

User Guide

Central Loader Control

SLC48 Touchscreen Conveying Controls

Installation

Operation

Maintenance

Troubleshooting



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UGC003/0201

Please record your equipment's model and serial number(s) and the date you received it in the spaces provided.

It's a good idea to record the model, serial and software version numbers of your equipment and the date you received it in the User Guide. Our service department uses this information, along with the manual number, to provide help for the specific equipment you installed.

Please keep this User Guide and all manuals, engineering prints and parts lists together for documentation of your equipment.

Date:
Manual Number: UGC003/0201
Model number:
Serial number(s):
Software version number(s):

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no one gets hurt1-3*

PURPOSE OF THE USER GUIDE

This User Guide describes the Conair SLC48 Sentral Loader Control and explains step-by-step how to install, operate, maintain and repair this equipment.

Before installing this product, please take a few moments to read the User Guide and review the diagrams and safety information in the instruction packet. You also should review manuals covering associated equipment in your system. This review won't take long, and it could save you valuable installation and operating time later.

HOW THE GUIDE IS ORGANIZED

Symbols have been used to help organize the User Guide and call your attention to important information regarding safe installation and operation.



Symbols within triangles warn of conditions that could be hazardous to users or could damage equipment. Read and take precautions before proceeding.



Numbers within shaded squares indicate tasks or steps to be performed by the user.



A diamond indicates the equipment's response to an action performed by the user.



An open box marks items in a checklist.



A shaded circle marks items in a list.

YOUR RESPONSIBILITY AS A USER

You must be familiar with all safety procedures concerning installation, operation and maintenance of this equipment. Responsible safety procedures include:

- Thorough review of this User Guide, paying particular attention to hazard warnings, appendices and related diagrams.
- Thorough review of the equipment itself, with careful attention to voltage sources, intended use and warning labels.
- Thorough review of instruction manuals for associated equipment.
- Step-by-step adherence to instructions outlined in this User Guide.

We design equipment with the user's safety in mind. You can avoid the potential hazards identified on this machine by following the procedures outlined below and elsewhere in the User Guide.

 **ATTENTION:**
READ THIS SO NO
ONE GETS HURT



WARNING: Improper installation, operation or servicing may result in equipment damage or personal injury.

This equipment should be installed, adjusted, and serviced by qualified technical personnel who are familiar with the construction, operation and potential hazards of this type of equipment.

All wiring, disconnects and fuses should be installed by qualified electrical technicians in accordance with electrical codes in your region. Always maintain a safe ground. Do not operate the equipment at power levels other than what is specified on the the equipment serial tag and data plate.



WARNING: Electrical shock hazard

This equipment is powered by electrical voltage as specified on the machine serial tag and data plate.

A properly sized conductive ground wire from the incoming power supply must be connected to the chassis ground terminal inside the Input/Output enclosure. Improper grounding can result in personal injury and erratic machine operation.

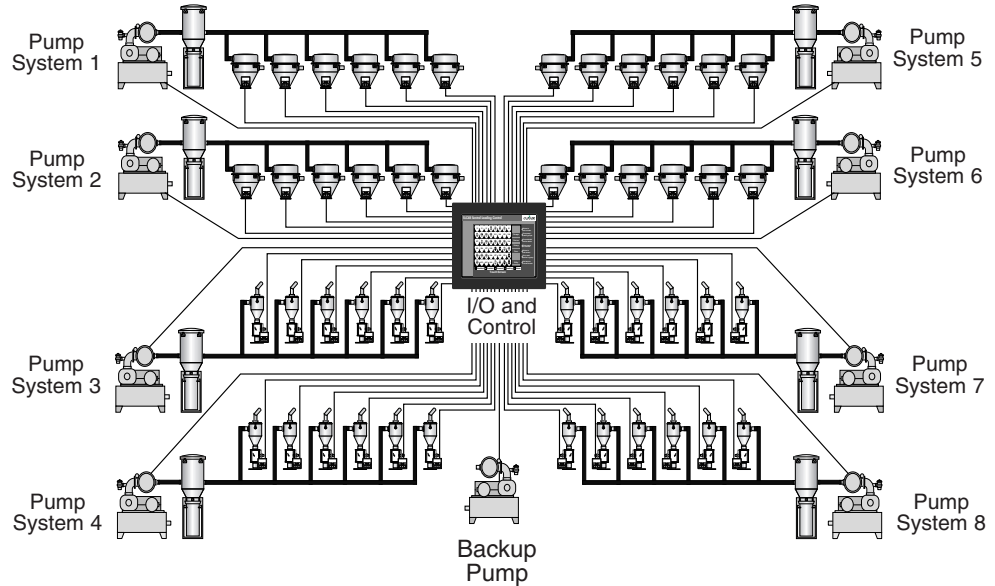
Always disconnect and lock out the incoming main power source before opening the electrical enclosure or performing non-standard operating procedures, such as troubleshooting or routine maintenance. Only qualified personnel should perform troubleshooting procedures that require access to the electrical enclosure while power is on.

DESCRIPTION

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WHAT IS THE SLC48?

The touchscreen panel is mounted on the front of the I/O station. Inside are one or two racks, containing up to 24 input/output modules (slots) connected to a PLC controller. The number of input and output modules will vary with the number of vacuum receivers and conveying options.

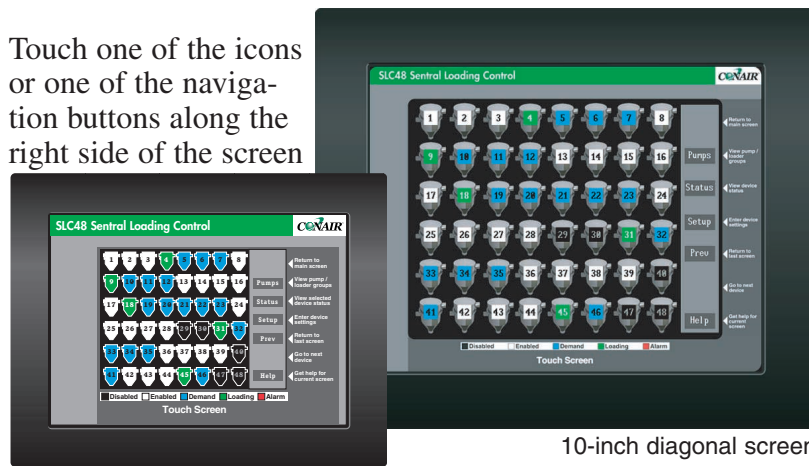


The controller and touchscreen panel automatically turn on when power is applied to the I/O station. After a bootup sequence, the Home Screen is displayed. From the Home Screen, you can view the operating status of all vacuum receivers connected to the system.

Color-coded icons indicate whether each receiver is:

- Disabled = Black
- Enabled = White
- Loading = Green
- Demanding material = Blue
- Alarming = Red

Touch one of the icons or one of the navigation buttons along the right side of the screen



6-inch diagonal screen

10-inch diagonal screen

The SLC48 has been designed for central material conveying applications, including Conair's CDS Central Drying and Distribution System.

TYPICAL APPLICATIONS

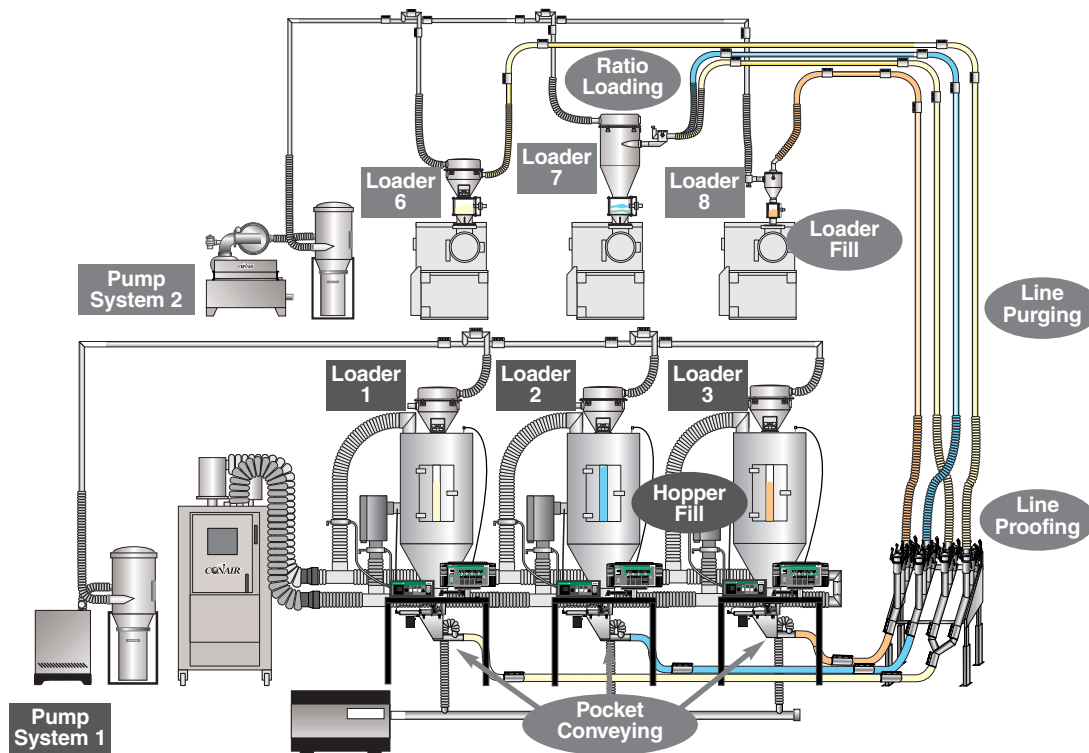
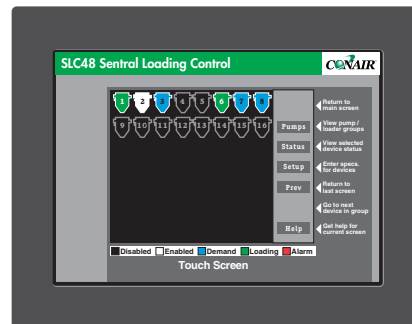
Loader-pump assignments are completely flexible. Individual vacuum receivers can be assigned to any one of the eight loading systems. Each receiver can be configured for:

- Single-material loading.
- Ratio loading, with or without automatic material layering.
- Positive (air-operated) receiver discharge.
- Material line purging.
- Material line proofing.
- Pocket conveying from a drying hopper or other vessel.
- Loader fill alarm to work with an optional fill sensor mounted in the receiver body or direct feed chamber.
- Hopper fill alarm to work with an optional demand sensor mounted in a drying hopper or other material vessel.

In this example, the SLC48 monitors and controls conveying in a typical CDS application.

Pump System 1 conveys material to the drying hoppers from three different material sources.

Pump System 2 conveys material from the drying hoppers to three processing machines as it is needed.

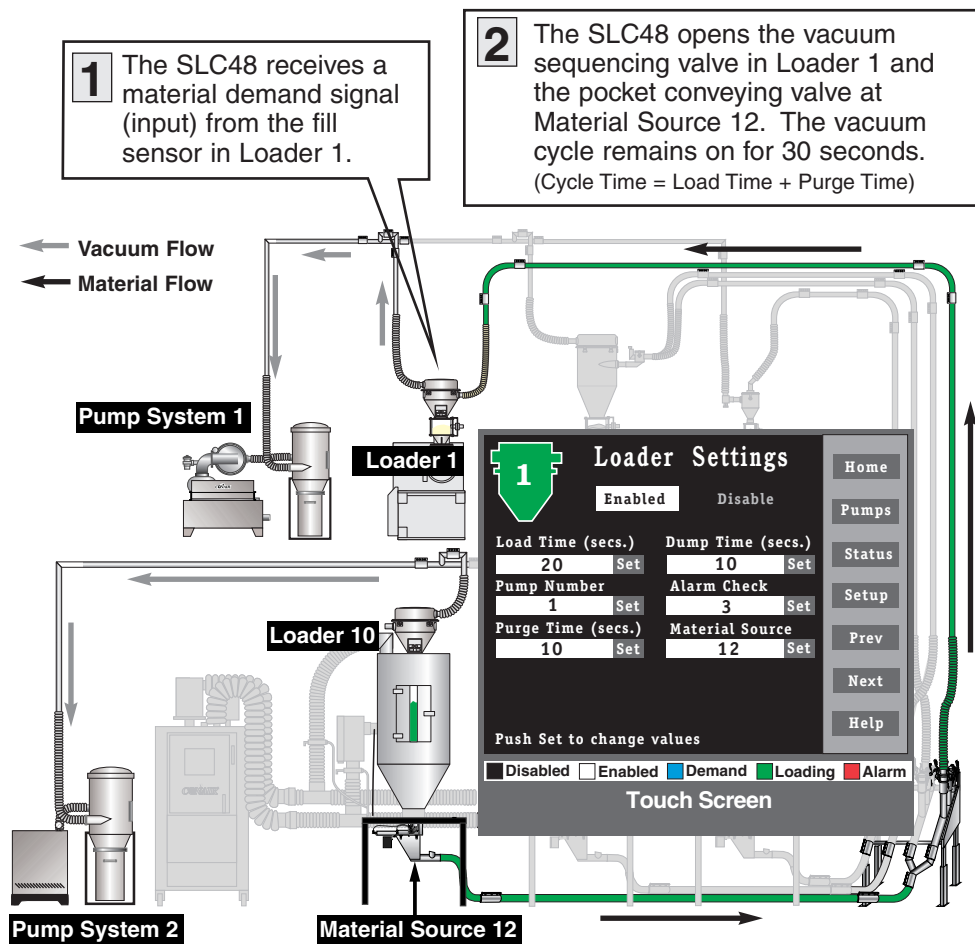


How It Works

The SLC48 communicates with each pump, vacuum receiver and material valve wired to Input/Output modules within the control enclosure. The SLC48 controls conveying operation based on settings the operator enters on a touchscreen panel.

When receivers in a pump system demand material, the SLC48 turns on the vacuum pump and dust collector in the appropriate pump system. It then opens the correct vacuum and material valves to convey material to satisfy the demand.

In the example below, the operator has specified that Loader 1 draw material from Material Source 12, a drying hopper with a pocket conveying valve installed at the hopper discharge.



1 The SLC48 receives a material demand signal (input) from the fill sensor in Loader 1.

2 The SLC48 opens the vacuum sequencing valve in Loader 1 and the pocket conveying valve at Material Source 12. The vacuum cycle remains on for 30 seconds. (Cycle Time = Load Time + Purge Time)

3 The SLC48 closes the pocket conveying valve after 20 seconds, shutting off material flow from the hopper. The vacuum valve at the receiver remains open for 10 seconds (purge time) to continue pulling material from the line into the receiver.

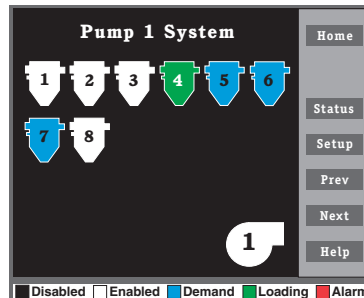
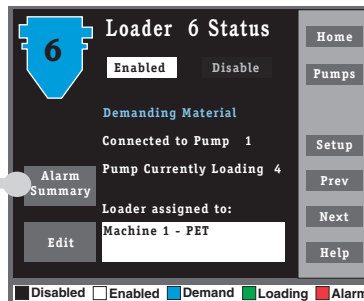
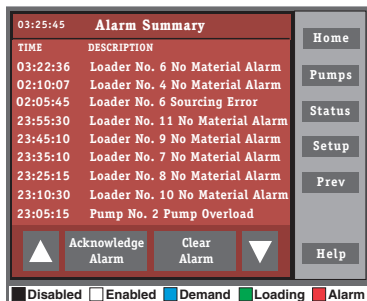
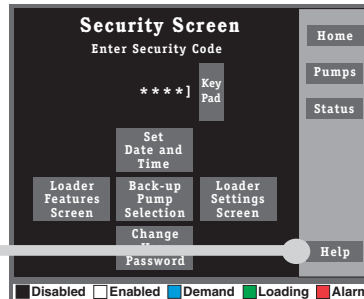
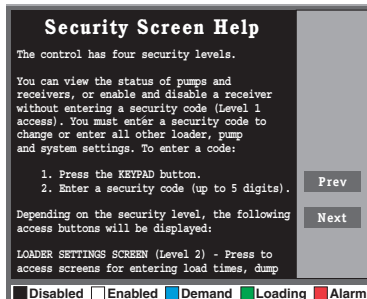
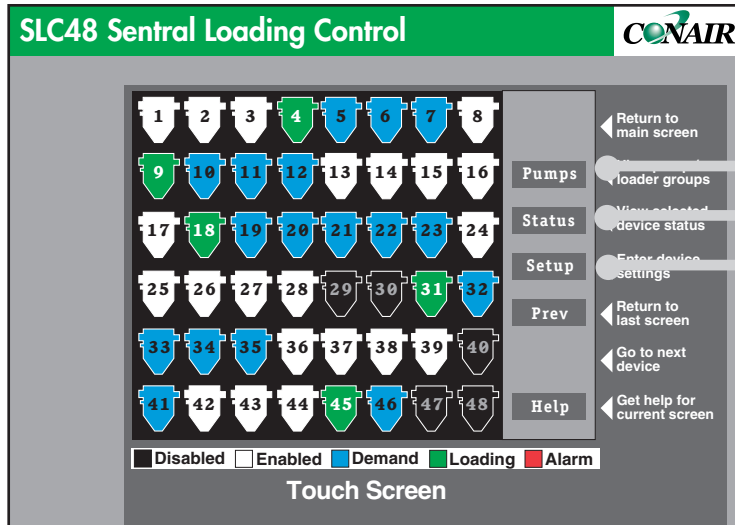
The SLC48 will signal an alarm if:

- Demand for material at Loader 1 is not satisfied within 3 loading cycles (Alarm Check triggers a No Material Alarm).
- Material cannot be pulled from the assigned Material Source 12 (Sourcing Error).

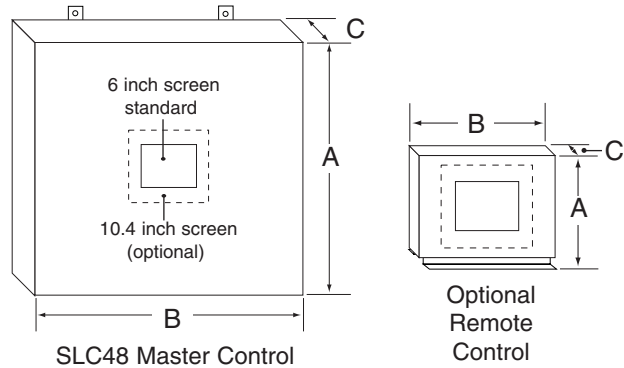
How It Works

The SLC48 Home Screen lets the operator monitor the status of all vacuum receivers at a glance. Color-coded icons indicate the real-time status of each receiver.

Other screens allow you to change system settings or to view pump systems, loader details, alarm histories and Help screens that provide instructions pertaining to the specific screen.



SPECIFICATIONS



MODELS	SLC48
Performance characteristics	
Maximum number of vacuum receivers	48
Maximum number of vacuum pumps	8 (plus back-up)
Maximum number of source valves	32
Maximum number of proofing loaders	48
Programmable logic controller	Allen Bradley SLC503
Touchscreen operator interface	CTC/Parker Automation
Communications with master control	DH485
Screen size diagonal inches {mm}	
standard	5.7 {145}
optional	10.4 {264}
User interface method	
standard	resistive touchscreen
optional	keyboard, mouse
Output voltage to receivers/valves	24 VAC
Sensor voltage to receivers	24 VDC
Output voltage to pumps	115 VAC
Dimensions inches {mm}	
Master control cabinet	
A - Height	34 {864}
B - Width	36 {914}
C - Depth	10 {254}
Optional remote control	
A - Height	12 {305}
B - Width	16 {406}
C - Depth	6 {152}
Weight lb {kg}	
Installed	
Shipping	75 {34}
Optional remote control	
Shipping	90 {41}
Optional remote control	
Shipping	20 {9.1}
Optional remote control	
Shipping	22 {10.0}
Voltages Total amps	
115V/1 phase/60Hz (master control)	10
115V/1 phase/60 Hz (remote control)	5

SPECIFICATION NOTES:

Sentral loader control cable: 18 gauge shielded, 8-conductor may be used for standard vacuum receivers with up to one optional output and input, otherwise 10-conductor cable is required.

Specifications can change without notice. Check with a Conair representative for the most current information.

APPLICATION NOTES:

Conair vacuum receivers come equipped with a quick-disconnect connector set that includes 10 feet of cable. Junction boxes must be provided to connect the system cable and each vacuum receiver's connector set.

CALCULATING SENTRAL SYSTEM CABLE LENGTH:

Total the distances from the Input/output Station(s) location to each vacuum receiver on the system. Be sure to account for reasonable slack at each loading station for connections, cable routing, etc.

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UNPACKING THE BOXES

The SLC48 central loading control comes in one or more boxes, depending on the options ordered. The boxes should include:



Touchscreen Interface Panel
and Input/Output Enclosure



Remote Touchscreen Panels
(Optional)

- 1** Carefully remove the SLC48 components from their shipping containers, and set upright.
- 2** Remove all packing material, protective paper, tape and plastic.
- 3** Carefully inspect all components to make sure no damage occurred during shipping. Notify the shipper immediately if damage is found.
- 4** Take a moment to record serial numbers, the software version number and electrical power specifications in the blanks provided on the back of the the User Guide's title page. The information will be helpful if you ever need service or parts.
- 5** You are now ready to begin installation. Follow the preparation steps on the next page, paying particular attention to all wiring consideration and recommendations.

PREPARING FOR INSTALLATION

You should plan the location of the SLC48 control to ensure easy access and minimal wiring. Remote touchscreen panels can be connected to the control via an ethernet port inside the control enclosure of the primary touchscreen interface.

1 Select a mounting location for the control.

The touchscreen interface and Input/Output enclosure can be mounted on a wall or other stable vertical surface.

Select a location that:

☐ Is central to loaders that the SLC48 will control.

Keep the SLC48 Input/Output station as close as possible to the loading stations to minimize the amount of wire needed to connect the vacuum receivers to the control.

☐ Provides adequate clearance for safe operation and maintenance. The control should be mounted at a height that allows the operator to easily see and touch the screen. An external keyboard, if used, should be located on a stable horizontal surface within sight of the panel. Maintain at least 3 feet (1 m) clearance in front of the control for safe access to the Input/Output enclosure.

☐ Provides a clean, dry, vibration-free environment.

Exposure to wide temperature variations, high ambient temperature, power line fluctuations, caustic fumes or excessive amounts of dust, dirt, vibration, shock and moisture could harm performance and reduce the life of this equipment.

☐ Provides a grounded source of 115 VAC power.

The three-prong power cord supplied with the SLC48 control requires a grounded 115 VAC outlet rated for at least 15 amp service.

2 Plan the power/communication cable routes.

☐ Review all wiring guidelines and diagrams provided in the manuals and electrical diagrams supplied with the SLC48 control and your conveying equipment before beginning installation. See **WIRING CONSIDERATIONS**.

☐ Keep communication wires away from sources of static electricity. Static electricity can damage the controls. Communication cables should *not* be run near the material lines and hoses, which produce large amounts of static electricity when material is conveyed. You should use shielded cable unless you run wires through metal conduit.

☐ Avoid running communication cables across power feed lines. If you must run the cable across power feed lines, run the cable at right angles to the lines.

INSTALLING THE SLC48

Installation of the SLC48 control consists of:

- Mounting the touchscreen and Input/Output enclosure.
- Connecting remote touchscreen panels (optional).
- Connecting an external keyboard (optional).
- Wiring loaders to the control.
- Wiring pumps to the control.
- Wiring material valves to the control.
- Connecting the control to a main power source.
- Initial setup of the system control.

WIRING CONSIDERATIONS



WARNING: Improper installation may result in equipment damage or personal injury.

- **Disconnect and lock out the main power supply** to equipment in the conveying system before attempting to wire power and communication cables between the SLC48 control, vacuum receivers, pumps, dust collectors and material valves.
- **Install all wiring, disconnects and fuses** in accordance with electrical codes in your region. All electrical installations should be done only by qualified electrical technicians.
- **Always refer to the wiring diagrams** supplied with your control before making electrical connections. The diagrams show the most accurate electrical component information.
- **Protect communication cables from sources of static electricity and electrical noise.**
 - Use shielded cable or run wire through a contiguous metal conduit or wireway. Failure to use a metal shield can expose the controls to static electricity, which can damage electronic components.
 - Do not run communication cables near material lines and hoses, which produce large amounts of static electricity when conveying material.
 - Keep communication cables at least 5 ft. (1.5 m) from electric motors, transformers, rectifiers, arc welders, generators, induction furnaces and sources microwave radiation.
 - Avoid running communication cable across power feed lines. If you must run cable across power lines, run the cable at right angles to the line. Keep the cable at least 6 inches (0.15 m) from AC power lines of less than 20 A; 1 foot (0.30 m) from lines of 20A to 100 kVA; and 2 feet (0.60 m) from lines of 100 kVA or more.
- **Always maintain a safe ground.** Follow the safe grounding procedures in the wiring diagram package. Ground the shielded cable inside the Input/Output enclosure only.
- **Do not operate the equipment at power levels other than those specified on the the equipment data plate.**

The SLC48 Input/Output enclosure should be mounted on a wall, or other secure vertical surface, at a height providing easy access and a clear view of the touchscreen panel.



MOUNTING THE CONTROL

1 Bolt the control to the mounting surface.

Use the mounting brackets on the I/O enclosure.

2 Ground the control enclosure.

Connect a ground wire to the control. Follow procedures outlined by your regional electrical codes and the wiring diagrams included with this manual.

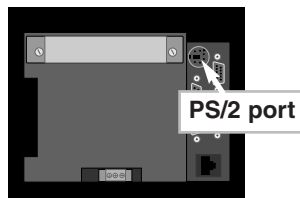
An alphanumeric keypad is built into the 10-inch touchscreen interface. If you have the 6-inch screen size and want to enter additional information about loaders connected to the system, you will need an external keyboard.

A keyboard can be connected to the PS/2 port on the back of the touchscreen interface panel. Use a strain relief, if you run the keyboard cable through a hole in the I/O enclosure.

CONNECTING A KEYBOARD TO THE SLC48 (OPTIONAL)

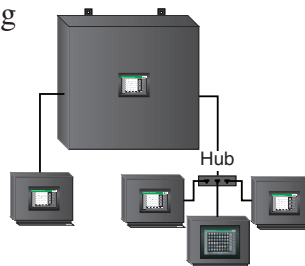
1 Open the SLC48 control enclosure.

2 Plug the keyboard into the available PS/2 port.



You can monitor or control the conveying system from an optional remote touchscreen panel located within 328 feet (100 m) of the I/O enclosure.

The remote panel connects to an ethernet/ LAN port inside the I/O enclosure on the back of the touchscreen control.

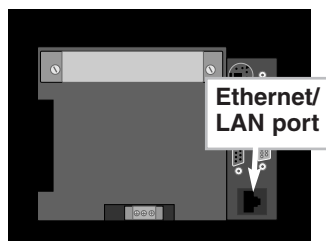


CONNECTING REMOTE PANELS (OPTIONAL)

1 Open the SLC48 control enclosure.

2 Insert the network cable through a knockout in the I/O enclosure. Secure with a strain relief.

3 Plug the cable into the ethernet/LAN port.



NOTE: More than one remote panel will require a network hub. Remote panels located greater than 328 feet from the I/O enclosure will require an amplifier in the network line.

WIRING LOADERS TO THE SLC48



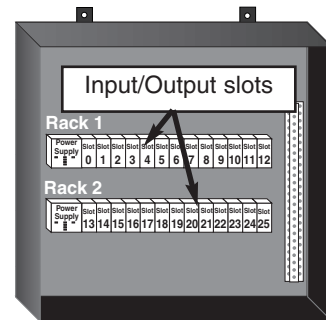
WARNING: Improper installation may result in equipment damage or personal injury.

Always refer to the wiring diagrams that came with your controls before making electrical connections. The diagrams show the most accurate electrical component information.

Use shielded cable unless you run wires in metal conduit. Failure to use a metal shield will expose the controls to static electricity, which can damage electronic components.

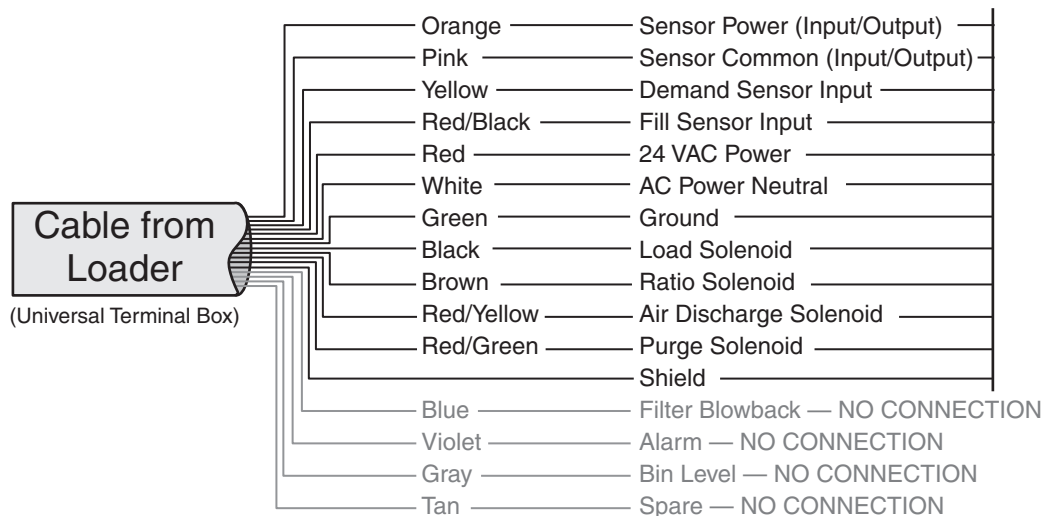
When using shielded cable, make sure the shield is grounded inside the I/O stations only. It is also important to keep the communication wires away from conveying lines, which can produce large amounts of static electricity.

Each vacuum receiver, pump and material valve in the system must be wired to power or common/ground terminals and Input/Output slots on up to two racks inside the SLC48 control enclosure.



Each loader requires at least seven wire connections to the Input/Output enclosure.

One additional wire is required for each option or for a three-wire sensor used for either demand or loader full inputs. Connect the loader cable wires to the I/O station according to the color codes:



WIRING LOADERS TO THE SLC48

The loader wires connect to power terminals or terminals on the I/O slots inside the control enclosure. The number of loaders and options in the conveying system will determine the number of connections that are required.

Refer to the electrical prints included with this manual for all electrical connections to the loader control. All loader outputs are 24 VAC and all demand and fill sensor inputs are 24 VDC.

A general list of loader electrical connections are as follows:

WIRE	LOADERS	CONNECTION	RACK
Sensor power	1-20 and 41-44	Terminal #11	1
	21-40 and 45-48	Terminal #14	2
Sensor common (for 3-wire sensor)	1-20 and 41-44	Terminal #10	1
	21-40 and 45-48	Terminal #13	2
Demand sensor input	1-10	slot 2, inputs 0-9	1
	11-14	slot 3, inputs 4-7	1
	15-20	slot 4, inputs 0-5	1
	21-30	slot 15, inputs 0-9	2
	31-34	slot 16, inputs 4-7	2
	35-40	slot 17, inputs 0-5	2
	41-42	slot 3, inputs 8-9	1
	43-48	slot 16, inputs 8-10	2
Full sensor input	1-6	slot 2, inputs 10-15	1
	7-10	slot 3, inputs 0-3	1
	11-20	slot 4, inputs 6-15	1
	21-26	slot 15, inputs 10-15	2
	27-30	slot 16, inputs 0-3	2
	31-40	slot 17, inputs 6-15	2
	41-48	slot 25, inputs 0-7	2
24 VAC power	1-20	Terminal #7	1
	21-48	Terminal #7	2
24 VAC power neutral	1-20	Terminal #8	1
	21-48	Terminal #8	2
Ground	1-20	Ground terminal	1
	21-48	Ground terminal	2
Vacuum solenoid (load)	1-16	slot 5, outputs 0-15	1
	17-20	slot 1, outputs 0-3	1
	21-36	slot 18, outputs 0-15	2
	37-40	slot 14, outputs 0-3	2
	41-48	slot 13, outputs 0-7	2
Ratio solenoid	1-16	slot 6, outputs 0-15	1
	17-20	slot 7, outputs 0-3	1
	21-36	slot 19, outputs 0-15	2
	37-40	slot 20, outputs 0-3	2
	41-46	slot 13, outputs 10-15	2
	47-48	slot 14, outputs 4-5	2
Air discharge solenoid	1-10	slot 7, outputs 6-15	1
	11-20	slot 8, outputs 0-9	1
	21-30	slot 20, outputs 6-15	2
	31-40	slot 21, outputs 0-9	2
	41-44	slot 1, outputs 4-7	1
	45-48	slot 23, outputs 10-13	2

WIRING PUMPS TO THE SLC48

IMPORTANT: Always refer to the wiring diagrams that came with your controls before making electrical connections. The diagrams show the most accurate electrical component information.

The SLC48 can run eight vacuum pumps and one backup pump. There are two pump outputs for each 10 loaders.

Refer to the electrical prints included with this manual for all electrical connections to the loader control. All pump outputs are 115 VAC and all overload inputs are 24 VDC. A general list of pump electrical connections are as follows:

WIRE	PUMPS	CONNECTION	RACK
115 VAC neutral	All pumps	Terminal #22	
Pump output and Dust Collector solenoid	Pump 1	slot 1, output 10	1
	Pump 2	slot 1, output 11	1
	Backup pump	slot 1, output 12	1
	Pump 3	slot 1, output 13	1
	Pump 4	slot 1, output 14	1
	Pump 5	slot 14, output 10	2
	Pump 6	slot 14, output 11	2
	Pump 7	slot 14, output 13	2
	Pump 8	slot 14, output 14	2
Pump overload power	Pumps 1-4	Terminal #11	1
	Backup pump	Terminal #11	1
	Pumps 5-8	Terminal #14	2
Pump overload input	Pump 1	slot 3, input 11	1
	Pump 2	slot 3, input 12	1
	Backup pump	slot 3, input 13	1
	Pump 3	slot 3, input 14	1
	Pump 4	slot 3, input 15	1
	Pump 5	slot 16, input 11	2
	Pump 6	slot 16, input 12	2
	Pump 7	slot 16, input 14	2
	Pump 8	slot 16, input 15	2

Wiring connections between pumps and dust collectors will be the same for all pumps. Pump motor contactor connections to the dust collectors are as follows:

WIRE	CONNECTION
Pump output / dust collector solenoid	Terminal A1
115 VAC neutral / dust collector solenoid neutral	Terminal 96
Pump overload power	Terminal 97
Pump overload input	Terminal 98

If not already installed, connect the jumper wire between the normally closed contact on the overload (Terminal 95) to the motor contactor coil (Terminal A2).

The SLC48 can operate up to 48 purge valves, which are used to remove material from the lines at the end of a loading cycle. Since purge valves are located at the material source instead of at the loader, separate wiring connections to the SLC48 are required.

