GRANDSTAR™
INTERNET JUKEBOX

Installation and Owner's Manual

ENTERTAINMENT NETWORK

U.S. and Canada call toll-free:
1-877-ROC-N-ROL
(1-877-762-6765)

Outside the U.S. and Canada, call:
(616) 243-3633

E-mail: support@amientertainment.net
www.amientertainment.net

22022614 Rev A

GrandStar JUKEBOX WARRANTY

AMI extends the original operator of this equipment the following warranty:

All parts are guaranteed to be free of defects in material and workmanship for the specific periods listed. AMI agrees to repair or replace without charge during such period any part which proves defective upon examination by AMI. All costs of shipping a defective part to AMI's offices shall be borne by the original operator. AMI shall bear the shipping costs for the replacement of defective parts.

Component	Warranty Period (from date of shipment)	Conditions
Electronic Circuit Boards	2 Years	Parts
Core Computer Motherboard	1 Year	Parts
Electrical & Mechanical Parts	2 Years	Parts
LCD Display	1 Year	Parts
Touchscreen Sensor	5 Years	Parts
Touchscreen Controller	10 Years	Parts
Hard Drive	Life*	*Full Replacement by AMI, at no charge, for the life of the AMI Entertainment® contract.

In the case of parts supplied to AMI as components, AMI extends the same warranty period as extended by the original manufacturer.

The above warranty applies provided that all parts of the product have been serviced properly as directed in the service manual, and provided the alleged defective part, upon examination by AMI, shall prove to be thus defective. Under no circumstances shall AMI be liable for any incidental, consequential or special damages, losses or expenses arising from or in connection with the use of, or the inability to use, the product for any purpose. AMI reserves the right to make any changes or improvements in its products without notice and obligation, and without being required to make corresponding changes or improvements in products theretofore manufactured or sold.

This warranty will not apply to any product or any part which has been subjected to any accident, abuse, or misuse.

AMI ENTERTAINMENT NETWORK, INC. EXTENDS NO WARRANTY, EXPRESSED OR IMPLIED, TO PURCHASERS OR USERS OF ITS PRODUCTS EXCEPT AS HEREIN SET FORTH, WHETHER BY OPERATION OF LAW OR OTHERWISE.

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warranty

This card completed by: Date_____

Name_____ Company_____

Street Address_____

City_____ State_____ Zip_____

Telephone: Area Code_____ Number_____

Model No._____ Serial No._____

Product Purchased From_____

Please complete the following:	Excellent	Good	Fair
This product's performance when first powered up was:	____	____	____
The overall quality of this product was:	____	____	____
The distributor support for this product was:	____	____	____
The operation manual and instructions are:	____	____	____

If there are any suggested product improvements or if problems are encountered during installation and/or setup, please advise in the space provided below.

_____

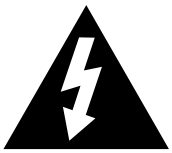
_____

_____

Safety

IMPORTANT SAFETY INFORMATION

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this jukebox near water.
6. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
7. Do not install near any heat sources such as radiators, heat registers, stoves, or other jukebox (including amplifiers) that produce heat.
8. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
9. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the jukebox.
10. Only use the attachments/accessories specified by the manufacturer.
11. Unplug this jukebox during lightning storms or when unused for long periods of time.
12. Refer all servicing to qualified service personnel. Servicing is required when the jukebox has been damaged in any way, such as when the power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the jukebox, the jukebox has been exposed to rain or moisture, does not operate normally, or has been dropped.
13. When replacing a battery – "**CAUTION**: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type."



CAUTION!

The lightning flash with arrowhead symbol, within an equilateral triangle is intended to alert the user to the presence of non-insulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

CAUTION!

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance or servicing instructions.

! WARNING!

Do not expose this jukebox to rain or moisture.

No objects filled with liquid, such as vases, shall be placed on the jukebox.

CAUTION!

RISK OF ELECTRIC SHOCK
DO NOT OPEN

DO NOT REMOVE ANY COVERS, GUARDS, OR SHIELDS.

NO USER SERVICEABLE PARTS ARE INSIDE THIS JUKEBOX.

REFER SERVICING TO QUALIFIED SERVICE PERSONNEL

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Section: 1 Unpacking & System Description

Introduction

The GrandSTAR jukebox is part of a much larger system – the AMI Entertainment network. This network is a digital platform that delivers music across the Internet to Rowe Jukeboxes anywhere.

The GrandSTAR jukebox is an Internet-enabled jukebox that allows all the traditional functions of a jukebox backed by the power of the Internet. This Internet connectivity gives patrons more features, such as the ability to download “Music On Demand” songs when their song choice is not already on the jukebox.

GrandSTAR Jukebox Features

General Features:

- Sturdy construction and reliable design
- Conveniently located customer, operator, and service controls
- All major components are modular and easy to replace, if needed
- Computer-controlled digital music
- A 1000-watt amplifier with dual 5-band graphic equalizers
- Song reject
- 300 album and cover art capacity
- Unwanted music categories can be blocked
- Quarter Coin Acceptance
- Bill acceptance of $1, $5, $10, and $20
- 1000-bill capacity
- Web-based management
- Attract mode
- “Music On Demand” song download
- Dynamic search capabilities
- No pause between plays
- Easy to change pricing

Service Features:

- All servicing can be done from the front of the jukebox
- Modular component construction for easy replacement
- No CDs to bother with or cumbersome cover art mechanisms
- Complete cash and play audit information
- Password protected Operator Web site
- Access anytime and from anywhere
- Track revenue and usage
- Download new music and other content
- Check system status

Unpacking Instructions

This section contains information for unpacking the jukebox and installing it at a location. The jukebox is shipped with all major components except the Volume Control Unit in place.

1. Remove the shipping carton with care: Do not use shipping hooks or sharp tools that could damage the jukebox cabinet.
2. Remove the plastic bag that covers the jukebox.
3. Carefully inspect the interior and exterior of the jukebox to ensure that no damage occurred during transit.

If damage is detected, the carrier who delivered the jukebox should be contacted immediately to examine it. Regardless of the exterior condition of the shipping cartons, the carrier should be called and notified of damage. Do not destroy packing material or boxes until the carrier's agent has examined them.

Damage claims are your responsibility. Do not return damaged merchandise until after your claim has been established. Once your claim has been established, merchandise may be returned to your Rowe distributor for repair. The invoice amount for repair charges can then be collected from the carrier.

Door

Locate the white bag in the coin return on the side of the cabinet. Remove the door key from the bag and unlock the door. Turn the key to the right and press in on the door as you turn the key.

Visual Inspection

Check to be sure that all electrical plugs are completely seated into their receptacles.

Handy Case

Locate the Handy Case in a blue plastic envelope. The Handy Case contains a variety of items, including this jukebox service manual and parts catalog, Volume Control Unit, spare parts, and fuses. Keep the Handy Case with the jukebox at all times for ready reference.

Warranty Registration Card

A postage-paid Warranty Registration Card is included in this manual. This card should be filled out and returned to Rowe.

Major Components of the GrandSTAR

Figure 1–1 shows the major components of the GrandSTAR Jukebox. Take a minute to familiarize yourself with these components.

Computer Core Assembly and I/O Board

The Computer Core Assembly is the heart of the system and has a hard drive and a single board computer. The hard drive is the only storage in the system and contains Windows XP Embedded Operating System software, all application software, all music, and all setup and audit data. The single board computer converts music selections stored on the hard drive into a stereo signal for the system's audio components. It connects to the Internet, the SVGA touchscreen monitor, and the Rowelink modules. It also includes the interface circuits for the coin switch, router reset, fan circuits, bill acceptor, song reject, infrared remote control detector and amplifier mute.

Touchscreen 19" LCD Monitor

All machine operations are done through the touchscreen monitor. These include viewing and making selections, displaying the selection being played, displaying pricing and credits, viewing and changing setup and audit data, and downloading "Music On Demand" selections.

System Power Supply

The system power supply produces +9 VDC, +12 VDC, +24 VDC, and contains a relay to switch the jukebox lights, touchscreen monitor, and the Bill Acceptor ON or OFF. It has an IEC 320 power inlet, two 6A circuit breakers, a 3A breaker (unused in GrandSTAR) and two 4A fuses.

Transformer Assembly

The transformer assembly supplies power for the 4-Channel Pre-Amplifier, 1000-Watt Audio Digital Amplifier, and the system power supply described above.

LED Controller

This module controls the LEDs that illuminate the perimeter lighting on the top door, the door graphics, and the lower cabinet pilasters of the jukebox. It provides adjustments for the Brightness, Flash Rate, and Music Sensitivity along with controls for the patterns used during standby, and separately, the times when music is playing.

Router

This device provides the interface between the Computer Core Assembly and the broadband modem or satellite receiver. There is a one-time configuration process to set this device for your particular Internet Service Provider (ISP). In addition to the port required for the Computer Core Assembly, there are three other ports provided for other devices.

Dial-Up Modem

This device provides the ability to use a standard dial-up Internet connection for locations where Broadband access is unavailable.

Volume Control Unit

The Volume Control Unit (VCU) shown in *Figure 3–15*, is a Rowelink module and should be mounted remotely (behind bar, etc.). A plate is supplied in the Handy Pack to cover the hole if the VCU is removed. Use the VCU screws to secure the plate. It displays and controls the volume of the amplifier channels and microphones. If an existing 100 foot cable is already in place, you can use the 3-wire or 4-wire (see *Figure 3–16)* alternate wiring.

- The POWER button turns the GrandSTAR Jukebox lights, touchscreen monitor and Bill Acceptor ON or OFF.
- The REJECT button rejects the selection playing.
- The FUTURE button adds credits toward selections (See “Credit Management” in the Operator Setup Screens Manual).
- The MODE key toggles between channels and microphones.
- The VCU also raises or lowers the volume of the channel(s) or microphone using the UP DOWN keys. The volume range is 0 to 63. Channel Volume is displayed when the mode LED is off, and microphone volume is displayed when the mode LED is on. The CH, MIC, and SINGER LEDs indicate what volume is being displayed when toggled by the Mode Switch. When adjusting channel volume, if more than one LED is on, it means those channels have the same volume. All four channels have the same volume when shipped from the factory (see *Section* 3 of the included *“Network Setup, Jukebox Operation, Operator Setup Screens”* manual for other possible configurations).

4-Channel Pre-Amplifier

This Rowelink module transforms audio signals from the Computer Core Assembly, microphones, and other sound processors/equipment/systems into signals for the Power Amplifier. It contains Automatic Volume Control (AVC) circuits to adjust for varying recording levels and tone controls and 5-band equalizers. All adjustments and options are programmable via the touchscreen and are retained on the Computer Core Assembly hard drive (see *Section 3* of the included *“Network Setup, Jukebox Operation, Operator Setup Screens”* manual for setup information).

1000-Watt Audio Digital Power Amplifier

The 2-channel digital audio power amplifier is rated 1000 watts RMS (500 per channel) into a 2-ohm load. The full volume output voltage is 32 volts.
The amplifier is protected against overloads and short circuits. Continuous severe overloads or shorts may shut down the amplifier (or a channel) but will not damage it. If the overload is removed a signal will reset the amplifier when the next selection plays.

Audio Output Transformers

The output transformers “step up” the power amplifiers output voltage for 70-volt extension speakers. They also provide screw terminal connections for selecting different power levels for extension speakers.

Bill Acceptor

The Coinco® Vantage™, with an 1100-bill stacker or MEI® Series 2000 bill acceptor, with a 1000-bill stacker, operates on 120 VAC input power and sends its pulsed credit signals to the Computer Core.

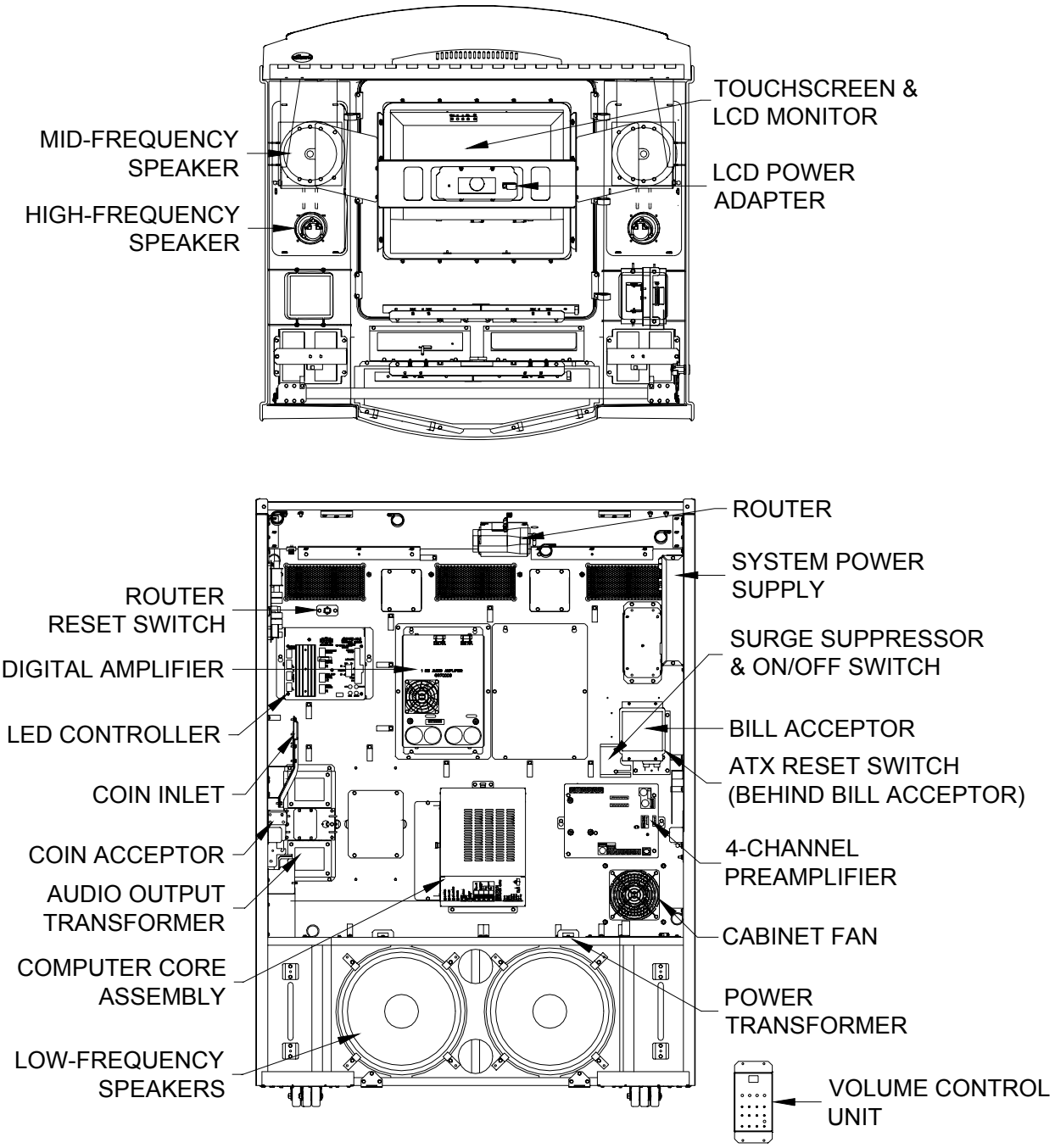


Figure 1–1 – Major Components

GrandSTAR Specifications

General

Depth ..... 25-1/2 in.
Width ..... 41-1/2 in.
Height ..... 63-1/2 in.
Power Requirements ..... 120 VAC 60 Hz. 1200 watts 11.9 amps

Pricing ..... See "Credit Pricing" in The Network Setup and Jukebox Operation Manual

Bill Acceptor ..... Coinco Vantage w/1100 Bill Stacker. Accepts $1, $5, $10, & $20 Or Optional MEI Series 2000 w/1000 Bill Stacker. Accepts $1, $5, $10, & $20

Coin Acceptor ..... Accepts 25¢

Credit Card Reader ..... Optional Magnetic Card Reader Kit

Touchscreen Monitor ..... 19" LCD with Touchscreen

Sound System

Computer Core Assembly Type ..... 16-bit Stereo
Frequency Response ..... 20 to 20,000 Hz.
Channel Separation ..... 90 dB @ 1,000 Hz.
Output ..... 0.7 V (approx. depending on the album)

Power Amplifier (Second 1000-watt Stereo Amplifier is Optional)

1000-Watt Stereo
FTC Rating, 2-ohm Loads @ .5% THD ..... 1000 watts RMS
FTC Rating, 70V Lines @ .5% THD (125 per channel) ..... 250 watts RMS

4-Channel Pre-Amplifier

Channels (Two Stereo, or One Stereo and Two Mono, of Four Mono) ..... Four
AVC Control Range ..... 20 dB
Tone control is accomplished through a 5-band equalizer (10dB/filter band)

Selection System Capacity ..... 300 Albums

Transformer Package

70 V line for extension speakers
System Frequency Response ..... 40 to 20,000 ±4 dB

Fuses And Circuit Breakers

System Power Supply

120 VAC (Transformer Primary Only) ..... Two 6-amp Circuit Breakers
24 VAC ..... 4-amp Fuse
+12 VDC ..... 4-amp Fuse

Lighting

LED ..... Custom

Section: 2 Initial Set Up and Testing

Initial Set Up

When all of the network connections have been made, boot up the jukebox. The first time you turn on the jukebox with a new hard drive, you will see the Local Music Configuration Screen, which lists the available local music configurations that can be installed on the jukebox. You will be prompted to select one of the available lists. This selection can be changed at any time by pressing the SERVICE button on the Computer Core, touching **System Setup** -> **Advanced Administration** -> **Local Music Configuration.**

Touch the **View** button to display a dialog box listing all of the albums in the selected list. Some albums may appear grayed out; this means that some or all of the songs in the album are not currently stored on this jukebox. If a list with grayed albums is installed, the grayed albums will start being downloaded to the jukebox within 24 hours (as long as the jukebox is connected). If the jukebox becomes disconnected, any songs not yet downloaded will be unavailable to patrons.

Touch the **Install** button to display a dialog box prompting you to install the selected list. To install the selected list, touch the Install button at the bottom of the dialog box.

Testing the Network

Enter the service mode by pressing and releasing the “SERVICE” button on the Computer Core. To test the network:

1. Touch the **System Setup** button and then touch **Advanced Administration**.
2. On the Advanced Administration Screen, touch **Configure Server**. Then touch the **Test Connection** button. This test confirms the jukebox can connect to AMI’s server (“Server Found”), and authenticate a connection with AMI’s server (“Connected”).
3. If the connection is successful, you will see “**Yes**” next to “Server Found” and “Connected”. If the connection fails, you will see “**No**”. If the connection fails, check the settings on the Network Information screen (**Diagnostics** –> **Network Information**). This screen will allow you to check the IP Configuration and run LAN and WAN tests.
4. Touch **OK**.

Calibrating the Touchscreen

NOTE: Every time a hard drive is installed in a Computer Core Assembly, the touchscreen should be calibrated.

The following procedure describes how to calibrate the touchscreen:

1. Press the **Calibrate** button on the Computer Core *(Figure 2–1).* Press the button in once to launch the calibration program. This will override the Jukebox application while the calibration program runs. (See *Figure 2–2)* for a picture of the calibration program interface.)
2. Follow the directions on the screen, touching the center of the targets, and then touching **Yes**.

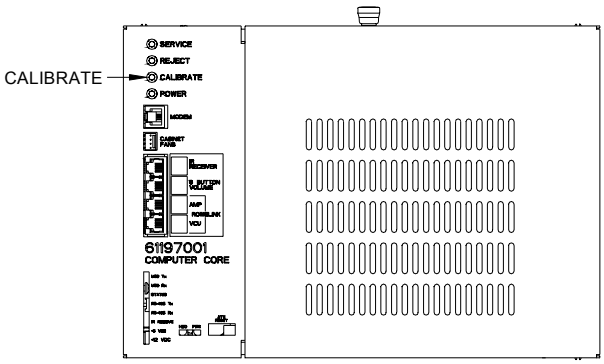


Figure 2–1 – Computer Core

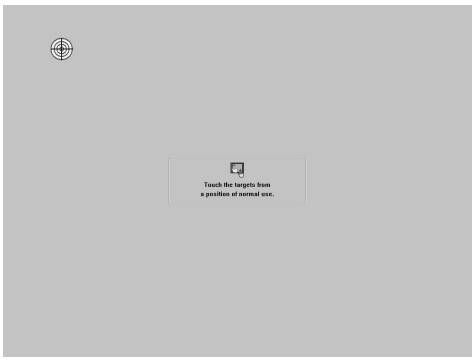


Figure 2–2 – Calibration Screen

3. If you've installed a Hard Drive which had previously been connected to the AMI Network, skip ahead to Step 4. If you are installing a new hard drive open the jukebox door again and press the "SERVICE" button on the Computer Core (see *Figure 2–1*). Close the door and touch **System Setup**, then **Enable/Extend Features**. Using the on-screen keyboard, enter the Trigger Code written on the Card which was included with your new Hard Drive. Touch **Send Code** to complete the process – the message "Valid Trigger Code Entered" will be displayed on the screen. Touch **Back** and then **Exit Service Mode**. The system is now prepared for connection to the AMI Server.
4. Close the jukebox and make sure that the door is locked.

Credit Test

Insert a dollar bill into the Bill Acceptor and ensure that the increment in credits corresponds with the pricing scheme for the jukebox. See Bill Acceptor settings on page 5–4 for the factory settings of the Bill Acceptor.

Insert quarters into the Coin Acceptor and ensure that the increment in the credits corresponds with the pricing scheme for the jukebox.

Audio Test

NOTE: Speakers must be connected prior to performing the Audio Test. Refer to Section 3 for speaker installation diagrams.

Play a local music selection by following the procedure below:

1. Make sure there is at least one credit in the jukebox. If there is not a credit, add one before starting.
2. Touch the **1-Credit Plays** button on the User Interface. Browse through album covers by touching the arrows on either side of the panel showing the album covers.
3. To view the songs on an album, touch the album and the song list will appear.
4. Scroll through the list using the arrows to view all songs on the album. Make a song selection by touching the song title.
5. Confirm your selection by touching the **Play Song** box. The song will play as long as there is at least 1 credit under **"Credits"** in the bottom left-hand corner of the screen.

Figure 2–1 – Jukebox User Interface – "1-Credit Plays" Selected

NOTE: For Operators Pre-testing the Jukebox In Their Own Facilities:

Any features in the application associated with the network (such as the "Music On Demand" feature, which accesses all songs in the AMI Entertainment music library) will not work unless the jukebox is connected to the Internet. See the included manual *"Network Setup, Jukebox Operation, Operator Setup Screens"* for setup information.

Connection Rules

The first time you boot up the NiteHAWK with your hard drive, a 60-day licensing grace period will begin. If at the end of these 60 days your jukebox has not connected to the AMI Entertainment Network to validate its licenses, the computer will cease to play music. After the jukebox has made its initial connection to the AMI Entertainment Network, it ***must*** continue to connect at least once every 7 days to validate its licenses or it will cease to play music.

Wireless Router Reception

The GrandSTAR jukebox is equipped with a Wireless Router to allow you to use a Megatouch game connection for song selection.

The jukebox is shipped to you with the Wireless Router Antenna in the horizontal position. In some interference prone locations, the Antenna is more effective in the vertical position. The hole in the top of the cabinet adjacent to the Router is to accommodate this option. See *Figure 2–4*.

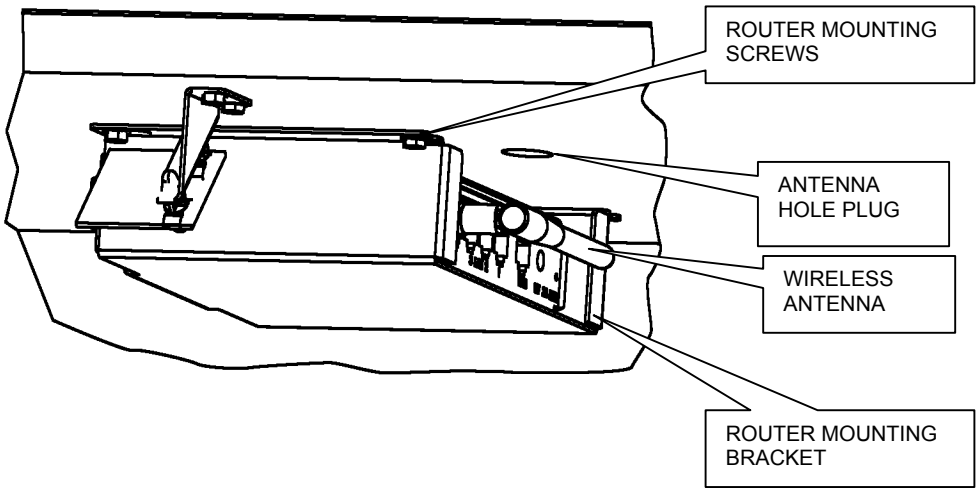


Figure 2–2 – Wireless Router Antenna in Horizontal Position

To change the antenna position:

1. Remove the plastic hole plug from the top of the cabinet.
2. Loosen the four Router Mounting Bracket Screws, and slide the bracket off the screws.
3. Rotate the antenna to the vertical position, and insert it through the hole in the cabinet. See *Figure 2–5*.
4. Slide the bracket back over the screws and tighten the screws. See *Figure 2–4*.

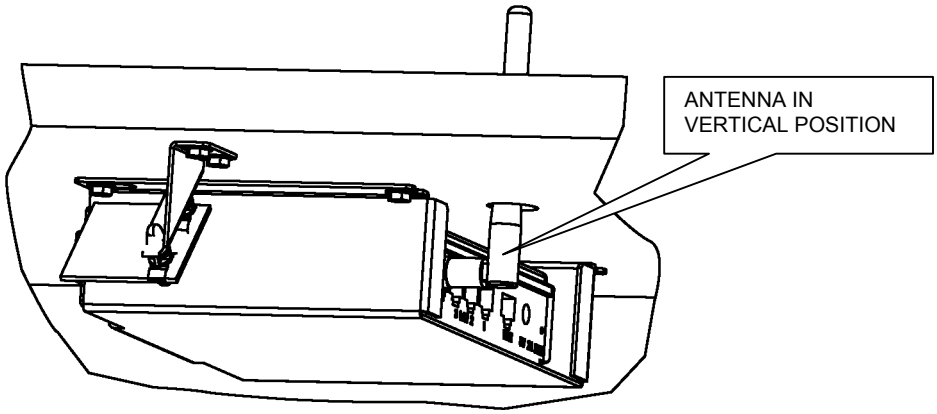


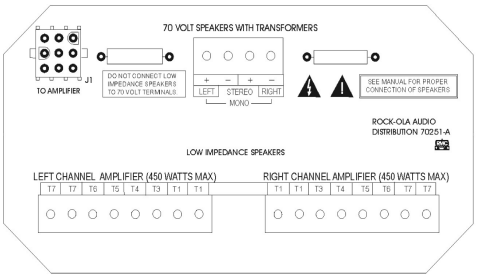
Figure 2–3 – Wireless Router Antenna in Vertical Position

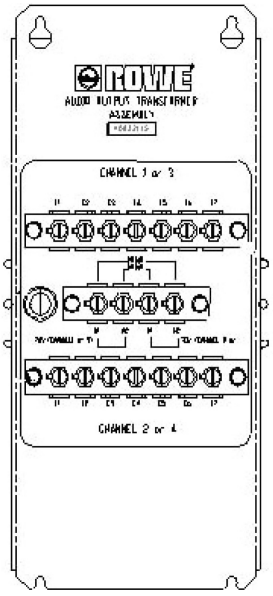
Section: 3 Sound System Setup

Introduction

See the included manual *"Network Setup, Jukebox Operation, Operator Setup Screens"* if you have any questions about setting up the Network or the jukebox for operation.

AMI Entertainment supports 2 electrically equivalent Output Transformer Assemblies.





	Rock-Ola 70251-A Audio Distribution Transformer	Rowe 40832115 Output Transformer
Low Impedance Speaker Taps	T1, T3, T4, T5, T6, T7	E1, E2, E3, E4, E5, E6, E7
70 Volt Speaker Taps	Left + –, Right + –	Ch1 A1, A2, Ch2 A1, A2

Figure 3–1 – Supported Output Transformer Assemblies

Extension Speaker Operation

To avoid poor sound quality, care must be taken when adding extension speakers. The following requirements must be met:

Speakers connected to the Output Transformer Assembly must be wired so the power consumed by the extension speakers does not exceed the amplifier power rating of 500 watts per channel.

An Output Transformer Assembly has:

- two transformers
- two 7- or 8-position terminal strips for low impedance speakers marked E1 through E7 or T1 through T7

- one 4-position terminal strip for 70-volt speakers marked Ch1 A1-A2, Ch 2 A1-A2, or Left +/–, Right +/– (see *Figure 3-5* or *3-6*).

Speakers connected across terminals E1 to E7 or T1 to T7 bypass the transformer and are driven directly by an amplifier channel.

Each transformer provides 70V terminals for driving 70V speakers, and provides taps (E1-E6 or T1-T6) for driving extension speakers at a lower volume. The power consumed by speakers driven by a transformer must not exceed the transformer rating of 125 watts per channel.

The power consumed by all connected speakers must not exceed the channel rating of 500 watts. For example, each channel could drive 375 watts directly from the amplifier (E1 to E7 or T1 to T7), and the remaining 125 watts through the transformer (lower taps and 70V terminals). See *Figure 3-2, 3-3, or 3-4*.

Complete the Extension Speaker Worksheet (*Tables 3-1 through 3-4*) for each channel and verify it does not exceed the 125-watt transformer rating and the 500-watt amplifier channel rating. After wiring the speakers, perform the Amplifier Overload Check immediately following *Table 3-5*.

All speakers must be connected with the correct polarity (see *Figure 3-2, 3-3, or 3-4*).

For Rowe floor model jukeboxes using 40832115 Output Transformer Assembly

Channel 1 E1-E7 output is reversed with respect to channel 2 E1 to E7 output. This reversal is necessary to extend monaural sound in a stereo jukebox system. Because of this reversal, speaker connections to channel 1 must be reversed when compared to channel 2, except for 70V speaker connections. *See Figure 3-2* for the correct polarity hookup of extension speakers. If the (+) and (-) terminals are not wired properly, the speakers will be out of phase, causing a reduction in low frequencies (bass).

For Rowe wall model jukeboxes using 40832115 Output Transformer Assembly

Channel 1 E1-E7 output is in phase with channel 2 E1-E7output. The speaker connections for channel 1 speakers are in phase with channel 2 speakers. The 70V phasing is reversed inside the output transformers. See *Figure 3-3* for correct polarity hookup of extension speakers. If the (+) and (-) terminals are not wired properly, the speakers will be out of phase, causing a reduction in low frequencies (bass).

For Rock-Ola model jukeboxes using 70251-A Audio Distribution Assembly

Channel 1 T1-T7 output is in phase with channel 2 T1-T7 output. The speaker connections for channel 1 speakers are in phase with channel 2 speakers. The 70V Ch1 and Ch2 outputs are in phase with Ch1 and Ch2 T1-T7 outputs. See *Figure 3-4* for correct polarity hookup of extension speakers. If the (+) and (-) terminals are not wired properly, the speakers will be out of phase, causing a reduction in low frequencies (bass).

70-Volt Speakers

To avoid prohibitive cable losses on long speaker lines (over 100 feet), use 70 V speakers. The power level in the 70 V speakers is set at each speaker. For each channel, 125 watts are provided for 70 V speakers by terminal connections on the audio output transformer assembly.

