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USERGUIDE
IMB-110-1294

Sentral Loader Control
INTERMEDIATE

⚠ **WARNING - Reliance on this Manual Could Result in Severe Bodily Injury or Death!**

This manual is out-of-date and is provided only for its technical information, data and capacities. Portions of this manual detailing procedures or precautions in the operation, inspection, maintenance and repair of the product forming the subject matter of this manual may be inadequate, inaccurate, and/or incomplete and cannot be used, followed, or relied upon. Contact Conair at info@conairgroup.com or 1-800-654-6661 for more current information, warnings, and materials about more recent product manuals containing warnings, information, precautions, and procedures that may be more adequate than those contained in this out-of-date manual.

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INTERMEDIATE SENTRAL LOADER CONTROL

SECTION

1

HANDLING AND INSTALLATION

Your new Conair Intermediate Sentral Loader Control system is shipped in carefully packaged units. Check all equipment immediately upon receipt for any apparent damage. Report any damage immediately to the carrier **and** to Conair Franklin.

Check shipment for completeness to the order and the carrier Bill of Lading. Report any discrepancies immediately to the carrier **and** to Conair Franklin.

Storage of the control system should be in a protected, cool, dry place in the shipping containers, if possible. Protect from the elements, dust, and severe vibration. Handle carefully, as with any electronic equipment.

INSTALLATION PREPARATION (Reading Section 2 - System description, is highly recommended before proceeding with installation)

1. Determine the best location for the Operator Panel:
   a. Who is going to operate and monitor the system?
   b. Who is going to manage and supervise the system?
   c. Who is going to trouble-shoot and maintain the system?
   d. Where are loaders located in relation to the panel, distances involved/layout of the system?
   e. Is the location accessible, protected, serviceable, and convenient?

2. Determine the best location for the I/O Station(s):
   a. Locate as central as possible to the loaders they will operate.
   b. Locate as close as practical to the pumps they will operate.
   c. Location should be clean, dry, safe, accessible, and convenient.
   d. Locate no more than 4,000 ft from the operator panel!!

3. Take central pump location(s) into account:
   a. Pump control wiring - distance(s) to the I/O Module(s)?
   b. Back-up pump proximity to other system pumps - for ease of vacuum plumbing switch over?

   NOTE: The plumbing at the pumps can be valved and remotely controlled from the central operator location for ease of switching to the back-up pump. Contact Conair Franklin for details.

4. Plan routing of system wiring to and from I/O Stations.

5. Total field wiring and purchase the system wiring cable required, if not already done! This can be ordered from your electrical contractor or supply house, or from Conair Franklin.

   System wiring cable is recommended to be 10 conductor, 18 gauge shielded cable.

6. Prepare chosen locations for mounting of components.

SECTION

1

HANDLING AND INSTALLATION

THE SYSTEM IS VERY EASY TO INSTALL:

A. MECHANICAL:

1. Mount the I/O Station enclosure (or enclosures if applicable - 11 or more stations) securely to a wall, column, stand, or other stationary object. Locate close to and centrally among the loaders and pumps it will and operate. Allow for ease of access, maintenance, safety code clearances, and protection from traffic, heavy vibration, and highly dusty or moist conditions. **115/15 Amp service is required for the panel.**

2. Mount the Operator Panel securely to a stationary object. Locate in a convenient location practical for ease of efficient operation and monitoring the system status. Allow for ease of viewing the display screen and LED's, plus access for use of the keypads on the control. Also consider and allow for any possible future expansion of the control. **115V/5 Amp service is required to the panel.**

NOTE: **THIS OPERATOR PANEL MUST NOT BE LOCATED MORE THAN 4,000 CABLE FEET AWAY FROM THE FARTHEST I/O STATION.**

B. ELECTRICAL:

1. Connect the I/O Station(s) together with the Operator Panel using the DH-485 communications cable. Pin connectors are provided for ease of connection of the cable(s) to the enclosure(s). A screwdriver is required to ensure the connectors are tight and secure (2 screws). Secure the cable run and protect as required per your standards and/or any electrical codes that may pertain.

2. Connect all system loaders to their appropriate I/O Station(s)' terminal points per applicable drawings. Provided for each loader should be a quick-disconnect loader control cable, 10, 15, or 20 ft long. Junction boxes must be provided to connect between the system cable and each loader control cable. Insure that all wiring connections are tight and properly numbered. Also, insure all routed cable/wiring is secure and protected per any and all pertaining codes and standards.

   Tip: Use shielded cable for system wiring. Make sure the shield is grounded in the I/O Station(s). Do not run wire too close to static sources (Example: Resin transfer material lines).

3. Connect all applicable pumps to the I/O Stations(s), including a back-up if desired and available. Again, refer to applicable electrical drawings and follow all applicable codes and standards.

4. Connect the I/O Station(s) to 115V/15 Amp service and the Operator Panel to 115V/5 Amp Service. **The system is now ready for initial set-up.**

SECTION

2

DESCRIPTION

INTRODUCTION:

The Conair Sentral Loader Control utilizes Allen Bradley SLC (Small Logic Controller, commonly called "Slick") to operate and monitor central vacuum conveying systems. To accomplish this purpose, the A/B SLC receives signals from electrical sensing devices ("inputs"), makes logical decisions based on those inputs, sends signals out to electro-mechanical devices ("outputs"), and allows the operator to monitor the system via LED status indicators. Operating parameters are conveniently set up and changed via the operator panel (interface) keypad.

INTERMEDIATE SENTRAL LOADER CONTROL SPECIFICATIONS:

* A/B SLC-500 Microprocessor
* 40 I/O (Inputs/Outputs) - FIXED
* Up to 20 loader stations, 4 pump systems, plus one back-up pump, at total expansion.
* Limit of one loader enhancement feature per station
* Power required: 115 VAC/5 Amp (Operator Panel)
  115 VAC/15 Amp (I/O Station(s))
* Operator Interface: Nematron IWS-127
* System sensor inputs: 24 VDC
* Pump inputs (Overloads): 24 VDC
* Pump and Dust Collector Outputs: 115 VAC
* Loader and Valve Outputs: 24 VAC

SECTION

2

DESCRIPTION

SYSTEM COMPONENTS (Figure 1, Page 2-3)

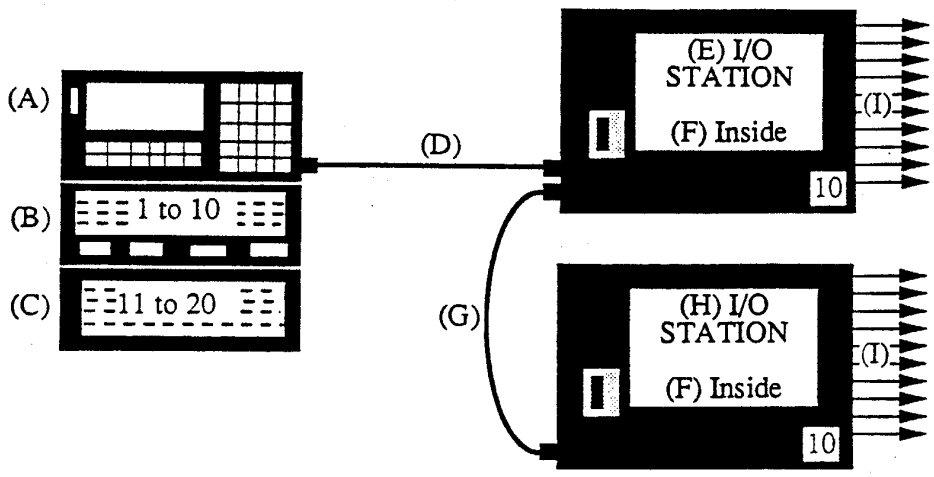
Referring to Figure 1 on page 2-3, the modular components of the Intermediate Control can be seen. The modular concept allows the control system to grow with the user's operation. For up to 10 loader stations, a user must have an Operator Interface Module (A), one LED Status Module (B), one (primary) I/O Station (E), with the A/B SLC-500 microprocessor (F) located inside, one DH-485 Interface Cable (D), and system wiring with loader control cables as required (I). This minimal componentry allows the user to operate up to 10 loaders, in any combination, on one or two pumps, with an optional back-up pump.

To expand or "grow" beyond two active pumps and to 11 - 20 loaders, a second LED station module (C) must be added, along with a secondary I/O Station (H) and Interconnecting Cable (G). This componentry allows the user to run up to four active pump systems, with one back-up pump, and up to 20 loaders.

NOTE: The first two pumps and a back-up pump are wired to the primary I/O Station (E), while the third and fourth pumps must be wired to the secondary I/O Station (H). The loader to pump assignments are completely flexible across the system. For example, loaders wired off one I/O Station can be assigned to and operated off a pump wired to the other I/O Station. However, please note: pump assignments outside of each module of 10 (I.E. loader 20 on pump #2) will cause those stations to go "down" in the event of a communication loss between the Operator Panel and the I/O Station(s).

DESCRIPTION

FIGURE 1
INTERMEDIATE SENTRAL CONTROL COMPONENTS



(A) Operator Interface
with message display, keypad and on/off switch
(B) LED Status Module
with LED indicator lights and "press to display info" keys (Stations 1 to 10)
(C) LED Status Module
with LED indicator lights and "press to display info"key (Stations 11 to 20)
(D) DH485 Interface Cable
available in lengths from 10 to 300 feet
(E) I/O Station Module (Primary)
containing AB SLC500, termination points for field wiring, plus on/off switch (Stations 1 to 10, Pumps 1 and 2 plus Back-up Pump)
(F) Allen Bradley SLC500 Microprocessor
(inside I/O enclosure)
(G) DH485 Interconnecting Cable
available in lengths from 10 to 300 feet
(H) I/O Station Module (Secondary)
containing AB SLC500, termination points for field wiring, plus on/off switch (Stations 11 to 20, Pumps 3 and 4)
(I) System Wiring
consists of 10 conductor cable, a junction box and a Loader Station Connector Cable for each loader