WIRING PURGE VALVES TO THE SLC48 (OPTIONAL)

Each purge/material valve requires three wires to operate:

WIRE	VALVES	CONNECTION	RACK
24 VAC neutral	1-20	Terminal #8	1
	21-48	Terminal #8	2
Ground	1-20	Ground terminal	1
	21-40	Ground terminal	2
Purge solenoid*	1-16	slot 9, outputs 0-15	1
	17-20	slot 8, outputs 12-15	1
	21-36	slot 22, outputs 0-15	2
	37-40	slot 21, outputs 11-15	2
	41-48	slot 23, outputs 0-7	2

* **NOTE:** For loaders using a common purge valve, the purge solenoid also must be connected to the purge output for each loader on that valve.

The SLC48 can operate up to 32 pocket conveying valves, which are used in central drying and distribution systems. The pocket valve allows multiple loaders to draw dry material as needed from a single drying hopper. Since the valves are located at the material source instead of the loader, separate, wiring connections to the SLC48 are required.

WIRING POCKET CONVEYING VALVES TO THE SLC48 (OPTIONAL)

NOTE: Purge valves and pocket conveying valves connect to the same outputs on the SLC48 control. Therefore, pocket conveying valves cannot be used with loaders that are connected to purge valves.

Each pocket conveying valve requires three wires to operate:

WIRE	VALVES	CONNECTION	RACK
24 VAC neutral	1-20	Terminal #8	1
	21-32	Terminal #8	2
Ground	1-20	Ground terminal	1
	21-32	Ground terminal	2
Pocket Conveying Valve	1-16	slot 9, outputs 0-15	1
	17-20	slot 8, outputs 12-15	1
	21-32	slot 22, outputs 0-15	2

WIRING FOR MATERIAL LINE PROOFING (OPTIONAL)

The SLC48 supports electronic proofing of material lines from up to 16 material sources to as many as 48 loaders.

Electronic proofing ensures that the correct material reaches its destination when multiple materials are conveyed through a central conveying manifold from multiple sources.

Material line couplers on the conveying manifold must be equipped with electrical plugs, which are wired to Input and Output slots in SLC48 enclosure.

WIRE	DEVICE	CONNECTION	RACK
Proofing receptacle	Hoppers 1-16	slot 10, outputs 0-15	1
Proofing plug	Loaders 1-16	slot 11, inputs 0-15	1
	Loaders 17-32	slot 12, inputs 0-15	1
	Loaders 33-48	slot 24, inputs 0-15	2

CONNECTING MAIN POWER TO THE SLC48

The SLC48 Input/Output enclosure is equipped with a three-prong plug and power cord. Each optional remote touchscreen panel also has its own plug and power cord.

- 1 Plug the power cord(s) into a grounded 115 VAC outlet rated for at least 15 Amp service.**
- 2 Make sure the control enclosure is grounded.**



WARNING: Electrical shock hazard

Failure to provide proper grounding can cause control malfunctions and could result in personal injury from electrical shock.

The control must be connected to a grounded power source. A properly sized conductive ground wire must be connected to the chassis ground terminal inside the Input/Output enclosure.

INITIAL SETUP

Before you can begin conveying, you must configure and identify the loaders and conveying features you want to use.

Procedures on the following pages will explain how to:

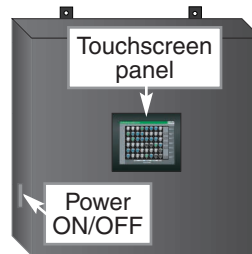
- Configure each loader in the system.
- Assign loaders to pump systems.
- Add details to further identify each loader.
- Set the date and time that will appear in the alarm history.
- Select or set security levels required by your operation.

NOTE: The SLC48 contains the correct number of I/O modules to support the number of loaders, conveying options, material valves and pumps you specified in your order. If you are adding receivers, pumps, valves or other features to the original system, please see [APPENDIX B: INSTALLING SLOTS AND LOADERS](#).

To begin Initial Setup:

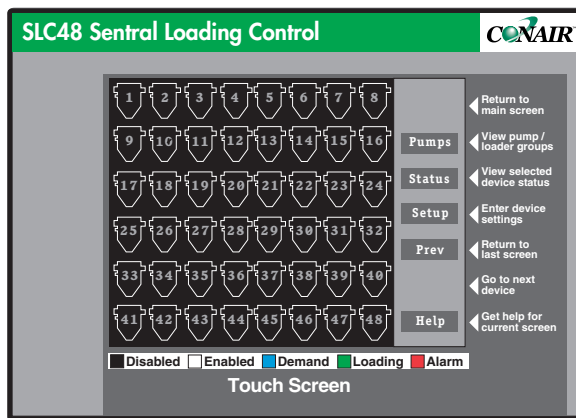
1 Turn on power to the SLC48.

The Power ON/OFF switch is at the side of the control enclosure.



2 Wait for the control to initialize.

Do not touch the touchscreen panel until the control has completed the bootup and initialization process. This process takes a few seconds on 10-inch screen models and at least 3 minutes on models with 6-inch screens. When the control has initialized, the Home Screen displays the number of available loading positions.



NOTE: Loaders will appear as disabled (black icons) until you have enabled them.

3 Proceed to [CONFIGURING LOADERS](#).

TIP: You will need the Level 3 or 4 security code to perform most procedures in the initial setup.

If you are not familiar with the SLC48 security levels, please review [SETTING SECURITY LEVELS](#) at the end of this Installation section before proceeding.

CONFIGURING LOADERS

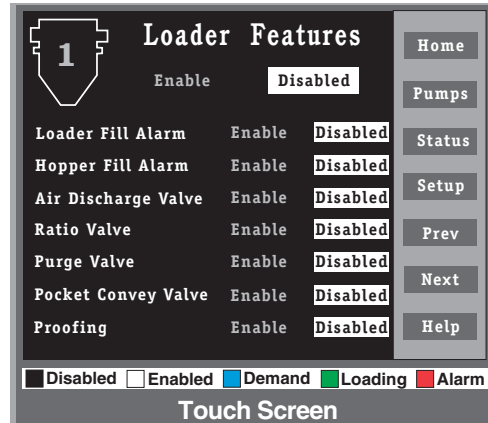


CAUTION: Incorrect configurations will cause the SLC48 control to stop.

Before enabling loaders and loading functions, make sure the loader, valve or option has been installed in the system. Each loader and feature must be wired to a correctly installed and enabled Input or Output Slot. The SLC will fault and the loading control will stop if the required I/O module has not been installed for the feature you enabled.

You configure each loading station in the system by enabling vacuum receivers and loading functions on the Loader Features screen.

The loader or feature must be correctly installed and wired before it can be enabled.



LOADER FEATURES:	
Loader Fill Alarm	Activates a No Material Alarm if the loader does not fill before the load time is reached. Requires an optional fill sensor in the receiver.
Hopper Fill Alarm	Activates a No Material Alarm if the receiver or hopper is not filled by the loader within the number of tries set by the user. Requires a demand sensor in the vessel.
Air Discharge Valve	Controls an air-activated discharge on the loader. Requires an optional positive discharge.
Ratio Valve	Controls loading of more than one material into one vacuum receiver. Requires an optional ratio valve at the material inlet of the receiver.
Purge Valve*	Purges material from the conveying line at the end of a loading cycle. Requires an optional purge valve on the material line.
Pocket Conveying Valve*	Releases material from the source into the conveying line. Requires installing the valve at the base of the drying hopper or other vessel.
Proofing	Indicates that a material line is connected to the correct material source. Requires material line couplings equipped with electrical plugs.
* NOTE: You can enable either a purge or a pocket conveying valve, but not both for the same loader.	

TIP: Touch the "Help" key on any screen to find instructions and definitions about the functions available on that screen.

Continued on next page.

CONFIGURING LOADERS

To enable conveying features, you must open the Loader Features screen. You must enter the Level 3 access code to complete this procedure. See **SETTING SECURITY LEVELS** at the end of the installation section.

1 Touch “Setup” on the Home Screen.

◆ The Security Screen is displayed

2 Enter the Level 3 access code.

Touch “Key Pad” to open the keypad. Enter the numbers for Level 3 access and then touch “Enter”.

◆ The Security Screen displays four choices.

3 Touch “Loader Features Screen.”

◆ The Loader Features for Loader 1 is displayed.

4 Touch “Enable” for each feature installed on that loading station.

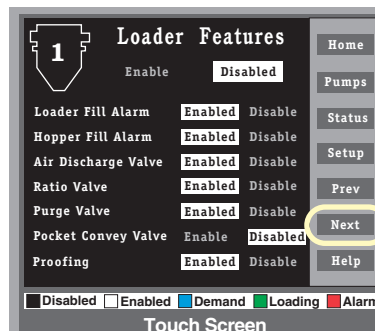
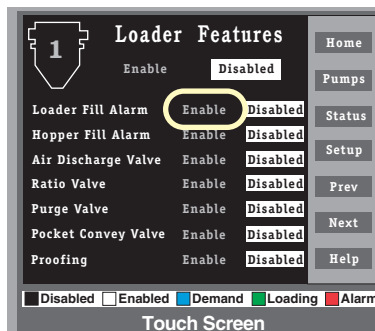
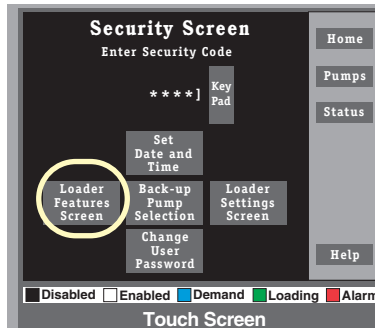
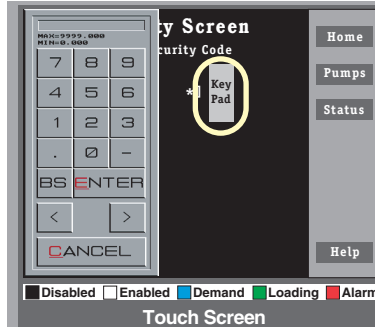
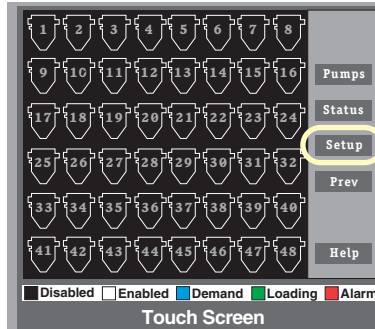
You also can enable the loader, but you should leave the loader disabled (off) until you have assigned it to a pump system.

◆ The feature is on when “Enabled” is highlighted.

5 Touch “Next” to access features for the next loader in the system.

6 Repeat the procedure for each loader.

Proceed to **ENTERING PUMP AND LOADER SETTINGS.**

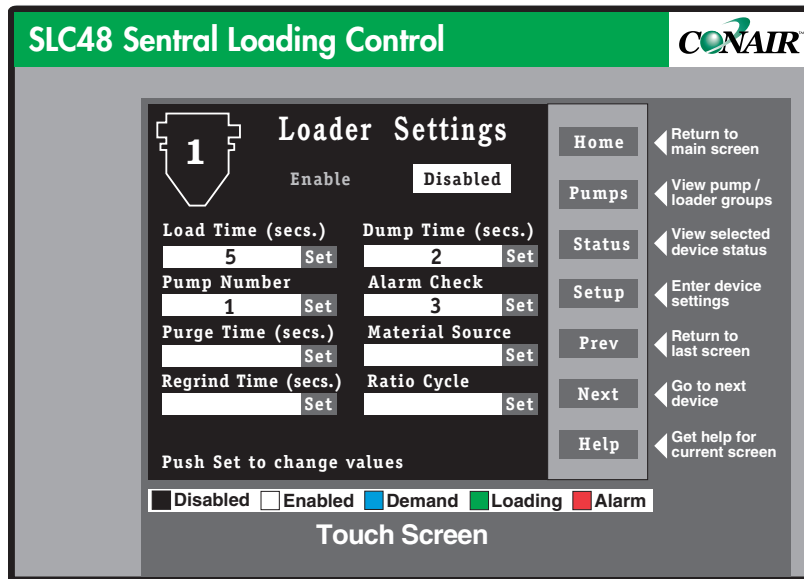


IMPORTANT: Verify installation of vacuum receivers, valves and options before enabling them in the SLC48.

Loader positions are installed in the SLC48 in banks of 16 — Loaders 1 to 16, 17 to 32 and 33 to 48. This allows easier expansion of the system. But it also means the control may display a Loader Features screen for a loader position where no vacuum receiver exists. (Example: Loader 36 in a 35-loader system.)

ENTERING PUMP AND LOADER SETTINGS

You assign loaders to pump systems, enable loaders, set load times, and enter other loading parameters on the Loader Settings screen.



Below are the loader functions that can appear on the screen.

LOADER SETTINGS:	
Load Time	The number of seconds (1-300) that the receiver loads material.
Dump Time	The number of seconds (1-300) that the receiver will discharge material into a vessel before the next load cycle begins.
Pump Number	Assigns the loader to a pump system (1-8).
Alarm Check	The number of times (0-20) that the SLC48 will try to load a receiver before sounding an alarm when demand has not been satisfied.
Purge Time*	The number of seconds (0-300) that vacuum continues to pull material through the line after a purge or pocket conveying valve closes to the material source. This clears the line of material.
Material Source*	The number (1-32) that identifies a material source equipped with a pocket conveying valve. This setting also is used for material line proofing.
Regrind Time*	The number of seconds (1-300) that regrind or a second material should be loaded with virgin material when a ratio valve is used.
Ratio Cycle*	The number of times (1-3) that a ratio valve switches between virgin and regrind during the load cycle to produce layers of material.
* NOTE: These settings will be displayed only if the corresponding feature has been installed and enabled for the specific loader.	

NOTE: Loaders may be assigned to any pump in the conveying system. Each pump system can handle up to 24 loaders.

The SLC48 initially assigns loaders sequentially, in groups of six loaders to one pump. (Example: Loaders 1-6 to Pump 1, Loaders 7-12 to Pump 2, etc.)

Continued on next page.

NOTE: Optimum settings vary according to equipment and application. Refer to the manuals for each component of your conveying system for information about the best settings for your application.

ENTERING PUMP AND LOADER SETTINGS

To get to the Loader Settings screen and enter the settings:

1 Touch “Setup” to open the Security Screen.

2 Enter the Level 3 access code.

Touch “Key Pad” to open the keypad. Enter the numbers for Level 3 access and then touch “Enter”.

◆ The Security Screen displays four choices.

3 Touch “Loader Settings Screen.”

◆ The settings screen for Loader 1 is displayed.

4 Enter the settings.

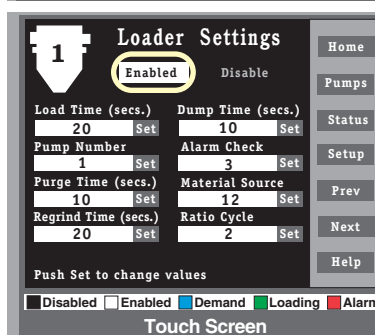
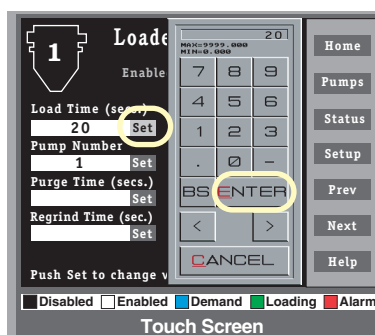
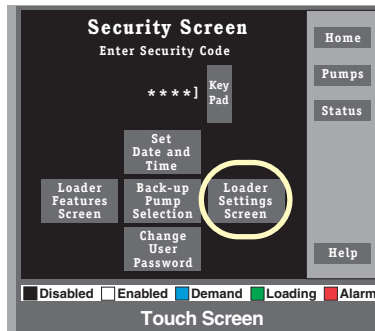
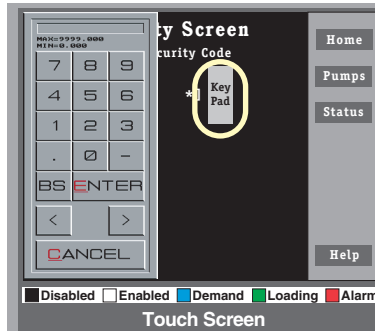
Touch the “Set” key for each loader function you want to set or change. A keypad opens on the screen. Touch the number keys corresponding to the setting, then touch “Enter” on the keypad.

5 Enable the loader.

Touch “enable” to make the loader available to vacuum conveying.

6 Repeat the procedure for all loaders.

Touch “Next” or “Prev” to scroll to the Loader Settings Screen for each loader.



TIP: The overall vacuum-on time (cycle time) for a loader equals the Load Time unless a purge or pocket conveying valve is used. With purge and pocket conveying options, the cycle time equals Load Time + Purge Time.

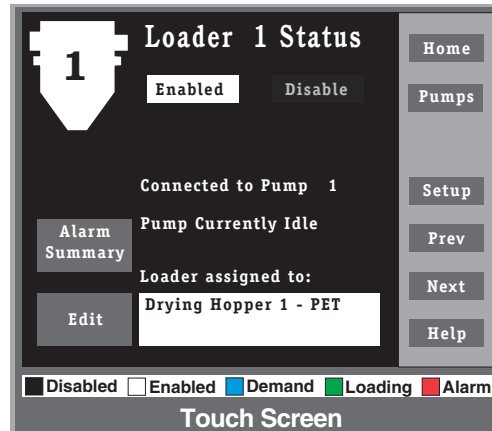
Proceed to **IDENTIFYING LOADERS**.

IDENTIFYING LOADERS

The SLC48 identifies each loader in the system by a number.

On the Loader Status screen you can add more information to help identify the loader.

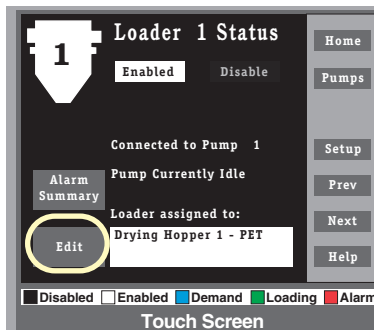
You may want to add text that describes the material source, the destination or the materials being loaded.



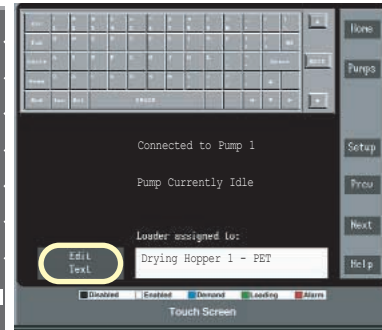
1 Touch “Status” to go to the Loader Status screen. This screen does not require a security code for access.

2 Touch “Edit,” then the white text block.

This will activate the keyboard. On 6-inch screen models, you must use an external keyboard to enter the text. The 10-inch screen models display an on-screen keyboard.



6-inch touchscreen



10-inch touchscreen

3 Enter the text using the keyboard.

When you have finished entering text, press the “Enter” key on the keyboard.

4 Save the text.

If you are using an external keyboard, touch the “Send Text” key on the touchscreen. If you are using the on-screen keyboard, touch “Save Text.”

5 Repeat the procedure for each loader.

Touch “Next” to go to the next loader in the system or “Prev” to go to the previous loader.

Proceed to [SETTING THE DATE AND TIME](#).

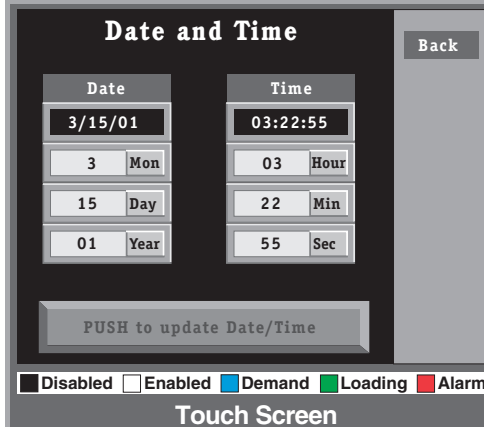
TIP: Touch the “Help” key on any screen to find instructions and definitions about the functions available on that screen.

SETTING THE DATE AND TIME

You can set the date and time that the control uses to record alarm histories.

The SLC48 will automatically update the time for Daylight Savings Time.

To set or change the date and time:



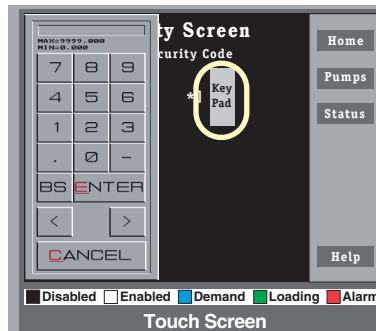
1 Touch “Setup” from any screen.

- ◆ The Security Screen is displayed

2 Enter the Level 3 access code.

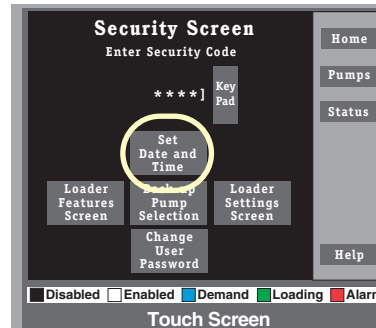
Touch “Key Pad” to open the keypad. Enter the numbers for Level 3 access and then touch “Enter”.

- ◆ The Security Screen displays four choices.



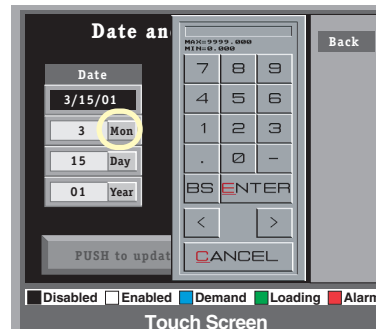
3 Touch “Set Date and Time.”

- ◆ The Date and Time screen is displayed.



4 Enter the date and the time.

Touch the button next to the field you want to change (Example: “Mon” for Month). On the keypad, touch the numbers corresponding to the date or time, then press “Enter” to close the keypad.



Repeat this process for all fields, then touch “PUSH to Update Date/Time” to save the changes.

5 Touch “Back” to return to the Security Screen.

Proceed to **RECORDING THE SOFTWARE VERSION.**

IMPORTANT: For changes to take effect, you must enter a setting in every field — even fields that do not require a change — before you touch “PUSH to Update Date/Time.”

Time and Date must be set at the touchscreen interface on the Input/Output enclosure. It cannot be set at a remote touchscreen.

Enter time as 24-hour time in Hours/Minutes/Seconds. (Example: 14:30:00 for 2:30 PM)

Enter dates as numbers representing Month/Day/Year.

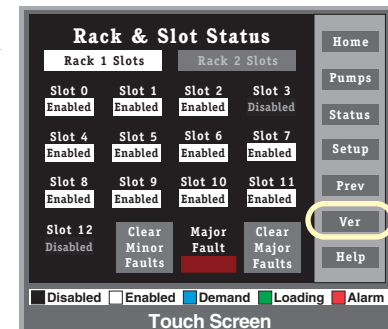
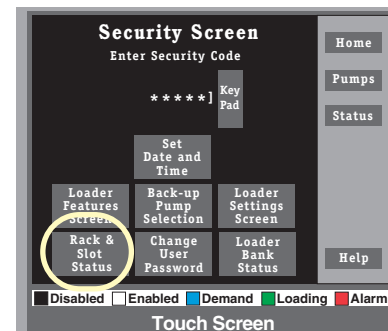
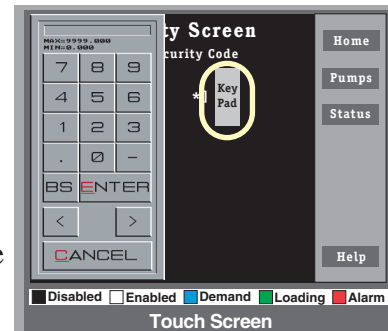
Touch < or > to move the keypad to the left or right of the screen.

RECORDING THE SOFTWARE VERSION

Before starting operation, you should record the version of the SLC48 software in the front of this manual. The Conair service department will need this information, along with the serial number, to provide help for the specific equipment you installed.

To determine the software version number:

- 1** Touch “Setup” to display the Security Screen.
- 2** Enter the Level 4 security code.
Touch “Key Pad” to open the keypad. Enter the numbers for Level 4 access and then touch “Enter”. (See [SETTING SECURITY LEVELS](#))
- 3** Touch “Rack & Slot Status.”
This opens the Rack & Slot Status screen.
- 4** Touch the “Ver” key.
This will open a screen that displays the software version number and access to the powerstation shell.
- 5** Record the software version number.
In this example, the version number is P108_01.
- 6** Touch “Setup” to return to the Security Screen.

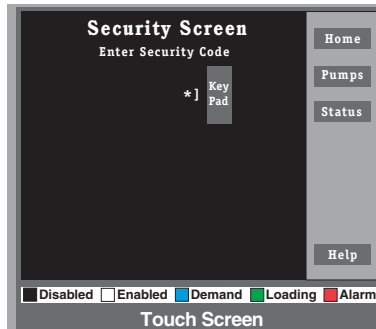


Proceed to [SETTING SECURITY LEVELS](#).

The SLC48 provides four levels of security to prevent unauthorized changes to loader or system settings. You should set the most appropriate level for your operating procedures.

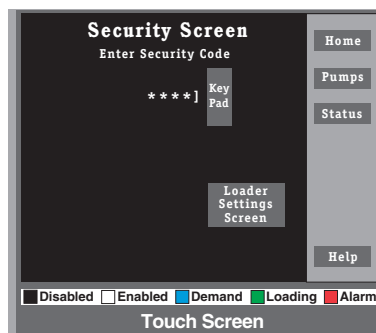
SETTING SECURITY LEVELS

- **Level 1 Access (no security code required)**
This is the most restrictive level, allowing no changes to loader or system settings. The operator can view the status of loaders and pump systems; acknowledge an alarm; or disable or enable a loader.

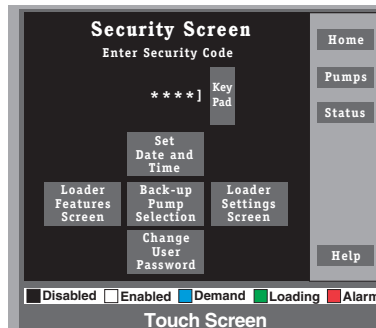


TIP: To control access to the SLC48 security level codes, you may want to remove pages 3-19 and 3-20 from this manual and store them in a safe place.

- **Level 2 Access (user-selectable code)**
The operator has access to Loader Settings, in addition to Level 1 monitoring screens. The Level 2 operator cannot assign the loader to a pump, but can change load time, dump time, alarm check and settings for optional loader functions. The default code of 0000. See [CHANGING THE LEVEL 2 PASSWORD](#).

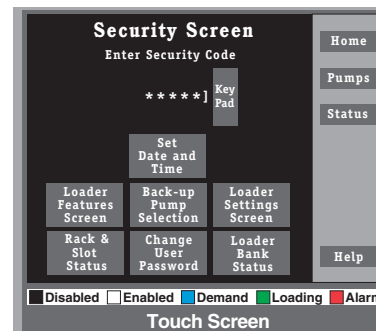


- **Level 3 Access (factory-set code 7373)**
This is a supervisory level. The Level 3 user can change the Level 2 security code, as well as set system time and date; assign loaders to pumps; assign the backup pump; and configure loader features.



IMPORTANT: The security level remains at whatever level was most recently used unless you enter the code for a different security level.

- **Level 4 Access (factory-set code 54647)**
This provides factory-level access to all functions and system parameters. It should be used only when expanding the original system or troubleshooting SLC processor error codes. For more information, see [APPENDIX B: INSTALLING SLOTS AND LOADERS](#).



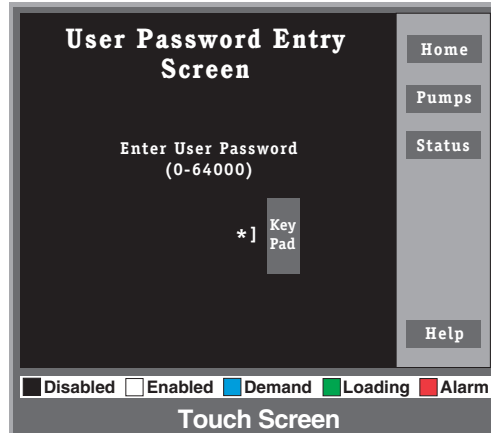
If you have made changes to system settings using a security code for Level 2, 3 or 4, make sure you return to the Security Screen and enter the code for the access level you want to use for operation.

CHANGING THE LEVEL 2 PASSWORD

Security codes for access Levels 3 and 4 are set at the factory and cannot be changed.

Users with Level 3 access can set or change the Level 2 security code, which is set by the factory at 0000.

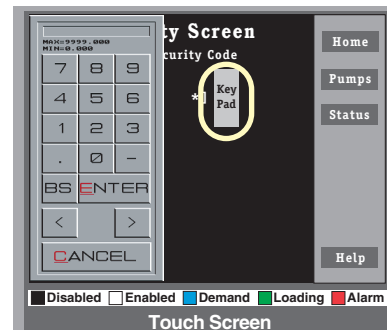
To set or change the Level 2 security code:



1 Touch “Setup” to display the Security Screen.

2 Enter the Level 3 security code.

Touch “Key Pad” on the Security Screen to open a numeric keypad. Touch 7, 3, 7, 3, and then Enter.

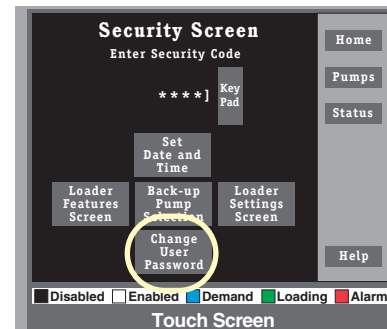


3 Touch “Change User Password.”

◆ The User Password Entry screen is displayed.

4 Enter a new code.

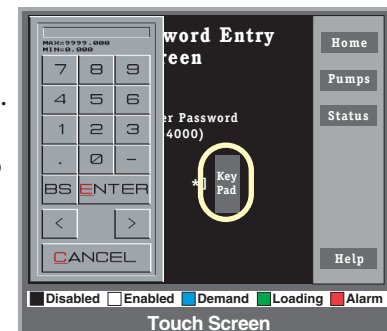
Touch “Key Pad” to open the numeric keypad. The new code can be any 1- to 5-digit number between 0 and 64000. Enter the new code on the keypad, then touch “Enter” to save the change and close the keypad.



5 Touch “Prev” to return to the Security Screen.

6 Set the appropriate security level.

Touch “Key Pad” to open the keypad. Enter the security code for the access level you want your operators to use.



IMPORTANT: The security level remains at whatever level was most recently used unless you enter the code for a different security level.

If you have made changes to system settings using a security code for Level 2, 3 or 4, make sure you return to the Security Screen and enter the code for the access level you want to use for operation.

You may want to record the new Level 2 security code on the security pages of this manual.

OPERATION

- *SLC48 control features4-2*
- *Operating the conveying system .4-4*
- *Enabling and disabling loaders . . .4-5*
- *Changing loader settings4-6*
- *Assigning a backup pump4-8*

SLC48 CONTROL FEATURES

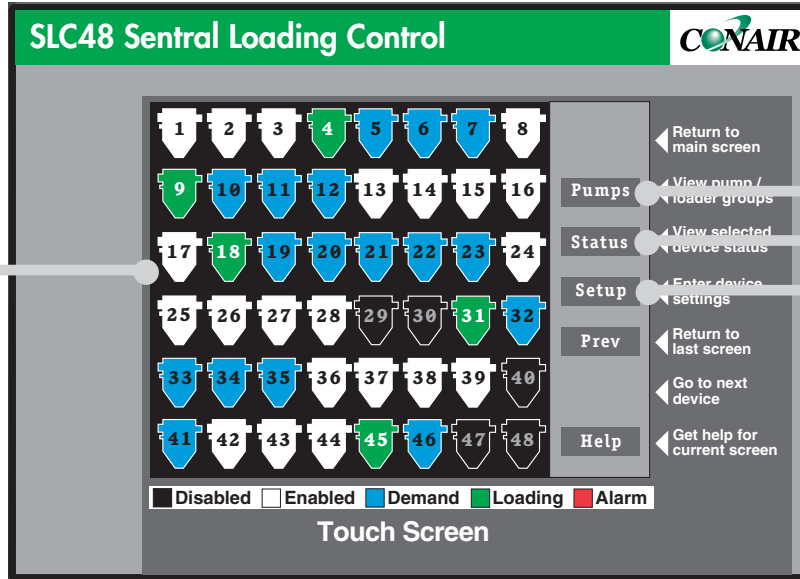
The SLC48 operator interface allows you to view the status of every vacuum receiver in your conveying system at a glance. It also provides touchscreen access to additional screens used to monitor pump groups, enter settings for each loading station, view alarms and change system parameters.

Home Screen

Color-coded loader icons display the status of each vacuum receiver in the system. Colors change as the operating status of the receivers change:

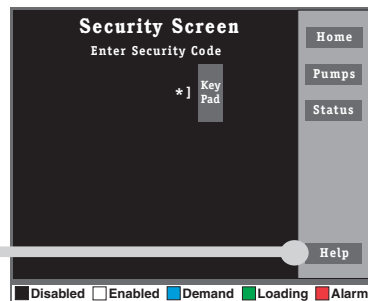
- Black = Loader disabled
- White = Loader enabled
- Blue = Loader demanding material
- Green = Loader loading
- Red = Loader alarm

Touch an icon to view additional details about the status of a specific loader.



Help

Touch HELP to view instructions about that specific screen.

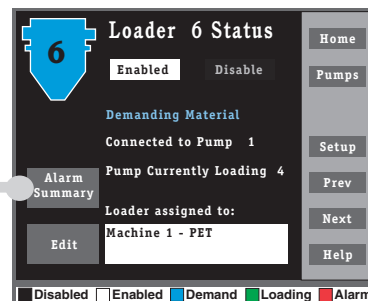


Security Screen

Touching SETUP displays the security screen. To prevent accidental or unauthorized changes to system settings, security codes are required to access any screen that allow changes to loader settings or system parameters.

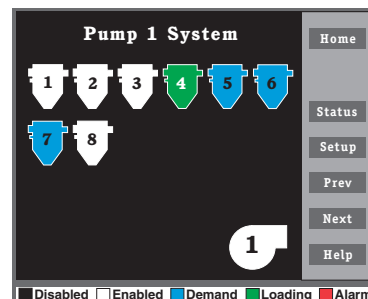
Alarm Summary

Touch to acknowledge an alarm or view a summary of alarms.



Loader Status Screens

Touch STATUS or a specific loader icon to view details about a vacuum receiver and the assigned pump. You can enable or disable the loader or view a summary of alarms. Touch NEXT or PREV to scroll through all loaders in the system



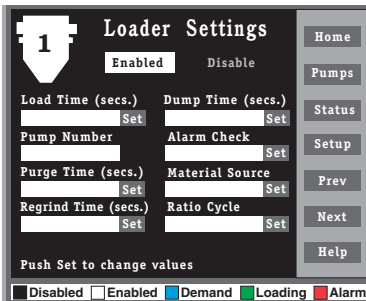
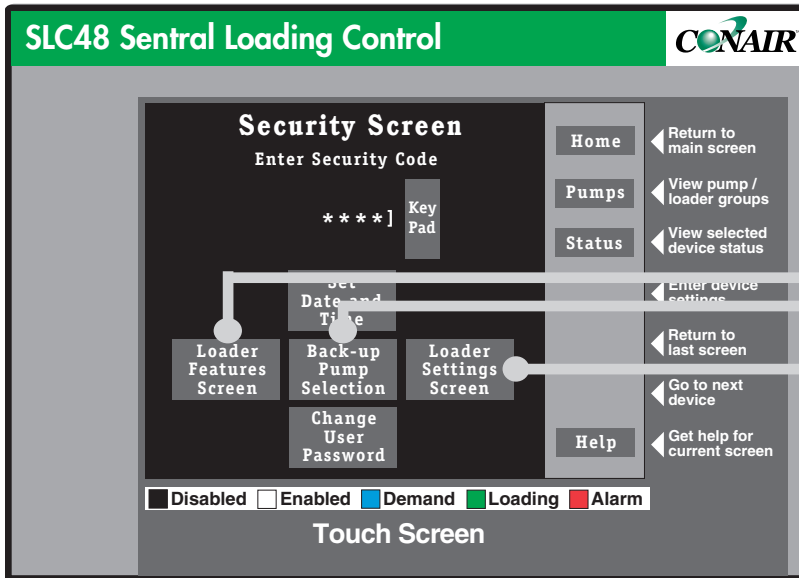
Pump System Screens

Touch PUMPS to view the status of all vacuum receivers assigned to a specific pump system.

