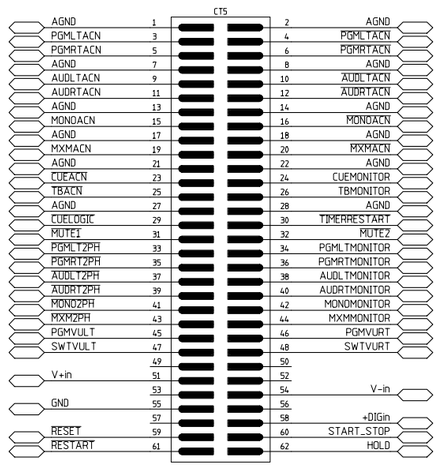
EDGE CONNECTORS BUSS CHART

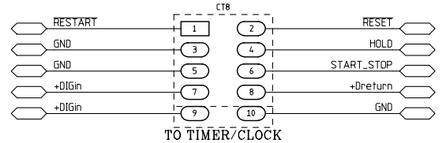
INPUT MODULE

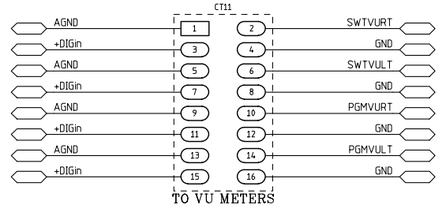




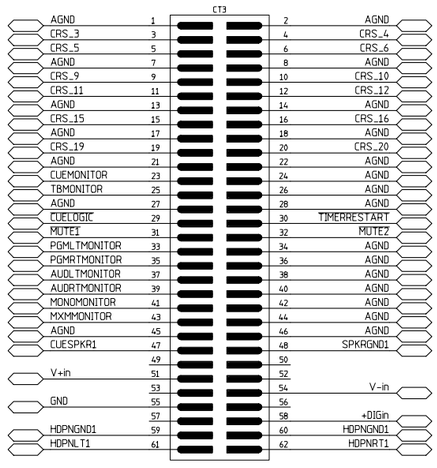
OUTPUT MODULE

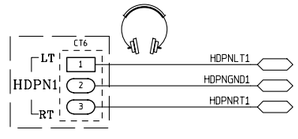


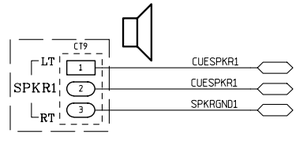