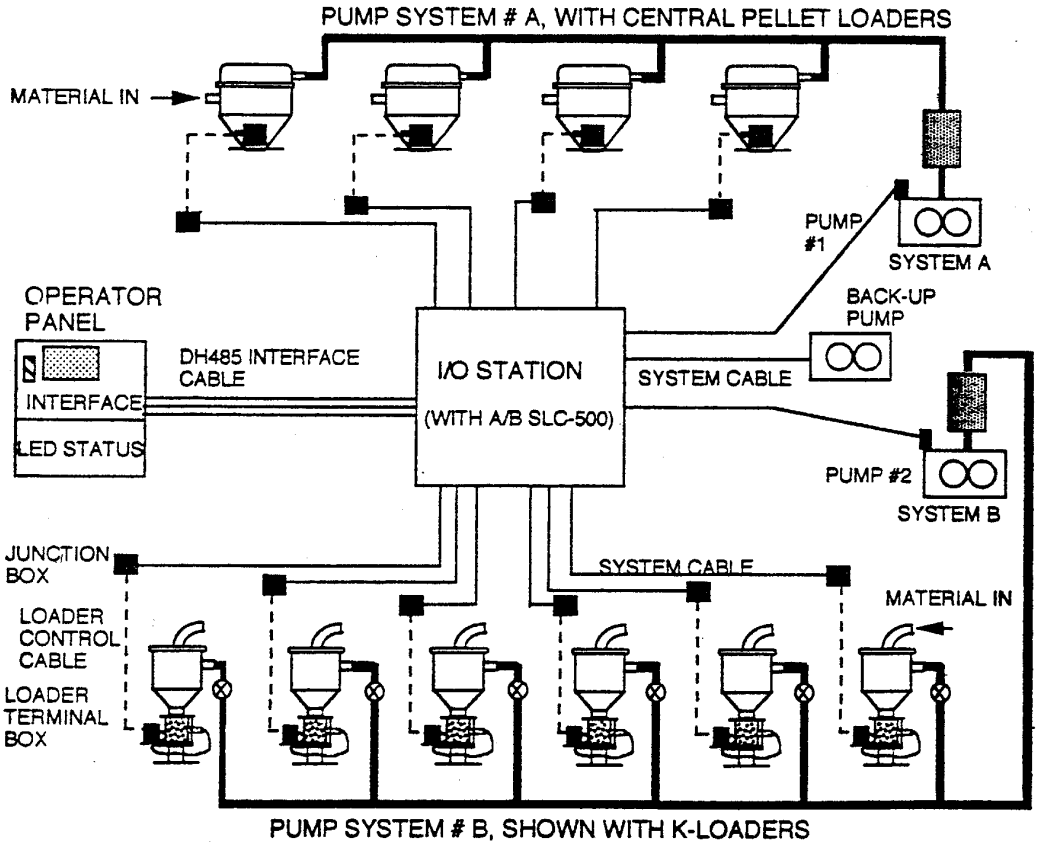
SECTION

2

DESCRIPTION

The system control components are designed to be strategically located for economy and ease of installation, as well as ease of management of your loading system. The Operator Panel may be located central to, or remote (up to 4,000 ft) from the machines/loaders. The I/O Station(s) should be located as centrally as possible to the machines being loaded by the system in order to minimize wiring and installation cost. A typical installation is depicted in Figure 2.

FIGURE 2 - TYPICAL INTERMEDIATE SYSTEM



DESCRIPTION

The Sentral Loader Control System pictured in Figure 2 shows 10 loaders on two independent pump systems, as well as a back-up pump for both systems. To expand 11 - 20 loaders and/or 3 or 4 pump systems requires a secondary I/O Station and another LED Status Module (See Figure 1). Each system of loaders assigned to a given pump will sequence independent of all other loader-pump systems. The two pump systems (A & B) in Figure 2, sequence simultaneously, scanning all loaders on their own system for a material demand. Demands are addressed in numerical sequence. If no stations on a system are loading, a demand on a particular loader will cause a load cycle to begin immediately. If another station is loading on the system when the demand occurs, then the demand will be addressed in its numerical turn. Only one loader station per pump system is allowed to load at one time.

While loader demands are being satisfied, the Sentral Loader Control System is also controlling and monitoring other items applicable to your system installation. These include pumps, dust collectors, ratio valves, and volume fill sensors, to name a few. Another important function the control performs is to annunciate alarm conditions, which allows the user to find and correct system problems. The two main alarm conditions displayed are the "material load problem" and the "pump overload". These conditions are discussed in more detail in later sections of this manual.

OPERATOR CONTROL PANEL

A Modular Operator Control Panel is provided as a "user interface" for "one location" monitoring and operation of the entire system. The Operator Panel consists of an Operator Interface Module and one or two LED Status Modules, depending on your number of loaders. The Operator Interface provides user friendly, menu-driven viewing and changing of system parameters. The LED Status Modules provide "at a glance" observation of the status of all loaders and pumps.

SECTION

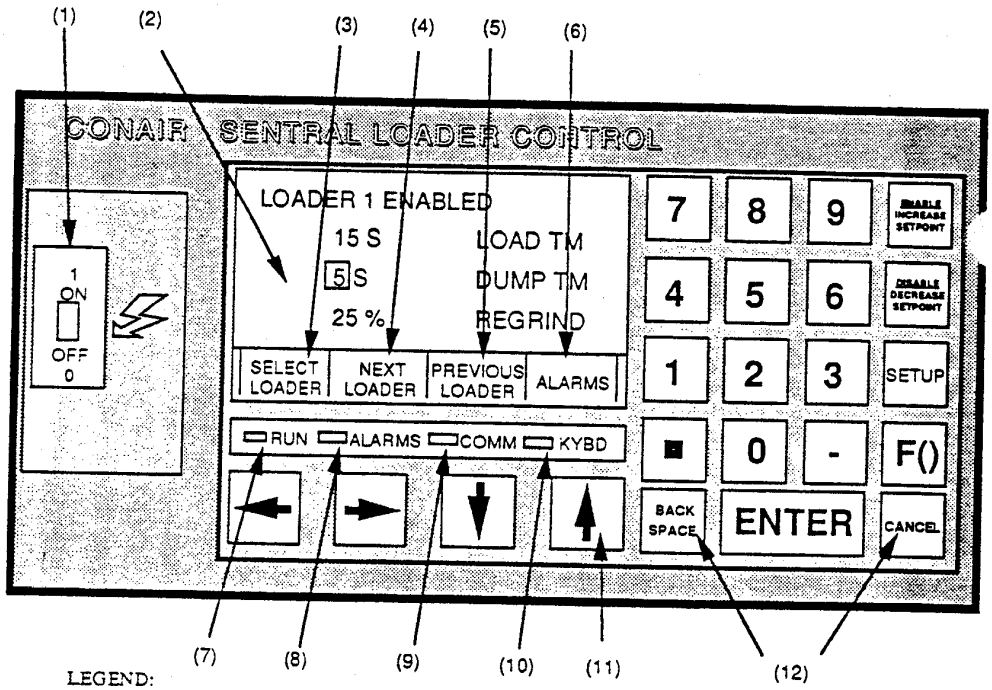
2

DESCRIPTION

Operator Interface Module

This module contains a power on/off switch and a Nematron IWS-127 Operator Interface that features a 4-line vacuum-fluorescent display screen and a membrane keypad. All user entry for the system may be accomplished via this unit. Refer to Figure 3.

FIGURE 3 - OPERATOR INTERFACE MODULE



LEGEND:

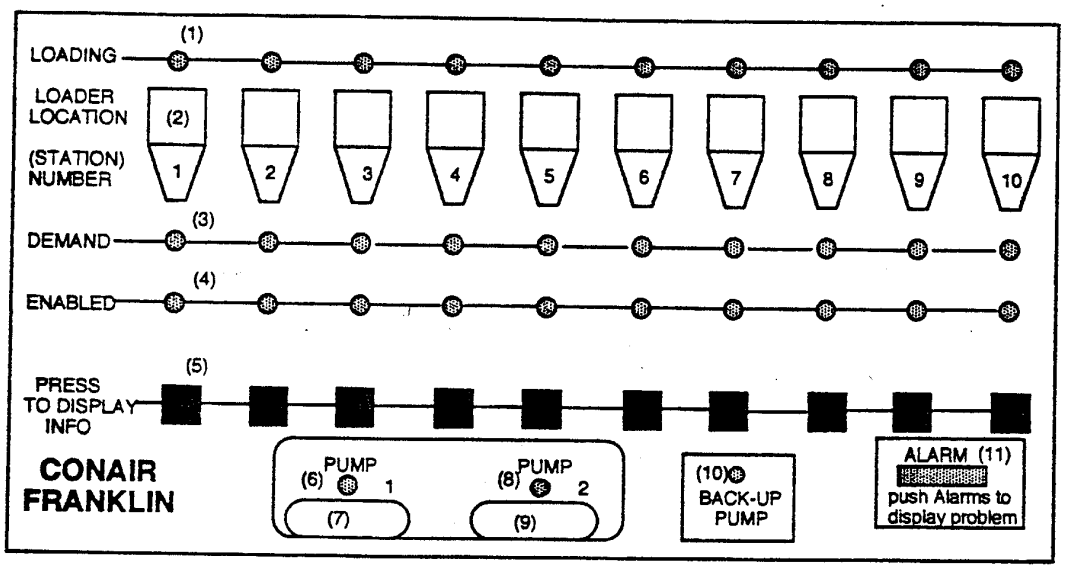
(1) On/Off Power Switch
(2) Four Line Message Display (Will Show Various Menus)
(3) Select Loader Key (User Must Enter Station Number)
(4) Next Loader Key (Next Number From Station No. Displayed)
(5) Previous Loader Key (Previous No. From Station No. Displayed)
(6) Alarms Acknowledge Key (Silences Audible Alarm)
(7) Run Indicator
(8) Alarms Indicator
(9) Communication Indicator
(10) Keyboard Indicator (Goes Out When Keyboard Is Disabled)
(11) Arrow Keys (Can Be Used To Move Through Menu Programs)
(12) Numerical And Function Keys (Will Be Discussed In Later Sections)

DESCRIPTION

LED Status Module

This module includes LED indicator lights on a graphic display background. The LED's provide "at a glance" observation of loader "Enabled" status, "Demand" status, any station(s) "Loading", and pump(s) on/running. Also included, are "Press to Display Info" keys for each loader station that allows the operator to quickly display a loader's settings on the screen of the Operator Interface Module. Another feature is the "Loader Location" label on each loader graphic that permits the user to write in a local ID such as a machine number, hopper number, etc... The label is erasable.
Tip: Colored ID's can be used to indicate different systems (pump and its loaders all labeled in same color). Refer to Figure 4.