Touch NEXT or PREV to scroll through all pump groups.

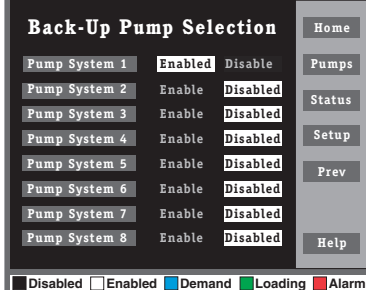
SLC48 CONTROL FEATURES

Security codes are required to access any screens that allow changes to loader, pump or conveying system settings. Touch SETUP on any screen to reach the Security Screen, where the security code can be entered using the on-screen keypad.



Loader Settings

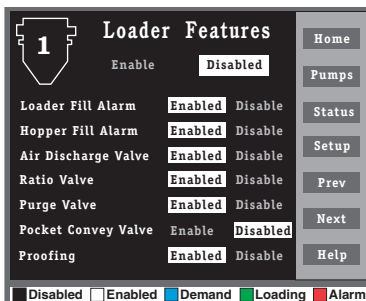
(Requires Level 2 Security Code)
For each loader, enter the load time, discharge time, and the number of times the loader will try to load before activating an alarm. Enter settings for any options, such as ratio or purge valves, that are installed.



Back-Up Pump Selection

(Requires Level 3 Security Code)
You can assign a backup pump to any pump system by enabling the pump next to the appropriate system number.

Touch HOME, PUMPS, STATUS or SETUP to view those screens.



Loader Features

(Requires Level 3 Security Code)
You can enable or disable features for each loader.

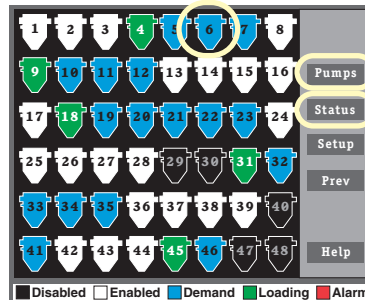
Touch NEXT or PREV to scroll through all loaders.

NOTE: Enabling a feature that is not installed will stop the control.

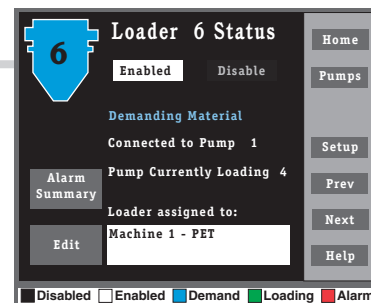
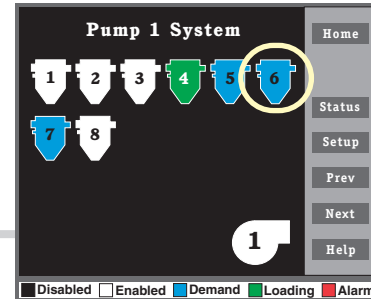
OPERATING THE CONVEYING SYSTEM

Once power has been applied to the system, the SLC48 automatically operates vacuum pumps, loaders and material valves according to the conveying functions and loader settings that were entered during the initial setup.

You can monitor all aspects of the conveying system from the touchscreen panel on the Input/Output enclosure or from remote touchscreen panels.



The Home Screen displays the status of all loaders.



To view loaders in a specific pump system:

- 1 Touch “Pumps” to view the Pump System screen.
- 2 Touch “Next” or “Prev” to view each pump system.

To view details about a specific loader:

- 1 Touch “Status” or the loader icon to view Loader Status.
- 2 Touch “Next” or “Prev” to view each loader.

To acknowledge an alarm:

- 1 Touch the specific loader icon to view Loader Status.
- 2 Touch “Silence Alarm” to display the Alarm Summary screen. The cause of the alarm must be fixed before the pump or loading station will resume operation. See the **TRoubleshooting** section of this manual.

TIP: Touch the “Help” key on any screen to find instructions and definitions about the functions available on that screen.

Instructions on the following pages explain procedures you may need to perform during operation:

- Enable or disable a loader.
- Change loader settings, such as load and dump times.
- Assign a backup pump to one of the pump systems.

ENABLING AND DISABLING LOADERS



WARNING: Develop and follow procedures for safe operation of the system from central and remote control panels to avoid possible injury or equipment damage.

The SLC48 allows operators and maintenance personnel to disable and enable conveying system components from remote locations. Unexpected energization of these components could result in equipment damage or injury.

Safe operating procedures should include:

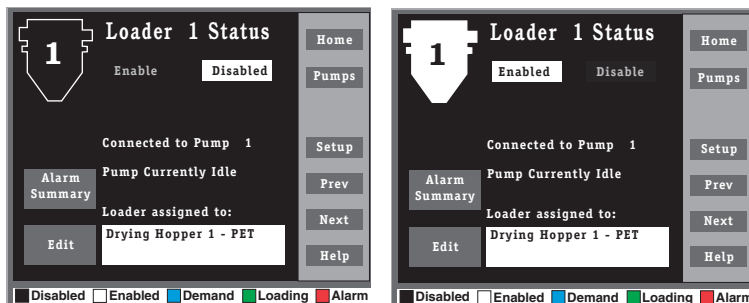
- Disconnect any loader, pump or material valve from main power and/or compressed air sources before servicing. Ensure that all energy sources for the device are locked out and tagged.
- Before removing lockout devices or enabling pumps, loaders or material valves, make sure that all personnel are clear of the machine, tools have been removed and any safety guards have been reinstalled.

During operation, you may need to disable a loader for maintenance or enable a loader that was taken out of service.

You can disable or enable a loader from the Loader Status screen:

1 Touch the loader icon or “Status” on any screen.

Touch “Prev” or “Next” to view loaders in the system.

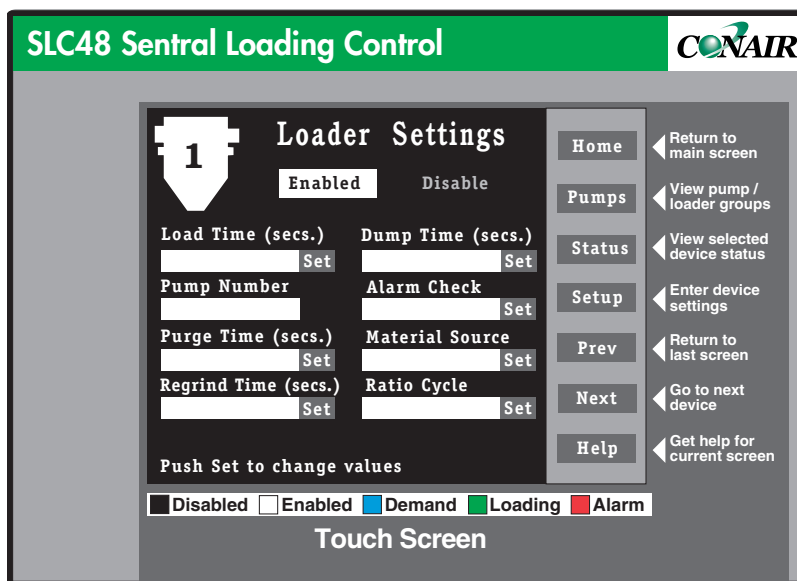


2 Touch “Disable” to disable the loader. OR Touch “Enable” to enable the loader.

The loader icon changes to black when the loader is disabled. When the loader is enabled the icon color, will change to the color indicating the loader’s operating status.

CHANGING LOADER SETTINGS

You may need to change loader settings whenever you change materials or to obtain the best conveying performance.



You must enter a security code to access the Loader Settings screen and change the following settings.

LOADER SETTINGS:	
Load Time	The number of seconds (1-300) that the receiver loads material.
Dump Time	The number of seconds (1-300) that the receiver will discharge material into a vessel before the next load cycle begins.
Pump Number	Assigns the loader to a pump system (1-8).
Alarm Check	The number of times (0-20) that the SLC48 will try to load a receiver before sounding an alarm when demand has not been satisfied.
Purge Time*	The number of seconds (0-300) that vacuum continues to pull material through the line after a purge or pocket conveying valve closes to the material source. This clears the line of material.
Material Source*	The number (1-32) that identifies a material source equipped with a pocket conveying valve. This setting also is used for material line proofing.
Regrind Time*	The number of seconds (1-300) that regrind or a second material should be loaded with virgin material when a ratio valve is used.
Ratio Cycle*	The number of times (1-3) that a ratio valve switches between virgin and regrind during the load cycle to produce layers of material.
* NOTE: These settings will be displayed only if the corresponding feature has been installed and enabled for the specific loader.	

TIP: Touch the “Help” key on any screen to find instructions and definitions about the functions available on that screen.

Continued on next page.

ENTERING LOADER SETTINGS

NOTE: Optimum settings vary according to application. Refer to the manuals for each component of your conveying system for information about the best settings to use for your application.

To get to the Loader Settings Screen and enter new settings:

1 Touch “Setup” to go to the Security Screen.

2 Enter the Level 2 security code.

Touch “Key Pad” on the Security Screen to open a numeric keypad. Touch the numbers corresponding to the code for Level 2 access, then touch “Enter”.

3 Touch “Loader Settings Screen.”

◆ The settings screen for Loader 1 is displayed.

4 Touch the “Set” key next to the setting you want to change.

◆ The keypad is displayed.

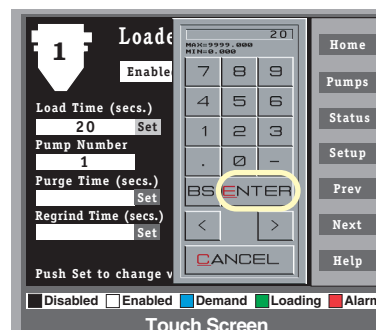
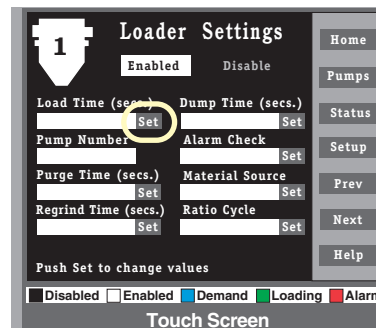
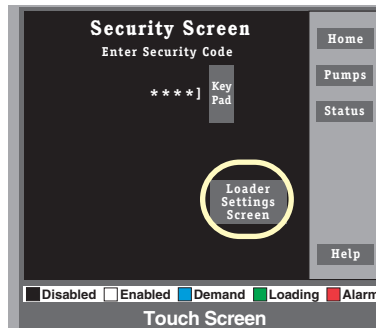
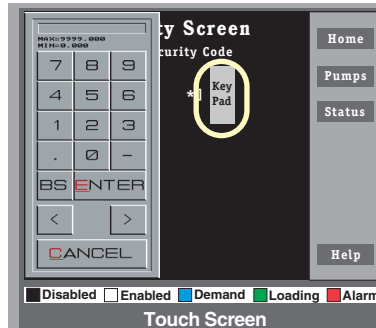
5 Enter the new setting on the keypad and touch “Enter.”

6 Repeat the procedure for each setting and loader you want to change.

Touch “Next” or “Prev” to scroll to the Loader Settings screen for other loaders.

6 Set the correct security level for operators.

If necessary, return to the Security Screen and enter the password for Level 1 access.



ASSIGNING A BACKUP PUMP

A backup pump can be assigned to replace any of the eight pump systems during operation.

To assign a backup pump:

1 Touch “Setup” to go to the Security Screen.

2 Enter the Level 3 security code.

Touch “Key Pad” on the Security Screen to open a numeric keypad. Touch the numbers corresponding to the code for Level 3 access, then touch “Enter”.

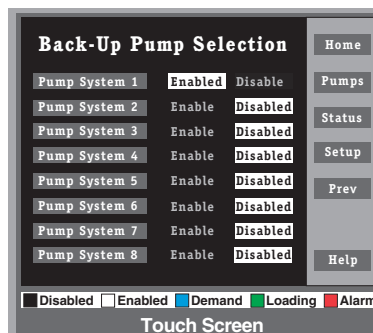
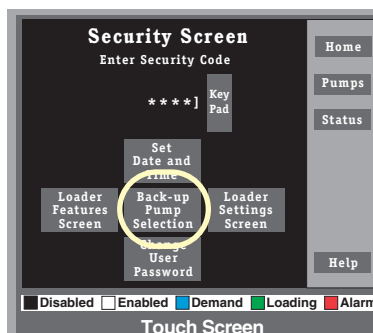
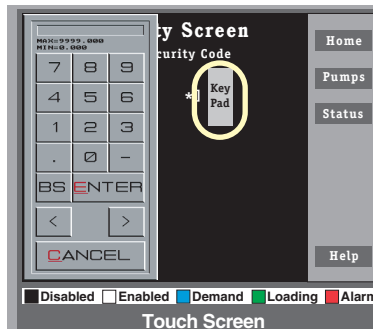
3 Touch “Back-up Pump Selection.”

◆ The Back-Up Pump Selection screen is displayed.

4 Touch “Enabled” next to the pump system that will have the backup pump.

5 Set the correct security level for operators.

If necessary, touch “Setup” and return to the Security Screen. Enter the password for the operator access level (Level 1 or Level 2) that you assigned during initial setup.



MAINTENANCE

- *Maintenance checklist5-2*
- *Recalibrating the touchscreen .5-3*

PREVENTIVE MAINTENANCE CHECKLIST

You should develop a preventive maintenance schedule for all components in the conveying system to ensure optimum operation and performance.

The SLC48 may require the following maintenance checks:

- **Whenever you change materials**

- Verify the loader settings** for pump systems or loaders effected by the material change. Pay particular attention to load times, dump times and material source identification if you have pocket conveying valves and material line proofing. See ***CHANGING LOADER SETTINGS*** in the Operation section.

- **Quarterly**

- Check power and cable connections and wires.** Over time, the power and cable connections between the SLC48 and conveying system components may become loose or wires may become worn. Tighten any loose connections and replace any wire or cable that has become worn or damaged.

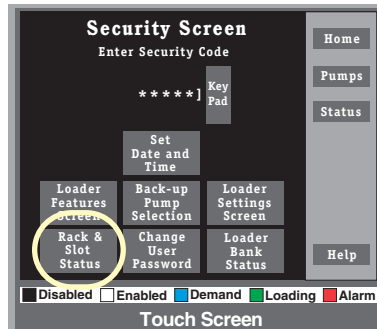
- **After loading new software, or as needed**

- Recalibrate the touchscreen.** If the operator panel becomes unresponsive to a touch on the screen, you may need to recalibrate the touchscreen. This could happen after reloading or updating the SLC48 software. See ***RECALIBRATING A TOUCHSCREEN***.

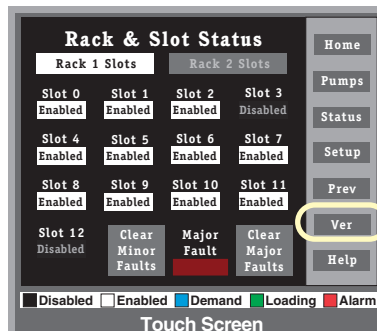
RECALIBRATING A TOUCHSCREEN

If the operator panel becomes unresponsive to a touch on the screen, you may need to recalibrate the touchscreen. Before beginning, make sure that a standard PS/2 keyboard has been connected to the control. See [CONNECTING A KEYBOARD](#) in the Installation section.

- 1 Touch “Setup” and enter the Level 4 security code.**
Touch “Key Pad” on the Security Screen to open a numeric keypad. Touch the numbers corresponding to the code for Level 4 access, then touch “Enter”.



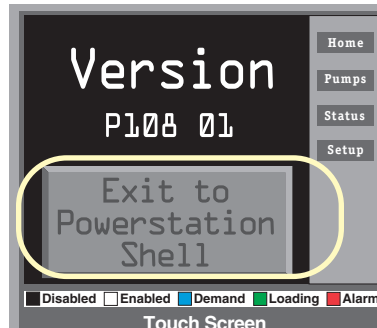
- 2 Touch “Rack & Slot Status.”**



- 3 Touch “Ver” on the Rack & Slot Status screen.**

- 4 Touch “Exit to Powerstation Shell.”**

The SLC48 will reboot into the CTC powerstation shell. You will see several labeled touch keys on the left-hand side of the screen.



- 5 Touch “Settings,” and then “Pwrsta.”**

This brings you to a screen displaying a key labeled “Calibrate Touchscreen.”

- 6 Touch “Calibrate Touchscreen” and carefully follow the on-screen instructions.** You will use the keyboard to complete the procedures.

- 7 Touch “Back” after the calibration routine is complete.** This returns you to the powerstation shell.

- 8 Touch “Run” and then “Interact.”** This will restart the SLC48 program. Wait until the SLC48 finishes initializing before continuing operation.

TROUBLESHOOTING

- *Before beginning*6-2
- *A few words of caution*6-2
- *Identifying the cause of a problem*6-3
- *Clearing conveying alarms*6-4
- *Clearing CPU and I/O alarms* . . .6-5

Diagnostics

- *Conveying system alarms*6-6
- *Power and processor problems*.6-8
- *CPU faults*6-10
- *I/O errors*6-12

BEFORE BEGINNING

Before you begin troubleshooting:

- ❑ **Find the manuals and wiring diagrams that were shipped with your equipment.**

These materials contain details you will need to diagnose and repair problems in specific components, including custom wiring, features or I/O options not covered in this User Guide.

A FEW WORDS OF CAUTION



WARNING: Improper installation, operation or servicing may result in equipment damage or personal injury.

The SLC48 should be installed, adjusted, and serviced only by qualified technical personnel who are trained in the operation and troubleshooting of this type of equipment.



DANGER: Electrical shock hazard

Diagnosing the cause of electrical system and CPU problems in this equipment may require the use of precision electronic measuring equipment, as well as access to the electrical enclosure while power is on. Only qualified electrical technicians, trained in the use of this equipment and in avoiding exposure to voltage hazards, should perform procedures that require access to the enclosure while power is on.



WARNING: Develop and follow procedures for safe operation and maintenance of the system.

The SLC48 allows operators and maintenance personnel to disable and enable conveying system components from remote locations. Unexpected energization of these components could result in equipment damage or injury.

Safe maintenance procedures should include:

- ❑ Disconnect any loader, pump or material valve from main power and/or compressed air sources before servicing. Ensure that all energy sources for the device are locked out and tagged.
- ❑ Before removing lockout devices and enabling system components, verify that all personnel are clear of the machine, tools have been removed, and any safety guards have been reinstalled.

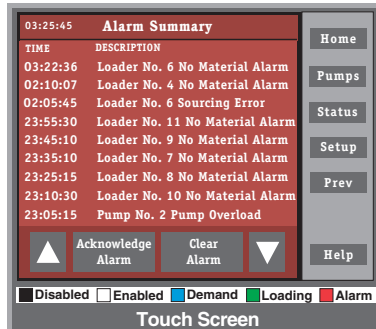
IDENTIFYING THE CAUSE OF A PROBLEM

The TROUBLESHOOTING section explains how to clear an alarm, and provides diagnostic tables to help you determine the cause of the alarm.

Diagnostic tables have been divided into:

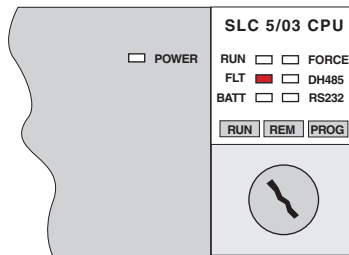
❑ Conveying System Alarms.

These tables focus on the “No Material” and “Pump Overload” alarms that the SLC48 displays on the Alarm Summary screen. The SLC48 continues to control the system, but the alarming loading station will not load until the alarm is acknowledge and the cause of the problem is fixed.



❑ Power and Processor Problems.

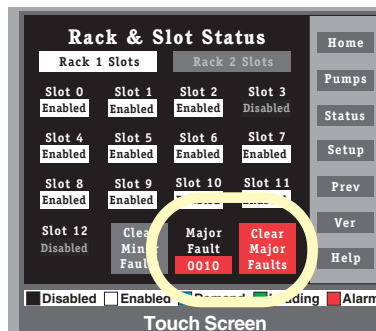
These tables focus on power supply, processor or rack problems indicated by LEDs located on the power supply and SLC 5/03 processor module (Slot 0) located inside the I/O enclosure. These problems cause the SLC48 control to stop.



❑ CPU Faults.

These tables focus on Hex error codes that apply to the SLC 5/03 processor module (Slot 0) and are displayed as faults on the Rack & Slot screen.

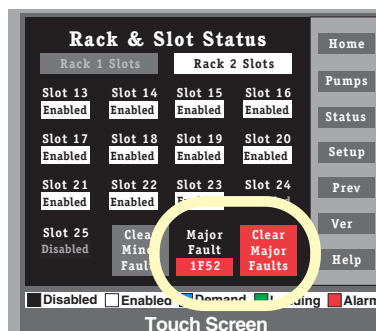
These problems cause the SLC48 control to stop.



❑ Input/Output Errors.

These tables focus on Hex error codes that apply to Input/Output modules (Slots 1-25) and are displayed as faults on the Rack & Slot screen. The first two digits of the code refer to the Slot number that caused the error. If the Slot cannot be determined, the first two digits are 1F

These problems cause the SLC48 control to stop.



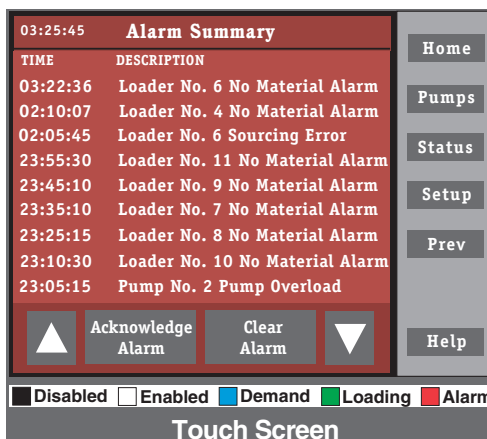
IMPORTANT: Refer to the manuals supplied by the manufacturers of loaders, pumps and material valves in your system for additional diagnostic and repair information.

Contact Conair service if you need additional details on the SLC 5/03 processor or Rack & Slot components.

CLEARING CONVEYING ALARMS

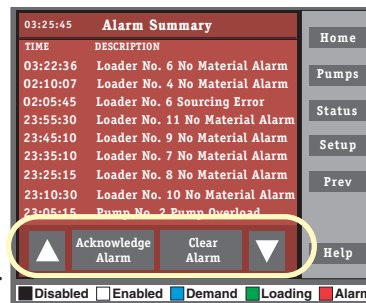
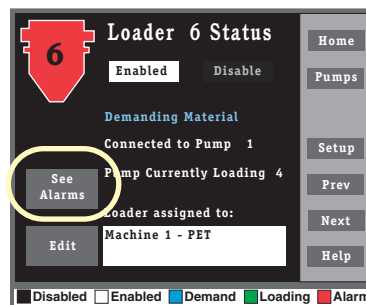
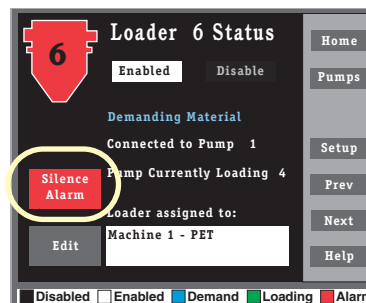
When a conveying problem occurs, the icon for the affected loader or pump will begin flashing red and the control will turn on the audible alarm.

The SCL48 reports the time and type of the alarm on the Alarm Summary screen. Up to 100 No Material, Pump Overload and Sourcing Error alarms can be stored in the alarm history. To scroll through the history, touch the up or down arrows.



To silence the alarm and fix the problem:

- 1 Touch “Status” or the loader icon.**
This will display the Loader Status screen.
- 2 Touch “Silence Alarm.”**
When the audible alarm is not active, the control displays the “See Alarms” button.
- 3 Touch “See Alarms” to see the Alarm Summary.**
Note the type and time of the alarm. Touch the up and down arrows to scroll through the alarm history and view other alarms that may have involved this device.
- 4 To resume operation, touch “Acknowledge Alarm” and fix the problem.**
Refer to the diagnostic tables in this section to help determine the cause of the problem. To repair a problem, refer to troubleshooting and repair information contained in manuals supplied with the alarming device.

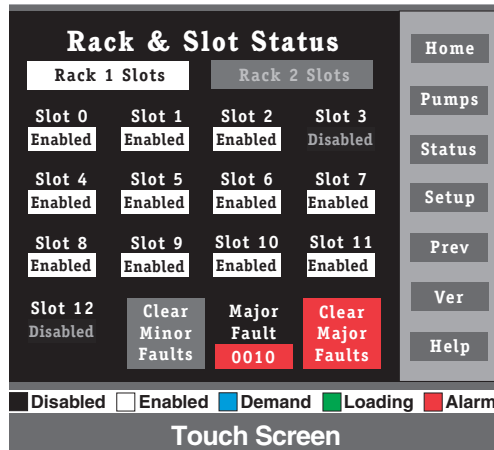


NOTE: To remove all alarms from the Alarm Summary history, touch “Clear Alarms.” Alarms are removed from the alarm history only after the alarm has been acknowledged and the alarm condition is no longer present. The “Acknowledge” and “Clear” alarm buttons are displayed only to users with access to Security Levels 2, 3 or 4.

CLEARING CPU AND I/O ALARMS

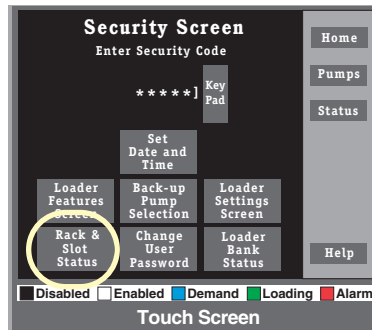
CPU and Input/Output alarms will stop the SLC48 control.

These alarms may be caused by problems with the power supply, processor, power racks or Input/Output modules. The alarm will be indicated by error codes on the Rack & Slot Status screen or by LEDs on the SLC 5/03 CPU and power supply modules.



To clear and fix a CPU or I/O error:

- 1 Touch “Setup” to display the security screen.
- 2 Enter the Level 4 security code.
- 3 Touch “Rack & Slot Status” to display the Rack & Slot screen.



- 4 Look for the error code under Major Fault.

Review screens for both Rack 1 and Rack 2 slots by touching the appropriate keys on the screen. Note the error code. Refer to the error code table below to identify the affected slot, then see the diagnostic tables in this section.

The error code is reported in hexadecimal format, with the first two digits identifying a specific I/O module slot. If the digits are 1F, an exact slot cannot be determined.

SLOTS AND HEX CODE EQUIVALENTS (xx represents first two digits of the error code)									
Slot	xx	Slot	xx	Slot	xx	Slot	xx	Slot	xx
0	00	7	07	14	0E	21	15	28	1C
1	01	8	08	15	0F	22	16	29	1D
2	02	9	09	16	10	23	17	30	1E
3	03	10	0A	17	11	24	18		
4	04	11	0B	18	12	25	19		
5	05	12	0C	19	13	26	1A		
6	06	13	0D	20	14	27	1B		

- 5 Fix the problem, then touch “Clear Major Fault” or “Clear Minor Fault.”

CONVEYING SYSTEM ALARMS

- The No Material Alarm can be triggered in two ways:
- The Alarm Check signaled an alarm after the operator-set number of consecutive loading attempts failed to satisfy the receiver's demand for material.
 - The optional fill sensor in the receiver or hopper was not satisfied after one loading cycle.

Alarm	Possible cause	Solution
No Material Alarm	Is there material at the source?	<ul style="list-style-type: none"> <input type="checkbox"/> Verify that there is enough material at the source, including regrind sources if a ratio valve is used. <input type="checkbox"/> Verify that the material line is connected to the correct source of material.
	Are the Loader Settings correct?	<p>If the parameters set on the Loader Settings screen are incorrect, material demand may not be satisfied.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Verify that the Load Time, or Load Time plus Purge Time, is sufficient to fill the receiver. Adjust as needed. <input type="checkbox"/> Verify that the Alarm Check allows a sufficient number of loading cycles to fill the receiver. Adjust as needed. <input type="checkbox"/> Verify that the Material Source is correctly identified when using pocket conveying or material proofing. <input type="checkbox"/> Verify that the loader is assigned to the correct pump system.
	Is there a leak in the vacuum system?	<p>If there are leaks in the system, the pump cannot pull a good vacuum and the receiver may have no or little material flowing into it. Check the vacuum pump gauge. If the reading is low, check all hoses, gaskets, receiver lids, and valves for signs of damage or wear. Replace as needed.</p>

CONVEYING SYSTEM ALARMS

The No Material Alarm can be triggered in two ways:

- The Alarm Check signaled an alarm after the operator-set number of consecutive loading attempts failed to satisfy the receiver's demand for material.
- The optional fill sensor in the receiver or hopper was not satisfied after one loading cycle.

Alarm	Possible cause	Solution
No Material Alarm (continued)	Is the vacuum pump working correctly?	Verify that the vacuum pump is on, connected to the SLC48 and working correctly. Refer to the pump manual.
	Is the fill/demand sensor or demand switch working properly?	<input type="checkbox"/> Verify that sensors and switches are connected correctly at the loader or hopper and at the control. <input type="checkbox"/> Verify that fill and demand sensors are set at the correct height and adjusted properly. Refer to manuals supplied with the fill or demand signaling device.
	Are compressed air lines connected correctly?	If a compressed air line is not connected to vacuum or material valves, the valves cannot open to allow the pump to draw material into the receiver. Verify that compressed air lines supplying the correct pressure have been connected to the vacuum sequencing valve, ratio valve, pocket conveying or purge valve.
Pump Overload	The vacuum pump overload has tripped.	This alarm will prevent the pump from being energized until the overload is corrected. Refer to the pump manual to correct the problem.
Sourcing Error	The system could not load material from the source identified in the Loader Settings screen.	Verify that the material line is connected to the correct source, or that the correct source has been identified in the Loader Settings screen.

PROCESSOR AND POWER PROBLEMS



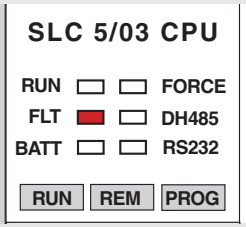
WARNING: Electrical shock hazard
 Diagnosing electrical and processor problems require access to the electrical enclosure while power is on. Only qualified electrical technicians, who are trained in how to avoid voltage hazards, should perform troubleshooting procedures that require access to the SLC48 Input/Output enclosure while power is on.

Fault	Possible cause	Solution
<div style="border: 1px solid black; padding: 5px; text-align: center;"> <input type="checkbox"/> POWER <i>Power LED will be off.</i> </div>	No line power or improper line power voltage selection.	<ul style="list-style-type: none"> <input type="checkbox"/> Verify power line voltage and connections on the power terminals. <input type="checkbox"/> Verify proper 120/240V power supply jumper selection.
Inadequate System Power	Power supply fuse blown.	<ul style="list-style-type: none"> <input type="checkbox"/> Check the incoming power fuse and verify that incoming power connections are correct. Replace fuse. <input type="checkbox"/> If fuse blows again, replace the power supply.
	Power supply overloaded.	<p>This problem can occur intermittently if the power supply is overloaded when output loading and temperature varies.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Disconnect power to the power supply. Remove several output modules from the rack. Wait five minutes. Reapply power. <input type="checkbox"/> If the condition recurs, recalculate the power required by the module configuration and verify proper power supply selection.
	Defective power supply.	<ul style="list-style-type: none"> <input type="checkbox"/> Recheck other probable causes. <input type="checkbox"/> Check power to the rack power supply for possible transient or shorting. <input type="checkbox"/> Replace the power supply.

**WARNING: Electrical shock hazard**

Diagnosing electrical and processor problems require access to the electrical enclosure while power is on. Only qualified electrical technicians, who are trained in how to avoid voltage hazards, should perform troubleshooting procedures that require access to the SLC48 Input/Output enclosure while power is on.

PROCESSOR AND POWER PROBLEMS

Fault	Possible cause	Solution
	Improper mode selected or user program logic error.	<ul style="list-style-type: none"> <input type="checkbox"/> Verify processor mode. <input type="checkbox"/> Try Run mode entry if control is in program/test mode. <input type="checkbox"/> Check user program logic for suspend instructions if control is in suspend mode.
Processor Not in Run Mode	Line power out of operating range.	<ul style="list-style-type: none"> <input type="checkbox"/> Check for proper 120/240V power supply jumper selection and incoming power connections. <input type="checkbox"/> Check for proper line voltage at the incoming power connections.
	Power supply and/or processor is seated improperly in the rack.	<ul style="list-style-type: none"> <input type="checkbox"/> Disconnect power and remove the power supply and processor from the rack. Check connections. <input type="checkbox"/> Reinstall the power supply and processor, then apply power. <p>IMPORTANT: <i>The processor only operates in Slot 0 of Rack 1.</i></p>
	Defective processor, power supply or rack.	<ul style="list-style-type: none"> <input type="checkbox"/> Try Run mode selections of processor in existing rack. <input type="checkbox"/> Place the processor in a test rack. Apply power, reconfigure and try Run mode selection. If unsuccessful, replace the processor. <input type="checkbox"/> Place the power supply in a test rack. If unsuccessful, replace power supply. If you can enter Run mode, replace the existing rack.

CPU FAULTS



WARNING: Electrical shock hazard

Diagnosing electrical and processor problems require access to the electrical enclosure while power is on. Only qualified electrical technicians, who are trained in how to avoid voltage hazards, should perform troubleshooting procedures that require access to the SLC48 Input/Output enclosure while power is on.

Error Code	Possible cause	Solution
0001 - NVRAM error	<ul style="list-style-type: none">● Noise● Lightning● Improper grounding● No surge suppression on inductive loads● Poor power source● Loss of battery or capacitor backup	The problem is detected during power up. See WIRING CONSIDERATIONS in the Installation section to correct the problem. Reload the program and enter Run mode. You can use the autoloader feature with a memory module to reload the program and enter Run mode automatically.
0002 - Unexpected hardware watchdog time-out	<ul style="list-style-type: none">● Noise● Lightning● Improper grounding● No surge suppression on inductive loads● Poor power source	The problem is detected during power up. See WIRING CONSIDERATIONS in the Installation section to correct the problem. Reload the program and enter Run mode. You can use the autoloader feature with a memory module to reload the program and enter Run mode automatically.
0003 - Memory module memory error	Memory in the memory module is corrupted.	Reprogram the memory module. If the error persists, replace the memory module.
0004 - Memory error occurred during the Run mode	<ul style="list-style-type: none">● Noise● Lightning● Improper grounding● No surge suppression on inductive loads● Poor power source	The problem is detected during power up. See WIRING CONSIDERATIONS in the Installation section to correct the problem. Reload the program and enter Run mode. You can use the autoloader feature with a memory module to reload the program and enter Run mode automatically.