Low Impedance Speakers

Low impedance speakers (8- or 4-ohm) can be used when the connecting cable is less than 100 feet. Keep the following two things in mind when wiring your speakers:

1. No more than one 4-ohm speaker should be connected to a speaker line. If several 4-ohm speakers are to be used, each speaker should have its own line.
2. The loss in 100 feet of 18-gauge zip-cord feeding on an 8-ohm speaker is 15%. The loss for two 8-ohm speakers is 30%.

Selecting Speaker Power

General Instructions

This section will lead you through the power and speaker selection process. This process consists of three major steps and several smaller steps. The major steps are:

1. Identify the extension speakers and compute the speaker power for speakers connected:
   a. directly across the amplifier (E1 to E7, or T1 to T7)
   b. connected to the 70V taps
   c. to lower power taps on the transformer (E1 through E6, or T1 through T6).
2. Make the extension speaker connections.
3. Perform an amplifier overload check (see instructions immediately following *Table 3–6*).

Selection Procedures

- Use a pencil (you may want to revise your figures) to fill in the Extension Speaker Worksheet on the following pages.
- Extension speakers are available in two general categories: general purpose speakers (4- and 8-ohm), and 70V speakers. Power level in 70V speakers is set at each speaker.
- Use the Tables 3-1 through 3-4 Worksheets to help you calculate the amount of power consumed by the extension speakers.
- An extension speaker RMS power rating should be at least 10% higher than the power it will consume at maximum jukebox volume.

When RMS power to speaker at maximum jukebox volume is:	Then recommended RMS power rating of speaker is:
250 watts	300 watts
125 watts	150 watts
62.5 watts	75 watts
31.25 watts	40 watts

Table 3–1 – Extension Speaker Worksheet
Sheet 1

Extension Speakers Connected E1 to E7 or T1 to T7

Place the quantity of speakers in the blank under **Qty** and multiply the quantity times the power consumption. Place your results in the blank under **Total**.

	Qty			Total		
	CH 1	CH 2		CH 1	CH 2	
Two 8-ohm speakers in series: (31.25 watts to each speaker)	____	____	at 62.5 watts per series =	____	____	watts
Two 4-ohm speakers in series: (62.5 watts to each speaker)	____	____	at 125 watts per series =	____	____	watts
8-ohm speakers:	____	____	at 125 watts each =	____	____	watts
4-ohm speakers:	____	____	at 250 watts each =	____	____	watts

Table 3–2 – Extension Speaker Worksheet
Sheet 2

4-Ohm Speakers Connected To Transformer Taps E1 through E6 or T1 through T6

Place the quantity of speakers in the blank under **Qty** and multiply the quantity times the power consumption. Place your results in the blank under **Total**.

4-Ohm Speakers Connected to Channel 1 Transformer Taps:

	Connections		Qty		Total
	70251-A	**40832115**			
Speakers for the 1-watt taps:	(N/A)	(E1 to E2)	____ at 1 watt each	=	____watts
Speakers for the 4-watt taps:	(T1 to T3)	(E1 to E3)	____ at 4 watts each	=	____watts
Speakers for the 16-watt taps:	(T1 to T4)	(E1 to E4)	____ at 16 watts each	=	____watts
Speakers for the 24-watt taps:	(T4 to T5)	(N/A)	____ at 24 watts each	=	____watts
Speakers for the 36-watt taps:	(N/A)	(E3 to E5)	____ at 36 watts each	=	____watts
Speakers for the 42-watt taps:	(T1 to T5)	(N/A)	____ at 42 watts each	=	____watts
Speakers for the 49-watt taps:	(N/A)	(E2 to E5)	____ at 49 watts each	=	____watts
Speakers for the 64-watt taps:	(T1 to T6)	(E1 to E5)	____ at 64 watts each	=	____watts
Speakers for the 100-watt taps:	(N/A)	(E3 to E6)	____ at 100 watts each	=	____watts
Speakers for the 121-watt taps:	(N\A)	(E2 to E6)	____ at 121 watts each	=	____watts

4-Ohm Speakers Connected to Channel 2 Transformer Taps:

	Connections		Qty		Total
	70251-A	**40832115**			
Speakers for the 1-watt taps:	(N/A)	(E1 to E2)	____ at 1 watt each	=	____watts
Speakers for the 4-watt taps:	(T1 to T3)	(E1 to E3)	____ at 4 watts each	=	____watts
Speakers for the 16-watt taps:	(T1 to T4)	(E1 to E4)	____ at 16 watts each	=	____watts
Speakers for the 24-watt taps:	(T4 to T5)	(N/A)	____ at 24 watts each	=	____watts
Speakers for the 36-watt taps:	(N/A)	(E3 to E5)	____ at 36 watts each	=	____watts
Speakers for the 42-watt taps:	(T1 to T5)	(N/A)	____ at 42 watts each	=	____watts
Speakers for the 49-watt taps:	(N/A)	(E2 to E5)	____ at 49 watts each	=	____watts
Speakers for the 64-watt taps:	(T1 to T6)	(E1 to E5)	____ at 64 watts each	=	____watts
Speakers for the 100-watt taps:	(N/A)	(E3 to E6)	____ at 100 watts each	=	____watts
Speakers for the 121-watt taps:	(N\A)	(E2 to E6)	____ at 121 watts each	=	____watts

(Continued on next page)

Table 3–3 – Extension Speaker Worksheet
Sheet 3

8-Ohm Speakers Connected To Transformer Taps E1 through E6 or T1 through T6

Place the quantity of speakers in the blank under **Qty** and multiply the quantity times the power consumption. Place your results in the blank under **Total**.

8-Ohm Speakers Connected to Channel 1 Transformer Taps

	Connections		Qty	Total
	70251-A	**40832115**		
Speakers for the .5-watt taps:	(N/A)	(E1 to E2)	____ at .5 watt each =	____watts
Speakers for the 2-watt taps:	(T1 to T3)	(E1 to E3)	____ at 2 watts each =	____watts
Speakers for the 8-watt taps:	(T1 to T4)	(E1 to E4)	____ at 8 watts each =	____watts
Speakers for the 12-watt taps:	(T4 to T5)	(N/A)	____ at 12 watts each =	____watts
Speakers for the 18-watt taps:	(N/A)	(E3 to E5)	____ at 18 watts each =	____watts
Speakers for the 21-watt taps:	(T1 to T5)	(N/A)	____ at 21 watts each =	____watts
Speakers for the 24-watt taps:	(N/A)	(E2 to E5)	____ at 24 watts each =	____watts
Speakers for the 32-watt taps:	(T1 to T6)	(E1 to E5)	____ at 32 watts each =	____watts
Speakers for the 50-watt taps:	(N/A)	(E3 to E6)	____ at 50 watts each =	____watts
Speakers for the 72-watt taps:	(N\A)	(E1 to E6)	____ at 72 watts each =	____watts
Speakers for the 95-watt taps:	(N\A)	(E3 to E7)	____ at 95 watts each =	____watts

8-Ohm Speakers Connected to Channel 2 Transformer Taps

	Connections		Qty	Total
	70251-A	**40832115**		
Speakers for the .5-watt taps:	(N/A)	(E1 to E2)	____ at .5 watt each =	____watts
Speakers for the 2-watt taps:	(T1 to T3)	(E1 to E3)	____ at 2 watts each =	____watts
Speakers for the 8-watt taps:	(T1 to T4)	(E1 to E4)	____ at 8 watts each =	____watts
Speakers for the 12-watt taps:	(T4 to T5)	(N/A)	____ at 12 watts each =	____watts
Speakers for the 18-watt taps:	(N/A)	(E3 to E5)	____ at 18 watts each =	____watts
Speakers for the 21-watt taps:	(T1 to T5)	(N/A)	____ at 21 watts each =	____watts
Speakers for the 24-watt taps:	(N/A)	(E2 to E5)	____ at 24 watts each =	____watts
Speakers for the 32-watt taps:	(T1 to T6)	(E1 to E5)	____ at 32 watts each =	____watts
Speakers for the 50-watt taps:	(N/A)	(E3 to E6)	____ at 50 watts each =	____watts
Speakers for the 72-watt taps:	(E1 to E5)	(E1to E6)	____ at 72 watts each =	____watts
Speakers for the 95-watt taps:	(N\A)	(E3 to E7)	____ at 95 watts each =	____watts

(Continued on next page)

Table 3–4 – Extension Speaker Worksheet
Sheet 4

Combine power consumption of all speakers:

	Channel 1	Channel 2	
Connected E1 to E7	_____	_____	
	_____	_____	Sum of tapped and 70-Volt A1, A2 must not exceed 125 watts per channel.
Tapped 4-Ohm	_____	_____	
Tapped 8-Ohm	_____	_____	
70-Volt A1, A2	_____	_____	

	Channel 1		Channel 2		Grand Total
Totals:	_____	+	_____	=	_____

1. The Grand Total is the amount of power that the jukebox will need to supply to the extension speakers. If the Channel 1 Total or the Channel 2 Total is more than 438 watts, you must reduce the power used by that channel's extension speakers, and then recalculate that channel's power consumed. The jukebox internal speakers consume 62 watts per channel (factory wiring). This leaves (500-62.5) 437.5 watts per channel for extension speakers.

2. Floor model speaker power configurations
   For Rowe floor model jukeboxes: The jukebox wires to change are the Violet (Channel 1) and the Pink (Channel 2) on the Output Transformer Assembly. Use T*able 3-5* as a guide to select the power used by the jukebox.

Table 3–5 – Jukebox Speaker Power

Select the speaker taps for the internal jukebox speakers. You may select more or less jukebox speaker power to suit your jukebox volume needs.	
Speaker Power	**Jukebox Speaker Connections**
.25	Violet connects to Channel 1 E2, Pink connects to Channel 2 E2.
1	Violet connects to Channel 1 E3, Pink connects to Channel 2 E3.
4	Violet connects to Channel 1 E4, Pink connects to Channel 2 E4.
16	Violet connects to Channel 1 E5, Pink connects to Channel 2 E5.
36	Violet connects to Channel 1 E6, Pink connects to Channel 2 E6.
62.5	Violet connects to Channel 1 E7, Pink connects to Channel 2 E7.
The Black or Black/White wires are on the Channel 1 and Channel 2 E1 terminals.	

Rock-Ola Floor Model Jukeboxes: The jukebox wires to change are the White (Channel 1) and the Red (Channel 2) on the Output Transformer Assembly. Use *Table3-6* as a guide to select the power used by the jukebox.

Table 3–6 – Jukebox Speaker Power (Rock-Ola Floor Models Only)

Select the speaker taps for the internal jukebox speakers. You may select more or less jukebox speaker power to suit your jukebox volume needs.	
Speaker Power	**Jukebox Speaker Connections**
1	White connects to Channel 1 T3, Red connects to Channel 2 T3.
4	White connects to Channel 1 T4, Red connects to Channel 2 T4.
11	White connects to Channel 1 T5, Red connects to Channel 2 T5.
16	White connects to Channel 1 T6, Red connects to Channel 2 T6.
62.5	White connects to Channel 1 T7, Red connects to Channel 2 T7.
The Black wires are on the Channel 1 and Channel 2 T1 terminals.	

NOTE: In any speaker installation, the total RMS speaker load (the sum of all power to all speakers) must not exceed 500 watts per channel. It is strongly recommended that “Efficient” extension speakers be used.

3 When you have reached a satisfactory combination of speakers and speaker power consumption, connect the T1 to T7 speakers and the 70V speakers + to -. Then use the **“Connections”** column as a guide to wire the tapped T1 through T6 speakers.

Amplifier Overload Check

Check that the amplifier is not overloaded by performing the following four steps:

1. Make sure that the extension speakers are connected to the audio output transformer terminals properly (E1 through E7, and A1, A2) or (T1 through T7 and CH1 + - and CH2 + -).
2. While music is playing, if the yellow CLIP LEDs on the amplifier stay OFF or flicker in a random manner, the load is acceptable.
3. If one or both yellow CLIP LEDs is always lit or flickers continuously, the amplifier is overloaded and will shut down, and you must perform Step 4.

   If a red OVERLOAD LED on the amplifier flickers, the amplifier is overloaded and will shut down. You must perform Step 4 below.
4. Do this step only if a CLIP or OVERLOAD LED came on as described in Step 3. Find the source of the overload (shorted speaker wires, too many speakers connected, or speaker power taps too high in total wattage). After you fix the short, disconnect a few speakers or lower the speaker power tap selection to reduce the wattage, then repeat Step 2.

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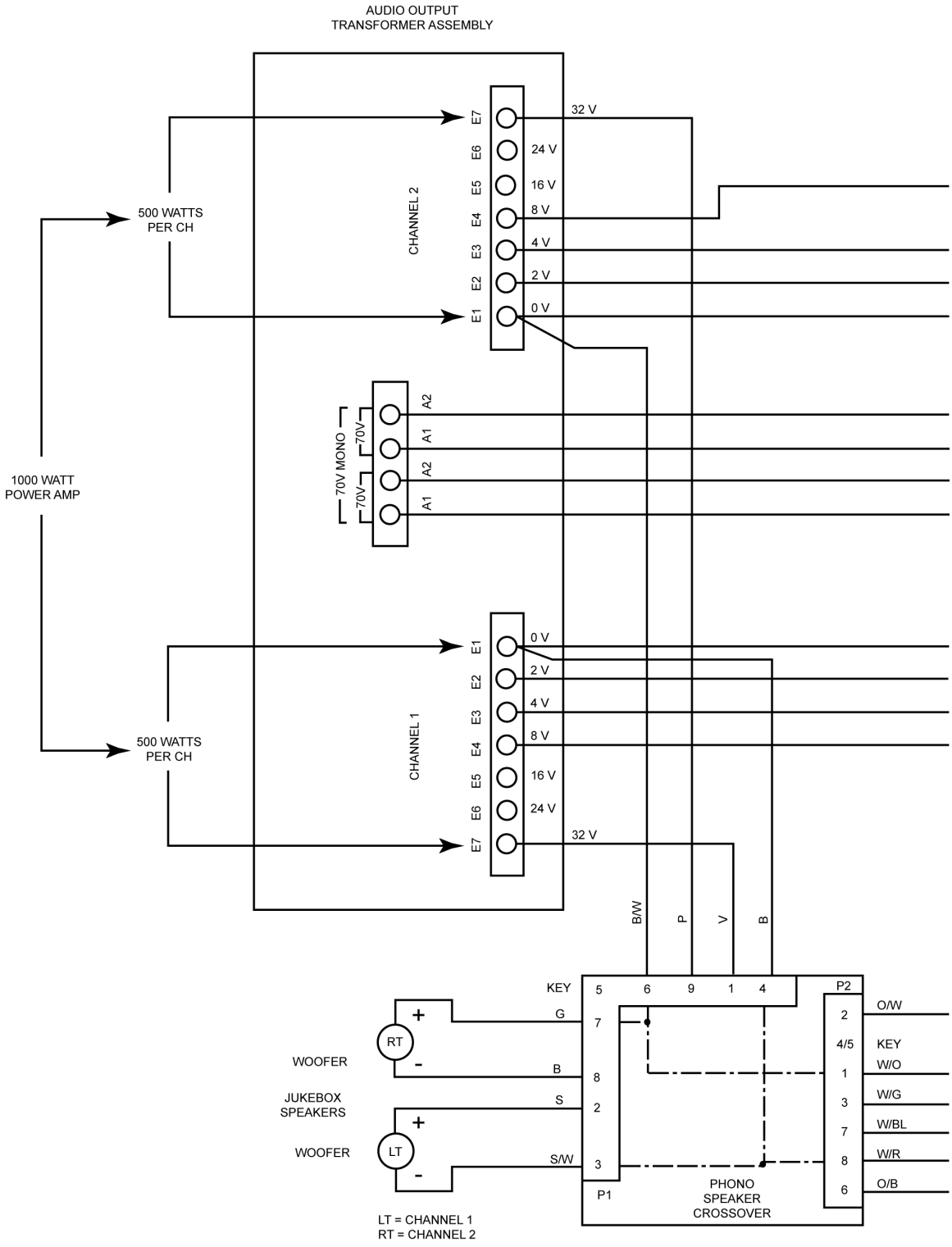
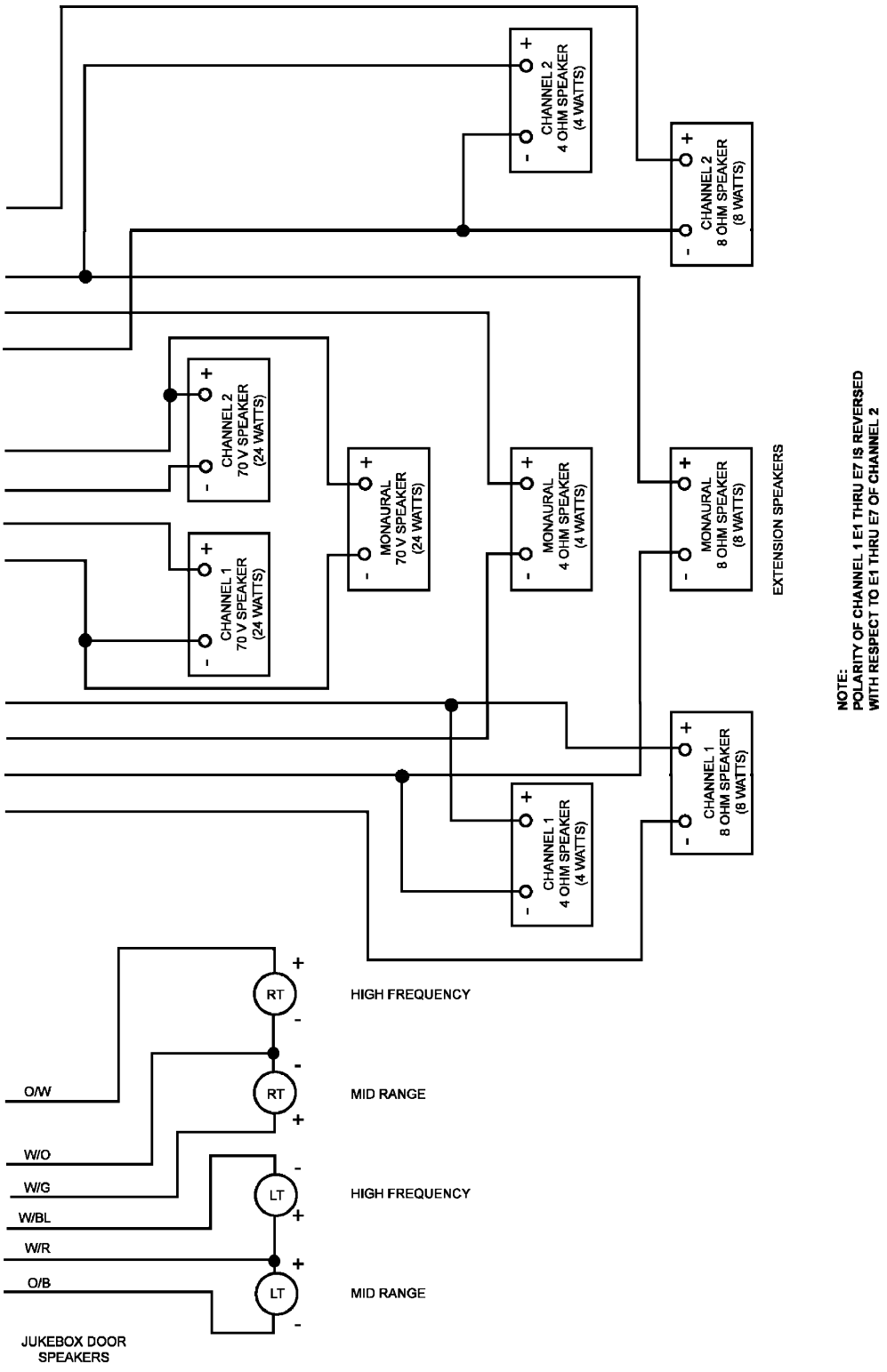


Figure 3–2 – Speaker Connections Rowe Floor Models


CHANNEL 2
4 OHM SPEAKER
(4 WATTS)
CHANNEL 2
8 OHM SPEAKER
(8 WATTS)
CHANNEL 2
70 V SPEAKER
(24 WATTS)
MONAURAL
70 V SPEAKER
(24 WATTS)
MONAURAL
4 OHM SPEAKER
(4 WATTS)
MONAURAL
8 OHM SPEAKER
(8 WATTS)
CHANNEL 1
70 V SPEAKER
(24 WATTS)
EXTENSION SPEAKERS
CHANNEL 1
8 OHM SPEAKER
(8 WATTS)
CHANNEL 1
4 OHM SPEAKER
(4 WATTS)
NOTE:
POLARITY OF CHANNEL 1 E1 THRU E7 IS REVERSED
WITH RESPECT TO E1 THRU E7 OF CHANNEL 2
RT
HIGH FREQUENCY
O/W
RT
MID RANGE
W/O
W/G
LT
HIGH FREQUENCY
W/BL
W/R
O/B
LT
MID RANGE
JUKEBOX DOOR
SPEAKERS

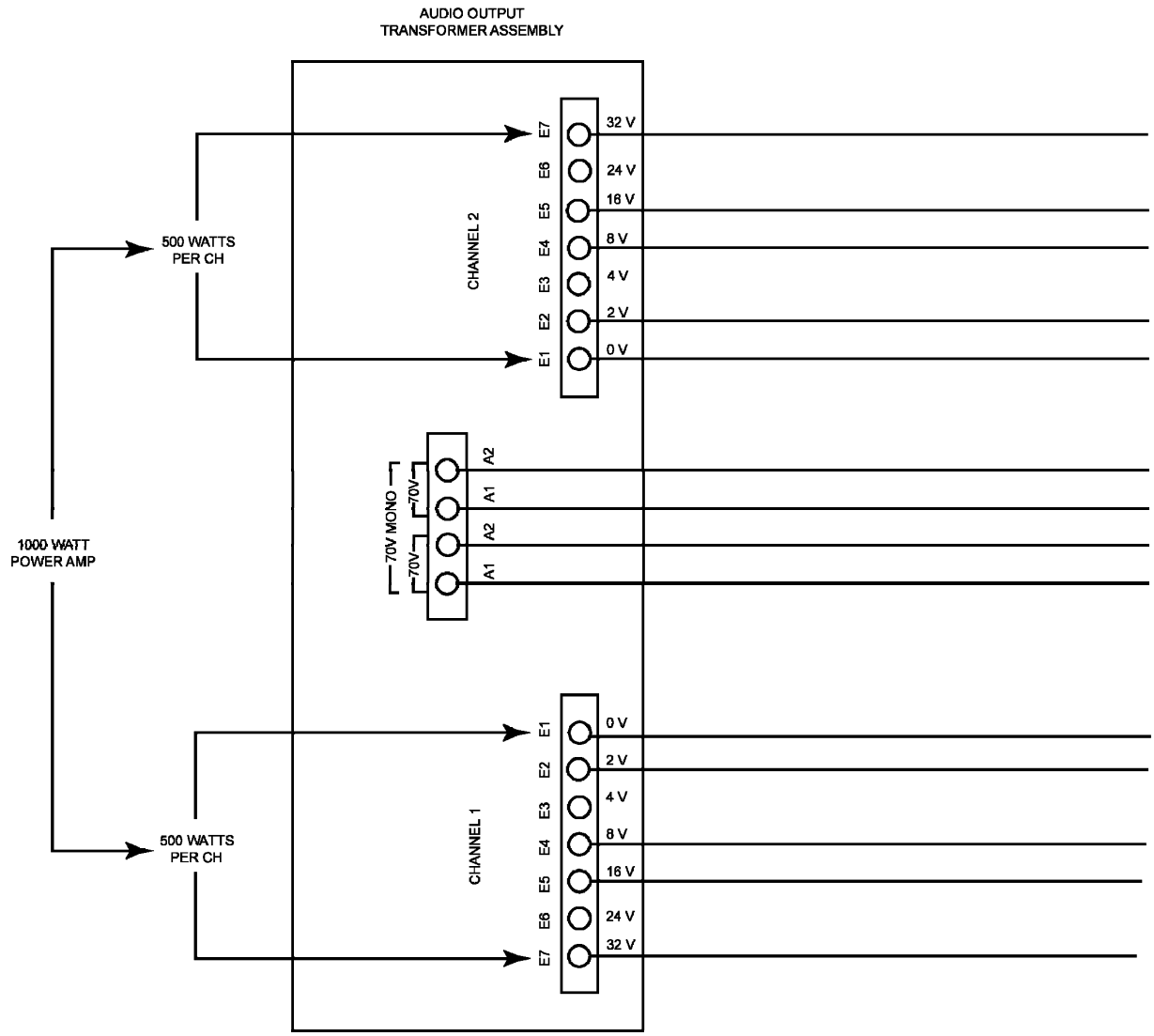
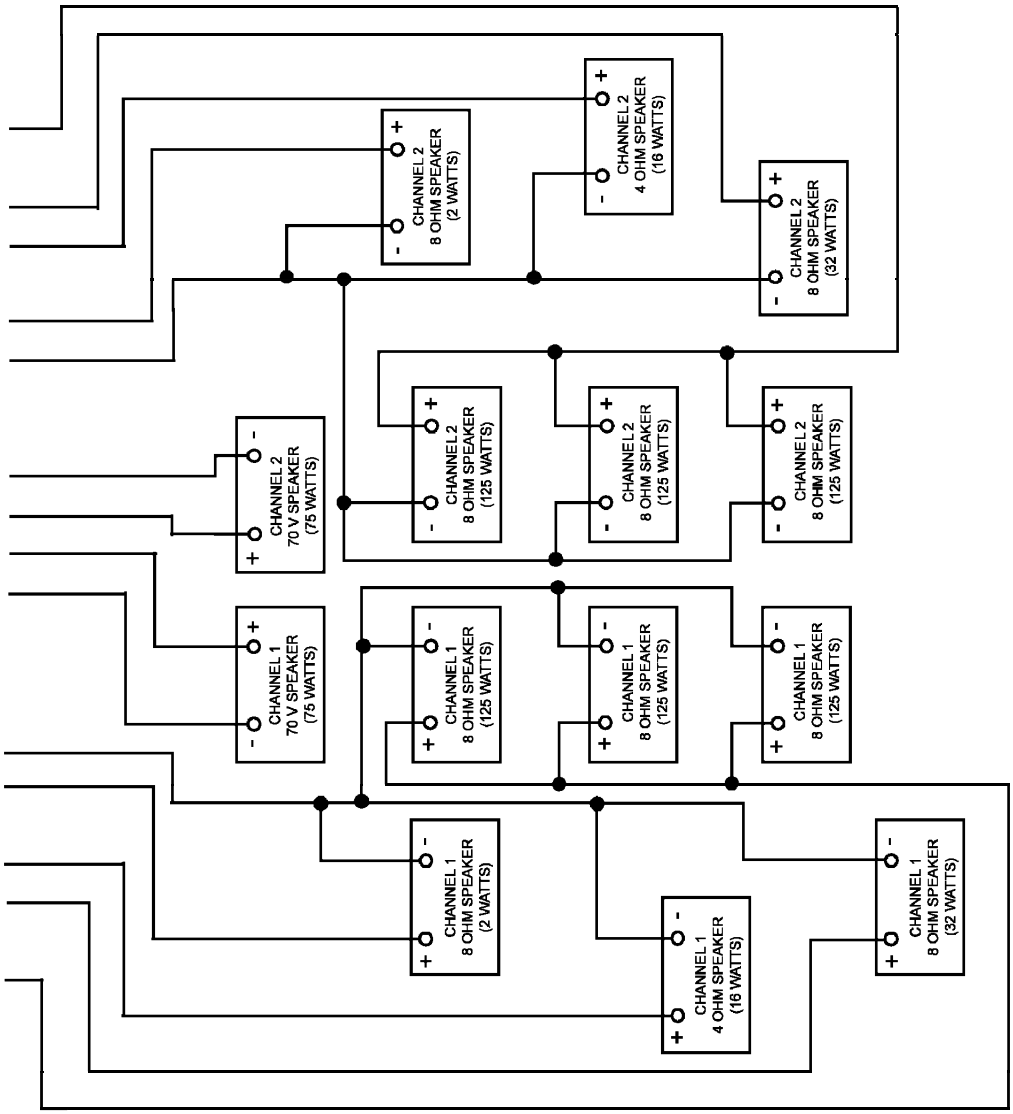


Figure 3–3 – Speaker Connections Rowe Wall-Mounted Models



EXTENSION SPEAKERS
NOTE:
The 70-Volt phasing is reversed inside the output transformer assembly