FIGURE 4 - LED STATUS MODULE



LEGEND:

(1) STATION "LOADING" LED INDICATING LIGHT (RED)
(2) WRITE-ON "LOADER LOCATION" LABEL (WHITE)
(3) STATION MATERIAL "DEMAND" LIGHT (RED)
(4) STATION "ENABLED" (ON) INDICATIING LIGHT (GREEN)
(5) DISPLAY STATION INFO KEY (GRAY)
(6) PUMP 1 "RUNNING" LED INDICATING LIGHT (AMBER)
(7) WRITE-ON PUMP 1 ID LABEL (WHITE)
(8) PUMP 2 "RUNNING" LED INDICATING LIGHT (AMBER)
(9) WRITE-ON PUMP 2 ID LABEL (WHITE)
(10) BACK-UP PUMP "RUNNING" LED LIGHT (AMBER)
(11) ALARM LED INDICATING LIGHT (RED)

SECTION

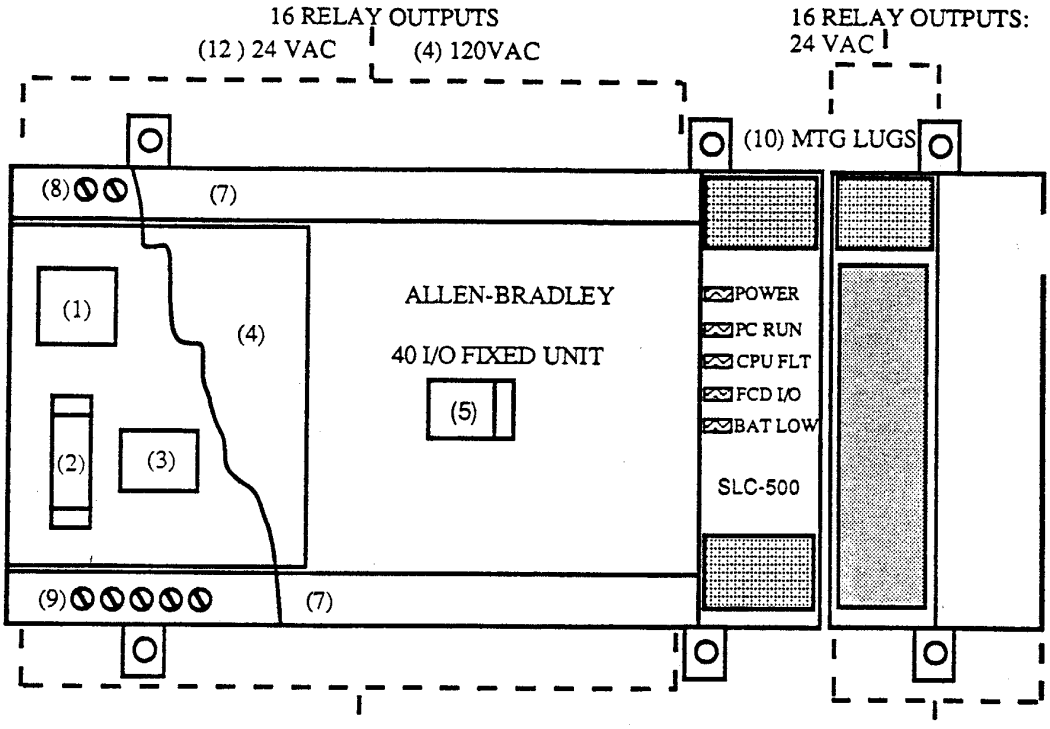
2

DESCRIPTION

ALLEN-BRADLEY "SLC-500"

The one or two I/O Stations on your Intermediate Control System each include an Allen-Bradley SLC-500 Microprocessor located inside. The microprocessor(s) is/are the "brains" of the system. Loaded with software developed by Conair Engineers, the A/B SLC-500 receives input signals, stores user data, makes logical decisions based on software loaded, and sends output signals.

FIGURE 5 - A/B SLC-500



LEGEND

(1) BATTERY (POWER BACK-UP)
(2) FUSE
(3) EPROM SLOT
(4) COVER
(5) COMMUNICATIONS PORT
(6) 2-SLOT EXPANSION RACK
(7) HINGED TERMINAL COVERS(2) (LABELED UNDERSIDE)
(8) OUTPUT TERMINALS :
*OPTION HARDWARE = 24VAC
LOADERS = 24 VAC
PUMPS & ALARM = 120VAC
(9) INPUT TERMINALS:
10 DEMAND INPUTS
10 HI-LEVEL INPUTS
(10) MOUNTING LUGS

* OUTPUT OPTIONS= RATIO, AIR DISCHARGE, OR PURGE, ONE FOR EACH LOADER.

DESCRIPTION

Most of the system wiring converges at the A/B SLC-500 terminals. Some wiring is terminated to a separate terminal strip, such as a 24 volt common. See the wiring diagrams at the end of this manual for detailed instructions. Figure 5 depicts the A/B SLC-500.

Removing the snap-on cover (4) provides access to the power back-up BATTERY (1) the A/B SLC-500 FUSE (2), and the EPROM slot (3). The eprom slot is used for downloading the SLC-500 program from the eprom chip, only in the event of a complete program loss. Contact Conair service department for details. **A newly downloaded program will revert to factory presets for all loader settings and configurations! Proceed only with the assistance of Conair Technicians!**

The COMMUNICATIONS PORT (5) is used to link the A/B SLC-500 to the AIC Module, located just to the left of the SLC housing, which connects it to the Operator Panel via the DH585 Cable outside the I/O Station cabinet.

Notice the five indicating LED lights on the right side of the SLC. These lights help maintenance personnel monitor the operation of the A/B SLC-500. With each Sentral Control shipped from Conair, you should also receive an Allen-Bradley SLC manual. IT IS A GOOD IDEA TO HAVE MAINTENANCE PERSONNEL REVIEW THE A/B MANUAL, AS WELL AS THIS MANUAL.

1) POWER OFF

SECTION

2

DESCRIPTION

CONTROL ENHANCEMENTS (Ratio, Positive Discharge, or Purge)

The Conair Intermediate Sentral Loader Control System is capable of operating **ONE** loader control option at each or any station. These options are called "enhancements" because they add to or enhance the capabilities of your loader system. Enhancements are available in groups of 10. An enhancement can be purchased for the first 10 stations of a system, the second 10 stations, or both.

Enhancements for the Intermediate Model include either ratio loading, purge, or positive discharge capabilities. **IMPORTANT:** In order for you to have these capabilities, three things must be true:

1. The appropriate piece of loader hardware must be present. (Ratio Valve, purge valve or, positive discharge valve).

2. The optional output card must be present in the outside rack of the A/B SLC-500, and must be wired to the appropriate piece of loader hardware. (For details, see wiring diagrams at the end of this manual).

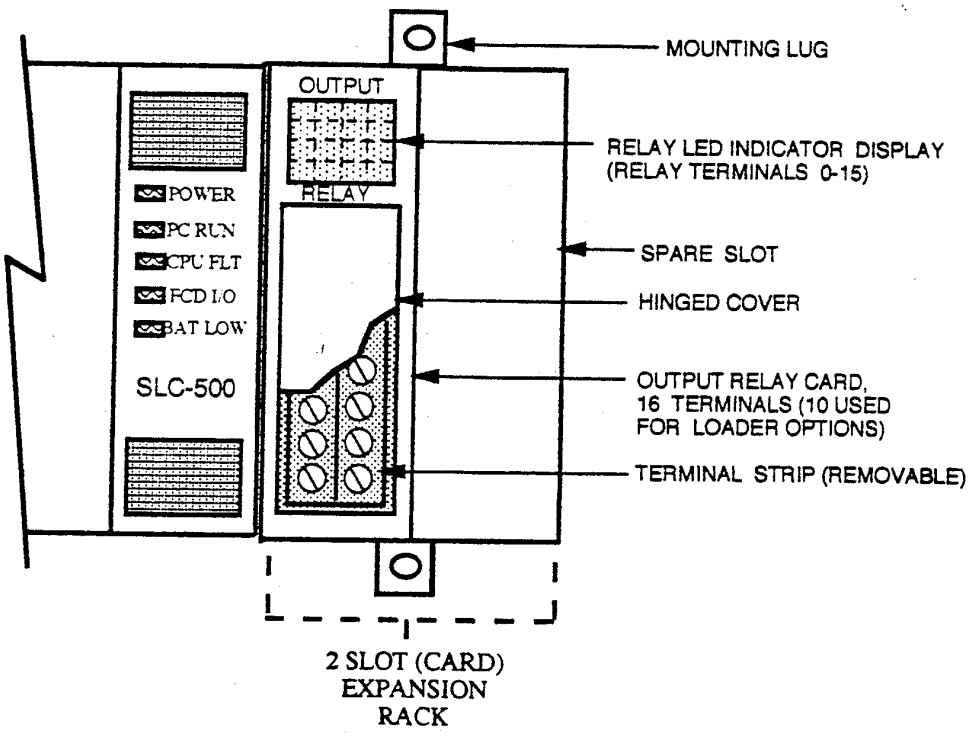
3. The output option chosen must be "Enabled" via the loader configuration screen (For details, see Operating Instructions, System Configuration, Section 3).

NOTE: DO NOT ENABLE AN OPTION YOUR SYSTEM DOES NOT HAVE COMPLETELY PRESENT AND WIRED! If an output card is not present and you enable that option in the A/B SLC-500, a CPU fault will occur. If this happens, contact Conair Service for trouble-shooting assistance.

DESCRIPTION

If an output option is purchased for a set of 10 loaders, the user may determine **individually**, what option is employed at each loader. For example, imagine one output option for loaders 1 - 10 is purchased. In the field, the user installs this output card. The user configures the outputs to operate ratio loading on Station 1, positive discharge on stations 2 and 3, and ratio loading on station 8. The outputs for stations 4, 5, 6, 7, 9, and 10, although present, are not used at this time. It is important to note that only one option can be operated on a given loader at a time. An option may be purchased and added as a field upgrade. Figure 6 depicts the optional output card required in order to operate the enhancement devices.

FIGURE 6 - OPTIONAL OUTPUTS FOR INTERMEDIATE SENTRAL



SECTION

3

OPERATING INSTRUCTIONS
SYSTEM CONFIGURATION

INTRODUCTION

As shipped from Conair, your Intermediate Sentral Loader Control is programmed to operate with any options you ordered. If you order ratio loading, this option will be "enabled" for you at the factory as part of the loader configuration. In most cases, you should not need to adjust system configurations discussed in this section. Exceptions to this rule include:

1. If you adjust your system outside the factory presets.
   Examples include assigning loaders to pump systems other than A (the factory preset), using the one time purge option, or changing the PLC shutdown selection. All of these items are discussed in this section of the manual.

2. If you buy an option for your controller at a later date.
   Hardware will be shipped to you, but you will need to enable the option you are adding to the system.

3. If you need to adjust pump assignments to the systems.
   Default settings are pump 1 to system A, pump 2 to system B, etc... The most likely reason to change a pump assignment would be if you were switching all of system A (or B, etc...) to a back-up pump. You need not change every loader setting, just the one pump assignment.

4. If you decide to enable a different output option for a loader. An example might be if you bought ratio option, but decide to use the output for positive discharge on one of your loaders. **IMPORTANT:** Only one option can be operated at a given time. Ratio is given top priority. If you enable both options, your positive discharge will not work correctly.

Other parameters, called loader settings, contain factory presets that you will need to adjust. These are discussed later in System Start-up, Section 4..

To proceed from this point in your system set-up, you should have already completed these steps:

1. Mechanically installed all system components (loader, pumps, controls, etc...)

2. Brought power into the Operator Panel and the I/O station(s).

3. Field wired the loaders to the I/O station(s).

NOTE: You will need to know the numerical assignment of each loader on the control system in order to set and adjust loader settings. Using the Set-Up Plan Sheet in Appendix A and assigning local ID's will help in the set-up process.