CPU FAULTS



WARNING: Electrical shock hazard

Diagnosing electrical and processor problems require access to the electrical enclosure while power is on. Only qualified electrical technicians, who are trained in how to avoid voltage hazards, should perform troubleshooting procedures that require access to the SLC48 Input/Output enclosure while power is on.

Alarm	Possible cause	Solution
0010 - Processor does not meet required revision level	The program was developed for a processor with a revision level different than the revision of the installed processor.	The problem is detected as the SLC tries to enter Run mode. Contact Conair service.
0011 - Executable program file #2 is absent	Incompatible or corrupt program is present.	The problem is detected as the SLC tries to enter Run mode. Reload the program or reprogram with RS Logix 500 software.
0012 - The ladder program has a memory error	<ul style="list-style-type: none">● Noise● Lightning● Improper grounding● No surge suppression on inductive loads● Poor power source	The problem is detected as the SLC tries to enter Run mode. See WIRING CONSIDERATIONS in the Installation section to correct the problem. Reload the program and enter Run mode. You can use the auto-load feature with a memory module to reload the program and enter Run mode automatically.
0013 - Internal file error 0014 - Configuration file error	Both of these faults may be caused by: <ul style="list-style-type: none">● Noise● Lightning● Improper grounding● No surge suppression on inductive loads● Poor power source	The problem is detected as the SLC tries to enter Run mode. See WIRING CONSIDERATIONS in the Installation section to correct the problem. Reload the program and enter Run mode. You can use the auto-load feature with a memory module to reload the program and enter Run mode automatically.

CPU FAULTS



WARNING: Electrical shock hazard

Diagnosing electrical and processor problems require access to the electrical enclosure while power is on. Only qualified electrical technicians, who are trained in how to avoid voltage hazards, should perform troubleshooting procedures that require access to the SLC48 Input/Output enclosure while power is on.

Error Code	Possible cause	Solution
0020 - A minor error bit is set at the end of the scan.	<ul style="list-style-type: none">● A math or FRD instruction overflow has occurred.● Sequencer or shift register instruction error was detected.● A major error was detected while executing a user fault routine.● M0-M1 file addresses were referenced in the user program for a disabled slot.	<p>The problem is detected during the software run time. Correct the programming problem, reload the program and enter the Run mode.</p>
0021 - A remote power failure of an expansion I/O rack has occurred.	<p>Power was removed, or power dipped below specifications, for an expansion rack.</p>	<p>Reapply power to the expansion rack.</p> <p>NOTE: <i>Voltage or current that is over specifications in any of the power supplies also can produce any of the I/O error codes listed on the following pages. The over-voltage or over-current condition also will be indicated by the power supply LED being off.</i></p>

**WARNING: Electrical shock hazard**

Diagnosing electrical and processor problems require access to the electrical enclosure while power is on. Only qualified electrical technicians, who are trained in how to avoid voltage hazards, should perform troubleshooting procedures that require access to the SLC48 Input/Output enclosure while power is on.

I/O ERRORS

NOTE: The “xx” in the following codes represent the I/O slot number. If the first two digits of the code are 1F, the exact slot cannot be determined.

Error Code	Possible cause	Solution
xx50 - A rack data error is detected.	<ul style="list-style-type: none">● Noise● Lightning● Improper grounding● No surge suppression on inductive loads● Poor power source	See WIRING CONSIDERATIONS in the Installation section to correct the problem. Clear the fault on the Rack & Slot screen and re-enter Run mode.
xx51 - A “stuck” runtime error is detected on an I/O module.	If this is a discrete I/O module, this is a noise problem. If this is a specialty I/O module, refer to the appropriate user manual for the probable cause.	Cycle power to the system. If this does not correct the problem, replace the module.
xx52 - A required I/O module has been detected as missing.	An I/O module that was configured and enabled for a particular slot is missing or has been removed.	Disable the slot and insert the required module. See APPENDIX B: INSTALLING SLOTS AND LOADERS .
xx53 - As the SLC tried to run, it detected an I/O module in a slot that the user program defines as unused.	<ul style="list-style-type: none">● The I/O module has reset itself.● The I/O slot is not configured for a module that is present.	If you suspect the module has reset itself, clear the major fault and run. Otherwise: <ul style="list-style-type: none"><input type="checkbox"/> Disable the slot, remove the module, clear the fault, and run.<input type="checkbox"/> Modify the I/O configuration to include the module, then reload the program and run. See APPENDIX B: INSTALLING SLOTS AND LOADERS .

I/O ERRORS



WARNING: Electrical shock hazard

Diagnosing electrical and processor problems require access to the electrical enclosure while power is on. Only qualified electrical technicians, who are trained in how to avoid voltage hazards, should perform troubleshooting procedures that require access to the SLC48 Input/Output enclosure while power is on.

NOTE: The “xx” in the following codes represent the I/O slot number. If the first two digits of the code are 1F, the exact slot cannot be determined.

Error Code	Possible cause	Solution
xx54 - A module required by the user program is detected as the wrong type.	The I/O module in the specific slot is different than the type configured by the user for that slot.	<ul style="list-style-type: none"> <input type="checkbox"/> Replace the module with the correct module, clear the fault, and run. <input type="checkbox"/> Change the I/O configuration for the slot, reload the program, and run. See APPENDIX B: INSTALLING SLOTS AND LOADERS .
xx55 - The SLC detected the wrong I/O count for a discrete I/O module or the wrong driver for a specialty I/O module.	<ul style="list-style-type: none"> ● If this is a discrete I/O module, the I/O count is different than what was selected in the I/O configuratoin. ● If this is a specialty I/O module, the card driver is incorrect. 	<ul style="list-style-type: none"> <input type="checkbox"/> Discrete I/O module: Replace it with a module having the I/O count selected in the I/O configuration. Clear the fault, then run. <input type="checkbox"/> Specialty I/O module: Refer to the user manual for that module. See APPENDIX B: INSTALLING SLOTS AND LOADERS .
xx56 - The rack configuration is incorrect.	The rack configuration specified by the user does not match the hardware.	Check the I/O modules in the rack against the enabled and disabled slots in the Rack & Slot screen. Correct the rack configuration, reload the program and run. See APPENDIX B: INSTALLING SLOTS AND LOADERS .
xx57 - A specialty I/O module has not responded to the Lock Shared Memory command.	The specialty I/O module is not responding to the processor within the required time limit.	Cycle rack power. If this does not correct the problem, refer to the user manual for the specialty I/O module. You may have to replace the module.

**WARNING: Electrical shock hazard**

Diagnosing electrical and processor problems require access to the electrical enclosure while power is on. Only qualified electrical technicians, who are trained in how to avoid voltage hazards, should perform troubleshooting procedures that require access to the SLC48 Input/Output enclosure while power is on.

I/O ERRORS

NOTE: The “xx” in the following codes represent the I/O slot number. If the first two digits of the code are 1F, the exact slot cannot be determined.

Error Code	Possible cause	Solution
xx58 - A specialty I/O module generated a generic fault.	The card fault bit is set (1) in the module’s status byte.	Cycle power to the rack. If this does not correct the problem, refer to the user manual for the specialty I/O module. you may have to replace the module.
xx59 - A specialty I/O module has not signaled completion of a command within the time limit.	The specialty I/O module complete a command from the processor within the time allowed.	Refer to the user manual for the specialty I/O module. You may have to replace the module.
xx5A - Hardware interrupt problem.	<ul style="list-style-type: none">● If this is a discrete I/O module, this is a noise problem● If this is a specialty I/O module, refer to the user manual for the module.	<ul style="list-style-type: none"><input type="checkbox"/> Discrete I/O module: Cycle rack power. Check for a noise problem and be sure proper grounding practices are used.<input type="checkbox"/> Specialty I/O module: You may have to replace the module. Refer to the user manual for this module.
xx5E - Processor I/O driver error	The processor I/O driver software is corrupt.	Reload the program.
xx60 through xx6F	Identifies an I/O module specific recoverable error.	Refer to the user manual for the specialty I/O module.
xx70 through xx7F	Identifies an I/O module specific recoverable error.	Refer to the user manual for the specialty I/O module.
xx90 - Interrupt problem on a disabled slot	A specialty I/O module requested service while a slot was disabled.	Refer to the specialty I/O module user manual. You may have to replace the module.

I/O ERRORS



WARNING: Electrical shock hazard

Diagnosing electrical and processor problems require access to the electrical enclosure while power is on. Only qualified electrical technicians, who are trained in how to avoid voltage hazards, should perform troubleshooting procedures that require access to the SLC48 Input/Output enclosure while power is on.

NOTE: The “xx” in the following codes represent the I/O slot number. If the first two digits of the code are 1F, the exact slot cannot be determined.

Error Code	Possible cause	Solution
xx91 - A disabled slot has faulted.	A specialty I/O module in a disabled slot has faulted.	Cycle rack power. If this does not correct the problem, refer to the user manual for the specialty I/O module. You may have to replace the module.
xx92 - Invalid or non-existent module interrupt subroutine (ISR) file.	The I/O configuration and ISR file information for the specialty I/O module is incorrect.	Refer to the user manual for the specialty I/O module for the correct ISR file information. Correct the I/O configuration/ISR file information, reload the program and run.
xx93 - Unsupported I/O module specific major error.	The processor does not recognize the error code from a specialty I/O module.	Refer to the user manual for the specialty I/O module.
xx94 - The SLC detected that a module was inserted under power in the run or test mode.	<ul style="list-style-type: none">● The module was inserted in the rack under power.● The module has reset itself.	Modules should never be inserted in a rack under power. If this occurs and the module is not damaged: <ul style="list-style-type: none">☐ Remove the module, clear the fault, and run.☐ Add the module to the I/O configuration, reference the module in the user program where required, reload the program, and run. See APPENDIX B: INSTALLING SLOTS AND LOADERS.

Conair has made the largest investment in customer support in the plastics industry. Our service experts are available to help with any problem you might have installing and operating your equipment. Your Conair sales representative also can help analyze the nature of your problem, assuring that it did not result from misapplication or improper use.

WE'RE HERE TO HELP

To contact Customer Service personnel, call:



HOW TO CONTACT CUSTOMER SERVICE

From outside the United States, call: 814-437-6861

You can commission Conair service personnel to provide on-site service by contacting the Customer Service Department. Standard rates include an on-site hourly rate, with a one-day minimum plus expenses.

If you do have a problem, please complete the following checklist before calling Conair:

- Make sure you have all model, serial and parts list numbers for your particular equipment. Service personnel will need this information to assist you.
- Make sure power is supplied to the equipment.
- Make sure that all connectors and wires within and between control systems and related components have been installed correctly.
- Check the troubleshooting guide of this manual for a solution.
- Thoroughly examine the instruction manual(s) for associated equipment, especially controls. Each manual may have its own troubleshooting guide to help you.
- Check that the equipment has been operated as described in this manual.
- Check accompanying schematic drawings for information on special considerations.

BEFORE YOU CALL ...

Additional manuals and prints for your Conair equipment may be ordered through the Customer Service or Parts Departments for a nominal fee.

EQUIPMENT GUARANTEE

Conair guarantees the machinery and equipment on this order, for a period as defined in the quotation from date of shipment, against defects in material and workmanship under the normal use and service for which it was recommended (except for parts that are typically replaced after normal usage, such as filters, liner plates, etc.). Conair's guarantee is limited to replacing, at our option, the part or parts determined by us to be defective after examination. The customer assumes the cost of transportation of the part or parts to and from the factory.

PERFORMANCE WARRANTY

Conair warrants that this equipment will perform at or above the ratings stated in specific quotations covering the equipment or as detailed in engineering specifications, provided the equipment is applied, installed, operated and maintained in the recommended manner as outlined in our quotation or specifications.

Should performance not meet warranted levels, Conair at its discretion will exercise one of the following options:

- Inspect the equipment and perform alterations or adjustments to satisfy performance claims. (Charges for such inspections and corrections will be waived unless failure to meet warranty is due to misapplication, improper installation, poor maintenance practices or improper operation.)
- Replace the original equipment with other Conair equipment that will meet original performance claims at no extra cost to the customer.
- Refund the invoiced cost to the customer. Credit is subject to prior notice by the customer at which time a Return Goods Authorization Number (RGA) will be issued by Conair's Service Department. Returned equipment must be well crated and in proper operating condition, including all parts. Returns must be prepaid.

Purchaser must notify Conair in writing of any claim and provide a customer receipt and other evidence that a claim is being made.

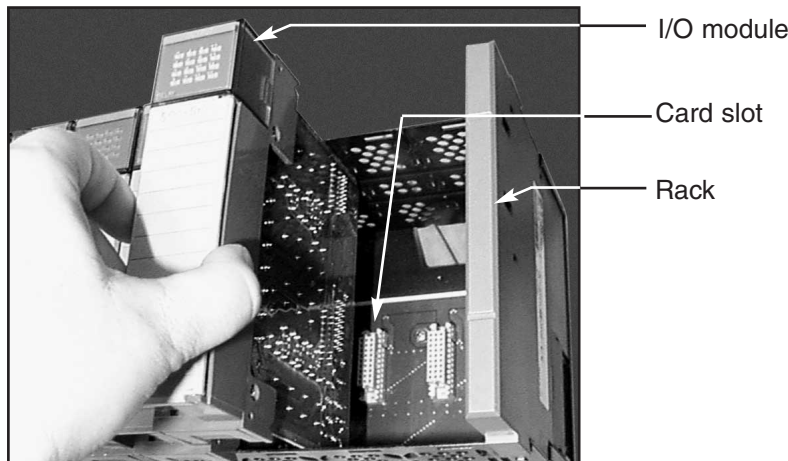
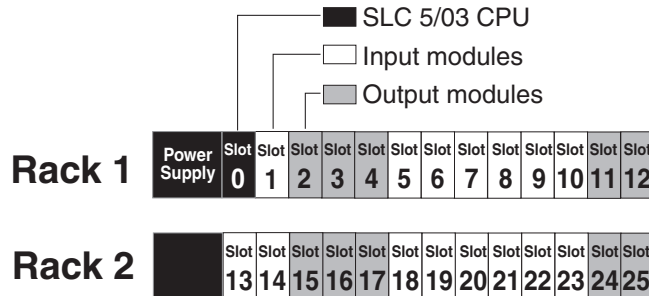
WARRANTY LIMITATIONS

Except for the Equipment Guarantee and Performance Warranty stated above, Conair disclaims all other warranties with respect to the equipment, express or implied, arising by operation of law, course of dealing, usage of trade or otherwise, including but not limited to the implied warranties of merchantability and fitness for a particular purpose.

INSTALLING SLOTS AND LOADERS

The SLC48 Sentral Loader Control has been designed for easy expansion of the conveying system as your processing needs change.

The SLC48 communicates with each pump, vacuum receiver, material valve and material proofing device that is wired to Input and Output modules inside the control enclosure. Before a loading station, pump, valve or proofing device can be used, the appropriate module must be installed in the correct card Slot built into the two Racks inside the control enclosure.



To expand the conveying system or add features, you will:

- Install the additional vacuum receivers, pumps, valves and/or proofing hardware in the conveying system. Refer to installation instructions supplied with your equipment.
- Install the appropriate I/O modules in the correct racks and slots inside the SLC48 control enclosure.
- Wire the additional equipment to the I/O modules.
- Enable the additional slots using the SLC48 Rack & Slots screens.
- Install the additional loading stations in the SLC48 control. Loading stations are installed in banks of 16 loaders at a time using the SLC48 Loader Banks screens.
- Enable the new loading features, assign loaders to pump systems, and enter loader settings for each loading station.

INSTALLING I/O MODULES



WARNING: Electrical shock hazard

Always disconnect and lock out the main power to the SLC48 before opening the control enclosure. Failure to disconnect and lock out the main power before installing I/O modules could result in severe personal injury and damage to the control.

Before beginning, make sure you have the wiring diagrams that were supplied with your SLC48 control and the correct number of Allen Bradley SLC Input and Output modules to add the loading stations, pumps or valves to your system.

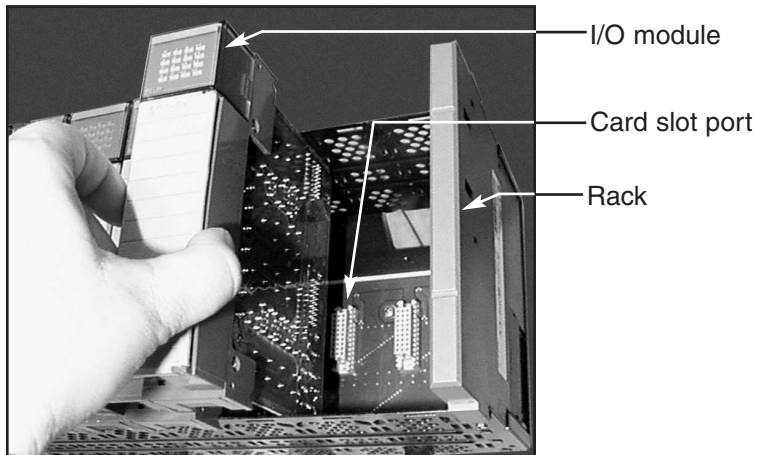
Each module consists of a micro-processor card attached to a terminal block with 16 terminals numbered 0-15.



- 1 Disconnect power to the SLC48 control.**
- 2 Open the SLC48 control enclosure.**
- 3 Insert each Input or Output module into the correct rack and card slot.**

For the correct rack and slot location, refer to the wiring diagrams that were supplied with your SLC48 control. Push the module into the rack until the card is seated securely in the I/O port in the card slot.

NOTE: To remove an I/O module, push in on the plastic tabs at the top and bottom of the module, then pull the module out of the slot.



- 4 Wire receivers, pumps and valves to the correct terminals on the I/O modules.**
See [WIRING CONSIDERATIONS](#) and the wiring procedures in the [INSTALLATION](#) section of the SLC48 User Guide.

ENABLING AND DISABLING SLOTS



CAUTION: Incorrect configurations will cause the SLC48 control to stop.

Each loader, pump and valve must be wired to a correctly installed and **enabled** Input or Output Slot. The SLC will fault and the loading control will stop if the required I/O module has not been installed and enabled for the device.

Before you can use your additional receivers, valves or pumps, you must enable each installed I/O slot for the new devices.

- 1 Turn on power to the SLC48 control.**
Wait for the initialization and bootup sequence to end.

- 2 Touch “Setup” on the Home Screen.**

- ◆ The Security Screen is displayed

- 3 Enter the Level 4 access code.**

See **SETTING SECURITY LEVELS** in the SLC48 User Guide Installation section.

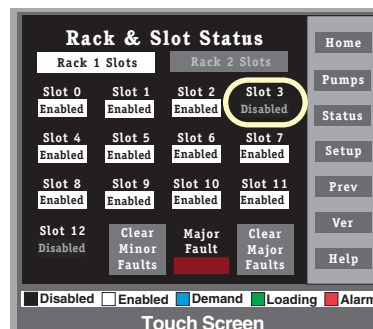
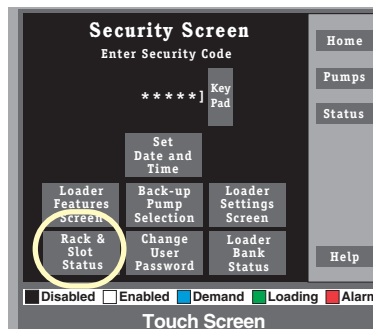
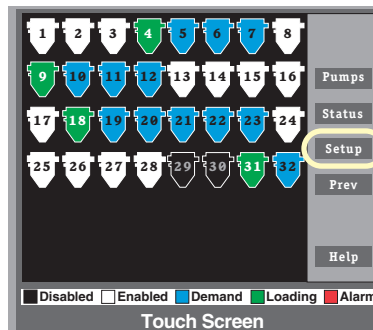
- 4 Touch “Rack & Slot Status.”**

- ◆ The Rack & Slot screen is displayed.

- 5 Enable the newly installed slot(s).**

Touch “Rack 1 Slots” or “Rack 2 Slots” to view the slots in each rack. Touch a “Disabled” slot to enable it. Touch an “Enabled” slot to disable it.

NOTE: Do not enable a slot unless an I/O module has been installed in that slot on the rack. The SLC48 will fault and stop if the I/O module has not been installed in an enabled slot.



Proceed to **INSTALLING LOADER BANKS.**

INSTALLING LOADER BANKS

Loaders are installed in the SLC48 control in banks of 16. When you expand the conveying system from 16 or 32 loading stations to a total of 48 loading stations, you must install the additional “banks” of loaders before the control will display them.

1 Turn on power to the SLC48 control.
Wait for the initialization and bootup sequence to end.

2 Touch “Setup” on the Home Screen.

◆ The Security Screen is displayed

3 Enter the Level 4 access code.

See **SETTING SECURITY LEVELS** in the SLC48 User Guide Installation section.

4 Touch “Loader Bank Status.”

◆ The Loader Bank Status screen is displayed.

5 Touch “Install” to install the new bank of loaders.

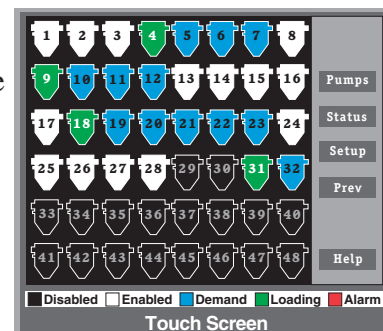
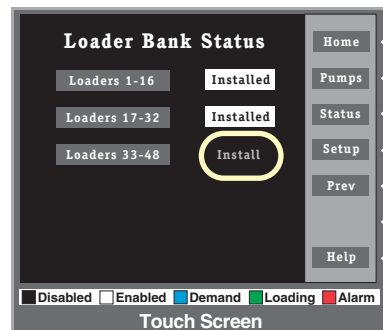
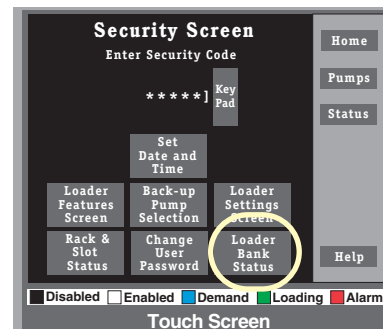
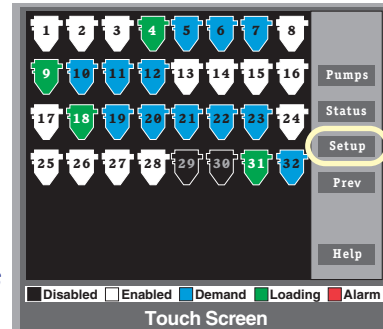
A highlighted “Installed” appears next to each of bank loaders that has been installed on the control.

The Home screen will now display the newly installed bank of loaders.

6 Enable loader features and loaders.

The new loaders will appear disabled (black) until they are configured and enabled.

Proceed to the **INITIAL SETUP** procedures in the Installation section of the SLC48 User Guide to enable features and enter loader settings.



REV	BY	DESCRIPTION	DATE	APP
C	SA	UPDATED TITLE BLOCK	10-13-00	KB
B	SA	GENERAL REVISIONS	09-27-00	KB
A	RLP	INITIAL RELEASE	10-15-97	KG

A B C D E F G H J K L M N P Q R S T U
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CONAIR
EQUIPMENT
 FOR
LOADING CONTROL
AND MMI SYSTEM

SLC48

 MASTER DRAWING INDEX
 NUMBER 107-559


 PITTSBURGH, PENNSYLVANIA USA

 INSTRUCTION BOOK
 107-559-IB
 DIAGRAM INDEX

DIAGRAM	SHEET	TYPE	DESCRIPTION
107-559	01	ELEMENTARY	TITLE & INDEX
107-559	02	ELEMENTARY	DRAWING SYMBOLS
107-559	03	ELEMENTARY	DRAWING NOTES
107-559	04	ELEMENTARY	GROUNDING
107-559	05	ELEMENTARY	REFERENCE MATERIAL
107-559	06	ELEMENTARY	WIRE NUMBER/SHEET
107-559	07	ELEMENTARY	RESERVED
107-559	08	ELEMENTARY	RESERVED
107-559	09	ELEMENTARY	RESERVED
107-559	10	ELEMENTARY	POWER DISTRIBUTION AND COMMUNICATION
107-559	11	ELEMENTARY	LDR 17-20 LOAD, PUMPS 1-4,BU 41-44 DISCH
107-559	12	ELEMENTARY	LDR 1-10 DEMAND, LDR 1-6 FULL
107-559	13	ELEMENTARY	LDR 11-14,41,42 DEMAND,7-10 FULL, PUMP OL
107-559	14	ELEMENTARY	LDR 15-20 DEMAND,LDR 11-20 FULL
107-559	15	ELEMENTARY	LDR 1-16 LOAD
107-559	16	ELEMENTARY	LDR 1-16 RATIO
107-559	17	ELEMENTARY	LDR 17-20 RATIO, LDR 1-10 DISCH
107-559	18	ELEMENTARY	LDR 11-20 DISCH, LDR 17-20 PURGE
107-559	19	ELEMENTARY	LDR 1-16 PURGE POCKET CONVEYING
107-559	20	ELEMENTARY	HOPPER OUTPUT PROOFING 1-16
107-559	21	ELEMENTARY	LDR'S 1-16 PROOFING INTERLOCK
107-559	22	ELEMENTARY	LDR'S 17-32 PROOFING INTERLOCK
107-559	23	ELEMENTARY	LDR 41-50 LOAD, 41-46 RATIO
107-559	24	ELEMENTARY	LDR 37-40 VAC. LOAD, PUMPS 5-8,RATIO 47-50
107-559	25	ELEMENTARY	LDR 21-30 DEMAND,LDR 21-26 FULL
107-559	26	ELEMENTARY	LDR 31-34 DEM,27-30 ,43-46 FULL,PUMP OL'S
107-559	27	ELEMENTARY	LDR 35-40 DEM,LDR 31-40 FULL
107-559	28	ELEMENTARY	LDR 21-36 LOAD
107-559	29	ELEMENTARY	LDR 21-36 RATIO
107-559	30	ELEMENTARY	LDR 37-40 RATIO,LDR 21-30 DISCH
107-559	31	ELEMENTARY	LDR 31-40 AIR DISCH,LDR 37-40 PURGE
107-559	32	ELEMENTARY	LDR 21-36 PURGE
107-559	33	ELEMENTARY	PURGE 41-50, 45-50 AIR DISCH
107-559	34	ELEMENTARY	LDR 33-48 PROOFING INTERLOCK
107-559	35	ELEMENTARY	LDR 47-50 DEMAND, 41-50 FULL, 49-50 PROOF
107-559	36	ELEMENTARY	BOM
107-559	37	ELEMENTARY	BOM
107-559	38	ELEMENTARY	BOM

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ARE:

FRACTIONS: ±1/32
DECIMALS MACHINING: ±0.005
DECIMALS SHEETMETAL: ±0.015
ANGLES: ±1/2 DEG.


 The Conair Group Inc
 One Conair Drive
 Pittsburgh, PA 15202

ELEMENTARY DIAGRAM
MASTER DRAWING INDEX

SHEET 1 of 38
 107-559-02

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SENTRAL LOADING CONTROL FOR CDS SYSTEMS
 ELECTRICAL WIRING FOR CONTROL AND MMI

REV	BY	DESCRIPTION	DATE	APP
C	SA	UPDATED TITLE BLOCK	10-13-00	KB
A	RJP	INITIAL RELEASE	10-15-97	KG

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ARE:

FRACTIONS: ±1/32
DECIMALS MACHINING: ±0.005
DECIMALS SHEETMETAL: ±0.015
ANGLES: ±1/2 DEG.

CONAIR

The Conair Group Inc
One Conair Drive
Pittsburgh, PA 15202

**ELEMENTARY DIAGRAM
SYMBOL DEFINITIONS**

SHEET 2 of 38 107-559-02

SYMBOLS

01	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	01	
02																					02
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LOCATIONS

- SUPPLIED BY OTHERS-----DISCLAIMER
- THE INFORMATION APPEARING ON THIS DOCUMENT INDICATED BY WAS OBTAINED BY CONAIR FROM
- A THIRD PARTY AND IS PROVIDED SOLELY AS A CONVENIENCE. CONAIR HAS NOT INDEPENDENTLY
- VERIFIED SUCH INFORMATION AND, THEREFORE, DOES NOT WARRANT ITS ACCURACY OR
- SAFE OPERATION.
- OR REMOTELY MOUNTED
- MOUNTED AT MOTOR
- MOUNTED AT MOTOR ONE, TWO, ETC.
- MOUNTED IN CASE ONE, TWO, ETC.
- MOUNTED ON DOOR, DOOR OF CASE 1,
DOOR OF CASE 2, ETC.
- MOUNTED IN MAIN OPERATOR'S STATION,
STATION 1, STATION 2, ETC.
- PROGRAMMABLE CONTROLLER
- PANEL MOUNTED, SUPPLIED BY OTHERS
- EQUIPMENT EXISTS IN PLACE
- REMOTE DEVICE SUPPLIED BY GE

CROSS MAPPING

[1003] - "CROSS MAPPING" NUMBER, SPECIFIES
LOCATION OF CONTINUATION OF
ELECTRICAL CIRCUIT OR ORIGIN OF
ELECTRICAL CIRCUIT. EXAMPLE INDICATES
SHEET 10, LINE 3.
NOTE: SHEET NO. IS
OMITTED IF MAPPED TO LOCATION IN
THE SAME SHEET NO.

DEVICES

- THERMAL SWITCH
- LIMIT SWITCH (N.C.)
- TERMINAL JUMPER
- FAN
- SELECTOR SWITCH
- AC COIL SUPPRESSION (RC ONLY)
- DC COIL SUPPRESSION (RC & MOV)
- PLUG WITH SCREW TERMINATION
- PLUG TERMINATION
- ADJUSTMENT POT.
- CENTRIFUGAL SPEED SWITCH
- PUSHBUTTON (N.C.)
- PUSHBUTTON (N.O.)
- REDUNDANT RELAY CONTACT, SHOWN FOR DRAWING CLARITY
- COLLECTOR

CONVENTIONS

- TWISTED PAIR WIRE
- TWISTED SHIELDED PAIR WIRE
- SHIELDED PAIR WIRE
- HARNESS WIRING
- COAXIAL CABLE
- FIBER OPTIC CABLE
- DESIGNATES NON FACTORY WIRING
- IS INTERPRETED AS 2TB(6)
- TERMINAL BOARD JUMPER PLUG
- FESTOON CABLE
- PL PIN NUMBER
- INTENDED TO BE AT EARTH POTENTIAL
- CHASSIS GROUND SEE NOTE 3 FOR DETAILS
- INTERNAL COMMON
- DELTA
- WYE
- LOW LEVEL WIRING
- HIGH LEVEL WIRING
- POWER WIRING
- POWER WIRING: >800V AND/OR >800A
- LOW LEVEL SIGNAL WIRING PRACTICES REQUIRED
- SOFTWARE PROGRAMMABLE
- TEST POINT

REV	BY	DESCRIPTION	DATE	APP
A	RJP	INITIAL RELEASE	10-15-97	KG
B	SA	GENERAL REVISIONS	09-27-00	KB
C	SA	UPDATED TITLE BLOCK	10-13-00	KB

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ARE:

FRACTIONS: ±1/32
DECIMALS MACHINING: ±0.005
DECIMALS SHEETMETAL: ±0.015
ANGLES: ±1/2 DEG.

CONRAIR

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Pittsburgh, PA 15202

**ELEMENTARY DIAGRAM
DRAWING NOTES**

SHEET 3 of 38 107-559-02

A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	
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CENTRAL LOADING CONTROL FOR CDS SYSTEMS
ELECTRICAL WIRING FOR CONTROL AND MMI

REV	BY	DESCRIPTION	DATE	APP
C	SA	UPDATED TITLE BLOCK	10-13-00	KB
B	SA	GENERAL REVISIONS	09-27-00	KB
A	R/LP	INITIAL RELEASE	10-15-97	KG

UNLESS OTHERWISE SPECIFIED
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TOLERANCES ARE:

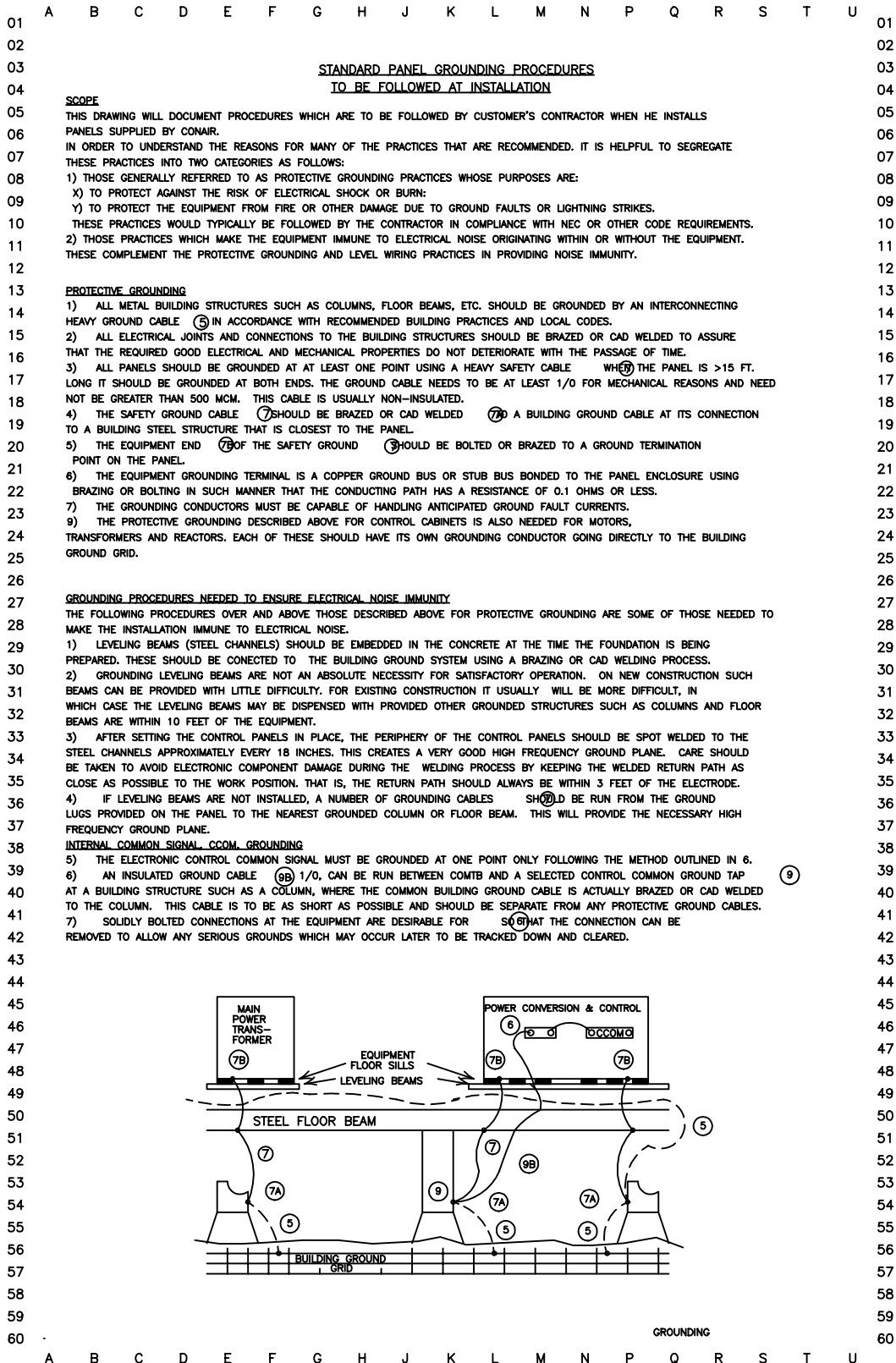
FRACTIONS: ±1/32
DECIMALS MACHINING: ±0.005
DECIMALS SHEETMETAL: ±0.015
ANGLES: ±1/2 DEG.