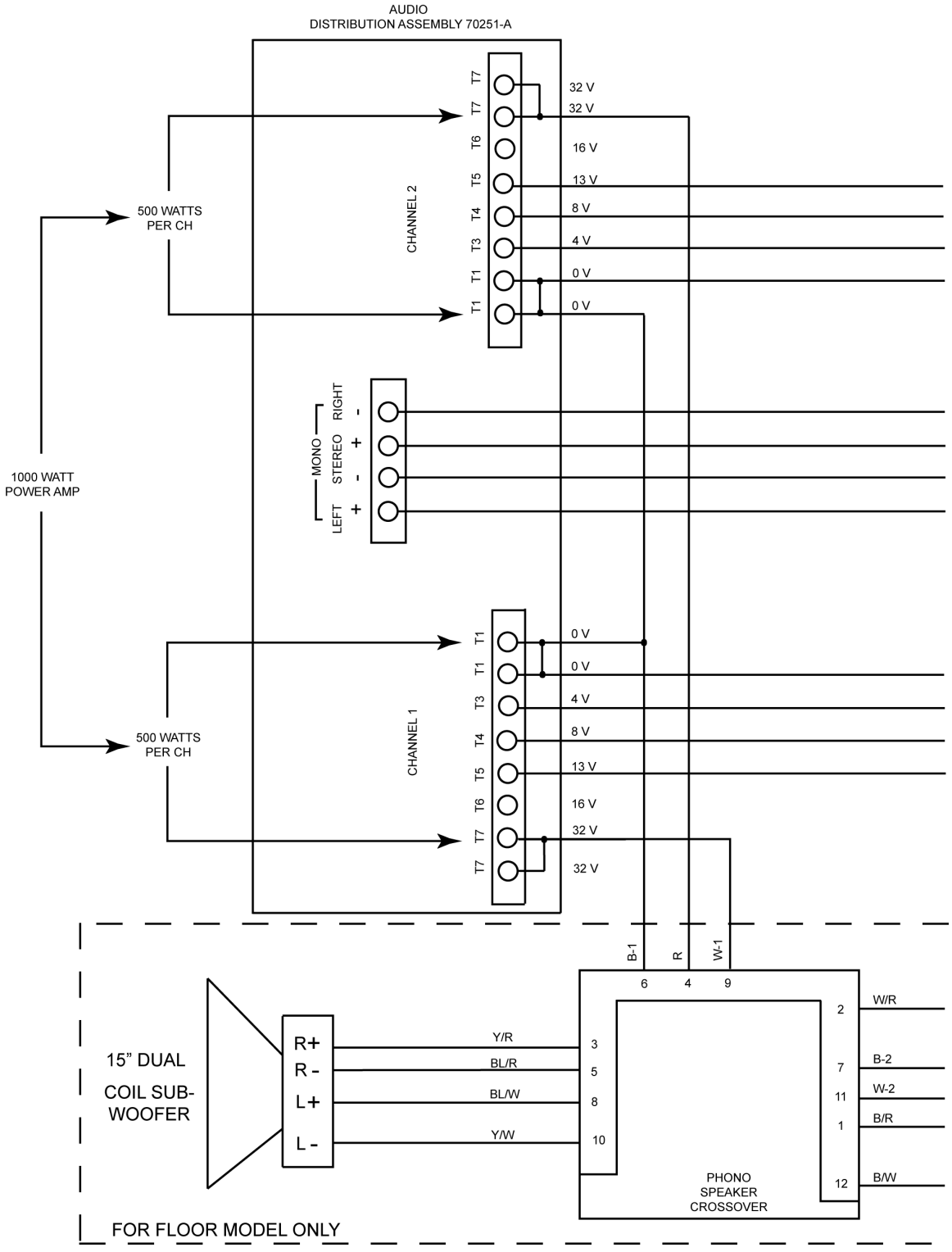
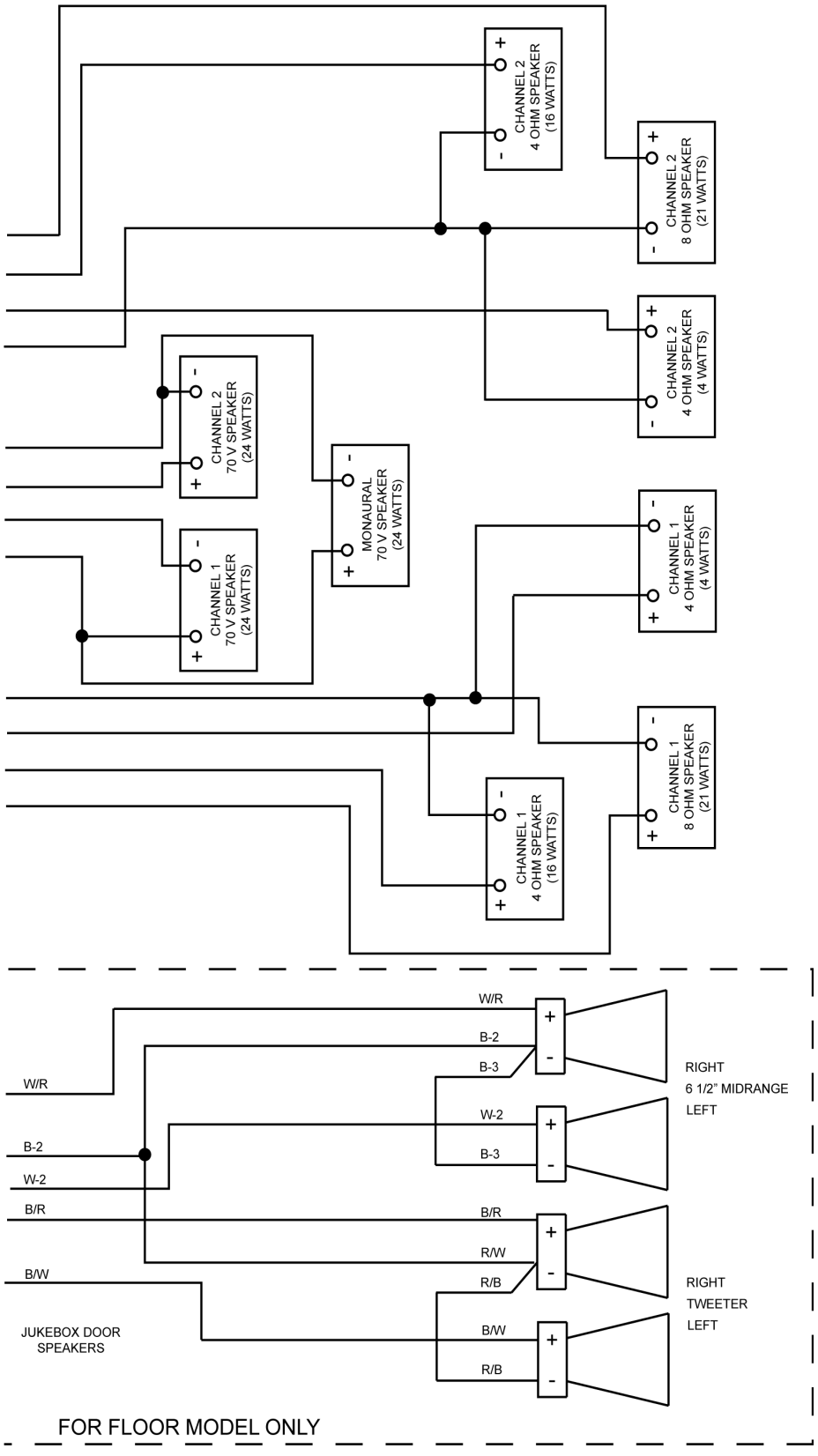


Figure 3–4 – Speaker Connections Rock-Ola


CHANNEL 2
4 OHM SPEAKER
(16 WATTS)
CHANNEL 2
8 OHM SPEAKER
(21 WATTS)
CHANNEL 2
4 OHM SPEAKER
(4 WATTS)
CHANNEL 2
70 V SPEAKER
(24 WATTS)
MONAURAL
70 V SPEAKER
(24 WATTS)
CHANNEL 1
70 V SPEAKER
(24 WATTS)
CHANNEL 1
4 OHM SPEAKER
(4 WATTS)
CHANNEL 1
8 OHM SPEAKER
(21 WATTS)
CHANNEL 1
4 OHM SPEAKER
(16 WATTS)
W/R
B-2
W-2
B/R
B/W
JUKEBOX DOOR
SPEAKERS
W/R
B-2
B-3
W-2
B-3
B/R
R/W
R/B
B/W
R/B
RIGHT
6 1/2" MIDRANGE
LEFT
RIGHT
TWEETER
LEFT
FOR FLOOR MODEL ONLY

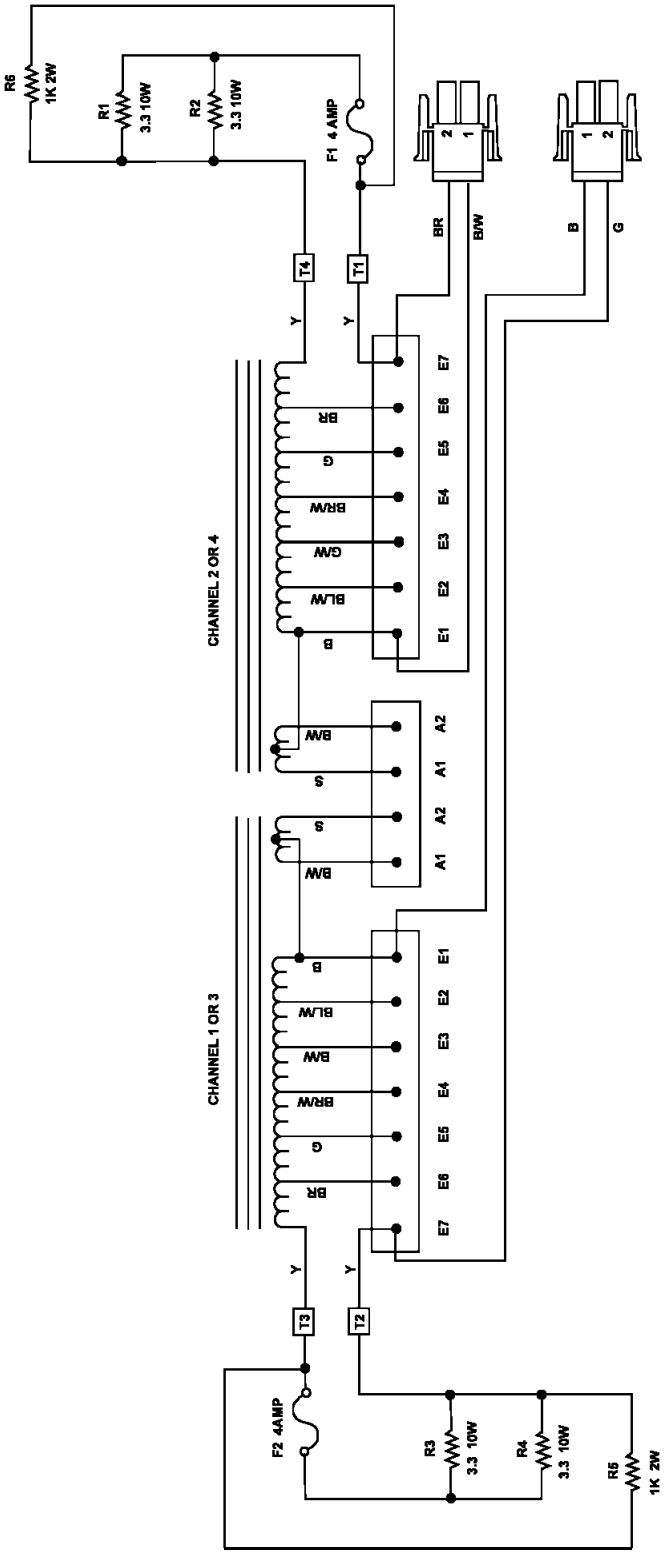


Figure 3–5 – Audio Output Transformer Wiring Diagram (#40832115)

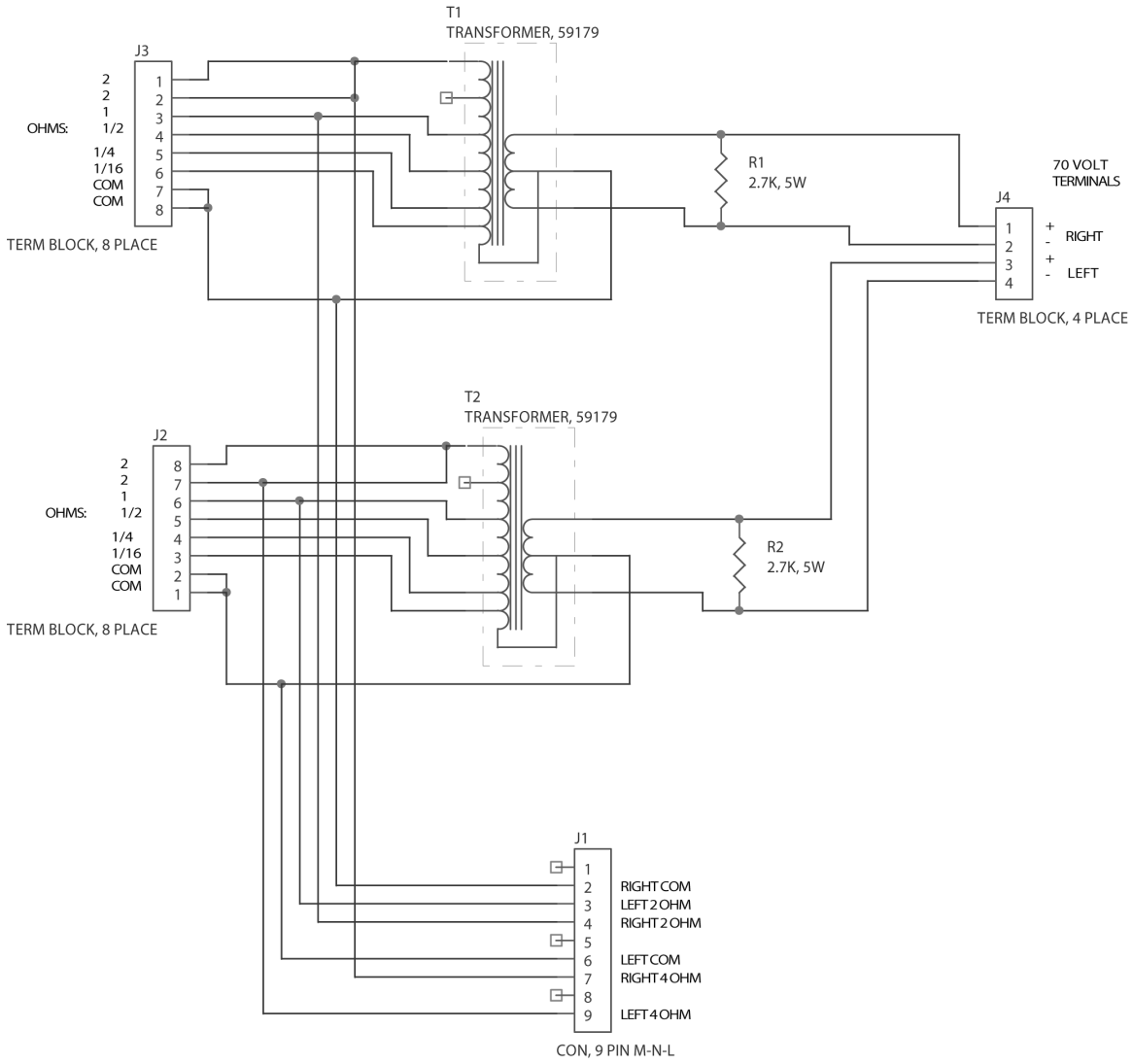


Figure 3–6 – Audio Distribution Assembly Wiring Diagram (70251-A)

Speaker Synopsis

1000 Watts of RMS Power per Amplifier or 500 Watts per Channel.

The generic speaker wiring diagrams cover 6 to 18 speakers.

These speakers are expensive, providing a lot of sound in a localized area, which does not always optimize the room sound. If you perform power calculations on these speakers, you will note that we are recommending a higher rating than absolutely necessary. This is to provide a safety factor and will also provide extended life for the speakers.

The best way to distribute the sound is by adding more speakers.

Using these diagrams as a guide, you will readily see how many different schemes can be achieved. Keep in mind that you can also disconnect the internal jukebox speakers giving you even more freedom with external speakers. The key things to keep in mind are: the load on each channel must be less than 500 watts, and the maximum you can connect via the Output Transformers (any connections not across E1 and E7 or T1 and T7) is 125 Watts per channel.

Figures 3–7 through 3–9 cover the Rowe Floor Models.

Figures 3–10 through 3–11 cover the Rowe Wall-Mounted Models.

Figures 3–12 through 3–14 cover the Rock-Ola Models.

Connections to an optional second amplifier are done following the guidelines as for those where the internal jukebox speakers are disconnected.

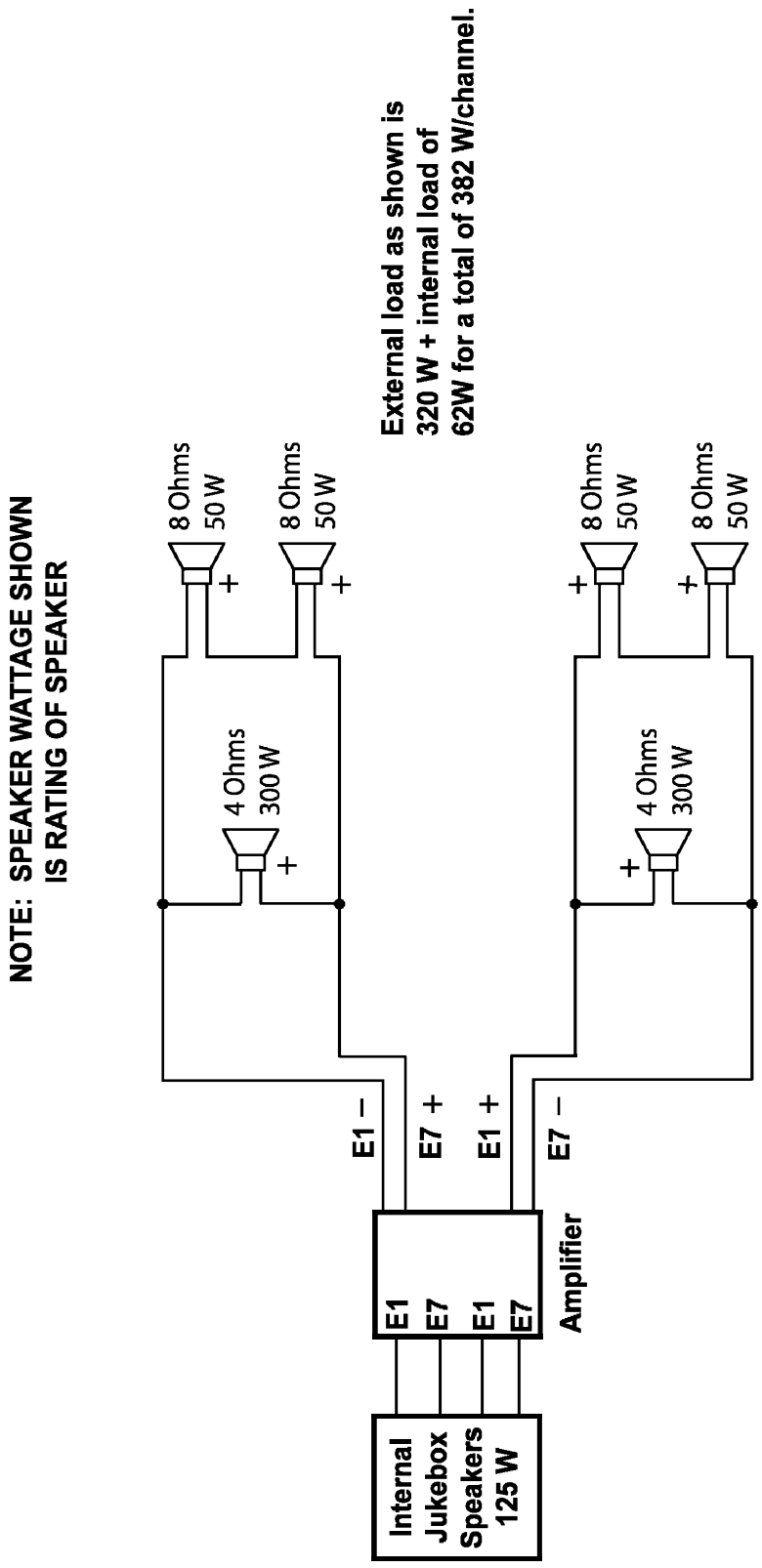


Figure 3–7 – External Speakers with Jukebox Speakers Connected to E1 – E7 Rowe Floor Model

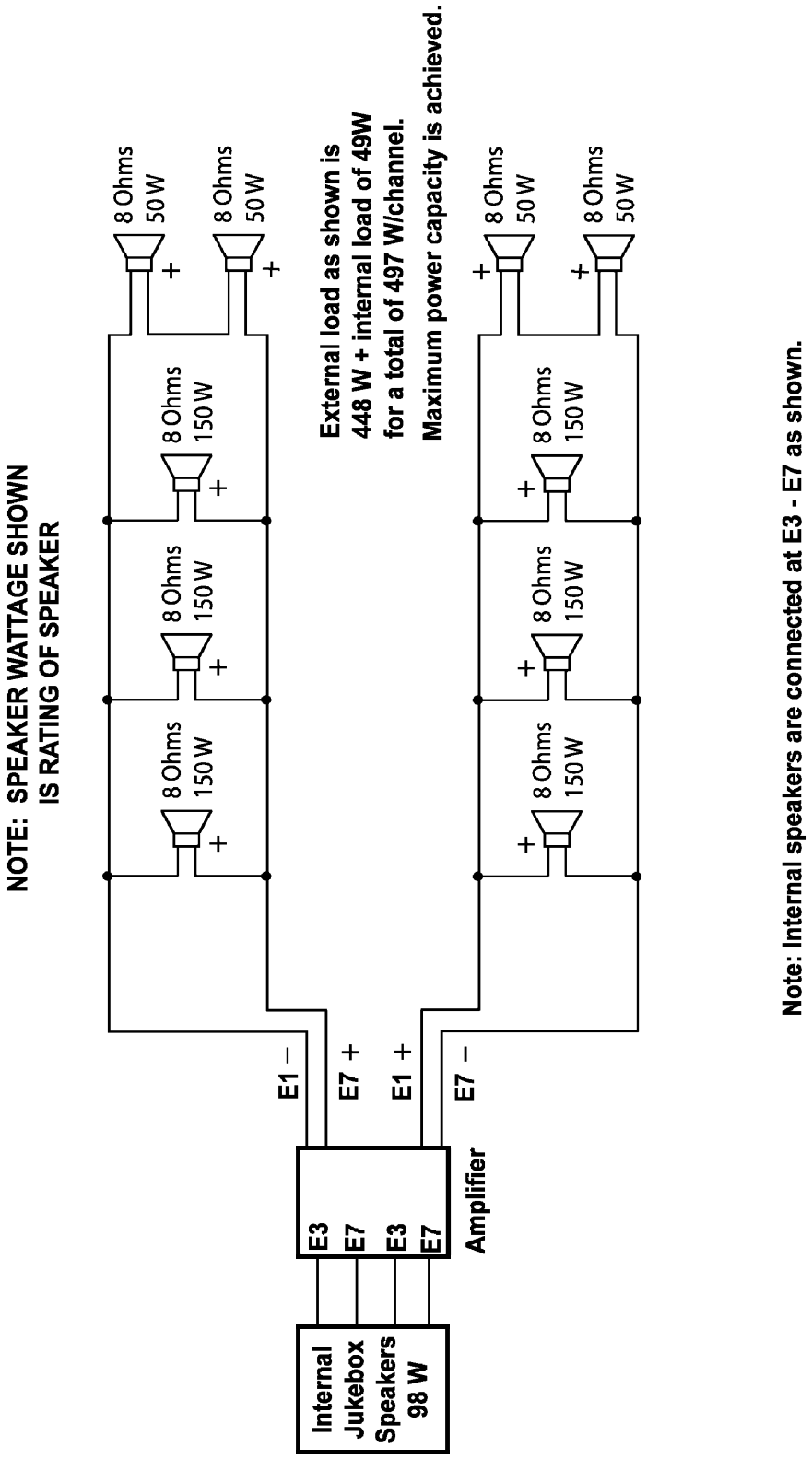


Figure 3–8 – Ten Speakers with Jukebox Speakers Connected to E3 – E7 Rowe Floor Model

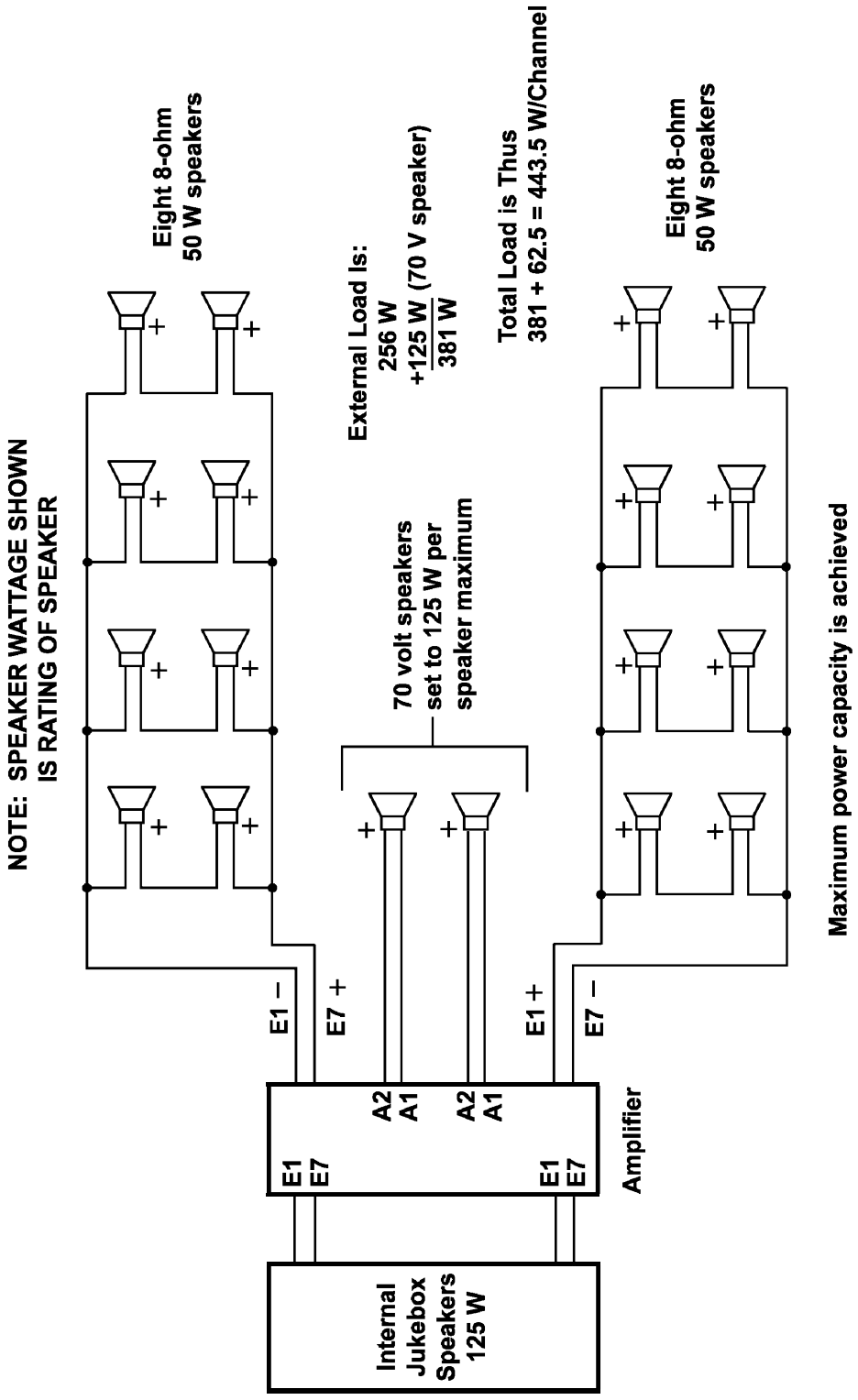


Figure 3–9 – Low Voltage and 70V Speakers with Jukebox Speakers Connected to E1 – E7 Rowe Floor Model

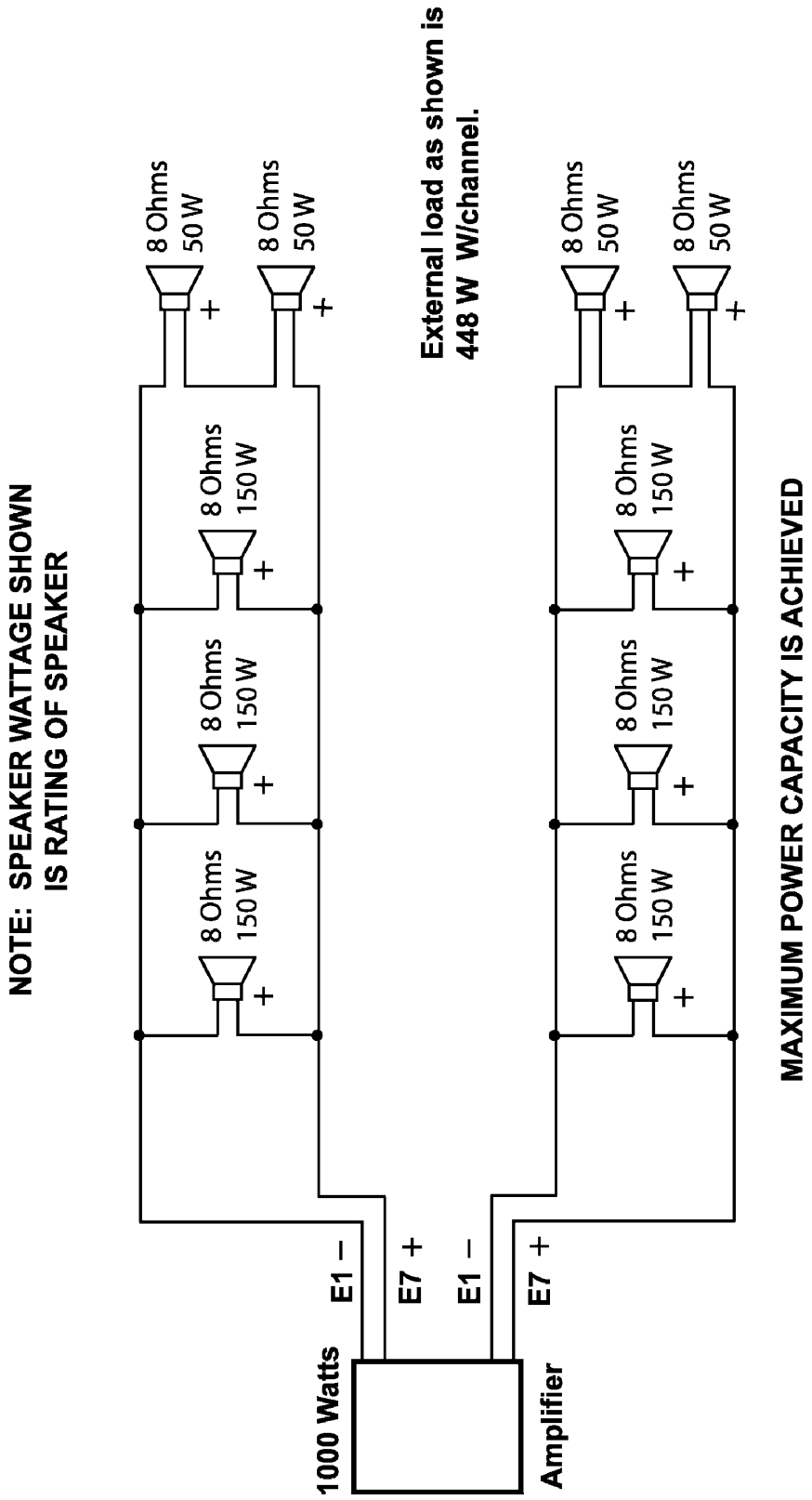


Figure 3–10 – Ten Speakers Connected to E1 – E7 Rowe Wall-Mounted Models

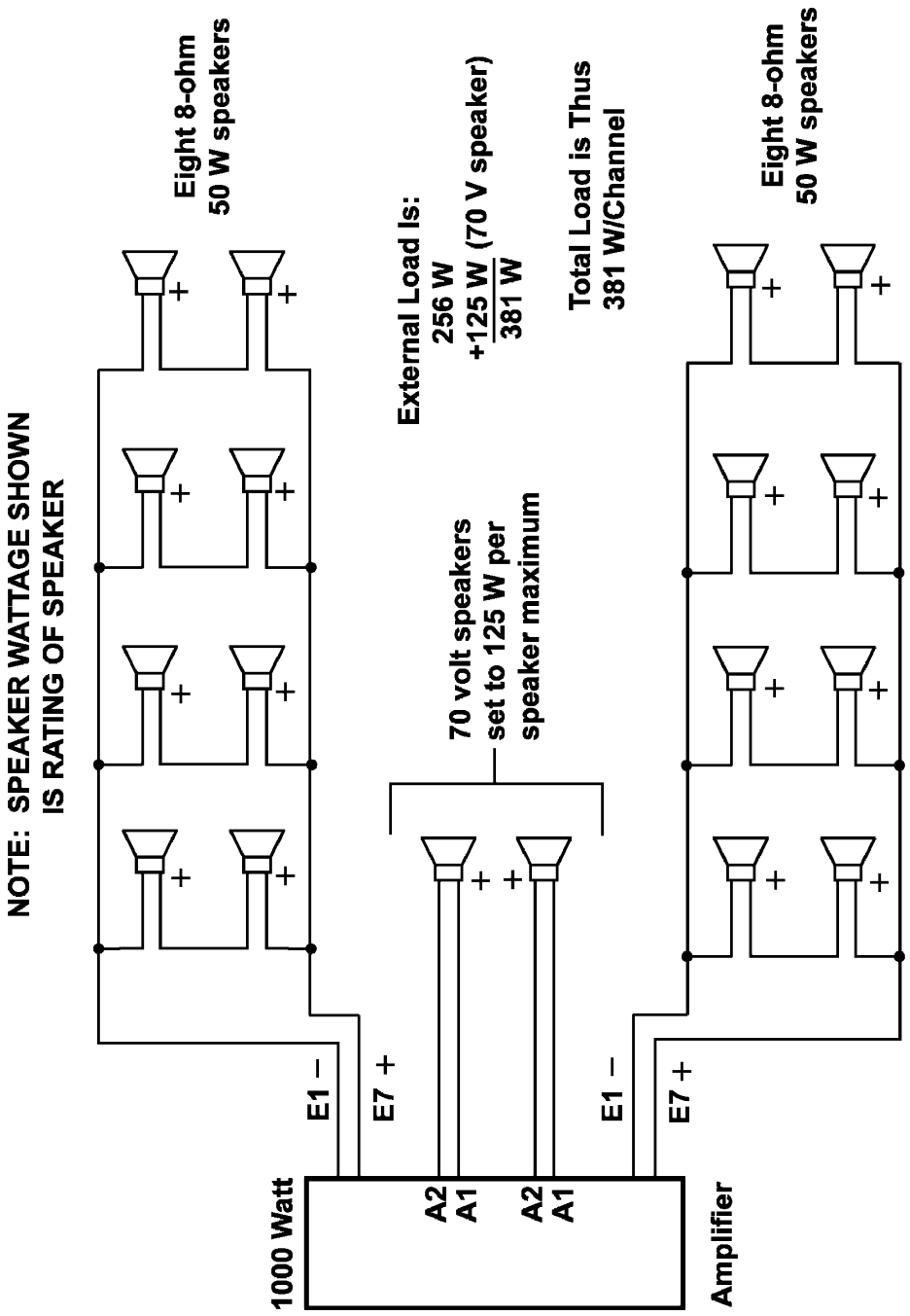


Figure 3–11 – Low Voltage and 70V Speaker Connection to E1 – E7 Rowe Wall-Mounted Models