4. Connected the DH485 cable(s) at the Operator Panel and the I/O Station(s).

SECTION

3

OPERATING INSTRUCTIONS
SYSTEM CONFIGURATION

Because system configuration is an infrequent procedure and can seriously affect system operation, the menu screens for the various features are password protected.

Conversely, loader settings are regularly adjusted and, therefore, are quickly accessible. "Read Only" mode can be set for loader settings screens. This is done from the configuration screen, by personnel with access to a password.

NOTE: The four digit "configuration" and the four digit "keyboard disable" passwords for your Intermediate Sentral Loader Control must be obtained from the Conair Service Department.

As you proceed through this manual, you will note the headings of "System Configuration", "System Start-Up", and "System Operation". The Start-Up section (4) covers loader and system settings that not only will need to be adjusted, but are likely the key to "customizing" the system to your application. System Operation, Section (5) deals with normal day-to-day operating of the system.

Please read this (Configuration) section for reference, then proceed to the Start-up section. The Start-up section should be available to any personnel who will be authorized to adjust fill times, ratio percentages, etc.... on the loading system.

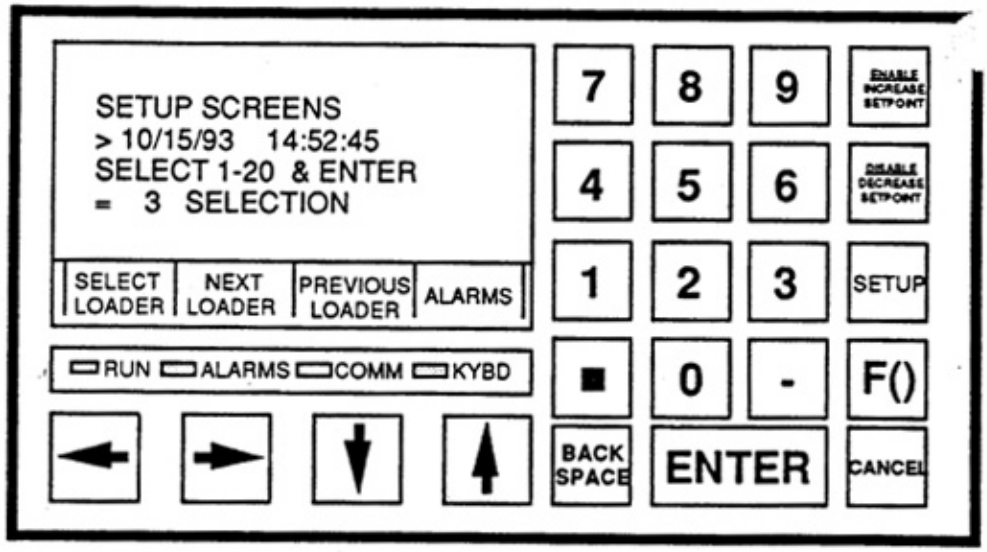
OPERATING INSTRUCTIONS
SYSTEM CONFIGURATION

TO BEGIN:

➢ The setup mode may be accessed by pressing the "Setup" key on the keypad. Enter the four digit "configuration" password and press enter. You will now be on the main setup/loader selection screen. To exit from any Set-up screen, hit cancel. The main setup/loader selection screen is shown in Figure 7.

CAUTION! SYSTEM OPERATION CAN BE DRAMATICALLY ALTERED WHEN CHANGING VALUES IN THIS SECTION OF SCREENS. AUTHORIZED PERSONNEL ONLY!!!

FIGURE 7 - MAIN SETUP SCREEN



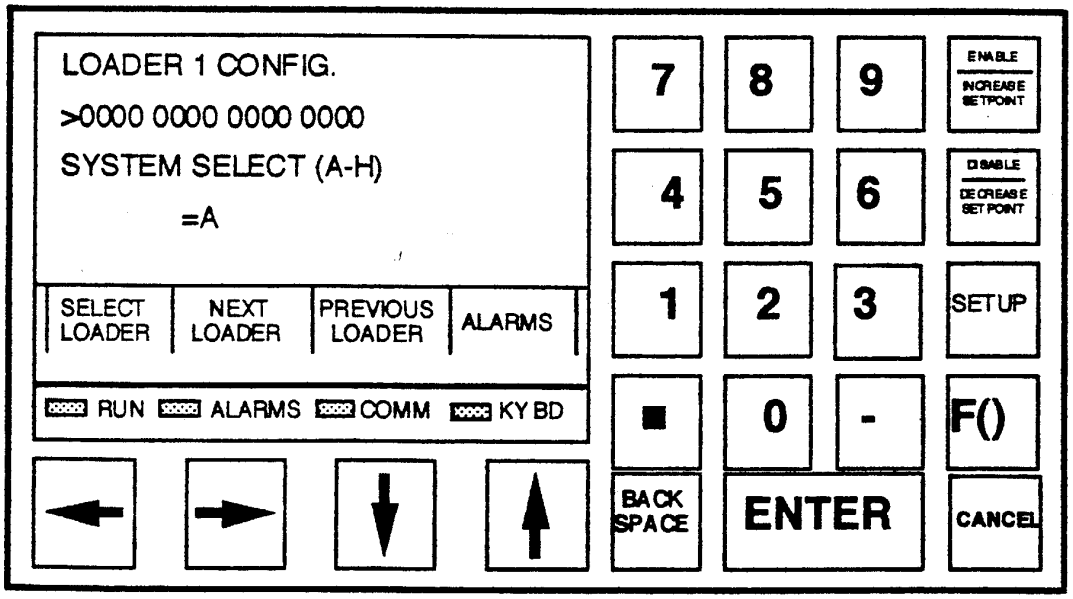
OPERATING INSTRUCTIONS
SYSTEM CONFIGURATION

(Reference Figure 7)

From the **main setup/loader selection screen** use the up or down arrow keys to reach the desired line. To change the system time and date, go to Line 2, then use the right and left arrow keys to move across the line. Key in the correct numbers and press "Enter".

You may select a loader to configure by entering the loader number on the fourth line and pressing "Enter". An additional way to access a loader configuration screen is to press the keys ("press to display info") located on the LED status module(s). The "next" or "prev" (previous) loader station number can be quickly accessed by pressing those keys. A loader configuration screen will be displayed as shown in Figure 8.

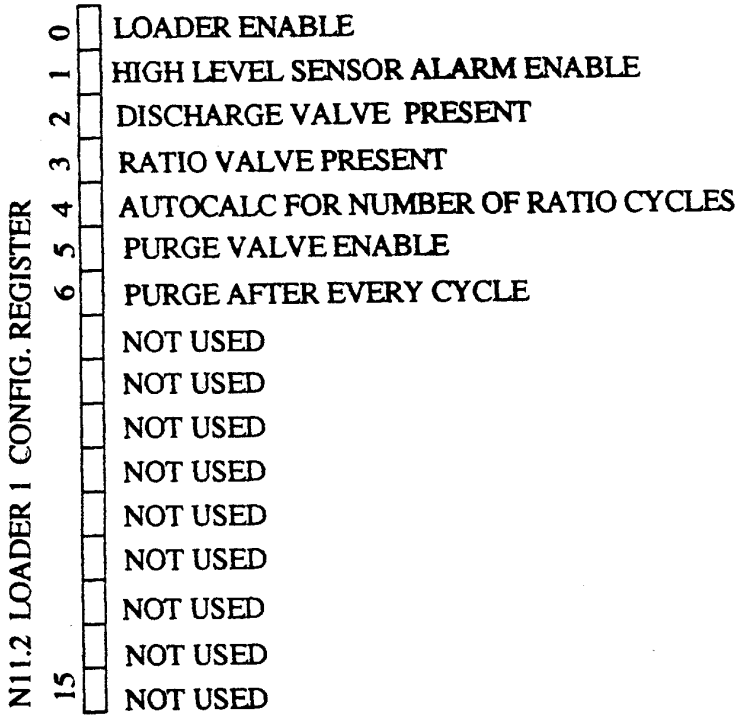
FIGURE 8 - LOADER CONFIGURATION SCREEN



LOADER CONFIGURATION

As you look at the loader configuration screen in Figure 8, you will note there are sixteen numbers located across the second line of the screen. Each of the sixteen positions represent a potential loader function which can be enabled with a "1" or disabled with a "0". Note that not all bits are utilized and they are numbered right to left, beginning with 0. Figure 9 shows the function assignment for each bit (number position). Some bits/functions may not apply to your loaders.

FIGURE 9 - CONFIGURATION REGISTER ASSIGNMENTS



DEFAULTS: From the factory, Autocalc (bit 4) is enabled, as well as any options purchased.

OPERATING INSTRUCTIONS
SYSTEM CONFIGURATION

The configuration register shown in Figure 9 is used to change the operating characteristics of the loader. Only those functions that are applicable to your particular loaders should be enabled. Descriptions of each position on the register are as follows:

LOADER ENABLE/DISABLE (BIT 0):

Making this position a one (1), enables the loader, while a zero (0) disables the loader. NOTE: This function will normally be performed from Loader Settings, Loader Screen #1.

HI-LEVEL SENSOR ALARM ENABLE (BIT 1):

Making this position a one (1), enables a loader's volume fill sensor to operate a "did not reach level" alarm. An alarm **will be generated when the set load time times out before the volume fill sensor is made.** Making this position a zero (0) ignores the hi-level sensor **when determining material alarms.** (See system start-up instructions on setting the load time if you desire to utilize this alarm feature. You must also have a volume fill sensor installed in order to utilize this alarm feature). PLEASE NOTE: The volume fill sensor will act as a high level shut-off point for your loader, regardless of whether this alarm is enabled.

DISCHARGE VALVE PRESENT (BIT 2):

Making this position a zero (0) disables the air discharge function. Making this position a (1) will enable the air discharge function. Discharge requires an optional output to operate the positive discharge valve on so equipped loaders.

RATIO VALVE PRESENT (BIT 3):

Making this position a one (1) will enable the ratio function. Making this function a zero (0) disables the ratio function.

AUTO-CALCULATION FOR RATIO CYCLES (BIT 4):

Ratio cycle is a value that is divided into the load time to create "Mini-Loads" which better distribute regrind material among the virgin pellets. One ratio cycle consists of one shot of virgin material and one shot of regrind material. Making this position a one (1) allows the program to **automatically calculate** the ratio cycles based on load time. This will be updated automatically every load. Making this position a zero (0) means that the operator must change the number of ratio cycles manually, depending on the application. The calculated ratio cycles are as follows:

LOAD TIME	RATIO CYCLES
0 - 20 Seconds	One
21 - 30 Seconds	Two
31 - 100 Seconds	Three

PURGE ENABLE (BIT 5):

Making this position a one (1) will enable the purge function of the loader. Making this position a zero (0) will disable the purge function on the loader.

NOTE: This function works in conjunction with Bit 6.

PURGE AFTER EVERY CYCLE/ONE TIME PURGE (BIT 6):

NOTE: This function works in conjunction with Bit 5:

Making this position a one (1) causes the loader to purge (run air only through the material line) after every cycle while purge is enabled. This is the normal purge mode. Making this bit a zero (0) causes purge to react in the following manner **called one time purge**: When purge is enabled (Bit 5), the loader will purge for the entire load cycle time. Once complete, the program will disable (turn off) the loader and purge function.

This purge mode is useful when a one-time purging of the material line is desired after a long production run. To load again, you must re-enable the loader and both Bit 5 and Bit 6 functions from the loader configuration screen.

THE REMAINING POSITIONS ARE FOR FUTURE USE AND SHOULD ALWAYS BE SET TO ZERO (BITS 7 - 15)

LOADER TO SYSTEM ASSIGNMENT

One to four independent pump systems may be operated with the Intermediate Sentral Control. A "system" refers to all loaders that share a common pump and vacuum header (plumbing). Each loader can be assigned to a particular system via the loader configuration screen (See Figure 8). All loaders are preset (configured) to pump system A from the factory. (Note the "=A" on the screen, Line 4). To change this preset, move the cursor to the "=A" on the screen and use the left/right arrow keys to change the letter to designate the appropriate system. **CAUTION: The vacuum plumbing must be compatible with these settings!**

Systems A, B, C, and D correspond to pump numbers 1, 2, 3, and 4, respectively (Factory preset - see Pump Assignment, Figure 10 to alter this setup).

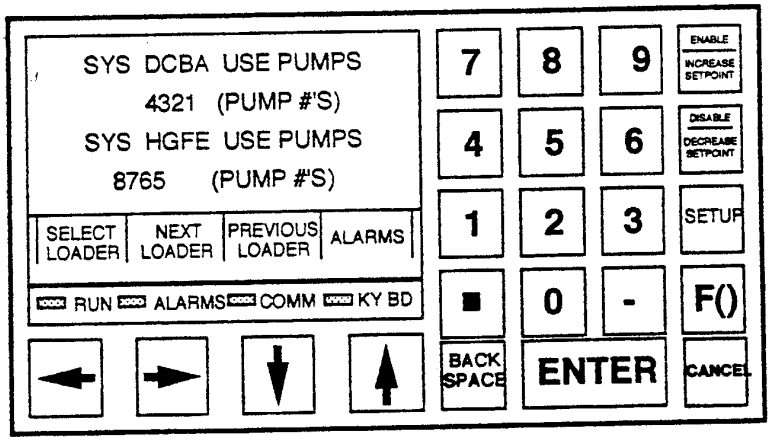
PUMP ASSIGNMENT

The Intermediate Sentral Loader Control has the minimal ability to control 10 loaders off 2 pump systems, plus a back-up pump. The Intermediate model is limited to one additional 10 station LED module for a maximum of 20 loaders and 4 pump systems, plus a back-up pump. Assigning a system to run off a particular pump is accomplished from the **pump configuration screen.** Press the "Setup" key again, from the main setup/loader select screen. You will now be on the pump configuration screen shown in Figure 10. To change pump assignments, move the cursor to the correct position and change the pump number. NOTE: "0" = Back-up Pump.

SYSTEM OPERATION CAN BE DRAMATICALLY ALTERED WHEN CHANGING VALUES IN THIS SECTION OF SCREENS. AUTHORIZED PERSONNEL ONLY.

WARNING!!! WHEN MOVING A SYSTEM TO ANOTHER PUMP, YOU MUST CHANGE THE VACUUM HEADER PLUMBING OVER AS WELL, TO THE PUMP THAT IS SELECTED. AUTHORIZED PERSONNEL ONLY!!

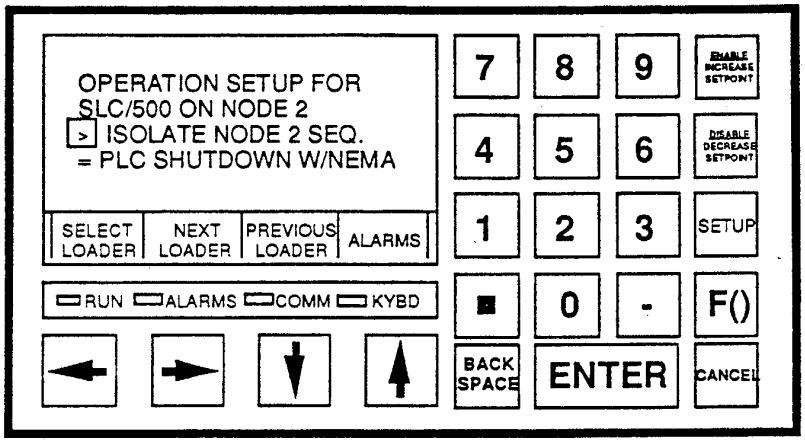
FIGURE 10 - PUMP CONFIGURATION SCREEN



PLC OPERATION SETUP

The way in which the SLC (The A/B processor in the I/O station) interfaces with the Keypad/Display Module (Nematron unit) can be changed via the screen shown in Figure 11. This screen is accessed from the main setup screen by pressing the F() key. Two characteristics can be altered from this screen: Sequencer Operation and PLC Shutdown Selection.

FIGURE 11- PLC OPERATION SCREEN



SEQUENCER OPERATION

The sequencer operation on the A/B SLC-500 is what prevents the system from loading more than one loader at a time. If two SLC's are being employed (when more than 10 loaders are on a system), they may have to share sequencer and loading information **via the Operator Panel** (Nematron unit). This option (line 3 on the screen) will either enable or disable the Nematron's ability to share this information between systems ("Node 2 Seq. Share"), or to isolate the SLC's from each other, causing each to operate independently (Isolate Node 2 Seq.) This function is set to "NODE 2 Seq. Share" as shipped from the factory. Always leave this setting enabled ("Node 2. Seq. Share) unless specifically instructed otherwise by Conair Service personnel.

PLC SHUTDOWN SELECTION

The operator has the option to select in which manner the SLC-500 will shut-down (line 4 on the screen). The default is "PLC shutdown w/Nema". This indicates that whenever the Operator Panel (Nematron) loses power or ceases to communicate to the SLC, the SLC outputs will shut down 5 seconds later. This effectively disables all loaders and pumps, creating a central shutdown. Pressing the "Enable" key will display "PLC shutdown Indepnd" indicating that the SLC will continue to operate the loaders and pumps whether the Operator Panel is "Up" or not. Pressing the "Disable" key will place the system back in the "PLC shutdown w/Nema" mode.

PURPOSE: Allows for ease of central shutdown of system, or protects your system from an inadvertent shut down due to loss of power, or communications from the Operator Panel. Run normally in the "Indepnd" mode and change to "shutdown" just prior to a planned system shutdown. Switch the power off on the Operator Panel when shutdown is desired. On re-start up, turn power back on and re-select the "Indepnd" mode.

OPERATING INSTRUCTIONS
SYSTEM START-UP

LOADER SETTINGS

In this section, you will find how to adjust loader settings such as load times and ratio cycles, and you will be introduced to the various menu screens you will use in the operation of the Intermediate Sentral Control System.

In system start-up, you will follow these steps:

1. You must have completed the installation of the components, field wiring, and power connections.

2. Review this section of the manual.

3. Turn on power to the Operator Control Panel.

4. Turn on power to the I/O Station(s).

5. Adjust settings as required for each loader that you have on your system.

6. One at a time, enable your loaders and operate the system.

Your Intermediate Sentral Control will store the values and settings you put in as part of the start-up process, even in the event of a power failure. Those settings will be recalled each time the control prompts an action on the system. You may adjust the settings at any time, whether the system is in operation or not. Loaders will fill automatically on demand, pumps will be powered up and shut down, optional valves such as ratio valves (if present) will be cycled.

SEQUENTIAL LOADING

Each pump system will operate independently. Only one loader per pump system will be allowed to load at one time. This is called a "sequential" loading system. It allows multiple loaders to be operated (vacuum powered) off one system pump. When loaders are "Enabled" (turned on), the control will include them in a continuous scanning process, looking for material demands. Various types of devices are used to communicate a demand, including solid state proximity sensors.

When a material level is below a demand sensor position on a given loader, the control recognizes the signal from the sensor. The control either operates a load sequence for that loader immediately, or stores that loader's station number in a "queue" if another station is already being loaded. Loader stations stored in a queue are addressed numerically, in ascending order. If all demands are satisfied on a given pump, the pump and loaders will shut down, but the control will continue to scan all enabled loaders for new material demands.

How long a given loader is allowed to load material, how much time is spent pulling regrind, and many other settings are described in this section. By carefully proceeding through the start-up process, you will limit the amount of "fine tuning" you will need to do later.

For your reference, a table is presented in Figure 12 which includes all the variable loader settings provided, with ranges and factory presets. Each setting will be described in more detail.

FIGURE 12 - TABLE OF LOADER SETTINGS

SETTING NAME	UNIT	FULL RANGE / NORMAL RANGE	FACTORY PRESET
ENABLE / DISABLE	ENABLE/DISABLE	ENABLE / DISABLE	DISABLED
LOAD TIME (LOAD TM)	SECONDS	1-300 SECONDS / 3-50 SECONDS (Depends on loader size)	5 SECONDS
DUMP TIME (DUMP TM)	SECONDS	1-300 SECONDS / 2-10 SECONDS (Depends on loader size)	2 SECONDS
% REGRIND	% OF LOAD TIME	0-100 % / (VARIES)	0%
PURGE TIME (PURGE TM)	SECONDS	1-300 SECONDS / 5-30 SECONDS (Depends on material line length)	5 SECONDS
RATIO CYCLES (RATIO CYCL)	CYCLES	1-3 CYCLES / (Normally calculated by autocalc- see setup)	AUTOCALC
MATERIAL ALARM (MATL ALM CHK)	CYCLES	1-20 CYCLES / 2-5 CYCLES	5 CYCLES
LOADER SYSTEM ID (adjusted in Configuation, LDR CONFIG SCREEN)	LETTERS A-D	A-D / A-D	A

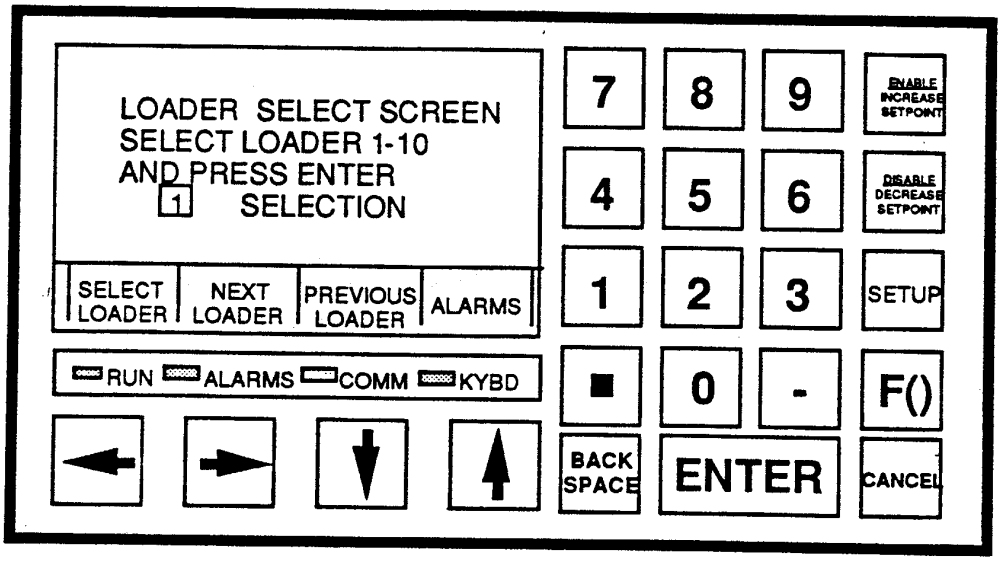
OPERATING INSTRUCTIONS
SYSTEM START-UP

All operator data entry for the system is accomplished via the Operator Panel Keypad. This 4-line vacuum fluorescent display with keypad is used to access and change all user data stored in the SLC. A simple menu system allows changes to be made to any loader with just a few keystrokes. Once data is entered via this keypad, it may be "Disabled" so that non-authorized users can look at the data, but not change it. Disabling the keypad is described in the next two steps.