SIZE: B DWN BY: RLP

CONAIR
ELEMENTARY DIAGRAM
GROUNDING

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SHEET 4 of 38 107-559-02



CENTRAL LOADING CONTROL FOR CDS SYSTEMS
ELECTRICAL WIRING FOR CONTROL AND MMI

REV	BY	DESCRIPTION	DATE	APP
C	SA	UPDATED TITLE BLOCK	10-13-00	KB
A	RLP	INITIAL RELEASE	10-15-97	KG

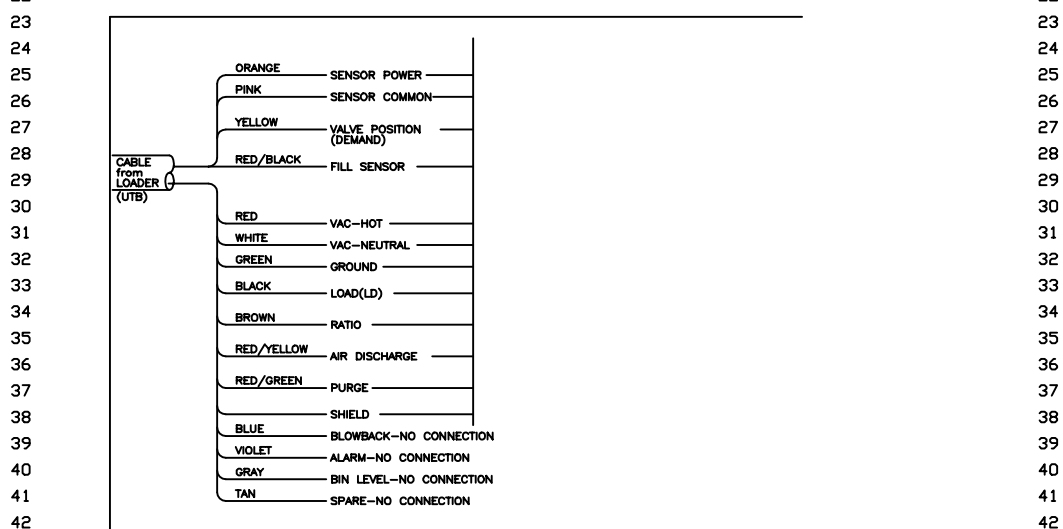
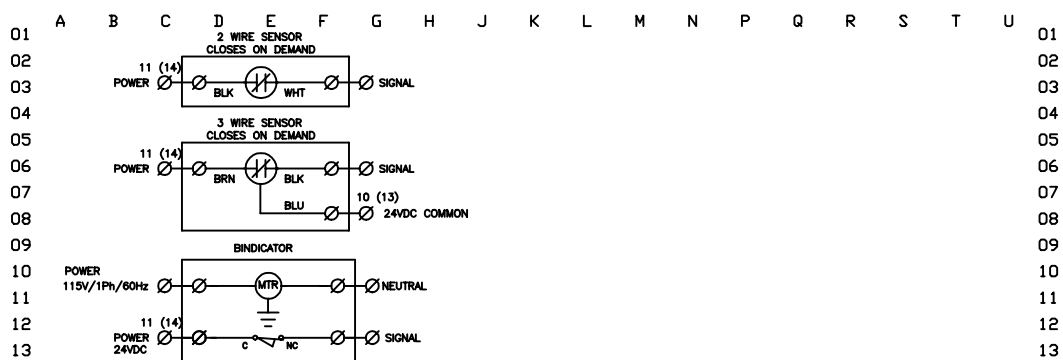
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ARE:

FRACTIONS: ±1/32
DECIMALS MACHINING: ±0.005
DECIMALS SHEETMETAL: ±0.015
ANGLES: ±1/2 DEG.

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**ELEMENTARY DIAGRAM
REFERENCE MATERIAL**

SHEET 5 of 38 107-559-02



- NOTES:
1. WIRING COLOR CODE
BLACK -POWER
RED #18 -CONTROL 120VAC
BLU #18 -CONTROL 24VDC
GRY #18 -CONTROL 24VAC
WHITE #18 -NEUTRAL
YELLOW/GREEN #18 -GROUND
 2. USE WIRE MARKERS ON ALL WIRE ENDS.
 3. WIRING TO BE IN ACCORDANCE WITH ALL NATIONAL AND LOCAL ELECTRICAL CODES.
 4. NUMBERS IN PARENTHESES ARE FOR RACK 2

SENTRAL LOADING CONTROL FOR CDS SYSTEMS
ELECTRICAL WIRING FOR CONTROL AND MMI

REV	BY	DESCRIPTION	DATE	APP
C	SA	UPDATED TITLE BLOCK	10-13-00	KB
B	SA	GENERAL REVISIONS	09-22-00	KB
A	RLP	INITIAL RELEASE	10-15-97	KG

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ARE:

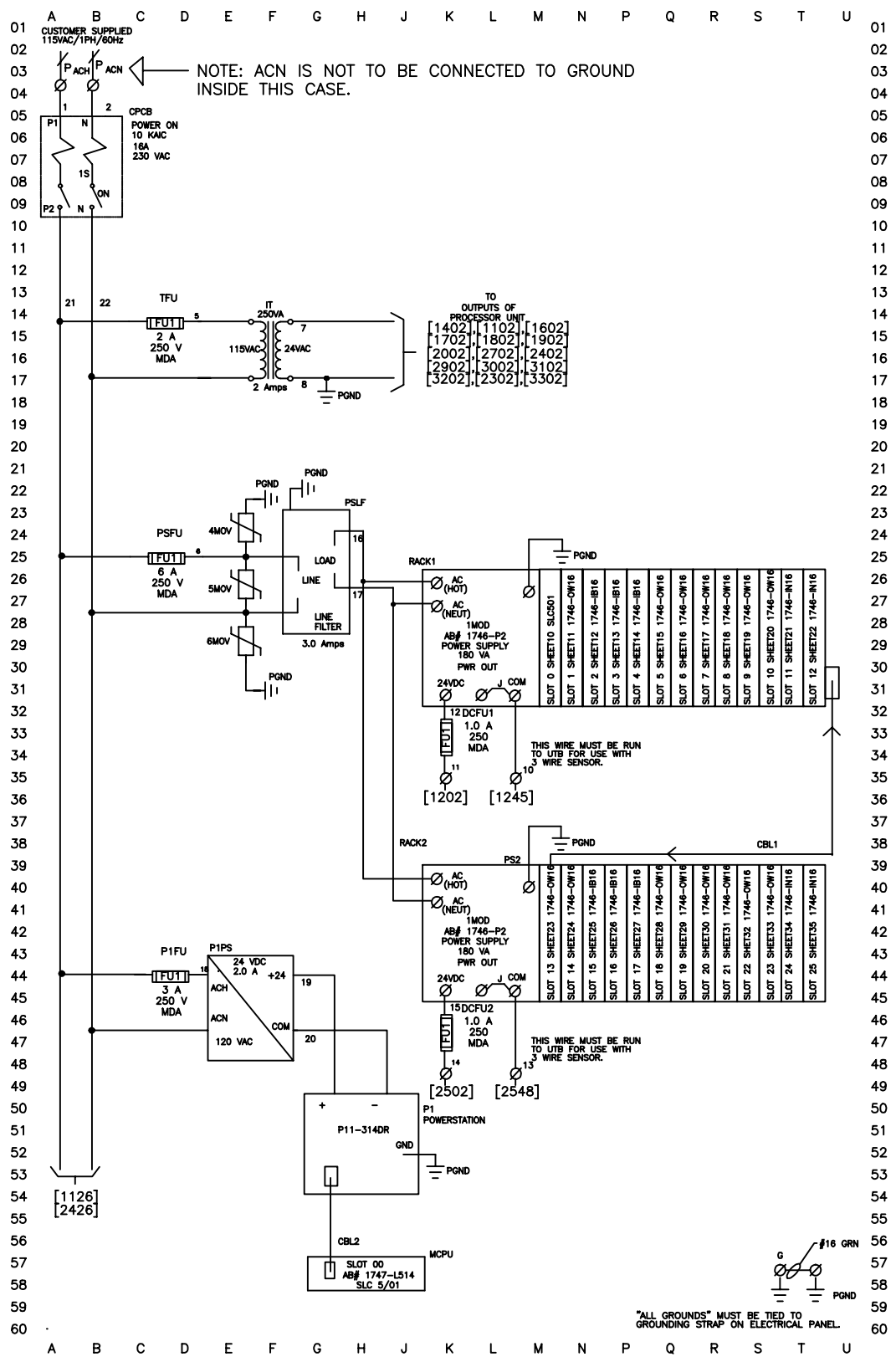
FRACTIONS: ±1/32
DECIMALS MACHINING: ±0.005
DECIMALS SHEETMETAL: ±0.015
ANGLES: ±1/2 DEG.

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**ELEMENTARY DIAGRAM
POWER DISTRIBUTION & COMM**

SHEET 10 of 38

107-559-02



SENTRAL LOADING CONTROL FOR CDS SYSTEMS
ELECTRICAL WIRING FOR CONTROL AND MMU

REV	BY	DESCRIPTION	DATE	APP
A	RLP	INITIAL RELEASE	10-15-97	KG
B	SA	GENERAL REVISIONS	09-22-00	KB
C	SA	UPDATED TITLE BLOCK	10-13-00	KB

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ARE:

FRACTIONS: ±1/32
DECIMALS MACHINING: ±0.005
DECIMALS SHEETMETAL: ±0.015
ANGLES: ±1/2 DEG.

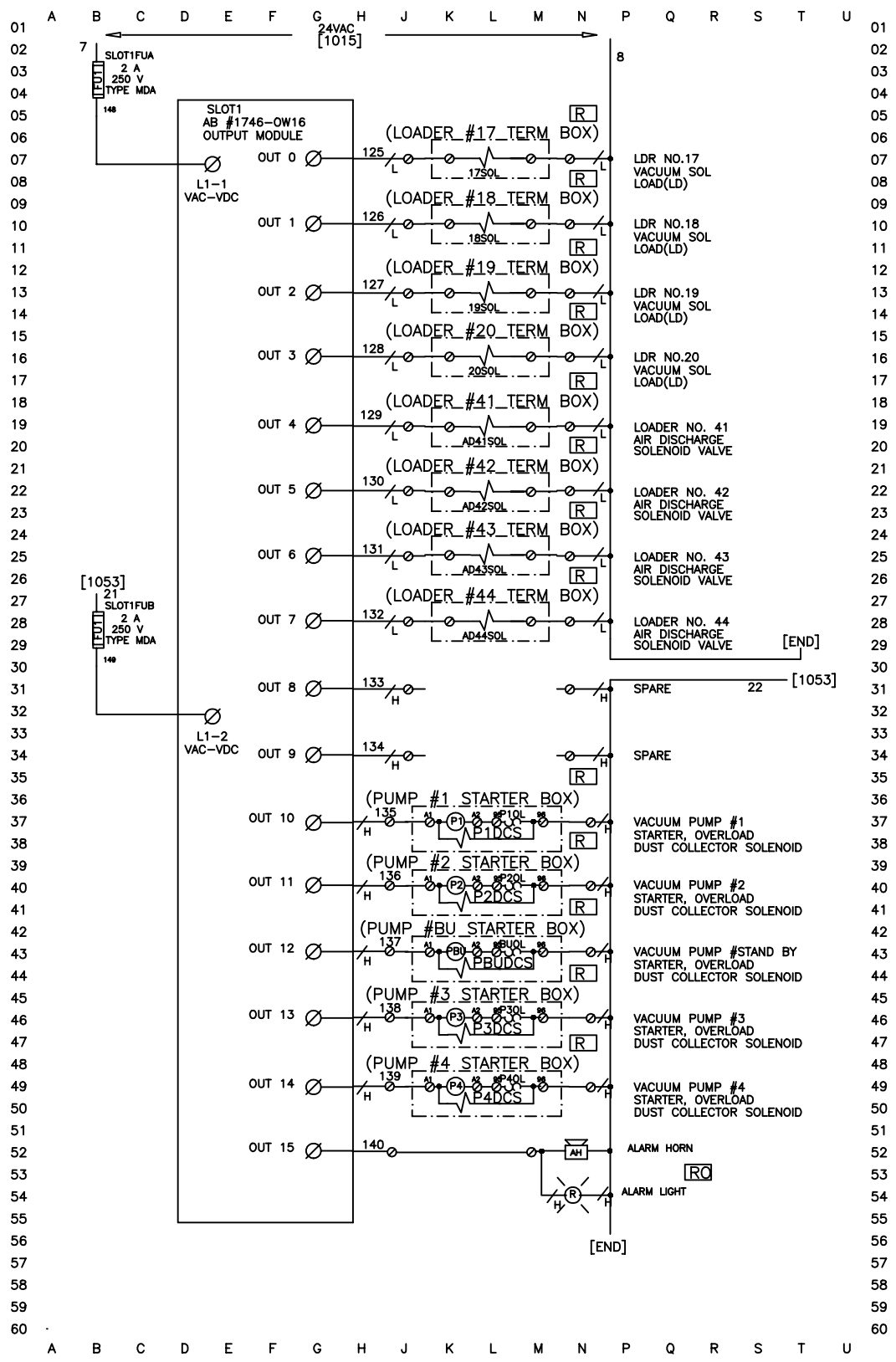
CONAIR

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Pittsburgh, PA 15202

LDR 17-20 LOAD, 41-44 DISCH
VACUUM PUMP STARTERS

SHEET 11 of 38

107-559-02



SENTRAL LOADING CONTROL FOR CDS SYSTEMS
ELECTRICAL WIRING FOR CONTROL AND MM

REV	BY	DESCRIPTION	DATE	APP
C	SA	UPDATED TITLE BLOCK	10-13-00	KB
A	RLP	INITIAL RELEASE	10-15-97	KG

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ARE:

FRACTIONS: ±1/32
DECIMALS MACHINING: ±0.005
DECIMALS SHEETMETAL: ±0.015
ANGLES: ±1/2 DEG.

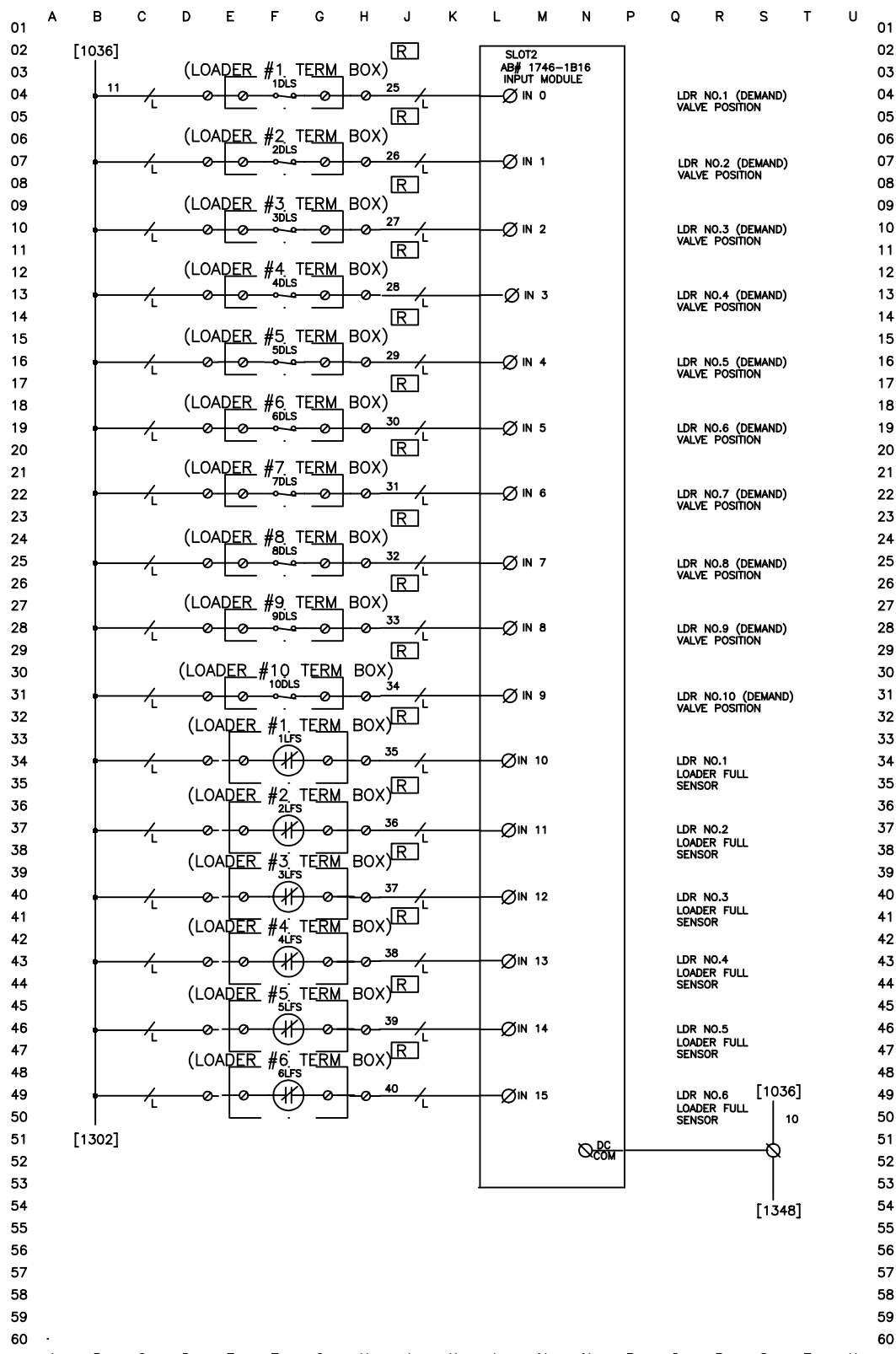
SIZE: B DWN BY: RLP

SHEET 12 of 38

107-559-02

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Pittsburgh, PA 15202

LDR 1-10 DEMAND
LDR 1-6 FULL



SENTRAL LOADING CONTROL FOR CDS SYSTEMS
ELECTRICAL WIRING FOR CONTROL AND MMI

REV	BY	DESCRIPTION
C	SA	UPDATED TITLE BLOCK
A	RJP	INITIAL RELEASE
	DATE	10-13-00
	APP	10-15-97
		KG
		KB

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
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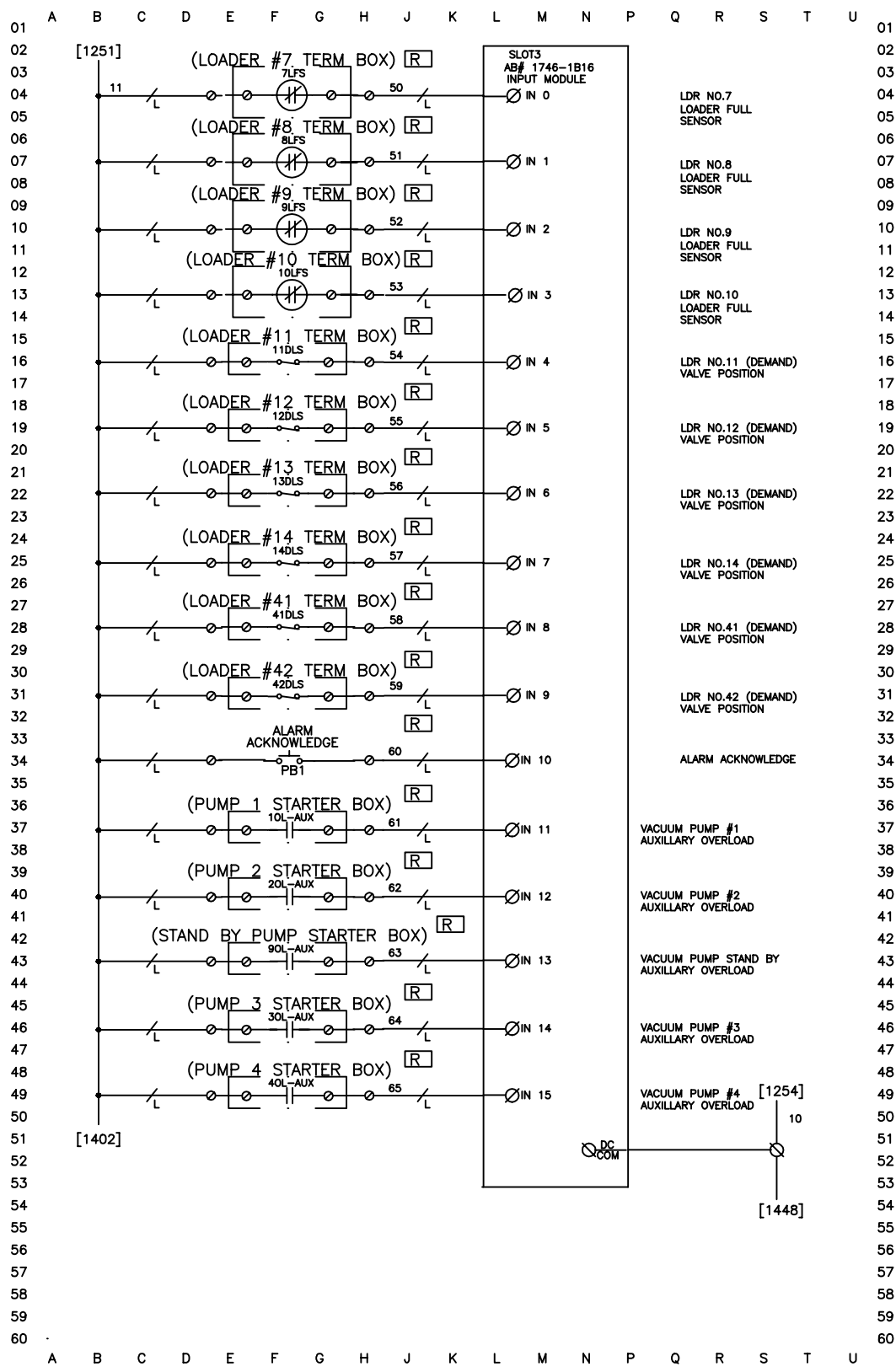
FRACTIONS: ±1/32
DECIMALS MACHINING: ±0.005
DECIMALS SHEETMETAL: ±0.015
ANGLES: ±1/2 DEG.

SIZE: B DWN BY: RJP

SHEET 13 of 38 107-559-02

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Pittsburgh, PA 15202

LDR 11-14, 41, 42 DEMAND
LDR 7-10 FULL, PUMP OL'S



SENTRAL LOADING CONTROL FOR CDS SYSTEMS
ELECTRICAL WIRING FOR CONTROL AND MMI

REV	BY	SA	DESCRIPTION
A	RJP	UPDATED TITLE BLOCK	INITIAL RELEASE
C		10-13-00	10-15-97
	APP	KG	KB

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
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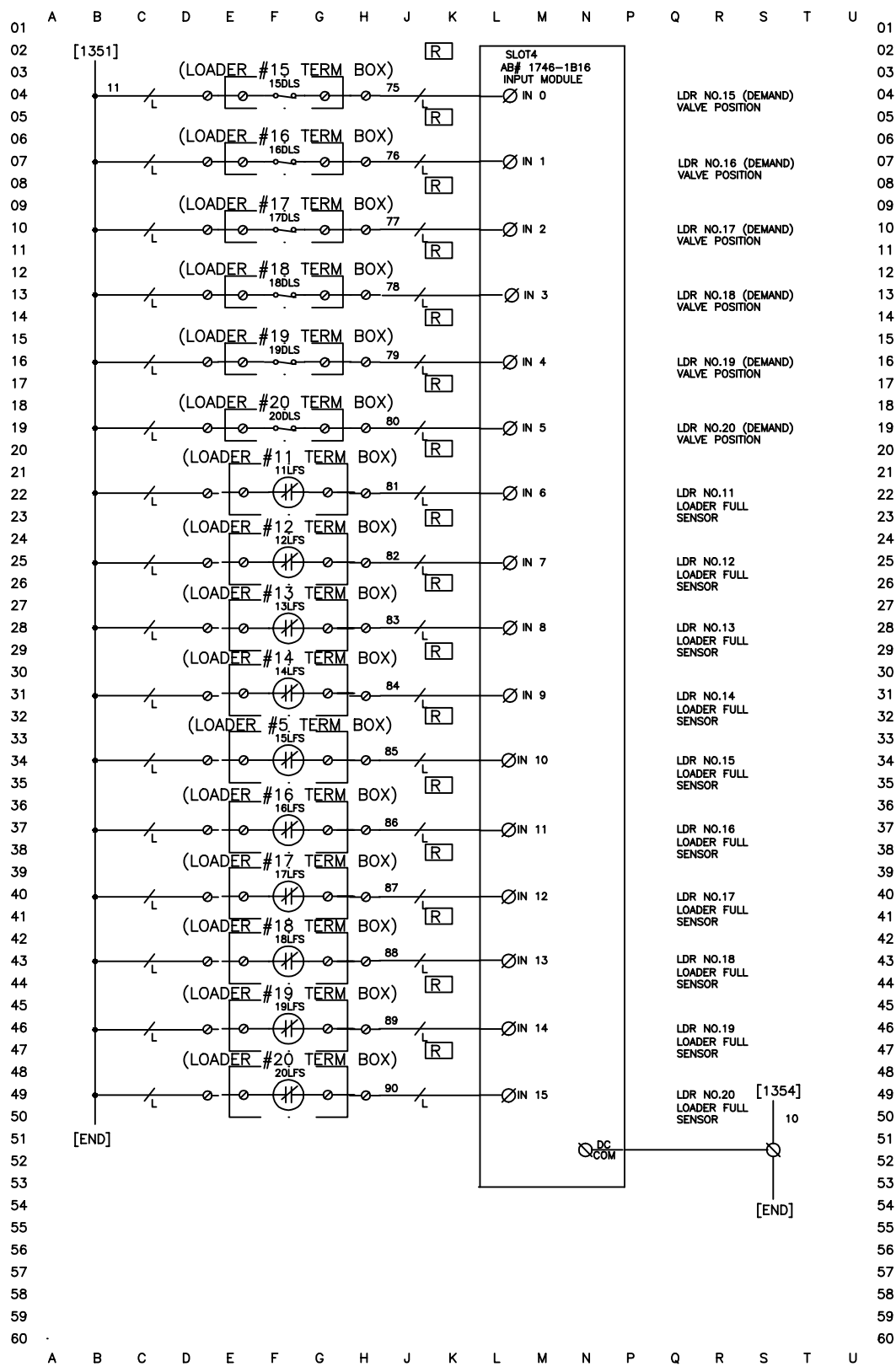
FRACTIONS: ±1/32
DECIMALS MACHINING: ±0.005
DECIMALS SHEETMETAL: ±0.015
ANGLES: ±1/2 DEG.

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LDR 15-20 DEMAND
LDR 11-20 FULL

SHEET 14 of 38

107-559-02



CENTRAL LOADING CONTROL FOR CDS SYSTEMS
ELECTRICAL WIRING FOR CONTROL AND MMI

REV	BY	DESCRIPTION
C	SA	UPDATED TITLE BLOCK
A	RLP	INITIAL RELEASE
	DATE	10-13-00
	APP	KG

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ARE:

FRACTIONS: ±1/32
DECIMALS MACHINING: ±0.005
DECIMALS SHEETMETAL: ±0.015
ANGLES: ±1/2 DEG.

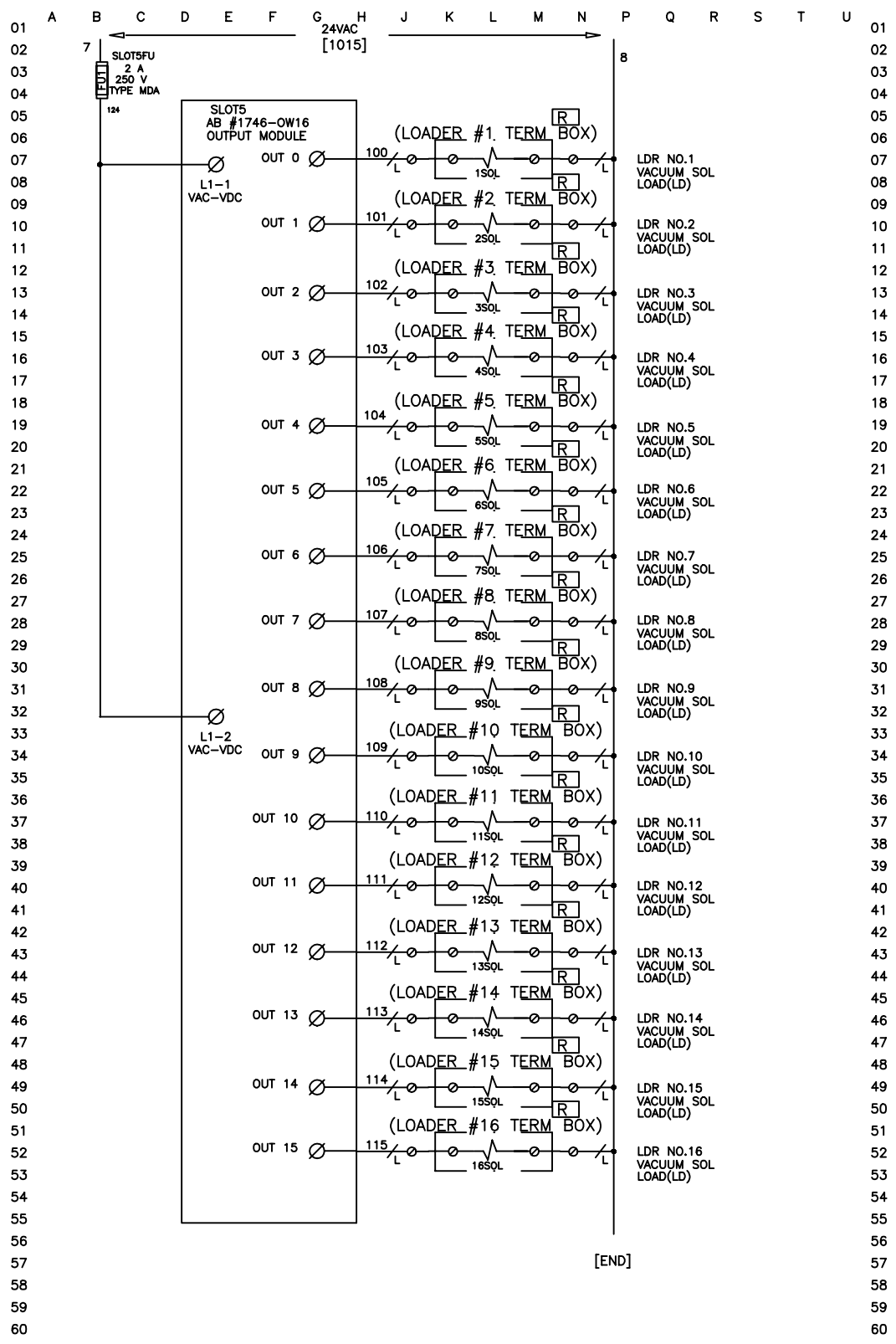
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One Conair Drive
Pittsburgh, PA 15202

LDR 1-16 VACUUM
SOLENOID LOAD

SHEET 15 of 38

107-559-02



SENTRAL LOADING CONTROL FOR CDS SYSTEMS
ELECTRICAL WIRING FOR CONTROL AND MM

REV	BY	DESCRIPTION
A	RLP	INITIAL RELEASE
B	SA	UPDATED TITLE BLOCK

DATE	10-13-00	KB
APP	10-15-97	KG

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ARE:

FRACTIONS: ±1/32
DECIMALS MACHINING: ±0.005
DECIMALS SHEETMETAL: ±0.015
ANGLES: ±1/2 DEG.

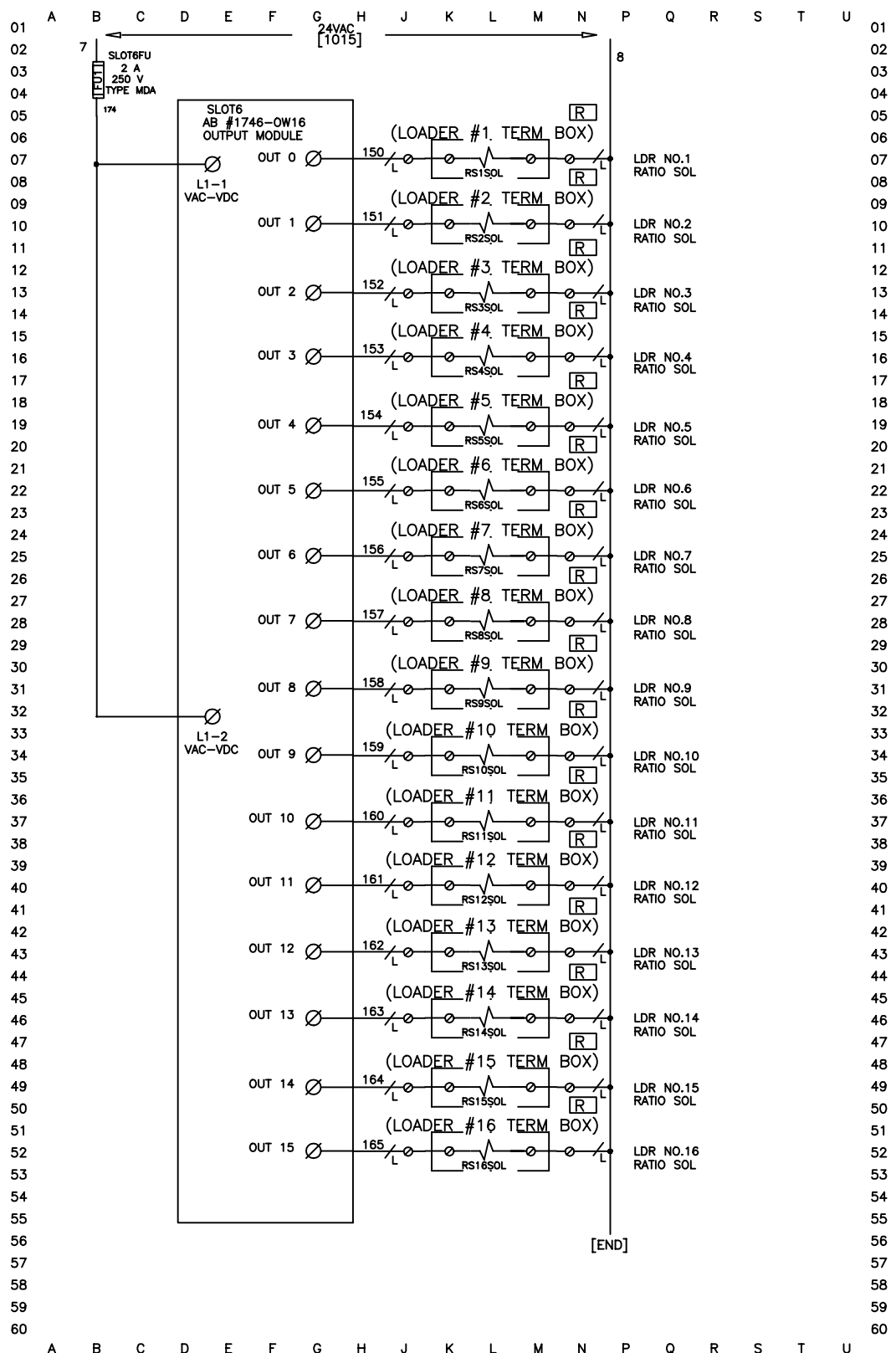
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Pittsburgh, PA 15202

ELEMENTARY DIAGRAM
LDR 1-16 RATIO

SHEET 16 of 38

107-559-02



CENTRAL LOADING CONTROL FOR CDS SYSTEMS
ELECTRICAL WIRING FOR CONTROL AND MMI

REV	BY	DESCRIPTION	DATE	APP
C	SA	UPDATED TITLE BLOCK	10-13-00	KB
A	RJP	INITIAL RELEASE	10-15-97	KG

UNLESS OTHERWISE SPECIFIED
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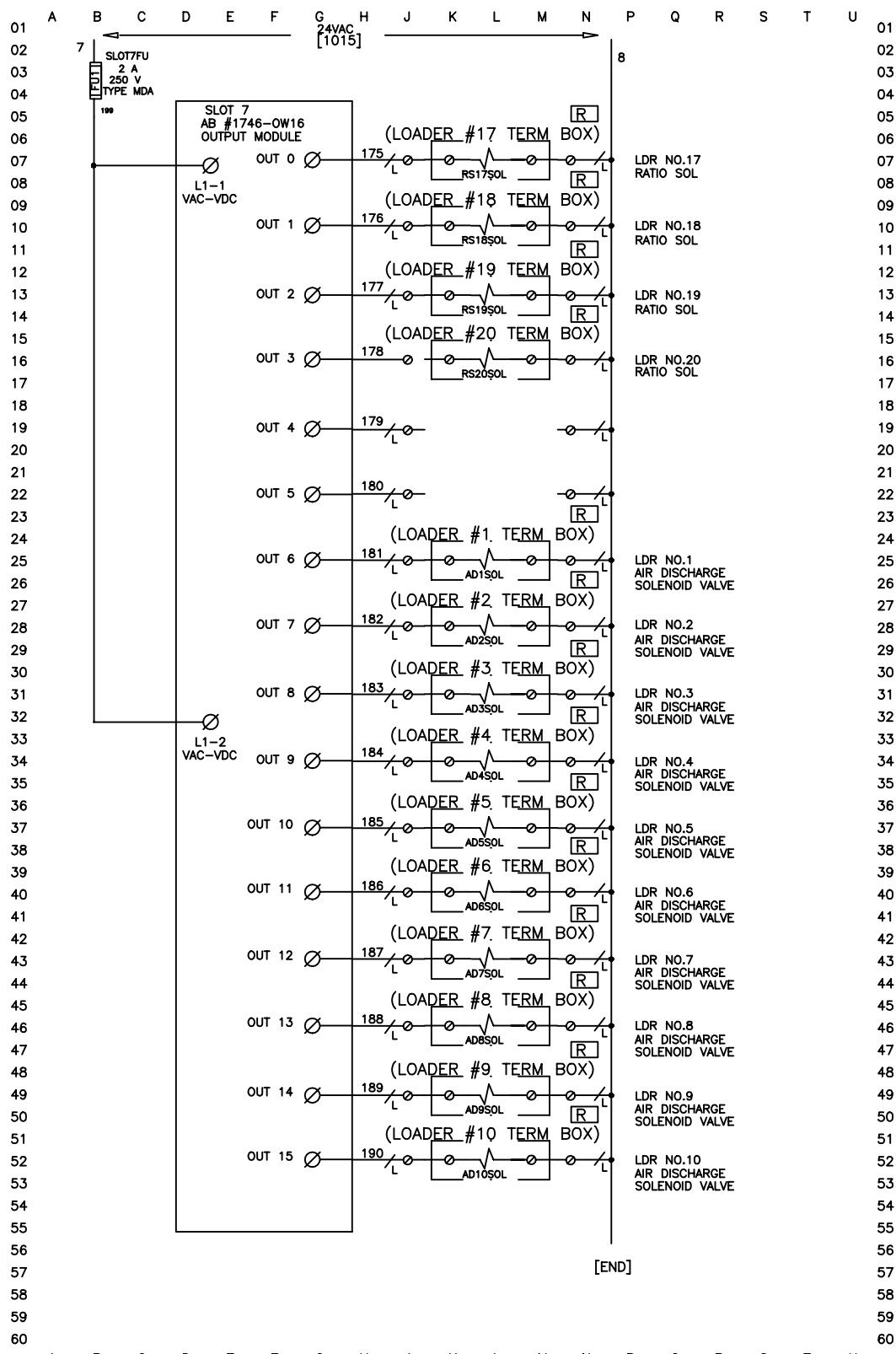
FRACTIONS: ±1/32
DECIMALS MACHINING: ±0.005
DECIMALS SHEETMETAL: ±0.015
ANGLES: ±1/2 DEG.

CONAIR
The Conair Group Inc
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Pittsburgh, PA 15202

LDR 17-20 RATIO
LDR 1-10 AIR DISCHARGE

SHEET 17 of 38

107-559-02



SENTRAL LOADING CONTROL FOR CDS SYSTEMS
ELECTRICAL WIRING FOR CONTROL AND MM

REV	BY	DESCRIPTION	DATE	APP
A	RLP	INITIAL RELEASE	10-15-97	KG
B	SA	GENERAL REVISIONS	09-22-00	KB
C	SA	UPDATED TITLE BLOCK	10-13-00	KB

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ARE:

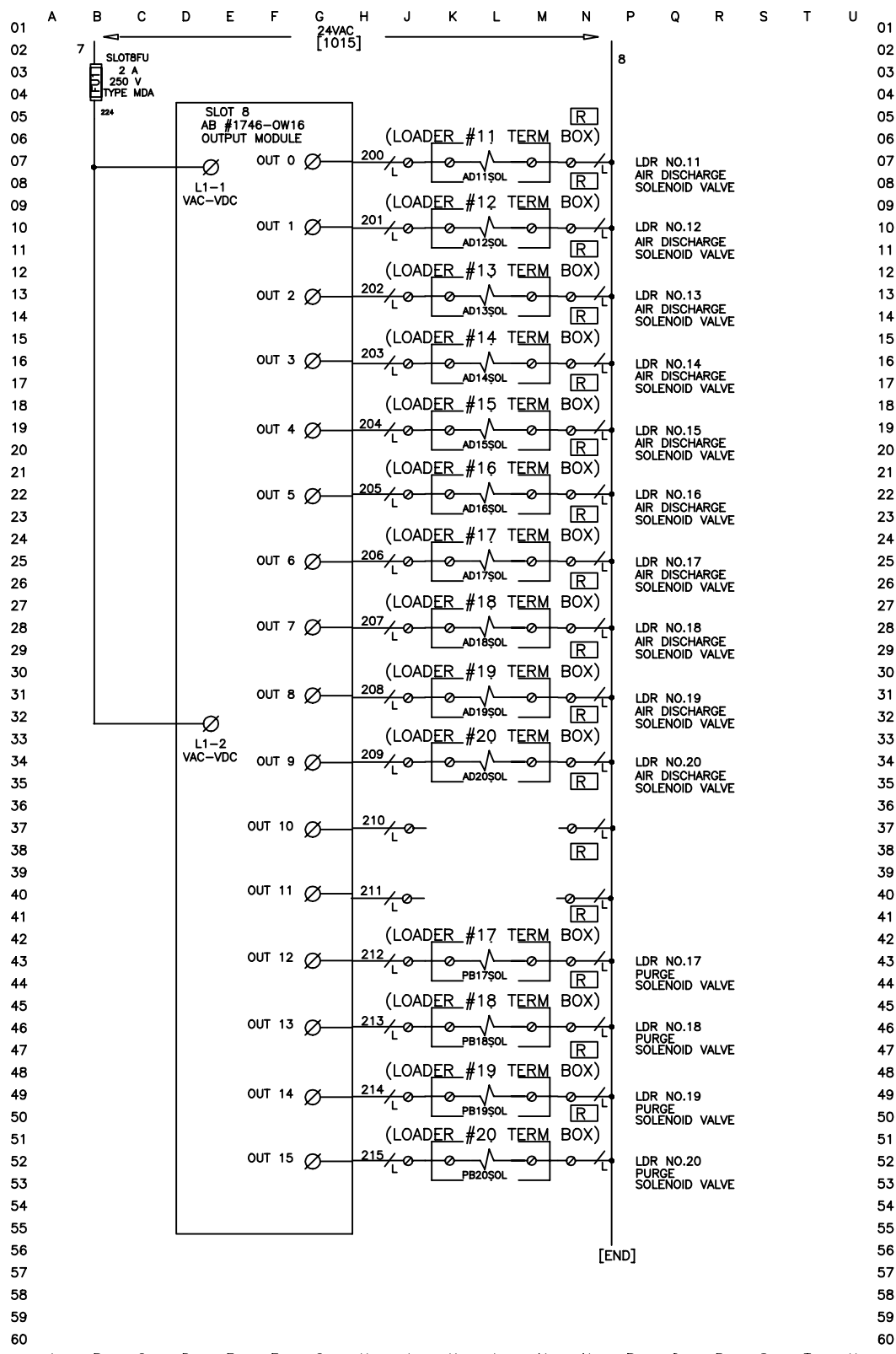
FRACTIONS: ±1/32
DECIMALS MACHINING: ±0.005
DECIMALS SHEETMETAL: ±0.015
ANGLES: ±1/2 DEG.

CONAIR
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LDR 11-20 AIR DISCHARGE
LDR 17-20 PURGE

SHEET 18 of 38

107-559-02



SENTRAL LOADING CONTROL FOR CDS SYSTEMS
ELECTRICAL WIRING FOR CONTROL AND MMI

REV	BY	DESCRIPTION
A	RJP	INITIAL RELEASE
B	SA	GENERAL REVISIONS
C	SA	UPDATED TITLE BLOCK

DATE	APP
10-13-00	KB
09-22-00	KB
10-15-97	KG

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ARE:

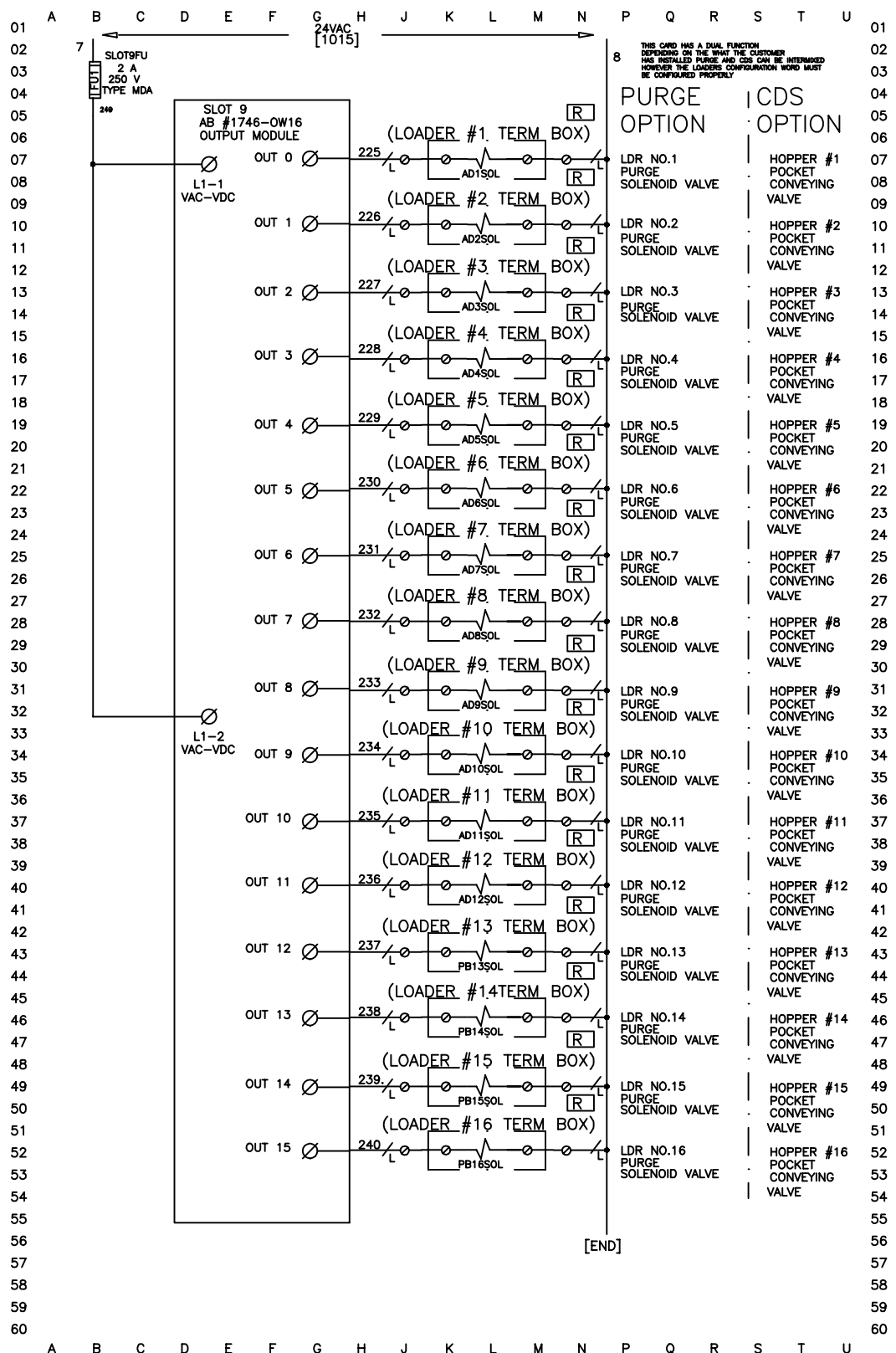
FRACTIONS: ±1/32
DECIMALS MACHINING: ±0.005
DECIMALS SHEETMETAL: ±0.015
ANGLES: ±1/2 DEG.

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LDR 1-16 PURGE
HOPPER POCKET CONVEYING

SHEET 19 of 38 107-559-02



SENTRAL LOADING CONTROL FOR CDS SYSTEMS
ELECTRICAL WIRING FOR CONTROL AND MMI

REV	BY	DESCRIPTION	DATE	APP
C	SA	UPDATED TITLE BLOCK	10-13-00	KB
B	SA	GENERAL REVISIONS	09-22-00	KB
A	RLP	INITIAL RELEASE	10-15-97	KG

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ARE:

FRACTIONS: ±1/32
DECIMALS MACHINING: ±0.005
DECIMALS SHEETMETAL: ±0.015
ANGLES: ±1/2 DEG.

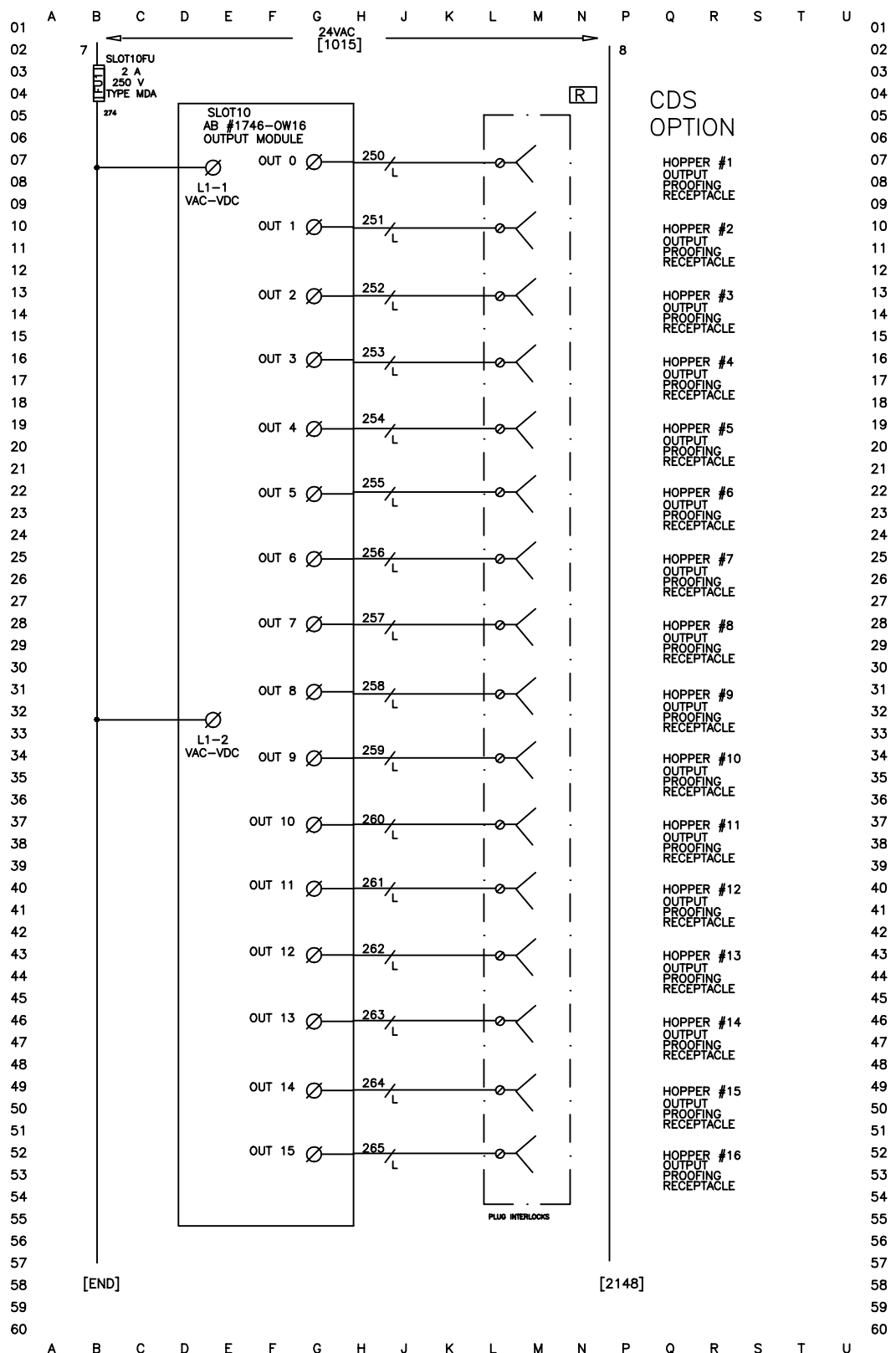
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Pittsburgh, PA 15202

**HOPPER OUTPUT PROOFING
RECEPTACLES 1-16**

SHEET 20 of 38

107-559-02



SENTRAL LOADING CONTROL FOR CDS SYSTEMS
ELECTRICAL WIRING FOR CONTROL AND MMI

REV	BY	DESCRIPTION	DATE	APP
A	RLP	INITIAL RELEASE	10-15-97	KG
B	SA	GENERAL REVISIONS	09-22-00	KB
C	SA	UPDATED TITLE BLOCK	10-13-00	KB

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ARE:

FRACTIONS: ±1/32
DECIMALS MACHINING: ±0.005
DECIMALS SHEETMETAL: ±0.015
ANGLES: ±1/2 DEG.

SIZE: B DWN BY: RLP

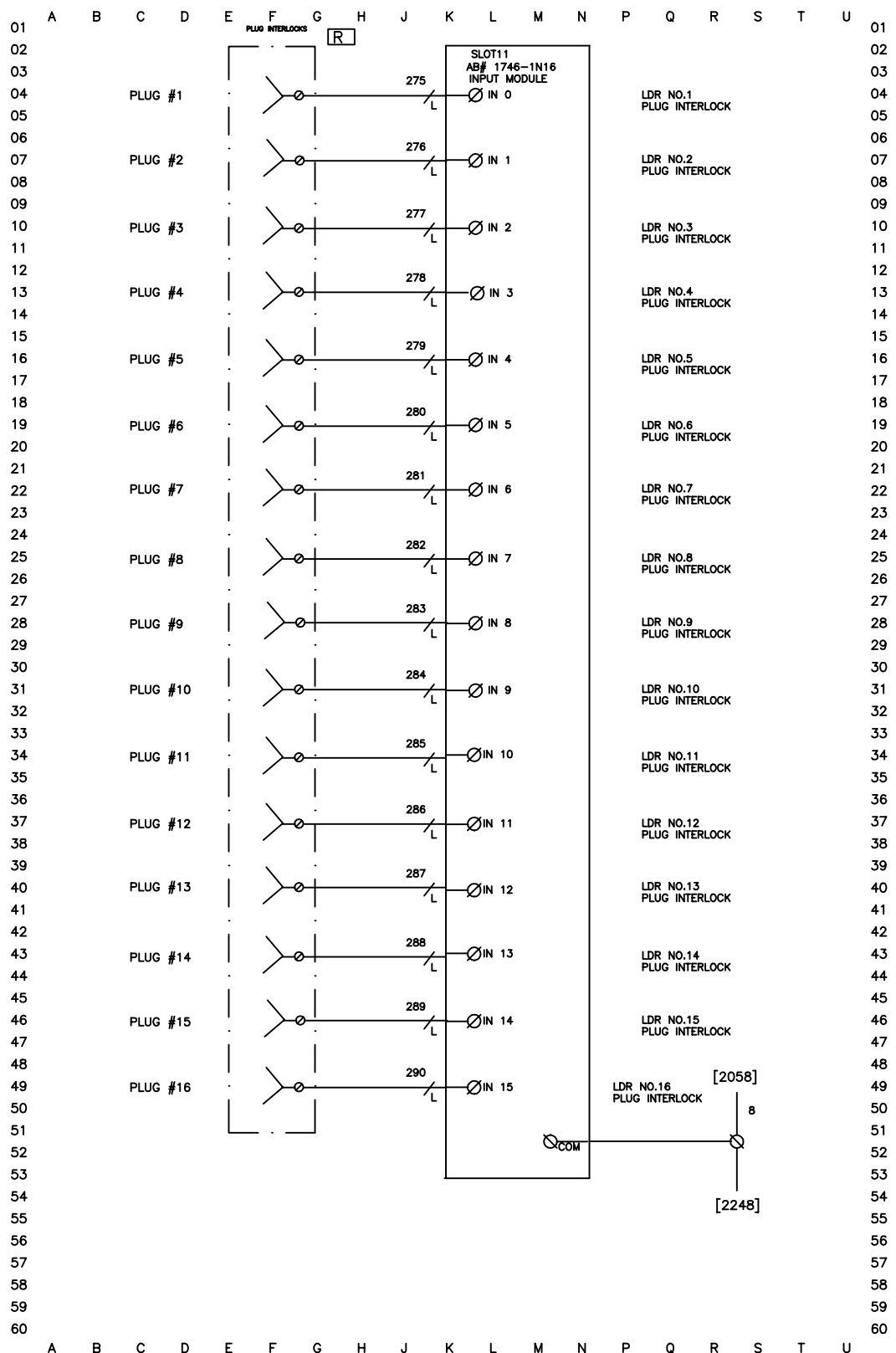
SHEET 21 of 38

107-559-02

CONRAD

The Conrad Group Inc
One Conrad Drive
Pittsburgh, PA 15202

LDR 1-16 PROOFING INTERLOCK



SENTRAL LOADING CONTROL FOR CDS SYSTEMS
ELECTRICAL WIRING FOR CONTROL AND MMI

REV	BY	DESCRIPTION	DATE	APP
A	RLP	INITIAL RELEASE	10-15-97	KG
B	SA	GENERAL REVISIONS	09-27-00	KB
C	SA	UPDATED TITLE BLOCK	10-13-00	KB

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
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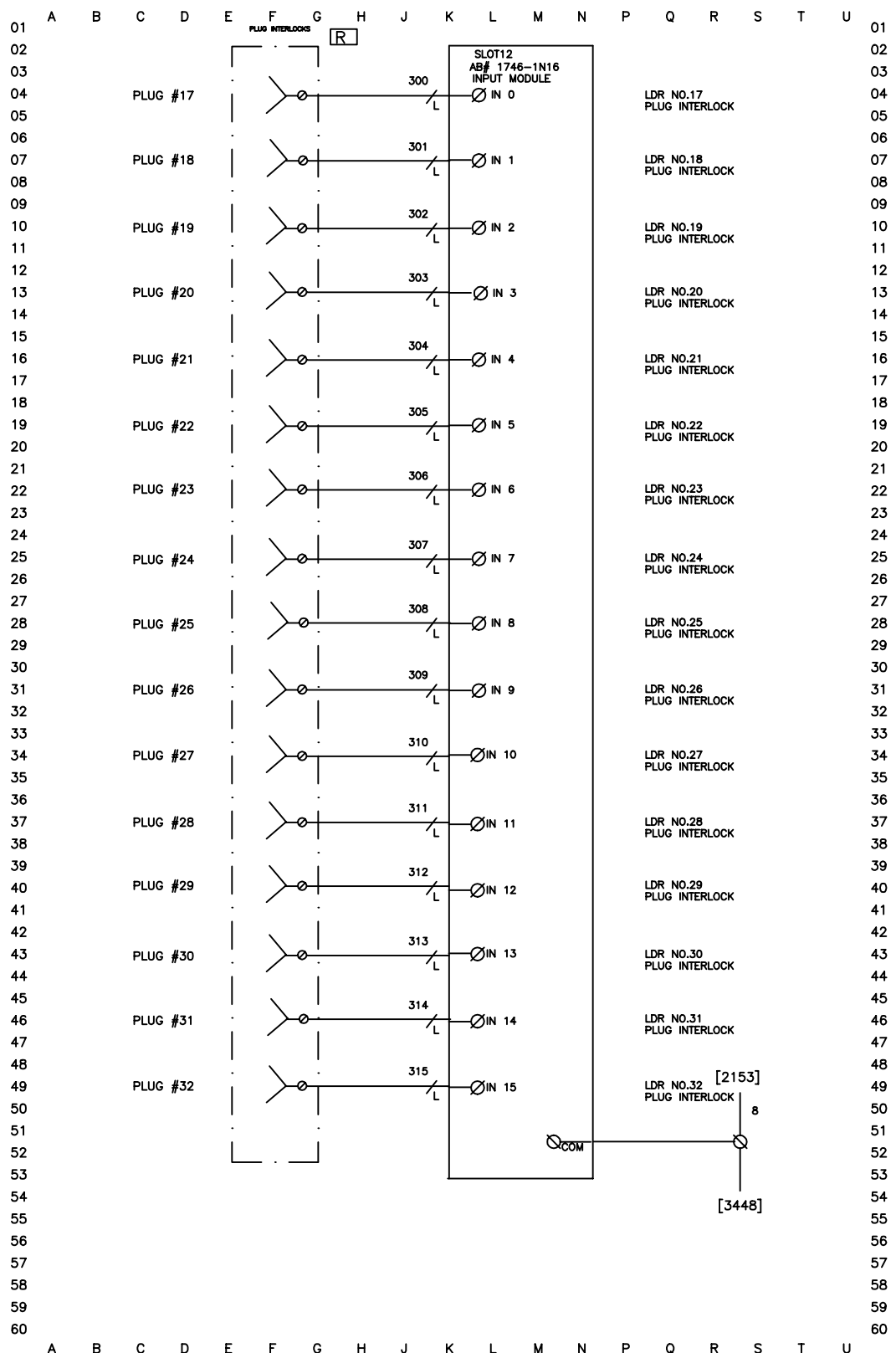
FRACTIONS: ±1/32
DECIMALS MACHINING: ±0.005
DECIMALS SHEETMETAL: ±0.015
ANGLES: ±1/2 DEG.

SIZE: B DWN BY: RLP

SHEET 22 of 38 107-559-02

CONAIR
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One Conair Drive
Pittsburgh, PA 15202

LDR 17-32 PROOFING INTERLOCK



SENTRAL LOADING CONTROL FOR CDS SYSTEMS
ELECTRICAL WIRING FOR CONTROL AND MMI

REV	BY	DESCRIPTION
C	SA	UPDATED TITLE BLOCK
A	RLP	INITIAL RELEASE
	DATE	10-13-00
	APP	KG


UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ARE:

FRACTIONS: ±1/32
DECIMALS MACHINING: ±0.005
DECIMALS SHEETMETAL: ±0.015
ANGLES: ±1/2 DEG.

SHEET 23 of 38

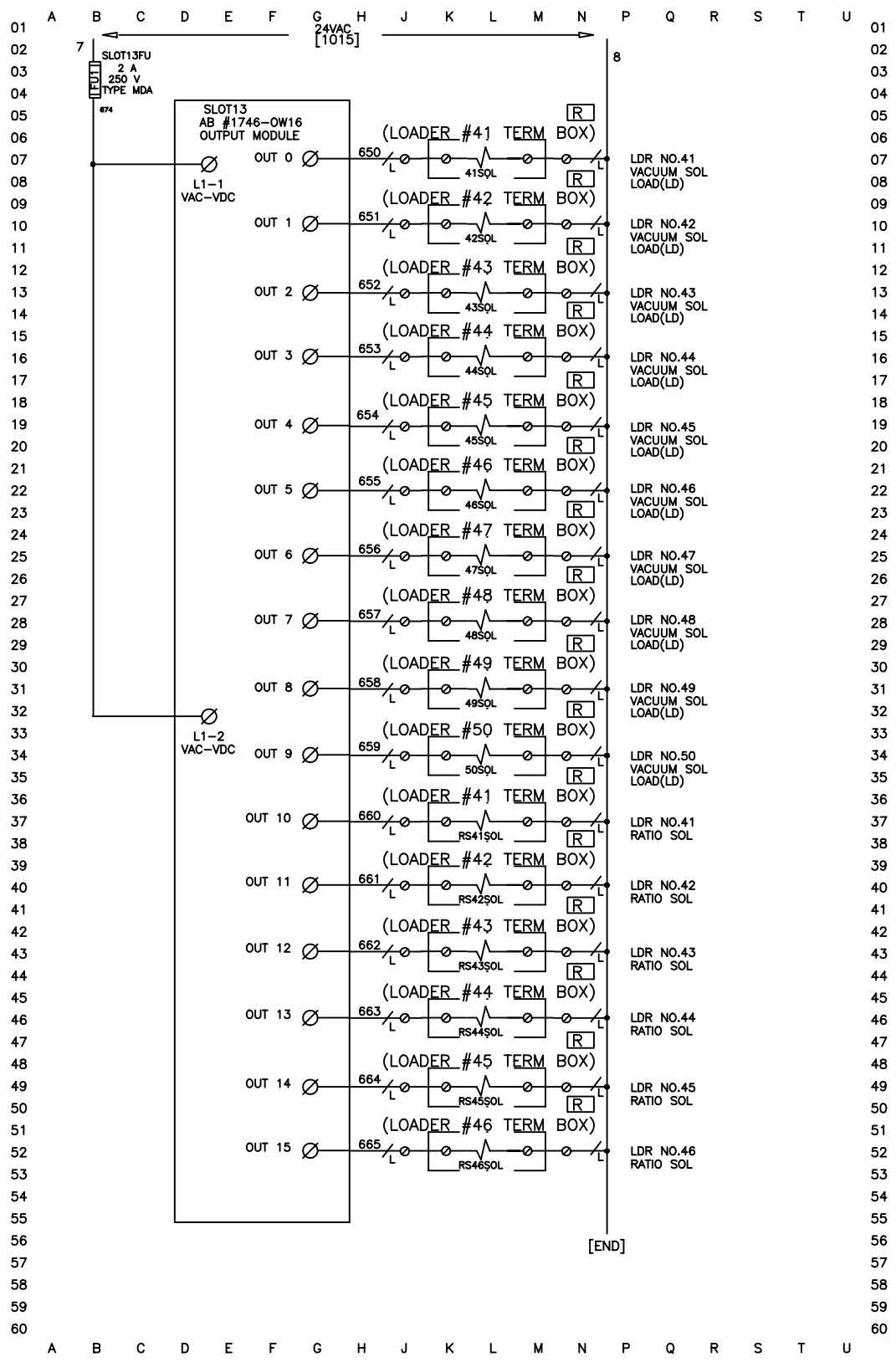
107-559-02

C



The Conair Group Inc
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Pittsburg, PA 15202

LDR 41-50 LOAD
LDR 41-46 RATIO



SENTRAL LOADING CONTROL FOR CDS SYSTEMS
ELECTRICAL WIRING FOR CONTROL AND MMI

REV	BY	DESCRIPTION	DATE	APP
A	RJP	INITIAL RELEASE	10-15-97	KG
B	SA	GENERAL REVISIONS	09-22-00	KB
C	SA	UPDATED TITLE BLOCK	10-13-00	KB

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ARE:

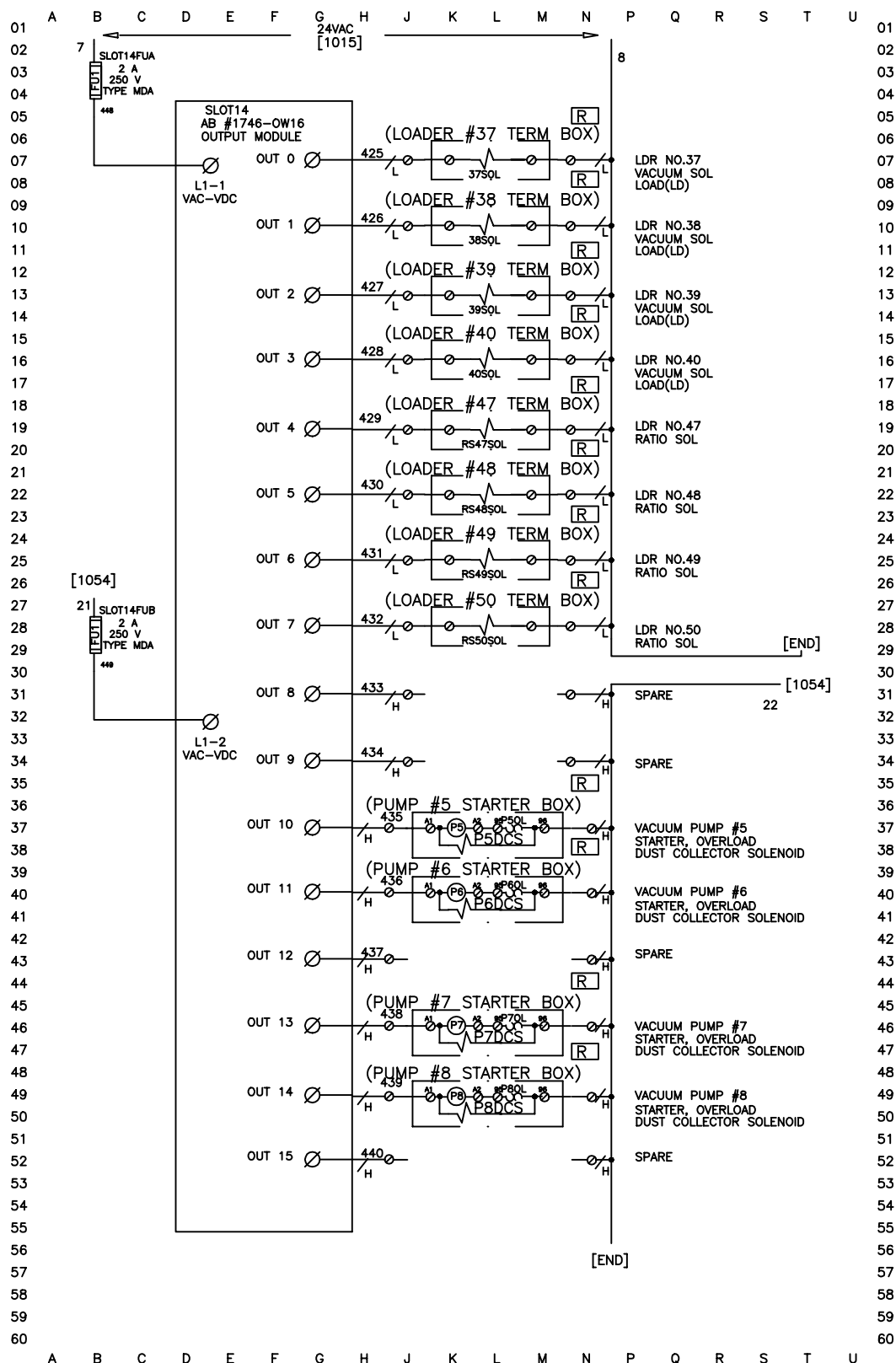
FRACTIONS: ±1/32
DECIMALS MACHINING: ±0.005
DECIMALS SHEETMETAL: ±0.015
ANGLES: ±1/2 DEG.