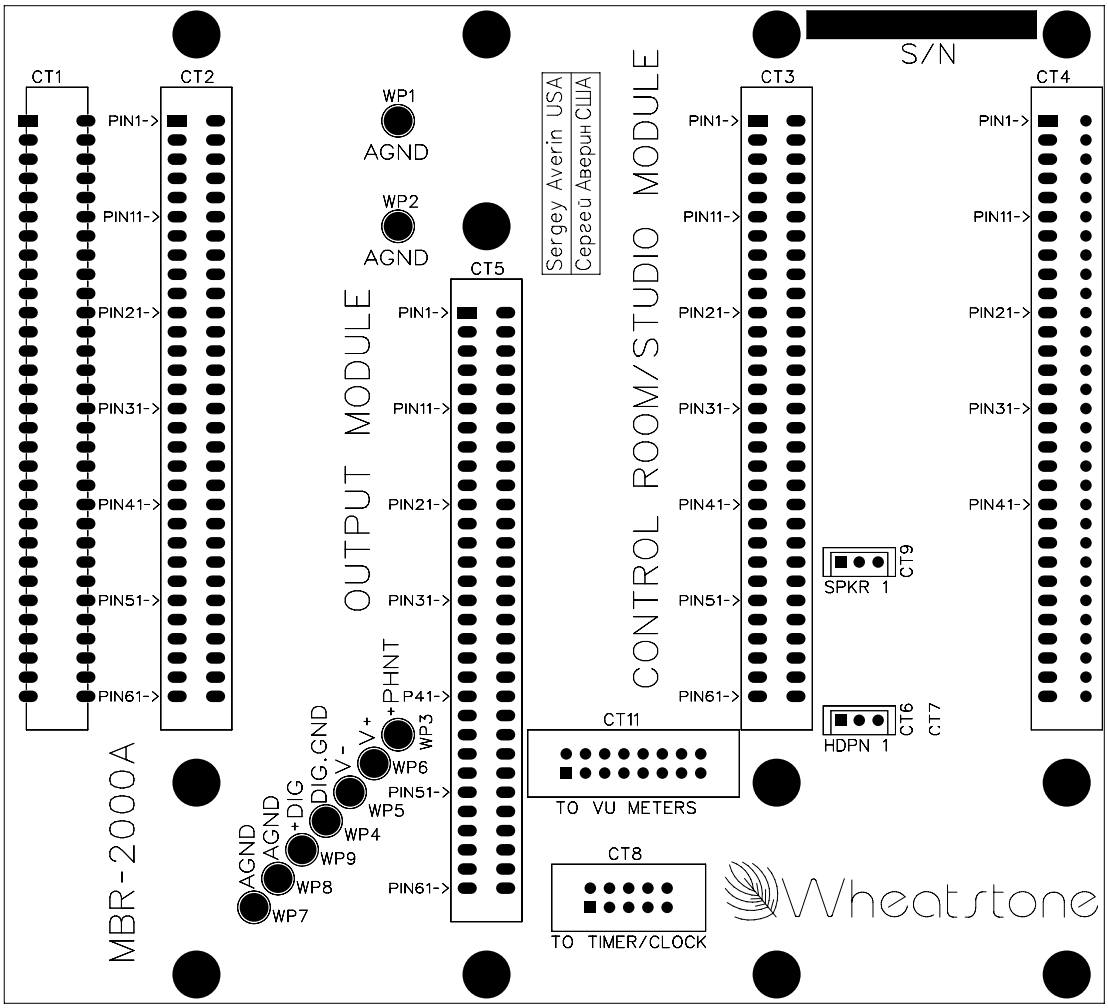
CR MODULE



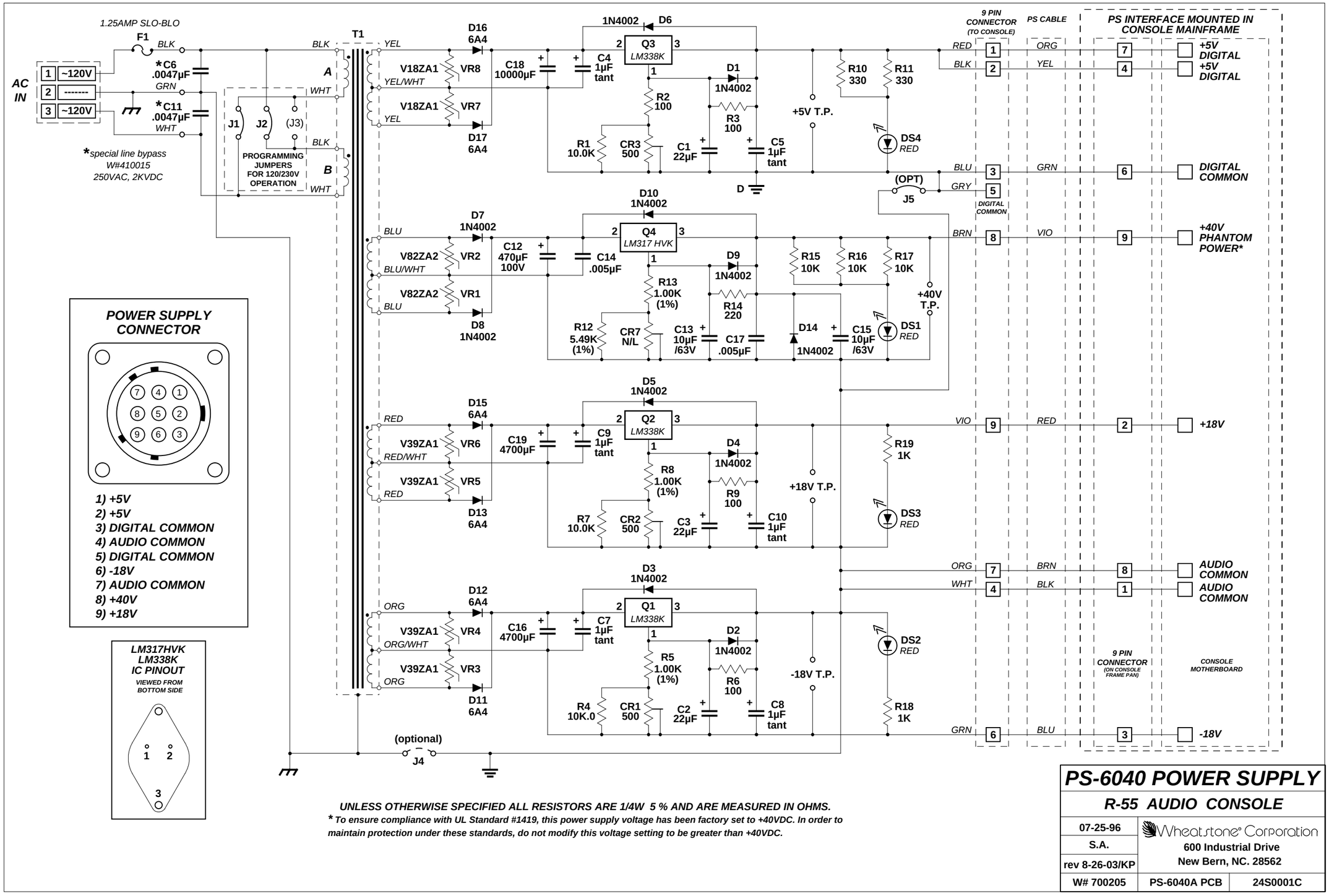




CONTRACT NO.		MBR-2000	
APPROVALS	DATE	Wheatstone Corporation 600 Industrial Drive New Bern, NC 28562	
DRAWN SA	4-25-02		
CHECKED	SA		
ISSUED	SA	SIZE D / FSCM NO. / DWG. NO. 16S0010 / REV A	
W# 700653		SCALE MBR-2000A PCB / SHEET 1 OF 1	