LOADER SELECTION SCREEN

Loader selection is accomplished by pressing the "Select Loader" key. The screen in Figure 13 will then be displayed. (Entering the number of the loader desired and pressing the "Enter" key will bring up loader screen 1, discussed later in this section).

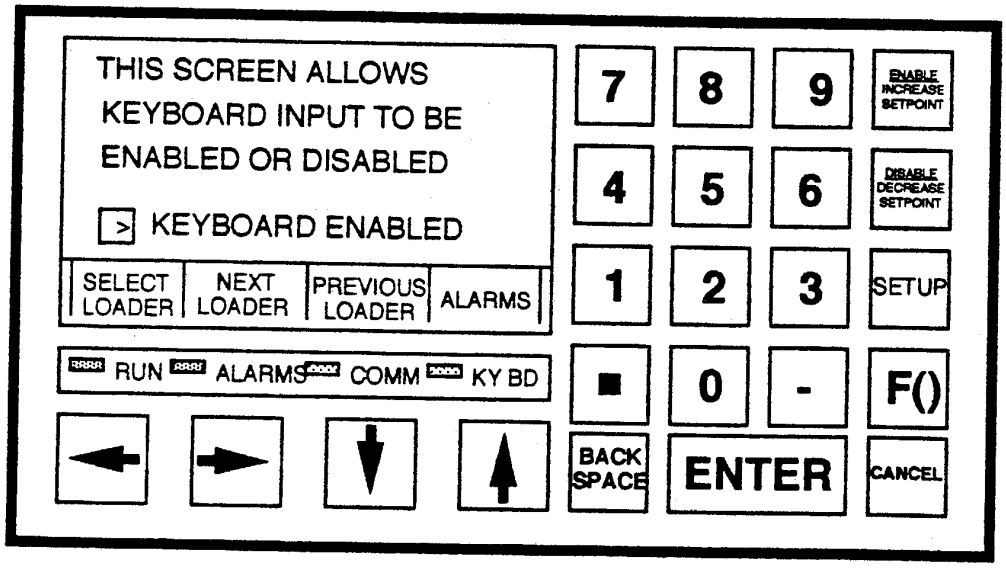
FIGURE 13 - LOADER SELECT SCREEN



KEYBOARD ENABLE/DISABLE

If the "F()" key is pressed from any loader screen, you will be prompted for a password. This is a different password from one for configuration screen access and is also available from Conair Service Department. Once this password is entered, a screen will appear as shown in Figure 14. The keyboard input may be enabled or disabled from this screen by pressing the enable or disable buttons. While keyboard input is disabled, the operator may view all data and screens, but no changing of data values is allowed. The keyboard indicator (labeled "KYBD") on the Operator Panel Interface will go out when keyboard input is disabled. When finished with this screen, press cancel to return to loader screens.

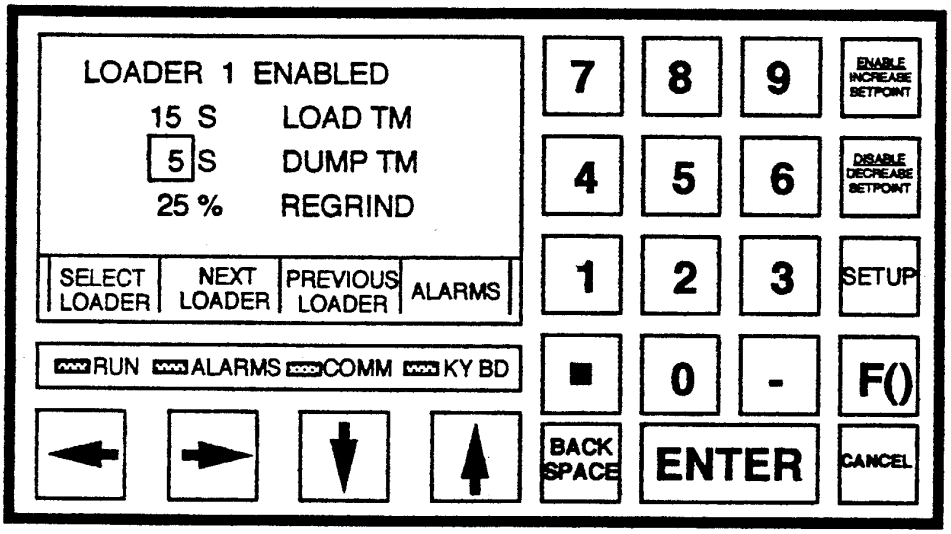
FIGURE 14 - KEYBOARD SCREEN



SELECTING A LOADER

Pressing the "next loader" keys (while in the loader selection screen) beneath the display screen will advance the screen to the next loader (or press the display infor key located beneath each loader station on the LED status panel). In either case, the selected loader info will pop up on the screen display as depicted in Figure 15.

FIGURE 15 - LOADER SCREEN #1



OPERATOR CHANGES

Once the loader screen is displayed, changes may be made very easily. To change a value, use the up or down arrow key to move to the desired line. Data is changed by pressing the numeric keys and pressing "Enter". The info presented on the Screen for each loader is as follows. (Reference Figure 15)

LOADER SCREEN 1:

ENABLE/DISABLE LOADER (ON/OFF)
The first line of the screen contains the enabled/disabled status of the loader. The status may be changed by pressing the "Enable" or "Disable" key in the upper right hand corner of the keypad. The screen message will change to the appropriate status. In addition, the green LED on the LED status panel will change status, indicating whether the loader is enabled or not.

LOAD TIME (LOAD TM)
This setting determines the amount of time (in seconds) a loader is open to the vacuum line, creating airflow to pull material into the loader body. To change the value, use the up or down arrow keys to get to the second line, then enter the value desired and press "Enter", or use the "Increase Set Point" or "Decrease Set Point" keys and press "Enter". If your loader is equipped with a volume fill sensor, the sensor will act as a high level shut-off, overriding the load time. If the load time is not sufficient to bring the level of material up to the volume fill sensor, an alarm can be enabled that will prompt the user to increase the load time. See System Configuration, high level sensor alarm enable, for details.

DUMP TIME (DUMP TM)
This is the unload time for the loader. On gravity discharge loaders, this setting acts as dead or dwell time between repeated fills of the same loader station to allow the loader to completely dump its load of material. It also functions as a positive discharge valve open time if that function is included on the loader. To change the value, use the up or down arrow keys to get to the third line, then enter the number desired and press "Enter", or use the "Increase Set Point" or "Decrease Set Point" keys and press "Enter".

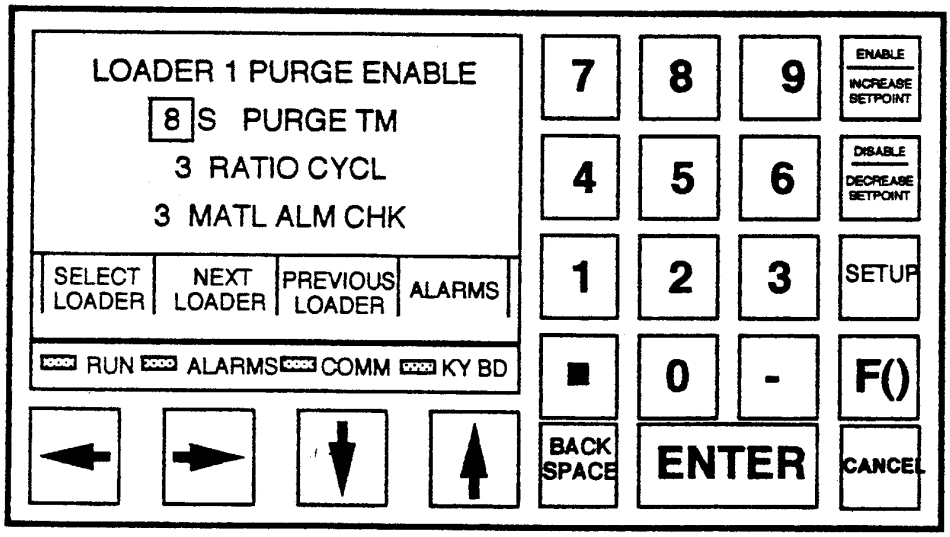
NOTE: If multiple gravity discharge loaders are operating, the load time of the next loader station to fill starts during the dump time of the previous. This maximizes available system operating time.

% REGRIND
This is the percentage of the set load time during which regrind material will be loaded. This function has no effect on loaders that do not have ratio valves. To change the value, use the up or down arrow keys to get to the fourth line, then enter the number desired and press "Enter".

LOADER SCREEN 2:

A second screen of loader information is available by using the down arrow key from the fourth line of Screen 1. This will cause the cursor to automatically jump to Screen 2: Line 2. (The first line under the heading). Using the up arrow key from this position will cause the cursor to move back to Screen 1: Line 4. Screen 2 appears in Figure 16.

FIGURE 16 - LOADER SCREEN #2



PURGE TIME (PURGE TM)
This is the amount of time following a load cycle in which the vacuum pump will pull air while the material source is blocked (valved) off. This function clears the line of any excess material still in the line following loading. This feature is often utilized when conveying dried material from a dryer station to process. The time needed to clear (purge) a line depends primarily on the conveying distance. To change the value, use the up or down arrow keys to get to the second line, then enter the number of seconds desired and press "Enter", or use the "Increase Set Point" or "Decrease Set Point" keys to get to the desired value and press "Enter".

RATIO CYCLES (RATIO CYCL)
Ratio Cycles is a value that is divided into the load time to create "Mini-Loads" which better distribute regrind material among the virgin pellets. One ratio cycle consists of one shot of virgin material and one shot of regrind material. This value is calculated by the program based on load time automatically unless **the AutoCalc function is disabled** in the loader configuration mode (see Configuration Section for values in the automatic program). If AutoCalc is disabled, you may set 1 - 3 ratio cycles manually in this setting.

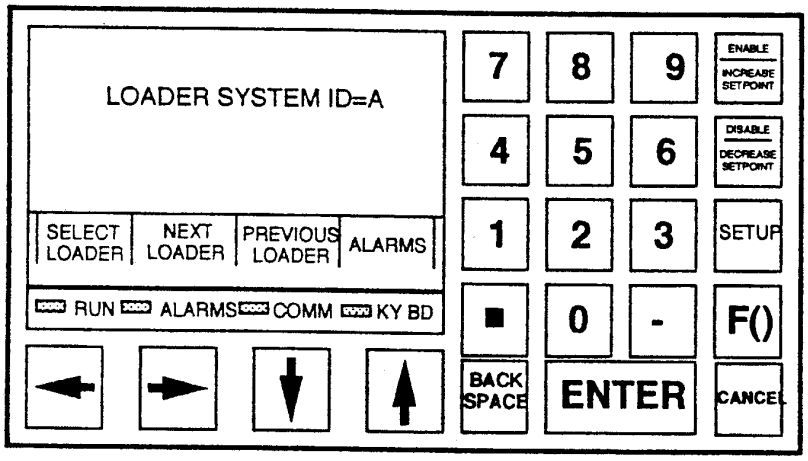
MATERIAL ALARM CHECK (MAT ALM CHK)
The material alarm check is the number of times that a loader may complete a load cycle without satisfying the demand switch before causing a material alarm condition. **5 cycles is set at the factory.** A smaller number will be give an earlier warning of a material outage or feed problem, while a large number might make more sense when filling a large bin or hopper.

NOTE: The control does not start "counting" the load cycles until the demand switch has been satisfied one time.

LOADER SCREEN 3:

A third screen of loader information is available by using the down arrow key from the fourth line of Screen 2. This will cause Screen 3 to appear. Using the up arrow key from this position will cause the cursor to move back to Screen 2, Line 4. Screen 3 is depicted in Figure 17.

FIGURE 17 - LOADER SCREEN #3



LOADER SYSTEM ID (LETTER)
Read only - You must make any changes from the loader configuration screen. This screen allows you to only view the system assignment (designated by the letters A, B, C, or D) of each loader. **The loader must be vacuum connected (plumbed) to the pump system selected.**

Now that you have reviewed this section, you should begin to enter data into the Operator Control Panel for the loaders you want to run on the system. It is very helpful to "plan" your system and keep a written record of the settings stored for each loader. See Appendix A for helpful Setup Plan and System Setup Record Sheets to copy and use to record your data.

OPERATING INSTRUCTIONS
SYSTEM OPERATION

SYSTEM MONITORING:

ALARMS

Two types of alarms are included. In either of these two alarm situations, the red alarm on the LED status panel will light and the audible horn will sound (at the I/O Station). Pushing the "alarms" key on the Operator Panel will automatically display the last alarm message recorded with a time and date indication (stamp).

One alarm is a **material load problem alarm** which can occur for two reasons. The first is a loader which loads repeatedly without satisfying the demand sensor. If the number of times this happens is more than the value located in "Mat Alm Chk" on loader Screen 2, an alarm condition occurs. The second is when a loader is configured to use a volume fill sensor, and its load time times out before the fill sensor is satisfied. In both cases the alarm will annunciate as described above and the **green** loader "Enabled" LED for that loader will blink on and off continuously until the loader is disabled or the alarm is corrected (material condition satisfied).

A second alarm that can occur is caused by a **pump overload** condition. This alarm is prompted if the overloads on a pump trip. In this situation, it is best to shut off power to the pump's associated I/O Station until the problem is solved, unless the system is transferred to back-up pump. Pump overload alarms are annunciated as described above.

Pressing the "Alarms" acknowledge key (just below the screen) at the operator panel will display the current alarm condition. Pressing "Enter" to acknowledge the alarm will silence the audible portion of any alarm. If another alarm occurs the audible portion of the alarm will be re-energized.

OPERATING INSTRUCTIONS
SYSTEM OPERATION

Once the system is set up and operating, the Operator Panel should be frequently monitored for any alarm conditions, and for general efficient system balance and performance. Keep the panel labels up to date with accurate ID's of stations and systems. Another good idea is to keep a log of the system setup, settings, changes made and alarms. Such information can be valuable in making improvements to management and control of the system and the processes it serves. (SEE APPENDIX A for LOG SHEET to use for system data recording.)

LOADER MONITORING:

A. **DEMANDS** - loader demands should not be too frequent. Enough load time should be set to move an ample load of material during each load cycle. This minimizes loader cycling and pump starts, saving wear and tear, and reduces operating utility and maintenance costs. It will also help greatly in reducing nuisance material alarms and system downtime. Be sure that enough dump time is set (usually 5 - 8 seconds) to allow a loader to completely empty before another cycle on the same station starts. Do not set excessive dump times, which only wastes potential loading time.

NOTE: Loader stations not active should be turned off (disabled) to insure against dry cycling, which wastes energy and causes nuisance alarms and reduces the lbs/hr conveying rate of the system.

B. **CONVEYING PROBLEMS** - Look for loader stations with constant or frequent demands. A constant loader demand indicates either a demand sensor problem on the loader, or a material conveying problem. If a material source problem is not readily apparent, check the loader dump valve position demand sensor to see if the "demand" is true or false. If the valve is open and the vessel full, then a false demand exists, most likely due to the demand sensor.

If the demand sensor does not read correctly, adjust or replace it. If the demand is true, check the loader for leaks, vacuum tightness, and clean filter. Also, check the vacuum and material hoses at the loader for holes, etc.... If the loader checks OK, then perhaps a line leak or break, a poor take-off or material pick-up adjustment, or a material source bridging/rat-holing problem exists. Check your material source for these items and insure you have a good material-to-air ratio situation at the material source (good material flow without excessive slugging).

TIP: To avoid conveying problems on common line systems (where one material line feeds all loaders, branching off to each one), make sure the loader assignments match the true position of the loader starting closest to the material source and moving away. (i.e.: Make loader #1 on the control panel the first loader on line, Make Loader #2 the next, and so on....)

C. **LOADER ALARMS** - The MAT ALM CHK function is factory set at 5, which means that a loader that cycles 5 consecutive times without satisfying demand will activate its material alarm. This is a warning that the process it serves, is or will, be out of material. This count needs to be set to the best number for your particular loader, vessel, or process throughput. Direct Feed type loaders, such as K-Loaders, need a lower count due to their small reserve. As a rule, set as low as practical without creating nuisance alarms, permitting early warning of a potential material outage. If your loader includes a volume fill sensor, you may set the system to alarm on non-achievement of the volume fill (high level) point. See System Configuration (Section 3) for details.

D. **MATERIAL CHANGES** - Efficient material changes at a loader station require good coordination and timing in order to minimize the material run out/clean out required. It is very helpful to correctly time when to shut-off to the loader. Take into account the need to purge material in the line, as well as barrel inventory, receiving vessel inventory, and loader inventory. Divide this "on-line" available material total by the process throughput required to calculate how early to shut off the loader.

PUMP MONITORING:

A. **PUMP LOAD BALANCING** - When more than one pump system is involved, monitor each for total load with all stations operating at peak process demands to see if any pump(s) may be working too heavily. Try to keep the pump systems load balanced for minimal pump wear problems and to insure ample capacity on all systems during peak load periods.

Look for frequent demands and/or material alarms on a system that might indicate an overloaded condition. If the setup parameters and conveying conditions check OK, then it may be necessary to transfer a loader or two to another system with less load.

REMEMBER - You must change the vacuum plumbing accordingly when re-configuring a loader from one system to another.

B. **CONVEYING PROBLEMS** - If system-wide conveying problems exist, be sure to check that system's pump and dust collector for required maintenance. The dust collector filter cartridge or the pump filter cartridge may need to be cleaned. The pump's mechanical relief valve should be set to open at 12" Hg. (Lower settings may cause it to open under normal operating conditions.) Pumps may require service such as belt changes or tightening, or oil and lubrication.

C. **PUMP ALARMS** - Should a pump's electrical overload "kick-out", the cause of the overload needs to be determined as quickly as possible and fixed. Also, since all loaders on that pump system are "down" as well, there is the back-up consideration. Choose one of the following approaches best suited to your particular system setup and logistics:

APPROACH 1:

Dispatch a qualified person to the pump and check for the plugged FILTERS at pump and/or dust collector. Check vacuum pump for excessive heat - make sure oil level and lubrication are satisfactory. Push the RESET on the pump starter to start the pump - MONITOR the pump sound, relief valve, and vacuum gauge as the system goes through the entire load cycle. LISTEN & LOOK for any abnormalities as the system cycles from loader to loader. You are looking for a high vacuum condition on one loader or the entire system., and to see if the RELIEF VALVE on the pump is functioning as it should. The system should operate at 12" Hg or less. The mechanical relief valve should open above that value, by 14" Hg maximum. The valve will chatter and squeal when it opens.

The cause of HIGH VACUUM must be defined and corrected. Is the condition prevalent on the entire system, or isolated to one loader station? If isolated to a particular station, check that loader for a PLUGGED FILTER or a stuck SEQUENCE VALVE. A stuck or malfunctioning sequence valve will "deadhead" the system, create high vacuum, and cause the relief valve to open. If the relief valve fails or is adjusted too high, the pump may overheat and kick out. A SLUGGED OR PLUGGED material line is another possible cause of high vacuum and/or pump overload. Readjustment of the air-to-material mix at the pick-up point may be required.

APPROACH 2:

Switch to your back-up pump in order to get your system loaders operating and to avoid downtime in your process. This is very fast with an automatic backup pump system. Then check out the offline pump and system conditions with the backup pump online, to define the cause of the problem.

NOTE: Carefully monitor the back-up pump through a complete system cycle to see if the problem condition still exists. This would tend to be so, if the problem is with a loader or loaders, rather than the pump itself.

APPROACH 3:

If no separate back-up pump exists, and you have sufficient load time capacity on another system pump, AND THE NECESSARY VACUUM PLUMPING IN PLACE, then you can configure the down system loaders over to the other system until the pump problem can be defined and cleared. CAUTION: If the problem is loader (rather than pump) related, you will be jeopardizing the other system as well. Be sure that the pump is the true problem when using this approach.

MAINTENANCE

A. ROUTINE MAINTENANCE

Very little routine maintenance is required for the control system.