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Pittsburgh, PA 15202

LDR 37-40 VACUUM, LDR 47-50 RATIO
PUMP 5-8 OVERLOAD

SHEET 24 of 38

107-559-02



SENTRAL LOADING CONTROL FOR CDS SYSTEMS
ELECTRICAL WIRING FOR CONTROL AND MM

REV	BY	SA	DESCRIPTION
A	RLP	UPDATED TITLE BLOCK	INITIAL RELEASE
C	BY	10-13-00	10-15-97
	APP	KG	KB

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ARE:

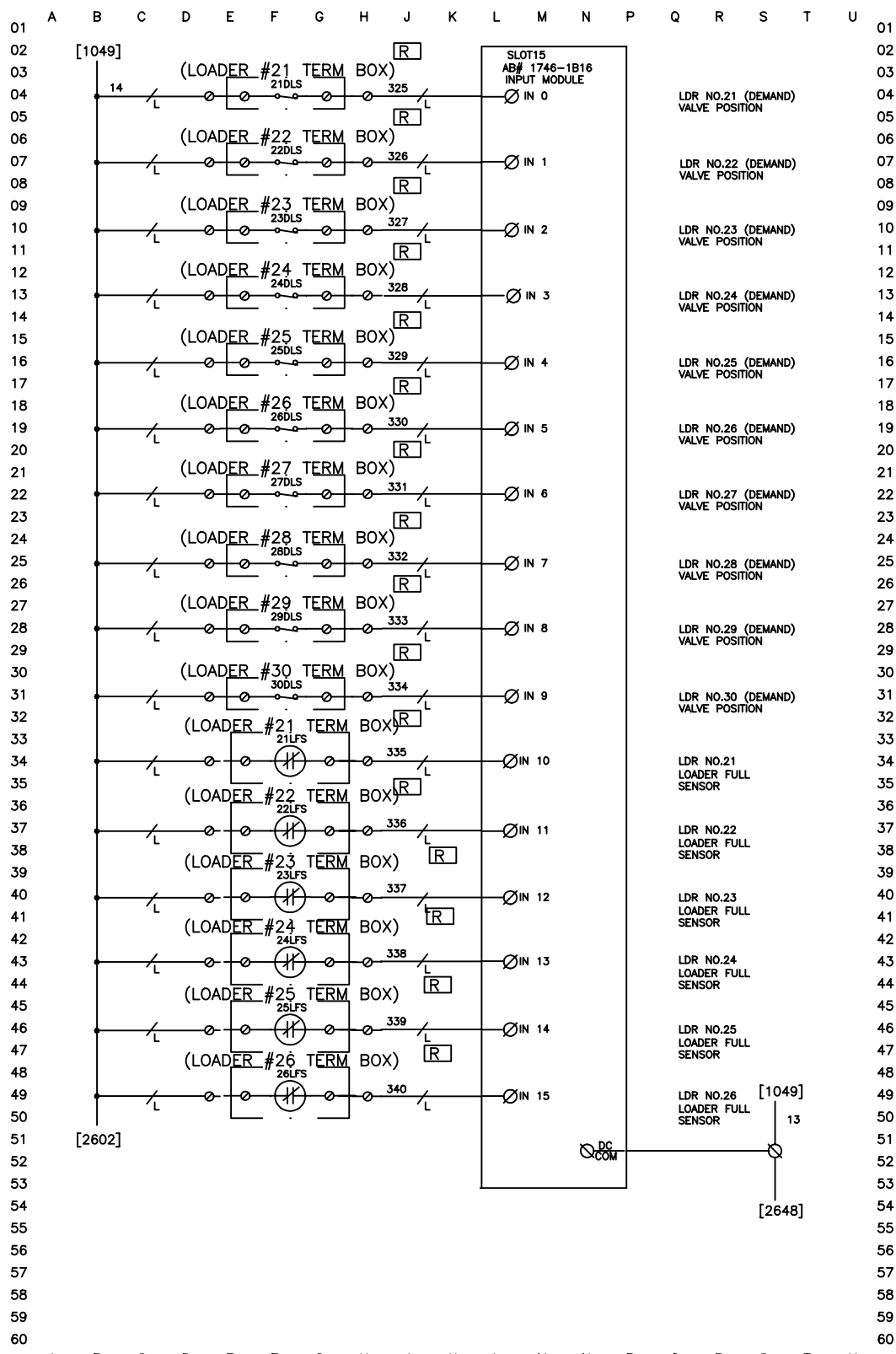
FRACTIONS: ±1/32
DECIMALS MACHINING: ±0.005
DECIMALS SHEETMETAL: ±0.015
ANGLES: ±1/2 DEG.

SIZE: B DWN BY: RLP

SHEET 25 of 38 107-559-02

CONAIR
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One Conair Drive
Pittsburgh, PA 15202

LDR 21-30 DEMAND
LDR 21-26 FULL



SENTRAL LOADING CONTROL FOR CDS SYSTEMS
ELECTRICAL WIRING FOR CONTROL AND MMI

REV	BY	DESCRIPTION	DATE	APP
A	RJP	INITIAL RELEASE	10-15-97	KG
B	SA	GENERAL REVISIONS	09-22-00	KB
C	SA	UPDATED TITLE BLOCK	10-13-00	KB

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ARE:

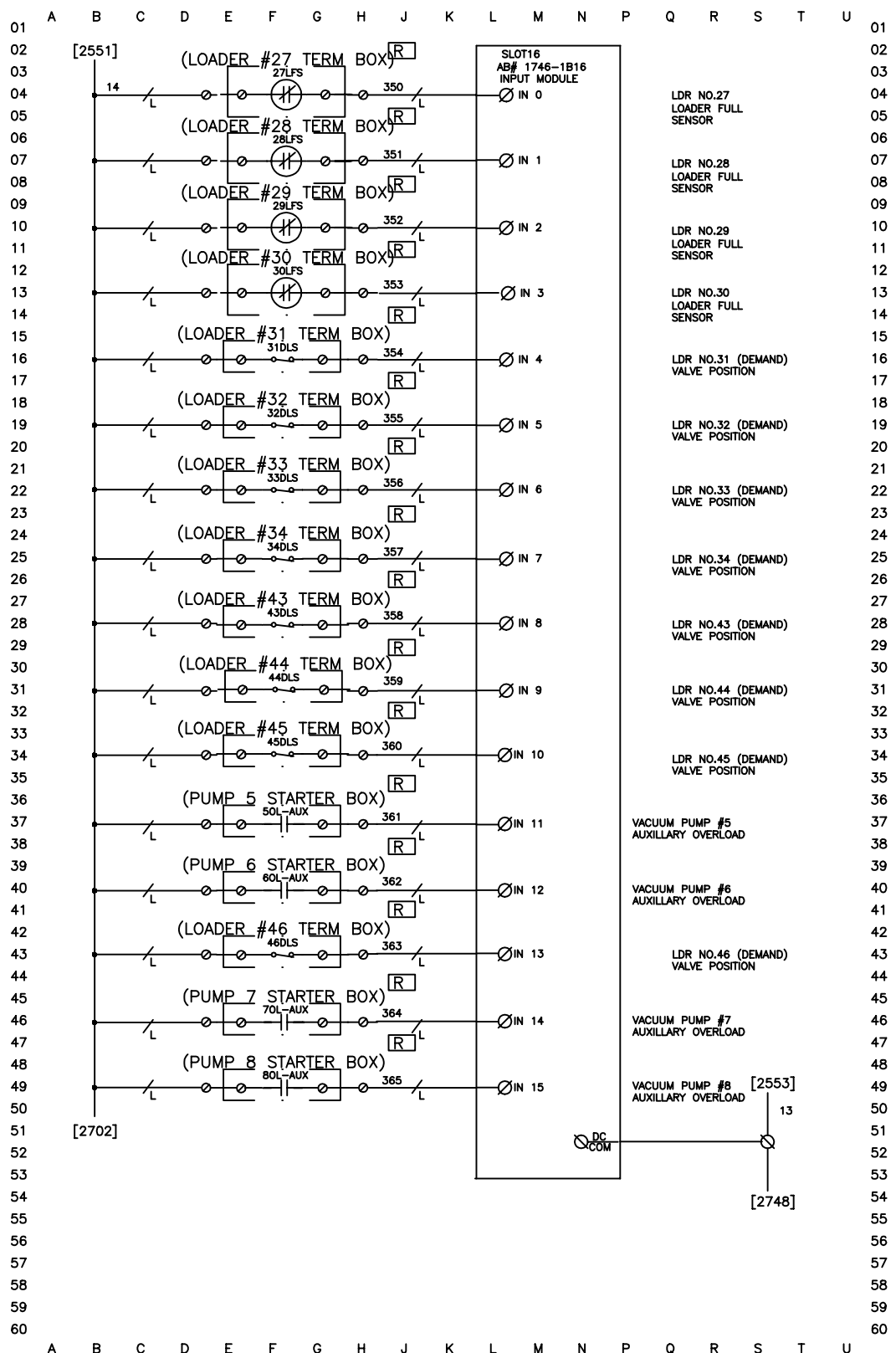
FRACTIONS: ±1/32
DECIMALS MACHINING: ±0.005
DECIMALS SHEETMETAL: ±0.015
ANGLES: ±1/2 DEG.

SIZE: B DWN BY: RJP

SHEET 26 of 38 107-559-02 C

CONAIR
The Conair Group Inc
One Conair Drive
Pittsburgh, PA 15202

LDR 31-34, 43-45, 46 DEMAND
LDR 27-30 FULL, PUMP OLS



SENTRAL LOADING CONTROL FOR CDS SYSTEMS
ELECTRICAL WIRING FOR CONTROL AND MMI

REV	BY	DESCRIPTION
A	RLP	INITIAL RELEASE
C	SA	UPDATED TITLE BLOCK

DATE	10-13-00	KG	KB
APP	10-15-97		

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ARE:

FRACTIONS: ±1/32
DECIMALS MACHINING: ±0.005
DECIMALS SHEETMETAL: ±0.015
ANGLES: ±1/2 DEG.

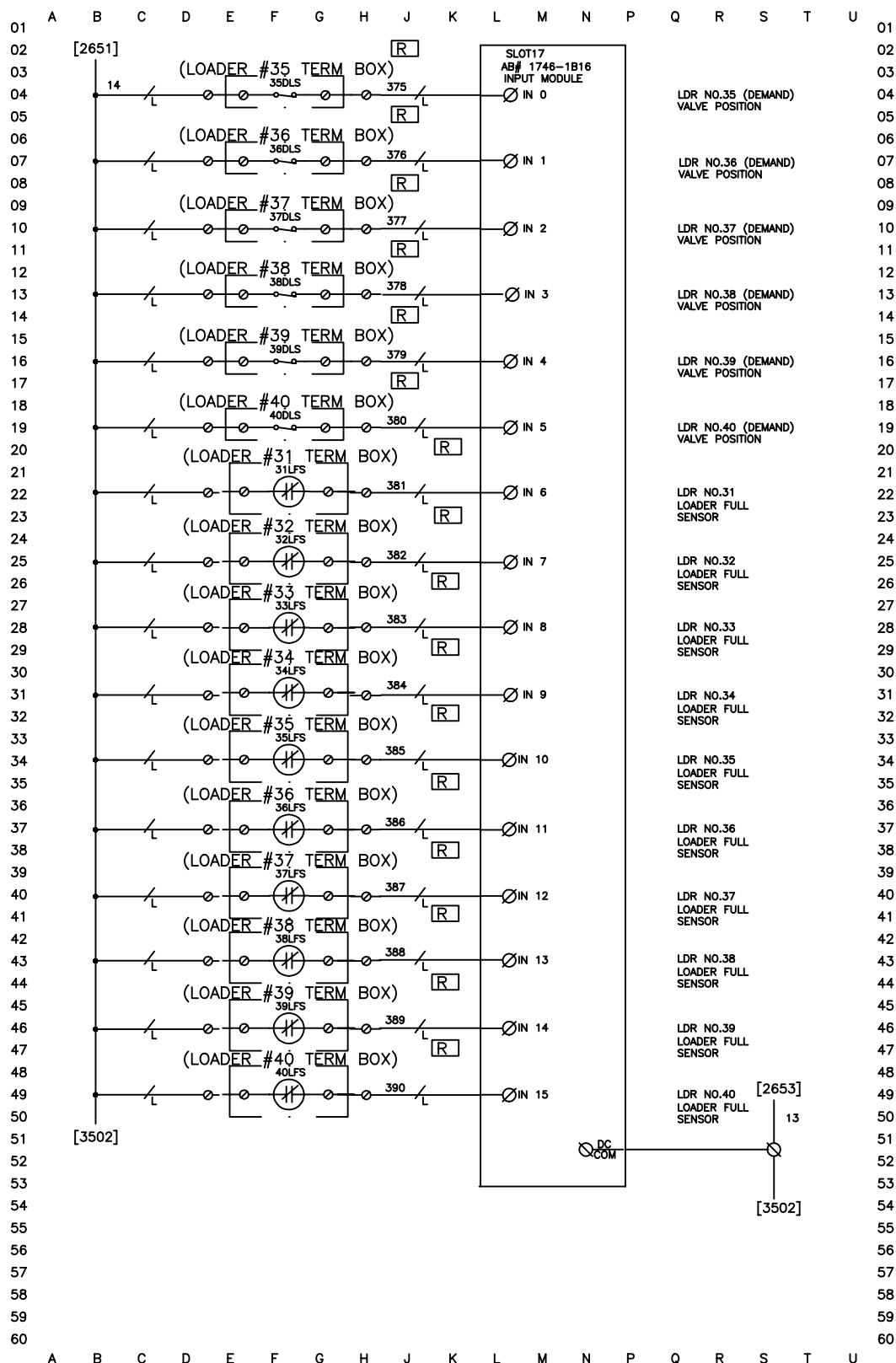
SIZE: B DWN BY: RLP

SHEET 27 of 38

107-559-02

CONAIR
The Conair Group Inc
One Conair Drive
Pittsburgh, PA 15202

LDR 35-40 DEMAND
LDR 31-40 FULL



SENTRAL LOADING CONTROL FOR CDS SYSTEMS
ELECTRICAL WIRING FOR CONTROL AND MMI

REV	BY	DESCRIPTION
C	SA	UPDATED TITLE BLOCK
A	RLP	INITIAL RELEASE
		DATE
	KG	10-13-00
	APP	10-15-97
		KB

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ARE:

FRACTIONS: ±1/32
DECIMALS MACHINING: ±0.005
DECIMALS SHEETMETAL: ±0.015
ANGLES: ±1/2 DEG.

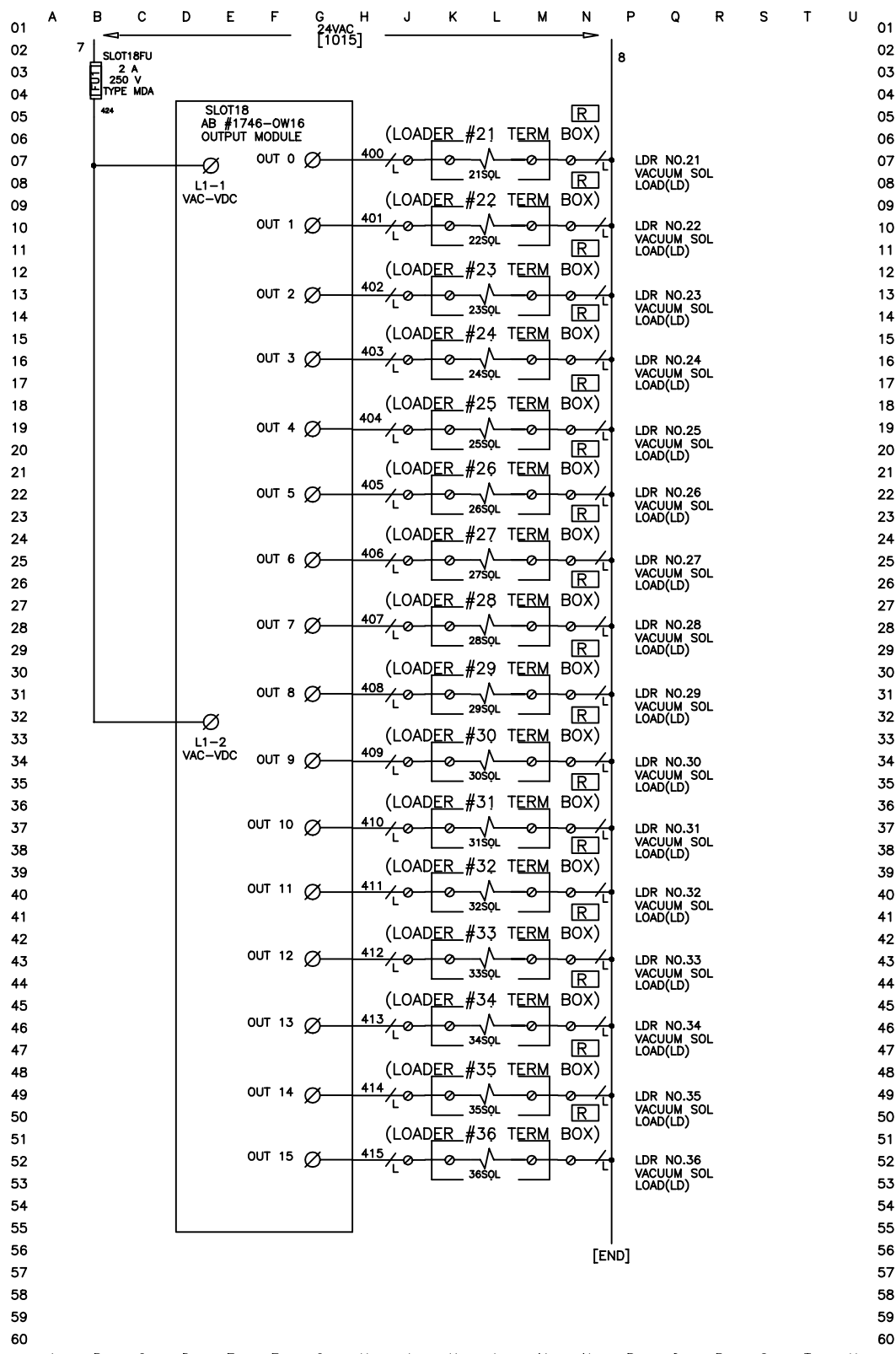
CONAIR

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Pittsburg, PA 15202

LDR 21-36 VACUUM SOLENOID LOAD

SHEET 28 of 38

107-559-02



SENTRAL LOADING CONTROL FOR CDS SYSTEMS
ELECTRICAL WIRING FOR CONTROL AND MMI

REV	BY	DESCRIPTION	DATE	APP
C	SA	UPDATED TITLE BLOCK	10-13-00	KB
A	RJP	INITIAL RELEASE	10-15-97	KG

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ARE:

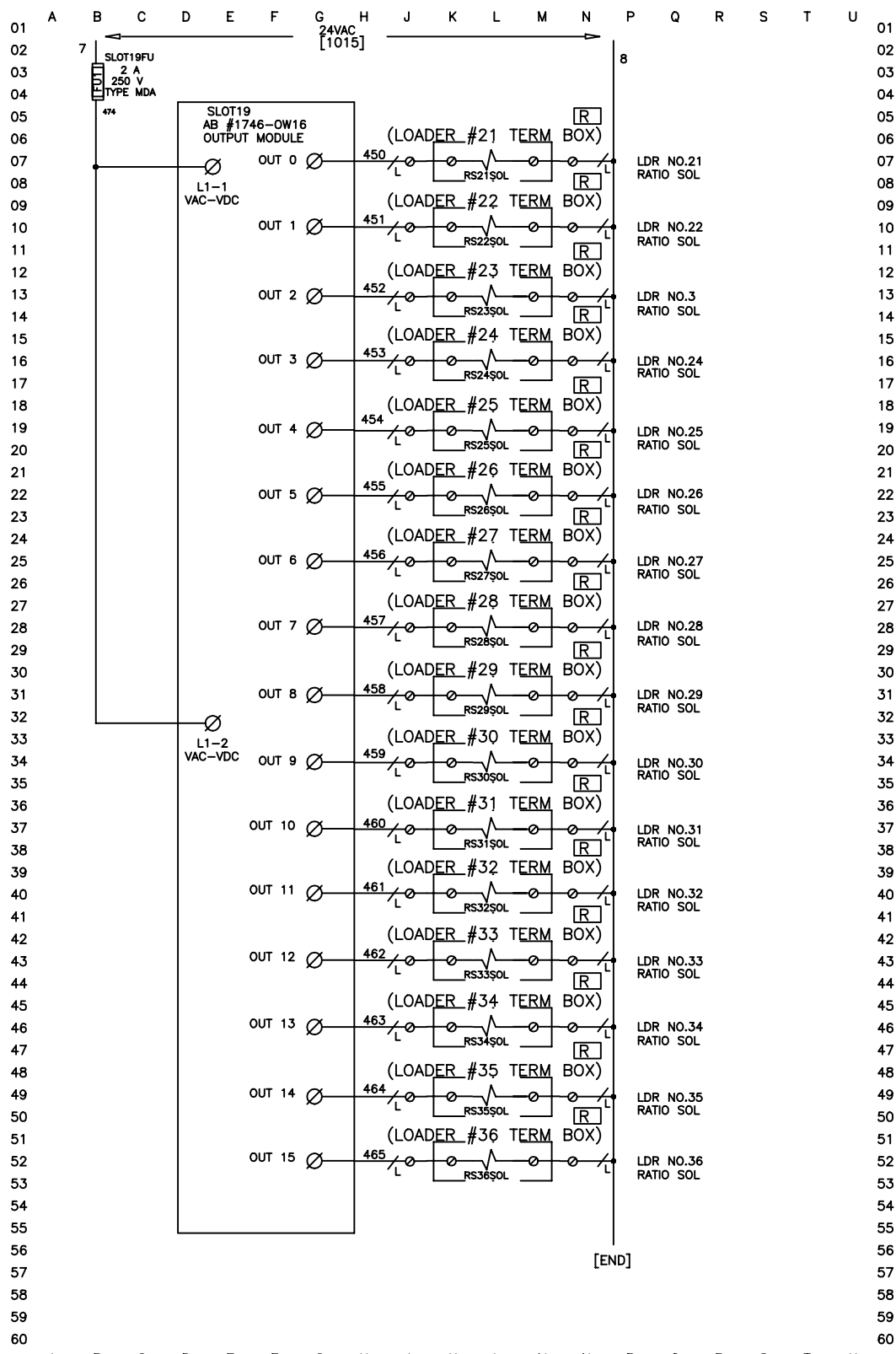
FRACTIONS: ±1/32
DECIMALS MACHINING: ±0.005
DECIMALS SHEETMETAL: ±0.015
ANGLES: ±1/2 DEG.

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Pittsburgh, PA 15202

ELEMENTARY DIAGRAM
LDR 21-36 RATIO

SHEET 29 of 38

107-559-02



SENTRAL LOADING CONTROL FOR CDS SYSTEMS
ELECTRICAL WIRING FOR CONTROL AND MMI

REV	BY	DESCRIPTION	DATE	APP
A	RJP	INITIAL RELEASE	10-15-97	KG
B	SA	GENERAL REVISIONS	09-27-00	KB
C	SA	UPDATED TITLE BLOCK	10-13-00	KB

UNLESS OTHERWISE SPECIFIED
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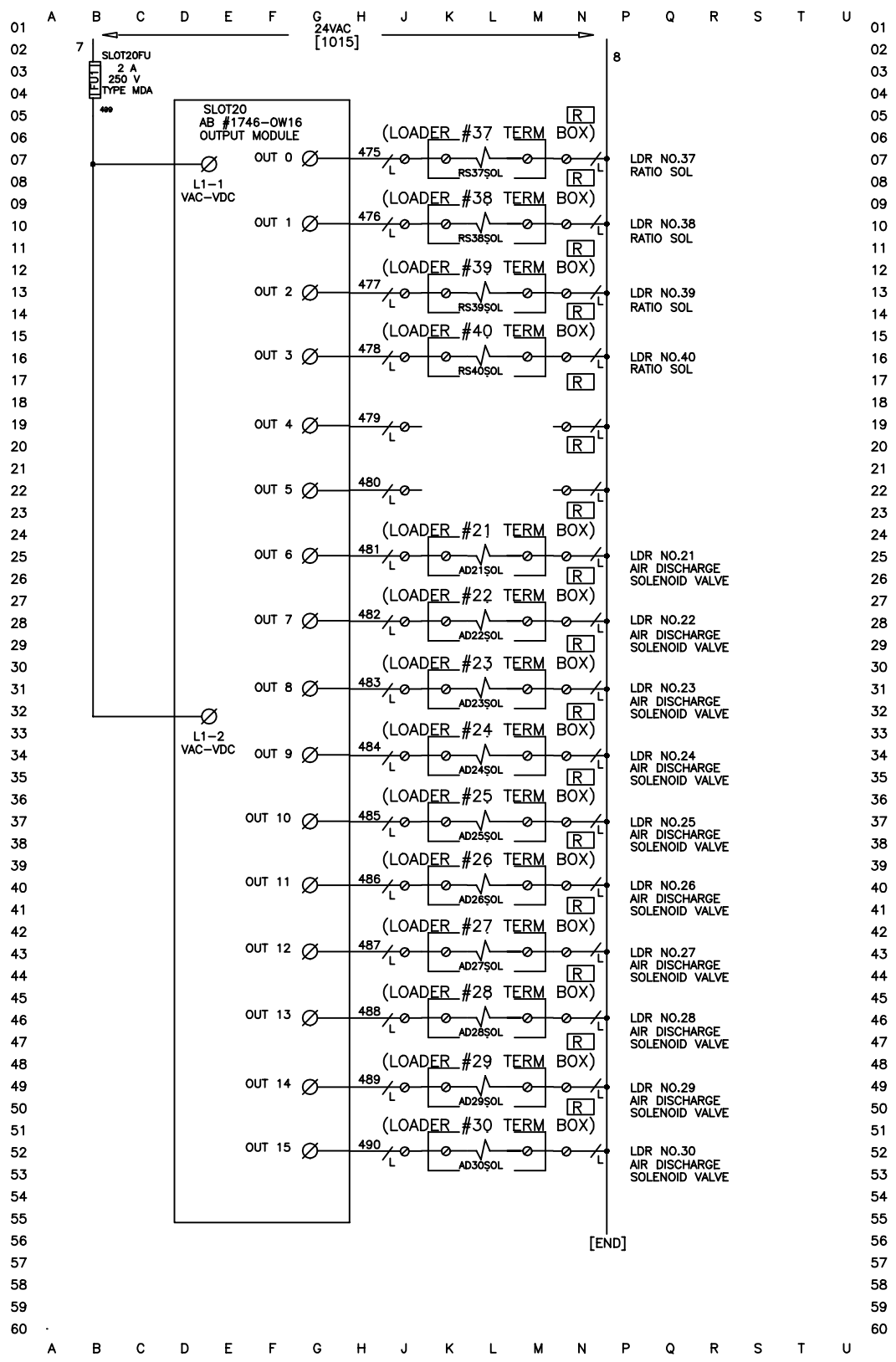
FRACTIONS: ±1/32
DECIMALS MACHINING: ±0.005
DECIMALS SHEETMETAL: ±0.015
ANGLES: ±1/2 DEG.

CONAIR

The Conair Group Inc
One Conair Drive
Pittsburgh, PA 15202

LDR 37-40 RATIO
LDR 21-30 AIR DISCHARGE

SHEET 30 of 38 107-559-02



SENTRAL LOADING CONTROL FOR CDS SYSTEMS
ELECTRICAL WIRING FOR CONTROL AND MM

REV	BY	DESCRIPTION	DATE	APP
A	RJP	INITIAL RELEASE	10-15-97	KG
B	SA	GENERAL REVISIONS	09-24-00	KB
C	SA	UPDATED TITLE BLOCK	10-13-00	KB

UNLESS OTHERWISE SPECIFIED
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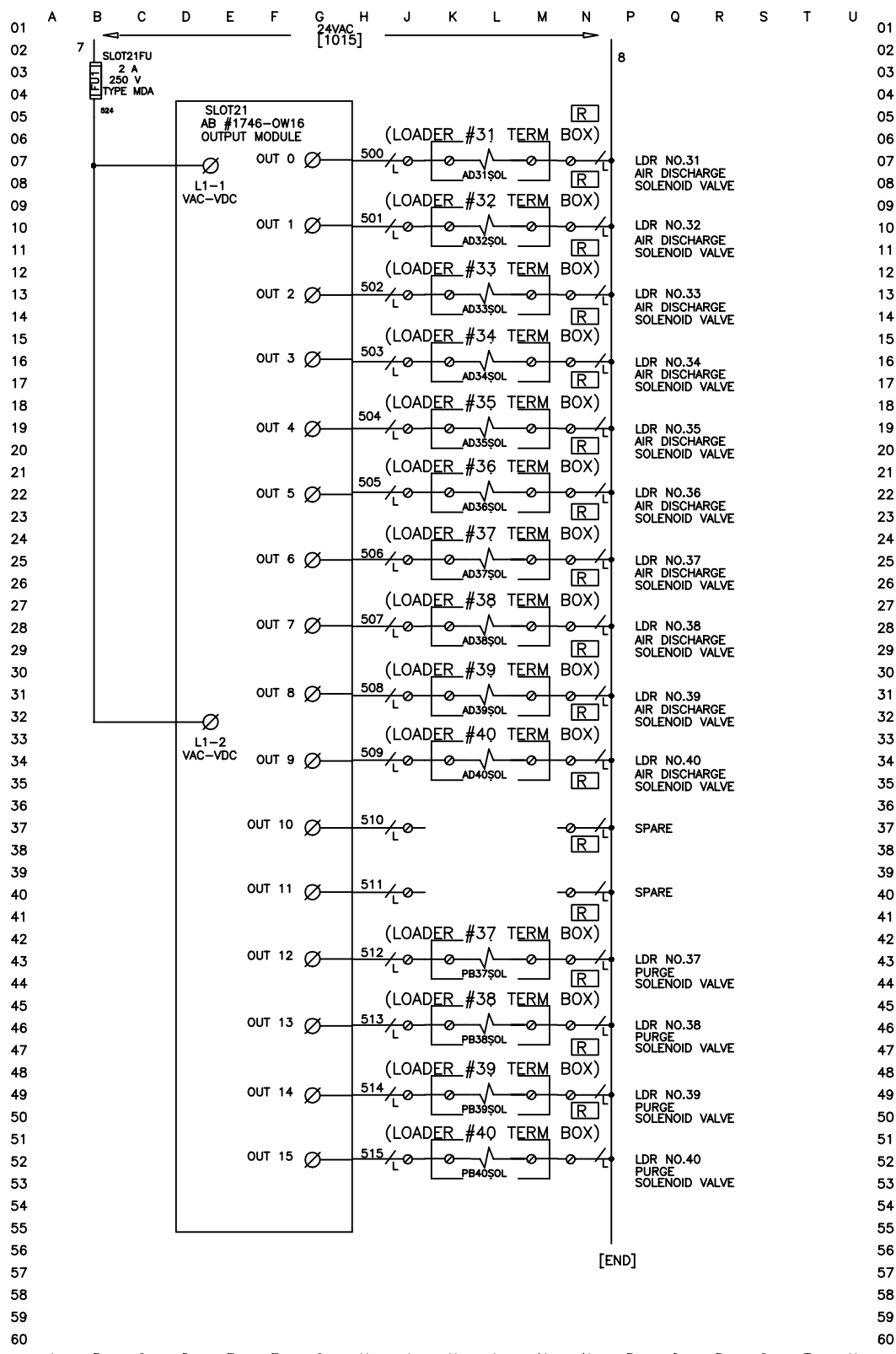
FRACTIONS: ±1/32
DECIMALS MACHINING: ±0.005
DECIMALS SHEETMETAL: ±0.015
ANGLES: ±1/2 DEG.

CONAIR
The Conair Group Inc
One Conair Drive
Pittsburgh, PA 15202

LDR 31-40 AIR DISCHARGE
LDR 37-40 PURGE

SHEET 31 of 38

107-559-02



SENTRAL LOADING CONTROL FOR CDS SYSTEMS
ELECTRICAL WIRING FOR CONTROL AND MM

REV	BY	DESCRIPTION	DATE	APP
A	RJP	INITIAL RELEASE	10-15-97	KG
B	SA	GENERAL REVISIONS	09-24-00	KB
C	SA	UPDATED TITLE BLOCK	10-13-00	KB

UNLESS OTHERWISE SPECIFIED
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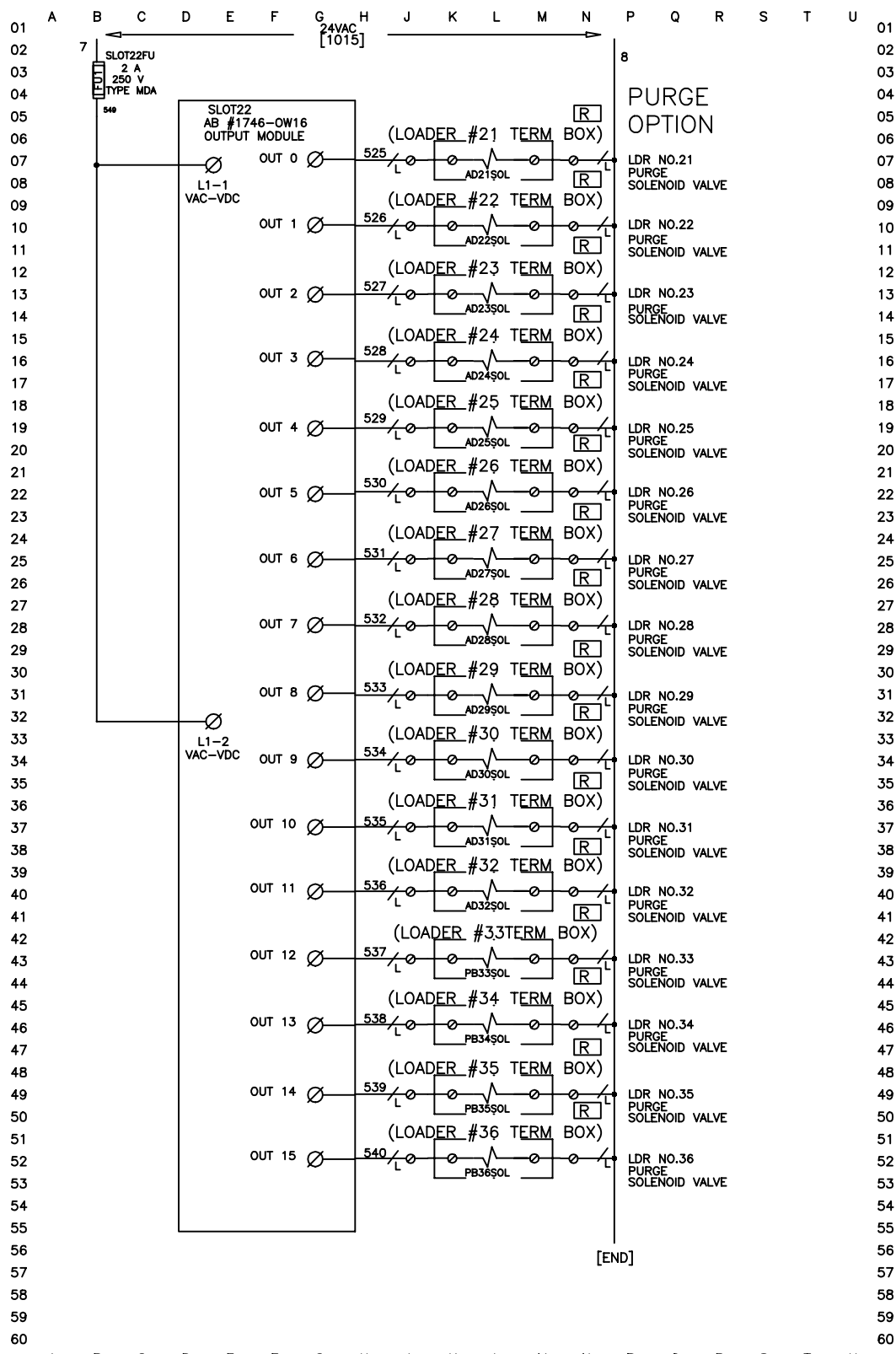
FRACTIONS: ±1/32
DECIMALS MACHINING: ±0.005
DECIMALS SHEETMETAL: ±0.015
ANGLES: ±1/2 DEG.