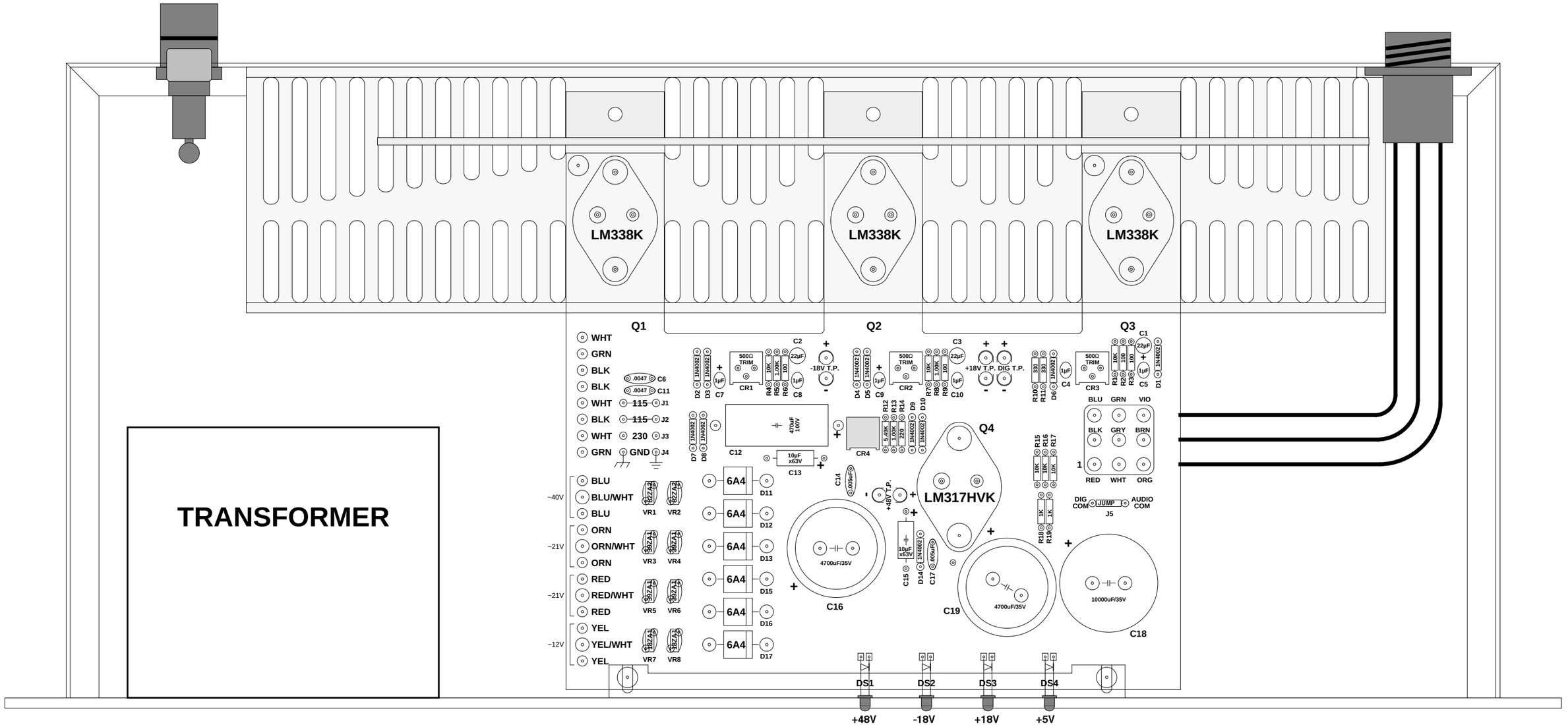
MBR-2000 4 Position Mother Board (Right) - Load Sheet



UNLESS OTHERWISE SPECIFIED ALL RESISTORS ARE 1/4W 5 % AND ARE MEASURED IN OHMS.

** To ensure compliance with UL Standard #1419, this power supply voltage has been factory set to +40VDC. In order to maintain protection under these standards, do not modify this voltage setting to be greater than +40VDC.*

PS-6040 POWER SUPPLY		
R-55 AUDIO CONSOLE		
07-25-96	Wheatstone® Corporation	
S.A.	600 Industrial Drive	
rev 8-26-03/KP	New Bern, NC. 28562	
W# 700205	PS-6040A PCB	24S0001C



100Ω
220Ω
1.00K
5.49K
10.0K
} 1%

WHEATSTONE CORP.
PS-6040A
LOAD SHEET
24L0014A