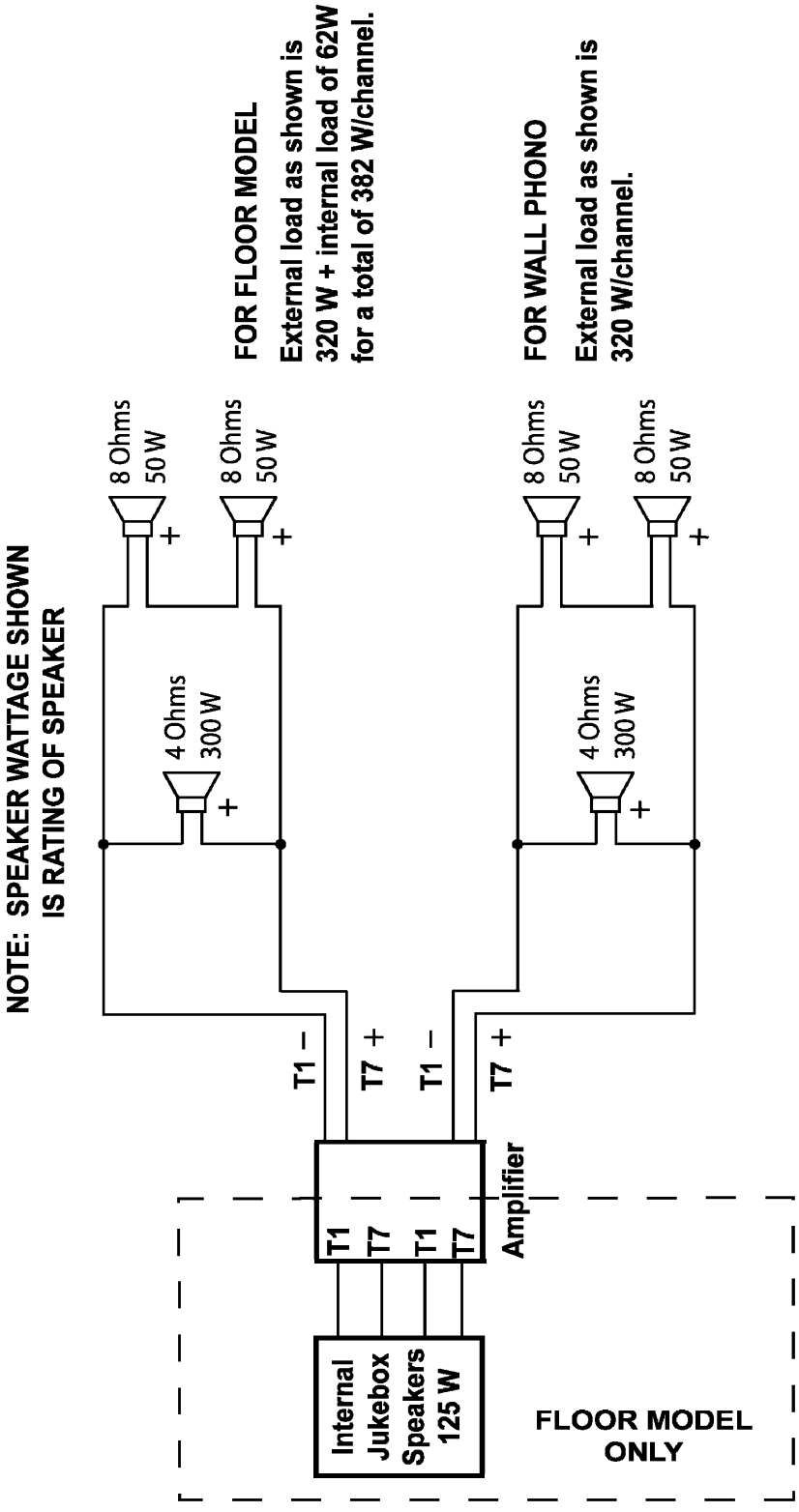


Figure 3–12 – External Speaker Connection with Jukebox Speakers Connected to E1 – E7 Rock-Ola

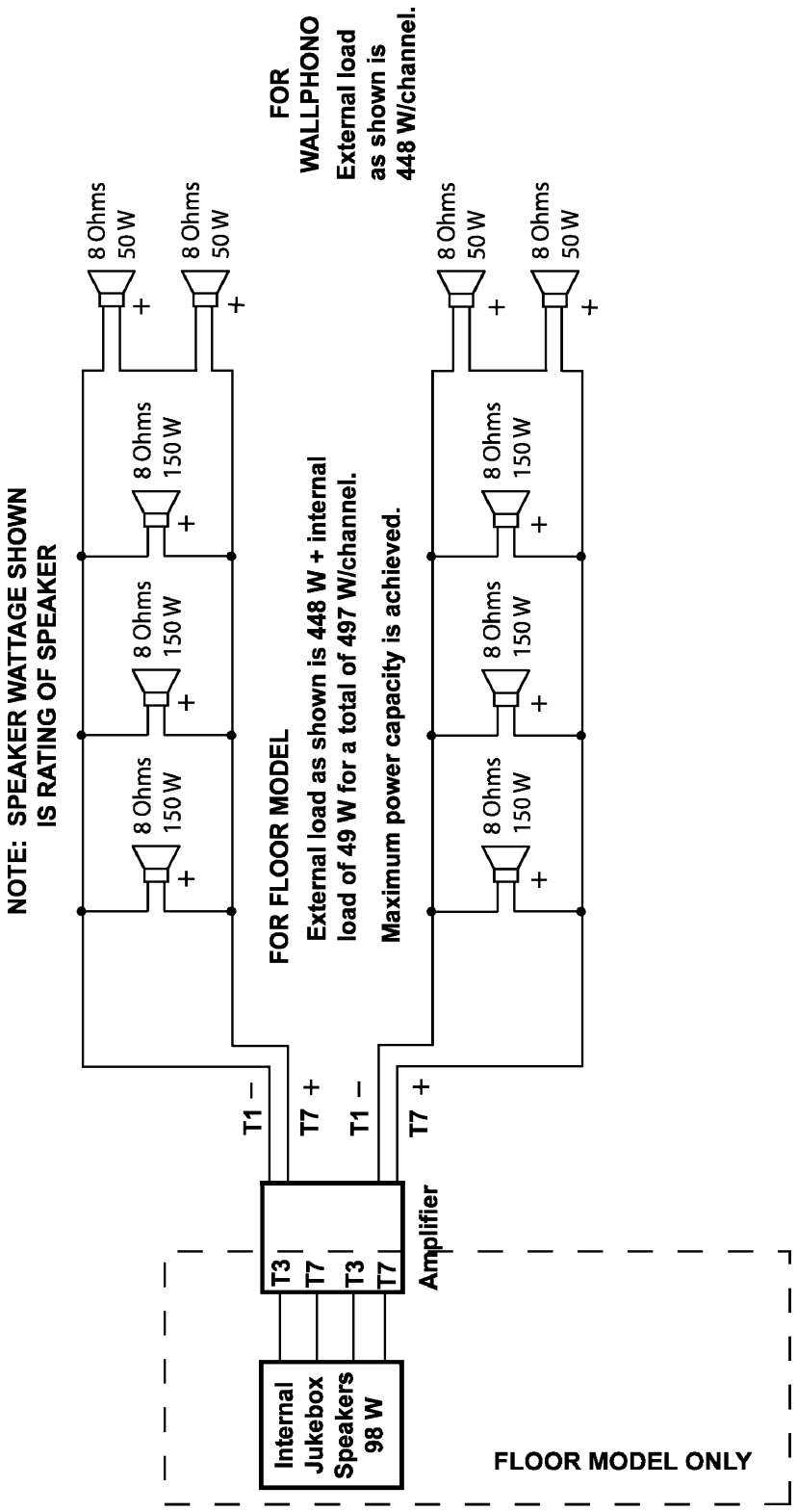


Figure 3–13 – Ten Speakers with Jukebox Speakers Connected to T3–T7 Rock-Ola

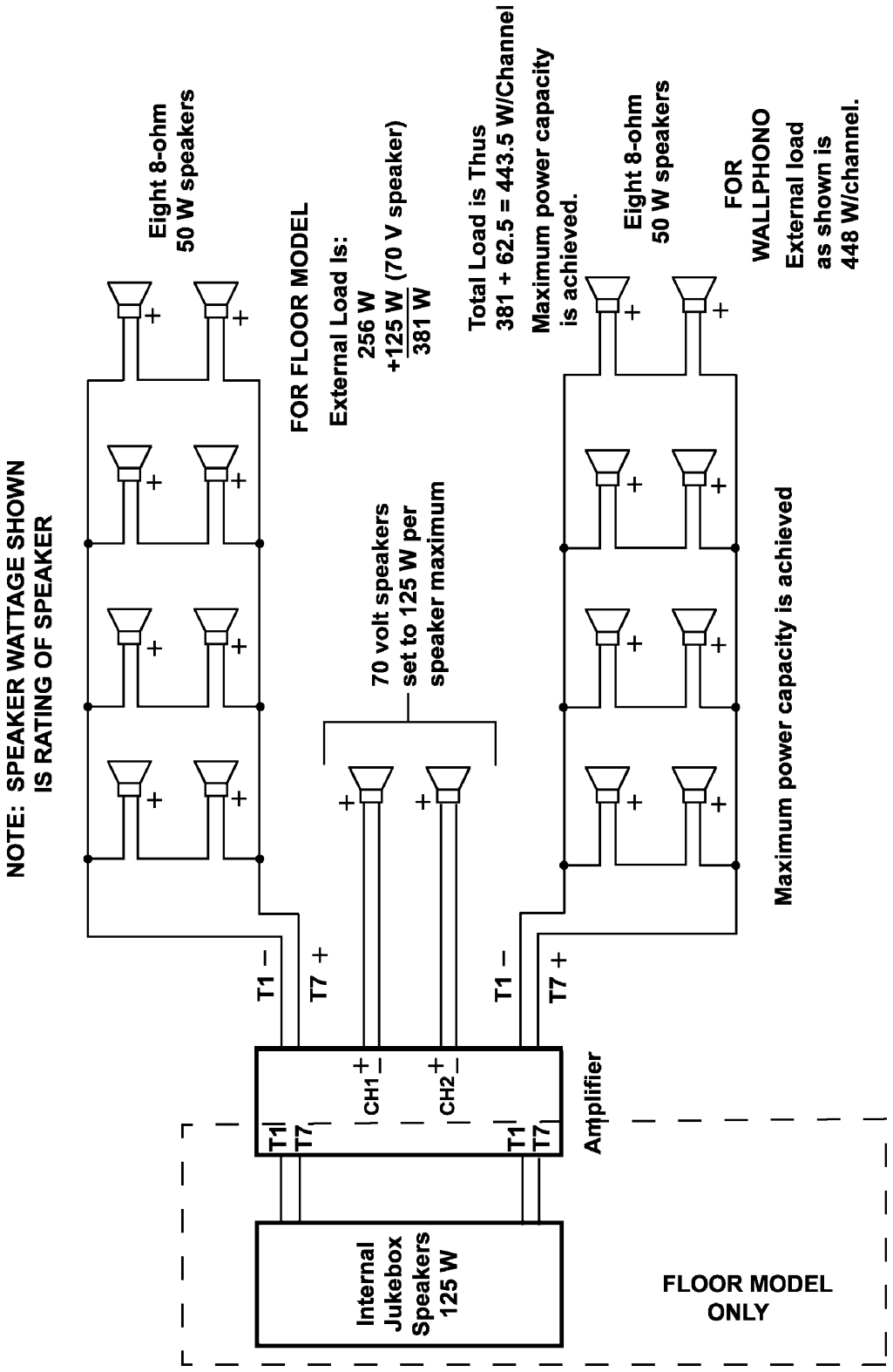
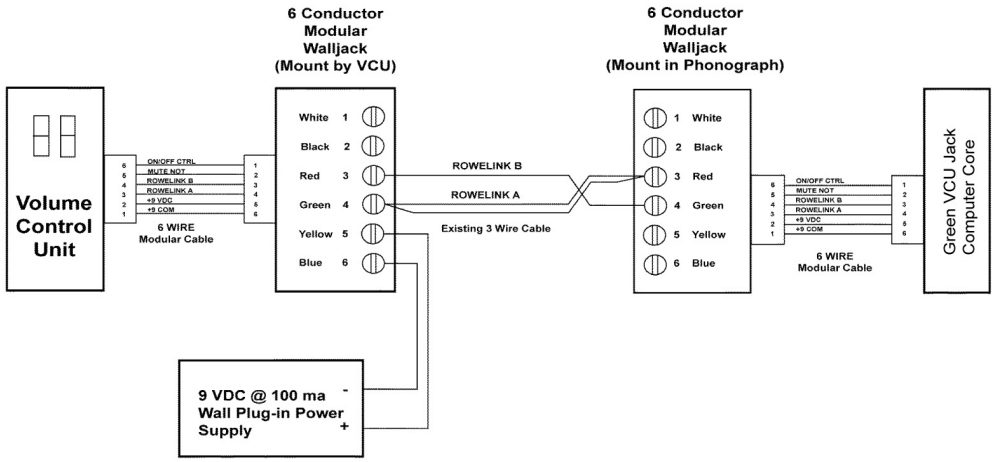


Figure 3–14 – Low Voltage and 70V Speakers with Jukebox Speakers Connected to T1-T7 Rock-Ola

Figure 3–15 – Volume Control Unit

How to connect the Volume Control Unit remotely using existing 3-wire cable



How to remote the Volume Control Unit using existing 4-wire cable

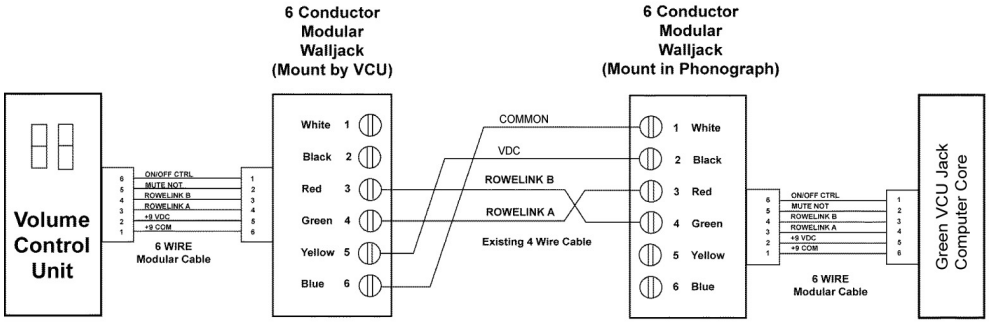


Figure 3–16 – Volume Connections Using Existing 3-Wire or 4-Wire Cable
6 Conductor Modular Wall Jack Radio Shack Model LT-468 Catalog #279-005

Section: 4 Adding Microphones

Up to two microphones can be plugged into the 4-Channel Pre-Amplifier and used for paging. Microphones can be Rowe custom design, CB or "Rowe CB", low level balanced, low level unbalanced, or Rowe wireless.

NOTE 1: A 26679501 Paging System is needed to use low-level balanced and unbalanced microphones.

NOTE 2: MIC 1 input has the standard voice activated and switch activated circuitry. MIC 2 input has only the switch activated circuitry.

Rowe custom design microphones are no longer available but existing ones have a momentary PUSH to TALK switch, a volume control, and plug directly into the 4-Channel Pre-Amplifier connectors MIC 1 or MIC 2 via a Rowe 50-foot microphone cable.

The following Paging System Kits are available: The 26679501 Paging System with Hand-Held Microphone contains: a Rowe CB type microphone that does not have a volume control, a Paging Microphone Adapter that has a volume control, a Rowe 50-foot microphone cable that connects between the Paging Adapter and the 4-Channel Pre-Amplifier, and installation and operating instructions.

The 30995201 Paging System with Hand-Held Wireless Microphone allows wireless paging. Its receiver plugs into the 4-Channel Pre-Amplifier connectors MIC 1 or MIC 2. The wireless receiver has an output level adjustment that's accessed through a hole in the cover. Use a small flat-head screwdriver to adjust it.

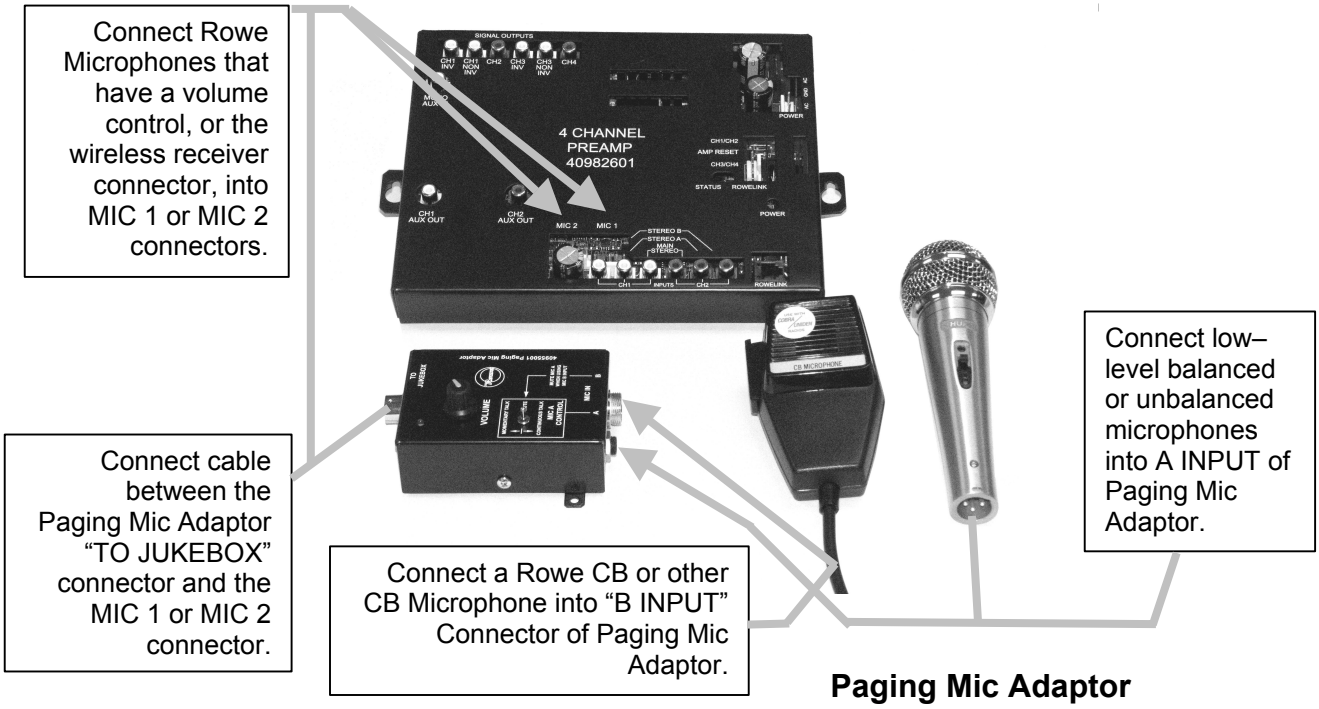


Figure 4–1 – Microphone Connections

Adding Microphone(s)

The jukebox factory settings have all microphones unmuted and routed to the four channel signal outputs and AUXILIARY OUT. For assistance, contact AMI Technical Service.

All of the following steps must be completed to navigate properly through the Audio setup menus as you add microphones to your jukebox system. If you need to start over from the beginning of a step, touch **Cancel**. Do not skip steps.

Step 1 Attach the microphone(s), and cables as shown in Figure 4–1.

Step 2 To test the microphone, the jukebox should be at the location with all extension speakers installed. Set the volume control on the Rowe custom microphone, or the Paging MIC Adapter, to maximum and do test pages with no music playing and with a song playing. If necessary, change the levels by setting the "Microphone Volume During Paging", the "Audio Volume During Paging", and the microphone "Type" for paging as described In Step 3. If levels are as desired, go to Step 4.

Step 3 Adjusting Paging Levels

- Push the SERVICE button on the Computer Core to enter the Main Menu.
- Touch the **Hardware Setup** button.
- Touch **Paging Mic Setup** to view the Paging Mic Setup screen *(see Figure 4–2).* Make sure all MICs in the “Type” column are set to "Paging" indicated by blue buttons.

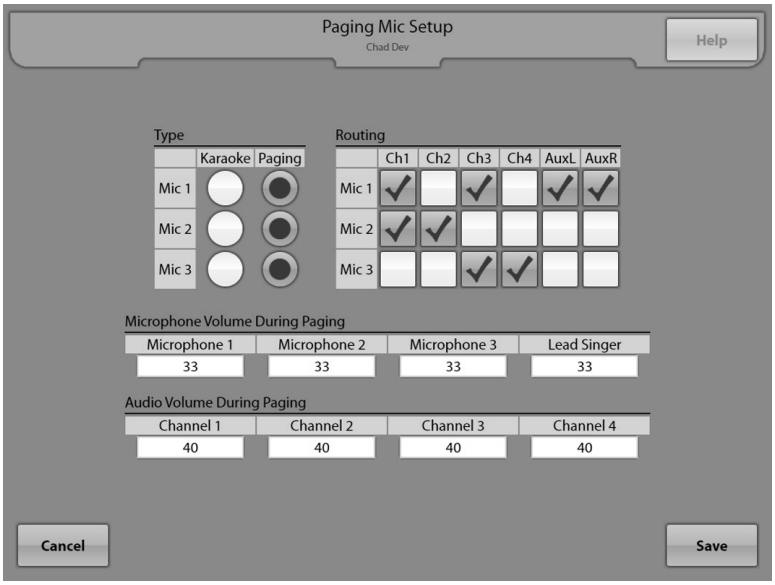


Figure 4–2 – Paging Microphone Setup Screen

- The **Microphone Volume During Paging** is factory set to 33 for all microphones and is the recommended setting. It can be set higher or lower but **do not** set higher than 45 (If set higher than 45, the amplifier can shut down for 5 to 15 seconds if the input level is very high. To set the level:

- Touch the box showing the current "Microphone Volume During Paging" setting.
- Touch **Clear** on the keypad to clear the present value, enter the new value on the numeric keypad, and then touch **Update**.
- If there is a song playing during paging, the music level drops to the Audio Volume During Paging settings. They are factory set to 40, and can be set anywhere from 0 to 63. Set to 0, if you do not want any music to be heard during a page. Set to 63, if you want the minimum 6db reduction of the music level. To change the "Audio Volume During Paging" settings:
- Touch the box showing the current "Audio Volume During Paging" setting.
- Touch **Clear** to clear the present value, enter the new value on the keypad, and then touch **Update**.
- Touch **Save** to save your changes and return to Hardware Setup screen. Repeat Step 2 and check the results.

Step 4 If not in SERVICE mode press the SERVICE button on the Computer Core to enter the Main Menu, and then Touch **Hardware Setup**.

- Touch **VCU Setup** to view the VCU Setup screen *(see Figure 4–3).*

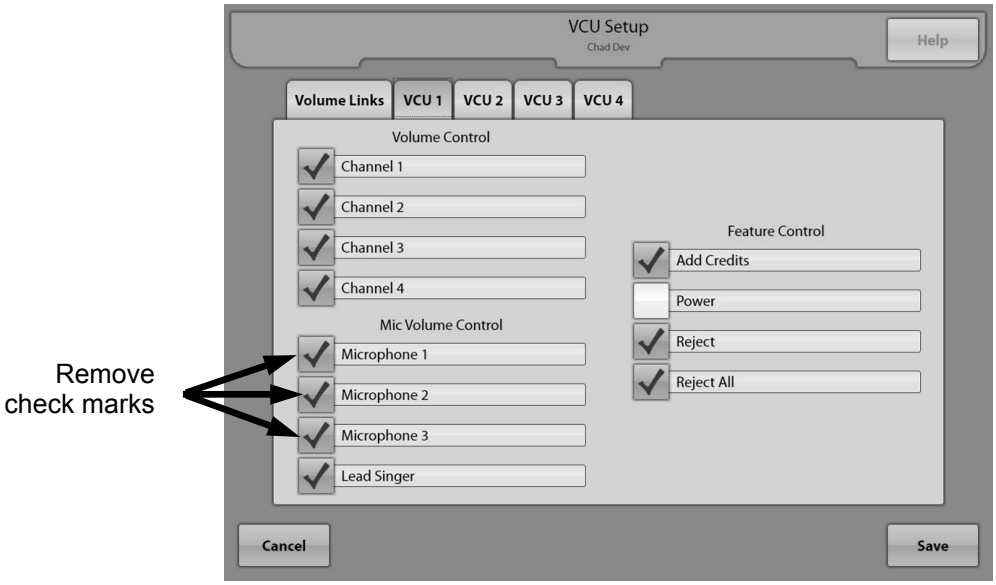


Figure 4–3 – VCU Setup Screen

- In the tabs VCU1–VCU4, remove the check marks in the columns corresponding with the microphones you installed by ***touching*** them. This prevents location personnel from changing your settings using the VCU.
- Touch **Save** to save your changes and return to Hardware Setup.
- Touch **Exit Service Mode**.

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Section: 5 LED Lighting and Bill Acceptor

LED Control Assembly (#40931103)

The LED Control Assembly in the GrandSTAR jukebox supplies all the lighting in the jukebox. There are no fluorescent bulbs, starters, ballasts, or 12 V peanut lights. All lighting is supplied by the use of 29 ultra bright LEDs.

As seen from the outside of the cabinet:

- 12 LEDs illuminate the Graphics Panels
- 8 LEDs illuminate the Crown, 2 each of Red, White, Green, and Blue (Black Door)
- 4 LEDs illuminate the Left Pilaster, 1 each of Red, White Green, and Blue (Black Door)
- 4 LEDs illuminate the Right Pilaster, 1 each of Red, White Green, and Blue (Black Door)
- 3 White LEDs illuminate the Service, Left and Right Accent Lighting

Features of the LED Control Assembly (#40931103) *(Figure 5–3)*

The features of the LED control are as follows:

1. Flashing rate (speed) of the LEDs
2. Brightness of the LEDs
3. Music beat sensitivity
4. (Mode) Choice of lights static in standby and beat to the music, or lights flash at standby and beat to the music.
5. Choice of three patterns

All features are controllable at the LED Control Assembly and the IR Remote (see *Figure 5–1*). If enabled, and any of the LED Control buttons are pressed, the Red LED on the IR Receiver flashes when the IR command is acknowledged by the LED Control. The remote can be disabled if desired. This feature is described in Remote Enable/Disable Program Switch on the next page.

Figure 5–1 – IR Remote

Flash Rate (Speed) of the LEDs

The flash rate (speed) can be adjusted from very rapid to approximately every two seconds. To adjust the flash rate with the IR Remote, push SPEED, then push LIGHTS+ to make the flash rate faster, or push LIGHTS – to make the flash rate slower. When the high and low limits of the flash rate are reached, the IR Receiver Red LED stays ON.

To adjust the flash rate using the SPEED pot on the LED Control Assembly 40931103, turn the control counterclockwise to make the flash rate faster, and clockwise to make the flash rate slower.

Brightness of the LEDs

The brightness can be adjusted from very dim to full brightness.

To adjust the brightness with the IR Remote, push BRIGHT, then push LIGHTS+ to make the LEDs brighter. Or push LIGHTS – to make the LEDs dimmer. When the high and low limits of the brightness are reached, the IR Receiver Red LED stays ON.

To adjust the brightness using the BRIGHTNESS pot on the LED Control Assembly 40931103, turn the control counterclockwise to make the LEDs brighter, and clockwise to make the LEDs dimmer.

Music Beat Sensitivity

There are three adjustments that affect the Music Beat Sensitivity. The IR Remote Music Control Switch, the Music Pot, and the Speed Pot (the last two are on the LED Control Assembly 40931103). The faster the Speed Pot is set, the less influence music will have on the LED lighting. It is recommended to have a relatively slow speed setting so the music will have a greater influence on the patterns.

To initially adjust the Music Beat Sensitivity, make a selection, and when you hear the music, push MUSIC on the IR Remote; then push and hold LIGHTS+ until the IR Receiver Red LED stays ON. This sets the IR Music Control to maximum sensitivity. Now, on LED Control Assembly 40931103, rotate the Music and Speed Pots fully clockwise. The LED Display flash rate should vary to the music. Slowly turn the Music Pot counterclockwise until you see the desired effect of the music beat on the pattern. Once this pot is set, the remote may be used to reduce the effect of the music on the LEDs.

After the initial adjustment has been made, you can vary the Music Beat Sensitivity using the IR Remote Control. To do this, push the MUSIC, then push LIGHTS+ to increase music sensitivity, or push LIGHTS – to decrease music sensitivity. When the high and low limits of the music sensitivity are reached, the IR Receiver Red LED stays ON This adjustment is very sensitive. A slight adjustment causes a relatively large change to music sensitivity.

Remote Enable/Disable Program Switch

Program DIP Sw #3 controls the IR Remote Control Enable/Disable feature (See Figure 5–2).

Sw#3 is ON to Enable: OFF to Disable

Setting LED Mode
Two LED flash modes are available and can be adjusted as follows using the program DIP switches.

Program DIP Sw#6 controls the Mode

Mode 1 is Sw#6 OFF "Juke" Standby = LEDs Flash
"Juke" Playing = LEDs Beat to Music

Mode 2 is Sw#6 ON "Juke" Standby = LEDs all on
"Juke" Playing = LEDs Beat to Music

Adjusting Mode with the IR Remote:
Push MODE, then push either LIGHTS+ or LIGHTS– (Toggles between Mode 1 and Mode 2).

Setting the Pattern
Adjusting the Pattern with the Program DIP Switches:

Program DIP Sw#7 and Sw#8 control the Pattern

Both Sw#7 and Sw#8 ON	=	Pattern 1
Sw#7 ON, Sw#8 OFF	=	Pattern 2
Sw#8 ON. Sw#7 OFF	=	Pattern 3
Both Sw#7 and Sw#8 OFF	=	Pattern 3

Pattern 1 divides the LED lighting into four groups of 4 LEDs, this pattern is a sequence of LED switching whereby three LEDs are ON and one LED is OFF. The OFF LED will sequence through all LEDs. The OFF LED only moves down. LEDs are divided as follows: Crown – 4 left side; 4 right side; Pilaster 4 left side; Pilaster 4 right side.

Pattern 2 is a sequence of LED switching whereby seven LEDs are ON and one LED is OFF The off LED will sequence through all LEDs The OFF LED will move up, then down. LEDs are divided as follows: left Pilaster and Crown – left side – 8; right Pilaster and Crown – right side – 8.