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One Conair Drive
Pittsburgh, PA 15202

LDR 21-36
PURGE

SHEET 32 of 38

107-559-02



SENTRAL LOADING CONTROL FOR CDS SYSTEMS
ELECTRICAL WIRING FOR CONTROL AND MMI

REV	BY	DESCRIPTION	DATE	APP
A	RJP	INITIAL RELEASE	10-15-97	KG
B	SA	GENERAL REVISIONS	09-25-00	KB
C	SA	UPDATED TITLE BLOCK	10-13-00	KB

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ARE:

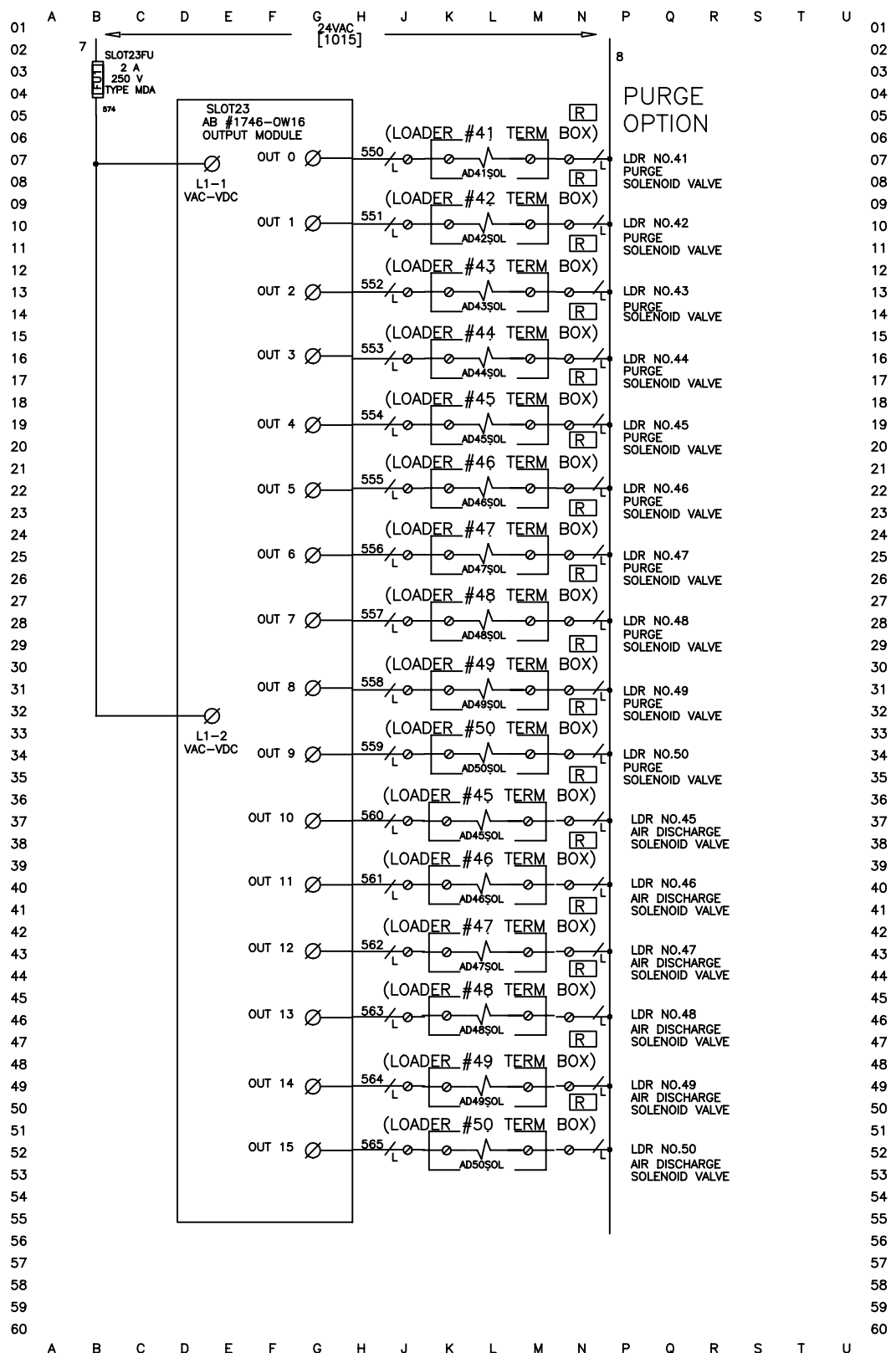
FRACTIONS: ±1/32
DECIMALS MACHINING: ±0.005
DECIMALS SHEETMETAL: ±0.015
ANGLES: ±1/2 DEG.

CONAIR

The Conair Group Inc
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Pittsburgh, PA 15202

LDR 41-50 PURGE
LDR 45-50 AIR DISCHARGE

SHEET 33 of 38 107-559-02



SENTRAL LOADING CONTROL FOR CDS SYSTEMS
ELECTRICAL WIRING FOR CONTROL AND MMI

REV	BY	DESCRIPTION	DATE	APP
C	SA	UPDATED TITLE BLOCK	10-13-00	KB
A	RLP	INITIAL RELEASE	10-15-97	KG

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ARE:

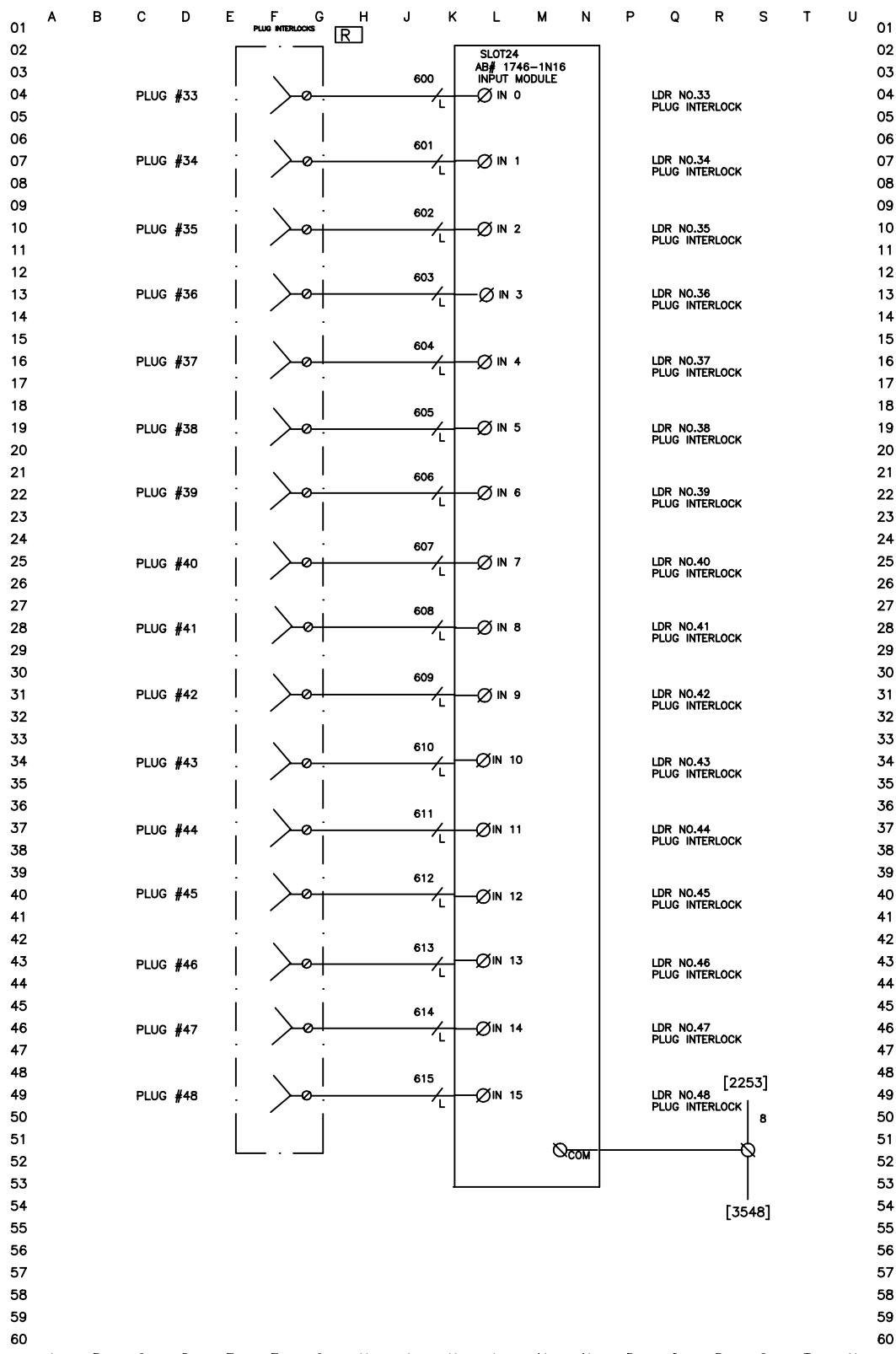
FRACTIONS: ±1/32
DECIMALS MACHINING: ±0.005
DECIMALS SHEETMETAL: ±0.015
ANGLES: ±1/2 DEG.

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Pittsburgh, PA 15202

ELEMENTARY DIAGRAM
LDR 33-48 PLUG INTERLOCK

SHEET 34 of 38

107-559-02



SENTRAL LOADING CONTROL FOR CDS SYSTEMS
ELECTRICAL WIRING FOR CONTROL AND MMI

REV	BY	DESCRIPTION	DATE	APP
C	SA	UPDATED TITLE BLOCK	10-13-00	KB
A	RLP	INITIAL RELEASE	10-15-97	KG

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ARE:

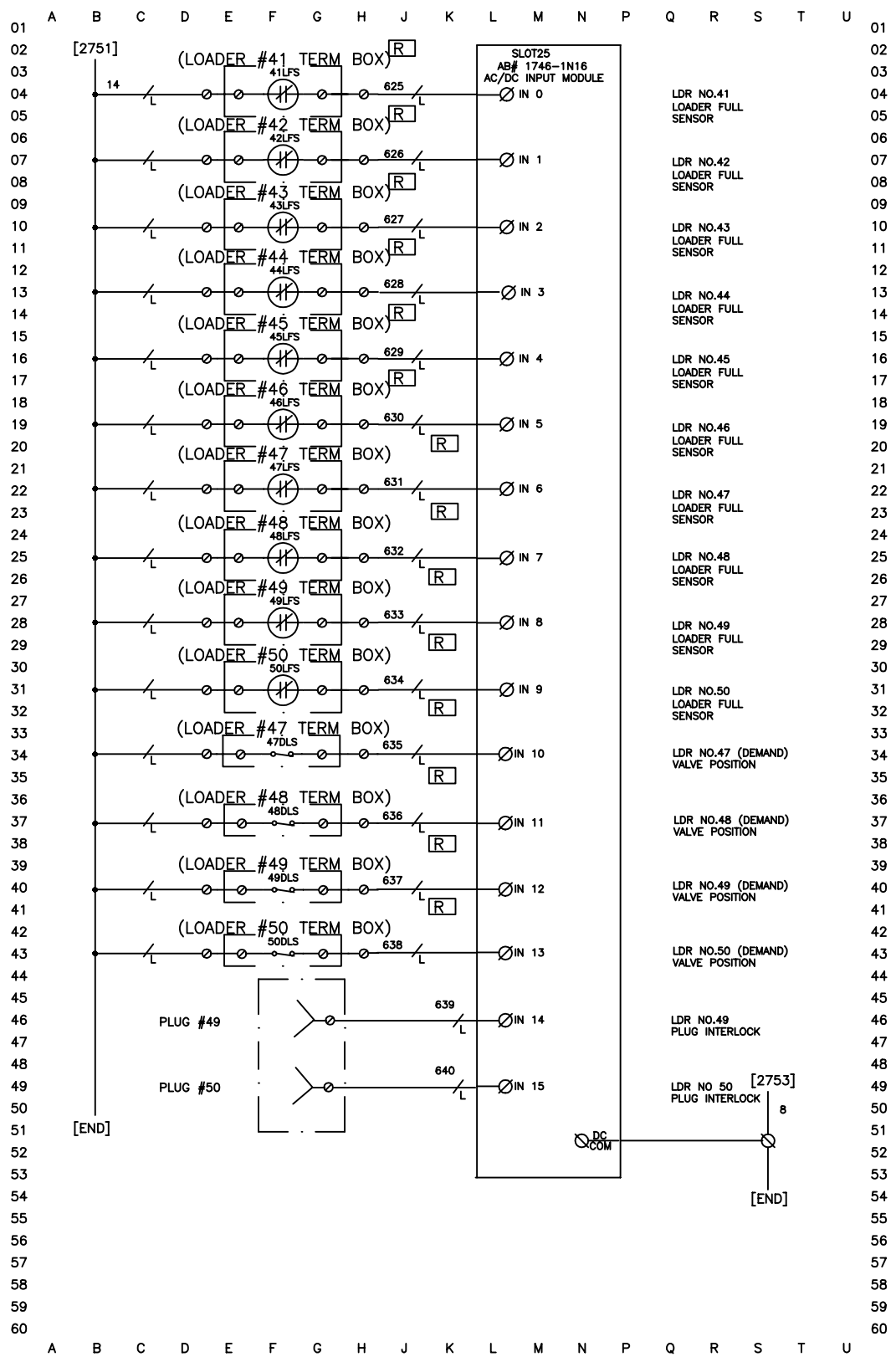
FRACTIONS: ±1/32
DECIMALS MACHINING: ±0.005
DECIMALS SHEETMETAL: ±0.015
ANGLES: ±1/2 DEG.

SIZE: B DWN BY: RLP

CONAIR
The Conair Group Inc
One Conair Drive
Pittsburgh, PA 15202

LDR 47-50 DEMAND
LDR 41-50 FULL, 49,50 PROOF

SHEET 35 of 38 107-559-02



SENTRAL LOADING CONTROL FOR CDS SYSTEMS
ELECTRICAL WIRING FOR CONTROL AND MMI

PARTS LIST

PARTS LIST

ITEM	QTY REQ	U/M	CONVAR PART NUMBER	NOMENCLATURE	REFERENCE	DESCRIPTION
1	1	EA	206-066-25	PSFU	107-559/10	6A MDA BUSS FUSE
2	1	EA	209-022-01	PSFUH	107-559/10	FUSE HOLDER A/B #1492-H6
3	1	EA	188-406-05	PSLF	107-559/10	POWER FILTER ASSEMBLY
4	1	EA	209-620-05	IT	107-559/10	250 VA 120/24 VXFMR ACME #TA-2-81146
5	1	EA	209-605-02	PS1	107-559/10	POWER SUPPLY A/B #1746-P2
6	1	EA	209-605-37	RACK1	107-559/10	13 SLOT CHASSIS A/B #1746-A13
7	1	EA	209-605-22	CB1	107-559/10	3FT INERCONNECTING CABLE
8	1	EA	206-066-01	DCFU1	107-559/10	1A MDA BUSS FUSE
9	1	EA	209-022-01	DCFUH1	107-559/10	FUSE HOLDER 1492-H6
10	1	EA	206-066-01	DCFU2	107-559/10	1A MDA BUSS FUSE
11	1	EA	209-022-01	DCFUH2	107-559/10	FUSE HOLDER A/B #1492-H6
12	1	EA	209-605-02	PS2	107-559/10	POWER SUPPLY A/B #1746-P2
13	1	EA	209-605-37	RACK2	107-559/10	13 SLOT CHASSIS A/B #1746-A13
14	1	EA	209-605-35	MCPU	107-559/10	SLC 5/03 PROCESSOR A/B #1747-L532
15	1	EA	206-066-01	PTFU	107-559/10	1A MDA BUSS FUSE
16	1	EA	209-022-01	PTFUH	107-559/10	FUSE HOLDER A/B #1492-H6
17	1	EA	209-431-19	PIPS	107-559/10	24VDC 2.4A POWER SOLUTIONS POWER SUPPLY (AL-065-S4)
18	1	EA	209-724-02	P1	107-559/10	CTC 6" T-SCREEN OPER. INTERFACE
19	1	EA	209-724-10	P1RECIPE	107-559/10	CTC OPERATOR RECIPE MODULE
20	1	EA	209-605-45	CB12	107-559/10	INTERCONNECTING CABLE, P1 TO MCPU
21	1	EA	209-720-64	CPCB	107-559/10	CONTROL POWER CIRCUIT BREAKER
22	1	EA	200-038-01	CPCON	107-559/10	CONTROL POWER CONTRACTOR, 100-A09ND3
23	1	EA	203-033-01	SSW1	107-559/10	MAIN POWER ON SELECTOR SWITCH
24	1	EA	202-012-01	SSW1	107-559/10	MAIN POWER ON SELECTOR SWITCH
25	1	EA	204-018-01	LI1	107-559/10	CONTROL POWER ON INDICATING LIGHT
26	1	EA	204-018-11	LI1	107-559/10	CONTROL POWER ON INDICATING LIGHT
27	1	EA	204-019-08	LI2	107-559/10	GROUND INDICATOR LIGHT
28	1	EA	204-018-11	LI2	107-559/10	GROUND INDICATOR LIGHT
34	1	EA	206-066-02	SLOTFUA	107-559/11	2A MDA BUSS FUSE
35	1	EA	209-022-01	SLOTFUHA	107-559/11	FUSE HOLDER A/B #1492-H6
36	1	EA	209-605-09	SLOT1	107-559/11	115VAC OUTPUT MODULE (16) A/B #1746-OW16
39	1	EA	206-066-03	SLOTFUB	107-559/15	3A MDA BUSS FUSE
40	1	EA	209-022-01	SLOTFUHB	107-559/15	FUSE HOLDER A/B #1492-H6
31	1	EA	209-605-26	SLOT2	107-559/12	24VDC SINKING INPUTS (16) A/B #1746-1B16

ITEM	QTY REQ	U/M	CONVAR PART NUMBER	NOMENCLATURE	REFERENCE	DESCRIPTION
32	1	EA	209-605-26	SLOT3	107-599/16	24VDC SINKING INPUTS (16) A/B #1746-1B16
29	1	EA	202-012-06	PB1	107-559/13	ALARM ACKNOWLEDGE PUSHBUTTON
30	1	EA	202-012-01	PB1	107-559/13	ALARM ACKNOWLEDGE PUSH BUTTON
33	1	EA	209-605-26	SLOT4	107-559/14	24VDC SINKING INPUTS (16) A/B #1746-1B16
41	1	EA	209-605-09	SLOT5	107-559/15	115VAC OUTPUT MODULE (16) A/B #1746-OW16
37	1	EA	206-066-02	SLOT5FU	107-559/15	2A MDA BUSS FUSE
38	1	EA	209-022-01	SLOT5FUH	107-559/15	FUSE HOLDER A/B #1492-H6
42	1	EA	209-089-03	AH	107-559/15	ALARM HORN AUDIO ALARM XC-19-201Q
45	1	EA	209-605-09	SLOT6	107-559/16	115VAC OUTPUT MODULE (16) A/B #1746-OW16
43	1	EA	206-066-02	SLOT6FU	107-559/16	2A MDA BUSS FUSE
44	1	EA	209-022-01	SLOT6FUH	107-559/16	FUSE HOLDER A/B #1492-H6
48	1	EA	209-605-09	SLOT7	107-559/17	115VAC OUTPUT MODULE (16) A/B #1746-OW16
46	1	EA	206-066-02	SLOT7FU	107-559/17	2A MDA BUSS FUSE
47	1	EA	209-022-01	SLOT7FUH	107-559/17	FUSE HOLDER A/B #1492-H6
51	1	EA	209-605-09	SLOT8	107-559/18	115VAC OUTPUT MODULE (16) A/B #1746-OW16
49	1	EA	206-066-02	SLOT8FU	107-559/18	2A MDA BUSS FUSE
50	1	EA	209-022-01	SLOT8FUH	107-559/18	FUSE HOLDER A/B #1492-H6
54	1	EA	209-605-09	SLOT9	107-559/19	115VAC OUTPUT MODULE (16) A/B #1746-OW16
52	1	EA	206-066-02	SLOT9FU	107-559/19	2A MDA BUSS FUSE
53	1	EA	209-022-01	SLOT9FUH	107-559/19	FUSE HOLDER A/B #1492-H6
57	1	EA	209-605-09	SLOT10	107-559/20	115VAC OUTPUT MODULE (16) A/B #1746-OW16
55	1	EA	209-066-02	SLOT10FU	107-559/20	2A MDA BUSS FUSE
56	1	EA	209-022-01	SLOT10FUH	107-559/20	FUSE HOLDER A/B #1492-H6
58	1	EA	209-605-30	SLOT11	107-559/21	24VAC/DC INPUTS (16) A/B #1746-IN16
59	1	EA	209-605-30	SLOT12	107-559/22	24VAC/DC INPUTS (16) A/B #1746-IN16
60	1	EA	209-605-09	SLOT13	107-559/23	115VAC OUTPUT MODULE (16) A/B #1746-OW16
61	1	EA	206-066-02	SLOT13FU	107-559/23	2A MDA BUSS FUSE
62	1	EA	209-022-01	SLOT13FUH	107-559/23	FUSE HOLDER A/B #1492-H6
68	1	EA	209-605-09	SLOT14	107-559/24	115VAC OUTPUT MODULE (16) A/B #1746-OW16
66	1	EA	206-066-02	SLOT14FU	107-559/24	2A MDA BUSS FUSE

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ARE:

FRACTIONS: ±1/32
DECIMALS MACHINING: ±0.005
DECIMALS SHEETMETAL: ±0.015
ANGLES: ±1/2 DEG.



The Convar Group Inc
One Convar Drive
Pittsburgh, PA 15202

BILL OF MATERIAL

SHEET 36 of 38 107-559-02 C

PARTS LIST

PARTS LIST

ITEM	QTY	U/M	CONVAR PART NUMBER	NOMENCLATURE	REFERENCE	DESCRIPTION	ITEM	QTY	U/M	CONVAR PART NUMBER	NOMENCLATURE	REFERENCE	DESCRIPTION
67	1	EA	209-022-01	SLOT4FUHA	107-559/24	FUSE HOLDER A/B 1492-H6	99	1	EA	107-559-13	SH13	107-559/13	ELECTRICAL WIRING DIAGRAM
69	1	EA	206-066-02	SLOT4FUHB	107-559/28	2A MDA BUSS FUSE	100	1	EA	107-559-14	SH14	107-559/14	ELECTRICAL WIRING DIAGRAM
70	1	EA	209-022-01	SLOT4FUHB	107-559/28	FUSE HOLDER A/B 1492-H6	101	1	EA	107-559-15	SH15	107-559/15	ELECTRICAL WIRING DIAGRAM
63	1	EA	209-605-26	SLOT15	107-559/25	24VDC SINKING INPUT (16) A/B #1746-IB16	102	1	EA	107-559-16	SH16	107-559/16	ELECTRICAL WIRING DIAGRAM
64	1	EA	209-605-26	SLOT16	107-559/26	24VDC SINKING INPUT (16) A/B #1746-IB16	103	1	EA	107-559-17	SH17	107-559/17	ELECTRICAL WIRING DIAGRAM
65	1	EA	209-605-26	SLOT17	107-559/27	24VDC SINKING INPUT (16) A/B #1746-IB16	104	1	EA	107-559-18	SH18	107-559/18	ELECTRICAL WIRING DIAGRAM
73	1	EA	209-605-09	SLOT18	107-559/28	115VAC OUTPUT MODULE (16) A/B #1746-OW16	105	1	EA	107-559-19	SH19	107-559/19	ELECTRICAL WIRING DIAGRAM
71	1	EA	206-066-03	SLOT18FU2	107-559/28	2A MDA BUSS FUSE	106	1	EA	107-559-20	SH20	107-559/20	ELECTRICAL WIRING DIAGRAM
72	1	EA	209-022-01	SLOT18FUH2	107-559/28	FUSE HOLDER A/B 1492-H6	107	1	EA	107-559-21	SH21	107-559/21	ELECTRICAL WIRING DIAGRAM
76	1	EA	209-605-09	SLOT19	107-559/29	115VAC OUTPUT MODULE (16) A/B #1746-OW16	108	1	EA	107-559-22	SH22	107-559/22	ELECTRICAL WIRING DIAGRAM
74	1	EA	206-066-02	SLOT19FU	107-559/29	2A MDA BUSS FUSE	109	1	EA	107-559-23	SH23	107-559/23	ELECTRICAL WIRING DIAGRAM
75	1	EA	209-022-01	SLOT19FUH	107-559/29	FUSE HOLDER A/B 1492-H6	110	1	EA	107-559-24	SH24	107-559/24	ELECTRICAL WIRING DIAGRAM
79	1	EA	209-605-09	SLOT20	107-559/30	115VAC OUTPUT MODULE (16) A/B #1746-OW16	111	1	EA	107-559-25	SH25	107-559/25	ELECTRICAL WIRING DIAGRAM
77	1	EA	206-066-02	SLOT20FU	107-559/30	2A MDA BUSS FUSE	112	1	EA	107-559-26	SH26	107-559/26	ELECTRICAL WIRING DIAGRAM
78	1	EA	209-022-01	SLOT20FUH	107-559/30	FUSE HOLDER A/B 1492-H6	113	1	EA	107-559-27	SH27	107-559/27	ELECTRICAL WIRING DIAGRAM
82	1	EA	209-605-09	SLOT21	107-559/31	115VAC OUTPUT MODULE (16) A/B #1746-OW16	114	1	EA	107-559-28	SH28	107-559/28	ELECTRICAL WIRING DIAGRAM
80	1	EA	206-066-02	SLOT21FU	107-559/31	2A MDA BUSS FUSE	115	1	EA	107-559-29	SH29	107-559/29	ELECTRICAL WIRING DIAGRAM
81	1	EA	209-022-01	SLOT21FUH	107-559/31	FUSE HOLDER A/B 1492-H6	116	1	EA	107-559-30	SH30	107-559/30	ELECTRICAL WIRING DIAGRAM
85	1	EA	209-605-09	SLOT22	107-559/32	115VAC OUTPUT MODULE (16) A/B #1746-OW16	117	1	EA	107-559-31	SH31	107-559/31	ELECTRICAL WIRING DIAGRAM
83	1	EA	206-066-02	SLOT22FU	107-559/32	2A MDA BUSS FUSE	118	1	EA	107-559-32	SH32	107-559/32	ELECTRICAL WIRING DIAGRAM
84	1	EA	209-022-01	SLOT22FUH	107-559/32	FUSE HOLDER A/B 1492-H6	119	1	EA	107-559-33	SH33	107-559/33	ELECTRICAL WIRING DIAGRAM
88	1	EA	209-605-09	SLOT23	107-559/33	115VAC OUTPUT MODULE (16) A/B #1746-OW16	120	1	EA	107-559-34	SH34	107-559/34	ELECTRICAL WIRING DIAGRAM
86	1	EA	206-066-02	SLOT23FU	107-559/33	2A MDA BUSS FUSE	121	1	EA	107-559-35	SH35	107-559/35	ELECTRICAL WIRING DIAGRAM
87	1	EA	209-022-01	SLOT23FUH	107-559/33	FUSE HOLDER A/B 1492-H6	122	1	EA	107-559-36	SH36	107-559/36	ELECTRICAL WIRING DIAGRAM
89	1	EA	209-605-30	SLOT24	107-559/34	24VAC-DC INPUT (16) A/B #1746-IN16	123	1	EA	209-605-40	EEXX	EPPROM	PROGRAM CHIP
90	1	EA	209-605-30	SLOT25	107-559/35	24VAC-DC INPUT (16) A/B #1746-IN16	124	1	EA	209-605-XX	UVXX	UVPRM	PROGRAM CHIP
91	1	EA	107-559-01	SH1	107-559/01	ELECTRICAL WIRING DIAGRAM	125	100	FT	205-007-18-02	RED1820AC	107-558/01	WIRE #18 AWG 120 VAC RED
92	1	EA	107-559-02	SH2	107-559/02	ELECTRICAL WIRING DIAGRAM	126	200	FT	205-007-18-06	LTBL1824DC	107-558/01	WIRE #18 AWG 24 VDC CONTROL LT. BLUE
93	1	EA	107-559-03	SH3	107-559/03	ELECTRICAL WIRING DIAGRAM	127	200	FT	205-007-18-08	GR1824AC	107-558/01	WIRE #18 AWG VDC CONTROL GRAY
94	1	EA	107-559-04	SH4	107-559/04	ELECTRICAL WIRING DIAGRAM	128	200	FT	205-007-18-09	WH18NEUT	107-558/01	WIRE #18 AWG NEUTRAL WHITE
95	1	EA	107-559-05	SH5	107-559/05	ELECTRICAL WIRING DIAGRAM	<p>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:</p> <p>FRACTIONS: ±1/32 DECIMALS MACHINING: ±0.005 DECIMALS SHEETMETAL: ±0.015 ANGLES: ±1/2 DEG.</p>						
96	1	EA	107-559-10	SH10	107-559/10	ELECTRICAL WIRING DIAGRAM							
97	1	EA	107-559-11	SH11	107-559/11	ELECTRICAL WIRING DIAGRAM							
98	1	EA	107-559-12	SH12	107-559/12	ELECTRICAL WIRING DIAGRAM							
98	1	EA	107-559-12	SH12	107-559/12	ELECTRICAL WIRING DIAGRAM							

CONVAR
The Convar Group Inc
One Convar Drive
Pittsburgh, PA 15202

BILL OF MATERIAL

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PARTS LIST

ITEM	QTY	U/M	CONAIR PART NUMBER	NOMENCLATURE	REFERENCE	DESCRIPTION
129	10	FT	205-007-18-05	GR18GND	107-558/01	WIRE #18 AWG GROUND GREEN
130	5	EA	209-657-09	TB	107-558/01	TERMINAL BOARD YEL/GR A/B #1492-WG4
131	5	EA	209-657-02	TB	107-558/01	TERMINAL BOARD GRAY A/B #1492-W4
132	1	EA	209-285-11	TB	107-558/01	END BARRIER A/B #1492-EBTF3
133	2	EA	209-657-04	TB	107-558/01	END ANCHOR A/B #1492-EA35
134	12	EA	209-285-17	TB	107-558/01	JUMPERS A/B #1492-CJ6-10
136	23	IN	209-285-13	TB	107-558/01	DIN RAIL A/B #1492-DR7, IN INCHES
132	40	EA	209-285-14	TB	107-558/01	TERMINAL BOARD GRAY A/B #1492-WTF3
133	1	EA	209-285-11	TB	107-558/01	END BARRIER A/B #1492-EBTF3
134	2	EA	209-657-04	TB	107-558/01	END ANCHOR A/B #1492-EA35
135	12	EA	209-285-04	TB	107-558/01	JUMPERS A/B #1492-CJ75-10
137	1	EA	209-285-16	TB	107-558/01	TERMINAL MARKING STRIP A/B #1492-SM5X9
137	50	EA	209-285-14	TB	107-558/01	TERMINAL BOARD GRAY A/B #1492-WTF3
138	1	EA	209-285-11	TB	107-558/01	END BARRIER A/B #1492-EBTF3
139	2	EA	209-657-04	TB	107-558/01	END ANCHOR A/B #1492-EA35
140	18	EA	209-285-04	TB	107-558/01	JUMPERS A/B #1492-CJ75-10
141	1	EA	209-285-16	TB	107-558/01	TERMINAL MARKING STRIP A/B #1492-SM5X9
142	1	EA	209-022-21	TB	107-558/01	FUSE END SECTION A/B #1492-N37
143	1	EA	107-558-01	CALA	107-558/01	CASE 1 LAYOUT DIAGRAM
144	1	EA	107-558-02	CALA	107-558/01	I/O LAYOUT
145	1	EA	107-558-03	CALA	107-558/01	SYSTEM LAYOUT OF I/O AND N-TRON 1-40LDRS
146	10	FT	209-032-25	N/A	107-558/01	WIRE DUCT IN FEET
147	10	FT	209-833-05	N/A	107-558/01	WIRE DUCT COVER IN FEET
148	1	EA	209-636	N/A	107-558/01	GROUNDING BAR
149	1	EA	100542	N/A	107-558/01	ENCLOSURE ASSEMBLY
150	1	EA	209-659-01-05	N/A	107-558/01	DIN RAIL A/B #199-DR1
151	1	EA	207-001-05	N/A	107-558/01	CORD GRIP
152	1	EA	205-005-02	N/A	107-558/01	POWER CORD 16-3 x 10 FT
153	1	EA	209-001-01	N/A	107-558/01	1/2" CONDUIT LOCKNUT
154	1	EA	209-605-14	N/A	107-558/01	BATTERY A/B #1747-BA
155	1	EA	299-216-100	N/A	107-558/01	LABEL - SMART LOADER CONTROL
156	1	EA	0	N/A	107-558/01	LABEL - CONAIR
157	1	EA	299-153-98	N/A	107-558/01	LABEL - POWER
158	1	EA	299-216-59-01	N/A	107-558/01	LABEL - DISCONNECT POWER
64	1	EA	104-117-28	N/A	107-558/01	LABEL - BELDEN WIRING WARNING

REV	BY	DESCRIPTION	DATE	APP
C	SA	UPDATED TITLE BLOCK	10-13-00	KB
B	SA	GENERAL REVISIONS	09-27-00	KB
A	BWA	INITIAL RELEASE	06-22-99	KB

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS: ±1/32
DECIMALS MACHINING: ±0.005
DECIMALS SHEETMETAL: ±0.015
ANGLES: ±1/2 DEG.

SIZE: B DWN BY: BWA



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BILL OF MATERIAL

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