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GLOSSARY OF TERMS

The following terms are used in this section. To better understand the information presented in the section you should familiarize yourself with these terms.

100Base -TX - Twisted pair cabling used in an Ethernet network and in some installations provides video for the LCD screens. This cable type connects the Scorer Computer(s) and Control desk computer(s) to the Ethernet switch(es) allowing them to communicate. Some installations use this type of cabling to connect the scorer computer to the LCD touchscreens and overhead monitors. This cable is sometimes referred to a Cat5 cable because category 5 communication wiring is used to make the cable. Also refer to Ethernet Switch.

BIOS (Basic Input/Output System) - A program stored in a EPROM (erasable programmable read-only memory) chip located on the Motherboard. This program controls how information is transferred between the components and circuit boards inside a computer.

Distribution PCB - A circuit board located behind the pin camera on each lane pair that provides power for the pin camera, controls machine on/off and reset, and handle signals needed for scoring such as foul, sweep switch, and ball detector signals. It can also control AMF short cycle and bumpers as needed. This PCB is not present in GS-Series Pinsetter installations.

Ethernet - A protocol that specifies how computers send information to one another.

Ethernet Switch - Device that is the central point of connection for the scorer computer(s) and Control desk computer(s) in the Ethernet network. The Switch allows data to be sent/received at full transmission speeds. Also refer to 100Base-TX.

Hard Drive - A computer's primary storage device. The hard drive contains the programs and files that make the computer function.

LCD Interface PCB - A circuit board in the Scorer Computer that adapts the scoresheet video so that it can be displayed on the lower touchscreen displays.

Motherboard - A circuit board inside a Scorer Computer or Control Desk Computer that contains the microprocessors and memory. The hard drives and most of the other PCBs in the computer connect to this board. (Also referred to as the System Board).

PCI Bus - Peripheral Component Interface Bus - A design or protocol used in many computers that defines how circuit boards connect to and use the resources provided by the motherboard. These are the medium sized, white-colored slot connectors on the motherboard. The Video3 PCBs connect to the motherboard through these slots.

Power Supply - An assembly located inside a computer that provides power to the components inside the computer, the Vector camera assembly and the Vector keypads.

Primary Patch Panel - A pair of boards mounted to the bottom of the Scorer Computer that provides connection points and surge protection for the overhead monitors, Keypad/Touchscreen, Distribution PCB/GS Pinsetter and Brunswick automated bumpers. The primary patch panel has connections for 8 lanes.

RAM (Random Access Memory) - A short term storage area for information in a computer. Most computers have this type of memory installed on small circuit boards called DIMMs.

RS-232 - The most popular type of serial communication used by computers. This type of communication allows a computer to talk to a single specific device through a 9-pin connector called a comport. Each device that the computer “talks” to will have its own dedicated comport.

RS-232 Converter - A small box used in the Vector system to translate between RS-232 and RS-485 communication. These boxes are needed for GS-Series Pinsetters and Brunswick automated bumpers.

RS-485 - A type of serial communication that allows a computer to talk to a multiple devices using one “shared” comport. Also refer to Serial Communication.

Video3 PCB - A multifunctional circuit board located in a Scorer Computer. This board processes and controls the video for the display monitors, processes the video received from the pin cameras, and provides communication for the pinsetters (Distribution PCB) and communication and audio control for the scoring consoles.

If LCD touchscreens are installed a second Video3 PCB is installed to process the video the lower screens.

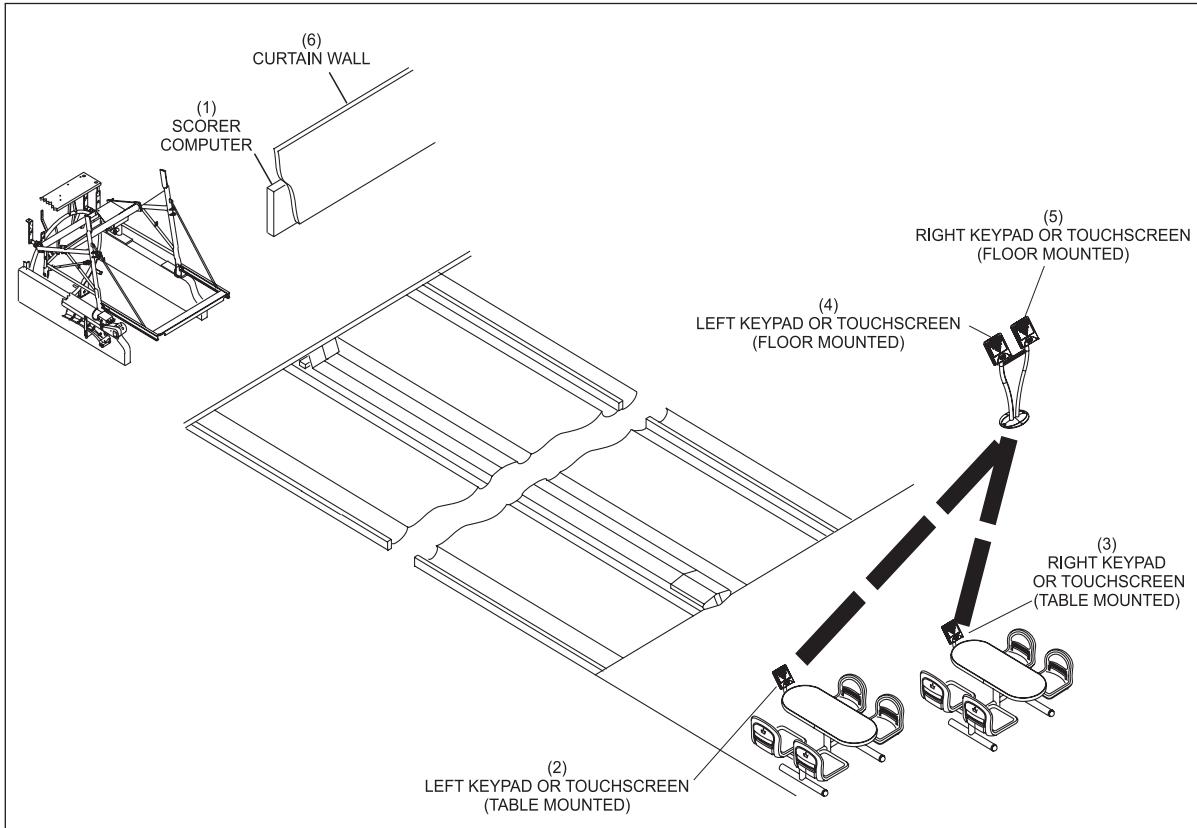
Scorer Computer - Computer(s) located at the curtain wall that control the scoring functions for up to 8 lanes.

Secondary Patch Panel - An optional circuit board mounted on the right side wall of the Scorer Computer that provides connections and surge protection for the lower LCD video. The Secondary Patch Panel has connections for up to 8 monitor. This board is only installed when low LCD monitors are used.

Serial Communication - A popular means of transmitting data between a computer and another device. In the Vector system two types of serial communication are used; RS-232 and RS-485. Also refer to RS-232 and RS-485.

VECTOR SCORER OVERVIEW

Two configurations are available in the Vector-HD scoring system; Keypad or LCD Touchscreens (Flatscreens). For the Keypad configuration two identical keypads are used for each lane pair. These keypads are full-function keyboards that allow the bowler to enter all information needed to begin bowling and change or correct information once bowling has begun. Entry options include names, score correction, language selection, and other special features. A Scorer Computer mounted on the curtain wall contains the electronics that control scoring and other functions. The scoring computer can control the functions for up to 8 lanes. Refer to figure titled *Vector Configurations*



Vector Configurations

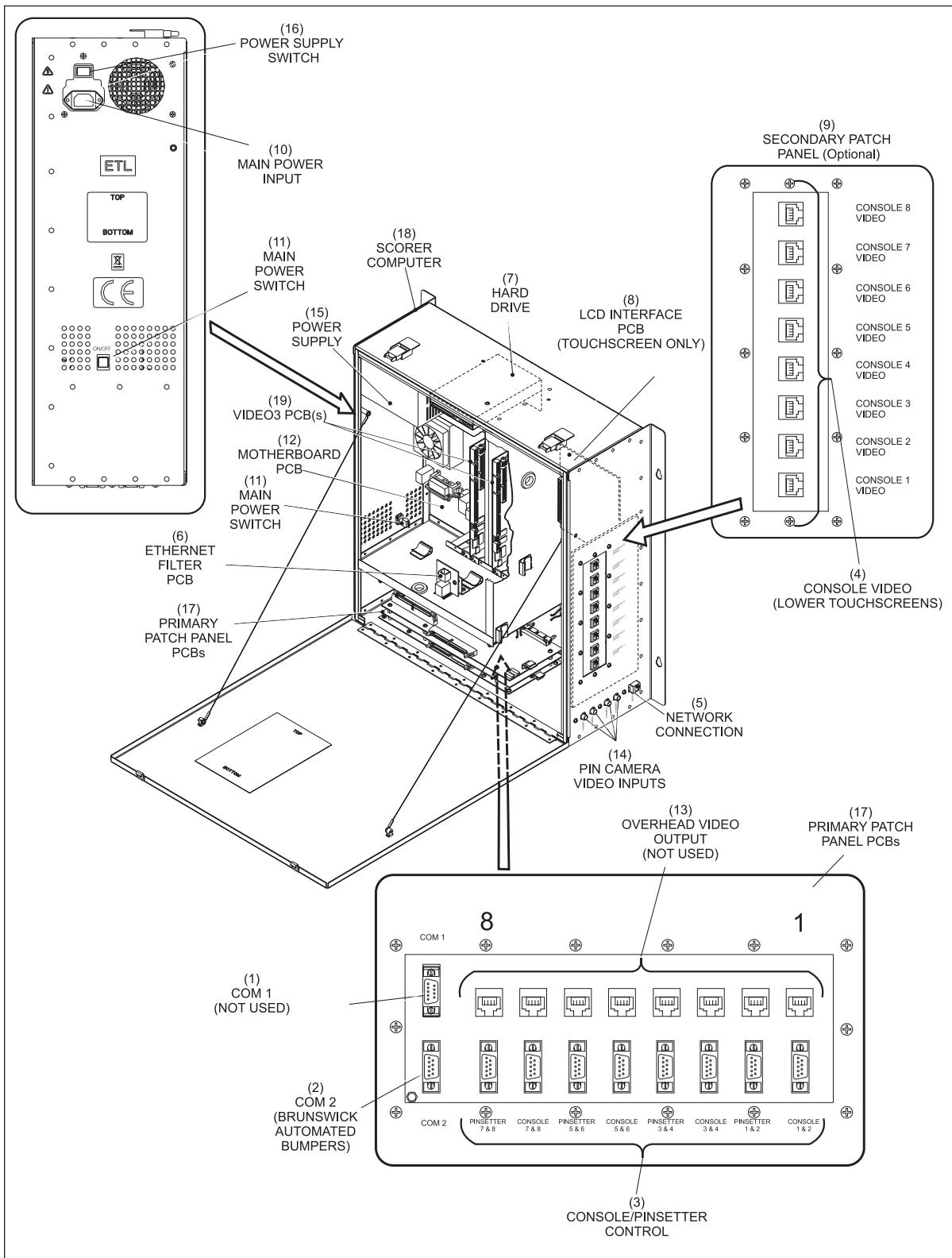
- | | | |
|--|--|---|
| (1) SCORER COMPUTER | (2) LEFT KEYPAD OR TOUCHSCREEN (TABLE MOUNTED) | (3) RIGHT KEYPAD OR TOUCHSCREEN (TABLE MOUNTED) |
| (4) LEFT KEYPAD OR TOUCHSCREEN (FLOOR MOUNTED) | (5) RIGHT KEYPAD OR TOUCHSCREEN (FLOOR MOUNTED) | (6) CURTAIN WALL |

Scorer Computer

The scorer computer(s) located at the curtain wall control scoring functions for up to 8 lanes. The number and type of printed circuit boards (PCBs) housed inside the Scoring Computer depends on whether the center has lower LCD Touchscreens or Keypads, the model of motherboard installed in the scorer computer, and the version of the scorer computer.

All Scorer Computers includes a Motherboard, a Video3 PCB, and a pair of boards that make up the Primary Patch Panel. When lower LCD touchscreens are installed, a second Video3 PCB, an LCD Interface PCB and a Secondary Patch Panel, are added to the computer to provide video for the lower screens.

Additional components used in all configurations include a power supply and a hard disk drive. Refer to the figure titled *Scorer Computer for Vector-HD* (on following page).



Scorer Computer For Vector-HD

The function of the circuit boards, components and connections for the Scorer Computer include:

- (1) **Com 1 - Not Used**
- (2) **Com 2 (Brunswick Automated Bumpers)** - Output used to communicate to Brunswick's optional automated bumper system. The bumpers are "told" to raise or lower through this connection.
- (3) **Console/Pinsetter Control** - Connections for console Keypads or Touchscreens and Distribution PCBs or GS Pinsetters for up to 8 lanes. The console connections provide input from the keypads or touchscreens as well as power for keypads. The pinsetter control connections provide communication and power for the Distribution PCBs or communication for GS pinsetters. Refer to (17) *Primary Patch Panel*.
- (4) **Console Video (Lower Touchscreens)** - RJ-45 video output connections to the lower flatscreens for up to 8 lanes. Refer to (9) *Secondary Patch Panel (Optional)*.
- (5) **Network Connection** - The connection point for the 100Base-TX (Cat5) cable from the Ethernet Switch.
- (6) **Ethernet Filter PCB** - A circuit board that provides filtering for the Ethernet signal.
- (7) **Hard Drive** - The hard drive contains windows operating system and the Vector programming for the Scorer Computer.
- (8) **LCD Interface PCB (Touchscreen installations only)** - A circuit board that adapts the scoresheet video so that it can be displayed on the lower flatscreen displays.
- (9) **Secondary Patch Panel (Optional)** - An optional circuit board mounted on the inside side wall of the Scorer Computer that provides connections and surge protection for the lower LCD video. The Secondary Patch Panel has either RJ-45 connectors to handle up to 8 lanes Refer to (4) *Console Video (Touchscreen only)*.
- (10) **Main Power Input** - 120VAC or 240VAC main input power for the Power Supply. Refer to (20) *Voltage Selector* and (15) *Power Supply*.
- (11) **Main Power Switch** - Power switch for the Scorer Computer. Pressing this button turns the Scorer Computer On/Off .
- (12) **Motherboard** - (Also referred to as the System Board). This circuit board provides memory and processing capability for the scorer computer, interfaces the hard drive, sound circuits for the exciter audio and Ethernet capability. The Video3 PCBs plug into this board.
- (13) **Overhead Video Output (Not Used)** - RJ-45 type scorer video connections to the overhead monitors used only for Vector-SD installations to provide standard definition scorer video for up to 8 overhead monitors. The connectors are not used for installations with Vector-HD. Refer to (17) *Primary Patch Panel*.

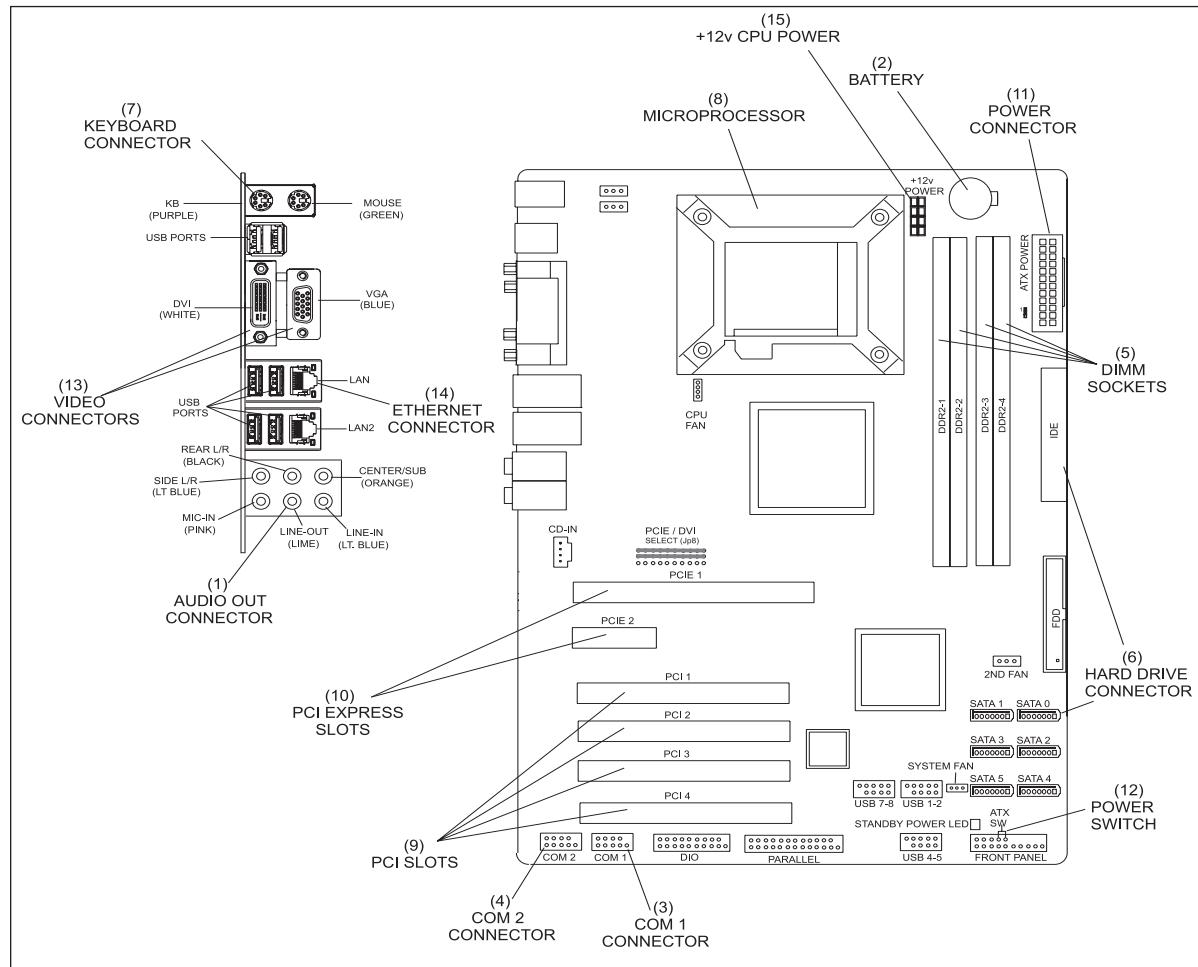
- (14) **Pin Camera Video Inputs** - Connections for the video signal coming from the pin cameras for up to four lane pairs. These connections are not used when on lanes with GS-Series Pinsetters.
- (15) **Power Supply** - This assembly provides power to the components inside the Scorer Computer, Distribution PCBs and Vector Keypads. Input to the power supply can be 120 VAC or 240 VAC. Its output is 5 VDC and +/- 12 VDC.
- (16) **Power Supply Switch** - Switch for the Power Supply unit. Turning this switch off disables the power supply and removes power from the motherboard.
- (17) **Primary Patch Panel PCBs** - A pair of circuits board mounted to the bottom of the Scorer Computer that provides connections and surge protection for the overhead monitor's video and the communication signals for the Keypad/Touchscreen and Distribution PCB/GS Pinsetter. The panel consists of a processor board and a connection board. The connection board has RJ-45 type connectors that provide standard definitions video to the widescreen overhead monitors in for Vector-SD systems. The primary patch panel has connections for 8 lanes. Refer to *(13) Overhead Video* and *(3) Console/Pinsetter Control*.
- (18) **Scorer Computer** - Computer(s) located at the curtain wall that control the scoring functions for up to 8 lanes.
- (19) **Video3 PCBs** - This board processes and controls the video for the overhead monitors, processes the video received from the pin cameras, and provides communication for the pinsetters (Distribution PCB) and communication/audio control for the keypads/touchscreens. If touchscreens are installed a second Video3 PCB is used to provide video for the lower screens.

Motherboard

The Vector Scorer Computer uses high performance industrial motherboards as its main PCB. Since January 2012 the ITOX model BL630D equipped with an Intel 2.4GHZ or later processor along with at least 512MB of RAM has been used in the scorer computer.

The motherboard is responsible for processing information, making calculations and supplying power and memory for the boards plugged into its PCI Bus. The board also has integrated circuits that allow it to interface to the Scorer Computer hard drive, process the exciter audio used when the exciter graphics are displayed, and monitor the system's temperature, voltage, and cooling fans.

The onboard video capability is used to configure the motherboard and troubleshoot the scorer computer. Model BL630D also include onboard Ethernet. Refer to the figure titled *Vector Motherboard - ITOX BL630D*.



Vector Motherboard - ITOX BL630D

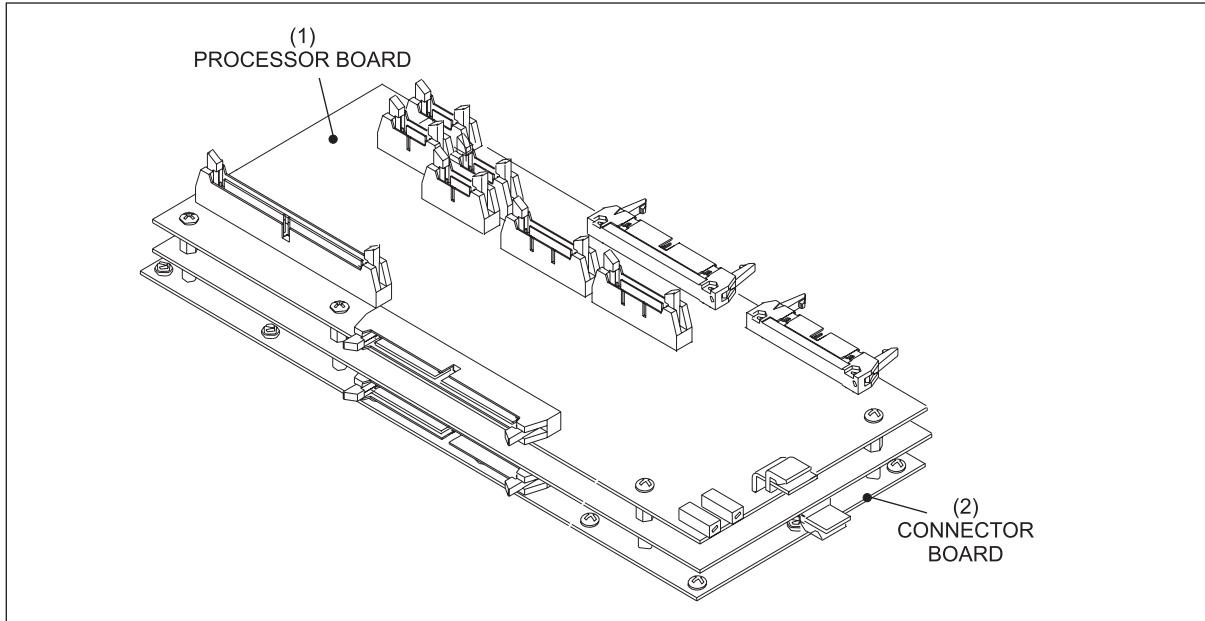
The function of the main components on the Motherboard Model BL630D are:

- (1) **Audio Out Connector** - Connector to the Primary Patch Panel for the exciter audio. The audio is then routed to the scorer consoles as needed.
- (2) **Battery** - Provides battery backup for setup information stored in CMOS memory so that it is retained in case of a power outage.

- (3) **Com 1 Connector** - Not Used
- (4) **Com 2 Connector** - This connector is used to communicate to optional Brunswick automated bumpers.
- (5) **DIMM Sockets (Dual Inline Memory Module)** - Connectors where the RAM is installed.
- (6) **Hard Drive Connector** - Connection for the Scorer computer's hard drive. When a SATA (serial interface) hard drive is used, connect the data cable from the SATA drive to the connection labeled *SATA 0*. If a PATA (parallel interface) hard drive is used, connect the blue "System" connector of the data cable attached to the PATA drive to the connection labeled *IDE*.
- (7) **Keyboard Connector** - Connection for a standard computer keyboard that can be used when configuring the motherboard BIOS or to maintain the Scorer Computer.
- (8) **Microprocessor** - The chip responsible for processing of information for the Scorer Computer.
- (9) **PCI Slots (Peripheral Component Interconnect Slots)** - This term refers to a group of white connectors located on the motherboard where the other circuit boards plug into. These connectors provide the boards with access to data and memory, the microprocessor, and to each other. The boards also receive power through the connector. For motherboard BL630D, the Video3 pcb(s) plug into these connectors.
- (10) **PCI Express Slots** - Not Used
- (11) **Power Connector** - Connector for the +5VDC, +12VDC, and -12VDC coming from the power supply.
- (12) **Power Switch** - Connection for the push button power switch located on the left side of the Scorer Computer.
- (13) **Video Connectors** - Connection for a standard computer monitor that can be used to set up the motherboard BIOS and to troubleshoot scorer computer problems. Normally the VGA connection is used to connect the monitor but the DVI can be used as an alternative .
- (14) **Ethernet Connection** - The 100Base-TX cable from the Network Connector located on the right side of the Scorer Computer attaches to the motherboard at this connector allowing the Scorer Computer to communicate with the control desk system. Although the BL630 motherboard provides two network circuits always use the one closest to the video connectors (LAN 1). Do not use the one closest to the audio connectors (LAN 2).
- (15) **+12 CPU Power** - 12V input form the power supply that provides additional current for the processor.

Primary Patch Panel

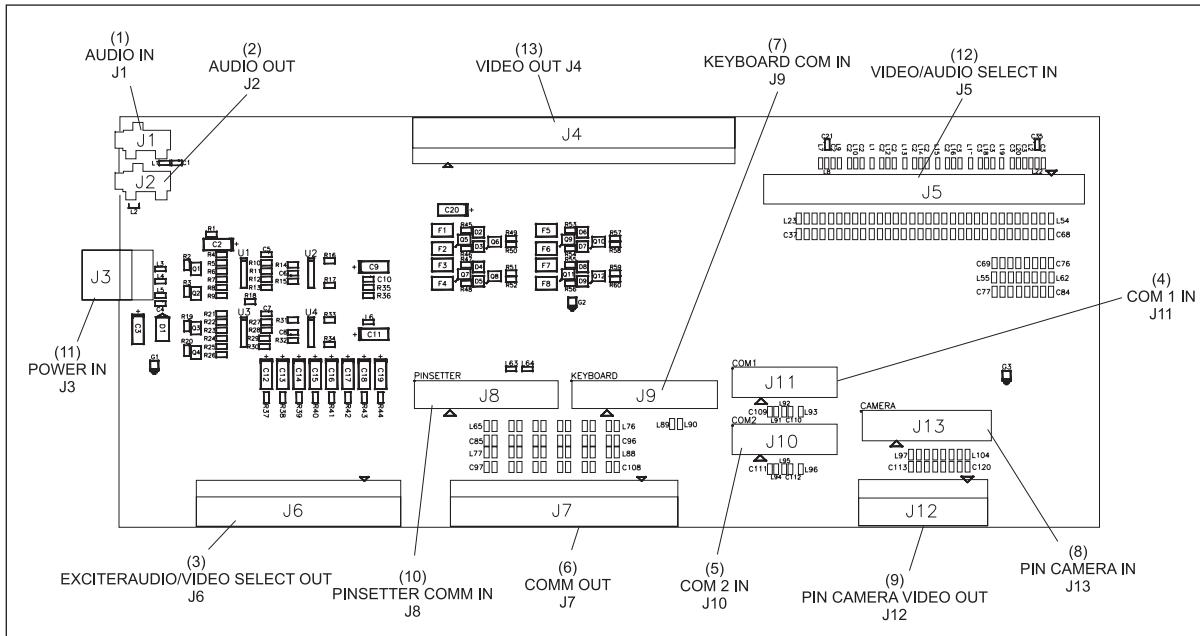
The Primary Patch consists of two circuit boards. The processor board contains circuits for noise suppression, controlling to which console the exciter audio will be sent, and adapting the video so that it can be sent over Cat5 (Ethernet) cabling. The primary patch panel has connections for 8 lanes. Refer to figures titled *Primary Patch Panel*, *Primary Patch Panel - Processor Board* and *Primary Patch Panel - Connector Board*.



Primary Patch Panel

(1) PROCESSOR BOARD PCB

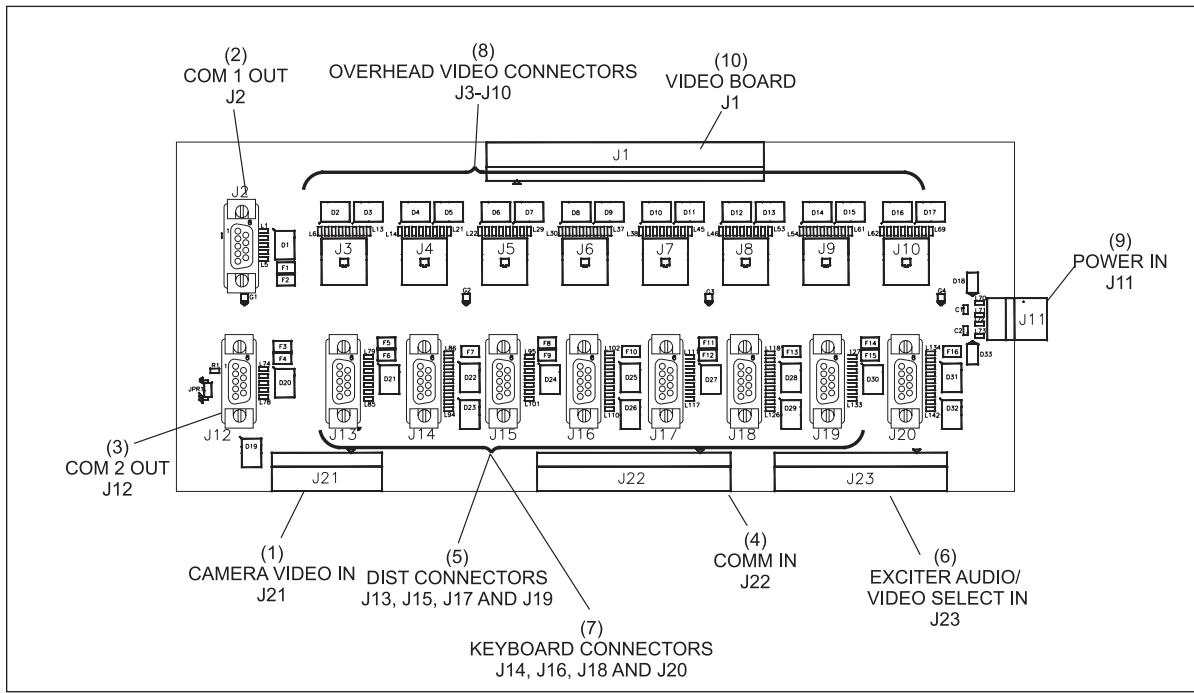
(2) CONNECTOR PCB



Primary Patch Panel - Processor Board

The functions of the connectors on the Primary Patch Panel Processor board used in Scorer Computer are:

- (1) **Audio In (J1)** - Connection for the exciter audio coming from the motherboard. The board applies the audio signal to one of eight lines leaving the board at J6. Which lane gets the audio is determined by the Video3 PCB.
- (2) **Audio Out (J2)** - Not used.
- (3) **Exciter Audio / Video Select Out (J6)** - Output for the exciter audio signal that entered the board at J1 and the video select signals that entered the board at J5. These signals route to the connector PCB. The audio is sent to the keypad/touchscreen. The video select signal is used to switch the CRT overheads between scoresheet and TV. *See (1) Audio In (J1) and (12) Video/Audio Select In (J5)*
- (4) **COM 1 In (J11)** - Input for the COM1 signal originating at the motherboard. This signal is routed through the processor board along with the other communication signals to J7. Com 1 is currently not used for Vector-HD Scoring. *See (6) Comm Out (J7)*.
- (5) **COM 2 In (J10)** - Input for the COM 2 signal originating at the motherboard. This signal is routed through the processor board along with the other communication signals to J7. Com 2 is used to control Brunswick automatic bumper systems. *See (6) Comm Out (J7)*.
- (6) **Comm Out (J7)** - Output connection for the communication signals that entered the board at the Com1 (J11), Com2 (J10), Keyboard (J9) and Pinsetter (J8) connections. These signals are cabled to J22 of the patch panel connector board. *See (4) Com 1 In (J11), (5) Com 2 In (J10), (10) Pinsetter Comm In (J8), (7) Keyboard Comm In (J9)*.
- (7) **Keyboard Comm In (J9)** - Input for the communication signals originating at the Video3 that used to “talk” to the console keyboards (or touchscreens). The signals are routed through the processor board along with the other communication signals to J7. *See (6) Comm Out (J7)*.
- (8) **Pin Camera Video In (J13)** - Not used.
- (9) **Pin Camera Video Out (J12)** - Not used.
- (10) **Pinsetter Comm In (J8)** - Connection for the communication signals originating at the Video3 that are used to “talk” to the distribution PCB or GS pinsetters. The signals are routed through the processor board along with the other communication signals to J7. *See (6) Comm Out (J7)*.
- (11) **Power In (J3)** - +12VDC power input for the board. Although the power supply unit provides both +12VDC and +5VDC, only the +12VDC is used.
- (12) **Video/Audio Select In (J5)** - Connection for the standard definition video signals and exciter audio selection signals originating at the Video3 PCB. The video signals are routed to the Video Out connection (J4). The exciter audio selection signals are used by the board to determine which lane gets the exciter sound. This signals going into this connection are currently not used for Vector-HD Scoring. Refer to (11) Video Out (J4) and (3) Exciter Audio/Video Select Out (J6).
- (13) **Video Out (J4)** - Connections for the standard definition scoresheet video and the TV/ Scoresheet select signal for the upper CRT monitors. The signals are routed to J1 of the patch panel connector board. This signals leaving this connection are currently not used for Vector-HD Scoring. *See (10) Video/Audio Select In (J5)*.