Pattern 3 is a variation of Pattern 2 (Seven LEDs are ON and one LED is OFF. The OFF LED will sequence through all LEDs.) The OFF LED only moves up. LEDs are the same as Pattern 2.

Adjusting Pattern with the IR Remote:
Push PATTERN, then push either LIGHTS+ or LIGHTS – (Cycles through Patterns 1, 2, and 3).

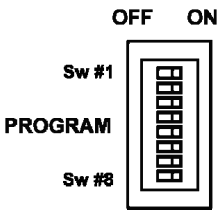


Figure 5–2 – Program DIP Switches

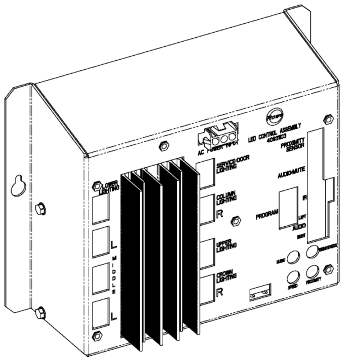


Figure 5–3 – LED Control Assembly

Bill Acceptor Settings

The GrandSTAR uses either a Coinco® Vantage™ or a MEI® AE2611 Bill Acceptor. In order to function properly in the GrandSTAR, these Bill Acceptors must be configured as follows:

Coinco Vantage Setup

Figure 5–4 shows the location and orientation of the DIP Switches.

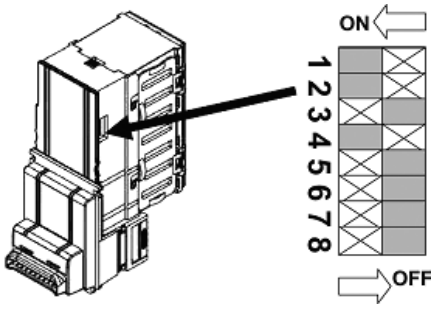


Figure 5–4 – Coinco Vantage DIP Switches

Factory Dip Switch Settings are:

Switch	Setting	Remarks
1&2	ON	Fast Pulses
3	OFF	1 Pulse per Dollar
4	ON	Always Enabled
5	OFF	Pulse Mode
6,7,& 8	OFF	For future use by Coinco

In addition, the Vantage has several other Configuration Settings which are made via an electronic menu system. Operation and settings options are described as follows:

1. To enter the Configuration More, locate the Service Mode Button and Diagnostic Indicator LED as shown in Figure 5–5.

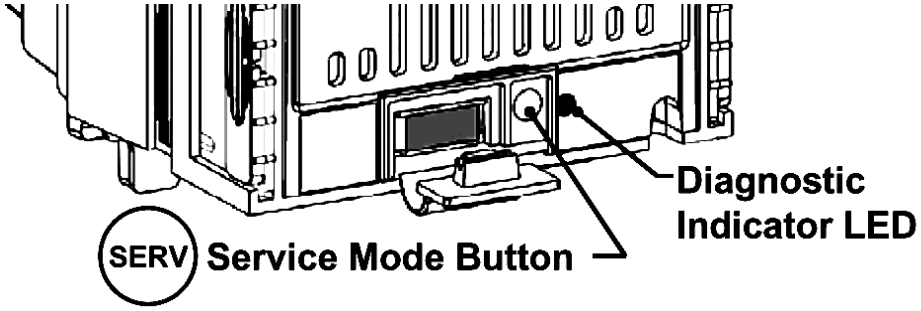


Figure 5–5 – Service Mode Button and Diagnostic Indicator LED

2. Press and hold the Service Mode Button until the Diagnostic LED is blinking a 2-flash pattern.
3. Depress the button on the bottom of the Bill Acceptor to release the Lower Housing from the assembly as shown in Figure 5–6. Slide the Lower Housing out of the frame.

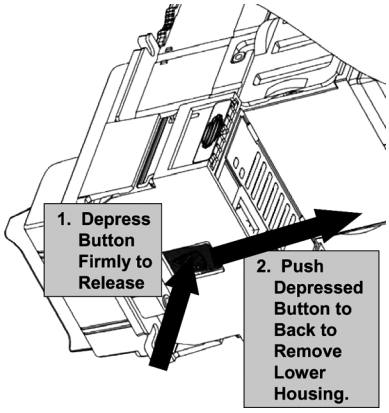


Figure 5–6 – Removing the Lower Housing

4. Referring now to the LEDs on the Inlet Bezel, the 'Page' LED will now be blinking a single-flash pattern. Figure 5–7 shows the 5 LEDs and their meanings.

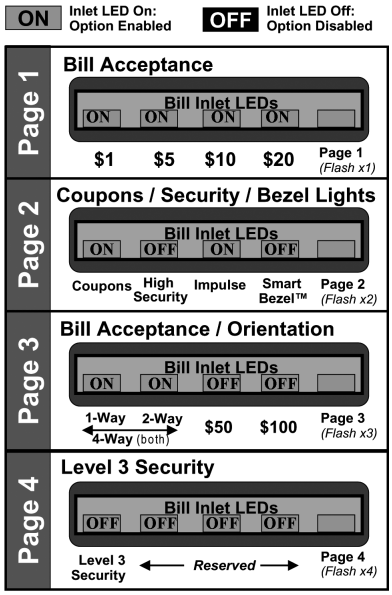


Figure 5–7 – Configuration Settings

The 'ON' and 'OFF' settings shown are the Rowe default settings

5. Press the Service Mode Button and release to step through the Bill Acceptance options. When you have the bills enabled as desired, press the Service Mode Button and hold it until the Page LED begins to blink in a 2-flash pattern.

6. Set the Page 2 options as desired by pressing the Service Mode Button and releasing to step through the options. When you finish these settings, press the Service Mode Button and hold it until the Page LED begins to blink in a 3-flash pattern.

7. Continue these steps through the Page 3 and Page 4 options. When you have the settings as you want them, simply re-install the Lower Housing. The Inlet LEDs will flash 5 times confirming that your settings have been saved.

8. Refer to the Coinco Installation and Operation Guide included with your jukebox for a more detailed explanation of the various options.

MEI AE2611 Setup

The factory DIP switch settings are:

1, 2	ON	for 4-way acceptance
3	ON	for high acceptance
4, 5	OFF	to accept $2 and $20
6	ON *	for always enable
7	OFF *	for one pulse per dollar
8	OFF *	for gaming interface.

* Switches 6, 7 and 8 **MUST** be in the position shown above.

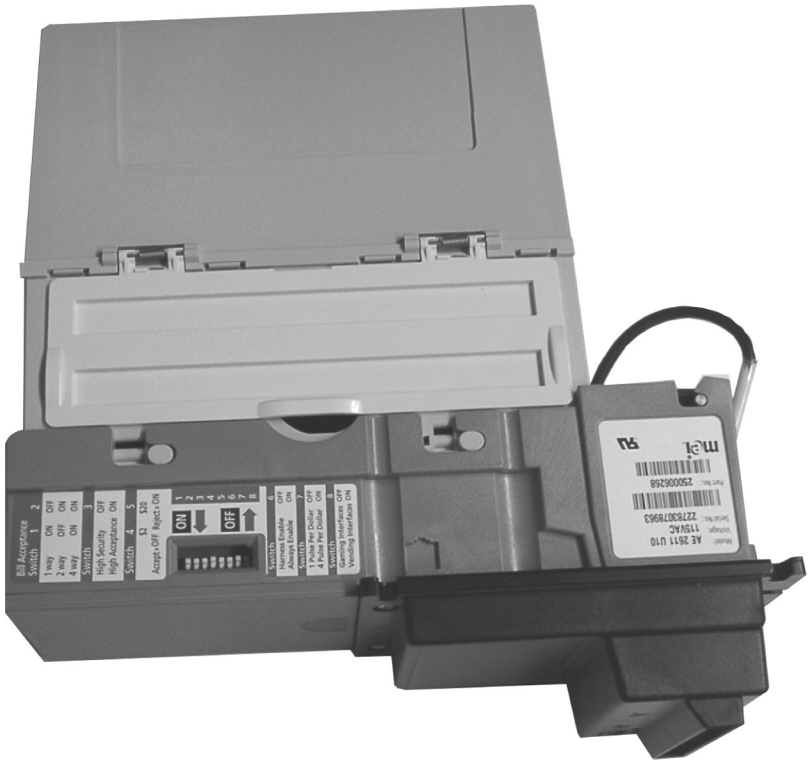


Figure 5–8 – MEI Bill Acceptor

Section: 6 Routine Service

Introduction

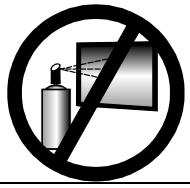
Routine and preventative maintenance is to be performed on your regularly scheduled periodic service call. This section discusses how to perform preventive maintenance procedures.

Changing music, collecting statistic figures, and changing other location-specific features can be done using the AMI Entertainment Secure Web site via the Internet. Detailed instructions on how to use AMI Entertainment's Web Application are located in the included manual *"Network Setup, Jukebox Operation, Operator Setup Screens"* and on the Web site itself.

Preventive Maintenance

Preventive maintenance should be performed at regular intervals. At every visit, the exterior should be cleaned and the touchscreen should be re-calibrated. The interior should be cleaned every 3–4 months.

Exterior

Part	Procedure
Touchscreen 	Clean with household glass cleaner and paper towel or clean cloth. ***CAUTION: DO NOT SPRAY CLEANER ON THE TOUCHSCREEN.*** ***SPRAY CLEANER ON THE TOWEL, AND THEN CLEAN THE TOUCHSCREEN.*** After cleaning the touchscreen, it may not respond to touch for a few seconds.
Exterior Surfaces	Cloth moistened in water with any mild cleaning product
Calibration	Please see the following procedure.

Touchscreen Calibration

The following procedure describes how to calibrate the touchscreen:

1. Power on the jukebox and allow it to complete the startup sequence.
2. Open the door of the jukebox.
3. Locate the "**Calibrate**" button on the Computer Core. Refer to *Figure 6–1*.
   Press the button once to launch the calibration program. This will override the jukebox application while the calibration program runs. Refer to *Figure 6–2.*
4. Close the door and make sure it locks.
5. Follow the directions on the screen, touching the center of the targets, and then touching "**Yes**".

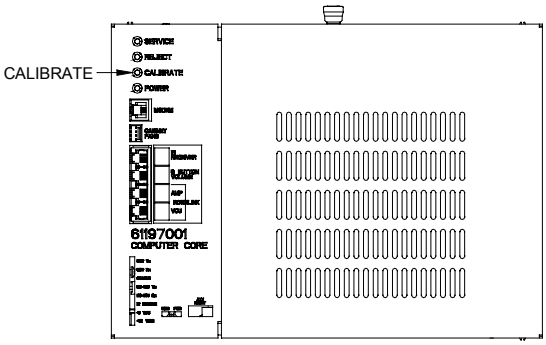


Figure 6–1 – Calibrate Button

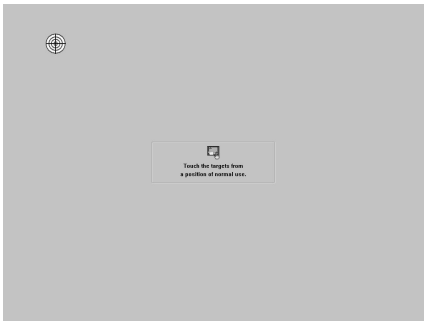


Figure 6–2 – Calibration Screen

Air Filter

Filtered cooling air is provided for the components inside the GrandSTAR via a fan mounted on the back of the jukebox. The speed of this fan is controlled by the Computer Core – if the temperature is moderate, the fan runs at a low speed, but as the temperature inside the box rises, the fan is driven faster.

The air filter will need to be washed periodically. The frequency will depend on the conditions at the site, so it is best to check the filter condition at least once a month. The filter is located on the back of the GrandSTAR as shown In *Figure 6–3.*

Remove and clean the filter as necessary. To do this, remove the frame by sliding it upward as shown in *Figure 6–3.* Remove the filter pad from the frame. Use warm water and a mild detergent to clean the filter. Rinse thoroughly and allow it to dry. One side of the filter has been glazed to make it easier to slide in and out of the frame. The glazed side should face towards the jukebox. Slide the frame and pad back until the frame stops against the filter mounting bracket on the back wall.

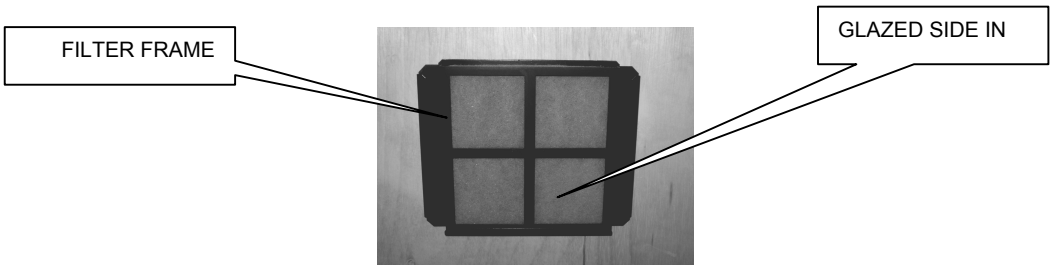


Figure 6–3 – Filter Removal

Hard Drive Replacement

1. Turn off and unplug the jukebox.
2. Loosen the thumbscrew securing the cover on the Computer Core and slide the cover off (see *Figure 6-4*).
3. Carefully slide the hard drive tray out of the assembly as far as cabling will allow.
4. Disconnect the SATA power and data cables from the drive.
5. Remove the two thumbscrews securing the hard drive to the tray.
6. Secure the new hard drive to the tray using the same 2 thumbscrews (see *Figure 6-4*).
7. Connect the SATA power and data cables to the new hard drive.
8. Slide the hard drive assembly back into the plastic bracket guides in the Computer Core (see *Figure 6-4*). Make sure not to pinch any cables while doing so.
9. Replace the Computer Core cover and secure it with the existing thumbscrew.

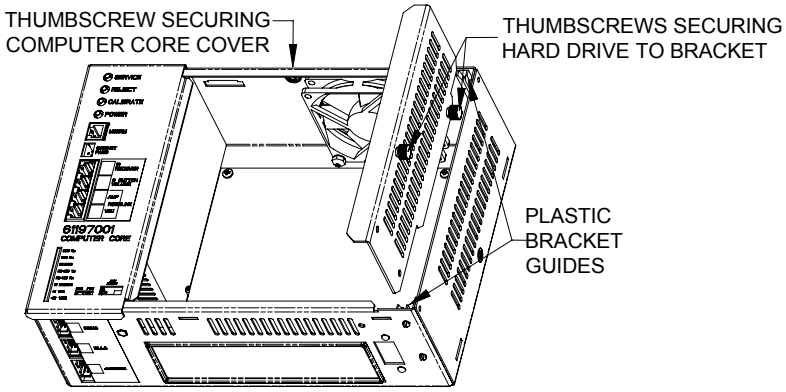


Figure 6–4 – Computer Core

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Section: 7 Troubleshooting

Introduction

The GrandSTAR Jukebox incorporates several modules which plug in for rapid service.

The most likely cause of jukebox problems is:

1. Continuous or intermittent open circuits in a harness. The cause can be broken or cut wires, a damaged terminal, or a bad terminal crimp.
    - Check that all plugs are firmly seated.
    - Check that connector pins are not bent, broken, or pushed through the back of connectors when mated.
2. A defective module. Troubleshooting procedures are directed at module replacement, not repair.

A summary of the functions for each of the jukebox's replaceable modules is listed Section 1.

The troubleshooting topics presented in this section are:

- The GrandSTAR indicator LEDs can help you isolate a problem.
- A sequence of operation explanation in this section and a wiring *diagram* help you isolate the problem to a harness or a module. The wiring diagram also shows the part numbers of the harnesses and modules.
- Modular Troubleshooting Charts that list the Trouble, Symptom, and Probable Cause.

Power Supply Board

+9 V LED
Should be on. Indicates +9 VDC is available at the Power Supply.

+12 V LED
Should be on. Indicates +12 VDC is available at the Power Supply.

+24 V LED
Should be on. Indicates +24 VDC is available at the Power Supply.

4-Channel Pre-Amplifier

Power LED
Should be on. Indicates when all 4 voltages are present (+5 V, +8.5 V, +15 V, –15 V).

Status LED
On Power Up (Power applied to the 4-Channel Pre-Amplifier) this LED flashes 3 times.

Rowelink LED
Should be flashing **. Flashes when the 4-Channel Pre-Amplifier sends an RL signal back to the Computer Core. Rate is approximately twice per second.

Volume Control Unit

Period LED (on the 10s digit)
Should be dimly flashing ** at a relatively fast rate. Indicates when Master Commands are sent from the Computer Core.

Period LED (on the 1s digit)
Should be dimly flashing ** at a relatively fast rate. Indicates when the Volume Control sends an RL signal back to the Computer Core.

Power Amplifier

Yellow Clip LED
Should be off. If on, the input signal to the Power Amplifier is too high, which will cause the output signal distortion to increase.

Red Overload LED
Should be off. If on, the speaker outputs are overloaded.

Computer Core Assembly +5VDC, +12VDC

The Computer Core Assembly also has two Ethernet LEDs that are built into the Ethernet socket. The yellow LED indicates a connection at 10 MB and the green LED indicates a connection at 100 MB. The green LED should be active on the Computer Core Assembly.

Status LED
On Power Up (Power applied to the Computer Core Assembly) this LED flashes 3 times.

RS485 TX LED
Should be flashing **. Indicates when Master Commands are sent from the Computer Core. Appears almost continuously on (rate is more than 20 times per second).

RS485 RX LED
Should be flashing **. Indicates when COMPUTER CORE receives an RL signal from one of the ROWELINK devices. Appears almost continuously on (rate is more than 20 times per second).

IR RECEIVER LED
Flashes when the IR RECEIVER sees an IR signal. May flash due to ambient light.

HDD Red LED
Should flash occasionally. Flashes if the hard drive is being accessed.

PWR Green LED
Should be on. Indicates if the hard drive has power applied to it.

** When the COMPUTER CORE ASSEMBLY is powered up, then it may take several minutes for the Rowelink LEDs to start flashing.

Sequence of Operation

Step 1: Power on the jukebox

- With the System Power Supply power switch in the ON position, plug the AC power from the back of the jukebox into a standard, grounded wall outlet. The LEDs will light, and the Volume Control Unit display will show dashes.
- If the Computer Core Assembly does not automatically start to boot-up, press the Reset/ATX power button (see *Figure 1–1)* in once and release.

Step 2: The operating system automatically begins to boot. The following is viewed on the monitor:

- Low-level hardware checks
- Windows XP Embedded Operating System Loads
- GrandSTAR Operating System Loads

Step 3: The user interface is viewed on the monitor. No music is in the queue, no selections are available and the amplifier is muted.

Step 4: Customer provides a form of payment. **"Credit"** displays a value greater than 0.
For cash:

- Bill Acceptor or Coin Acceptor receives the money
- Acceptor sends pulse(s) to the Computer Core (no escrow)
- Computer increases the credits accordingly
- **"**Credit**"** is changed on the application (monitor)

Step 5: Customer makes a song selection

For local music:

- Customer touches album name, song name, and confirmation to make selection
- Touchscreen sends selection information to the computer
- The song is placed into queue and 1 credit will decrement

For downloadable music:

- Customer touches song name to make selection
- Touchscreen sends selection information to the computer
- Application prompts customer to approve that the selection will cost 1 extra credit
- Credits removed and song is placed in queue
- Computer begins to download song from Internet to the local drive
- Once download is complete (may take 3-5 minutes depending on network traffic and the number of downloaded songs selected before hand)

Step 6: Selection is played

- Computer sends a message to the 4-Channel Pre-Amplifier to un-mute the amplifier.
- Song is located on the local computer hard drive and played. Use Volume Control Unit to adjust volume.

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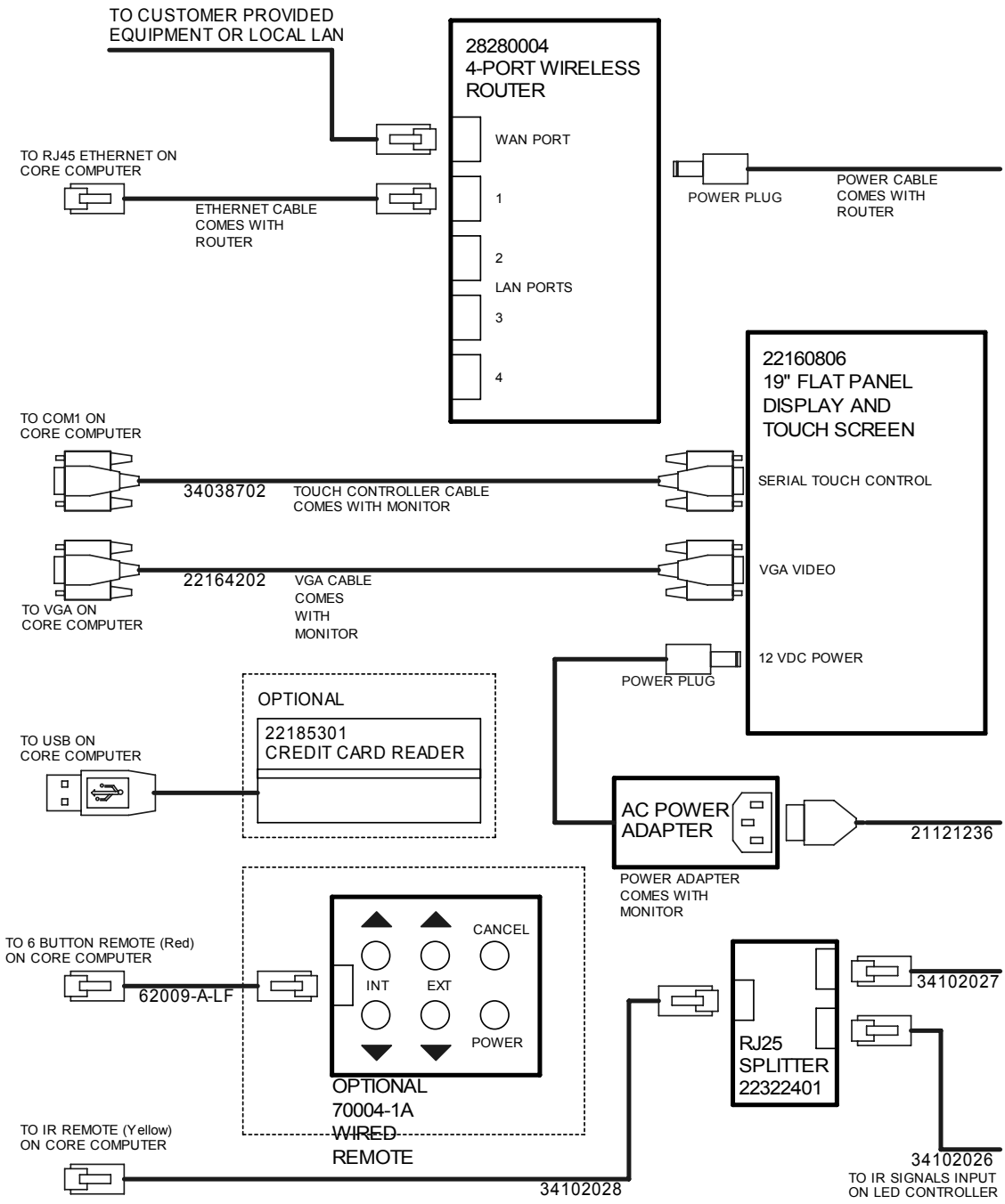


GRANDSTAR (CJE)
MACHINE SCHEMATIC
PAGE 1

Figure 7–1 – GrandSTAR Wiring Diagram

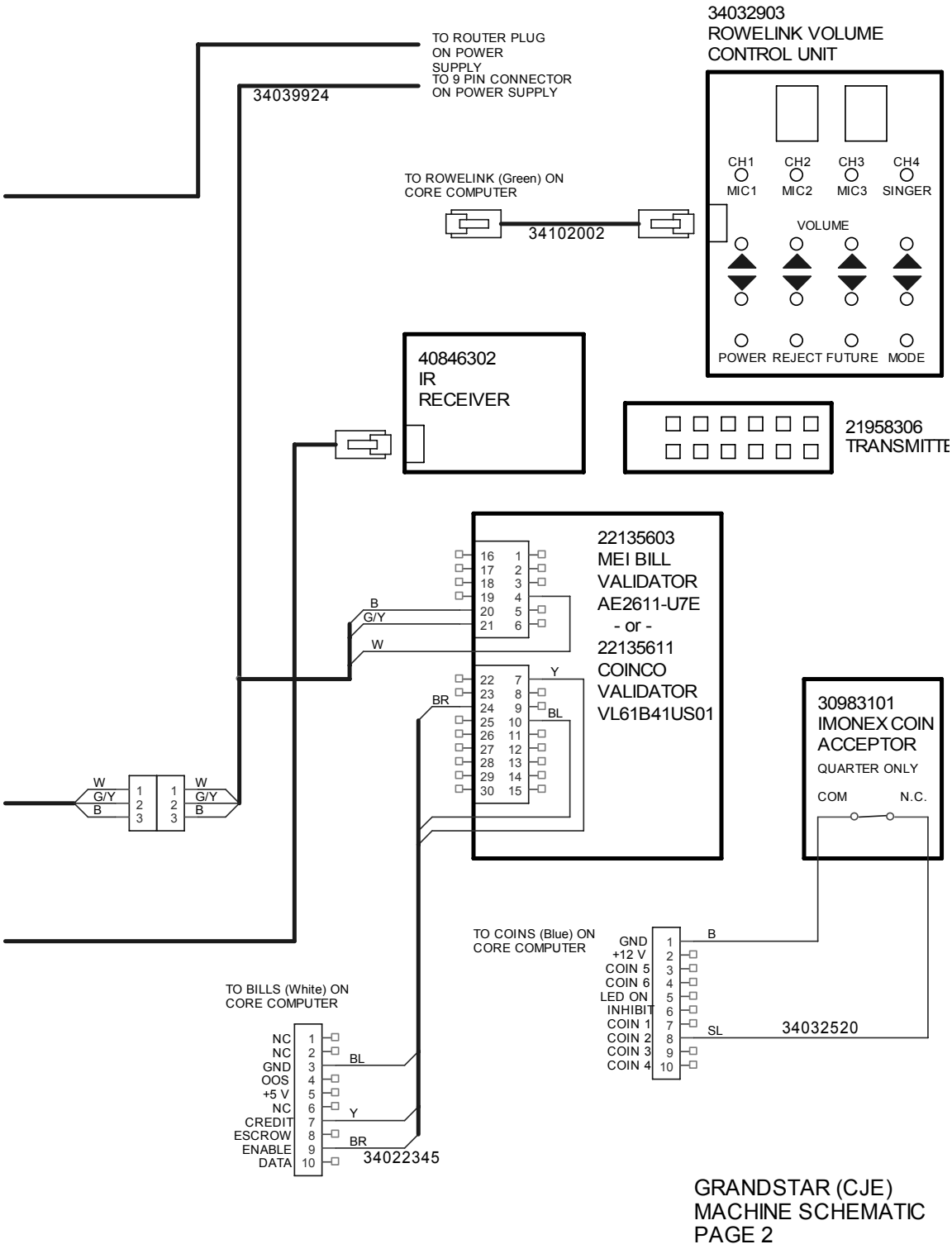
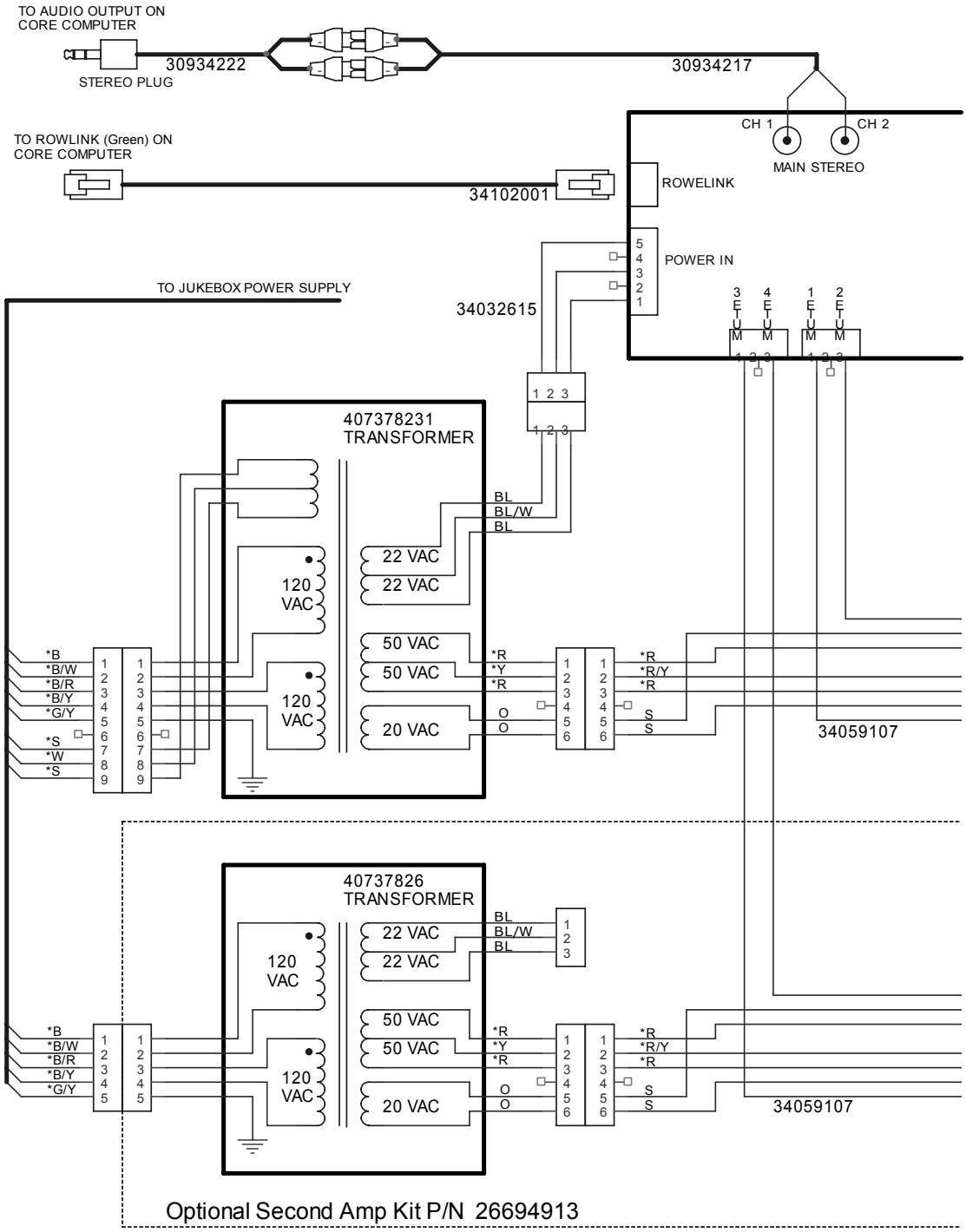
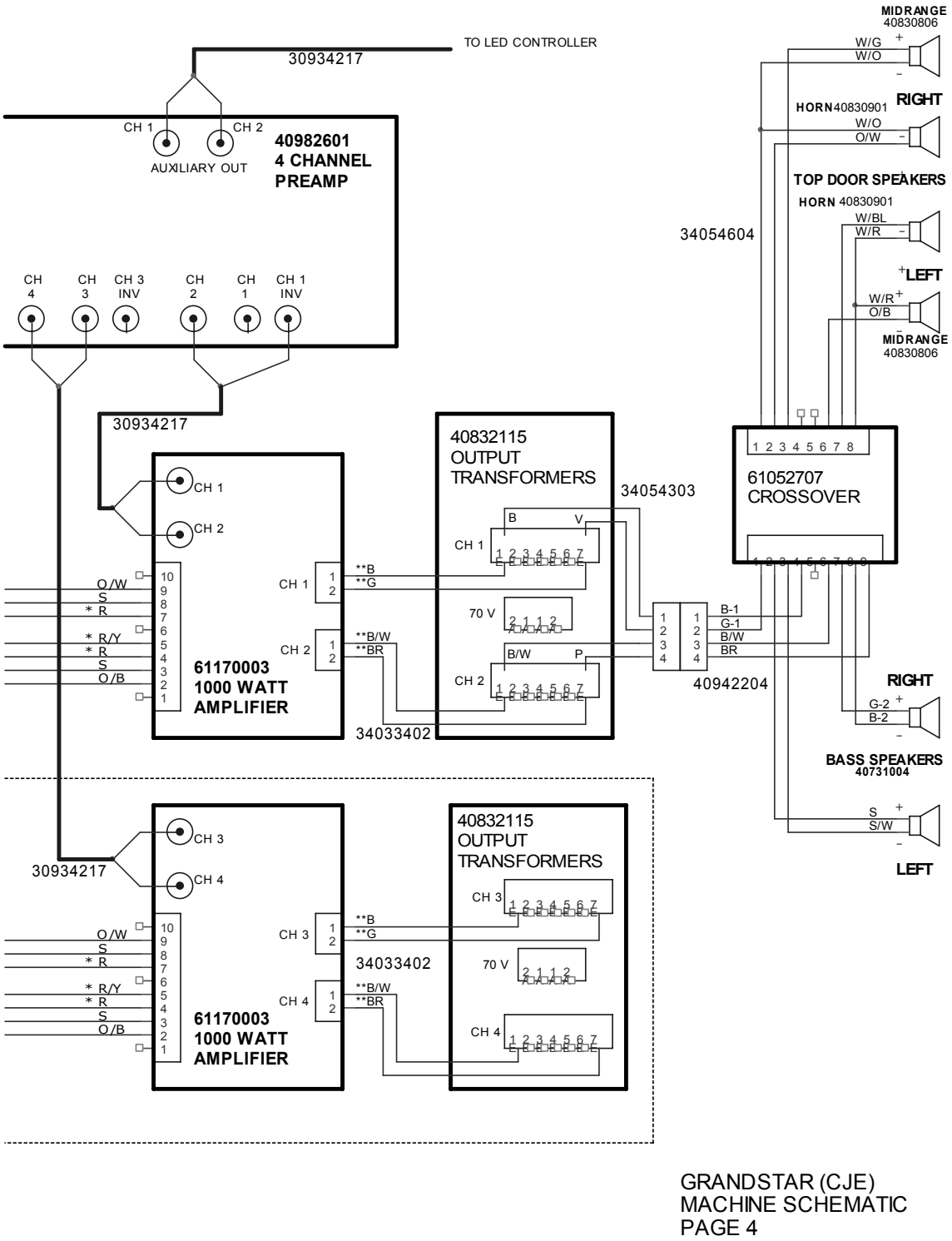