1. Periodically check the I/O Station Filter(s) and clean or replace. The frequency will depend on your operating environment. This is important for efficient air circulation to keep the control electronics from overheating, and to keep the panel components clean and relatively dust free.

2. Periodically inspect the panels for damage, broken lights, switches, etc... Panel doors, hinges, and gaskets should be in good condition and secure. Repair and/or replace as required.

3. When checking filters, also inspect panel wiring in general to ensure secure, in good condition, and tight terminal connections. Check fuses and their seating.

4. Periodically clean the Operator Panel Keypads and screen and inspect for any damage.

TROUBLESHOOTING GUIDE

Before troubleshooting, refer to the installation and operation sections of this manual to insure that your installation and the system setup is correct.

The following guide is provided as an aid in troubleshooting various problems or symptoms that may occur in the system.

INTERMEDIATE SENTRAL LOADER CONTROL TROUBLESHOOTING

SYMPTOM	PROBABLE CAUSE	CURE
Loader will not cycle	No 110 VAC power to control	Apply power
	Control fuses blown	Investigate/replace
	Short circuit has tripped the circuit breaker switch	Find and repair the short circuit
	Level switch not calling for material (demand): 1. Material tripping switch 2. Switch malfunction	 Normal condition Repair or replace switch
	Pump fuse blown	Investigate/replace
	Optional Volume fill sensor tripped	1. Clear sensor of material or other obstructions 2. Adjust sensitivity or replace sensor if required
	Plant wiring defective	Correct wiring problems
	A/B Control defective	Replace control module
	Solenoid malfunction on loader or dust collector	Repair wiring or replace solenoid as necessary
	Pump O/L tripped	Check at pump starter box and reset (Refer to Pages 5-4 thru 5-6 for additional actions)
	No compressed air at loader	Turn on or connect the compressed air supply

INTERMEDIATE SENTRAL LOADER CONTROL TROUBLESHOOTING (Continued)

SYMPTOM	PROBABLE CAUSE	CURE
(Optional) Ratio Valve malfunction	Ratio valve solenoid malfunction	Repair wiring or replace solenoid as necessary
	Air cylinder binding	Install lubricator in air line. Check air pressure (min - 60 psi req'd). Check cylinder for rod seal wear, and dirt inside cylinder
	Output option card fuse blown	Replace fuse
	Option output card defective	Replace output card
	Ratio option not selected in Configuration	Contact Conair Service Department, Ref. Pages 3-5 thru 3-8
Loader cycles properly, but little or no material flow	Dirty filter(s) on loader, dust collector, or pump (indicated by high reading on pump vacuum gauge)	Clean or replace filter(s) as necessary
	Incorrect setting at distribution box or pickup tube	Adjust air-to-material ratio setting on pickup tube or distribution box for best flow.
	Leaks in vacuum or material line (indicated by low reading on gauge at vacuum pump)	Repair leaks or replace hose as necessary
	Pump inoperative	Check/reset overloads on pump motor starter. Replace vacuum pump if necessary.

INTERMEDIATE SENTRAL LOADER CONTROL TROUBLESHOOTING (Continued)

SYMPTOM	PROBABLE CAUSE	CURE
Loader cycles properly, but little or no material flow (Continued)	No compressed air at Dust Collector	Turn on or correct the compressed air supply
	Relief valve opening at less than 12" Hg.	Clean valve with solvent and readjust to 12" Hg.
	Holes in system, caused by other loaders being cleaned or serviced	Check that all loaders on system are connected to vacuum line, hae compressed air, etc...
No display or power-up	Blown fuse in I/O Station (power LED not lit on A/B)	Check and replace fuses as needed in I/O Station, (In A/B SLC500 and in enclosure)
	Faulty Wiring	Check cable connections between A/B and Nematron - Refer to wiring diagram
Have Display, but can't change loader number	Switches are defective	Replace P/B - LED board
	Faulty communications wiring	Check communications wiring to all boards
Cannot enable the proper options or use options	Faulty communications wiring	Check communications wiring
	Faulty I/O Option Cards	Identify and replace bad card(s)
	No option card present	Order option card. Contact Conair Service Department.

We're Here to Help

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.

How to Contact Customer Service

To contact Customer Service personnel, call:

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.

Before You Call ...

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 loading control 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.

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.

SPARE PARTS LIST - INTERMEDIATE MODEL

CONAIR FRANKLIN
Part of the Conair Group

EQUIPMENT PARTS LIST

TO ORDER PARTS CALL TOLL FREE (800) 458-1960

Product: Sentral Loader Ctrl - Intermediate
REV #: CSM/1294
Instruction Manual:

Model No. :

Serial No. :

Assembly / Part Number(s)	Wiring Diagram Number(s)
107-432-02 (Rev E) (Control)	107-433-02 (Rev H)
107-435-01 (Rev D) (Interface)	107-435-03 (Rev C)
107-435-02 (Rev B) (LED Station)	

Reference Number	Part Number	Qty.	Description
1	107-432-02		Interface Control Assembly
2	209-605-14	Ref	Back-up Battery
3	107-433-02		Wiring Diagram/Electrical Parts
4	206-066-02	As Req'd	2 Amp Fuse
5.	206-103-16	As Req'd	1/2 Amp Fuse

This control assembly contains one of the following programs:

SLC11_4		Intermediate 10 Station - Single Tube
SLC11E_4		Intermediate 10 Station - Output Option
SLC12_4		Intermediate 20 Station - Single Tube
SLC12E_4		Intermediate 20 Statoin - Output Option

107-435-03 Interface Control Wiring Diagram/Electrical Parts

206-066-02	As Req'd	2 Amp Fuse
SLC11WS_4		Intermediate 10 Station - Nematron Program
SLC12WS_4		Intermediate 20 Station - Nematron Program

* Indicates recommended spare parts | ▷ Indicates revision change | *Italicized* indicates typographical error

SECTION

8

LIST OF CONAIR DRAWINGS - INTERMEDIATE MODEL

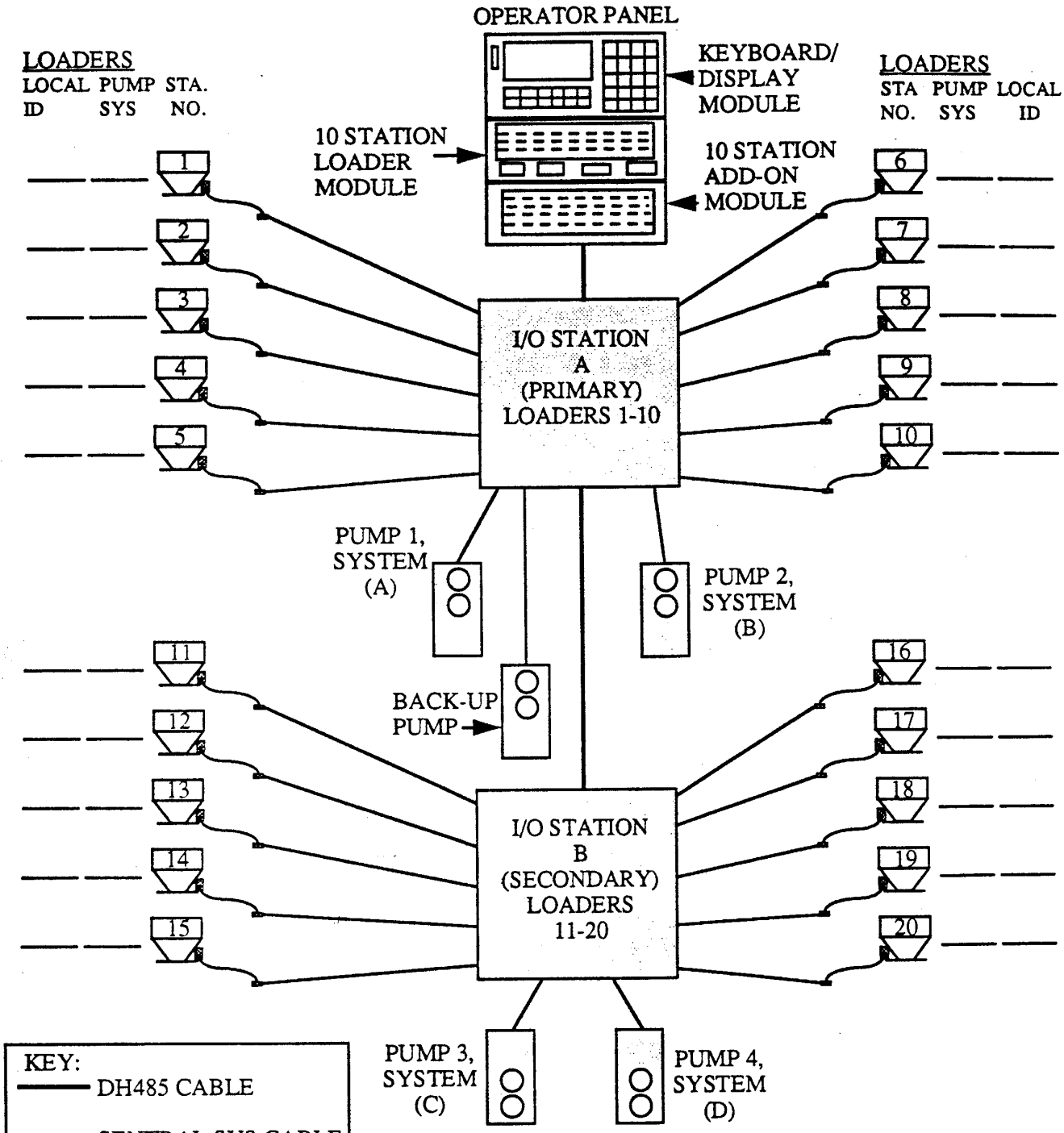
A. INTERMEDIATE MODEL DRAWINGS

107-432-02	Panel Layout	1 Sheet
107-433-02	SLC Schematic	2 Sheets
107-432-02	SLC Options Schematic	3 Sheets
107-433-02	Nematron Wiring (Operator Panel)	3 Sheets
107-435-01	Operator Panel (Interface Assembly)	1 Sheet
107-434	COM2 to IM485 (Cable Assembly)	1 Sheet

APPENDIX A

USER FORMS

SETUP PLAN SHEET



INTERMEDIATE SENTRAL SYSTEM

SYSTEM SETUP RECORD DATE_____

Loader Sys		Load TM (Sec)	Dump TM (Sec)	% Regrind	Purge Enable	Purge Time	Ratio Cycles	Mat'l Alrm Check	System ID
*1	A	30	6	20	Y	8	2	3	1 = A

* SAMPLE LINE - FOR ILLUSTRATION ONLY!

SYSTEM LOG DATE_____

Item	Time/Shift	Item Description	Action Taken
*1	9:12 a/1	Loader 8 - No Mat'l alarm	New gaylord @ pickup

* SAMPLE LINE - FOR ILLUSTRATION ONLY!