Primary Patch Panel - Connector Board

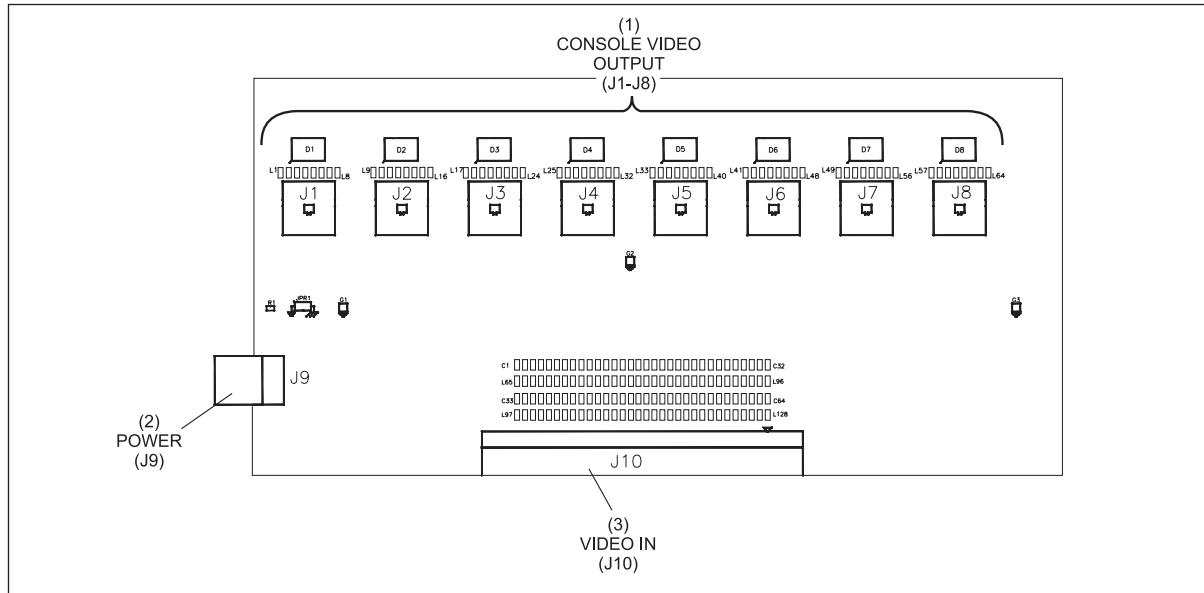
The functions of the connectors on the Primary Patch Panel Connector board used in Scorer Computer are:

- (1) **Camera Video In (J21)** - Not Used
- (2) **COM 1 Out (J2)** - Not Used
- (3) **COM 2 Out (J12)** - Output used to communicate to the optional Brunswick automated bumper system. The bumpers are “told” to raise or lower through this connection.
- (4) **Comm In (J22)** - Connection for the communication signals coming from J7 of the Primary Patch Panel Processor board. The communication signals are routed to the DIST connectors (J13, J15, J17, J19), Keyboard connectors (J14, J16, J18, J20), Com2 (J2) and Com2 (J12) as appropriate.
- (5) **DIST Connectors (J13, J15, J17, J19)** - Connection for communication and power to the Distribution PCB located in the camera assembly. When GS pinsetters are installed these connections are used to communication with the GS Pinsetter electronics.
- (6) **Exciter Audio / Video Select In (J23)** - Connection for the exciter audio and video select signals coming from J6 of the processor board. The sound is routed to the keyboard connectors J14, J16, J18, and J20.
- (7) **Keyboard Connectors (J14, J16, J18, J20)** - Connections used to communicate to the Keypad/ Touchscreen and provide exciter audio to the lower Keypads or Touchscreens. Power for keypads are also supplied through this connection.
- (8) **Overhead Video Connectors (J3-J10)** - These RJ-45 connections provide standard definition scoresheet video for up to 8 overhead monitors. These connections are not used with Vector-HD.

- (9) **Power In (J11)** - Power input for the Board. The power supply unit provides +12VDC and +5VDC to the board through this connection.
- (10) **Video Board (J1)** - Input connection used to receive the standard definition video signals generated by the Video3 PCB. These signals are then routed to the Overhead output connectors to be used for Vector-SD. Refer to (8) *Overhead Video Connectors (J3-J10)*

Secondary Patch Panel

The Secondary Patch panel provides connections and surge protection for the lower LCD touchscreen's video. The secondary patch panel has connections for 8 lanes. This board is also referred to as the LCD Patch Panel. Refer to figure titled *Secondary Patch Panel*.



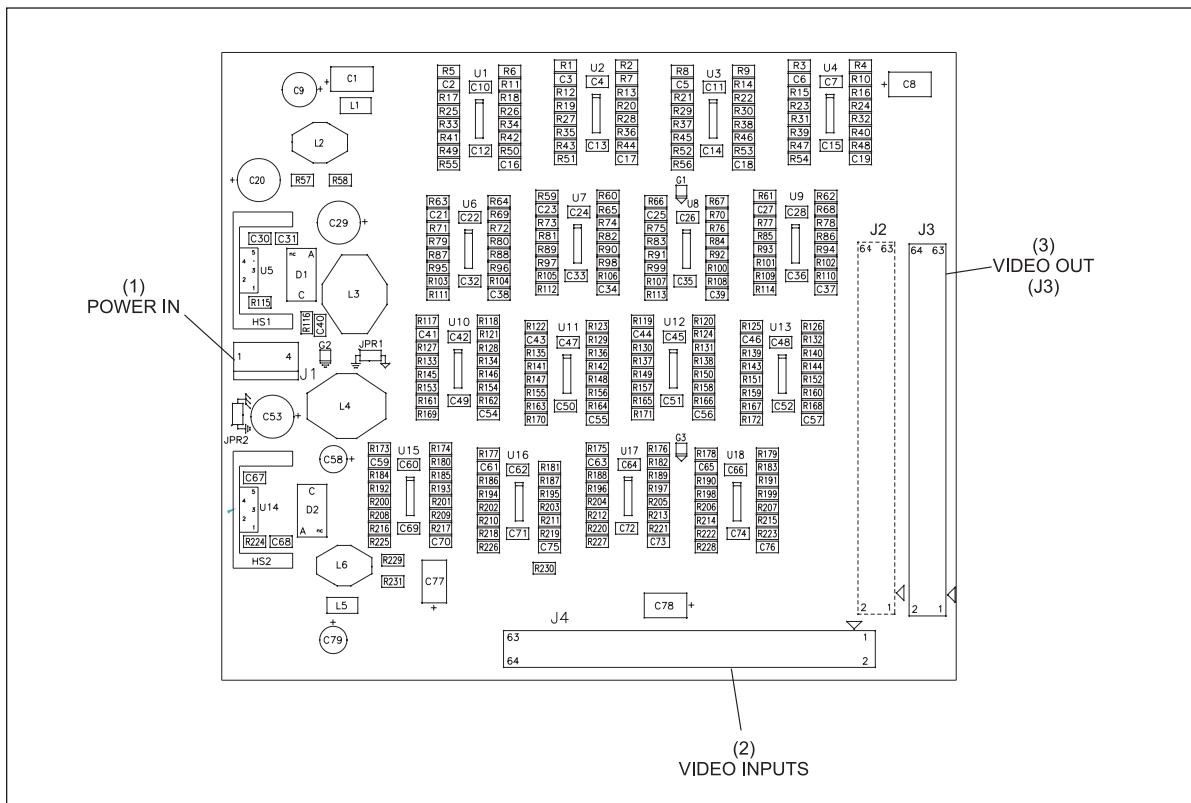
Secondary Patch Panel

The function of the connectors on the secondary patch panel are:

- (1) **Console Video Output (J1-J8)** - Connection for the scoresheet video signal to the lower LCD screens.
- (2) **Power In (J9)** - Power input for the Secondary Patch panel. Although the power supply unit provides an input of +12VDC and +5VDC, the board only uses the connector to provide a ground signals for the protection circuits.
- (3) **Video In (J10)** - Input connection for the console video signals coming from J3 of the LCD Interface PCB. These signals are then routed to the console output connectors. Refer to (1) *Console Video Output (J1 - J8)*

LCD Interface PCB

The LCD Interface PCB is used to adapt the video for the lower screens so that it can be displayed properly on the LCD flatscreens. The board receives 8 lanes of RGBS video from a Video3 PCB and converts the video intended for the lower LCD Screens. The signals for all eight lanes are converted and transferred to the Secondary Patch Panel through connector J3. Refer to figure titled *LCD Interface PCB*.



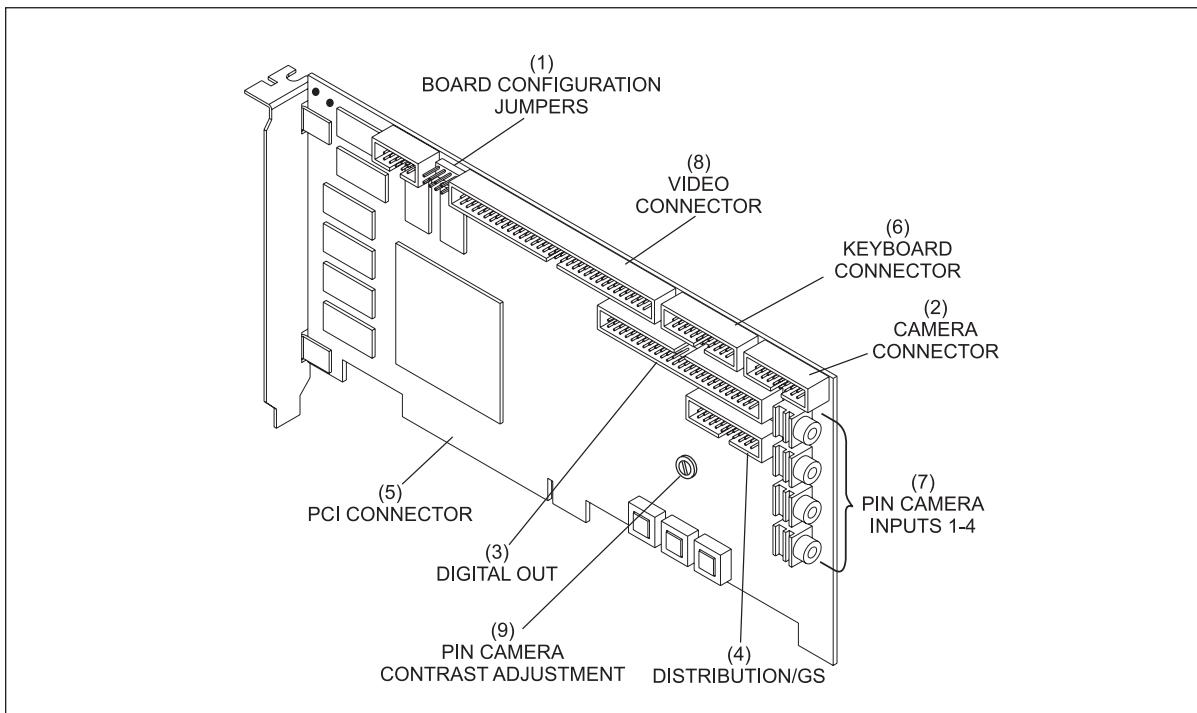
LCD Interface PCB

The functions of the connectors on the LCD Interface PCB are:

- (1) **Power In (J1)** - Connection for the incoming +12DC coming from the power supply unit.
- (2) **Video Inputs (J4)** - Input connection for 8 lanes of scorer video received from the Video3 PCB.
- (3) **Video Out (J3)** - Video output for 8 lanes of converted video for the Secondary Patch Panel. This connection is only present when the board is used in an 8 lane scorer computer.

Video 3 PCB

The Video3 PCB is a multifunction board. It provides standard definition video for the overhead monitors (Vector-SD only), processes the video received from the pin cameras, provides communication to the Distribution PCBs or GS pinsetters as needed, and provides communication and exciter audio control for the scoring consoles. If flatscreens are installed a second Video3 PCB used to process the video the lower screens. Refer to figure titled *Video3 PCB*.



Video3 PCB

The function of the connector and components on the Video3 PCB are:

- (1) **Board Configuration Jumpers (JP1, JP2, JP3, JP4)** - These jumpers are used to set the board ID and configuration. JP1 and JP2 are used to set the board ID while JP3 and JP4 are used to set the communication protocol. Set the jumpers as follows:

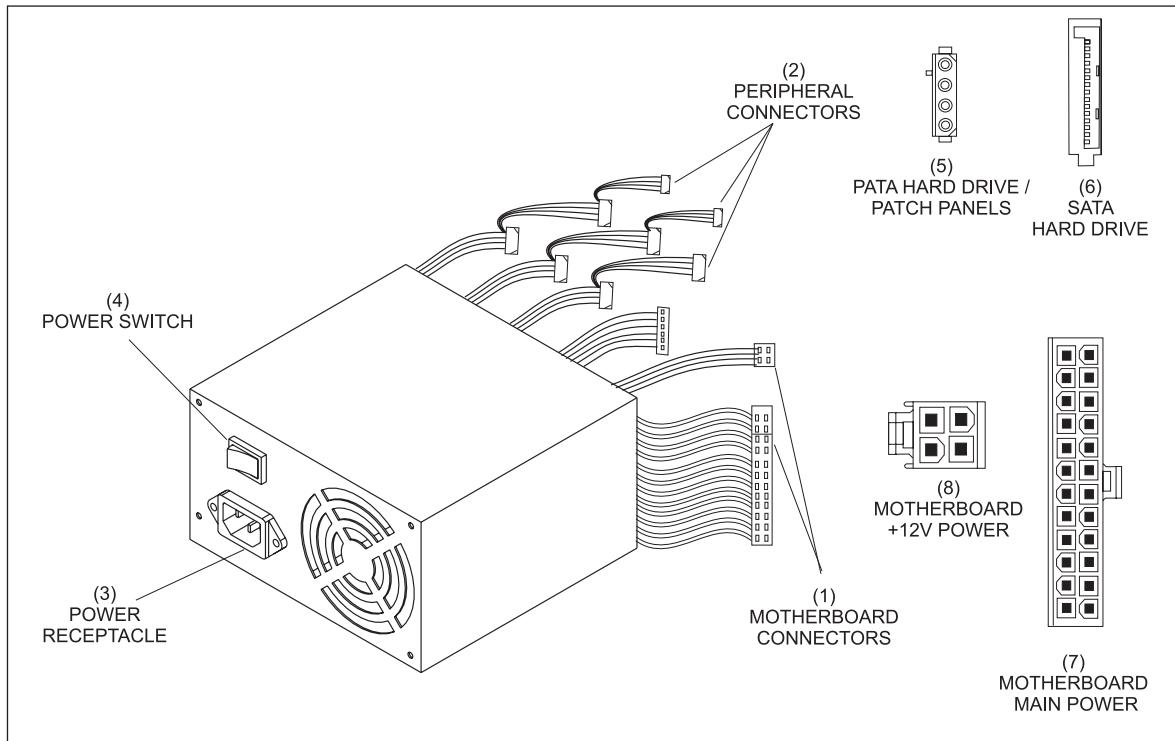
| SETTINGS | | | | |
|--------------------------------------|--------|---------|--------|--------|
| Board | JP1 | JP2 | JP3 | JP4 |
| Video3 PCB for Primary Patch Panel | Remove | Remove | Remove | Remove |
| Video3 PCB for Secondary Patch Panel | Remove | Install | Remove | Remove |

- (2) **Camera Connector** - Connections for the pin cameras. This connection is not used for the Video3 PCB that is connected to the secondary patch panel. See (7) *Pin Camera Input (1-4)*.
- (3) **Digital Out** - Not Used.
- (4) **Distribution / GS** - Connection that provides RS-232 communication signals for the Distribution board (or GS Pinsetter). This connection is not used for the Video3 PCB that is connected to the secondary patch panel.

- (5) **PCI Connector** - Connection to the motherboard.
- (6) **Keyboard Connector** - Connection that provides RS-232 communication signals for the keypad (or touchscreen). This connection is not used for the Video3 PCB that is connected to the secondary patch panel.
- (7) **Pin Camera Input (1-4)** - Not Used. An alternative method for connecting the pin cameras to the board. See (2) *Camera Connector*.
- (8) **Video Connector** - This connection provides the standard definition video and exciter audio select signals to the Primary Patch Panel board(s) or lower screen video to the LCD Interface PCB (Video3 PCB #2).
- (9) **Pin Camera Contrast Adjustment** - This adjustment controls the contrast level of the video image received from the pin cameras. If the pin image displayed on the pin setting page at the control desk is too bright or too dim, adjust this control as needed to provide a usable image.

Power Supply

The power supply in the Scorer Computer is a professional grade ATX power supply that provides DC voltage to all circuit boards inside the Scorer Computer motherboard, Primary Patch Panel, Secondary Patch Panel, LCD Interface PCB, Video3 PCBs, and hard drive. It also provides power to the Vector keypads and pin camera assemblies if installed. Input to the power supply can be 120 VAC or 240 VAC. The power supply do not have the voltage selection switch as they automatically configure themselves based on the supplied input voltage. The output is +5 VDC and +/-12 VDC. Refer to the figure titled *Power Supply*.



Power Supply

Functions of the components and connectors on the power supply are:

- (1) **Motherboard Connector** - The large 20 +4 connector (7) provides the DC voltage need to run the motherboard and the boards plugged into the PCI Bus. The 4-pin power connectors (8) provides the processor with additional 12DC power. Motherboard model BL630 requires 2 of these connectors or 1, 8-pin connector (not shown).
- (2) **Power Connectors** - Connectors used to supply DC voltage to the SATA hard drive (6) or PATA hard drive (5) and Primary Patch Panel, Secondary Patch Panel, Video3 PCBs, and the LCD Interface PCB (5) as needed.

i *NOTE: The power connections are used, as needed, based on what PCBs are located in the scoring computer.*

- (3) **Power Receptacle** - Connector for main power into the supply. Remove the cable attached to this receptacle before working inside the scoring computer.

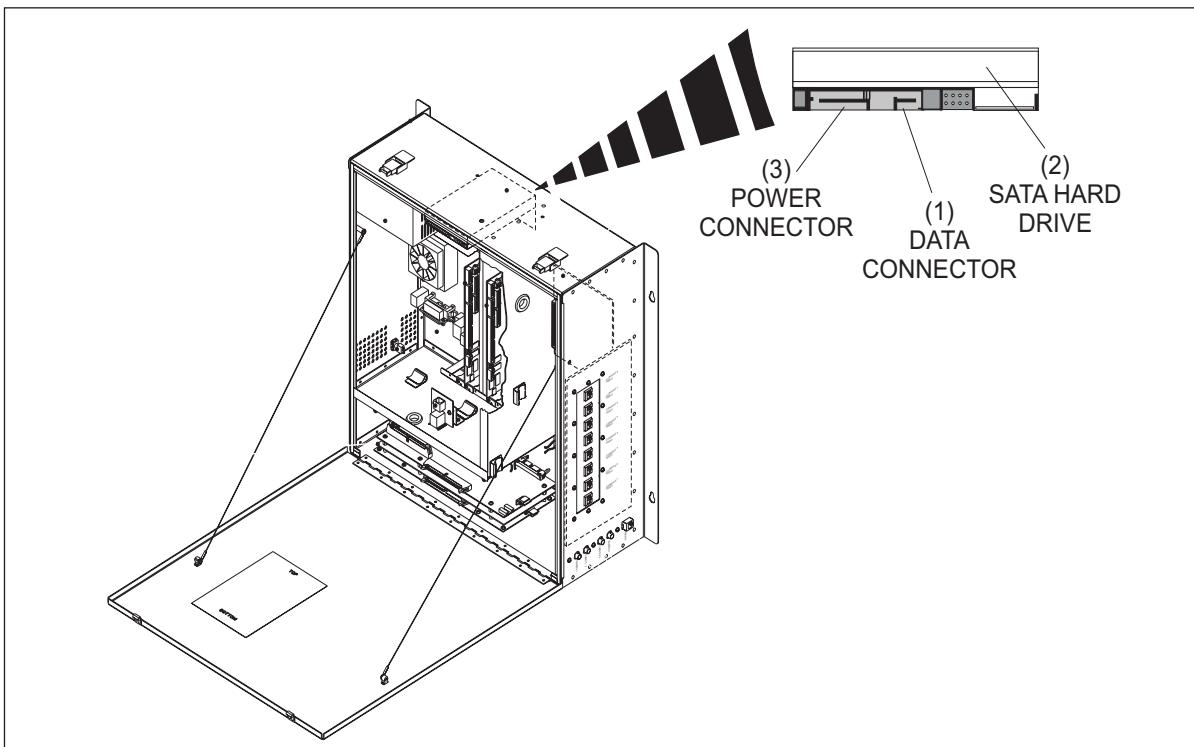
i *IMPORTANT!: Before turning the Power Switch to the off position always power down the scorer computer using the main power switch located at the bottom of the side panel.*

Hard Drive



CAUTION! Damage to the hard drive can result if it is subjected to excessive vibration, jarring, or rough handling. Handle with care.

The hard drive located in the Scorer Computer contains a Windows operating system and Brunswick programming to allow scoring for up to 8 lanes. The Brunswick program allows the Scorer Computer to control keypads/ touchscreens and pinsetters, generate video for Overhead monitors and communicate to the desk computer(s). Without the hard disk, the Scorer Computer will not operate and the consoles will not start up. In addition to the programming, the hard drive stores current game information, and contains files that store lane number information to identify what lanes the computer controls, the configuration and calibration settings for the lanes, commercials that can be displayed when the lanes are off, and the exciter graphics and animations that are used during bowling. This information must be updated and configured anytime the hard disk is replaced. For additional information on hard drive replacement refer to the hard drive replacement instructions located at the end of this section. The hard drive is a solid state SATA (Serial interface). Refer to the figure titled *Scorer Computer Hard Drive*.



Scorer Computer Hard Drive

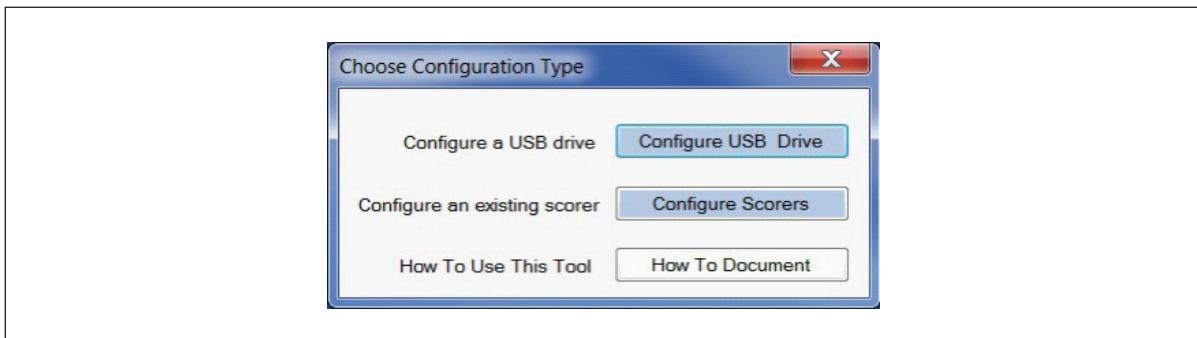
The function of the components on the hard drive are:

- (1) **Data Connector** - Connection used to transfer information between the hard drive and the Motherboard. The cable from this connection attaches to SATA0 connection of the Motherboard.
- (2) **SATA Hard Drive (Serial Interface)** - A solid state device that contains the program for the Scorer Computer.
- (3) **Power Connector** - Connection for the DC power cable from the Power Supply.

Backing up the Hard Drive Settings

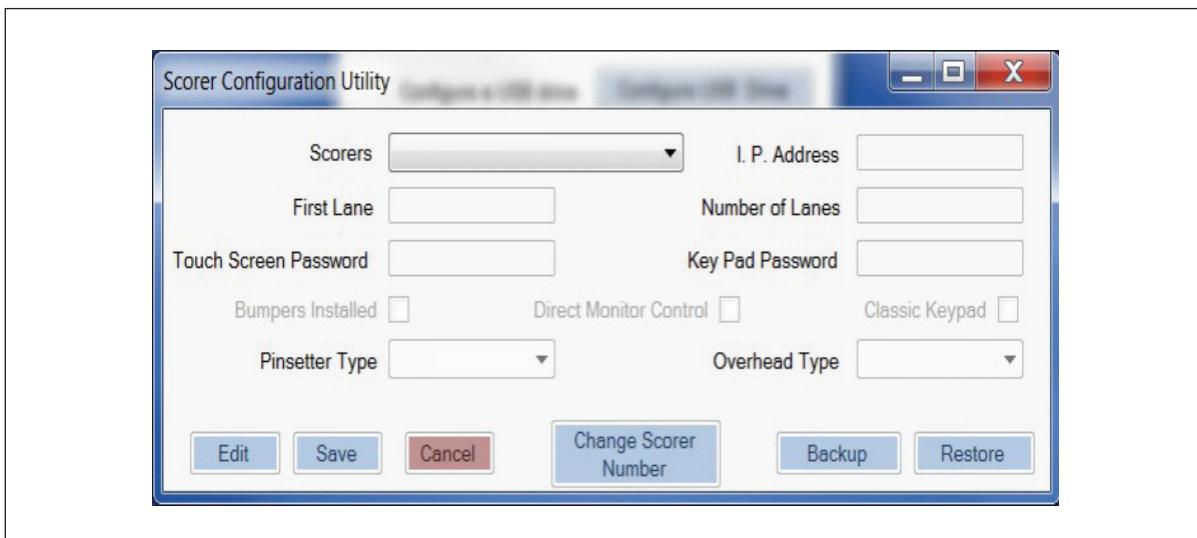
Having a good back-up of the settings of the Scorer Computer's hard drives allows the mechanic to easily restore a drives configuration and quickly get a replacement drive up and running. The back-up and restore functions are available using the Scorer Configuration Utility located on the Vector or Vector Plus SERVER computer.

1. At the Windows desktop screen (the screen with the icons) of the Vector or Vector Plus SERVER computer, double-click on the ScorerConfigurationUtility.exe icon. If the icon is not on the desktop screen the program can be found in the C:\Brunswick\Utilities folder.



Choose Configuration Type screen

2. Select the *Configure Scorers* button



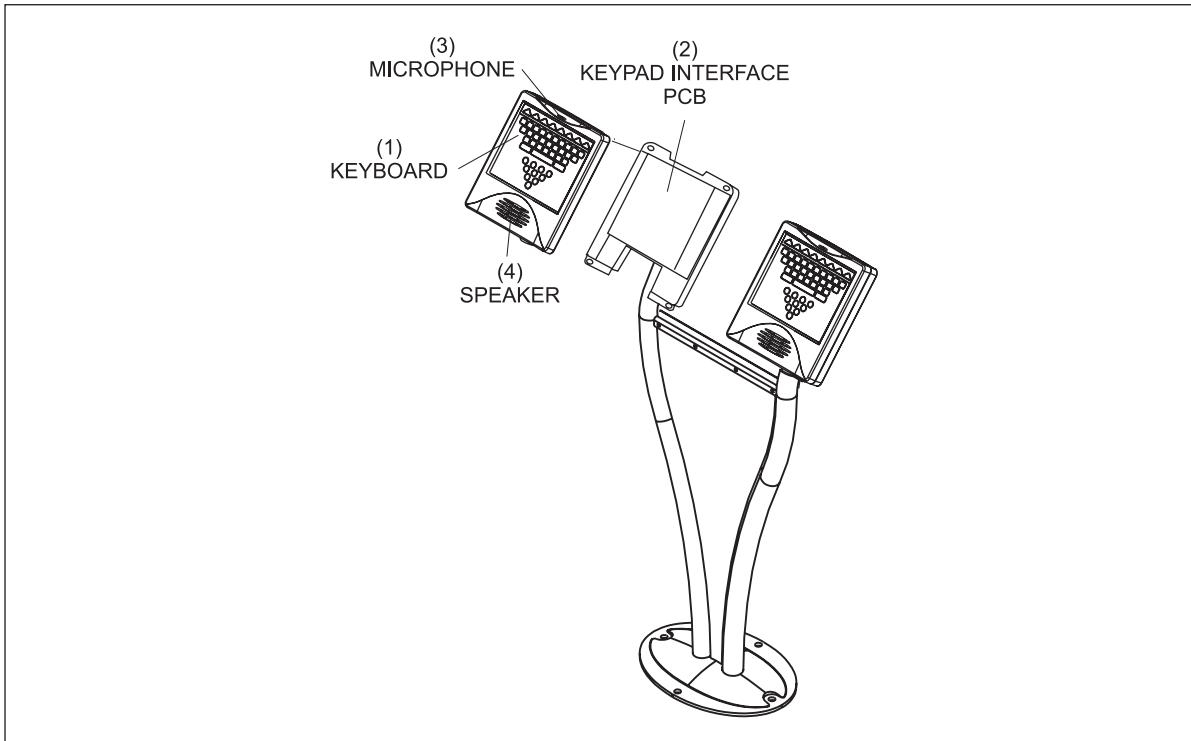
Scorer Configuration Screen

3. Select the desired Scoring Computer from the drop-down list on the top-left of the window. To **backup** a configuration, click "Backup". To **restore** a previously backed up configuration, click "Restore." Refer to the figure titled *Scorer Configuration Screen*.

CONSOLE ELECTRONICS

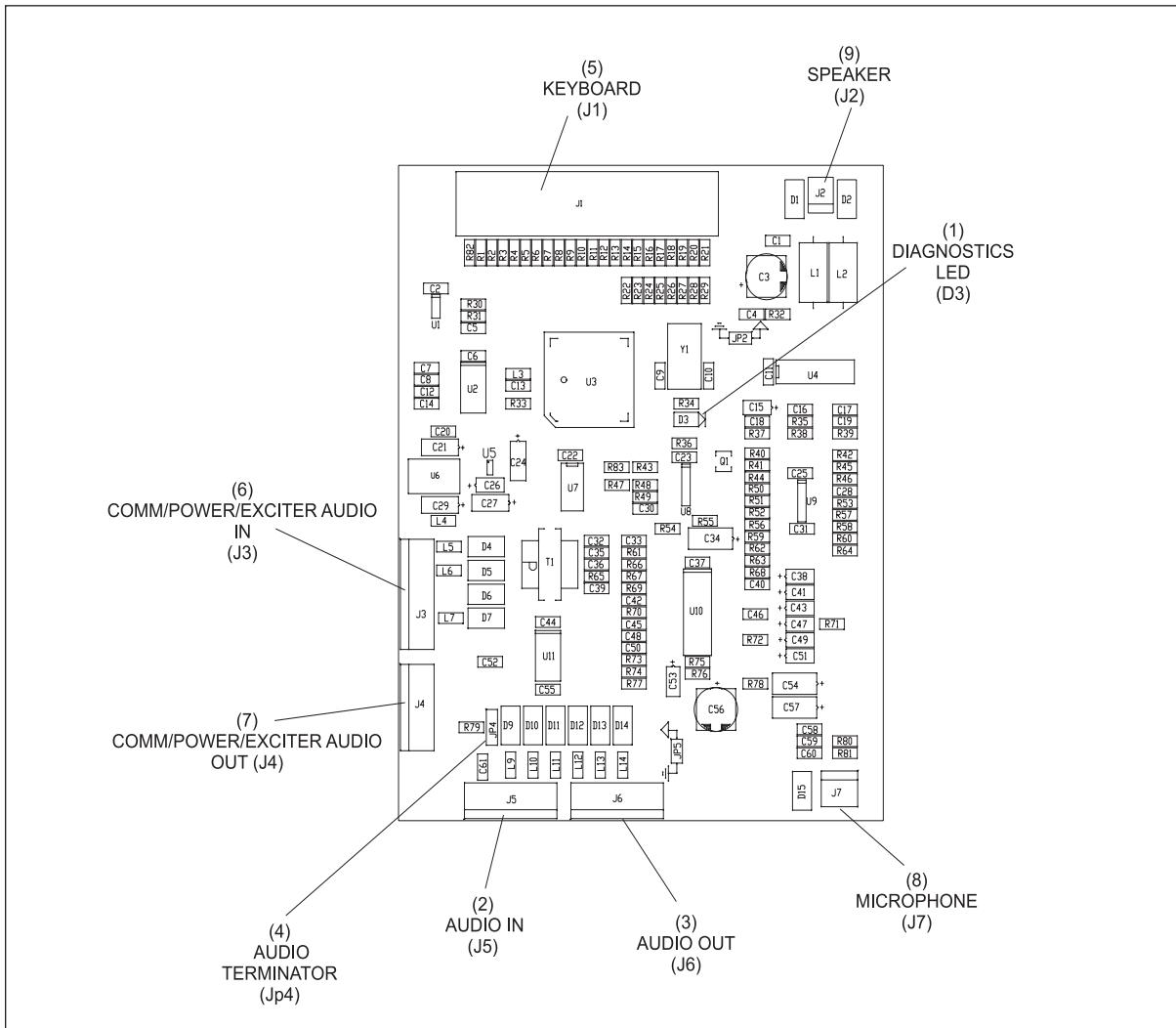
Keypads

To allow for simultaneous entry by the bowlers, keypads are used for each lane. These keypads are identical in every way and contain circuit boards that are interchangeable. The Keypad Interface PCB located in the keypad housing handles the bowler input, sound selection and communication for the console. Refer to the figures titled *Bowler Keypad* and *Keypad Interface PCB*.



Bowler Keypad and Interface PCB

- | | | |
|--------------|---|----------------|
| (1) KEYBOARD | (2) KEYPAD INTERFACE PRINTED CIRCUIT BOARD | (3) MICROPHONE |
| (4) SPEAKER | | |



Keypad Interface PCB

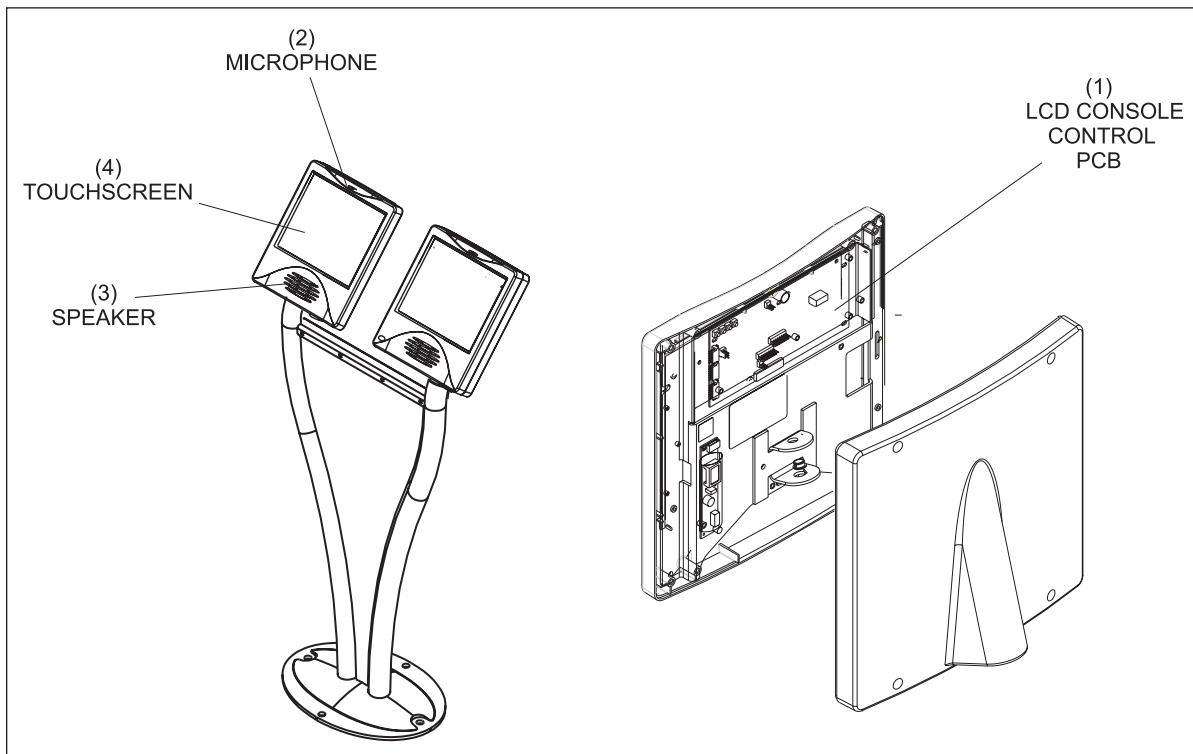
The function of the connectors and components on the Keypad Interface are:

- (1) **Diagnostic LED (D3)** - This light flashes to indicate that the PCB is functioning.
- (2) **Audio In (J5)** - Input of the intercom audio(s) originating at the control desk audio control box. If the board is located in the first console, the cable comes from the control desk Audio Control box. For the reset of the lanes, the cable comes from the Keypad Interface PCB for the previous lane. Refer to (3) *Audio Out (J6)*.
- (3) **Audio Out (J6)** - Output of the intercom audio for the next console. This connection allows the continuation of the intercom audio(s) to the next lane. If the board is installed in the last console and the signals do not continue, they are terminated using the termination jumper JP4. Refer to (4) *Audio Terminator (JP4)*.
- (4) **Audio Terminator (JP4)** - Jumper used to terminate the intercom audio signal. If the intercom audio cable does not continue to another console from J6, terminate the signal by placing a jumper between pins 2 and 3 (T). Otherwise place a jumper between pins 1 and 2 (U).
- (5) **Keyboard (J1)** - Connection to the keyboard in the console.

- (6) **Comm/Power/Exciter Audio In (J3)** - Connection for the power, communication and audio exciter signals. When the board is located in left console (odd lane), signals for both the left and right lane coming from the Primary Patch Panel of the Scorer Computer enter the board at J3. If the board is located as the second keypad of the lane pair (even lane), the signals route through the odd lane keypad then to this connector. Refer to (7) *Comm/Power/Exciter Audio Out (J4)*.
- (7) **Comm/Power/Exciter Audio Out (J4)** - Connection for the communication, power and audio exciter going to the second keypad for the lane pair. This connection is only used on the left (odd) lane keypad.
- (8) **Microphone (J7)** - Connection to the microphone used for the intercom system.
- (9) **Speaker (J2)** - Connection to the speaker. The circuit board applies the selected audio to the speaker through this connection. This audio includes the intercom, exciter audio, and keyboard beep.

Touchscreens (Flatscreens)

The LCD flatscreens provide the bowler with lower scoresheet video and the ability to input information through a touchscreen. Screens are installed at each lane for the convenience of the bowler. The screens are identical in every way and interchangeable. The only individually replaceable board is the LCD Console Control PCB located in the back of the display housing. This board handles the bowler input, sound selection and communication for the console. Refer to the figure titled *LCD Flatscreens*.



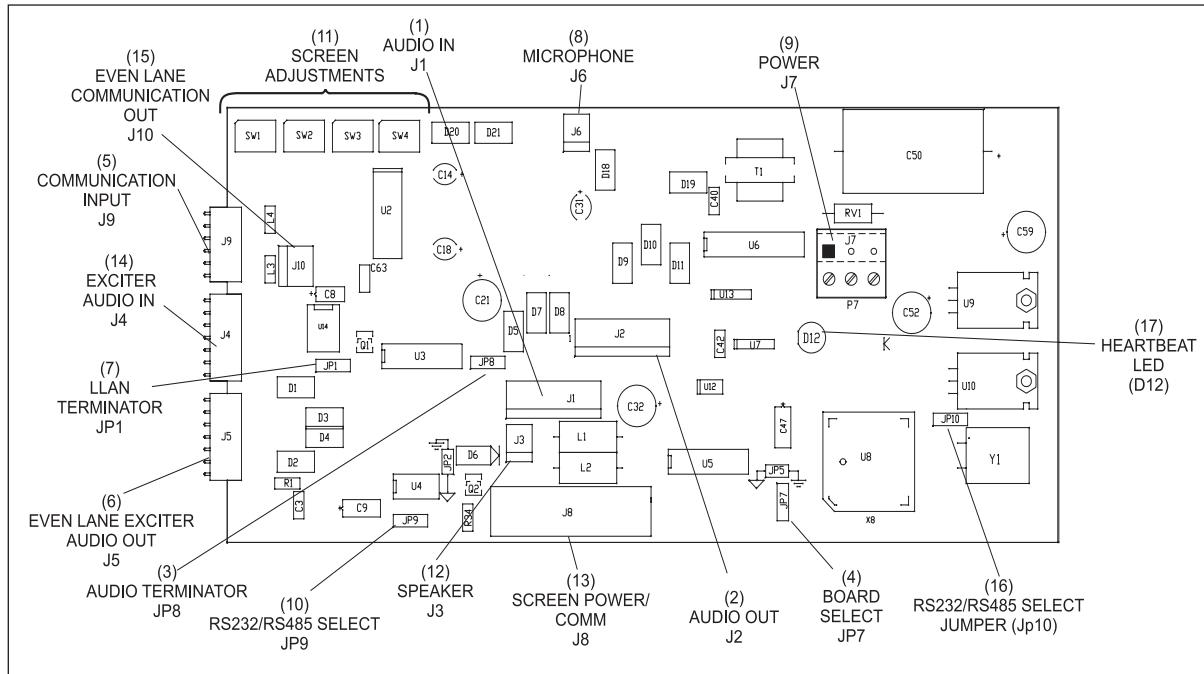
LCD Flatscreens

- | | | |
|-----------------------------|----------------|-------------|
| (1) LCD CONSOLE CONTROL PCB | (2) MICROPHONE | (3) SPEAKER |
| (4) TOUCHSCREEN | | |

LCD Console Control PCB

The LCD Console Controller PCB interfaces the flatscreen's touchscreen to the Scorer Computer and the global audio signals to the console.

Jumpers on the board need to be set in order to configure the board for use with the Vector system and to properly terminate the Global Audio Signals Refer to the figure titled *LCD Console Control PCB*.



LCD Console Control PCB

The function of the components and connectors on the LCD Console Control PCB are:

- (1) **Audio In (J1)** - Input of the intercom audio(s) originating at the control desk audio control box. If the board is located in the first console, the cable comes from the control desk Audio Control box. For the reset of the lanes, the cable comes from the LCD Console Control PCB of the previous lane. Refer to *Audio Out (J2)*,
- (2) **Audio Out (J2)** - Output of the intercom audio to the next console. This connection allows the continuation of the intercom audio(s) to the next lane. If the board is installed in the last console and the signals do not continue, terminate the signal using the termination jumper JP8.
- (3) **Audio Terminator (JP8)** - Jumper used to terminate the intercom audio signal. If the audio cable does not continue to another console from J2, terminate the signal by placing a jumper between pins 2 and 3 (T). Otherwise place a jumper between pins 1 and 2 (U).
- (4) **Board Select (JP7)** - Jumper used to select whether the console is for the left lane or the right lane when the board is used for the Frameworkx scoring system. In the Vector system, the cabling from the Scorer Computer automatically determines left/right designation. For the Vector System always set the jumper on pins 1 and 2 (L).
- (5) **Communication Input (J9)** - Connection for the communication (RS-232) originated at the Primary Patch Panel in the Scorer Computer. If the board is located on the right (even) lane, the communication signal is routed through the left (odd) lane board. Refer to *(15) Even Lane Communication Out (J10)*.

- (6) **Even Lane Exciter Audio Out (J5)** - Connection for the audio exciter going to the even lane touchscreen of the lane pair. Refer to (14) *Exciter Audio In (J4)*.
- (7) **LLAN Terminator (JP1)** - Jumper used to terminate the communication signal when the board is used with the Frameworkx scoring system. For the Vector scoring system always place the jumper between pins 1 and 2 (U).
- (8) **Microphone (J6)** - Connection to the microphone used by the intercom system
- (9) **Power (J7)** - 25VAC input power for the circuit board enters here. The power originates at the touchscreen transformer located on the curtain wall near the Scorer Computer.
- (10) **RS232/RS485 Select (JP9)** - Jumper used to select whether the PCB will use J9 or J4 for the communication input. Because the Vector scoring system uses J9 as the communication input always set the jumper to RS-232.
- (11) **Screen Adjustments** - Push-buttons that allow the user to access an on-screen adjustment menu to adjust brightness, contrast, color, image position, and screen brightness (for screens equipped with adjustable backlights).

Reset (SW1) - Use this button to reset all options to factory default settings.

Up (SW2) - Use this button to increase the setting of the selected option or to move up the selection menu.

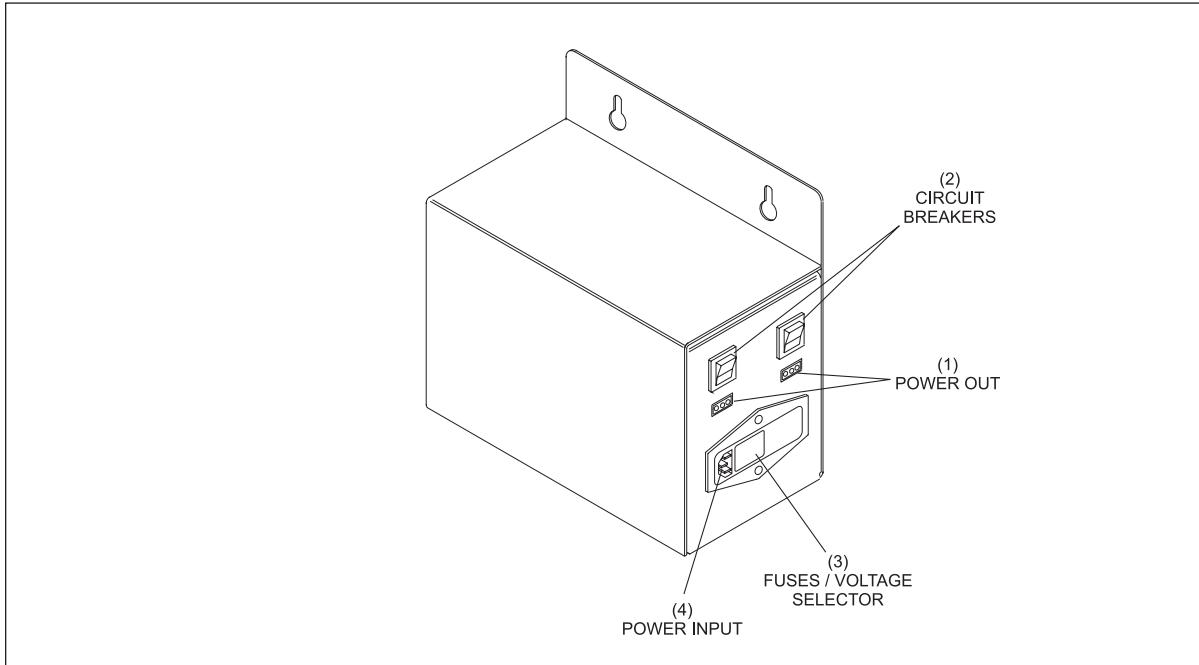
Down (SW3) - Use this button to decrease the setting of the selected option or to move down the selection menu.

Select (SW4) - Use this button to select an option from the menu or to enter the setting for an option.

- (12) **Speaker (J3)** - Connection to the speaker. The circuit board applies the selected audio to the speaker through this connection. This audio includes the VCR audio, intercom, exciter audio, and keyboard beep.
- (13) **Screen Power/Comm (J8)** - Connection to the touchscreen circuitry. Power and the push button switch signals are send out this connection.
X/Y coordinates for the touchscreen is received through the connection
- (14) **Exciter Audio In (J4)** - Input for the exciter audio originating at the scorer computer. If the board is located on the right (even) lane, the exciter audio signal is first routed through the left (odd) lane board. Refer to (6) *Exciter Audio Output (J5)*.
- (15) **Even Lane Communication Out (J10)** - Connection for the communication (RS-232) going to the touchscreen for the even lane of the lane pair. Refer to (5) *Communication Input (J9)*.
- (16) **RS232/485 Select Jumper (JP10)** - Jumper used to configure the PCB for RS232 or RS485 operation. For the Vector scoring system set this jumper to the RS232 position.
- (17) **Heartbeat LED (D12)** - Flashes when the PCB is functioning normally.

Touchscreen Transformer

The touchscreen transformer supplies 18 VAC - 25VAC power to the LCD flatscreens. Circuit breakers on the unit protect the screens from power surges. The transformer assembly accepts either 110-120 VAC or 220-240 VAC. Selection of the desired input voltage is done at the input receptacle. Refer to the figure titled *Touchscreen Transformer*.



Touchscreen Transformer

The function of the connectors and components on the touchscreen transformer are:

- (1) **Power Out** - 18VAC - 25VAC power out.
- (2) **Circuit Breakers** - Manually re-settable circuit breakers that protect the touchscreens from power surges.
- (3) **Fuses/Voltage Selector** - Slide out panel which allows the user to select either 110-120 VAC or 220-240 VAC as the input voltage. Fuses protecting the transformer are located here. Refer to *Selecting Input Voltage for Transformers*.
- (4) **Power Input** - Main power receptacle. The voltage entering can be 110-120 VAC or 220-240 VAC. Refer to *Fuse/Voltage Selector Chart*.

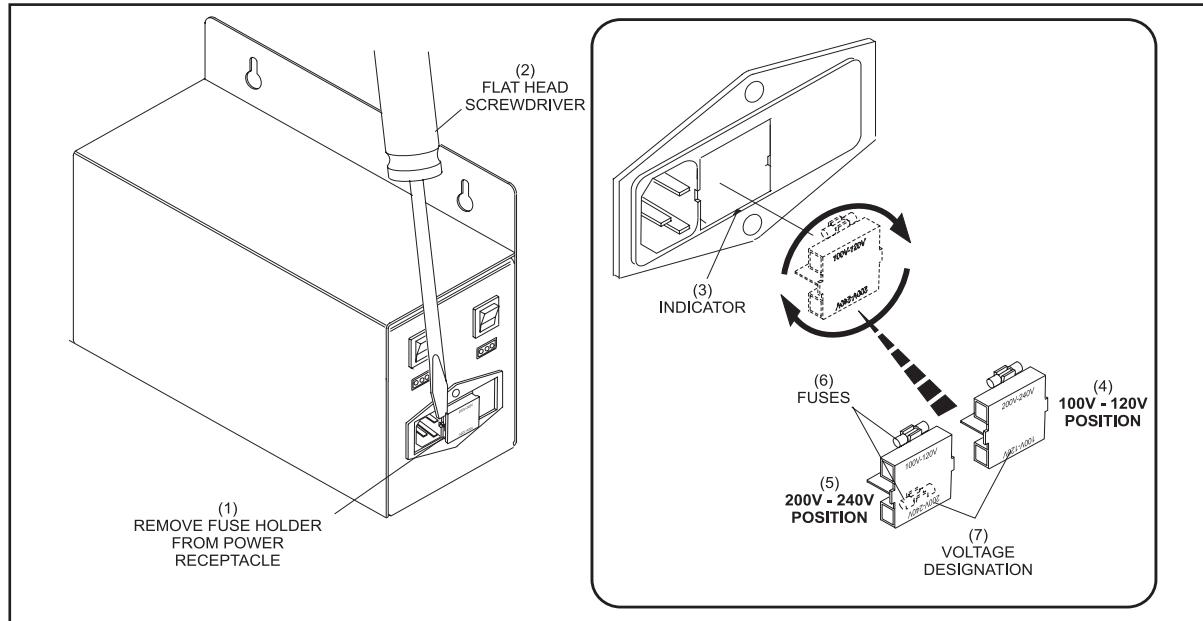
Selecting Input Voltage for the Touchscreen Transformer



WARNING! Always remove the power cord prior to working on the Touchscreen Transformer!

To select the input voltage for the touchscreen transformers, do the following:

1. Disconnect the power cord from the transformer.
2. Using a flat head screwdriver, remove the fuse holder from the power receptacle. Refer to figure titled *Selecting Input Voltage for Transformers*.



Selecting Input Voltage for Transformers

- | | | |
|--|---------------------------|-------------------------|
| (1) REMOVE FUSE HOLDER FROM POWER RECEPTACLE | (2) FLAT HEAD SCREWDRIVER | (3) INDICATOR |
| (4) 100V-120V POSITION | (5) 200V-240V POSITION | (6) FUSES |
| (7) VOLTAGE DESIGNATION | | (7) VOLTAGE DESIGNATION |

3. Examine the fuses in the holder to verify the proper fuse rating according to the charts below:

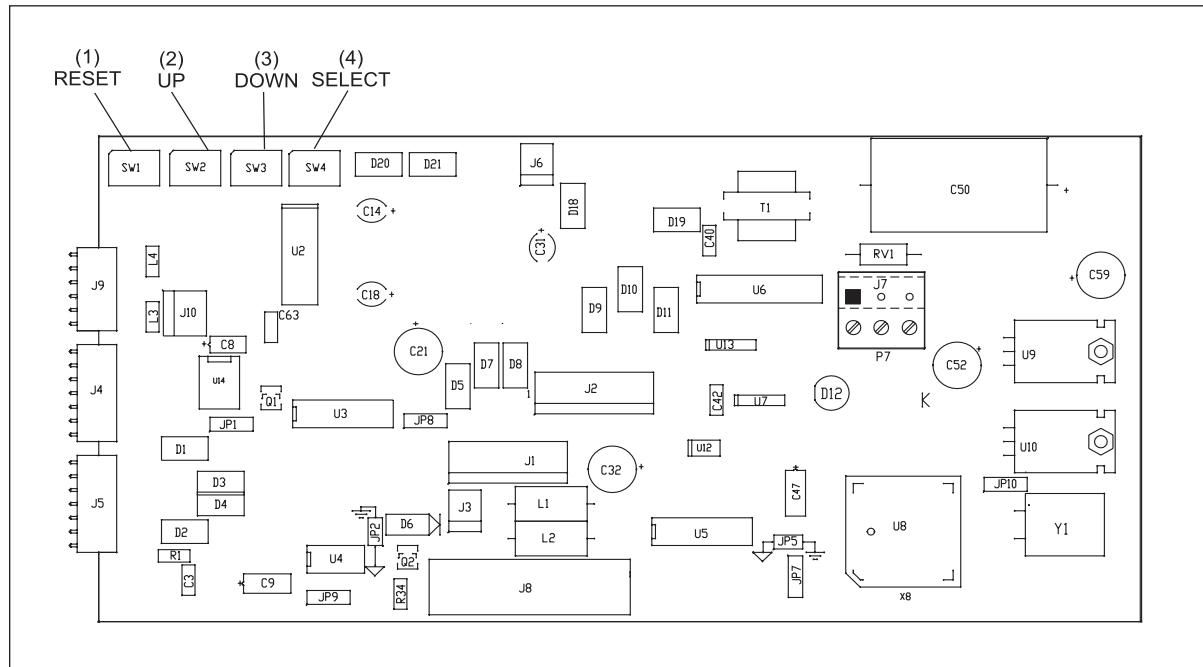
| INPUT VOLTAGE | FUSE RATING |
|-------------------|-----------------------|
| 110 VAC - 120 VAC | .5 AMP 250V Slo Blow |
| 220 VAC -240 VAC | .25 AMP 250V Slo Blow |

Fuse/Voltage Selector Chart

4. Insert the fuse holder into the power receptacle with the desired voltage designation positioned toward the indicator on the receptacle.
5. Connect the power cord to the transformer.

LCD Touchscreen Adjustment Procedure

Adjustment to the LCD Touchscreen is performed through 4 push-button switches located on the touchscreen controller PCB. These push-buttons allow the user to access an on-screen adjustment menu to adjust brightness, contrast, color, and image position. Refer to figure titled *Touchscreen Adjustment Push-Buttons*.



Touchscreen Adjustment Push-Buttons

(1) RESET
(4) SELECT

(2) UP

(3) DOWN

- (1) **Reset** - Use this button to reset all options to factory default settings.
- (2) **Up** - Use this button to increase the setting of the selected option or to move up the selection menu.
- (3) **Down** - Use this button to decrease the setting of the selected option or to move down the selection menu.
- (4) **Select** - Use this button to select an option from the menu or to enter the selected setting for an option.

The following procedures list the necessary steps required to adjust the image of the flatscreen monitor.

Basic Adjustments



WARNING! Inverter PCB on rear LCD Touchscreen panel contains high voltage. DO NOT touch inverter PCB when power is on!

1. Remove the four Phillips head screws from the rear cover to gain access to the LCD Console Controller PCB.
2. Turn on power to flatscreen.
3. Press SEL (select) button on Controller PCB. The main menu will appear.
4. Use the UP and DOWN buttons to highlight the Basic Adjustments menu and press SEL.

There are three basic adjustments that can be made in this mode: brightness, contrast, and color balance.

5. Use UP and DOWN buttons to highlight desired adjustment and then press SEL.
6. To change current setting, use UP to increase setting, DOWN to decrease setting. A numerical value is displayed next to the bar graph on the screen and updates automatically during adjustment.
7. Press SEL to enter desired setting.

For example, to change the brightness setting, highlight the Brightness option. Use the UP button to increase brightness or the DOWN button to decrease brightness. Press SEL when finished to enter desired setting and exit this adjustment.

The three basic adjustments are factory-set to the following values but can be changed to preference. The color balance adjustment can be altered for the following colors: red, green, and blue.

| | |
|---------------|----------------------------------|
| Brightness | 35 |
| Contrast | 50 |
| Color Balance | 50 each for red, green, and blue |

8. Use UP and DOWN buttons to highlight EXIT option and press SEL to exit the Basic Adjustments menu.
9. Install the rear cover on the touchscreen.

Image Position Adjustment

The imagine position adjustment is used to change the position of the viewable image on the screen.



WARNING! Inverter PCB on rear LCD Touchscreen panel contains high voltage. DO NOT touch inverter PCB when power is on!

1. Remove the four Phillips head screws from the rear cover to gain access to the LCD Console Controller PCB.
2. Turn on power to touchscreen.
3. Press SEL (select) button on Controller PCB. The main menu will appear.
4. Use the UP and DOWN buttons to highlight the Image Position option.
5. There are four position adjustments:
 - a. Horizontal Position
 - b. Horizontal Size
 - c. Vertical Position
 - d. Expand/Center
 - e. Phase
6. Use the UP and DOWN buttons to highlight the desired adjustment and press SEL.
7. To change current setting, use UP to increase setting or DOWN to decrease setting. A numerical value is displayed next to the bar graph on the screen and updates automatically during the adjustment.

The following values are factory-set but can be changed to preference.

| | |
|---------------------|----|
| Horizontal Position | 92 |
| Horizontal Size | 50 |
| Vertical Position | 50 |
| Expand/Center | |

8. Once the desired value is displayed, press SEL to enter the setting and exit the adjustment.



NOTE: After changing the image position settings, it may be necessary to adjust the phase of screen image ONLY if characters are fuzzy or the screen is jittery.

9. As Needed - Observe screen image and if the screen characters are jittery, perform a phase adjustment as follows:
 - a. Using UP and DOWN Push-button, select IMAGE POSITION option.
 - b. Under IMAGE POSITION option, highlight PHASE and press SEL.
 - c. Use the UP or DOWN arrow keys until image becomes clear (no fuzziness or jittering).
 - d. Press SEL to set the phase adjustment.

10. Use UP and DOWN buttons to highlight Exit option and press SEL to exit the program.
11. Install the rear cover on the touchscreen.
12. If the image position has changed, calibrate the touchscreen using the calibration utility located on the configuration screen of the scorer computer.



IMPORTANT: *DO NOT use menu option “Calibrate Touchscreen.”*

LCD Touchscreen Cleaning

The LCD touchscreen uses a custom hard coated antiglare polyester touch surface to protect the screen. The surface should be kept free of dirt, dust, finger prints, or other materials that could lower the screen visibility. For best results use a clean, damp, nonabrasive cloth towel and any commercially available window cleaner to regularly clean the surface.



IMPORTANT: *Apply the cleaning solution to the cloth before wiping down the screen. DO NOT spray the solution directly onto the touchscreen.*

CIRCUIT BOARD AND COMPONENT REMOVAL



CAUTION: *Some circuits and circuit boards in the Scorer Computer or console may be static sensitive and can be damaged due to improper handling. You should follow the suggested guidelines to avoid problems.*



NOTE: *Failure to use proper handling techniques for the circuit board may void the warranty.*

1. Before working on or removing any board you **MUST** discharge any static within your body by touching the metal chassis of the Scorer Computer or console. (If added protection from static electricity is desired, wear a grounded wrist strap).
2. Always keep static sensitive boards and components in their protective wrapping when not in use.
3. Handle the boards by the edges only to avoid damaging the board.
4. Avoid touching the gold plated edge terminals.
5. When handling hard drives, use extra care to ensure that the drive is not dropped or handled roughly. Even slight jarring of the drive could cause damage.

Before replacing any component, you must determine if it requires any initial setup. Refer to the chart titled *Configuration Chart*.

| Component | Setup Required | Setup/Comments |
|-------------------------|----------------|---|
| Hard Drive | Yes | <ol style="list-style-type: none"> 1. Set Scorer Computer configuration using the Configuration Menu at the console (Default Password: Keypads = /Vector, Flatscreens = 939393) 2. Download Updated software from the Server Computer. (Scorer Update) 3. Download Commercials. (Scorer Update at Server or Media Manager) 4. Download Multimedia. (Scorer Update at Server or Media Manager) 5. Synchronize the control desk and Scorer Computer information. 6. Calibrate the Camera's (if installed) for all lanes associated with the hard drive using the Pin Settings page at the control Desk 7. Calibrate each touchscreen for lanes associated with the hard drive using the Configuration Menu at the console. (Default Password: Keypads = /Vector, Flatscreens = 939393) 8. Enable automated bumpers (if installed) using config.exe program at server. |
| Keypad Interface PCB | Yes | <p>Set the jumper on the board as follows:</p> <p>JP4 - If the audio cable does not continue to another console from J6, position jumper at pins 2 and 3 (T). If the audio cable continues to another console from J6, position jumper at pins 1 and 2 (U).</p> |
| LCD Console Controller | Yes | <p>Set the jumpers on the board as follows:</p> <p>JP1 - Position jumper at pins 1 and 2 (U) JP7 - Position jumper at pins 1 and 2 (L) JP8 - If the audio cable does not continue to another console from J2, position jumper at pins 2 and 3 (T). If the audio cable continues to another console from J2, position jumper at pins 1 and 2 (U). JP9, JP10 - Position jumper at RS232</p> |
| LCD Interface PCB | No | |
| Motherboard | No | <ol style="list-style-type: none"> 1. Verify DIMM memory module is present on the motherboard. 2. Verify CPU and CPU Fan are present on the motherboard. 3. Verify proper cable connections |
| Power Supply | No | Verify the power cables are connected properly to the Motherboard, Hard Drive, Patch Panels, and LCD Interface as needed. |
| Primary Patch Panel | No | Connect cables as needed. Make sure power cable is connected properly. |
| Secondary Patch Panel | No | Connect cables as needed. Make sure power cable is connected properly. |
| Touchscreen Transformer | Yes | Set the Transformer to the appropriate voltage setting and install proper fuses. |
| Video3 PCB | Yes | <p>- Video3 PCB connected to Primary Patch Panel (Board 1)</p> <p>JP1 - Remove JP2 - Remove JP3 - Remove JP4 - Remove</p> <p>Calibrate cameras at the control desk for non-GS pinsetter installations. (Adjust the brightness control on the bard as needed to obtain a usable camera image on the pin calibration screen.)</p> <p>- Video3 PCB connected to LCD Interface PCB / Secondary Patch Panel (Board 2)</p> <p>JP1 - Remove JP2 - Install JP3 - Remove JP4 - Remove</p> <p>2. Verify ribbon cables are plugged into the correct connectors.</p> |

Configuration Chart.

Motherboard Removal

Before removing the Motherboard, the boards that connect to it must be removed. Refer to figure procedure *PCI Bus Board Removal*.

Perform the following steps to remove the Motherboard:

1. Turn off the Scorer Computer using the main power switch located on the side of the chassis and remove the power cord from the power supply.
2. Remove each PCI Bus Board. Refer to procedure titled *PCI Bus Board Removal*. Note the location of each PCB removed.
3. Disconnect the following cables from the motherboard:
 - Power switch cable (ATX-SW)
 - Exciter Audio cable
 - COM1 cable
 - COM2 cable
 - Hard Drive data cable
 - Power supply power cables
5. Remove the screws that hold the Motherboard to the chassis.
6. Place the Motherboard in an antistatic bag or wrapping.

Motherboard Installation

1. Turn off the Scorer Computer using the main power switch located on the side of the chassis and remove the power cord from the power supply.
2. At the Scorer Computer, remove the Motherboard from the antistatic bag or wrapping.
3. Secure the Motherboard to the chassis with the Phillips head screws.
4. If needed, transfer the RAM memory (DIMM chips) from the old Motherboard to the new Motherboard.
5. If needed, transfer the processor chip (CPU) and its fan from the original motherboard to the new motherboard.



***NOTE:** If transferring the CPU from the original motherboard to the new motherboard be sure to position the chip properly in the CPU socket and properly connect the CPU fan.*

6. Connect the following cables to the Motherboard:

- Power switch cable (ATX SW)
- Exciter Audio cable (Line Out)
- COM 1 cable
- COM 2 cable
- Hard Drive data cable (SATA0)
- 24 pin power supply cable (ATX Power)
- 4-pin power supply +12V cables (2 each) (12V Power)

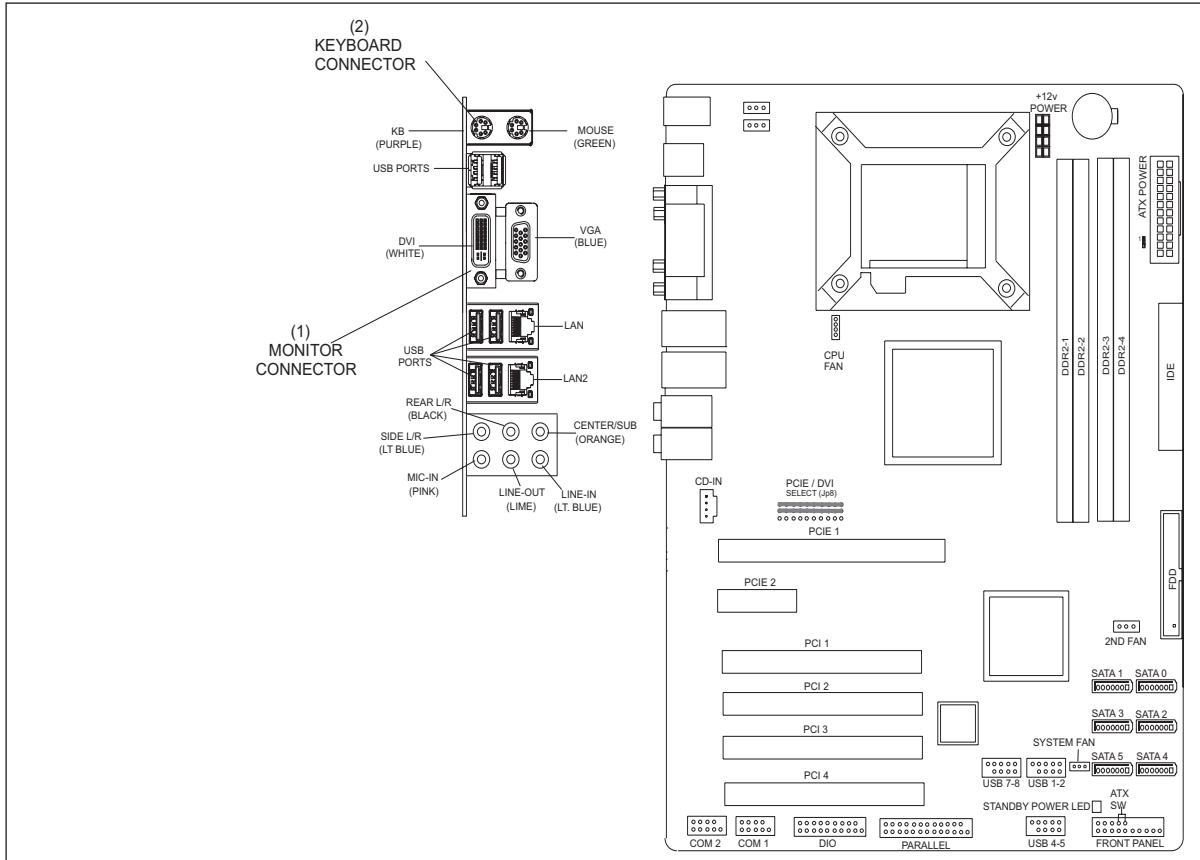
7. Install each PCI Bus Board in the same slot from which they were removed and attach the appropriate cable to each. Refer to procedure titled *PCI Bus Board Installation*.

8. Verify that each board and connector is properly installed.



NOTE: The motherboard bios default configuration is programmed with the proper settings to function with the Vector scoring system. The steps 9-16 are only needed if these factory settings have been changed.

9. Connect a standard PS-2 style keyboard and VGA monitor to the motherboard as shown below:



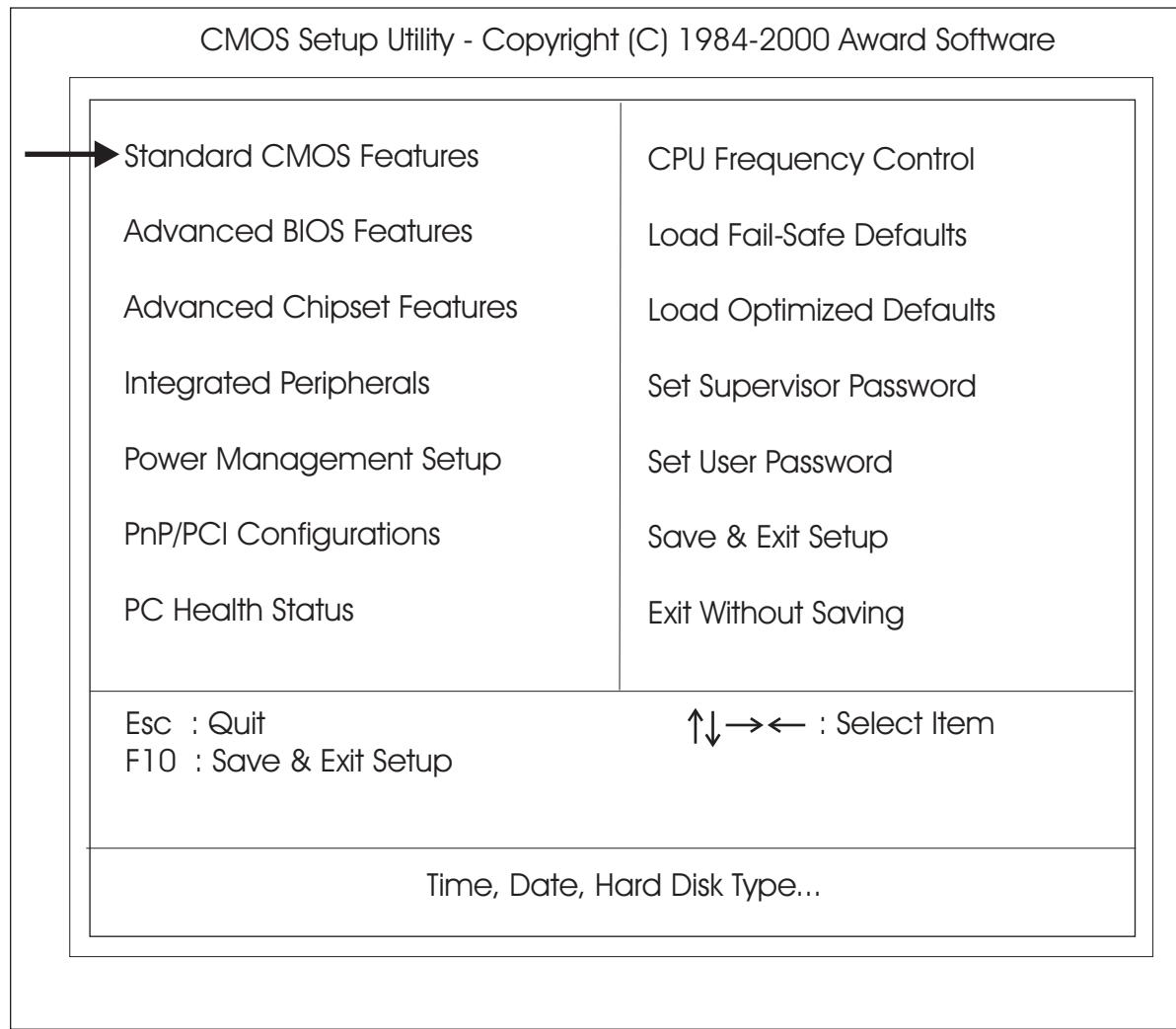
Connecting a Keyboard and Monitor to The Scorer Computer

(1) MONITOR CONNECTION

(2) KEYBOARD CONNECTION

10. Connect the power cord to the power supply receptacle and turn the Scoring Computer using the main power switch.

11. Press to enter the Bios utility. The main menu screen will appear.



Bios - Main Menu Screen

12. On the main menu select *Standard CMOS Features*.
13. Using the arrow, +, -, Page Up, and Page Down keys move the cursor to *Drive A* and press [Enter]. Set Drive A to **None**.
14. Move the cursor to *Halt On* and press [Enter]. Set *Halt On* to **No Errors**.

CMOS Setup Utility - Copyright (C) 1984-2000 Award Software
Standard CMOS Features

| | | |
|----------------------|--------------------|--|
| Date (mm:dd:yy) | Tue, March 16 2004 | Item Help |
| Time (hh:mm:ss) | 4 : 35 : 5 | |
| IDE Primary Master | Press Enter | Menu Level |
| IDE Primary Slave | Press Enter None | |
| IDE Secondary Master | Press Enter None | |
| IDE Secondary Slave | Press Enter None | |
| Drive A | None | To enter next page for detail hard drive settings. |
| Drive B | None | |
| Video | EGA/VGA | |
| Halt On | No Errors | |
| Base Memory | 640K | |
| Extended Memory | 129024K | |
| Total Memory | 130048K | |

↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

Bios Standard CMOS Features

15. Press [ESC] to return to the Main Bios Screen.
16. Press [F10] to save the selections, leave the bios setup screens, and reboot the Scorer Computer.

PCI Bus Board Removal

The PCI Bus Boards are the boards that connect to the white medium sized connectors of the Motherboard. For Vector-HD only Video3 PCBs use the PCI slots. To remove the PCI Bus Board(s), perform the following steps.

1. Turn off the Scorer Computer using the main power switch located on the side of the chassis and remove the power cord from the power supply.
2. Disconnect any cables that are attached to the board being removed. Label the cables so that you can reconnect them properly.
3. Remove the Phillips head screw that holds the board to the Scorer Computer chassis.
4. Carefully remove the circuit board from the Scorer Computer chassis.
5. Place the circuit board in an antistatic bag or wrapping.

PCI Bus Board Installation



IMPORTANT!: When replacing some PCI Bus Boards, special setup and configuration procedures may need to be performed. Failure to configure the board properly may result in inoperative lanes. Within this section, refer to the chart titled Component Setup requirements for more information.

To install a PCI Bus Board, perform the following steps:

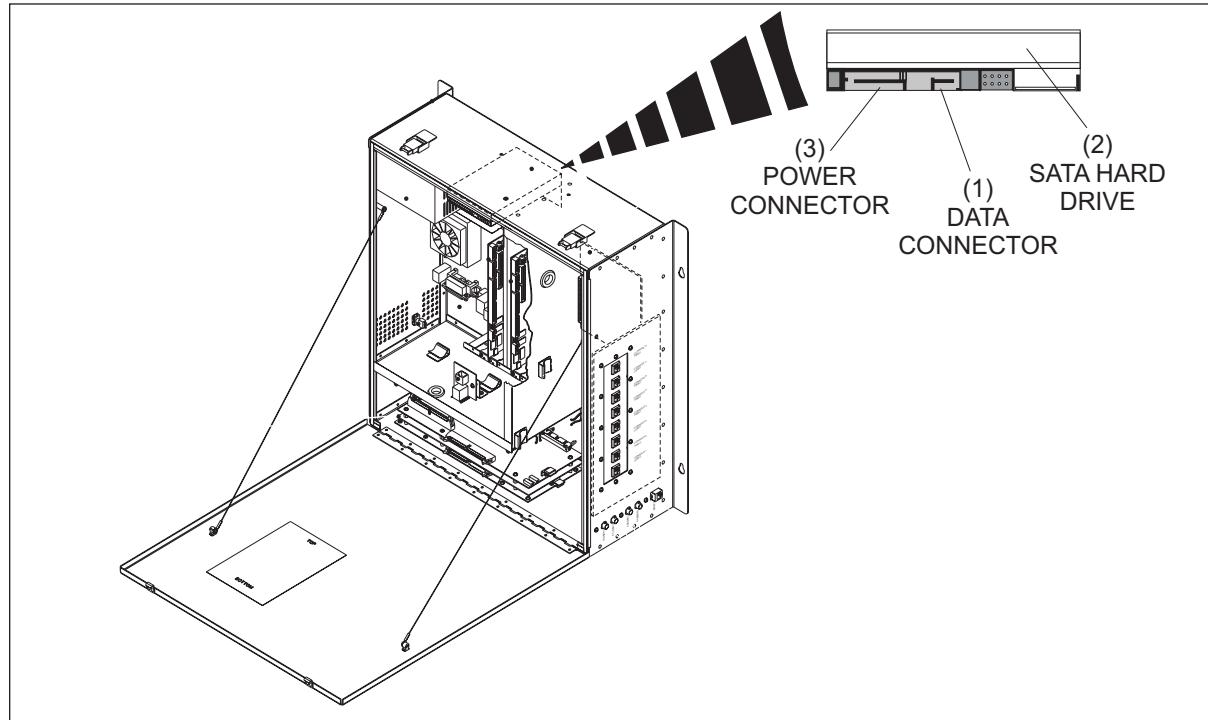
1. Remove the circuit board from its antistatic bag or wrapping.
2. Determine any set-up requirements for the board and configure it as described in the *Circuit Board Setup Procedures* within this section. Refer to the chart titled *Configuration Chart*.
3. Carefully insert the circuit board into its original PCI Slot on the Motherboard.
4. Secure the board to the Scorer Computer chassis with the appropriate Phillips head screw.
5. Connect any cable(s) disconnected during board removal.
6. Connect power to the Scorer Computer.

HARD DRIVE REPLACEMENT

Perform the following steps to replace the hard drive Refer to figure titled *Scorer Computer Hard Drive Location*:

Installation of Hard Drive

1. Turn off the Scorer Computer using the main power switch located on the left side of the chassis. Remove the power cord from the power supply. Open the cover of the scorer computer.
2. Disconnect the power and data cables from the hard drive.
3. Loosen the phillip head screws that hold the hard drive bracket to computer chassis. Remove the hard drive and bracket.
4. If the replacement drive is not mounted to a bracket, remove the bracket from the original drive, and attach it to the replacement drive.
5. Carefully install replacement hard drive and bracket into the Scorer Computer . Tighten the screw(s) to secure the bracket and drive.
6. Attach the power and data cables disconnected in step 2 to the new hard drive.
7. Disconnect the network cable (100base-TX).
8. Connect the power cord the power supply receptacle and turn the Scorer Computer on using the main power switch.



Scorer Computer - Hard Drive Location

(1) DATA CONNECTOR

(2) SATA HARD DRIVE

((3)) POWER CONNECTOR

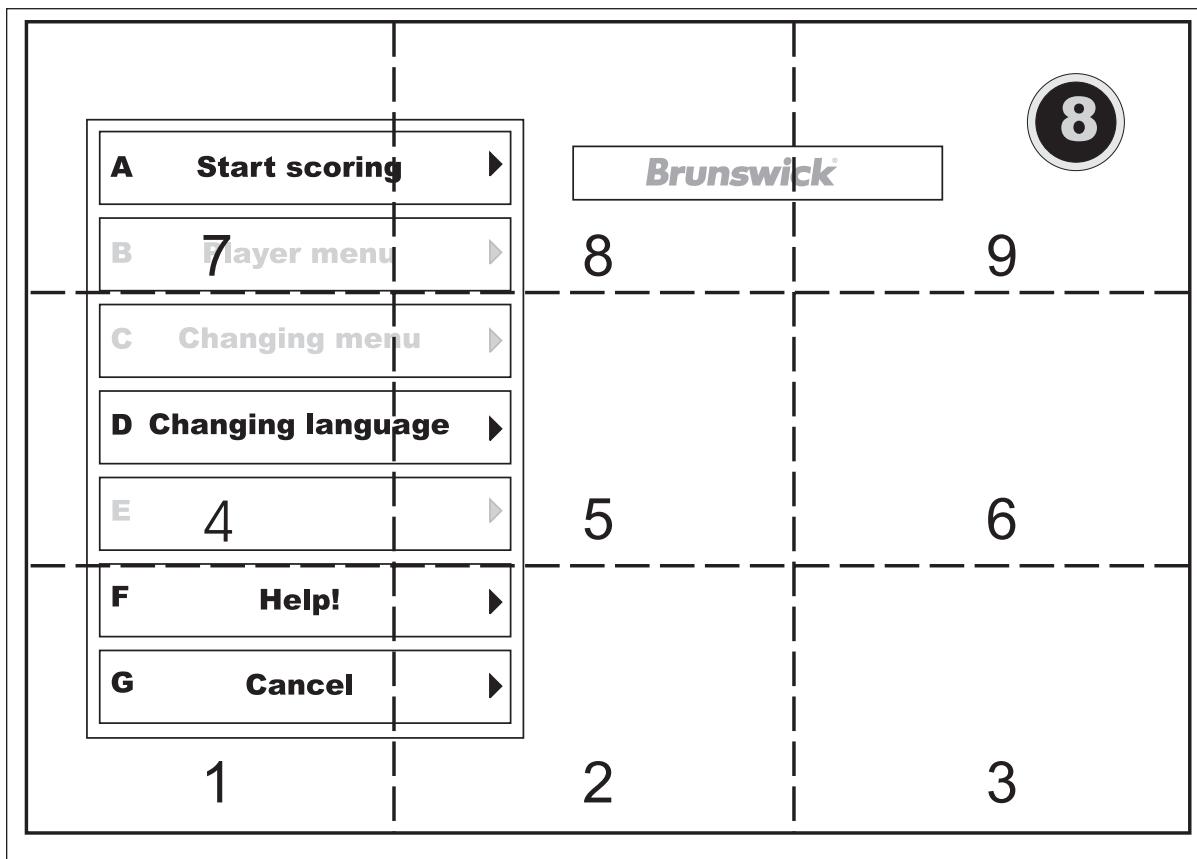
Configure the Hard Drive



IMPORTANT: To get the scorer information to appear on overhead monitors the overhead type must be set properly. The hard drives comes pre-configured for use with the overhead monitor type installed in your center. If the hard drive mistakenly becomes configured for the wrong type AND the center is equipped with keypads , the Ethernet cable must be plugged into the scorer computer and the overhead type must be changed using the Config.exe program located at the Vector/Vector Plus server. Failure to configure the overhead in this way may result in blank overhead screens. This procedure does not apply to installations with lower LCD touchscreens as the overhead type can be set through the scorer computer configuration screen using the touchscreen.

Set Scorer Computer Configuration (All installations)

1. After the scorer has booted, press the “Menu” key for keypads, or touch the screen for touchscreens so that main scorer entry screen is displayed. For keypad installations, access the Scorer Computer configuration screen by entering the factory default password: /VECTOR. For touchscreen installations, enter 939393 using the password grid as shown below. Refer to figures titled *Configuration Menu Password - Touchscreen* and *Scorer Computer Configuration Screen*.



Configuration Menu Password - Touchscreen

2. Enter the Scoring Computer number, the starting lane for that scorer computer, the number of lanes controlled by that scorer computer, the pinsetter type in use, and a new menu password as appropriate. For Vector-HD the Overhead type should is ‘HD’.

The *Direct Monitor Ctrl* checkbox will automatically be checked and grayed out when the “HD” overhead type is selected.

The *Bumpers Installed* checkbox should be selected (checked) for centers that have the Brunswick automated bumpers installed.

If you have LCD lower screens, **Do Not** calibrate the touchscreen at this time.

3. Press OK to reboot the Scorer Computer.



NOTE: Select the overhead type as appropriate, if you select the wrong overhead, type; “the overhead screens will not properly display the score sheet”.



NOTE: The configuration can be performed at any keypad or touchscreen connected to the Scorer Computer. This is a one time setup that does not need to be repeated at the other lanes.

4. For touchscreen installations, calibrate each touchscreens, as needed, using the “Calibrate” button

Configuration Menu

| | | |
|---|---|--|
| Scoring Computer # | <input type="text" value="1"/> | <input type="button" value="Calibrate"/> |
| First Lane | <input type="text" value="1"/> | Bumpers Installed <input checked="" type="checkbox"/> |
| Number of Lanes | <input type="text" value="8"/> | Direct Monitor Ctrl <input checked="" type="checkbox"/> |
| Password | <input type="text" value="*****"/> | |
| Pinsetter | | Overhead Type |
| <input type="checkbox" value="GS"/> | <input type="checkbox" value="AMF/ No SS"/> | <input type="checkbox" value="NTSC"/> <input type="checkbox" value="PAL"/> <input type="checkbox" value="HD"/> |
| <input type="checkbox" value="String"/> | <input type="checkbox" value="Xima"/> | <input type="checkbox" value="LCD"/> <input type="checkbox" value="PAL/TV"/> |
| 6,2,0,0119 | | <input type="button" value="OK"/> <input type="button" value="Cancel"/> |

Scorer Computer Configuration Screen

Updated the Drives Programming

Updating the programming of the hard drive involves downloading of new software, commercials and multimedia files to the Scorer Computer’s drive from the control desk. Once this is complete, the programs’s settings must be synchronized with the control desk. Finally, if cameras are used for scoring, they need to be calibrated using the Pin Settings screen at the control desk.

1. From the control desk, update the software, commercials and multimedia. Refer to the “*Updating Scorer Software*” procedure located in the “*Vector/Vector Plus Control Desk*” Section of this manual. Reboot the Scorer Computer after the updates have finished.
2. Synchronize the Scorer Computer to the control desk. Refer to the “*Scorer Computer Synchronization*” procedure.
3. If pin cameras are used for scoring, calibrate the cameras using the “pin settings” screen located at the control desk. Refer to the “*Pinsettings and Camera Calibrations*” procedures located in the “*Vector Camera Assembly*” section of this manual.
4. Reboot the Scorer Computer and verify its operation.

Scorer Computer Synchronization

After replacing the hard drive or updating the software on the Scorer Computer, the control desk computer and the Scorer Computer must be synchronized. To synchronize them perform the following steps:

1. At the Lane Status screen in the Vector Plus Desk program, select the Vector Settings button.



Lane Status - Vector Settings

2. Using each of the Vector Settings buttons, send the desired selection settings to the scorer computer.

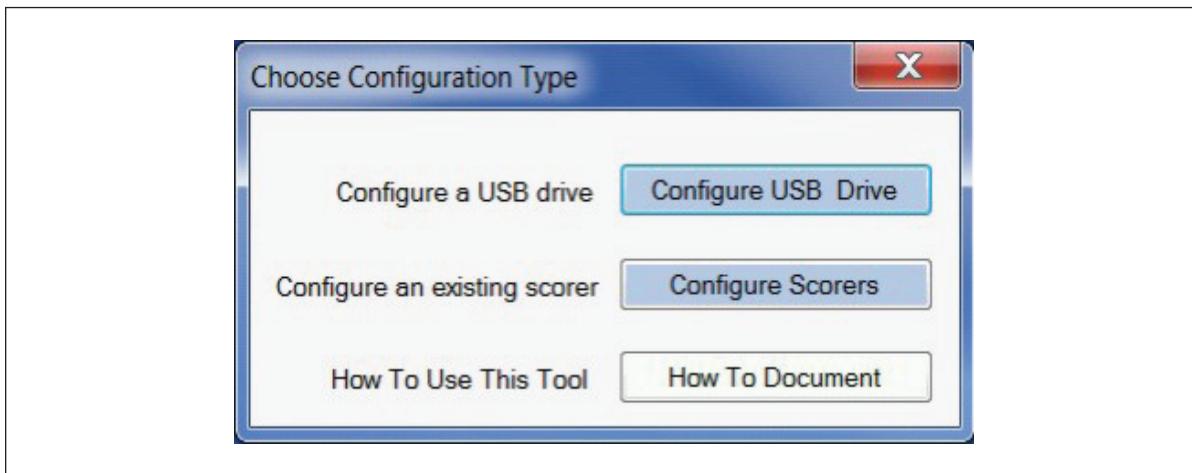
SCORER CONFIGURATION UTILITY

The Scorer Configuration Utility provides a means for users to configure a Scorer Computer hard drive when the configuration menu cannot be accessed from a scorer console. This may occur in situations such as a center that has keypads with the wrong overhead type selected. Settings that can be configured are similar to those available through the configuration menu at the scorer console. These include; First Lane, Number of Lanes, Touchscreen and Keypad Passwords, Pinsetter Type, and Overhead Type. The utility also allows users to identify if Bumpers are installed, whether Direct Monitor Control should be used for the overheads, and if the Scorer is connected to a Classic scoring system keypad.

Selecting Configuring Type

In most cases the Scorer Configuration Utility will be used for drives already installed in a Scorer Computer however the utility has the capability of configuring drives attached to a computer using a USB to SATA adapter. If using the USB method of configuration, make sure the drive is connected to the computer's USB port, has been recognized by the computer, and has been assigned a drive letter.

1. At the Windows desktop screen (the screen with the icons) of the Vector or Vector Plus SERVER computer, double-click on the ScorerConfigurationUtility.exe icon. If the icon is not on the desktop screen the program can be found in the C:\Brunswick\Utilities folder.



Choose Configuration Type screen

2. Select the desired configuration type as follows:

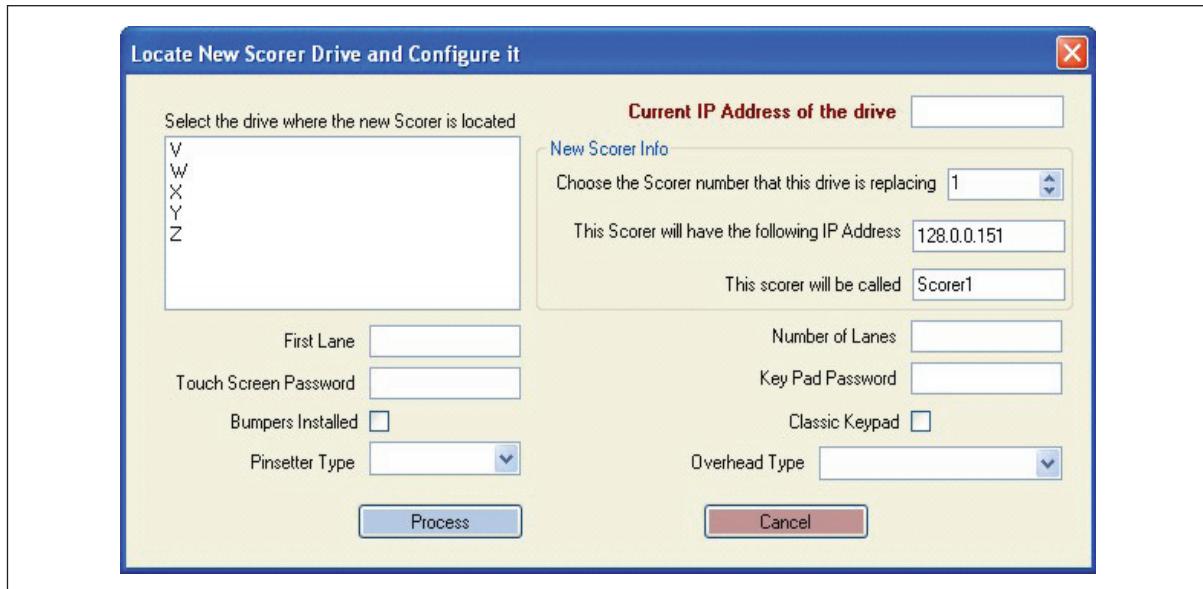
Configure USB Drive - Choose this if the hard drive is connected to the server using a USB to SATA adapter.

Configure Scorers - Choose this if the hard drive is already installed in a working Scorer Computer.

How To Document: Choose this to display an utility help document.

Configuring an USB Drive

1. On the *Locate New Scorer Drive and Configure It* screen, select the drive letter assigned to the hard drive. Once a drive is selected, the currently assigned to the drive will also display in the appropriate fields.



Hard Drive Configuration Screen

2. In the *New Scorer Info* section, select the Scorer Computer number as appropriate.



NOTE: Selecting a new Scorer Number is not mandatory. If the number is correct for the Scorer Computer in which the drive will be installed or if the number will be assigned from the console after the drive is installed, skip this step.

3. Enter the following configuration information concerning the drive as appropriate:

First Lane - Enter the lane number of 1st lane for the scorer computer

Number Of Lanes - Enter the total number controlled by the scorer computer.

TouchScreen Password - Enter a password to access the configuration screen from a touchscreen consoles.

Keypad Password - Enter a password to access the configuration screen from keypad consoles.

Bumper Installed - Check this box if automated bumpers (Pinball Wizard) are connected to the Scorer Computer.

Pinsetter Type - Select the type of pinsetters connected to the Scorer Computer.

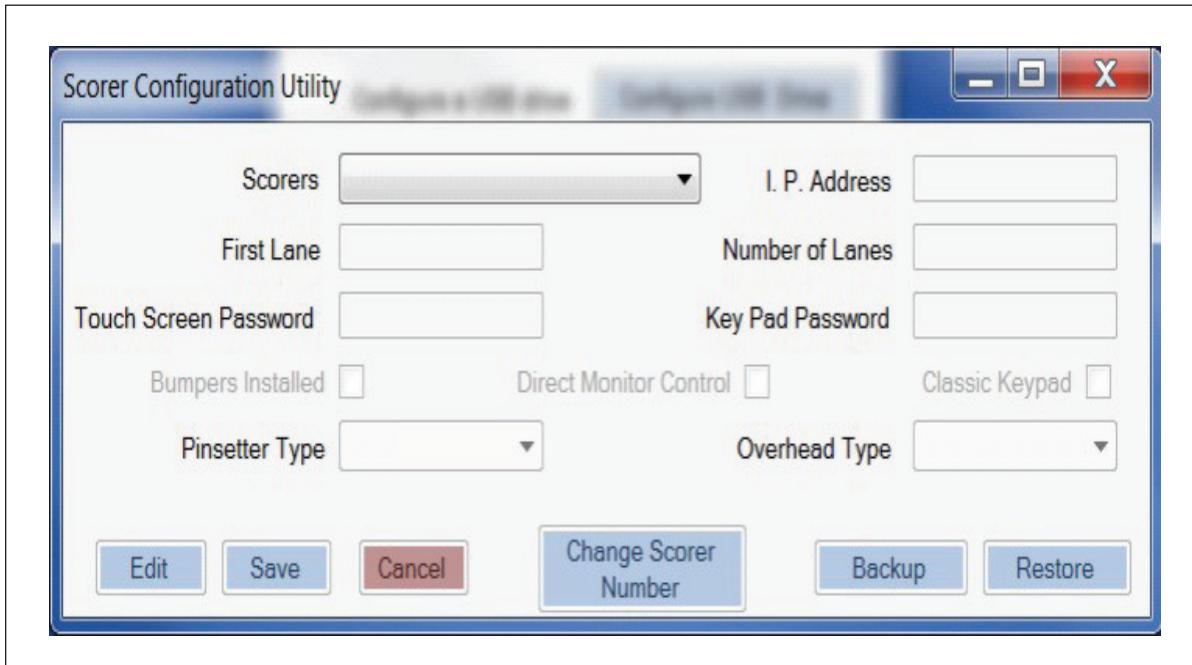
Overhead Type - For Vector HD scoring this setting must be set to HD.

Classic Keypad - For Vector scoring systems leave this selection unchecked.

4. Click the *Process* button to update the hard drive.

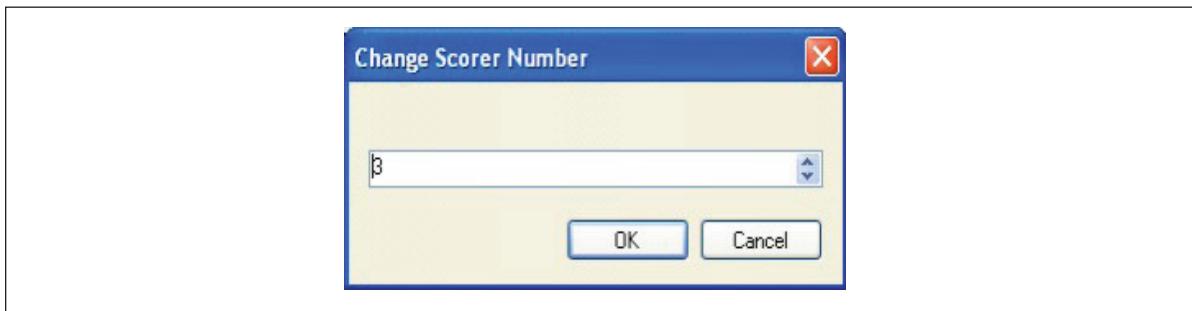
Configuring a Drive Installed in a Scorer Computer

1. On the *Scorer Configuration* screen, choose the Scorer to be modified from the *Scorers* drop-down box. Once a scorer is selected, the *Current IP Address* will be shown in the top right of the screen. Additional information currently assigned to the drive will also be displayed in the appropriate fields.



Scorer Configuration Screen

2. (Optional) If you want to change the scorer computer number of the currently selected scorer click the *Change Scorer Number* button. Choose a new scorer number from the drop down list and click OK. Otherwise skip to step 3.



Change Scorer Number

3. Enter the following configuration information concerning the drive as appropriate:

First Lane - Enter the lane number of 1st lane for the scorer computer

Number Of Lanes - Enter the total number controlled by the scorer computer.

TouchScreen Password - Enter the password used to access the configuration screen from a touchscreen consoles.

Keypad Password - Enter the password used to access the configuration screen from keypad consoles.

Bumper Installed - Check this box if automated bumpers (Pinball Wizard) are connected to the Scorer Computer.

Pinsetter Type - Select the type of pinsetters connected to the Scorer Computer.

Overhead Type - For Vector HD scoring this setting must be set to HD.

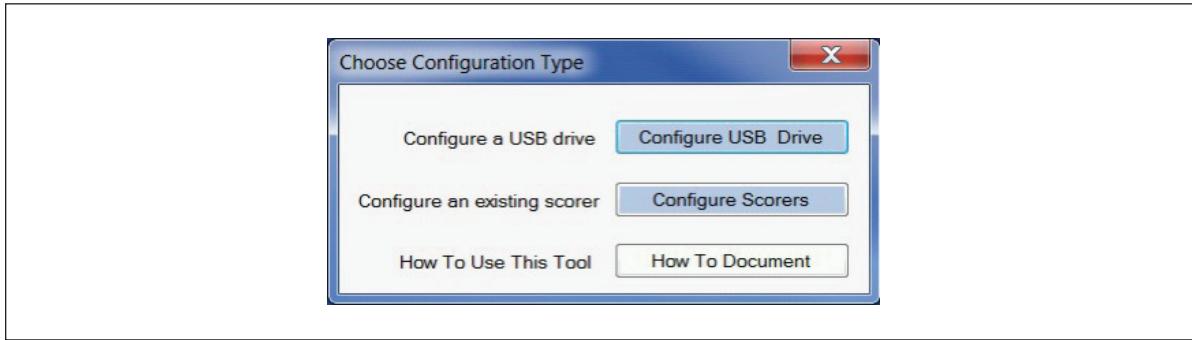
Classic Keypad - For Vector scoring systems leave this selection unchecked.

4. Click the *OK* button to update the hard drive.

Back-up and Restore A Hard Drive's Settings

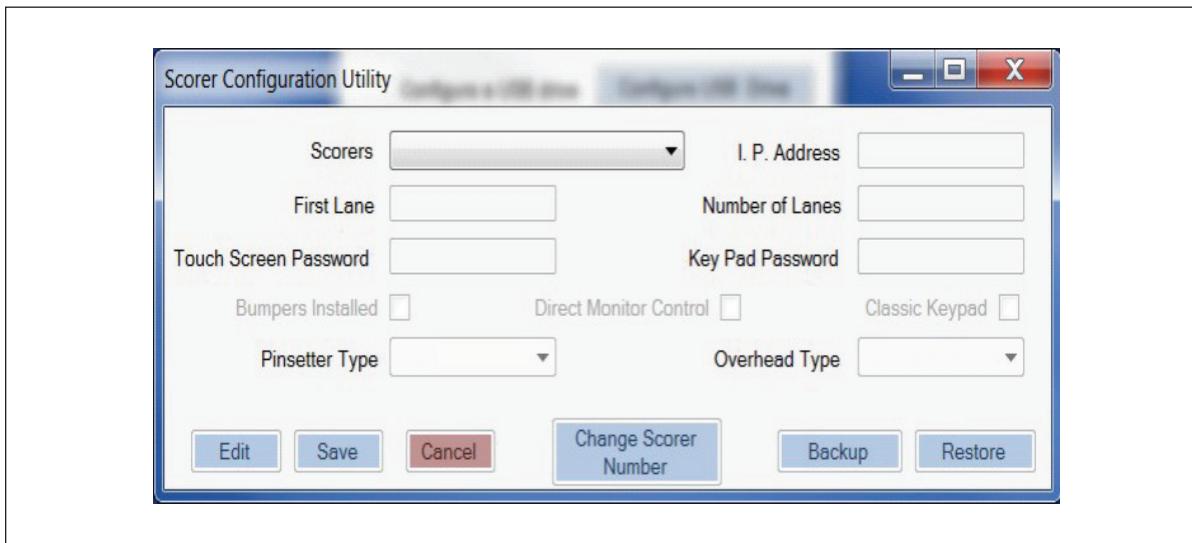
Having a good back-up of the settings of the Scorer Computer's hard drives allows the mechanic to easily restore a drives configuration and quickly get a replacement drive up and running. The back-up and restore functions are available using the Scorer Configuration Utility located on the Vector or Vector Plus SERVER computer.

1. At the Windows desktop screen (the screen with the icons) of the Vector or Vector Plus SERVER computer, double-click on the ScorerConfigurationUtility.exe icon. If the icon is not on the desktop screen the program can be found in the C:\Brunswick\Utilities folder.



Choose Configuration Type screen

2. Select the *Configure Scorers* button



Scorer Configuration Screen

3. Select the desired Scoring Computer from the drop-down list on the top-left of the window. To **backup** a configuration, click "Backup". To **restore** a previously backed up configuration, click "Restore." Refer to the figure titled *Scorer Configuration Screen*.

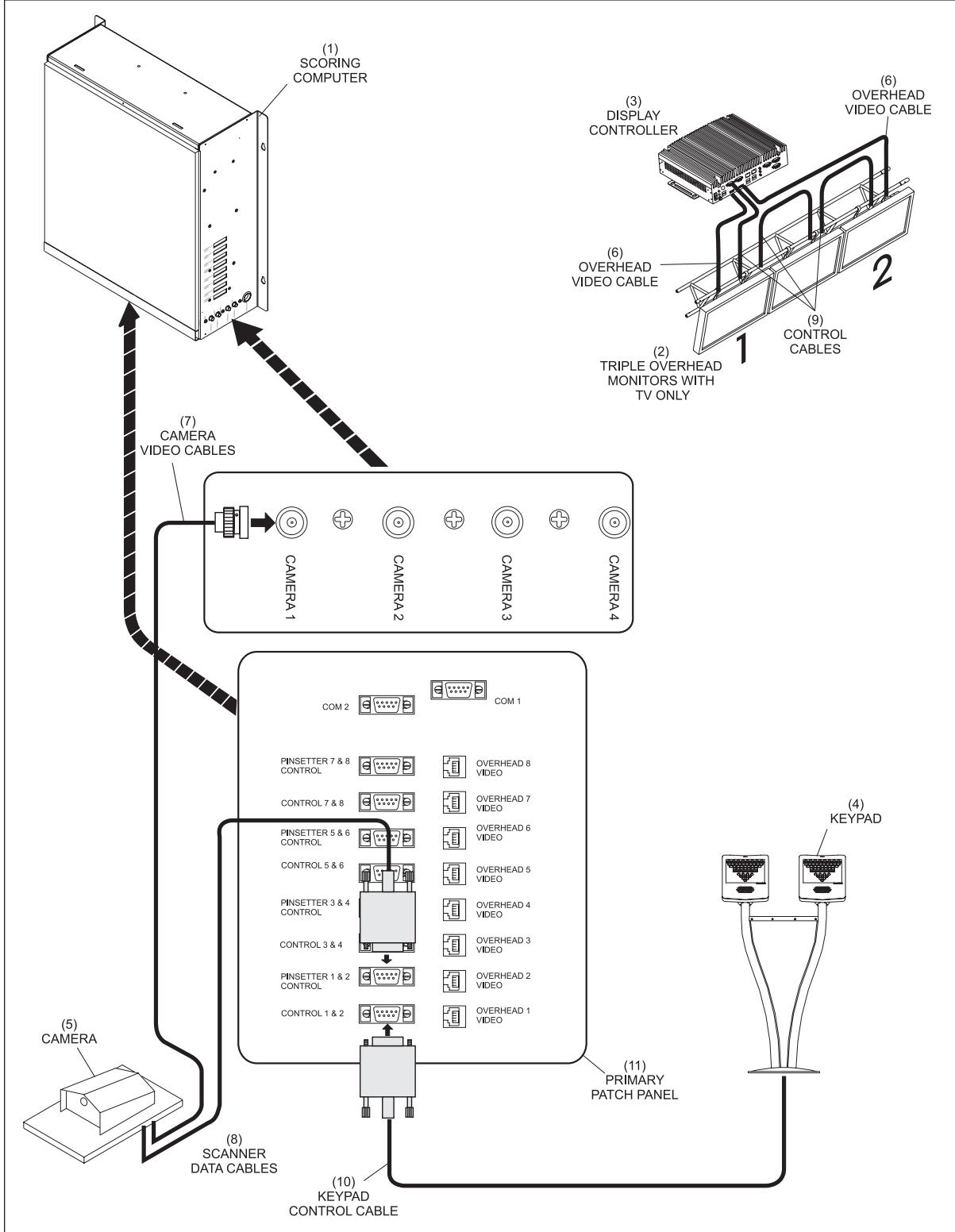
DAILY REBOOT PROCEDURE - ALL SYSTEMS

A daily reboot of the system components will cause all software and related computer processes to be closed and restarted, freeing up used resources and allowing the system to operate at peak efficiency. It is suggested that the following reboot procedure be done each morning prior to the start of business.

Reboot Procedure:

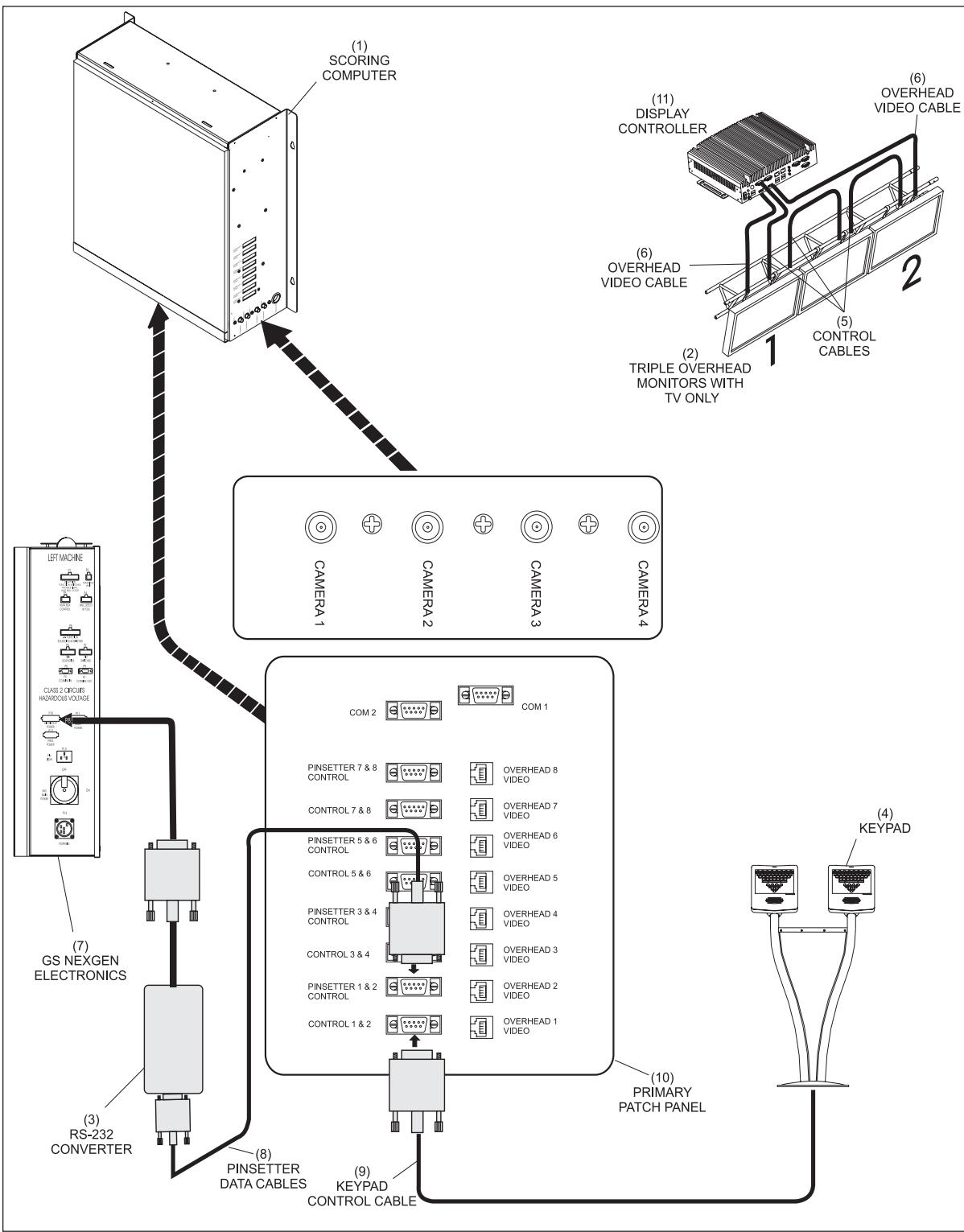
1. Scoring computer(s):
 - a. If the scoring computers are left on overnight, utilize the restart command in the desk system.
 - b. If the scoring computers are turned off overnight, utilize either the Wake-On-Lan feature (if available) or power on the scorers manually via the power button located on each unit.
2. Server computer:
 - a. Close all running applications on the server. Verify that none of the clients are running the desk software.
 - b. Restart the computer using the standard Windows procedure.
 - c. Log into Windows to allow all programs to start up as needed.
3. Display Controllers (Vector HD Systems):
 - a. If the controllers are left on overnight, utilize the restart command in the desk system.
 - b. If the controllers are turned off overnight, utilize either the Wake-On-Lan feature or power the controllers manually via the power button located on each unit.
4. Client computer(s):
 - a. If the client(s) are left on overnight, restart the computer using the standard Windows procedure.
 - b. If the client(s) are turned off overnight, turn on the unit using the power button on the computer.
 - c. If needed turn on the monitor and any other peripherals.
5. Verify system operation:
 - a. Open the desk system and verify that communication to the lanes is working.
 - b. Turn on the overhead monitors using the desk system if needed.

CABLING OVERVIEW



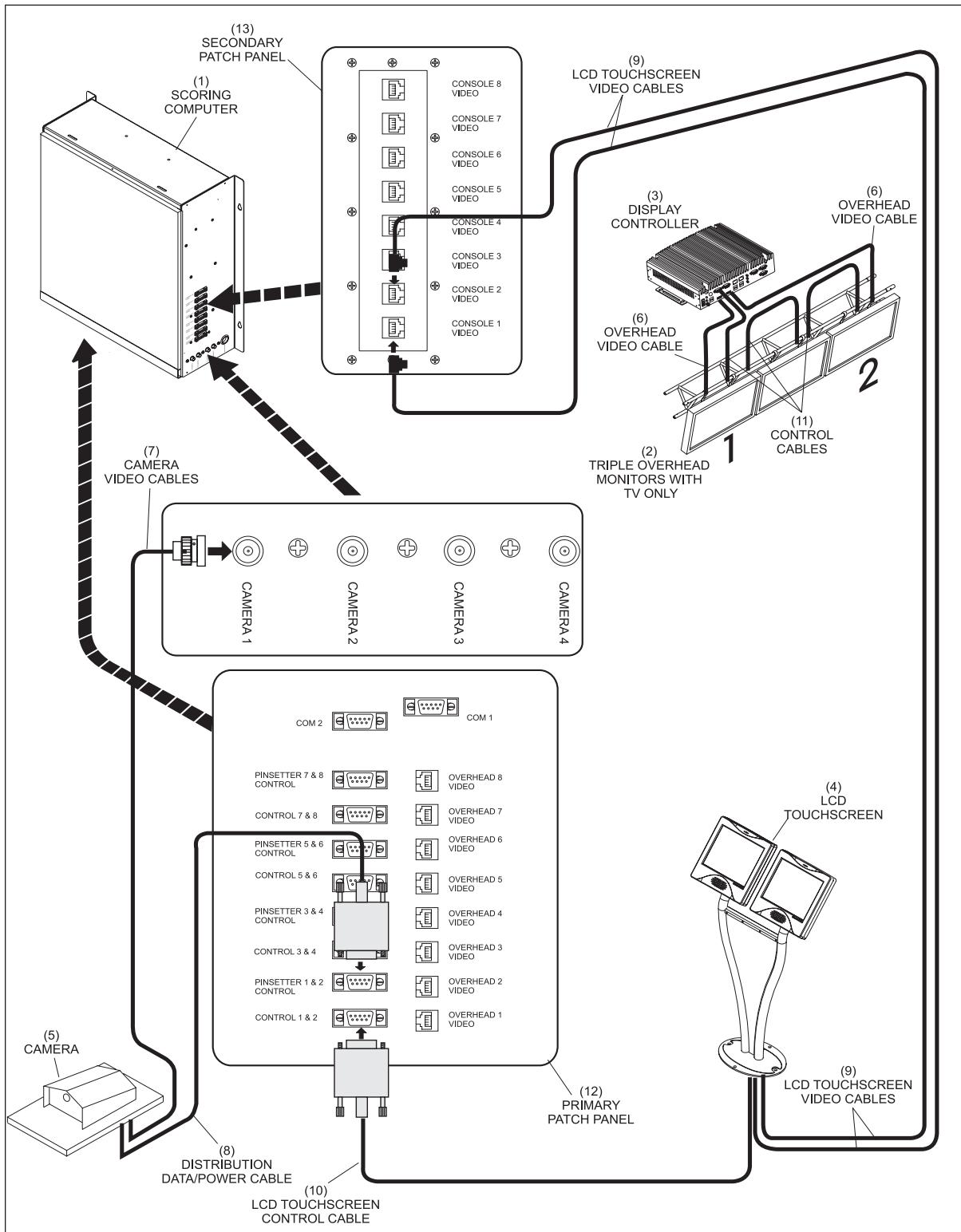
Vector-HD Scoring Computer Cabling - Keypads, Non-GS Pinsetters

- | | | |
|---------------------------|---|--------------------------|
| (1) SCORING COMPUTER | (2) TRIPLE WIDE SCREEN OVERHEAD MONITORS W/TV ONLY | (3) DISPLAY CONTROLLER |
| (4) KEYPAD | (5) CAMERA | (6) OVERHEAD VIDEO CABLE |
| (7) CAMERA VIDEO CABLES | (8) SCANNER DATA CABLES | (9) CONTROL CABLES |
| (10) KEYPAD CONTROL CABLE | (11) PRIMARY PATCH PANEL | |



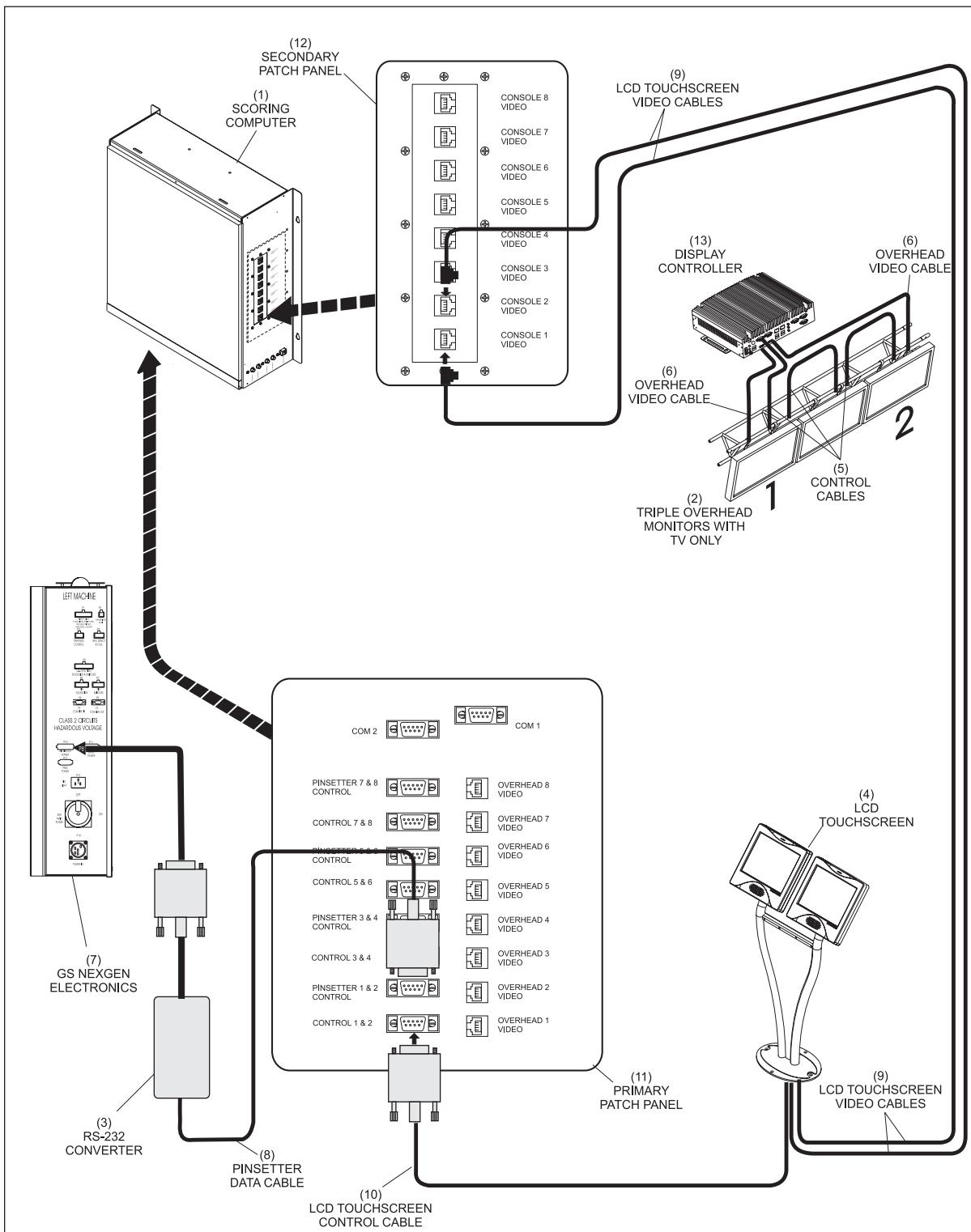
Vector -HD Scoring Computer Cabling - Keypads, GS Pinsetters

- | | | |
|---------------------------|--|--------------------------|
| (1) SCORING COMPUTER | (2) TRIPLE WIDE SCREEN OVERHEAD MONITORS W/TV ONLY | (3) RS-232 CONVERTER |
| (4) KEYPAD | (5) CONTROL CABLES | (6) OVERHEAD VIDEO CABLE |
| (7) GS NEXGEN ELECTRONICS | (8) PINSETTER DATA CABLES | (9) KEYPAD CONTROL CABLE |
| (10) PRIMARY PATCH PANEL | (11) DISPLAY CONTROLLER | |



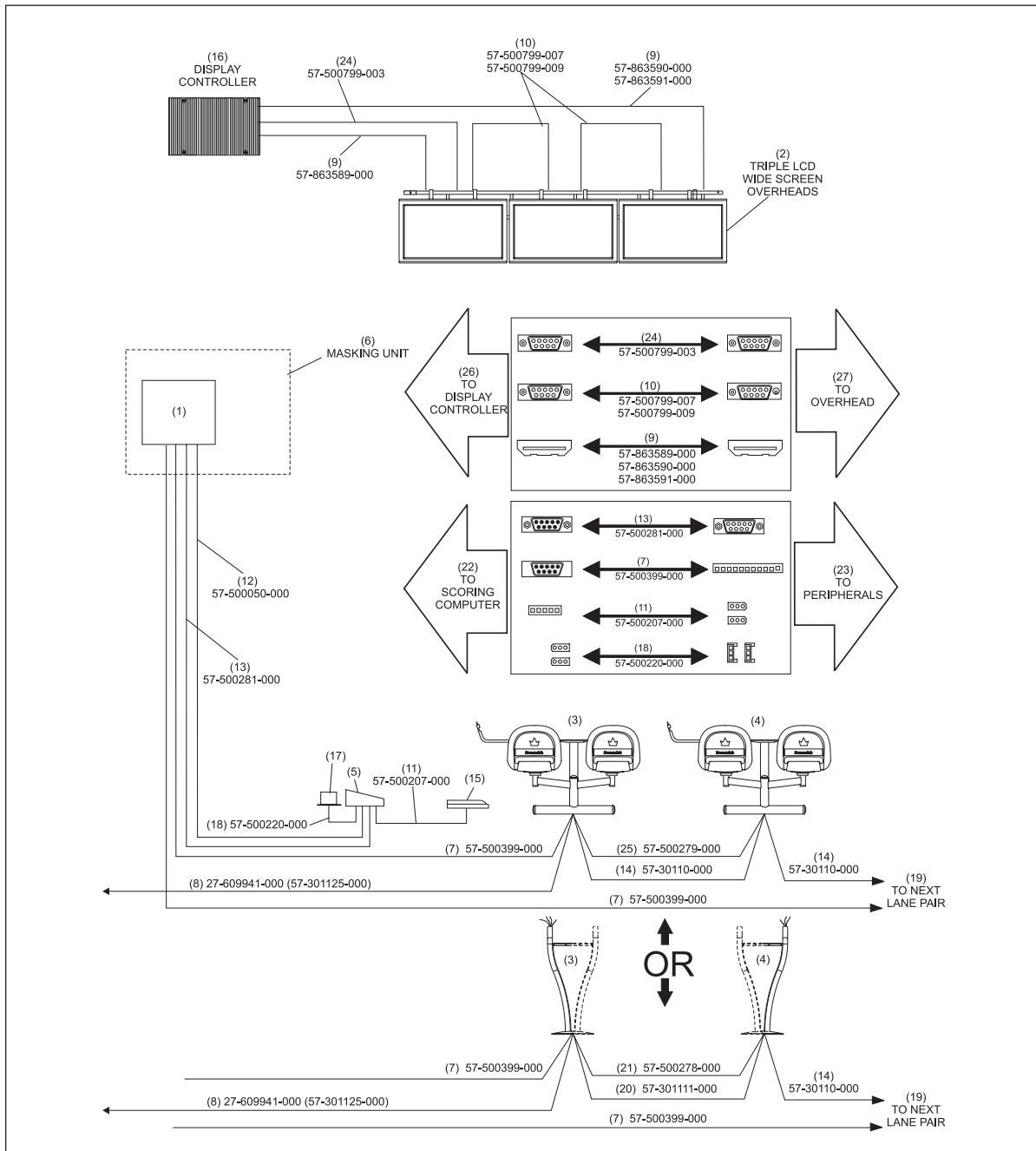
Vector-HD Scoring Computer Cabling - LCD Touchscreen, Non-GS Pinsetters