Figure 7–1 – GrandSTAR Wiring Diagram (Sheet 2)



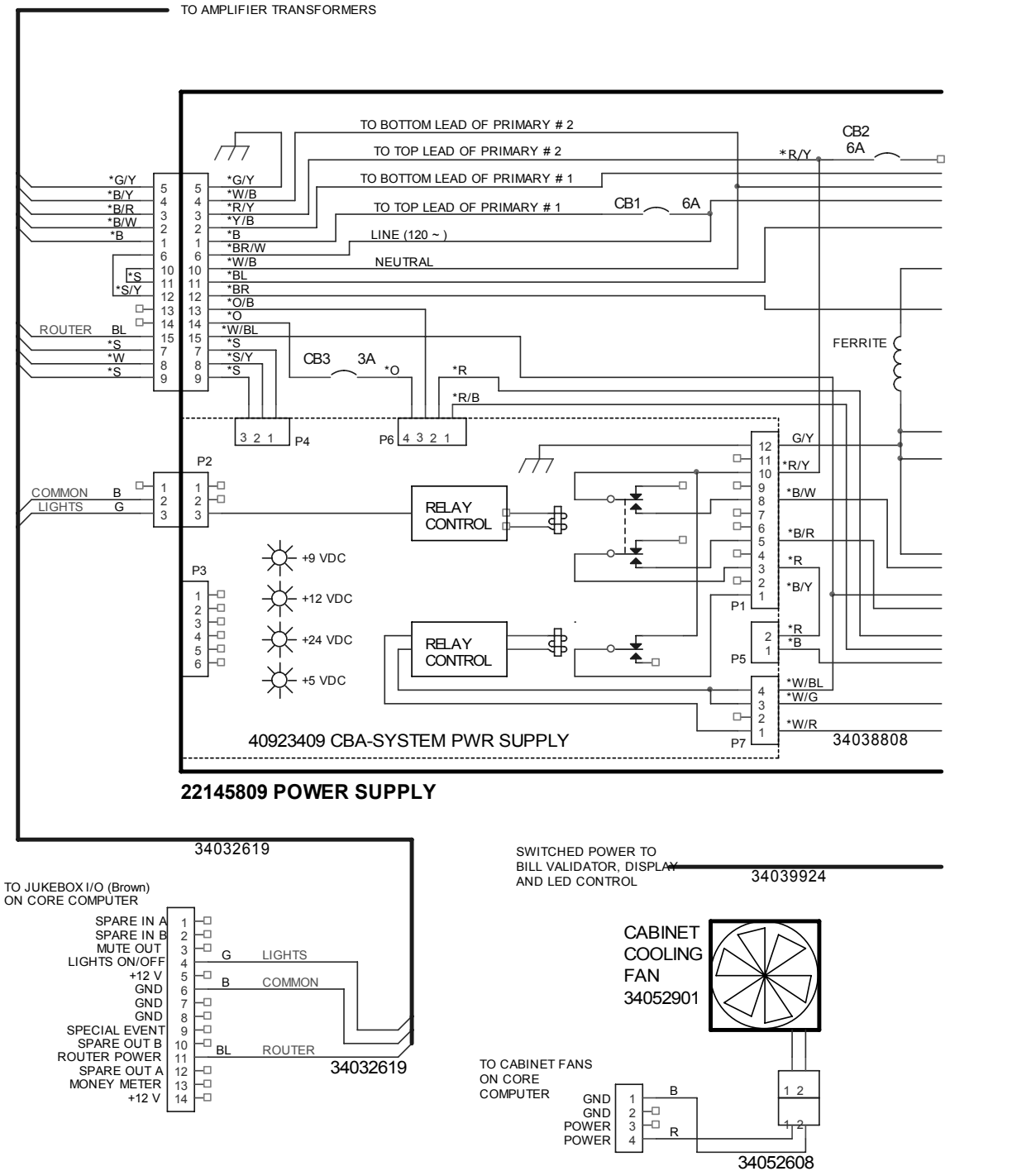
GRANDSTAR (CJE)
MACHINE SCHEMATIC
PAGE 3

Figure 7–1 – GrandSTAR Wiring Diagram (Sheet 3)



GRANDSTAR (CJE)
MACHINE SCHEMATIC
PAGE 4

Figure 7–1 – GrandSTAR Wiring Diagram (Sheet 4)



GRANDSTAR (CJE)
MACHINE SCHEMATIC
PAGE 5

Figure 7–1 – GrandSTAR Wiring Diagram (Sheet 5)

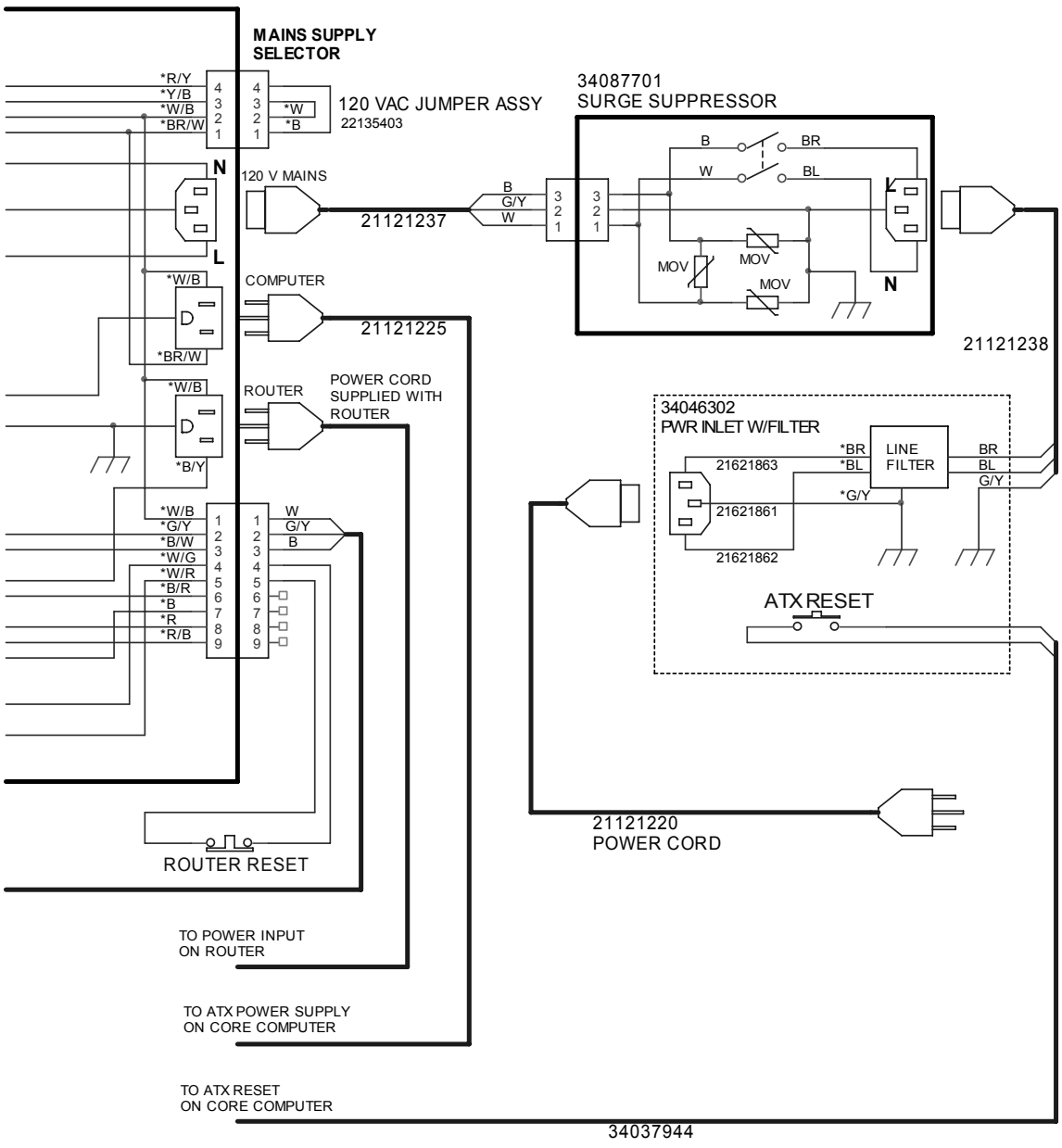
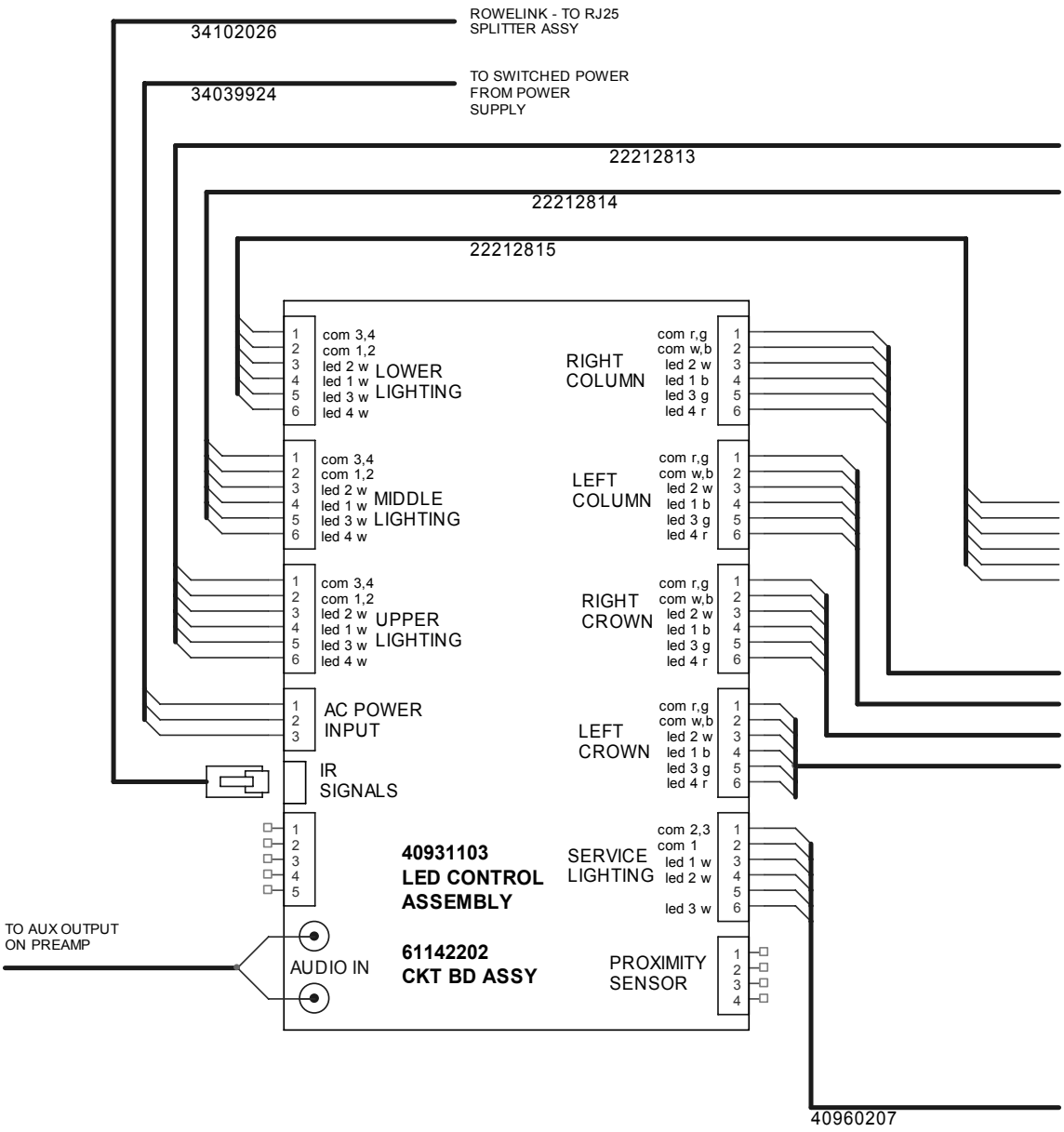


Figure 7–1 – GrandSTAR Wiring Diagram – Lighting (Sheet 6)



GRANDSTAR (CJE)
MACHINE SCHEMATIC
PAGE 7

Figure 7–1 – GrandSTAR Wiring Diagram – LED Lighting (Sheet 7)

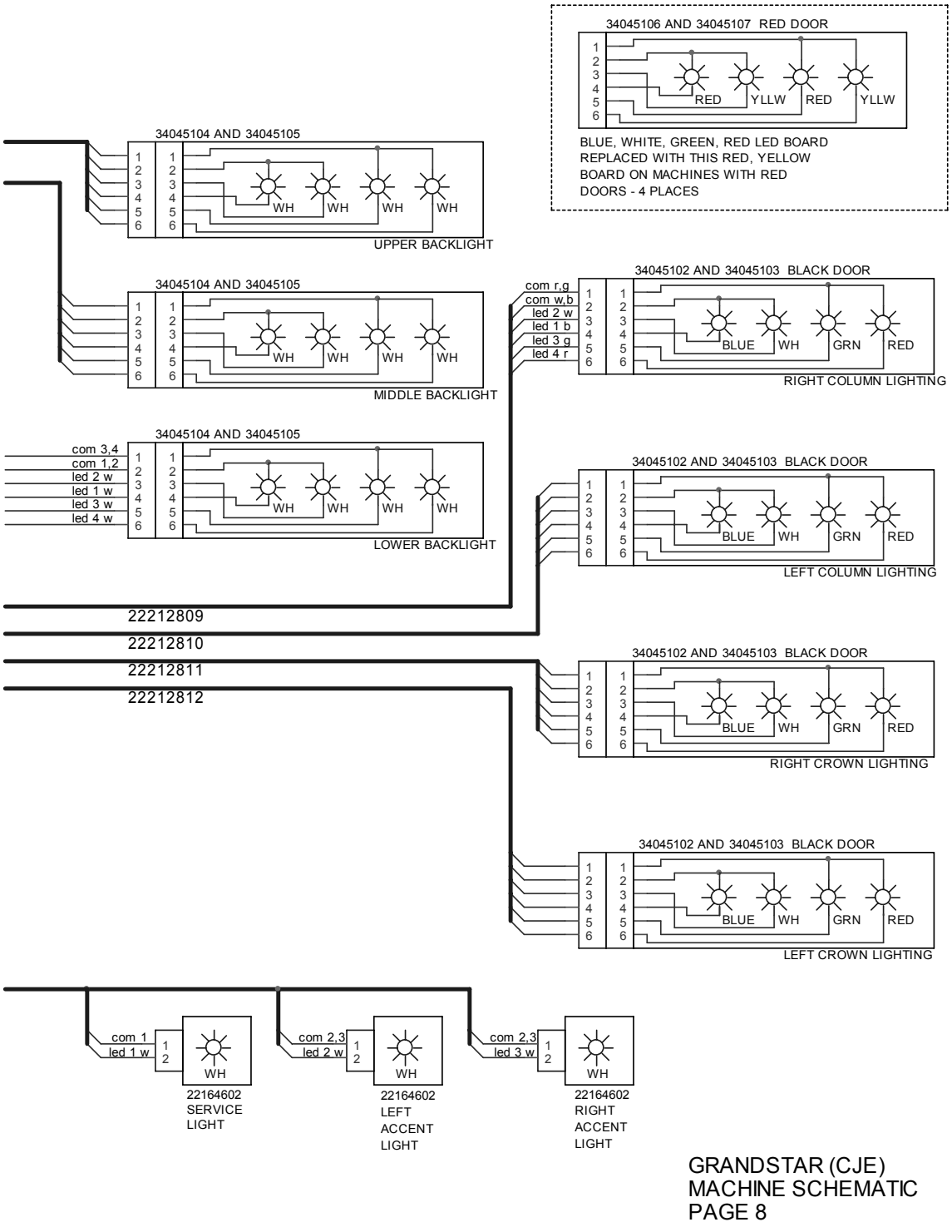


Figure 7–1 – GrandSTAR Wiring Diagram – LED Lighting (Sheet 8)

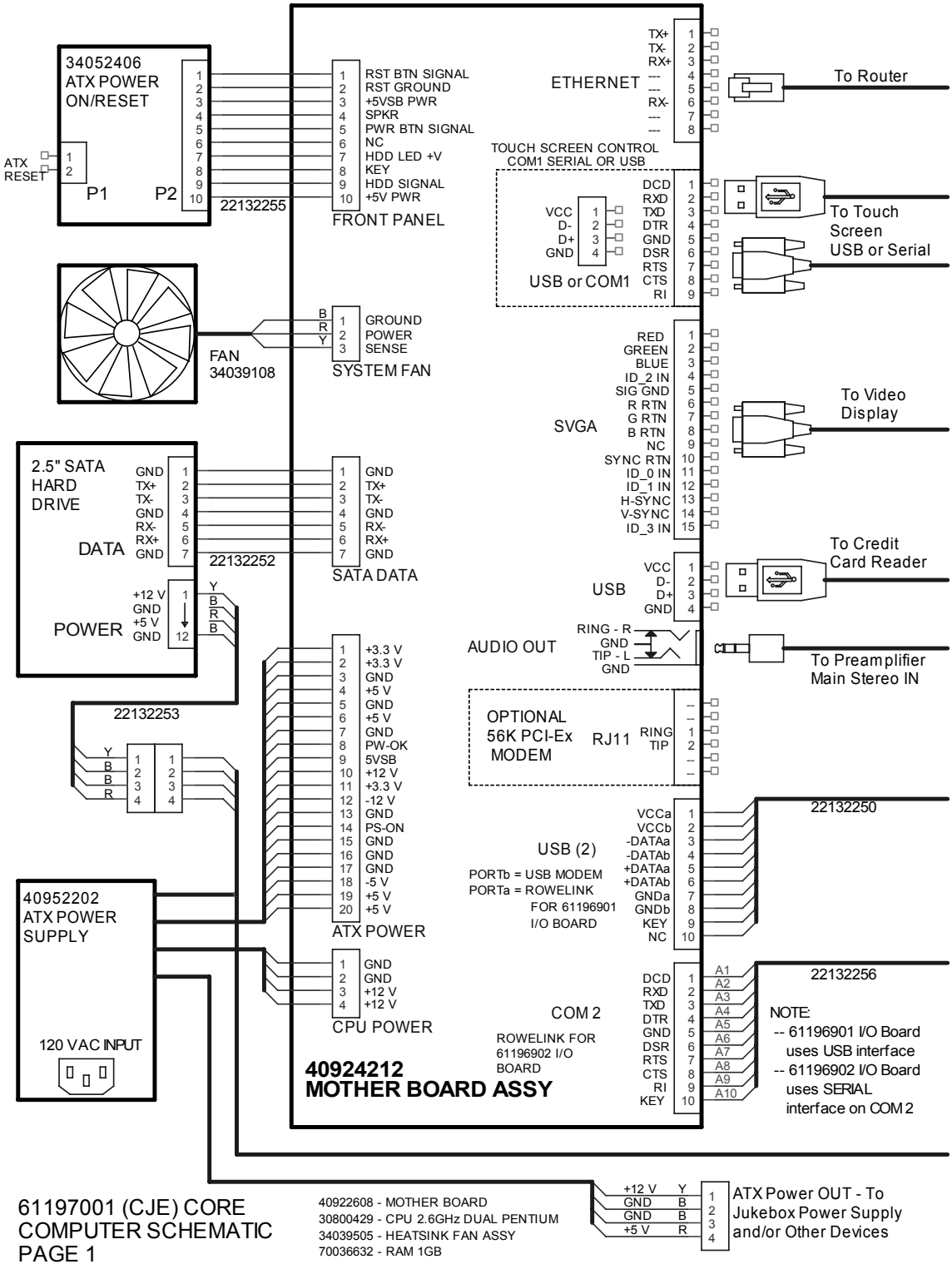


Figure 7–1 – GrandSTAR Computer Core Schematic (Page 1)

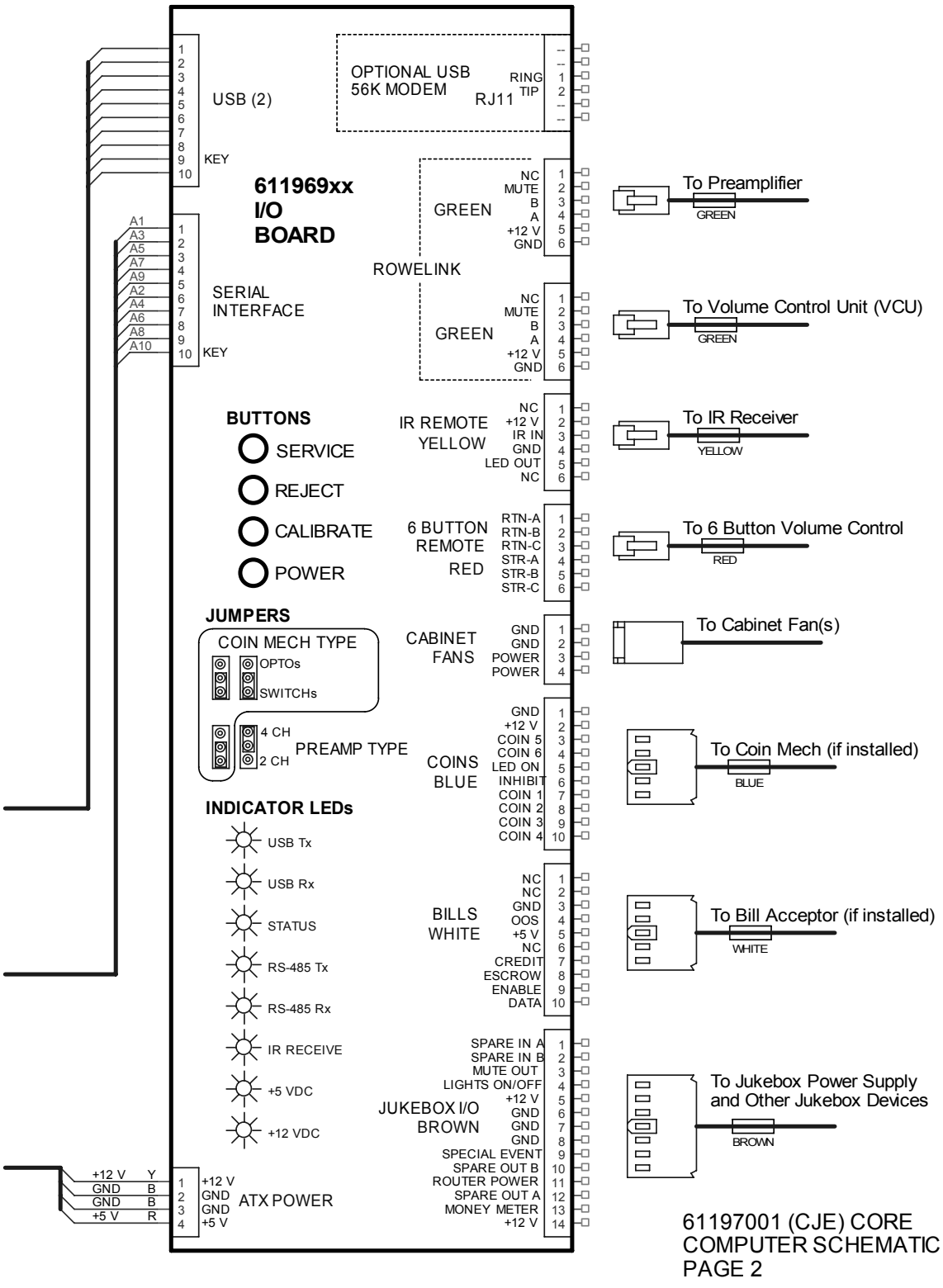


Figure 7–1 – GrandSTAR Computer Core Schematic (Page 2)

Troubleshooting Charts

The best way to determine a problem is to isolate its cause. The following charts should help to narrow down which module is failing and whether it can be fixed or needs to be replaced.

Start with the "**Trouble**" column and find the item that closely relates to the problem you are experiencing. The "**Symptom**" will be described in the following column. There may be multiple symptoms. There may also be many "**Probable Causes**" listed for each Symptom. The Probable Causes are listed in decreasing order of probability.

PROBLEM	SYMPTOM	PROBABLE CAUSE
Application does not boot up.	At the first boot up screen, "Detecting IDE Primary Master" reports "None".	1. There is no hard drive in the computer. 2. The plugs are not completely seated in the hard drive. 3. The data cable or power cable has come loose from the motherboard or hard drive.
	The boot up process stops at "DISK BOOT FAILURE, INSERT SYSTEM DISK AND PRESS ENTER."	1. There is no hard drive in the computer. 2. The data cable or power cable has come loose from the motherboard or hard drive. 3. The hard drive is dead.
Jukebox will not operate when powered ON.	The LED's on the front door fail to light.	1. The plug is not completely inserted into the outlet. 2. The wall circuit is not "hot". 3. The ON/OFF switch on the power supply is in the OFF position. 4. The circuit breaker in power supply is open.
	The LED's come on, but the application will not boot.	The system power supply or the LCD is defective or unplugged.
The LCD does not work.	The computer fan is on and all system's LEDs and lights are normal.	1. The power plug, video cable, or LCD power supply wiring is not seated completely. 2. The system power supply is defective. 3. The LCD is dead.
The touchscreen does not work.	The application boots up, but the touchscreen does not respond to touch.	1. The USB cable is not seated completely at the LCD or at the Computer Core. 2. The touchscreen is not calibrated. 3 The touchscreen is dead.
The touchscreen will not calibrate.	Nothing happens after pressing the calibration button.	1. The USB cable plug is not fully seated at the LCD or at the Computer Core. 2. The touchscreen is dead. 3. The motherboard in the Computer Core has failed.
	The calibration program runs, but will not respond to touch.	1. The USB cable plug is not fully seated at the LCD or at the Computer Core. 2. The touchscreen is dead. 3. The motherboard in the Computer Core has failed.
No music from jukebox.	No sound from jukebox, although the application reports "Now Playing…a New Song."	1. Volume control is turned all the way down. 2. Audio cables are disconnected or loose from the Computer Core or the pre-amp. 3. The amplifier is overloaded and shutdown. 4. The audio mode input routing or muting is configured incorrectly.
	No sound from jukebox and the application doesn't appear to be playing the song selected.	1. There are no more credits available for play. 2. Reject song was activated.

PROBLEM	SYMPTOM	PROBABLE CAUSE
Machine is locked up during normal runtime.	Bill acceptor is taking money but credits are not accumulating, the touchscreen is not responsive, and the I/O board LEDs are not flashing.	The Computer Core is locked up. Reboot it by pressing and releasing the ATX Reset Switch. If the Computer Core does not boot up, perform a complete Power Down and Power Up.
The bill acceptor does not work.	The bill acceptor will not accept a bill.	1. The bill acceptor is full. 2. The bill box was not re-installed on the bill acceptor correctly. 3. There is a jammed bill in the device. 4. The plugs are not inserted securely at the acceptor. 5. The bill acceptor is defective.
	The green lights on the bill acceptor are not flashing.	1. The cable is damaged at the acceptor. 2. The jukebox has disabled the bill acceptor. Put the jukebox into normal operating mode. 3 The bill acceptor is defective.
Location network line not installed in the location.	There is no designated broadband line installed in the location.	1. The inside wiring installation appointment was not scheduled. 2. The inside wiring installation has not occurred. 3. The line was not installed in the pre-selected location. 4. The line (jack) was not labeled by the technician.
Router does not work.	When the power supply is connected to the router, nothing happens.	1. The AC power plug is not fully inserted in the receptacle on the back of the router. 2. Router reset circuit in power supply is defective. 3. The wall plug is not “hot”.
	The “Link/Act #” light (on the front of the router) does not light up when an Ethernet cable is plugged in the respective port.	1. The cable is loose at the Computer Core or the router. 2. The jukebox is not powered on. 3. The Ethernet port is defective.
	The WAN light does not light up.	1. The broadband connection is not plugged into the WAN port. 2. The cable modem or DSL modem is not powered on.
The “Music On Demand” feature does not work.	The feature has never been available in the location.	1. There is no Ethernet cable connection between the router and the jukebox. 2. The Ethernet cable is not fully seated in the port on the Computer Core or in the back of the router. 3. The connection is loose between the installed line and the router. 4. The cable is bad. 5. The Internet line is down. 6. The hard drive trigger code was not entered.
	The feature was available, but is no longer available.	1. The connection has become loose between the router and the jukebox. 2. The connection has become loose between the installed line (jack) and the router. 3. All the lights on the front of the router are ON. 4. The router was shut off or lost power. 5. The Internet service provider (ISP) is down. 6. The AMI Entertainment server is down.

Section: 8 Parts Catalog

Introduction

This parts catalog lists replacement parts for the jukebox. The purpose of this parts catalog is to locate and identify replaceable components and to supply information on how to order them.

Catalog Description

This catalog is divided into major sections labeled with figure numbers, which correspond to the illustrations used. Some assemblies require more than one illustration to identify the parts.

Replacing parts that are welded or riveted onto an assembly is normally impractical. Therefore, replacement parts are not listed for these items. The assembly containing the welded or riveted part should be replaced.

Parts List Description

The parts list contains four columns:

- **Number** — The first entry in this column is the reference number of the corresponding illustration. A reference number, when listed, corresponds to the reference number appearing on the illustration. Reference numbers are not used when items are listed for reference purposes only or when the item listed is an alternate part.
- **Part Number** — This column lists the part number to use when ordering replacement parts or making inquiries.
- **Description** — This column gives a description of each part or assembly. Each item is indented to show its relationship to the next higher assembly.
- **Qty** — This column contains the part quantity used in the assembly. When a figure describes more than one model of an assembly, the “Qty” column is divided to show each model.

Ordering Replacement Parts

All replacement parts must be ordered directly from an Authorized Rowe Distributor.

Once the replacement item has been determined, complete a Standard Parts Order Form (available from your Rowe Distributor at no charge). Very often, parts orders are delayed because of inadequate or incomplete parts order forms. To enable prompt delivery, always specify the following information:

Part Number and Description (indicate color, if applicable)

Quantity Required

Machine Model and Serial Number

Complete Shipping Address, including the ZIP code

Shipping Instructions must be supplied. If the shipping method is Parcel Post, Air Parcel Post, United Parcel Service, or Air UPS, and the packages may exceed the size and weight limits of these services, indicate an alternate shipping method.

If the shipment must be delivered as fast as possible, specify “Fastest Way”. Rowe will select the carrier for orders that justify shipment by truck.

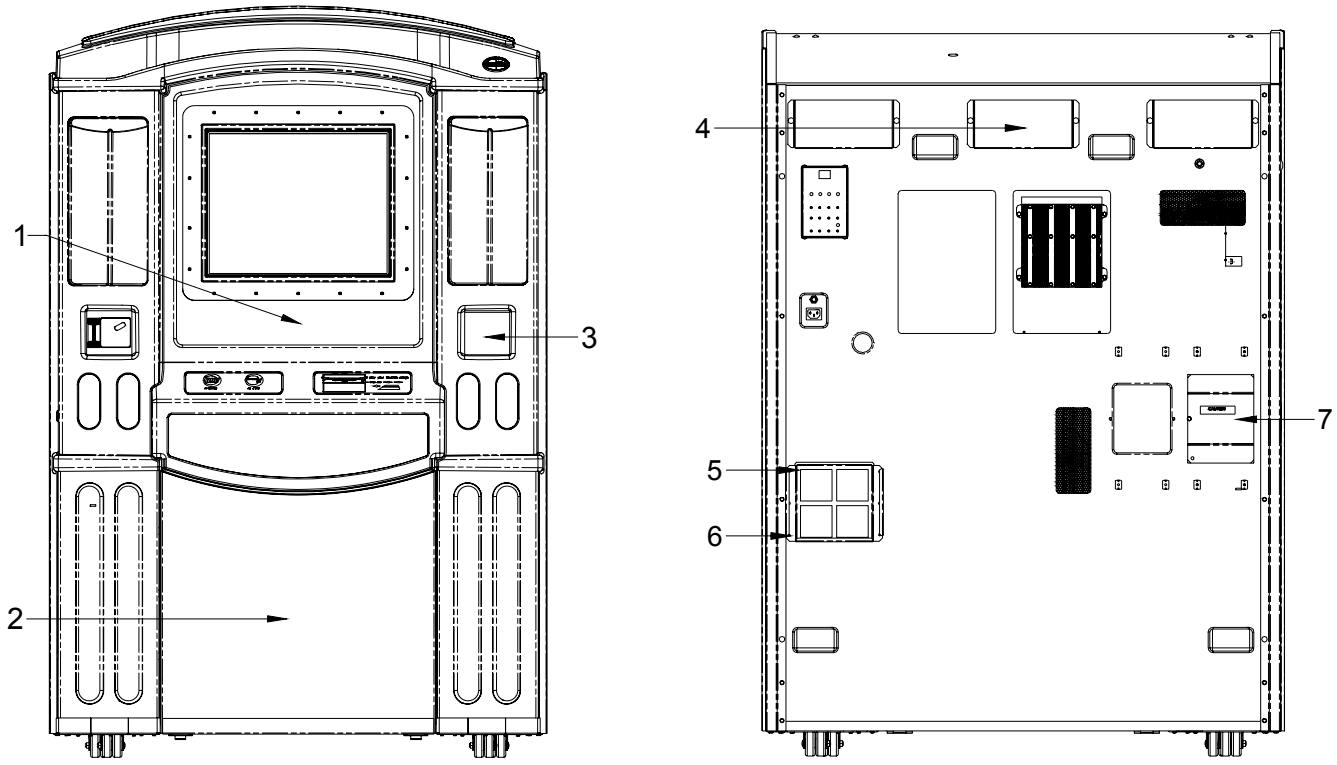


Figure 8–1 – Front View and Rear Views

Ref.	Part No.	Description	Qty
	61184401	Jukebox Assembly (Black GrandSTAR)	Ref.
	61184402	Jukebox Assembly (Red GrandSTAR)	Ref.
1	61183401	Door Assembly – Top (Black) See *Figure 8–2, Figure 8–3, Figure 8–4*	Ref.
	61183402	Door Assembly – Top (Red) See *Figure 8–2, Figure 8–3, Figure 8–4*	Ref.
2	61184501	Lower Door Assembly (Gold) See *Figure 8–6, Figure 8–6* (Used on Red GrandSTAR)	Ref.
	61184502	Lower Door Assembly (Silver) See *Figure 8–5, Figure 8–6* (Used on Black GrandSTAR)	Ref.
3	40854006	Bill Inlet	1
	40916101	Blockout – Bill Acceptor (If Bill Acceptor must be removed)	1
	34031003	Label Blockout (Attach to Bill Acceptor Blockout)	1
	61184401	Jukebox Assembly (Black GrandSTAR)	Ref.
	61184402	Jukebox Assembly (Red GrandSTAR)	Ref.
4	34089801	Bracket – Light Block	3
5	40942702	Frame – Filter	1
	34053001	Pad – Filter (Not Shown)	1
6	40965901	Bracket – Fan Filter Mounting	1
7	34033901	Terminal Cover (Output Transformer)	1

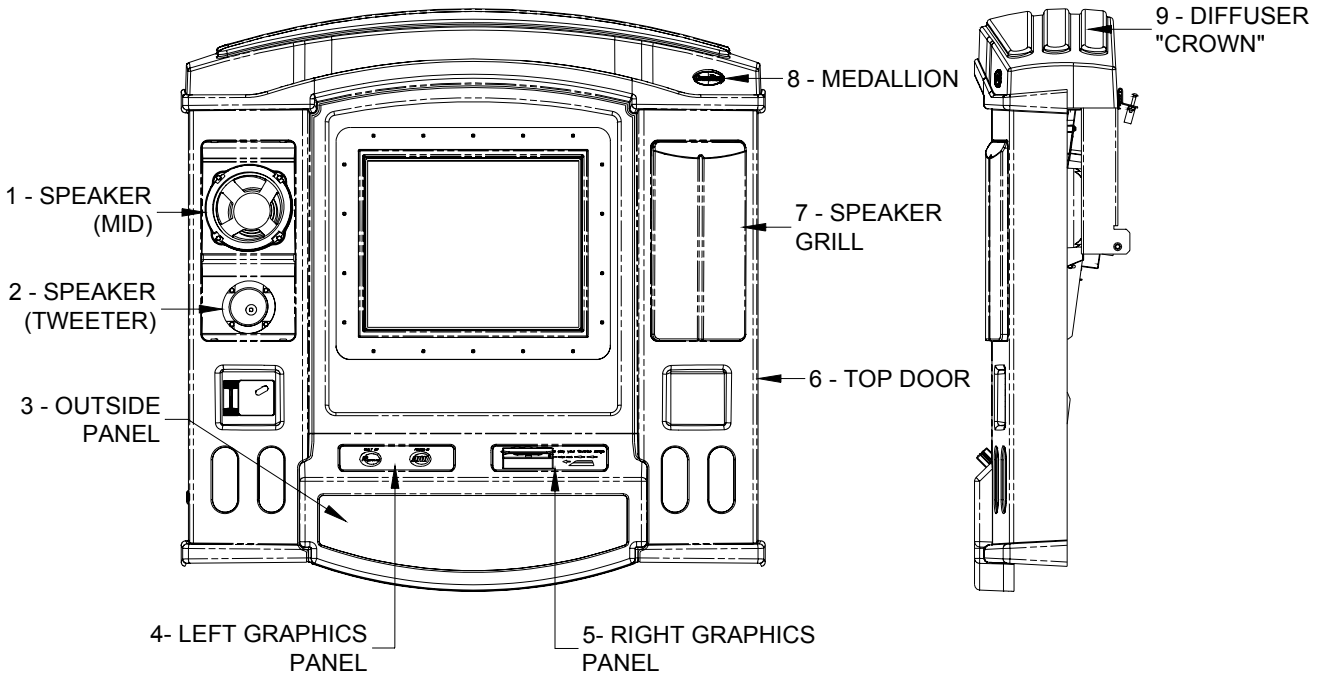


Figure 8–2 – Top Door Assembly (External View)

Ref.	Part No.	Description	Qty
	61183401	Door Assembly – Top (Black GrandSTAR)	Ref.
	61183402	Door Assembly – Top (Red GrandSTAR)	Ref.
1	40830806	Speaker–MID Frequency	2
2	40830901	Speaker–Tweeter (3")	2
3	40968201	Panel (Outside)	1
	40969001	Graphics	1
	40968202	Panel (Inside)	1
4	22207201	Panel–Graphics (Left)	1
5	22207101	Panel–Graphics (Right)	1
6	61183501	Top Door – Black/Silver	1
	61183502	Top Door – Red/Gold	1
7	61140203	Grill, Speaker–Top Door – Silver (Black GrandSTAR)	2
	61140201	Grill, Speaker–Top Door – Gold (Red GrandSTAR)	2
8	34043502	Medallion	1
	70135517	Palnut	4
9	61140701	Diffuser "Crown", CD100	1

Note: For harness part numbers, refer to the Wiring Diagrams in *Section 7*.

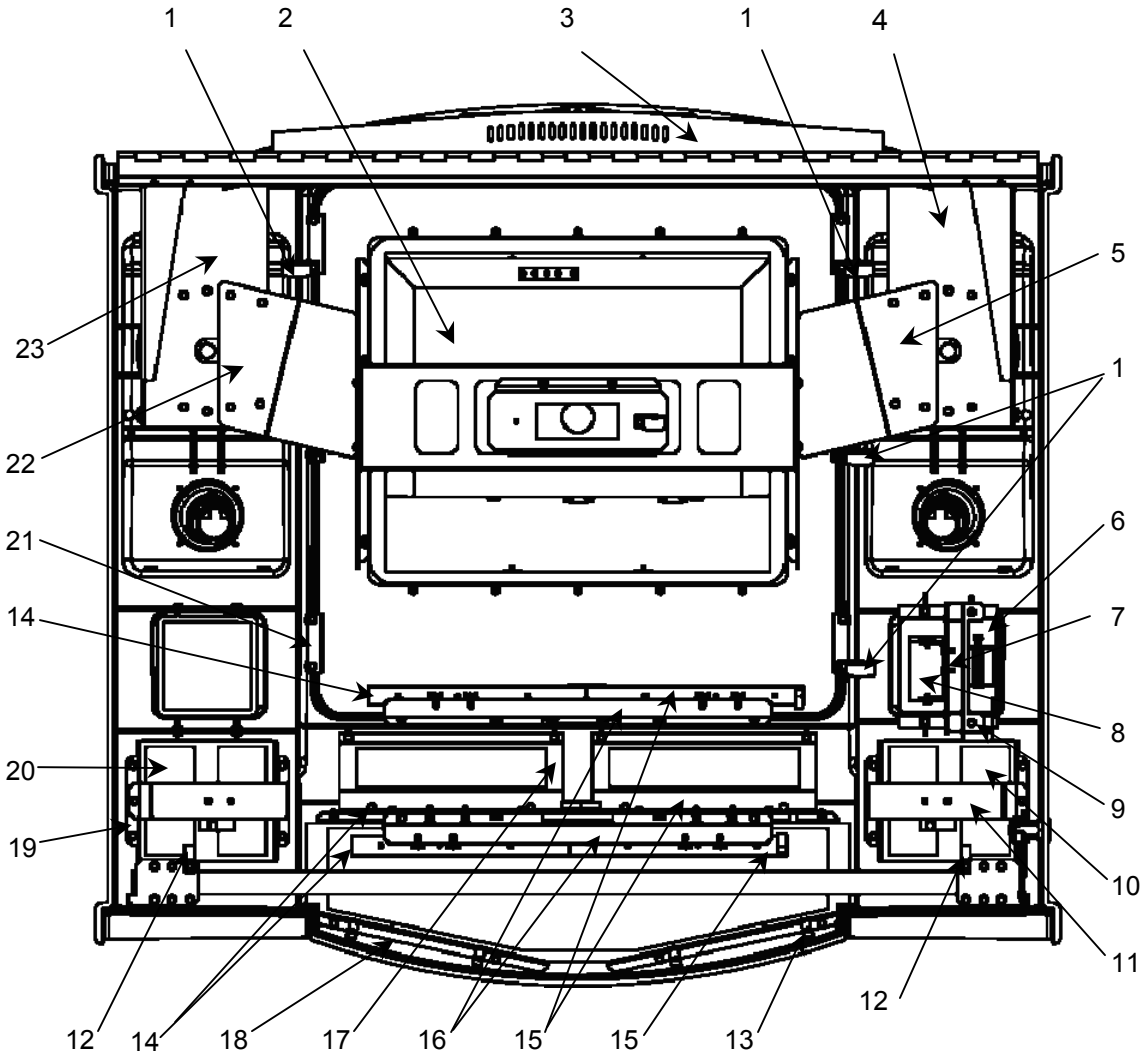


Figure 8–3 – Top Door Assembly (Internal View)

Top Door Assembly (Internal View)
Refer to *Figure 8–3*.

Ref.	Part No.	Description	Qty
	61183401	Door Assembly – Top (Black GrandSTAR)	Ref.
	61183402	Door Assembly – Top (Red GrandSTAR)	Ref.
1	70093403	Cable Clamp – 1”	4
2	61167003	Touchscreen & Panel (See *Figure 8–18*)	1
	• 22160806	Touchscreen & Monitor	1 .
	• 22160850	Touchscreen / Monitor Power Pack ELO Systems	1
	• 22160851	Touchscreen / Monitor Power Pack Nexview Systems	1
3	40930001	Plate, Crown Diffuser	1
4	61141301	Bracket – Hinge – LH	1
5	61183601	Bracket – Monitor Brace – LH	1
6	40891704	Insert–Coin (Red)	1
7	22137401	Bracket – IR Mounting	1
8	40846302	Receiver Assembly–IR	1
9	34049301	Wire Block – Coin Chute	1
10	22207401	Diffuser (Left Side)	1
11	34088401	Bracket–Light Diffuser	2
12	70093401	Cable Clamp – 17/32”	2
13	20554502	Clip – Cable	4
14	34045105	CBA–Backlight LED BD – B	3
15	34045104	CBA–Backlight LED BD – A	3
16	40968001	Bracket – Light Lower Mid	2
17	40968101	Bracket – Graphics Panel Retainer	2
18	61183801	Bracket – Graphics Panel Retainer	1
19	40968301	Bracket – Diffuser Retainer	2
20	22207501	Diffuser – Right Side	1
21	22163101	Retainer – Top Door Sight Block	7
22	61183701	Bracket – Monitor Brace, RH	1
22	61141401	Bracket – Hinge, RH	1

Items not shown:

34054604	Harness Assembly – Door Speaker	1
40960207	Cable Assembly – Door and Service	1
22215005	Cable Assembly – Module, Computer Core to IR	1
22212811	Cable Assembly – Ribbon – SR 1 Right Crown	1
22212812	Cable Assembly – Ribbon – SR 1 Left Crown	1
22212813	Cable Assembly – Ribbon – SR 1 Upper Lighting	1
22212814	Cable Assembly – Ribbon – SR 1 Middle Lighting	1
22212815	Cable Assembly – Ribbon – SR 1 Lower Lighting	1

Note: For additional harness part numbers, refer to the Wiring Diagrams in *Section 7*.

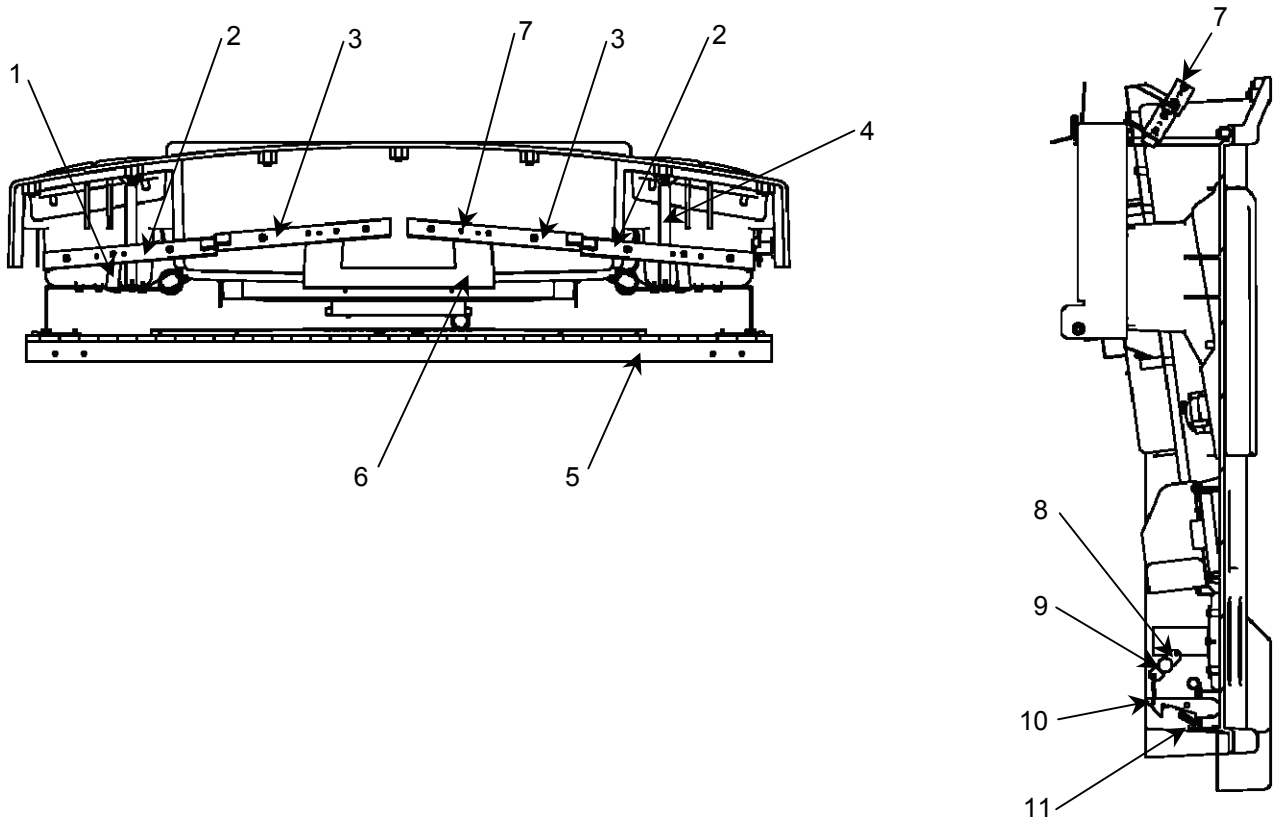


Figure 8–4 – Top Door Assembly (Internal – Top and Side View)

Ref.	Part No.	Description	Qty
	61183401	Door Assembly – Top (Black GrandSTAR)	Ref.
	61183402	Door Assembly – Top (Red GrandSTAR)	Ref.
1	22162801	Bracket – Crown LED (Side)	2
2	34045102	Circuit Board Assembly – Crown, Pilaster LED BL, W (Black GrandSTAR)	2
	34045106	Circuit Board Assembly – Crown, Pilaster LED Y, R (Red GrandSTAR)	2
3	34045103	Circuit Board Assembly – Crown, Pilaster LED R, G (Black GrandSTAR)	2
	34045107	Circuit Board Assembly – Crown, Pilaster LED Y, R (Red GrandSTAR)	2
4	22164101	Brace – Top Door	2
5	61141201	Hinge – Top Door	1
6	40929901	Bracket – Crown LED (Center)	1
7	22165002	Support – Circuit Board	22
8	34024501	Lock Bolt	1
9	70163214	Cylinder Lock	1
10	22169401	Link	2
11	25181701	Spring – Tension	2

Note: For harness part numbers, refer to the Wiring Diagrams in *Section 7*.

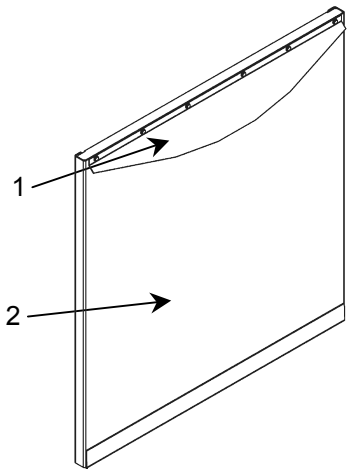


Figure 8–5 – Lower Door Assembly (External View)

Ref.	Part No.	Description	Qty
	61184501	Lower Door Assembly – Gold (Red GS-1)	Ref.
	61184502	Lower Door Assembly – Silver (Black GS-1)	Ref.
1	61184701	Bracket – Security, Lower Door	1
2	61184901	Grill – Lower Door – Gold (Red GS-1)	1
	61184902	Grill – Lower Door – Silver (Black GS-1)	1

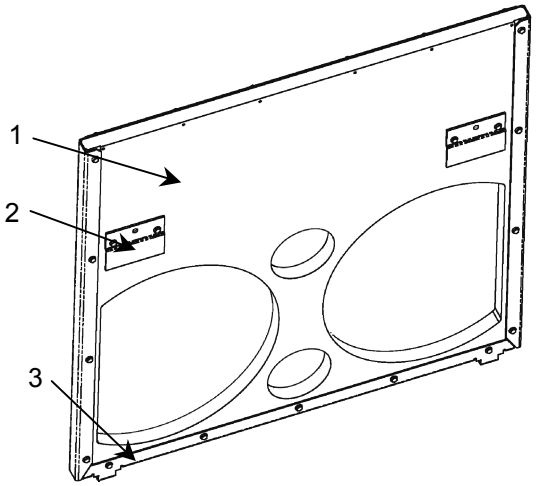


Figure 8–6 – Lower Door Assembly (Internal View)

Ref.	Part No.	Description	Qty
	61184501	Lower Door Assembly – Gold (Red GS-1)	Ref.
	61184502	Lower Door Assembly – Silver (Black GS-1)	Ref.
1	61184801	Panel – Lower Door	1
2	30936601	Bracket – Guide (Hinge)	2
3	40931401	Trim – Lower Door	1

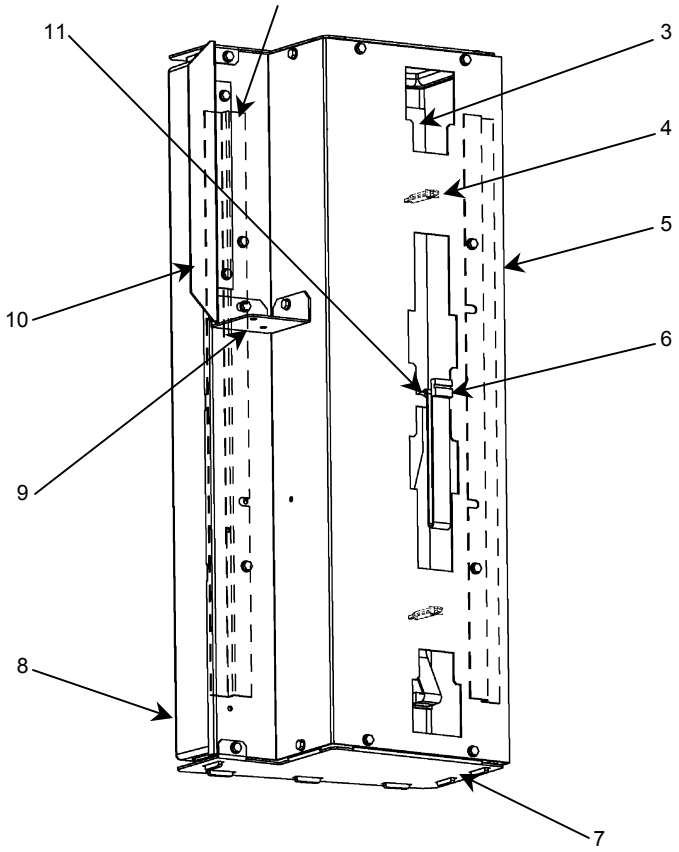


Figure 8–7 – Pilaster Assembly (Left Hand Shown)

Ref	Part No.	Description	Qty
	61143202	Pilaster Assembly – LH – R, G, W, BL (Black GrandSTAR)	Ref.
	61143302	Pilaster Assembly – RH – R, G, W, BL (Black GrandSTAR)	Ref.
	61143203	Pilaster Assembly – LH – Y, R, Y, R (Red GrandSTAR)	Ref.
	61143303	Pilaster Assembly – RH – Y, R, Y, R (Red GrandSTAR)	Ref.
1	34045801	Pilaster Retaining Bracket	2
2	40932201	Pilaster Cap Bracket – LH	1
3	34045103	Circuit Board Assembly – Crown/Pilaster LED – R, G (Black GrandSTAR)	1
	34045102	Circuit Board Assembly – Crown/Pilaster LED – BL, W (Black GrandSTAR	1
	34045106	Circuit Board Assembly – Crown/Pilaster LED – Y, R (Red GrandSTAR)	2
	34045107	Circuit Board Assembly – Crown/Pilaster LED – Y, R (Red GrandSTAR)	2
4	70500018	Circuit Board Support	2
5	61143501	Pilaster Mount	1
6	22212809	Cable Assembly – Ribbon RH Pilaster	1
	22212810	Cable Assembly – Ribbon LH Pilaster	1
7	40932301	Pilaster Cap Bracket – RH	1
8	61143401	Pilaster Diffuser	1
9	34046101	Pilaster Cabinet Mounting Bracket	1
10	40935501	Bracket – Security LH	1
	40935601	Bracket – security RH	1
11	70800101	Cable Wrap (4” x .10)	1

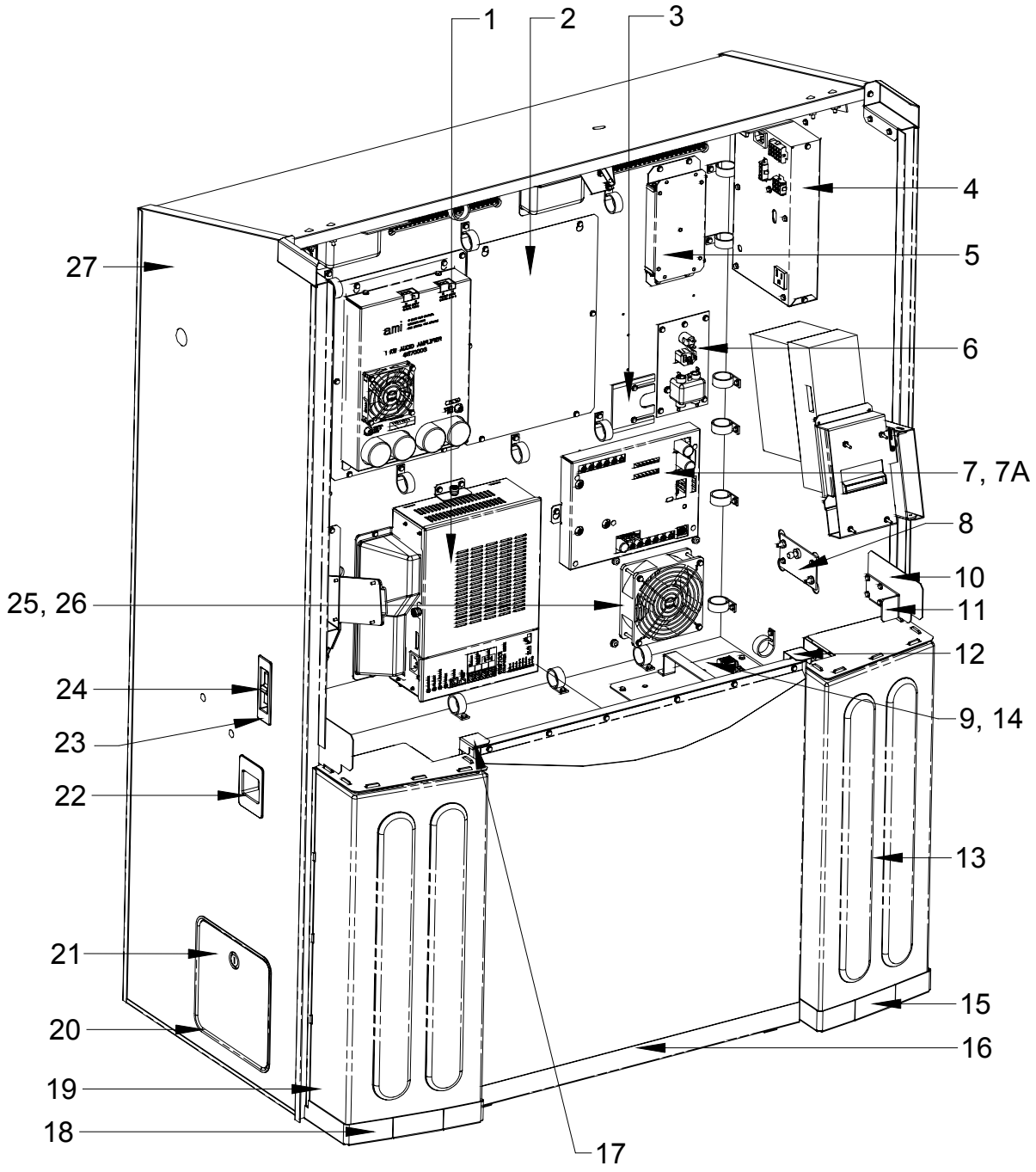


Figure 8–8 – Front View with Upper Door Removed

Front View with Upper Door Removed
Refer to *Figure 8–8*.