- | | | |
|------------------------------------|--|----------------------------------|
| (1) SCORING COMPUTER | (2) TRIPLE WIDE SCREEN OVERHEAD MONITORS W/TV ONLY | (3) DISPLAY CONTROLLER |
| (4) LCD TOUCHSCREEN | (5) CAMERA | (6) OVERHEAD VIDEO CABLE |
| (7) CAMERA VIDEO CABLES | (8) DISTRIBUTION DATA/POWER CABLE | (9) LCD TOUCHSCREEN VIDEO CABLES |
| (10) LCD TOUCHSCREEN CONTROL CABLE | (11) CONTROL CABLES | (12) PRIMARY PATCH PANEL |
| (13) SECONDARY PATCH PANEL | | |



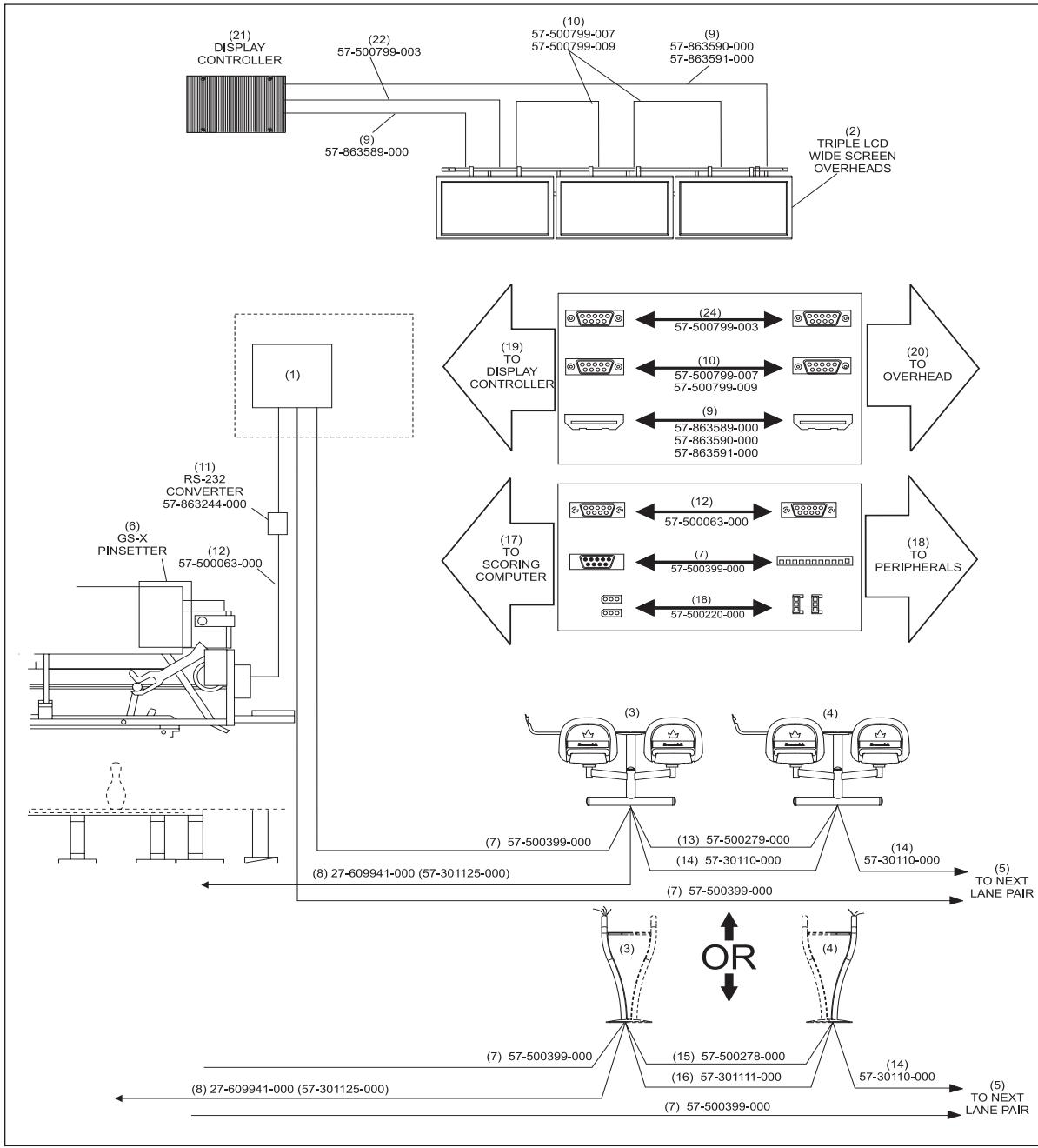
Vector - HD Scoring Computer Cabling - LCD Touchscreen, GS Pinsetters

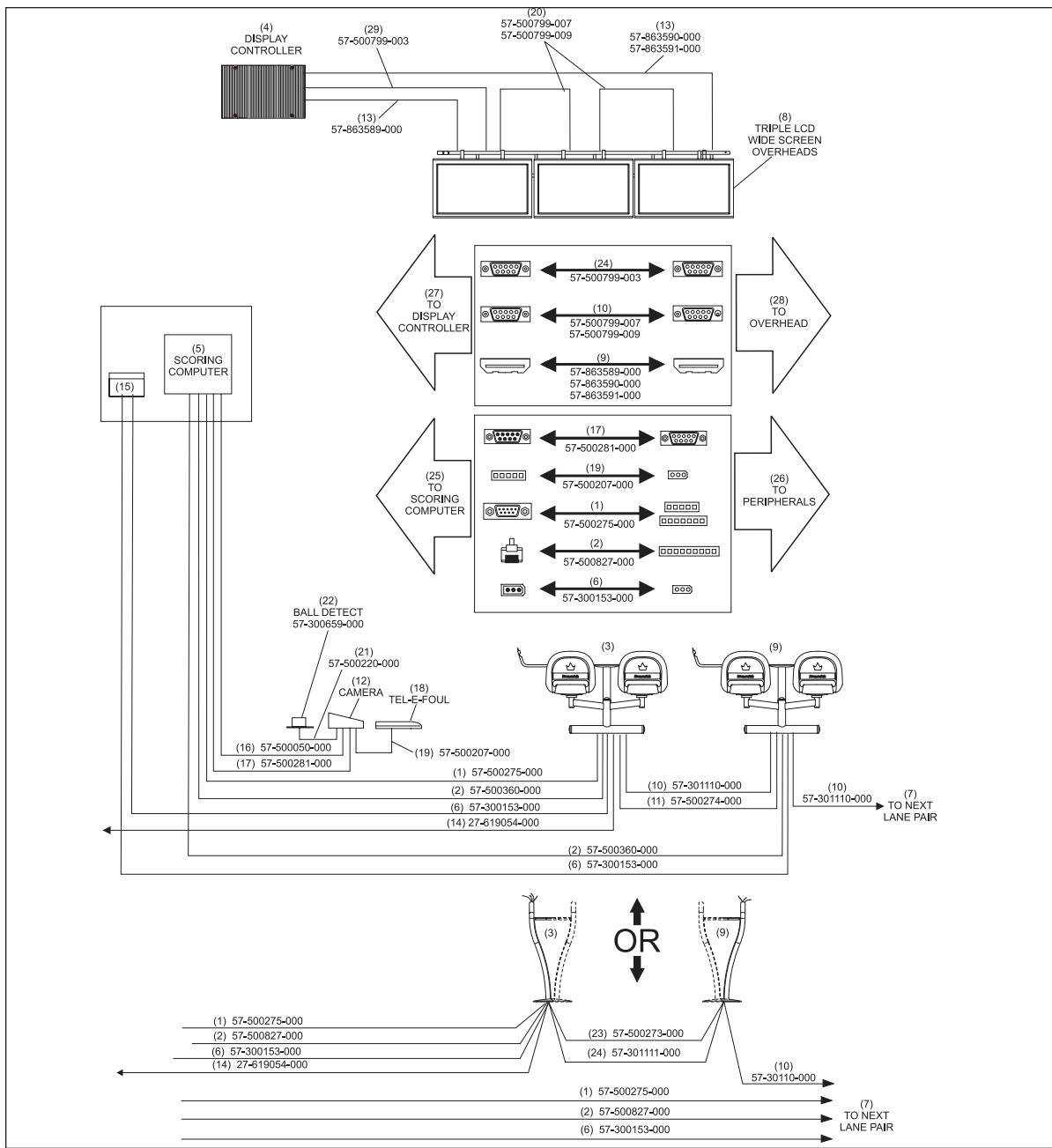
- | | | |
|------------------------------------|--|----------------------------------|
| (1) SCORING COMPUTER | (2) TRIPLE WIDE SCREEN OVERHEAD MONITORS W/TV ONLY | (3) RS 232 CONVERTER |
| (4) LCD TOUCHSCREEN | (5) CONTROL CABLES | (6) OVERHEAD VIDEO CABLE |
| (7) GS NEXGEN ELECTRONICS | (8) PINSETTER DATA CABLE | (9) LCD TOUCHSCREEN VIDEO CABLES |
| (10) LCD TOUCHSCREEN CONTROL CABLE | (11) PRIMARY PATCH PANEL | (12) SECONDARY PATCH PANEL |
| (13) DISPLAY CONTROLLER | | |



Vector-HD with Keypad, Non-GS Pinsetters - Lane Pair Cables

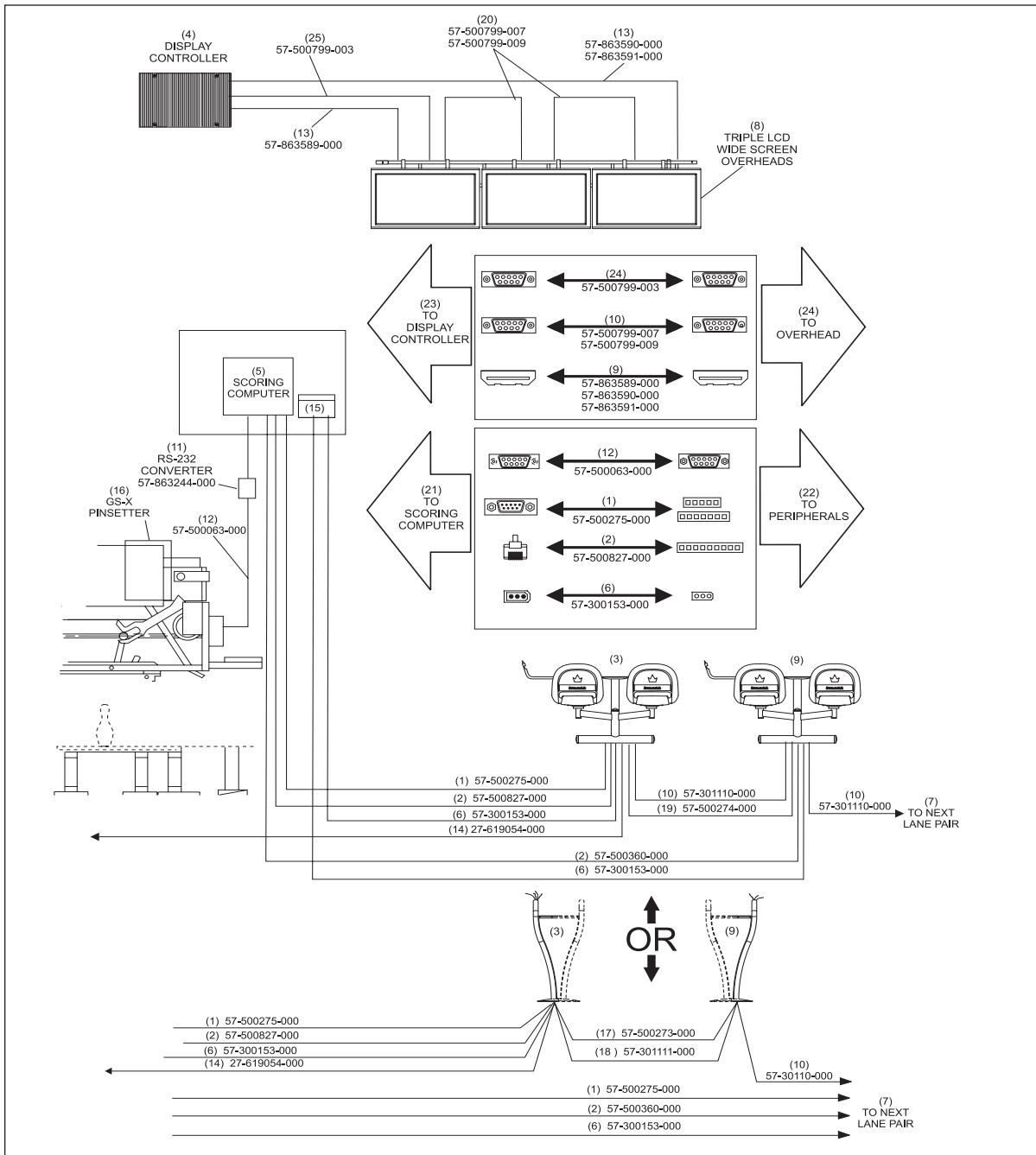
- | | | |
|---|--|--|
| (1) SCORING COMPUTER | (2) TRIPLE WIDE SCREEN OVERHEAD MONITORS | (3) ODD LANE |
| (4) EVEN LANE | (5) CAMERA | (6) MASKING UNIT |
| (7) 57-500399-000 SCORING COMPUTER TO KEYPAD CABLE | (8) 27-609941-000 (57-301125-000) | (9) 57-863589-000, 57-863590-000, 57-863591-000 HDMI VIDEO CABLE |
| (10) 57-500799-00X CONTROL CABLE OVERHEAD TO OVERHEAD | (11) 57-500207-000 FOUL CABLE | (12) 57-500050-000 CAMERA VIDEO CABLE |
| (13) 57-500281-000 CAMERA DATA CABLE | (14) 57-30110-000 GLOBAL AUDIO CABLE | (15) TEL-E-FOUL |
| (16) DISPLAY CONTROLLER | (17) PKG. 57-863173-000, P/N 57-300659-000 BALL DETECT | (18) 57-500220-000 BALL DETECT CABLE |
| (19) TO NEXT LANE PAIR | (20) 57-301111-000 GLOBAL AUDIO CABLE | (21) 57-500278-000 LANE CABLE |
| (22) TO SCORER COMPUTER | (23) TO PERIPHERALS | (24) 57-500799-003 CONTROL CABLE TO OVERHEAD |
| (25) 57-500279-000 LANE CABLE | (26) TO DISPLAY CONTROLLER | (27) TO OVERHEAD |





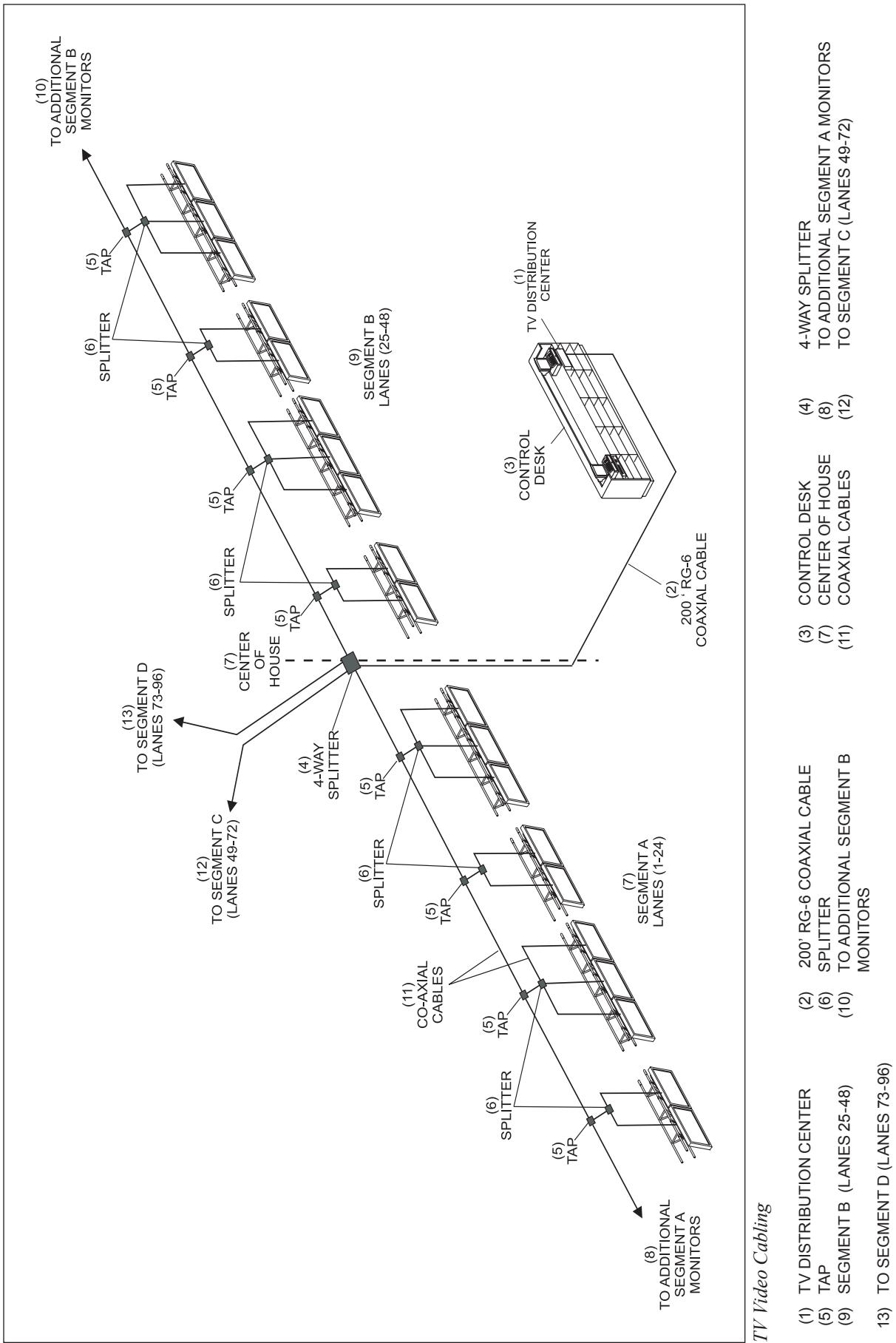
Vector-HD with LCD Touchscreen, Non-GS Pinsetters - Lane Pair Cabling

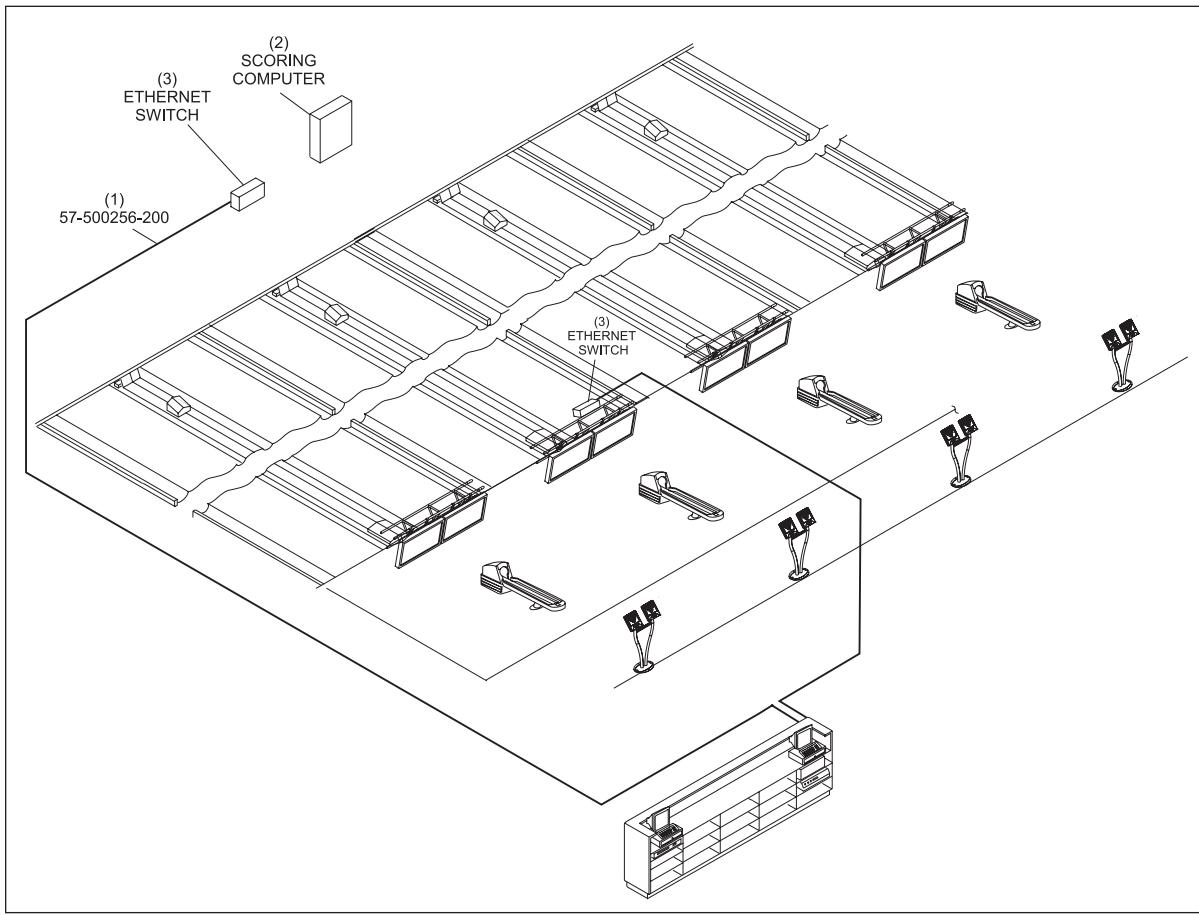
- | | | |
|---|---|--|
| (1) 57-500275-000 SCORING COMPUTER TO LCD TOUCHSCREEN LAN CABLE | (2) 57-500827-000 SCORER COMPUTER TO LCD TOUCHSCREEN VIDEO CABLES | (3) ODD LANE TOUCHSCREEN |
| (4) DISPLAY CONTROLLER OVERHEAD VIDEO CABLES | (5) SCORING COMPUTER | (6) 57-300153-000 LCD TOUCHSCREEN POWER CABLE |
| (7) TO NEXT LANE PAIR | (8) TRIPLE LCD WIDE SCREEN OVERHEADS | (9) EVEN LANE TOUCHSCREEN |
| (10) 57-301110-000 GLOBAL AUDIO LANE PAIR TO LANE PAIR | (11) 57-500274-000 LANE CABLE | (12) CAMERA |
| (13) 57-863589-000, 57-863590-000 57-863591-000 HDMI VIDEO CABLE | (14) 27-609941-000 (57-301125-000) | (15) LCD TOUCHSCREEN POWER SUPPLY CONTROL DESK |
| (16) 57-500050-000 CAMERA VIDEO CABLE | (17) 57-500281-000 CAMERA DATA CABLE | (18) TEL-E-FOUL CABLE |
| (19) 57-500207-000 FOUL CABLE | (20) 57-500799-00X CONTROL OVERHEAD TO OVERHEAD | (21) 57-500220-000 BALL DETECT CABLE |
| (22) BALL DETECT 57-300659-000 | (23) 57-500273-000 LANE CABLE | (24) 57-301111-000 GLOBAL AUDIO |
| (25) TO SCORER COMPUTER | (26) TO PERIPHERALS | (27) TO DISPLAY CONTROLLER |
| (28) TO OVERHEAD | (29) 57-500799-003 CONTROL CABLE TO OVERHEAD | |



Vector-HD with LCD Touchscreen, GS-X Pinsetters - Lane Pair Cabling

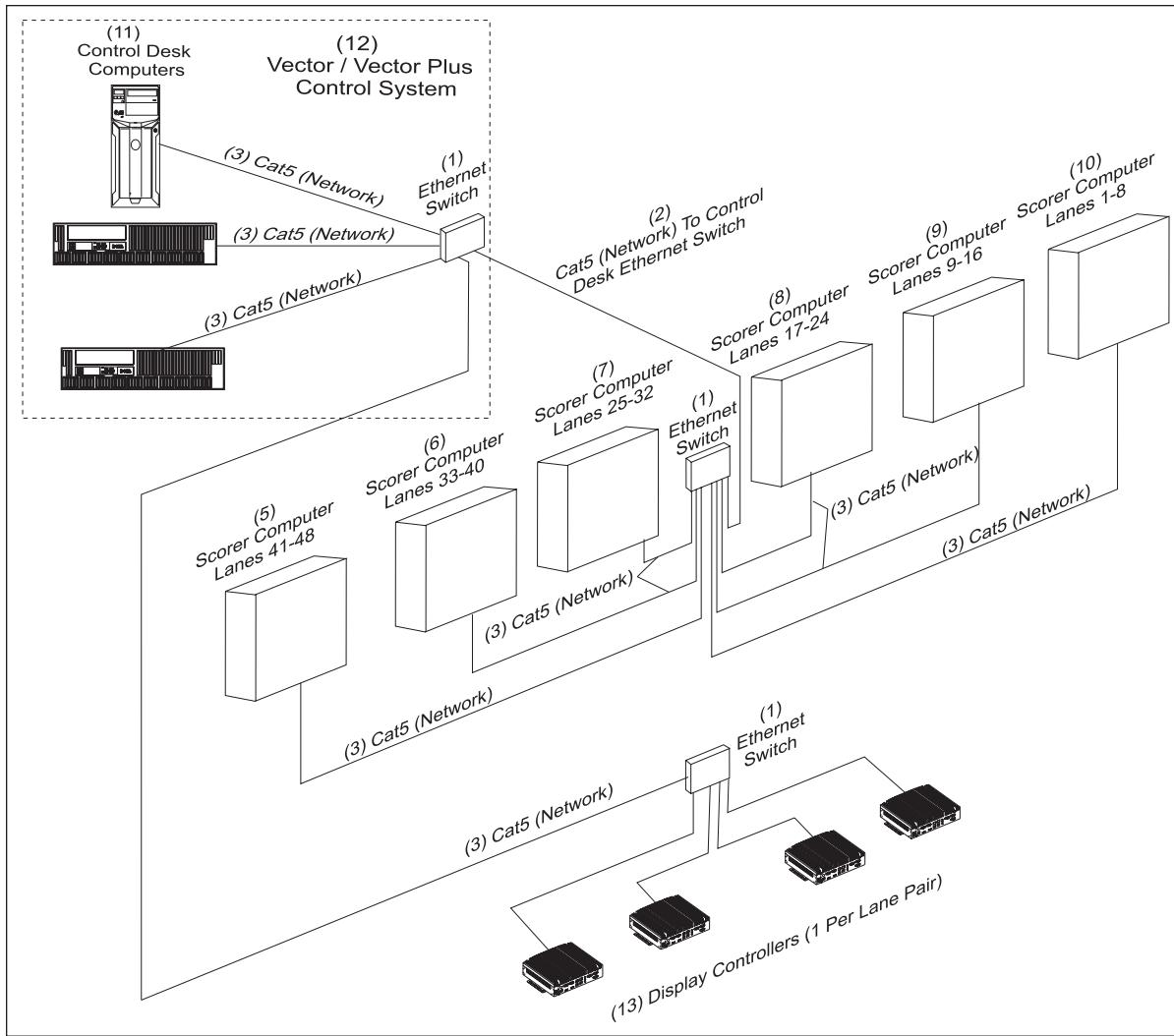
- | | | |
|---|--|---|
| (1) 57-500275-000 SCORING COMPUTER TO LCD TOUCHSCREEN LAN CABLE | (2) 57-500827-000 LCD TOUCHSCREEN VIDEO CABLES | (3) ODD LANE TOUCHSCREEN |
| (4) DISPLAY CONTROLLER | (5) SCORING COMPUTER | (6) 57-300153-000 LCD TOUCHSCREEN POWER CABLE |
| (7) TO NEXT LANE PAIR | (8) TRIPLE LCD WIDE SCREEN OVERHEADS | (9) EVEN LANE TOUCHSCREEN |
| (10) 57-301110-000 GLOBAL AUDIO LANE PAIR TO LANE PAIR | (11) RS-232 CONVERTER 57-863244-000 | (12) 57-500063-000 GS PINSETTER RS232 CONVERTOR |
| (13) 57-863589-000, 57-863590-000 57-863591-000 HDMI VIDEO CABLE | (14) 27-609941-000 (57-301125-000) AUDIO - BULK CABLE FROM CONTROL DESK | (15) LCD TOUCHSCREEN POWER SUPPLY |
| (16) GS-X PINSETTER | (17) 57-500273-000 LANE CABLE | (18) 57-301111-000 GLOBAL AUDIO |
| (19) 57-500274-000 LANE CABLE | (20) 57-500799-00X CONTROL OVERHEAD TO OVERHEAD | (21) TO SCORER COMPUTER |
| (22) TO PERIPHERALS | (23) TO DISPLAY CONTROLLER | (24) TO OVERHEAD |
| (25) 57-500799-003 CONTROL TO OVERHEAD | | |





Control Desk to Ethernet Switch Cable Routing

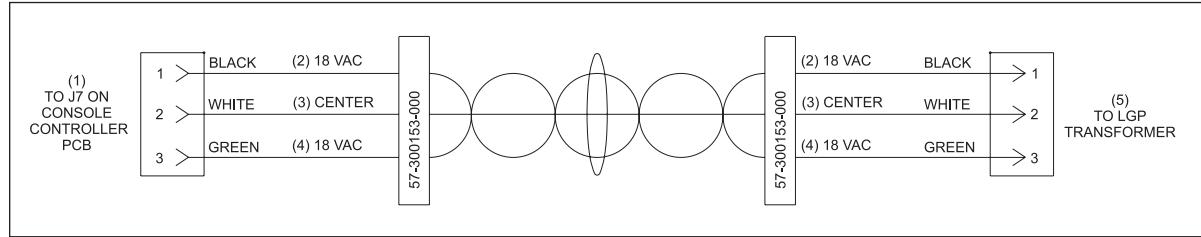
(1) 57-500256-200 ETHERNET CABLE (2) SCORING COMPUTER (8 LANES) (3) ETHERNET SWITCH



Scoring Computer Network 8 Lane Configuration

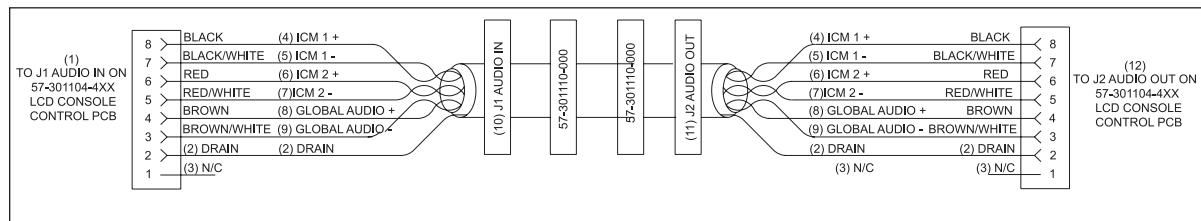
- | | | |
|---|--|--|
| (1) SCORING COMPUTER | (2) ETHERNET SWITCH | (3) 57-500256-007 ETHERNET CABLE (7') |
| (4) 57-500256-050 ETHERNET CABLE (50') | (5) 57-500256-100 ETHERNET CABLE (100') | (6) 57-500256-150 ETHERNET CABLE (150') |
| (7) TO CONTROL DESK 57-500256-200 (200') | (8) LANES 49-56 | (9) LANES 41-48 |
| (10) LANES 33-40 | (11) LANES 25-32 | (12) LANES 17-24 |
| (13) LANES 9-16 | (14) LANES 1-8 | (15) 8 LANES PER CENTER |

CABLE DIAGRAMS



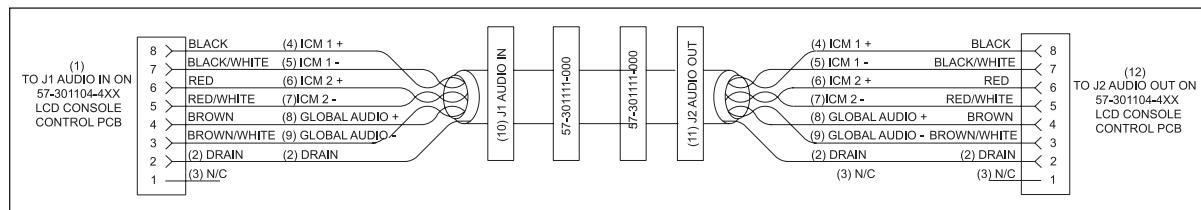
LCD Touchscreen Power Cable (Part No. 57-300153-000)

- | | | |
|--|-------------------------------------|------------|
| (1) TO J7 ON CONSOLE CONTROLLER PCB | (2) 18 VOLTS ALTERNATING CURRENT | (3) CENTER |
| (4) 18 VOLTS ALTERNATING CURRENT | (5) TO LGP TRANSFORMER | |



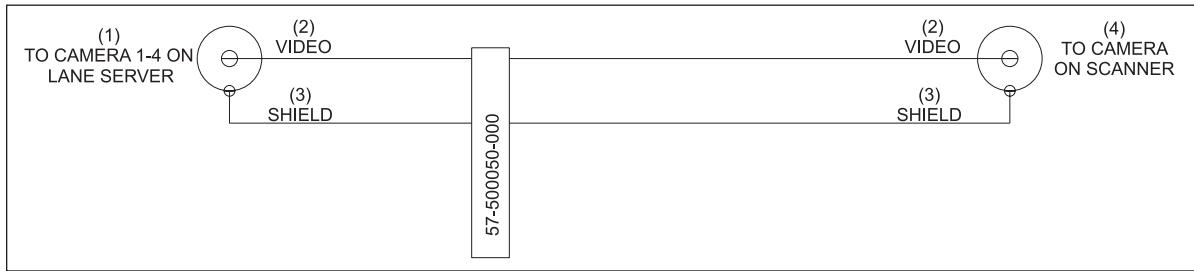
Global Audio lane to Lane Cable (Part No. 57-301110-000)

- | | | |
|--|--------------------|---|
| (1) TO J1 AUDIO IN ON 57-301104-000 LCD CONSOLE CONTROL PCB | (2) DRAIN | (3) NO CONNECTION |
| (4) ICM 1 + | (5) ICM 1 - | (6) ICM 2 + |
| (7) ICM 2 - | (8) GLOBAL AUDIO + | (9) GLOBAL AUDIO- |
| (10) J1 AUDIO IN | (11) J2 AUDIO OUT | (12) TO J2 AUDIO OUT ON 57-301104-4XX LCD CONSOLE CONTROL PCB |



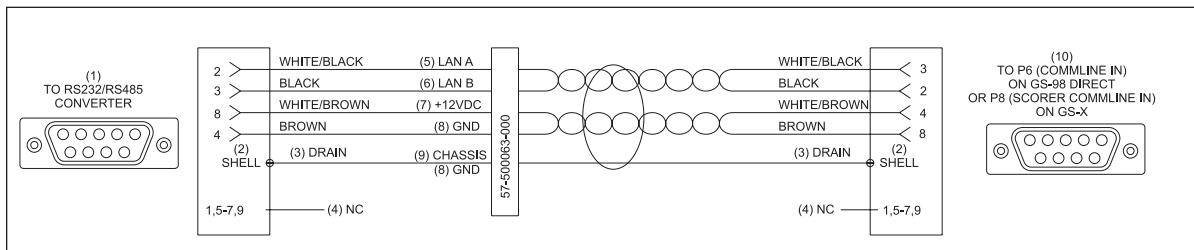
Global Audio Odd to Even Cable - Pedestal Mount (Part No. 57-301111-000)

- | | | |
|--|--------------------|--|
| (1) TO J1 AUDIO IN ON 57-301104-000 LCD CONSOLE CONTROL PCB | (2) DRAIN | (3) NO CONNECTION |
| (4) ICM 1 + | (5) ICM 1 - | (6) ICM 2 + |
| (7) ICM 2 - | (8) GLOBAL AUDIO + | (9) GLOBAL AUDIO- |
| (10) J1 AUDIO IN | (11) J2 AUDIO OUT | (12) TO J2 AUDIO OUT ON LCD CONSOLE CONTROL PCB |



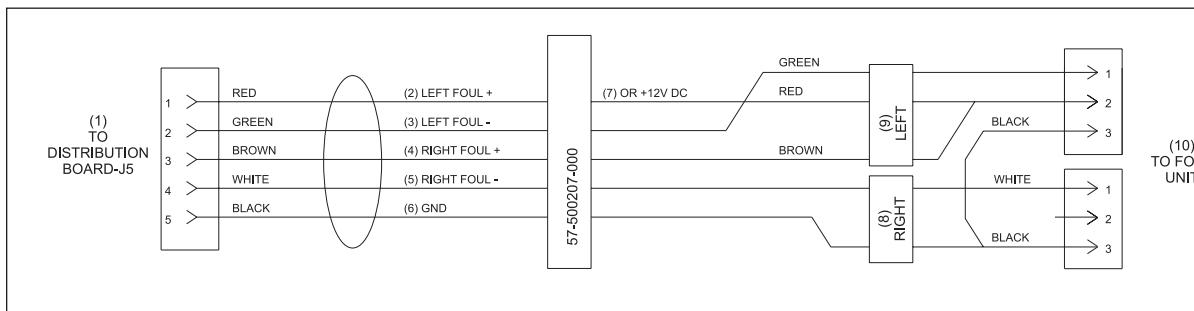
Camera Video Cable (Part No. 57-500050-000)

- (1) TO CAMERA 1-4 ON LANE SERVER (2) VIDEO
- (4) TO CAMERA ON SCANNER (3) SHIELD



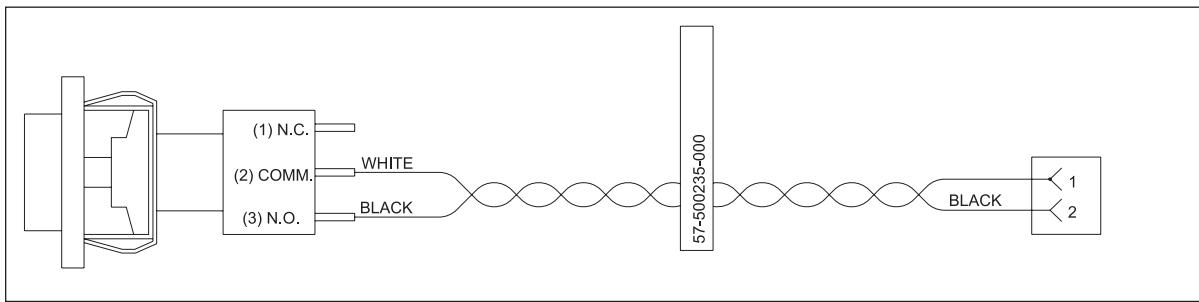
GS-Pinsetter RS232/485 Cable (Part No. 57-500063-000)

- (1) TO RS232/485 CONVERTER (2) SHELL
- (4) NO CONNECTION (5) LAN A (3) DRAIN
- (7) +12 VOLTS DIRECT CURRENT (8) GROUND (6) LAN B
- (10) TO P6 (COMLINE IN) ON GS-98 DIRECT OR P8 (SCORER COMLINE IN) ON GS-X (9) CHASSIS



Foul Cable (Part No. 57-500207-000)

- (1) TO DISTRIBUTION BOARD J5 (2) LEFT FOUL + (3) LEFT FOUL -
- (4) RIGHT FOUL + (5) RIGHT FOUL - (6) GROUND
- (7) OR +12 VOLTS DIRECT CURRENT(8) RIGHT (9) LEFT
- (10) TO FOUL UNIT

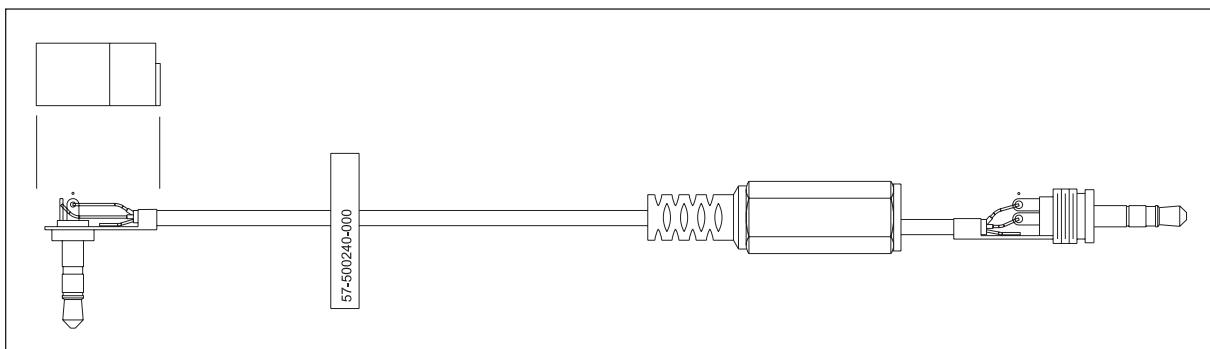


Power Control Cable (Part No. 57-500235-000)

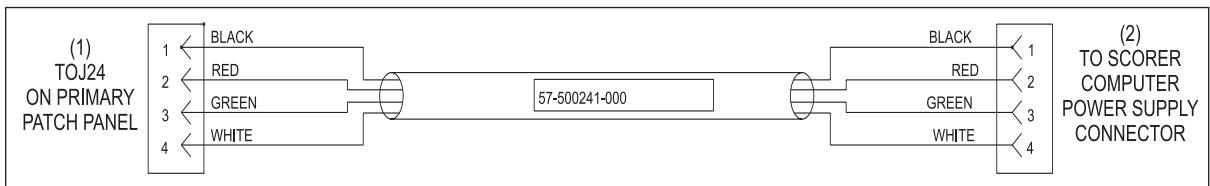
(1) NO CONNECTION

(2) COMM

(3) NORMALLY OPEN

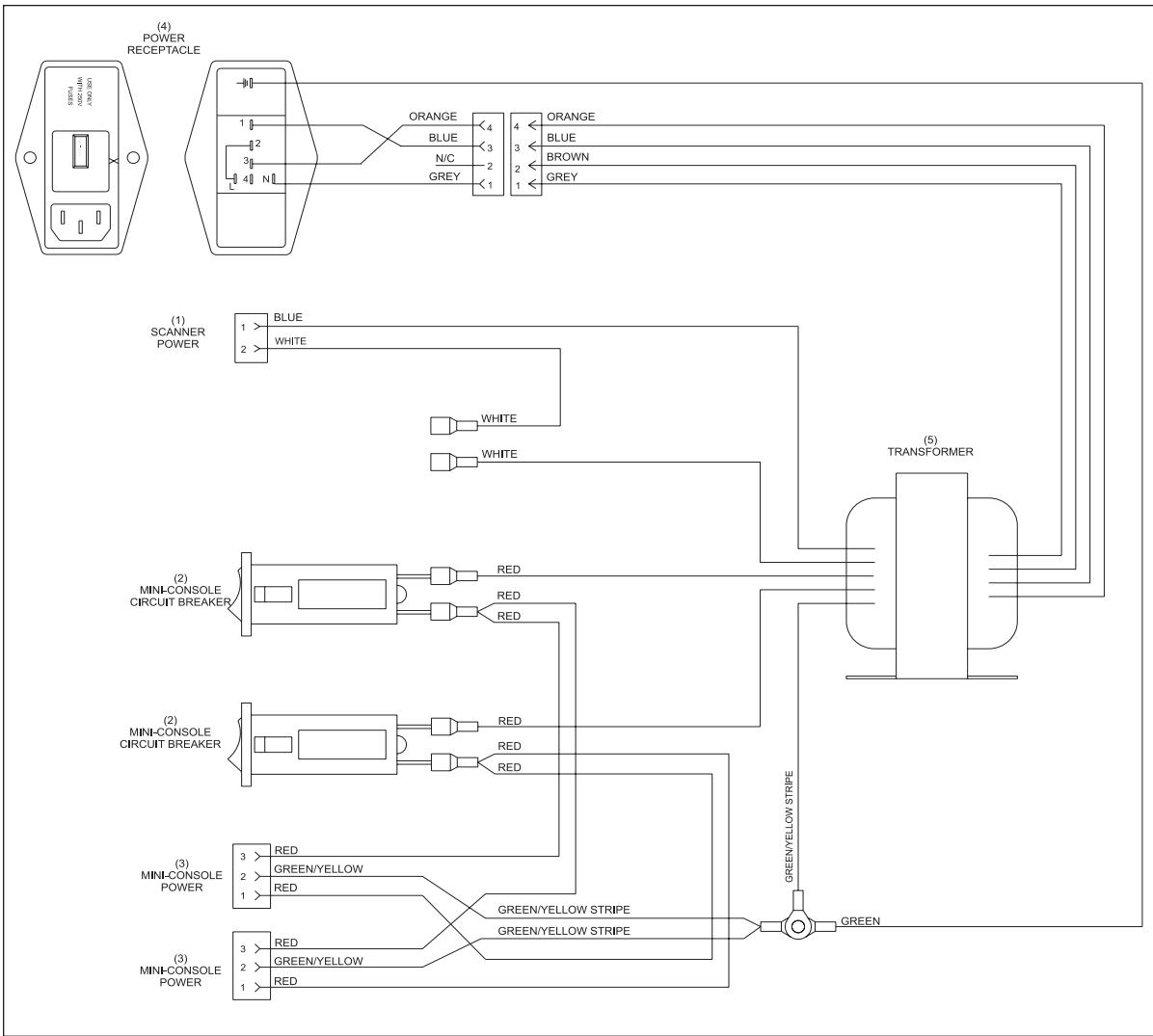


Audio Cable (Part No. 57-500240-000)



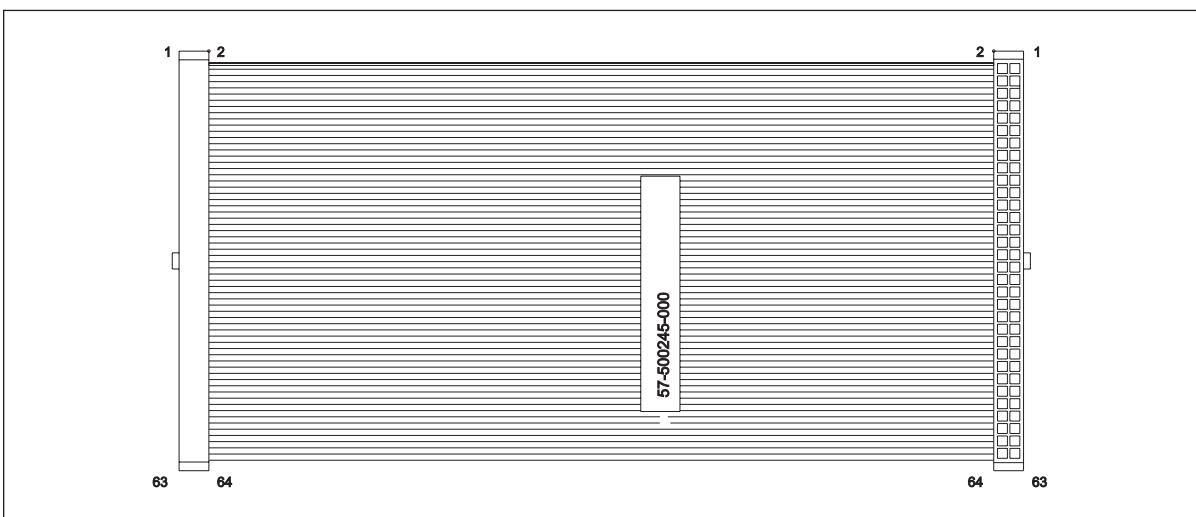
Primary Patch Panel PCB Power Cable (Part No. 57-500241-000)

(1) TO J24 ON PRIMARY PATCH PANEL (2) TO SCORER COMPUTER POWER SUPPLY CONNECTOR

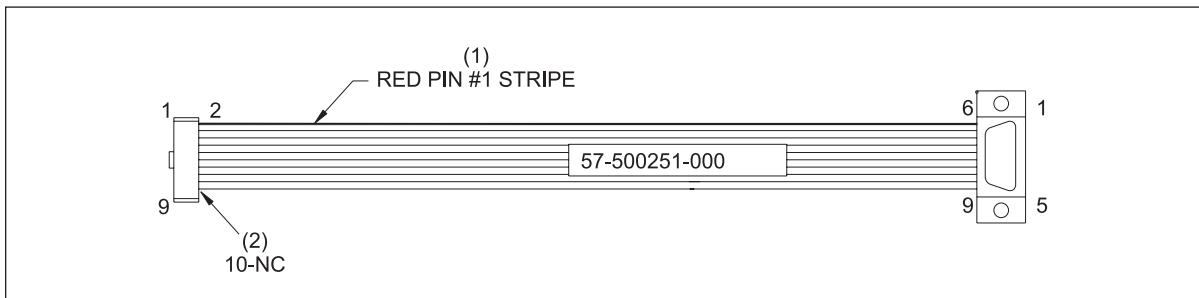


LCD Touchscreen Transformer (Part No. 57-500242-000)

- | | | |
|----------------------|----------------------------------|------------------------|
| (1) SCANNER POWER | (2) MINI-CONSOLE CIRCUIT BREAKER | (3) MINI-CONSOLE POWER |
| (4) POWER RECEPTACLE | (5) TRANSFORMER | |



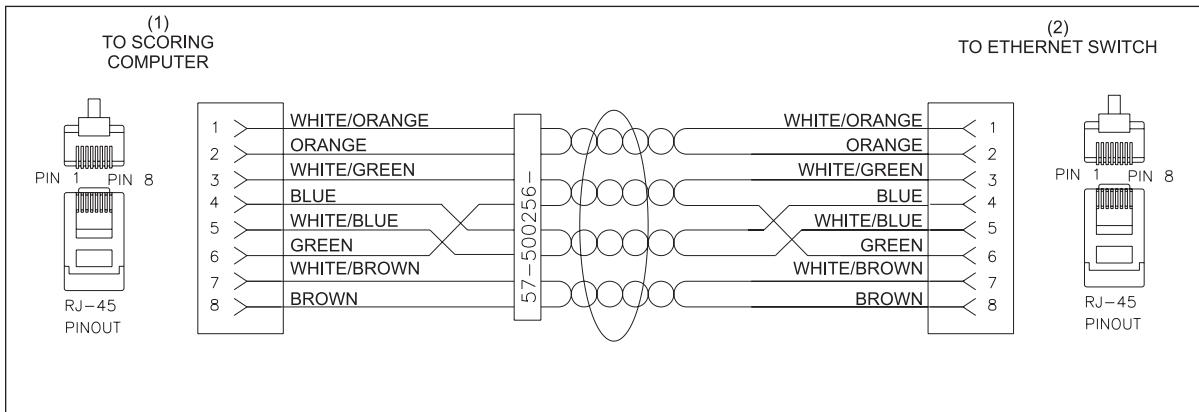
Overhead Video Ribbon Cable (Part No. 57-500245-000)



COM1/COM2 Ribbon Cable (Part No. 57-500251-000)

(1) RED STRIPE PIN #1

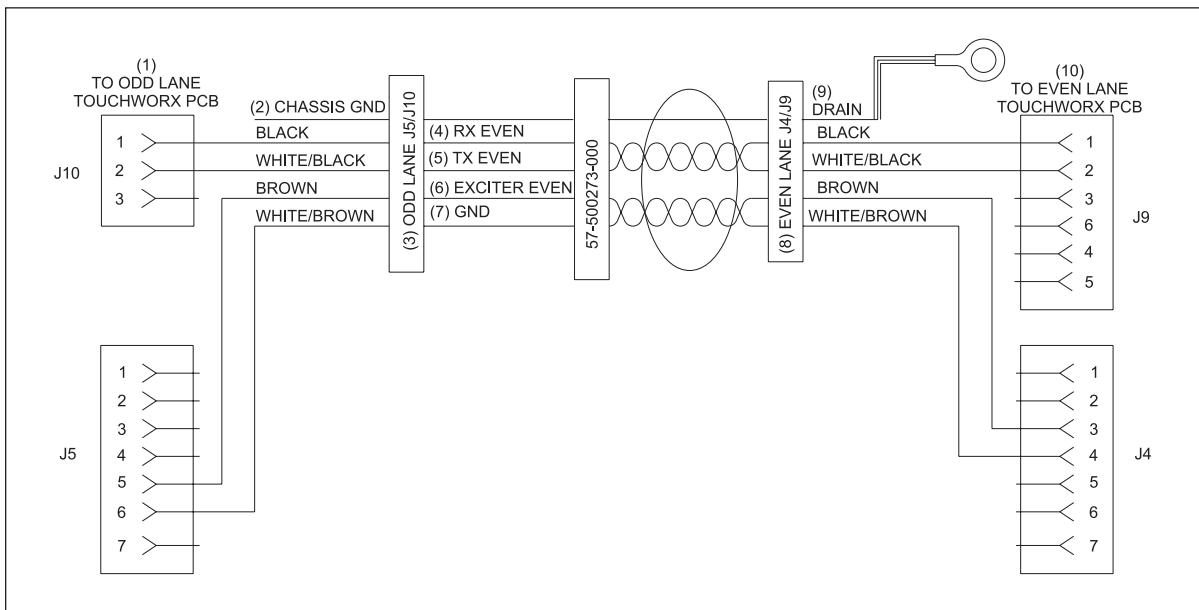
(2) 10 - NO CONNECTION



Ethernet Cable / CAT5e Cable (Part No. 57-500256-xxx)

(1) TO SCORING COMPUTER

(2) TO ETHERNET SWITCH

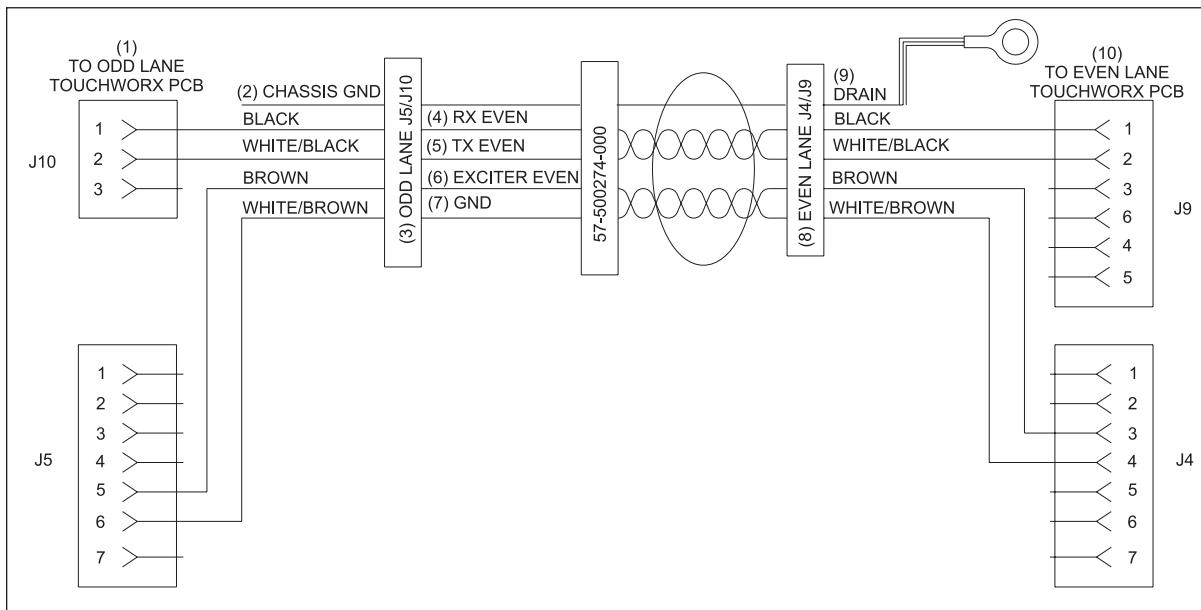


LAN Cable Odd Even Lane - Touchscreen Pedestal Mount (Part No. 57-500273-000)

(1) TO ODD LANE TOUCHWORX PCB
 (4) RX EVEN
 (7) GROUND

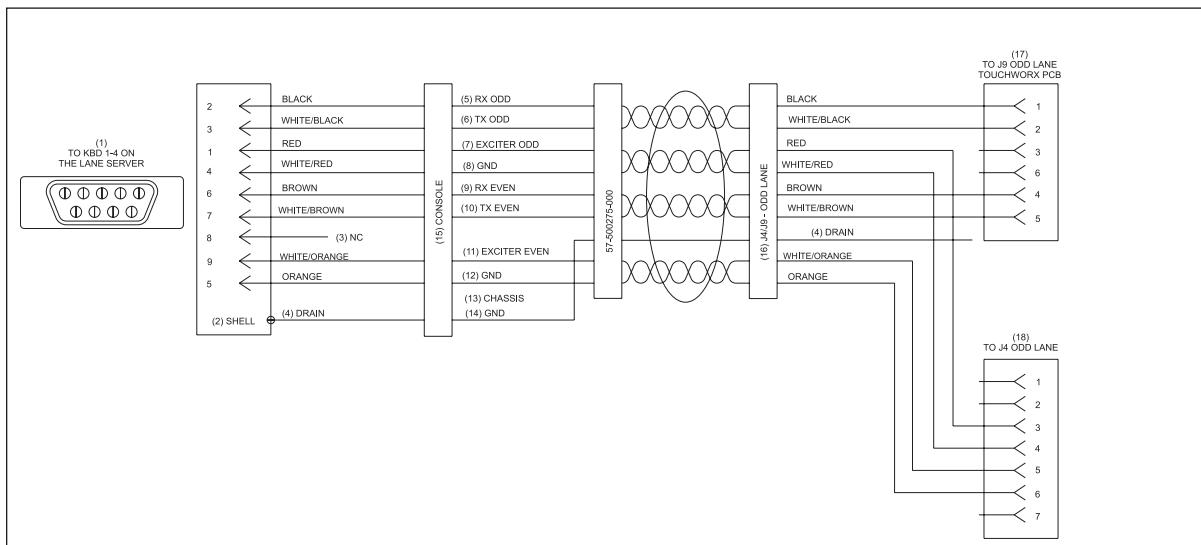
(2) CHASSIS GROUND
 (5) TX EVEN
 (8) EVEN LANE J / J9

(3) ODD LANE J5/J10
 (6) EXCITER EVEN
 (10) TO EVEN LANE TOUCHWORX PCB



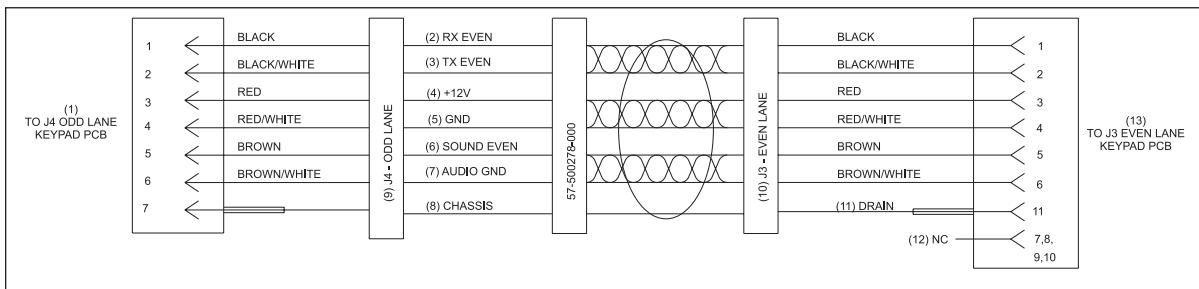
LAN Cable Odd Even Lane - Table Mount (Part No. 57-500274-000)

- | | | |
|-------------------------------|---------------------|---------------------------------|
| (1) TO ODD LANE TOUCHWORX PCB | (2) CHASSIS GROUND | (3) ODD LANE J5/J10 |
| (4) RX EVEN | (5) TX EVEN | (6) EXCITER EVEN |
| (7) GROUND | (8) EVEN LANE J /J9 | (10) TO EVEN LANE TOUCHWORX PCB |



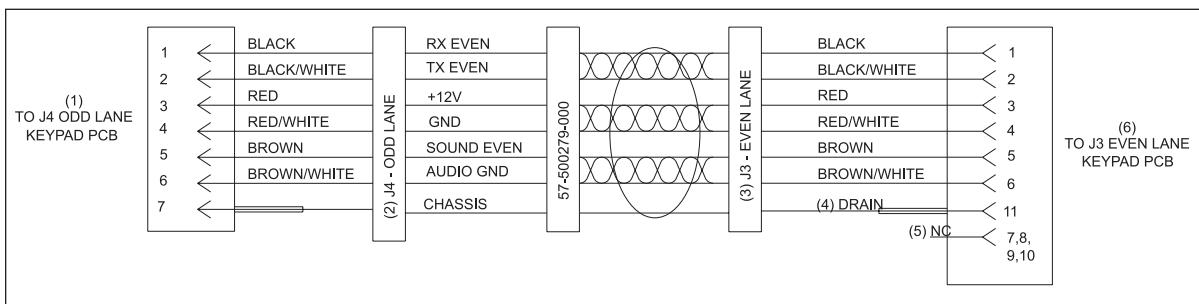
Scorer Computer to Odd Lane LCD LAN Cable (Part No. 57-500275-000)

- | | | |
|-----------------------------|--------------------------------------|---------------------|
| (1) TO KBD14 ON LANE SERVER | (2) SHELL | (3) NO CONNECTION |
| (4) DRAIN | (5) RX ODD | (6) TX ODD |
| (7) EXCITER ODD | (8) GROUND | (9) RX EVEN |
| (10) TX EVEN | (11) EXCITER EVEN | (12) GROUND |
| (13) CHASSIS | (14) GROUND | (15) CONSOLE |
| (16) J4/J9 - ODD LANE | (17) TO J9 ODD LANE TOUCHWORX PCB | (18) TO J4 ODD LANE |



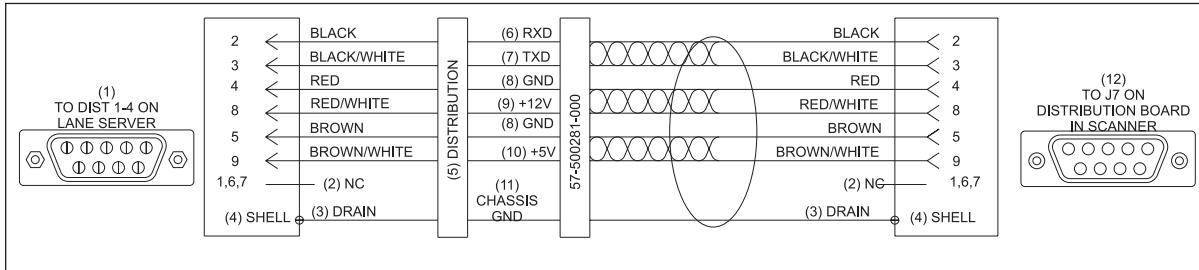
LAN Cable Odd to Even Lane- Pedestal Keypad Mount (Part No. 57-500278-000)

- | | | |
|---------------------------------|-------------|--------------------|
| (1) TO J4 ODD LANE KEYPAD PCB | (2) RX EVEN | (3) TX EVEN |
| (4) +12 VOLTS | (5) GROUND | (6) SOUND EVEN |
| (7) AUDIO GROUND | (8) CHASSIS | (9) J4 ODD LANE |
| (10) J3 EVEN LANE | (11) DRAIN | (12) NO CONNECTION |
| (13) TO J3 EVEN LANE KEYPAD PCB | | |



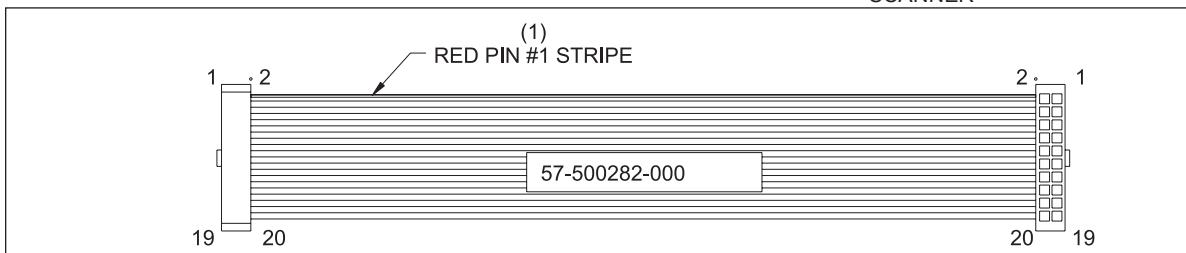
LAN Cable Odd to Even Lane Cable - Keypad Table Mount (Part No. 57-500279-000)

- | | | |
|-------------------------------|-------------------|--------------------------------|
| (1) TO J4 ODD LANE KEYPAD PCB | (2) J4 - ODD LANE | (3) J3 EVEN LANE |
| (4) DRAIN | (5) NO CONNECTION | (6) TO J3 EVEN LANE KEYPAD PCB |

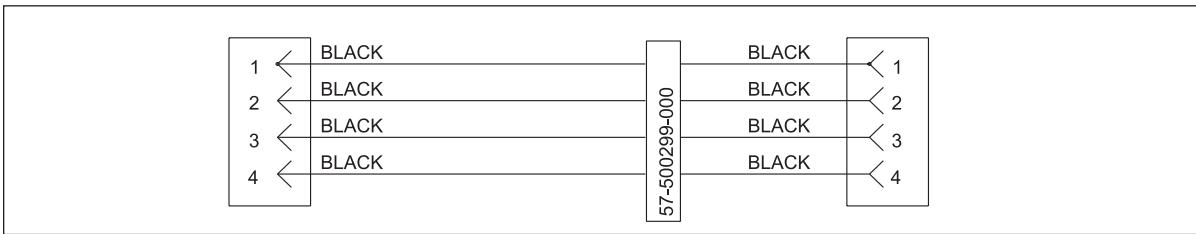


Camera Data Cable (Part No. 57-500281-000)

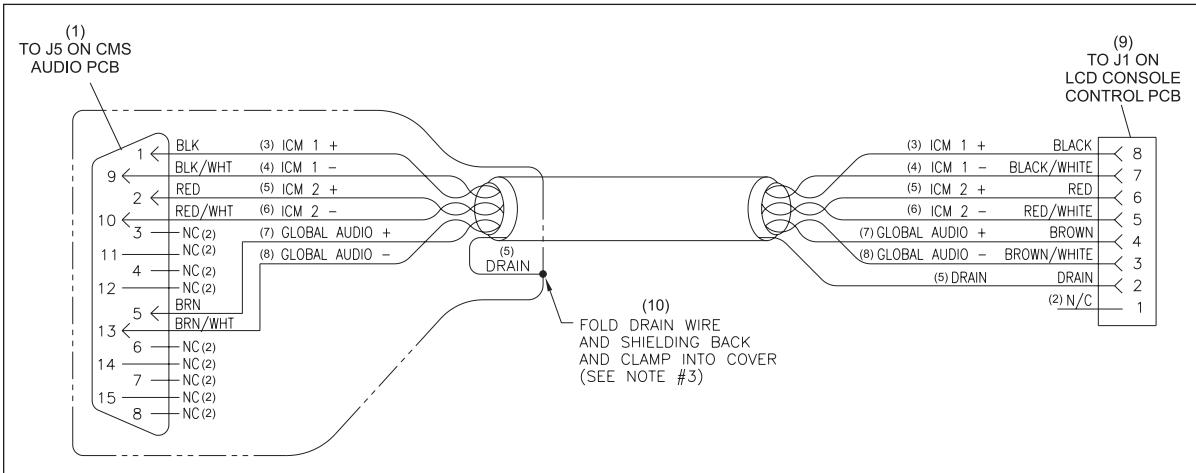
- | | | |
|---------------------------------|---------------------|---|
| (1) TO DIST. 1-4 ON LANE SERVER | (2) NO CONNECTION | (3) DRAIN |
| (4) SHELL | (5) DISTRIBUTION | (6) RXD |
| (7) TXD | (8) GROUND | (9) +12 VOLTS |
| (10) +5 VOLTS | (11) CHASSIS GROUND | (12) TO J7 ON DISTRIBUTION BOARD IN SCANNER |



Primary Patch Panel to Video3 PCB Ribbon Cable (Part No. 57-500282-000)

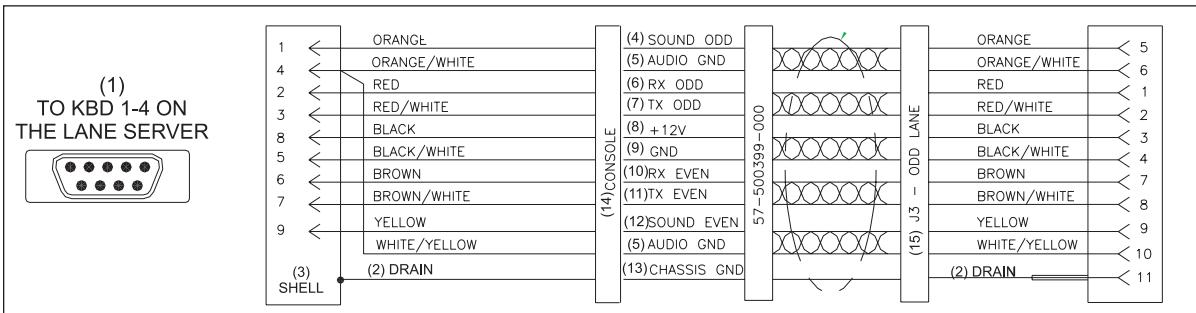


Power Cable (Part No. 57-500299-000)



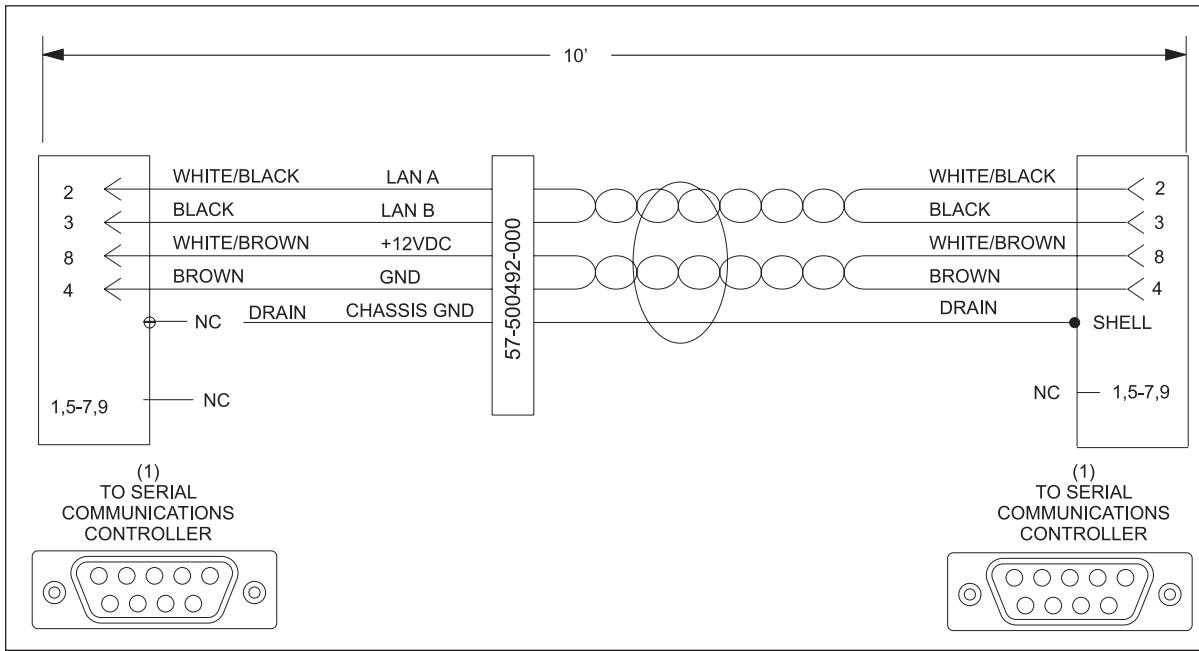
Global Control Desk to First Scorer Audio (Part No. 57-301125-000)

- | | | |
|---|--------------------|--------------------------------------|
| (1) TO J5 ON CMS AUDIO PCB | (2) NO CONNECTION | (3) INTERCOM 1 + |
| (4) INTERCOM 1 - | (5) INTERCOM 2+ | (6) INTERCOM 2- |
| (7) GLOBAL AUDIO + | (8) GLOBAL AUDIO - | (9) TO J1 ON LCD CONSOLE CONTROL PCB |
| (10) FOLD DRAIN WIRE AND SHIELDING BACK AND CLAMP INTO COVER (SEE NOTE 3) | | |



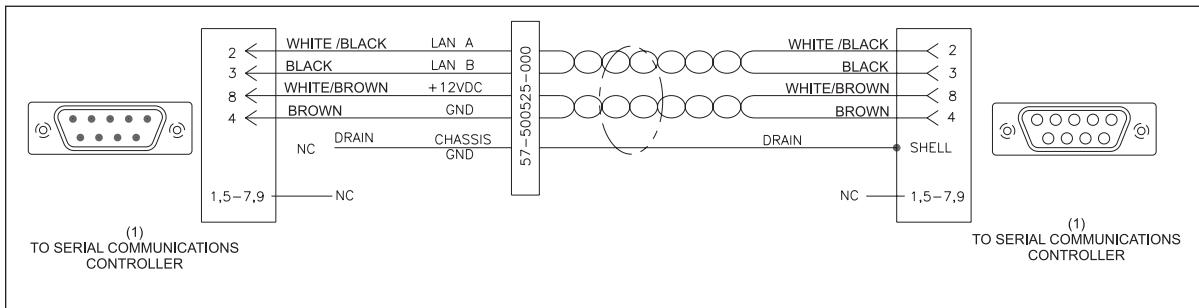
LAN, Scorer Computer to Keypad with Audio Cable (Part No. 57-500399-000)

- | | | |
|-------------------------------|------------------|------------------|
| (1) TO KBD 1-4 ON LANE SERVER | (2) DRAIN | (3) SHELL |
| (4) SOUND ODD | (5) AUDIO GROUND | (6) RX ODD |
| (7) TX ODD | (8) +12 VOLTS | (9) GROUND |
| (10) RX EVEN | (11) TX EVEN | (12) SOUND EVEN |
| (13) CHASSIS GROUND | (14) CONSOLE | (15) J3-ODD LANE |



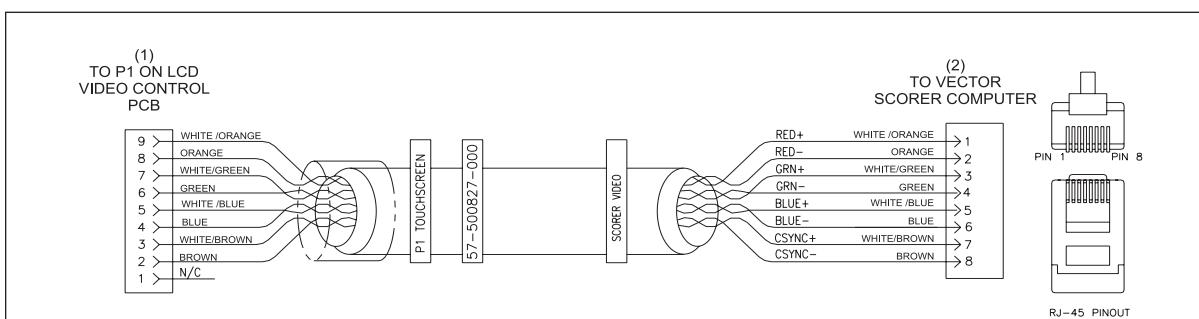
LCD Wide Screen Overhead to LCD Wide Screen Overhead Serial Control Cable (Part No. 57-500492-000)

(1) TO SERIAL COMMUNICATIONS CONTROLLER



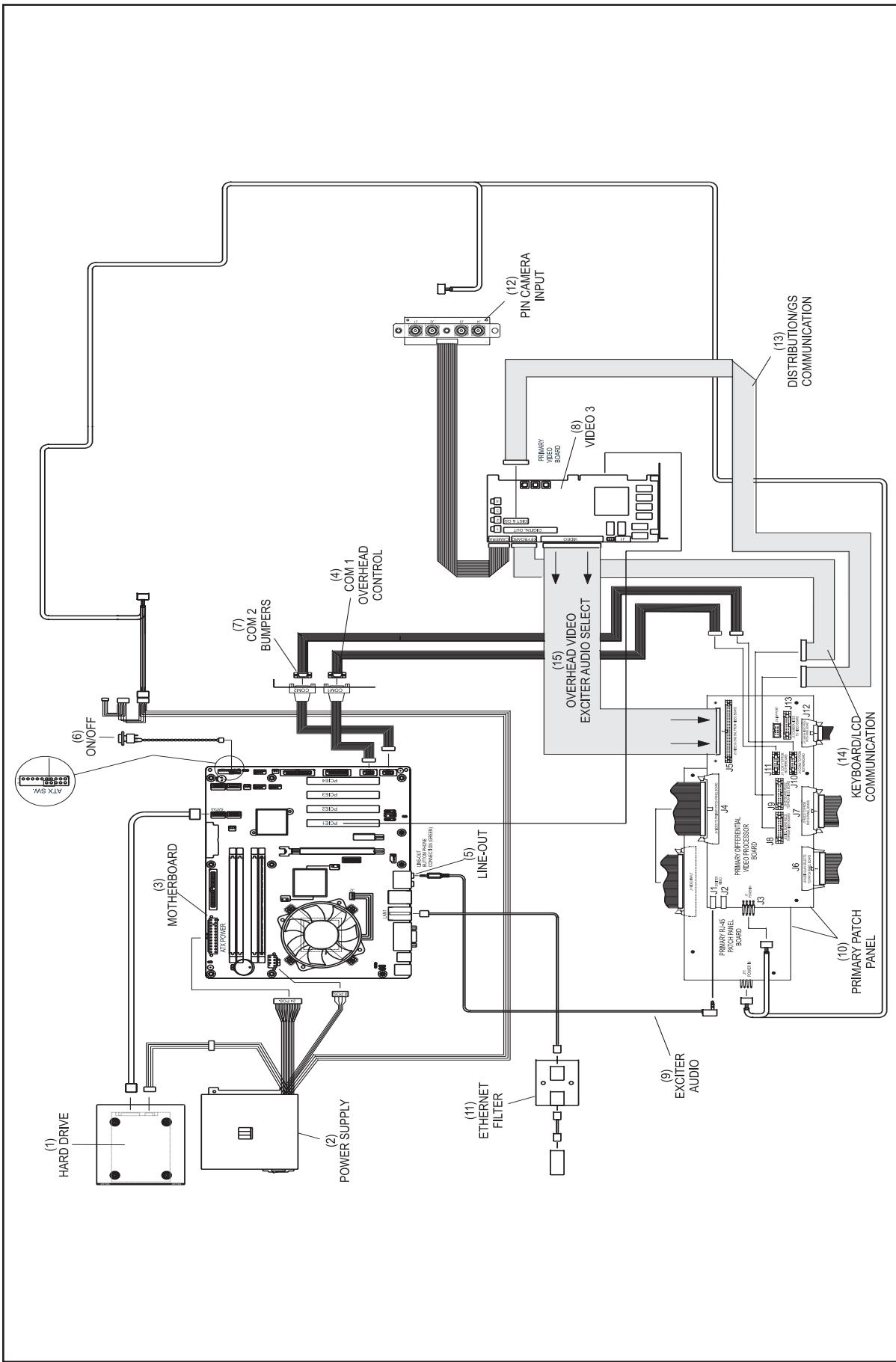
LCD Wide Screen Overhead to LCD Wide Screen Overhead Serial Control Cable (Part No. 57-500525-000)

(1) TO SERIAL COMMUNICATIONS CONTROLLER



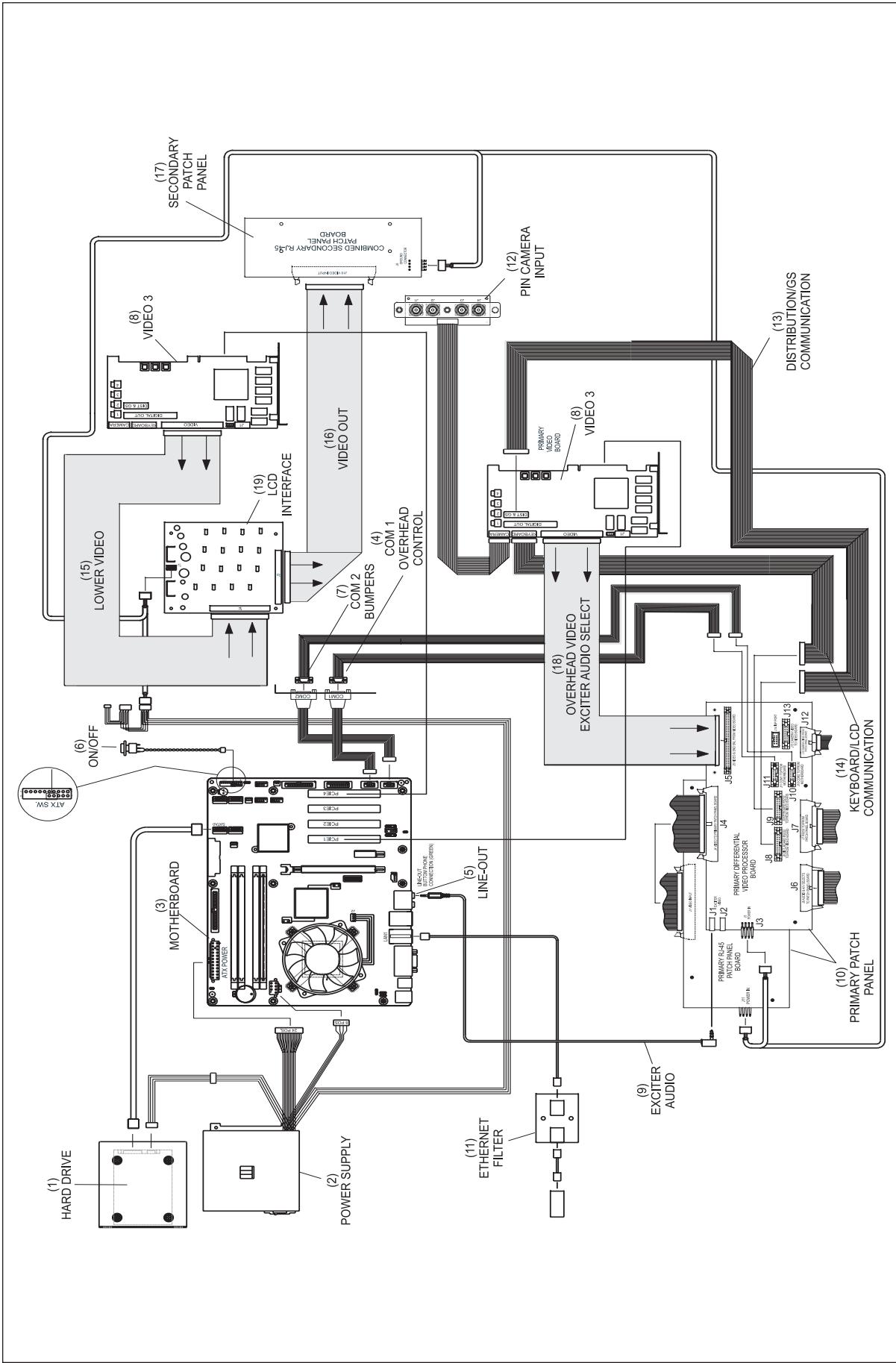
LCD Wide Screen Scorer Computer to LCD Touchscreen Video Cable (Part No. 57-500827-000)

(1) TO P1 ON LCD VIDEO CONTROL PCB (2) TO VECTOR SCORER COMPUTER

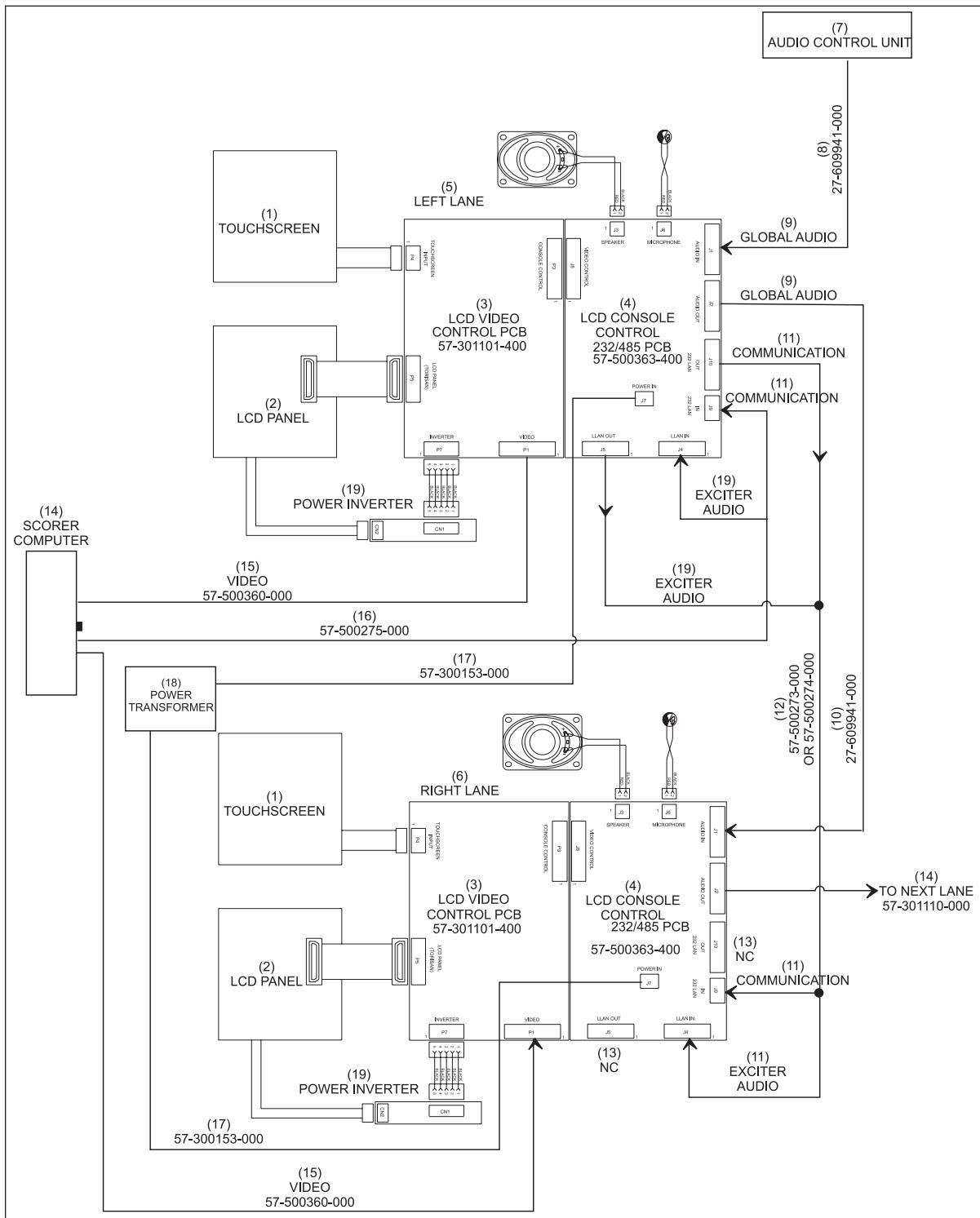


Vector Scoring Computer with Keypads

- (1) HARD DRIVE
- (2) POWER SUPPLY
- (3) MOTHER BOARD
- (4) COM 1 OVERHEAD
- (5) LINE-OUT
- (6) ON/OFF
- (7) COM 2 BUMPERS
- (8) VIDEO3
- (9) EXCITER AUDIO
- (10) PRIMARY PATCH PANEL
- (11) ETHERNET FILTER
- (12) PIN CAMERA INPUT
- (13) DISTRIBUTION/GS
- (14) KEYBOARD/LCD
- (15) OVERHEAD VIDEO / EXCITER
- (16) COMMUNICATION
- (17) AUDIO SELECT

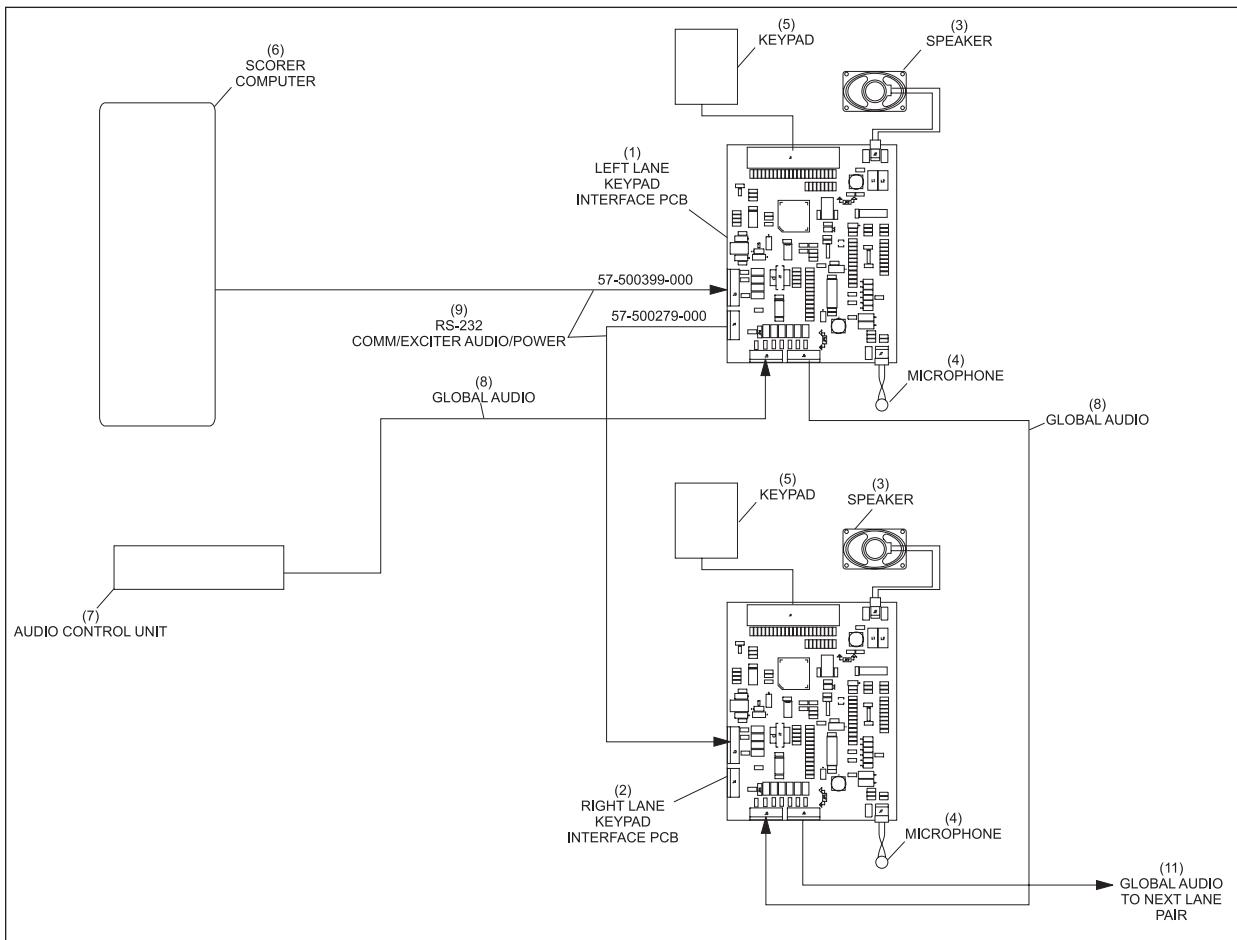


- | | | | |
|---|---|----------------------|---|
| (1) HARD DRIVE | (2) POWER SUPPLY | (3) MOTHER BOARD | (4) COM 1 OVERHEAD CONTROL (SD ONLY) |
| (5) LINE-OUT | (6) ON/OFF | (7) COM 2 BUMPERS | (8) VIDEO3 |
| (9) EXCITER AUDIO | (10) PRIMARY PATCH PANEL | (11) ETHERNET FILTER | (12) PIN CAMERA INPUT |
| (13) DISTRIBUTION / GS COMMUNICATION | (14) KEYBOARD / LCD COMMUNICATION | (15) LOWER VIDEO | (16) VIDEO OUT |
| (17) SECONDARY PATCH PANEL | (18) OVERHEAD VIDEO / EXCITER AUDIO SELECT | (19) LCD INTERFACE | |



LCD Console Cabling Assembly

- | | | |
|---------------------------|-----------------------|--|
| (1) TOUCHSCREEN | (2) LCD PANEL | (3) LCD VIDEO CONTROL PCB 57-301101-400 |
| (4) COM CN1 57-500363-400 | (5) LEFT LANE | (6) RIGHT LANE |
| (7) AUDIO CONTROL UNIT | (8) 27-609941-000 | (9) GLOBAL AUDIO |
| (10) 27-609941-000 | (11) COMMUNICATION | (12) 57-500273-000 OR 57-500274-000 |
| (13) NO CONNECTION | (14) SCORING COMPUTER | (15) VIDEO 57-500360-000 |
| (16) 57-500275-000 | (17) 57-300153-000 | (18) POWER TRANSFORMER |
| (19) POWER INVERTER | | |



Keypad Console Cabling Assembly

- | | | |
|------------------------------------|-------------------------------------|-------------------------------------|
| (1) LEFT LANE KEYPAD INTERFACE PCB | (2) RIGHT LANE KEYPAD INTERFACE PCB | (3) SPEAKER |
| (4) MICROPHONE | (5) KEYPAD | (6) SCORER COMPUTER |
| (7) AUDIO CONTROL UNIT | (8) GLOBAL AUDIO | (9) RS-232 COMM/EXCITER AUDIO/POWER |
| (10) 27-609941-000 | (11) GLOBAL AUDIO TO NEXT LANE PAIR | |

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