Ref	Part No.	Description	Qty
2	34034602	Plate – Cover, Amplifier	1
3	21759301	Cover – Cord Hole	1
4	22145809	Power Supply System with Router Power (*Figure 8–14*)	1
5	34032901	Volume Control Unit	1
6	34046302	Plate – Power Inlet with Filter	1
7	40982601	4-Channel Pre-Amplifier Assembly (See *Figure 8–15*)	1
7A	40982801	Cover, Bottom – 4-Channel Pre-Amplifier	1
8	22112101	Pivot Assembly – Gas Spring	2
	40714911	Spring – Pneumatic (Not Shown)	2
9	40917103	Transformer Assembly – Power (See *Figure 8–16*)	1
10	22168701	Plate – Security	2
11	22162901	Catch – Top Door Latch	2
12	40935601	Bracket – Security – RH	1
13	61143302	Pilaster Assembly – RH R, G, W, BL (Black GS-1) (See *Figure 8–7*)	1
	61143303	Pilaster Assembly – RH Y, R, Y, R (Red GS-1) (See *Figure 8–7*)	1
14	34034603	Plate – Transformer Cover	1
15	40932101	Bracket – Pilaster Retainer – RH	1
16	61184501	Lower Door Assembly (See *Figure 8–5, 8–6*)	1
17	40935501	Bracket – Security – LH	1
18	40932001	Bracket – Pilaster Retainer – LH	1
19	61143202	Pilaster Assembly – LH R, G, W, BL (Black GS-1) (See *Figure 8–7*)	1
	61143203	Pilaster Assembly – LH Y, R, Y, R (Red GS-1) (See *Figure 8–7*)	1
20	40527605	Frame – Cash Box Door	1
	30702601	Cash Bag (Not Shown)	1
21	21186605	Cash Box Door Assembly	1
22	30781702	Slug Cup	1
23	34007701	Bezel – Reject Button	1
24	34007601	Button – Reject	1
25	21895504	Finger Guard	1
26	34052901	Fan – Cabinet Cooling	1
27	61184101	Cabinet Assembly	1

Note: For harness part numbers, refer to the Wiring Diagrams in *Section 7*.

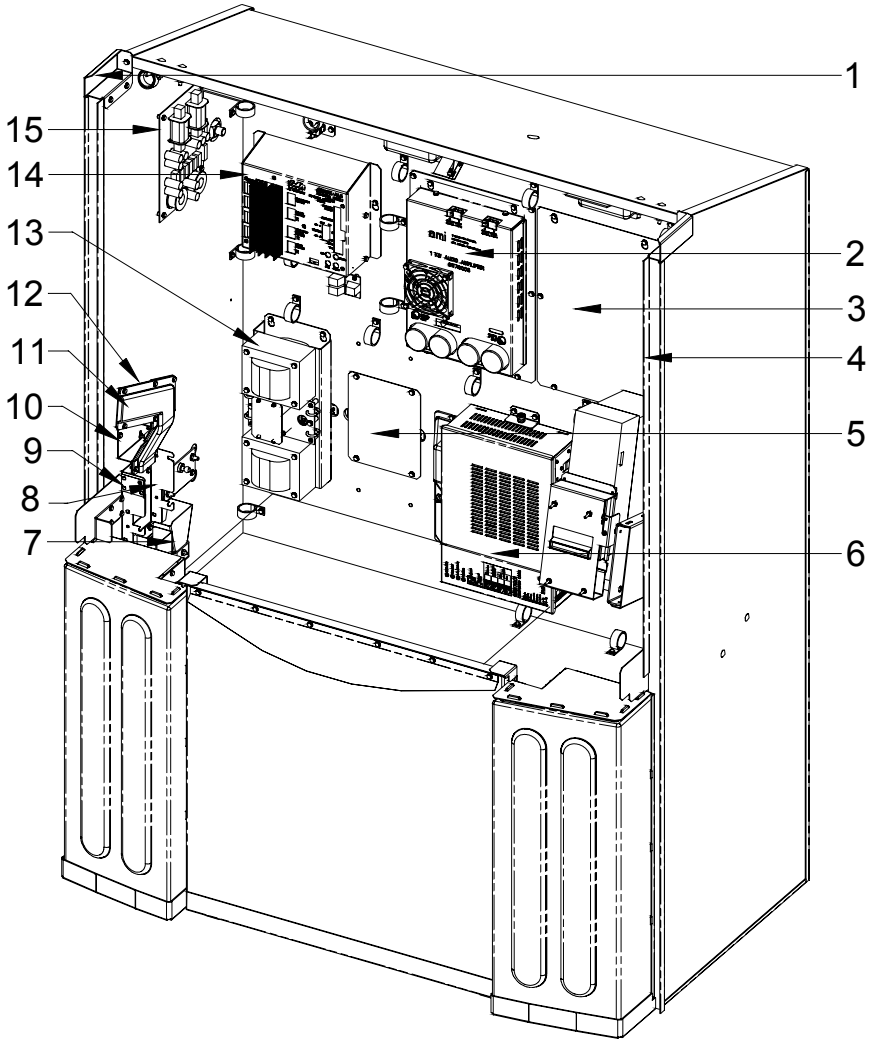


Figure 8–9 – Front View

Ref	Part No.	Description	Qty
1	40934401	Cabinet Trim – Top, LH	1
2	61170003	Amplifier Assembly – 1KW	1
3	34034604	Plate – Amplifier Adapter	1
4	40934501	Cabinet Trim – Top, RH	1
5	34034701	Cover Plate – Audio Output	1
6	61197001	Computer Core Assembly (See *Figure 8–11*)	1
	22321601	Bracket – Mounting RH	1
	22321701	Bracket – Mounting LH	1
7	61145101	Lower Coin Chute	1
8	34008301	Chute – Slug	1
	21792901	Door – Slug Cup (Not Shown)	1
	21793001	Bracket – Slug Cup (Not Shown)	1
9	30984404	Holder Assembly – Coin Mechanism	1
10	40932601	Bracket – Coin Chute Mounting	1
11	61144601	Chute – Coin	1
12	40932701	Plate – Coin Chute Backing	1
13	40832115	Output Transformer Assembly (See *Figure 8–17*)	1
14	40931103	LED Assembly – Control, GrandSTAR (See *Figure 8–13*)	1
15	61052707	Circuit Board Assembly – Crossover	1

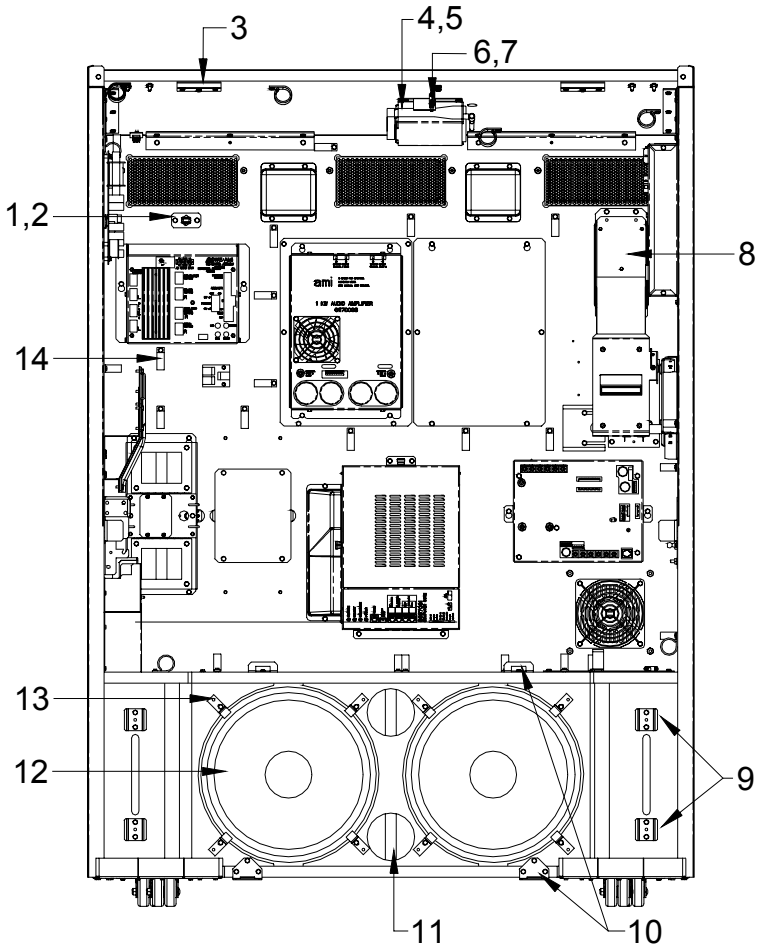


Figure 8–10 – Front View with Doors Removed

Ref.	Part No.	Description	Qty
1	22142101	Plate – Switch Mounting	1
2	25060401	Switch – Momentary	1
3	30936601	Bracket – Hinge Guide	2
4	28280004	Router – Wireless	1
5	40966201	Bracket – Router Mounting	1
6	22164602	Circuit Board Assembly – White LED	1
7	40954801	Bracket – LED Mounting	1
8	409170xx	Bill Acceptor (See *Figure 8–12*)	1
9	34045701	Bracket – Pilaster Mount	4
10	34046401	Bracket – Lower Door Mount	4
11	21780617	Pad – Acoustical	1
12	40731004	Speaker – Low Frequency	2
13	21780701	Bracket – Retainer	8
14	70093403	Cable Clamp (Typical)	

Note: For harness part numbers, refer to the Wiring Diagrams in *Section 7*.

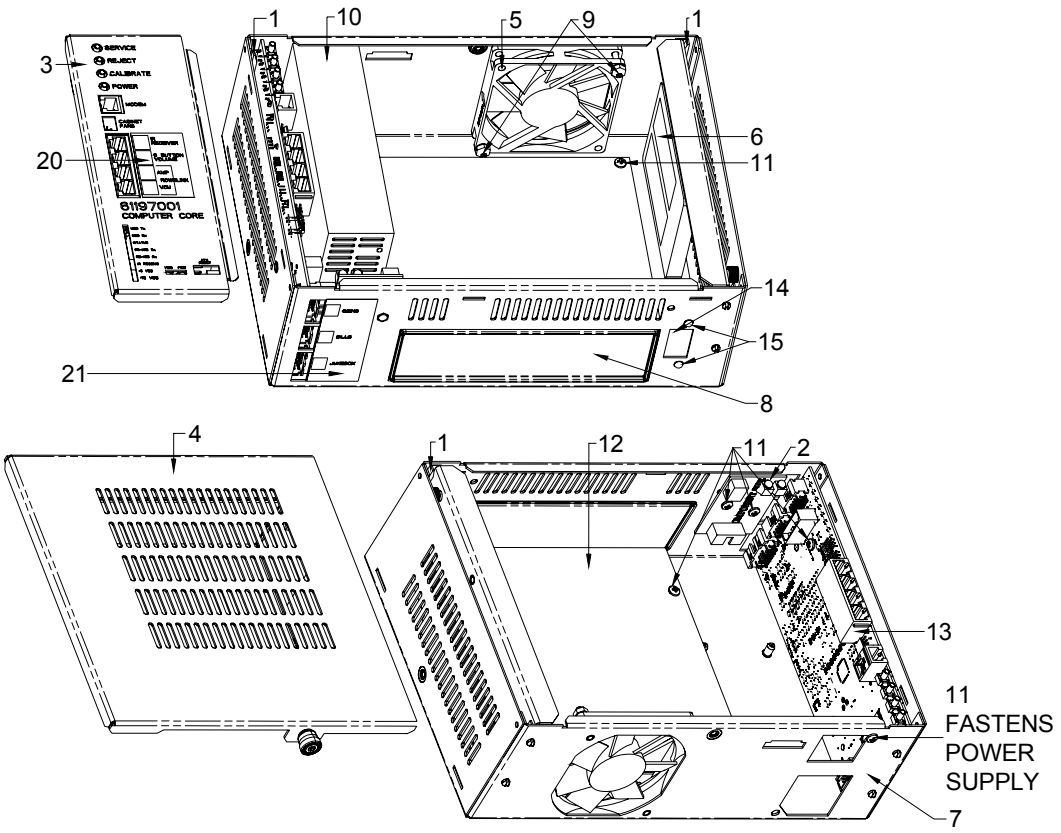


Figure 8–11 – Computer Core Assembly

Ref.	Part No.	Description	Qty
	61197001	Computer and Bracket Assembly	Ref.
1	22137302	Card Guide	3
2	34052406	Circuit Board Assembly – power on/reset/LEDs	1
3	34101101	Cover – Top Left	1
4	40983501	Cover – Top	1
5	34039108	Fan – with connector	1
6	22321501	Hard Drive Bracket	1
	22219001	U.S. Hard Drive (Not installed in assembly, shown for reference)	1
	22219002	Canadian Hard Drive (Not installed in assembly, shown for reference)	1
7	61197101	Computer Core Assembly Housing	1
8		I/O Bezel (included with item 12)	1
9	87842300	Nut – #6-32 Keps Hex MS	2
10	40952203	Power Supply	1
11	80402304	Screw – #6-32 X 1/4 Phillips Head Machine	8
12	40924212	Single Board Computer	1
13	61196902	Circuit Board Assembly – Core I/O	1
14	22322102	Bracket – PCI Modem/Blockout	1
15	80351608	#4-40 X 1/2 Phillips RD HMS	2
16	22132250	Cable Assembly – DR Ribbon (Not Shown)	1
17	22132253	Harness – SATA Power (Not Shown)	1
18	22132252	Harness – SATA Data (Not Shown)	1
19	22132255	Cable Assembly – On/Reset (Not Shown)	1
20	22167704	Label – Computer Core Connection Colors	1
21	22167705	Label – Computer Core Connectors	1
22	22132256	Cable Assembly – COM2 to I/O (Not Shown)	1
23	00710203	Sponge Rubber	7”

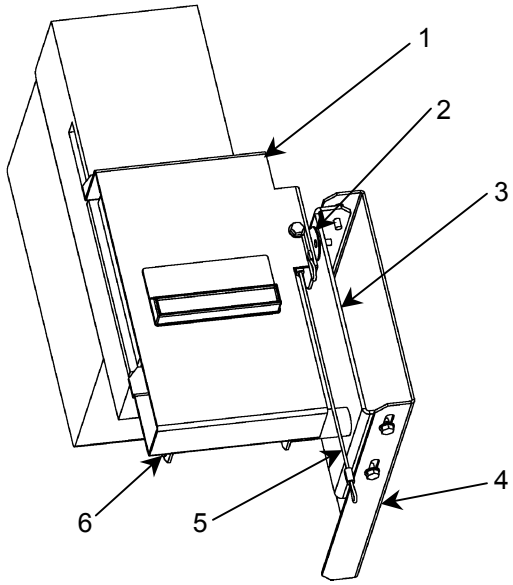


Figure 8–12 – Bill Acceptor Assembly

Ref.	Part No.	Description	Qty
	40917012	Transport and Bracket Assembly	Ref.
	22135611	Coinco Bill Acceptor with 1100 Bill Stacker	1
	40917010	Transport and Bracket Assembly	Ref.
	22135609	MEI Bill Acceptor with 1000 Bill Stacker	1
1	40915501	B/A Adapter Bezel Bracket	1
	21730001	Fall stop Hook	1
	22129201	Pivot Bracket	1
2	20927302	Stud Retainer	1
3	40931701	Shaft Weld Bracket	1
4	40931901	Bill Acceptor Mounting Bracket	1
5	21572601	Fall Stop Cable	1
6	70143002	External Retaining Ring	1

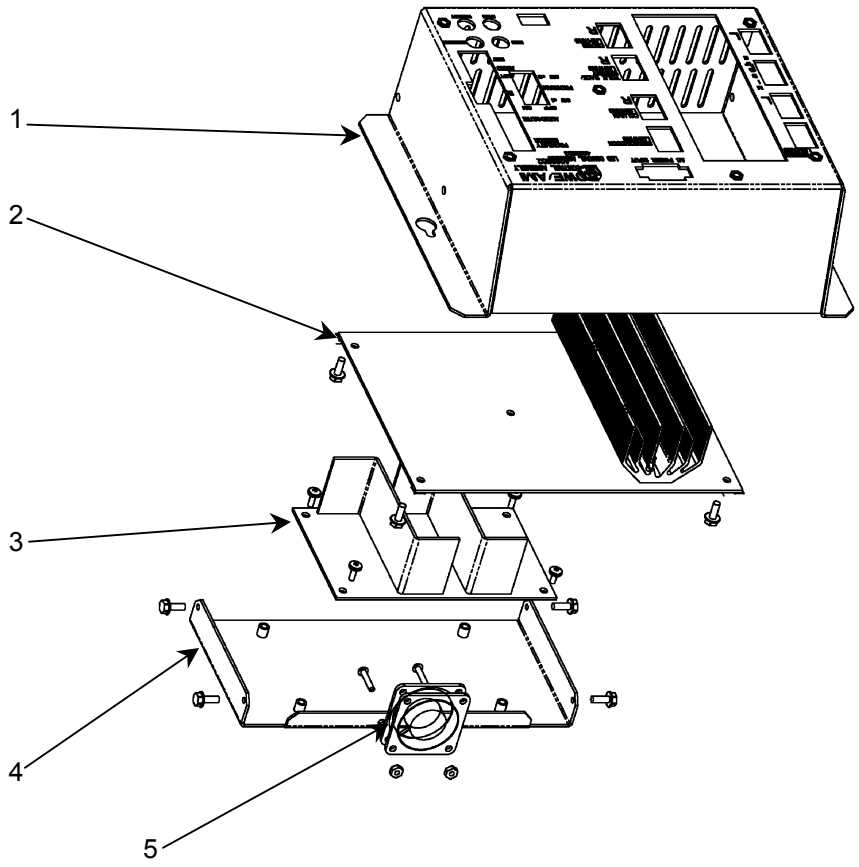


Figure 8–13 – LED Controller Assembly

Ref.	Part No.	Description	Qty
	40931103	LED Controller Assembly	Ref.
1	40930903	Cover–LED Control	1
2	61142202	Circuit Board Assembly – LED Controller	1
3	40922507	Power Supply–Universal	1
4	40931002	Base–LED Control	1
5	34039107	Fan Chassis – LED Control	1
Not Shown:			
	34044301	Harness–LED Control	1
	34044401	Harness–110/220V	1

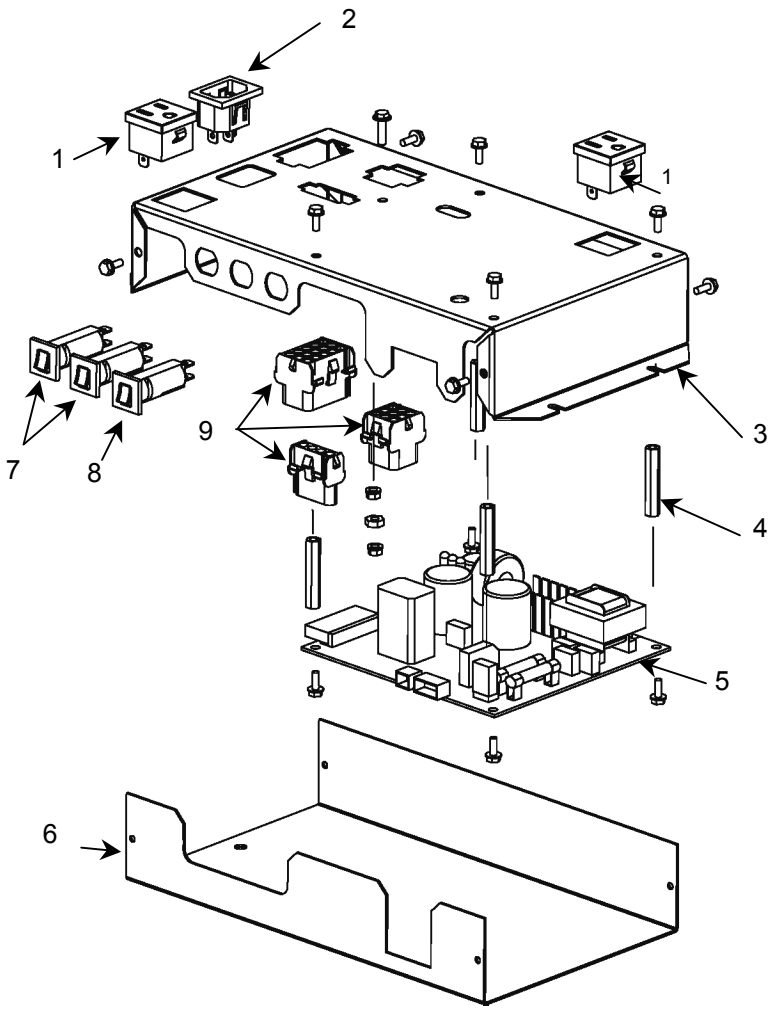


Figure 8–14 – Power Supply Assembly

Ref.	Part No.	Description	Qty
	22145809	Power Supply Assembly	Ref.
1	21375902	Outlet – Convenience	2
2	22118703	Power Inlet IEC 320 C-14	1
3	22145908	Chassis – Power Supply	1
4	22141301	Standoff – #8-32 x 1.5	4
5	40923409	Circuit Board Assembly – Power Supply (with Router Reset)	1
6	22146002	Cover – Power Supply	1
7	70073609	Circuit Breaker (6 AMP)	2
8	70073606	Circuit Breaker (3 AMP)	1
9	34038808	Harness Assembly – Power Supply (Only Connectors Shown)	1

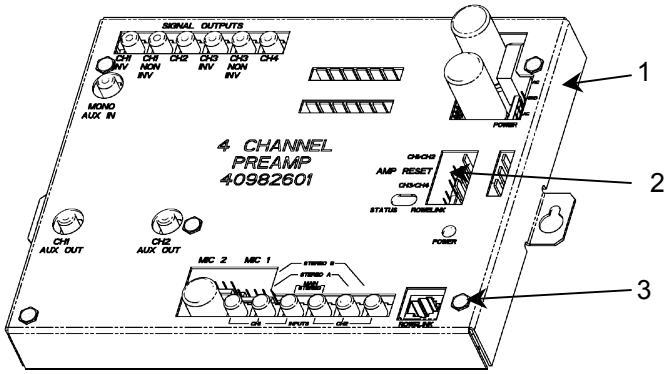


Figure 8–15 – 4-Channel Pre-Amplifier

Ref.	Part No.	Description	Qty
	40982601	4-Channel Pre-Amplifier	Ref.
1	40982701	Cover – Pre-Amp	1
2	61195201	Circuit Board Assembly – 4-Channel Pre-Amplifier	1
3	80713008	#8-32 x 1/2 Sems Hex WHMS	5

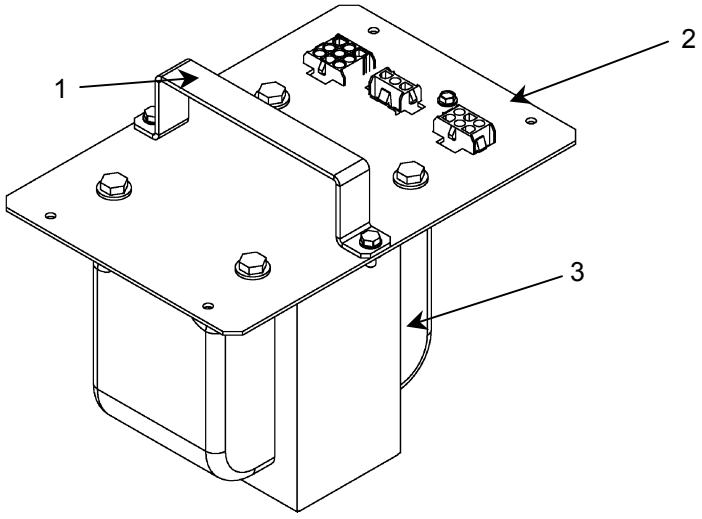


Figure 8–16 – Power Transformer Assembly

Ref.	Part No.	Description	Qty
	40917103	Transformer Assembly	Ref.
1	22137601	Transformer Assembly Handle	1
2	34034503	Transformer Mounting Plate	1
3	40737831	Power Transformer	1

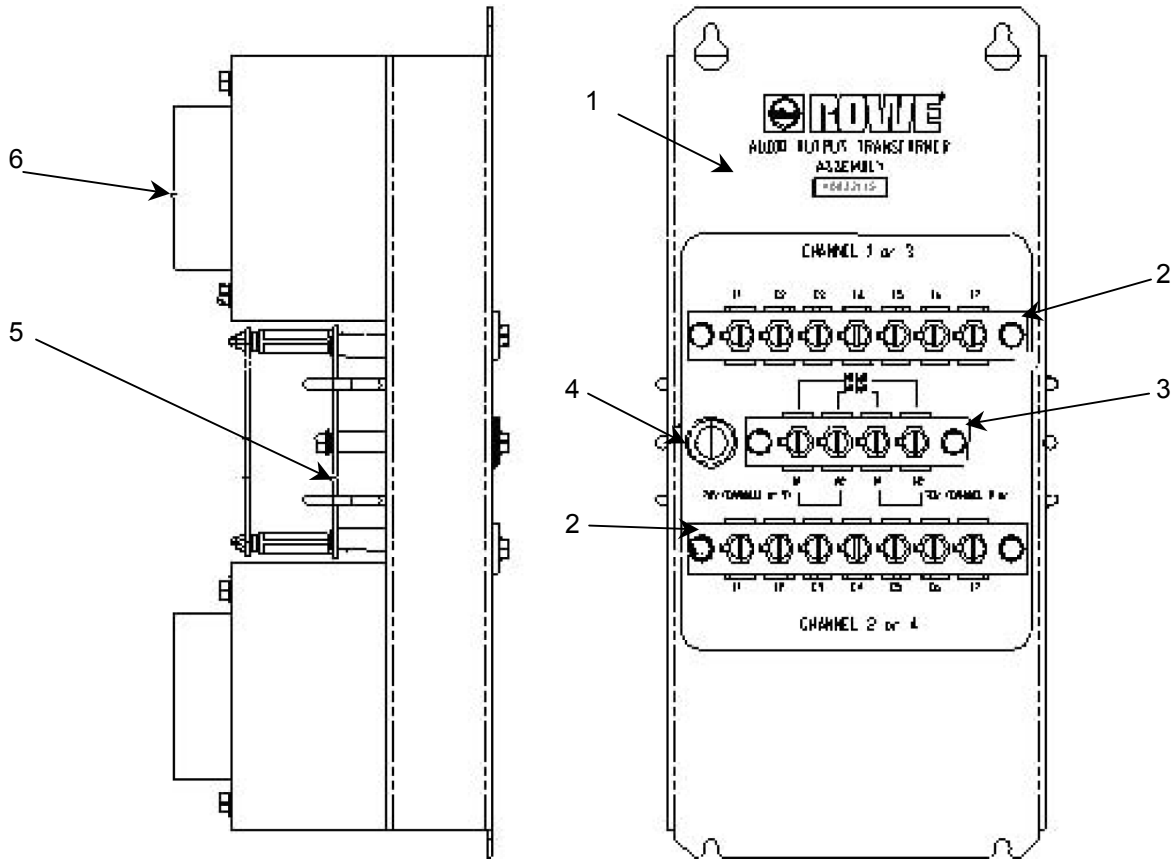


Figure 8–17 – Output Transformer Assembly

Ref.	Part No.	Description	Qty
	40832115	Output Transformer Assembly	Ref
1	61133101	Chassis – Audio Output	1
2	30426707	Binding Post Strip	2
3	30426706	Binding Post Strip	1
4	70233206	Bushing – Snap (Split)	1
5	40949203	Circuit Board Assembly – Output Resistor	1
6	40633503	Transformer – Output	2
Not Shown:			
	34033402	Harness Assembly – Output Transformer	1
	21963843	Jumper Assembly	2

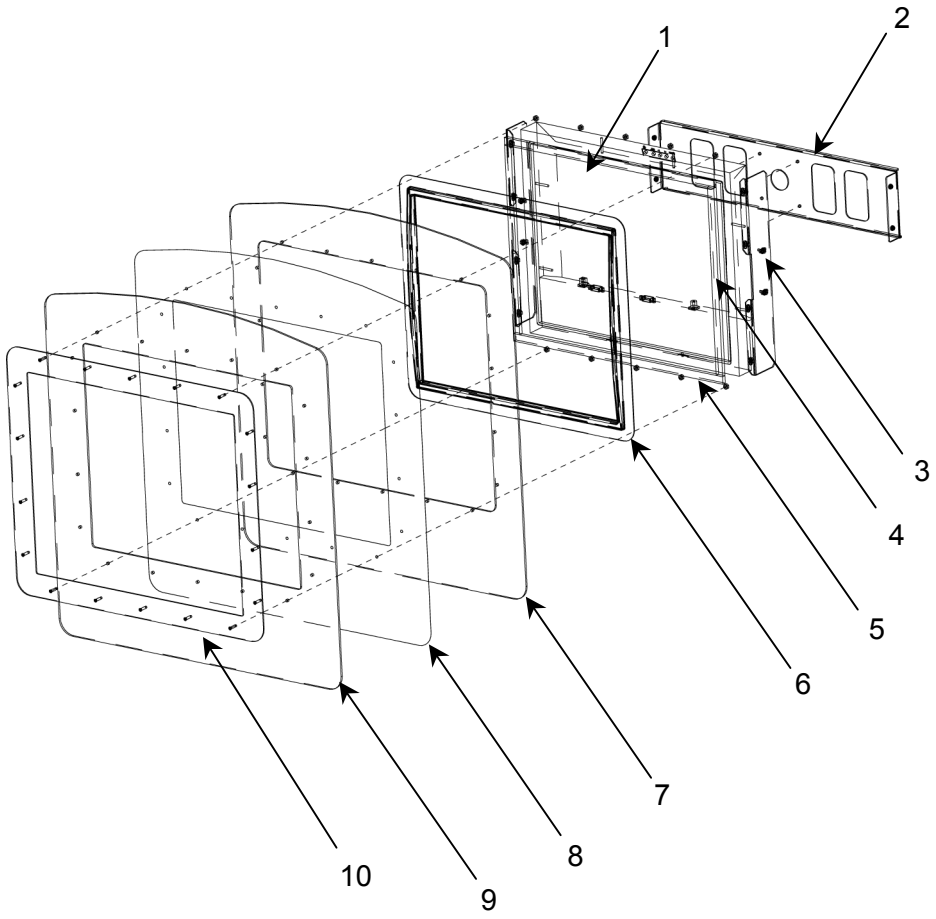


Figure 8–18 – 19” Touchscreen and Panel Assembly

Ref.	Part No.	Description	Qty
	61167003	19” Touchscreen and Panel Assembly	Ref.
1	22160806	19” Flatscreen	1
2	40963701	Monitor Mounting Rear Bracket	1
3	34076002	Monitor Mounting Bracket	2
4	70220351	Foamed Tape	2
5	70220352	Foamed Tape	2
6	61139302	Adaptor Bezel	1
7	61166302	Touch Monitor Rear Panel	1
8	40961002	Touch Monitor Graphics	1
9	61166202	19” Touchscreen Front Panel	1
10	40955102	Front Display Frame	1 .

Accessory Equipment

Part. No.	Description	Function
26679501	Paging System with Hand-Held Microphone	Paging System not affected by A.V.C. All plug-in unit, complete with microphone and 50 foot microphone cable.
26679502	Paging System with Hand-Held Microphone	Paging System not affected by A.V.C. All plug-in unit. The same as 26679501, except without the 50 foot microphone cable.
30995201	Paging System with Hand-Held Wireless Microphone	Allows wireless paging.
26677520	Credit Card Kit (Broadband use only)	Allows customers to use Visa and Master Card
26694913	Second Amplifier Kit	Add a second 1000 watt amplifier. Includes a power transformer and an output transformer.
34037908	100 foot cable for Volume Control Unit	Replacement cable for Volume Control Unit.
21958307	I.R. Remote Control Sending Unit	Replacement/spare hand held transmitter.
21958305	Simplified I.R. Sending Unit	Fewer functions that cover only the essentials of ON/OFF, Cancel, and Volume Control.
26681501	Special Event Switch Kit	Allows locations to switch to Auxiliary Audio Source using a key switch.
26735103	Red Touch-up Paint	For red GrandSTARs with nameplates that show. Part Number xxx125xxx only
26714101	Colorado Red Touch-up Paint	For all other red GrandSTARs.
26735102	Black Touch-up Paint	
70004-1A	Wired Remote	

NOTES: